EVault Software

Granular Restore for Microsoft Exchange and SQL 8.0

User Guide

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Software Version: 8.00

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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 have the encryption option of 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).

The EVault Software Agents and EVault Software Director applications also have the added security feature of an over the wire encryption method.

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1 Product overview

Granular Restore for Microsoft Exchange and SQL is a granular data extraction software for offline SQL databases and Microsoft Exchange Server mailbox stores and Outlook files. The utility provides direct access to unmounted database tables and mail store contents, displaying file structure and its contents with selective export functionality. With a search query tool, users are able to export specific queries rather than large tables or files.

For SQL databases, recovered items can be saved as SQL scripts or exported directly to a live SQL server. For Microsoft Exchange servers, files can be saved as Personal Storage File (.pst) files, to be opened with Microsoft Outlook or other compatible email clients, or exported directly into live Exchange Server mailboxes. The utility makes no changes to the store, preserving it in original unmodified state.

Main features of Granular Restore for Microsoft Exchange and SQL:

SQL Server Database

- Recovers entire tables, objects and object groups
- Recovers data obtained by specific search queries
- Recovers keys, scripts, functions, triggers and procedures
- Recovers default settings, user types and views
- Saves single or multiple points of data as SQL scripts or exports to live SQL database

Exchange Server

- Recovers mailboxes, folders, messages and file attachments
- Recovers notes, contacts, tasks and appointments
- Recovers creation dates for all objects
- Saves selected items to PST files or exports to live Exchange Server mailbox(es)

1.1 Supported Exchange database versions

Granular Restore for Microsoft Exchange and SQL supports the following mail store versions: Exchange 2016, Exchange 2013 SP1, Exchange 2010 SP3 and Exchange 2007 SP3

1.2 Supported Outlook versions

Granular Restore for Microsoft Exchange and SQL supports the following versions of PST/OST files: 2013 and 2010

1.3 Supported SQL Server database versions

Granular Restore for Microsoft Exchange and SQL supports the following versions of MDF files: 2014, 2012, 2008R2, 2008 and 2005

1.4 System requirements

Basic system requirements:

Operating systems: Windows 10, Windows 8.1, Windows 8, Windows 7, Windows Server 2012 R2, Windows Server 2012, and Windows Server 2008

RAM: 1024MB, depends on store size and OS version

Hard Disk: minimum 50MB of free space required for installation Display: 800 x 600 or higher resolution, 256 colors

Additionally, Granular Restore for Microsoft Exchange and SQL may require free space on disk 1.5x the size of mail store being processed. For example, for 300MB store, 450MB free space should be available.

Live Exchange Server export requirements

Exchange Server

Exchange Server 2016, 2013, 2010 or 2007

Exchange Web Services enabled on Exchange Server

Network

Port 443 open on the network. The EWS messages are transported via SOAP-based API, which is essentially sending XML data using https protocol.

Restore client

Granular Restore for Microsoft Exchange and SQL installed. Access to Exchange server(s) over network.

Live SQL Server export requirements

SQL Server

SQL Server 2014, 2012, 2008R2, 2008 or 2005

SQL Server Browser running on SQL Server

Network

To establish connection to live SQL Server, remote network access must be allowed on the server and TCP/IP protocol must be enabled in SQL Server Configuration Manager. For detailed instructions on how to do it, visit http://blogs.msdn.com/b/walzenbach/archive/2010/04/14/how-to-enable-remote-connections-in-sql-server- 2008.aspx

Restore client

Granular Restore for Microsoft Exchange and SQL installed. Access to SQL Server(s) over network.

1.5 Limitations

The current version of the product has the following limitations:

- Simultaneous recoveries are not supported.
- Simultaneous running of more than one instance of the product is not supported.
- Usage in "Run as different user" mode is not supported.

SQL Server Limitations

- Log files are not processed.
- Encrypted SQL databases are not currently supported.
- Calculated fields and fields of type [sql_variant] in indexes cannot be used in SQL database search.
- Sparse columns in SQL databases are not supported.
- Filestream data type and Filetables in SQL databases are not currently supported.
- Searching by 'real' data type may return not full results.

Exchange Server Limitations

- Encrypted emails are not restored.
- Messages in the Outbox folder are not restored if they haven't been synchronized with the server.
- Messages with size over 64MB are not supported
- Recovery of delivery receipts and non delivery reports is not supported.
- OST files, created in Outlook 2013, are not supported.

- Password-protected PST files are not restored in command-line interface Command-line interface is not supported for MDF files.

Injection limitations for Exchange Server

- Archived mailboxes (and items from such mailboxes) are not exported to live Exchange Server. Photos of contacts are not exported to original live mailbox in Exchange Server 2007.
- Emails with embedded images are displayed with an attachments icon after exporting into live Exchange Server 2007.
- Creation time and modified time are not restored. Exporting data into live public folder is not supported.
- Exporting data from PST/OST files into original mailbox is impossible.
- Contact groups and meeting requests cannot be exported into live Exchange Server 2007 instances. Use export through PST for these item types.
- Missing sent date is exported as current date/time into live Exchange Server.

Limitations for search in attachments content (available for EDB/PST/OST files)

Search in attachments does not work for:

- Text contained in embedded OLE objects, WordArt and smart objects, charts etc. Documents metadata (author, comments, tags etc.).
- Marker symbols in lists (numbered or bulleted). Text in header/footer.
- XLS/XLSX: number values, formulas, cell comments. PPT: tables content.

Tip

Note that the utility is best used for granular item extraction. The user interface of the program is designed for ease of locating, selecting and exporting specific messages, folders or mailboxes. Entire databases can be exported as well, but the restore time will significantly increase over a slow connection. For bulk operations that involve exporting more than one mailbox it is typically better to work with a local copy of the database.

1.6 Boundaries for optimal recovery and search

Usage of Granular Restore for Microsoft Exchange and SQL is optimal for files that do not exceed:

EDB:

EDB size: 2TB Mailbox size: 100GB

Number of messages in the EDB file: 2,000,000 Number of mailboxes in the EDB file: 2,000 Number of messages in one mailbox: 100,000

PST/OST:

PST/OST size: 100GB

Number of messages in the PST/OST file: 200,000 Number of folders in the PST/OST file: 1,000 Number of messages in one folder: 100,000

MDF:

MDF size: 1TB

Number of tables in the MDF file: 1,000 Number of rows in one table: 10,000,000

1.7 Customer support

For customer support, please contact EVault using one of the methods listed below.

Online:	https://www.evault.com/support/customer_login.html
email:	Support@EVault.com

Tip

When contacting customer support with a technical issue, please have ready the program's log files and the store you are having difficulty with.

To get log files, click File menu and choose Open log folder. Zip the contents of the folder and attach the resulting archive to your support request.

If the log archive and/or mail store exceeds 10MB, it may be impossible to send them as an email attachment. In that case, upload instructions will be provided to you upon request.

2 Installation

This chapter describes the steps required to install Granular Restore for Microsoft Exchange and SQL. Depending on your preferences, it is possible to install the product in default or advanced mode.

Default mode

Default mode provides simple setup that requires just a few mouse clicks to complete. For the sake of simplicity, it does not offer any customization capabilities and uses the following default settings:

Granular Restore for Microsoft Exchange and SQL will be installed in a per-user folder and be available just for your user account. You do not need local administrator privileges in this case.

The default installation location is "C:\Program Files\EVault Software\" A shortcut for this program will be created on the desktop automatically.

Step by step instructions:

1. Double-click on the setup file to start the installation process.
2. The Software License Agreement appears. Read it and accept the terms in the License Agreement.

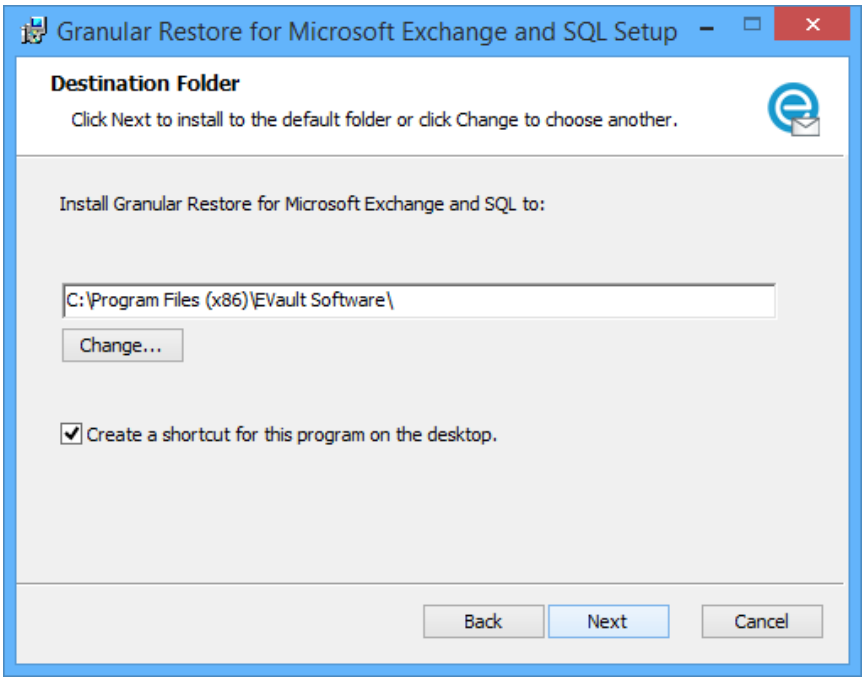
3. Click **Install** to start setup .
4. The installation will start. When finished, you will have an option to launch the installed product.

Advanced mode

Advanced setup mode allows changing default installation options. Step by step instructions:

1. Double-click on the setup file to start the installation.
2. The Software License Agreement appears. Read it and accept the terms in the License Agreement.

3. Click **Advanced** to change installation options described above.
4. Click **Next** to install the product to the default folder or **Change to choose another folder**. To add an icon shortcut to the desktop for quick start of the program, check **Create a shortcut for this program on the desktop**.



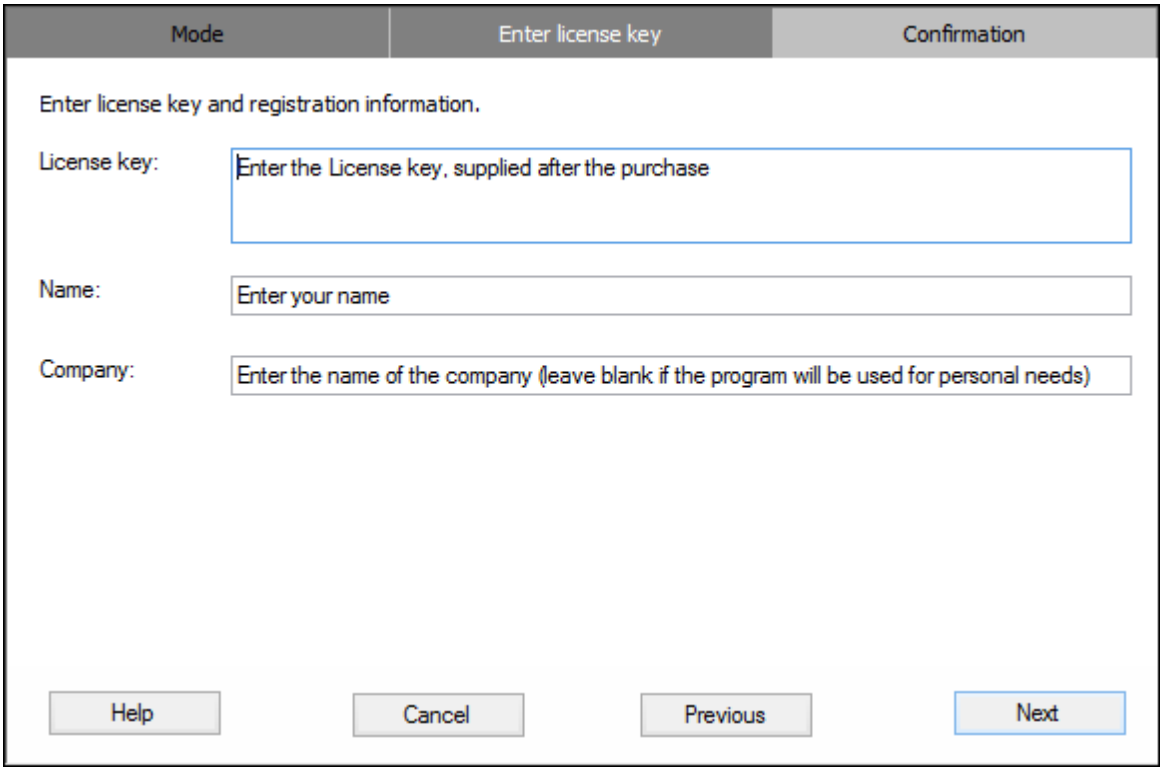
5. Click Install to begin the installation. Click **Back** to change any of your installation settings. Click **Cancel** to exit the setup wizard.
6. After the installation finishes you can choose to Launch Granular Restore for Microsoft Exchange and SQL when setup exits to start the program automatically by clicking the appropriate checkbox. Click the **Finish** button to exit the setup wizard.

2.1 Product activation

When starting Granular Restore for Microsoft Exchange and SQL for the first time, you are prompted to activate the product by entering your license key.

Enter the license key, and provide the names of registered user and company. Click **Next** to finish the activation.

Note: If you enter an old license key, or continue to use an old license key after an upgrade, only Exchange restores will be available. To obtain the correct license key, contact your service provider.



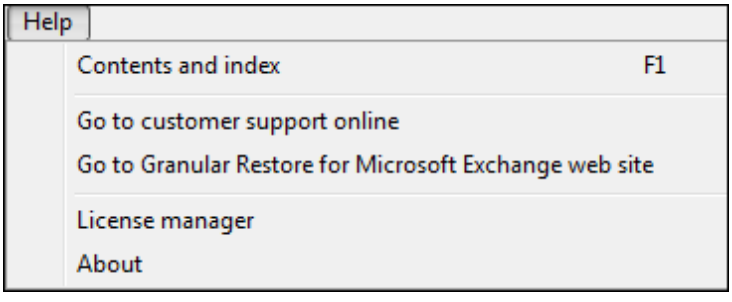
Tip

When getting an error message, first of all check if the license key has been entered correctly. It's best to copy and paste the key to avoid typos.

2.2 Product deactivation

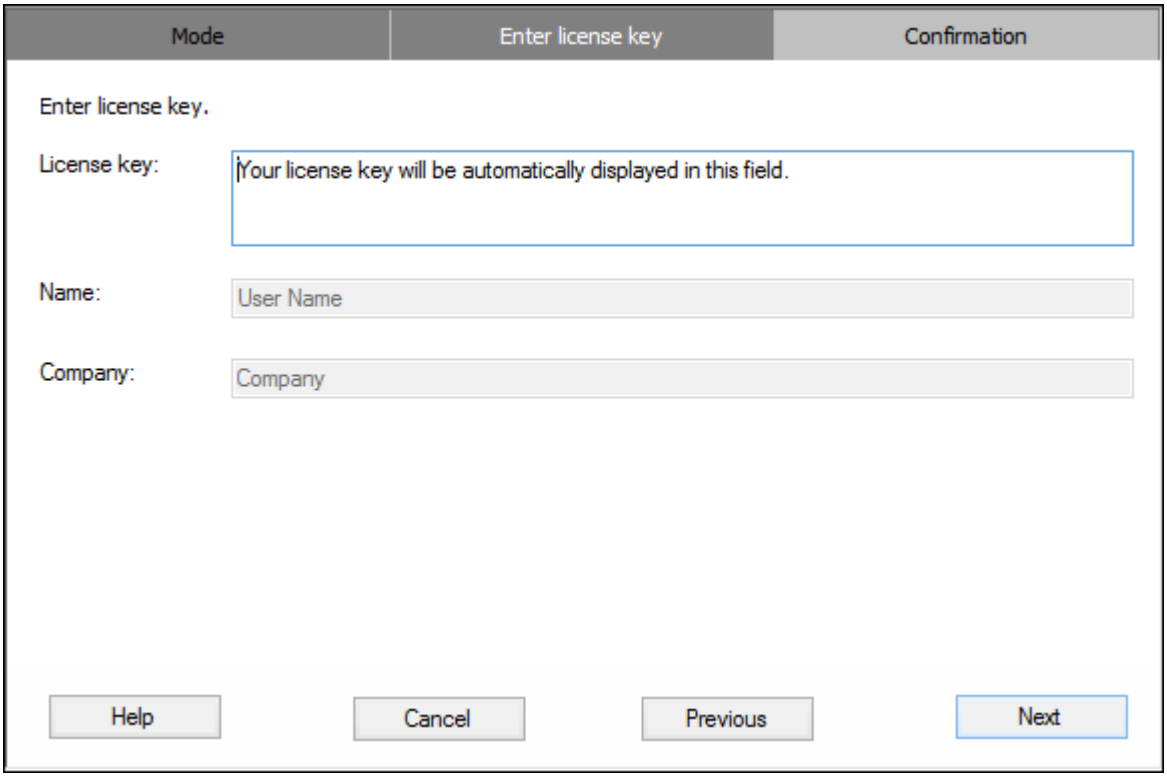
Deactivation of the product should be used before product uninstallation. Follow the steps below for successful deactivation:

1. Start the product. Go to the **Help** menu, click **License manager.**



2. Select Deactivate product license for this computer in the opened window and click Next.

3. Enter your license key

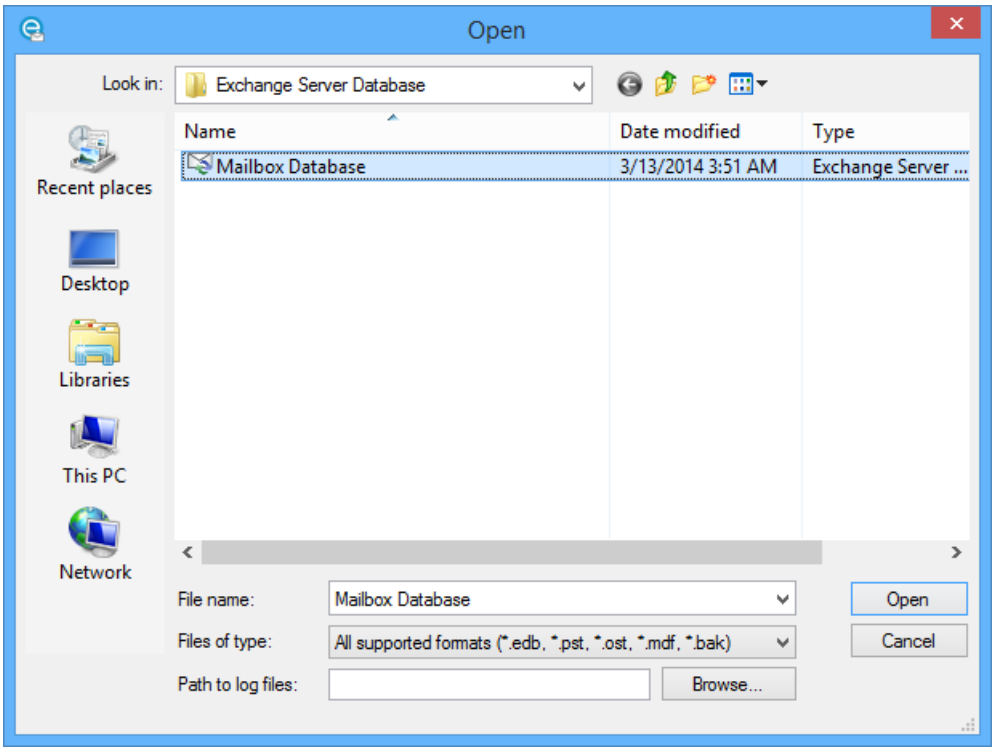


4. Click **Next** to finish the deactivation.

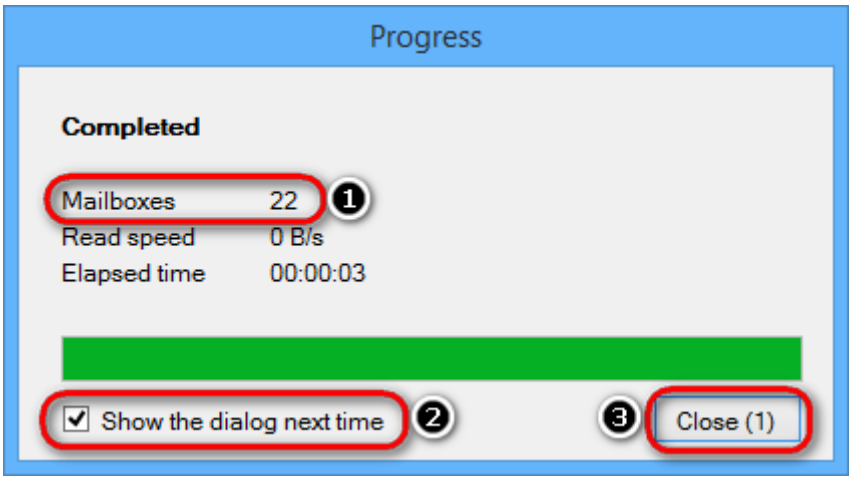
3 Opening a file

To directly open a file for browsing and export, launch Granular Restore for Microsoft Exchange and SQL and click file open button on the taskbar or select **File|Open** from the menu. On first launch, the file open dialog will be shown automatically.

Select the store you will be working with and click **Open**.



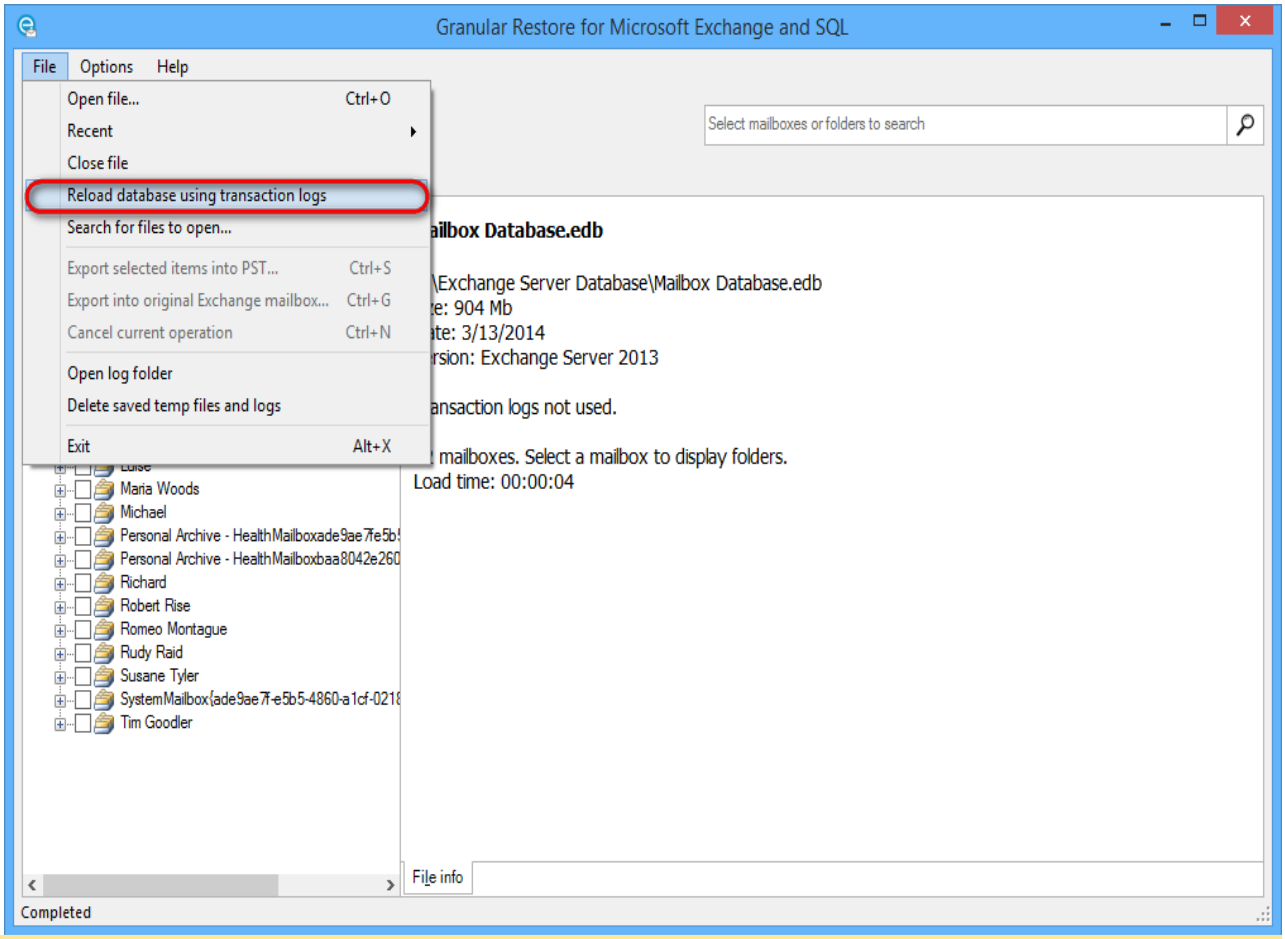
By default, a progress window will accompany opening the selected file. The window displays overall progress and information about the number of items and objects in the file (1). The window can be disabled by unchecking the **Show the dialog next time** check box (2) or from the **Options** menu. The progress window will be automatically closed in 3 seconds after database opening (3).



The current operation can be cancelled right on the progress dialog, by clicking an appropriate link.

After loading the file is complete, it will be available for browsing and export. The opened store will also become the default store and will be automatically reopened next time you launch the utility.

Opened database can be reloaded with database log files. Go to the File menu and select **Reload database using transaction logs**.



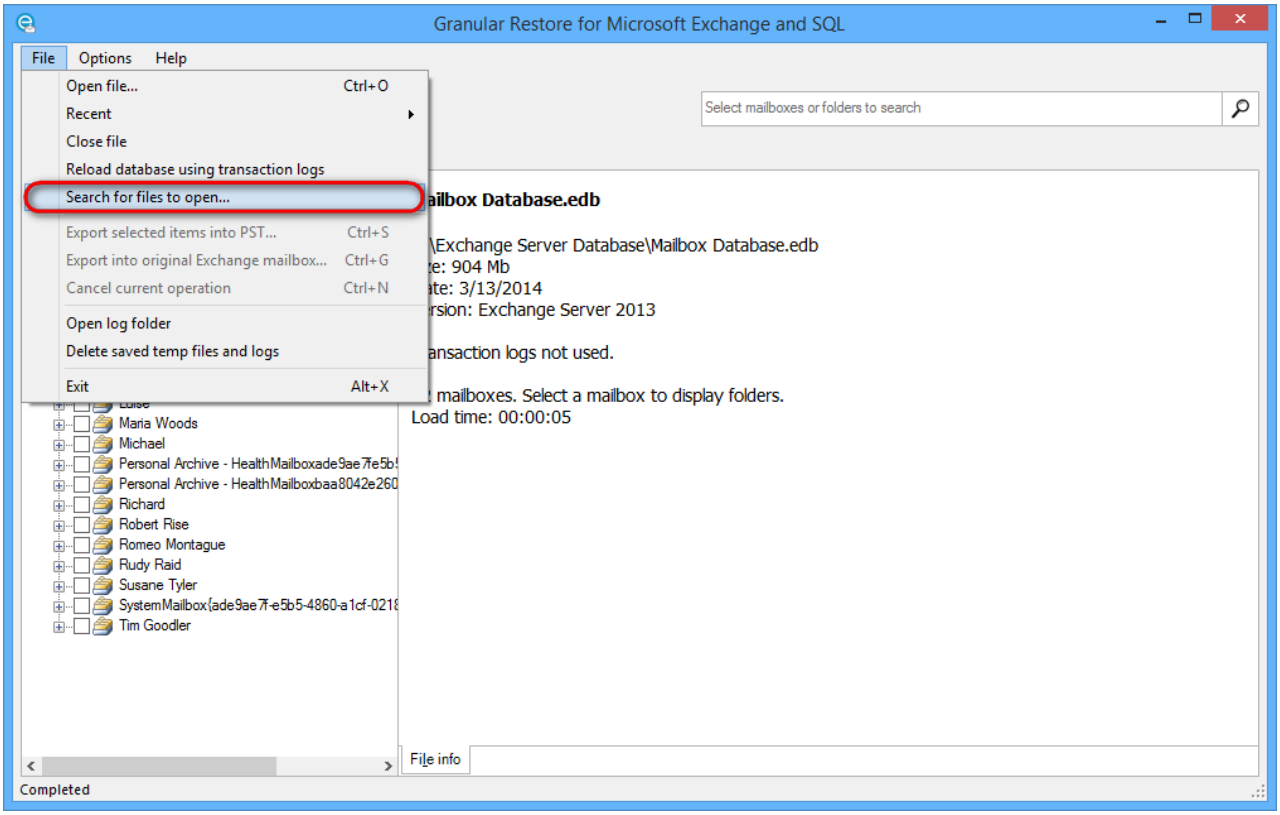
Note

If you closed the progress window, it can easily be shown again by clicking on the progress bar on the status panel.

