Exchange Brick-level Backup and Restore

WHITEPAPER

BackupAssist Version 4

Exchange Mailbox Add-on

www.BackupAssist.com

Contents

1. Introduction and Overview

1.1 What does the Exchange Mailbox Add-on do?

The BackupAssist Exchange Mailbox Add-on is primarily used to achieve brick-level backups of your Microsoft Exchange Server. The add-on does this by extracting Exchange Server mail data to separate .PST files, which can be manually read by Microsoft Outlook, or re-imported back into your Exchange Server to retrieve mail items. The extracted .PST files can also be copied to your intended backup device: tape, CD/DVD, hard disk, and so on, for redundancy and archiving.

A separate .PST file is created for each Exchange user's mailbox, making for simple and rapid restoration of user's individual or group emails, calendars, tasks, notes, contacts or entire mailboxes. As mailboxes are stored in Microsoft's PST format, they can be easily opened with Outlook and are not locked into any vendor's proprietary formats.

The add-on also provides automatic grouping and storage of emails by date, allowing you to sort your mail into separate folders by year, quarter, or month. This is especially useful for compliance and legal scenarios where you may need to produce separate archives of your mail data for designated time periods.

The best part of the Exchange Mailbox Add-on: it's all automated for you. Input your mail server settings, configure a few simple options, perform an initial export of your mail data and BackupAssist will take care of the rest, automatically appending incremental backups of new mail data for each day specified within your backup schedule.

1.2 Who needs the Exchange Mailbox Add-on?

The following table describes where the add-on is best utilized:

Where to use the add-on	Where not to use the add-on
• To restore individual mailbox items that have been inadvertently changed or deleted. • To bulk-restore messages, with filtering options such as date, mailbox, message subject, etc. • To retain a historical library of your emails, which can also be stored offsite or viewed offline.	• To restore a complete exchange server – restore the entire Information Store from your main Exchange backup instead (see the **Exchange Server Backup and Restore** whitepaper on our website). • To restore public folders – only private mailboxes are backed up using the Exchange Mailbox add-on.
Supported platforms for the add-on: Microsoft Exchange Server 2000 and 2003.	

1.3 Comparison matrix

The following table highlights the different configurations of BackupAssist that are available:

	BackupAssist	BackupAssist + Exchange Mailbox add-on
Information Store Backup	✓	✓
Private Mailbox	✗	✓
	Restore Options • Full restore or your Exchange Server	**Restore Options** • Individual item restore • Forensic archiving

2. Features and Benefits

2.1 Core advantages of the BackupAssist Exchange Mailbox add-on

Non-proprietary format storage for mail data	Intelligent grouping of emails into separate folders	Permanent archives to write-once media: CD/DVD
The Exchange Mailbox add-on stores your mailbox data in PST format, which is a well recognized standard, making you mail data readily accessible and not locked within any proprietary format.	The Exchange Mailbox add-on allows you to group your mailbox data within separate folders for easy archiving.	With a combination of the Exchange Mailbox add-on and some basic scripts you can write your PST mailbox backups a CD/DVD or transfer them to a remote server, such as an FTP server.

For example, imagine you are in court seven years from now, and have to produce emails as a form of evidence. Unfortunately, your mail data was backed up using a third-party application and your backups are locked within the vendor's proprietary format.

This creates the problem of needing the original backup software to be able to simply access your data to perform a restore. What happens if you have lost the installation CD for the backup software, or your original license key information? Or what if the backup software company is no longer in business and you cannot get any support?

It is far less risky to simply store your backups in non-proprietary formats that any Windows based machine can read. This is precisely the approach that BackupAssist takes.

PST file can easily be stored within separate folders sorted by either year, quarter or month. This is especially useful for compliance and legal scenarios where forensic archiving is required.

Separating your mailbox data into separate folders also makes it far easier to manage your mailbox backups and reduces the size of each individual PST file, with each file only including mail data from a specific time period.

You can read more about grouping of mail data within **section 3.2**.

For example, if you utilized the grouping option to sort your mail data by month, you could then archive the backup of your PST files each month to writable media and store this backup offsite as a complete record of all emails for any given month.

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2.2 Key features and benefits of the add-on

The following table highlights the key features and benefits of the Exchange Mailbox add-on:

Feature	Benefits
✓ **Brick-level backup of Exchange data**	Achieve automated brick-level backup of Exchange data to backup user's individual mailboxes.
✓ **Smarter implementation makes daily backups fast**	After an initial export of existing mail data to separate PST files (one per mailbox), BackupAssist will automatically schedule daily exports that intelligently merge or append only new mail data into these files. This is similar to a daily incremental and is much faster than traditional backup methods because only new data is exported.
✓ **Simple and rapid restoration of Exchange data**	A separate .PST file is created for each Exchange user's mailbox, making for simple and rapid restoration of user's individual or group emails, calendars, tasks, notes, contacts or entire mailboxes.
✓ **No proprietary formats**	PST is a well recognized file format, and users can open the files easily in Outlook. This means that email data is not locked within another vendors' proprietary format.
✓ **Easy grouping and storage of emails**	PST files of mail data can be easily stored within separate folders and sorted by either year, quarter or month. This is especially useful for compliance and legal scenarios where forensic archiving is required.
✓ **Extra protection for deleted items**	Mailbox backups go beyond a standard 'snapshot' backup. Each separate PST file is the cumulative total of all emails sent and received over a given time period and not just a snapshot of each individual's mailbox at particular point in time. This solves many scenarios that arise when a user realizes they deleted an email weeks or even months after they actually deleted it.
✓ **External storage of mail data**	Exchange mailbox PST files can be backed up to External Storage media such as tape, optical, or hard disk.
✓ **Archive mail data to writeable media or FTP**	PST files can be written to CD/DVDs or transferred to remote servers, such as a FTP server or NAS device.
✓ **A range of recovery options**	• Automated recovery: administrators can use the Microsoft Mailbox Merge Wizard (ExMerge) to re-import deleted emails with powerful filters (by date, attachment, subject, and so on). • Manual recovery: individual users can open PST files in Outlook and drag-and-drop items back into the relevant folders.

2.3 Brick-level backup: advantages and disadvantages

The following table highlights the advantages and disadvantages of performing brick-level backup of your Exchange Server:

Advantages of brick-level backup	Disadvantages of brick-level backup
• Simple and rapid recovery of individual users' personal or group emails, calendars, tasks, notes, contacts, or entire mailboxes. • Smart implementation makes the daily backup of new emails fast. • The mailbox export process is logged and combined in the overall BackupAssist report so you are informed of each backup's results. • PST is a well recognized file format, and users can open the files easily in Outlook. • The backup is in effect a 'second copy' of your email data for added security and redundancy.	• You will require more storage space to store the brick-level backups. • Only private mailboxes are backed up, not public folders. • Brick level backups are not a replacement for a backup of Exchange Server (e.g. using BackupAssist to backup the Exchange information store) – it is instead an extra level of protection and convenience. • You lose the advantages of single-instance data storage – for example if an email attachment is sent to 5 users, Exchange's single-instance data store stores the attachment only once, but a brick-level backup would store it 5 times – once in each user's Mailbox.

3. How the Exchange Mailbox Add-on Works

3.1 How the export of mail data is achieved

The BackupAssist Exchange Mailbox add-on performs brick-level backups of users' mailboxes by using the facilities provided in the Microsoft Exchange Mailbox Merge Wizard, ExMerge. When you first use the add-on, it is recommended that you perform a manual export of your selected mailboxes (see **section 4.3**). After the initial export, BackupAssist will schedule automatic exports of mail data according to the schedule defined. These automatic exports merge or append new mail data into the existing PST files on the specified hard disk location. This process is similar to the concept of a daily incremental backup where only data created since the last backup is extracted and copied. The daily export of mail data is extremely fast because only new data is exported. The brick-level backup of your Exchange Server can also be integrated within your daily backup job and the result of each mailbox backup is included within the emailed backup report.

