HP Operations Smart Plug-in for Microsoft® Exchange Server

for HP Operations Manager for UNIX®

Software Version: 12.00

User Guide

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Contents

1 Introduction

HP Operations Smart Plug-ins (SPIs) work in conjunction with HP Operations Manager (HPOM) to help you monitor, detect, solve, and prevent problems in your enterprise IT environment. The combination of HPOM and SPIs enables you to simplify the following tasks in your IT resource:

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

Microsoft Exchange SPI

The Microsoft Exchange SPI enables you to oversee your distributed Microsoft Exchange environment from a central, easy-to-use console. With the help of the Microsoft Exchange SPI, you can:

- Increase Microsoft Exchange availability and performance
- Reduce support costs associated with the Microsoft Exchange services
- Improve capacity management and planning for Microsoft Exchange

With the Microsoft Exchange SPI integrated into the HP Operations Manager (HPOM), you can apply the performance and problem management processes that you use for networks and systems to monitor Microsoft Exchange Server.

After you install and configure, the Microsoft Exchange SPI will monitor critical Exchange application/database resources including:

- Processes (for monitoring the amount of CPU time being used by core Exchange processes)
- Inactive Processes (for monitoring core Microsoft Exchange processes for activity and status)
- Exchange Services (for monitoring Exchange Server processes for activity levels)
- Message Transfer Agent (MTA) and Simple Mail Transfer Protocol (SMTP) message process data
- MTA Work Queue and SMTP Queues
- IS Public and Private/Mailbox Average Delivery Time
- Cluster environments
- Unified communication environment

The Microsoft Exchange SPI sends the information to the HPOM console through messages and alerts. You can also view the information in the form of reports or graphs.

Upgrading a Microsoft Exchange Node from DCE to HTTPS

If an Exchange server node is already managed under a DCE agent, make sure the HP Performance Agent log files are cleared before re-managing it under HTTPS.

To clean the log files, run the following command:

```
C:\usr\OV\bin\OpC\monitor\ddfutil.exe
"C:\usr\OV\exspi\dsi\log\exspi_data" -rm all
```

Working with the Microsoft Exchange SPI

The Microsoft Exchange SPI collects data from managed nodes according to rules and schedule specifications contained within the Microsoft Exchange SPI templates. The Microsoft Exchange SPI collects data related to health, availability, and performance of Microsoft Exchange Server. The Microsoft Exchange SPI stores the collected data into a data store on the managed node and sends alert messages to the HPOM message browser.

Data Collection

When the collection's scheduled time occurs, the Microsoft Exchange SPI collector/analyzer program runs and, if required, forwards metric values to the data store on the node. At the same time, the Microsoft Exchange SPI compares the collected metric data against predefined threshold settings and triggers alarms when violations occur.

The collected data is stored into the data store residing on the managed node, at pre-defined intervals.

Messages appear in the HPOM Message Browser with message details containing instruction text to help you diagnose problems. If HP Performance Manager is present, you can generate graphs from metric values. If HP Reporter is installed, you can view reports generated from the collected metric values.

Microsoft Exchange SPI Components

The following components appear on the HPOM management server after you install the Microsoft Exchange SPI:

- Templates
- Applications
- Service maps
- Message groups
- Reports and graphs

Microsoft Exchange SPI Templates

Templates include the details that help the SPI collect data from managed nodes at a regular interval of time, compare the data against preset thresholds, and generate alarms in the event of threshold violation. The Microsoft Exchange SPI provides you with a range of templates that enable you to monitor the health of your Exchange environment. Installing the Microsoft Exchange SPI adds the SPI for Exchange template folder to the HPOM console tree. You can double-click **SPI for Exchange** to display the Exchange 2007, Exchange 2003, and Exchange Service Discovery folders. By selecting a template group in the console tree, you can see the underlying templates and template sub-groups in the details pane.

For a complete listing of templates, see the *HP Operations Smart Plug-in for Microsoft Exchange Server Reference Guide*.

Microsoft Exchange SPI Service Discovery

The Microsoft Exchange SPI discovers Exchange services on HPOM managed nodes. Exchange service discovery requires the HP Service Navigator, which can be installed on the management server with other components when HPOM is installed initially, or installed alone at a later date. Refer to the HPOM Installation Guide for more details.

Microsoft Exchange SPI Service Maps

The service graph generated by the Microsoft Exchange SPI Service Discovery application is a snapshot of the Exchange services on the managed nodes at the time at which the application is run. The discovered Exchange topology is maintained in HPOM and dynamic views are available of its current state in the service maps and views.

Figure 1   Example Service Map
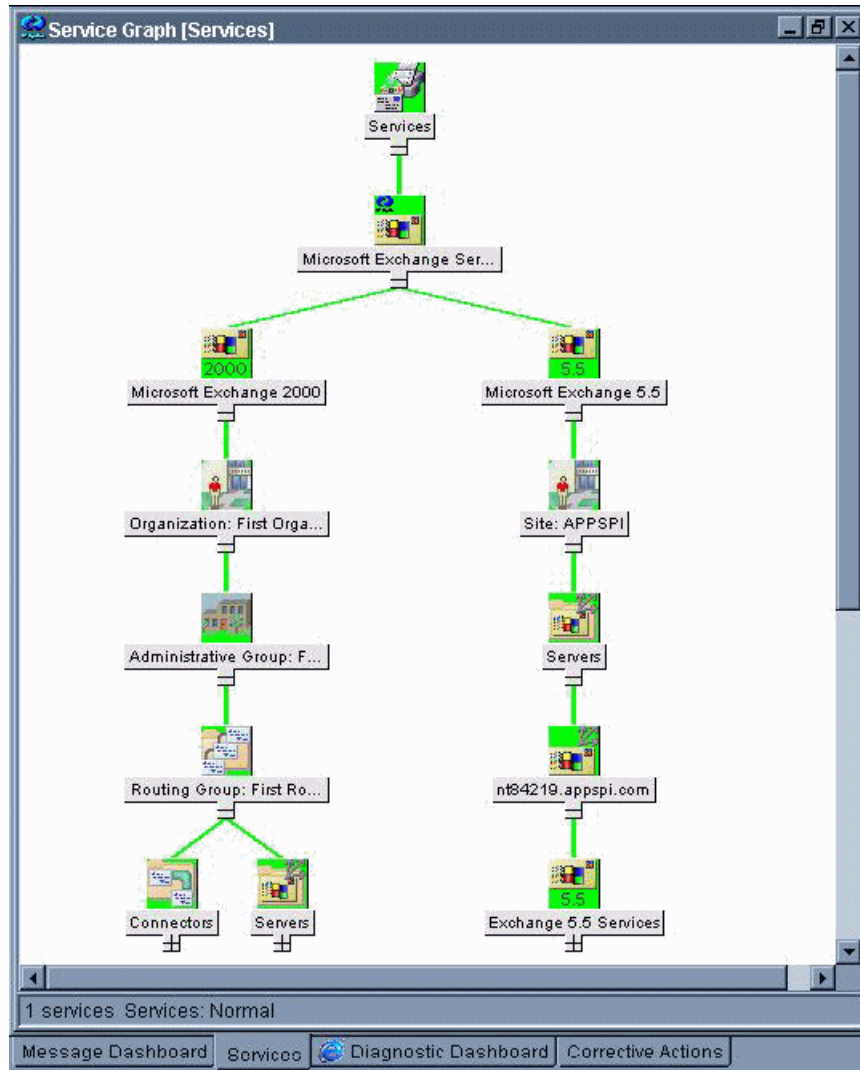
Template Groups

The top level of the template Groups is:

SPI for MS Exchange

>   Exchange 2007

>   Exchange 2003

>   Exchange Service Discovery

Exchange 2007

The templates for Exchange 2007 are organized into the Standard Groups. In those folders the templates are arranged in the following groups:

- Availability

- EXSPI Client Access (EX2007)

- EXSPI Cluster(EX2007)

- EXSPI Edge Transport Server
- EXSPI Hub Transport Server
- EXSPI EXBPA Integration
- EXSPI Mailbox Server
- EXSPI Unified Messaging Server

Refer to the *SPI for Microsoft Exchange Server Reference Guide* for more information on the templates for Exchange 2007.

Exchange 2003:

The templates for Exchange 2003 are organized into Specialized Groups and Standard Groups. In those folders the policies are arranged in the following groups:

EXSPI Specialized Groups

- EXSPI Exchange Server
    - EXSPI Message Delivery
    - EXSPI Server Availability
    - EXSPI Server Transaction Logs
- EXSPI Site Replication Server

EXSPI Standard Groups (Ex2003)

- EXSPI Availability
- EXSPI Client Access (Ex2003)
    - EXSPI IMAP4
    - EXSPI MAPI
    - EXSPI OWA
    - EXSPI POP3
- EXSPI Cluster (Ex2003)
- EXSPI Directory
- EXSPI Information Store (Ex2003)
    - EXSPI Epoxy (Ex2003)
    - EXSPI Full Text Index
    - EXSPI Mailbox (Ex2003)
    - EXSPI Performance (Ex2003)
    - EXSPI Public Folder (Ex2003)
    - EXSPI Transaction Log
    - EXSPI Virus Scan
- EXSPI Messaging
    - EXSPI MTA
    - EXSPI NNTP
    - EXSPI SMTP

- – EXSPI Tracking Log
- EXSPI OVO Exchange SPI core
  - – EXSPI Data Collection

For a complete listing of templates, see the *HP Operations Smart Plug-in for Microsoft Exchange Server Reference Guide*.

Exchange Service Discovery

This group contains EXSPI_Discovery_2k7 and EXSPI_Discovery_2k3 for service discovery.

Template Types

Within the Exchange group are:

- **Schedule** templates that determine when and what metrics are collected
- **Monitor** templates that implement the actual metric condition (threshold, object, message text, instructions, etc.)
- **Message** templates that intercept the Microsoft Exchange SPI messages
- **Logfile encapsulator** templates that monitor for Exchange server related messages in the Windows event log, and send them to the HPOM Message browser.

For information on customizing template settings, see Basic Customization on page 67.

Microsoft Exchange SPI Application Groups and Applications

The Microsoft Exchange SPI applications enable you to perform certain tasks on managed nodes to simplify monitoring Microsoft Exchange Server. Applications also help you configure the managed nodes to facilitate data collection process.

You can view the Microsoft Exchange SPI applications in the OVO Application Bank window under **EXSPI Admin**, in the **Exchange 2007** and **Exchange 2000 and 2003**. To open the OVO Application Bank, select **Window > Application Bank**.

Figure 2   EXSPI Admin Application Group in the OVO Application Bank Window
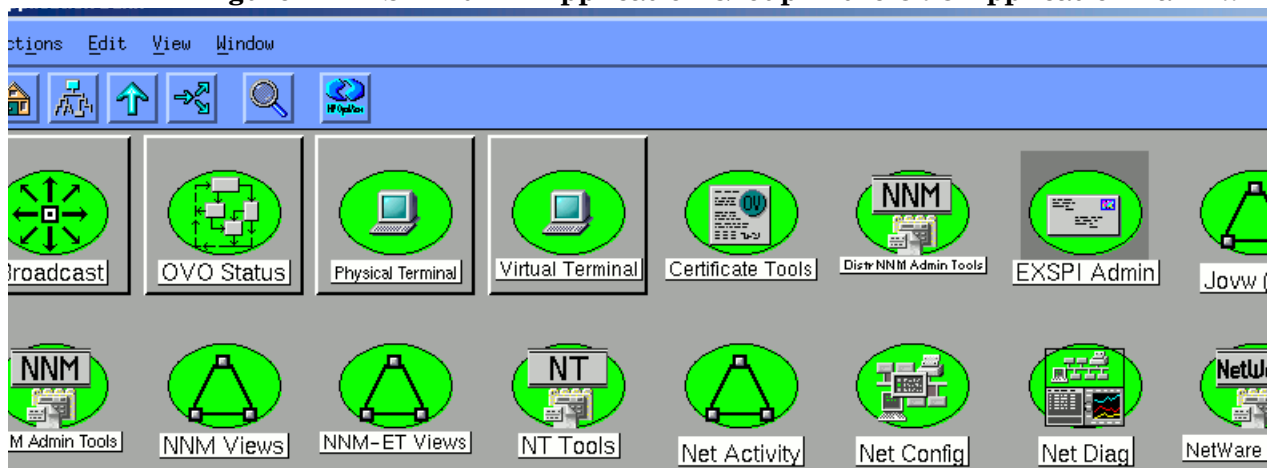
Exchange 2000 and 2003 Applications

Figure 3   Exchange 2000 and 2003 Microsoft Exchange SPI Applications
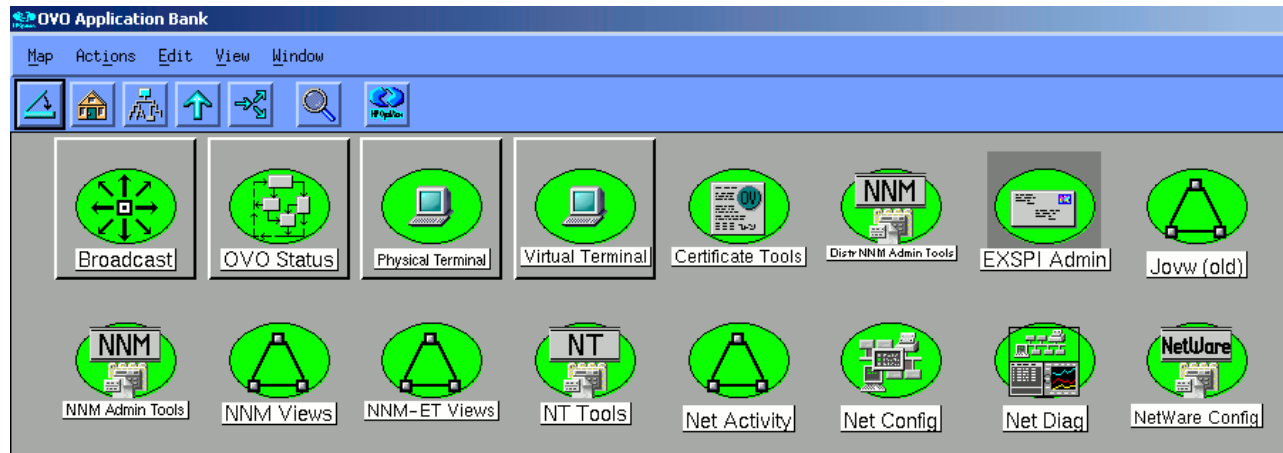
In the **Exchange 2000 and 2003** group are the following applications:

- *EXSPI Add DataSource*: Microsoft Exchange SPI application to configure data sources and start the logging of data.

- *EXSPI MBOX Config:* Starts the mailbox configuration program that automatically creates a mailbox.

  — The script supports two options. The syntax is:

    ```
    exspi_e2k_cfg [-m mailBoxName] [ -ou OU ]
    ```

    – -m (optional parameter) is the mailBoxName prefix.

    – -ou (optional parameter) is the Organizational Unit.

    – If the -m parameter is not specified, the default prefix is MSXSPI.

    – The mailbox enabled service account is created as MSXSPI<hostname>. This mailbox name is added to the exspi\defaults file as line `MAILBOX mailBoxName`.

    – If the -ou parameter is not specified, the mailbox will be created in the USERS container.

  — By default a mailbox named MSXSPI*<hostname>* is created on the Exchange server where "hostname " is the name of the Exchange server.

  — The mailbox is created hidden from the GAL.

- *EXSPI Node Config:* Configures the service account with special Exchange privileges (MSXSPI) on the managed node. This account is for templates distributed in the Advanced Configuration section.

- *EXSPI Ping Config*: Configures the Advanced Configuration template: End To End Message Ping.

- *Self-Healing Info*: This application gathers system information (command output, configuration, log and trace files), and writes this data to a file which HP support services can use during troubleshooting. For more information, see Self-Healing Information for Enhanced Troubleshooting on page 113.

- **Enable Message Tracking** (for Exchange 2003 only*)*: Turning message tracking on will cause the Exchange server to write tracking log files. The Microsoft Exchange SPI track log schedule template parses these log files to collect data for the four tracklog reports: Exchange Top Destinations, Exchange Top Recipients, Exchange Top Senders, and Exchange Top Sources.

- **Enable EXSPI Tracing:** Enables tracing; default setting is OFF. This application is generally used for troubleshooting. When tracing is turned on the results are written to: `%OvAgentDir%\exspi\log\trace.`   Note: The trace file will grow very large. It is advisable to leave tracing enabled only long enough to recreate the problem, or in order to comply with HP support instructions.

- **Disable EXSPI Tracing:** Disables tracing; (default tracing setting is OFF).

- **Enable Data Logging:** Starts Microsoft Exchange SPI data logging, the default setting is ON. This is normally used after Disable Data Logging, to restart data logging.

- **Disable Data Logging:** Stops Microsoft Exchange SPI from logging data.

- **EXSPI Cluster Config**: The Exchange Cluster Config application prints apminfo data, which can be used to create the *apminfo.xml* file used by the Microsoft Exchange SPI to recognize clustered instances. For further information about Microsoft Exchange SPI monitoring clusters, see Using the Microsoft Exchange SPI in High-Availability Environments on page 61. **Regarding privileges**: This application can be run as any account that has the ability to read wmi, such as a Domain admin or an Exchange admin account

- **Mount Exchange DB**: This application can search for and mount dismounted mailboxes or public folder store databases. It requires the user name and password of a special account that has Exchange administrative privileges, as the application must be modified with this info before executing, see Creating a Service Account for Exchange 2003 Nodes on page 131.

  The application can take one or all of the following parameters:

  — **-s**   Search for dismounted databases.

  — **-m** Search for dismounted databases and attempt to mount any found.

  — **-p**   Print the output.

  — **-a**   Forward an alarm message to the HPOM Management server.

  — **-t**   Timeout: the time the tool can take to re-mount a dismounted database (in seconds). If not provided, the script will automatically set the timeout value to be 5 seconds. If the database cannot be remounted within the time frame given, you can set a higher timeout value, e.g. 30 seconds. If remounting the dismounted database still fails, and there is not an error in the output of the tool, there is probably a problem with the Exchange information store service.

- **EXSPI List CODA Data Sources:** Lists the data sources and objects in CODA. Run it after executing "EXSPI Add DataSource" so you know if the EXSPI_DATA data source was created or not.

Exchange 2007 Applications

Figure 4   Exchange 2007 Application Bank
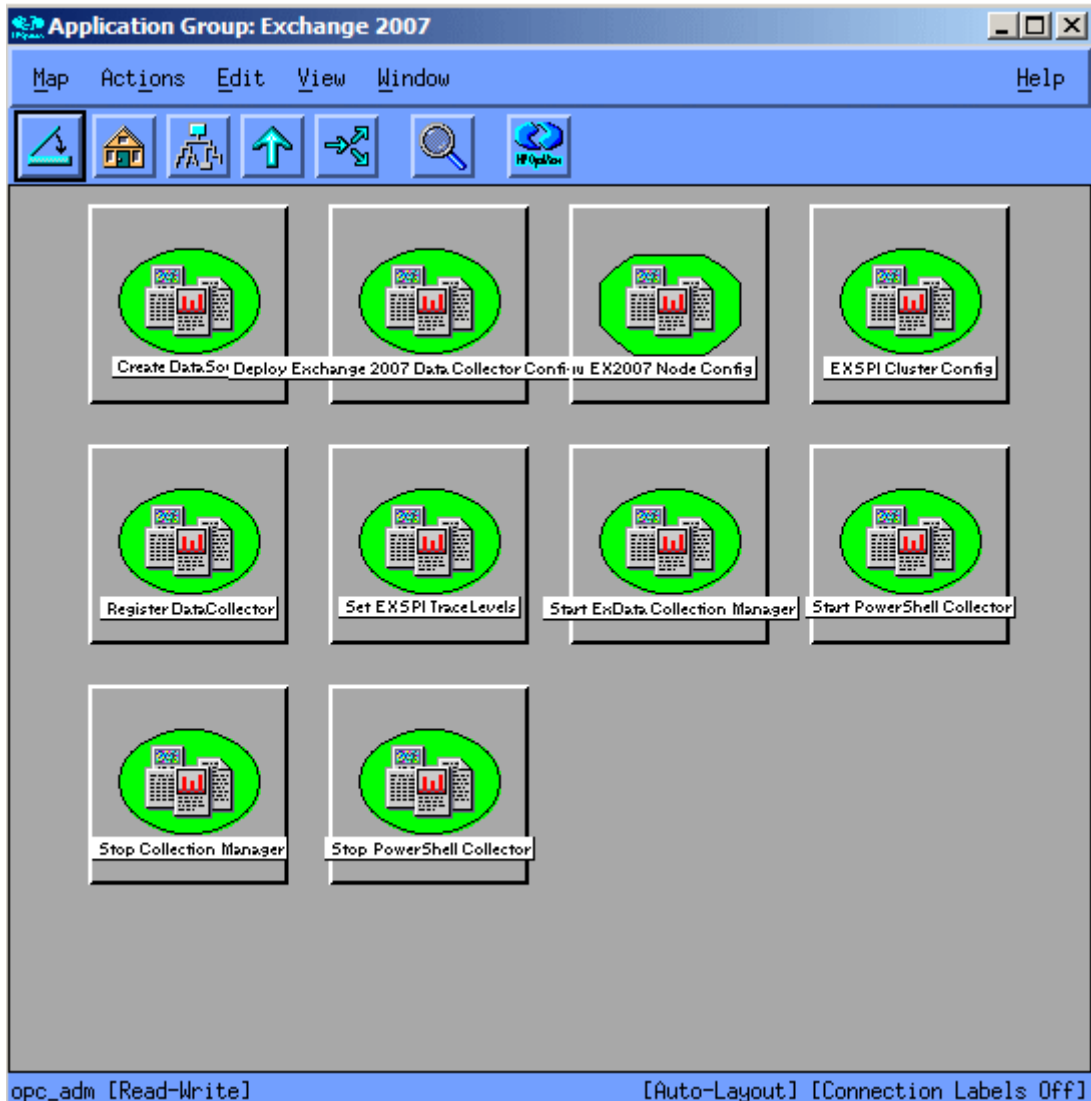
In the **Exchange 2007** group, the following applications are included

- **Create Data Sources:** The Create Data Sources application helps you create databases on managed nodes. This application creates databases into the configured data store for your HPOM environment. Without running this application, you cannot log information on a managed node.

- **Register DataCollector:** The Register DataCollector application registers necessary COM components on the nodes.

- **Start ExData Collection Manager:** Use this application to start the Collection Manager process on a managed node.

- **Start PowerShell Collector:** Use this application to start the PowerShell Collector process on a managed node.

- **Stop PowerShell Collector:** Use this application to stop the PowerShell Collector process on a managed node.

- **Stop Collection Manager:** Use this application to stop the Collection Manager process on a managed node.

- **Set EXSPI Trace Levels:** This application sets the trace levels on managed nodes. Launch this application if you need to collect troubleshooting information from nodes.

Microsoft Exchange SPI Message Groups and Messages

Figure 5   OVO Message Group Bank Window

There are three Microsoft Exchange SPI message groups located in the OVO Message Group Bank window and all messages generated by the Microsoft Exchange SPI fall into one of these message groups. They are:

1   **EXSPI**: contains messages generated by Exchange-SPI programs. They contain instruction text to help to diagnose/remedy problems.

2   **EX_Perf:** contains messages regarding Exchange performance.

3   **EX_Fault:** contains messages regarding error conditions.

Microsoft Exchange SPI Reports and Graphs

Microsoft Exchange SPI Reports

Microsoft Exchange SPI reports come in a separate package, `EXSPI-Reporter.msi` which is found in the HP Operations Manager for Unix Application CD-ROM. HP OV Reporter can be used to access the Microsoft Exchange SPI data source (EXSPI_DATA) on managed nodes, and generate reports using Crystal Reports.

For Exchange 2003 reports, see Microsoft Exchange SPI Reports on page 79 for complete lists of out-of-the-box Microsoft Exchange SPI reports.

Microsoft Exchange SPI Graphs

Microsoft Exchange SPI graphs include HP Performance Manager graphs for Exchange 2003 and 2007. HP Performance Manager graphs require an installation procedure. See Installing Microsoft Exchange SPI Graph templates on page 105 for details.

For a list of available graphs, see Exchange 2003 Graphs on page 109.

2 Installation and Configuration

This chapter offers instructions for installing, configuring and removing Microsoft Exchange SPI components. It covers the following topics:

- Prior to installing Microsoft Exchange SPI
- Installing and configuring the Microsoft Exchange SPI
- template Groups: installation considerations
- Installation and Basic Configuration
- Advanced Configuration
- Removing the Microsoft Exchange SPI
- Deleting Microsoft Exchange SPI templates, applications and message groups.

Prior to Installation

- This version of the SPI works with HPOM/OVO for UNIX 8.*28,* 8.29, and 8.30. Verify your current HPOM/OVO version.

- Before installing this version of the Microsoft Exchange SPI, you must remove any previous version of the Microsoft Exchange SPI (see Removing the Microsoft Exchange SPI on page 40).

- The installation of Microsoft Exchange SPI depends on the following pieces of software, verify that they are present on the management server before installing the Microsoft Exchange SPI:

  — DSI2DDF 2.25.10.0 or higher

  — SPI-SHS-OVO 2.40.000 or higher

  You can install these component from the *HP Operations Smart Plug-ins* DVD.

- Microsoft Exchange SPI reports require HP Reporter, and the Microsoft Exchange SPI `EXSPI-Reporter.msi` must be installed on a Windows node in the same domain where Microsoft Exchange SPI is managing nodes.

- You can install Microsoft Exchange SPI graph templates on an HP Performance Manager server with the `HPOvSpiExGc.msi` file, which is included in the *HP Operations Smart Plug-ins* DVD.

- Service Discovery Framework (SPI-SVCDISC-OVO) version A.02.010 must be present on management server. You can install this component from the *HP Operations Smart Plug-ins* DVD.

Pre-Installation Task

Before the start installing the Microsoft Exchange SPI on the management server, make sure that you have installed HP Operations agents on the management server.

Installing the Microsoft Exchange SPI

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

1   Insert the Microsoft Exchange SPI DVD into the DVD-ROM drive of the management server.

2   Run the following command:

For an HP-UX management server, enter:

`swinstall -s /cdrom/OV_DEPOT/11.OHPUX.depot EXSPI`

For a Solaris management server, enter:

`pkgadd -s /cdrom/OV_DEPOT/SOLARIS.sparc EXSPI`

The installer installs the Microsoft Exchange SPI on the management server.

Configuring the Microsoft Exchange SPI

After you install the Microsoft Exchange SPI, you must configure it to monitor the Microsoft Exchange Server nodes in your organization. The configuration process involves adding nodes to the management server, enabling the Microsoft Exchange SPI to discover nodes, and so on.

Prerequisite

Before you start configuring the Microsoft Exchange SPI, you must create a Microsoft Exchange user account with necessary user privileges, which can be used by the SPI to achieve service discovery.

Prerequisites to Monitor Exchange 2003 Nodes

Create a user on the domain controller with the user name— **`msxspi`**. This user must be a member of the following groups:

— Exchange Domain Servers

— Domain Users

— Local Administrator on all Exchange 2003 nodes that you want to monitor

Prerequisites to Monitor Exchange 2007 Nodes

If you want to monitor Microsoft Exchange Server 2007, the msxspi user must have the privileges of an Exchange View Only administrator. Also ensure that the user also has the privileges of a Local Administrator of the Microsoft Exchange Server.

Add Nodes

After you install the Microsoft Exchange SPI on the HPOM management server, a new node group—**EXSPI**—is created. You must add all Microsoft Exchange Server nodes to this group. To add Exchange nodes to the EXSPI node group, follow these steps:

1   In the Root window, click **Window** → **Node Group Bank**. The OVO Node Group Bank window opens.

2   In the Root window, click **Window** → **Node Bank**. The OVO Node Bank window opens.

3   Select a node in the OVO Node Bank window, and then drag and drop the node on **EXSPI** in the OVO Node Group Bank window.

4   Repeat step step 3 to add another available node.

Alternatively, follow these steps:

1   In the root window, click **Window** → **Node Group Bank**. The OVO Node Group Bank window opens.

2   In the OVO Node Group Bank window, double-click **EXSPI**. The Node Group: EXSPI window opens.

3   In the Node Group: EXSPI window, click **Actions** → **Node** → **Add**. The Add Node dialog box opens.

4   Specify details of the Exchange node that you want to add, and then click **OK**.

5   Repeat step 2 to step 4 to add another node.

If you do not select to automatically install the agent software on nodes, you must manually install agents on the added nodes. Refer to the following documents for more information on agent installation on nodes:

*   *HP Operations Manager Administrator's Reference*

*   *HP Operations HTTPS Agent Concepts and Configuration Guide*

Distribute the Microsoft Exchange SPI Actions, Monitors, and Commands

To collect data from Microsoft Exchange Server nodes, you the Microsoft Exchange SPI actions, monitors, and commands must be available on nodes. To distribute the Microsoft Exchange SPI actions, monitors, and commands, follow these steps:

1   In the OVO Node Group Bank window, click **EXSPI**, and then click **Actions** → **Agents** → **Install/Update SW & Config**. The Install/Update OVO Software and Configuration window opens.

