



EVault Software MS Exchange Plug-In 6.7

User Guide

April 2010

This manual describes how to back up and restore MS Exchange MAPI, DR and VSS using the MS Exchange Plug-In version 6.7.

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Acknowledgements: Two encryption methods, DES and TripleDES, include cryptographic software written by Eric Young. The Windows versions of these algorithms also include software written by Tim Hudson. Bruce Schneier designed Blowfish encryption.

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The EVault Software Agent, EVault Software CentralControl, and EVault Software Director applications (versions 4 and above) now have the added encryption option of 128bit AES (Advanced Encryption Standard). Advanced Encryption Standard algorithm (named Rijndael, pronounced “Rain Doll”) was developed by cryptographers Dr. Joan Daemen and Dr. Vincent Rijmen. This algorithm was chosen by the National Institute of Standards and Technology (NIST) of the U.S. Department of Commerce to be the new Federal Information Processing Standard (FIPS). AES is not available when connecting to a Vault lower than version 4.1.

The EVault Software Agent and EVault Software Director applications (versions 4 and above) also have the added security feature of an over the wire encryption method. Over the wire encryption is not available when connecting to a Vault lower than version 4.1.

I MS Exchange Plug-In Overview

This manual describes how to back up and restore MS Exchange databases and mailboxes using the MS Exchange Plug-In. It discusses strategies and best practices on how to configure and optimize the Disaster Recovery mode of this Plug-In. It also gives strategies for optimizing MAPI mode.

The “**Agent for Microsoft Windows User’s Guide**” has information on installation of the Agent and Plug-Ins, and Agent configuration.

The “**CentralControl Operations Guide**” (Windows or Web CentralControl) has detailed information on Agents, Backups, Jobs, Scheduling, Safesets, Options, Logs, Security and Troubleshooting.

I.1 Features

Exchange 2007

Support has been added for MS Exchange 2007 DR and MAPI backup and restore functionality. Backup and restore of MS Exchange 2007 (SP2) is supported on MS Windows 2003 and on Server 2008 64-bit

Exchange 2007 can now be backed up with a 64-bit Agent using VSS (Volume Shadow Copy Services). This applies to new VSS Jobs only. DR continues to be used with existing Jobs and other systems.

Parallel Backups

When an Exchange DR 2003/2007 server has multiple Storage Groups, it is now possible to put the different Storage Groups into separate Jobs. The Jobs may then be run simultaneously.

In previous versions of the software, there was an artificial limitation that prevented two (or more) backup Jobs from running simultaneously on the same Exchange Server.

Exchange 2003/2007 Backups

It is now possible to back up with Exchange 2003 and then restore to an Exchange 2007 server. That is, you are able to back up/restore to a higher version of Exchange.

In previous versions of the software, there was an artificial limitation that prevented this.

Enhancements

- Mailbox Active Directory names are now the same as those displayed in the Exchange System Manager Console (see section 2.5 for upgrade details).
- Better performance by allowing Exchange mailbox backup without pre-scanning.
- The user can select groups of recipients for mailbox backups. These groups can support "wildcards".

- Users can exclude mail messages, and new options for "Contacts" and "e-mail messages" in the MAPI options (see section 6.1.3).
- Exchange MAPI now supports Unicode UTF-8 for Backups and Restores.

CentralControl

Windows CentralControl and Web CentralControl can control the Exchange Plug-In on a 32-bit or 64-bit Agent system.

1.1.1 Clustering

On the Windows 2003 Enterprise Edition, and Windows 2008, it is possible to create a two-node cluster for the Exchange 2003/2007 Enterprise Server.

Clustering is supported for Windows Agents, with a separately licensed Cluster Support Plug-In. The main function of the Cluster Support Plug-In is for the Agent on an MS Exchange Server, which has a virtual IP address in the cluster, to be able to follow the server when it fails over to another node in a cluster.

The Agent can still access its configuration (on a shared drive), and scheduled backups will occur as usual, without it looking like a "different" backup and causing a reseed.

The "**Agent for Microsoft Windows User's Guide**" has information on installing and using the Cluster Support Plug-In.

1.2 Backup Methods

The MS Exchange Plug-In supports three methods of online backups and restores. Most MS Exchange Plug-In users would regularly schedule DR (disaster recovery) backups to protect their MS Exchange and also schedule specific MAPI backups for quick restoration of important individual mailboxes and folders. These backups can be performed on different schedules.

DR backups are faster, but you cannot as easily recover a single mail message or mailbox. MAPI backups are considerably slower, but allow you to selectively choose what to recover. Normally a DR backup is done to recover everything, in case of a disaster. MAPI backups are done to recover mailboxes or messages when needed.

The Volume Shadow Copy service (VSS) feature in Microsoft Windows Servers can be used to create applications that back up and restore Microsoft Exchange Server 2007. VSS provides an infrastructure that enables third-party storage management programs to cooperate in creating and managing shadow copies. Solutions based on this infrastructure can use the shadow copies (or mirrored copies) to back up and restore one or more Exchange Server 2007 databases.

VSS backups apply to new Jobs on Exchange 2007 with a version 6.5 or greater Agent. The Exchange VSS Plug-In is installed along with the existing DR and MAPI during new installs and upgrades.

Disaster Recovery (DR)

Disaster Recovery (DR) backups are full backups of MS Exchange. These backups are used in case of a total loss of data in MS Exchange (i.e.: a disk crash, or other catastrophic damage to the system). This method essentially backs up the entire MS Exchange database. The MS Exchange Plug-In refers to this option as **MS Exchange Server (Database backup only)**.

VSS Backup

Exchange 2007 only supports a 64-bit Operating System. The Exchange VSS Plug-In supports backups and restores on the 64-bit versions of Windows 2003 and Windows 2008.

The Exchange VSS Plug-In uses the same license as Exchange DR. It does not require changes to the Vault.

Mailbox Level (MAPI)

This method is used for mailbox-level recovery. It interfaces with the MS Exchange MAPI (Messaging Application Program Interface). It is user-configured to back up selected items (mailboxes and folders) within the database. The MS Exchange Plug-In refers to this option as **MS Exchange Server (Mailboxes and Public Folders only)**. These backups are normally used for recovering data accidentally deleted, or that require specific backup uses (i.e.: retention for legal restrictions).

Note: To protect your MS Exchange, it is a necessary “best practice” to back up your MS Exchange using DR (disaster recovery) or VSS (where applicable). **Only** a backup done

by DR or VSS can restore MS Exchange (**NOT** a MAPI backup). A MAPI backup is user-configured to back up selected mailboxes and folders only.

I.3 MAPI Backup and Performance Considerations

Performance Considerations:

An important difference between backing up the MS Exchange DR (disaster recovery module) and backing up specific mailboxes or folders (MAPI) is that it takes four to eight times longer per gigabyte to perform backups at the mailbox level. This is primarily because Microsoft optimizes the backup protocol for backing up the entire DB, rather than backups at the mailbox or folder level. Also, for mailbox and folder-level backups, a pre-scan is required, which can slow the process. A slower backup process may or may not influence your backup selection depending on your specific situation.

MAPI Backup Considerations:

Due to limitations using MAPI to back up large numbers of users, messages and volumes of data – the limit is approximately 400 MB/hr – it is recommended that users do not attempt to use the MAPI backup option to back up more than approximately 100 mailboxes per Job, with a total of 400,000 to 500,000 messages, or more than 50 GB of data, in total.

However, to speed up the backup process it is possible to use two MAPI Jobs at the same time. One could be used to back up Public folders, for example, and one could back up Recipient folders.

1.3.1 Other Exchange Considerations

1. The situation: You are running incremental backups, using separate Jobs, in the same Storage Group. The first Job does a full backup, then an incremental. The second Job does a full backup, then an incremental. The first incremental backup's pointers are now invalidated by the second incremental backup, because both Jobs are sharing the same incremental pointers/markers.

The second Job can be restored, but the first will give errors, if you try to restore it, because it is trying to use the markers from the last incremental backup, which belong to the second backup. So, the roll forward option cannot be used in this case for the first Job.

Following is an example of steps that can cause this situation:

- a) Launch a full DR backup of your store.
- b) Launch a MAPI backup of your store.
- c) Once both of the above backups are completed, restore the MAPI backup (but only restore a single mailbox to create a few transaction log files).
- d) Once the MAPI restore is complete, Dismount the store and attempt a DR restore of this store with the "roll forward" and "hard recovery" options selected.
- e) Restore will complete, but the playback of the logs fails (see Event Viewer).

Use separate Storage Groups, do everything in the same Job, or keep track of which incremental backup was last done.

2. The situation: An Active Directory user has login disabled. The MAPI backup attempts to open the mailbox and receives a "failed to open mailbox", and "error logging to mailbox ..." errors. This is a limitation on MAPI requirements.

As a workaround, establish login hours for the user so that the backup can access the mailbox.

3. The situation: When backing up MS Exchange Mailboxes, and Public Folders, you can select several options (Back up Email Messages, Calendar, Notes, Tasks, Contacts, etc.). Note the following conditions for Mailboxes and Public Folders:

Without Messages selected, you are unable to back up attachments, or messages from any folder, with the exception of special Outlook items (which are provided by other check boxes).

The selection of Outbox Folder, Sent mail, or Deleted items is **not valid** without something from above selected for backup (Messages, Notes, etc.) depending on what you are trying to back up in these folders.

I.4 About this Guide

This guide is intended to be used in conjunction with other manuals that describe the Windows Agent, and the CentralControl.

1. CentralControl Operations Guide – This manual starts with a brief overview of how the products work. The chapters in the manual cover the following topics:
 - Installing the main CentralControl software (GUI).
 - Using the CentralControl GUI – Workspace, Agents, Agent Configurations, Jobs, Safesets, Catalogs and Log files.
 - Performing backups – Types, Seeding, Mapped drives and databases, Options, Tape, Retentions, Notification, Expiration, Scheduling and Ad-hoc (on demand) Backups.
 - Report Logs – Creating and Managing Log files.
 - Data Security – User Authentication and Encryption.
 - Open File Backup – Shared files, OTM, and OFM.
 - Troubleshooting and Command Line Interface.
2. Agent for MS Windows User Guide
 - Agent for Windows Install
 - Using the Agent for backups and restores
 - Windows Systems Recovery
 - Cluster Support Plug-In

Release notes

A Release Notes text file, contains “up to the minute” information on the released product. Release Notes contain an overview of new features, any known defect (bug) fixes incorporated since the last release, a description of any known issues, and a section on product support. Release Notes are available from your service provider.

Online Help

The CentralControl application (Windows CentralControl or Web CentralControl) provides online help, which contains information similar to the contents of this User Guide.

There is also context sensitive “What’s This” help on each Windows CentralControl GUI screen. You can access the context sensitive “What’s This” help by clicking the Help icon (question mark) in the Windows CentralControl application. Note: If the Windows CentralControl F1 Help screen is open (even minimized) the “What’s This” help will not be active. The F1 help must be closed for the “What’s This” help to function properly.

2. Installing the MS Exchange Plug-In

The MS Exchange Plug-In is installed during the Windows Agent installation. See the Agent for MS Windows User's Guide. The Plug-In can be installed when installing the Agent or it can be installed later, by re-running the installation with the Modify selection.

The Cluster Support Plug-In can be installed the same way.

The Exchange VSS Plug-In is included with the 64-bit version of the Server Agent kit. It will be installed when the Exchange option is selected. This is in addition to the existing DR and MAPI Plug-Ins. The Plug-In will also be installed when upgrading from an older Agent version that has Exchange DR installed. The Exchange DR Plug-In will continue to be installed to support existing DR Jobs that cannot be upgraded, and for use with older versions of Exchange.

During uninstall, the Server Agent kit will remove the Exchange Plug-Ins.

For supported Director, Web and Windows CentralControl versions, see the Release Notes.

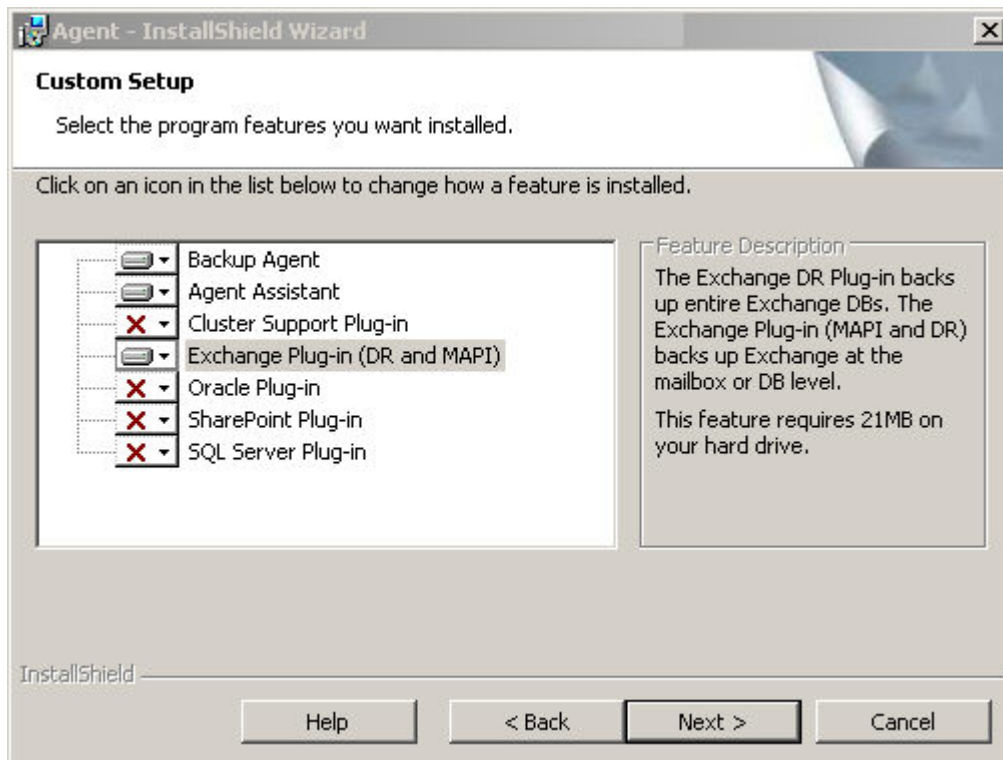


Figure 1. - Select Installation Features

Note: Exchange DR only (MAPI is not supported on Windows Small Business Server 2003).

2.1 Backup Account and MS Exchange Mailbox Creation

The Administrator/Installer needs to create a separate Windows account and MS Exchange Mailbox that is used for the purpose of running the backups.



The administrator performing the installation of the MS Exchange Plug-In requires sufficient access to create a Windows user account, assign administrative group membership. As well, the administrator needs sufficient rights within the MS Exchange organization to create a mailbox and assign administrative/owner access to it.

The following steps must be completed successfully in order to pass the profile validation test provided with the MS Exchange Plug-In and use the Plug-In to back up your MS Exchange server. They are described in detail in this chapter.

- A. Create a Windows account
- B. Create an MS Exchange mailbox
- C. Assign MS Exchange privileges
- D. Create a MAPI profile
- E. Create a Mailbox and Public Folder backup Job

These steps are different, depending on combinations of:

MS Exchange 2003/2007 on Windows 2003/2008 (see section 2.2.1)

Once these steps have been successfully accomplished, you can install the MS Exchange Plug-In. You must also enter the license information to complete the installation.

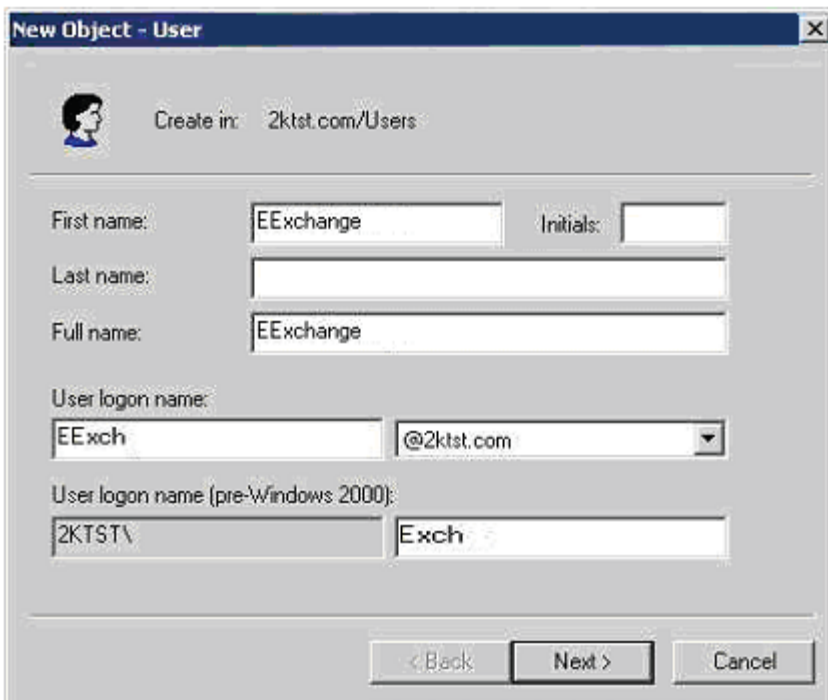
2.1.1 MS Exchange 2003/2007 on Windows 2003/2008

In each of the steps outlined below, each one must complete successfully before the next step is begun.

A. Create a Windows account

1. Using Active Directory User and Computers MMC snap-in on the MS Exchange server, create an account for the MS Exchange Plug-In to use. Make it a member of the following groups:

- Administrators
- Domain Admins
- Domain Users
- Enterprise Admins
- Group Policy Creator Owners
- Schema Admins



The screenshot shows the 'New Object - User' dialog box. The 'Create in' field is set to '2ktst.com/Users'. The 'First name' field contains 'EExchange', and the 'Full name' field also contains 'EExchange'. The 'User logon name' field contains 'EExch' and the domain dropdown is set to '@2ktst.com'. The 'User logon name (pre-Windows 2000)' field contains '2KTST\Exch'. At the bottom, there are buttons for '< Back', 'Next >', and 'Cancel'.

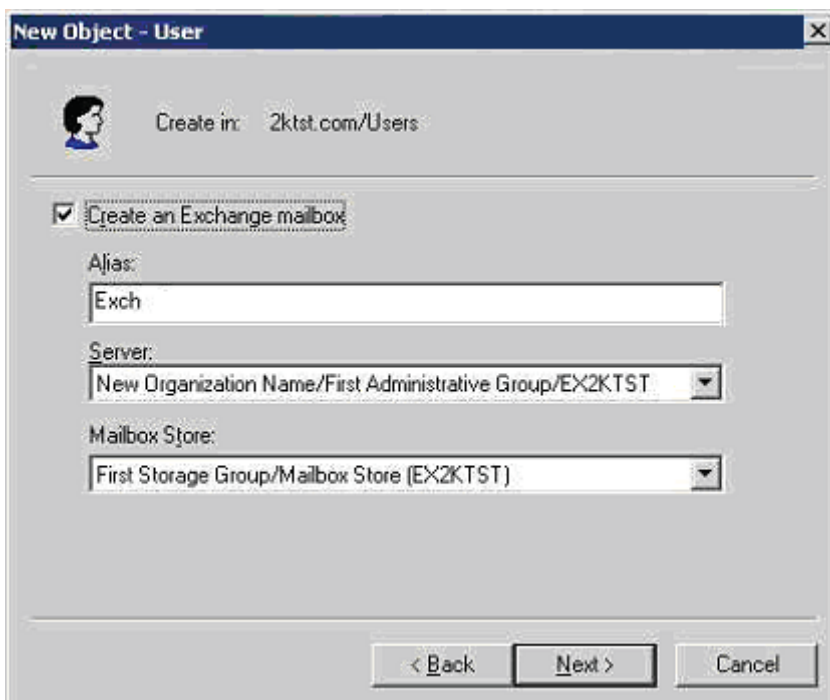
Figure 2. - Create a new Windows user account

Note: MS Exchange 2007 MAPI Account and Profile creation is done through the Exchange Management Console and requires installation of the MAPI Framework "Microsoft Exchange Server MAPI Client and Collaboration Data Objects". Mailbox creation in Exchange 2007 is done through the Exchange Management Console. The steps for MS Exchange 2007 MAPI Account and Profile creation remain analogous to the steps that follow.



The screenshot shows a dialog box titled "New Object - User" with a close button (X) in the top right corner. Below the title bar, there is a user icon and the text "Create in: 2kst.com/Users". The main area contains two text input fields for "Password:" and "Confirm password:". Below these fields are four checkboxes: "User must change password at next logon" (unchecked), "User cannot change password" (checked), "Password never expires" (checked), and "Account is disabled" (unchecked). At the bottom of the dialog are three buttons: "< Back", "Next >", and "Cancel".

Figure 3. - Assign password and other account settings (optional)



The screenshot shows the same "New Object - User" dialog box. The "Create an Exchange mailbox" checkbox is checked. Below this checkbox are three fields: "Alias:" with the text "Exch" entered; "Server:" with a dropdown menu showing "New Organization Name/First Administrative Group/EX2KTST"; and "Mailbox Store:" with a dropdown menu showing "First Storage Group/Mailbox Store (EX2KTST)". At the bottom are the same three buttons: "< Back", "Next >", and "Cancel".

Figure 4. - Create an MS Exchange mailbox

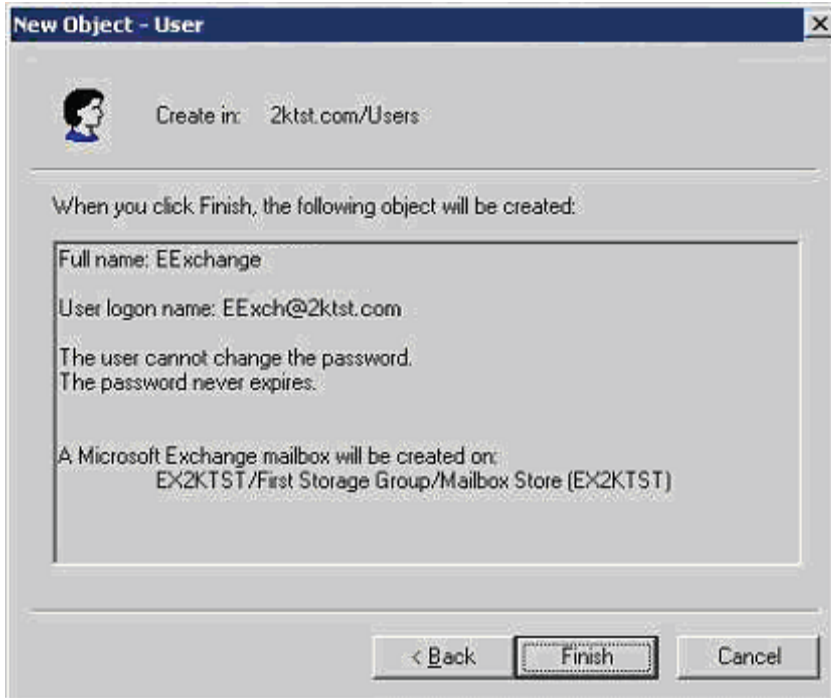


Figure 5. - Verify user information is correct

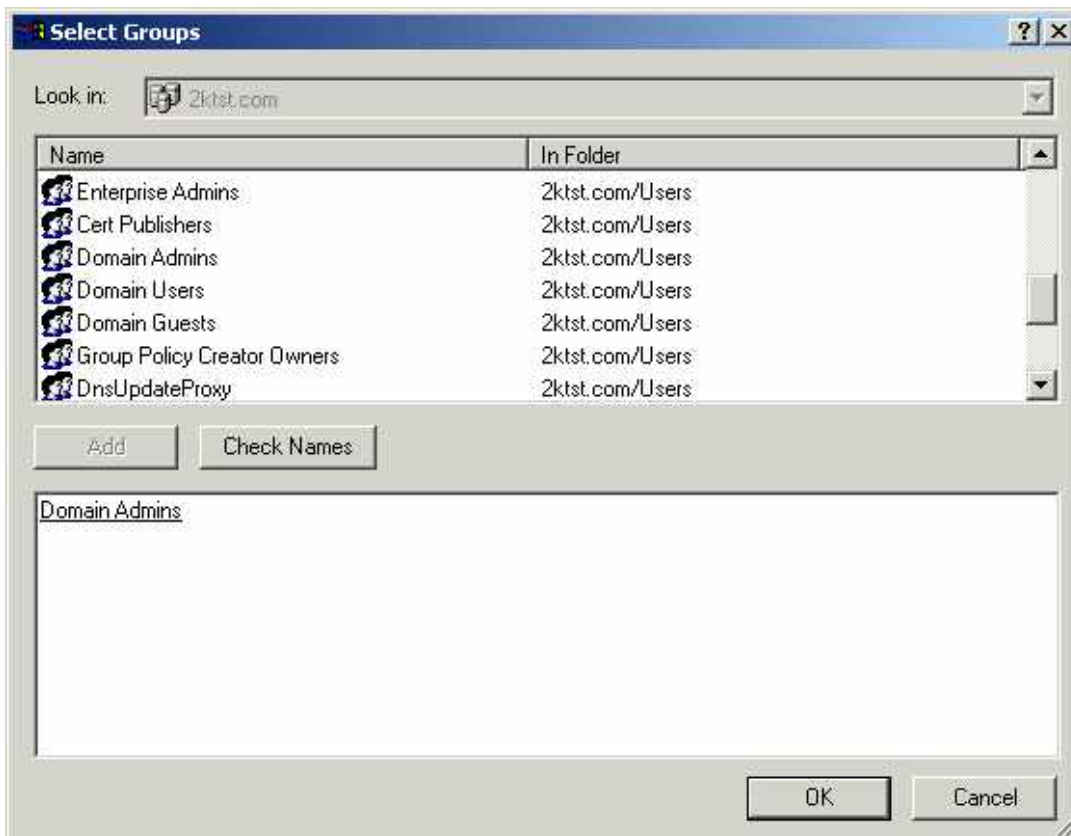


Figure 6. - Assign Windows Group Membership to the account

2. If the Exchange Server is also a Domain Controller use the Domain Controller Security Policy MMC snap-in. If not, use the Local Security Policy MMC snap-in. Grant the following user rights to the Windows account created for the MS Exchange Plug-In (created in 1 above): “Act as Part of operating system, and “Log on as a service”.

