Veeam Agent for Linux

Version 2.0.1

User Guide

July, 2018

> **NOTE:**
>
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- Community forum at forums.veeam.com

About This Document

This user guide provides information about main features of Veeam Agent for Linux 2.0.1.

Intended Audience

The user guide is intended for anyone who wants to use Veeam Agent for Linux to protect his/her computer.

Document Revision History

Revision #	Date	Change Summary
Revision 2	7/3/2018	Document revised for Veeam Agent for Linux 2.0.1. Updated sections: System Requirements. New sections: Active Full Backup, Creating Active Full Backups.
Revision 1	12/19/2017	Initial version of the document for Veeam Agent for Linux 2.0.

Overview

Veeam Agent for Linux is a data protection and disaster recovery solution for physical endpoints and virtual machines running Linux-based operating systems.

Veeam Agent for Linux can be used by IT administrators who run Linux infrastructure to protect different types of computers and devices: servers, desktops and laptops. The solution runs inside the guest OS and does not need access to virtualization infrastructure components. Thus, Veeam Agent for Linux can be used to protect Linux server instances deployed in the public cloud, for example, in Microsoft Azure environment.

Veeam Agent for Linux offers a variety of features to protect your data. You can create an entire system image backup, back up specific computer volumes or individual directories and files. Backups can be stored on a local hard drive, on an external hard drive, in a network shared folder or on a Veeam backup repository.

In case of a disaster, you can perform the following restore operations:

- Start the OS from the Veeam Recovery Media and use standard Linux command line tools to diagnose and fix problems.
- Perform bare-metal restore.
- Restore necessary data from backups to its original location or a new location.

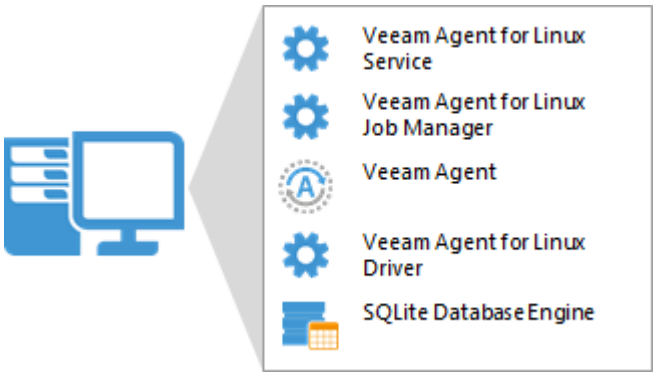
Veeam Agent for Linux integrates with Veeam Backup & Replication. Backup administrators who work with Veeam Backup & Replication can perform advanced tasks with Veeam Agent for Linux backups: restore files and disks from backups, manage backup jobs configured in Veeam Agent for Linux or backups created with these jobs.

Solution Architecture

Veeam Agent for Linux is set up on a Linux-based physical endpoint or virtual machine whose data you want to protect.

When you install the product, Veeam Agent for Linux deploys the following components:

- *Veeam Agent for Linux Service (veeamservice)* is a service responsible for managing all tasks and resources in Veeam Agent for Linux. The *veeamservice* component is registered as a daemon in the Linux OS upon the product installation. The service is started automatically when you start the OS, and runs in the background.
- *Veeam Agent for Linux Job Manager (veeamjobman)* is a process started by *Veeam Agent for Linux Service* for every backup job session.
- *Veeam Agent* that communicates with the *Veeam Agent for Linux Service* and *Veeam Agent for Linux Job Manager. Veeam Agent* is started by *Veeam Agent for Linux Manager* to perform data transfer operations of any kind: copy data from the backed-up volume to the backup location during backup, from the backup location to the target volume during restore, perform data compression, and so on.
- *Veeam Agent for Linux Driver (veeamsnap)* is a Veeam driver (Linux kernel module) used to create volume snapshots in the Linux OS.
- To store its configuration data, Veeam Agent for Linux uses the SQLite database engine. SQLite requires only few files to install and takes little resources to run on a Linux OS.



Data Backup

It is recommended that you regularly back up data stored on your computer. Backup creates a safety copy of your data. If any kind of disaster strikes, you can restore your data from the backup and be sure that you will not lose the necessary information.

You can set up Veeam Agent for Linux to perform automatic scheduled backups (triggered at specific time of the day), or you can choose to back up data manually when needed. You can back up the entire computer image, specific computer volumes or individual directories and files.

You can set up Veeam Agent for Linux to create multiple backups — with individual backup scope, upon individual schedule or in different locations. This functionality is available if Veeam Agent for Linux operates in the server mode. To learn more about modes, see Product Functionality Modes.

Backups created with Veeam Agent for Linux can be saved to the following locations:

- Removable storage device
- Local computer drive
- NFS or SMB (CIFS) network shared folder
- Backup repository managed by a Veeam backup server
- Veeam Cloud Connect repository

Backup Types

Veeam Agent for Linux lets you create the following backup types:

- Volume-level backup
- File-level backup

Volume-Level Backup

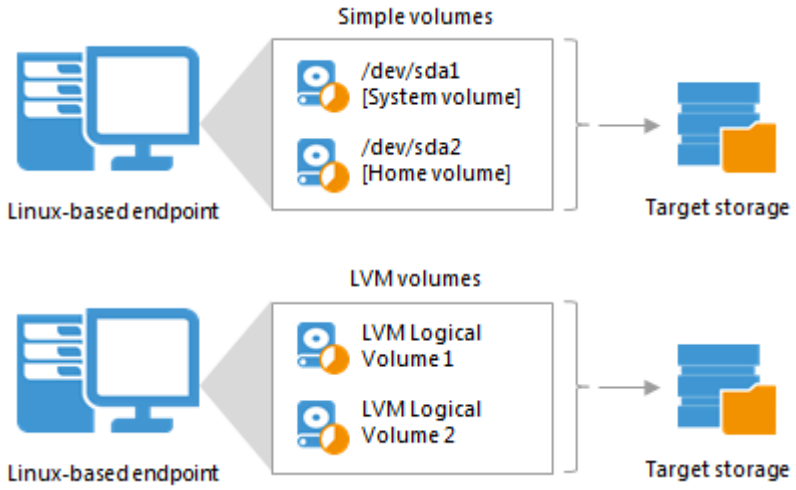
You can set up Veeam Agent for Linux to create volume-level backup. The volume-level backup captures the whole image of a data volume on your computer. You can use the volume-level backup to restore a computer volume, specific files and folders on the volume or perform bare-metal recovery.

Veeam Agent for Linux supports backup of the following types of computer volumes:

- Simple volumes
- LVM logical volumes

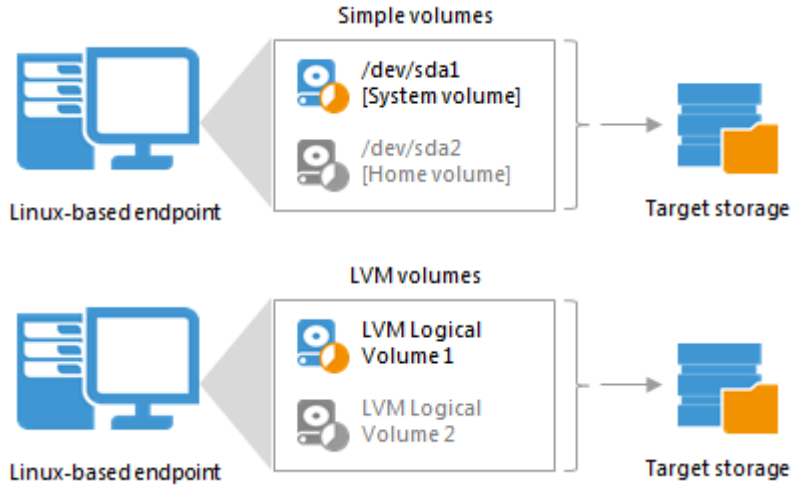
You can back up all computer volumes or specific computer volumes.

- When you back up the entire computer image, Veeam Agent for Linux captures the content of all volumes on your computer. The resulting backup file contains all volume data and Linux OS system data: system partition, partition table and bootloader. For GPT disks, Veeam Agent for Linux additionally backs up the recovery partition.



- When you back up a specific computer volume, Veeam Agent for Linux captures only the data that resides on this specific volume: files, folder, application data and so on.

  If you choose to back up the system volume (volume to which the root file system is mounted), Veeam Agent for Linux automatically includes the bootloader into the backup scope.

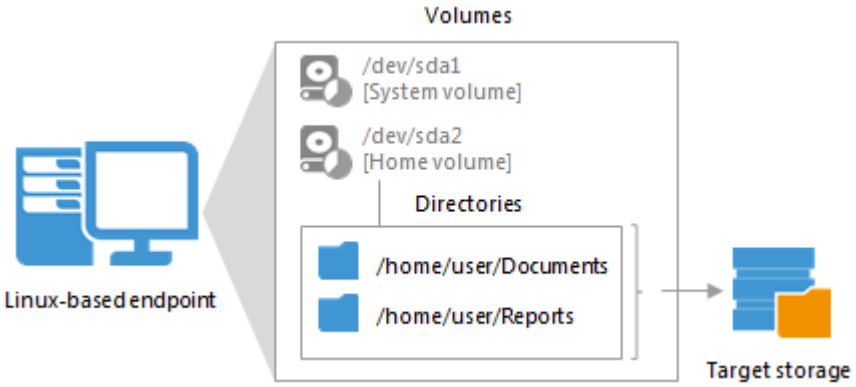


File-Level Backup

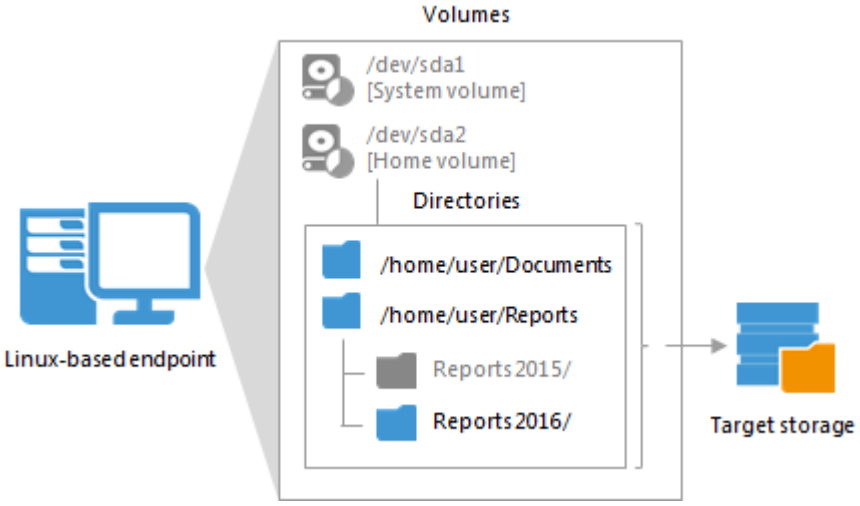
You can set up Veeam Agent for Linux to create file-level backup. The file-level backup captures only data of individual directories and files on the computer. You can use the file-level backup to restore files and directories that you have added to the backup scope.

With Veeam Agent for Linux, you can specify which files and directories to backup:

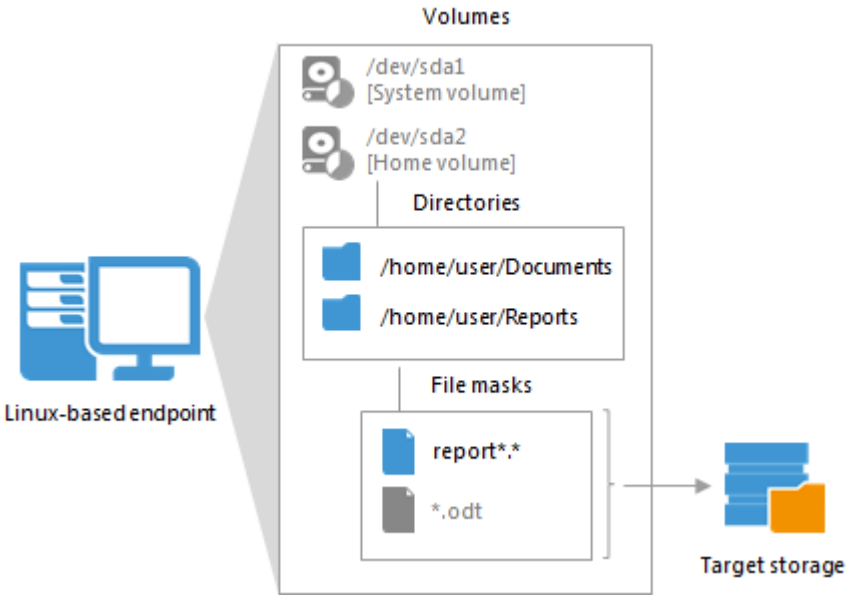
- You can include individual directories in the backup. When you include a directory in the backup, its subdirectories are automatically included in the backup too. When you recover from such backup, you will be able to restore directories that you have selected to back up, all subdirectories of these directories and files in these directories.



- You can exclude from the backup some subdirectories of the directories that are included in the backup. When you recover from such backup, you will be able to restore directories that you have selected to back up, specific subdirectories of these directories and files in these directories.



- You can include or exclude files of a specific type in/from the backup. You can specify file names explicitly or use UNIX wildcard characters to define include and exclude file name masks. When you recover from such backup, you will be able to restore directories that you have selected to back up with files whose names match the specified include masks.



How Backup Works

During backup, Veeam Agent for Linux performs the following operations:

1. Veeam Agent for Linux creates a snapshot of the volume(s) whose data you want to back up. To create a snapshot, Veeam Agent for Linux uses the Veeam Agent for Linux Driver.

   The snapshot is created on the volume that has enough free disk space to contain the snapshot data.

   Veeam Agent for Linux copies to the snapshot data blocks that change on disk during backup. The snapshot helps make sure that the data on the volume is consistent and does not change at the moment of backup.

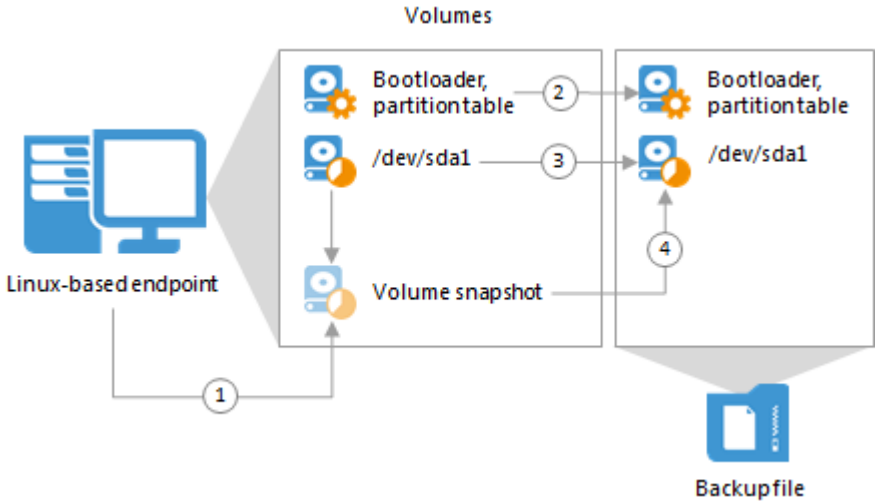
   You can specify a pre-freeze script that should be executed when the backup job starts prior to the snapshot creation process.

2. For volume-level backup, Veeam Agent for Linux copies to the target location the partition table and bootloader located on the hard disk.

3. Veeam Agent for Linux reads data from the volume whose data you want to back up, compresses it and copies it to the target location.

   - For volume-level backup, Veeam Agent for Linux copies data blocks of the whole volume.
   - For file-level backup, Veeam Agent for Linux creates a volume inside the backup file in the target location. The content of the volume in the backup file is synchronized with the volume on the source: Veeam Agent for Linux copies only those data that you have selected to back up.

4. After all unchanged blocks of data are transferred to the target location, Veeam Agent for Linux copies data from the snapshot and removes the snapshot. In the target location, Veeam Agent for Linux stores copied data to the backup file.



Backup Job

To back up your data, you must configure a backup job. The backup job settings define what data you want to back up, what the target location and retention policy for created backups are and how to back up your data. If necessary, you can re-configure the backup job and change its settings at any time.

> **NOTE:**
>
> You cannot change the backup job type from volume-level to file-level, and vice versa.

In Veeam Agent for Linux, you can configure several backup jobs with different settings. For example, you can configure one backup job to create volume-level backup and another backup job to create file-level backup. You can configure backup jobs targeted at different backup locations to keep several copies of your backed-up data. You can also configure several backup jobs with individual schedule to fine-tune automatic backup creation process.

> **NOTE:**
>
> You can create more than one backup job only if Veeam Agent for Linux operates in the server mode. To learn more, see Product Functionality Modes.

Veeam Agent for Linux launches the backup job according to the schedule you define. You can schedule the job to start at specific time daily or on specific week days. You can also start a backup job manually to perform backup on demand when needed.

Backup job scheduling settings are configured globally for all user accounts of the Linux OS. For every backup job, Veeam Agent for Linux creates a record in the `crontab` configuration file of the root account. As a result, Veeam Agent for Linux can start a backup job automatically regardless of the currently running user session.

You can define schedule for a job in Veeam Agent for Linux or edit the `crontab` file directly to fine-tune the schedule. To learn more, refer to the Cron job scheduler documentation.

Backup Job Scripts

You can instruct Veeam Agent for Linux to run custom scripts within the backup job session:

- Pre-job and post-job scripts — Veeam Agent for Linux runs these scripts before the backup job starts and after the backup job completes. You can use pre-job and post-job scripts, for example, to configure email notifications about jobs performed by Veeam Agent for Linux.
- Pre-freeze and post-thaw scripts (in the server mode only) — Veeam Agent for Linux runs these scripts before and after creating a snapshot. For example, the pre-freeze script may quiesce the file system and application data to bring the Linux OS to a consistent state before Veeam Agent for Linux creates a snapshot. After the snapshot is created, the post-thaw script may bring the file system and applications to their initial state.

Script settings are enabled at the job level. If Veeam Agent for Linux operates in the server mode and you want to configure multiple backup jobs, you can specify individual scripts for each job.

Scripts must be created beforehand. You must specify paths to them in the job settings. Veeam Agent for Linux supports scripts in the SH file format.

Pre-Job and Post-Job Scripts

You can instruct Veeam Agent for Linux to run custom pre-job and post-job scripts. Veeam Agent for Linux executes the pre-job script directly before the backup job starts. After the backup job completes, Veeam Agent for Linux executes the post-job script.

Veeam Agent for Linux starts the backup job regardless of the pre-job script result. If the pre-job script fails to execute, Veeam Agent for Linux will always start the backup job. Then, after the backup job completes, Veeam Agent for Linux will execute the post-job script.

The script is considered to be executed successfully if "0" is returned.

The default time period for script execution is 10 minutes. After this period expires, Veeam Agent for Linux stops executing the script and displays a warning message in the job session. If the script fails to execute before the timeout expires, Veeam Agent for Linux does not display warning messages in the job session.

Pre-Freeze and Post-Thaw Scripts

You can instruct Veeam Agent for Linux to run custom pre-freeze and post-thaw scripts. Veeam Agent for Linux executes the pre-freeze script before creating a snapshot. After the snapshot is created, Veeam Agent for Linux executes the post-thaw script.

The script is considered to be executed successfully if "0" is returned.

The default time period for script execution is 10 minutes. After this period expires, Veeam Agent for Linux stops executing the script.

By default, if the pre-freeze or post-thaw script fails to execute, Veeam Agent for Linux does not start the backup job. However, you can instruct Veeam Agent for Linux to ignore errors that occur during the script execution process. To allow Veeam Agent for Linux to start backup jobs regardless of the script execution result, in the `/etc/veeam/veeam.ini` configuration file, uncomment the `ignoreFreezeThawFailures` parameter and set its value to `true`.

If Veeam Agent for Linux is set up to ignore script errors, and the pre-freeze or post-thaw script fails to execute, Veeam Agent for Linux will start the backup job. After the job successfully completes, Veeam Agent for Linux will display the *Warning* status for the job session.

NOTE:

You can specify pre-freeze and post-thaw scripts only if Veeam Agent for Linux operates in the server mode. If these scripts were enabled for the job while Veeam Agent for Linux operated in the server mode, and then Veeam Agent for Linux has switched to another mode (for example, to the free mode after the license has expired), the backup job will be failing. You will need to delete the existing job and create a new backup job without pre-freeze and post-thaw scripts enabled.

File System Indexing

You can instruct Veeam Agent for Linux to create an index of files and directories located on the Veeam Agent computer during backup. File indexing allows you to search for specific files inside Veeam Agent backups and perform 1-click restore in Veeam Backup Enterprise Manager.

File indexing is enabled at the job level. You can specify granular indexing settings for each job.

IMPORTANT!

Indexing mechanism does not recognize file exclusion masks. If you specify masks to exclude certain files in a file-level backup job, Veeam Agent for Linux will nevertheless index all files located in the directories that have been selected for backup.

For example, you have included the `/home` directory into the backup and specified the `*.pdf` exclusion mask. The *Index everything* option is enabled for the backup job. In this case, when you browse the resulting backup in Veeam Backup Enterprise Manager, PDF files will be displayed in the `/home` directory as if they were backed up.

Requirements for File System Indexing

- Veeam Agent for Linux must have either Workstation or Server license installed.
- The Linux system must have the `mlocate` and `tar` tools installed (standard tools for majority of Linux distributions).

NOTE:

File system indexing is optional. If you do not enable this option in the backup job settings, you will still be able to perform 1-click restore from the backup created with such backup job. For more information, see the *Preparing for File Browsing and Searching* section in the Veeam Backup Enterprise Manager User Guide at: https://www.veeam.com/documentation-guides-datasheets.html.

Backup Repository

A backup job configured in Veeam Agent for Linux creates backup files in a backup repository. A backup repository is a directory on the storage where you want to keep backup files. You can use the following types of disk-based storage to create a backup repository:

- Local (internal) storage of the protected machine (not recommended).
- Direct attached storage (DAS), such as USB, eSATA or Firewire external drives.
- Network Attached Storage (NAS) able to represent itself as SMB (CIFS) or NFS share.
- Veeam Backup & Replication 9.5 Update 3 or later backup repository.
- Veeam Backup & Replication 9.5 Update 3 or later cloud repository.

> **IMPORTANT!**
>
> A backup repository must be created on a separate volume from a volume whose data you plan to back up.

Veeam Agent for Linux works with backup storage differently depending on the way you configure and start backup jobs — with the Veeam Agent for Linux control panel or command line interface.

Backup Location and Control Panel

If you use the Veeam Agent for Linux control panel to perform backup tasks, you do not have to deal with backup repositories. When you specify a target location for backup in the Backup Job wizard, Veeam Agent for Linux configures the backup repository automatically. Veeam Agent for Linux saves path to the specified backup location, assigns to this location a unique name and ID and saves this information in the database. The information is used by Veeam Agent for Linux and is not displayed in the control panel.

If you target a backup job at the network shared folder, every time the backup job starts, Veeam Agent for Linux will automatically mount the shared folder to the `/tmp/veeam` directory in the computer file system and create a backup file in this directory. After the backup job completes, Veeam Agent for Linux will automatically unmount the network shared folder.

You can target several backup jobs to individual backup locations or use the same target location for several backup jobs. This may be useful if you want to back up different types of data to separate locations or to keep all backed-up data at one place.

Backup Repository and Command Line Interface

If you work with Veeam Agent for Linux using the command line interface, you perform operations with backup repositories directly. You must create a backup repository manually before configuring the first backup job. When you create a backup repository, you specify a local directory in which Veeam Agent for Linux will create backup files and a name for the backup repository. To learn more, see Creating Backup Repository.

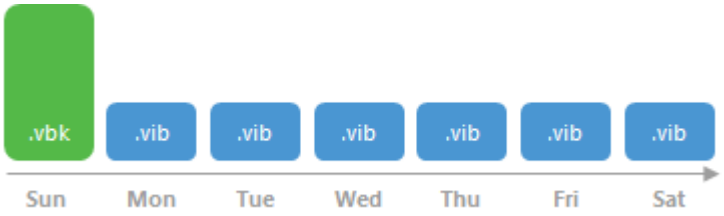
If you want to keep backup files on a remote storage or in a network shared folder, you must mount this remote location to the specified local directory before you start a backup job. Veeam Agent for Linux does not check whether the remote backup location is mounted to the local directory. If the remote location is not mounted, Veeam Agent for Linux will create a new backup chain directly in the local directory. Besides, if the directory to which the remote location should be mounted resides on the backed-up volume, a backup job may fail.

You can configure several backup repositories and target different backup jobs at these repositories. This may be useful if you want to back up different types of data to separate locations or to keep several copies of your backed-up data.

Backup Chain

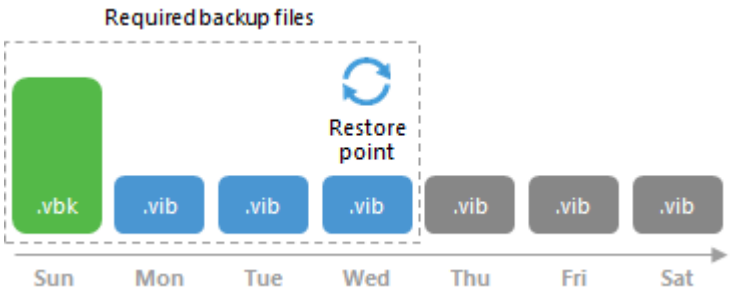
Every backup job session produces a new backup file in the target location. Backup files make up a backup chain. The backup chain can contain files of two types: full backup(s) and incremental backups.

- During the first backup job session, Veeam Agent for Linux performs full backup. Veeam Agent for Linux copies all data that you have chosen to back up (entire volumes and directories) and stores the resulting full backup file (VBK) in the target location. The full backup takes significant time to complete and produces a large backup file: you have to copy the whole amount of data.
- During subsequent backup job sessions, Veeam Agent for Linux performs incremental backups. It copies only new or changed data relatively to the last backup job session and saves this data as an incremental backup file (VIB) in the target location. Incremental backups typically take less time than full backup: you have to copy only changes, not the whole amount of data.



After several backup cycles, you have a chain of backup files in the target location: the first full backup file and subsequent incremental backup files. Every backup file contains a restore point for backed up data. A restore point is a "snapshot" of your data at a specific point in time. You can use restore points to roll back your data to the necessary state.

To recover data to a specific restore point, you need a chain of backup files: a full backup file plus a set of incremental backup files following this full backup file. If some file from the backup chain is missing, you will not be able to roll back to the necessary state. For this reason, it is recommended that you do not delete separate backup files manually. To learn more, see Deleting Backups.



Types of Backup Files

Veeam Agent for Linux produces backup files of the following types:

- VBK — full backup file.
- VIB — incremental backup file.
- VBM — backup metadata file. The backup metadata file is updated with every backup job session. It contains information about the computer on which the backup was created, every restore point in the backup chain, how restore points are linked to each other and so on. The backup metadata file is required for performing file-level and volume-level restore operations.

Backup Retention Policy

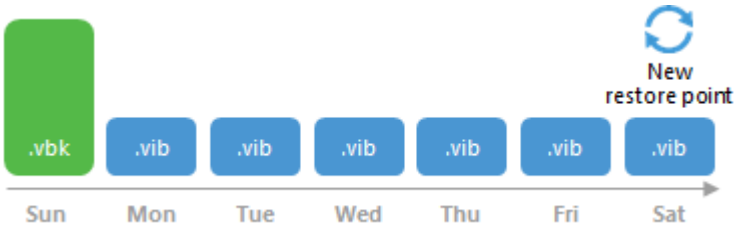
Restore points in the backup chain are not kept forever. They are removed according to the retention policy. The retention policy helps maintain the life cycle of restore points and make sure that backup files do not consume the whole disk space.

Veeam Agent for Linux retains the number of latest restore points defined by the user. During every backup job session, Veeam Agent for Linux checks if there is any obsolete restore point in the backup chain. If some restore point is obsolete, it is removed from the chain.

Removing Backups by Retention

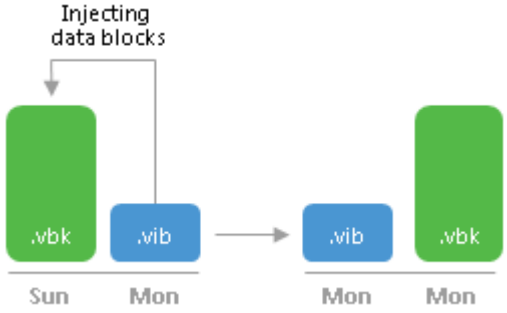
When removing obsolete restore points, Veeam Agent for Linux does not simply delete backup files from disk. It transforms the backup chain so that the backup chain always contains a full backup file on which subsequent incremental backup files are dependent. To maintain the consistency of the backup chain, Veeam Agent for Linux uses the following rotation scheme:

1. During every backup job session Veeam Agent for Linux adds a backup file to the backup chain and checks if there is an obsolete restore point.

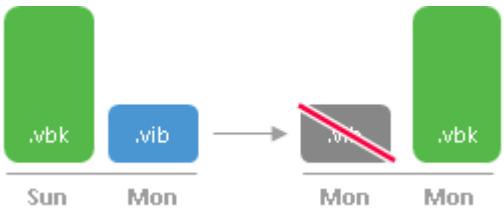


2. If an obsolete restore point exists, Veeam Agent for Linux transforms the backup chain. As part of this process, it performs the following operations:

    a. Veeam Agent for Linux re-builds the full backup file to include in it data of the incremental backup file that follows the full backup file. To do this, Veeam Agent for Linux injects into the full backup file data blocks from the earliest incremental backup file in the chain. This way, a full backup 'moves' forward in the backup chain.



    b. The earliest incremental backup file is removed from the chain as redundant: its data has already been injected into the full backup file, and the full backup file includes data of this incremental backup file.

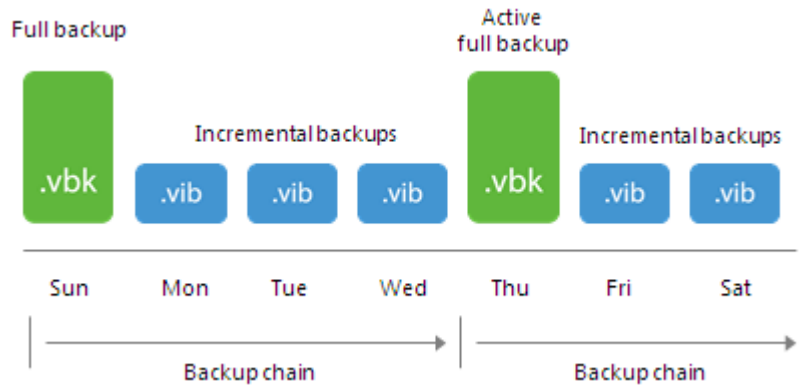


Active Full Backup

In some cases, you need to regularly create a full backup. For example, your corporate backup policy may require that you create a full backup on weekend and run incremental backup on work days. To let you conform to these requirements, starting from version 2.0.1, Veeam Agent for Linux lets you create active full backups.

When Veeam Agent for Linux performs active full backup, it produces a full backup file and adds this file to the backup chain.

The active full backup resets the backup chain. All incremental backup files use the latest active full backup file as a new starting point. A previously used full backup file and its subsequent incremental backup files remain on the disk. After the last incremental backup file created prior to the active full backup becomes outdated, Veeam Agent for Linux automatically deletes the previous backup chain. To learn more, see Retention Policy for Active Full Backups.



You can create active full backups manually using the Veeam Agent for Linux command line interface. To learn more, see Creating Active Full Backups.

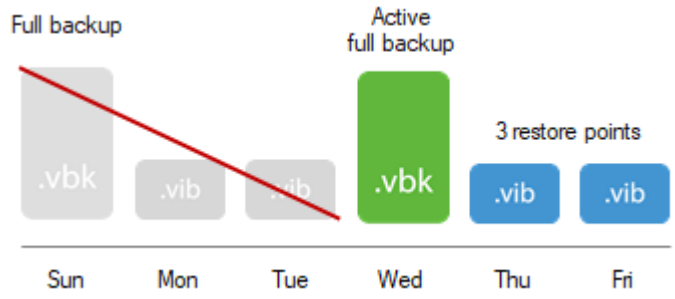
> **NOTE:**
>
> You cannot currently create active full backups using the Veeam Agent for Linux control panel and/or create active full backups automatically upon schedule.

Retention Policy for Active Full Backups

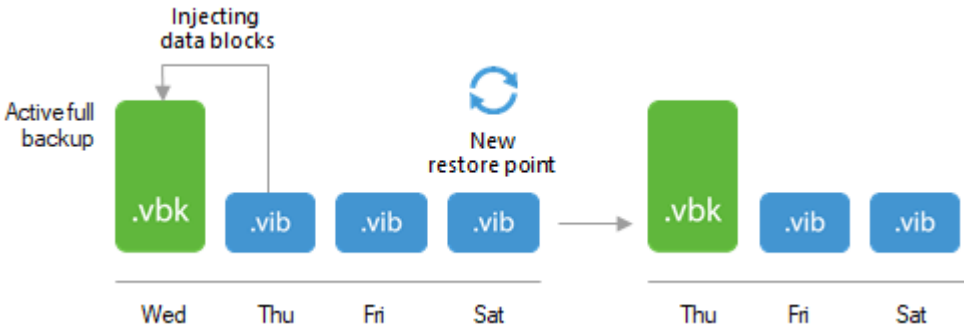
To be able to restore data from a Veeam Agent backup, you need to have a full backup file and a chain of subsequent incremental backup files on the disk. If you delete a full backup file, the whole chain of incremental backup files will become useless. In a similar manner, if you delete any incremental backup file before the point to which you want to roll back, you won't be able to restore data (since later incremental backup files depend on earlier incremental backup files).

For this reason, if you create an active full backup, in some days there will be more restore points on the disk than specified by retention policy settings. Veeam Agent for Linux will remove the full backup chain only after the last incremental backup file in the chain becomes outdated.

For example, the retention policy is set to 3 restore points. A full backup file is created on Sunday, incremental backup files are created on Monday and Tuesday, and an active full backup is created on Wednesday. Although the backup chain now contains 4 restore points, Veeam Agent for Linux will not delete the previous backup chain. Veeam Agent for Linux will wait for the next 2 incremental backup files to be created, and only then will delete the whole previous chain, which will happen on Friday. As a result, although the retention policy is set to 3 restore points, the actual number of backup files on the disk will be greater for some time.



Veeam Agent for Linux treats the active full backup in the same way as a regular full backup. If some restore point becomes obsolete, Veeam Agent for Linux will re-build the full backup file to include in it data of the incremental backup file that follows the full backup file. After that, Veeam Agent for Linux will remove the earliest incremental backup file from the chain as redundant.



Data Restore

Veeam Agent for Linux offers two data restore scenarios:

- You can perform volume-level restore to recover the entire system image of your computer or specific computer volumes. To learn more, see Volume-Level Restore.
- You can perform file-level restore to recover individual files and directories. To learn more, see File-Level Restore.

Volume-Level Restore

If data on a computer volume gets corrupted, you can restore this volume from the backup. For volume-level restore, you can use backups that were created at the volume level. File-level backups cannot be used for volume restore.

When you perform volume-level restore, Veeam Agent for Linux restores the entire content of the volume. It retrieves from the backup data blocks pertaining to a specific volume and copies them to the necessary location.

Note that you cannot browse the volume in the backup and select individual files and directories for restore. For granular file-level restore, you can use the File-Level Restore option.

A volume can be restored to its original location or new location. If you restore the volume to its original location, Veeam Agent for Linux overwrites data on the original volume. If you restore the volume to a new location, and the target disk contains any data, Veeam Agent for Linux overwrites data in the target location with data retrieved from the backup.

