

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

For HP Operations Manager for Windows®

Software Version: 11.30

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## Configuration Guide

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# 1 Introduction to HP Operations Smart Plug-ins

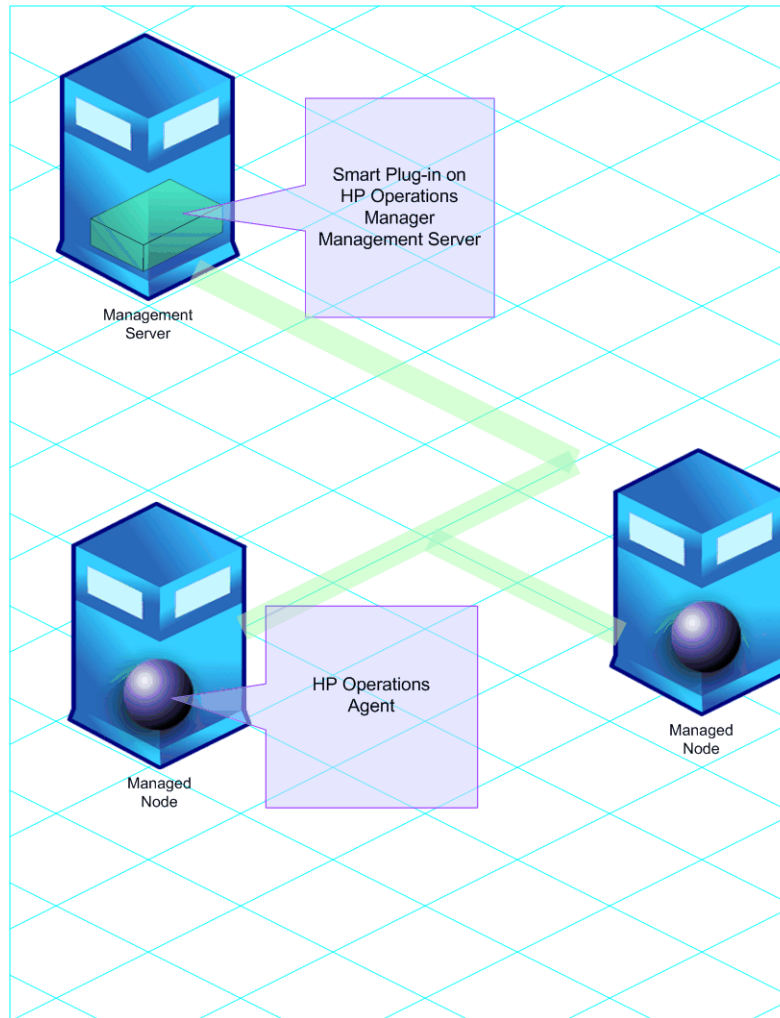
HP Operations Smart Plug-ins (SPIs) work in conjunction with HP Operations Manager (HPOM) to help you monitor, detect, solve, and prevent problems in your enterprise IT environment. The combination of HPOM and SPIs enables you to simplify the following tasks in your IT resource:

- 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 for Microsoft Exchange Server

The Smart Plug-in for Microsoft Exchange Server (the Microsoft Exchange SPI) enables HPOM to monitor Microsoft Exchange Server 2007, 2003, and 2000. 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.

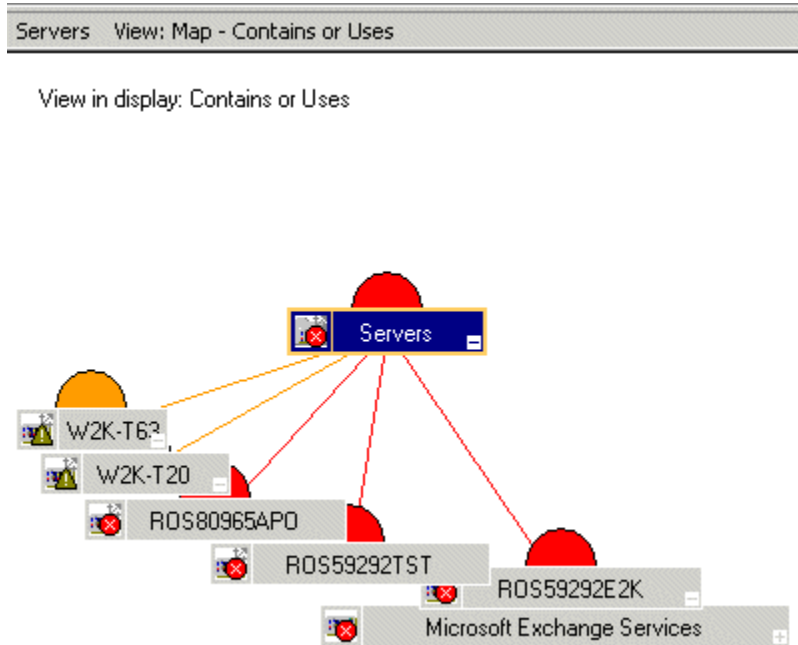
**Figure 2 Message Alerts on HPOM Console**

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			OVO/Win	Ov5v...	[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 ...	Oj
Normal		-	-	X	-	-	-	1/4/2007 6:51:40 PM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	NT API WaitForSingleObject: Failed t...	Oj
Normal		-	-	X	-	-	-	1/4/2007 6:51:40 PM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	NT API WaitForSingleObject: Failed t...	Oj
Warning		-	-	X	-	-	-	1/8/2007 1:15:49 PM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opctl...	WMI/WBEM Interceptor of subagent...	Oj
Normal	12	-	-	X	-	-	-	1/12/2007 2:22:15 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	The policy WINOSSPI-DiskBottleneck...	Oj
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...	Oj
Warning		-	-	X	-	-	-	1/13/2007 9:36:49 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	An error occurred in the processing ...	Oj
Warning	1	-	-	X	-	-	-	1/13/2007 9:45:27 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	An error occurred in the processing ...	Oj
Warning	1	-	-	X	-	-	-	1/13/2007 9:48:13 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	No opcmn value received and reac...	Oj
Normal	22	-	-	X	-	-	-	1/24/2007 2:07:50 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	The policy WINOSSPI-MT520_MSDT...	Oj
Normal	12	-	-	X	-	-	-	1/24/2007 3:08:47 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	The policy WINOSSPI-MemoryBottle...	Oj
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-PlugPlayServi...	Oj
Warning	29	-	-	X	-	-	-	1/26/2007 2:31:30 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	No opcmn value received and reac...	Oj
Warning	31	-	-	X	-	-	-	1/26/2007 2:31:59 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	No opcmn value received and reac...	Oj
Normal	6	-	-	X	-	-	-	1/27/2007 2:00:42 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcle ...	The process 'OvSvcDiscErrorLog' ter...	Oj
Warning		-	-	X	-	-	-	1/27/2007 2:01:39 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opctl...	Application Package Monitor of suba...	Oj
Warning		-	-	X	-	-	-	1/27/2007 2:01:49 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opctl...	WMI/WBEM Interceptor of subagent...	Oj
Warning		-	-	X	-	-	-	1/27/2007 2:02:34 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opctl...	Application Package Monitor of suba...	Oj
Warning		-	-	X	-	-	-	1/27/2007 2:03:06 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opctl...	Application Package Monitor of suba...	Oj
Warning		-	-	X	-	-	-	1/27/2007 2:03:22 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opctl...	Application Package Monitor of suba...	Oj
Warning		-	-	X	-	-	-	1/27/2007 2:03:37 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opctl...	Application Package Monitor of suba...	Oj
Critical	4	-	-	X	-	-	-	1/27/2007 2:03:42 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcapm	APM cluster configuration file E:\HP ...	Oj
Critical		-	-	X	-	-	-	1/27/2007 2:03:42 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opctl...	Application Package Monitor of suba...	Oj
Normal	29	-	-	X	-	-	-	1/27/2007 2:05:23 AM	Services & Proc...	EXSPI6 (Manag...	HP Open...	opcm...	The policy WINOSSPI-DHCPCD_DHCP...	Oj

## 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**



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

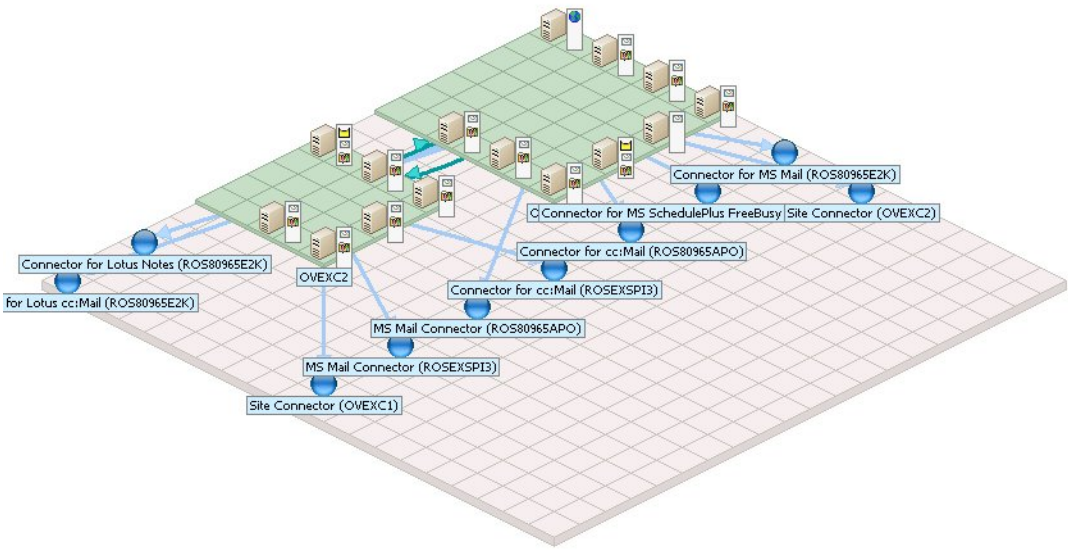
## Reports and Graphs

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 8.00, 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 and install on the management server (OVO for Windows 7.50). This patch installs the HP Operations agent version 7.35 on the management server.

 You can search the patch with the **OVOW\_00254** keyword in the search text box.

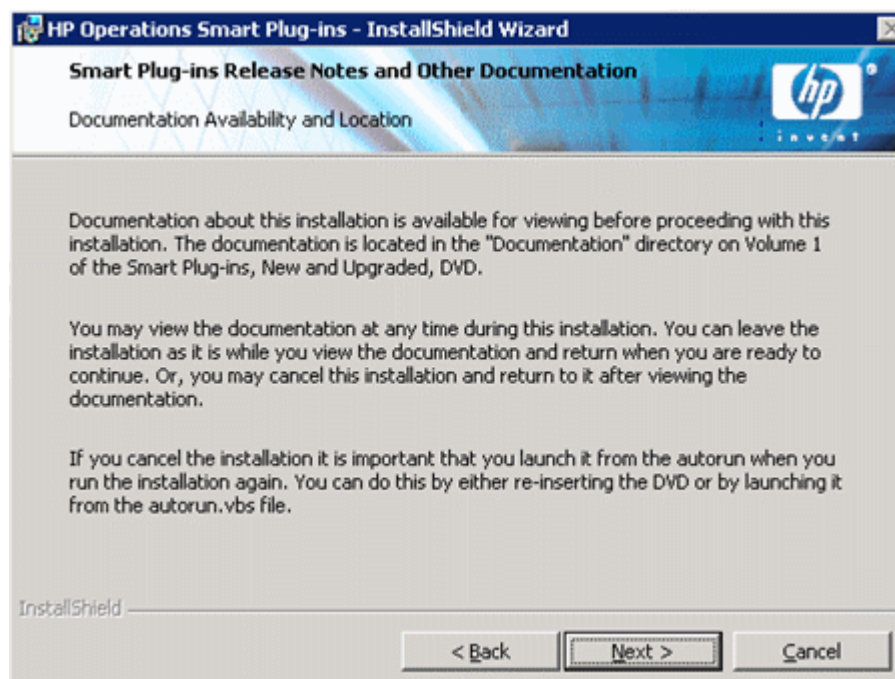
## Installation Procedure

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.

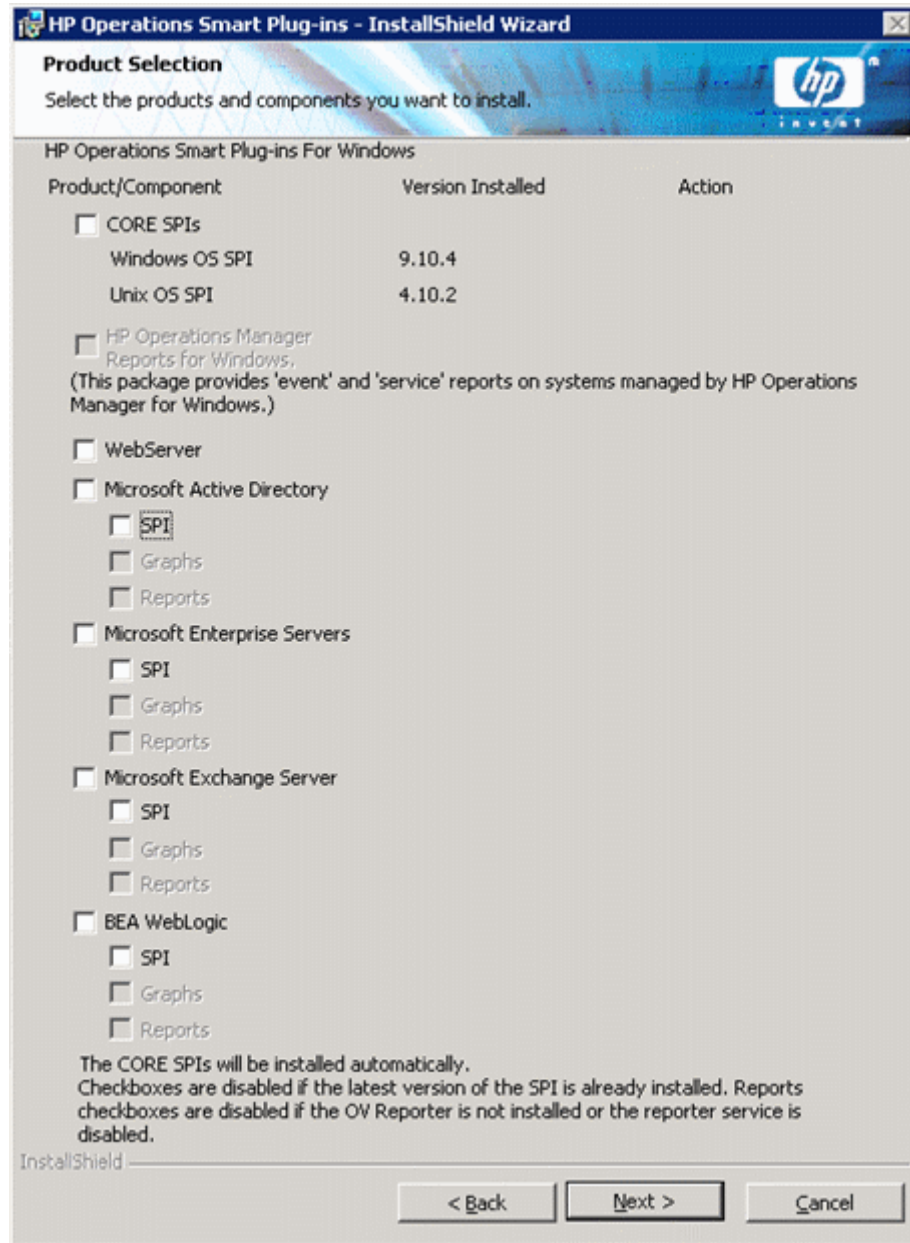


- 2 Click **Next**. The Smart Plug-in Release Notes and Other Documentation screen appears.

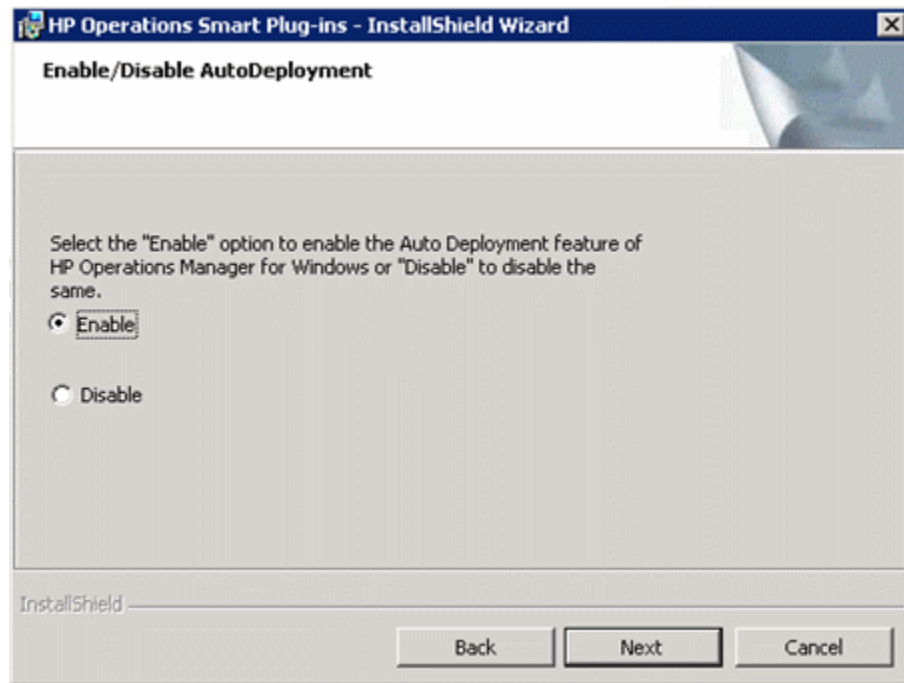




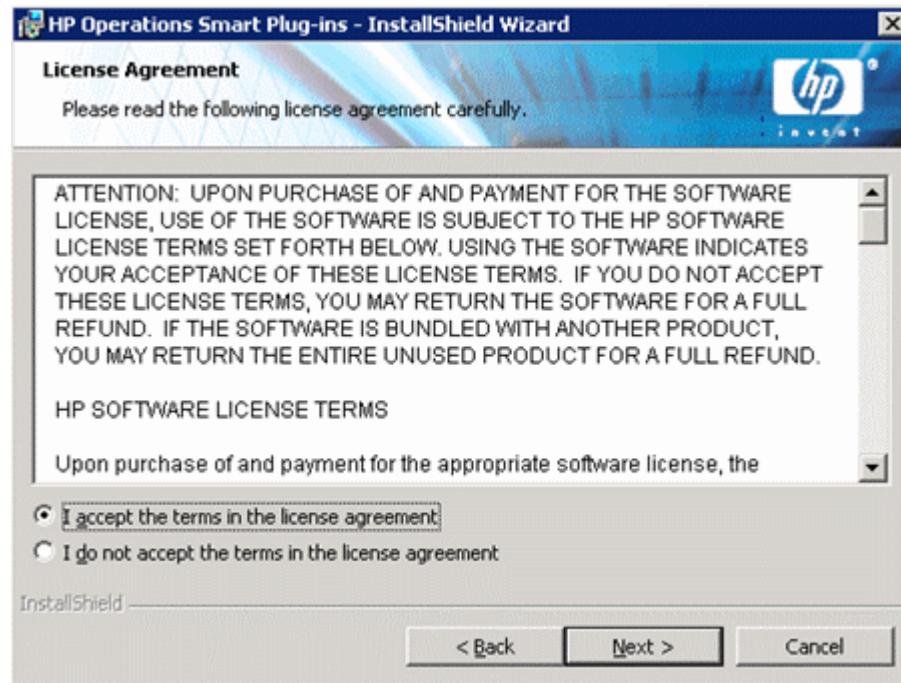
- 3 Click **Next**. The Product Selection screen appears.



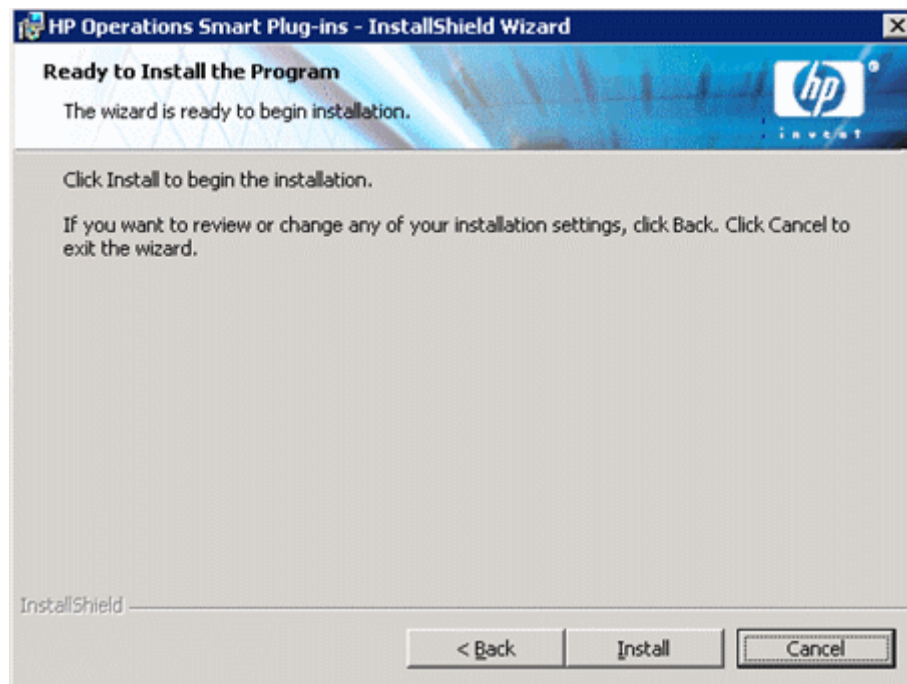
- 4 Select Microsoft Exchange Server, and then click **Next**. The Enable/Disable AutoDeployment screen appears.



- 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 Policies 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 8.00 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 If you customized any of the policies, run the following commands on the management server:

```
ovpmutil cfg pol dnl C:\temp\ConfigDir /a
ovpmutil cfg mdl dnl C:\temp\ConfigDir\model.mof
ovpmutil cfg usr dnl C:\temp\ConfigDir\usroles.xml
```

HPOM saves the existing policy definitions in C:\temp\ConfigDir\.

- 7 Install the SPI from the DVD by following the procedure described under [Installation Procedure](#) on page 16.
- 8 If you customized any of the policies, and made a backup of policies ([step 6](#)), run the following commands on the management server:

```
ovpmutil cfg pol upl C:\temp\ConfigDir\config.mm
ovpmutil cfg mdl upl C:\temp\ConfigDir\model.mm
ovpmutil cfg usr upl C:\temp\ConfigDir\usroles.mm
```

HPOM retrieves all the policy information that you backed up in [step 6](#).

If you are using the Microsoft Exchange SPI with OVO for Windows 7.50, make sure the following requirements are met:

- The patch OVOW\_00254 is already installed on the management server (see [Installation Prerequisite](#) on page 15).
- The HP Operations agent version 7.35 is installed on the nodes that were being managed by the Microsoft Exchange SPI before the upgrade. You can install the agent manually or from the OVO console.
- If you manually install the HP Operations agent version 7.35 on a node, run the `vcredist_x86.exe` file from the `%OvAgentDir%` location on the node.