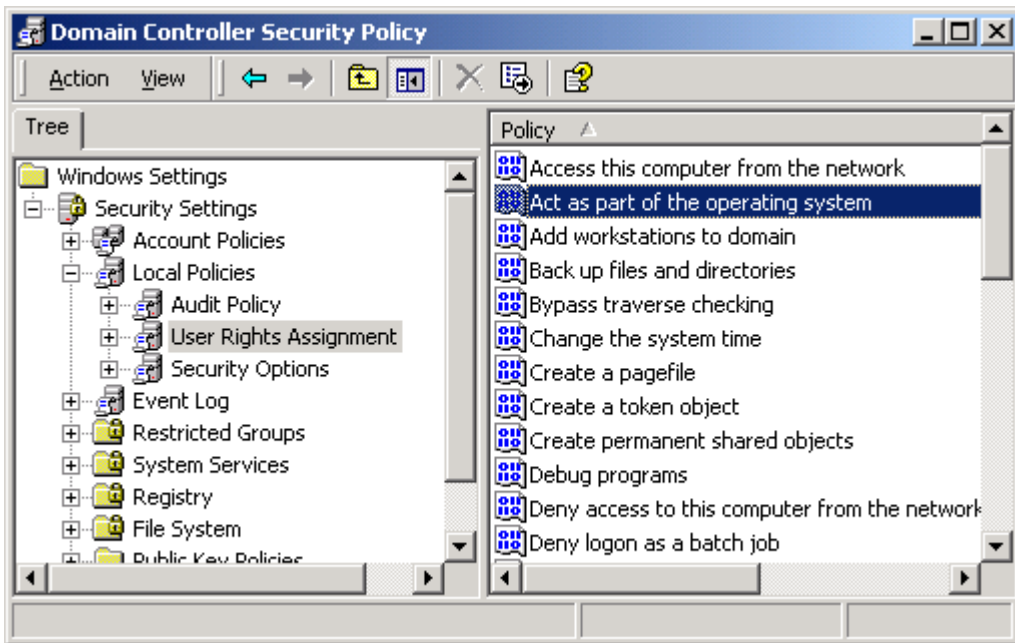


Figure 7. - Assign User Rights



Figure 8. - Add Security Policy settings

3. In the Local Security Settings MMC snap-in, go to Security Setting/Local Policies/User Rights Assignment. Confirm that the account created for the MS Exchange Plug-In has the “effective” policy setting in place for the rights assigned in 2 above. There may be a delay before the “effective” local policy settings become active. The delay will depend on the Active Directory topology and replication settings.

B. Create an MS Exchange mailbox for the account

If the **MS Exchange** account was not automatically created when the Windows account was added, use the Active Directory Users and Computers snap-in, **MS Exchange Jobs** option from the Actions menu. Create the **MS Exchange** mailbox for the **MS Exchange** Plug-In to use



The screenshot shows the 'New Object - User' dialog box. The 'Create in' field is set to '2ktst.com/Users'. The 'First name' field contains 'Exchange', and the 'Initials' field is empty. The 'Last name' field is empty, and the 'Full name' field contains 'Exchange'. The 'User logon name' field contains 'vltExch' and the domain dropdown is set to '@2ktst.com'. The 'User logon name (pre-Windows 2000)' field contains '2KTST\vltExch'. The dialog has three buttons at the bottom: '< Back', 'Next >', and 'Cancel'.

Figure 9. - Create an MS Exchange mailbox

C. Assign Delegate Control within Exchange

The **MS Exchange** mailbox (created in B) must now be granted administrator access to the mailboxes that will be backed up using the **MS Exchange** Plug-In. Depending on the complexity and security in place within the **MS Exchange** organization, this administrator access to mailboxes can be granted at different levels in the **MS Exchange** hierarchy, and will be automatically inherited down. If the entire **MS Exchange** organization is controlled centrally, administrative access could be granted at the Organization level. In this example access is granted at the Administrative Group level, providing access to all the storage groups contained within that Administrative Group.

1. Using the Microsoft **MS Exchange** System Manager utility select the appropriate object in the **MS Exchange** organization and from the Actions pull-down menu select Delegate Control.

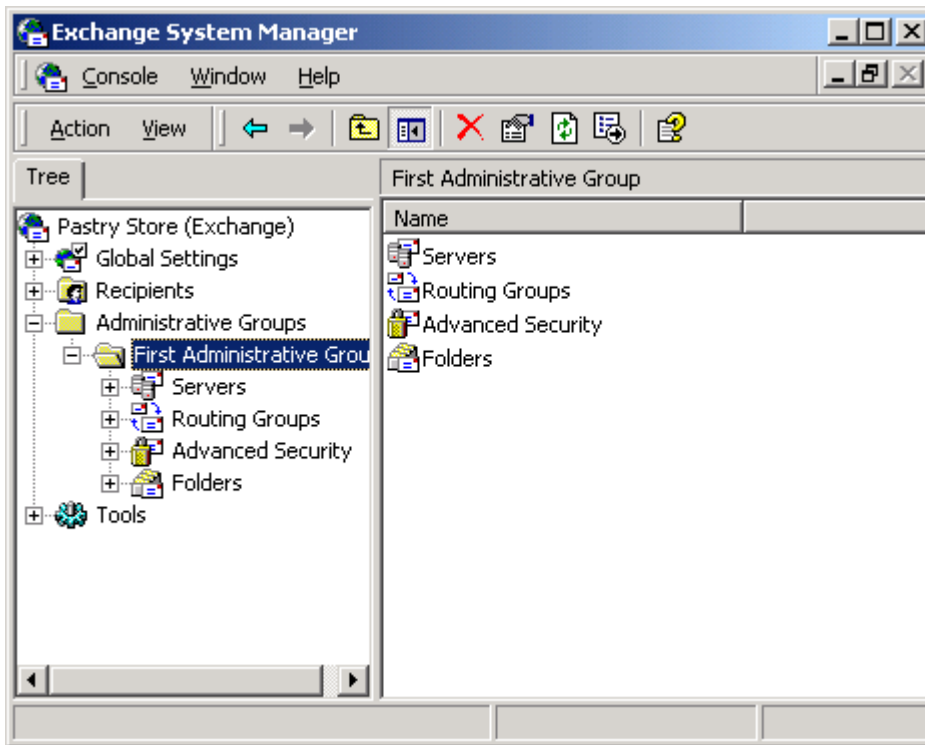


Figure 10. - MS Exchange Administrator

2. From the list of users and groups select the **MS Exchange** mailbox created for use with the **MS Exchange** Plug-In. Click OK.

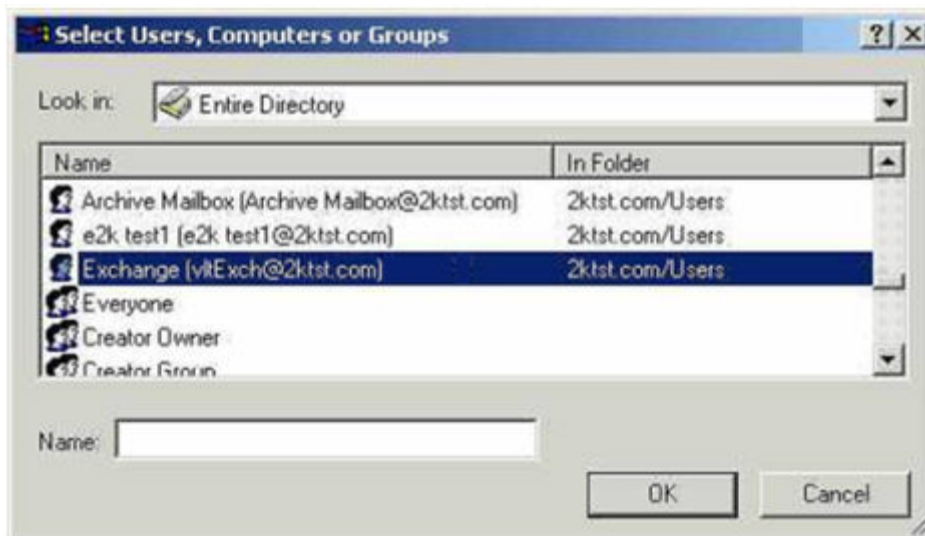


Figure 11. - Select Users, Computers or Groups

3. Under Role, ensure that **Exchange Full Administrator** is selected from the pull-down menu. Click OK, Next, and Finish.

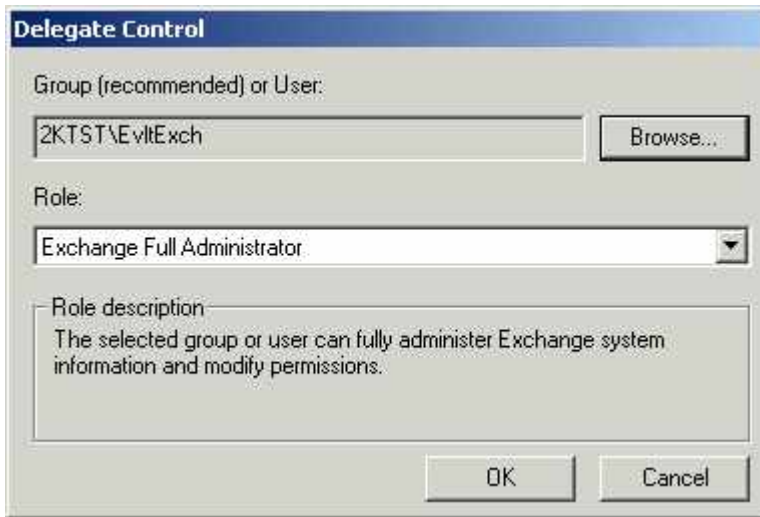


Figure 12. - Delegate Control - completed

D. Create MAPI profile

For the MS Exchange Plug-In to function a MAPI profile must be created on the MS Exchange server computer that will run the Plug-In software. In addition, because MAPI profiles are user specific the following steps need to be executed directly on the MS Exchange server computer itself.

1. Logon directly to the MS Exchange server computer using the Windows account created for the MS Exchange Plug-In to use. This is the account created in A.
2. Using the Microsoft Profile Manager 2.0 utility create a new MAPI profile for the user account.

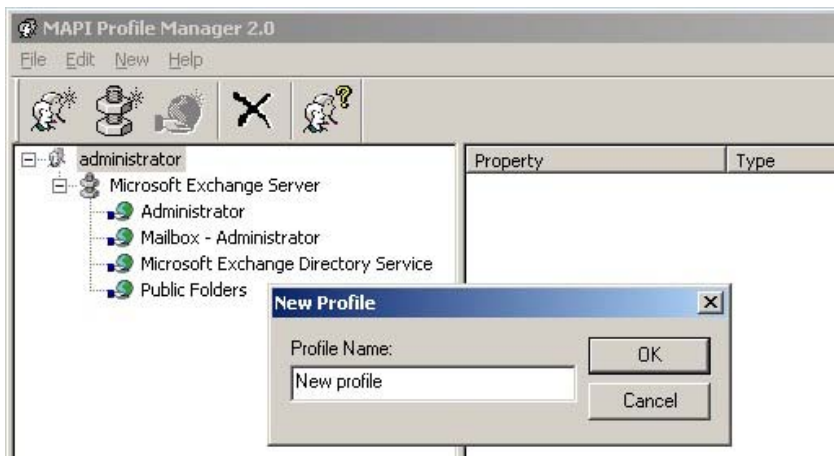


Figure 13. - New Profile – Profile Manager

3. Add the MS Exchange Server service to the MAPI profile by selecting New/Service from the Profile Manager toolbar. Select MSEM (Microsoft Exchange Server) from the list of providers.

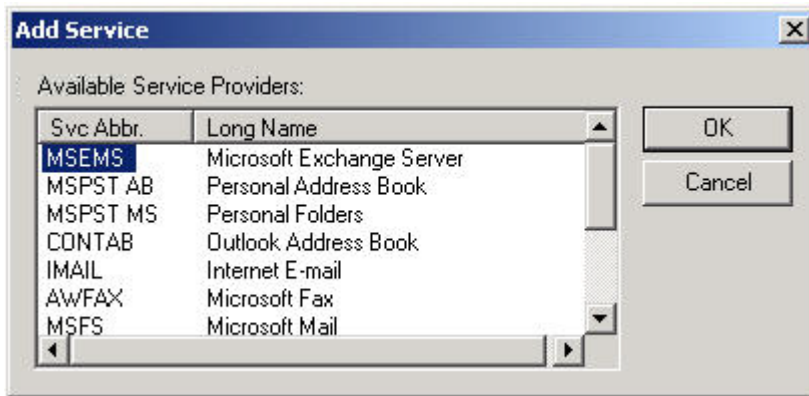


Figure 14. - Add Service provider

4. Enter the name of your MS Exchange server in the MS Exchange Server field and the name of the MS Exchange Plug-In mailbox (created in B) in the Mailbox field.
5. Click the Check Name box and ensure the profile validates. If the MAPI profile does not validate properly, check the setting on the General property page. Retry the validation.

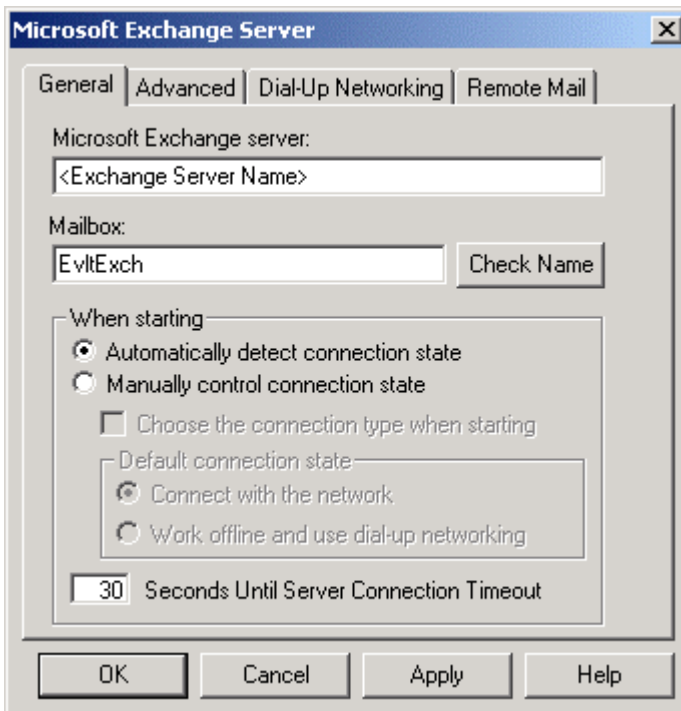


Figure 15. - MS Exchange Server and mailbox name

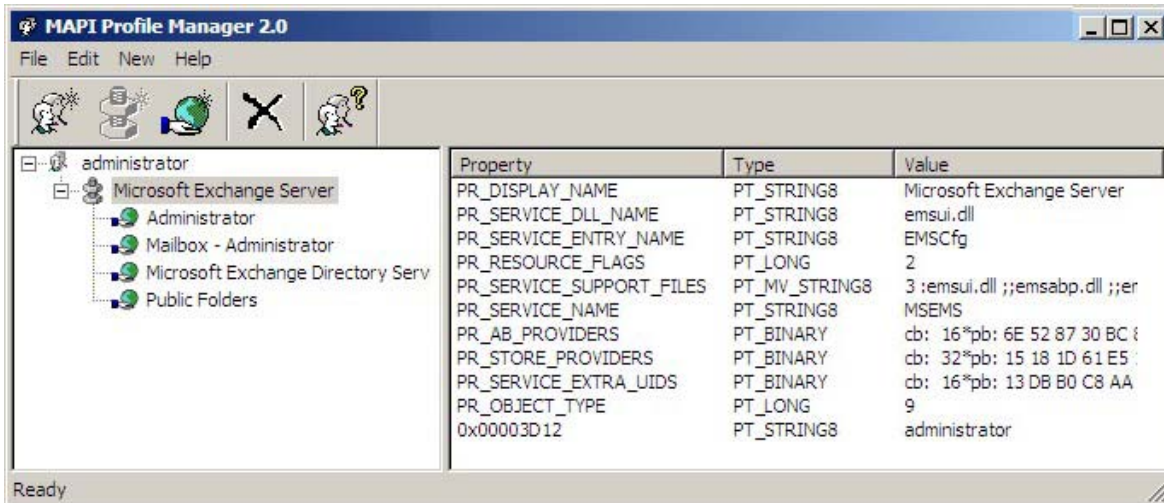


Figure 16. - Results – Profile Manager

2.1.2 Configuring the MAPI Plug-In for Exchange 2007 on Windows 2003/2008 Server

There are possible setup issues when you use the MAPI Plug-In on Windows 2003 or Windows 2008 (including the SCC, SCR, LCR and CCR environments). Special steps are required to prepare Exchange 2007 on a Windows 2003/2008 server to operate with the Exchange MAPI Plug-In.

NOTE: A public folder database must exist in the Exchange environment.

1. Uninstall Outlook and MAPI Client and Collaboration Data Objects (CDO MAPI) framework if they are installed.
2. Install the latest CDO MAPI framework.
3. (This step applies to systems with IPv6 enabled) Disable IPv6: Steps outlined in Microsoft article: <http://technet.microsoft.com/en-us/library/bb629624.aspx>
4. Create a MAPI profile with ProfMan.exe. Use the "Check Name" button to make sure the Exchange server name (not the IP) gets resolved.
5. Use the MFCMapi.exe utility to verify that the MAPI framework is working.
 - a) Open MFCMapi.exe. Click on "session".
 - b) Select "Logon and display store table".
 - c) Verify that the MAPI framework is working.
6. Proceed with the MAPI Plug-In installation.

Post-Install Note: If the Quick Test fails, apply the following:

1. Open regedit.

2. Stop at:
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\MSExchangeIS\Parameters\System

3. Add new key:

Name: Enable Remote Streaming Backup

Type: DWORD

Value: 1 = remote backup enabled

2.2 Testing the MAPI Account

To properly use the MAPI backup function of the MS Exchange Plug-In, you must create a profile that the backup can use to access all user folders and mailboxes to which you have access rights. But before you run a backup Job, it is important to check to ensure that the backup Job can access all those folders and mailboxes. If not, some or all of the mailbox/folder backups could fail.

1. The first screen shows you the list of settings that will be verified:
 - MS Exchange Version
 - Domain/User Name and password
 - MS Exchange Organization/Site/Server information
 - MAPI profile exists

If any of these are not verified properly, an error message is presented. You can return to the Options screen to correct any information. When the data is OK, click **Next** to continue.

2. The second screen lets you select either a random sampling test (faster) or a complete test that checks every folder/mailbox. Normally a random check would suffice. If any of these tests fail, you can return to accounts, privileges, and profiles to correct any information. If the tests complete without errors, it means the profile with permissions should be able to access all the mailboxes/folders. You are returned to the Options screen that started the test.
3. To monitor progress a Verify Progress screen shows you the status of each check. If there are more than 50 errors the verification will halt. It assumes that there are more errors than “normal”. The problem should be corrected and the verification restarted.

2.3 Exchange Plug-In Licensing

MS Exchange Plug-In requires a separate license. If you are connecting to a Vault that is version 5.53 or above, the license will be automatically supplied from the Vault.

See the Agent User Guide or the CentralControl Guide for more information on licensing.

To apply a license if the Vault is previous to version 5.53, you first install MS Exchange Plug-In, then enter and validate the license from CentralControl, under Agent Configuration, Plug-In tab.

2.4 MAPI Plug-In Options

Also, under the Agent Configuration Plug-In tab in CentralControl, there is a “Plug-In Options” button.

Here you enter the credentials to access the user profile used to back up the Exchange data.

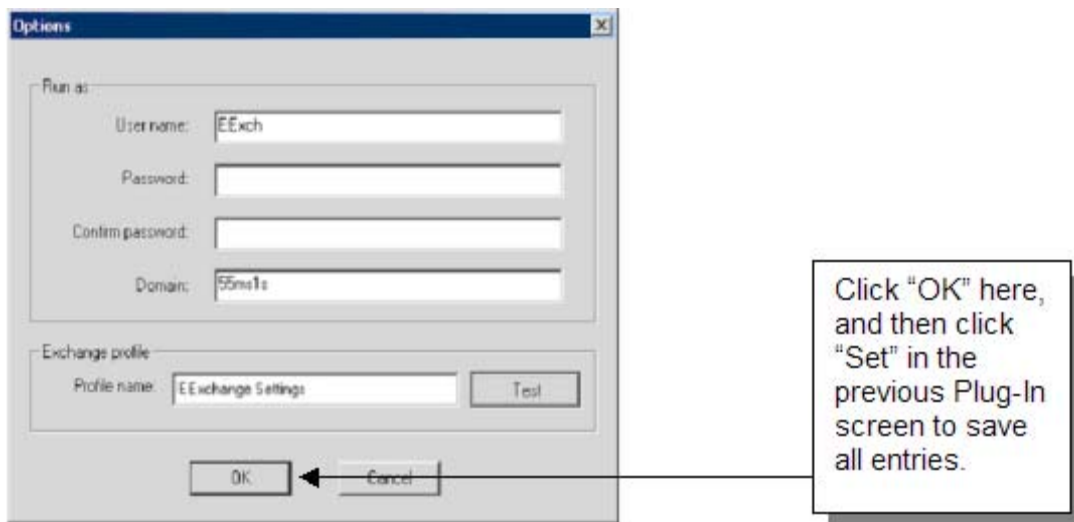


Figure 17. - MAPI Plug-In Options

This information must be updated every time you change Windows or MS Exchange settings.

Note: When you have entered the account and profile information in the Options screen, you must click the “OK” button to retain that information. Then, when you are back in the Plug-In screen, you must click “Set” to save everything.

The “Test” button checks to ensure that the MAPI backup can access all the folders and mailboxes to which it has rights. First you are shown if the MS Exchange information is correct (“OK”) and if the profile exists, and the backup account has the correct privileges. Then you may select a verification test, either short (random sampling), or full (complete). If this program produces any errors as it monitors the progress, you should go back and check Exchange, MAPI, and the parameters, and then retry. See the section in this manual on “Testing the MAPI Account”.

2.5 Notes on Upgrading the MAPI Agent Plug-In

Mailbox Active Directory names are now the same as displayed in Exchange System Manager Console. Note that this may cause a reseed if the names get changed.

During the MAPI upgrade, an attempt will be made to automatically replace older MDB mailbox names (used within existing Backup Job selections) with Active Directory names used by Exchange System Manager Console. However, if there are wildcard selections in your MAPI Jobs, and some names do NOT coincide with the new Active Directory names, a pop-up will appear. Click on "View details" to see the Upgrade.log showing which recipient's mailboxes will not be selected or will be added. If you proceed with the upgrade, you can later manually change the backup Job to correct wildcard selections as shown in the log.

Note: You will not see this pop-up if all MDB names are successfully replaced with Active Directory names.