Limitations for volume-level restore

Volume restore has the following limitations:

- You cannot restore the system volume to its original location.
- You cannot restore a volume to the volume on which the Linux swap space is hosted.
- You cannot restore a volume to the volume where the backup file used for restore is located.

To overcome the first two limitations, you can create a Veeam Recovery Media and use the **Volume Restore** wizard for volume-level restore. To learn more, see Veeam Recovery Media.

File-Level Restore

If you have lost or modified files and directories on your computer by mistake, you can restore a copy of the necessary objects from the backup. For file-level restore, you can use a backup of any type:

- Volume-level backup
- File-level backup

Veeam Agent for Linux does not simply extract files and folders from the backup file. During file-level restore, Veeam Agent for Linux performs the following operations:

1. Veeam Agent for Linux associates the backup file with a loop device, for example, `/dev/loop0`, to make the backup file accessible as a block device.
2. Veeam Agent for Linux mounts the loop device to the mount point directory in the computer's file system.
    - For file-level restore with the Veeam Agent for Linux control panel or Veeam Recovery Media, Veeam Agent for Linux mounts the backup content to the `/mnt/backup` directory.
    - For file-level restore with the command line interface, you can specify a directory in which Veeam Agent for Linux should mount the backup content.

After the backup content is mounted, you can use Linux command line utilities or preferred file browser to work with restored files and directories. You can browse for files and directories in the mounted backup and copy them to their initial location or to a new location.

Veeam Recovery Media

Veeam Agent for Linux lets you use the Veeam Recovery Media — a recovery image of the Linux OS that provides an alternative way to boot your computer.

The recovery image includes a custom Linux OS with the limited functionality. It comprises Linux kernel and a set of GNU/Linux utilities necessary to boot the computer and perform basic administration tasks. If the OS installed on the computer fails to start for some reason, you can boot the recovery image OS. After booting, you can do the following:

- You can restore data from a backup to your computer. For this scenario, you must have a backup created with Veeam Agent for Linux.
- You can use Linux OS tools to diagnose problems and fix errors on your computer.

The recovery image can be helpful if one of the following errors occur:

- The OS on the computer fails to start.
- You want to perform bare-metal restore from the backup on the computer without the OS and other software installed.
- You want to restore the system volume of the computer and so on.

Veeam Recovery Media is distributed as an ISO image. The ISO image file can be downloaded from https://www.veeam.com/linux-backup-download.html. You can burn the ISO image file to different kinds of media:

- Removable storage devices such as USB drives or SD cards
- CD/DVD/BD

When you boot from the Veeam Recovery Media, you can use the recovery environment to fix the OS system errors on your computer or restore data from the backup. Veeam Agent for Linux offers a set of tools for the computer system image and data recovery:

- Restore volumes — the Veeam Recovery wizard to recover data on the original computer or perform bare-metal recovery.
- Restore files — the File Level Restore wizard to restore files and folders to the original location or to a new location.
- Switch to command line — Linux shell prompt with standard utilities to diagnose problems and fix errors.

Drivers in Veeam Recovery Media

The generic Veeam Recovery Media available for download at the Veeam website contains the following data:

1. Set of files required to start the recovery image OS from the recovery media.
2. Set of Veeam tools for the computer system image and data recovery.
3. Set of Linux command line tools to diagnose problems and fix errors on your computer.
4. Drivers required to run hardware and devices on your computer in a regular way. The generic Veeam Recovery Media contains drivers included in the Linux kernel version 4.4.36. When you boot your computer from the Veeam Recovery Media, drivers from the Veeam Recovery Media are automatically loaded on the recovery image OS.

   If your computer uses hardware that requires drivers not included in the generic Veeam Recovery Media, you can create custom Veeam Recovery Media. Veeam Agent for Linux will copy the Linux kernel running on your computer with its currently loaded modules and include them into the custom Veeam Recovery Media.

Integration with Veeam Backup & Replication

If you plan to use Veeam Agent for Linux 2.0.1 with Veeam Backup & Replication, you must install Veeam Backup & Replication 9.5 Update 3 or later on the Veeam backup server.

> **IMPORTANT!**
>
> Veeam Agent for Linux cannot work with Veeam Backup & Replication that is located behind the NAT gateway.

You can store backup files created with Veeam Agent for Linux on backup repositories managed by Veeam Backup & Replication. To do this, you must select a Veeam Backup & Replication backup repository as a target location in the properties of the backup job. To store Veeam Agent backups, you can use a simple backup repository or a scale-out backup repository.

> **NOTE:**
>
> Consider the following:
>
> - Starting from version 9.5 Update 3, you can use Veeam Backup & Replication to manage Veeam Agent for Linux on computers in your infrastructure. As part of the Veeam Agent management scenario, you can remotely deploy Veeam Agent for Linux to your computers, as well as configure and manage Veeam Agent backup jobs in Veeam Backup & Replication. To learn more, see the Veeam Agent Management Guide at: https://www.veeam.com/documentation-guides-datasheets.html.
> - If you create a backup job with the Veeam Agent for Linux command line interface, you need to specify a Veeam backup repository in the backup job settings. Veeam backup repository appears in the list of backup repositories after you connect to a Veeam backup server. To learn more, see Managing Veeam Backup & Replication Servers.

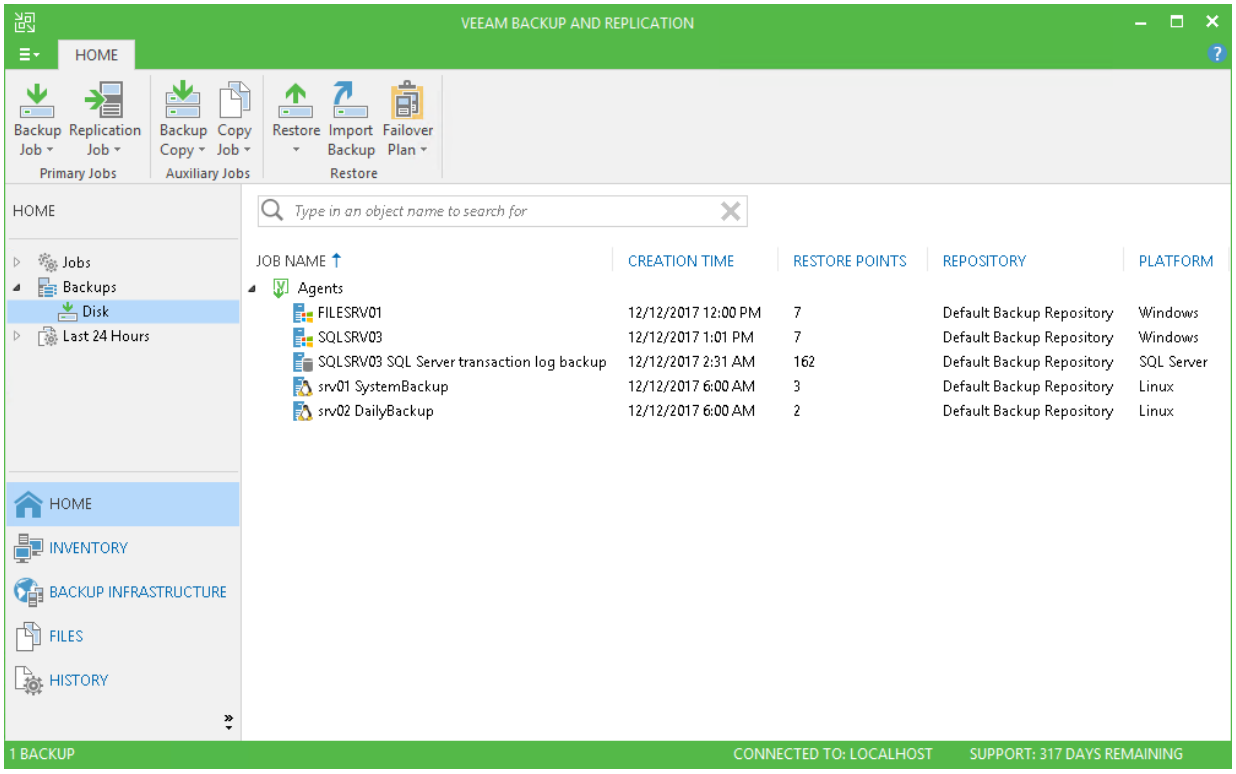
Veeam Agent for Linux works with the Veeam Backup & Replication backup repository as with any other backup repository. Backup files are stored to a separate folder; you can perform standard restore operations using these files.

Information about Veeam Agent for Linux backups stored on the Veeam Backup & Replication backup repositories, backup jobs and sessions becomes available in the Veeam Backup & Replication console:

- The Veeam Agent for Linux backup job is displayed in the list of jobs in Veeam Backup & Replication.
- Backup files created with Veeam Agent for Linux are displayed in the list of backups, under the **Agents** node.
- Performed job sessions are available in the **History** view of Veeam Backup & Replication.

Backup administrators working with Veeam Backup & Replication can perform a set of operations with Veeam Agent for Linux backups:

- Perform data protection operations: copy Veeam Agent for Linux backups to secondary backup repositories and archive these backups to tape.
- Perform restore operations: restore individual files and directories from Veeam Agent for Linux backups; restore computer disks and convert them to the VMDK, VHD or VHDX format; restore to Microsoft Azure.
- Perform administrative tasks: disable and delete Veeam Agent for Linux backup jobs, remove Veeam Agent for Linux backups and so on.



Backup to Veeam Cloud Connect Repository

If you want to store your data in the cloud, you can connect to a Veeam Cloud Connect service provider (SP) and create Veeam Agent backups in a cloud repository. To do this, you must provide credentials of the tenant (or subtenant) account that you obtained from the SP, and select a cloud repository as a target for backup files in the properties of the backup job. To learn more, see Veeam Cloud Connect Repository Settings.

> **NOTE:**
>
> Consider the following:
>
> - You can create Veeam Agent backups in a cloud repository if the SP backup server runs Veeam Backup & Replication 9.5 Update 3 or later.
> - Backup to a cloud repository is available if Veeam Agent for Linux operates in the workstation or server mode.

Veeam Agent Management in Veeam Backup & Replication

Veeam Backup & Replication lets you automate management of Veeam Agent for Linux on multiple computes in your infrastructure. You can deploy Veeam Agent for Linux, configure Veeam Agent backup jobs and perform other data protection and administration tasks on remote computers. To use the Veeam Agent management functionality in Veeam Backup & Replication, you must install Veeam Backup & Replication 9.5 Update 3 or later on the Veeam backup server.

To learn more, see the Veeam Agent Management Guide at: https://www.veeam.com/documentation-guides-datasheets.html.

Requirements

Before you install Veeam Agent for Linux, make sure that the target computer meets the system requirements and all required ports are open.

System Requirements

The protected Linux-based endpoint must meet the following requirements:

Specification	Requirement
Hardware	CPU: x86-64 processor (i386 or later). Memory: 1 GB RAM. Disk Space: 100 MB free disk space for product installation. Network: 10 Mbps or faster network connection to a backup target. System firmware: BIOS or UEFI. Disk layout: MBR or GPT. For virtual machines: Only full virtualization type is supported.
OS	Linux kernel 2.6.32 or later* is supported. Both 64-bit and 32-bit versions of the following distributions** are supported: ▪ Debian 6.0 – 9.4*** ▪ Ubuntu 10.04 – 18.04*** ▪ CentOS / RHEL 6.0 – 7.5 ▪ Oracle Linux 6 (starting from UEK R1) – Oracle Linux 7 (up to UEK R4 U7)*** ▪ Oracle Linux 6 – 7.5 (RHCK)*** ▪ Fedora 23 – 28*** ▪ openSUSE 11.3 – 13.2*** ▪ openSUSE Leap 42.2 – 42.3, Leap 15 ▪ SLES 11 SP4 – 12 SP3 ▪ SLES for SAP 11 SP4 – 12 SP3 * As long as you use kernels supplied by your distribution. Except for Fedora and Tumbleweed distributions: these are supported up to kernel 4.16, inclusive. ** Only GA versions that have been released before the current version of Veeam Agent for Linux are supported. *** Pre-built binary `veeamsnap` kernel module packages are not compatible with these distributions, please use the `dkms` version instead.

File System	Veeam Agent for Linux supports data backup and restore for the following file systems*: ▪ Ext 2/3/4 ▪ F2FS ▪ FAT16 ▪ FAT32 ▪ HFS ▪ HFS+ ▪ HFSP ▪ JFS ▪ NILFS2 ▪ NTFS ▪ ReiserFS ▪ XFS The supported file system can reside on a simple volume or LVM2 volume. * Backup of machines used as cluster nodes is not supported.
Software	Protected computer must have the following components installed: ▪ dkms* ▪ gcc* ▪ make* ▪ perl* ▪ kernel-headers* ▪ kernel-devel* ▪ libudev ▪ libacl ▪ libattr ▪ lvm2 ▪ libfuse ▪ dmidecode** ▪ efibootmgr (for UEFI-based systems) ▪ isolinux (for Debian-based systems) ▪ syslinux (for RedHat-based systems) * Not required for CentOS, RHEL and SLES distributions if a pre-built binary `veeamsnap` package is to be installed. For details, see Installing Veeam Agent for Linux. ** Required for Veeam Agent management — a valid UUID must be obtainable either from `dmidecode | grep -i uuid` or from `/sys/class/dmi/id/product_uuid`. Each Veeam Agent that consumes a license installed in Veeam Backup & Replication must have a unique UUID. If a valid UUID cannot be obtained, Veeam will generate it automatically.

Backup Target

Backup can be performed to the following disk-based storage:

- Local (internal) storage of the protected computer (not recommended).
- Direct attached storage (DAS), such as USB, eSATA or Firewire external drives.
- Network Attached Storage (NAS) able to represent itself as SMB (CIFS) or NFS share. Requires `cifs-utils` or `nfs-utils` packages to be installed on the Veeam Agent for Linux computer, depending on a network storage type.
- Veeam Backup & Replication 9.5 Update 3 or later backup repository (except DataDomain DDboost, HPE StoreOnce).
- Veeam Cloud Connect 9.5 Update 3 or later cloud repository

Used Ports

Make sure that you open ports listed below to enable proper work of Veeam Agent for Linux.

From	To	Protocol	Port	Notes
Veeam Agent for Linux Computer	Veeam Backup Server	TCP	10006	Default port used for communication with the Veeam Backup server. Data between the Veeam Agent for Linux computer and backup repositories is transferred directly, bypassing Veeam backup servers.
	Shared folder SMB (CIFS) share	TCP UDP	135, 137 to 139, 445	Ports used as a transmission channel from the Veeam Agent for Linux computer to the target SMB (CIFS) share.
	Shared folder NFS share	TCP UDP	111, 2049	Standard NFS ports used as a transmission channel from the Veeam Agent for Linux computer to the target NFS share.
Communication with Veeam Backup & Replication Repositories				
Veeam Agent for Linux Computer	Linux server performing the role of a backup repository	TCP	22	Port used as a control channel from the Veeam Agent for Linux computer to the target Linux host.
		TCP	2500 to 5000	Default range of ports used as data transmission channels. For every TCP connection that a job uses, one port from this range is assigned.
	Microsoft Windows server performing the role of a backup repository	TCP	1025 to 5000 (for Microsoft Windows 2003) 49152 to 65535 (for Microsoft Windows 2008 and newer)	Dynamic RPC port range. For more information, see http://support.microsoft.com/kb/929851/en-us.
		TCP	2500 to 5000	Default range of ports used as data transmission channels. For every TCP connection that a job uses, one port from this range is assigned.

IMPORTANT!

The list of ports required for computers booted from the Veeam Recovery Media is the same as the list of ports required for Veeam Agent for Linux computers.

Installation and Configuration

You can install Veeam Agent for Linux on any Linux-based endpoint whose data you plan to protect — virtual machine or physical device (server, desktop or laptop).

Before You Begin

Before you start the installation process, check the following prerequisites:

1. The computer on which you plan to install Veeam Agent for Linux must satisfy system requirements specified in this document. To learn more, see System Requirements.
2. To install Veeam Agent for Linux software packages, you must use the `root` account or any user account that has super user (root) privileges on the computer where you plan to install the product.
3. Veeam Agent for Linux software packages have the following dependencies:
   - *lvm2* — required by the `veeamconfig` package to support operations with LVM volumes.
   - *dkms* — required by the `veeamsnap` package for building the kernel module for Veeam Agent for Linux Driver.

     This dependency does not apply to CentOS, RHEL and SLES distributions. For these distributions, there is no need to build the `veeamsnap` kernel module with DKMS. Instead, you can install it from a pre-built binary package provided by Veeam. To learn more, see Installing Veeam Agent for Linux.

   If the required components are not pre-installed on the computer, you will be asked to install them during or after the product installation process (depending on the package manager you use). To learn more, see Managing Package Dependencies.

   For the full list of packages required for the product operation, see System Requirements.
4. If you have used the Beta version of Veeam Agent for Linux, you must remove Veeam Agent for Linux software packages prior to installing the release version of the product. To learn more, see Uninstalling Veeam Agent for Linux.

Installing Veeam Agent for Linux

NOTE:

To make UEFI systems with Secure Boot work with the pre-built `veeamsnap` kernel module, you need to enroll the Veeam public key to MOK list using `mokutil`. The key is available in the `veeamsnap-ueficert-2.0.1.665-1.noarch` package residing on the Veeam repository. To enroll the key:

1. Request the enrollment of the public key with the following command: `mokutil --import veeamsnap-ueficert.crt`.
2. Reboot the Veeam Agent computer and complete the enrollment in the UEFI console.

To install Veeam Agent for Linux:

1. Download the Veeam software repository installation package (`veeam-release`) from the Veeam Download page at https://www.veeam.com/downloads.html, and save the downloaded package on the computer where you plan to install the product.

TIP:

If the computer where you want to install Veeam Agent for Linux is not connected to the internet, you can download and install Veeam Agent for Linux packages manually. To learn more, see Installing Veeam Agent for Linux in Offline Mode.

2. Navigate to the directory where you have saved the `veeam-release` package and install the package with the following commands:

   For CentOS / RHEL / Oracle Linux / Fedora

   ```
   rpm -ivh ./veeam-release* && yum check-update
   ```

   For openSUSE / SLES

   ```
   zypper in ./veeam-release* && zypper refresh
   ```

   For Debian / Ubuntu

   ```
   dpkg -i ./veeam-release* && apt-get update
   ```

3. Install Veeam Agent for Linux packages from the Veeam software repository. To install Veeam Agent for Linux, you can use a package manager of your choice that works with software packages in your Linux distribution. For example, use the following commands:

   For CentOS / RHEL / Oracle Linux / Fedora

   ```
   yum install veeam
   ```

   For openSUSE 11.3–13.2, Tumbleweed

   ```
   zypper in veeam
   ```

For openSUSE Leap 42.2, 42.3, 15

```
zypper in veeamsnap-kmp-default
zypper in veeam
```

For SLES with Default kernel

```
zypper in veeamsnap-kmp-default
zypper in veeam
```

For SLES with Trace kernel

```
zypper in veeamsnap-kmp-trace
zypper in veeam
```

For SLES with Xen kernel

```
zypper in veeamsnap-kmp-xen
zypper in veeam
```

For SLES with PAE kernel

```
zypper in veeamsnap-kmp-pae
zypper in veeam
```

For Debian / Ubuntu

```
apt-get install veeam
```

Managing Package Dependencies

The following dependency packages may require special handling in case you see installation errors:

- `dkms` package is not present in default repositories for some Linux distributions. You should obtain it from third-party repositories:
  - EPEL repository (for CentOS / RHEL / Oracle Linux / Fedora)
  - Packman repository (for openSUSE / SLES). To learn more, see Installing dkms in openSUSE / SLES.
- Extended kernels, such as `kernel-pae`, `kernel-uek` and other, require appropriate `kernel-devel` packages to be installed, for example, `kernel-pae-devel`, `kernel-uek-devel`, and so on.

  Version of the `kernel-devel` package must match your current kernel version. To check your current kernel version, run the `uname -r` command.

  [For RHEL and derivatives] If the `yum` package manager installs packages that do not match your current kernel version, you should either update your system or fetch older versions of the required packages from the CentOS Vault repository: http://vault.centos.org/.

Installing dkms in openSUSE / SLES

In openSUSE / SLES systems, while installing the `dkms` package, you may see an error similar to the following:

```
Problem: nothing provides kernel-devel needed by dkms-2.2.0.3-14.1.noarch
Solution 1: do not install dkms-2.2.0.3-14.1.noarch
Solution 2: break dkms-2.2.0.3-14.1.noarch by ignoring some of its dependencies
```

To install the `dkms` package, do the following:

1. Make sure that you have an appropriate `kernel-devel` package installed and its version matches your kernel version. For example:

   ```
   root@localhost:~> rpm -qa | grep kernel-default
   kernel-default-devel-3.0.101-91.1
   kernel-default-3.0.101-91.1
   ```

2. Install the `dkms` package ignoring dependencies:

   ```
   zypper -n install --force dkms
   ```

3. Make sure that you have allowed unsupported modules. To learn more, see https://www.suse.com/documentation/sles-12/book_sle_admin/data/sec_admsupport_kernel.html.

Installing Veeam Agent for Linux in Offline Mode

If a computer where you want to install Veeam Agent for Linux has no connection to the internet, for example, for security reasons, you can install Veeam Agent for Linux in the offline mode. In this scenario, you do not need to download and install the Veeam software repository installation package (`veeam-release`). Instead, you need to download the entire Veeam Agent for Linux packages from the Veeam software repository and install them on the target computer.

To install Veeam Agent for Linux:

1. On a computer that is connected to the internet, download Veeam Agent for Linux packages intended for your Linux distribution from the Veeam software repository at http://repository.veeam.com/packages/.
2. Save Veeam Agent for Linux packages to a directory that can be accessed from the computer where you want to install the product, for example, a directory on a local drive or USB drive, or a network shared folder.
3. On the computer where you want to install Veeam Agent for Linux, navigate to the directory where you have saved the packages and install Veeam Agent for Linux:
    - Installing Veeam Agent for Linux in CentOS / RHEL
    - Installing Veeam Agent for Linux in Oracle Linux
    - Installing Veeam Agent for Linux in Fedora
    - Installing Veeam Agent for Linux in SLES
    - Installing Veeam Agent for Linux in openSUSE
    - Installing Veeam Agent for Linux in Debian / Ubuntu

> **TIP:**
>
> You can also set up a local mirror of the Veeam software repository in your internal network and add this repository to the list of software sources on a computer where you want to install the product. These operations may differ depending on the Linux distribution and package manager that you use. To learn more, refer to the documentation of your Linux distribution.
>
> After you add a local repository to the list of software sources on a computer, you will be able to install and upgrade Veeam Agent for Linux in a regular way. To learn more, see Installing Veeam Agent for Linux and Upgrading Veeam Agent for Linux.

Installing Veeam Agent for Linux in CentOS / RHEL

To install Veeam Agent for Linux, use the following commands:

For 32-bit CentOS 6 / RHEL 6

```
rpm -i <...>/kmod-veeamsnap-2.0.1.665-1.el6.i386.rpm
rpm -i <...>/veeam-2.0.1.665-1.el6.i386.rpm
```

For 64-bit CentOS 6 / RHEL 6

```
rpm -i <...>/kmod-veeamsnap-2.0.1.665-1.el6.x86_64.rpm
rpm -i <...>/veeam-2.0.1.665-1.el6.x86_64.rpm
```

For 32-bit CentOS 7 / RHEL 7

```
rpm -i <...>/veeamsnap-2.0.1.665-1.noarch.rpm
rpm -i <...>/veeam-2.0.1.665-1.el7.i386.rpm
```

For 64-bit CentOS 7 / RHEL 7

```
rpm -i <...>/kmod-veeamsnap-2.0.1.665-1.el7.x86_64.rpm
rpm -i <...>/veeam-2.0.1.665-1.el7.x86_64.rpm
```

where:

<. . .> — path to a directory where you have saved Veeam Agent for Linux packages.

> **NOTE:**
>
> The pre-built `veeamsnap` binaries require kernel 2.6.32-131.0.15 or later for CentOS / RHEL 6 and kernel 3.10.0-123 or later for CentOS / RHEL 7 – 7.4 to function. For other kernels, please install the `veeamsnap` module using the `veeamsnap-2.0.1.665-1.noarch.rpm` source RPM package available in the Veeam repository.

Installing Veeam Agent for Linux in Oracle Linux

For 32-bit Oracle Linux 6

```
rpm -i <...>/veeamsnap-2.0.1.665-1.noarch.rpm
rpm -i <...>/veeam-2.0.1.665-1.el6.i386.rpm
```

For 64-bit Oracle Linux 6

```
rpm -i <...>/veeamsnap-2.0.1.665-1.noarch.rpm
rpm -i <...>/veeam-2.0.1.665-1.el6.x86_64.rpm
```

For 32-bit Oracle Linux 7

```
rpm -i <...>/veeamsnap-2.0.1.665-1.noarch.rpm
rpm -i <...>/veeam-2.0.1.665-1.el7.i386.rpm
```

For 64-bit Oracle Linux 7

```
rpm -i <...>/veeamsnap-2.0.1.665-1.noarch.rpm
rpm -i <...>/veeam-2.0.1.665-1.el7.x86_64.rpm
```

where:

<. . .> — path to a directory where you have saved Veeam Agent for Linux packages.

Installing Veeam Agent for Linux in Fedora

For 32-bit Fedora Linux 23

```
rpm -i <...>/veeamsnap-2.0.1.665-1.noarch.rpm
rpm -i <...>/veeam-2.0.1.665-1.fc23.i386.rpm
```

For 64-bit Fedora Linux 23

```
rpm -i <...>/veeamsnap-2.0.1.665-1.noarch.rpm
rpm -i <...>/veeam-2.0.1.665-1.fc23.x86_64.rpm
```

For 32-bit Fedora Linux 24 or later

```
rpm -i <...>/veeamsnap-2.0.1.665-1.noarch.rpm
rpm -i <...>/veeam-2.0.1.665-1.fc24.i386.rpm
```

For 64-bit Fedora Linux 24 or later

```
rpm -i <...>/veeamsnap-2.0.1.665-1.noarch.rpm
rpm -i <...>/veeam-2.0.1.665-1.fc24.x86_64.rpm
```

where:

<...> — path to a directory where you have saved Veeam Agent for Linux packages.

Installing Veeam Agent for Linux in SLES

IMPORTANT!

Make sure that you have allowed unsupported modules. To learn more, see https://www.suse.com/documentation/sles-12/book_sle_admin/data/sec_admsupport_kernel.html.

NOTE:

If you use a Trace, Xen or PAE kernel, you need to choose the corresponding `veeamsnap` package for installation instead of the default one, for example, `veeamsnap-kmp-trace-2.0.1.665_3.0.101_63-2.1.i586.rpm` instead of `veeamsnap-kmp-default-2.0.1.665_3.0.101_63-2.1.i586.rpm`.

To install Veeam Agent for Linux, use the following commands:

For 32-bit SLES 11 SP4

```
zypper in <...>/veeamsnap-kmp-default-2.0.1.665_3.0.101_63-2.1.i586.rpm
zypper in <...>/veeam-2.0.1.665-1.sles11.i386.rpm
```

For 64-bit SLES 11 SP4

```
zypper in <...>/veeamsnap-kmp-default-2.0.1.665_3.0.101_63-2.1.x86_64.rpm
zypper in <...>/veeam-2.0.1.665-1.sles11.x86_64.rpm
```

For 32-bit SLES 12

```
zypper in <...>/veeamsnap-2.0.1.665-1.sles.noarch.rpm
zypper in <...>/veeam-2.0.1.665-1.sles12.i386.rpm
```

For 64-bit SLES 12

```
zypper in <...>/veeamsnap-kmp-default-2.0.1.665_k3.12.28_4-2.1.x86_64.rpm
zypper in <...>/veeam-2.0.1.665-1.sles12.x86_64.rpm
```

For 64-bit SLES 12 SP1

```
zypper in <...>/veeamsnap-kmp-default-2.0.1.665_k3.12.49_11-2.1.x86_64.rpm
zypper in <...>/veeam-2.0.1.665-1.sles12.x86_64.rpm
```

For 64-bit SLES 12 SP2

```
zypper in <...>/veeamsnap-kmp-default-2.0.1.665_k4.4.21_69-2.1.x86_64.rpm
zypper in <...>/veeam-2.0.1.665-1.sles12.x86_64.rpm
```

For 64-bit SLES 12 SP3

```
zypper in <...>/veeamsnap-kmp-default-2.0.1.665_k4.4.73_5-2.1.x86_64.rpm
zypper in <...>/veeam-2.0.1.665-1.sles12.x86_64.rpm
```

where:

<. . .> — path to a directory where you have saved Veeam Agent for Linux packages.

Installing Veeam Agent for Linux in openSUSE

For 32-bit openSUSE 11.3–13.2, Tumbleweed

```
zypper in <...>/veeamsnap-2.0.1.665-1.noarch.rpm
zypper in <...>/veeam-2.0.1.665-1.suse.i386.rpm
```

For 64-bit openSUSE 11.3–13.2, Tumbleweed

```
zypper in <...>/veeamsnap-2.0.1.665-1.noarch.rpm
zypper in <...>/veeam-2.0.1.665-1.suse.x86_64.rpm
```

For 64-bit openSUSE Leap 42.2

```
zypper in <...>/veeamsnap-kmp-default-2.0.1.665_k4.4.27_2-2.1.x86_64.rpm
zypper in <...>/veeam-2.0.1.665-1.suse.x86_64.rpm
```

For 64-bit openSUSE Leap 42.3

```
zypper in <...>/veeamsnap-kmp-default-2.0.1.665_k4.4.76_1-2.1.x86_64.rpm
zypper in <...>/veeam-2.0.1.665-1.suse.x86_64.rpm
```

For 64-bit openSUSE Leap 15

```
zypper in <...>/veeamsnap-kmp-default-2.0.1.665_k4.12.14_lp150.11-lp150.2.1.x86_64.rpm
zypper in <...>/veeam-2.0.1.665-1.suse.x86_64.rpm
```

where:

<. . .> — path to a directory where you have saved Veeam Agent for Linux packages.

Installing Veeam Agent for Linux in Debian / Ubuntu

To install Veeam Agent for Linux, use the following commands:

For 32-bit Debian / Ubuntu

```
dpkg -i <...>/veeamsnap_2.0.1.665_all.deb
dpkg -i <...>/veeam_2.0.1.665_i386.deb
```

For 64-bit Debian / Ubuntu

```
dpkg -i <...>/veeamsnap_2.0.1.665_all.deb
dpkg -i <...>/veeam_2.0.1.665_amd64.deb
```

where:

<. . .> — path to a directory where you have saved Veeam Agent for Linux packages.

Upgrading Veeam Agent for Linux

For Veeam Agent for Linux, upgrade to newer versions is supported. You can start the upgrade process when the new version becomes available.

During the upgrade process, configuration and backup files that were created with the previous version of Veeam Agent for Linux are not impacted in any way.

> **IMPORTANT!**
>
> Before starting the upgrade process, make sure that there are no jobs running on the Veeam Agent computer.

The upgrade procedure differs depending on the Linux distribution that you use:

- Upgrading Veeam Agent for Linux in CentOS / RHEL
- Upgrading Veeam Agent for Linux in Fedora / Oracle Linux
- Upgrading Veeam Agent for Linux in openSUSE
- Upgrading Veeam Agent for Linux in SLES 11 SP4
- Upgrading Veeam Agent for Linux in SLES 12 – SLES 12 SP2
- Upgrading Veeam Agent for Linux in SLES 12 SP3
- Upgrading Veeam Agent for Linux in Debian / Ubuntu

Upgrading Veeam Agent for Linux in CentOS / RHEL

To upgrade Veeam Agent for Linux, use the following commands:

```
yum update veeam
rpm -e --nodeps dkms veeamsnap
yum install kmod-veeamsnap*
```

or

```
yum install kmod-veeamsnap*
yum update veeam
rpm -e dkms veeamsnap
```

With these commands, a pre-built `veeamsnap` binary package will be installed in your system. To stay on the DKMS version of the `veeamsnap` kernel module, use the following command for upgrade:

```
yum update veeamsnap && yum update veeam
```

Upgrading Veeam Agent for Linux in Fedora / Oracle Linux

To upgrade Veeam Agent for Linux, use the following command:

```
yum update veeam
```

Upgrading Veeam Agent for Linux in openSUSE

To upgrade Veeam Agent for Linux, use the following commands:

For openSUSE 11.3-13.2, Tumbleweed

```
zypper up veeam
```

For openSUSE Leap 42.2

```
zypper in veeamsnap-kmp-default-2.0.1.665_k4.4.27_2-2.1
zypper in --force veeamsnap-kmp-default-2.0.1.665_k4.4.27_2-2.1
```

For openSUSE Leap 42.3

```
zypper in veeamsnap-kmp-default-2.0.1.665_k4.4.76_1-2.1
zypper in --force veeamsnap-kmp-default-2.0.1.665_k4.4.76_1-2.1
```

For openSUSE Leap 15

```
zypper in veeamsnap-kmp-default-2.0.1.665_k4.12.14_lp150.11-lp150.2.1
zypper in --force veeamsnap-kmp-default-2.0.1.665_k4.12.14_lp150.11-lp150.2.1
```

With these commands, a pre-built `veeamsnap` binary package will be installed in your system. The `--force` key is required to properly replace the missing link to `.ko` in case of update from the DKMS version of the `veeamsnap` kernel module to a pre-built binary. To stay on the DKMS version, use the following command for upgrade:

```
zypper update veeam
```

Upgrading Veeam Agent for Linux in SLES 11 SP4

To upgrade Veeam Agent for Linux, use the following commands:

For Default kernel

```
zypper in veeamsnap-kmp-default
zypper in –-force veeamsnap-kmp-default
```

For Xen kernel

```
zypper in veeamsnap-kmp-xen
zypper in –-force veeamsnap-kmp-xe
```

For Trace kernel

```
zypper in veeamsnap-kmp-trace
zypper in –-force veeamsnap-kmp-trace
```

For PAE kernel

```
zypper in veeamsnap-kmp-pae
zypper in –-force veeamsnap-kmp-pae
```

With these commands, a pre-built `veeamsnap` binary package will be installed in your system. The `--force` key is required to properly replace the missing link to `.ko` in case of update from the DKMS version of the `veeamsnap` module to a pre-built binary. To stay on the DKMS version, use the following command for upgrade:

```
zypper update veeam
```

Upgrading Veeam Agent for Linux in SLES 12 – SLES 12 SP2

To upgrade Veeam Agent for Linux:

1. Download the Veeam software repository installation package (`veeam-release`) from the Veeam Download page at https://www.veeam.com/downloads.html, and save the downloaded package on the computer where you plan to install the product.
2. Install the Veeam software repository installation package with the following command:

   ```
   zypper in ./veeam-release* && zypper refresh
   ```
3. Upgrade Veeam Agent for Linux with the following commands:

   For SLES 12 SP0 with Default kernel

   ```
   zypper in veeamsnap-kmp-default
   zypper in --force veeamsnap-kmp-default
   ```

   For SLES 12 SP0 with Xen kernel

   ```
   zypper in veeamsnap-kmp-xen
   zypper in --force veeamsnap-kmp-xen
   ```

   For SLES 12 SP1 with Default kernel

   ```
   zypper in veeamsnap-kmp-default
   zypper in --force veeamsnap-kmp-default
   ```

For SLES 12 SP1 with Xen kernel

```
zypper in veeamsnap-kmp-xen
zypper in --force veeamsnap-kmp-xen
```

For SLES 12 SP2

```
zypper in veeamsnap-kmp-default
zypper in --force veeamsnap-kmp-default
```

With these commands, a pre-built `veeamsnap` binary package will be installed in your system. The `--force` key is required to properly replace the missing link to `.ko` in case of update from the DKMS version of the `veeamsnap` module to a pre-built binary. To stay on the DKMS version, use the following command for upgrade:

```
zypper update veeam
```

Upgrading Veeam Agent for Linux in SLES 12 SP3

To upgrade Veeam Agent for Linux:

1. Download the Veeam software repository installation package (`veeam-release`) from the Veeam Download page at https://www.veeam.com/downloads.html, and save the downloaded package on the computer where you plan to install the product.
2. Install the Veeam software repository installation package with the following command:

   ```
   zypper in ./veeam-release* && zypper refresh
   ```

3. Upgrade Veeam Agent for Linux with the following commands:

   ```
   zypper in veeamsnap-kmp-default
   zypper in --force veeamsnap-kmp-default
   ```

   With these commands, a pre-built `veeamsnap` binary package will be installed in your system. The `--force` key is required to properly replace the missing link to `.ko` in case of update from the DKMS version of the `veeamsnap` module to a pre-built binary. To stay on the DKMS version, use the following command for upgrade:

   ```
   zypper update veeam
   ```

Upgrading Veeam Agent for Linux in Debian / Ubuntu

To upgrade Veeam Agent for Linux, use the following commands:

```
apt-get update
apt-get install veeam
```

Granting Permissions to Users

When you install Veeam Agent for Linux, the product program files are placed to the folders on the system volume. For full access to Veeam Agent for Linux files, super user (root) privileges are required. Rights to execute product files and run commands are also granted to users that belong to the `veeam` group.

