HP Operations Smart Plug-in for Microsoft® Exchange Server

For HP Operations Manager for Windows®

Software Version: 12.10

Configuration Guide

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1 Introduction to HP Operations Smart Plug-ins

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

HPOM is a distributed client-server software. The central server, on which HPOM is installed, is called the **management server**. HPOM monitors systems in the network where your enterprise IT applications and resources are installed. These systems, which are monitored by HPOM, are called **managed nodes**. The HP Operations agent, residing on every managed node, facilitates communication between the management server and the managed node.

A SPI is software that provides management capabilities to HPOM specific to a particular enterprise application. You must install a SPI on the management server.

Figure 1   HPOM Client-Server Architecture

Smart Plug-in on
HP Operations
Manager
Management Server

Management
Server

HP Operations
Agent

Managed
Node

Managed
Node
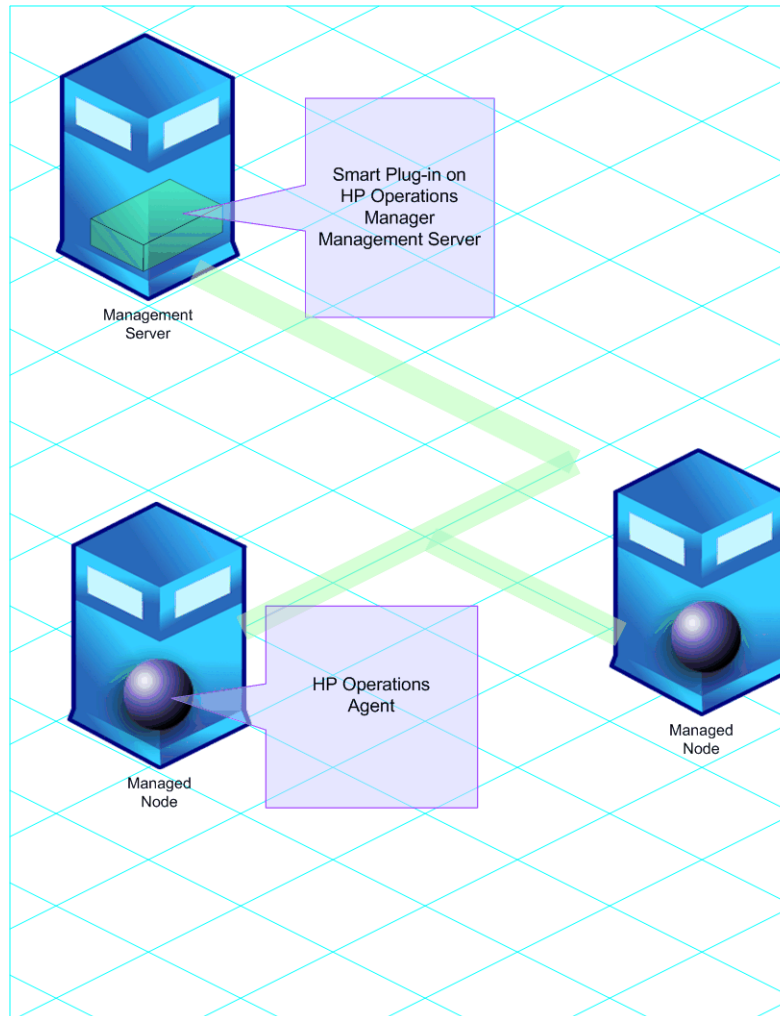
Smart Plug-in for Microsoft Exchange Server

The Smart Plug-in for Microsoft Exchange Server (the Microsoft Exchange SPI) enables HPOM to monitor Microsoft Exchange Server 2007 and 2003. The Microsoft Exchange SPI enables you to monitor and manage your enterprise Exchange environment through predefined policies, which you can customize. These policies help you monitor server load, server performance, client availability, message delivery times, and service level objectives.

After you set up the Microsoft Exchange SPI, you can view critical information about your Microsoft Exchange Server through the HPOM console in the form of:

- Message alerts
- Map view
- Reports and graphs
- Topology viewer

Message Alerts

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

Figure 2   Message Alerts on HPOM Console

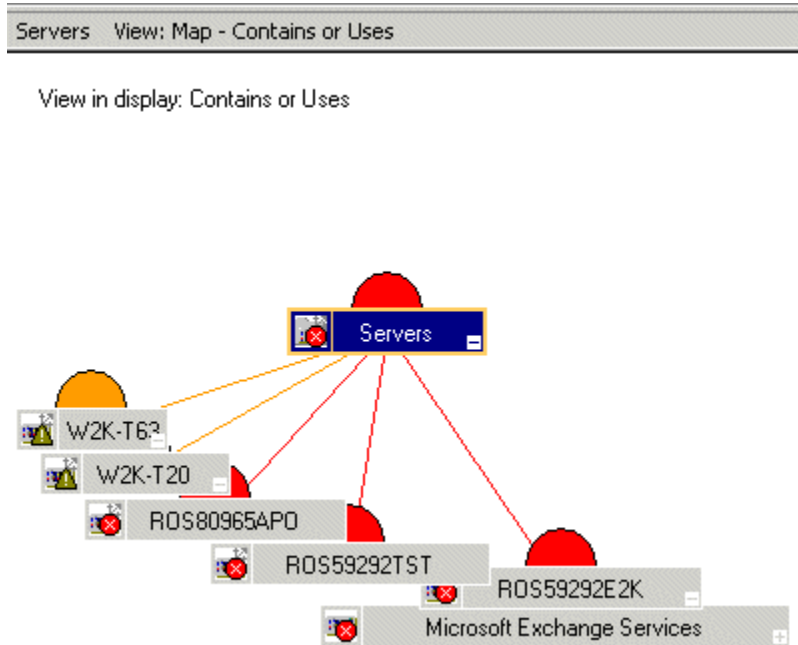| Severity	Duplicates	S	U	I	A	O	N	Received	Service	Node	Application	Object	Text	Gr
Critical	4	-	-	X	-	-	-	12/14/2006 8:53:37 PM		EXSPI6 (Manag...	OVO/Win	OvSv...	[E10-010] Unexpected error from pa...	O'
Critical		-	-	-	-	-	-	1/4/2007 2:22:09 AM	EXSPI6:Interne...	EXSPI6 (Manag...	IIS 6.0	W3SVC	MS IIS Server (WWW): (1039) A pro...	W
Warning		-	-	-	-	-	-	1/4/2007 2:22:09 AM	EXSPI6:Interne...	EXSPI6 (Manag...	IIS 6.0	W3SVC	MS IIS Server (WWW): (1009) A pro...	W
Critical		-	-	-	-	-	-	1/4/2007 2:22:09 AM	EXSPI6:Interne...	EXSPI6 (Manag...	IIS 6.0	W3SVC	MS IIS Server (WWW): (1002) Appli...	W
Critical		-	-	-	-	-	X	1/4/2007 3:00:40 AM	Server	EXSPI6 (Manag...	HP Open...	Synch...	Daily synchronization of agent servic...	VF
Warning	2	-	-	X	-	-	-	1/4/2007 6:05:57 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	An error occurred in the processing ...	O
Normal		-	-	X	-	-	-	1/4/2007 6:51:40 PM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	NT API WaitForSingleObject: Failed t...	O
Normal		-	-	X	-	-	-	1/4/2007 6:51:40 PM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	NT API WaitForSingleObject: Failed t...	O
Warning		-	-	X	-	-	-	1/8/2007 1:15:49 PM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcctl...	WMI/WBEM Interceptor of subagent...	O
Normal	12	-	-	X	-	-	-	1/12/2007 2:22:15 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	The policy WINOSSPI-DiskBottleneck...	O
Critical		-	-	-	-	-	-	1/12/2007 2:10:59 PM	Server	EXSPI6 (Manag...	HP Open...	OVPM...	EventID: 0x00000400 (1024) - (PMD...	VF
Critical		-	-	-	-	-	-	1/12/2007 2:13:35 PM	Server	EXSPI6 (Manag...	HP Open...	OVPM...	EventID: 0x00000400 (1024) - (PMD...	VF
Critical		-	-	-	-	-	-	1/13/2007 8:57:29 AM	Server	EXSPI6 (Manag...	HP Open...	OVPM...	EventID: 0x00000400 (1024) - (PMD...	VF
Warning		-	-	X	-	-	-	1/13/2007 9:36:45 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	Policy thread of policy VP_SM_OVO...	O
Warning		-	-	X	-	-	-	1/13/2007 9:36:49 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	An error occurred in the processing ...	O
Warning	1	-	-	X	-	-	-	1/13/2007 9:45:27 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	An error occurred in the processing ...	O
Warning	1	-	-	X	-	-	-	1/13/2007 9:48:13 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	No opcmon value received and reac...	O
Normal	22	-	-	X	-	-	-	1/24/2007 2:07:50 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	The policy WINOSSPI-MTS20_MSDT...	O
Normal	12	-	-	X	-	-	-	1/24/2007 3:08:47 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	The policy WINOSSPI-MemoryBottle...	O
Critical	36	-	-	-	-	-	-	1/25/2007 12:20:18 AM	Memory	EXSPI6 (Manag...	OS	Virtua...	Object: Memory, Counter: % Commi...	W
Normal	32	-	-	X	-	-	-	1/26/2007 2:17:14 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	The policy WINOSSPI-PlugnPlayServi...	O
Warning	29	-	-	X	-	-	-	1/26/2007 2:31:30 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	No opcmon value received and reac...	O
Warning	31	-	-	X	-	-	-	1/26/2007 2:31:59 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	No opcmon value received and reac...	O
Normal	6	-	-	X	-	-	-	1/27/2007 2:00:42 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcle ...	The process 'OvSvcDiscErrorLog' ter...	O
Warning		-	-	X	-	-	-	1/27/2007 2:01:39 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcctl...	Application Package Monitor of suba...	O
Warning		-	-	X	-	-	-	1/27/2007 2:01:49 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcctl...	WMI/WBEM Interceptor of subagent...	O
Warning		-	-	X	-	-	-	1/27/2007 2:02:34 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcctl...	Application Package Monitor of suba...	O
Warning		-	-	X	-	-	-	1/27/2007 2:03:06 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcctl...	Application Package Monitor of suba...	O
Warning		-	-	X	-	-	-	1/27/2007 2:03:22 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcctl...	Application Package Monitor of suba...	O
Warning		-	-	X	-	-	-	1/27/2007 2:03:37 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcctl...	Application Package Monitor of suba...	O
Critical	4	-	-	X	-	-	-	1/27/2007 2:03:42 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcapm	APM cluster configuration file E:\HP ...	O
Critical		-	-	X	-	-	-	1/27/2007 2:03:42 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcctl...	Application Package Monitor of suba...	O
Normal	29	-	-	X	-	-	-	1/27/2007 2:05:23 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	The policy WINOSSPI-DHCPCl_DHCP...	O

Map View

The map view of HPOM presents a graphical and structural view of your Microsoft Exchange Server environment. The Microsoft Exchange SPI discovers Exchange nodes and Exchange environment services and displays them in the map view. The map view displays the real-time status of your Exchange environment.

Figure 3   Map View on HPOM Console

Servers   View: Map - Contains or Uses

View in display: Contains or Uses

Servers

W2K-T63

W2K-T20

ROS80965APO

ROS59292TST

ROS59292E2K

Microsoft Exchange Services

The map view indicates severity levels problems in the Exchange organization with the help of colors (red, yellow, blue, and green).

Reports and Graphs

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

Topology Viewer

The Microsoft Exchange SPI enables you to view an Exchange organization graphically with the help of three-dimensional maps of routing groups and server connections. From the topology view you can quickly view routing groups, Exchange servers, and the roles they play within your Exchange organization.

Figure 4   Topology Viewer
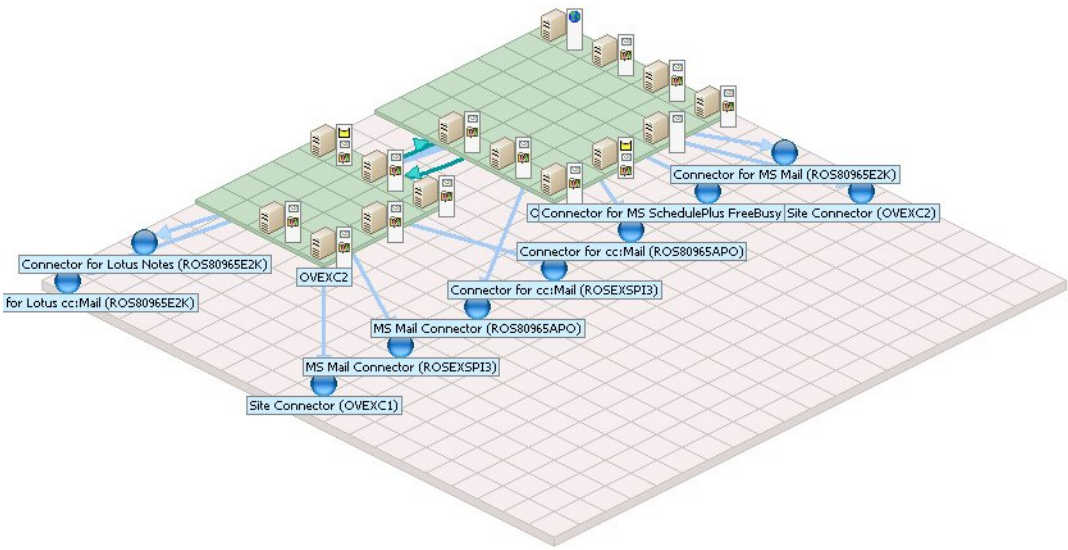
2 Installing the Microsoft Exchange SPI

The Microsoft Exchange SPI is packaged with the *HP Operations Smart Plug-ins* DVD. You must install the Microsoft Exchange SPI on the HPOM management server. The installation wizard guides you through the entire process of SPI installation.

Installation Prerequisite

If you plan to use the Microsoft Exchange SPI with HPOM for Windows 8.10, skip this procedure and go to the Installation Procedure section.

If you plan to use the Microsoft Exchange SPI with OVO for Windows 7.50, follow these steps:

1   Go to the following web site:

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

   The HP Software Support Online page opens.

2   On this page, click **Software patches** under the **Where do I find** section.

3   Log on using the HP Passport credentials.

4   Download the patch OVOW_00254 or higher and install on the management server (OVO for Windows 7.50). This patch installs the HP Operations agent version 7.35 or higher on the management server.

Installation Procedure

To install the Microsoft Exchange SPI on the management server, follow these steps:

1   Insert the *HP Operations Smart Plug-ins* DVD into the DVD-ROM drive of the management server. The installation wizard opens.

2   Click **Next**. The Smart Plug-in Release Notes and Other Documentation screen appears.
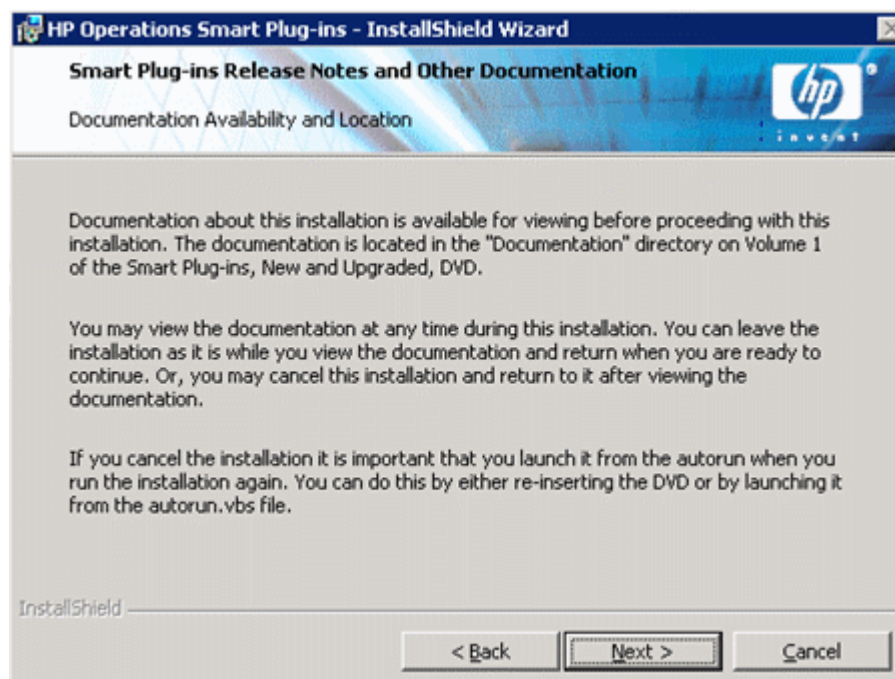
3   Click **Next**. The Product Selection screen appears.
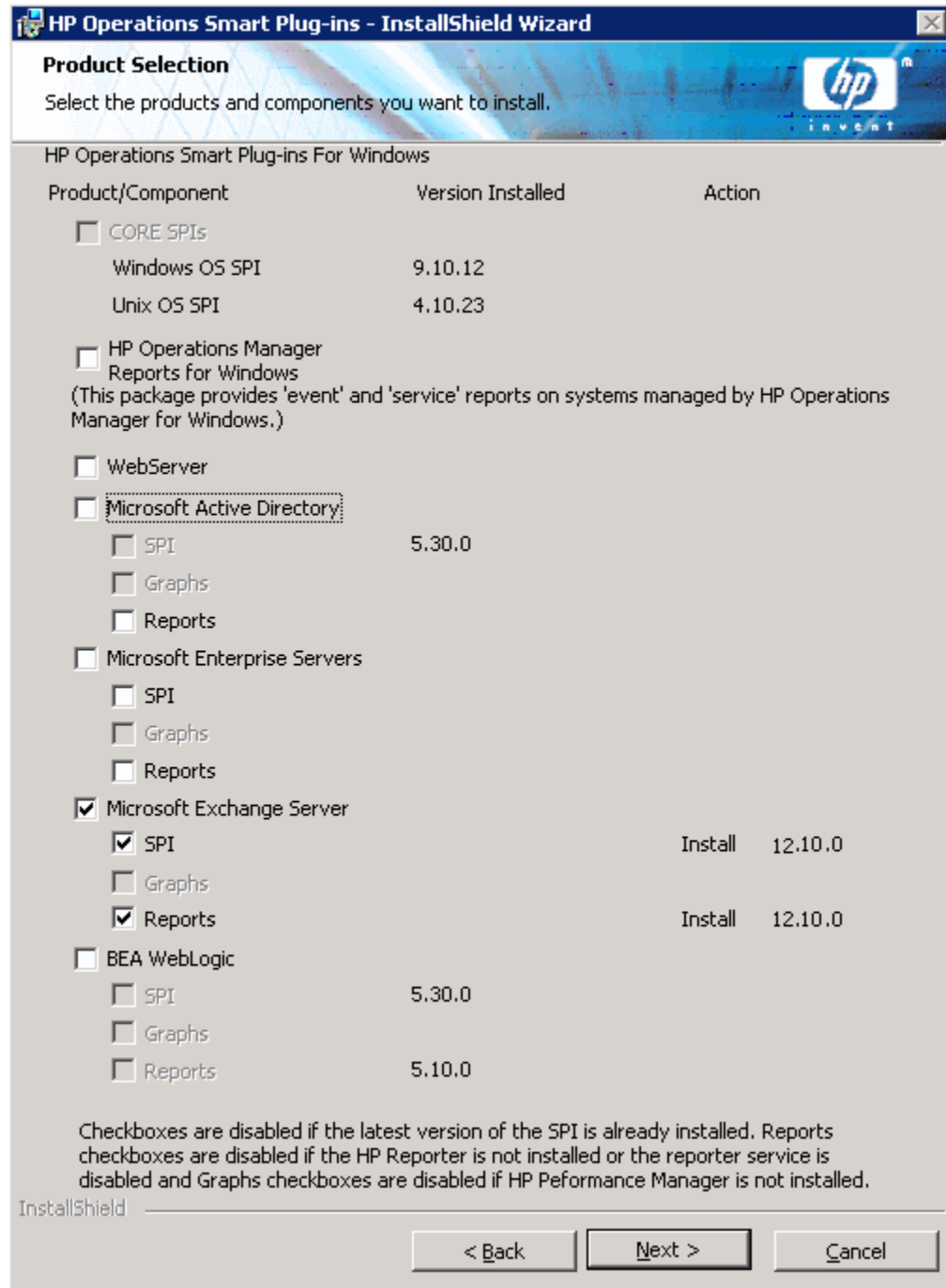
4   Select Microsoft Exchange Server, and then click **Next**. The Enable/Disable AutoDeployment screen appears.
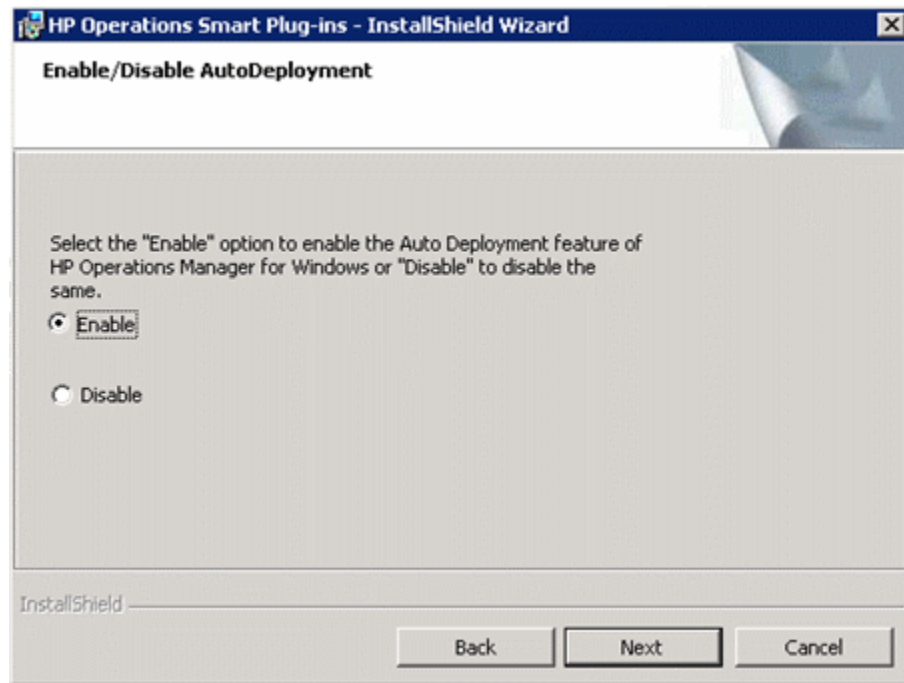
5   Select an option (Enable or Disable), and then click **Next**. The License Agreement screen appears.
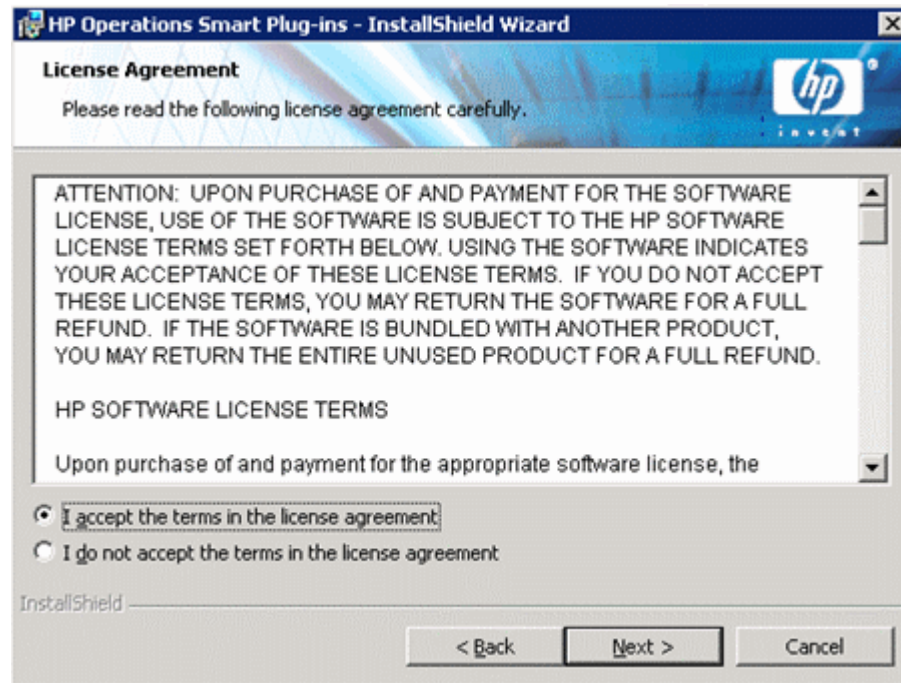
6 Select the I accept the terms…option, and then click **Next**. The Ready to Install the Program screen appears.
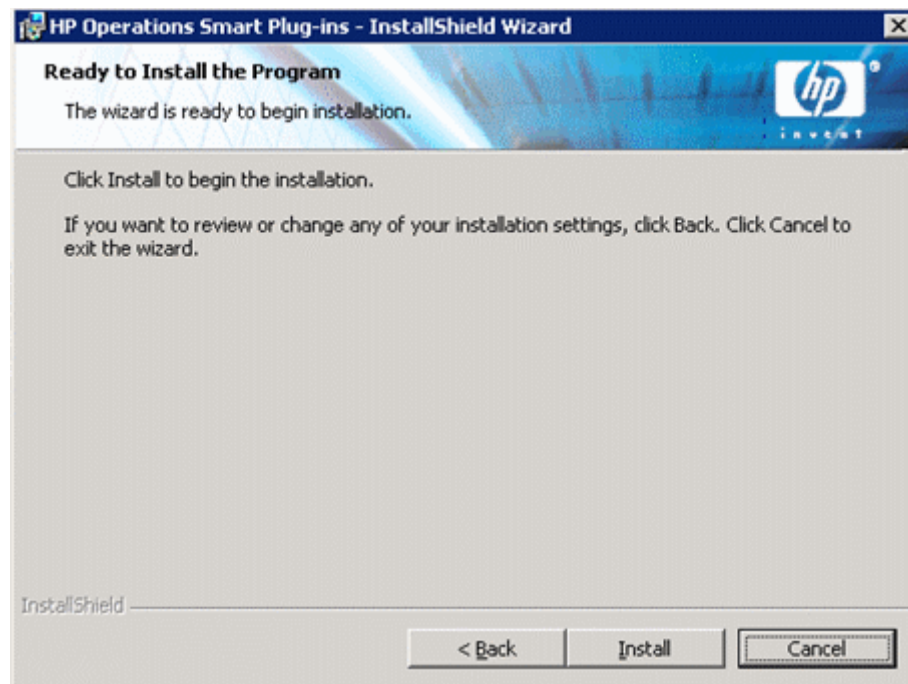
7 Click **Install**. The installation begins

8 The wizard installs the core SPIs, all necessary packages, and the Microsoft Exchange SPI. After the installation is complete, click **Finish**.