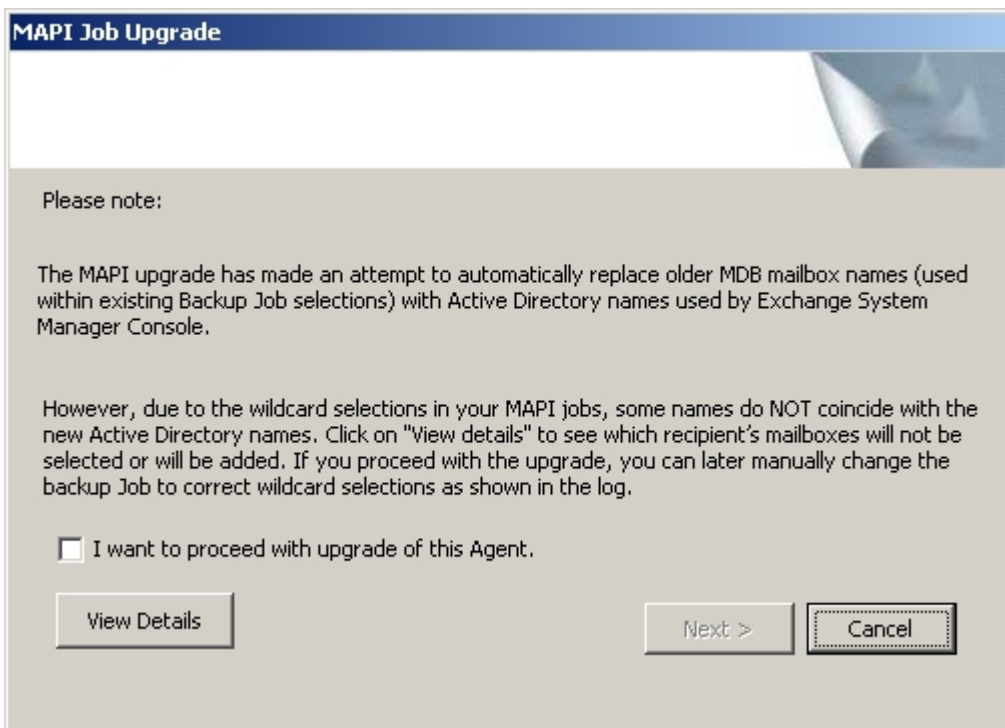


Figure 18. - MAPI Job / Agent Upgrade

Upgrade.Log Sample:

```
Feb12 15:37 AGNT-I-4314 Agent Version 6.72.1071 Feb 8 2010 17:51:19
Feb12 15:37 UTIL-W-8227 Your wildcard selections on agent "ALONEEXCH" for
Exchange MAPI job "mapi_B" cannot be completely converted.
After upgrade your selections will differ as follows:

Feb12 15:37 UTIL-W-8258      added: qq1 (b1 (another.First Storage Group
.ALONEEXCH.Users.LoadGen Objects.VMEXCHANGE.COM))

Feb12 15:37 UTIL-W-8258      added: qq2 (b2 (another.First Storage Group
.ALONEEXCH.Users.LoadGen Objects.VMEXCHANGE.COM))

Feb12 15:37 UTIL-W-8260 Note: "Skipped" recipients were protected by this
Job before upgrade,"Added" recipients have not been protected
with this Job before the upgrade

Feb12 15:37 UTIL-W-8227 Your wildcard selections on agent "ALONEEXCH" for
Exchange MAPI job "mapi_Q" cannot be completely converted.
After upgrade your selections will differ as follows:

Feb12 15:37 UTIL-W-8257      skipped: qq1 (b1 (another.First Storage Group
.ALONEEXCH.Users.LoadGen Objects.VMEXCHANGE.COM))

Feb12 15:37 UTIL-W-8257      skipped: qq2 (b2 (another.First Storage Group
.ALONEEXCH.Users.LoadGen Objects.VMEXCHANGE.COM))

Feb12 15:37 UTIL-W-8260 Note: "Skipped" recipients were protected by this
Job before upgrade,"Added" recipients have not been protected
with this Job before the upgrade
```

2.6 Administrator Mailboxes in Child/Parent Domains

Unique Name Scenario (Default):

Exchange Servers may exist in parent/child domains. The simplest approach to using multiple users here is to create separate, uniquely named users for each domain where an Exchange Server exists. Then assign the necessary rights (Exchange Full Administrator rights – see Section 2.2 for more information) to the user, and create a MAPI profile for it. Use these credentials to configure the MAPI Plug-In.

Same Name Scenario:

It is also possible to have multiple mailboxes with the same (non unique) alias name in several sites or Administration groups within an MS Exchange organization. There may be a situation in a child/parent domain where each domain has an Administrator. Both have the same user name, and have their own (same name) mailboxes on their own server. Problems may arise with the name duplication.

The Administrator on the parent domain can create a profile on the parent MS Exchange server. But if you try to create a profile with the Administrator on the child domain MS Exchange server, you may receive an error message that you do not have sufficient privileges. You also, from the child domain, might not be able to use the Administrator for the parent domain.

If such a situation occurs, the following is a way to resolve the naming conflict so that MAPI backups can function properly. The name <user> is the same in all cases here.

1. Create a user <user> on the child domain.
2. Create a user <user> on the parent domain.
3. Create a profile called <user> on the child domain MS Exchange server. Point it to the child MS Exchange server, and <user> mailbox.
4. Create a profile <user> on the parent domain MS Exchange server. Point it to the parent MS Exchange server, and <user> mailbox. During this operation you will be prompted to choose <user> from the child domain or parent domain. Choose the parent domain.
5. Click OK to complete the creation.
6. Enter the following into the MS Exchange Plug-In section:
 - On the child domain MS Exchange PC:
user name = <user>, domain= child domain, profile=<user>
 - On the parent domain MS Exchange PC:
user name = <user>, domain= parent domain, profile=<user>
7. Both Plug-Ins should now be configured to use the same <user> mailbox, with the same <user> profile, but with different domains.

3 Performing Backups

To back up your MS Exchange Server you will first need to, add a new Agent, create a new Job using the **MS Exchange Server (database backup only)** type, and then schedule that Job to run. This first backup, of your MS Exchange is forced to be a “seed” backup, even if “incremental” is selected. By default, all future backups are **Incremental** transaction logs only.

You can also perform backups for selected Mailboxes and Publics folders only. For this selective type of backup, you create a separate Job using the **MS Exchange Server (Mailboxes and Public Folders only)** backup type.

It is helpful to clarify the backup terms used by the MS Exchange Plug-In.

Seed: The “first” backup that is performed is referred to as a seed and is a complete backup of selected MS Exchange database. However, a seed is not a selectable type of backup. The seed is created automatically as your “first” backup whether **Incremental** or **Full** is selected as the backup type. The seed usually takes the greatest amount of time to complete.

Full: **Full** refers to how it performs its **Full** backup type. This reads all the information on an MS Exchange Server. The backup type **Full**, using a Delta (changed data) technique, backs up and optimizes all the changes in your MS Exchange (.edb, .log, etc.) that have occurred since the last backup. This data is added to the original safeset to complete the entire backup safeset. Using **Full** with the Delta technique saves a great deal of time, as only changes are transmitted to the Vault. It is recommended to periodically schedule a full backup as this will reduce the size of the log files, which in turn will reduce the time required for a recovery if needed.

Incremental: **Incremental** backups are transaction logs only. To produce a complete picture of the up-to-date MS Exchange database the incremental transaction logs are added to the safeset. **Incremental** backups take the least amount of time to perform. During a restoration, the log files will be played back to achieve the most up to date restore since the last backup.



When backing-up MS Exchange DB it is recommended not to use Open Transaction Manager™ or Open File Manager™. The backup does not benefit from OTM or OFM, in this case. Also, using OTM or OFM slows down the backup.

The following points apply to DR and/or MAPI backups:

- All MS Exchange services remain operational while backups occur.
- For MS Exchange Server 2003/2007 the stores remain mounted.
- Always perform a **Full** backup after database maintenance or restoration.
- Always perform 'full system backup (including a system state backup)' + 'full MS Exchange backup' every time you install new hardware/software. Having these backups will significantly simplify bare-metal restorations.
- It is recommended to split big MAPI Jobs into smaller Jobs. They can run simultaneously. One can be for Public Folders, another for important mailboxes, etc.
- DR only: It is now possible to put different Storage Groups into separate Jobs and back them up simultaneously.

Caution: Separate Jobs should be created for each storage group or for a selection of non-overlapping storage groups. For example, if a Job DRSG123 is created to back up storage groups 1, 2, and 3, then another Job should NOT be backing up either storage group 1, 2, or 3.

- DR only: The MS Exchange option "Circular Logging" must be disabled and at least one Exchange DR Full backup needs to complete in order to permit Exchange DR Incremental backups.



MS Exchange option "Circular Logging" is disabled by default in MS Exchange Server 2003/2007, and must be disabled before creating an incremental DR backup (only). See Microsoft knowledge base article #Q147524 located at <http://support.microsoft.com/>

3.1 Create a new Agent for your MS Exchange Server

Using the right-mouse button, click on your Workspace.

In Windows CentralControl, click on **New Agent**. The **Agent Properties** window opens.

Enter a Description (the name of the agent) and the Network Address of your MS Exchange server. The Network Address can be an IP address or a valid hostname.

Enter the Username, Password and Domain.

After the Agent Information and Authentication data has been entered, click **Get Status**. If the information is validated, your data is displayed in the Agent Status window. If the information is not validated, a message from the CentralControl application appears. Check your information and revise it as required. Once again, click **Get Status**.

Click **OK**.



When configuring the CentralControl application to connect to a remote Agent, you need to specify a particular username and password. For details, refer to “Agent Access Privileges” in the CentralControl Guide or Help. If an authentication password changes (i.e. the user listed on the Agent Properties dialog changes his or her system password), the Agent Properties dialog must be updated.

3.2 Create an MS Exchange Server (DB Backup) Job

1. Launch the New Job Wizard. Enter a Job Name, Target, and Vault as described in Section 4 of the CentralControl manual, "Create a Job". The following new features will now appear on the Backup Type panel.
2. On the New Job Wizard – Backup Source Type page, select **MS Exchange Server (Database backup only)** from the list, and then click **Next**.

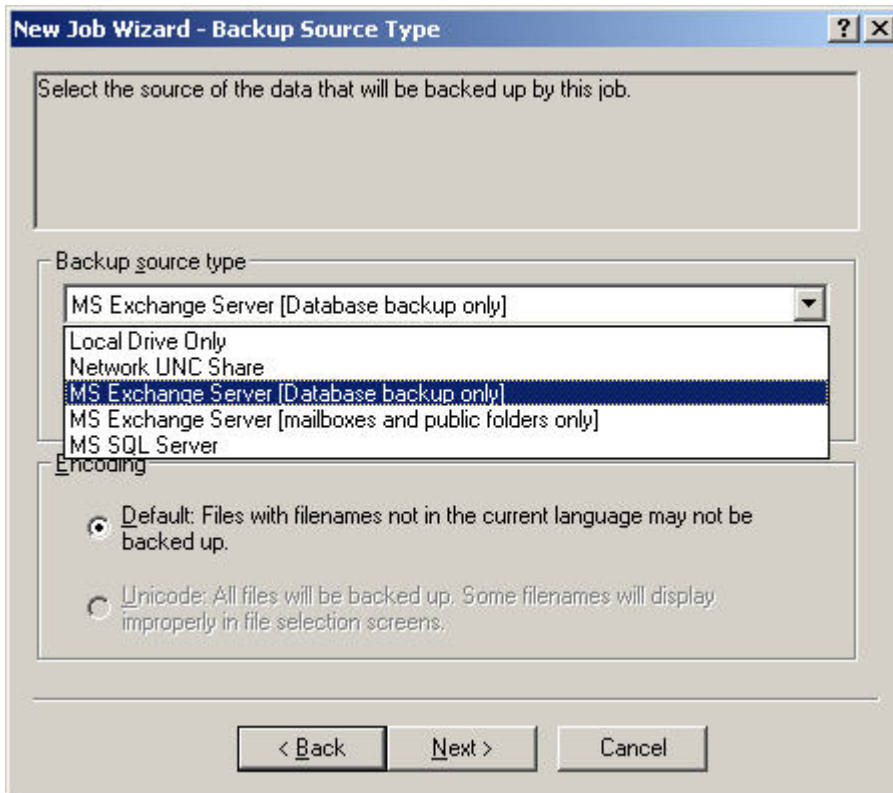


Figure 19. - Backup Source Type

3. The Source panel will appear. Click the **MS Exchange Server** box and the MS Exchange Server will appear in the bottom pane. Click on the server to expand the contents of the server.
4. With MS Exchange the information storage groups appear. Directory store information is part of your organization's Active Directory, which is contained on the domain controller computer. To back up the directory store, always back up System State of this Active Directory.

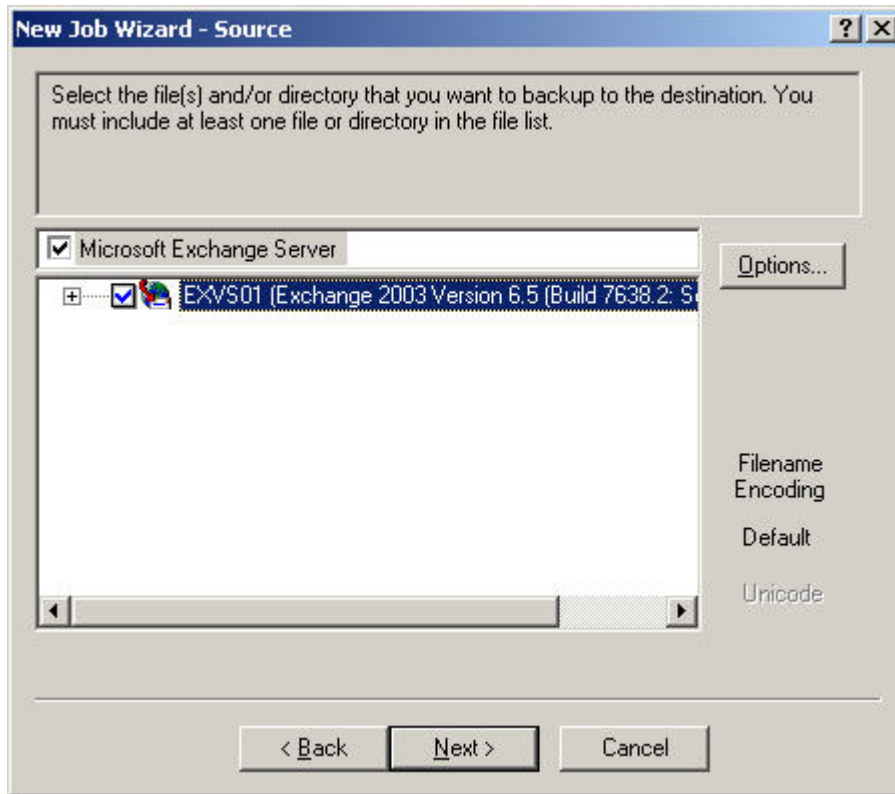


Figure 20. - Back Up Exchange Server Source

5. Select the MS Exchange database or stores you want to back up, then click **Next**.

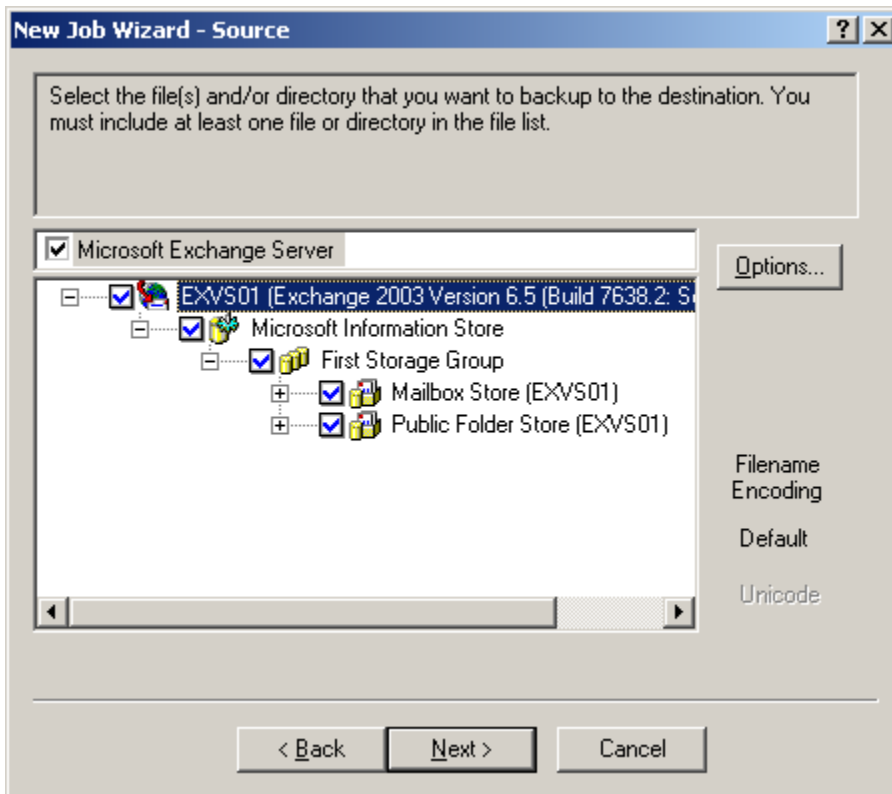


Figure 21. - Select Database or Stores

6. Click the **Options** button to open the Server Backup Options panel.



Figure 22. - Server Backup Options

7. Select the **Incremental** backup type. The first backup will always be a **Full** “seed” of the MS Exchange database regardless of the whether **Incremental** or **Full** is selected. Subsequent to the first backup, only the transaction log files will be backed up when is **Incremental** selected. The default backup type is **Incremental**.
8. Select the **Delete Exchange log files after backup** checkbox if you want to instruct the MS Exchange Job to delete the log files that you have just backed up. This option helps to conserve space on your MS Exchange server, and reduces the time required for the next backup. Deselect this option if you want to maintain the original MS Exchange logs for other specific purposes.
9. Click **Next** to proceed to the next step in the New Job Wizard. Complete the Job as you normally would, and then click **Finish**.



You can edit your MS Exchange backup options by opening the Job Properties panel of a selected Job and clicking on the Source tab. Follow steps 2-5 above to complete your MS Exchange backup.

3.2.1 VSS Backups

If you are running a Windows Agent 64-bit, version 6.5 or above on an MS Exchange 2007 Server, and have installed the MS Exchange Plug-In, you will see an option in Backup Source Type called “MS Exchange Server (Volume Shadow Copy Service).”

This is applicable to new Jobs only. If you have existing DR type Exchange backups, they will remain as DR type Jobs. That is, when VSS is present, you will not be able to select DR for new Jobs. They must use VSS. When editing a DR Job, you cannot change it to a VSS type Job.

The Exchange Plug-In offers two methods for backing up Exchange with VSS: Full and Transaction Log (Incremental). When the Full option is selected, the Plug-In will back up the transaction log and database files for the Storage Groups selected.

When the Incremental option is selected, the Plug-In will back up the transaction log for the Storage Groups selected. You must have done a FULL backup before this.

With any successful backup of Exchange, the transaction logs for the selected Storage Groups are truncated.

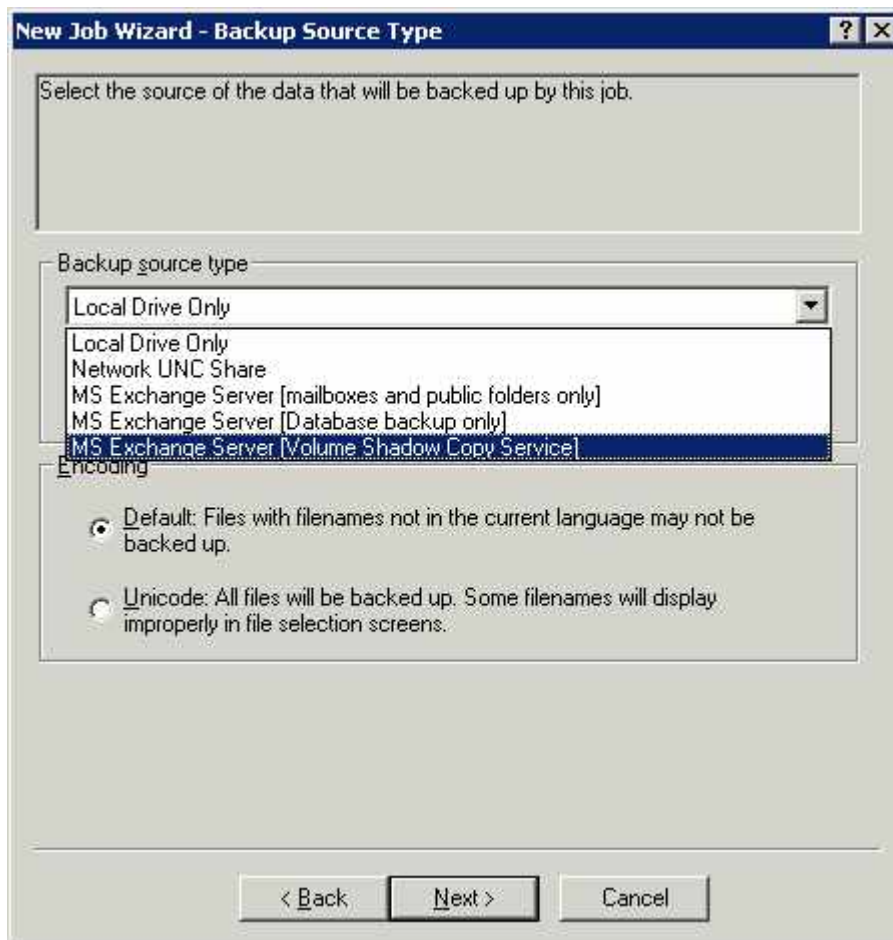


Figure 23. - VSS Backup Source Type

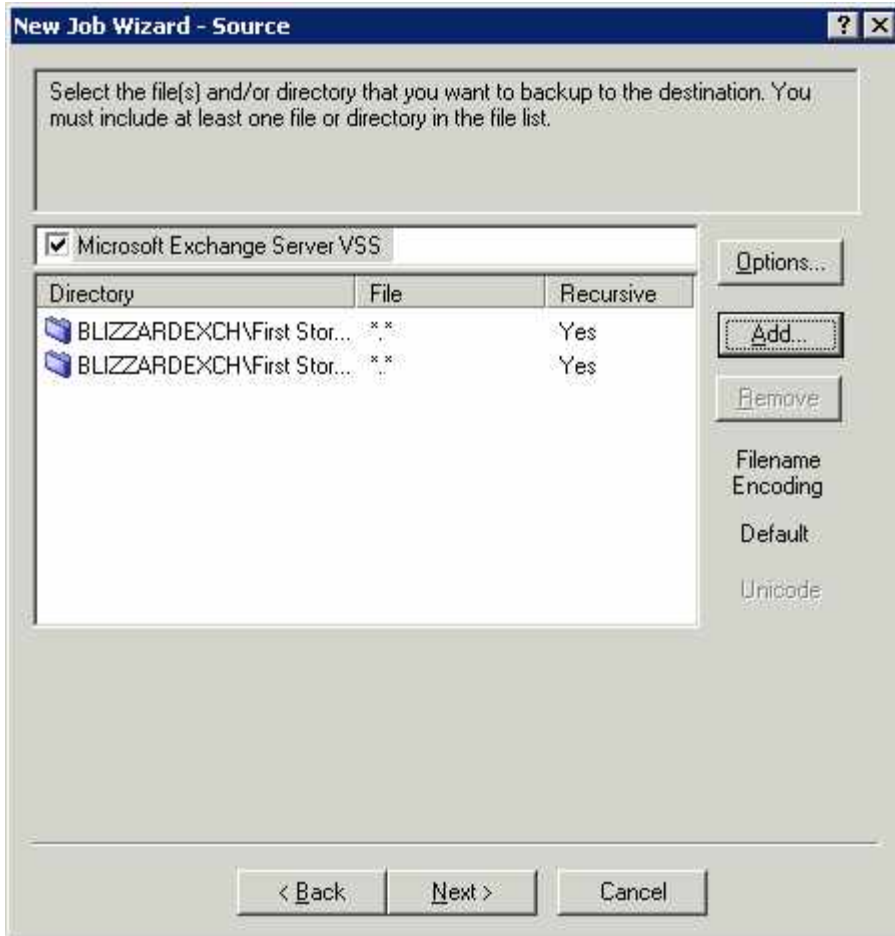


Figure 24. - VSS Backup - Source

There are three types of replication strategies in Exchange 2007:

1. CCR (Cluster Continuous Replication) that replicates to another Exchange Server and has failover capabilities
2. LCR (Local Continuous Replication) that replicates locally
3. SCR (Standby Continuous Replication) that also replicates to another Exchange server but does not have failover capability

Exchange 2007 uses the Exchange VSS Writer, which also supports non-replicating Exchange 2007 configurations such as Standalone and SCC (Single Copy Cluster).

Note: For a VSS Backup to work on Exchange 2007 CCR (Cluster Continuous Replication), you must have only one database per Storage Group.

Typically you would use one backup Job for each Storage Group.