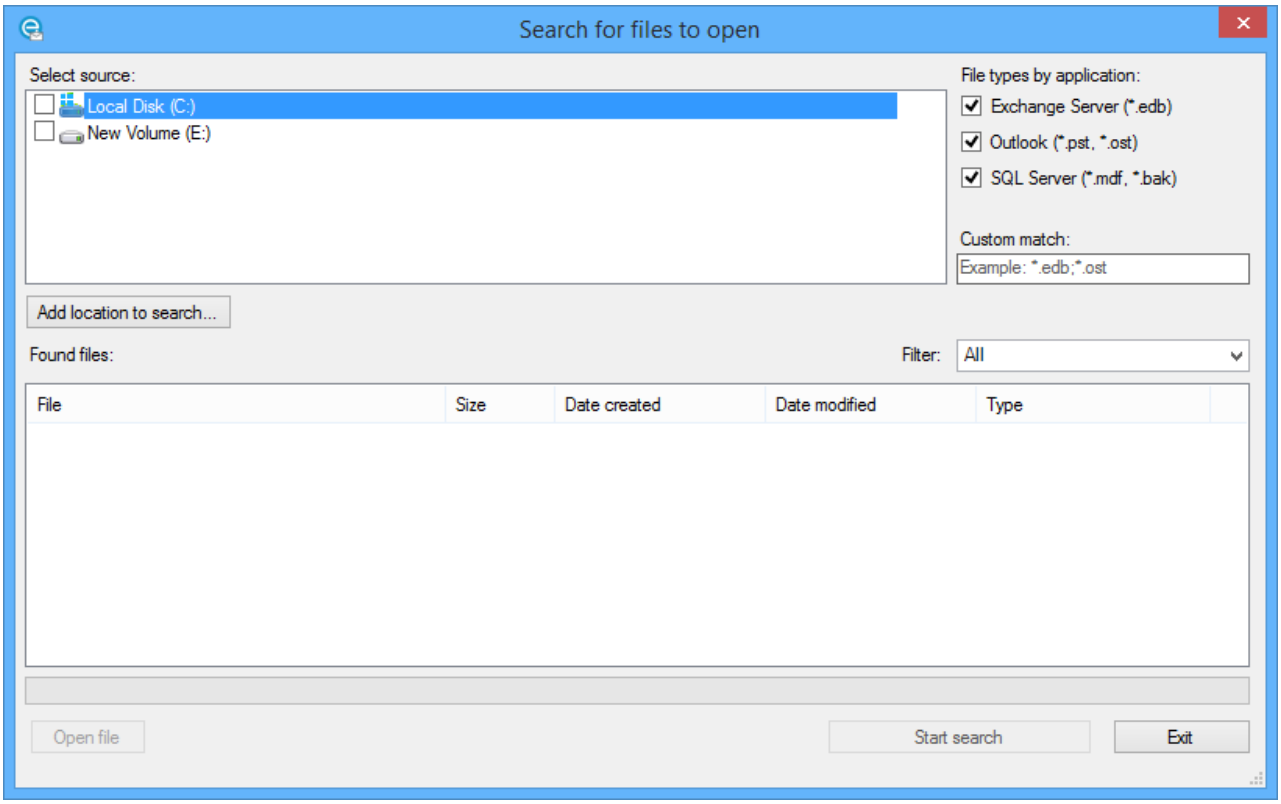
3.1 Finding a file

In case when the location of the file is unknown, it is recommended to scan existing drives to find the data. Granular Restore for Microsoft Exchange and SQL scans local drives, as well as network drives and searches for PST/OST, MDF and EDB files.

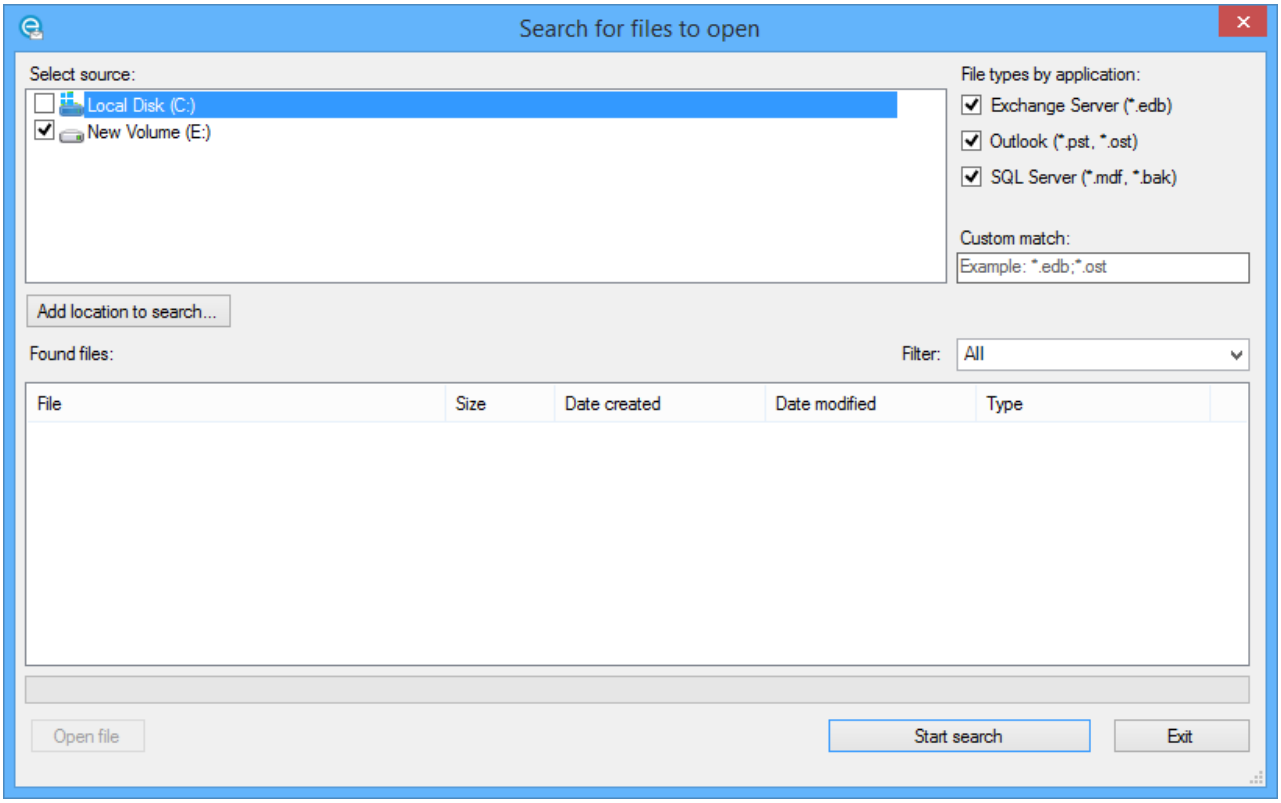
To start a new search click **Search for files to open** in the **File** menu.



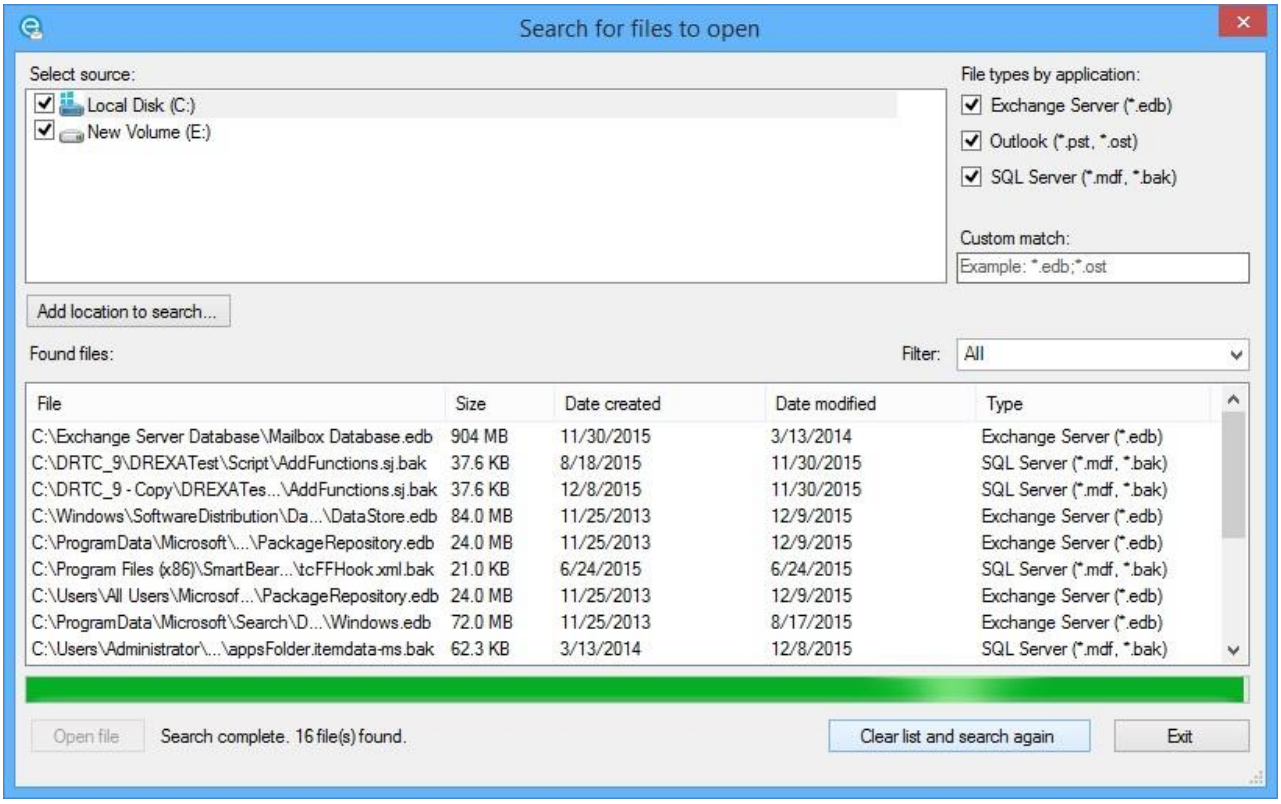
The following form appears, displaying the list of mounted disks:



Select a location to search in.



List of found files will be displayed. Double-click a file to open it.

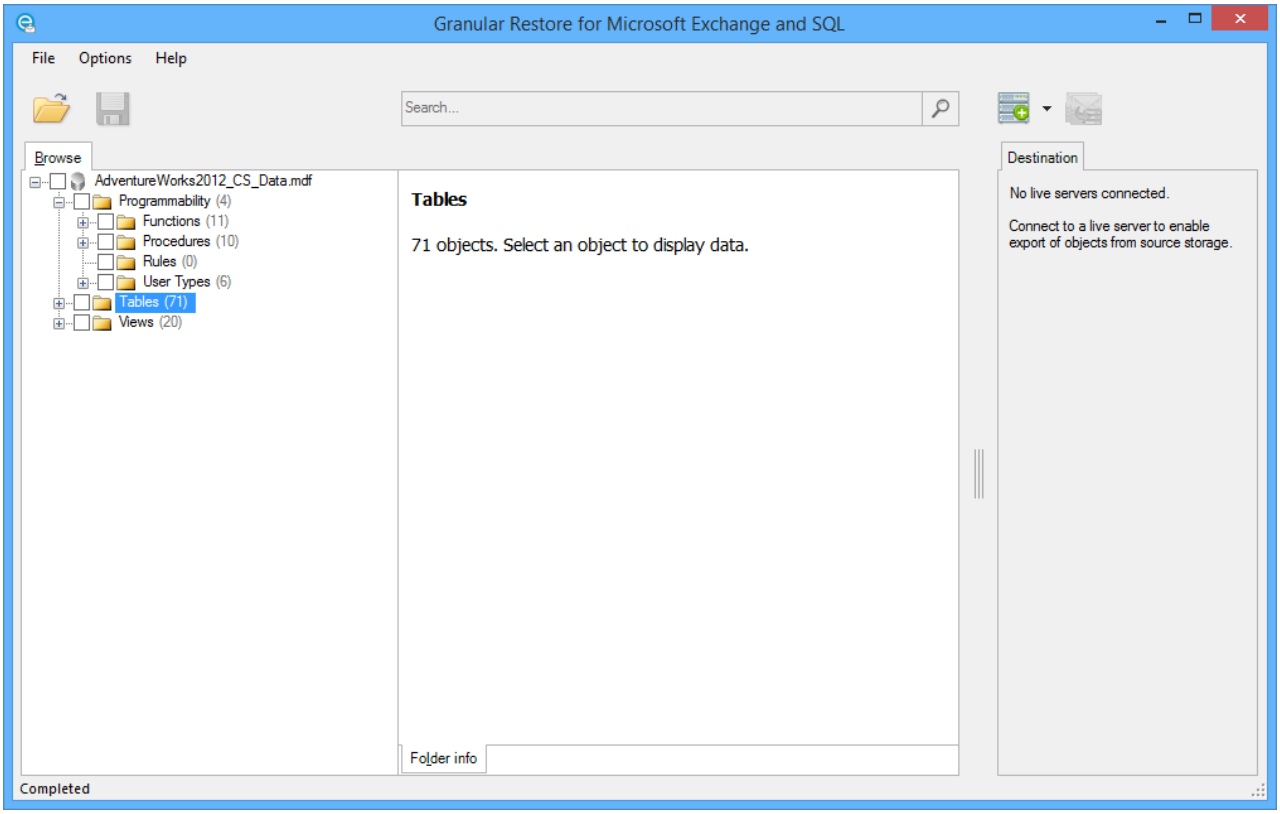

Search for files to open
Select source:
Local Disk (C:)
New Volume (E:)
File types by application:
Exchange Server (*.edb)
Outlook (*.pst, *.ost)
SQL Server (*.mdf, *.bak)
Custom match:
Example: *.edb;*.ost
Add location to search...
Found files:
Filter:
All
File
Size
Date created
Date modified
Type
C:\Exchange Server Database\Mailbox Database.edb 904 MB 11/30/2015 3/13/2014 Exchange Server (*.edb)
C:\DRTC_9\DREXATest\Script\AddFunctions.sj.bak 37.6 KB 8/18/2015 11/30/2015 SQL Server (*.mdf, *.bak)
C:\DRTC_9 - Copy\DREXATes...\AddFunctions.sj.bak 37.6 KB 12/8/2015 11/30/2015 SQL Server (*.mdf, *.bak)
C:\Windows\SoftwareDistribution\Da...\DataStore.edb 84.0 MB 11/25/2013 12/9/2015 Exchange Server (*.edb)
C:\ProgramData\Microsoft\...\PackageRepository.edb 24.0 MB 11/25/2013 12/9/2015 Exchange Server (*.edb)
C:\Program Files (x86)\SmartBear...\tcFFHook.xml.bak 21.0 KB 6/24/2015 6/24/2015 SQL Server (*.mdf, *.bak)
C:\Users\All Users\Microsof...\PackageRepository.edb 24.0 MB 11/25/2013 12/9/2015 Exchange Server (*.edb)
C:\ProgramData\Microsoft\Search\D...\Windows.edb 72.0 MB 11/25/2013 8/17/2015 Exchange Server (*.edb)
C:\Users\Administrator\...\appsFolder.itemdata-ms.bak 62.3 KB 3/13/2014 12/8/2015 SQL Server (*.mdf, *.bak)
Open file
Search complete. 16 file(s) found.
Clear list and search again
Exit

4 Granular Restore for Microsoft SQL

4.1 Finding and browsing data

In general, Granular Restore for Microsoft Exchange and SQL provides two modes of processing file data: browsing the file tree and search. Using these, it is possible to efficiently form a set of objects for subsequent export, including the necessary ones and excluding ones to be skipped.

A newly opened database is shown in the **Browse** mode.



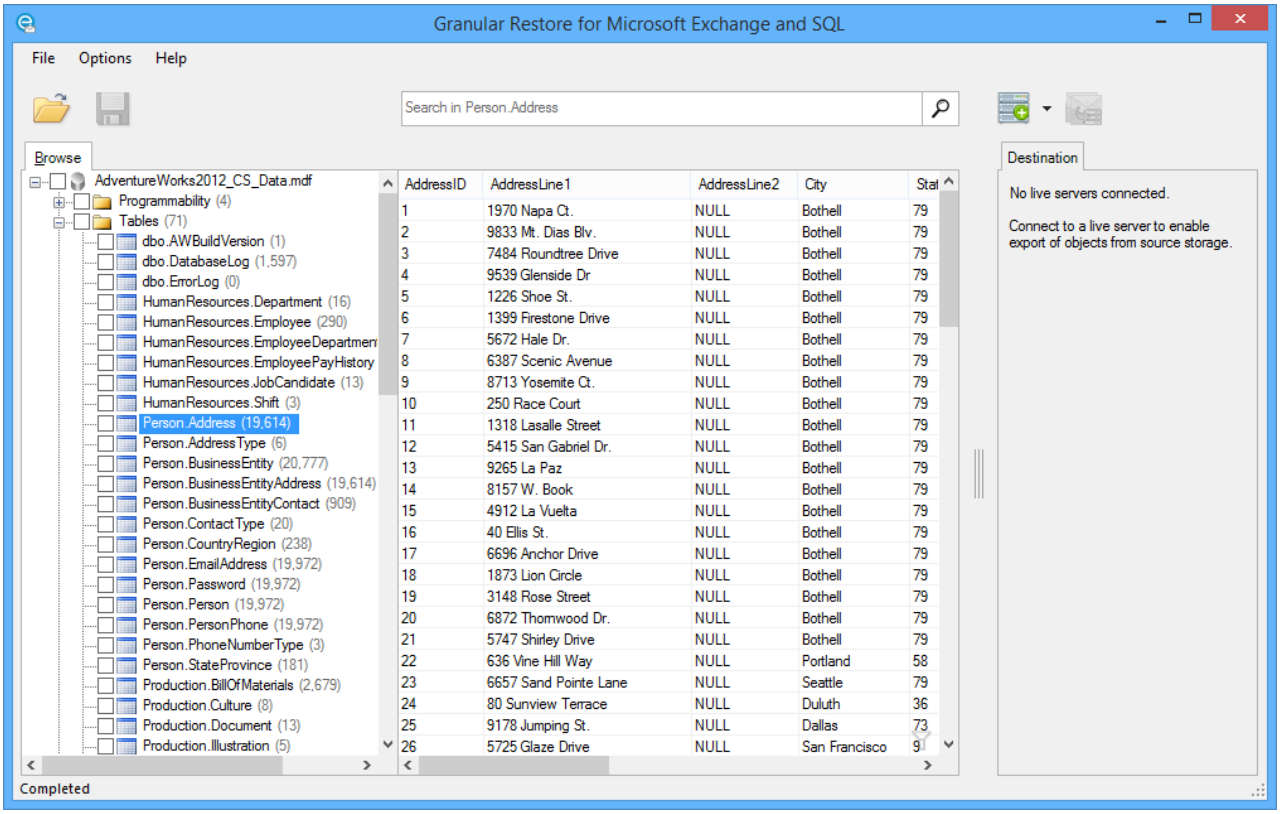
Browsing database tree

Browse mode shows database in a tree-like structure and allows browsing folders and previewing individual objects.

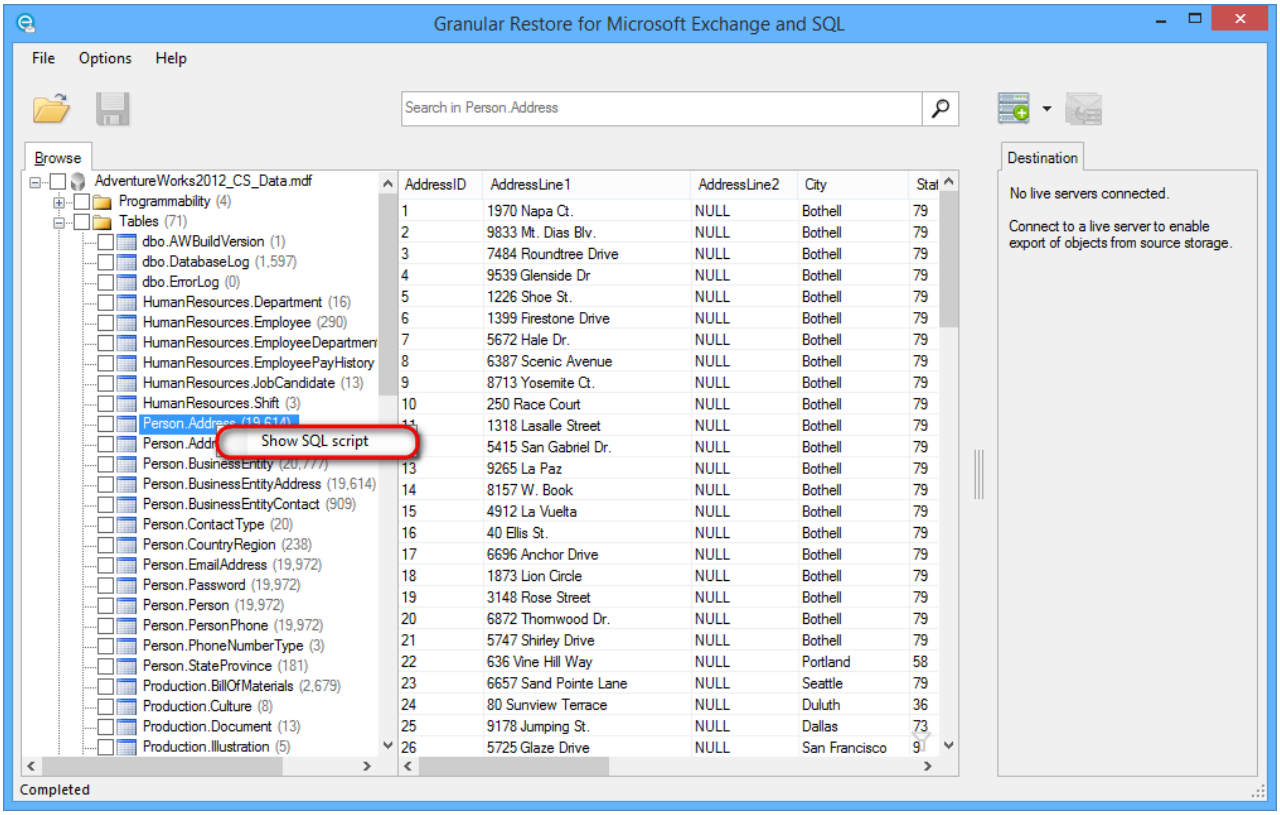
This mode is best for navigating to a specific object, when it is precisely known what data needs to be extracted.

For example, a user may ask to restore some specific table. Expand the folder 'Tables' in the tree and select the table. Available rows will be listed to the right of the tree. Please note that product will not try

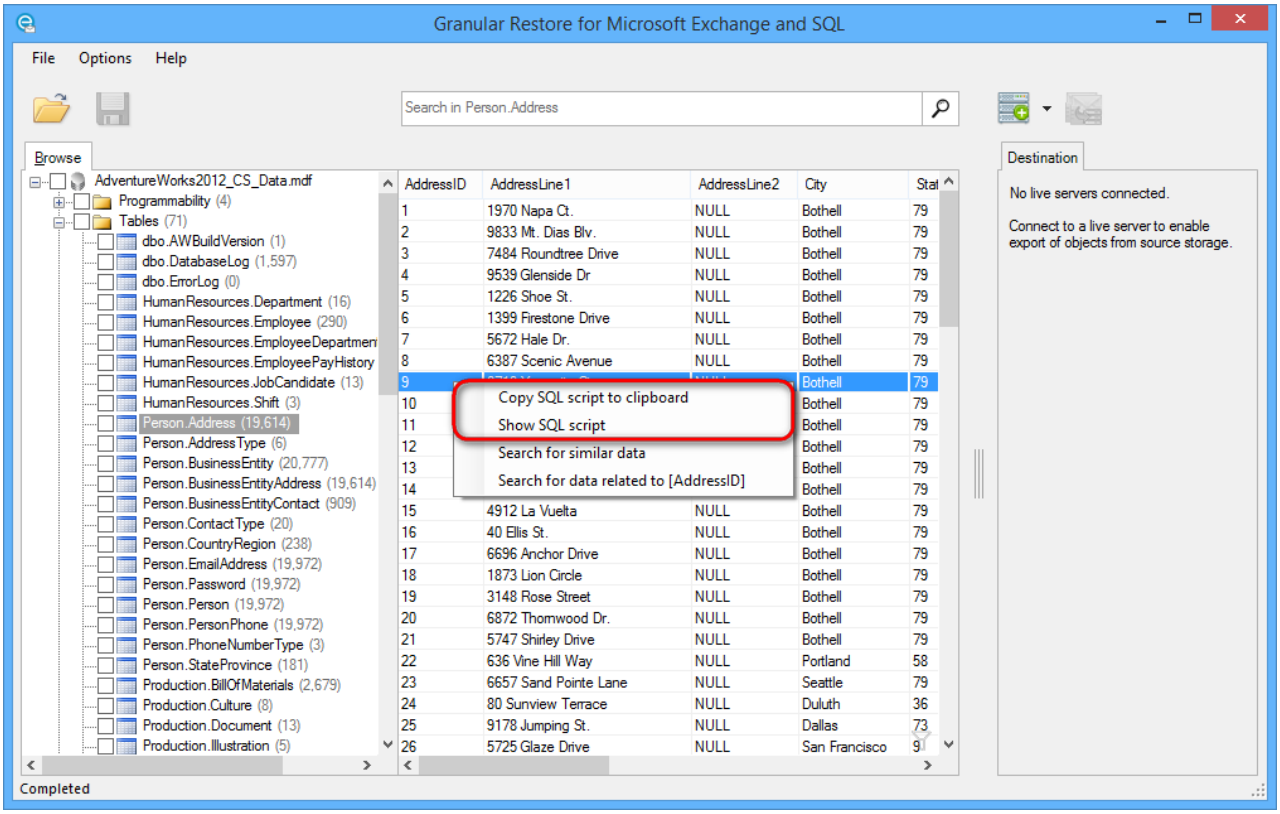
to load all rows in table. Instead of that rows will be loaded by portions each time you navigate to the end of list.



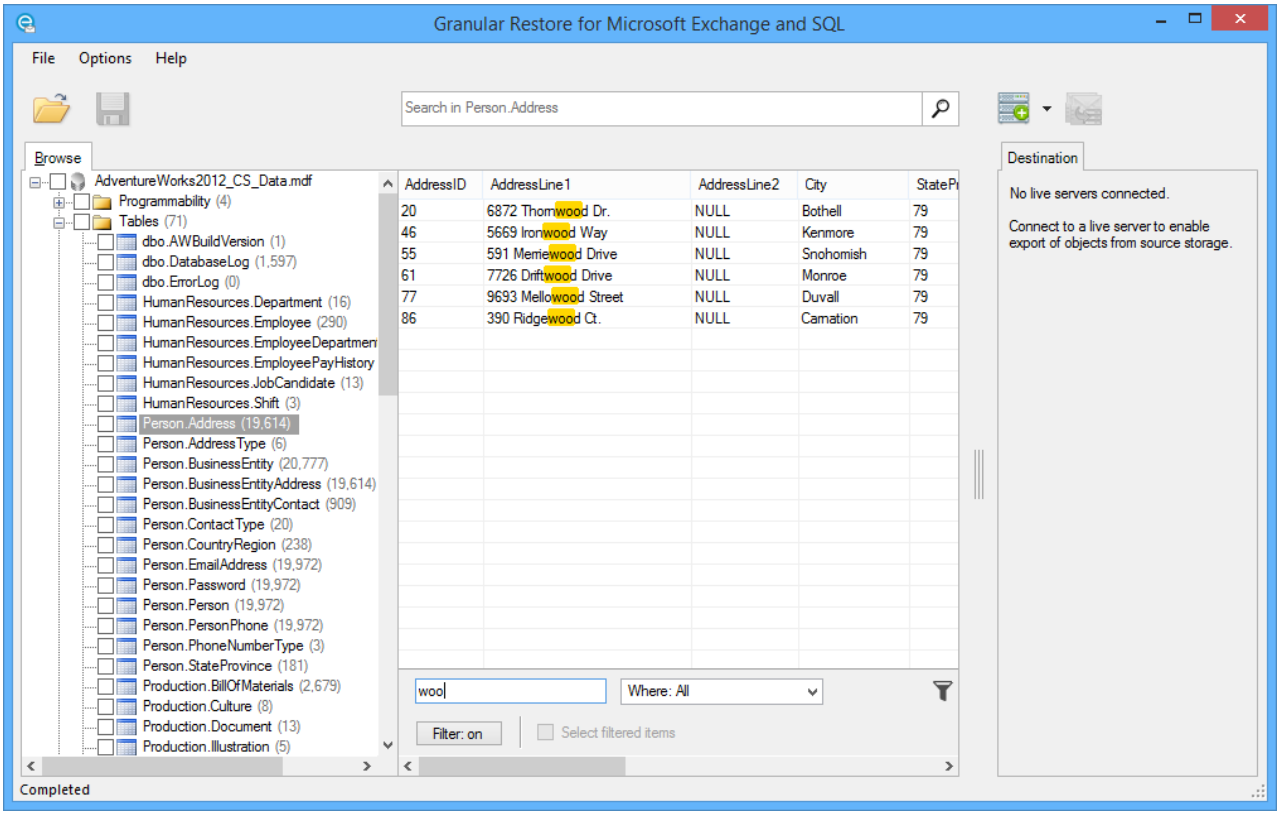
In case if SQL script of a table is necessary, just right-click on the table in the database tree and select **'Show SQL script'** in the context menu.


