HP OPENVIEW for UNIX

Smart Plug-in for Microsoft® Exchange Server

Users Guide

Smart Plug-in for Exchange Server
Version A.08.10

June 2004

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Boldface	Words in **boldface** type represent programs and commands.
Capitalization	Capitalized first letters represent company or product names.
`Computer font`	Words in `computer font` represent file or path names, command syntax statements, prompts or messages that appear on your screen, or text you should type on your workstation or terminal.
Italics	Words in *italics* represent variables in syntax statements or words that are emphasized in the text.
{ }	Represents required elements in a syntax statement. When several elements are separated by the | symbol, you must select one of the elements.
[ ]	Represents optional elements in a syntax statement.

Printing History

New editions are complete revisions of the manual. The release date for each edition is listed below.

Edition 1 (A.03.21)	May 2002
Edition 2 (A.03.30)	August 2002
Edition 3 (A.07.00)	September 2003
Edition 4 (A.07.00)	October 2003
Edition 5 (A.07.20)	November 2003
Edition 5 (A.08.00)	March 2004
Edition 6 (A.08.10)	June 2004

File Locations

The *HP OpenView Smart Plug-ins CD-ROM* is a collection of OpenView Operations Smart Plug-ins (SPIs) and OpenView supplementary management applications, for HP OpenView Operations for UNIX. The collection offers the convenience of having all SPIs on a single medium with a single Software Distributor depot.The Smart Plug-in for MS Exchange Server files are located according to operating system, as follows:

Program Files:

```
cdrom/OV_DEPOT/11.OHPUX.sdtape SPI-EXCHANGE-OVO
cdrom/OV_DEPOT/SOLARIS.sdtape SPI-EXCHANGE-OVO
cdrom/OV_REPORTER/EXCHANGE_SPI_A.08.10/EXSPI-Reporter.msi
cdrom/OV_REPORTER/EXCHANGE_SPI_A.08.10/EXSPI-Reporter.jp.msi
cdrom/OV_REPORTER/EXCHANGE_SPI_A.08.10/EXSPI-Reporter.ko.msi
cdrom/OV_REPORTER/EXCHANGE_SPI_A.08.10/EXSPI-Reporter.zh_CN.msi
```

Documentation Files:

```
OV_DOC/EXCHANGE_SPI_A.08.10/release_notes.txt
OV_DOC/EXCHANGE_SPI_A.08.10/exspi_users_guide.pdf
OV_DOC/EXCHANGE_SPI_A.08.10/exspi_ref_guide.pdf
```

Contents

1

Exchange SPI Concepts

Introduction

This chapter introduces the basic concepts of the HP OpenView Smart Plug-in for Microsoft® Exchange Server (Exchange SPI), version A.08.10, which works together with HP OpenView Operations for UNIX versions 7.*x* and *8.x*, to monitor Microsoft Exchange 5.5, 2000 and 2003.

The chapter includes the following sections:

- What the Exchange SPI does
- How the Exchange SPI works
- Exchange organization
- Exchange SPI components:
  - Exchange SPI Service Discovery
  - Exchange SPI Service Maps
  - Exchange SPI Template groups and Templates
  - Exchange SPI Application groups and Applications
  - Exchange SPI Message groups and Messages
  - Exchange SPI Reports and Graphs

What the Exchange SPI does

The Exchange SPI adds Exchange 5.5, 2000 and 2003 server-monitoring capabilities to HP OpenView Operations for UNIX, allowing you to oversee your distributed Exchange environment from a central, easy-to-use console. In so doing, you can:

- Increase Exchange availability and performance
- Lower support costs associated with the Exchange service
- Improve capacity management and planning for Exchange

With the Exchange SPI integrated into the OVO console, you can apply the HP OpenView performance and problem management processes that you use for networks and systems to monitor MS Exchange.

After setup, the Exchange SPI will monitor critical Exchange application/database resources including:

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

Information comes to you in the OpenView Operations console through service maps, messages, alerts, reports and graphs.

How the Exchange SPI works

Like other Smart Plug-ins, the Exchange SPI collects data that is targeted and gathered according to rules and schedule specifications contained within the Exchange SPI templates.

HOW DATA COLLECTION OCCURS

When the collection's scheduled time occurs, the Exchange SPI collector/analyzer program is executed and if required, forwards metric values to OVO and the HP data collecting agent. At the same time, OVO checks against predefined threshold settings and triggers alarms when violations occur.

WHERE DATA IS STORED

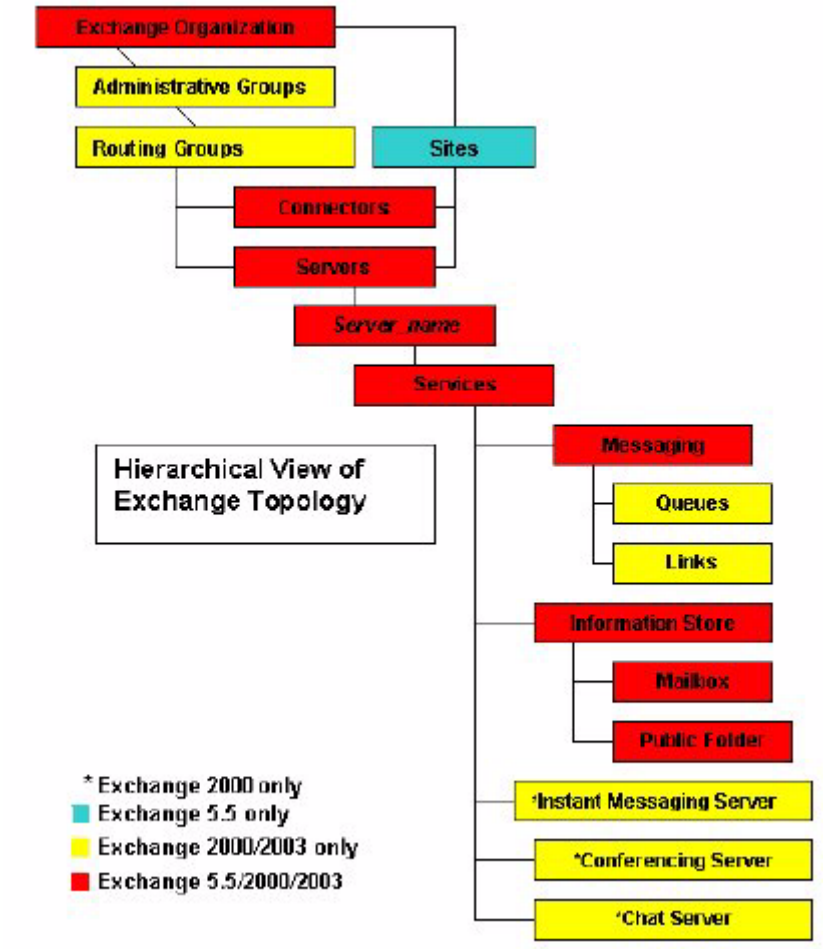
The collected data is written to a log file residing on the managed node, at pre-defined intervals.

HOW DATA IS DISPLAYED

Messages appear in the OVO Message Browser with message details containing instruction text to help diagnose and remedy problems. If PerfView is present, metric values are available as graphs and if Reporter is installed, reports are available.

Exchange organization

The Exchange organization in an enterprise can be extremely complex, the diagram below might help in keeping an overview:



Exchange SPI components

The following components appear in the OpenView for UNIX GUI when Exchange SPI is installed:

1. Exchange SPI Service Discovery
2. Exchange SPI Service Maps
3. Exchange SPI Template groups and Templates
4. Exchange SPI Application groups and Applications
5. Exchange SPI Message groups and Messages
6. Exchange SPI Reports and Graphs

1. Exchange SPI Service Discovery

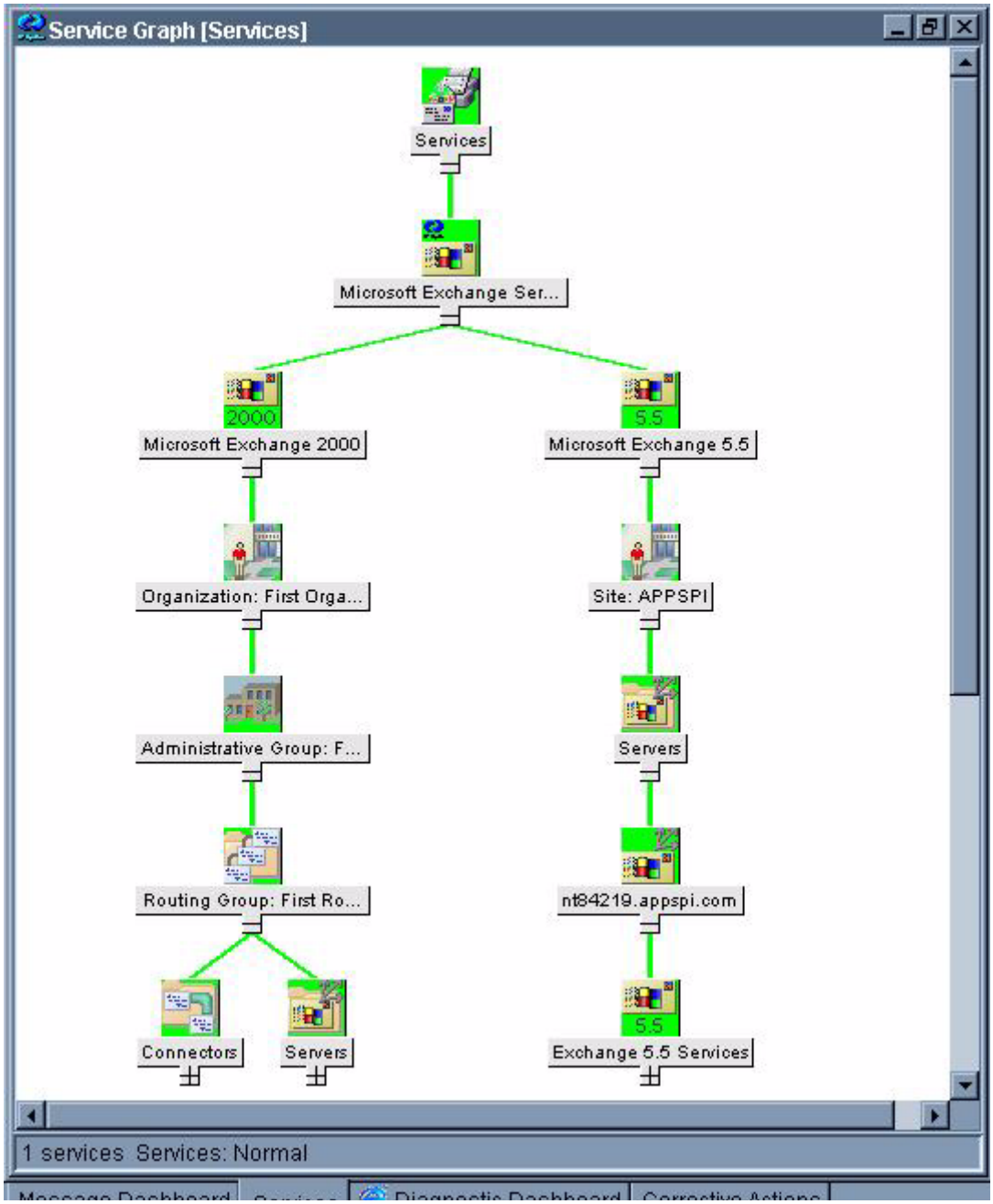
The Exchange SPI discovers Exchange services on OVO managed nodes. Exchange Service Discovery requires the OVO Service Navigator, which can be installed on the management server with other components when OVO is installed initially, or installed alone at a later date. Please refer to the *OVO Installation Guide* for more details.

See the section *Exchange SPI Service Discovery* chapter 4 page 93 for more information on the Service Discovery process.

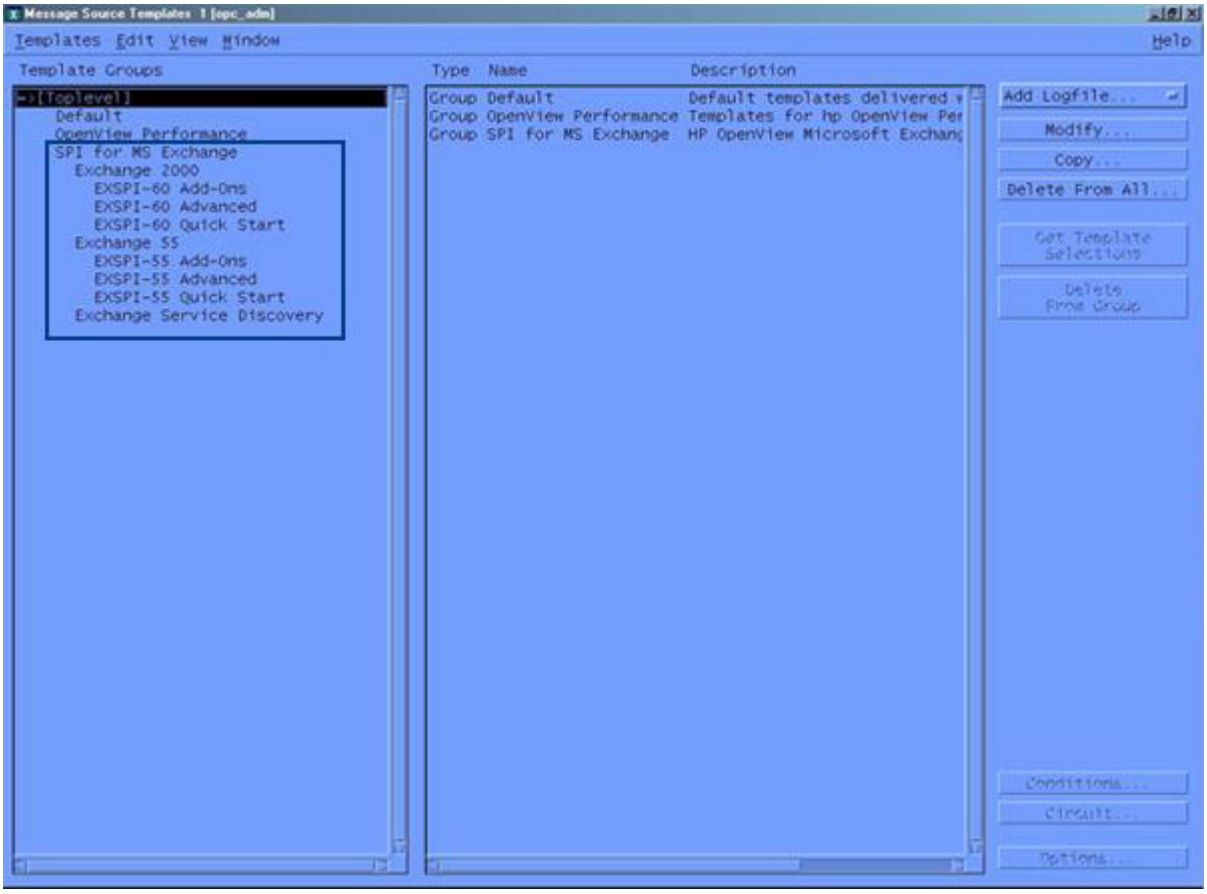
2. Exchange SPI Service Maps

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

Example Service Map



3. Exchange SPI Template groups and Templates



Templates

NOTE: In OVOU 8, templates are referred as policies.

Templates measure collected data against predefined rules, generating alarms and messages to assist in problem analysis and resolution. Corrective actions are suggested in help text available in the message details.

Templates can be distributed as groups or individually. For a complete listing of templates, see Appendix B, beginning on page 189.

Template groups

The **Exchange Service Discovery** group contains templates for the service discovery procedure. The **EXSPI Quick Start** template group contains templates that are easy to install and distribute and require no special customization. Many templates in the **EXSPI Add-Ons** and **EXSPI Advanced** template groups require a more advanced configuration procedure. Before getting started, review template requirements in *Exspi Template Group Requirements* chapter 4 page 89.

Template types

Within the Exchange group are:

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

For information on customizing template settings, see *Basic Customization* chapter 7 page 150.

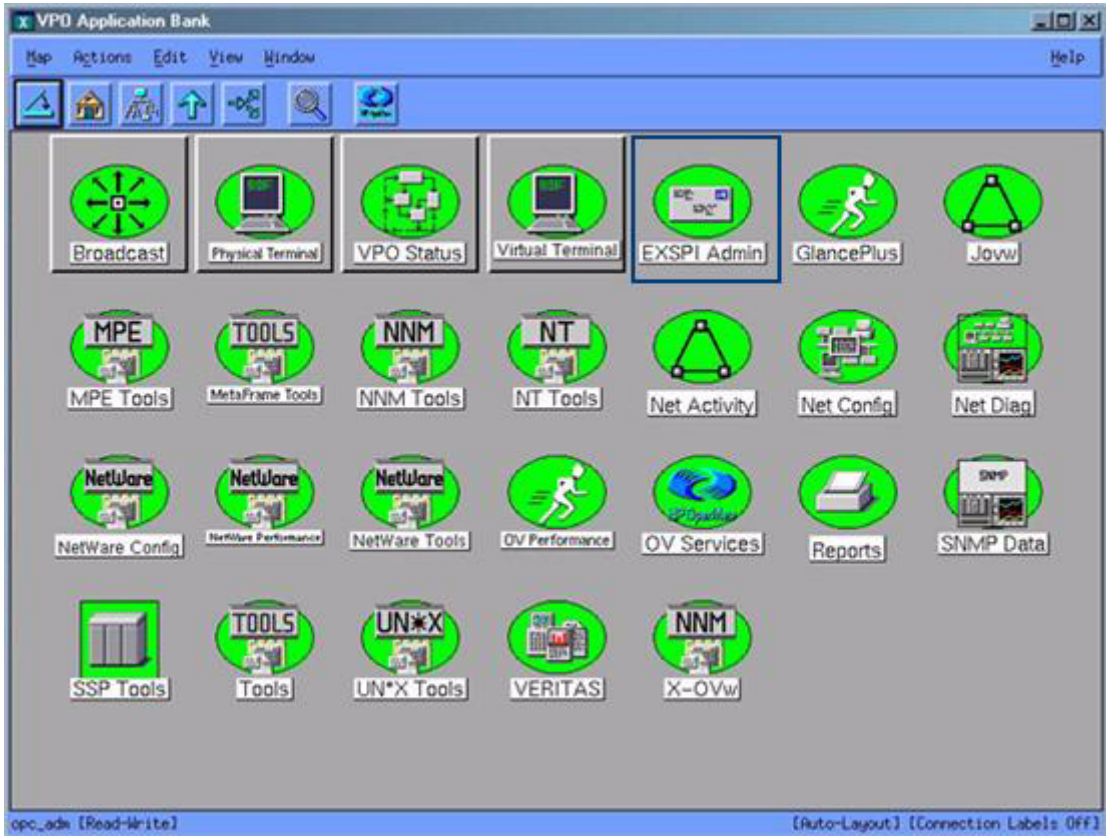
NOTE: This version of the Exchange SPI monitors MS Exchange 2003, 2000 and 5.5. Template and Template group names contain the version number in the prefix: **65** refers to Exchange 2003 only, **60** refers to Exchange 2000 and 2003, and **55** to Exchange 5.5 only. For example, where an Exchange 5.5 template group has the name **EXSPI-55 Event Log Errors**, the equivalent Exchange 2000 and 2003 template group is **EXSPI-60 Event Log Errors**.

In this guide, templates/template groups relevant to all Exchange versions are referred as **EXSPI-55/60 *<template name>***.

4. Exchange SPI Application Groups and Applications

The Exchange SPI applications are available in the OVO Application Bank under the application group, **EXSPI Admin**, which contains the Exchange 2000 and 2003, and Exchange 5.5 application groups.

EXSPI Admin application group in the Application Bank window.



The Exchange SPI makes available the following applications in the Application Group for each version of Exchange:

- ***EXSPI Add DataSource:*** Exchange SPI application to configure data sources and start the logging of data.
- ***Disable Data Logging:*** Stops Exchange SPI from logging data.
- ***Enable Data Logging:*** Starts Exchange SPI data logging, the default setting is ON. This is normally used after Disable Data Logging, to restart data logging.
- ***EXSPI Discovery:*** If the OpenView Service Navigator software is installed and running, the EXSPI Discovery application generates a snap shot graph of the Exchange services on all the OVO managed nodes at the time it runs.
- ***Enable Message Tracking*** (for Exchange 2000 and 2003 only*)*: Turning message tracking on will cause the Exchange server to write tracking log files. The Exchange SPI track log schedule template parses these log files to collect data for the four tracklog reports: Exchange Top Destinations, Exchange Top Recipients, Exchange Top Senders, and Exchange Top Sources.
- ***EXSPI Graphs:*** Contains graphs that can be generated from selected metric monitors.
- ***EXSPI MBOX Config:*** Starts the mailbox configuration program that automatically creates a mailbox.
  - For Exchange 5.5: the mailbox is created with service account as the owner, so the service account must be created prior to running the application, see *Creating a Service Account with Proper Access Permissions* chapter 2 page 22.
  - The script supports two options. The syntax is:
    `exspi_e2k_cfg [-m mailBoxName] [ -ou OU ]`
    -m (optional parameter) is the mailBoxName prefix.
    -ou (optional parameter) is the Organizational Unit.
    If the -m parameter is not specified, the default prefix is MSXSPI. The mailbox enabled service account is created as MSXSPI<hostname>. This mailbox name is added to the

exspi\defaults file as line `MAILBOX mailBoxName`.
If the -ou parameter is not specified, the mailbox will be created in the USERS container.

- By default a mailbox named MSXSPI<*hostname*> is created on the Exchange server where "hostname " is the name of the Exchange server.
- The mailbox is created hidden from the GAL.

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

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

- ***Enable EXSPI Tracing:*** Enables tracing; default setting is OFF. This application is generally used for troubleshooting. When tracing is turned on the results are written to: `%OvAgentDir%\exspi\log\trace`.

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

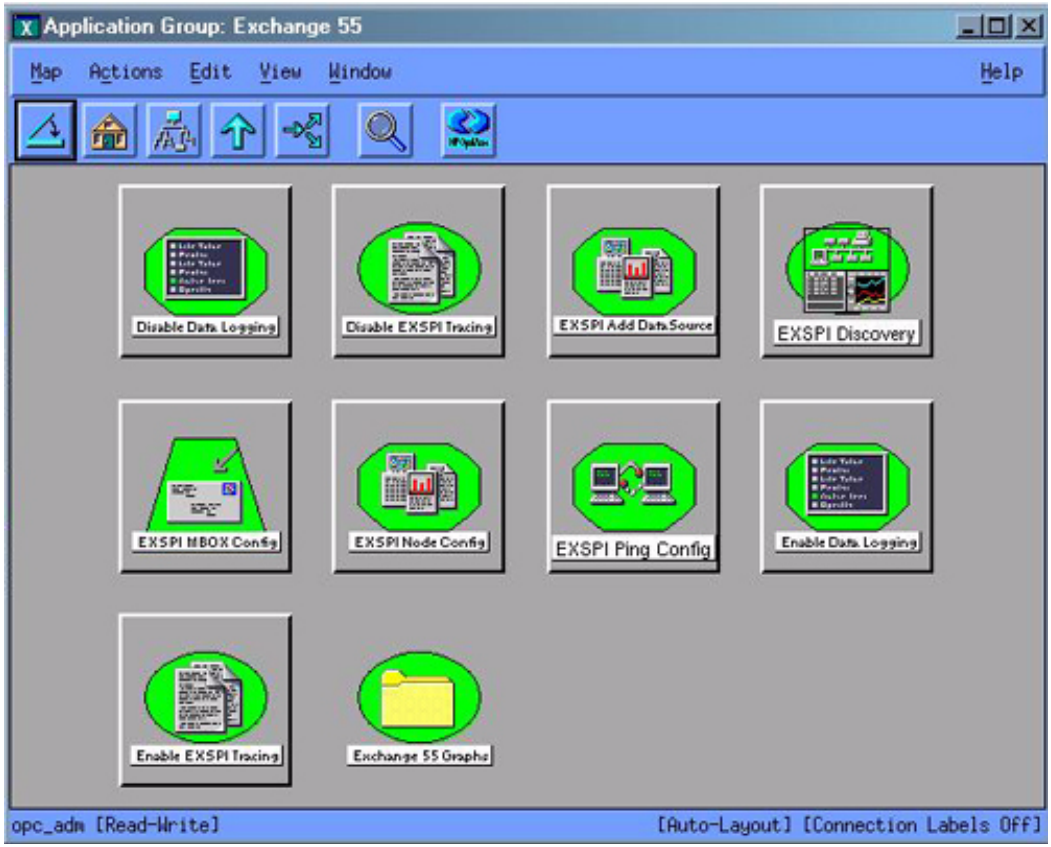
- ***Exchange Cluster Config***: The Exchange Cluster Config application prints apminfo data, which can be used to create the *apminfo.xml* file used by the Exchange SPI to recognize clustered instances. For further information about Exchange SPI monitoring clusters, see *Using Exchange SPI in high availability environments* chapter 5 page 108.
Regarding privileges: This application can be run as any account that has the ability to read wmi, such as a Domain admin or an Exchange admin account

- ***Mount Exchange DB***: This application can search for and mount dismounted mailboxes or public folder store databases. It requires the user name and password of a special account that has Exchange administrative privileges, as the application must be modified with this info before executing, see *Creating a Service Account with Proper Access Permissions* chapter 2 page 22.

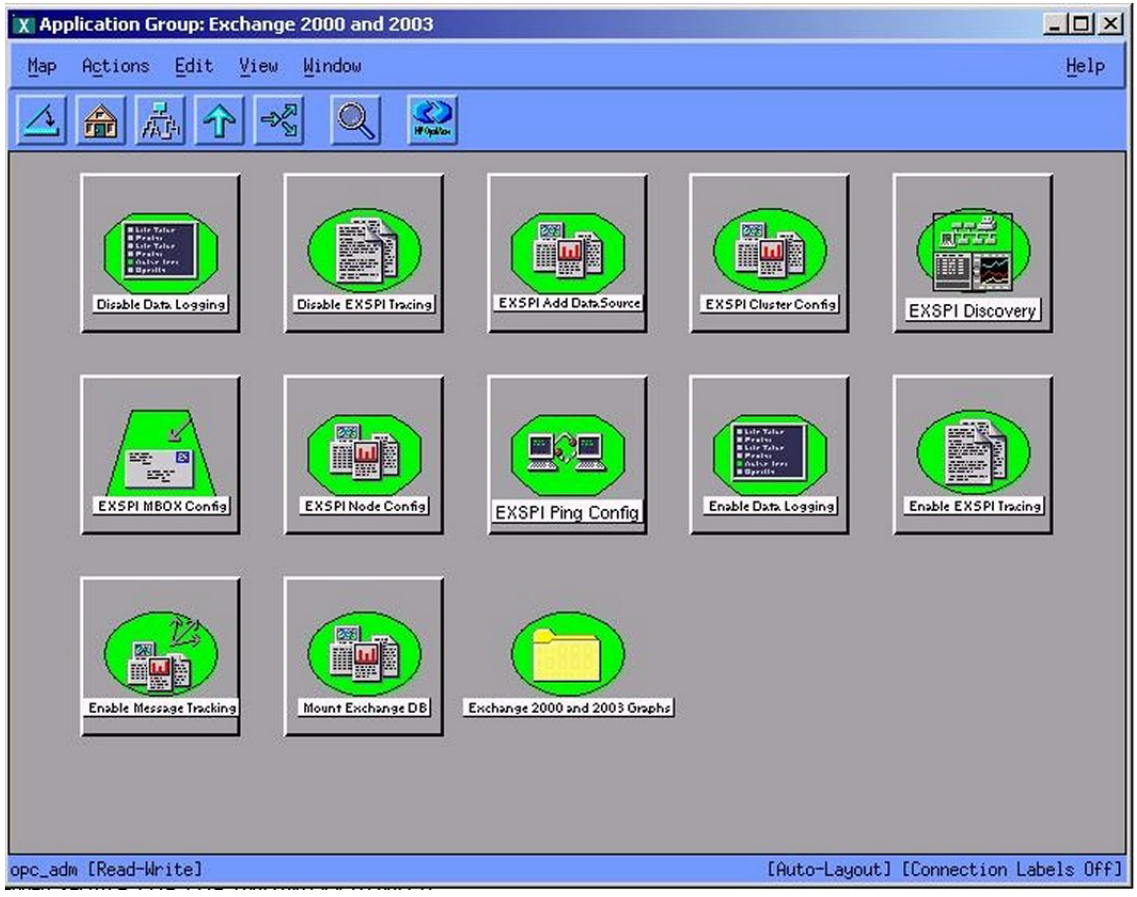
The application can take one or all of the following parameters:

- ***-s*** Search for dismounted databases.
- ***-m*** Search for dismounted databases and attempt to mount any found.
- ***-p*** Print the output.
- ***-a*** Forward an alarm message to the OVO Management server.
- ***-t*** Timeout: the time the tool can take to re-mount a dismounted database (in seconds). If not provided, the script will automatically set the timeout value to be 5 seconds. If the database cannot be remounted within the time frame given, you can set a higher timeout value, e.g. 30 seconds. If remounting the dismounted database still fails, and there is not an error in the output of the tool, there is probably a problem with the Exchange information store service.

Exchange 5.5 Exchange SPI Applications.

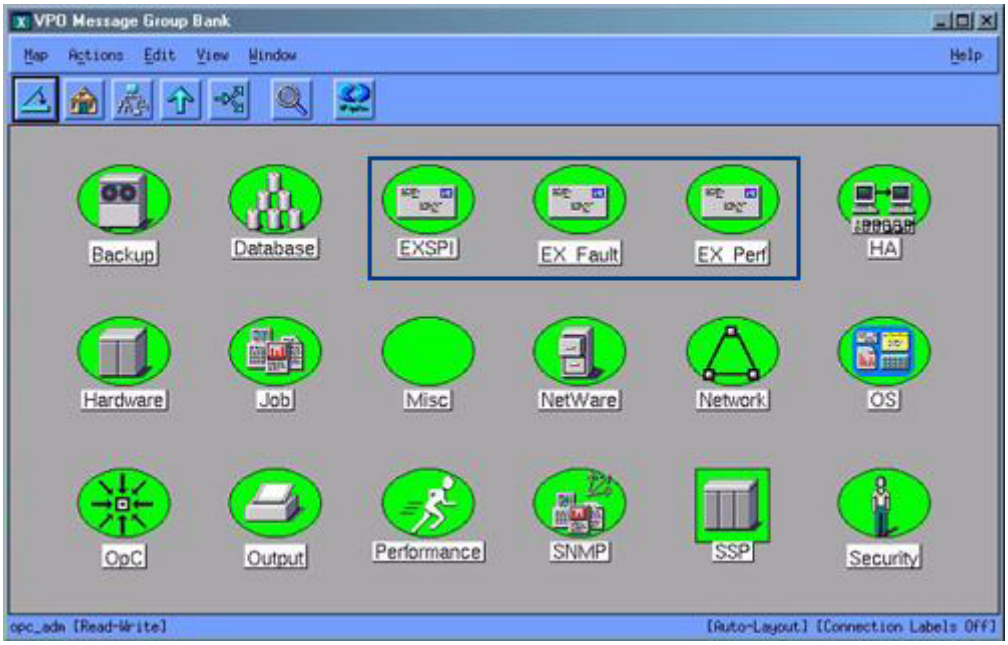


Exchange 2000 and 2003 Exchange SPI Applications



5. Exchange SPI Message groups and Messages

OVO Message Group Bank window



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

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

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

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

Exchange SPI messages are associated with services in the service map.

6. Exchange SPI Reports and Graphs

Exchange SPI Reports

Exchange SPI reports come in a separate package, EXSPI-Reporter.msi which can be found in the HP OpenView Operations for Unix Application CD-ROM. HP OV Reporter can be used to access the Exchange SPI data source, EXSPI_DATA present on the managed node and generate reports using Seagate Crystal Reports. These reports are broadly classified as Summary and Detail reports.

- **Summary** reports show data for all servers.
- **Detail** reports show information by system. See *Reports for Exchange 2000 and 2003* chapter 6 page 134, and *Reports for Exchange 5.5 only* chapter 6 page 137, for complete lists of out-of-the-box Exchange SPI reports.

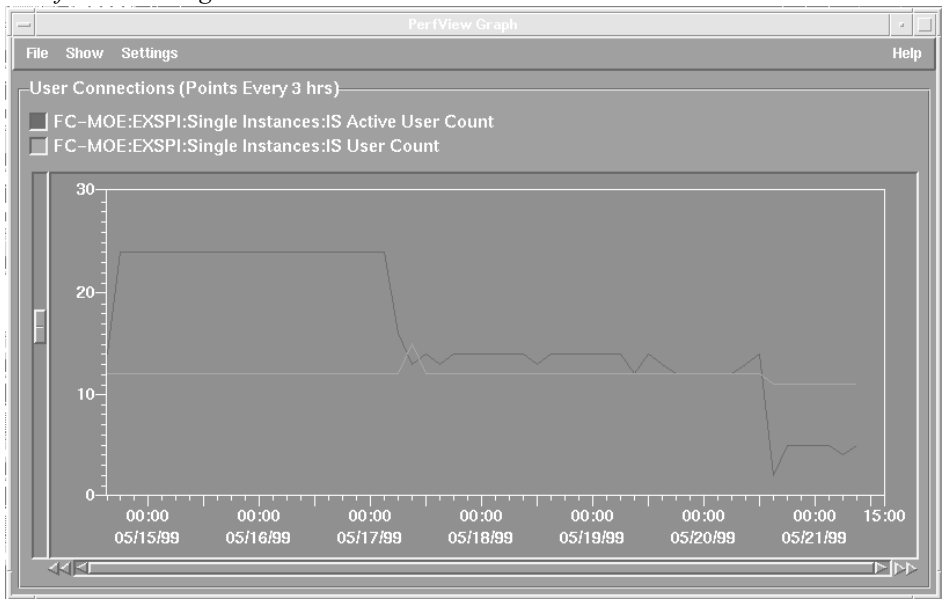
Exchange SPI Graphs

Exchange SPI includes a set of preconfigured graphs that can be viewed in HP Perfview. PerfView graphs require that an OpenView Performance Agent (also known as MeasureWare Agent) is running on the managed node. Upon installation of Exchange SPI, these graphs are located in the Application Bank under: EXSPI Admin > Exchange [2000 and 2003/55] > Exchange [2000 and 2003/55] Graphs.

The graphs are categorized as: Information Store, Messaging, System Information and Transaction Log File Size (Exchange 5.5 only). For more information, see *Exchange SPI Graphs* chapter 6 page 141.

In addition, data from any Exchange SPI server can be graphed using PerfView and data from the Exchange SPI OVO data collecting agent DSI logfiles. For more information, see *Generating Graphs from an Exchange SPI DSI Logfile* chapter 6 page 145.

PerfView Graph Generated from Exchange SPI Data



2

Exchange SPI User Privileges

Introduction

The Exchange SPI collects data from many sources. In order to collect the many types of data, the Exchange SPI requires advanced user credentials.

This chapter outlines:

- Which templates/applications have user account requirements
- How to create the service account and grant proper access permissions in the following environments:
  - Exchange 5.5 nodes in a Windows NT domain
  - Exchange 5.5 nodes in a Windows 2000 domain
  - Exchange 2000/2003 nodes in a Windows 2000/2003 domain

User Privileges

There are 2 levels of user privilege needed by the Exchange SPI:

1. HP ITO Account

All templates in the Quick Start group, and some templates in the Add-Ons and Advanced groups, run under this type of account. No customization to templates is required, only threshold changes if desired.

