Exchange Granular Restore

User Guide

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1. Exchange Granular Restore overview

The Exchange Granular Restore (EGR) console allows you to restore mail items using *Direct Exchange Injection*. The backups used can be created by *System Protection*, *File Protection* or *File Archiving*. This means the backup you use to protect your Exchange Server can also be used to restore mail items.

> Exchange Granular Restore is the recommended tool for restoring mail items for Exchange 2013, 2010 and 2007. It is enabled in BackupAssist when you purchase the *Exchange Granular Restore Add-on* and supersedes the *Exchange Mailbox Protection* solution. This earlier technology was purchased as the *Exchange Mailbox Add-on*, and is now bundled with the *Exchange Granular Restore Add-on*. Both solutions are supported.

Exchange add-on comparison

Feature	Exchange Mailbox Add-on	Exchange Granular Restore Add-on
Exchange version support	2003, 2007, 2010	2007, 2010, 2013
Exchange Server authentication	Required	Not required
Special backup type	Required	Not required
Mail Preview (before restore)	No	Yes
Backup size	Requires additional PST file backup	Part of Exchange Server backup
Backup destination	Local disks only	As supported by backup type

EGR support for backup types - by server version

Backups	Windows 2003	Windows 2008	Windows 2012
System Protection	✗	✓	✓
File Protection & File Archiving	✓	✓	✓

The Exchange Granular Restore Add-on can restore:
- Mailboxes, mail folders and emails (cannot be encrypted)
- Folders
- File attachments
- Contacts
- Notes, Tasks, Journal items and appointments

Journals, emails attached in other emails and embedded email objects are currently not supported.

Requirements
- BackupAssist 7.2 or later must be installed on the Exchange Server.
- Operating systems: Windows Server 2012/R2, 2008/R2, 2003.
- RAM: 256-1024 MB, depends on mail store size and OS version
- May require free space on disk 1.5x the size of mail data being processed.

Exchange Granular Restore is tested for optimal performance up to the following dataset sizes.
- Database size: 500 Gb / Mailbox size: 100 Gb
- Number of messages in one mailbox - 100,000, in the database - 2,000,000.
- Number of mailboxes in the database: 2,000

2. Backup considerations

Exchange VM Detection

If your backup job contains a Hyper-V guest with an Exchange Server, the authentication information for that guest should be entered into the **Exchange VM Detection** tab on the **Selection** screen when you create the backup job. With these credentials, BackupAssist can detect what guests have an Exchange Server, and list the EDB file available for each guest when you perform a restore using the Exchange Granular Restore console

The Exchange VM Detection tab will appear when the Hyper-V role is installed and running on the server. If you are backing up multiple Exchange guests, each one should have the same username and password.

The Hyper-V process is automated but the restore requires both the *Exchange Granular Restore Add-on and the Hyper-V Granular Restore Add-on* licenses.

VSS Application backups

The Volume Shadow Copy Service (VSS) is a Microsoft Windows Service that creates a copy of an application's data so the data can be backed up while the application is running. This means the data will not change or be locked while a backup is taking place. BackupAssist is VSS-aware, so File Protection, File Archiving and System Protection backups can detect VSS applications such as Exchange, SQL, Hyper-V and SharePoint. BackupAssist will display a VSS application as an application container during the *Destination* step of the backup job's creation. You can select the container or individual components and BackupAssist will select the files that need to be backed up.

In some cases, only applications that are running will be detected. If an application is not listed, try re-starting the application and the VSS service and then click the *Refresh* button in BackupAssist.

Restore vs. Recovery

A restore is the process of accessing a backup and restoring it to the original (or a new) location, if your data is lost, corrupted or if you want an earlier version of that data. However, if your computer cannot start itself, you may need to perform a recovery.

A recovery is the process by which a computer is recovered after hardware has been replaced or an operating system failure has occurred, and your computer can no longer start itself. To perform a recovery you need a bootable media to start your computer, and an image backup that the bootable media can use to recover your operating system, data and applications.

For more information on data recovery, see the [Recover tab & RecoverAssist Whitepaper.](link)

Backup user identity

Backup jobs require an administrator account with read access to the data source, and full read-write access to the backup's destination. It is recommended that a dedicated backup account is created for this purpose. The account's details are entered using the *Backup user identity* option on the *Settings* tab, and your backup jobs will be launched using these credentials.

3. Creating an Exchange backup

This section explains how to back up your Exchange Server using BackupAssist on Windows Server 2008, SBS 2008 and later operating systems. These backups are used by *Exchange Granular Restore* to restore emails and individual mail items.

How to use **Exchange Granular Restore** is documented in Section 3.

To back up **Exchange on a Hyper-V guest for EGR**, review the Exchange VM Detection section

Launch BackupAssist and follow the steps outlined below:

1. Select the **Backup** tab, and click **Create a new backup Job**

2. Select **System Protection, File Protection** or **File Archiving**.

    If this is the first time you have created a backup job, you will be asked to provide a *Backup user identity* if one has not been defined. See the BackupAssist settings, whitepaper for guidance.

    The following instructions use *System Protection* to explain the Exchange VSS back up process.
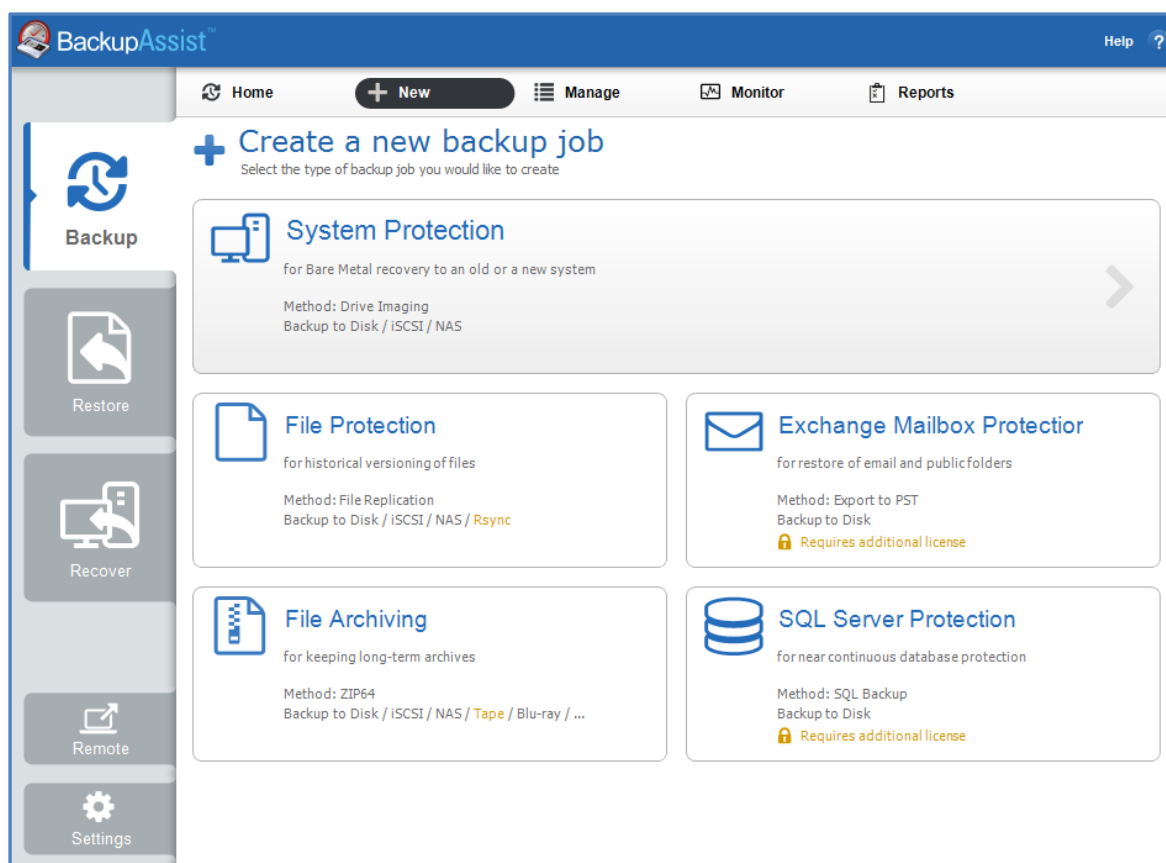
Figure 1: New backup job – backup type selection screen