Granular Restore for Microsoft Exchange and SQL
File
Options
Help
Search in Person.Address
Browse
Destination
No live servers connected.
Connect to a live server to enable export of objects from source storage.
AdventureWorks2012_CS_Data.mdf
Programmability (4)
Tables (71)
dbo.AWBuildVersion (1)
dbo.DatabaseLog (1,597)
dbo.ErrorLog (0)
HumanResources.Department (16)
HumanResources.Employee (290)
HumanResources.EmployeeDepartmen
HumanResources.EmployeePayHistory
HumanResources.JobCandidate (13)
HumanResources.Shift (3)
Person.Addres (19,614)
Person.Addr
Show SQL script
Person.BusinessEntity (20,777)
Person.BusinessEntityAddress (19,614)
Person.BusinessEntityContact (909)
Person.ContactType (20)
Person.CountryRegion (238)
Person.EmailAddress (19,972)
Person.Password (19,972)
Person.Person (19,972)
Person.PersonPhone (19,972)
Person.PhoneNumberType (3)
Person.StateProvince (181)
Production.BillOfMaterials (2,679)
Production.Culture (8)
Production.Document (13)
Production.Illustration (5)
AddressID
AddressLine1
AddressLine2
City
Stat
1 1970 Napa Ct. NULL Bothell 79
2 9833 Mt. Dias Blv. NULL Bothell 79
3 7484 Roundtree Drive NULL Bothell 79
4 9539 Glenside Dr NULL Bothell 79
5 1226 Shoe St. NULL Bothell 79
6 1399 Firestone Drive NULL Bothell 79
7 5672 Hale Dr. NULL Bothell 79
8 6387 Scenic Avenue NULL Bothell 79
9 8713 Yosemite Ct. NULL Bothell 79
10 250 Race Court NULL Bothell 79
1318 Lasalle Street NULL Bothell 79
5415 San Gabriel Dr. NULL Bothell 79
13 9265 La Paz NULL Bothell 79
14 8157 W. Book NULL Bothell 79
15 4912 La Vuelta NULL Bothell 79
16 40 Ellis St. NULL Bothell 79
17 6696 Anchor Drive NULL Bothell 79
18 1873 Lion Circle NULL Bothell 79
19 3148 Rose Street NULL Bothell 79
20 6872 Thornwood Dr. NULL Bothell 79
21 5747 Shirley Drive NULL Bothell 79
22 636 Vine Hill Way NULL Portland 58
23 6657 Sand Pointe Lane NULL Seattle 79
24 80 Sunview Terrace NULL Duluth 36
25 9178 Jumping St. NULL Dallas 73
26 5725 Glaze Drive NULL San Francisco 9
Completed

Any particular row can also be scripted via context menu. By right click on the row, SQL script can be either shown or at once copied to clipboard.



Rows filtering provides the ability to easily find specific values in tables. To enable filtering, just start typing necessary data, when focus is on the list or press **Ctrl+F** keys. Please note that rows filtering works only for rows that was already loaded in current view.

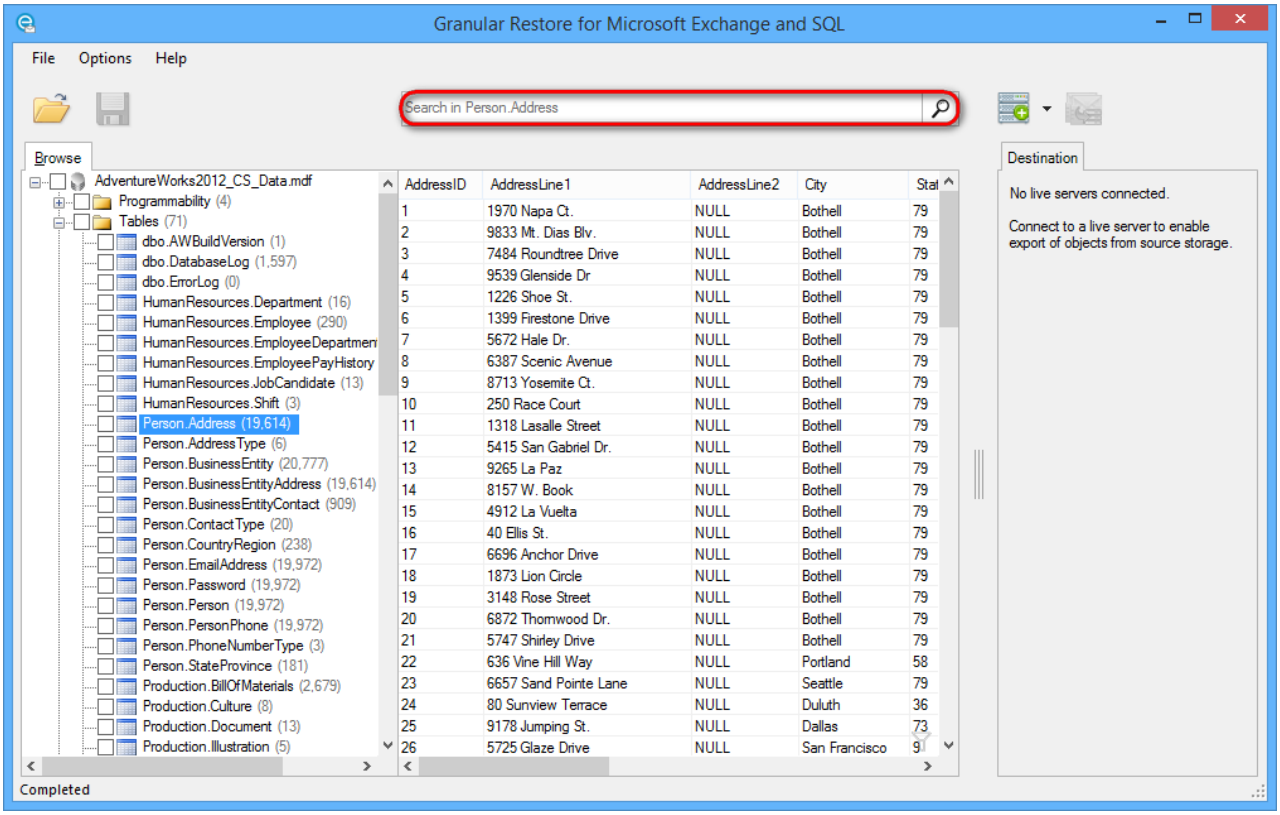


Using search

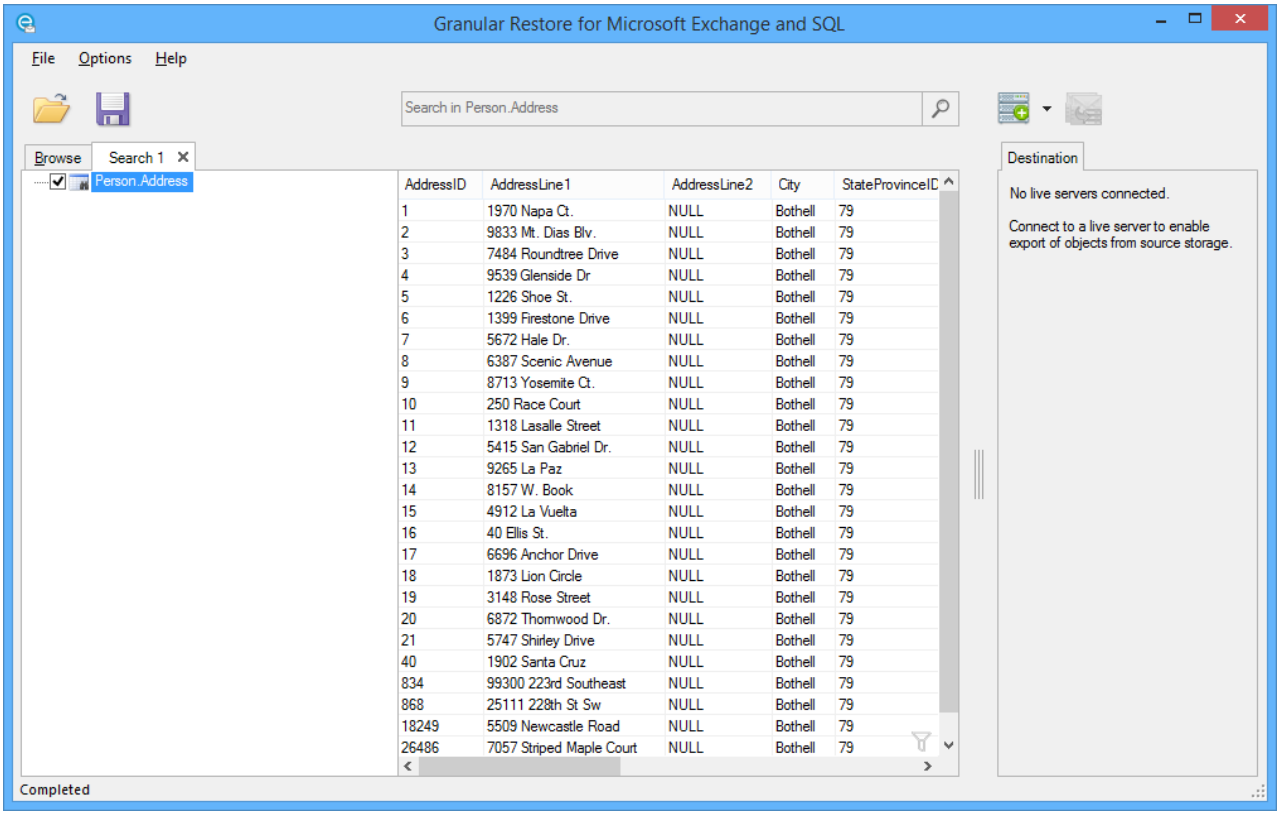
Granular Restore for Microsoft Exchange and SQL provides several ways to search for data:

- Standard search
- Search for related data
- SQL Query search

To access the Search tool, select a table where the search will be performed and click on the Search Bar (1) located at the top of the window.

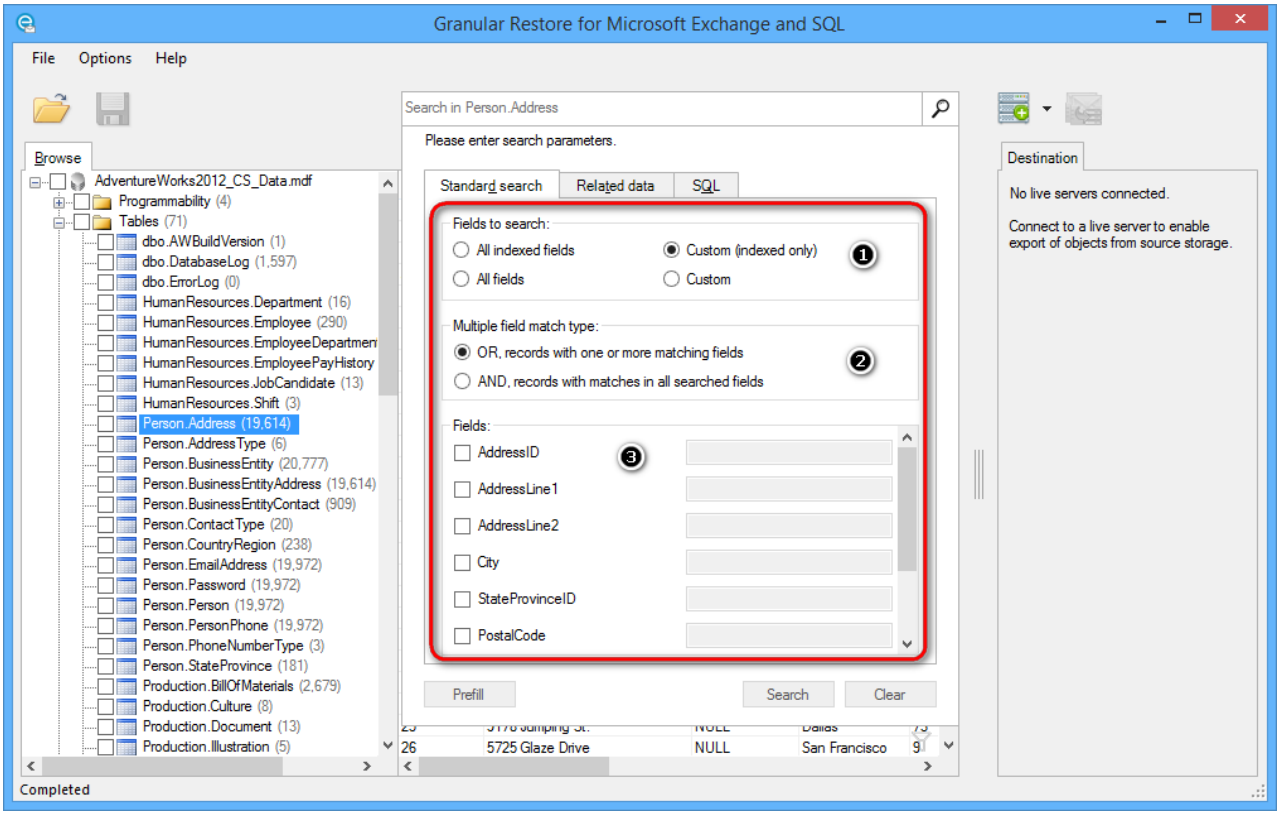


Search results will be displayed on separate tabs with the ability to select query results and export them either into Live SQL Server or in the form of SQL script files which can be executed on server manually.



Standard search mode

To access Standard search click on the Search Bar and select 'Standard search' tab in the displayed window.



There are three sets of parameters to customize for this search:

Fields to search (1)

This options defines the set of fields which will be used to perform search. The user can choose to search in all indexed fields, all fields, custom selection from indexed fields or custom selection from all fields.

Multiple field match type (2)

In case more than one field is selected for search the user can choose which logical operator will be used to combine these fields.

OR - search results will include records which have at least one field that matches search parameters.
AND - search results will include records which have matching values in all fields which were selected for search.

Fields (3)

If *Custom (indexed only)* or *Custom* was selected in *Fields to search* the user will be able to choose fields which will be used for search. To select a field simply click on the field name, the field will then become selected and the user will be able to choose which comparison operator to use and to enter the value to search for.

There are also two ways to fill search fields with values from selected tow, which helps to avoid entering long string manually:

Right-click on a row and select *Search for similar data* from context menu. This fill set the field selection to *Custom* and fill search from with values from selected row.

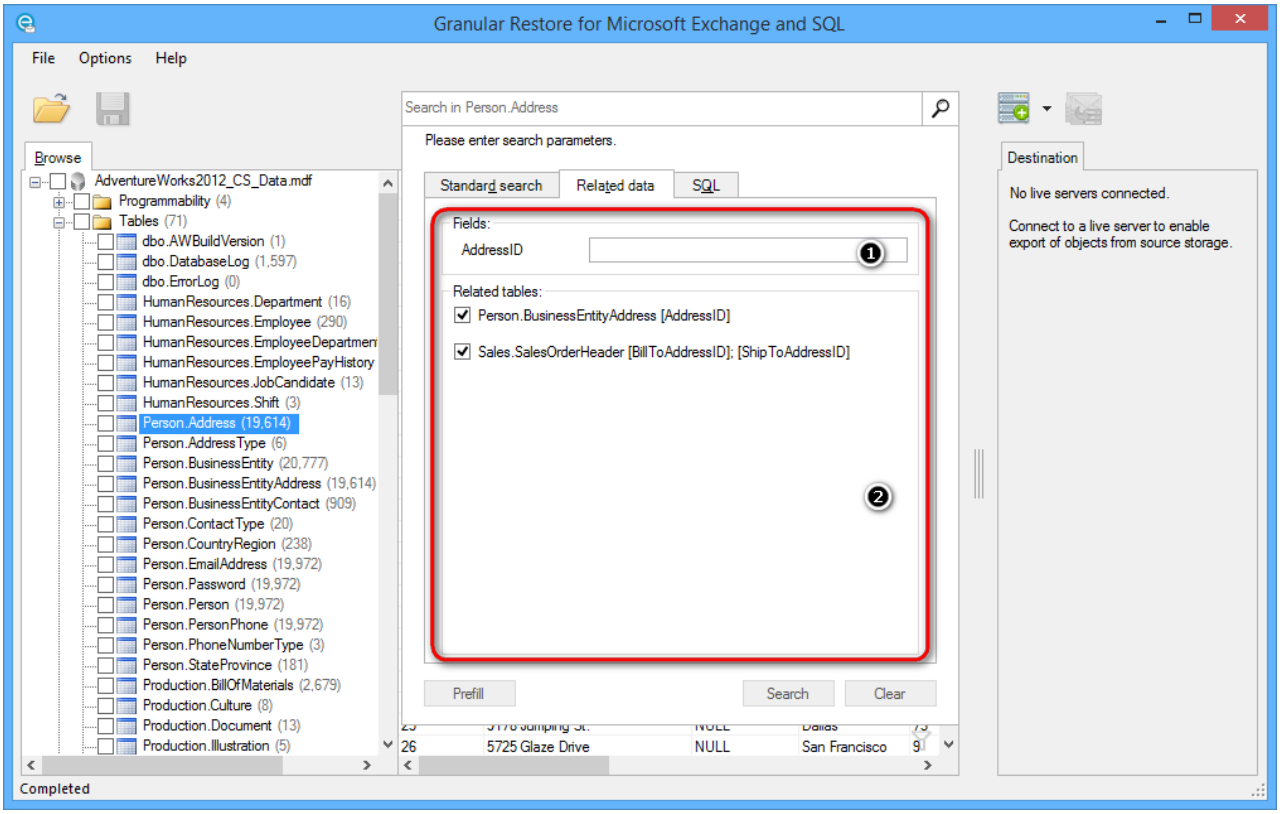
OR

Select a row, then select *Standard search* tab and click *Prefill* button.

Search for related data

Search for related data can be used to search for rows which relate to the selected row - that are rows which have fields from the selected table as foreign keys.

Related data search can be accessed either by right-clicking on a row and selecting *Search for data related to...* from context menu or by selecting *Related data* tab in search window.



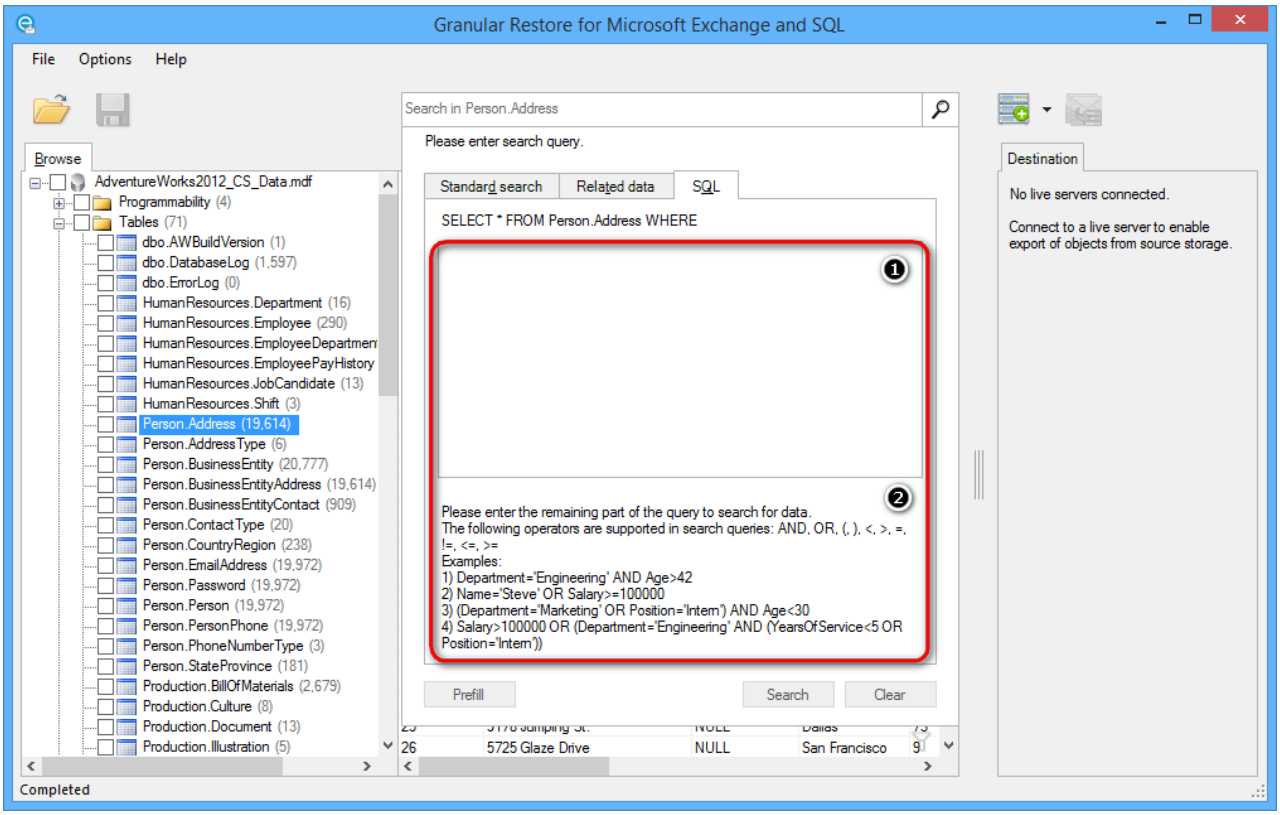
The application will analyze the selected table and automatically detect which fields are used in other tables as foreign keys (1). It will also provide a list of tables which relate to the selected table (2).

The user will then be able to enter field values which will be used when searching for related data and select from a list of tables where to perform search.

SQL Query mode

SQL Query search mode provides the ability to write complex search queries using SQL-like query language to narrow search results as much as possible.

SQL query mode can be accessed by clicking on *Search Bar* and selecting *SQL* tab.



The user is presented with a text field (1) which is used to enter search query. The beginning of the query is given and the user has to fill in the remaining part of WHERE clause.

The query may include field names, comparison operators, field values, logical operators and brackets. The text field makes it easier for entering search query by providing auto-complete feature, which automatically suggests possible query elements. The auto-complete window will appear automatically when first letters of query are typed, it can also be accessed by pressing **Ctrl+Space.** To select an item (field name, logical or comparison operator) from the list please press **Tab** or **Enter**.

Query examples are given at the bottom of the *SQL* tab (2).

4.2 Exporting items

Granular Restore for Microsoft Exchange and SQL allow a user to export the whole database or just particularly objects (tables, views, functions, etc.) into live SQL Server and to SQL scripts, that can be used for manual import to a live server.

Restore to live SQL Server

Granular Restore for Microsoft Exchange and SQL includes the injection capability for items (tables, views, functions, etc.) from offline database to live SQL database.

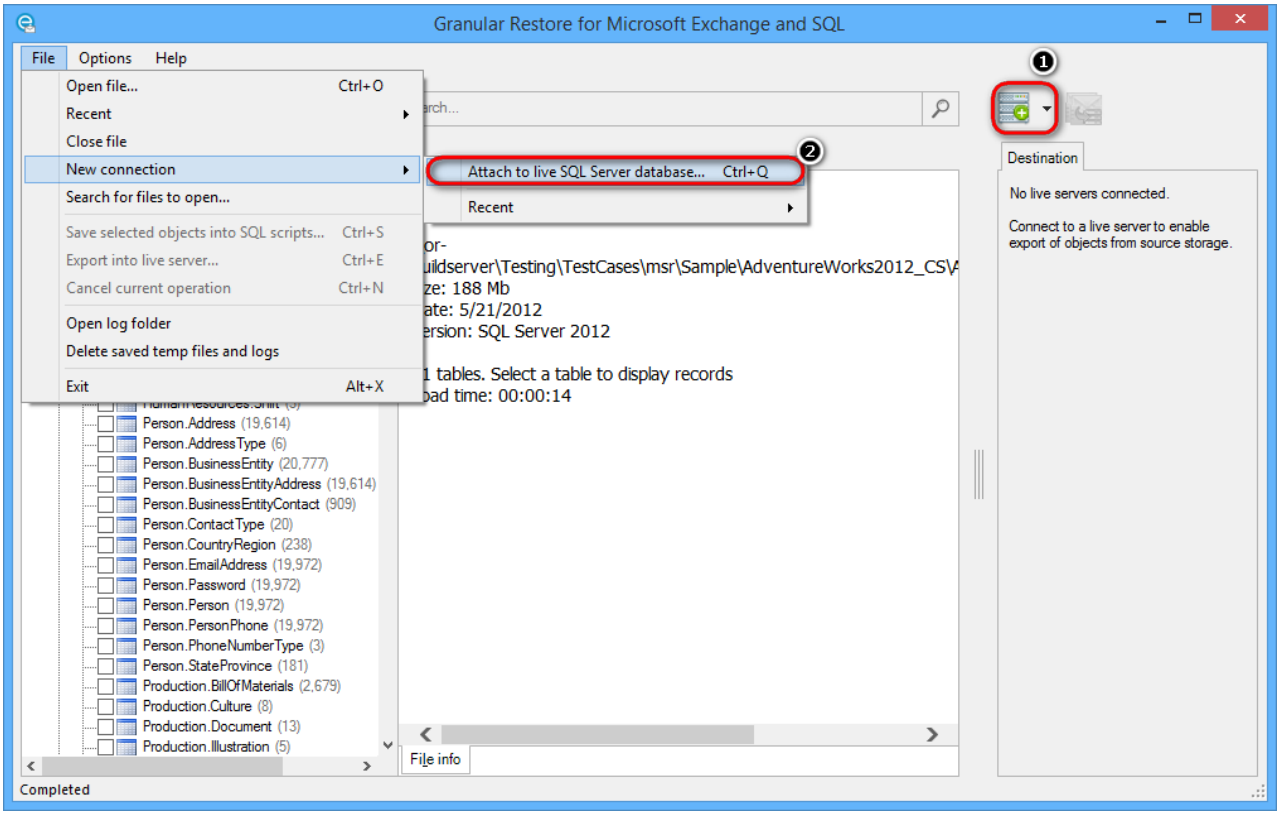
Note: Errors can occur when you try to restore data that violates SQL constraints (e.g., primary key/foreign key constraints).

The following options are presented:

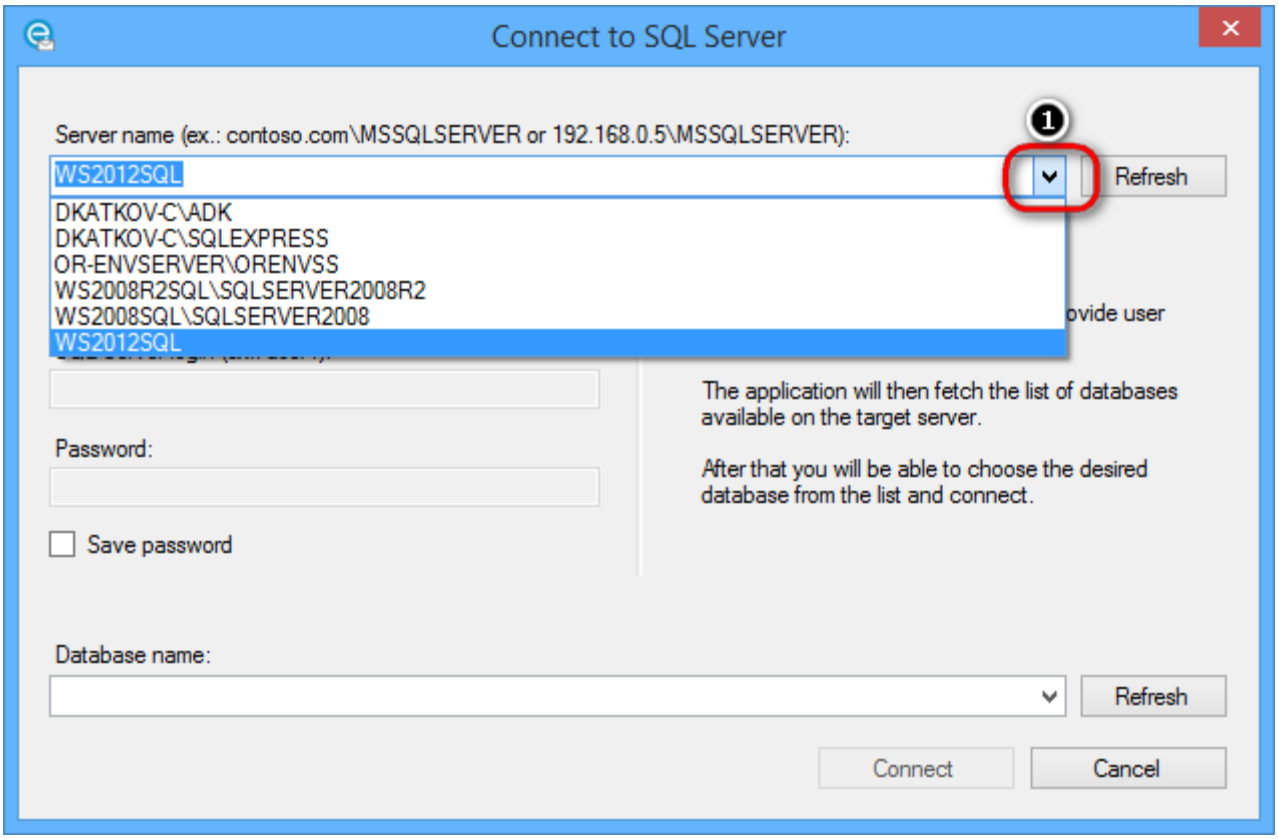
- Authentication
- Connection to a database using valid credentials. To provide the connection, host (domain name or IP), user logon name and password are required. It is also possible to connect through current Windows credentials.
- Connecting to several tables on different servers simultaneously.
- Browsing folder hierarchy of a connected database, browsing folder contents and viewing objects and rows.
- To provide injection, running the application as administrator or using a machine from AD domain, in which there is SQL Server with destination database, is not required.