3.2.1.1 Backup Options

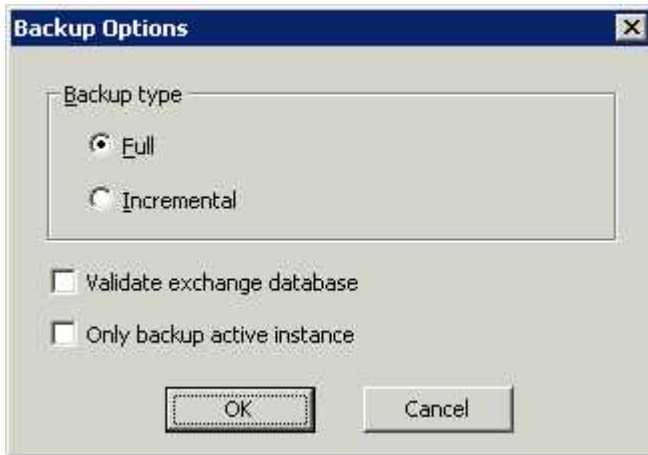


Figure 25. - VSS Backup - Options

There are three options available to the user when the Exchange VSS Plug-In is performing a backup.

Backup Type:

The Exchange VSS Plug-In will support both FULL and Incremental (or Transaction Log) backup. When performing a FULL, the Plug-In will back-up the databases and transaction logs for the selected Storage Group(s). When performing an INCREMENTAL, the Plug-In will back-up only the transaction logs for the selected Storage Group(s). By default, the backup type will be FULL.

Traditionally, an Incremental backup would only contain the transaction log files for the Storage Groups selected. With this Plug-In, much like the Exchange DR Plug-In, the transaction logs will be rolled up with the contents of the previous FULL and Incremental backups. This simplifies the restore process from an Incremental because it can be done from a single safeset.

An Incremental backup requires that at least one FULL backup has been run previously. The FULL establishes a baseline for all subsequent Incremental backups.

If the Plug-In determines that it is unable to run an Incremental it ignores the option and runs a FULL backup instead.

It is possible to select Incremental Backups for both scheduled and ad-hoc backups.

Validate Exchange database:

When backing up Exchange through VSS, the integrity of the Exchange Database files is not validated. When selected, the Plug-In will use a utility provided by Exchange to validate the exchange data during the backup. By default, this option is enabled.

The validation runs in parallel with the backup to validate transaction logs and database files. If it detects an error, the Agent reports the corruption and fails the backup.

The Exchange VSS Plug-In provides an option to validate the integrity of the Storage Group's database and transaction log files during the backup. The validation option is offered as a Job setting as well as a scheduled option.

Only Backup Active Instance:

This option really only applies to backups that are run on an LCR configuration. When enumerating the list of Storage Groups to be backed up, the Plug-In will determine whether the Storage Groups support Local Replication (LCR). If all selected Storage Groups support local replication the Plug-In will use the replica copy for backup. If one or more Storage Groups do support local replication the Plug-In will use the active copy for backup. When this is option is turned on, the Plug-In will only use the active copy for backup. If the Exchange configuration does not support to LCR, the option is just ignored. By default, this will be disabled.

MS Exchange 2007 allows backups to be performed against a replica copy of the Exchange database(s) instead of the active copy.

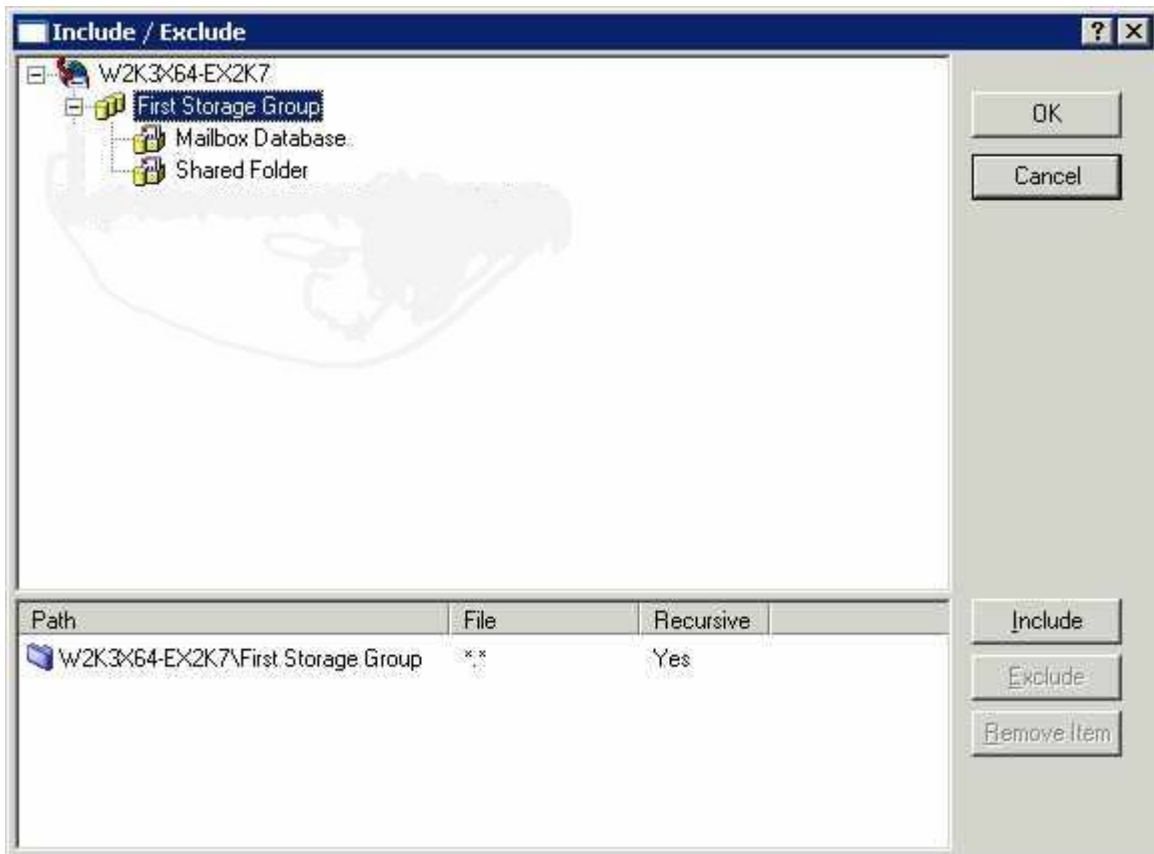
Include/Exclude:

Figure 26. - VSS Backup - Include/Exclude Options

Choose a Server or one or more Storage Groups.

Note: With CCR, VSS backups can only be performed at the Storage Group level. You cannot select an individual database for backup. However you can restore a single database from a Storage Group.

With LCR and SCR you can select more than one database for backup.

See the subsequent sections of this guide for information about completing the backup.

3.2.1.2 PowerShell Log Messages

The Agent uses PowerShell to run commands. This will produce PowerShell-related Eventlog popup messages.

At backup time, you may see a warning message similar to this:

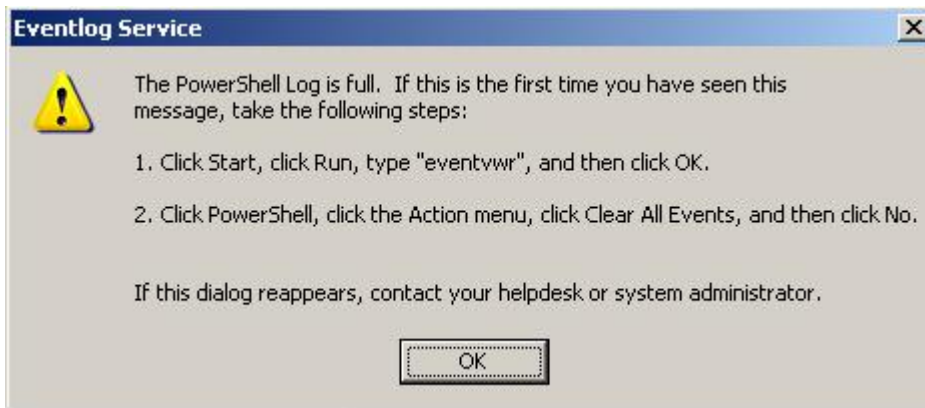


Figure 27. - "PowerShell Log is full" message

You will need to periodically clear the PowerShell Eventlog messages by following the instructions on this screen.

3.3 Scheduling your MS Exchange Backup

1. Select your MS Exchange Agent on the left pane of the CentralControl application. The MS Exchange Job you created plus the Schedule, Global and Inventory files appear in the right pane.
2. Double-click on the Schedule file. The Schedule List appears.
3. Click the **New** button. The Schedule Wizard launches.
4. Work through the Schedule Wizard as described in Section 5.1.1 of the CentralControl manual. "Add a New Schedule Entry."
5. On the Schedule Wizard – Options panel, make sure **Incremental** backup is selected. This ensures that only your MS Exchange transaction logs are backed up.
6. On the Schedule wizard – Weekly panel, select the days you want the Job to run. For example, Monday through Friday.
7. Continue working through the Schedule Wizard until finished.
8. Repeat the above procedure to run a backup of your MS Exchange Job once per week with **Full** backup selected.
9. Next, you should decide how to tailor your backup and recovery options based on your specific MS Exchange server. See Chapters 5 and 6 of this Guide.

3.4 Backing up MS Exchange Mailboxes and Public Folders Only

To back up specific MS Exchange Mailboxes and Public Folders only (brick level/MAPI), you will need to create a new Job.

1. Select your MS Exchange Agent on the left pane of the CentralControl application. Right-click on an Agent to expand its contents, right-click on the Job to bring up the Job menu, and then click **Backup**.
2. This Launches the “New Job Wizard”. Enter a Job Name, Target, and Vault as you would normally when creating a Job (described in Section 4.1 of the CentralControl manual).
3. For the Backup source type, select MS Exchange Server (mailboxes and public folders only), and then click Next.
4. The New Job Wizard - Source panel appears. To make a selection, click the Add button. The “Select MAPI items to back up” panel appears.
5. Select the items that you wish to back up, and then click Include. To display or hide folder contents, you can use the +/- boxes, or double-click the object. Click OK when your selection is complete.

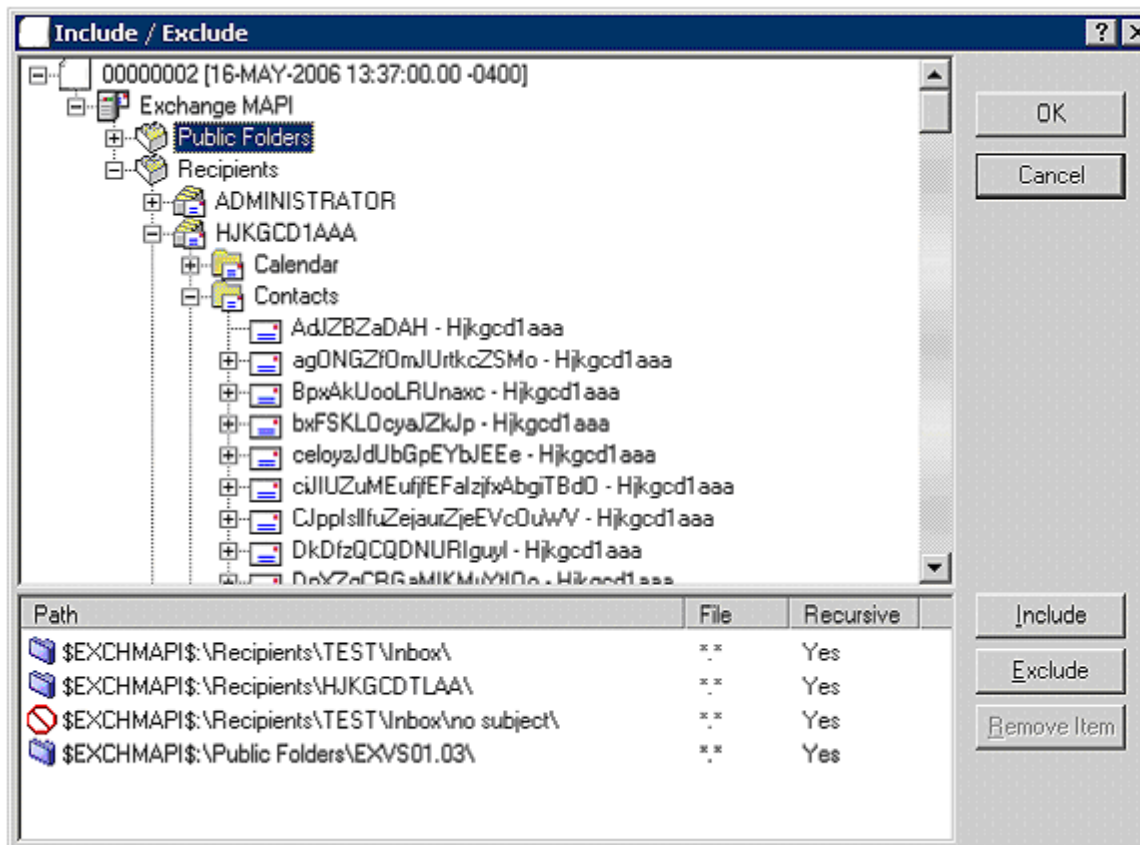


Figure 28. - Select MAPI items to back up

6. By clicking the Options button, you can filter items out of your backup selection. All items are selected for backup by default. If you do not want to

back up an item(s), de-select the item(s) by clicking in the appropriate checkboxes. When your selection is complete, click OK to return to the Select MAPI items to back up panel.

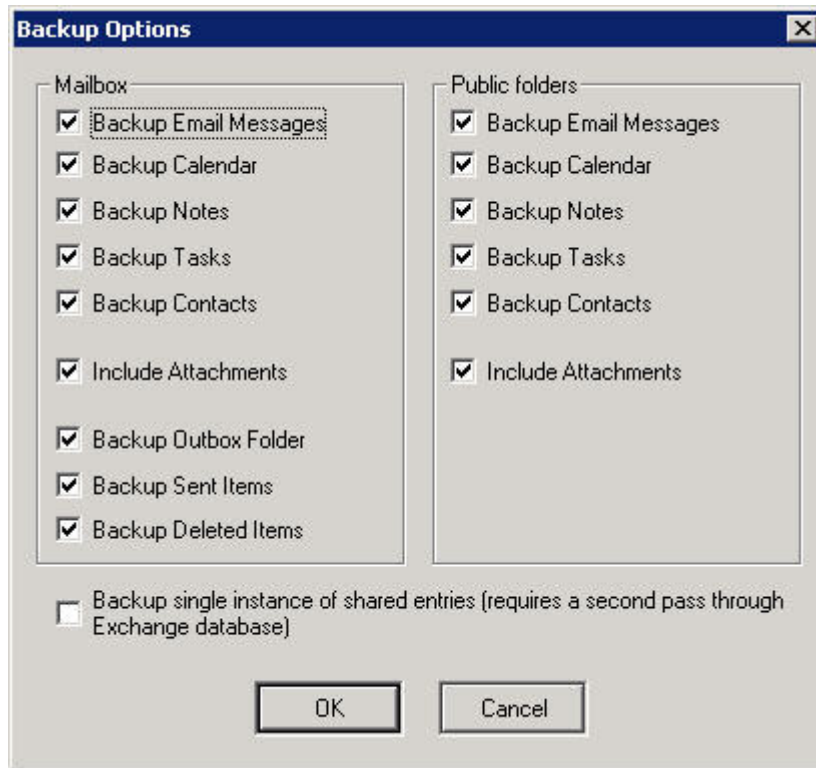


Figure 29. - Backup Options – Mailbox and Public Folders

By customizing Jobs independently, you can reduce both the size and time of your backup while still backing up the items that you want.

By default, if you have attachments with multiple recipients, the backup will include every occurrence (i.e., duplicates) of attachments and messages. You can use this as a normal setting if you don't have many multiple attachments.

If you know you have a large number of duplicated attachments, you can let the Job scan for them before the backup, and only keep one occurrence of a shared entry ("Backup single instance of shared entries"). This option requires a second pass through the entries to find all duplicates. This extra scan may take more time, but it will use less storage space.

NOTE: If you turn off (uncheck) the "Backup Email Messages" option, you will **not** back up any Email messages, regardless of what else you have selected.

7. From the Select MAPI items to back up panel, you can also remove objects from your selection. Select the item that you want to remove from the Job, and then click Remove Item. Click OK when your selection is complete.
8. Complete the Job as you normally would (described in Section 4 of the CentralControl manual).
9. Now that the Job has been built, select one of the radio buttons to exit, run, or launch the schedule wizard. Click Finish to complete the Job.



MS Exchange allows you to create chains of folders of up to 65,000 characters in length (although individual folders in the chain cannot exceed 256 characters). Chains of folder names that exceed 31,999 characters in total (for version 6+ vaults) cannot be handled.

3.4.1 Checking your Backup

After a successful backup, you may check the safeset properties by right-clicking on the safeset, and choosing Properties (or using F2).

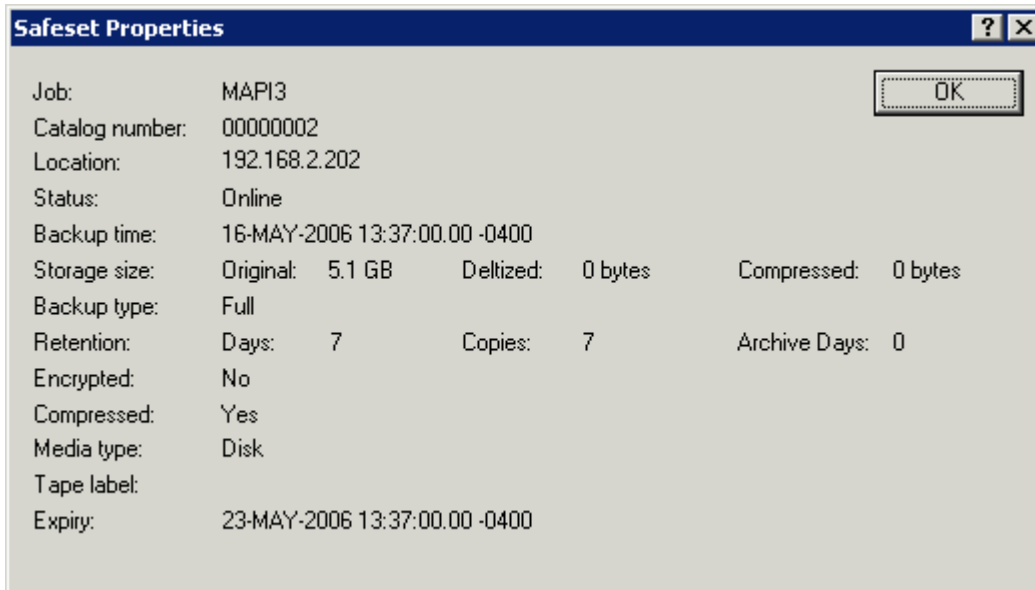


Figure 30. - Safeset Properties

In the logs directory you can view the log file that the backup produced. The partial sample here is the last part of the log of a successful backup. Notice that there were no “errors encountered”, and no “warnings encountered”.

```
April08 11:29 EXMA-I-0001 Exchange backup summary
April08 11:29 EXMA-I-0001 server:           EXVS01
April08 11:29 EXMA-I-0001 OK mailboxes:      1
April08 11:29 EXMA-I-0001 OK folders:        10
April08 11:29 EXMA-I-0001 OK messages:       17
April08 11:29 EXMA-I-0001 OK attachments:    12
April08 11:29 EXMA-I-0001 error mailboxes:   0
April08 11:29 EXMA-I-0001 error folders:     0
April08 11:29 EXMA-I-0001 error messages:   0
April08 11:29 EXMA-I-0001 error attachments: 0
April08 11:29 SSET-I-0037 committed catalog number is 1
April08 11:29 SSET-I-0035 disconnect from the Vault at 12-APRIL-2010 11:32:03.56 -
0400
April08 11:29 CTLG-I-0001 catalog created
April08 11:29 BKUP-I-0000 errors encountered:      0
April08 11:29 BKUP-I-0000 warnings encountered:   0
April08 11:29 BKUP-I-0000 files/directories examined: 61
April08 11:29 BKUP-I-0000 files/directories filtered: 0
April08 11:29 BKUP-I-0000 files/directories deferred: 0
April08 11:29 BKUP-I-0000 files/directories backed-up: 61
April08 11:29 BKUP-I-0000 files backed-up:        61
April08 11:29 BKUP-I-0000 directories backed-up:   0
April08 11:29 BKUP-I-0000 data stream bytes processed: 384,116 (375.1 KB)
April08 11:29 BKUP-I-0000 all stream bytes processed: 384,116 (375.1 KB)
April08 11:29 BKUP-I-0000 pre-delta bytes processed: 384,116 (375.1 KB)
April08 11:29 BKUP-I-0000 deltized bytes processed: 384,116 (375.1 KB)
April08 11:29 BKUP-I-0000 compressed bytes processed: 147,204 (143.8 KB)
April08 11:29 BKUP-I-0000 approximate bytes deferred: 0 (0 bytes)
April08 11:29 BKUP-I-0000 reconnections on recv fail: 0
April08 11:29 BKUP-I-0000 reconnections on send fail: 0
April08 11:29 BKUP-I-0032 job completed at 12-APRIL-2010 11:29:13.72 -0400
April08 11:29 BKUP-I-0033 elapsed time 00:00:23
```

Figure 31. - Log File

You may also have set the option to receive an email notification on a successful or failed backup. See section 3.3.5 in the [“CentralControl Operations Guide”](#).

4 Performing Restores

Restoring an **MS Exchange Server (DR)** is a two-step process. The first process ends when the Restore Job ends, and the second one starts right after that if you have selected the “Start Hard Recovery” option in the restore Job. The progress of the first step is recorded in the restore log, and the progress of the second is recorded in Windows Event Viewer.

- For MS Exchange 2003/2007, you must un-mount the databases that you are restoring.
- For all MS Exchange recovery strategies, please refer to **MS Exchange** documentation.

Restoring selected **MS Exchange Mailboxes and Publics folders only** is a simpler process than restoring an entire MS Exchange Server (i.e., disaster recovery). For this, the MS Exchange Plug-In provides mailbox-level restore options.

4.1 Disaster Recovery Overview

This section describes how to restore an MS Exchange server after a worst-case disaster.

To fully recover from a total disaster, you need the following:

- Any replacement hardware, if necessary.
- The original operating system disks that were being used. Windows 2003/2008 Server.
- Full drive backups of the system drives, and other logical drives where critical applications or data were installed. A “Full backup” consists of the ‘System State backup’ and the ‘full drive or system backup’. A ‘System State backup’ for Windows 2003/2008 Server captures Active Directory, registry, IIS metabase, and types of data that may not be backed up by some other backup systems.
- MS Exchange database backups.
- Along with backups of the information store database, you may also need backups of ancillary databases such as the SRS databases and KMS databases.

4.2 Recovering from a Worst Case Disaster

1. Reconfigure hardware that is similar to the original hardware.
2. Create a logical drive that matches the original configuration. Although hardware does not always need to be identical, be aware that some drivers that are listed in the backup set may be incompatible with hardware on the new systems, and may require you to manually remove or install drivers in Safe mode. Test the system state restoration on replacement hardware before you actually need to perform a system state restoration.
3. Reinstall the operating system. Install the same version of Windows 2003/2008 as a stand-alone server to the same drives and paths to which Windows 2003/2008 Server was previously installed. Use the same server names as those used before.

Using restore, restore full drive backups. The full backup consists of your 'System State backup' and the 'full drive or system backup'. By restoring the system state, you have restored Active Directory, the IIS metabase, etc. See the **MS Exchange** documentation for further details.

4. In an MS Exchange 2003 environment, you should reinstall MS Exchange using the */disasterrecovery* switch if you do not have a full drive backup available for restore AND active directory is installed on a separate machine. If you restore full drive backups and system state information, you do not need to run setup with the */disasterrecovery* switch. The local MS Exchange installation may be completely functional already. When you use the */disasterrecovery* switch, you must manually select all the components that were previously installed on the server.
Note: The */disasterrecovery* switch only applies for Exchange Server 2003. For recovering Exchange Server 2008 the command syntax is:
/mode:recoverserver
5. Using restore, restore MS Exchange databases.

4.3 Restoring the MS Exchange Data

Your MS Exchange Server is restored from one safeset. You need to select the MS Exchange Server backup Job on the CentralControl application and run the Restore Wizard.

