

# **NovaBACKUP Granular Restore**

Version 21.2.0



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# 1 Product overview

NovaBACKUP Granular Restore (NBGR) 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 NovaBACKUP Granular Restore:

## SQL 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

## Microsoft Exchange Server

- Recovers mailboxes, folders, messages and file attachments
- Recovers contents of Public Folder mailboxes
- Recovers email addresses from Active Directory storage
- 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

NovaBACKUP Granular Restore supports the following mail store versions:

2019 CU3, 2019 CU2, 2019 CU1, 2019, 2016 CU15, 2016 CU14, 2016 CU13, 2016 CU12, 2016 CU11, 2016 CU10, 2016 CU9, 2016 CU8, 2016 CU7, 2016 CU6, 2016 CU5, 2016 CU4, 2016 CU3, 2016 CU2, 2016 CU1, 2016 RTM, 2013 CU21, 2013 CU20, 2013 CU19, 2013 CU18, 2013 CU17, 2013 CU16, 2013 CU15, 2013 CU14, 2013 CU13, 2013 CU12, 2013 CU11, 2013 CU10, 2013 CU9, 2013 CU8, 2013 CU7, 2013 CU6, 2013 CU5, 2013 SP1, 2013 RTM, 2010 SP3, 2010 SP2, 2010 SP1, 2010 RTM, 2007 SP3, 2007 SP2, 2007 SP1, 2007 RTM, 2003.

## 1.2 Supported Outlook versions

NovaBACKUP Granular Restore supports the following versions of PST/OST files:

2019 (Office 365), 2016, 2013, 2010, 2007, 2003, XP, 2000, 98 and 97

### Note

OST file of 2013, 2016, 2019 version is not supported.

## 1.3 Supported SQL Server database versions

NovaBACKUP Granular Restore supports the following versions of MDF/BAK files (including Express edition):

2017, 2016, 2014, 2012, 2008R2, 2008 and 2005

## 1.4 System requirements

Basic system requirements:

- Operating systems: Windows 10, Windows 8.1, Windows 8, Windows 7, Vista, 2019 Server, 2016 Server, 2012 Server R2, 2012 Server, 2008 Server, 2003 Server or XP
- 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, NovaBACKUP Granular Restore 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.

### 1.4.1 Live Exchange Server export requirements

#### Exchange Server

Exchange Server 2019, 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

NBGR installed. Access to Exchange server(s) over network.

### 1.4.2 Live SQL Server export requirements

#### SQL Server

SQL Server 2017, 2016, 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

NBGR installed. Access to SQL Server(s) over network.

## 1.5 Limitations

Current version of the product has the following limitations:

- While processing dirty shutdown databases storages may be restored not to the topical condition.
- Messages in the Outbox folder are not restored if they haven't been synchronized with the server.
- Simultaneous recoveries are not supported.
- Simultaneous running of more than one instance of the product is not supported.
- Encrypted emails are not restored.
- Messages with size over 64MB are not supported.
- Windows 2000, 98, ME and 95 are not supported.
- Recovery of delivery receipts and non delivery reports is not supported.
- Tool doesn't support usage in "Run as different user" mode.
- OST files, created in Outlook 2013, 2016 are not supported.
- Password-protected PST files are not restored in command-line interface.
- Command-line interface is not supported for MDF and BAK files.
- Compressed SQL Server 2014, 2016, 2017 BAK files are not currently supported.
- System MDF and BAK files are not currently supported.
- 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 database 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.
- Approved status of Calendar Events is not supported.
- Links to the Exchange Global Address List are not supported.
- Exchange Server Databases: Preview items with 4-byte Unicode characters may be not full in product started on Win7 and WS2008 OS. It is not affect on quality of restoring into PST or into live server.
- Exchange Server Databases: Search input field may work incorrectly with 4-byte Unicode characters. It does not affect on results of search.
- MS SQL Server: schemas with name containing a dot (".") - for example, "[custom.schema]" - can not be restored.
- MS SQL Server 2017: restore of graph tables is not supported.
- MS SQL Server: for "sql\_variant" datatype basetypes are not restored correctly (values are restored with "nvarchar" basetype).
- MS SQL Server: secondary data files are not currently supported.
- MS SQL Server: decimal values close to maximal/minimal can not be restored to live SQL server through injection.

#### **Injection limitations for Exchange Server**

- To restore a mailbox, an empty mailbox must be created in advance using the standard Exchange Server administration tools. In existing mailboxes folders and individual messages can be created without any additional administrative actions.
- It is possible to rename/delete folders in the attached mailbox only within one program session.
- Injection will not be supported for Exchange Server 2003 and earlier versions. These versions do not support EWS.
- 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 and other OLE objects are displayed with an attachments icon after exporting into live Exchange Server.
- 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.
- It is impossible to use the connection to the archive mailboxes, as they can not be found in the Active Directory.
- For IPM.Task class items existing "Date Completed" value is exported into live Exchange Server as current date/time.
- For IPM.Task class items "Update List" field is not restored after injection.

#### **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 NovaBACKUP Granular Restore 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/BAK:

- MDF/BAK size: 1TB
- Number of tables in the MDF/BAK file: 1,000
- Number of rows in one table: 10,000,000

## 1.7 Customer support

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

Online:	<a href="http://www.support.novabackup.com">http://www.support.novabackup.com</a>
Email:	<a href="mailto:support@novastor.com">support@novastor.com</a>
Phone:	1 (805) 409-3140

### 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 NovaBACKUP Granular Restore.

Depending on your preferences, it is possible to install the product in default or advanced mode.

### Default mode

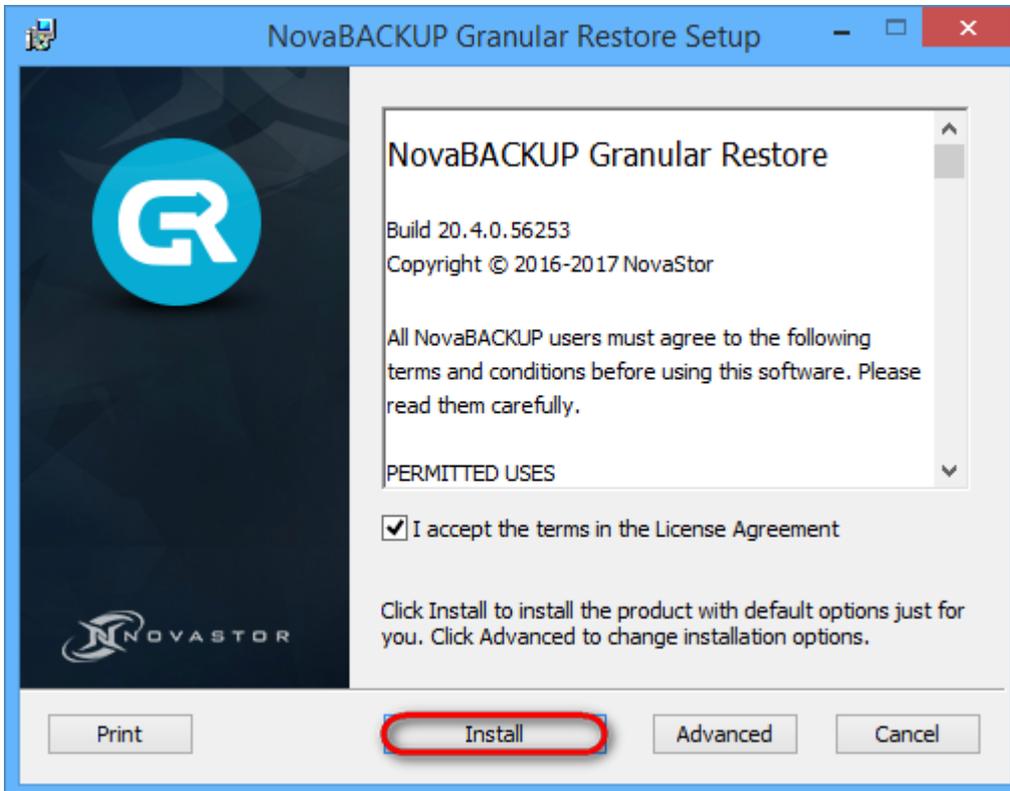
Default mode provides simple setup that requires just a few mouse clicks to complete. For the sake of simplicity, it does not offer any customization capabilities and uses the following default settings:

- NovaBACKUP Granular Restore 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 (x86)\NovaStor\Granular Restore\"
- 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 .



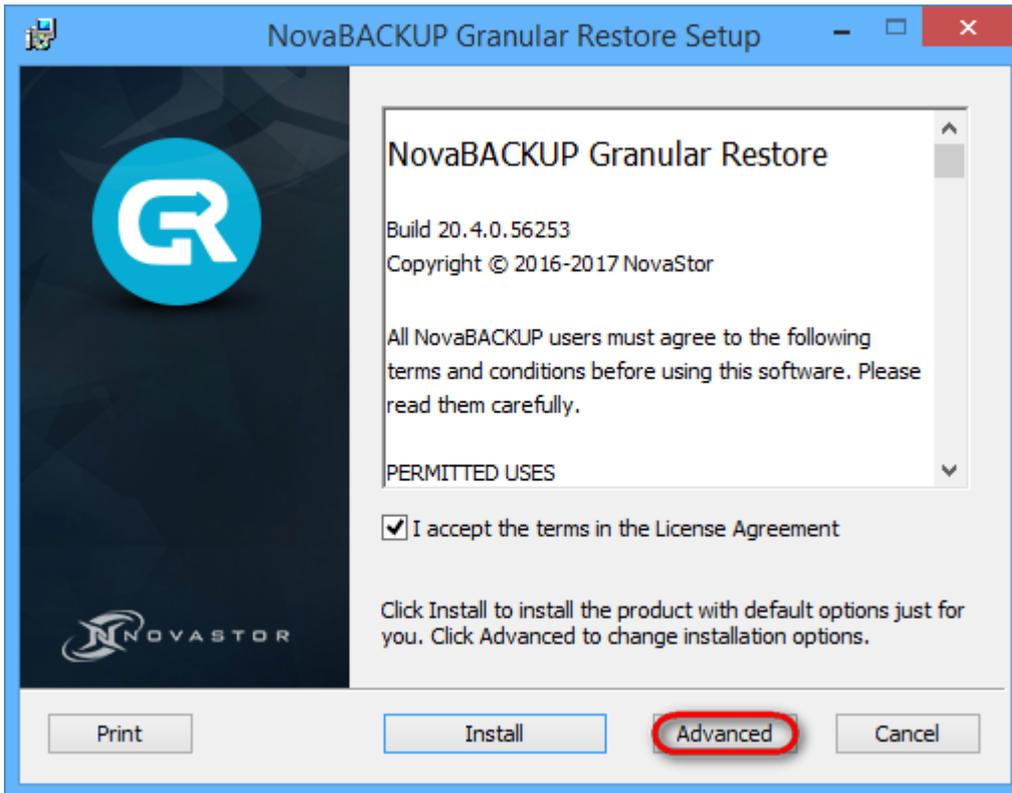
4. The installation will start. When finished, you will have an option to launch the installed product.

#### **Advanced mode**

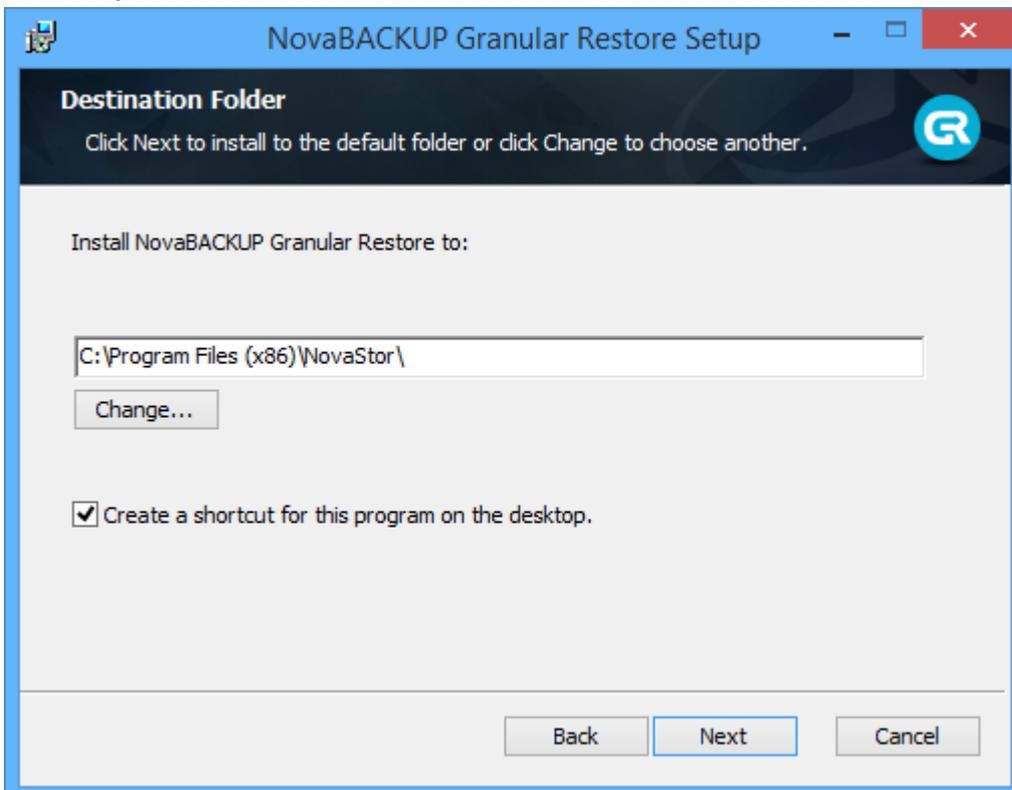
Advanced setup mode allows changing default installation options.

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**. Click **Next**.



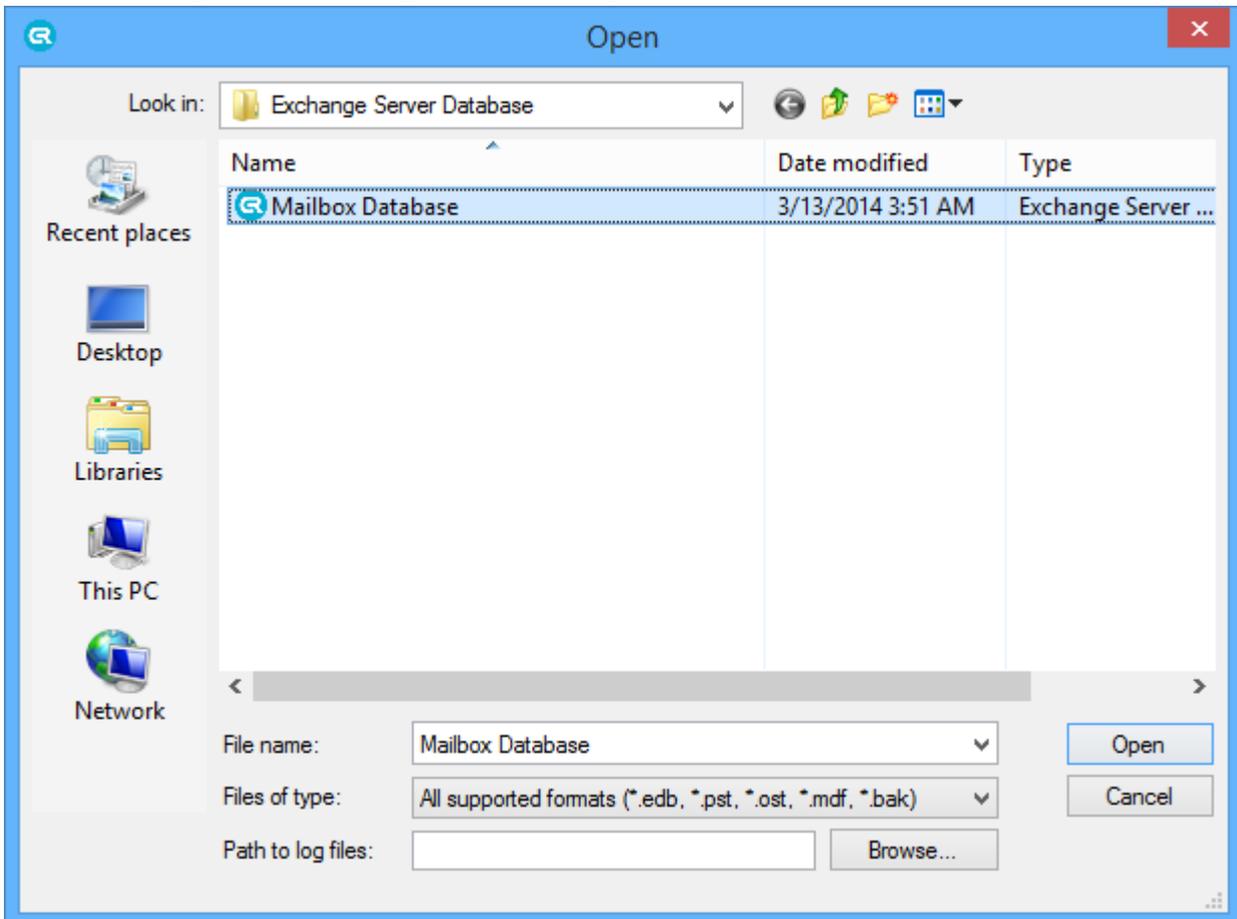
5. Click **Install** to begin the installation. Click **Back** to change any of your installation settings. Click **Cancel** to exit the setup wizard.
6. After the installation finishes you can choose to **Launch NovaBACKUP Granular Restore when setup exits** to start the program automatically by clicking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

exit the setup wizard.

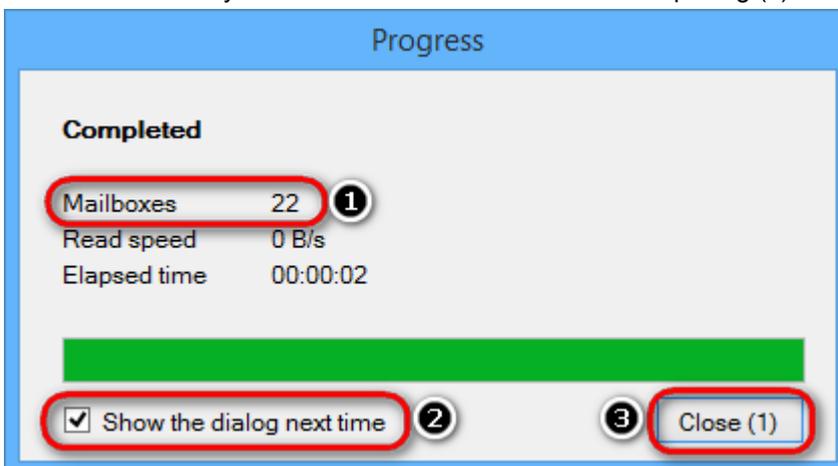
### 3 Opening a file

To directly open a file for browsing and export, launch NovaBACKUP Granular Restore 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**.



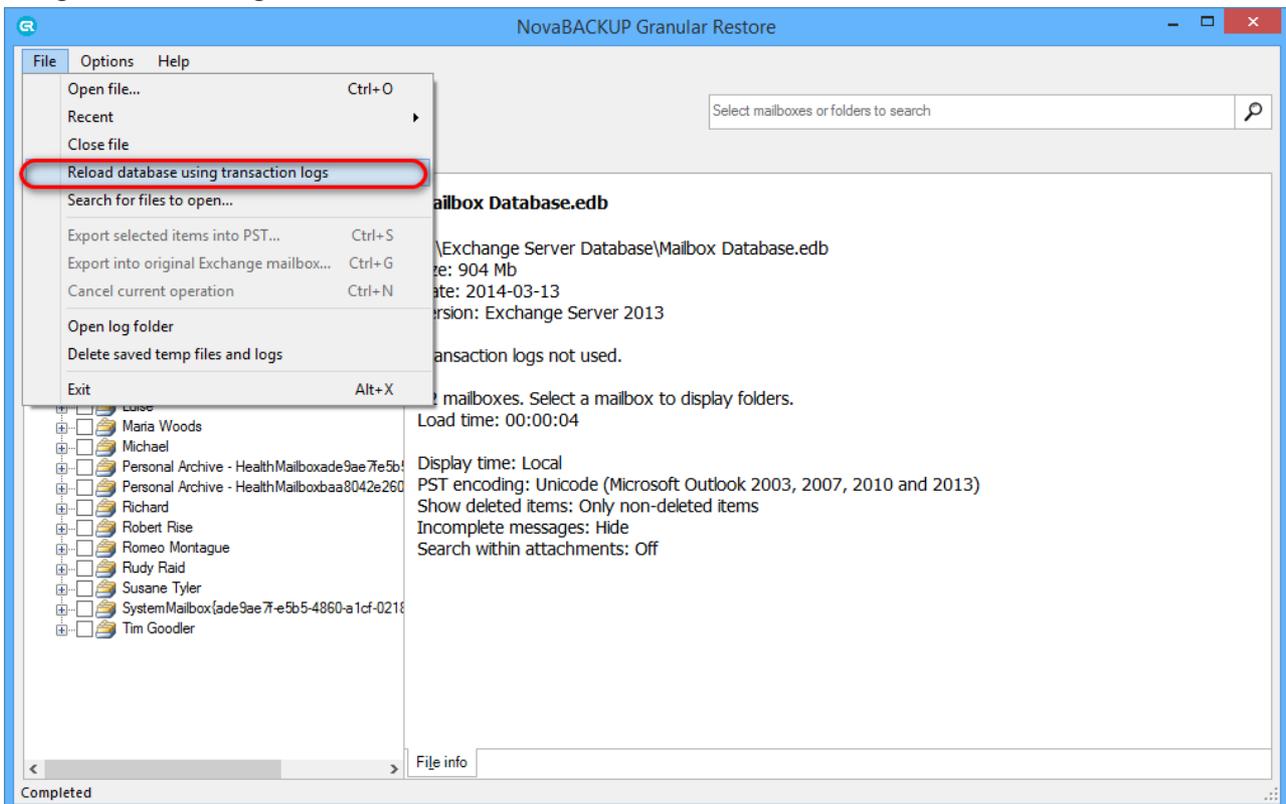
By default, a progress window will accompany opening the selected file. The window displays overall progress and information about the number of items and objects in the file (1). The window can be disabled by unchecking the **Show the dialog next time** check box (2) or from the **Options** menu. The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



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**.



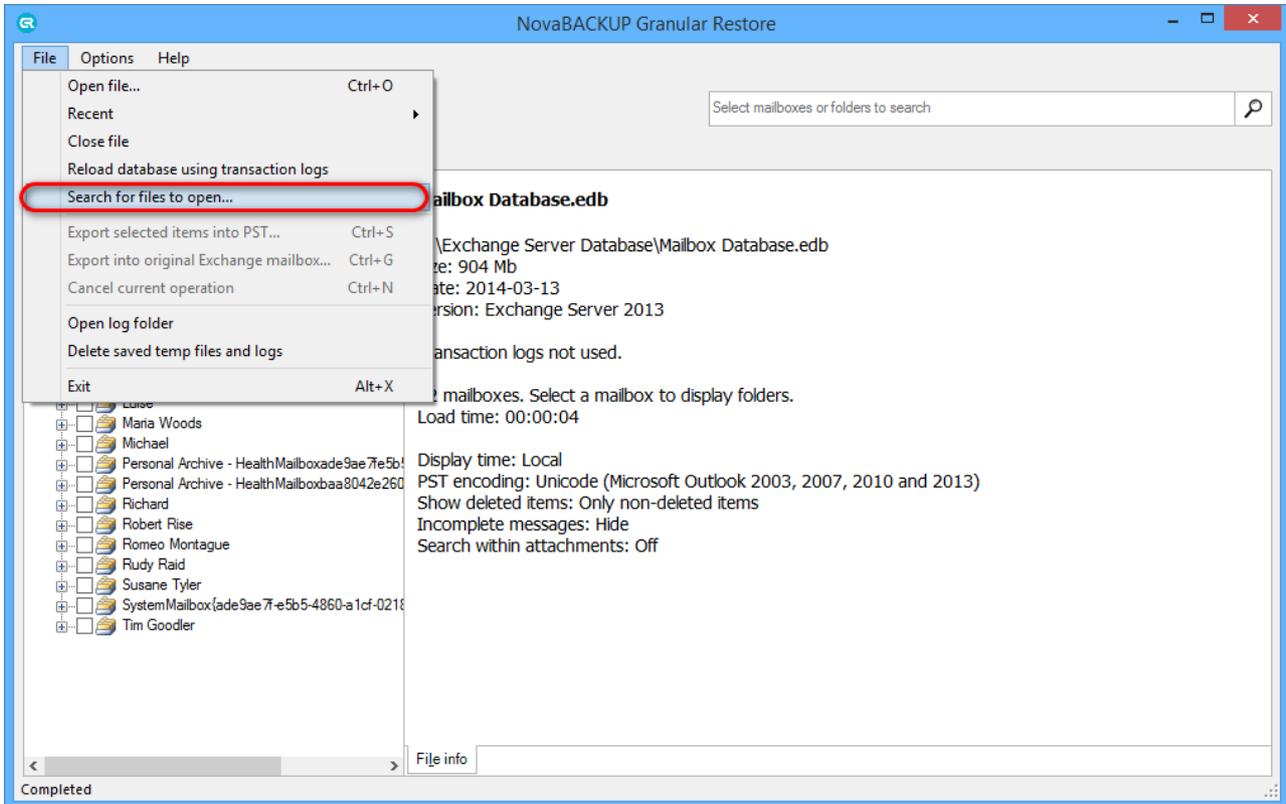
#### Note

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

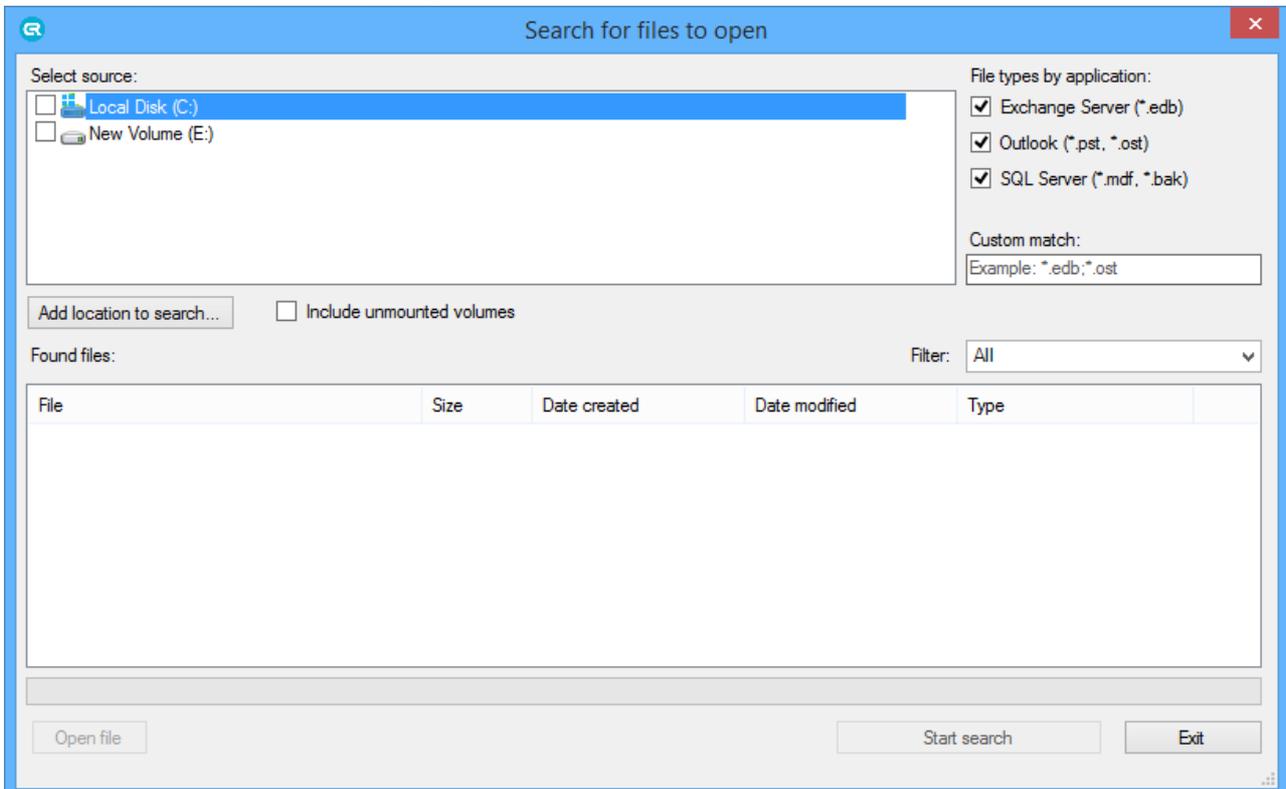
### 3.1 Finding a file

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

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

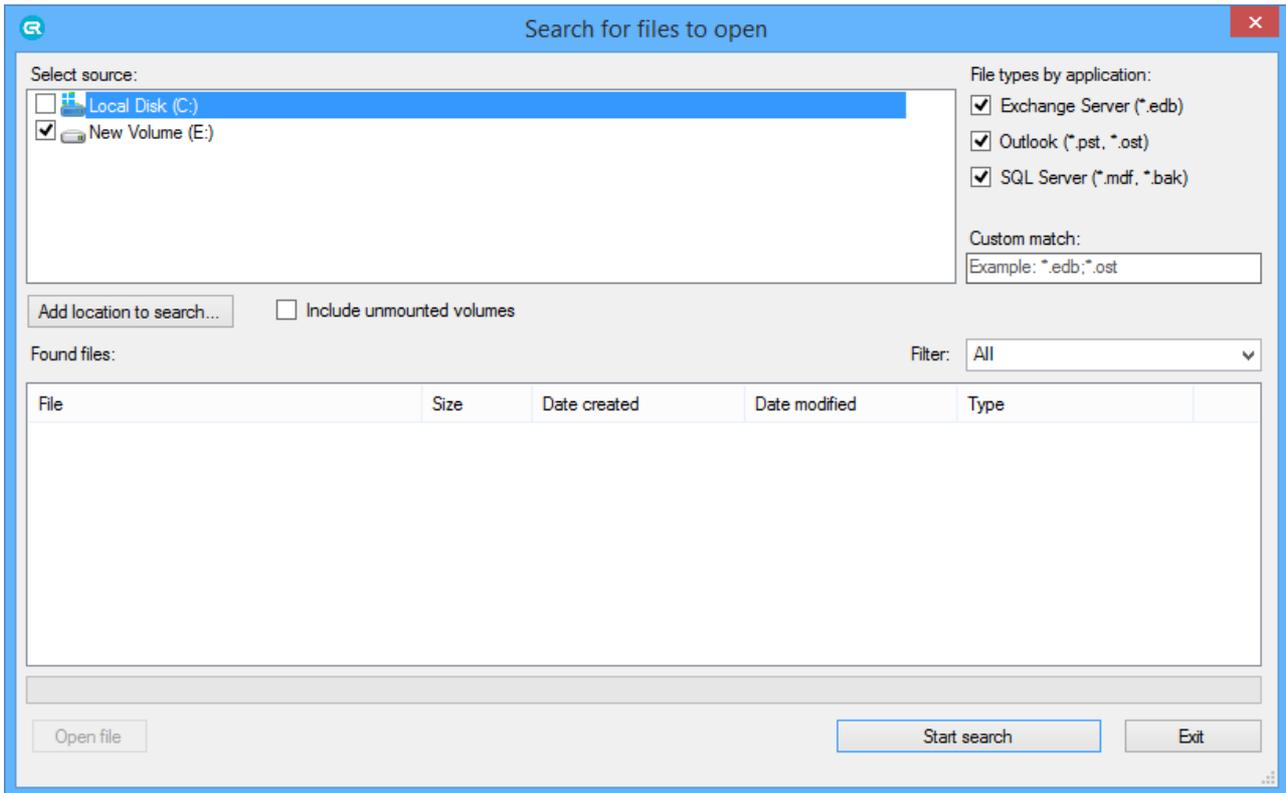


The following form appears, displaying the list of mounted disks:

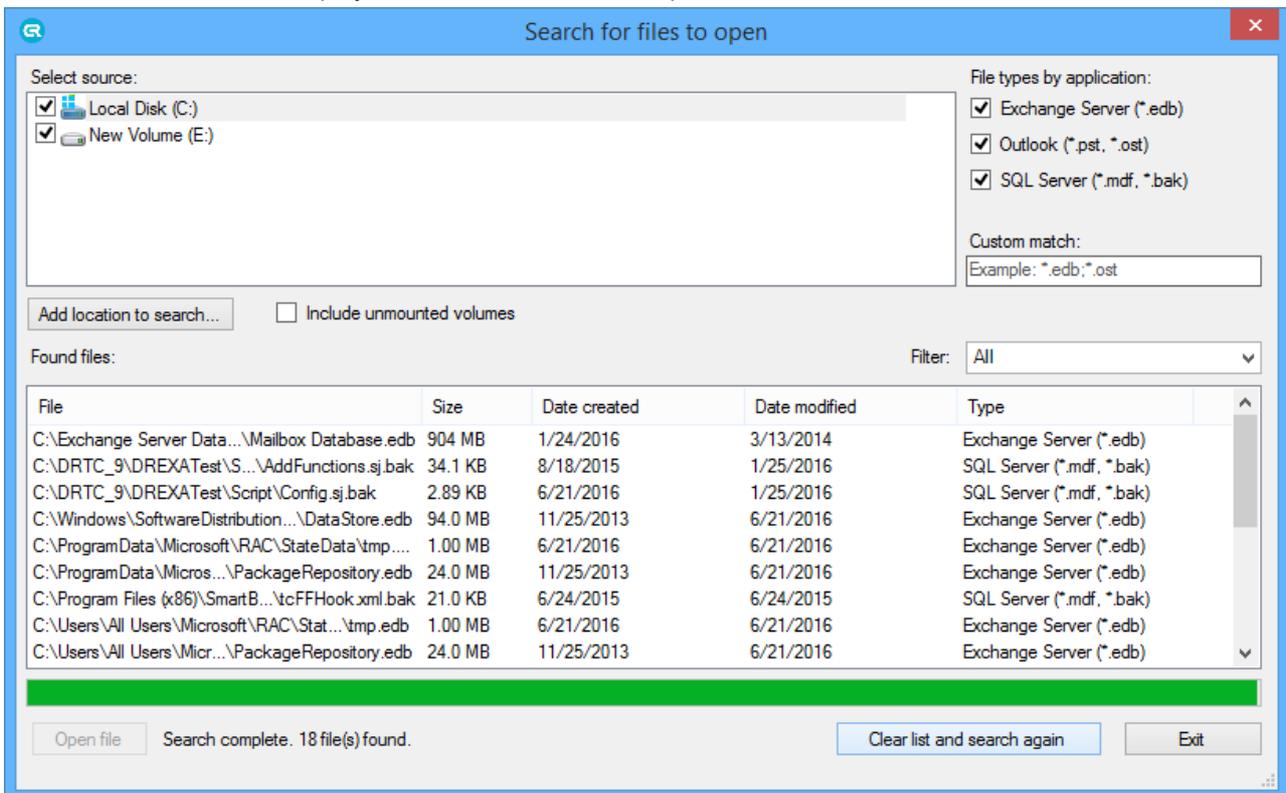




Select a location to search in.



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

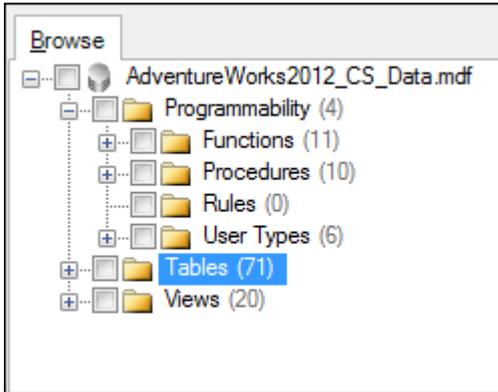


## 4 Granular Restore for Microsoft SQL

### 4.1 Finding and browsing data

In general, NovaBACKUP Granular Restore 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.

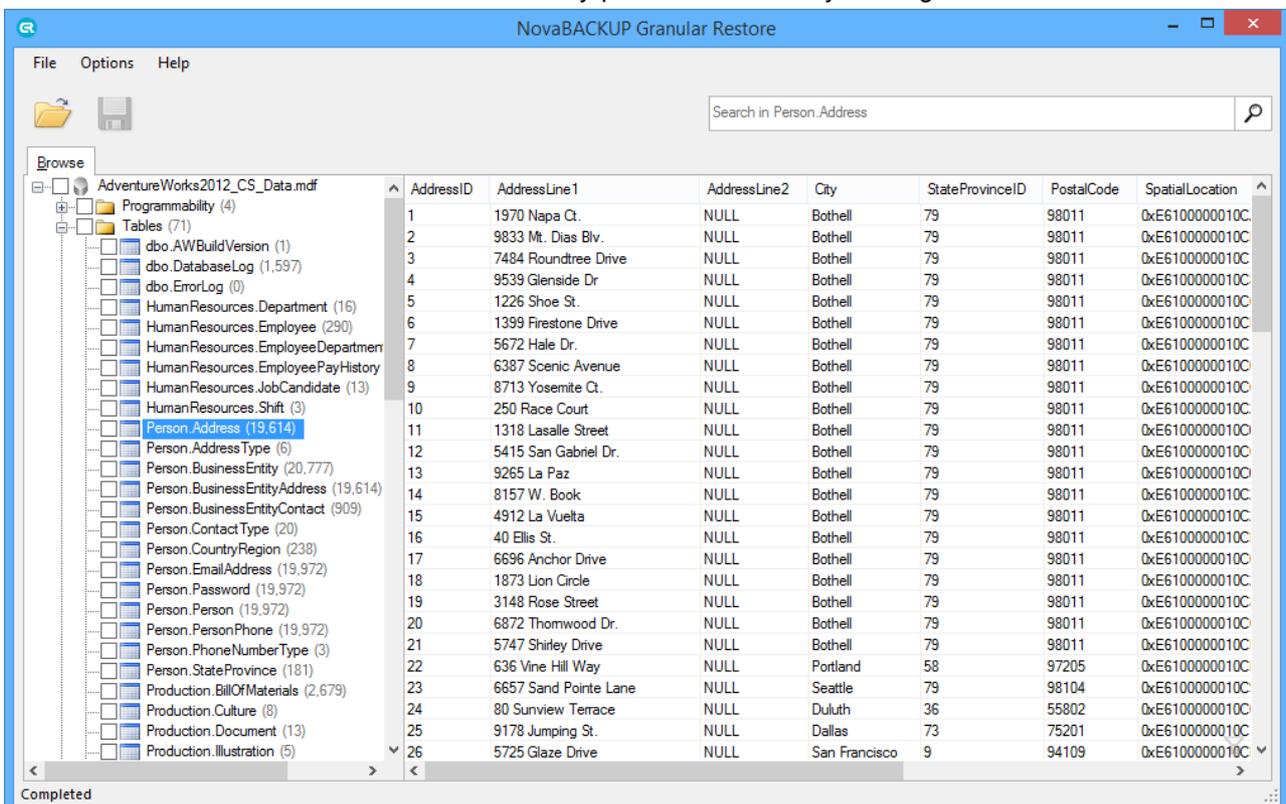


#### 4.1.1 Browsing database tree

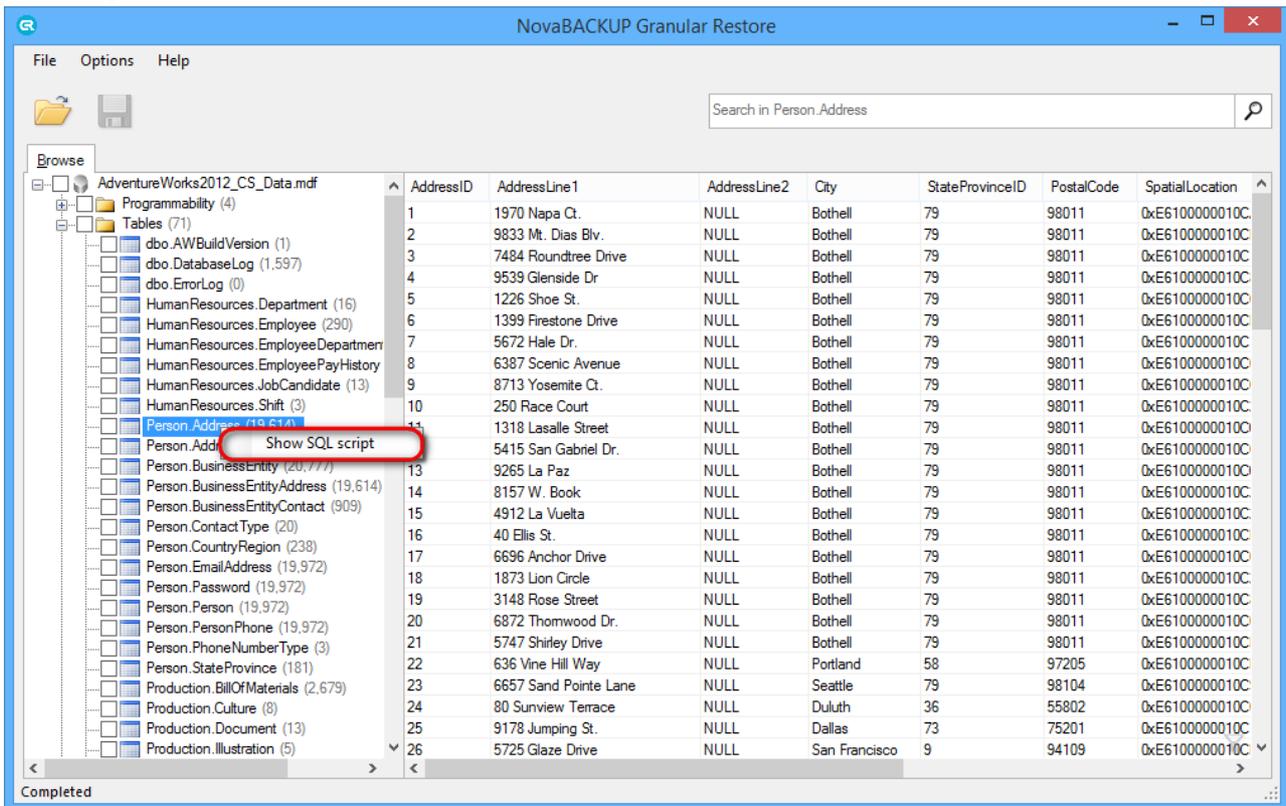
Browse mode shows database in a tree-like structure and allows browsing folders and previewing individual objects.

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

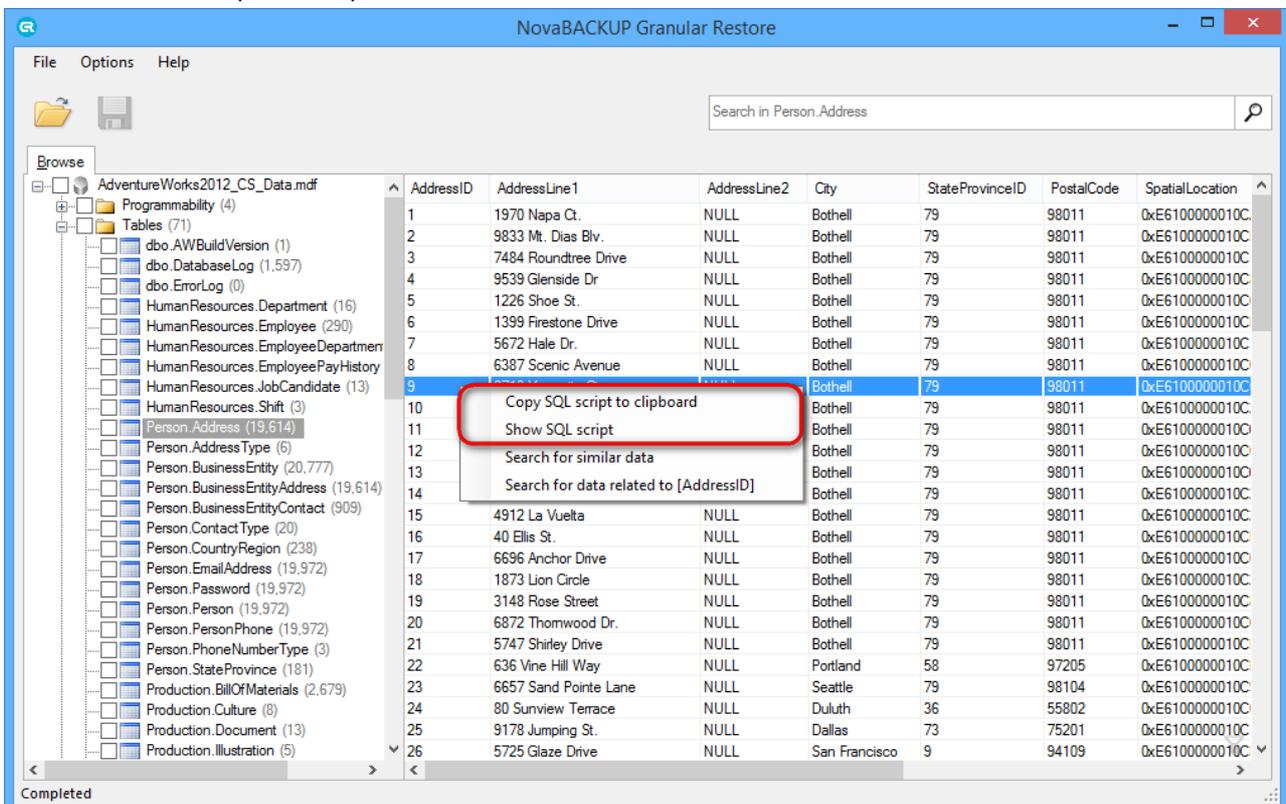
For example, a user may ask to restore some specific table. Expand the folder 'Tables' in the tree and select the table. Available rows will be listed to the right of the tree. Please note that product will not try to load all rows in table. Instead of that rows will be loaded by portions each time you 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.

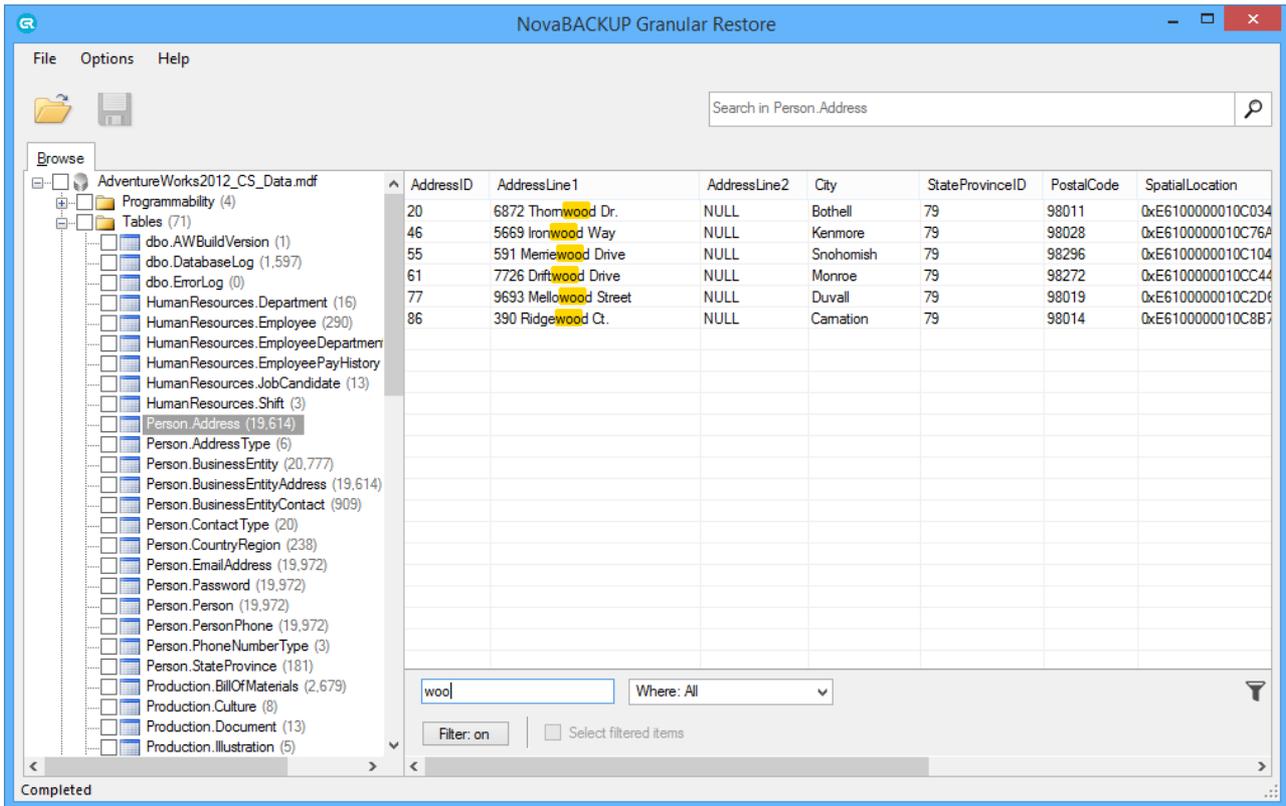


Any particular row can also be scripted via context menu. By right click on the row, SQL script can be either shown or at once copied to clipboard.



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.



## 4.1.2 Using search

NovaBACKUP Granular Restore 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.



The screenshot shows the NovaBACKUP Granular Restore application window. The search bar at the top contains the text "Search in Person.Address". The left pane shows a tree view of the database structure, with "Person.Address (19,614)" selected. The main pane displays a table of search results with the following columns: AddressID, AddressLine1, AddressLine2, City, StateProvinceID, PostalCode, and SpatialLocation. The table contains 26 rows of data.

AddressID	AddressLine1	AddressLine2	City	StateProvinceID	PostalCode	SpatialLocation
1	1970 Napa Ct.	NULL	Bothell	79	98011	0xE610000010C
2	9833 Mt. Dias Blv.	NULL	Bothell	79	98011	0xE610000010C
3	7484 Roundtree Drive	NULL	Bothell	79	98011	0xE610000010C
4	9539 Glenside Dr	NULL	Bothell	79	98011	0xE610000010C
5	1226 Shoe St.	NULL	Bothell	79	98011	0xE610000010C
6	1399 Firestone Drive	NULL	Bothell	79	98011	0xE610000010C
7	5672 Hale Dr.	NULL	Bothell	79	98011	0xE610000010C
8	6387 Scenic Avenue	NULL	Bothell	79	98011	0xE610000010C
9	8713 Yosemite Ct.	NULL	Bothell	79	98011	0xE610000010C
10	250 Race Court	NULL	Bothell	79	98011	0xE610000010C
11	1318 Lasalle Street	NULL	Bothell	79	98011	0xE610000010C
12	5415 San Gabriel Dr.	NULL	Bothell	79	98011	0xE610000010C
13	9265 La Paz	NULL	Bothell	79	98011	0xE610000010C
14	8157 W. Book	NULL	Bothell	79	98011	0xE610000010C
15	4912 La Vuelta	NULL	Bothell	79	98011	0xE610000010C
16	40 Ellis St.	NULL	Bothell	79	98011	0xE610000010C
17	6696 Anchor Drive	NULL	Bothell	79	98011	0xE610000010C
18	1873 Lion Circle	NULL	Bothell	79	98011	0xE610000010C
19	3148 Rose Street	NULL	Bothell	79	98011	0xE610000010C
20	6872 Thornwood Dr.	NULL	Bothell	79	98011	0xE610000010C
21	5747 Shirley Drive	NULL	Bothell	79	98011	0xE610000010C
22	636 Vine Hill Way	NULL	Portland	58	97205	0xE610000010C
23	6657 Sand Pointe Lane	NULL	Seattle	79	98104	0xE610000010C
24	80 Sunview Terrace	NULL	Duluth	36	55802	0xE610000010C
25	9178 Jumping St.	NULL	Dallas	73	75201	0xE610000010C
26	5725 Glaze Drive	NULL	San Francisco	9	94109	0xE610000010C

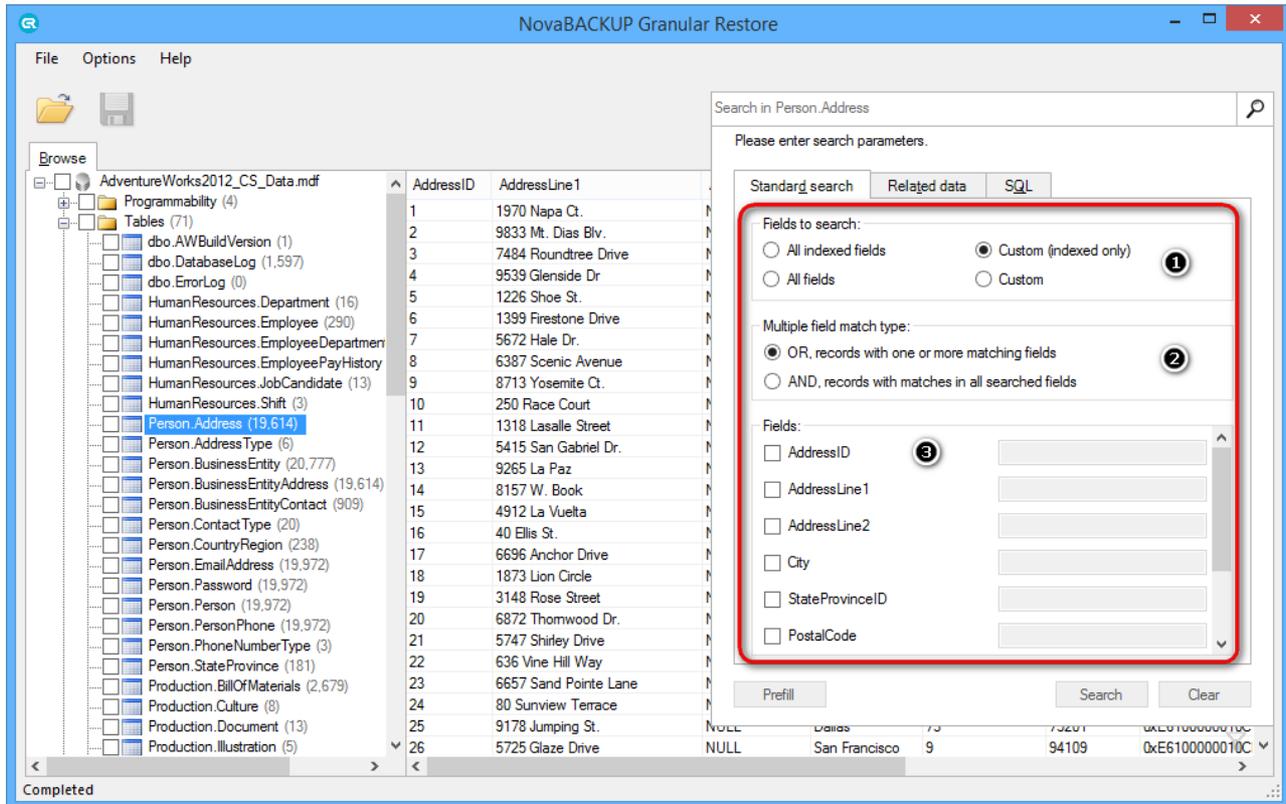
Search results will be displayed on separate tabs with the ability to select query results and export them either into Live SQL Server or in the form of SQL script files which can be executed on server manually.

The screenshot shows the NovaBACKUP Granular Restore application window with a search tab titled "Search 1" open. The search bar still contains "Search in Person.Address". The left pane shows the "Person.Address" table selected. The main pane displays a table of search results with the following columns: AddressID, AddressLine1, AddressLine2, City, StateProvinceID, PostalCode, and SpatialLocation. The table contains 26 rows of data, including the same 26 rows as the previous screenshot, but with different SpatialLocation values.

AddressID	AddressLine1	AddressLine2	City	StateProvinceID	PostalCode	SpatialLocation
1	1970 Napa Ct.	NULL	Bothell	79	98011	0xE610000010CAE8BFC28B
2	9833 Mt. Dias Blv.	NULL	Bothell	79	98011	0xE610000010CD6FA851AE
3	7484 Roundtree Drive	NULL	Bothell	79	98011	0xE610000010C18E304C4A
4	9539 Glenside Dr	NULL	Bothell	79	98011	0xE610000010C813A0D5F9F
5	1226 Shoe St.	NULL	Bothell	79	98011	0xE610000010C61C64D8AB
6	1399 Firestone Drive	NULL	Bothell	79	98011	0xE610000010CE0B4E5045F
7	5672 Hale Dr.	NULL	Bothell	79	98011	0xE610000010C18E304C4A
8	6387 Scenic Avenue	NULL	Bothell	79	98011	0xE610000010C0029A5D93F
9	8713 Yosemite Ct.	NULL	Bothell	79	98011	0xE610000010C6A80AD7421
10	250 Race Court	NULL	Bothell	79	98011	0xE610000010C219D64AE11
11	1318 Lasalle Street	NULL	Bothell	79	98011	0xE610000010CCEFFB8FD9
12	5415 San Gabriel Dr.	NULL	Bothell	79	98011	0xE610000010C6A80AD7421
13	9265 La Paz	NULL	Bothell	79	98011	0xE610000010CC3228C0867
14	8157 W. Book	NULL	Bothell	79	98011	0xE610000010C219D64AE11
15	4912 La Vuelta	NULL	Bothell	79	98011	0xE610000010C219D64AE11
16	40 Ellis St.	NULL	Bothell	79	98011	0xE610000010CF76E45EFC
17	6696 Anchor Drive	NULL	Bothell	79	98011	0xE610000010C034C75E402
18	1873 Lion Circle	NULL	Bothell	79	98011	0xE610000010C219D64AE11
19	3148 Rose Street	NULL	Bothell	79	98011	0xE610000010C813A0D5F9F
20	6872 Thornwood Dr.	NULL	Bothell	79	98011	0xE610000010C034C75E402
21	5747 Shirley Drive	NULL	Bothell	79	98011	0xE610000010CEB9115FA9
40	1902 Santa Cruz	NULL	Bothell	79	98011	0xE610000010C96D19C3E4
834	99300 223rd Southeast	NULL	Bothell	79	98011	0xE610000010C5755A5215C
868	25111 228th St Sw	NULL	Bothell	79	98011	0xE610000010C6552336E16
18249	5509 Newcastle Road	NULL	Bothell	79	98011	0xE610000010C0029A5D93F
26486	7057 Striped Maple Court	NULL	Bothell	79	98011	0xE610000010C034C75E402

## 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 SQL 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 row, 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.