The below diagram provides an overview of how the add-on works:
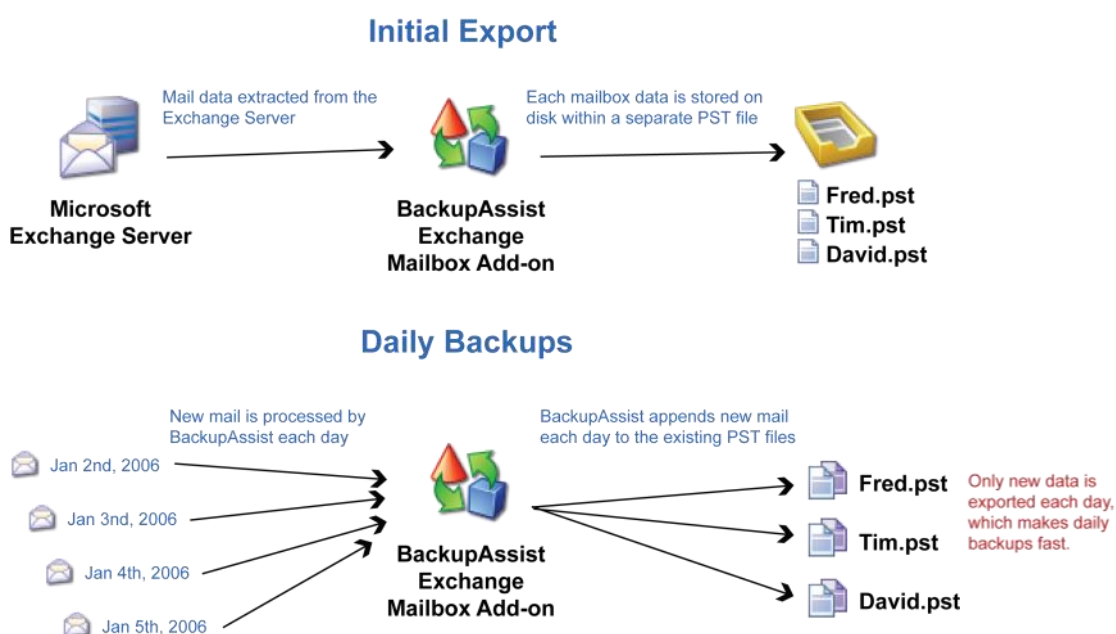
3.2 The grouping and archiving of your mailbox data

The Exchange Mailbox add-on has an option that allow you to define a **grouping method** for storing your mail data on disk. This preference helps you archive and store mail data within separate folders for different time periods. You can group your PST files either by month, quarter, year, or simply as a single set. The grouping method option makes it far easier to locate mail data from specific dates and can also be utilized for archiving purposes.

For example, you could opt to group your mail data by month and then archive the backup of your PSTs each month to a writable DVD disc and store this backup offsite as a complete record of all emails for any given month.

The following diagram illustrates how mail data is stored:
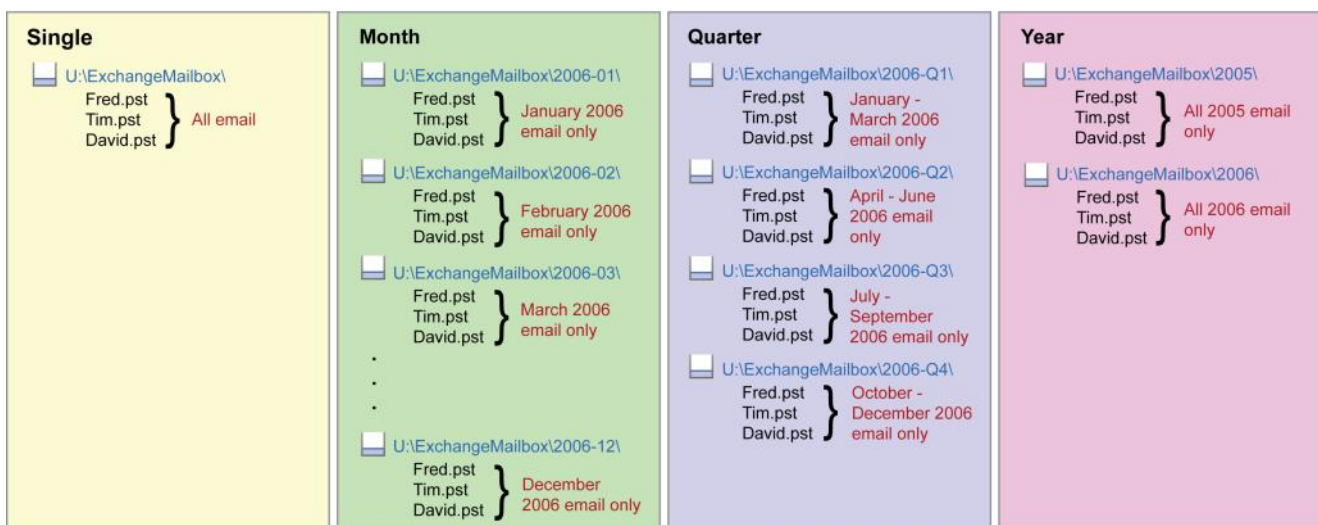
Please note: *the term 'archiving' is used to describe the action of sorting mail data and storing it on a permanent basis.* **BackupAssist will never delete the original** *from your mail server and instead creates a second copy or archive of your mail data to a user specified disk location.*

As mentioned previously, once you have selected a grouping method and performed an initial export of your mail data, BackupAssist will automatically schedule daily exports of new mail data. New mail is simply merged to the existing PST files that created during the initial export.

As an example, BackupAssist has been setup to perform a daily backup of Fred's mailbox:

1. Each day BackupAssist backs up all of Fred's mail created that day and merges it with the FRED.PST file that was previously created during the initial export.

2. The resultant PST file is a collection of all of Fred's old mail as well as the new mail created on that day.

3. If you were to group your mail data by month, and it was the start of a new month, a new folder would be created to reflect this. A new PST files for Fred's mailbox would be created here and appended to each day until the following month commenced.

4. None of Fred's PST files stored in previous archives (previous months, for example) are removed so that you have a chronological library of mail data to return to at any time.

3.3 More than just a simple 'snapshot' backup of your mailboxes

The BackupAssist mailbox backup process goes beyond a standard 'snapshot' type backup. Each separate PST file for each user is the cumulative total of all emails sent or received over a given time period, and **not** just a 'snapshot' of each individual user's mailbox at particular point in time.

Performing the backup of Exchange mailbox data in this manner solves many scenarios that can arise when, for instance, a user requires an email that they deleted weeks or months previously, but only have a recent backup of their mailbox that does not include the deleted item.

For example, given these events:

1. An email is received on the 1st of May 2006.
2. The user deletes this email on the 3rd of May 2006.
3. On the 5th of June 2005, the user needs to retrieve this previously deleted email.

Exchange Server 2003 with SP1 will only allow you to recover deleted items up to your 'Email and Mailbox retention period' settings, so in this instance it may be too late to retrieve such an email using the 'Exchange Deleted Item recovery' facility. In addition to this, your current solution for backup of mail data may not retain a recoverable backup that has an email created over a month ago. A simple snapshot backup of the mailbox at June 4th would not contain the original email, because it was deleted over a month previously. You would require a snapshot backup created on either the 1st May or the 2nd May to retrieve this data. Depending on your backup rotation scheme, this backup may have already previously been overwritten or erased.

With BackupAssist's Exchange Mailbox add-on, however, the original email would have been backed up into the relevant year, quarter, month, or single folder, depending on your group settings, as a separate PST file on the night of the 1st of May. Even though the user deleted the email on the 3rd of May, the backed-up PST file will still contain the original message, as it is a cumulative backup of all mail data, rather than just a snapshot. Now when you need to recover the email, you can simply open the relevant user's PST file and the original email will be available for restoration.