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

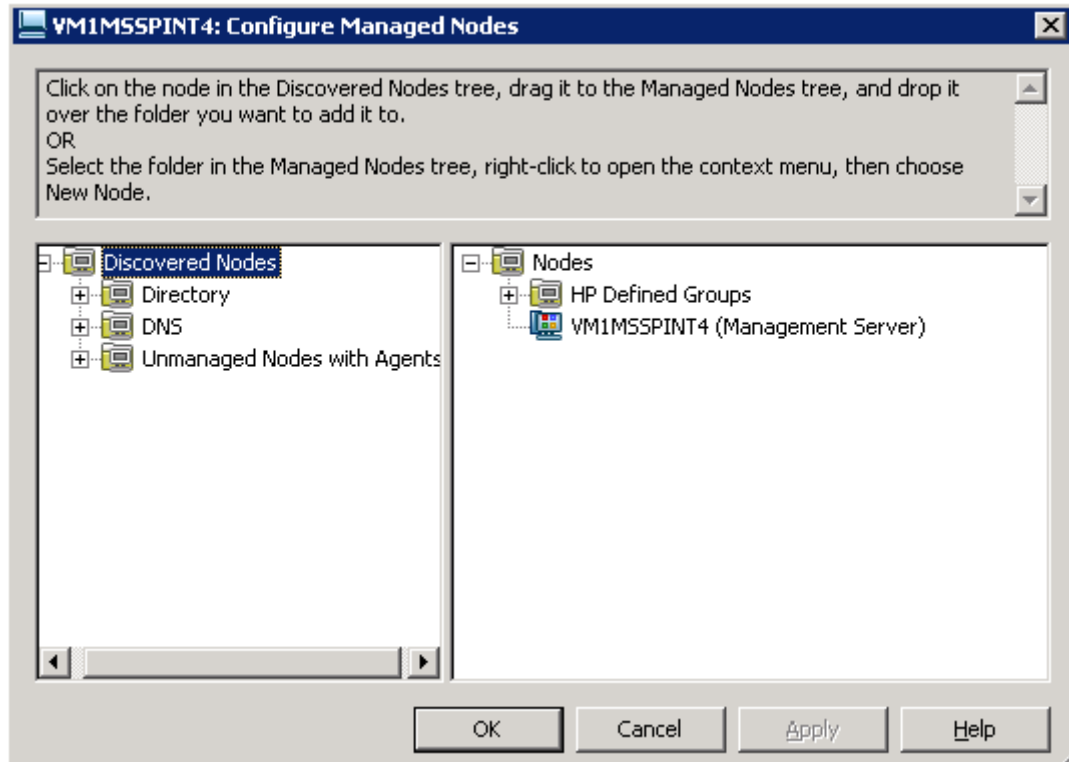
The Microsoft Exchange SPI will start monitoring a Microsoft Exchange Server 2007 node after you install the agent and deploy necessary policies on it. When you add a node, agents are automatically installed on the managed nodes.

#### Add Nodes

You can install the Microsoft Exchange SPI (version 11.30) on HPOM for Windows 8.00 or OVO for Windows 7.50. You can use this SPI with either HPOM 8.00 or OVO 7.50, depending on your requirement. To add a node on [HPOM Console \(for HPOM for Windows 8.00\)](#) or [OVO Console \(for OVO for Windows 7.50\)](#), perform the following configuration tasks:

## HPOM Console (for HPOM for Windows 8.00)

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

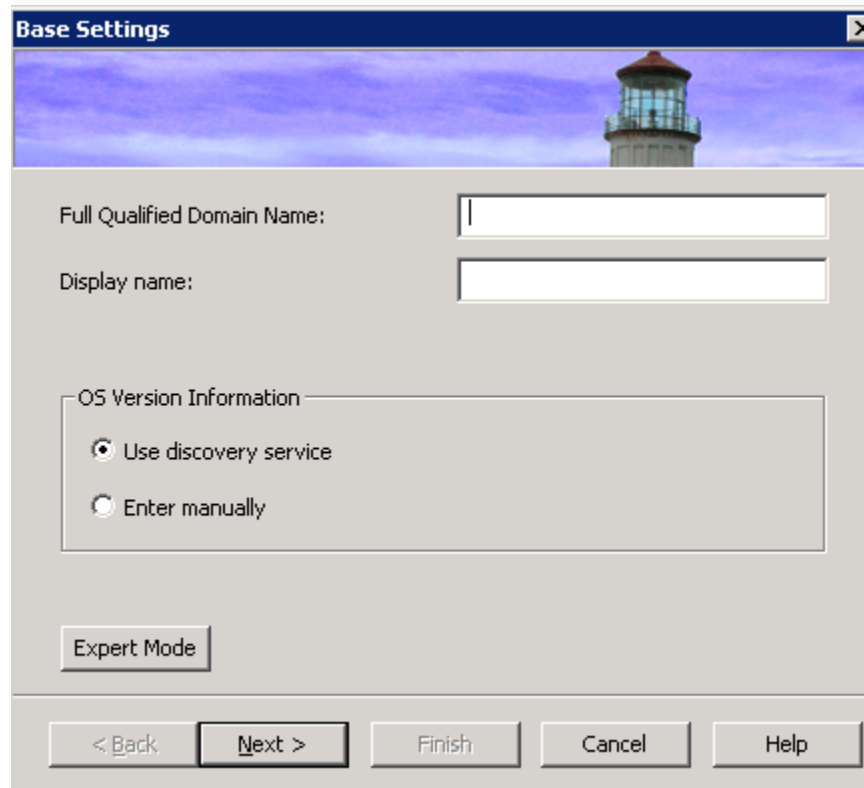


- 2 In the left frame, expand discovered node groups, and then drag and drop a system to the right frame. In the right pane, right-click the newly added node, and then click **Properties**. The Node Properties dialog box opens. You can change the default node settings in this dialog box.

Alternatively, follow these steps:

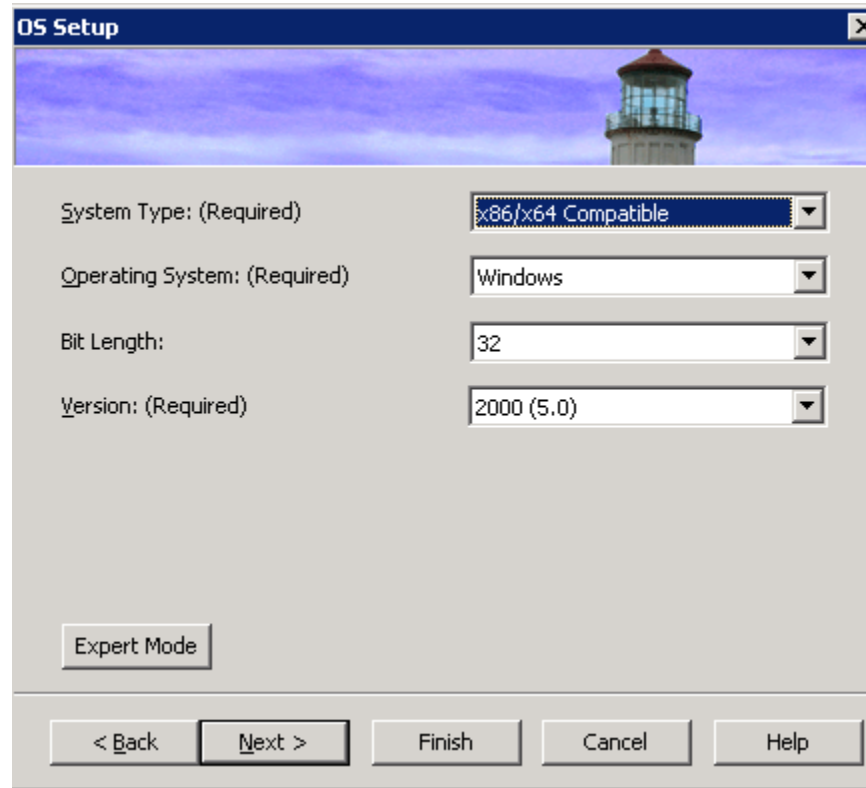


- a In the right frame, right-click, and then click **New Node**. The Base Settings dialog box opens.

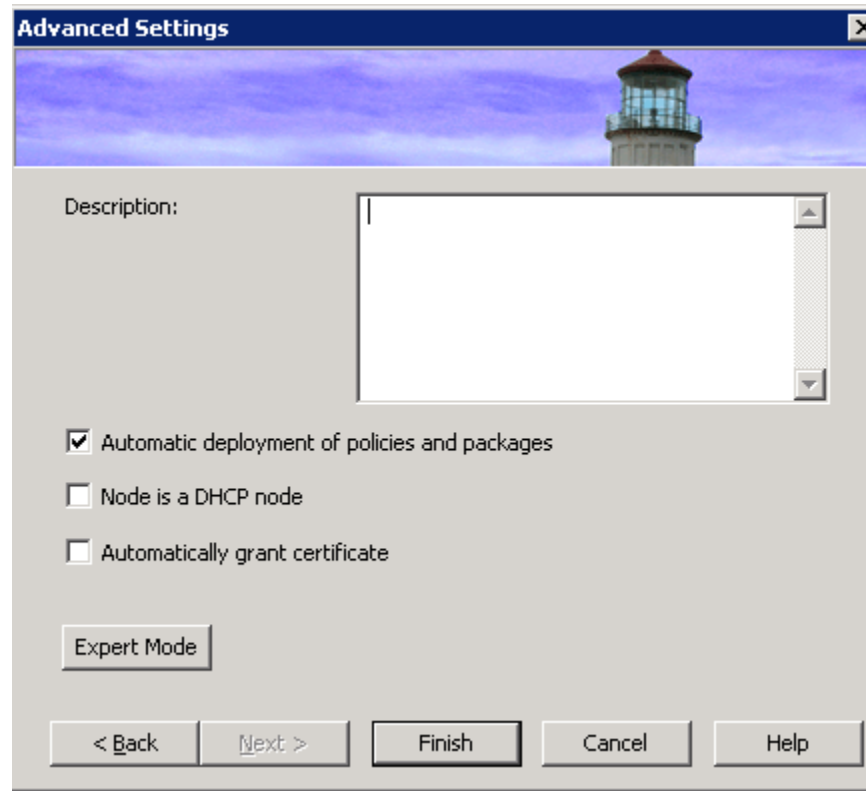


- b In the Full Qualified Domain Name text box, type the full qualified domain name of the Microsoft Exchange Server node that you want to add.
- c In the Display Name text box, type a name of the node that will be displayed in the HPOM console.

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



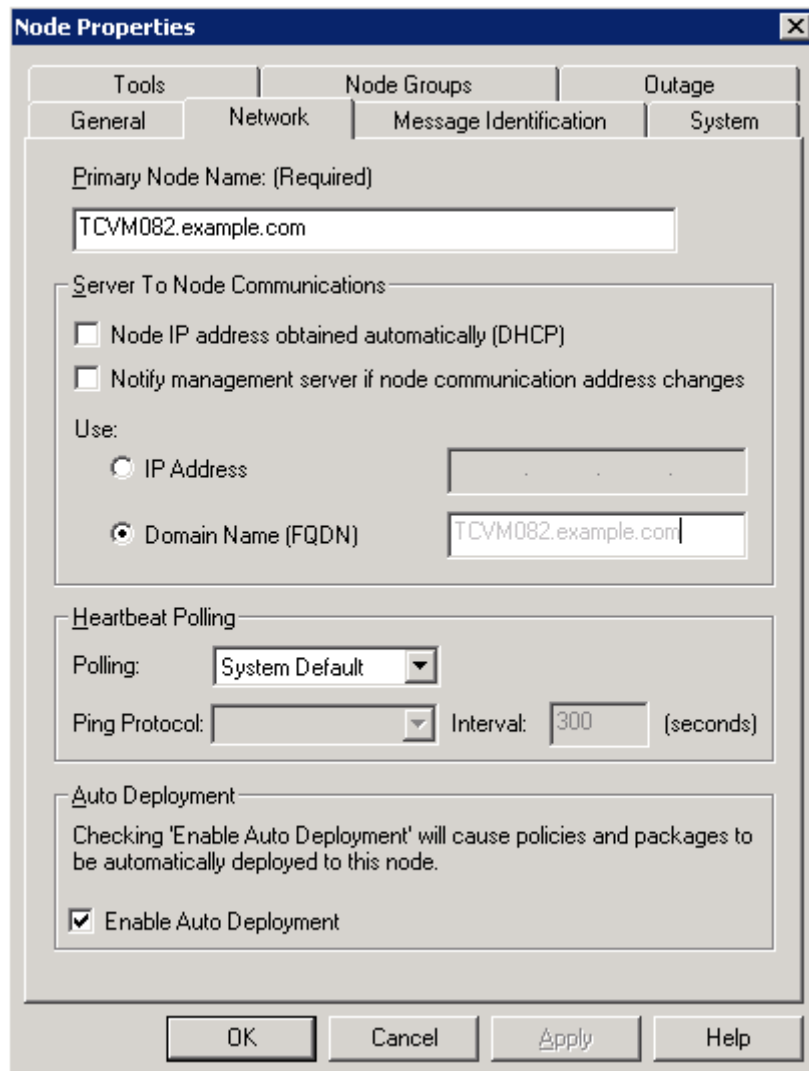
- e Operating system details are automatically set in the OS Setup screen (If these are not automatically discovered, you must manually set these details). Click **Next**. The Advanced Settings screen appears.



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

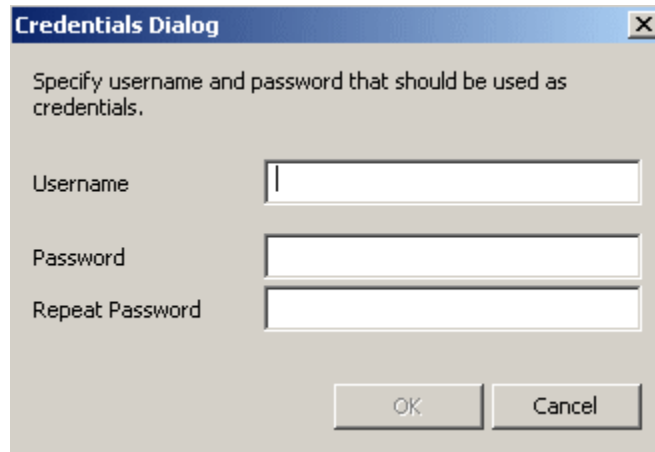
- f Click **Finish**.
- 3 If you want to change the default agent communication mode, follow these steps:

- 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, select the Deploy check box to deploy agent. The Credentials Dialog dialog box opens.



Specify username and password that should be used as credentials.


Username

Password

Repeat Password

OK Cancel

- 7 Type username and password of a user who has permission to install software on the node.

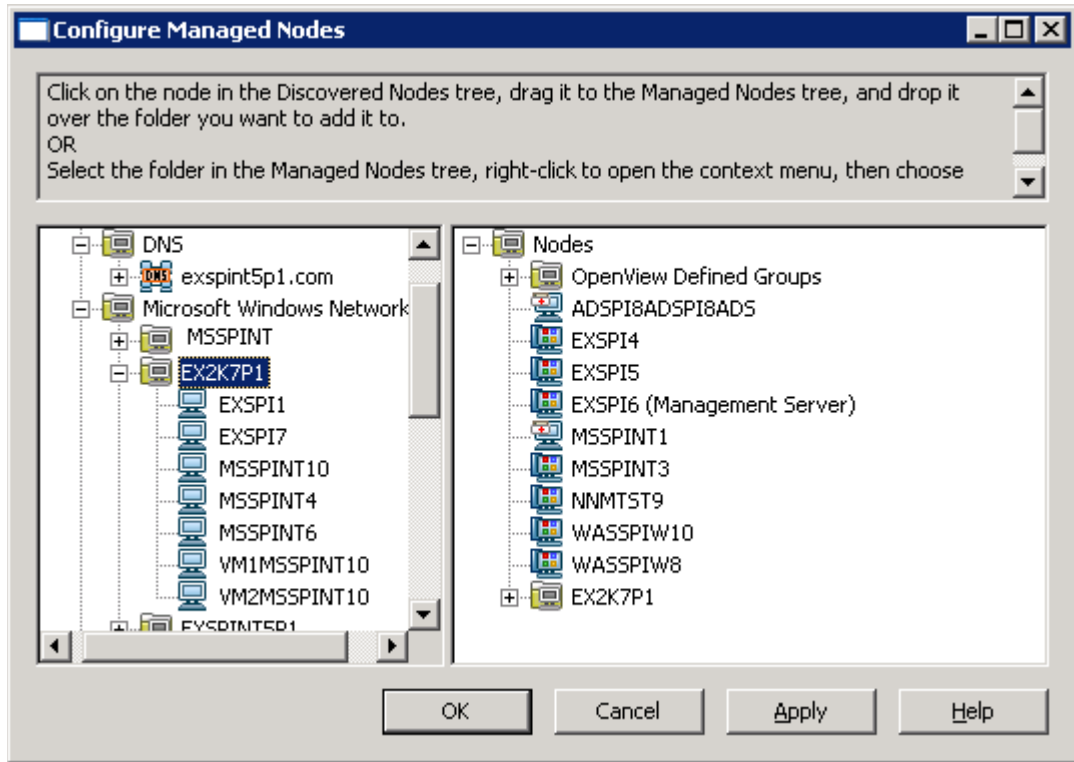
 For detailed information, refer to the *Remote agent installation* section of the *Configuring Agents* chapter of the HPOM online help.

- 8 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.

## 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**.

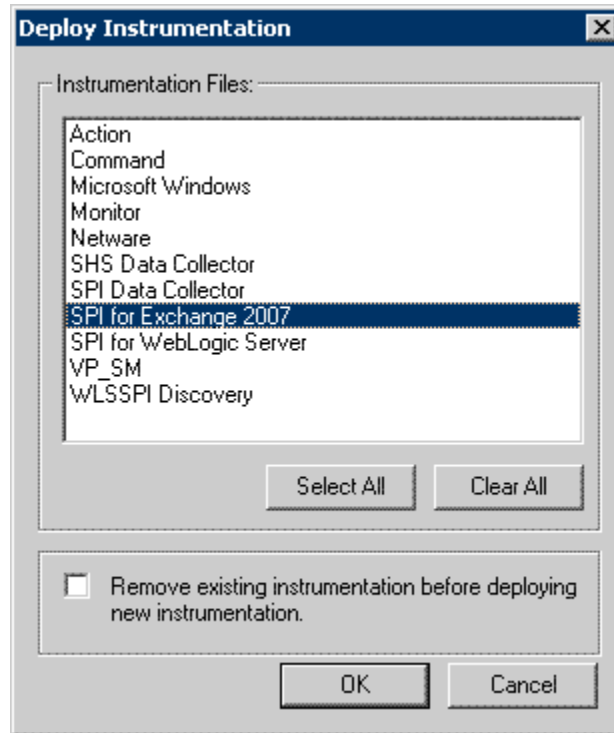
When you add a node, the agent software is automatically installed on the node. If you manually install the DCE agent on a node, you must run the `vcredist_x86.exe` file from the `%OvAgentDir%` location on the node.

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](#) and [step 3](#) for all added nodes.

## Deploy the Discovery Policy

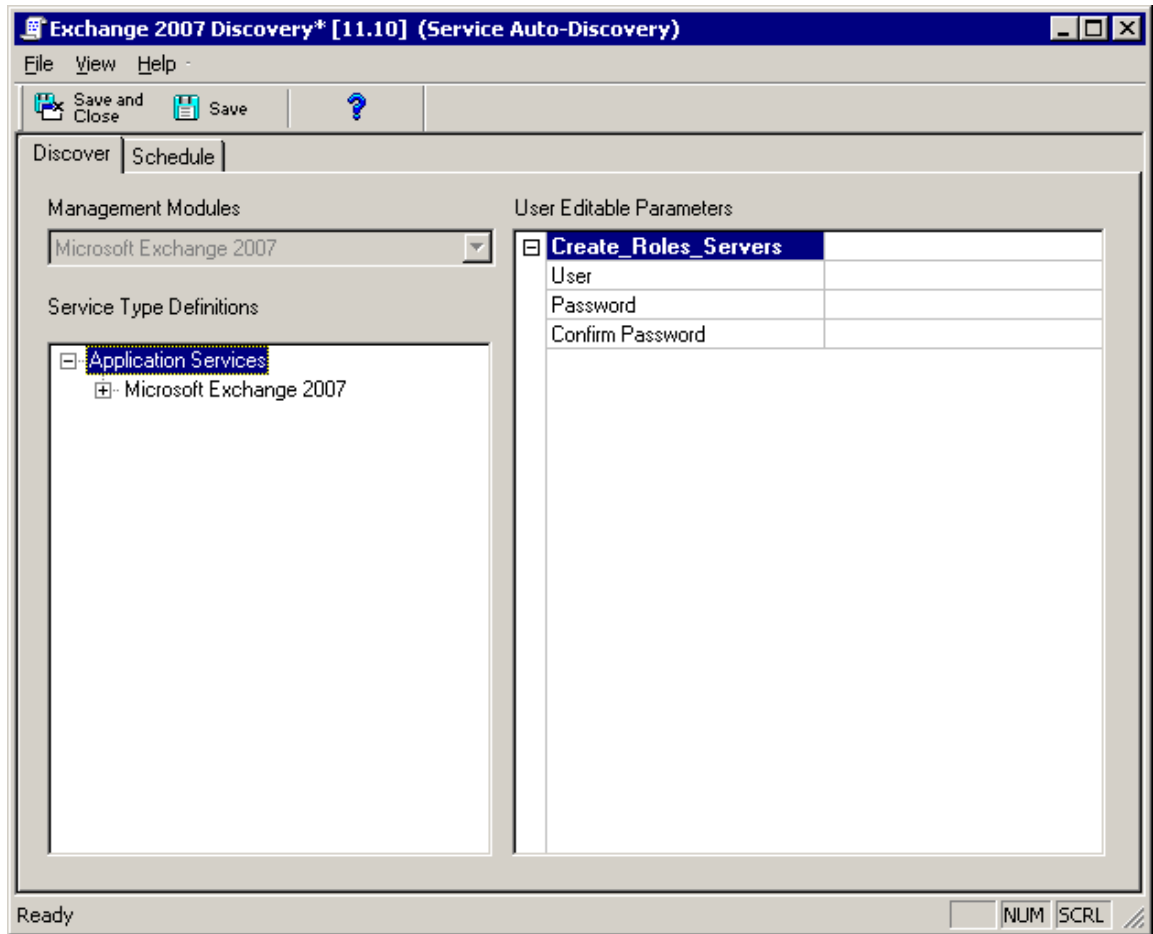
To discover the Exchange environment on the managed nodes, you must deploy the discovery policy. If you want to monitor Microsoft Exchange Server clusters, you must provide the access credentials of a Microsoft Exchange Server 2007 administrator. Perform the following tasks to deploy the discovery policy 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** → **Exchange 2007** → **Manual Deploy Groups**, and then double-click **Discovery**.

- In the details pane, double-click **Exchange 2007 Discovery**. The Exchange 2007 Discovery\* [11.10] (Service Auto-Discovery) dialog box opens.



- 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.
- Close the Exchange 2007 Discovery\* [11.10] (Service Auto-Discovery) dialog box.

## Task 2: Deploy on Nodes

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

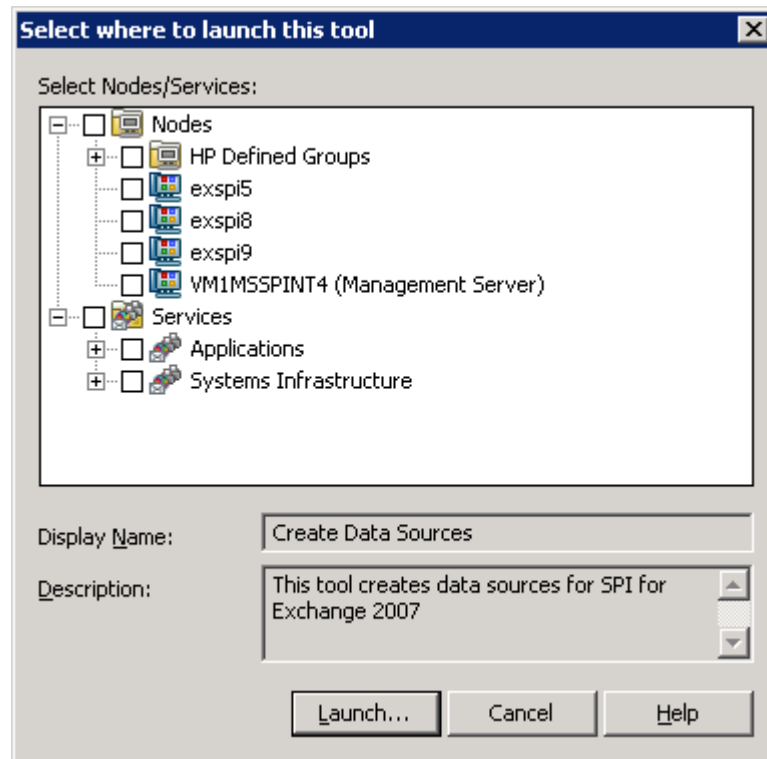
- In the console tree of the HPOM/OVO console, expand **Policy Management** → **Policy Groups** → **SPI for Exchange** → **Exchange 2007** → **Manual Deploy Groups**, and then double-click **Discovery**.
- In the details pane, deploy the Exchange 2007 Discovery policy on the managed Microsoft Exchange Server 2007 nodes.