The `veeam` group is automatically created by Veeam Agent for Linux at the process of the product installation. To let regular users work with Veeam Agent for Linux without the need to gain root privileges, you can add the necessary users to this group. Users in the `veeam` group will be able to execute Veeam Agent for Linux commands and perform backup and restore tasks under regular user account.

To add a user to the `veeam` group, you can use the following command:

```
usermod -a -G veeam <username>
```

where:

`<username>` — user name of the account to which you want to grant access to Veeam Agent for Linux.

For example:

```
root@srv01:~# usermod -a -G veeam user
```

IMPORTANT!

Mind the following:

- To add a user to the `veeam` group, you must have root privileges in the Linux OS.
- After the user is added to the `veeam` group, the user must re-login to the Linux OS.

To check whether the user who is currently logged in to the Linux OS is added to the `veeam` group, you can use the following command:

```
groups
```

For example:

```
user@srv01:~$ groups
user adm cdrom sudo dip plugdev lpadmin sambashare veeam
```

Uninstalling Veeam Agent for Linux

To uninstall Veeam Agent for Linux, you need to remove the `veeam` and `veeamsnap` packages. For this operation, you can use any package manager that works with software packages in your Linux distribution.

The following examples show commands to uninstall Veeam Agent for Linux:

For CentOS / RHEL / Oracle Linux / Fedora

```
yum remove veeam veeamsnap
```

For openSUSE / SLES

```
zypper rm veeam veeamsnap
```

For Debian / Ubuntu

```
apt-get remove veeam veeamsnap
```

Getting Started

To protect your computer from a disaster of any kind, you must perform the following operations in Veeam Agent for Linux:

1. **Define what data you want to back up and configure the backup job**.

   Before you configure the backup job, you should decide on the following backup details:

   - Backup destination: where you want to store your backed-up data.
   - Backup scope: entire computer image, individual computer volumes or specific computer folders and files.
   - Backup schedule: how often you want to back up your data.

   After that, you can configure one or several backup jobs. The backup job captures the data that you have added to the backup scope and creates a chain of restore points in the target location. If your data gets lost or corrupted, you can restore it from the necessary restore point.

   In Veeam Agent for Linux, you can configure the backup job in one of the following ways:

   - With the Backup Job wizard
   - With the command line interface

2. **Monitor backup task performance**.

   You can use the Veeam Agent for Linux Control Panel to check how backup tasks are being performed, what errors have occurred during backup job sessions and so on. You can also use Veeam Agent for Linux command line interface to get information on backup and restore sessions status and view session logs. To learn more, see Reporting.

3. In case of a disaster, you can **restore the entire computer image or specific data** on the computer. With Veeam Agent for Linux, you can perform data recovery operations in several ways:

   - You can boot from the Veeam Recovery Media and perform volume-level restore or file-level restore.
   - You can perform volume-level restore with Veeam Agent for Linux command line interface.
   - You can perform file-level restore with the Veeam Agent for Linux File Level Restore wizard.
   - You can export backup to a VHD virtual disk and attach this disk to a virtual machine to recover your computer in virtual environment.

   To learn more, see Performing Restore.

Getting to Know User Interface

With Veeam Agent for Linux, you can perform backup, restore and configuration tasks in the following ways:

- With Veeam Agent for Linux control panel

  Veeam Agent for Linux control panel is a GUI-like user interface based on the `ncurses` programming library. With Veeam Agent for Linux control panel, you can perform all basic data protection tasks. You can configure a backup job, start and stop backup jobs, monitor backup job session performance and recover files and folders. When you perform restore tasks after booting from the Veeam Recovery Media, you can also perform volume-level restore with the Veeam Recovery Media wizard.

- With the command line interface

  With Veeam Agent for Linux command line interface, in addition to operations that can be performed with the Veeam Agent for Linux control panel, you can perform a set of advanced tasks. For example, you can:

  - Configure advanced settings for backup jobs: specify compression level and data block size.
  - Perform operations with backup repositories.
  - Perform volume-level restore without the need to boot from the Veeam Recovery Media.
  - Export backups to VHD virtual disks.
  - Monitor performance and status of any backup, restore and other data transfer session that was started in Veeam Agent for Linux.
  - View detailed information on every backup that was created with Veeam Agent for Linux.
  - Export/import Veeam Agent for Linux configuration database to/from a configuration file.

Veeam Agent for Linux Control Panel

Veeam Agent for Linux control panel is a GUI-like user interface that lets users perform main backup and restore tasks in an easy way. With Veeam Agent for Linux control panel, you do not need to work with Linux shell and remember numerous commands. However, some advanced Veeam Agent for Linux operations are not supported by the control panel and can be performed with the command line interface only.

> **IMPORTANT!**
>
> You cannot use Veeam Agent for Linux control panel on terminals that do not support colors (for example, VT100).

To launch the Veeam Agent for Linux control panel, you can use the following commands:

```
veeamconfig ui
```

or

```
veeam
```

> **NOTE:**
>
> Veeam Agent for Linux control panel is based on the `ncurses` programming library. To use the Veeam Agent for Linux control panel, you must have the `ncurses` library installed in your Linux OS.

When you launch the Veeam Agent for Linux control panel for the first time, Veeam Agent for Linux displays a welcome screen with the short product description and a notification window offering to install a license. You can install the license immediately or perform this operation later. To learn more, see Veeam Agent for Linux Licensing.

Before you configure the first backup job, you can use the Veeam Agent for Linux control panel to perform the following operations:

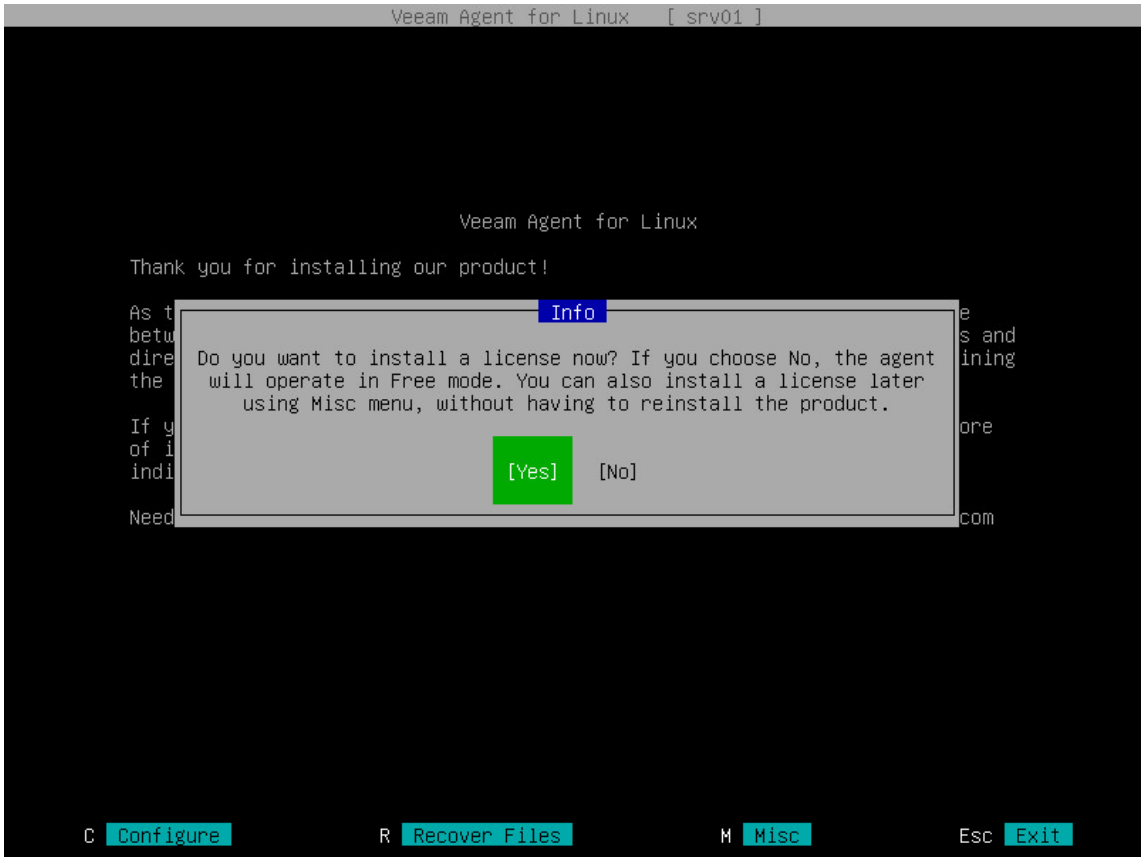
- Configure a new backup job.
- Restore files and folders from existing backup.
- Manage license and product logs

After you configure one or several backup jobs, you can also use the control panel to start a backup job and work with backup job sessions.

In the Veeam Agent for Linux control panel, the use of a mouse is not supported. To start an operation, you need to use a specific key on your keyboard. For example, you can press the '**c**' key to start the backup job configuration, press the '**s**' key to start a backup job or press the '**r**' key to start the file-level restore process. Short help information on the currently available operations and keys is displayed at the bottom of the control panel.

To navigate the control panel, backup job configuration and file-level restore wizards, you can use the following keys:

- **Tab** — to switch between controls and buttons in the Backup Job wizard.
- **Up** and **Down** — to switch between items in a scrollable list.
- **Space** — to select the necessary item in a list. The selected item's mark may vary in different steps of the wizard.
- **Enter** — to proceed to the next step of a wizard or to view details of the backup job session selected in the list of sessions.
- **Backspace** — to return to the previous step of a wizard (you cannot use this button to change wizard steps when a text field is selected).
- **Esc** — to exit the currently used wizard or close the Veeam Agent for Linux control panel.



Command Line Interface

Veeam Agent for Linux command line interface is a powerful tool that lets users perform advanced operations that are not supported by the Veeam Agent for Linux control panel.

To work with Veeam Agent for Linux using command line interface, you can use a terminal console (TTY) or a terminal emulator of your choice. All tasks in Veeam Agent for Linux are performed with the `veeamconfig` command-line utility. To perform tasks with Veeam Agent for Linux, you should construct the necessary command and type it in the Linux shell prompt.

You can view short help information on every Veeam Agent for Linux command at any time you need. To learn more, see Viewing Help.

You should construct a command in the following format:

```
veeamconfig <command_1> <command_2> --<parameter_1> --<parameter_2> --<parameter_n>
```

where:

- `<command_1>` — command that defines a type of an object with which you want to perform a task. Currently, the following commands are available in Veeam Agent for Linux:
  - backup
  - cloud
  - config
  - help
  - job
  - license
  - mode
  - point
  - repository
  - schedule
  - session
  - ui
  - version
  - vbrserver

- <command_2> — command that defines a task that you want to perform with an object of the specified type. For example, you can perform the following commands with backup repositories:
    - create
    - delete
    - edit
    - help
    - list
    - rescan
- <parameter_1>, <parameter_2>, <parameter_n> — parameters for the command that you want to execute. Commands may require one or several mandatory or optional parameters. Some commands, for example, `veeamconfig ui` and `veeamconfig [<command>] help` do not require parameters.

The following example shows the command that displays a list of backup repositories configured in Veeam Agent for Linux and the output of this command:

```
user@srv01:~$ veeamconfig repository list
Name          ID                                      Location            Type
Backup server
Repository_1  {818e3a0f-8155-4a51-9430-248a203a43d1}  /home/backups       local
Repository_2  {2155a2e7-a1e9-4347-9d8b-cf8f3a6f3fcb}  172.17.53.47/veeam  cifs
```

Viewing Help

You can view short help information on the specific Veeam Agent for Linux command. To view help, use the following command:

```
veeamconfig <command> help
```

where:

<command> — name of the command for which you want to view help information.

For example:

```
user@srv01:~$ veeamconfig help
```

or

```
user@srv01:~$ veeamconfig job help
```

or

```
user@srv01:~$ veeamconfig job create help
```

You can also view the manual page for the veeamconfig utility. Use the following command:

```
man veeamconfig
```

Veeam Agent for Linux Licensing

To work with a commercial version of Veeam Agent for Linux, you must obtain a license and install it on the protected computer. If you do not install a license, the product will operate in the free functionality mode.

You can install a license from the Veeam Agent for Linux control panel or command line interface. With the command line interface, you can also monitor status of the license or remove the license if necessary.

If you use Veeam Agent for Linux with Veeam Backup & Replication, you must install and manage the Veeam Agent for Linux license in the Veeam Backup & Replication console or in Veeam Backup Enterprise Manager.

Product Functionality Modes

Veeam Agent for Linux can operate in three functionality modes:

- *Server* — a mode that provides access to all product functions and is intended for performing data protection tasks on servers that run Linux OS. Veeam Agent for Linux can operate in the server mode if a commercial license that supports this mode is installed on the protected computer.
- *Workstation* — a mode that offers limited capabilities that are sufficient for performing data protection tasks on desktop computers and laptops that run Linux OS. Veeam Agent for Linux can operate in the workstation mode if a commercial license that supports this mode is installed on the protected computer.
- *Free* — a mode that offers the same capabilities as the workstation mode but does not come with a commercial support program. In contrast to the workstation and server modes, the free mode does not require a license.

> **TIP:**
>
> To check in which mode Veeam Agent for Linux currently operates, you can use the Veeam Agent for Linux command line interface. To learn more, see Viewing License Information.

When you install a license on the protected computer, you can select in which mode Veeam Agent for Linux should operate: server mode or workstation mode (if both modes are supported by the license). If you use Veeam Agent for Linux with Veeam Backup & Replication, you can manage product licenses and functionality modes from the Veeam Backup & Replication console. To learn more, see Managing License with Veeam Backup & Replication.

After the license expires, Veeam Agent for Linux automatically switches to the free mode. To learn more, see License Expiration.

Limitations for Free and Workstation Modes

Compared to the server functionality mode of Veeam Agent for Linux, free and workstation modes have the following limitations:

1. The number of backup jobs that you can configure in Veeam Agent for Linux is limited to one.
2. You cannot specify pre-freeze and post-thaw scripts in the backup job settings.

Installing License

When you launch the Veeam Agent for Linux control panel for the first time, Veeam Agent for Linux displays a notification window offering to install a license. You can choose to install the license immediately or postpone this operation.

- If you choose to install the license, you can immediately browse for the license key on your computer and complete the license installation process.
- If you choose to postpone the license installation process, you will be able to install a license later at any time you need.

Until you install a license, Veeam Agent for Linux will operate in the free functionality mode. To learn more, see Product Functionality Modes.

NOTE:

If you choose not to install a license and use Veeam Agent for Linux in the free functionality mode, the notification window offering to install a license will appear every time you open the control panel until Veeam Agent for Linux completes the first backup job session.

To install a license:

1. Launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command.
2. In the Veeam Agent for Linux control panel, press the '**m**' key to open the **Miscellaneous** menu.
3. In the menu, make sure that the **Manage License** option is selected and press **Enter**.
4. In the **Manage license** window, make sure that the **Install** button is selected and press **Enter**.
5. In the **Choose license** window, in the **File location** section, specify a path to the license key:
    a. Select the **Browse** option with the **Tab** key and press **Space** or **Enter**.
    b. In the **Choose license file location** window, select the necessary directory and press **Enter**.
    c. Repeat the step 'a' until a path to the directory in which the license key resides appears in the **Current directory** field.
    d. In the directory where the license key resides, select the license key and press **Enter**.

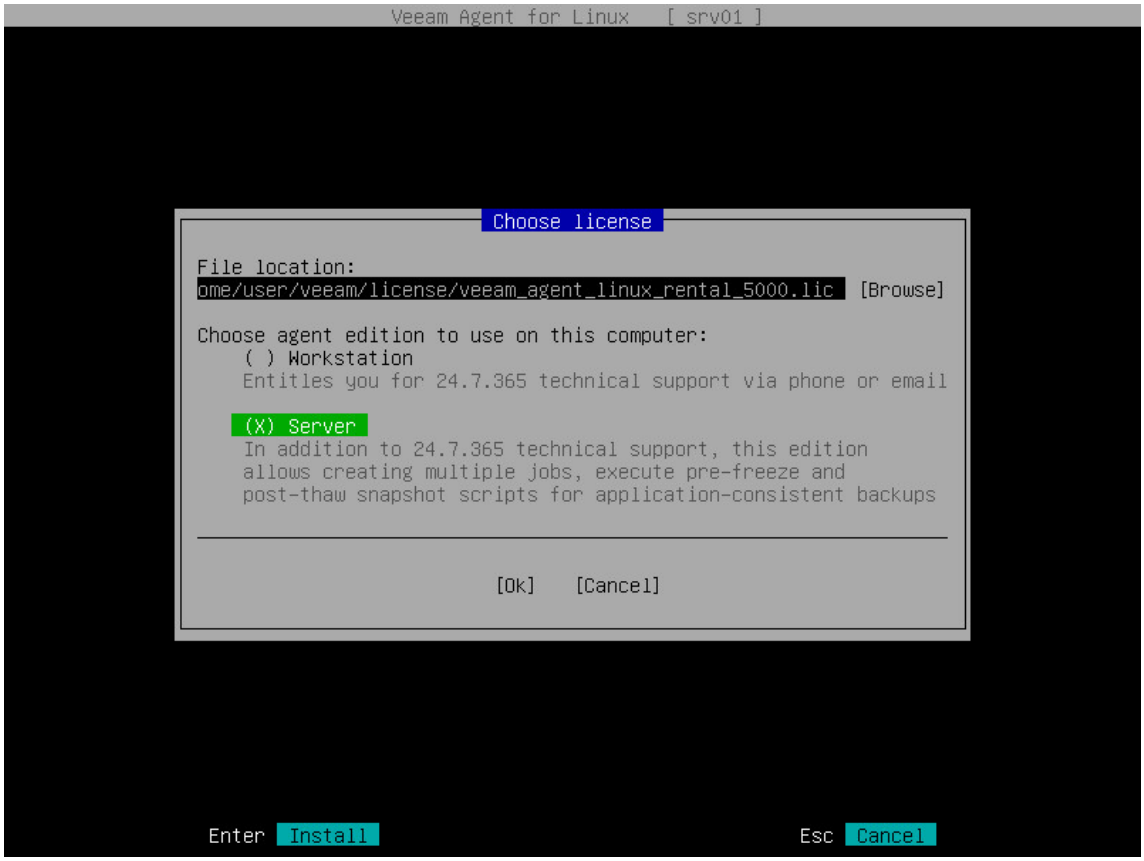
TIP:

If you chose to install the license immediately from the Veeam Backup & Replication welcome screen notification, you will pass to the **Choose license** step right from the notification window.

6. In the **Choose agent edition to use on this computer** section, select the product functionality mode in which Veeam Agent for Linux will operate and press **Enter**. To learn more about modes, see Product Functionality Modes.
7. Veeam Agent for Linux will install the license and display a window notifying that the license is successfully installed. Press **Enter** to finish the license installation process.

TIP:

After you install a license, you can view information about the license (expiration date, status of the license, current functionality mode of the product and so on) in the **Manage license** window. You can also check information about the license using the Veeam Agent for Linux command line interface. To learn more, see Viewing License.



Removing License

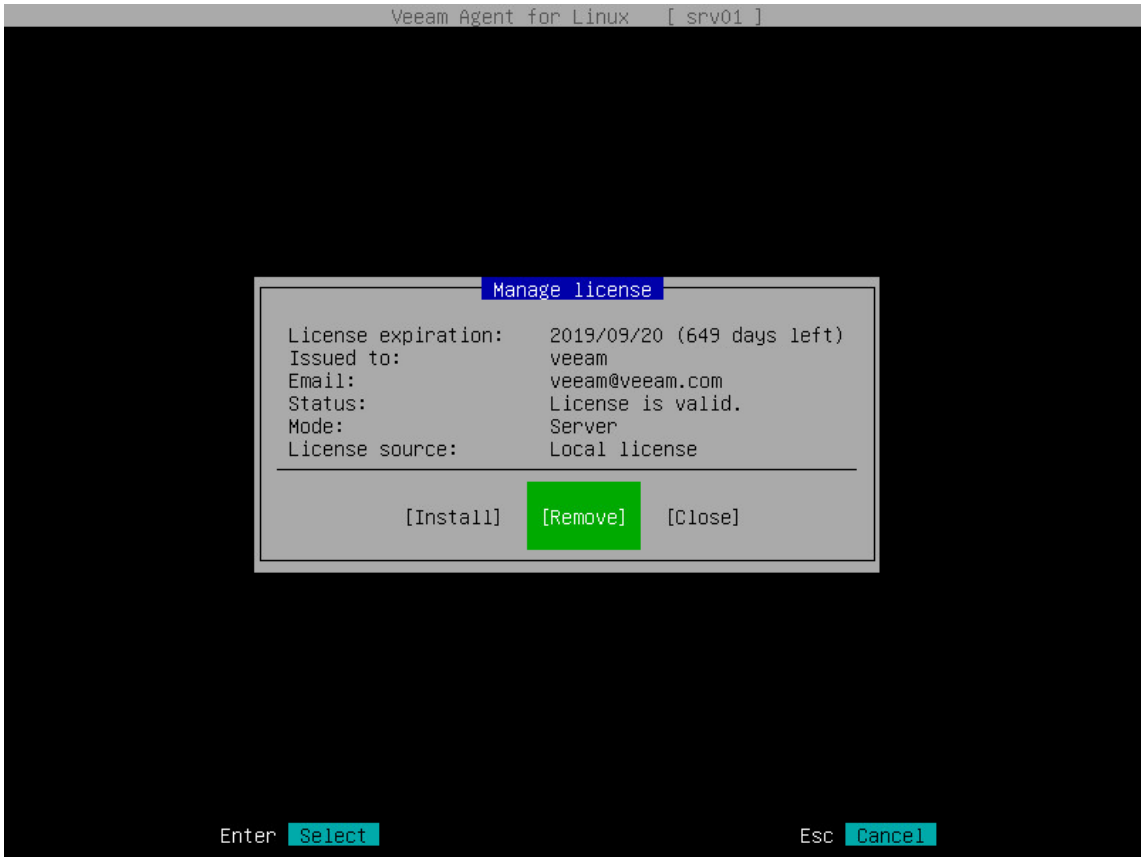
You can remove the Veeam Agent for Linux license if necessary. To remove a license:

1. Launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command.
2. In the Veeam Agent for Linux control panel, press the '**m**' key to open the **Miscellaneous** menu.
3. In the menu, make sure that the **Manage License** option is selected and press **Enter**.
4. In the **Manage license** window, press **Tab** to select the **Remove** button, then press **Enter**.
5. Veeam Agent for Linux will remove the license and display a window notifying that the license is successfully removed. Press **Enter** to finish the license removal process.

NOTE:

After you remove the license, Veeam Agent for Linux will continue to operate in the free functionality mode. Mind the following:

- If Veeam Agent for Linux operated in the server mode and multiple backup jobs were configured, after switching to the free mode, all backup jobs will be failing.
- If pre-freeze and/or post-thaw scripts were specified for a backup job, after switching to the free mode, this backup job will be failing.



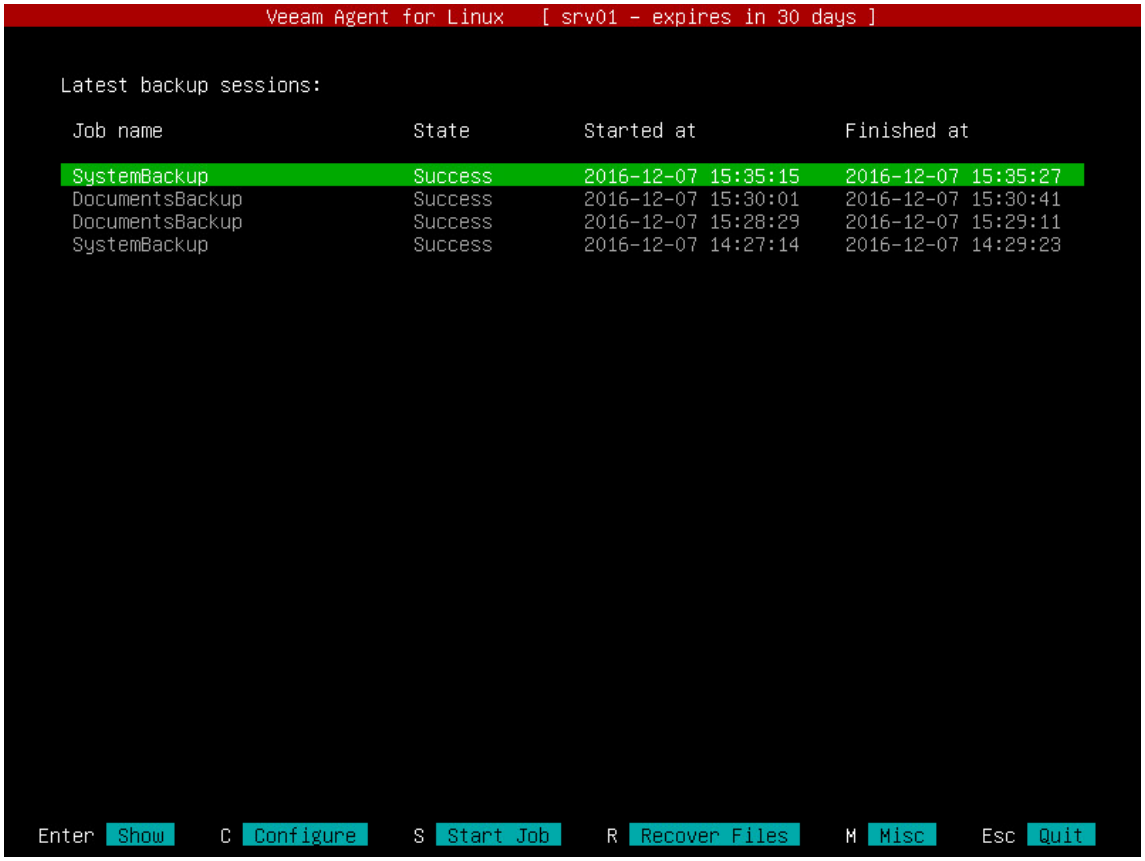
License Expiration

30 days before the license expiration date, Veeam Agent for Linux will display a warning at the top of the control panel. After the license expires, Veeam Agent for Linux will switch to the free mode.

Mind the following:

- If Veeam Agent for Linux operated in the server mode and multiple backup jobs were configured, after switching to the free mode, all backup jobs will be failing.
- If pre-freeze and/or post-thaw scripts were specified for a backup job, after switching to the free mode, this backup job will be failing.

You can switch to the free mode manually at any time if necessary. To learn more, see Removing License.



Managing License with Command Line Interface

You can use the Veeam Agent for Linux command line interface to perform the following operations with the license:

- Install the license on the protected computer
- View information about the license
- Remove the license

Installing License

To install a license, use the following command:

```
veeamconfig license install --path <path> --workstation
```

or

```
veeamconfig license install --path <path> --server
```

where:

- `<path>` — path to the license key file in the local file system of your computer.
- `workstation` or `server` — functionality mode in which Veeam Agent for Linux will operate. To learn more about modes, see Product Functionality Modes.

Veeam Agent for Linux will install the license and display information about the license. You can also view this information later at any time. To learn more, see Viewing License Information.

For example:

```
user@srv01:~$ veeamconfig license install --path /home/user/veeam/license/veeam.lic --
server
License was installed successfully.
License information:
  License source: Local license
  Expiration date: 2019/09/20 (649 days left)
  Grace period ends: 2019/11/19
  Status: License is valid.
  Mode: Server
  Issued to: Veeam Software AG
  Email: administrators@tech.com
```

TIP:

You can also install a license using the Veeam Agent for Linux control panel. To learn more, see Installing License.

Viewing License Information

You can view information about the installed license. Use the following command:

```
veeamconfig license show
```

Veeam Agent for Linux will display information about the license. For example:

```
user@srv01:~$ veeamconfig license show
License information:
  License source: Local license
  Expiration date: 2019/09/20 (649 days left)
  Grace period ends: 2019/11/19
  Status: License is valid.
  Mode: Server
  Issued to: Veeam Software AG
  Email: administrators@tech.com
```

Removing License

You can remove a license with the following command:

```
veeamconfig license remove
```

After you remove the license, Veeam Agent for Linux will continue to operate in the free functionality mode. Mind the following:

- If Veeam Agent for Linux operated in the server mode and multiple backup jobs were configured, after switching to the free mode, all backup jobs will be failing.
- If pre-freeze and/or post-thaw scripts were specified for a backup job, after switching to the free mode, this backup job will be failing.

Managing License with Veeam Backup & Replication

If you plan to use Veeam Agent for Linux with Veeam Backup & Replication, you can install a Veeam Agent for Linux license in Veeam Backup & Replication. In this case, you will be able to manage product licenses and functionality modes from the Veeam Backup & Replication console. This scenario may be suitable for customers who have Veeam backup infrastructure deployed in their environment and want to manage licenses for all Veeam products at one place.

You must obtain a license for the total number of Linux-based machines (servers and workstations) on which you plan to install Veeam Agent for Linux. The number of backup jobs configured in Veeam Agent for Linux does not consume the license.

After Veeam Agent for Linux connects to Veeam Backup & Replication, Veeam Agent for Linux automatically starts consuming the license. If the license allows Veeam Agent for Linux to operate in both the workstation mode and server mode, Veeam Agent for Linux will operate in the server mode. You can switch Veeam Agent for Linux to the workstation mode manually if needed.

If one or more Veeam Agents operating in the free mode are already connected to the backup server, they will start consuming the license immediately after the license is installed in Veeam Backup & Replication. Veeam Agents that exceed the license limit will not be able to back up data to the Veeam backup repository.

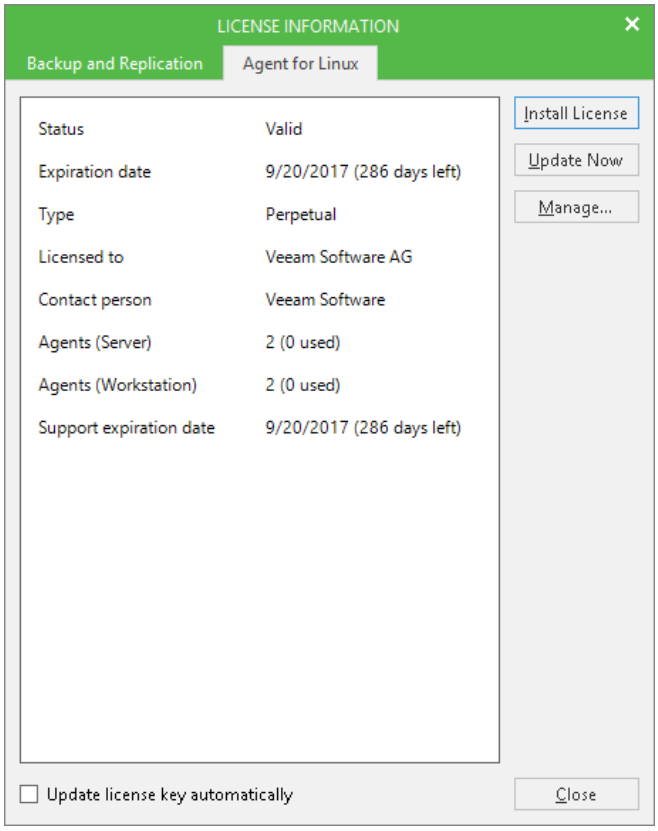
Veeam Agent for Linux keeps information about the license in its database. Information about the license is valid for 32 days. If Veeam Agent for Linux does not connect to Veeam Backup & Replication during this period, Veeam Backup & Replication will revoke its license.

Installing License

You can install a Veeam Agent for Linux license in Veeam Backup & Replication. In this case, you will be able to manage product licenses and functionality modes from the Veeam Backup & Replication console.

To install a license:

1. In Veeam Backup & Replication, from the main menu, select **License**.
2. Click **Install License** and browse to the LIC file.
3. Veeam Backup & Replication will display a window notifying that Veeam Agents that are already connected to the backup server will start consuming the license. Click **Yes** to continue the installation process.
4. After the license is installed, information about the license will become available in the **Agent for Linux** tab of the **License Information** window.



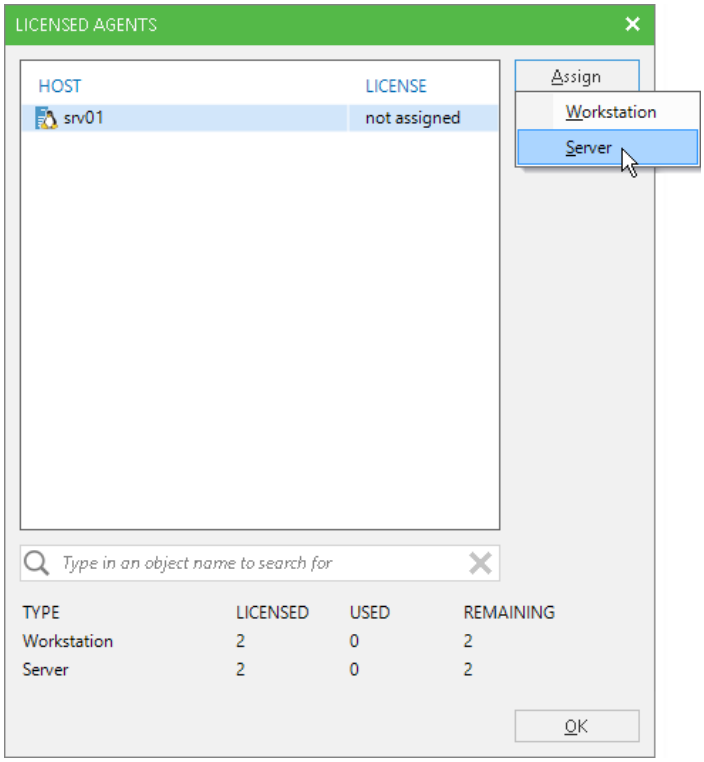
Assigning License to Veeam Agent

After Veeam Agent for Linux connects to Veeam Backup & Replication, Veeam Agent for Linux automatically starts consuming the license. If the license allows Veeam Agent for Linux to operate in both the workstation mode and server mode, Veeam Agent for Linux will operate in the server mode.

You can also assign a license to Veeam Agent for Linux manually if needed. When you assign a license, you can select in which mode the licensed Veeam Agent will operate.