The below diagram demonstrates how the sorting process works, assuming that the mail data is being sorted by month:
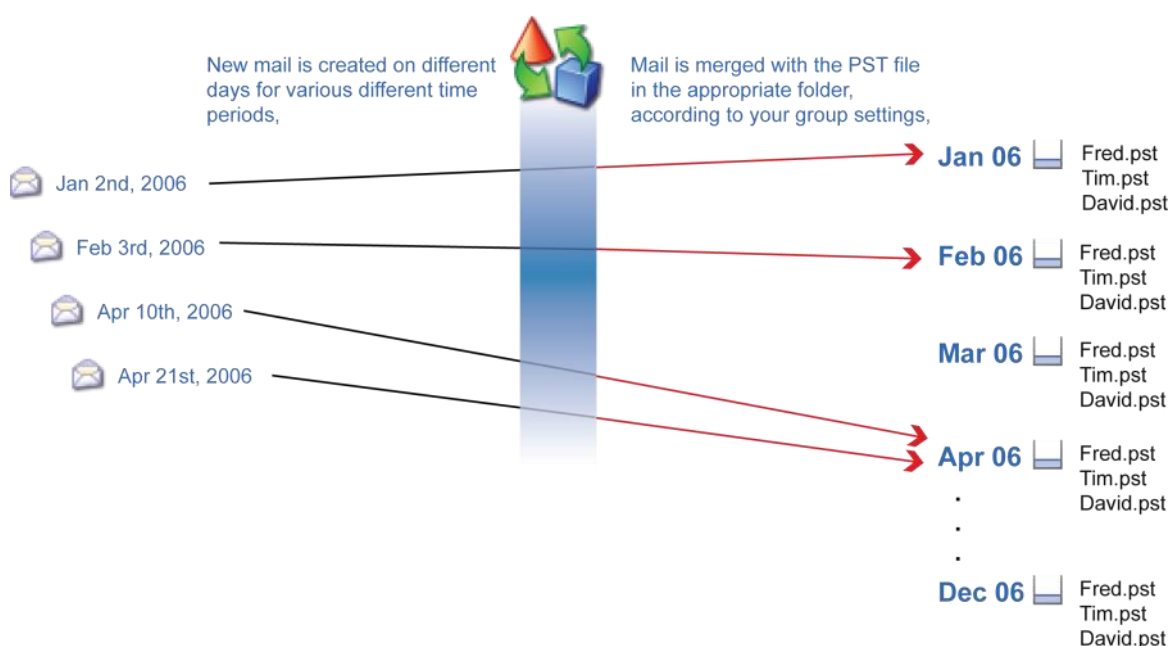
3.4 Benefits over standard ExMerge scripts

The Exchange Mailbox add-on also offers a number of key benefits over using standard Microsoft ExMerge scripts to extract Exchange mail data:

✓ BackupAssist will manage the mailbox security rights, so no further administrative work is required.

✓ BackupAssist will automate the export process in accordance to your group archive settings, automatically merging new emails into the appropriate PST file(s).

✓ When you choose to backup all mailboxes, any new users' mailboxes will be backed up without you needing to update your settings or scripts manually.

✓ Disabled or hidden Exchange users can be deselected so that they are never backed up.

4. Usage Directions

4.1 Requirements

To backup individual mailboxes using BackupAssist and the Exchange Mailbox Add-on you need the following:

- BackupAssist v4

- Windows 2000, XP or 2003 Server

- Microsoft Exchange Server 2000 or 2003

- Exchange System Management Tools and ExMerge (see **section 4.2** for instructions).

Note: *At the time of writing (May 2008) BackupAssist does not support the backup of Exchange mailboxes locally or remotely on Exchange Server 2007. We are planning to provide support for local and remote Exchange Server 2007 mailbox backup in a future release. Please check our website for further updates. Remote information store backup of Exchange Server 2007, however, is supported (see our white paper [here](#)).*

4.2 Preparation: installing the Exchange System Tools and ExMerge

The BackupAssist Exchange Mailbox add-on requires the presence of two Microsoft applications in order to extract mail data from your Exchange Server: (1) the **Exchange System Management Tools** and (2) the **Microsoft Mailbox Merge Wizard, ExMerge.**
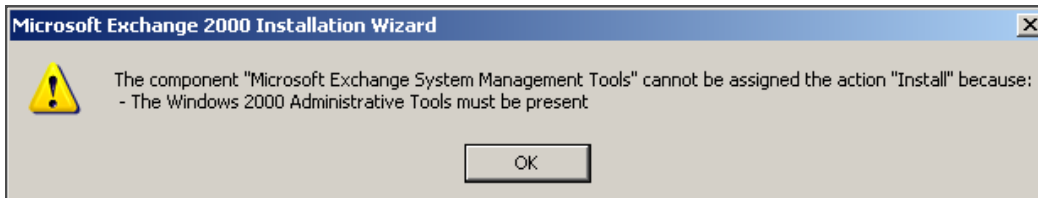
If you attempt to enable the export of individual mailboxes before installing these prerequisites, you will receive the following prompt:
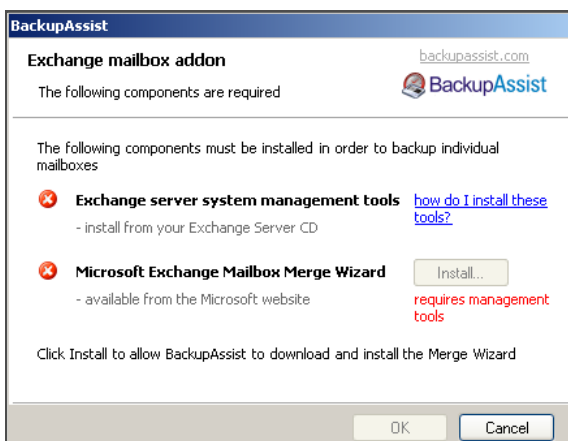
4.2.1 Installing the Exchange Server System Management Tools (for non-Exchange Servers)

Note: *if you have installed BackupAssist on the actual Exchange Server itself, this step is not required.*
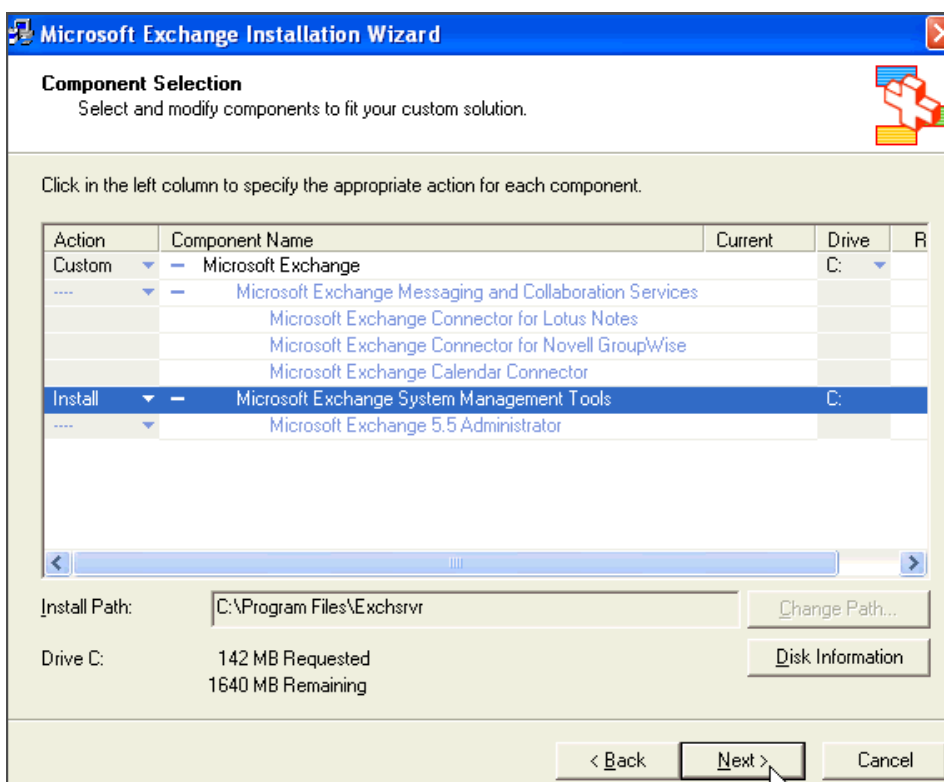
1. Insert your Exchange Server installation CD and run the setup program.