2   In the Install/Update OVO Software and Configuration window, click the following components:

   — Actions

   — Monitors
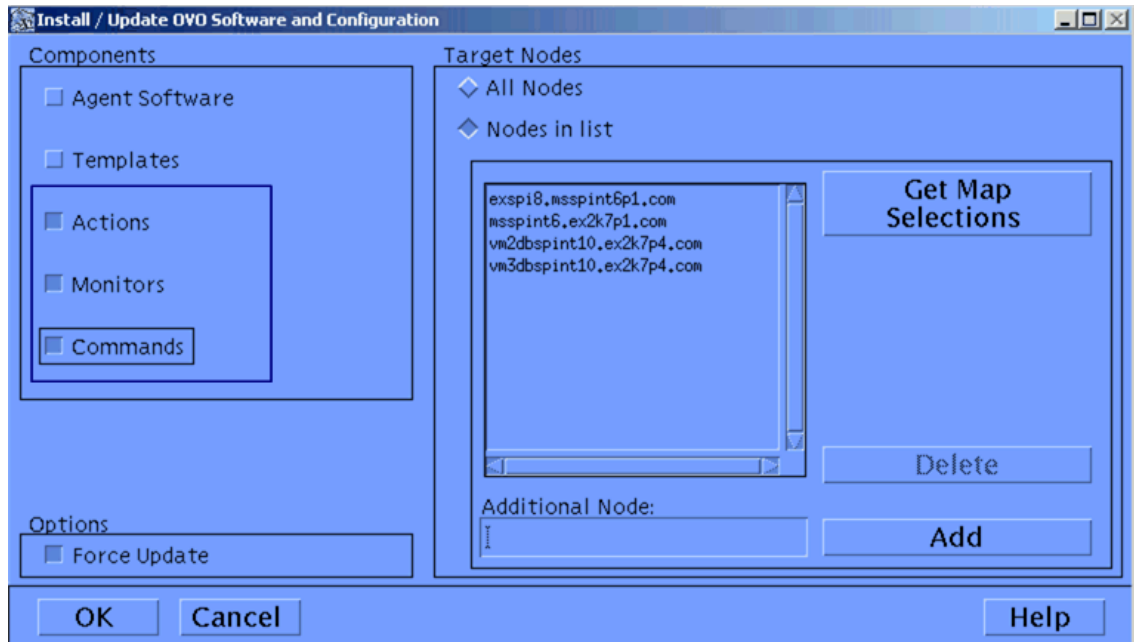
   — Commands

3   Click **Nodes in list**.
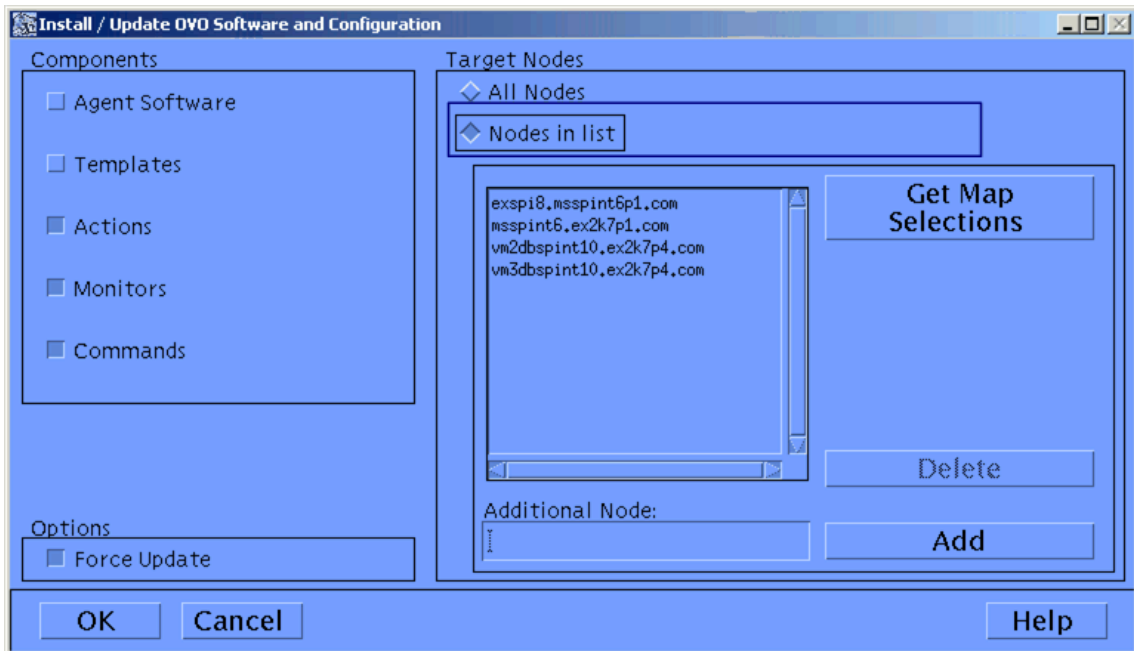
4   Click **Force Update**.

5   Click **OK**.

After successful distribution, the following message is displayed in the message browser:

```
The following configuration information was successfully distributed:
Actions, Commands, Monitors
```

Review the remactconf.xml File

On HTTPS-agent-based nodes, verify and make sure that the `remactconf.xml` file in the `/etc/opt/OV/share/conf/OpC/mgmt_sv/` location on the management server contains the following content:

```
<rule>

    <doc>Allow ALL certified actions</doc>

    <allow/>

</rule>
```

Run the EXSPI Node Config Application

To run the EXSPI Node Config application (EX2007 Node Config for Exchange 2007 nodes), follow these steps:

➤ Skip this procedure if you want to monitor only Exchange nodes with the *Local System* account as $AGENT_USER.

1 Select all the desired Exchange managed nodes.

2 Drag these nodes and drop them on the EXSPI Node Config application located in the EXSPI Admin application group.

3 When prompted, enter the domain, user and password for the user account (the account mentioned in Prerequisite on page 24).

➤ When you run this application, be sure to enter the correct domain name, user and password. This domain is not the DNS domain name but the NT domain name.

```
X EXSPI Node Config                                          _ □ X
*** Node Config for the Node :  nt18475.appspi.com

        Please enter a user account that is set-up as an Exchange Administrator

        Domain  : appspi

        Username: administrator
        Enter password:
        Re-enter password:

*** Configuring node 'nt18475.appspi.com' ...


Please press [RETURN] to continue ... █
```
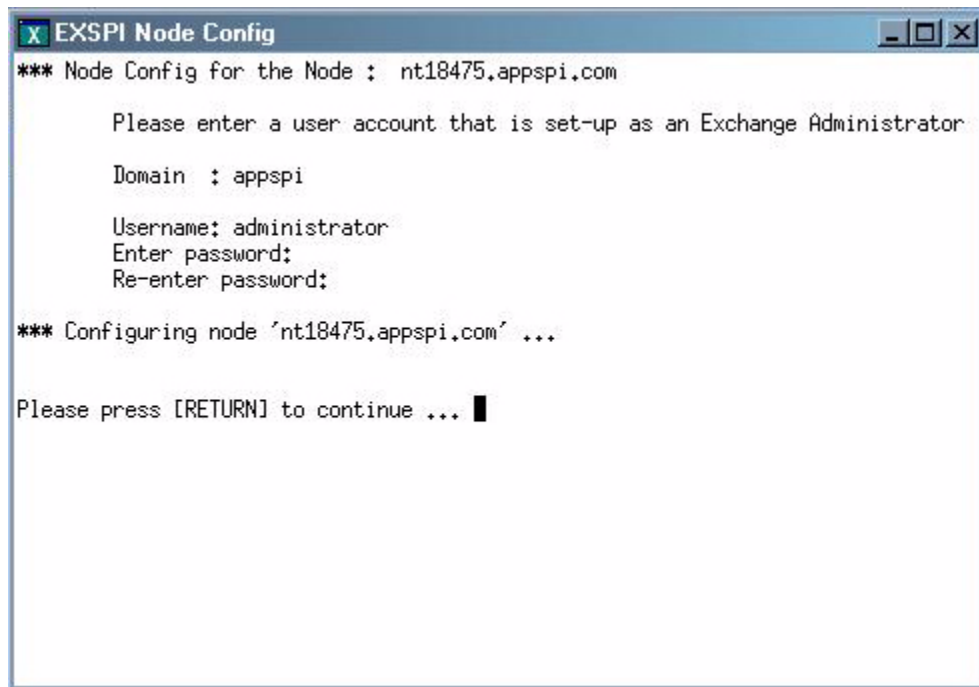
If you add additional nodes after running this application, you must run this application on all newly added nodes.

Initiate Data Collection for Exchange 2007

Skip this section if you do not want to monitor Exchange 2007 nodes. If you are using Microsoft Exchange Server 2007, you must initiate the data collection process on nodes after running the Create DataSources application. The data collection mechanism on Exchange 2007 nodes are governed by two daemons — Collection Manager and PowerShell Collector. Before you start using the SPI for Exchange 2007 nodes, you must perform the following steps to initiate data collection:

1   Open the OVO Node Group Bank window.

2   In the OVO Node Group Bank window, double-click **EXSPI**. The Node Group:EXSPI window opens.

3   Run the Register Data Collector application to register COM components on Exchange 2007 nodes. Perform the following steps:

   a   From the Node Group:EXSPI window, drag and drop a node on Register Data Collector in the Application Group: Exchange 2007 window. The Output of Application No. 2 window appears.
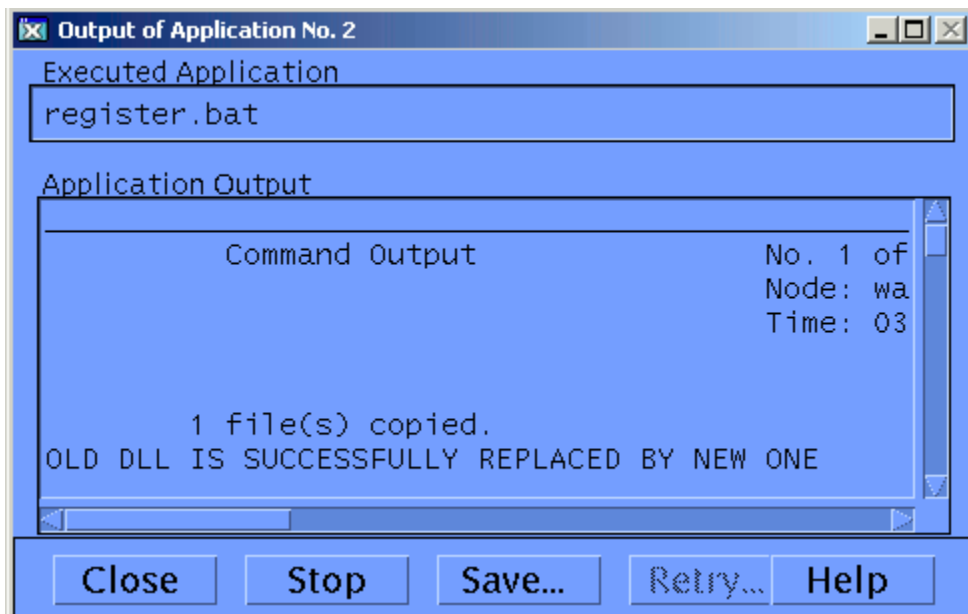
   b   After the window displays output, click **Close**.

   c   Repeat step a through step b for all Exchange 2007 nodes.

4   Run the Create DataSources application to on nodes. Perform the following steps:

a   From the Node Group:EXSPI window, drag and drop a node on Create DataSources in the Application Group: Exchange 2007 window. The Output of Application No. 3 window appears.
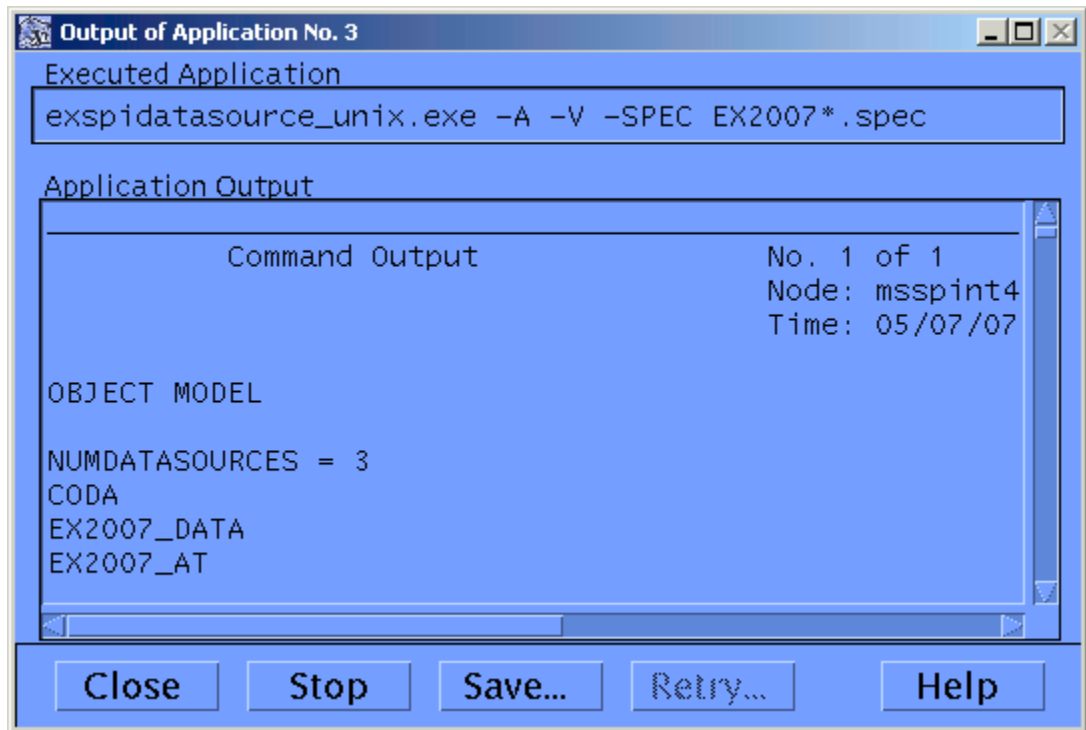
b   After the window displays output, click **Close**.

c   Repeat step a and step b for Exchange 2007 nodes.

5   Run the Start ExData Collection Manager application to start the Collection Manager daemons on nodes. Perform the following steps:

a From the Node Group:EXSPI window, drag and drop a node on Start ExData Collection Manager in the Application Group: Exchange 2007 window. The Output of Application No. 5 window appears.
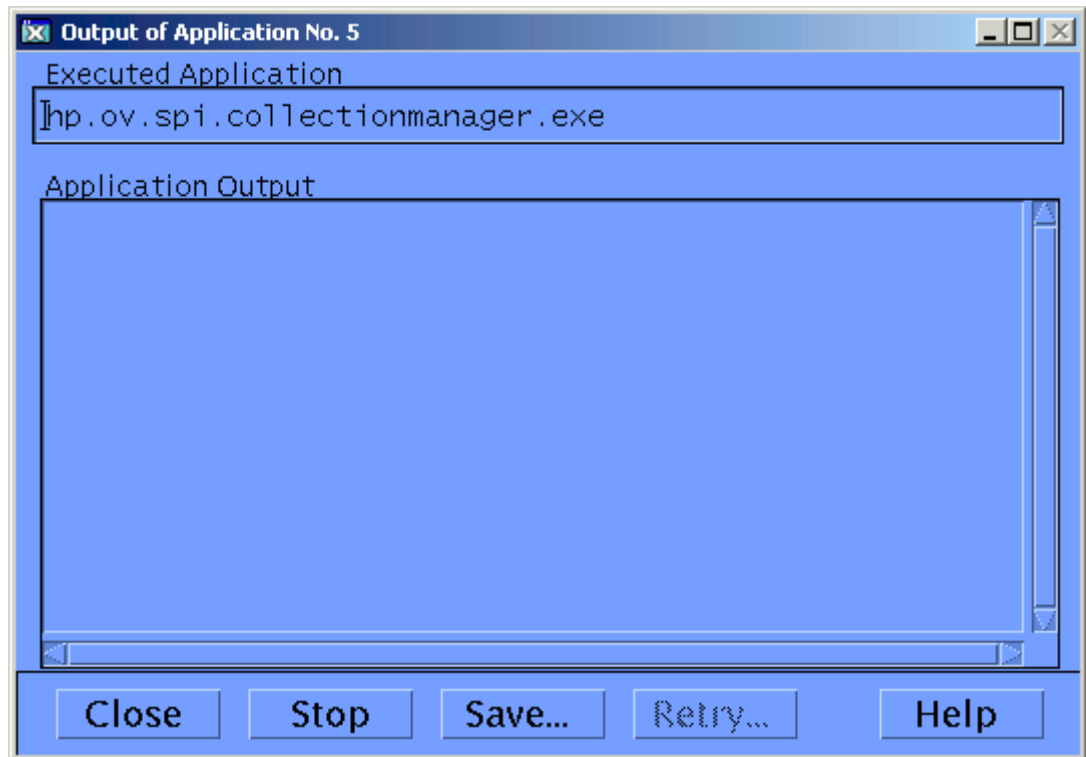
b Click **Close**.

c Repeat step a and step b for Exchange 2007 nodes.

6 Run the Start PowerShell Collector application to start the Start PowerShell Collector daemons on nodes. Perform the following steps:

a In the Application Group: Exchange 2007, right-click **Start PowerShell Collector**, and then click **Modify**. The Modify OVO Application: Start-PowerShell-Collector window opens.

b In the User Name section, specify the user name and password of an Exchange user with the privileges mentioned in Prerequisites to Monitor Exchange 2007 Nodes on page 24.

c From the Node Group:EXSPI window, drag and drop a node on Start PowerShell Collector in the Application Group: Exchange 2007 window. The Output of Application No. 4 window appears.
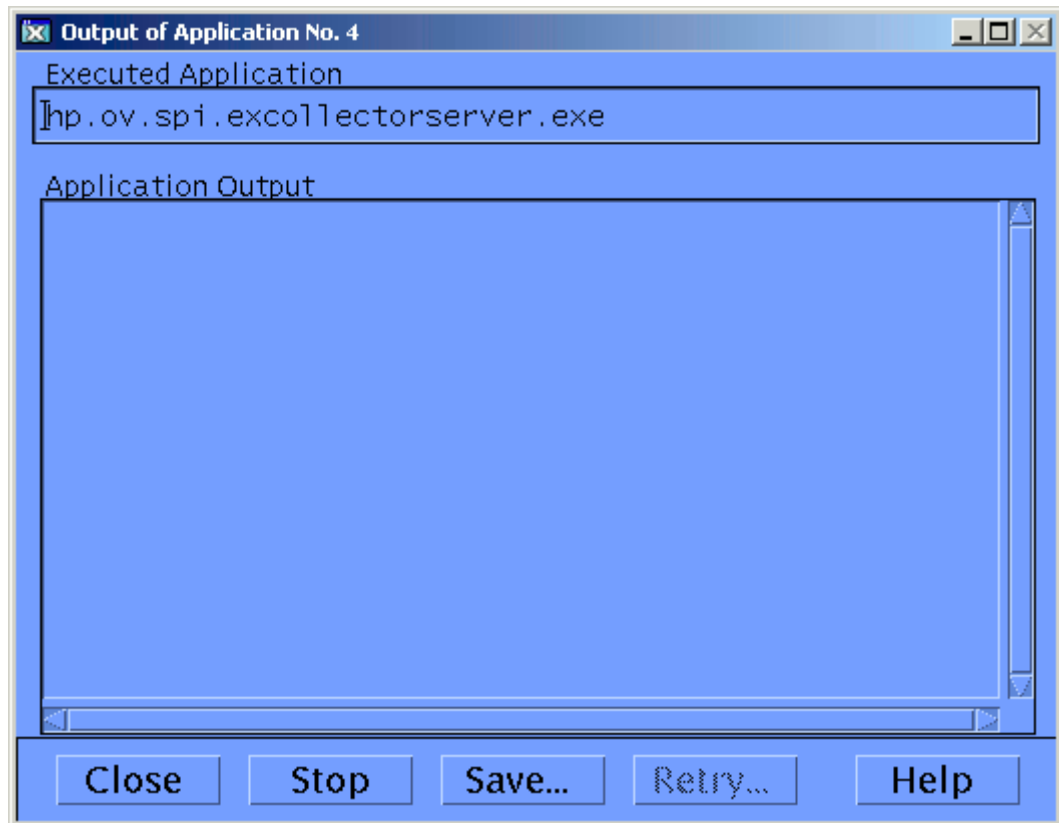
d Click **Close**.

e Repeat step c and step d for Exchange 2007 nodes.

Initiate Data Collection for Exchange 2003

To initiate the data collection mechanism on Exchange 2003 nodes, run the EXSPI Add DataSource application on the Exchange 2003 nodes that you want to monitor.

Run Discovery

Run the discovery templates to discover services from the managed Exchange Server nodes. If you want to use a user other than the Local System user as $AGENT_USER, perform the tasks in the Prerequisite section.

If you want to use the Local System user as $AGENT_USER on nodes, skip this section and go to Run the Discovery Template on page 32.

➤ If $AGENT_USER is set to a user other than the *Local System* user when you run discovery, make sure $AGENT_USER has sufficient privileges to perform the following tasks:

- Act as part of the operating system.

- Adjust Memory Quotas for a process.

- Replace a process-level token

- For Exchange 2007 nodes:

  a Open the `exspi_discreg_2k7.txt` file from the following location:

     For HTTPS 64-bit nodes: `/var/opt/OV/share/databases/OpC/mgd_node/ customer/ms/x64/win2k3/cmds/`

  b Remove the **#** character from the following line:

     `#SPI_for_Exchange::ROOT:::::EXSPI_SwitchUser_2k7.exe::exchange_discover y.exe`

  c Add the **#** character in the beginning the following line:

     `SPI_for_Exchange::ROOT:::::exchange_discovery.exe`

  d Deploy the `exspi_discreg_2k7.txt` file on all Exchange 2007 nodes by distributing Actions, Monitors, and Commands.

- For Exchange 2003 nodes:

  a Open the `exspi_discreg_2k3.txt` file from the following location:

     For HTTPS 32-bit nodes: `/var/opt/OV/share/databases/OpC/mgd_node/ customer/ms/x86/winnt/cmds/`

  b Remove the **#** character from the following line:

     `#SPI_for_Exchange::ROOT:::::EXSPI_SwitchUser_2k3.exe::exchange_discover y.exe`

  c Add the **#** character in the beginning the following line:

     `SPI_for_Exchange::ROOT:::::exchange_discovery.exe`

  d Deploy the `exspi_discreg_2k3.txt` file on all Exchange 2003 nodes by distributing Actions, Monitors, and Commands.

Run the Discovery Template

To run the discovery template, follow these steps:

1 Open the OVO Node Bank window.

2 Select the management server.

3 Click **Actions → Agents → Assign Templates** from the menu bar.

4 In the Define Configuration window, click **Add**.

5 In the Add Configuration window, click **Open Template Window...**.

6 In the Message Source Templates window double-click the **SPI for MS Exchange** group to display the subgroups.

7   Double-click **Exchange Service Discovery**.

8   Select one of the following templates:

  •   Exchange_Discovery_2k7 for Exchange 2007 nodes

  •   Exchange_Discovery_2k3 for Exchange 2003 nodes

9   Click **Get Template Selection** in the Add Configuration window, and the click **OK**.

10   In the Define Configuration window, click **OK**.

11   Click **Actions → Agents → Install/Update SW & Config.**

12   Click **Template**, and then click **OK**.

13   If you want to monitor Exchange 2007 cluster nodes, deploy the EXSPI-8X Exchange Cluster Discovery SysLog template (from the group **SPI for MS Exchange > EXSPI Exchange 2007 > EXSPI Cluster (EX2007)**) on all cluster nodes.

Assign/Distribute Templates

To assign and distribute templates to managed nodes:

1   Open the OVO Node Bank.

2   Select the desired managed node(s) designated to run Microsoft Exchange SPI.

3   To assign (select) the templates for distribution, click **Actions → Agents → Assign Templates** from the menu bar.

4   In the Define Configuration window, click **Add**.

5   In the Add Configuration window, click **Open Template Window...**.

6   In the Message Source templates window double-click the **SPI for Exchange** group to display the subgroups.

7   Select, and double-click **Exchange 2007** and **Exchange 2003**.

8   Select the desired **EXSPI** template group or individual templates.

9   Click **Get Template Selections** from the Add Configuration window.

10   Click **OK** from the Add Configuration window.

11   Click **OK** from the Define Configuration window.

12   The desired templates have been selected for distribution. Next, distribute them to the managed nodes.

13   To distribute the assigned templates, select **Actions → Agents → Install/Update SW & Config** from the Node Bank menu.

14   In the Install/Update OVO Software and Configuration window, check the Templates checkbox to select it.
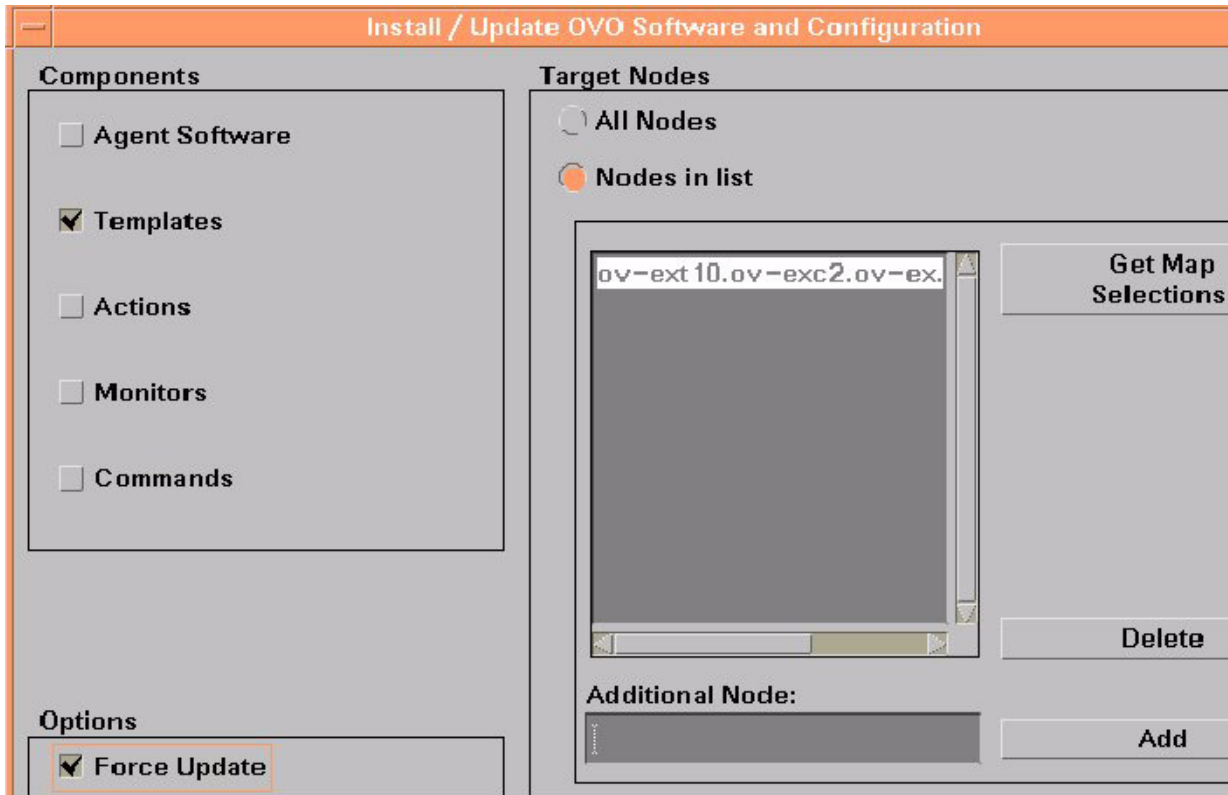
15 Check the Nodes in List and the Force Update checkboxes.

16 If a node was not selected previously, select the node in the node bank and click **Get Map Selections** to list the target node(s), and then click **OK** to distribute templates to the managed node(s).

17 The following message appears in the message browser:

```
The following configuration information was successfully distributed:
Templates
```

Assign Responsibilities for HPOM Operator

All Microsoft Exchange SPI target hosts must be HPOM managed nodes running on HPOM intelligent agents.

1 Log on to HPOM as the HPOM administrator (opc_adm).

   a   Select **Window > User Bank**

   b   Select the **opc_adm** user

   c   Choose **Actions > User > Modify**

   d   Press the **Responsibilities** button and use the Responsibilities for Operator (opc_adm) window to view messages.