Connection to SQL Server

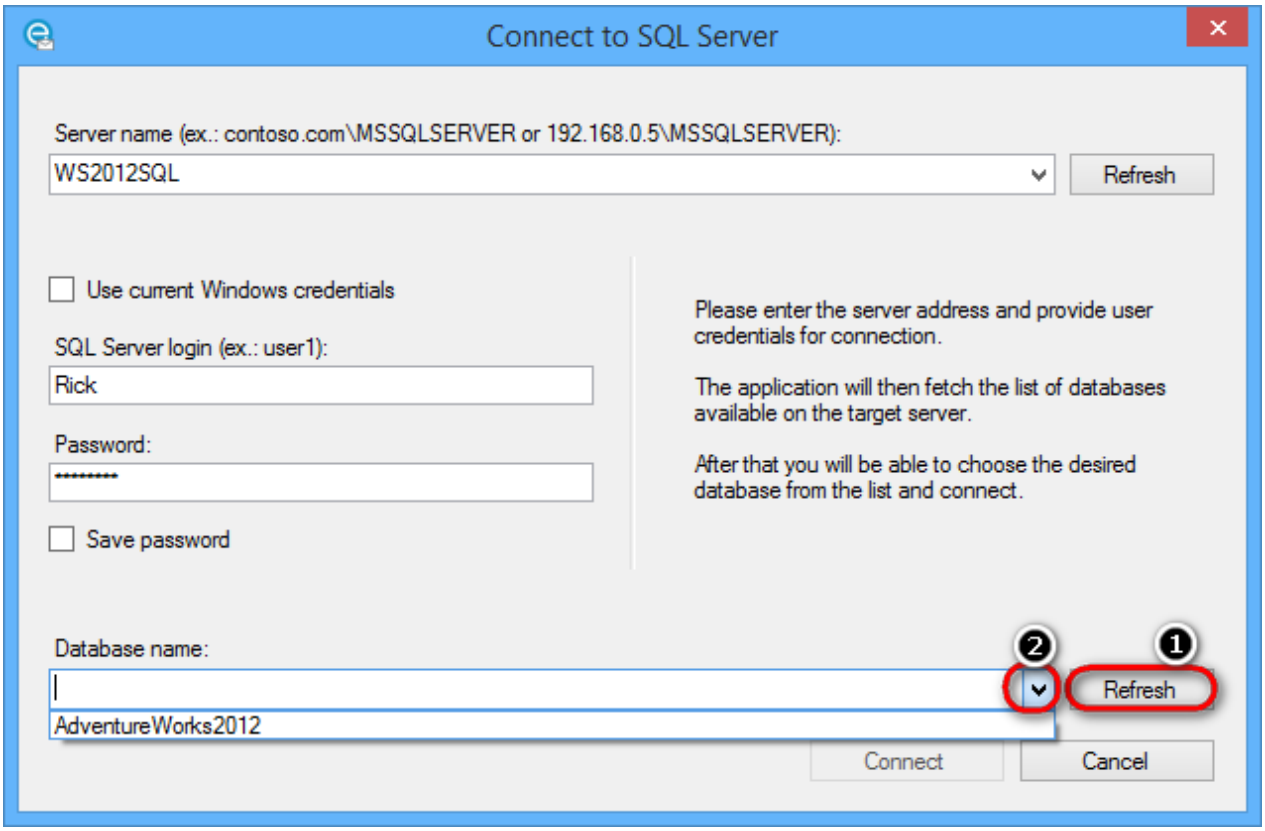
To establish a new connection, use the button **Connect to live server** (1), next to the Search field or go to **File -> New connection->Attach to live SQL Server database** (2).



To access the server, enter the domain name or the IP address, or just click on the arrow (1) to get the drop- down list of automatically detected servers and provide valid credentials.

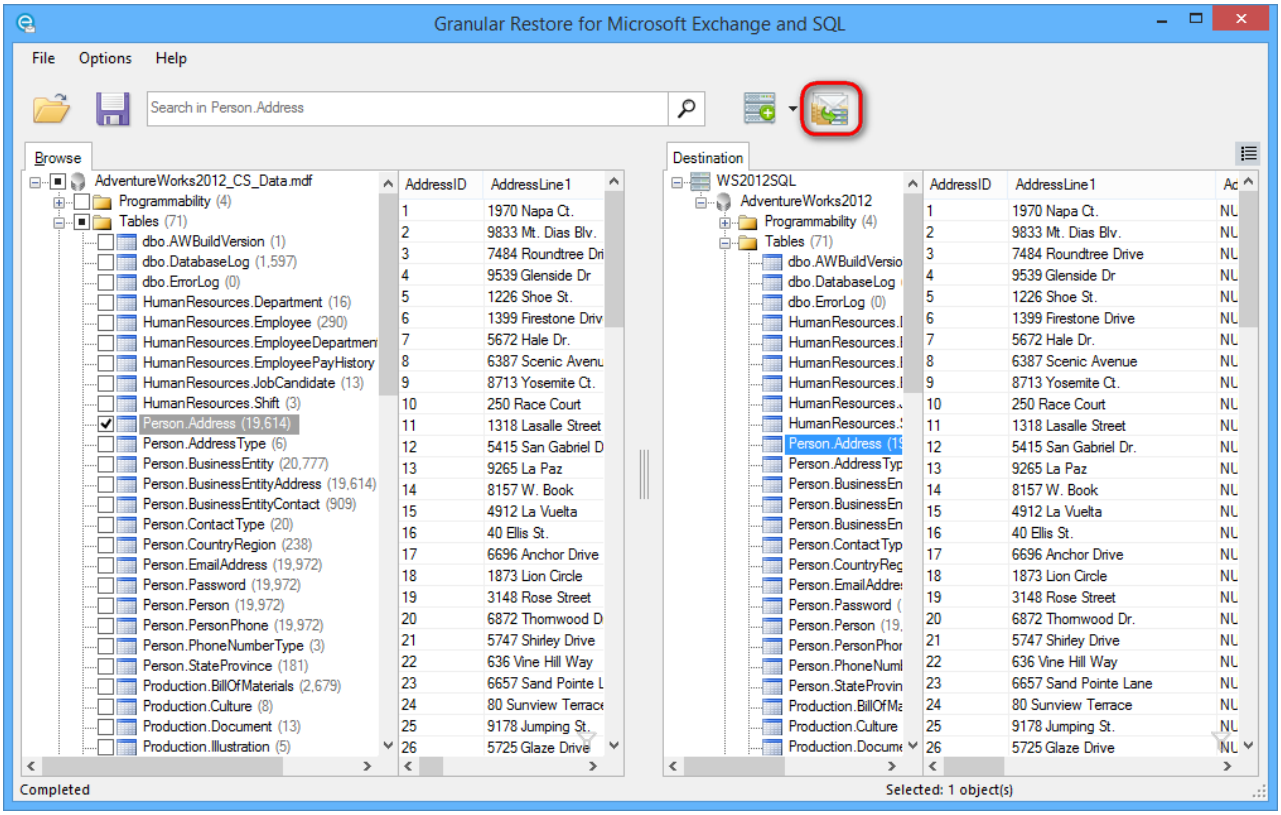


List of available databases will be shown after clicking the Refresh button (1) or the arrow near the Database name field (2), if entered credentials are correct.



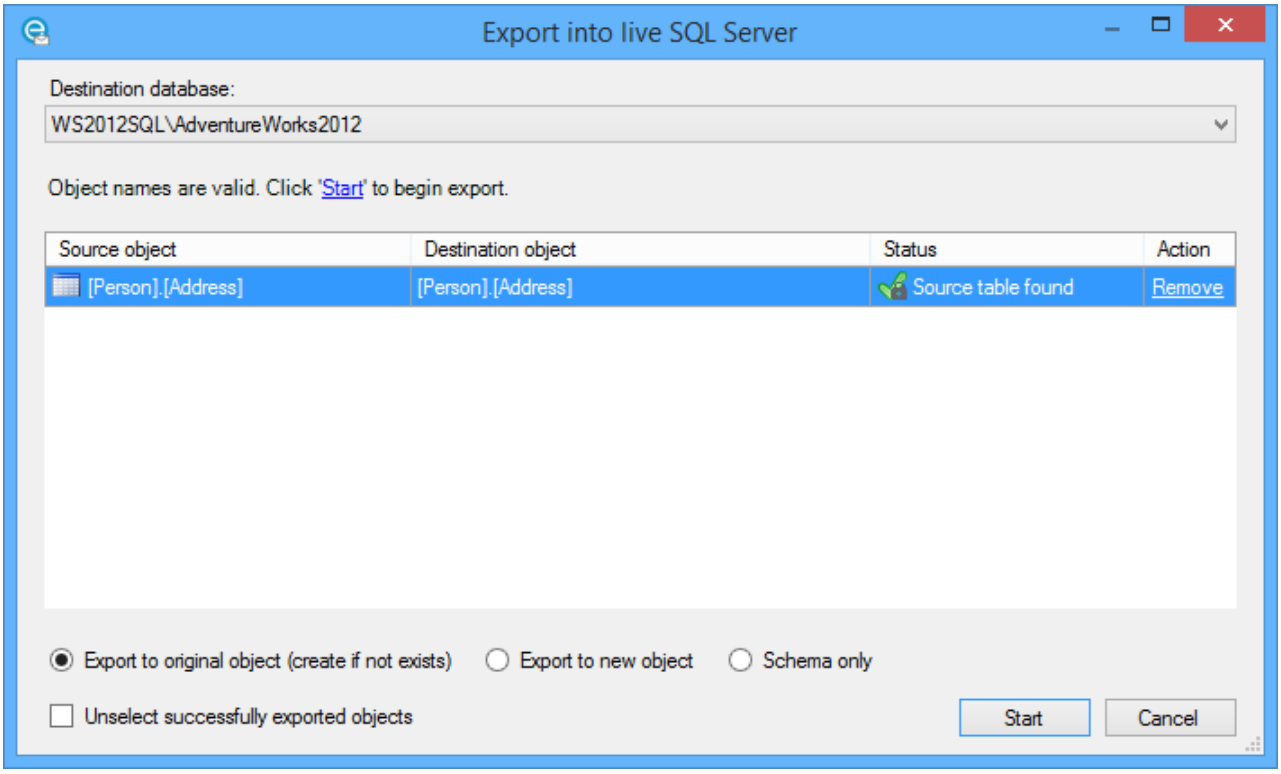
Injection workflow

Once data has been selected, click the **Export** button and select an Export option.



Granular Restore for Microsoft Exchange and SQL presents several injection modes for specified data:

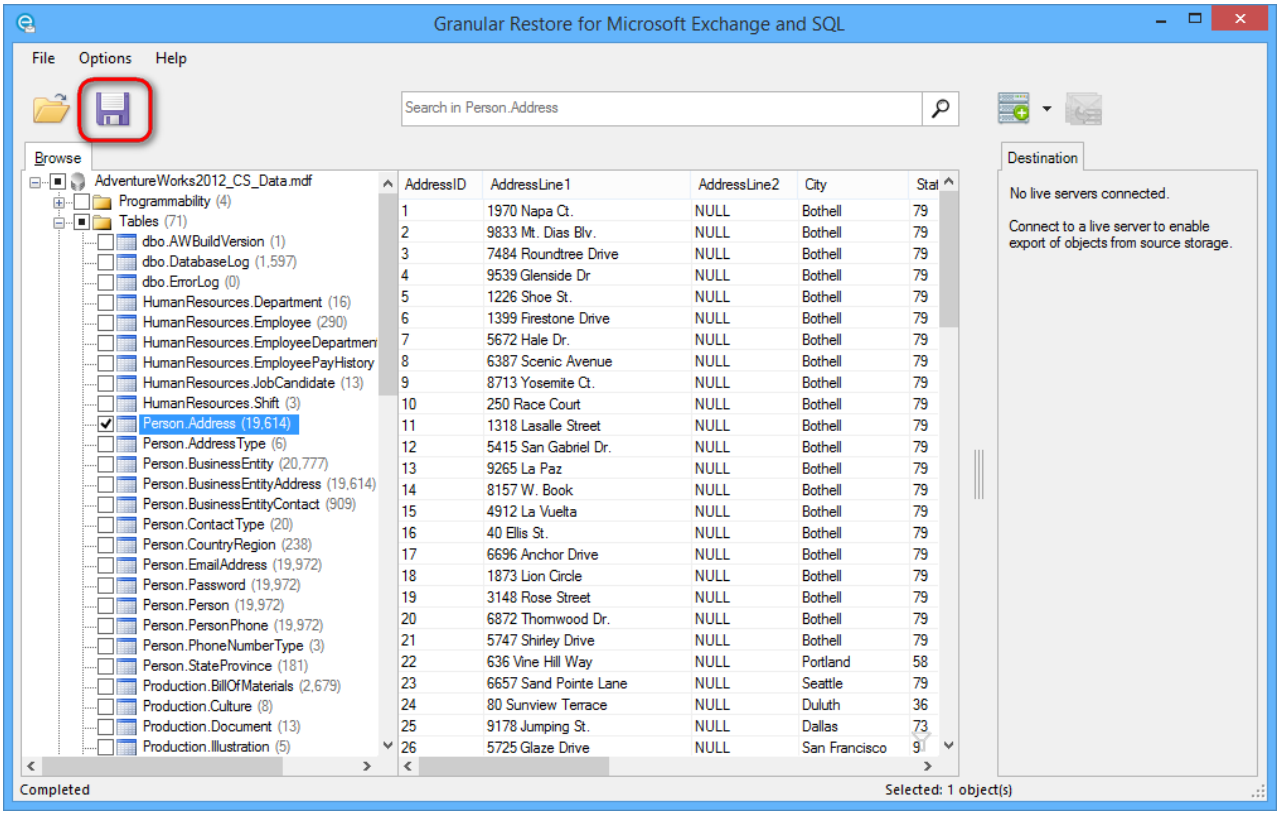
- **Export to original object** - The source object will be restored to the object listed under Destination Object.
- **Export to new Object** - The user may edit the Destination Object for any source object, and the Granular Restore for Microsoft Exchange and SQL application will create a new destination object to restore to.
- **Schema only** - Export only the schema of the source objects. The destination object can be edited and the schema(s) will be restored to the new destination object.
- **Unselect successfully exported objects** - This will unselect the data objects that were selected for export once they have been successfully exported to the live server. This will allow the user to more easily identify which objects encountered errors and were not exported.



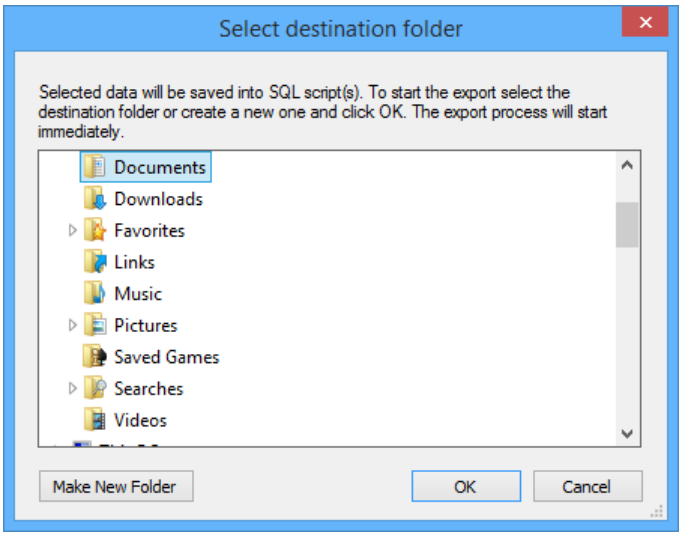
Restore to SQL scripts

Note: Errors can occur when you try to restore data that violates SQL constraints (e.g., primary key/foreign key constraints).

To save objects marked for export, click the **Export selected objects into SQL scripts** button on the toolbar or select the point in the **File** menu.

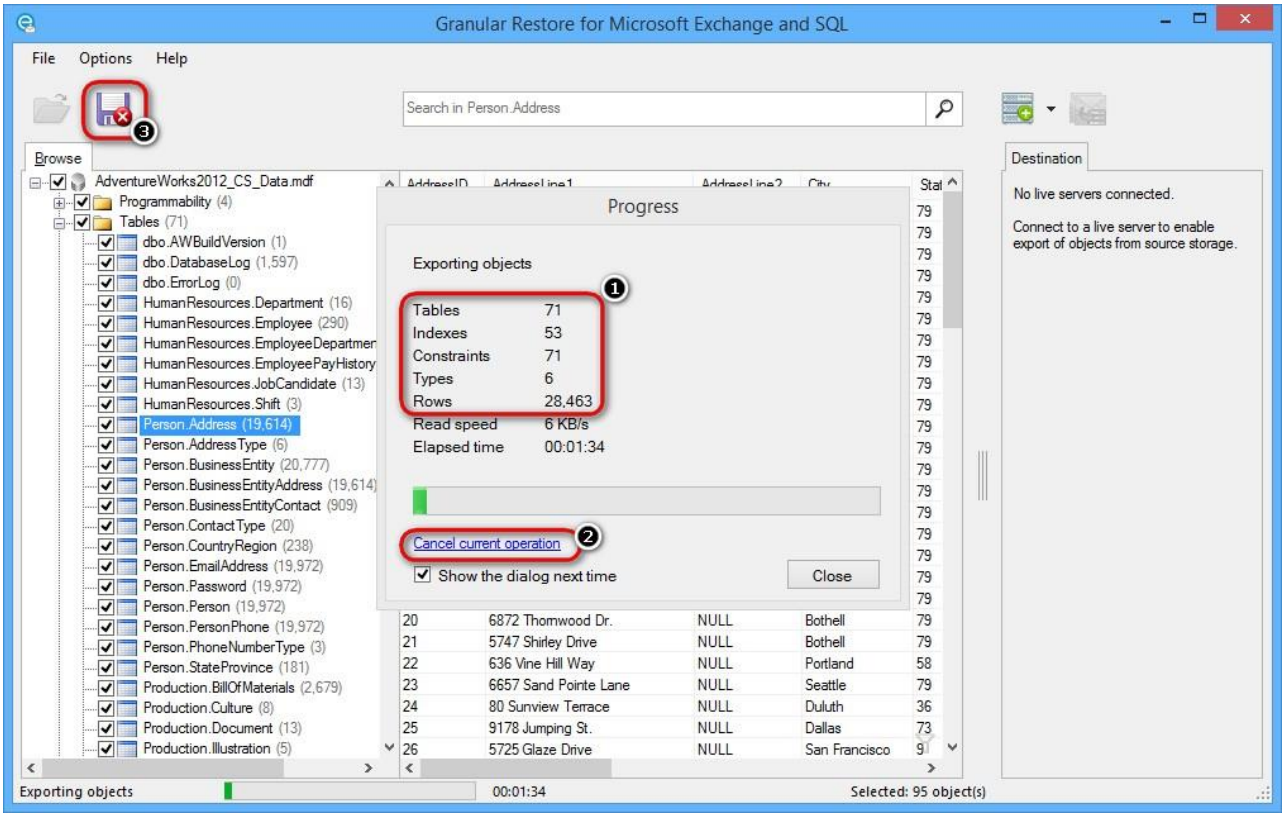


To start exporting process, select destination folder or create a new one and click OK.



Required time depends on how many objects are selected for export. By default, a progress window appears after the export starts. The window shows the number of saved objects and rows (1). You can disable the progress window directly in the window or go to the **Options** menu and select **Show progress dialog**.

The export can be cancelled by clicking an appropriate link in the progress dialog window (2) or by clicking the Cancel export button on the taskbar (3).



Tip

If you closed the progress window, it can be shown again by clicking on the progress bar on the status panel.

Restoring exported scripts into SQL Server

SQL scripts exported from the offline database can be easily imported into live SQL Server manually

For this purpose a special bat-file, commit.bat, is generated while extracting data. It is stored in the folder with restored scripts.

Usage for trust connection: `commit.bat server_name db_name` Usage for mistrust connection:

commit.bat server_name db_name user_name password

5 Granular Restore for Microsoft Exchange

5.1 Special features

Usage of Granular Restore for Microsoft Exchange and SQL can be more comfortable for a user due to additional **Options** menu, which allows user to customize program work.

Detailed information about every option is described in this help section.

Note

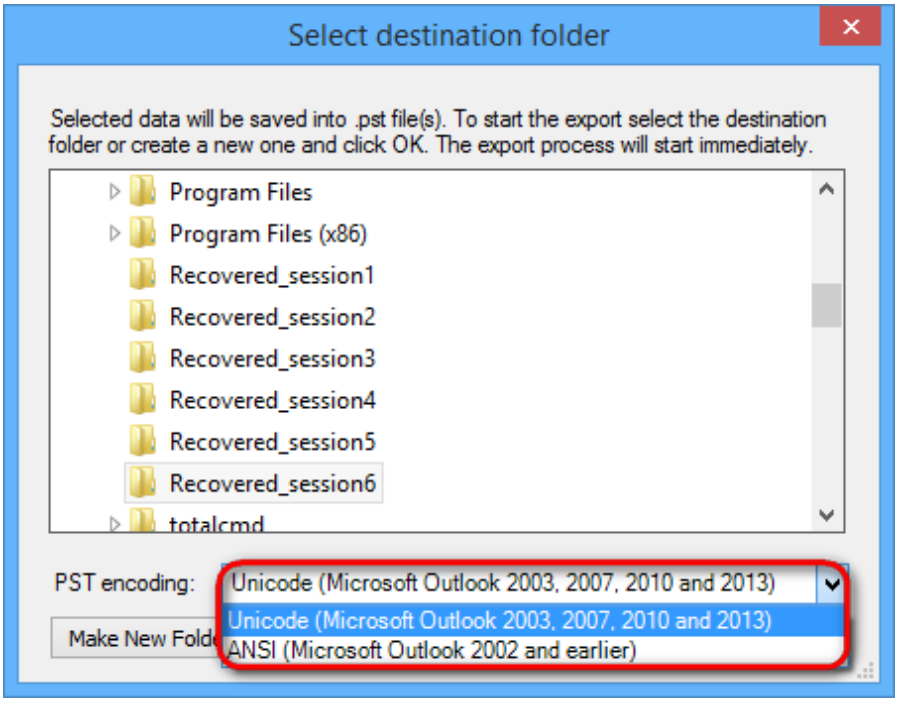
PST encoding and Show deleted items options are not available for PST/OST files.

PST encoding

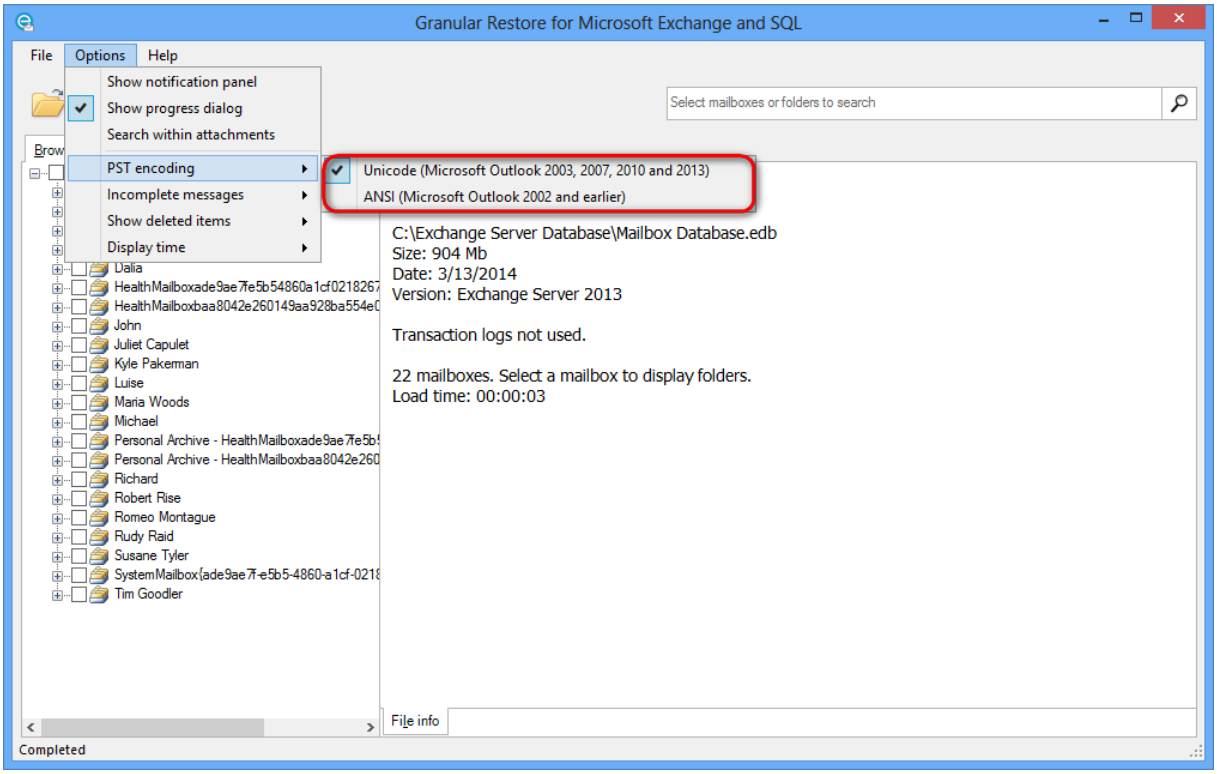
Exporting mail store data into PST allows to select a PST format that suits your version of Microsoft Outlook. Outlook 2003, Outlook 2007, Outlook 2010 and Outlook 2013 process both Unicode and ANSI PST files, but as for older versions of Outlook, they will not be able to open Unicode formatted PST files. Previous versions of Outlook were using only ANSI format. The main reason for this change was to allow for international character support and to extend the maximum size of PST files beyond the 2GB limit of the ANSI formatted PST files.

In Granular Restore for Microsoft Exchange and SQL there are two ways to select suitable encoding for output PST.

Output PST encoding can be changed while selecting a destination folder for restored PST files.

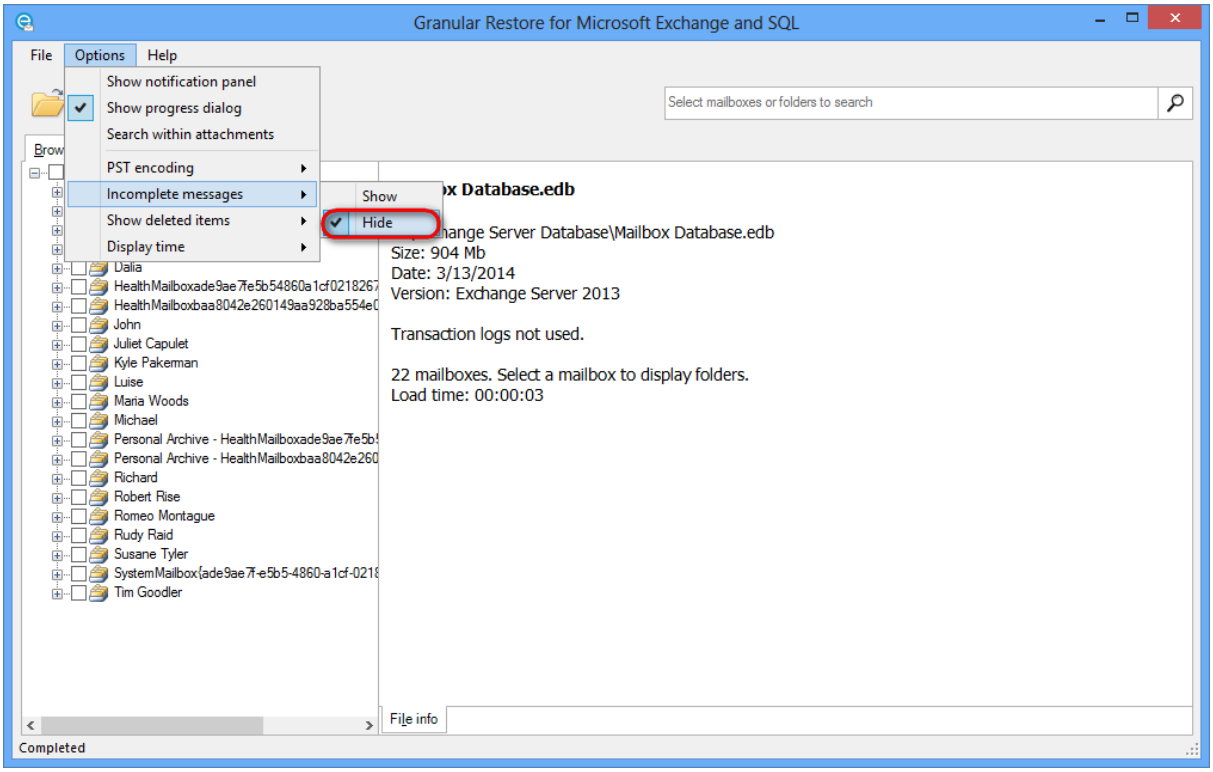


Alternatively, encoding for the output file can be changed in the **Options** menu at any time the program runs. Selected value will be saved and used on the next program launch.



Incomplete messages

Incomplete messages, such as messages with missing properties, bodies, are hidden by default. This option can be changed in the Options menu.



Note

After changing the way of displaying incomplete items, the database will be reopened.