1. Before restoring your MS Exchange database, you must disable the database you want to restore.
2. Highlight your MS Exchange Job on the CentralControl application and click the **Restore** button. The Restore Wizard launches.
3. Work through the Wizard, as described in Section 7 of the "[CentralControl Operations Guide](#)".
4. On the Restore Wizard – Select Restore Objects panel, click the **MS Exchange Server** check box. All MS Exchange objects available for restore appear in the bottom pane. Highlight the MS Exchange objects you wish to restore. When you are finished with the Select Restore Objects panel, click **Next** or click the **Options** button to set the available options.
5. Selecting an object enables the **Options** button. Click the **Options** button to open the **MS Exchange Server Restore Options** panel. For MS Exchange 2003/2007, **Hard Recovery** is selected by default and **Roll Forward** is not selected. For MS Exchange 2003/2007, selecting **Hard Recovery** will apply the database and replay the log files.
6. Select **Roll Forward** based on your choice of restore. When this option is selected, it restores all MS Exchange information from the backup and "rolls forward", keeping any log files created since the last backup. The advantage of this type of restore is that your MS Exchange information is completely up-to-date. The disadvantage is that, if one or more of the log files created since the last backup are corrupt, your restored MS Exchange database will also be corrupt. When this option is "not" selected, the logs in the backup replace the log files on your MS Exchange server. The disadvantage is that you will only have the log files included up to your last backup, possibly resulting in some information loss. An MS Exchange Administrator could manually delete MS Exchange logs that are corrupt from your MS Exchange server and perform the restore without deleting the log files. Refer to the procedure recommended from Microsoft in this respect.
7. Complete the Job as you normally would and Click **Finish** when done.
8. For MS Exchange 2003/2007, information stores must be manually mounted after restore is complete and MS Exchange has finished restoring the databases as well as replaying the log files. Always check the restore log file and the Windows Event Viewer Application Log for no errors before mounting a store.

Note: If, after a bare-metal restore, you are unable to mount the database, check the following:

If the error logs had no errors, but you received an error like C1041724, and ESE Event ID 455 and Event ID 9518. The problem may be that the System State Restore restored MS Exchange checkpoint files that do not reflect subsequent MS Exchange DR backups.

To avoid the error, you should delete all the checkpoint files from the database directory (or exclude them from System State restore) before restoring the MS Exchange DR backup.

This is a known Microsoft problem. See Microsoft Knowledge Base Article # 294367, "You cannot mount the database and receive Events 9518 and 455".

4.3.1 VSS Restores

If you have used VSS to back up an Exchange database, you can choose to restore the database to a new location, or to its original location.

If you are overwriting an existing database (which must be on the same Domain), it must be un-mounted and marked for “overwrite” (in the Exchange Management Console).

If you are restoring to a new location, you must first re-create an empty database with the same StorageGroup and Database name, by using the Exchange GUI Manager.

The Agent/Plug-In supports the restore of entire Storage Groups and/or individual databases within a Storage Group. From a workflow perspective, the restore is basically the same whether restoring from an Exchange Full or Incremental backup. In either case, the Plug-In will only need to restore from a single backup safeset.

You can only restore to the active node of an Exchange CCR cluster. The restore will fail otherwise.

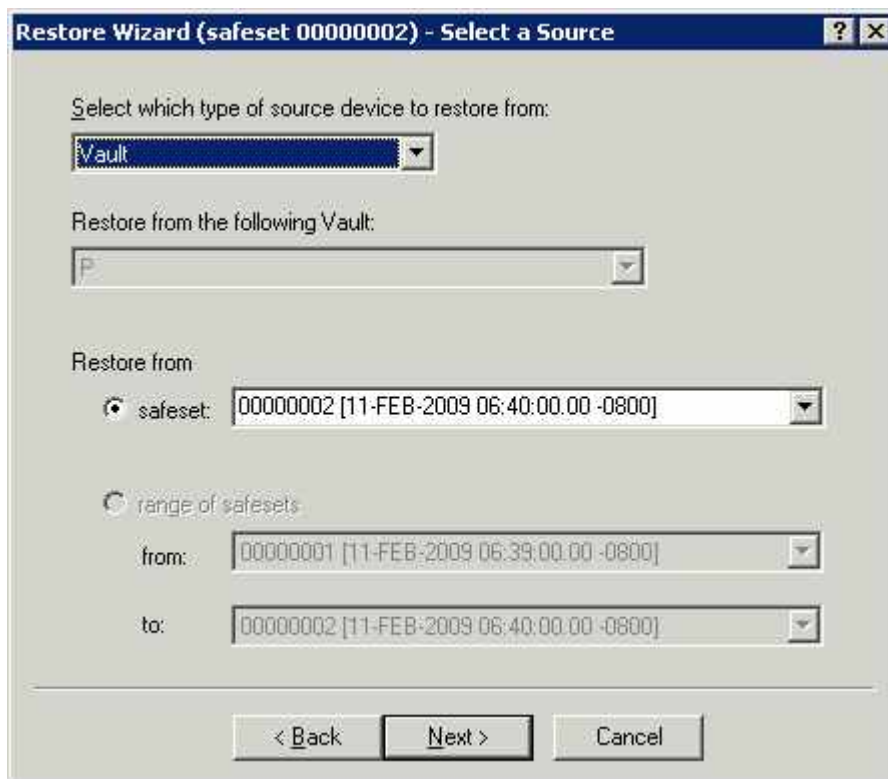


Figure 32. - VSS Restore - Select a Source

Storage Group and DB selection for Restore:

From an Exchange server name, you can browse to, and select one or more Storage Groups by name. Under a Storage Group you can select one or more databases.

(See the section on VSS Backups in this Guide for how VSS works on CCR, LCR and SCR.)

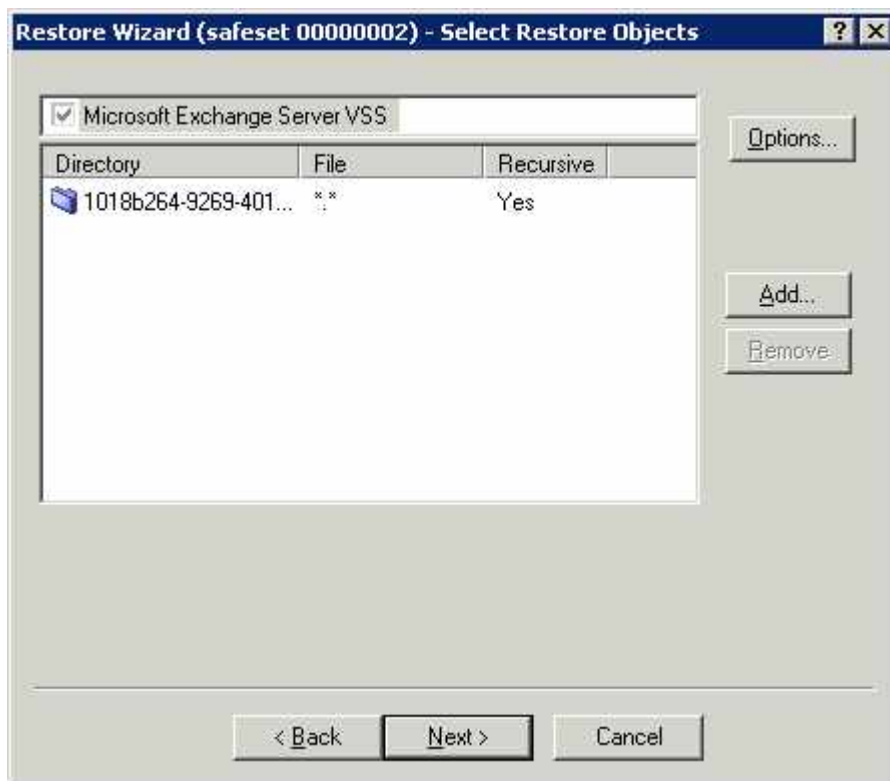


Figure 33. - VSS Restore - Select Restore Objects

Note: You may have manually deleted a Storage Group's transaction log files (if they are corrupt, for example). If the transaction logs are missing or damaged, an Incremental restore will not succeed. You should perform a FULL backup before attempting another restore to recreate the transaction logs.

Restoring a single database to a Storage Group with more than one database could result in data loss from other databases.

There is an Options button available to the user when the Exchange VSS Plug-In is performing a restore.

Start Hard Recovery: When selected, the Exchange Plug-in will replay the transaction logs, and prepare the restored Storage Group to be used by Exchange. By default, this option is set to true.

If you do not use this option, the Storage Group will not be available to Exchange. The Administrator can review and check the restore and Exchange files and database, and must then manually prepare the Storage Group for Exchange.



Figure 34. - VSS Restore - Start Hard Recovery

Next, choose what to include or exclude from the restore.

Storage Group and DB selection for Restore destination:

Similar to selecting a Database to restore from, here you can select a database to restore to. From an Exchange server name, you can browse to, and select a specific Storage Groups by name. Under a Storage Group you select a specific database.

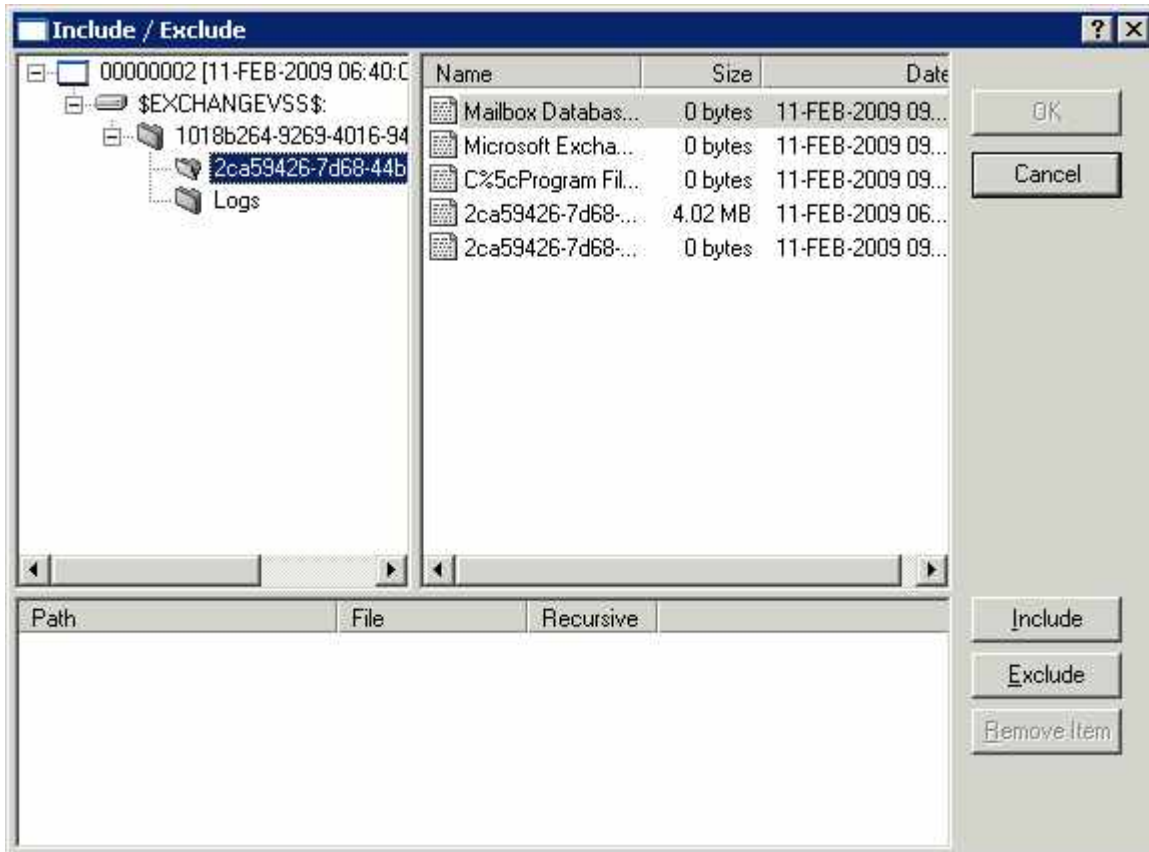


Figure 35. - VSS Restore - Include/Exclude

Next you may choose to Restore your backup files to their Original Location, an Alternate Location, or to an Alternate database.



Figure 36. - VSS Restore – Destination Options

See the sections that follow for information about completing the Restore.

Note: If you are overwriting an existing database (which must be on the same Domain), it must be un-mounted, and marked for “overwrite”.

In the Exchange Management Console, with a database selected, right click on Database Properties to set the option “This database can be overwritten by a restore”.

4.4 Restoring MS Exchange Mailboxes and Public Folders Only

1. To restore from the MS Exchange Mailboxes and Public Folder safesets first select your MS Exchange Agent on the left pane of the CentralControl application. "Right" click on an Agent to bring up the Job menu and select **Restore**.
2. This will launch the **Restore Wizard**. The Source defaults will display the appropriate settings from the backup. You can select a different safeset to restore using the drop down menu or a different source location.
3. Select **Next** and the **Logon** panel will display the default settings. Click **Next** to bring up the **Restore Wizard - Select Restore Objects** panel.
4. When you select **Add**, the **Select MAPI items to restore** panel is displayed. The databases available are displayed here and their contents can be expanded and/or selected in much the same manner as when working within Windows Explorer.

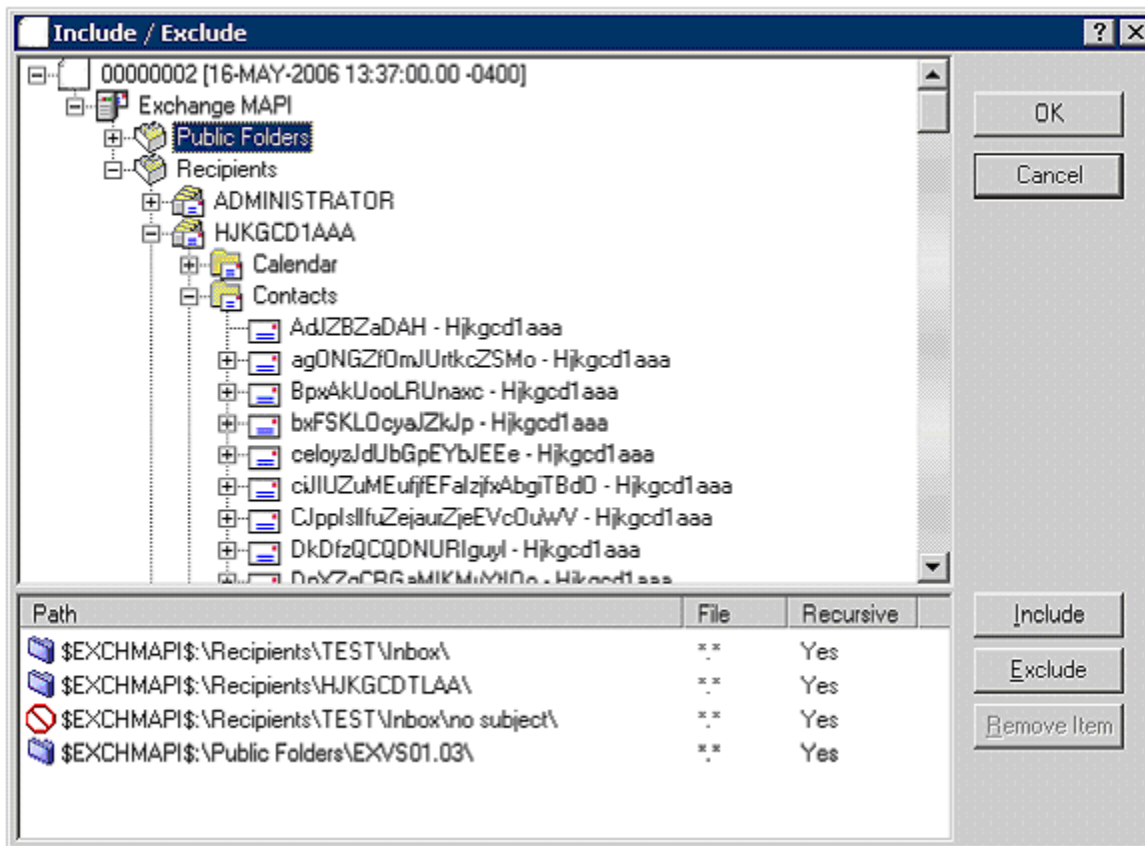


Figure 37. - Select MAPI items to restore

According to Microsoft, restoring to a PST file has the following limitation: The maximum size a PST can be is 20 gigabytes for Exchange 2003/2007.

When creating a PST file / restoring to a PST file the default password is "password".

Be aware that when restoring to a PST file, you will overwrite any information previously stored in that location if any exists. You will NOT be prompted with a warning.

5. Click **OK** to continue when your selection is complete.
6. You can also search the restore catalogue for objects to restore by clicking on the **Search** button. Enter the message name to be searched for in the field and check one or more “type” from the Messages, Mailboxes, and Folders checkboxes. You can use wildcards in your search such as “*” and “?”, where “*” will allow all and “?” will allow a single character wildcard replacement. As a mailbox can sometimes contain thousands of files, you have the option to cancel the search by clicking the cancel button.
7. To remove an object from your restore, select the object and then click **Remove**.
8. The next panel is the **Restore Options - Destinations Options** panel. **Restore to MS Exchange Database** is selected by default. To restore to a different location click the **Restore to directory on disk PST File** radio button. You must enter a valid PST location for this restore or click **Browse** to find the location you want to use. The **New mailbox** radio button is currently not supported and is grayed out. Every mailbox store selected will create a PST file.



Restoring to a PST file has the following Microsoft limitation. The maximum size a PST file can be is 20 gigabytes for Exchange 2003/2007.

In order to allow restoration to a PST file the user needs to do the following:

- a). Add "Personal Folders" service to the **MS Exchange** profile (via Control Panel\Mail).

However, on Windows 2003, by default there is no Mail Control panel. Without Outlook installed, the Profile Manager tool does not present the option to create a Personal Folders Service. Outlook should not be run on the same machine as is running the Exchange. (See MS Knowledge Base article #Q266418.)

To circumvent this, manually copy c:\Program Files\Common Files\mapisvc.inf from a system with Outlook installed to c:\winnt\system32\mapisvc.inf on the Exchange Server. This allows the user to select Personal Folder service option while using the Profile Manager tool.

MAPISVC.INF is a file that contains configuration information for the MAPI subsystem, message services, and service providers. Your mapisvc.inf file from an Outlook system should have a line in [Services] such as: “MSPST MS=Personal Folders” as well as a section that has “MSPST” as its title. Any DLLs in this section should be available on the system. Note that any DLL files

mentioned, such as emsui.dll, emsabp.dll and emsmdb.dll are actually found as emsui32.dll, emsabp32.dll and emsmdb32.dll

b). With Outlook, perform at least one export to PST file.

9. Click **Next** to bring up the Advanced Restore Options. Complete the Job as you normally would. (Click **Finish** to start the restore.)

4.4.1 Troubleshooting

Symptoms:

Exchange databases restored to another location (Mailbox or Public Folder) cannot be mounted. The Database and backup logs are being retrieved, but it seems like there are no restore.env files. The database is in a dirty shutdown state, and you cannot replay log files successfully to bring it back to a clean shutdown.

Description:

The restore.env file is just a checkpoint file, for being able to replay transaction logs on the server. During a Soft Recovery, the checkpoint file is used to determine where to begin replaying logs. If the file does not exist, then it will start replaying, starting with the oldest log.

Hard Recovery does not require a restore.env file, this is why you only see it created when you restore with the "Hard Recovery" option de-selected.

A restore to another location is exactly that, a "restore" of Exchange database file data to another location. It is not considered a typical Exchange "recovery", so you should have no Soft/Hard Recovery options during the restore process.

When the "restore to an alternate location" option is chosen, the Plug-In places the database and log files in this location. This means that it is the user's responsibility to correctly use these files.

The 'restoring to alternate location' should only be used if:

1. A normal restore is impossible. The normal restore will not be possible only if the database or log files are corrupted.
2. The user wants to do some lower level work on these files, e.g. use a third party tool that might extract some data (e.g. mailboxes) from databases.

5 DR Optimization

This chapter details strategies on optimizing your backups for the disaster recovery (DR) component. This method essentially backs up the entire **MS Exchange** database. The MS Exchange Plug-In refers to this option as **MS Exchange Server (Database backup only)**.

5.1 Optimizing your MS Exchange Backup

Optimizing your MS Exchange backups and restores requires creating a schedule of both regular **Incremental** backups and periodic **Full** backups.

The backup/restore speeds for disaster recovery (DR) are far superior to the backup/restore speeds for the mailbox-level (MAPI) component (for a dataset of the same size).

The MS Exchange Plug-In (DR Module) has a built-in capability to simplify backup/restore strategies:

A user should usually use the default "Incremental" setting when setting up an Exchange backup type.

Optimizing the speed of your restore Jobs requires a periodic "Full backup", which backs up your MS Exchange server by first creating a full seed of the complete database. By default, all later backups are incremental and are transaction logs only. This means that only changes are transmitted to the vault. The transaction logs are added to the seed to produce a complete picture of the up-to-date Exchange database. Over time transaction logs can accumulate, creating safesets with large amounts of log files. We recommend performing a "Full Backup" periodically. A Full Backup instructs the Agent to create a new delta of the complete Exchange database.

To optimize your Exchange backups and restores, we recommend you first create a backup Job with the Incremental backup type. Schedule the Job to run frequently - Monday through Saturday for example. Next, create a new schedule to periodically run the Job with the Full backup type - on Sunday only for example. If you are not sure how many transaction logs have been added to your safeset, open the Job on the CentralControl and check its backup log. All Exchange transaction logs are listed together as .log files.

There might be other cases when you should consider forcing backup to "Full":

- i) if a Job fails and log and/or Windows Event Viewer - Applications indicates an error.
- ii) when you want to eliminate log files in the backup. This could save time on log replaying when restoring.
- iii) when performing database repair or restoration.

In addition to the above, always check the Job log for the progress of backup and the log and Windows Event Viewer Applications for the progress of restore. Remember, that restore is a two step process - the first one ends when restore Job ends and the second

starts straight after that if you have selected the "Start Hard Recovery" option in the restore Job. The progress of the first step is recorded in the log and the progress of the second is in Windows Event Viewer - Applications.

It is recommended NOT to run Full backups within your regularly scheduled MS Exchange maintenance time window. Your maintenance will be put on hold during a backup.

For all MS Exchange recovery strategies, please refer to Microsoft Exchange documentation.

For MS Exchange 2003/2007 backup and restore, see <http://www.microsoft.com/technet/> .

The following pages illustrate how different backup schedules will affect your vault storage for various sizes of MS Exchange databases.

5.2 Choosing a Backup Schedule (DR only)

The following three scenarios present three different MS Exchanges with different amounts of daily traffic and number of users. The recommended backup schedule differs based on the size of your MS Exchange database as well as your backup and communication needs.



For **Medium Traffic** / ~1000 Users, see figure 38

For **Low Traffic** / ~250 Users, see figure 39

For **High Traffic** / ~4000 Users, see figures 40 and 41

The examples also show how the schedule can affect your safeset.

Note: Your actual results will vary depending on your traffic, database maintenance, and archive settings. (Note: Logs are data, and are considered as part of the total data transferred.)

5.2.1 Medium Traffic / 1000 Users

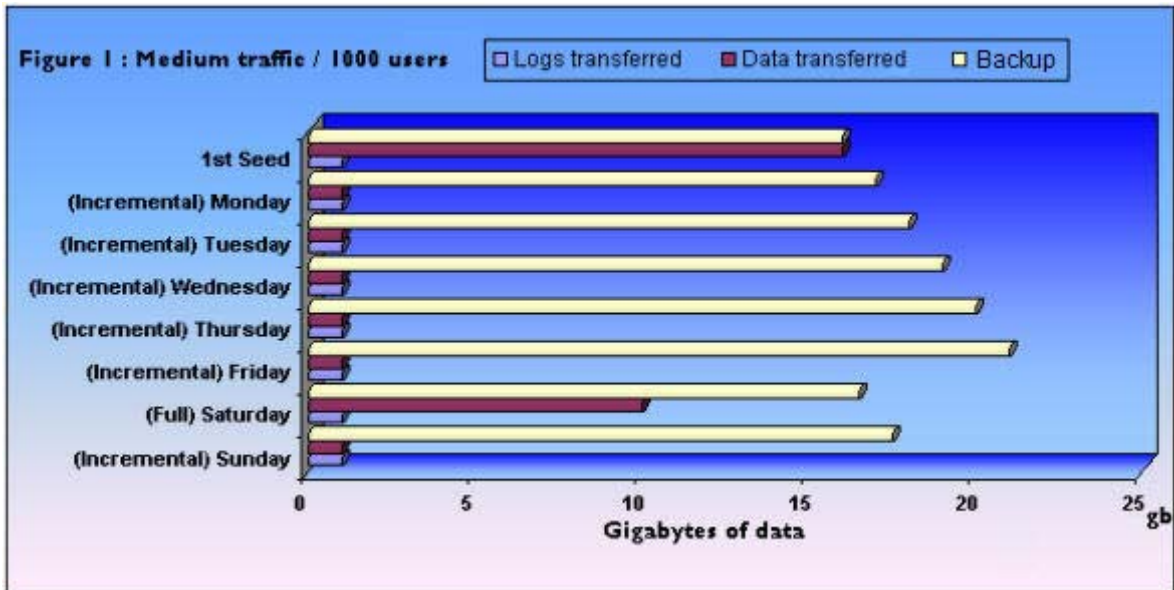


Figure 38. - Medium Traffic / 1000 Users

In the example, the MS Exchange Server has approximately 16gb of data and approximately 1gb of daily data traffic or 1000 users. Notice on Saturday the **Full** backup is performed. All changes (delta) to the MS Exchange are transferred to your safeset and the size of the safeset is reduced. This is because the accumulated weeks Logs approximate the week's changes and have already been incorporated into your MS Exchange database.