Instructions specific to each backup type, can be found in their respective whitepapers.

Remember: It is important to maintain both *daily* and *archive* (historical) backups as part of your backup strategy. To learn more, see the Backup tab whitepaper's Manage section on scheduling

3. **Selections:** The selections screen is used to select the data and applications that you would like to back up. Any local Exchange Servers detected will be displayed here as application containers.

   An Exchange VM Detection tab will be available if you are backing up an Exchange VM guest.

   You can select an entire VSS application or choose individual components. To back up your Exchange Server, select the Microsoft Exchange container.

   If your local Exchange Server is not listed in the *Selections* screen, try restarting Exchange and the VSS service and then click the *Refresh* button in BackupAssist.
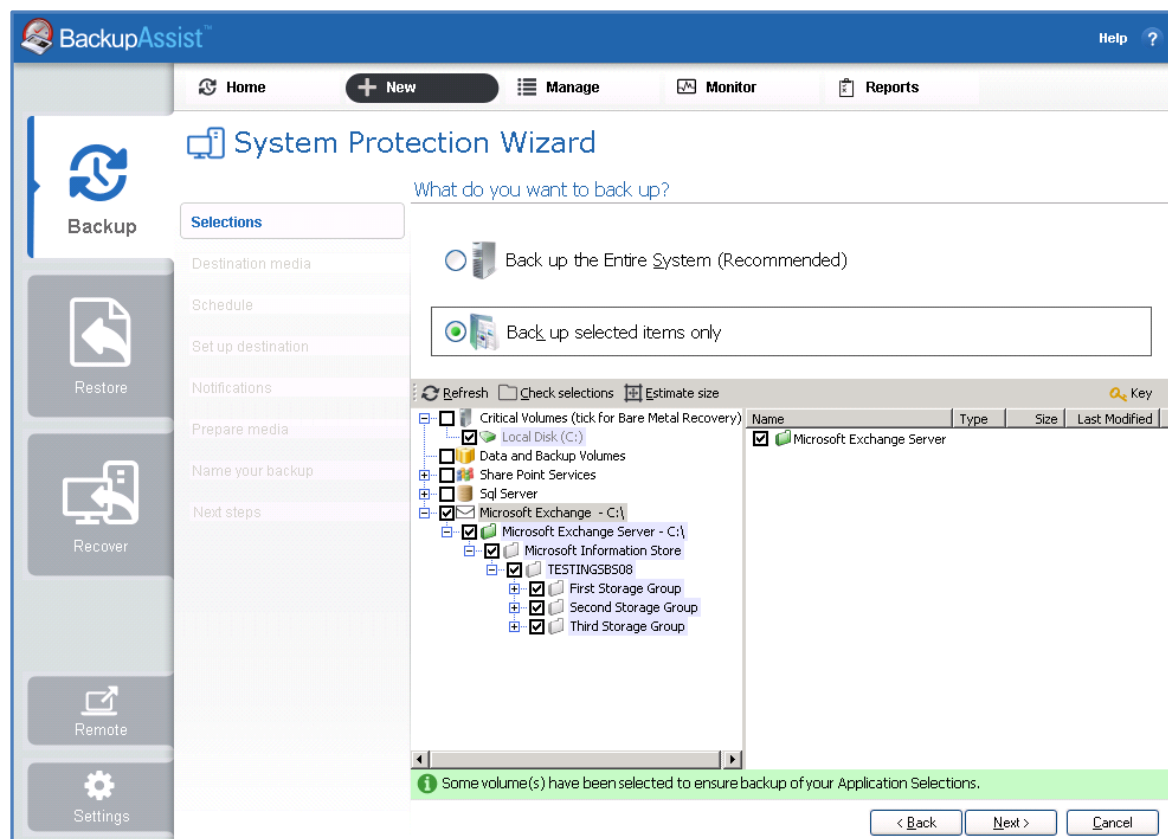
Figure 2: New backup job – Exchange Server VSS selection

- For System Protection backups, VSS applications will be backed up as part of a *Backup up the Entire System* selection. In the example above, *Back up selected items only*, was chosen and the Exchange Server application container was selected.

- For File Protection, File Archiving and System Protection backups, the top level *Microsoft Exchange* and *Exchange Server* application containers should be selected.

4. **Destination media:** The destination screen is used to select the type of media that you want to back your data up to. This step's name will change to the media type selected, when you click next.

   Select a device for your backup destination, and click **Next.**

5. **Schedule:** This screen is used to select when and how you would like the backup job to run, and how long you would like the backup to be retained for. A selection of pre-configured schedules, called schemes, will be displayed. Select an appropriate scheme, and click **Next**.

   For more information about creating custom schedules, refer to the Backup tab whitepaper.

6. **Set up destination:** This screen is used to configure the location of the media selected in step 4. Configure your backup destination, and click **Next**.

➢ **Mail Server:** If you have not configured an SMTP mail server for BackupAssist, you will be prompted to provide those details after the backup destination step has been completed. See the BackupAssist settings whitepaper for guidance.

7. **Notifications:** Once a backup job has completed, BackupAssist can send an email to inform selected recipients of the result. This email notification can be enabled during the creation of a backup job, if the mail server has been configured.

   To enable email notifications:

   a. Select, **Add an email report notification.**

   b. Enter recipients into the **Send reports to this email address** field.

   c. Enter recipients into the **Also send reports to this email address** field. You can then select the condition under which the email should be sent, using the drop-down box.

8. **Prepare media:** If you selected a portable media device as your backup destination (such as an external HDD or a RDX drive) you will be given the option to prepare the media for BackupAssist. BackupAssist will write a label onto the media so that it can recognise what media has been attached, and determine if it is the correct media for your backup schedule.