2. Service account user with special Exchange privileges

TEMPLATES: Some templates in the Add-Ons and most templates in the Advanced group run under this type of account:

- EXSPI Advanced > EXSPI End to End Message Ping > EXSPI-55/60 End to End Message Ping. These templates use the mailbox created by the Exchange SPI application Mailbox Config.
- EXSPI Advanced > EXSPI Reporter Collection > all templates. These templates use the Mailbox created by the application Exchange SPI Mailbox Config, to extract information from the public folder and mailbox tables via MAPI (Messaging Application Programming Interface).

Creating a Service Account with Proper Access Permissions

Some templates and applications require a service account for each logon domain where Exchange servers reside (see *Exspi Template Group Requirements* chapter 4 page 89). This service account enables the Exchange SPI to access information from the Exchange database.

The service account must be created and the access privileges granted. Procedures are outlined according to operating system environment, in the following manner:

- Case 1: For Exchange 5.5 nodes in a Windows NT Domain
- Case 2: For Exchange 5.5 nodes in a Windows 2000 Domain
- Case 3: For Exchange 2000/2003 nodes in a Windows 2000/2003 Domain

Exchange 5.5 nodes in a Windows NT Domain

CREATE USER ACCOUNT

1. Log on as Domain Administrator of the domain to which the Exchange server belongs.

2. Select **Start > Programs > Administrative Tools (common) > User Manager** for Domain.

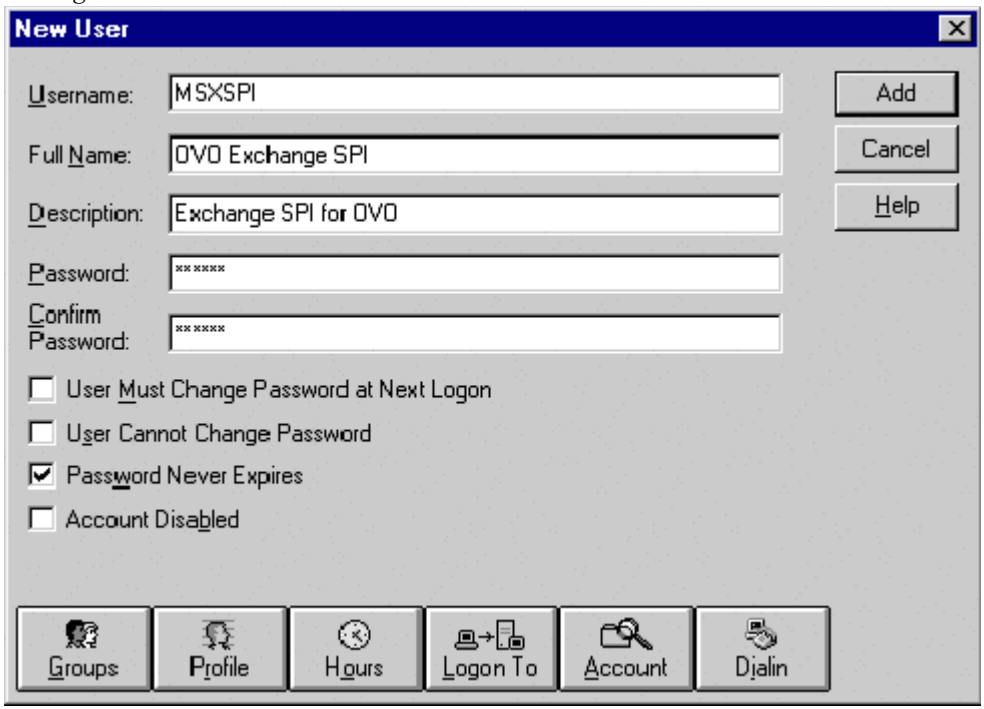
3. Select **User > New User**. In the dialog that appears create a new user as follows:

User Manager dialog

Username:	MSXSPI
Full Name:	OVO Exchange SPI
Description:	Exchange SPI for OVO
Password/Confirm Password:	*********

NOTE: Remember this password; you will need it later to update applications and templates.

New User dialog

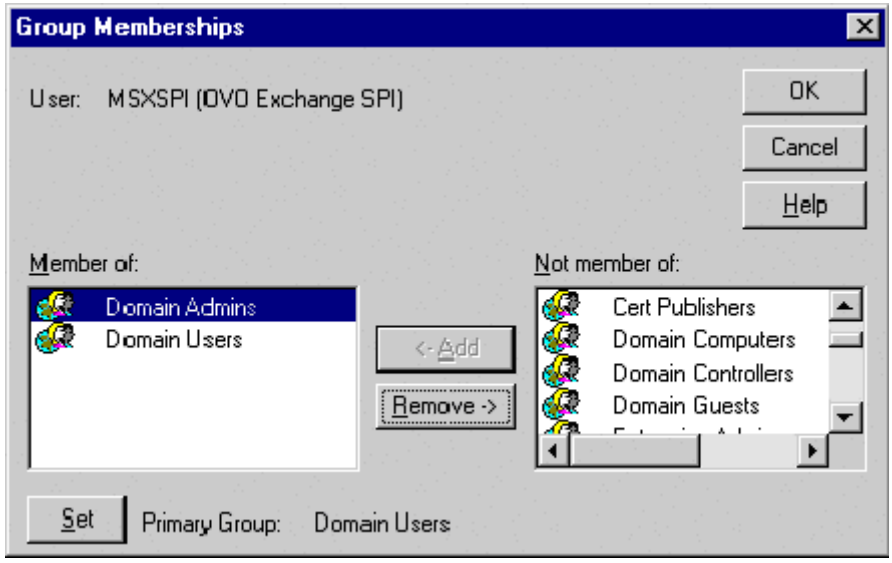


This password must be entered *but will not be authenticated later.*

4. Deselect **User Must Change password at Next Logon** and select **Password Never Expires**.

5. Click the **Groups** button to display the **Group Memberships** window.

Group Memberships dialog



6. At the right, from the **Not a member of**: box select the **Domain Admins** user, click **Add**, and **OK** to close the **Group Memberships** window.

7. To include necessary information, click buttons in the **New User** window:

Profile:	No User Profile should be specified.
Hours:	All hours of the day and week should be allowed.
Logon To:	All workstations should be specified.
Account:	Should never expire/should be Global Account.

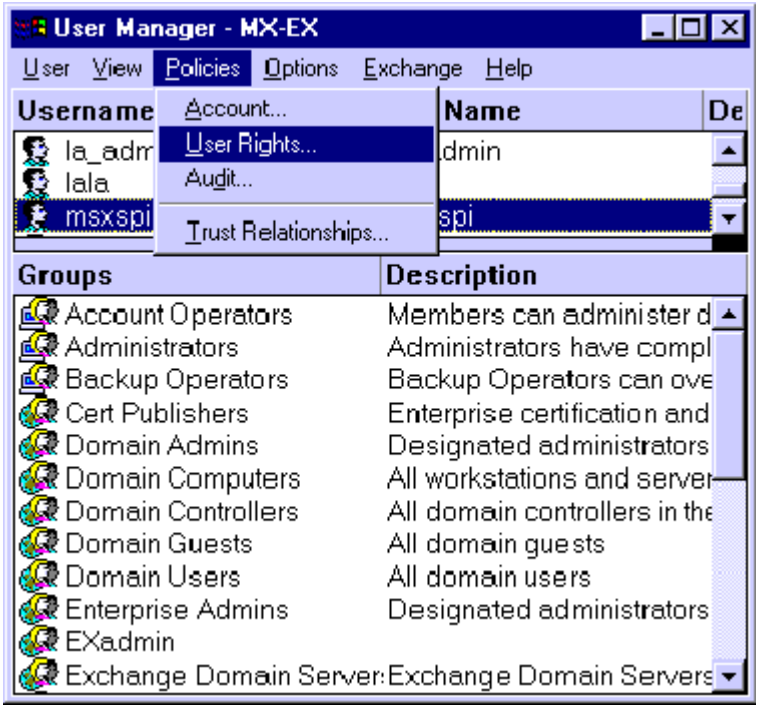
8. Click **Add** to add this user. (If the **Exchange Add Mailbox** window is

displayed, select **Cancel** to close it).

9. Click the **Close** button to close the **New User** window.

10. From the **User Manager** menu bar select **Templates > User Rights....**

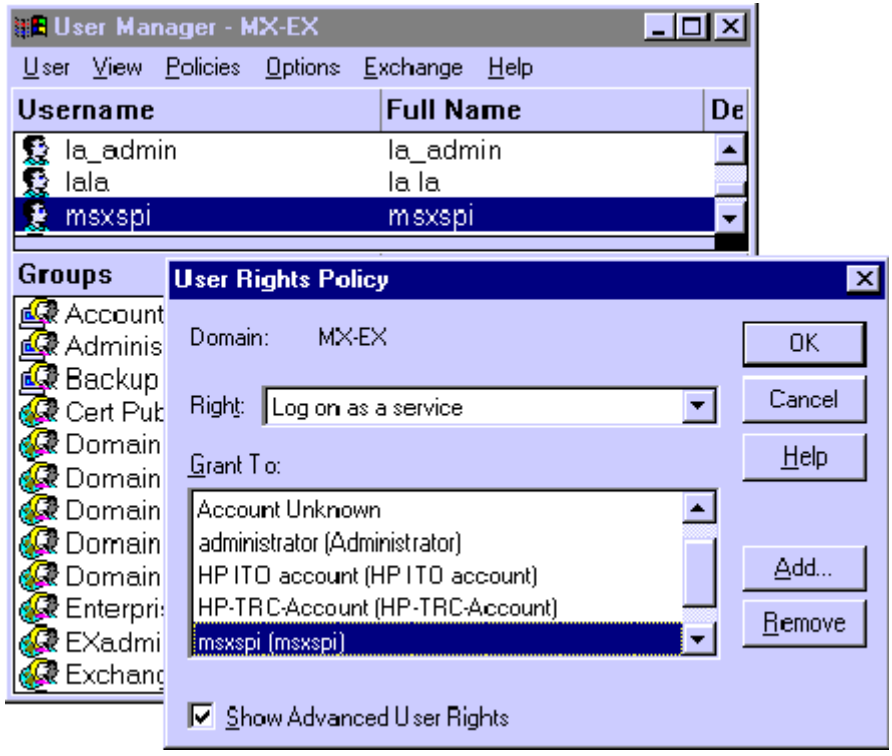
User Manager dialog



11. Check the **Show Advanced User Rights** checkbox.

12. From the drop-down list select **Log on as a service** in the **Right** field

Selecting Log on as a service for User Rights.

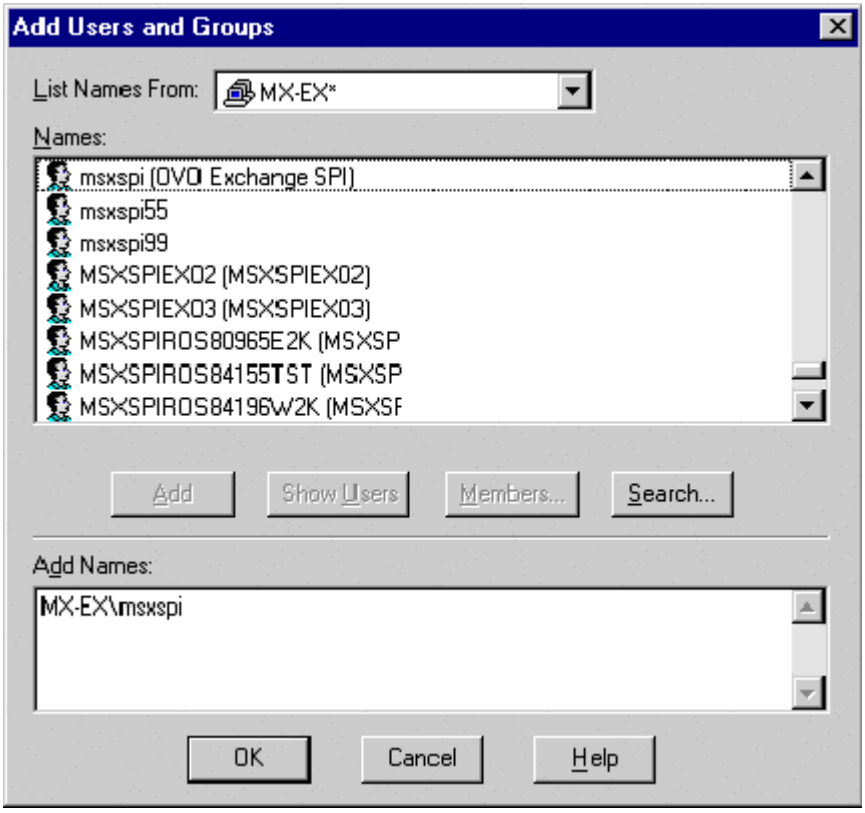


13. Click the **Add** button to open the **Add Users and Groups** window.

14. Click the **Show Users** button.

15. Select the user account just added (*MSXSPI*), click **Add**, then **OK**.

Adding the new User Account



16. Repeat steps 12-15 to add the **Profile system performance** right.

GRANT EXCHANGE ACCESS PERMISSIONS TO USER ACCOUNT

In order for the user account (in this example *MSXSPI*) to have access to a mailbox as well as the Exchange IS Public and Private databases, it must have Exchange Admin permissions. Use Exchange Administrator to grant these permissions at the site level.

1. Select **Start > Program > Microsoft Exchange > Microsoft Exchange Administrator**.

2. For each Exchange site where Advanced templates are to be distributed:

   a. In the left pane within the tree, select **<site_name>**.

   b. From the File menu select **Properties**.

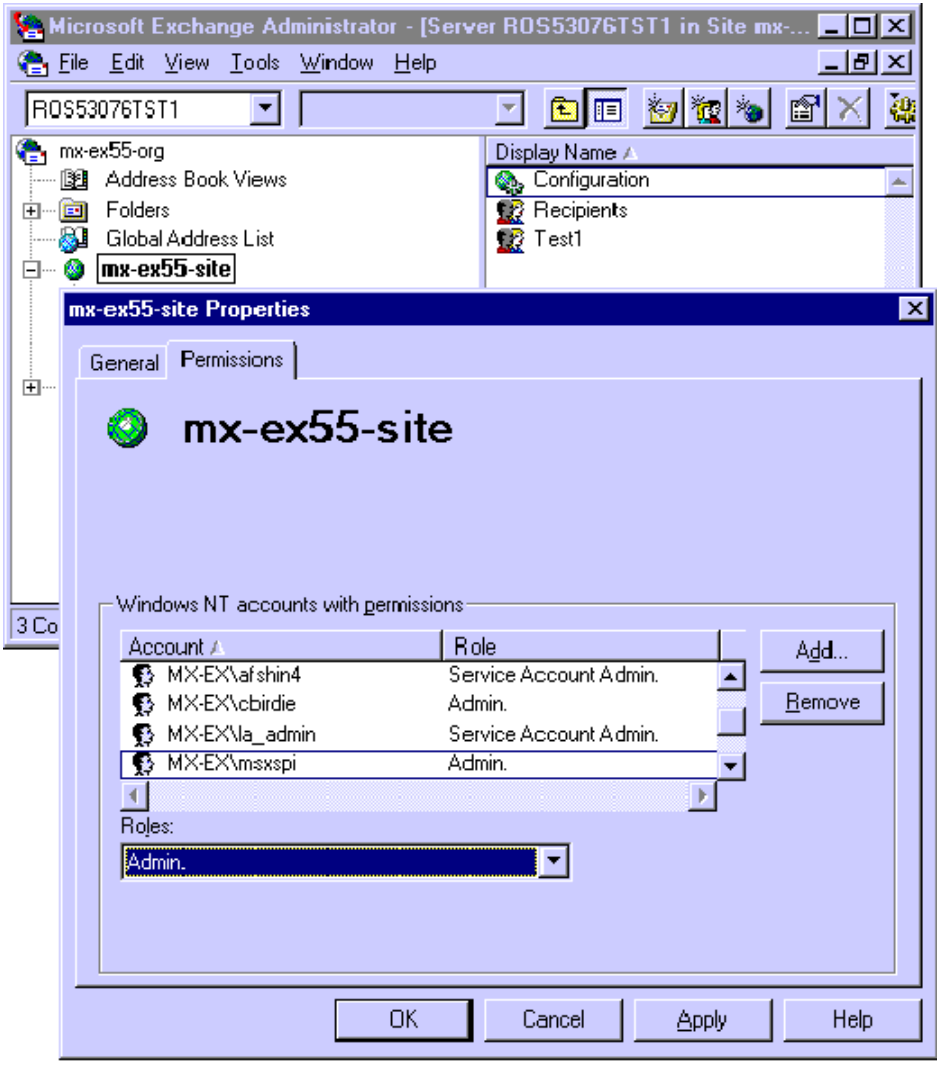
   c. In the Properties window, select the **Permission** tab and click **Add** to open the **Add Users and Groups** window.

   d. Select the user account previously created (*MSXSPI*), and click **Add**.

   e. Click OK to add the user, and close the **Add Users and Groups** window.

   f. Verify the user has the role of **Admin**.

Verifying the User role



g. Click **OK** to save the changes.

Exchange 5.5 nodes in a Windows 2000 Domain

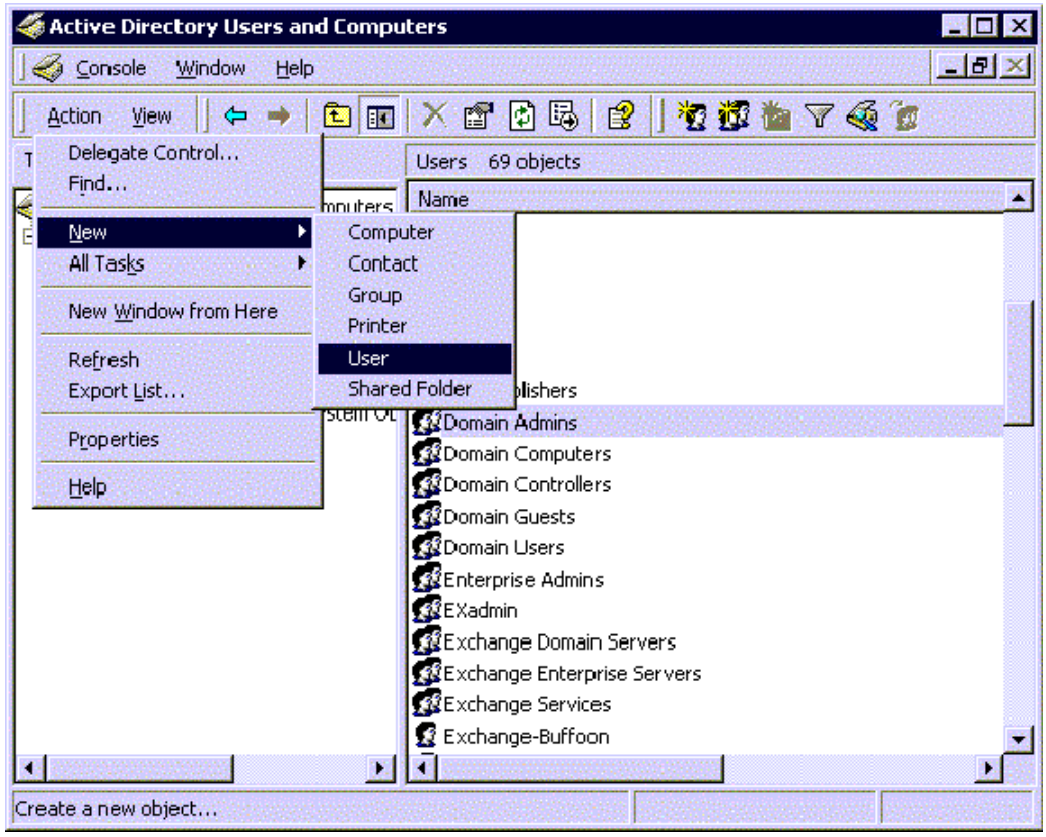
CREATE USER ACCOUNT

1. Log on to the system that hosts the managed node's domain.

2. Select **Start > Programs > Administrative Tools > Active Directory Users and Computers.**

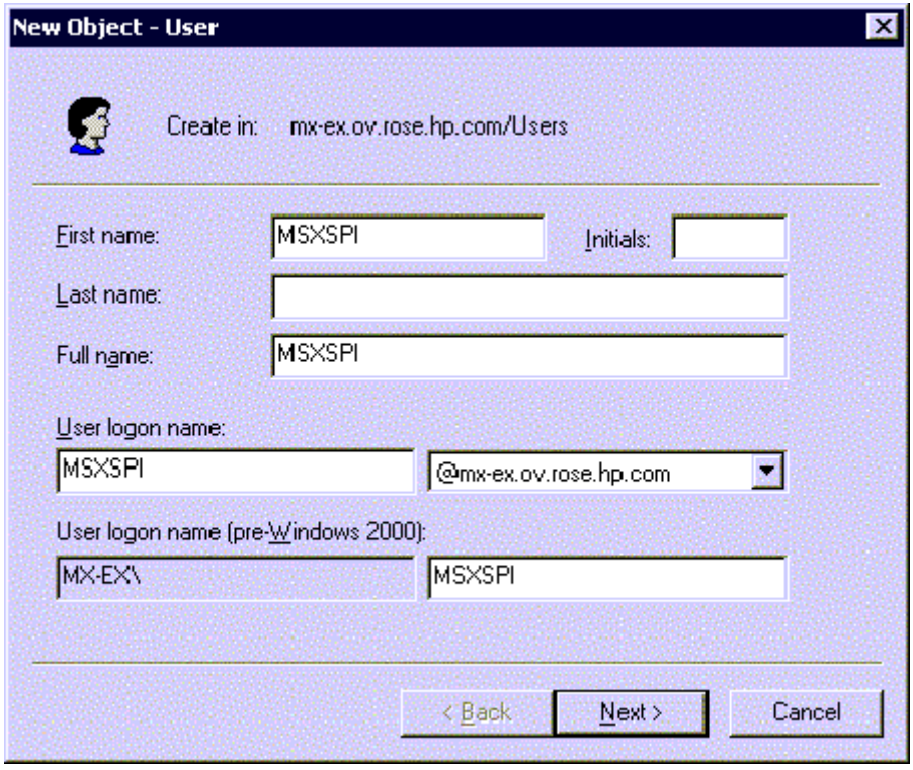
3. Expand the Active Directory of Users and Computers, right-click **Users,** and select **New > User**.

Selecting New User dialog



4. In the dialog box that appears, enter the user name just created (in this example *MSXSPI*) as the **First Name** and as the **User logon name**.

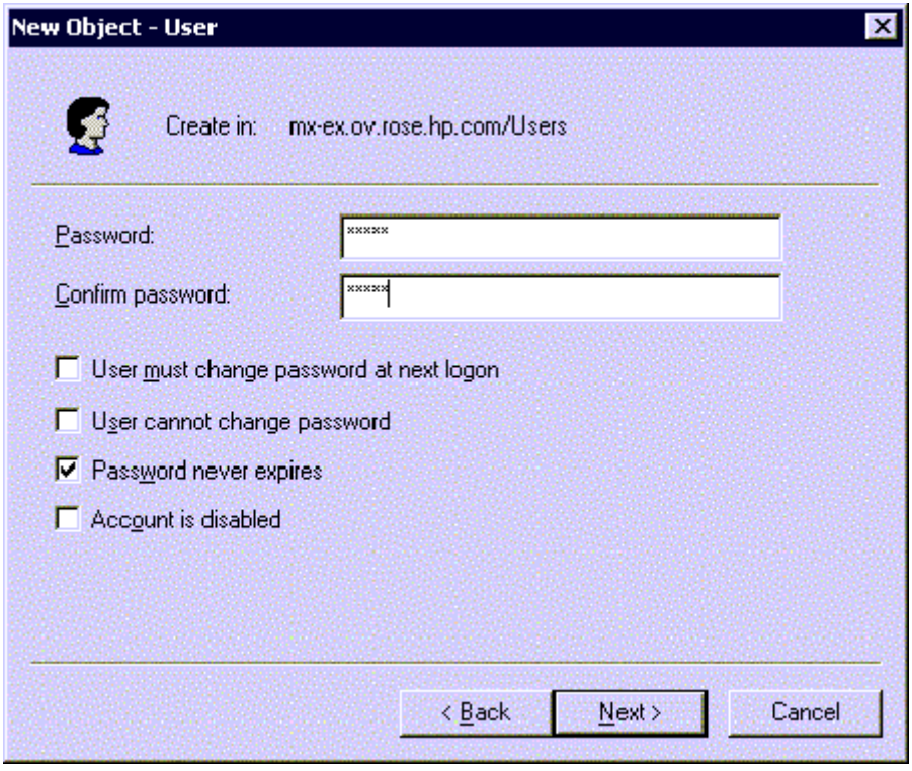
New object dialog



5. In the next window, enter **Password/Confirm Password** for the user account (MSXSPI).

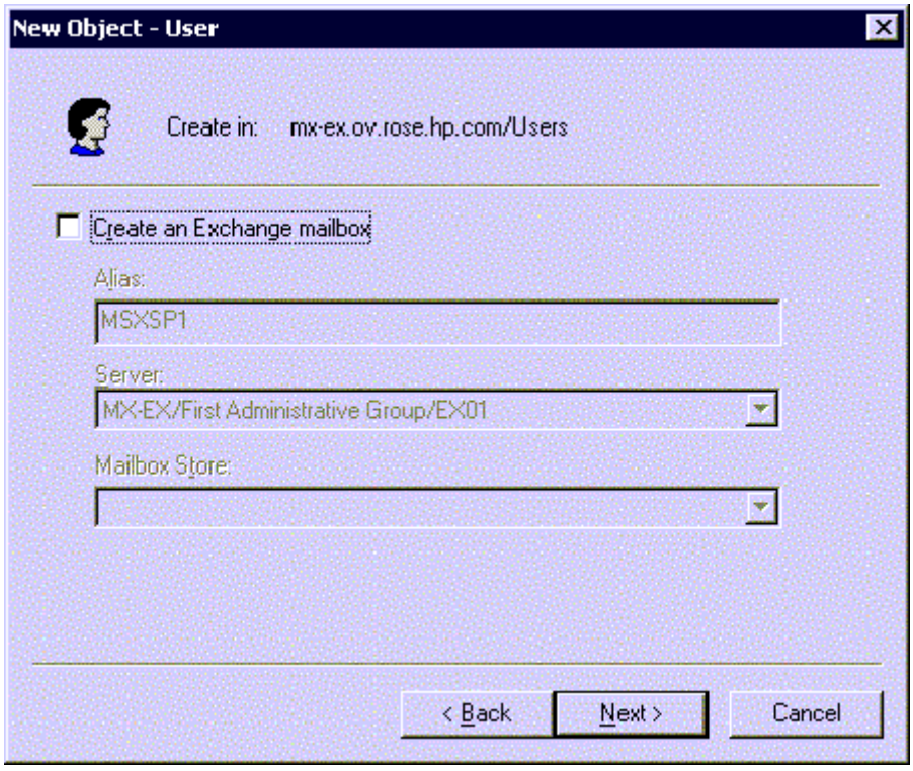
6. Select **Password Never Expires**. Then click **Next**

Setting User Privileges.



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

Deselect Create an Exchange Mailbox

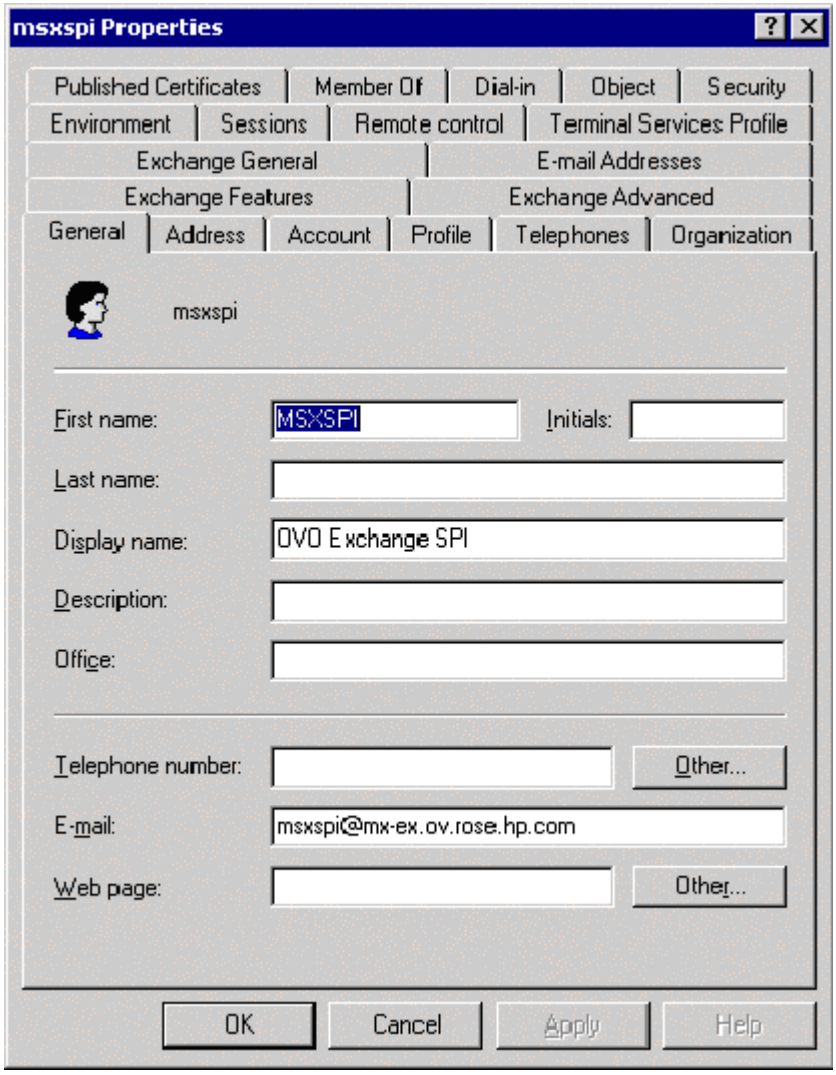


8. In the next dialog, complete creating the user by clicking **Finish**.

9. You are now back at the **Active Directory Users and Computers** dialog. In the right pane, right-click on the user just created (in this example *MSXSPI*) and select **Properties**.

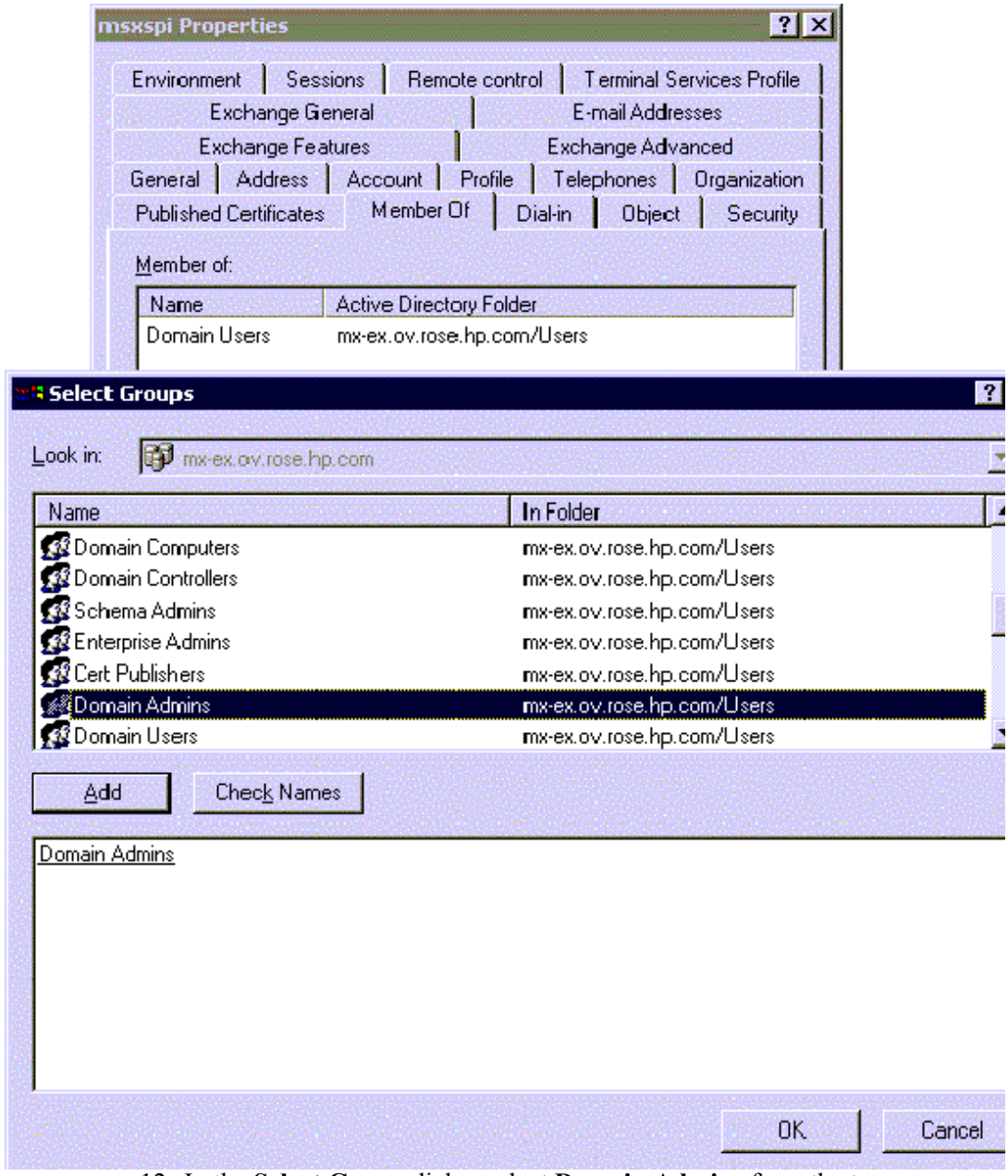
10. In the **MSXSPI Properties** page, select the **General** tab. Enter “Exchange SPI for OpenView Operations for Windows” in the **Description** field.

