Veeam Backup
Enterprise Manager

Version 7.0

User Guide
August, 2013
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ABOUT THIS GUIDE

This user guide provides information about main features, installation and use of Veeam Backup Enterprise Manager as part of the Veeam Backup & Replication solution. The document applies to Veeam Backup Enterprise Manager 7.0 and all subsequent versions until the document is replaced by a new edition.

Intended Audience

The user guide is intended for anyone who wants to use Veeam Backup Enterprise Manager. It is primarily aimed at network administrators managing backup environments, but can also be helpful for other users who plan to work with Veeam Backup Enterprise Manager.

Related Documentation

A complete set of Veeam Backup & Replication documentation can be found on the Veeam Backup & Replication product resources web page at www.veeam.com.

Document Revision History

<table>
<thead>
<tr>
<th>Revision #</th>
<th>Date</th>
<th>Change Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision 1</td>
<td>15/08/2013</td>
<td>Initial version of the document for Veeam Backup &amp; Replication 7.0.</td>
</tr>
<tr>
<td>Revision 2</td>
<td>29/08/2013</td>
<td>Minor formatting changes and licensing information updates.</td>
</tr>
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</table>
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, please visit our Customer Center Portal at cp.veeam.com 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, please visit www.veeam.com/contacts.html.

Online Support

If you have any questions about Veeam Backup & Replication, you can use the following resources:

- Full documentation set at www.veeam.com
- Community forum at www.veeam.com/forums
INTRODUCTION

Veeam Backup Enterprise Manager is a management and reporting component that allows you to manage multiple Veeam Backup & Replication installations from a single web console.

In case of distributed backup infrastructure when a number of Veeam Backup & Replication instances are installed on different servers, Veeam Backup Enterprise Manager acts as a single management point, allowing you to perform backup and replication jobs across the entire backup infrastructure, and providing enhanced reporting options.

With Veeam Backup Enterprise Manager, you can:

- Manage jobs across a number of Veeam Backup servers
- View on-going reporting data for all jobs
- Receive email notifications about the status of all jobs
- Search for VMs and Windows guest files in current and archived backups
- Perform web-based recovery operations
- Install Veeam plug-in for vSphere web client to vCenter server(s)
- Centrally monitor license usage and update them

The distributed architecture of Veeam Backup & Replication provides you with a possibility to create a custom backup infrastructure meeting your company needs and manage backup and replication according to your administrative, business and security requirements and restrictions. While Veeam Backup Enterprise Manager provides centralized backup and reporting options, Veeam Backup & Replication servers still make it possible to perform decentralized backup and recovery. For example, Exchange recoveries can be handled by the Exchange administrators group, while domain controller recovery requires another skill set, and is best performed by Active Directory administrators.
PLANNING AND PREPARATION

This section describes the planning and preparation steps that you should take before the Veeam Backup Enterprise Manager deployment.

Prerequisites

Veeam Backup Enterprise Manager uses an SQL Server instance installed either locally or remotely. In case it is not installed, the Veeam Backup Enterprise Manager setup will install Microsoft SQL Server 2008 R2 Express Edition on your computer. If an SQL Server instance has already been installed by the previous version, Veeam Backup Enterprise Manager will connect to the existing database, upgrade it (if necessary) and use it for work.

Requirements

This section covers the list of system requirements to the Veeam Backup Enterprise Manager, search server, necessary rights and permissions, as well provides information on ports used for communication between Veeam Backup & Replication components.

System Requirements

To ensure successful usage of Veeam Backup Enterprise Manager and Veeam Backup Search, the following system requirements should be met:

<table>
<thead>
<tr>
<th>Veeam Backup Enterprise Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware</strong></td>
</tr>
<tr>
<td>CPU: x64 processor</td>
</tr>
<tr>
<td>Memory: 4 GB RAM.</td>
</tr>
<tr>
<td>Hard disk space: 2 GB on the system disk (required to extract all components from the setup package during the product installation).</td>
</tr>
<tr>
<td>Network: 1Gbit/sec recommended due to backup performance considerations.</td>
</tr>
<tr>
<td><strong>OS</strong></td>
</tr>
<tr>
<td>The 64-bit versions of the following operating systems are supported:</td>
</tr>
<tr>
<td>• Microsoft Windows 2008 SP2</td>
</tr>
<tr>
<td>• Microsoft Windows 2008 R2</td>
</tr>
<tr>
<td>• Microsoft Windows 7 SP1</td>
</tr>
<tr>
<td>• Microsoft Windows 8</td>
</tr>
<tr>
<td>• Microsoft Windows Server 2012</td>
</tr>
<tr>
<td><strong>SQL</strong></td>
</tr>
<tr>
<td>Local or remote installation of the following versions of Microsoft SQL Server are supported:</td>
</tr>
<tr>
<td>• Microsoft SQL Server 2005 (Full and Express Edition)</td>
</tr>
<tr>
<td>• Microsoft SQL Server 2008 (Full and Express Edition)</td>
</tr>
<tr>
<td>• Microsoft SQL Server 2008 R2 (Full and Express Edition; Express Edition is included in the setup)</td>
</tr>
<tr>
<td>• Microsoft SQL Server 2012 (Full and Express Edition)</td>
</tr>
<tr>
<td><strong>Software</strong></td>
</tr>
<tr>
<td>Microsoft .NET Framework 4 (included in the setup), with 4.0.3 update (refer to <a href="http://support.microsoft.com/kb/2600211">http://support.microsoft.com/kb/2600211</a>).</td>
</tr>
<tr>
<td>Microsoft Internet Information Services 7.0 or later (IIS 6 Metabase Compatibility and Windows Authentication components for IIS 7.0, ASP.NET 4.5 and .NET Extensibility 4.5 for IIS 8.0). Note that if these components are not installed, they can be installed automatically during the setup.</td>
</tr>
<tr>
<td><strong>Browser</strong>: Internet Explorer 9.0 or later, latest versions of Mozilla Firefox and Google Chrome are supported. The browser needs to have JavaScript enabled.</td>
</tr>
<tr>
<td>Microsoft Excel 2003 or later (to view report data exported from Veeam Backup Enterprise Manager).</td>
</tr>
<tr>
<td>Veeam Backup Search</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td><strong>Hardware</strong></td>
</tr>
<tr>
<td>Refer to corresponding Microsoft Search Server version system requirements.</td>
</tr>
<tr>
<td><strong>OS</strong></td>
</tr>
<tr>
<td>Both 32-bit and 64-bit versions of the following operating systems:</td>
</tr>
<tr>
<td>• Microsoft Windows Server 2003.</td>
</tr>
<tr>
<td>• Microsoft Windows Server 2008.</td>
</tr>
<tr>
<td>• Microsoft Windows Server 2008 R2.</td>
</tr>
<tr>
<td>All the latest service packs and security updates should be installed.</td>
</tr>
<tr>
<td><strong>Software</strong></td>
</tr>
<tr>
<td>Microsoft Search Server 2008 (including Express edition)</td>
</tr>
<tr>
<td>Microsoft Search Server 2010 (including Express edition)</td>
</tr>
</tbody>
</table>

### Required Permissions

The accounts used for installing and using Veeam Backup Enterprise Manager and Veeam Backup Search should have the following permissions:

<table>
<thead>
<tr>
<th>Account</th>
<th>Required Permission</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Veeam Backup Enterprise Manager</strong></td>
<td><strong>Local Administrator</strong> permissions on the Veeam Backup Enterprise Manager server are required to install Veeam Backup Enterprise Manager. To be able to work with Veeam Backup Enterprise Manager, users should be assigned the <strong>Portal Administrator</strong>, <strong>Portal User</strong> or <strong>Restore Operator</strong> role (see Configuring Security Settings section below).</td>
</tr>
<tr>
<td><strong>Veeam Backup Search Server</strong></td>
<td><strong>Local Administrator</strong> permissions on the Veeam Backup Search Server console are required to install Microsoft Search Server and the Veeam Backup Search component.</td>
</tr>
</tbody>
</table>

### Used Ports

The following ports must be opened for Veeam Backup Enterprise Manager connections:

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Protocol</th>
<th>Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Veeam Backup Enterprise Manager</strong></td>
<td>Veeam Backup Server</td>
<td>TCP</td>
<td>9392</td>
<td>Default port used by Veeam Backup Enterprise Manager for collecting data from Veeam Backup servers. Can be customized during Veeam Backup &amp; Replication installation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>9393</td>
<td>Default port used by the Veeam Backup Catalog Data Service for catalog replication. Can be customized during Veeam Backup &amp; Replication installation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>2500 to 2600</td>
<td>Ports used by the Veeam Backup Catalog Data Service for replicating catalog data.</td>
</tr>
<tr>
<td><strong>Microsoft Search Server</strong></td>
<td></td>
<td>TCP</td>
<td>9395</td>
<td>Default port used by the Veeam Backup Search Service integration component. Can be customized during Veeam Backup Search installation.</td>
</tr>
<tr>
<td><strong>IIS extension</strong></td>
<td>Veeam Backup Enterprise Manager</td>
<td>TCP</td>
<td>9394</td>
<td>Default port used by IIS extension to communicate with Enterprise Manager. Can be customized during Enterprise Manager installation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCP</td>
<td>9393</td>
<td>Default port used to enable file search. Can be customized during Enterprise Manager installation.</td>
</tr>
<tr>
<td><strong>Browser</strong></td>
<td>IIS extension</td>
<td>HTTP</td>
<td>9080</td>
<td>Default ports used to communicate with the website. Can be customized during Enterprise Manager installation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HTTPS</td>
<td>9443</td>
<td></td>
</tr>
<tr>
<td>Restful API client</td>
<td>Veeam Backup Restful API</td>
<td>HTTP</td>
<td>9399</td>
<td>Default ports used to communicate with Veeam Backup RESTful API Service. Can be customized during Enterprise Manager installation.</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------</td>
<td>------</td>
<td>------</td>
<td>-----------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HTTPS</td>
<td>9398</td>
<td></td>
</tr>
</tbody>
</table>

During installation, Veeam Backup & Replication automatically creates firewall rules for default ports to allow communication for the application components.
DEPLOYMENT

This section describes the steps required to install Veeam Backup Enterprise Manager and Veeam Backup Search. You can install the components on the same machine, either physical or virtual, co-install components with Veeam Backup & Replication or set up all components separately.

Before you begin the installation process, take the following steps to prepare for deployment:

- **Check platform-specific and system requirements.** Make sure the computers on which Veeam Backup Enterprise Manager and Veeam Backup Search are to be installed meet the system requirements. For details, see the System Requirements section.

- **Check account permissions.** Make sure all accounts you will be using have sufficient permissions. You will not be able to use Veeam Backup Enterprise Manager and Veeam Backup Search successfully if the accounts do not have required permissions. For details, see the Required Permissions section.

- **Check available ports.** Communication between components requires a number of ports to be open. Carefully plan your backup strategy and infrastructure layout. For details, see the Used Ports section.

- **Make sure you have a license file.** When installing Veeam Backup Enterprise Manager, you will be asked to specify the license file. You receive a trial license file when you register at the Veeam Software website and download the product, or a full commercial license file when you purchase the product. Without a license file, you will not be able to install Veeam Backup Enterprise Manager.

**Installing Veeam Backup Enterprise Manager**

This section will guide you through the installation process of Veeam Backup Enterprise Manager.

**Step 1. Launch the Setup Wizard**

Download the latest version of Veeam Backup & Replication from www.veeam.com/downloads. Start the autorun from the mounted ISO file and select to install Veeam Backup Enterprise Manager. The setup wizard will be started to guide you through the installation process.

**Step 2. Accept License Agreement**

Read and accept the terms in the license agreement to continue installation. If you select I do not accept the terms in the license agreement, you will not be able to continue.
Step 3. Install a License

At this step, specify a valid license that was sent to you after registration. Click **Browse** and select the necessary .lic file.

Step 4. Select Program Features and Choose Destination

The Enterprise Manager setup installs Veeam Backup Enterprise Manager feature, which includes Enterprise Manager Web Site and Veeam Backup Enterprise Manager Server, and Veeam Backup Catalog.

**Note**

If you are installing Veeam Backup Enterprise Manager on the Veeam Backup & Replication machine where Veeam Backup Catalog is already installed, Veeam Backup Catalog will be excluded from the list of components.

Use the **Browse** button to specify the desired installation folder for installed components.
Before proceeding with the installation, the installer will perform system configuration check to determine if all prerequisite software is available on the machine.

- To learn what software is required for the installation, see the System Requirements section.
- If some of the required software components are missing, the wizard will offer you to install missing software automatically. To install software components in the current session without interrupting the setup, click the Install button.
- If you cancel automatic installation, you should install and enable the missing software manually; otherwise, you will not be able to proceed to the next step.

You can re-run verification after installing required components manually.

Step 5. Specify Service Credentials

Specify credentials for the user account under which you want to run the Veeam Backup Enterprise Manager Service. This user account must have:

- **Database owner** rights for the Veeam Backup Enterprise Manager database on the SQL Server instance
- **Full Control** NTFS permissions for the `VBRCatalog` folder where index files are stored.
The **Log on as service** right will be automatically granted to the specified user account. The user name should be specified in the `DOMAIN\USERNAME` format.

**Step 6. Set Up a Database to Be Used**

At this step, you should select an SQL Server instance to be used by Veeam Backup Enterprise Manager. You can use the same SQL Server for both Veeam Backup & Replication and Veeam Backup Enterprise Manager.

- If a SQL Server is not installed, select the **Install new instance of SQL Server** option.
- If a SQL Server is already installed, select the **Use existing instance of SQL Server** option. Enter the instance name in the `HOSTNAME\INSTANCE` format and specify the name of the database to be used.

**Note**

If the setup detects a VEEAMSQL2008R2 SQL server instance that meets the Veeam Backup Enterprise Manager system requirements on your machine, you can only use the existing local SQL Server instance or choose the one that runs remotely. The option to install a new SQL instance will be unavailable in this case.
Step 7. Specify Enterprise Manager Ports

Provide HTTP and HTTPS port numbers and select the certificate to be used by Veeam Backup Enterprise Manager service and RestAPI service. This certificate is needed to establish secure communication with the Enterprise Manager website using HTTPS (default port 9443); Veeam plug-in for vSphere Web Client and RestAPI client also will use this certificate to receive data using HTTPS protocol (default port 9398).

If the setup wizard does not find an appropriate certificate to be used, it will generate a self-signed certificate.

Click View certificate to review the details of the selected certificate.

Step 8. Install Veeam Backup Enterprise Manager

You can go back, review and modify previous steps using the Back button. If you are sure that all settings are configured correctly, click Install to begin the installation.

When the installation completes, click Finish to exit the setup wizard. You can now open the Veeam Backup Enterprise Manager website.
Installing Veeam Backup Search

Veeam Backup Search is an optional component that is installed on a dedicated Microsoft Search Server in case you need to search through VM guest OS files search in large-scale virtual deployments, using sophisticated search criteria.

Veeam Backup Search is not required if you have a relatively small number of backups: in this case, Veeam Backup Enterprise Manager can process indexing data by itself.

This section will guide you through the installation process of Veeam Backup Search.

Step 1. Install Microsoft Search Server

Select a machine which will function as a search server and install Microsoft Search Server on this machine. Keep in mind that Microsoft Search Server can be installed on Windows Server machine only.

Note Microsoft Search Server must be installed by a user who has administrator permissions on the computer.


Step 2. Run Veeam Backup Search Setup

On the machine where Microsoft Search Server is installed, run the setup file (Veeam_Backup_Search_Setup_x86.exe or Veeam_Backup_Search_Setup_x64.exe) located in the Search folder of the mounted Veeam Backup & Replication installation image (.iso file) or the installation CD/DVD.

Step 3. Accept License Agreement

Read and accept the terms in the license agreement to continue installation. If you select I do not accept the terms in the license agreement, the installation process will be terminated.
Step 4. Choose Destination for Installation

Specify the installation folder. Use the **Change** button to select a necessary installation folder.

Step 5. Specify Service Credentials

Specify the user name and password to be used by the Veeam Backup Search service. Change the number of TCP port if it is necessary. By default, Veeam Backup Search uses port number **9395**.
Step 6. Install Veeam Backup Search

Click **Install** to begin installation. Veeam Backup Search will be installed on your computer. Once installation is complete, click **Finish** to exit the setup wizard.

**Step 7. Specify the Default Account for Crawling Content**

Specify the default account that will be used by Microsoft Search Server for crawling indexing content. This account must have **Read** access to the shared **VBRCatalog** folder on the Veeam Backup Enterprise Manager server.

For Microsoft Search Server 2008:

1. Select **Programs > Search Server Administration** from the **Start** menu on the search server.
2. Click **Crawling** on the left.
3. On the **Crawling** page, click **Default content access account** and enter user name and password.