   To enable media detection:

   a. Select, **Let BackupAssist keep track of your media.**

   b. Select what you would like BackupAssist to do, *if the wrong media is inserted*.

   c. Select what you would like BackupAssist to do, *if new or unrecognized media is inserted*.

   BackupAssist will display all removable media that are currently attached, along with a text field and drive designation drop-down box, which can be used to provide a label for the media.

   To prepare your media:

   d. Enter the name and drive designation to be used for each media device listed.

   e. Select **Prepare** for each media device listed.

   BackupAssist will now write the label to the media so that it is able to recognize the media and ensure that the correct media is being used on the correct day. For example, if you put an RDX drive in on Tuesday but it was labeled Wednesday, BackupAssist will warn you that the incorrect media has been detected.

9. **Name your backup:** Provide a name for your backup job, and click **Finish**.

▶ **Your Exchange Server (VSS) backup job has now been created.**

Important: Once a backup job has been created, it should be reviewed and run using the *Manage* menu. This menu provides additional options to configure your backup.

Important: Once a backup job has been run and a backup created, a MANUAL test restore should be performed to ensure the backup is working as intended. To perform a test restore, refer to the section, Restoring Exchange Server backups.

Note: To enable the Exchange 2003 or 2007 VSS writer, please refer to this blog article.

4. Exchange Granular Restore

Exchange Granular Restore (EGR) is enabled with the purchase of the Exchange Granular Restore Add-on. This *restore-based* solution allows you to use *System Protection*, *File Protection* and *File Archiving* backups to restore individual mail items.

> **Note**: BackupAssist's restore Home page can display backups of Exchange databases inside Hyper-V guests so that mail items can be restored using the Exchange Granular Restore console. The Hyper-V process is automated but the restore requires both the *Exchange Granular Restore Add-on and the Hyper-V Granular Restore Add-on* licenses. Please refer to the Exchange VM Detection section to learn more about this feature.
>
> **Note:** If you launch the EGR console from the Tools menu, you will need to manually mount the Data container to locate an EDB file inside it. To mount a data container, please refer to the steps outlined in our blog article.

To restore individual mail items, follow the steps below:

Step 1 - Locate the Exchange backup

a) Start **BackupAssist** and select the **Restore** tab

The *Restore* tab has a *Home* page and a *Tools* menu. The *Home* page is the default screen and the recommended starting point for performing a restore. The *Tools* menu should only be used by experienced administrators or users being assisted by technical support.
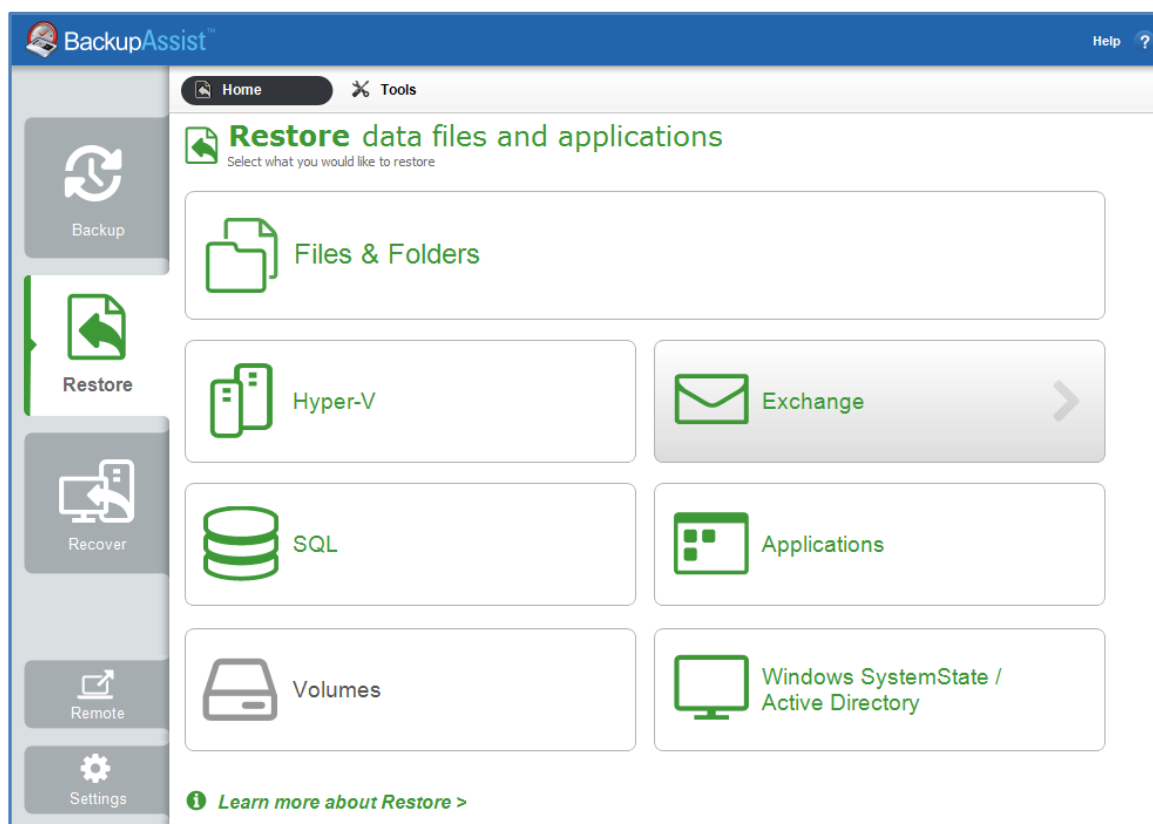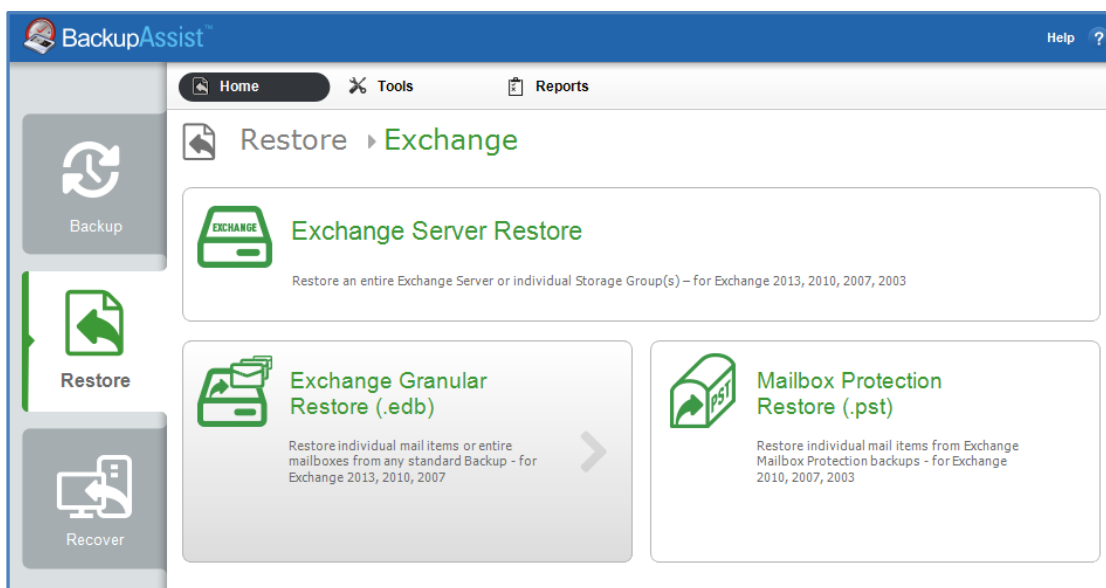
b) From the Restore **Home** page, select **Exchange**