2. This will identify any prerequisites, including **adminpak.msi.** If you receive a prompt similar to the following you will need to install the Windows Administrative Tools:

More information here:

- Windows 2000: http://support.microsoft.com/kb/216999/EN-US/

- Windows 2003: http://www.microsoft.com/downloads/details.aspx?FamilyID=C16AE515-C8F4-47EF-A1E4-A8DCBACFF8E3&displaylang=en

3. Now install the **Microsoft Exchange System Management Tools** as shown below:

Note: *you may need to set the* **Microsoft Exchange** *option to* **Custom** *first.*

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4.2.2 Installing the Microsoft Mailbox Merge Wizard (ExMerge)

Once you have installed the Exchange System Management Tools, you need to install ExMerge. There are two different methods available for achieving this:

Method 1: Automatic installation

BackupAssist can automatically install ExMerge for you. This method is recommended as it is fast and avoids human error. To perform this method you will first need to add your Exchange Server to the Exchange selections window for your job. See **section 4.1** for how to create a BackupAssist job and add your Exchange Server as a backup selection.

To install ExMerge automatically:

1. In the Exchange selections window check **Backup individual mailboxes** and BackupAssist will detect whether ExMerge is installed.

2. Click **Install** to the right of **Microsoft Exchange Mailbox Merge Wizard** and BackupAssist will download and install ExMerge:
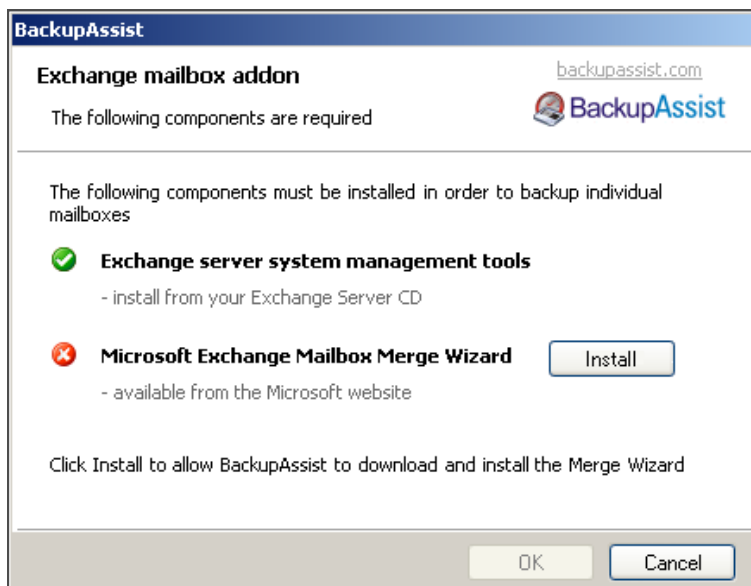
Method 2: Manual installation

You can also install ExMerge manually:

1. Download the executable here: http://download.microsoft.com/download/d/a/d/dadf18f9-bb61-4cac-8849-5017412a8163/Exmerge.EXE and select **Run** rather than **Save As**.

2. Choose a temporary directory when prompted (the files will be unzipped here temporarily).

3. Copy these extracted files to your Exchange Server bin directory (typically C:\Program Files\Exchsrvr\bin).

    Please note: do not simply copy the downloaded **Exmerge.exe** file to your Exchange Server bin directory because it is a self-extracting ZIP file. You must extract the contents of the ZIP file, and then copy the contents into the Exchange Server bin directory.

4.3 Creating a job to backup Exchange mailboxes

BackupAssist provides two different **Backup Methods** for backing up Exchange mailboxes. Jobs created using the **NTBackup Method** can backup both Exchange Server storage groups as well as Exchange mailboxes to separate PST files. Jobs created using the **Exchange Mailbox Method** are designed to specifically write mailbox data to PST files on disk only. You would typically use this method to setup multiple jobs that run at different intervals during the day, giving you multiple copies of your mailbox data throughout the day that can easily be restored from. Extracted .PST files using this method can also be copied to your intended backup device (tape, CD/DVD, hard disk, etc) by setting up an additional NTBackup Method job.

You can read more about Backup Methods in the BackupAssist help file by going to **Help** > **Help...** in the menu.

The following steps outline how to create an Exchange Mailbox Method backup job:

1. Select **File** in the menu of BackupAssist and choose **New backup job**.

2. Select **Exchange Mailbox** and click **Next**.
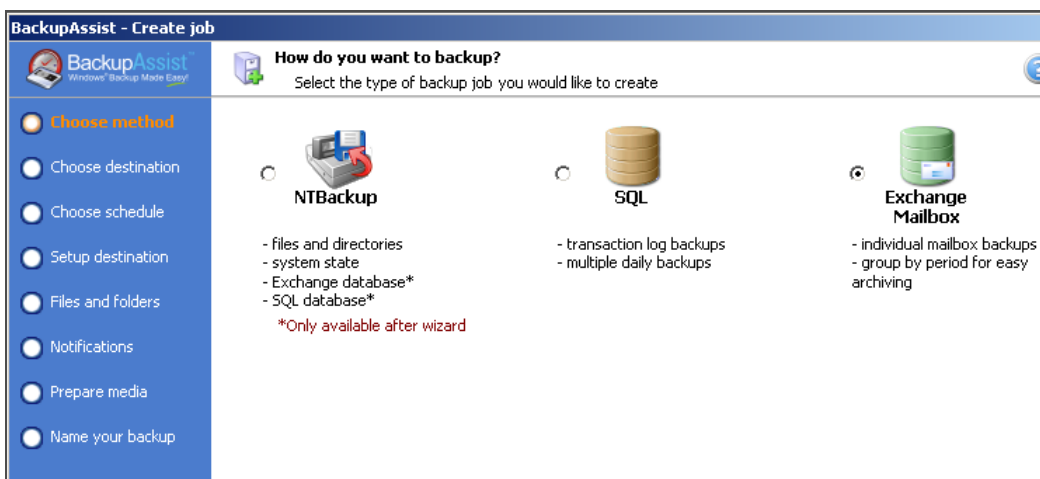
3. Select a time for when you want the backup to run each day and click **Next**.

4. Specify a **Directory path.** This is the directory where BackupAssist will extract mailbox data to in the form of PST files. BackupAssist can extract PST files to either a local or network share destination.
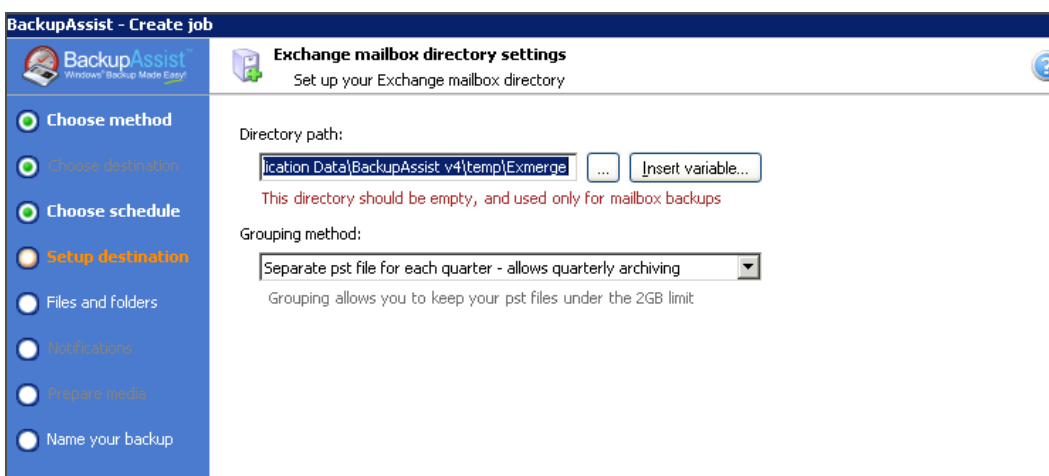
5. Below **Directory path** choose a **Grouping method** to specify how mail data is sorted and stored within the mailbox directory. Refer to **section 3.2** for more details on grouping methods.

6. Click **Next** once you have finished configuring the destination settings for the Exchange Mailbox backup.

7. Click **Add Exchange Server**. A window will appear that displays all of the available Exchange Servers on the network.