For Microsoft Search Server 2010:

1. Select **Programs > Microsoft SharePoint 2010 Products > SharePoint 2010 Central Administration** from the **Start** menu on the search server.
2. Click **Application management** on the left. In the **Application Management** section, click **Manage service applications**.
3. On the **Manage Service Applications** page, click the **Search service application**.
4. In the **System Status** section on the **Search Administration** page, locate the default content access account, which is in the form Domain\Username. Click the default content access account name and enter user name and password in the displayed **Default Content Access Account** window.
**Default Content Access Account**

This page is not encrypted for secure communication. User names, passwords, and any other information will be sent in clear text. For more information about how to secure the pages on this server farm, see the SharePoint Server Administrator's Guide.

<table>
<thead>
<tr>
<th>Account:</th>
<th>SEARCHSPRU\Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password:</td>
<td>*****************</td>
</tr>
<tr>
<td>Confirm Password</td>
<td>*****************</td>
</tr>
</tbody>
</table>

Specify an account to use as the default account when crawling content. This account must have read access to the content being crawled.

To avoid crawling unpublished versions of documents, ensure that this account is not an administrator on the target server.

**Default content access account**

Specify an account to use as the default account when crawling content. This account must have read access to the content being crawled.

To avoid crawling unpublished versions of documents, ensure that this account is not an administrator on the target server.

<table>
<thead>
<tr>
<th>Account:</th>
<th>SEARCHSPRU\Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password:</td>
<td>*****************</td>
</tr>
<tr>
<td>Confirm Password</td>
<td>*****************</td>
</tr>
</tbody>
</table>

**OK**  **Cancel**
ADMINISTRATION

This section describes all types of administration and management tasks performed with Veeam Backup Enterprise Manager: initial configuration, centralized license and job management, reporting, searching for and restoring guest OS files.

Initial Configuration

When you start Veeam Backup Enterprise Manager for the first time, you should perform a number of configuration tasks which are required to start using the management and reporting functions. Note that the initial configuration tasks can be performed either by the user who installed Veeam Backup Enterprise Manager or any of the users listed in the local Administrators group (these accounts are automatically included into Portal Administrators group).

To start working with Veeam Backup Enterprise Manager, perform the following steps:

1. Log in to the Veeam Backup Enterprise Manager website. For details, see the Accessing the Management Website section.
2. Add Veeam Backup servers you want to manage. For details, see the Adding Veeam Backup Servers section.
3. Retrieve data from added backup servers. For details, see the Collecting Data from Backup Servers section.
4. Assign Portal Administrator, Restore Operator or Portal User roles to users who will be working with Veeam Backup Enterprise Manager. For details, see the Configuring Security Settings section.
5. Provide email notification settings to be able to receive emails with summary on performed backup and replication jobs, lab request status changes and file restore operations. For details, see the Configuring Notification Settings section.

Once you have performed initial configuration, you can start working with managed backup servers.

Accessing the Management Website

To access the Veeam Backup Enterprise Manager website, double-click the Veeam Backup Enterprise Manager icon on the desktop or select Programs > Veeam > Veeam Backup Enterprise Manager from the Start menu.

Alternatively, if you are starting Veeam Backup Enterprise Manager website remotely, open your web browser and enter the host name and connection port in the address bar:

https://host-name:9443

For example:

https://vbr-em:9443

After the Veeam Backup Enterprise Manager website has loaded, you will be prompted to log in. When connecting for the first time, you will need to log in with administrative rights – to perform initial configuration. For that, enter the credentials of the user account with local administrator rights (that is, a member of the local Administrators group) or the user account which was used to install Veeam Backup Enterprise Manager and click Login.

Adding Veeam Backup Servers

To start working with backup servers, you should add to Veeam Backup Enterprise Manager all Veeam Backup servers you want to manage:

1. Open the Configuration tab.
2. Open the Backup Servers section on the left of the Configuration view.
3. Click **Add** at the top of the **Backup Servers** section.

4. In the **Backup Server Settings** window, enter a full DNS name or IP address of the server you want to add, and provide server description.

5. By default, the account under which Veeam Backup Enterprise Manager service is running will be used for interacting with the added backup server. If this account does not have administrative rights on the backup server you want to add, select the **Use these credentials** check box and provide name and password of the user with administrative rights on the added server.

6. Specify the port used by *Veeam Backup Service*. By default, port **9392** is used.

7. Click **OK** to add the server.

To edit the settings of a server after it was added, select it in the **Backup Servers** list and click **Edit** on the toolbar. Then change the server connection settings as required.

To delete an added backup server, select it in the **Backup Servers** list and click **Remove** on the toolbar.

### Collecting Data from Backup Servers

Veeam Backup Enterprise Manager retrieves data from added backup servers using a data collection job. This job represents a task for collecting information about backup and replication jobs from SQL database(s) used by backup servers. Collected data is stored to the Veeam Backup Enterprise Manager SQL backend and can be accessed by multiple users via the management website.

There are two options for running the data collection job:

- By default, Veeam Backup Enterprise Manager is configured to automatically collect data from added backup servers every 15 minutes. To change this interval, select **Backup Servers** on the left of the **Configuration** view and click **Schedule** on the toolbar. In the **Data Collection Settings** window, specify the desired interval next to the selected **Periodically every** option. To disable automatic running of the data collection job, select **Manually**.

  **Note** It is recommended to use automatic, scheduled data collection in order to ensure timely synchronization and update of the information presented to users.

  - To start the data collection job manually at any time, select **Backup Servers** on the left of the **Configuration** view and click **Start Collecting** on the toolbar.
**Note** When a data collection job is run, data from all added backup servers is collected at once.

Every run of a data collection job initiates a new job session. To view details on job sessions, click **Sessions** on the left of the **Configuration** view. In the list of sessions, select the one you need and follow the click here link in the **Log** column.

The Log section displays the history of data collection jobs, including their status and execution details, which are essential for monitoring and troubleshooting purposes.
Configuring Security Settings

To configure a security scheme for distributed backup infrastructure with Veeam Backup Enterprise Manager, you should assign roles to users working with the Veeam Backup Enterprise Manager portal and Veeam Backup servers.

Veeam Backup Enterprise Manager Roles

Veeam Backup Enterprise Manager implements security by limiting access to web management website features and data based on user roles.

This empowers administrators to delegate permissions in a very granular way, on an as-needed basis, to the individuals who will complete the restore process. It is possible, for example, to delegate permissions to recover files without actually being able to see the contents of the files. Delegations can be made to users which will allow recovery across the virtual spectrum from individual files all the way through to the recovery of the entire VM.

To be able to log in to the Veeam Backup Enterprise Manager website, the user must have the Portal Administrator, Restore Operator or Portal User role assigned.

- Users with the Portal Administrator role have full access to all administrative functions and configuration settings; they can browse, search and restore all VMs and files.
- The Configuration area is not accessible for Restore Operators and Portal Users.
- Users with the Portal User or Restore Operator role can access their restore scope — list of VMs that can be recovered by appropriate personnel. For example, database administrators can restore database servers (SQL, Oracle, or other) — this is their restore scope; Exchange administrators’ restore scope will include Exchange server VM, and so on. Depending on their role, non-administrative users can access the VMs and/or Files tab of Enterprise Manager web site.

Important

Restore scope (list of available VMs) can be customized if you have Enterprise Plus edition of Veeam Backup & Replication; in other editions, this list includes all VMs and cannot be customized. However, you can delegate recovery of entire VMs, guest files, or selected file types. Possible delegation options are described later in this section.

- Users with Restore Operator role can access VMs from their restore scope in VMs and/or Files tab and perform restore operations as permitted by their settings.
- Users with Portal User role can access VMs from their restore scope in VMs and/or Files tab, as well as reports for these VMs; they also can perform restore operations as permitted by their settings.

Note

By default, the Portal Administrator role is assigned to users listed in the local Administrators group and the user who installed Veeam Backup Enterprise Manager.

To specify security settings for a user or a group of users:

1. Open the Configuration tab.
2. Open the Roles section on the left of the Configuration view.
3. Click Add on the toolbar.
4. In the **Account type** field, select the type of account you want to add: *User* or *Group*.

5. In the **Account** field, specify the user account in the **DOMAIN\Username** format.

6. From the **Role** list, select the necessary portal role to be assigned: *Portal User*, *Portal Administrator* or *Restore Operator*.

You can allow a new user to restore entire virtual machines and/or guest files only; you can also specify the **Restore scope** for this account, as described in the section below.

To edit settings of a user or group, you can select it in the list of roles in the **Configuration** view and click **Edit** on the toolbar.

To delete a user or group, select it in the list and click the **Remove** button on the toolbar.

### Configuring Restore Scope

Default restore scope for users with non-administrative role includes **All virtual machines** from available backups. If you have Enterprise Plus edition of Veeam Backup & Replication deployed in your environment, you can customize restore scope for non-administrative users.