5.2.2 Low Traffic / 250 Users

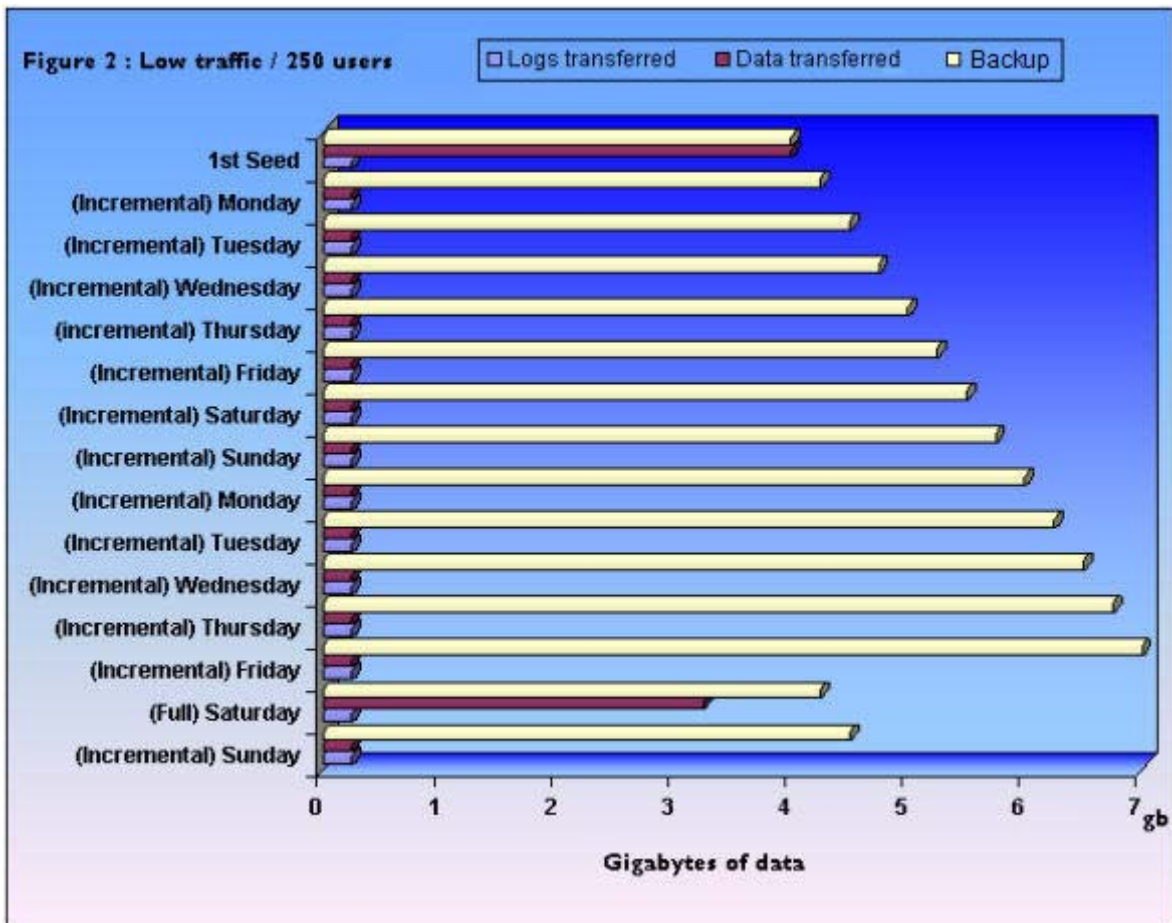


Figure 39. - Low Traffic / 250 Users

In the example, the MS Exchange Server has approximately 4gb of data and approximately 250mb of daily data traffic or 250 users. Notice that on the second week's Saturday a **Full** backup is performed. All the changes (delta) to the MS Exchange are transferred to your safeset and also the size of the safeset is reduced. This is because the accumulated 2-week Logs approximate the 2-week's changes, and have already been incorporated into your MS Exchange database.

5.2.3 High Traffic / 4000 Users

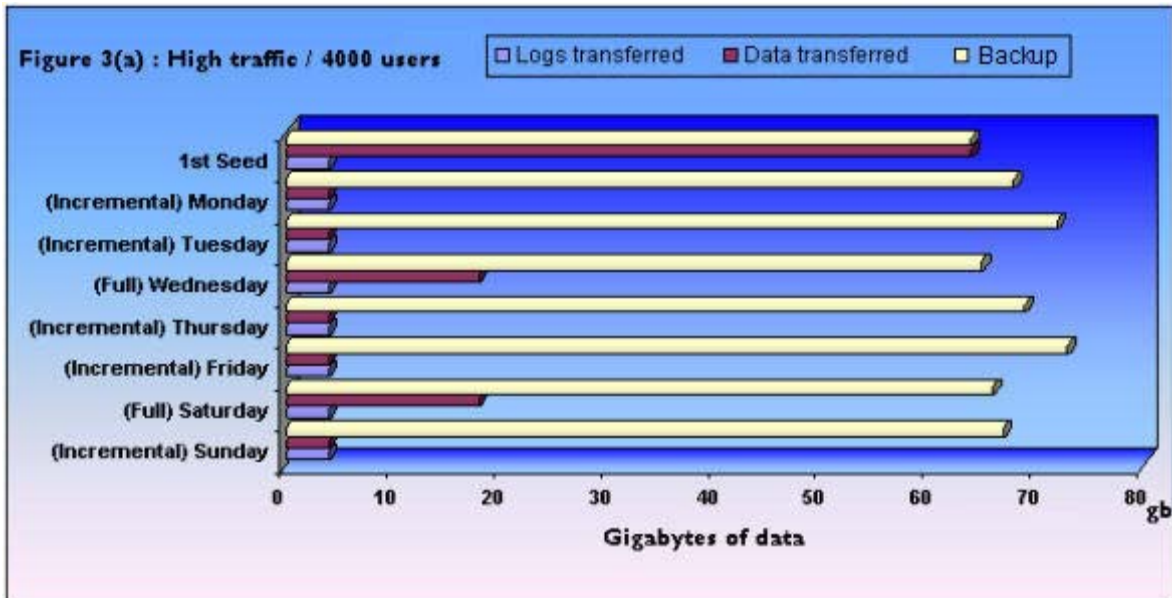


Figure 40. - a) High Traffic / 4000 Users – Twice Weekly Full

In this example the MS Exchange Server has approximately 64gb of data and approximately 4gb of daily data traffic or 4000 users. Notice that on the mid-week Wednesday **Full** backup and on the Saturday **Full** backup, all the changes (delta) to the MS Exchange are transferred to your safeset and the size of the safeset is reduced. This is because the accumulated 3-day Logs approximate the changes over these 3 days and have already been incorporated into your MS Exchange database.

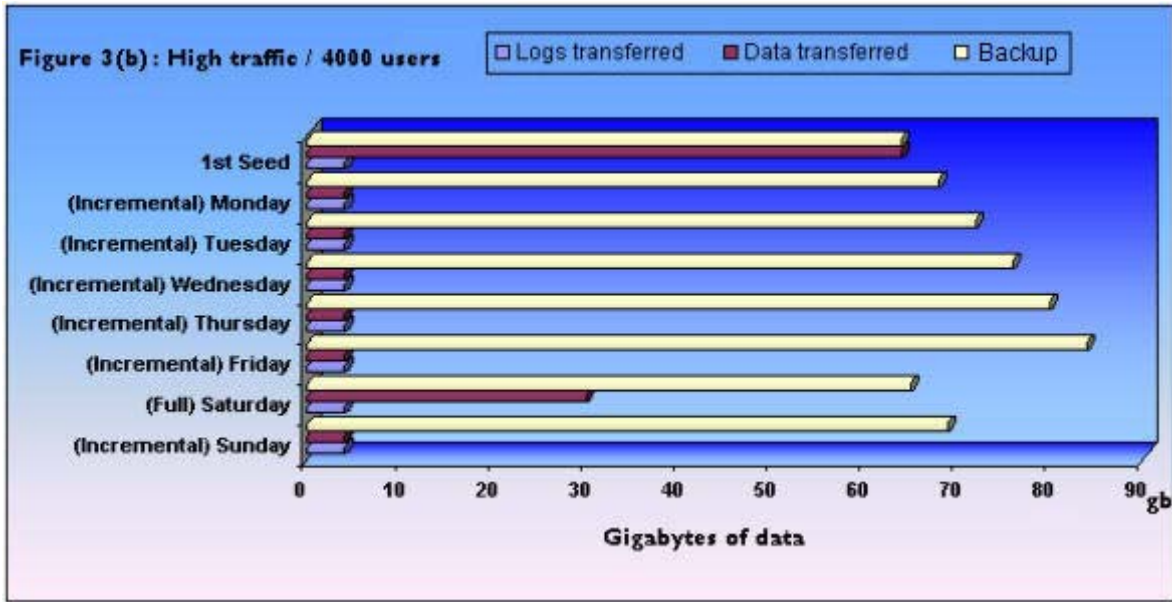


Figure 41. - b) High Traffic / 4000 Users – Once Weekly Full

In the case of a **High Traffic** server you might not want to use your communications bandwidth for backups during the mid-week period. In this case you may prefer using the schedule outlined in this figure and perform a **Full** backup on Saturday only. The speed of your bandwidth and your backup time window schedule may be determining factors. Also, a Saturday **Full** backup can defer onto Sunday if needed.

5.3 Backups and Maintenance

This section discusses:

- How maintenance affects your backups,
- How backups affect your maintenance,
- Deleting log files.

5.3.1 How MS Exchange Maintenance Affects your Backups

Your regularly scheduled MS Exchange maintenance can affect how much data is transferred to your safeset during a **Full** backup. If for example you run daily maintenance on your MS Exchange, then your MS Exchange will be changing considerably each day. When performing a **Full** backup, these changes will be incorporated into your safeset. This will result in longer **Full** backup times, as you will be transferring more data. Your maintenance schedule will not however affect an **Incremental** backup as in this case the transaction logs are the only data being transferred. Your backup has priority over the MDB (messaging database) maintenance schedule and as such will complete ahead of regular maintenance.

5.3.2 How MS Exchange Backups Affect your Maintenance

Your **Full** backup can also affect how your maintenance is performed as your backup Jobs have priority over the MDB maintenance schedule. If your maintenance is run concurrently with a backup Job, your maintenance will be put on hold until the backup completes. If there is still time within the maintenance schedule window the maintenance can complete. If however, you ran **Full** backups every night during the time scheduled for maintenance, then it is possible that your MS Exchange would not have time to complete its maintenance. It is important to schedule your maintenance and **Full** backups so that they are not in conflict. Running an **Incremental** backup Job will not significantly affect your maintenance schedule as only the transaction logs are being transferred. This effect will also vary depending on the size and activity of your MDB as well as your maintenance schedule. Maintenance scheduling is done at the storage group level by default within your MS Exchange but can be customized for each MDB.



The MS Exchange (MDB) maintenance schedule, effects, and defaults are detailed in Microsoft knowledge base article Q271222 at <http://support.microsoft.com/> This article outlines performance costs and makes several recommendations for different scenarios.

The default maintenance schedule for MS Exchange is between 1:am and 5:am. Your regular maintenance performs three jobs:

1. Checking Active directory for deleted mailboxes.
2. Deleting any mailboxes or messages that are older than your set retentions.
3. Defragmenting the MDB store while still online.

As jobs 2 and 3 are disk-intensive jobs your maintenance should be scheduled outside of the time scheduled for a **Full** backup.



Running specific MS Exchange utilities such as ESEutil (extensible storage engine) require dismounting the MDB store. Backups cannot occur while running this utility. See Microsoft knowledge base article Q192185 at <http://support.microsoft.com/>

5.3.3 Deleting MS Exchange Log Files

When setting up your backup Job in the **MS Exchange** Server Options panel, select the **Delete MS Exchange log files after backup** check box to remove from the MS Exchange database all the log files that you have just backed up. This option helps to conserve space on your MS Exchange server and reduces the time required for the next backup. This option when selected will also speed up the restore process, as fewer log files will need to be replayed. Deselect this option if you want to maintain the original MS Exchange log files for other specific purposes.

6 MAPI Optimization

This chapter details strategies on optimizing and streamlining your backups for the mailbox and public folder level (MAPI) component. This method is user-configured to back up selected items (mailboxes and folders) within the database(s). The MS Exchange Plug-In refers to this option as **MS Exchange Server (Mailboxes and Public Folders only)**.

MAPI backups are performed only after a complete DR backup has been performed.

An important difference between backing up the MS Exchange DR (Disaster Recovery module) vs. backing up specific mailboxes or folders (MAPI) is that it takes four to eight times longer per gigabyte to perform backups at the mailbox level. This is primarily because Microsoft optimized the backup protocol for backing up the entire DB, not for performing backups at the mailbox or folder level. Also, for mailbox and folder level backups, a pre-scan is required which can slow the process. A slower backup process may or may not influence your backup selection depending on your specific situation.

Because of speed limitations using MAPI to back up large numbers of users, messages and volumes of data – the limit is approximately 400 MB/hr – it is recommended that users do not attempt to use the MAPI backup to back up more than approximately 100 users, with a total of 400,000 to 500,000 messages, or more than a total of 50 GB of data.

However, to speed up the backup process it is possible to use two MAPI Jobs at the same time. For example, you may use one Job to back up Public folders, and one to back up Recipients. Or, you may use one Job to back up one set of Recipients and the other to back up another set.

You may find that backing up your selected mailboxes and folders pose no problems for your organization or your system. In this case you may not need to streamline your backup Jobs or selections at all. However, you may also find that backups of your mailboxes and folders are taxing your communication bandwidth, or that you are storing some data unnecessarily. If this is the case you may find it prudent to streamline your backups. By streamlining your backup selection you can dramatically reduce the size of the backup and correspondingly reduce the time required to complete the backup, thereby freeing up your communications bandwidth.

6.1 Strategies

There are several ways to optimize the backup performance at the MAPI level.

- Split up the data by content, using multiple Jobs. Select certain recipients, and/or certain public folders.
- Split up the data by importance, using multiple Jobs. Does everyone need everything?
- Use the selection filters in the Backup Options to skip any unnecessary items.
- Set schedule priorities in order to back up the most important files first.
- You can run two or three MAPI Jobs simultaneously.

6.1.1 Split by Content

To speed up the backup process, it is possible to use two MAPI Jobs at the same time, one to back up Public folders, and one to back up Recipient folders.

Along with the other methods listed here, you can select Jobs, the data to back up, and the scheduling of the Jobs to perform the backups.

6.1.2 Split by Importance

You can create multiple backup Jobs and split them by their importance to your organization. This will enable you to customize the selection of backup items for the different Jobs. You may want to create a separate backup Job for mailboxes of your executives and upper management team only. This would ensure that the most important mailboxes for your company are backed up, perhaps on a nightly basis. A separate Job could be created for backing up middle managers as well as other staff. This Job could be run less frequently, perhaps on Sunday and Wednesday. Splitting the Jobs by their importance to your organization can free up your communications bandwidth and reduce the size of your backup storage.

6.1.3 Using the Filters

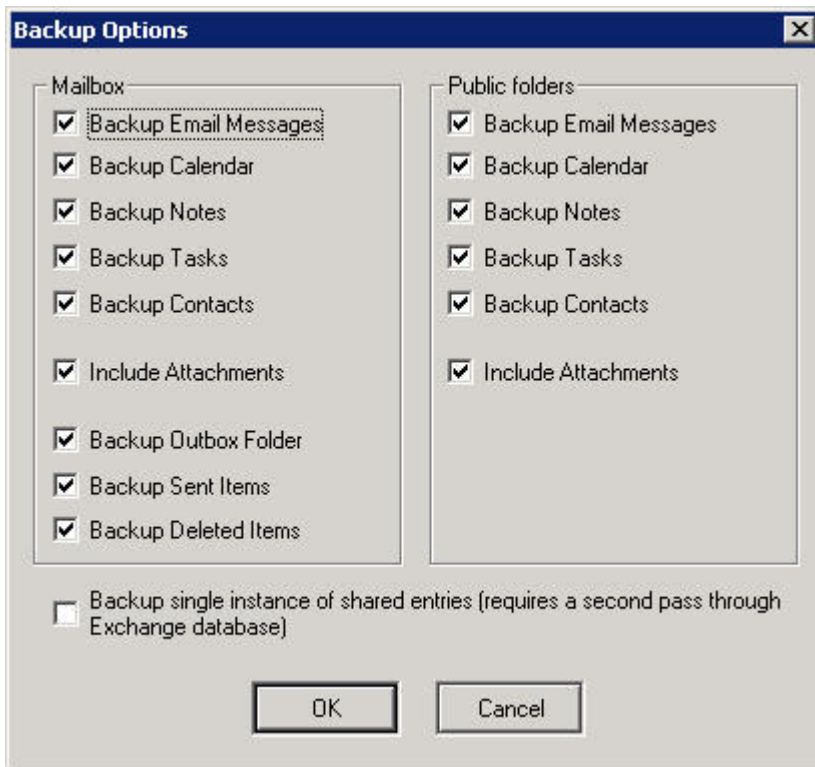


Figure 42. - Backup Options – Filters

You can also streamline your backups through the **Backup Options** filters when you create your Jobs. You may choose not to back up certain items, such as **Calendar**, **Attachments**, **Notes**, **Outbox**, **Sent Items**, **Deleted Items**, or **Public Folders**, within the Job. You can also omit different items from different Jobs.

For example:

Example 1: For your executives and upper management team, you may want to create a backup Job that includes **Inbox**, **Attachments**, **Outbox**, and **Sent Items**. (**Note:** **Inbox** is always selected, and it does not appear as a selectable option.)

Example 2: For your other staff, you may only want to back up the **Inbox** (selected by default) and perhaps **Sent Items**.

By customizing these Jobs independently, you can reduce the size and time of your backup, while continuing to back up the items that you want.

Enable **Backup single instance of shared entries** to force a second pass through the data to find duplicates. This backup is slower, but smaller, because it does not back up all occurrences (i.e., duplicates included) of attachments and messages. Disable this option to avoid the pre-scanning process. The backup will be faster, but the size may be larger. This is because you are backing up each occurrence of a shared entry without a second scan (pass).

If you choose not to back up Email Messages, you will not be able to back up attachments or messages from any folder, except for specific Outlook items (which are handled by other options).

In order to select **Outbox Folder**, **Sent Items**, or **Deleted Items**, you also need to choose something from the upper section of the screen (**Email Messages**, **Notes**, etc.), depending on exactly what you need to back up.

6.1.4 Setting Schedule Priorities

It is important that you prioritize the scheduling of your backup Jobs. For example, if you have created two separate MAPI Jobs for backing up mailboxes (e.g., Job1 for executives and Job2 for everybody else), you should set your executive backup Job to a higher priority level than Job2. This will ensure that you back up your most important data first. If you have set your backup time window for a limited number of hours (based on your need to keep your bandwidth clear at certain times) and Job2 does not have enough time to complete, your Job2 backup will terminate and be deferred at the end of this time window. Your backup will continue when the backup window opens again (unless you have manually disabled deferring).

You can move your scheduled entries up or down to set their priority using **Schedule Entries > Schedule List** in the CentralControl application. For more information on **Backup Time Windows** and **Schedule Priorities**, see the **CentralControl Operations Guide** Section 4 (**Creating Jobs**) and Section 5 (**Scheduling Jobs**).

7 Appendix

7.1 Configuring User Accounts for Exchange 2007 MAPI Backup

These steps will guide you as you configure a user account on an Exchange Server 2007:

- A. Create a Windows account**
- B. Create an MS Exchange mailbox**
- C. Add an Administrator role within Exchange**
- D. Create a MAPI profile**
- E. Configure the Agent to use the MAPI account**
- F. Test the MAPI account**

These steps are described in detail as follows.

Note: In addition to properly configuring this user account, ensure that the Microsoft Exchange Server MAPI Client and Collaboration Data Objects framework has been installed before creating MAPI backup Jobs.

Note: To work properly on Windows 64-bit, the latest Microsoft C runtime library DLL (WINDOWS\system32\msvcrt.dll) should be installed. At the moment it has the version 7.0.3790.4034. The default installed dll is at version 7.0.3790.3959 or below.

Update for Windows Server 2003 x64 Edition (KB932590):
<http://www.microsoft.com/downloads/details.aspx?FamilyId=431F9850-E40C-47>

A. Create a Windows account

1. Using Active Directory User and Computers MMC snap-in on the MS Exchange server, create an account for the MS Exchange Plug-In to use. Make it a member of the following groups:

- Administrators
- Domain Admins
- Domain Users
- Enterprise Admins
- Group Policy Creator Owners
- Schema Admins

The screenshot shows the 'New Object - User' dialog box. At the top, it says 'Create in: blee.local/Users'. Below this, there are several input fields: 'First name:' with the value 'Acme Exchange', 'Initials:' (empty), 'Last name:' (empty), and 'Full name:' with the value 'Acme Exchange'. Underneath, 'User logon name:' has a text box with 'AcmeAdmin' and a dropdown menu with '@blee.local'. Below that, 'User logon name (pre-Windows 2000):' has two text boxes, the first containing 'BLEE\' and the second containing 'AcmeAdmin'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Figure 43. - Create a new Windows user account

The screenshot shows the 'New Object - User' dialog box, continuing from the previous step. It shows 'Create in: blee.local/Users'. Below this, there are two password input fields, both containing seven dots. Below the password fields, there are four checkboxes: 'User must change password at next logon' (unchecked), 'User cannot change password' (checked), 'Password never expires' (checked), and 'Account is disabled' (unchecked). At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Figure 44. - Assign password and other account settings (optional)

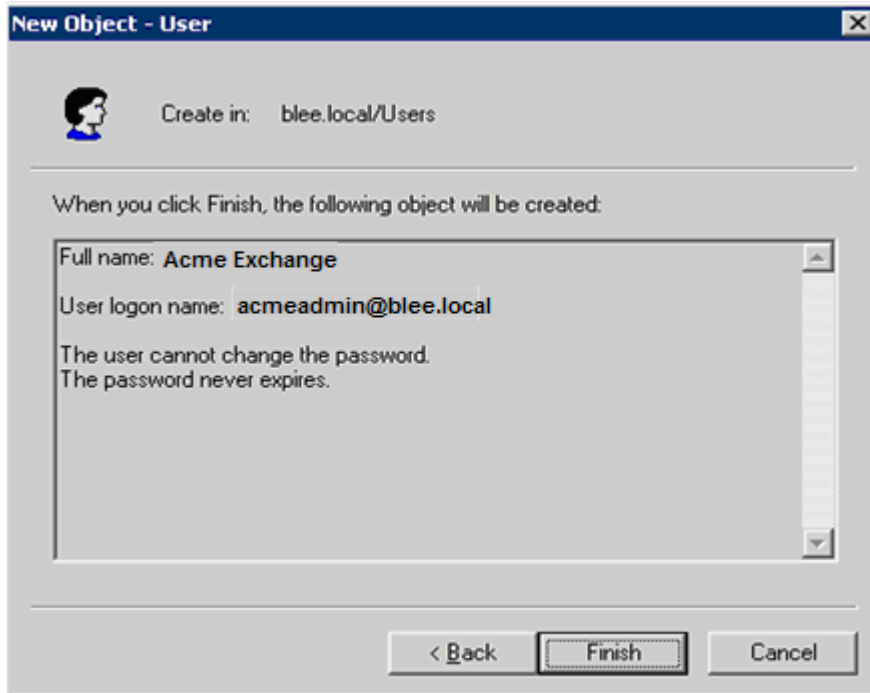


Figure 45. - Verify user information is correct

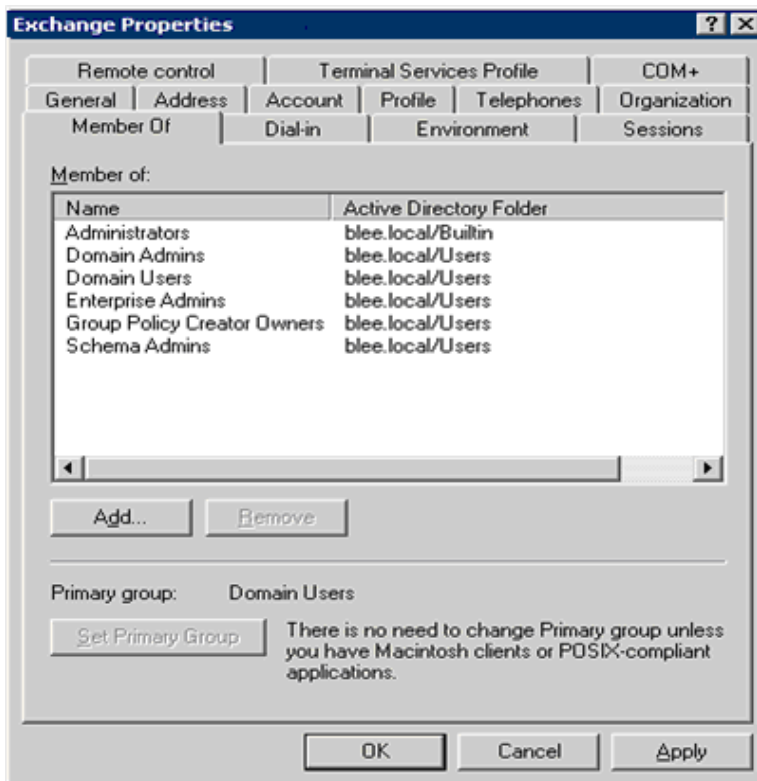


Figure 46. - Assign Windows Group Membership to the account

2. Use the Domain Controller Security Policy MMC snap-in. Under Security Settings > Local Policies > User Rights Assignment, grant the following user rights to the Windows account created for the MS Exchange Plug-In (created in Step 1 above):