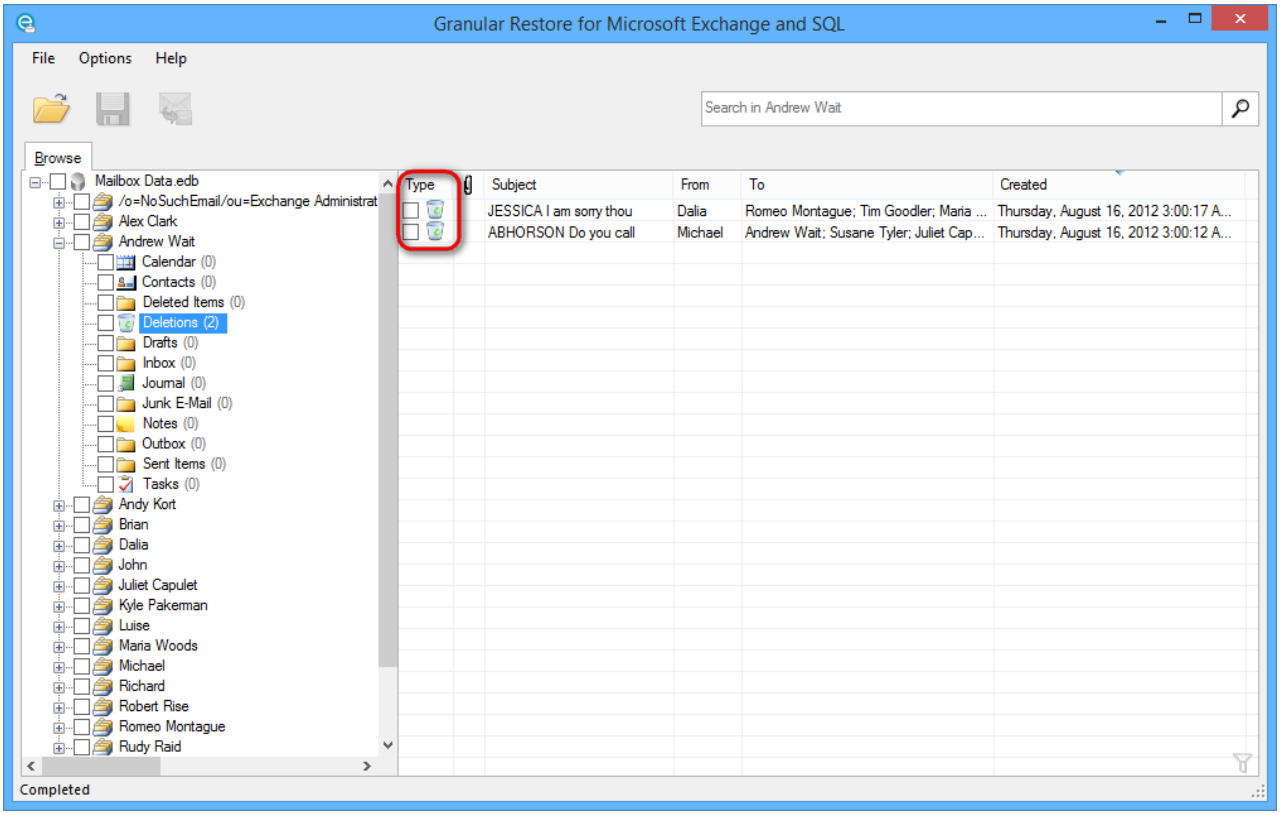
Showing deleted items

Granular Restore for Microsoft Exchange and SQL provides an ability to process deleted items and folders. This special feature can be enabled via the Options menu. There are three available display modes:

- non-deleted items - displays actual items in folders
- show only deleted items - displays items/folders deleted from a mailbox hierarchy, but not physically
- show both deleted and non-deleted items - displays both actual items in folders and items/folders deleted from a mailbox hierarchy.

Note that after selecting any way of processing deleted items, the database will be reopened.

Items, deleted from Exchange Server 2010 and 2013 databases, are stored in the folder Deletions and have an appropriate type.



As for items deleted from Exchange Server 2007 databases, they are stored in the their original folders but can be easily recognized by an appropriate status.

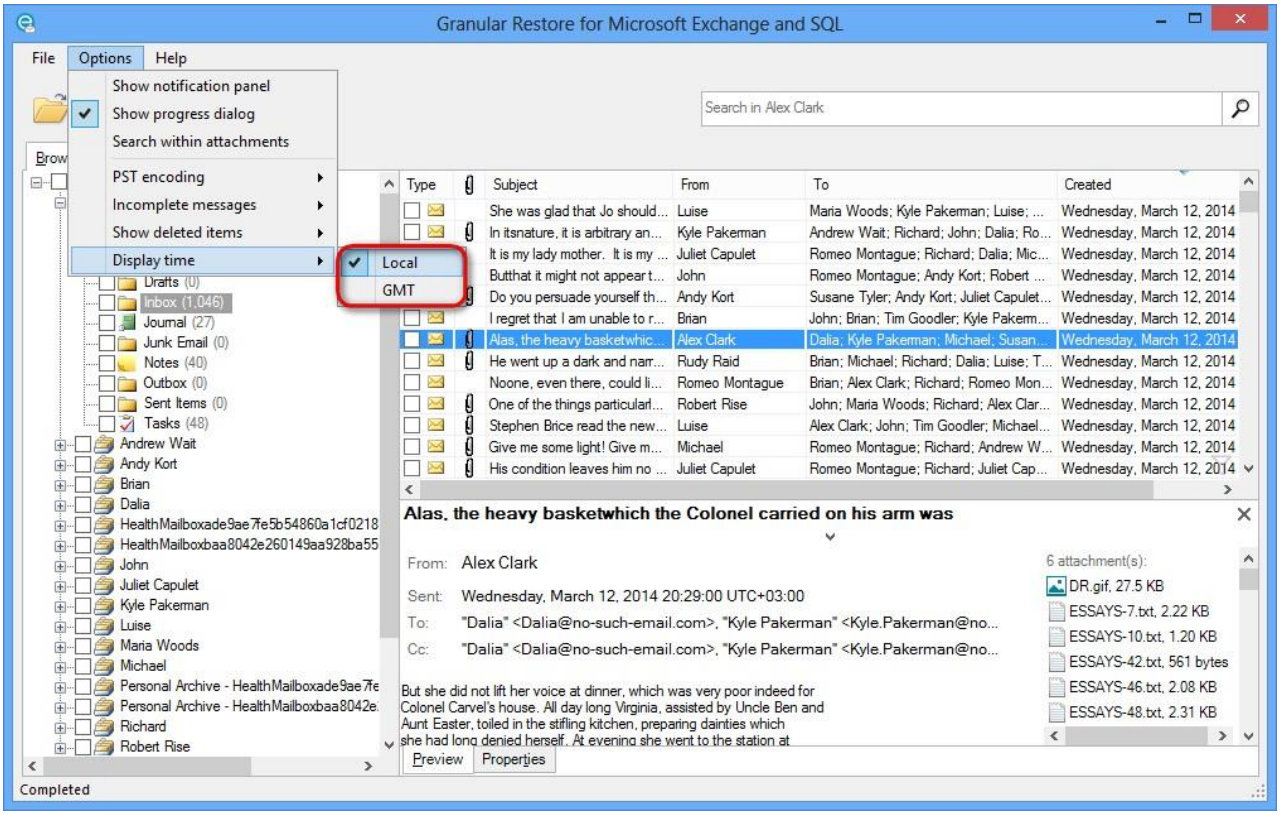
Note

Items, stored in the folder Deletions, cannot be recovered to live Exchange Server database. It is recommended to restore items from the Deletion folder to PST and then import to live Exchange Server.

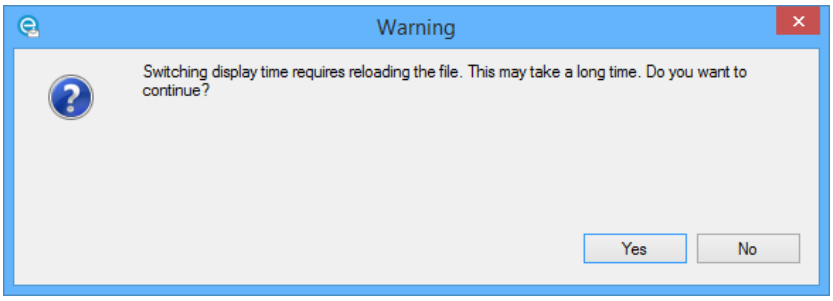
Display time

There are two dates display formats available for users, local time and GMT.

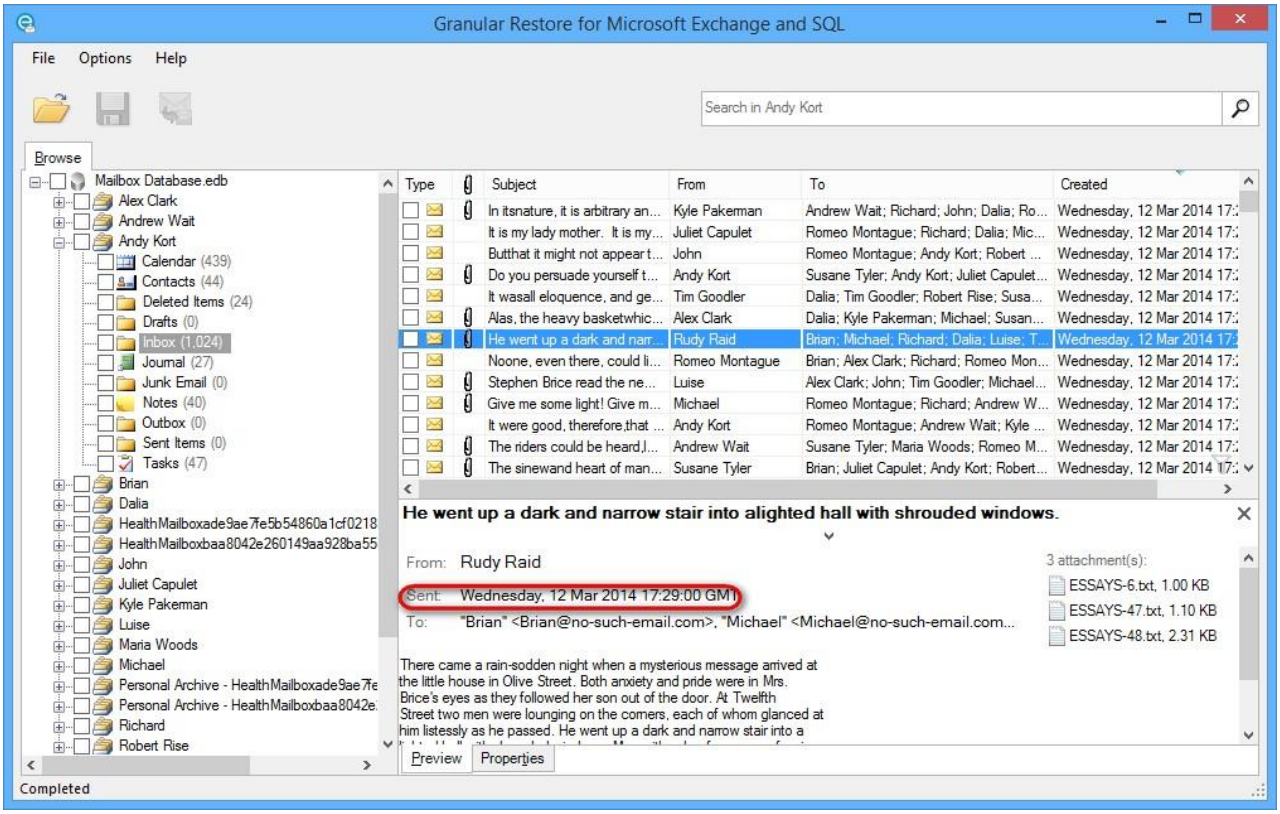
To switch dates display format between local computer time and GMT, use the Options menu.



If you switch display time, a warning, that the file will be reloaded, appears.

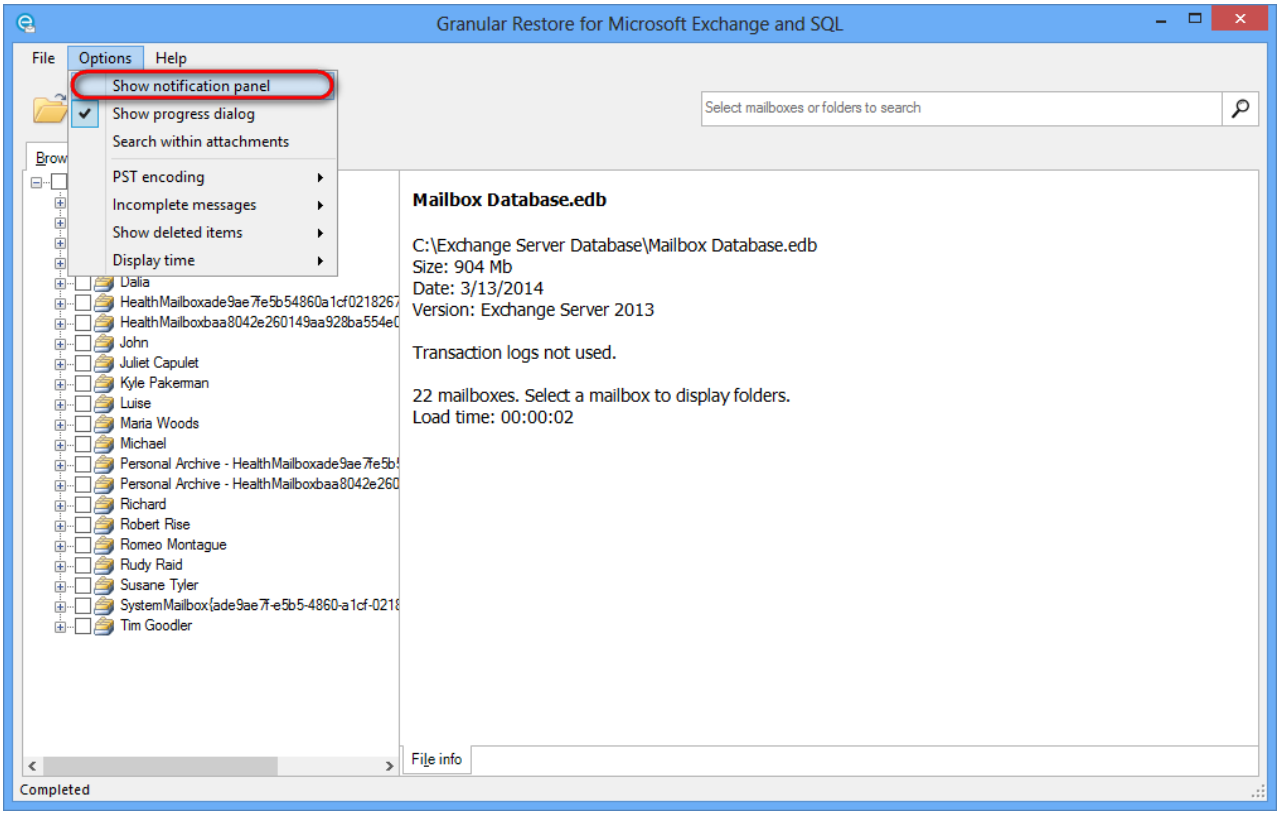


A message in GMT format looks the following way:

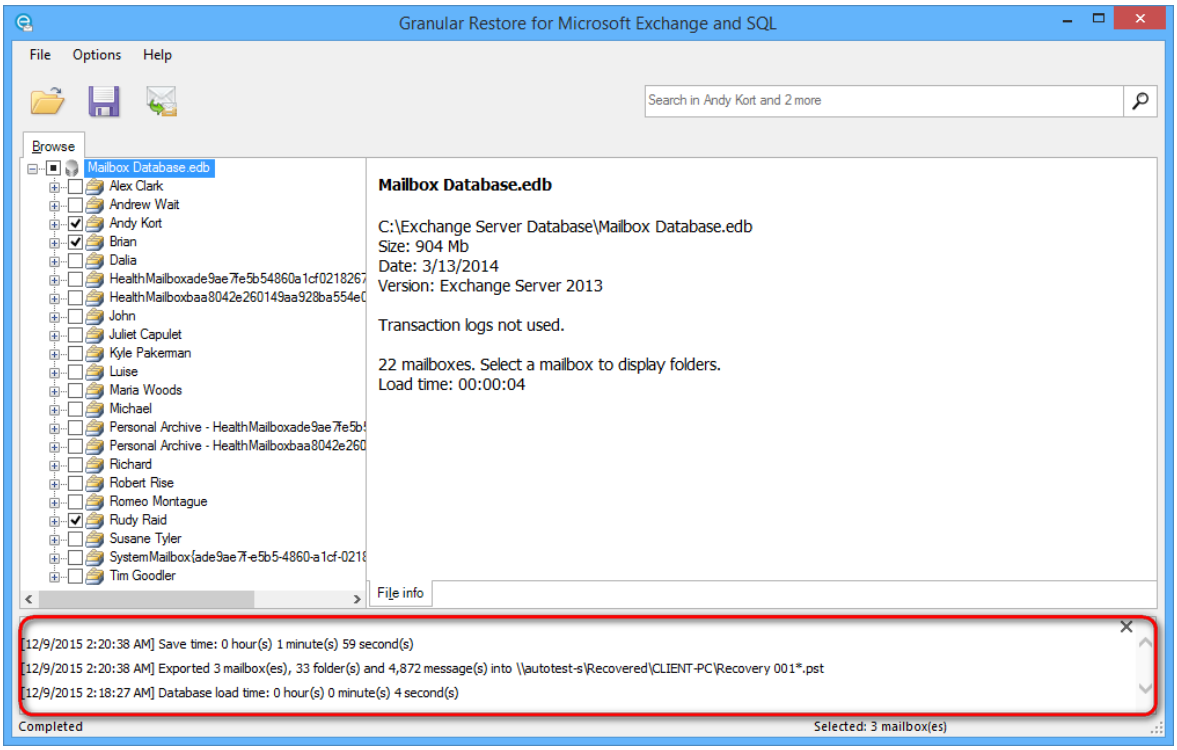


Showing notification panel

Every program action is accompanied by an appropriate notification for user. Notification panel is disabled by default, but can be easily enabled by checking **Show notification panel** in the **Options** menu.



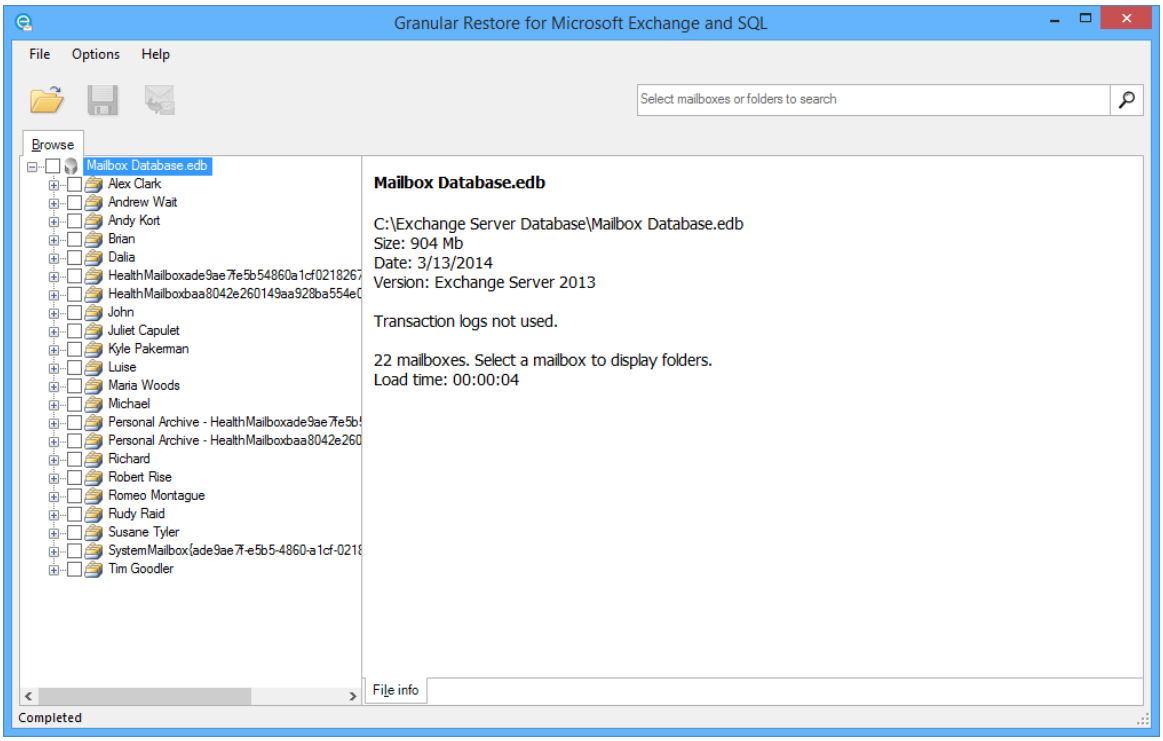
After that user will see additional information about opening file, export results, search results, etc.



5.2 Finding and selecting messages, folders and mailboxes

Granular Restore for Microsoft Exchange and SQL provides two mutually complementary modes of finding, previewing and selecting items: browsing the mailbox tree and search. Using these, it is possible to efficiently form a set of items for subsequent export, including the necessary ones and excluding ones to be skipped.

A newly opened database is shown in the **Browse** mode.

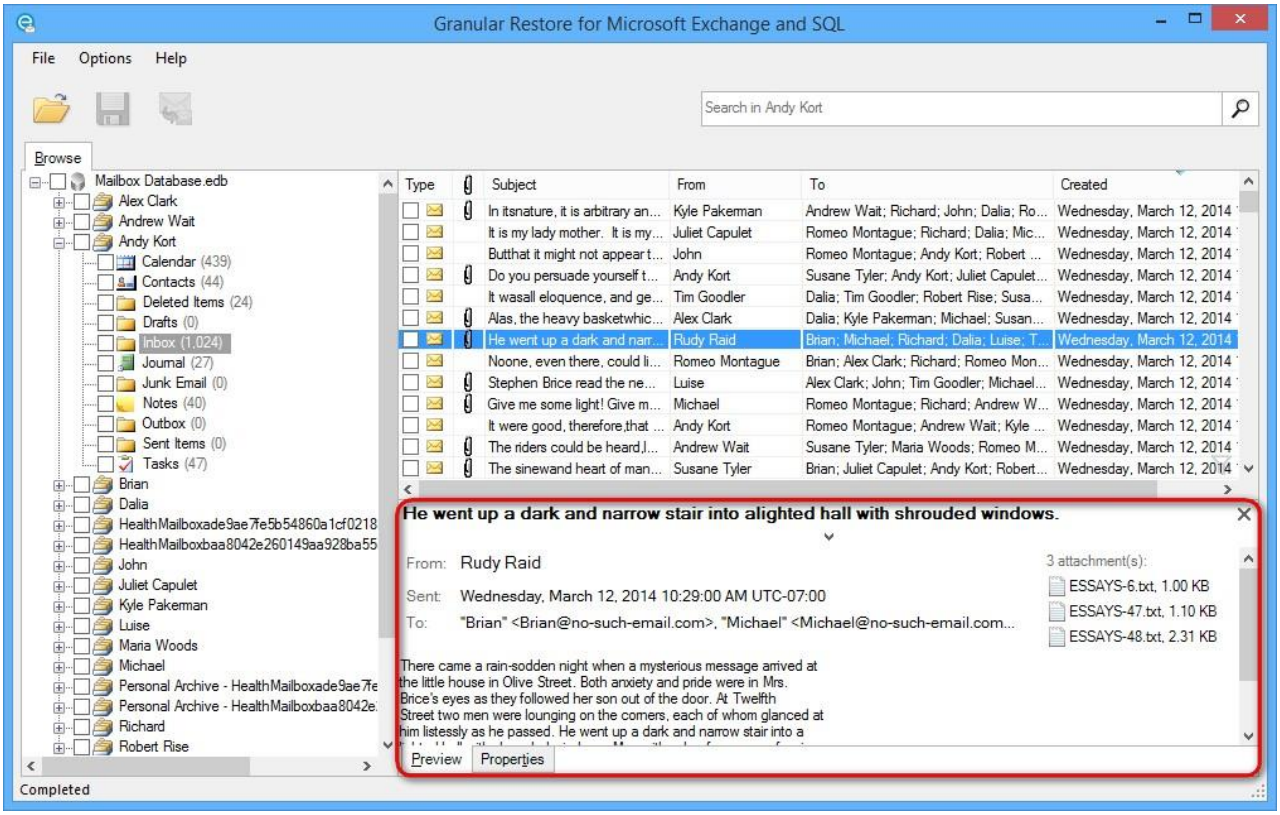


Browsing mail store tree

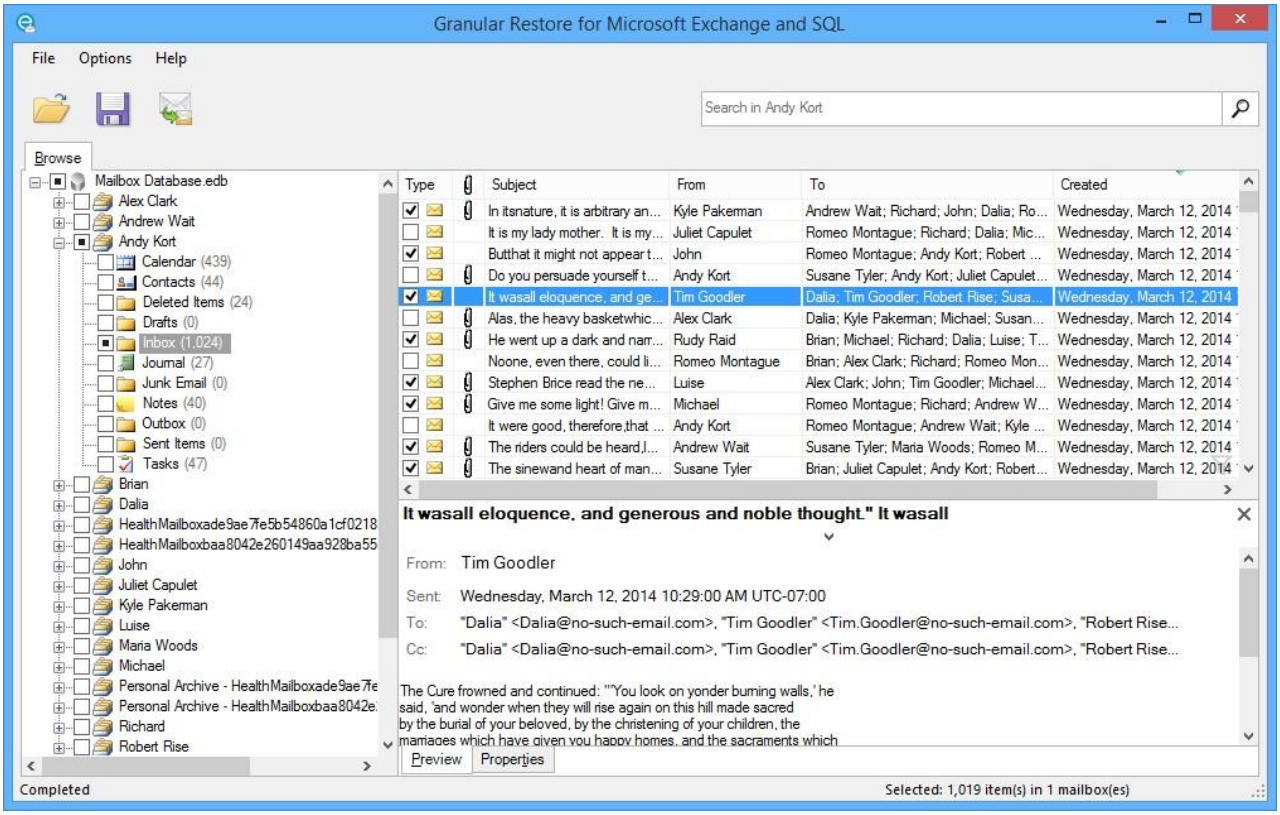
Browse mode shows mail store in a tree-like structure and allows browsing folders and previewing individual items.

This mode is best for navigating to specific mailboxes, folders and messages when it is precisely known what data needs to be extracted.

For example, a user may ask to restore a specific message from a known folder. Expand his or her mailbox in the tree, select the folder, find and click the item. All available properties and information about the item will be displayed in the **Preview** window to the right of the tree.

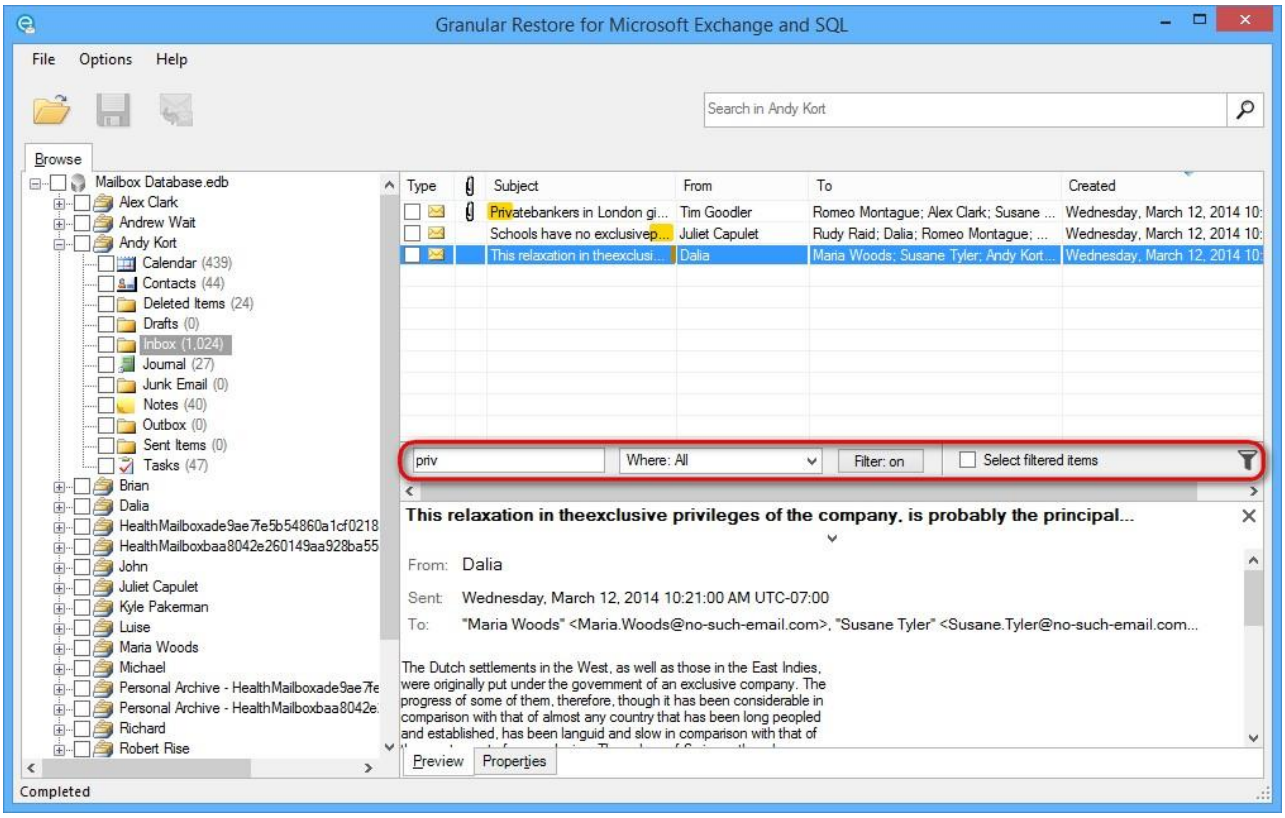


There is a check box next to the message. Check it to mark the message for export. Continue to mark other items, folders and mailboxes for export in a similar way.