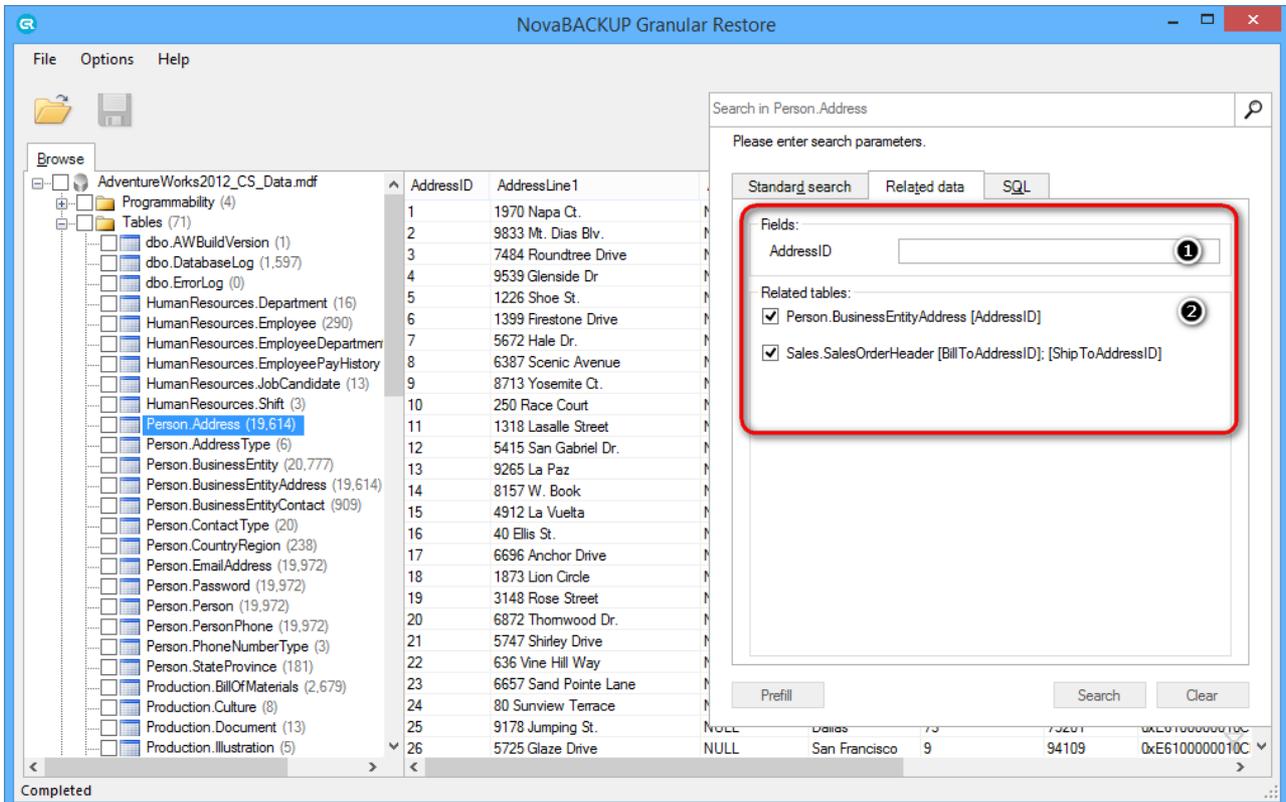
OR

- 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.



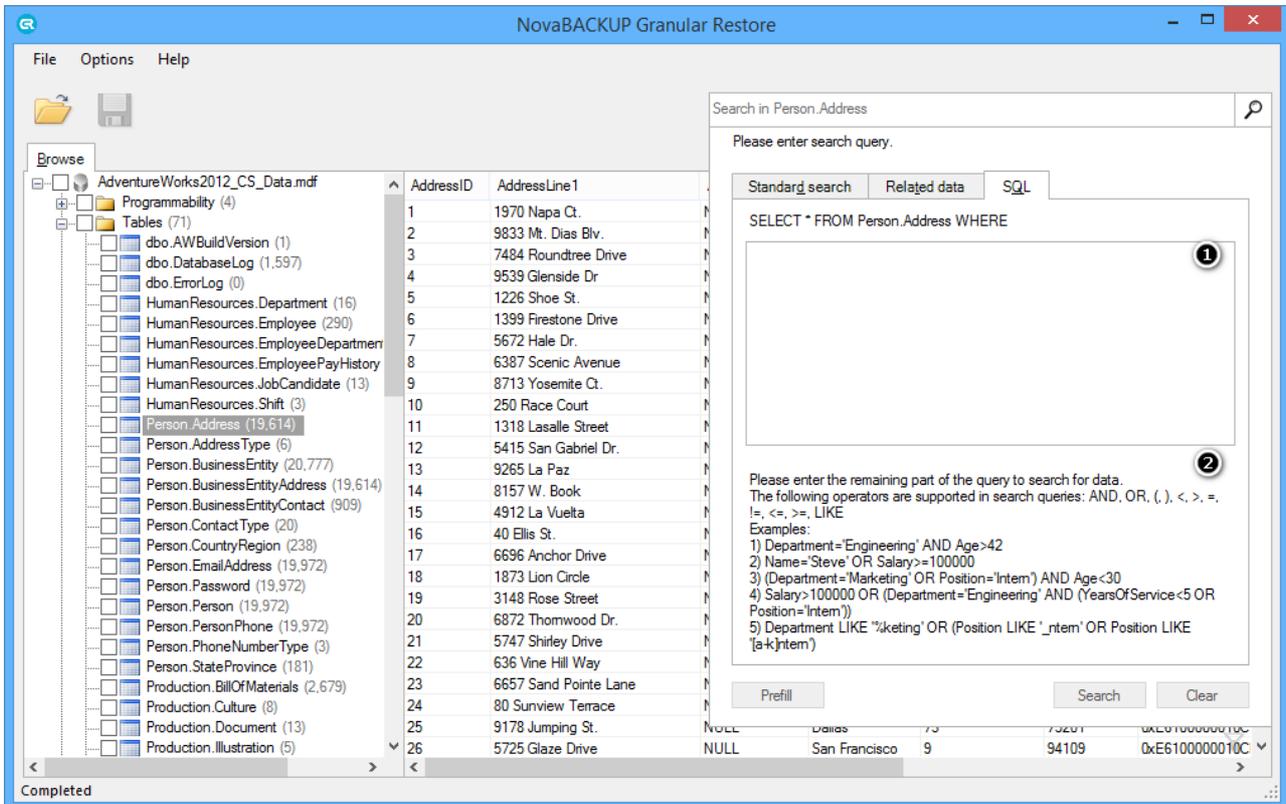
The application will analyze the selected table and automatically detect which fields are used in other tables as foreign keys (1). It will also provide a list of tables which relate to the selected table (2).

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

NovaBACKUP Granular Restore 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.

### 4.2.1 Restore to live SQL Server

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

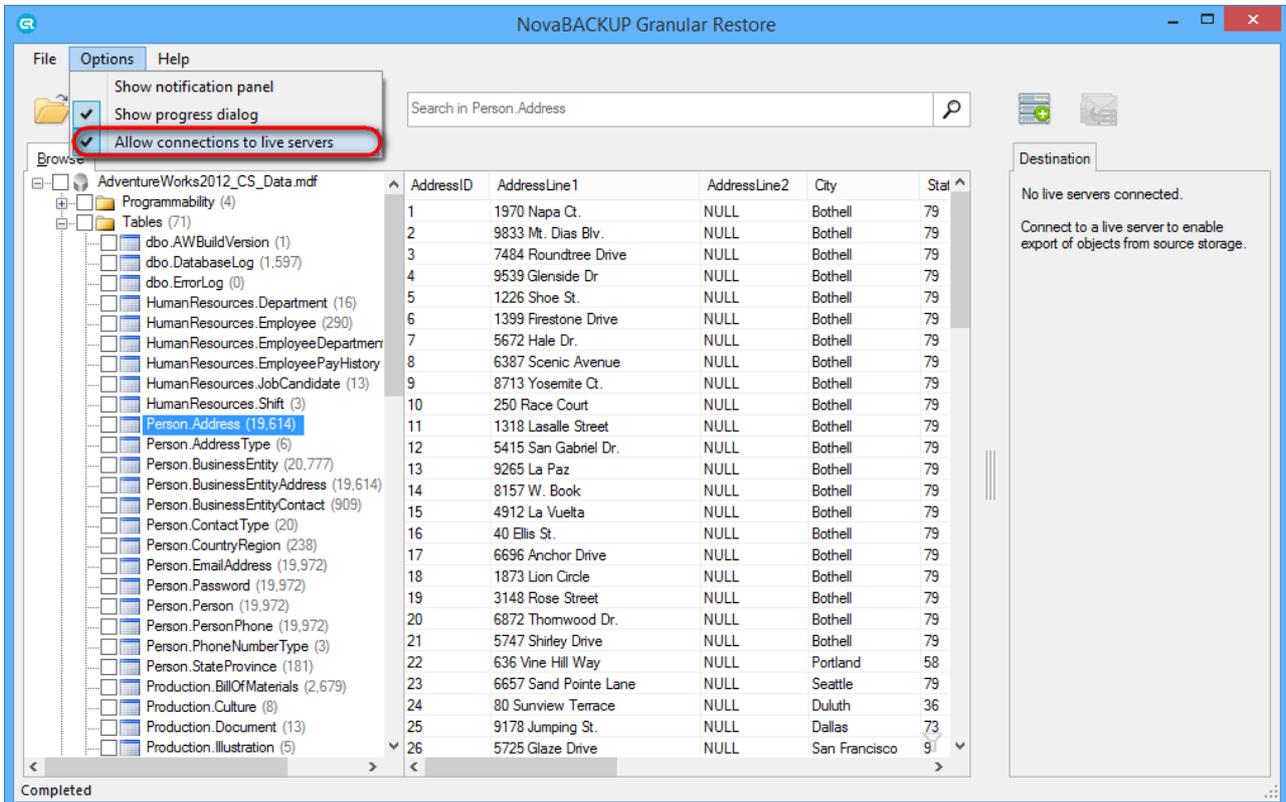
The following options are presented:

- 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.

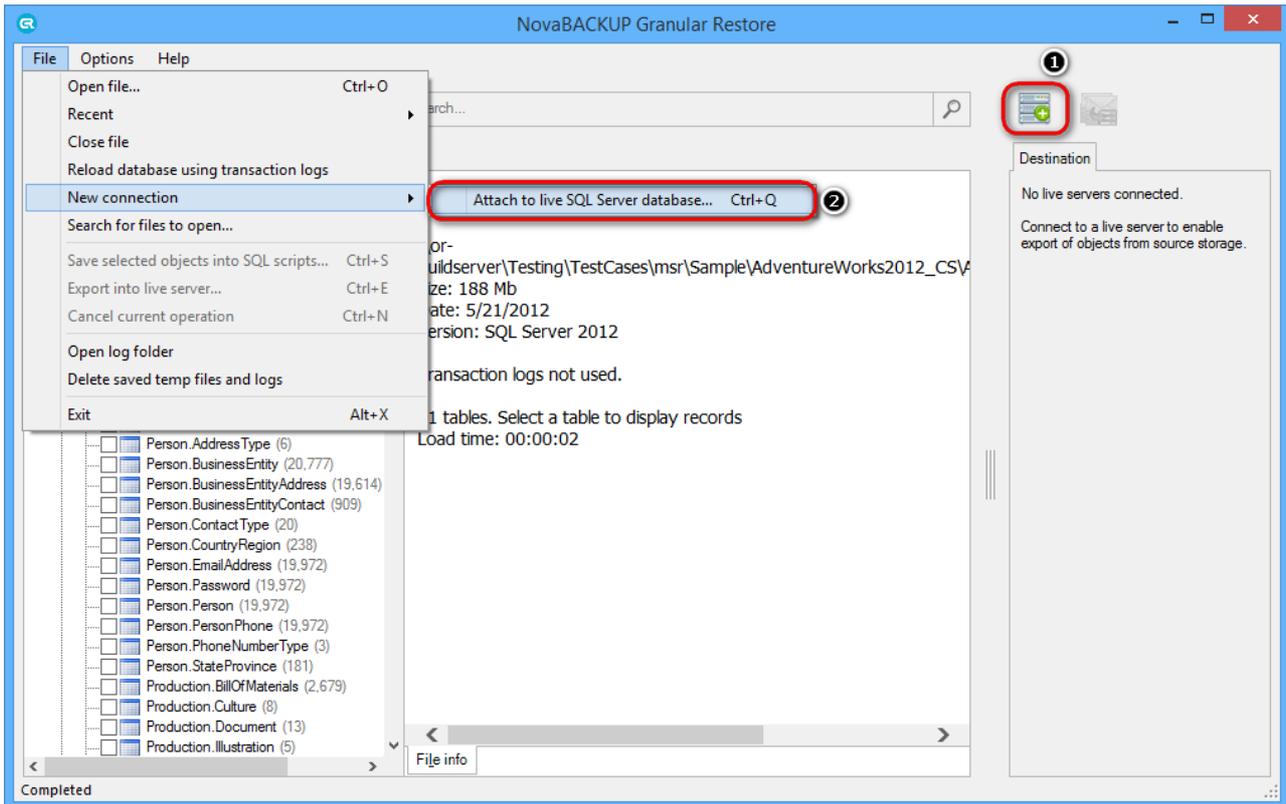
- Browsing folder hierarchy of a connected database, browsing folder contents and viewing objects and rows.
- To provide injection, running the application as administrator or using a machine from AD domain, in which there is SQL Server with destination database, is not required.

## Connection to SQL Server

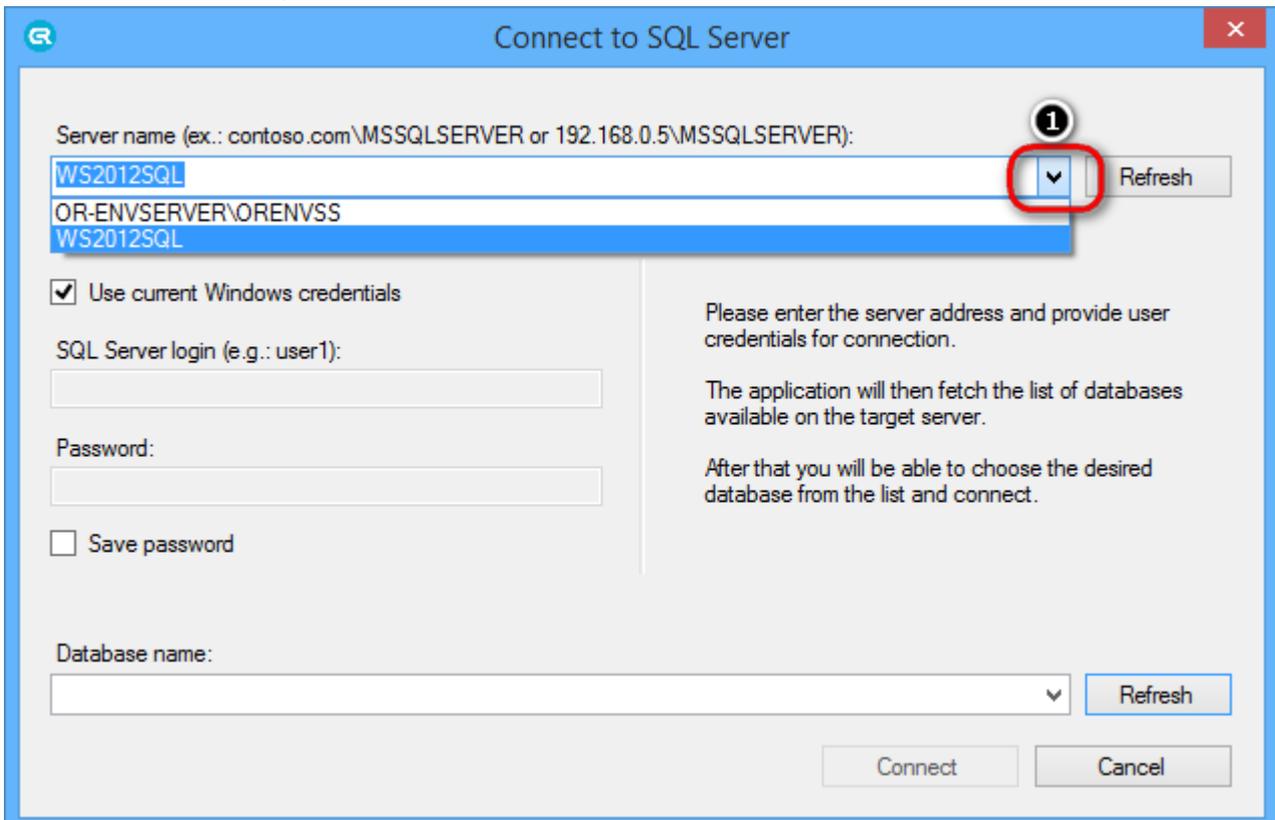
The mode, that allows connections to live server, is enabled by default. The Destination tab, as well as the ability to connect to live server, can be hidden from the Options menu.



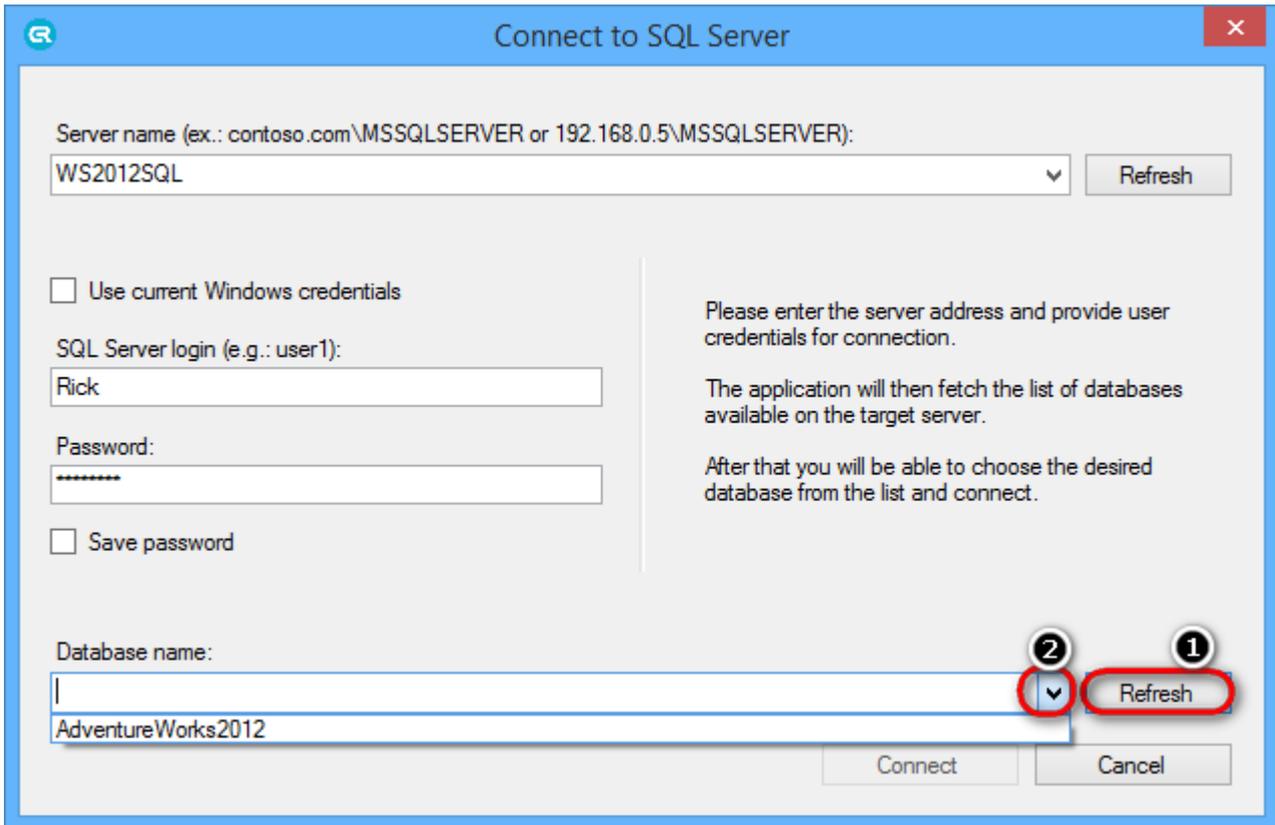
To establish a new connection, use the button **Connect to live server** (1), next to the Search field or go to **File->New connection->Attach to live SQL Server database** (2).



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.

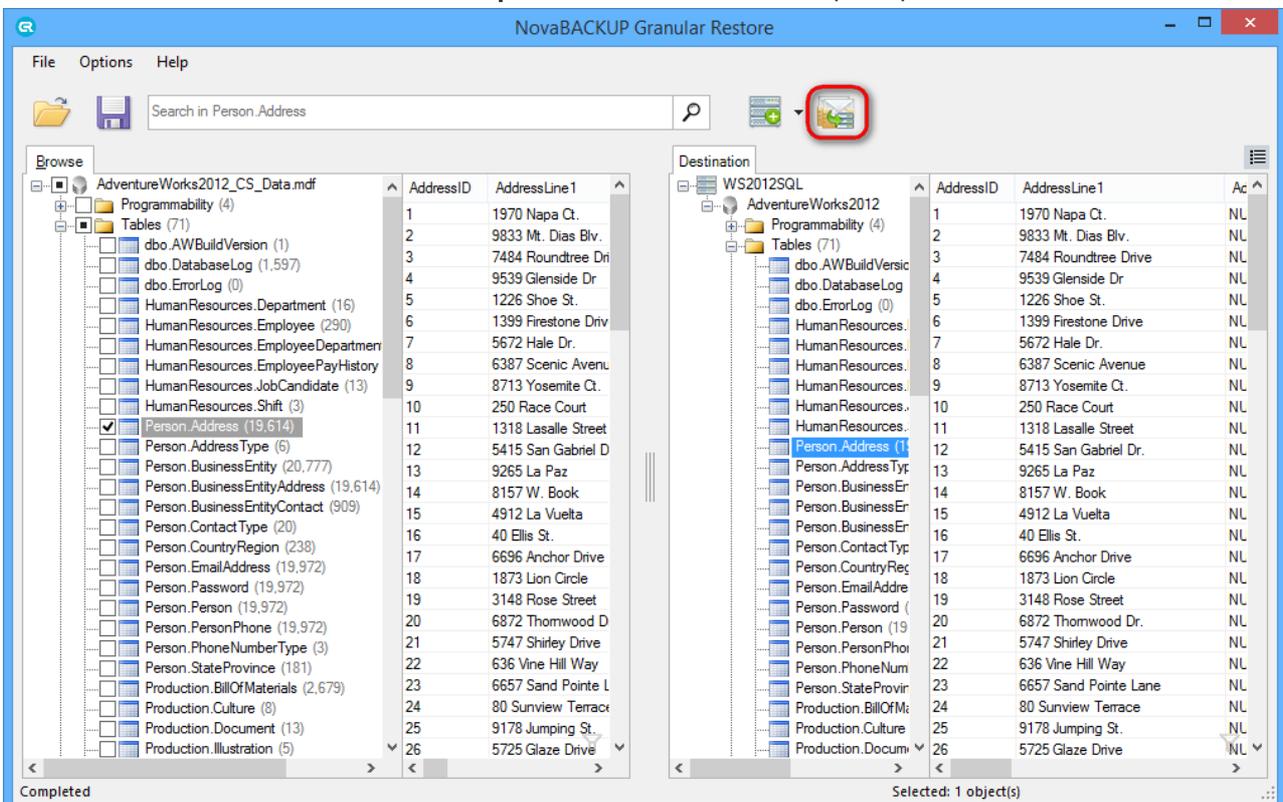


List of available databases will be shown after clicking the **Refresh** button (1) or the arrow near the Database name field (2), if entered credentials are correct.



## Injection workflow

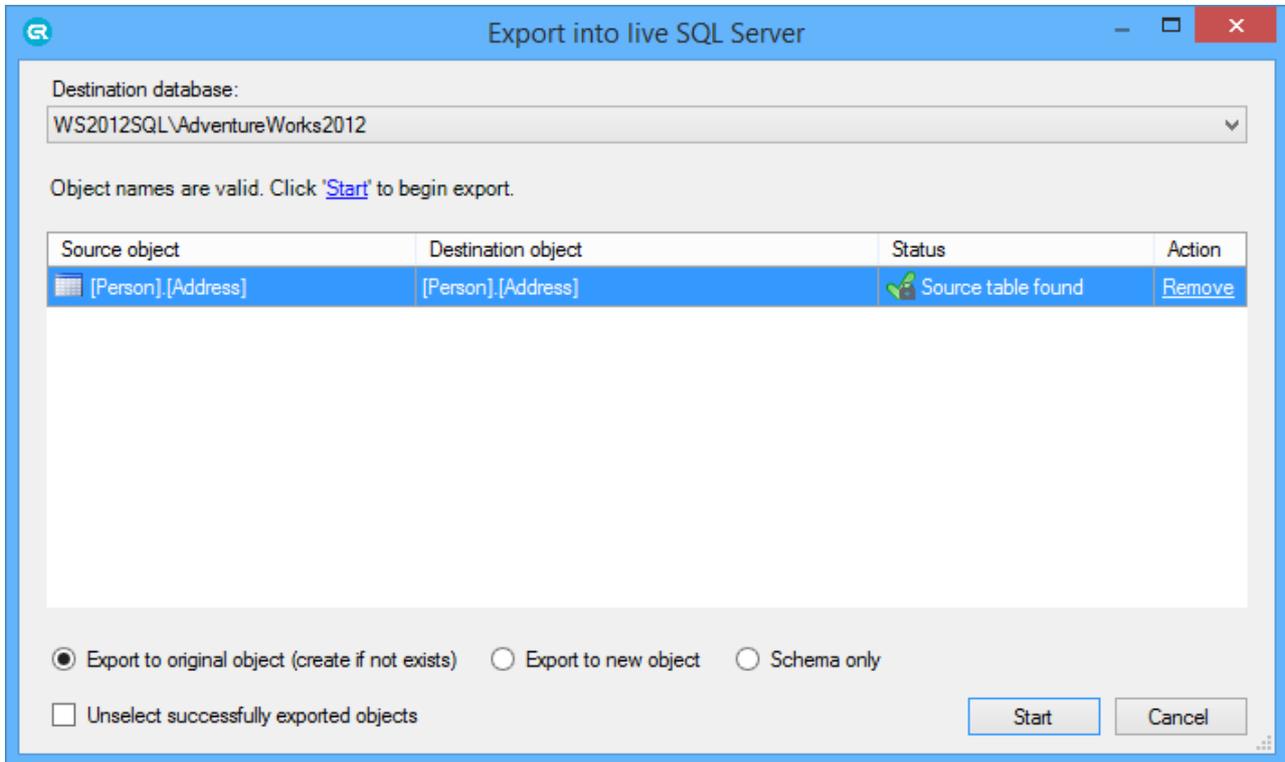
Once data has been selected, click the **Export** button and select an Export option.



NovaBACKUP Granular Restore presents several injection modes for specified data:

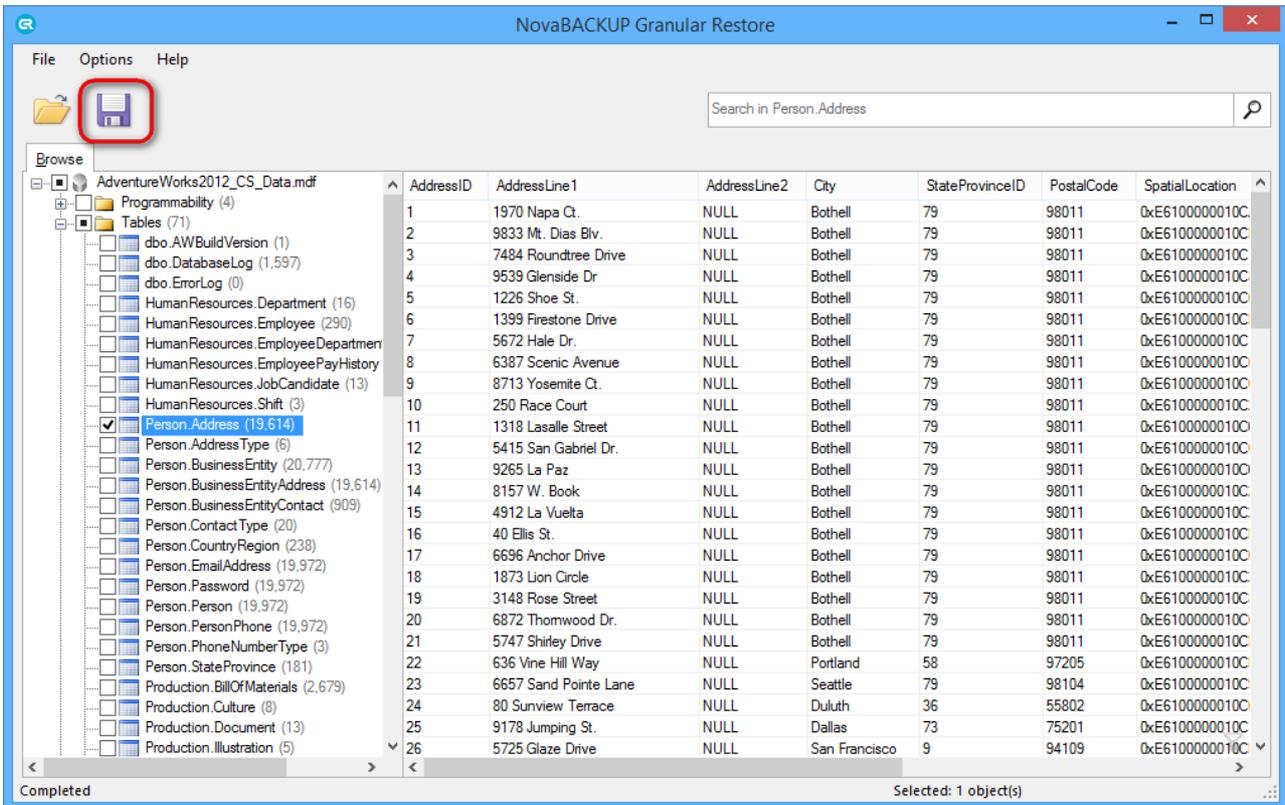
- **Export to original object** - The source object will be restored to the object listed under *Destination Object*.

- **Export to new Object** - The user may edit the *Destination Object* for any source object, and the NovaBACKUP Granular Restore 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.

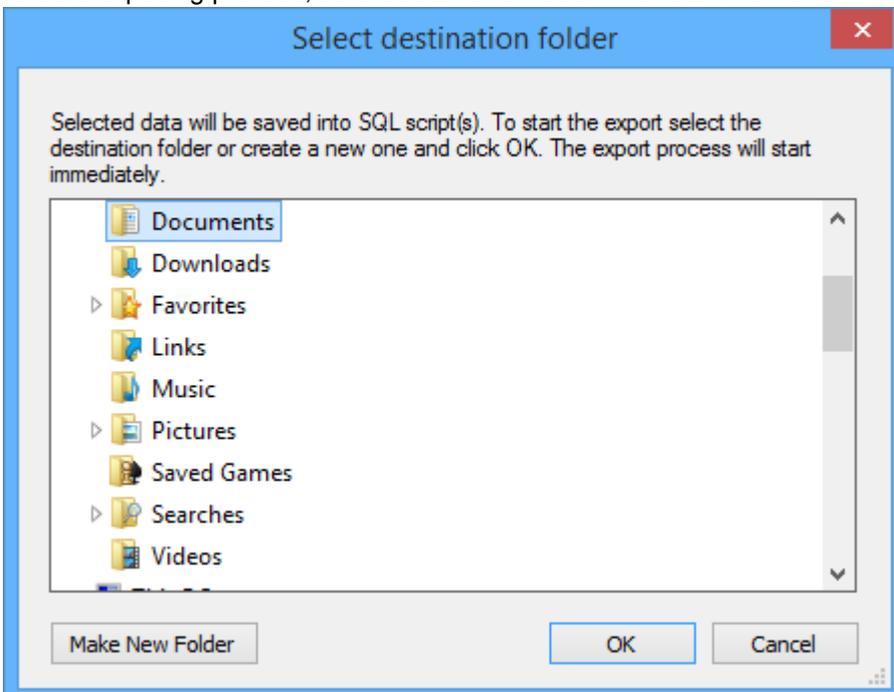


## 4.2.2 Restore to SQL scripts

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.