Figure 3: Restore tab - Home page

This will open the *Restore > Exchange* screen and display the restore options available.

c) From the **Restore > Exchange** screen, select **Exchange Granular Restore (.edb)**


Figure 4: Restore Exchange page - selection screen

Backups made with BackupAssist 7.1 and later, that contain Exchange databases, will be displayed.

d) **Select the database file to restore from**

- The backups displayed can be filtered using the time period tabs.
- Selecting a backup will expand its contents and display each .edb database inside the backup.

When you select the required database file, the *Exchange Granular Restore* console will start and open the .edb file. A progress window will appear while the database is opening.
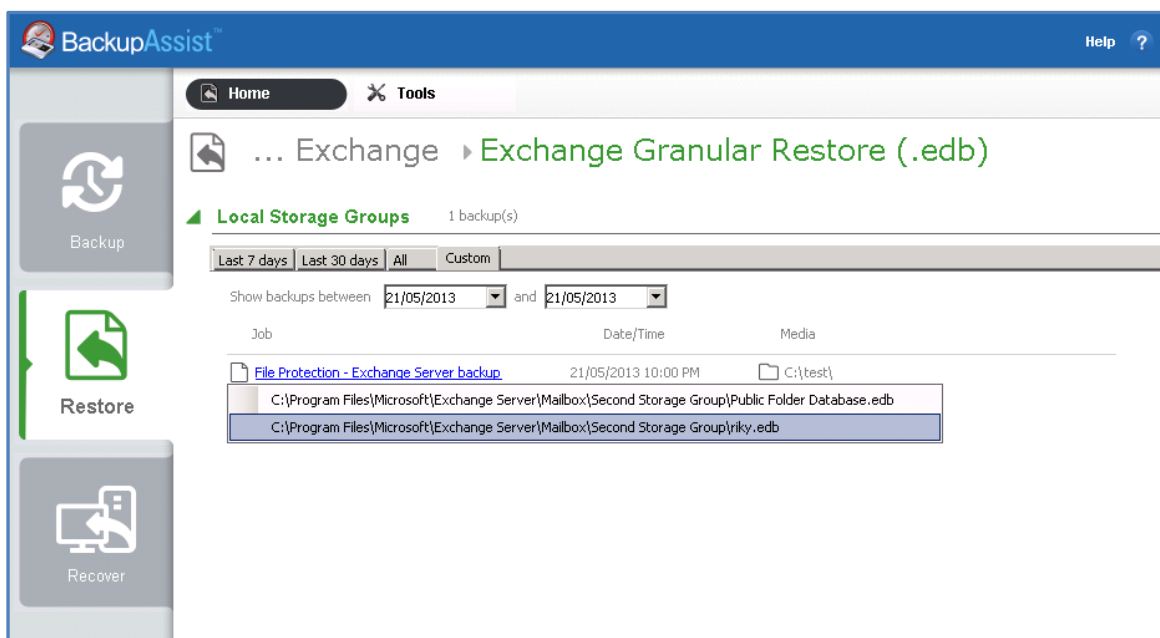
Figure 5: Exchange Restore - backup and database selection

Once the .edb file has been opened, you will be able to view the mail items inside it.

Step 2 - Locate the mail items

The *Exchange Granular Restore (EGR)* console has a *Browse mail tree* and a *Search field* to help locate, preview and select the mail items that you want to restore.

> If you open EGR from the Restore > Tools menu, you can open a database using the *Open Exchange DB* button.

Console options

Both the *Browse* and *Search* functions can use the following options.

- **Display filter**: Press CTL+F and a Filter field will appear under the list of currently displayed mail items. Select the *Subject*, *From*, *To*, *Attachments*, *Created* or *All* filter, and enter the text to filter by.

- **Restore Deleted items**: *Display hidden deleted items*, is available in the *Options* menu, and selecting it will give access to previously deleted mail items. This is not mail from the delete items folder but mail items that are no longer present. The database will reload when a selection is made and the deleted items will and have a flag to indicate that they are a deleted item.

  - Deleted items from Exchange Server 2007 are stored in their original folders.
  - Deleted items from Exchange 2010 and 2013 are stored in the folder *Deletions*. These items cannot be restored to live Exchange Server database. It is recommended that these items are exported to a PST file and then imported into the live Exchange Server.

- **Display time:** Select *Display time*, from the *Options* menu and select Local or GMT. This applies to the date in the properties tab of a mail item. The database will reload when the format is changed.

Using Browse

The Browse mail tree is displayed in the console's left pane. Browsing for the items you want to restore is ideal when you know their location.
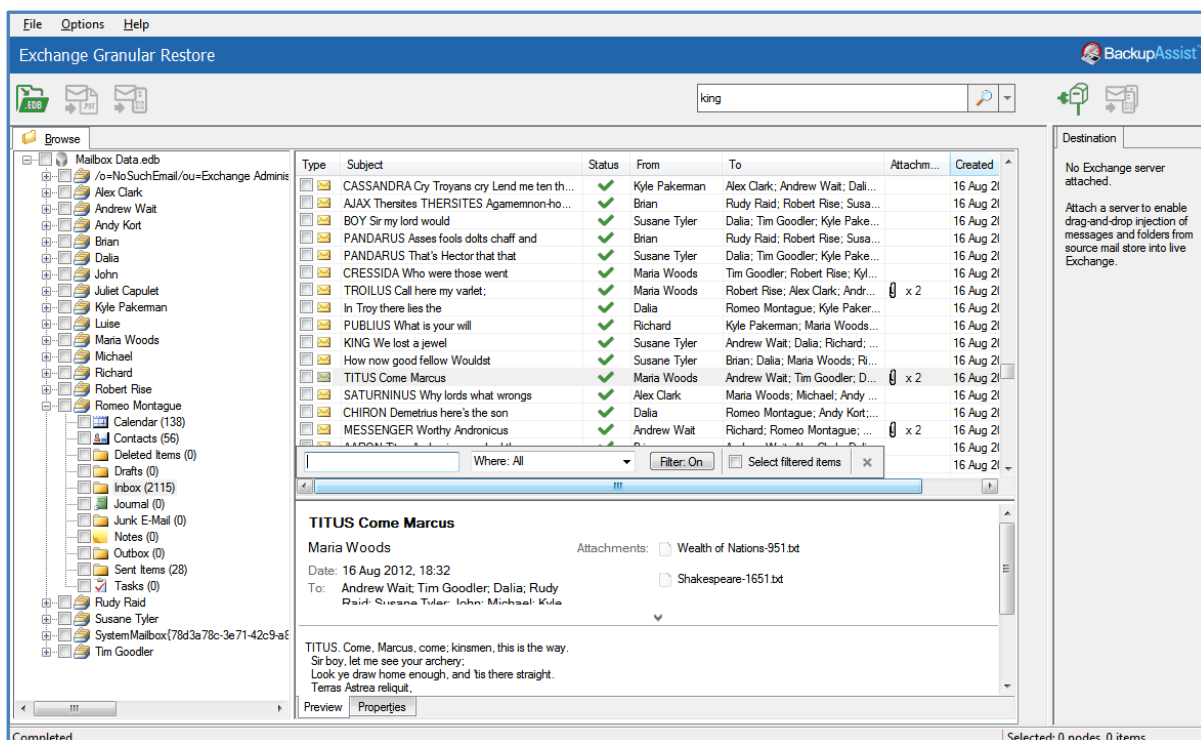
Figure 6: The Exchange Granular Restore console