To assign a license:

1. In Veeam Backup & Replication, from the main menu, select **License**.
2. In the **License Information** window, select the **Agent for Linux** tab and click **Manage**.
3. In the **Licensed Agents** window, select the Veeam Agent to which you want to assign the license, click **Assign** and select the desired functionality mode: *Workstation* or *Server*.



Viewing Licensed Agents and Revoking License

When Veeam Backup & Replication connects to the backup server, Veeam Backup & Replication applies a license to the Veeam Agent. You can view to which Veeam Agents the license is currently applied.

To view a list of licensed Veeam Agents:

1. In Veeam Backup & Replication, from the main menu, select **License**.
2. In the **License Information** window, select the **Agent for Linux** tab and click **Manage**.

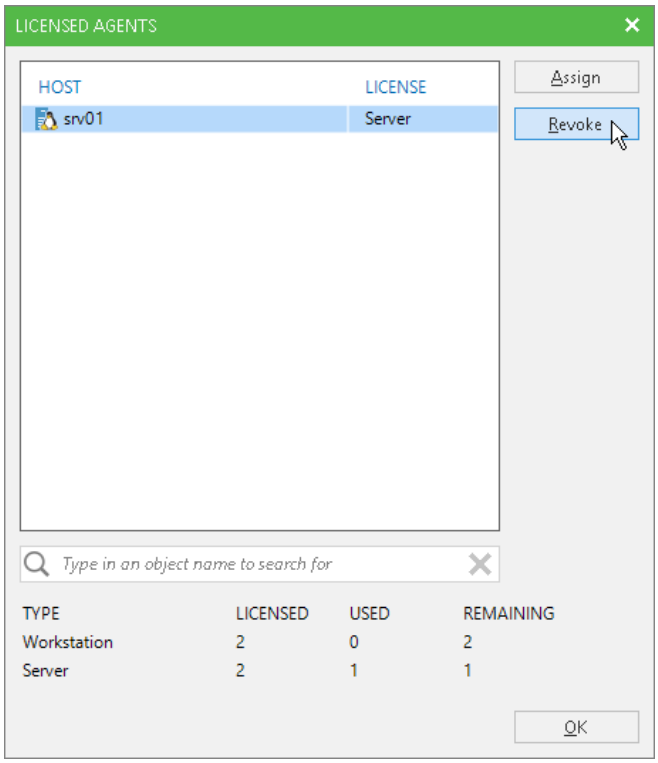
If no Veeam Agents are connected to the backup server after you have installed a Veeam Agent for Linux license, the list is empty. After you run Veeam Agent for Linux backup jobs, the list will include Veeam Agents that have established a connection with the backup server.

Revoking License from Veeam Agents

You can revoke the license from some Veeam Agents and re-apply it to other Veeam Agents. License revoking can be helpful, for example, if you do not want to use some Veeam Agents with Veeam Backup & Replication anymore.

To revoke a license from the Veeam Agent:

1. In Veeam Backup & Replication, from the main menu, select **License**.
2. In the **License Information** window, select the **Agent for Linux** tab and click **Manage**.
3. In the displayed window, select a Veeam Agent and click **Revoke**. Veeam Backup & Replication will revoke the license from the Veeam Agent, and the license will be freed for other Veeam Agents in the backup infrastructure.



Performing Backup

You can back up your data to protect the entire computer image, individual volumes or folders and files on your computer. To back up your data, you must configure a backup job. Depending on the product functionality mode, Veeam Agent for Linux lets you configure one or several backup jobs targeted at the same or different backup repositories.

You can configure a backup job that will automatically back up your data by the defined schedule. You can also start a backup job manually at any time.

Creating Custom Veeam Recovery Media

In addition to the generic Veeam Recovery Media that is available for download at the Veeam website, you can create a custom Veeam Recovery Media. This option may be helpful if your computer uses hardware that requires drivers not included in the generic Veeam Recovery Media. When you create a custom Veeam Recovery Media, Veeam Agent for Linux copies the Linux kernel running on your computer with its currently loaded modules and includes them into the custom recovery media. You can also specify a directory that contains additional drivers that you want to include in the Veeam Recovery Media. Veeam Agent for Linux will copy the content of the specified directory and add it to the root directory of the custom Veeam Recovery Media ISO file.

Before you create custom Veeam Recovery Media, check the following prerequisites:

- The machine must run Veeam Agent for Linux 2.0 or later.
- The Linux system must have the `genisoimage` package installed.
- If you plan to create custom Veeam Recovery Media with EFI support, the Linux system must also have the following packages installed:
  - `xorriso`
  - `isolinux` (or `syslinux`, if the software package repository of your Linux distribution lacks the `isolinux` package)

To create custom Veeam Recovery Media, use the following command:

```
veeamconfig config patchiso --input <input_path> --output <output_path> --copy
<additional_path>
```

or

```
veeamconfig config patchiso --efi --input <input_path> --output <output_path> -copy
<additional_path>
```

where:

- `<input_path>` — path to the ISO file of the generic Veeam Recovery Media.
- `<output_path>` — path to the resulting ISO file of the custom Veeam Recovery Media.
- `<additional_path>` — path to a directory with additional drivers that you want to include in the Veeam Recovery Media.
- `--efi` — option that defines whether custom Veeam Recovery Media should be able to boot on EFI-based systems. Without this option, custom Veeam Recovery Media will be able to boot on BIOS-based systems only.

For example:

```
$ veeamconfig config patchiso --input veeam/iso/veeam-recovery-media.iso --output
veeam/iso/veeam-recovery-media-srv01.iso --efi
```

Creating Backup Jobs

You can choose one of the following backup modes:

- Backup of an entire computer image
- Backup of specific computer volumes, for example, a system volume or secondary volume
- Backup of individual files and folders

[For server mode only] You can configure one or several backup jobs to back up your data. Configuring several backup jobs may be useful in the following situations:

- You can configure separate backup jobs for volume-level backup and file-level backup.
- You can configure backup jobs targeted at different backup repositories to keep several copies of your backed-up data at different locations.
- You can configure several backup jobs and define individual schedule for every job to back up necessary data at the desired time.

With Veeam Agent for Linux, you can configure the backup job in one of the following ways:

- With the Backup Job wizard
- With the command line interface

Creating Backup Job with Backup Job Wizard

You can configure volume-level and file-level backup jobs with the Backup Job wizard.

Before You Begin

Before you configure the backup job, check the following prerequisites:

- The target location where you plan to store backup files must have enough free space.
- When you configure the backup job with the Backup Job wizard, Veeam Agent for Linux creates the job with default advanced settings: compression level and data block size. To specify these parameters explicitly, you should create a backup job with the command line interface.
- [For Veeam Backup & Replication repository targets] You can store created backups in a backup repository only if the backup server runs Veeam Backup & Replication 9.5 Update 3 or later.
- [For Veeam Backup & Replication repository targets] If you plan to use a Veeam Backup & Replication repository as a target for backups, you must pre-configure user access permissions on this backup repository. To learn more, see Setting Up User Permissions on Backup Repositories.

Backup has the following limitations:

- You cannot save the backup of entire computer on the local computer disk. Use an external hard drive or USB drive, network shared folder or backup repository as a target location.
- Veeam Agent for Linux does not back up data to which symbolic links are targeted. It only backs up the path information that the symbolic links contain. After restore, identical symbolic links are created in the restore destination.

Navigating Backup Job Wizard

The Backup Job wizard window comprises the following areas:

- The navigation pane, located on the left of the window, displays the list of wizard steps and currently selected step of the wizard
- The working area displays controls relating to a specific step of the wizard.
- The buttons area, located at the bottom of the window, displays buttons that you can use to switch between steps of the wizard (**Previous** and **Next**) and close the wizard (**Cancel** and **Finish**).

In the Backup Job wizard, the use of a mouse is not supported. To navigate the Backup Job wizard and associated dialog windows, you can use the following keys:

- **Tab** — to switch between displayed controls in the working area and buttons in the buttons area. The currently selected control or button is highlighted with a green color.
- **Up** and **Down** — to switch between items in a scrollable list.
- **Space** — to select the necessary item in a list. The selected item's mark may vary in different steps of the wizard.
- **Enter** — to proceed to the next step of the wizard or to open a directory.
- **Backspace** — to return to the previous step of a wizard.
- **Escape** — to cancel the backup job configuration and exit the wizard.

> **TIP:**
>
> You can switch between steps of the Backup Job wizard in two ways. The easier and more comfortable way is to use the **Enter** key to proceed to the next step and **Backspace** key to return to the previous step of the wizard. You can also use the **Tab** key to select the **Next** or **Previous** button in the buttons area and then press **Enter** to switch to the next or previous step of the wizard respectively.

Step 1. Launch Backup Job Wizard

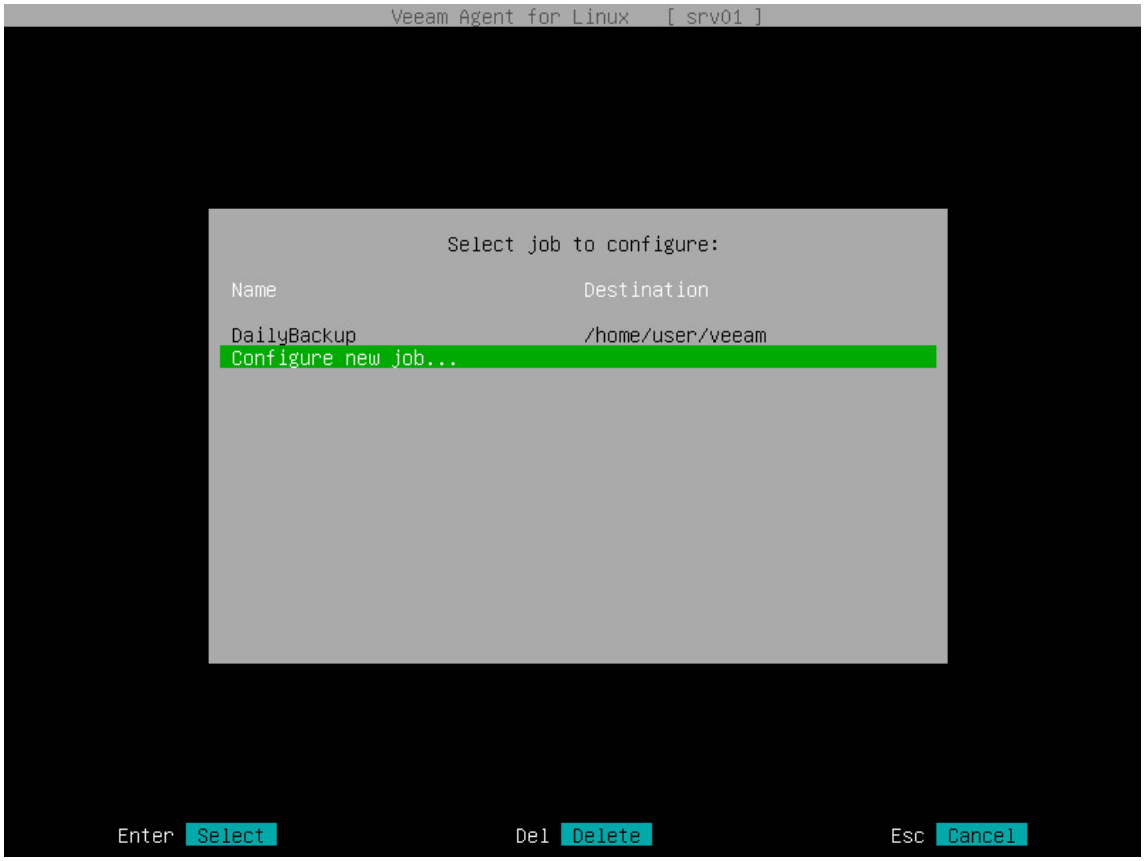
To launch the **Backup Job** wizard, do the following:

1. Launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command:
2. If you have not configured any backup jobs yet, Veeam Agent for Linux will display a welcome screen. Press the '**c**' key to proceed to the Backup Job wizard and configure the backup job.
3. If you have already configured and performed a backup job, Veeam Agent for Linux will display the list of backup job sessions. When you press '**c**' to launch the Backup Job wizard, Veeam Agent for Linux will display a list of configured backup jobs. To configure a new backup job, select the **Configure new job** option and press **Enter**.

> **NOTE:**
>
> The **Configure new job** option is not available if Veeam Agent for Linux operates in the free or workstation mode and you have already configured one backup job.

To edit settings of a backup job that you have already configured, select the job in the list and press **Enter**. To learn more, see Editing Backup Job Settings.

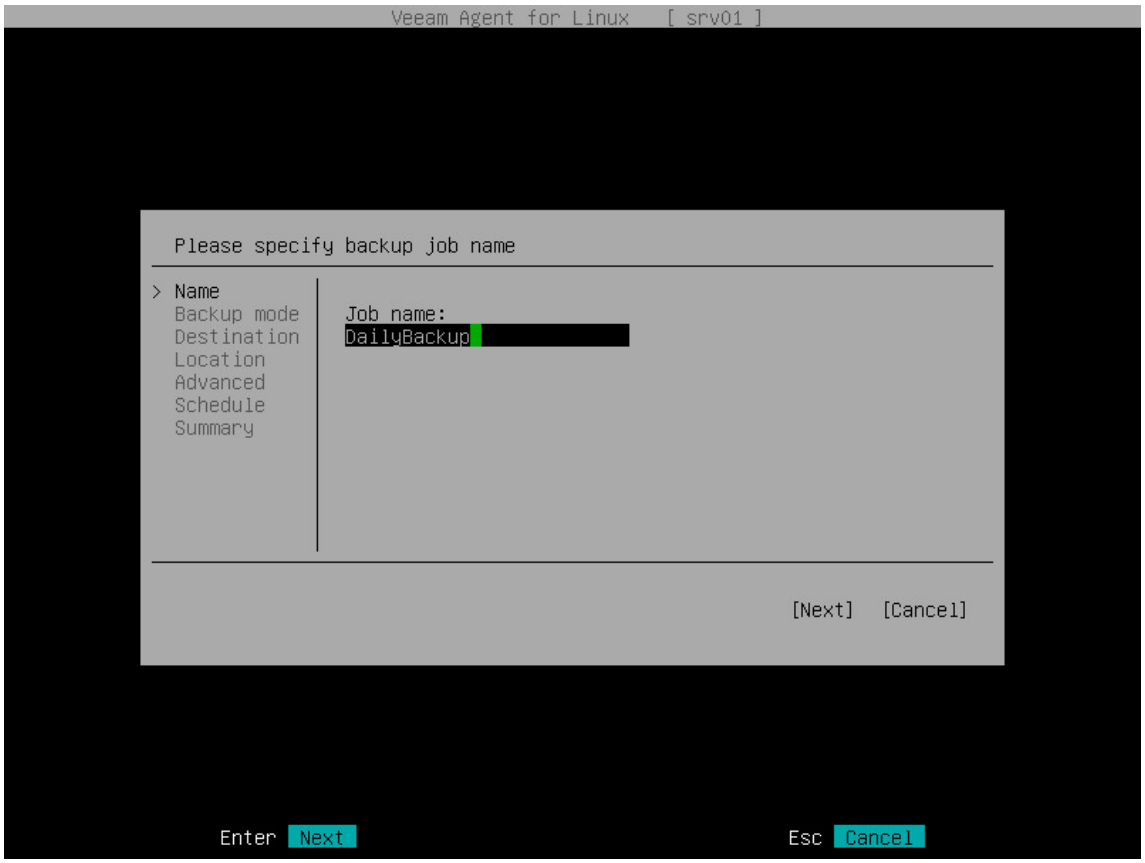
If you have decided not to create a backup job, press **Escape** to close the list of backup jobs and return to the welcome screen. After that, you can press **Escape** once again to return to the command line interface.



Step 2. Specify Backup Job Name

At the **Name** step of the wizard, in the **Job name** field, type the name for the backup job and press **Enter**.

> **TIP:**
>
> To proceed to the next step of the wizard, you can also select the **Next** button with the **Tab** key and then press **Enter**.



Step 3. Select Backup Mode

At the **Backup mode** step of the wizard, select the necessary backup mode and press **Enter**.

You can select one of the following options:

- **Entire machine** — select this option if you want to create a backup of the entire computer image. When you restore data from such backup, you will be able to recover the entire computer image as well as data on specific computer volumes: files, folders, application data and so on. With this option selected, you will pass to the Destination step of the wizard.
- **Volume level backup** — select this option if you want to create a backup of specific computer volumes, for example, the system volume. When you restore data from such backup, you will be able to recover data on these volumes only: files, folders, application data and so on. With this option selected, you will pass to the Volumes step of the wizard.

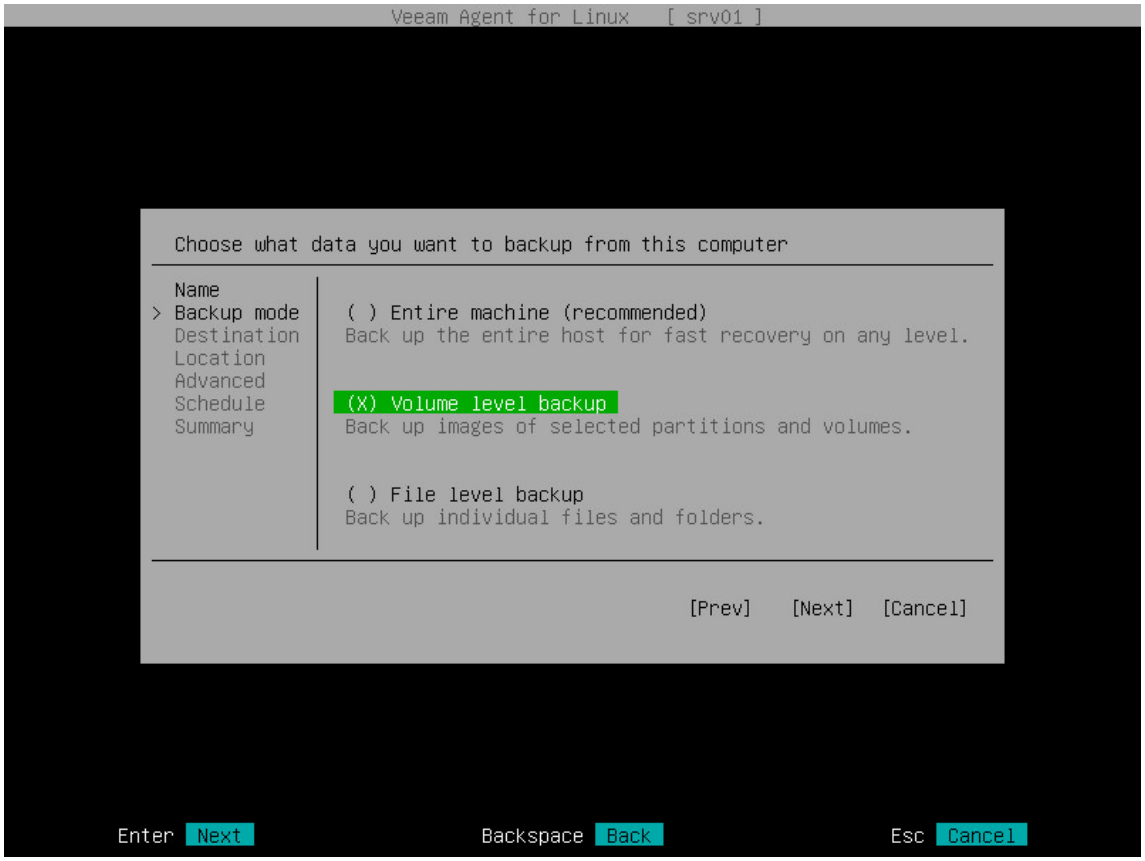
IMPORTANT!

Volume-level backup job relies on a device name under the `/dev` directory and requires volumes to have their corresponding device names under the `/dev` directory staying persistent (e.g. `/dev/md-127`, `/dev/dm-1`). Otherwise the job will back up the wrong volume.

- **File level backup** — select this option if you want to create a backup of individual directories on your computer. With this option selected, you will pass to the Files step of the wizard.

TIP:

File-level backup is typically slower than volume-level backup. If you plan to back up all folders with files on a specific volume, it is recommended that you configure volume-level backup instead of file-level backup.



Step 4. Specify Backup Scope Settings

Specify backup scope for the backup job:

- Select volumes to back up — if you have selected the **Volume level backup** option at the Backup Mode step of the wizard.
- Select folders to back up — if you have selected the **File level backup** option at the Backup Mode step of the wizard.

Selecting Volumes to Back Up

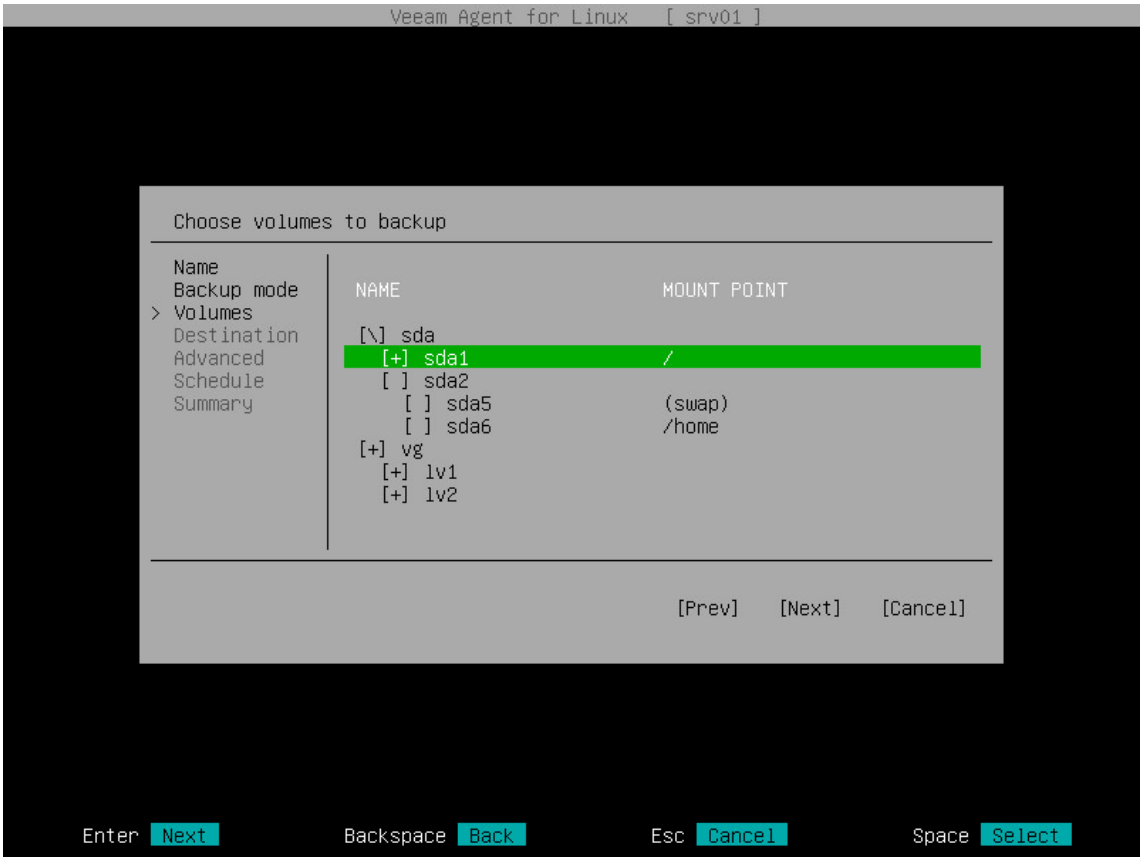
The **Volumes** step of the wizard is available if you have chosen to create a volume-level backup.

At this step of the wizard, you must specify the backup scope — define what volumes you want to include in the backup. In the list of volumes, choose individual volumes or entire computer disks that you want to include in the backup. To navigate the list of volumes and select necessary items, you can use **Up**, **Down** and **Space** buttons. To learn more, see Navigating Backup Job Wizard.

You can back up the following data:

- *Individual computer volumes*. To include individual volumes of your computer to the backup scope, select the necessary volumes:
    - For simple volumes, select block devices that represent volumes that you want to backup, for example: `sda1` and/or `sda6`.
    - For LVM volumes, select LVM logical volumes that you want to backup, for example: `lv1` and/or `lv2`.
- *All volumes on a specific computer disk(s)*. To include all volumes on a computer disk into the backup, select the necessary disks or volume groups:
    - For simple volumes, select block devices that represent disks whose volumes you want to backup, for example: `sda` and/or `sdb`. All volumes on the selected disk will be automatically selected, too.
    - For LVM volumes, select LVM volume groups whose volumes you want to backup, for example: `vg`. All LVM logical volumes in the selected volume group will be automatically selected, too.

When you include a system volume in the backup, Veeam Agent for Linux automatically includes the System Reserved/UEFI partition in the backup too. If you have created several system partitions, for example, a separate partition for the `/boot` directory, you should remember to include all of these partitions in the backup. Otherwise, Veeam Agent for Linux does not guarantee that the OS will boot properly when you attempt to recover from such backup.



Selecting Files and Directories to Back Up

The **Files** step of the wizard is available if you have chosen to create a file-level backup.

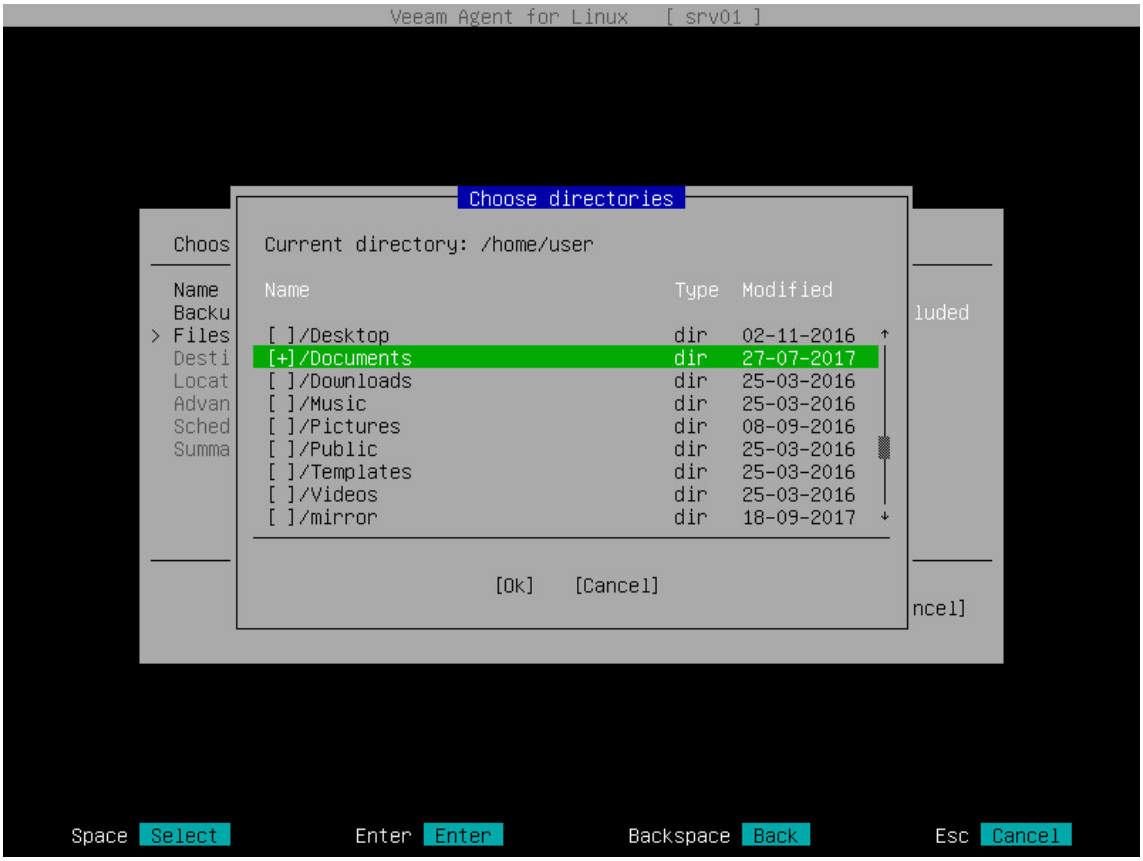
At this step of the wizard, you must specify the backup scope — define what directories with files you want to include in the backup.

In the file-level backup mode, you must include in the backup at least one directory. If you do not want to back up some subdirectories of the specified directory, you can exclude these directories from the backup.

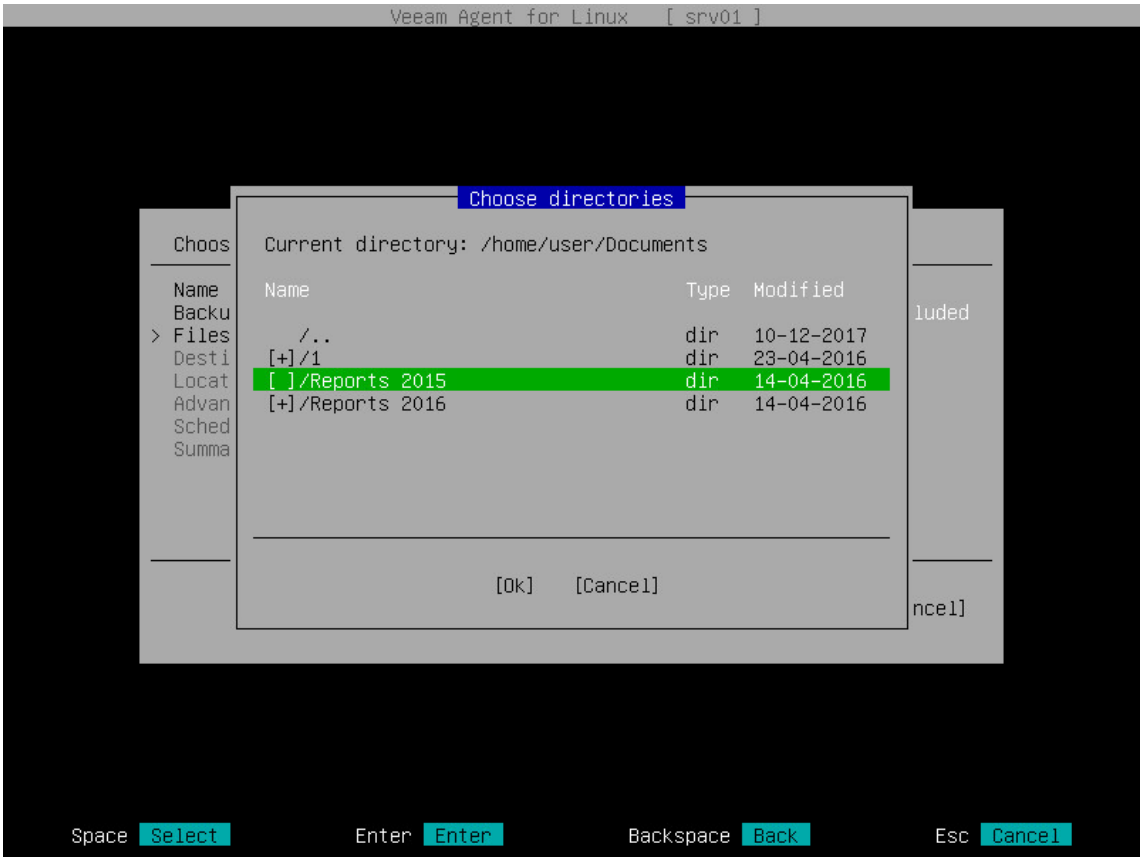
You can also include or exclude files of a specific type in/from the backup. You can specify file names explicitly or use UNIX wildcard characters to define file name masks. Veeam Agent for Linux will apply the specified file name masks to files in directories that are included in the backup.

To specify the backup scope:

1. Make sure that the **Select Directories** option is selected and press **Enter**.
2. In the **Choose directories** window, select one or several directories that you want to include in the file-level backup.
   - To navigate the list of directories, use the **Up** and **Down** keys.
   - To browse for subdirectories, navigate to the necessary directory and press **Enter**.
   - To include a directory in the backup, navigate to the necessary directory and press **Space**. The included directory will be marked with the '+' character. All subdirectories of the selected directory will be included in the backup too.



3. Specify directories that you want to exclude from the file-level backup. To exclude a directory:
    a. Browse for subdirectories of a directory that you have included in the backup.
    b. Navigate to the directory that you want to exclude from the backup and press **Space**. The excluded directory will not be marked with the '+' character.

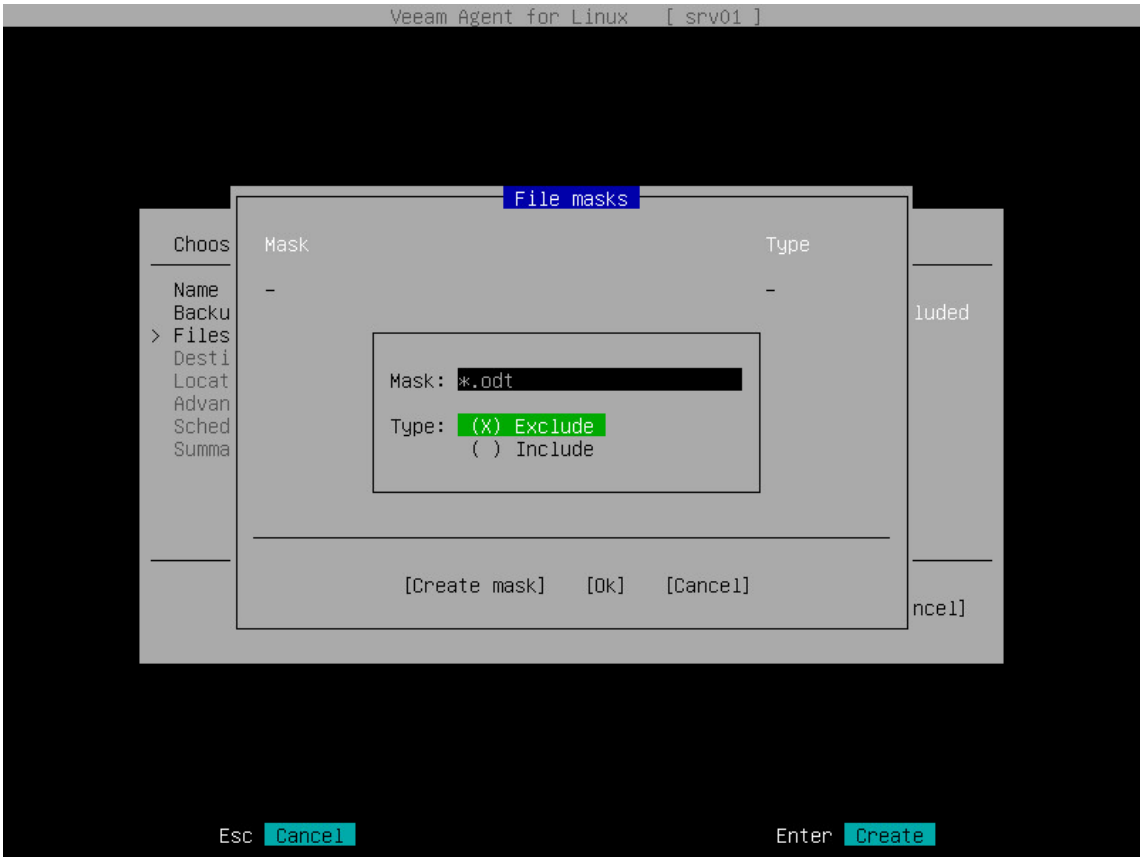


4. Switch to the **OK** button and press **Enter**. Veeam Agent for Linux will display paths to the selected directories and the number of excluded subdirectories for each directory.
5. Specify file name masks for files that you want to include or exclude in/from the backup:
    a. Select the **File Masks** option with the **Tab** key and press **Enter**.
    b. In the **File masks** window, make sure that the **Create Mask** button is selected and press **Enter**.
    c. In the **Mask** field, enter the file name mask, for example, `report.pdf`, `*filename*` or `*.odt`.
    d. In the **Type** field, select one of the following options:
        - **Exclude** — if you do not want to back up files whose names match the specified mask. Veeam Agent for Linux will back up all files in the directories selected for backup except for such files.
        - **Include** — if you want to back up files whose names match the specified mask. Veeam Agent for Linux will create a backup only for such files in the directories selected for backup.

