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Contacting Veeam Software

At Veeam Software we value the feedback from our customers. It is important not only to help you quickly with your technical issues, but it is our mission to listen to your input and build products that incorporate your suggestions.

Customer Support

Should you have a technical concern, suggestion or question, visit the Veeam Customer Support Portal at www.veeam.com/support.html to open a case, search our knowledge base, reference documentation, manage your license or obtain the latest product release.

Company Contacts

For the most up to date information about company contacts and offices location, visit www.veeam.com/contacts.html.

Online Support

If you have any questions about Veeam products, you can use the following resources:

- Full documentation set: www.veeam.com/documentation-guides-datasheets.html
- Community forum at forums.veeam.com
About This Document

This document provides general information on how to use the Veeam Explorers suite consisting of the following applications:

- Veeam Explorer for Microsoft Active Directory
- Veeam Explorer for Microsoft SQL Server
- Veeam Explorer for Oracle
- Veeam Explorer for Microsoft Exchange
- Veeam Explorer for SharePoint
- Veeam Explorer for Microsoft OneDrive for Business

Information hereinafter is applicable to each of the above Veeam Explorer that comes as part of Veeam Backup & Replication Update 4 or Veeam Backup for Microsoft Office 365 until it is replaced with a newer version of the product.

Intended Audience

This user guide is intended for IT administrators, consultants, analysts and any other IT professionals.
Veeam Explorers Overview

Veeam Explorers Suite extends the functionality of Veeam Backup & Replication and Veeam Backup for Microsoft Office 365 and allows you to restore or export your data from backup or replica files.

Veeam Explorers Suite consists of the following applications:

- Veeam Explorer for Microsoft Active Directory
- Veeam Explorer for Microsoft SQL
- Veeam Explorer for Oracle
- Veeam Explorer for Microsoft Exchange
- Veeam Explorer for Microsoft SharePoint
- Veeam Explorer for Microsoft OneDrive for Business

Veeam Explorers are distributed as part of Veeam Backup & Replication and Veeam Backup for Microsoft Office 365 and do not have to be installed separately, nor any of the above Explorers requires any additional license to be purchased as the available feature set for each Veeam Explorer depends entirely upon the installed Veeam Backup & Replication or Veeam Backup for Microsoft Office 365 edition.

To recover VMware VM data directly from storage snapshots, use Veeam Explorer for Storage Snapshots, as described in Veeam Explorer for Storage Snapshots.
Veeam Explorer for Microsoft Active Directory

Veeam Explorer for Microsoft Active Directory allows you to restore and export Active Directory objects and containers from backups created in Veeam Backup & Replication.
Planning and Preparation

Continue with this section to learn how to configure your environment before start using Veeam Explorer for Microsoft Active Directory.
System Requirements

This section lists system requirements for Veeam Explorer for Microsoft Active Directory.

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Microsoft Active Directory Domain Services</strong></td>
<td>For more information about supported operating systems, see the Supported Applications subsection of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
</tbody>
</table>

**IMPORTANT!**

Consider the following:

- Database files created by the domain controller can be opened for object recovery with Veeam Explorer for Active Directory only if Veeam Explorer is installed on a Windows machine with the same OS version or higher that the version of that domain controller OS.
- To open database files, Veeam Explorer for Microsoft Active Directory uses a service dynamic link library (esent.dll) which is installed with Microsoft Active Directory Domain Services and can be found in the %SystemRoot% directory. The Esent.dll file on a machine with Veeam Explorer must be of the same version as that of Microsoft Active Directory Domain Services that was used to create database files.
# Used Ports

The following table lists network ports that must be opened to manage inbound/outbound traffic.

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam Backup Server / Standalone Console</td>
<td>Microsoft Active Directory VM Guest OS</td>
<td>TCP</td>
<td>135</td>
<td>Manages communication between the domain controller and Veeam backup server.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP, UDP</td>
<td>389</td>
<td>Utilized for LDAP connections.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>636, 3268, 3269</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>1025 to 5000 (for Microsoft Windows 2003) 49152 to 65535 (for Microsoft Windows 2008 and newer)</td>
<td>The dynamic RPC range that is used by the runtime coordination process which is deployed on a VM guest OS for application-aware image processing (when working over the network, not over VIX API). For more information, see this Microsoft article.</td>
</tr>
</tbody>
</table>
Required Permissions

The following table lists required permissions for user accounts to back up and restore Microsoft Active Directory data.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Required Roles and Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup</td>
<td>For more information, see the Required Permissions section of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
<tr>
<td>Restore</td>
<td>The account being used must be a member of the Domain Admins group and the Exchange Organization Management group.</td>
</tr>
</tbody>
</table>

Assigning Role via PowerShell

To assign the Organization Management role via PowerShell, run the following cmdlet.

```
Add-RoleGroupMember "Organization Management" -Member "<user_name>"
```
Required Backup Job Settings

When you create a backup job, make sure to enable the application-aware image processing option, as described in the Specify Guest Processing Settings section of the Veeam Backup & Replication user guide.
Considerations and Limitations

This section lists considerations and known limitations of Veeam Explorer for Microsoft Active Directory.

General

- When Veeam Explorer for Microsoft Active Directory is installed on a server on which both Veeam Backup & Replication and Veeam Backup for Microsoft Office 365 are installed, the notification settings will be inherited from the Veeam Backup and Replication Global Notification settings.

Restore

- Veeam Explorer for Microsoft Active Directory does not support restore via PSDirect, VIX or Sphere API.
- Data can only be restored back to the original domain. Cross-domain restore is not supported.
- Veeam Explorer for Microsoft Active Directory supports restore of both mailbox-enabled objects (including hard-deleted items and Online Archives), and mail-enabled objects for the following Microsoft Exchange versions: Microsoft Exchange Server 2019, Microsoft Exchange Server 2016, Microsoft Exchange Server 2013, Microsoft Exchange Server 2010 SP1 and higher. For other Microsoft Exchange versions, restore of mailbox-enabled objects is not supported (only mail-enabled objects can be restored).
- To restore passwords, Veeam Explorer for Microsoft Active Directory uses the registry database. To restore passwords, make sure the System registry hive is available. The default location of the hive is %systemroot%\System32\Config. When restoring an Active Directory database from the Active Directory backup using Veeam file-level restore, the registry hive will be located automatically. When restoring from an imported backup or from VeeamZIP backups, make sure that the system registry hive and the .dit file are located in the same directory.
- If you plan to restore database items from an Active Directory Domain Services server running Microsoft Windows ReFS, consider that a Veeam backup server or a management console must be installed on Microsoft Windows Server 2012 or higher. To restore from a server running Microsoft Windows ReFS 3.x, a Veeam backup server or a management console must be installed on Microsoft Windows Server 2016.
- Restore of Group Policy objects, AD-integrated DNS records and objects from the Configuration partition is supported in the Enterprise and Enterprise Plus editions only.
- To restore security attributes such as objectSID and objectGUID, Veeam uses existing tombstone objects on the target Active Directory server. Make sure that the AD Recycle Bin feature is disabled in the target domain. If no tombstone objects exist, Veeam will create them anew setting all the attributes for such created objects as they are in the backup file.
- To restore business-critical objects for which the tombstone object is missing, you can perform authoritative restore of the entire domain from the old DC backups. For more information on tombstone objects, see this Microsoft article.
- Always use backups that are newer than the tombstone lifetime interval for the Active Directory forest. To determine a tombstone lifetime interval, you can use ADSIEdit or Dsquery. For more information. see this Microsoft article.
- When you move an object from one domain to another within a forest (for example, using the Movetree.exe utility or any other 3rd party tool), no tombstone for this object will remain in the source Active Directory; such an object cannot be fully recovered to the original domain.
Export

- Veeam uses *Lightweight Data Interchange Format* to save Active Directory objects and containers to `.ldf` files. You can make an `.ldf` file available to the Active Directory Domain Services server by importing it with the `ldifde` utility. For more information, see [this Microsoft article](#).

- Veeam Explorer for Microsoft Active Directory does not support exporting passwords.
Launching Application and Exploring Backups

To open Veeam Explorer for Microsoft Active Directory and load backups, you can use any of the following methods:

- The **Restore application item** option to load backups created in Veeam Backup & Replication. For more information, see the Application Items Restore section of the Veeam Backup & Replication User Guide.

- Go to **Start**, click Veeam Explorer for Microsoft Active Directory and manually open Active Directory databases, as described in the Adding Standalone Microsoft Active Directory Databases section.

When starting the application from the **Start** menu, specify the following:

- The name or IP-address of a server to which you want to connect.
- The port number.
- User credentials.
  The account must be a member of the **Local Administrator** group on a target server. To use the account under which Veeam Explorer for Microsoft Active Directory is running, select **Use Windows session authentication**.

To save the connection shortcut to the desktop, click **Save shortcut** in the bottom-left corner.
Understanding User Interface

Veeam Explorer for Microsoft Active Directory provides you with the convenient user interface that allows you to perform required operations in a user-friendly manner.

Main Menu

The main menu comprises the following features:

- **General Options.** Allows you to configure program options.
- **Help.**
  - **Online help.** Opens the online web help page.
  - **About.** Shows information about the product.
- **Exit.** Closes the program.
Main Application Window

The main application window can be divided into three categories:

- The ribbon menu, which contains general program commands organized into logical groups.
- The navigation pane, which allows you to browse through the hierarchy of your backup files.
- The preview pane, which shows you the details about objects you have selected in the navigation area.
Browsing, Searching and Viewing Items

Continue with this section to learn more about:

- Browsing backup content
- Searching for objects in a backup file

Browsing

To view the contents of a backup file, use the navigation pane which shows you the database structure containing your active directory objects.

After you select an object in the navigation pane, you can see its content in the preview pane.

Right-click an object and select View Attributes to view objects attributes. To copy necessary attributes to the clipboard, select an attribute and press CTRL+C on the keyboard. Multiple selection is also supported.

NOTE:

Due to organizational and security purposes, recovery of Domain Controllers objects is not supported.
Searching

The search mechanism allows you to find items matching specified search criteria.

To search for required items, do the following:

1. In the navigation pane, select an object in which you want to find your data.
2. Enter a search query to the search field at the top of the preview pane.

**NOTE:**

To find the exact phrase, use double quotes. For example, "group policy".
Using LDAP Queries

To use the LDAP search query, do the following:

1. In the preview pane, select a container.
2. Go to the **Home** tab and click **Use LDAP Filter**.
3. In the search field, enter an LDAP query and click the search button.
Standalone Databases Management

Continue with this section to learn more about adding and removing Microsoft Active Directory databases.

IMPORTANT!
Make sure the database you are adding to the Veeam Explorer scope was not locked by another process.
Adding Standalone Databases

To add a standalone Active Directory database manually, do the following:

1. Right-click the root **Active Directory** node and select **Add database** or switch to the **Home** tab and click **Add Database** on the toolbar.

2. Specify the location of the Active Directory database file and folder that contains associated transaction log files (**Edb.log** and **Edb.chk**).

   By default, the Active Directory database file (**NTDS.DIT**) is located in the `%SystemRoot%\NTDS` directory. Make sure that the system registry hive is located in the same place.
Removing Standalone Databases

To remove a database from the application scope, right-click a database in the navigation pane and select Remove Database.
Data Restore

Continue with this section to learn more about restoring Active Directory objects and containers.

TIP:
Before restoring data, make sure to read Considerations and Limitations.
Restoring Objects

To restore Active Directory objects, do the following:

1. **Launch Restore Wizard**
2. **Specify Connection Parameters**
3. **Specify Restore Location**
4. **Specify Password Restore Options**
5. **Specify Account State**
6. **Specify Restore Options**
7. **Specify Attributes to Restore**

**Step 1. Launch Restore Wizard**

To launch the Restore wizard, do the following:

1. In the preview pane, select an object.
2. On the Objects tab, select **Restore Objects > Restore objects to <server_name>** or right-click an object and select **Restore objects to <server_name>**.
Step 2. Specify Connection Parameters

At this step of the wizard, specify the following:

- A target production server to which you want to restore your data. Select the **Use SSL** check box to establish a secure SSL connection.
- User credentials to connect to the LDAP server.

![Specify server connection parameters](image)

**Global Catalog Server**

To specify a Global Catalog server, click the button on the right side of the **Server** field and choose either of the following options:

- **Detect automatically**. To detect a server automatically.
- **Use the following server**. To choose a server from the list.

![Specify global catalog server](image)

Step 3. Specify Restore Location

At this step of the wizard, select a container to which you want to restore the objects. You can select the following:
• **Restore to the original container.** To restore data to the original container in your production environment.

• **Restore to the following container.** To select a different container, as described in **Browsing Container**.

**TIP:**
If a container that is being restored was not found in the production environment, it will be restored anew.

**Browsing Container**
To select a different container, click **Browse** and choose a container you want to use.
Step 4. Specify Password Restore Options

At this step, select one of the following options:

- **Restore password.** To restore the password from the backup file.
- **Set password to.** To set a new password.
- **Do not restore password.** To skip restoring the password.

   This option will not make any changes to the currently configured passwords in your environment.

Consider the following:

- When providing a new password, check that it complies with the password policy in your production environment.
- If you select **Restore password** or **Set password to** options, you may also request a user to change the password at next log on.
  
  Mind that this setting will not take effect if a user is not allowed to change the password due to security limitations.
- When restoring multiple accounts, a new password will be set for all the accounts altogether.
- To restore account passwords, Veeam Explorer for Microsoft Active Directory uses registry database. Make sure that the `System` registry hive is available.

  The default location is `$systemroot\System32\Config`.

- When restoring Active Directory database from an Active Directory backup file using Veeam file-level restore, the registry hive will be located automatically. Otherwise, make sure the system registry hive is located in the same folder as `.DIT` file.

![Password Restore Options](image)
Step 5. Specify Account State

At this step of the wizard, specify whether you want to keep the account state as it is in the backup file or select **Enabled** or **Disabled** to assign a state you need.

---

### RESTORE WIZARD

Specify account restore options

#### Account options:
- Keep account state from backup
- Enable account
- Disable account

---

Step 6. Specify Restore Options

At this step of the wizard, specify restore options.

You can select the following:

- **Objects to process:**
  - Changed objects. To restore changed objects.
  - Deleted objects. To restore deleted objects.

- **Restore:**
  - Entire objects. To restore entire objects collection.
  - Selected attributes only. To select particular attributes.
    
    When selecting **Selected attributes only**, you will be offered to choose the attributes you want to restore in the next step.

- **Multi-valued attributes:**
  - Replace. To replace production data with that of a backup file.
  - Merge. To merge existing data with that of a backup file.

By default, multi-valued attributes will be replaced, not merged.
NOTE:

- When working with Active Directory 2016, this dialog will also include the **Restore expiration time** option, which allows you to restore expiration time for linked attributes.
- Users cannot change recovery settings for disabled attributes. Such attributes will be either restored or skipped according to the default configuration.

### Step 7. Specify Attributes to Restore

At this step of the wizard, select attributes you want to restore.

This step is only available if you have chosen the **Selected attributes only** option in the previous step.

After the restore is complete, review the results shown in the **Restore Summary** dialog.
You can select whether to display all types of notifications or only those you need by selecting/deselecting the corresponding check boxes in the lower-left corner of the dialog.
Restoring Containers

To restore Active Directory containers, do the following:

1. **Launch Restore Wizard**
2. **Specify Connection Parameters**
3. **Specify Restore Location**
4. **Specify Password Restore Options**
5. **Specify Account State**
6. **Specify Restore Options**
7. **Specify Attributes to Restore**

**Step 1. Launch Restore Wizard**

To launch the **Restore** wizard, do the following:

1. In the preview pane, select an object.
2. On the **Container** tab, select **Restore Container > Restore container to** or right-click a container and select **Restore container to**.
Step 2. Specify Connection Parameters

At this step of the wizard, specify the following:

- A target production server to which you want to restore your data. Select the **Use SSL** check box to establish a secure SSL connection.
- User credentials to connect to the LDAP server.

![Specify server connection parameters screenshot]

**Global Catalog Server**

To specify a Global Catalog server, click the button on the right side of the **Server** field and choose either of the following options:

- **Detect automatically.** To detect a server automatically.
- **Use the following server.** To choose a server from the list.

![Specify global catalog server screenshot]

Step 3. Specify Restore Location

At this step of the wizard, select a container to which you want to restore the objects.

You can select the following:
- **Restore to the original container.** To restore data to the original container in your production environment.

- **Restore to the following container.** To select a different container, as described in Browsing Container.

TIP:
If a container that is being restored was not found in the production environment, it will be restored anew.

**Browsing Container**
To select a different container, click Browse and choose a container you want to use.
Step 4. Specify Password Restore Options

At this step, select one of the following options:

- **Restore password.** To restore the password from the backup file.
- **Set password to.** To set a new password.
- **Do not restore password.** To skip restoring the password.

This option will not make any changes to the currently configured passwords in your environment.

Consider the following:

- When providing a new password, check that it complies with the password policy in your production environment.
- If you select Restore password or Set password to options, you may also request a user to change the password at next log on.
  - Mind that this setting will not take effect if a user is not allowed to change the password due to security limitations.
- When restoring multiple accounts, a new password will be set for all the accounts altogether.
- To restore account passwords, Veeam Explorer for Microsoft Active Directory uses registry database. Make sure that the System registry hive is available.
  - The default location is %systemroot%\System32\Config.
- When restoring Active Directory database from an Active Directory backup file using Veeam file-level restore, the registry hive will be located automatically. Otherwise, make sure the system registry hive is located in the same folder as .DIT file.

<table>
<thead>
<tr>
<th>Password options:</th>
<th>Account options:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restore password</td>
<td>User must change password at next logon</td>
</tr>
<tr>
<td>Set password to</td>
<td>This option will not be set if the 'User cannot change password' option is set for the restored object.</td>
</tr>
</tbody>
</table>

Step 5. Specify Account State

At this step of the wizard, specify whether you want to keep the account state as it is in the backup file or select Enabled or Disabled to assign a state you need.
Step 6. Specify Restore Options

At this step of the wizard, specify restore options.

You can select the following:

- **Objects to process**:
  - **Changed objects**: To restore changed objects.
  - **Deleted objects**: To restore deleted objects.

- **Restore**:
  - **Entire objects**: To restore entire objects collection.
  - **Selected attributes only**: To select particular attributes.
    - When selecting **Selected attributes only**, you will be offered to choose the attributes you want to restore in the next step.

- **Multi-valued attributes**:
  - **Replace**: To replace production data with that of a backup file.
  - **Merge**: To merge existing data with that of a backup file.

By default, multi-valued attributes will be replaced, not merged.

**NOTE:**
- When working with Active Directory 2016, this dialog will also include the Restore expiration time option which allows you to restore expiration time for linked attributes. If an attribute being restored expires during the restore session, then such an attribute will not be restored.
- Users cannot change recovery settings for disabled attributes. Such attributes will be either restored or skipped according to the default configuration.
Step 7. Specify Attributes to Restore

At this step of the wizard, select attributes you want to restore.

This step is only available if you have chosen the **Selected attributes only** option in the previous step.

After the restore is complete, review the results shown in the **Restore Summary** dialog.

You can select whether to display all types of notifications or only those you need by selecting/deselecting the corresponding check boxes in the lower-left corner of the dialog.
## Restore summary

57 objects skipped.
Restore succeeded.

<table>
<thead>
<tr>
<th>NAME</th>
<th>RESULT</th>
<th>PATH</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td></td>
<td>cn:401,cn:DisplaySpecifiers,cn:Configurations</td>
</tr>
<tr>
<td>DS-UI-Default-Settings</td>
<td></td>
<td>cn:DS-UI-Default-Settings,cn:401,cn:ActiveDirectoryUserContainer...</td>
</tr>
<tr>
<td>IntellimirrorGroup-Display</td>
<td></td>
<td>cn:intellimirrorGroup-Display,cn:401,cn:ActiveDirectoryUserContai...</td>
</tr>
<tr>
<td>IntellimirrorSCP-Display</td>
<td></td>
<td>cn:intellimirrorSCP-Display,cn:401,cn:ActiveDirectoryUserContainer...</td>
</tr>
<tr>
<td>user-Display</td>
<td></td>
<td>cn:user-Display,cn:401,cn:DisplaySpecifiers,cn:Configurations</td>
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<tr>
<td>group-Display</td>
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<td>domainDNS-Display</td>
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<tr>
<td>contact-Display</td>
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<td>cn:localPolicy-Display,cn:401,cn:DisplaySpecifiers,cn:Configurati...</td>
</tr>
<tr>
<td>volume-Display</td>
<td></td>
<td>cn:volume-Display,cn:401,cn:DisplaySpecifiers,cn:Configurations</td>
</tr>
</tbody>
</table>

Errors | Warnings | Success |
Using 1-Click Restore

The 1-Click Restore feature allows you to quickly recover Active Directory objects and containers back to the original domain in your production environment.

Consider the following:

- Both changed and deleted objects will be restored.
- All the attributes will be restored.
- Attribute values and security descriptors will be replaced with that of a backup file.

Restoring Containers

To restore a container, do the following:

1. In the navigation tree, select a container.
2. On the Container tab, select Restore Container > Restore container to <server_name> or right-click a container and select Restore container to <server_name>.

After the restore is complete, review the results shown in the Restore Summary dialog.

You can select whether to display all types of notifications or only those you need by selecting/deselecting the corresponding check boxes in the lower-left corner of the dialog.
To restore an object, do the following:

1. In the preview pane, select objects.
2. On the Objects tab, select Restore Objects > Restore objects to <server_name> or right-click an object and select Restore objects to <server_name>. 

Restoring Objects

Veeam Explorers Suite | User Guide
After the restore is complete, review the results shown in the **Restore Summary** dialog.

You can select whether to display all types of notifications or only those you need by selecting/deselecting the corresponding check boxes in the lower-left corner of the dialog.
Data Export

Continue with this section to learn more about exporting Active Directory objects and containers.

TIP:
Before exporting data, make sure to read Considerations and Limitations.
Exporting Objects

To export Active Directory objects, do the following:

1. In the preview pane, select an object.
2. On the Objects tab, select Export Objects > Export objects to or right-click an object and select Export objects to.
3. Specify the destination folder and click Save.
Exporting Containers

To export containers and its content, do the following:

1. In the preview pane, select a container.

2. On the **Container** tab, select **Export Container > Export container to** or right-click a container and select **Export container to**.

3. In the **Export to** field specify the destination location.
   
   To save only objects included in the selected container and meet specific filtering criteria, click **Show settings** to set the filter.

4. (Optionally) Select the **Save only objects that suit the following filter** check box and enter filtering criteria.

   If necessary, select the **Use LDAP filter** check box to switch to the corresponding filtering mode.

5. Click **Export**.

   All the nested containers (if any) will be preserved during the export.
Specify target path and export settings

Export to: C:\Users\Administrator\Documents\MyExportedData.ldf

- Save only objects that suit the following filter:
  (name=Jo*)

- Use LDAP filter

- Hide settings

Export | Cancel
Using 1-Click Export

To export a container or object to a default location, do the following:

1. Select a container or object.
2. On the **Container** tab, select **Export Container > Export Container to <target_folder>** or **Export Objects > Export Object to <target_folder>** respectively or use the associated context menu command.

**NOTE:**
The **<target_folder>** destination depends on the location you have been using during the last export operation.
Data Compare

This section explains how to use Veeam Explorer for Microsoft Active Directory to compare data in a backup file with that of the production state.
Comparing Containers

To compare Active Directory containers, do the following:

1. In the navigation pane, select a container.

2. On the Home tab, select Compare with Production to detect changed, moved or deleted objects since the last Active Directory backup.

3. Click Show Changed Items Only on the toolbar to view only those items that have been changed since the last backup.

The following figure shows user accounts the attributes of which have been changed since the last time they were backed up. Veeam can also combine item states to represent the most accurate state of an object. For example, if object attributes have been changed and the object was moved to a different location, the object status in this case will be shown as Moved, Changed.
Comparing Object Attributes

To compare Active Directory objects attributes, do the following:

1. In the navigation pane, select a container.
2. In the preview pane, select an object.
3. On the Objects tab, select Compare object attributes or right-click an object and select Compare object attributes.
4. Review changed attributes.
   To show unchanged attributes, select Show unchanged attributes at the top-right corner. To show system properties, select Show system attributes.
   To restore an attribute, select it and click Restore. Multiple selection is also supported.
<table>
<thead>
<tr>
<th>NAME</th>
<th>BACKUP VALUE</th>
<th>PRODUCTION VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>adminContextMenu</td>
<td>1.08eb46a6-6f9d-11d1-b0e0-00c04d8d8d8d</td>
<td>1.08eb46a6-6f9d-11d1-b0e0-00c04d8d8d8d</td>
</tr>
<tr>
<td>adminPropertyPages</td>
<td>&lt;double-click to compare&gt;</td>
<td>&lt;double-click to compare&gt;</td>
</tr>
<tr>
<td>attributeDisplayNames</td>
<td>&lt;double-click to compare&gt;</td>
<td>&lt;double-click to compare&gt;</td>
</tr>
<tr>
<td>classDisplayName</td>
<td>外部安全性主體</td>
<td>外部安全性主體</td>
</tr>
<tr>
<td>cn</td>
<td>foreignSecurityPrincipal-Display</td>
<td>foreignSecurityPrincipal-Display</td>
</tr>
</tbody>
</table>
| distinguishedName                   | cn=foreignSecurityPrincipal-Display, cn=forensics                               | cn=foreignSecurityPrincipal-Display, cn=forensics, CN=foreignSecurityPrincipal-Display,
| d5CorePropagationData              | 12/31/2016 00:00 AM                                                           | 12/31/2016 00:00 AM                                                           |
| instanceType                        | 4                                                                            | 4                                                                               |
| name                                | foreignSecurityPrincipal-Display                                                 | foreignSecurityPrincipal-Display                                                   |
| nTSecurityDescriptor                | 0-5-1-5-21-2074619881-2200740758-41                                             | 0-5-1-5-21-2074619881-2200740758-41                                             |
| objectCategory                      | cn=Display-Specifier, cn=Schema, cn=forensics                                  | CN=Display-Specifier, CN=Schema, CN=forensics                                   |
| objectClass                         | <double-click to compare>                                                        | <double-click to compare>                                                         |
| objectGUID                          | 16da1a12-0a65-4657-9874-35a87e60e51d                                            | 16da1a12-0a65-4657-9874-35a87e60e51d                                            |
| replPropertyMetaData                | AQAAAAAAAAAAAAAAADBBBBAEAAAAAAA...                                             |                                                                                   |
| showAdvancedViewOnly                | True                                                                         | True                                                                             |
| snIChanged                          | 5625                                                                         | 5625                                                                             |
| snICreated                          | 5625                                                                         | 5625                                                                             |

Use Ctrl and Shift keys to select one or more attributes and click Restore to restore them into production environment.
Enabling Extended Logging

Log files are used to troubleshoot a variety of different situations when certain processes may have gotten unexpected results while being executed.

By default, logs are collected in the default mode. In certain cases, you may need to enable the extended logging mode to collect logs that contain more details on specific operations.