- Selecting a folder will display the individual mail items inside it, on the pane to the right.
- Selecting a mail item will preview its contents in the pane below it.

Using Search

The Search field is ideal when the location of a mail item or the number of items to restore is unknown. When a keyword search is performed, a new tab with a browse tree will open containing only the mailboxes, folders and mail items that match your search criteria.

The search word must be a whole word.

To perform a simple Search, enter the search word into the field, click the search icon and the Search tab will open in the console. This *Search tab* will contain all items in the database that contains the word you entered.

To perform an advanced Search, select the arrow by the Search field to display the advanced search options. The *Search in* field will default to the entire database. To search inside specific mailboxes or folders, select the *Search in* field and use the dialogue window to select the required containers.

The following search options are available:

- *Has words,* searches for mail items that have words or phrases entered into the field.
- *Doesn't have*, searches for items that do not have words or phrases entered into the field.
- *Has attachments*, will search for items with attachments.
- *From*, will search for keywords in *the From:* field.
- *To*, will search for keywords in the *To*: field.
- *Subject*, will search for keywords in the *Subject*: field.
- *Date range,* can be used to set a specific date range. A beginning and end dates must be set.
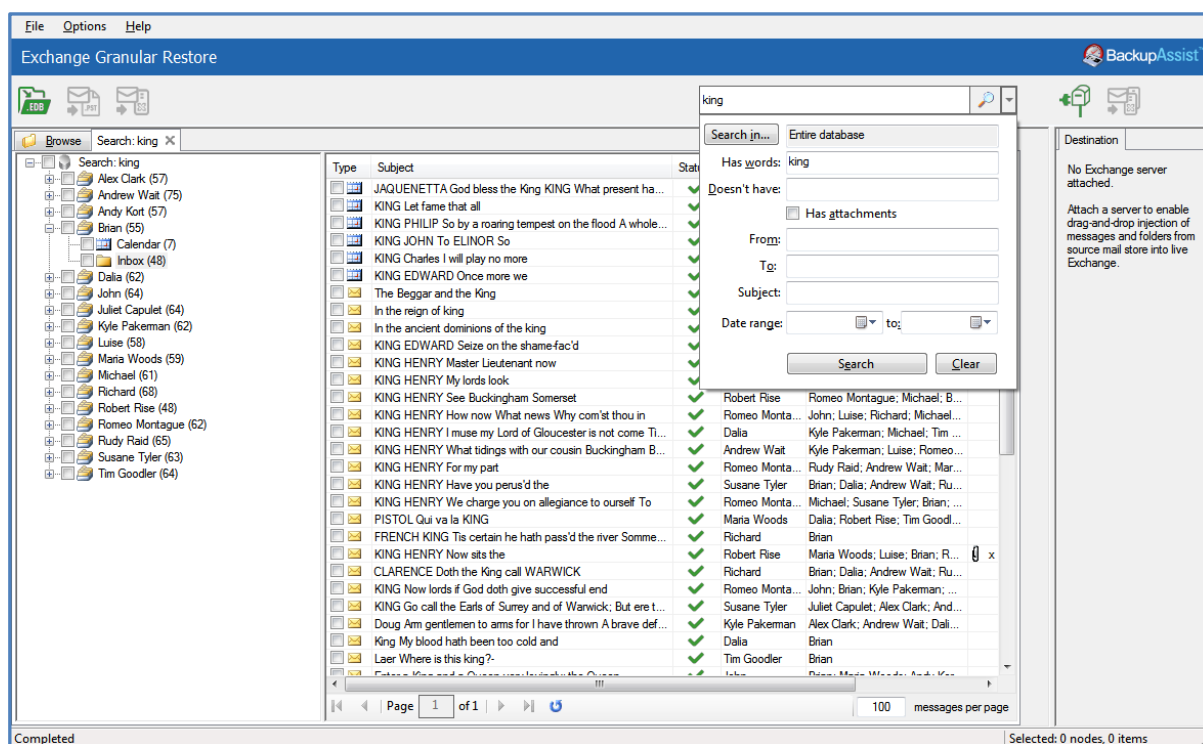

Figure 7: Exchange Granular Restore console - Search tab

If a search does not match any items, review your search parameters and run another search.

Once you have located the mail items that you want to restore, select them using the tick box. Once you have selected an item to restore, the restore type icons in the menu will become active.

Indexing Modes

Database indexing can be disabled or cancelled via the *Options* menu. If indexing is disabled, a database search will not be possible. Two indexing modes are supported: Light and Full.

- Light indexing (default): Limits the searchable information to the following fields: *From, To, Subject, Date range*. A *To* field with a long recipients list and message bodies will not be indexed.
- Full indexing: This mode will take longer to index as it allows a search across the entire database.

Step 3 - Perform the restore

Once you have located the required mail items, there are three ways they can be restored using Exchange Granular Restore: *Restore to original location, Restore to alternate location* and *Export to PST*.

Option 1: Restore to original location

This option will restore the selected mail items back into their respective mailboxes on the original Exchange Server.
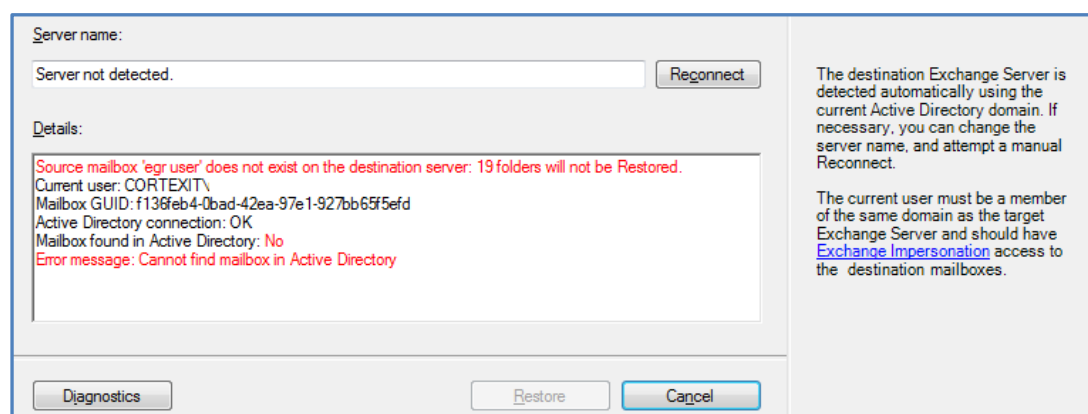
To perform the restore, follow the steps below:

a) Select the **Restore to original location** button.