- *Note: Exchange Servers residing on a different domain to that of the machine where BackupAssist is installed will not be detected and cannot be backed up.*

8. Click **Add** to add all of the available Exchange servers to your backup selections:
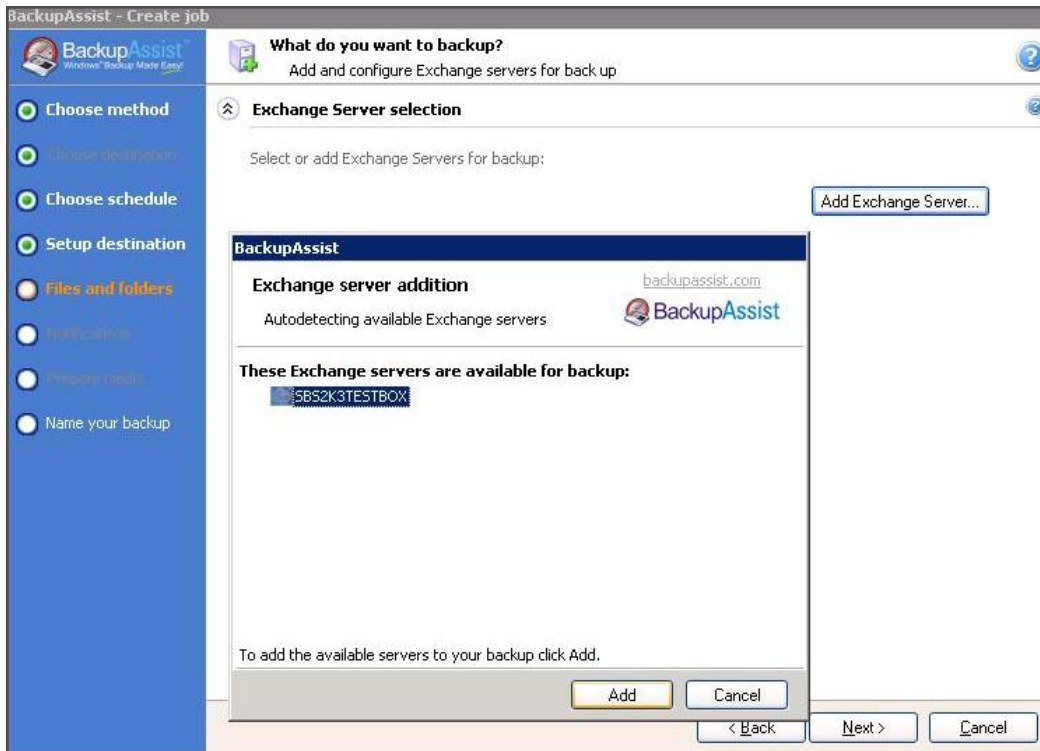
9. Check **Backup individual mailboxes** for each Exchange Server that you want to backup mailboxes from.

10. Select which mailboxes to backup by clicking **Select mailboxes to backup.**

1. Leave **Select all mailboxes checked** if you wish to backup all mailboxes and any future mailboxes that are created. You can exclude specific mailboxes if required by unchecking them; all future mailboxes created, however, will still be backed up.

2. Or, uncheck **Select all mailboxes** and check each mailbox to backup individually. No mailboxes created in the future will be backed up, only those selected.

3. Click **Apply changes** when you have finished making your selections.

11. Click **Next** and complete the remaining steps to create your backup job.

4.4 Performing a manual export of Exchange mailbox data

After you have created your backup job we recommended that you perform a manual export of the selected mailboxes. Depending on the size of your Exchange server and the mailboxes you have selected to backup, the initial export may take some time to complete and this is why we recommend performing it manually, at a time when the server is not being heavily utilized. Refer to **section 3.1** for more information about the initial export.

To perform a manual export of your mailboxes:

1. Select **Exchange Servers** from the left menu.

2. Scroll to the **Mailbox export status** section and click **Perform manual export**. A new window will appear where you can select what periods of mail data you would like to export. The periods available for selection are sorted according to the grouping method defined in the **Destination** tab (available from the left menu).
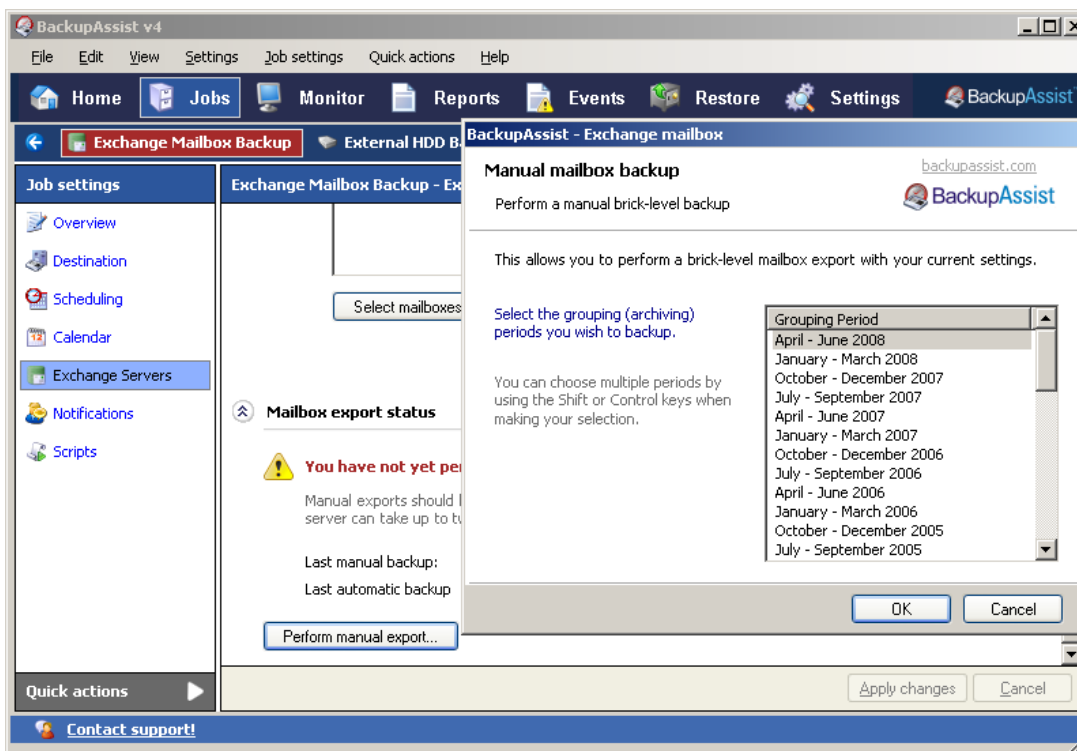
- • *Note: if you had selected the 'separate PST for each month' grouping method and chose to export **May 2006** mail, only mail data created during May of 2006 would be exported, and not any mail sent or received prior to this.*

3. After you have selected the appropriate periods click **OK** and you will be taken to the **Monitor Window** where BackupAssist will begin the export of mailbox data to PST files.

4. If the mailbox export fails click **Report** at the bottom of the Monitor Window to determine what errors occurred.

5. Once you have completed a successful export of all mailbox data, BackupAssist will keep PST files up to date by automatically scheduling exports each time your backup job is scheduled to run. New mail data is merged into the existing PST files on disk.

5. Restoring Mailbox Data

5.1 Restore options available

There are two options available for restoring individual mailboxes and individual mail items: (1) manually opening the PST files in Outlook, or (2) mass-importing items with the Microsoft Mailbox Merge Wizard. Both options are quick, easy and do not require any additional software.

The following table describes the purpose and benefits of each method:

Manually opening PST files in Outlook	Using the Microsoft Mailbox Merge Wizard
Use this method for simple scenarios where a user has deleted one or more items, and needs to retrieve the information quickly. **For example:** 1. User sorts their emails by "From" and selects the last 10 emails sent from "Fred Jones" and accidentally hits "shift-delete" on the keyboard. These 10 emails are now permanently erased, and the user needs those emails to be restored. 2. User accidentally deletes their entire Inbox.	Use this for when you need an automated way of importing data, such as: • Importing multiple mailboxes. • Importing messages using filters – such as between two dates, subject lines, attachments, folders, etc. **For example:** 1. Exchange corruption occurs, and a user has lost their entire 'Sent Items' folder. 2. You want to selectively merge back emails for a user, using filters such as the message subject, or attachment.