Figure 6   The Responsibilities for Operator window
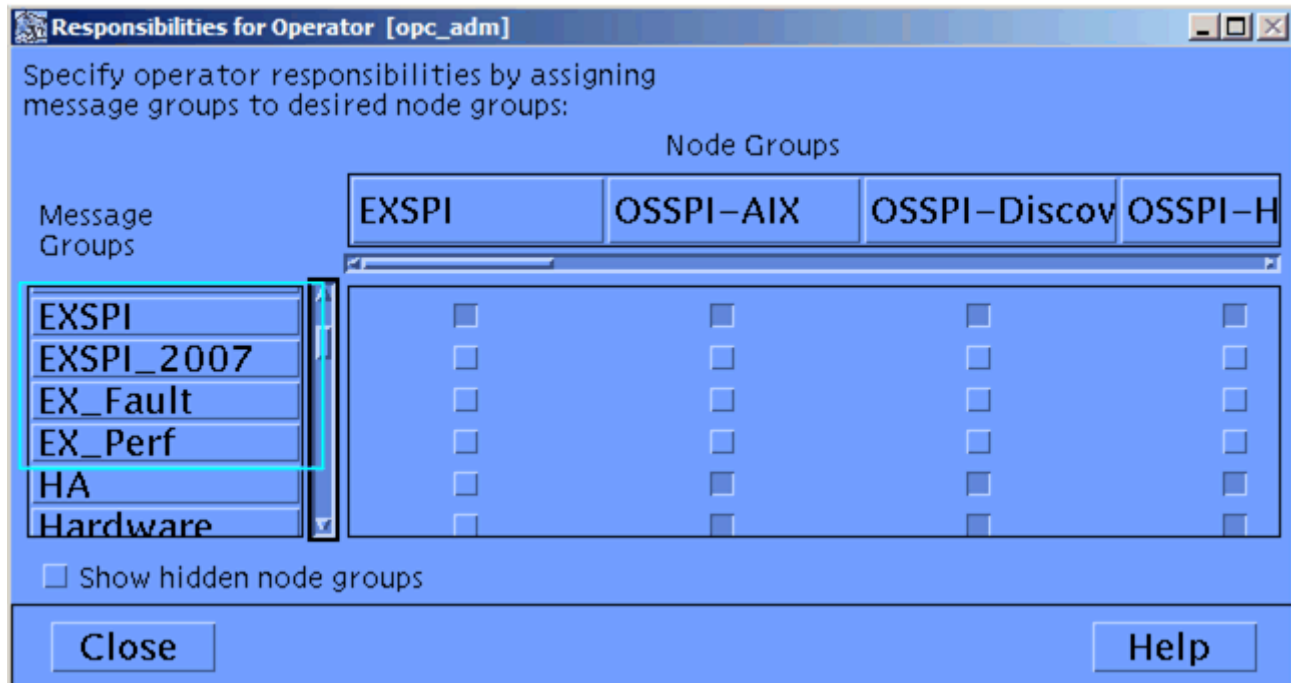
2   In the Node Group that contains your Exchange managed node, select the following Microsoft Exchange SPI message groups:

— EXSPI

— EX_Fault

— EX_Perf

— EXSPI_2007

3   Use the **Actions** > **Browser > Start/Reload** from the OVO User Bank menu.

Additional Configuration for Microsoft Exchange Server 2003

You need perform some additional configuration steps depending on your requirement if you are using Microsoft Exchange Server 2003.

Enable Message Tracking

To ensure that all messages routed through a server are added to the HPOM message tracking logs you need to enable message tracking. You can record information about the sender, the message, and the recipient. If you need to log more detailed information, you can also record the subject line of the Email message.

▶ If the Internet Mail Service connector does not exist, skip the following steps.

Use the Microsoft Exchange SPI application **Enable Message Tracking** to set message tracking on, for servers only. All messages that are routed through the selected servers will then be added to the message tracking logs. This information is collected by the EXSPI-6X Dc-TrackLog Data collection templates.You can record information about the sender, the message, and the recipient. If you need to log more detailed information, you can also record the subject line of Email messages.

The **Enable Message Tracking** application needs to be modified to include the user name and password of a service account that has Exchange administrative privileges. Open the Enable Message Tracking application, and add the *user name* and *password.*to the **Execute as User** field, before executing.

Figure 7   Enabling Message Tracking for Exchange 2003
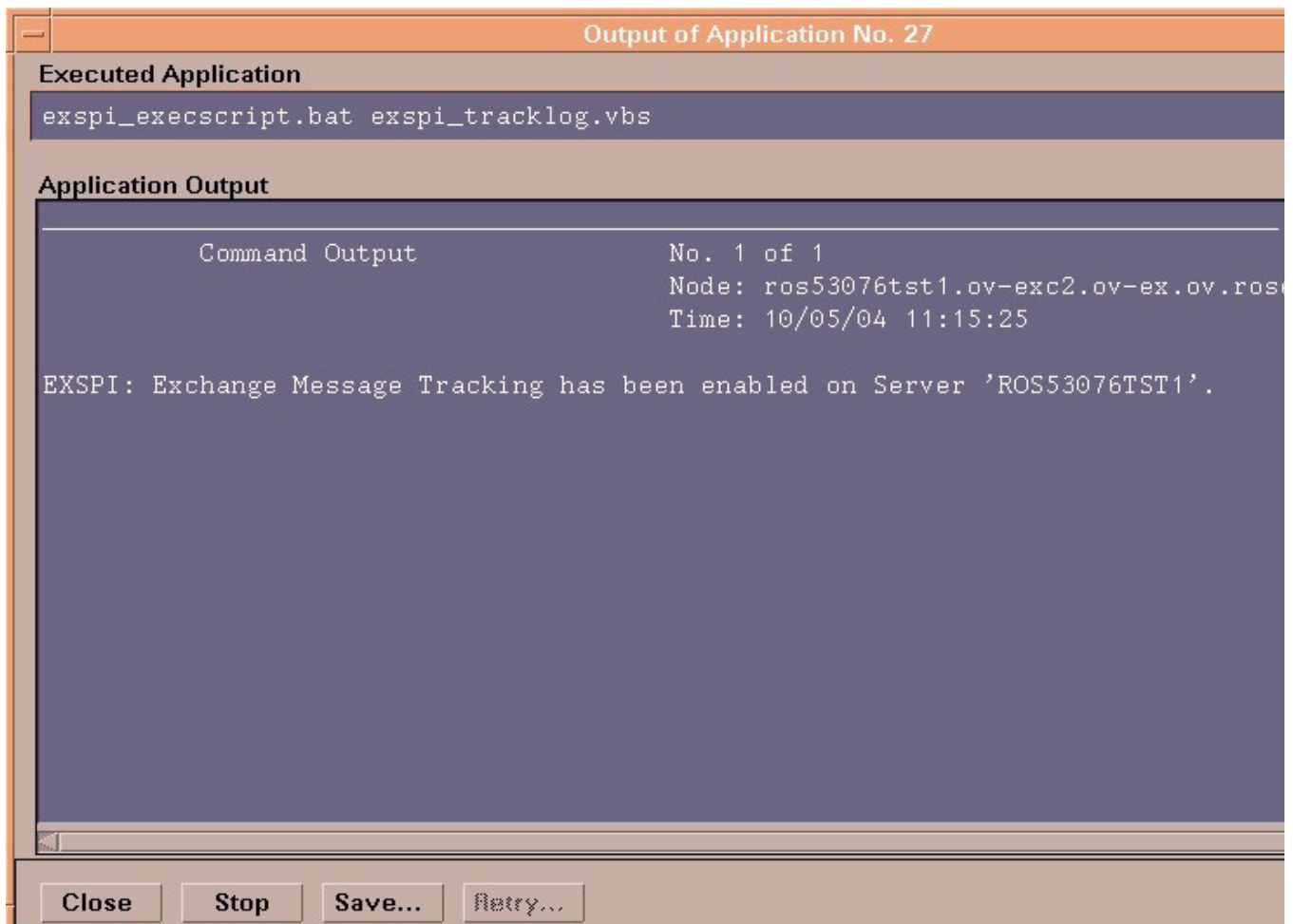
Run the EXSPI MBOX Config Application and Create Mailboxes

In addition to the MSXSPI user, a mailbox is required for accessing mailbox and folder information, necessary for End to End Message Ping and Reporter Collection templates. Use the Microsoft Exchange SPI application **MBOX Config** (located in the EXSPI Admin application group) to create the mailbox:
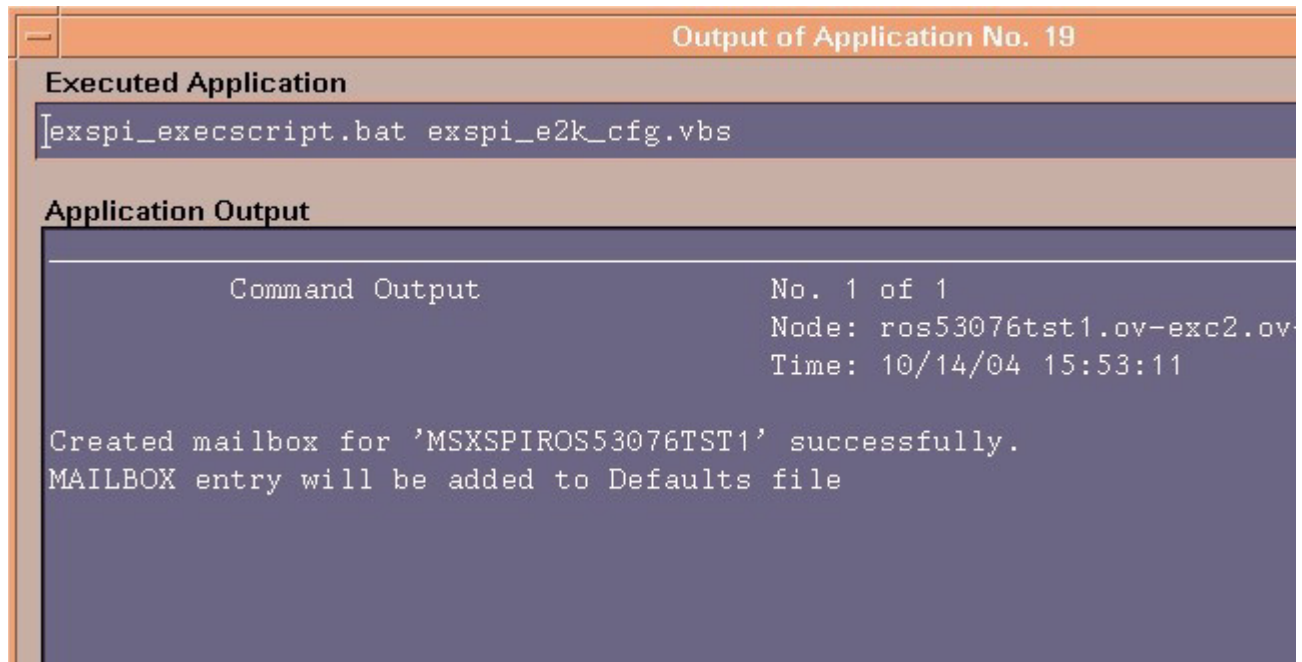
1 Modify the **MBOX Config** application. The user name and password of a service account with Exchange administrative privileges needs to be given for the application to execute. (Change the **Execute as User** field, add *user name* and *password*.)

2 Run the **EXSPI MBOX Config** application to configure mailboxes for the Exchange servers (you can select multiple nodes simultaneously).

For each Exchange server a mailbox is created with the prefix MSXSPI and Windows hostname. For an Exchange 2003 server, it creates the mailbox MSXSPI<host_name> for account MSXSPI<host_name> (which it also creates.)

For example, for the node **rosspi4.rose.hp.com** (Internet name) and Windows name **ROSSPI4** a mailbox is created called MSXSPIROSSPI4.

▶ In order to create a different mailbox with a different name, see the procedure Changing the Mailbox name on page 74.

Figure 8   MBox Config application output


```
                         Output of Application No. 19

Executed Application

exspi_execscript.bat exspi_e2k_cfg.vbs


Application Output


            Command Output                 No. 1 of 1
                                           Node: ros53076tst1.ov-exc2.ov-
                                           Time: 10/14/04 15:53:11


Created mailbox for 'MSXSPIROS53076TST1' successfully.
MAILBOX entry will be added to Defaults file
```

▶ If you receive an error in the above step or you cannot automatically create mailboxes, you must manually complete the following on each Exchange server:

1 For each Exchange server create a mailbox with the prefix MSXSPI and Windows hostname.

  e For Exchange 2003, create this mailbox with primary Windows account **MSXSPIROSSPI4** (this must first be created).

Set Up Message Ping Server Connections and Alarms

To measure the round trip time required for a message to travel from one server to another and then back to the originating server, you can use the *EXSPI-6X End to End Message Ping* template group.

Before you can use the End to End Message Ping templates, you must configure the pair of servers that you want to test.

Procedure for EXSPI Ping Config for Exchange2003 Servers

1   Select the Exchange managed nodes that you wish to configure in the OVO Node Bank.

2   Drag these nodes and drop them on the **EXSPI Ping Config** application located in the **EXSPI Admin** application group, under the appropriate Exchange version.

3   A window appears with the configuration file, as shown in the figure below.

4   Edit the file as necessary, then click **Esc**.

5   You will be prompted to save the configuration. Accept the default choice [Yes].

6   A validation will be performed to check if the Timeout is greater than the sum of MetSLA and AlmostMetSLA. After validation, you will be prompted to accept and install the configuration file in the monitors directory: `/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/nt/monitor/`

7   You have completed configuring the end-to-end Ping, now distribute monitors to the required EXSPI managed nodes. For details about distributing the monitors, see Distribute the Microsoft Exchange SPI Actions, Monitors, and Commands on page 25.

The format of the Exchange 2003 EXSPI Ping Config file is:

```
Src-Srv:Dest-Srv:Timeout:MetSLA:AlmostMetSLA
```

The user only needs to fill in the following fields:

— Src-Srv

— Dest-Srv

— Timeout (to be entered in seconds, with no suffix)

— MetSLA (to be entered in seconds, with no suffix)

— AlmostMetSLA (to be entered in seconds, with no suffix).

Figure 9   EXSPI Ping Config for Exchange 2003

Set Up Different Conditions/ Thresholds for Different Server Pairs Using OVO Object Field & Alarming

Alarms can be set to occur with metric EXSPI-60 1002 (Ping). Because you may need to set different thresholds for multiple server pairs, the following examples are offered. The examples show the syntax to insert in the template Conditions, using the OVO object pattern fields so that you can set differing thresholds. Metric 1002 sends the "FromMailbox,ToMailbox" in the object pattern fields with the following definitions:

FromMailbox = **FromServer:FromMailbox**
ToMailbox   = **[ToServer]:ToMailbox**
where **[ToServer]** is optional

Config Entry	Object
EXCH1:MSXSPIEXCH2:25m:1m:1m	EXCH1:MSXSPIEXCH1,:MSXSPIEXCH2
EXCH1:MAILBOXEXCH1: MAILOXEXCH3:2h:5m:2m	EXCH1:MAILBOXEXCH1,:MAILOXEXCH3
EXCH2:MAILBOXEXCH2: MAILOXEXCH4:1h:20m:10m	EXCH2:MAILBOXEXCH2,:MAILOXEXCH4

EXCH3:MSXSPIEXCH3:EXCH4.AM.HP.COM : MSXSPIEXCH4:25m:5m:5m	EXCH3:MSXSPIEXCH3,EXCH4.AM.HP.COM: MSXSPIEXCH4

After completing the advanced configuration steps, you can assign and distribute templates from any of the various EXSPI template groups to the managed node(s) running Microsoft Exchange Server.

The EXSPI Advanced/Specialized template groups contain two logfile templates which capture Exchange warning and information events. Because Exchange generates numerous warning and information events, you might want to assign these templates only for troubleshooting Exchange:

— Logfile EXSPI-6X Exchange Information

— Logfile EXSPI-6X Exchange Warnings

Removing the Microsoft Exchange SPI

This process completely removes the Microsoft Exchange SPI installation from the HPOM management server. Any customized templates or copies of Microsoft Exchange SPI default templates residing in other HPOM template groups should also be removed.

⚠ If you are upgrading from an earlier version of Microsoft Exchange SPI, you must remove the old version from the management server and the managed nodes before installing the new Microsoft Exchange SPI version.

Follow these steps in order to ensure a proper removal of the Microsoft Exchange SPI:

Task 1: De-assign Microsoft Exchange SPI Templates from Managed Nodes

Follow these steps to remove Microsoft Exchange SPI templates from your managed nodes:

1 Open the OVO Node Bank window.

2 To de-assign the templates from the node, select **Actions>Agents>Assign Templates** from the menu bar.

3 In the Define Configuration window select all Microsoft Exchange SPI templates or template groups, including any user-customized templates.

4 Click **Remove Templates**.

5 Click **OK.**

Task 2: Remove Microsoft Exchange SPI software from the management server

Use the following programs to remove the Microsoft Exchange SPI package

1 Open a terminal window and log on as root.

2 In the terminal window run the following command:

— For HP-UX: **/usr/sbin/swremove EXSPI**

— For Solaris: **/usr/sbin/pkgrm EXSPI**

➤ The **swremove/pkgrm** program removes the files from the file system only. The components listed below must be deleted manually:

Task 3: Delete Templates, Applications and Message Groups from the Management Server

After successful removal, Microsoft Exchange SPI templates and certain applications (**EXSPI admin group)** and message groups (**EXSPI, EX_Perf, EXSPI_2007,** and **EX_Fault**), must be deleted manually.

1 To delete the Microsoft Exchange SPI Message Source templates, select **Window: Message Source Templates** from the menu bar.

2 Open all Microsoft Exchange SPI template groups and use SHIFT+click to select all templates for deletion.

3 Select **Delete from All** to delete the templates.

4 Click **Yes** to the message: `Do you really want to delete the template(s)?`

5 To delete from the EXSPI messages group, from the menu bar select **Window>Message Group Bank**.

6 Select the **EXSPI EX_Perf** and **EX_Fault** message groups.

7 From the menu bar select **Actions>Message Group>Delete**.

8 Click **Yes** to the message: `Do you really want to delete the message groups?`

9 To delete any Microsoft Exchange SPI application groups and their contents, select **Window: Application Bank** from the menu bar.

10 Select all Exchange **EXSPI Admin** Applications and Graphs.

11 From the menu bar select **Action>Application>Delete**.

12 Click **Yes** to the message: `Do you really want to delete the application groups.`

Task 4: Delete Microsoft Exchange SPI Spec Files from the Management Server

Remove regular and compressed EXSPI spec files (EXSPI*.spec, EXSPI*.spec.Z, and EX2007*.spec) from the following directories on the management server:

For HTTPS:

— For Exchange 2003: `/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/x86/winnt/cmds/`

— For Exchange 2007: `/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/x64/win2K3/cmds/`

Task 5: Remove Microsoft Exchange SPI from Managed Nodes

After successfully removing the Microsoft Exchange SPI from the management server, follow these steps to remove the Microsoft Exchange SPI software from your managed nodes:

1 Select Actions: **Agents>Install/Update SW & Config** from the menu bar.

2 Check the following checkboxes to select these components for removal:

- Templates

- Actions

- Monitors

- Commands

3 Click the **Nodes in List Requiring Update** button.

4 If you did not select a node previously, click the **Get Map Selections** button to list the target node(s).

5 Click the **Force Update** button.

6 Click **OK**. The following message appears in the message browser:

```
The following configuration information was successfully distributed:

Templates Actions Commands Monitors
```

The Microsoft Exchange SPI templates and software have now been removed from the selected managed node(s).

3 Using the Microsoft Exchange SPI

Like other SPIs, the Microsoft Exchange SPI is easy to use. This chapter describes some special usage features and functionality, including:

- Daily Tasks
- Microsoft Exchange SPI template group requirements
- Microsoft Exchange SPI Service Discovery
- Using Microsoft Exchange SPI Service Views
- Data Collection Templates for Exchange 2003 Messaging Ports
- Changing the data collection agent setup
- Command Line Parameters

Daily Tasks

A suggested daily task list for monitoring your Exchange environment with the Microsoft Exchange SPI:

1   Use the HPOM message browser to watch for warning and critical messages or multiple alarms. Read the associated instruction text.

2   Adjust alarm thresholds if too many alarms are being generated (see Customizing the Threshold on page 71).

3   Use the HPOM graphing and reporting applications for additional information, or to view history or see trends.

4   Check the active Message Browser frequently. Note the message group a metric belongs to:

   - ***EXSPI.*** Messages generated by EX-SPI programs.They contain instruction text to help to diagnose/remedy problems.

   - ***EX_Perf.*** Messages regarding performance.

   - ***EX_Fault.*** Messages regarding error conditions.

5   Click `Perform Action` (if available) from the message or message browser to automatically perform a pre-defined operator action. Click `Details` from the message or message browser to view details of the set action.

6   Click `Instructions` from the message browser or the message itself to read and follow suggested instructions to help diagnose/remedy problems (see example below).

Figure 10 Sample Instruction Text from Microsoft Exchange SPI Alarm Message
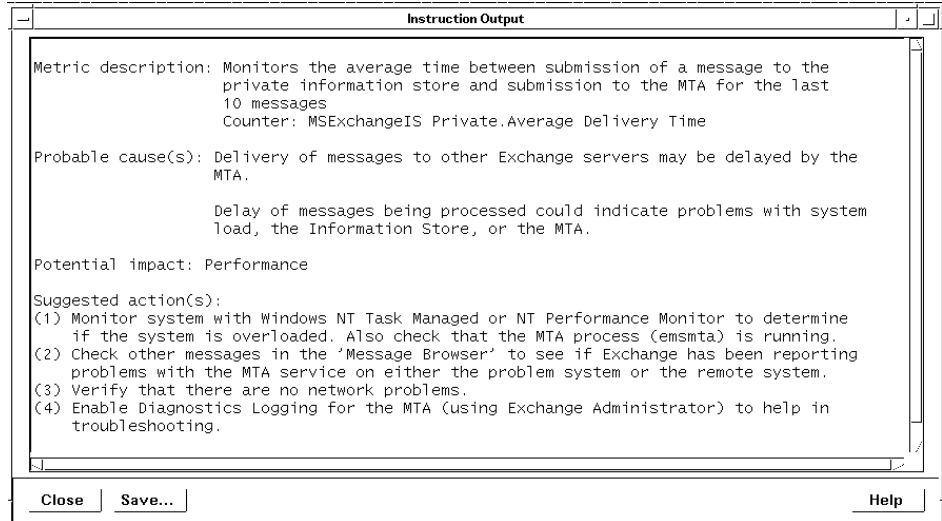
7   Use HP Performance Agent to export data if desired. Consult the *HP Performance Agent User's Guide* for details.

Exspi Template Group Requirements

Some templates in the SPI for Exchange template groups require that particular software components/services are installed on Exchange server systems before the distributed templates will work, and some require the existence of a service account with special Exchange privileges. To create such an account, see Creating a Service Account for Exchange 2003 Nodes on page 131.

Templates requiring a service account with special Exchange privileges

The following list contains all the templates requiring this special service account for Exchange 2003:

➤ If the agent on the node runs with the `Local System` account, you can use these templates without modifications. Alternatively, you can run these templates with the `System` account.

- EXSPI-6X Dc-Transaction Log Space Usage
- EXSPI-6X Transaction Log Backup Check
- EXSPI-6X 1h-Public Folder Space Usage
- EXSPI-6X Dc-IS Public Folder Performance
- EXSPI-6X-Dc-Public IS Sum Data
- EXSPI-6X-Dc-Public Folder Data
- EXSPI-6X-Dc-Mailbox Data
- EXSPI-6X-Dc-Mailbox IS Sum Data

- EXSPI-6X-Dc-IS Mailbox Performance
- EXSPI-6X-1h-Mailbox Space Usage
- EXSPI-6X Dc-Full Text Index
- EXSPI-6X-15m-300001
- EXSPI-6X-Dc SMTP Queues
- EXSPI-6X-Dc SMTP Virtual Server Storage
- EXSPI-6X-Dc SMTP Server Performance
- EXSPI-6X SMTP NDR Percentage
- EXSPI-6X SMTP Outbound Connections Refused
- EXSPI-6X MTA Message Delay
- EXSPI-6X MTA Rejected Inbound Associations
- EXSPI-6X MTA Rejected Inbound Messages
- EXSPI-6X MTA Work Queue Length
- EXSPI-6X MTA Failed Outbound Association
- EXSPI-6X MTA Failed Conversions
- EXSPI-6X Dc-X400 Service MTA Queue
- EXSPI-6X Dc-TrackLog Data
- EXSPI-65-ISClientRPCFailRate
- EXSPI-6X-Dc-OWA Back End
- EXSPI-6X-Dc-OWA Front End
- EXSPI-6X-Dc-POP3 Performance
- EXSPI-6X-POP3FailedConnRate
- EXSPI-6X-POP3RejectedConnRate
- EXSPI-6X-Dc-IMAP4 Performance
- EXSPI-6X-IMAP4FailedConnRate
- EXSPI-6X-IMAP4RejectedConnRate
- EXSPI-6X End to End Message Ping

If you want to use these templates with a user other than the `System` user or the agent's default `Local System` account, make sure the user includes all the privileges mentioned in Creating a Service Account for Exchange 2003 Nodes on page 131.

While configuring these templates to run with a service account, follow these steps before you deploy them on nodes:

1 From the Message Source Template window, double-click the template.

2 Go to the Command text box.

3 Add **-s** after *.exe. For example, if the command was specified as **exspi_perfmon.exe -l -o 102002**, change the command to **exspi_perfmon.exe -s -l -o 102002**.

4 Click **OK**.

Table 1   Schedule Template Prerequisites in Exchange 2003 Template Groups

Exchange 2003 template Groups	Required Manual Configuration
EXSPI Standard Groups	
EXSPI INFORMATION STORE (Ex2003) **EXSPI Transaction Log** EXSPI-6XDc-TransactionLogSpaceUsage EXSPI-6X Transaction Log Backup Check **EXSPI Public Folder (Ex2003)** EXSPI-6X 1h-Public Folder Space Usage EXSPI-6X Dc-IS Public Folder Performance EXSPI-6X-Dc-Public IS Sum Data EXSPI-6X-Dc-Public Folder Data **EXSPI Mailbox (Ex2003)** EXSPI-6X-Dc-Mailbox Data EXSPI-6X-Dc-Mailbox IS Sum Data EXSPI-6X-Dc-IS Mailbox Performance EXSPI-6X-1h-Mailbox Space Usage **EXSPI Full Text Index** EXSPI-6X Dc-Full Text Index	These templates require the completion of tasks 1-3 of the Configuring the Microsoft Exchange SPI on page 24.
EXSPI MESSAGING **EXSPI SMTP** EXSPI-6X-15m-300001 EXSPI-6X-Dc SMTP Queues EXSPI-6X-Dc SMTP Virtual Server Storage EXSPI-6X-Dc SMTP Server Performance EXSPI-6X SMTP NDR Percentage EXSPI-6X SMTP Outbound Connections Refused **EXSPI MTA** EXSPI-6X MTA Message Delay EXSPI-6X MTA Rejected Inbound Associations EXSPI-6X MTA Rejected Inbound Messages EXSPI-6X MTA Work Queue Length EXSPI-6X MTA Failed Outbound Associations EXSPI-6X MTA Failed Conversions EXSPI-6X Dc-X400 Service MTA Queue **EXSPI Tracking Log** EXSPI-6X Dc-TrackLog Data	These templates require the completion of tasks 1-3 of the Configuring the Microsoft Exchange SPI on page 24.

Exchange 2003 template Groups	Required Manual Configuration
EXSPI Specialized Groups	

EXSPI Exchange Server
    EXSPI Message Delivery
        EXSPI-6X End to End Message Ping
	This template requires the completion of tasks 1-3 of the Configuring the Microsoft Exchange SPI on page 24.
	