- Act as part of operating system
- Log on as a service

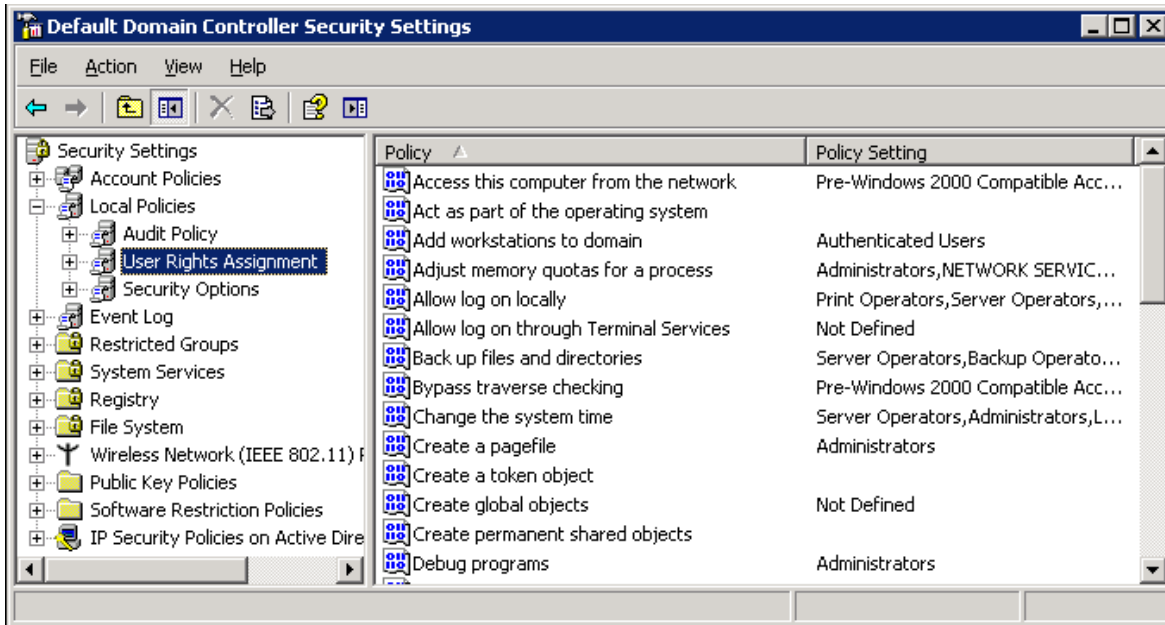


Figure 47. - Assign User Rights

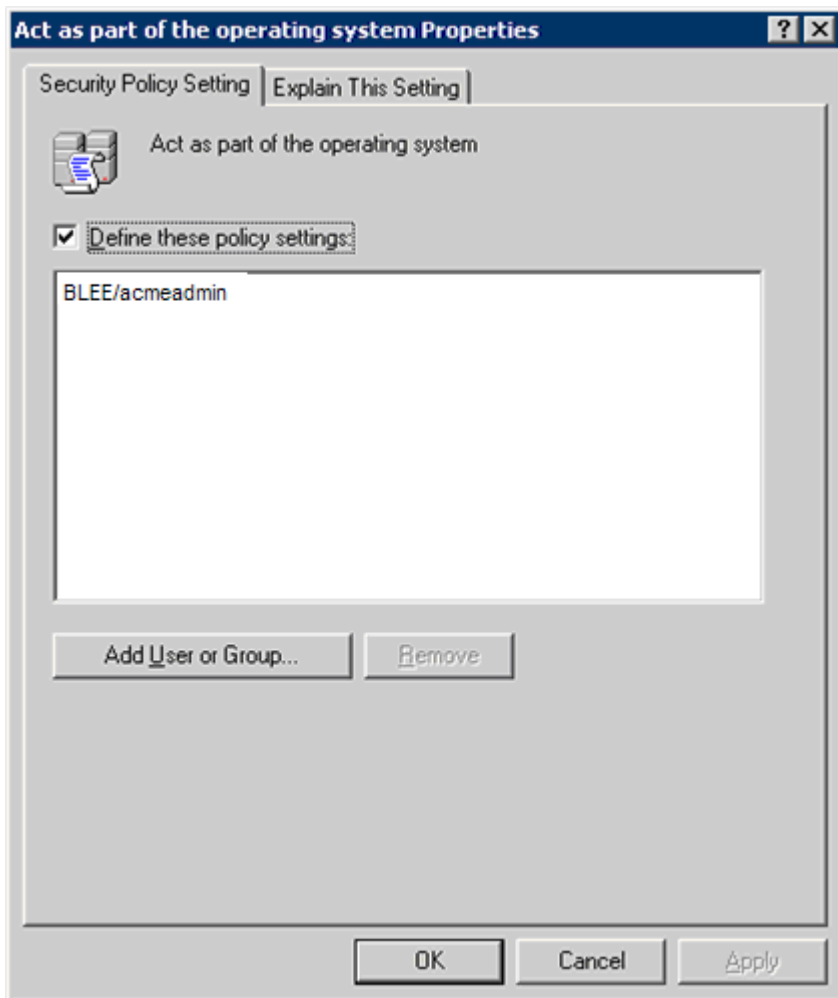


Figure 48. - Add Security Policy settings

3. In the Local Security Settings MMC snap-in, go to Security Setting > Local Policies > User Rights Assignment. Confirm that the account created for the MS Exchange Plug-In has the “effective” policy setting in place for the rights assigned in Step 2 above. There may be a delay before the “effective” local policy settings become active. The delay will depend on the Active Directory topology and replication settings.

B. Create an MS Exchange mailbox for the account

Using the Exchange Management Console, create an MS Exchange mailbox for the newly created account:

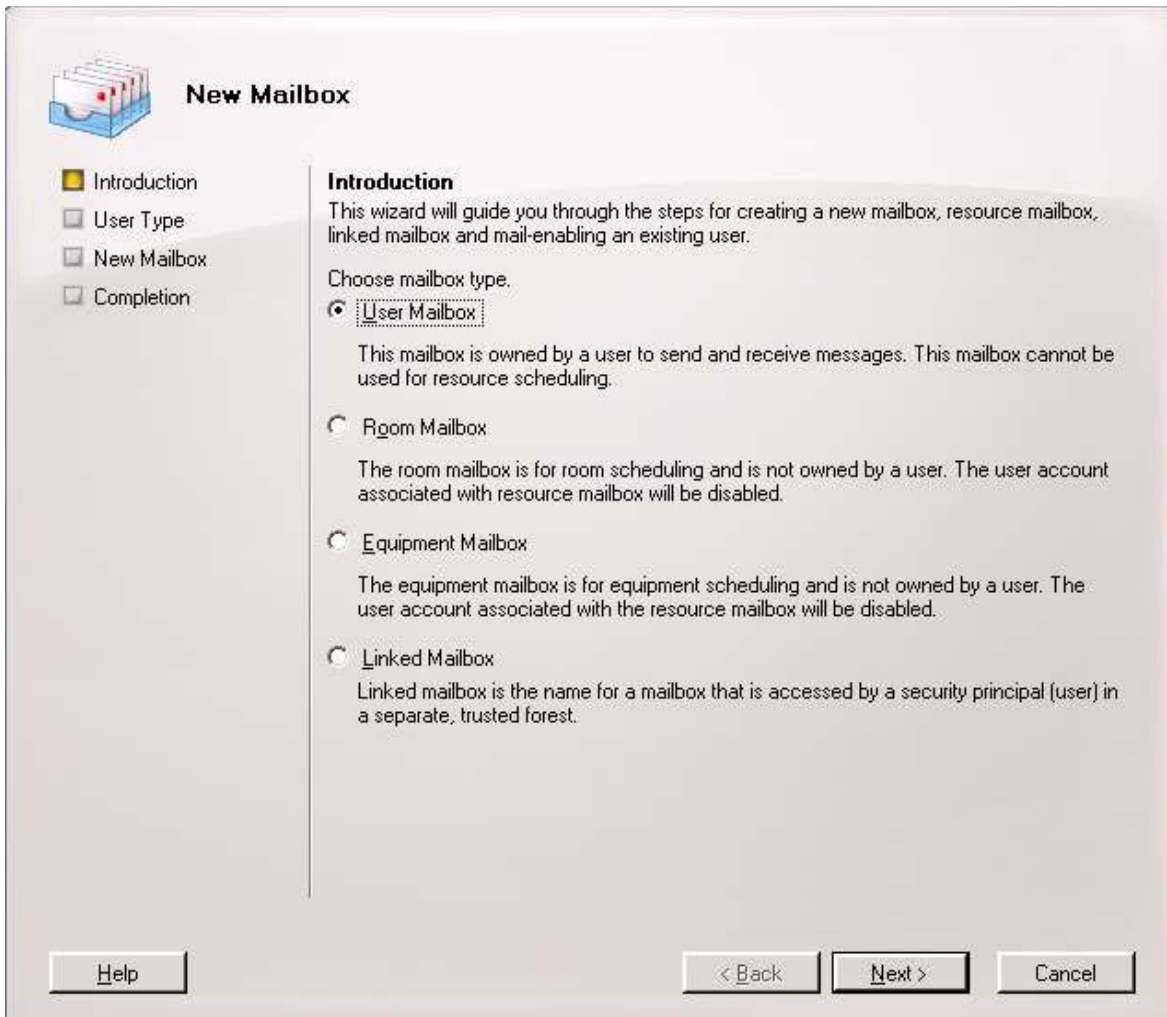


Figure 49. - Create an MS Exchange mailbox

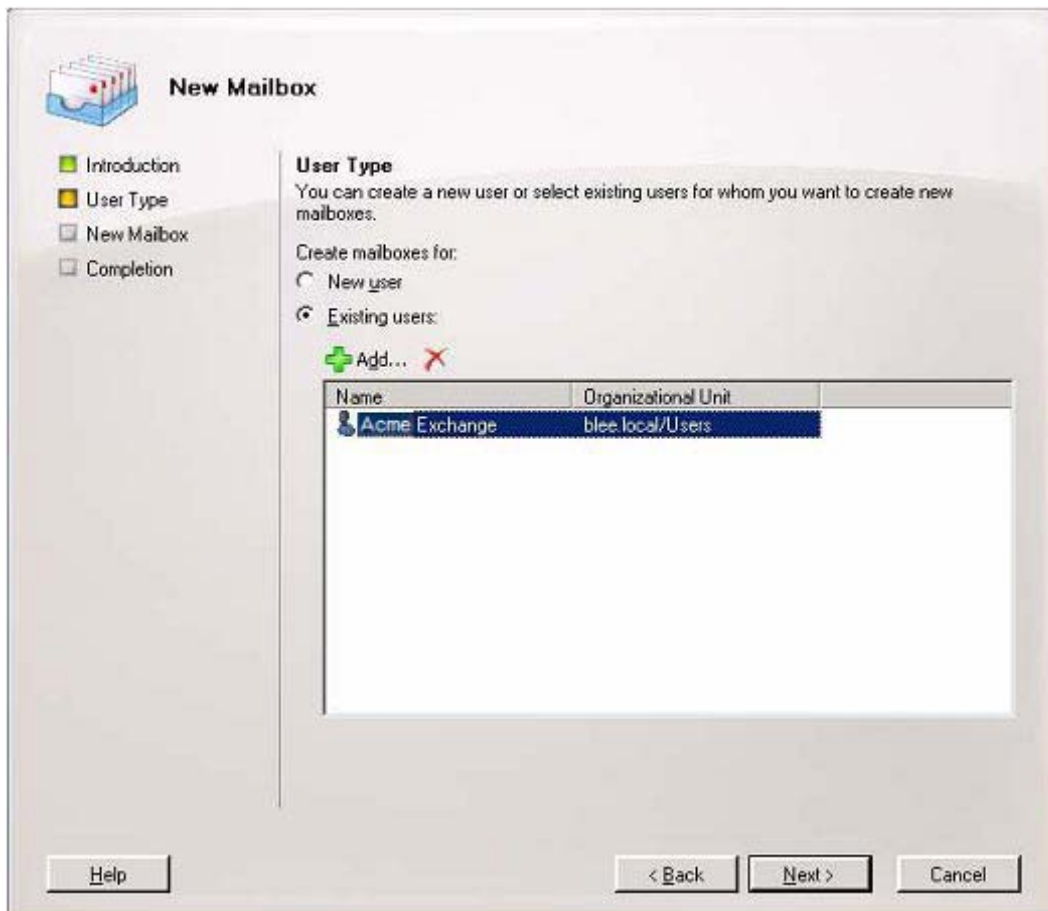


Figure 50. - Create an MS Exchange mailbox (part 2)

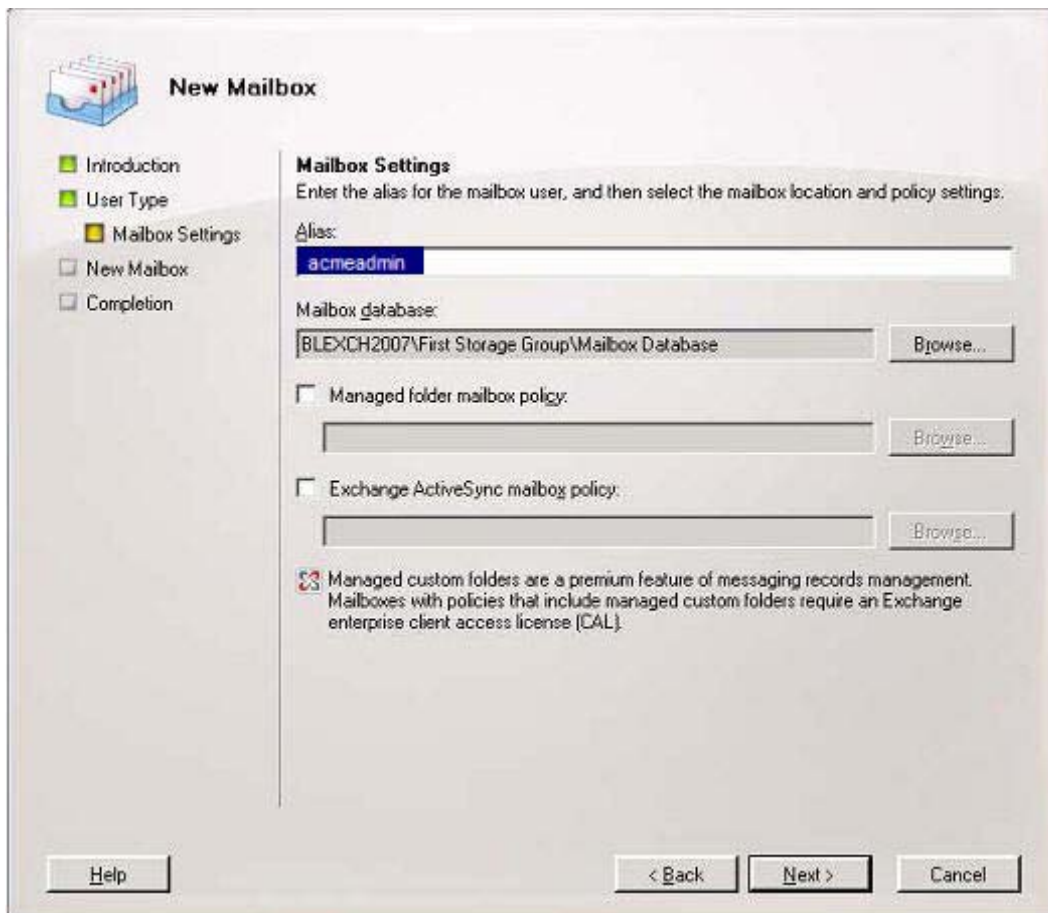


Figure 51. - Create an MS Exchange mailbox (part 3)

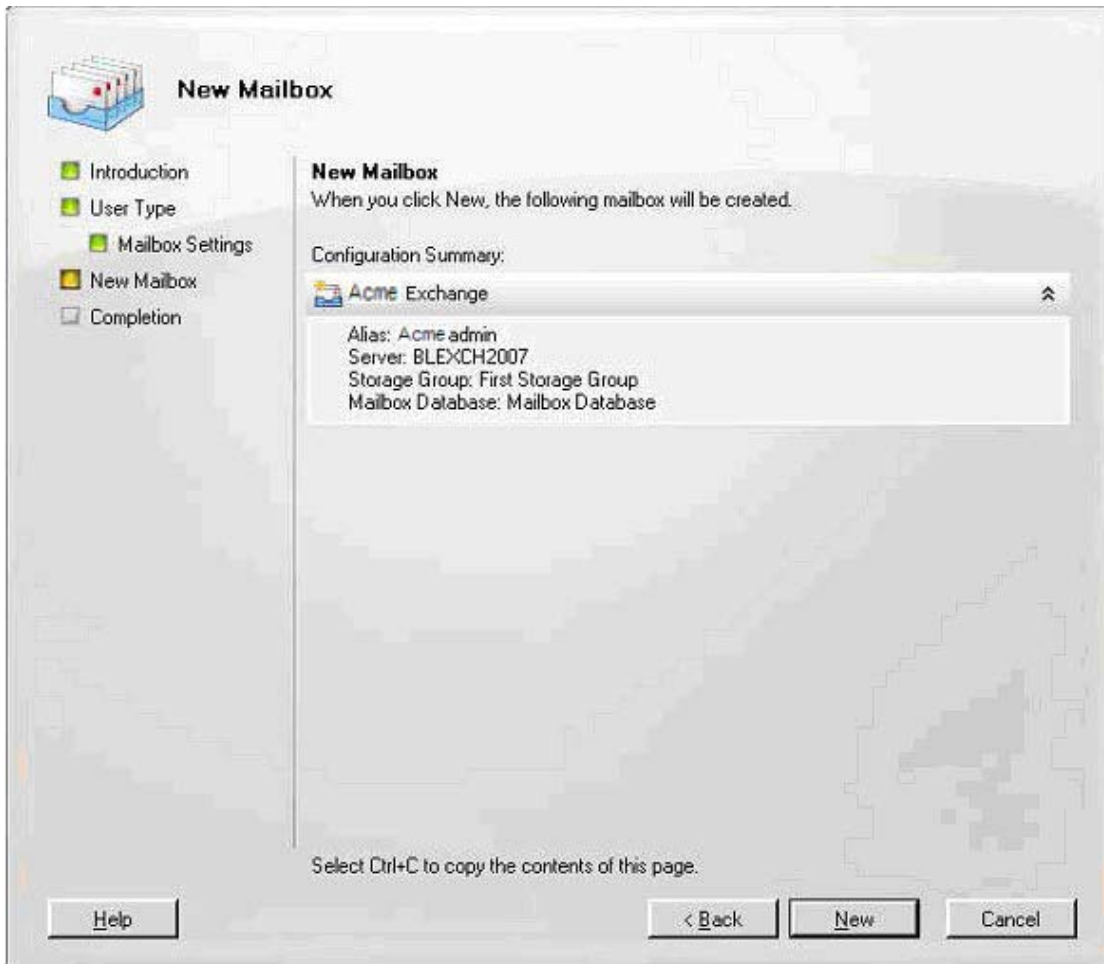


Figure 52. - Create an MS Exchange mailbox (part 4)

C. Add an Administrator role within Exchange

The user account must now be granted access to all mailboxes that will be backed up using the MS Exchange Plug-In. Depending on the complexity and security in place within the MS Exchange organization, this privileged access to mailboxes can be granted at different levels in the MS Exchange hierarchy and will be automatically inherited down. If the entire MS Exchange organization is controlled centrally, administrative access can be granted at the Organization level. In this example, access is granted at the Organization level.

1. Using the Exchange Management Console, select the Organization Configuration from the console tree.

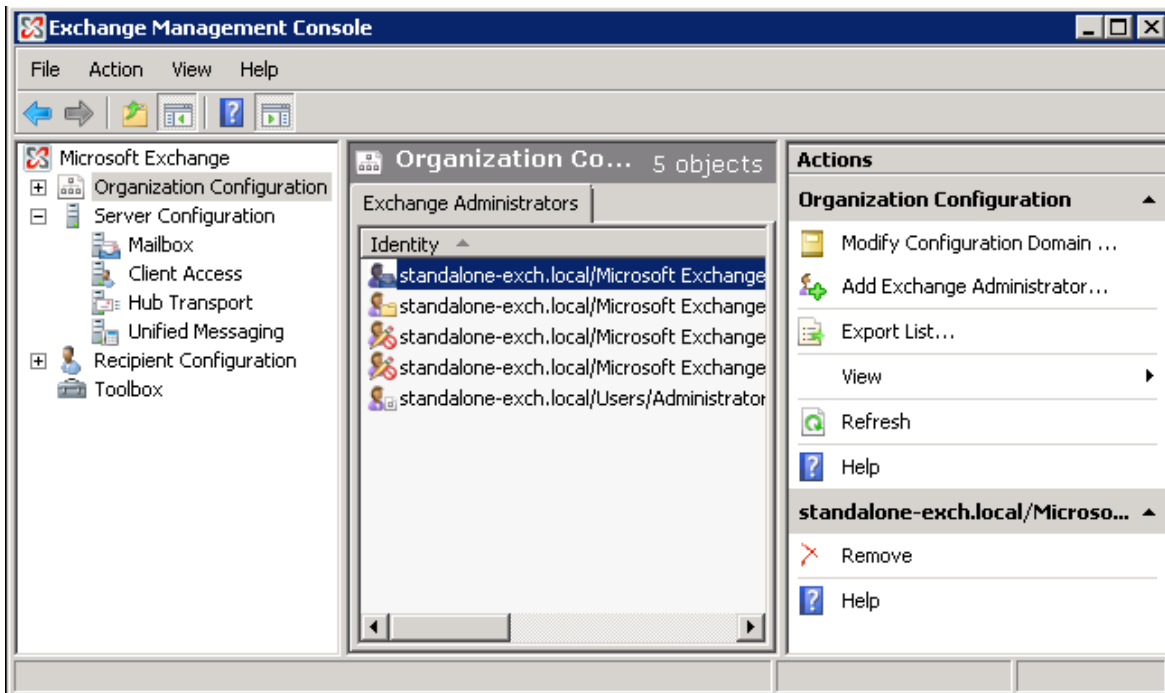


Figure 53. - Exchange Management Console

2. Right-click the Organization Configuration node and select Add Exchange Administrator.
3. The "Add Exchange Administrator" wizard will begin. Select Browse, and from the list of users and groups select the user account created for use with the MS Exchange Plug-In. Click OK to select the user.
3. Under Role, ensure that Exchange Organization Administrator is selected. Click Add. Click Finish.