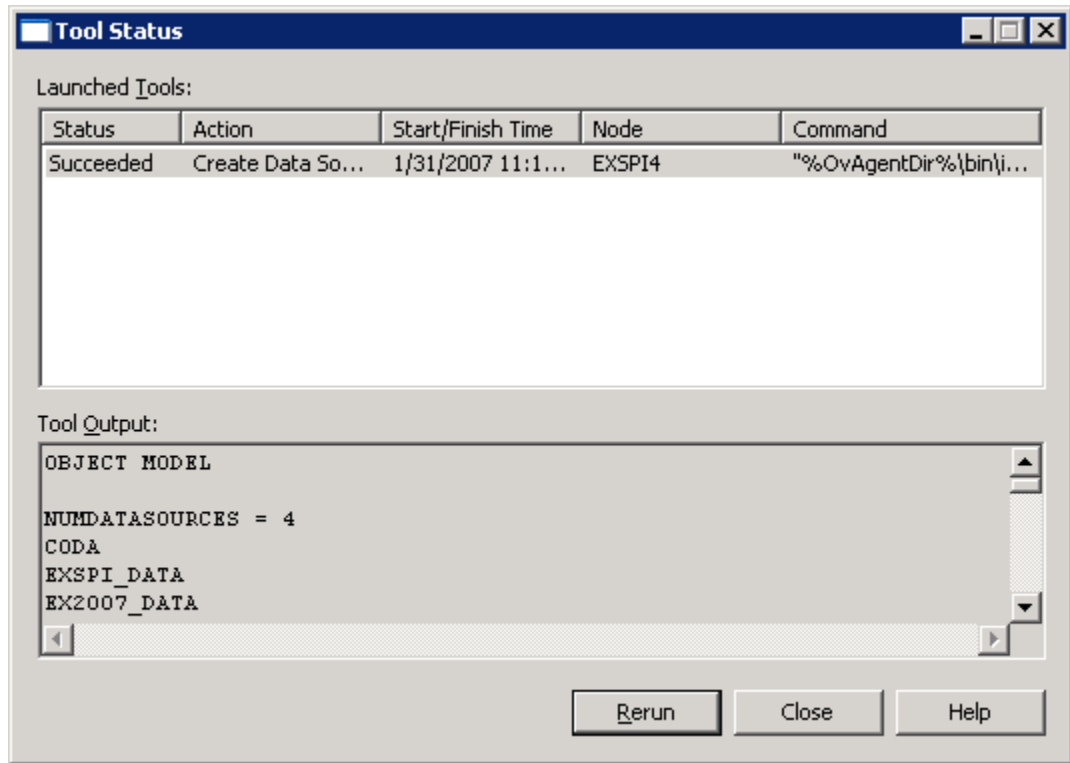
## Create Databases

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 messages 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.



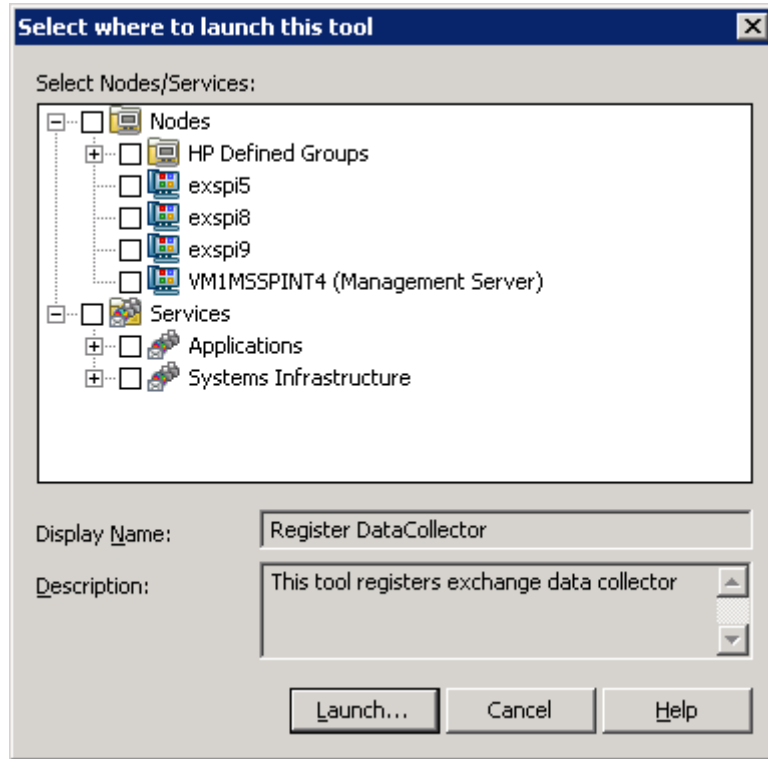
- 4 Click **Close**.

## 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.



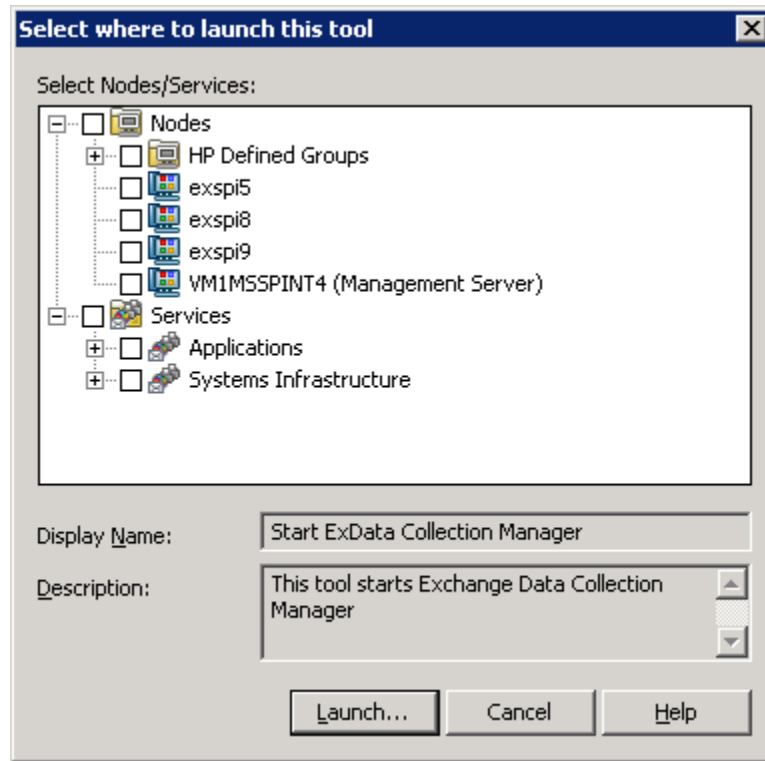
- 3 Select the nodes, and then click **Launch**. After a few seconds, the Tool Status window opens.
- 4 Click **Close**.

## 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.



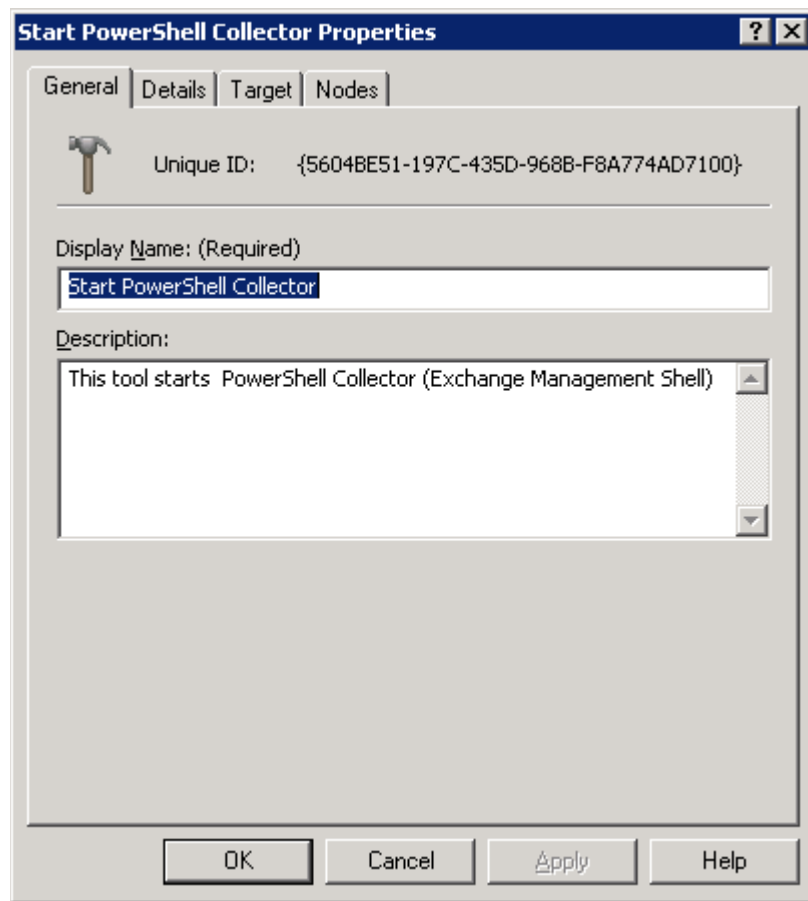
- 3 Select the nodes on which you want to run the tool, and then click **Launch**. After a few seconds, the Tool Status window opens.
- 4 Click **Close**.

## 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**.

- In the details pane, right-click **Start PowerShell Collector**, and then click **Properties**. The Start PowerShell Collector Properties dialog box opens.



- Go to the Target tab.

- 4 Clear the Run As Agent User Option.

The screenshot shows the 'Start PowerShell Collector Properties' dialog box with the 'Target' tab selected. The 'Execute On: (Required)' dropdown menu is set to 'Selected Node'. Below it, the 'User Name:' text box is empty, and the 'Run As Agent User' checkbox is checked. The 'Password:' and 'Verify Password:' text boxes are also empty. The 'Predefined Node List: (Required)' section contains an empty table with two columns: 'Display Name' and 'Description'. At the bottom of the dialog, there are buttons for 'Add...', 'Remove', 'OK', 'Cancel', 'Apply', and 'Help'.

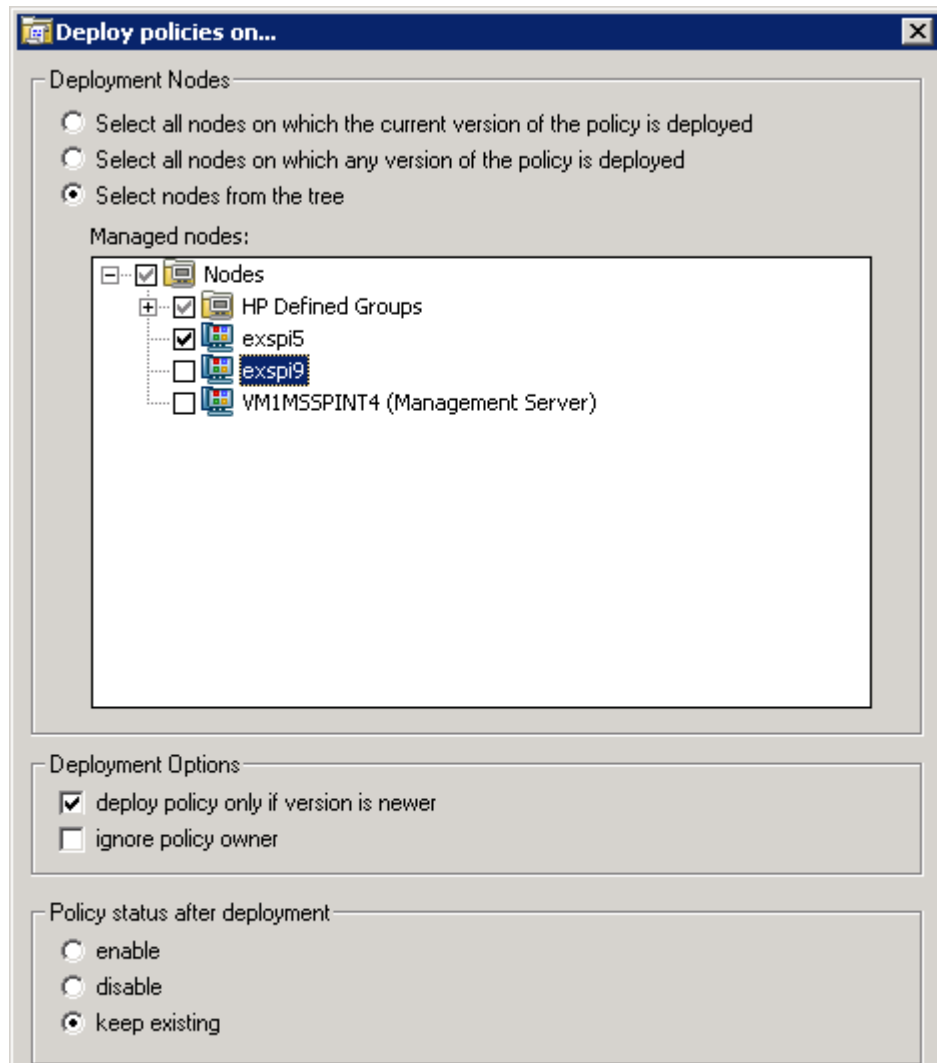
- 5 In the User Name text box, type a user name with the Exchange View Only administrative privilege.
- 6 In the Password and Verify Password text boxes, type the password for the above user.
- 7 Click **Apply**.
- 8 Click **OK**.
- 9 In the details pane, double-click **Start PowerShell Collector**. 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 8.X 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-8.X SPIMetaData Versioning policy on nodes for the modifications to take effect. However, the collection manager process starts

following the updated collection mechanism only after you deploy the EXSPI 8.X Refresh Collection Policy. To deploy the EXSPI 8.X 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** → **Exchange 2007** → **Manual Deploy Groups**, and then double-click **Collector Definition**.
- 2 In the details pane, right-click **EXSPI 8.X Refresh Collection Definition**, and then click **All Tasks** → **Deploy on**. The Deploy policies on dialog box opens.

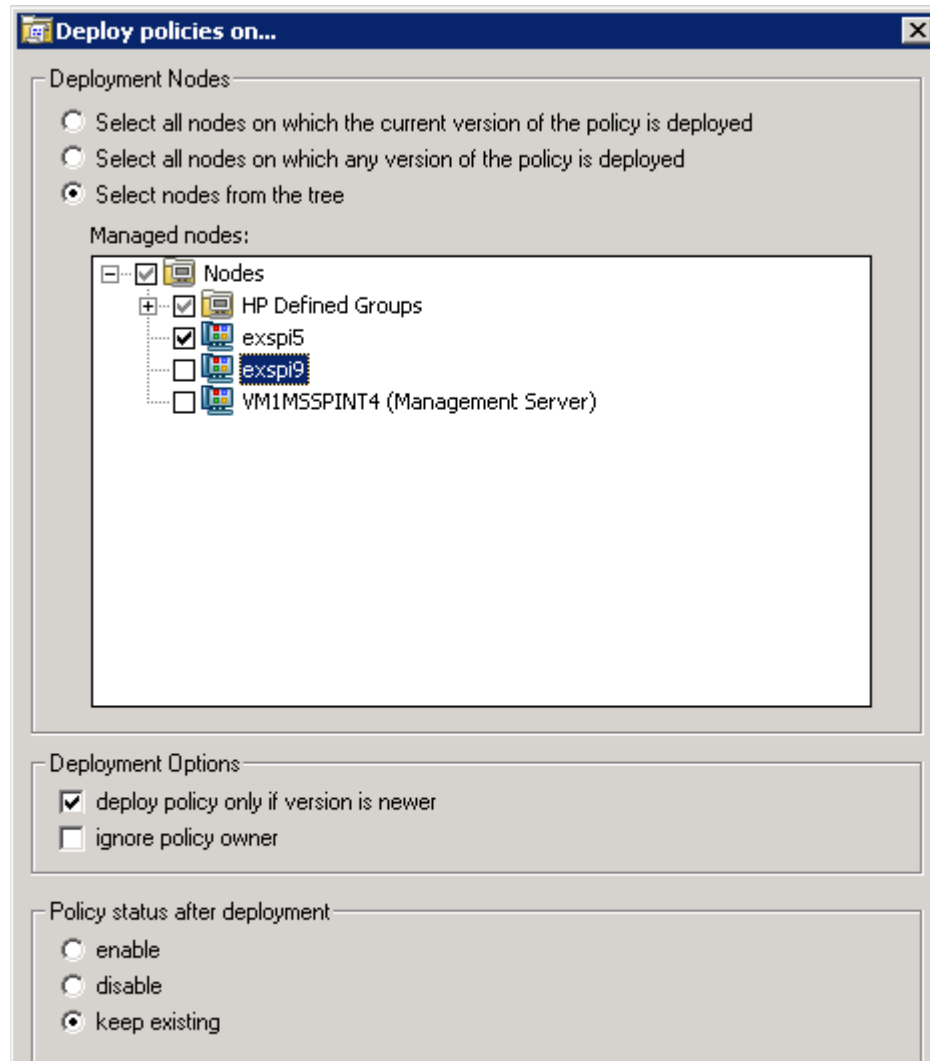


- 3 Keep all default settings and select nodes from the Managed nodes list.
- 4 Click **OK**.

## Deploy the EXSPI 8.X Check Collector Server Policy

The EXSPI 8.X 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** → **Exchange 2007** → **Manual Deploy Groups**, and then double-click **Collector Definition**.
- 2 In the details pane, right-click **EXSPI 8.X Check Collector Server**, and then click **All Tasks** → **Deploy on**. The Deploy policies on dialog box opens.



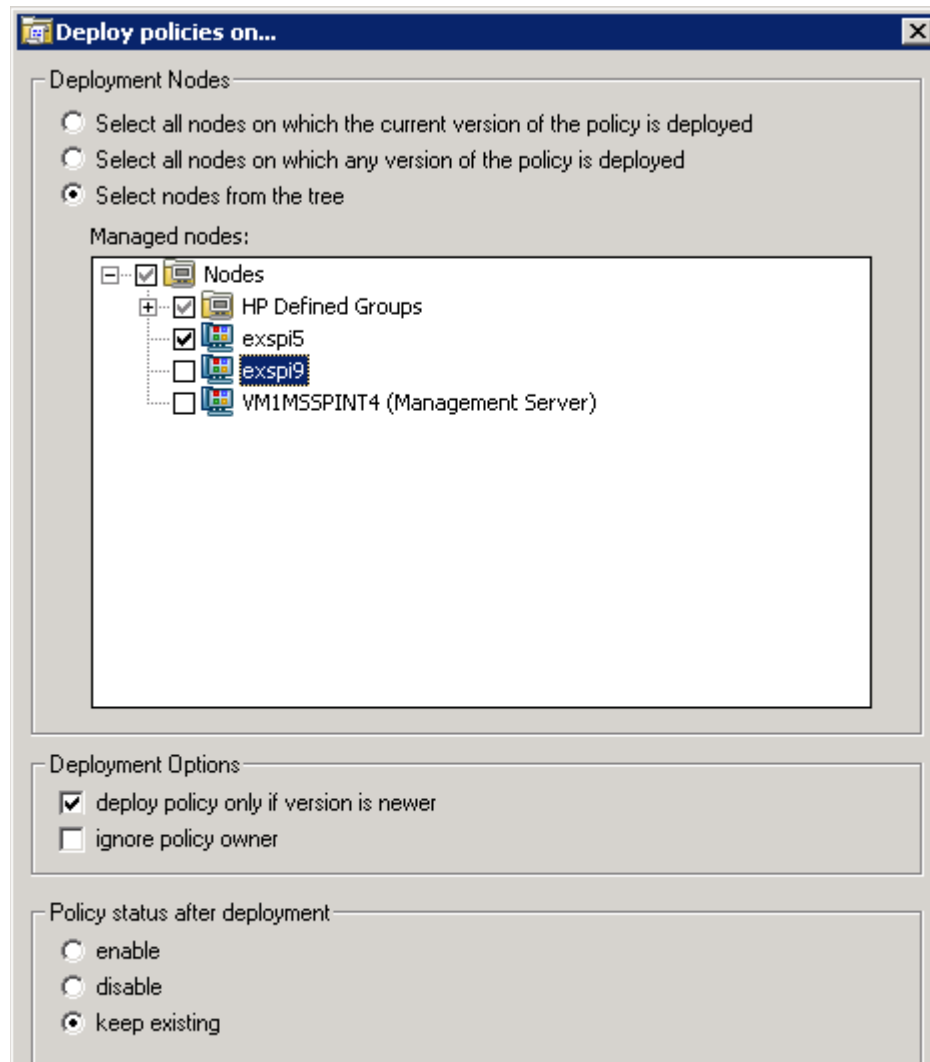
- 3 Keep all default settings and select nodes from the Managed nodes list.
- 4 Click **OK**.



## Deploy the EXSPI 8.X Check Collection Manager Policy

The EXSPI 8.X 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** → **Exchange 2007** → **Manual Deploy Groups**, and then double-click **Collector Definition**.
- 2 In the details pane, right-click **EXSPI 8.X 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 Run the Stop ExData Collection Manager tool.
- 2 Run the Stop PowerShell Collector tool.
- 3 Re-deploy the instrumentation.
- 4 Run the Start ExData Collection Manager tool.
- 5 Run the Start PowerShell Collector tool.

## Configuring the SPI for Microsoft Exchange Server 2003 and 2000

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.

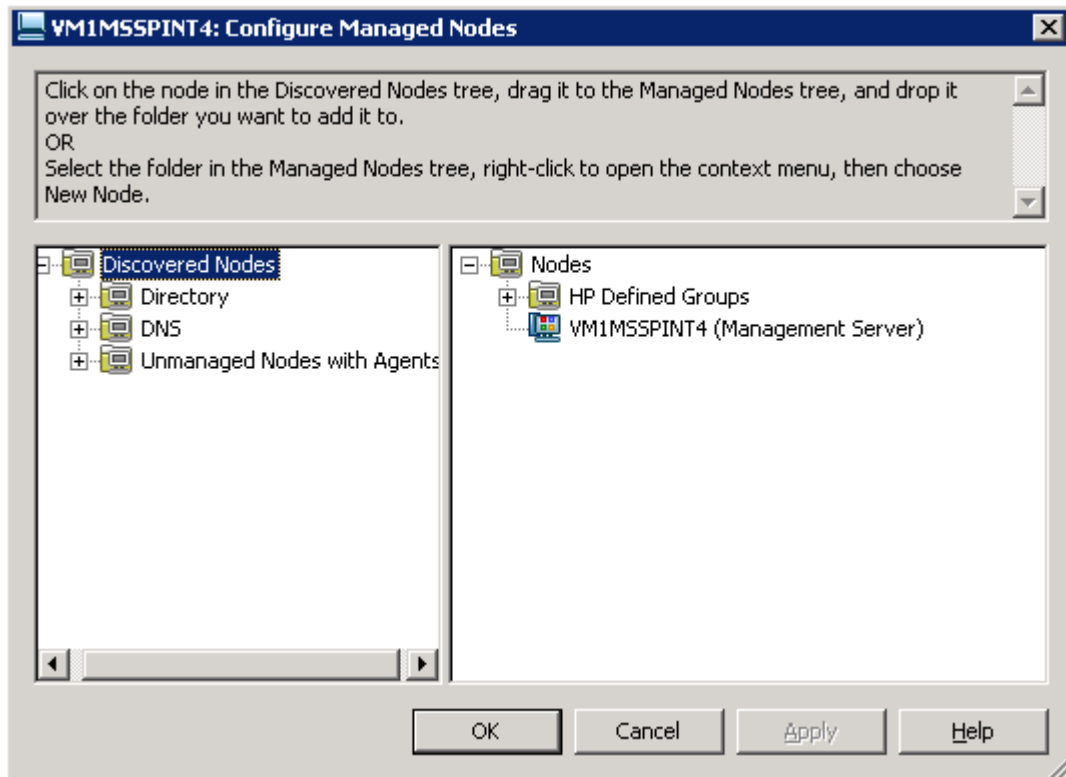
### Add Nodes

You can install the Microsoft Exchange SPI (version 11.30) on HPOM for Windows 8.00 or OVO for Windows 7.50. You can use this SPI with either HPOM 8.00 or OVO 7.50, depending on your requirement. To add a node on [HPOM Console](#) or [OVO Console](#), perform the following configuration tasks:

## HPOM Console

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

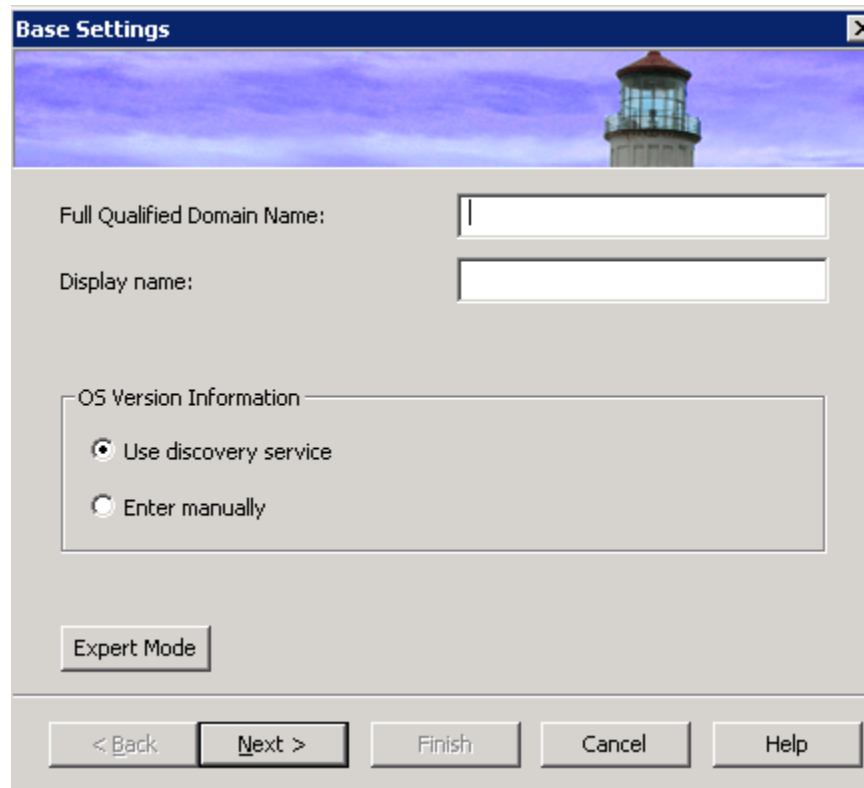
- 1 In the console tree of the HPOM console, right-click **Nodes**, and then click **Configure** → **Nodes**. The Configure Managed Nodes window opens.