	In addition:
	
	 - Edit the MBOX Config Application to contain User Password
	
	- Create mailbox using MBOX Config application
	
	- Configure EXSPI End to End Message Ping template to set up server pairs

Table 2   Schedule Template Prerequisites in Exchange 2003 Template Groups

Exchange 2003 Template Groups	Required Manual Configuration
EXSPI Standard Groups	
EXSPI INFORMATION STORE (Ex2003) **EXSPI Transaction Log** EXSPI-6XDc-TransactionLogSpaceUsage EXSPI-6X Transaction Log Backup Check **EXSPI Public Folder (Ex2003)** EXSPI-6X 1h-Public Folder Space Usage EXSPI-6X Dc-IS Public Folder Performance EXSPI-6X-Dc-Public IS Sum Data EXSPI-6X-Dc-Public Folder Data **EXSPI Mailbox (Ex2003)** EXSPI-6X-Dc-Mailbox Data EXSPI-6X-Dc-Mailbox IS Sum Data EXSPI-6X-Dc-IS Mailbox Performance EXSPI-6X-1h-Mailbox Space Usage **EXSPI Full Text Index** EXSPI-6X Dc-Full Text Index	These templates require the completion of tasks 1-3 of the Configuring the Microsoft Exchange SPI on page 24.
EXSPI MESSAGING **EXSPI SMTP** EXSPI-6X-15m-300001 EXSPI-6X-Dc SMTP Queues EXSPI-6X-Dc SMTP Virtual Server Storage EXSPI-6X-Dc SMTP Server Performance EXSPI-6X SMTP NDR Percentage EXSPI-6X SMTP Outbound Connections Refused **EXSPI MTA** EXSPI-6X MTA Message Delay EXSPI-6X MTA Rejected Inbound Associations EXSPI-6X MTA Rejected Inbound Messages EXSPI-6X MTA Work Queue Length EXSPI-6X MTA Failed Outbound Associations EXSPI-6X MTA Failed Conversions EXSPI-6X Dc-X400 Service MTA Queue **EXSPI Tracking Log** EXSPI-6X Dc-TrackLog Data	These templates require the completion of tasks 1-3 of the Configuring the Microsoft Exchange SPI on page 24.

Exchange 2003 Template Groups	Required Manual Configuration
EXSPI CLIENT ACCESS **EXSPI Outlook 2003** EXSPI-65-ISClientRPCFailRate **EXSPI OWA** EXSPI Back End: EXSPI-6X-Dc-OWA Back End EXSPI Front End: EXSPI-6X-Dc-OWA Front End **EXSPI POP3** EXSPI-6X-Dc-POP3 Performance EXSPI-6X-POP3FailedConnRate EXSPI-6X-POP3RejectedConnRate **EXSPI IMAP4** EXSPI-6X-Dc-IMAP4 Performance EXSPI-6X-IMAP4FailedConnRate EXSPI-6X-IMAP4RejectedConnRate	These templates require the completion of tasks 1-3 of the Configuring the Microsoft Exchange SPI on page 24.

Exchange 2003 Template Groups	Required Manual Configuration
EXSPI Specialized Groups	

EXSPI Exchange Server
    EXSPI Message Delivery
        EXSPI-6X End to End Message Ping
	This template requires the completion of tasks 1-3 of the Configuring the Microsoft Exchange SPI on page 24.
	
	In addition:
	
	 - Edit the MBOX Config Application to contain User Password
	
	- Create mailbox using MBOX Config application
	
	- Configure EXSPI End to End Message Ping template to set up server pairs

Microsoft Exchange SPI Service Discovery

The Microsoft Exchange SPI contains a scheduled data collection template to discover Exchange services on HPOM managed nodes and the EXSPI-6x Exchange Cluster Discovery SysLog and EXSPI-6x Exchange Cluster Discovery for discovering Exchange in cluster environments. The discovery process can be initiated at any time by running the templates on the HPOM management server. Out-of-the-box the templates are set to run once a day at 00:24 am in the morning, to discover Exchange services.

The service graph generated by the Discovery templates is a snapshot of the services on the managed nodes at the time at which the template is run. The discovered Exchange topology is maintained in HPOM and is made available in the various dynamic Exchange maps and views.

The views of discovered services enable operators to see at a glance the current operational status of their Exchange environment, and can help them to analyze events in terms of their impact on the overall business service.

Prerequisites for Microsoft Exchange SPI Service Discovery

- Microsoft Exchange SPI service discovery requires the HP Service Navigator, this can be installed together with other HPOM components at initial HPOM installation. For details on how to install it at a later date, refer to the *HPOM Installation Guide*.

- The machine where the HPOM management server is installed should also be a managed node of that management server, with the HP Operations agent software installed and running successfully.

- *For Exchange 2003.* It is necessary to create a privileged user with the name "msxspi" on the domain controller of the domain to which each managed Exchange server belongs, and to make this user account a member of the "Administrators", "Domain Admins", "Domain Users", and "Exchange Domain Servers" groups.

- For each managed node where Exchange Service Discovery should run, make sure that the EXSPI Node Config tool is run, using the "msxspi" user account details. Running this tool will write and encrypt the `local.cfg` file with the username and password information of the privileged user account [msxspi] on the managed node.

Mechanism for Gathering Service Information

The mechanism the Microsoft Exchange SPI uses to gather service information is a simple one: a discovery server on the HPOM management server uses the list of managed nodes as parameters to trigger a discovery client on each of the HPOM managed nodes listed. The discovery clients on the various HPOM managed nodes use discovery modules that are installed during the installation of the agent software, to gather information about the services present on the managed nodes. The discovery server writes error messages to the following file:

`/var/opt/OV/log/SPISvcDisc/discovery_error.log`

Tracing can be enabled on the Management server by turning 'ON' the SPI_DISC_TRACE variable in the `EXSPI_DiscConfig.sh` file which is found under:

```
/opt/OV/EXSPI/bin/
```

The trace file (`discovery_trace_EXSPI.log`) can be found on the management server from the following location:

```
/var/opt/OV/log/SPISvcDisc/
```

The discovery client on the managed node writes generic error information into:

```
%OvAgentDir%\log\SPISvcDisc\discovery.log
```

Apart from these files, EXSPI discovery errors can also be found in EXSPI error log file:

```
%OvAgentDir%\exspi\log\exspierror.
```

If tracing is enabled, any tracing information can be found in:

```
%OvAgentDir%\exspi\log\trace
```

The service configuration files compiled by the discovery process are written to the directory on the management server using the following file-naming conventions:

```
/var/opt/OV/SPISvcDisc/conf/EXSPI/EXSPISvcDisc_<nodename>.xml
```

where nodename is the name of the node on which discovery has run.

The discovery server validates the syntax of the Service configuration file. If the file is valid, discovery server activates the service file and assigns operators to the Root service EXSPI. By default, the operator, opc_adm will be assigned. The activated services can be viewed through Java GUI of OVO/Unix, when logged in as 'opc_adm'.

Turning off Discovery failure messages:

When Microsoft Exchange SPI Discovery fails to discover services, failure messages are sent to the HPOM Management server. To turn off these messages, the user has to modify the file `EXSPI_DiscConfig.sh` located in `/opt/OV/EXSPI/bin` on the Management server.

The user has to change `MSG_ALLOW=Y` to `MSG_ALLOW=N`. (The default value is **Y**, which means messages are allowed).

Upon successful discovery, a message window will notify that a significant change has occurred in the service configuration on the management server, and it is necessary to reload the configuration and update the service map.

To Reload The Configuration

1 Logon to the HPOM Java console as the HPOM Administrator **opc_adm.**

2 Select **File-> Reload Configuration**.

3 A window will notify that the reload configuration is in progress.

4 View the updated service maps.

Manual Update

Changes to the service configuration of a managed node do not appear automatically in the SPI for Exchange Server service tree. In order to update the contents in the OV Service Navigator, the Discovery templates have to be run.

Figure 11 Service Tree View of Service Map
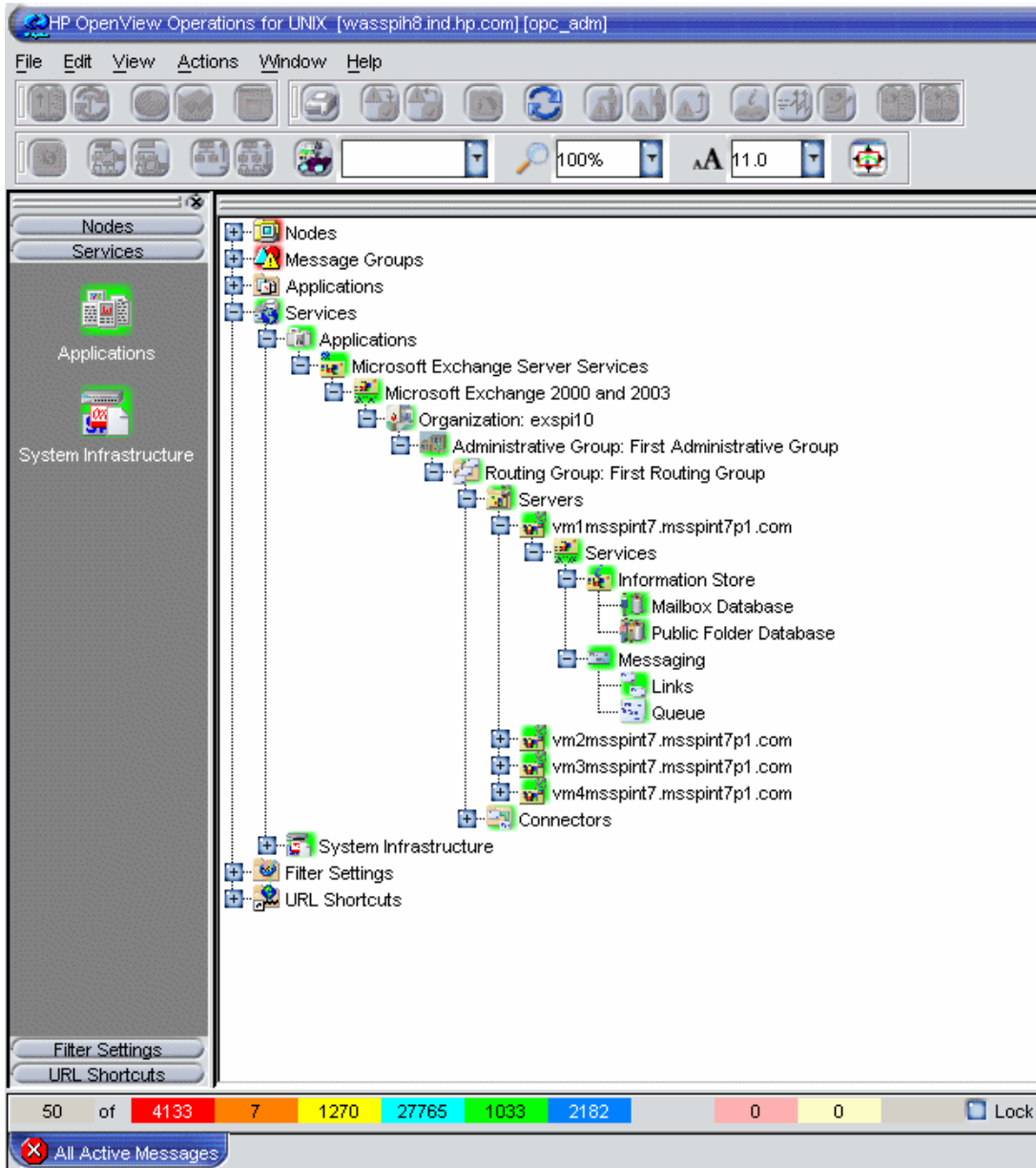
Using Microsoft Exchange SPI Service Views

The Microsoft Exchange SPI integrates with the HP Service Navigator to provide an additional perspective on the Exchange organization by offering Service views. This feature is available only if the HP Service Navigator software is installed and running and allows individual systems to be seen in terms of the configured hardware, the installed software, and the operating system services that are running.

Microsoft Exchange SPI discovers Exchange services when the Microsoft Exchange SPI discovery templates are run, and uses the discovered data to generate the service SPI for Exchange Server tree.

Views Are Snapshots

The service graph generated by the Microsoft Exchange SPI is a snapshot of the services on the managed nodes at the time at which the EXSPI Discovery templates are run. If the service configuration on a managed node subsequently changes, you have to run the discovery process again to have the changes reflected in the service tree.

Calculation and Propagation Rules in Discovery Process

Propagation rules for the objects in the SPI for Exchange Server tree are defined by default as unchanged. This means that a parent service does not change the status of a child object by, for example; attaching a priority to it. Such a scenario would be feasible if a parent service considered the status of one child service to be more important than the status of another child service.

Calculation rules for the SPI for Exchange Server tree are set by default to **Most Critical**. This means that if a parent service has more than one child service, it assumes the status equal to the highest severity of its child services. For more information about calculation and propagation rules, as well as how to go about modifying them, see the *HP Service Navigator Concepts and Configuration Guide*.

► HPOM messages are associated with all the low-level services and, in addition, the higher-level services: Exchange Information store and Exchange Messaging

Figure 12 Exchange 2003 Service Graph
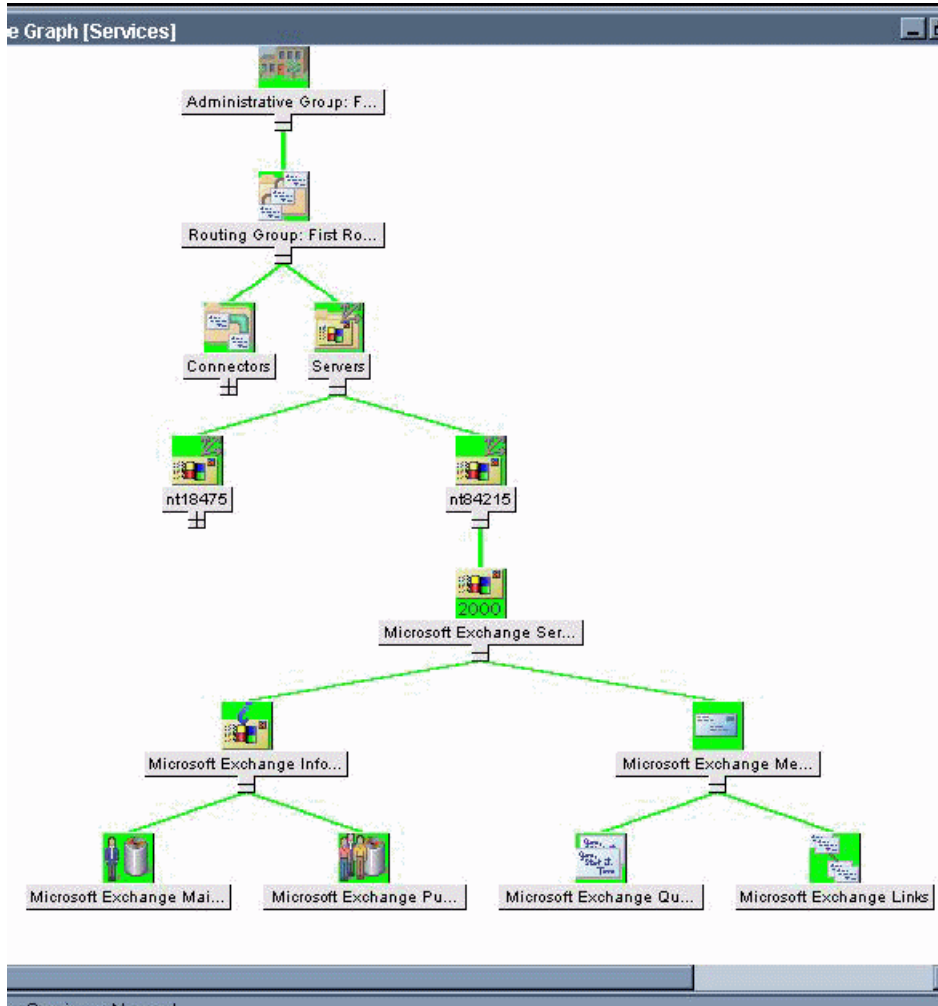
Data Collection Templates for Exchange Messaging Ports

The EXSPI_PORTS.exe examines the Exchange messaging port availability of an Exchange 2003 server.

Command line parameters

Usage Syntax: [-a] [-p] [-l] [-m 60, 61...metric number(s) or ranges 60-63]

[[-x key=value] [...]]

-a: alarming with the management server console

-p: to print out data collected to stdout

-l: to log data collected to the embedded performance agent (Coda)

-m: metric number or range

e.g. -m 1006, 1008-1009

-x key=value: to specify argument value

e.g., "-x timeout=10" is to set port connection timeout to be 10 seconds.

Default value for Timeout Interval = 5 seconds.

Metric IDs for Ports:

- SMTP 1006
- POP3 1007
- IMAP4 1008
- HTTP 1009

Message sent to management server console

The <*SMTP/POP3/IMAP4/HTTP* (whichever is applicable)> protocol (<*1006/1007/1008/ 1009*(respectively)>) was not available before timeout (<*timeout interval* seconds).

Default values for Protocol Ports

SMTP_PORT = 25

IMAP_PORT = 143

POP3_PORT = 110

HTTP_PORT = 80

Templates calling exspi_ports.exe

Template Name: EXSPI-6X HTTP Port Response

Description: Determines if the HTTP port is responsive.

Execution Schedule:

MINUTE   0, 10, 20, 30, 40, 50

HOUR   0-23

Schedule Program: `exspi_ports.exe -a -l -m 1009`

USER: $AGENT_USE

Failure Message Details:

SEVERITY: Warning

Message Group: EXSPI

TEXT: EXSPI-6X HTTP Port Response failed.

Template Name: EXSPI-6X IMAP4 Port Response

Description: Determines if the IMAP4 port is responsive.

Execution Schedule:

MINUTE   0, 10, 20, 30, 40, 50

HOUR   0-23

Schedule Program: `exspi_ports.exe -a -l -m 1008`

USER: $AGENT_USER

Failure Message Details:

SEVERITY: Warning

Message Group: EXSPI

TEXT: EXSPI-6X IMAP4 Port Response failed.

Template Name: EXSPI-6X POP3 Port Response

Description: Determines if the POP3 port is responsive.

Execution Schedule:

MINUTE   0, 10, 20, 30, 40, 50

HOUR   0-23

Schedule Program: `exspi_ports.exe -a -l -m 100`7

USER: $AGENT_USER

Failure Message Details:

SEVERITY: Warning

Message Group Name: EXSPI

Message Text: EXSPI-6X POP3 Port Response failed.

Template Name: EXSPI-6X SMTP Port Response

Description: Collects SMTP queue metrics

Execution Schedule:

MINUTE   1, 11, 21, 31, 41, 51

HOUR   0-23

Schedule Program: `exspi_ports.exe -a -l -m 1006`

USER: $AGENT_USER

Failure Message Details:

SEVERITY: Warning.

Message Group Name: EXSPI

Message Text: EXSPI-6X SMTP Port Response failed.

Port settings:

First the Exspi_ports binary checks the port entry in
`C:\WINDOWS\system32\drivers\etc\services`. If the search fails, the binary takes the default entries for the ports from the code.

`/*************************************************************`

Protocol ports

```
*************************************************************/
```

SMTP_PORT	= 25;
IMAP_PORT	= 143;
POP3_PORT	= 110;
HTTP_PORT	= 80;

If the SSL inclusion changes the port number you must change the port number in the services file to the new one manually, then Exspi_port takes this modified port number. Exspi_port binary does not modify the services file by passing any parameter.

Changing the Data Collection Agent Setup

The Microsoft Exchange SPI can detect whether or not you are using HP Performance Agent. If you are, your new Microsoft Exchange SPI installation will automatically use it as well. As a result, if you use HP Performance Manager, your new installation also supports that configuration.

To override the use of HP Performance Agent:

For Exchange 2007 nodes, change the command parameters `exspidatasource.exe -A -V -SPEC EX2007_*.spec -OVOU` **to** `exspidatasource.exe -A -V -CODA -SPEC EX2007_*.spec -OVOU`, and then launch the application **Create DataSources** on the target managed node.

For Exchange 2003 nodes, change the command parameters `exspidatasource.exe -A -V -SPEC EXSPI_*.spec -OVOU` to `exspidatasource.exe -A -V -CODA -SPEC EXSPI_*.spec -OVOU`, and then launch the application **EXSPI Add DataSource** on the target managed node.

Command Line Parameters

The collector/analyzer executable **exspi_e2k.exe** can be used with the following command line parameters:

Parameter	Description
-m <metric range>	**-m** (metric range) is used to specify the metric number or range of metric numbers.
-t <tag>	−t (tag) allows the collector/analyzer to use a different set of templates than those originally provided with the Microsoft Exchange SPI when collecting metrics. **NOTE:** Additional information about the tag feature is found at the end of the "Customizing Microsoft Exchange SPI" section.
-p -m <range> [-v]	−p (print) executes specified metrics and prints their values to standard output, for example: **<exspi_e2k.exe> -p -m 1-1001**
-a	−a directs the collector/analyzer to send the metric value to HPOM for alarm generating
−s	−s executes the collector as the special service account user (MSXSPI). Requires completion of the advanced configuration (see Configuring the Microsoft Exchange SPI on page 24).
-l -m <metric range> **-x <extended_option>**	Data collection metrics start at 0500. Types: **Value:** logs the actual value **Delta:** logs the difference between current and previous **Average:** logs the average over a specific interval (e.g. 1h) where: **-l** collector logs data to logfile instead of reporting it to HPOM **-x <extended_option>** is one of: **logtype:** is either "value, delta, or avg" **logfreq:** can only be "hourly" and is used only with "avg" **runfreq:** tells the collector the interval in seconds. If the schedule interval of EXSPI is every 10 minutes, the runfreq option must be set to 10*60 = 600: -x runfreq=600. The runfreq option can only be used with "avg." **mbox**: followed by "=<*mailbox_name*>" allows specification of certain mailboxes with certain metrics, specifically metrics: 611,612,622,623,630,631,632,640 and 641 Example of a command line using this option: `exspi -p -m 611 -x mbox=obrab`

4 Clustering Support

Using the Microsoft Exchange SPI in High-Availability Environments

The Microsoft Exchange SPI can be configured to accommodate cluster environments where fail-overs allow uninterrupted Exchange availability.

Synchronized with the cluster environment, Exchange SPI monitoring can be made to switch off for the failed node and switch on for the active node.

For recognizing clustered Exchange instances, Exchange SPI relies on XML configuration files. These files allow the OVO agent to automatically enable instance monitoring on the currently active node after disabling instance monitoring on the inactive node.

The Exchange SPI setup for a cluster environment requires the following steps:

1 Add the nodes to be managed.

2 Modify, if necessary, the Exchange SPI monitoring configuration file included with the Exchange SPI (`msexchange.apm.xml`).

3 Create the clustered application configuration file (`apminfo.xml`) that associates Exchange SPI-monitored instances (Exchange virtual servers), with their corresponding cluster resource groups.

4 Restart the agent on the managed node.

Task 1:   Add the Exchange Cluster nodes to be managed.

Add the Exchange cluster nodes to be managed.

Task 2:   Modify the Exchange SPI monitoring configuration file (if necessary)

The Exchange SPI includes a monitoring configuration file, (`msexchange.apm.xml`), which is an XML file that describes the templates that should be cluster-aware.

The (`msexchange.apm.xml` file works in conjunction with the clustered application configuration file (`apminfo.xml`) that you need to create for your Exchange cluster.

The purpose of the Exchange SPI `msexchange.apm.xml` file is to list all the Exchange SPI templates on the managed node, in order that these templates can be disabled/enabled, as appropriate, for inactive/active managed nodes.

▶ The Exchange SPI `msexchange.apm.xml` file is normally ready to use with no configuring. However, if you have renamed any templates, you need to modify the file accordingly. The file is in the monitor directory on the management server. After modifying this file, you need to redistribute the monitors to the Exchange nodes that are part of the Exchange cluster.

If the Exchange Cluster is managed under OVO 8 / HTTPS then `msexchange.apm.xml` needs to be manually copied from:

`$OvDataDir\bin\instrumentation`

to

`$OvDataDir\bin\instrumentation\conf`

for each managed node.

Task 3:   Create the clustered application configuration file

`Apminfo.xml` is an XML file that describes the cluster instances (Exchange virtual servers).

`Apminfo.xml`, working in conjunction with the Exchange SPI monitoring configuration file (`msexchange.apm.xml`), allows you to associate Exchange SPI monitored instances (Exchange virtual servers) with their associating cluster resource groups. As a result, when a resource group is moved from one node in a cluster to another node in the same cluster, monitoring stops on the failed node and starts on the new node.

To generate the content of this file:

1   Launch the Exchange SPI Exchange Cluster Configuration application on an Exchange cluster node, see Exchange Cluster Configuration application on page 63.

2   Save the generated output in a temporary file by clicking on the **Save..** button.

3   Open this temporary file and remove all the lines above:

`<?xml version="1.0" ?>`

4   Save the remaining lines as the completed `apminfo.xml` file.

If the node is managed under OVO 8 / HTTPS.save it to:

`<OVO_DATADIR>\conf\conf`

You can get the full path name for OVO_DATADIR by running the following command from a CMD window on the managed node:

`opcagt -type -verbose`

Task 4:   Restart the agent on the managed node

After constructing and saving `apminfo.xml`, stop and restart the OVO agent by running the following commands on each node:

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

Example apminfo.xml file

The following is an example apminfo.xml file, where ASPIVM6 is the name of the Exchange resource group):

```
<?xml version="1.0" ?>
<APMClusterConfiguration>
```

```
<Application>
    <Name>msexchange</Name>
    <Instance>
        <Name>ASPIVM6</Name>
        <Package>aspivm6</Package>
    </Instance>
</Application>
</APMClusterConfiguration>
```

Figure 13 Example Exchange resource group
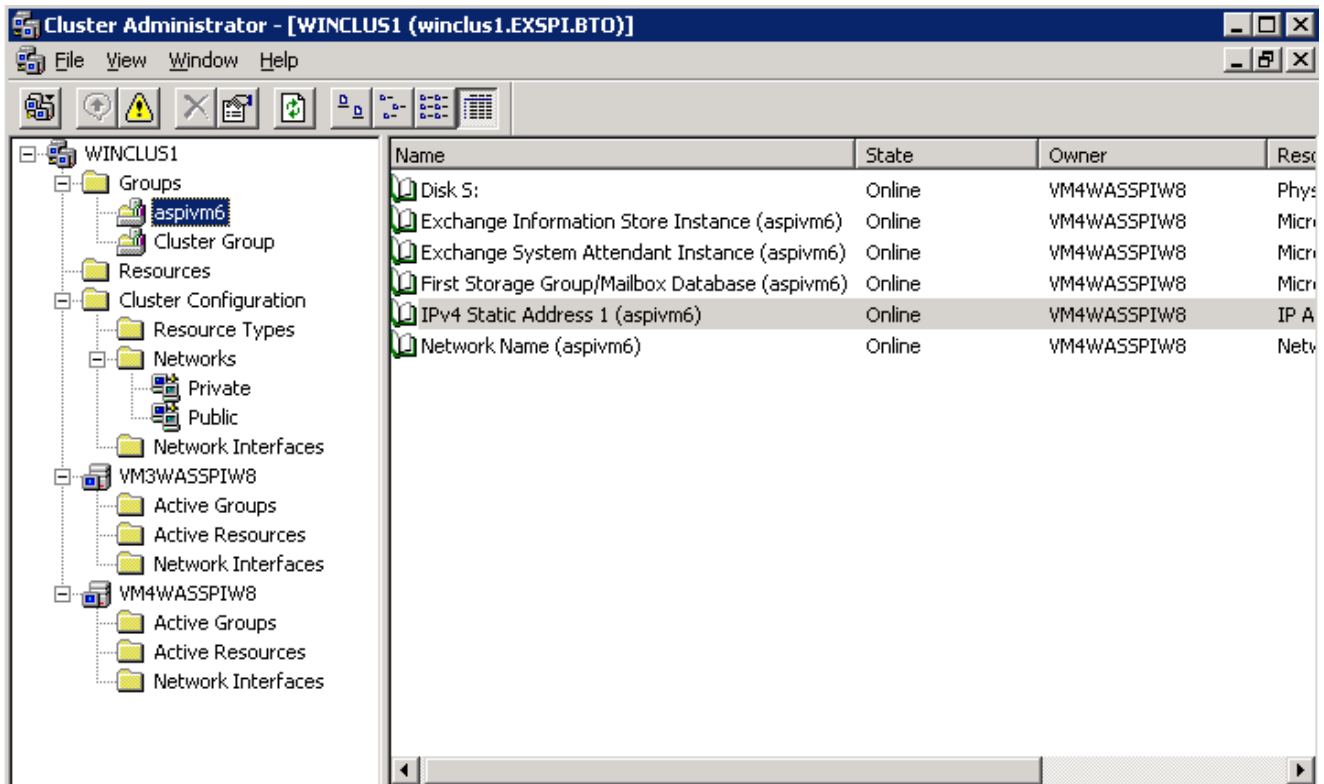
Exchange Cluster Configuration application

Use the Exchange Cluster Configuration application to generate the content of the `apminfo.xml` file. To execute this application:

1   Select all the Exchange managed nodes you wish to configure in the OVO Node Bank.

2   Drag these nodes and drop them on the **Exchange Cluster Config** application located in the **EXSPI Admin > Exchange 2000 and 2003** or **Exchange 2007** application group.

3   Use the generated output to construct the `apminfo.xml. For details, r`efer to Create the clustered application configuration file on page 62).