To configure extended logging mode, do the following:

1. Go to the main menu and click **General Options**.
2. On the **General** tab, select the **Enable Extended logging** check box.
3. Go back to the application, perform necessary actions and then review the logs to see the details.
Veeam Explorer for Microsoft SQL Server

Veeam Explorer for Microsoft SQL Server allows you to restore and export Microsoft SQL databases and schema objects from backups created in Veeam Backup & Replication.
Planning and Preparation

Continue with this section to learn how to configure your environment before start using Veeam Explorer for Microsoft SQL Server.
System Requirements

This section lists system requirements for Veeam Explorer for Microsoft SQL Server.

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft SQL Server</td>
<td>For more information about supported versions of Microsoft SQL Server, see the Supported Applications subsection of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
</tbody>
</table>

**NOTE:**

AlwaysOn Availability Groups are supported for Microsoft SQL Server 2012 and higher.

Consider the following:

- By default, the **AUTO_CLOSE** option for SQL server databases is set to **False**.
  
  If **AUTO_CLOSE** is enabled, your databases might be skipped from processing.

- To restore database items from a SQL server VM that is running Microsoft Windows ReFS, the Veeam backup server or a management console must be installed on Microsoft Windows Server 2012 or higher.

- To restore data from a server that is running Microsoft Windows ReFS 3.x, the Veeam backup server or a management console must be installed on Microsoft Windows Server 2016.

- Nodes participating in AlwaysOn Availability Groups are supported but using Availability Group Listeners as staging servers is not recommended.

Staging SQL Server Requirements

Consider the following:

- Make sure that the staging SQL server has the same or later version as the original SQL server.

- A SQL server included in Microsoft SQL Server Failover Cluster cannot be used as a staging system.

- Mind domain trusts configuration when planning to add databases to the Veeam Explorer scope manually. For more information, see Configuring Staging SQL Server.

- The following **Microsoft SQL Server Express Editions** can be used as a staging system:

  - **Microsoft SQL Server 2012 Express Edition.**
    
    For Microsoft Windows 2008 R2 and Windows 7.

  - **Microsoft SQL Server 2016 Express Edition.**
    
    For other higher versions.

    Both editions come as part of the Veeam Backup & Replication distribution package.

- A SQL server instance can be used as a staging system.
NOTE:

Databases that exceed 10 GB cannot be attached to the Microsoft SQL Server 2012/2016 Express Edition due to Express Edition limitations. For more information, see the following Microsoft articles:

- For Microsoft SQL Server 2012 Express Edition
- For Microsoft SQL Server 2016 Express Edition
# Used Ports

The following table lists network ports that must be opened to manage inbound/outbound traffic.

## Backup

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam Backup Server / Guest Interaction Proxy (Enterprise and Enterprise Plus editions)</td>
<td>Microsoft SQL Server VM Guest OS</td>
<td>TCP, UDP</td>
<td>135, 137-139, 445</td>
<td>To deploy the runtime coordination process on a VM guest OS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>49152 to 65535. For Microsoft Windows 2008 and higher.</td>
<td>The dynamic RPC range that is used by the runtime coordination process which is deployed on a VM guest OS for application-aware processing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>6167</td>
<td>For Microsoft SQL Server transaction logs shipping. Utilized by the runtime process on a VM guest OS from which transaction logs are being collected.</td>
</tr>
<tr>
<td>Microsoft SQL Server VM Guest OS</td>
<td>Veeam Backup Server / Guest Interaction Proxy (Enterprise and Enterprise Plus editions)</td>
<td>TCP</td>
<td>49152 to 65535. For Microsoft Windows 2008 and higher</td>
<td>The dynamic RPC range that is used by the runtime coordination process which is deployed on a VM guest OS for application-aware processing.</td>
</tr>
<tr>
<td>Log Shipping Server</td>
<td></td>
<td>TCP</td>
<td>2500 to 5000</td>
<td>For Microsoft SQL Server transaction logs shipping. The default port range used by the Veeam data mover service for data transfer over the network.</td>
</tr>
</tbody>
</table>
NOTE:
Configuring dynamic RPC range is not required when using default Microsoft Windows firewall settings as Veeam Backup & Replication automatically creates an associated firewall rule for the runtime process during installation. When using custom firewall settings or if application-aware processing fails with the *RPC function call failed* error, ensure configuring dynamic RPC ports manually. For more information, see this Microsoft article.

### Restore

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam Backup Server / Standalone Console / Mount server associated with the backup repository (only when restoring from Enterprise Manager)</td>
<td>Target Server / Staging Server</td>
<td>TCP, UDP</td>
<td>135, 445</td>
<td>To deploy the runtime coordination process on a target guest OS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>49152-65535. For Microsoft Windows 2008 and higher.</td>
<td>The dynamic RPC range that is used by the runtime coordination process which is deployed on a target guest OS. For more information, see this Microsoft article.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>6160</td>
<td>To communicate with the installer service.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>1433,1434</td>
<td>To communicate with the Microsoft SQL server that is installed on a VM during the application-item restore. For more information, see this Microsoft article.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UDP</td>
<td>1434</td>
<td>Utilized by the Microsoft SQL Server Browser service. For more information, see this Microsoft article.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>1025 - 1034</td>
<td>The default RPC range for the runtime component that is installed on a target or staging SQL server guest OS to support restore. Such a port range is only opened while application item restore is being performed.</td>
</tr>
<tr>
<td>Target Server / Staging Server</td>
<td>Mount server associated with the backup repository</td>
<td>TCP</td>
<td>3260 - 3270</td>
<td>The port range that is opened by Veeam Backup &amp; Replication to manage the iSCSI traffic during restore to the target VM. Such a port range is only opened while application item restore is being performed. For more information, see Mount Operations.</td>
</tr>
</tbody>
</table>
## Required Permissions

The following table lists required permissions for user accounts to back up and restore Microsoft SQL Server data.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Required Roles and Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Backup</strong></td>
<td>For more information, see the <a href="#">Required Permissions</a> section of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
<tr>
<td><strong>Restore</strong></td>
<td>The account being used must be a member of the <em>Local Administrator</em> group and must be granted the <em>sysadmin</em> role on a target Microsoft SQL Server. For more information about Microsoft SQL Server roles, see <a href="#">this Microsoft article</a>.</td>
</tr>
</tbody>
</table>
Required Backup Job Settings

When you create a backup job, make sure to enable the **application-aware image processing** option, as described in the Specify Guest Processing Settings section of the Veeam Backup & Replication user guide.

Configuring Transaction Logs

For more information about configuring transaction logs, see the Transaction Log Settings: Microsoft SQL Server section of the Veeam Backup & Replication User Guide.

Recovery Model

**NOTE:**

To be able to restore your data as of a point in time or as of a state before undesired transactions, make sure the recovery model for the database is set to **full** or **bulk-logged**.

The following table lists database logging models and applicable Veeam options.

<table>
<thead>
<tr>
<th>SQL DB Logging Model</th>
<th>Veeam Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Truncate logs</strong></td>
<td><strong>Do not truncate logs</strong></td>
</tr>
<tr>
<td>Simple</td>
<td>Databases are skipped from processing.</td>
</tr>
<tr>
<td>Full</td>
<td>Applicable option. Veeam performs “backup to NUL” for log files on guest.</td>
</tr>
<tr>
<td>Bulk-logged</td>
<td>Applicable option. Veeam performs “backup to NUL” for log files on guest.</td>
</tr>
</tbody>
</table>
Considerations and Limitations

This section lists considerations and known limitations of Veeam Explorer for Microsoft SQL Server.

General

- When Veeam Explorer for Microsoft SQL Server is installed on a server on which both Veeam Backup & Replication and Veeam Backup for Microsoft Office 365 are installed, the notification settings will be inherited from the Veeam Backup and Replication Global Notification settings.

Restore

- Veeam Explorer for Microsoft SQL Server does not support restore via PSDirect, VIX or Sphere API.
- Table-level recovery is supported only for database tables with no external dependencies.
- To restore an encrypted database, consider reading this Veeam Knowledge Base article.
- The Replace logic is not supported when restoring schema objects.
- To restore a database from the AlwaysOn availability group node as of the selected transaction state, the nodes of such a group must be located in the same time zone.

Publishing

- During publishing, Veeam Explorer for Microsoft SQL Server mounts VMs disks from the backup file to the target machine (under the C:\VeeamFLR directory), retrieves required database files and attaches associated databases directly to your SQL server so that you can perform required operations using Microsoft SQL tools such as Microsoft SQL Management Studio.

  When publishing to a cluster, all VMs disks become part of the target cluster.

- You can publish the same database more than once.

- After you unpublish a database, Veeam Explorer for Microsoft SQL Server detaches such a database from the target SQL server but the restore point will continue to remain on the target machine for the next 15 minutes.

- If a Veeam Explorer for Microsoft SQL Server session has been terminated in any way other than by clicking Exit in the main menu (or by clicking the X button in the upper-right corner), then all the published databases will continue to remain attached to the target SQL server with the Recovery pending state.

- If published databases have been renamed manually via SQL tools (for example, in Microsoft SQL Management Studio), then Veeam Explorer for Microsoft SQL Server will not be able to unpublish such databases properly. In this case, all the renamed databases will continue to remain attached to the target SQL server and you will have to remove them manually using the SQL tools.

- Veeam Explorer for Microsoft SQL Server does not back up published databases.

- Upon closing the Veeam Explorer console, all the published databases will be detached from the target SQL server automatically. The corresponding mount points will also be dismounted from under the C:\VeeamFLR directory.
Launching Application and Exploring Backups

To open Veeam Explorer for Microsoft SQL Server and load backups, you can use any of the following methods:

- The **Restore application item** option to load backups created in Veeam Backup & Replication.
  
  For more information, see the Application Items Restore section of the Veeam Backup & Replication User Guide.

- Go to **Start**, click Veeam Explorer for Microsoft SQL Server and manually open Microsoft SQL databases, as described in the Adding Standalone Microsoft SQL Databases section.

When starting the application from the **Start** menu, specify the following:

- The name or IP-address of a server to which you want to connect.
- The port number.
- User credentials.
  
  The account must be a member of the Local Administrator group on a target server. To use the account under which Veeam Explorer for Microsoft SQL Server is running, select Use Windows session authentication.

To save the connection shortcut to the desktop, click **Save shortcut** in the bottom-left corner.
Understanding User Interface

Veeam Explorer for Microsoft SQL Server provides you with the convenient user interface that allows you to perform required operations in a user-friendly manner.

Main Menu

The main menu comprises the following features:

- **General Options.** Allows you to configure program options.
- **Help.**
  - **Online help.** Opens the online web help page.
  - **About.** Shows information about the product.
- **Exit.** Closes the program.
Main Application Window

The main application window can be divided into three categories:

- The ribbon menu, which contains general program commands organized into logical groups.
- The navigation pane, which allows you to browse through the hierarchy of your SQL databases.
- The preview pane, which shows you the details about objects you have selected in the navigation area.
Understanding Mounting

When restoring your data, Veeam Explorer requires an additional mount point to be created to display SQL server transactions.

Mounting is performed by the Veeam Mount Service component which is deployed on a backup repository machine or any other machine you define in the backup job configuration settings.

During mounting, Veeam Mount Service retrieves a VM file system from the backup file, attaches it to the hard drive of a target machine and creates a mount point.

To mount a VM file system on to machines with the Microsoft Windows operating system, Veeam uses the iSCSI protocol. The original virtual machine or staging SQL server acts as an iSCSI initiator and a mount server that is associated with the backup repository acts as an iSCSI target. The iSCSI mount point is non-persistent and only exists during the recovery process.

**NOTE:**

When using fine-tune restore or point-in-time state restore, Veeam always uses a staging SQL server to mount the VM file system.
Understanding Veeam SQL Restore Service

The *Veeam SQL Restore Service* runtime component is used to support restore activities on a VM guest operating system during the restore session. It checks the valid rights assignments required for database restore, gets information about the databases and performs required file operations including database and transaction logs copy.

After the recovery session is ended, the service is stopped and removed from the guest operating system.

All service activities are logged to the `Veeam.SQL.Service_<timestamp>.log` file stored in the *Temp folder* which is located in the system directory.

The *Veeam SQL Restore Service* component requires the *Local System* account.

Inbound\outbound traffic management between Veeam Explorer for Microsoft SQL Server and the *Veeam SQL Restore Service* component is performed via the RPC protocol. For more information, see *Used Ports*.

**NOTE:**

When restoring to the local server instance, *Veeam SQL Restore Service* component is not installed on the SQL server guest operating system.
Viewing Database Information

To get information about databases, select a database in the navigation pane and review database info in the preview pane.

Database Info

- **Name:** AccountSystem
- **Backup created:** 12/4/2018 3:11 AM
- **Recovery model:** Full
- **Read-only:** No

Available Restore Period

12/4/2018 1:35:05 AM - 3:11:07 AM

Database Files

- **Primary database file:** c:\data\accountsystem\data.mdf
- **Secondary database and log files:** c:\data\accountsystem\log.mdf
- **BLOB stores:** c:\data\filestream1
General Application Settings

Continue with this section to learn more about configuring required application settings and components.
Configuring Staging SQL Server

A staging SQL server is required in the following cases:

- When exporting data, as described in Data Export.
- When using the fine-tune restore, as described in Data Restore and Data Publishing.

Consider the following:

- You cannot access a staging server that belongs to an untrusted domain.
- If a staging SQL server belongs to a trusted domain, only the SQL server authentication method is possible.
- If both a staging SQL server and machine hosting Veeam Explorer belong to the same domain, then both Windows and SQL Server authentication methods are possible.

To use Windows authentication, make sure to configure delegation settings as follows:

a) In Active Directory Users and Computers, select a staging SQL Server.

b) Open server properties and go to the Delegation tab.

c) Select Trust this computer for delegation to specified services only and Use any authentication protocol options for the cifs service on a computer with Veeam Explorer.

d) Restart the staging SQL server.

e) Select a domain user account that you want to use when connecting to the staging SQL server and make sure the Account is sensitive and cannot be delegated check box is not selected.

To configure a staging server, do the following:

1. Go to the main menu and click General Options.

2. Go to the Staging Server tab, select the Use this helper Oracle server for advanced recovery functionality check box and do the following:

   a) In the SQL Server name drop-down list, select a server that you want to use as your SQL staging server.

      You can click Browse to locate a server using the built-in browser, as described in Browsing for Servers.

   b) Under the Specify user account to connect to Windows server section, select the following:

      o Use current account. To connect to the specified server using the current user account under which Veeam Explorer for Microsoft SQL Server running.

      o Use the following account. To connect to the specified server under a custom user account.

      When using a custom account, in the Username field, specify a username and in the Password field, provide the password.

   c) Under the Specify user account to connect to SQL Server instance section, select the following:

      o Use the same Windows server account. To connect to the specified instance under the user account that you have specified under the Specify user account to connect to Windows server section.
- **Use the following account.** To connect to the specified instance under a custom user account.

  When using a custom account, in the **Username** field, specify a username and in the **Password** field, provide the password.

  To use SQL server authentication, select the Use SQL Server authentication check box.

---

**Browsing for Servers**

To browse for a server, do the following:

- On the **Local Servers** tab, select a local SQL server that is located on the compute with Veeam Explorer for Microsoft SQL Server.

- On the **Network Servers** tab, select a SQL server over the network.
Enabling Extended Logging

Veeam Explorer for Microsoft SQL Server allows you to enable extended logging mode to collect logs that contain more details on specific operations.

To enable extended logging mode, do the following:

1. Go to the main menu and click **General Options**.
2. On the **Advanced** tab, select the **Enable Extended logging** check box.
3. After enabling extended logging mode, you can go back to the application and perform required actions, then collect logs.
Standalone Databases Management

Continue with this section to learn more about adding and removing Microsoft SQL databases.
Adding Standalone Databases

NOTE:
The addition of standalone SQL databases requires a staging SQL server to be configured upfront. For more information, see Configuring Staging SQL Server.

To add a standalone Microsoft SQL database manually, do the following:

1. On the Home tab, click Add Database.

2. Specify the location of a primary database file, a secondary database file and associated log files. If necessary, specify the BLOB store location.

Manually added databases will be displayed in the navigation pane under the Other SQL Server Databases node.
**Specify database files location**

**Primary database file:**
C:\Users\Administrator\Desktop\sql\newBase2.mdf

**Secondary database and log files:**

<table>
<thead>
<tr>
<th>FILE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>C:\Users\Administrator\Desktop\sql\new</td>
<td>OK</td>
</tr>
</tbody>
</table>

**BLOB stores:**

<table>
<thead>
<tr>
<th>FOLDER</th>
<th>STATUS</th>
<th></th>
</tr>
</thead>
</table>

[Add...]
Removing Standalone Databases

To remove a database from the application scope, right-click a database in the navigation pane and select **Remove database** or select a database and on the **Home** tab, click **Remove Database**.

**NOTE:**

You can only remove databases that have been added to the application scope manually.
Data Restore

Continue with this section to learn more about restoring Microsoft SQL databases.

TIP:

Before restoring data, make sure to read Considerations and Limitations.
Restoring Single Database

To restore a single SQL database, do the following:

1. **Launch Restore Wizard**
2. **Specify Restore Point**
3. **Fine-tune Restore Point**
4. **Specify Target Server**
5. **Specify AlwaysON Restore Options**
6. **Specify Files Location**
7. **Specify the Recovery State**

**Step 1. Launch Restore Wizard**

To launch the **Restore** wizard, do the following:

1. In the navigation pane, select a database.
2. On the **Database** tab, select **Restore Database > Restore to another server** or right-click a database and select **Restore Database > Restore to another server**.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.
- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.
- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.

**NOTE:**
The **Perform restore to specific transaction** option requires a staging SQL server. For more information, see Configuring Staging SQL Server.

![RESTORE WIZARD](image)

Specify restore point

Specify point in time you want to restore the database to:
- **Restore to the point in time of the selected image-level backup**
- **Restore to a specific point in time (requires transaction log backups)**

**NOTE:**
Enables you to review major database transactions around the selected time, and restore the database to the moment in time right before the unwanted change.

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to recover your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the SQL Server Database Operation Selection section.
NOTE:
This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

## Step 4. Specify Target Server

At this step of the wizard, specify the following:

- A production SQL server name and/or SQL server instance to which you want to restore your database.
  
  Use the `server_name\instance` format. You can select a server or instance from the drop-down list or use the **Browse** button on the left, as described in **Browsing for Servers**.

- A name for the database that is being restored.

- The user account to connect to the target SQL server.

  Select the **Use SQL Server authentication** check box to use SQL authentication. If not selected, Veeam will use Windows authentication.

  Make sure the account you are using has been granted the `sysadmin` role on a target SQL server.
IMPORTANT!

Make sure that the administrative share (i.e., \myserver\ADMIN$) on a target machine is available. **Read** and **Write** are minimum required, **Full Control** is recommended.

When selecting the **Use SQL Server authentication** check box and providing your SQL server account, you will be asked to provide a target production server account in the next step, as shown below.

**Specify target SQL Server connection parameters**

- **Server name**: ALPHA
- **Database name**: System Collections\_restored
- **Specify user account to connect to server**:
  - Use current account (EPSILON\Administrator)
  - Use the following account:
    - **User name**: sa
    - **Password**: **************
    - **Use SQL Server authentication**

**Specify target server connection credentials**

- **Specify user account to connect to server**:
  - Use current account (EPSILON\Administrator)
  - Use the following account:
    - **User name**: alpha\Administrator
    - **Password**: **************
Browsing for Servers

To browse for a server, do the following:

- On the **Local Servers** tab, select a local SQL server that is located on a machine with Veeam Explorer.
- On the **Network Server** tab, select a SQL server over the network.

---

**Step 5. Specify AlwaysON Restore Options**

If the specified target SQL server supports AlwaysOn Availability Groups, you will be offered to specify AlwaysOn restore options.

- To use the AlwaysOn capabilities for databases, select the **Add the database to the following group** check box and choose an availability group from the list. Databases will be restored to the primary server and then replicated to secondary nodes.
- If you do not plan to use the AlwaysOn capabilities when restoring databases, clear the **Add the database to the following group** check box.

---

**Step 6. Specify Files Location**

At this step of the wizard, specify database files location.

Click **Browse** to specify the path for the primary database file, secondary database and log files, as described in **Selecting Files**.
NOTE:
Make sure the account you are using has Read and Write permissions.

**RESTORE WIZARD**

Specify database files target location

<table>
<thead>
<tr>
<th>Primary database file</th>
</tr>
</thead>
<tbody>
<tr>
<td>C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQL...Database_3_restored.mdf</td>
</tr>
<tr>
<td>Browse...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary database and log files</th>
</tr>
</thead>
<tbody>
<tr>
<td>C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQL...Database_3_restored_log.mdf</td>
</tr>
<tr>
<td>Browse...</td>
</tr>
</tbody>
</table>

**Selecting Files**

In the Select File dialog, select a database file or folder for the database being restored and click OK.
Step 7. Specify the Recovery State

At this step of the wizard, select recovery state:

- **Default (RECOVERY)**
  
  Rolls back *(undo)* any uncommitted changes.

- **NORECOVERY**
  
  Skips the undo phase so that uncommitted or incomplete transactions are held open.
  
  This allows further restore stages to carry on from the restore point. When applying this option, the database will be in a *norecovery* state and inaccessible to users.

- **STANDBY**
  
  The database will be in *standby* state and therefore available for read operations. You can also provide a standby file with uncommitted transactions.

For more information on recovery modes, see this Microsoft article.

**NOTE:**

This step is unavailable if the *Add the database to the following group* check box is selected at the *Specify AlwaysON Restore Options* step.
Restoring Multiple Databases

To restore multiple SQL databases, do the following:

1. **Launch Restore Wizard**
2. **Specify Restore Point**
3. **Specify Target Server**

**Step 1. Launch Restore Wizard**

To launch the **Restore** wizard, do the following:

1. In the navigation pane, select an instance or server.
2. On the **Server/Instance** tab, select **Restore Database > Restore to another server** or right-click a database and select **Restore Database > Restore to another server**.

![Restore Wizard Screenshot](image-url)
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date when the current restore point was created.
- Select the **Restore to a specific point in time** option to load database files as per specified point in time. Use the slider control to choose a point you need.

After making your selection, the wizard will display the restore point options.

Step 3. Specify Target Server

At this step of the wizard, specify the following:

- A production SQL server name and/or SQL server instance to which you want to restore your database. Use the `server_name\instance` format. You can select a server or instance from the drop-down list or use the **Browse** button on the left, as described in Browsing for Servers.
- The user account to connect to the target SQL server.
  - Select the **Use SQL Server authentication** check box to use SQL authentication. If not selected, Veeam will use Windows authentication.
  - Make sure the account you are using has been granted the `sysadmin` role on a target SQL server.
IMPORTANT!

Make sure that the administrative share (i.e., `\myserver\C$`) on a target machine is available. Read and Write are minimum required permissions, Full Control is recommended.

Specify target SQL Server connection parameters

Server name: ALPHA

Specify user account to connect to server:
- Use current account (EPSON\Administrator)
- Use the following account:
  - User name: sa
  - Password: ********
  - Use SQL Server authentication

When selecting the **Use SQL Server authentication** check box and providing your SQL server account, you will be asked to provide a target production server account in the next step, as shown below.

Specify target server connection credentials

Specify user account to connect to server:
- Use current account (EPSON\Administrator)
- Use the following account:
  - User name: alpha\Administrator
  - Password: ********
Browsing for Servers

To browse for a server, do the following:

- On the **Local Servers** tab, select a local SQL server that is located on a machine with Veeam Explorer.
- On the **Network Server** tab, select a SQL server over the network.

![Browser for Servers](image-url)
Restoring Database Schema and Data

To restore database schema and data, do the following:

1. **Launch Restore Wizard**
2. **Specify Restore Point**
3. **Fine-Tune Restore Point**
4. **Specify Target SQL Server Settings**
5. **Select Database Objects**
6. **Specify Names for Objects**
7. **Specify Directory Names for File Tables**
8. **Specify Additional Restore Options**

**Step 1. Launch Restore Wizard**

To launch the **Restore** wizard, do the following:

1. In the navigation pane, select a database.
2. On the **Database** tab, select **Restore Schema > Restore database schema and data** or right-click a database and select **Restore schema > Restore database schema and data**.
IMPORTANT!

Consider the following:

- A staging SQL server is required to perform a restore of database schema and data. For more information, see Configuring Staging SQL Server.
- FILESTREAM must be enabled on a staging SQL server to restore file tables. For more information on enabling FILESTREAM, see this Microsoft article.

Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.
- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.
- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
Step 3. Fine-Tune Restore Point

At this step of the wizard, select an operation prior to which you want to recover your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the SQL Server Database Operation Selection section.

**NOTE:**

This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

---

**Fine-tune the restore point**

Select the undesired operation in the list below. The database will be restored to the state prior to transaction involving the selected operation.

<table>
<thead>
<tr>
<th>TIME</th>
<th>OPERATION</th>
<th>OBJECT</th>
<th>TYPE</th>
<th>ACCOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/4/2018 4:28 AM</td>
<td>Column added</td>
<td>Primary/Table</td>
<td>Table</td>
<td>S-1-5-21-3905</td>
</tr>
<tr>
<td>12/4/2018 4:30 AM</td>
<td>Column added</td>
<td>Primary/Table</td>
<td>Table</td>
<td>S-1-5-21-3905</td>
</tr>
</tbody>
</table>
Step 4. Specify Target SQL Server Settings

At this step of the wizard, specify the following:

- A production SQL server name and/or SQL server instance to which you want to restore your database.
  
  Use the `server_name\instance` format. You can select a server or instance from the drop-down list or use the Browse button on the left, as described in Browsing for Servers.

- The user account to connect to the target SQL server.
  
  Select the Use SQL Server authentication check box to use SQL authentication. If not selected, Veeam will use Windows authentication.

  Make sure the account you are using has been granted the sysadmin role on a target SQL server.

- Click Browse to select a database to which you want to restore schema.

Browsing for Servers

To browse for a server, do the following:

- On the Local Servers tab, select a local SQL server that is located on a machine with Veeam Explorer.

- On the Network Server tab, select a SQL server over the network.
Step 5. Select Database Objects

At this step of the wizard, specify database objects you want to restore.

Use the **Object** and **Data** check boxes to specify what database objects and data should be restored.

To display only specific objects, click **Filter** and select the object type.

Step 6. Specify Names for Objects

At this step of the wizard, specify a new name for the object.

To specify a new name, select a database and provide a new name.

To assign a default name to the object that already exists, click **Auto**. In this case, the `_new` suffix will be added.
Step 7. Specify Directory Names for File Tables

At this step of the wizard, specify directory names for file tables.

The following options are available:

- **Preserve directory names if applicable (use autogenerated otherwise).**
  To use the original names.
  If such names already exist on a target server, Veeam will add _new suffix to each name. For example, `<existing_name>_new`.