- 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.

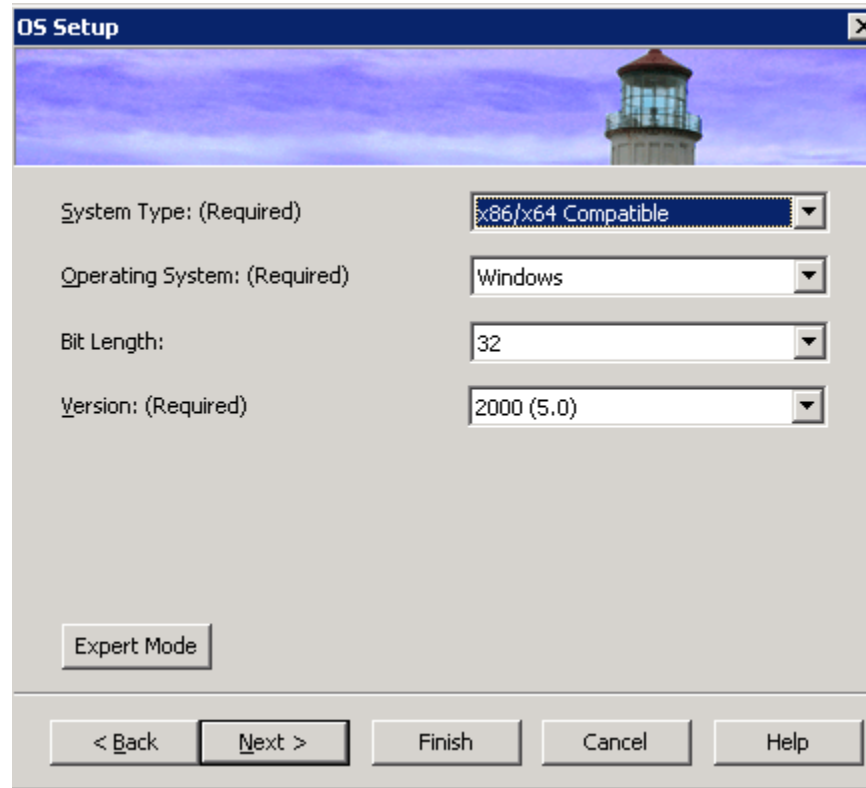
Alternatively, follow these steps:

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

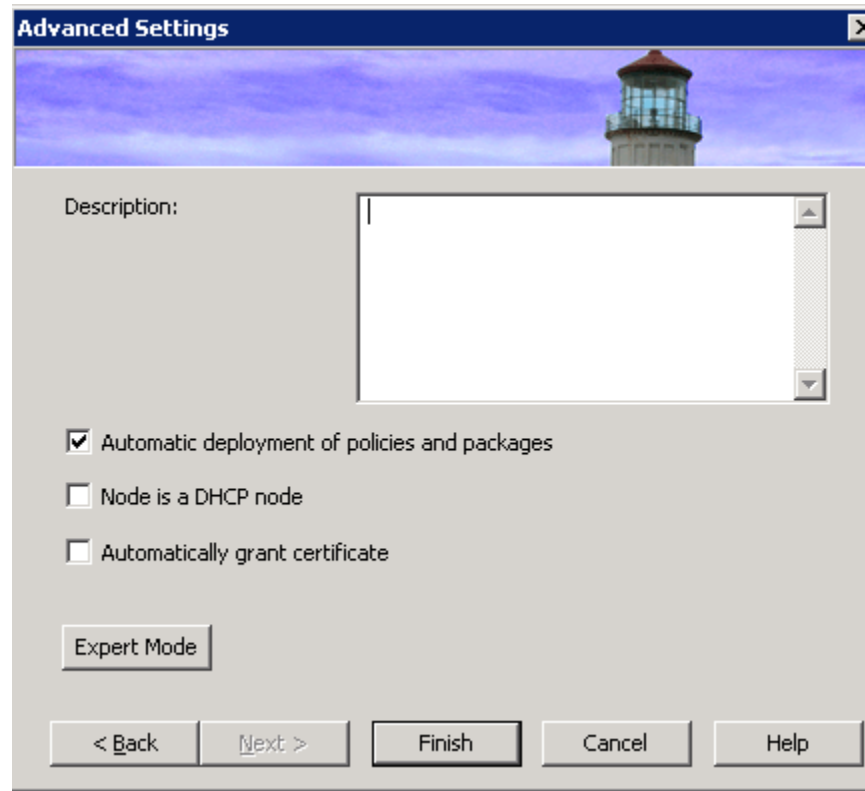


- b In the Full Qualified Domain Name text box, type the full qualified domain name of the Microsoft Exchange Server node that you want to add.
- c In the Display Name text box, type a name of the node that will be displayed in the HPOM console.

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



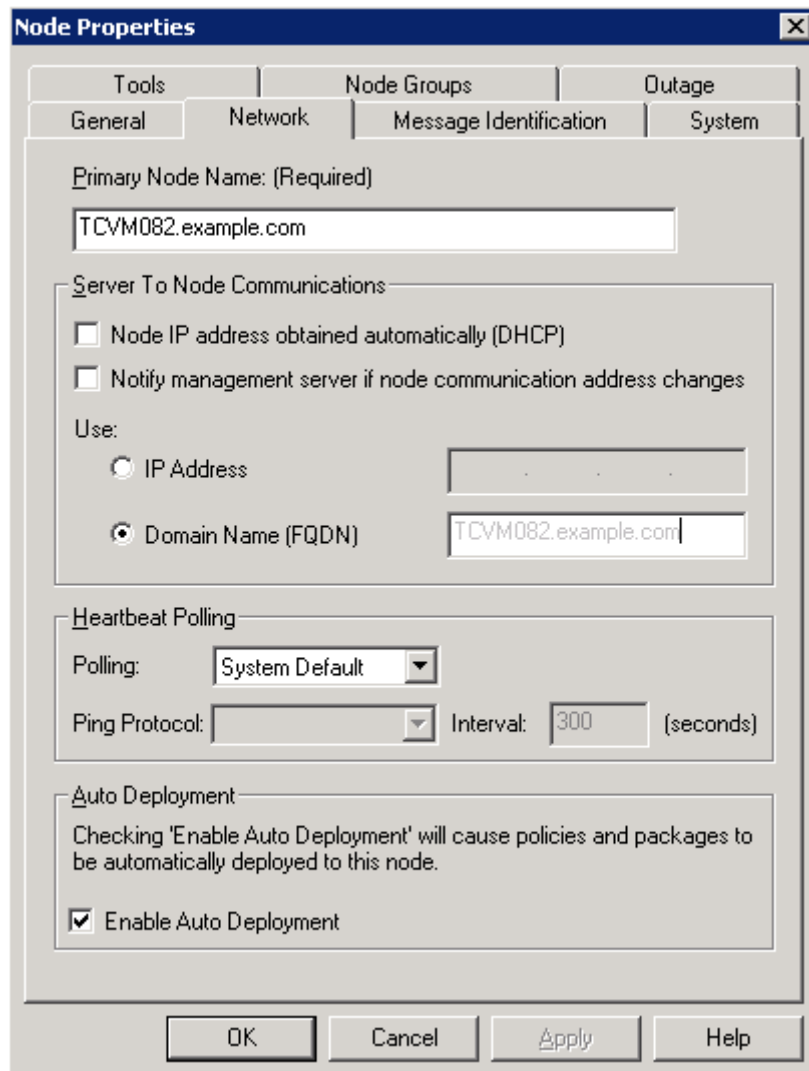
- e Operating system details are automatically set in the OS Setup screen (If these are not automatically discovered, you must manually set these details). Click **Next**. The Advanced Settings screen appears.



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

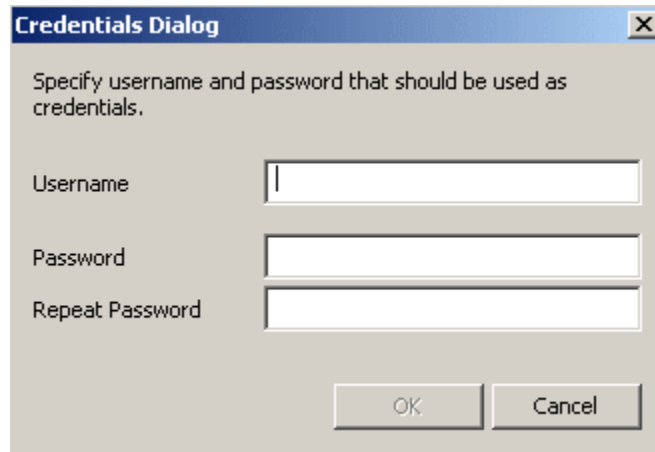
- f Click **Finish**.
- 3 If you want to change the default agent communication mode, follow these steps:

- 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, select the Deploy check box to deploy agent. The Credentials Dialog dialog box opens.

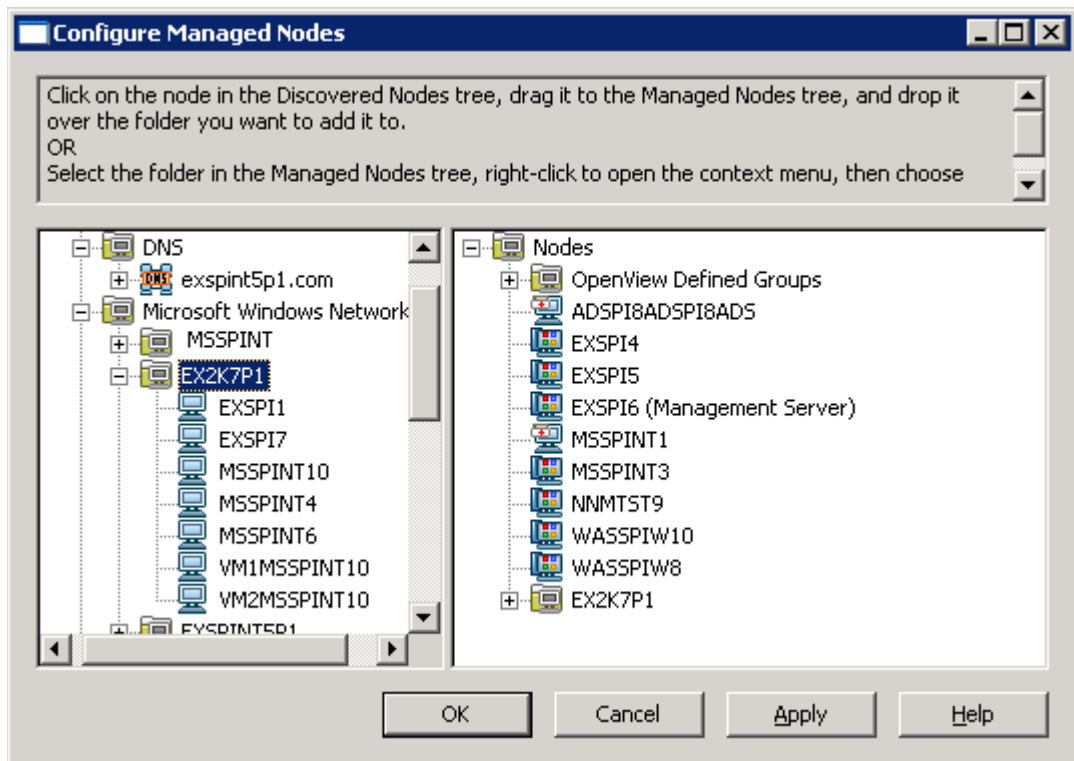


- 7 Enter details in the Credentials Dialog, and then click **OK**.
- 8 Click **OK** in the Agent Installation window.

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

- 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.



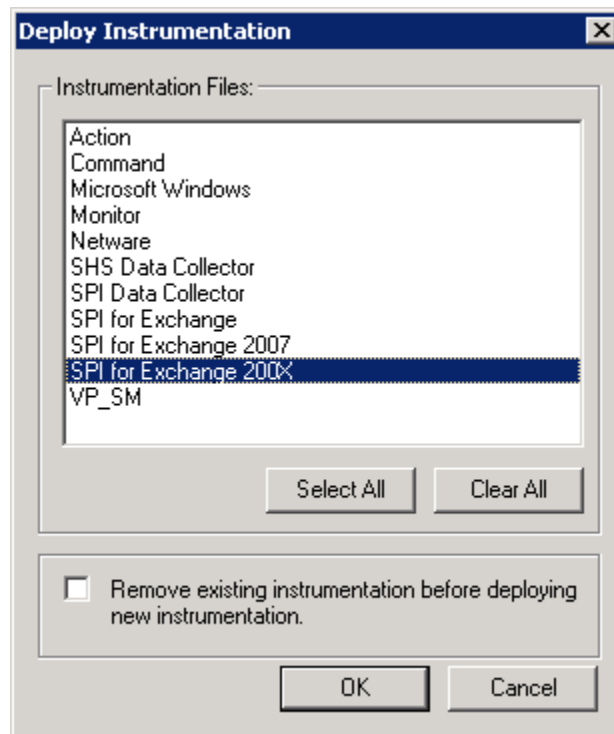
- 3 Click **Apply**.
- 4 Click **OK**.

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](#) and [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 50).

## Deploy Discovery Policy

For Microsoft Exchange Server 2003 or 2000, 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** → **Exchange 2003** → **ovo Exchange SPI core** or **Policy Management** → **Policy Groups** → **SPI for Exchange** → **Exchange 2000** → **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, agent cannot log messages 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** → **Exchange 2003** → **Auto Deploy Groups** → **ovo Exchange SPI core** or **Policy management** → **Policy groups** → **SPI for Exchange** → **Exchange 2000** → **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 managed nodes.

### Task 1: Modify the Mechanism to Store Data

You must modify the mechanism to store data on the managed node.

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  
`"%OvAgentDir%\bin\instrumentation\exspidatasource.exe" -A -V -SPEC EX2007*.spec` to  
`"%OvAgentDir%\bin\instrumentation\exspidatasource.exe" -A -V -CODA -SPEC EX2007*.spec`
- 5 Click **Apply**.
- 6 Click **OK**.

For Microsoft Exchange Server 2003 or 2000 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  
`"%OvAgentDir%\bin\instrumentation\exspidatasource.exe" -A -V -SPEC "%OvAgentDir%\bin\instrumentation\EXSPI*.spec"` to  
`"%OvAgentDir%\bin\instrumentation\exspidatasource.exe" -A -V -CODA -SPEC "%OvAgentDir%\bin\instrumentation\EXSPI*.spec"`
- 5 Click **Apply**.
- 6 Click **OK**.

## Task 2: [Change the Data Store](#)

After configuring the data source creation tools, follow these steps to change the data store on the managed node:

- 1 On the managed node, create a `dsi2ddf` folder in the location `%OvAgentDir%\conf\`.
- 2 Open a new text file by using a text editor. Save the text file as `nocoda.opt` in the location `%OvAgentDir%\conf\dsi2ddf\` without adding any content to it. The SPI starts storing data back to the embedded performance component.



## 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-8.X 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** → **Exchange 2007** → **Manual Deploy Groups**, and then click **Collector Definition**.
- 3 In the details pane, right-click **EXSPI-8.X SPIMetaData Versioning**, and then click **All Tasks** → **Update to latest**.

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

### Task 3: Deploy the Policy

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

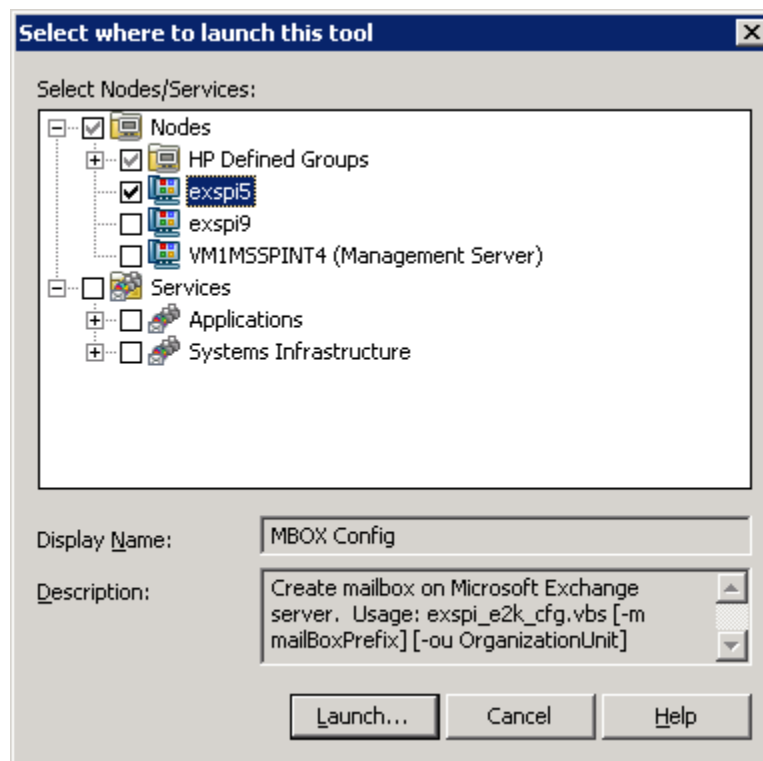
## Exchange 2000/2003: Monitoring Message Delivery SLAs

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.

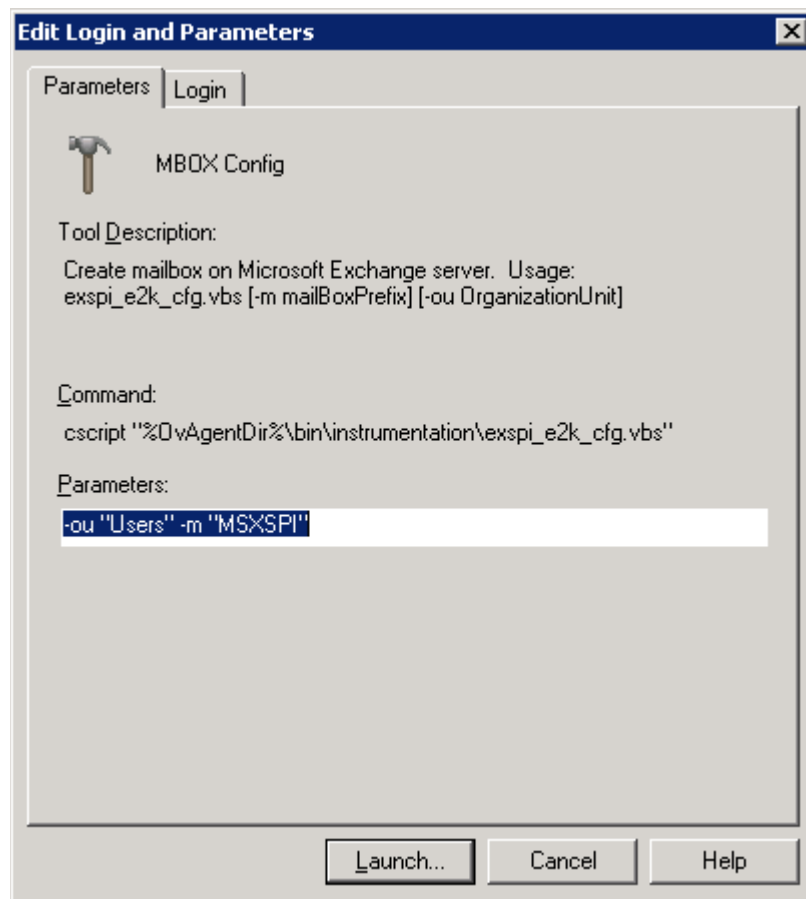
### Task 1: Create a New Source Mailbox for Each Source Server

A mailbox needs to be created on each managed Exchange 2000 or 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 Logins 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:

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

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:

Buttons: Cancel, < Back, Next >, Finish

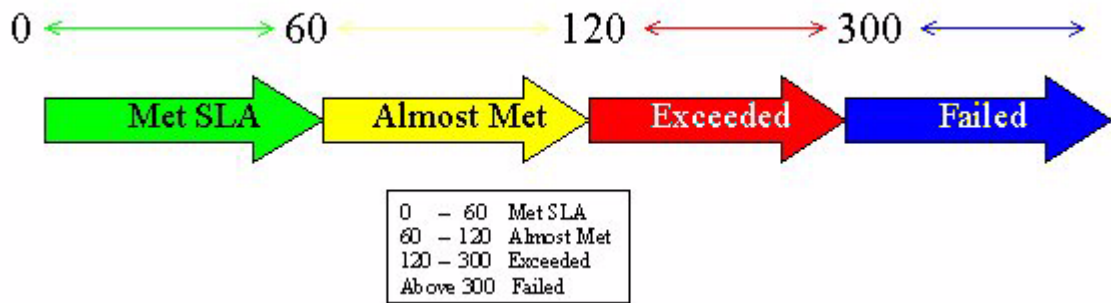
- 10 Click **Next**.
- 11 Confirm or make changes to the SLAs, and then click **Next**.
- 12 Select to deploy all End-to-End Policies to the managed nodes. Only managed nodes configured to determine SLAs will send and receive mail.

▶ 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 2003/2000 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.