Removing the Microsoft Exchange SPI

Perform the following tasks to remove the Microsoft Exchange SPI from the management server and the Microsoft Exchange SPI policies from the managed nodes:

Task 1: Remove Policies from the Managed Nodes

1 In the HPOM console tree, expand the folders **Operations Manager → Policy Management → Policy groups → SPI for Exchange**.

2 Right-click **SPI for Exchange**, and then select **All Tasks → Uninstall from…**

3 In the Uninstall Policies on dialog box, select All Nodes.

4 Click **OK**.

▶ Check if there are any customized policies on the nodes and remove those.

Task 2: Delete Microsoft Exchange SPI Policy Groups from the Management Server

1 In the console tree of the HPOM console, select and expand the folder Policy Groups.

2 Right-click **SPI for Exchange,** and then select **Delete**.

Task 3: Delete Microsoft Exchange SPI Tools from the Management Server

1 In the console tree of the HPOM console, right-click **Tools,** and then select **Configure →
   Tools**.

2 In the Configure Tools dialog box, right-click **SPI for Exchange,** and then select **Delete**.

Task 4: Delete Microsoft Exchange SPI Customized Policies from the Management Server

1 Navigate to Polices grouped by type.

2 For each Policy type group, right-click the group, and then select **Set Filter....**

3 Select the All versions of the policy below option, and then click **OK**.

4 Sort policies by name in the list box. Select all Microsoft Exchange SPI policies.

5 Right-click and select **All tasks → Delete from server**.

6 Repeat for all policy groups.

Task 5: Remove the Microsoft Exchange SPI from the Management Server

1 From the Start menu, click **Settings → Control Panel**. The Control Panel window opens.

2 Double-click **Add or Remove Programs**. The Add or Remove Programs window opens.

3 Select HP Operations Smart Plug-ins from the list of programs, and then click **Change** or
   Remove. The uninstallation wizard opens.

4 Click **Next**.

5 Select the Remove products option, and then click **Next**.

6 Select the SPI for Microsoft Exchange Server in the Product Selection screen.

7 Click **Finish** when uninstallation is complete.

Installing the Microsoft Exchange SPI in a Cluster Environment

Before you start installing the Microsoft Exchange SPI in a cluster environment, make sure
that HPOM for Windows 8.10 or HP OpenView Operations (OVO) for Windows 7.50 is
installed on each system of the cluster.

If you are installing the Microsoft Exchange SPI on OVO for Windows 7.50, you must meet the
prerequisite described in Installation Prerequisite on page 15.

To install the Microsoft Exchange SPI in an HPOM cluster, follow these steps:

1 Insert the *HP Operations Smart Plug-ins* DVD into the DVD-ROM drive of the first node
   of the HPOM cluster. The installation wizard appears.

2 Follow the instructions in the wizard to install the SPI.

3 Repeat step 1 and step 2 on each node of the HPOM cluster.

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

Removing the Microsoft Exchange SPI from a Cluster Environment

To remove the Microsoft Exchange SPI from a cluster HPOM/OVO environment, follow these steps:

1   Remove the Microsoft Exchange SPI policies from the managed nodes (see Task 1 on page 19).

2   Delete the Microsoft Exchange SPI policy groups from each management server of the cluster (see Task 2 on page 19).

3   Delete the Microsoft Exchange SPI tools from each management server of the cluster (see Task 3 on page 20).

4   Delete the Microsoft Exchange SPI customized policies from each management server of the cluster (see Task 4 on page 20).

5   From each management server, remove HP Operations Smart Plug-ins from the Add or Remove Programs window, and then select Microsoft Exchange Server in the Product Selection Uninstall screen to remove the Microsoft Exchange SPI.

   Alternatively, you can insert the *HP Operations Smart Plug-ins* DVD into the DVD-ROM drive of each management server and remove the Microsoft Exchange SPI.

Upgrading the Microsoft Exchange SPI

If you have an older version of the Microsoft Exchange SPI installed in your environment, you need to perform certain tasks to ensure an effective and optimal upgrade.

If you plan to upgrade the Microsoft Exchange SPI on OVO for Windows 7.50, make sure the prerequisite described in Installation Prerequisite on page 15 is met.

To upgrade to the latest version of the Microsoft Exchange SPI, follow these steps:

1   Identify the nodes on which you deployed earlier versions of the Microsoft Exchange SPI.

2   Right-click one of the identified nodes, and then click **View → Policy Inventory**. The details pane displays the list of deployed policies.

3   Select all policies in the details pane, right-click, and then click **All Tasks → Disable**.

4   Select all policies in the details pane, right-click, and then click **All Tasks → Remove**.

5   Repeat step 2 to step 4 for all nodes on which you deployed earlier versions of Microsoft Exchange SPI policies.

6   At the console, select Operations Manager→Policy management→Policy groups, Select the SPI for Exchange group, and then rename it (for example, SPI for Exchange_old).

7   Install the SPI from the DVD by following the procedure described under Installation Procedure on page 16.

   The new DVD introduces two new policy groups—**en** and **ja**. The en group includes the English versions of all Microsoft Exchange SPI policies; the ja group includes the Japanese versions of all Microsoft Exchange SPI policies.

8   Compare old and new policies by opening them side by side and change the new policy to match the previous customization (as desired):

Threshold level "EXSPI-2007-POP3: Warning threshold"

General | Start actions | Continue actions | End actions

Threshold level description* | EXSPI-2007-POP3: Warning threshold

Threshold limit (Maximum)

EXSPI-8X_Mon... >= (greater than or equal to)* | 10 — **Old setting**

Short-term peaks

☐ Ignore single short-term peaks occurring within | 0 h 0 m 0 s

Reset

⦿ Reset value is same value as threshold limit
◯ Specify a special reset value for the threshold level

EXSPI-8X_Mon... < (less than)*

OK

Threshold level "EXSPI-2007-POP3: Warning threshold"

General | Start actions | Continue actions | End actions

Threshold level description* | EXSPI-2007-POP3: Warning threshold

Threshold limit (Maximum)

EXSPI-8X_Mon... >= (greater than or equal to)* | 15 — **New setting**

Short-term peaks

☐ Ignore single short-term peaks occurring within | 0 h 0 m 0 s

Reset

⦿ Reset value is same value as threshold limit
◯ Specify a special reset value for the threshold level

EXSPI-8X_Mon... < (less than)*

OK | Cancel | Help

If you upgrade the Microsoft Exchange SPI from an older version, and then remove the SPI by using the wizard, the older versions of the Microsoft Exchange SPI policies are not automatically removed from the management server. You can remove those policies manually.

3 Configuring the Microsoft Exchange SPI

After you install the Microsoft Exchange SPI, you must add nodes on which Exchange servers reside to the management console. Also, you must deploy necessary policies and perform certain configuration tasks on the added managed nodes to begin the monitoring operation.

Configuring the Microsoft Exchange SPI for Microsoft Exchange Server 2007

The Microsoft Exchange SPI will start monitoring a Microsoft Exchange Server 2007 node after you install the agent and deploy necessary policies on it. When you add a node, agents are automatically installed on the managed nodes.

Add Nodes

You can install the Microsoft Exchange SPI on HPOM for Windows 8.10 or OVO for Windows 7.50. You can use this SPI with either HPOM 8.10 or OVO 7.50, depending on your requirement. To add a node on HPOM Console (for HPOM for Windows 8.10) or OVO Console (for OVO for Windows 7.50), perform the following configuration tasks:

HPOM Console (for HPOM for Windows 8.10)

1 In the console tree of the HPOM console, right-click **Nodes**, and then click **Configure** →
   Nodes. The Configure Managed Nodes wizard opens.

2 In the left frame, expand discovered node groups, and then drag and drop a system to the
   right frame. In the right pane, right-click the newly added node, and then click **Properties**.
   The Node Properties dialog box opens. You can change the default node settings in this
   dialog box.

   Alternatively, follow these steps:

a In the right frame, right-click, and then click **New Node**. The Base Settings dialog box opens.

b In the Full Qualified Domain Name text box, type the full qualified domain name of the Microsoft Exchange Server node that you want to add.

c In the Display Name text box, type a name of the node that will be displayed in the HPOM console.

d   Click **Next**. The OS Setup screen appears.

e Operating system details are automatically set in the OS Setup screen (If these are not automatically discovered, you must manually set these details). Click **Next**. The Advanced Settings screen appears.

> For detailed information on node properties, refer to the *Configuring Managed Nodes* section of the HP Operations Manager online help.

f Click **Finish**.

3 If you want to change the default agent communication mode, follow these steps:

a In the right frame of the Configure Managed Nodes wizard, right-click a node, and then click **Properties**. The Node Properties dialog box opens.

b   In the System tab, change the agent communication mode from the Agent Comm Type drop-down list.

c   Click **Apply**, and then click **OK**.

4   Click **Apply**.

5   Click **OK**. The Agent Installation window opens.

6   In the Agent Installation window, specify the necessary details. Refer to the *Remote agent installation* section of the *Configuring Agents* chapter of the HPOM online help.

When you add a node, the agent software is automatically installed on the node. If you manually install the DCE agent on a node, you must run the `vcredist_x86.exe` file from the `%OvAgentDir%` location on the node.

OVO Console (for OVO for Windows 7.50)

1 In the console tree of the OVO console, right-click **Nodes**, and then click **Configure** →
   Nodes. The Configure Managed Nodes window opens.
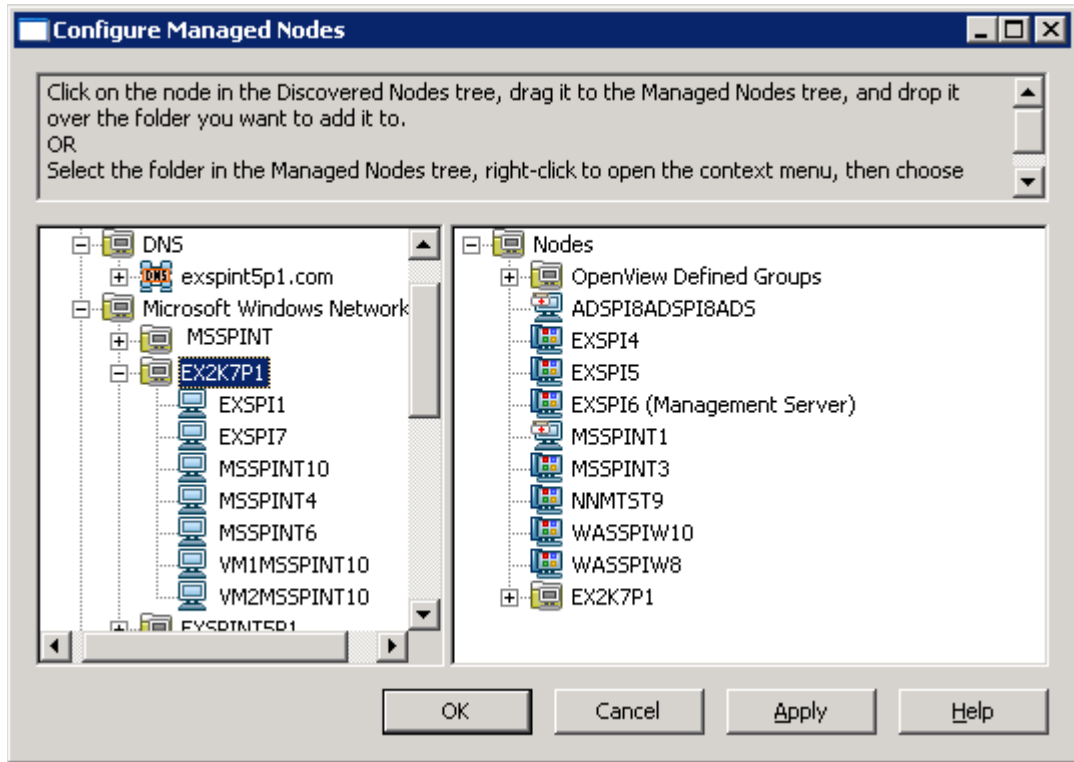
2 Drag and drop a system from the left frame to the right frame.

3 Click **Apply**.

4 Click **OK**.

When you add a node, the agent software is automatically installed on the node. If you
manually install the DCE agent on a node, you must run the `vcredist_x86.exe` file from
the `%OvAgentDir%` location on the node.

After adding nodes, you must run the discovery policy on the newly added nodes (See Deploy
the Discovery Policy on page 31).

Deploy Instrumentation

To deploy instrumentation on the newly added nodes, follow these steps:

1 In the console tree of the HPOM/OVO console, right-click on a node, and then select **All Tasks** → **Deploy Instrumentation**. The Deploy Instrumentation dialog box opens.
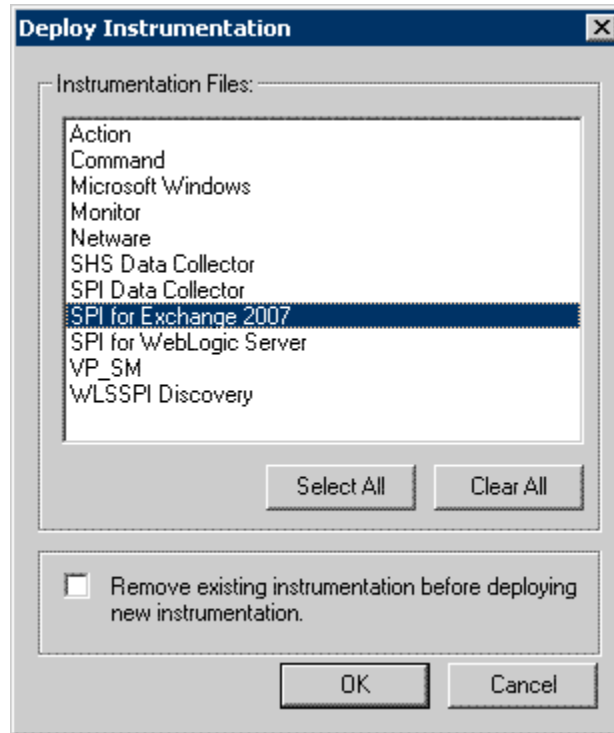
2 Select SPI for Exchange 2007, and then click **OK**.

3 Similarly, deploy the SPI Data Collector instrumentation group.

4 Perform step 1 through step 3 for all added nodes.

Deploy the Discovery Policy

To discover the Exchange environment on the managed nodes, you must deploy the discovery policy. If you want to monitor Microsoft Exchange Server clusters, you must provide the access credentials of a Microsoft Exchange Server 2007 administrator. Perform the following tasks to deploy the discovery policy on the managed nodes:

Task 1: Provide User Credentials

If you do not use Exchange server clusters, you can skip this task and deploy the discovery policy (see Deploy on Nodes on page 32). To provide the credentials of an administrative user to the Exchange 2007 Discovery policy, follow these steps:

1 In the console tree of the HPOM/OVO console, expand **Policy Management** → **Policy Groups** → **SPI for Exchange** → **en** → **Exchange 2007** → **Manual Deploy Groups**, and then double-click **Discovery**.

2   In the details pane, double-click **Exchange 2007 Discovery**. The Exchange 2007 Discovery [12.10] (Service Auto-Discovery) dialog box opens.
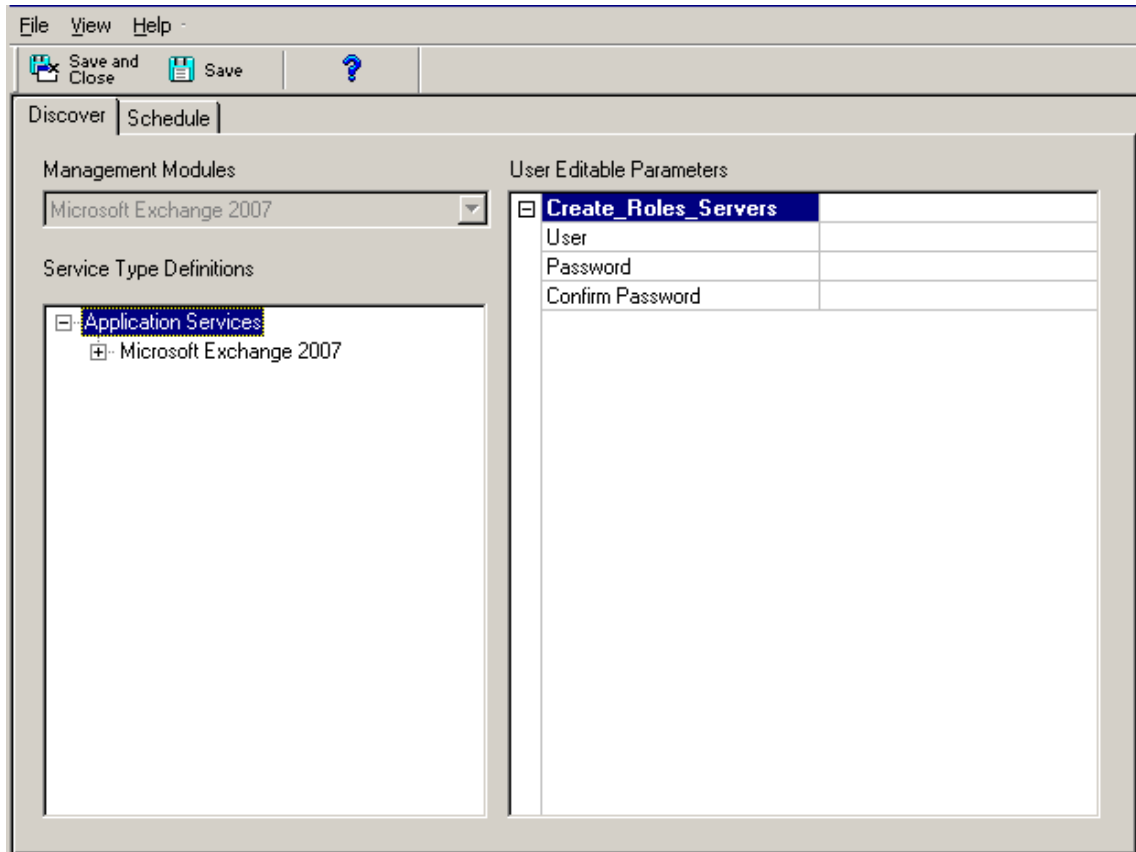
3   In the User Editable Parameters pane, type the following information:

- In the User field, type user name of a user with administrative privilege along with the domain in the following format:

    <Domain>\\<User Name>

- In the Password field, type the password of the user.

- Retype the password in the Confirm Password field.

4   Close the Exchange 2007 Discovery [12.10] (Service Auto-Discovery) dialog box.

Task 2:   Deploy on Nodes

To deploy the Exchange 2007 Discovery policy on managed Exchange nodes, follow these steps:

1   In the console tree of the HPOM/OVO console, expand **Policy Management** → **Policy Groups** → **SPI for Exchange** → **en** → **Exchange 2007** → **Manual Deploy Groups**, and then double-click **Discovery**.

2   In the details pane, deploy the Exchange 2007 Discovery policy on the managed Microsoft Exchange Server 2007 nodes.

Task 3:   *Only for Cluster Nodes.* Deploy the EXSPI-8X Exchange Cluster Discovery AppLog Policy

Deploy the EXSPI-8X Exchange Cluster Discovery AppLog policy on all cluster nodes.

Create Databases

After deploying the discovery policy, you must create databases on a data store. The Create Data Sources tool can create databases either on the HP Operations agent's data store (embedded performance component — also known as CODA), or on HP Performance Agent. If you do not have HP Performance Agent installed in your environment, it creates databases on CODA. If you do not run this tool and create databases, the agent cannot log data on the managed node. To run this tool, follow these steps:

1 In the console tree of the HPOM/OVO console, expand **Tools** → **SPI for Exchange**, and then double-click **Exchange 2007**.

2 In the details pane, double-click **Create Data Sources**. The Select where to launch this tool dialog box opens.
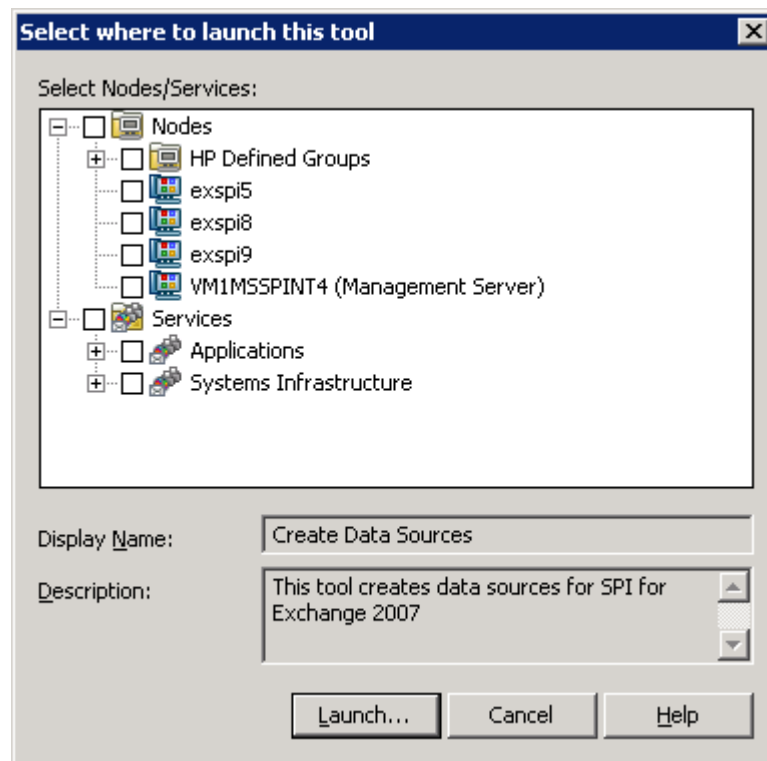
3 Select the nodes on which you want to run the tool, and then click **Launch**. After a few seconds, the Tool Status window opens.
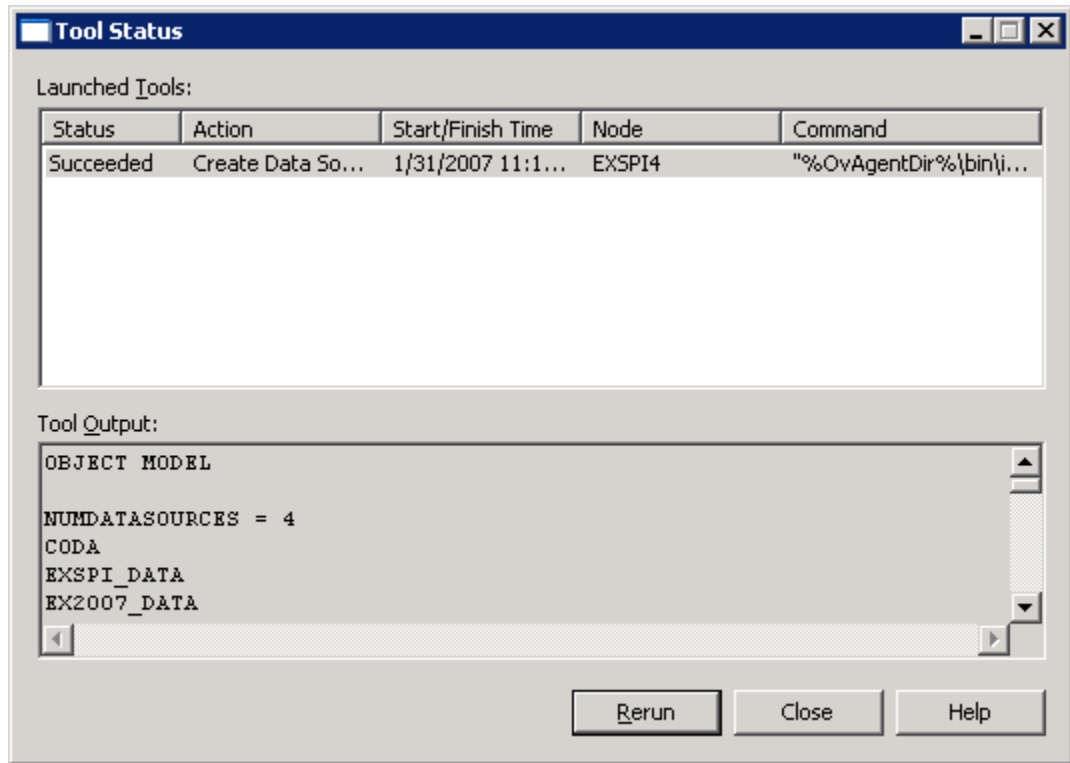
4 Click **Close**.

Run the Register DataCollector Tool

This tool registers COM components on the managed Exchange 2007 nodes. To run the Register DataCollector Tool, follow these steps:

1 In the console tree of the HPOM/OVO console, expand **Tools** → **SPI for Exchange**, and then double-click **Exchange 2007**.

2   In the details pane, double-click **Register DataCollector**. The Select where to launch this tool dialog box opens.
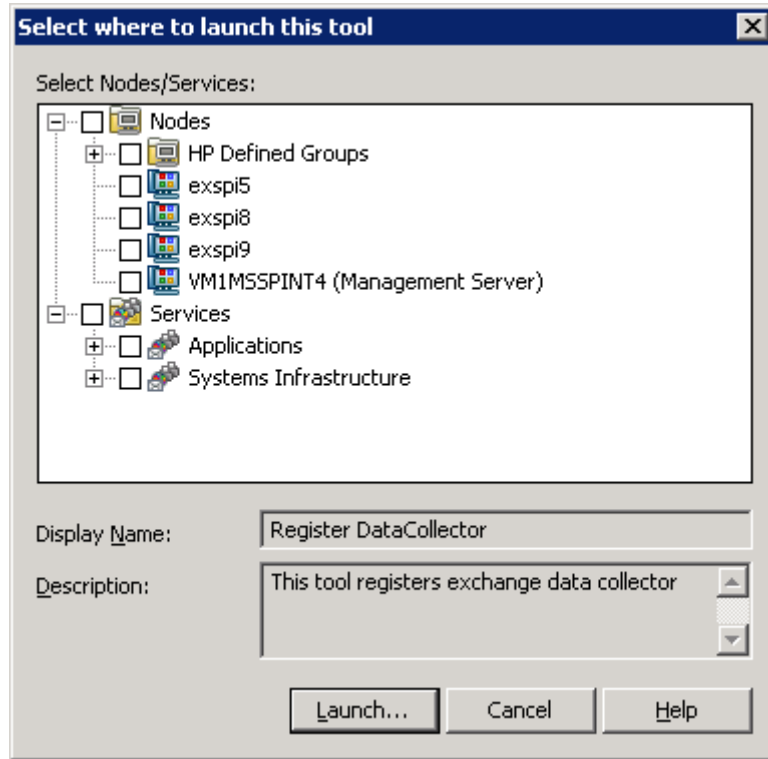
3   Select the nodes, and then click **Launch**. After a few seconds, the Tool Status window opens.