Properties dialog



11. Select the **Member Of** tab. Click **Add**

Setting User account privileges

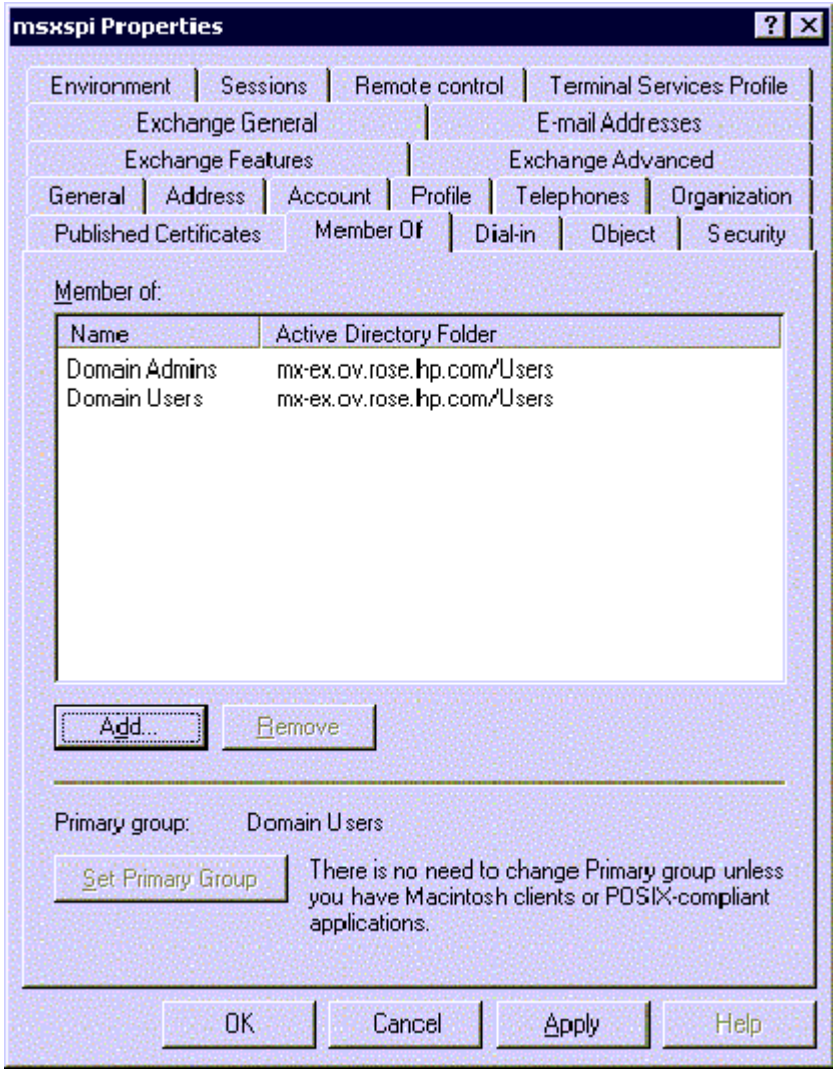


12. In the **Select Group** dialog select **Domain Admins** from the top pane.

Click **Add**, then **OK**.

13. The new user (MSXSPI) is now a member of Domain Admins group. Click **OK** and exit the **Active Directory Users and Computer** dialog.

New User with new Membership status



GRANT EXCHANGE ACCESS PERMISSIONS TO USER ACCOUNT

In order for the user account *MSXSPI* to have access to a mailbox as well as the Exchange IS Public and Private databases, it must have certain Exchange Admin permissions. Use Exchange Administrator to grant these permissions at the site level.

1. Select **Start > Program > Microsoft Exchange > Microsoft Exchange Administrator**.

2. For each Exchange site where Advanced templates are to be distributed:

   a.. In the left pane within the tree, select **<site_name>**.

   b. From the File menu select **Properties**.

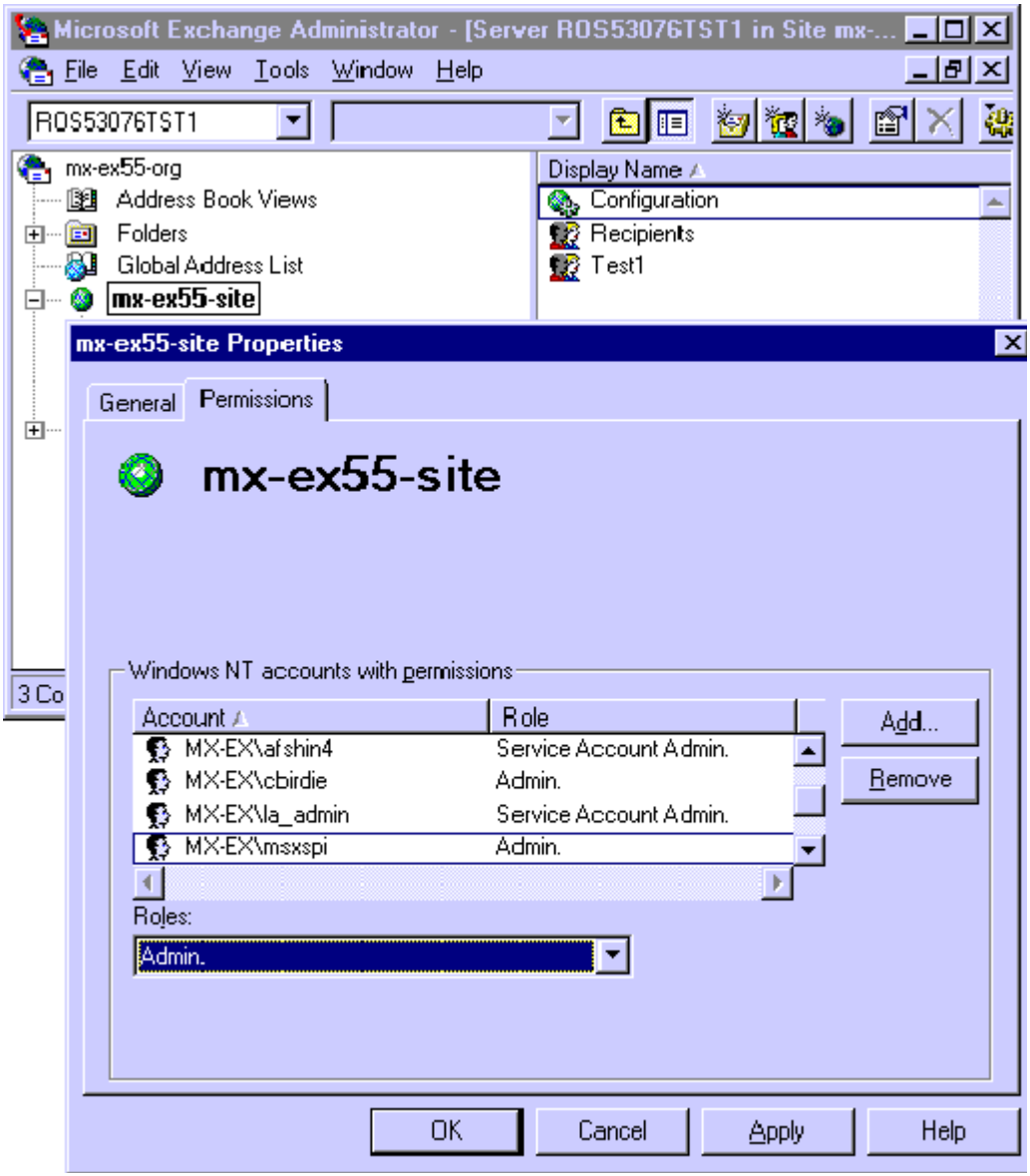
   c. In the Properties window, select the **Permission** tab and click **Add** to open the **Add Users and Groups** window.

   d. Select the user account previously created (MSXSPI), and click **Add**.

   e. Click OK to add the user, and close the **Add Users and Groups** window.

   f. Verify the user has the role of **Admin.**

Verifying User roles.



g. Click **OK** to save the changes.

Exchange 2000/2003 nodes in Windows 2000/2003 Domain

To create a service account with special Exchange privileges for Exchange 2000/2003 nodes the following steps are required:

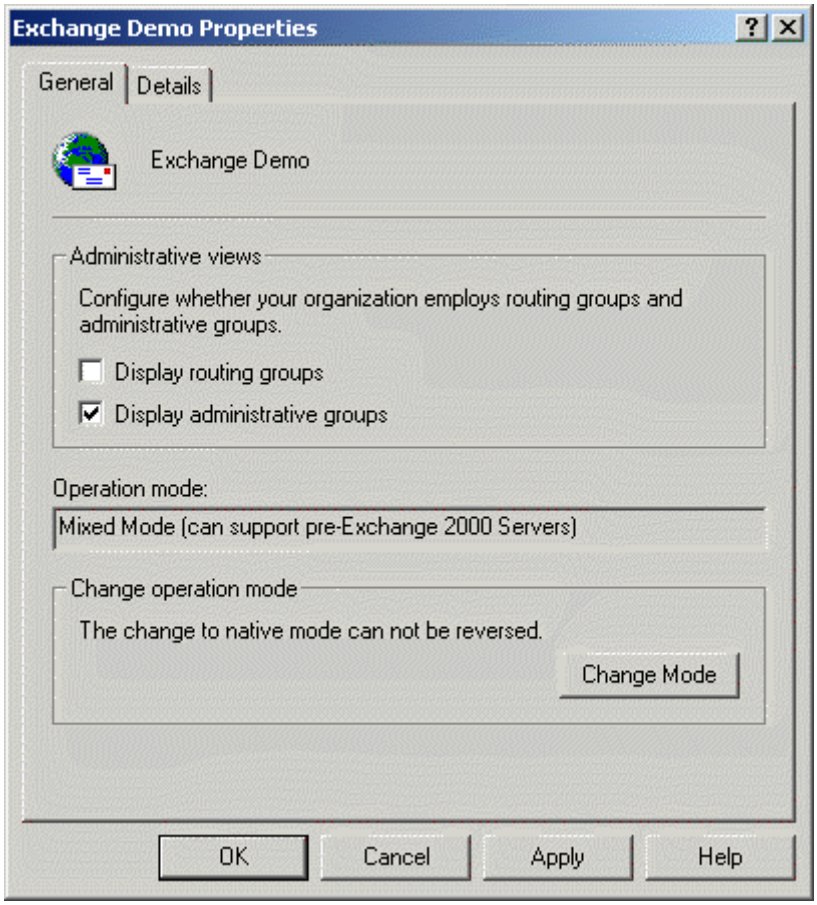
- Enable viewing of the Administrative Groups folder
- Create the service account
- Add the service account user to the Local Administrators group.

Enable Viewing of Administrative Groups folder

To create the user account it is necessary to first enable viewing the administrative groups folder:

1. Open the Exchange server **Properties**
2. Select **Display administrative groups.**
3. Click **Apply** and **OK**.

Exchange Server Properties Dialog



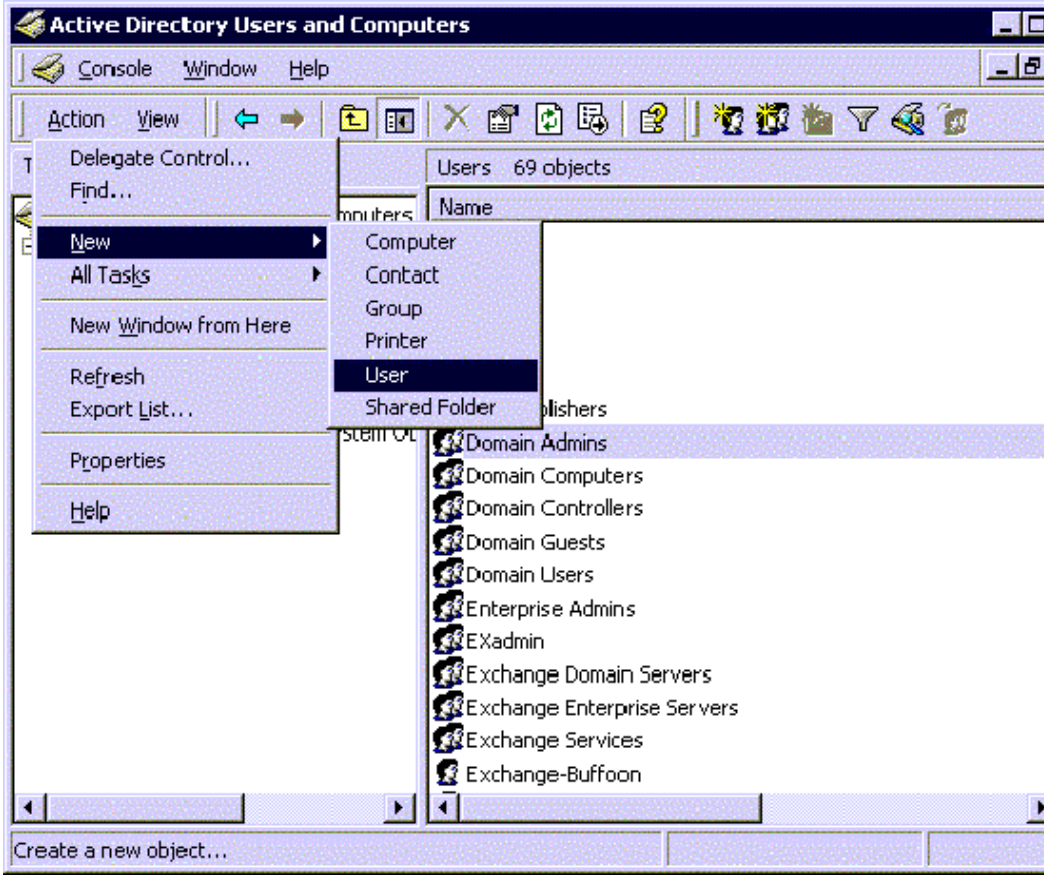
CREATE USER ACCOUNT

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**.

Active Directory Users and Computers dialog

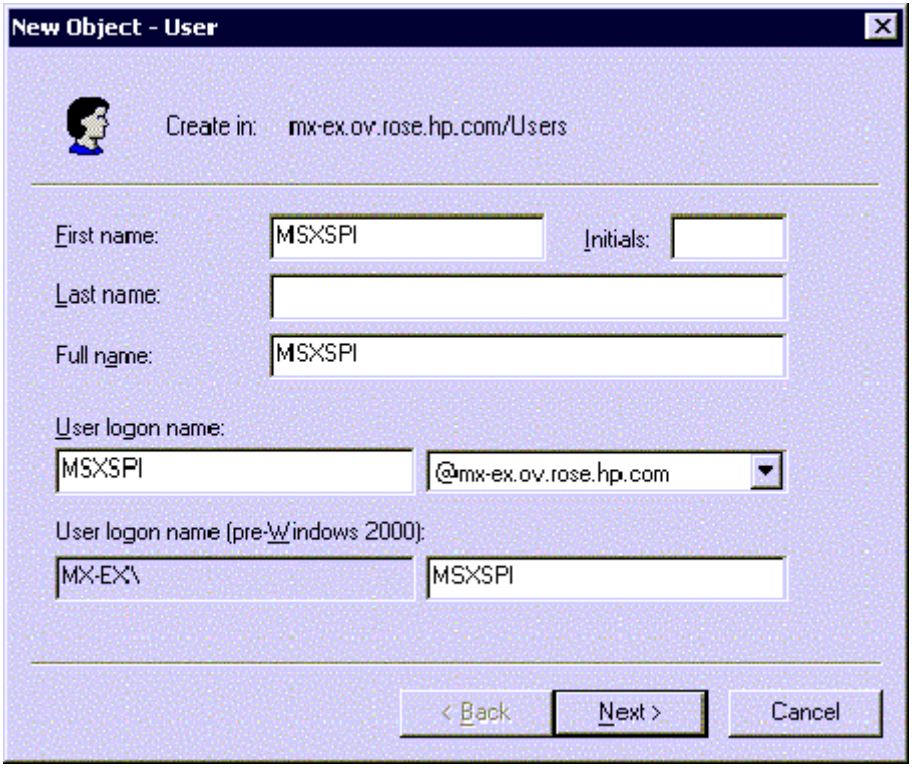


4. In the **New Object - User** dialog, enter a user name for the new service

account into the **First Name** and the **User logon name** fields.

You must create a service account with these privileges in each Windows domain.

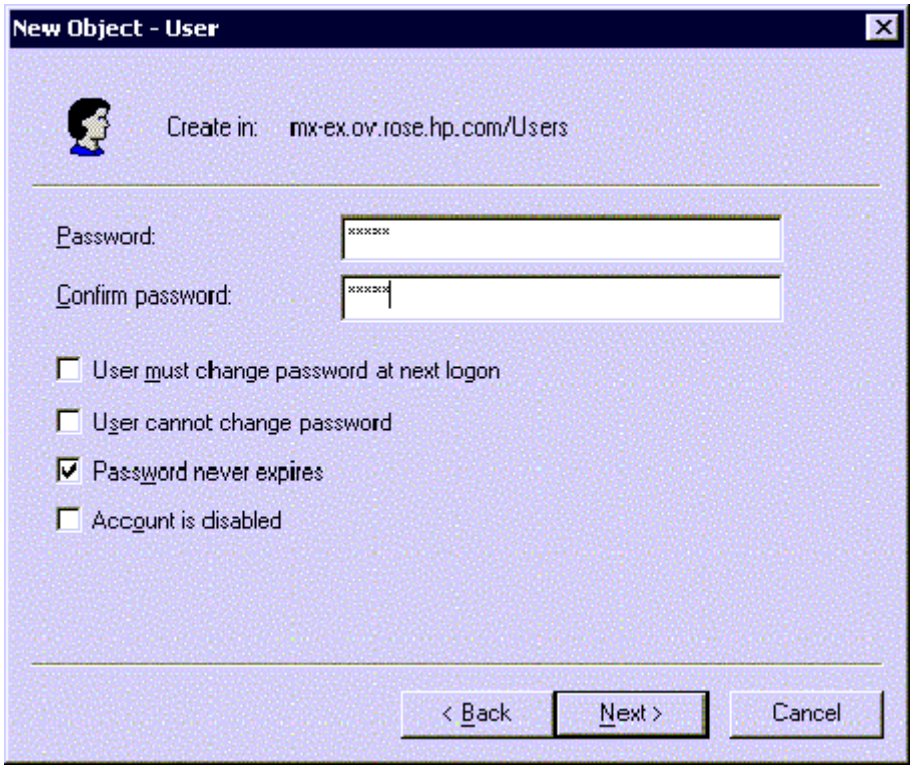
Entering the new service account name



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

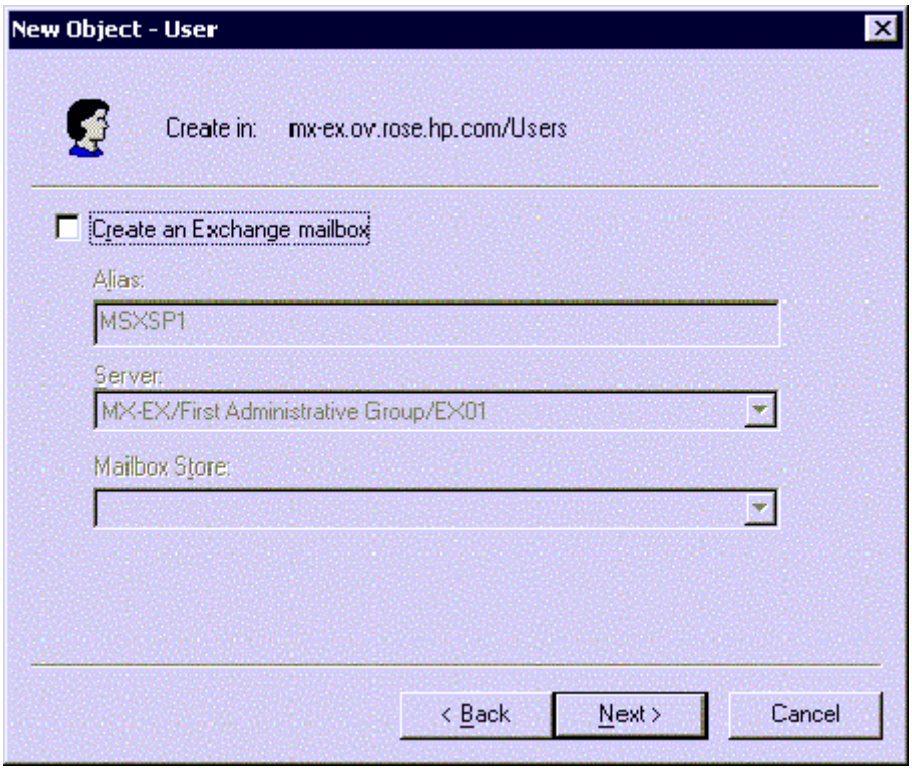
6. Select **Password Never Expires**. Then click **Next**.

Setting password properties



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

Deselecting creating a mailbox

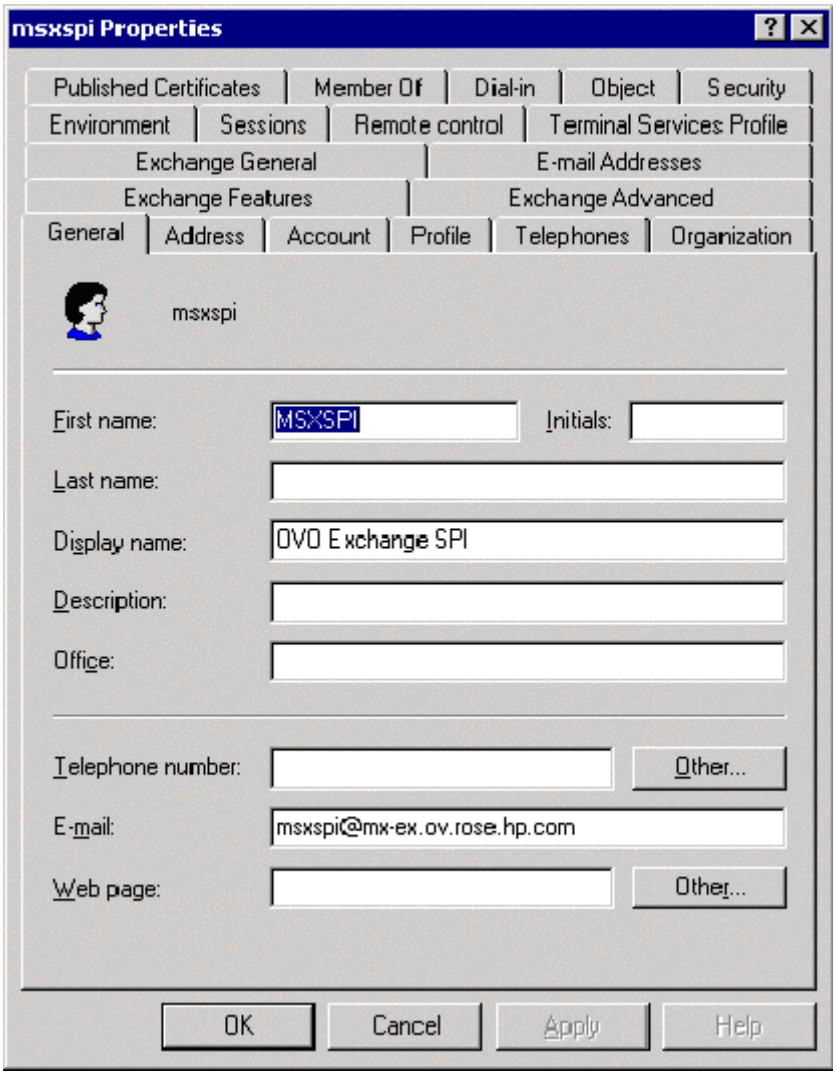


8. In the next dialog, complete creating the user by clicking **Finish**.

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.

Entering names in Properties dialog

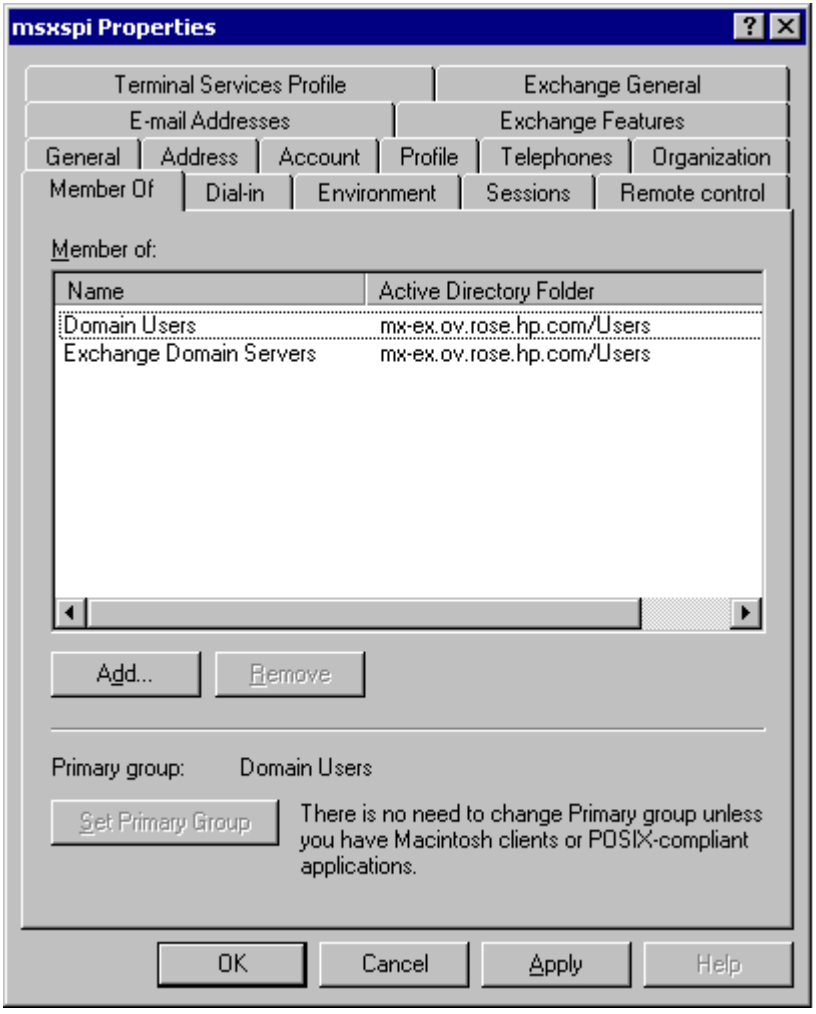


11. Select the **Member Of** tab, and click **Add**.

12. In the **Select Group** dialog select **Exchange Domain Servers** from the top pane.

13. Click **OK** and exit the **Active Directory Users and Computer** dialog.

Confirming membership privileges



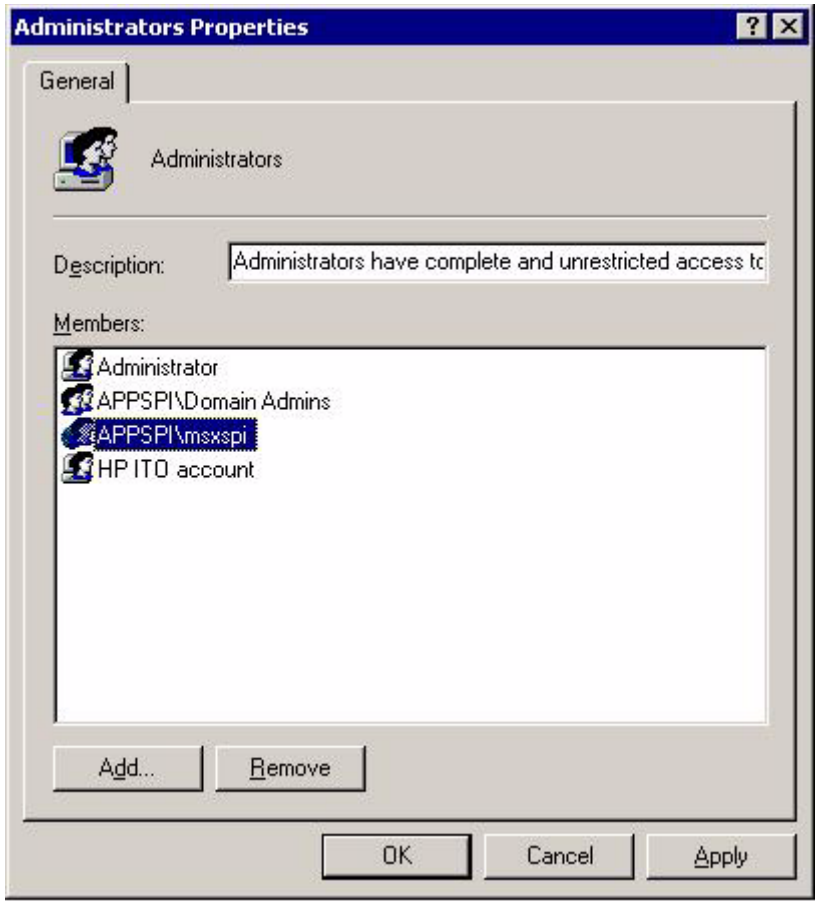
14. Add the service account user to the Local Administrators group on the Exchange server.

    a. On each targeted Exchange 2000/2003 server, select **Start > Settings > Control Panel.**

b. Double click **Administrative Tools**. Double click **Computer Management**, then open the **Local Users and Groups** folder. Select and open the **Groups** folder, then double click **Administrators**.

c. In the **Administrators Properties** dialog, click the **Add** button. Select the correct Domain from the **Look in** drop down list. Select the new service account user from the list, and click **Add.** Click **Apply** and then **OK.**

Adding service account user to Local Administrators group



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

3

Installing & Configuring the Exchange SPI

Introduction

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

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

Prior to Installation

- This release is targeted at OVO for UNIX 7.*x* or higher. Please verify your current OVO version.

- Before installing this version of the Exchange SPI, any previous version of the Exchange SPI must be removed, see *Deinstalling Exchange SPI* chapter 3 page 81.

- The installation of Exchange SPI depends on the following pieces of software: DSI2DDF (Version >= A.01.12.00) and SPI-SVCDISC-OVO (version = A.02.00). Verify that these are present on the management server before installing the Exchange SPI.

- Every installation of the Exchange SPI requires a basic configuration procedure which is detailed in the section *Installation and Basic Configuration* chapter 3 page 56.

- A more advanced configuration procedure is required before distributing some of the Add-Ons and Advanced templates, for example those for collecting Exchange folder and mailbox information, and testing connections between servers. See *Advanced Configuration* chapter 3 page 66 for the advanced configuration procedures.

- The Exchange Service Discovery application has some requirements, please see *Prerequisites for Exchange SPI Service Discovery* chapter 4 page 94.

- Some templates require a service account with special Exchange privileges. See *Exspi Template Group Requirements* chapter 4 page 89 for template requirements, and see *Creating a Service Account with Proper Access Permissions* chapter 2 page 22 for procedures.

- Exchange SPI requires a data collection agent - OpenView Performance Agent [also known as MeasureWare Agent] or OpenView Operations Subagent 12 [included with OpenView Operations 7.0], to collect data for reporting and graphing purposes. Use the Exchange SPI application

EXSPI Add DataSource to configure the data source and start logging data.

- Exchange SPI reports require HP OpenView Reporter. Exchange SPI graphs require HP OpenView PerfView. HP OV Reporter and the Exchange SPI **EXSPI-Reporter.msi** need to be installed on any Windows node in the domain where Exchange SPI is managing nodes.

TEMPLATE GROUPS: INSTALLATION CONSIDERATIONS

After installation, you can view the Exchange SPI templates using the **Templates>Reload Templates** command in the Message Source Templates window.

NOTE: In OVO for UNIX version 8, templates are referred as policies.

Exchange SPI templates are located under the SPI for Exchange group and can be distributed as groups or individually. The groups are as follows:

- **SPI for MS Exchange:** under this folder are the version specific folders **Exchange 55**, and **Exchange 2000 and 2003.** Template groups are listed here with ***xx*** indicating the version number **55** (for Exchange 5.5) or **60** (for Exchange 2000 and 2003). The requirements for each group are as follows:

  - **EXSPI-*xx*-Quick Start** templates, in general require the HP ITO Account, see *Exspi Template Group Requirements* chapter 4 page 89.
  - **EXSPI-*xx*-Add-Ons** templates are designed to monitor specific software components, which may or may not be installed on the MS Exchange Server (for example, Lotus Notes must be installed for the EXSPI-60 Lotus Notes Connector templates to work). Select templates for the software components you are using on the targeted MS Exchange Server.
  - **EXSPI-*xx*-Advanced** templates and **EXSPI-*xx*-Add-Ons** generally require a service account with special Exchange privileges. See *Creating a Service Account with Proper Access Permissions* chapter

2 page 22 for details.

All data collection templates require that a data collection agent (the OV Performance or OVO subagent) is installed and running on the managed node.

Installation and Basic Configuration

The **Basic** Exchange SPI configuration is designed to get you started quickly, using the Quick Start and Exchange Service Discovery template groups that require only the HP ITO Account as a basis for server monitoring. Many of the templates in the Add-Ons and Advanced template groups require a service account with special Exchange privileges, which requires the more **Advanced** configuration procedure covered later in this chapter.

When the basic installation and configuration procedure is complete, you will have completed the following tasks:

- ❑ **Task 1:** Install Exchange SPI on the management server.
- ❑ **Task 2**: Add nodes to the node group EXSPI.
- ❑ **Task 3:** Install OVO agents on all MS Exchange server systems (required if the OVO Windows agent is not yet distributed).
- ❑ **Task 4:** Install OVO agents on the management server (needed for some of the OV utilities that are used by Exchange SPI applications).
- ❑ **Task 5:** Assign responsibilities for the OVO Operator.
- ❑ **Task 6:** Distribute Exchange SPI actions, commands, monitors to the Exchange servers.
- ❑ **Task 7:** Configure data sources.
- ❑ **Task 8:** Assign and distribute template groups to managed node(s) running MS Exchange server.

Task 1: Install Exchange SPI on the Management Server

Prerequisite: It is not necessary to stop OVO sessions before beginning the Exchange SPI installation, however the following need to be installed on the management server:

- OpenView Operations (OVO) for UNIX version 7.*x* or higher
- DSI2DDF (A.01.12.00 *or greater*).
- SPI-SVCDISC-OVO (A.02.00).

NOTE: The instructions that follow show the command line usage of swinstall. For HP-UX systems you can also use the graphical user interface (GUI), but the procedure is not covered here.

The Exchange SPI is available on the *HP OPenView Operations for UNIX Applications CD-ROM*. There are two CDs in the Applications CD-ROM set, the first contains the products' management server install packages, and the second contains the *OpenView Reporter* and *OpenView Performance Manager* integrations for the applications. At this point use the first CD.

For an **HP-UX 11.0** management server, enter:

```
swinstall -s /cdrom/OV_DEPOT/11.OHPUX.sdtape SPI-EXCHANGE-OVO
```

For a **Solaris** management server, enter:

```
swinstall -s /cdrom/OV_DEPOT/SOLARIS.sdtape SPI-EXCHANGE-OVO
```

TASK 2: ADD NODES TO THE NODEGROUP

Upon installation Exchange SPI creates a Node Group **EXSPI**. All Exchange nodes to be managed should be added to this node group, so that tasks such as installing agent software, running applications, and distributing actions/commands/monitor/templates can be done for the whole node group, instead of needing to select each node.

TASK 3: INSTALL OVO AGENTS ON MS EXCHANGE SERVERS

Install an OVO Windows agent on all MS Exchange servers. (If you need details for installing the OVO agent, refer to the *OVO Installation Guide for the Management Server*.)

TASK 4: INSTALL OVO AGENT ON OVO MANAGEMENT SERVER

Install an OVO UNIX agent on the OVO Management Server. (For details on installing the OVO agent, refer to the *OVO Installation Guide for the Management Server*.)

NOTE: This is required for the Exchange SPI applications that run on the management server.