To narrow the restore scope, when creating or editing the profile of a *Portal User* or *Restore Operator*, do the following in the **Account** dialog:

1. Choose **Selected virtual machines only** option, and click the **Choose** button:
   
   ![Account dialog](image)

2. In the **Manage scope objects** dialog, click **Add object** and select what virtual infrastructure objects to display: Hyper-V, vSphere or vCloud.

   ![Manage scope objects](image)

3. Then choose the VI objects you allow user to restore:
For VMware objects, you can switch between Hosts & clusters, VMs & templates and Datastores & VMs views.

4. Click OK to save the settings.

Users then will be able to view the VMs and/or files included in their scope on the corresponding tabs after they log in to Enterprise Manager.

Note

The VMs tab displays only virtual machines that have been backed up, and Files tab displays guest OS files only for virtual machines that have been backed up with guest file indexing enabled. For more information, please refer to Preparing for File Browsing and Searching section of this guide.

Restore scope is automatically refreshed daily on built-in schedule and also after any role modification. It may happen that some newly created VMs and backups are not yet presented to users in the VMs or Files tab right after the login to Enterprise Manager. If so, a user can click the corresponding link (“I don’t see my VM”) to refresh the view.
Administrative user can refresh all scopes of all accounts manually — for that, in the Roles section of Configuration page, click Rebuild roles.

Again, consider that this operation will affect all configured roles.

Portal Administrator can watch the progress of security scope rebuild process on the Sessions page.

Configuring Restrictions for Restore Operations

By default, users can restore all types of files from available backups. Files can be restored to two possible destinations – a restore operator can choose to download files to the local machine or restore a file directly to the original location (that is, the original VM). For security purposes, you can configure additional restrictions for restore operations – for example, narrow the list of file types that operators can restore, or prohibit operators to download restored files.

To configure additional restrictions for restore operations, do the following when creating or editing user account:

1. In the Allow restore of section, enable the required restrictions:

   - Select the Entire virtual machines checkbox to allow for restore of entire VMs included in user’s restore scope.
   - Select the Guest files checkbox to allow for the restore of guest OS files – the following options will then become available:
     - Allow in-place file level restores only option selected will disable the Download option for users performing file restore. With this restriction enabled, users will only be able to restore files to the original location. Restored files will be available to the accounts having access to the original VM.
     - Allow restore of files with these extensions only option allows you to define which file types can be restored by users. In the text box, list extensions for allowed file types, separated by commas.

2. Click OK to save the changes.
Veeam Backup & Replication Server Roles

In addition to security settings for the management website, you need to configure security settings for every Veeam Backup server added to Veeam Backup Enterprise Manager. Security settings for Veeam Backup servers are used to authenticate user administrative rights for three operations: collecting data from backup servers, managing backup and replication jobs and restoring files. To perform these tasks, Veeam Backup Enterprise Manager interacts with a Veeam Backup server using one of the following accounts:

- If a Veeam Backup server was added with the default security settings, the account under which the Veeam Enterprise Manager Service runs will be used to interact with the backup server.
- If a Veeam Backup server was added with other user credentials, the specified account will be used to interact with the backup server.

To be able to retrieve data from a Veeam Backup server, manage backup and replication jobs and restore files, you need to include the account used to interact with the backup server into the Veeam Backup Administrators group on the backup server side. Alternatively, you can include the account into the local Administrators group on the backup server; in this case, the Veeam Backup Administrator role will be assigned to the account automatically.

On the Veeam Backup server side, all operations are performed by Veeam Backup Service that verifies beforehand if the account that is used to interact with the backup server has rights to accomplish the necessary actions.

To specify security settings on the backup server side:

1. Log on to the necessary Veeam Backup Server as Veeam Backup Administrator.
2. Select Users and Roles from the main menu of Veeam Backup & Replication.
3. Click Add.
4. In the User name field, specify the account that Veeam Backup Enterprise Manager will use to interact with this backup server. Enter the name of a user or group in the DOMAIN\Username format.
5. From the Role list, select the Veeam Backup Administrator role.

To edit settings of an added user or group, select it in the list of roles and click Edit on the right. Then edit user or group settings as required.

To delete an added user or group, select it in the list and click Remove on the right.
Configuring Retention Settings

Veeam Backup Enterprise Manager allows configuring retention settings for the index files as well as for the event history. To configure retention settings:

1. Open the **Configuration** tab.
2. Open the **Settings** section on the left of the **Configuration** view.
3. In the **Retention period, months** field within the **Guest file system catalog** section, specify how long index files must be stored on the Veeam Backup Enterprise Manager server.

   - If you use the Standard license edition for Veeam Backup servers in your virtual environment, Veeam Backup Enterprise Manager will keep index files only for those backups that are currently stored on disk (that is, the backups are available on backup repositories).

   - If you use the Enterprise or Enterprise Plus license edition for Veeam Backup servers in your virtual environment, Veeam Backup Enterprise Manager will keep index files for backups that are currently stored on disk as well as for archived backups (for example, backups that were moved from a repository to tape). Essentially this means, that even if a backup is no longer stored on a backup repository, you will still be able to search its contents for guest OS files.

4. In the **Event history** section, specify the period for which Veeam Backup Enterprise Manager should keep historical data available in the main working area of the Veeam Backup Enterprise Manager website.

   By default, retention period for session data is set to 52 weeks. You can enter another value, or select to **Keep all**.

**Important!** Please note that the retention settings you specify in Veeam Backup Enterprise Manager are propagated to all Veeam Backup servers connected to it. These settings override the **Session history retention** values specified at the level of the Veeam Backup server.
For example, if the retention options of the Veeam Backup server are configured to keep the session history for 50 weeks, and in Veeam Backup Enterprise Manager you select to keep only last 30 weeks, the latter value will be propagated to the Veeam Backup server; so the history will be kept for 30 weeks.

**Configuring Notification Settings**

To be able to receive email notifications with the summary of performed backup and replication jobs, lab request status changes and file restore operations, you should configure email notification settings. For that, open the **Configuration** tab, then open the **Notifications** section on the left of the **Configuration** view.

When you finish configuring email notification settings, click **Save** in the upper-right corner of the **Notification** settings preview pane - to apply the changes.

**Email Server Settings**

1. In the **Email server settings** section, specify a full DNS name or IP address of the SMTP server that will be used for sending email messages with notifications. If necessary, change the port number which will be used to communicate with the mail server. By default, port number 25 is used.
2. If the SMTP server requires SSL connection, select **Use SSL**.
3. If the SMTP server requires authentication, select the **Requires authentication** check box and specify authentication credentials.
### Notifications on Job Results

To receive daily email notifications on the job results:

1. In the **Job Summary** section, select the **Send daily notification at** check box and specify the time at which a notification email should be sent.
2. In the **From** field, enter an email address of the notification sender.
3. In the **To** field, enter an email address of the notification recipient. To specify multiple addresses, use a comma.
4. Enter a subject of email notifications. You can use the following variables in the subject:
   - %1 — number of jobs that ended with errors for the last 24 hours
   - %2 — number of jobs that ended with warnings for the last 24 hours
   - %3 — number of jobs that ended successfully for the last 24 hours
   - %4 — number of jobs that ended with errors for the last session
   - %5 — number of jobs that ended with warnings for the last session
   - %6 — number of jobs that ended successfully for the last session
A notification email will contain a report about the number of jobs performed with the Error, Warning and Success statuses, and provide a link to the Veeam Backup Enterprise Manager web UI so that you can see jobs statistics in detail.

Note To verify that your email settings are correct, use the corresponding Test button in each section. Veeam Backup Enterprise Manager will send a test email to all specified email addresses.

Notifications on Lab Requests

To receive notifications about lab requests:

1. In the Lab requests section, select the Send lab request notifications check box.
2. Specify the addresses of the email notification sender and recipient(s), the subject of the email message and statuses for which the notification should be sent. To specify multiple recipient addresses, use a comma.
3. Select request statuses to be reported.

Notifications on Restore Operations

To receive notifications about performed file restore operations:

1. In the File restores section, select Send file restore notifications.
2. Specify the addresses of the email notification sender and recipient(s). To specify multiple recipient addresses, use a comma.

Notifications on License Expiration

By default, you will receive notifications about support expiration, starting 14 days before the expiration date. Expiration information will be also shown in the License section and in the Enterprise Manager dashboards.

To stop receiving the notification, select the Disable support expiration notifications checkbox.
Configuring Dashboard Settings

If required, you can customize the appearance of graphs in the main Veeam Backup Enterprise Manager view.

1. Open the **Configuration** tab.

2. Open the **Site Settings** section on the left of the **Configuration** view.

3. Use the **Activity graph scale** options to switch between graph types: **Linear** and **Logarithmic**.

4. By default, the time interval specified under the selected **Show backup window** check box is highlighted on the activity graph. You can change the highlighted interval to correlate with your planned backup window by editing the start and stop time. If you do not want to highlight the backup window on the graph, clear the **Show backup window** check box.