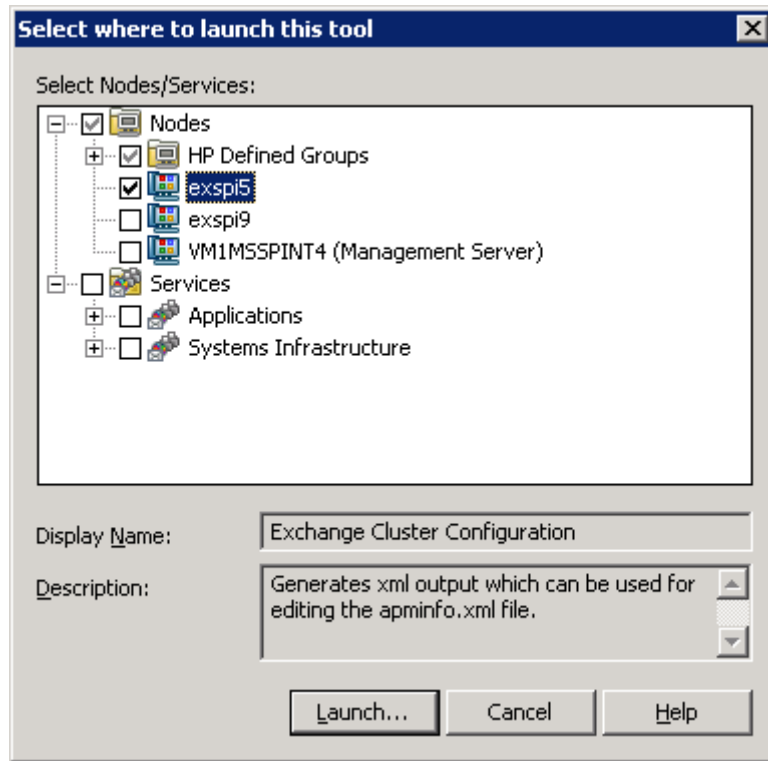
### Task 2: Generate Cluster Application Configuration File

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

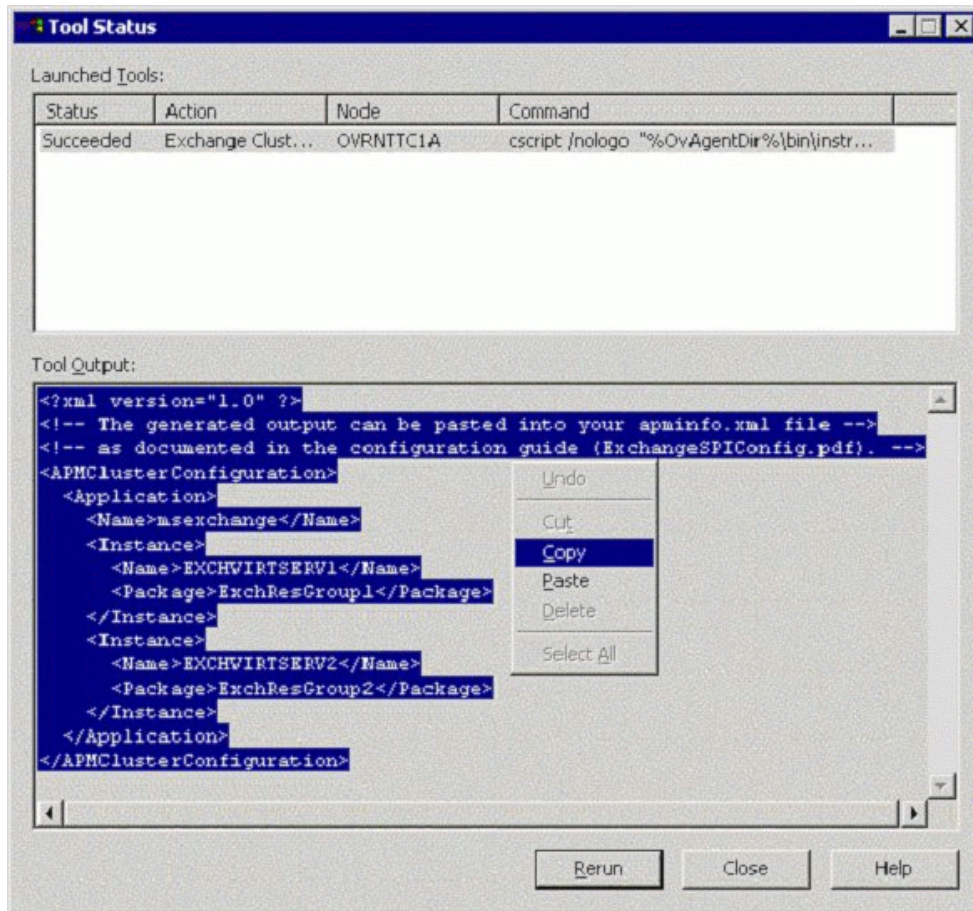
- 1 Launch the Exchange Cluster Configuration tool on the cluster nodes.
- 2 For Exchange 2003 and 2000, in the console tree, expand **Tools** → **SPI for Exchange** → **Exchange 2000 and 2003** → **EXSPI Utilities**.

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

- 3 In the details pane, double-click **Exchange Cluster Configuration**. The Select where to launch this tool dialog box opens.



- Click **Launch**. The Tool Status window appears and displays the output under the Tool Output section.



- Select the text content under the Tool Output section, and then copy it to a text editor.
- 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\`
- 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, `ExchResGroup1` and `ExchResGroup2` are the names of the Exchange resource groups corresponding to `EXCHVIRTSESV1` and `EXCHVIRTSESV2` instances (virtual servers):

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

```

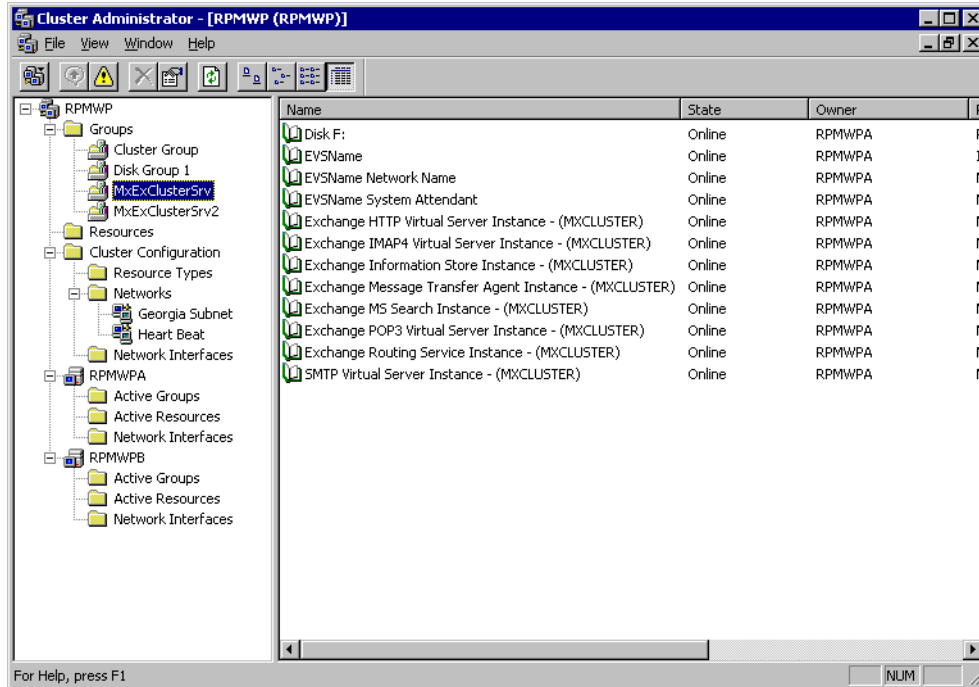
    <Name>EXCHVIRTSERV1</Name>
    <Package>ExchResGroup1</Package>
  </Instance>

<Instance>
  <Name>EXCHVIRTSERV2</Name>
  <Package>ExchResGroup2</Package>
</Instance>

</Application>
</APMClusterConfiguration>

```

**Figure 6 Example of Exchange Resource Group**



## 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\`

- 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 `Template` markup), if required.
- 3 On the managed nodes, save the updated `msexchange.apm.xml` file in the following locations:
  - For DCE-managed nodes—`%OvAgentDir%\bin\instrumentation\`
  - For HTTPS-managed nodes—`%OvAgentDir%\bin\instrumentation\conf`
- 4 Edit the changed policy names in this file. Add new policy names (within the `Template` markup), if required.
- 5 Restart the agent.
- 6 Redeploy the Microsoft Exchange SPI instrumentation on the node.

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 2003/2000.

### Microsoft Exchange Server 2003/2000

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 2003/2000 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

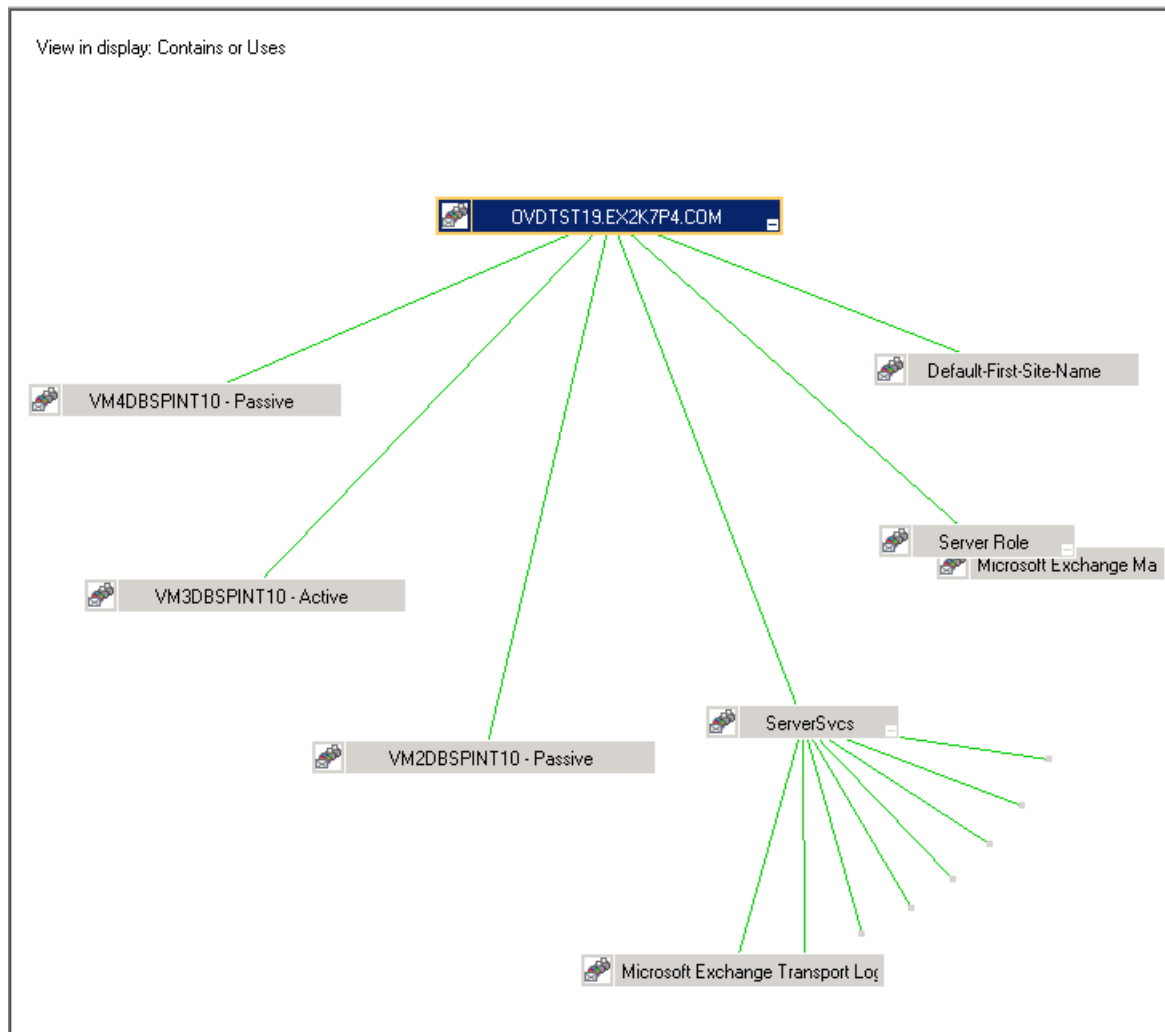
The Microsoft Exchange SPI represents Exchange clusters in the map view. Map view creates one node for each virtual server in the cluster. Because the cluster is properly modeled in the service map, Microsoft Exchange SPI instrumentation and Quick Start policies are auto-deployed to all managed Exchange 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
- ▶ For this mechanism to work EXSPI-6.0 Exchange Cluster Discovery Event Log policy must be deployed (normally auto-deployed) for Exchange 2000 nodes.







# 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. The PowerShell collection configuration utility enables you to modify the `spimetadata.xml` file through its graphic user interface.

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

Collection is an element in the `spimetadata.xml` file that describes the complete data collection mechanism of a particular collector. 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 in the data store.

## Collection Configurations

A collection configuration describes the complete workflow of a collector and defines the mechanism of metric 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 information 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 graphic 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
- Modify 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

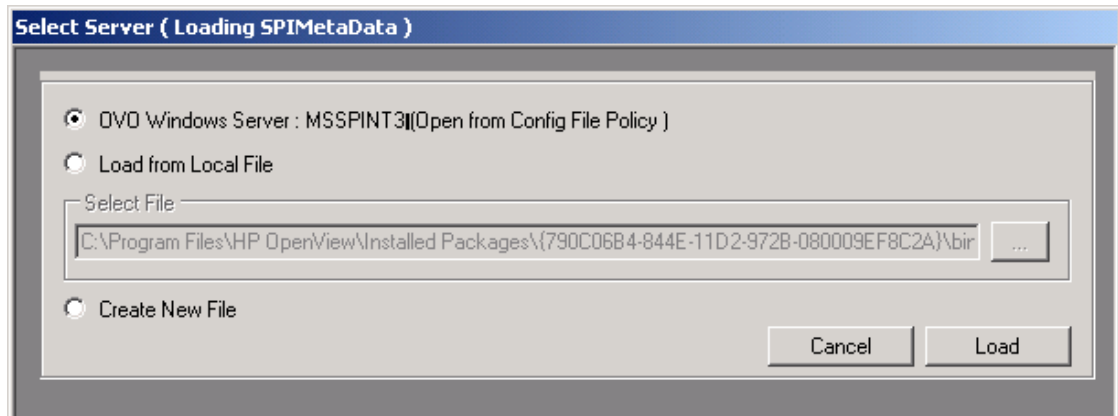
To customize metric data collection mechanism on Microsoft Exchange Server 2007 nodes, you can modify an existing collection configuration present in the `spimetadata.xml` file, or you can add a new collection configuration. Using the PowerShell collection configuration utility, you can customize the 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.

### 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**.

- In the details pane, double-click **PowerShell Collection Configuration Utility**. The Select Server dialog box opens.



- Select the OVO Windows Server option, and then click **Load**. 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 MetricSet.
- DataStore** — You can modify the metric data logging mechanism by modifying an existing DataStore. 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.

### Task 3: Deploy the EXSPI-8.X SPIMetaData Versioning Policy on Nodes

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-8.X 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 existing DataStores or 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-8.X SPIMetaData Versioning policy.

To deploy the EXSPI-8.X 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-8.X SPIMetaData Versioning**, and then click **All Tasks** → **Update to latest**.
- 3 In the details pane, right-click **EXSPI-8.X 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-8.X 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, launch the following tools in the given sequence on the nodes after deploying the SPIMetaData Versioning policy:

- 1 Stop ExData Collection Manager
- 2 Stop PowerShell Collector
- 3 Start PowerShell Collector
- 4 Start ExData Collection Manager

## 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 policy composer and create new collections with newly added cmdlets.

#### Task 6: Deploy the EXSPI-8.X SPIMetaData Versioning Policy on Nodes

Deploy the EXSPI-8.X SPIMetaData Versioning policy on the nodes on which you have created 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.

This chapter contains tables of Microsoft Exchange SPI policies, reports and graphs, and outlines procedures for:

- Deploying the various policy groups
- Generating Microsoft Exchange SPI reports and graphs.

## Using Microsoft Exchange SPI Policies

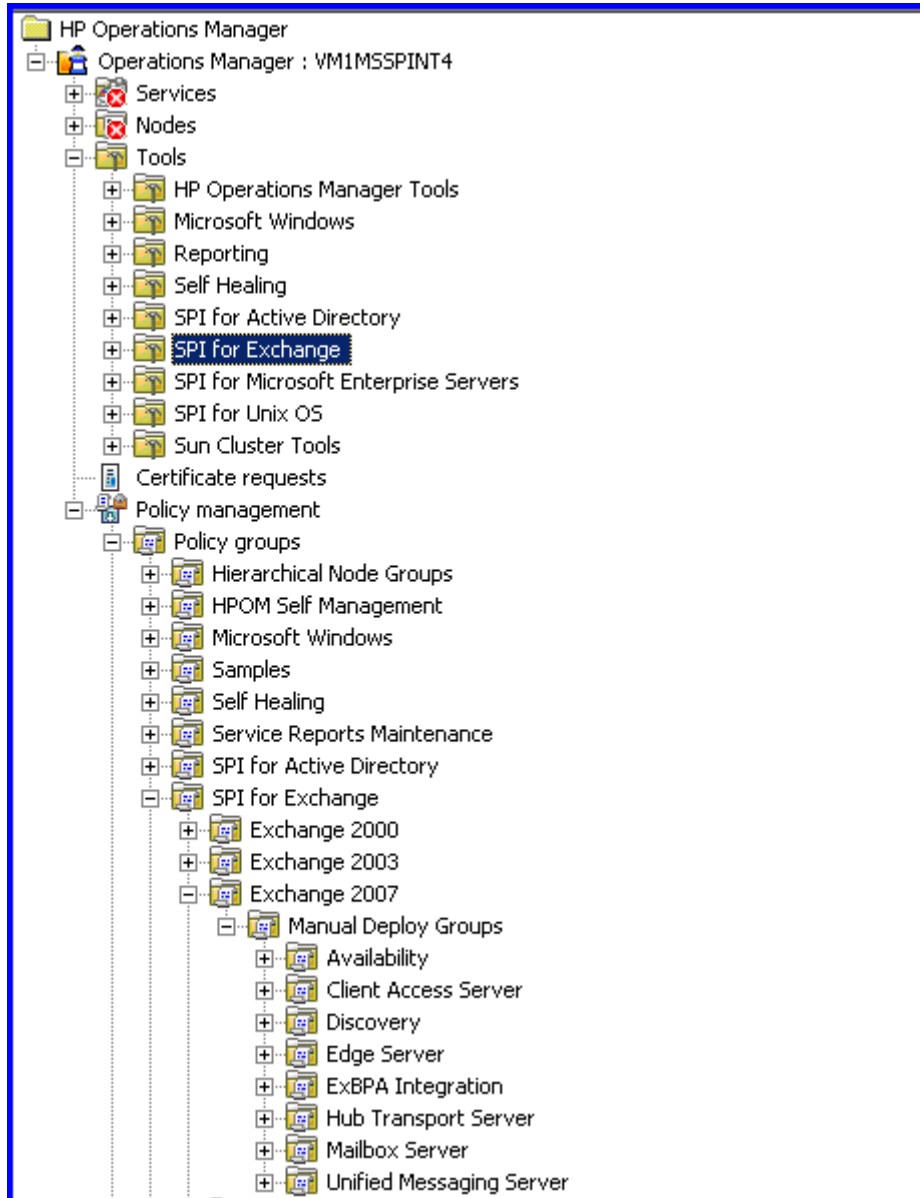
Microsoft Exchange SPI policies are classified in three broad groups — Exchange 2000, Exchange 2003, and Exchange 2007. Each group contains policies specific to a particular Microsoft Exchange Server version. Refer to the general information on Microsoft Exchange SPI policies listed below:

- 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-8.X
  - Policies for only Microsoft Exchange Server 2003 are prefixed with EXSPI-6.5
  - Policies for only Microsoft Exchange Server 2000 are prefixed with EXSPI-6.0
  - Policies for Microsoft Exchange Server version 2000 and 2003 are prefixed with EXSPI-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.

**Figure 8 SPI for Exchange Policy Location on the Console Tree**



## Exchange 2007 Policies

The SPI for Microsoft Exchange Server 2007 does not provide any auto deploy policies. You must manually deploy the available policies depending on your requirement.

<b>Exchange 2007 Manual Deploy Groups</b>	<b>Policies</b>
<b>Availability</b>	<ul style="list-style-type: none"> <li>• EXSPI-8.X Exchange 2007 Application Errors</li> <li>• EXSPI-8.X Exchange 2007 Application Warnings</li> <li>• EXSPI-8.X Exchange 2007 Application Info</li> </ul>
<b>Client Access Server</b>	<ul style="list-style-type: none"> <li>• <b>Availability</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Monitor Client Access Server Services</li> </ul> </li> <li>• <b>IMAP4</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Monitor Check IMAP4 Max Connection</li> <li>— EXSPI-8.X Dc-IMAP4 Performance</li> <li>— EXSPI-8.X IMAP4 Failed Connection Rate</li> <li>— EXSPI-8.X Monitor Check IMAP4 Max Connections from Single IP</li> <li>— EXSPI-8.X IMAP4 Connections</li> <li>— EXSPI-8.X Get IMAP4 Settings</li> <li>— EXSPI-8.X Monitor Check IMAP4 Max Connections per User</li> <li>— EXSPI-8.X IMAP4 Rejected Connection Rate</li> </ul> </li> <li>• <b>Outlook Anywhere</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Check Outlook Anywhere Enabled</li> <li>— EXSPI-8.X Check Outlook Anywhere Not Enabled</li> </ul> </li> <li>• <b>POP3</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X POP3 Failed Connection Rate</li> <li>— EXSPI-8.X POP3 Connections</li> <li>— EXSPI-8.X POP3 Rejected Connection Rate</li> <li>— EXSPI-8.X Get POP3 Settings</li> <li>— EXSPI-8.X Dc-POP3 Performance</li> <li>— EXSPI-8.X Monitor Check POP3 Max Connections from Single IP</li> <li>— EXSPI-8.X Monitor Check POP3 Max Connection</li> <li>— EXSPI-8.X Monitor Check Pop3 Max Connections per User</li> </ul> </li> </ul>
<b>Collector Definition</b>	<ul style="list-style-type: none"> <li>• EXSPI-8.X SPIMetaData Versioning</li> <li>• EXSPI-8.X Check Collector Server</li> <li>• EXSPI-8.X Check Collection Manager</li> <li>• EXSPI-8.X Refresh Collection Definition</li> </ul>
<b>Discovery</b>	Exchange 2007 Discovery

<b>Exchange 2007 Manual Deploy Groups</b>	<b>Policies</b>
<b>Edge Server</b>	<ul style="list-style-type: none"> <li>• EXSPI-8.X Edge Get Queue Data</li> <li>• EXSPI-8.X Edge Check Tracking Log Settings</li> <li>• EXSPI-8.X Edge Get Configuration of the Transport Agent</li> <li>• <b>Availability</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Monitor Edge Server Services</li> </ul> </li> <li>• <b>SMTP</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Edge Dc-SMTP Performance for Inbound Connections</li> <li>— EXSPI-8.X Edge Dc-SMTP Performance for Outbound Connections</li> </ul> </li> </ul>
<b>ExBPA Integration</b>	<ul style="list-style-type: none"> <li>• EXSPI-8.X Forward ExBPA Event Log Errors</li> <li>• EXSPI-8.X ExBPA Integration</li> </ul>
<b>Hub Transport Server</b>	<ul style="list-style-type: none"> <li>• EXSPI-8.X Get Queue Data</li> <li>• EXSPI-8.X Check Tracking Log Settings</li> <li>• EXSPI-8.X Get Configuration of the Transport Agent</li> <li>• <b>Availability</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Monitor Hub Transport Server Services</li> </ul> </li> <li>• <b>SMTP</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Edge Dc-SMTP Performance for Inbound Connections</li> <li>— EXSPI-8.X Edge Dc-SMTP Performance for Outbound Connections</li> </ul> </li> </ul>

Exchange 2007 Manual Deploy Groups	Policies
Mailbox Server	<ul style="list-style-type: none"> <li>• <b>Availability</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Monitor Mailbox Server Services</li> </ul> </li> <li>• <b>High Availability</b> <ul style="list-style-type: none"> <li>— <b>Replication Monitoring</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X ReplicationCopyQueueLength</li> <li>— EXSPI-8.X Replication Warnings in Application Event Log</li> <li>— EXSPI-8.X Replication Errors in Application Event Log</li> <li>— EXSPI-8.X Dc Replication Summary</li> <li>— EXSPI-8.X ReplicationReplayQueueLength</li> <li>— EXSPI-8.X Check Replication Service</li> </ul> </li> </ul> </li> <li>• <b>Mailbox</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X MailBoxItemCount</li> <li>— EXSPI-8.X IS Mailbox Average Delivery Time</li> <li>— EXSPI-8.X IS Mailbox Receive Queue Length</li> <li>— EXSPI-8.X Dc-IS Mailbox Performance</li> <li>— EXSPI-8.X Check Circular Logging Enabled</li> <li>— EXSPI-8.X Get Mailbox Details</li> <li>— EXSPI-8.X Check If Circular Logging Disabled</li> </ul> </li> <li>• <b>MAPI</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Information Store RPC Operations</li> <li>— EXSPI-8.X Test Mapi Connectivity</li> <li>— EXSPI-8.X Information Store RPC Averaged Latency</li> <li>— EXSPI-8.X Information Store RPC Requests</li> </ul> </li> <li>• <b>Outlook Performance</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Dc-Outlook Client</li> <li>— EXSPI-8.X Outlook Client RPC Failure Rate</li> <li>— EXSPI-8.X Outlook Client Latency</li> </ul> </li> <li>• <b>Performance</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Information Store Heap Memory Errors</li> <li>— EXSPI-8.X Information Store VM Large Block Bytes</li> <li>— EXSPI-8.X Information Store Db Log Record Stalls per sec</li> <li>— EXSPI-8.X Information Store Performance</li> <li>— EXSPI-8.X Information Store Additional Heaps</li> <li>— EXSPI-8.X Information Store User Count</li> <li>— EXSPI-8.X Information Store Db Cache Size</li> <li>— EXSPI-8.X Information Store Db Log Threads Waiting</li> <li>— EXSPI-8.X Information Store Memory Errors</li> <li>— EXSPI-8.X Information Store VM Largest Block</li> </ul> </li> </ul>