4   Click **Close**.

Run the Start ExData Collection Manager Tool

To facilitate the data collection mechanism on managed nodes, the SPI for Microsoft Exchange Server 2007 uses collection manager, which is a background process that runs on managed Exchange 2007 nodes. Before you start using the SPI, you must run the Start ExData Collection Manager tool on managed Exchange 2007 nodes to enable data collection. To run the Start ExData Collection Manager tool on Exchange 2007 nodes, follow these steps:

1   In the console tree of the HPOM/OVO console, expand **Tools** → **SPI for Exchange**, and then double-click **Exchange 2007**.

2   In the details pane, double-click **Start ExData Collection Manager**. The Select where to launch this tool dialog box opens.
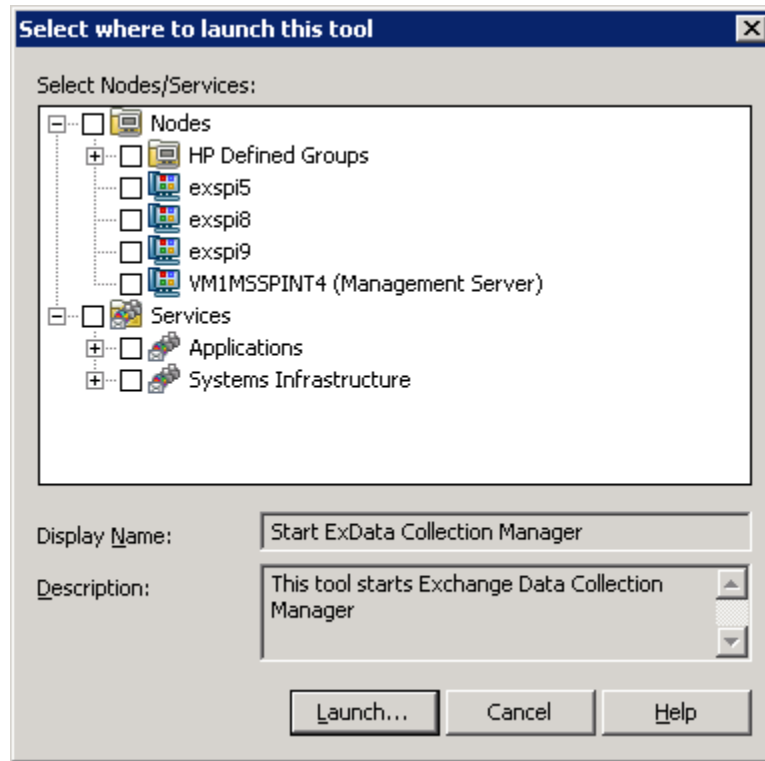
3   Select the nodes on which you want to run the tool, and then click **Launch**. After a few seconds, the Tool Status window opens.

4   Click **Close**.

Run the Start PowerShell Collector Tool

The SPI for Microsoft Exchange Server 2007 uses PowerShell commands to collect metric values. PowerShell collector is a background process, that runs on managed nodes, and works in conjunction with collection manager to facilitate data collection. To run the Start PowerShell Collector tool on Exchange 2007 nodes, follow these steps:

1   In the console tree of the HPOM/OVO console, expand **Tools** → **SPI for Exchange**, and then double-click **Exchange 2007**.

2   In the details pane, right-click **Start PowerShell Collector**, and then click **Properties**. The Start PowerShell Collector Properties dialog box opens.
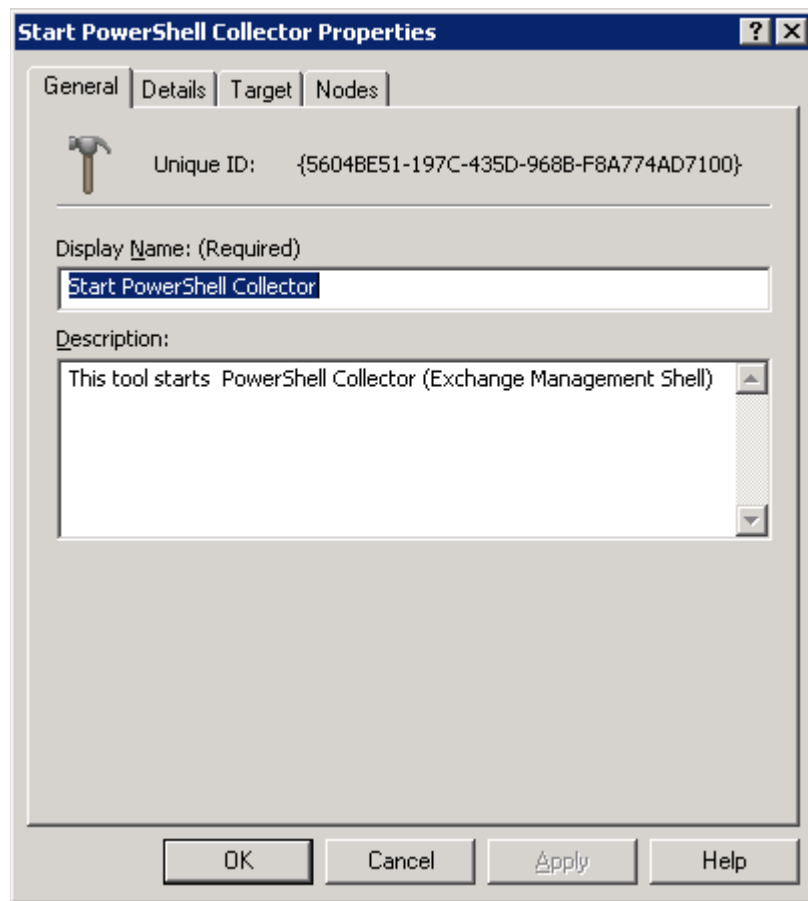
3   Go to the Target tab.

4   Clear the Run As Agent User Option.

5   In the User Name text box, type the user's name who has 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.

6   In the Password and Verify Password text boxes, type the password for the above-mentioned user.

7   Click **Apply**.

8   Click **OK**.

9   In the details pane, double-click **Start PowerShell Collector**. The Select where to launch this tool dialog box opens.

10   Select the nodes on which you ran the Start Collection Manager tool, and then click **Launch**. After a few seconds, the Tool Status window opens.

11   Click **Close**.

Deploy the EXSPI 8X Refresh Collection Definition Policy

The PowerShell collection configuration utility enables you to modify the default collection definition by modifying the SPIMetaData.xml file. Every time you modify the SPIMetaData.xml file, you must deploy the EXSPI-8X SPIMetaData Versioning policy on nodes for the modifications to take effect (if you use OVO for Windows, you must re-deploy the

instrumentation). However, the collection manager process starts following the updated collection mechanism only after you deploy the EXSPI 8X Refresh Collection Policy. To deploy the EXSPI 8X Refresh Collection Definition policy, follow these steps:

1   In the console tree of the HPOM/OVO console, expand **Policy Management** → **Policy groups** → **SPI for Exchange** → **en** → **Exchange 2007** → **Manual Deploy Groups**, and then double-click **Collector Definition**.

2   In the details pane, right-click **EXSPI 8X Refresh Collection Definition**, and then click **All Tasks** → **Deploy on**. The Deploy policies on dialog box opens.
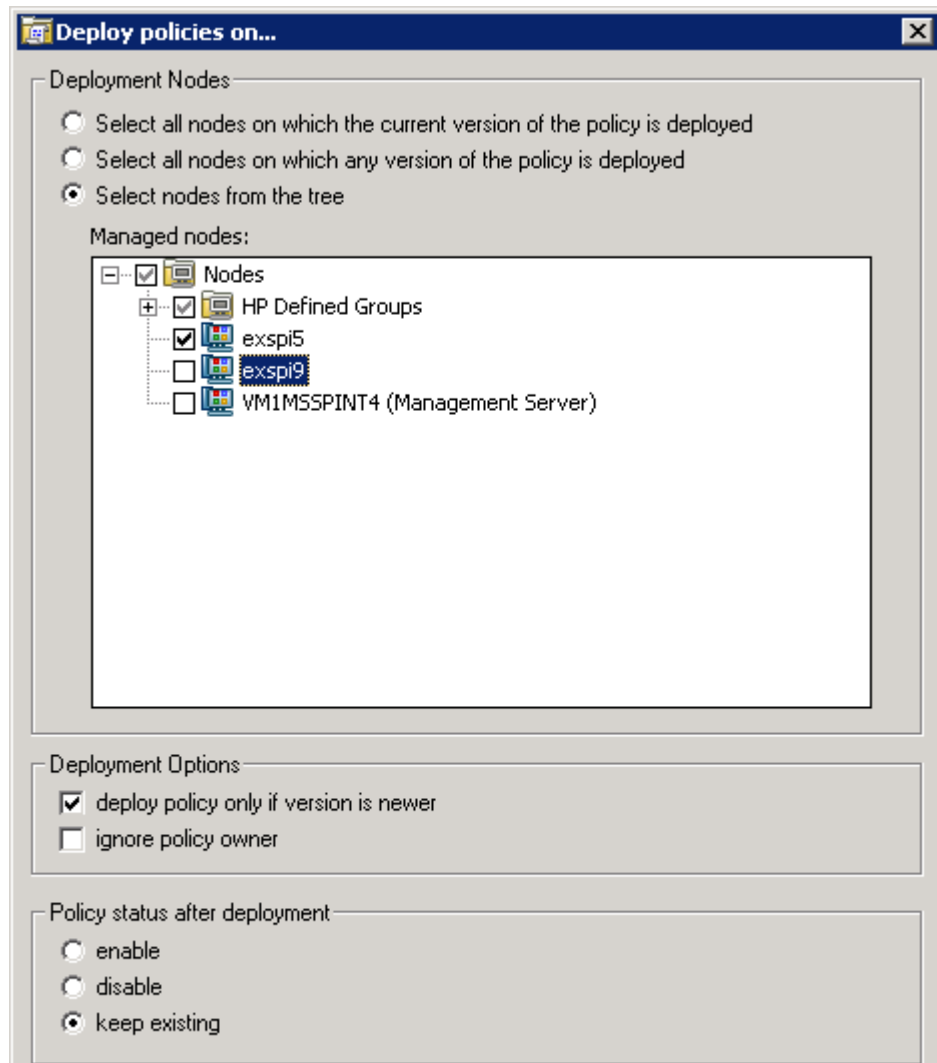
3   Keep all default settings and select nodes from the Managed nodes list.

4   Click **OK**.

Deploy the EXSPI 8X Check Collector Server Policy

The EXSPI 8X Check Collector Server policy checks the status of the PowerShell collector process on managed nodes. You must deploy this policy to all added Microsoft Exchange Server 2007 nodes. To deploy the Check Collector Server policy on nodes, follow these steps:

1   In the console tree of the HPOM/OVO console, expand **Policy Management → Policy groups → SPI for Exchange → en → Exchange 2007 → Manual Deploy Groups**, and then double-click **Collector Definition**.

2   In the details pane, double-click **EXSPI 8X Check Collector Server**, the policy editor dialog box opens.

3   In the policy editor dialog box, select the As user option, and then type the user name that was used with the Start PowerShell Collector tool (step 5 on page 38).

4   Select the Specify password option, and then type the password for the above-mentioned user name.

5   Click **Save**.

6   In the details pane, right-click **EXSPI 8X Check Collector Server**, and then click **All Tasks → Deploy on**. The Deploy policies on dialog box opens.
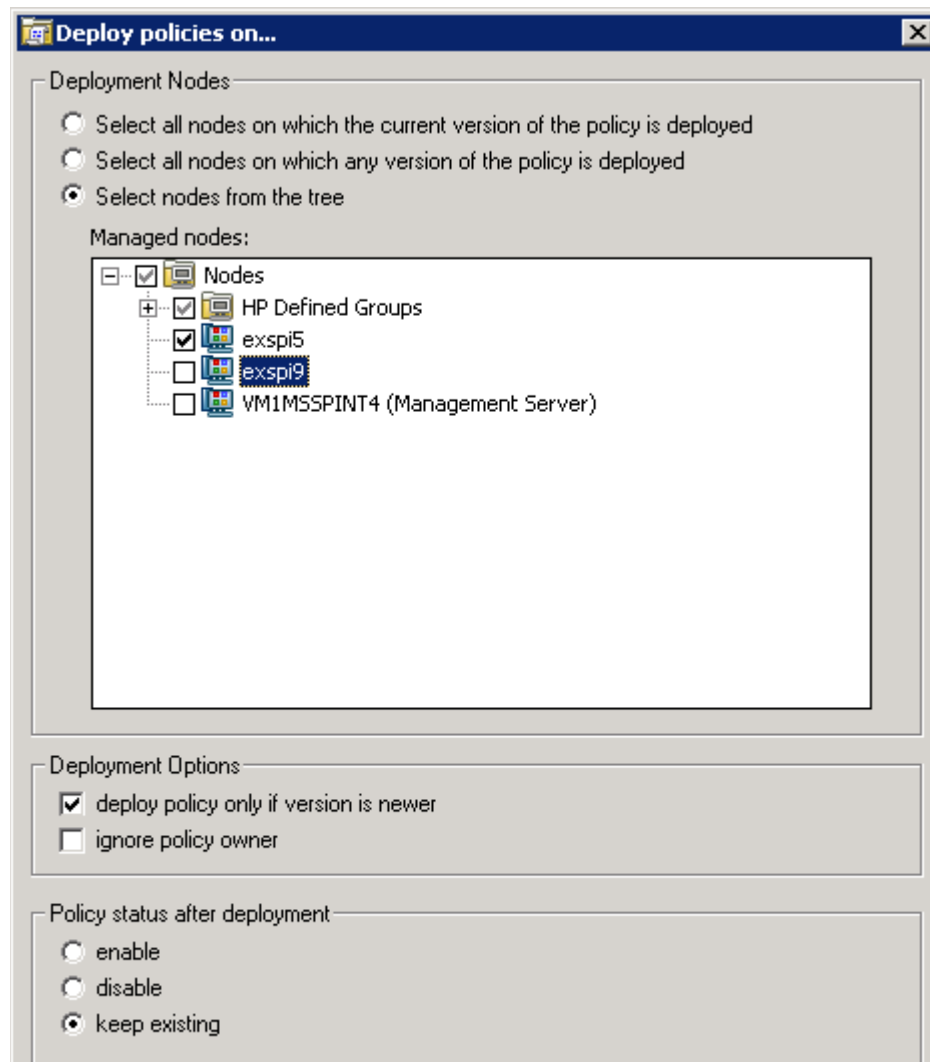
7   Keep all default settings and select nodes from the Managed nodes list.

8   Click **OK**.

Deploy the EXSPI 8X Check Collection Manager Policy

The EXSPI 8X Check Collection Manager policy checks the status of the collection manager process on managed nodes. You must deploy this policy to all added Microsoft Exchange Server 2007 nodes. To deploy the Check Collection Manager policy on nodes, follow these steps:

1   In the console tree of the HPOM/OVO console, expand **Policy Management** → **Policy groups** → **SPI for Exchange** → **en** → **Exchange 2007** → **Manual Deploy Groups**, and then double-click **Collector Definition**.

2   In the details pane, right-click **EXSPI 8X Check Collection Manager**, and then click **All Tasks** → **Deploy on**. The Deploy policies on dialog box opens.
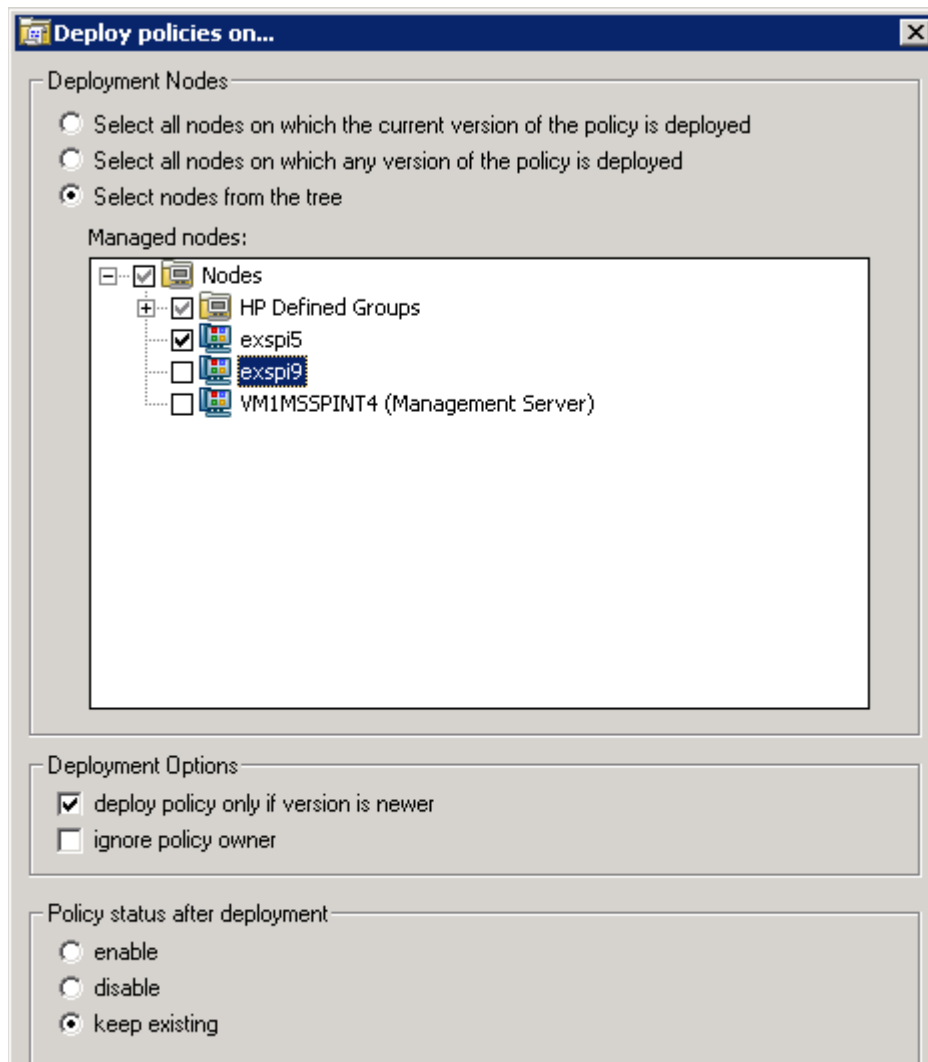
3   Keep all default settings and select nodes from the Managed nodes list.

4   Click **OK**.

Redeploying the Instrumentation for the SPI for Microsoft Exchange Server 2007

After installing and configuring the Microsoft Exchange SPI, if you need to re-deploy the instrumentation on nodes, perform these tasks on all nodes in the given sequence:

1   Disable the EXSPI 8X Check Collector Server and EXSPI 8X Check Collection Manager policies.

2   Run the Stop ExData Collection Manager tool.

3   Run the Stop PowerShell Collector tool.

4   Re-deploy the instrumentation.

5   Run the Start ExData Collection Manager tool.

6   Run the Start PowerShell Collector tool.

7   Enable the EXSPI 8X Check Collector Server and EXSPI 8X Check Collection Manager policies.

Configuring the SPI for Microsoft Exchange Server 2003

If policy autodeployment is enabled on the management server, add the managed nodes according to the instructions in Add Nodes on page 42, deploy instrumentation on nodes according to the instructions in Deploy Instrumentation on page 49, and then start using the SPI.

If policy autodeployment is disabled on the management server, you must perform the following configuration tasks.

Add Nodes

You can install the Microsoft Exchange SPI on HPOM for Windows 8.10 or OVO for Windows 7.50. You can use this SPI with either HPOM 8.10 or OVO 7.50, depending on your requirement. To add a node on HPOM Console (on HPOM 8.10) or OVO Console (on OVO 7.50), perform the following configuration tasks:

HPOM Console (on HPOM 8.10)

To add a new managed node in HPOM console, follow these steps:

1 In the console tree of the HPOM console, right-click **Nodes**, and then click **Configure →
   Nodes**. The Configure Managed Nodes window opens.

2 In the left frame, expand discovered node groups, and then drag and drop a system to the
   right frame. In the right pane, right-click the newly added node, and then click **Properties**.
   The Node Properties dialog box opens. You can change the default node settings in this
   dialog box.

   Alternatively, follow these steps:

a   In the right frame, right-click, and then click **New Node**. The Base Settings dialog box opens.

b   In the Full Qualified Domain Name text box, type the full qualified domain name of the Microsoft Exchange Server node that you want to add.

c   In the Display Name text box, type a name of the node that will be displayed in the HPOM console.

d   Click **Next**. The OS Setup screen appears.

e   Operating system details are automatically set in the OS Setup screen (If these are not automatically discovered, you must manually set these details). Click **Next**. The Advanced Settings screen appears.

For detailed information on node properties, refer to the *Configuring Managed Nodes* section of the HP Operations Manager online help.

f   Click **Finish**.

3   If you want to change the default agent communication mode, follow these steps:

a   In the right frame, right-click a node, and then click **Properties**. The Node Properties dialog box opens.

 b In the System tab, change the agent communication mode from the Agent Comm Type drop-down list.

 c Click **Apply**, and then click **OK**.

4 Click **Apply**.

5 Click **OK**. The Agent Installation window opens.

6 In the Agent Installation window, specify the necessary details. Refer to the *Remote agent installation* section of the *Configuring Agents* chapter of the HPOM online help.

When you add a node, the agent software is automatically installed on the node. If you manually install the DCE agent on a node, you must run the `vcredist_x86.exe` file from the `%OvAgentDir%` location on the node.

OVO Console (on OVO 7.50)

1 In the console tree of the OVO console, right-click **Nodes**, and then click **Configure →
   Nodes**. The Configure Managed Nodes window opens.
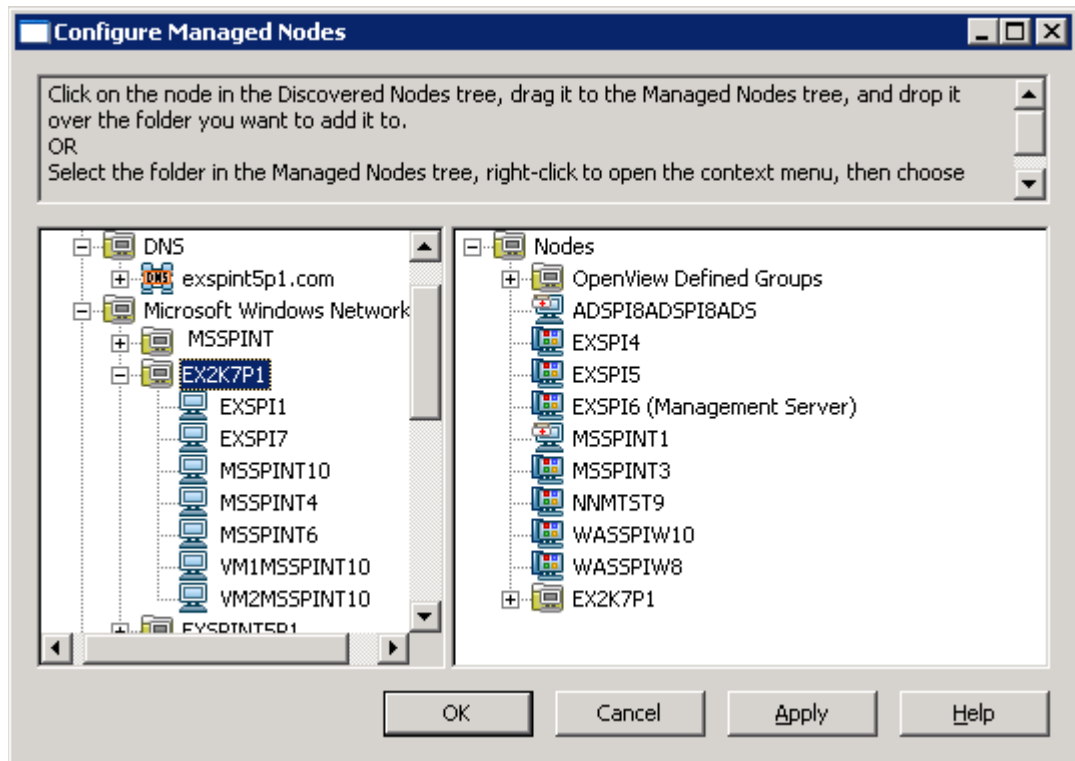
2 Drag and drop a system from the left frame to the right frame.

3 Click **Apply**.

4 Click **OK**.

When you add a node, the agent software is automatically installed on the node. If you
manually install the DCE agent on a node, you must run the `vcredist_x86.exe` file from
the `%OvAgentDir%` location on the node.

Deploy Instrumentation

To deploy instrumentation on the newly added nodes, follow these steps:

1   In the console tree of the HPOM console, right-click on a node, and then select **All Tasks** →
    Deploy Instrumentation. The Deploy Instrumentation dialog box opens:
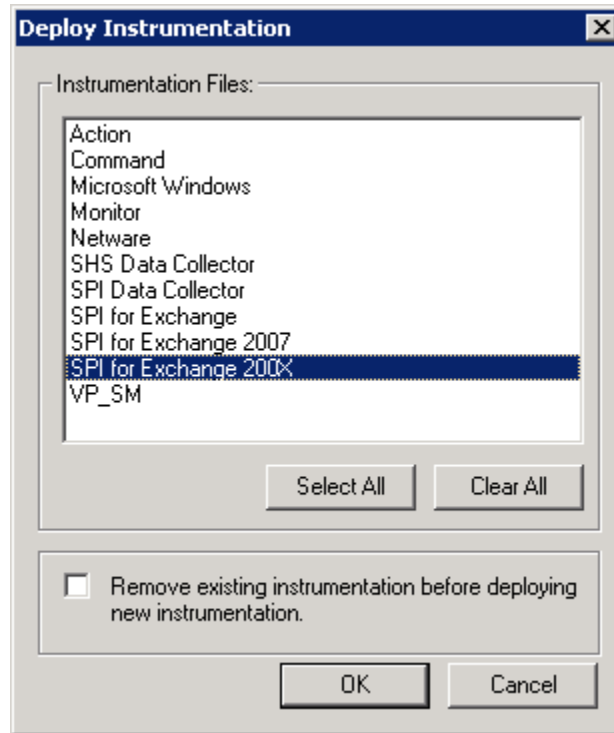
2   Select SPI for Exchange 200X, and then click **OK**.

3   Similarly, deploy the SPI Data Collector instrumentation group.

4   Perform step 1 through step 3 for all the added nodes.

If the policy autodeployment is enabled, you can start using the SPI.

If the policy autodeployment is disabled, you must run the discovery policy on newly added
nodes (see Deploy Discovery Policy on page 49).