5.2 Manually opening PST files in Outlook

To manually open PST mailbox backups in Microsoft Outlook:

1. Copy the appropriate PST file to a location that is accessible to the relevant user's computer.

   For example: copy the PST temporarily to 'Users Shared Folders', another network share or an external hard drive:
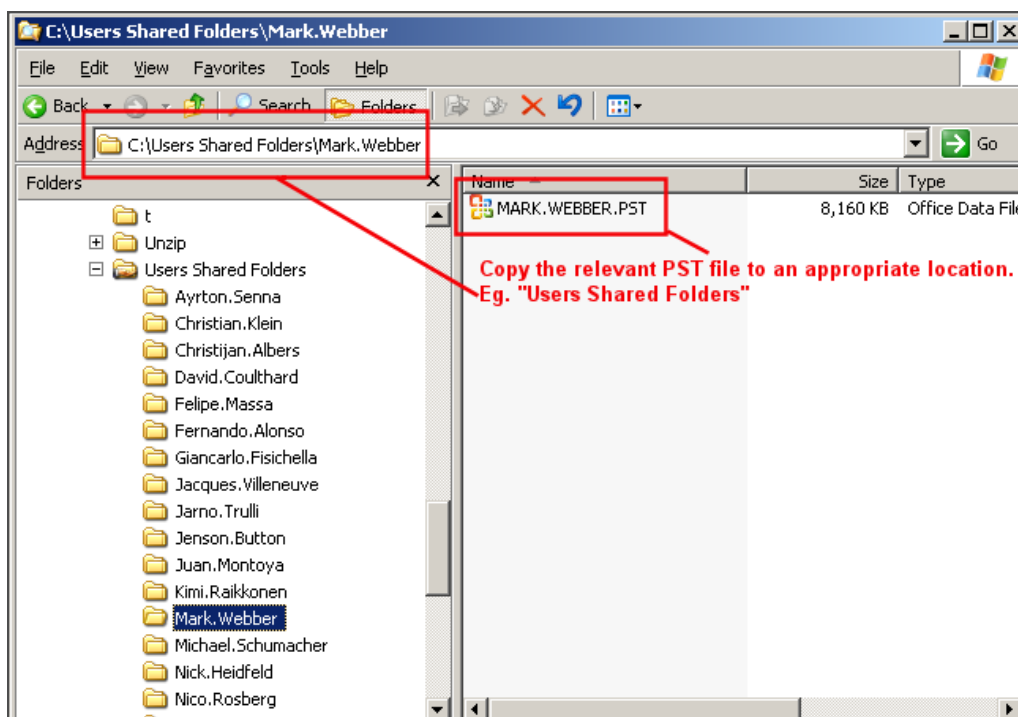
2. From the relevant user's computer, run Microsoft Outlook and select File menu > Open > Outlook Data File:
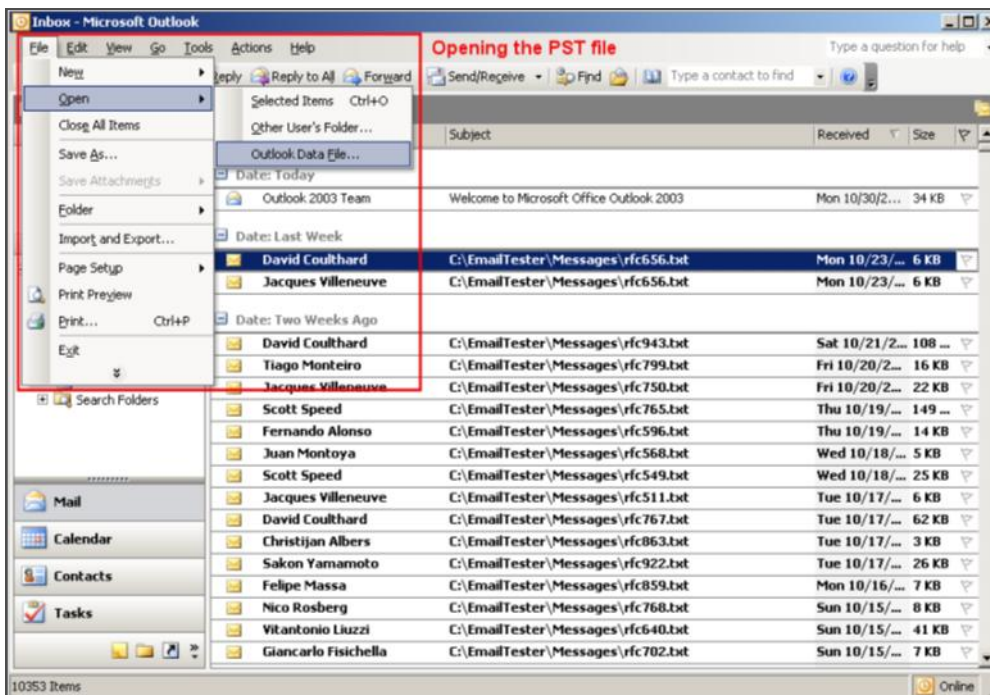
3. Browse for the PST file in the location it was copied to in **Step 1:**
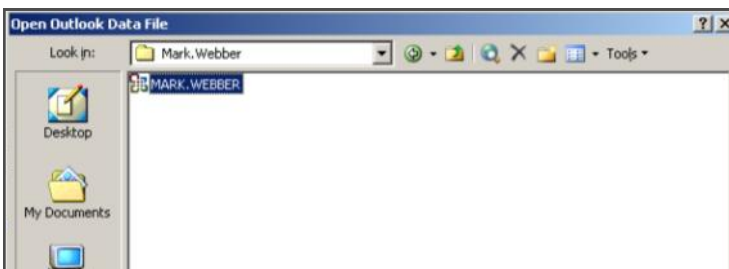
4. From this PST file you can view the email messages and drag-and-drop the mail items back into the original folders:
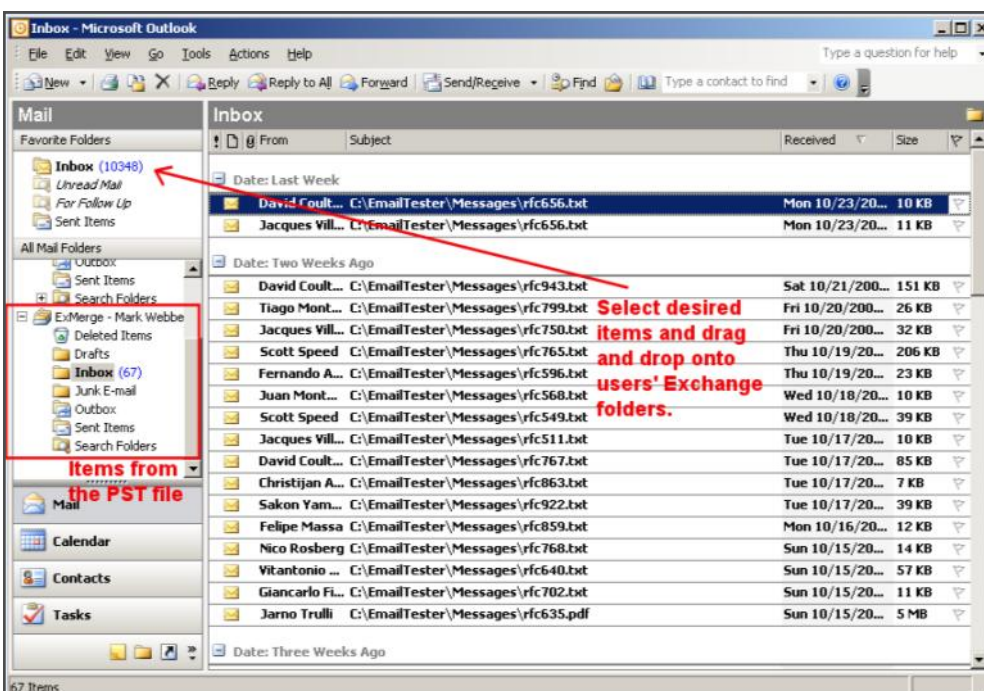
## 5.3 Using the Microsoft Mailbox Merge Wizard to mass-import items

1. Run the Exmerge.exe program from the /bin folder in your Exchange Server installation directory. This program was downloaded and installed for use with the BackupAssist Exchange Mailbox Add-on and gives you powerful options for importing lost mail data.