Figure 14 Example output of Cluster Configuration application

```
X  Output of Application No. 10                                      _ □

   Executed Application

   cscript /nologo  %OvAgentDir%\bin\OpC\cmds\exspi_e2k_clust_config.js

   Application Output

           Command Output                No. 1 of 1
                                         Node: nt84215.appspi.com
                                         Time: 01/30/04 19:24:59

   <?xml version="1.0" ?>
   <!-- The generated output can be pasted into your apminfo.xml file -->
   <!-- as documented in the Users guide -->
   <APMClusterConfiguration>
      <Application>
         <Name>msexchange</Name>
      <Instance>
         <Name>EXCHANGETEST1</Name>
         <Package>Exchange Group</Package>
      </Instance>
   </Application>
   </APMClusterConfiguration>

   ◁                                                          ▷

   Close        Stop      Save...    Retry...                    Help
```
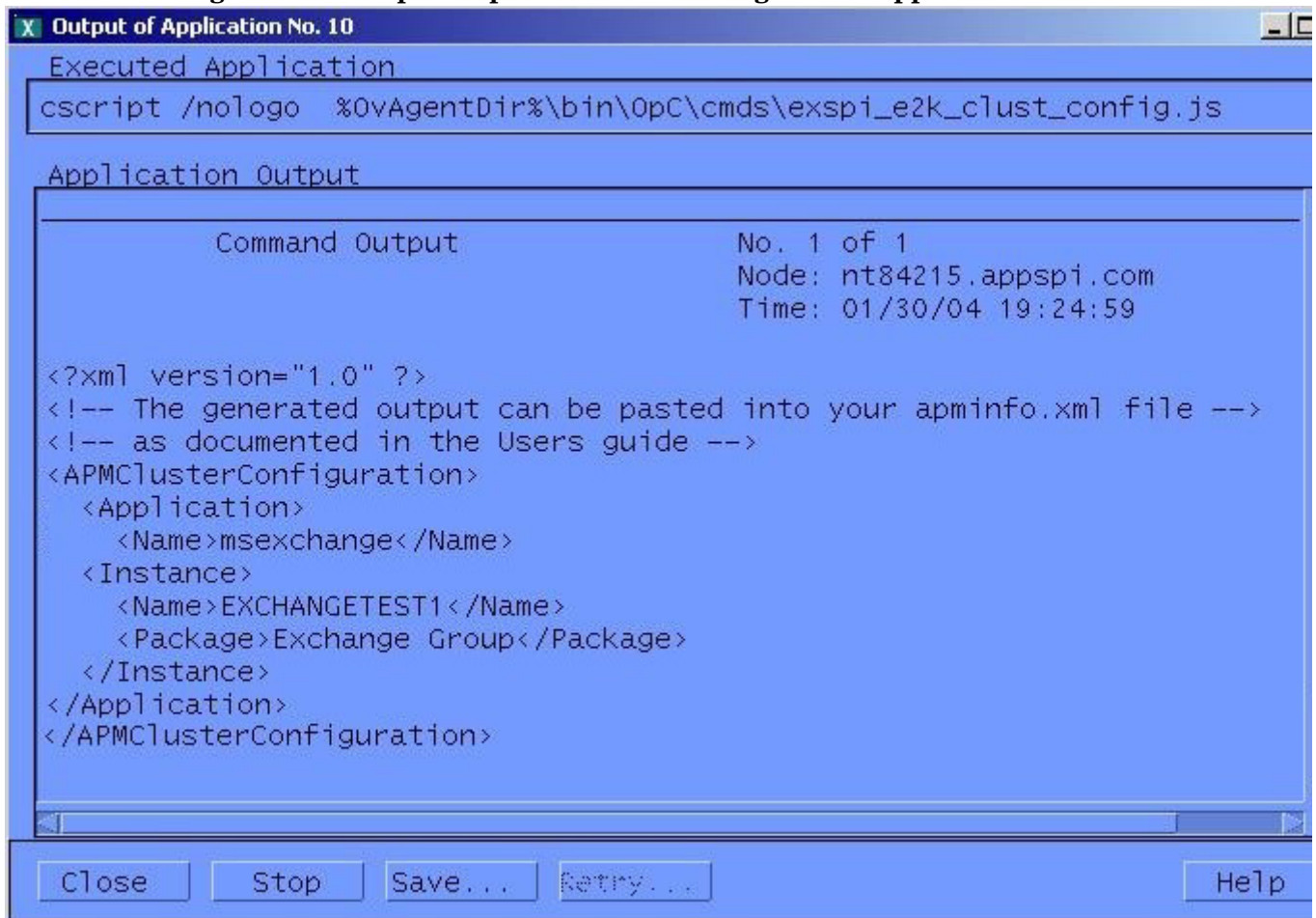
▶ After constructing and saving `apminfo.xml`, you need to restart the agent on the node, using the following commands:

Opcagt -kill

Opcagt -start

Data Collection on virtual servers

In order for reports and graphs to show data for any nodes, appropriate data collection templates need to be distributed to those nodes. See the section Using Microsoft Exchange SPI Reports and Graphs on page 104.

Run the **Enable Message Tracking** application on all nodes in the cluster before distributing the **EXSPI 6.X Dc-TrackingLog Data** template, so that the tracking log reports will generate. The application must run on the physical nodes of a cluster where the Exchange virtual server is running.

Seeing virtual servers in reports and graphs

The Exchange SPI will show Exchange virtual servers in reports and graphs as though they were physical Exchange servers.

Setting up End-to-End Message Ping on an Exchange Cluster

Using Exchange SPI, End-to-End Message Ping can be configured on Exchange clusters.

1   Run the **EXSPI MBox Config** application on all nodes in the cluster. The application must run on the physical nodes of a cluster where the Exchange virtual server is running on. This is a necessary step for configuring and distributing End-to-End Message Ping.

2   Follow the directions in Set Up Message Ping Server Connections and Alarms on page 38.

What happens during a failover:

When a failover happens, dependencies to the failed node will be removed and replaced with new dependencies to the newly active node. For example, if EXCHVIRTSERV1 moves from OVRNTTC1B to OVRNTTC1A, the dependencies to OVRNTTC1B will automatically be removed and will be replaced with a new set of dependencies to OVRNTTC1A..

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

▶   For this mechanism to work EXSPI-6X-Exchange cluster discovery Event Log template must be distributed

5 Customizations

This chapter outlines the following customization procedures:

- Choosing metrics to monitor Exchange
- Customizing the Exchange SPI
  - Basic Customization procedures
    - Creating custom groupings
    - Creating custom templates
    - Modifying message generation
    - Modifying metric template conditions
    - Customizing the Threshold
    - Customizing Schedules
    - The Tag Feature
  - Advanced Customization procedures
    - Changing the Windows User Account Name
    - Changing the Mailbox Name
- Returning to original factory settings

Choosing metrics to monitor Microsoft Exchange Server

Before beginning customization, first decide which templates can remain without changing the thresholds (see the *Microsoft Exchange SPI Reference Manual*).

▶ It is recommended that you make a copy of the original template group and use the copy for customization purposes

Basic Customization

Creating Custom Groupings

Create custom template groups as follows:

1 Log onto HPOM as the HPOM Administrator.

2 Select **Window>Message Source Templates**.

3   In the Message Source templates window select the desired template group and click the **Add...** button (if Add Logfile... is displayed, pull down the list and select Add Group) and select a name and description for this group.

4   To copy templates to the new group:

   • In the Message Source templates window, double-click to open the group containing the desired templates.

   • Select the templates to copy and choose **Edit>Copy from the Message Source Templates** menu to copy the templates.

   • Return to the newly created template group and choose **Edit>Paste** from the menu.

Figure 15 Creating a New Template Group
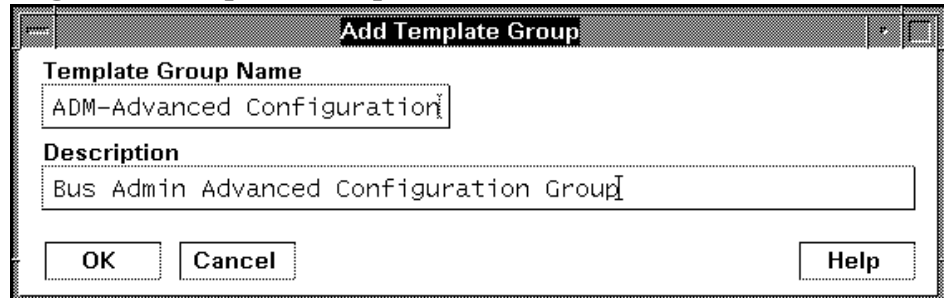
Creating Custom Templates

You can create a custom template by copying an original template, making any desired changes, and saving it with a new name.

When the HPOM environment scales, the Exchange SPI *tag feature* provides a way to partition templates into groups with each group customized in a specific manner.

Modifying Message Generation

Alarms are generated `with Reset, without Reset` or `Continuously.` To change the `Metric Generation Type` (usually in conjunction with the `Threshold, Polling Interval` and `Reset` value) follow these steps:

1   Select the **Message Source Templates** window.

2   Double-click to open the template group containing the metric to modify.

3   Click the **Modify** button.

Figure 16 Modifying Message Generation

4   Select one of the Message Generation types:

— **with Reset:** Alarms are generated after the monitoring threshold has been exceeded. No additional alarms are generated until metrics drop below a specified Reset threshold and subsequently exceed the monitoring threshold.

— **without Reset:** Alarms are generated after the monitoring threshold has been exceeded. No additional alarms are generated until metrics drop below the threshold and subsequently exceed it.

— **Continuous:** Alarms are generated continuously when metrics exceed the threshold.

Modifying Metric Template Conditions

Modify metric attributes as follows.

1 Select the **Message Source Templates** window.

2 Double-click the template group containing the metric to modify.

3 Double-click the desired metric

4 In the Message and Suppress Conditions window select the condition to modify and click the **Modify** button.

Figure 17 The Message and Suppress Conditions Window
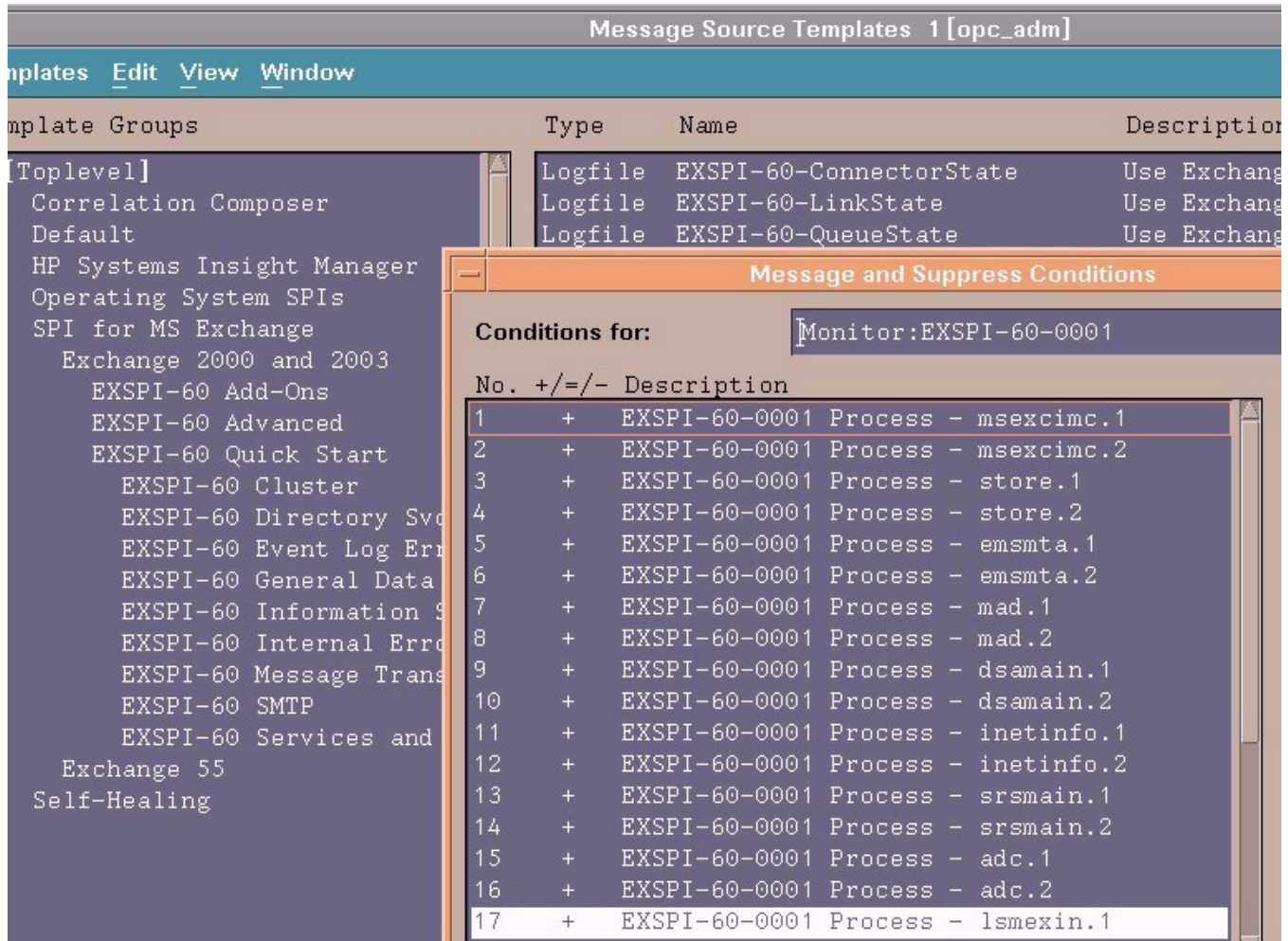
5 The `Condition` window displays.

The following attributes can be easily modified:

Threshold. Set the desired threshold.

Reset. This is a limit under which the object's value must drop (or exceed for minimum thresholds) to return the alarm state of the object to normal. After an object's alarm state has returned to normal, a new message can be issued if the monitored parameter again exceeds (or drops below for minimum thresholds) the threshold value. Do not enter a value if you do not wish to impose a reset limit. Note that you can enter a reset value greater than the threshold value (or less for minimum threshold types), which has the same effect as if you don't specify a reset value.

Duration. Most metrics are defined as `Message Generate` type `without Reset` and without a `Duration`. Please consult the *HPOM Concepts Guide* or online Help prior to modifying this field.

Severity. Click the [`Severity`] button and select the desired severity setting.

Message Text. Be careful not to modify any of the parameters in a message. Parameters are surrounded by <> brackets and begin with $.

Actions. This field provides the ability to add custom programs. Two types of actions are available:

Operator initiated: These actions are only performed upon the initiation of an operator.

Automatic: These actions are performed automatically when the metric alarms.

▶ Some metrics have an operator-initiated action which will display a graph if HP Performance Manager is installed on the management server.

Customizing the Threshold

Customize the threshold as needed. To do so, copy the existing condition to use as the default, and modify the original condition to serve as the exception. Follow these steps:

1   Double-click the metric you want to customize (for example, EXSPI-60-0001).

2   In the Message and Suppress Conditions window select the desired condition and select the **Copy** button to make a copy of the condition.

3   Enter a name for the condition; for example, EXSPI-6X-0001.3.

4   Click **OK** to close EXSPI-6X-0001.3. This will be the default condition.

5   Select the original condition, EXSPI-6X-0001.1.

6   Click the **Modify** button to display the Condition window.

7   In the **Object Pattern** field, enter the desired characters to use for pattern matching (see the HPOM online help or the *HPOM Administrators Task Guide* for pattern matching syntax).

8   Click the **Test Pattern Matching...** button to test the pattern and verify pattern matching (you must set up a match file first).

9   Change the value in the value in the Threshold field.

Figure 18 Testing Pattern Matching from the Condition Window
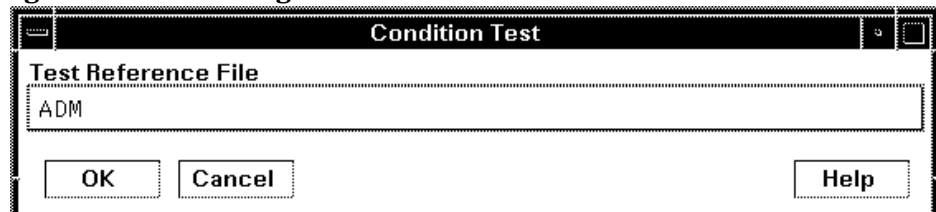
Customizing Schedules

Schedule templates define the schedule by which the collector/analyzer will gather metric information. To modify a schedule template, follow these steps:

1   Select **Window>Message Source Templates** and double-click the template group containing the template to modify.

2   Double-click the desired template

3   In the **Modify Scheduled Actions** change any of the schedule information or other parameters.

4   Click **OK** to close and save the changes.

5   Distribute the template to the desired managed node(s).

Figure 19 Customizing a Schedule template

Modify Scheduled Action

Scheduled Action Name | Description

EXSPI-55-15m-Transaction Log | Scheduler for metrics in Transaction Log group

Schedule

Minute	0,15,30,45
Hour	0-23
Day of the Month	
Month	
Year	
Day of the Week	

Command | exspi_e55.exe -a -m 5 -s

Execute as user | HP ITO account

☐ Send message before start of action
   Configure Start Message...
☐ Send message if action completed successfully
   Configure Success Message...
☒ Send message if action failed
   Configure Failure Message...
☒ Send Output of Action

OK   Cancel   Help

The Tag Feature

When servers are dedicated to specific sites or business units, you may find it more effective if those servers do not all share the same set of Exchange SPI templates. In such cases, the tag feature is useful in allowing you to change existing templates and rename them. In this way you can associate template assignments with specific servers and the areas with which they are associated. For example, you might create a business administration group of templates and tag those templates with "ADM-" or a branch office group and tag those with "BR-."

The tag feature allows you to create custom templates in a quick way. To summarize the steps, you:

 a   Make copies of existing monitor templates that you want to modify.

 b   (optional) Modify the monitor template settings.

 c   Save each modified template under the same name with a prefix.

 d   Enter each metric and - *<prefix tag>* after the collector/analyzer command in the **Program Monitor or MIB ID** box of the schedule template.

Using this method allows the collector/analyzer to recognize a set of templates different from those originally provided with the Exchange SPI. This method allows you to enlarge the single set of templates to adjust to differing conditions among the servers you use.

To use this feature, make copies of the original Exchange SPI templates. The names you give these new templates must contain a prefix with the original template name. To tell the collector/ analyzer to use this new template rather than the original template, specify the tag option on the schedule template command line.

New collector templates can also be created in this way, for example:

```
exspi_e2k -m 16 -t ADM-
```

In this case the new collector template is called "`ADM-EXSPI-15min.`"

Advanced Customization

Changing the Windows User Account name

A Windows user account, used for creating a mailbox, is referenced in the EXSPI MBOX Config application. To change the account name, edit the EXSPI Mbox Config application and change the user name setting. This application requires a user with Exchange administrative privileges.

Changing the Mailbox name

For all schedule templates in the template group EXSPI-6X Data Collection (Adv), add `-x` *<mailbox_name>* to the command which is executed under the schedule. For example:

```
exspi_e2k -l -m 630,631,632 -x logtype=value -x mbox=MSXSPI
```

The default mailbox `MSXSPI` *<hostname>* can be changed by supplying the mailbox name to EXSPI MBOX Config:

Use the OVO Customized Startup to start **EXSPI MBOX Config**, and add
`-m` *<mailbox name prefix>* [`-ou` *<organizational unit>*]
to the Application Parameter box.

▶ Do not add the domain before the user name. The user must be in the domain where the Exchange Server is located, and cannot be a local user.

Returning to Original Factory settings

To re-install all Microsoft Exchange SPI templates, applications and message groups with original factory settings, run the following command:

```
/opt/OV/bin/OpC/opccfgupld -verbose -replace /var/opt/OV/share/tmp/
OpC_appl/EXSPI/exspiset
```

⚠ Any customization of the original templates will be overwritten.

6 Integration with HP Reporter

This chapter describes how to install and generate reports within Reporter from Exchange SPI data. It contains the following sections:

- Installing Exchange SPI reports
- Exchange SPI report template requirements
- Lists of Exchange SPI reports, by Exchange version
- Using Exchange SPI reports and graphs
    - Distributing data collection templates
    - Distributing Reporter Collection templates
- Exchange SPI graphs
- Deinstalling Exchange SPI Reporter templates

Data Collection for Graphing and Reporting

Exchange SPI reports display data collected from EXSPI templates distributed to Exchange servers. The Exchange SPI collects data for graphing and reporting through data collection templates. Exchange and Windows data is collected, summarized, and forwarded to the HPOM data collecting agent. Reporter can be used to access the data source EXSPI_DATA and write reports using Seagate Crystal Reports.

Data is collected through data collection templates, see the *HP Operations Smart Plug-in for Microsoft Exchange Server Reference Guide,* for a complete listing of Schedule Data Collection templates for each Exchange version.

The specific Schedule Data Collection templates that must be distributed for Exchange SPI to generate particular reports are as follows:

Table 3   Data Collection Templates Required for Reports

Report Name	Template Name	Report Group
Exchange 2003 Active Sync Usage	EXSPI-65-Dc-ActiveSync	Client Access
Exchange 2003 Active Sync Notifications	EXSPI-65-Dc-ActiveSyncNotify	Client Access
Exchange 2003 OMA Sync Usage	EXSPI-65-Dc-OMA	Client Access
Exchange 2003 and 2000 IMAP4 Connections	EXSPI-65-Dc-IMAP4 Performance	Client Access

Report Name	Template Name	Report Group
Exchange 2003 and 2000 IS Users and Connection	EXSPI-6X-Dc-Information Store Performance	Client Access
Exchange 2003 and 2000 Messaging Ports	EXSPI-6X SMTP Port Response EXSPI-6X POP3 Port Response EXSPI-6X IMAP4 Port Response EXSPI-6X HTTP Port Response	Client Access
Exchange 2003 and 2000 OWA Usage	EXSPI-6X-Dc-OWA Back End	Client Access
Exchange 2003 and 2000 OWA Authentications	EXSPI-6X-Dc-OWA Back End	Client Access
Exchange 2003 and 2000 OWA Connections	EXSPI-6X-Dc-OWA Front End	Client Access
Exchange 2003 and 2000 POP3 Connections	EXSPI-6X-Dc-POP3 Performance	Client Access
Exchange 2003 and 2000 System Information Summary	EXSPI-6X-Dc-Mailbox IS Sum Data EXSPI-6X-Dc-Public IS Sum Data	Exchange Server
Exchange 2003 and 2000 Full Text Indexing Stats	EXSPI-6X Dc-Full Text Index	Information Store
Exchange 2003 and 2000 Transaction Log Stats	EXSPI-6X Dc-Transaction Log Space Usage	Information Store
Exchange 2003 and 2000 Inactive Mailboxes	EXSPI 6X-Dc-Mailbox Data	Mailbox Store
Exchange 2003 and 2000 Mailbox Details	EXSPI 6X-Dc-Mailbox Data	Mailbox Store
Exchange 2003 and 2000 Mailbox Store Stats	EXSPI-6X-Dc-Mailbox IS Sumdata	Mailbox Store
Exchange 2003 and 2000 Mailbox Summary	EXSPI 6X-Dc-Mailbox IS Sum Data	Mailbox Store
Exchange 2003 and 2000 Mailbox Usage Trends	EXSPI-6X Dc-Mailbox IS Sum Data	Mailbox Store
Exchange 2003 and 2000 Mailbox Store Messaging Trends	EXSPI-6X-Dc-IS Mailbox Performance	Mailbox Store
Exchange 2003 and 2000 Top 100 Mailboxes	EXSPI-6X-Dc-Mailbox Data	Mailbox Store
Exchange 2003 and 2000 Message Delivery SLA	EXSPI-6X End to End Message Ping	Messaging
Exchange 2003 and 2000 Top Destinations	EXSPI-6X Dc-TrackLog Data	Messaging
Exchange 2003 and 2000 Top Recipients	EXSPI-6X Dc-TrackLog Data	Messaging

Report Name	Template Name	Report Group
Exchange 2003 and 2000 Top Senders	EXSPI-6X Dc-TrackLog Data	Messaging
Exchange 2003 and 2000 Top Sources	EXSPI-6X Dc-TrackLog Data	Messaging
Exchange 2003 and 2000 All Local Msg Delivery SLA	EXSPI-6X Dc-TrackLog SLA Delivery	Messaging
Exchange 2003 and 2000 MTA Msg Trends	EXSPI-6X Dc-MTA Performance	Messaging
Exchange 2003 and 2000 MTA Queue Data Stats	EXSPI-6X Dc-X400 Service MTA Queue	Messaging
Exchange 2003 and 2000 Message Tracking Stats	EXSPI-6X-Dc-Message Tracking Log Space Usage	Messaging
Exchange 2003 and 2000 SMTP Connections	EXSPI-6X Dc-SMTP Server Performance	Messaging
Exchange 2003 and 2000 SMTP Msg Trends	EXSPI-6X Dc-SMTP Server Performance	Messaging
Exchange 2003 and 2000 Virtual Server Stats	EXSPI-6X Dc-SMTP Virtual Server Storage	Messaging
Exchange 2003 and 2000 Exchange Folder Summary	EXSPI-6X-Dc-Public IS Sum Data	Public Folder Store
Exchange 2003 and 2000 Exchange Folder Usage Trends	EXSPI-6X-Dc-IS Public Folder Performance	Public Folder Store
Exchange 2003 and 2000 Inactive Folders	EXSPI 6X-Dc-Public Folder Data	Public Folder Store
Exchange 2003 and 2000 Public Folder Store Stats	EXSPI-6X-Dc-Public IS Sum Data	Public Folder Store
Exchange 2003 and 2000 Public Folder Store Msg Tnd	EXSPI-6X-Dc-Public IS Sum Data	Public Folder Store
Exchange 2003 and 2000 Top 100 Public Folders	EXSPI-6X-Dc-Public Folder Data	Public Folder Store

Microsoft Exchange SPI Reports

Installing Exchange SPI Report Templates

To install Exchange SPI reports on the system where Reporter is installed:

1   Double-click **EXSPI-Reporter.msi** on the HP Operations Manager for Unix Application CD-ROM. This opens the EXSPI-Reporter InstallShield Wizard.

2   Click **Next** on the welcoming dialog.

3   The next dialog confirms that EXSPI-Reporter is now installed, click **Finish** to exit the wizard.

4   Open Reporter to see the **SPI for Exchange** folder under **Reports**.

5   Open the SPI for Exchange group of reports, and see the groupings of Exchange reports. As you select each group, see in the details pane the individual reports available in that group.

Reports for Exchange 2007 Servers

The SPI for Microsoft Exchange Server 2007 provides the following reports:

Exchange 2007 Availability

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Availability** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Availability.rpt

This report indicates the availability status of Microsoft Exchange Server 2007. The Microsoft Exchange SPI monitors the availability of the services that are necessary for Microsoft Exchange Server 2007 to run smoothly. The Exchange 2007 Availability report helps you identify if any of these services are unavailable.

Report content

This report (pie chart) displays the duration (percentage of time) for which the Exchange 2007 services could successfully run. Possible causes of availability failure are: lack of system resources, wrong configuration, or performance failures in the Exchange 2007 environment.

Available: Next day.

Required Templates:

For this report to work properly, deploy the following template:

EXSPI-8X Get Exchange Availability

Template Schedule: Once in every 5 minutes

Metrics:

This report uses the following metrics, which are logged into the Reporter database:

• SERVER_NAME

• AVAILABILITY

Reporter table:

EX2007_AVAILABILITY

Exchange 2007 Client Access Server Availability

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Client Access Server Availability** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Client Access Server Availability.rpt

This report indicates the availability status of the nodes with the Client Access Server role in the Exchange Organization. The Microsoft Exchange SPI monitors the availability of the services that are necessary for Microsoft Exchange Server 2007 nodes with the Client Access Server role to run smoothly. The Exchange 2007 Client Access Server Availability report helps you identify if any of these services are unavailable.

Report content

This report (pie chart) displays the duration (percentage of time) for which the Exchange 2007 Client Access Server services could successfully run. Possible causes of availability failure are: lack of system resources, wrong configuration, or performance failures in the Exchange 2007 environment.

Available: Next day.

Required Templates:

For this report to work properly, deploy the following template:

EXSPI-8X Get Exchange Availability

Template Schedule: Every 5 minutes

Metrics:

This report uses the following metrics, which are logged into the Reporter database:

- SERVER_NAME
- AVAILABILITY
- SERVER_ROLE

Reporter table:

EX2007_AVAILABILITY

Exchange 2007 Edge Transport Server Availability

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Edge Transport Server Availability** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Edge Transport Server Availability.rpt

This report indicates the availability status of the nodes with the Edge Transport Server role in the Exchange Organization. The Microsoft Exchange SPI monitors the availability of the services that are necessary for Microsoft Exchange Server 2007 nodes with the Edge Transport Server role to run smoothly. The Exchange 2007 Edge Transport Server Availability report helps you identify if any of these services are unavailable.

Report content

This report (pie chart) displays the duration (percentage of time) for which the Exchange 2007 Edge-Transport services could successfully run. Possible causes of availability failure are: lack of system resources, wrong configuration, or performance failures in the Exchange 2007 environment.