Use filtering feature for better browsing the list of items in a folder.

Enable filtering by pressing **Ctrl+F** keys. A special panel will appear in the right part of the program window.



Tip

Each individual item, folder and mailbox has a check box next to it. Using these check boxes, it is possible to select as many or as few items for export as necessary.

To export an entire:

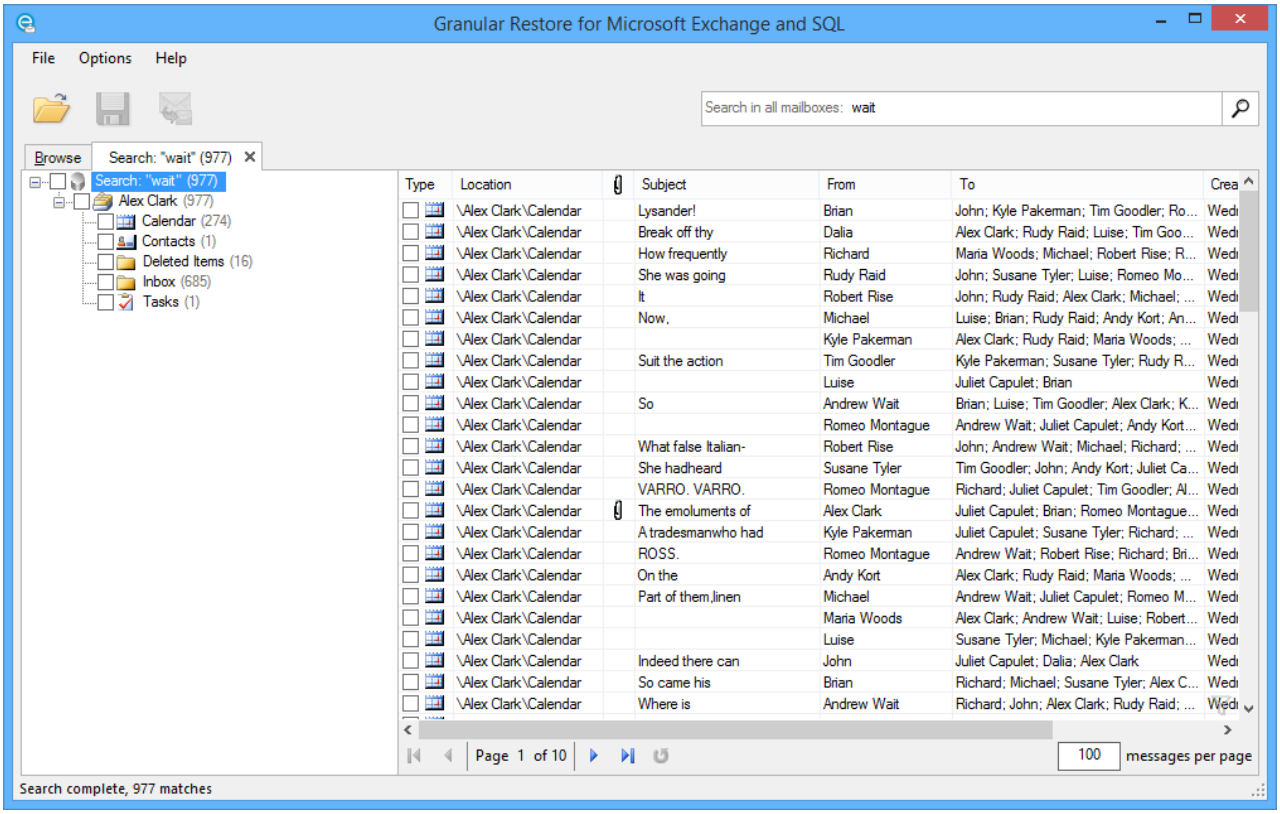
- mail store, mark the root check box with the mail store name.
- mailbox, mark the check box next to mailbox in the tree.
- folder, expand a mailbox and mark the check box next to the desired folder.

Using search

The search in the main window provides the ability to search single or multiple mailboxes and perform actions on the search results.

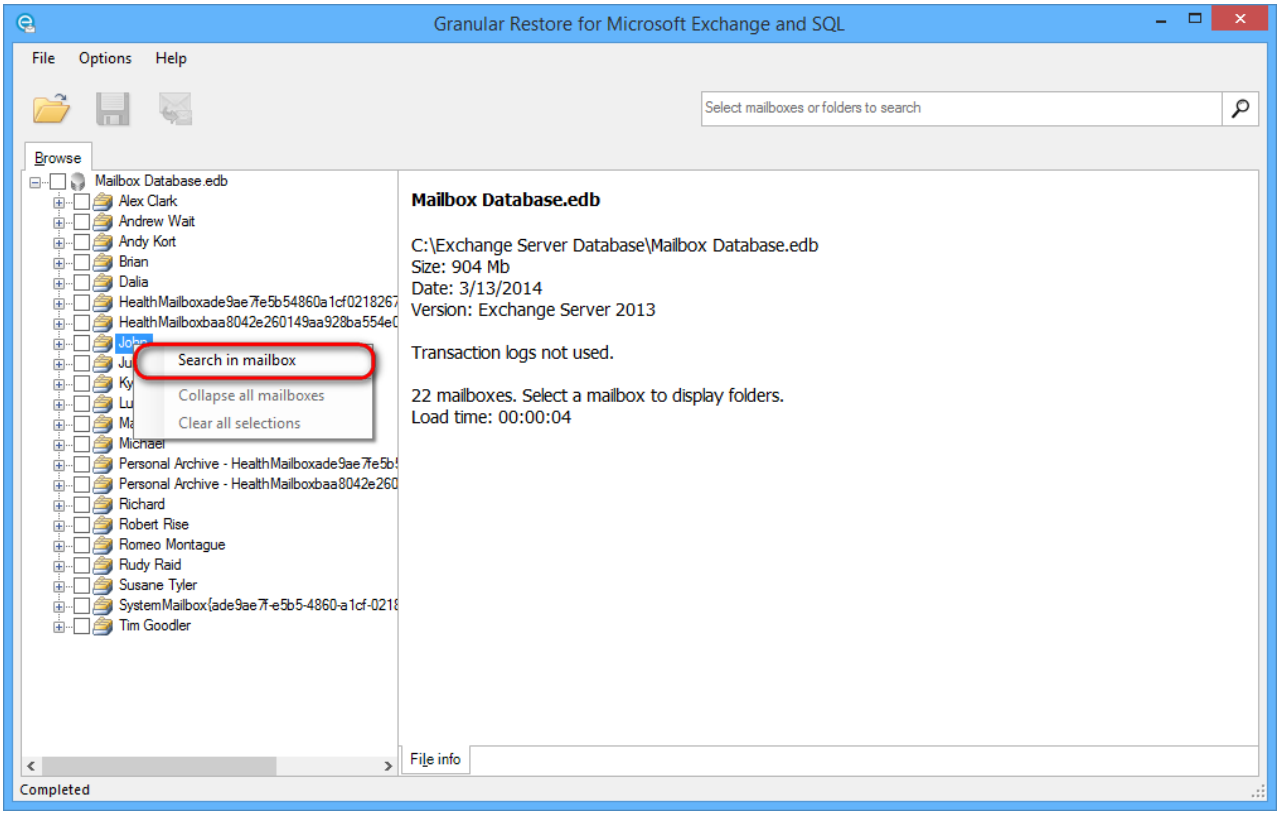
The best application of search mode is when the location and/or number of items to extract is not known exactly. Using keyword search, it is possible to narrow down on specific messages, folders and mailboxes. The quickest way to get search results is clicking on a particular mailbox, entering some keywords in the **Search** field and clicking the button **Start search**.

Search results will be displayed on a separate tab.



If a user knows exactly in what mailbox or folder the data is located, using **Search in mailbox option** will speed up the search.

Right-click on a folder/a mailbox will open a context menu.

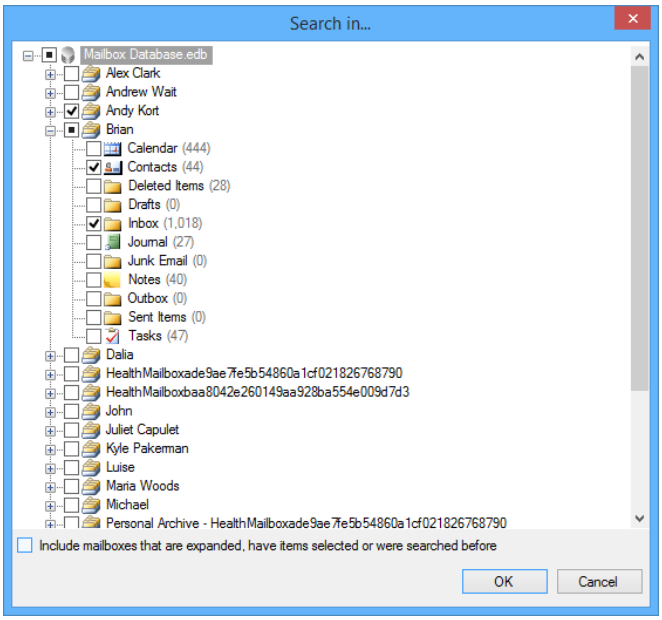


By clicking on this menu advanced mode of search dialog will be opened and **Search in** field will be filled with the selected mailbox/folder.

Fill in necessary search parameters and start the search.

For more precise searches click on the **Search** field, drop-down list of all search fields will appear:

- **Search in** - specifies mailbox(es)\folder(s) to search in. Default: entire database. If you select one or more Search in check boxes, but specify no additional search criteria, the utility will return all items from the selected folder(s).

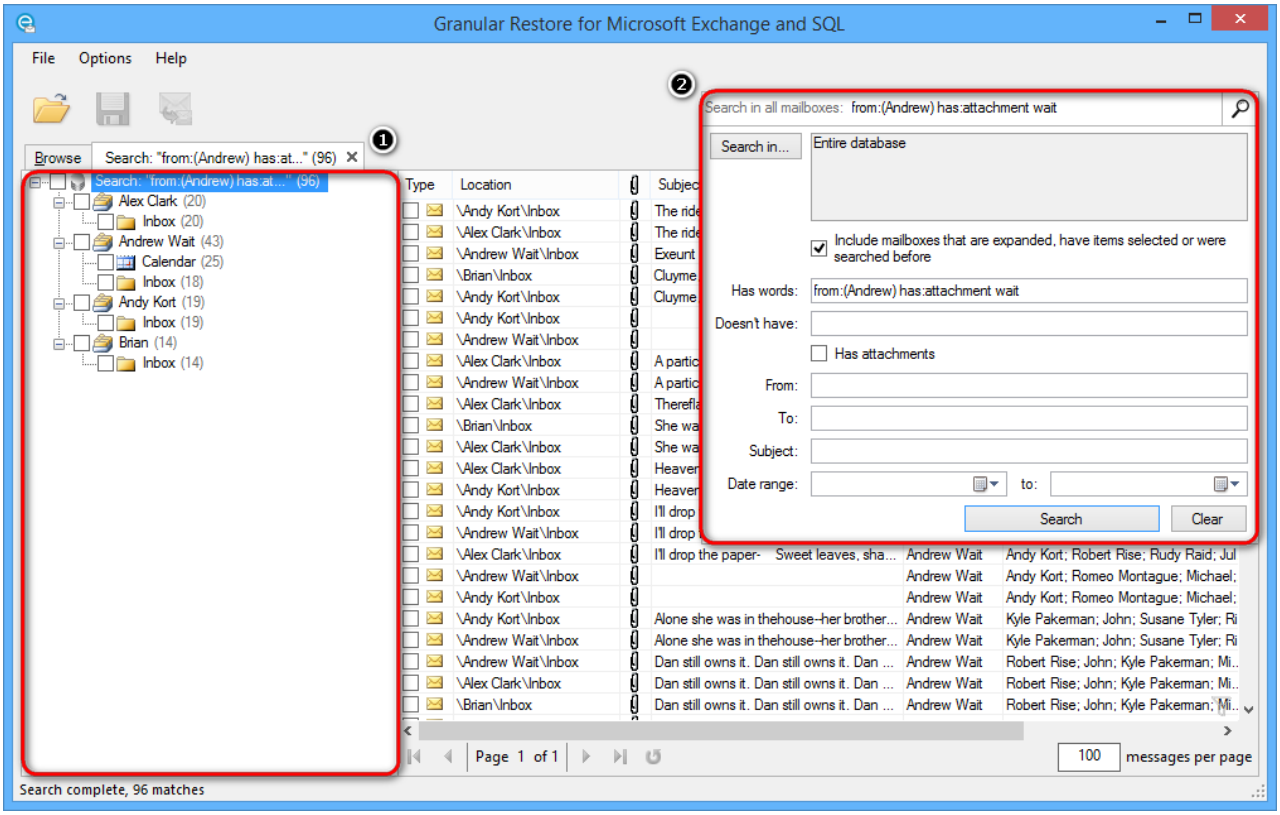


- **Has words** - search for mail store items that have words or phrases entered in the field.
- **Doesn't have** - search for items that **do not** have words or phrases entered in the field.
- **Has attachments** - search for items with attachments.
- **From** - search for keywords in the From: field.
- **To** - search for keywords in the To: field.
- **Subject** - search for keywords in subject.
- **Date range** - set specific date range if known. It is obligatory to set both the beginning and the end of the desired time period.

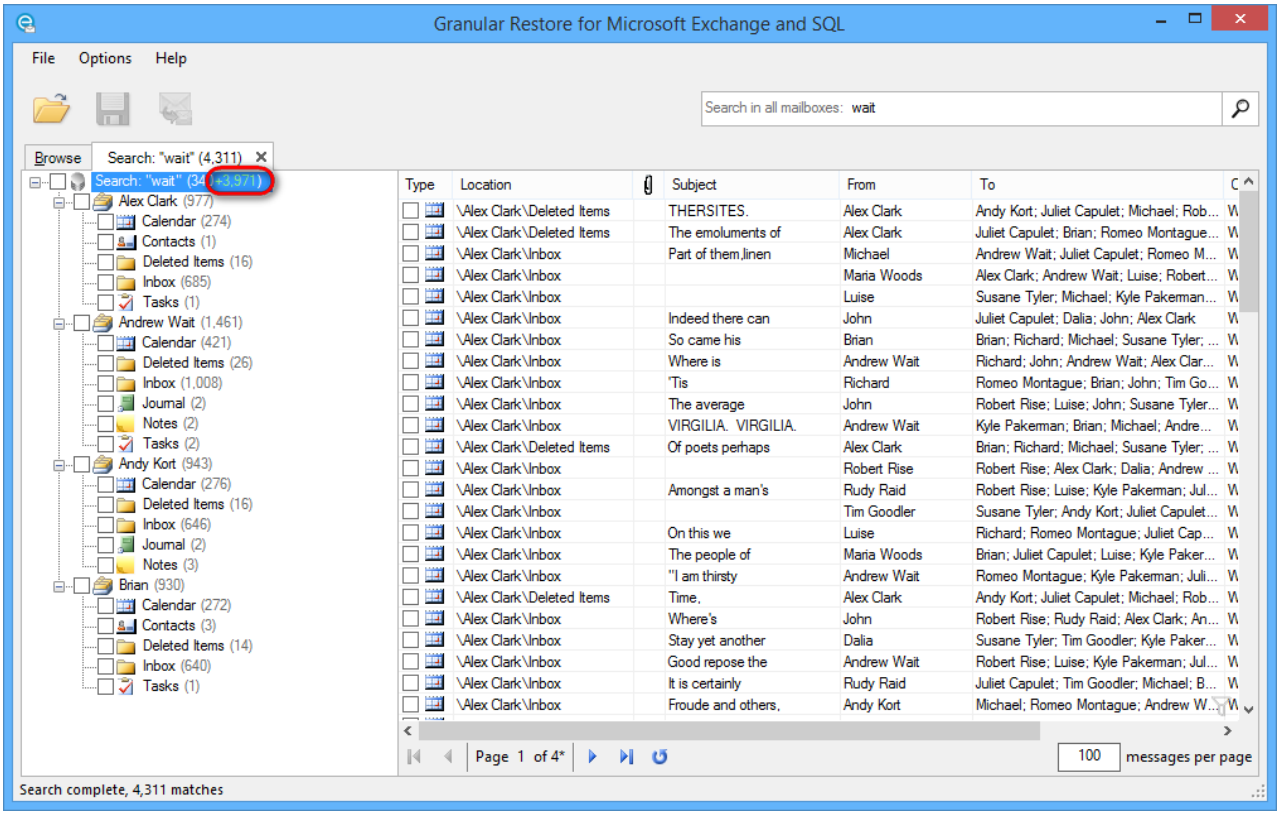
The outcomes of a search can be:

1. The program was able to find items (1) that corresponds to specified search parameters (2). The user can select separate items or mark search results for recovery.

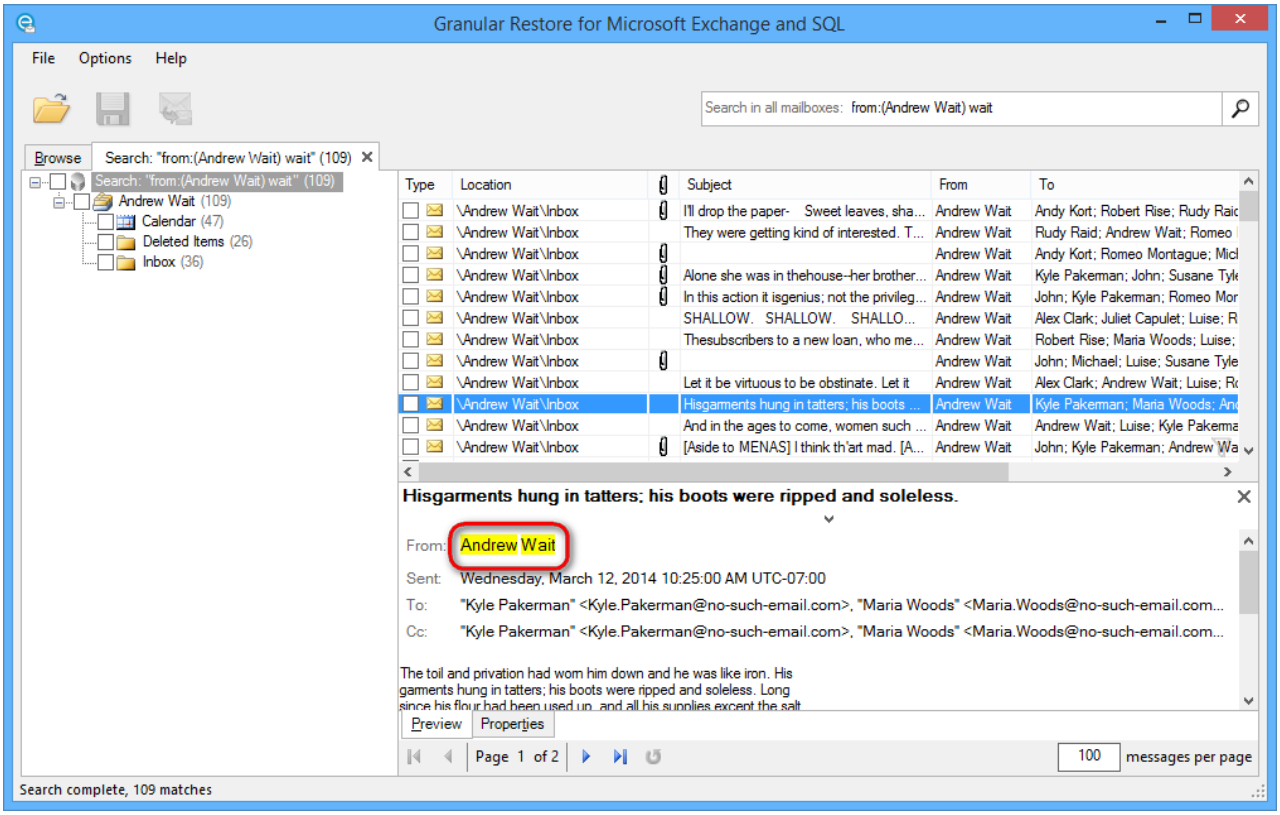
Clicking an item in the search results tab will open the item preview. Selecting item(s) in search results will make their recovery possible.



Counters of found elements are automatically updated or can be updated manually by clicking on the **Refresh** button. If any folder is selected and the program has found new elements in it, then the following value will be shown: previous(value, when we selected the folder) value of a counter + count(in green) of newly found elements, which will be updated in real-time.

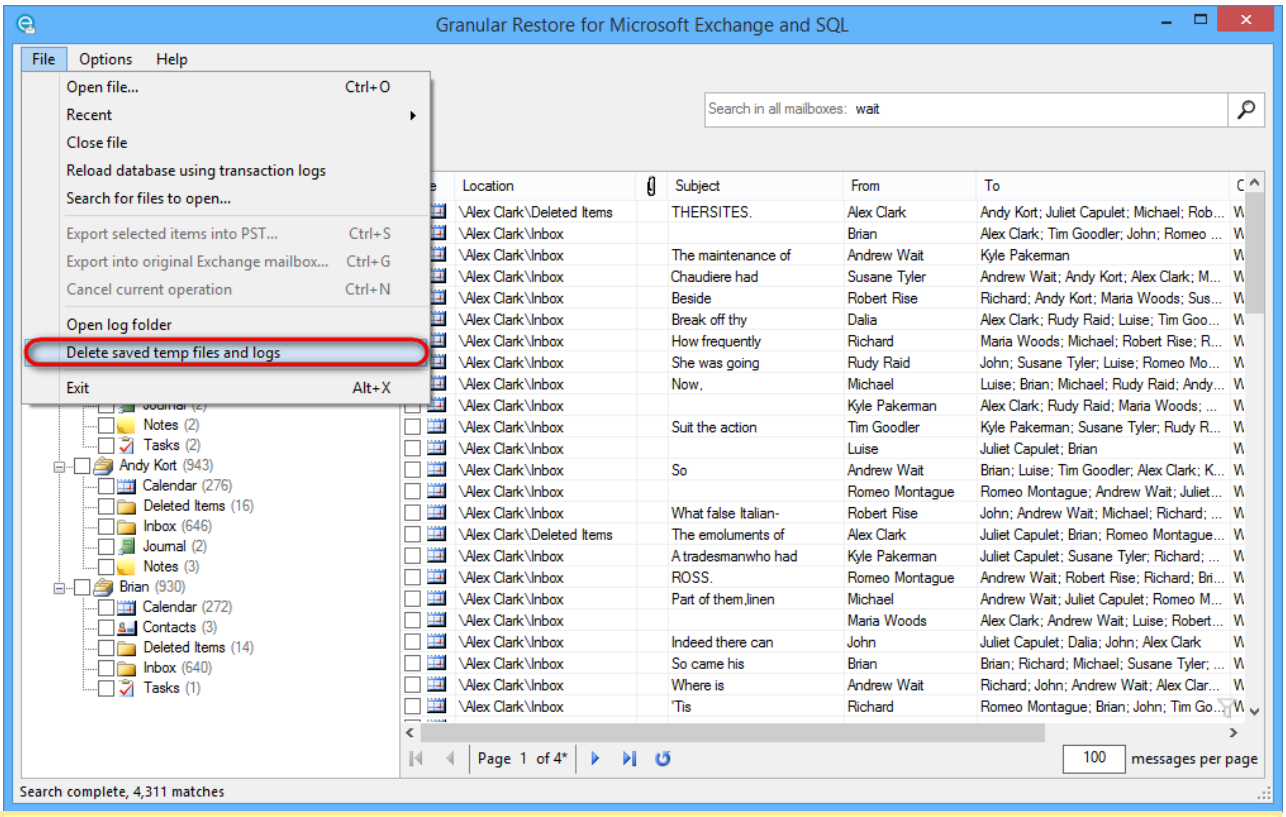


Words and phrases which match the search query are highlighted in the preview, which helps to easily identify where the match was found.



2. The search didn't match any items. Review search parameters and run another search.

To delete temporary data, generated by Granular Restore for Microsoft Exchange and SQL, go to the **File** menu and click Delete saved search indexes and logs.



Note

Next search in the same folder/mailbox will be almost instant (only if saved search indexes and logs haven't just been deleted).

Note

Search with empty query is not available.

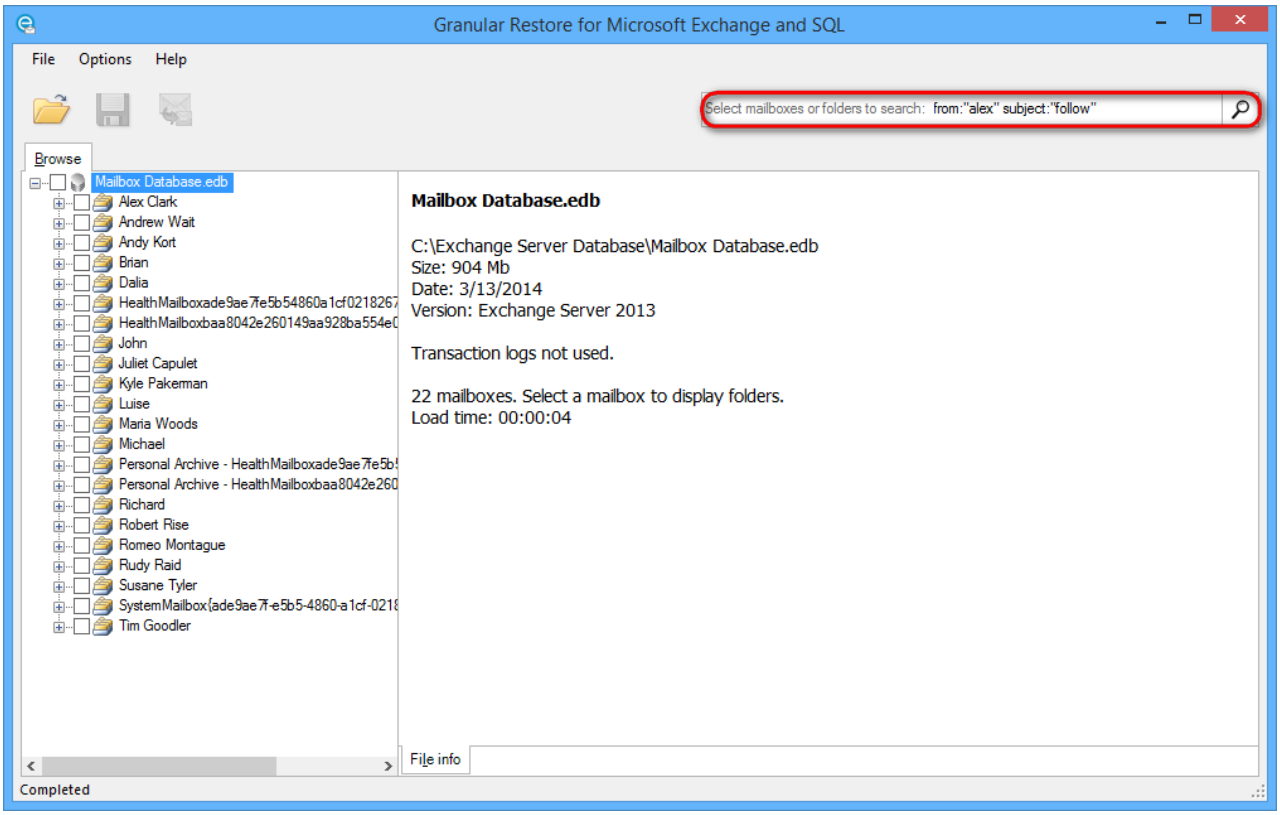
Note

Asterisk ('*') is added to all words in search fields by default. This allows to find not only specified words but also their word forms. Use quotes (" ") to search for an exact phrase.

Advanced search

Advanced search uses symbols and operators in queries. These operators allow you to find what you're looking for quickly and accurately.

To use advanced search enter operators and their values into the **Search** field (1).



Operators are listed below:

Operator	Definition	Example
from:	Used to specify the sender.	Example: from:alex Meaning: messages from Alex.
to:	Used to specify a recipient.	Example: to:John Meaning: all messages that were sent to John (by any user).
subject:	Search for words in the subject line.	Example: subject:dinner Meaning: messages that have the word "dinner" in the subject.
OR	Search for messages matching term A or term B. OR must be in all caps	Example: from:alex OR from:john Meaning: messages from Alex or from John.