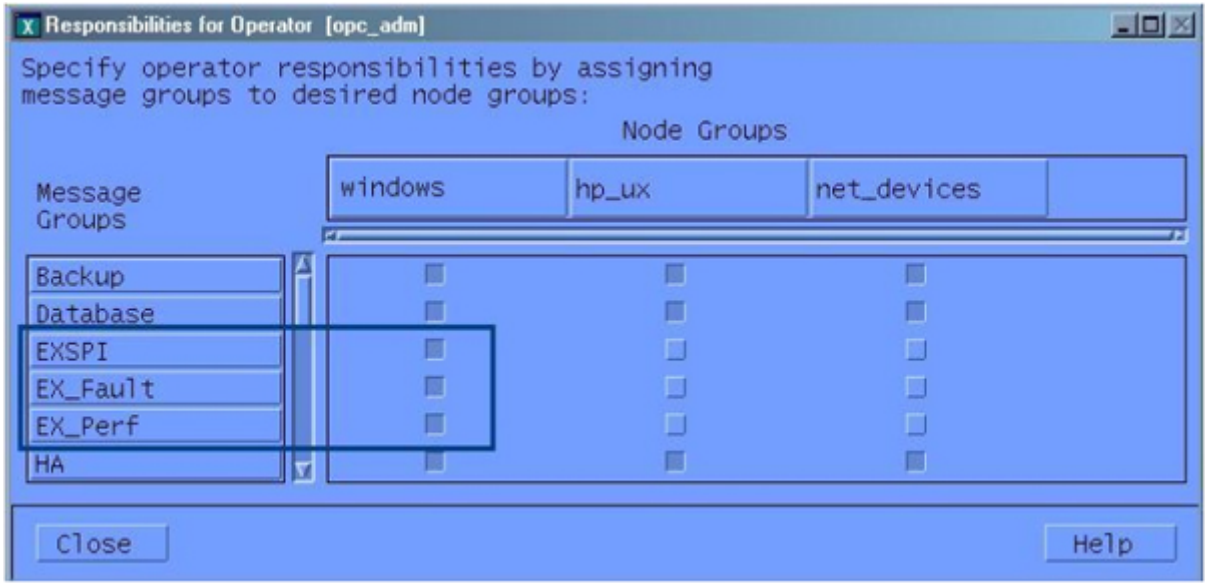
TASK 5: ASSIGN RESPONSIBILITIES FOR OVO OPERATOR

All target hosts for Exchange SPI must be OVO managed nodes and must be running on an OVO intelligent agent.

1. Log on to OVO as the OVO administrator `(opc_adm)`.

2. Select **Window > User Bank**
   a. Select the **opc_adm** user
   b. Choose **Actions > User > Modify**
   c. Press the **Responsibilities** button and use the Responsibilities for Operator `(opc_adm)` window to view messages.

The Responsibilities for Operator window



3. In the Node Group that contains your Exchange managed node, select the following Exchange SPI message groups:

   - EXSPI
   - EX_Fault
   - EX_Perf

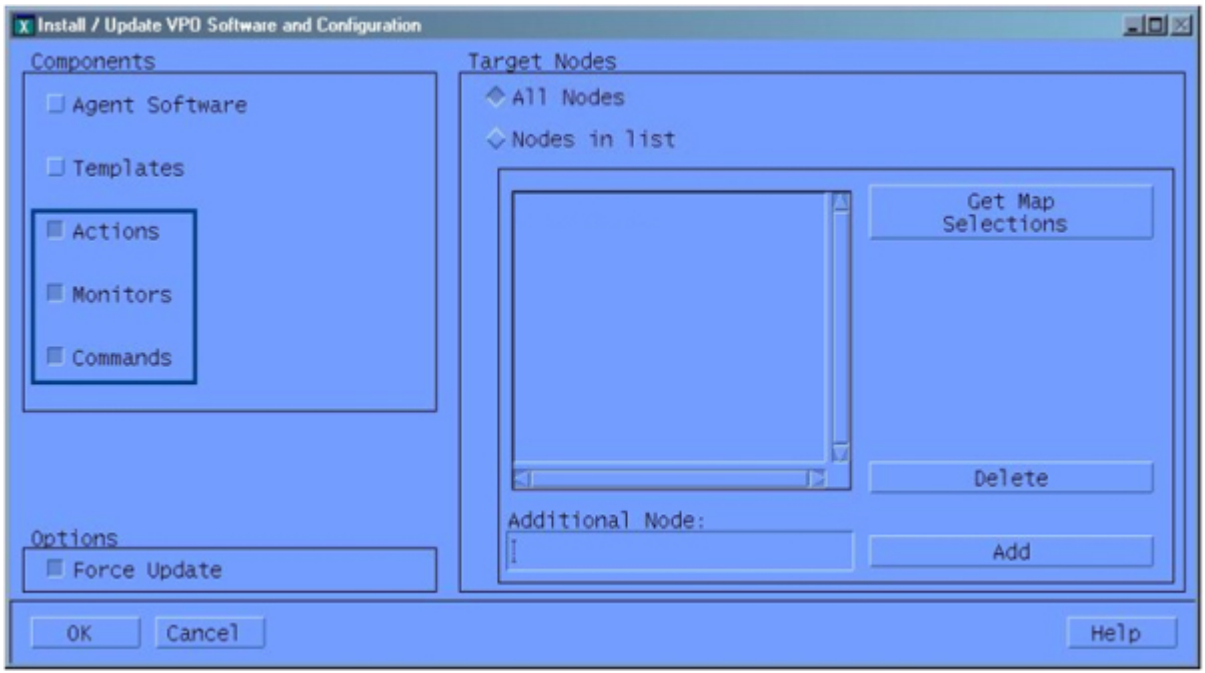
4. Use the **Actions** > **Browser > Start/Reload** from the OVO User Bank menu.

TASK 6: DISTRIBUTE EXCHANGE SPI ACTIONS, COMMANDS, MONITORS

To collect Exchange data, you must complete the following steps:

1. Distribute Exchange SPI actions, commands, monitors to the Exchange servers by selecting **Actions>Agents>Install/Update SW & Config** from the OVO Node Bank menu.

Install/Update OVO Software and Configuration window



2. In the Install/Update OVO Software and Configuration window check the following checkboxes to select components:

   - Actions
   - Monitors
   - Commands

3. Check the **Nodes in List Requiring Update** checkbox.

4. Check the **Force Update** checkbox.

5. If a node was not selected previously, select the node in the Node Bank and use **Get Map Selections** to add the Exchange server(s) to the target node(s) list.

6. Click **OK**.

7. The following message is displayed in the message browser:

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

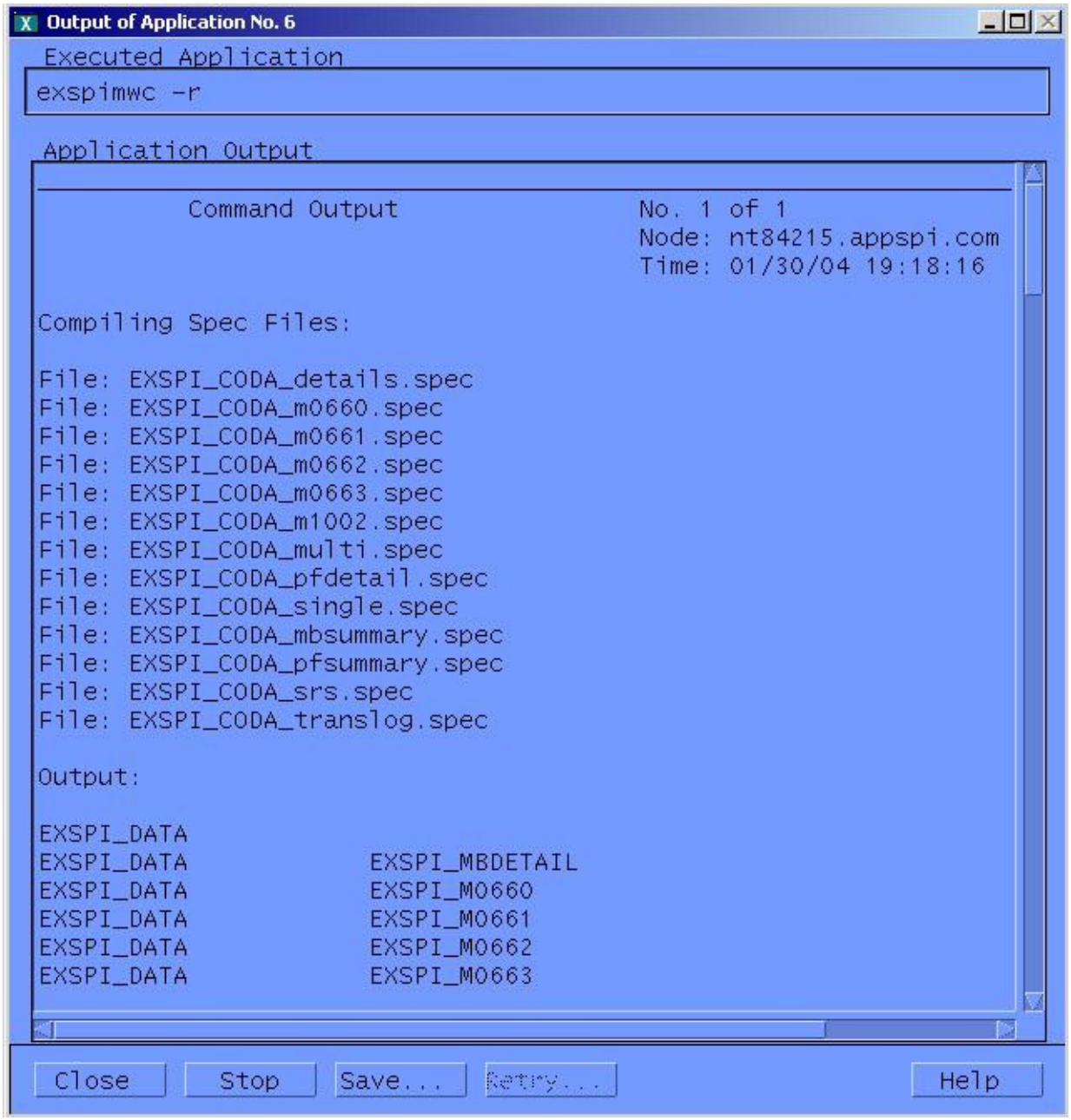
TASK 7: CONFIGURE/UPDATE DATA COLLECTION AGENT DATASOURCES

The OVO data collection agent collects, logs, and timestamps data from individual systems. If you use OV Performance Agent (MeasureWare Agent), you can use PerfView to graph the data; if you use OpenView Reporter, you can use it to generate reports displayed as Web pages.

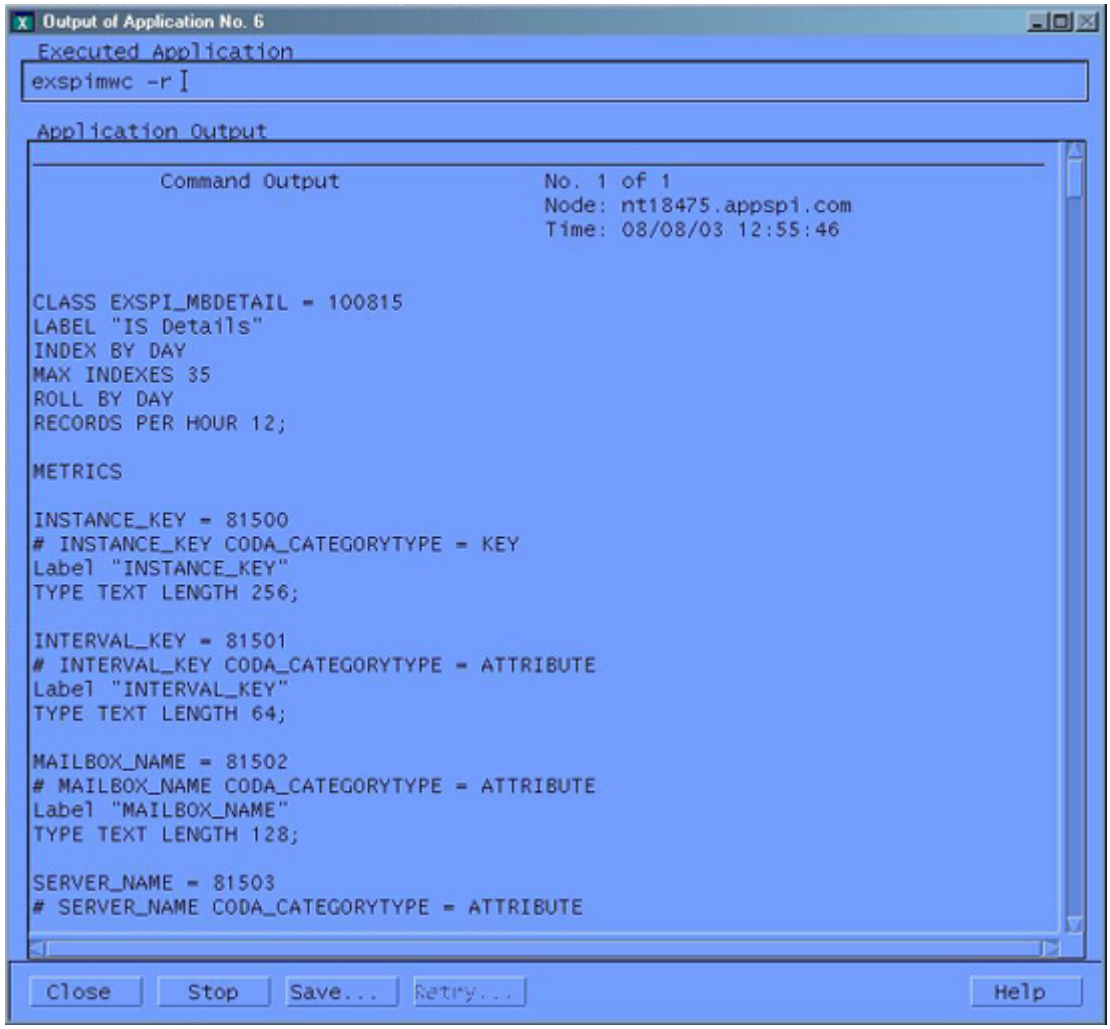
1. At the OVO console, from the Window menu, select **Application Bank**>**EXSPI Admin**.

2. To create data sources for the OVO data collection agent, run **EXSPI Add DataSource** for each managed node.

Adding Datasource for HP OpenView Subagent (CODA)



Adding Datasource for OV Performance Agent (MWA)



TASK 8: ASSIGN/DISTRIBUTE QUICK START TEMPLATES

NOTE: In OVO for UNIX version 8, templates are referred as policies.

The following section outlines the procedure for the assignment and distribution of templates to the managed nodes.

1. Open the OVO Node Bank.

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

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

4. In the Define Configuration window select **Add**.

5. In the Add Configuration window select **Open Template Window...**.

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

7. Select, and double-click **Exchange 2000 and 2003** or **Exchange 5.5**.

8. Select the desired **EXSPI** template group or individual template(s).

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

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

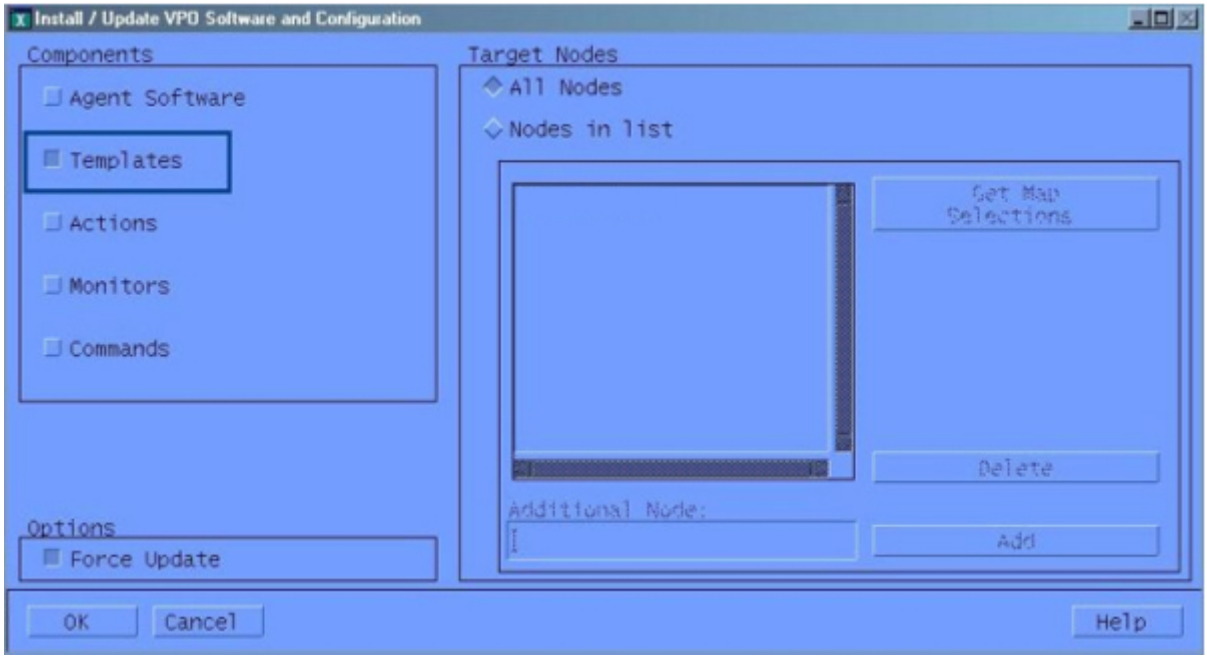
11. Click **OK f**rom the Define Configuration window.

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

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

13. In the **Install/Update OVO Software and Configuration** window check the **Templates** checkbox to select it.

Distributing templates



14. Check the **Nodes in List** and the **Force Update** checkboxes.

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

16. The following message is displayed in the message browser:

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

    The Exchange SPI templates are distributed to the selected managed node(s). Exchange SPI monitors will begin running.

    You have now completed the standard Exchange SPI installation and configuration process.

Advanced Configuration

Prerequisite: Complete tasks in the *Installation and Basic Configuration* chapter 3 page 56 section.

Advanced configuration covers the distribution of templates that require a service account with special Exchange privileges. When finished, you will have completed the following tasks:

- ❑ **Task 1:** Create the service account.
- ❑ **Task 2:** Grant Exchange Access permissions to the user.
- ❑ **Task 3:** Configure the service account on managed nodes.
- ❑ **Task 4:** Enable message tracking.
- ❑ **Task 5:** For each Exchange server create the MSXSPI<*host_name*> mailbox.
- ❑ **Task 6:** Configure MS Exchange servers for End to End Message Ping.
- ❑ **Task 7:** Assign/distribute templates.

The Exchange SPI can be configured to accommodate cluster environments where fail-overs allow uninterrupted Exchange availability, see *Using Exchange SPI in high availability environments* chapter 5 page 108 for more information.n

TASK 1: CREATE THE SPECIAL SERVICE ACCOUNT

A service account with special Exchange privileges is needed for each Windows logon domain where your managed Exchange servers reside. See the procedures in *Creating a Service Account with Proper Access Permissions* chapter 2 page 22 for details on creating this type of account in Windows NT and Windows 2000/2003 operating environments.

TASK 2: GRANT EXCHANGE ACCESS PERMISSIONS TO SERVICE ACCOUNT

See the procedures in *User Privileges* chapter 2 page 21, where the procedures for granting proper access permissions for each combination of Exchange/Windows environment is outlined.

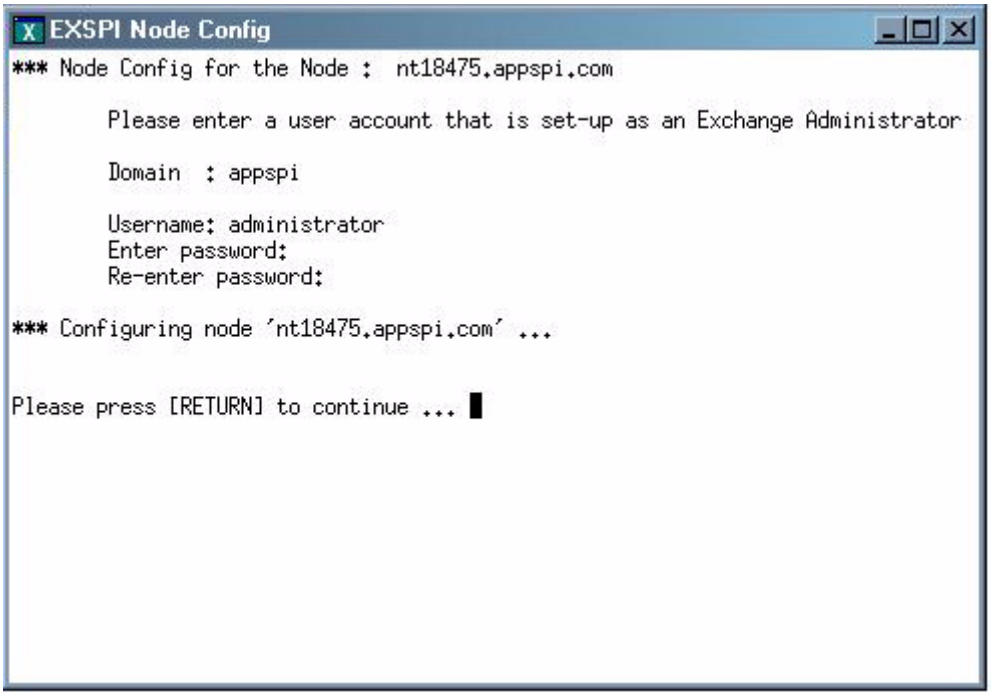
TASK 3: CONFIGURE MANAGED NODES

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

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

3. When prompted, enter the domain, user and password for the user account (created in *Task 1: Create the special service account* chapter 3 page 66). **NOTE:** When you run this application, be sure to enter the correct domain name, user and password. This domain is not the DNS domain name but the NT domain name.

EXSPI Node configuration window



NOTE: If Exchange nodes are managed at a later date, perform this procedure for all newly managed Exchange nodes.

Task 4: Enable Message Tracking

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

4a: Enabling Message Tracking for Exchange 5.5

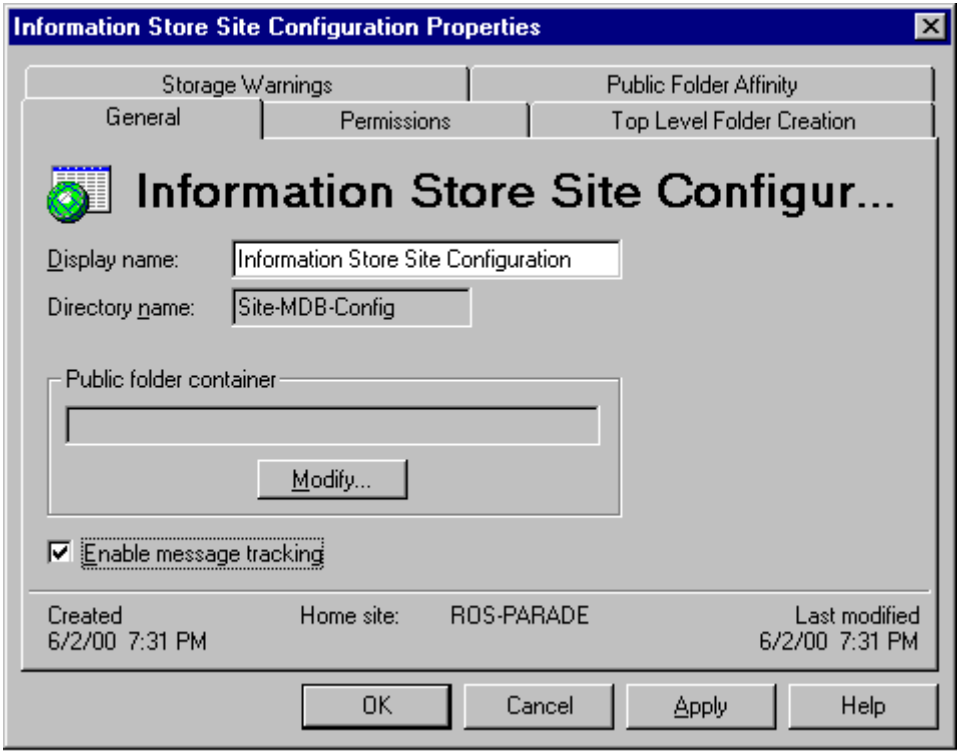
1. Select **Start** > **Programs** > **Microsoft Exchange** > **Microsoft Exchange Administrator**.

2. Expand the site level and Configuration to view selections beneath it.

3. In the details pane double-click **Information Store Site Configuration**.

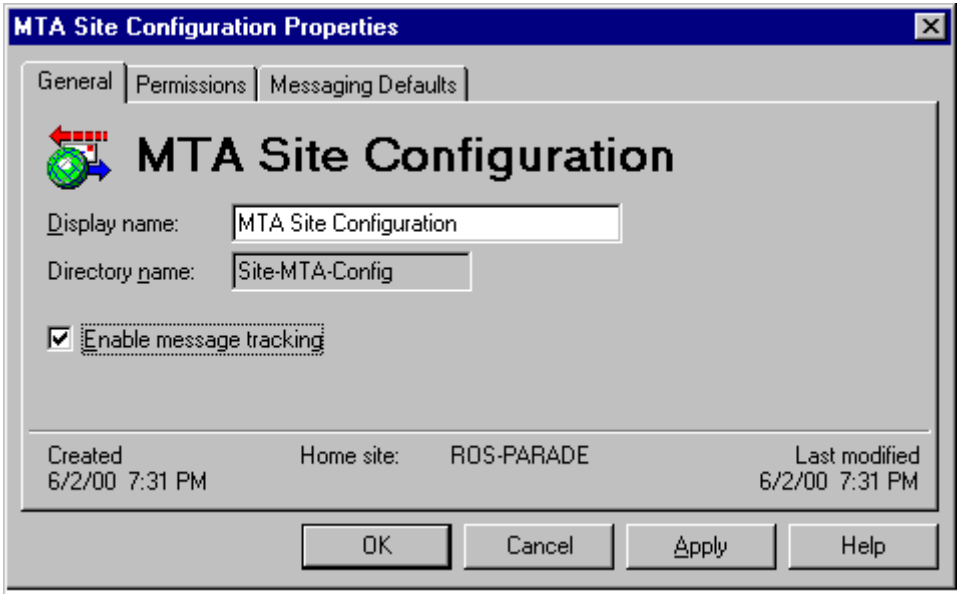
4. In the **Information Store Site Configuration Properties** dialog, check **Enable message tracking**, and select **OK**.

Information Store Site Configuration dialog



5. Repeat steps 3 and 4 for MTA Site Configuration.

MTA Site Configuration dialog



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

6. In the left pane select **Connections**.

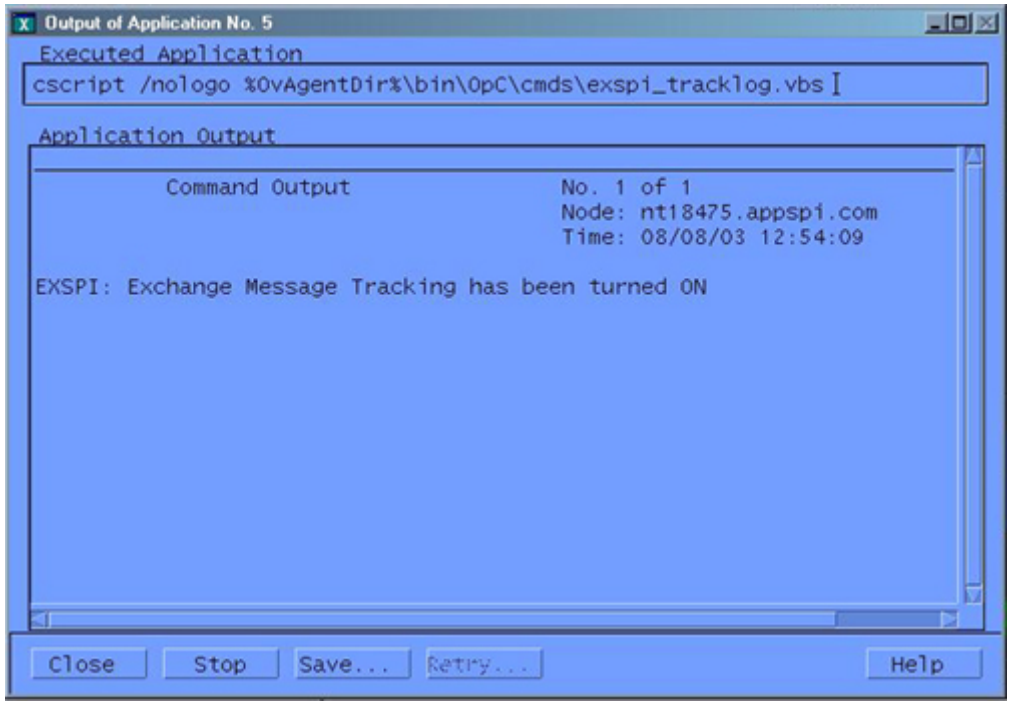
In the right pane select Internet Mail Service, check the Enable message tracking checkbox, and click **OK**.

4B: Enabling Message Tracking for Exchange 2000 and 2003

Use the Exchange SPI application **Enable Message Tracking** to set message tracking on, for servers only. All messages that are routed through the selected servers will then be added to the message tracking logs. This information is collected by the EXSPI-60 Dc-TrackLog Data collection templates.You can record information about the sender, the message, and the recipient. If you need to log more detailed information, you can also record the subject line of email messages.

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

Enabling Message Tracking for Exchange 2000 and 2003



TASK 5: CONFIGURE MAILBOXES

In addition to the MSXSPI user, a mailbox is required for accessing mailbox and folder information, necessary for End to End Message Ping and Reporter Collection templates. Use the Exchange SPI application **MBOX Config** (located in the EXSPI Admin application group) to create the mailbox:

1. Modify the **MBOX Config** application. The user name and password of a service account with Exchange administrative privileges needs to be given for the application to execute. (Change the **Execute as User** field, add *user name* and *password*.)

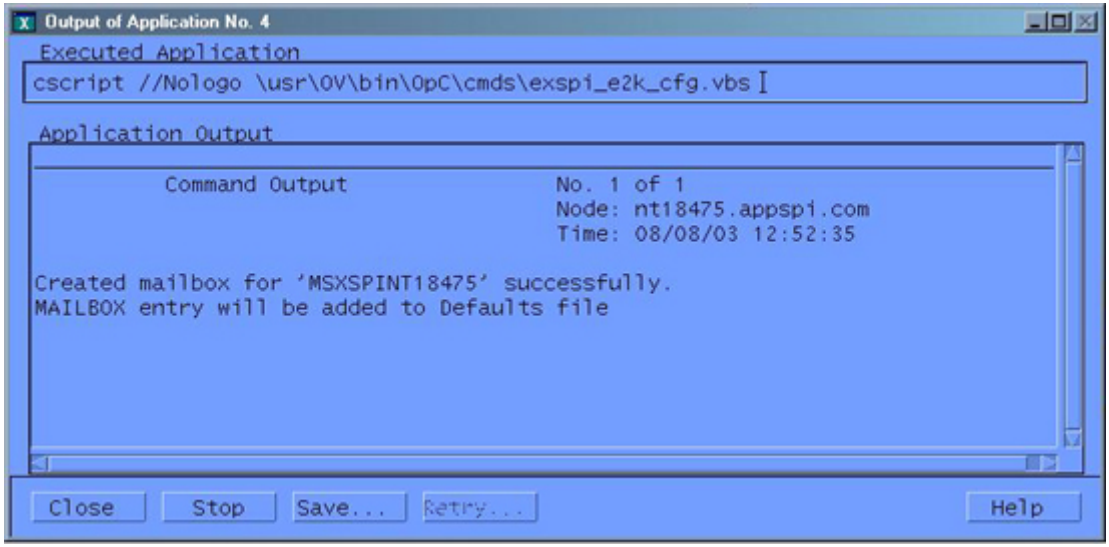
2. Run the **EXSPI MBOX Config** application to configure mailboxes for the Exchange servers (you can select multiple nodes simultaneously).

For each Exchange server a mailbox is created with the prefix MSXSPI and Windows hostname. For an Exchange 5.5 server, EXSPI MBOX Config application creates a mailbox MSXSPI<host_name> for the primary Windows account MSXSPI. For an Exchange 2000 or 2003 server, it creates the mailbox MSXSPI<host_name> for account MSXSPI<host_name> (which it also creates.)

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

NOTE: In order to create a different mailbox with a different name, see the procedure *Changing the Mailbox name* chapter 7 page 159.

Executed application



NOTE:

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

- For each Exchange server create a mailbox with the prefix MSXSPI and Windows hostname.
  - For Exchange 5.5, create this mailbox with primary Windows account **MSXSPI**.
  - For Exchange 2000 or 2003, create this mailbox with primary Windows account **MSXSPIROSSPI4** (this must first be created).

TASK 6: SET UP MESSAGE PING SERVER CONNECTIONS AND ALARMS

To measure the round trip time required for a message to travel from one server to another and then back to the originating server, you can use the *EXSPI-60/55 End to End Message Ping* template group.

NOTE: With Exchange SPI version A.08.00 and later, pinging Exchange 5.5 servers from an Exchange 2000/2003 server, or vice versa, is not supported.

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

For Exchange 5.5 servers:

To configure the servers, complete the following steps:

1. Run the **EXSPI Ping Config** application on the OVO management server.

   The EXSPI Ping Config application opens a default file as follows:

Format of the file for Exchange 5.5 EXSPI Ping Config

EXSPI Ping Config

```
# Format of the file:
# Src-Svr:Src-MB:::Dest-MB:Timeout:MetSLA:AlmostMetSLA
#
# Src-Svr      = Source Server (required)
# Src-MB       = Source Mailbox (optional).  Defaults to "MSXSPI<host_name>".
# Reserved     = Reserved for future use, leave empty
# Reserved     = Reserved for future use, leave empty
# Dest-MB      = Destination Mailbox (required)
# Timeout      = Timeout (required) (s-seconds, m-minutes, h-hours)
# MetSLA       = Met SLA time (require for reports) (s-seconds, m-minutes, h-hours)
# AlmostMetSLA = Almost met SLA time (require for reports) (s-seconds, m-minutes, h-hours)
#
# Examples:
#                EXCH1::::MSXSPIEXCH2:25m:1m:1m
#                EXCH1:MSXSPIEXCH1:::MSXSPIEXCH3:2h:5m:2m
#                EXCH2:MSXSPIEXCH2:::MSXSPIEXCH4:1h:20m:10m
#                EXCH3:MSXSPIEXCH3:::MSXSPIEXCH4:25m:5m:5m
#
nt84141::::MSXSPINT84141:25m:1m:1m
~
~
~
~
~
~
~
~
"/opt/OV/EXSPI/conf/exspilnk_e55.txt" 19 lines, 882 characters
Save configuration to "/opt/OV/EXSPI/conf/exspilnk_e55.txt"? [yes]

Configuration accepted.


 Accept and install exspilnk_e55.txt in monitors dir?[yes]
Installing exspilnk_e55.txt in
        /var/opt/OV/share/databases/OpC/mgd_node/customer/ms/intel/nt/monitor/exspilnk_e55.txt.Z

Please distribute <monitors> to all EXSPI managed nodes.

Please press [RETURN] to continue ...
```

2. Enter information about the servers to replace each entry separated by a colon (**:**) in the format
`Src-Srv:Src-MB:::Dest-MB:Timeout:MetSLA:AlmostMetSLA`

   - **Source Server** - The server that the ping originates *from*. Each server where EX-SPI is distributed has the same file, so the EX-SPI collector/analyzer will parse this file and use all lines where the Source Server matches the server where it is run from.

   - **Destination Server** - The destination server, used only for SMTP systems, is necessary only when the site directory does not contain the destination mailbox. In this case, SMTP is used and the field would contain the SMTP server name (the server following the "@"; for example, the entry for mailbox "brendan_belcastro@am.exch.hp.com", would contain "am.exch.hp.com."