Deploy Discovery Policy

For Microsoft Exchange Server 2003, you must deploy the Discovery policy under Exchange
2003. To deploy this policy on managed nodes, follow these steps:

1   In the console tree of the HPOM/OVO console, expand **Policy Management** → **Policy Groups**
    → **SPI for Exchange** → **en** → **Exchange 2003** → **ovo Exchange SPI core**, and then click
    Discovery.

2   In the right pane, deploy the EXSPI-6.X Exchange Service Discovery policy.

Create Databases

After deploying the discovery policy, you must create databases on a data store. The Data Collection policy can create databases either on the HP Operations agent's data store (embedded performance component — also known as CODA), or on HP Performance Agent. If you do not have HP Performance Agent installed in your environment, it creates databases in CODA. If you do not launch this policy and create databases, the agent cannot log data on the managed node.

To create databases in a data store, follow these steps:

1   In the console tree, expand **Policy management** → **Policy groups** → **SPI for Exchange** → **en** → **Exchange 2003** → **Auto Deploy Groups** → **ovo Exchange SPI core**, and then click **Data Collection**.

2   In the details pane, deploy the EXSPI-6.X exspi Agent Configuration policy on the nodes of your choice.

Alternatively, follow these steps:

1   In the console tree, expand **Tools** → **SPI for Exchange** → **Exchange 2000 and 2003**, and then click **EXSPI Utilities**.

2   In the details pane, double-click **Embedded Performance Component Configuration**. The Select where to launch this tool dialog box opens.

3   Select the nodes, and then click **Launch**.

Configuring Data Stores

The Microsoft Exchange SPI collects metric data on managed nodes, and logs the data to a data store on managed nodes. By default, the SPI stores data in the embedded performance component (also known as CODA) of the HP Operations agent. If you have HP Performance Agent installed on the managed node, the SPI starts logging data in HP Performance Agent instead of the embedded performance component. If you want to switch back to the embedded performance component while HP Performance Agent is still installed on the node, you must perform additional configuration tasks on the management server.

For Microsoft Exchange Server 2007 nodes, follow these steps:

1   In the console tree, expand **Tools** → **SPI for Exchange**, and then click **Exchange 2007**.

2   In the details pane, right-click **Create Data Sources**, and then click **Properties**. The Create Data Source Properties dialog box opens.

3   Go to the Details tab of the Create Data Source Properties dialog box.

4   In the Command text box, change **`exspidatasource.exe -A -V -SPEC EX2007*.spec -OVOW`** to **`exspidatasource.exe -A -V -CODA -SPEC EX2007*.spec -OVOW`**

5   Click **Apply**.

6   Click **OK**.

For Microsoft Exchange Server 2003 nodes, follow these steps:

1   In the console tree, expand **Tools** → **SPI for Exchange**→ **Exchange 2000 and 2003**, and then click **EXSPI Utilities**.

2   In the details pane, right-click **Embedded Performance Component Configuration**, and then click **Properties**. The Embedded Performance Component Configuration Properties dialog box opens.

3   Go to the Details tab of the Embedded Performance Component Configuration Properties dialog box.

4   In the Command text box, change `exspidatasource.exe -A -V -SPEC EXSPI*.spec -OVOW` to
`exspidatasource.exe -A -V -CODA -SPEC EXSPI*.spec -OVOW`

5   Click **Apply**.

6   Click **OK**.

4 Configuring Microsoft Exchange SPI for Message Delivery SLAs

The Microsoft Exchange SPI enables you to monitor message delivery performance of Exchange Server and compare the performance against Service Level Agreements (SLAs) of your organization. The SPI monitors message delivery and detects SLA violations by using end-to-end message ping.

Exchange Server 2007: Testing MAPI Connectivity

You can test the message delivery performance of Mailbox servers with the EXSPI-8X Test Mapi Connectivity policy. You can test the MAPI connectivity latency and error by deploying this policy. The default MAPI connectivity latency is set at 10. If MAPI connectivity latency exceeds this threshold or if any error occurs during this test, the policy sends alert message to the message browser. You can change this MAPI connectivity latency threshold by using the PowerShell collection configuration utility.

To test the MAPI connectivity latency by setting a new threshold, perform these tasks:

Task 1:   Change the Threshold Value

1   Go to the PowerShell collection configuration utility.

2   In the left pane, expand **Collection Components** → **OpCMsg Calls**.

3   In the left pane, click **TestMapiLatency**.

4   In the right pane, click **Delete** to delete the existing threshold.

5   Select TestMapiConnectivity from the MetricSetRef drop-down box.

6   Select Latency from the MetricRef drop-down box.

7   Select GreaterThanOrEQ from the Select Arithmetic Operator drop-down box.

8   Set the threshold value in the value to compare box.

9   Click **Add**.

10 Click **Apply Changes**.

11 Click **File** → **Save**.

Task 2:   Identify Nodes

1   Identify the nodes on which you want to run the test.

2   In the left pane of the HPOM/OVO console, expand **Policy management** → **Policy groups** → **SPI for Exchange** → **en** → **Exchange 2007** → **Manual Deploy Groups**, and then click **Collector Definition**.

3   In the details pane, right-click **EXSPI-8X SPIMetaData Versioning**, and then click **All Tasks** → **Update to latest**.

4   Deploy the EXSPI-8X SPIMetaData Versioning policy on the selected nodes.

If you are using a Japanese version of OVO for Windows 7.50, instead of deploying the EXSPI-8X SPIMetaData Versioning policy, re-deploy the instrumentation. The EXSPI-8X SPIMetaData Versioning policy is not available in a Japanese OVO for Windows 7.50 environment.

Task 3:   Deploy the Policy

Deploy the EXSPI-8X Test Mapi Connectivity policy on the selected nodes to check if the latency is within the threshold value.

Exchange 2003: Monitoring Message Delivery SLAs

Use the Exchange SPI End-to-End Message Ping to monitor message delivery SLAs. The End-to-End Message Ping procedure requires performing the following tasks in the order given.

Task 1:   Create a New Source Mailbox for Each Source Server

A mailbox needs to be created on each managed Exchange 2003 server from which the Ping messages will be sent out

1   In the HPOM/OVO console, expand the **Tools → SPI for Exchange → Exchange 2000 and 2003 → End-to-End SLA Configuration** folder.

2   In the details pane, double-click **MBOX Config**. The Select where to launch this tool dialog box opens.
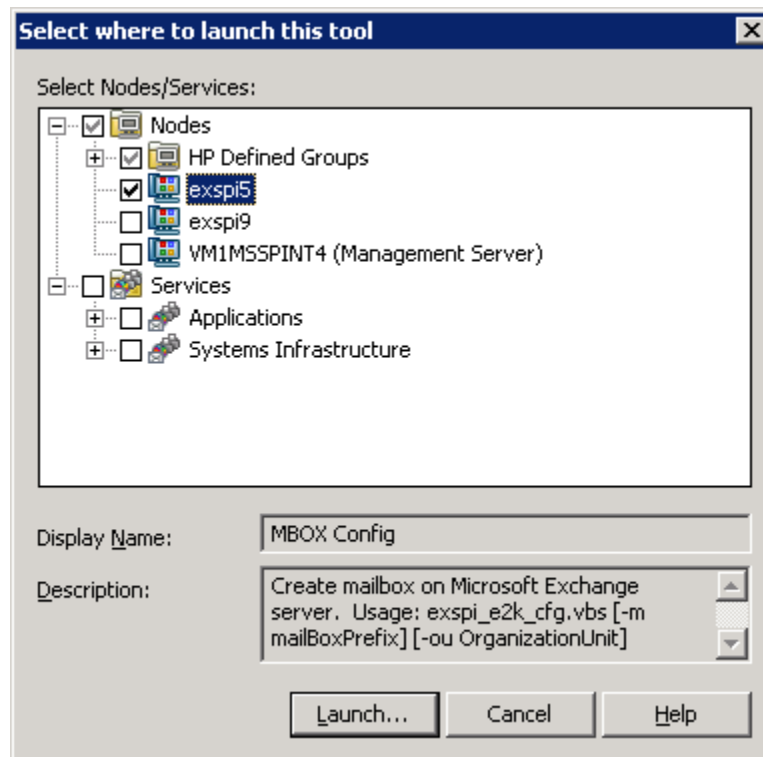
3 Select the nodes on which you want to launch the tool, and then click **Launch**. The Edit Login and Parameters dialog box opens.
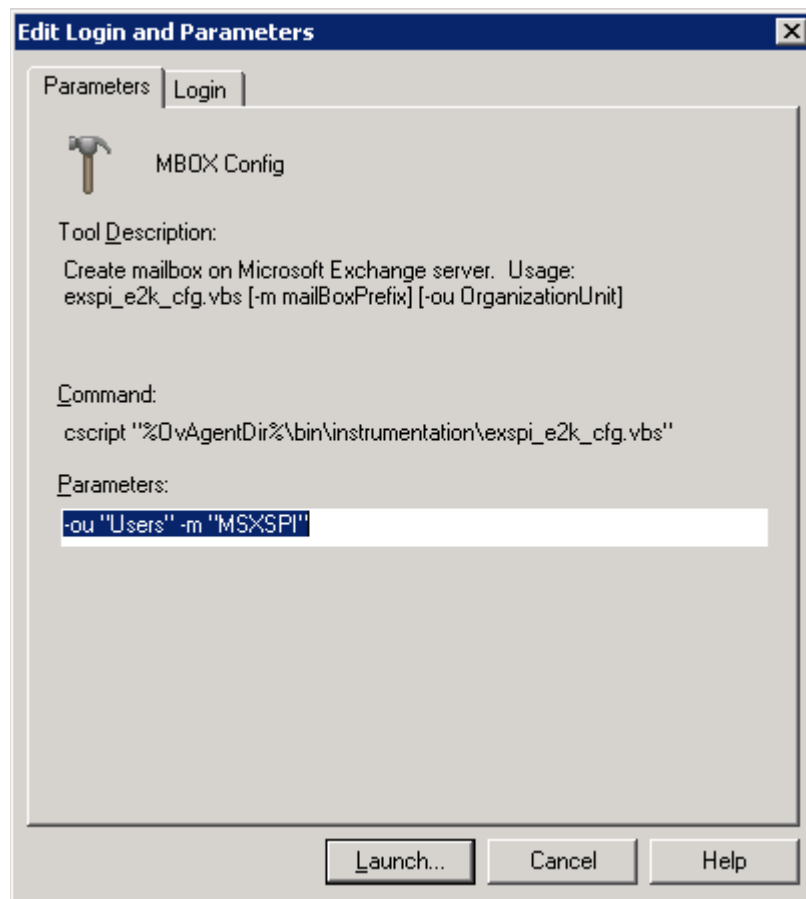
4 If you want to specify the organizational unit and mailbox prefix:

a Select the Parameters tab. By default, the organizational unit is set to Users, and the default mailbox prefix ID is msxspi, so the user/mailbox name will be msxspi<*server name*>.

b Create the mailbox name with a prefix ID, followed by the Windows hostname, with no spaces: <prefix ID><*server name*>. For example, msxspi<*server name*>.

c Select the Login tab. Type the User name and password for a user who has the privilege to create Users with mailboxes in this domain.

d Click **Launch**.

Task 2: Run the End-to-End Configuration Wizard to Configure SLAs

You must set message delivery SLAs of your organization by using the End-to-End Configuration tool.

1 In the console tree, expand the **Tools → SPI for Exchange → Exchange 2000 and 2003 → End-to-End SLA Configuration** folder.

2 In the details pane, double-click **End-to-End Configuration**.

3 Confirm the introductory dialog, which gives an example of a typical SLA by clicking **Next**.

4 Select the Microsoft Exchange SPI configuration setting that best matches your SLA, and then click **Next**.

5   Select the Source Servers from the list of HPOM managed servers. A source server is a server from which an email is sent.

6   Click **Next**.

7   Select the Destination Servers from the list. These can be any Exchange servers within your organization, not only HPOM managed Exchange servers.

8   Click **Next**.

9   Specify the Service Level Agreement by assigning the thresholds (in seconds) for Timeout, Met SLA, and Almost met SLA.

Step 4 – Assign Service Level Agreements

Determine the Service Level Agreements thresholds. Choose default Service Level Agreements for Timeout, Met SLA, and Almost met SLA. If desired you can then customize the service level agreement thresholds for each Source/Destination

Timeout is defined as the amount of time to wait for a "received message" acknowledgement from the destination server. This value must be greater than the sum of Met SLA + Almost Met SLA. This value is required for monitoring.

Time Out: 300

Met SLA time is the service level agreement. This value is required for reporting.

Met SLA: 60

Almost met SLA time is defined as the amount of time exceeding the "Met SLA" where the service level agreement is "almost met". This value is required for reporting.

Almost met SLA: 60

| Cancel | | < Back | Next > | Finish |

10 Click **Next**.

11 Confirm or make changes to the SLAs, and then click **Next**.

12 Select to deploy all End-to-End Policies to the managed nodes. Only managed nodes configured to determine SLAs will send and receive mail.

➤   You can also perform this step manually by deploying SPI for Exchange 200X instrumentation and the EXSPI End-to-End Message Ping policy (Manual Deploy Groups → Exchange Server → Message Delivery folder) to any desired managed nodes.

13 Click **Next**.

14 Click **Finish**, and then click **OK**.

Figure 5   Example SLA thresholds, where Met SLA=60, Almost met SLA=60, Time Out=300
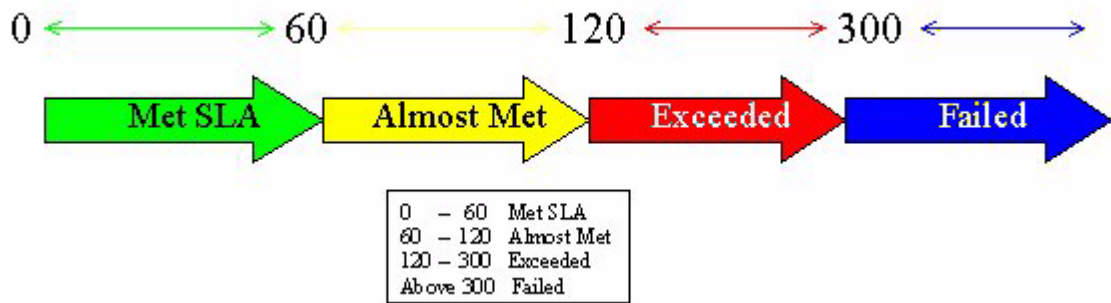
You must run the wizard whenever you add a new Exchange server as a managed node, if an SLA is to be monitored on the newly managed server.

5 Microsoft Exchange SPI Clustering Support

You can use Microsoft Exchange Server 2007 and 2003 in a cluster environment where the fail-over capability of Exchange Servers ensures uninterrupted Exchange availability. In the event of a cluster node failure, the Microsoft Exchange SPI automatically switches monitoring activity from the failed node to the active node.

Configuring Microsoft Exchange SPI for a Cluster Environment

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

* Disable instance monitoring on the inactive node

* Enable instance monitoring on the currently active node

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

Task 1: Add the Exchange Cluster Nodes to HPOM Console

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

If policy autodeployment is disabled, you must launch the necessary policies on newly added cluster nodes.

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

Task 2: Generate Cluster Application Configuration File

You must generate the `apminfo.xml` file to describe the cluster instances (Exchange virtual servers).

1   Launch the Exchange Cluster Configuration tool on the cluster nodes.

For Exchange 2003, in the console tree, expand **Tools** → **SPI for Exchange** → **Exchange 2000 and 2003** → **EXSPI Utilities**.

For Exchange 2007, in the console tree, expand **Tools** → **SPI for Exchange** → **Exchange 2007**.

2   In the details pane, double-click **Exchange Cluster Configuration**. The Select where to launch this tool dialog box opens.
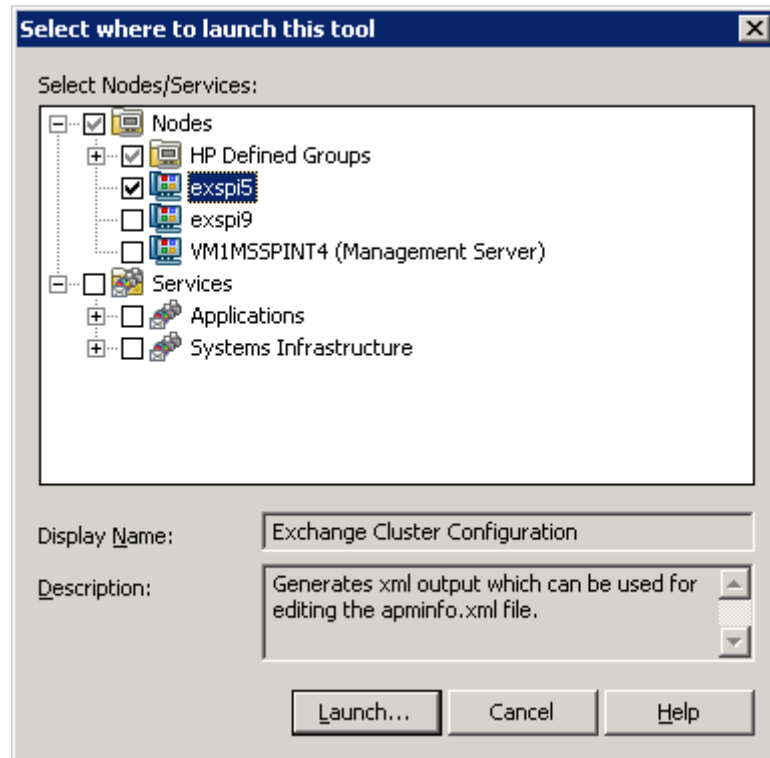
3   Click **Launch**. The Tool Status window appears and displays the output under the Tool Output section.
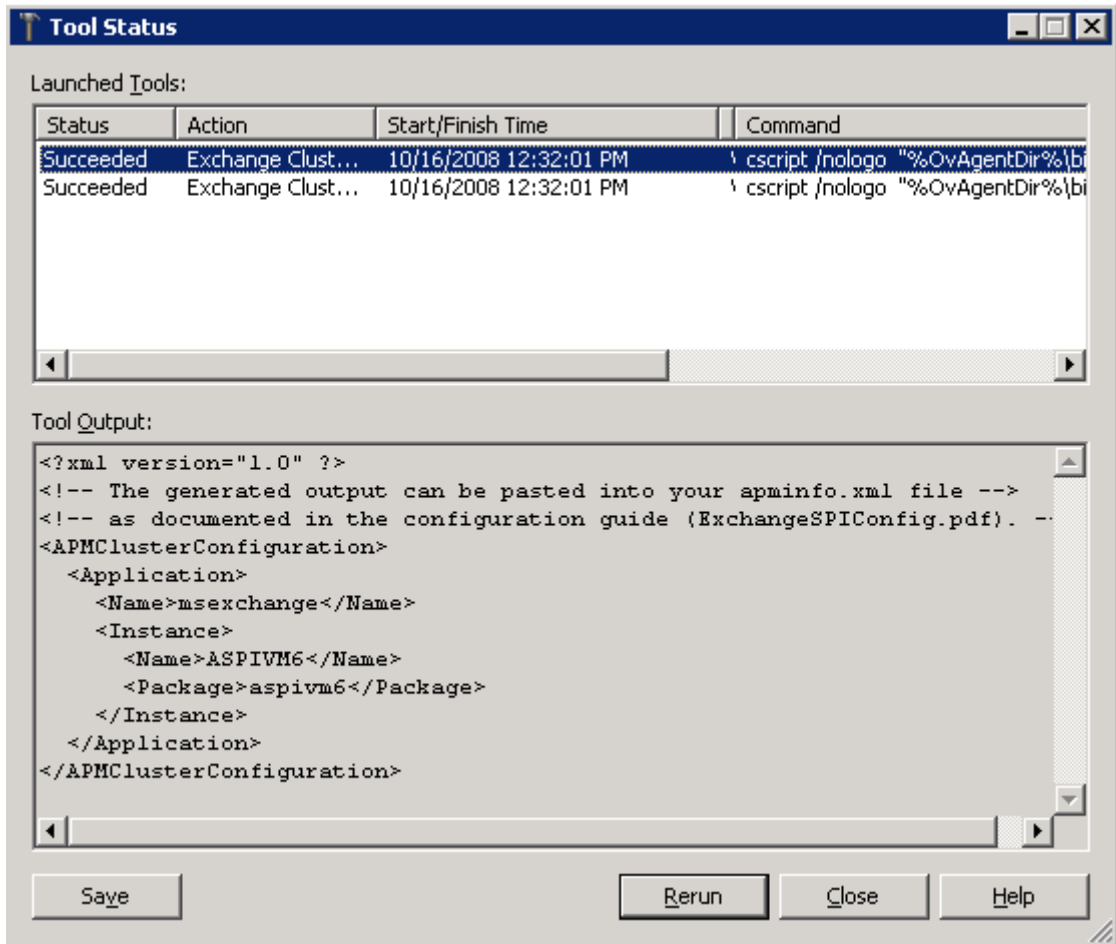
4   Select the text content under the Tool Output section, and then copy it to a text editor.