Available: Next day.

Required Templates

For this report to work properly, deploy the following template:

EXSPI-8X Get Exchange Availability

Template Schedule: Every 5 minutes

Metrics:

This report uses the following metrics, which are logged into the Reporter database:

- SERVER_NAME
- AVAILABILITY
- SERVER_ROLE

Reporter table:

EX2007_AVAILABILITY

Exchange 2007 Hub Transport Server Availability

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Hub Transport Server Availability** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Hub Transport Server Availability.rpt

This report indicates the availability status of the nodes with the Hub Transport Server role in the Exchange Organization. The Microsoft Exchange SPI monitors the availability of the services that are necessary for Microsoft Exchange Server 2007 nodes with the Hub Transport Server role to run smoothly. The Exchange 2007 Hub Transport Server Availability report helps you identify if any of these services are unavailable.

Report content

This report (pie chart) displays the duration (percentage of time) for which the Exchange 2007 Hub Transport Server services could successfully run. Possible causes of availability failure are: lack of system resources, wrong configuration, or performance failures in the Exchange 2007 environment.

Available: Next day.

Required Templates:

For this report to work properly, deploy the following template:

EXSPI-8X Get Exchange Availability

Template Schedule: Every 5 minutes

Metrics:

This report uses the following metrics, which are logged into the Reporter database:

- SERVER_NAME
- AVAILABILITY
- SERVER_ROLE

Reporter table:

EX2007_AVAILABILITY

Exchange 2007 Mailbox Server Availability

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Mailbox Availability** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Mailbox Server Availability.rpt

This report indicates the availability status of the nodes with the Mailbox Server role in the Exchange Organization. The Microsoft Exchange SPI monitors the availability of the services that are necessary for Microsoft Exchange Server 2007 nodes with the Mailbox Server role to run smoothly. The Exchange 2007 Mailbox Server Availability report helps you identify if any of these services are unavailable.

Report content

This report (pie chart) displays the duration (percentage of time) for which the Exchange 2007 Mailbox Server services could successfully run. Possible causes of availability failure are: lack of system resources, wrong configuration, or performance failures in the Exchange 2007 environment.

Available: Next day.

Required Templates:

For this report to work properly, deploy the following template:

EXSPI-8X Get Exchange Availability

Template Schedule: Every 5 minutes

Metrics:

This report uses the following metrics, which are logged into the Reporter database:

- SERVER_NAME
- AVAILABILITY
- SERVER_ROLE

Reporter table:

EX2007_AVAILABILITY

Exchange 2007 Unified Messaging Server Availability

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Unified Messaging Availability** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Unified Messaging Server Availability.rpt

This report indicates the availability status of the nodes with the Unified Messaging Server role in the Exchange Organization. The Microsoft Exchange SPI monitors the availability of the services that are necessary for Microsoft Exchange Server 2007 nodes with the Unified Messaging Server role to run smoothly. The Exchange 2007 Unified Messaging Server Availability report helps you identify if any of these services are unavailable.

Report content

This report (pie chart) displays the duration (percentage of time) for which the Exchange 2007 Unified Messaging Server services could successfully run. Possible causes of availability failure are: lack of system resources, wrong configuration, or performance failures in the Exchange 2007 environment.

Available: Next day.

Required Templates:

For this report to work properly, deploy the following template:

EXSPI-8X Get Exchange Availability

Template Schedule: Every 5 minutes

Metrics:

This report uses the following metrics, which are logged into the Reporter database:

- SERVER_NAME
- AVAILABILITY
- SERVER_ROLE

Reporter table:

EX2007_AVAILABILITY

Exchange 2007 Top 100 Mailboxes

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Top 100 Mailboxes** in the HP Reporter o console.

Report Template File Name: g_Exchange 2007 Top Mailboxes.rpt

This report lists the top 100 mailboxes by disk space usage across all mailbox databases for all Exchange 2007 servers. It contains the most recent information available as of the date indicated.

Report sections

Top Mailboxes by Disk Space Usage: This section contains information on high disk space usage mailboxes, as obtained from Exchange database queries through the Exchange cmdlets.

Size (MB): Logical size of the mailbox based on the sum of the size of all messages in the mailbox. Units are in megabytes.

Mailbox Name: Display name of the Exchange mailbox.

Location: Name of the server and location of the mailbox

Storage Limit: Has one of the following values: Not Available, Below Limit, Issue Warning, Prohibit Send, No Checking, and Mailbox Disabled.

No. Msgs: The number of messages in the Mailbox.

Available: The day after collection. This is a weekly collection.

Each template must execute once, and the data must be gathered to the Reporter database, and the report is generated from this data. The report only shows data from the most recent day; therefore all Exchange Systems should log this data during the same time period. This data is collected and logged weekly. The schedule out of the box is set to collect and log data late Friday. If the data is gathered to the Reporter database nightly, this report will be refreshed with data and can be viewed on Saturday.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Get Mailbox Details

Metrics:

- MB_SIZE (MB)
- MB_MSGCOUNT: Number of Messages

- MB_STGLIMIT
- MB_LASTACCESS
- MB_SGNAME
- MB_DBNAME

Reporter Table: EX2007_MBDETAIL

Exchange 2007 Public Folder Store Message Trends by Server

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Public Folder Store Msg Tnd** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Public Folder Store Msg Trends.rpt

This report contains summary and detail trend graphs showing Public Folder Store message volumes. The summary graph for each server shows overall messaging trends on the Exchange server. Detail graphs show messaging trends for each public folder store in every public folder store and storage group, by server.

Report sections

This report contains two sections for each Exchange Server:

- **Summary of Public Folder Store Messages Processed on Exchange Server:** This section of the report provides a daily summary of all messages processed by all public folder hosted on the server. The default retention period for these metrics is 7 days.

- **Number of Messages Processed by :** This section of the report provides a daily summary of all messages processed by the stated store. The default retention period for these metrics is 7 days.

Available: Next Day.

Required Templates

EXSPI-8X Dc-IS Public Folder Performance

Metrics:
- PFDELIVER
- PFSENT
- PFSUBMITTED
- PFRECIPIENT

Table: EX2007_PFPERF

Exchange 2007 IMAP4 Connections by Server

Launch this report by clicking Reports > SPI for Exchange 2007 > Exchange 2007 IMAP4 Connections in the HP Reporter console.

Report Template File Name: g_Exchange 2007 IMAP4 Connections.rpt

This report provides a graph of the averaged connection counts for hours of the day over the time period indicated. The table shows the hourly plotted connection count values.

Two report sections are populated for each Exchange server where the IMAP4 service is running.

The first report section graphs the hourly averaged Connections, Failed, and Rejected connections for the time period indicated. This means that when a full week of data is consolidated to the database, connections over all of the days are averaged for plotting on the graph.

The second section is a table of the data used in the preceding graph. The Failed and Rejection Percentages are also calculated. The Rejection Percentage is the number of rejected connections divided by the number of connections; the Failed Percentage is the number of rejected connections divided by the number of connections.

Available: Next day.

Prerequisite: The MSExhangeIMAP4 service must be running on the server, and the associated Performance Object must be available through perfmon.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-IMAP4 Performance

Schedule: Hourly

Metrics:

- IMAP4CON
- IMAP4FAILEDCON
- IMAP4REJECTEDCON

Table: EX2007_IMAP4PERF

Exchange 2007 Users and Connections by Server

Launch this report by clicking R**eports > SPI for Exchange 2007 > Exchange 2007 IS Users and Connections** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 IS Connections.rpt

This report provides a graph of the averaged user and connections count for hours of the day over the time period indicated. The table shows the hourly plotted connection count values. Each Exchange server is analyzed.

Report sections:

Graph and Table of User and Connection Activity: The graph shows hourly trends of user connection statistics.

- **Avg of Users:** Average number of users connected to the information store.
- **Avg of Active Users:** Average number of active users connected to the information store.
- **Avg of Connections :** Average number of connections to the information store.
- **Avg of Active Connections:** Average number of active connections to the information store.
- **Avg of Anonymous Users :** Average number of anonymous users.

- **Avg of Active Anonymous Users :** Average number of active anonymous users.

Available: Two days.

Prerequisites: The User that the template runs under must have the read access to perfmon data.

Deploy the template EXSPI-8X Dc-Information Store Performance. This template gathers the perfmon data information store statistics and writes this data to CODA.

Collection Detail: The schedule template EXSPI-8X Dc-Information Store Performance is scheduled to run every 15 minutes. Data is gathered to the reporter database, and the report is generated the following day.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-Information Store Performance

Schedule: Every 15 mins

Metrics:
- ISUSERCNT
- ISACTIVEUSERCNT
- ISANONUSERCNT
- ISACTIVEANONUSERCNT
- ISCONNECTCNT
- ISACTIVECONNECTCNT

Table: EX2007_ISPERF

Exchange 2007 Mailbox Store Msg Trends by Server

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Mailbox Store Msg Trends** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Mailbox Store Msg Trends.rpt

This report contains summary and detail trend graphs showing Mailbox Store message volumes. The summary graph for each server shows overall messaging trends on the Exchange server. Detail graphs show messaging trends for each mailbox store instance.

Report sections

This report contains two sections for each Exchange server:

- **Summary of Mailbox Store Messages Processed on Exchange Server:** This section of the report provides a daily summary of all messages processed by all mailbox stores hosted on the server. The default retention period for these metrics is 7 days.

- **Number of messages processed by <Store Name>:** This section of the report provides a daily summary of all messages processed by the stated store. The default retention period for these metrics is 7 days.

Available: Next day.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-IS Mailbox Performance

Schedule: Every 15 mins

Metrics:

- MBDELIVER
- MBSENT
- MBSUBMITTED
- MBRECIPIENT
- MBLOCALDELIVER

Table: EX2007_MBPERF

Exchange 2007 POP3 Connections by Server

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 POP3 Connections** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 POP3 Connections.rpt

This report provides a graph of the averaged connection counts for hours of the day over the time period indicated. The table shows the hourly plotted connection count values.

Report sections

Two report sections are populated for each Exchange server where the POP3 service is running.

The first report section graphs the hourly averaged Connections, Failed, and Rejected connections for the time period indicated. This means that when a full week of data is consolidated to the database, connections over all of the days are averaged for plotting on the graph.

The second section is a table of the data used in the preceding graph. The Failed and Rejection Percentages are also calculated. The Rejection Percentage is the number of rejected connections divided by the number of connections; the Failed Percentage is the number of rejected connections divided by the number of connections.

Available: Next day.

Prerequisite: The MSExhangePOP3 service must be running on the server, and the associated Performance Object must be available through perfmon.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-POP3 Performance

Schedule: Hourly

Metrics:

- POP3CON
- POP3FAILEDCON
- POP3REJECTEDCON

Table: EX2007_POP3PERF

Exchange 2007 SMTP Receive Messaging Trends by Server

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 SMTP Msg Recv Trends** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 SMTP Receive Messaging Trends.rpt

This report contains trend graphs showing the Simple Mail Transport Protocol (SMTP) incoming message volume. Graphs show trends in incoming message volume by messages and megabytes.

Report sections

Two report sections are populated for each Exchange server where the SMTP service is running.

The first report section graphs the Number of Messages Processed by each SMTP server instance. The number of messages received is graphed for each SMTP server instance active on the server.

The second section graphs the message megabytes processed by each SMTP server instance. The message size in megabytes of Received is graphed for each SMTP server instance active on the server.

Available: Next day.

Prerequisite: The SMTP service must be running on the server, and the associated Performance Object must be available through perfmon.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-SMTP Performance for Inbound Connections

Schedule: Hourly

Metrics:

SMTPMSGSENT, SMTPMSGRECEIVE, SMTPMSGBYTESENT, SMTPMSGBYTERECEIVE

Table: EXSPI_SMTPPERF

Exchange 2007 Inactive Mailboxes by Server

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Inactive Mailboxes** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Inactive Mailboxes.rpt

This report lists all the mailboxes on the server that have not been accessed in 20, 40, and 60 or more days.

Report sections:

This report contains data collected on Mailboxes grouped by Storage Group and Mailbox Store, sorted by Last Logon Date. It is in the form of a table with the following columns:

- Mailbox Name: The name of the mailbox.
- Last Sent Date: The date when mail was last sent.

- Size (MB): Logical size of the mailbox based on the sum of the size of all messages in the mailbox. Units are in megabytes.

- No. Messages: The number of messages in the mailbox.

Available: The day after collection. This is a weekly collection.

Collection Detail: Each template must execute once, and the data must be gathered to the Reporter database. The report is generated from this data. The report only shows data from the most recent day; therefore all Exchange Systems should log this data during the same time period. This data is collected and logged weekly. The schedule out of the box is set to collect and log data late Friday. If the data is gathered to the Reporter database nightly, this report will be refreshed with data for Saturday viewing.

Mailbox size and Last Logon Date are extracted from the Active Directory for each mailbox logged to the EX2007_MBDETAIL table.

Storage Group and Mailbox Store for each mailbox on the server are extracted from the Active Directory and logged to the EX2007_MBDETAIL table.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Get Mailbox Details

Location: Manual Deploy Groups \ Mailbox Server\ Mailbox

Metrics:

- MB_SIZE (MB)

- MB_LASTACCESS

- MB_SGNAME

- MB_DBNAME

Table: EX2007_MBDETAIL

Exchange 2007 Mailbox Details by Server

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Mailbox Details** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Mailbox Details.rpt

Provides detailed information about the mailboxes on the server including summary totals, size distribution, and top mail users.

Report sections

This report lists all the mailboxes on the server sorted by disk space usage. It contains the most recent information available as of the date indicated. Mailboxes are sorted by name, and grouped by storage group and database. The report is organized as a table with the following columns:

- Mailbox Name: The name of the mailbox.

- Size (MB): Logical size of the mailbox based on the sum of the size of all messages in the mailbox. Units are in megabytes.

- No. Messages: The number of messages in the mailbox.

- Storage Limits: Has one of the following values: Not Available, Below Limit, Issue Warning, Prohibit Send, No Checking, and Mailbox Disabled.

Available: The day after collection. This is a weekly collection.

Collection Detail: Each template must execute once, and the data must be gathered to the Reporter database. The report is generated from this data. The report only shows data from the most recent day; therefore all Exchange Systems should log this data during the same time period. This data is collected and logged weekly. The schedule out of the box is set to collect and log data late Friday. If the data is collected in the Reporter database nightly then this report will be refreshed with data for Saturday viewing.

Required Templates

For this report to work properly, deploy the following templates:

Template Names: EXSPI-8X Get Mailbox Details

Metrics:

- MB_SIZE (MB)
- MB_MSGCOUNT: Number of Messages
- MB_STGLIMIT
- MB_LASTACCESS
- MB_SGNAME
- MB_DBNAME

Table: EX2007_MBDETAIL

Exchange 2007 Top Senders

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Top Senders** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Top Senders.rpt

This report lists the top senders of emails based on the number of megabytes of e-mail sent. Each message is counted only once regardless of the number of recipients.

Report contents:

This report displays tables indicating the size of the emails sent by every server with the data that was gathered by HP Reporter over a period of one week.

Available: Next day.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-Get Top Sender Details

Schedule: Every week

Metrics:

SERVER_NAME

Table: EX2007_SENDER

Exchange 2007 Top Senders Per AD Site

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Top Senders Per AD Site** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Top Senders Per ADSite.rpt

This report lists the top senders of emails based on the size of the emails sent by each server of every Active Directory site. The size of each email message is counted only once regardless of the number of recipients.

Report contents

This report displays tables indicating the size of the emails sent by every server for every Active Directory site with the data that was gathered by HP Reporter over a period of one week.

Available: Next day.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-Get Top Sender Details

Schedule: Every week

Metrics:

ADSITE_NAME

Table: EX2007_SENDER

Exchange 2007 Top Outgoing E-mail

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Top Destination** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Top Destinations.rpt

This report lists the top destinations of emails based on the number of megabytes of e-mail sent. Each message is counted once for every destination.

Report contents

This report displays tables indicating the sizes of the emails sent to different destinations with the data that was gathered by HP Reporter over a period of one week. The table indicates the following types of email destinations:

- EX2007: The destination server is another Exchange 2007 Mailbox server within your organization. The actual destination name displayed is the combination of the site name and Mailbox Server name.

- EX: The destination server is another Exchange server (2003) within your organization. The actual destination name displayed is the name of the Exchange Server.

- SMTP: The destination is an Internet address. The destination is not located in your Exchange organization.

Available: Next day.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-Get Top Destination Details

Schedule: Every week

Metrics:

SERVER_NAME

Table: EX2007_DEST

Exchange 2007 Top Outgoing E-mail Per AD Site

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Top Destination Per AD Site** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Top Destinations.rpt

This report lists the top destinations of emails based on the number of megabytes of e-mail sent for every Active Directory site. Each message is counted once for every destination.

Report contents

This report displays tables indicating the sizes of the emails sent to different destinations with the data that was gathered by HP Reporter over a period of one week. The table indicates the following types of email destinations:

- EX2007: The destination server is another Exchange 2007 Mailbox server within your organization. The actual destination name displayed is the combination of the site name and Mailbox Server name.

- EX: The destination server is another Exchange server (2003) within your organization. The actual destination name displayed is the name of the Exchange Server.

- SMTP: The destination is an Internet address. The destination is not located in your Exchange organization.

Available: Next day.

Required Templates

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-Get Top Destination Details

Schedule: Every week

Metrics:

ADSITE_NAME

Table: EX2007_DEST

Exchange 2007 Mailbox Server Messages Sent

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 MB Server Msg Sent** in the HP Reporter console.

Report Template File Name: g_exchange 2007 mailbox msg sent per AD Site.rpt

This report shows the number of messages sent from each managed Exchange Server 2007 Mailbox Server for different Active Directory sites.

This report displays bar graphs indicating the number of messages sent from Mailbox Servers for different Active Directory sites over a period of one day. The X-axis represents different servers in every Active Directory site and the Y-axis represents the number of messages sent from every server.

Available: Next day.

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-Get Top Sender Details

Schedule: Every hour

Metrics:

- ADSITE_NAME
- SERVER_NAME
- NUM_MSGS_SR

Table: EX2007_SENDER

Exchange 2007 Mailbox Server Top 20 Sender Servers of Messages

Launch this report by clicking Reports > SPI for Exchange 2007 > Top 20 Sender MB Servers in the HP Reporter console.

Report Template File Name: g_exchange 2007 Top 20 mailbox servers msg sent.rpt

This report lists the top senders of emails based on the size of the emails sent by each server. The size of each email message is counted only once regardless of the number of recipients.

This report displays bar graphs indicating the numbers of messages sent from mailboxes by 20 different servers with the data that was gathered by HP Reporter over a period of one week.

Available: Next day.

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-Get Top Sender Details

Schedule: Every week

Metrics:

- SERVER_NAME
- NUM_MSGS_SR

Table: EX2007_SENDER

Exchange 2007 Top Recipients Per AD Site

Launch this report by clicking Reports > SPI for Exchange 2007 > Exchange 2007 Top Recipients Per AD Site in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Top Recipients per AD Site.rpt

This report lists the top senders of emails based on the size of the emails received by each server of every Active Directory site. The size of each email message is counted only once regardless of the number of recipients.

Report contents

This report displays tables indicating the size of the emails received by every server for every Active Directory site with the data that was gathered by HP Reporter over a period of one week.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-Get Top Recipient Details

Schedule: Every week

Metrics:

ADSITE_NAME

Table: EX2007_RECP

Exchange 2007 Top Recipients

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Top Recipients in the HP Reporter** console.

Report Template File Name: g_Exchange 2007 Top Recipients.rpt

This report lists the top senders of emails based on the number of megabytes of e-mail received. Each message is counted only once regardless of the number of recipients.

Report contents

This report displays tables indicating the size of the emails received by every server with the data that was gathered by HP Reporter over a period of one week.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-Get Top Recipient Details

Schedule: Every week

Metrics:

SERVER_NAME

Table: EX2007_RECP

Exchange Top Incoming E-mail

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Top Sources** in the HP Reporter console.

Report Template File Name: g_Exchange Top Sources.rpt

This report lists the top sources of emails based on the number of megabytes of e-mail received. Each message is counted only once regardless of the number of recipients. If an email contains recipients intended for different Mailbox Servers, the email is counted once for each server.

This report displays tables indicating the sizes of the emails sent by different sources with the data that was gathered by HP Reporter over a period of one week. The table indicates the following types of email sources:

- EX2007: The source server is another Exchange 2007 Mailbox server within your organization. The actual source name displayed is the combination of the site name and Mailbox Server name.

- EX: The source server is another Exchange server (2003) within your organization. The actual source name displayed is the name of the Exchange Server.

- SMTP: The source is an Internet address. The source is not located in your Exchange organization.

Available: Next day.

Template Name: EXSPI-8X Dc-Get Top Source Details

Schedule: Every week

Metrics:

SERVER_NAME

Table: EX2007_SOURCE

Exchange 2007 Top Incoming E-mail Per AD Site

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Top Sources Per AD Site** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Top Sources Per AD Site.rpt

This report lists the top sources of emails based on the number of megabytes of e-mail received for every Active Directory site in the organization. Each message is counted only once regardless of the number of recipients. If an email contains recipients intended for different Mailbox Servers, the email is counted once for each server.

This report displays tables indicating the sizes of the emails sent by different sources for every Active Directory site with the data that was gathered by HP Reporter over a period of one week. The table indicates the following types of email sources:

- EX2007: The source server is another Exchange 2007 Mailbox server within your organization. The actual source name displayed is the combination of the site name and Mailbox Server name.

- EX: The source server is another Exchange server (2003) within your organization. The actual source name displayed is the name of the Exchange Server.

- SMTP: The source is an Internet address. The source is not located in your Exchange organization.

Available: Next day.

For this report to work properly, deploy the following template:

Template Name: EXSPI-8X Dc-Get Top Source Details

Schedule: Every week

Metrics:

ADSITE_NAME

Table: EX2007_SOURCE

Exchange 2007 Mailbox Server Top 20 Receiver Servers of Messages

Launch this report by clicking **Reports > SPI for Exchange 2007 > Top 20 Receiver MB Server** in the HP Reporter console.

Report Template File Name: g_exchange 2007 Top 20 mailbox servers msg received.rpt

This report shows the top 20 receivers of messages.

Report contents

This report displays bar graphs indicating the number of messages received by 20 different servers with the data that was gathered by HP Reporter over a period of one week.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-Get Top Recipient Details

Schedule: Every week

Metrics:

- SERVER_NAME
- NUM_MSGS_RR

Table: EX2007_RECP

Exchange 2007 Mailbox Server Top 20 Receiver Servers of Largest Messages

Launch this report by clicking **Reports > SPI for Exchange 2007 > Top 20 Largest Msg Receiver MB Servers** in the HP Reporter console.

Report Template File Name: g_exchange 2007 Top 20 mailbox servers msg size received.rpt

This report shows the top 20 receivers of messages (based on message size).

Report contents

This report displays bar graphs indicating the sizes of messages received by 20 different servers with the data that was gathered by HP Reporter over a period of one week.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-Get Top Recipient Details

Schedule: Every week

Metrics:

- SERVER_NAME
- NUM_BYTES_RR

Table: EX2007_RECP

Exchange 2007 Mailbox Server Size of Messages Received

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 MB Server Msg Size Received** in the HP Reporter console.

Report Template File Name: g_exchange 2007 mailbox msg size received per AD Site.rpt

This report shows the number of bytes of messages received by each managed Exchange 2007 Mailbox Server for different Active Directory sites.

Report contents

This report displays bar graphs indicating the bytes of messages received by Mailbox Servers for different Active Directory sites with the data that was gathered by HP Reporter over a period of one week. The X-axis represents different servers in every Active Directory site and the Y-axis represents the bytes of messages received by each server.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-Get Top Recipient Details

Schedule: Every week

Metrics:

- ADSITE_NAME
- NUM_BYTES_RR

Table: EX2007_RECP

Exchange 2007 Messages Received per Server by AD Site

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 MB Server Msg Received** in the HP Reporter console.

Report Template File Name: g_exchange 2007 mailbox msg received per AD Site.rpt

This report shows the number of messages received in each managed Exchange 2007 Mailbox Server for different Microsoft Active Directory Sites.

Report contents

This report displays bar graphs indicating the number of messages received from Mailbox servers over a period of time.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-IS Mailbox Performance

Schedule: Every 15 mins

Metrics:

- MBDELIVER
- MBSENT
- MBSUBMITTED
- MBRECIPIENT
- MBLOCALDELIVER

Table: EX2007_MBPERF

Exchange 2007 Mailbox Store Msg Trends by Server

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 Mailbox Store Msg Trends** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Mailbox Store Msg Trends.rpt

This report contains summary and detail trend graphs showing Mailbox Store message volumes. The summary graph for each server shows overall messaging trends on the Exchange server. Detail graphs show messaging trends for each mailbox store instance.

Report sections:

This report contains two sections for each Exchange server:

- Summary of Mailbox Store Messages Processed on Exchange Server: This section of the report provides a daily summary of all messages processed by all mailbox stores hosted on the server. The default retention period for these metrics is 7 days.
- Number of messages processed by <Store Name>: This section of the report provides a daily summary of all messages processed by the stated store. The default retention period for these metrics is 7 days.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-IS Mailbox Performance

Schedule: Every 15 mins

Metrics:

- MBDELIVER
- MBSENT
- MBSUBMITTED
- MBRECIPIENT
- MBLOCALDELIVER

Table: EX2007_MBPERF

Exchange 2007 Mailbox Server Top 20 Sender Servers of Largest Messages

Launch this report by clicking **Reports > SPI for Exchange 2007 > Top 20 Largest Msg Sender MB Servers** in the HP Reporter console.

Report Template File Name: g_exchange 2007 Top 20 mailbox servers msg size sent.rpt

This report shows the top 20 senders of messages (based on message size).

Report contents

This report displays bar graphs indicating the sizes of messages sent from mailboxes by 20 different servers with the data that was gathered by HP Reporter over a period of one week.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-Get Top Sender Details

Schedule: Every week

Metrics:

- SERVER_NAME
- NUM_BYTES_SR

Table: EX2007_SENDER

Exchange 2007 Mailbox Server Size of Messages Sent

Launch this report by clicking **Reports > SPI for Exchange 2007 > Exchange 2007 MB Server Msg Size Sent** in the HP Reporter console.

Report Template File Name: g_exchange 2007 mailbox msg size sent per AD Site.rpt

This report shows the number of bytes of messages sent from each managed Exchange Server 2007 Mailbox Server for different Active Directory sites.

Report contents

This report displays bar graphs indicating the bytes of messages sent from Mailbox Servers for different Active Directory sites with the data that was gathered by HP Reporter over a period of one week. The X-axis represents different servers in every Active Directory site and the Y-axis represents the bytes of messages sent from every server.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-Get Top Sender Details

Schedule: Every week

Metrics:

- ADSITE_NAME
- NUM_BYTES_SR

Table: EX2007_SENDER

Percentage of successful RPC client server operations between clients and Exchange 2007

Launch this report by clicking **Reports > SPI for Exchange 2007 > Percentage of successful RPC operations** in the HP Reporter console.

Report Template File Name: g_Exchange 2007 Percentage Successful RPC Operations.rpt

This report displays the percentage of successful RPC client/server operations between clients (Microsoft Office Outlook 2003 and higher) and Exchange Server 2007.

Report contents

This report displays pie charts indicating the percentage of successful RPC client/server operations between clients and Exchange Server 2007.

Available: Next day.

Required Templates

Template Name: EXSPI-8X Dc-Outlook Client

Schedule: Every 5 minutes

Metrics:

- SYSTEMNAME
- ISCRPCATTEMPT
- ISCRPCSUCCEED

Table: EX2007_ISCLIENT

Reports for Exchange 2003 Servers

Client Access

- **Exchange 2003 ActiveSync Notifications**
- **Exchange 2003 ActiveSync Usage**
- **Exchange 2003 and 2000 IMAP4 Connections**
- **Exchange 2003 and 2000 Messaging Ports Availability**
- **Exchange 2003 and 2000 OWA Authentications**
- **Exchange 2003 and 2000 OWA Connections**
- **Exchange 2003 and 2000 Usage**
- **Exchange 2003 and 2000 POP3 Connections**
- **Exchange 2003 OMA Sync Usage**

Exchange Server

- **Exchange 2003 and 2000 System Information Summary**: Contains summary information about the OS and Exchange versions, mailboxes and public folders.

Information Store

- **Exchange 2003 and 2000 Full Text Indexing Stats**
- **Exchange 2003 and 2000 IS Users and Connections**
- **Exchange 2003 and 2000 Transaction Log Stats**: Provides information concerning usage and availability of storage, by and for the Exchange Transaction log.

Mailbox Store

- **Exchange 2003 and 2000 Inactive Mailboxes**: This report lists all the mailboxes on the server that have not been accessed. The report also lists mailboxes that have not been accessed in 20, 40 and 60 or more days.