   - **Destination Mailbox** (required) -The mailbox to send the ping *to*. This field is usually the only required destination entry.

   - **Timeout** (required) (s-seconds, m-minutes, h-hours): - If a sent message does not return in the defined timeout interval, EXSPI logs it as a failure and sends a message to OVO. Failed messages are tallied in terms of count and percentage within a report. The timeout value must be larger than the values for **MetSLA** and **AlmostMetSLA** so that a returned message can be processed using these values. It may have **Exceeded SLA** even though it has not exceeded the timeout interval. A **Failed/Timedout** message occurs, therefore, only when the message never returns and the timeout period is exceeded.

NOTE

The minimum timeout value should be set slightly less than the collection interval. For example, if the collection interval for metric 1002 is 30 minutes (the default), the timeout should be set to at least 25 minutes. The logic is that because the next measurement occurs only every 30 minutes, you should allow up to that amount of time for any messages to return before "giving up" and generating a failure. If you keep the timeout value within the collection interval and the reply message does return, it can be processed as Met, Almost Met or Exceeded as opposed to Failed/Timedout.

- **MetSLA** (required for reports) (s-seconds, m-minutes, h-hours) - If the round trip time is greater than this value, the message is logged as either Almost Met SLA or Exceeded SLA. This value is required if data is being sent to MeasureWare Agent DSI for reporting (-l option when running exspi_e2k.exe or exspi_e55.exe). It is optional if only using alarms.

- **AlmostMetSLA** (required for reports) (s-seconds, m-minutes, h-hours) - If the round trip time is greater than the MetSLA value but less than or equal to MetSLA plus AlmostMetSLA, the message is logged as Almost Met SLA. Otherwise, when the round trip time is higher than MetSLA plus AlmostMetSLA, it is logged as Clearly Exceeded SLA. This parameter is required if data is being logged to MeasureWare Agent DSI (-l option when running exspi_e2k.exe or exspi_e55.exe), optional if only using alarms.

NOTE

Timeout, *MetSLA*, and *AlmostMetSLA* values can have optional identifiers that denote the measurement units the value represents; for example, 4m (4 minutes) 30s (30 seconds) or 1h (1 hour). The default unit is seconds; for example, the entry *4* is recognized as 4 seconds.

Procedure for EXSPI Ping Config for Exchange 2000/2003 servers

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

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

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

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

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

6. A validation will be performed to check if the Timeout is greater than the sum of MetSLA and AlmostMetSLA. After validation, you will be

prompted to accept and install the configuration file in the monitors directory:
/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/nt/monitor/

7. You have completed configuring the end-to-end Ping, now distribute monitors to the required EXSPI managed nodes. For details about distributing the monitors, see *Task 6: Distribute Exchange SPI actions, commands, monitors* chapter 3 page 59.

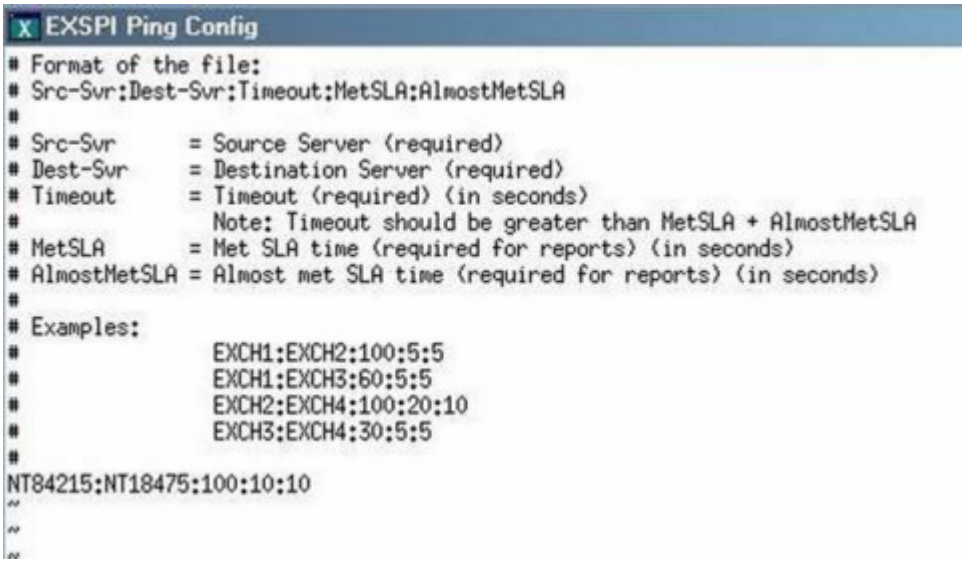
The format of the Exchange 2000/2003 EXSPI Ping Config file is:

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

The user only needs to fill in the following fields:

- Src-Srv
- Dest-Srv
- Timeout (to be entered in seconds, with no suffix)
- MetSLA (to be entered in seconds, with no suffix)
- AlmostMetSLA (to be entered in seconds, with no suffix).

EXSPI Ping Config for Exchange 2000 and 2003



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

(OVO High Level Expertise Recommended)

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

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

Config Entry	Object
EXCH1:MSXSPIEXCH2:25m:1m:1m	EXCH1:MSXSPIEXCH1,:MSXSPIEXCH2
EXCH1:MAILBOXEXCH1: MAILOXEXCH3:2h:5m:2m	EXCH1:MAILBOXEXCH1,:MAILOXEXCH3
EXCH2:MAILBOXEXCH2: MAILOXEXCH4:1h:20m:10m	EXCH2:MAILBOXEXCH2,:MAILOXEXCH4
EXCH3:MSXSPIEXCH3:EXCH4.AM.HP.COM : MSXSPIEXCH4:25m:5m:5m	EXCH3:MSXSPIEXCH3,EXCH4.AM.HP.COM: MSXSPIEXCH4

For example:

ConditionName & Type	Condition Object Pattern	Threshold	Explanation
EXSPI-60 1002.1 +Message on Matched Condition	EXCH1:MSXSPIEXCH1,: MSXSPIEXCH2	120	Threshold condition for ping between System EXCH1 and mailbox MSXSPIEXCH2 on system EXCH2. Object pattern is case sensitive.
EXSPI-60 1002.2 +Message on MatchedCondition	EXCH1:MSXSPIEXCH1,: MSXSPIEXCH3	240	Threshold condition for ping between System EXCH1 and mailbox MSXSPIEXCH3 on system EXCH3. Object pattern is case sensitive.
EXSPI-60 1002.3 -Suppress Matched Condition	EXCH1:MSXSPIEXCH1,: MSXSPIEXCH2 EXCH1:MSXSPIEXCH1, :MSXSPIEXCH3		If the threshold was not exceeded for these two system pairs, you must suppress the message if either of these system pairs gets past 1002.1 or 1002.2.
EXSPI-60 1002.4 +Message on Matched Condition		60	A blank object pattern to catch all remaining system pairs.

TASK 7: ASSIGN/DISTRIBUTE ADVANCED/ADD-ONS TEMPLATES

After completing the advanced configuration steps, you can assign and distribute templates from the EXSPI Advanced and Add-On template groups to the managed node(s) running MS Exchange server. Please refer to *Task 8: Assign/Distribute Quick Start Templates* chapter 3 page 63 for procedures.

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

- Logfile EXSPI-60/55 Exchange Information
- Logfile EXSPI-60/55 Exchange Warnings

You have now completed the advanced configuration installation process. The Exchange SPI is ready to use.

Deinstalling Exchange SPI

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

To reinstall Exchange SPI components with the original factory settings, see *Returning to original factory settings* chapter 7 page 160.

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

REMOVING EXCHANGE SPI SOFTWARE FROM THE MANAGEMENT SERVER

NOTE: The **swremove** program removes the files from the file system only. The following components must be deleted manually:

- Exchange SPI templates in the OVO data repository.
- EXSPI Admin group must be removed from the Application bank (see steps 9-12 in *Deleting Exchange SPI templates, applications and message groups* section below).
- EXSPI, EX_Perf and EX_Fault must be removed from the OVO Message group bank (see step 5 in *Deleting Exchange SPI templates, applications and message groups* section below).
- EXSPI templates need to be deleted (see steps 1-4 in *Deleting Exchange SPI templates, applications and message groups* section below).

First, however, the Exchange SPI templates (and the Exchange SPI software) must be deassigned from the managed nodes.

1. Open a terminal window and log on as `root`.
2. In the terminal window run swremove by entering:

```
/usr/sbin/swremove SPI-EXCHANGE-OVO
```

De-assigning Exchange SPI templates from managed nodes

1. Open the OVO Node Bank.

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

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

4. Click **Remove Templates**.

5. Click **OK.**

Removing Exchange SPI from managed nodes

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

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

   - Templates
   - Actions
   - Monitors
   - Commands

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

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

5. Click the **Force Update** button.

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

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

```
Templates Actions Commands Monitors
```

The Exchange SPI templates and software have now been removed from the selected managed node(s). The Exchange SPI templates still reside in the OVO data repository and must be deleted manually. Continue with *Deleting Templates, Applications and Message groups* chapter 3 page 83.

DELETING TEMPLATES, APPLICATIONS AND MESSAGE GROUPS

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

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

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

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

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

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

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

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

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

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

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

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

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

4

Using the Exchange SPI

Introduction

Like all HP OpenView SMART Plug-Ins, the Exchange SPI is easy to use. This chapter describes some special usage features and functionality, including:

- Daily Tasks
- Exchange SPI template group requirements
- Exchange SPI Service Discovery
- Using Exchange SPI Service Views
- Changing the OpenView data collection agent setup
- Command Line Parameters

Daily Tasks

A daily task list for monitoring with the Exchange SPI follows:

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

2. Adjust alarm thresholds if too many alarms are being generated (see “Customize the Threshold” later in this chapter).

3. Use the OVO graphing and reporting applications to drill down for additional information, or to view history or trends.

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

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

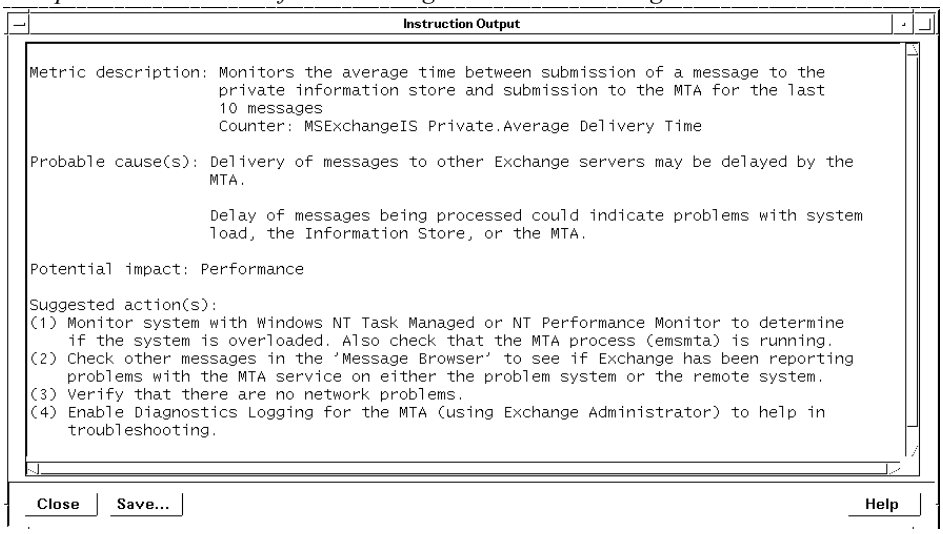
   - ***EX_Perf.*** Messages regarding performance.

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

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

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

Sample Instruction Text from Exchange SPI Alarm Message



7. Use MeasureWare Agent to export data if desired. Consult the *MeasureWare Agent User's Guide* for details.

Exspi Template Group Requirements

NOTE: Important Microsoft Information on the Web: Before you distribute Exchange SPI templates, please refer to the Microsoft article "PRB: Performance Object Is Not Displayed in Performance Monitor" at this URL: **http://support.microsoft.com/support/kb/articles/Q248/9/93.ASP**. The article contains information on editing the Windows registry so that performance objects (tracked by Performance Monitor) are always enabled. A disabled performance object could cause an Exchange SPI template to fail. By following the instructions in the article, you can ensure that templates are able to collect Exchange performance data as expected.

Some templates in the SPI for Exchange template groups require that particular software components/services are installed on Exchange server systems before the distributed templates will work, and some require the existence of a service account with special Exchange privileges. To create such an account, see *Creating a Service Account with Proper Access Permissions* chapter 2 page 22.

Use the following tables to decide which templates you want to install. In the template prerequisites table you can see whether or not a template group/subgroup works with Exchange 5.5, Exchange 2000 or Exchange 2003, as well as any required configuration. Template Group Descriptions show you what type of data/functionality the template group offers.

NOTE: In OVO for UNIX version 8, templates are referred as policies.

Table 1: EXSPI Template Group Prerequisites for Exchange 5.5

EXCHANGE 5.5 Template Group/ Subgroup	Required Exchange Service	Required Manual Configuration
EXSPI-55 Quick Start	N/A	N/A
EXSPI-55 Add-Ons EXSPI cc:Mail Connector	cc:Mail Connector	N/A
EXSPI Internet Mail Services	Internet Mail Service (IMS)	N/A
EXSPI Lotus Notes Connector	Lotus Notes Connector	N/A
EXSPI News Service	N/A	N/A
EXSPI-55 Advanced EXSPI End to End Message Ping		Create MSXSPI service account with correct permissions Edit the MBOX Config Application to contain User Password Create mailbox using MBOX Config application Configure EXSPI End to End Message Ping template to set up server pairs Modify the template to include service account and password
EXSPI Event Log Warnings & Information		Use for troubleshooting
EXSPI Reporter Collection		Create MSXSPI service account and password

Table 2: EXSPI Template Group Prerequisites for Exchange 2000 and 2003

Exchange 2000 and 2003 Template Group/ Subgroup	**Required Exchange Service**	**Required Manual Configuration**
EXSPI-60 Quick Start All templates	N/A	N/A
EXSPI-60 Add-Ons EXSPI cc:Mail Connector	cc:Mail Connector	N/A
EXSPI Chat Service (Exchange 2000 only)	Exchange Chat Service	N/A
EXSPI Conferencing Service (Exchange 2000 only)	Exchange Conferencing Server	N/A
EXSPI MCU Server (Exchange 2000 only)	MCU Server	N/A
EXSPI Instant Messaging (Exchange 2000 only)	Exchange Instant Messaging Service	Some templates in this group must be modified to contain a service account user name and password
EXSPI Lotus Notes Connector	Lotus Notes Connector	N/A
EXSPI NNTP	Network News Transfer Protocol (NNTP)	N/A
Transaction Log		Some templates in this group must be modified to contain a service account user name and password

Exchange 2000 and 2003 Template Group/ Subgroup	**Required Exchange Service**	**Required Manual Configuration**
EXSPI-60 Advanced EXSPI End to End Message Ping	N/A	For each node where the template is to be distributed: Create MSXSPI service account with correct permissions Edit the MBOX Config application to contain User Password Create mailbox using MBOX Config application Configure EXSPI End to End Message Ping template to set up server pairs Modify the template to include user account and password
EXSPI Event Log Warnings & Information	N/A	Use for troubleshooting
EXSPI Reporter Collection	N/A	Create MSXSPI service account and password

Exchange SPI Service Discovery

The Exchange SPI contains an application and a Scheduled template, to discover Exchange services on OVO managed nodes. The discovery process can be initiated at any time by the EXSPI Discovery application running on the OVO management server. The Scheduled template needs to be distributed on the management server, out-of-the-box it is set to run once a week (on Saturday), and discovers Exchange services

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

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

Prerequisites for Exchange SPI Service Discovery

- Exchange SPI service discovery requires that Windows Scripting Host version 5.6 is present on the managed node. By default, this version is present in Windows 2000/2003. Windows NT users should install the WSH version 5.6 manually, before running Exchange SPI discovery.

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

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

Mechanism for gathering service information

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

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

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

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

Trace files can be found on the management server under:

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

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

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

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

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

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

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

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

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

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

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

Turning off Discovery failure messages:

When Exchange SPI Discovery fails to discover services, failure messages are sent to the OVO Management server. To turn off these messages, the user has to modify the file **EXSPI_DiscConfig.sh** located in

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

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

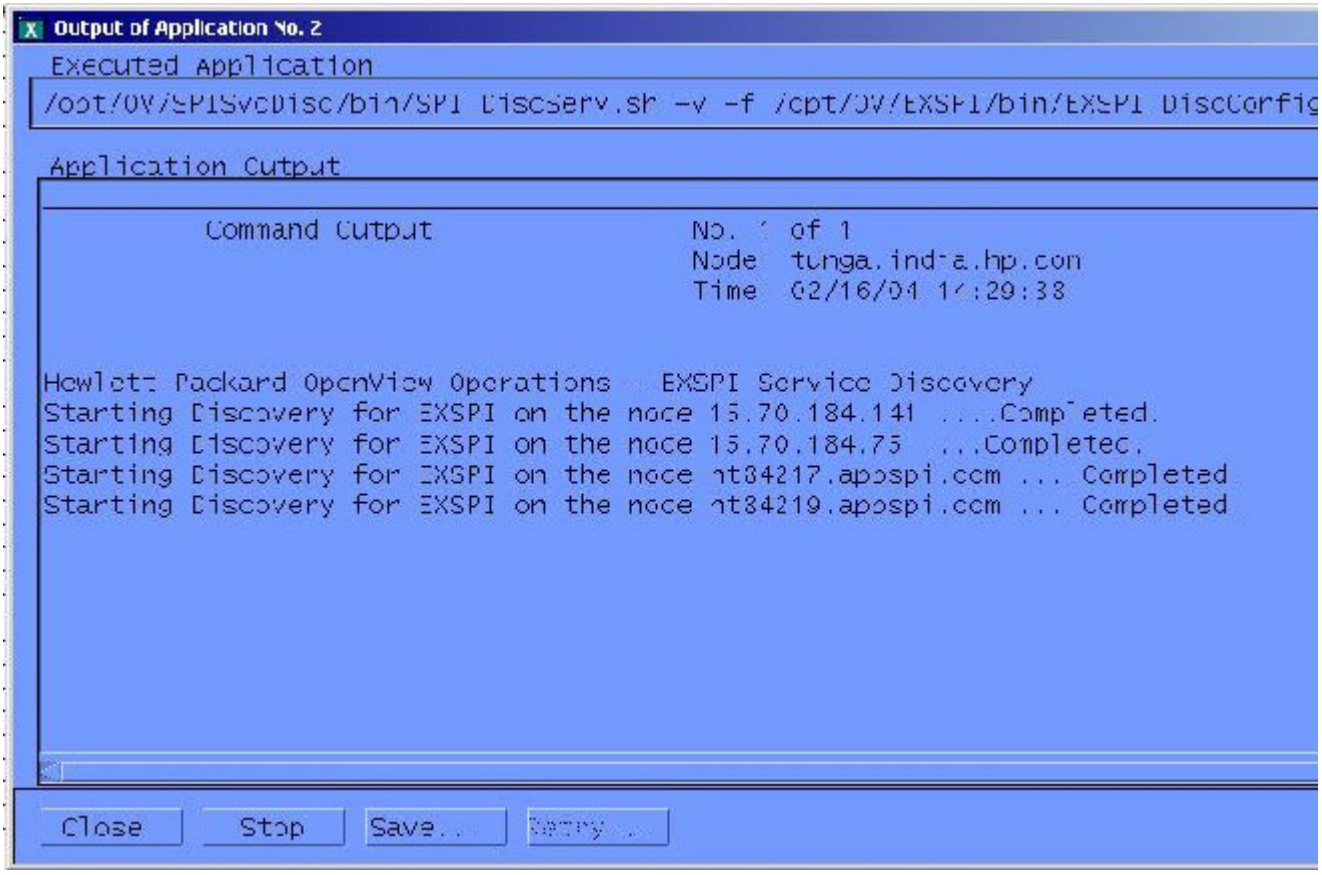
Performing Service Discovery using the Exchange SPI application

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

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

3. Check whether there are errors in the **Output of the Application** window. A successful discovery displays messages as in the figure below:

Output of Application window



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

TO RELOAD THE CONFIGURATION

1. Logon to the OVO Java GUI as the OVO Administrator (opc_adm)
2. Select **File-> Reload Configuration**.
3. A window will notify that the reload configuration is in progress.
4. View the updated service maps.

MANUAL UPDATE

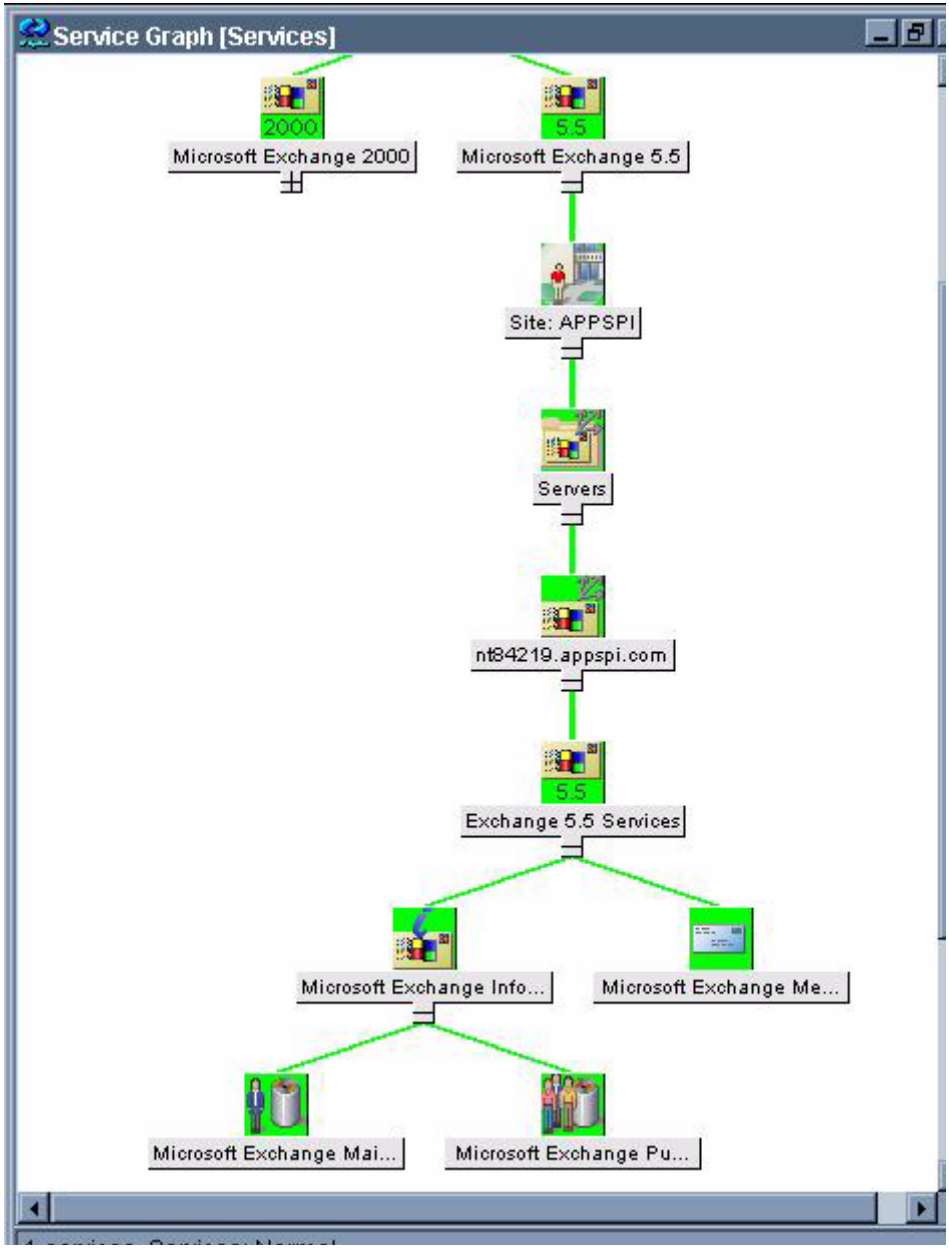
Changes to the service configuration of a managed node do not appear automatically in the SPI for Exchange Server service tree. In order to update the contents of the SPI for Exchange Server service tree in the OV Service Navigator, the Discovery application has to be run.

Using Exchange SPI Service Views

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

Exchange SPI discovers Exchange services when the Exchange SPI application **EXSPI Discovery** is run, and uses the discovered data to generate the service **SPI for Exchange Server** tree. Example service views are shown in *Exchange 5.5 Service Graph* chapter 4 page 101, and *Exchange 2000 and 2003 Service View* chapter 4 page 103.

Exchange 5.5 Service Graph



VIEWS ARE SNAPSHOTS

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

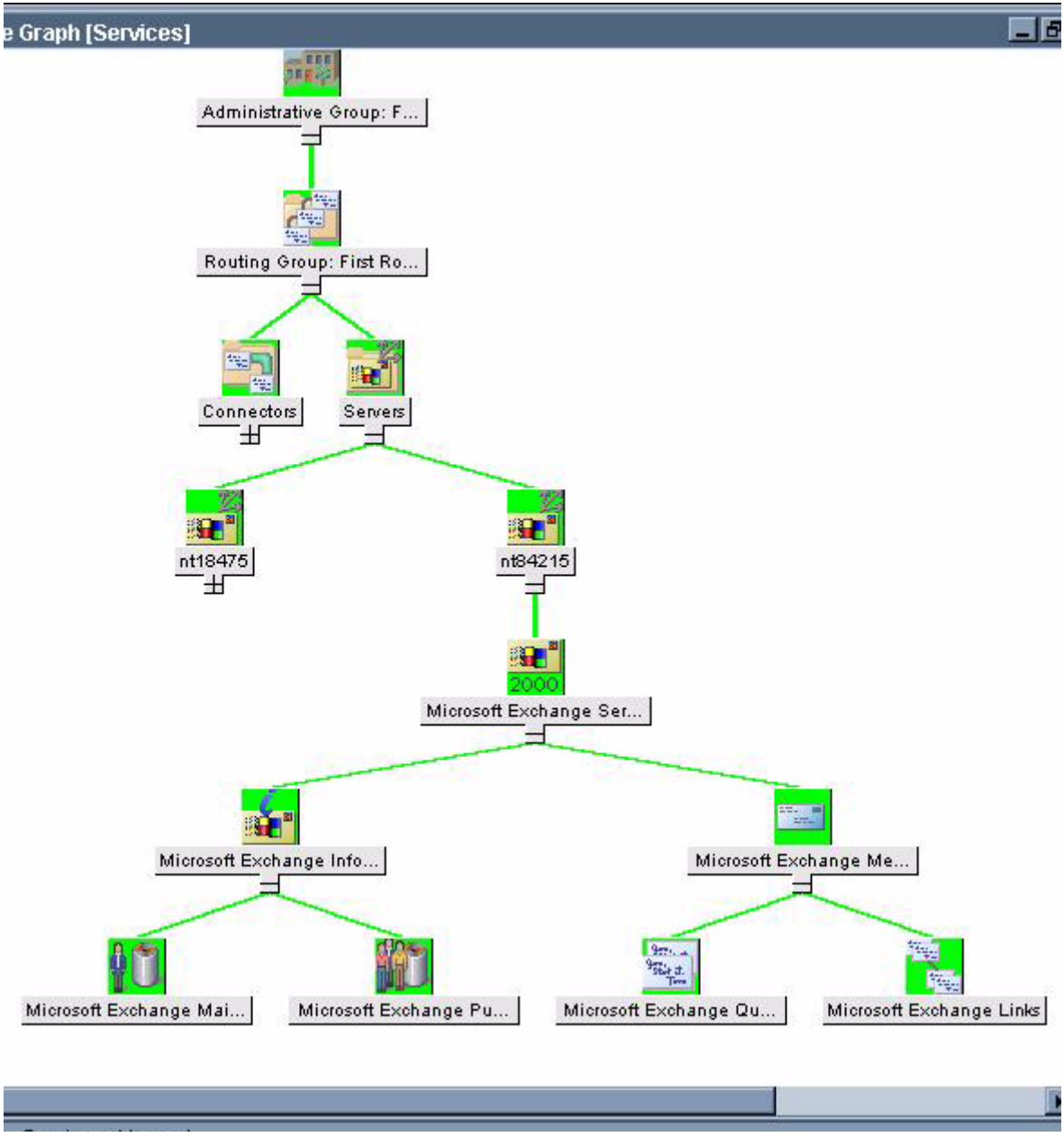
CALCULATION AND PROPAGATION RULES IN DISCOVERY PROCESS

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

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

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

Exchange 2000 and 2003 Service View



Changing the Data Collection Agent Setup

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

If for any reason you decide that you want to use the new HP OpenView subagent included with OVO 7.0, you can configure managed nodes to do so. Note that this configuration does not support PerfView.

To override the use of OpenView Performance Agent, set up an empty file named nocoda.opt and store it on the managed node in a specific location. The location will vary according to the managed node operating system as shown below.

Managed Node O/S	File Location
HP-UX and Solaris	/var/opt/OV/conf/dsi2ddf/nocoda.opt
Windows	\usr\ov\conf\dsi2ddf\nocoda.opt

To create the File:

1. (If necessary) on the managed node according to the path shown in the preceding table, create the **dsi2ddf** directory.

2. Use a text editor to open a new file.

3. Save the file as **nocoda.opt** in the managed node's **dis2ddf** directory.

Command Line Parameters

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

Parameter	Description
-m <metric range>	**-m** (metric range) is used to specify the metric number or range of metric numbers.
-t <tag>	`-t` (tag) allows the collector/analyzer to use a different set of templates than those originally provided with the Exchange SPI when collecting metrics. **NOTE:** Additional information about the tag feature is found at the end of the "Customizing Exchange SPI" section.
-p -m <range> [-v]	`-p` (print) executes specified metrics and prints their values to standard output, for example: **<exspi_e2k.exe** or **exspi_e55.exe> -p -m 1-1001**
-a	`-a` directs the collector/analyzer to send the metric value to OVO for alarm generating
`-s`	`-s` executes the collector as the special service account user (MSXSPI). Requires completion of the advanced configuration (see *Advanced Configuration* chapter 3 page 66).

Parameter	Description
-l -m <metric range> **-x <extended_option>**	Data collection metrics start at 0500. Types: **Value:** logs the actual value **Delta:** logs the difference between current and previous **Average:** logs the average over a specific interval (e.g. 1h) where: **-l** collector logs data to logfile instead of reporting it to OVO **-x <extended_option>** is one of: **logtype:** is either "value, delta, or avg" **logfreq:** can only be "hourly" and is used only with "avg" **runfreq:** tells the collector the interval in seconds. If the schedule interval of EXSPI is every 10 minutes, the runfreq option must be set to 10*60 = 600: -x runfreq=600. The runfreq option can only be used with "avg." **mbox**: followed by "=<*mailbox_name*>" allows specification of certain mailboxes with certain metrics, specifically metrics: 611,612,622,623,630,631,632,640 and 641 Example of a command line using this option: `exspi -p -m 611 -x mbox=obrab`

5

Exchange SPI Clustering Support

Using Exchange SPI in high availability environments

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

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

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

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

- Add the nodes to be managed.
- Modify, if necessary, the Exchange SPI monitoring configuration file included with the Exchange SPI (`msexchange.apm.xml`).
- Create the clustered application configuration file (`apminfo.xml`) that associates Exchange SPI-monitored instances (Exchange virtual servers), with their corresponding cluster resource groups.
- Restart the agent on the managed node.

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

Add the Exchange cluster nodes to be managed.