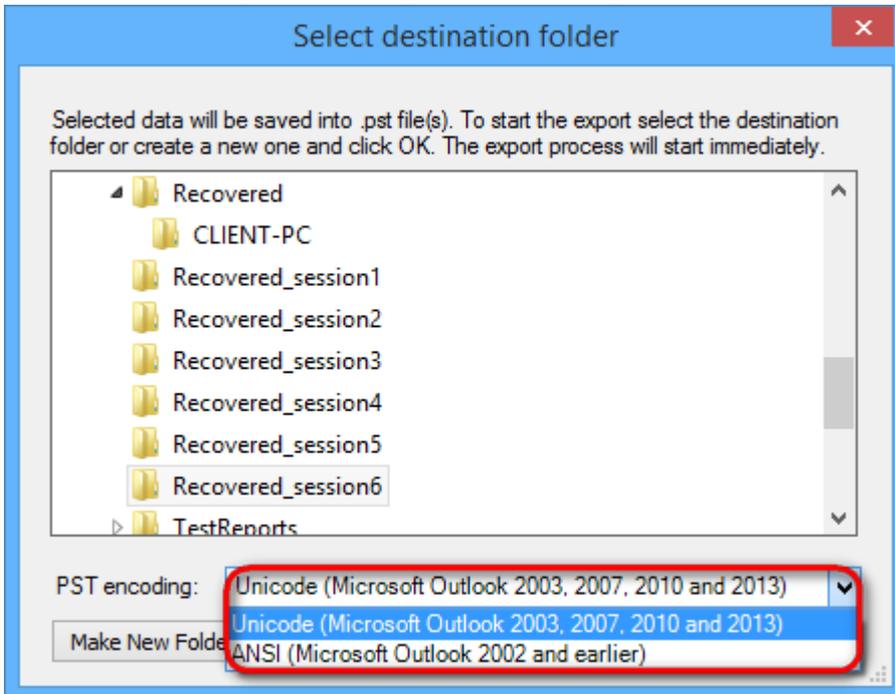


Required time depends on how many objects are selected for export. By default, a progress window appears after the export starts. The window shows the number of saved objects and rows (1). You can disable the progress window directly in the window or go to the **Options** menu and select **Show progress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

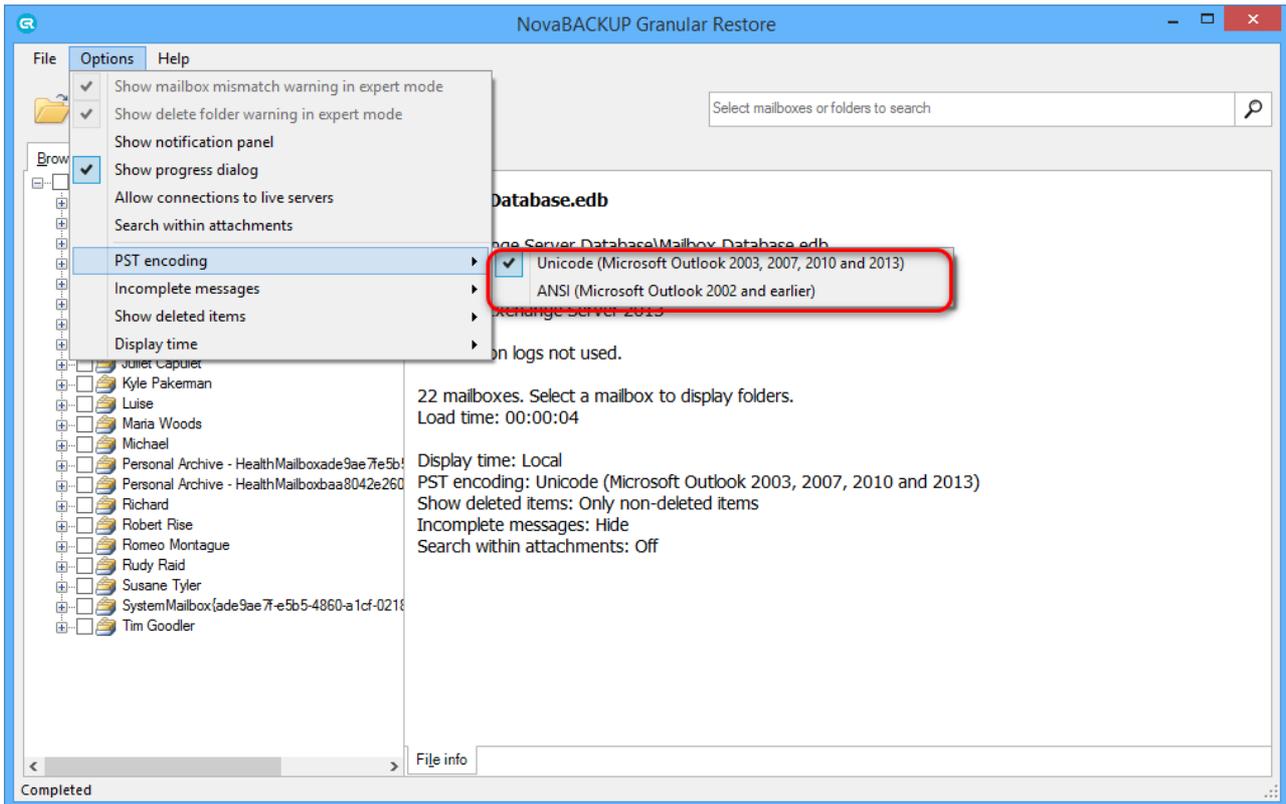


### 5.1.1 PST encoding

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 NovaBACKUP Granular Restore 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.

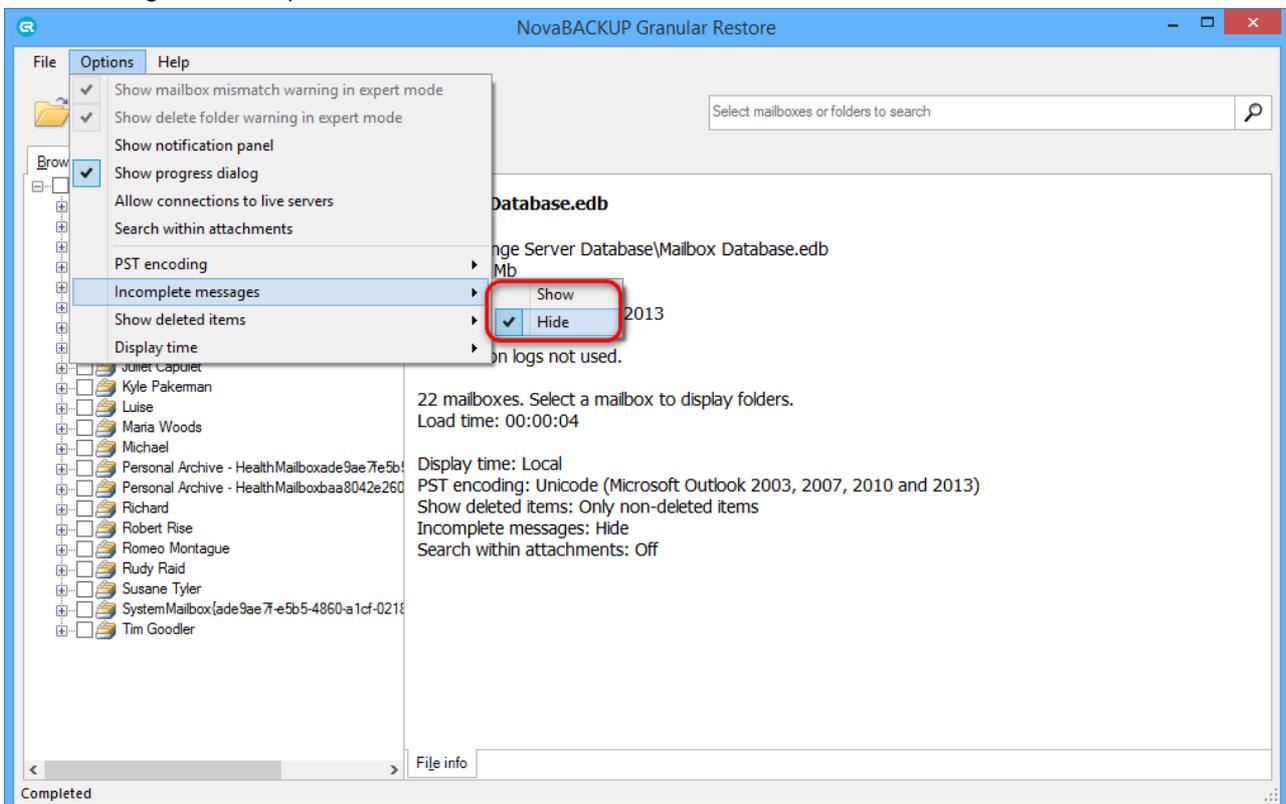


Alternatively, encoding for the output file can be changed in the **Options** menu at any time the program runs. Selected value will be saved and used on the next program launch.



## 5.1.2 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

### 5.1.3 Showing deleted items

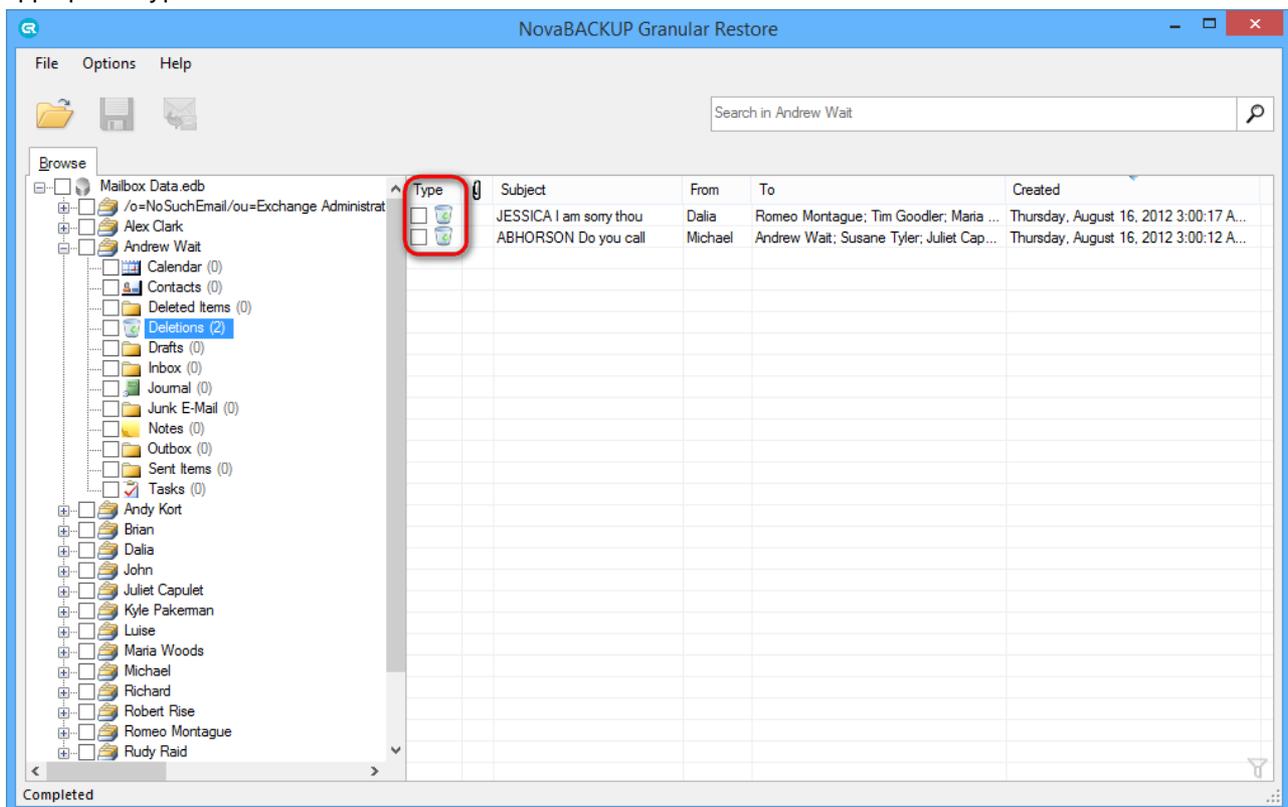
NovaBACKUP Granular Restore provides an ability to process deleted items and folders.

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.

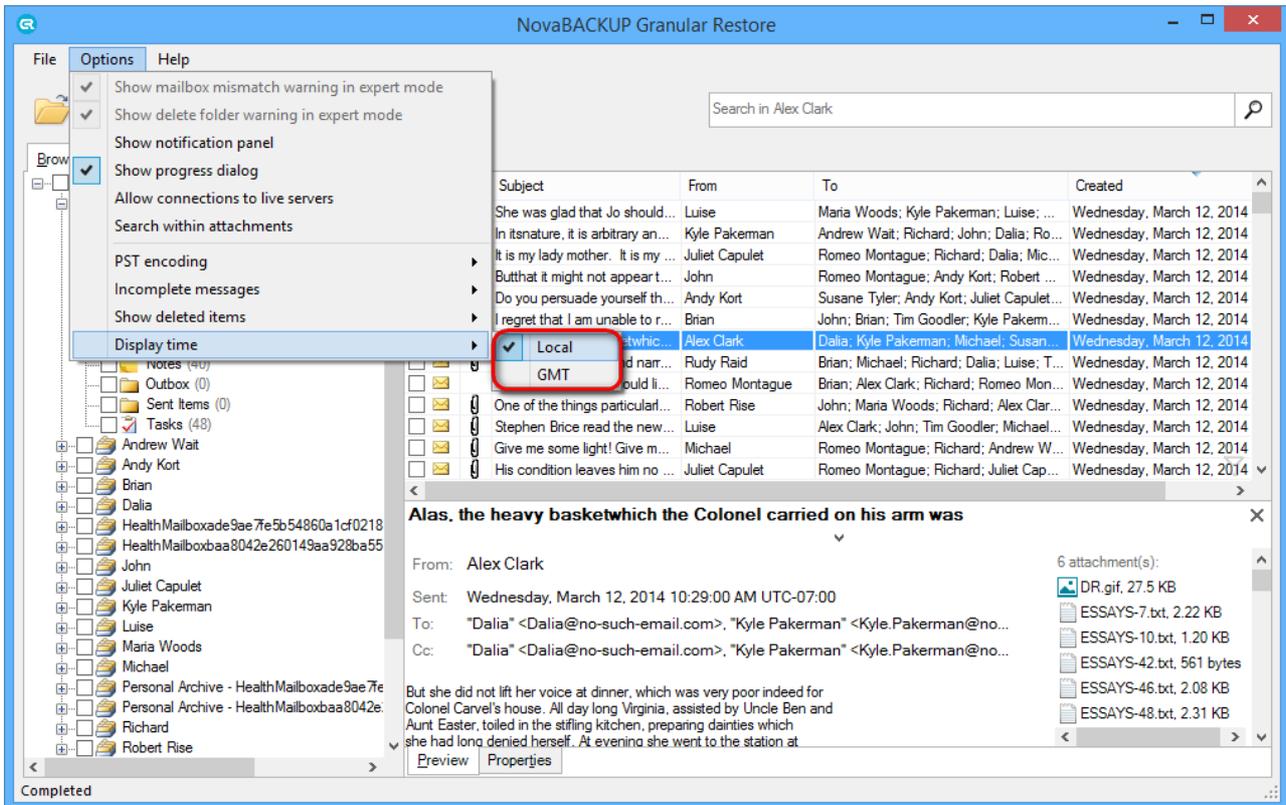
#### Note

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.

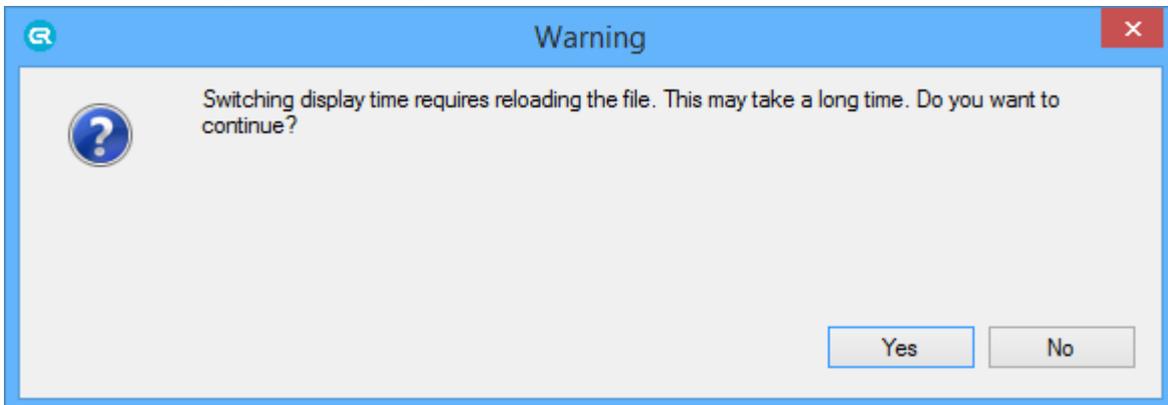
## 5.1.4 Display time

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

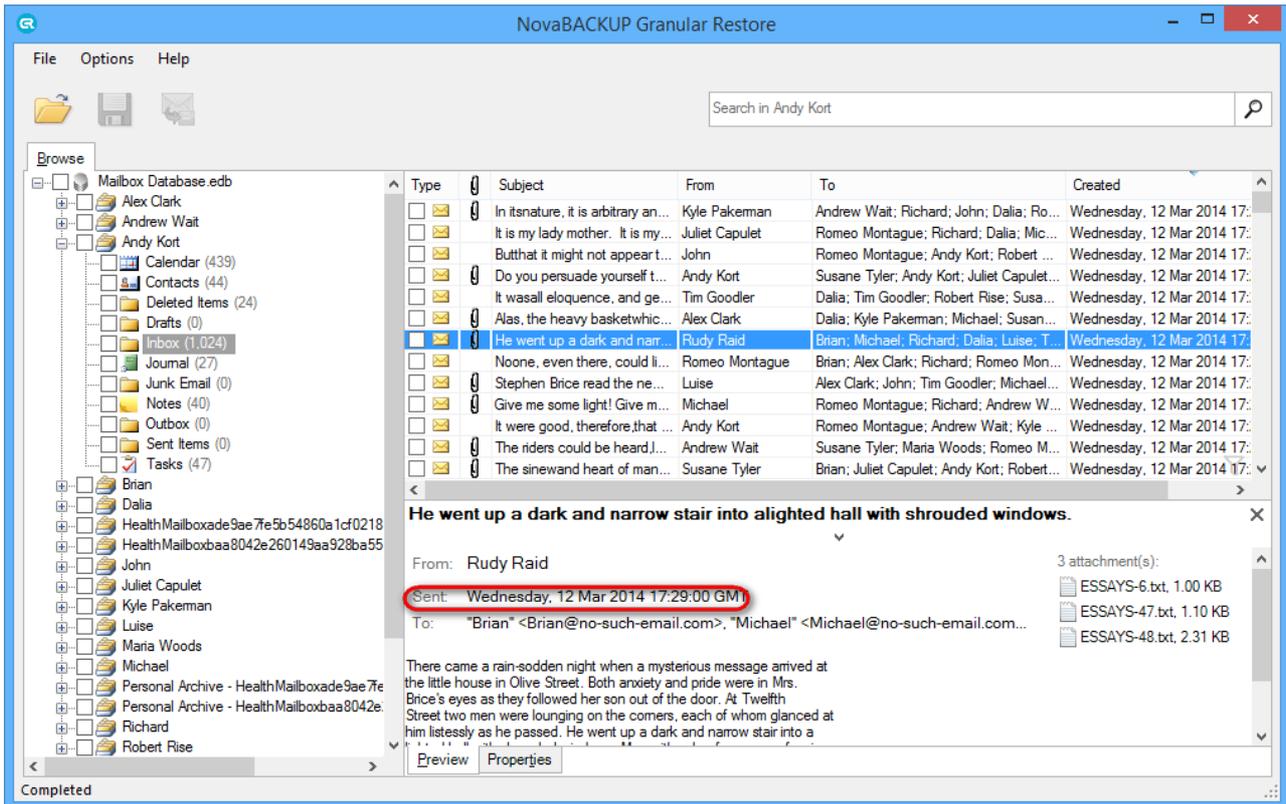
To switch dates display format between local computer time and GMT, use the Options menu.



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

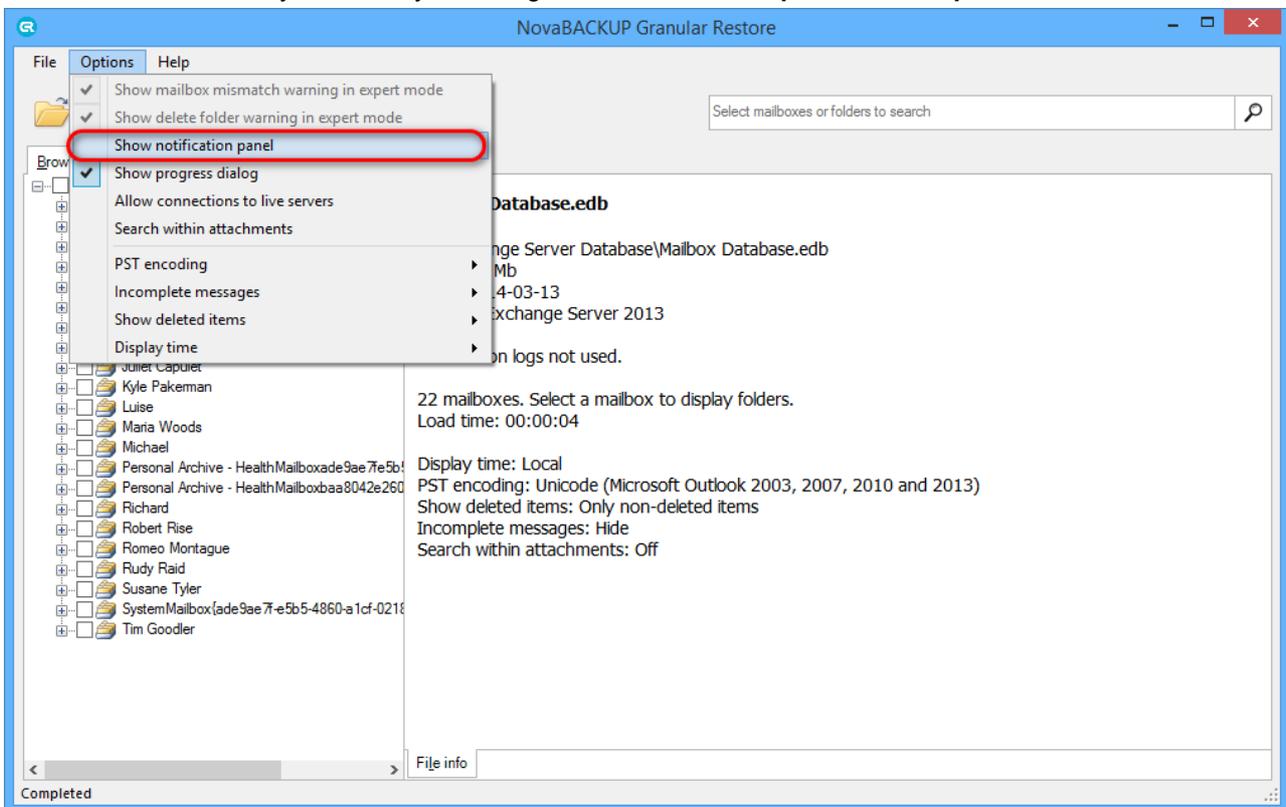


A message in GMT format looks the following way:



### 5.1.5 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.

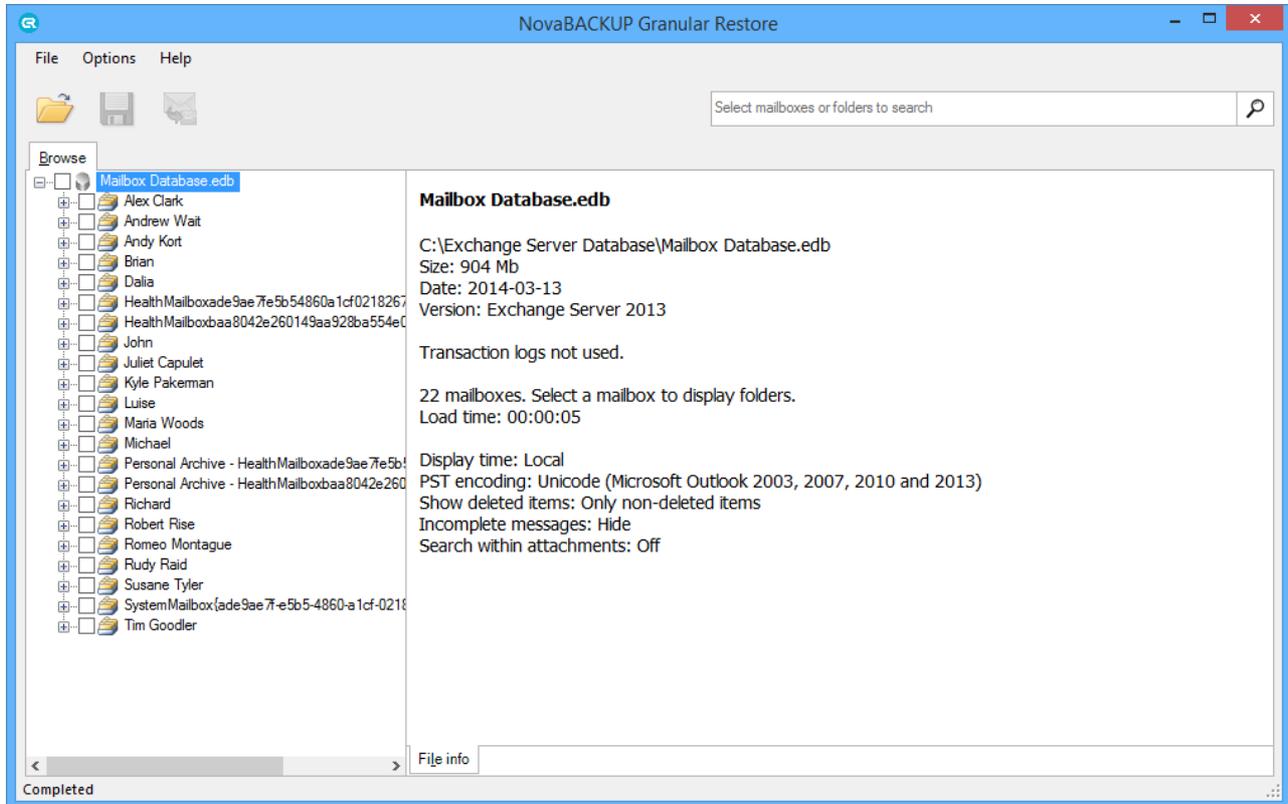


The screenshot displays the NovaBACKUP Granular Restore application window. The interface includes a menu bar (File, Options, Help), a search bar, and a main workspace divided into a file tree and a details pane. The file tree on the left shows a hierarchy of mailboxes under 'Mailbox Database.edb', with several mailboxes selected (checked). The details pane on the right provides information for the selected 'Mailbox Database.edb', including its location, size (904 Mb), date (2014-03-13), and version (Exchange Server 2013). Below this, it lists settings such as 'Transaction logs not used', '22 mailboxes. Select a mailbox to display folders.', 'Load time: 00:00:04', 'Display time: Local', 'PST encoding: Unicode (Microsoft Outlook 2003, 2007, 2010 and 2013)', 'Show deleted items: Only non-deleted items', 'Incomplete messages: Hide', and 'Search within attachments: Off'. At the bottom, a red-bordered status bar shows a log of restoration activities: '[2018-05-30 10:23:41] Save time: 0 hour(s) 0 minute(s) 58 second(s)', '[2018-05-30 10:23:40] Exported 3 mailbox(es), 33 folder(s) and 4,872 message(s) into C:\Recovered\CLIENT-PC\Recovery 001\*.pst', and '[2018-05-30 10:22:36] Database load time: 0 hour(s) 0 minute(s) 4 second(s)'. The status bar also indicates 'Completed' on the left and 'Selected: 3 mailbox(es)' on the right.

## 5.2 Finding and selecting messages, folders and mailboxes

NovaBACKUP Granular Restore 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.