- **Use the following directory names.**
  To provide a different name under the **Directory Name** column.
Step 8. Specify Additional Restore Options

At this step of the wizard, specify additional restore options and click Restore.

- Select how the file groups should be restored for selected schema objects:
  - Preserve filegroup
    To preserve the file group state.
  - Use the following filegroup
    To select a file group on a target SQL server.

- Select how partitioned tables should be restored:
  - Preserve partition schema
    To restore tables to the original partition schema.
  - Use the following partition schema
    To select a partition schema on a target SQL server.
  - Use the following filegroup
    To select a file group on a target SQL server.

![RESTORE WIZARD](image)
Restoring Latest or Point-in-Time State

This section explains how to select a state as of which you want to restore your databases.

You can select either of the following states:

- *The latest available state*
  - To restore your data as of the latest state in your backup file.

- *The point-in-time state*
  - To restore your data as of the selected point-in-time state (requires log backup).

The data will be restored in the following manner:

- Database files will be copied to the original location and then mounted to the original SQL server.
- If a database with the same name already exists on a target SQL server, it will be replaced with the database from a backup file.

**Restore Point-in-Time State**

To restore SQL databases as of the point-in-time state, do the following:

1. **Launch Restore Wizard**
2. **Specify Restore Point**
3. **Fine-tune Restore Point**

**Step 1. Launch Restore Wizard**

To launch the Restore wizard, do the following:

1. In the navigation pane, select a database, instance or a SQL server.
   - You can select the root instance node to restore all the available databases at once.
2. On the Database tab, select **Restore Database > Restore point-in-time state to** `<server_name>`\ `<instance_name>` or right-click a database and select **Restore Database > Restore point-in-time state to** `<server_name>`\ `<instance_name>`.

When restoring multiple databases, consider that depending on the database recovery model the following cases are possible:

- Some databases might be restored as of the different time interval.
- Some databases cannot be restored if there are no transaction logs available for the specified period.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.
- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.
- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
NOTE:

The **Perform restore to specific transaction** option requires a staging SQL server. For more information, see *Configuring Staging SQL Server*. This option is unavailable when restoring multiple databases.

---

**Step 3. Fine-tune Restore Point**

At this step of the wizard, select an operation prior to which you want to recover your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the SQL Server Database Operation Selection section.
NOTE:
This step is only available if you have selected the Perform restore to specific transaction check box in the previous step.

Fine-tune the restore point

Select the undesired operation in the list below. The database will be restored to the state prior to transaction involving the selected operation.

<table>
<thead>
<tr>
<th>TIME</th>
<th>OPERATION</th>
<th>OBJECT</th>
<th>TYPE</th>
<th>ACCOUNT</th>
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<td>Table</td>
<td>S-1-5-21-3905</td>
</tr>
</tbody>
</table>

Restore Latest State

To restore your data as of the latest available state, do the following:

1. In the navigation pane, select a database, instance or a SQL server.
   You can select the root instance node to restore all the available databases at once.

2. On the Database tab, select Restore Database > Restore latest state to <server_name>\<instance_name> or right-click a database and select Restore Database > Restore latest state to <server_name>\<instance_name>.

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Data Publishing

Publishing databases allows you to temporarily attach large SQL databases to the target Microsoft SQL server without having to restore them.

Publishing databases typically occurs faster than using standard restore features and might be convenient in certain cases, for example, when your time to perform disaster-recovery operations is limited.

**TIP:**
Before publishing data, make sure to read Considerations and Limitations.
Publishing to Specified Server

Publishing to the specified server allows you to select a target SQL server to which you can publish your databases.

To publish data, do the following:

1. Launch Publish Database Wizard
2. Specify Restore Point
3. Fine-tune Restore Point
4. Specify Target Server

Step 1. Launch Publish DatabaseWizard

To launch the Publish Database wizard, do the following:

1. In the navigation pane, select a database.
2. On the Database tab, select Publish database > Publish to or right-click a database and select Publish database > Publish to.

After you complete the wizard steps, a new Published databases node appears at the top of the navigation pane. Under this node you can find the databases that have been published during the current session of Veeam Explorer for Microsoft SQL Server.
To work with published databases, open a SQL tool you prefer, for example, *Microsoft SQL Management Studio* and locate your published databases.

The figure below demonstrates a published database (*System_Collection_Published*) available in the *Object Explorer* window of your *Microsoft SQL Management Studio* console. This database is also being referenced by the Veeam Explorer for Microsoft SQL Server under its **Published databases** node.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to publish your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.

- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.

- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
NOTE:

The **Perform restore to specific transaction** option requires a staging SQL server. For more information, see [Configuring Staging SQL Server](#).

---

### PUBLISH DATABASE WIZARD

**Specify restore point**

Specify point in time you want to restore the database to:

- [ ] Restore to the point in time of the selected image-level backup
- [x] Restore to a specific point in time (requires transaction log backups)

**Perform restore to the specific transaction**

Enables you to review major database transactions around the selected time, and restore the database to the moment in time right before the unwanted change.

---

**Step 3. Fine-tune Restore Point**

At this step of the wizard, select an operation prior to which you want to publish your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the [SQL Server Database Operation Selection](#) section.
NOTE:
This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

Step 4. Specify Target Server

At this step of the wizard, do the following:

- In the **Server name** field, specify a target SQL server name/SQL server instance/SQL cluster to which you want to restore your database.
  
  Use the `server_name\instance` format. You can select a server/instance/cluster from the drop-down list or use the **Browse** button on the left, as described in Browsing for Servers.

- In the **Database name** field, specify a new name under which you want to publish your database.
  
  Consider that if you leave the original database name, Veeam Explorer for Microsoft SQL Server will overwrite the associated database on the target server.

- Under the **Specify user account to connect to server** section, select either of the following options:
  
  - **User current account**. To use the current account under which Veeam Explorer for Microsoft SQL Server is running.
  
  - **User the following account**. To use a custom account.
    
    Make sure the account you are using has been granted the **sysadmin** role on the target server.

- Select the **Use SQL Server authentication** check box to use SQL authentication.
**NOTE:**

Make sure that the administrative share (i.e., \myserver\ADMIN$) on a target machine is available; **Read** and **Write** are minimum required, **Full Control** is recommended.

When selecting the **Use SQL Server authentication** check box and providing a SQL server account, you will be asked to provide a target server account in the next step, as shown below.
Browsing for Servers

To browse for a server to which you want to restore your databases, do the following:

- On the **Local Servers** tab, select a local SQL server/instance/cluster that is located on a machine with Veeam Explorer for Microsoft SQL Server.
- On the **Network Server** tab, select a SQL server/instance/cluster over the network.
Publishing Latest or Point-in-Time State

This section explains how to select a state as of which you want to publish your databases.

You can select either of the following states:

- **The latest available state**
  To publish your data as of the latest state in your backup file.

- **The point-in-time state**
  To publish your data as of the selected point-in-time state (requires a log backup).

These options are available only after the initial publishing of a database, as described in Publishing to Specified Server.

When you unpublish a database, both options continue to remain until you close the application so that you can quickly republish a database if needed.

Publishing Point-in-Time State

Publishing a point-in-time state allows you to obtain a required database state and unroll specified transactions if needed.

To publish databases as of the point-in-time state, do the following:

1. **Launch Publish Database Wizard**
2. **Specify Restore Point**
3. **Fine-tune Restore Point**

Step 1. Launch Publish Database Wizard

To launch the Publish Database wizard, do the following:

1. In the navigation pane, right-click a database.
2. On the Database tab, select Publish database > Publish point-in-time state to <server_name><instance_name> or right-click a database and select Publish database > Publish point-in-time state to <server_name><instance_name>.

Once completed, the database will be published with the same name as it was during the initial publishing session.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to publish your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.

- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.

- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
NOTE:
The **Perform restore to specific transaction** option requires a staging SQL server. For more information, see **Configuring Staging SQL Server**.

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to publish your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the **SQL Server Database Operation Selection** section.
NOTE:
This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

Publishing Latest State

Veeam Explorer for Microsoft SQL Server allows you to republish an unpublished database. When republishing a database, it will be attached to the target SQL server as of the latest state.

To republish a database as of the latest available state, do the following:

1. In the navigation pane, right-click a database.
2. On the **Database** tab, select **Publish database > Publish latest state to <server_name>\<instance_name>** or right-click a database and select **Publish database > Publish latest state to <server_name>\<instance_name>**.

Once completed, the database will be published with the same name as it was during the initial publishing session.
Unpublishing Databases

Once you have done working with published SQL databases, you may want to unpublish (detach) these databases from the target SQL server.

Detachment occurs in the following manner:

- Upon closing the Veeam Explorer for Microsoft SQL Server console, all published databases will be detached from the target SQL server automatically. The corresponding mount points will also be dismounted from under the \C:\VeeamFLR directory.

- On manual unpublishing, databases will be detached at once but the restore point will remain mounted on the target machine for the next 15 minutes.

To unpublish databases manually, do the following:

1. In the navigation pane, under the Published databases node, select a published database.

2. On the Publish tab, select Unpublish Database or right-click a database and select Unpublish database.

You can detach a single published database or all databases altogether by right-clicking the root Published databases node and selecting Unpublish databases or by using the Unpublish Databases command on the Publish tab.
Exporting as BAK

To save changes that have been made while working with your published database to a local computer, you can use the export feature. This feature will export modified databases as BAK, preserving all the changes that have been done during the publishing session.

To export a published database, do the following:

1. In the navigation pane, under the Published databases node, select a published database.
2. On the Publish tab, select Export backup or right-click a database and select Export backup.

2. Click Browse to specify the location to export your data.

To compress data, select the Enable compression check box. Compression will be applied according to your SQL server configuration.
NOTE:
Compression is unavailable for Microsoft SQL Server 2005 and all Express Editions of Microsoft SQL Server.

Specify database export location

Specify export path:
C:\Users\Administrator\Desktop\SystemCollections_Published.bak

Specify whether to perform compression, overriding the server-level default:
- Enable compression

Compression significantly reduces the output file size, but prevents its import into SQL Server Express server due to the edition limitations.
Refreshing Database Status

While the databases are attached to the target SQL server, Veeam Explorer for Microsoft SQL Server synchronizes each published database state to verify its availability. By default, synchronization occurs every five seconds.

If something went wrong with any of the published databases, the question mark appears next to each of such databases indicating the database unavailability. In the Database Info section, you will also see the notification message describing the problem.

To refresh a published database state manually, in the navigation pane, under the Published databases node, right-click a published database and select Refresh.
Data Export

Continue with this section to learn more about exporting Microsoft SQL databases.
Export as MDF

Continue with this section to learn more about exporting databases files as MDF.

Exporting Single Database

To export a single SQL database, do the following:

1. Launch Export Wizard
2. Specify Restore Point
3. Fine-tune Restore Point
4. Specify Files Location

Step 1. Launch Export Wizard

To launch the Export wizard, do the following:

1. In the navigation pane, select a database.
2. On the Database (or Server/Instance) tab, select Export Database Files > Export to another folder or right-click a database and select Export Database Files > Export to another folder.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.
- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.
- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.

**NOTE:**

The **Perform restore to specific transaction** option requires a staging SQL server. For more information, see Configuring Staging SQL Server.

---

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to export your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the **SQL Server Database Operation Selection** section.
NOTE:
This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

### Step 4. Specify Files Location

At this step of the wizard, specify the destination directory paths for files being restored.

Click **Browse** to specify the path manually.

**NOTE:**

The account you are using must have sufficient permission level to access the selected directory (**Read** and **Write** as minimum recommended).
Exporting Multiple Databases

To export all SQL databases to a custom location, do the following:

1. **Launch Export Wizard**
2. **Specify Restore Point**
3. **Specify Database Files Location**

Step 1. Launch Export Wizard

To launch the Export wizard, do the following:

1. In the navigation pane, select a server or instance.
2. On the Server/Instance tab, select Export Files > Export to another folder or right-click a database and select Export Files > Export to another folder.

Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per moment when the current restore point of a VM was created by the backup or replication job.
- Select the **Restore to a specific point in time** option to load database files as per specified point in time.
Use the slider control to choose a point you need.

**NOTE:**

The **Perform restore to the specific transaction** option is unavailable when exporting multiple databases.

---

**Step 3. Specify Database Files Location**

At this step of the wizard, specify the path to the destination directory to which you want your files to be exported.
Exporting Latest or Point-in-Time State

Continue with this section to learn more about exporting your data as of a latest or point-in-time state.

Export Point-in-time State

To export data as of a point-in-time state, do the following:

1. Launch Export Wizard
2. Specify Restore Point
3. Fine-tune Restore Point

Step 1. Launch Export Wizard

To launch the Export wizard, do the following:

1. In the navigation pane, select a database, server or instance. You can select the root instance node to export all the available databases at once.
2. On the Database (or Server/Instance) tab, select Export Files > Export point-in-time state to Desktop\<db_name> or right-click a database and select Export Files > Export point-in-time state to Desktop\<db_name>.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.
- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.
- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.

**NOTE:**

The **Perform restore to specific transaction** option requires a staging SQL server. For more information, see Configuring Staging SQL Server.

---

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to export your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the SQL Server Database Operation Selection section.
NOTE:
This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

### Export Latest State

To export data as of the latest available state, do the following:

1. In the navigation pane, select a database or instance. You can select the root instance node to export all the available databases at once.

2. On the **Database** (or **Server/Instance**) tab, select **Export Files** > **Export latest state to Desktop\<db_name>** or right-click a database and select **Export Files** > **Export latest state to Desktop\<db_name>**.

---

<table>
<thead>
<tr>
<th>TIME</th>
<th>OPERATION</th>
<th>OBJECT</th>
<th>TYPE</th>
<th>ACCOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/4/2018 4:28 AM</td>
<td>Column added</td>
<td>Primary Table</td>
<td>Table</td>
<td>ALPHA\Admin</td>
</tr>
<tr>
<td>12/4/2018 4:30 AM</td>
<td>Column added</td>
<td>Primary Table</td>
<td>Table</td>
<td>ALPHA\Admin</td>
</tr>
</tbody>
</table>

---

**Fine-tune the restore point**

Select the undesired operation in the list below. The database will be restored to the state prior to the transaction involving the selected operation.
Export as BAK

Continue with this section to learn more about exporting databases files as BAK.

**IMPORTANT!**
To export database files as BAK, make sure to configure a staging SQL server, as described in Configuring Staging SQL Server.

Exporting Single Database

To export a single SQL database, do the following:

1. **Launch Export Wizard**
2. **Specify Restore Point**
3. **Fine-tune Restore Point**
4. **Specify Database Export Location**

**Step 1. Launch Export Wizard**

To launch the Export wizard, do the following:

1. In the navigation pane, select a database.
2. On the Database (or Server/Instance) tab, select Export Backup > Export to another folder or right-click a database and select Export Backup > Export to another folder.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.

- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.

- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
NOTE:
The Perform restore to specific transaction option requires a staging SQL server. For more information, see Configuring Staging SQL Server.

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to export your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the SQL Server Database Operation Selection section.
NOTE:
This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

### Step 4. Specify Database Export Location

At this step of the wizard, specify the path to the destination directory.

You can select **Enable Compression** check box to reduce the output file size.

**NOTE:**
Compression is unavailable for Microsoft SQL Server 2005 and all Express Editions of Microsoft SQL Server.
Exporting Multiple Databases

To export multiple SQL databases as BAK, do the following:

1. **Launch Export Wizard**
2. **Specify Restore Point**
3. **Specify Database Export Location**

**Step 1. Launch Export Wizard**

To launch the Export wizard, do the following:

1. In the navigation pane, select a server or instance.
2. On the Server/Instance tab, select **Export Backup > Export to another folder** or right-click a database and select **Export Backup > Export to another folder**.

![Screenshot of Veeam Explorer for Microsoft SQL Server](image.png)
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per moment when the current restore point of a VM was created by the backup or replication job.
- Select the **Restore to a specific point in time** option to load database files as per specified point in time. Use the slider control to choose a point you need.

**NOTE:**

The **Perform restore to the specific transaction** option is unavailable when exporting multiple databases.

---

Step 3. Specify Database Export Location

At this step of the wizard, specify the path to the destination directory.

You can select **Enable Compression** check box to reduce the file size.
NOTE:
Compression is unavailable for Microsoft SQL Server 2005 and all Express Editions of Microsoft SQL Server.

### Exporting Latest or Point-in-Time

Continue with this section to learn more about exporting your data as of a latest or point-in-time state.

### Exporting Point-in-time State

To export data as of a point-in-time state, do the following:

1. **Launch Export Wizard**
2. **Specify Restore Point**
3. **Fine-tune Restore Point**

#### Step 1. Launch Export Wizard

To launch the Export wizard, do the following:

1. In the navigation pane, select a database, server or instance.
   
   You can select the root instance node to export all the available databases at once.

2. On the Database (or Server/Instance) tab, select Export Backup > Export point-in-time state to Desktop\<db_name> or right-click a database and select Export Backup > Export point-in-time state to Desktop\<db_name>.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.

- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.

- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
NOTE:
The Perform restore to specific transaction option requires a staging SQL server. For more information, see Configuring Staging SQL Server.

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to export your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the SQL Server Database Operation Selection section.

NOTE:
This step is only available if you have selected the Perform restore to specific transaction check box in the previous step.

<table>
<thead>
<tr>
<th>TIME</th>
<th>OPERATION</th>
<th>OBJECT</th>
<th>TYPE</th>
<th>ACCOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/4/2018 4:28 AM</td>
<td>Column added</td>
<td>Primary/Table</td>
<td>Table</td>
<td>ALPHAAdmin</td>
</tr>
<tr>
<td>12/4/2018 4:30 AM</td>
<td>Column added</td>
<td>Primary/Table</td>
<td>Table</td>
<td>ALPHAAdmin</td>
</tr>
</tbody>
</table>
Export Latest State

To export data as of the latest available state, do the following:

1. In the navigation pane, select a database or instance.
   You can select the root instance node to export all the available databases at once.

2. On the Database (or Server/Instance) tab, select Export Backup > Export latest state to Desktop\<db_name> or right-click a database and select Export Backup > Export latest state to Desktop\<db_name>.
Database Schema and Data Export

Topics in this section provide information on how to export your database schema and data using the Veeam Explorer for Microsoft SQL Server abilities.

**NOTE:**
Exporting multiple databases schema and data is not supported.

Exporting to Custom Location

To export database schema and data, do the following:

1. **Launch Export Wizard**
2. **Specify Restore Point**
3. **Fine-tune Restore Point**
4. **Select Database Objects**
5. **Specify Names for Objects**
6. **Specify Destination Folder**

**Step 1. Launch Export Wizard**

To launch the **Export** wizard, do the following:

1. In the navigation pane, select a database.
2. On the **Database** (or **Server/Instance**) tab, select **Export Schema > Export database schema and data** or right-click a database and select **Export Schema > Export database schema and data**.
TIP:
To import data tables, use the standard SQL server `bcp.exe` utility. For more information, see this Microsoft article.

Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.

- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.

- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
NOTE:

The Perform restore to specific transaction option requires a staging SQL server. For more information, see Configuring Staging SQL Server.

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to export your database.

Veeam Explorer for Microsoft SQL Server database operations are listed in the SQL Server Database Operation Selection section.
NOTE:
This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

Step 4. Select Database Objects

At this step of the wizard, select database objects to restore.

To display only specific objects, click **Filter** and select an object type you want to be shown in the list.

Step 5. Specify Names for Objects

At this step of the wizard, specify the name to be assigned to the object.
To specify a new name, select a database and provide a new name.

To assign a default name with the _new suffix, click **Auto**.

---

### Step 6. Specify Destination Folder

Specify the destination folder to which you want to export selected database schema objects.
Using 1-Click Export

Veeam Explorer for Microsoft SQL Server allows you to quickly export database schema state as of the current restore point.

To export database schema to the default location, do the following:

1. In the navigation pane, select a database.

2. On the Database tab, select Export Schema > Export database schema state of <date_time> to Desktop\<db_name> or right-click a database and select Export Schema > Export database schema state of <date_time> to Desktop\<db_name>.
### SQL Database Operations

The following table lists SQL server database operations and their corresponding display names that appear in the fine-tune dialog.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Operation</th>
<th>Display Format</th>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table</td>
<td>CREATE</td>
<td>&lt;date_time&gt; Created[/Modified] &lt;table_name&gt; Table &lt;table ID&gt; &lt;initiator&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DROP</td>
<td>&lt;date_time&gt; Deleted &lt;table_name&gt; Table &lt;table ID&gt; &lt;initiator&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ALTER</td>
<td>&lt;date_time&gt; Column added &lt;table_name&gt; Table &lt;table ID&gt; &lt;initiator&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INSERT INTO</td>
<td>&lt;date_time&gt; Inserted row &lt;table_name&gt;[/table_ID] Table &lt;initiator&gt;</td>
<td>Table name will not be displayed for deleted table, only table ID will be shown.</td>
</tr>
<tr>
<td></td>
<td>DELETE FROM</td>
<td>&lt;date_time&gt; Deleted row &lt;table_name&gt;[/table_ID] Table &lt;initiator&gt;</td>
<td>Table name will not be displayed for deleted table, only table ID will be shown.</td>
</tr>
<tr>
<td></td>
<td>UPDATE</td>
<td>&lt;date_time&gt; Modified &lt;table_name&gt;[/table_ID] Table &lt;initiator&gt;</td>
<td>Table name will not be displayed for deleted table, only table ID will be shown.</td>
</tr>
<tr>
<td></td>
<td>TRUNCATE</td>
<td>&lt;date_time&gt; Truncated Table &lt;initiator&gt;</td>
<td>Table name and ID will not be displayed for deleted table.</td>
</tr>
<tr>
<td></td>
<td>BULK INSERT</td>
<td>&lt;date_time&gt; Inserted row &lt;table_name&gt;[/table_ID] Table &lt;initiator&gt;</td>
<td></td>
</tr>
<tr>
<td>View</td>
<td>CREATE</td>
<td>&lt;date_time&gt; Created &lt;view_name&gt; View &lt;initiator&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DROP</td>
<td>&lt;date_time&gt; Deleted &lt;view_name&gt; Table &lt;initiator&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ALTER</td>
<td>&lt;date_time&gt; Modified &lt;view_name&gt; View &lt;initiator&gt;</td>
<td></td>
</tr>
<tr>
<td>Index</td>
<td>CREATE</td>
<td>&lt;date_time&gt; Created &lt;index_name&gt; Index &lt;initiator&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DROP</td>
<td>&lt;date_time&gt; Deleted &lt;index_name&gt; Index &lt;initiator&gt;</td>
<td></td>
</tr>
<tr>
<td>Entity</td>
<td>Action</td>
<td>Action Details</td>
<td>Additional Information</td>
</tr>
<tr>
<td>--------</td>
<td>--------</td>
<td>----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Procedure</td>
<td>ALTER</td>
<td>&lt;date_time&gt; Modified &lt;index_name&gt; Index</td>
<td></td>
</tr>
<tr>
<td>Procedure</td>
<td>CREATE</td>
<td>&lt;date_time&gt; Created &lt;procedure_name&gt; Procedure</td>
<td></td>
</tr>
<tr>
<td>Procedure</td>
<td>DROP</td>
<td>&lt;date_time&gt; Deleted &lt;procedure_name&gt; Table</td>
<td></td>
</tr>
<tr>
<td>Procedure</td>
<td>ALTER</td>
<td>&lt;date_time&gt; Modified &lt;procedure_name&gt; Procedure</td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>CREATE</td>
<td>&lt;date_time&gt; Created &lt;function_name&gt; Function</td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>DROP</td>
<td>&lt;date_time&gt; Deleted &lt;function_name&gt; Table</td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>ALTER</td>
<td>&lt;date_time&gt; Modified &lt;function_name&gt; Function</td>
<td></td>
</tr>
<tr>
<td>Schema</td>
<td>CREATE</td>
<td>&lt;date_time&gt; Created &lt;schema_name&gt; Schema</td>
<td></td>
</tr>
<tr>
<td>Schema</td>
<td>DROP</td>
<td>&lt;date_time&gt; Deleted &lt;schema_name&gt; Schema</td>
<td></td>
</tr>
<tr>
<td>Schema</td>
<td>ALTER</td>
<td>&lt;date_time&gt; Modified &lt;schema_name&gt; Schema</td>
<td>Schema cannot be detected.</td>
</tr>
<tr>
<td>User</td>
<td>CREATE</td>
<td>&lt;date_time&gt; Created &lt;user_name&gt; User</td>
<td></td>
</tr>
<tr>
<td>User</td>
<td>DROP</td>
<td>&lt;date_time&gt; Deleted &lt;user_name&gt; User</td>
<td></td>
</tr>
<tr>
<td>User</td>
<td>ALTER</td>
<td>&lt;date_time&gt; Modified &lt;user_name&gt; User</td>
<td></td>
</tr>
<tr>
<td>Trigger</td>
<td>CREATE</td>
<td>&lt;date_time&gt; Created &lt;trigger_name&gt; Trigger</td>
<td></td>
</tr>
<tr>
<td>Trigger</td>
<td>DROP</td>
<td>&lt;date_time&gt; Deleted &lt;trigger_name&gt; Trigger</td>
<td></td>
</tr>
<tr>
<td>Trigger</td>
<td>ALTER</td>
<td>&lt;date_time&gt; Modified &lt;trigger_name&gt; Trigger</td>
<td></td>
</tr>
</tbody>
</table>
Veeam Explorer for Oracle

Veeam Explorer for Oracle allows you to restore and export Oracle databases and Data Guard from backups created in Veeam Backup & Replication.
Planning and Preparation

Continue with this section to learn how to configure your environment before start using Veeam Explorer for Oracle.
## System Requirements

This section lists system requirements for Veeam Explorer for Oracle.

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle on Windows OS</td>
<td>For more information on supported operating systems, see the Supported Applications subsection of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
<tr>
<td>Oracle on Linux OS</td>
<td></td>
</tr>
</tbody>
</table>

For more information on supported operating systems, see the Supported Applications subsection of the Veeam Backup & Replication User Guide.
# Used Ports

The following table lists network ports that must be opened to manage inbound/outbound traffic.

## Backup

### Oracle on Windows

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam Backup Server</td>
<td>Oracle Server Guest OS</td>
<td>TCP, UDP</td>
<td>135, 137-139, 445</td>
<td>To deploy the runtime coordination process on a VM guest OS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>49152 to 65535 (for Microsoft Windows 2008 and higher)</td>
<td>The dynamic RPC range that is used by the runtime coordination process which is deployed on a VM guest OS for application-aware processing. For more information, see this Microsoft article.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>6167</td>
<td>[For archived logs shipping.] Used by the runtime coordination process on a VM guest OS from which archived logs are collected.</td>
</tr>
<tr>
<td>Oracle Server VM Guest OS</td>
<td>Veeam Backup Server</td>
<td>TCP</td>
<td>49152 to 65535 (for Microsoft Windows 2008 and higher)</td>
<td>Dynamic RPC port range that is used by the runtime coordination process which is deployed on a VM guest OS for application-aware processing.</td>
</tr>
<tr>
<td></td>
<td>Log Shipping Server</td>
<td>TCP</td>
<td>2500 to 5000</td>
<td>[For archived logs shipping.] Utilized for data transfer over the network.</td>
</tr>
</tbody>
</table>

**NOTE:**
Configuring dynamic RPC range is not required when using default Microsoft Windows firewall settings. When using custom firewall settings or if application-aware processing fails with the `RPC function call failed` error, make sure to configuring dynamic RPC ports manually. For more information, see this Microsoft article.