<b>Exchange 2007 Manual Deploy Groups</b>	<b>Policies</b>
<b>Mailbox Server (Cont.)</b>	<ul style="list-style-type: none"> <li>— EXSPI-8.X Information Store VM 16MB Blocks</li> <li>— EXSPI-8.X Information Store Db Log Writes per sec</li> <li>• <b>Public Folder</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X PublicFolderItemCount</li> <li>— EXSPI-8.X Public Replication Queue Length</li> <li>— EXSPI-8.X Get Public Folder Details</li> <li>— EXSPI-8.X IS Public Average Delivery Time</li> <li>— EXSPI-8.X IS Public Receive Queue Length</li> <li>— EXSPI-8.X Dc-IS Public Folder Performance</li> </ul> </li> </ul>
<b>Unified Messaging Server</b>	<ul style="list-style-type: none"> <li>— EXSPI-8.X GetUM IPGateway Details</li> <li>— EXSPI-8.X Get UMHuntGroup Details</li> <li>— EXSPI-8.X Get UMMailbox Pin Details</li> <li>— EXSPI-8.X Get UMMailbox Policy Details</li> <li>— EXSPI-8.X Get UMServer Details</li> <li>— EXSPI-8.X Get Unified Messaging Mailbox Details</li> <li>• <b>Availability</b> <ul style="list-style-type: none"> <li>— EXSPI-8.X Monitor Unified Messaging Server Services</li> </ul> </li> </ul>

# Exchange 2003/2000 Policies

## Exchange 2003 Auto Deploy Policies

<b>Exchange 2003 Auto Deploy Groups</b>	<b>Policies</b>
<b>Availability</b>	EXSPI-6.X Queue State EXSPI-6.X Connector State EXSPI-6.X Exchange System Errors EXSPI-6.X Link State EXSPI-6.X Exchange Services EXSPI-6.X Process Monitor EXSPI-6.X Exchange Application Errors EXSPI-6.X Inactive Process Monitor EXSPI-6.X Check CircularLogging Off EXSPI-6.X Check CircularLogging ON EXSPI-6.X Check MailBox on Front-End EXSPI-6.X Heap DeCommit Threshold EXSPI-6.X Hotfix Installed EXSPI-6.X SSL for HTTPVS EXSPI-6.X TransactionLog BackUp EXSPI-6.X UrlScan State

<b>Exchange 2003 Auto Deploy Groups</b>	<b>Policies</b>
<b>Client Accessibility</b>	<p><b>ActiveSync</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.5 ActiveSync AD Requests</li> <li>EXSPI-6.5 ActiveSync Mailbox Connection Requests</li> <li>EXSPI-6.5 ActiveSync Mailbox pending requests</li> <li>EXSPI-6.5 ActiveSync Users</li> <li>EXSPI-6.5 Dc-ActiveSync</li> <li>EXSPI-6.5 Dc-ActiveSyncNotify</li> </ul> <p><b>OMA</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.5 OMA Response time</li> <li>EXSPI-6.5 Dc-OMA</li> <li>EXSPI-6.5 OMA Application Event Errors</li> </ul> <p><b>IMAP4</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X IMAP4 Failed Connection Rate</li> <li>EXSPI-6.X IMAP4 Rejected Connection Rate</li> <li>EXSPI-6.X IMAP4 Connections</li> <li>EXSPI-6.X Dc-IMAP4 Performance</li> <li>EXSPI-6.X IMAP4 Port Response</li> </ul> <p><b>MAPI</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X Information Store RPC Requests</li> <li>EXSPI-6.X Information Store RPC Operations</li> <li>EXSPI-6.X Information Store RPC Averaged Latency</li> </ul> <p><b>Outlook 2003</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.5 Dc-Outlook Client</li> <li>EXSPI-6.5 Outlook Client Latency</li> <li>EXSPI-6.5 Outlook Client RPC Failure Rate</li> </ul>
<b>Client Accessibility (cont)</b>	<p><b>OWA</b></p> <p><b>Front End:</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X OWA Current Connections</li> <li>EXSPI-6.X Dc-OWA Front End</li> <li>EXSPI-6.X HTTP Port Response</li> </ul> <p><b>Back End:</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X Dc-OWA Back End</li> </ul> <p><b>POP3</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X POP3 Failed Connection Rate</li> <li>EXSPI-6.X POP3 Rejected Connection Rate</li> <li>EXSPI-6.X POP3 Connections</li> <li>EXSPI-6.X Dc-POP3 Performance</li> <li>EXSPI-6.X POP3 Port Response</li> </ul>
<b>Cluster</b>	<ul style="list-style-type: none"> <li>EXSPI-6.X Exchange Cluster Discovery SysLog</li> <li>EXSPI-6.X Cluster Connection Limits</li> </ul>



<b>Exchange 2003 Auto Deploy Groups</b>	<b>Policies</b>
<b>Directory</b>	EXSPI-6.X DSAccess Cache Hit-Miss Ratio EXSPI-6.X Dc-DSAccess Performance EXSPI-6.X DSAccess Application Errors
<b>Information Store</b>	<b>Epoxy</b> EXSPI-6.5 Epoxy Store Out Queue Length EXSPI-6.5 Epoxy Client Out Queue Length <b>Full Text Index</b> EXSPI-6.X Dc-Full Text Index EXSPI-6.X-0074 <b>Mailbox</b> EXSPI-6.X IS Mailbox Average Delivery Time EXSPI-6.X IS Mailbox Receive Queue Length EXSPI-6.X IS Mailbox Send Queue Length EXSPI-6.X Database Mounted Search EXSPI-6.X 1h-Mailbox Space Usage EXSPI-6.X Dc-Mailbox IS Sum. Data EXSPI-6.X Dc-Mailbox Data EXSPI-6.X Dc-IS Mailbox Performance EXSPI-6.X Database Mounted Check EXSPI-6.X-0070 <b>Performance</b> EXSPI-6.X Information Store Db Cache Size EXSPI-6.X Information Store Db Log Threads Waiting EXSPI-6.X Information Store Db Log Record Stalls per sec EXSPI-6.X Information Store Db Log Writes per sec EXSPI-6.X Dc-Information Store Performance EXSPI-6.X Information Store User Count EXSPI-6.X Information Store VM Largest Block EXSPI-6.X Information Store VM 16MB Blocks EXSPI-6.X Information Store VM Large Block Bytes EXSPI-6.X Check Memory Configuration EXSPI-6.5 Information Store Additional Heaps EXSPI-6.5 Information Store Memory Errors EXSPI-6.5 Information Store Heap Memory Errors

<b>Exchange 2003 Auto Deploy Groups</b>	<b>Policies</b>
<b>Information Store (cont)</b>	<p><b>Public Folder</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X IS Public Replication Queue Length</li> <li>EXSPI-6.X 1h-Public Folder Space Usage</li> <li>EXSPI-6.X Dc-IS Public Folder Performance</li> <li>EXSPI-6.X Database Mounted Search</li> <li>EXSPI-6.X Database Mounted Check</li> <li>EXSPI-6.X Dc-Public Folder Data</li> <li>EXSPI-6.X IS Public Receive Queue Length</li> <li>EXSPI-6.X Dc-Public IS Sum. Data</li> <li>EXSPI-6.X IS Public Send Queue Length</li> <li>EXSPI-6.X IS Public Average Delivery Time</li> <li>EXSPI-6.X-0072</li> </ul> <p><b>Transaction Log</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X-0004</li> <li>EXSPI-6.X-0008</li> <li>EXSPI-6.X Transaction Log BackUp Check</li> <li>EXSPI-6.X Transaction Log Space Usage</li> </ul> <p><b>Virus Scan</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X Virus Scan Messages Quarantined per Sec</li> <li>EXSPI-6.X Virus Scan Files Cleaned per Sec</li> <li>EXSPI-6.X Virus Scan Queue Length</li> <li>EXSPI-6.X Virus Scan Files Quarantined per sec</li> <li>EXSPI-6.X Virus Scan Messages Cleaned per Sec</li> </ul>

<b>Exchange 2003 Auto Deploy Groups</b>	<b>Policies</b>
<b>Messaging</b>	<p data-bbox="657 268 911 296"><b>cc:Mail Connector</b></p> <p data-bbox="755 310 1149 338">EXSPI-6.X 1h-ccMail Connector</p> <p data-bbox="755 352 954 380">EXSPI-6.X-0091</p> <p data-bbox="755 394 1154 422">EXSPI-6.X 5m-ccMail Connector</p> <p data-bbox="755 436 954 464">EXSPI-6.X-0093</p> <p data-bbox="755 478 954 506">EXSPI-6.X-0092</p> <p data-bbox="755 520 954 548">EXSPI-6.X-0090</p> <p data-bbox="657 562 976 590"><b>Lotus Notes Connector</b></p> <p data-bbox="755 604 1247 632">EXSPI-6.X Lotus Notes Process Monitor</p> <p data-bbox="755 646 954 674">EXSPI-6.X-0094</p> <p data-bbox="755 688 1214 716">EXSPI-6.X 1h-Lotus Notes Connector</p> <p data-bbox="755 730 954 758">EXSPI-6.X-0095</p> <p data-bbox="755 772 954 800">EXSPI-6.X-0096</p> <p data-bbox="755 814 954 842">EXSPI-6.X-0096</p> <p data-bbox="755 856 1219 884">EXSPI-6.X 5m-Lotus Notes Connector</p> <p data-bbox="657 898 727 926"><b>MTA</b></p> <p data-bbox="755 940 1214 968">EXSPI-6.X MTA Work Queue Length</p> <p data-bbox="755 982 1154 1010">EXSPI-6.X Dc-MTA Performance</p> <p data-bbox="755 1024 1300 1052">EXSPI-6.X MTA Rejected Inbound Messages</p> <p data-bbox="755 1066 1295 1094">EXSPI-6.X MTA Connection Queue Lengths</p> <p data-bbox="755 1108 1328 1136">EXSPI-6.X MTA Failed Outbound Associations</p> <p data-bbox="755 1150 1198 1178">EXSPI-6.X MTA Failed Conversions</p> <p data-bbox="755 1192 1149 1220">EXSPI-6.X MTA Message Delay</p> <p data-bbox="755 1234 1295 1262">EXSPI-6.X MTA Connection Message Delay</p> <p data-bbox="755 1276 1333 1304">EXSPI-6.X MTA Rejected Inbound Associations</p> <p data-bbox="755 1318 1263 1346">EXSPI-6.X Dc-X.400 Service MTA Queue</p> <p data-bbox="755 1360 954 1388">EXSPI-6.X-0075</p> <p data-bbox="657 1402 743 1430"><b>NNTP</b></p> <p data-bbox="755 1444 1008 1472">EXSPI-6.X 1h-NNTP</p> <p data-bbox="755 1486 954 1514">EXSPI-6.X-0058</p>

<b>Exchange 2003 Auto Deploy Groups</b>	<b>Policies</b>
<b>Messaging (cont)</b>	<p><b>SMTP</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X SMTP Messages Pending Routing</li> <li>EXSPI-6.X SMTP Categorizer Queue Length</li> <li>EXSPI-6.X SMTP Local Queue Length</li> <li>EXSPI-6.X SMTP Local Retry Queue Length</li> <li>EXSPI-6.X Dc-SMTP Server Performance</li> <li>EXSPI-6.X Dc-SMTP Queues</li> <li>EXSPI-6.X SMTP NDR Percentage</li> <li>EXSPI-6.X SMTP Outbound Connections Refused</li> <li>EXSPI-6.X SMTP Remote Queue Length</li> <li>EXSPI-6.X SMTP Remote Retry Queue Length</li> <li>EXSPI-6.X Dc-SMTP Virtual Server Storage</li> <li>EXSPI-6.X-0082</li> <li>EXSPI-6.X-0083</li> <li>EXSPI-6.X-0084</li> <li>EXSPI-6.X-0085</li> <li>EXSPI-6.X-0086</li> <li>EXSPI-6.X-0087</li> <li>EXSPI-6.X SMTP Port Response</li> <li>EXSPI-6.X SMTP Anonymous Relay</li> <li>EXSPI-6.X SMTP Directories</li> <li>EXSPI-6.X SMTP Services</li> </ul> <p><b>Tracking Log</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X Dc-TrackLog Data</li> <li>EXSPI-6.X Dc-TrackLog SLA Delivery</li> <li>EXSPI-6.X Dc-Message Tracking Log Space Usage</li> <li>EXSPI-6.X-0076</li> <li>EXSPI-6.X Message Tracking State</li> <li>EXSPI-6.X Tracking Log ACL</li> </ul>
<b>ovo Exchange SPI core</b>	<p><b>Data Collection</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X exspi Agent Configuration</li> <li>EXSPI-6.X Messages</li> </ul> <p><b>Exchange Discovery</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X Check Discovery</li> <li>EXSPI-6.X Exchange Service Discovery</li> <li>EXSPI-6.X Exchange Cluster Discovery SysLog</li> </ul>

## Exchange 2003 Manual Deploy Policies

<b>Exchange 2003 Manual Deploy Groups</b>	<b>Policies</b>
<b>Site Replication Service</b>	EXSPI-6.X SRS Process Monitor EXSPI-6.X SRS Service EXSPI-6.X-0112 EXSPI-6.X SRS Pending Synchronizations EXSPI-6.X SRS Data Space Usage EXSPI-6.X SRS Remaining Updates EXSPI-6.X-0113
<b>Active Directory Connector Server</b>	EXSPI-6.X ADC Process Monitor EXSPI-6.X ADC Service EXSPI-6.X ADC Import Failure Rate EXSPI-6.X ADC Operation Failure Rate
<b>Exchange Server</b>	<b>Availability</b> EXSPI-6.X Server State EXSPI-6.X Exchange Application Information EXSPI-6.X Exchange System Information EXSPI-6.X Exchange Application Warnings EXSPI-6.X Exchange System Warnings <b>Transaction Log</b> EXSPI-6.X-0005 EXSPI-6.X-0006 EXSPI-6.X Transaction Log Storage Use <b>Message Delivery</b> EXSPI-6.X End to End Message Ping <b>Client Accessibility</b> EXSPI-6.X Client Message Read EXSPI-6.X Client MAPI Logon EXSPI-6.X Client Message Send

## Exchange 2000 Auto Deploy Policies

<b>Exchange 2000 Auto Deploy Groups</b>	<b>Policies</b>
<b>Availability</b>	EXSPI-6.X Queue State EXSPI-6.X Connector State EXSPI-6.X Exchange System Errors EXSPI-6.X Link State EXSPI-6.X Exchange Services EXSPI-6.X Process Monitor EXSPI-6.X Exchange Application Errors EXSPI-6.X Inactive Process Monitor EXSPI-6.X Check CircularLogging Off EXSPI-6.X Check CircularLogging ON EXSPI-6.X Check MailBox on Front-End EXSPI-6.X Heap DeCommit Threshold EXSPI-6.X Hotfix Installed EXSPI-6.X SSL for HTTPVS EXSPI-6.X TransactionLog BackUp EXSPI-6.X UrlScan State
<b>Client Accessibility</b>	<b>IMAP4</b> EXSPI-6.X IMAP4 Failed Connection Rate EXSPI-6.X IMAP4 Rejected Connection Rate EXSPI-6.X IMAP4 Connections EXSPI-6.X Dc-IMAP4 Performance EXSPI-6.X IMAP4 Port Response <b>MAPI</b> EXSPI-6.X Information Store RPC Requests EXSPI-6.X Information Store RPC Operations EXSPI-6.X Information Store RPC Averaged Latency <b>OWA</b> <b>Front End:</b> EXSPI-6.X OWA Current Connections EXSPI-6.X Dc-OWA Front End EXSPI-6.X HTTP Port Response <b>Back End:</b> EXSPI-6.X Dc-OWA Back End <b>POP3</b> EXSPI-6.X POP3 Failed Connection Rate EXSPI-6.X POP3 Rejected Connection Rate EXSPI-6.X POP3 Connections EXSPI-6.X Dc-POP3 Performance EXSPI-6.X POP3 Port Response

<b>Exchange 2000 Auto Deploy Groups</b>	<b>Policies</b>
<b>Cluster</b>	EXSPI-6.X Exchange Cluster Discovery SysLog EXSPI-6.0 Exchange Cluster Discovery AppLog EXSPI-6.X Cluster Connection Limits
<b>Directory</b>	EXSPI-6.X DSAccess Cache Hit-Miss Ratio EXSPI-6.X Dc-DSAccess Performance EXSPI-6.X DSAccess Application Errors
<b>Information Store</b>	<b>Epoxy</b> EXSPI-6.0 Epoxy Store Out Queue Length EXSPI-6.0 Epoxy Client Out Queue Length <b>Full Text Index</b> EXSPI-6.X Dc-Full Text Index EXSPI-6.X-0074 <b>Mailbox</b> EXSPI-6.X IS Mailbox Average Delivery Time EXSPI-6.X IS Mailbox Receive Queue Length EXSPI-6.X IS Mailbox Send Queue Length EXSPI-6.X Database Mounted Search EXSPI-6.X 1h-Mailbox Space Usage EXSPI-6.X Dc-Mailbox IS Sum. Data EXSPI-6.X Dc-Mailbox Data EXSPI-6.X Dc-IS Mailbox Performance EXSPI-6.0 IS Mailbox Average Local Delivery Time EXSPI-6.X Database Mounted Check EXSPI-6.X-0070 <b>Performance</b> EXSPI-6.X Information Store Db Cache Size EXSPI-6.X Information Store Db Log Threads Waiting EXSPI-6.X Information Store Db Log Record Stalls per sec EXSPI-6.X Information Store Db Log Writes per sec EXSPI-6.X Dc-Information Store Performance EXSPI-6.X Information Store User Count EXSPI-6.X Information Store VM Largest Block EXSPI-6.X Information Store VM 16MB Blocks EXSPI-6.X Information Store VM Large Block Bytes EXSPI-6.X Check Memory Configuration

<b>Exchange 2000 Auto Deploy Groups</b>	<b>Policies</b>
<b>Information Store (cont)</b>	<p data-bbox="657 264 846 296"><b>Public Folder</b></p> <ul style="list-style-type: none"> <li data-bbox="755 306 1336 338">EXSPI-6.X IS Public Replication Queue Length</li> <li data-bbox="755 348 1260 380">EXSPI-6.X 1h-Public Folder Space Usage</li> <li data-bbox="755 390 1365 422">EXSPI-6.0 IS Public Average Local Delivery Time</li> <li data-bbox="755 432 1219 464">EXSPI-6.X Database Mounted Search</li> <li data-bbox="755 474 1211 506">EXSPI-6.X Database Mounted Check</li> <li data-bbox="755 516 1166 548">EXSPI-6.X Dc-Public Folder Data</li> <li data-bbox="755 558 1292 590">EXSPI-6.X IS Public Receive Queue Length</li> <li data-bbox="755 600 1187 632">EXSPI-6.X Dc-Public IS Sum. Data</li> <li data-bbox="755 642 1295 674">EXSPI-6.X Dc-IS Public Folder Performance</li> <li data-bbox="755 684 1260 716">EXSPI-6.X IS Public Send Queue Length</li> <li data-bbox="755 726 1295 758">EXSPI-6.X IS Public Average Delivery Time</li> <li data-bbox="755 768 954 800">EXSPI-6.X-0072</li> </ul> <p data-bbox="657 789 886 821"><b>Transaction Log</b></p> <ul style="list-style-type: none"> <li data-bbox="755 831 954 863">EXSPI-6.X-0004</li> <li data-bbox="755 873 954 905">EXSPI-6.X-0008</li> <li data-bbox="755 915 1284 947">EXSPI-6.X Transaction Log BackUp Check</li> <li data-bbox="755 957 1260 989">EXSPI-6.X Transaction Log Space Usage</li> </ul> <p data-bbox="657 999 808 1031"><b>Virus Scan</b></p> <ul style="list-style-type: none"> <li data-bbox="755 1041 1417 1073">EXSPI-6.X Virus Scan Messages Quarantined per Sec</li> <li data-bbox="755 1083 1300 1115">EXSPI-6.X Virus Scan Files Cleaned per Sec</li> <li data-bbox="755 1125 1203 1157">EXSPI-6.X Virus Scan Queue Length</li> <li data-bbox="755 1167 1352 1199">EXSPI-6.X Virus Scan Files Quarantined per sec</li> <li data-bbox="755 1209 1357 1241">EXSPI-6.X Virus Scan Messages Cleaned per Sec</li> </ul>



<b>Exchange 2000 Auto Deploy Groups</b>	<b>Policies</b>
<b>Messaging</b>	<p data-bbox="657 268 911 296"><b>cc:Mail Connector</b></p> <p data-bbox="755 310 1149 338">EXSPI-6.X 1h-ccMail Connector</p> <p data-bbox="755 352 954 380">EXSPI-6.X-0091</p> <p data-bbox="755 394 1154 422">EXSPI-6.X 5m-ccMail Connector</p> <p data-bbox="755 436 954 464">EXSPI-6.X-0093</p> <p data-bbox="755 478 954 506">EXSPI-6.X-0092</p> <p data-bbox="755 520 954 548">EXSPI-6.X-0090</p> <p data-bbox="657 562 976 590"><b>Lotus Notes Connector</b></p> <p data-bbox="755 604 1247 632">EXSPI-6.X Lotus Notes Process Monitor</p> <p data-bbox="755 646 954 674">EXSPI-6.X-0094</p> <p data-bbox="755 688 1214 716">EXSPI-6.X 1h-Lotus Notes Connector</p> <p data-bbox="755 730 954 758">EXSPI-6.X-0095</p> <p data-bbox="755 772 954 800">EXSPI-6.X-0096</p> <p data-bbox="755 814 954 842">EXSPI-6.X-0097</p> <p data-bbox="755 856 1219 884">EXSPI-6.X 5m-Lotus Notes Connector</p> <p data-bbox="657 898 727 926"><b>MTA</b></p> <p data-bbox="755 940 1214 968">EXSPI-6.X MTA Work Queue Length</p> <p data-bbox="755 982 1154 1010">EXSPI-6.X Dc-MTA Performance</p> <p data-bbox="755 1024 1300 1052">EXSPI-6.X MTA Rejected Inbound Messages</p> <p data-bbox="755 1066 1295 1094">EXSPI-6.X MTA Connection Queue Lengths</p> <p data-bbox="755 1108 1328 1136">EXSPI-6.X MTA Failed Outbound Associations</p> <p data-bbox="755 1150 1198 1178">EXSPI-6.X MTA Failed Conversions</p> <p data-bbox="755 1192 1149 1220">EXSPI-6.X MTA Message Delay</p> <p data-bbox="755 1234 1295 1262">EXSPI-6.X MTA Connection Message Delay</p> <p data-bbox="755 1276 1333 1304">EXSPI-6.X MTA Rejected Inbound Associations</p> <p data-bbox="755 1318 1263 1346">EXSPI-6.X Dc-X.400 Service MTA Queue</p> <p data-bbox="755 1360 954 1388">EXSPI-6.X-0075</p> <p data-bbox="657 1402 743 1430"><b>NNTP</b></p> <p data-bbox="755 1444 1008 1472">EXSPI-6.X 1h-NNTP</p> <p data-bbox="755 1486 954 1514">EXSPI-6.X-0058</p>