You can use a combination of include and exclude masks. Note that exclude masks have a higher priority than include masks. For example, you can specify masks in the following way:

- Include mask: `report*.*`
- Exclude mask: `*.odt`

Veeam Agent for Linux will include in the backup all files whose name begins with `report` except for the files of the ODT format.



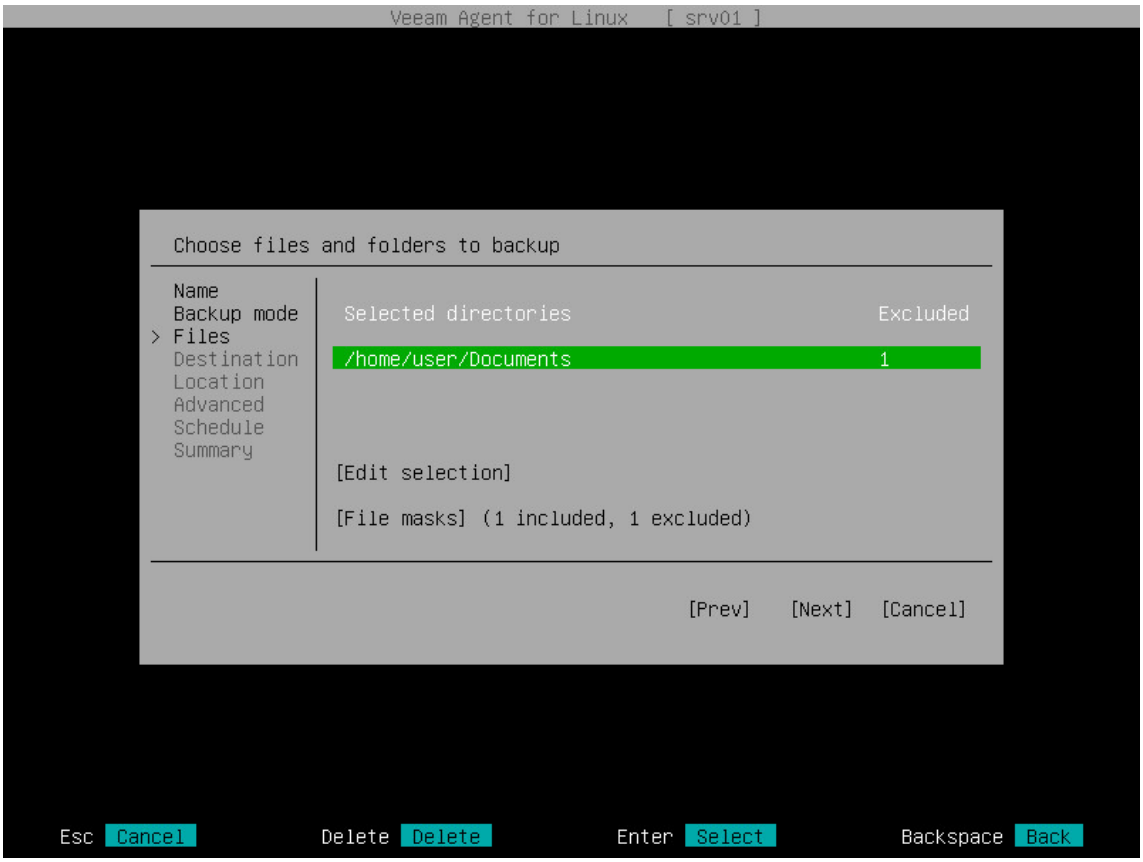
e. Press **Enter**. Veeam Agent for Linux will display in the **File masks** window the specified file mask and its type: *Include* or *Exclude*.

f. Repeat steps 'b'–'e' for each mask that you want to specify.

g. After you specify all file masks, switch to the **OK** button and press **Enter**.

TIP:

To remove a file name mask, in the **File masks** window, select the necessary mask and press **Delete**.



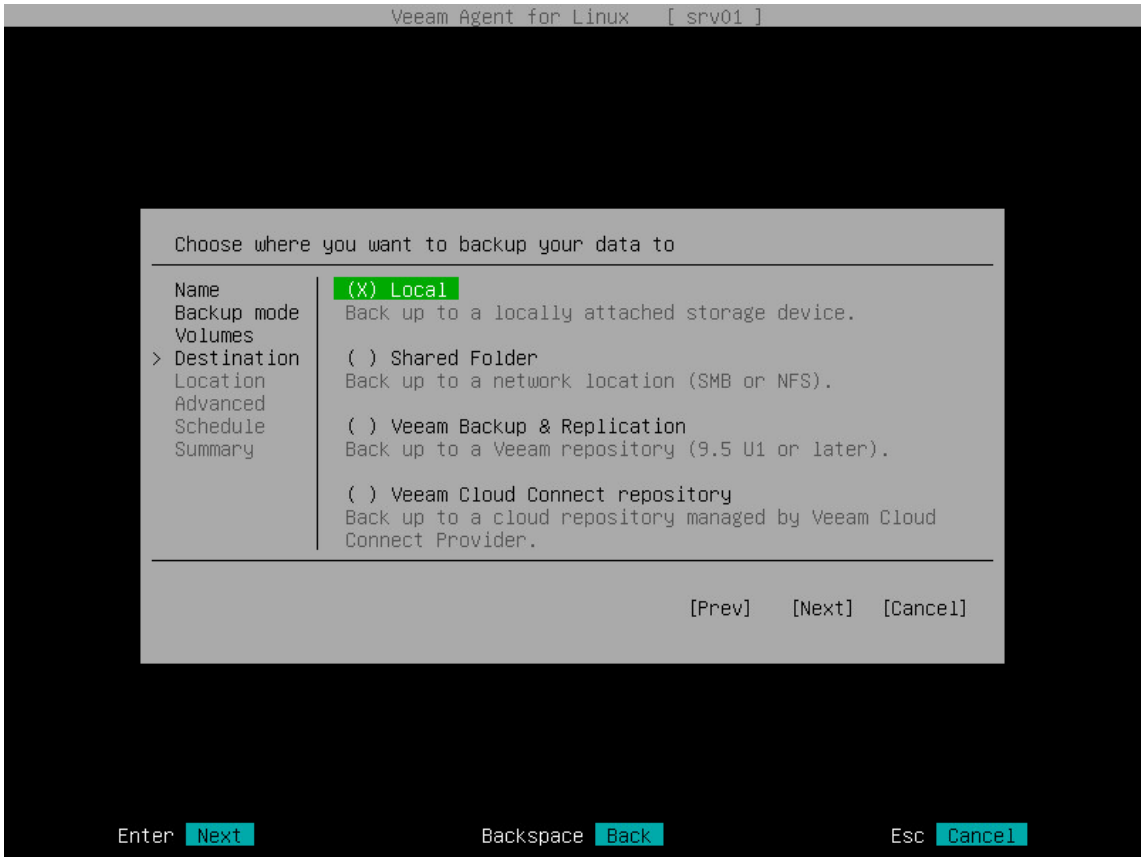
Step 5. Select Backup Destination

At the **Destination** step of the wizard, select a target location for the created backup.

You can select one of the following options:

- **Local** — select this option if you want to save the backup on a removable storage device attached to the computer or on a local computer drive. With this option selected, you will pass to the Location step of the wizard.
- **Shared Folder** — select this option if you want to save the backup in a network shared folder. With this option selected, you will pass to the Network step of the wizard.
- **Veeam Backup & Replication** — select this option if you want to save the backup on a backup repository managed by the Veeam backup server. With this option selected, you will pass to the Veeam step of the wizard.
- **Veeam Cloud Connect repository** — select this option if you want to create the backup on a cloud repository exposed to you by the Veeam Cloud Connect service provider. With this option selected, you will pass to the Service Provider step of the wizard.

It is recommended that you store backups in the external location like USB storage device or network shared folder. You can also keep your backup files on the separate non-system local drive.



Step 6. Specify Backup Storage Settings

Specify backup storage settings for the backup job:

- Local storage settings — if you have selected the **Local storage** option at the Destination step of the wizard.
- Shared folder settings — if you have selected the **Shared folder** option at the Destination step of the wizard.
- Veeam backup repository settings — if you have selected the **Veeam backup repository** option at the Destination step of the wizard.
- Veeam Cloud Connect repository settings — if you have selected the **Veeam Cloud Connect repository** option at the Destination step of the wizard.

> **NOTE:**
>
> The **Veeam Cloud Connect repository** option is available if Veeam Agent for Linux operates in the workstation or server mode.

Local Storage Settings

The **Location** step of the wizard is available if you have selected the **Local** option at the Destination step of the wizard. Specify location for the backup file and retention policy for the backup job:

1. Specify location for the backup file in one of the following ways:
    - In the **Location** field, type a path to the directory in which you want to save backup files.
    - Browse to the directory where backup files must be saved:
        a. Select the **Browse** option with the **Tab** key and press **Space** or **Enter**.
        b. In the **Choose backup location** window, select the necessary directory and press **Enter**.
        c. Repeat the step 'b' until a path to the directory in which you want to save backup files appears in the **Current directory** field.
        d. To create a new directory, switch to the **Create Dir** button, press **Enter**, then type a name for the new directory and press **Enter**.
        e. Switch to the **OK** button and press **Enter**. Veeam Agent for Linux will display the path to the specified directory in the **Location** field.

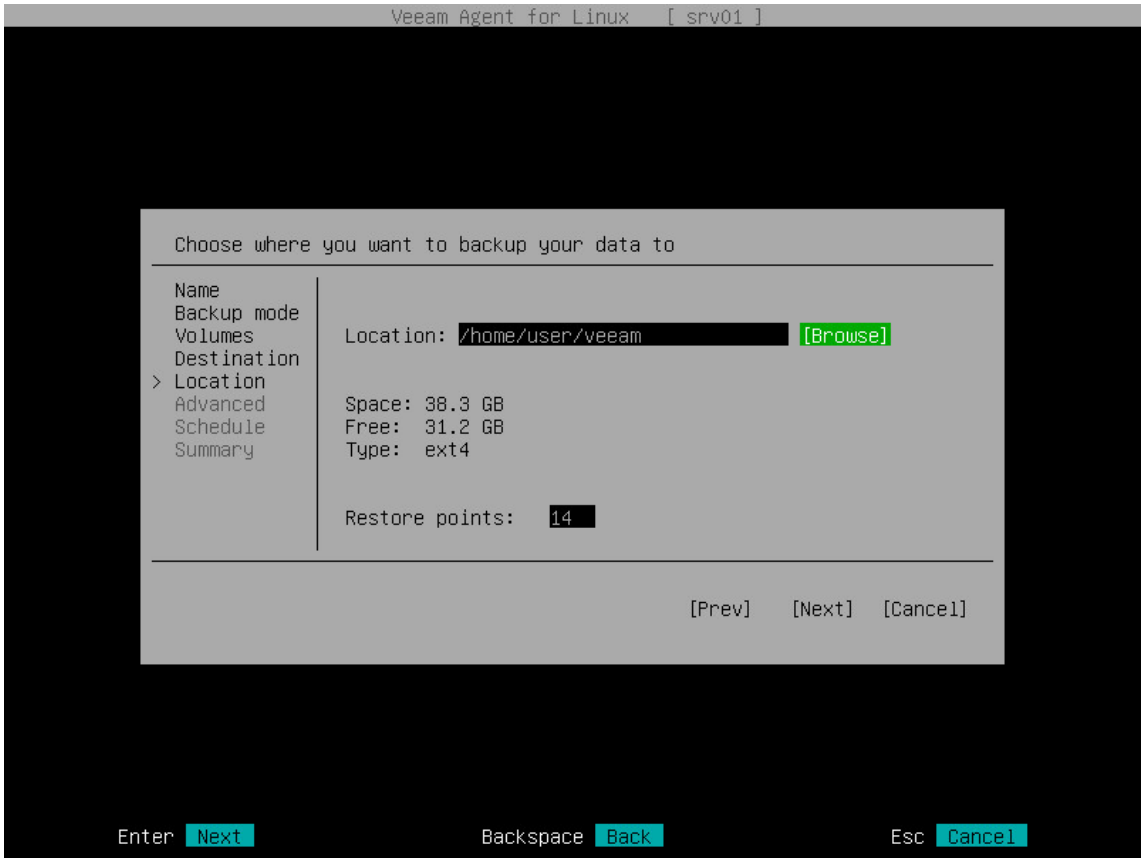
    After you specify location for the backup, Veeam Agent for Linux will display the following information on the volume where the directory selected for backup storage resides:

    - **Space** — total size of the volume on which the selected directory resides.
    - **Free** — free space on the volume where the selected directory resides.
    - **Type** — file system type of the volume on which the selected directory resides.
2. In the **Restore points** field, specify the number of backup files that you want to keep in the target location. By default, Veeam Agent for Linux keeps 14 latest backup files. When the number of restore points is exceeded, Veeam Agent for Linux will remove the earliest restore point from the backup chain.

IMPORTANT!

Mind the following:

- The backup location must reside on a separate volume from a volume whose data you plan to back up.
- USB storage devices formatted as FAT32 do not allow storing files larger than 4 GB in size. For this reason, it is recommended that you do not use such USB storage devices as a backup target.



Shared Folder Settings

The **Network** step of the wizard is available if you have selected the **Shared Folder** option at the Destination step of the wizard.

To save backup files in a remote network location, Veeam Agent for Linux mounts to the local file system of your computer the network shared folder that you specify as a location for the backup. When you specify the network shared folder settings, Veeam Agent for Linux saves information about the network shared folder and its mount point in the database.

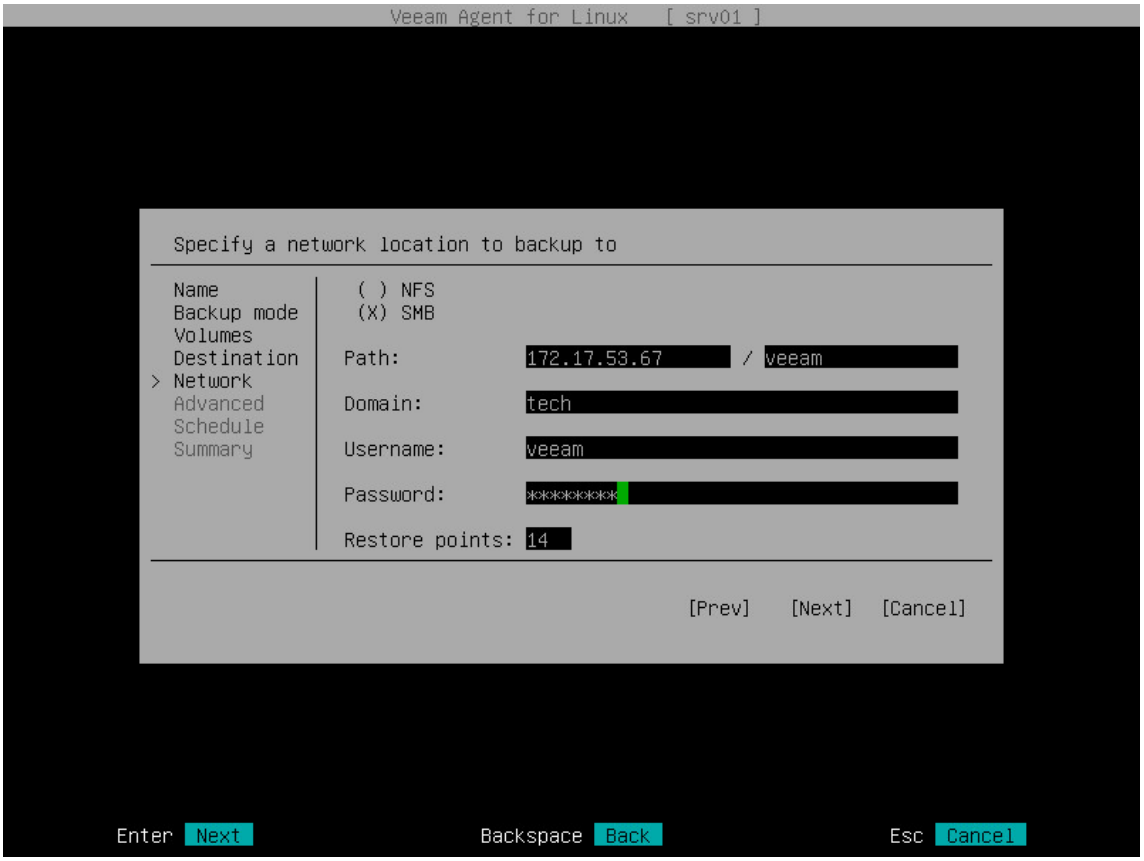
You do not need to mount the network shared folder in advance before every backup job run. Veeam Agent for Linux will do it automatically when the backup job is started manually or upon schedule.

After the backup job completes, Veeam Agent for Linux will automatically unmount the network shared folder.

Specify shared folder settings:

1. Select the type of a network shared folder:
   - **NFS** — to connect to a network shared folder using the NFS protocol.
   - **SMB** — to connect to a network shared folder using the SMB (CIFS) protocol.
2. In the **Path** field, specify the network shared folder name in the *SERVER/DIRECTORY* format: type an IP address or domain name of the server and the name of the network shared folder in which you want to store backup files.

   Every time the backup job starts, Veeam Agent for Linux will automatically mount the specified network shared folder to the `/tmp/veeam` directory in the computer file system. After the backup job completes, Veeam Agent for Linux will unmount the network shared folder.
3. [For SMB network shared folder] In the **Domain** field, type a name of the domain in which the account that has access permissions on the shared folder is registered, for example: *DOMAIN*.
4. [For SMB network shared folder] In the **Username** field, type a user name of the account that has access permissions on the shared folder.
5. [For SMB network shared folder] In the **Password** field, type a password of the account that has access permissions on the shared folder.
6. In the **Restore points** field, specify the number of backup files that you want to keep in the target location. By default, Veeam Agent for Linux keeps 14 latest backup files. When the number of restore points is exceeded, Veeam Agent for Linux will remove the earliest restore point from the backup chain.



Veeam Backup Repository Settings

If you have selected to store backup files on a Veeam Backup & Replication repository, specify settings to connect to the backup repository:

1. Specify backup server settings.
2. Select the Veeam backup repository.

Specifying Backup Server Settings

The **Veeam** step of the wizard is available if you have chosen to store backup files on a Veeam Backup & Replication repository.

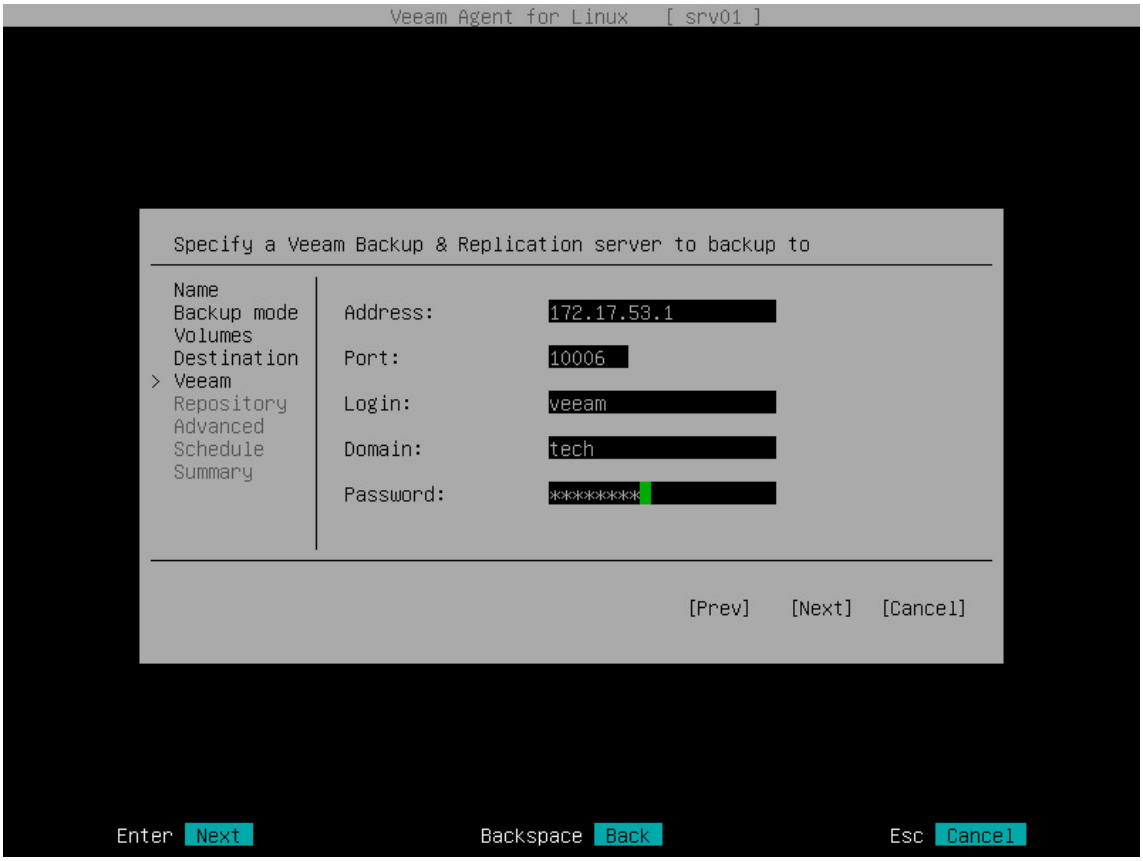
Specify settings for the Veeam backup server that manages the target backup repository:

1. In the **Address** field, specify a DNS name or IP address of the Veeam backup server.
2. In the **Port** field, specify a number of the port over which Veeam Agent for Linux must communicate with the backup repository. By default, Veeam Agent for Linux uses port 10006.
3. In the **Login** field, type a user name of the account that has access to the Veeam backup repository.
4. In the **Domain** field, type a name of the domain in which the account that has access to the Veeam backup repository is registered, for example: *DOMAIN*.
5. In the **Password** field, type a password of the account that has access to the Veeam backup repository.

   Permissions on the backup repository managed by the target Veeam backup server must be granted beforehand. To learn more, see Setting Up User Permissions on Backup Repositories.

IMPORTANT!

If you specify a DNS name of the Veeam backup server, make sure that the Veeam backup server name is resolved into IPv4 address on the machine where Veeam Agent for Linux is installed. The Veeam Backup Service in Veeam Backup & Replication listens on IPv4 addresses only. If the Veeam backup server name is resolved into IPv6 address, Veeam Agent for Linux will fail to connect to the Veeam backup server.



Selecting Backup Repository

The **Repository** step of the wizard is available if you have chosen to save backup files on a Veeam Backup & Replication repository.

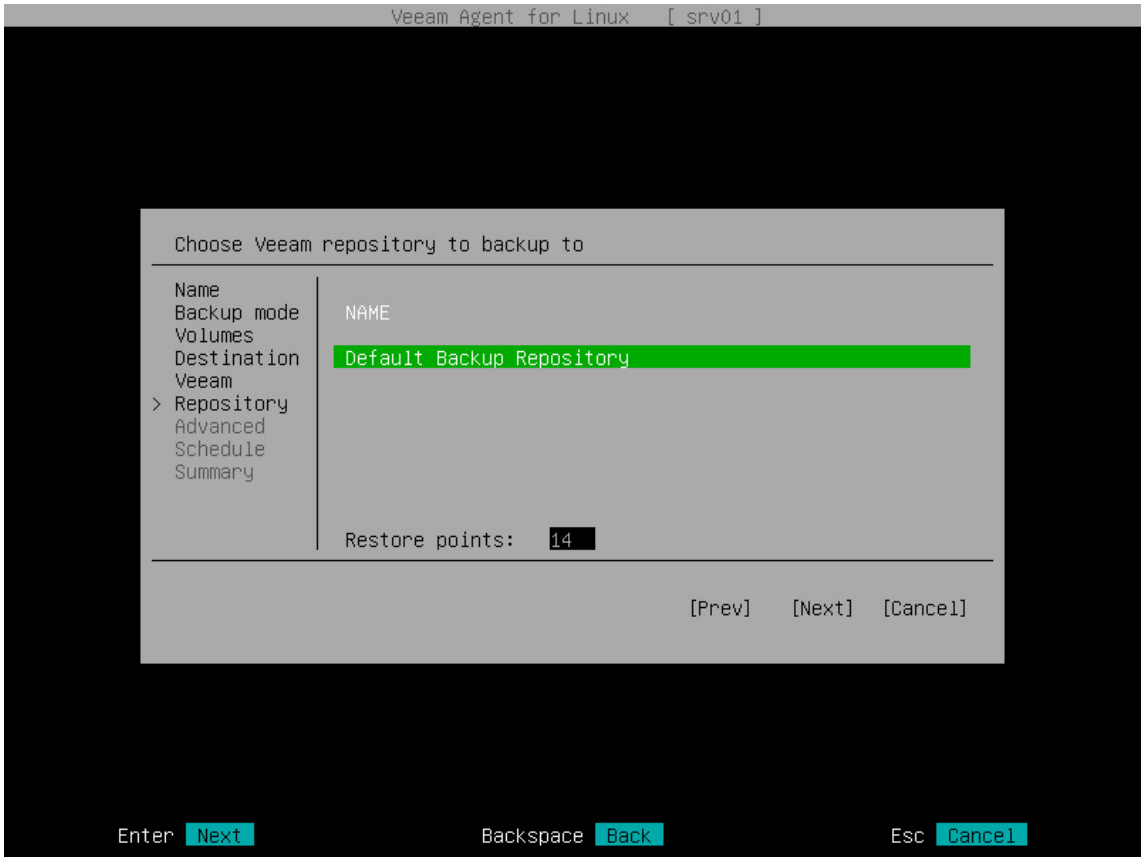
IMPORTANT!

You cannot target a Veeam Agent for Linux backup job at a Veeam backup repository that has EMC Data Domain or HPE StoreOnce deduplicating storage appliance as a back end.

Specify settings for the target backup repository:

1. From the **Choose repository** list, select a backup repository where you want to store backups. The **Choose repository** list displays only those backup repositories on which you have permissions to store data. To learn more, see Setting Up User Permissions on Backup Repositories.
2. In the **Restore points** field, specify the number of restore points that you want to store in the target location. By default, Veeam Agent for Linux keeps 14 latest restore points. After this number is exceeded, Veeam Agent for Linux will remove the earliest restore points from the backup chain.

   To learn more, see Backup Retention Policy.



Veeam Cloud Connect Repository Settings

If you have selected to store backup files on a Veeam Cloud Connect repository, specify settings to connect to the cloud repository:

1. Specify service provider settings.
2. Verify the TLS certificate and specify user account settings.
3. Select the cloud repository.

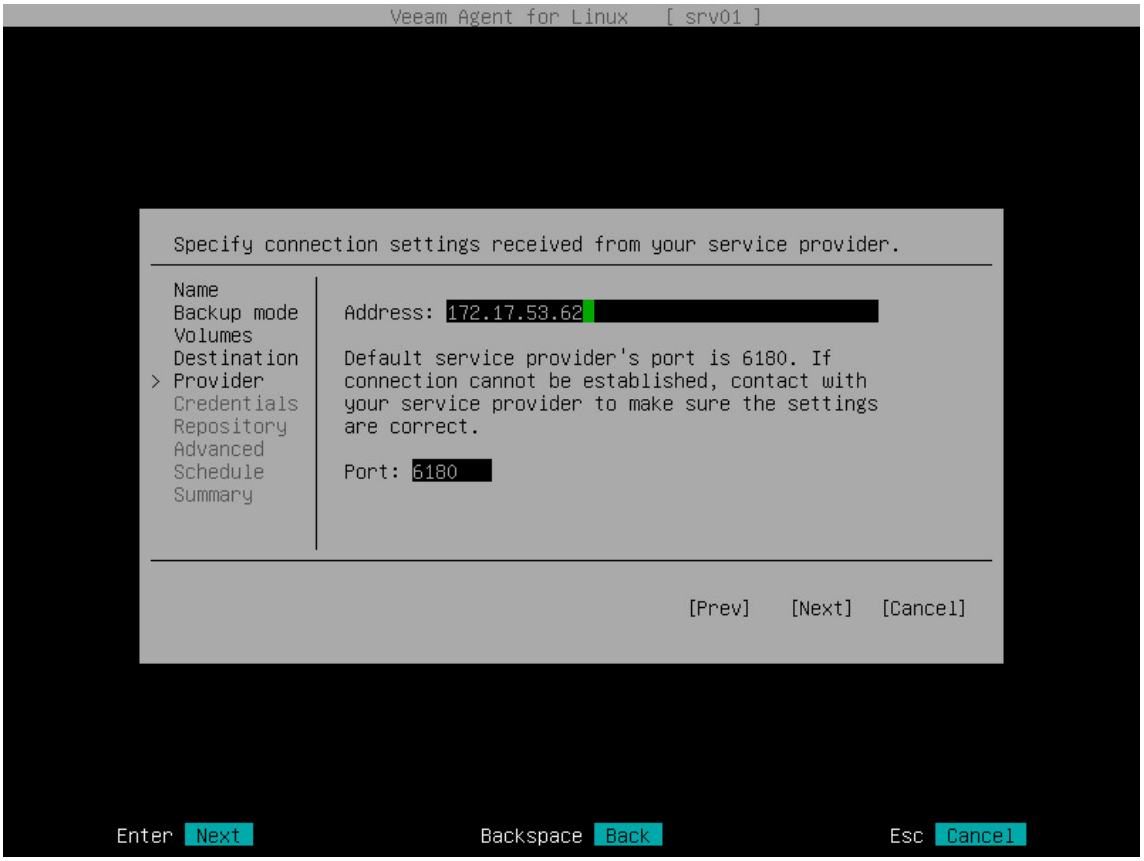
> **NOTE:**
>
> The **Veeam Cloud Connect repository** option is available if Veeam Agent for Linux operates in the workstation or server mode.

Specifying Service Provider Settings

The **Provider** step of the wizard is available if you have chosen to save backup files on a Veeam Cloud Connect repository.

Specify settings for the cloud gateway that the Veeam Cloud Connect service provider (SP) or your backup administrator has provided to you:

1. In the **Address** field, enter a full DNS name or IP address of the cloud gateway.
2. In the **Port** field, specify the port over which Veeam Agent for Linux will communicate with the cloud gateway. By default, port 6180 is used.



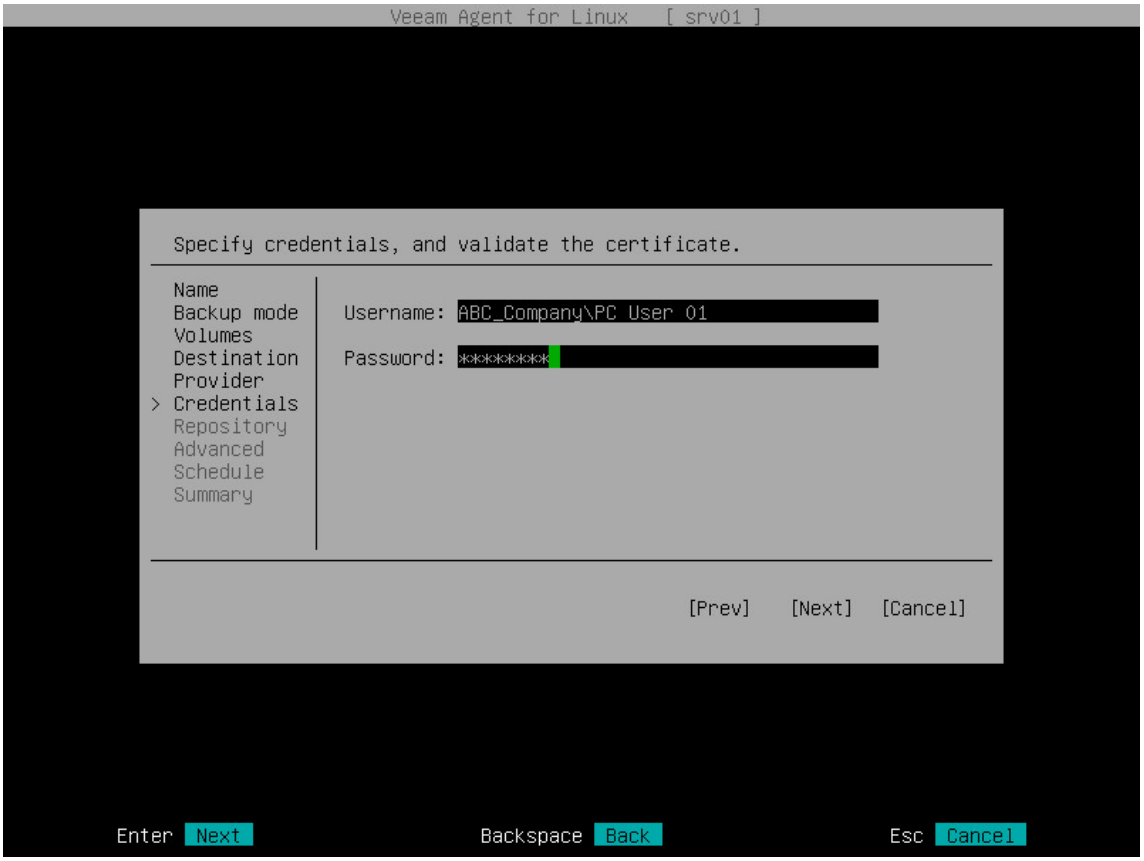
Specifying User Account Settings

The **Credentials** step of the wizard is available if you have chosen to save backup files on a cloud repository and specified settings for the cloud gateway.

Verify TLS certificate settings and specify settings for the tenant account or subtenant account that you want to use to connect to the cloud repository.

1. In the **Certificate details** window, review information about the TLS certificate obtained from the SP side and verify the TLS certificate:
   - [Optional] To verify the TLS certificate with a thumbprint, do the following:
     a. Select the **Verify thumbprint** button with the **Tab** key and press **Enter**.
     b. Copy the thumbprint you obtained from the SP to the Clipboard and enter it to the **Thumbprint verification** field.
     c. Switch to the **Verify** button and press **Enter**. Veeam Agent for Linux will check if the thumbprint you entered matches the thumbprint of the obtained TLS certificate.

     TLS certificate verification is optional. You can use this option to verify self-signed TLS certificates. TLS certificates signed by the CA do not require additional verification.
   - To accept the TLS certificate, select the **Accept** button with the **Tab** key and press **Enter**.
2. In the **Username** field, enter the user name of the tenant or subtenant account that the SP or your backup administrator has provided to you. The user name of the subtenant account must be specified in the *TENANT\SUBTENANT* format.
3. In the **Password** field, provide a password for the tenant or subtenant account.