5. Save the changes.

Managing Licenses

Veeam Backup Enterprise Manager collects information about licenses installed on Veeam Backup servers connected to it. When Veeam Enterprise Manager replicates databases from backup servers, it also synchronizes license data (that is, checks if the license installed on the Veeam Backup server coincides with the license installed on the Veeam Backup Enterprise Manager server). If the licenses do not coincide, the license on the Veeam Backup server will be automatically updated with that on Veeam Backup Enterprise Manager.

Using the **Licensing** section of Veeam Backup Enterprise Manager, you can manage and activate licenses for the whole backup infrastructure from a single web console and thus reduce administration overhead.

Viewing and Changing the Current License

To work with licenses for backup servers added to Veeam Backup Enterprise Manager:

1. Log on to Veeam Backup Enterprise Manager using an account with the Portal Administrator role.
2. Open the **Configuration** tab.
3. Click **Configuration** in the upper right corner of the window.
4. Open the **Licensing** section on the left of the **Configuration** view.
5. The upper pane of the **Licensing** section displays the following information on the license installed on Enterprise Manager server: license edition (*Standard*, *Enterprise* or *Enterprise Plus*), the number of used sockets and the total number of licensed sockets for the vSphere and Hyper-V platforms.
   To update a license, click **Change license** and select the necessary .lic file.
6. To display detailed information about the current license, click **License info**.

### Revoking Licensed Hosts

Veeam Backup & Replication is licensed per CPU Socket ("CPU Sockets") for every managed server. For more information on licensing, please refer to Veeam Backup & Replication FAQ - licensing, system requirements on Veeam website.

You can revoke hosts from the license — that is, to reclaim the license applied to one ESX(i) host and apply it to another ESX(i) host, or reclaim the license from one Hyper-V host and apply it to another Hyper-V host. This may be required if the host to which the license is applied does not need backup or replication anymore (for example, in case it is no longer used).

To revoke a host:

1. Log on to Veeam Backup Enterprise Manager using an account with the Portal Administrator role.
2. Open the **Configuration** tab.
3. Open the **Licensing** section on the left of the **Configuration** view.
4. The lower pane of the **Licensing** section displays information on all hosts currently engaged in backup and replication jobs. The list contains information on virtualization servers with the type and number of CPU sockets on the each host.

   To see the jobs in which the host is engaged, click the **Licensed** link on the right. To revoke a host from the license, select it in the list and click **Revoke** at the top of the lower pane.
Managing Jobs

Veeam Backup Enterprise Manager acts as a single point for managing jobs from all added backup servers. Users with the Portal Administrator role can centrally manage jobs that have been previously configured on added backup servers – start, stop, and retry, edit selective job settings or clone jobs.

To view the list of jobs, click the Jobs tab in the main view of Veeam Backup Enterprise Manager.

Starting, Stopping and Retrying Jobs

Veeam Backup Enterprise Manager allows you to manually control all configured jobs without the need to access the Veeam Backup & Replication console on the corresponding backup server. You can perform the following operations:

- To run a job, select it in the list on the Jobs tab, click Job actions on the toolbar and select Start job.
- To stop a job, select it in the list on the Jobs tab, click Job actions on the toolbar and select Stop job.
- To re-run a job that has failed, select it in the list on the Jobs tab, click Job actions on the toolbar and select Retry job.

You can see the current state (including the latest job run status) in the Current State column of the jobs list.

Enabling and Disabling Backup Copy Jobs

Veeam Backup Enterprise Manager allows you to enable and disable backup copy jobs. A backup copy job runs continuously, but it can be disabled for some time. If disabled, it does not monitor source backup repositories and does not copy restore points to the target backup repository. For more information on backup copy job, refer to Veeam Backup & Replication User Guide.

You can enable or disable a backup copy job at any time. For that, select it in the list on the Jobs tab, click Job actions on the toolbar and select Enable job or Disable job.

Editing Job Settings

Veeam Backup Enterprise Manager allows you to modify settings of VMware and Hyper-V backup and replication jobs that have been previously configured on managed backup servers.

Important

This capability is available if you have Enterprise or Enterprise Plus license installed.

Also, consider that using the Veeam Backup Enterprise Manager web console, you can change only some settings of the Veeam Backup & Replication 7.0 jobs, as described below; jobs controlled by Veeam Backup servers 6.x and earlier cannot be edited.

You can modify job settings in the following way:
• Manage the list of VMs that the job should process (add and remove VMs or VM containers to/from the list, exclude individual VMs from VM containers, change the order in which the job will process VMs)
• Configure guest processing settings
• Change the job schedule
Other job settings can be configured via the Veeam Backup & Replication console on corresponding backup servers only.
Job settings are modified by means of a web-based wizard. This section will guide you through all steps of the wizard and provide explanation on available options.

Step 1. Launch the Wizard
Open the Jobs tab and select the necessary job in the list. On the toolbar, click Job actions and select Edit job.

Step 2. Edit the List of Virtual Machines
You can change the list of VMs that the job will process by adding or removing individual VMs and VM containers (for example, entire hosts or clusters). Jobs with VM containers are dynamic in their nature: if a new VM is added to the container after a job is created, the job will be automatically updated to include the added VM.
To add a VM or a VM container to the list, click Add on the right. In the displayed VI tree, select the necessary object and click Add.

To facilitate objects selection, you can:
• Switch between virtual infrastructure views using the buttons in the top right corner.
• Search for objects: type a name or part of a name in the search field at the bottom of the window, use the button to the left of the field to select the necessary type of object to search for and click Start search.

To remove a VM or VM container, select it in the list and click Remove.
If required, you can also exclude individual VMs from VM containers (for example, if you need to back up the whole ESX(i) or Hyper-V server excluding several VMs running on this server). To exclude VMs from a VM container, select a VM container in the list and click Exclusions on the right. In the Exclusions section, click Add and select VMs that should be excluded.
Step 3. Define VM Processing Order

If specific VMs included in the job must be processed first, you can change VM processing order. VM processing order can be helpful if you want to ensure that processing of a VM does not overlap with other scheduled activities, or that it is completed before a certain time.

To change VM processing order, select the necessary VMs and move them up or down the list using the **Up** and **Down** buttons on the right. In the same manner, you can set the backup order for containers in the backup list. Note, however, that if you choose to back up a container, VMs inside the container will be processed at random. To ensure that VMs are processed in the defined order, you should add them as standalone VMs, not as part of a container.

Step 4. Configure Guest Processing Settings

At the **Guest Processing** step of the wizard, you can select to create a transactionally consistent backup or replica.

1. If you want to create a transactionally consistent backup or replication ensuring successful recovery of VM applications without any data loss, select the **Enable application-aware image processing** check box.

2. To enable browsing and searching for guest OS files in backup, select the **Enable guest file system indexing** check box. This setting is required if you want to allow for viewing guest OS files and for performing 1-click file restore on the **Files** tab of Enterprise Manager web UI.

3. To coordinate proper VSS activities, Veeam Backup & Replication deploys a small executable file inside a VM. It is installed only during VSS quiescence procedure and removed immediately after the processing is finished (depending on the selected option, during the backup job or after it is finished), thus producing low impact on VM performance and stability. To learn more, please refer to Veeam Backup & Replication User Guide.

   In the **Guest OS credentials** section, specify an account with local administrative privileges for deploying this executable file. You can either select the account from the list, or click on the “+” sign to add a new account. Please note that the user name must be supplied in the **DOMAIN\USERNAME** format. The guest OS credentials you provide will be used for all VMs included in the job.

4. Click **Advanced** to specify advanced options for Veeam VSS processing. The **Advanced Options** section contains a list of VMs that will be processed with Veeam VSS tools.
5. By default, for all VMs in the list Veeam Backup & Replication uses common credentials you provided in the **Guest OS credentials** section. If a different account should be used to deploy the executable file inside a specific VM, select the VM in the list, click **Set User** button and specify credentials for guest OS.

![Advanced options](image)

6. If you want to define custom settings for a VM added as part of a container, include the VM in the list as a standalone instance. To do so, click **Add VM** and choose a VM whose settings you want to customize. Next, select the VM in the list and define the necessary custom settings.

   To discard custom settings of a VM, select the VM in the list and click **Remove**.

   To provide granular quiescing options for a VM, select it in the list and click **Edit**.

7. In the **Applications** section on the **Applications** tab, specify the VSS behavior scenario:

   - Select **Require successful application processing** if you want Veeam Backup & Replication to stop backup up a VM if any VSS errors occur.