5   Save the text as `apminfo.xml` in the following location on cluster nodes:

— For DCE-managed nodes—`%OvAgentDir%\conf\OpC\`

— For HTTPS-managed nodes—`%OvAgentDir%\conf\conf\`

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

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

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

Example apminfo.xml File

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

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

  <Application>

    <Name>msexchange</Name>
```

```
            <Instance>

               <Name>ASPIVM6</Name>

               <Package>aspivm6</Package>

            </Instance>

         </Application>

      </APMClusterConfiguration>
```

Figure 6   Example of Exchange Resource Group
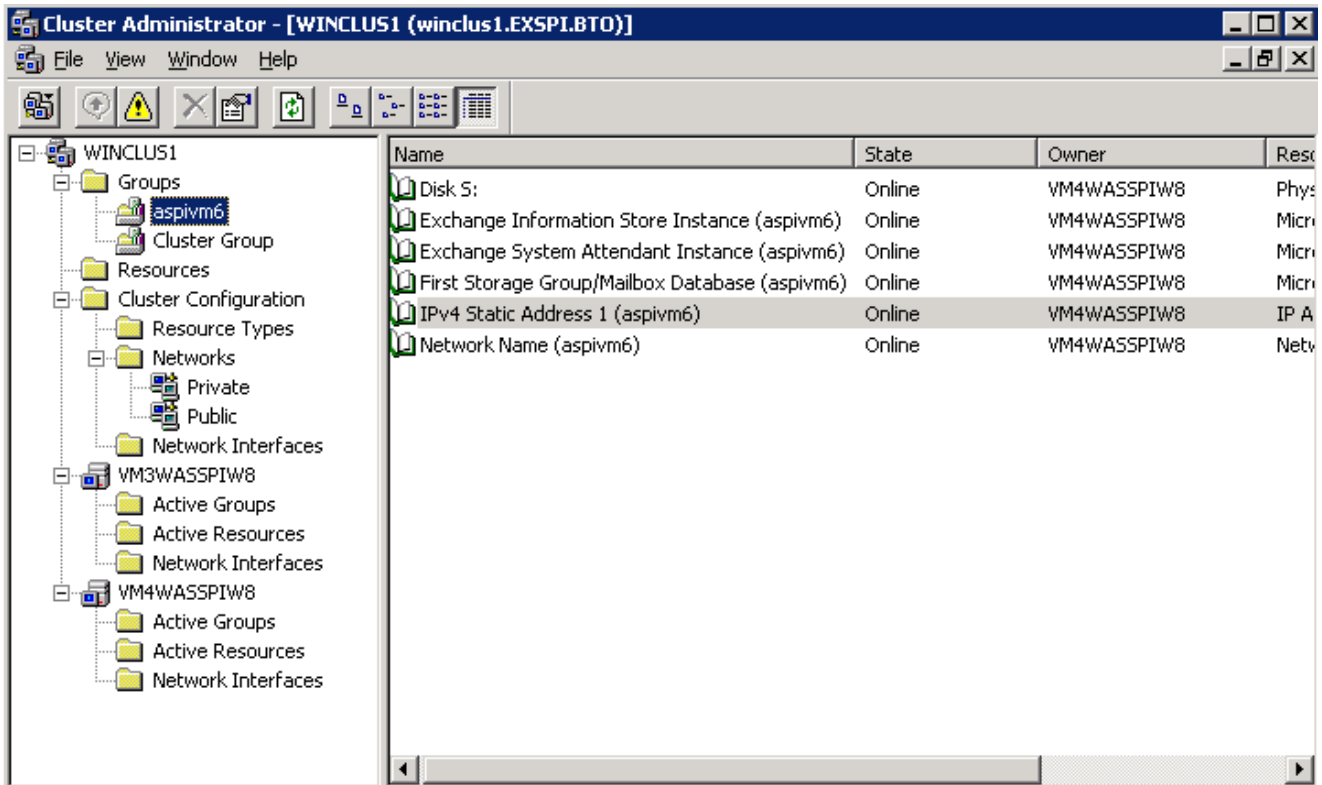
Only for HTTPS-Managed Nodes. Copy the Cluster-Aware Policy XML File

Skip this task if you are using only DCE-managed nodes.

1   Deploy the SPI for Exchange instrumentation on the node.

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

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

4   Restart the agent.

5   Repeat step 1 through step 4 for all HTTPS nodes.

Additional Configuration for Policy Name Change

The Microsoft Exchange SPI disables all policies from a cluster node if the node fails, and then enables all policies on the active cluster node. While switching its operation from disabled node to active node, the Microsoft Exchange SPI retrieves policy information from the `msexchange.apm.xml` file. If you change any policy name (or add a new policy) and deploy

the changed policy on a managed cluster node, you must reflect the change in the `msexchange.apm.xml` file as well. To update the `msexchange.apm.xml` file with changed policy information, follow these steps:

1 On the management server, open the `msexchange.apm.xml` file from the following location by using a text editor:

— For DCE-managed nodes—`%OvShareDir%\Instrumentation\Windows Server 2003\5.2\SPI for Exchange\`

— For HTTPS-managed 32-bit nodes—`%OvShareDir%\Instrumentation\Categories\SPI for Exchange\Windows\5.2\X86`

— For HTTPS-managed 64-bit nodes—`%OvShareDir%\Instrumentation\Categories\SPI for Exchange\Windows\5.2\X64`

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

3 For HTTPS-managed nodes, follow these steps:

a Deploy the SPI for Exchange instrumentation on the node.

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

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

d Restart the agent.

e Repeat step a through step d for all nodes.

4 For DCE-managed nodes, deploy the SPI for Exchange instrumentation and restart the agent on all nodes.

While redeploying the instrumentation on Microsoft Exchange Server 2007 nodes, refer to Redeploying the Instrumentation for the SPI for Microsoft Exchange Server 2007 on page 42.

Data Collection on Virtual Servers

The Microsoft Exchange SPI shows Exchange virtual servers in reports and graphs as though they were physical Exchange servers.You must deploy appropriate policies to a managed node to successfully show correct data for the node in reports and graphs. Follow the guidelines given below for deploying data collection policies on cluster nodes of Microsoft Exchange Server 2003.

Microsoft Exchange Server 2003

Run the Enable Message Tracking tool on all nodes in the cluster before deploying the EXSPI 6.X Dc-TrackLog Data policy, so that the policy can generate tracking log reports. The tool must run on the physical nodes of a cluster where the Exchange virtual server is running.

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

To configure End-to-End Message Ping in an Exchange 2003 clusters, follow these steps:

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

2 Run the End-to-End Configuration (wizard) tool to add the Exchange virtual server to the end-to-end configuration. Exchange virtual server names will appear in the Source Server and Destination Server fields. See Configuring Microsoft Exchange SPI for Message Delivery SLAs on page 53.

Map View for Exchange Cluster Services

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

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

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

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

Figure 7   Service Map Illustrating Clustering Support

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

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

6 Additional Configuration for Microsoft Exchange Server 2007

The Microsoft Exchange SPI enables you to customize the monitoring activity on Microsoft Exchange Server 2007 nodes. By default, the collectors on Microsoft Exchange Server 2007 nodes follow a pre-defined data collection mechanism. The SPI enables you to customize this definition to create new mechanisms to collect and store metric data.

Data Collection Mechanism on Microsoft Exchange Server 2007

The default data collection mechanism on Microsoft Exchange Server 2007 is described in an XML file (`spimetadata.xml`). When you add a node for the first time, the default `spimetadata.xml` file is placed on the node. The collectors start collecting metric data according to this XML file. The Microsoft Exchange SPI provides you with a utility (**PowerShell collection configuration utility**) to modify the default mechanism of data collection on Microsoft Exchange Server 2007 nodes.

On a managed node, collectors collect metric data. If data-logging information is available, collectors log the collected data into a data store. Every collector follows a pre-defined mechanism to collect and log data, which is retrieved from the `spimetadata.xml` file.

A **collection** is an element in the `spimetadata.xml` file that describes the complete data collection mechanism of a particular collector. A **collection configuration** consists of the following components or building blocks:

- **MetricSet** — A metric is a measurement that defines a specific operational or performance characteristic of a system or an application. A MetricSet is a group of related metrics.

- **OpCMsg Calls** — An OpCMsg Call is an element of a collection that generates an alert message when a metric value does not match a preset value or range of values.

- **OpCMon Calls** — An OpCMon Call is an element of a collection that sends the collected metric data to a measurement threshold policy. The measurement threshold policy checks the data against some upper or lower threshold defined within the policy and sends alarm to the message browser.

- **DataStore** — A DataStore defines the way in which the collected data can be stored into the data store.

Collection Configurations

A collection configuration describes the complete workflow of a collector and defines the mechanism of data collection. It also defines how to store metric data. Every collection is associated with a scheduled task policy. When you invoke a scheduled task policy on a managed node, a collector retrieves the following details from a collection:

- The metric value to be collected

- The mechanism to send the collected data to analyzer for data analysis

- The mechanism to receive the analyzed data
- The mechanism to send the analyzed data to a DataStore (if required)

PowerShell Collection Configuration Utility

The Microsoft Exchange SPI provides you with a utility (**PowerShell collection configuration utility**) to modify the default mechanism of data collection on Microsoft Exchange Server 2007 nodes. The PowerShell collection configuration utility enables you to modify the `spimetadata.xml` file through its graphical user interface. You can change existing collection definitions, or create new collection definition to monitor additional metric data. It enables you to perform the following tasks:

- View existing collection configurations
- Add a new MetricSet
- Add an OpCMsg Call
- Add an OpCMon Call
- Add a DataStore
- Add a new collection configuration

Refer to the *Smart Plug-in for Microsoft Exchange Server Online Help* for information on the PowerShell collection configuration utility.

Adding or Modifying a Collection Configuration

To customize metric data collection mechanism on Microsoft Exchange Server 2007 nodes, you can add a new collection configuration. Using the PowerShell collection configuration utility, you can customize the configuration, and save the change in the `spimetadata.xml` file. After making the change, you must place this updated `spimetadata.xml` file on managed nodes by deploying the SPIMetaData Versioning policy the nodes.

⚠ Do not modify the existing (default) collection configurations, MetricSets, metrics, and DataStores.

Task 1:   Run the PowerShell Collection Configuration Utility Tool

The PowerShell Collection Configuration Utility tool launches the PowerShell collection configuration utility interface. To run it, follow these steps:

1   In the console tree, expand **Tools** → **SPI for Exchange**, and then click **Exchange 2007**.

2   In the details pane, double-click **PowerShell Collection Configuration Utility**. The Select
    Server dialog box opens.
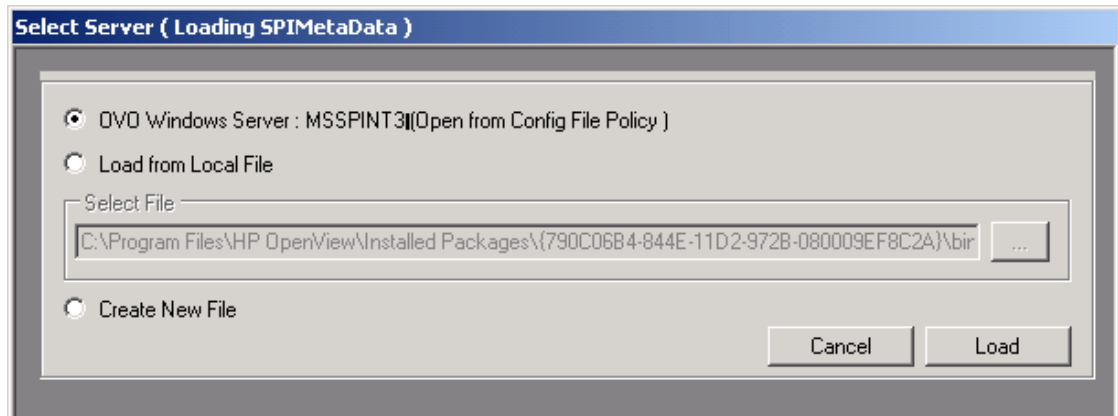
3   Select the OVO Windows Server option, and then click **Load**. The PowerShell collection
    configuration utility window opens.

    If you are using a Japanese OVO for Windows 7.50 server, select the **Load from Local File**
    option, and then click **Load**. Select the local path as
    %OvShareDir%\Instrumentation\Windows Server 2003\5.2\SPI for Exchange
    2007\spimetadata.xml. The PowerShell collection configuration utility window opens.

Task 2:   Add or Modify Elements of a Collection Configuration

You can modify the following components (building blocks) of a collection configuration or
create new ones.

*   MetricSet — Every default MetricSet corresponds to an Exchange PowerShell command
    (cmdlet). You can add additional MetricSets to the set of existing MetricSets and map
    those to available Exchange cmdlets. You can also add an available metric to a newly
    added MetricSet.

*   DataStore — You can modify the metric data logging mechanism by adding a new
    DataStore to the list of existing DataStores. The PowerShell collection configuration
    utility enables you to add new definitions of logging metric data by creating a new
    DataStore.

*   OpCMsg Calls and OpCMon Calls — OpCMsg Calls and OpCMon Calls describe the
    mechanism to trigger an error message when a metric value does not match with a preset
    value. Use the PowerShell collection configuration utility to modify OpCMsg Calls/
    OpCMon Calls if you want to:

    —   Change default error messages

    —   Change preset value

    —   Change severity level of OpCMsg Calls/OpCMon Calls

Refer to the *Smart Plug-in for Microsoft Exchange Server Online Help* for detailed information
on adding or modifying these components.

▶   While using a Japanese OVO for Windows 7.50 server as the management server, if you
    modify the elements of a collection configuration or create a new collection configuration, you
    must save the change in the following location:
    %OvShareDir%\Instrumentation\Windows Server 2003\5.2\SPI for
    Exchange2007\spimetadata.xml

After you make modifications in collection definitions, which are recorded in the `spimetadata.xml` file, you must deploy the file on the nodes of your interest. To achieve this, deploy the EXSPI-8X SPIMetaData Versioning policy on the managed nodes on which you want to implement the modified data collection mechanism.

▶ While modifying default collection configurations or adding new collection configurations, if you change add new DataStores, you must launch the Create Data Sources tool on the nodes on which you want the change to take effect. Launch the Create Data Source tool before you deploy the EXSPI-8X SPIMetaData Versioning policy.

If you use a Japanese OVO for Windows 7.50 server as the management server, redeploy the SPI for Exchange 2007 instrumentation on the managed node instead of deploying the EXSPI-8X SPIMetaData Versioning policy.

To deploy the EXSPI-8X SPIMetaData Versioning policy on managed nodes, follow these steps:

1   In the console tree, expand **Policy groups** → **SPI for Exchange** → **Exchange 2007** → **Manual Deploy Groups**, and then click **Collector Definition**.

2   In the details pane, right-click **EXSPI-8X SPIMetaData Versioning**, and then click **All Tasks** → **Update to latest**.

3   In the details pane, right-click **EXSPI-8X SPIMetaData Versioning**, and then click **All Tasks** → **Deploy on**. The Deploy policies on dialog box opens.

4   Select the nodes on which you want to deploy the policy from the tree, and then click **OK**.

After you deploy the EXSPI-8X SPIMetaData Versioning policy, the updated `spimetadata.xml` file is placed on the selected nodes. The Refresh Collector Definition policy updates the collection manager process with the modified collection mechanism described in the newly deployed `spimetadata.xml` file.

The Refresh Collector Definition periodically runs on the node with an interval of 30 minutes. The new collection mechanism is not synchronized to the collection manager until the Refresh Collector Definition runs on the node. If you want the changes to take effect immediately after you deploy the SPIMetaData Versioning policy, perform the following tasks in the given sequence on the nodes after deploying the SPIMetaData Versioning policy:

1   Run the Stop ExData Collection Manager tool.

2   Run the Stop PowerShell Collector tool.

3   Run the Start PowerShell Collector tool.

4   Run the Start ExData Collection Manager tool.

Using Additional Cmdlets

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

Task 1:   Identify the Microsoft Exchange Server 2007 Node

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

Task 2: Create Cmdlets

Create customized cmdlets on the identified nodes.

Task 3: Install Snap-ins

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

Task 4: Update the Exspi-exshell.psc1 File

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

1   Open the `Exspi-exshell.psc1` file by using a text editor from the location `%OvAgentDir%/bin/instrumentation`.

2   Add the following within the `PSSnapin` tag:

    `<PSSnapIn Name="`*new_snap-in_name*`" />`
    where *new_snap-in_name* is the name of newly added snap-in.

3   Save the file.

Task 5: Create New Collection Definitions for New Cmdlets

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

Task 6: Create a New Scheduled Task Policy

After creating a new collection configuration, follow these steps:

1   Create a new scheduled task policy.

2   In the newly created scheduled task policy, specify the command that you have noted down in Task 5.

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

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

If you use a Japanese OVO for Windows 7.50 server as the management server, redeploy the SPI for Exchange 2007 instrumentation on the managed node instead of deploying the EXSPI-8X SPIMetaData Versioning policy.

Task 8: Deploy the Scheduled Task Policy

Deploy the scheduled task policy, created in Task 6, on the nodes where you have created the new cmdlets.

7 Using Microsoft Exchange SPI Policies, Reports, and Graphs

Microsoft Exchange SPI policies enable you to simplify monitoring the performance and health of Microsoft Exchange Server. A policy contains a rule or a set of rules that automate the monitoring operation. The data collection mechanism of collectors on the managed nodes is governed by these policies. Policies can trigger alert signals in case of threshold violation. The SPI also enables you to generate reports and graphs to analyze metric data.

Using Microsoft Exchange SPI Policies

Microsoft Exchange SPI policies are classified in these broad groups — Exchange 2003 and Exchange 2007. Each group contains policies specific to a particular Microsoft Exchange Server version. Refer to the general information on Microsoft Exchange SPI policies listed below:

- Some policies in the SPI for Exchange policy groups require that particular software components or services be installed on Exchange server systems before the deployed policies will work.

- Do not deploy Microsoft Exchange SPI policies on a non-Exchange systems.

- Regarding policy names:

  — Policies for only Microsoft Exchange Server 2007 are prefixed with EXSPI-8X

  — Policies for only Microsoft Exchange Server 2003 are prefixed with EXSPI-6.5 and 6.X

- You can use the `ovpmwutil` tool to update account information (user name and password) in multiple policies. Refer to the *Server Command Line Utilities* section in the *HP Operations Manager for Windows Online Help*.

Individual policy definitions are documented in the Microsoft Exchange SPI Online Help.

Policy Groups are located in the console tree under **Policy Management** → **Policy Groups** → **SPI for Exchange** and then the Exchange version.

Manual Deployment of Exchange 2003 Policies

By default, groups of Microsoft Exchange SPI policies deploy automatically when relevant applications or services are discovered on managed nodes. The setting to automatically deploy policies when services are discovered can be turned off, and each group of policies can be deployed manually.

If manual deployment of policies is desired, use the Recommended Policy deployment tables in the Microsoft Exchange SPI online help to determine which policy groups should be deployed to manage an Exchange server.

Perform the following steps to deploy policies manually:

1   Select the desired policies.

2   Right-click, and then click **All Tasks** → **Deploy on.....**

3   Select the nodes on which to deploy the policies.

4   Click **Launch...**

Manual Deploy Policy Groups

There is also a Manual Deploy folder containing policies, located under Policy Management Policy Groups SPI for Exchange, and the relevant Exchange version. These folders contain policies requiring additional configuration or special circumstances for deployment.

Time Interval before Generation of Reports

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

The SPI for Exchange Reports folder is not be created until data is collected on nodes and the Service Reporter consolidation process has run, which is usually 24 hours after a node becomes managed.

To display a report, select the desired report, right click, and then select Show report.

▶   The SPI for Exchange Reports and Graphs folder is not created until data is collected on nodes and the Service Reporter consolidation process has run. Out of the box, the Reporter Data consolidation process (`gathercoda.exe`) is scheduled to run each day shortly after midnight.

Microsoft Exchange SPI Reports

Reports enable you to analyze the data collected by the Microsoft Exchange SPI. You can use HP Reporter in conjunction with HPOM to generate reports. After the HP Operations agent collects metric data from the managed nodes, HP Reporter can create web-based reports for the collected data.

Exchange 2007 Reports

If you install HP Reporter in your environment, you can access Microsoft Exchange SPI reports from the HPOM console. To view reports for Microsoft Exchange Server 2007, expand **Reports → SPI for Exchange 2007** in the console tree.

> If you use OVO for Windows 7.50, you can use the embedded Reporter component instead of a commercial version of HP Reporter. You can access reports from the OVO console by expanding **Reports & Graphs → Reports → SPI for Exchange 2007**.

Before you start viewing reports from the HPOM console, you must integrate HP Reporter and the Microsoft Exchange SPI. To complete the integration, perform the following tasks:

Task 1:   Install the Microsoft Exchange SPI Report Packs

You must install the Microsoft Exchange SPI report packs on the HP Reporter server from the SPI DVD. To install the Microsoft Exchange SPI report packs. follow these steps:

1   Insert the HP Operations Smart Plug-ins DVD into the DVD-ROM of the HP Reporter server.

2   In the Product Selection screen of the installation wizard, select the Reports option under the Microsoft Exchange SPI, and then begin installation.

Task 2:   Integrate HP Reporter with the HPOM 8.10 Server

After you install the report pack, you must integrate the HP Reporter with HPOM. To achieve this, follow these steps:

1   In the HP Reporter console, click **File → Configure → Options**. The Configure Reporter Options dialog box opens.

2   In the HPOM for Windows setting section of the Configure Reporter Options dialog box, specify the following details:

   — **HPOM Management Server**: Enter the fully qualified domain name of the HPOM management server.

   — **Domain\User Name**: Enter a user name (with domain) that has administrative privilege on the HPOM management server.

   — **Password**: Enter password of the user.

3   Click **OK**.

4   In the HP Reporter console, click **Action → Run → Run All**. The HP Reporter starts running all necessary services. After some time, you can view the Reports item in the console tree of the HPOM console.

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

• Exchange 2007 Mailbox Details by Server — This report contains information about mailboxes on the Mailbox Server. This report displays information sorted by disk space usage and grouped by storage group and database.

• Exchange 2007 Top 100 Mailboxes — This report lists the top 100 mailboxes by disk space usage across all Exchange 2007 Mailbox Servers.

• Exchange 2007 Server Inactive Mailboxes by Server — This report lists the mailboxes that were not used to send mails in 20, 40 and 60 or more days and the number of days for which the mailboxes were not used.

- Exchange 2007 Mailbox Store Message Trends by Server — This report contains summary and detailed trend graphs showing Mailbox Store message volumes.

- Exchange 2007 Public Folder Messaging Trends by Server — This report contains summary and detail trend graphs showing Public Folder Store message volumes.

- Exchange 2007 Users and Connections by Server — This report provides a graph of the average number of users and connections counts for hours of the day over a given time period.

- Exchange 2007 POP3 Connections by Server — This report provides a graph of the average POP3 connection counts for hours of the day over a given time period.

- Exchange 2007 IMAP4 Connections by Server — This report provides a graph of the average IMAP4 connection counts for hours of the day for a given time period.

- Exchange 2007 SMTP Receive Messaging Trends by Server — This report provides a graphs showing the volume of simple mail transport protocol (SMTP) messages received by the receive connectors on transport servers.

- Exchange 2007 SMTP Send Messaging Trends by Server — This report contains trend graphs showing the volume of simple mail transport protocol (SMTP) messages sent by the send connectors on transport servers.

- Exchange 2007 Availability—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.

- Exchange 2007 Client Access Server Availability—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.

- Exchange 2007 Edge Transport Server Availability—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.

- Exchange 2007 Hub Transport Server Availability—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.

- Exchange 2007 Mailbox Server Availability—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.

- Exchange 2007 Unified Messaging Server Availability—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.

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

- Exchange 2007 Top Outgoing E-mail—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.

- Exchange 2007 Top Outgoing E-mail Per AD Site—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.

- Exchange 2007 Mailbox Server Top 20 Sender Servers of Messages—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.

- Exchange 2007 Top Senders Per AD Site—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.

- Exchange 2007 Top Senders—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.

- Exchange 2007 Mailbox Server Top 20 Sender Servers of Largest Messages—This report shows the top 20 senders of messages (based on message size).

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

- Exchange 2007 Top Recipients—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.

- Exchange 2007 Top Recipients Per AD Site—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.

- Exchange Top Incoming E-mail—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.

- Exchange 2007 Top Incoming E-mail Per AD Site—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.

- Exchange 2007 Mailbox Server Top 20 Receiver Servers of Messages—This report shows the top 20 receivers of messages.

- Exchange 2007 Mailbox Server Top 20 Receiver Servers of Largest Messages—This report shows the top 20 receivers of messages (based on message size).

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

Exchange 2003 Reports

Exchange SPI reports for Exchange 2003 are located on the HPOM console under **Reports →
SPI for Exchange 2003**, in the following groups:

If using OVO for Windows 7.50, expand **Reports and Graphs → Reports → SPI for Exchange 2003**
in the console tree.

Client Access

Exchange 2003 ActiveSync Usage

Exchange 2003 ActiveSync Notifications

Exchange 2003 IMAP4 Connections

Exchange 2003 MAPI Logon SLA

Exchange 2003 Message Read SLA

Exchange 2003 Message Send SLA

Exchange 2003 OWA Authentications

Exchange 2003 OWA Connections

Exchange 2003 OWA Usage

Exchange 2003 OMA Sync Usage

Exchange 2003 POP3 Connections

Exchange 2003 Messaging Ports

Exchange Server

Exchange 2003 System Information Summary

Information Store

Exchange 2003 Full Text Indexing Stats

Exchange 2003 IS Users and Connections

Exchange 2003 Transaction Log Stats

Mailbox Store

Exchange 2003 Inactive Mailboxes

Exchange 2003 Mailbox Details

Exchange 2003 Mailbox Store Stats

Exchange 2003 Mailbox Summary

Exchange 2003 Mailbox Store Msg Trends

Exchange 2003 Mailbox Usage Trends

Exchange 2003 Top 100 Mailboxes

Messaging

Exchange 2003 All Local Msg Delivery SLA

Exchange 2003 MTA Msg Trends

Exchange 2003 MTA Queue Data Stats

Exchange 2003 SMTP Connections

Exchange 2003 SMTP Msg Trends

Exchange 2003 SMTP Virtual Server Stats

Exchange 2003 Message Tracking Stats

Exchange 2003 Top Destinations

Exchange 2003 Top Recipients

Exchange 2003 Top Senders

Exchange 2003 Top Sources

Exchange 2003 Message Delivery SLA

Public Folder Store

Exchange 2003 Folder Summary

Exchange 2003 Folder Usage Trends

Exchange 2003 Inactive Folders

Exchange 2003 Public Folder Store Stats

Exchange 2003 Public Folder Store Msg Tnd

Exchange 2003 Top 100 Public Folders

Microsoft Exchange SPI Graphs

Microsoft Exchange SPI comes with a set of pre-configured graphs. They are located on the HPOM console tree in the **Graphs** folders. You can access this Graphs folder only if you install HP Performance Manager on the HPOM management server.

If you use OVO for Windows 7.50, you can use the embedded HP OpenView Performance Manager component instead of a commercial version of HP Performance Manager. To view graphs from the OVO console, expand **Reports and Graphs** → **Graphs** → **SPI for Exchange 2007.**

To display a graph from the HPOM console, double-click the desired graph. The Display graph associated with dialog box opens:
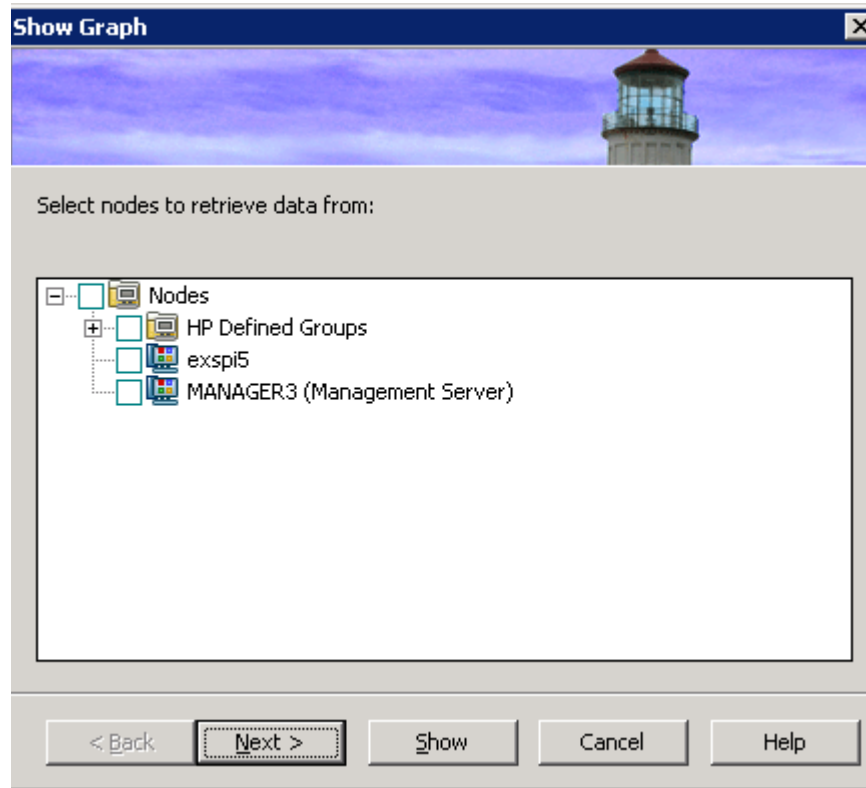
Select the nodes to retrieve data from, and then click **Next**. In the following screen, specify the date range, and the level of granularity, and then click **Show**.

Figure 8   Example DSAccess Hit-Miss Ratio Graph

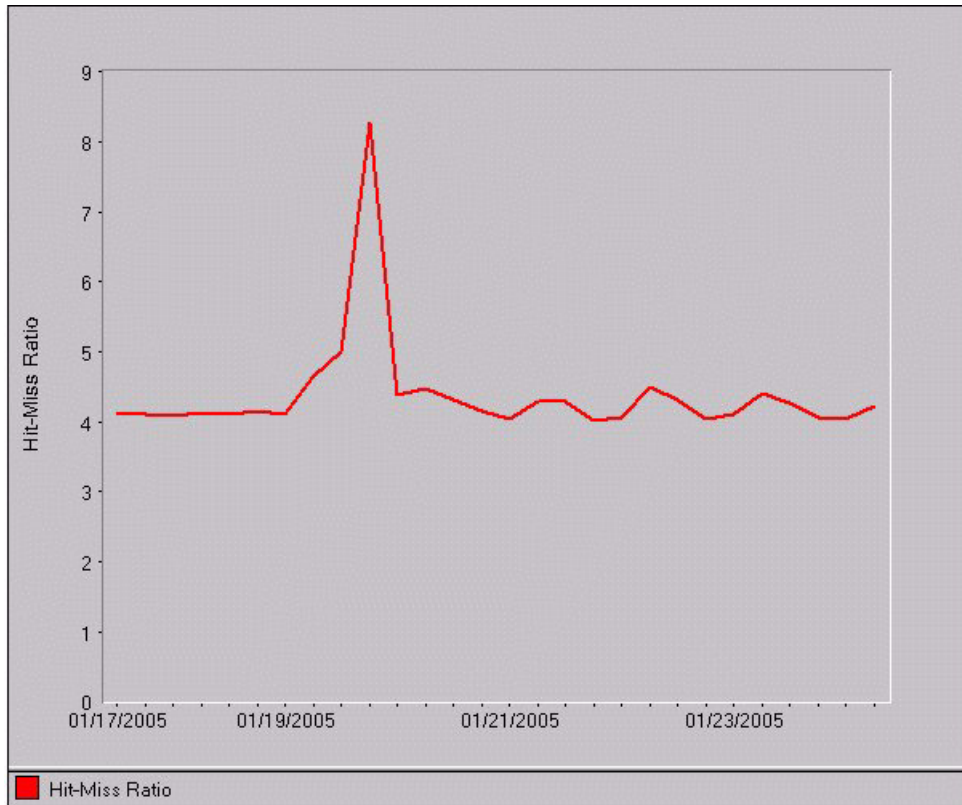This graph shows Exchange Directory Access cache hit and miss ratio.

Hit-Miss Ratio is the ratio of perfmon counters MSExchangeDSAccess Cache hits/sec and misses/sec.

☐ Automatically Refresh   Refresh Graph Now

Exchange 2007 Graphs

Microsoft Exchange SPI provides pre-configured graphs for Microsoft Exchange Server 2007. To view these graphs from the HPOM console, you must install HP Performance Manager on the HPOM management server. Expand **Graphs → SPI for Exchange 2007** in the console tree.

☛   If you use OVO for Windows 7.50, you can use the embedded HP OpenView Performance Manager component instead of a commercial version of HP Performance Manager. To view graphs from the OVO console, expand **Reports and Graphs → Graphs → SPI for Exchange 2007**.

Client Access

Outlook Client Failures: This graph shows the percentage of RPCs failed in different categories.

IMAP4 Connections: This graph shows the IMAP4 connection activity.

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

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

POP3 Connections: This graph shows the POP3 connection activity.

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

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

Information Store

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.

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 Message Volume: This graph shows Exchange server private mailbox volume.

Mailbox Store Queues: This graph shows Exchange server mailbox store queue lengths.

Exchange 2007 Mailbox Store EDB Database Statistics: This graph shows Exchange Server Mailbox Store EDB Database (edb) Statistics.

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 Message Volume: This graph shows Exchange server public folder volume.

Public Folder Store Queues: This graph shows Exchange server public folder store queue lengths.

Exchange 2007 Public Folder Store EDB Database Statistics: This graph shows Exchange Server Public Folder Store Database (edb) Statistics.

Exchange 2003 Graphs

Microsoft Exchange SPI provides pre-configured graphs for Microsoft Exchange Server 2003. To view these graphs from the HPOM console, you must install HP Performance Manager on the HPOM management server. Expand **Graphs** → **SPI for Exchange 2007** in the console tree.

☛ If you use OVO for Windows 7.50, you can use the embedded HP OpenView Performance Manager component instead of a commercial version of HP Performance Manager. To view graphs from the OVO console, expand **Reports and Graphs** → **Graphs** → **SPI for Exchange 2007**.

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.

8 Microsoft Exchange SPI Tools

Tools enable you to perform tasks to facilitate Microsoft Exchange Server monitoring. With the help of tools, you can perform certain configuration tasks on managed nodes to start monitoring Microsoft Exchange Server.

Microsoft Exchange SPI Tools for Microsoft Exchange Server 2007

The following tools are available:

- **Create Data Sources** — When you run this tool on a Microsoft Exchange Server 2007 node, it creates databases on the HP Operations agent's data store, which can be used by collectors to log metric data. By default, it creates databases in the embedded performance component (CODA) of the agent. If you have HP Performance Agent installed on the node, the Create Data Source tool creates databases on HP Performance Agent. In that case, if you want, you can configure to log data on CODA instead of HP Performance Agent.

- **Register DataCollectors** — This tool registers COM components on the node required by the collectors.

- **Start ExData Collection Manager** — This tool starts the collection manager process on the managed node. Collection manager is a background process, which runs on a managed node. Collection manager creates objects necessary to analyze and publish the data collected by individual collectors.

- **Start PowerShell Collector** — This tool starts another background process — PowerShell collector — on the managed node.

- **Stop PowerShell Collector** — Run this tool to stop the PowerShell collector process on a managed Microsoft Exchange Server 2007 node.

- **Stop ExData Collection Manager** — Run this tool to stop the collection manager process on a managed Microsoft Exchange Server 2007 node.

- **PowerShell Collection Configuration Utility** — This tool launches the PowerShell collection configuration utility. The PowerShell collection configuration utility enables you to create and modify **collection** definitions. A collection is a description that specifies the mechanism to collect, analyze, and store metric data for Microsoft Exchange Server 2007. With the help of the graphic user interface, you can create new collection definitions, or modify existing definitions.

- **Exchange Cluster Configuration** — This tool helps you create the apminfo.xml file to enable monitoring of Microsoft Exchange Server 2007 cluster nodes.

- **Exchange SPI Trace** — This tool sets the trace levels on managed nodes. Launch this tool if you need to collect troubleshooting information from nodes.

- **Self-Healing Info** — The Self-Healing Info tool gathers system information, and configuration, log, and trace Exchange SPI files, for assisting to troubleshoot problems. Gathered information and files are placed in a pre-defined output directory. The data collector gathers real-time data, which reduces the probability of troubleshooting with stale data.

- **Self-Healing Verification** — Launch this tool to detect any version mismatch between the Microsoft Exchange SPI and the instrumentation files. If the tool detects any mismatch, it displays error message in the tool status window.

- **Operations Topology Viewer** — This tool presents a 3-dimensional view for your Microsoft Exchange Server environment. Using the Operations Topology Viewer, you can quickly see sites, routing groups, Exchange servers and their roles within your Exchange environment.

Microsoft Exchange SPI Tools for Microsoft Exchange Server 2003

The following groups of tools are available:

Client SLA Configurations

This tool group contains the following tools for MAPI-based client probes:

- **Configure Client MAPI Logon**
- **Configure Client Message Read**
- **Configure Client Message Send**
- **MBOX creation for MAPI client based policies**

These tools, used together with associated policies, generate and collect Service Level Objective data on various basic client tasks such as logon, sending, and reading E-mail messages. See the online Help for more information and procedures.

End-to-End SLA Configuration

- **MBOX Config**: starts the mailbox configuration program that automatically configures a mailbox. The user name and password of a service account with Exchange administrative privileges needs to be given for the tool to execute.

- **End-to-End Configuration**: This tool is a wizard for configuring the Message Delivery (Ping) Service Level Objective process on Exchange 2003 HPOM managed servers.

See Configuring Microsoft Exchange SPI for Message Delivery SLAs on page 53 for more information.

Exchange Server Utilities

- **Enable Message Tracking**: Enables message tracking on Exchange 2003 servers.

- **Mount Exchange Information Store**: This tool can search for and mount dismounted information or public folder stores. For more information on this tool, see the Exchange SPI online help.

- **Trace On/Tracing Off**: This tool enables and disables tracing. The default setting is off. Tracing is generally used by customer support for troubleshooting purposes.

- **Self Healing Info:** This tool gathers system information, and configuration, log, and trace Microsoft Exchange SPI files to help troubleshoot problems. See the online help for more information.

Exchange Topology

- **Operations Topology Viewer:** This tool provides for the visualization of Microsoft Exchange and directory servers, with a 3-dimensional perspective. See Operations Topology Viewer **on page 89** for more details.

EXSPI Utilities

- **Exchange Cluster Configuration:** This tool 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 Microsoft Exchange SPI Clustering Support on page 59.

- **Embedded Performance Component Configuration**: This tool creates the EXSPI_DATA datasource, classes and metrics. It performs the same functions as the Auto Deploy policy **EXSPI-6.X exspi Agent Configuration** in the **ovo Exchange SPI core > Data Collection** group. The tool lists all current datasources prior to creation of the EXSPI_DATA datasource. To verify successful creation, wait a few minutes after initial execution, and execute the tool again. See Embedded Performance Component (EPC) Schema on page 125 for a complete listing of the EPC schema.

Operations Topology Viewer

The Operations Topology Viewer lets you visualize your Microsoft Exchange Server 2003 environment from a three-dimensional perspective. The viewer is a tool located in the HPOM console under **Tools → SPI for Exchange → Exchange 2007 → Exchange Topology**, or **Tools → SPI for Exchange → Exchange 2000 and 2003 → Exchange Topology**. By using this tool, you can quickly view routing groups, Exchange servers and their roles within your Exchange organization.

▶ If you also have the Active Directory SPI installed, the Operations Topology Viewer opens with two folders: Exchange Topology and Site Topology. The Site Topology view displays Active Directory and Exchange server information. For more details on the Site Topology view, see the Active Directory SPI online help and Configuration Guide.

The Operations Topology Viewer tool launches the Operations Topology Viewer window, where you can view a three-dimensional topology of your Microsoft Exchange Server environment.

To open the Operations Topology Viewer window, follow these steps:

1 In the console tree, expand **Tools → SPI for Exchange → Exchange 2007**, or **Tools → SPI for Exchange → Exchange 2000 and 2003** (depending on the Exchange version), and then double-click **Exchange Topology**.

2 In the details pane, double-click **Operations Topology Viewer**. The Operations Topology Viewer window opens.

3   In the left pane of the Operations Topology Viewer window, right-click **Forests**, and then click **Add Forest…**. The Connect to Forest dialog box opens.
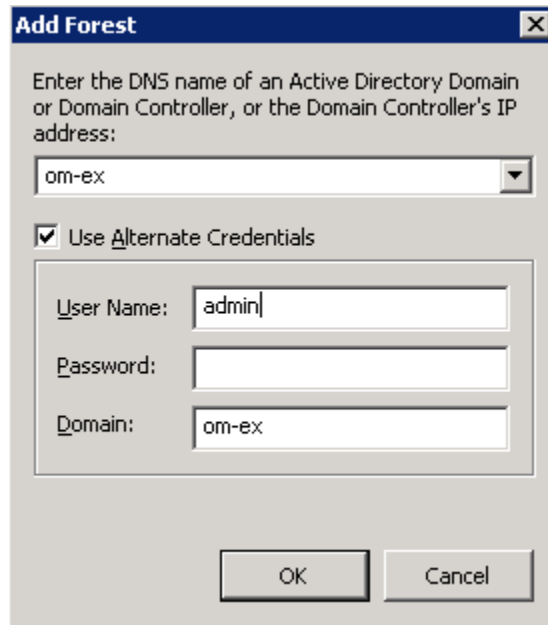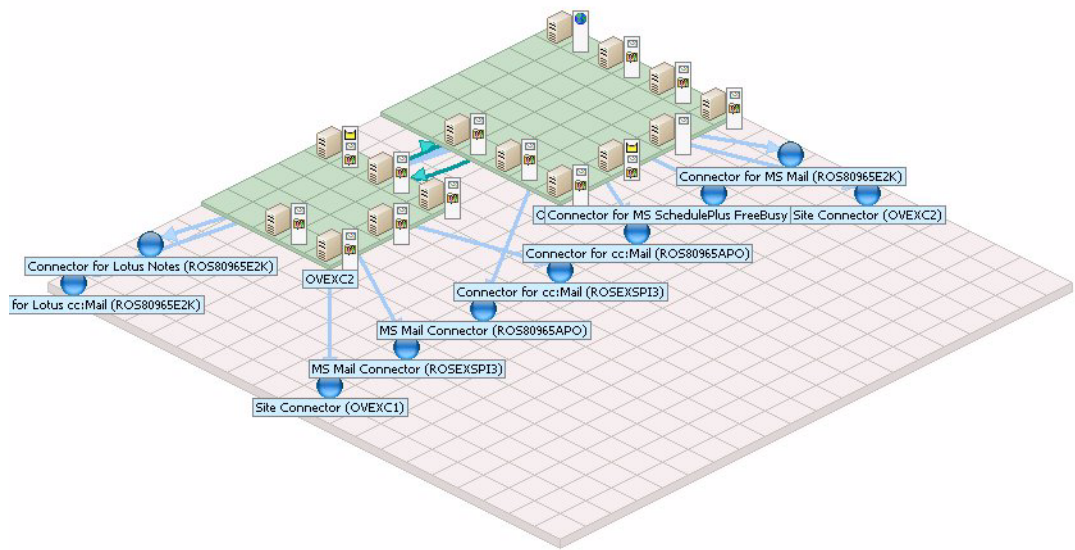

4   Identify the Domain Controller or Active Directory Domain which will be interrogated for Exchange data. Before selecting the Advanced Exchange Data Collection checkbox, see Advanced Exchange Data Collection on page 92. Enter the requested information, and then click **OK**.
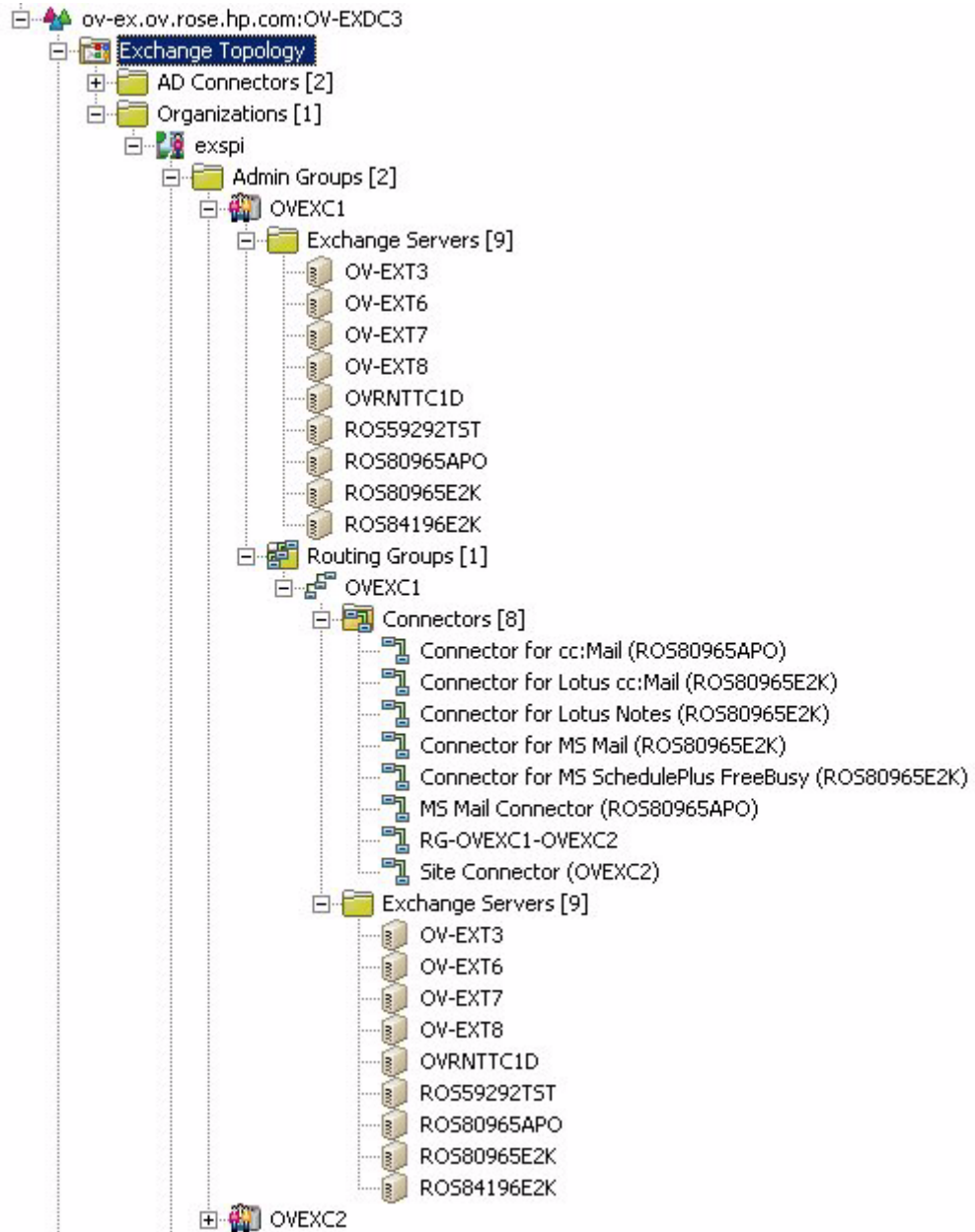
You are informed when the data collection is complete.
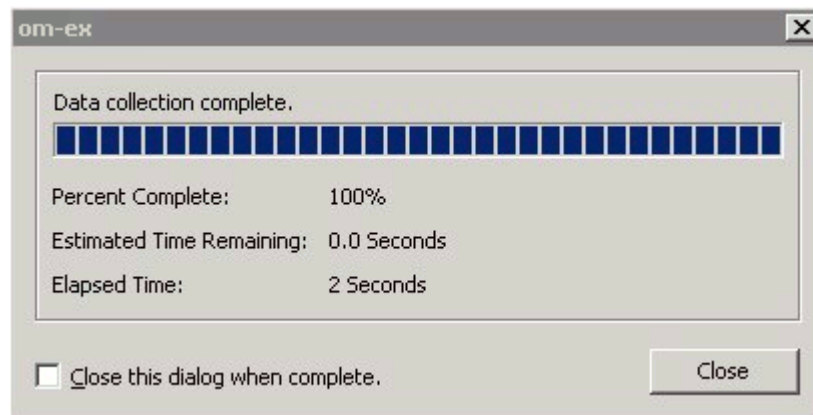
5   Click **Close**, or check the **Close the dialog when complete** box if you prefer that this dialog close automatically.

6   Select **Exchange Topology** in the left pane. An untitled view of your Exchange Topology is displayed in the right pane. Save this view for future use.

7   Expand the folders to see your Exchange Organization hierarchy.