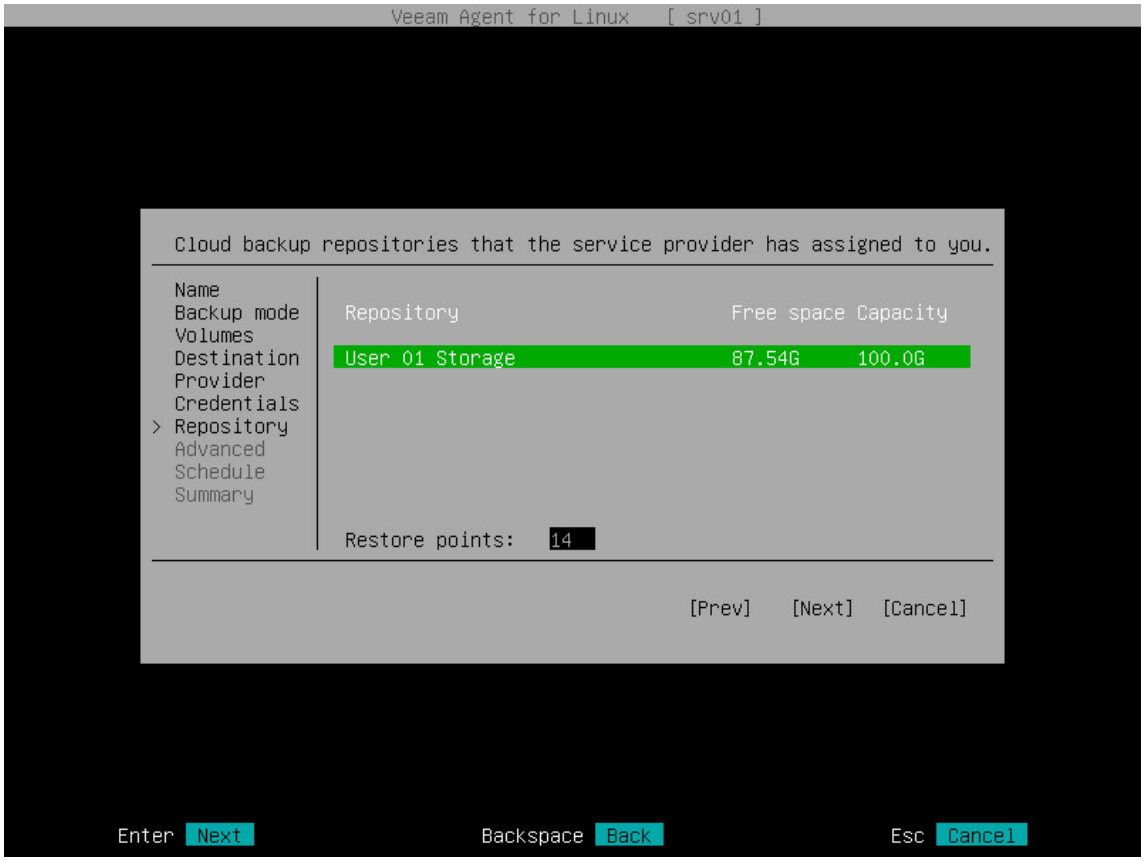
Selecting Cloud Repository

The **Repository** step of the wizard is available if you have chosen to save backup files on a cloud repository and specified settings to connect to the SP.

Specify settings for the cloud repository:

1. From the **Repository** list, select a cloud repository where you want to store created backups. The **Repository** list displays only those cloud repositories that can be accessed by the tenant or subtenant account that you use to connect to the service provider.
2. In the **Restore points** field, specify the number of restore points that you want to store in the target location. By default, Veeam Agent for Linux keeps 14 latest restore points. After this number is exceeded, Veeam Agent for Linux will remove the earliest restore points from the backup chain.

   To learn more, see Backup Retention Policy.



Step 7. Specify Advanced Backup Settings

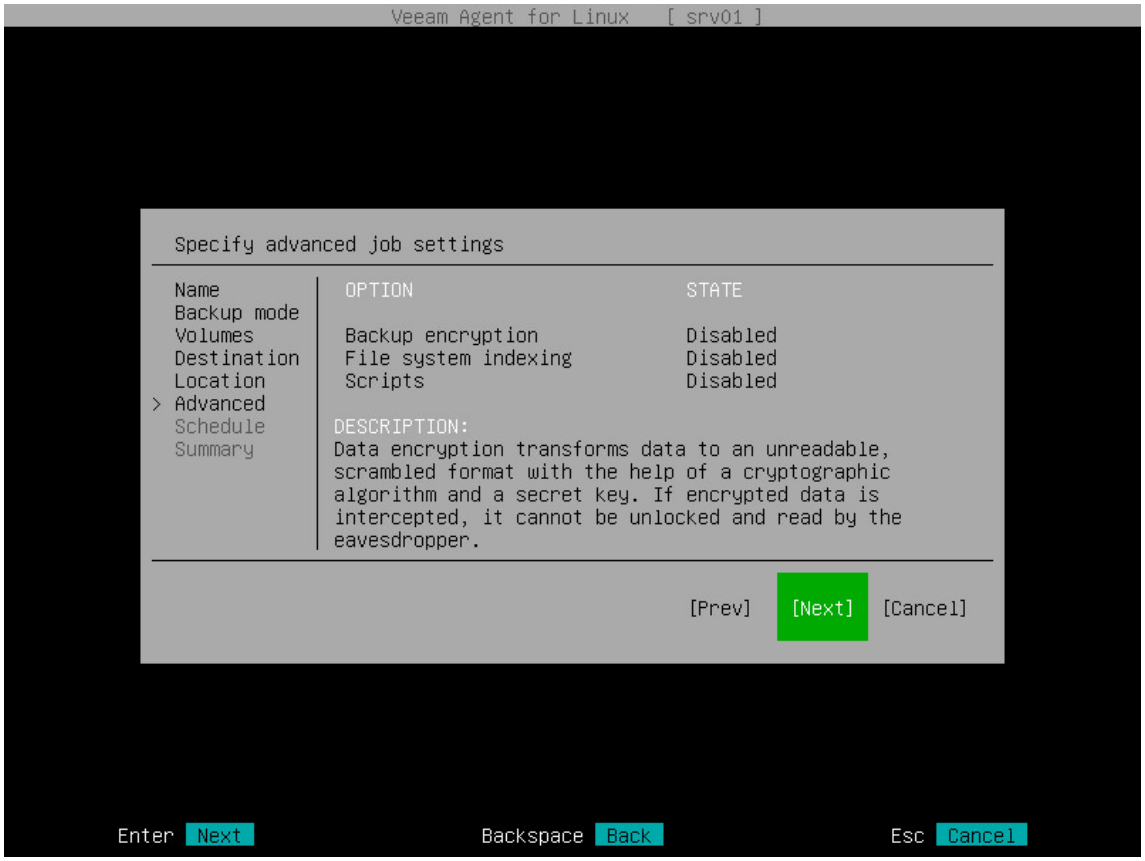
At the **Advanced** step of the wizard, specify advanced settings for the backup job:

- Data encryption settings
- File indexing settings
- Script settings

NOTE:

Consider the following:

- You cannot specify encryption settings for the backup job if you have chosen to save backup files on a Veeam backup repository. Encryption options for Veeam Agent backup jobs targeted at the backup repository are managed by a backup administrator working with Veeam Backup & Replication. To learn more about data encryption capabilities available in Veeam Backup & Replication, see the *Data Encryption* section in the Veeam Backup & Replication User Guide at https://www.veeam.com/documentation-guides-datasheets.html.
- You can specify file indexing settings only if Veeam Agent for Linux operates in the workstation or server mode.
- You cannot specify data compression settings when you configure a backup job with the Backup Job Wizard. If you want to specify these settings, consider creating the backup job with the Veeam Agent for Linux command line interface. To learn more, see Advanced Backup Job Settings.



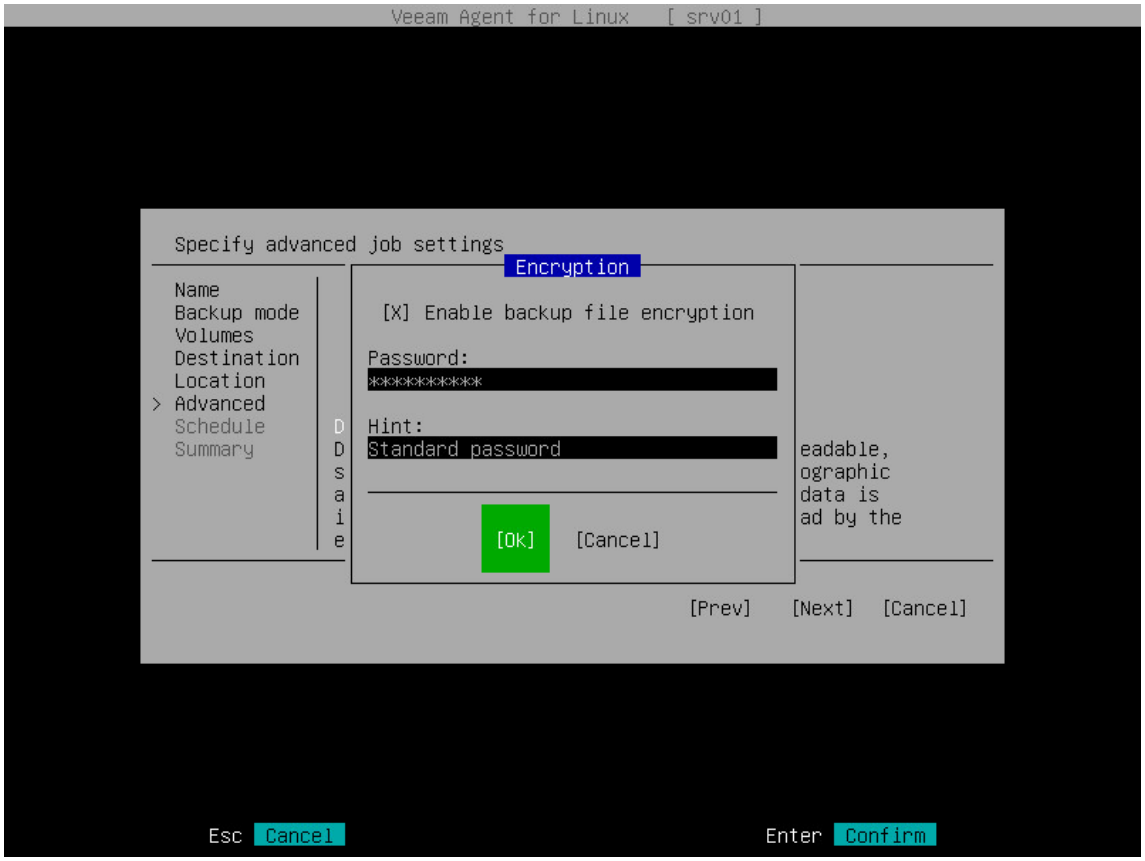
Data Encryption Settings

If you want to encrypt the content of backup files, at the **Advanced** step of the wizard, specify data encryption settings for the backup job:

1. Select the **Backup encryption** option with the **Tab** key and press **Enter**.

> **NOTE:**
>
> The **Backup encryption** option is unavailable if you have chosen to save backup files on a Veeam backup repository. Encryption options for Veeam Agent backup jobs targeted at the backup repository are managed by a backup administrator working with Veeam Backup & Replication. To learn more about data encryption capabilities available in Veeam Backup & Replication, see the *Data Encryption* section in the Veeam Backup & Replication User Guide at https://www.veeam.com/documentation-guides-datasheets.html.

2. In the **Encryption** window, make sure that the **Enable backup file encryption** option is selected and press **Space**.
3. In the **Password** field, type a password that you want to use for encryption.
4. In the **Hint** field, type a hint for the password. In case you lose the password, the specified hint will help you to remember the lost password.
5. Switch to the **Ok** button and press **Enter**.



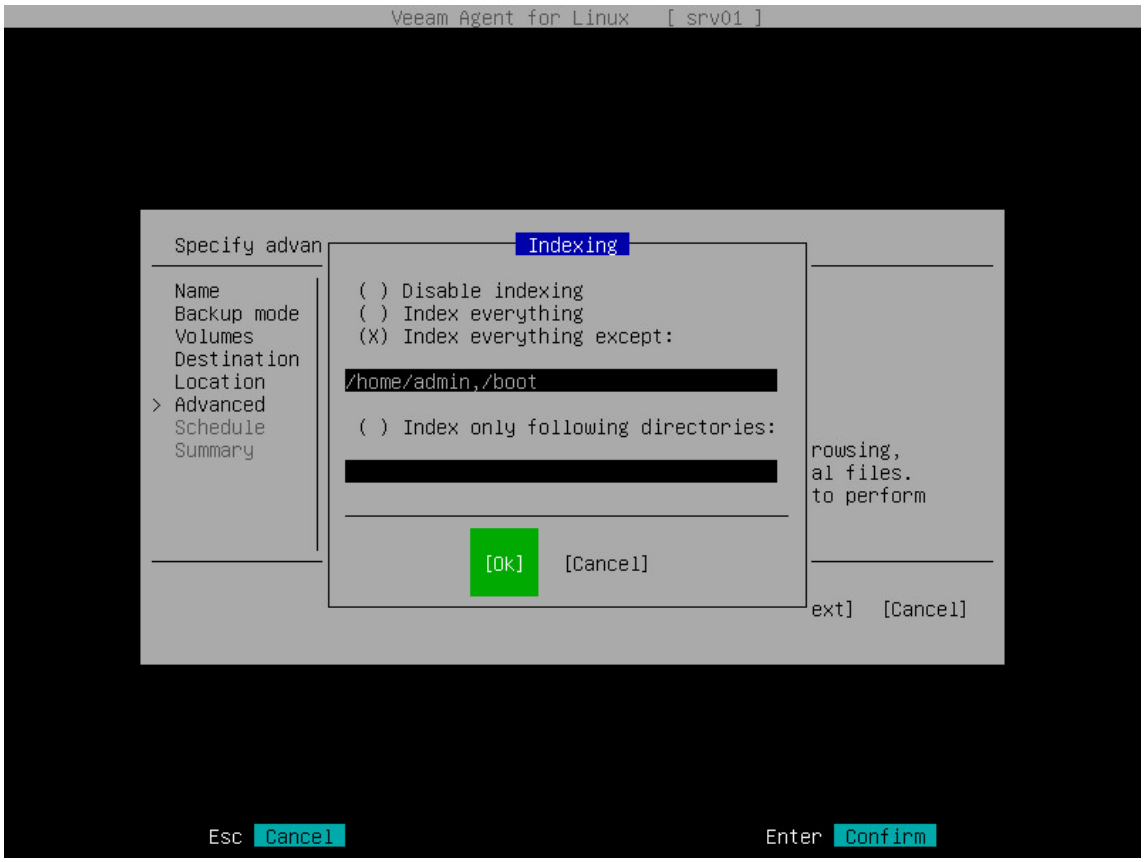
File Indexing Settings

At the **Advanced** step of the wizard, specify file indexing settings for the backup job:

1. Select the **File system indexing** option with the **Tab** and **Down** keys and press **Enter**.

> **NOTE:**
>
> The **File system indexing** option is available if Veeam Agent for Linux operates in the workstation or server mode.

2. In the **Indexing** window, specify the indexing scope:
   - Select **Index everything** if you want to index all files within the backup scope that you have specified at the Backup mode step of the wizard. Veeam Agent for Linux will index all files that reside:
     - on your computer OS (for entire machine backup)
     - on the volumes that you have selected for backup (for volume-level backup)
     - in the directories that you have selected for backup (for file-level backup)
   - Select **Index everything except** if you want to index all files within the specified backup scope except those files that reside in specific directories. Enter paths to directories whose files you do not want to index. To separate several paths, use the ',' (comma) character.
   - Select **Index only following directories** to define directories that you want to index. Enter paths to the necessary directories. To separate several paths, use the ',' (comma) character.
3. Switch to the **Ok** button and press **Enter**.

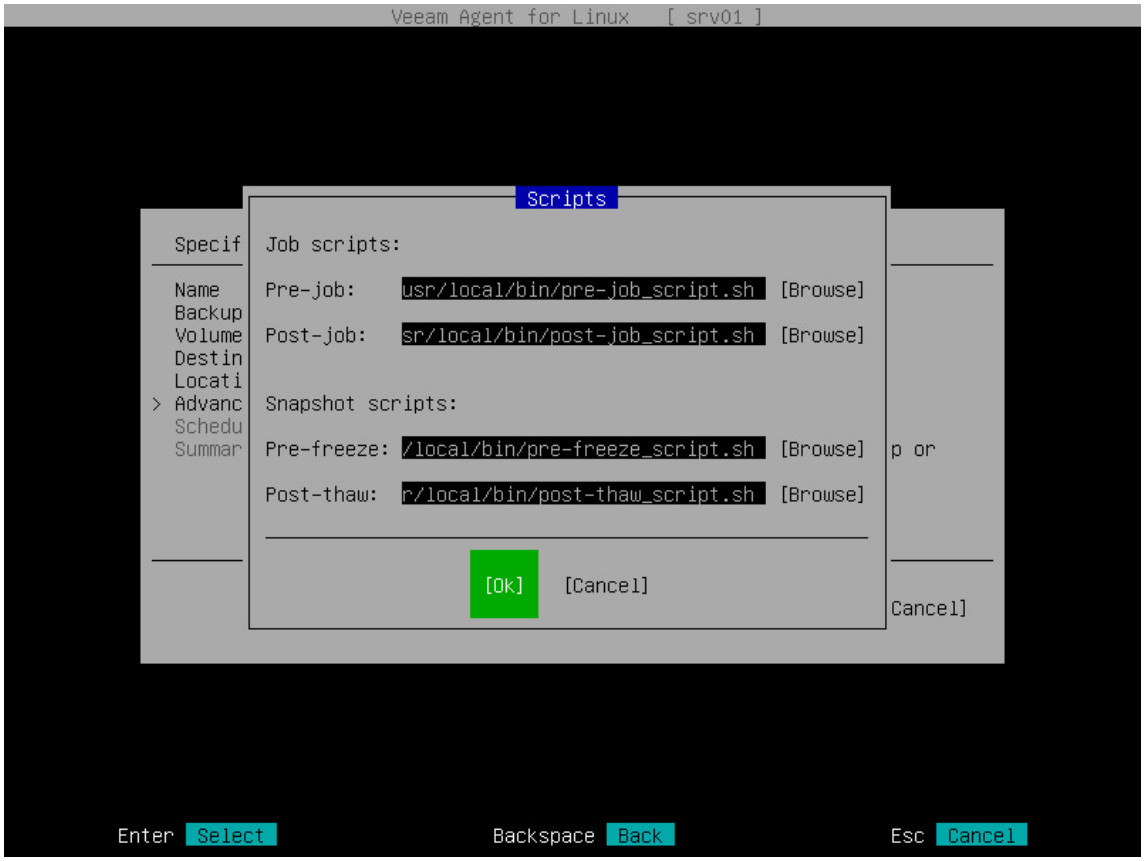


Script Settings

At the **Advanced** step of the wizard, specify script settings for the backup job:

1. Select the **Scripts** option with the **Tab** and **Down** keys and press **Enter**.
2. In the **Scripts** window, in the **Job scripts** section, specify custom scripts that you want to execute before and/or after the backup job:
   - In the **Pre-job** field, specify a path to the script that should be executed before the backup job starts.
   - In the **Post-job** field, specify a path to the script that should be executed after the backup job completes.
3. In the **Scripts** window, in the **Snapshot scripts** section, specify custom scripts that you want to execute before Veeam Agent for Linux creates a snapshot of the backed-up volume and/or after the snapshot is created:
   - In the **Pre-freeze** field, specify a path to the script that should be executed before Veeam Agent for Linux creates a volume snapshot.
   - In the **Post-thaw** field, specify a path to the script that should be executed after Veeam Agent for Linux creates a volume snapshot.
4. Switch to the **Ok** button and press **Enter**.

> **IMPORTANT!**
>
> You can specify snapshot script settings only if Veeam Agent for Linux operates in the server mode. To learn more about modes, see Product Functionality Modes.



Specifying Path to Script

You can specify a path to the executable file of the job or snapshot script in one of the following ways:

- Type a path to the executable file.
- Browse to the executable file:
    a. Select the **Browse** option with the **Tab** key and press **Enter**.
    b. In the **Choose script location** window, select the directory being a part of the path to the script and press **Enter**.
    c. Repeat the step 'b' until a path to the directory in which the executable file resides appears in the **Current directory** field.
    d. Select the necessary executable file and press **Enter**.

    Alternatively, you can switch to the **Ok** button and press **Enter**.

> **TIP:**
>
> If you do not want to execute a script, you can leave the corresponding field blank and proceed to the next step of the wizard.

Step 8. Specify Backup Schedule

At the **Schedule** step of the wizard, specify the schedule according to which you want to perform backup.

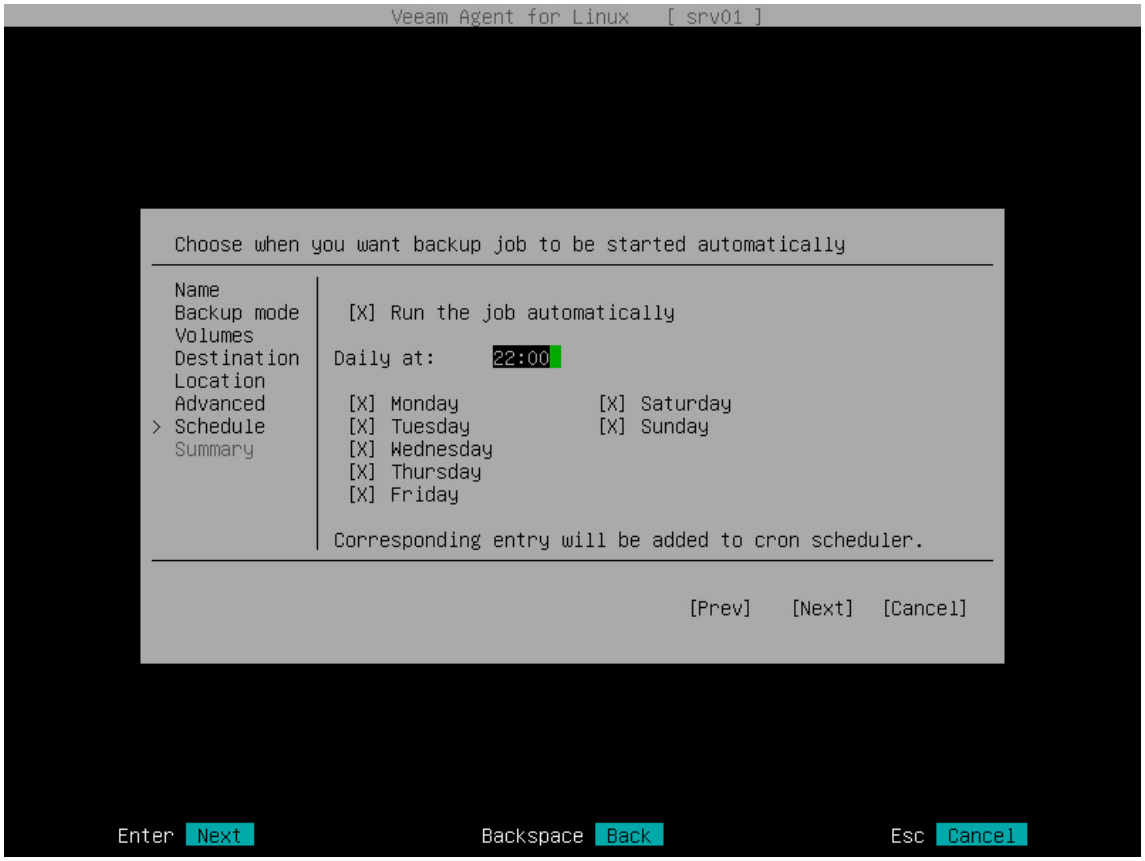
1. Make sure that the **Run the job automatically** check box is selected.

   If you want to configure the backup job without schedule, you can clear the **Run the job automatically** check box. In this case you will be able start the configured backup job manually at any time you need.

2. In the **Daily at** field, specify the time of day when the backup job must start.

3. In the list of days of the week, specify days on which the job must start. By default, Veeam Agent for Linux will start the backup job daily at the specified time. To exclude specific days from the schedule, clear check boxes next to the necessary days.

Veeam Agent for Linux will save the scheduling settings for the backup job in its database and in the `crontab` configuration file of the root account. Thus, Veeam Agent for Linux can start a backup job automatically regardless of the currently running user session. You can change schedule settings at any time in Veeam Agent for Linux or edit the `crontab` file manually to fine-tune the schedule. To learn more, refer to the Cron job scheduler documentation.

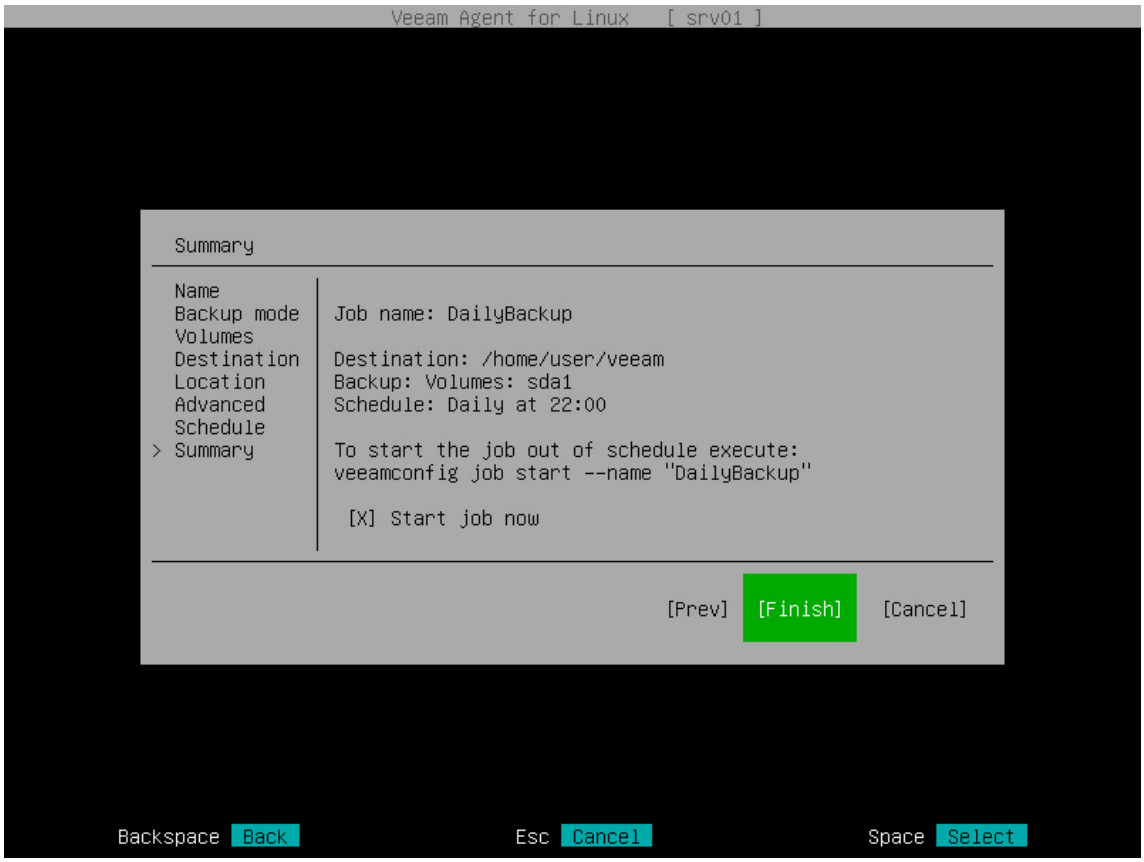


Step 9. Review Backup Job Settings

At the **Summary** step of the wizard, complete the backup job configuration process.

1. Review settings of the configured backup job.
2. To start the job after you close the wizard, make sure that the **Start job now** check box is selected.

   If you want to start the backup job later, you can clear the **Start job** now check box. You will be able to start the backup job manually at any time you need. To learn more, see Starting Backup Job.
3. Press **Enter** to exit the wizard.



What You Do Next

After you configure the backup job, you can start the backup job at any time you need. To learn more, see Starting Backup Job.

If some of your data gets lost or corrupted, you can do the following:

- Recover all computer volumes or specific volumes from the backup.
- Recover individual files and folders from the backup.

Creating Backup Job with Command Line Interface

You can configure the backup job with the command line interface. Using Veeam Agent for Linux commands, you can create volume-level and file-level backup jobs, specify advanced settings for the created backup job, define backup schedule and enable backup encryption.

Creating Volume-Level Backup Job

> **IMPORTANT!**
>
> Volume-level backup job relies on a device name under the `/dev` directory and requires volumes to have their corresponding device names under the `/dev` directory staying persistent (e.g. `/dev/md-127`, `/dev/dm-1`). Otherwise the job will back up the wrong volume.

To create a volume-level backup job, use the following command:

```
veeamconfig job create --name <job_name> --reponame <repository_name> --objects
<volume_to_backup> <advanced_options> <indexing_options>
```

where:

- `<job_name>` — name for the created backup job.
- `<repository_name>` — name of the backup repository that should be used as a target location for the backup job. The backup repository must be created in advance. To learn more, see Creating Backup Repository.

  If you want to create Veeam Agent backups in a Veeam backup repository of cloud repository, you need connect to the Veeam backup server or Veeam Cloud Connect service provider in advance, before configuring the backup job. To learn more, see Connecting to Veeam Backup Server and Connecting to Service Provider.
- `<volume_to_backup>` — object that should be included in backup:
  - For simple volumes — name of a block device that represents a volume or an entire disk that should be included in backup. You can specify entire disk(s) to create backup of the entire computer image or individual computer volumes to create backup of specific volumes. If you want to back-up several disks or volumes, specify them one after another using the `','` (comma) character as a separator.
  - For LVM volumes — name of an LVM logical volume that should be included in backup. If you want to back-up several LVM logical volumes, specify them one after another using the `','` (comma) character as a separator.

> **NOTE:**
>
> You cannot specify LVM volume group(s) in the backup job settings when you create a backup job with the command line interface. To add an entire volume group to a volume-level backup, consider creating a backup job with the Veeam Agent for Linux control panel.

- `<advanced_options>` — advanced options for the backup job. To learn more, see Advanced Backup Job Settings.
- `<indexing_options>` — file system indexing options for the backup job. To learn more, see File System Indexing Settings.

For example:

```
$ veeamconfig job create --name SystemBackup --reponame Repository_01 --objects
/dev/sda1
```

TIP:

Consider the following:

- If you want to create a backup of the entire computer image, you can use the `--backupallsystem` option instead of the `--objects` option to include in the backup all volumes of your computer. For example: `veeamconfig job create --name SystemBackup --reponame Repository_01 --backupallsystem`.
- You can also specify the schedule for the backup job. To learn more, see Configuring Backup Schedule.

Advanced Backup Job Settings

You can specify the following advanced options for the backup job:

Option	Description and values
--compressionlevel	Data compression level. Possible values are: ▪ *0* — No compression ▪ *1* — Rle ▪ *2* — Lz4 ▪ *3* — ZlibLow ▪ *4* — ZlibHigh
--blocksize	Data block size in kilobytes. Possible values are 256, 512, 1024 or 4096.
--maxpoints	The number of restore points that you want to store in the backup location. By default, Veeam Agent for Linux keeps 14 latest restore points. When the new restore point that exceeds the specified number is created, Veeam Agent for Linux will remove the earliest restore point from the backup chain.
--prefreeze	Path to the script that should be executed before the snapshot creation. This option is available only if Veeam Agent for Linux operates in the server mode. To learn about modes, see Product Functionality Modes.
--postthaw	Path to the script that should be executed after the snapshot creation. This option is available only if Veeam Agent for Linux operates in the server mode. To learn about modes, see Product Functionality Modes.

--prejob	Path to the script that should be executed at the start of the backup job.
--postjob	Path to the script that should be executed after the backup job completes.
--setencryption	Defines that data encryption option is enabled for the job. When you use the `veeamconfig job create` command with the `--setencryption` option, Veeam Agent for Linux will prompt you to specify a password for data encryption and hint for the password.

File System Indexing Settings

You can specify one the following file system indexing options for the backup job:

Option	Description and values
--indexall	Defines that Veeam Agent for Linux must index all files on the volumes included in backup.
--indexonly	Path to a directory that contains files that you want to index. Enter paths to the necessary directories. To separate several paths, use the ',' (comma) character.
--indexexcept	Path to a directory that contains files that you do not want to index. You can specify one or more paths. To separate several paths, use the ',' (comma) character.

To learn more about file indexing, see File System Indexing.

Creating File-Level Backup Job

To create a file-level backup job, use the following command:

```
veeamconfig job create filelevel --name <job_name> --reponame <repository_name>
<objects> <advanced_options> <indexing_options>
```

where:

- `<job_name>` — name for the created backup job.
- `<repository_name>` — name of the backup repository that should be used as a target location for the backup job. The backup repository must be created in advance. To learn more, see Creating Backup Repository.

  If you want to create Veeam Agent backups in the Veeam backup repository, you should connect to the Veeam backup server in advance, before configuring the backup job. To learn more, see Connecting to Veeam Backup Server.
- `<objects>` — files and directories inclusion/exclusion options. To learn more, see File Inclusion Options.
- `<advanced_options>` — advanced options for the backup job. To learn more, see Advanced Backup Job Settings.
- `<indexing_options>` — file system indexing options for the backup job. To learn more, see File System Indexing Settings.

For example:

```
$ veeamconfig job create filelevel --name HomeFolderBackup --reponame
NetworkRepository --includedirs /home/user --excludedirs /home/user/temp --
excludemasks *.pdf
```

TIP:

You can also specify the schedule for the backup job. To learn more, see Configuring Backup Schedule.

File Inclusion Options

When you create a file-level backup job, you must specify at least one directory that should be included in backup. If you do not want to back up some files and directories in the specified directory, you can exclude specific files and directories from backup.

To define the backup scope for the file-level backup job, you can use the following command-line options:

Option	Description and values
--includedirs	Full path to a directory that should be included in backup, for example: `/home/user`. You can specify one or several paths to directories in the computer file system. To separate several paths, use the ',' (comma) character, for example: `/home/user/Documents,/home/user/reports`.
--excludedirs	Full path to a directory that should be excluded from backup. The directory specified with this option must be a subdirectory of the directory specified with the `--includedirs` option. To separate several paths, use the ',' (comma) character, for example, `/home/user/Documents,/home/user/reports`.
--includemasks	Mask for file name or path that should be included in backup. You can use the following UNIX wildcard characters for file name masks: ▪ '*' — a substitution for one or more characters in the file name or path. Can be used for any sequence of characters (including no characters). For example, `*.pdf`. ▪ '?' — a substitution of one character in the file name or path. For example, `repor?.pdf`. ▪ '[]' — a substitution of one character in the file name or path with any of the characters enclosed in square brackets (or a range of characters defined with the '-' character). For example: `report_201[3456].pdf` or `report_201[3-6].pdf`. If you want to use several file name masks, you must specify them in double quotation marks ("") and separated with a comma (,). For example: `--includemasks "*.bak,*.pdf"`. File inclusion option is applied to all directories that are specified with the `--includedirs` option. For example, if you include in backup the `/home/user/Documents` directory and files that match the `repor?.pdf` file name mask, Veeam Agent for Linux will back up the `/home/user/Documents/report.pdf` file and will not back up the `/home/user/reports/report.pdf` file.

--excludemasks	Mask for file name or path that should be excluded from backup. You can use the following UNIX wildcard characters for file name masks: ▪ '*' — a substitution for one or more characters in the file name or path. Can be used for any sequence of characters (including no characters). For example, `*.pdf`. ▪ '?' — a substitution of one character in the file name or path. For example, `repor?.pdf`. ▪ '[]' — a substitution of one character in the file name or path with any of the characters enclosed in square brackets (or a range of characters defined with the '-' character). For example: `report_201[3456].pdf` or `report_201[3-6].pdf`. If you want to use several file name masks, you must specify them in double quotation marks ("") and separated with a comma (,). For example: `--excludemasks *.bak,*.pdf"`. File exclusion option is applied to all directories that are specified with the `--includedirs` option and files that match file name masks specified with the `--includemasks` option. For example, you may want to specify the following backup scope for the backup job: ▪ Include in backup the `/home/user/Documents` directory ▪ Include files that match the `report.*` file name mask ▪ Exclude files that match the `*.odt` file name mask. In this case, Veeam Agent for Linux will back up the `/home/user/Documents/report.pdf` file and will not back up `/home/user/Documents/report.odt` and `/home/user/reports/report.pdf` files.