### Oracle on Linux

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam Backup Server</td>
<td>Oracle on Linux Server Guest OS</td>
<td>TCP</td>
<td>22</td>
<td>The default SSH port that is used as a control channel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>2500 - 5000</td>
<td>The default port range for managing data transmission.</td>
</tr>
</tbody>
</table>


TCP 6167 [For archived logs shipping.] Used by the runtime process on the VM guest OS from which archived logs are collected.

| Oracle Server VM Guest OS | Log Shipping Server | TCP 2500 - 5000 [For archived logs shipping.] The default range of ports used for managing data transfer over the network. |

### Restore

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam Backup Server / Standalone Console</td>
<td>Oracle on Windows Server</td>
<td>TCP</td>
<td>49152-65535</td>
<td>Recommended dynamic RPC port range for Microsoft Windows 2008 and higher. For more information, see this Microsoft article.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>1025 - 1034</td>
<td>The default port range for the runtime component installed on VM guest to support restore operations. Port is opened only during application item restore.</td>
</tr>
<tr>
<td></td>
<td>Oracle on Linux Server</td>
<td>TCP</td>
<td>22</td>
<td>The default SSH port used as a control channel.</td>
</tr>
<tr>
<td>Backup Repository Server</td>
<td>Oracle on Linux Server</td>
<td>TCP</td>
<td>2500 - 5000</td>
<td>The default port range for managing data transfer during restore to the original (remote) VM on the target Oracle on Linux server.</td>
</tr>
</tbody>
</table>

Make sure to open the following ports when using a staging Oracle server.

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Target VM or Staging Oracle Server</td>
<td>Veeam Explorer for Oracle</td>
<td>TCP</td>
<td>3260 - 3270</td>
<td>The port range that is opened by Veeam Backup &amp; Replication to manage the iSCSI traffic during restore to the target VM. Such a port range is only opened while application item restore is being performed.</td>
</tr>
</tbody>
</table>
## Required Permissions

The following table lists required permissions for user accounts to back up and restore Oracle data.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Required Roles and Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Backup</strong></td>
<td>For more information, see the <a href="#">Required Permissions</a> section of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
</tbody>
</table>
| **Restore / Accessing Staging Server** | To restore data, make sure to configure user accounts as follows:  
  - When restoring to a Windows-based VM, the account must be a member of the *Local Administrator* group. In addition, if *ASM* is used, then such an account must be a member of the *ORA_ASMADMIN* group (for Oracle 12 and higher).  
  - When restoring to a Linux-based VM, the account must be a Linux user and have membership in the following groups: *OSASM* (if *ASM* is used) (typically *asmadmin*), *OSDBA* (typically *dba*), *Oracle Inventory group* (typically *oinstall*). |
Required Backup Job Settings

When you create a backup job, make sure to enable the application-aware image processing option, as described in the Specify Guest Processing Settings section of the Veeam Backup & Replication user guide.

If your backups were created without application-aware image processing, you can explore them, as described in Exploring non-Application Enabled Backups.

The application-specific information is retrieved according to the following:

- If the application-aware image processing option is enabled, Veeam Explorer obtains application-specific Oracle database information from the Oracle VM backup metadata located in the Veeam backup server configuration database.

- If the application-aware image processing option is disabled, Veeam Explorer requires a staging Oracle server to mount a selected image-level Oracle VM backup (with databases and redo logs) and collect required information using the guest scan and Oracle infrastructure analysis.

IMPORTANT!

Make sure to have your database in the OPEN state during backup. Otherwise, the following warning message will appear in the backup job session: “Oracle database instance state is not valid for property collection”.
Considerations and Limitations

This section lists considerations and known limitations of Veeam Explorer for Oracle.

General

When Veeam Explorer for Oracle is installed on a server on which both Veeam Backup & Replication and Veeam Backup for Microsoft Office 365 are installed, the notification settings will be inherited from the Veeam Backup and Replication Global Notification settings.

Restore from Image-Level Backups

- Veeam Explorer for Oracle does not support restore via PSDirect, VIX or Sphere API.
- 1-Click restore to the original location from storage snapshots is not supported.
- A point in time restore is not supported for replicas and backups stored in the DR site by backup copy jobs, nor it is supported for backups stored in a cloud repository. Such repositories cannot be used as a destination location for archived logs.
- Restore of databases from the current restore point is only supported for backups created by Veeam backup job, replication job, VeeamZIP and for imported backup and storage snapshots.
- If OS authentication on a target Oracle server is disabled, the restore of databases with enabled ASM will not be possible.
- If OS authentication on a staging Oracle server is disabled, the restore of databases with enabled ASM as of the selected transaction state will not be possible.
- Make sure that both the backed up Oracle machine and the target server to which you are restoring have the same OS patch version.

Restore from RMAN Backups

Restore of Oracle Real Application Clusters (RAC)

To restore RAC databases from RMAN backups, make sure you apply the following restore settings. Otherwise, the databases will be restored as standalone databases.

- **Restore to original server**: You must perform the restore with original name and settings.
- **Restore to another server**:
  - You must perform the restore with original name and settings.
  - Oracle Home and Oracle directory structure must remain the same.
  - You must copy the original control file to the target server.
  - For Oracle ASM, the file system structure of the restored database must remain the same.
Restore of Data Guard Databases

In Veeam Backup & Replication 10, Veeam Plug-in for Oracle RMAN has experimental support of Data Guard databases. You can restore Data Guard databases from Veeam Plug-in backups with the following limitations.

- You can restore Data Guard primary databases as primary databases only to original location. If you restore primary databases to another server, they will be restored as standalone databases. To convert the standalone database to Data Guard primary database, you can the configuration manually.

- You can restore Data Guard standby databases as standby databases only to original location.

**IMPORTANT!**

Consider that if OS authentication on a target Oracle server is disabled, a restore from RMAN backups is not be possible.

Publishing from Physical Backups

- Make sure that the target Oracle server to which you publish your databases is of the same version as the database in the backup.

- If the database that you publish is part of the ASM group, make sure that the target Oracle server also has an ASM group properly configured.
Launching Application and Exploring Backups

For more information on how to launch Veeam Explorer for Oracle, see Exploring Oracle Backups section.

NOTE:
Consider that Veeam Explorer for Oracle does not support the standalone mode and cannot be launched from the Start menu.
Understanding User Interface

Veeam Explorer for Oracle provides you with the convenient user interface that allows you to perform required operations in a user-friendly manner.

Main Menu

The main menu comprises the following features:

- **General Options.** Allows you to configure program options.
- **Help.**
  - **Online help.** Opens the online web help page.
  - **About.** Shows information about the product.
- **Exit.** Closes the program.
Main Application Window

The main application window can be divided into three categories:

- The ribbon menu, which contains general program commands organized into logical groups.
- The navigation pane, which allows you to browse through the hierarchy of your backup files.
- The preview pane, which shows you the details about objects you have selected in the navigation area.
Understanding Mounting

When restoring your data, Veeam Explorer requires an additional mount point to be created to display the list of available transactions.

Mounting is performed by the Veeam Mount Service component which is deployed on a backup repository machine or any other machine you define in the backup job configuration settings. For more information on configuring mount server settings, see the Mount Server Settings section of the Veeam Backup & Replication user guide.

During mounting, Veeam Mount Service retrieves a VM file system from the backup file, attaches it to the hard drive of a target machine and creates a mount point.

Mounting is done as follows:

- To mount a VM file system on machines with the Microsoft Windows operating system, Veeam uses the iSCSI protocol.
  The original virtual machine or the staging server acts as an iSCSI initiator and the mount server that is associated with the backup repository acts as an iSCSI target. The iSCSI mount point is non-persistent and only exists during the recovery process.

- To mount a VM file system on machines with Linux, Veeam uses fuse.

**NOTE:**
When using fine-tune restore, Veeam requires a staging Oracle server to mount the VM file system.
Viewing Database Information

To view Oracle database information, select a database or Data Guard in the navigation pane and review its properties in the preview pane.

Viewing Oracle Database Information

The following figure shows the standalone database information view.

If the current restore point was created with Oracle Automatic Storage Management (ASM), file paths will be displayed with the ‘+’ prefix.
Viewing Oracle Data Guard Information

The following figure shows the Data Guard information view.

Database Info
- Name: primdb
- Oracle SID: PRMDG
- Log mode: ARCHIVELOG
- Backup time: 9/11/2019 12:32 AM

Oracle Data Guard Info
- Data Guard name: primdb
- Unique name: primdb
- Role: Primary

Available Restore Period

Database Files
- Control Files:
  - E:\(ACCOUNT)\ORADATA\PRMDG\CONTROL01.CTL
  - E:\(ACCOUNT)\ORADATA\PRMDG\CONTROL02.CTL
- Data Files:
  - E:\(ACCOUNT)\ORADATA\PRMDG\SYSTEM01.DBF
  - E:\(ACCOUNT)\ORADATA\PRMDG\SYSTEM02.DBF
  - E:\(ACCOUNT)\ORADATA\PRMDG\SYSTEM03.DBF
Viewing Oracle RMAN Database Information

The following figure shows the RMAN database information view.
General Application Settings

Continue with this section to learn more about configuring required application settings and components.
Configuring Staging Oracle Server

This section explains how to configure a staging Oracle server.

Such a staging server is required in the following cases:

- To use a point-in-time restore/export/publishing.
- To explore backups created without application-aware image processing. For more information, see Exploring Oracle Backups.

Consider the following:

- A staging server must be of the same Oracle version as both the source and target Oracle servers.
- If you plan to restore databases with Automatic Storage Management enabled, both staging and target servers must have ASM enabled.
- Oracle Database Express Edition cannot be used as a staging system.

For Windows-based VM

To configure a staging server for Windows-based machines, do the following:

1. Go to the main menu and click General Options.

2. Go to the Staging Server tab, select the Use this helper Oracle server for advanced recovery functionality check box and do the following:
   a) In the Server name field, specify the name of the Oracle server to which you want to restore data.
   b) Under the Specify user account to connect to server section, select the following:
      o Use current account. To connect to the specified server using the current user account under which Veeam Explorer for Oracle running.
      o Use the following account. To connect to the specified server under a custom user account.
        When using a custom account, in the Username field, specify a username and in the Password field, provide the password.

3. Specify the path to Oracle Home.
   Click Browse to browse for Oracle Home.
To configure a staging server for Linux-based machines, do the following:

1. Go to the main menu and click **General Options**.

2. Go to the **Oracle** tab, select the **Use this helper Oracle server for advanced recovery functionality** check box and do the following:
   
   c) In the **Server** field, specify the name of the Oracle server to which you want to restore data.
   
   d) In the **SSH-port** field, specify the port number.
   
   e) In the **Account** field, specify a user account under which to connect to the specified server.
   
   f) In the **Password** field, specify the password.
   
   g) Click **Advanced** to configure the root account.
   
   h) If the private key is required to connect to the selected server, do the following:
      
      o Select the **Private key is required for this connection** check box.
      
      o In the **Private key** field, specify a key. To select a key, click **Browse** and select a key.
      
      o In the **Passphrase** field, enter the passphrase.

3. Specify the path to Oracle Home.
To elevate your account to root and to add it to sudoers, click Advanced and select the option you need; if necessary, enter the root password and click OK.
Enabling Extended Logging

Veeam Explorer for Oracle allows you to enable extended logging mode to collect logs that contain more details on specific operations.

To enable extended logging mode, do the following:

1. Go to the main menu and click **General Options**.
2. On the **Advanced** tab, select the **Enable Extended logging** check box.
3. After enabling extended logging mode, you can go back to the application and perform required actions, then collect logs.
Exploring Oracle Backups

Continue with the section to learn more about:

- Exploring Application-Enabled Backups
- Exploring non-Application Enabled Backups
- Exploring RMAN Backups
Exploring Application-Enabled Backups

For more information about exploring backups created with application-aware image processing, see the Restoring Application Items section of the Veeam Backup & Replication user guide.
Exploring non-Application Enabled Backups

If a backup file you are exploring was created without application-aware image processing, the heuristic analysis must be performed to mount required restore points and find existing Oracle databases in these points.

NOTE:
The heuristic analysis requires a staging Oracle server to be configured in advance. For more information, see Configuring Staging Oracle Server.

To explore backups created without application-aware image processing, do the following:

1. Launch Restore Wizard
2. Specify Target Server
3. Specify Heuristic Settings

Step 1. Launch Restore Wizard

To launch the Restore wizard, do the following:

1. Open the Veeam Backup & Replication console, go to the Home tab, select Application Item > Oracle (or Windows) and go through the Restore wizard steps.
2. Select a restore point to explore and finalize subsequent steps of the wizard.
Step 2. Specify Target Server

At this step of the wizard, specify credentials to access the target Oracle server.

Windows-Based Oracle Server

For a Windows-based Oracle server, do the following:

- In the **Server name** field, specify a server name to which you want to restore data.
- Under the **Specify user account to connect to server** section, select the following:
  - **Use current account.** To connect to the specified server using the current user account under which Veeam Explorer for Oracle is running.
  - **Use the following account.** To connect to the specified server under a custom user account.

Consider the following:

- The user account must be a member of the **local Administrator** group and have **sysdba** privileges.
- The user account has been granted appropriate permissions to access Oracle databases; **Read** and **Write** are minimum required, **Full Control** is recommended.

![RESTORE WIZARD](image)

Specify target Windows server connection credentials

- **Server name:** Target_Server
- **Specify user account to connect to server:**
  - **Use current account (Epsilon/Administrator)**
  - **Use the following account:**
    - **User name:** Administrator
    - **Password:** **************

Linux-Based Oracle Server

- For a Linux-based Oracle server, do the following:
  - In the **Server** field, select a server to which you want to restore data.
  - In the **SSH port** field, specify the port number of the selected server.
  - In the **Account** filed, enter the user account under which to connect to the specified server.
  - In the **Password** field, enter the password.
  - If the private key is required to connect to the selected server, do the following:
Select the **Private key is required for this connection** check box,

- In the **Private key** filed, specify a key. To select a key, click **Browse** and select a key.
- In the **Passphrase** field, enter the passphrase.

Consider that the user account must be a member of the **dba** group.

You can use the native Veeam Explorer abilities to elevate your account to **root** and add it to the **sudoers** file. To do this, click **Advanced** and select corresponding check boxes.

### Step 3. Specify Heuristic Settings

At this step of the wizard, specify the following:

- **Oracle Home.** To attach a database, apply log files (if required) and make a consistency check of the database.

- **Heuristic analysis settings:**
  - **Current restore point analysis.** To search for available Oracle databases within the selected restore point only.
  - **Extended analysis.** To search for available Oracle databases within multiple restore points.
 Typically, Veeam Explorer for Oracle scans three restore points; the current restore point that you select when opening Veeam Explorer, and two other restore points that come before and after the current restore point.

Once analysis is complete, Veeam Explorer for Oracle will load available Oracle databases to the program scope automatically.

Specify heuristic analysis settings

Oracle Home: /appl/administrator/product/11.2.0/dbhome_1

Specify heuristic analysis settings

- Current restore point analysis
  Performs heuristics within the selected restore point.
- Extended analysis
  Provides ability for subsequent point-in-time restore, but takes longer to run.

Back Analyse Cancel
Exploring RMAN Backups

This section explains how to explore backups created with the Oracle RMAN Plug-in. For more information, see Veeam Plug-in for Oracle RMAN.

To load RMAN backups, do the following:

1. In the Veeam Backup & Replication console, open the Home view.
2. Go to the Backups > Disk node.
3. Right-click an RMAN backup and select Restore from Oracle RMAN backup.
Data Restore

Continue with this section to learn more about restoring Oracle databases and Data Guard.

Before restoring data, make sure to read Considerations and Limitations.

**IMPORTANT!**

Make sure to install a bash shell on a target Oracle server to perform a restore.
Restoring Database and Data Guard

This section explains how to restore Oracle databases and Oracle Data Guard back to the production environment.

Consider that when restoring Data Guard to another server as described in this section, databases from Data Guard will be restored as standalone Oracle databases preserving no Data Guard infrastructure. To restore Data Guard infrastructure altogether, use either a latest state restore, or point-in-time restore. For more information, see Restoring Latest State and Restoring Point-in-Time State respectively.

To restore data, do the following:

1. Launch Restore Wizard
2. Specify Restore Point
3. Fine-tune Restore Point
4. Specify Target Server
5. Specify Oracle Settings
6. Specify Database Files Location

Step 1. Launch Restore Wizard

To launch the Restore wizard, do the following:

1. In the navigation tree, select a database or Data Guard.
2. On the Home tab, select Restore Database > Restore to another server or right-click a database or Data Guard and select Restore to another server.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date when the current restore point was created.

- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.

- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.

Consider the following:

- The **Restore to a specific point in time** option is only available if archived log backups exist. For more information, see Required Backup Job Settings.

- The **Perform restore to the specific transaction** option requires a staging Oracle server. For more information, see Configuring Staging Oracle Server.
Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to restore your database.

<table>
<thead>
<tr>
<th>Time</th>
<th>Operation</th>
<th>Object</th>
<th>Type</th>
</tr>
</thead>
<tbody>
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<td>SYS</td>
<td>User/Role</td>
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<tr>
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<td>Drop</td>
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<td>Table</td>
</tr>
<tr>
<td>9/8/2019 10:01 PM</td>
<td>Create</td>
<td>FROM</td>
<td>Unknown</td>
</tr>
<tr>
<td>9/8/2019 10:01 PM</td>
<td>Alter</td>
<td>BEGIN</td>
<td>Database</td>
</tr>
</tbody>
</table>

Step 4. Specify Target Server

At this step of the wizard, specify credentials to access the target Oracle server.

Windows-Based Oracle Server

For a Windows-based Oracle server, do the following:
1. In the **Server name** field, specify the name of the Oracle server to which you want to restore data.

2. Under the **Specify user account to connect to server** section, select either of the following options:
   - **Use current account**
     Select this option to connect to the specified server using the current user account under which Veeam Explorer for Oracle is running.
   - **Use the following account**
     Select this option to connect to the specified server using a custom user account.

Consider the following:
- The user account must be a member of the **local Administrator** group and have **sysdba** privileges.
- The user account must be granted appropriate permissions to access Oracle databases; **Read** and **Write** are minimum required, **Full Control** is recommended.
- To copy archived logs to the specified server, the user account must be granted sufficient permissions to access the administrative share.

---

**Linux-Based Oracle Server**

For a Linux-based Oracle server, do the following:

1. In the **Server** drop-down list, select an Oracle server to which you want to restore data.
2. In the **SSH port** field, specify the port number of the selected Oracle server.
3. In the **Account** field, specify an account under which to connect to the specified server.
4. In the **Password** field, enter the password.
5. If a private key is required to connect to the selected server, do the following:
   - Select the **Private key is required for this connection** check box.
   - In the **Private key** field, specify a key.
To select a key, click **Browse** and select a key.

- In the **Passphrase** field, enter the passphrase.

Consider that the user account must be a member of the **dba** group.

---

**Specify target Linux server connection credentials**

<table>
<thead>
<tr>
<th>Server: oracle-linux</th>
<th>SSH port: 22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account: oracle</td>
<td></td>
</tr>
<tr>
<td>Password: ************</td>
<td></td>
</tr>
<tr>
<td>Private key is required for this connection</td>
<td></td>
</tr>
<tr>
<td>Private keys:</td>
<td>Browse...</td>
</tr>
<tr>
<td>Passphrase:</td>
<td></td>
</tr>
</tbody>
</table>

---

Use the native Veeam Explorer for Oracle abilities to elevate your account to **root** and add it to the **sudoers** file. To do this, click **Advanced** and select corresponding check boxes.

---

**Advanced Settings**

- Non-root account handling
  - Elevate specified account to root
  - Add account to the sudoers file automatically
  - Use su if sudo is unavailable
- Root password: ************  

---

**Step 5. Specify Oracle Settings**

At this step of the wizard, select a location to which you want to restore databases:

- **Restore to the original location.** To restore a database back to the original location.
- **Restore to alternative location.** To restore a database to the custom location

Specify **Oracle Home**, **Global Database Name** and **Oracle SID**. To locate Oracle Home folder, click **Browse** and select a folder you want to use.
NOTE:
You will be asked to provide a password to access target Oracle Home if required. Applicable to Oracle 12c and higher.

Step 6. Specify Database Files Location

At this step of the wizard, specify the location for database files. To edit the path, click the path row and provide the location you want to use.
Restoring Latest or Point-in-Time State

This section explains how to select a state as of which to restore Oracle databases or Data Guard, including a point-in-time restore — to revert the database to a state before an undesired transaction or before a point of failure.

The behavior in case of a latest or point-in-time state restore is as follows:

- Data Guard will be restored starting from the primary node. Once the primary node is restored, Veeam Explorer for Oracle will use it to restore standby nodes.
- Database files will be copied to the original location and then mounted to the original Oracle Home.
- Databases from the backed up ASM group will be restored back to the original ASM group.
- All existing databases on the target Oracle server will be replaced with that of the backup file.

Consider that restoring a latest or point-in-time state to the original Oracle server from storage snapshots is not supported. Use the **Restore to another server** command, as described in *Restoring Database and Data Guard*.

Restoring Point-in-Time State

To restore Oracle databases or Data Guard as of the selected point-in-time state, do the following:

1. **Launch Restore Wizard**
2. **Specify Restore Point**
3. **Fine-tune Restore Point**

Step 1. Launch Restore Wizard

To launch the **Restore** wizard, do the following:

1. In the navigation pane, select a database or Data Guard.
2. On the **Home** tab, select **Restore Database > Restore point-in-time state to <server_name>** or right-click a database or Data Guard and select **Restore point-in-time state to <server_name>**.
A point in time restore is only possible if the `ARCHIVELOG` mode is enabled.

Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of** the selected image-level backup option to load database files as per date when the current restore point was created.
- Select the **Restore to a specific point in time** option to obtain selected database files as per selected time interval of the current restore point. Use the slider control to choose a time interval you need.
- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.

Consider the following:

- The **Restore to a specific point in time** option is only available if archived log backups exist. For more information, see Required Backup Job Settings.
- The **Perform restore to the specific transaction** option requires a staging Oracle server. For more information, see Configuring Staging Oracle Server.
Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to recover your database.

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<td>Database</td>
</tr>
</tbody>
</table>

Restoring Latest State

To restore Oracle databases or Data Guard as of the latest available state, do the following:

1. In the navigation pane, select a database or Data Guard.
2. On the Home tab, select Restore Database > Restore latest state to <server_name> or right-click a database and select Restore latest state to <server_name>.
Restoring RMAN Backups

This section explains how to restore backups created with Veeam Plug-in for Oracle RMAN. For more information, see the Veeam Plug-in for Oracle RMAN section of the Veeam Plug-ins for Enterprise Applications User Guide.

To restore RMAN backups, do the following:

1. Launch Restore Wizard
2. Specify Recovery Type
3. Specify Target Server
4. Specify Oracle Settings
5. Specify Home User Password
6. Specify Point-in-Time
7. Specify Database Files Location
8. Configure Channel Allocation

Step 1. Launch Restore Wizard

To launch the Restore wizard, do the following:

1. Open an RMAN backup, as described in Exploring RMAN Backups.
2. In the navigation pane, select a database.
3. On the Home tab, select Restore Database > Restore or right-click a database and select Restore.
Step 2. Specify Recovery Type

At this step of the wizard, select a recovery type:

- **Recover database to specific point in time**
  Select this option to restore databases as of the latest available state.

- **Restore data files to specific point in time**
  Select this option to restore only datafiles as of the specific point-in-time state without applying log files.

- **Recover from previously restored datafiles**
  Select this option to apply log files to restored datafiles.
Step 3. Specify Target Server

At this step of the wizard, specify credentials to access the target Oracle server.

Windows-Based Oracle Server

For a Windows-based Oracle server, do the following:

1. In the **Server name** field, specify the name of the Oracle server to which you want to restore data.
2. Under the **Specify user account to connect to server** section, select either of the following options:
   - **Use current account**
     Select this option to connect to the specified server using the current user account under which Veeam Explorer for Oracle is running.
   - **Use the following account**.
     Select this option to connect to the specified server using a custom user account.

Consider the following:

- The user account must be a member of the **local Administrator** group and have **sysdba** privileges.
- The user account must be granted appropriate permissions to access Oracle databases; **Read** and **Write** are minimum required, **Full Control** is recommended.
For a Linux-based Oracle server, do the following:

1. In the **Server** drop-down list, select an Oracle server to which you want to restore data.
2. In the **SSH port** field, specify the port number of the selected Oracle server.
3. In the **Account** field, specify an account under which to connect to the specified server.
4. In the **Password** field, enter the password.
5. If a private key is required to connect to the selected server, do the following:
   - Select the **Private key is required for this connection** check box.
   - In the **Private key** field, specify a key.
     To select a key, click **Browse** and select a key.
   - In the **Passphrase** field, enter the passphrase.

Consider that the user account must be a member of the **dba** group.
You can use the native Veeam Explorer abilities to elevate your account to root and add it to the sudoers file. To do this, click Advanced and select corresponding check boxes.

### Advanced Settings

- Non-root account handling
  - Elevate specified account to root
  - Add account to the sudoers file automatically
  - Use su if sudo is unavailable
  - Root password: ************

### Step 4. Specify Oracle Settings

At this step of the wizard, select either of the following options:

- **Restore with the original name and settings**
  Select this option to restore data using the original name and settings.

- **Restore with different name and settings**
  Select this option to choose custom settings. When selecting this option, specify the following:
  - In the **Oracle Home** field, specify Oracle Home.
    You can click **Browse** to select a folder.
  - In the **Global Database Name** field, specify the name under which to restore a database.
    This field is only available if you have selected the **Recover database to specific point in time** option in the Specify Recovery Type step.
  - In the **Oracle SID** field, specify a SID.
NOTE:

To use Restore with different name and settings, make sure that Controlfile Autobackup is enabled. For more information, see the Oracle Environment Planning section of the Veeam Plug-in for Oracle RMAN User Guide.

Step 5. Specify Home User Password

At this step of the wizard, enter the password for the Oracle Home user.
Step 6. Specify Point-in-Time

At this step of the wizard, do the following:

- Select the **Recover to the latest available** option to restore data as of the latest available state.
- Select the **Recover to the following point in time** option to select a state as of which you want to restore data:
  - **Date.** Select a date as of which you want to restore data.
  - **SCN.** Specify SCN (System Change Number).
  - **Sequence.** Specify the sequence.
- Select the **Generate new DBID** check box to generate a new DBID in addition to the new database name. This check box is only available when using the **Restore with different name and settings** option at the **Specify Oracle Settings** step.
- Select the **Suppress RESTLOG command and do not bring the database online** check box to skip OPEN RESTLOGS if it was required by the database. The database in this case remains in the *mount* state. This check box is only available when using the **Restore with the original name and settings** option at the **Specify Oracle Settings** step.