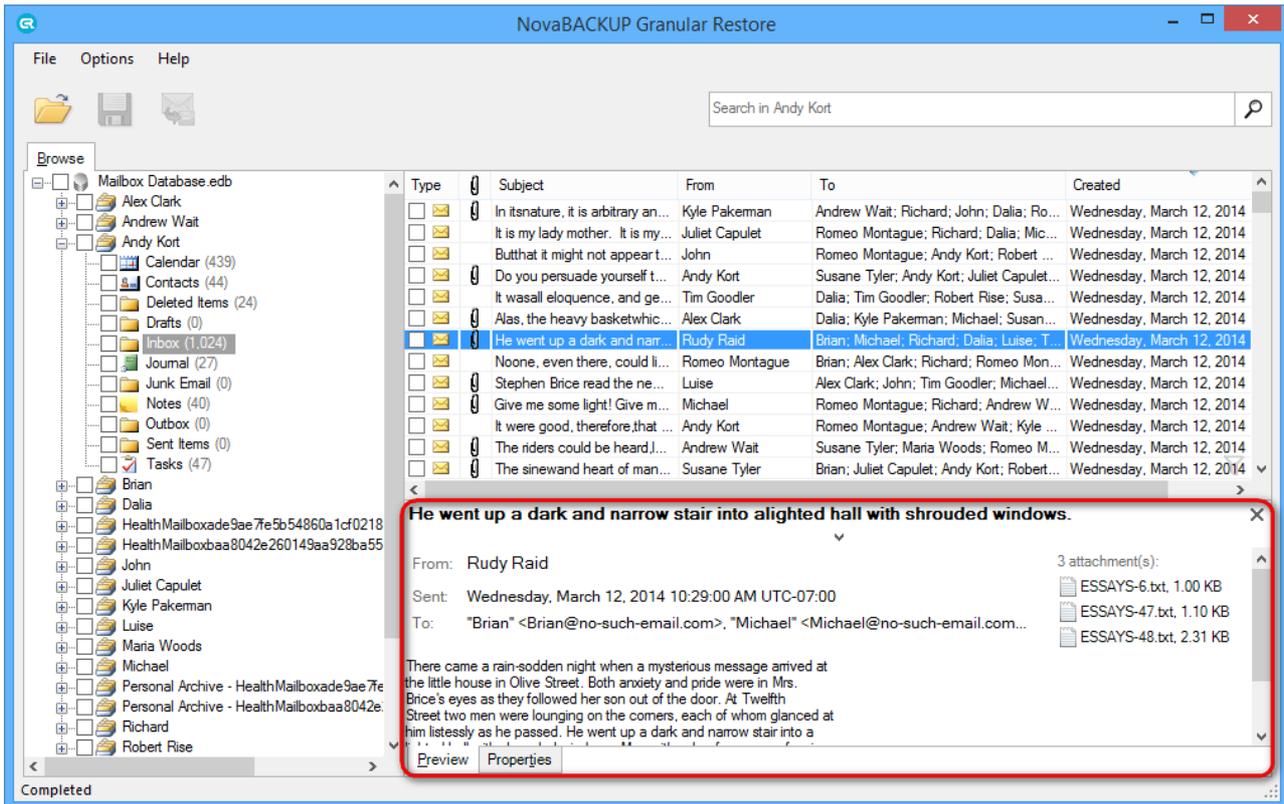


### 5.2.1 Browsing mail store tree

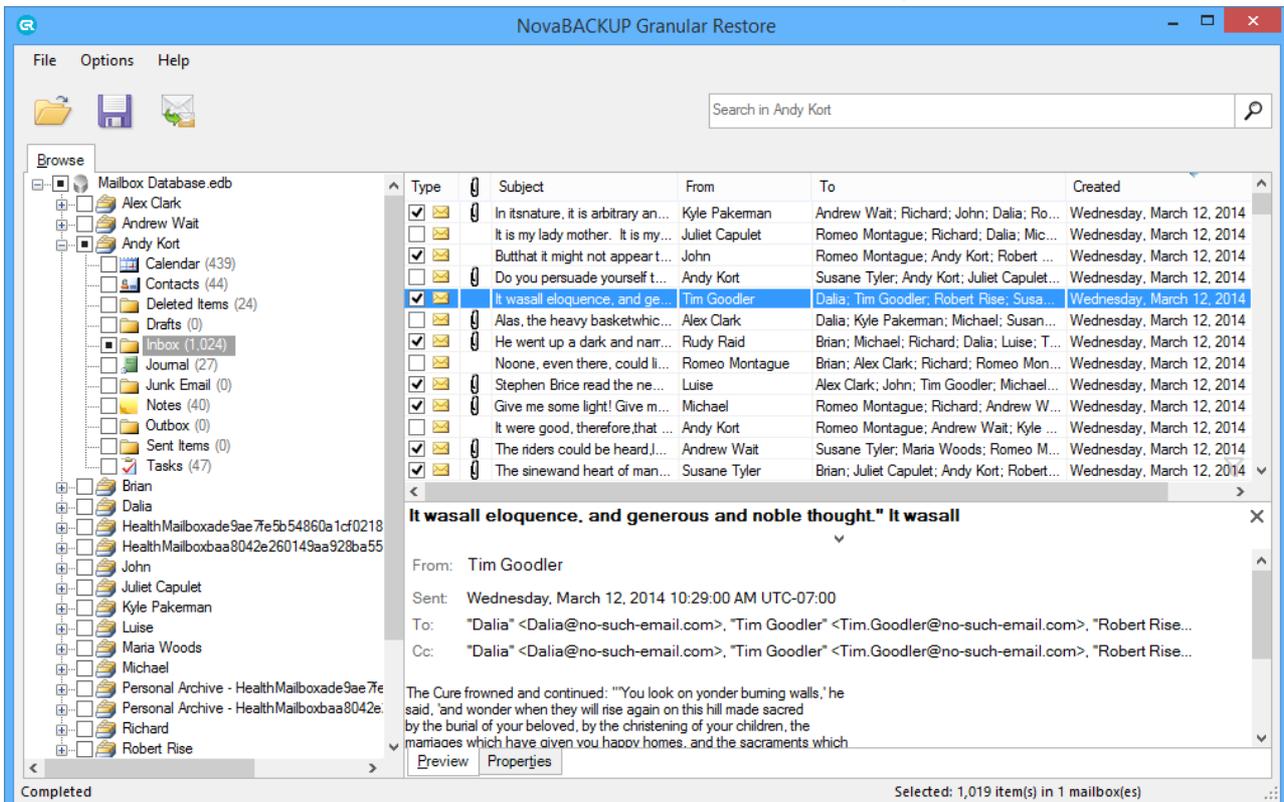
Browse mode shows mail store in a tree-like structure and allows browsing folders and previewing individual items.

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

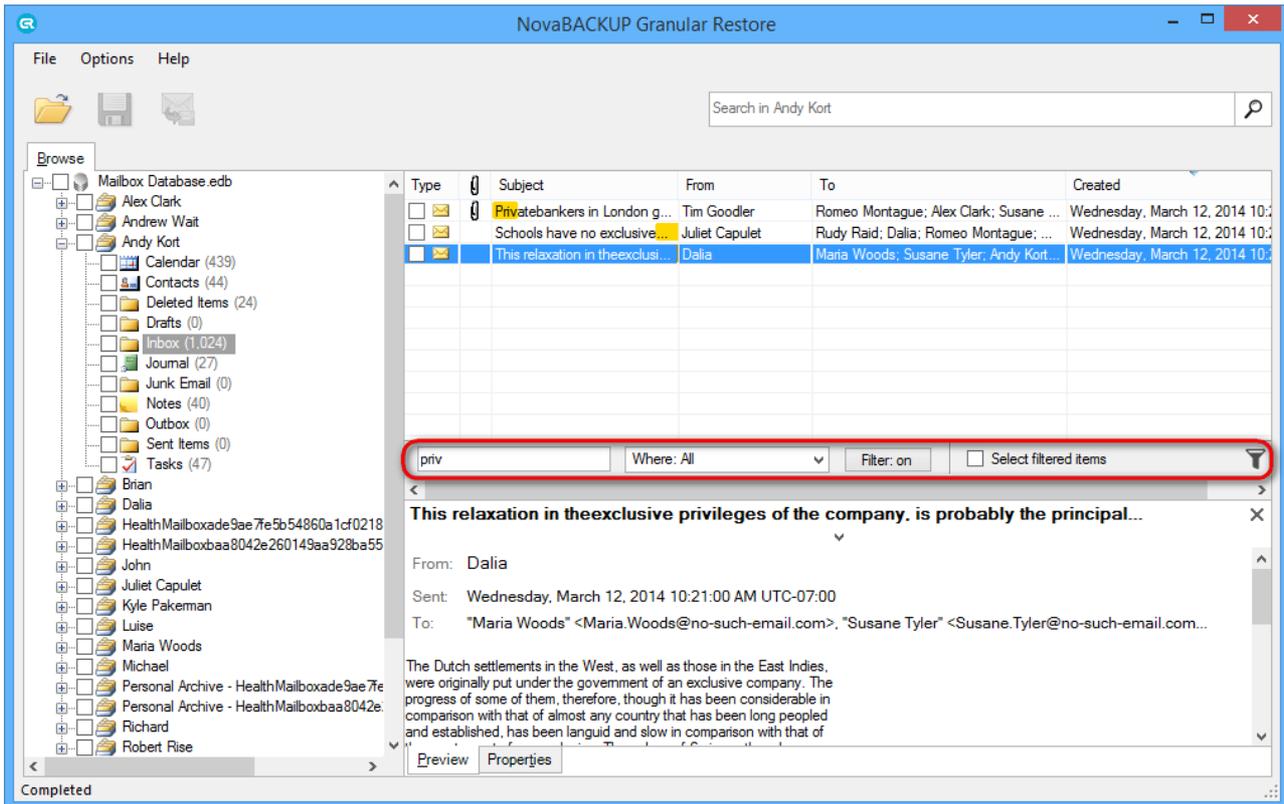
For example, a user may ask to restore a specific message from a known folder. Expand his or her mailbox in the tree, select the folder, find and click the item. All available properties and information about the item will be displayed in the **Preview** window to the right of the tree.



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.

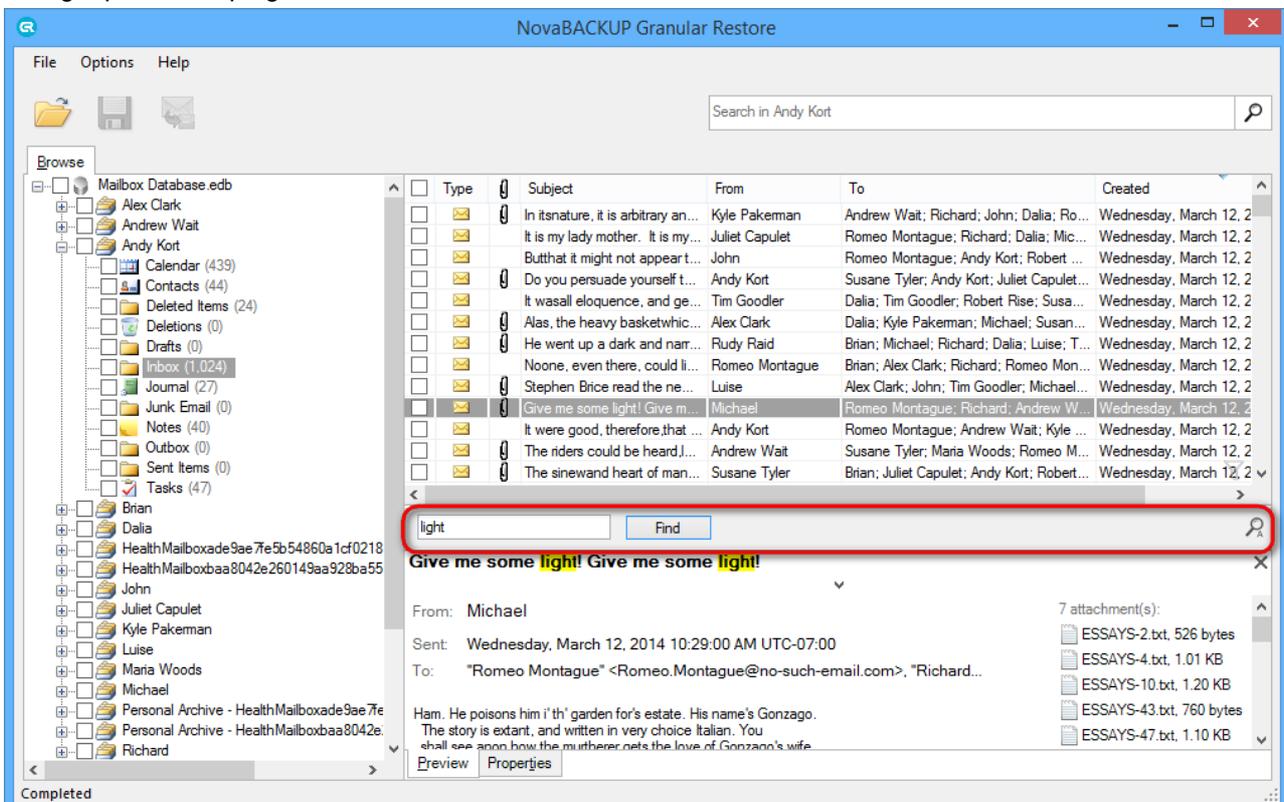


Use filtering feature for better browsing the list of items in a folder. Enable filtering by pressing **Ctrl+F** keys. A special panel will appear in the right part of the program window.



Use search in preview feature for quick find text in item preview.

Enable search in preview by pressing **Ctrl+D** keys after opening preview of item. 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.

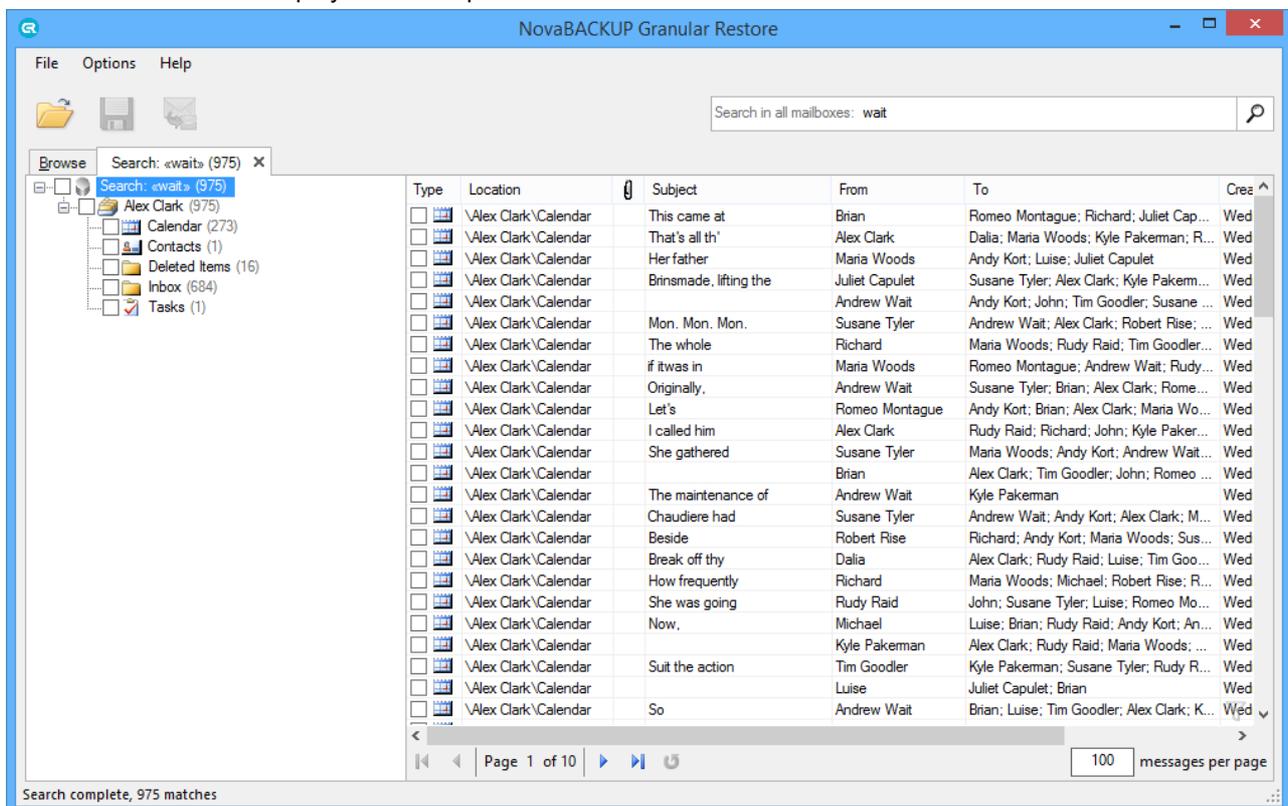
## 5.2.2 Using search

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.

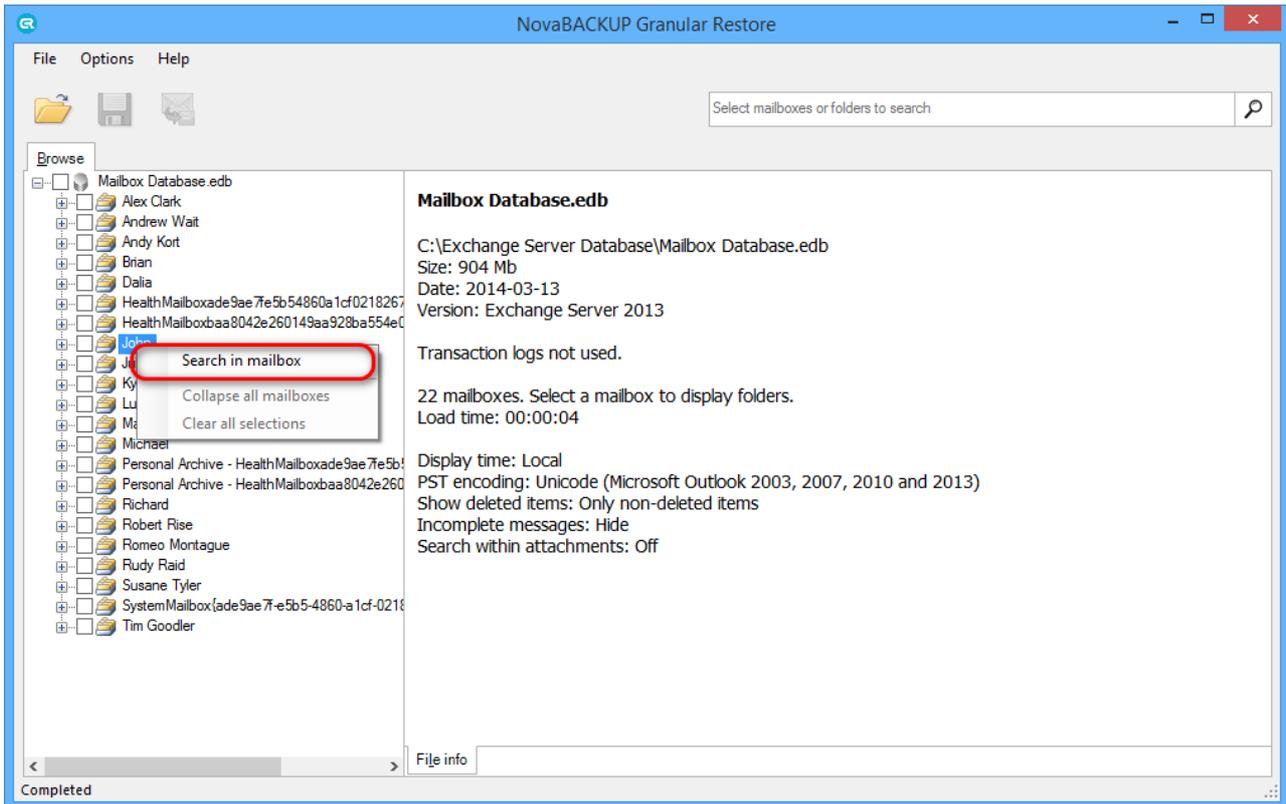
The quickest way to get search results is clicking on a particular mailbox, entering some keywords in the **Search** field and clicking the button **Start search**.

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.

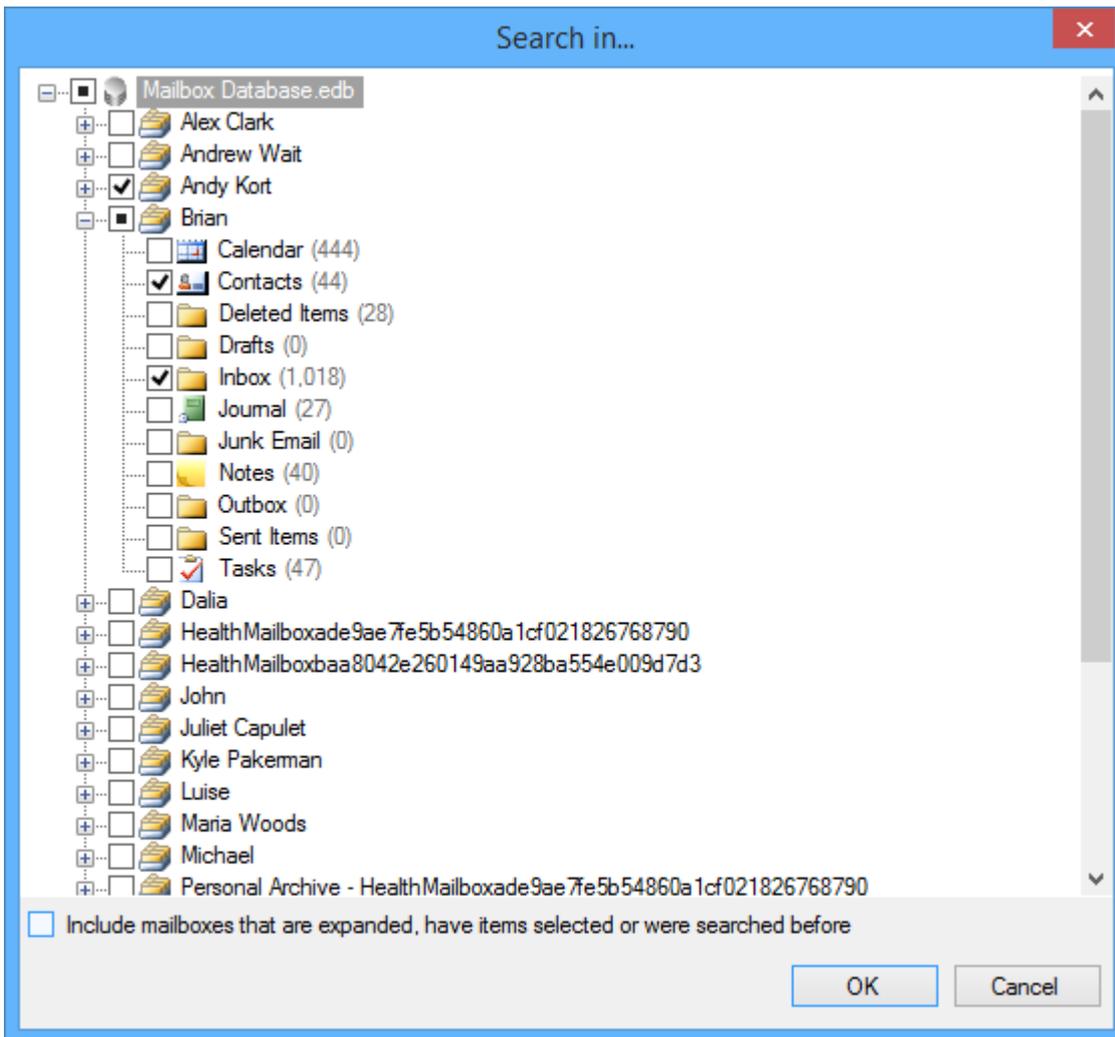


By clicking on this menu advanced mode of search dialog will be opened and **Search in** field will be filled with the selected mailbox/folder.

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).

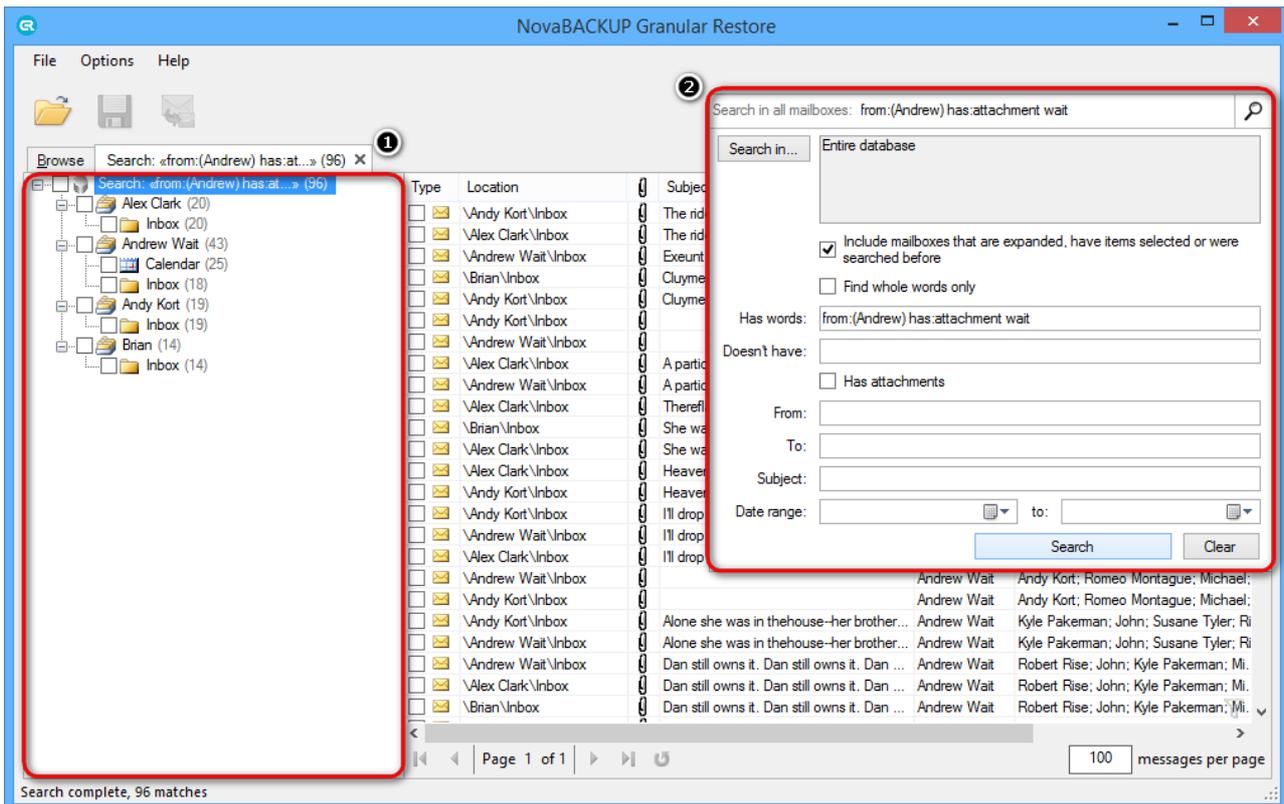


- **Has words** - search for mail store items that have words or phrases entered in the field.
- **Doesn't have** - search for items that **do not** have words or phrases entered in the field.
- **Has attachments** - search for items with attachments.
- **From** - search for keywords in the From: field.
- **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.

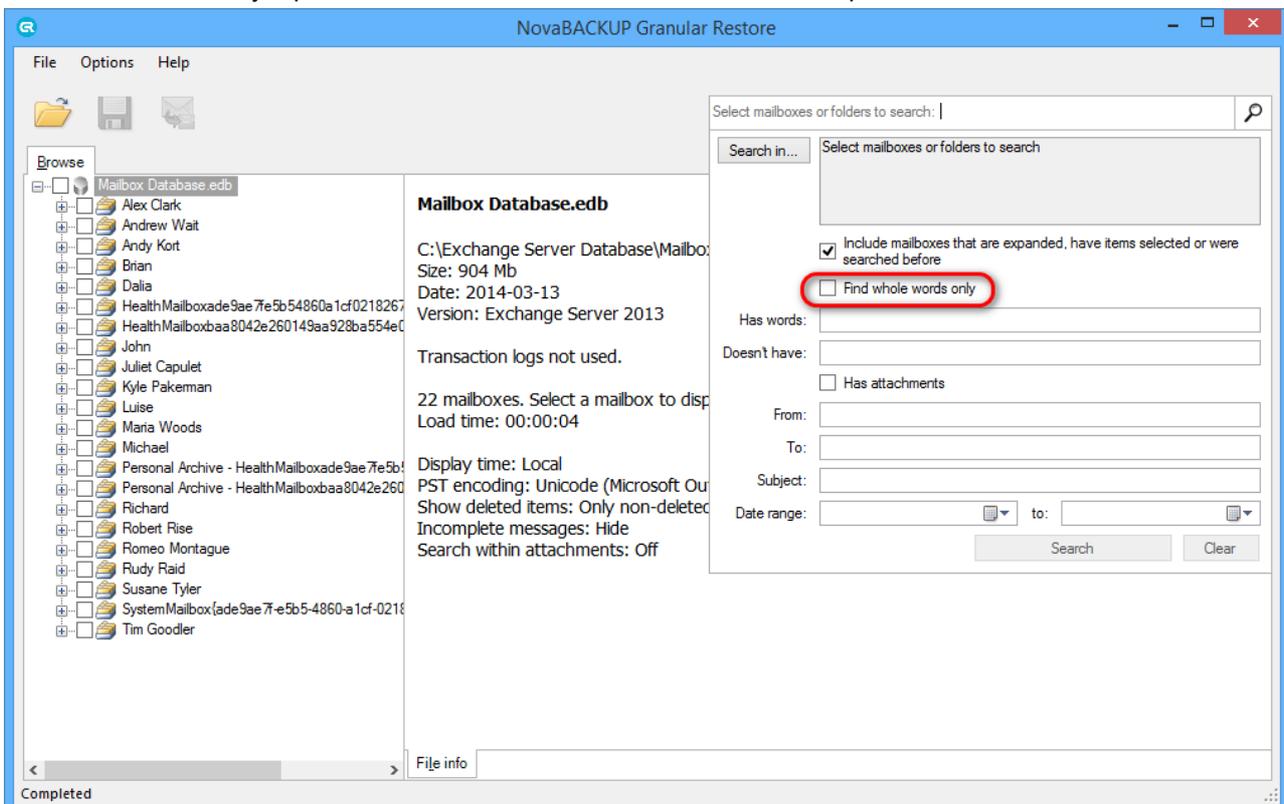
The outcomes of a search can be:

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.