Advanced Backup Job Settings

You can specify the following advanced options for the backup job:

Option	Description and values
--compressionlevel	Data compression level. Possible values are: ▪ *0* — No compression ▪ *1* — Rle ▪ *2* — Lz4 ▪ *3* — ZlibLow ▪ *4* — ZlibHigh
--blocksize	Data block size in kilobytes. Possible values are 256, 512, 1024 or 4096.
--maxpoints	The number of restore points that you want to store in the backup location. By default, Veeam Agent for Linux keeps 14 latest restore points. When the new restore point that exceeds the specified number is created, Veeam Agent for Linux will remove the earliest restore point from the backup chain.
--prefreeze	Path to the pre-freeze script that should be executed before the snapshot creation. This option is available only if Veeam Agent for Linux operates in the server mode. To learn about modes, see Product Functionality Modes.

--postthaw	Path to the post-thaw script that should be executed after the snapshot creation. This option is available only if Veeam Agent for Linux operates in the server mode. To learn about modes, see Product Functionality Modes.
--prejob	Path to the script that should be executed at the start of the backup job.
--postjob	Path to the script that should be executed after the backup job completes.
--setencryption	Defines that data encryption option is enabled for the job. When you use the `veeamconfig job create` command with the `--setencryption` option, Veeam Agent for Linux will prompt you to specify a password for data encryption and hint for the password.

File System Indexing Settings

You can specify one the following file system indexing options for the backup job:

Option	Description and values
--indexall	Defines that Veeam Agent for Linux must index all files in the directories included in backup.
--indexonly	Path to a directory that contains files that you want to index. Enter paths to the necessary directories. To separate several paths, use the ',' (comma) character.
--indexexcept	Path to a directory that contains files that you do not want to index. You can specify one or more paths. To separate several paths, use the ',' (comma) character.

To learn more about file indexing, see File System Indexing.

Configuring Backup Schedule

To run a backup job periodically without the user intervention, you can schedule it to start automatically. You can specify schedule settings individually for every job created in Veeam Agent for Linux. With the Veeam Agent for Linux command-line interface, you can perform the following actions with the backup job schedule:

- Specify schedule settings for the job.
- Enable schedule for the job.
- View the schedule defined for the job.
- Disable schedule for the job.

Specifying Backup Schedule

You can schedule the backup job to start at specific time daily or on specific week days.

To specify schedule settings for the backup job, use the following command:

```
veeamconfig schedule set --jobid <job_id> --daily --at <time>
```

or

```
veeamconfig schedule set --jobid <job_id> --weekdays <days> --at <time>
```

where:

- `<job_id>` — ID of the backup job for which you want to configure the schedule. You should look up the job ID in advance, before configuring the schedule, for example, with the the `veeamconfig job list` command. To learn more, see Viewing List of Backup Jobs.

> **TIP:**
>
> To view IDs of all existent backup jobs, you can press the **Tab** key right after you type the `--jobid` option.

- `<days>` — days when the backup job must start separated by a comma (','). For example: `Monday,Tuesday,Wednesday,Thursday,Friday`.
- `<time>` — time of day when the backup job must start specified in the *HH:MM* format. For example: `20:00`.

For example:

```
user@srv01:~$ veeamconfig schedule set --jobid 4849a3ae-1935-4969-98a3-d8acd2f6c73f --
weekdays Monday,Tuesday,Wednesday,Thursday,Friday --at 20:00
```

Enabling Backup Schedule

To run a backup job automatically upon the defined schedule, you should enable the schedule for the job. Use the following command:

```
veeamconfig schedule enable --jobid <job_id>
```

where:

<job_id> — ID of the backup job for which you want to enable the schedule. You should look up the job ID in advance, for example, with the `veeamconfig job list` command. To learn more, see Viewing List of Backup Jobs.

For example:

```
user@srv01:~$ veeamconfig schedule enable --jobid 4849a3ae-1935-4969-98a3-d8acd2f6c73f
```

You can disable the schedule for the job at any time. To learn more, see Disabling Backup Schedule.

Viewing Backup Schedule

To view the schedule defined for the backup job, use the following command:

```
veeamconfig schedule show --jobid <job_id>
```

where:

<job_id> — ID of the backup job for which you want to view the schedule.

Veeam Agent for Linux displays the following information about the backup job schedule:

Parameter	Description
Days	Days on which the backup job runs automatically.
At	Time of day when the backup job starts automatically.
Run automatically	State of the backup schedule. Possible values: ▪ Enabled ▪ Disabled

For example:

```
user@srv01:~$ veeamconfig schedule show --jobid 4849a3ae-1935-4969-98a3-d8acd2f6c73f
Days: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday
At: 20:00
Run automatically: enabled
```

Disabling Backup Schedule

To disable the schedule for the backup job, use the following command:

```
veeamconfig schedule disable --jobid <job_id>
```

where:

<job_id> — ID of the backup job for which you want to disable the schedule.

For example:

```
user@srv01:~$ veeamconfig schedule disable --jobid 4849a3ae-1935-4969-98a3-
d8acd2f6c73f
```

Starting and Stopping Backup Jobs

You can start a backup job manually at any time you need, for example, if you want to create an additional restore point for Veeam Agent backup and do not want to change the job schedule. You can also stop the running backup job before the job session completes, if necessary.

You can start and stop backup jobs in one of the following ways:

- With the Veeam Agent for Linux control panel
- With the Veeam Agent for Linux command line interface

Starting Backup Job from Control Panel

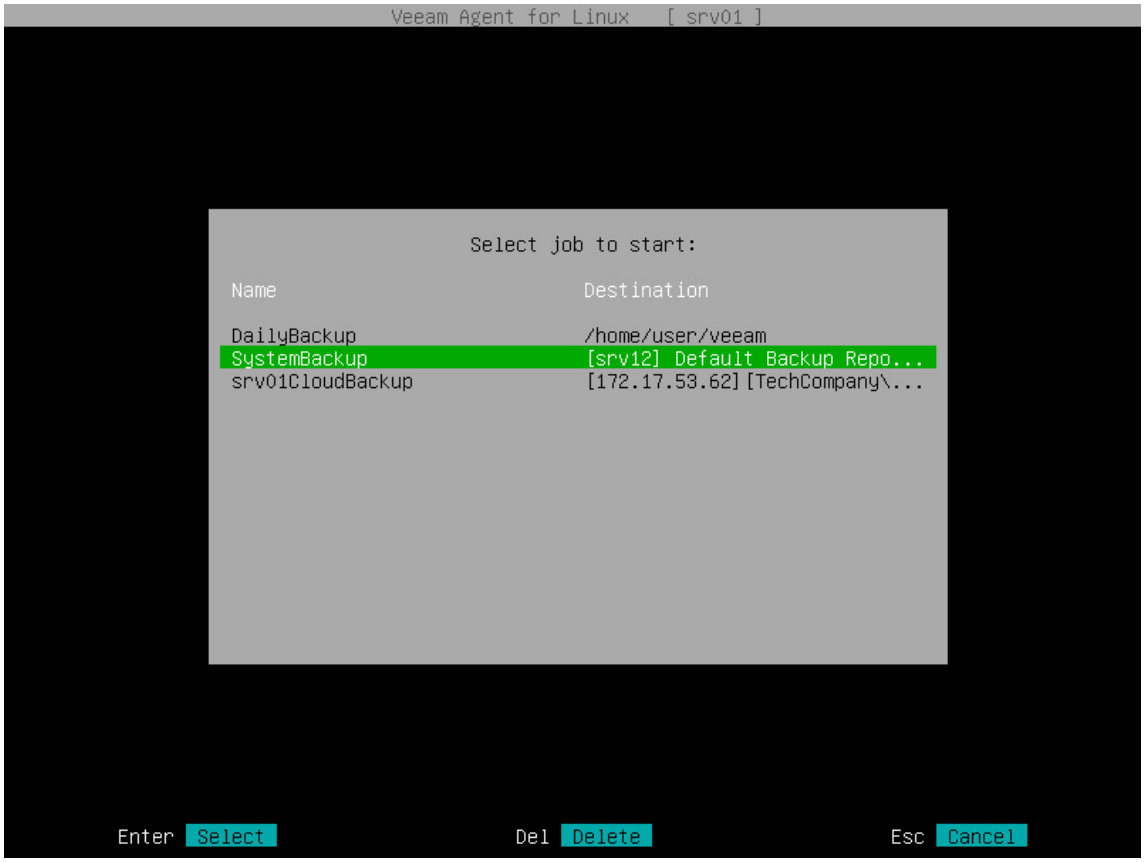
You can start a backup job with the Veeam Agent for Linux control panel.

> **NOTE:**
>
> Veeam Agent for Linux can currently perform only one backup job at a time. You cannot start a backup job when another backup job is already running.

To start a backup job:

1. Launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command.
2. Press the '**s**' key to open the **Select job to start** dialog window.
3. Select the necessary backup job in the list and press **Enter**.
4. Veeam Agent for Linux will immediately start the backup job and display a notification window informing that the job has been started. Press **Enter** to close the window and proceed to the list of backup job sessions.

   You can monitor the backup job performance in the Veeam Agent for Linux control panel. To learn more, see Viewing Real-Time Job Session Statistics.



Starting Backup Job from Command Line Interface

You can start a backup job with the command line interface. When you start a backup job, Veeam Agent for Linux initiates a new backup job session and provides you with a Session ID. You can monitor the progress of the backup job session or view the session status.

> **NOTE:**
>
> Veeam Agent for Linux can currently perform only one backup job at a time. You cannot start a backup job when another backup job is already running.

To start a backup job, use the following command:

```
veeamconfig job start --name <job_name>
```

or

```
veeamconfig job start --id <job_id>
```

where:

- `<job_name>` — name of the backup job that you want to start.
- `<job_id>` — ID of the backup job that you want to start.

> **TIP:**
>
> Starting from Veeam Agent for Linux 2.0.1, you can use the `veeamconfig job start` command with the `--activefull` option to create active full backups. To learn more, see Creating Active Full Backups.

For example:

```
$ veeamconfig job start --name SystemBackup
Backup job has been started.
Session ID: [{381532f7-426a-4e89-b9fc-43d98942c71a}].
Logs stored in: [/var/log/veeam/Backup/SystemBackup/Session_20161207_162608_{381532f7-
426a-4e89-b9fc-43d98942c71a}].
```

You can check the backup job session status or view the backup job session log using the Veeam Agent for Linux command line interface.

You can also monitor the backup job performance in the Veeam Agent for Linux control panel. To learn more, see Viewing Real-Time Job Session Statistics.

Creating Active Full Backups

You can create an ad-hoc full backup — active full backup, and add it to the backup chain on the target storage. The active full backup resets the backup chain. All subsequent incremental backups use the active full backup as a starting point. The previously used full backup will remain on the target storage until it is removed from the backup chain according to the retention policy.

Before you create an active full backup, check the following prerequisites:

- Your machine must run Veeam Agent for Linux 2.0.1.
- The backup job must be configured.
- You cannot create an active full backup if a backup task of any type is currently running.

To perform active full backup, use the following command:

```
veeamconfig job start --name <job_name> --activefull
```

or

```
veeamconfig job start --id <job_id> --activefull
```

where:

- `<job_name>` — name of the backup job that you want to start to create an active full backup.
- `<job_id>` — ID of the backup job that you want to start to create an active full backup.

For example:

```
$ veeamconfig job start --name SystemBackup --activefull
Backup job has been started.
Session ID: [{ce864e24-8211-4df7-973a-741adce96fe7}].
Logs stored in: [/var/log/veeam/Backup/SystemBackup/Session_20180611_150046_{ce864e24-
8211-4df7-973a-741adce96fe7}].
```

You can view the progress for the active full backup session in the same way as for any other backup job session. In particular, you can check the backup job session status or view the backup job session log using the Veeam Agent for Linux command line interface.

You can also monitor the backup job performance in the Veeam Agent for Linux control panel. To learn more, see Viewing Real-Time Job Session Statistics.

Stopping Backup Job

You can stop the running backup job before the job session completes, for example, if the backup process is about to take long, and you do not want the job to produce workload on the production environment during business hours.

When you stop a backup job, the job session will finish immediately. Veeam Agent for Linux will not produce a new restore point during the session, and the session will finish with the *Failed* status.

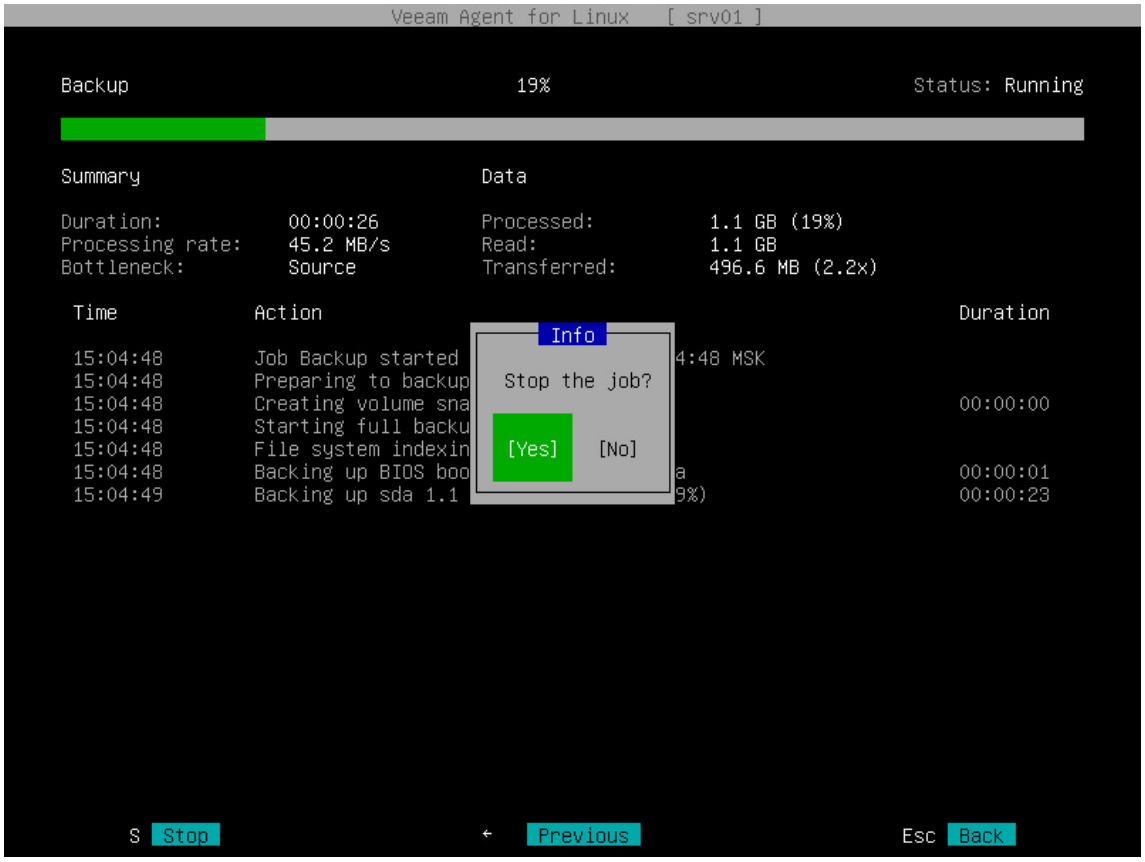
You can stop a job in one of the following ways:

- With the control panel
- With the command line interface

Stopping Job from Control Panel

To stop a backup job:

1. Launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command.
2. In the Veeam Agent for Linux control panel, in the list of backup job sessions, select the currently running session with **Up** and **Down** keys and press **Enter**.
3. In the session statistics window, press '**s**'.
4. In the displayed window, make sure that the **Yes** button is selected and press **Enter**.



Stopping Job from Command Line Interface

To stop a backup job, use the following command:

```
veeamconfig session stop --id <session_id>
```

or

```
veeamconfig session stop --force --id <session_id>
```

where:

- `<session_id>` — ID of the currently running backup job session that you want to stop.
- `--force` — with this option enabled, Veeam Agent for Linux will immediately stop the backup session even if it is unable to stop the *veeamjobman* process for some reason.

For example:

```
$ veeamconfig session stop --id 381532f7-426a-4e89-b9fc-43d98942c71a
Session has stopped.
```

Managing Backup Jobs

You can perform the following actions with backup jobs configured in Veeam Agent for Linux:

- View the list of configured backup jobs.
- View information about the backup job settings.
- Edit the backup job settings.
- Delete a backup job.

Viewing List of Backup Jobs

To view a list of backup jobs configured in Veeam Agent for Linux, use the following command:

```
veeamconfig job list
```

In the list of backup jobs, Veeam Agent for Linux displays the following information:

Parameter	Description
Name	Name of the backup job.
ID	ID of the backup job.
Repository	Name of the backup repository that is specified as a backup storage for the backup job.

For example:

```
user@srv01:~$ veeamconfig job list
Name                ID                                      Repository
SystemBackup        {2495911e-58db-4452-b4d1-f53dcfbc600e}  Repository_1
DocumentsBackup     {bcf821e6-b35f-4d57-b1c3-d3a477605cb9}  Repository_1
HomePartitionBackup {2aaa8c71-2434-4f12-a168-3d8e225fa416}  Repository_2
```

Viewing Backup Job Settings

To view detailed information about the backup jobs settings, use the following command:

```
veeamconfig job info --name <job_name>
```

or

```
veeamconfig job info --id <job_id>
```

where:

- <job_name> — name of the backup job for which you want to view settings.
- <job_id> — ID of the backup job for which you want to view settings.

Veeam Agent for Linux displays the following information about the backup job:

Parameter	Description
ID	ID of the backup job.
Name	Name of the backup job.
Repository ID	ID of the backup repository that is specified as a backup storage for the backup job.
Repository name	Name of the backup repository that is specified as a backup storage for the backup job.
Creation time	Date and time of the backup job creation.
Compression	Data compression level. Possible values are: ▪ 0 — No compression ▪ 1 — Rle ▪ 2 — Lz4 ▪ 3 — ZlibLow ▪ 4 — ZlibHigh
Max Points	Number of restore points to keep on disk (the default value is 14) the number of days for which you want to store backup files in the target location. By default, Veeam Agent for Linux keeps backup files for 14 days. After this period is over, Veeam Agent for Linux will remove the earliest restore points from the backup chain.
Index	File system indexing options defined for the backup job.
Objects for backup	Backup scope specified for the backup job.

For example:

```
user@srv01:~$ veeamconfig job info --name SystemBackup
Backup job
   ID: {2495911e-58db-4452-b4d1-f53dcfbc600e}
   Name: SystemBackup
   Repository ID: {4557ef7a-9c44-4f28-b8d0-44d78e5ddd5d}
   Repository name: Repository_1
   Creation time: 2017-04-06 13:29:03
   Options:
      Compression: Lz4
      Max Points: 14
      Index all mounted filesystems on the volumes selected for backup
   Objects for backup:
   Include Disk: sda1
```

Editing Backup Job Settings

If you want to change settings of the backup job, you can edit it at any time. For example, you may want to edit the backup job to add a new directory to the backup scope or change the target location.

To edit a backup job, use the following command:

For volume-level backup jobs

```
veeamconfig job edit <option> for --name <job_name>
```

or

```
veeamconfig job edit <option> for --id <job_id>
```

For file-level backup jobs

```
veeamconfig job edit filelevel <option> for --name <job_name>
```

or

```
veeamconfig job edit filelevel <option> for --id <job_id>
```

where:

- `<option>` — option that you want to edit for the job. You can specify one or several options at a time. To learn more about available options, see Backup Job Options.
- `<job_name>` — name of the backup job that you want to edit.
- `<job_id>` — ID of the backup job that you want to edit.

For example:

```
user@srv01:~$ veeamconfig job edit --name SystemVolumeBackup for --name SystemVolume
```

Backup Job Options

You can use the following options to edit parameters for the backup job:

Option	Description and values
--compressionlevel	Data compression level. Possible values are: ▪ *0* — No compression ▪ *1* — Rle ▪ *2* — Lz4 ▪ *3* — ZlibLow ▪ *4* — ZlibHigh
--maxpoints	The number of restore points that you want to store in the backup location. By default, Veeam Agent for Linux keeps 14 latest restore points. When the new restore point that exceeds the specified number is created, Veeam Agent for Linux will remove the earliest restore point from the backup chain.
--prefreeze	Pre-freeze command that should be executed before the snapshot creation.
--postthaw	Post-thaw command that should be executed after the snapshot creation.
--objects	Object that should be included in backup: ▪ For simple volumes — name of a block device that represents a volume or an entire disk that should be included in backup. You can specify entire disk(s) to create backup of the entire computer image or individual computer volumes to create backup of specific volumes. If you want to back-up several disks or volumes, specify them one after another using a ',' (comma) character as a separator. ▪ For LVM volumes — name of an LVM logical volume that should be included in backup. If you want to back-up several LVM logical volumes, specify them one after another using a ',' (comma) character as a separator. This option is available for volume-level backup jobs only.
--includedirs	Full path to a directory that should be included in backup, for example: `/home/user`. The option is available for file-level backup jobs only. You can specify one or several paths to directories in the computer file system. To separate several paths, use a ',' (comma) character, for example: `/home/user/Documents,/home/user/reports`.
--excludedirs	Full path to a directory that should be excluded from backup. The option is available for file-level backup jobs only. The directory specified with this option must be a subdirectory of the directory specified with the `--includedirs` option. To separate several paths, use a ',' (comma) character, for example, `/home/user/Documents,/home/user/reports`.

--includemasks	Mask for file name or path that should be included in backup. The option is available for file-level backup jobs only. You can use the following UNIX wildcard characters for file name masks: ▪ '*' — a substitution for one or more characters in the file name or path. Can be used for any sequence of characters (including no characters). For example, `*.pdf`. ▪ '?' — a substitution of one character in the file name or path. For example, `repor?.pdf`. ▪ '[]' — a substitution of one character in the file name or path with any of the characters enclosed in square brackets (or a range of characters defined with the '-' character). For example: `report_201[3456].pdf` or `report_201[3-6].pdf`. To separate several masks, use a ',' (comma) character, for example, `report.*,reports.*`. File inclusion option is applied to all directories that are specified with the `--includedirs` option. For example, if you include in backup the `/home/user/Documents` directory and files that match the `repor?.pdf` file name mask, Veeam Agent for Linux will back up the `/home/user/Documents/report.pdf` file and will not back up the `/home/user/reports/report.pdf` file.
--excludemasks	Mask for file name or path that should be excluded from backup. The option is available for file-level backup jobs only. You can use the following UNIX wildcard characters for file name masks: ▪ '*' — a substitution for one or more characters in the file name or path. Can be used for any sequence of characters (including no characters). For example, `*.pdf`. ▪ '?' — a substitution of one character in the file name or path. For example, `repor?.pdf`. ▪ '[]' — a substitution of one character in the file name or path with any of the characters enclosed in square brackets (or a range of characters defined with the '-' character). For example: `report_201[3456].pdf` or `report_201[3-6].pdf`. To separate several masks, use a ',' (comma) character, for example, `report.*,reports.*`. File exclusion option is applied to all directories that are specified with the `--includedirs` option and files that match file name masks specified with the `--includemasks` option. For example, you may want to specify the following backup scope for the backup job: ▪ Include in backup the `/home/user/Documents` directory ▪ Include files that match the `report.*` file name mask ▪ Exclude files that match the `*.odt` file name mask. In this case, Veeam Agent for Linux will back up the `/home/user/Documents/report.pdf` file and will not back up `/home/user/Documents/report.odt` and `/home/user/reports/report.pdf` files. If you want to use several name masks, you must specify them in double quotation marks, for example: `veeamconfig job create filelevel --name BackupJob1 --reponame vault13 --includedirs /home --includemasks "*.bak,*.pdf"`.
--indexnothing	Defines that file system indexing options are disabled for the backup job.
--indexall	Defines that Veeam Agent for Linux must index all files on the volumes included in backup.
--indexonly	Path to a directory that contains files that you want to index. Enter paths to the necessary directories. To separate several paths, use the ',' (comma) character.

--indexexcept	Path to a directory that contains files that you do not want to index. You can specify one or more paths. To separate several paths, use the ',' (comma) character.
--setencryption	Defines that data encryption option is enabled for the job. You can use this option to enable encryption for the existing backup job or change a password used for encryption for the backup job. When you use the `veeamconfig job edit` command with the `--setencryption` option, Veeam Agent for Linux will prompt you to specify a password for data encryption and hint for the password.
--resetencryption	Defines that data encryption option is disabled for the job. You can use this option to disable encryption for the existing backup job.

NOTE:

Mind the following:

- If you change the target location in the backup job, during the next backup job session Veeam Agent for Linux will perform full data backup. All subsequent backup sessions will produce incremental backups — Veeam Agent for Linux will copy only changed data to the target location and add a new incremental backup file to the backup chain.
- If you change the backup scope in the backup job, during the next backup job session Veeam Agent for Linux will create a new incremental backup that will contain a full copy of all data that you have selected to back up.
- If you enable or disable encryption for the existing backup job that has already created one or more restore points, during the next job session, Veeam Agent for Linux will create active full backup.
- Full backup takes much more time than incremental backup. If you change the target location, you can copy an existing backup chain to the new location manually. In this case, the new backup job session will produce an incremental backup file and add it to the backup chain.

Deleting Backup Job

You can delete a backup job configured in Veeam Agent for Linux. When you delete a backup job, backup files created by this job remain intact on the backup repository.

You can delete backup jobs in one of the following ways:

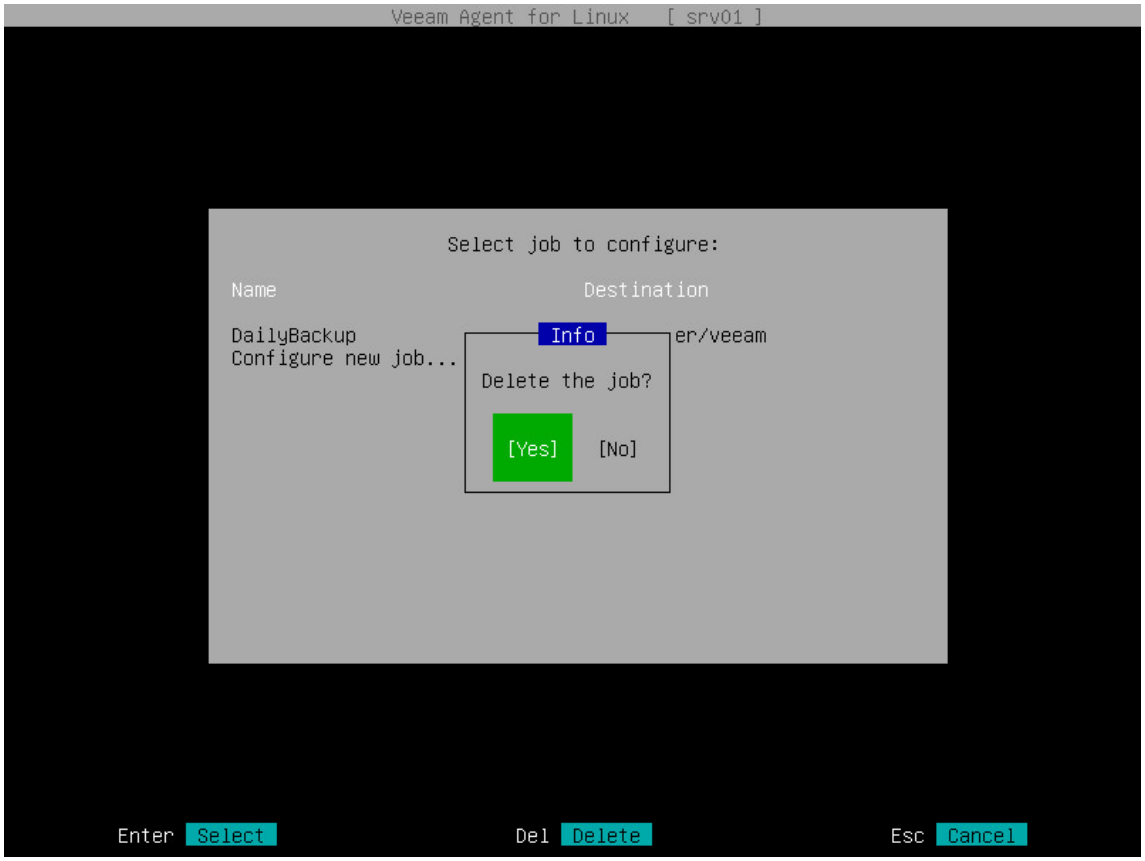
- With the Veeam Agent for Linux control panel
- With the Veeam Agent for Linux command line interface

Deleting Backup Job with Control Panel

You can delete a backup job with the Veeam Agent for Linux control panel.

To delete a backup job:

1. Launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command.
2. Press the '**c**' key to open the **Select job to configure** dialog window or the '**s**' key to open the **Select job to start** dialog window.
3. Select the necessary backup job in the list and press **Delete**.
4. In the displayed notification window, make sure that the **Yes** button is selected and press **Enter**.



Deleting Backup Job with Command Line Interface

You can delete a backup job with the Veeam Agent for Linux command line interface. To delete a backup job, use the following command:

```
veeamconfig job delete --name <job_name>
```

or

```
veeamconfig job delete --id <job_id>
```

where:

- <job_name> — name of the backup job that you want to delete.
- <job_id> — ID of the backup job that you want to delete.

For example:

```
$ veeamconfig job delete --name SystemBackup
```

Managing Backup Repositories

A backup repository is a storage location where Veeam Agent for Linux keeps backup files. You can use the following types of disk-based storage as a target location for a backup job:

- Local (internal) storage of the protected machine (not recommended).
- Direct attached storage (DAS), such as USB, eSATA or Firewire external drives.
- Network Attached Storage (NAS) able to represent itself as SMB (CIFS) or NFS share.

Creating Backup Repository

A backup job configured in Veeam Agent for Linux creates backup files in a backup repository. When you create a backup job with the Backup Job wizard, you must specify target location for backup — a directory in the computer's local file system or a network shared folder (NFS or CIFS share). Veeam Agent for Linux will automatically create a backup repository in the specified location and save information about this repository in the database.

If you want to create a backup job with the Veeam Agent for Linux command line interface, you must create a backup repository in advance.

If you want to create Veeam Agent backups in the Veeam backup repository, you should connect to the Veeam backup server in advance, before configuring the backup job. To learn more, see Connecting to Veeam Backup Server.

> **IMPORTANT!**
>
> A backup repository must be created on a separate volume from a volume whose data you plan to back up.

To create a backup repository, use the following command:

```
veeamconfig repository create --name <repository_name> --location <path>
```

where:

- `<repository_name>` — desired name for the backup repository.
- `<path>` — path to the directory in the local file system of your computer in which backup files should be stored.

For example:

```
$ veeamconfig repository create --name BackupVol01 --location /home/backups
```

> **NOTE:**
>
> To create a backup repository in a network shared folder, you must mount the network shared folder to a directory in your computer's file system in advance. After you mount the network shared folder, you can create the backup repository in the same way as in a local directory.

Viewing List of Backup Repositories

To view backup repositories configured in Veeam Agent for Linux, use the following command:

```
veeamconfig repository list
```

Veeam Agent for Linux will display a list of backup repositories.

You can view the following information about backup repositories:

Parameter	Description
Name	Name of the backup repository.
ID	ID of the backup repository.
Location	Directory in the local file system specified as a target location for backup files.
Type	Type of the backup repository. Possible values: ▪ Local ▪ Backup server
Backup server	Backup server on which Veeam backup repository added to Veeam Agent for Linux is configured.

For example:

```
user@srv01:~$ veeamconfig repository list
Name         ID                                      Location        Type   Backup
server
BackupVol01  {818e3a0f-8155-4a51-9430-248a203a43d1}  /home/backups   local
BackupVol02  {2155a2e7-a1e9-4347-9d8b-cf8f3a6f3fcb}  /home/backups2  local
```

Editing Backup Repository

You can edit settings for a backup repository created with Veeam Agent for Linux.

You can edit the following parameters for the backup repository:

- Name of the backup repository
- Location of the backup repository

> **NOTE:**
>
> Mind the following:
>
> - If you change location for the backup repository that is already used by a backup job and contains backup files, during the next backup job run, Veeam Agent for Linux will create a new backup chain in the new repository location.
> - You can temporarily change backup repository location if you want to create an ad hoc full backup in addition to the backup chain created by the backup job in the original repository location.

Changing Backup Repository Name

To change a name for the backup repository, use the following command:

```
veeamconfig repository edit --name <new_name> for --name <old_name>
```

or

```
veeamconfig repository edit --name <new_name> for --id <id>
```

where:

- <old_name> — current name of the backup repository.
- <new_name> — desired name for the backup repository.
- <id> — ID of the backup repository.

For example:

```
user@srv01:~$ veeamconfig repository edit --name LocalRepository for --name
Repository_1
```

Changing Backup Repository Location

To change location for the backup repository, use the following command:

```
veeamconfig repository edit --location <path> for --name <name>
```

or

```
veeamconfig repository edit --location <path> for --id <id>
```

where:

- <path> — desired path for the backup repository.
- <name> — current name of the backup repository.
- <id> — ID of the backup repository.

For example:

```
user@srv01:~$ veeamconfig repository edit --location /home/veeam for --id 3458797-
3ffe-45bc-870e-c5628643bbb3
```

Changing Backup Repository Name and Location

You can change a name and location for the backup repository at the same time, for example:

```
user@srv01:~$ veeamconfig repository edit --name LocalRepository --location
/home/veeam for --name Repository_1
```

Rescanning Veeam Backup Repository

If Veeam Agent for Linux fails to display backups stored in the Veeam Backup & Replication backup repository for some reason, you can rescan the Veeam backup repository. Veeam Agent for Linux will try to reconnect to the Veeam backup server and refresh the list of backups in the backup repository.

To rescan a Veeam backup repository, use the following command:

```
veeamconfig repository rescan --id <repository_id>
```

or

```
veeamconfig repository rescan --name <repository_name>
```

where:

- `<repository_id>` — ID of the backup repository that you want to rescan.
- `<repository_name>` — name of the backup repository that you want to rescan.

For example:

```
user@srv01:~$ veeamconfig repository rescan --name [vbr01]BackupVol01
```

You can also rescan all Veeam backup repositories managed by the backup server to which Veeam Agent for Linux is connected with the following command:

```
veeamconfig repository rescan --all
```

Deleting Backup Repository

You can delete a backup repository configured with Veeam Agent for Linux. When you delete a backup repository, Veeam Agent for Linux removes record on the deleted repository from its database. Backup files created by a backup job targeted at the deleted backup repository remain intact on the backup storage.

To delete a backup repository, use the following command:

```
veeamconfig repository delete --id <repository_id>
```

or

```
veeamconfig repository delete --name <repository_name>
```

where:

- `<repository_id>` — ID of the backup repository that you want to delete.
- `<repository_name>` — name of the backup repository that you want to delete.

For example:

```
user@srv01:~$ veeamconfig repository delete --name Repository_1
```

NOTE:

You cannot delete a backup repository that is specified as a backup storage location in the backup job settings.

Managing Veeam Backup & Replication Servers

You can store backup files created with Veeam Agent for Linux on backup repositories managed by Veeam Backup & Replication. To do this, you must connect to a Veeam backup server. After that, you can specify a Veeam backup repository as a target location for backup files in the properties of the backup job.