   - Select **Ignore application processing failures** if you want to continue backing up a VM even if VSS errors occur. This option is recommended to guarantee completion of the job. The created backup image will be not transactionally consistent, but crash consistent.

   - Select **Disable application processing** if you do not want to enable quiescing for a VM.

8. Use the **Transaction logs** section to define the scenario of transaction log handing:

   - Select **Truncate logs on successful backup only** if you want Veeam Backup & Replication to trigger truncation of logs only after the job is finished successfully. In this case, Veeam agent will wait for the backup to complete, and then will trigger truncation of transaction logs. If truncation of transaction logs is not possible for some reason, the logs will remain untouched in the VM guest OS till the next start of the Veeam agent.

   - Select **Truncate logs immediately** if you want Veeam Backup & Replication to trigger truncation of logs in any case, no matter whether the job finishes successfully or fails.

   - Select **Do not truncate logs** if you do not want Veeam Backup & Replication to truncate logs at all. This option is recommended if, together with Veeam Backup & Replication, you are using another backup tool to perform guest-level backup, and this tool maintains consistency of the database state. In such scenario, truncation of logs with Veeam Backup & Replication will break the guest-level backup chain and cause it to fall out of sync.
Step 5. Configure Job Scheduling Settings

The **Job Schedule** step of the wizard allows you to choose to manually run the job, schedule the job to start at a specific time – for example, the least busy hours to reduce impact on the VI environment, – or define a schedule for the job to run on a regular basis.

To specify the job schedule, select the **Run the job automatically** check box. If this check box is not selected, the job is supposed to be run manually.

You can choose to perform the job at specific time on defined week days, monthly, with specific periodicity, or after the certain job.

In the **Automatic retry** section, define whether Veeam Backup & Replication should attempt to run the job again in case it fails for some reason. If you select to **Retry failed VM processing**, Veeam Backup & Replication will retry the job for the defined number of times with the specified time intervals between the attempts.

In the **Backup window** section, determine a time span within which the backup job must be completed. The backup window prevents the job from overlapping with production hours and ensures it does not provide unwanted overhead on your virtual environment:

1) To set up a backup window for the job, select the **Terminate job if it exceeds allowed backup window** check box and click **Window**.

2) In the **Time Periods** section, define the allowed window and prohibited hours for the job. If the job exceeds the allowed window, it will be terminated.

Step 6. Finish Working with the Wizard

When you click **Finish**, Veeam Backup Enterprise Manager will propagate the changes to the Veeam Backup server where the job was initially configured. These changes will be written to the SQL configuration database.

**Cloning Jobs**

Job cloning allows you to create an exact copy of any backup, replication, backup copy job, file copy job, or tape archiving job available in the job list.

**Important** This capability is available if you have Enterprise or Enterprise *Plus* license installed.

Configuration details of a created job clone (copy) are written to the same SQL database that stores configuration details of the original job – thus, the job clone is available and can be
managed both via the Veeam Backup Enterprise Manager web UI and via the Veeam Backup & Replication console on a corresponding Veeam Backup server.

Note: If you are cloning a job that is configured to run automatically on schedule, consider that its clone job will be inactive (its status set to Disabled).

Once a job is cloned, you can edit its settings (applies to backup or replication job clones). For details, see the Editing Job Settings section. Note, however, that not all of the job settings can be changed via the Enterprise Manager web UI. For example, you cannot change the backup repository and backup proxies used for the job or define advanced job settings. The recommended practice is to configure a set of ‘job templates’ in advance, using the Veeam Backup & Replication console on every managed Veeam Backup server. These job templates can be used by Enterprise Manager Portal Administrators for cloning and further editing.

To clone an existing job:

1. Open the Jobs tab.
2. Select the necessary job in the list, click Job actions on the toolbar and select Clone job.
3. In the displayed window, specify the name of the job copy.
   - For backup jobs, you need to additionally specify the name of a resulting backup file. The backup file will be located on the same repository as the backup file of the original job.
   - For replication jobs, you need to additionally specify a new suffix that will be appended to names of replicated VMs.
4. Click Clone.

Viewing vCenter Server Information

On the vCenter Server page, you can view the information on vCenter servers added to your Veeam Backup infrastructure. Use the corresponding commands to perform the operation you need, in particular:

- **Check version** – use this command to request vCenter server version and operation status; if Veeam plug-in for vSphere Web Client is deployed, its version, status and installation account will be also displayed;
- **Install** – use this command to install Veeam plug-in for vSphere Web Client on the selected server; see the section below for details;
- **Remove** – use this command to uninstall the Veeam plug-in for vSphere Web Client from selected server.

Important! To perform these operations, you should supply user account(s) with sufficient permissions to access vCenter server. (Currently, user account information is not imported from Veeam Backup database into Enterprise Manager database for security reasons.)
## vCenter Servers

<table>
<thead>
<tr>
<th>vCenter Server</th>
<th>vCenter Server Version</th>
<th>Plugin Status</th>
<th>Installed by</th>
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</table>
Controlling Backup Infrastructure with vSphere Web Client Plug-in

The vSphere Web Client plug-in for Veeam Backup & Replication facilitates vSphere administrators' daily routine of managing backup infrastructure in the organization. This plug-in allows authorized personnel to view detailed information on the status of Veeam Backup & Replication infrastructure, using no other tool but vSphere Web Client.

In particular, vSphere administrator can view success, warning, failure counts for all jobs, as well as cumulative information on used and available storage space, and statistics on processed VMs. They can easily identify unprotected VMs and perform capacity planning, all directly from vSphere.

The vSphere Web Client plug-in is installed from the vCenter Servers page of Configuration view in Enterprise Manager.

Before installing the vSphere web client plug-in, make sure the following requirements are met:

- Supported version is vSphere Web Client v5.1.0 build 880146 or later
- Single Sign-On Service must be running
- Account used to install the plug-in must have sufficient access rights for vCenter server (must belong to the same domain in case of cross-domain access)

To install Veeam plug-in for vSphere Web Client, do the following:

1. In the **Configuration** view, go to **vCenter Servers** section.

2. Select the vCenter server you need, and click **Install**.

3. Enter user name and password to connect to vCenter server, and specify connection port (default is 443).

4. Plug-in will be installed automatically and then displayed in the list of vCenter Servers and plug-ins.

To explore plug-in status or to remove it from the server, use the corresponding commands on **vCenter Server** page of Enterprise Manager **Configuration** view.

To access the plug-in from VMware vSphere Web Client, users should launch the Web Client and from the navigation pane on the left, select **Veeam Backup & Replication**.

**Important!** To successfully obtain statistics from Veeam Backup Enterprise Manager, the accounts under which users access vSphere web client (and then automatically connect to Enterprise Manager) should be assigned one of the Enterprise Manager security roles.

To open Veeam ONE reports (optional capability), these accounts should be also included in **Veeam ONE Users** or **Veeam ONE Administrators** group on the machine where Veeam ONE Server component is installed.
Configuring Plug-in Settings

To configure the connection to Veeam Enterprise Manager and (optionally) Veeam ONE server, go to the Settings tab on the right; after the statistics is collected, you will be able to view it on the Summary tab.

1. On the Settings tab, specify Veeam Backup Enterprise Manager web server and connection port; use the following format: http://server:port. Default is HTTP port 9443.
2. Optionally, if you have Veeam ONE deployed in your environment, enter Veeam ONE server name and connection port. Default is HTTP port 1239.
3. Click Save to apply connection settings.

Examining Backup Infrastructure

All components of the backup infrastructure – backup servers, proxy servers, and repository servers - are listed on top of the Summary page, as well as the count of running and scheduled jobs.
Next to the list, there are three key indicators that inform you how the VMs were protected during the specified period:

- Successful VM backups
- VMs with Warnings
- Failed VMs

In the dashboard pane under the summary information, you can explore backup infrastructure in more details.

- The **VMs overview** widget gives you the information on how your VMs are protected: number of protected VMs (backed up or replicated), number of restore points available, source VM size, full and incremental backup size, replica restore point size, and successful backup sessions ratio.

To maximize the widget, click the **Full screen** icon in the widget’s top right corner; to change reporting period, click the gear icon and select the time period you need:

- Last 24 hours
- Last 7 days
- Last 14 days

Additionally, if Veeam ONE is installed, you can click the link and examine the **Protected VMs** report that provides a list of VMs which are protected by VBR, and which are not.

- In the **Jobs statistics** widget, all running jobs are displayed, as well as scheduled jobs and max job duration. Additionally, if Veeam ONE is installed, you can click the link and examine the **Latest BU Job Statistics** report.