```
ov-ex.ov.rose.hp.com:OV-EXDC3
  Exchange Topology
    AD Connectors [2]
    Organizations [1]
      exspi
        Admin Groups [2]
          OVEXC1
            Exchange Servers [9]
              OV-EXT3
              OV-EXT6
              OV-EXT7
              OV-EXT8
              OVRNTTC1D
              ROS59292TST
              ROS80965APO
              ROS80965E2K
              ROS84196E2K
            Routing Groups [1]
              OVEXC1
                Connectors [8]
                  Connector for cc:Mail (ROS80965APO)
                  Connector for Lotus cc:Mail (ROS80965E2K)
                  Connector for Lotus Notes (ROS80965E2K)
                  Connector for MS Mail (ROS80965E2K)
                  Connector for MS SchedulePlus FreeBusy (ROS80965E2K)
                  MS Mail Connector (ROS80965APO)
                  RG-OVEXC1-OVEXC2
                  Site Connector (OVEXC2)
                Exchange Servers [9]
                  OV-EXT3
                  OV-EXT6
                  OV-EXT7
                  OV-EXT8
                  OVRNTTC1D
                  ROS59292TST
                  ROS80965APO
                  ROS80965E2K
                  ROS84196E2K
          OVEXC2
```

Advanced Exchange Data Collection

Whether or not the Operations Topology Viewer can collect particular Exchange data will depend on the specific permissions assigned to components of your Exchange organization, see How can I tell if I have WMI access to an Exchange Server? on page 98.

On the Connect to Forest... screen, if the option Advanced Data Collection is checked you will see the following warning:
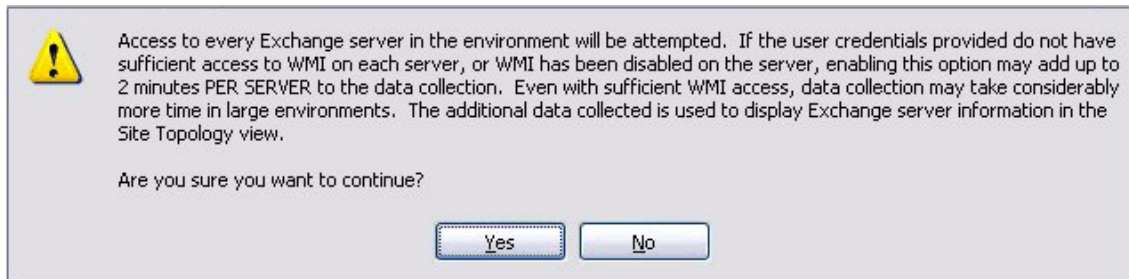
As the warning indicates, the retrieval of this information from a large Exchange Organization can take a number of hours. In addition, if it is not successful due to these permission limitations, you will not be notified, but must check the error log files for connection difficulties to determine if your privileges were sufficient. See Required WMI Security Access Permissions on page 99 for details of required WMI permissions and error log file locations.

If you select not to initially collect this data from your entire Exchange organization, Operations Topology Viewer will try to retrieve this same data when the Properties dialog of individual servers is opened. If the permissions allow, the query will retrieve data and populate the Dependent DC tab on the server Properties dialog. If Advanced Exchange Data Collection is selected initially, this tab on the Properties dialog of any servers (where the permissions permit) will be populated.

Site Topology Viewer

If you have an Active Directory SPI license, there will be a Site Topology folder on the console tree, beneath the Exchange Topology folder.

The Site Topology view shows both Active Directory and Exchange servers on the same map, when:

- both SPIs are installed

- the correct permissions were set to allow the collection of Exchange data

- Advanced Exchange Data Collection has been performed with the initial data collection (through checking the check box).

The advanced Exchange data collection gathers information about where in the Active Directory sites the Exchange servers live, and the dependent domain controllers. This Exchange information will be present in the Site Topology map, which opens in the details pane when you select this folder on the console tree. For more information on the Site Topology view, see the Active Directory SPI online Help and Configuration Guide.

Getting Started with the Exchange Topology Viewer

When the Operations Topology Viewer opens, on the left are folders containing routing groups and servers. On the right is a graphical representation that places the routing groups and server links within a context. While the tree view on the left displays the hierarchy of the Exchange organization, the right pane shows the non-hierarchical relationships among its components.

Accessing functions: The Operations Topology Viewer's features can be accessed through its *menu commands*, its *toolbar buttons*, or by *context menus* within areas on either side of the window pane. For complete menu and toolbar descriptions, refer to the SPI for Exchange online help.

Manipulating the Exchange Topology View

You may find when you view the Exchange Topology map that servers do not appear within the viewable area. You may also want to resize the viewable area. These and other changes are possible as follows:

Table 1   Modifying the Operations Topology Viewer

Tree/map modification	How to do it
To move servers to different locations within their routing groups.	Drag and drop the server to the desired tile within its routing group.
To increase/decrease size of row/columns in the map's grid.	Right-click the unused space on or off the map and select **View Properties,** and the **General** tab.
To find a server in the tree.	On the map, right-click a server and select **Find Server in Tree.** (Label appears highlighted)
To find a server in the map.	In the tree, right-click on the server and select **Find Server on Map**. (Label appears bold, with larger text)
Move a routing group to a different area of the grid	**Method #1:** 1. Pressing the left mouse button, click the routing group and start to drag and drop to the desired area. 2. Drag to edge of view to auto scroll the view. **Method #2** 1. Pressing the left mouse button, select the routing group and start to drag and drop to the desired area. 2. Still holding the left mouse button down, use the arrow keys to change the view of the map.

Using the Keyboard to Navigate the Map

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Table 2   Keyboard Functionality

Keystroke	Map function
← left arrow	Scrolls the map view to the left approximately one tile width.

**Table 2   Keyboard Functionality**

Keystroke	Map function
→ right arrow	Scrolls the map view to the right approximately one tile width.
Home	Scrolls the map view to the left extent. (Vertical position remains the same).
End	Scrolls the map view to the right extent. (Vertical position remains the same).

Accessing Server and Map Properties

After successfully connecting to a forest, the tree is populated and a topological map is displayed.

By right-clicking any discovered Exchange server in either the tree or the map and selecting **Properties**, you can view the following Exchange server information:

Server Properties
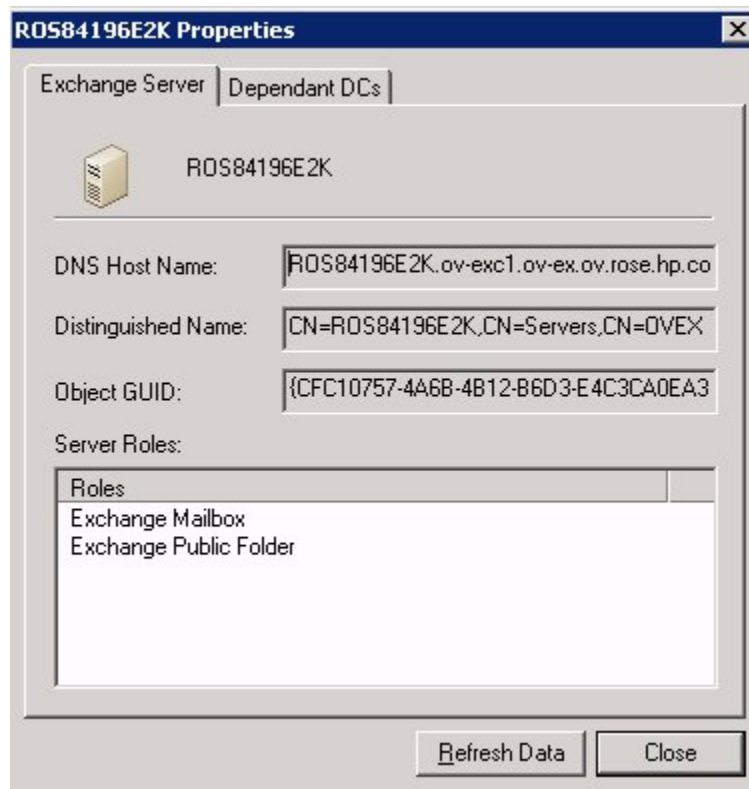
The information displayed in the server Properties dialog (DNS Host Name, Distinguished Name, Object GUID, Server Roles and Dependent Domain Controllers), will be derived from the initial Active Directory query (see Advanced Exchange Data Collection on page 92). If little or no information is displayed, it is probably a result of the required WMI permissions not being granted, see Required WMI Security Access Permissions on page 99.

The server properties information is cached, click **Refresh Data** if you want the data to be updated.
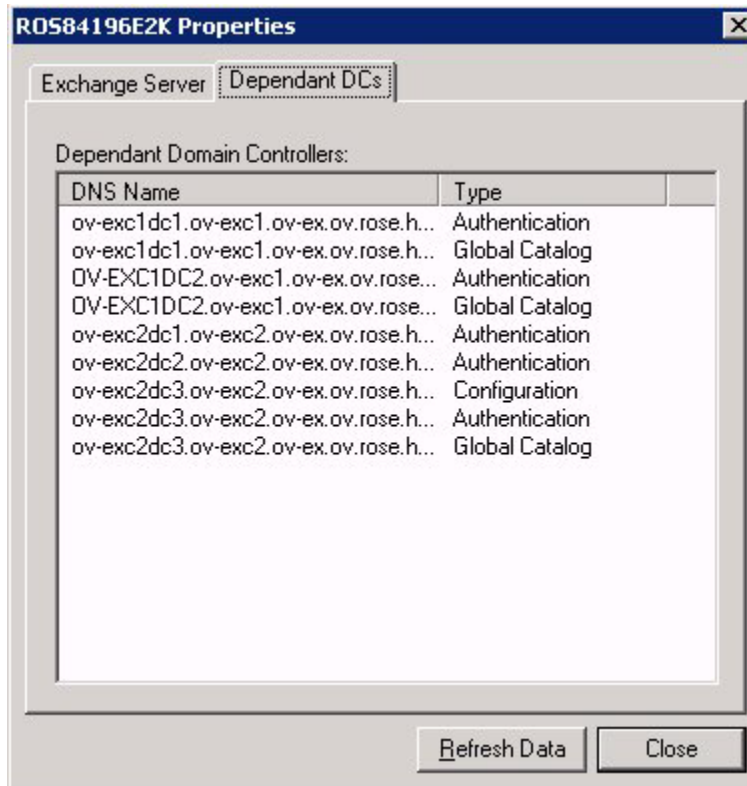
The Dependant domain controllers are listed with their DNS Name, and their Type. If the Advanced Exchange Data Collection option was checked initially, this data has already been collected and will display. If the option was not checked initially, selecting to view the Server Properties activates the collection of this data and it will display in the dialog if the appropriate security authorizations are set.

Type: Any of the three types of roles the domain controller can have: Authentication, Global Catalog or Configuration.

Map Properties

By right-clicking on an unused area of the grid or space off the grid, you can open the Exchange Messaging View menu, with the following options:

— **Navigator:** Allows you to view and navigate the entire grid, giving you an overview of what you are seeing. The blue rectangle represents the area visible in the main view.

— **Clear Find:** If an object on the map is in focus as a result of the right-click menu option **Find in View**, this will be enabled, and you can select to clear the find.

— **View Properties:** Many variables of the map view can be modified, for example colors of routing groups and lines, as well as line widths and styles.

For more information about the Operations Topology Viewer, see the Exchange SPI online Help.

If you have the **Active Directory SPI** installed and wish to view Active Directory detail using the Site Topology View, see the Active Directory SPI online Help.

FAQs

Can I print the map image?

No. But you can export the map, save it as .png or as a bitmap file, then open it in a graphics program to print the file.

How can I tell if I have WMI access to an Exchange Server?

1   Look in the `<Topology Viewer install directory>\release\logs\AD_OvADExCollectorErrorLog.txt` log file.

2   Look for a warning such as:

```
03/01/05 11:44:53 WARNING: Exception thrown, HR#80070005, Access is denied.
WMI connection failed to server 'myExchangeServer01.americas.mycorp.net'.
FileName: .\OvWmiQuery.cpp Line#128
```

Or

```
02/24/05 17:36:24 WARNING: Exception thrown, HR#80041008,  WMI connection
failed to server 'myExchangeServer01.americas.mycorp.net'. FileName:
.\OvWmiQuery.cpp Line#126
```

What log files does Operations Topology Viewer generate?

When you launch Operations Topology Viewer, it generates `OVTV_ConsoleErrorLog.txt` and `OVTV_OvADExCollectorErrorLog.`txt

files located at:

```
<Topology Viewer install directory>\release\logs\
```

If you shut down Operations Topology Viewer, or simply cancel out, or stop then reconnect to a forest, the previously created `OVTV_ConsoleErrorLog.txt`log file is rolled over into `OVTV_ConsoleErrorLog.old.txt` and the previously created `OVTV_OvADExCollectorErrorLog.txt` is rolled into `OVTV_OvAdExCollectorErrorLog.old.`txt.

Note that the `OVTV_OvADExCollectorErrorLog.txt` is created only if you receive a warning. If no warning occurs, then no files are created.

Required WMI Security Access Permissions

The following permissions are required for the Operations Topology Viewer to collect advanced Exchange data:

— To get Exchange server site membership data, the Operations Topology Viewer user must have READ and REMOTE access to the WMI namespace **root\default**.

— To get Exchange server DC dependency data, the Operations Topology Viewer user must have READ and REMOTE access to the WMI namespace **root\MicrosoftExchangeV2**.

— And to get the DNS servers of a DC, the Operations Topology Viewer user must have READ and REMOTE access to the WMI namespace **root\CMIv2**.

A Microsoft Exchange SPI Instrumentation Files

EXSPI Exchange Discovery Instrumentation

EXSPI_CreateServices.js	Discovers hosted on Services
msexchange.apm.xml	Cluster support file, identifies policies to enable/disable
OvExchDisc.exe	Discovers virtual Services
exspi_RunDiscovery.js	Resource group identification for rediscovery after a cluster failover

Exchange 2007 EXSPI Instrumentation

HP.OV.SPI.Composer.exe	Files required by the PowerShell Collection Configuration Utility.
HP.OV.SPI.CollectionFlowPane.dll	
CmdLetCommands.xml	
Interop.OVPMADLib.dll	
HP.OV.SPI.ExDataCollector.dll	Used by the Exchange data collector.
SNCOLLECTORKEY.SNK	
SYSTEM.MANAGEMENT.AUTOMATION.DLL	
HP.OV.SPI.ExCollectorServer.exe	Used by the ExCollector server.
HP.OV.SPI.ExDataCollector.dll	
SYSTEM.MANAGEMENT.AUTOMATION.DLL	
Analyzer.dll	Used by the analyzer.
AnalyzerInfo.xml	
HP.OV.SPI.CollectionManager.exe	Used by the Collection Manager service.
SPIMetaData.xml	
HP.OV.SPI.ExScheduler.exe	Used by the scheduler.
PSCollector.dll	Used by the PowerShell Collector service.
HP.OV.SPI.ExDataCollector.tlb	
CollectorInfo.xml	
PSPublisher.dll	Used by the data store mechanism.
PublisherInfo.xml	

xerces-c_2_7d.dll	Miscellaneous files.
HP.OV.SPI.Terminator.exe	
Register.bat	
ex2007_*.spec	Database schema definitions.

Exchange 200X EXSPI Instrumentation

exspi_e2k.exe	Collector used through schedules
exspidatasource.exe	Creates database schema
EXSPI*.spec	Database schema definitions
ovam*.dll	Tracking log collection library
hpudm.txt	Metric definitions
exspitra.vbs	Turn Exchange SPI data collection tracing on and off
exspi_tracklog.vbs	Turn Exchange tracking log file generation on
exspi_e2k_cfg	Create mailbox
exspi_dbmount.vbs	Checks mount/dismount Information Store
exspi_StartService.vbs	Starts a service
end-to-end.xml	End-to-End Config file. This file exists after the execution of End-to-End Config tool
exspi_e2k_clust_config.js	For Cluster Configuration
spi_msexch*.* shs*.*	Self healing Service support files
exspi_ports.exe	Determines if SMTP, HTTP, POP3, and IMAP4 ports are responding
exspi_checkMemCfg.wsf exspi_checkMemoryConfig.vbs exspi_cMemoryConfig.vbs	Check memory settings for Exchange Mailbox and public Folder Servers
exspi_e2k_tlog.js exspi_e2k_tlog.vbs exspi_e2k_tlog.wsf exspi_e2k_tlog_lib.vbs	Used for gathering tracking log data. (Average delivery time for email sent on current server).
exspi_cml_cfg.wsf exspi_cmr_cfg.wsf exspi_cms_cfg.wsf	Tools for creating Mapi client SLA values.
exspi_agent.vbs exspi_core.vbs	Shared scripts with agent functions
exspi_e2k_client_lib.vbs	Shared script for Client response time scripts

exspi_e2k_cmr.vbs exspi_e2k_cmr.wsf	Mapi Client Message Read response time scripts
exspi_e2k_send.vbs exspi_e2k_send.wsf	Mapi Client Message Send response time scripts
exspi_e2k_logon.vbs exspi_e2k_logon.wsf	Mapi Client Message Logon response time scripts

B Customizing Policies

A policy is a rule or set of rules that helps you automate network and service administration. The Microsoft Exchange SPI provides you a range of policies to simplify your Exchange Server monitoring tasks. You can customize existing policies from the HPOM console.

Customize Policies Using the Tag Feature

If you have servers dedicated to specific sites or business units, you may find it effective for those servers to have uniquely named Microsoft Exchange SPI policies. In such cases, copy default policies into new groups, affix prefixes to the original names, and include them in the schedule policy that collects data during that measurement interval.

Task 1:   Create a new Policy Group

1   In the console tree, expand the **Policy management** → **Policy Groups** folders.

2   Right-click the folder in which you want to locate the new group, and then select **New** → **Policy Group**.

3   Type the new group name for the folder created, and then click **Enter**.

4   In the console, use Shift+click or Ctrl+click to select the default policies to be in the group, right-click, and then select **Copy**.

   ▶   Remember to always copy scheduled task policies from the default policy group containing the measurement threshold policy you are copying to the new policy group. The scheduled task policy is necessary for any data collection to occur.

5   Right-click the newly created group and click **Paste**. The copied policy will be pasted into the new Policy group.

6   If you copied an entire group of default policies into the new group, you can eliminate those you do not need by right-clicking them and selecting **Delete**.

Task 2:   Tag the Policies

1   Double-click each policy and make any changes to the policy desired.

2 Select **File** → **Save As**. In the dialog that appears enter the special prefix followed by a hyphen in front of the default policy name; for example **Example-**EXSPI-6.X IS Mailbox Average Delivery Time.
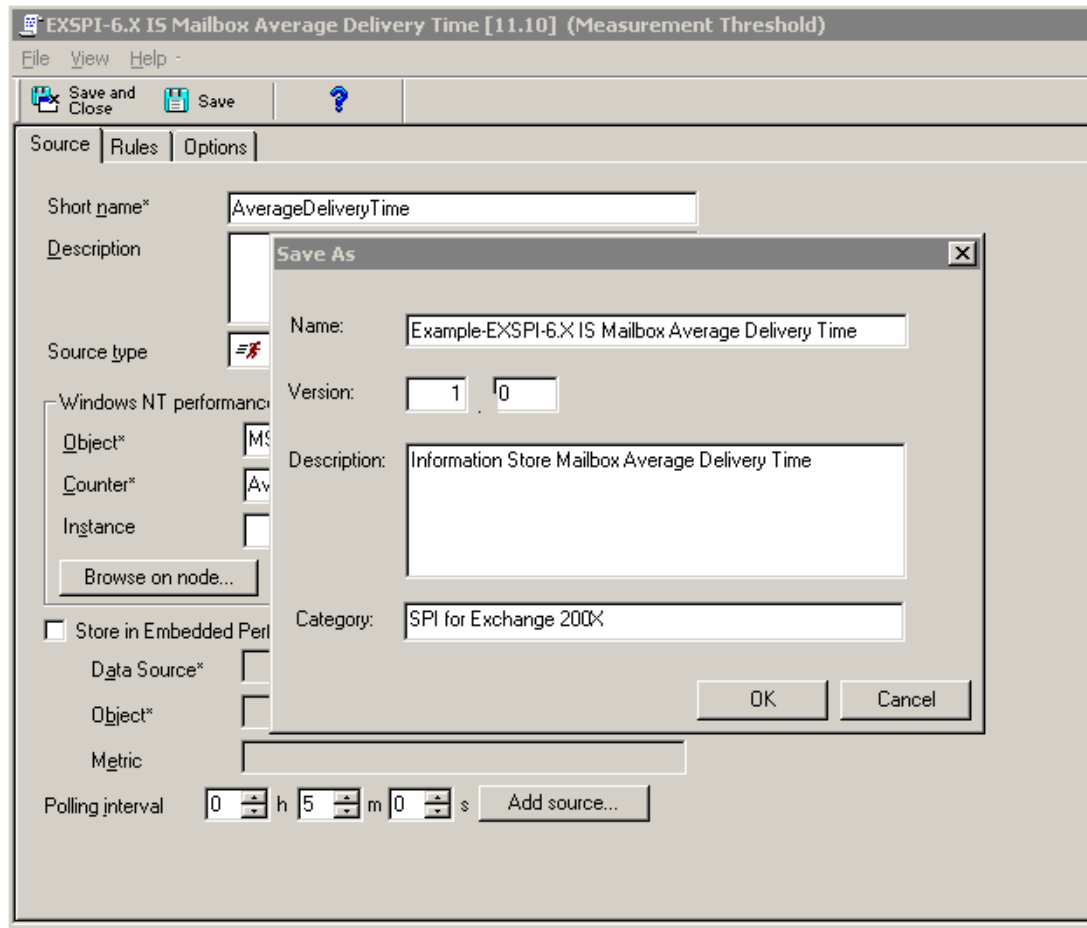
3 After saving any renamed policies, double-click the scheduled task policy that you copied to the new group together with the other policies. (In the example, EXSPI-6.X Id-Dc-Instant Messaging is used.)

4 In the **Command*** text box at the end of the text, insert the tag (-t) parameter and the *<prefix>-*

5 When finished, rename the scheduled task policy to include the group prefix, in this way:

   Select **File** → **Save As** and rename the EXSPI-6.X Id-Dc-Instant Messaging scheduled task policy to *Example*-EXSPI-6.X Id-Dc-Instant Messaging.

The prefix attached to the beginning of each policy in the new group makes the policies easy to find in the Policies grouped by type folder in the console. Also, creating a new group for the new policies gives you an efficient means to deploy them (right-click the group and select **All Tasks** → **Deploy on...**). See the Online Help for more details.

C Service Reporter Schema

➤ In all EXSPI Reporter database tables, the first five columns have to be ID, SYSTEMNAME, DATETIME, GMT, SHIFTNAME, and in that order. No EXSPI data can be gathered if the first five column names or their order are different from this.

EXSPI_PFSUMMARY
ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INTERVAL_KEY
SERVER_NAME
ADMINGROUP
STORAGEGROUP_NAME
DATABASE_NAME
EDBPATH
STMPATH
EDBSIZE
STMSIZE
EDBFREE
STMFREE
EDBTOTAL
STMTOTAL
PFLOGICALSIZE
FOLDER_MSGCNT
FOLDER_COUNT

EXSPI_PFPERF

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INSTANCE_NAME
SERVER_NAME
PFDELIVERYTIME
PFDELIVER
PFSENT
PFSUBMITTED
PFRECIPIENT
PFACTIVELOGON
PFLOGON
PFLOGONPEAK
PFSIRATIO
PFRECOVERITEMS
PFRECOVERSIZE
PFREPRCVD
PFREPSENT
PFREPQ

EXSPI_MBDETAIL

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INTERVAL_KEY
SERVER_NAME

STORAGEGROUP_NAME
DATABASE_NAME
MAILBOX_NAME
MAILBOX_SIZE
MAILBOX_QUOTA
MAILBOX_MSGCNT
MAILBOX_LASTACCESS

EXSPI_MBSUMMARY

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INTERVAL_KEY
SERVER_NAME
ADMINGROUP

STORAGEGROUP_NAME
DATABASE_NAME
EDBPATH
STMPATH
EDBSIZE
STMSIZE
EDBFREE
STMFREE
EDBTOTAL
STMTOTAL
MBLOGICALSIZE
MAILBOX_USRCNT
MAILBOX_MSGCNT

EXSPI_MBPERF

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INSTANCEL_NAME
SERVER_NAME
MBDELIVERYTIME
MBLOCALDELIVER
MBDELIVER
MBSENT
MBSUBMITTED
MBRECIPIENT
MBACTIVELOGON
MBLOGON
MBLOGONPEAK
MBSIRATIO
MBRECOVERITEMS
MBRECOVERSIZE
MBSIRATIO

EXSPI_TRANSLOG

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INTERVAL_KEY
SERVER_NAME

STORAGEGROUP_NAME
TRANSLOGFILEPATH
TRANSLOGFILESIZE
TRANSLOGFILEFREE
TRANSLOGFILETOTAL

EXSPI_OMA

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
OMASENT
OMAIGNORE
OMADISCARD
OMARESPONSE

EXSPI_ASYNC

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
EXSPI_ASYNC
ASYNCSENDMAIL
ASYNCCMDS
ASYNCCLIENTITEMS
ASYNCSERVERITEMS
ASYNCAD
ASYNCCONNECT
ASYNCPENDING
ASYNCUSERS

EXSPI_ASNOTIFY

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
ASNTOTAL
ASNSENT
ASNIGNORE
ASNDISCARD
ASNEXPIRED
ASNBIFURCATED

EXSPI_SMTPPERF

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INSTANCE_NAME
SERVER_NAME
ADMINDISPLAY_NAME
SMTPMSGSENT
SMTPMSGRECEIVE
SMTPBYTESENT
SMTPBYTERECEIVE
SMTPMSGBYTESENT

SMTPMSGBYTERECEIVE

SMTPINBOUNDCON
SMTPOUTBOUNDCON

SMTPOUTBOUNDCONREF

EXSPI_IMAP4PERF

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INSTANCE_NAME
SERVER_NAME
ADMINDISPLAY_NAME
IMAP4CON
IMAP4FAILEDCON
IMAP4REJECTEDCON

EXSPI_ISPERF

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
ISUSERCNT
ISACTIVEUSERCNT
ISANONUSERCNT

ISACTIVEANONUSERCNT
ISCONNECTCNT

ISACTIVECONNECTCNT

EXSPI_MTAPERF

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
MTAMSGIN
MTAMSGOUT
MTARCPIN
MTARCPOUT
MTABYTESIN
MTABYTESOUT

EXSPI_PORTS

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SERVER_NAME
PORT_NAME
PORT_NUMBER
SERVICE_PROVIDER
SENT_BYTE
RECV_BYTE
RESP_TIME
CONGFIG_TIMEOUT

EXSPI_MTADATA

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SERVER_NAME
INSTANCE_NAME
MTADATABASEPATH
MTADATABASESIZE
MTADATABASEFREE
MTADATABASETOTAL
MTADATABASEFP

EXSPI_SMTPDATA

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SERVER_NAME
INSTANCE_NAME
SMTPBADMAILDIR
SMTPBADMAILSIZE
SMTPBADMAILCNT
SMTPBADMAILFREE
SMTPBADMAILTOTAL
SMTPBADMAILFP
SMTPPICKUPDIR
SMTPPICKUPSIZE
SMTPPICKUPCNT
SMTPPICKUPFREE
SMTPPICKUPTOTAL
SMTPPICKUPFP
SMTPQUEUEDIR
SMTPQUEUESIZE
SMTPQUEUECNT
SMTPQUEUEFREE
SMTPQUEUETOTAL
SMTPQUEUEFP

EXSPI_MTLDATA

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SERVER_NAME
MTLPATH
MTLSIZE
MTLCNT
MTLFREE
MTLTOTAL
MTLFP

EXSPI_OWAFE

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INSTANCE_NAME
OWACONNECTIONS
OWAMAXCONNECTIONS

EXSPI_OWABE

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INSTANCE_NAME
SERVER_NAME
OWAMSGSSENT
OWAMSGSOPEN
OWAAUTHS
OWAAUTHSCACHE
OWARECENTAUTHS

EXSPI_FTIDATA

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SERVER_NAME
INSTANCE_NAME
FTILOCATION
FTISIZE
FTIFREE
FTITOTAL
FTIFP

EXSPI_SINGLE

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
IMC_IN_MSGS_TOT
IMC_OUT_MSGS_TOT
IMC_TOT_IN_KB
IMC_TOT_IN_RCPIPNTS

IMC_TOT_MSGS_QUEUED

IMC_TOT_OUT_KB

IMC_TOT_OUT_RCPIPNTS

IS_ACTIVE_USER_CNT
IS_NEWS_MSGS_RECV
IS_NEWS_MSGS_SENT

IS_NEWS_NNTP_POSTED

IS_NEWS_NNTP_READ

IS_PRIV_AVG_DEL_TIME

IS_PRIV_AVG_LOC_DEL
IS_PRIV_RECV_QUEUE
IS_PRIV_SEND_QUEUE
IS_PUB_AVG_DEL_TIME
IS_PUB_AVG_LOC_DEL
IS_PUB_RECV_QUEUE
IS_PUB_SEND_QUEUE

EXSPI_SINGLE
IS_USER_CNT
VERSION
RESERVE1
RESERVE2
MTA_IN_BYTES_TOT
MTA_IN_MSGS_TOTAL
MTA_OUT_BYTES_TOT

MTA_OUT_MSGS_TOTAL
MTA_Q_LEN

MTA_TOT_RCPIPNTS_IN

MTA_TOT_RCPIPNTS_OUT
PRIV_FREE_MB
PRIV_IS_INST_RATIO
PRIV_IS_LOC_DELIV
PRIV_IS_LOG_DB_SIZE

PRIV_IS_MSG_RCPT_DLV
PRIV_IS_MSGS_DELIV
PRIV_IS_MSGS_SENT
PRIV_IS_MSGS_SUB

PRIV_IS_TOTAL_MBOXES
PRIV_IS_TOTAL_MSGS
PUB_FREE_MB
PUB_IS_INST_RATIO
PUB_IS_LOG_DB_SIZE

PUB_IS_MSG_RCPT_DLV
PUB_IS_MSGS_DELIV
PUB_IS_MSGS_SENT
PUB_IS_MSGS_SUB

PUB_IS_TOTAL_FOLDERS
PUB_IS_TOTAL_MSGS

EXSPI_MULTI
ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INSTANCE
INTERVAL_KEY
METRIC_ID
VALUE
VALUE_ID
SERVER_NAME

EXSPI_M0660

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
COUNTER_0660
INSTANCE_0660
NUM_BYTES_0660
NUM_MSGS_0660
SERVER_NAME

EXSPI_0661

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
COUNTER_0661
INSTANCE_0661
NUM_BYTES_0661
NUM_MSGS_0661
SERVER_NAME

EXSPI_0662

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
DEST_TYPE_0662
INSTANCE_0662
NUM_BYTES_0662
NUM_MSGS_0662
SERVER_NAME

EXSPI_0663

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SRC_TYPE_0663
INSTANCE_0663
NUM_BYTES_0663
NUM_MSGS_0663
SERVER_NAME

EXSPI_M1002

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
FROMSYSTEM
INSTANCEVAL
MEASUREDTIME
MSE_DEST_SITE
MSE_ORIG_SITE
PINGTIMESTAMP
SLA
SLAAPPROACH
TIMEOUT
TOSYSTEM

EXSPI_CMR

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SERVER_NAME

STORAGEGROUP_NAME

DATABASE_NAME
INSTANCEVAL
READSIZE
SLA
SLAAPPROACH
TIMEOUT
MEASUREDTIME
RUNTIME
INTERVAL_KEY

EXSPI_CML

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SERVER_NAME

STORAGEGROUP_NAME
DATABASE_NAME
INSTANCEVAL
LOGONSIZE
SLA
SLAAPPROACH
TIMEOUT
MEASUREDTIME
RUNTIME
INTERVAL_KEY

EXSPI_CMS

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SERVER_NAME

STORAGEGROUP_NAME
DATABASE_NAME
INSTANCEVAL
SENDSIZE
SLA
SLAAPPROACH
TIMEOUT
MEASUREDTIME
RUNTIME
INTERVAL_KEY

EXSPI_POP3PERF

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INSTANCE_NAME
SERVER_NAME
ADMINDISPLAY_NAME
POP3CON
POP3FAILEDCON
POP3REJECTEDCON

EXSPI_DELIV

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
INSTANCE_KEY
SERVER_NAME
DELIVSTATUS
SLATIME
SLAPERCENT
DELIVTOTAL
PERCENTMET
TOTALMISSEDSLA
AVERAGEDELIV
ORIGSVR
INTERVAL_KEY

EXSPI_PFDETAIL

ID
SYSTEMNAME
DATETIME
GMT
SHIFTNAME
SERVER_NAME

STORAGEGROUP_NAME
DATABASE_NAME
FOLDER_NAME
FOLDER_LASTACCESS
FOLDER_SIZE
FOLDER_MSGCNT

Service Reporter Schema for Exchange 2007

EX2007_MBDETAIL

MB_IDENTITY

MB_NAME

MB_SVRNAME

MB_SGNAME

MB_DBNAME

MB_SIZE

MB_MSGCOUNT

MB_DISCONNECT

EX2007_MBDETAIL

MB_DELCOUNT

MB_DELSIZE

MB_STGLIMIT

EX2007_MBPERF

INSTANCE_NAME

SERVER_NAME

MBDELIVERYTIME

MBLOCALDELIVER

MBDELIVER

MBSENT

MBSUBMITTED

MBRECIPIENT

MBACTIVELOGON

MBLOGON

MBLOGONPEAK

MBSIRATIO

MBRECOVERITEMS

MBRECOVERSIZE

EX2007_PFPERF

INSTANCE_NAME

SERVER_NAME

PFDELIVERYTIME

PFDELIVER

PFSENT

EX2007_PFPERF

PFSUBMITTED

PFRECIPIENT

PFACTIVELOGON

PFLOGON

PFLOGONPEAK

PFSIRATIO

PFRECOVERITEMS

PFRECOVERSIZE

PFREPRCVD

PFREPSENT

PFREPQ

EX2007_IMAP4PERF

INSTANCE_NAME

SERVER_NAME

ADMINDISPLAY_NAME

IMAP4CON

IMAP4FAILEDCON

IMAP4REJECTEDCON

EX2007_POP3PERF

INSTANCE_NAME

SERVER_NAME

ADMINDISPLAY_NAME

EX2007_POP3PERF

POP3CON

POP3FAILEDCON

POP3REJECTEDCON

EX2007_ISPERF

ISUSERCNT

ISACTIVEUSERCNT

ISANONUSERCNT

ISACTIVEANONUSERCNT

ISCONNECTCNT

ISACTIVECONNECTCNT

EX2007_SMTPSEND

INSTANCE_NAME

SERVER_NAME

ADMINDISPLAY_NAME

SMTPMSGSENT

SMTPMSGRECEIVE

SMTPBYTESENT

SMTPBYTERECEIVE

SMTPMSGBYTESENT

SMTPMSGBYTERECEIVE

SMTPINBOUNDCON

SMTPOUTBOUNDCON

SMTPOUTBOUNDCONREF

EX2007_SMTPRECV
INSTANCE_NAME
SERVER_NAME
ADMINDISPLAY_NAME
SMTPMSGSENT
SMTPMSGRECEIVE
SMTPBYTESENT
SMTPBYTERECEIVE
SMTPMSGBYTESENT
SMTPMSGBYTERECEIVE
SMTPINBOUNDCON
SMTPOUTBOUNDCON
SMTPOUTBOUNDCONREF

D Embedded Performance Component (EPC) Schema

EXSPI_ASNOTIFY

ASNTOTAL
ASNSENT
ASNIGNORE
ASNDISCARD
ASNEXPIRED
ASNBIFURCATED

EXSPI_ASYNC

ASYNCUSERS
ASYNCSENDMAIL
ASYNCCMDS
ASYNCCLIENTITEMS
ASYNCSERVERITEMS
ASYNCAD
ASYNCCONNECT
ASYNCPENDING

EXSPI_CML

INSTANCE_KEY
SERVER_NAME

STORAGEGROUP_NAME
DATABASE_NAME
INSTANCEVAL
LOGONSIZE
SLA
SLAAPPROACH
TIMEOUT
MEASUREDTIME
RUNTIME
INTERVAL_KEY

EXSPI_CMR

INSTANCE_KEY
SERVER_NAME

STORAGEGROUP_NAME
DATABASE_NAME
INSTANCEVAL
READSIZE
SLA
SLAAPPROACH
TIMEOUT
MEASUREDTIME
RUNTIME
INTERVAL_KEY

EXSPI_CMS

INSTANCE_KEY
SERVER_NAME

STORAGEGROUP_NAME
DATABASE_NAME
INSTANCEVAL
SENDSIZE
SLA
SLAAPPROACH
TIMEOUT
MEASUREDTIME
RUNTIME
INTERVAL_KEY

EXSPI_DELIV

INSTANCE_KEY
SERVER_NAME
STATUS
SLATIME
SLAPERCENT
DELIVTOTAL
PERCENTMET
TOTALMISSEDSLA
AVERAGEDELIV
ORIGINATING_SERVER
INTERVAL_KEY

EXSPI_DSACCESS

CACHEMISSESPERSEC
CACHEHITSPERSEC

EXSPI_FTIDATA

- SERVER_NAME
- INSTANCE_NAME
- FTILOCATION
- FTISIZ
- FTIFREE
- FTITOTAL
- FTIFP

EXSPI_IMAP4

- INSTANCE_NAME
- SERVER_NAME
- ADMINDISPLAY_NAME
- IMAP4CON
- IMAP4FAILEDCON
- IMAP4REJECTEDCON
- IMAP4UID

EXSPI_ISCLIENT

- ISCLATENCY10
- ISCLATENCY5
- ISCLATENCY2
- ISCRPCATTEMPT
- ISCRPCSUCCEED
- ISCRPCFAIL
- ISCRPCFUNAV
- ISCRPCFBUSY
- ISCRPCFCANCEL
- ISCRPCFCALLFAIL
- ISCRPCFACCESSDENY