Figure 54. – Add Exchange Administrator

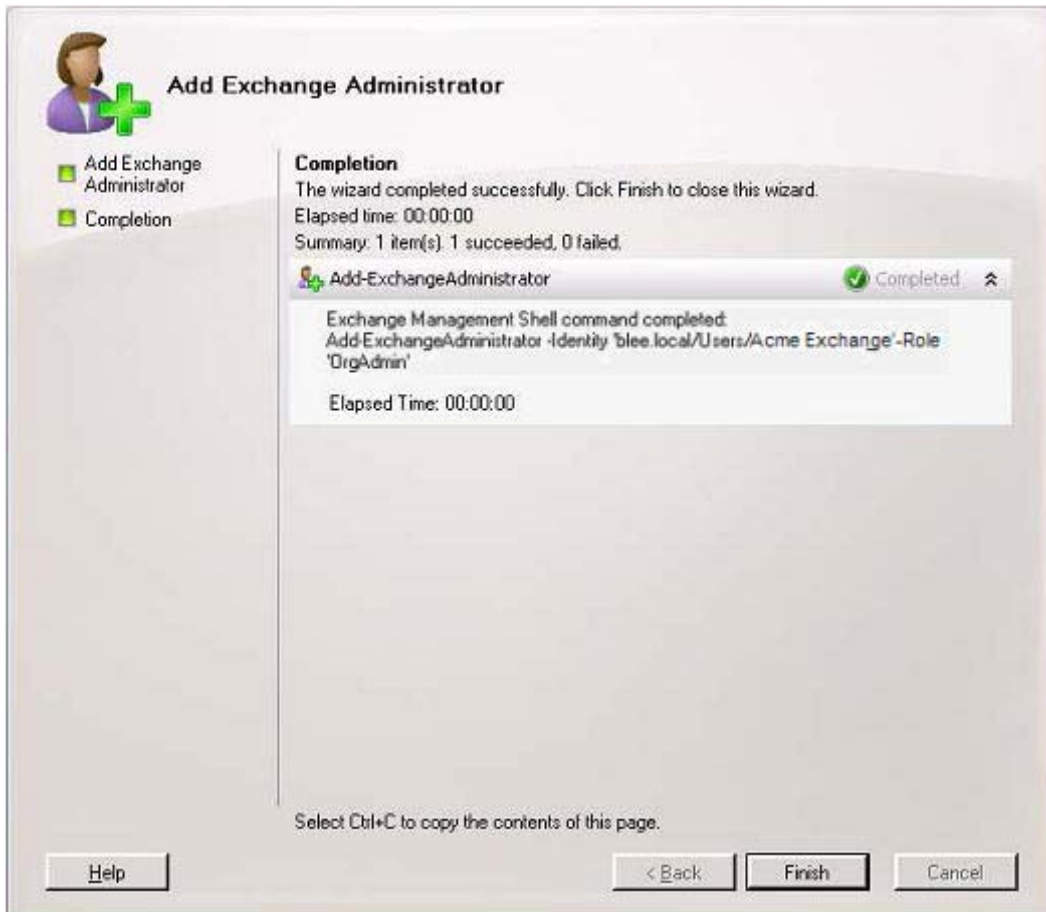


Figure 55. - Add Exchange Administrator – completed

D. Create a MAPI profile

The following steps need to be executed directly on the MS Exchange server computer itself.

1. Log on directly to the MS Exchange server computer using the user account created for the MS Exchange Plug-In (in Step A).
2. Use the MAPI Profile Manager 2.0 utility to create a new MAPI profile for the user account.

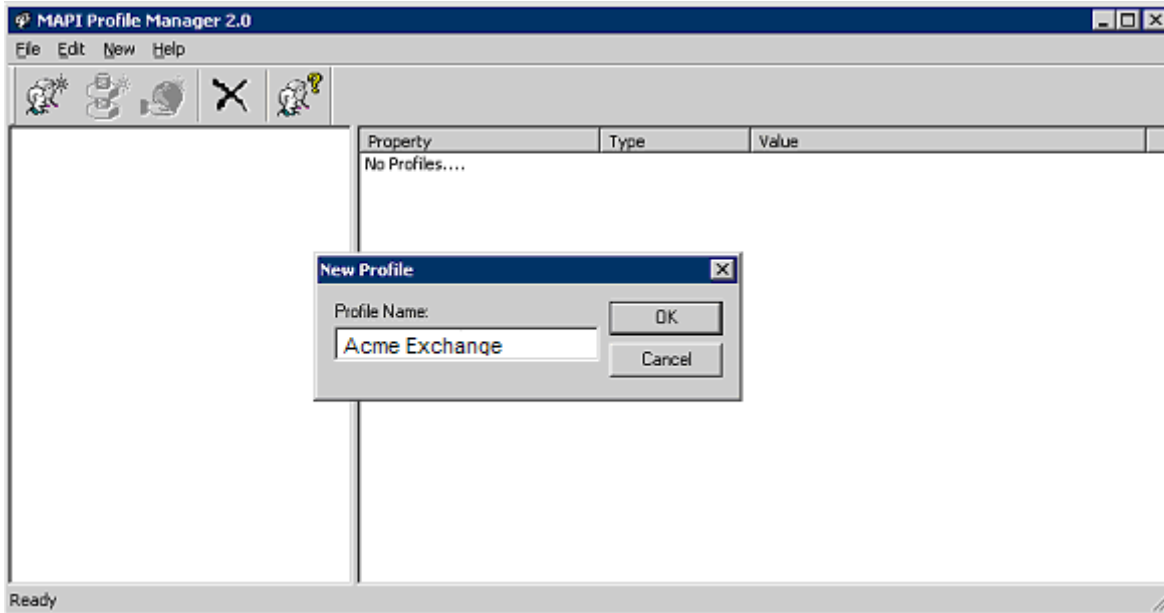


Figure 56. - New Profile – Profile Manager

Note: If you have not installed the MAPI Framework "Microsoft Exchange Server MAPI Client and Collaboration Data Objects" this will not work.

3. Add the MS Exchange Server service to the MAPI profile by selecting New/Service from the Profile Manager toolbar. Select MSEMS (Microsoft Exchange Server) from the list of providers.

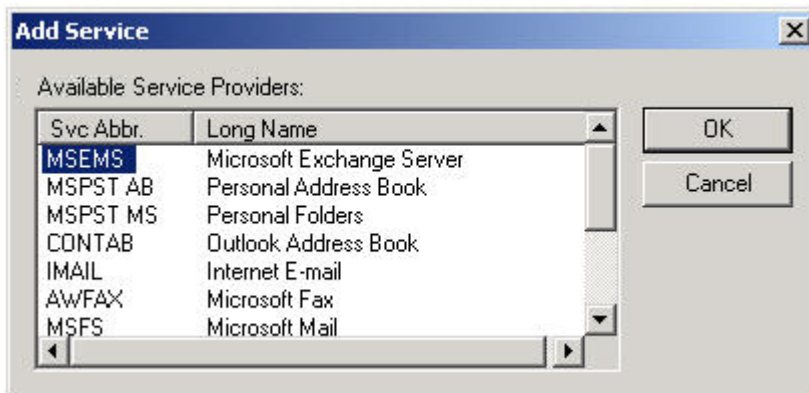


Figure 57. - Add Service Provider

4. Enter the name of your MS Exchange server in the MS Exchange Server field and the name of the MS Exchange Plug-In mailbox (created in Step B) in the Mailbox field.

5. Click the Check Name box and ensure the profile validates. If the MAPI profile does not validate properly, check the setting on the General property page and retry the validation.

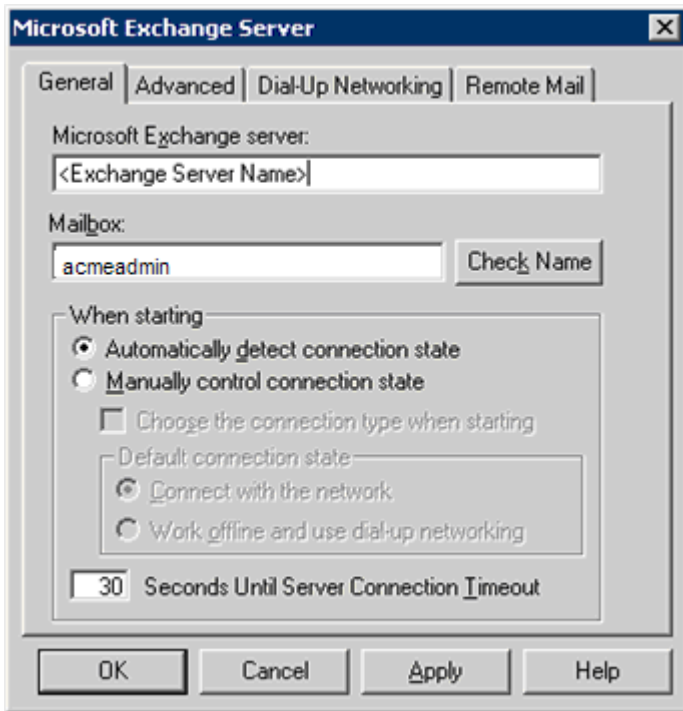


Figure 58. - MS Exchange server and Mailbox name

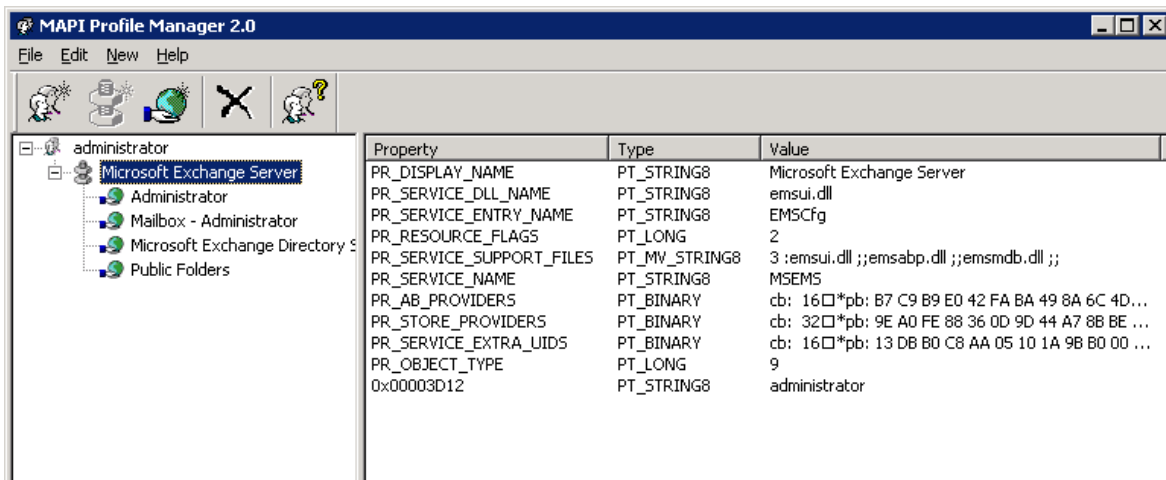


Figure 59. - Results – Profile Manager

E. Configure the Agent to use the MAPI account

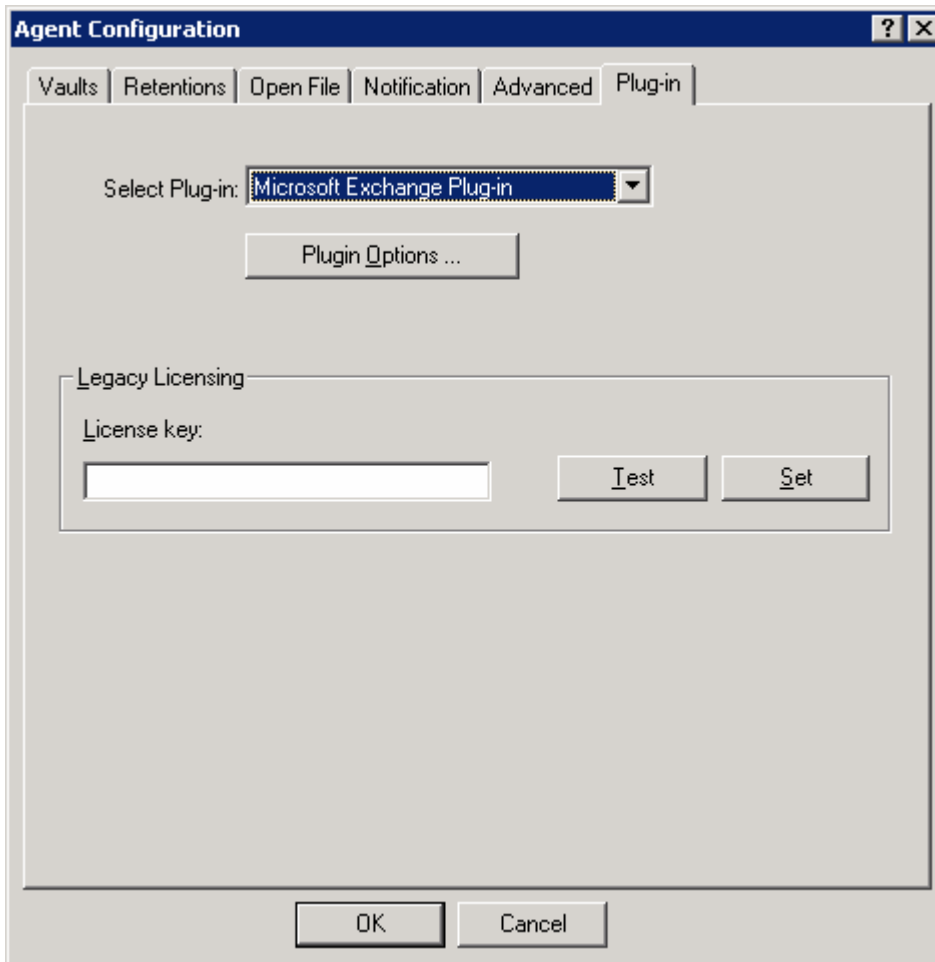


Figure 60. – Agent Configuration

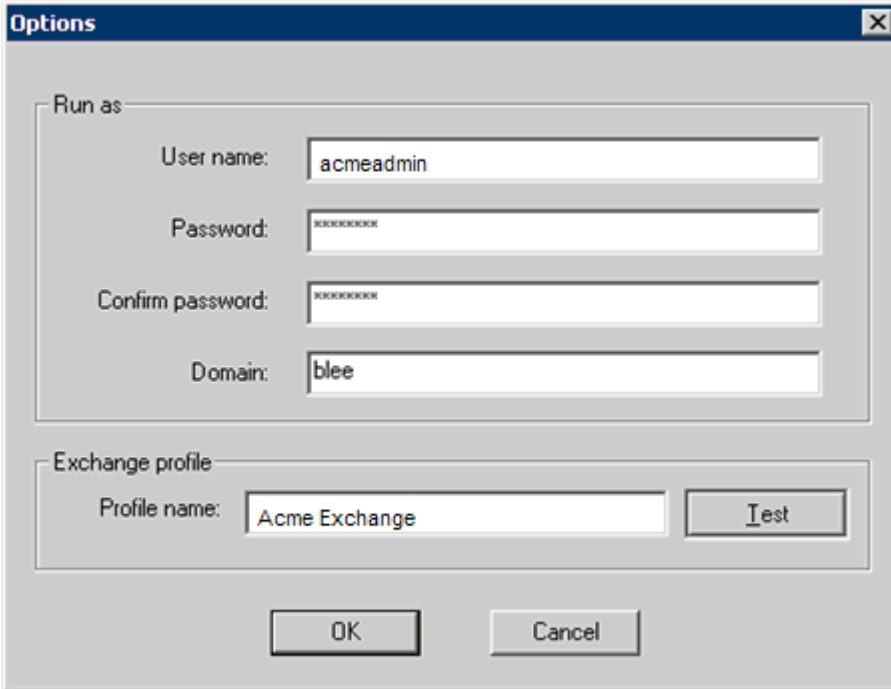


Figure 61. – Plug-In Options

Once you have completed setting up the backup user for the Agent for use with MAPI backups, you need to configure the Agent to use the backup user for backups. In CentralControl, right-click the Agent and select Agent Configuration. From Agent Configuration select the Plug-In tab. Select Plug-In Options and input the credentials for the backup user that you have set up to perform MAPI backups.

F. Test the MAPI account

Before you run a backup Job, it is important to ensure that the Job can access all of its folders and mailboxes. If not, some or all of the mailbox/folder backups could fail.

1. The first screen shows you the list of settings that will be verified:

- MS Exchange Version
- Domain/User Name and password
- MS Exchange Organization/Site/Server information
- MAPI profile exists

If any of these are not verified properly, an error message is presented. You can return to the Options screen to correct any information. When the data is OK, click Next > to continue.

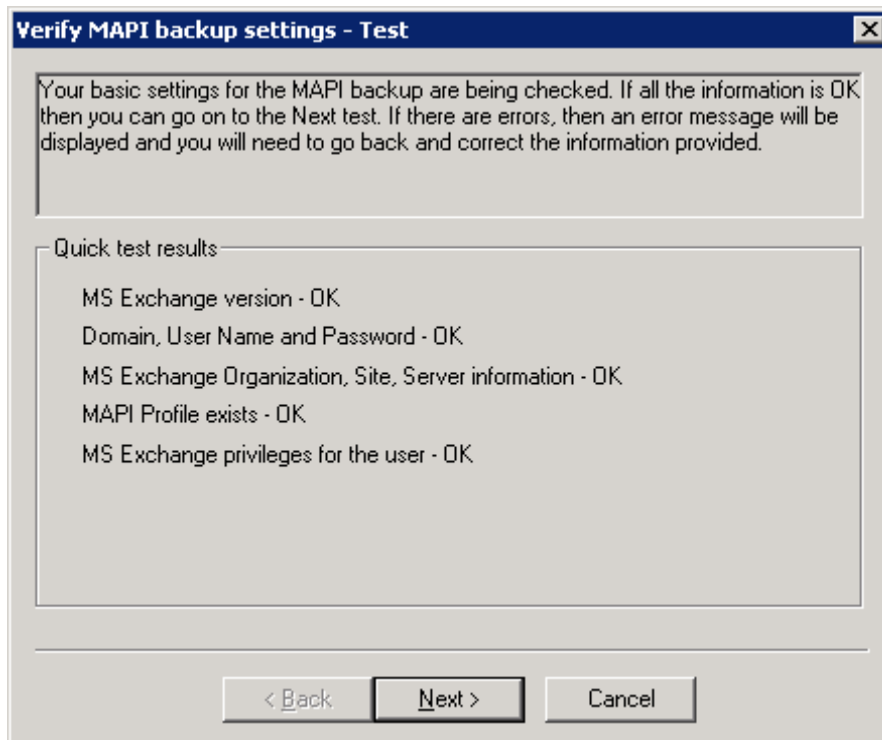


Figure 62. – Verify MAPI backup settings

2. The second screen lets you select either a random sampling test (faster) or a complete test that checks every folder/mailbox. Normally a random check would suffice. If any of these tests fail, you can return to accounts, privileges, and profiles to correct any information. If the tests complete without errors, it means the profile with permissions should be able to access all the mailboxes/folders. You are returned to the Options screen that started the test.

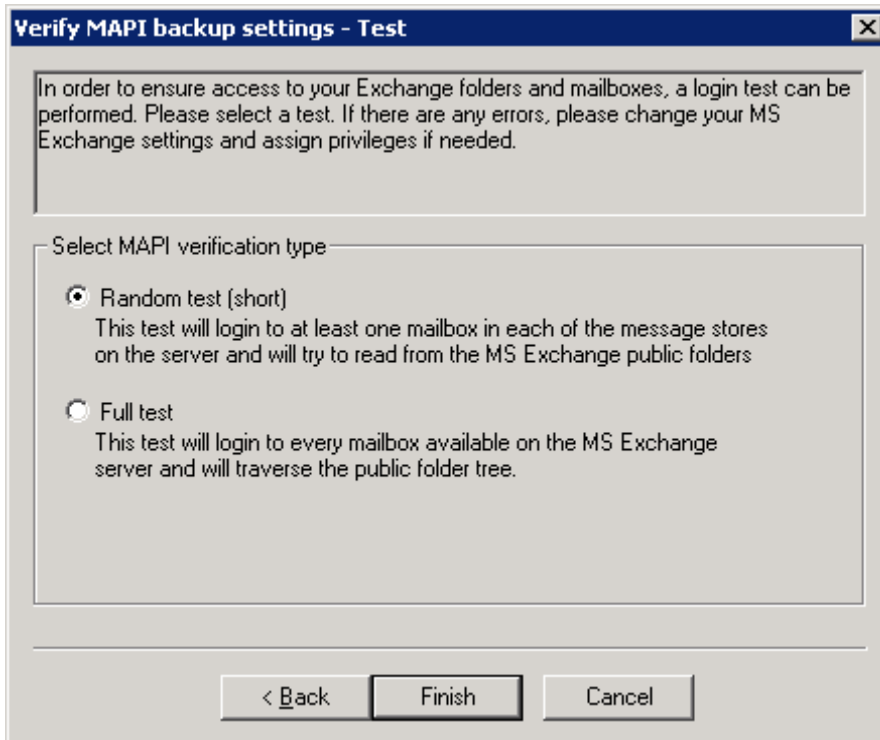


Figure 63. – Verify MAPI backup settings (continued)

3. To monitor progress a Verify Progress screen shows you the status of each check. If there are more than 50 errors the verification will halt. It assumes that there are more errors than “normal”. The problem should be corrected and the verification restarted.

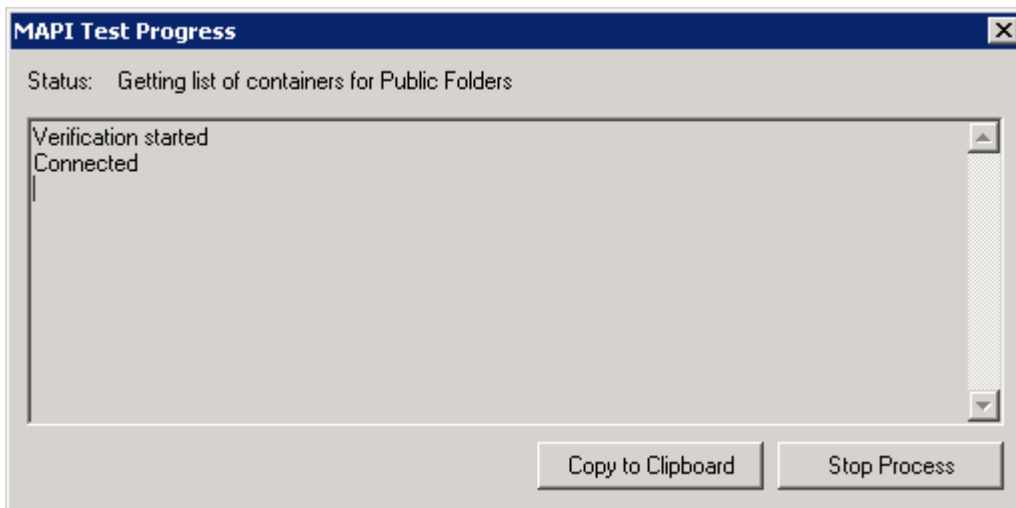


Figure 64. – MAPI Test Progress

7.2 Protecting and Recovering Exchange 2007 CCR, LCR

7.2.1 Backup Considerations and Setup

Disaster protection for CCR:

- The Agent must be installed on both the Active and Passive nodes.
- The Cluster Plug-In is not used as there is no shared storage.
- For Disaster Recovery protection, you must back up:
 - The entire C:\ drives (system state and data) on both the Active and Passive nodes (OFM or OTM should be used).
 - Exchange database

Note: There may be other dependencies/computers in your scenario that should be backed up as well: Active Directory, DNS, Certificate Services.

Note: The Agent Service running on the Passive Node(s) must have the appropriate permissions to access the Active Exchange instance in order to obtain information regarding the mount status of databases.

WORKAROUND: The agent services (BUAgent and VVAgent) should be running as a domain user with the following permissions: (Domain Administrator account will satisfy these requirements)

- Exchange View-Only Administrator
- Local administrators group (for the active node)

Disaster protection for LCR:

- LCR requires a single installation of the Agent.
- For Disaster Recovery protection, you must back up:
 - The entire C:\ drive (system state and data)
 - Exchange databaseExchange Administrator permissions are required.

Note: There may be other dependencies/computers in your scenario that should be backed up as well: Active Directory, DNS, Certificate Services.

7.2.2 Restore Considerations – Steps

Disaster recovery for CCR:

- (If necessary) Re-install OS to the machine where Active Directory, DNS, Certificate Services will reside.
- (If necessary) Restore Active Directory, DNS, Certificate Services.
- Re-install OS for each CCR node where Exchange will reside.
- Restore the System state and data Job to node 1. Re-boot on prompt. (Your original static IP's should be restored at this point.)
- Restore the System state and data Job to node 2. Re-boot on prompt. (Your original static IPs should be restored at this point.)
- You may need to re-start cluster services.
- Restore the Exchange database.

Disaster recovery for LCR:

- (if necessary) Re-install OS to the machine where Active Directory, DNS, Certificate Services will reside.
- (if necessary) Restore Active Directory, DNS, Certificate Services.
- Re-install OS to the machine where Exchange will reside.
- Restore the System state and data Job (Re-boot on prompt)
- Restore the Exchange database.

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