- In the **Repositories** widget, detailed information for each backup repository is displayed, including repository name, overall capacity, free space and backup size. Additionally, if Veeam ONE is installed, you can click the link and examine the **Capacity Planning for Repositories** report. It gives you an estimation of when the repositories may run out of space.

- The **Processed VMs** widget shows a graphical representation of how the jobs ran (1 week, 2 weeks, 1 month filters can be applied).
Reporting

Veeam Backup Enterprise Manager provides reporting functionality that is based on job data collected from managed backup servers. Veeam Backup Enterprise Manager offers a wide range of reporting options, presenting information about performed jobs in various profiles. Being a common business requirement to IT infrastructure, reports allow you to get granular information about all jobs created on managed backup servers:

- Jobs performed for the last 24 hours
- Jobs performed for the last 7 days
- Data for jobs on specific backup servers
- Data for all performed jobs
- Data for all VMs engaged in jobs

You can view on-going reporting data using the web browser as well as export reports to files in the Microsoft Excel format which can be saved for documenting and archiving purposes.

On-Going Reporting Data

Veeam Backup Enterprise Manager displays on-going data for two time periods — data collected for the last day and data collected for the last week. To see on-going jobs data, click the Last 24 hours or Last 7 days tab, correspondingly.

Every tab of the two views contains information for the following data related to performed jobs:

- The Summary block shows the total number of managed backup servers, performed jobs, processed VMs and VM templates.
- The Data block shows the average processing speed, total sizes of processed VMs, full backups and increments.
- The Last 24 hours/Last 7 days block shows the total number of job runs, jobs completed successfully, completed with warnings and failed jobs.
- The Status block shows the status of backup files, managed backup servers, Veeam Backup Enterprise Manager and licenses.

You can use the links in these blocks to drill down into detailed reports on specific aspects of the backup infrastructure.

To visualize on-going jobs data, Veeam Backup Enterprise Manager uses dashboards with graphs showing time and date when jobs were performed, and the network throughput rate during the job.

Jobs related to one backup server are marked with a separate color on the graph. The legend on the right interprets the color scheme used for all managed backup servers. The highlighted part of the graph represents the configured backup window.
You can customize the appearance of graphs if necessary. For details, see the Configuring Dashboard Settings section.

Reports on Backup Servers

To view information about managed backup servers, open the Reports tab. You can drill down into this data by clicking the necessary link in the corresponding column of the displayed list to move through the levels in the following succession: backup servers > jobs > job sessions > session details. Each level contains a list of entries with details for that particular level.

Tip

You can export displayed information to a Microsoft Excel spreadsheet using the Export Excel button on the toolbar.

Reports on Jobs

To view information about all jobs from managed backup servers, open the Jobs tab in the main view of Veeam Backup Enterprise Manager. Every job in the list is described with the following data: job name, type, backup server on which the job was created, current job state, date of the latest run, date of the next run (if the job is scheduled) and description.

Besides the information presented in the list of jobs, the Jobs tab allows you to view advanced job data:

- To see a list of job sessions, click the job name link in the Name column.
- To see detailed statistics on the last job run, click the state link in the Current State column.

Reports on VMs

To view information about all VMs engaged in performed jobs, open the VMs tab. Each entry in the list contains the following data: VM name, path to backup file, number of restore points, backup server to which the job relates, job name and status of the last job run.
Besides the information presented in the list of VMs, the VMs tab allows you to view advanced VM data:

- To see detailed information about a VM, click its name in the VM column.
- To see detailed information about VM restore points, click a link in the Restore Points column.

**Tip** You can export displayed information to a Microsoft Excel spreadsheet using the Export Excel button on the toolbar.
Searching and Restoring VMs

With Veeam Backup Enterprise Manager, authorized users can browse VM backups, search for VMs and restore them.

Searching for VMs

To search for specific VMs, no special permissions are required. To find the necessary VM(s), open the VMs tab and in the Name search field, supply the machine name or a part of it, and click Find.

Performing 1-Click VM Restore

Authorized users can restore the VMs included in their scope with a single click.

Important
This functionality is available in Enterprise or Enterprise Plus edition of Veeam Backup & Replication.

Users with Portal Administrator role have no limitations; they can restore all VMs to their original location. Restore scope for users with Portal User or Restore Operator role is defined as described in the Configuring Restore Scope section.

To restore a VM from backup, a user needs to take the following steps:

1. On the VMs tab, locate the necessary VM backup in the list of VMs displayed, or use search by VM name.
2. For the selected VM backup, click the Restore command button to view available restore points.
3. Select the point that will be used to restore the VM.

Note
Currently, Veeam Backup Enterprise Manager supports VM restore to its original location only.

4. Additionally, you can select to Power on VM after restoring.
5. Click Restore to start the process.
You can view VM restore progress in the **VMs** page after you click **View history**; job session data and status will be displayed like shown below:

<table>
<thead>
<tr>
<th>VM name</th>
<th>Initiated by</th>
<th>Started at</th>
<th>Ended at</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td>VNTH32Admin</td>
<td>4/26/2013 7:41:29 AM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Starting restore job
- Locking required backup files
- Queued for processing at 4/26/2013 7:41:56 AM
- Required backup infrastructure resources have been assigned
- Preparing host VM for processing
- Using target proxy "VMware Backup Proxy"
- Starting restore agent on server "sea20.aimst.local"
Searching and Restoring VM Guest Files

Veeam Backup Enterprise Manager allows you to browse the guest OS file system in a VM backup, search for guest OS files and restore necessary files. While browsing and search possibilities are available for all Veeam Backup Enterprise Manager users, file restore operations can be performed by authorized users only.

**Note**  
At present, the search functionality is supported for Windows-based VMs only; however, it will be expanded to other file systems in future releases.

To be able to perform search within a VM backup, you need to enable guest OS file system indexing in the properties of the corresponding backup job. For details, refer to the *Creating Backup Jobs* section of the Veeam Backup & Replication User Guide. When such a backup job is run, Veeam Backup & Replication creates a catalog (or index) of the VM guest OS files and stores index files on the Veeam Backup Server in the `C:\VBRCatalog\Index\Machines\[vm_name]` folder. Creation of the catalog is very fast – the search engine works in the background outside the backup window and has minimal impact on the network and virtual environment.

After the index is created and stored on backup servers, the Veeam Backup Enterprise Manager Catalog Service performs index replication – it aggregates index data for all VM image backups from managed backup servers. This consolidated index is stored on the Veeam Backup Enterprise Manager server in the `C:\VBRCatalog\Index\` catalog and is used for search queries.

**Note**  
Even when VM backups are moved to an external storage device or tape, indexing data for such VMs remains in the catalog and is displayed in search results. You can use the *Import* feature in Veeam Backup & Replication to import the backup to the backup server, and then recover the file.

Veeam Backup Enterprise Manager offers two options for finding the necessary guest OS files in indexed VM backups: browsing inside the guest file system of the selected VM backup and searching for specific files across all backups with flexible advanced filters (such as searching only inside backups created during a certain time period or files within a specified size range).

If necessary, the advanced search functionality can be implemented using Veeam Backup Search – an additional utility that is installed on a dedicated Microsoft Search Server. Veeam Backup Search uses Microsoft Search Server functionality to crawl aggregated index files in the Veeam Backup Enterprise Manager catalog and create a content index on the Search Server that is used to process search queries. This facilitates search functionality in case you have a large number of backups.

Though use of the content index streamlines the search process, the content index itself can require significant space on disk. If you choose to implement search without Veeam Backup Search installed, this can result in a slower search process but you can save on the disk space.

The capacity of a search server is limited and depends on the type of search server you plan to use. If you have a large number of backup servers and/or require storing index documents for a long period of time, you may want to deploy a number of search servers. In this case, the query processing and indexing load will be automatically spread across all deployed search servers. For detailed information on system requirements and installation steps, refer to the *Installing Veeam Backup Search* section.

Veeam Backup Search is not a required component if you have a relatively small number of backups since Veeam Backup Enterprise Manager can process indexing data by itself. If you choose to implement search without Veeam Backup Search installed, no content index will be generated, which will allow you to save on disk space for storing index content.
Preparing for File Browsing and Searching

This section describes the steps you should perform to be able to use file browsing and search functionality.

First Steps

If you already have Veeam Backup & Replication and Veeam Backup Enterprise Manager installed, you need to perform the following steps to use the file browsing and search features:

1. Enable guest OS file system indexing on the Guest Processing step of the backup job wizard.
2. Run the backup job with guest OS file system indexing enabled.
3. Perform catalog replication. For details, see the Performing Catalog Replication and Indexing section.