**TIP:**
Consider reading Oracle Documentation to learn more.

### RESTORE WIZARD

Specify point in time

- **Restore to the latest available state**
- **Restore to the following point in time:**
  - **Date:** 11 September 2019 05:00:00
  - **SCN:** 2
  - **Sequence:** 0

- **Generate new DBID**
- **Suppress RESTLOG command and do not bring the database online**

[Back] [Next] [Cancel]
Step 7. Specify Database Files Location

At this step of the wizard, specify the location to which you want to restore data files.

Consider the following:

- When restoring with the **Restore with the original name and settings** option, only the location for *Data files* will be available for editing.

- When restoring with the **Restore with different name and settings** option, the location for the following files will be available for editing:
  - Control files
  - Data files
  - Log files
  - Temp files

To change the location, click the path row and specify the path.

![RESTORE WIZARD](image)

Step 8. Configure Channel Allocation

At this step of the wizard, specify channels allocation.

Channels are used to restore data in multiple threads per session. Using multiple threads allows Veeam Explorer for Oracle to reduce the amount of time needed to complete restore sessions. For more information about allocating channels, see [Oracle documentation](#).

The following options are available:

- **Use default channel configuration**
  Select this option to use the default channel configuration defined in the RMAN plug-in settings.

- **Allocate the following number of channels**
  Select this option to specify the number of channels to be used when restoring your data.
Configure channels allocation

- Use default channel configuration
- Allocate the following number of channels

Number of channels: 10
Data Publishing

Publishing databases allows you to temporarily attach large Oracle databases to the target Oracle server without having to restore them.

Publishing databases typically occurs faster than using standard restore features and might be convenient in certain cases, for example, when your time to perform disaster-recovery operations is limited.

During publishing, Veeam Explorer for Oracle does the following:

- Mounts VMs disks from the backup file to the target Oracle server. Mounting is done to the $C:\VeeamFLR$ directory for Windows-based servers and the $/mp$ directory for Linux-based servers.
- Retrieves required database files.
- Attaches associated databases directly to the target Oracle server so that you can perform required operations using Oracle tools.

Before restoring data, make sure to read Considerations and Limitations.
Publishing to Specified Server

To publish a database to the specified Oracle server, do the following:

1. **Launch Publish Wizard**
2. **Specify Restore Point**
3. **Fine-tune Restore Point**
4. **Specify Target Oracle Server**
5. **Specify Oracle Settings**

**Step 1. Launch Publish Wizard**

To launch the Publish wizard, do the following:

1. In the navigation pane, select a database.
2. On the Home tab, select Publish database > Publish to another server or right-click a database and select Publish database > Publish to another server.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to publish your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.
- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.
- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.

**NOTE:**

The **Perform restore to specific transaction** option requires a staging Oracle server. For more information, see Configuring Staging Oracle Server.

<table>
<thead>
<tr>
<th>PUBLISH WIZARD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specify restore point</strong></td>
</tr>
<tr>
<td>Specify point in time you want to restore the database to:</td>
</tr>
<tr>
<td>- Restore to the point in time of the selected image-level backup</td>
</tr>
<tr>
<td>- Restore to a specific point in time (requires redo log backups)</td>
</tr>
<tr>
<td>10:21 PM 9/6/2019</td>
</tr>
<tr>
<td>Saturday, September 7, 2019 1:09 PM</td>
</tr>
<tr>
<td><strong>Perform restore to the specific transaction</strong></td>
</tr>
<tr>
<td>Enables you to review major database transactions around the selected time, and restore the database to the moment in time right before the unwanted change.</td>
</tr>
</tbody>
</table>

| Back | Next | Cancel |

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to publish your database.
NOTE:
This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

**Step 4. Specify Target Oracle Server**

At this step of the wizard, specify credentials to access the target Oracle server.

**Windows-Based Oracle Server**

For a Windows-based Oracle server, do the following:

1. In the **Server name** drop-down list, specify the name of the Oracle server to which you want to restore data.

2. Under the **Specify user account to connect to server** section, select either of the following options:
   - **Use current account**
     Select this option to connect to the specified server using the current user account under which Veeam Explorer for Oracle is running.
   - **Use the following account**.
     Select this option to connect to the specified server using a custom user account.

Consider the following:

- The user account must be a member of the **local Administrator** group and have **sysdba** privileges.
- The user account has been granted appropriate permissions to access Oracle databases; **Read** and **Write** are minimum required, **Full Control** is recommended.
- To copy archived logs to the specified server, the user account must be granted sufficient permissions to access the administrative share.
For a Linux-based Oracle server, do the following:

1. In the **Server** drop-down list, select an Oracle server to which you want to restore data.
2. In the **SSH port** field, specify the port number of the selected Oracle server.
3. In the **Account** field, specify an account under which to connect to the specified server.
4. In the **Password** field, enter the password.
5. If a private key is required to connect to the selected server, do the following:
   - Select the **Private key is required for this connection** check box.
   - In the **Private key** field, specify a key.
     To select a key, click **Browse** and select a key.
   - In the **Passphrase** field, enter the passphrase.

Consider that the user account must be a member of the **dba** group.
Use the native Veeam Explorer for Oracle abilities to elevate your account to root and add it to the sudoers file. To do this, click Advanced and select corresponding check boxes.

**Step 5. Specify Oracle Settings**

At this step of the wizard, select either of the following options:

- **Restore to the original location.** To publish a database to the original location.
- **Restore to a different location.** To select a custom location for database publishing.

When selecting this option, specify the following:

- **Oracle Home.** Specify Oracle Home. You can click Browse to select a folder.
- **Global Database Name.** Specify the name under which the database is going to be published.
- **Oracle SID.** Specify the SID, which is populated automatically when the Global Database Name value is being set. You can also assign a value that is different from Global Database Name.

The figure below shows an example of publishing a database with the delme_published name.

After you complete this step, a new Published databases node appears at the top of the navigation pane in Veeam Explorer for Oracle. Under this node you can find the databases that have been published during the current session.
NOTE:

Veeam Explorer for Oracle only shows 8 characters of the published database name in its console. As per example, once published, the name of the published database in the navigation pane will be displayed as `delme_pu`.

**Specify Oracle settings**

- Restore to the original location
- Restore to a different location:

  - Oracle Home: `E:\app\admin\product\11.2.0\dbhome_1`
  - Global Database Name: `delme_published`
  - Oracle SID: `delmepublis`
Publishing Latest or Point-in-Time State

This section explains how to select a state as of which to publish Oracle databases. You can select either of the following states:

- **The latest available state**
  - To publish data as of the latest state in the backup file.

- **The point-in-time state**
  - To publish data as of the selected point-in-time state (requires a log backup).

These options are available only after the initial publishing of a database to the target Oracle server, as described in Publishing to Specified Server.

When you unpublish a database, both options continue to remain until you close the application so that you can quickly republish a database if required.

Publishing Point-in-Time State

Creating a point-in-time state allows you to load a required database state and unroll specified transactions if needed.

To publish a database as of the point-in-time state, do the following:

1. **Launch Publish Wizard**
2. **Specify Restore Point**
3. **Fine-tune Restore Point**

Step 1. Launch Publish Wizard

To launch the Publish wizard, do the following:

1. In the navigation pane, right-click a database.
2. On the Home tab, select Publish database > Publish point-in-time state to <server_name> or right-click a database and select Publish database > Publish point-in-time state to <server_name>.

Once completed, the database will be published with the same name as it was during the initial publishing session.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to publish your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.
- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.
- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
NOTE:
The Perform restore to specific transaction option requires a staging SQL server. For more information, see Configuring Staging SQL Server.

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to publish your database.

NOTE:
This step is only available if you have selected the Perform restore to specific transaction check box in the previous step.
Publishing Latest State

Veeam Explorer for Oracle allows you to republish an unpublished database anew. When republishing a database, it will be attached to the target Oracle server as of the latest available state.

To republish a database as of the latest state, do the following:

1. In the navigation pane, right-click a database.

2. On the Home tab, select Publish database > Publish latest state to <server_name> or right-click a database and select Publish database > Publish latest state to <server_name>.

Once completed, the database will be published with the same name as it was during the initial publishing session.
Unpublishing Databases

Once you have done working with published databases, you may want to unpublish (detach) these databases from the target Oracle server.

Detachment occurs in the following manner:

- Upon closing the Veeam Explorer for Oracle console, all published databases will be detached from the target Oracle server automatically. The corresponding mount points will also be dismounted from under the C:\VeeamFLR directory for Windows-based servers and the /mp directory for Linux-based servers.
- On manual unpublishing, databases will be detached at once but the restore point will remain mounted on the target server for the next 15 minutes.

To unpublish databases manually, do the following:

1. In the navigation pane, under the Published databases node, select a published database.
2. On the Publish tab, select Unpublish Database or right-click a database and select Unpublish database.

You can detach a single published database or all databases altogether by right-clicking the root Published databases node and selecting Unpublish databases or by using the Unpublish Databases command on the Publish tab.

```
Database Info
- Server: 172.24.00.239
- Original name: defme
- Attached as: defme_pu
- Original Oracle SID: DELME
- Attached Oracle SID: delmepublic
- Log mode: ARCHIVELOG
- Backup time: 9/9/2019 01:01 PM
- Published point in time: 9/9/2019 01:01 PM

Database Files
- Control file: C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\CONTROL01.CTL
  C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\CONTROL02.CTL
- Data files: C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\SYSTEM01.DBF
  C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\SYS0001.DBF
  C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\UNDOTRB01.DBF
  C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\UNDOTRDE01.DBF
- Log files: C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\REDO01.SQL
  C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\REDO02.SQL
  C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\REDO03.SQL
- Temp files: C://VeeamFLR/v01.rrd32-v01.rrd32.Volume0\APP\ADMINISTRATOR\ORADATA\DELME\TEMP01.DBF
```
Exporting as RMAN Backup

Once published, the database can be exported as an RMAN backup so that you can save the changes you may have made on the target server. For example, after publishing a database, you may have added a column or alter some values. In order to save these modifications before you unpublish the database, you can use the export feature.

To export a database, do the following:

1. In the navigation pane, under the Published databases node, select a published database.
2. On the Publish tab, select Export as RMAN Backup or right-click a published database and select Export as RMAN Backup.
3. In the Specify export path field, specify the location to which you want to export database files.
   - If the folder you are specifying does not exist, it will be created.
4. In the File name format field, specify the format according to which your files will be named after the export.
   - For more information, see this Oracle article.
5. In the Specify tag name field, specify a new tag name.
6. To compress files using native Oracle compression, select the Enable compression check box.
7. In the Channels number numeric field, specify the number of channels to be used when retrieving Oracle databases from the backup.
8. Click Export.

![Export Wizard](image-url)
Refreshing Database Status

While databases are attached to the target Oracle server, Veeam Explorer for Oracle synchronizes each published database state to verify its availability. By default, synchronization occurs every five seconds.

If something went wrong with any of the published databases, the question mark appears next to each of such databases indicating the database unavailability. In the Database Info section, you will also see the notification message describing the problem.

To refresh a published database state manually, in the navigation pane, under the Published databases node, right-click a published database and select Refresh.
Data Export

Continue with this section to learn more about exporting Oracle databases.
Export as RMAN Backup

In Veeam Explorer for Oracle, you can export Oracle databases as RMAN backups.

During the export, Veeam Explorer for Oracle does the following:

- Uses native Oracle RMAN to retrieve Oracle databases from the backup that is being explored.
  The retrieved databases are then saved onto a staging server as RMAN backups.
  When exporting published databases, then such databases are saved directly to the server onto which they are published.
- Copies the saved RMAN backups to the target location.

Exporting Latest State

To export data as of the latest available state, do the following:

1. In the navigation pane, select a database.
2. On the Home tab, select Exports as RMAN Backup > Export latest state to Desktop\<db_name> or right-click a database and select Exports as RMAN Backup > Export latest state to Desktop\<db_name>.
3. Wait until the export is complete.

Consider that Veeam Explorer for Oracle exports files in the following format: _%I_%d_%T_%U. For more information, see this Oracle article. To set a different export format, use Exporting to Custom Location.
Exporting Point-in-Time State

To export data as of the point-in-time state, do the following:

1. Launch Restore Wizard
2. Specify Restore Point
3. Fine-tune Restore Point

Step 1. Launch Export Wizard

To launch the Export wizard, do the following:

1. In the navigation pane, select a database.
2. On the Home tab, select Export as RMAN Backup > Export point-in-time state to Desktop\<db_name> or right-click a database and select Export as RMAN Backup > Export point-in-time state to Desktop\<db_name>.

Consider that Veeam Explorer for Oracle exports files in the following format: _%l_%d_%T_%U. For more information, see this Oracle article. To set a different export format, use Exporting to Custom Location.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the Restore to the point in time of the selected image-level backup option to load database files as per date of the current restore point.
- Select the Restore to a specific point in time option to load database files as per selected point in time. Use the slider control to choose a point you need.
- Select the Perform restore to specific transaction check box to load database files exactly as of the moment before undesired transactions.

NOTE:
The Perform restore to specific transaction option requires a staging Oracle server. For more information, see Configuring Staging Oracle Server.

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to export data.
NOTE:
This step is only available if you have selected the Perform restore to specific transaction check box in the previous step.

Exporting to Custom Location

To export a database to a custom location, do the following:

1. Launch Export Wizard
2. Specify Restore Point
3. Fine-tune Restore Point
4. Specify Target Location

Step 1. Launch Export Wizard

To launch the Export wizard, do the following:

1. In the navigation pane, select a database.
2. On the Home tab, select Exports as RMAN Backup > Export to a different location or right-click a database and select Exports as RMAN Backup > Export to a different location.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.

- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.

- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
NOTE:

The **Perform restore to specific transaction** option requires a staging Oracle server. For more information, see *Configuring Staging Oracle Server*.

---

**Step 3. Fine-tune Restore Point**

At this step of the wizard, select an operation prior to which you want to export data.

**NOTE:**

This step is only available if you have selected the **Perform restore to specific transaction** check box in the previous step.

---

**Fine-tune the restore point**

Select the undesired operation in the list below. The database will be restored to the state prior to transaction involving the selected operation.

<table>
<thead>
<tr>
<th>Time</th>
<th>Operation</th>
<th>Object</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/8/2019 11:11 AM</td>
<td>Drop</td>
<td>SYS.ORA_TEMP_1.DS.440024</td>
<td>Table</td>
</tr>
<tr>
<td>9/8/2019 11:11 AM</td>
<td>Create</td>
<td>TEMPORARY</td>
<td>Unknown</td>
</tr>
<tr>
<td>9/8/2019 11:11 AM</td>
<td>Grant</td>
<td>SYS</td>
<td>Unknown</td>
</tr>
<tr>
<td>9/8/2019 11:11 AM</td>
<td>Alter</td>
<td>SYS.ORA_TEMP_1.DS.440025</td>
<td>Table</td>
</tr>
<tr>
<td>9/8/2019 11:11 AM</td>
<td>Truncate</td>
<td>SYS.ORA_TEMP_1.DS.440025</td>
<td>Table</td>
</tr>
<tr>
<td>9/8/2019 11:11 AM</td>
<td>Drop</td>
<td>SYS.ORA_TEMP_1.DS.440025</td>
<td>Table</td>
</tr>
<tr>
<td>9/8/2019 10:01 PM</td>
<td>Create</td>
<td>FROM</td>
<td>Unknown</td>
</tr>
<tr>
<td>9/8/2019 10:01 PM</td>
<td>Alter</td>
<td>BEGIN</td>
<td>Database</td>
</tr>
<tr>
<td>9/8/2019 10:01 PM</td>
<td>Alter</td>
<td>END</td>
<td>Database</td>
</tr>
</tbody>
</table>
Step 4. Specify Target Location

At this step of the wizard, do the following:

1. In the **Specify export path** field, specify the location to which you want to export database files.
   
   If the folder you are specifying does not exist, it will be created.

2. In the **File name format** field, specify the format according to which your files will be named after the export.
   
   For more information, see the Oracle article.

3. In the **Specify tag name** field, specify a new tag name.

4. To compress files using native Oracle compression, select the **Enable compression** check box.

5. In the **Channels number** numeric field, specify the number of channels to be used when retrieving Oracle databases from the backup.

6. Click **Export**.

   ![Export Wizard](image)

   - **Export path**
   - **File name format**
   - **Tag to label output file with**
   - **Enable native compression** (increases Oracle server CPU consumption)
   - **Channels number**

   Larger values improve export performance at the cost of increased Oracle server CPU consumption.
Export Database Files

Continue with this section to learn more about exporting Oracle databases.

Exporting Latest State

To export data as of the latest available state, do the following:

1. In the navigation pane, select a database.
2. On the Home tab, select Exports Database Files > Export latest state to Desktop\<db_name> or right-click a database and select Exports Database Files > Export latest state to Desktop\<db_name>.
3. Wait until the export is complete.

Exporting Point-in-Time State

This section explains how to export data as of a point-in-time state.

To export data as of a point-in-time state, do the following:

1. Launch Export Wizard
2. Specify Restore Point
3. **Fine-tune Restore Point**

**Step 1. Launch Export Wizard**

To launch the **Export** wizard, do the following:

1. In the navigation pane, select a database.
2. On the **Home** tab, select **Exports Database Files > Export point-in-time state to Desktop\<db_name>** or right-click a database and select **Exports Database Files > Export point-in-time state to Desktop\<db_name>**.

**Step 2. Specify Restore Point**

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.
- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.
- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.
NOTE:
The Perform restore to specific transaction option requires a staging Oracle server. For more information, see Configuring Staging Oracle Server.

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to export data.

NOTE:
This step is only available if you have selected the Perform restore to specific transaction check box in the previous step.
Exporting to Custom Location

This section explains how to export a database to a custom location.

To export a database to a custom location, do the following:

1. Launch Export Wizard
2. Specify Restore Point
3. Fine-tune Restore Point
4. Specify Target Location

Step 1. Launch Export Wizard

To launch the Export wizard, do the following:

1. In the navigation pane, select a database.

2. On the Home tab, select Exports Database Files > Export to a different location or right-click a database and select Exports Database Files > Export to a different location.
Step 2. Specify Restore Point

At this step of the wizard, select a state as of which you want to restore your database:

- Select the **Restore to the point in time of the selected image-level backup** option to load database files as per date of the current restore point.

- Select the **Restore to a specific point in time** option to load database files as per selected point in time. Use the slider control to choose a point you need.

- Select the **Perform restore to specific transaction** check box to load database files exactly as of the moment before undesired transactions.

**NOTE:**

The **Perform restore to specific transaction** option requires a staging Oracle server. For more information, see **Configuring Staging Oracle Server**.

---

Step 3. Fine-tune Restore Point

At this step of the wizard, select an operation prior to which you want to export data.
NOTE:
This step is only available if you have selected the Perform restore to specific transaction check box in the previous step.

Step 4. Specify Target Location
At this step of the wizard, in the **Specify export path** field, specify the location to export data.
Veeam Explorer for Microsoft Exchange

Veeam Explorer for Microsoft Exchange allows you to restore and export Microsoft Exchange objects from backups created in Veeam Backup & Replication and Veeam Backup for Microsoft Office 365.
Planning and Preparation

Continue with this section to learn how to configure your environment before start using Veeam Explorer for Microsoft Exchange.
# System Requirements

This section lists system requirements for Veeam Explorer for Microsoft Exchange.

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Microsoft Exchange</strong></td>
<td>For more information about supported versions of Microsoft Exchange, see:</td>
</tr>
<tr>
<td></td>
<td>- The Supported Applications subsection of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
<tr>
<td></td>
<td>- The System Requirements section of the Veeam Backup for Microsoft Office 365 User Guide.</td>
</tr>
</tbody>
</table>

Consider the following:

- To work with database files, Veeam Explorer for Microsoft Exchange requires a dynamic link library `ese.dll` supplied with Microsoft Exchange. The `ese.dll` file must be of the same version as that of Microsoft Exchange in which database files were created.
- To restore mailbox items from a server running Microsoft Windows ReFS, the Veeam backup server or a management console must be installed on the Microsoft Windows Server 2012 or higher.
- To restore mailbox items from a server running Microsoft Windows ReFS 3.x, Veeam backup server or a management console must be installed on the Microsoft Windows Server 2016.
- To restore data that was backed up by Veeam Backup for Microsoft Office 365 v1.5 via PowerShell, make sure to install Windows PowerShell 2.0 or higher.
- Restore of mailbox datastore from backups created by Veeam Agent for Microsoft Windows 2.0 (and higher) requires integration with Veeam Backup & Replication to be set up, as described in the Using with Veeam Backup & Replication section of the Veeam Agent for Microsoft Windows User Guide.
# Used Ports

The following table lists network ports that must be opened to manage inbound/outbound traffic.

## Backup

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam Backup Server / Guest Interaction Proxy (Enterprise and Enterprise Plus editions)</td>
<td>Exchange Server VM Guest OS</td>
<td>TCP, UDP</td>
<td>135, 137 to 139, 445</td>
<td>To deploy the runtime coordination process on a VM guest OS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>6005 to 65535</td>
<td>The dynamic RPC range that is used by the runtime coordination process which is deployed on a VM guest OS for application-aware processing (when working over the network). Note that Exchange 2010 or higher (in particular, Client Access) expands standard Windows dynamic RPC port range to provide a better scalability. For more information, see this Microsoft article.</td>
</tr>
<tr>
<td>Exchange Server VM Guest OS</td>
<td>Veeam Backup Server / Guest Interaction Proxy (Enterprise and Enterprise Plus editions)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:**

Configuring dynamic RPC range is not required when using default Microsoft Windows firewall settings as Veeam Backup & Replication automatically creates an associated firewall rule for the runtime process during installation. When using custom firewall settings or if application-aware processing fails with the *RPC function call failed* error, ensure configuring dynamic RPC ports manually. For more information, see this Microsoft article.

## Restore

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam Backup Server / Standalone Console</td>
<td>Microsoft Exchange 2003/2007 CAS Server</td>
<td>TCP</td>
<td>80, 443</td>
<td>WebDAV connections</td>
</tr>
<tr>
<td></td>
<td>Microsoft Exchange 2010/2013/2016 CAS Server</td>
<td>TCP</td>
<td>443</td>
<td>Microsoft Exchange web services connections</td>
</tr>
</tbody>
</table>
Required Permissions

The following table lists required permissions for user accounts to back up and restore Microsoft Exchange data.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Required Roles and Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup</td>
<td>For more information, see:</td>
</tr>
<tr>
<td></td>
<td>- The Required Permissions section of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
<tr>
<td></td>
<td>- The Required Permissions section of the Veeam Backup for Microsoft Office 365.</td>
</tr>
</tbody>
</table>

Restore to Microsoft Office 365 and on-premises Microsoft Exchange from backups created in Veeam Backup & Replication and Veeam Backup for Microsoft Office 365

To restore data to Microsoft Office 365 and on-premises Microsoft Exchange, make sure to configure user accounts as follows:

**Restore to a Public Folder**
- The account being used must own a mailbox on a target Microsoft Exchange server.
- The account must be assigned the Organization Management role on a target Microsoft Exchange server. See Assigning Organization Management Role.
- To restore In-Place Hold Items to the original location:
  - If the In-Place Hold Items folder already exists, make sure the account being used can create, modify and delete items. If the In-Place Hold Items folder does not exist, the account being used must be able to create folders under the All Public Folders root node.

**Restore to a Mailbox**
- If the account owns a mailbox, make sure it has Full Access.
- If the account does not own a mailbox, then access must be granted through impersonation. See Granting Full Access.

Examples

Assigning Organization Management Role

To assign the Organization Management role, use the following cmdlet.

```powershell
Add-RoleGroupMember "Organization Management" -Member "<user_account>"
```

For more information about the `Add-RoleGroupMember` cmdlet, see this Microsoft article.

Granting Full Access

To grant Full Access to the account that owns a mailbox, use the following cmdlet.

```powershell
Add-MailboxPermission -Identity "<target_mailbox>" -User "<user_account>" -AccessRights FullAccess -InheritanceType All
```

For more information about the `Add-MailboxPermission` cmdlet, see this Microsoft article.

To grant Full Access to the account that do not own a mailbox (i.e. through impersonation), use the following cmdlet.
New-ManagementRoleAssignment -Name "<role_name>" -Role ApplicationImpersonation -User "<user_account>"

For more information about the `New-ManagementRoleAssignment` cmdlet, see this Microsoft article.

Recalling Given Permissions

To recall given access level, run either of the following cmdlets.

- `Remove-ManagementRoleAssignment "<role_name>"`
- `Remove-ManagementRoleAssignment -Identity <role_name>`
Required Backup Job Settings

When you create a backup job, make sure to enable the application-aware image processing option, as described in the Specify Guest Processing Settings section of the Veeam Backup & Replication user guide.

**NOTE:**

By default, Exchange transaction logs will be truncated upon successful backup. To keep transaction logs for further processing by a third-party application, select the Exchange server VM from the list, click **Edit** and on the **General** tab select **Perform copy only**.

Support for Database Availability Groups (DAG)

Veeam Backup & Replication supports any configuration of DAGs. In particular, having all the databases active on a single node or with the active databases on each node. Transaction logs will be truncated on all DAG members.

For more information and recommendations, see the following articles:

- How to virtualize and protect Exchange 2016
- Veeam Knowledge Base article
Considerations and Limitations

This section lists considerations and known limitations of Veeam Explorer for Microsoft Exchange.

General

- When Veeam Explorer for Microsoft Exchange is installed on a server on which both Veeam Backup & Replication and Veeam Backup for Microsoft Office 365 are installed, the notification settings will be inherited from the Veeam Backup and Replication Global Notification settings.

Restore

- Veeam Explorer for Microsoft Exchange does not support restore via PSDirect, VIX or Sphere API.
- Sending objects that exceed 3MB in size may fail. To fix this issue, install this Microsoft update.
- Multiple restore is not supported for public folders. Use per-object restore.
- To restore In-Place Hold Items or Litigation Hold Items to the original location, consider the following:
  - In-Place Hold Items restore is not supported for On-Premises Exchange Server 2013 due to EWS limitations.
  - To restore In-Place Hold Items of Exchange 2016 mailboxes, these mailboxes must have In-Place Hold enabled and applied at least once with DiscoveryHolds system folder creation. Otherwise, restore will fail with the following error:
    
    "Failed to restore In-Place Hold Items. Restore of In-Place Hold Items into Exchange 2013 is not supported".

    For information on enabling In-Place Hold and Litigation Hold, see this Microsoft article.

NOTE:

To use an internet proxy server to restore backups created in Veeam Backup for Microsoft Office 365, make sure to provide appropriate proxy server address and the port number. For that, go to the Control Panel > Internet Options Connections tab, click LAN Settings, select the Use a proxy server for your LAN check box and specify a proxy server you want to use. Credentials for such a proxy (if needed) will be taken from the Control Panel > Credential Manager > Windows Credentials console.