   A *Restore to original location* window will open. The domain name of the server running Exchange will be automatically detected if you are on the same domain.

b) If no Exchange Server was detected, manually fill in the *Server name* field and click *Reconnect*.

   It is possible to restore data to someone else's mailbox using Exchange Impersonation. To do this, the current user credentials must have Exchange Impersonation access to the destination mailbox.

c) Select *Restore*, to begin the restore process.

   A progress window will be displayed during the restore. The window shows the number of folders, messages and errors. You can enable and disable the progress window in the *Options* menu.

   - The restore can be cancelled by clicking the *Cancel restore* button.
   - The progress window can be reopened by clicking *Progress bar* on the status panel.
   - Selected items will be copied into their original locations on the live Exchange Server. If selected items cannot be matched to a destination mailbox, they will not be restored.
   - The destination Exchange Server is detected automatically using the current Active Directory domain. If necessary, you can change the server name and attempt a reconnect.

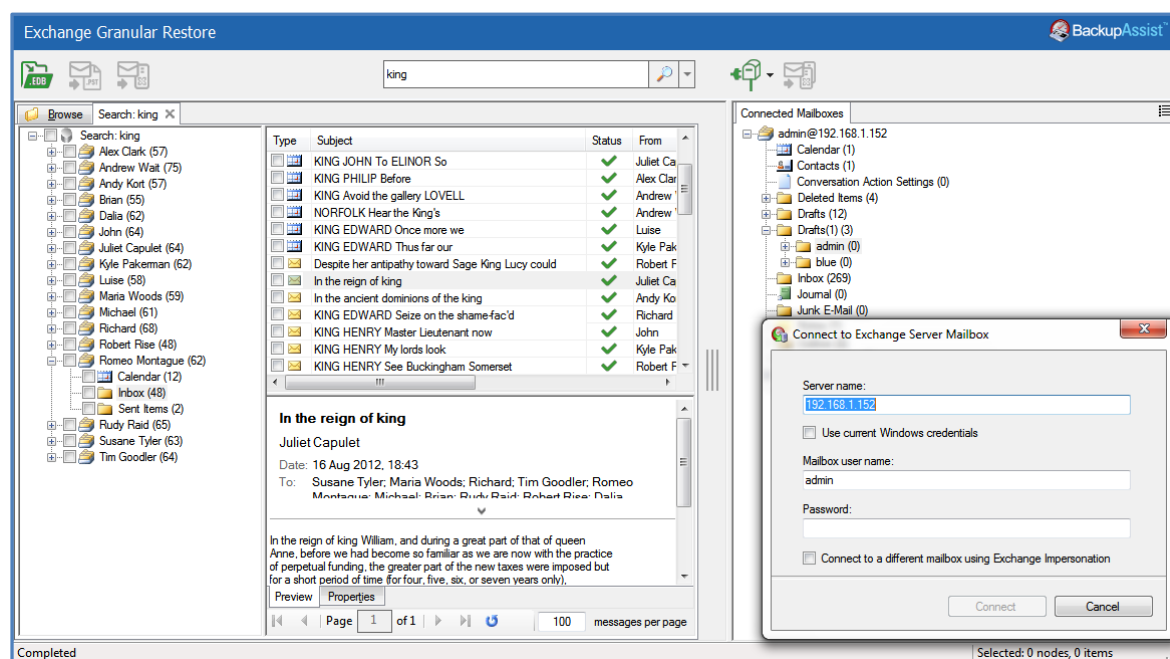## Option 2: Restore to alternate location

This option will restore the emails and mail items from the offline backup to a live Exchange database that is different to the one they were backed up from.

To perform the restore, follow the steps below:

a) Select the **Connect to Exchange Mailbox** button.

The *Connect to Exchange Mailbox* button will open the connection dialog box, which is used to provide the Exchange Server name and the authentication details (User logon) for a specific mailbox on that server. This authentication process can be repeated for additional mailboxes.

The *Restore to alternate location* button will become active when a connection has been made.

Figure 8: Restore to alternate location – connection authentication

Enter the following details into the connection dialog box:

- Server name - Domain name Exchange Server or IP address
- Mailbox user name - This will identify, authenticate and open the applicable mailbox.
- Password- The password for the applicable mailbox.

If *Use current Windows credentials* is selected, the existing user's Windows password will be used.

If *Exchange Impersonation* is selected, enter the SMTP address of the mailbox that you want to connect to. Exchange impersonation must also be configured on the Exchange Server.

Once the connection has been made, the mailbox you have authenticated to will appear as a mailbox tree in a new pane called *Connected Mailboxes*. You can open a preview pane for the destination mailbox tree by selecting the *Show item list and preview* icon (CTL+R), to the right of the *Connected Mailboxes* pane.
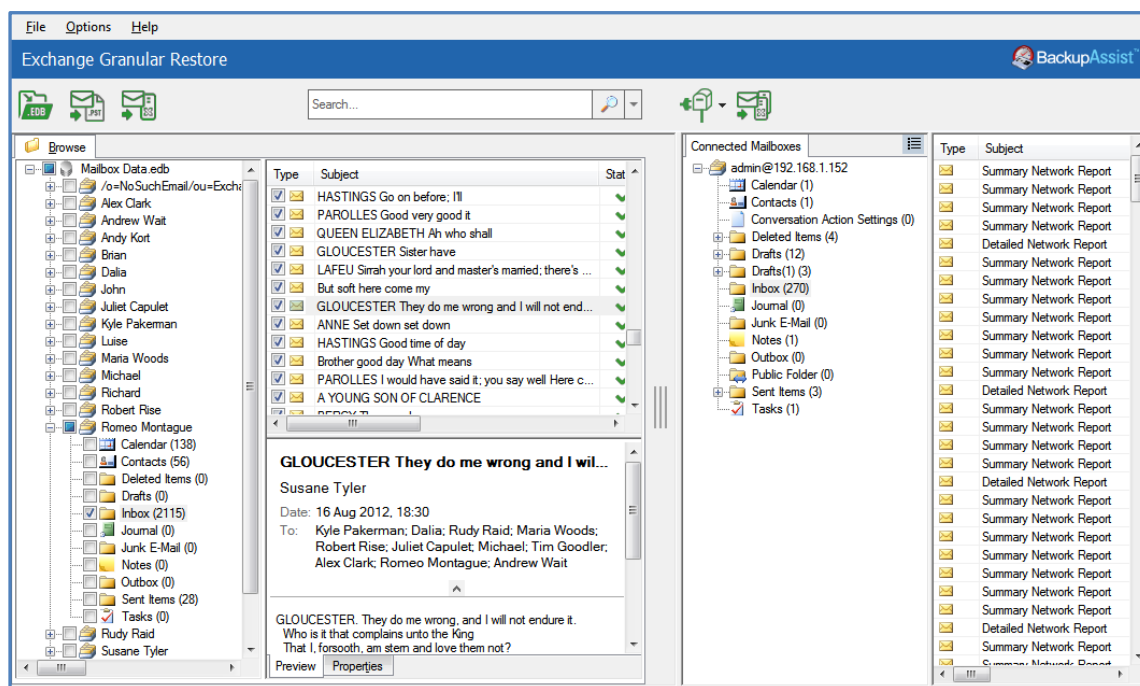
b) **Restore mail items to an alternate location**

There are two ways to restore mail items to the alternate location: drag and drop and the *Restore to alternate location* button.