To enable faster search using Veeam Backup Search, you will have to additionally perform the following steps:

1. Install Microsoft Search Server on a dedicated machine.
2. Install Veeam Backup Search on the machine with Microsoft Search Server. For details, see the Installing Veeam Backup Search section.
3. Add the Search Server to Veeam Backup Enterprise Manager. For details, see the Adding a Search Server section.

Adding a Search Server

If you are planning to use the file search feature for a large number of VM backups in your backup infrastructure, configure at least one search server and add it to Veeam Backup Enterprise Manager.

To add a search server:

1. Open the Configuration tab.
2. Open the Search Servers section in the left pane of the Configuration view.
3. Click Add at the top of the Search Servers view.
4. In the Search Server Settings window, enter a full DNS name or IP address of the server you want to add. Provide a description if necessary.
5. By default, the account under which Veeam Backup Service is running will be used for the added server. To specify a different account, select Use these credentials and provide a name and a password of a user with administrative privileges on the search server.
6. Specify the port used by the Veeam Backup Search Server Integration Service. By default, port number 9395 is used.
7. In the Capacity section, select the type of database server you are planning to use to set a recommended capacity value for the indexing server. Specify the limit of index documents to be created. By default, the limit is set to 300,000 documents.
8. Click OK to add the server.
Microsoft Search Server crawls content in the shared VBRCatalog folder on the Veeam Backup Enterprise Manager server. Therefore, the VBRCatalog folder should be seen to the search server, and the search server should be granted access to the folder. When you click OK to add a search server, Veeam Backup Enterprise Manager will verify if required permissions are granted, and display a warning message if these permissions are not enough.

To edit the settings of an existing server, select it in the Search Servers list and click Edit on the toolbar. To remove a search server, select it in the Search Servers list and click Remove on the toolbar.

Performing Catalog Replication and Indexing

Once you have run backup jobs with guest OS file system indexing enabled, you need to perform catalog replication to consolidate index files from multiple backup servers. During this operation, Veeam Backup Enterprise Manager aggregates index data from multiple backup servers and stores them on the Veeam Backup Enterprise Manager server to enable file browsing and search. Catalog replication must be performed regardless whether you use the Veeam Backup Search server in your backup infrastructure or not.

Catalog replication is performed for VM images with indexed guest OS file systems on all managed backup servers.

Veeam Backup Enterprise Manager provides two options to perform catalog replication:

- To perform manual catalog replication, select Search Servers on the left of the Configuration view and click Sync Catalog Now on the toolbar.

- To automatically run catalog replication after every backup job, select Search Servers on the left of the Configuration view and click Schedule on the toolbar. In the displayed window, select Automatically after every backup job and specify other options as necessary.

Every run of a catalog replication job initiates a new job session which can be tracked under Sessions in the Configuration view. To view detailed information for a specific session, find it in the Sessions view and click the corresponding click here link in the Log column.
Browsing VM Backups for Guest OS Files

After you perform catalog replication, you can browse any VM backup for OS guest files. Note that with the file browsing functionality, you can browse and search for files in the selected VM backup at a specific restore point only.

To browse guest OS files in a VM backup:

1. Open the Files tab.
2. Open the Browse tab.
3. **Type in VM name** of the machine that you want to browse, or select it from the list of VMs.
4. In the **Restore point** field, select a necessary date of backup and a restore point. Note that dates when backup of the selected VM was performed are marked green in the calendar.

As a result, the file tree of the VM as of the selected backup and restore point date will be displayed.

You can manually browse the file tree to find a necessary file, or use the search field on the right. Please consider that depending on the number of files on the VM, the search process may take some time.

Searching VM Backups for Guest OS Files

Veeam Backup Enterprise Manager allows you to search for guest OS files in all VM backups created by managed backup servers. You can use one of two available search modes – simple or advanced.

The simple search allows you to search for guest OS files in the selected VM backup at the latest restore point only. To perform simple search, follow the next steps:

1. Open the Files tab and go to the Search tab.
2. In the VM name field, select the VM that you want to browse.
3. In the Search field, type in the name of the necessary file or a part of it and click the search icon on the right.

The advanced search allows you to search for guest OS files in the selected VM backup an all restore points and filter search results by certain criteria. To perform advanced search, follow the next step:

1. Open the Files tab and go to the Search tab.
2. In the VM name field, select the VM that you want to browse.
3. In the **Search** field, type in the name of the necessary file or a part of it.

4. Expand the **Advanced search** section and define the necessary search criteria:
   - **Location** — select a specific folder on the VM to search in.
   - **Last modification time** – specify approximate time when the file was last modified or set a time interval.
   - **Backup time** — choose to search through the latest backup of the specified VM or all backups of the VM created within a certain time interval.
   - **Owner** — select to search for files with a specific owner.
   - **Type** — select to search for files of specific type or with a certain extension.
   - **Size** — specify approximate size of file or set a size range.

5. Click the search icon to the right of the **Search** field.

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**Performing 1-Click File Restore**

After you find the necessary file, you can use Veeam Backup Enterprise Manager to restore it from backup with one click. You can choose to restore it to the original location or download it to the local machine.

**Important** 1-Click file restore capability is available if you have Enterprise or Enterprise Plus edition.

Restore operations are only available to authorized users according to their security settings. Users with the **Portal Administrator** role can restore files both to the original location or download them to the local machine.

For users with non-administrative roles, you can configure additional restriction settings. For example, you can prohibit restore operators to download files to the local machine – so they will be able to restore files to the original location only. Additionally, you can specify the types of files that can be restored by operators (this can be helpful if you want to limit operators’ access to sensitive data). For details, see the Configuring Security Settings section.

**Restoring Files to the Original Location**

If you choose to restore a file to the original location, Veeam Backup Enterprise Manager will extract the file from the backup and restore it to the original production VM.
Restoring guest OS files to the original location is the most secure file recovery method, as the user who initiates the file restore operation in the Veeam Backup Enterprise Manager web UI cannot access the file itself. The restored files keep their original ownership and security permissions.

**Important** This type of restore is only possible if the original VM is powered on and resides in the original location.

To restore a file to the original location, follow these steps:

1. Locate the necessary file using browse or search possibilities of Veeam Backup Enterprise Manager. For details, see the Browsing VM Backups for Guest OS Files or Searching VM Backups for Guest OS Files sections.
2. Click the Restore button, or right-click the file and select Restore from the shortcut menu.
3. Click Yes to confirm the operation. Restore session will start, and you can view its progress in the session log.
4. The result of the operation will be displayed after you click View history.

**Downloading Files to the Local Machine**

The user who initiated file restore will be able to download the file to the local machine.

To restore a file to the local machine, follow these steps:

1. Locate the necessary file using browse or search possibilities of Veeam Backup Enterprise Manager. For details, see the Browsing VM Backups for Guest OS Files or Searching VM Backups for Guest OS Files sections.
2. Click the Download button, or right-click the file and select Download.
3. Click Yes to confirm the operation.
4. Wait for restore session to complete and the file to be retrieved from the backup.
6. In the Log tab, go to the last record in the session log ("Restored files are available for download"), and click the download link.

Restored files are stored in ZipDownload package named FLR_<date>_<time>.zip available in temporary location (at C:\ProgramData\Veeam\Backup\WebRestore\). They are periodically cleaned up by Veeam Backup & Replication – files older than 24 hours are automatically deleted (built-in value).

**Restoring Multiple Files**

In addition to restoring single files from selected restore points, Veeam Backup Enterprise Manager supports bulk restore. If you need to restore multiple files at once, you can add the necessary files to the restore list and then restore all files at once. The restore list can include files from different VMs, backups and restore points.

To add a file to the restore list:

1. Locate the necessary file using browse or search possibilities of Veeam Backup Enterprise Manager. For details, see the Browsing VM Backups for Guest OS Files or Searching VM Backups for Guest OS Files sections.

2. Click the Add to restore list button, or use the file shortcut menu command.

When a file is added to the restore list, the Pending Restores tab becomes available on the left.

**Note**

Veeam Backup Enterprise Manager keeps files in the restore list until you leave the Files section. When you switch to another section of the management website, the restore list is cleared.

Select the necessary files from the restore list and use the Restore or Download buttons to perform the corresponding restore operation for all selected files. You can remove selected files from the list using the Remove selected link at the top-right of the list. Use the Select all and Clear all links to facilitate the file selection process.
Veeam Backup Enterprise Manager keeps links for downloaded files in the history for one day (24 hours). To download a file that was previously restored:

1. Click the View History link in the bottom right corner.
2. Select the necessary restore operation.
3. Open the Log tab and click download.

Working with Virtual Lab Requests

The Requests tab allows you to approve and reject virtual lab requests, as well as prolong the time of virtual lab running which are part of the U-AIR process. For details, see the Universal Application Item-Level Restore documentation.