2. When the Wizard first runs, choose **Extract or Import (Two Step Procedure)**:
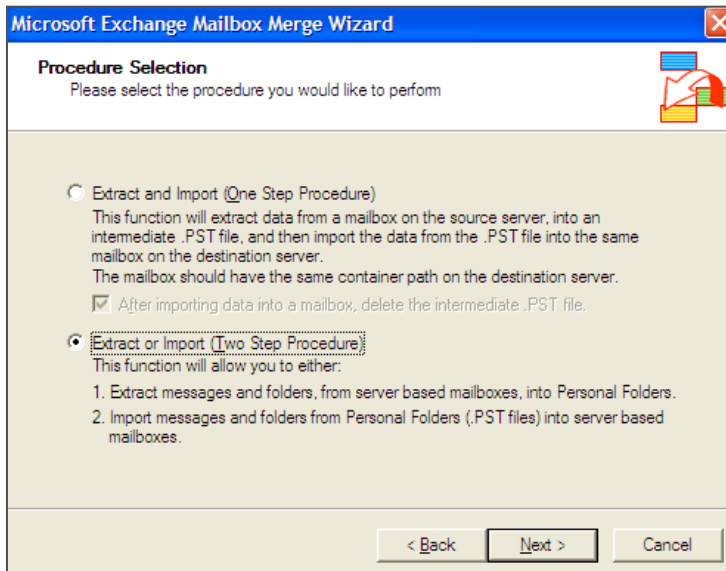
3. Now choose **Step 2** to import your mailbox data back into your Exchange Server:
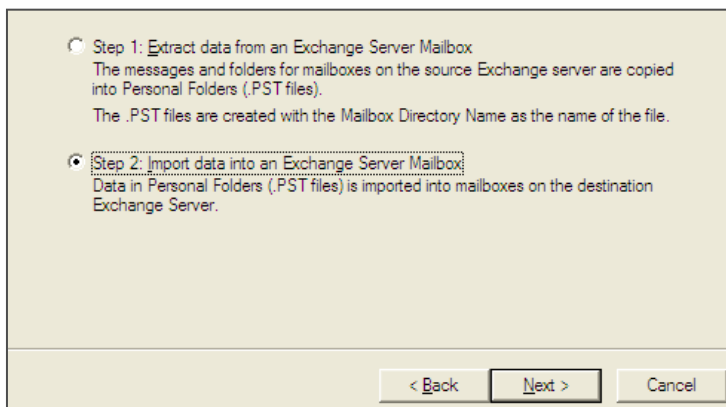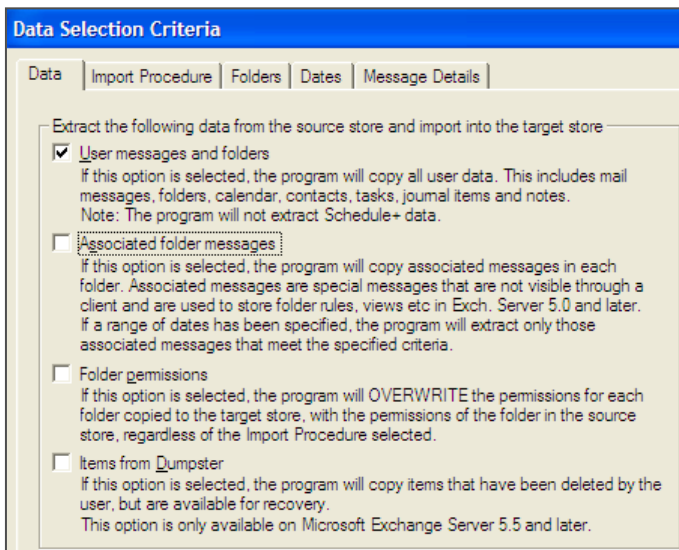
4. Input the details of your Exchange Server:
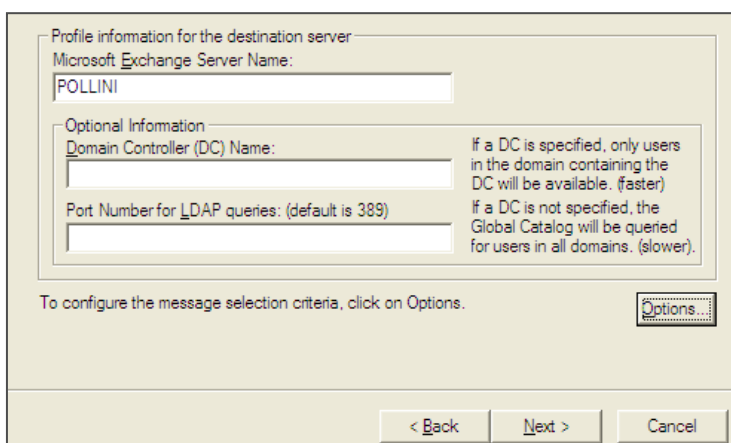
5. To bring up advanced options such as filtering, click **Options** on the right hand side of the window.

6. On the **Data** tab you can define what types of mail data you want to import from your Mailboxes:
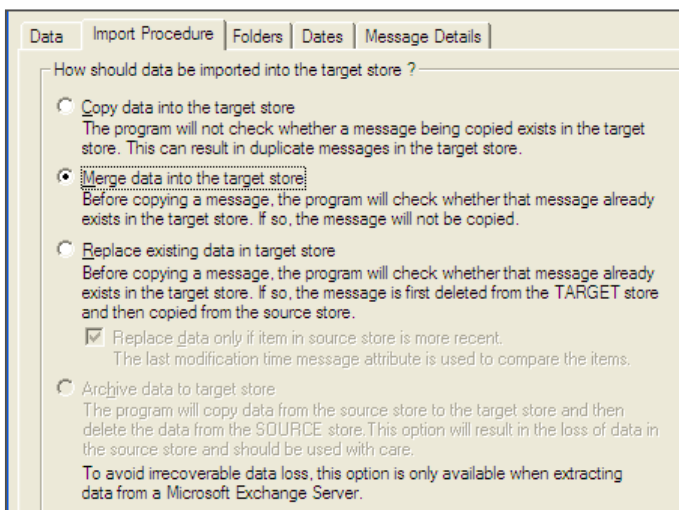
Data Selection Criteria

Data | Import Procedure | Folders | Dates | Message Details

Extract the following data from the source store and import into the target store

☑ User messages and folders
If this option is selected, the program will copy all user data. This includes mail messages, folders, calendar, contacts, tasks, journal items and notes.
Note: The program will not extract Schedule+ data.

☐ Associated folder messages
If this option is selected, the program will copy associated messages in each folder. Associated messages are special messages that are not visible through a client and are used to store folder rules, views etc in Exch. Server 5.0 and later.
If a range of dates has been specified, the program will extract only those associated messages that meet the specified criteria.

☐ Folder permissions
If this option is selected, the program will OVERWRITE the permissions for each folder copied to the target store, with the permissions of the folder in the source store, regardless of the Import Procedure selected.

☐ Items from Dumpster
If this option is selected, the program will copy items that have been deleted by the user, but are available for recovery.
This option is only available on Microsoft Exchange Server 5.5 and later.

7. On the **Import Procedure** tab you can select your import method. The **Merge** method is recommended for most cases as this option will only restore messages that do not already exist within your Exchange Server:
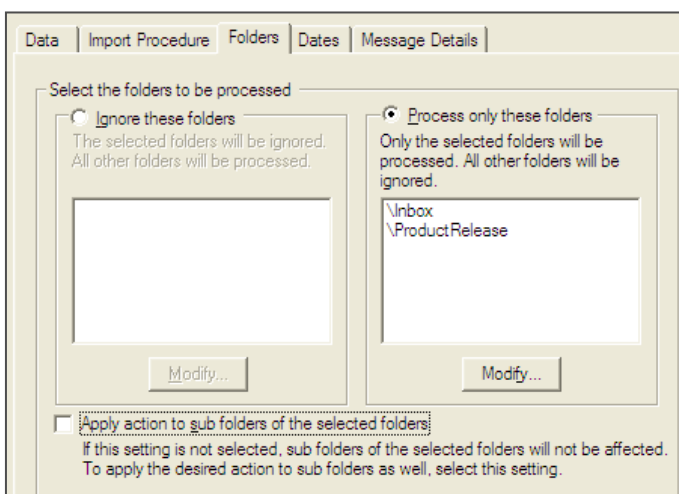
Data | Import Procedure | Folders | Dates | Message Details

How should data be imported into the target store ?