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

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

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

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

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

Step 3: Create the clustered application configuration file

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

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

To generate the content of this file:

a. Launch the Exchange SPI Exchange Cluster Configuration application on an Exchange cluster node, see ‘Exchange Cluster Configuration application” on page 111.

b. Use the generated output to construct the `apminfo.xml`.

c. Save the completed `apminfo.xml` file on each node in the cluster in this directory:

`%OvAgentDir%\conf\OpC`

Step 4: Restart the agent on the managed node

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

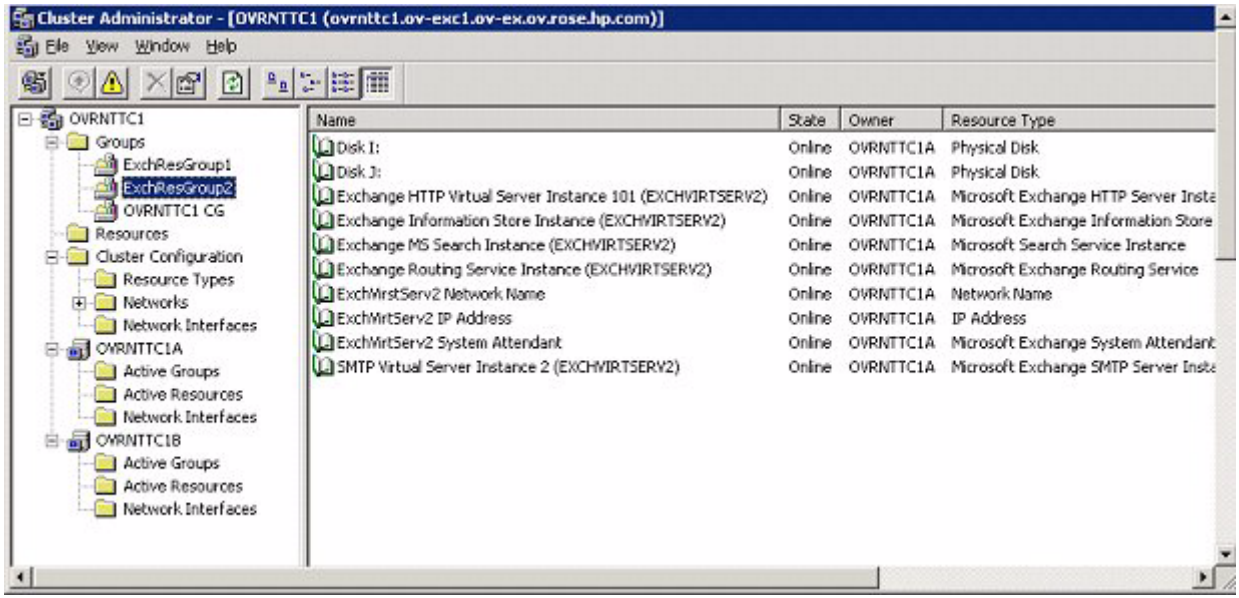
```
opcagt -kill
opcagt -start
```

Example apminfo.xml file

The following is an example apminfo.xml file, where ExchResGroup1 and ExchResGroup2 are the names of the Exchange resource groups corresponding to EXCHVIRTSERV1 and EXCHVIRTSERV2 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>
```

Example Exchange resource group



EXCHANGE CLUSTER CONFIGURATION APPLICATION

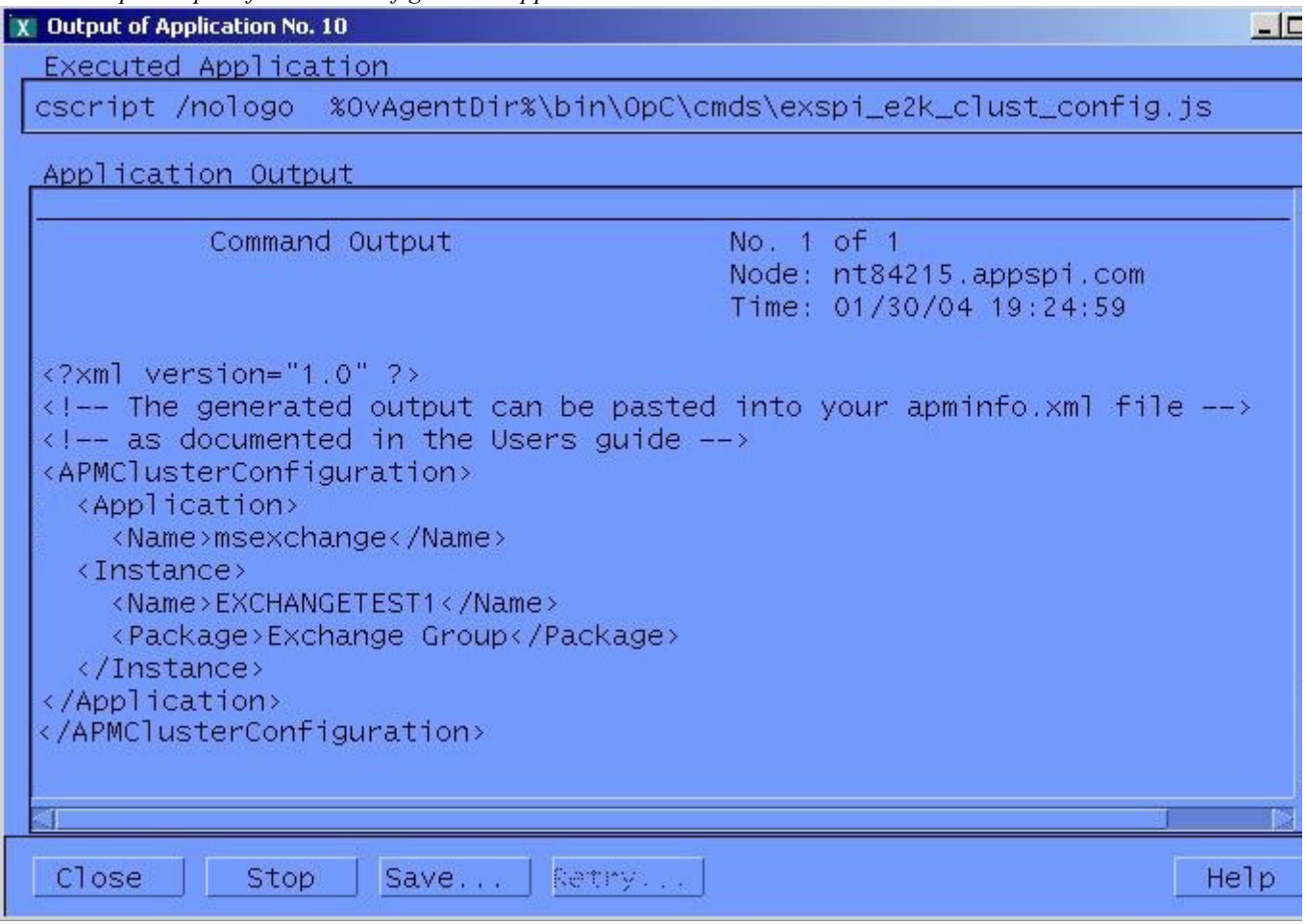
Use the Exchange Cluster Configuration application to generate the content of the `apminfo.xml` file. To execute this application:

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

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

3. Use the generated output to construct the `apminfo.xml`. For details, refer to ‘Step 3: Create the clustered application configuration file” on page 109).

Example output of Cluster Configuration application



NOTE: After constructing and saving `apminfo.xml`, you need to restart the agent on the node, using the following commands:

```
Opcagt -kill
Opcagt -start
```

DATA COLLECTION ON VIRTUAL SERVERS

In order for reports and graphs to show data for any nodes, appropriate data collection templates need to be distributed to those nodes. See the section ‘Using Exchange SPI Reports and Graphs” on page 138.

Run the **Enable Message Tracking** application on all nodes in the cluster before distributing the **EXSPI 6.0 Dc-TrackingLog Data** template, so that the tracking log reports will generate. The application must run on the physical nodes of a cluster where the Exchange virtual server is running.

SEEING VIRTUAL SERVERS IN REPORTS AND GRAPHS

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

SETTING UP END-TO-END MESSAGE PING ON AN EXCHANGE CLUSTER

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

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

2. Follow the directions in *Task 6: Set Up Message Ping server connections and alarms* chapter 3 page 73.

EXCHANGE CLUSTER SERVICE MAP

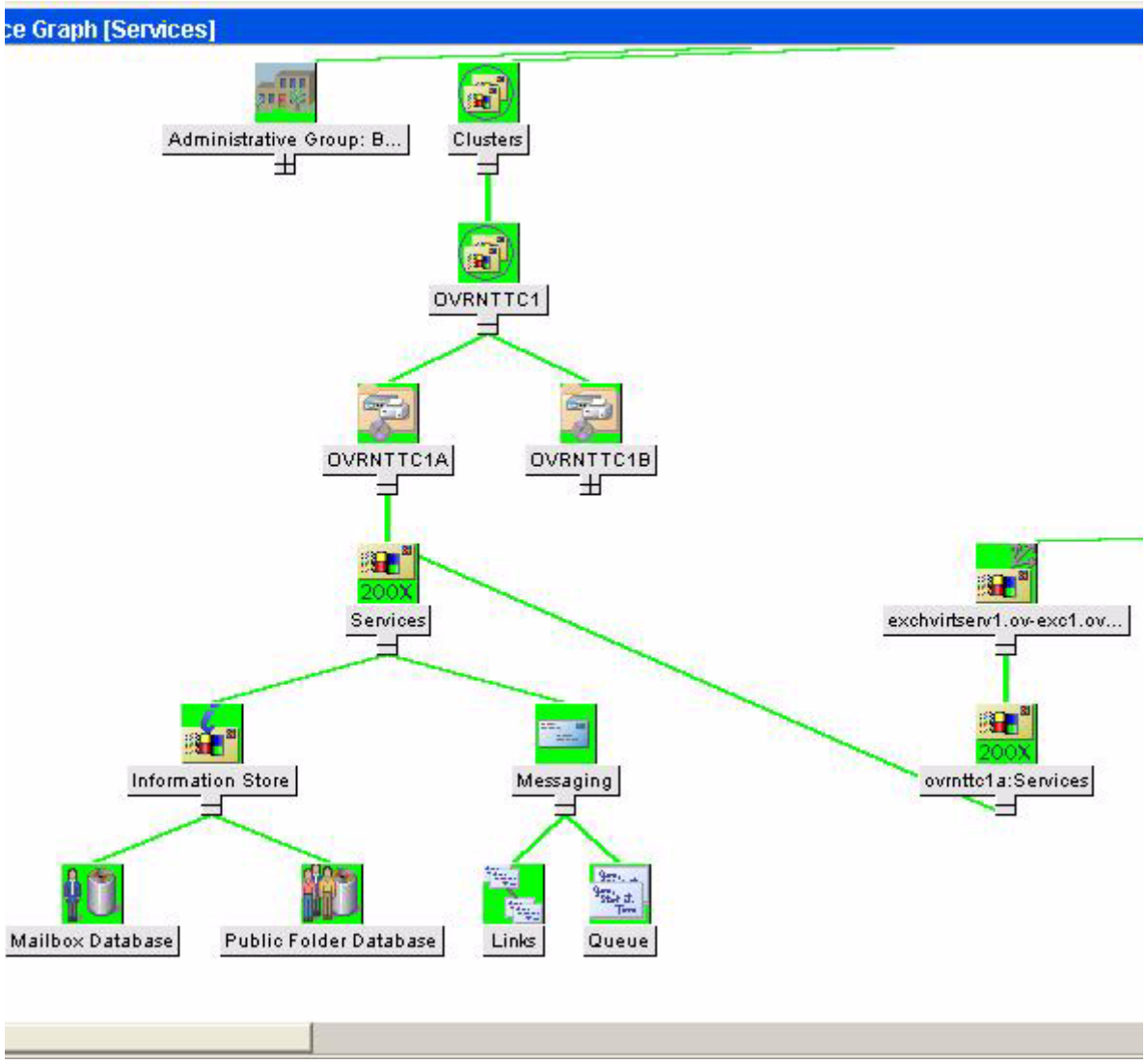
Exchange clusters are represented in the Service Map, and Service map nodes will be created in the service map for each Exchange virtual server in a cluster.

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, which 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 up to the correct Virtual Exchange Server virtual node.

Service map of clustered nodes



WHAT HAPPENS DURING A FAILOVER:

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

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

NOTE: For this mechanism to work EXSPI-60-Exchange cluster discovery Event Log template must be distributed.

6

Integrating Exchange SPI with Reporter

Introduction

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

- Installing Exchange SPI reports
- Exchange SPI report template requirements
- Table of data collection templates for reporting and graphing
- Exchange SPI report list
- Using Exchange SPI reports and graphs
    - Distributing the Quick Start data collection templates
    - Distributing Reporter Collection templates
    - Exchange SPI graphs
    - Deinstalling Exchange SPI Reporter templates

Installing Exchange SPI Report Templates

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

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

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

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

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

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

Report Requirements

TEMPLATES TO DISTRIBUTE FOR EXCHANGE SPI REPORTS

Exchange SPI reports display data collected from EXSPI templates distributed to Exchange servers.

In the table that follows, the location is relative to the folders SPI for Exchange \ Exchange 5.5 AND Exchange 2000 and 2003. Some templates are specific to particular versions of Exchange, when this is the case the location is also specific to this version, all other reports are relevant to all versions of Exchange.

The specific templates required for OVO to generate particular reports are as follows:

Report Name (SUMMARY For All Systems)	**Template Name**	**Metric ID Logged**	**Location**
Exchange 2003 and 2000 System Information Summary	Dc-Mailbox IS Sum. Data Dc-Public IS Sum.Data Dc-Exchange Info	610-611, 614, 620-621, 623-624, 656	EXSPI Advanced \EXSPI Reporter Collection
Exchange 2003 and 2000 Top 100 Mailboxes	Dc-Mailbox Data	630,632,633,634 815	Exchange 2000 and 2003 \EXSPI Advanced \EXSPI Reporter Collection
Exchange SLA Message Delivery	End to End Message Ping	1002	EXSPI Advanced \EXSPI End to End Message Ping
Exchange System Information Summary	Dc-Private/Mailbox IS Sum. Data Dc-Public IS Sum. Data Dc-Exchange Info	610-611, 614, 620-621, 623,624, 656	EXSPI Advanced \EXSPI Reporter Collection

Report Name (SUMMARY For All Systems)	**Template Name**	**Metric ID Logged**	**Location**
Exchange Top 100 Mailboxes	Dc-Mailbox Data	630-632	Exchange 5.5 \EXSPI Advanced \EXSPI Reporter Collection
Exchange Top 100 Public Folders	Dc-Public Folder Data	640, 641	EXSPI Advanced \EXSPI Reporter Collection
Exchange Messaging Trends for all Servers	Dc-MTA Message Volume	530-535	EXSPI Quick Start \EXSPI Message Transfer Agent
	Dc-IS Private MsgVol OR Dc-IS Mailbox Msg Vol Dc-IS Public Msg Vol	540-543 550-552	EXSPI Quick Start \EXSPI Information Store
	Dc-IMS Message Volume	590-591	Exchange 5.5 \EXSPI Add-Ons \EXSPI Internet Mail Services
	Dc-SMTP Message Volume	670-675	Exchange 2000 and 2003 \EXSPI Add-Ons \EXSPI SMTP

Report Name (DETAIL-shows data grouped by single systems)	**Template Name**	**Metric ID Logged**	**Location**
Exchange 2000 Chat Trends	EXSPI-6.0 Dc-Chat Service Clients and Channels.data	837-838	Exchange 2000 and 2003 \EXSPI Add-Ons \EXSPI Chat Service
Exchange 2000 Conferencing Trends	EXSPI-6.0 Dc-ConfTrends.data	800, 810, 809, 808	Exchange 2000 and 2003 \EXSPI Add-Ons \EXSPI Conferencing Service

Report Name (DETAIL-shows data grouped by single systems)	Template Name	Metric ID Logged	Location
Exchange 2000 MCU Trends	EXSPI-6.0 Dc-MCU	811-814	Exchange 2000 and 2003 \EXSPI Add-Ons \EXSPI Conferencing Service
Exchange 2000 Instant Messaging Users growth	EXSPI-6.0 1d-Dc-Instant Messaging	843	Exchange 2000 and 2003 \EXSPI Add-Ons \EXSPI Instant Messaging
Exchange 2000 Instant Messaging Availability and Usage Trends	EXSPI-6.0 1hr-Dc-Instant Messaging DC	841, 845	Exchange 2000 and 2003 \EXSPI Add-Ons \EXSPI Instant Messaging
Exchange 2003 and 2000 Inactive Mailboxes	EXSPI 6.0 Dc-Mailbox Data	603,633,634, 815	Exchange 2000 and 2003 \EXSPI Advanced \EXSPI Reporter Collection
Exchange 2003 and 2000 Mailbox Details	EXSPI 6.0 Dc-Mailbox Data	630-632,634,815	Exchange 2000 and 2003 \EXSPI Advanced \EXSPI Reporter Collection
Exchange 2003 and 2000 Mailbox Summary	EXSPI 6.0 Dc-Mailbox IS Sum. Data EXSPI 6.0 Dc-Mailbox Data	610-613, 624, 630-632, 815	Exchange 2000 and 2003 \EXSPI Advanced \EXSPI Reporter Collection
Exchange 2003 and 2000 Mailbox Usage Trends	EXSPI-6.0 Dc-Mailbox IS Sum. Data	610-613	Exchange 2000 and 2003 \EXSPI Advanced \EXSPI Reporter Collection
Exchange 2003 and 2000 Mailbox Store Stats	Dc-Mailbox IS Sum. Data & Dc-Mailbox Data	71, 614, 630, 631, 632, 634, 815	EXSPI Advanced\EXSPI Reporter Collection
Exchange 2003 and 2000 Public Folder Store Stats	Dc-Public IS Sum. Data & Dc-Public Folder Data	73, 624, 640, 641	EXSPI Advanced\EXSPI Reporter Collection

Report Name **(DETAIL-shows data grouped by single systems)**	**Template Name**	**Metric ID Logged**	**Location**
Exchange 2003 and 2000 Transaction Log Stats	Dc-Transaction Log Space Usage	7	EXSPI Add-Ons\EXSPI Transaction Log
Exchange User Connections	Dc-User Connections	520-521	EXSPI Quick Start \EXSPI Services and Processes
Exchange Folder Summary	Dc-Public IS Sum. Data Dc-Public Folder Data	620-624, 640-641	\EXSPI Advanced EXSPI Reporter Collection
Exchange Folder Usage Trends	Dc-Public IS Sum. Data	620-622	\EXSPI Advanced EXSPI Reporter Collection
Exchange IMS Messaging Trends	EXSPI-5.5 Dc-IMS Message Volume	590-593	Exchange 5.5 \EXSPI Add-Ons \EXSPI Internet Mail Services
Exchange Mailbox Details	Dc-Mailbox Data	630-632	\EXSPI Advanced EXSPI Reporter Collection
Exchange Mailbox Summary	Dc-Private/Mailbox IS Sum. Data Dc-Mailbox Data	610-613, 630-632	\EXSPI Advanced EXSPI Reporter Collection
Exchange Mailbox Usage Trends	Dc-Private/Mailbox IS Sum. Data	610-612	\EXSPI Advanced EXSPI Reporter Collection
Exchange Messaging Trends	Dc-MTA Message Volume	530-535	EXSPI Quick Start \EXSPI Message Transfer Agent
	Dc-IS Private Msg Vol OR Dc-IS Mailbox Msg Vol Dc-IS Public Msg Vol	540-543 550-552	EXSPI Quick Start \EXSPI Information Store

Report Name (DETAIL-shows data grouped by single systems)	**Template Name**	**Metric ID Logged**	**Location**
	Dc-SMTP Message Volume	670-675	Exchange 2000 and 2003 \EXSPI Quick Start \EXSPI General Data Collection
Exchange Top Destinations	Dc-TrackLog Data	662	EXSPI Advanced \EXSPI Reporter Collection
Exchange Top Recipients	Dc-TrackLog Data	661	EXSPI Advanced \EXSPI Reporter Collection
Exchange Top Senders	Dc-TrackLog Data	660	EXSPI Advanced \EXSPI Reporter Collection
Exchange Top Sources	Dc-TrackLog Data	663	EXSPI Advanced \EXSPI Reporter Collection

Data Collection for Graphing and Reporting

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

Data is collected through the following data collection templates:

Table 1: Quick Start Data Collector Templates

Data Collector Name	Scheduled Times	Metric IDs	Table
Dc-SMTP Message Volume	Hourly	670: SMTP Server.Messages Sent Total 671: SMTP Server.Messages Received Total 672: SMTP Server.Bytes Sent Total 673: SMTP Server.Bytes Received Total 674: SMTP Server.Message Bytes Sent Total 675: SMTP Server.Message Bytes Received Total **Note**: These are running totals since the SMTP service started. The Exchange SPI calculates a delta value between readings and logs this value to show message volume.	EXSPI_MULTI
Dc-SMTP Message Queues	Hourly	50: SMTP Server.Categorizer Queue Length 51: SMTP Server.Local Queue Length 52: SMTP Server.Local Retry Queue Length 53: SMTP Server.Messages Pending Routing 54: SMTP Server.Remote Queue Length 55: SMTP Server.Remote Retry Queue Length	EXSPI_MULTI
Measurement Data Collector	Hourly	Writes the EXSPI_SINGLE values to the datastore each hour.	EXSPI_SINGLE
Create Coda Data Sources	Every 10 mins	Creates database source EXSPIDATA with objects: EXSPI_SINGLE, EXSPI_MULTI, EXSPI_M0660, EXSPI_M0661, EXSPI_M0662, EXSPI_M0663, EXSPI_M1002, EXSPI_PFDETAIL, EXSPI_MBDETAIL, EXSPI_MBSUMMARY, EXSPI_PFSUMMARY, EXSPI_TRANLOG, EXSPI_SRS	n/a

Table 1: Quick Start Data Collector Templates

Data Collector Name	Scheduled Times	Metric IDs	Table
Dc-IS Msg Delivery Time	Every 10 minutes (0,10,20,30, 40,50) For hours: 6-18 Weekdays only *This must be scheduled every 10 mins beginning at the 0 minute.	581: MSExchangeIS Mailbox.Average Local Delivery Time 582: MSExchangeIS Mailbox.Average Delivery Time 583: MSExchangeIS Public.Average Local Delivery Time 584: MSExchangeIS Public.Average Delivery Time **Note**: The average value over all samples over all database instances in the hour is logged to EXSPI_SINGLE, while the average value over all samples is logged per instance to EXSPI_MULTI	EXSPI_MULTI (for each Database instance) EXSPI_SINGLE (total over all Databases)
Dc-IS Private Mailbox Msg Vol	Hourly For hours: 6 - 18 Weekdays only	540: MSExchangeIS Mailbox.Local deliveries 541: MSExchangeIS Mailbox.Messages Delivered 542: MSExchangeIS Mailbox.Messages Sent 543: MSExchangeIS Mailbox.Messages Submitted 544: MSExchangeIS Mailbox.Message Recipients Delivered **Note**: These are running totals since the STORE service started. The Exchange SPI calculates a delta value between readings and logs this value to show message volume.	EXSPI_MULTI (for each Database instance) EXSPI_SINGLE (total over all Databases)

Table 1: Quick Start Data Collector Templates

Data Collector Name	Scheduled Times	Metric IDs	Table
Dc-IS Public Msg Vol	Hourly For hours: 6-18 Weekdays only	550: MSExchangeIS Public.Messages Delivered 551: MSExchangeIS Public.Messages Sent 552: MSExchangeIS Public.Messages Submitted 553: MSExchangeIS Public.Message Recipients Delivered **Note**: These are running totals since the STORE service started. The Exchange SPI calculates a delta value between readings and logs this value to show message volume.	EXSPI_MULTI (for each Database instance) EXSPI_SINGLE (total over all Databases)
Dc-MTA & IS Queue Lengths	Every 10 minutes (0,10,20,30,40,50) For hours: 6-18 Weekdays only *This must be scheduled every 10 mins beginning at the 0 minute.	570: MSExchangeMTA.Work Queue Length less MSExchangeMTA.Deferred Delivery Msgs 571: MSExchangeIS Mailbox.Send Queue Size 572: MSExchangeIS Mailbox.Receive Queue Size 573: MSExchangeIS Public.Send Queue Size 574: MSExchangeIS Public.Receive Queue Size **Note:** The average value over all samples over all database instances in the hour is logged to EXSPI_SINGLE, while the average value over all samples is logged per instance to EXSPI_MULTI.	EXSPI_MULTI (for each Database instance) EXSPI_SINGLE (total over all Databases) EXSPI_SINGLE for MTA work Queue Length

Table 1: Quick Start Data Collector Templates

Data Collector Name	Scheduled Times	Metric IDs	Table
Dc-MTA Message Volume	Hourly For hours: 6-18 Weekdays only	530: MSExchangeMTA.Inbound Messages Total 531: MSExchangeMTA.Outbound Messages Total 532: MSExchangeMTA.Total Recipients Inbound 533: MSExchangeMTA.Total Recipients Outbound 534: MSExchangeMTA.Inbound Bytes Total 535: MSExchangeMTA.Outbound Bytes Total **Note**: These are running totals since the MTA service started. The Exchange SPI calculates a delta value between readings and logs this value to show message volume.	EXSPI_SINGLE
Dc-User Connections	Hourly For hours: 7-18 Weekdays only	520: MSExchangeIS.Active User Count 521: MSExchangeIS.User Count	EXSPI_SINGLE

Table 2: Add-Ons Data Collector Templates

Data Collector Name	Scheduled Times	Metric IDs	Table
Dc-Chat Data Collection	30 minutes Weekdays only	837: Microsoft Exchange Chat Service.Clients 838: Microsoft Exchange Chat Service.Channels	EXSPI_MULTI
Dc-ConfTrends	30 minutes For hours: 7-18 Weekdays only	800: MSExchangeCONF.Active Conferences 808: MSExchangeDcsMgr.Local Conferences 809: MSExchangeDcsMgr.Remote Conferences 810: MSExchangeDcsMgr.Active MCUs	EXSPI_MULTI
Dc-MCU	30 minutes For hours: 7-18 Weekdays only	811: MSExchangeT120.Data Messages Received 812: MSExchangeT120.Data Messages Sent 813: MSExchangeT120.KBytes Received 814: MSExchangeT120.KBytes Sent **Note**: These are running totals since the Conferencing service started. The Exchange SPI calculates a delta value between readings and logs this value to show message volume.	EXSPI_MULTI
Dc-Instant Messaging Enabled Users	Hourly	843: Number IM enabled users on Server	EXSPI_MULTI
Dc-Instant Messaging	Hourly	841: MSExchangeIM Virtual Servers.Current Users Online 842: MSExchangeIM Virtual Servers.Current Subscriptions 845: MSExchangeIM.Failed Requests/sec 846: MSExchangeIM.Rejected Requests/sec	EXSPI_MULTI
Dc-SRS Data Space Usage	Hourly	112, 113, 114	EXSPI_SRS
Dc-Transaction Log Space Usage	Hourly	7: Log File Size Free Space on Volume Total Size of Volume Percentage Free on Volume	EXSPI_TRANSLOG

Table 3: Advanced Data Collector Templates

Data Collector Name	Scheduled Times	Metric IDs	Table
Dc-Exchange Info	Daily	655: Server 656: Site 657: Organization	EXSPI_MULTI
Dc-Mailbox Data	Weekly	630: Mailbox size (MB) 631: Number of messages 632: Storage Limit 634: Last logon date/time 815: Database Instance	EXSPI_MULTI And EXSPI_DETAILS
Dc-Mailbox IS Sum. Data	Daily	71: Physical DB size (EDB) STM Size EDB Free STM Free EDB Total STM Total Logical Size Number of Mailboxes Number of Messages 614: MSExchangeIS Mailbox.Single Instance Ratio	EXSPI_MBSUMMARY EXSPI_MULTI
Dc-Public Folder Data	Weekly	73: Folder Size 624: Number of Messages	EXSPI_MULTI
Dc-Public IS Sum. Data	Daily	73: Physical DB size (EDB) STM Size STM Free EDB Total STM Total Logical Size Number of Folders Number of Messages 624: MSExchangeIS Public.Single Instance Ratio 640: Folder Size 641: Number of messages	EXSPI_SINGLE EXSPI_MULTI EXSPI_PFDETAIL EXSPI_PFDETAIL

Data Collector Name	Scheduled Times	Metric IDs	Table
Dc-TrackLog Data	Weekly	660: Email Senders 661: Email Recipients 662: Email Destinations 663: Email Sources	EXSPI_M0660 EXSPI_M0661 EXSPI_M0662 EXSPI_M0663
End to End	15 minutes	1002: SLA values of: Met SLA Almost Met SLA This schedule not only executes the sending of messages it also logs the data to the data store.	EXSPI_M1002

Reports for ALL Exchange versions

These reports gather data from all OVO managed Exchange servers, regardless of version.

DETAIL REPORTS FOR ALL EXCHANGE VERSIONS

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

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

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

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

- **Exchange Top Recipients**: Identifies the top recipients of email for an Exchange server.

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

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

- **Exchange User Connections**: Provides a trend graph showing open and active user connections for the selected Exchange server.

SUMMARY REPORTS FOR ALL EXCHANGE VERSIONS

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

- **Exchange Messaging Trends for All Servers**: Provides trend graphs showing messaging volume for the Message Transfer Agent, the Information Store, the Internet Mail Service across all Exchange servers, and the SMTP server messaging volume.

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

Reports for Exchange 2000 and 2003

DETAIL REPORTS FOR EXCHANGE 2000/2003 SERVERS

Detail reports provide information by system. One report is generated with a section for each system. The content of each report is as follows:

- **Exchange 2000 Chat Trends**: Provides averaged information on the number of client chat connections and channels for hours of the day over the time period indicated.
- **Exchange 2000 Conferencing Trends**: Provides averaged information on the number of conferences and active MCUs for hours of the day over the time period indicated.
- **Exchange 2003 and 2000 Folder Summary**: Provides summary information about the public folders on the server.
- **Exchange 2003 and 2000 Folder Usage Trends**: Contains graphs showing trends in database size, number of messages and average size of public folders. The trends are shown for the time period selected when the report is generated.
- **Exchange 2003 and 2000 Inactive Folders**: This report lists all the folders on the server that have not been accessed. The report also lists folders that have not been accessed in 20, 40 and 60 or more days.
- **Exchange 2003 and 2000 Inactive Mailboxes**: This report lists all the mailboxes on the server that have not been accessed. The report also lists mailboxes that have not been accessed in 20, 40 and 60 or more days.
- **Exchange 2000 Instant Messaging Availability Trends**: Shows instant messaging usage trends.
- **Exchange 2000 Instant Messaging Users Growth**: Shows the number of users that are Instant Messaging enabled over the time period

indicated.

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

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

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

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

- **Exchange 2000 MCU Trends**: Provides averaged information on the number of conferences and active MCU's for hours of the day over the time period indicated.

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

- **Exchange 2003 and 2000 Transaction Log Stats**: Provides information concerning usage and availability of storage, by and for the Exchange Transaction log.

SUMMARY REPORTS FOR EXCHANGE 2000/2003 SERVERS

Summary reports show data for ALL Exchange 2000 and 2003 servers. The content of each report is as follows

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

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

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

Reports for Exchange 5.5 only

Detail reports for Exchange 5.5 servers

Detail reports provide information by system. One report is generated with a section for each system. The content of each report is as follows:

- **Exchange 5.5 Folder Summary**: Provides summary information about the public folders on the server.
- **Exchange 5.5 Mailbox Details**: Provides detailed information about the mailboxes on the server.
- **Exchange 5.5 Mailbox Summary**: Provides summary information about the mailboxes on the server including summary totals, size distribution, and top mail users.
- **Exchange 5.5 IMS Messaging Trends**: Provides trend graphs showing messaging volume for the Internet Mail Service.

Summary reports for Exchange 5.5 servers

Summary reports show data for ALL Exchange 5.5 servers. The content of each report is as follows:

- **Exchange Top 100 Mailboxes**: Lists the top 100 mailboxes by disk space usage.
- **Exchange Top 100 Public Folders**: Lists the top 100 public folders by disk space usage.

Using Exchange SPI Reports and Graphs

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

- Distribute the Quick Start template group for data collection templates.
- Configure and distribute Exchange SPI reporter collection templates.

NOTE:

Time Interval for Exchange SPI Reports or Graphs

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

Distributing the Quick Start Template Group

In order to collect data for reports and graphs the General Data Collection templates in the Quick Start template group need to be distributed.

For the procedure to distribute templates, see *Task 8: Assign/Distribute Quick Start Templates* chapter 3 page 63.

Configure/Distribute Reporter Collection Templates

For any Exchange server system on which you would like to receive reports, you need to distribute Exchange SPI templates from the **EXSPI Advanced > EXSPI Reporter Collection** group.

To configure the Reporter Collection templates two steps are required:

1. Enable message tracking. This is a version specific procedure.

2. Distribute Reporter Collection templates.

1. Enable Message Tracking

Exchange provides a message-tracking facility that stores processed message information in a log file. Template EXSPI-60/55 Dc-TrackLog Data collection template reads the log file created by enabling message tracking. This template must be distributed to the appropriate managed nodes to gather the information. For procedures outlining how to enable message tracking on Exchange 2000 and 2003 servers using the enable message tracking Exchange SPI application, see *4b: Enabling Message Tracking for Exchange 2000 and 2003* chapter 3 page 70, and for Exchange 5.5 servers see *4a: Enabling Message Tracking for Exchange 5.5* chapter 3 page 68.

2. Distribute Reporter Collection templates

The reporter collection templates need to be distributed to any managed nodes where data is to be collected for reporting and graphing. For the procedure to distribute templates, see *Task 8: Assign/Distribute Quick Start Templates* chapter 3 page 63.

Deinstalling Exchange SPI Reporter

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

1. Using the Windows **Start** menu.
2. Using the EXSPI-Reporter InstallShield wizard.

Using the Windows Start menu:

1. Select **Start > Settings > Control Panel > Add/Remove Programs**.
2. Select **EXSPI-Reporter**.
3. Click **Remove**.

Using the EXSPI-Reporter InstallShield wizard.

1. Double-click **EXSPI-Reporter.msi**. This opens the EXSPI-Reporter InstallShield Wizard. Click **Next** on the Welcome screen.
2. Confirm the next screen by clicking **Remove**.
3. The InstallShield Wizard has deinstalled EXSPI-Reporter. Click **Finish**.

Exchange SPI Graphs

Exchange SPI comes with a set of preconfigured PerfView graphs. These graphs require that OpenView PerfAgent (aka MW Agent) be running on the managed node, see *Exchange SPI Graphs* chapter 6 page 141.

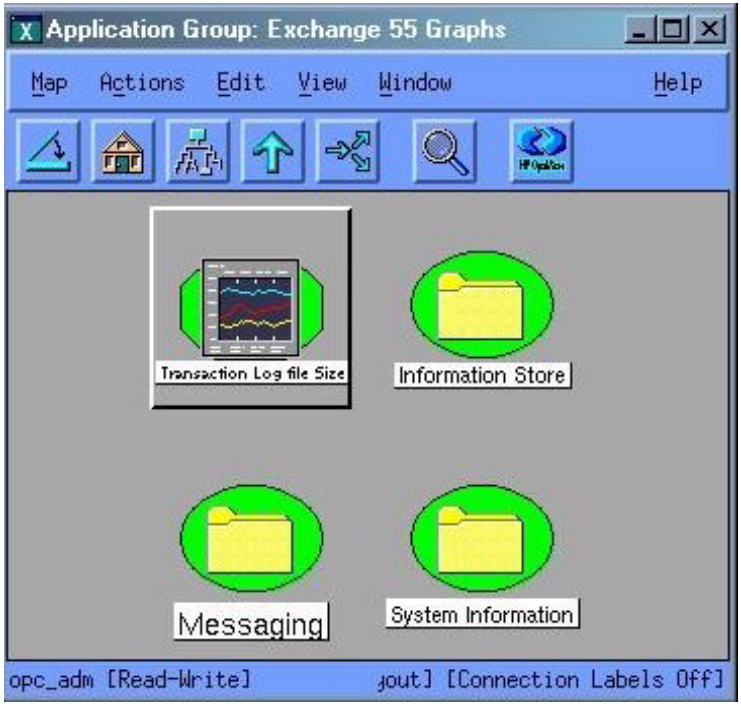
Open the Exchange 5.5, or 2000/2003 Graphs window in the version specific Application Group

TO INVOKE GRAPHS:

1. Select relevant Exchange managed nodes in the VPO Node Bank.

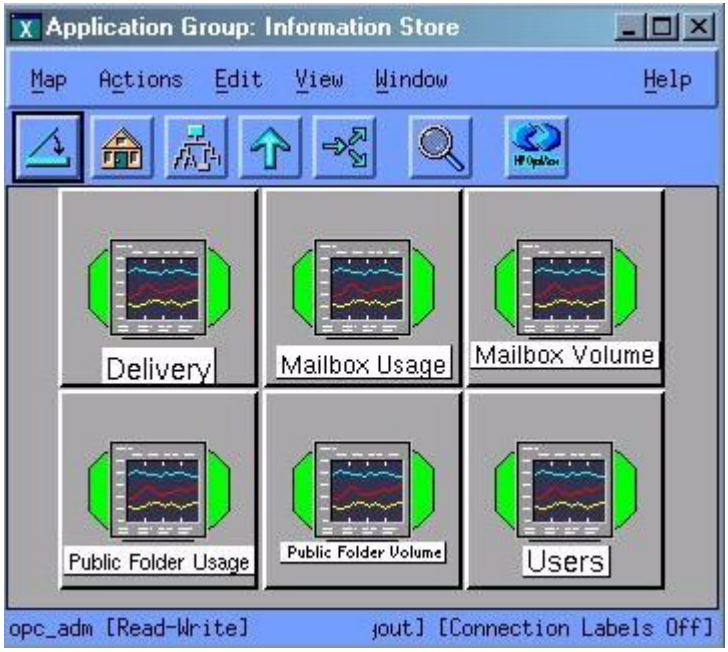
2. Drag these nodes and drop them on the desired graph.

.



Exchange SPI graphs are the same for each Exchange version, except the Transaction Log file size graph is only for Exchange 5.5.

INFORMATION STORE



Delivery: This graph shows hourly metrics for the average delivery times of messages to Exchange Server private and public mailboxes.

Mailbox Usage: This graph shows Exchange Server Mailbox usage.

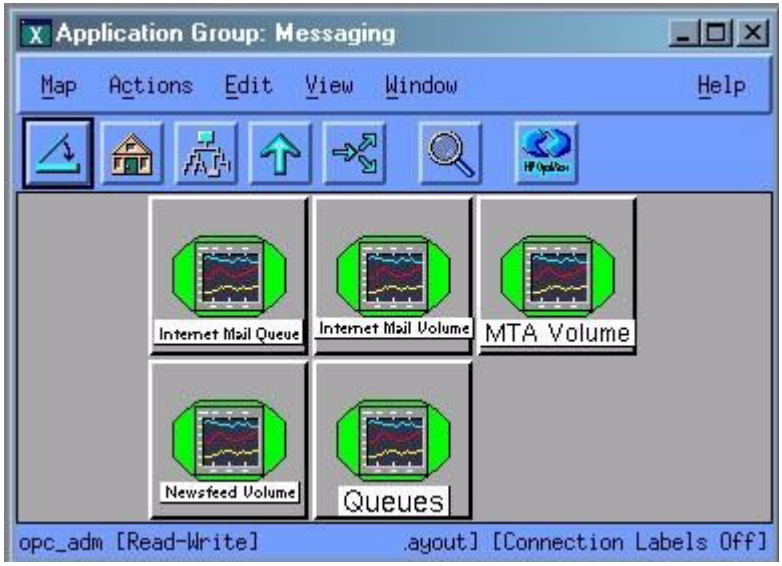
Mailbox Volume: This graph shows Exchange Server Mailbox volume.

Public Folder Usage: This graph shows Exchange Server Public Folder usage.

Public Folder Volume: This graph shows Exchange Server Public Folder volume.

Users: This graph shows information store user count metrics for the current day.

MESSAGING



Internet Mail Queue: This graph shows the Exchange Server Internet Mail Service queue count.

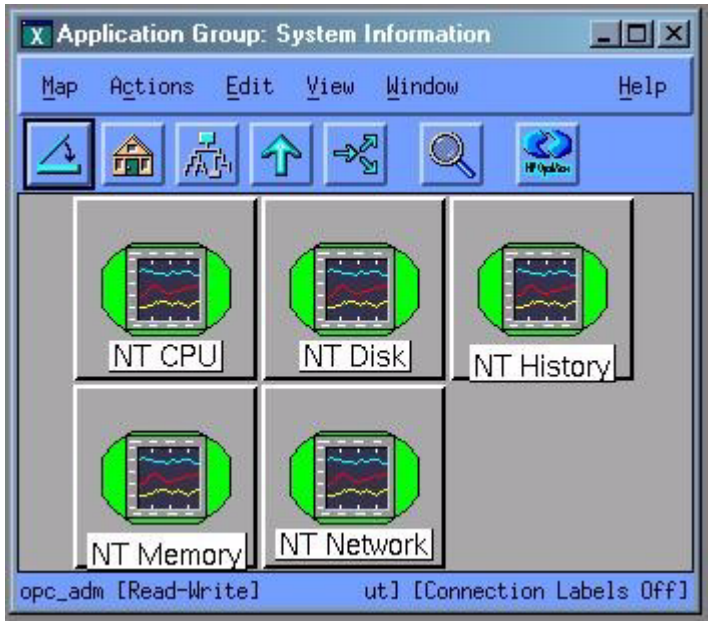
Internet Mail Volume: This graph shows Exchange Server Internet Mail Connector volume.

MTA Volume: This graph shows Exchange Server Message Transfer Agent volume.

Newsfeed Volume: This graph shows Exchange Server newsfeed volume.

Queues: This graph show Exchange Server queue lengths.

SYSTEM INFORMATION



System Information for the following areas of performance are made available in graph format:

- NT CPU
- NT Disk
- NT History
- NT Memory
- NT Network

TRANSACTION LOG DISK SPACE (EXCHANGE 5.5 ONLY)

This graph shows Transaction Log Disk Space usage on Exchange 5.5 servers.

Generating Graphs from an Exchange SPI DSI Logfile

PerfView graphs require an OVO agent to be running on the targeted management server. You can generate PerfView graphs from the Exchange version specific Exchange SPI Application Group window, and then opening the Exchange 5.5, or 2000/2003 Graphs window. Graphs display the metric data collected by the Exchange SPI data collector.

In addition, data from any Exchange SPI server can be graphed using PerfView and data from Exchange SPI MeasureWare DSI logfiles.

Simple instructions for generating the graph follow. Additional information on using PerfView can be obtained from the *PerfView User Guide*.

1. Open a terminal window and log on.

2. In the terminal window, to verify that the `DISPLAY` environment variable is set to your terminal window, enter:

   ```
   echo $DISPLAY
   ```

   If the `DISPLAY` environment variable is not set correctly, set it to your terminal window.

3. To start PerfView, type:

   ```
   pv
   ```

   The main PerfView window is displayed.

NOTE Since values are logged hourly to MeasureWare, use the PerfView `Graph:` **Settings->Points Every** to set the time setting to **1h** or **3h**.

4. Select **Data Sources>Manage.**

5. In the PerfView Systems window highlight the desired system from the list and click **Open**.

   The Data Sources window is displayed listing all known source files. If the desired data source is not listed, press **Select** and enter the data source name.

6. Select the desired source file from the list and click **Open**.

   Perfview connects to the data source and displays it in the main window.

7. Select **Graphs>Create New Graph**.

8. In the Select Metrics window highlight the data source file.

   A list of metrics is displayed to use for graphing.

9. Highlight the desired metrics from the list to use for graphing.

   The selected metrics are displayed in the Metrics to Be Graphed portion of the Select Metrics window.

10. Click **OK** when finished selecting metrics.

11. Click **Draw** to generate the graph.

12. You can use the **Settings** menu on the PerfView Graph window to change settings for the graph, the **Show** menu to drill down to examine points on the graph, and the **File** menu to save, print, or export the graph. You can also correlate operating system metrics with Exchange SPI metrics.

7

Customizing Exchange SPI

Introduction

This chapter outlines the following customization procedures:

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

Choosing metrics to monitor Exchange

Before beginning customization, first decide which metrics can remain without changing the thresholds, (see “Exchange SPI Metric Specifications” later in this chapter or the *Exchange SPI Reference Manual*).

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

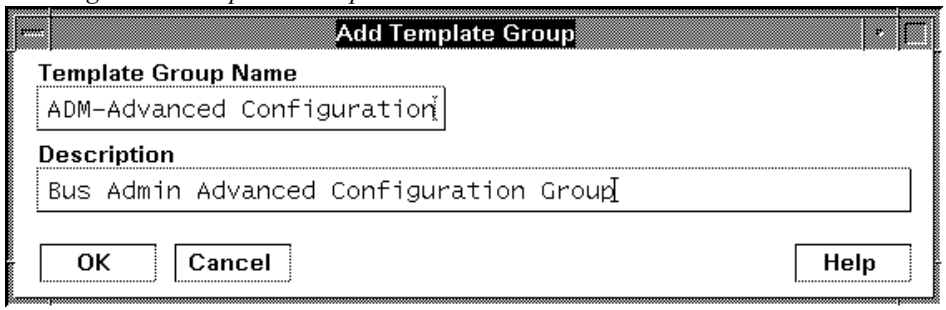
Basic Customization

Creating Custom Groupings

Create custom template groups as follows:

1. Log onto OVO as the OVO Administrator.
2. Select **Window>Message Source Templates**.
3. In the Message Source Templates window select the desired template group and click the **Add...** button (if Add Logfile... is displayed, pull down the list and select Add Group) and select a name and description for this group.
4. To copy templates to the new group:
   - In the Message Source Templates window, double-click to open the group containing the desired templates.
   - Select the templates to copy and choose **Edit>Copy from the Message Source Templates** menu to copy the templates.
   - Return to the newly created template group and choose **Edit>Paste** from the menu.

Creating a New Template Group



Creating Custom Templates

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

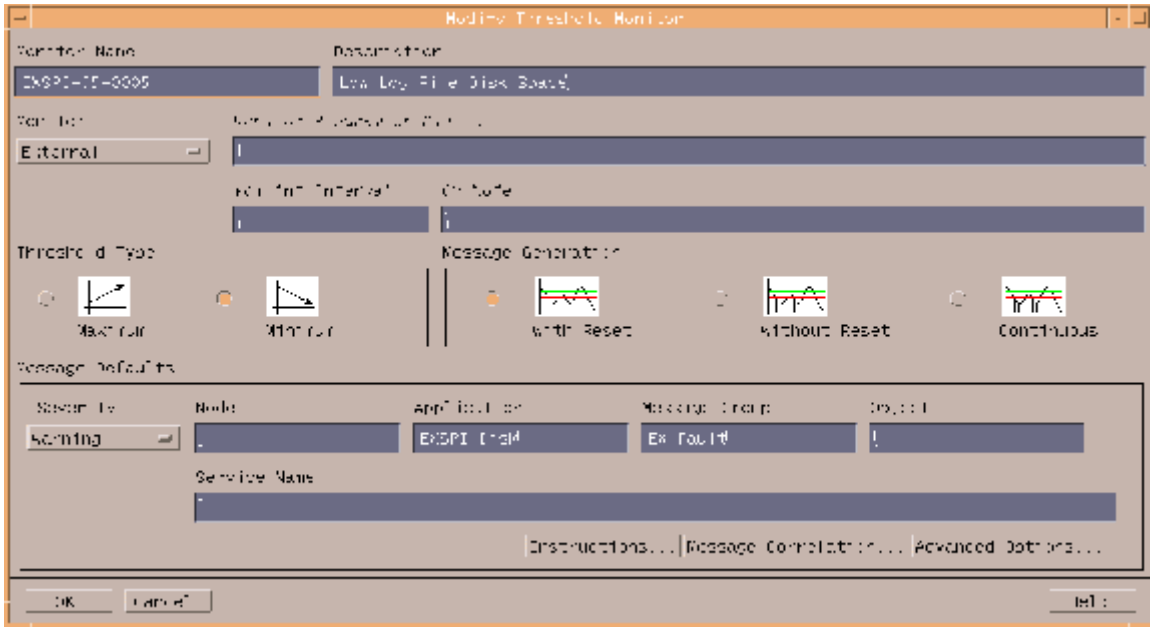
When the OVO environment scales, the Exchange SPI *tag feature* provides a way to partition templates into groups with each group customized in a specific manner.

Modifying Message Generation

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

1. Select the **Message Source Templates** window.
2. Double-click to open the template group containing the metric to modify.
3. Click the **Modify** button.

Modifying Message Generation



4. Select one of the Message Generation types:

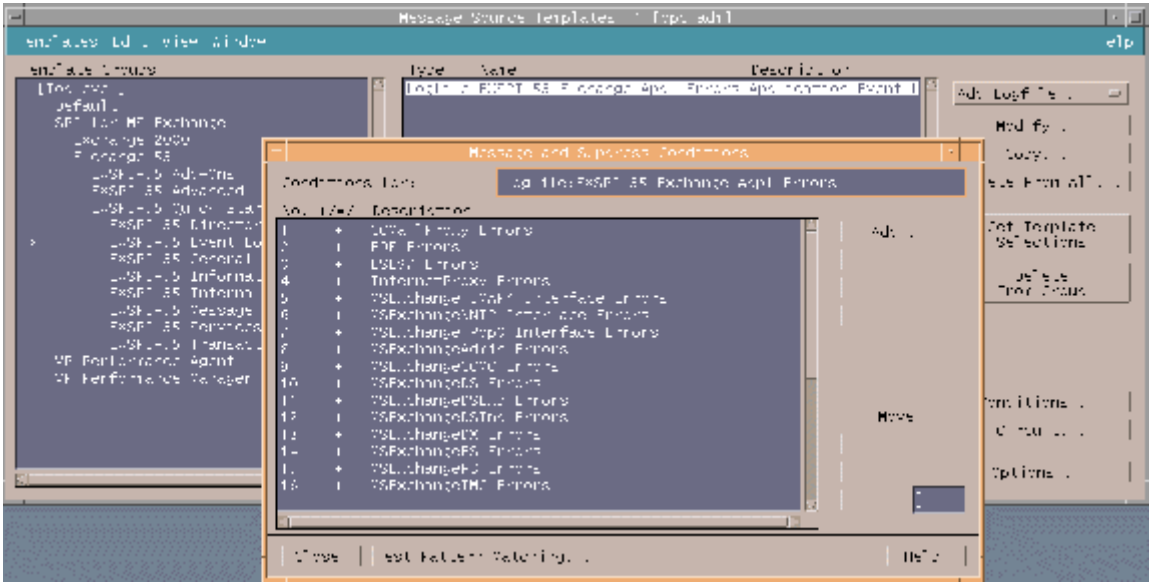
   - ***with Reset:*** Alarms are generated after the monitoring threshold has been exceeded. No additional alarms are generated until metrics drop below a specified Reset threshold and subsequently exceed the monitoring threshold.
   - ***without Reset:*** Alarms are generated after the monitoring threshold has been exceeded. No additional alarms are generated until metrics drop below the threshold and subsequently exceed it.
   - ***Continuous:*** Alarms are generated continuously when metrics exceed the threshold.

Modifying Metric Template Conditions

Modify metric attributes as follows.

1. Select the **Message Source Templates** window.
2. Double-click the template group containing the metric to modify.
3. Double-click the desired metric
4. In the Message and Suppress Conditions window select the condition to modify and click the **Modify** button.

The Message and Suppress Conditions Window



5. The `Condition` window displays.

The following attributes can be easily modified:

Threshold. Set the desired threshold.

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

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

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

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

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

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

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

NOTE Some metrics have an operator-initiated action which will display a graph if PerfView is installed on the management server.

Customizing the Threshold

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

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

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

2. Enter a name for the condition; for example, EXSPI-60-0001.3.

3. Click **OK** to close EXSPI-60-0001.3. This will be the default condition.

4. Select the original condition, EXSPI-60-0001.1.

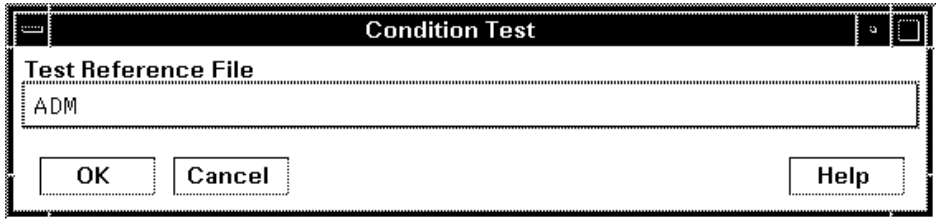
5. Click the **Modify** button to display the Condition window.

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

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

8. Change the value in the value in the Threshold field.

Testing Pattern Matching from the Condition Window



Customizing Schedules

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

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

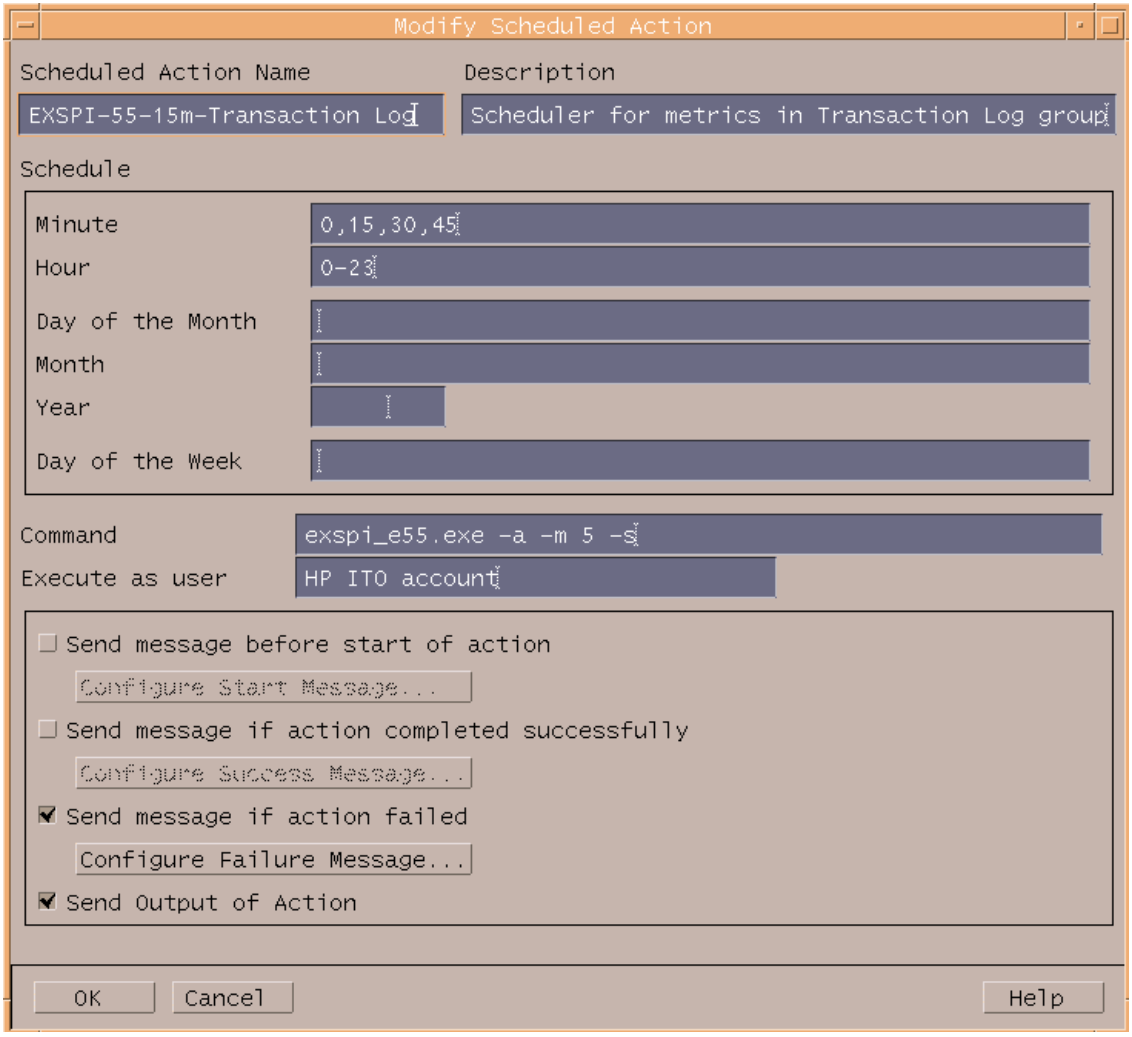
2. Double-click the desired template

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

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

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

Customizing a Schedule Template



The Tag Feature

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

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

- Make copies of existing monitor templates that you want to modify.
- (optional) Modify the monitor template settings.
- Save each modified template under the same name with a prefix.
- Enter each metric and - <*prefix tag*> after the collector/analyzer command in the **Program Monitor or MIB ID** box of the schedule template.

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

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

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

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

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

Advanced Customization

Changing the Windows User Account name

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

Changing the Mailbox name

For all schedule templates in the template group EXSPI-60 Data Collection (Adv), add `-x` <*mailbox_name*> to the command which is executed under the schedule. For example:

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

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

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

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

Returning to original factory settings

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

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

CAUTION Any customization of the original templates will be overwritten.

8

Troubleshooting

Introduction

This chapter offers troubleshooting suggestions for Exchange SPI. It includes the following sections:

- Verifying Software Installation on the Management Server
- The Exchange SPI Error Log
- Turning on/ Disabling Tracing
- Common Errors
- Verifying the MSXSPI account has the right privileges
- Verifying MeasureWare Integration
- Installing Old DSI Log Files
- Advanced Configuration Template Failures
- Exchange Service Discovery errors

Verifying Exchange SPI Installation on the Management Server

NOTE: This utility is not available for Sun Solaris.

1. To check the integrity of Exchange SPI files on the OVO management server, run the following command:

   /usr/sbin/swverify SPI-EXCHANGE-OVO

   This command produces output similar to the following:

```
swverify.agent_auto_exit = false
swverify.agent_timeout_minutes = 10000
swverify.allow_incompatible = false
swverify.allow_multiple_versions = false
swverify.autoremove_job = false
swverify.autoselect_dependencies = true
swverify.check_contents = true
swverify.check_permissions = true
swverify.check_requisites = true
swverify.check_scripts = true
swverify.check_volatile = false
swverify.control_lang = C
swverify.enforce_dependencies = true
swverify.follow_controller = false
swverify.log_msgid = 0
swverify.logdetail = false
swverify.logfile = /var/adm/sw/swverify.log
swverify.loglevel = 1
swverify.mount_all_filesystems = true
swverify.rpc_binding_info = {
ncacn_ip_tcp:[2121]
ncadg_ip_udp:[2121]
}
swverify.rpc_timeout = 5
swverify.select_local = true
swverify.target_directory = /var/spool/sw
swverify.verbose = 1
```

```
swverify.software = EXSPI
swverify.targets = /
```

The Exchange SPI Error Log

Errors are forwarded to the browser and logged to:

```
\usr\OV\exspi\log\exspierror
```

For example:

```
04/01/02 08:43:57 ERROR exspi(488) [colamain.cpp:333]:
EXSPI-60-40:
Exchange Server Software not installed on this system
(Check: SOFTWARE\Microsoft\Exchange\Setup). Unable to
perform collection!
```

Turning on Tracing

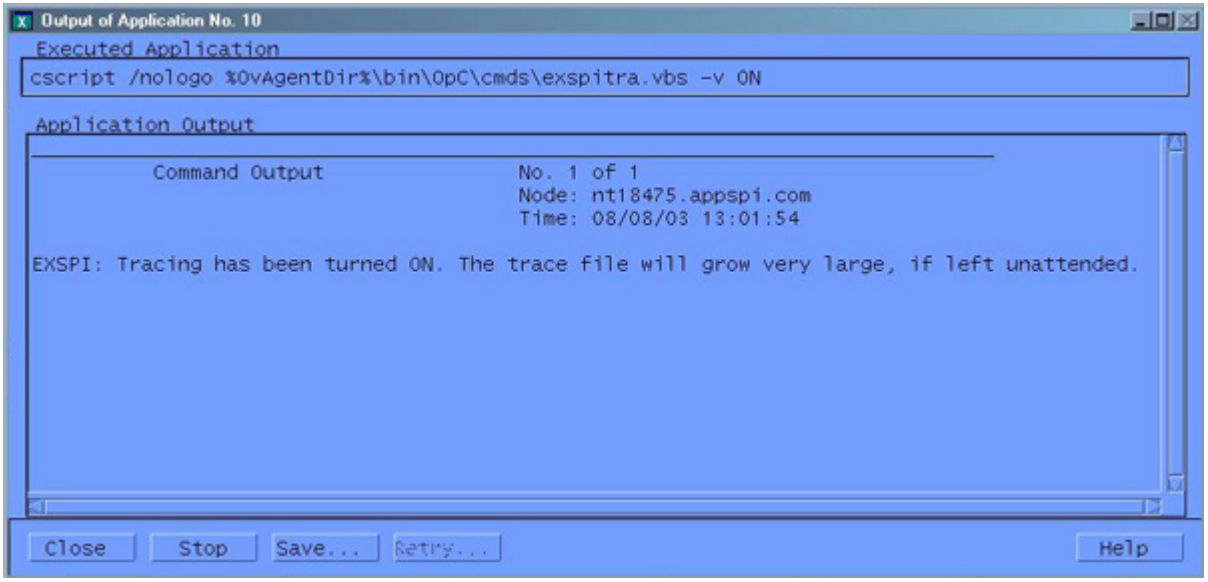
If a problem occurs and you are asked to turn on tracing by the EX-SPI support team, use the **Enable EXSPI Tracing** application for the relevant Exchange version.

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

2. Drag and drop these nodes on the **Enable EXSPI Tracing** application located in the EXSPI Admin application group under the appropriate version.

3. Verify whether there are any errors in the **Output of Application** window.

Output of Application window



DISABLING TRACING

For disabling the tracing, use **Disable EXSPI Tracing**.

NOTE The trace file will grow very large. It is advisable to leave tracing enabled only long enough to recreate the problem, or in order to comply with HP support instructions.

Common Errors

1. When re-installing or upgrading Exchange Server, Exchange Setup program shows errors.

   Symptom: Exchange Server re-install or upgrade (e.g., new Service Pack), the Exchange Setup generates error messages about DLLs that can't be overwritten.

   Solution: Stop OVO (`opcagt -stop`) and MeasureWare (`mwacmd stop`), then retry the operation.

2. Schedule template fails with message:
   `EXSPI xxxxx Metric Collection failed`.

   Symptom: The scheduled command failed with an exit code other than 0.

   Solution: This error sometimes occur if the system is rebooted just before the collector/analyzer program was executed.

   However, if this is not the case do the following: To find out more information about the failure, modify the failing schedule template, check the **Send Output of Action** check box and re-distribute templates again.

   The browser message should now contain an annotation with more information about the failure. Also, check the `exspierror` for more information.

3. Error when distributing Exchange 5.5 ConfigFile templates to Windows NT4 managed nodes.

   Symptom: During ConfigFile template distributation to Windows NT nodes, the following system error message box appears and the action fails:

   ```
   OvCfgFile.exe - Entry Point Not Found. The procedure
   entry point __lc_collate_cp could not be located in the
   dynamic link library MSVCRT.dll.
   ```

Solution: The Windows managed node does not have the correct version of the Microsoft C Runtime library MSVCRT.dll installed on the managed node (MSVCRT.dll is located in the system32 directory). Upgrade your system by downloading and installing a newer version of MSVCRT.dll as described in Microsoft Knowledge Base article Q259403 at:
www.support.microsoft.com/default.aspx?scid=kb;EN-US;q259403
Updating MSVCRT.dll may require a reboot. Afterwards, restart the failed ConfigFile-template distribution.

Verifying MSXSPI account has right privileges

In order to verify that you have created the MSXSPI account with the right amount of privileges to run advanced metrics such as 5, 841, or 630, do the following:

1. Log into your Exchange 2000 or 2003 server as MSXSPI user (in the correct NT domain).

2. Open a DOS command prompt window.

3. `cd` to the directory where exspi collector is located (typically in `c:\usr\OV\bin\OpC\monitor`)

4. Run the following series of commands:

   ```
   exspi_e2k.exe  -m 5   -p
   exspi_e2k.exe  -m 841   -p
   exspi_e2k.exe  -m 630   -p
   ```

5. These will print the results to the screen.

6. If these executed properly and the correct results printed on the screen, your MSXSPI account has the right permissions.

Verifying MeasureWare Integration

To verify MeasureWare integration check the following:

1. Is the MeasureWare Agent installed on the Exchange server managed node?

2. Is the MeasureWare agent up and running (`mwacmd` status or MeasureWare Agent application in RPM Tools Windows group)? There should be TWO `rep_server` programs running. If not, re-start MeasureWare Agent.

3. Verify MeasureWare Agent configuration.

   - Verify that `perflbd.mwc` (e.g., in `\rpmtools\data`) contains `EXSPI_DATA` data source.

   - If not, re-run MW setup: First run, `Disable Data Logging`, wait for MW to re-start, then run `Enable Data Logging`.

   - Verify that DSI logfiles were created in `\usr\exspi\dsi\log\exspi_log.EXSPI_*`

   - Check the timestamps of those files; they are updated when the data collectors run.

4. Verify `exspi_e2k.exe` or `exspi_e55.exe` data forwarding:

   - The collector/analyzer `exspi_e2k.exe` or `exspi_e55.exe` specified in the schedule templates writes MeasureWare data to `\usr\exspi\dsi\*.dat` only if the keyword `MW ON` is present in the `\usr\exspi\defaults` file (note, the defaults file has no file extension.). Check the defaults file for the above keyword. If not present, run **EXSPI Add DataSource**.

   - Check whether `*.dat` files are present in `\usr\exspi\dsi`.

   - Check timestamps of `*.dat` files.

Advanced Configuration Template Failures

Symptom: The following data collectors fail and a critical message is shown in the OVO browser:

- EXSPI-60/55 Dc-Private IS Sum. Data
- EXSPI-60/55 Dc-Public IS Sum. Data
- EXSPI-60/55 Dc-Mailbox Data
- EXSPI-60/55 Dc-Public Folder Data

Solution: These collectors access Exchange directly and require MSXSPI user and **MSXSPI<*hostname*> mailbo**x.

Verify MSXSPI user, MSXSPI<hostname> mailbox, MSXSPI rights in Exchange and MeasureWare:

1. Verify MSXSPI user setup.

   - Use Windows User Manager to verify MSXSPI account. The user must exist in the same domain as the Exchange Server is part of. **Note:** there must be no local MSXSPI user.
   - For Exchange 5.5, the MSXSPI user must be part of Domain Admin group.

2. Verify MSXSPI rights in Exchange.

   The MSXSPI user must have "Receive As" and "Send As" Exchange Admin permissions. See *Creating a Service Account with Proper Access Permissions* chapter 2 page 22.

3. Verify MSXSPI<*hostname*> mailbox.

   Use **Exchange Admin** to verify that a MSXSPI<*host_name*> mailbox exists

and click on **Recipient**s. In the right pane, a MSXSPI<*host_name*> user must show up for each server which belongs to the site.

4. Verify MeasureWare Agent integration as described in *Verifying MeasureWare Integration* chapter 8 page 171.

Exchange Service Discovery Failures

Symptom: The error message: `Error: Specified file was not found`

Solution: Verify whether the distribution of Exchange SPI commands was successful. Refer to *Task 6: Distribute Exchange SPI actions, commands, monitors* chapter 3 page 59 for more details.

Symptom: Exchange SPI service discovery fails.

Solution: The following patches allow more than one instance of 'opctranm':

`PHSS_28148 - OVO A.07.12 HP-UX 11.0/11.11`

`ITOSOL_00183 - OVO A.07.12 Solaris`

If you do not have these, or the patches that supersede them, the Exchange SPI discovery may fail if there is an instance of opctranm running already. To resolve this, wait till the opctranm job is completed before starting the Exchange SPI discovery (or) kill the opctranm process.

Symptom: The error message: `Problem in Executing opcservice`

Solution: Check if the OVO Service Navigator Component is installed. Note: This component is included with the OVO bundle, on the CD.

A

File Names

Introduction

This chapter lists the Exchange SPI file names, along with their descriptions, owners, groups, and permissions. Exchange SPI files are grouped as follows:

- Management server files
- Management server/managed node files
- Managed node files
- Logging and trace files

Management Server Files

TEMPLATES FOR OPCCFGUPLD (OVO UPLOAD FACILITY)

All files listed in this table can be found on the management server in the following directories (the location of these files varies by platform):

```
/var/opt/OV/share/tmp/OpC_appl/EXSPI/exspiset/C/
```

Table 1: Management Server Files

File	Description
`exspiset.idx`	OVO upload control file. This file defines what is being uploaded into OVO: message groups, monitor templates, logfile templates, applications and template groups.
`TEMPLATES/LOGFILE /logfile.dat`	Definition file for logfile encapsulation.
`TEMPLATES/MONITOR /monitor.dat`	Definition file for OVO templates: collector/analyzer program, external monitor for each metric and file system monitor. Contains all details for monitoring all metrics.
`TEMPLATES/SCHEDULE /schedule.dat`	Definition file for Exchange SPI schedule templates.
`TEMPLATES/TEMPLGROUP /templgrp.dat`	Definition file for OVO template group structure.
`TEMPLATES/MSGGROUPS /msggrps.dat`	Definition file for OVO message group structure.
`TEMPLATES/INTERFACE /msgi.dat`	Definition file for Exchange SPI specific error message.

MISCELLANEOUS MANAGEMENT SERVER FILES

Table 2: Miscellaneous Other Management Server Files

File	Description
/etc/opt/OV/share/conf /OpC/mgmt_sv/ reports/exspi_lc.sql	Report that lists all nodes that have Exchange SPI templates assigned (for license check).
/opt/OV/EXSPI/bin/exspipv	Script to run PerfView as metric operator actions and bring up graphs.
/opt/OV/EXSPI/bin/exspircfg	Script for EXSPI Node Config.
/opt/OV/EXSPI/bin/EXSPI_DiscConfig.sh	Script for setting Exchange SPI related variables.
/opt/OV/EXSPI/bin/exspipngcfg_e55.sh	Script for End-to-End Ping config for Exchange 5.5
/opt/OV/EXSPI/bin/exspipngcfg_e2k.sh	Script for End-to-End Ping config for Exchange 2000 and 2003

Management Server/Managed Node Files

When you run **swinstall**, the following monitor and command files are installed on the Management Server. They are also installed on managed nodes when you distribute monitors, commands and actions from the Management Server to the managed nodes.

MONITOR FILES

On Management Server:

```
/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/
intel/nt/monitor/
```

On Managed Node:

```
\usr\OV\bin\OpC\monitor
```

Table 3: Monitor Files

File	Description
`exspi_e2k.exe`	Exchange 2000/2003 SPI Collector/Analyzer program.
`exspi_e55.exe`	Exchange 5.5 SPI Collector/Analyzer program.
`msexchange.apm.xml`	Template list for cluster fail-over
`OVAMTLog2k.dll`	Tracking.Log access library for Exchange 2000/2003
`OVAMTLog55.dll`	Tracking.Log access library for Exchange 5.5
`OVAMDa.dll`	LDAP access library
`hpudm.txt`	Internal data file

NOTE: All files in Table 3: Monitor Files, are in compressed ".Z" format to improve distribution performance.

COMMAND FILES

Command files are located in the following directories:

Management Server:

```
/var/opt/OV/share/databases/OpC/mgd_node/customer/ms/
intel/nt/cmds
```

Managed Node:

```
\usr\OV\bin\OpC\intel\cmds
```

All files in this table are in compressed ".Z" format to improve distribution performance.

Table 4: Command Files

File	Description
`exspicol.bat`	Turns data collection on selected node on/off (for maintenance): -v ON -v OFF
`exspitra.vbs`	Turns EXSPI Tracing on/off -v ON -v OFF
`exspimwd.vbs`	Turns data forwarding to MeasureWare on/off (collector/analyzer will only forward data to MeasureWare if set to on: -v ON -v OFF
`exspimwc.exe`	Configures MeasureWare data collection.
`exspidsc.bat`	MeasureWare configuration program
`exspienc.exe`	For configuring managed node; part of the advanced configuration.

File	Description
`exspi_e2k_cfg.vbs`	For configuring an Exchange 2000 or 2003 server mailbox.
`exspi_e55_cfg.exe`	For configuring an Exchange 5.5 server mailbox.
`exspiDDF.bat`	For turning on data collection.

`EXSPI_CODA_m0660.spec/`
`EXSPI_MW_m0660.spec`
`EXSPI_CODA_m0661.spec/`
`EXSPI_MW_m0661.spec`
`EXSPI_CODA_m0662.spec/`
`EXSPI_MW_m0662.spec`
`EXSPI_CODA_m0663.spec/`
`EXSPI_MW_m0663.spec`
`EXSPI_CODA_m1002.spec/`
`EXSPI_MW_m1002.spec`
`EXSPI_CODA_multi.spec/`
`EXSPI_MW_multi.spec`
`EXSPI_CODA_single.spec/`
`EXSPI_MW_single.spec`
`EXSPI_CODA_details.spec/`
`EXSPI_MW_details.spec`
`EXSPI_CODA_pfdetail.spec/`
`EXSPI_MW_pfdetail.spec`
	Data log specification

`EXSPI_DiscReg.txt`
`exspi_discovery.wsf`
`exspi_e2k_discovery.vbs`
`exspi_e55_discovery.vbs`
`exspi_xmllib.vbs`
	Service Discovery related client side components

`exspi_e2k_clust_config.js`	Generates xml output, which can be used for editing the apminfo.xml file
`exspi_dbmount.vbs` (NOTE: This file is also present under monitor and actions directories) -	Checks and mounts dismounted information store(s)

Windows Managed Node Files

MONITOR TEMPLATES

When templates are distributed from the management server to the Windows managed nodes, the monitor templates are encrypted and stored in the following directory:

```
\usr\OV\conf\OpC\<hostname>\
```

Logging and Trace Files

Logging and trace files are located in the following directory on the managed node:

```
\usr\OV\exspi\log
```

Table 5: Logging and Trace Files

File	Description
`trace`	When TRACE ON is set in `\usr\OV\exspi\defaults`, tracing and debug information is written to `\usr\OV\exspi\log`. This file can get very large.
`exspierror`	Error information when the Exchange SPI collector/analyzer encounters an error condition. Messages written to this file are also sent to the OVO message browser.

B

Components

This appendix covers the Exchange SPI program components and contains the following topics:

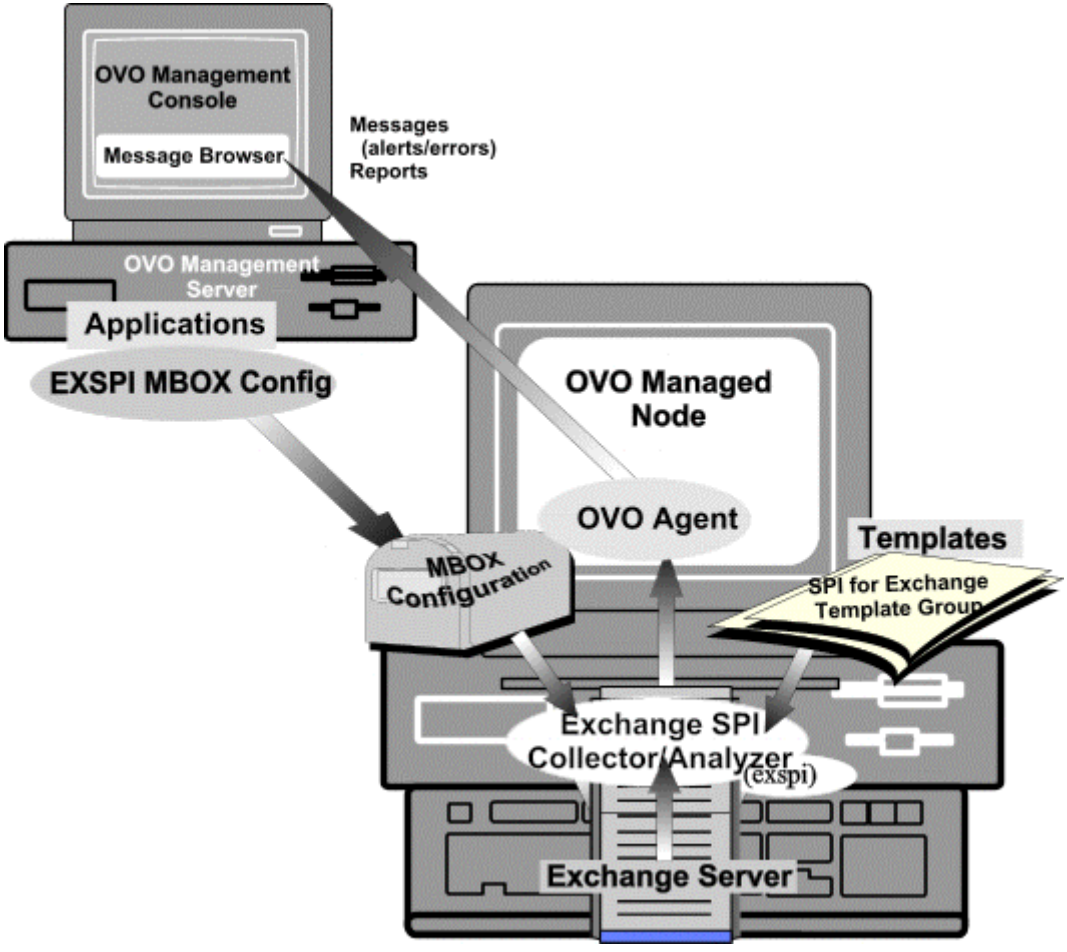
- Component Interaction
- Table of Exchange 2000 and 2003 Templates
- Table of Exchange 5.5 Templates

Component Interaction

The Exchange SPI consists of the following logical components:

- ***Service discovery:*** When run, the EXSPI Discovery application discovers Exchange services on OVO managed nodes and takes a snapshot, from this information various views of the managed Exchange environment are generated. This feature is available only if the OpenView Service Navigator software is installed and running.
- ***Template Groups with schedule and monitor templates:*** **Monitor** templates define conditions for each metric, **Schedule** templates execute metrics according to the defined schedule.
- ***Collector/analyzer program:*** Collects the metrics specified in the templates at predefined intervals, performs calculations, and forwards data to the OVO data collecting agent. OVO checks the threshold values and triggers alarms.
- ***Windows event log:*** Compares Windows event log entries against predefined logfile templates, and forwards error messages to the OVO management server.
- ***EXSPI MBox Config:*** SPI application that configures an Exchange mailbox for SPI to access mailbox and folder information (advanced configuration).
- ***EXSPI Add DataSource:*** configures and starts the logging of data**,** ***Enable Data Logging/Disable Data Logging:*** starts/stops data logging.
- ***Graphs and reports:*** Can be generated using HP PerfView and HP Service Reporter.
- ***Persistent store:*** Saves metric specific values and reports between invocations of the Collector/Analyzer.

Exchange SPI Component Interaction



Exchange SPI Templates

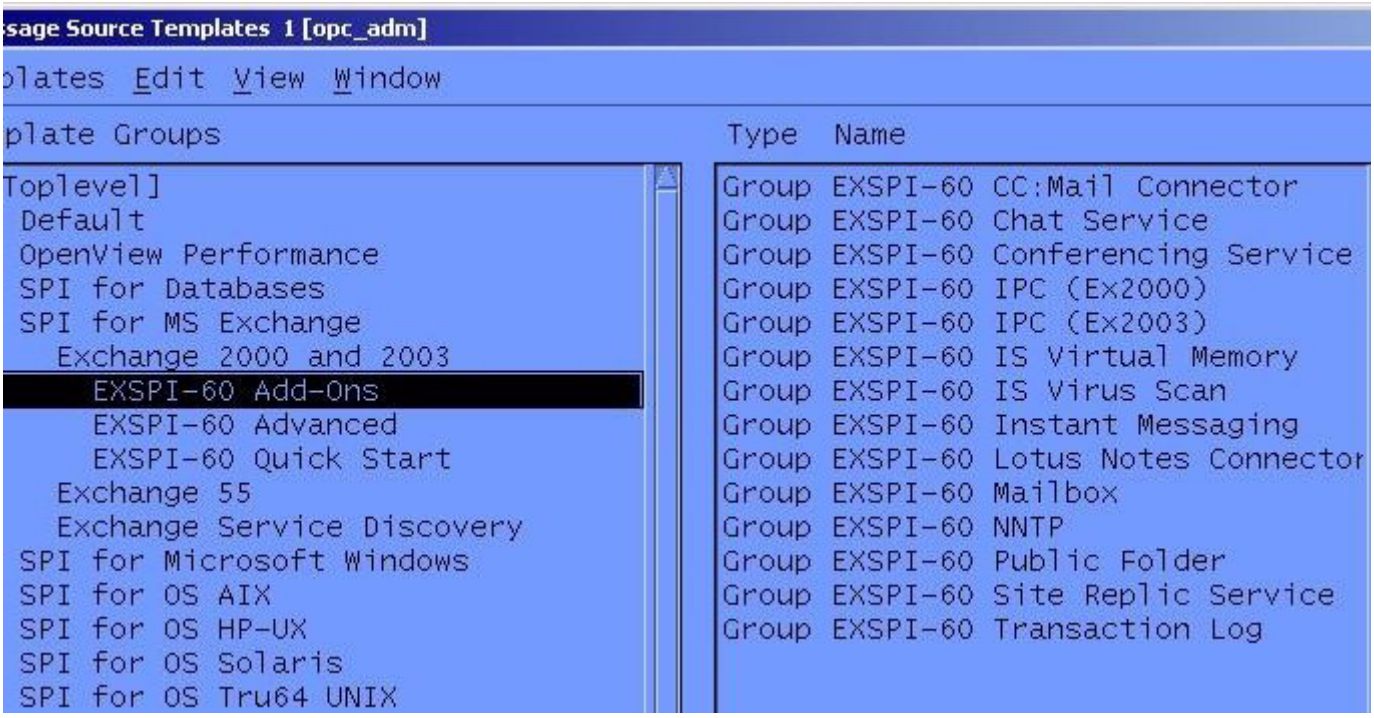
Installing the Exchange SPI adds the **SPI for Exchange** template folder to the OVO console tree. Double click **SPI for Exchange** to display the **Exchange 2000 and 2003**, and **Exchange 5.5** folders beneath. Double click to open either folder, and see the EXSPI Quick Start, Add-Ons and Advanced template groups for that version of Exchange. Selecting a template group in the console tree will display the templates, or template sub-groups within that group, in the details pane on the right.

MS Exchange version and EXSPI prefix

This version of the Exchange SPI monitors MS Exchange 2003, 2000 and 5.5. Template and Template group names contain the version number in the prefix, where **60** refers to Exchange 2000 and 2003, **65** to Exchange 2003 only, and **55** to Exchange 5.5. For example, where an Exchange 5.5 template group has the name **EXSPI-55 Event Log Errors**, the equivalent Exchange 2000 and 2003 template group is **EXSPI-60 Event Log Errors**.

When templates or template groups are referred to that work for both versions, they are referred to in this guide as **EXSPI-60/55** <*template name*>.

Section of Message Source Templates dialog



For a complete listing of templates with detailed template by template specifications, see the *HP OpenView Smart Plug-in for Microsoft Exchange Server Reference Guide*.

Table of Exchange 2000/2003 templates

EXSPI-60 Quick Start

Exchange 2000 and 2003: Quick Start Subgroups:	Templates	Descriptions
EXSPI-60 Cluster	EXSPI-60 Exchange Cluster Discover SysLog	System Event Log for Cluster Events
	EXSPI-60 Exchange Cluster Discovery AppLog	Application Event Log for Cluster Events
EXSPI-60 Directory Svc Access	EXSPI-60 DSAccess Appl Errors	MSExchangeDSAccess application event log errors
	EXSPI-60-0023	Exchange DSAccess Cache Hit-Miss Ratio
	EXSPI-60-15m-DSAccess	DSAccess Hit-Miss Ratio
EXSPI-60 Event Log Errors		Templates in this group monitor Exchange error messages written to the Windows Event log file and when detected, forward them to the OVO console
	EXSPI-60-Exchange Application Errors	Exchange System Errors
EXSPI-60 General Data Collection		Templates in this group create data stores and write data to data stores
	EXSPI-60-Log Data (log single instance data to OV Performance Agent)	
EXSPI-60 Information Store		Templates in this group collect data on the volume of messages processed by both the Private and Public Information Store during the last logging interval
	EXSPI-60-0030	IS Public Average Delivery Time
	EXSPI-60-0031	IS Public Average Local Delivery Time
	EXSPI-60-0032	IS Public Replication Queue Size
	EXSPI-60-0033	IS Public Receive Queue Size
	EXSPI-60-0034	IS Public Send Queue Size
	EXSPI-60-0040	IS Mailbox Average Delivery Time

Exchange 2000 and 2003: Quick Start Subgroups:	Templates	Descriptions
EXSPI-60 Information Store (cont)	EXSPI-60-0041	IS Mailbox Average Local Delivery Time
	EXSPI-60-0042	IS Mailbox Receive Queue Size
	EXSPI-60-0043	IS Mailbox Send Queue Size
	EXSPI-60-0100	IS User Connection Count Low
	EXSPI-60-05m-IS	5m Scheduler for metrics in Information Store group
	EXSPI-60-15m-IS	15m Scheduler for metrics in Information Store group
	EXSPI-60-DC-IS Msg Delivery Time	Collect data on the average msg delivery times in core procs
	EXSPI-60-DC-IS Mailbox Msg Vol	Collect data on the vol. of messages processed by Private IS
	EXSPI-60-DC-IS Public Msg Vol	Collect data on the vol. of messages processed by Public IS
	EXSPI-60-IS_DbLogRecordStallsPerSec	Alarm on Information Store Transaction Log Record Buffer Addition Stalls
	EXSPI-60-IS_DbLogThreadsWaiting	Alarm on Information Store Threads Waiting to Write to Transaction Log
	EXSPI-60-IS_DbLogWritesPerSec	Alarm on the number of times the transaction log buffers are written
	EXSPI-60-IS_RPCOperations	Alarm on number of MAPI client RPC operations/sec
	EXSPI-60-IS_RPCRequest	Alarm on number of MAPI client RPC requests
	EXSPI-60 Dc-Information Store	Log RPC requests and operations/sec

Exchange 2000 and 2003: Quick Start Subgroups:	Templates	Descriptions
EXSPI-60 Services and Processes		Templates in this group monitor Windows Services for Exchange by checking to see that Exchange services configured with Automatic startup are running.
	EXSPI-60-Connector State	Examines the class ExchangeConnectorState for condition ISUP equal to false
	EXSPI-60-Link State	Examines the class ExchangeLink for thresholds on NumberOfMessages
	EXSPI-60-Queue State	Examines the class ExchangeQueue for thresholds on NumberOfMessages
	EXSPI-60-Server State	Examines the class ExchangeServerState for condition ServerState not equal to good.
	EXSPI-60-0001	Process Monitor
	EXSPI-60-0002	Inactive Process Monitor
	EXSPI-60-05m-Serv. & Processes	5m Scheduler for metrics in Services and Processes group
	EXSPI-60-1001	Services Monitor
	EXSPI-60-10m-Serv. & Processes	10m Scheduler for metrics in Services and Processes group
	EXSPI-60-DC-User Connections	Collect data on the number of users
EXSPI-60 Internal Errors		Templates in this group collect information on errors occurring within the Exchange SPI and contains instruction text for fixing common problems
	EXSPI-60-Messages	

Exchange 2000 and 2003: Quick Start Subgroups:	Templates	Descriptions
EXSPI-60 Message Transfer Agent		Templates in this group collect data on the length of message queues and volume of messages (number and kilobytes) processed by the Message Transfer Agent. Also collect data on failed, delayed, and rejected inbound/outbound associations and messages during the last logging interval
	EXSPI-60-0010	MTA Message Delay
	EXSPI-60-0011	MTA Work Queue Length
	EXSPI-60-0012	MTA Failed Conversions
	EXSPI-60-0013	MTA Connection Message Delay
	EXSPI-60-0014	MTA Connection Queue Lengths
	EXSPI-60-0015	MTA Failed Outbound Associations
	EXSPI-60-0016	MTA Rejected Inbound Associations
	EXSPI-60-0017	MTA Rejected Inbound Messages
	EXSPI-60-05m-MTA	5m Scheduler for metrics in MTA group
	EXSPI-60-1h-MTA	1h Scheduler for metrics in MTA group
	EXSPI-60-DC-MTA & IS Queue Len.	Collect data on the length of message queues in core procs
	EXSPI-60-DC-MTA Message Volume	Collect data on the vol. of messages processed by MTA

Exchange 2000 and 2003: Quick Start Subgroups:	Templates	Descriptions
EXSPI-60 SMTP		Templates in this group monitor the SMTP queue length, Non-Delivery Reports (NDRs), and refused connections
	EXSPI-60-0050	SMTP Categorizer Queue Length
	EXSPI-60-0051	SMTP Local Queue Length
	EXSPI-60-0052	SMTP Local Retry Queue Length
	EXSPI-60-0053	SMTP Messages Pending Routing
	EXSPI-60-0054	SMTP Remote Queue Length
	EXSPI-60-0055	SMTP Remote Retry Queue Length
	EXSPI-60-0056	SMTP NDR Percentage
	EXSPI-60-0057	SMTP Outbound Connections Refused
	EXSPI-60-1h-SMTP	1h Scheduler for metrics in SMTP group
	EXSPI-60-5m-SMTP	5m Scheduler for metrics in SMTP group
	EXSPI-60-DcSMTP Message Queues	Populate Node database with queue metrics for graph.
	EXSPI-60-DC-SMTP Message Volume	Collect data on the volume of SMTP messages processed.

EXSPI-60 ADD-ONS

Exchange 2000 and 2003: Add-Ons Subgroup	Templates	Descriptions
EXSPI-60 CC:Mail Connector		Templates in this group monitor the number of messages awaiting delivery to Exchange from Lotus cc:Mail, the rate at which Non-Delivery Reports (NDRs) are being sent from Lotus cc:Mail to Exchange and vice versa
	EXSPI-60-0090	cc:Mail MTS-IN Queue Length
	EXSPI-60-0091	cc:Mail MTS-OUT Queue Length
	EXSPI-60-0092	Exchange NDRs to cc:Mail
	EXSPI-60-0093	cc:Mail NDRs to Exchange
	EXSPI-60-1h-ccMail Connector	1h Scheduler for metrics in cc:Mail Connector group
	EXSPI-60-5m-ccMail Connector	5m Scheduler for metrics in cc:Mail Connector group
EXSPI-60 Chat Service (Ex 2000)		Templates in this group monitor numbers of clients logged onto chat community, and note authentications, failures and disconnections related to client timeouts, DNS lookup requests and DNS lookup failures
	EXSPI-60-0830	Microsoft Exchange Chat Service.Active DNS logon threads
	EXSPI-60-0831	Microsoft Exchange Chat Service.Client Timeout Related Disconnects
	EXSPI-60-0833	Microsoft Exchange Chat Service.Anonymous Clients
	EXSPI-60-0834	Microsoft Exchange Chat Service.Authenticated Clients
	EXSPI-60-0835	Microsoft Exchange Chat Service.Authentication Failures
	EXSPI-60-0836	Microsoft Exchange Chat Service.Server operations queued

Exchange 2000 and 2003: Add-Ons Subgroup	Templates	Descriptions
EXSPI-60 Chat Service (Ex 2000) (cont.)	EXSPI-60-15m-Chat	15m Scheduler for Chat Metrics
	EXSPI-60-Dc-Chat Data Collection	Collects data about Exchange Chat Service clients and channels.
EXSPI-60 Conference Svr (Ex 2000)		Exchange SPI monitors and reports on the Conferencing Management Service, Data Conferencing Service, Multipoint Control Units (MCU) Server, Video Conferencing Service, and Conferencing Bridge Service. These services are offered with Exchange 2000.
	EXSPI-60-0800	MSExchangeCONF.Active Conferences
	EXSPI-60-0801	MSExchangeDcsMgr.DCOM Calls To MCUs
	EXSPI-60-0802	MSExchangeDcsMgr.Average Load Per MCU
	EXSPI-60-10m-Conf	10m Scheduler for active conferencing
	EXSPI-60-DC-ConfTrends	Collect data on trends in conferencing
EXSPI-60 Conferencing Bdg (Ex 2000)		Exchange SPI monitors and reports on the Conferencing Management Service, Data Conferencing Service, Multipoint Control Units (MCU) Server, Video Conferencing Service, and Conferencing Bridge Service
	EXSPI-60-0805	MSExchangeIpconf.Failed User Join Attempts
	EXSPI-60-0806	MSExchangeIpconf.Video Conferences in Progress
	EXSPI-60-0807	MSExchangeH323.Incomplete Calls
	EXSPI-60-10m-ConfBridge	10m Scheduler for failed user join attempts and video conferences in progress
EXSPI-60 MCU Server (Ex 2000)		Templates in this group monitor and collect data on the MCU service
	EXSPI-60-0803	MSExchangeT120.Active Connections

Exchange 2000 and 2003: Add-Ons Subgroup	Templates	Descriptions
	EXSPI-60-0804	MSExchangeT120.T120 MCU Load
	EXSPI-60-10m-MCU	10m Scheduler for MCU conferencing trends
	EXSPI-60-DC-MCU	Collect data on MCU conferencing trends
EXSPI-60 Instant Msg (Ex 2000)		Templates monitor numbers of current users online, current subscriptions for each virtual service instance, and message processing time
	EXSPI-60-0841	MSExchangeIM Virtual Servers.Current Users Online
	EXSPI-60-0842	MSExchangeIM Virtual Servers.Current Subscriptions
	EXSPI-60-0845	MSExchangeIM.Failed Requests/sec
	EXSPI-60-0846	MSExchangeIM.Rejected Requests/sec
	EXSPI-60-1d-Instant Messaging DC	Reporting Collection for Instant Messaging
	EXSPI-60-Instant Messaging DC	Alarming metrics for Instant Messaging
EXSPI-60 IPC (Exchange 2000 only)	EXSPI-60-EpoxyClientOutQueueLength	Alarm on epoxy client out queue length
	EXSPI-60-EpoxyStoreOutQueueLength	Alarm on epoxy store out queue length
EXSPI-65 IPC (Exchange 2003 only)	EXSPI-65-EpoxyClientOutQueueLength	Alarm on epoxy client out queue length
	EXSPI-65-EpoxyStoreOutQueueLength	Alarm on epoxy store out queue length

Exchange 2000 and 2003: Add-Ons Subgroup	Templates	Descriptions
EXSPI-60 IS Virtual Memory	EXSPI-60-0025	Monitors total number of free virtual memory blocks regardless of size
	EXSPI-60-IS_VMLargestBlock	Monitors the size (in bytes) of the largest free block of virtual memory
	EXSPI-60-IS_VMTotal16MBFreeBlocks	Monitors total number of free virtual memory blocks that are greater than or equal to 16 MB
	EXSPI-60-IS_VMTotalLargeFreeBlock	Monitors sum in bytes of all the free virtual memory blocks that are greater than or equal
	EXSPI-60-2h-IS VM Total Free Blocks	Total number of free virtual memory blocks regardless of size
EXSPI-60 Lotus Notes Connector		Templates monitor number of messages awaiting delivery to Exchange from Lotus Notes, the rate at which Non-Delivery Reports (NDRs) are sent from Lotus Notes to Exchange and vice versa
	EXSPI-60-0094	Lotus Notes Inbound Queued Messages Length
	EXSPI-60-0095	Lotus Notes Outbound Queued Messages Length
	EXSPI-60-0096	Exchange NDRs sent to Lotus Notes
	EXSPI-60-0097	Lotus Notes NDRs sent to Microsoft Exchange
	EXSPI-60-1h-Lotus Notes Connect	1h Scheduler for metrics in Lotus Notes Connector group
	EXSPI-60-5m-Lotus Notes Connect	5m Scheduler for metrics in Lotus Notes Connector group
EXSPI-60 Mailbox	EXSPI-60 Db Mounted Check	Events of application event log indicate information store mounting/dismounting
	EXSPI-60-0070	Mailbox Database File Disk Space
	EXSPI-60 Db Mounted Search	Search an Exchange server for dismounted information store(s)
	EXSPI-60-1h-Mailbox Space Usage	Monitors mailbox store space usage

Exchange 2000 and 2003: Add-Ons Subgroup	Templates	Descriptions
EXSPI-60 NNTP		Templates in this group monitor the failed newsfeed connections
	EXSPI-60-0058	Newsfeed Outbound Connections Failed
	EXSPI-60-1h-NNTP	1h Scheduler for metrics in NNTP group
EXSPI-60 Public Folder	EXSPI-60 Db Mounted Check	Events of application event log indicate information store mounting/dismounting
	EXSPI-60-0072	Public Folder Database File Disk Space
	EXSPI-60 Db Mounted Search	Search an Exchange server for dismounted information store(s)
	EXSPI-60-1h-Public Folder Space Usage	Monitors public folder store space usage
EXSPI-60 Site Replication Service		Templates monitor site replication to verify that synchronization updates are being processed efficiently.
	EXSPI-60-0110	DS Pending Synchronizations
	EXSPI-60-0111	DS Remaining Updates
	EXSPI-60-05m-DS	5m Scheduler for metrics in Directory Service group
EXSPI-60 Transaction Log		Templates monitor the size in MB of the Exchange transaction logfiles as well as the disk space used by the files.
	EXSPI-60-0004	Percent Low Log File Disk Space
	EXSPI-60-0005	Low Log File Disk Space
	EXSPI-60-0006	Transaction Log File Disc Space
	EXSPI-60 Dc-Transaction Log Space Usage	Collects and logs transaction log space usage activity
EXSPI-60 Virus Scan (Exchange 2000 only)		Templates in this group monitor virus scans for optimum performance
	EXSPI-60- Virus Scan Queue Length	Checks Information Store Anti Virus API Queue Length.
	EXSPI-60- Virus Scan Files Quarantined per sec	Checks Information Store Anti Virus API of Files Quarantined/sec.

Exchange 2000 and 2003: Add-Ons Subgroup	Templates	Descriptions
	EXSPI-60- Virus Scan Messages Cleaned per Sec	Checks Information Store Anti Virus API of Messages Cleaned/Sec.
	EXSPI-60- Virus Scan Messages Quarantined per Sec	Checks Information Store Anti Virus API of Messages Quarantined/sec
	EXSPI-60- Virus Scan Files Cleaned per Sec	Checks Information Store Anti Virus API of Files Cleaned/Sec.

EXSPI-60 ADVANCED

Exchange 2000 and 2003: Advanced Subgroups	Templates	Descriptions
EXSPI-60 End To End Message Ping		Templates in this group monitor email service responsiveness by sending an email message from one Exchange server to another
	EXSPI-60-1002	MSExchange End To End Message Ping Monitor
	EXSPI-60-End to End Message Ping	30 m Scheduler for metric in End To End Message Ping group
EXSPI-60 Event Log Warnings and Information		Templates in this group collect all Exchange-related warning and information messages from the Windows Event Log
	EXSPI-60-Exchange Application Information	Application Event Log - Notify All Information
	EXSPI-60-Exchange Application Warnings	Application Event Log - Notify All Warnings
	EXSPI-60-Exchange System Information	Application Event Log - Notify All Information
	EXSPI-60-Exchange System Warnings	Application Event Log - Notify All Warnings
EXSPI-60 Reporter Collection		Templates in this group enable data collections for OVO reports
	EXSPI-60-DC-Exchange Info	Collect data on Exchange Parameters
	EXSPI-60-DC-Mailbox Data	Collect data about all mailboxes on the system
	EXSPI-60-DC-Mailbox IS Sum. Data	Collect summary data about Mailbox Information Store
	EXSPI-60-DC-Public Folder Data	Collect data about all public folders on the system
	EXSPI-60-DC-Public IS Sum. Data	Collect summary data about Public Info. Store (Folders)
	EXSPI-60-DC-TrackLog Data	Collect Tracking.Log data

Table of Exchange 5.5 templates

EXSPI-55 QUICK START

Exchange 5.5: Quick Start Subgroups	Templates	Descriptions
EXSPI-55 Directory Service		Templates in this group monitor directory replication to verify that synchronization updates are being processed efficiently.
	EXSPI-55-0110	MSExchangeDS.Remaining Replication Synchronizations
	EXSPI-55-0111	MSExchangeDS.Remaining Replication Updates
	EXSPI-55-05m-DS	5m Scheduler for metrics in Directory Service group
EXSPI-55-Event Log Errors		Templates in this group monitor Exchange error messages written to the Windows Event log file and when detected, forwards them to the OVO console
	EXSPI-55-Exchange Errors	
EXSPI-55 General Data Collection		Templates in this group create data stores and writes data to data stores
	EXSPI-55-Dc-SMTP Message Volume	Collect data on the volume of SMTP messages processed.
	EXSPI-55-Measurement Data Collector	Forward single instance data to Measurement Data Collector
EXSPI-55 Information Store		Templates in this group collect data on the volume of messages processed by both the Private and Public Information Store during the last logging interval
	EXSPI-55-0030	IS Public Average Delivery Time
	EXSPI-55-0031	IS Public Average Local Delivery Time
	EXSPI-55-0032	IS Public Replication Queue Size
	EXSPI-55-0033	IS Public Receive Queue Size
	EXSPI-55-0034	IS Public Send Queue Size
	EXSPI-55-0040	IS Mailbox Average Delivery Time

Exchange 5.5: Quick Start Subgroups	Templates	Descriptions
EXSPI-55 Information Store (cont.)	EXSPI-55-0041	IS Mailbox Average Local Delivery Time
	EXSPI-55-0042	IS Mailbox Receive Queue Size
	EXSPI-55-0043	IS Mailbox Send Queue Size
	EXSPI-55-0100	IS User Connection Count Low
	EXSPI-55-05m-IS	5m Scheduler for metrics in Information Store group
	EXSPI-55-15m-IS	15m Scheduler for metrics in Information Store group
	EXSPI-55-DC-IS Msg Delivery Time	Collect data on the average msg delivery times in core processes
	EXSPI-55-DC-IS Private Msg Vol	Collect data on the vol. of messages processed by Private IS
	EXSPI-55-DC-IS Public Msg Vol	Collect data on the vol. of messages processed by Public IS
EXSPI-55 Internal Errors		Templates in this group collect information on errors occurring within the Exchange SPI and contains instruction text for fixing common problems
	EXSPI-55-Messages	
EXSPI-55 Message Transfer Agent		Templates in this group collect data on the length of message queues and volume of messages (number and kilobytes) processed by the Message Transfer Agent. Also collects data on failed, delayed, and rejected inbound/outbound associations and messages during the last logging interval
	EXSPI-55-0010	MTA Message Delay
	EXSPI-55-0011	MTA Work Queue Length
	EXSPI-55-0012	MTA Failed Conversions
	EXSPI-55-0013	MTA Connection Message Delay
	EXSPI-55-0014	MTA Connection Queue Lengths
	EXSPI-55-0015	MTA Failed Outbound Associations
	EXSPI-55-0016	MTA Rejected Inbound Associations

Exchange 5.5: Quick Start Subgroups	Templates	Descriptions
EXSPI-55 Message Transfer Agent (cont.)	EXSPI-55-0017	MTA Rejected Inbound Messages
	EXSPI-55-05m-MTA	5m Scheduler for metrics in MTA group
	EXSPI-55-1h-MTA	1h Scheduler for metrics in MTA group
	EXSPI-55-DC-MTA & IS Queue Len.	Collect data on the length of message queues in core processes
	EXSPI-55-DC-MTA Message Volume	Collect data on the vol. of messages processed by MTA
EXSPI-55 Services and Processes		Templates in this group monitor Windows Services for Exchange by checking to see that Exchange services configured with Automatic startup are running.
	EXSPI-55-0001	Process Monitor
	EXSPI-55-0002	Inactive Process Monitor
	EXSPI-55-05m-Serv. & Processes	5m Scheduler for metrics in Services and Processes group
	EXSPI-55-1001	Process Monitor
	EXSPI-55-10m-Serv. & Processes	10m Scheduler for metrics in Services and Processes group
	EXSPI-55-DC-User Connections	Collect data on the number of users
EXSPI-55 Transaction Log		Templates in this group monitor the size in MB of the Exchange transaction logfiles as well as the disk space used by the files.
	EXSPI-55-0005	
	EXSPI-55-0006	
	EXSPI-55-15m-Transaction Log	15m Scheduler for metrics in Transaction Log group
	EXSPI-55-1d-Transaction Log	1day Scheduler for metrics in Transaction Log group

EXSPI-55 ADD-ONS

Exchange 5.5: Add-Ons Subgroups	Templates	Descriptions
EXSPI-55 CC:Mail Connector		Templates in this group monitor the number of messages awaiting delivery to Exchange from Lotus cc:Mail, the rate at which Non-Delivery Reports (NDRs) are being sent from Lotus cc:Mail to Exchange and vice versa
	EXSPI-55-0090	cc:Mail MTS-IN Queue Length
	EXSPI-55-0091	cc:Mail MTS-OUT Queue Length
	EXSPI-55-0092	Exchange NDRs to cc:Mail
	EXSPI-55-0093	cc:Mail NDRs to Exchange
	EXSPI-55-1h-ccMail Connector	1h Scheduler for metrics in cc:Mail Connector group
	EXSPI-55-5m-ccMail Connector	5m Scheduler for metrics in cc:Mail Connector group
EXSPI-55 Internet Mail Service		Templates in this group monitor the rate SMTP connections to other hosts are failing or being rejected for the Internet Mail Service, the number of messages queued to be converted to Internet Mail format as well as the number awaiting final delivery, the rate at which non-delivery reports are being generated for inbound mail and outbound mail
	EXSPI-55-0060	MSExchangeIMC.Connections Total Failed MSExchangeIMC.Connections Total Outbound
	EXSPI-55-0061	MSExchangeIMC.Connections Total Rejected MSExchangeIMC.Connections Total Inbound
	EXSPI-55-0062	MSExchangeIMC.Queued MTS-IN
	EXSPI-55-0063	MSExchangeIMC.Queued MTS-OUT
	EXSPI-55-0064	MSExchangeIMC.Queued Inbound
	EXSPI-55-0065	MSExchangeIMC.Queued Outbound
	EXSPI-55-0066	MSExchangeIMC.NDRs Total Inbound MSExchangeIMC.Inbound Messages Total

Exchange 5.5: Add-Ons Subgroups	Templates	Descriptions
EXSPI-55 Internet Mail Service (cont.)	EXSPI-55-0067	MSExchangeIMC.NDRs Total Outbound MSExchangeIMC.Outbound Messages TotalMSExchangeIMC.Outbound Messages Total
	EXSPI-55-1h-Internet Mail Services	1h Scheduler for metrics in Internet Mail Services group
	EXSPI-55-5m-Internet Mail Services	5 min. Scheduler for metrics in Internet Mail Services group
	EXSPI-55-DC-IMS Message Volume	Collect data on the vol. of messages processed by the IMS
	EXSPI-55-DC-IMS Queue Length	Collect data on the vol. of messages processed by the IMS
EXSPI-55 Lotus Notes Connector		Templates in this group monitor the number of messages awaiting delivery, and Non-Delivery Reports (NDRs) being sent to Exchange from Lotus Notes and vice versa
	EXSPI-55-0094	Lotus Notes Inbound Queued Messages Length
	EXSPI-55-0095	Lotus Notes Outbound Queued Messages Length
	EXSPI-55-0096	Exchange NDRs sent to Lotus Notes
	EXSPI-55-0097	Lotus Notes NDRs sent to Microsoft Exchange
	EXSPI-55-1h-Lotus Notes Connect	1h Scheduler for metrics in Lotus Notes Connector group
	EXSPI-55-5m-Lotus Notes Connect	5m Scheduler for metrics in Lotus Notes Connector group
EXSPI-55 News Service		Templates in this group monitor the rate inbound and outbound newsfeed messages are being rejected because of duplicates or errors
	EXSPI-55-0080	
	EXSPI-55-0081	
	EXSPI-55-1h-News Service	1h Scheduler for News Service metrics
	EXSPI-55-DC-News Message Volume	Collect data on the vol. of news messages processed by IS

EXSPI-55 ADVANCED

Exchange 5.5: Advanced Subgroups	Templates	Descriptions
EXSPI-55 End To End Message Ping		Templates in this group monitor email service responsiveness by sending an email message from one Exchange server to another
	EXSPI-55-1002	MSExchange End To End Message Ping Monitor
	EXSPI-55-End to End Message Ping	30 m Scheduler for metric in End To End Message Ping group
	EXSPI-55 Ping Config	
EXSPI-55 Event Log Warnings and Information		Templates in this group collect all Exchange-related warning and information messages from the Windows Event Log
	EXSPI-55-Exchange Warnings	Application Event Log - Notify All Warnings
	EXSPI-55-Exchange Information	Application Event Log - Notify All Information
EXSPI-55 Reporter Collection		Templates in this group enable data collections for OVO reports
	EXSPI-55-DC-Exchange Info	Collect data on Exchange Parameters
	EXSPI-55-DC-Mailbox Data	Collect data about all mailboxes on the system
	EXSPI-55-DC-Private IS Sum. Data	Collect summary data about Mailbox Information Store
	EXSPI-55-DC-Public Folder Data	Collect data about all public folders on the system
	EXSPI-55-DC-Public IS Sum. Data	Collect summary data about Public Info. Store (Folders)
	EXSPI-55-DC-TrackLog Data	Collect Tracking.Log data

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