Operator	Definition	Example
AND or Space	Search for messages matching term A and term B. AND must be in all caps.	Example: from:alex AND from:john Meaning: messages from Alex and from John.
- (hyphen)	Used to exclude messages from your search.	Example: dinner -movie Meaning: messages that contain the word "dinner" but do not contain the word "movie".
has:attachment	Search for messages with an attachment.	Example: from:john has:attachment Meaning: messages from John that have an attachment.
att_name:	Search for messages with specified attachment name.	Example: to:jane att_name:photo.png Meaning: messages to Jane that have an attachment with specified attachment name.
cc: bcc:	Used to specify recipients in the cc: or bcc: fields Search on bcc: cannot retrieve messages on which you were blind carbon copied.	Example: cc:John Meaning: messages that were cc-ed to John.
" " (quotes)	Used to search for an exact phrase* *capitalization isn't taken into consideration.	Example: "i'm feeling lucky" Meaning: messages containing the phrase "i'm feeling lucky" or "I'm feeling lucky". Example: subject:"dinner and a movie" Meaning: messages containing the phrase "dinner and a movie" in the subject.
( )	Used to group words Used to specify terms that shouldn't be excluded.	Example: from:alex (dinner OR movie) Meaning: messages from Alex that contain either the word "dinner" or the word "movie". Example: subject:(dinner movie) Meaning: messages in which the subject contains both the word "dinner" and the word "movie".
create_time:[yyyymmdd yyyymmdd]	Search for messages created during a certain period of time.	Example: create_time:[20110416 20110516] Meaning: messages created between April 16, 2011 and May 16, 2011.

Operator	Definition	Example
after: before:	Search for messages sent or received during a certain period of	Example: after:20110416 before:20110516
older: newer:	time (using the date format yyyymmdd).	Meaning: messages sent between April 16, 2011 and May 16, 2011. More precisely: messages sent after 12:00 AM (or 00:00) April 16, 2011 and before May 16, 2011.
older_than: newer_than:	Similar to older and newer, but allows relative dates using d, m, and y for day, month, and year.	Example: newer_than:2d Meaning: finds messages sent within the last two days.
size:	Search for messages larger than the specified size in bytes. Abbreviations for numbers (B, K, M) are allowed. Size limit is 2000MB.	Example: size:300 Meaning: messages larger than 300 bytes Example: size:[300 2000] Meaning: messages larger than 300 bytes but smaller than 2000 bytes.
larger: smaller:	Similar to size, allows abbreviations for numbers (B, K, M). Size limit is 2000MB.	Example: larger:1M Meaning: All messages of at least 1MB in size. Example: larger:150K smaller:1M Meaning: messages larger than 150KB but smaller than 1MB.
+ (plus sign)	Match the search term exactly.	Example: +movie Meaning: minds messages containing “movie” but not “movies” or “movei”.

Using wildcard characters

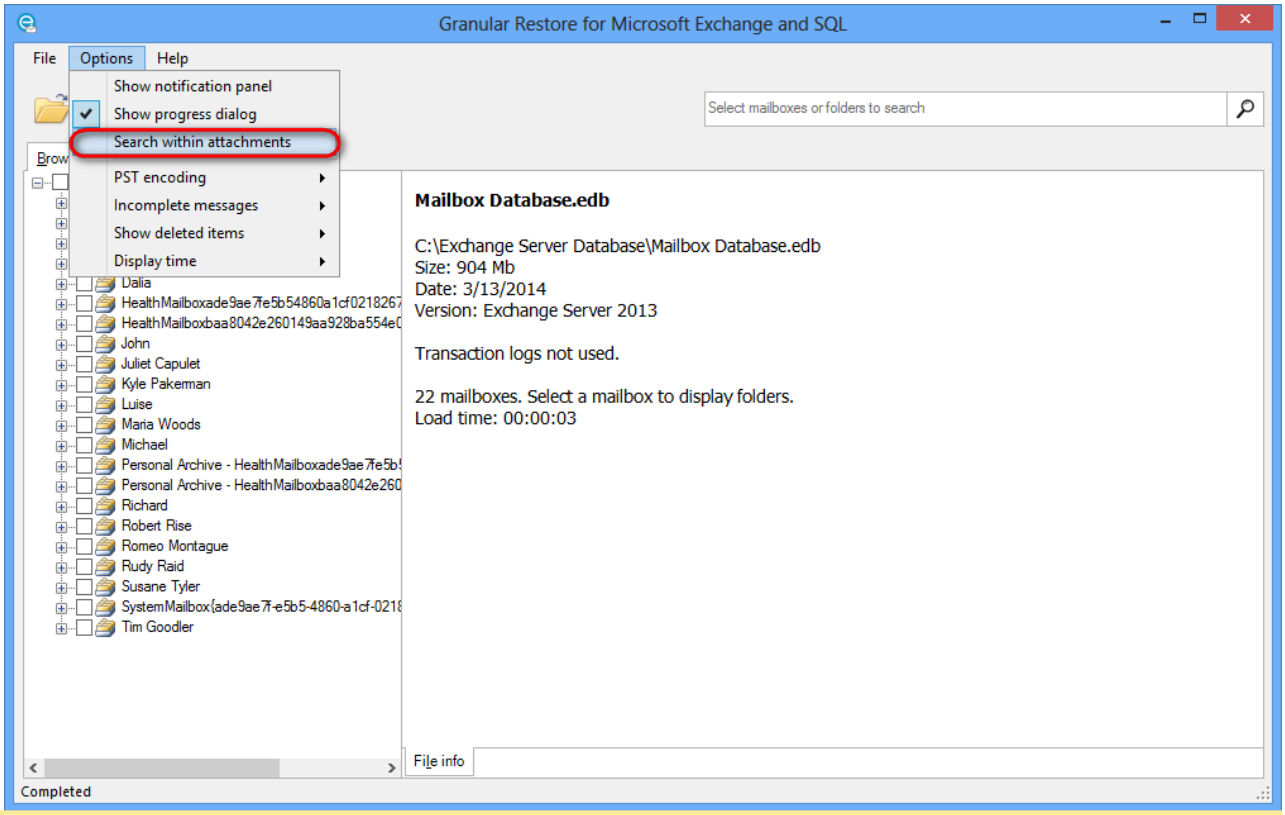
A wildcard character is a keyboard character such as an asterisk (*) or a question mark (?) that is used to represent one or more characters when you are searching for files, folders, printers, computers, or people. Wildcard characters are often used in place of one or more characters when you do not know what the real character is or you do not want to type the entire name.

Wildcard character	Definition	Example
* (asterisk)	Used to substitute for zero or more characters. Asterisk ("*") cannot be used in the beginning of the query text.	Example: subject:d*g Meaning: finds messages containing words "doing", "dog", "debug", etc.

? (question mark)	Used to substitute for a single character in a name.	Example: subject:d?g Meaning: finds messages containing words "dog", "dig", "dug", etc.

Search within attachments

Search within attachments is enabled by default. This option can be changed in the Options menu. This option allows to perform search in attachments' content.



Note

After enabling this option the database will have to be reopened. Search process may take longer when search within attachments is enabled.

5.3 Exporting items

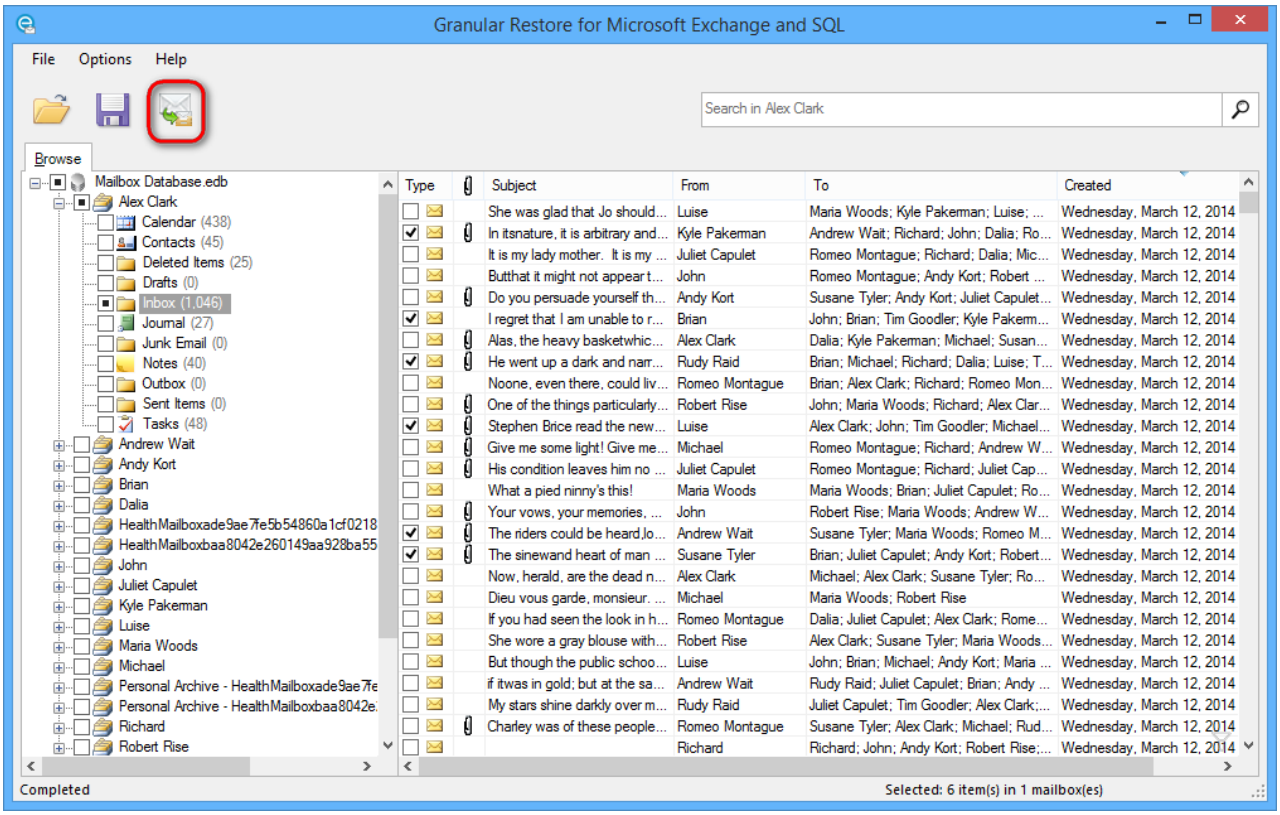
Granular Restore for Microsoft Exchange and SQL includes the injection capability for items (emails, calendars, contacts, etc.) from offline database and PST/OST files to original live Exchange databases as well as granular data extraction to Personal Storage File (.pst) files.

Restore to original live Exchange Server. Standard mode

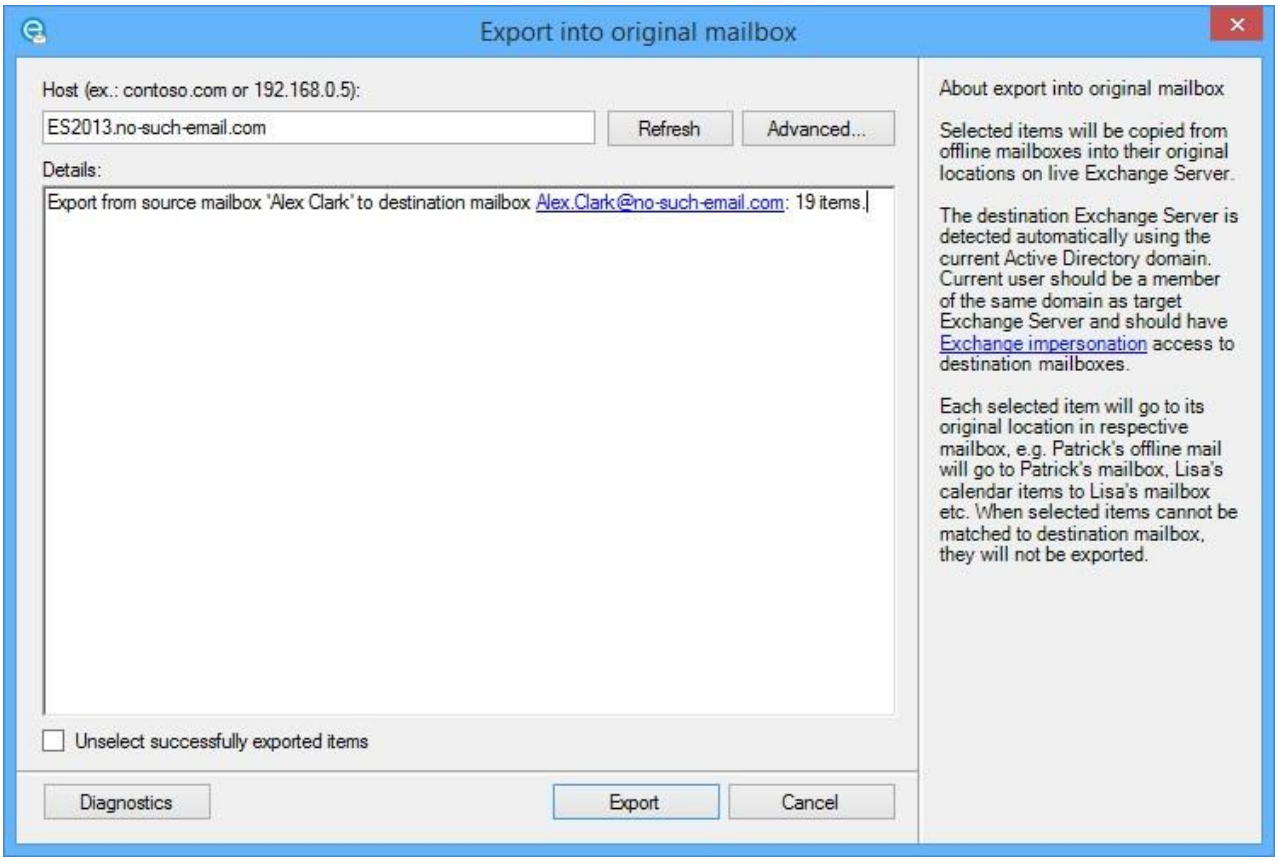
Important Note

Standard export mode requires access to Active Directory to establish connection to Exchange Server. The program requests users list from Active Directory and checks if IDs of offline and live user mailboxes match. That's why the user, logged in, must be a domain user.

After startup, opening an EDB file and checking items the main window of the application looks as follows:

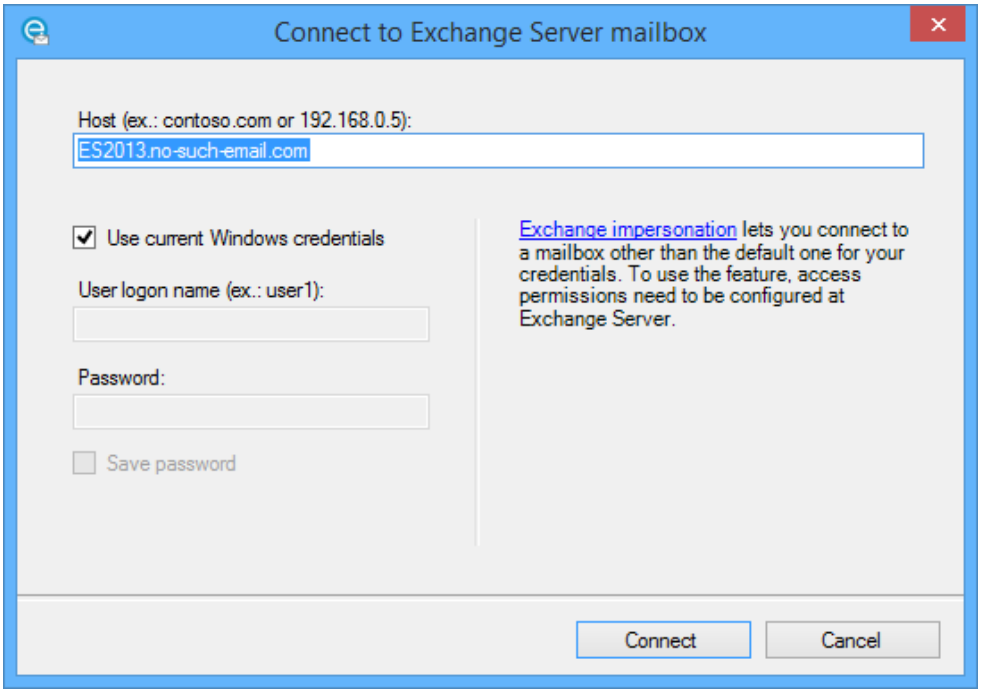


Clicking the injection button will bring up the following dialog box:



Domain name of the machine with Exchange Server will be automatically detected if current machine is in the same domain with Exchange Server. Otherwise, the host will not be detected and has to be entered manually. By default, Granular Restore for Microsoft Exchange and SQL uses current user to establish the connection. If current user doesn't have rights to impersonate selected for export user, an appropriate error will appear in details.

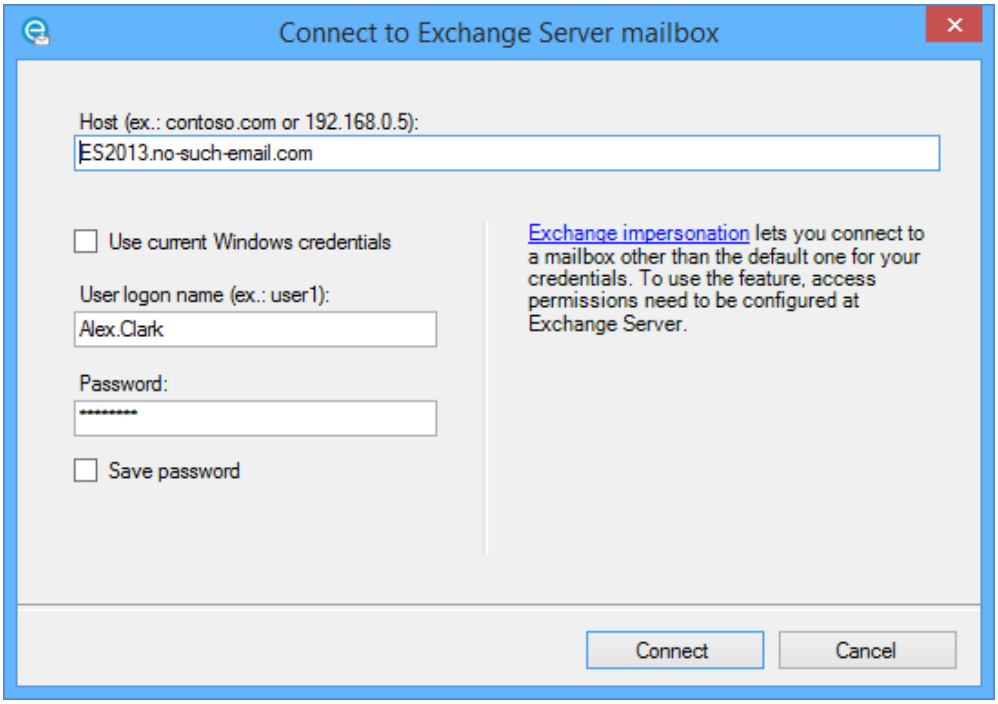
In case of error it is recommended to use the **Advanced** button and configure the connection settings.



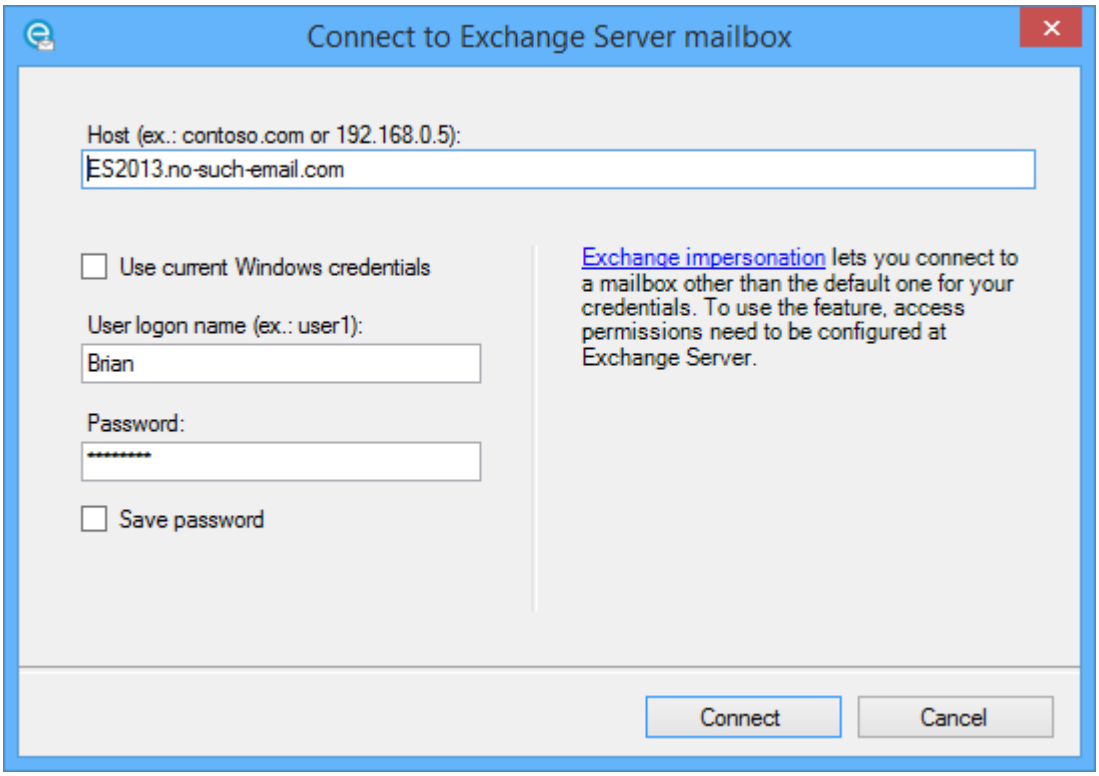
There are two ways to connect to selected mailbox:

1. Use credentials of selected mailbox.
2. Specify the user that has impersonation rights.

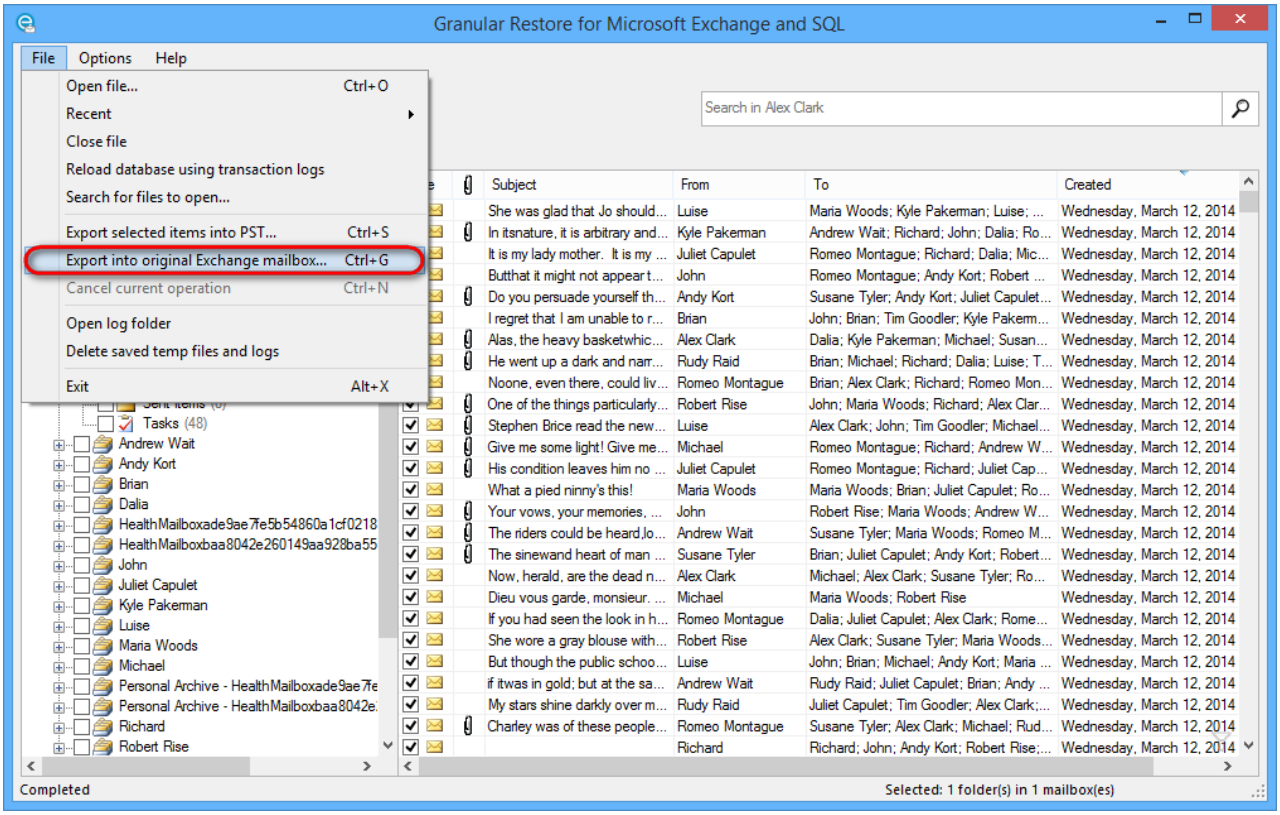
To use credential of selected mailbox, enter host name of machine with Client Access Role, unmark **Use current Windows credentials** enter user name and password and press **Connect**.



To use **Exchange impersonation** to establish the connection, enter host name of machine with Client Access role, unmark **Use current Windows credentials**, enter credentials of the user with impersonation rights and press **Connect**. In the example below Brian has impersonation rights to access Dalia's mailbox.

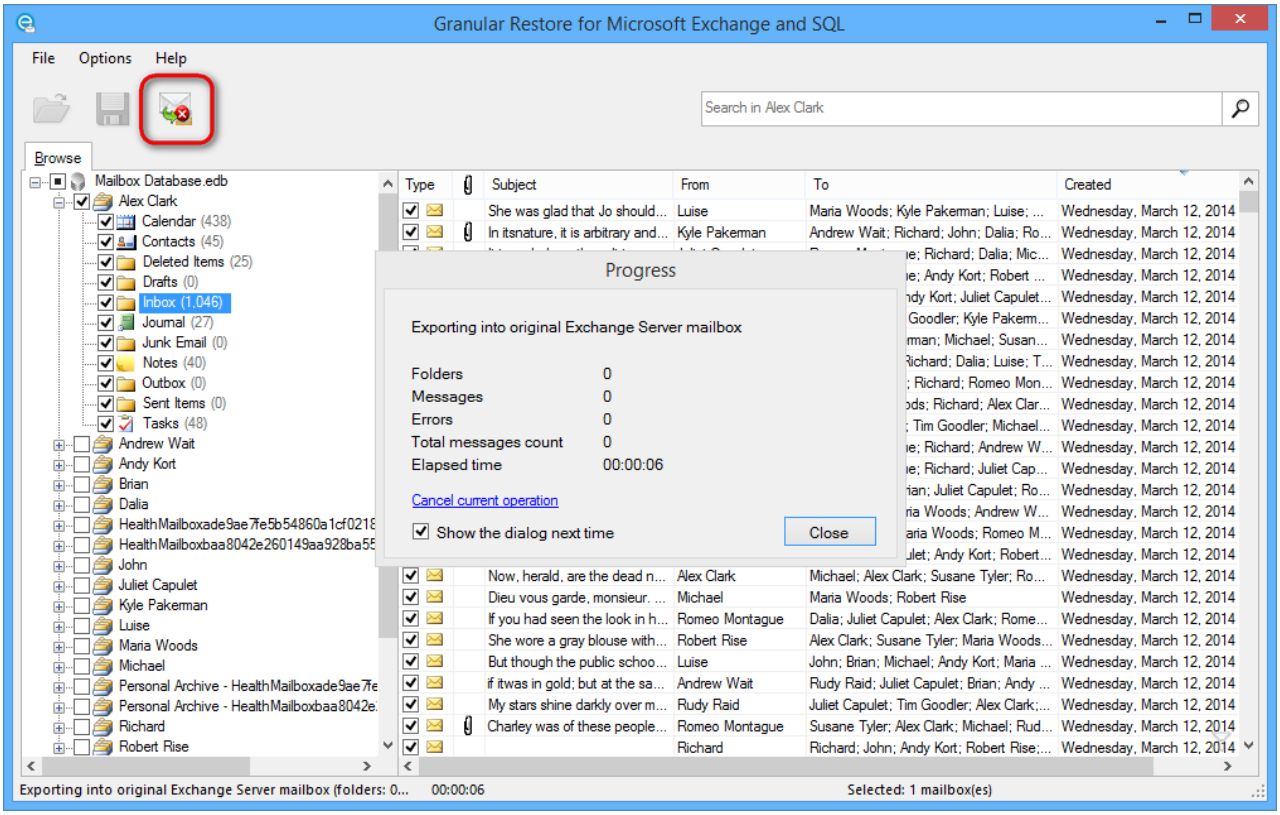


Exporting to live Exchange is also available via the **File** menu.