Consider that this functionality is only available in Veeam Explorer for Microsoft Exchange that comes as part of the Veeam Backup for Microsoft Office 365 distribution package.

Export

Consider the following:

- Export is only available if you have a 64-bit version of Microsoft Outlook 2019, Microsoft Outlook 2016, Microsoft Outlook 2013 or Microsoft Outlook 2010 installed on a computer with Veeam Explorer for Microsoft Exchange.
- To avoid conflicts during export, make sure to exclude .pst files from the indexing scope. Oftentimes conflicts may occur due to a file you are exporting is being indexed at the same time. When exporting to shared folders, exclude Outlook files or disable Windows search on the destination computer.
Launching Application and Exploring Backups

To open Veeam Explorer for Microsoft Exchange and load backups, you can use any of the following methods:

- The **Restore application item** option to load backups created in Veeam Backup & Replication.
  
  For more information, see the [Application Items Restore](#) section of the Veeam Backup & Replication User Guide.

- The **Explore** option to load backups created in Veeam Backup for Microsoft Office 365.
  
  For more information, see the [Data Restore](#) section of the Veeam Backup for Microsoft Office 365 User Guide.

  When loading backups located in object storage repositories, Veeam Explorer for Microsoft Exchange will notify you about the location of these backups. You can select the **Don’t show this message again** check box to unsubscribe from such notifications. To enable notifications, select the **Reset disabled pop-up notifications** check box, as described in [Configuring Advanced Settings](#).

- Go to **Start**, click **Veeam Explorer for Microsoft Exchange** and manually open Microsoft Exchange databases, as described in [Standalone Databases Management](#) section.

When starting the application from the **Start** menu, specify the following:

- The name or IP-address of a server to which you want to connect.

- The port number.

- User credentials.
  
  The account must be a member of the **Local Administrator** group on a target server. To use your current account, select **Use Windows session authentication**.

To save the connection shortcut to the desktop, click **Save shortcut** in the bottom-left corner.
Understanding User Interface

Veeam Explorer for Microsoft Exchange provides you with the convenient user interface that allows you to perform required operations in a user-friendly manner.

Main Menu

The main menu comprises the following features:

- **General Options.** Allows you to configure program options.
- **Help.**
  - **Online help.** Opens the online web help page.
  - **About.** Shows information about the product.
- **Exit.** Closes the program.
Main Application Window

The main application window can be divided into three categories:

- The ribbon menu, which contains general program commands organized into logical groups.
- The navigation pane, which allows you to browse through the hierarchy of your backup files.
- The preview pane, which shows you the details about objects you have selected in the navigation area.
Browsing, Searching and Viewing Items

Continue with this section to learn more about:

- Browsing backup content
- Opening Messages
- Searching for objects in a backup file
- Using advance search

Browsing

To view the contents of a backup file, you use the navigation pane which shows you the database structure containing your Exchange objects.

After you select an object in the navigation pane, you can see its content in the preview pane.
Opening Messages

To open a message, right-click a message in the preview pane and select **Open**. You can also double-click a message:

- To show message headers, click **Show message headers**.
- To open attachments, double-click an attachments or right-click an attachment and select **Open**.
- To save attachments, right-click an attachment and select **Save as**.

Searching

The search mechanism allows you to find items matching specified search criteria.

To search for required items, do the following:

1. In the navigation pane, select an object in which you want to find data.
2. Enter a search query to the search field at the top of the preview pane.

**NOTE:**

To find the exact phrase, use double quotes. For example, "**Office 365**".

You can narrow search results by specifying various search criteria using the **criteria:value** format. You can also use logical uppercased operators such as **AND**, **OR** and **NOT** along with wildcard characters such as * and ?.
Using Advanced Find Capabilities

The Advanced Find mechanism allows you to define your search criteria more precisely. For example, to find messages with the subject Report, do the following:

1. In the preview pane, select a node and click Advanced Find.
2. In the Define search criteria section, select Category > All fields.
3. In the Field list, select Subject.
4. In the Condition list, select Contains.
5. In the Value field, specify a substring to look for.
6. Click Start.

To remove a filter, click the cross mark on the left. To remove all configured filters, click Reset.
General Application Settings

Continue with this section to learn more about configuring required application settings and components.
Configuring Extensible Storage Engine

To work with database files, Veeam Explorer for Microsoft Exchange requires a special dynamic link library ese.dll, which is shipped with Microsoft Exchange.

The ese.dll file must be of the same version as the Microsoft Exchange application with which your database files were created. When restoring a VM that was backed up with application-aware image processing, the ese.dll file will be located automatically.

The following versions of Microsoft Exchange are supported:

- Microsoft Exchange 2019
- Microsoft Exchange 2016
- Microsoft Exchange 2013
- Microsoft Exchange 2010 SP1, SP2 and SP3

To specify the path to the ese.dll file, do the following:

1. Go to the main menu and click **General Options**.
2. Go to the **Extensible Storage Engine** tab.
3. Click the link next to the Microsoft Exchange version and specify the path to the ese.dll file.

This file can be found on the Microsoft Exchange Server distribution CD in the \%Setup\ServerRoles\Common\ese.dll directory or in the installation directory of the Microsoft Exchange server.
Configuring SMTP Settings

To send Microsoft Exchange items, you must configure SMTP server settings.

To configure SMTP settings, do the following:

1. Go to the main menu and click **General Options**.

2. Go to the **SMTP Settings** tab, select the **Configure SMTP settings** check box and do the following:
   - In the **Server** field, specify a DNS name or IP address of the mail server.
   - In the **Port** field, specify the SMTP port of the specified mail server.
   - In the **From** field, specify the address that will be shown as the sender of an email.
   - Select the **Use authentication** check box if the specified SMTP server requires SMTP authentication for outgoing traffic and provide valid credentials.
   - Select the **Enable SSL security** check box to enable SSL data encryption.

3. Click **Send** to send a test email message.

4. Click **Apply**.
Configuring Advanced Settings

This section explains how to configure advanced settings of the application.

To configure advanced settings, do the following:

1. Go to the main menu and click **General Options**.
2. Go to the **Advanced** tab and select the following:
   - Select the **Show PST size estimation in status bar** check box to see the estimated size of the Outlook database file in the status bar.
   - Select the **Enable Extended logging** check box to enable extended logging mode to collect logs that contain more details on specific operations.
     After enabling extended logging mode, you can go back to the application and perform required actions, then collect logs.
   - Select the **Reset disabled pop-up notifications** check box to enable notifications when loading backups from object storage repositories.

Applicable to backups created in Veeam Backup for Microsoft Office 365.
Standalone Databases Management

Continue with this section to learn more about adding and removing Microsoft Exchange databases.

Veeam Explorer for Microsoft Exchange supports adding databases created with the following Microsoft Exchange versions:

- Microsoft Exchange Server 2019
- Microsoft Exchange Server 2016
- Microsoft Exchange Server 2013
- Microsoft Exchange Server 2010 SP1, SP2 or SP3
Adding Microsoft Exchange Stores

This section explains how to add Microsoft Exchange Databases manually.

Consider the following:

- Before adding databases, make sure that Veeam Explorer for Microsoft Exchange has access to the `ese.dll` file. For more information, see Configuring Extensible Storage Engine.

- If a database is in Dirty State, you will have to recover it by applying log files. Click Recover and wait until log files are applied, then re-add the database. Make sure that the Write permission is granted to the account being used.

To manually add a Microsoft Exchange database file (.edb) to the application scope, do the following:

1. On the Home tab, click Add Store > Microsoft Exchange mailbox database or right-click the All Stores node and select Microsoft Exchange mailbox database.

2. Click Browse to specify the path to the .edb file and Exchange logs folder.
Adding Veeam Backup for Microsoft Office 365 Server

You can use the Veeam Explorer for Microsoft Exchange abilities to connect to another Veeam Backup for Microsoft Office 365 server and add its databases to the Veeam Explorer for Microsoft Exchange scope.

To add Veeam Backup for Microsoft Office 365 server that stores Microsoft Office 365 organization data, do the following:

1. On the Home tab, click Add Store > Veeam Backup for Microsoft Office 365 server or right-click the All Stores node in the navigation pane and select Add Veeam Backup for Microsoft Office 365 server.
2. Specify connection settings under which to connect to the Veeam Backup for Microsoft Office 365 server and click Connect.
Adding Veeam Backup for Microsoft Office 365 Service Provider

Veeam Explorer for Microsoft Exchange allows you to add Office 365 database created in Veeam Backup for Microsoft Office 365.

Consider the following:

- Both Veeam Explorer for Microsoft Exchange and Veeam Backup & Replication must be installed on the same server.
- At least one service provider must be added to Veeam Backup & Replication, as described in Connecting to Service Providers

To add Office 365 databases, do the following:

1. From the Start menu, launch Veeam Explorer for Microsoft Exchange.
2. On the toolbar, click Add Store > Veeam Backup for Microsoft Office 365 Service Provider or use the corresponding context menu command.
3. In the drop-down menu, select a tenant account to which you want to connect.
   The list of available tenants depends on added service providers.
4. Specify Microsoft Office 365 organization credentials.
5. Click Connect.

You can also select a point-in-time state as of which you want to load an Office 365 database. For more information, see Specifying Point in Time.
Specifying Point in Time

When you connect to the service provider server, you may want to select a particular state as of which to add an organization database to the Veeam Explorer for Microsoft Exchange scope.

To select a state, do the following:

1. After you select **Veeam Backup for Microsoft Office 365 Service Provider** and provide required credentials, click **Specify point in time**.

2. Under the **Specify a point in time you want to open** section, select either of the following options:
   - **Use latest available state.** To load data as of the latest backup state.
   - **Use the following point in time.** To load data as of the selected point in time.
     To select a state, use the calendar control.

3. To load items that have been deleted by the user, select **Show items that have been deleted by user**.

4. To load all versions of items that have been modified by the user, select **Show all versions of items that have been modified by user**.

![Veeam Backup for Microsoft Office 365 Service Provider](image)
Removing Standalone Databases

Veeam Explorer for Microsoft Exchange allows you to remove an Exchange store from the application scope when you no longer need it.

To remove a store from the application scope, right-click a store in the navigation pane and select Remove Store.

![Image of Veeam Explorer for Microsoft Exchange interface showing the option to remove a store](image-url)
Data Restore

Continue with this section to learn more about restoring Microsoft Exchange data.

TIP:
Before restoring data, make sure to read Considerations and Limitations.
Restoring Single Mailbox

To restore a mailbox, do the following:

1. **Launch Restore Wizard**
2. **Specify Target Mailbox and Domain Account**
3. **Specify Target Mailbox Server and Folder**
4. **Specify Restore Options**

### Step 1. Launch Restore Wizard

To launch the Restore wizard, do the following:

1. In the navigation pane, select a mailbox.
2. On the Mailbox tab, select **Restore Mailbox > Restore to** or right-click a mailbox and select **Restore to**.

### Step 2. Specify Target Mailbox and Domain Account

At this step of the wizard, do the following:

1. In the **Mailbox** field, specify a mailbox you want to restore.
2. Under the **Specify user account to connect to Exchange service** section, select either of the following options:

- **Use current account**. To connect to the specified server using the current user account under which Veeam Explorer for Microsoft Exchange running.

- **Use the following account**. To connect to the specified server under a custom user account:
  - In the **User name** field, specify an account in either of the following formats:
    - For On-Premises Exchange, use the **domain\username** format.
    - For Exchange Online, use the **<username>@<organization>.onmicrosoft.com** format.
    - You can also provide an MFA-enabled user account under which you want to connect to the Microsoft organization and retrieve a mailbox to restore.
  - In the **Password** field, provide the password.

![RESTORE WIZARD](image)

**Specify target mailbox and domain account**

**Mailbox:**

aaron.brown@asdomain.com

**Specify user account to connect to Exchange service:**

- Use current account (EPSILON\Administrator)
- Use the following account:

  **Username:** asDomain\Administrator

  **Password:** ************

- To connect with an account enabled for multi-factor authentication (MFA), use an app password instead of a user password.

Step 3. Specify Target Mailbox Server and Folder

At this step of the wizard, do the following:

- In the **Specify the mailbox server (CAS) to restore the selected items to** field, specify the Exchange server name or IP-address to which you want to restore the selected mailbox.

- Under the **Specify the folder to restore items to** section, select either of the following options:
  - **Restore to the original folder**. To restore data back to the original location.
  - **Restore to the following folder**. To restore data to a custom folder.

  If the specified folder does not exist, it will be created under the root mailbox.

Consider the following:

- When restoring public folders, security permissions will be restored to their original settings.
- Hard deleted items from public folders will be restored to the original location.
- Hard deleted items from the mailbox (shown in the *Permanently Deleted Items* folder), will be restored to the original location. You can also specify a different location.

- To restore *Online Archive* mailbox items, make sure the corresponding *Online Archive* mailbox is configured on the target server. *Online Archive* mailbox items can be restored to the original folder (for example, *Online Archive - User1 > Drafts*) or to a different folder.

**Step 4. Specify Restore Options**

At this step of the wizard, specify restore options:

- **Changed items.** To restore items that have been changed.
- **Missing Items.** To restore missing items.
- **Mark restored items as unread.** To mark restored items as unread.

To prevent certain folders from being restored, click the *Exclude folders* link and select folders to exclude.
<table>
<thead>
<tr>
<th>Restore the following items:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Changed items</td>
</tr>
<tr>
<td>☑ Missing items</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flag restored items:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Mark restored items as unread</td>
</tr>
</tbody>
</table>
Restoring Multiple Mailboxes

To restore multiple mailboxes, do the following:

1. **Launch Restore Wizard**
2. **Specify Connection Settings**
3. **Select Mailboxes to Restore**
4. **Specify Target Mailbox Server**
5. **Select Restore Options**

### Step 1. Launch Restore Wizard

To launch the **Restore** wizard, do the following:

1. In the navigation pane, select a mailbox store.
2. On the **Home** tab, select **Restore Mailboxes** or right-click a container and select **Restore mailboxes**.

![Image of Restore Wizard](image-url)
Step 2. Specify Connection Settings

Depending on the organization type, the first step of the credentials dialog as follows:

- For On-Premises Exchange
- For Exchange Online

For On-Premises Exchange

When restoring to On-Premises Exchange server, do the following:

1. In the **Domain** field, specify the *Global Catalog* server name.
2. Under the **Specify user account to connect to Active Directory domain and Exchange Server** section, select either of the following options:
   - **Use current account**. To connect to the specified server using the current user account under which Veeam Explorer for Microsoft Exchange is running.
   - **Use the following account**. To connect to the specified server under a custom user account:
     - In the **User name** field, specify an account in the *domain\username* format.
     - In the **Password** field, provide the password.

![RESTORE WIZARD](image)

Specify Global Catalog server and credentials

- **Domain**: tech.local
- **Specify user account to connect to Active Directory domain and Exchange Server**:
  - Use current account
  - Use the following account
    - **Username**: Administrator
    - **Password**: ********

[Back Next Cancel]
For Exchange Online

When restoring to Exchange Online, do the following:

1. Under the Specify user account to connect to Exchange Server section, select either of the following options:
   - Use current account. To connect to the specified server using the current user account under which Veeam Explorer for Microsoft Exchange running.
   - Use the following account. To connect to the specified server under a custom user account:
     - In the User name field, specify an account in the <username>@<organization>.onmicrosoft.com format. You can also provide an MFA-enabled user account under which you want to connect to the source Microsoft organization and retrieve mailboxes to restore.
     - In the Password field, provide the password.

Step 3. Select Mailboxes to Restore

At this step of the wizard, select mailboxes you want to restore.

To see the corresponding email addresses for each selected mailbox in the list, click Resolve selected mailboxes.

Consider the following:

- To access Active Directory, the account you are using must be included to the domain Administrators or Organization Management group.

- If the account you are using is a member of the Authenticated Users group but the Read permission has not been granted, then such an account will not be able to properly process system mailboxes.
Step 4. Specify Target Mailbox Server

At this step of the wizard, specify a target mailbox server to which you want to recover your data.

NOTE:

This step is only available when restoring data back to on-premises organizations.
Step 5. Select Restore Options

At this step of the wizard, specify restore options:

- **Changed items.** To restore items that have been changed.
- **Missing Items.** To restore missing items.
- **Mark restored items as unread.** To mark restored items as unread.

When restoring multiple mailboxes, select the **Finish the restore of recent items before restoring the remaining items** check box and set the value in the **Restore items for the last <N> days first** field to restore multiple mailboxes in "chunks", when the most recent items in the backup will be processed first.

To prevent certain folders from being recovered, click the **Exclude folders** link and select folders to exclude.

![Screenshot of the RESTORE WIZARD](image-url)
Restoring Folders and Items

This section explains how to restore folders and items.

Consider the following:

- Restore of In-Place Hold Items is not supported for Exchange Server 2013 due to Exchange limitations.
- In-Place Hold Items of Exchange 2016 mailboxes must have In-Place Hold enabled and applied at least once with the DiscoveryHolds folder creation. For more information, see this Microsoft article.

To restore a folder or mailbox item, do the following:

1. Launch Restore Wizard
2. Specify Target Mailbox and Domain Account
3. Specify Target Mailbox Server and Folder
4. Specify Restore Options

Step 1. Launch Restore Wizard

To launch the Restore wizard, do the following:

1. In the navigation pane, select a folder or in the preview pane, select a mailbox item.
2. On the Folder/Items tab, select Restore Folder/Item > Restore to or right-click a folder/item and select Restore to.
Step 2. Specify Target Mailbox and Domain Account

At this step of the wizard, do the following:

1. In the **Mailbox** field, specify a mailbox that you want to restore.

2. Under the **Specify user account to connect to Exchange service** section, select either of the following options:
   - **Use current account.** To connect to the specified server using the current user account under which Veeam Explorer for Microsoft Exchange running.
   - **Use the following account.** To connect to the specified server under a custom user account:
     - In the **User name** field, specify an account in either of the following formats:
       - For On-Premises Exchange, use the `domain\username` format.
       - For Exchange Online, use the `<username>@<organization>.onmicrosoft.com` format.
       You can also provide an MFA-enabled user account under which you want to connect to the Microsoft organization and retrieve a mailbox to restore.
     - In the **Password** field, provide the password.
Step 3. Specify Target Mailbox Server and Folder

At this step of the wizard, do the following:

- In the Specify the mailbox server (CAS) to restore the selected items to field, specify the Exchange server name or IP-address to which you want to restore the selected mailbox.

- Under the Specify the folder to restore items to section, select either of the following options:
  - Restore to the original folder. To restore data back to the original location.
  - Restore to the following folder. To restore data to a custom folder.

   If the specified folder does not exist, it will be created under the root mailbox node.

Consider the following:

- When restoring public folders, security permissions will be restored to their original settings.

- Hard deleted items from public folders will be restored to the original location.

- Hard deleted items from the mailbox (shown in the Permanently Deleted Items folder), will be restored to the original location. You can also specify a different location.

- To restore Online Archive mailbox items, make sure the corresponding Online Archive mailbox is configured on the target server. Online Archive mailbox items can be restored to the original folder (for example, Online Archive - User1 > Drafts) or to a different folder.
Step 4. Specify Restore Options

At this step of the wizard, specify restore options:

- **Changed items.** To restore items that have been changed.
- **Missing Items.** To restore missing items.
- **Mark restored items as unread.** To mark restored items as unread.
Using 1-Click Restore

The 1-Click Restore feature allows you to quickly recover Exchange mailboxes.

NOTE:

1-Click restore feature is only available when you run Veeam Explorer for Microsoft Exchange on a computer that is located within the same forest where the backup of the Microsoft Exchange database was created.

Consider the following:

- Original Exchange server, original folder and original mailbox name will be restored.
- Both changed and missing items will be restored.
- Restored items will be marked as unread.
- No folders will be excluded.

To use the 1-Click Restore feature, do the following:

1. In the navigation pane, select a mailbox.
2. On the Mailbox tab, select Restore to <original_mailbox_name> or right-click a folder/item and select Restore to <original_mailbox_name>.
Data Export

Continue with this section to learn more about exporting Microsoft Exchange data.

TIP:
Before exporting data, make sure to read Considerations and Limitations.
Exporting to Custom Location

To export objects to the custom location, do the following:

1. In the navigation pane, select a folder or in the preview pane, select an item.

2. On the Folder/Items tab, select Export Folder/Item > Export to .pst file or right-click a folder/item and select Export to .pst file.

3. In the Export Folder/Export Mail Item dialog, do the following:

   - In the Export location field, specify the name and location for the new .pst file.
   - Select the Apply filter check box and enter keywords to export only those items that match specified criteria. To provide multiple keywords, use the OR logical operator as the delimiter. Veeam Explorer for Microsoft Exchange will check for the specified keywords in all fields such as From, To, Subject and Body.
     - The Apply filter option is only available when exporting folders and mailboxes, not items.
   - Select the Limit PST size to check box and specify the size of which to export .pst files.
     - With this option, Veeam Explorer for Microsoft Exchange will create multiple .pst files as of the specified size.
Specify the target path and optional settings:

- **Export location:** C:\Users\Administrator.TECH\Desktop\inbox.pst
- **Apply filter:** task
- **Limit PST size to:** 1 GB (additional PST files will be created as needed)

[Export] [Cancel]
Using 1-Click Export

Veeam Explorer for Microsoft Exchange allows you to quickly export mailbox store data as .pst files.

NOTE:
Export operations require Microsoft Outlook to be installed on a computer running Veeam Explorer for Microsoft Exchange.

Depending on the object type you want to export, do the following:

- To export a folder, select it in the navigation pane and on the Folder tab, click Export Folder > Export to <default_location>\<original_folder_name>.pst or use the corresponding context menu command.

- To export an item, select it in the navigation pane and on the Items tab, click Export Items > Export to <default_location>\<original_folder_name>.pst or use the corresponding context menu command.
To export a mailbox, select it in the navigation pane and on the Mailbox tab, click Export mailbox > Export to <default_location>\<original_mailbox_name>.pst or use the corresponding context menu command.
To export a mailbox store or all stores added to the scope, select a store or select the **All Stores** node and click **Export** on the **Home** tab.
Receiving Export Reports

Veeam Explorer for Microsoft Exchange can deliver reports that show summary information about export operations.

Consider the following:

- If you want export reports to be delivered, make sure to configure an SMTP server in Veeam Explorer for Microsoft Exchange and/or Veeam Backup & Replication notification settings. For more information, see the Configuring SMTP Settings section of this guide and the Configuring Global Email Notification Settings section of the Veeam Backup & Replication User Guide.

- Export reports are delivered automatically upon each export session. You can use Export to Custom Location or 1-Click Export.

- Recipients of the report are chosen as follows:
  - The recipient is always the current user account under which Veeam Explorer for Microsoft Exchange is running when using only Veeam Explorer for Microsoft Exchange notification settings.
  - The recipient is always the user account provided in Veeam Backup & Replication notification settings when using only Veeam Backup & Replication settings. You can use Veeam Backup & Replication notification settings to be notified about what has been exported and by whom.
  - If you have configured both Veeam Explorer for Microsoft Exchange and Veeam Backup & Replication notification settings, the report will be sent to both parties. If the recipient address that is specified in the To field in Veeam Backup & Replication notification settings is the same as the current user account under which Veeam Explorer for Microsoft Exchange is running, the report will only be sent to the current user account from Veeam Explorer for Microsoft Exchange, and the recipient specified in Veeam Backup & Replication notification settings will not receive the report.

The following table lists fields that are shown in the report.

<table>
<thead>
<tr>
<th>Report field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed by</td>
<td>Veeam Explorer for Microsoft Exchange</td>
</tr>
<tr>
<td>Version</td>
<td>Shows the Veeam Explorer for Microsoft Exchange build number.</td>
</tr>
<tr>
<td>Percent complete</td>
<td>Shows the number of items included in the .pst file.</td>
</tr>
<tr>
<td>Started by</td>
<td>Shows the user account generated the report.</td>
</tr>
<tr>
<td>Start time, End time</td>
<td>Shows the creation time of a report.</td>
</tr>
<tr>
<td>Root</td>
<td>Shows the object path.</td>
</tr>
<tr>
<td>Path</td>
<td>Shows the path to the database file.</td>
</tr>
</tbody>
</table>
### Summary

**Export type**
Shows the export type.

**Stores**
Shows a datastore name from which items have been exported.

**Mailboxes to search**
Shows a mailbox name from which items have been exported.

**Mailboxes searched successfully, Mailboxes not searched successfully**
Shows results for mailboxes to search.

**Size**
Shows the total size of exported items.

**Items**
Shows the number of exported items.

**Errors**
Shows errors that occurred during export.

---

**Email export completed successfully**

- **Performed by:** Veeam Explorer for Microsoft Exchange
- **Version:** 9.0.1206
- **Percent complete:** 100%
- **Started by:** SVCSAdministrator
- **Start time:** 1/28/2016 3:00:07 AM
- **End time:** 1/28/2016 3:00:07 AM
- **Root:** mttmee21stb/VSS2/Drafts
- **Path:** \Users\SVCSAdministrator\Desktop\Drafts\past
- **Emails to search:** 14801
- **Mailboxes searched successfully:** 14801
- **Mailboxes not searched successfully:** None
- **Size:** 79.61 MB
- **Items:** 5 (of 5)
- **Errors:** None
Data Compare

This section explains how to compare data in a backup file with that of the production state.

1. In the navigation pane, select an object and click **Compare with Production** on the toolbar.

2. Proceed to **Specify Connection Settings** to authorize yourself in the production environment.
   
   Authorization is only required when the account you are using does not have sufficient privileges to access the production environment.

3. After the authorization process is complete (if required), click **Show Changed Items Only** on the toolbar to view only those items that have been changed.

To view the details on what exactly has changed since the last backup, right-click an item and select **Compare item properties**. The discrepancies will be shown in the **Compare Message Properties** Window. If both objects are equal, nothing will be displayed.

To show unchanged objects, select **Show unchanged properties** in the top-right corner. To show system properties, select **Show system properties**.

Double-click **Body** to see the body message.

To compare a single item, right-click an item and select **Compare item properties**.

<table>
<thead>
<tr>
<th>NAME</th>
<th>BACKUP</th>
<th>PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachments (No changes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recipients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To</td>
<td><a href="mailto:Aaron.Brown@asdomain.local">Aaron.Brown@asdomain.local</a></td>
<td><a href="mailto:Aaron.Brown@asdomain.local">Aaron.Brown@asdomain.local</a></td>
</tr>
<tr>
<td>To</td>
<td><a href="mailto:Jane.Summers@asdomain.local">Jane.Summers@asdomain.local</a></td>
<td><a href="mailto:Jane.Summers@asdomain.local">Jane.Summers@asdomain.local</a></td>
</tr>
<tr>
<td>Properties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body</td>
<td>&lt;double click to open&gt;</td>
<td>&lt;double click to open&gt;</td>
</tr>
</tbody>
</table>
Step 1. Specify Connection Settings

Depending on the organization type, the first step of the credentials dialog will be different:

- For On-Premises Exchange
- For Exchange Online

For On-Premises Exchange

When restoring to On-Premises Exchange server, do the following:

1. In the **Domain** field, specify the *Global Catalog* server name.
2. Under the **Specify user account to connect to Active Directory domain and Exchange Server** section, select either of the following options:
   - **Use current account.** To connect to the specified server using the current user account under which Veeam Explorer for Microsoft Exchange running.
   - **Use the following account.** To connect to the specified server under a custom user account:
     - In the **User name** field, specify an account in the *domain\username* format.
     - In the **Password** field, provide the password.