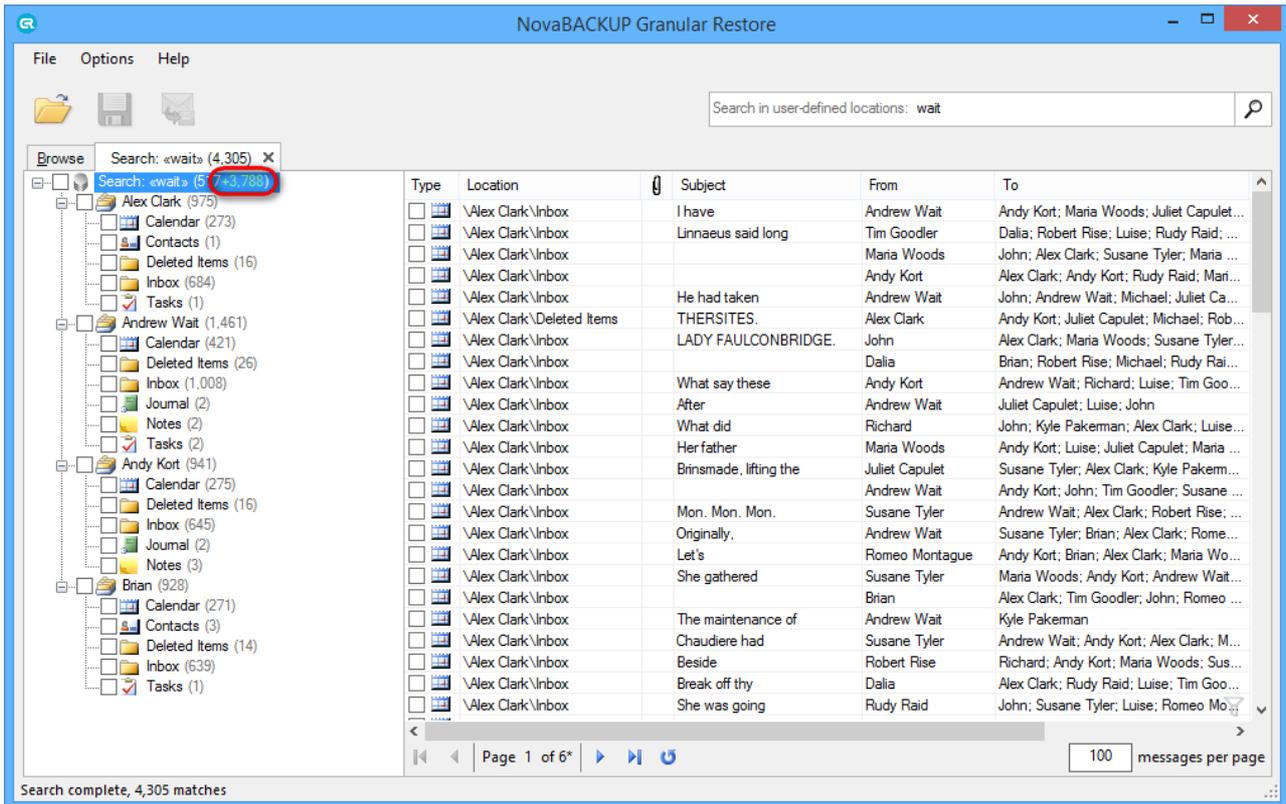
Clicking an item in the search results tab will open the item preview. Selecting item(s) in search results will make their recovery possible.



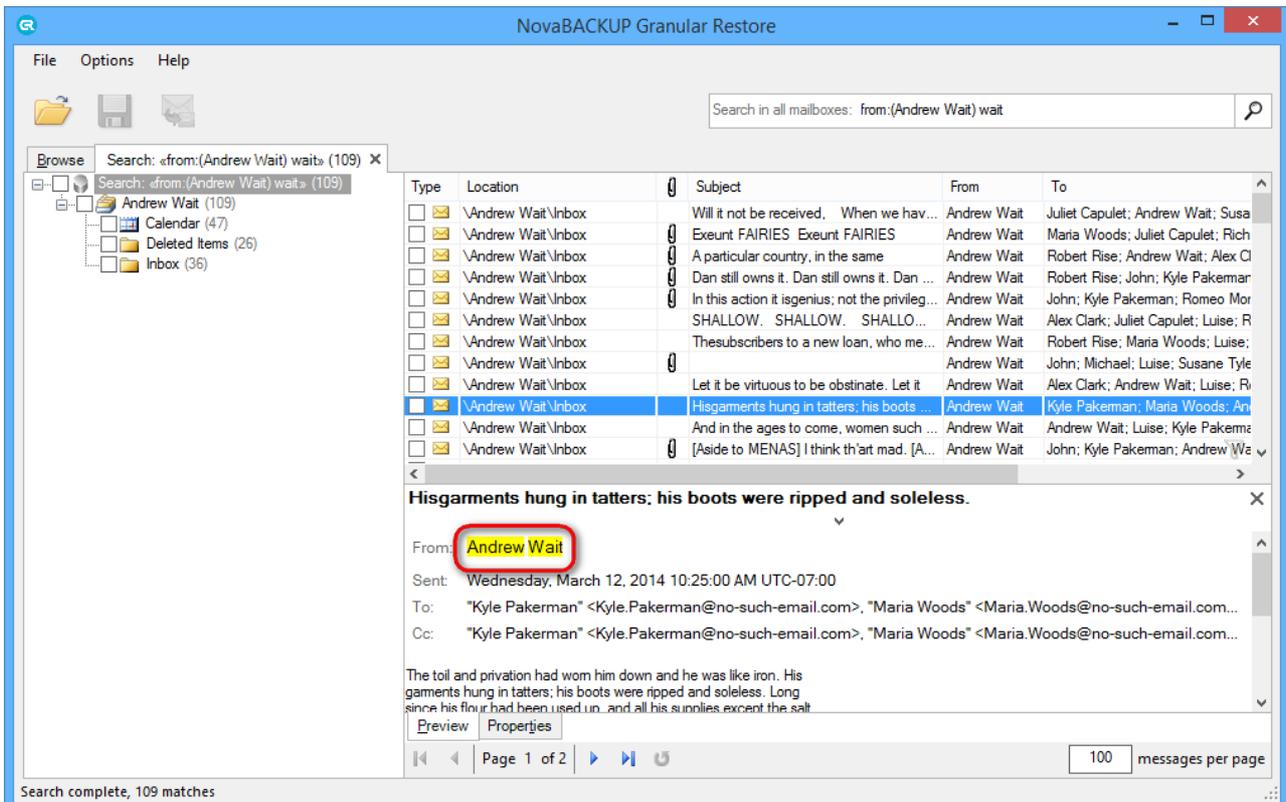
'Find whole word only' is not enabled by default. This option can be changed in the search parameters. When 'Find whole words only' option is selected an exact match search will be performed.



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.

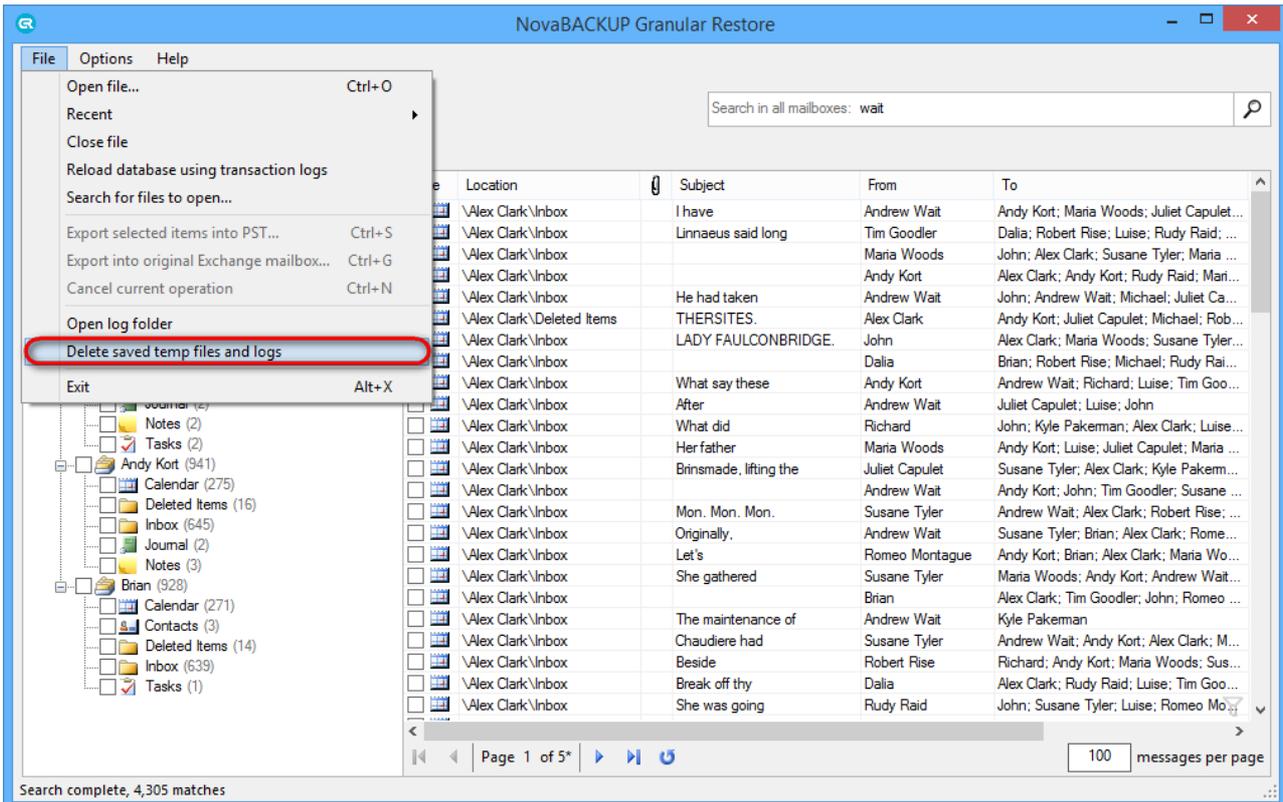


Words and phrases which match the search query are highlighted in the preview, which helps to easily identify where the match was found.



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

To delete temporary data, generated by NovaBACKUP Granular Restore, 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.

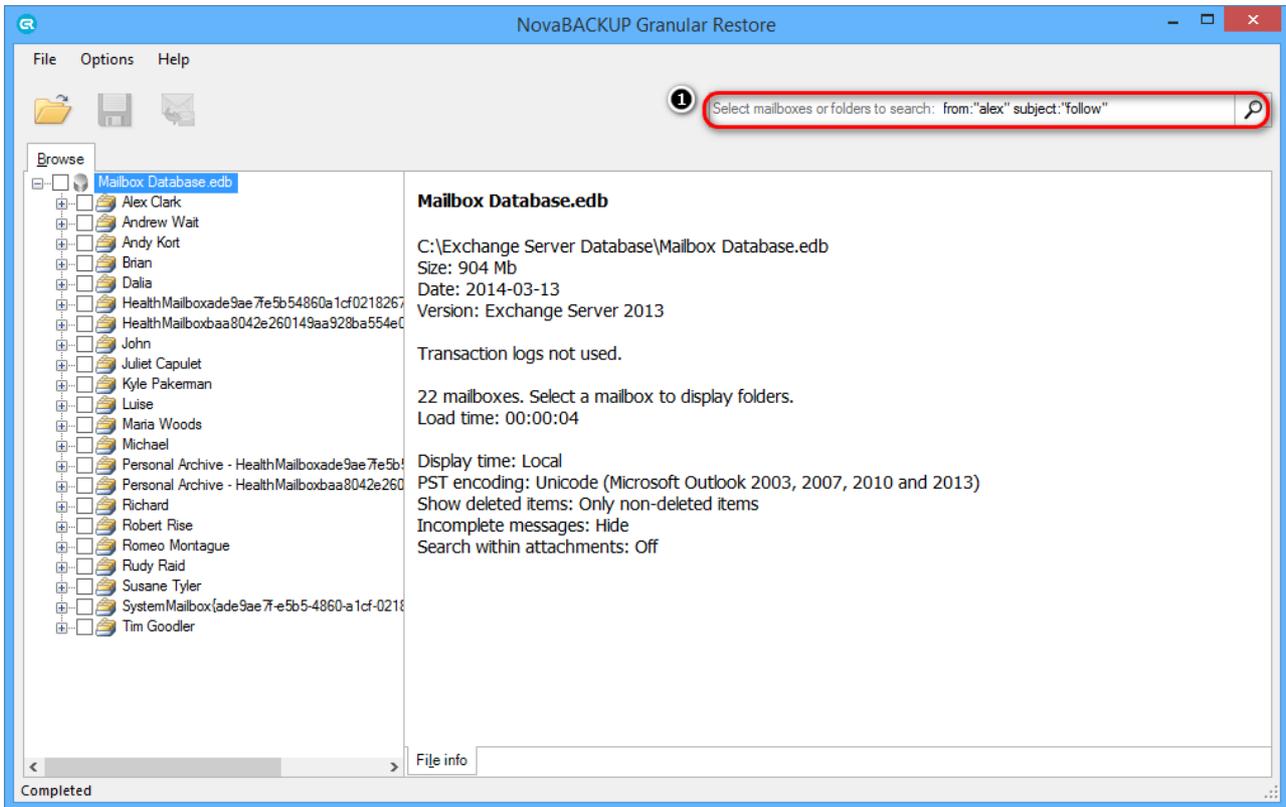
**Note**

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.
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".



Operator	Definition	Example
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.
after: before: older: newer:	Search for messages sent or received during a certain period of time (using the date format yyyymmdd).	Example: after:20110416 before:20110516 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.	Example: size:300 Meaning: messages larger than 300 bytes



Operator	Definition	Example
	Abbreviations for numbers (B, K, M) are allowed. Size limit is 2000MB.	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: finds 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.	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.

**Note**

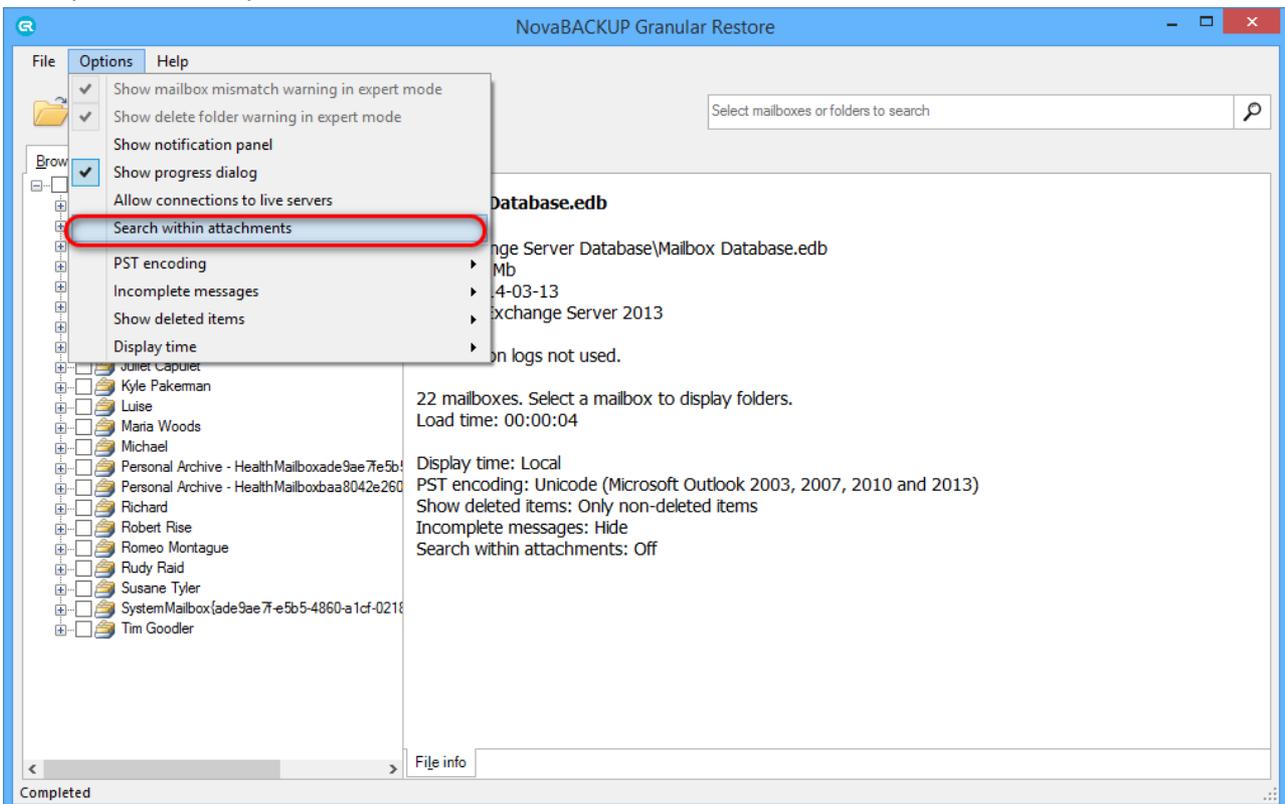
Use checked 'Find whole word only' in case using question mark ("?") in the start of the word.

**Note**

Other special characters are not used for search. Search query, containing special characters, may return incorrect results.

## Search within attachments

Search within attachments is not 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

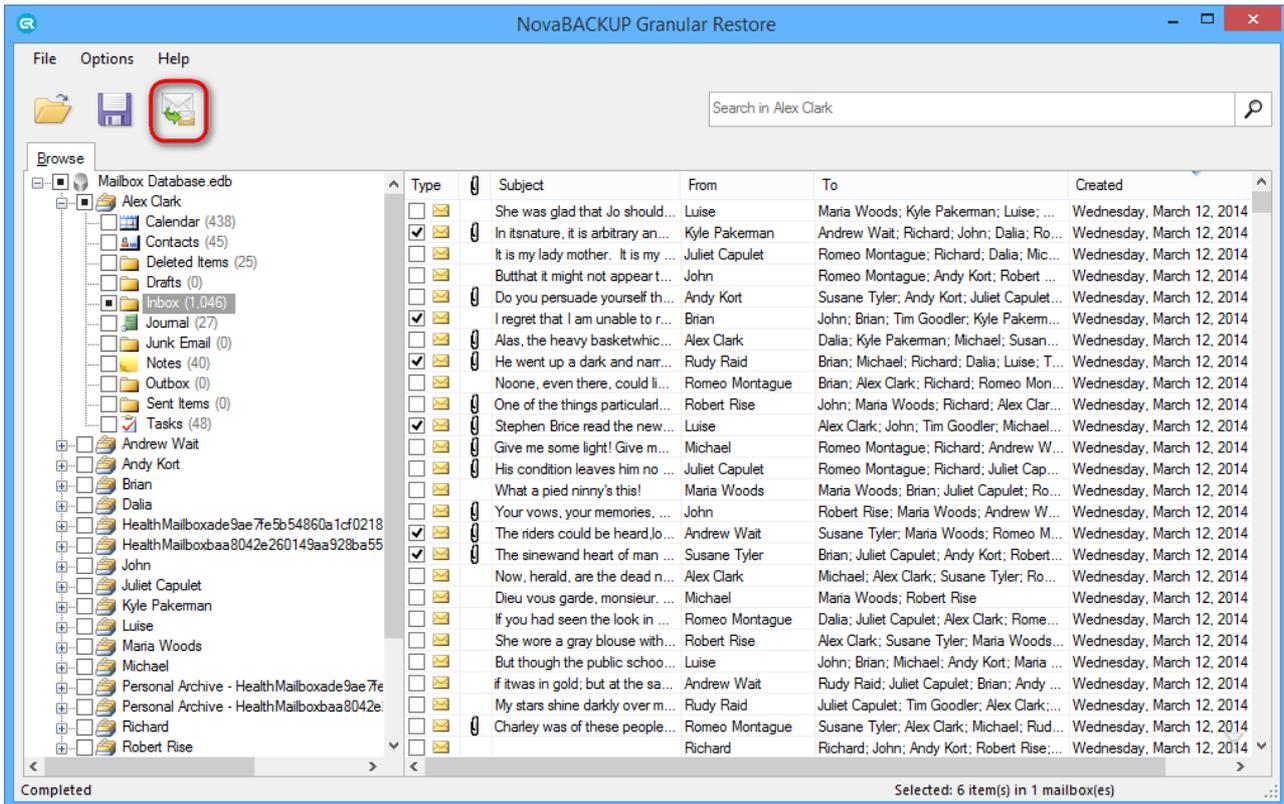
NovaBACKUP Granular Restore includes the injection capability for items (emails, calendars, contacts, etc.) from offline database and PST/OST files to original live Exchange databases as well as granular data extraction to Personal Storage File (.pst) files.

### 5.3.1 Restore to original live Exchange Server. Standard mode

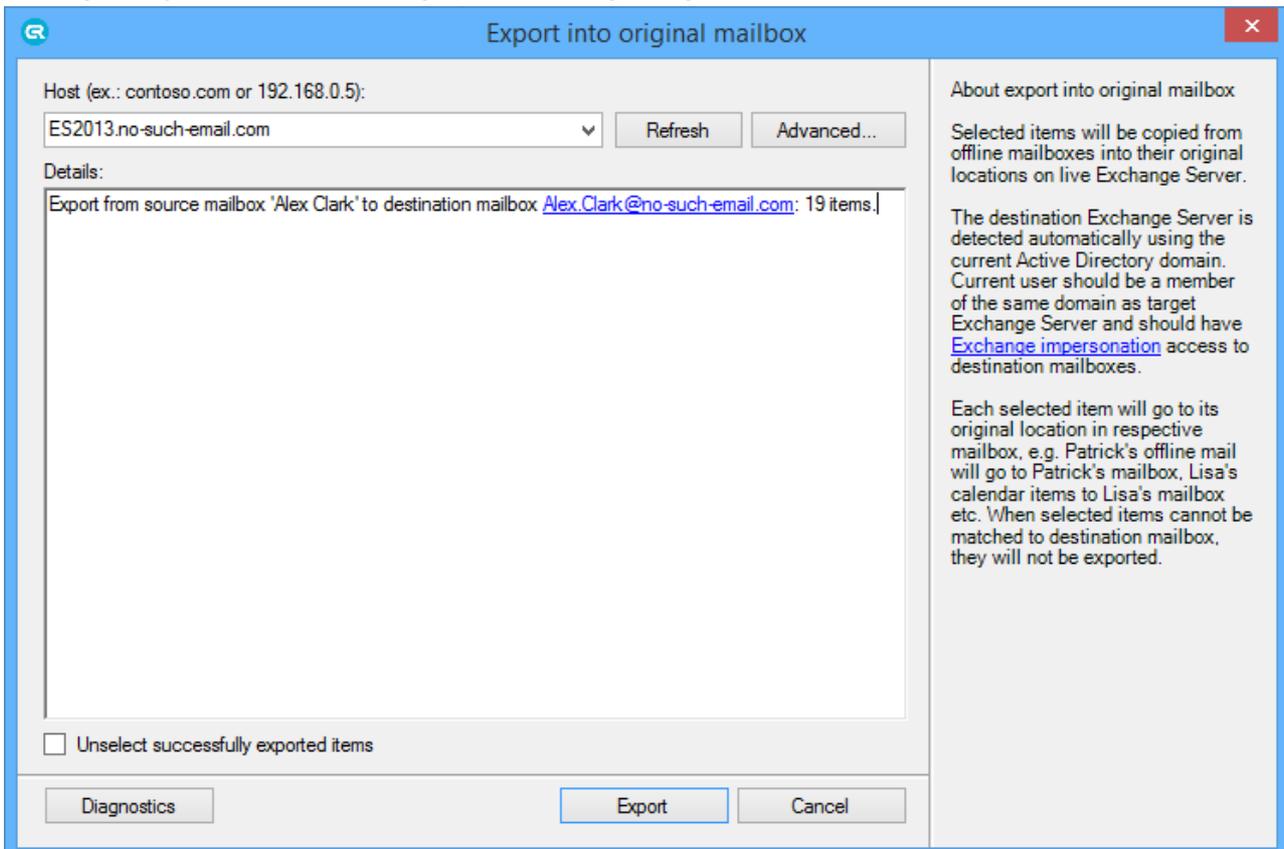
#### Important Note

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:



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, NovaBACKUP Granular Restore 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.

Connect to Exchange Server mailbox

Host (ex.: contoso.com or 192.168.0.5):

Use current Windows credentials

User logon name (e.g.: user1):

Password:

Save password

[Exchange impersonation](#) lets you connect to a mailbox other than the default one for your credentials. To use the feature, access permissions need to be configured at Exchange Server.

Connect Cancel

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**.

Connect to Exchange Server mailbox

Host (ex.: contoso.com or 192.168.0.5):

ES2013.no-such-email.com

Use current Windows credentials

User logon name (e.g.: user1):

Alex.Clark

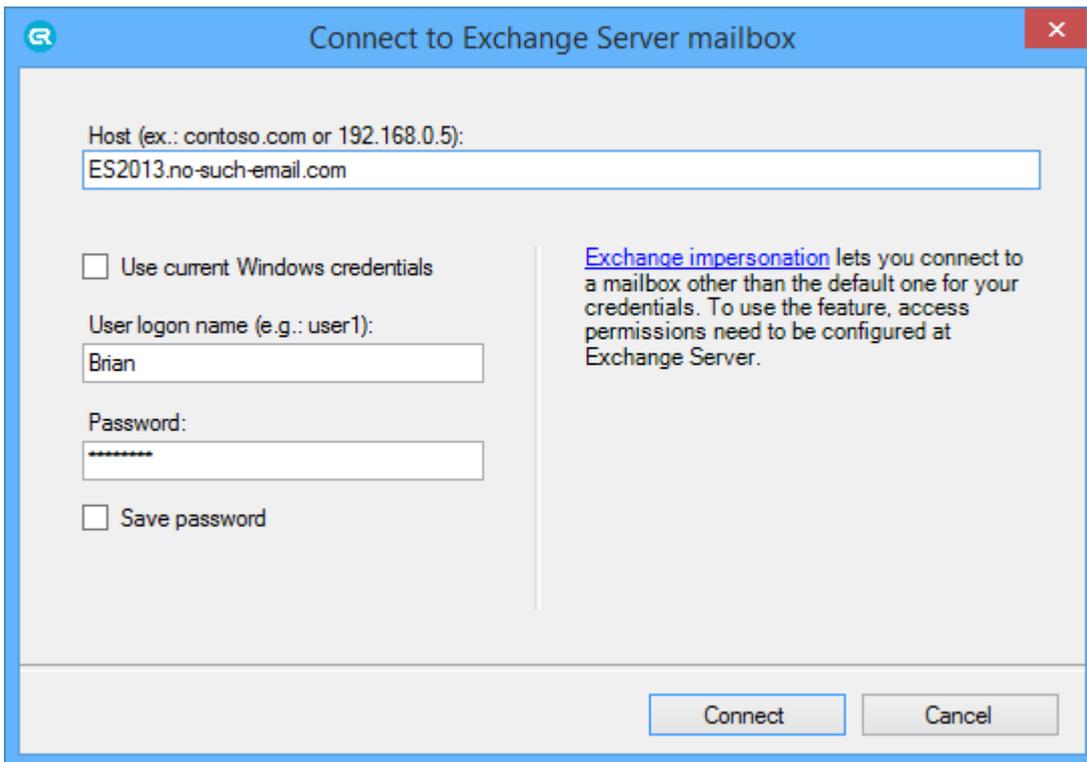
Password:

Save password

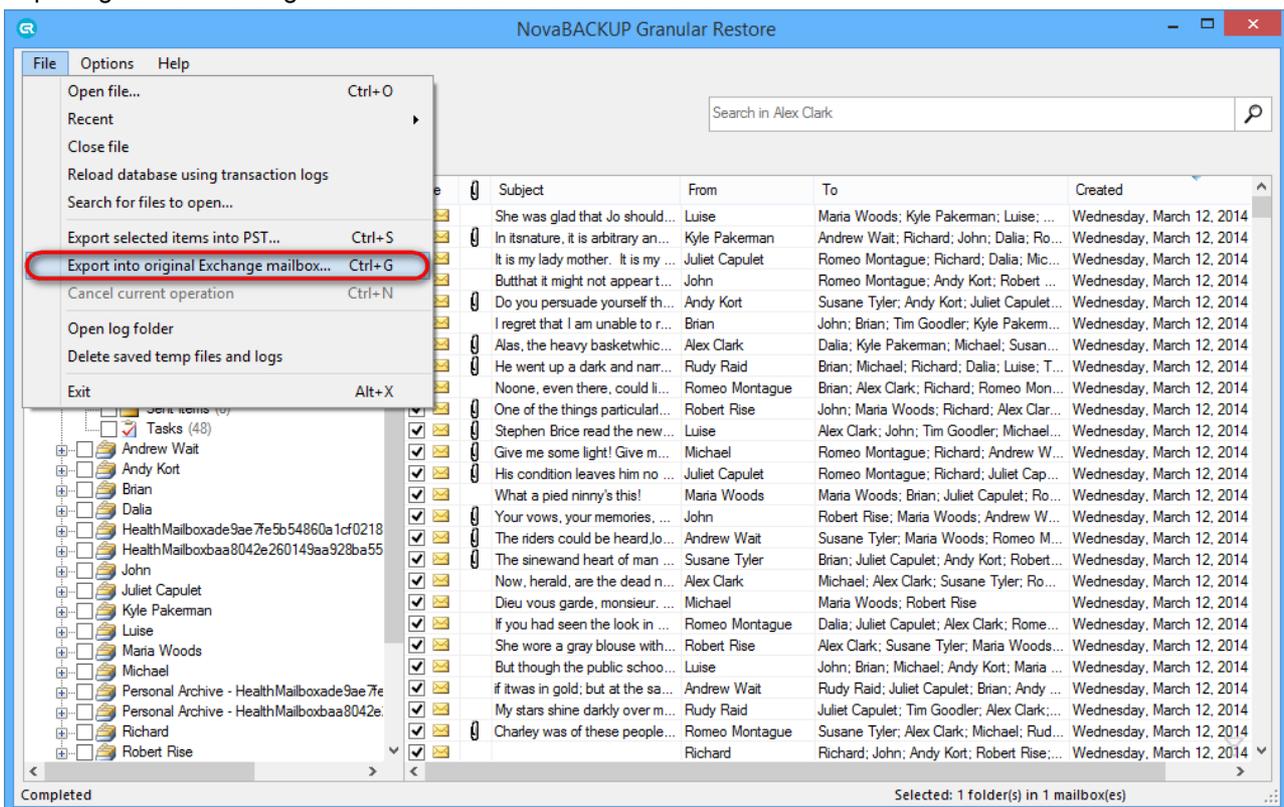
[Exchange impersonation](#) lets you connect to a mailbox other than the default one for your credentials. To use the feature, access permissions need to be configured at Exchange Server.