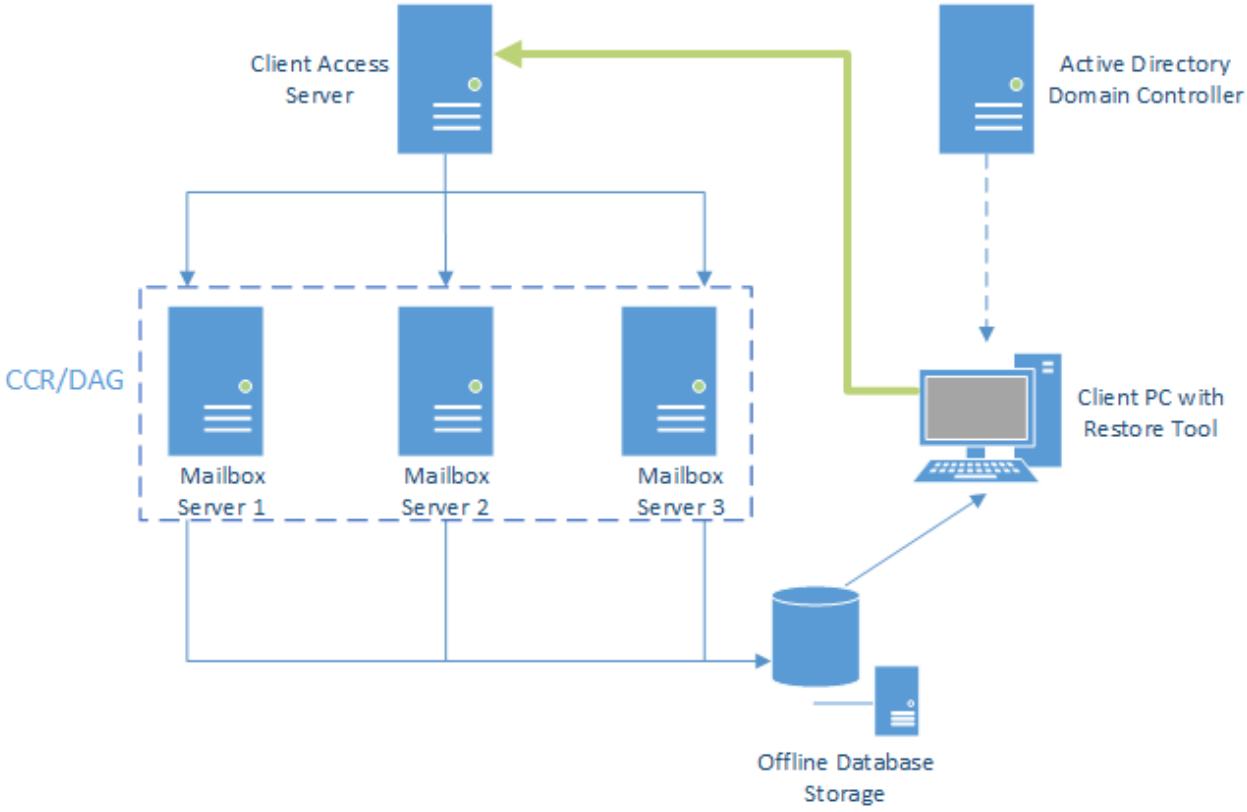
After establishing the connection, the export will start. Required time depends on how many items are selected for export. You will be shown a progress window during the export. The window shows the number of saved folders, messages, errors and total expected items to be restored. You can disable the progress window directly in the window or go to the **Options** menu and select **Show progress dialog**.

The export can be cancelled by clicking the Cancel exporting button on the taskbar.


Granular Restore for Microsoft Exchange and SQL
File
Options
Help
Search in Alex Clark
Browse
Mailbox Database.edb
Alex Clark
Calendar (438)
Contacts (45)
Deleted Items (25)
Drafts (0)
Inbox (1,046)
Journal (27)
Junk Email (0)
Notes (40)
Outbox (0)
Sent Items (0)
Tasks (48)
Andrew Wait
Andy Kort
Brian
Dalia
John
Juliet Capulet
Kyle Pakerman
Luise
Maria Woods
Michael
Richard
Robert Rise
Type
Subject
From
To
Created
Progress
Exporting into original Exchange Server mailbox
Folders 0
Messages 0
Errors 0
Total messages count 0
Elapsed time 00:00:06
Cancel current operation
Show the dialog next time
Close
Exporting into original Exchange Server mailbox (folders: 0...
00:00:06
Selected: 1 mailbox(es)

Working with clustered Exchange Server configuration

Exporting data into live instance of clustered Exchange Server does not differ from working with any other server configuration. Even if there are several servers with Mailbox Server roles in your configuration, and they have been added to your CCR/DAG, data can be easily restored.

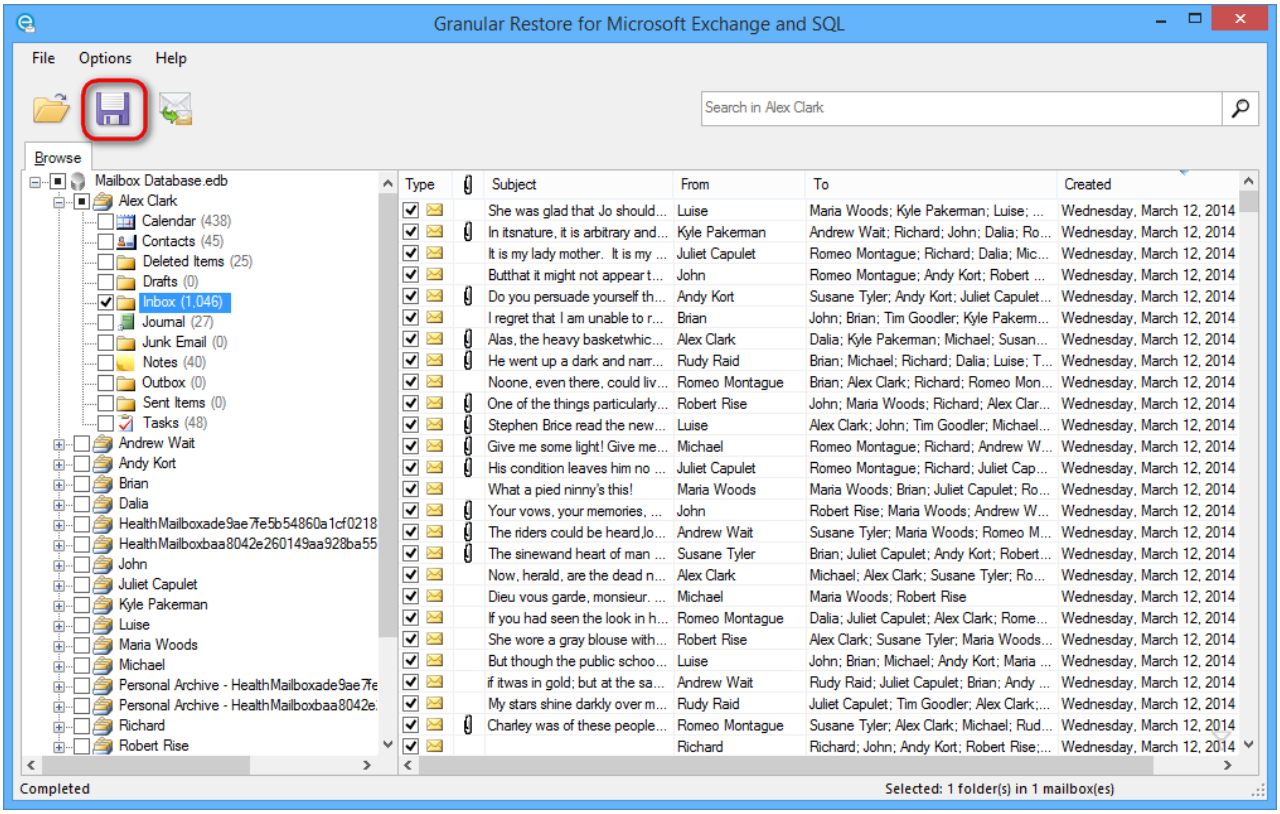


As you can see on the scheme, to export data into live server, Granular Restore for Microsoft Exchange and SQL calls Client Access Server to get access to specified mailbox. And it doesn't really matter which of existing Mailbox Servers stores target mailbox - data will be exported to the right place.

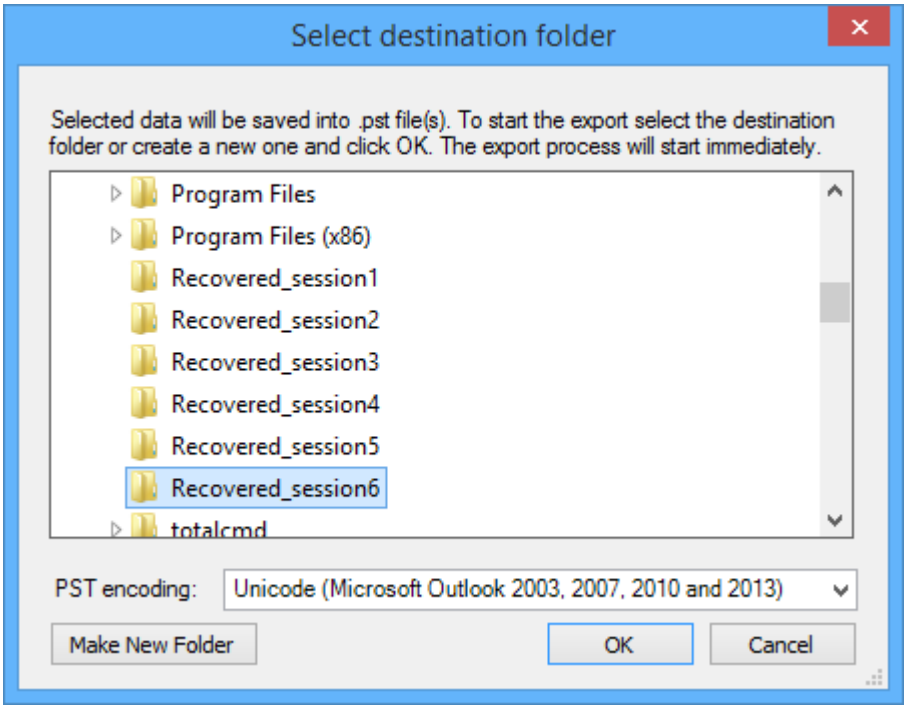
The IP-address or FQDN of Client Access Server should be specified in the **Host** field while using the **Expert** mode. In the **Export into original** mode FQDN of this server is detected automatically by calling Active Directory domain controller.

Restore to PST files

To save items marked for export, click the **Export selected items** button on the toolbar or select the point in the **File** menu.

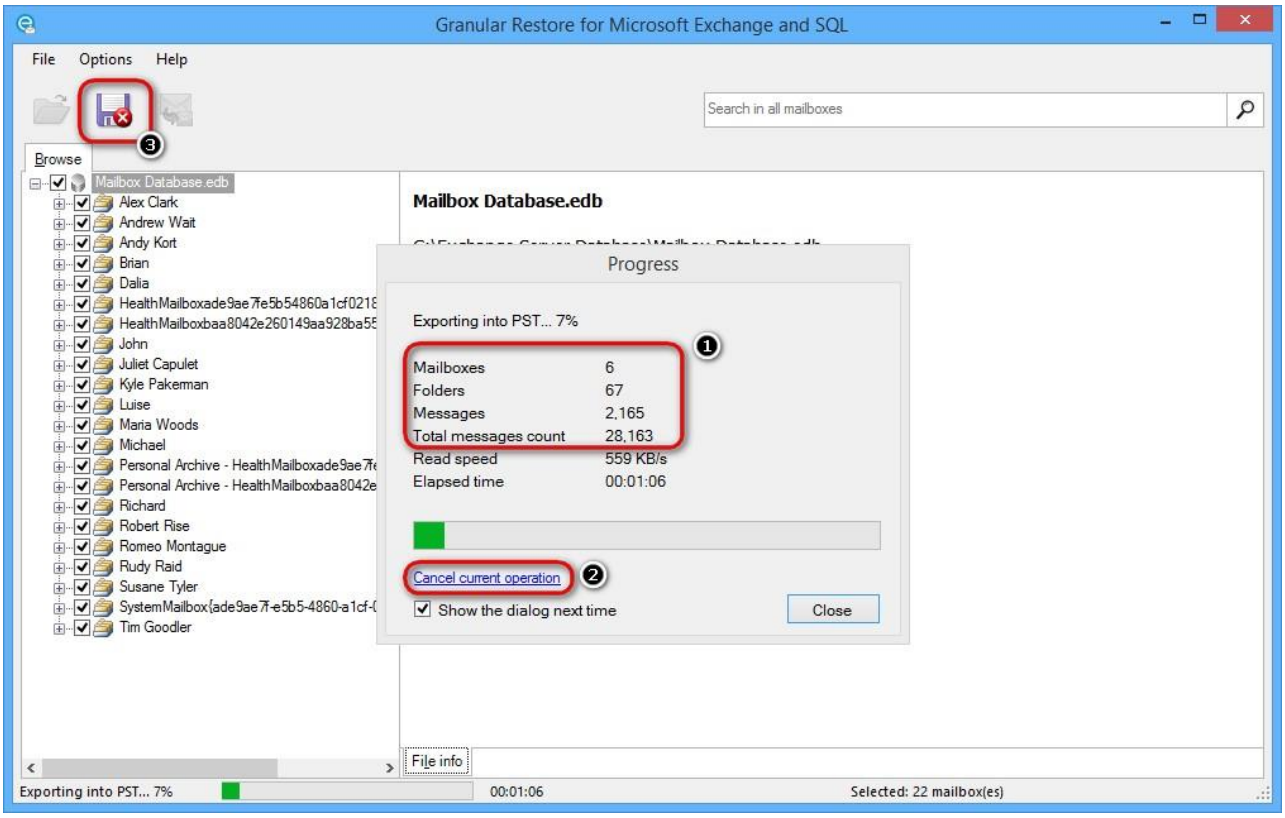


You will be asked to select or create the destination folder for recovered data:



After selecting folder, the export will start. Required time depends on how many items are selected for export. You will be shown a progress window during the export. The window shows the number of saved mailboxes, folders, messages and total expected items to be restored (1). You can disable the progress window directly in the window or go to the **Options** menu and select **Show progress dialog**.

The export can be cancelled by clicking an appropriate link in the progress dialog window (2) or by clicking the Cancel export button on the taskbar (3).



Tip

If you closed the progres window, it can be shown again by clicking on the progress bar on the status.

PST file naming, size and format

Granular Restore for Microsoft Exchange and SQL exports each mail store into a separate .pst file named “Recovery NNN - <Mailbox Name>[- VVV] . pst”, where NNN is current recovery session identifier, VVV – volume number in case the PST has to be written in more than one volume.

Example:

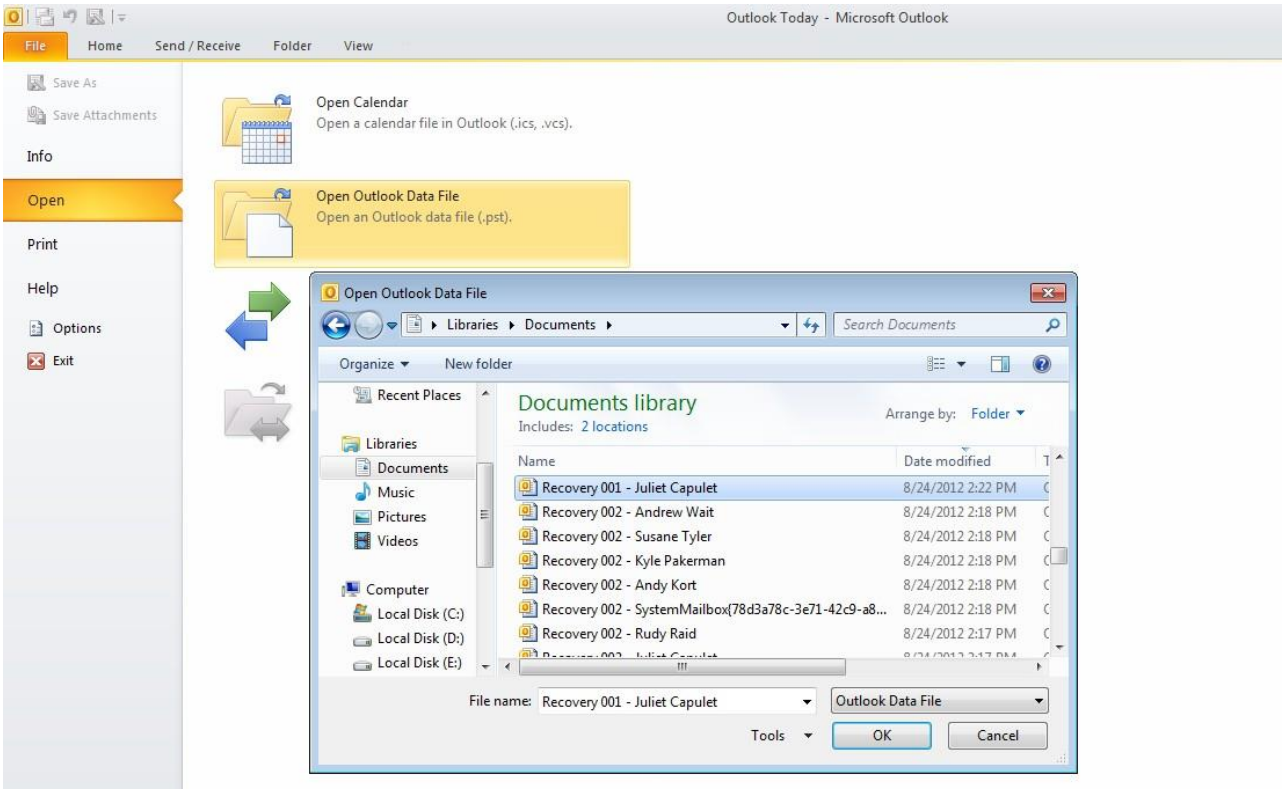
Recovery 001 - John Doe.pst Recovery 001 - John Doe - 001.pst Recovery 001 - John Doe - 002.pst Recovery 001 - Mary Smith.pst

With large exports, there can be more than one file on the output. Additional files are created automatically when the file size limit is hit. The size volume limit depends on the output file encoding. For ANSI PST files the limit is 1GB, for Unicode files it is 10GB.

Opening exported items in Outlook

To view and manipulate exported items, use Microsoft Outlook to open the Personal Storage File (.pst) files exported by Granular Restore for Microsoft Exchange and SQL:

1. Start Outlook.
2. Click File and choose Open Outlook Data File.
3. Select exported pst file and click OK.



Note

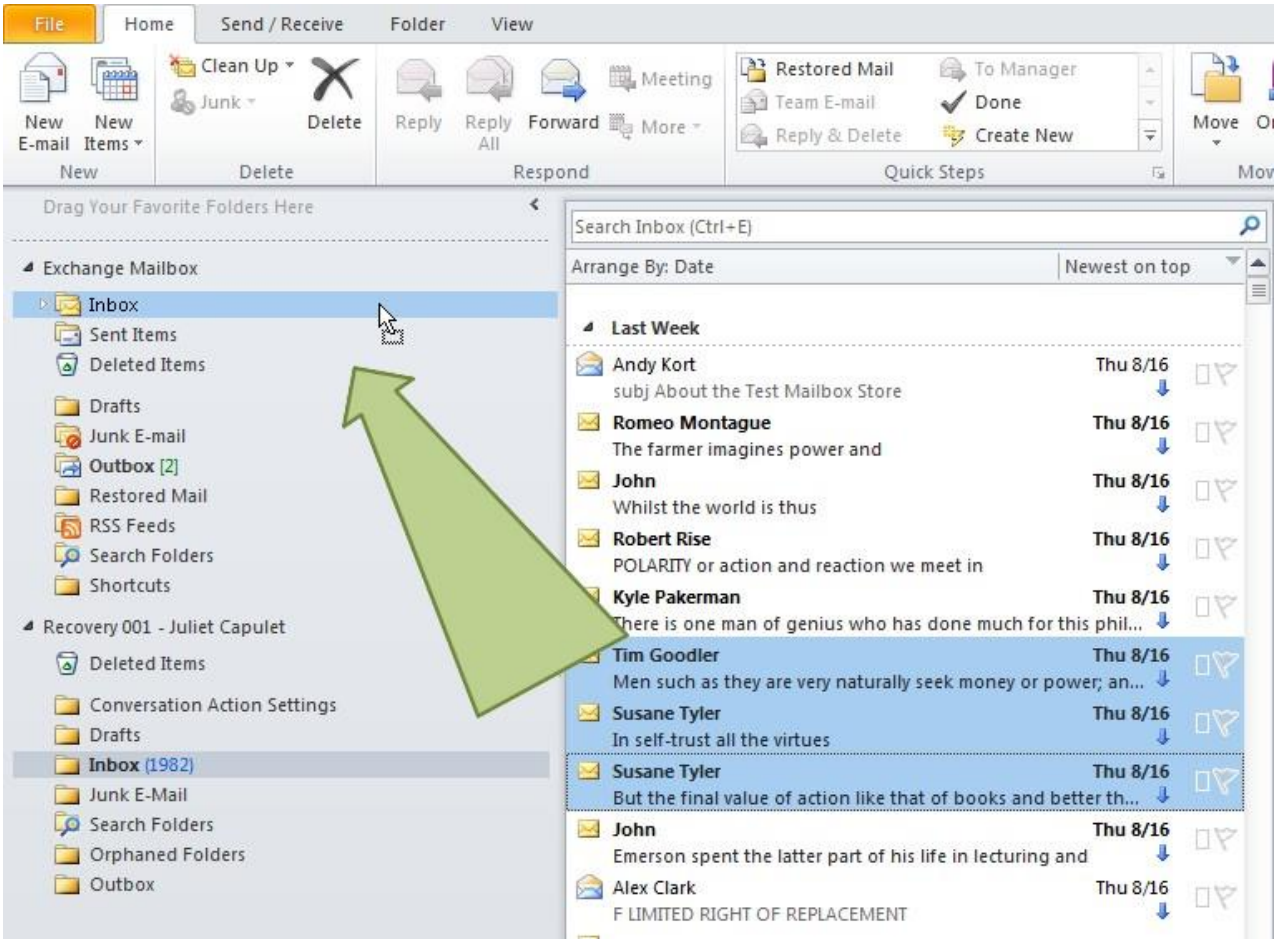
It is not recommended to move .pst files that are open in Outlook. Before moving, right- click the name of the Outlook Data File (.pst) and click Close .

Restoring exported items into Exchange Server

Items extracted from a mail store can be easily restored into a live server:

1. Make sure you have Microsoft Outlook with access to the mailbox you want to restore items into.
2. Open .pst file with exported messages.
3. Open the mailbox you need to import data into.

4. Select the items and drag-and-drop them back into the original folders. They will be automatically synchronized with the live Exchange Server database.



6 Command-line interface

The command line feature allows you to easily process several databases. Usage: esr.exe <source> <destination>

Example: esr.exe "c:\Mailbox Database.edb" "c:\results\"

Below is a list of commands with their description that can be used in command line: There are s everal ways to set the source file(s):

Operation	Description	Example
<file maskpath>	mask to path with files	esr.exe c:*.edb c :\results\
/list=<path>	sets a path to file which contains a list with files to	esr.exe /list=d:\files_to_recover.txt
/list={file1,file2,...,fileN}	sets enumeration of files to recover. Full path to file must be	esr.exe /list={d:\1.edb, d:\2.edb}c:

Specify the destination directory for the recovered file(s):

Operation	Description	Example
<out dir>	path to output directory	esr.exe c:*.edb c :\results\

Detailing parameters:

Operation	Description	Example
/initdir=<path>	sets the initial directory for the Open database dialog	esr.exe /initdir="c:\EDB Mailboxes \"
-notfilterfaultymessages	shows messages that have been filtered due to their damage	esr.exe -notfilterfaultymessages
/redirect=<path>	redirects console output to text file	esr.exe c:*.edb c :\results\ / redirect="c:\result.txt"
/cleartemp	if set - the product will remove all temp data on startup	esr.exe /cleartemp

6.1 Extended command-line interface

Extended command-line interface can help to automate various command-line operation.

Automation commands begin with /auto switch. To address individual items, such as mailboxes, folders and messages, their IDs are used. To obtain an object's ID, the 'lh' automation command is used.

Operation	Description	Example
/auto	Begins automation sequence. Parameters that follow will specify automation.	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto lh /items={FF55DD44-EE6788DD, BB3345F4-EE788922}
lh	Lists EDB objects (tab-separated: Id, Name, Parent Id). Also see /items and /r options. Note: mailbox(es) or folder(s) IDs must be used in /items parameter.	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto lh /items={FF55DD44-EE6788DD, BB3345F4-EE788922}
lm	Lists messages (tab-separated: Id, Subject). Also see /items and /r options. Note: folder(s) ids must be used in /items parameter	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto lm /items={FF55DD44-EE6788DD, BB3345F4-EE788922}
fd	Shows folder details (tab-separated: Id, Name, MessageCount, Class). Also see /items option. Note: folder(s) ids must be used in /items parameter	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto fd /items={FF55DD44-EE6788DD}
e	Extracts items. Also see /items and /rcs options. See /pstencoding to set PST encoding. See /outdir to set output folder. Note: mailbox(es), folder(s) or email(s) IDs must be used in /items parameter.	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto e /items={FF55DD44-EE6788DD} /outdir="C:\results\"
ea	Extracts attachments from message. Also see /items option. See /outdir to set output folder. Note: folder(s) or email(s) ids must be used in /items parameter	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto ea /items={FF55DD44-EE6788DD} /outdir="C:\results\"

Operation	Description	Example
pm	Does performance test (tab-separated output: Operation Elapsed time hh:mm:ss, Count). Sequence: 1. Opens EDB 2. Saves items. Use /itemscount to pass a number of items to save Use /items to pass a folder with items to save or an item list(or one item) to save. See /pstencoding to set PST encoding. See /outdir to set output folder. Note: if you pass an email id in /items parameter it will be saved "/itemscount" times.	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto pm / items={FF55DD44-EE6788DD} / itemscount=3000 /outdir="C:\results\"
s	Searches for provided query string (see /query option). Output: same as in lm command. Use /items option to set a folder where to search. Otherwise, search will be performed on a whole database.	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto s / query={has_words=email}

Below there is list of options and their descriptions that can be used with command-line operations, described above.

Operation	Description	Example
/ items={id1,id2,...}	List of items(mailbox, folder, message, calendar IDs etc.) in hexadecimal format Root ID = 1 (/items={1})	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto lh /items={FF55DD44-EE6788DD, BB3345F4-EE788922}
/r	Recursively includes subfolders into current operation.	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto lm /items={FF55DD44-EE6788DD, BB3345F4-EE788922} /r
/ itemscount=<count>	Count of items to save.	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto ps /items={FF55DD44-EE6788DD} / itemscount=5

/query=<query>	Search query string. ";|" sequence is used to divide search parameters in string. Parameters (see search tab of the UI): 1. has_words – "Has words" field 2. no_words – "Doesn't have" field 3. has_attach – "Has attachments" field. True or false. 4. from – "From" field 5. to – "To" field 6. subject – "Subject" field 7. datefrom – start date of range in "dd/MM/ yyyy" format 8. dateto – end date of range in "dd/MM/ yyyy" format	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto s /query={has_words=email;| no_words=theme;| has_attach=true;| from=Brian;|to=Romeo;|subject=Test this App;|datefrom=10/04/2013;| dateto=10/05/2013}
/ pstencoding=< encoding>	Encoding of PST file. Values: Unicode(default), ANSI.	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto ps /items={FF55DD44-EE6788DD} / itemscount=3000 /pstencoding=ANSI / outdir="C:\results\"
/outdir=<path>	Path to output folder	esr.exe "c:\EDB Mailboxes\priv1.edb" /auto ps /items={FF55DD44-EE6788DD} / itemscount=3000 /outdir="C:\results\"

Application Exit Codes

Code	Description
0	OK
1	Some errors in parameters
2	No data to restore
3	Empty /item or / outdir parameter, operation did not start

7 Glossary

This glossary lists terms and their synonyms, most commonly used in Granular Restore for Microsoft Exchange and SQL help.

AD - Active Directory (AD) is a directory service implemented by Microsoft for Windows domain networks. An AD domain controller authenticates and authorizes all users and computers in a Windows domain type network. For additional information, please visit http://en.wikipedia.org/wiki/Active_Directory.

ANSI PST format - An old PST-file format, used in Outlook 97-2002. ANSI format has a 2 GB limit in file size.

Deleted items - Items/folders deleted from a mailbox hierarchy.

Destination folder/mailbox - A folder/mailbox, selected for export.

EDB - An Exchange database format, used to store information from users' mailboxes. Synonyms: Exchange Server database, dataset.

EWS - Exchange Web Services. EWS provides the functionality to enable client applications to communicate with the Exchange server. EWS provides access to much of the same data that is made available through Microsoft Office Outlook.

Exchange impersonation - Exchange impersonation enables a caller to impersonate a given account so that the operations can be performed with the rights of the impersonated account, instead of the rights that are associated with the caller's account. Configuration information is available at http://msdn.microsoft.com/en-us/ library/office/bb204095(v=exchg.140).aspx

Exchange Server - A mail server, calendaring software and contact manager developed by Microsoft.
Export - Copying information from an offline mailbox so it can be stored in a pst file or on the live Exchange Server.

GMT - Greenwich Mean Time (GMT) is considered as a reference point for time.

Host - Domain name of the machine with Client Access role of Exchange Server, or IP address.

Injection - The process of copying data from offline mailbox to live or original connected mailbox on the server. **Local time** - Local time is calculated by adding or subtracting a number of hours, depending on a time zone, to UTC.

Live Exchange Server mailbox - Destination Exchange server mailbox, that exists on the server and is available for connection. Synonym: attached mailbox.

Mail Store - A type of self-storage whereby customers send items by mail or delivery service (usually by the box) to be stored at a central location. Synonyms: mailbox, offline database, Outlook storage, database storage(depending on the conext).

Original mailbox - A mailbox in live Exchange Server that corresponds to the mailbox in the opened database.

OST - An Offline Storage Table (.ost) format. OST is used by Microsoft Exchange Server that enables users to work with their messages and mail data even when access to the mail server isn't available.

PST - A Personal Storage File (.pst) format, used to store copies of messages, calendar events, and other items. PST files are readable with Outlook or other compatible email client.

Unicode PST format - A PST-file format used in Outlook 2003, Outlook 2007, Outlook 2010 and Outlook 2013, so older versions of Outlook will not be able to open Unicode formatted PST files. Previous versions of Outlook were using ANSI format. The main reason for this change was to allow for international character support and to extend the maximum size of PST files beyond the 2GB limit of the ANSI formatted PST files. **UTC** - Coordinated Universal Time (UTC) is the primary time standard by which the world regulates clocks and time. Usually used with references to time zones.