- ISCRPCFOTHER

EXSPI_ISPERF

- RPCREQUESTS

RPCOPERATIONSPERSEC
- ISVMLARGESTBLOCK
- ISVMLARGEFREEBB
- ISVM16MBFREE
- ISUSERCNT
- ISCONNECTCNT
- ISANONUSERCNT
- ISACTIVEUSERCNT

ISACTIVECONNECTCNT

ISACTIVEANONUSERCNT

EXSPI_M0660

INSTANCE_KEY
SERVER_NAME
INSTANCE_0660
NUM_BYTES_0660
NUM_MSGS_0660
COUNTER_0660

EXSPI_M0661

INSTANCE_KEY
SERVER_NAME
INSTANCE_0661
NUM_BYTES_0661
NUM_MSGS_0661
COUNTER_0661

EXSPI_M0662

INSTANCE_KEY
SERVER_NAME
INSTANCE_0662
NUM_BYTES_0662
NUM_MSGS_0662
DEST_TYPE_0662
COUNTER_0662

EXSPI_M0663

INSTANCE_KEY
SERVER_NAME
INSTANCE_0663
NUM_BYTES_0663
NUM_MSGS_0663
SRC_TYPE_0663
COUNTER_0663

EXSPI_M1002

INSTANCE_KEY
INTERVAL_KEY
SERVER_NAME
MSE_ORIG_SITE
MSE_DEST_SITE
PINGTIMESTAMP
FROMSYSTEM
TOSYSTEM
INSTANCEVAL
SLA
SLAAPPROACH
TIMEOUT
MEASUREDTIME

EXSPI_MBDETAIL

INSTANCE_KEY
INTERVAL_KEY
MAILBOX_NAME
SERVER_NAME

STORAGEGROUP_NAME
DATABASE_NAME
MAILBOX_SIZE
MAILBOX_QUOTA
MAILBOX_MSGCNT
MAILBOX_LASTACCESS

EXSPI_MBPERF

INSTANCE_NAME
SERVER_NAME
MBSENDQ
MBRECEIVEQ
MBDELIVERYTIME
MBLOCALDELIVER
MBDELIVER
MBSENT
MBSUBMITTED
MBRECIPIENT
MBACTIVELOGON
MBLOGON
MBLOGONPEAK
MBSIRATIO
MBRECOVERITEMS
MBRECOVERSIZE

EXSPI_MBSUMMARY

INSTANCE_KEY

STORAGEGROUP_NAME
DATABASE_NAME
SERVER_NAME
ADMINGROUP
EDBPATH
STMPATH
EDBSIZE
STMSIZE
EDBFREE
STMFREE
EDBTOTAL
STMTOTAL
MBLOGICALSIZE
MAILBOX_USRCNT
MAILBOX_MSGCNT
INTERVAL_KEY

EXSPI_MTADATA

SERVER_NAME
INSTANCE_NAME
MTADATABASEPATH
MTADATABASESIZE
MTADATABASEFREE
MTADATABASETOTAL
MTADATABASEFP

EXSPI_MTAPERF

MTAWORKQ
MTAMSGIN
MTAMSGOUT
MTARCPIN
MTARCPOUT
MTABYTESIN
MTABYTESOUT

EXSPI_MTLDATA

SERVER_NAME
MTLPATH
MTLSIZE
MTLCNT
MTLFREE
MTLTOTAL
MTLFP

EXSPI_MULTI

INSTANCE_KEY
SERVER_NAME
METRIC_ID
VALUE_ID
INSTANCE
VALUE
INTERVAL_KEY

EXSPI_OMA

OMASENT
OMAIGNORE
OMADISCARD
OMARESPONSE

EXSPI_OWABE

INSTANCE_NAME
SERVER_NAME
OWAMSGSSENT
OWAMSGSOPEN
OWAAUTHS
OWAAUTHSCACHE
OWARECENTAUTHS

EXSPI_OWAFE

INSTANCE_NAME
OWACONNECTIONS

OWAMAXCONNECTIONS

EXSPI_PFDETAIL

INSTANCE_KEY
INTERVAL_KEY
FOLDER_NAME
SERVER_NAME

STORAGEGROUP_NAME
DATABASE_NAME
FOLDER_SIZE
FOLDER_MSGCNT
FOLDER_LASTACCESS

EXSPI_PFPERF

INSTANCE_NAME
SERVER_NAME
PFSENDQ
PFRECEIVEQ
PFDELIVERYTIME
PFDELIVER
PFSENT
PFSUBMITTED
PFRECIPIENT
PFACTIVELOGON
PFLOGON
PFLOGONPEAK
PFSIRATIO
PFRECOVERITEMS
PFRECOVERSIZE
PFREPRCVD
PFREPSENT
PFREPQ

EXSPI_PFSUMMARY

INSTANCE_KEY

STORAGEGROUP_NAME
DATABASE_NAME
SERVER_NAME
ADMINGROUP
EDBPATH
STMPATH
EDBSIZE
STMSIZE
EDBFREE
STMFREE
EDBTOTAL
STMTOTAL
PFLOGICALSIZE
FOLDER_COUNT
FOLDER_MSGCNT
INTERVAL_KEY

EXSPI_POP3

INSTANCE_NAME
SERVER_NAME
ADMINDISPLAY_NAME
POP3CONN
POP3FAILEDCON
POP3REJECTEDCON
POP3DELE
POP3RETR

EXSPI_PORTS

SERVER_NAME
PORT_NAME
PORT_NUMBER
SERVICE_PROVIDER
SENT_BYTE
RECV_BYTE
RESP_TIME
CONFIG_TIMEOUT

EXSPI_SINGLE

Version
Reserve 1
Reserve 2
IS Active User Count
IS User Count
MTA Inbound Msgs Tot
MTA Outb. Msgs Tot
MTA Tot. Recip. Inb.
MTA Tot. Recip. Outb
MTA Inb. Bytes Total
MTA Out. Bytes Total
Priv.IS Local Deliv.

EXSPI_SINGLE
Priv.IS Msgs Deliv.
Priv.IS Msgs Sent
Priv.IS Msgs Submit.
Priv.IS Recip. Deli.
Pub.IS Msgs Deliv.
Pub.IS Msgs Sent
Pub.IS Msgs Submit.
(cont.)
Pub.IS Recip. Deliv.
Newsfeed Msgs Sent
Newsfeed Msgs Receiv
NNTP Messages Read
NNTP Messages Posted
MTA Queue length
Priv.IS Send Queue
Priv.IS Recei. Queue
Pub.IS Send Queue
Pub.IS Recei. Queue
Priv.IS Avg Local
Priv.IS Avg Delivery
Pub.IS Avg Local
Pub.IS Avg Delivery
IMC In Msgs Total
IMC Out Msgs Total
IMC Total In (KB)
IMC Total Out (KB)
IMC Tot. In Recip.
IMC Tot. Out Recip.
IMC Tot. Msgs Queued
Priv.IS DB Size (MB)
Priv. IS Tot. MBoxes
Priv. IS Tot. Mesgs
Priv. IS Log.DB Size
Priv. IS Inst. Ratio
Pub. IS DB Size (MB)
Pub. IS Tot. Folders
Pub. IS Tot. Mesgs
Pub. IS Log. DB Size
Pub. IS Inst. Ratio
SERVER_NAME

EXSPI_SMTPDATA

SERVER_NAME
INSTANCE_NAME
SMTPBADMAILDIR
SMTPBADMAILSIZE
SMTPBADMAILCNT
SMTPBADMAILFREE
SMTPBADMAILTOTAL
SMTPBADMAILFP
SMTPPICKUPDIR
SMTPPICKUPSIZE
SMTPPICKUPCNT
SMTPPICKUPFREE
SMTPPICKUPTOTAL
SMTPPICKUPFP
SMTPQUEUEDIR
SMTPQUEUESIZE
SMTPQUEUECNT
SMTPQUEUEFREE
SMTPQUEUETOTAL
SMTPQUEUEFP

EXSPI_SMTPPERF

INSTANCE_NAME
SERVER_NAME
ADMINDISPLAY_NAME
SMTPMSGSENT
SMTPMSGRECEIVE
SMTPBYTESENT
SMTPBYTERECEIVE
SMTPMSGBYTESENT

SMTPMSGBYTERECEIVE
SMTPINBOUNDCON
SMTPOUTBOUNDCON

SMTPOUTBOUNDCONREF

EXSPI_SMTPQ

INSTANCE_NAME
SERVER_NAME
ADMINDISPLAY_NAME
REMOTERETRYQ
REMOTEQ
LOCALRETRYQ
LOCALQ
PENDINGROUTINGQ
CATEGORIZERQ

EXSPI_SRS

SRSDIRPATH
SERVER_NAME
SSRSDIRSIZE
SRSDIRFREE
SRSDIRTOTAL
SRSDIRPF
INTERVAL_KEY

EXSPI_TRANSLOG

STORAGEGROUP_NAME
SERVER_NAME
TRANSLOGFILEPATH
TRANSLOGFILESIZE
TRANSLOGFILEFREE
TRANSLOGFILETOTAL
TRANSLOGFILEFP
INTERVAL_KEY

E Creating Service Accounts for Exchange 2003

The Microsoft Exchange SPI collects data from many sources. To collect the many types of data, the Microsoft Exchange SPI requires advanced user credentials. The simplest way to obtain these credentials is to have the HPOM management agent run as Local System. If this is not possible in your organization, you must create a special service account with the necessary privileges.

Task 1: Create service account

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,**
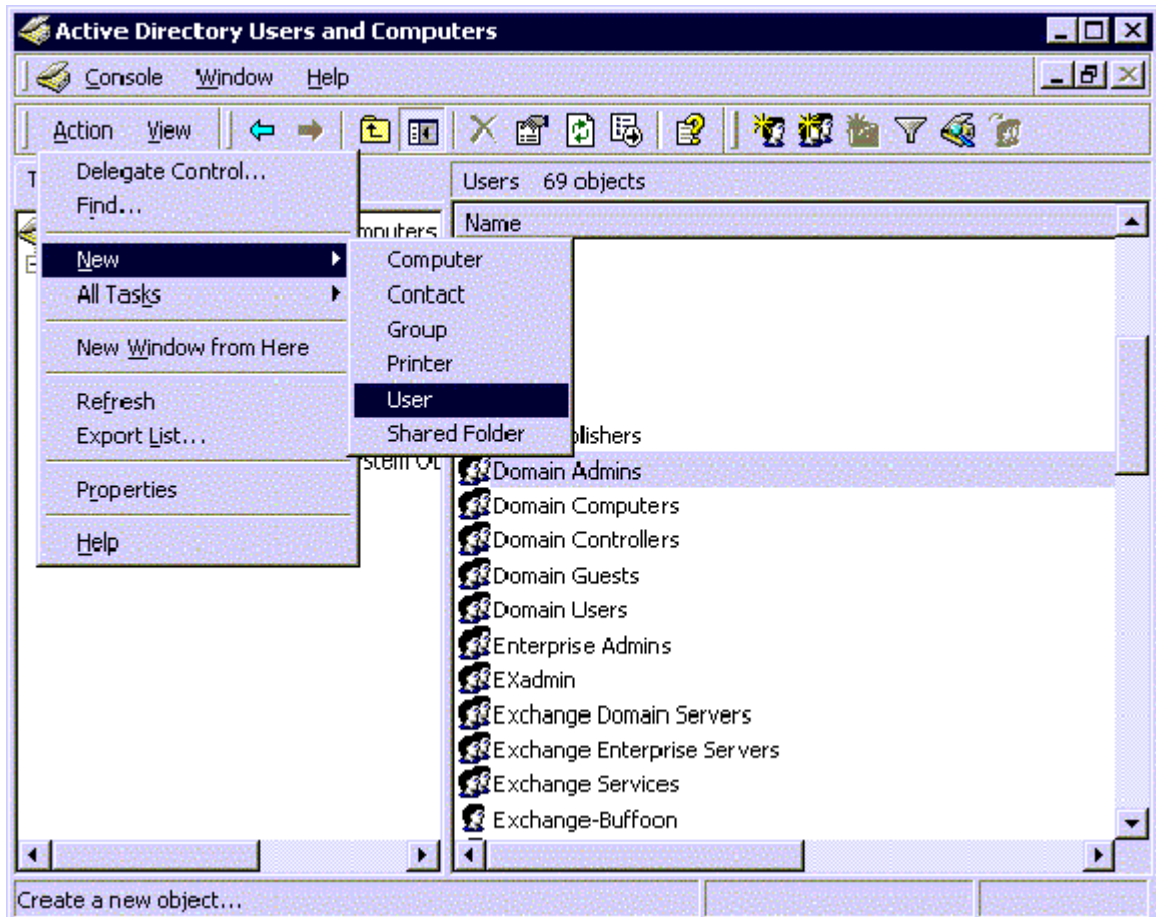
4   In the **New Object - User** dialog, enter a user name for the new service account into the **First Name** and the **User logon name** fields.

➤   You must create a service account with these privileges in each Windows domain. You may use any user name you wish. This example uses MSXSPI as the user name for the service account.

5   In the next window, enter **Password/Confirm Password** for the service account.

6   Select **Password Never Expires**. Then click **Next**.

7   In the **New Object** dialog, deselect **Create an Exchange mailbox**, and click **Next**

8   In the next dialog, complete creating the user by clicking **Finish**.

9   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**.

10 In the service account **Properties** page, select the **General** tab. Enter *OVO Exchange SPI* in the **Display name** and **Description** fields.

11 Select the **Member Of** tab, and click **Add**.

12 In the **Select Group** dialog select **Exchange Domain Servers** from the top pane. Click **Add**, then **OK**.

13 The new user is now a member of Domain Admins group. Click **OK** and exit the **Active Directory Users and Computer** dialog.
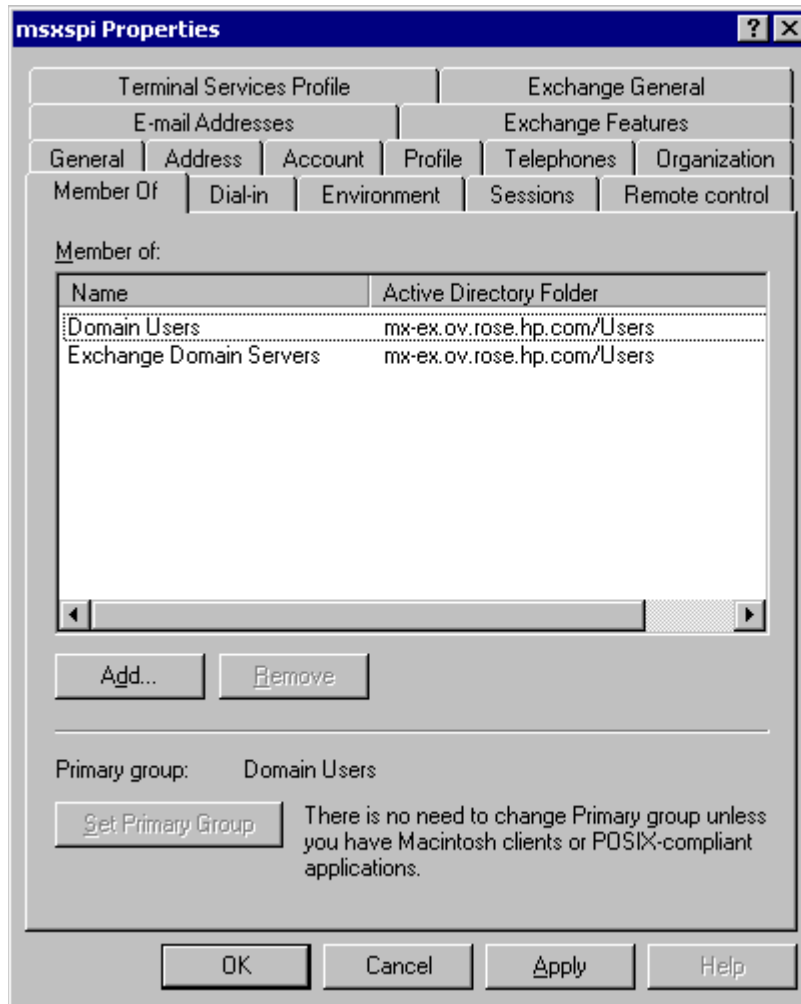
Task 2: Add service account user to Local Administrators group

1   On each targeted Exchange 2003 server, select **Start > Settings > Control Panel.**

2   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**.

3   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.**

4   Update the discovery policy EXSPI-6.0 Exchange Service Discovery, to include this new user.

5   This procedure needs to be carried out for each targeted Exchange 2003 server.

> It can sometimes take a few hours for new group membership and rights to be applied to a service account.

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F   Exchange Cluster Terminology

Cluster

A cluster is a group of independent computers, called nodes, that present themselves to a network as a highly available single system.

Node

A system that is a member of a cluster, and has a working installation of the Cluster Service.

Resources

Resources are physical or logical entities, such as applications, or services, under the control of the Cluster Service.

Cluster Resource Group

A Cluster resource group is a set of resources that are grouped together to be managed as a single unit for configuration and recovery purposes. Each resource in a resource group may be dependent on other resources within that group.

A resource group is the unit of failover in a cluster.

Failover

Failover is the process of moving a resource group from one node to another in the case of a failure. A failover can occur automatically, in the case of a problem, or manually, initiated by an administrator.

Failback

Is the process of returning a resource group to the node on which it was running before a failover happened.

Active/passive

A cluster is in Active/Passive mode when one node is active while another is passive/idle. Only when the active node fails or is taken offline, will the passive node becomes active.

Active/active

Each node is assigned some of the workload and process requests from clients. When one node fails or is taken offline, control of its resources are passed to the other node.

Virtual Server

A virtual server is a resource group and contains:

- A Network Name resource
- An IP Address resource
- The resources to be accessed by the clients of the virtual server.

A virtual server acts as a standalone system. Clients on the network interact with the virtual server just as if it were a physical server.

Exchange Server Cluster

To create an Exchange Server cluster, services provided by the Windows Cluster service are needed. Microsoft Exchange Server installs custom files and resources when installing the cluster-aware version of Exchange. This cluster-aware version of Exchange is installed when Exchange Server Setup is run on a node of a Windows Server cluster.

Exchange Virtual Server (EVS)

If Exchange is installed in a Windows Cluster; the EVS is the network name of a cluster resource group which contains:

- A Network Name resource
- An IP Address resource
- A Disk Resource on a common storage subsystem.

Additional resources represent the various components of Exchange:

- — System Attendant
- — Information Store
- — Routing
- — Message Tracking Agent
- — MSSearch
- — Protocol
- — SMTP
- — HTTP
- — POP3
- — IMAP

 The EVS runs as a unit on one node in the cluster at any given time. It may also be limited to a subset of the total nodes in the cluster.

G spimetadata.xml File

The `spimetadata.xml` file contains the information related to the collection mechanism of the Microsoft Exchange SPI for Microsoft Exchange Server 2007 nodes. The example below shows a sample `spimetadata.xml` file with all basic elements. You can modify the default `spimetadata.xml` file with the help of the PowerShell collection configuration utility. It is not recommended to modify the `spimetadata.xml` file manually as incorrect modification can lead to incorrect operation of the Microsoft 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>
```

```xml
    </Metric>
    <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>
```

```xml
<RollBy>MONTH</RollBy>
<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

H Using a non-privileged Windows user with the Microsoft Exchange SPI

If you are using the HP Operations agent 8.51/8.52 (with XPL 6.00.105 or above), you can configure the Microsoft Exchange SPI to work with a Windows user that does not have the Administrative privilege. By default, the Microsoft Exchange SPI tools and policies run under the $AGENT_USER account that has been configured with HPOM while adding the Microsoft Exchange node to the management server. If you use the HP Operations agent 8.51/8.52 (with XPL 6.00.105 or above), the agent user can be a non-privileged user.

▶ Do not use a non-privileged user on Exchange 2007 nodes. You can use a non-privileged user only with Exchange 2003 nodes.

Install the Agent

Before you start using a non-privileged Windows user with the Microsoft Exchange SPI, you must install the HP Operations agent 8.51/8.52 (with XPL 6.00.105 or above) on the node. You can either install the agent remotely from the management server (see the Remote agent installation section in the HPOM online help), or manually install the agent on the node (see the *Manual agent installation* section in the HPOM online help).

Configure the Agent to Use a Non-Privileged User

After you install the agent manually on the node, the agent starts running with the Local System account. You must manually change the default Local System user. Follow the instructions in the *Change the user of an HTTPS agent on a Windows node* section in the HPOM online help to change the default Local System user to a non-privileged Windows domain user (which is a member of the Local Users group on the node).

You must always set the OPC_PROC_ALWAYS_INTERACTIVE parameter to NEVER in the eaagt namespace by running the following command from the instrumentation directory on the node:

`ovconfchg -ns eaagt -set OPC_PROC_ALWAYS_INTERACTIVE NEVER`

Before you start using the non-privileged user, make sure to deploy the Windows OS SPI discovery policy (WINOSSPI-MSWINApp_AutoDiscovery) on all Exchange 2003 nodes.

Additional Requirements

You cannot use the non-privileged Windows user with all the policies and tools of the Microsoft Exchange SPI. For select policies and tools, you must use a different user, which must be a member of the following groups:

• Exchange Domain Servers group on the Domain Controller

• Local Administrator group on all the Exchange Server nodes that you want to monitor

Use this user with the following tools and policies:

Tools

- Enable Message Tracking

  ▶ To be able to run this tool, the user must have one of the following additional rights:

  — If the Exchange Organization includes Exchange 2007 nodes, the user must be a member of the Exchange View-only administrators group on the domain and Local administrators group on the node.

  — If the Exchange Organization does not include Exchange 2007 nodes, the user must be a member of the Local administrators group on the node. In addition, the user must belong to a Domain group with the Exchange Administrator privileges.

- EXSPI MBOX Config

Policies

- EXSPI-6.X Exchange Service Discovery
- EXSPI-6.X SSL for HTTPSV
- EXSPI-6.X Check CircularLogging Off
- EXSPI-6.X Check CircularLogging ON
- EXSPI-6.X SMTP Anonymous Relay
- EXSPI-6.X Database Mounted Search
- EXSPI-6.X TransactionLog Backup
- EXSPI-6.X 1h-ccMail Connector
- EXSPI-6.X 1h-Lotus Notes Connector
- EXSPI-6.X Dc-Full Text Index
- EXSPI-6.X Dc-Mailbox Data
- EXSPI-6.X Dc-Mailbox IS Sum Data
- EXSPI-6.X 1h-Mailbox Space Usage
- EXSPI-6.X Dc-Message Tracking Log Space Usage
- EXSPI-6.X Dc-Public Folder Data
- EXSPI-6.X Dc-Public IS Sum Data
- EXSPI-6.X 1h-Public Folder Space Usage
- EXSPI-6.X Dc-SMTP Virtual Server Storage
- EXSPI-6.X Dc-TrackLog Data
- EXSPI-6.X Dc-X.400 Service MTA Queue
- EXSPI-6.X SRS data Space Usage
- EXSPI-6.X End to End Message Ping
- EXSPI-6.X 5m-Lotus Notes connector
- EXSPI-6.X 5m-ccMail connector

- EXSPI-6.X 1h-NNTP
- EXSPI-6.X Transaction Log Backup Check
- EXSPI-6.X Transaction Log Space Usage
- EXSPI-6.X Transaction Log Storage Use

Instead of adding the user name and password for the privileged user in all these policies and tools, you can configure the OVO_STD_USER account with a user with adequate privileges, and then use the OVO_STD_USER account with all the policies and tools that require these additional rights. To use the OVO_STD_USER account with the policies and tools, follow these steps:

➤ Do not use OVO_STD_USER with the Enable Message Tracking tool and EXSPI-6.X Exchange Service Discovery policy. To use the Enable Message Tracking tool, launch the tool properties dialog box, go to the Target tab, and then type the user name and password of the privileged user in appropriate fields. To use the EXSPI-6.X Exchange Service Discovery policy, launch the policy dialog box, go to the User Editable Section in the Discover tab, and then type the user name and password of the privileged user in appropriate fields (type the user name in the **<domain>\\<user name>** format).

1 On the node, go to the location `%ovinstalldir%\bin\OpC\install`, and then run the following command:

   opcpwcrypt.exe <passwd>

   where *<passwd>* is the password of the privileged user.

   The command displays the password an encrypted format. Note down the encrypted password.

2 Run the command **ovconfchg -edit**. The `hp.xplConfig.ovconfchg` file opens.

3 In this file, at the end of the eaagt section, type:
   OVO_STD_USER=<DOMAIN\USER>|<encrypted_passwd> where *<DOMAIN\USER>* is the domain and user name of the privileged user and *<encrypted_passwd>* is the encrypted form of the password of the privileged user (which was noted down in step1).

4 Restart the agent.

5 In each of the aforementioned policies, set the user to OVO_STD_USER and leave the password field blank.

6 Re-deploy the policies.

7 Launch the properties dialog box for the EXSPI MBOX Config tool, and then follow these steps:

   a Go to the Target tab.

   b Set the user to $OVO_STD_USER. Leave the password field blank.

   c Click **OK**.

Creating Data Sources

While creating data sources into the data store on the node, use the Embedded Performance Component Configuration tool instead of the EXSPI-6.X exspi Agent Configuration policy. You can access this tool from the **SPI for Exchange > Exchange 2000 and 2003 > EXSPI Utilities** tool group. Before you use the tool, you must provide the tool with the credentials of the aforementioned user with additional privileges (the user mentioned in the Additional Requirements section).

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