Connect Cancel

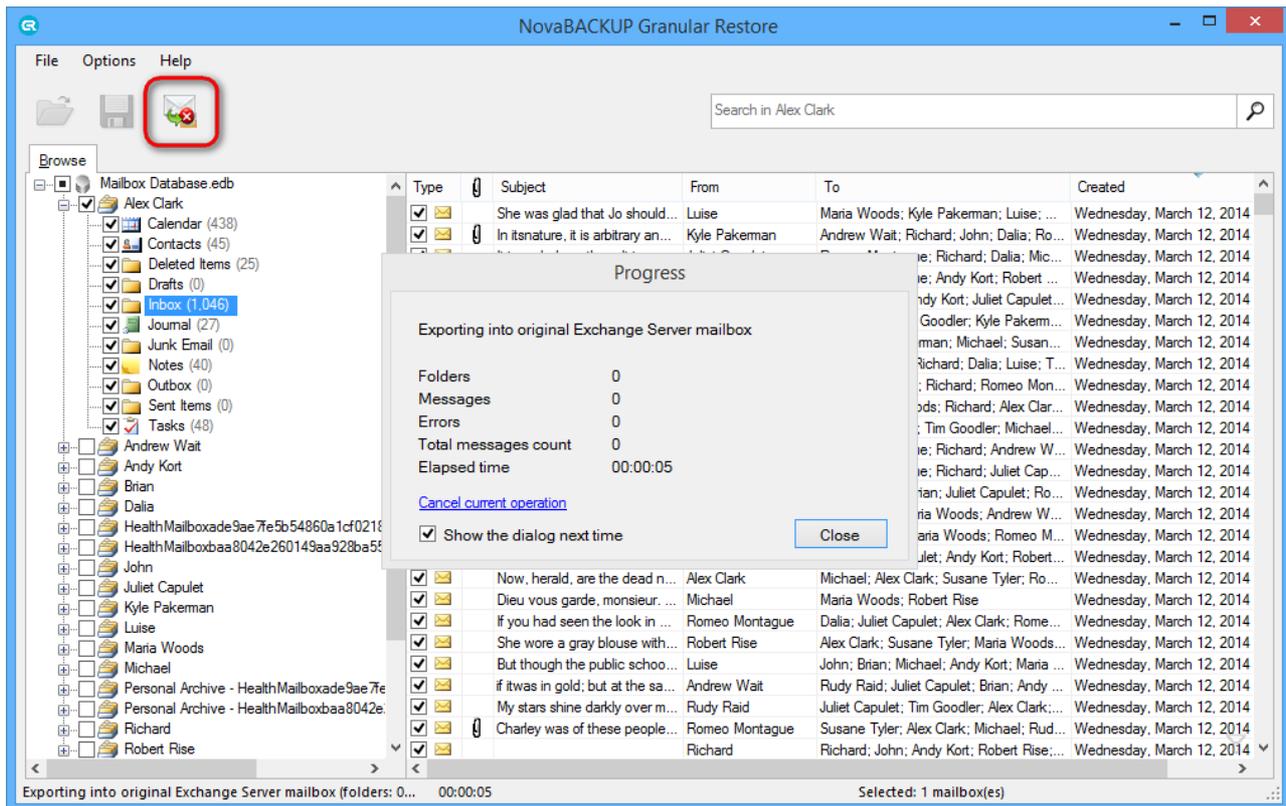
To use **Exchange impersonation** to establish the connection, enter host name of machine with Client Access role, unmark **Use current Windows credentials**, enter credentials of the user with impersonation rights and press **Connect**. In the example below Brian has impersonation rights to access Dalia's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



### 5.3.2 Restore to live Exchange Server. Expert mode

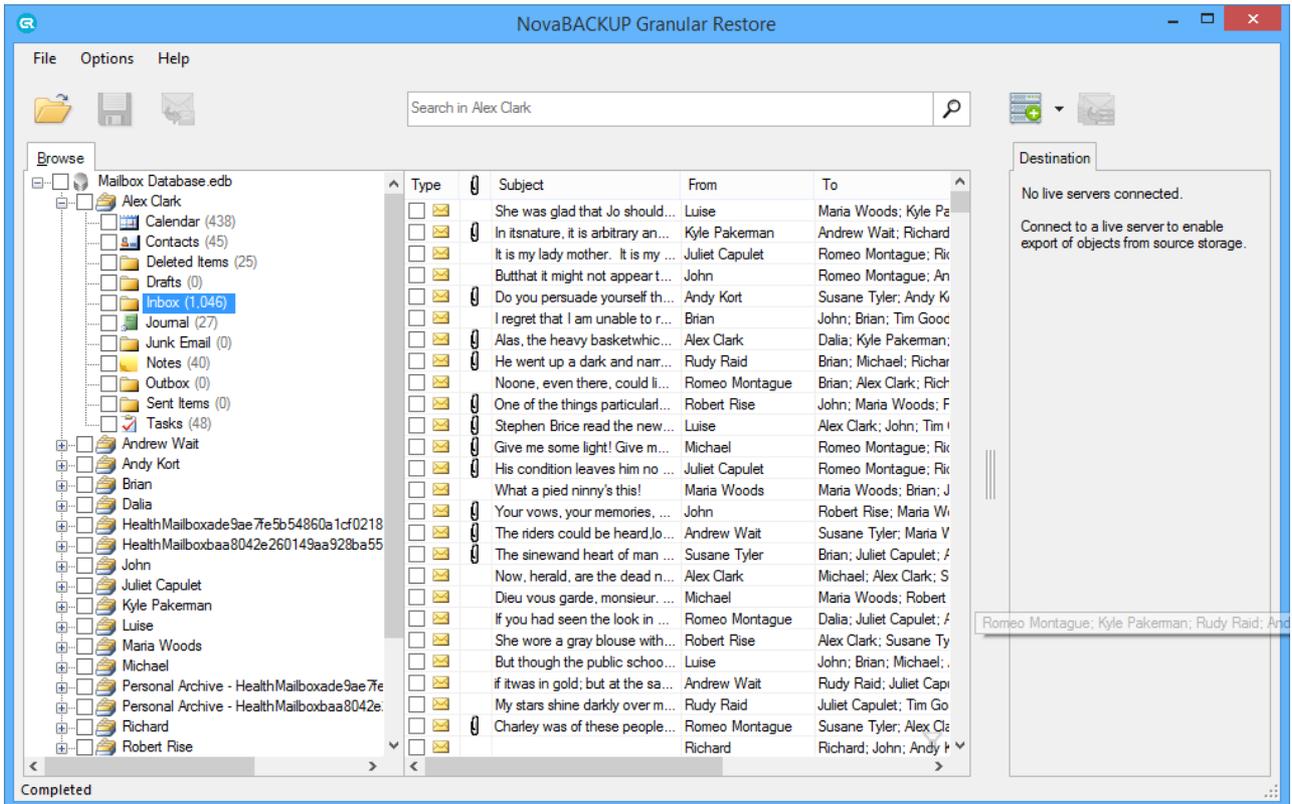
NovaBACKUP Granular Restore includes the injection capability for items (emails, calendars, contacts, etc.) from offline database and PST and OST files to live Exchange database.

The following options are presented:

- Authentication
  - Connection to a mailbox using its owner 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.
  - Connection to another account mailbox by using Exchange impersonation. (<http://msdn.microsoft.com/en-us/library/bb204095%28EXCHG.140%29.aspx>).
- Connecting to several mailboxes on different servers simultaneously.
- Browsing folder hierarchy of a connected mailbox, browsing folder contents and viewing message bodies and other items (calendars, contacts).
- Creating folders in the connected mailbox.
- Drag-and-drop copying of folders and individual items from offline (source, EDB) database, PST or OST file to the attached mailbox (destination live Exchange server).
- To provide injection, running the application as administrator or using a machine from AD domain, in which there is Exchange Server with destination mailbox, is not required.
- Injection is possible to a local machine, as well as machines with Exchange Server, which are in the local network or the Internet.

## Connection to Exchange Server

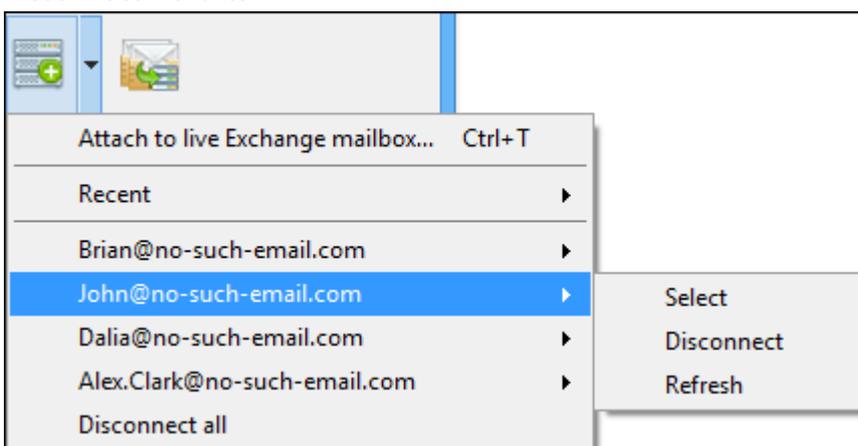
After opening a mail store the main window of the application looks as follows:



There is a panel with a wide splitter added on the right. Toolbar buttons are added to connect to Exchange Server and inject checked items to the attached mailbox.

The injection button (next to the **Export selected data into PST** button) becomes active when there is a connection with at least one live mailbox and items in the offline database are checked.

The button for the connection to the mailbox has a drop-down list with mailboxes, which were attached previously. When clicking **Select** menu item for the attached mailbox in the drop-down list, it appears in the tree on the right and becomes selected. It is also possible to disconnect from the mailbox by clicking the **Disconnect** menu item.



Clicking the connection toolbar button will bring up the following dialog for entering the credentials:

Host (ex.: contoso.com or 192.168.0.5):  
ES2013.no-such-email.com

Use current Windows credentials

User logon name (e.g.: user1):  
Alex Clark

Password:  
\*\*\*\*\*

Save password

[Exchange impersonation](#) lets you connect to a mailbox other than the default one for your credentials. To use the feature, access permissions need to be configured at Exchange Server.

Connect to a different mailbox

Connect Cancel

Fill the following required fields:

- Host: domain name of the machine with Exchange Server, or IP address
- User logon name – user name to log on
- Password - user's password

There is an option of connecting using current Windows credentials. When the checkbox is selected, the **User** and **Password** fields are disabled:

Host (ex.: contoso.com or 192.168.0.5):  
ES2013.no-such-email.com

Use current Windows credentials

User logon name (e.g.: user1):  
[disabled]

Password:  
[disabled]

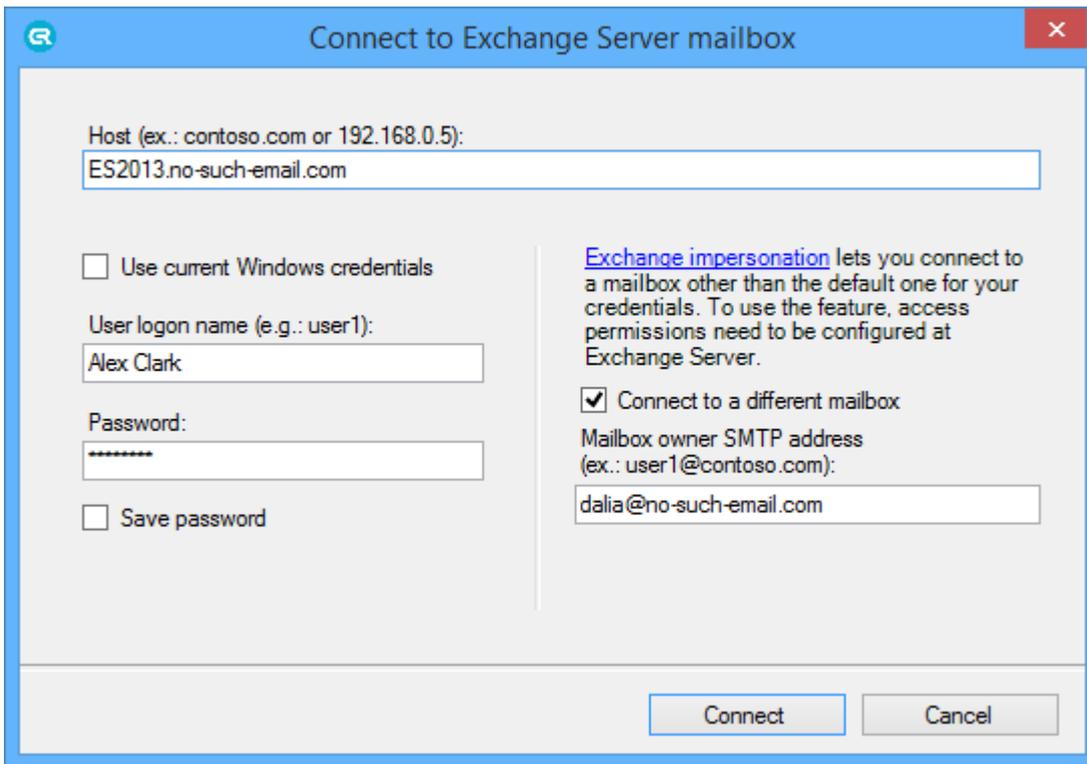
Save password

[Exchange impersonation](#) lets you connect to a mailbox other than the default one for your credentials. To use the feature, access permissions need to be configured at Exchange Server.

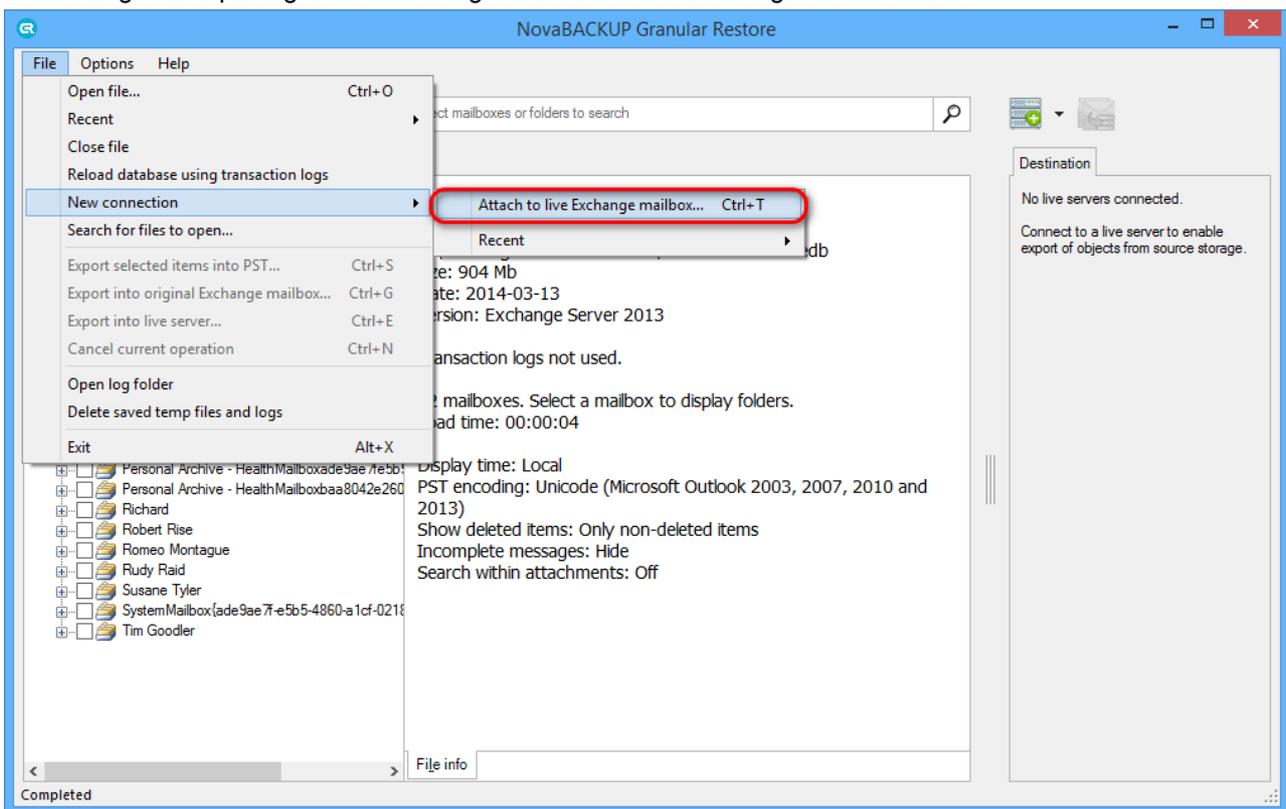
Connect to a different mailbox

Connect Cancel

It is possible to connect to someone else's mailbox using **Exchange impersonation**. To do this, check the **Connect to a different mailbox** box and enter the mailbox owner SMTP address:

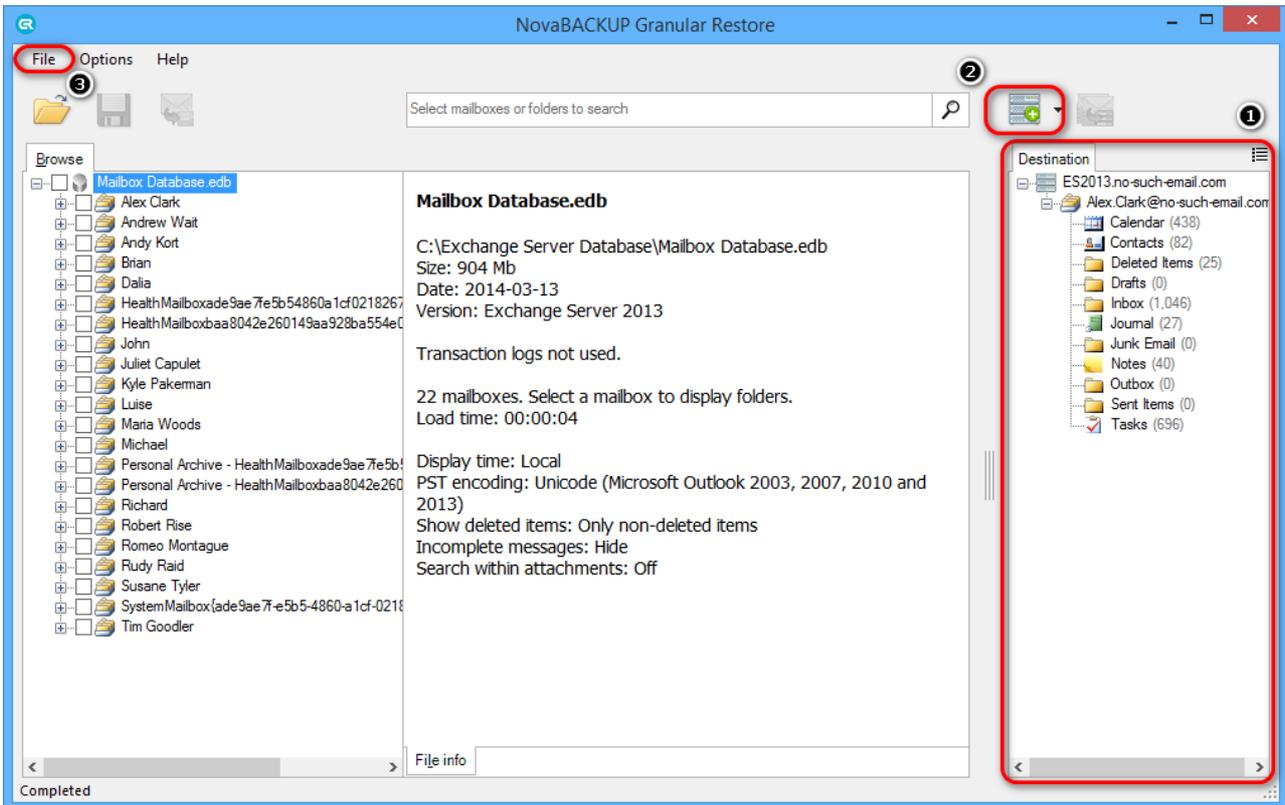


Connecting and exporting to live Exchange are also available through the **File** menu.

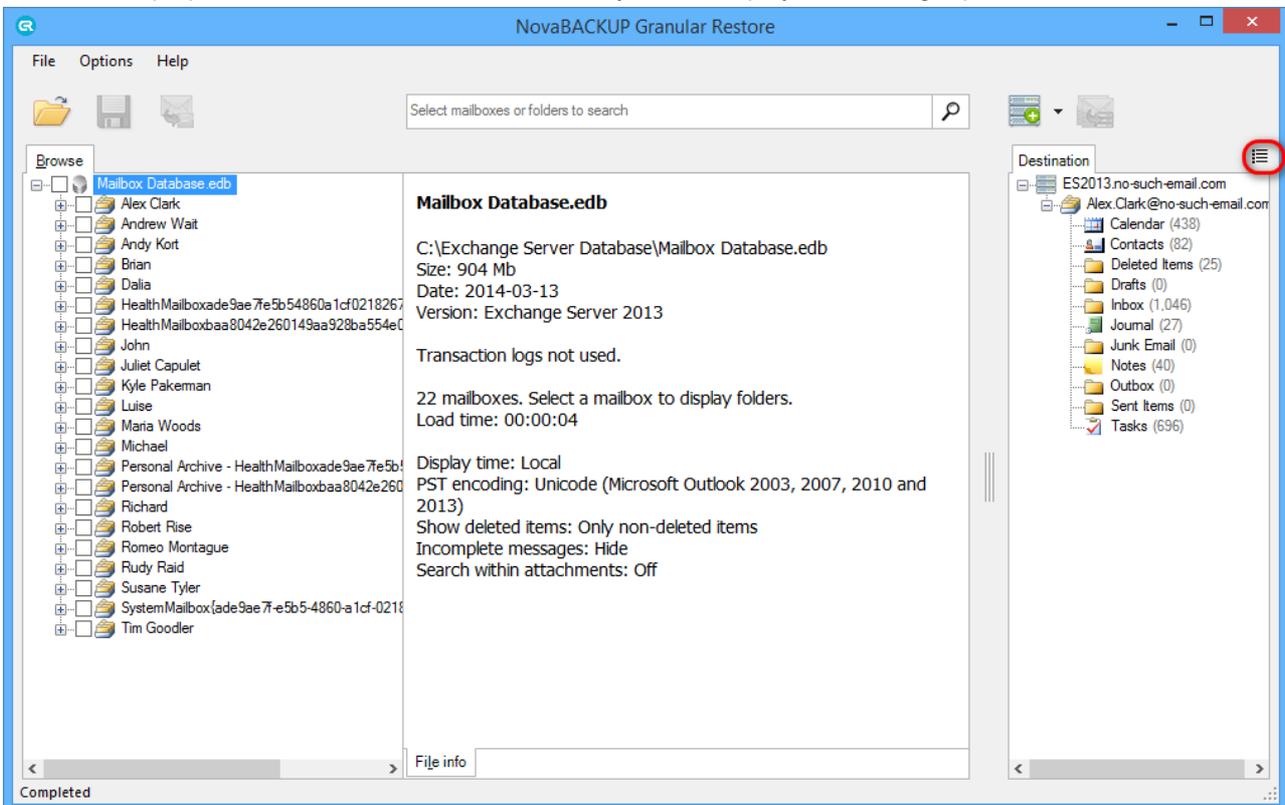


## Injection workflow

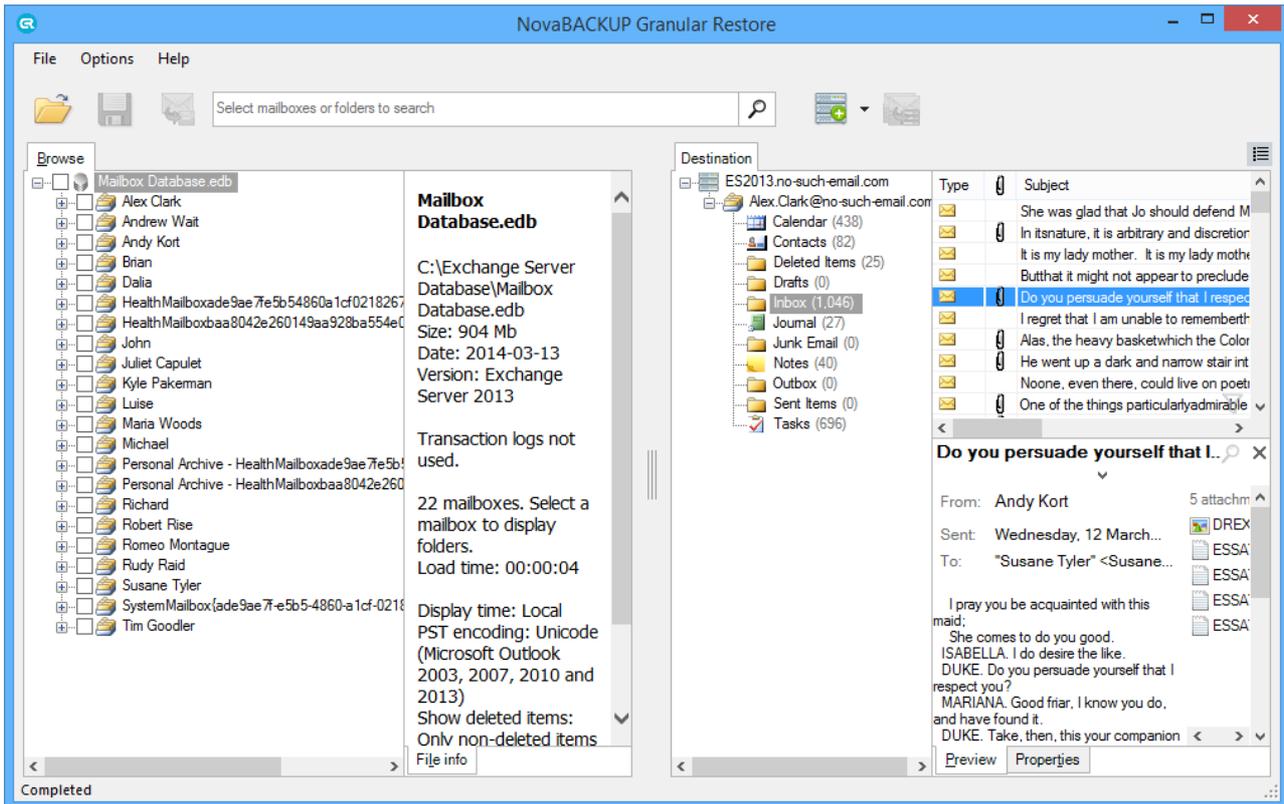
After the connection is established, the mail store tree appears on the **Destination** tab (1). It will be listed in the drop-down list of the toolbar (2) connection button and in the **File** menu (3).



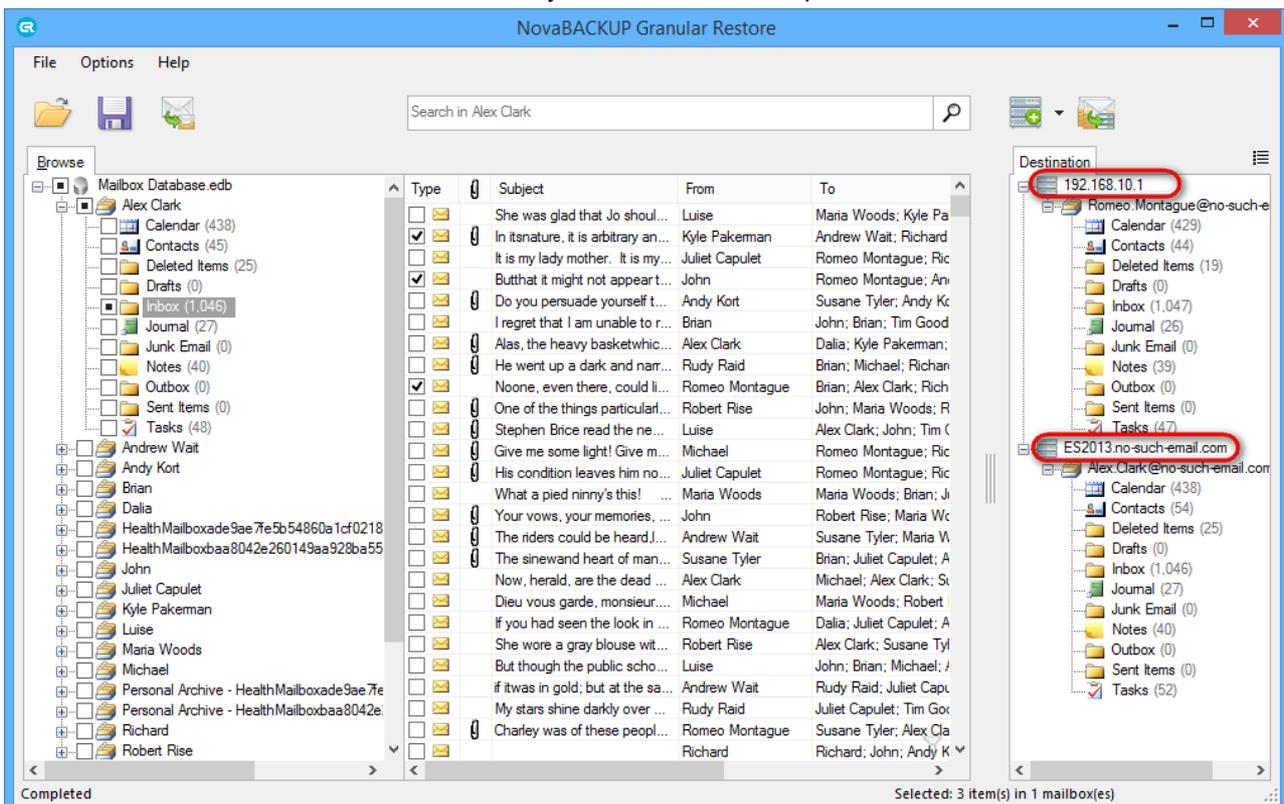
It is possible to select whether to show folder items and preview or not – a button near the **Destination** tab is used for this purpose. If it is disabled there will be only a tree displayed in the right panel.