For Exchange Online

When restoring to Exchange Online, do the following:

1. Under the **Specify user account to connect to Exchange Server** section, select either of the following options:
   - **Use current account.** To connect to the specified server using the current user account under which Veeam Explorer for Microsoft Exchange running.
   - **Use the following account.** To connect to the specified server under a custom user account:
- In the **User name** field, specify an account in the `<username>@<organization>.onmicrosoft.com` format. You can also provide an MFA-enabled user account under which you want to connect to the source Microsoft organization and retrieve mailboxes to restore.

- In the **Password** field, provide the password.
Step 2. Specify Target Mailbox Server

At this step of the wizard, specify the target mailbox server.

**NOTE:**

This step is only available when comparing data with On-Premises organizations.

RESTORE WIZARD

Specify target mailbox server

Specify the mailbox server (CAS) to restore the selected items to:

exchange2013
Saving Microsoft Exchange Items

Veeam Explorer for Microsoft Exchange allows you to save any item as Microsoft Exchange Mail Document (.msg) files.

Saving to Custom Location

To save items to a custom location, do the following:

1. In the navigation pane, select an item.
2. On the Items tab, select Save Items > Save to .msg file or right-click a folder/item and select Save to .msg file.

1-Click Save

To save your Exchange data, do the following:

1. In the navigation pane select a folder containing required items.
2. In the preview pane, select items.
3. Use the Search field to find particular items.
4. On the Items tab, select Save Items > Save to <folder_name> or right-click a folder/item and select Save to <folder_name>.
A `<folder_name>` name depends on the latest location that was used when saving items.
Sending Microsoft Exchange Items

Veeam Explorer for Microsoft Exchange allows you to send Exchange items via email.

TIP:

Before sending documents, make sure to configure SMTP settings, as described in Configuring SMTP Settings. The amount of data you can send at a time depends on your SMTP server configuration.

To send items, do the following:

1. In the navigation pane select a folder.
2. In the preview pane, select items to send.
   Use the Search field to find particular items.
3. On the Items tab, select Send Items > Send to or right-click a folder/item and select Send to.
4. Provide a recipient address.
   The From field is filled automatically based on the address you have provided when configuring SMTP settings. To edit the message body, click More Details.
<table>
<thead>
<tr>
<th>From:</th>
<th><a href="mailto:administrator@tech.local">administrator@tech.local</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>To:</td>
<td><a href="mailto:Aaron.Brown@adomain.local">Aaron.Brown@adomain.local</a></td>
</tr>
<tr>
<td>Subject:</td>
<td>Mail items Recovery</td>
</tr>
</tbody>
</table>
Veeam Explorer for Microsoft SharePoint

Veeam Explorer for Microsoft SharePoint allows you to restore and export Microsoft SharePoint objects from backups created in Veeam Backup & Replication and Veeam Backup for Microsoft Office 365.
Planning and Preparation

Continue with this section to learn how to configure your environment before start using Veeam Explorer for Microsoft SharePoint:
System Requirements

This section lists system requirements for Veeam Explorer for Microsoft SharePoint.

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft SharePoint</td>
<td>For more information about supported versions of Microsoft SharePoint, see:</td>
</tr>
<tr>
<td></td>
<td>- The Supported Applications subsection of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
<tr>
<td></td>
<td>- The System Requirements section of the Veeam Backup for Microsoft Office 365 User Guide.</td>
</tr>
</tbody>
</table>

**NOTE:**

Consider the following:

- To restore SharePoint content database items from a server running Microsoft Windows ReFS, the Veeam backup server or a management console must be installed on the Microsoft Windows Server 2012 or later.
- To restore from a server running Microsoft Windows ReFS 3.x, Veeam backup server or a management console must be installed on the Microsoft Windows Server 2016.
# Used Ports

The following table lists network ports that must be opened to manage inbound/outbound traffic.

## General

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam Explorer for Microsoft SharePoint</td>
<td>SQL Server</td>
<td>TCP</td>
<td>1433, 1434 and other</td>
<td>To communicate with Microsoft SQL servers hosting content databases. Exact port numbers depend on the configuration of a Microsoft SQL server. For more information, see <a href="#">this Microsoft article</a>.</td>
</tr>
<tr>
<td>SharePoint Web Application</td>
<td>As recommended by Microsoft</td>
<td>As recommended by Microsoft</td>
<td>For more information on recommended port numbers and protocols for SharePoint web application, see <a href="#">this Microsoft article</a>. To discover ports currently used by your SharePoint web application, follow the steps described in <a href="#">this Microsoft article</a>.</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:**

To restore database items or lists to a server that is running in a DMZ, the SharePoint web application ports will be used.

## iSCSI Traffic

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Server / Staging Server</td>
<td>Veeam Backup Server / Standalone Console</td>
<td>TCP</td>
<td>3260 - 3270</td>
<td>Used by iSCSI initiator to connect to the iSCSI target.</td>
</tr>
</tbody>
</table>
## Required Permissions

The following table lists required permissions for user accounts to back up and restore Microsoft SharePoint data.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Required Roles and Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Backup</strong></td>
<td>For more information, see:</td>
</tr>
<tr>
<td></td>
<td>- The Required Permissions section of the Veeam Backup &amp; Replication User Guide.</td>
</tr>
<tr>
<td></td>
<td>- The Required Permissions section of the Veeam Backup for Microsoft Office 365. User Guide.</td>
</tr>
<tr>
<td><strong>Restore to on-premises Microsoft SharePoint from backups created in Veeam Backup &amp; Replication and Veeam Backup for Microsoft Office 365</strong></td>
<td>To restore data to on-premises SharePoint, make sure to configure user accounts as follows:</td>
</tr>
<tr>
<td></td>
<td>- The account must be granted Full Control to connect to the target SharePoint server.</td>
</tr>
<tr>
<td></td>
<td>- The account must be assigned either the Site Administrator or System Account role to restore user permissions.</td>
</tr>
<tr>
<td></td>
<td>- If permissions of items being restored are inherited from the parent one, the account must be granted Full Control.</td>
</tr>
<tr>
<td></td>
<td>- If permissions of items being restored are not inherited from the parent one and items being restored replace the existing ones, the account must be granted Contribute and Full Control.</td>
</tr>
<tr>
<td><strong>Restore to Microsoft Office 365 from backups created in Veeam Backup for Microsoft Office 365</strong></td>
<td>To restore data to SharePoint Online, make sure to configure user accounts as follows:</td>
</tr>
<tr>
<td></td>
<td>- The account must be granted the SharePoint Administrator role.</td>
</tr>
<tr>
<td></td>
<td>- The account must be granted the Site Collection Administrator role.</td>
</tr>
</tbody>
</table>

Consider the following:

- The current account can only be used to access a local staging server. To connect to a remote server, use appropriate authentication credentials to access that server.
- The account requires the sysadmin fixed server role on a staging Microsoft SQL server.
- For ADFS as an authentication provider:
  - When using Windows Authentication, you can use both your current account or provide another account.
  - When using Forms Authentication, the current account cannot be used.
Required Backup Job Settings

When you create a backup job, make sure to enable the application-aware image processing option, as described in the Specify Guest Processing Settings section of the Veeam Backup & Replication user guide.
Staging SQL Server

To perform Microsoft SharePoint items recovery, Veeam Explorer requires a Microsoft SQL server to be used as a staging system.

The server you are going to use as a staging system must conform to the following:

- A staging system must have the same or later version of Microsoft SQL Server that hosts restored Microsoft SharePoint databases.
- Microsoft SQL Server that is included in Microsoft SQL Server Failover Cluster cannot be used as a staging system.
- Nodes participating in AlwaysOn Availability Groups are supported. However, using Availability Group Listeners as staging servers is not recommended.

NOTE:

You can use Microsoft SQL Server 2012/2016 Express editions which are shipped with the Veeam Backup & Replication distribution package. Consider that due to Express edition limitations, the maximum database size that can be attached is 10GB. For more information, see this Microsoft article.

Remote BLOB Stores Support

A BLOB store must either be included in the SharePoint backup created by Veeam Backup & Replication or Veeam Agent for Microsoft Windows (for automated discovery) or stored on a local machine running Veeam Explorer (for manual discovery).

IMPORTANT!

Third-party RBS providers are not supported in the current version.

Make sure the staging SQL Server configuration meets the following requirements:

1. **FILESTREAM** must be enabled on a database server, as described in the following articles:
   - For SQL Server 2017 for Windows, see this Microsoft article.
   - For SQL Server 2016, see this Microsoft article
   - For SQL Server 2014, see this Microsoft article
   - For SQL Server 2012, see this Microsoft article
   - For SQL Server 2008R2, see this Microsoft article

2. **RBS Client Library** must be installed on the database server. For Microsoft SQL Server 2014 and later, the Remote Blob Store setup is included in the installation media. For other versions you can use the corresponding Microsoft SQL Server Remote Blob Store installation package (**RBS.msi**) available at the Microsoft website:
   - For SQL Server 2012, see this Microsoft article
   - For SQL Server 2008R2, see this Microsoft article
Considerations and Limitations

This section covers considerations and known limitations of Veeam Explorer for Microsoft SharePoint.

General

- When Veeam Explorer for SharePoint is installed on a server on which both Veeam Backup & Replication and Veeam Backup for Microsoft Office 365 are installed, the notification settings will be inherited from the Veeam Backup and Replication Global Notification settings.

Status Recovery Limitations

Consider the following when planning documents/list items recovery:

• If a document/item was in *Check Out* state when the backup was created, item’s last version will not be restored to the target SharePoint and will be available for viewing only. Previous versions (if any) will be restored.

• If the *Declare this item as a record* action was originally applied to list item, the corresponding status will not be preserved. Instead, the restored item status will be set in accordance with the target list/library content approval workflow.

• Original status *On Hold* will not be restored

Restoring Documents, Libraries and Lists

- Versioning settings of SharePoint lists are not preserved during restore.

- Restoring Generic List and Pages Library may fail with the "No content type 'XXX' found in web YYY" error.

- *Modified By* field of restored documents is updated with the account performing restore.

- Some *Rating Settings* of Discussion lists values are not restored.

- Restore via PSDirect, VIX or Sphere API is not supported.

Restoring List Items

Consider that when restoring a list item, Veeam Explorer works in the following way:

- Deletes an existing item

- Creates item’s latest version anew using data from the backup.

- Checks whether it is declared as a record.

- If the check is a success, the process finishes.

- If not, the created version is deleted and item versions are restored sequentially.

- Restore via PSDirect, VIX or Sphere API is not supported.

This logic leads to several peculiarities of list item restore, as described below.
If a list or list items column is used as a lookup column in the dependent list, consider that restoring an item from the source list causes corresponding items deletion in the dependent list.

If a lookup column in the dependent list has the enforced relationship behavior set to **Cascade Delete**, then restoring an item from the source list may cause item deletion in the dependent list due to Microsoft implementation. For more information, see [this Microsoft article](#).

To prevent this issue, it is recommended to turn off enforced relationship behavior. As a work-around, you can roll-back the SharePoint database using Veeam Explorer for Microsoft SQL Server (as described in the corresponding section of this guide) or roll-back the whole SharePoint server VM to the desired state using any Veeam Backup & Replication recovery option.

The following limitations should also be considered:

- If a lookup column in the dependent list has the enforced relationship behavior set to **Restrict Delete**, then item restore with Veeam Explorer will fail.
- If an .ASPX page references an item using ItemID, this reference may fail to restore (as the item will be created anew with a different ItemID).
- If a list item cannot be deleted (for example, site's "Welcome" page), consider that restore process will recover all versions of the item sequentially without deletions, adding them to **Version History**.
- **Restored Issue** list items are assigned new Issue ID.
- Restore of **Time Card** list is not supported.

## Restoring List Items with Links (Attachments)

Consider the following when planning for the recovery of list items with links (attachments):

- If the retention policy for target list/document library was configured to **Declare record** automatically, only the last version of the item will be restored to target list/library. Target retention policy settings will be applied to restored item (**Declare record**). However, links (attachments) will not be restored.
- Alternatively (with different retention policy settings), all versions of the original item will be restored to target list/library; item links (attachments) will be restored only if such item does not exist on target SharePoint.
- If **Declare this item as a record** action was originally applied to list item, such item will not be restored.
- Restore via PSDirect, VIX or Sphere API is not supported.

## Restoring Surveys

Consider the following limitations when planning for the recovery of surveys, survey questions and responses:

- Survey item(s) can be restored to a new survey, created automatically by Veeam Explorer for Microsoft SharePoint in the specified destination instead of the previously deleted survey. However, if a new survey is created by user from scratch (not replacing a deleted one) – items cannot be recovered to such a survey.
- A survey can be restored to an existing target survey only if that target survey includes at least one item (question) same as survey questions stored in the content database.
- If a survey question was not answered completely in the source survey, after restore the response status in the target survey will be set to **Completed**, anyway.
- When restoring a single response to a survey, target response item with the same number will be deleted and restored item will be placed in the target survey after the last numbered response.
For example, if the target survey has responses #1-15 and you try to restore a response that used to be #6 on source – then target response #6 will be deleted and restored response will be assigned #16.

- Restore via PSDirect, VIX or Sphere API is not supported.

**Restoring Sites**

- If you plan to restore SharePoint site pages, consider that Veeam Explorer does not support recovery of items which are not stored in the SharePoint content database (in particular, pages, page references and items based on default templates). Such items cannot be restored (neither by Restore nor by Save menu option), except for data from Wiki Content (text and images) which is stored in the database. Thus, site pages containing only text and/or images can be restored and displayed properly.

**NOTE:**

Consider the following:

- In case you attempt to restore such items, the following error message will be logged: "Item <item> is skipped: restoration of items based on SharePoint default template is not supported."
- In case you attempt to save such items, the following error message will be logged: "Unable to save document <item>. Document content is not available."

- Web features restore is not supported for SharePoint 2010 sites.

**Export and Import**

- Importing exported Picture Library may result in IDs changed for some items.
- Importing exported Project Tasks list does not preserve column order.
- Importing exported SharePoint list does not preserve Validation Settings.

**Data Type Limitations**

Consider the column (field) data type when planning for the recovery of your SharePoint libraries/lists:

- If source column (field) data type was set to Lookup, but the referenced list/library was deleted, such columns (fields) will not be restored even if you recover that referenced list. The reason is that if referenced list is deleted, the reference (link) to that list is no longer valid.
- If source column (field) data type was set to Managed Metadata, such columns (fields) will not be restored.

**Workflow-related Considerations**

You may need to restore the item(s) originally belonging to a list with no content approval required, to another list. If you try to restore such item(s) to a list that requires content approval, item version and status will be modified in the following way:

- If a target list is configured to include major versions only – then all versions of restored item will become major (despite the original versioning); item status will be set to Pending.
- If a target list is configured to include both major and minor versions – then all versions of restored item will become minor (despite the original versioning); item status will be set as follows:
  - If the last version (original) was major – status will be set to Pending
- If the last version was minor – status will be set to *Draft*

Also, consider the following when planning for the recovery of list items (with or without content approval originally required):

a. If the retention policy for target list/document library is configured to **Declare record** automatically, only the last version of the item will be restored to target list/library. Target retention policy settings will be applied to restored item (**Declare record**).
   Besides, if **Require content approval for submitted items** was enabled for the original list, then after recovery item status will be set to **Pending**.

b. Alternatively (with different retention policy settings), all versions of the original item will be restored to target list/library.
   Besides, if **Require content approval for submitted items** was enabled for the original list, then after recovery item status in the content approval workflow will be also restored, except for the states listed (see "Status Recovery Limitations" above).
Launching Application and Exploring Backups

To open Veeam Explorer for SharePoint and load backups, you can use any of the following methods:

- The **Restore application item** option to load backups created in Veeam Backup & Replication. For more information, see the **Application Items Restore** section of the Veeam Backup & Replication User Guide.

- The **Explore** option to load backups created in Veeam Backup for Microsoft Office 365. For more information, see the **Data Restore** section of the Veeam Backup for Microsoft Office 365 User Guide.

  When loading backups located in object storage repositories, Veeam Explorer for SharePoint will notify you about the location of these backups. You can select the **Don't show this message again** check box to unsubscribe from such notifications. To enable notifications, select the **Reset disabled pop-up notifications** check box, as described in **Configuring Advanced Settings**.

- Go to **Start**, click **Veeam Explorer for SharePoint** and manually open Microsoft SharePoint databases, as described in the **Standalone Databases Management** section. When starting the application from the **Start** menu, specify the following:
  
  - The name or IP-address of a server to which you want to connect.
  
  - The port number.
  
  - User credentials.

    The account must be a member of the **Local Administrator** group on a target server. To use the account under which Veeam Explorer for SharePoint is running, select **Use Windows session authentication**.

To save the connection shortcut to the desktop, click **Save shortcut** in the bottom-left corner.
Understanding User Interface

Veeam Explorer for SharePoint provides you with the convenient user interface that allows you to perform required operations in a user-friendly manner.

Main Menu

The main menu comprises the following features:

- **General Options.** Allows you to configure program options.
- **Help.**
  - **Online help.** Opens the online web help page.
  - **About.** Shows information about the product.
- **Exit.** Closes the program.
Main Application Window

The main application window can be divided into three categories:

- The ribbon menu, which contains general program commands organized into logical groups.
- The navigation pane, which allows you to browse through the hierarchy of your backup files.
- The preview pane, which shows you the details about objects you have selected in the navigation area.
Browsing, Searching and Viewing Items

Continue with this section to learn more about:

- Browsing backup content
- Viewing objects properties and open files
- Searching for objects in a backup file
- Using the advance search capabilities

Browsing

To view the contents of a backup file, you use the navigation pane which shows you the database structure containing your site items such as libraries and subsites.

After you select an object in the navigation pane, you can see its content in the preview pane.

Viewing Properties and Opening Files

To view object properties, right-click an object in the preview pane and select View Properties.

To open a document using an associated application, right-click a document in the preview pane and select Open.
Searching

The search mechanism allows you to find items matching specified search criteria.

To search for required items, do the following:

1. In the navigation pane, select an object in which you want to find your data.
2. Enter a search query to the search field at the top of the preview pane.

**NOTE:**

To find the exact phrase, use double quotes. For example, "media player".

You can narrow your search results by specifying various search criteria using the **criteria:value** format.

For example, to find all items that require approval in the list of decisions, you can use the following search query: `status:pending approval`.

You can also use logical upper-cased operators such as **AND, OR** and **NOT** along with wildcard characters such as * and ?. The search criteria are similar to those used for searching in Microsoft SharePoint. For more information, see [this Microsoft article](#).
Using Advanced Find Capabilities

The Advanced Find mechanism allows you to define your search criteria more precisely.

For example, to find an object that starts with the word Media, do the following:

1. In the preview pane, select a content node and click Advanced Find.
2. In the Define search criteria section, select Category > Document fields.
3. In the Field list, select File Name.
4. In the Condition list, select Starts With.
5. In the Value field, specify a file name.
6. Click Start.

To remove a filter, click the cross mark next to it. To remove all configured filters, click Reset.
Find items that match these criteria:

File Name    starts with    mdC

Define search criteria

Category:   Field:  
            Frequently-used fields  Anniversary

Condition:  Value:  
            between  
            Monday, December 10, 2018  
            Monday, December 10, 2018  

Add To List

Search results in Database/MSLS_Content.mdC/Development

<table>
<thead>
<tr>
<th>NAME</th>
<th>CREATED BY</th>
<th>CREATED</th>
<th>MODIFIED BY</th>
<th>MODIFIED</th>
<th>VERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDSCipher.cs</td>
<td>System Account</td>
<td>12/7/2018 16:00:44 PM</td>
<td>System Account</td>
<td>12/7/2018 16:00:44 PM</td>
<td></td>
</tr>
<tr>
<td>MDSCipher.cs</td>
<td>System Account</td>
<td>12/7/2018 16:00:43 PM</td>
<td>System Account</td>
<td>12/7/2018 16:00:43 PM</td>
<td></td>
</tr>
<tr>
<td>MDSCom.cs</td>
<td>System Account</td>
<td>12/7/2018 16:04:44 PM</td>
<td>System Account</td>
<td>12/7/2018 16:04:44 PM</td>
<td></td>
</tr>
<tr>
<td>MDSCom.cs</td>
<td>System Account</td>
<td>12/7/2018 16:04:45 PM</td>
<td>System Account</td>
<td>12/7/2018 16:04:45 PM</td>
<td></td>
</tr>
</tbody>
</table>
General Application Settings

Continue with this section to learn more about configuring required application settings and components.
Configuring Staging SQL Server

To perform Microsoft SharePoint items recovery, Veeam Explorer requires a Microsoft SQL server to be used as a staging system.

Consider the following when configuring a staging SQL server:

- If a SQL server belongs to an untrusted domain, connection will not be possible.
- If a SQL server belongs to a trusted domain, only the SQL Server authentication method is available.
- If both a SQL server and the machine running Veeam Explorer belong to the same domain, then both Windows and SQL Server authentication methods are possible.

To use Windows authentication, make sure to configure the following delegation settings:

a) In Active Directory Users and Computers, select the necessary staging SQL server.

b) Open its properties and select the Delegation tab. Select Trust this computer for delegation to specified services only and Use any authentication protocol options for the cifs service on a computer with Veeam Explorer.

c) Restart the staging SQL Server.

d) Select a user account to connect to the staging SQL server. Also, select its properties on the Account tab and make sure the Account is sensitive and cannot be delegated check box is cleared.

To configure a staging server, do the following:

1. Go to the main menu and click General Options.
2. Go to the SQL Server Settings tab.
3. Specify a SQL server you want to use as a staging system. Click Browse to select a server, as described in Browsing For Servers.
4. Specify the account to access the selected SQL server.
5. Specify the account to access a SQL server instance.
To browse for a server, do the following:

- On the **Local Servers** tab, select a local SQL server that is located on a machine with Veeam Explorer.
- On the **Network Server** tab, select a SQL server over the network.
Configuring Custom Lists

Veeam Explorer for Microsoft SharePoint supports obtaining custom list templates from backups created in Veeam Backup & Replication.

The actual information about templates is stored directly in a backup file and obtained automatically so that you can view the custom list data without having to perform any additional operations.

**NOTE:**

Configuring custom lists is not required when working with backups created in Veeam Backup for Microsoft Office 365.

To see templates with their corresponding names and features, go to the main menu > **General Options** and click the link under the **STATUS** column which also comprises the total number of available templates.

You can select **Automatically update custom list templates from backups** to automatically update existing templates. Also, you can select **Warn me if attached database has new custom list templates** to be notified if the database contains new templates other than those you already have.

![Options](image)

See the figure below showing you what custom list templates are available.
To remove templates, click **Clear**.

### Importing Templates Manually

To import existing templates from the Microsoft SharePoint server manually, do the following:

1. Go to the main menu, select **General Options > Custom Lists** and click **Update**.
2. Specify the path to Microsoft SharePoint templates, select the language and click **OK**. The language set in the drop-down list depends on the installed language packages on a SharePoint server.

### Importing Templates Using Ribbon Menu

**NOTE:**

Available only for Microsoft SQL Server databases and requires a staging SQL server. For more information on configuring a staging server, see **Configuring SQL Server Settings**.

To import existing templates from the Microsoft SharePoint server using the ribbon menu, do the following:

1. In the navigation pane, select a SQL database.
2. Click **Custom List Template** on the ribbon menu or right-click a SQL database and select **Custom list templates settings**.
3. Choose how you want your templates to be applied:

   a) Select **Use global custom list settings** to apply global list templates to the select database.

   b) Select **Use the following custom list settings** to apply the templates to the selected database only.

   When using the latter option, specify the path to the Microsoft SharePoint templates, select the language and click **OK**. The language set in the drop-down list depends on the installed language packages on a SharePoint server.
Configuring SMTP Settings

To send Microsoft SharePoint items as attachments, you must configure SMTP server settings.

To configure SMTP settings, do the following:

1. Go to the main menu and click **General Options**.
2. On the **SMTP Settings** tab, select the **Configure SMTP settings** check box and specify the following:
   - DNS name or IP address of the mail server.
   - SMTP communication port.
   - The sender email address. This address will appear in the **From** field when sending SharePoint items.
   - Select **Use authentication** check box if your SMTP server requires SMTP authentication for outgoing mail and provide valid credentials.
   - Select **Enable SSL security** check box to enable SSL data encryption.
3. Click **Send** to send a test email message.
4. Click **Apply**.
Configuring Advanced Settings

This section explains how to configure advanced settings of the application.

To configure advanced settings, do the following:

1. Go to the main menu and click General Options.
2. Go to the Advanced tab and select the following:
   - Select the Enable Extended logging check box to enable extended logging mode to collect logs that contain more details on specific operations.
     After enabling extended logging mode, you can go back to the application and perform required actions, then collect logs.
   - Select the Reset disabled pop-up notifications check box to enable notifications when loading backups from object storage repositories.
     Applicable to backups created in Veeam Backup for Microsoft Office 365.
Standalone Databases Management

Continue with this section to learn more about adding and removing Microsoft SharePoint databases.
Adding Microsoft SharePoint Databases

Continue with this section to learn more about the addition of Microsoft SharePoint databases to the application scope manually.

When you add standalone Microsoft SharePoint databases to the application scope, Veeam attaches such a database to the staging SQL server, creating a temporary Microsoft SharePoint content database from which you can recover your items.

To manually add new Microsoft SharePoint databases to the application scope, do the following:

1. Click Add Database > Microsoft SharePoint Databases on the toolbar or right-click the root Database node and select Add database.

2. Specify the location of the Microsoft SharePoint primary content database file (.mdf). The secondary database and the transaction log file (.ldf) will be added as well.

   To add remote BLOB stores, click Add next to the Remote BLOB Stores section.

3. Click OK.
Adding Veeam Backup for Microsoft Office 365 Databases

To manually add databases that store Microsoft Office 365 organization data, do the following:

1. Click Add Database > Veeam Backup for Microsoft Office 365 Databases or right-click the root Database node and select Veeam Backup for Microsoft Office 365 databases.
2. Specify the database file location and log directory.
3. Click Open.

NOTE:
Make sure you have disabled the Veeam Backup Proxy for Microsoft Office 365 service when adding local databases. You can stop this service by using the services.msc console. If you try to add a database having this service still in progress, you will receive an error message and will not be able to access the database due to database lock.
Adding Veeam Backup for Microsoft Office 365 Server

You can use the built-in Veeam Explorer abilities to connect to another Veeam Backup for Microsoft Office 365 server and add its databases to the Veeam Explorer for Microsoft SharePoint scope.