○ Copy data into the target store
The program will not check whether a message being copied exists in the target store. This can result in duplicate messages in the target store.

◉ Merge data into the target store
Before copying a message, the program will check whether that message already exists in the target store. If so, the message will not be copied.

○ Replace existing data in target store
Before copying a message, the program will check whether that message already exists in the target store. If so, the message is first deleted from the TARGET store and then copied from the source store.
☑ Replace data only if item in source store is more recent.
The last modification time message attribute is used to compare the items.

○ Archive data to target store
The program will copy data from the source store to the target store and then delete the data from the SOURCE store. This option will result in the loss of data in the source store and should be used with care.
To avoid irrecoverable data loss, this option is only available when extracting data from a Microsoft Exchange Server.

8. On the **Folders** tab you can select which folders you wish to import. Leave this blank if you wish to import all folders.

Data | Import Procedure | Folders | Dates | Message Details

Select the folders to be processed

○ Ignore these folders
The selected folders will be ignored. All other folders will be processed.

[Modify...]
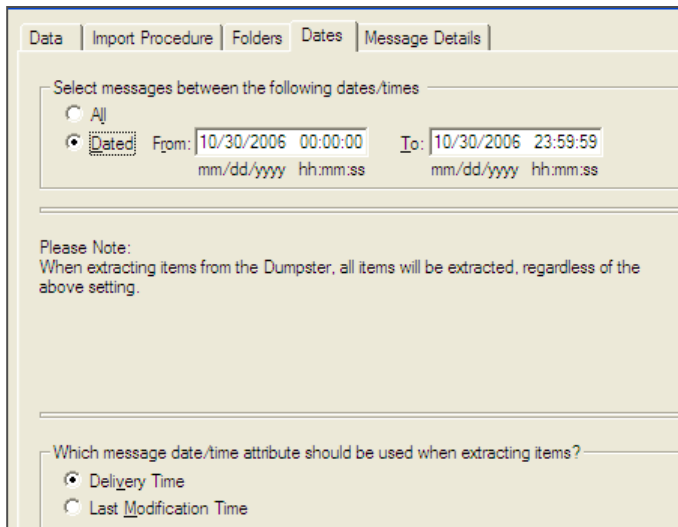
◉ Process only these folders
Only the selected folders will be processed. All other folders will be ignored.
\Inbox
\ProductRelease

[Modify...]

☐ Apply action to sub folders of the selected folders
If this setting is not selected, sub folders of the selected folders will not be affected.
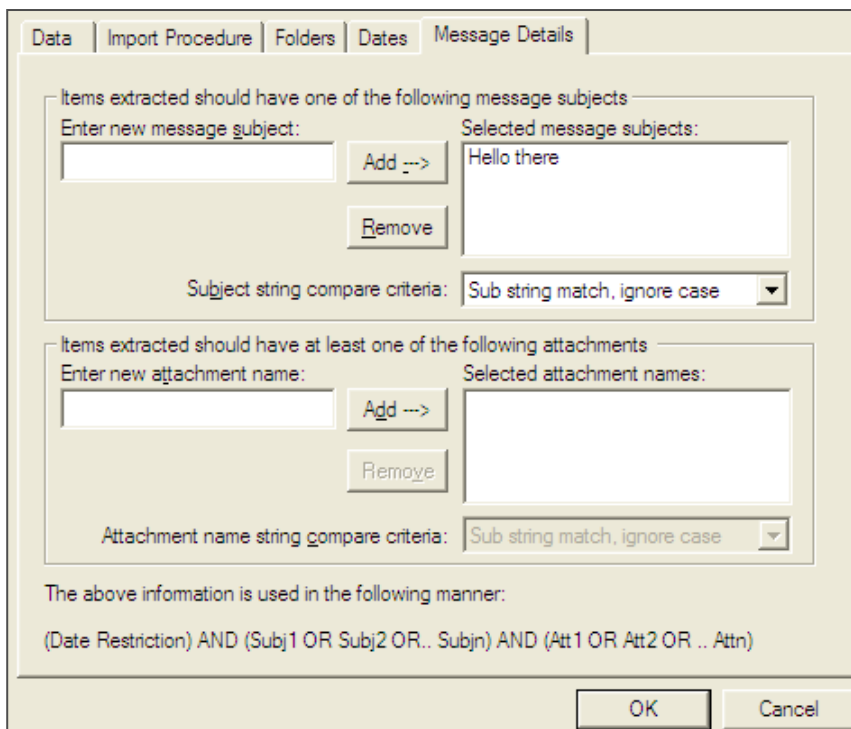To apply the desired action to sub folders as well, select this setting.

9. On the **Dates** tab you can optionally choose the date range of messages you want to restore. Otherwise, simply choose **All** to import messages from all date ranges:

Note: dates are in American format, as the ExMerge utility provided by Microsoft is not localized.

10. On the **Message Details** tab you can input subject or attachment filters for the restore (eg. only import messages with the subject line "Hello there"):
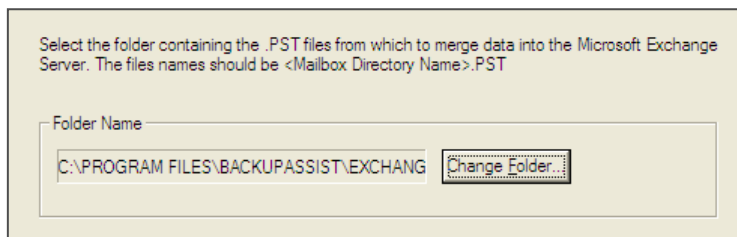

11. Click **OK** to close this window, and then **Next** to proceed with the restore.
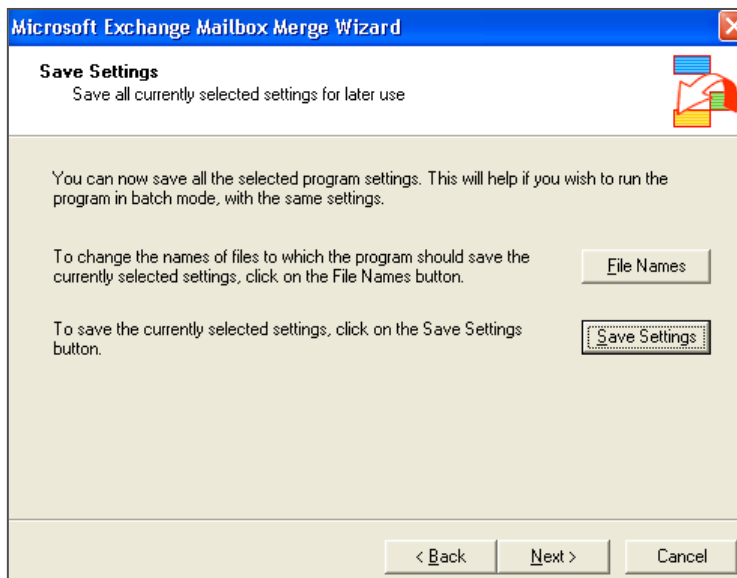
12. You can now select the mailboxes you wish to restore to:

13. Select the **Default locale,** click **Next** and then specify a directory where your PST mailbox backups are located:

15. You can speed up the import process by saving your settings as default settings that can be later loaded and re-run next time you need to complete a restore of mailbox data:

16. Click **Next** to begin the mailbox restore. Once complete, a report will indicate the status of the ExMerge restore process.

6. Resources and Support

6.1 Useful resources

You may find the following resources useful:

- Microsoft Exchange Server information:
  http://www.microsoft.com/exchange/default.mspx

- Microsoft Exchange Mailbox Merge (Exmerge.exe) information:
  http://support.microsoft.com/kb/174197

- BackupAssist Education Center (whitepapers, videos, tutorials, etc):
  http://backupassist.com/education

6.2 Contacting support

Should you have any questions regarding either BackupAssist or the Exchange Mailbox add-on specifically, please email such queries to support@backupassist.com and we will respond to you as soon as possible.

Similarly, if you have any suggestions for additional functionality in BackupAssist, or new products or add-ons, please also forward such feedback to support@backupassist.com