After enabling the button a list with the items is displayed as well as a preview when clicking on the item.

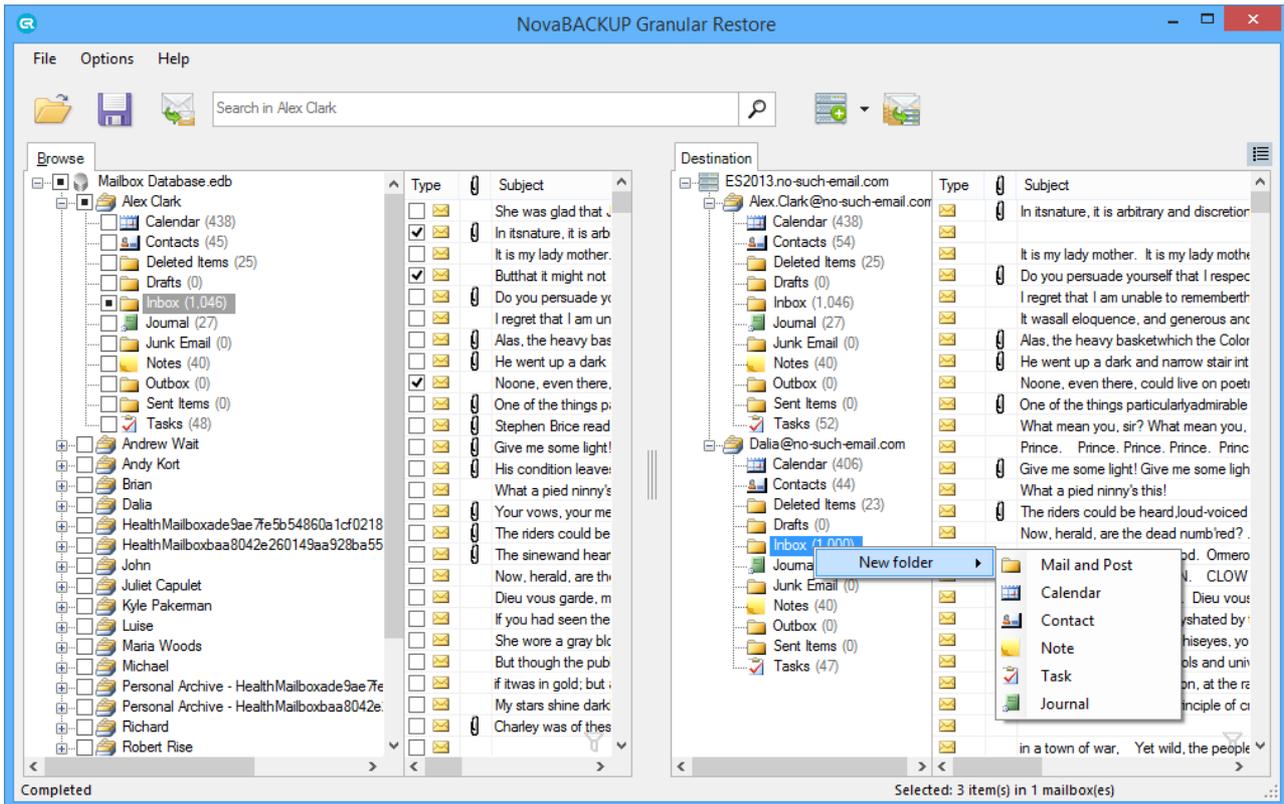


Connection to several mailboxes simultaneously on different hosts is possible.

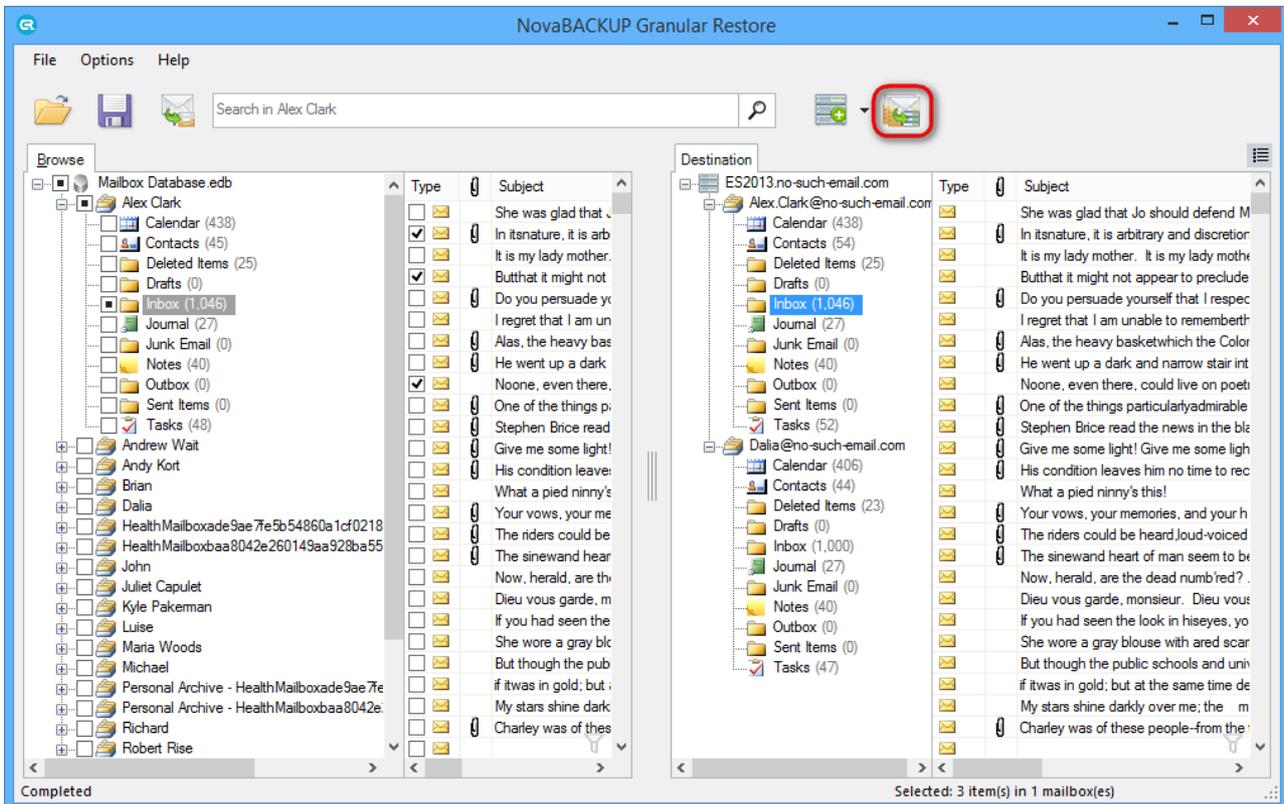


After mailbox appears in the tree, it is possible to drag-and-drop folders and separate items. When dragging a folder or a mailbox to live Exchange mailbox, the hierarchy of the data being dragged will be recreated inside the destination folder.

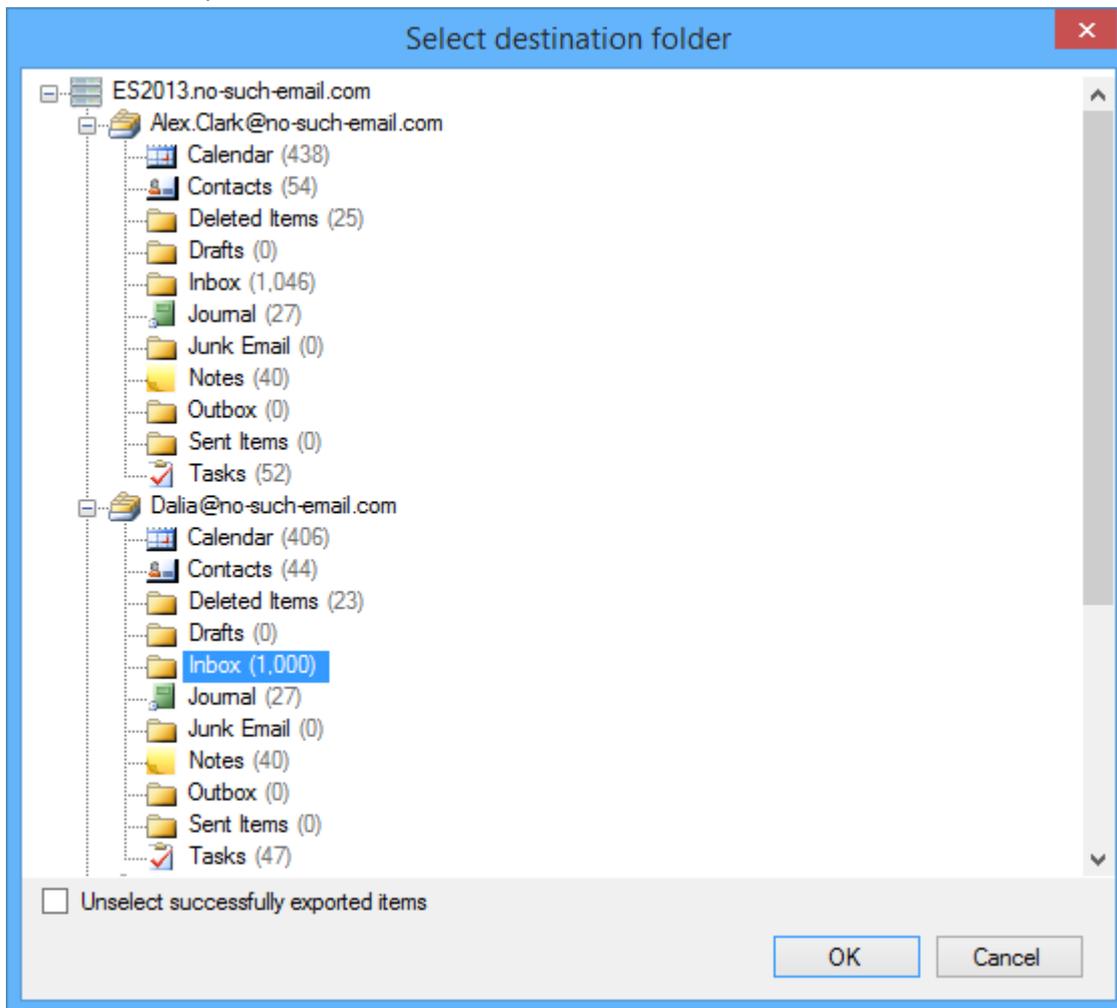
When right-clicking folders/mailboxes in the destination panel, it is possible to create a folder inside the mailbox.



It is also possible to delete and rename created folder within one program session. When checking the items in the offline database, data exporting is available by clicking the **Export into live Exchange Server mailbox** button. This method is the equivalent of saving to PST, except that the target is a live server, not a file. It is complementary to drag-and-drop and useful for management of disparate data. With this method, items of different types (e.g. notes and tasks) and/or located in different offline database folders/mailboxes or in different PST/OST files can be exported.

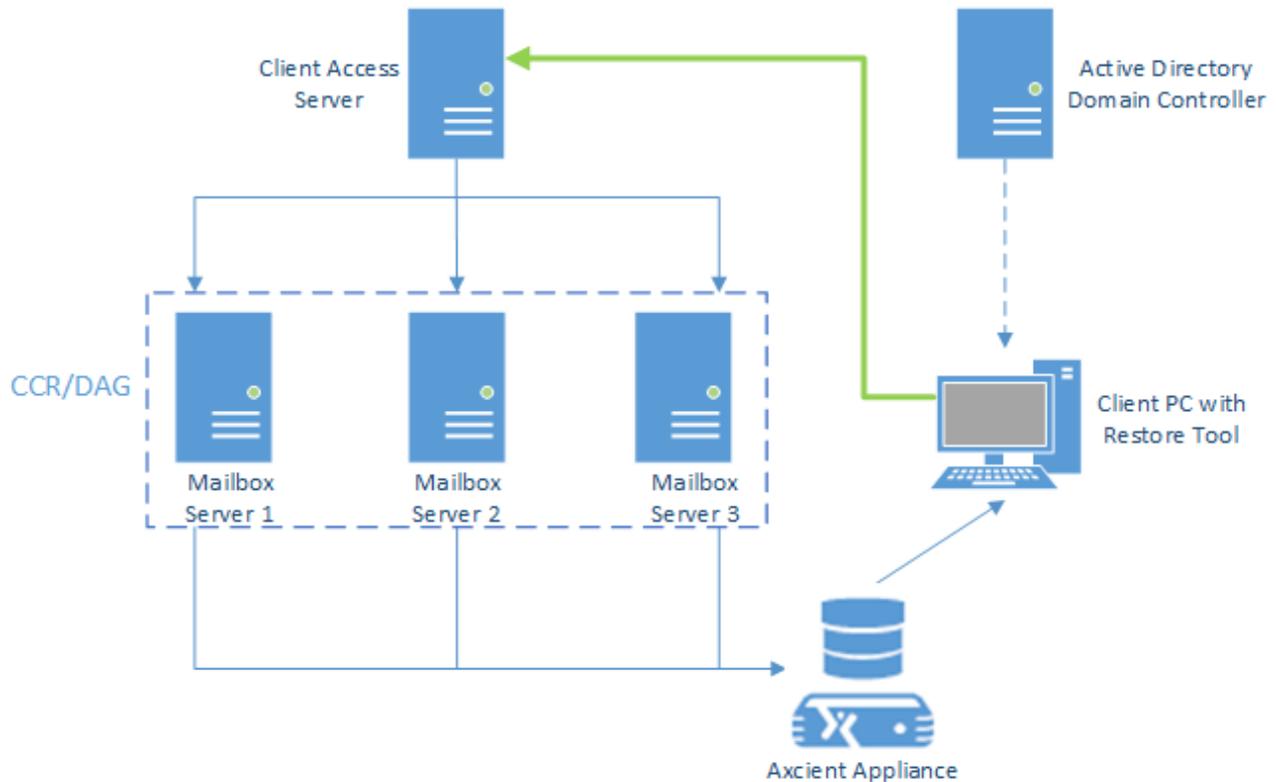


When clicking the **Export into live Exchange Server mailbox** button, a dialog, which allows to select a folder to save selected data, appears. Data hierarchy will be restored automatically. The root of hierarchy is the closest common parent item.



### 5.3.3 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.

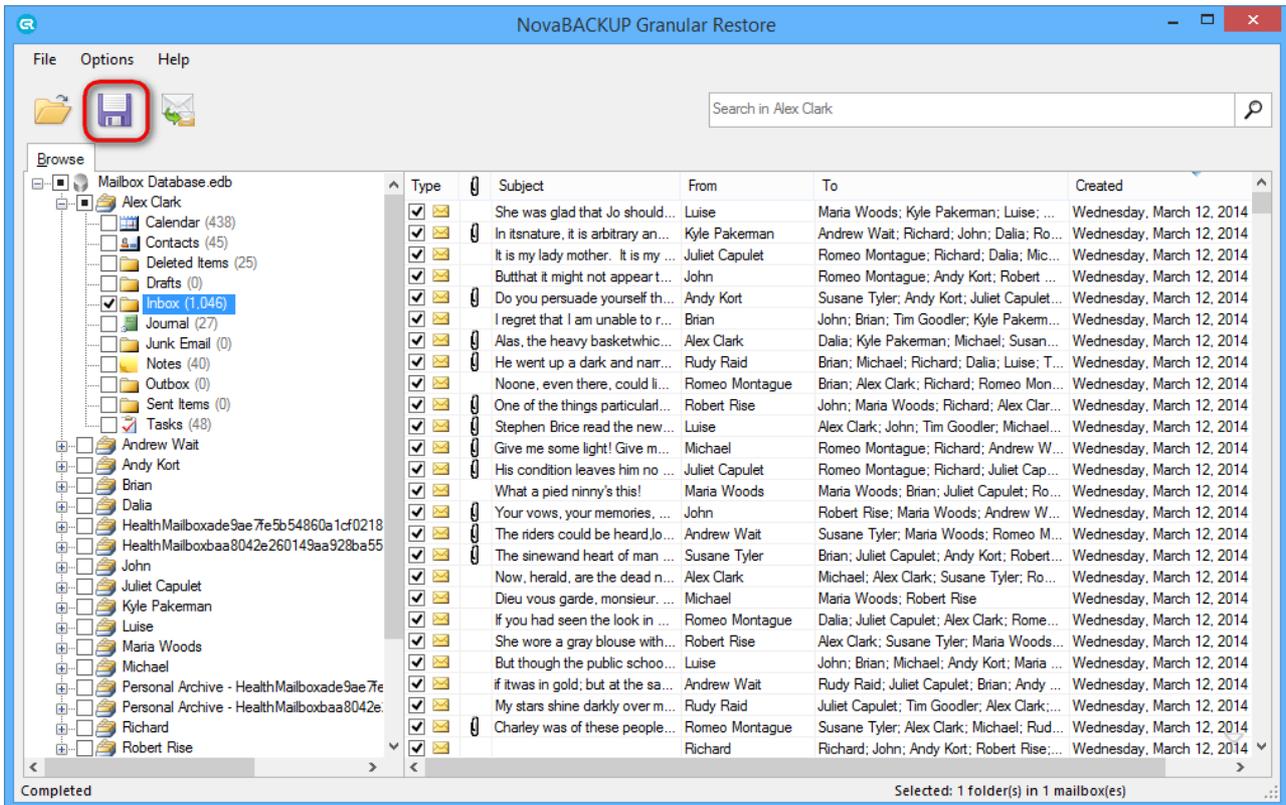


As you can see on the scheme, to export data into live server, NovaBACKUP Granular Restore calls Client Access Server to get access to specified mailbox. And it doesn't really matter which of existing Mailbox Servers stores target mailbox - data will be exported to the right place.

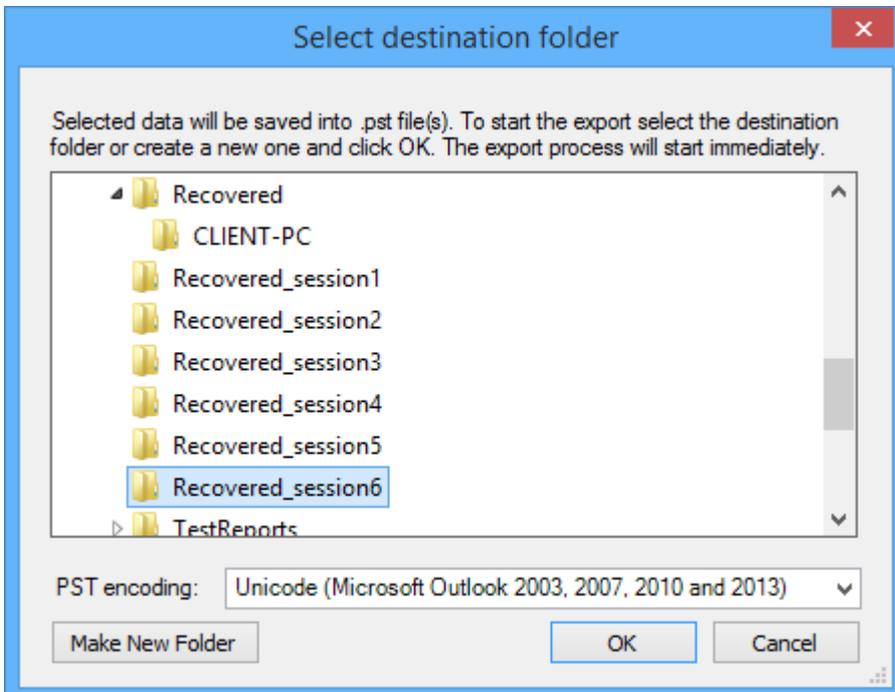
The IP-address or FQDN of Client Access Server should be specified in the **Host** field while using the **Expert** mode. In the **Export into original** mode FQDN of this server is detected automatically by calling Active Directory domain controller.

### 5.3.4 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.



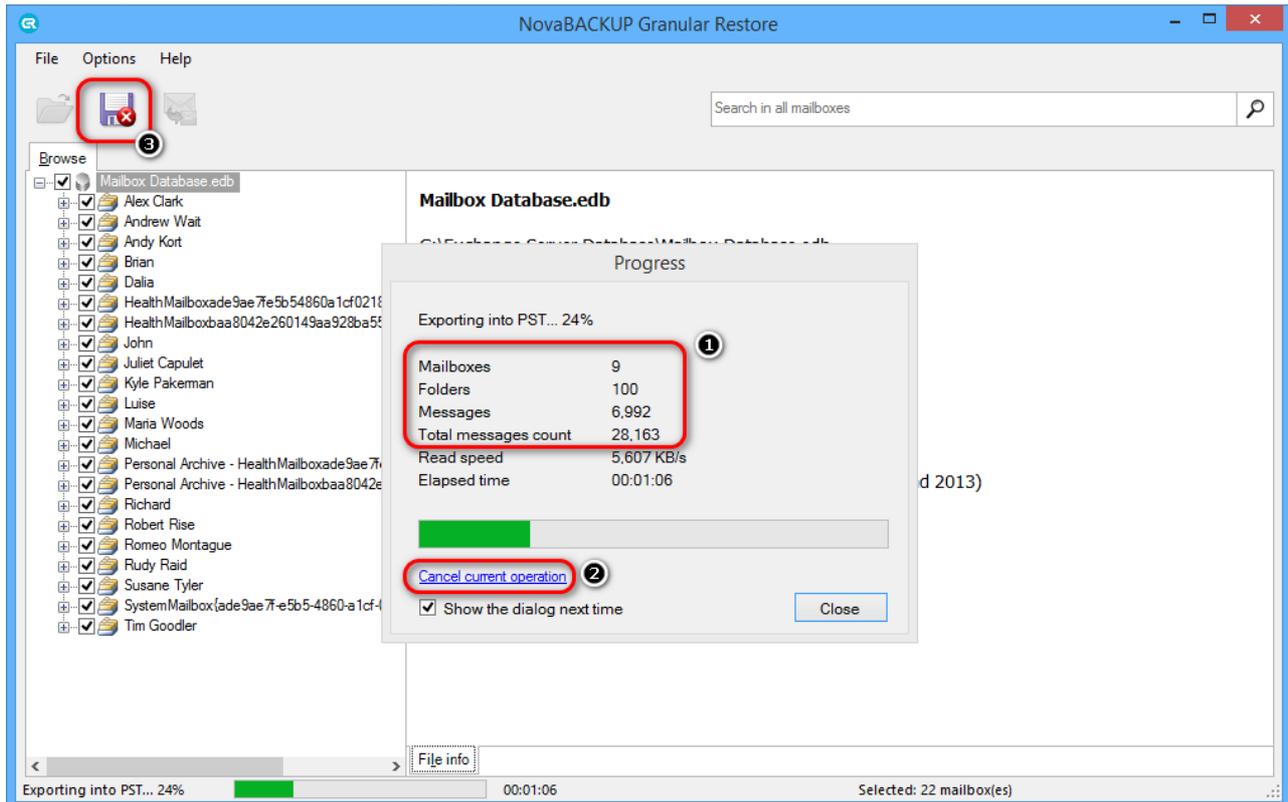
You will be asked to select or create the destination folder for recovered data:



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

## PST file naming, size and format

NovaBACKUP Granular Restore 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

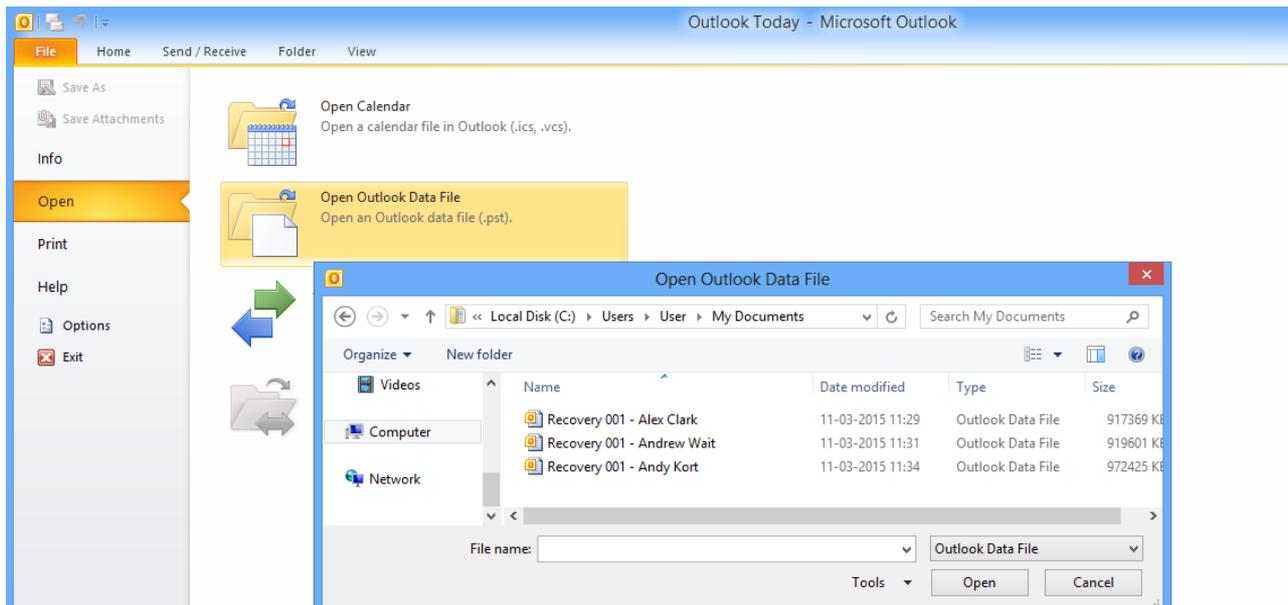
Recovery 001 - Mary Smith.pst

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 19GB.

## Opening exported items in Outlook

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

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

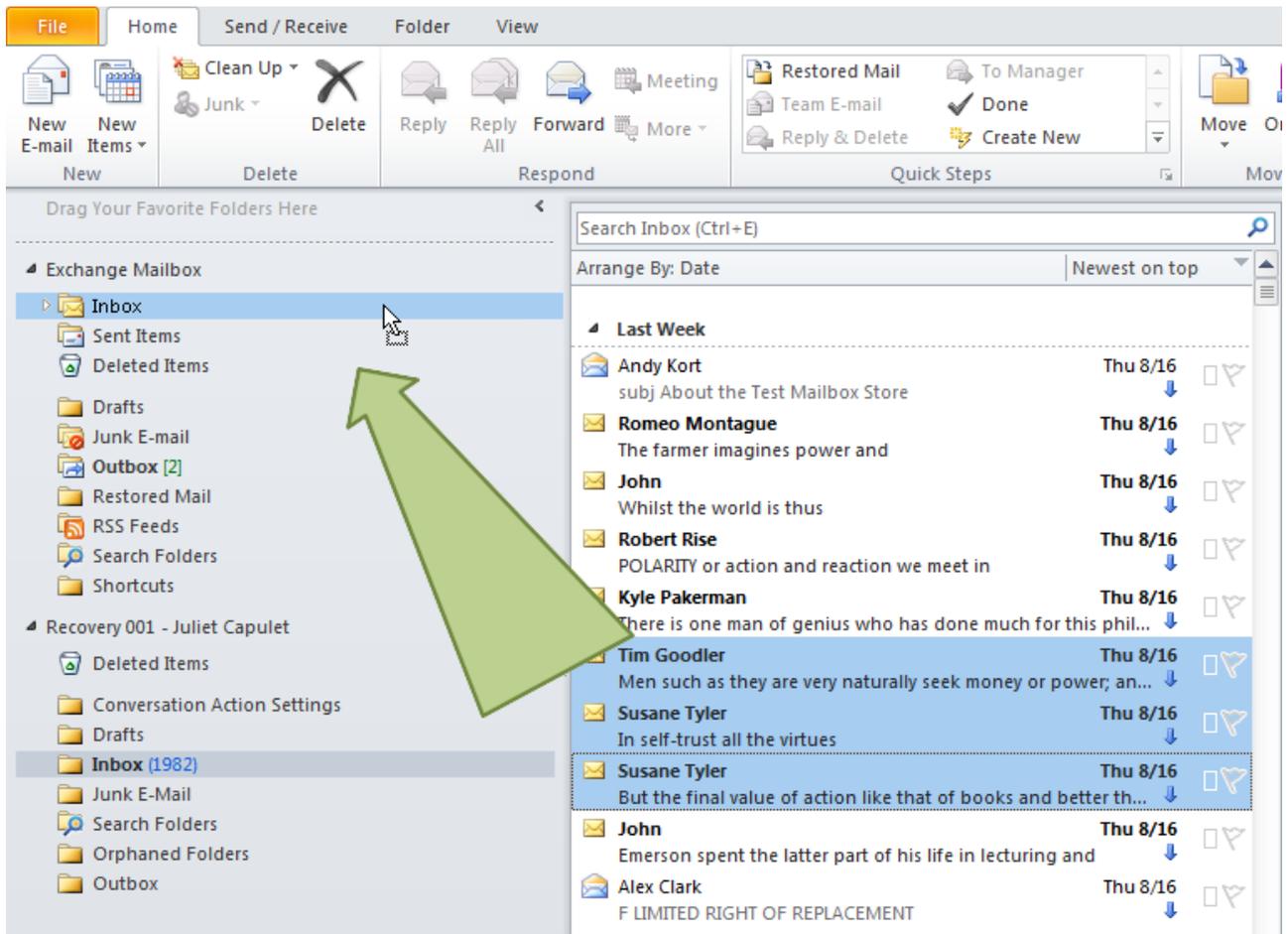
**Note**

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 several ways to set the source file(s):

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

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

Operation	Description	Example
<code>&lt;out dir&gt;</code>	path to output directory	<code>esr.exe c:\*.edb c:\results\</code>

- Detailing parameters:

Operation	Description	Example
<code>/initdir=&lt;path&gt;</code>	sets the initial directory for the Open database dialog	<code>esr.exe /initdir="c:\EDB Mailboxes\"</code>



Operation	Description	Example
-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

## 7 Glossary

This glossary lists terms and their synonyms, most commonly used in NovaBACKUP Granular Restore 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](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](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.