- **Exchange 2003 and 2000 Mailbox Details**: Provides detailed information about the mailboxes on the server including summary totals, size distribution, and top mail users.

- **Exchange 2003 and 2000 Mailbox Store Msg Trends**

- **Exchange 2003 and 2000 Mailbox Store Stats**: Provides database volume statistics for Mailbox Store database files, for each managed Exchange Server. The report gives a snapshot of the volume usage, as of the most recent data collection.

- **Exchange 2003 and 2000 Mailbox Summary**: Provides summary information about the mailboxes on the server including summary totals, size distribution, and top mail users.

- **Exchange 2003 and 2000 Mailbox Usage Trends**: Contains graphs showing trends in database size, number of messages, and average size of mailboxes. The trends are associated per storage group and are shown for the time period selected when the report is generated.

- **Exchange 2003 and 2000 Top 100 Mailboxes**: Lists the top 100 mailboxes by disk space usage across all mailbox databases.

Messaging

- **Exchange 2003 and 2000 Message Delivery SLA** (Service Level Agreement): Provides a trend graph showing how message delivery, messages read, and directory read service levels are being met across all monitored connections.

- **Exchange 2003 and 2000 Top Destinations**: Identifies the top Email destinations (local, other Exchange sites, internet, gateway) for Email being sent by an Exchange server.

- **Exchange 2003 and 2000 Top Recipients**: Identifies the top recipients of Email for an Exchange server.

- **Exchange 2003 and 2000 Top Senders**: Identifies the top senders of Email for an Exchange server. Only Email sent by users that have Exchange mailboxes is counted. Email sent by clients such as Netscape and UNIX that do not have a corresponding Exchange mailbox are not counted.

- **Exchange 2003 and 2000 Top Sources**: Identifies the top Email sources (local, other Exchange sites, internet, gateway) for Email being received by an Exchange server.

- **Exchange 2003 and 2000 Message Delivery SLA from Tracking Log data**

- **Exchange 2003 and 2000 Message Tracking Log Space Usage**

- **Exchange 2003 and 2000 MTA Msg Trends**: Provides trend graphs showing messaging volume for the Message Transfer Agent, Information Store and SMTP server message volume.

- **Exchange 2003 and 2000 MTA Queue Data Stats**

- **Exchange 2003 and 2000 SMTP Connections**

- **Exchange 2003 and 2000 SMTP Msg Trends**

- **Exchange 2003 and 2000 SMTP Virtual Server Data Stats**

Public Folder Store

- **Exchange 2003 and 2000 Folder Summary**: Provides summary information about the public folders on the server.

- **Exchange 2003 and 2000 Folder Usage Trends**: Contains graphs showing trends in database size, number of messages and average size of public folders. The trends are shown for the time period selected when the report is generated.

- **Exchange 2003 and 2000 Inactive Folders**: This report lists all the folders on the server that have not been accessed. The report also lists folders that have not been accessed in 20, 40 and 60 or more days.

- **Exchange 2003 and 2000 Public Folder Store Msg Tnd**:

- **Exchange 2003 and 2000 Public Folder Store Stats**: Provides database volume statistics for Public Folder Store database files, for each managed Exchange Server. The report gives a snapshot of the volume usage, as of the most recent data collection.

- **Exchange 2003 and 2000 Top 100 Public Folders**: Lists the top 100 public folders by disk space usage.

Troubleshooting Reports

If the report is not being generated or if it is empty, follow these steps:

1 Check the Reporter database.

- Check if the data is available in the Reporter database.

- Check the Reporter database on the HP Reporter server.

- Run the following SQL commands to see if data for a particular metric is being collected:

    SELECT * FROM EX2007_*<HP Reporter Table Name>*

    or

    SELECT * FROM EXSPI_*<HP Reporter Table Name>*

- If there is data in the Reporter database for every metric listed above and the Reporter trace files do not reveal the cause of the problem, contact the HP Support Team.

- If the data for some or all of the above metrics are missing from the Reporter database, go to the next step.

2 Check the reporter package installation.

- Make sure that the EXSPI Reporter package was installed on the HP Reporter server.

- Check for errors in the Reporter Status pane.

- If there are Reporter installation errors, report the problem.

3 Check the data store.

If there is no data in the Reporter database and the EXSPI Reporter package is installed properly, check that the data is being collected/logged on the managed node into the data store (CODA or HP Performance Agent).

If you are using CODA:

— Run the following CODA diagnostic command on the managed node to get the last logged record:

On an HTTPS-managed node: `ovcodautil -dumpds EX2007_DATA` or `ovcodautil -dumpds EXSPI_DATA`

4 If there is no data in the CODA database, check if the CODA agent is running.

You can restart CODA on the managed node by running:

On HTTPS-managed nodes: `ovc -start -id 12`

Check that the acknowledged messages queue was acknowledged.

If you are using the HP Performance Agent, refer to the HP Performance Agent documentation.

5 Have the templates been deployed?

There will be no data unless the REQUIRED template IS deployed. Check on the managed node to ensure this template was deployed and is enabled by running the command `opctemplate`.

6 Is the agent on the managed node running?

Check if the HP Operations agent is running. Run the following command on the managed node to get the status of the agent:

On the HTTPS-managed nodes: `ovc -status`

If the HP Operations agent is not running, restart with the following command:

On the HTTPS-managed nodes: `ovc -start`

Using Microsoft Exchange SPI Reports and Graphs

Microsoft Exchange SPI report and graph generation require that you complete the following:

- Distribute the data collection templates.
- Configure and distribute Exchange SPI reporter collection templates.

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

Exchange SPI reports and graphs will not be 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/graphs will require a weekend to pass.

Distributing the Data Collection Templates

In order to collect data for reports and graphs the General Data Collection templates in the EXSPI OVO Exchange SPI core (Exchange 2003) template groups need to be distributed.

For the procedure to distribute templates, see Assign/Distribute Templates on page 33.

Deinstalling Microsoft Exchange SPI Reporter

Remove the Exchange SPI reporter in one of the following ways:

1 Using the Windows **Start** menu.

2 Using the EXSPI-Reporter InstallShield wizard.

Using the Windows Start menu:

1 Select **Start > Settings > Control Panel > Add/Remove Programs**.

2 Select **EXSPI-Reporter**.

3 Click **Remove**.

Using the EXSPI-Reporter InstallShield wizard.

1 Double-click **EXSPI-Reporter.msi**. This opens the EXSPI-Reporter InstallShield Wizard. Click **Next** on the Welcome screen.

2 Confirm the next screen by clicking **Remove**.

3 The InstallShield Wizard has deinstalled EXSPI-Reporter. Click **Finish**.

Microsoft Exchange SPI Graphs

Exchange SPI comes with a set of preconfigured graph templates. These graph templates need to be installed on an HP Performance Manager system, and require that CODA or HP Performance Agent is running on the managed node.

Installing Microsoft Exchange SPI Graph templates

There are three template files: VPI_GraphsEXSPI2K3.txt for Exchange 2003 graphs and VPI_GraphsEXSPI2K7.txt for Exchange 2007 graphs.

These files are located:

— on the HPOM for UNIX management server at `/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/intel/nt/cmds`

— on the Microsoft Exchange SPI managed nodes:

on HTTPS nodes at `<OvDataDir>\bin\instrumentation`

To install the EXSPI graph templates on an HP Performance Manager system, copy these files to the graph template installation directory on the HP Performance Manager system:

— on Windows HP Performance Manager systems to `<OVInstallDir>/newconfig/OVPM`

— on UNIX HP Performance Manager systems to `$OvInstallDir/newconfig/OVPM`

Once installed these graphs are located in the Application Bank under: **EXSPI Admin**.

When setup is complete, the following graphs are available:

Exchange 2007 Graphs

Exchange 2007Client Access

Outlook Client Failures

This graph shows the percentage of RPCs failed in different categories. Run this graph only on nodes with the Mailbox Server role. This graph uses the data collected by the EXSPI-8X Dc-Outlook Client template. In the data store of the node, the EX2007_ISCLIENT table is used to construct this graph.

IMAP4 Connections

This graph shows the IMAP4 connection activity. This graph uses the data collected by the EXSPI-8X Dc- IMAP4 Performance template. In the data store of the node, the EX2007_IMAP4PERF table is used to construct this graph.

MAPI RPC Performance

This graph shows metrics of information store RPC requests and RPC operations rate (operations/sec). Run this graph only on nodes with the Mailbox Server role. This graph uses the data collected by the EXSPI-8X Dc Information Store Performance template. In the data store of the node, the EX2007_ISPERF table is used to construct this graph.

MAPI RPC Latency Levels

This graph shows the number of successful RPCs with different Outlook client latency levels. The graph displays three different levels of latency: RPC Latency > 10, RPC Latency > 5, and RPC Latency > 2. Run this graph only on nodes with the Mailbox Server role.

This graph uses the data collected by the EXSPI-8X Dc-Outlook Client template. In the data store of the node, the EX2007_ISCLIENT table is used to construct this graph.

POP3 Connections

This graph shows the POP3 connection activity. The graph displays POP3 connection, failed POP3 connections, and rejected POP3 connections for a server with the help of three line graphs. This graph uses the data collected by the EXSPI-8X Dc-POP3 Performance template. In the data store of the node, the EX2007_POP3PERF table is used to construct this graph.

POP3 Performance

This graph shows POP3 messages delivered to mailboxes. This graph uses the data collected by the EXSPI-8X Dc-POP3 Performance template. In the data store of the node, the EX2007_POP3PERF table is used to construct this graph.

Outlook Client RPC Performance

This graph shows the Outlook Client RPC Performance. The graph displays the following details: RPCs attempted, RPCs failed, and RPCs succeeded. Run this graph only on nodes with the Mailbox Server role. This graph uses the data collected by the EXSPI-8X Dc-Outlook Client template. In the data store of the node, the EX2007_ISCLIENT table is used to construct this graph.

Information Store

Information Store Users and Connections

This graph shows user and connection count metrics for the current day. This graph uses the data collected by the EXSPI-8X Dc Information Store Performance template. In the data store of the node, the EX2007_ISPERF table is used to construct this graph.

Virtual Memory 16MB Free Block Trend

This graph shows information store virtual memory 16MB free block use trends. This graph uses the data collected by the EXSPI-8X Dc Information Store Performance template. In the data store of the node, the EX2007_ISPERF table is used to construct this graph.

Virtual Memory Large Free Block Megabytes Usage

This graph shows information store virtual memory large free block megabytes usage. This graph uses the data collected by the EXSPI-8X Dc Information Store Performance template. In the data store of the node, the EX2007_ISPERF table is used to construct this graph.

Virtual Memory Largest Block Size

This graph shows the change of the information store virtual memory largest block size.

This graph uses the data collected by the EXSPI-8X Dc Information Store Performance template. In the data store of the node, the EX2007_ISPERF table is used to construct this graph.

Mailbox Store

Mailbox Store Delivery Time

This graph shows hourly metrics for the average delivery times of messages to Exchange server private and public mailboxes. The graph shows the average delivery time of local messages to Exchange Server private mailboxes for every hour. This graph uses the data collected by the EXSPI-8X Dc-IS Mailbox Performance template. In the data store of the node, the EX2007_MBPERF table is used to construct this graph.

Mailbox Store Message Volume

This graph shows Exchange server private mailbox volume. The graph displays the following details: local deliveries, the number of messages delivered to all recipients, the number of messages sent to the transport, the number of messages submitted by clients, and the number of recipients that have received a message.

This graph uses the data collected by the EXSPI-8X Dc-IS Mailbox Performance template. In the data store of the node, the EX2007_MBPERF table is used to construct this graph.

Mailbox Store Queues

This graph shows Exchange server mailbox store queue lengths.

This graph uses the data collected by the EXSPI-8X Dc-IS Mailbox Performance template. In the data store of the node, the EX2007_MBPERF table is used to construct this graph.

Exchange 2007 Mailbox Store EDB Database Statistics

This graph shows Exchange Server Mailbox Store EDB Database (edb) Statistics. The graph displays the following details: the physical amount of space used by the mailbox database (in megabytes), the physical amount of space available for use by mailbox database (in megabytes), and the amount of space that is not available for use by the mailbox database.

This graph uses the data collected by the EXSPI-8X Get Mailbox IS Sum Data template. In the data store of the node, the EX2007_MBSUMMARY table is used to construct this graph.

Public Folder Store

Public Folder Store Delivery Time

This graph shows hourly metrics for the average delivery times of local messages to Exchange servers. This graph uses the data collected by the EXSPI-8X Dc-IS Public Folder Performance template. In the data store of the node, the EX2007_PFPERF table is used to construct this graph.

Public Folder Store Message Volume

This graph shows Exchange server public folder volume. The graph displays the following details: the number of messages delivered to all recipients, the total number of messages sent to the transport, the number of messages submitted by clients, and the number of recipients that have received a message. This graph uses the data collected by the EXSPI-8X Dc-IS Public Folder Performance template. In the data store of the node, the EX2007_PFPERF table is used to construct this graph.

Public Folder Store Queues

This graph shows Exchange server public folder store queue lengths. The graph displays the following details: length of the Receive Queue and length of the Replication Receive Queue.

This graph uses the data collected by the EXSPI-8X Dc-IS Public Folder Performance template. In the data store of the node, the EX2007_PFPERF table is used to construct this graph.

Exchange 2007 Public Folder Store EDB Database Statistics

This graph shows Exchange Server Public Folder Store Database (edb) Statistics. The graph displays the following details: the physical amount of space used by the public folder database (megabytes), the physical amount of space available for use by the public folder database (megabytes), and the amount of space that is not available for use by the public folder database.

This graph uses the data collected by the EXSPI-8X Get Public IS Sum Data template. In the data store of the node, the EX2007_PFSUMMARY table is used to construct this graph.

Transport Server Role

Transport Server Queues

This graph shows Exchange 2007 Server Transport Server queue lengths. The graph displays lengths of the following queues:

- Poison Queue
- Submission Queue
- Aggregate Delivery Queue

- Unreachable Queue
- Retry Mailbox Delivery Queue
- Active Remote Delivery Queue
- Retry Remote Delivery Queue
- Largest Queue
- Active Mailbox Delivery Queue

This graph uses the data collected by the EXSPI-8X Dc Transport Queues template. In the data store of the node, the EX2007_TRANSQ table is used to construct this graph.

Exchange 2003 Graphs

Exchange SPI graphs are located in the following folders:

- Client Access
- Directory Service
- Information Store
- Mailbox Store
- Messaging
- Public Folder Store

Client Access

ActiveSync Performance: This graph shows the ActiveSync Microsoft Exchange active directory, connection, and pending requests.

ActiveSync Users: This graph shows the current users of Microsoft Exchange ActiveSync.

IMAP4 Connections: This graph shows the IMAP4 connection activity.

IMAP4 Performance: This graph shows the IMAP4 transaction activity.

MAPI RPC Latency levels: This graph shows the number of successful RPCs with Outlook client latency levels.

MAPI RPC Performance: This graph shows metrics of information store RPC requests and RPC operations rate (operations/sec).

Number of Successful RPCs with Different Latency Levels: This graph shows the number of successful RPCs with different Outlook client latency levels.

Outlook Client RPC Performance: This graph shows the Outlook Client RPC Performance.

OWA Connections: This graph shows the OWA connection activity.

OMA Response Time: This graph shows the MSExchangeOMA last response time in seconds.

POP3 Connections: This graph shows the POP3 connection activity.

POP3 Performance: This graph shows POP3 messages delivered to mailboxes.

Directory Service

DSAccess Cache Hit-Miss Ratio: This graph shows MSExchangeDSAccess cache hit and miss ratio for Exchange 2003 servers.

Site Replication Service Space Free: This graph shows the percentage of free space on the Site Replication Service volume.

Site Replication Service Space Used: This graph shows Site Replication Service space usage on the Exchange server.

Information Store

Full-Text Indexing Space Usage: This graph shows disk space usage for full-text indexing of Microsoft Exchange information stores.

Information Store Users and Connections: This graph shows user and connection count metrics, for the current day.

Virtual Memory 16MB Free Block Trend: This graph shows information store virtual memory 16MB free block use trends.

Virtual Memory Large Free Block Megabytes Usage: This graph shows information store virtual memory large free block megabytes usage.

Virtual Memory Largest Block Size: This graph shows the change of the information store virtual memory largest block size.

Transaction Log Percentage Free: This graph shows the percentage of free space on the transaction log volumes.

Transaction Log Space Used: This graph shows Exchange server transaction log space usage on the Exchange server.

Mailbox Store

Mailbox Store Delivery Time: This graph shows hourly metrics for the average delivery times of messages to Exchange server private and public mailboxes.

Mailbox Store EDB Database Statistics: This graph shows Exchange server private mailbox store database statistics.

Mailbox Store Streaming Database Statistics: This graph shows Exchange mailbox store streaming database statistics.

Mailbox Store Storage Usage: This graph shows mailbox store storage usage.

Mailbox Store Message Volume: This graph shows Exchange server private mailbox volume.

Mailbox Store Queues: This graph shows Exchange server mailbox store queue lengths.

Messaging

MTA Message Volume: This graph shows Exchange server Message Transfer Agent volume.

MTA Queues: This graph shows Exchange server queue lengths.

SMTP Connections: This graph shows SMTP virtual server connections on the Exchange server.

SMTP Queues: This graph shows SMTP server queues on the Exchange server

SMTP Message Volume: This graph shows SMTP volume on the Exchange server.

SMTP Queue, Badmail, and Pickup Counts: This graph shows SMTP badmail, pickup and queue item counts for each SMTP virtual server.

SMTP Queue, Badmail, and Pickup Size: This graph shows SMTP badmail, pickup and queue sizes for each SMTP virtual server.

X400 MTA Queue Space Usage: This graph shows disk space usage for X400 service MTA queue.

Public Folder Store

Public Folder Store Delivery Time: This graph shows hourly metrics for the average delivery times of local messages to Exchange servers.

Public Folder Store EDB Database Statistics: This graph shows Exchange server public folder store (edb) database statistics.

Public Folder Store Message Volume: This graph shows Exchange server public folder volume.

Public Folder Store Streaming Database Statistics: This graph shows Exchange Public Folder store streaming database statistics.

Public Folder Store Storage Usage: This graph shows Exchange server public folder usage.

Public Folder Store Queues: This graph shows Exchange server public folder store queue lengths.

7 Troubleshooting

This chapter offers troubleshooting suggestions for Exchange SPI. It includes the following sections:

- Self-Healing Information for enhanced troubleshooting
- Verifying Software Installation on the Management Server
- The Exchange SPI Error Log
- Turning on/ Disabling Tracing
- Common Errors
- Verifying the MSXSPI account has the right privileges
- Verifying HP Performance Agent Integration
- Installing Old DSI Log Files
- Advanced Configuration Template Failures
- Exchange Service Discovery errors

Self-Healing Information for Enhanced Troubleshooting

The Microsoft Exchange SPI now includes a **Self-Healing Info** application that gathers data useful for troubleshooting issues. The application can be launched on the managed node to gather specific error messages, and other relevant data that can help you diagnose problems.

Using the Self-Healing Info application

1 Turn on tracing, see Turning on Tracing on page 115.
2 Reproduce your problem.
3 Open the **Node Bank** window and locate the node on which you want to run the Self-Healing Info application.
4 Open the **Application Bank** window and double-click **EXSPI.Admin**.
5 Drag and drop the node onto the **Self-Healing Info** application.
6 In the message that appears, note where the compressed file will be stored.

Verifying Microsoft Exchange SPI Installation on the Management Server

▶ This utility is not available for Sun Solaris

To check the integrity of Exchange SPI files on the HPOM management server, run the following command:

/usr/sbin/swverify EXSPI

This command produces output similar to the following:

```
(non-interactive) (jobid=ovruxr13-0161)
      * Session started for user "root@ovruxr13".
      * Beginning Selection
      * Target connection succeeded for "ovruxr13:/".
      * Software selections:
+ DSI2DDF.DSI2DDF,l=/,r=A.02.00.00,a=HP/SunOS,v=HP
EXSPI.EXSPI,l=/,r=A.08.20.6,a=HP-UX_B.11.00_32/HP-UX_B.11.00_64,v=HP
+SPI-SHS-OVO.SPI-SHS-AIX,l=/,r=A.01.00.00,a=HP_UX_10/11,v=HP
+SPI-SHS-OVO.SPI-SHS-CORE,l=/,r=A.01.00.00,a=HP_UX_10/11,v=HP
+SPI-SHS-OVO.SPI-SHS-HPUX,l=/,r=A.01.00.00,a=HP_UX_10/11,v=HP
+SPI-SHS-OVO.SPI-SHS-LXx86,l=/,r=A.01.00.00,a=HP_UX_10/11,v=HP
+SPI-SHS-OVO.SPI-SHS-OSF,l=/,r=A.01.00.00,a=HP_UX_10/11,v=HP
+SPI-SHS-OVO.SPI-SHS-SOL,l=/,r=A.01.00.00,a=HP_UX_10/11,v=HP
+SPI-SHS-OVO.SPI-SHS-UX64,l=/,r=A.01.00.00,a=HP_UX_10/11,v=HP
+SPI-SHS-OVO.SPI-SHS-WIN,l=/,r=A.01.00.00,a=HP_UX_10/11,v=HP
+SPI-SVCDISC-OVO.SPI-SVCDISC-AGT-AIX,l=/
,r=A.02.00,a=HP_UX_11,v=HP,fr=A.02.00,fa=HP_UX_11
        +SPI-SVCDISC-OVO.SPI-SVCDISC-AGT-HP,l=/
,r=A.02.00,a=HP_UX_11,v=HP,fr=A.02.00,fa=HP_UX_11
+SPI-SVCDISC-OVO.SPI-SVCDISC-AGT-LNX,l=/
,r=A.02.00,a=HP_UX_11,v=HP,fr=A.02.00,fa=HP_UX_11
+SPI-SVCDISC-OVO.SPI-SVCDISC-AGT-SOL,l=/
,r=A.02.00,a=HP_UX_11,v=HP,fr=A.02.00,fa=HP_UX_11
+SPI-SVCDISC-OVO.SPI-SVCDISC-AGT-TRU64,l=/
,r=A.02.00,a=HP_UX_11,v=HP,fr=A.02.00,fa=HP_UX_11
+SPI-SVCDISC-OVO.SPI-SVCDISC-AGT-WIN,l=/
,r=A.02.00,a=HP_UX_11,v=HP,fr=A.02.00,fa=HP_UX_11
+SPI-SVCDISC-OVO.SPI-SVCDISC-SRV-HP,l=/
,r=A.02.00,a=HP_UX_11,v=HP,fr=A.02.00,fa=HP_UX_11
      * A "+" indicates an automatic selection due to dependency or the
automatic selection of a patch or reference bundle.
      * Selection succeeded.
      * Beginning Analysis
      * Session selections have been saved in the file:
        /root/users/afshinsu/.sw/sessions/swverify.last
NOTE: More information may be found in the agent logfile using the
command
swjob -a log ovruxr13-0161 @ ovruxr13:/
```

The Microsoft Exchange SPI Error Log

HPOM for UNIX 8/HTTPS errors are logged to:

`<Installation_Directory>\Data\exspi\log\exspierror`

For example:

```
04/01/02 08:43:57 ERROR exspi(488) [colamain.cpp:333]: EXSPI-60-40:
Exchange Server Software not installed on this system (Check:
SOFTWARE\Microsoft\Exchange\Setup). Unable to perform collection!
```

Turning on Tracing

If a problem occurs and you are asked to turn on tracing by the EX-SPI support team, use the **Enable EXSPI Tracing** application for the relevant Exchange version.

1   Select all the Exchange managed nodes you wish to configure in the **OVO Node Bank**.

2   Drag and drop these nodes on the **Enable EXSPI Tracing** application located in the **EXSPI Admin** application group under the appropriate version.

3   Verify whether there are any errors in the **Output of Application** window.

Figure 20 Output of Application window
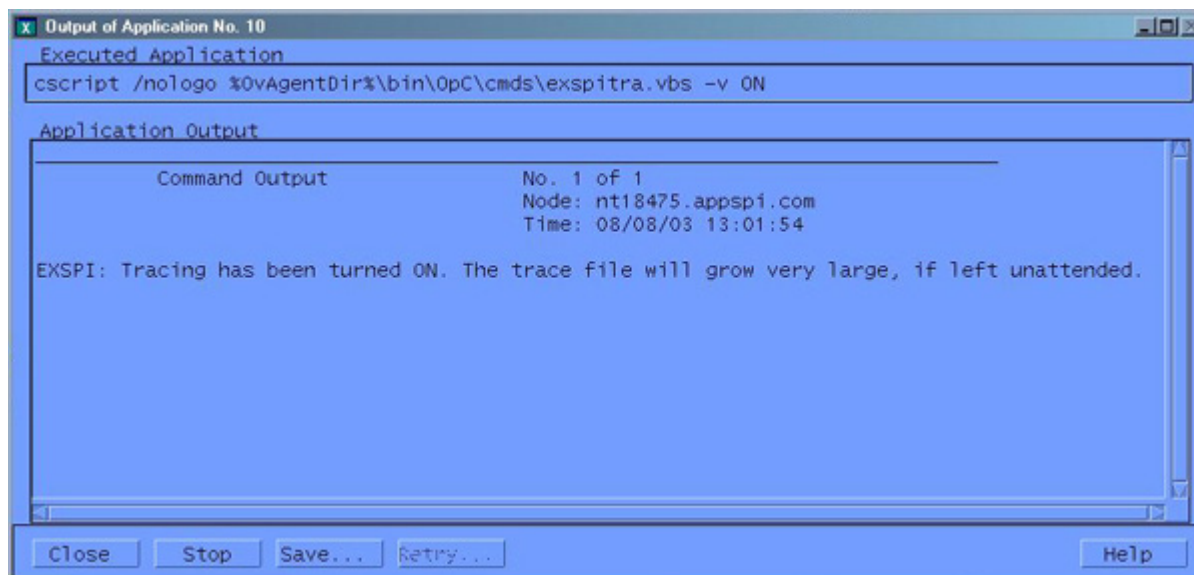
Disabling Tracing

For disabling the tracing, use **Disable EXSPI Tracing**.

▶ The trace file will grow very large. It is advisable to leave tracing enabled only long enough to recreate the problem.

Common Errors

1   When re-installing or upgrading Exchange Server, Exchange Setup program shows errors.

   Symptom: Exchange Server re-install or upgrade (e.g., new Service Pack), the Exchange Setup generates error messages about DLLs that can't be overwritten.

   Solution: Stop HPOM (`opcagt -stop`) and HP Performance Agent (`mwacmd stop`), then retry the operation.

2   Schedule template fails with message:
   `EXSPI xxxxx Metric Collection failed`.

   Symptom: The scheduled command failed with an exit code other than 0.

   Solution: This error sometimes occur if the system is rebooted just before the collector/analyzer program was executed.

   However, if this is not the case do the following: To find out more information about the failure, modify the failing schedule template, check the **Send Output of Action** check box and re-distribute templates again.

   The browser message should now contain an annotation with more information about the failure. Also, check the `exspierror` for more information.

Verifying the MSXSPI Account has Sufficient Privileges

In order to verify that you have created the MSXSPI account with the right amount of privileges to run advanced metrics such as 5, 841, or 630, do the following:

1   Log into your Exchange 2003 server as MSXSPI user (in the correct NT domain).

2   Open a DOS command prompt window.

3   `cd` to the directory where exspi collector is located
   (`<InstallDir>\data\bin\instrumentation`).

4   Run the following series of commands:

   ```
   exspi_e2k.exe  -m 5    -p

   exspi_e2k.exe  -m 841   -p

   exspi_e2k.exe  -m 630   -p
   ```

5   These will print the results to the screen.

6   If these executed properly and the correct results printed on the screen, your MSXSPI account has the right permissions.

Advanced Configuration Template Failures

The following data collectors fail and a critical message is shown in the HPOM browser:

— EXSPI 6X Dc-Private IS Sum. Data

— EXSPI-6X Dc-Public IS Sum. Data

— EXSPI-6X Dc-Mailbox Data

— EXSPI-6X Dc-Public Folder Data

These collectors access Exchange directly and require MSXSPI user and **MSXSPI<*hostnam*e> mailbo**x.

1   Verify MSXSPI user, MSXSPI<hostname> mailbox, MSXSPI rights in Exchange and HP Performance Agent:

2   Verify MSXSPI user setup.

— Use Windows User Manager to verify MSXSPI account. The user must exist in the same domain as that which the Exchange Server is part of. **Note:** there must be no local MSXSPI user.

3   Verify MSXSPI rights in Exchange.

The MSXSPI user must have "Receive As" and "Send As" Exchange Admin permissions. See Creating a Service Account for Exchange 2003 Nodes on page 131.

4   Verify MSXSPI<*hostnam*e> mailbox.

Use **Exchange Admin** to verify that a MSXSPI<*host_nam*e> mailbox exists and click on **Recipient**s. In the right pane, a MSXSPI<*host_nam*e> user must show up for each server which belongs to the site.