Drag and drop

Drag and drop mail items from the EDB database backup, into the live Exchange mailbox that you have connected to.

- The hierarchy of the data being dragged will be recreated inside the destination folder.
- You can create a new folder in the live mailbox by right clicking the mailbox or a folder. Note, you cannot delete or rename a folder once it has been created.

Restore to alternate location button

Click the check-box next to items that you want to restore and select the *Restore to alternate location* button. A dialog box will open and allow you to select a destination folder on one of the connected mailboxes. Make your destination selection and select *OK* to begin the restore

- The data hierarchy will be restored automatically.
- The root of hierarchy is the closest common parent item.

Source mail items and destination folder compatibility

Not all types of mail items can be restore to all types of destinations folders. The following table shows the compatibility matrix of source mail item types and destination directories.

Item type	*Mail folder	Journals	Notes	Contacts	Calendar	Tasks
Message	Y	Y	Y	Y	Y	Y
Journal	Y	Y	Y	Y	Y	Y
Sticky Note	Y	Y	Y	Y	Y	Y
Contact	N	N	N	Y	N	N
Calendar	N	N	N	N	Y	N
Task	N	N	N	N	N	Y

* The *Mail folder* includes Deleted Items, Drafts, Inbox, Junk, Outbox and Sent.

If some or all of the selected items cannot be restored (using drag and drop or clicking the *Restore to alternate location* button) to the destination folder, then an error message will be displayed.

Option 3: Export to PST

Export to PST will save your selected data in a PST file, which can be opened by outlook to access the mail items.

To perform the export, follow the steps below:

a) **Confirm the Personal Storage Table (PST) format**

You can choose *Unicode* or *ANSI* encoding for the PST output file using the *Options* menu.

The *Exchange Granular Restore* console exports each mailbox into a separate .pst file named: "Restore NNN <Mailbox Name>[VVV]. pst", where NNN is the current recovery session identifier and VVV is the volume number, in case the PST file has to be written in more than one volume.

With large exports, there can be more than one PST file. Additional files are created automatically when the file size limit is reached. The size limit depends on the output file encoding.

- For ANSI PST files, the size limit is 1 GB.
- For Unicode PST files, the size limit is 10 GB.
- A maximum of 15,000 messages can be restored into the PST file.
- When this limit is reached, an additional PST file is created.

b) **Select the , *Export to PST* button**

This button will become active once the mail items have been selected.

c) **Select the destination.**

You will be asked to select a folder or create a new folder. After selecting the new or existing folder, the export will begin.

You will be shown a progress window during the export. The window shows the number of saved mailboxes, folders and messages. The export can be cancelled by clicking the *Stop Export* button. If you close the progress window, it can be opened again by clicking the status panel's progress bar.
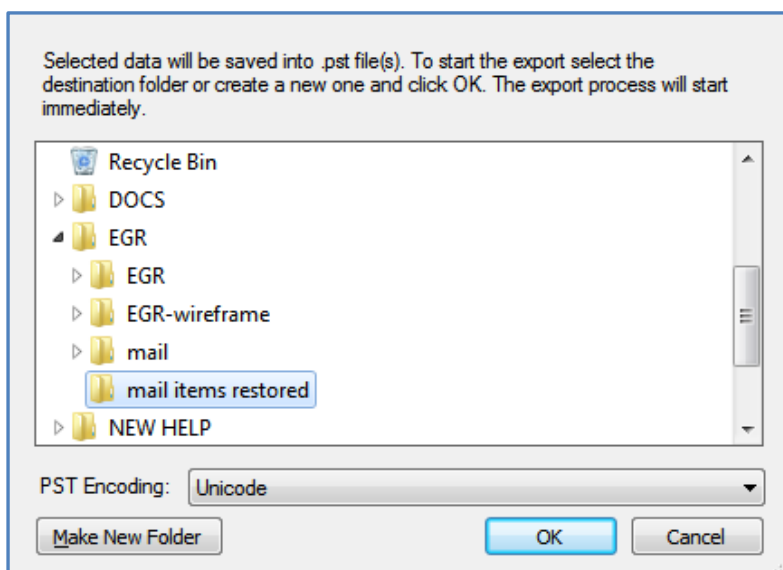
The items selected (even if you only selected one item) will be exported as a PST file.

d) **Open the exported mail items in Outlook.**

1. Click *File > Open* and choose *Open Outlook Data File*.
2. Browse to the PST file that was exported, then select it and click *OK*.
3. The PST file will appear in Outlook as a container.
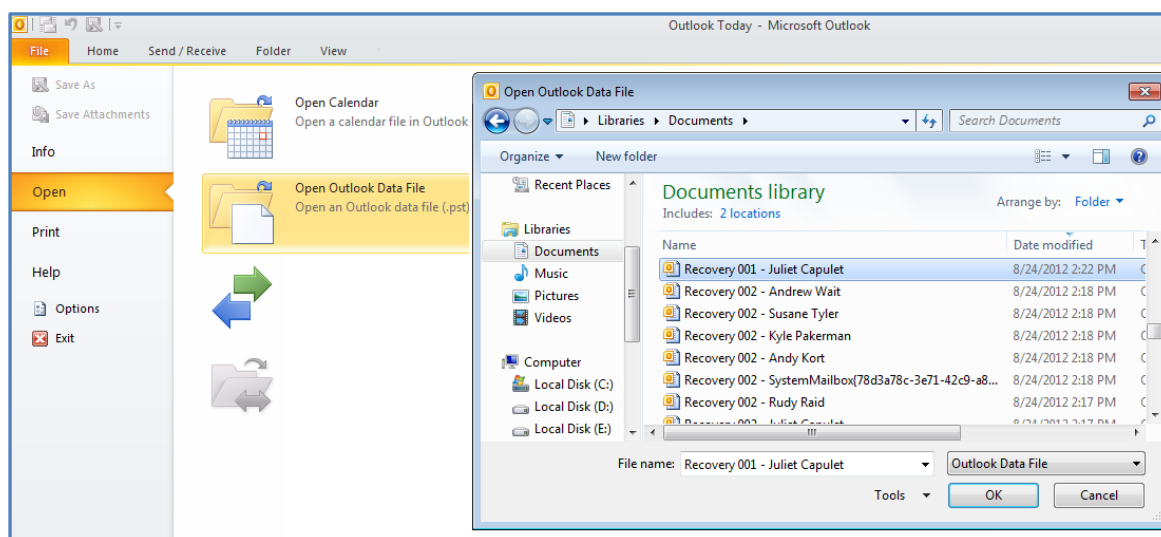
Figure 9: Opening an exported PST file in outlook

e) **Restore the exported items to the Exchange Server.**

Items extracted from an offline Exchange mail store can be restored to a live server. Make sure you have Microsoft Outlook and access to the mailbox that you want to restore the mail items into.