To connect to another Veeam Backup for Microsoft Office 365 server remotely, do the following:

1. Click **Add Database > Veeam Backup for Microsoft Office 365 Server** on the ribbon menu or use the corresponding context menu command.

2. Specify connection settings under which to connect to the Veeam Backup for Microsoft Office 365 server and click **Connect**.
Veeam Explorer for Microsoft SharePoint allows you to add Office 365 database created in Veeam Backup for Microsoft Office 365.

Consider the following:

- Both Veeam Explorer for Microsoft Exchange and Veeam Backup & Replication must be installed on the same server.
- At least one service provider must be added to Veeam Backup & Replication, as described in Connecting to Service Providers.

To add Office 365 databases, do the following:

1. From the Start menu, launch Veeam Explorer for Microsoft SharePoint.
2. On the toolbar, click Add Database > Veeam Backup for Microsoft Office 365 Service Provider or use the corresponding context menu command.
3. In the drop-down menu, select a tenant account to which you want to connect.
   The list of available tenants depends on added service providers.
4. Provide your Microsoft Office 365 Organization credentials.
5. Click Connect.

You can also select a point-in-time state as of which you want to load an organization database. For more information, see Specifying Point in Time.
Specifying Point in Time

When you connect to the service provider server, you may want to select a particular state as of which to add an organization database to the Veeam Explorer for Microsoft SharePoint scope.

To select a state, do the following:

1. After you select **Veeam Backup for Microsoft Office 365 Service Provider** and provide required credentials, click **Specify point in time**.

2. Under the **Specify a point in time you want to open** section, select either of the following options:
   - **Use latest available state**. To load data as of the latest backup state.
   - **Use the following point in time**. To load data as of the selected point in time.
     To select a state, use the calendar control.

3. To load items that have been deleted by the user, select **Show items that have been deleted by user**.

4. To load all versions of items that have been modified by the user, select **Show all versions of items that have been modified by user**.
Removing Standalone Databases

Veeam Explorer for Microsoft SharePoint allows you to remove Microsoft SharePoint databases from the application scope when you no longer need it.

To remove a database from the application scope, right-click a database in the navigation pane and select Remove SharePoint database.
Data Restore

Continue with this section to learn more about restoring Microsoft SharePoint data.

**NOTE:**

To use an internet proxy server to restore backups created in Veeam Backup for Microsoft Office 365, make sure to provide appropriate proxy server address and the port number. For that, go to the **Control Panel > Internet Options Connections** tab, click **LAN Settings**, select the **Use a proxy server for your LAN** check box and specify a proxy server you want to use. Credentials for such a proxy (if needed) will be taken from the **Control Panel > Credential Manager > Windows Credentials** console.

Consider that this functionality is only available in Veeam Explorer for Microsoft Exchange that comes as part of the Veeam Backup for Microsoft Office 365 distribution package.
Restoring Microsoft SharePoint Document Libraries and Lists

To restore Microsoft SharePoint document libraries and lists, do the following:

1. **Launch Restore Wizard**
2. **Specify Credentials**
3. **Specify Target List**
4. **Specify Restore Options**

**Step 1. Launch Restore Wizard**

To launch the Restore wizard, do the following:

1. In the navigation pane, select a library or list.
2. On the Library tab, select **Restore Library/Restore List** or right-click an object and select **Restore Library/Restore List**.

**NOTE:**

When restoring backups created with Veeam Backup for Microsoft Office 365, document libraries and lists can only be restored back to the source site from which they were backed-up.
Step 2. Specify Credentials

At this step of the wizard, specify target server credentials. The credentials dialog might be different and depends upon the organization type you are restoring from.

Specifying Credentials for Office 365 Organizations

Specify authentication credentials to access your Microsoft Office 365 organization and click Next.

Specifying Credentials for SharePoint Organizations

Specify authentication credentials to access your on-premises SharePoint organization and click Next.
Restoring from Microsoft SQL Database

When restoring from a Microsoft SQL database, provide the following:

- The site URL to which you want to recover your site.
- Authentication credentials.

**NOTE:**

When recovering Microsoft SharePoint sites from a Microsoft SQL database, you will be taken directly to the Specify Restore Options step.

### Step 3. Specify Target List

At this step of the wizard, select whether to restore data to the original list or specify a custom one.

You can select the following options:

- **Restore to the original list.** To restore data back to the original location.
- **Restore to the following list.** To restore data to a custom list.

  If the specified list does not exist, it will be created automatically.
Step 4. Specify Restore Options

At this step of the wizard, specify restore options and click Restore.

The restore options are as follows:

- **Changed items.** Allows you to recover data that has been modified in your production environment.
- **Missed items.** Allows you to recover missed items.
- **Restore permissions.** Allows you to recover permissions. If not selected, the permissions for the recovered document library or list will be set as follows:
  - If the library (or list) does not exist on target, it will be created inheriting permissions from the parent object.
  - If the library (or list) already exists on target, permissions will be preserved.
- **Restore list view.** Allows you to recover your list views.
- **History restore options.** Allows you to select a version:
  - **Overwrite.** To overwrite data in the production environment by recovering only the latest version of the document from the backup.
  - **Merge.** To merge an existing version of the document with that of a backup version.

If not selected, all the versions in the production environment will be replaced with the corresponding data from the backup file.
NOTE:

The **Send a notification by e-mail to the users with permission to the file** check box is only available when restoring data from backups created in Veeam Backup for Microsoft Office 365 for Microsoft Online organizations.
Restoring Microsoft SharePoint Documents and List Items

To restore Microsoft SharePoint documents or list items, do the following:

1. Launch Restore Wizard
2. Specify Credentials
3. Specify Target Location
4. Specify Restore Options

Step 1. Launch Restore Wizard

To launch the Restore wizard, do the following:

1. In the navigation pane, select a document or list item.

NOTE:
When restoring backups created with Veeam Backup for Microsoft Office 365, document libraries and lists can only be restored back to the source site from which they were backed-up.
Step 2. Specify Credentials

At this step of the wizard, specify target server credentials. The credentials dialog might be different and depends upon the organization type you are restoring from.

Specifying Credentials for Office 365 Organizations

Specify authentication credentials to access your Microsoft Office 365 organization and click Next.

Specifying Credentials for SharePoint Organizations

Specify authentication credentials to access your On-Premises SharePoint organization and click Next.
Restoring from Microsoft SQL Database

When restoring from a Microsoft SQL database, provide the following:

- The site URL to which you want to recover your site.
- Authentication credentials.

**NOTE:**

When recovering Microsoft SharePoint sites from a Microsoft SQL database, you will be taken directly to the **Specify Restore Options** step.

Step 3. Specify Target Location

At this step of the wizard, select whether to restore data to the original list or specify a custom one.

You can select the following options:

- **Restore to the original list.** To restore data back to the original location.
- **Restore to the following list.** To restore data to a custom list.
  Make sure to specify an existing list.
Step 4. Specify Restore Options

At this step of the wizard, specify restore options and click **Restore**.

The restore options are as follows:

- **Changed items.** Allows you to recover data that has been modified in your production environment.
- **Missed items.** Allows you to recover missed items.
- **Restore permissions.** Allows you to recover permissions. If not selected, permissions for the recovered document library or list will be set as follows:
  - If the library (or list) does not exist on target, it will be created inheriting permissions from the parent object.
  - If the library (or list) already exists on target, permissions will be preserved.
- **History restore options.** Allows you to select a version:
  - **Overwrite.** To overwrite data in the production environment by recovering only the latest version of the document from the backup.
  - **Merge.** To merge an existing version of the document with that of a backup version.

If not selected, all the versions in the production environment will be replaced with the corresponding data from the backup file.
NOTE:

The **Send a notification by e-mail to the users with permission to the file** check box is only available when restoring data from backups created in Veeam Backup for Microsoft Office 365 for Microsoft Online organizations.
Restoring Microsoft SharePoint Sites

To restore Microsoft SharePoint sites, do the following:

1. **Launch Restore Wizard**
2. **Specify Credentials**
3. **Specify Target Site**
4. **Specify Restore Options**

**Step 1. Launch Restore Wizard**

To launch the **Restore** wizard, do the following:

1. In the navigation pane, select a site.
2. On the **Site** tab, select **Restore Site** or right-click an object and select **Restore Site**.

**NOTE:**

Sites can only be restored to the existing site collection. Creating a new collection is not supported.
Step 2. Specify Credentials

At this step of the wizard, specify target server credentials. The credentials dialog might be different and depends upon the organization type you are restoring from.

Specifying Credentials for Office 365 Organizations

Specify authentication credentials to access your Microsoft Office 365 organization and click Next.

Specifying Credentials for SharePoint Organizations

Specify authentication credentials to access your On-Premises SharePoint organization and click Next.
Restoring from Microsoft SQL Database

When restoring from a Microsoft SQL database, provide the following:

- The site URL to which you want to recover your site.
- Authentication credentials.

**NOTE:**

When recovering Microsoft SharePoint sites from a Microsoft SQL database, you will be taken directly to the Specify Restore Options step.

**Step 3. Specify Target Site**

At this step of the wizard, specify whether to restore a site back to the original location or choose site alias you want to use.

**NOTE:**

Consider the following:

- This step is only available when restoring from backups created in Veeam Backup for Microsoft Office 365.
- This step is unavailable when restoring Site Collections.

You can select the following options:

- **Restore to the original site.** To restore data back to the original site.
- **Restore to the following site alias.** To restore data to a custom site using alias. If the provided site does not exist, it will be created automatically.
Step 4. Specify Restore Options

At this step of the wizard, specify restore options and click Restore.

The restore options are as follows:

- **Changed items.** Allows you to recover data that has been modified in your production environment.
- **Missed items.** Allows you to recover missed items.
- **Restore permissions.** Allows you to recover permissions. If not selected, permissions will be inherited from the parent site.
- **Restore subsites.** Allows you to recover subsites. If not selected, sites that are being restored, will contain only document libraries and lists.
- **History restore options.** Allows you to select a version:
  - **Overwrite.** To overwrite data in the production environment by recovering only the latest version of the document from the backup.
  - **Merge.** To merge an existing version of the document with that of a backup version.

If not selected, all the versions in the production environment will be replaced with the corresponding data from the backup file.
NOTE:

The **Send a notification by e-mail to the users with permission to the file** check box is only available when restoring data from backups created in Veeam Backup for Microsoft Office 365 for Microsoft Online organizations.

---

**RESTORE WIZARD**

Specify the restore options

- **Restore the following items:**
  - [ ] Changed items
  - [ ] Missing items

- **Additional options:**
  - [ ] Restore permissions
  - [ ] Send a notification by e-mail to the users with permissions to the file
  - [ ] Restore list views
  - [ ] Restore subites

History restore options:

- [ ] Restore only latest version
- [ ] Overwrite
- [ ] Merge

---
Data Export

Continue with this section to learn more about exporting and importing Microsoft SharePoint data.

NOTE:
Export is unavailable when restoring data from backups created in Veeam Backup for Microsoft Office 365.
Exporting Microsoft SharePoint Data

Veeam Explorer for SharePoint allows you to export SharePoint document libraries and lists.

The exported content will be saved as a set of XML files and can be imported to another SharePoint database using PowerShell cmdlets, as described in Importing Microsoft SharePoint Data.

To export SharePoint data, do the following:

1. In the navigation pane, select a library or list.
2. On the Library tab, select Export Library/Export List or right-click an object and select Export Library/Export List.
3. Specify the output directory and click OK.

NOTE:

Export of items is not supported in the current version.
Importing Microsoft SharePoint Data

To import document library or list, use either of the following PowerShell cmdlets:

- For PowerShell snap-in, use the following command.

```powershell
Add-PsSnapin Microsoft.SharePoint.PowerShell
Import-SPWeb -Identity "http://<web_server_name>/sites/<destination_site>" -Path "C:\<export_folder>" -NoFileCompression -IncludeUserSecurity
```

- For SharePoint Management Shell, use the following command.

```powershell
Import-SPWeb -Identity "http://<web_server_name>/sites/<destination_site>" -Path "C:\<export_folder>" -NoFileCompression -IncludeUserSecurity
```

where:

- `<web_server_name>` – destination web server;
- `<destination_site>` – destination web site;
- `<export_folder>` – source folder containing exported library/list content.

To get extended help on the `Import-SPWeb` command, use the following command.

```powershell
Get-Help Import-SPWeb -full
```
Saving Microsoft SharePoint Documents and Libraries

Veeam Explorer for Microsoft SharePoint allows you to save your libraries and library documents to a specified location.

To save a Microsoft SharePoint library or library documents, do the following:

1. In the navigation pane, select a library.

2. On the **Library** tab, select **Save Library > Save files** or **Save Library > Save as ZIP** or right-click an object and select **Save Library > Save files** or **Save Library > Save as ZIP**.

To save documents from a library, select a document in the preview pane and click **Save Document > Save files** or **Save Document > Save as ZIP**.
Sending Microsoft SharePoint Documents and Libraries

Veeam Explorer for Microsoft SharePoint allows you to send libraries or library documents to the specified recipients via email.

**TIP:**
Before sending documents, make sure to configure SMTP settings, as described in Configuring SMTP Settings. The amount of data you can send at a time depends on your SMTP server configuration.

To send Microsoft SharePoint library or library documents, do the following:

1. In the navigation pane, select a library to send.
2. On the **Library** tab, select **Send Library** or right-click an object and select **Send Library**.
   - To send documents from a library, select a document in the preview pane and click **Send Document**.
3. Provide a recipient address.
   - The **From** field is filled automatically based on the address you have provided when configuring SMTP settings. To edit the message body, click **More Details**.
<table>
<thead>
<tr>
<th>From:</th>
<th><a href="mailto:administrator@tech.local">administrator@tech.local</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>To:</td>
<td>SharePoint Documents Recovery</td>
</tr>
<tr>
<td>Subject:</td>
<td>SharePoint Documents Recovery</td>
</tr>
</tbody>
</table>

- MDScore.cs 2.8 KB
- MDScrypt.cs 1.7 KB
- MDSDecryptResx 5.0 KB
- MDScopy 4.2 KB
- MDSCipher.cs 5.5 KB
- MDSDecryptDesigner.cs 5.4 KB

By Veeam Explorer for Microsoft SharePoint.
Veeam Explorer for Microsoft OneDrive for Business

Veeam Explorer for Microsoft OneDrive for Business allows you to restore Microsoft OneDrive data from backups created in Veeam Backup for Microsoft Office 365.
Planning and Preparation

Veeam Explorer for Microsoft OneDrive for Business comes as part of the Veeam Explorer for Microsoft SharePoint installation package and has the same system requirements.

Consider that when Veeam Explorer for SharePoint is installed on a server on which both Veeam Backup & Replication and Veeam Backup for Microsoft Office 365 are installed, the notification settings will be inherited from the Veeam Backup and Replication Global Notification settings.
Launching Application and Exploring Backups

To open Veeam Explorer for Microsoft OneDrive for Business and load backups, you can use any of the following methods:

- The **Explore** option to load backups created in Veeam Backup for Microsoft Office 365.
  
  For more information, see the Data Restore section of the Veeam Backup for Microsoft Office 365 User Guide.

  When loading backups located in object storage repositories, Veeam Explorer for Microsoft OneDrive for Business will notify you about the location of these backups. You can select the Don't show this message again check box to unsubscribe from such notifications. To enable notifications, select the Reset disabled pop-up notifications check box, as described in Configuring Advanced Settings.

- Go to **Start**, click Veeam Explorer for Microsoft OneDrive for Business and manually open Microsoft OneDrive databases, as described in the Standalone Databases Management section.

When starting the application from the **Start** menu, specify the following:

- The name or IP-address of a server to which you want to connect.
- The port number.
- User credentials.

  The account must be a member of the Local Administrator group on a target server. To use the account under which Veeam Explorer for Microsoft OneDrive for Business is running, select Use Windows session authentication.

To save the connection shortcut to the desktop, click **Save shortcut** in the bottom-left corner.
Understanding User Interface

Veeam Explorer for Microsoft OneDrive for Business provides you with the convenient user interface that allows you to perform required operations in a user-friendly manner.

Main Menu

The main menu comprises the following features:

- **General Options.** Allows you to configure program options. See Performing Initial Configuration Settings.
- **Help.**
  - **Online help.** Opens the online web help page.
  - **About.** Shows current product information.
- **Exit.** Closes the program.
Main Application Window

The main application window might be divided into three categories:

1. The ribbon menu, which contains general program commands organized into logical groups.
2. The navigation area, which allows you to browse through the hierarchy of your backup files.
3. The preview pane, which shows you the details about objects you have selected in the navigation area.
Browsing, Searching and Viewing Items

Continue with this section to learn more about:

- Browsing backup content
- Viewing objects properties and open files
- Searching for objects in a backup file
- Using the advance search capabilities

Browsing

To view the contents of a backup file, you use the navigation pane which shows you the database structure containing your OneDrive documents.

After you select an object in the navigation pane, you can see its content in the preview pane.

Viewing Properties and Opening Files

To view object properties, right-click an object in the preview pane and select View Properties.

To open a document using an associated application, right-click a document in the preview pane and select Open.
Searching

The search mechanism allows you to find items matching specified search criteria.

To search for required items, do the following:

1. In the navigation pane, select an object in which you want to find your data.
2. Enter a search query to the search field at the top of the preview pane.

**NOTE:**

To find the exact phrase, use double quotes. For example, “Attachments”.

You can narrow your search results by specifying various search criteria using the criteria: value format. You can also use logical upper-cased operators such as AND, OR and NOT along with wildcard characters such as * and ?.
Using Advanced Find Capabilities

The Advanced Find mechanism allows you to define your search criteria more precisely.

For example, to find an object that starts with the word Attachme, do the following:

1. In the preview pane, select a content node and click Advanced Find.
2. In the Define search criteria section, select Category > Document fields.
3. In the Field list, select File Name.
4. In the Condition list, select Starts With.
5. In the Value field, specify a file name.
6. Click Start.

To remove a filter, click the cross mark next to it. To remove all configured filters, click Reset.
General Application Settings

Continue with this section to learn more about configuring required application settings and components.
Configuring SMTP Settings

To send Microsoft OneDrive items as attachments, you must configure SMTP server settings.

To configure SMTP settings, do the following:

1. Go to the main menu and click **General Options**.

2. On the **SMTP Settings** tab, select the **Configure SMTP settings** check box and specify the following:
   - DNS name or IP address of the mail server.
   - SMTP communication port.
   - The sender email address. This address will appear in the **From** field when sending OneDrive items. See **Sending Microsoft OneDrive Documents**.
   - Select **Use authentication** check box if your SMTP server requires SMTP authentication for outgoing mail and provide valid credentials.
   - Select **Enable SSL security** check box to enable SSL data encryption.

3. Click **Send** to send a test email message.

4. Click **Apply**.
Configuring Advanced Settings

This section explains how to configure advanced settings of the application.

To configure advanced settings, do the following:

1. Go to the main menu and click **General Options**.
2. Go to the **Advanced** tab and select the following:
   - Select the **Enable Extended logging** check box to enable extended logging mode to collect logs that contain more details on specific operations.
     After enabling extended logging mode, you can go back to the application and perform required actions, then collect logs.
   - Select the **Reset disabled pop-up notifications** check box to enable notifications when loading backups from object storage repositories.
     Applicable to backups created in Veeam Backup for Microsoft Office 365.
Standalone Databases Management

Continue with this section to learn more about adding and removing OneDrive for Business databases.
Adding Veeam Backup for Microsoft Office 365 Databases

To manually add databases that store Microsoft Office 365 organization data, do the following:

1. Click **Add Org > Veeam Backup for Microsoft Office 365 Databases** on the ribbon menu or use the corresponding context menu command.

2. Specify the database file location and log directory.

3. Click **Open**.

   ![ADD DATABASE](image-url)
Adding Veeam Backup for Microsoft Office 365 Server

You can use the built-in Veeam Explorer abilities to connect to another Veeam Backup for Microsoft Office 365 server and add its databases to the Veeam Explorer for Microsoft OneDrive for Business scope.

To connect to another Veeam Backup for Microsoft Office 365 server, do the following:

1. Click Add Org > Veeam Backup for Microsoft Office 365 Server on the toolbar or use the corresponding context menu command.

2. Specify connection settings under which to connect to the Veeam Backup for Microsoft Office 365 server and click Connect.
Adding Veeam Backup for Microsoft Office 365 Service Provider

Veeam Explorer for Microsoft OneDrive for Business allows you to add Office 365 database created in Veeam Backup for Microsoft Office 365.

Consider the following:

- Both Veeam Explorer for Microsoft Exchange and Veeam Backup & Replication must be installed on the same server.
- At least one service provider must be added to Veeam Backup & Replication, as described in Connecting to Service Providers.

To add Office 365 databases, do the following:

1. From the Start menu, launch Veeam Explorer for Microsoft OneDrive for Business.
2. On the toolbar, click Add Org > Veeam Backup for Microsoft Office 365 Service Provider or use the corresponding context menu command.
3. In the drop-down menu, select a tenant account to which you want to connect.
   The list of available tenants depends on added service providers.
4. Provide your Microsoft Office 365 organization credentials.
5. Click Connect.

You can also select a point-in-time state as of which you want to load an organization database. For more information, see Specifying Point in Time.

![Veeam Backup for Microsoft Office 365](image)
Specifying Point in Time

When you connect to the service provider server, you may want to select a particular state as of which to add an organization database to the Veeam Explorer for Microsoft OneDrive for Business scope.

To select a state, do the following:

1. After you select Veeam Backup for Microsoft Office 365 Service Provider and provide required credentials, click Specify point in time.

2. Under the Specify a point in time you want to open section, select either of the following options:
   - Use latest available state. To load data as of the latest backup state.
   - Use the following point in time. To load data as of the selected point in time.

3. To select a state, use the calendar control.

4. To load items that have been deleted by the user, select Show items that have been deleted by user.

5. To load all versions of items that have been modified by the user, select Show all versions of items that have been modified by user.
Removing Standalone Databases

Veeam Explorer for Microsoft OneDrive for Business allows you to remove an organization from the application scope when you no longer need it.

To remove an organization from the application scope, right-click an organization in the navigation pane and select **Remove organization**.
Restoring Microsoft OneDrive Data

Veeam Explorer for Microsoft OneDrive for Business allows you to restore users OneDrives or certain documents and/or folders of the selected OneDrive.

NOTE:

To use an internet proxy server to restore backups, make sure to provide appropriate proxy server address and the port number. For that, go to the Control Panel > Internet Options Connections tab, click LAN Settings, select the Use a proxy server for your LAN check box and specify a proxy server you want to use. Credentials for such a proxy (if needed) will be taken from the Control Panel > Credential Manager > Windows Credentials console.

To restore data, do the following:

1. Select an object.

2. On the ribbon menu or using the corresponding context menu command, click Restore OneDrive or Restore Document/Folder when restoring documents/folders and Restore OneDrives when restoring OneDrives of the selected organization or group.

3. Select either:
   - **Overwrite** — to completely overwrite existing OneDrive data.
   - **Keep** — to preserve existing data and recover items with the RESTORED prefix (RESTORED-<file_name>.ext).
4. Specify Office 365 credentials to access the target server and click **Restore**.

![Restore Wizard](image)

**Specify Office 365 credentials**

- Use connection credentials
- Use the following credentials:
  - **Accounts**: administrator@abc.onmicrosoft.com
  - **Password**: **********
Copying Microsoft OneDrive Data

To copy OneDrive data to the same or different user, do the following:

1. Launch Restore Wizard
2. Specify Credentials
3. Specify Target User
4. Specify Target Folder
5. Specify Restore Options
Step 1. Launch Restore Wizard

To launch the Restore wizard, do the following:

1. Select an object.

2. On the Folder tab, select Copy OneDrive/Copy Folder/Copy Document or right-click an object and select Copy OneDrive/Copy Folder/Copy Document.
Step 2. Specify Credentials

At this step of the wizard, specify target server credentials. The credentials dialog might be different and depends upon the organization type you are restoring from.

Specifying Credentials for Office 365 Organizations

Specify valid credentials to access your Microsoft Office 365 organization and click Next.

Specifying Credentials for SharePoint Organizations

Specify valid credentials to access your On-Premises SharePoint organization and click Next.
Step 3. Specify Target User

At this step of the wizard, specify the destination user to which you want to copy your data.

You can select either of the following options:

- **Restore to original user.** To restore data back to the original user.
- **Restore to the following user.** To restore data to a custom user.

To select a user, click **Browse.**
Step 4. Specify Target Folder

At this step of the wizard, specify the target directory to which you want to copy your data.

Select target folder

Destination Folder: /John Doe/EstimateSize

Back  Next  Cancel
Step 5. Specify Restore Options

At this step of the wizard, specify restore options and click Restore.

The restore options are as follows:

- **Changed items.** Allows you to restore data that has been modified in your production environment.
- **Missed items.** Allows you to restore missed items.
- **Restore shared access.** Allows you to restore shared access.
- **History restore options.** Allows you to select a version:
  - **Overwrite.** To overwrite data in the production environment by recovering only the latest version of the document from the backup.
  - **Merge.** To merge an existing version of the document with that of a backup version.

If not selected, all the versions in the production environment will be replaced with the corresponding data from the backup file.
Saving Microsoft OneDrives

Veeam Explorer for Microsoft OneDrive for Business allows you to save OneDrive content to the specified location.

To save data, do the following:

1. Select OneDrive.

2. On the Home tab, select **Save OneDrives > Save files/Save OneDrive > Save files** or right-click an object and select **Save OneDrives > Save files/Save OneDrive > Save files**.

Select **Save as ZIP** to save OneDrive documents and/or folders as ZIP.

3. Select OneDrive accounts to save.
4. Specify a directory to save OneDrive data and click **Finish**.
Saving Microsoft OneDrive Documents and Folders

Veeam Explorer for Microsoft OneDrive for Business allows you to save your documents and folders located on users OneDrives to a specified location.

To save a document or folder, do the following:

1. Select a folder or document.

2. On the **Home** tab, select **Save Document > Save files/Save Folder > Save files** or right-click an object and select **Save Document > Save files/Save Folder > Save files**.

   Select **Save as ZIP** to save OneDrive documents and/or folders as ZIP.

3. Specify the destination folder and click **Select Folder**.
Sending Microsoft OneDrive Documents

Veeam Explorer for Microsoft OneDrive for Business allows you to send OneDrive documents to specified recipients via email.

TIP:

Before sending documents, make sure to configure SMTP settings, as described in Configuring SMTP Settings. The amount of data you can send at a time depends on your SMTP server configuration.

To send OneDrive documents via email, do the following:

1. Select OneDrive or a document.

2. On the Document tab, select Send OneDrive/Send Document or right-click an object and select Send OneDrive/Send Document.

3. Provide a recipient address.

The From field is filled automatically based on the address you have provided when configuring SMTP settings. To edit the message body, click More Details.