Exchange Service Discovery Failures

The error message:

```
Error: Specified file was not found
```

Verify that the distribution of Exchange SPI commands was successful. Refer to Distribute the Microsoft Exchange SPI Actions, Monitors, and Commands on page 25.

The error message: Problem in Executing opcservice

Solution:

Check if the HP Service Navigator Component is installed.

➤ The HP Service Navigator component is included on the media with the OVO bundle

8 Using the PowerShell Collection Configuration Utility

The PowerShell collection configuration utility enables you to create or modify collection configurations and components of collection configurations. The PowerShell collection configuration utility helps you create a modified collection configuration, which you can associate with an existing template by using the HPOM console. You can use this utility to modify data collection mechanism on Microsoft Exchange Server 2007 nodes.

The Microsoft Exchange SPI saves every change made through the PowerShell collection configuration utility in the SPI metadata file (an XML file). After the updated SPI metadata file is deployed on a node, the collection manager (a background process that runs on managed nodes) reads the SPI metadata file and creates necessary objects to analyze the collections.

About Collection Configuration

A collection describes the complete workflow of a collector. A collection configuration defines the mechanism to collect metric data. It also defines how to store the metric data. You must associate every collection configuration with a scheduled task template. When you invoke a scheduled task template on a managed node, a collector retrieves the following information from a collection configuration:

- The metric value to be collected
- The mechanism to send the collected data to the analyzer for data analysis
- The mechanism to receive the analyzed data
- The mechanism to send the analyzed data to a data store (if required)

A collection configuration consists of the following building blocks:

- MetricSets
- OpCMsg Calls
- OpCMon Calls
- DataStores

About MetricSets

The Microsoft Exchange SPI monitors various metrics of Microsoft Exchange Server. A metric is a measurement that defines a specific operational or performance characteristic of a system or an application. Collectors collect metric data on managed Exchanged nodes. These metric data give an indication of the health, availability, and performance of Microsoft Exchange Server.

A MetricSet—a component of a collection configuration—is a group of related metrics. If you run an Exchange Management Shell cmdlet on an Exchange Server node, the Exchange Server returns a group of metrics with metric values. These metrics, returned by a particular Exchange Management Shell cmdlet, form a MetricSet.

About OpCMsg Calls

An OpCMsg Call is an element of a collection configuration that generates an alert message when a metric value does not match a preset value or range of values. Alarm enables the collection to compare the actual value with the preset value with the help of arithmetic comparators. You can set a severity level and associate a message text to an alarm.

About OpCMon Calls

An OpCMon Call sets a limiting value for numeric metric data. You can associate an OpCMon Call to a monitor template and use it with a collection configuration.

About DataStores

A DataStore helps a collector log the collected data to a data store (for example, CODA). The DataStore defines the way in which the collected data can be stored in the data store. You must add a DataStore to a collection configuration if you want to log the data collected by the collection. A collector retrieves data formatting information from a DataStore before logging it to a data store.

Installing the PowerShell collection configuration utility

You must install the PowerShell collection configuration utility on a Windows machine. To install the PowerShell collection configuration utility, follow these steps:

1 Collect the following file from the management server:

   `/opt/OV/EXSPI/bin/Exspi-Configuration-Utility.Z`

2 Transfer the `Exspi-Configuration-Utility.Z` file on a Windows machine.

3 Rename the `Exspi-Configuration-Utility.Z` file to `Exspi-Configuration-Utility.ZIP`.

4 Extract the contents of the file on the Windows machine.

Working with the PowerShell collection configuration utility

The PowerShell collection configuration utility enables you to create a new collection configuration with new DataStores, OpCMsg Calls, or OpCMon Calls. You can also view the default settings of existing collection configurations, DataStores, OpCMsg Calls, OpCMon Calls, and MetricSets that are provided with the SPI for Microsoft Exchange Server 2007. The PowerShell collection configuration utility provides you with a graphical user interface to perform necessary tasks to modify existing collection definitions, or create new definitions.

Before you begin

If you have already modified the default collection mechanism of the Microsoft Exchange SPI by manually modifying the `spimetadata.xml` file, follow these steps:

1 Go to the following location on the management server: `/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/x64/win2k3/cmds`

2 Collect the `spimetadata.xml` file.

3   Copy the `spimetadata.xml` file on the Windows machine into the folder where you have extracted the `Exspi-Configuration-Utility.Z` file.

Launch the PowerShell collection configuration utility

To launch the PowerShell collection configuration utility, follow these steps:

1   Go to the location on the Windows machine where the `Exspi-Configuration-Utility.Z` file was extracted.

2   Double-click the **hp.ov.spi.composer** file. The Select Server dialog box opens.

3   Select the Load from Local File option, and then click **Load**. The user interface of the PowerShell collection configuration utility opens.

Use the user interface

The PowerShell collection configuration utility's graphical user interface consists of the following elements:

- Menu bar
- Toolbar
- Left pane
- Right pane

PowerShell collection 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.

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	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.

Menu	Options	Description
	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.

PowerShell collection configuration utility toolbar

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

Icon	Tool Name	Description
	Add MetricSet	Use this tool to add a new MetricSet.
	Add Collection	Use this tool to add a new collection.
	Add DataStore	Use this tool to add a new DataStore.
	Add OpCMsg Call	Use this tool to add a new OpCMsg Call.
	Add OpCMon Call	Use this tool to add a new OpCMon Call.

The left pane lists all available metrics, MetricSets, collections, DataStores, OpCMsg Calls, and OpCMon Calls in a tree like structure. You can navigate to specific collection elements with the help of the left pane. The right pane provides you an interface to view and modify properties and settings for every collection element.

Adding a MetricSet

A MetricSet is a group of related metrics. Microsoft Exchange Server 2007 returns a MetricSet when you run an Exchange Management Shell command (cmdlet). The Microsoft Exchange SPI collects these metrics to monitor the health, availability, and performance of Microsoft Exchange Server 2007. By default, Microsoft Exchange SPI makes use of 23 MetricSets (corresponding to 23 cmdlet commands). The PowerShell collection configuration utility enables you to add a new MetricSet to the list of existing MetricSets and link the new MetricSet with a cmdlet to start metric data collection.

To add a new MetricSet, follow these steps:

1   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 following options:

Option	Description
MetricSet Name	Type an appropriate name.
Command	Select a command from the list of available commands. The list presents the cmdlets that have been used with the existing MetricSets. If you want to use a new cmdlet, which is not used with the default MetricSets, you must type the cmdlet in the Command box. You can use any valid cmdlet (or multiple cmdlets with pipeline characters).

3   Click **Apply Changes**.

4   Click **File > Save**.

▶   Do not modify the default MetricSets. You can modify a newly added MetricSet.

Adding a metric

The metric values of Microsoft Exchange Server indicate its health condition, availability, and performance ability. The SPI collects these metric values to project the status of Microsoft Exchange Server on HPOM. In the PowerShell collection configuration utility, you can find a list of related metrics under every MetricSet. The PowerShell collection configuration utility enables you to add a new metric under a MetricSet. You can also modify or delete an existing metric.

To add a new metric, follow these steps:

1   In the left pane, expand MetricSets.

2   Right-click an available **MetricSet**, and then click **Add New Metric**.

    Alternatively, select an available MetricSet, and then click **Insert > Add New Metric** from the menu bar.

3   A new metric (with the name New Metric) appears in the list of metrics under the selected MetricSet.

4   In the right pane, specify the following options:

Option	Description
Metric Name	Select a metric name from the list of available metrics. If you want to use a metric returned by a newly added MetricSet, you must type the metric name in the text box. Do not use a metric that can hold multiple values. The Microsoft Exchange SPI does not support multi-valued 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.

5   Click **Apply Changes**.

6   Click **File > Save**.

▶ Do not modify the existing set of metrics in an existing MetricSet. You can add a new MetricSet, and then you can modify the metrics of the newly added MetricSet at any point of time.

Adding or modifying an OpCMsg Call

If some metric values cross a certain limiting value, you can receive alert messages on the HPOM message browser. The SPI retrieves alert message information from an OpCMsg Call. An OpCMsg Call is an element of a collection definition, which holds the following information:

• Limiting value (or range of values) for a metric

• Alert message if the metric does not match the above value or crosses the range of values

• Severity level of the event when the metric does not match the limiting value

The PowerShell collection configuration utility enables you to add a new OpCMsg Call or modify an existing one.

To add a new OpCMsg Call, follow these steps:

1   In the left pane, expand Collection Components, and then right-click OpCMsg Calls.

2   Click Add New OpCMsg Call.

3 In the right pane, specify the following options:

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 when you open 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 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.

4 Click **Apply Changes**.

5 Click **File > Save**.

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 In the right pane, specify the following options:

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 when you open 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 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.

Option	Description
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.**

4   Click **File > Save**.

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

Adding or modifying an OpCMon Call

The PowerShell collection configuration utility enables you to add a new OpCMon Call or modify an existing one. An OpCMon Call sets a limiting value for metric data through a monitor template. The SPI retrieves information like message text and severity from the template.

You can use OpCMon Calls only for numeric metric values.

To add a new OpCMon Call, follow these steps:

1   In the left pane, expand Collection Components, and then right-click OpCMon Calls.

2   Click **Add New OpCMon Call**.

3   In the right pane, specify the following options:

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.

4   In the Measurement Threshold Policy name text box, type the name of a monitor template to which you want to associate this OpCMon Call.

5   Click **Apply > Changes.**

6   Click **File > Save**.

To modify an existing OpCMon Call, follow these steps:

1   In the left pane, click the OpCMon Call that you want to modify.

2   In the right pane, modify the following options, if necessary:

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.

3   In the Measurement Threshold Policy name text box, type the name of a monitor template to which you want to associate this OpCMon Call.

4   Click **Apply > Changes**.

5   Click **File > Save**.

To delete an existing OpCMon Call, right-click the OpCMon Call in the left pane, and then click **Remove this**.

Adding a DataStore

DataStores define the way in which you can store metric data. After the SPI collects metric data by using collectors, you can store the collected data either in the HP Operations/OVO agent's data store (CODA) or in HP Performance Agent (if you have it installed in your HPOM environment). The PowerShell collection configuration utility enables you to add a new DataStore or modify an existing one.

To add a new DataStore, follow these steps:

1   In the left pane, right-click DataStores.

2   Click Add New DataStore.

3   In the right pane, specify the following options:

Option	Description
Name	Type an appropriate name for the DataStore.
Capacity	Type the number of rows for the DataStore.
Data Source	Type EX2007_DATA.
Data Table	Type EX2007_<table name>, 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.

4   From the Select MetricSet reference drop-down list, select a MetricSet.

5   From the Select Metric reference drop-down list, select a metric. While selecting the metrics, maintain the order of metrics as presented in the MetricSet element.

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

7   Click **Add**. You can add more than one MetricSet and metric.

8 Click **Apply > Changes.**

9 Click **File > Save**.

After you create a new DataStore, you must add it to an existing collection configuration. After adding the newly created DataStore to an existing collection configuration, follow these 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. A new file with the .spec extension is placed into the directory where you extracted the `Exspi-Configuration-Utility.Z` file.

4 Click **Save**.

5 Close the Spec File Generator dialog box.

▶ Do not modify an existing DataStore. You can add a new DataStore, and modify the new DataStore in future.

If you create a new DataStore and generate a spec file by using the PowerShell collection configuration utility, you must launch the Create Data Source application on the nodes on which you want the new collection mechanism to take effect.

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 for threshold violation. A collection configuration consists of all the elements that collectively describe the complete life cycle 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. A new collection appears in the left pane under Collections and the Add metrics to a Collection dialog box opens.

2 Select a MetricSet from the drop-down list.

3 To add an OpCMsg Call to this collection, click **Add OpCMsg** in the right pane. The Add OpCMsg Call to a Collection dialog box opens.

4 Select an OpCMsg Call from the drop-down list.

5 To add an OpCMon Call to this collection, click **Add OpCMon** in the right pane. The Add OpCMon Call to a Collection dialog box opens.

6 Select an OpCMon Call from the drop-down list.

7 To add a DataStore, click **Add DataStore** in the right pane. The Add DataStore to a Collection dialog box opens.

8 Select a DataStore from the drop-down list.

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

10 Click **File > Save**.

11   Note the command displayed in the Schedule Task Policy Command text box. You must use this command with the scheduled action template that will be mapped to the new collection configuration.

▶   Do not modify an existing collection configuration. You can add a new collection configuration, and modify the new collection configuration in future.

Transferring the Data Files to the Management Server

When you modify the collection mechanism from the user interface of the PowerShell collection configuration utility, the changes are recorded in the spimetadata.xml file. The file resides into the folder where you extracted the Exspi-Configuration-Utility.zip file. After you save the configuration information from the user interface, you must transfer the updated XML file on the management server. In addition, if you create a new DataStore, the resulting .spec file must also be transferred to the management server. Only after transferring the updated spimetadata.xml file (and .spec files, if necessary) on the management server, the changes will take effect. To transfer the files, follow these steps:

1   Send the updated `spimetadata.xml` file (and the `.spec` files) on the HPOM management server by using a file-transfer mechanism.

2   On the management server, store the files into a temporary location—for example, `/tmp`.

3   Copy the files into the following location: `/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/x86/winnt/cmds`

4   Run the following command at the `/tmp` directory (where you originally stored the files): **`compress -f <file_name> 2>/dev/null`** where *<file_name>* is the name of the file (`spimetadata.xml` and the `.spec` files). The files are converted into compressed files (with the extension .Z).

5   Copy the compressed files into the following directory: `/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/intel/nt/cmds`

6   Re-distribute the Actions, Monitors, and Commands for the Microsoft Exchange SPI on the nodes where you want the modified data collection mechanism to take effect.

7   If you created new DataStores, which resulted in creation of .spec files, you must run the Create DataSources application on the nodes where you want the modified data collection mechanism to take effect.

Additional Configuration

If you create a new collection configuration, you must create a new scheduled action template on the management server. To map the new collection configuration to a scheduled action template, follow these steps:

1   Create a new scheduled action on the management server.

2   To specify the command for the template, use the command displayed in the Schedule Task Policy Command text box in the user interface for the new collection configuration (step 11 on page 129).

3   Deploy the newly created template on the nodes where you want the modified collection mechanism to take effect.

A Creating a Service Account for Exchange 2003 Nodes

The Microsoft Exchange SPI collects data from many sources. In order to collect some types of data, the Exchange SPI requires advanced user credentials.

This chapter outlines:

- Which templates/applications have user account requirements
- For templates and applications requiring specific user permissions, how to create the service account and grant proper access permissions.

APPLICATIONS

For all versions of Exchange, the following applications need to run with this special type of service account:

— Enable Message Tracking

— EXSPI MBOX Config.

POLICIES

For Exchange 2003:

All templates in the EXSPI Specialized Groups require to run under this type of account.

See Exspi Template Group Requirements on page 44 for more information about which templates require the service account with special Exchange privileges.

Creating a Service Account with Adequate Access Permissions

Some templates and applications require a service account for each logon domain where Exchange servers reside (see Exspi Template Group Requirements on page 44). This service account enables the Microsoft Exchange SPI to access information from the Exchange database. This is required only for Exchange 2003.

The service account must be created and the access privileges granted for Exchange 2003 nodes in a Windows 2000/2003 Domain

Exchange 2003 nodes in Windows 2000/2003 Domain

To create a service account with special Exchange privileges for Exchange 2003 nodes the following steps are required:

Task 1:   Enable Viewing of the Administrative Groups Folder

Task 2:   Create User Account

Task 3:   Add the service account user to the Local Administrators group.

Enable Viewing of the Administrative Groups Folder

To create the user account, it is necessary to first enable viewing the administrative groups folder. To enable viewing of the Administrative Groups folder, follow these steps:

1   Open the Exchange server Properties.

2   Select **Display administrative groups.**

3   Click **Apply**, and then **OK**.

Create User Account

To create the user account with necessary privileges, follow these steps:

1   Log on to the system that hosts the managed node's domain.

2   Select **Start > Settings > Control Panel > Administrative Tools > Active Directory Users and Computers.**

3   Expand the Active Directory Users and Computers and right-click **Users** and select **New > User**.

Figure 21 Active Directory Users and Computers dialog

4   In the **New Object - User** dialog, enter a user name for the new service account into the **First Name** and the **User logon name** fields.

▶   You must create a service account with these privileges in each Windows domain.

Figure 22 Entering the new service account name

1   In the next window, enter **Password/Confirm Password** for the service account.

2   Select **Password Never Expires**. Then click **Next**.

Figure 23 Setting password properties

3 In the **New Object** dialog, deselect **Create an Exchange mailbox**, and click **Next**

Figure 24 Deselecting creating a mailbox

4 In the next dialog, complete creating the user by clicking **Finish**.

5 You are now back at the **Active Directory Users and Computers** dialog. In the right pane, right-click on the service account user just created and select **Properties**.

6 In the service account **Properties** page, select the **General** tab. Enter *HPOM Exchange SPI* in the **Display name** and **Description** fields.

Figure 25 Entering names in Properties dialog

7 Select the **Member Of** tab, and click **Add**.

8 In the **Select Group** dialog select **Exchange Domain Servers** from the top pane.

9 Click **OK** and exit the **Active Directory Users and Computer** dialog.

10 Open **Active Directory Users and Computers**.

11 Right-click on the domain to which the Exchange server belongs and click **Properties**.

12 Choose the **Group Policy** tab and select the **Default Domain Policy**.

13 Click **Edit**. Browse to **Computer Configuration > Windows Settings > Security Settings > Local Policies > User Rights Assignment**.

14 Double-click the **Log on as a Batch Job** group policy and add the *MSXSPI* account to this policy.

Figure 26 Confirming membership privileges

e   Add the service account user to the Local Administrators group on the Exchange server.

a   On each targeted Exchange 2003 server, select **Start > Settings > Control Panel.**

b   Double click **Administrative Tools**. Double click **Computer Management**, then open the **Local Users and Groups** folder. Select and open the **Groups** folder, then double click **Administrators**.

c   In the **Administrators Properties** dialog, click the **Add** button. Select the correct Domain from the **Look in** drop down list. Select the new service account user from the list, and click **Add.** Click **Apply** and then **OK.**

Figure 27   Adding service account user to Local Administrators group

➤ It can sometimes take a few hours for new group membership and rights to be applied to a service account.

B File Names

Introduction

This chapter lists the Exchange SPI file names, along with their descriptions, owners, groups, and permissions. Exchange SPI files are grouped as follows:

- Management server files
- Management server/managed node files
- Managed node files
- Logging and trace files

Management Server Files

Templates for opccfgupld (HPOM Upload Facility)

All files listed in this table can be found on the management server in the following directories (the location of these files varies by platform):

```
/var/opt/OV/share/tmp/OpC_appl/EXSPI/exspiset/C/
```

Table 4   Management Server Files

File	Description
exspiset.idx	HPOM upload control file. This file defines what is being uploaded into HPOM: message groups, monitor templates, logfile templates, applications and template groups.
TEMPLATES/LOGFILE /logfile.dat	Definition file for logfile encapsulation.
TEMPLATES/MONITOR /monitor.dat	Definition file for HPOM templates: collector/analyzer program, external monitor for each metric and file system monitor. Contains all details for monitoring all metrics.
TEMPLATES/SCHEDULE /schedule.dat	Definition file for Exchange SPI schedule templates.
TEMPLATES/TEMPLGROUP /templgrp.dat	Definition file for HPOM template group structure.
TEMPLATES/MSGGROUPS /msggrps.dat	Definition file for HPOM message group structure.
TEMPLATES/INTERFACE /msgi.dat	Definition file for Exchange SPI specific error message.

Table 5 Miscellaneous Other Management Server Files

File	Description
/etc/opt/OV/share/conf /OpC/mgmt_sv/ reports/exspi_lc.sql	Report that lists all nodes that have Exchange SPI templates assigned (for license check).
/opt/OV/EXSPI/bin/exspipv	Script to run HP Performance Manager as metric operator actions and bring up graphs.
/opt/OV/EXSPI/bin/exspircfg	Script for EXSPI Node Config.
/opt/OV/EXSPI/bin/EXSPI_DiscConfig.sh	Script for setting Exchange SPI related variables.
/opt/OV/EXSPI/bin/exspipngcfg_e2k.sh	Script for End-to-End Ping config for Exchange 2003

Management Server/Managed Node Files

When you run **swinstall**, the following monitor and command files are installed on the Management Server. They are also installed on managed nodes when you distribute monitors, commands and actions from the Management Server to the managed nodes.

Monitor Files

On Management Server:

`/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/x86/ winnt/monitor/` (for HTTPS)

On Managed Node:

`<OVO-DATADIR>\bin\instrumentation` (for HTTPS)

Table 6   Monitor Files

File	Description
`exspi_e2k.exe`	Exchange 2003 SPI Collector/Analyzer program.
`msexchange.apm.xml`	Template list for cluster fail-over
`OVAMTLog2k.dll`	Tracking.Log access library for Exchange 2003
`OVAMDa.dll`	LDAP access library
`hpudm.txt`	Internal data file
`end-to-end.xml`	End-to-End configuration file

All files in Table 3: Monitor Files, are in compressed ".Z" format to improve distribution performance.

Command Files

Command files are located in the following directories:

Management Server:

`/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/`

`x86/winnt/cmds` (for HTTPS)

Managed Node:

`<OvDataDir>\bin\instrumentation` (for HTTPS)

All files in this table are in compressed ".Z" format to improve distribution performance.

Table 7   Command Files

File	Description
exspitra.vbs	Turns EXSPI Tracing on/off -v ON -v OFF
exspimwd.vbs	Turns data forwarding to HP Performance Agent on/off (collector/analyzer will only forward data to HP Performance Agent if set to on: -v ON -v OFF
exspienc.exe	For configuring managed node; part of the advanced configuration.
exspi_e2k_cfg.vbs	For configuring an Exchange 2003 server mailbox.
exspi_perfmon.exe	For perfmon counter data logging and threshold alarming.
EXSPI_DataObjects.xml	
EXSPI Coda data source and objects.doc	

File	Description

`EXSPI_asnotify.spec/`
`EXSPI_async.spec`
`EXSPI_deliv.spec/`
`EXSPI_dsaccess.spec`
`EXSPI_ftdata.spec/`
`EXSPI_imap4perf.spec`
`EXSPI_isclient.spec/`
`EXSPI_isperf.spec`
`EXSPI_m0660.spec/`
`EXSPI_m0661.spec`
`EXSPI_m0662.spec/`
`EXSPI_m0663.spec`
`EXSPI_m1002.spec/`
`EXSPI_mbdetail.spec`
`EXSPI_mbperf.spec/`
`EXSPI_mbsummary.spec`
`EXSPI_mtadata.spec/`
`EXSPI_multi.spec`
`EXSPI_oma.spec`
`EXSPI_owabe.spec`
`EXSPI_owafe.spec`
`EXSPI_pfdetail.spec`
`EXSPI_pfperf.spec`
`EXSPI_pfsummary.spec`
`EXSPI_pop3perf.spec`
`EXSPI_ports.spec`
`EXSPI_single.spec`
`EXSPI_smtpdata.spec`
`EXSPI_smtpq.spec`
`EXSPI_srs.spec`
`EXSPI_translog.spec`
	Data log specification

`exspi_e2k_clust_config.js`	Generates xml output, which can be used for editing the apminfo.xml file
`exspi_dbmount.vbs` (NOTE: This file is also present under monitor and actions directories) -	Checks and mounts dismounted information store(s)

Windows Managed Node Files

Monitor templates

When templates are distributed from the management server to the Windows managed nodes, the monitor templates are encrypted and stored in the following directory:

```
%OVAgentDir%\conf\OpC\<hostname>\
```

Logging and Trace Files

Logging and trace files are located in the following directory on the managed node:

`%OVAgentDir%\exspi\log`

Table 8   Logging and Trace Files

File	Description
`trace`	When TRACE ON is set in `%OVAgentDir%\exspi\defaults`, tracing and debug information is written to `%OVAgentDir%\exspi\log`. This file can get very large.
`exspierror`	Error information when the Exchange SPI collector/analyzer encounters an error condition. Messages written to this file are also sent to the OVO message browser.

C spimetadata.xml File

The `spimetadata.xml` file contains the information related to the collection mechanism of the Exchange SPI for Microsoft Exchange Server 2007 nodes. The example below shows a sample `spimetadata.xml` file with all basic elements. It is not recommended to modify the `spimetadata.xml` file manually as incorrect modification can lead to incorrect operation of the Exchange SPI.

Sample spimetadata.xml File

```xml
<?xml version="1.0" encoding="utf-8"?>
<CollectionDefinitions>
  <MetricSets>
    <MetricSet>
      <Name>MetrciSet1</Name>
      <Parameters>
      </Parameters>
      <SourceDefinition>
        <Type>
        </Type>
        <Command>Get-ReplicationAge</Command>
        <DataSource>
        </DataSource>
        <DataObject>
        </DataObject>
      </SourceDefinition>
      <Metric>
        <Name>CopyQueueLength</Name>
        <Datatype>System.Int64</Datatype>
        <Description>
        </Description>
        <Type>
        </Type>
      </Metric>
```

```xml
        <Metric>
          <Name>StorageGroupName</Name>
          <Datatype>System.String</Datatype>
          <Description>
          </Description>
          <Type>
          </Type>
        </Metric>
      </MetricSet>
   </MetricSets>
   <Collections>
     <Collection>
       <Name>1</Name>
       <DisplayName>New Collection</DisplayName>
       <Description>New Collection</Description>
       <Interval>00:05:00</Interval>
       <CollectionSet>
         <MetricSetNameRef>MetrciSet1</MetricSetNameRef>
       </CollectionSet>
       <Calculations />
       <Filters />
       <PublishMetrics>
         <PublishSetNameRef>Replication_Publish</PublishSetNameRef>
       </PublishMetrics>
       <AlertSets>
         <ThresholdSetNameRef>OpcMonCallForReplication</ThresholdSetNameRef>
         <AlarmSetNameRef>OpcMsgForReplicationAge</AlarmSetNameRef>
       </AlertSets>
     </Collection>
   </Collections>
  <PublishedSets>
    <PublishedSet>
      <Name>Replication_Publish</Name>
      <Database>DATASOURCENAME</Database>
      <ClassName>TABLENAME</ClassName>
      <IndexBy>DAY</IndexBy>
      <RollBy>MONTH</RollBy>
```

```xml
<Capacity>720</Capacity>
<Metrics>
  <Metric>
    <MetricRef>
      <SetNameRef>SGNAME</SetNameRef>
      <MetricNameRef>StorageGroupName</MetricNameRef>
    </MetricRef>
  </Metric>
  <Metric>
    <MetricRef>
      <SetNameRef>CPQLEN</SetNameRef>
      <MetricNameRef>CopyQueueLength</MetricNameRef>
    </MetricRef>
  </Metric>
</Metrics>
</PublishedSet>
</PublishedSets>
<AlertSets>
  <AlarmSets>
    <AlarmSet>
      <Name>OpcMsgForReplicationAge</Name>
      <Rules>
        <Rule>
          <MetricSetName>MetrciSet1</MetricSetName>
          <MetricName>CopyQueueLength</MetricName>
          <ArithmeticOperator>GreaterThan</ArithmeticOperator>
          <ValueToCompare>0</ValueToCompare>
          <LogicalOperator>LastRule</LogicalOperator>
        </Rule>
      </Rules>
      <MessageDetails>
        <Application>MyApp</Application>
        <Object>MyObj</Object>
        <Text>Sending Messge with warning as severity and  value of
%CopyQueueLength%</Text>
        <Severity>Warning</Severity>
        <ServiceID>
```

```
            </ServiceID>

            <MessageKey>

            </MessageKey>

          </MessageDetails>

        </AlarmSet>

      </AlarmSets>

      <ThresholdSets>

        <ThresholdSet>

          <Name>OpcMonCallForReplication</Name>

          <MetricSetName>MetrciSet1</MetricSetName>

          <MetricName>CopyQueueLength</MetricName>

          <ThresholdPolicy>Any Threshold Policy Name</ThresholdPolicy>

          <AutoBaseline IsEnable="False" />

        </ThresholdSet>

      </ThresholdSets>

    </AlertSets>

</CollectionDefinitions>
```

Elements of the spimetadata.xml File

The `spimetadata.xml` file consists of the following major elements:

MetricSets — The MetricSets element contains the following information:

- Metrics to be collected from the nodes
- Cmdlet to be used to collect the metrics
- Type of the metric data

PublishedSet — The PublishedSet element describes the mechanism to store the metric data to a data store.

AlertSets — The AlertSets element contains the information on calculating the metric data with a threshold value and the mechanism to generate an alarm in the event of threshold violation.

Collections — The Collections element contains the Collection sub-element. The Collection sub-element holds all information on individual collection configurations. Each Collection element contains the following information:

- Name of the collection
- MetricSets to be used
- Mechanism to store metric data on a data store
- Mechanism to generate alarm in the event of threshold violation

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