1. Open the PST file that contains the exported mail items.
2. Open the mailbox that you need to import the data into.
3. Drag-and-drop the item them back into their original folders. They will be automatically synchronized with the live Exchange Server database.
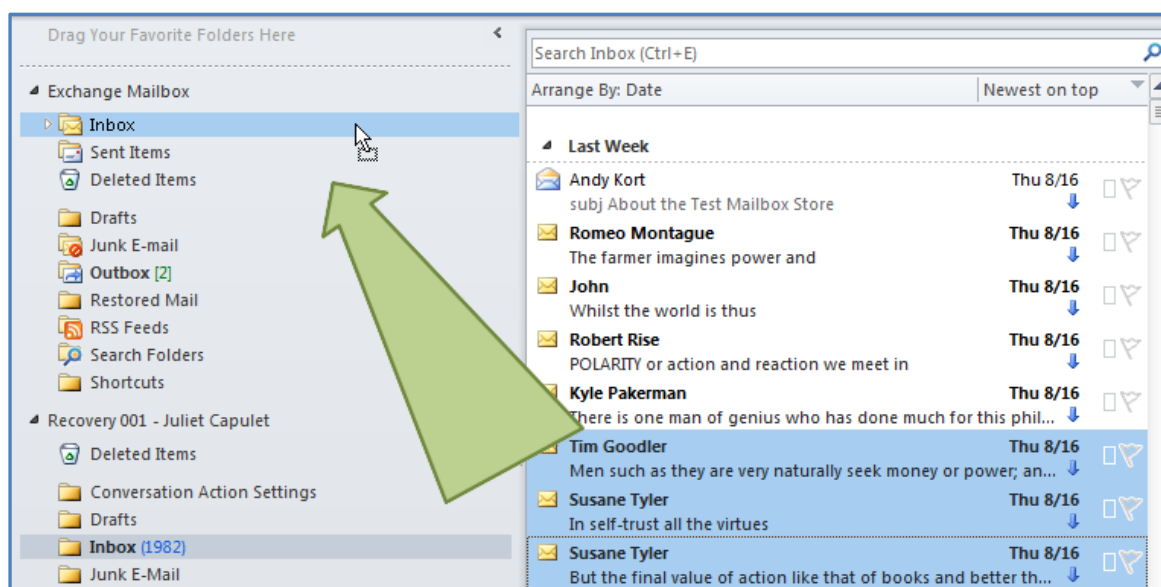
Figure 10: Restoring a PST file to an Exchange Server.

5. Exchange backup management

Once you have created a backup job, you can modify the settings and access advanced configuration options using the *Manage* menu.

To access the backup management screen:

1. Select the BackupAssist, **Backup tab.**

2. Select **Manage** from the top menu. A list of all backup jobs will be displayed.

3. Select the backup job you want to modify, and select **Edit.**

4. Select the required configuration item on the left. Key configurations are described below.

To learn more about the backup management options, see the Backup tab whitepaper.

Files and applications

If your backup job contains a Hyper-V guest with an Exchange Server, the authentication information for the guest should be entered into the **Exchange VM Detection** tab.

Select the **File and applications** > **Exchange VM Detection** tab.

With these credentials, BackupAssist can detect what guests have an Exchange Server, and list the EDB file available for each guest when you perform a restore using the Exchange Granular Restore console.

The Hyper-V process is automated but the restore requires both the *Exchange Granular Restore Add-on and the Hyper-V Granular Restore Add-on* licenses.
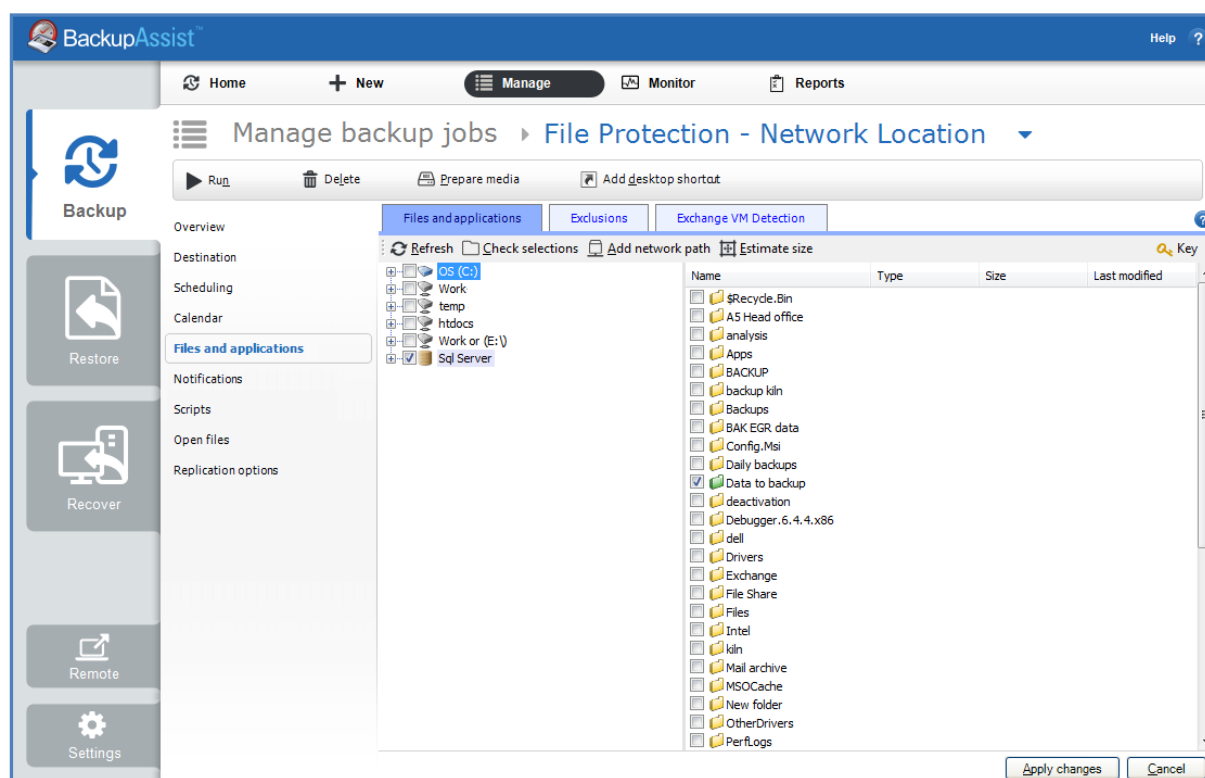
Figure 11: Manage backup jobs screen – File and applications option