<b>Exchange 2000 Auto Deploy Groups</b>	<b>Policies</b>
<b>Messaging (cont)</b>	<p><b>SMTP</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X SMTP Messages Pending Routing</li> <li>EXSPI-6.X SMTP Categorizer Queue Length</li> <li>EXSPI-6.X SMTP Local Queue Length</li> <li>EXSPI-6.X SMTP Local Retry Queue Length</li> <li>EXSPI-6.X Dc-SMTP Server Performance</li> <li>EXSPI-6.X Dc-SMTP Queues</li> <li>EXSPI-6.X SMTP NDR Percentage</li> <li>EXSPI-6.X SMTP Outbound Connections Refused</li> <li>EXSPI-6.X SMTP Remote Queue Length</li> <li>EXSPI-6.X SMTP Remote Retry Queue Length</li> <li>EXSPI-6.X Dc-SMTP Virtual Server Storage</li> <li>EXSPI-6.X-0082</li> <li>EXSPI-6.X-0083</li> <li>EXSPI-6.X-0084</li> <li>EXSPI-6.X-0085</li> <li>EXSPI-6.X-0086</li> <li>EXSPI-6.X-0087</li> <li>EXSPI-6.X SMTP Port Response</li> <li>EXSPI-6.X SMTP Anonymous Relay</li> <li>EXSPI-6.X SMTP Directories</li> <li>EXSPI-6.X SMTP Services</li> </ul> <p><b>Tracking Log</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X Dc-TrackLog Data</li> <li>EXSPI-6.X Dc-TrackLog SLA Delivery</li> <li>EXSPI-6.X Dc-Message Tracking Log Space Usage</li> <li>EXSPI-6.X-0076</li> <li>EXSPI-6.X Message Tracking State</li> <li>EXSPI-6.X Tracking Log ACL</li> </ul>

<b>Exchange 2000 Auto Deploy Groups</b>	<b>Policies</b>
<b>Optional Exchange Server Roles</b>	<p><b>EXSPI Chat Service</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.0-0836</li> <li>EXSPI-6.0-0835</li> <li>EXSPI-6.0 15m-Chat</li> <li>EXSPI-6.0-0834</li> <li>EXSPI-6.0-0833</li> <li>EXSPI-6.0-0831</li> <li>EXSPI-6.0-0830</li> <li>EXSPI-6.0 Dc-Chat Service Clients and Channels</li> </ul> <p><b>EXSPI Conferencing Service</b></p> <p><b>EXSPI Conference Server</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.0-0801</li> <li>EXSPI-6.0 10m-Conf</li> <li>EXSPI-6.0 Dc-ConfTrends</li> <li>EXSPI-6.0-0800</li> <li>EXSPI-6.0-0802</li> </ul> <p><b>EXSPI Conferencing Bridge</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.0-0805</li> <li>EXSPI-6.0 10m-ConfBridge</li> <li>EXSPI-6.0-0807</li> <li>EXSPI-6.0-0806</li> </ul> <p><b>EXSPI MCU Server</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.0-0803</li> <li>EXSPI-6.0 10m-MCU</li> <li>EXSPI-6.0 Dc-MCU</li> <li>EXSPI-6.0-0804</li> </ul> <p><b>EXSPI Instant Messaging</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.0-0842</li> <li>EXSPI-6.0-0846</li> <li>EXSPI-6.0-0845</li> <li>EXSPI-6.0 Dc-Instant Messaging Enabled Users</li> <li>EXSPI-6.0-0841</li> </ul>
<b>ovo Exchange SPI core</b>	<p><b>Data Collection</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X exspi Agent Configuration</li> <li>EXSPI-6.X Messages</li> </ul> <p><b>Exchange Discovery</b></p> <ul style="list-style-type: none"> <li>EXSPI-6.X Check Discovery</li> <li>EXSPI-6.X Exchange Service Discovery</li> <li>EXSPI-6.X Exchange Cluster Discovery SysLog</li> </ul>

## Exchange 2000 Manual Deploy Policies

<b>Exchange 2000 Manual Deploy Groups</b>	<b>Policies</b>
<b>Site Replication Service</b>	EXSPI-6.X SRS Process Monitor EXSPI-6.X SRS Service EXSPI-6.X-0112 EXSPI-6.X SRS Pending Synchronizations EXSPI-6.X SRS Data Space Usage EXSPI-6.X SRS Remaining Updates EXSPI-6.X-0113
<b>Active Directory Connector Server</b>	EXSPI-6.X ADC Process Monitor EXSPI-6.X ADC Service EXSPI-6.X ADC Import Failure Rate EXSPI-6.X ADC Operation Failure Rate
<b>Exchange Server</b>	<b>Availability</b> EXSPI-6.X Server State EXSPI-6.X Exchange Application Information EXSPI-6.X Exchange System Information EXSPI-6.X Exchange Application Warnings EXSPI-6.X Exchange System Warnings <b>Transaction Log</b> EXSPI-6.X-0005 EXSPI-6.X-0006 EXSPI-6.X Transaction Log Storage Use <b>Message Delivery</b> EXSPI-6.X End to End Message Ping <b>Client Accessibility</b> EXSPI-6.X Client Message Read EXSPI-6.X Client MAPI Logon EXSPI-6.X Client Message Send

## Manual Deployment of Exchange 2000 and 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 HPOM

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

- 3 In the HP Reporter console, click **File** → **Configure** → **Options**. The Configure Reporter Options dialog box opens.
- 4 Configure Reporter Options dialog box, In the HPOM for Windows setting section, of the Configure Reporter Options dialog box, specify the following:
  - **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.
- 5 Click **OK**.
- 6 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 2003 Reports

Exchange SPI reports for Exchange 2003 are located on the HPOM console under **Reports** → **SPI for Exchange 2000**, in the following groups:



If using OVO for Windows 7.50, expand **Reports and Graphs** → **Reports** → **SPI for Exchange 2000** in the console tree.

### Client Access

- Exchange 2003 ActiveSync Usage
- Exchange 2003 ActiveSync Notifications
- Exchange 2003 and 2000 IMAP4 Connections
- Exchange 2003 and 2000 MAPI Logon SLA
- Exchange 2003 and 2000 Message Read SLA
- Exchange 2003 and 2000 Message Send SLA
- Exchange 2003 and 2000 OWA Authentications
- Exchange 2003 and 2000 OWA Connections
- Exchange 2003 and 2000 OWA Usage
- Exchange 2003 OMA Sync Usage
- Exchange 2003 and 2000 POP3 Connections
- Exchange 2003 and 2000 Messaging Ports

### Exchange Server

- Exchange 2000 and 2003 System Information Summary

## Information Store

- Exchange 2003 and 2000 Full Text Indexing Stats
- Exchange 2003 and 2000 IS Users and Connections
- Exchange 2003 and 2000 Transaction Log Stats

## Mailbox Store

- Exchange 2003 and 2000 Inactive Mailboxes
- Exchange 2003 and 2000 Mailbox Details
- Exchange 2003 and 2000 Mailbox Store Stats
- Exchange 2003 and 2000 Mailbox Summary
- Exchange 2003 and 2000 Mailbox Store Msg Trends
- Exchange 2003 and 2000 Mailbox Usage Trends
- Exchange 2003 and 2000 Top 100 Mailboxes

## Messaging

- Exchange 2003 and 2000 All Local Msg Delivery SLA
- Exchange 2003 and 2000 MTA Msg Trends
- Exchange 2003 and 2000 MTA Queue Data Stats
- Exchange 2003 and 2000 SMTP Connections
- Exchange 2003 and 2000 SMTP Msg Trends
- Exchange 2003 and 2000 SMTP Virtual Server Stats
- Exchange 2003 and 2000 Message Tracking Stats
- Exchange 2003 and 2000 Top Destinations
- Exchange 2003 and 2000 Top Recipients
- Exchange 2003 and 2000 Top Senders
- Exchange 2003 and 2000 Top Sources
- Exchange 2003 and 2000 Message Delivery SLA

## Public Folder Store

- Exchange 2003 and 2000 Folder Summary
- Exchange 2003 and 2000 Folder Usage Trends
- Exchange 2003 and 2000 Inactive Folders
- Exchange 2003 and 2000 Public Folder Store Stats
- Exchange 2003 and 2000 Public Folder Store Msg Tnd
- Exchange 2000 and 2003 Top 100 Public Folders



## Exchange 2000 Reports

Exchange SPI reports for Exchange 2000 are located on the HPOM console under **Reports and Graphs** → **Reports** → **SPI for Exchange 2000**, in the following groups:

### Chat

- Exchange 2000 Chat Trends

### Client Access

- Exchange 2003 and 2000 IMAP4 Connections
- Exchange 2003 and 2000 MAPI Logon SLA
- Exchange 2003 and 2000 MAPI Send SLA
- Exchange 2003 and 2000 Message Read SLA
- Exchange 2003 and 2000 OWA Authentications
- Exchange 2003 and 2000 OWA Connections
- Exchange 2003 and 2000 OWA Usage
- Exchange 2003 and 2000 POP3 Connections
- Exchange 2003 and 2000 Messaging Ports

### Conferencing

- Exchange 2000 Conferencing Server Trends
- Exchange 2000 MCU Trends

### Exchange Server

- Exchange 2003 and 2000 System Information Summary

### Information Store

- Exchange 2003 and 2000 IS Users and Connections
- Exchange 2003 and 2000 Full Text Indexing Stats
- Exchange 2003 and 2000 Transaction Log Stats

### Instant Messaging

- Exchange 2000 Instant Messaging Availability Trends
- Exchange 2000 Instant Messaging Users Growth

### Mailbox Store

- Exchange 2003 and 2000 Inactive Mailboxes
- Exchange 2003 and 2000 Mailbox Details
- Exchange 2003 and 2000 Mailbox Store Stats
- Exchange 2003 and 2000 Mailbox Summary
- Exchange 2003 and 2000 Mailbox Store Msg Trends
- Exchange 2003 and 2000 Mailbox Usage Trends

Exchange 2000/2003 Top 100 Mailboxes

## Messaging

Exchange 2003 and 2000 All Local Msg Delivery SLA

Exchange 2003 and 2000 MTA Msg Trends

Exchange 2003 and 2000 MTA Queue Data Stats

Exchange 2003 and 2000 SMTP Msg Trends

Exchange 2003 and 2000 SMTP Connections

Exchange 2003 and 2000 Message Tracking Stats

Exchange 2003 and 2000 Top Destinations

Exchange 2003 and 2000 Top Recipients

Exchange 2003 and 2000 Top Senders

Exchange 2003 and 2000 Top Sources

Exchange 2003 and 2000 Message Delivery SLA

Exchange 2003 and 2000 SMTP Virtual Server Stats

## Public Folder Store

Exchange 2003 and 2000 Folder Summary

Exchange 2003 and 2000 Folder Usage Trends

Exchange 2003 and 2000 Inactive Folders

Exchange 2003 and 2000 Public Folder Store Stats

Exchange 2003 and 2000 Public Folder Store Msg Tnd

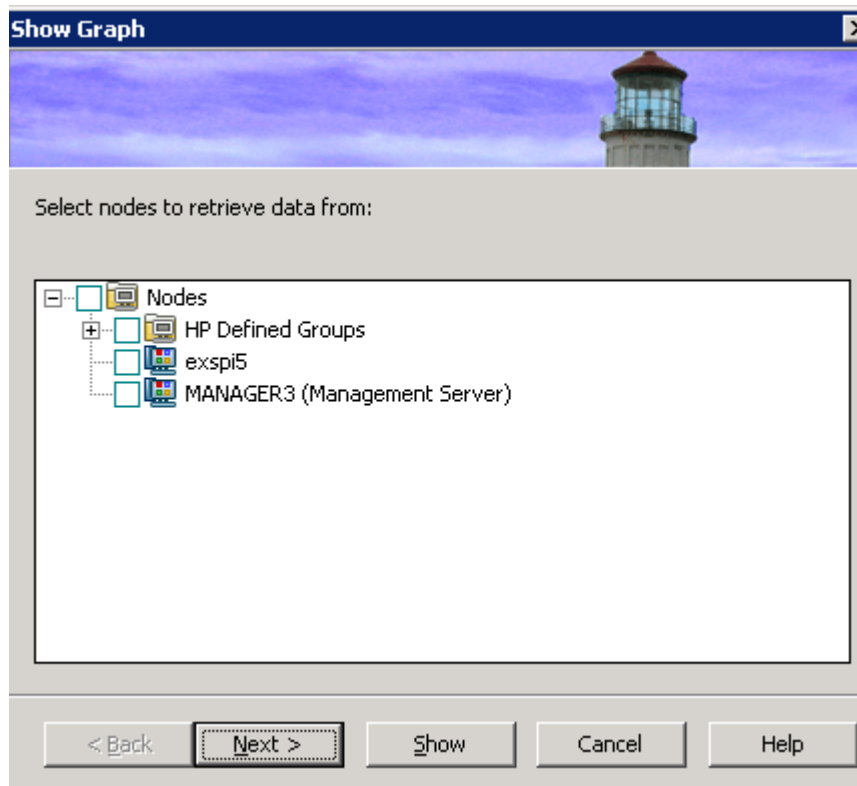
Exchange 2000/2003 Top 100 Public Folders

## 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.

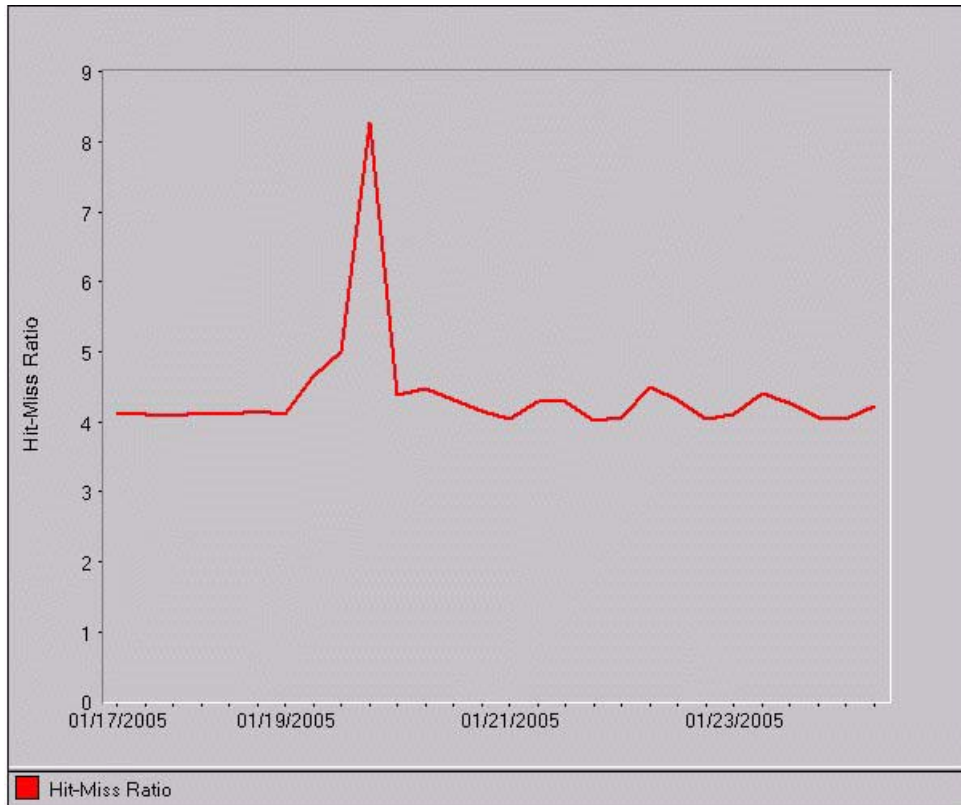
If you use OVO for Windows 7.50, you can use the embedded HP OpenView Performance Manager component instead of a commercial version of HP Performance Manager. To view graphs from the OVO console, expand **Reports and Graphs** → **Graphs** → **SPI for Exchange 2007**.

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 9 Example DSAccess Hit-Miss Ratio Graph**



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

**Hit-Miss Ratio** is the ratio of perform counters MExchangeDSAccess 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.

## 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 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 MExchangeOMA 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 MExchangeDSAccess cache hit and miss ratio for Exchange 2000 and 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.

## Exchange 2000 Graphs

Exchange 2000 graphs are arranged in the following service groups:

### Client Access

**IMAP4 Connections:** This graph shows the IMAP4 connection activity.

**IMAP4 Performance:** This graph shows the IMAP4 transaction activity.

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

**OWA Connections:** This graph shows the OWA connection activity.

**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 MExchangeDSAccess cache hit and miss ratio for Exchange 2000 and 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.

**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.

**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 EDB Database Statistics:** This graph shows Exchange server private mailbox store database statistics.

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



**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 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 Message Volume:** This graph shows SMTP volume on the Exchange server.

**SMTP Queues:** This graph shows SMTP server queues 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 2000 and 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 2000 and 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 2000 and Exchange 2003 servers.
- **Mount Exchange Information Store:** This tool can search for and mount dismantled information or public folder stores. For more information on this tool, see the Exchange SPI online help.

## EXSPI Support

- **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 109 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 datasources, 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 145 for a complete listing of the EPC schema.

# Operations Topology Viewer

The Operations Topology Viewer lets you visualize your Microsoft Exchange Server 2000 and 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.



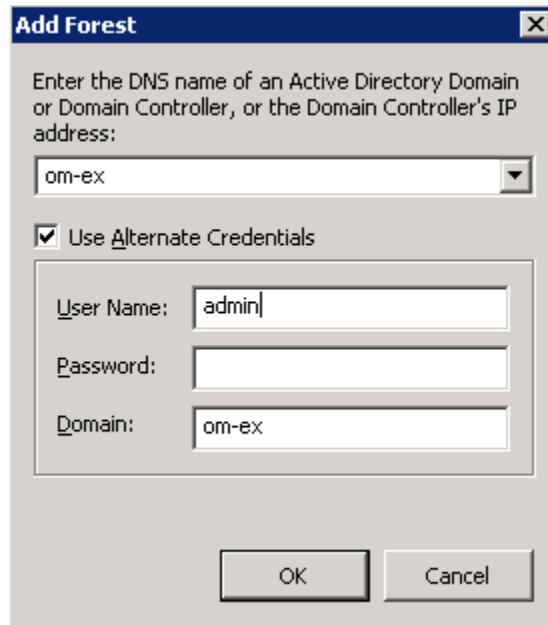
If you also have the Active Directory SPI installed, the Operations Topology Viewer opens with two folders: Exchange Topology and Site Topology. The Site Topology view displays Active Directory and Exchange server information. For more details on the Site Topology view, see the Active Directory SPI online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

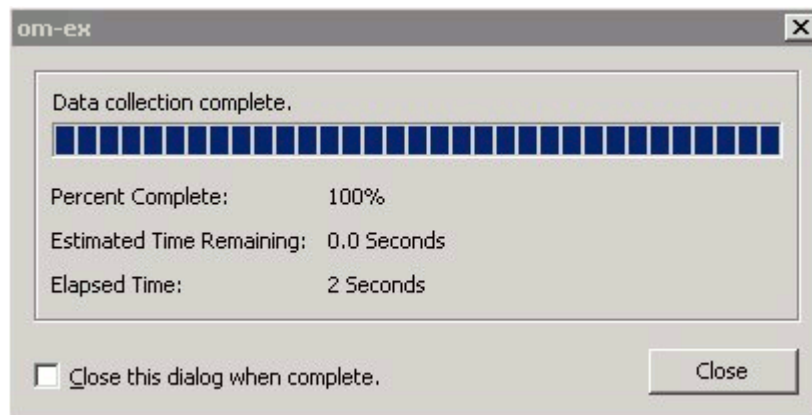
- 1 In the console tree, expand **Tools** → **SPI for Exchange** → **Exchange 2007**, or **Tools** → **SPI for Exchange** → **Exchange 2000 and 2003** (depending on the Exchange version), and then double-click **Exchange Topology**.
- 2 In the details pane, double-click **Operations Topology Viewer**.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

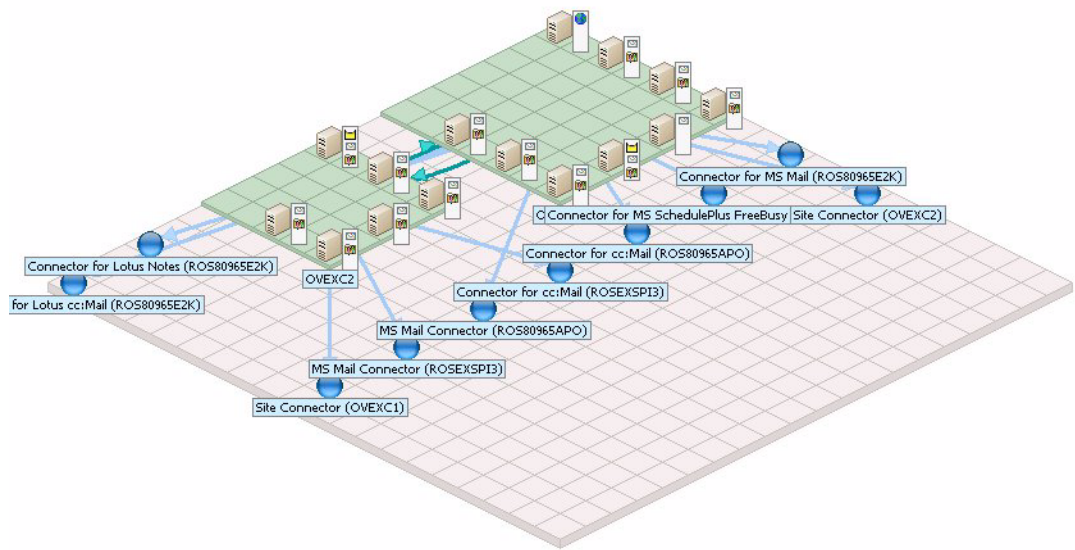


- 4 Identify the Domain Controller or Active Directory Domain which will be interrogated for Exchange data. Before selecting the Advanced Exchange Data Collection checkbox, see [Advanced Exchange Data Collection](#) on page 112. Enter the requested information, and then click **OK**.

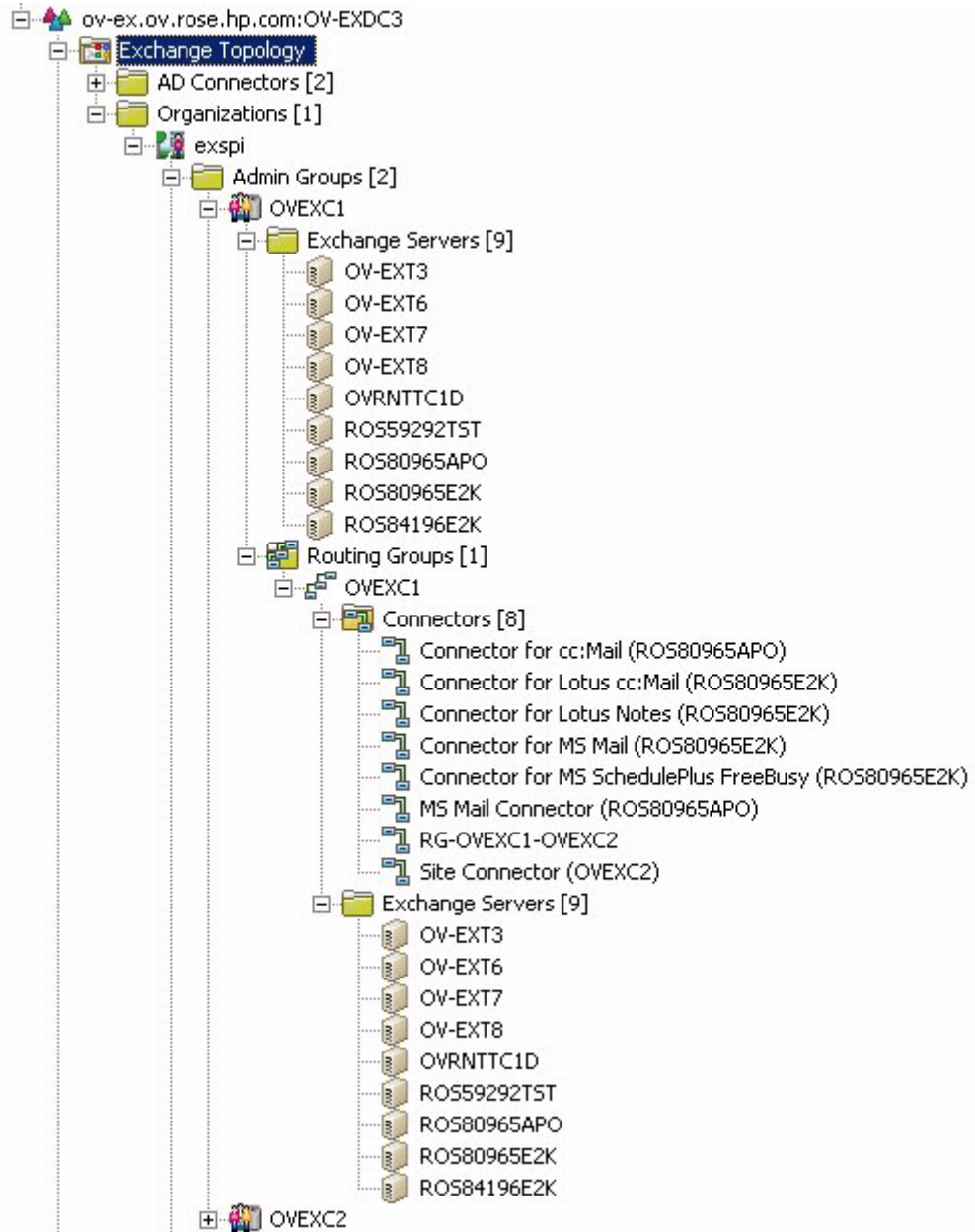
You are informed when the data collection is complete.



- 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.

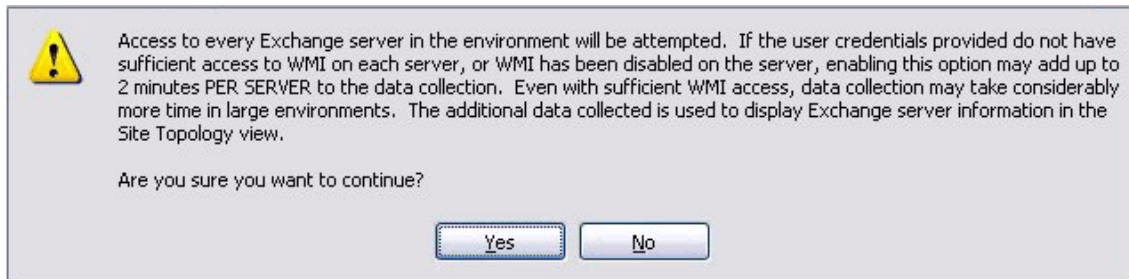


## Advanced Exchange Data Collection

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 118.



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 119 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**

<b>Tree/map modification</b>	<b>How to do it</b>
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 <b>View Properties</b> , and the <b>General</b> tab.
To find a server in the tree.	On the map, right-click a server and select <b>Find Server in Tree</b> . (Label appears highlighted)
To find a server in the map.	In the tree, right-click on the server and select <b>Find Server on Map</b> . (Label appears bold, with larger text)
Move a routing group to a different area of the grid	<p><b>Method #1:</b></p> <ol style="list-style-type: none"> <li>1. Pressing the left mouse button, click the routing group and start to drag and drop to the desired area.</li> <li>2. Drag to edge of view to auto scroll the view.</li> </ol> <p><b>Method #2</b></p> <ol style="list-style-type: none"> <li>1. Pressing the left mouse button, select the routing group and start to drag and drop to the desired area.</li> <li>2. Still holding the left mouse button down, use the arrow keys to change the view of the map.</li> </ol>

### Using the Keyboard to Navigate the Map

**Table 2 Keyboard Functionality**

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

**Table 2 Keyboard Functionality**

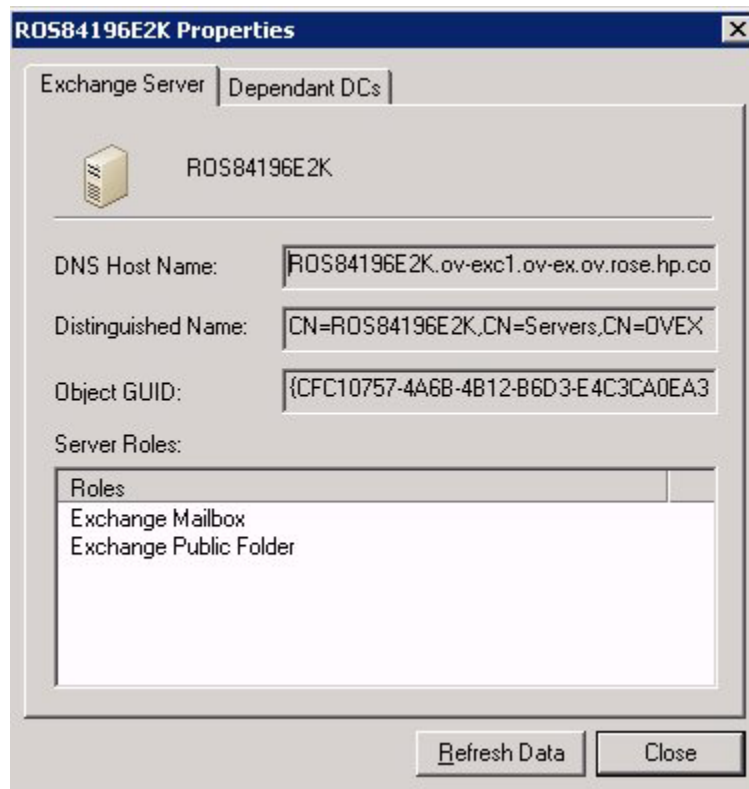
<b>Keystroke</b>	<b>Map function</b>
→ right arrow	Scrolls the map view to the right approximately one tile width.
Home	Scrolls the map view to the left extent. (Vertical position remains the same).
End	Scrolls the map view to the right extent. (Vertical position remains the same).

## 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:

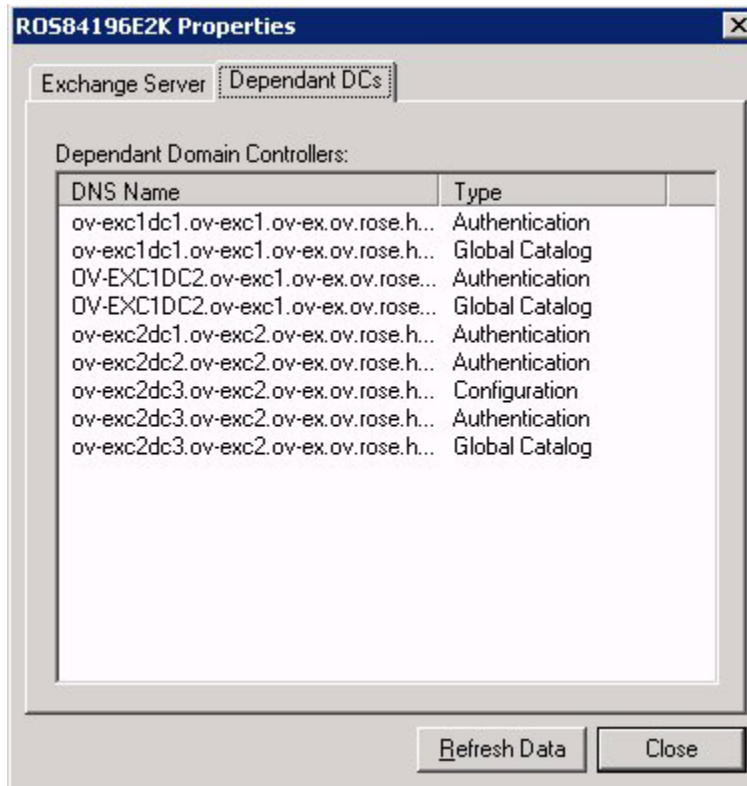
### Server Properties



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 112). 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 119.

The server properties information is cached, click **Refresh Data** if you want the data to be updated.

## The Dependant DC Tab



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.

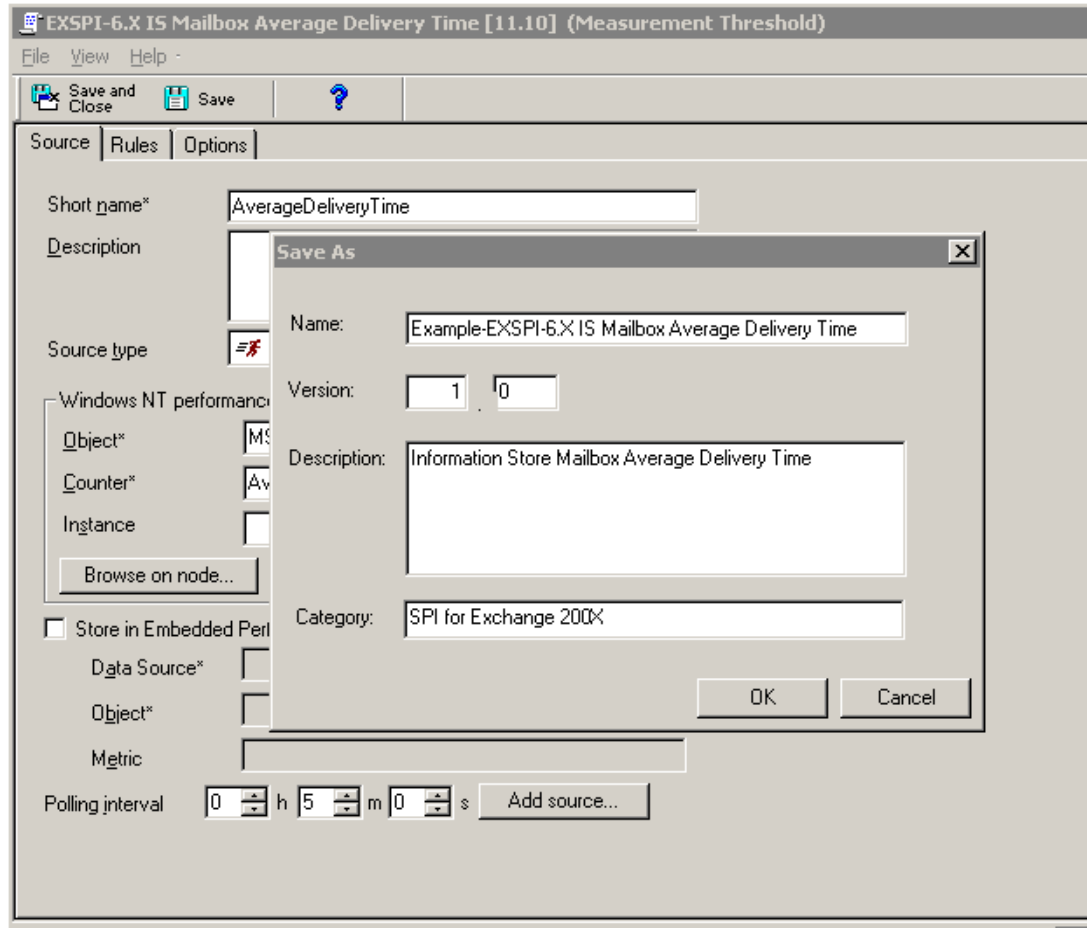
#### Task 1: Create a new Policy Group

- 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  
PFSSENT  
PFSUBMITTED  
PFRECIPIENT  
PFACTIVELOGON  
PFLOGON  
PFLOGONPEAK  
PFSIRATIO  
PFRECOVERITEMS  
PFRECOVERSIZE  
PFREPRCVD  
PFREPRESENT  
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

---

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**EXSPI\_MBPERF**

---

ID  
SYSTEMNAME  
DATETIME  
GMT  
SHIFTNAME  
INSTANCEL\_NAME  
SERVER\_NAME  
MBDELIVERYTIME  
MBLOCALDELIVER  
MBDELIVER  
MBSSENT  
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  
ASYNCSEVERITEMS  
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  
M TLCNT  
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  
OWAMSGSENT  
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\_RCPIPNPTS\_IN

---

---

MTA\_TOT\_RCPIPNPTS\_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\_CMV**

---

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\_PFDDETAIL**

---

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

---

MBSSENT

---

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

---

PFREPRESENT

---

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

---

SMTPMMSGSENT

---

SMTPMMSGRECEIVE

---

SMTMPBYTESENT

---

SMTMPBYTERECEIVE

---

SMTPMMSGBYTESENT

---

SMTPMMSGBYTERECEIVE

---

SMTPINBOUNDCON

---

SMTPOUTBOUNDCON

---

SMTPOUTBOUNDCONREF

---



## D Embedded Performance Component (EPC) Schema

---

**EXSPI\_ASNOTIFY**

---

ASNTOTAL

---

ASNSENT

---

ASNIGNORE

---

ASNDISCARD

---

ASNEXPIRED

---

ASNBIFURCATED

---

---

**EXSPI\_ASYNC**

---

ASYNCCUSERS

---

ASYNCCSENDMAIL

---

ASYNCCMDS

---

ASYNCCCLIENTITEMS

---

ASYNCCSERVERITEMS

---

ASYNCCAD

---

ASYNCCCONNECT

---

ASYNCCPENDING

---

---

**EXSPI\_CML**

---

INSTANCE\_KEY

---

SERVER\_NAME

---

STORAGEGROUP\_NAME

---

DATABASE\_NAME

---

INSTANCEVAL

---

LOGONSIZE

---

SLA

---

SLAAPPROACH

---

TIMEOUT

---

MEASUREDTIME

---

RUNTIME

---

INTERVAL\_KEY

---

---

**EXSPI\_CMV**

---

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  
ISRPCATTEMPT  
ISRPCSUCCEED  
ISRPCFAIL  
ISRPCFUNAV  
ISRPCFBUSY  
ISRPCFCANCEL  
ISRPCFCALLFAIL  
ISRPCFACCESSDENY  
ISRPCFOTHER

---

---

**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  
MSENDQ  
MBRECEIVEQ  
MBDELIVERYTIME  
MBLOCALDELIVER  
MBDELIVER  
MSENT  
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  
M TLCNT  
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  
OWAMSGSENT  
OWAMSGSOPEN  
OWAAUTHS  
OWAAUTHSCACHE  
OWARECENTAUTHS

---

---

**EXSPI\_OWAFE**

---

---

INSTANCE\_NAME

---

---

OWACONNECTIONS

---

---

OWAMAXCONNECTIONS

---

---

**EXSPI\_PFDDETAIL**

---

---

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

---

---

PFREPRESENT

---

---

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  
SMTPQUEUE SIZE  
SMTPQUEUECNT  
SMTPQUEUEFREE  
SMTPQUEUE TOTAL  
SMTPQUEUEFP

---

---

**EXSPI\_SMTPerf**

---

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

---

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TRANSLOGFILETOTAL

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TRANSLOGFILEFP

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INTERVAL\_KEY

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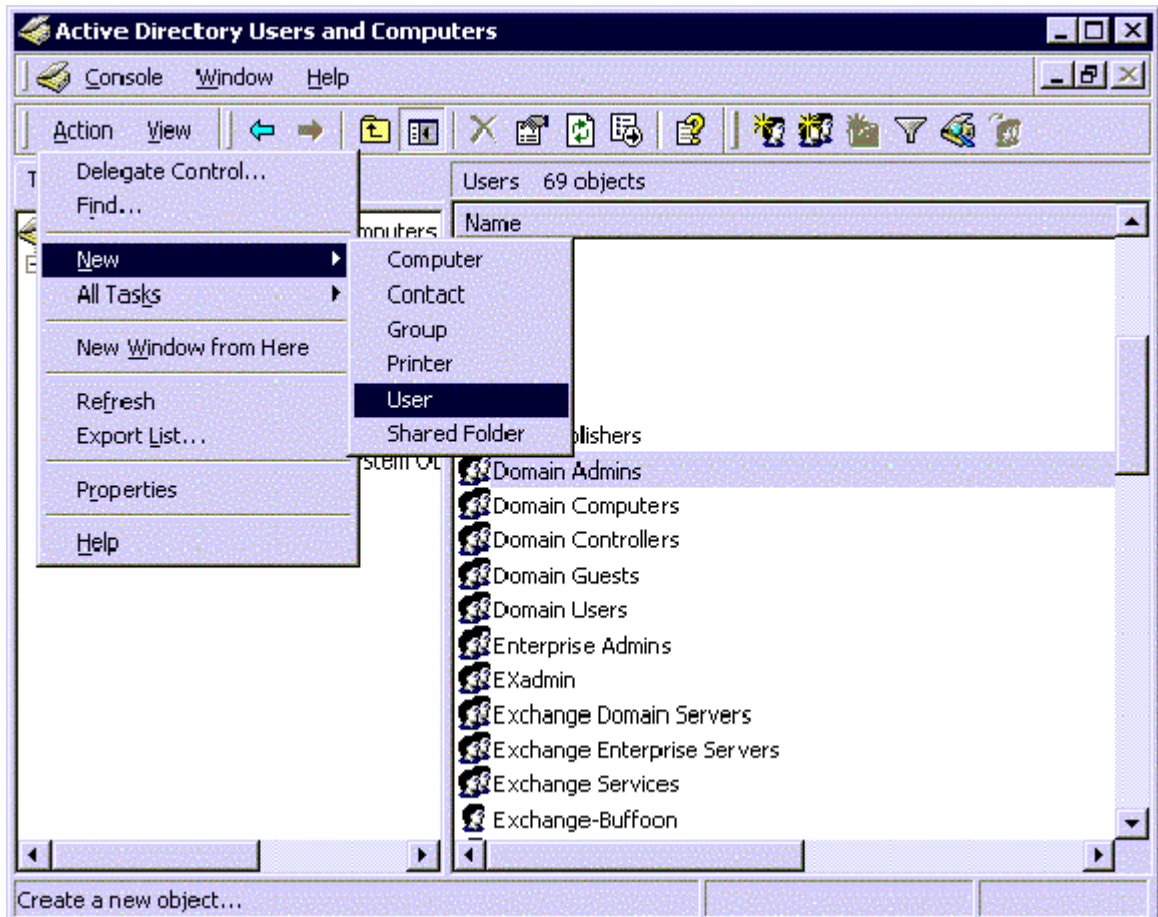


# E Creating Service Accounts for Exchange 2000 or 2003

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.

**New Object - User**

Create in: mx-ex.ov.rose.hp.com/Users

First name: MSXSPI Initials:

Last name:

Full name: MSXSPI

User logon name: MSXSPI @mx-ex.ov.rose.hp.com

User logon name (pre-Windows 2000): MX-EX\MSXSPI

< Back Next > Cancel

- 5 In the next window, enter **Password/Confirm Password** for the service account.
- 6 Select **Password Never Expires**. Then click **Next**.

**New Object - User**

Create in: mx-ex.ov.rose.hp.com/Users

Password:

Confirm password:

User must change password at next logon

User cannot change password

Password never expires

Account is disabled

< Back   **Next >**   Cancel

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

**New Object - User**

Create in: mx-ex.ov.rose.hp.com/Users

Create an Exchange mailbox

Alias:

Server:

Mailbox Store:

< Back   **Next >**   Cancel

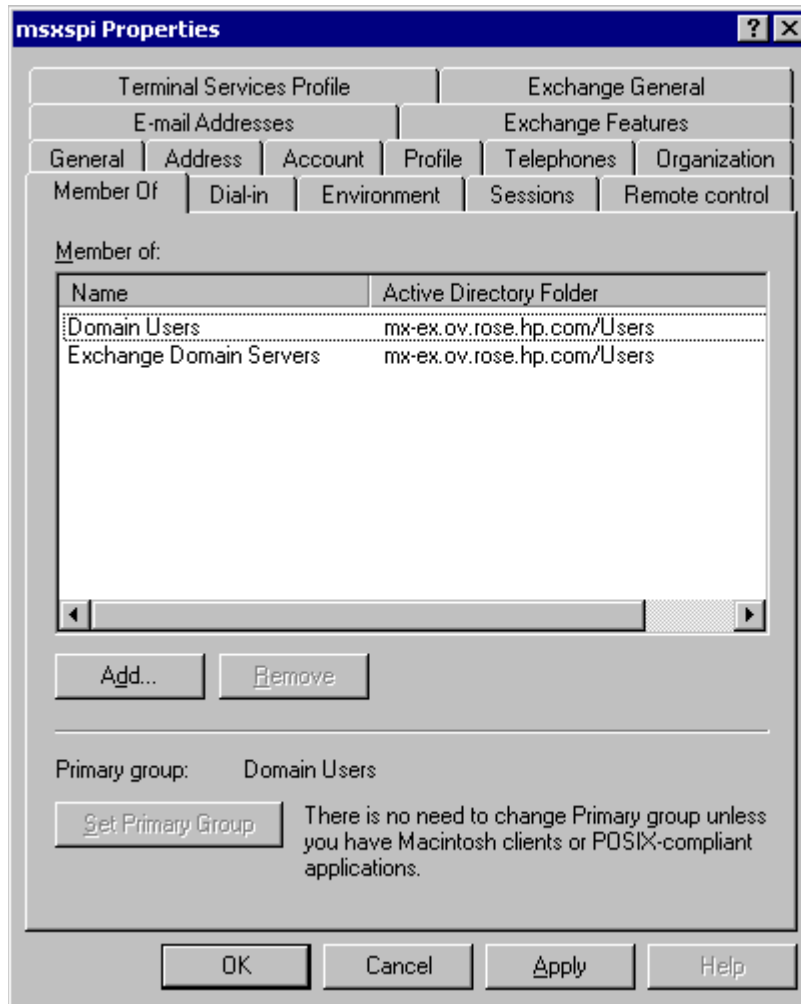
- 8 In the next dialog, complete creating the user by clicking **Finish**.

- 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.

The screenshot shows the 'msxspi Properties' dialog box with the 'General' tab selected. The dialog has a title bar with a question mark and a close button. Below the title bar is a tabbed interface with the following tabs: Published Certificates, Member Of, Dial-in, Object, Security, Environment, Sessions, Remote control, Terminal Services Profile, Exchange General, E-mail Addresses, Exchange Features, Exchange Advanced, General (selected), Address, Account, Profile, Telephones, and Organization. The main area contains a user icon and the name 'msxspi'. Below this are several text input fields: 'First name' (containing 'MSXSPI'), 'Initials', 'Last name', 'Display name' (containing 'OVO Exchange SPI'), 'Description', 'Office', 'Telephone number' (with an 'Other...' button), 'E-mail' (containing 'msxspi@mx-ex.ov.rose.hp.com'), and 'Web page' (with an 'Other...' button). At the bottom are four buttons: 'OK', 'Cancel', 'Apply', and 'Help'.

- 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 2000/2003 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 2000/2003 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 version="1.0" encoding="utf-8"?>
<CollectionDefinitions>
  <MetricSets>
    <MetricSet>
      <Name>MetrciSet1</Name>
      <Parameters>
      </Parameters>
      <SourceDefinition>
        <Type>
        </Type>
        <Command>Get-ReplicationAge</Command>
        <DataSource>
        </DataSource>
        <DataObject>
        </DataObject>
      </SourceDefinition>
      <Metric>
        <Name>CopyQueueLength</Name>
        <Datatype>System.Int64</Datatype>
        <Description>
        </Description>
        <Type>
        </Type>
```

```

</Metric>
<Metric>
  <Name>StorageGroupName</Name>
  <Datatype>System.String</Datatype>
  <Description>
</Description>
  <Type>
</Type>
</Metric>
</MetricSet>
</MetricSets>
<Collections>
  <Collection>
    <Name>1</Name>
    <DisplayName>New Collection</DisplayName>
    <Description>New Collection</Description>
    <Interval>00:05:00</Interval>
    <CollectionSet>
      <MetricSetNameRef>MetrciSet1</MetricSetNameRef>
    </CollectionSet>
    <Calculations />
    <Filters />
    <PublishMetrics>
      <PublishSetNameRef>Replication_Publish</PublishSetNameRef>
    </PublishMetrics>
    <AlertSets>
      <ThresholdSetNameRef>OpcMonCallForReplication</ThresholdSetNameRef>
      <AlarmSetNameRef>OpcMsgForReplicationAge</AlarmSetNameRef>
    </AlertSets>
  </Collection>
</Collections>
<PublishedSets>
  <PublishedSet>
    <Name>Replication_Publish</Name>
    <Database>DATASOURCENAME</Database>
    <ClassName>TABLENAME</ClassName>
    <IndexBy>DAY</IndexBy>

```

```

<RollBy>MONTH</RollBy>
<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>MetricSet1</MetricSetName>
        <MetricName>CopyQueueLength</MetricName>
        <ThresholdPolicy>Any Threshold Policy Name</ThresholdPolicy>
        <AutoBaseline IsEnable="False" />
    </ThresholdSet>
</ThresholdSets>
</AlertSets>
</CollectionDefinitions>

```

## Elements of the spimetadata.xml File

The `spimetadata.xml` file consists of the following major elements:

**MetricSets** — The `MetricSets` element contains the following information:

- Metrics to be collected from the nodes
- Cmdlet to be used to collect the metrics
- Type of the metric data

**PublishedSet** — The `PublishedSet` element describes the mechanism to store the metric data to a data store.

**AlertSets** — The `AlertSets` element contains the information on calculating the metric data with a threshold value and the mechanism to generate an alarm in the event of threshold violation.

**Collections** — The `Collections` element contains the `Collection` sub-element. The `Collection` sub-element holds all information on individual collection configurations. Each `Collection` element contains the following information:

- Name of the collection
- `MetricSets` to be used
- Mechanism to store metric data on a data store
- Mechanism to generate alarm in the event of threshold violation



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