Connecting to Veeam Backup Server

To create Veeam Agent backups on a backup repository managed by Veeam Backup & Replication, you must connect to a Veeam backup server.

> **IMPORTANT!**
>
> Currently, Veeam Agent for Linux can be connected to one Veeam Backup & Replication server only. If you want to create backups on the backup repository managed by another Veeam backup server, you need to delete currently used backup server and all jobs targeted at backup repositories managed by this backup server. To learn more, see Deleting Connection to Veeam Backup Server.
>
> If you add a connection to another backup server, backup jobs targeted at the original backup server will fail, and backups created on the Veeam backup repository will become unavailable in Veeam Agent for Linux. To continue using the original backup server, you need to delete the connection to the new backup server and recreate all backup jobs that use the original backup server.
>
> If you change an account to connect to the Veeam backup server and then start a backup job targeted at the backup repository managed by this backup server, Veeam Agent for Linux will start a new backup chain on the backup repository.

To connect Veeam Agent for Linux to a Veeam backup server, use the following command:

```
veeamconfig vbrserver add --name <vbr_name> --address <vbr_address> --port <vbr_port>
--login <username> --domain <domain> --password <password>
```

where:

- <vbr_name> — name of the Veeam backup server that manages the backup repository.
- <vbr_address> — IP address of the Veeam backup server.
- <vbr_port> — port over which Veeam Agent for Linux must communicate with Veeam Backup & Replication. The default port used for communication with the Veeam backup server is 10006.
- <username> — a user name of the account that has access to the Veeam backup repository.
- <domain> — a name of the domain in which the account that has access to the Veeam backup repository is registered.
- <password> — password of the account that has access to the Veeam backup repository.

  Permissions on the backup repository managed by the target Veeam backup server must be granted beforehand. To learn more, see Setting Up User Permissions on Backup Repositories.

For example:

```
user@srv01:~$ veeamconfig vbrserver add --name vbr01 --address 172.17.53.1 --port
10002 --login veeam --domain tech --password P@ssw0rd
```

When Veeam Agent for Linux connects to a Veeam Backup & Replication server, Veeam Agent for Linux retrieves information about backup repositories managed by this Veeam backup server and displays them in the list of available backup repositories. You can then specify a Veeam backup repository as a target for a backup job.

> **TIP:**
>
> To view the list of backup repositories, use the `veeamconfig repository list` command. To learn more, see Viewing List of Backup Repositories.

Viewing List of Veeam Backup Servers

To view a list of Veeam backup servers to which Veeam Agent for Linux is connected, use the following command:

```
veeamconfig vbrserver list
```

Veeam Agent for Linux will display the list of Veeam backup servers.

For the Veeam backup server in the list, Veeam Agent for Linux displays the following information:

Parameter	Description
Name	Name of the Veeam backup server.
ID	ID of the Veeam backup server in the Veeam Agent for Linux database.
Endpoint	IP address of the Veeam backup server and port over which Veeam Agent for Linux communicates with Veeam Backup & Replication.

For example:

```
user@srv01:~$ veeamconfig vbrserver list
Name        ID                                      Endpoint
vbr01       {0fc87c11-6a8d-48c1-8aeb-7f7655738796}  172.17.53.1:10002
```

Viewing Backup Server Details

You can view detailed information about the Veeam backup server to which Veeam Agent for Linux is connected. Use the following command:

```
veeamconfig vbrserver info --name <vbr_name>
```

or

```
veeamconfig vbrserver info --id <vbr_id>
```

where:

- <vbr_name> — name of the Veeam backup server.
- <vbr_id> — ID of the Veeam backup server in the Veeam Agent for Linux database.

Veeam Agent for Linux displays the following information about the Veeam backup server:

Parameter	Description
ID	ID of the Veeam backup server in the Veeam Agent for Linux database.
Name	Display name of the Veeam backup server.
Endpoint	IP address of the Veeam backup server and port over which Veeam Agent for Linux communicates with Veeam Backup & Replication.
Login	User name of the account that has access to the Veeam backup repository.
Domain	Name of the domain in which the account that has access to the Veeam backup repository is registered.

For example:

```
user@srv01:~$ veeamconfig vbrserver info --name vbr01
VBR server
   ID: {0fc87c11-6a8d-48c1-8aeb-7f7655738796}
   Name: vbr01
   Endpoint: 172.17.53.1:10002
   Login: veeam
   Domain: tech
```

Editing Connection to Veeam Backup Server

You can edit the following parameters for a connection to a Veeam backup server:

- Display name of the Veeam backup server
- IP address and port used to connect to the Veeam backup server
- Account to connect to the Veeam backup server

Changing Veeam Backup Server Name

To change a name for the Veeam backup server, use the following command:

```
veeamconfig vbrserver edit --name <new_vbr_name> for --name <old_vbr_name>
```

or

```
veeamconfig vbrserver edit --name <new_vbr_name> for --id <vbr_id>
```

where:

- <old_vbr_name> — current name of the backup server.
- <new_vbr_name> — desired name for the backup server.
- <vbr_id> — ID of the backup server.

For example:

```
user@srv01:~$ veeamconfig vbrserver edit --name vbr01 for --id 4d15948e-c264-4c70-
9088-e8a10f4555db
```

Changing IP Address and Port for Veeam Backup Server

To change the IP address and port used to connect to the Veeam backup server, use the following command:

```
veeamconfig vbrserver edit --address <vbr_address> --port <vbr_port> for --name
<vbr_name>
```

or

```
veeamconfig vbrserver edit --address <vbr_address> --port <vbr_port> for --id <vbr_id>
```

where:

- <vbr_address> — IP address of the Veeam backup server.
- <vbr_port> — port over which Veeam Agent for Linux must communicate with Veeam Backup & Replication.
- <vbr_name> — name of the backup server.
- <vbr_id> — ID of the backup server.

For example:

```
user@srv01:~$ veeamconfig vbrserver edit --address 172.17.53.1 --port 10006 for --name
vbr01
```

Changing Account to Connect to Veeam Backup Server

> **NOTE:**
>
> If you change an account to connect to the Veeam backup server and then start a backup job targeted at the backup repository managed by this backup server, Veeam Agent for Linux will start a new backup chain on the backup repository.

To change an account whose credentials will be used to connect to the Veeam backup server, use the following command:

```
veeamconfig vbrserver edit --login <username> --domain <domain> --password <password>
for --name <vbr_name>
```

or

```
veeamconfig vbrserver edit --login <username> --domain <domain> --password <password>
for --id <vbr_id>
```

where:

- <username> — a user name of the account that has access to the Veeam backup repository.
- <domain> — a name of the domain in which the account that has access to the Veeam backup repository is registered.
- <password> — password of the account that has access to the Veeam backup repository.
- <vbr_name> — name of the backup server.
- <vbr_id> — ID of the backup server.

For example:

```
user@srv01:~$ veeamconfig vbrserver edit --login veeam --domain tech --password
P@ssw0rd2 for --id 4d15948e-c264-4c70-9088-e8a10f4555db
```

Changing Several Backup Server Parameters

You can change several parameters for the connection to the Veeam backup server simultaneously. For example, the following command changes the name and connection settings for the Veeam backup server:

```
user@srv01:~$ veeamconfig vbrserver edit --name vbr02 ---address 172.17.53.2 --port
10006 for --name vbr01
```

Updating List of Veeam Backup Repositories

When you connect to a Veeam backup server, Veeam Agent for Linux retrieves information about backup repositories managed by this Veeam backup server and displays them in the list of available backup repositories. You can refresh information about available Veeam backup repositories manually at any time. This may be useful, for example, after a new backup repository was added on the Veeam backup server.

To update the list of backup repositories managed by the Veeam backup server, use the following command:

```
veeamconfig vbrserver resync --name <vbr_name>
```

or

```
veeamconfig vbrserver resync --id <vbr_id>
```

where:

- `<vbr_name>` — name of the Veeam backup server.
- `<vbr_id>` — ID of the Veeam backup server.

For example:

```
user@srv01:~$ veeamconfig vbrserver resync --name vbr01
```

If a Veeam backup repository was removed from the backup infrastructure and Veeam Agent for Linux did not reflect this change in the database for some reason, the `veeamconfig vbrserver resync` command may fail. In this case, you can use the `--force` option to refresh information about available Veeam backup repositories. For example:

```
veeamconfig vbrserver resync --force --name vbr01
```

With the `--force` option, the `veeamconfig vbrserver resync` command will update the list of backup repositories currently managed by the Veeam backup server.

> **TIP:**
>
> To view updated list of available Veeam backup repositories after resync, use the `veeamconfig repository list` command. To learn more, see Viewing List of Backup Repositories.

Deleting Connection to Veeam Backup Server

You can delete a connection to the Veeam backup server to which Veeam Agent for Linux is currently connected. When you delete a connection to a Veeam backup server, Veeam Agent for Linux removes record on the deleted backup server from its database. Veeam backup repositories managed by the deleted backup server are removed from the list of available backup repositories. Backup files created by backup jobs targeted these repositories remain intact on the backup storage.

You cannot delete a connection to a Veeam backup server if a backup repository managed by this backup server is used by a backup job. To remove such connection to a Veeam backup server, you first need to delete a reference to the Veeam backup repository in the job settings.

To delete a connection to the Veeam backup server, use the following command:

```
veeamconfig vbrserver delete --name <vbr_name>
```

or

```
veeamconfig repository delete --id <vbr_id>
```

where:

- <vbr_name> — name of the Veeam backup server.
- <vbr_id> — ID of the Veeam backup server.

For example:

```
user@srv01:~$ veeamconfig vbrserver delete --name vbr01
```

Managing Service Providers

You can store backup files created with Veeam Agent for Linux on a cloud repository exposed to you by a Veeam Cloud Connect service provider. To do this, you must connect to a service provider. After that, you can specify a cloud repository as a target location for backup files in the properties of the backup job.

Connecting to Service Provider

To create Veeam Agent backups on a cloud repository, you must connect to a Veeam Cloud Connect service provider.

To connect Veeam Agent for Linux to a service provider, use the following command:

```
veeamconfig cloud add --name <sp_name> --address <sp_address> --port <sp_port> --login
<username> --password <password>
```

where:

- <sp_name> — name of the service provider to which you want to connect.
- <sp_address> — IP address or full DNS name of the cloud gateway that the SP or your backup administrator has provided to you.
- <sp_port> — port over which Veeam Agent for Linux must communicate with the cloud gateway. The default port used for communication with the cloud gateway is 6180.
- <username> — user name of the tenant or subtenant account that the SP or your backup administrator has provided to you. The user name of the subtenant account must be specified in the *TENANT\SUBTENANT* format.
- <password> — password of the tenant or subtenant account used to connect to the service provider.

For example:

```
user@srv01:~$ veeamconfig cloud add --name SP --address 172.17.53.15 --port 6180 --
login TechCompany\User01 --password P@ssw0rd
```

NOTE:

When you enter the `veeamconfig cloud add` command, Veeam Agent for Linux will display information about the TLS certificate obtained from the SP. To accept the certificate, type `yes` in the command prompt and press **Enter**.

When Veeam Agent for Linux connects to the service provider, Veeam Agent for Linux retrieves information about cloud repositories available to the tenant or subtenant and displays them in the list of available backup repositories. You can then specify a cloud repository as a target for a backup job.

TIP:

To view the list of available cloud repositories, use the `veeamconfig repository list` command. To learn more, see Viewing List of Backup Repositories.

Viewing List of Service Providers

To view a list of service providers to which Veeam Agent for Linux is connected, use the following command:

```
veeamconfig cloud list
```

Veeam Agent for Linux will display the list service providers.

For the service provider in the list, Veeam Agent for Linux displays the following information:

Parameter	Description
Name	Name of the service provider.
ID	ID of the service provider in the Veeam Agent for Linux database.
Address	IP address of the cloud gateway and port over which Veeam Agent for Linux communicates with the cloud gateway.
Gate servers	IP address of the cloud gateway and port over which Veeam Agent for Linux communicates with the cloud gateway.
Username	User name of the tenant or subtenant account used for connection to the service provider.

For example:

```
user@srv01:~$ veeamconfig cloud list
Name        ID                                      Address               Gate
servers  Username
SP          {0840f770-354d-426a-b5ce-1aa80f56cc08}  172.17.53.15:6180
TechCompany
```

Editing Connection to Service Provider

You can edit the following parameters for a connection to a Veeam Cloud Connect service provider:

- Display name of the Veeam Cloud Connect service provider
- IP address and port used to connect to the cloud gateway
- Account to connect to the service provider

Changing SP Name

To change a name for the SP, use the following command:

```
veeamconfig cloud edit --name <new_sp_name> for --name <old_sp_name>
```

or

```
veeamconfig cloud edit --name <new_sp_name> for --id <sp_id>
```

where:

- <old_sp_name> — current name of the SP.
- <new_sp_name> — desired name for the SP.
- <sp_id> — ID of the SP.

For example:

```
user@srv01:~$ veeamconfig cloud edit --name SP for --id 7d3022de-4f4d-4c70-85eb-
e8a946a555cd
```

Changing IP Address and Port for Cloud Gateway

To change the IP address and port of the cloud gateway provided by the SP, use the following command:

```
veeamconfig cloud edit --address <sp_address> --port <sp_port> for --name <sp_name>
```

or

```
veeamconfig cloud edit --address <sp_address> --port <sp_port> for --id <sp_id>
```

where:

- <sp_address> — IP address or full DNS name of the cloud gateway that the SP or your backup administrator has provided to you.
- <sp_port> — port over which Veeam Agent for Linux must communicate with the cloud gateway. The default port used for communication with the cloud gateway is 6180.
- <sp_name> — name of the SP.
- <sp_id> — ID of the SP.

For example:

```
user@srv01:~$ veeamconfig cloud edit --address 172.17.53.67 --port 6180 for --name SP
```

Changing Account to Connect to SP

To change an account whose credentials will be used to connect to the SP, use the following command:

```
veeamconfig cloud edit --login <username> --password <password> for --name <sp_name>
```

or

```
veeamconfig cloud edit --login <username> --password <password> for --id <sp_id>
```

where:

- <username> — user name of the tenant or subtenant account that the SP or your backup administrator has provided to you. The user name of the subtenant account must be specified in the *TENANT\SUBTENANT* format.
- <password> — password of the tenant or subtenant account used to connect to the service provider.
- <sp_name> — name of the SP.
- <sp_id> — ID of the SP.

For example:

```
user@srv01:~$ veeamconfig cloud edit --login ABC_Compan\User01 --password P@ssw0rd for
--name SP
```

Updating List of Cloud Repositories

When you connect to the Veeam Cloud Connect service provider, Veeam Agent for Linux retrieves and saves to the database information about cloud repositories available to the tenant or subtenant whose account you use to connect to the SP. You can refresh information about available cloud repositories manually at any time. This may be useful, for example, after the SP changes backup resource settings for the tenant.

To update the list of cloud repositories, use the following command:

```
veeamconfig cloud resync
```

If the cloud repository currently used as a target location for Veeam Agent backups becomes unavailable, and Veeam Agent for Linux fails to reflect this change in its database for some reason, the `veeamconfig cloud resync` command may finish with errors. In this case, you can use the `--force` option to refresh information about available cloud repositories. With the `--force` option, Veeam Agent for Linux will retrieve the list of available cloud repositories from the service provider and save the new information about cloud repositories in the Veeam Agent for Linux database.

> **TIP:**
>
> To view updated list of available Veeam backup repositories after resync, use the `veeamconfig repository list` command. To learn more, see Viewing List of Backup Repositories.

Deleting Connection to Service Provider

You can delete a connection to the service provider to which Veeam Agent for Linux is currently connected. When you delete a connection to a service provider, Veeam Agent for Linux removes the record on the deleted service provider from the database. Cloud repositories managed by the deleted service provider are removed from the list of available backup repositories. Backup files created by backup jobs targeted at these repositories remain intact on the cloud repository.

You cannot delete a connection to the service provider if a cloud repository managed by this service provider is used by a backup job. To remove such connection to a service provider, you first need to delete a reference to the cloud repository in the job settings.

To delete a connection to the service provider, use the following command:

```
veeamconfig cloud delete --name <sp_name>
```

or

```
veeamconfig cloud delete --id <sp_id>
```

where:

- `<sp_name>` — name of the service provider.
- `<sp_id>` — ID of the service provider.

For example:

```
user@srv01:~$ veeamconfig cloud delete --name SP
```

Managing Backups

You can perform the following operations with backups created by backup jobs configured in Veeam Agent for Linux:

- View backups.
- View backup details.
- View restore points in backup.
- Export backup to a virtual disk.
- Import backup to the Veeam Agent for Linux database.
- Delete backup.

Viewing Backups

To view a list of backups created by a backup job configured in Veeam Agent for Linux, use the following command:

```
veeamconfig backup list
```

In the list of backups, Veeam Agent for Linux displays the following information:

Parameter	Description
Job name	Name of the backup job by which the backup was created.
Backup ID	ID of the backup.
Repository	Name of the backup repository in which the backup was created. Imported backups are marked as *Imported* in the **Repository** column. For information about the import procedure, see Importing Backups.
Created at	Date and time of the backup creation.

For example:

```
user@srv01:~$ veeamconfig backup list
Job name            Backup ID                                    Repository    Created at
srv01 SystemBackup  {45f074d2-d2d9-423d-84e9-8f1798b08d4c}  Repository_1  2016-11-11
17:37
srv01 DocsBackup    {ea64a7e5-038a-4c86-970a-6d59d4cf3968}  Repository_1  2016-11-11
18:30
srv01 HomeBackup    {4f75bb20-a6b6-4323-9287-1c6c8ceccb6b}  Repository_2  2016-11-15
11:28
```

Viewing Backup Details

You can view detailed information about specific backup. To view backup details, use the following command:

```
veeamconfig backup show --id <backup_id>
```

where:

<backup_id> — ID of the backup for which you want to view detailed information.

For a volume-level backup, Veeam Agent for Linux displays the following information:

Parameter	Description
Machine name	Host name of the machine on which the backup job is configured and the name of the job.
Name	Name of the volume in the backup.
Device	Path to the block device file that represents the volume.
FS UUID	File system ID.
Offset	Position of the volume on the computer disk.
Size	Size of the volume in the backup.

For example:

```
user@srv01:~$ veeamconfig backup show --id 4f75bb20-a6b6-4323-9287-1c6c8ceccb6b
      Machine name: srv01 SystemBackup
         Name:       [sda1]
         Device:     [/dev/sda1]
         FS UUID:    [6945f2eb-e8bb-48fe-a276-5ba67b9030a5]
         Offset:     [1048576] bytes (2048 sectors)
         Size:       [9999220736] bytes (19529728 sectors)
```

For a file-level backup, Veeam Agent for Linux displays the following information:

Parameter	Description
Machine name	Host name of the machine on which the backup job is configured and the name of the job.
Backed up	Backup scope for the file-level backup job.

For example:

```
user@srv01:~$ veeamconfig backup show --id ea64a7e5-038a-4c86-970a-6d59d4cf3968
      Machine name: srv01 DocsBackup
         File-level backup
         Backed up:
            /home/user/Documents
```

Viewing Restore Points in Backup

To view information about restore points in the backup, you can use one of the following commands:

```
veeamconfig backup info --id <backup_id>
```

or

```
veeamconfig point list --backupid <backup_id>
```

where:

<backup_id> — ID of the backup for which you want to view information on restore points.

For example:

```
user@srv01:~$ veeamconfig backup info --id 4f75bb20-a6b6-4323-9287-1c6c8ceccb6b
```

or

```
user@srv01:~$ veeamconfig point list --backupid 4f75bb20-a6b6-4323-9287-1c6c8ceccb6b
```

Veeam Agent for Linux displays the following information about restore points in the backup:

Parameter	Description
Job name	Name of the backup job by which the backup was created.
OIB ID	ID of the restore point in the backup.
Type	Type of the restore point. Possible values: ▪ Full ▪ Increment
Created at	Date and time of the restore point creation.
Is corrupt	Indicates whether restore point in the backup is corrupted. Possible values: ▪ True ▪ False

Importing Backups

You can import a backup created by Veeam Agent for Linux into the Veeam Agent for Linux database. For example, you may want to import a previously deleted backup or backup that was created in a network shared folder by Veeam Agent for Linux installed on another computer.

To import a backup:

1. Start the import process with the following command:

   ```
   veeamconfig backup import --path <path>
   ```

   where:

   <path> — path to the VBM or VBK file of the backup that you want to import.

   For example:

   ```
   user@srv01:~$ veeamconfig backup import --path
   /home/share/BackupJob/BackupJob.vbm
   Backup has been imported successfully.
   Session ID: [{4031f058-766c-4f2c-a7ae-7257adb2929f}].
   Logs stored in: [/var/log/veeam/Import/Session_{4031f058-766c-4f2c-a7ae-
   7257adb2929f}].
   ```

2. You can monitor the import process and result by viewing the import session log with the following command:

   ```
   veeamconfig session log --id <session_id>
   ```

   where:

   <session_id> — ID of the import session.

   For example:

   ```
   user@srv01:~$ veeamconfig session log --id 4031f058-766c-4f2c-a7ae-7257adb2929f
   2016-11-19 13:21:33 UTC {765af178-a9cc-4596-8bf2-03850c5da1ac} [info] Job
   started at 2016-11-19 16:21:33
   2016-11-19 13:21:33 UTC {6ae2922d-454b-4a8d-a11b-2b5c7a85029d} [info] Importing
   backup
   2016-11-19 13:21:33 UTC {783f40a7-ead7-4555-9c35-545d875990ee} [info] Backup
   has been imported.
   ```

3. Imported backup will be displayed in the list of backups. To view the list of backups, use the following command:

   ```
   veeamconfig backup list
   ```

For example:

```
user@srv01:~$ veeamconfig backup list
Job name            Backup ID                                  Repository
Created at
srv01 SystemBackup  {45f074d2-d2d9-423d-84e9-8f1798b08d4c}  Repository_1  2016-
11-11 17:37
srv01 DocsBackup    {ea64a7e5-038a-4c86-970a-6d59d4cf3968}  Repository_1  2016-
11-11 18:30
srv01 HomeBackup    {4f75bb20-a6b6-4323-9287-1c6c8ceccb6b}  Repository_2  2016-
11-15 11:28
BackupJob           {64957b1d-d219-456c-a9cd-9598292c10cd}  Imported      2016-
11-19 19:12
```

Importing Encrypted Backups

You can import an encrypted backup created by Veeam Agent for Linux into the Veeam Agent for Linux database. This operation is required if you want to use the Veeam Agent for Linux command line interface to restore data from an encrypted backup created by Veeam Agent for Linux running on another computer.

To import an encrypted backup:

1. Start the import process with the following command:

   ```
   veeamconfig backup import --path <path>
   ```

   where:

   <path> — path to the VBM or VBK file of the backup that you want to import.

   For example:

   ```
   user@srv01:~$ veeamconfig backup import --path /home/share/srv15\
   Backup/Backup.vbm
   ```

2. Veeam Agent for Linux will prompt you to provide a password for the backup file. Type in the password and press **Enter** to import the backup.

   Veeam Agent for Linux displays a hint for the password that was used to encrypt the backup file. Use the hint to recall the password.

   If you enter the correct password, Veeam Agent for Linux will decrypt the backup file and import it into the database.

   ```
   user@srv01:~$ veeamconfig backup import --path /home/share/srv15\
   Backup/Backup.vbm
   [Info] Backup srv15 Backup encrypted
   [Info] Press "Enter" to skip. Enter password to decrypt the backup:
   [Info] Hint: Standard password
   Password:
   Backup imported successfully
   ```

3. Imported backup will be displayed in the list of backups. To view the list of backups, use the following command:

```
veeamconfig backup list
```

For example:

```
user@srv01:~$ veeamconfig backup list
Job name            Backup ID                                  Repository
Created at
srv15 Backup        {4b1f873c-857d-b984-4f22-6ce66bf62570}  Imported      2018-
06-12 20:20
srv01 ServerBackup  {f212f641-54aa-40de-a0eb-8727be56760b}  Imported      2018-
06-12 20:04
```

Deleting Backups

Backup files created with Veeam Agent for Linux are removed automatically according to the retention policy settings. You can also remove backups from the target location and/or Veeam Agent for Linux configuration database manually if necessary.

Removing Backup from Configuration

To remove a backup from the Veeam Agent for Linux configuration database, use the following command:

```
veeamconfig backup delete --id <backup_id>
```

where:

<backup_id> — ID of the backup that you want to delete.

Veeam Agent for Linux will remove records about the deleted backup from the Veeam Agent for Linux database. Backup files themselves (VBK, VIB, VBM) remain in the backup repository. You can import the removed backup later to Veeam Agent for Linux and perform restore operations with the imported backup.

Deleting Backup Files

To delete backup files from the target location and Veeam Agent for Linux database, use the following command:

```
veeamconfig backup delete --id <backup_id> --purge
```

where:

<backup_id> — ID of the backup that you want to delete.

Veeam Agent for Linux will remove records about the deleted backup from the Veeam Agent for Linux database and, additionally, delete backup files themselves from the destination storage.

Performing Restore

If you experience a problem with your computer, your data gets lost or corrupted, you can use one of the following options to recover your data or bring the computer back to work:

- Restore from the Veeam Recovery Media
    - Restore volumes
    - Restore files and folders
- Restore volumes with the command line interface
- Restore files and folders:
    - Restore files and folders with the File Level Restore wizard
    - Restore files and folders with the command line interface

Restoring from Veeam Recovery Media

If the OS on your computer fails to start, you can use the Veeam Recovery Media to recover your computer. The Veeam Recovery Media will help you boot the computer in the limited mode. After booting, you can use a backup created with Veeam Agent for Linux to restore the whole system image of your computer, specific volumes on your computer or specific files and folders. You can also use standard Linux command line utilities to diagnose problems and fix errors.

Restoring Volumes

You can restore a specific computer volume or all volumes from the volume-level backup.

Volumes can be restored to their original location or to a new location.

- If you restore a volume to its original location, Veeam Agent for Linux will overwrite the data on the original volume with the data restored from the backup.
- If you restore volume data to a new location, Veeam Agent for Linux will restore data from the backup and write it to the selected destination. If necessary, you can specify new disk mapping settings for the restored volume.

Before You Begin

Before you boot from the recovery image and recover your data, check the following prerequisites:

- You must have a recovery image on any type of media: CD/DVD/BD or removable storage device.
- To recover data on your computer, you must have both the Veeam Recovery Media and data backup. For volume-level restore, you can use a volume-level backup created with Veeam Agent for Linux. Make sure that the backup or system image is available on the computer drive (local or external), on a network shared folder or on the backup repository managed by a Veeam backup server.
- The media type on which you have created the recovery image must be set as a primary boot source on your computer.
- The volume-level backup from which you plan to restore data must be successfully created at least once.
- [For backups stored in network shared folders, on Veeam backup repositories and Veeam Cloud Connect repositories] You must have access to the target location where the backup file resides.
- [For Veeam backup repository targets] If you plan to restore data from a backup stored on a Veeam backup repository, you must have access permissions on this backup repository. To learn more, see Setting Up User Permissions on Backup Repositories.

Volume-level restore has one limitation: you cannot restore a volume to the volume where the backup file that you use for restore is located.

Step 1. Boot from Veeam Recovery Media

To boot from the Veeam Recovery Media:

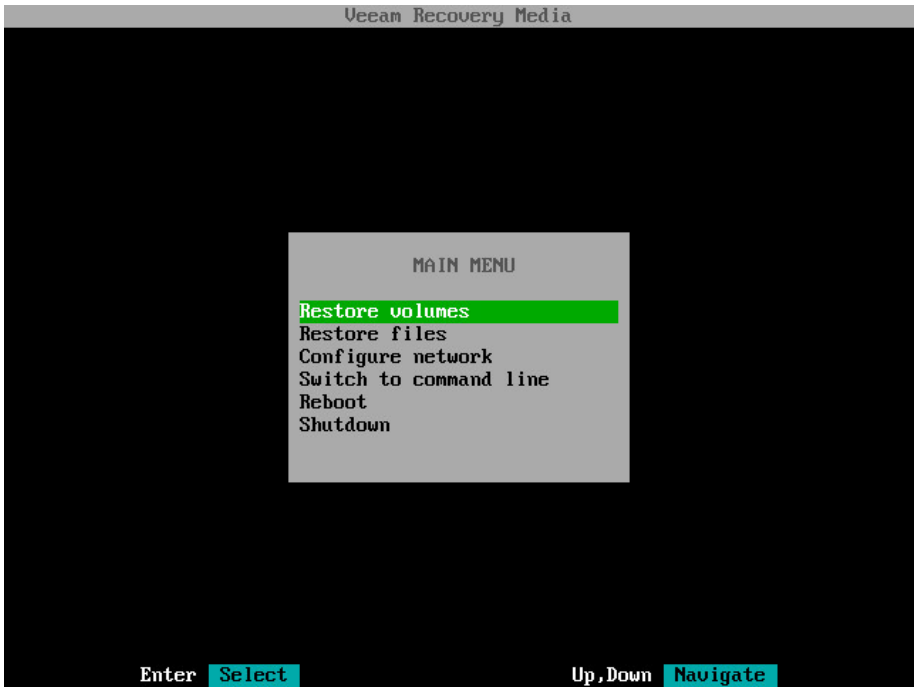
1. [For CD/DVD/BD] Power on your computer. Insert the media with the recovery image to the drive and power off the computer.

   [For removable storage device] Attach the removable storage device with the recovery image to your computer.

2. Start your computer.
3. Wait for Veeam Agent for Linux to load files from the Veeam Recovery Media.
4. After the recovery image OS has loaded, make sure that network settings are specified correctly and configure the network adapter if necessary. To learn more, see Configure Network Settings.
5. Choose the necessary recovery option. Veeam Agent for Linux offers the following tools:
   - **Restore volumes** — the Veeam Recovery wizard to recover data on the original computer or perform bare-metal recovery.
   - **Restore files** — the File Level Restore wizard to restore files and folders to the original location or to a new location.
   - **Switch to command line** — Linux shell prompt with standard utilities to diagnose problems and fix errors.

TIP:

To stop working with the Veeam Recovery Media and shut down or restart your computer, in the Veeam Recovery Media main menu, select the **Reboot** or **Shutdown** option and press **Enter**.

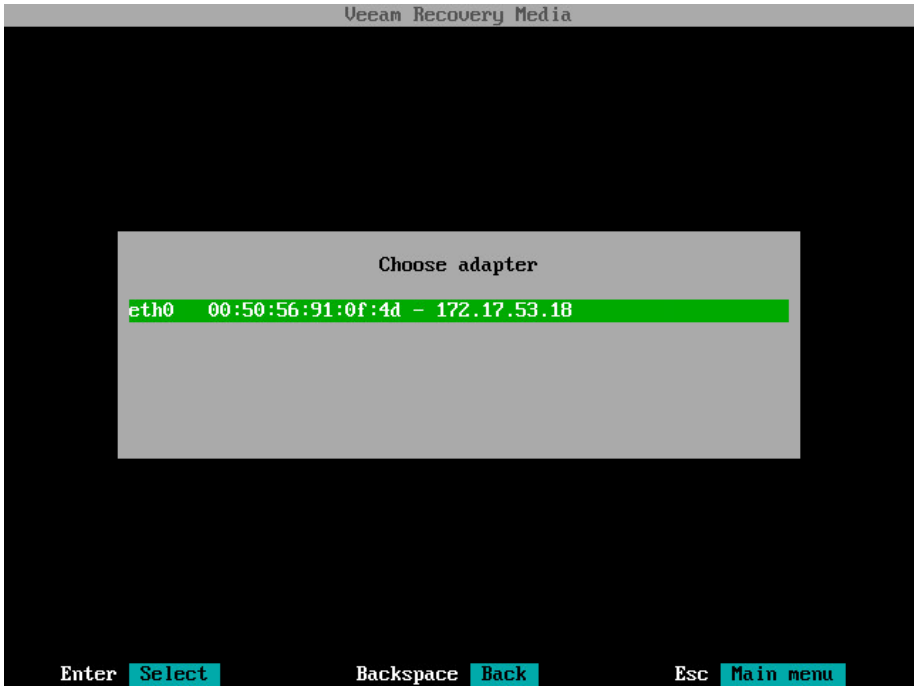


Step 2. Configure Network Settings

To open the **Network settings** dialog, in the Veeam Recovery Media main menu, select the **Configure network** option and press **Enter**.

Veeam Agent for Linux will display network adapters that are available on the system. If there is a DHCP server in your network, Veeam Agent for Linux will configure the network settings automatically and display the IP address assigned to the network adapter. You can then press **Esc** to return to the Veeam Recovery Media main menu and launch the Volume Restore wizard.

You can manually configure TPC/IP v4 settings for network adapters if necessary. To learn more, see Specifying Network Settings.



Specifying Network Settings

You can manually configure TPC/IP v4 settings for the network adapter. To configure network settings:

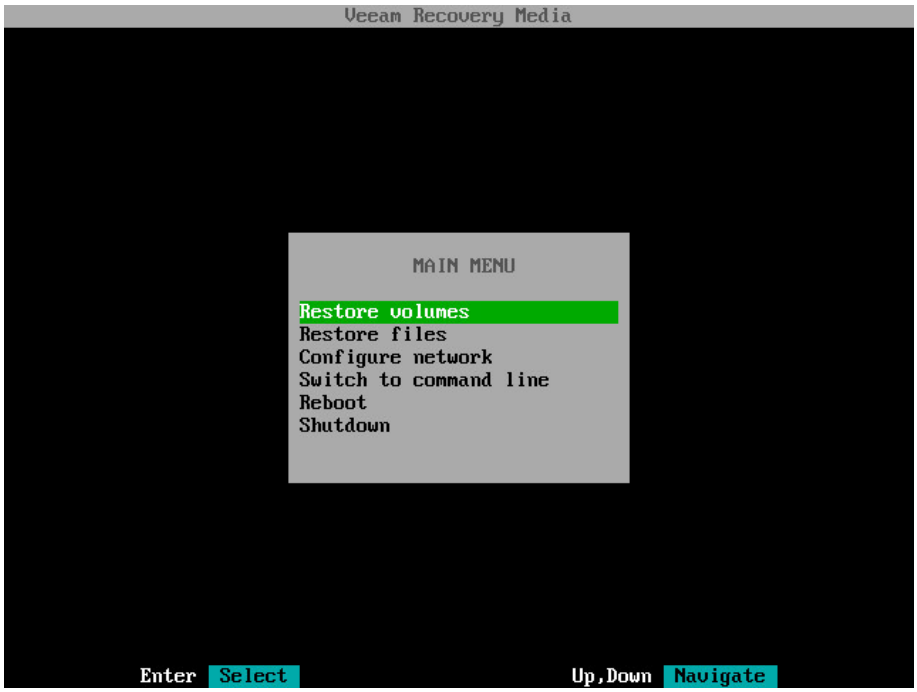
1. In the **Choose adapter** list, select the network adapter that you want to use to connect to the network shared folder or Veeam backup repository where the backup resides and press **Enter**.
2. In the **Configure adapter** dialog, select the **Manual** option and press **Enter**.
3. In the **Adapter settings** dialog, specify the following network settings:
    - IP address
    - Subnet mask
    - Default gateway
    - DNS server
4. Select the **Apply** button and press **Enter**.

If there is a DHCP server in your network, you can return to automatic IP addressing:

1. In the **Choose adapter** list, select the necessary network adapter and press **Enter**.
2. In the **Configure adapter** dialog, select the **Auto** option and press **Enter**. Veeam Agent for Linux will automatically configure network settings for the adapter.

Step 3. Launch Volume Restore Wizard

To launch the volume restore wizard, in the Veeam Recovery Media main menu, select **Restore volumes** and press **Enter**.



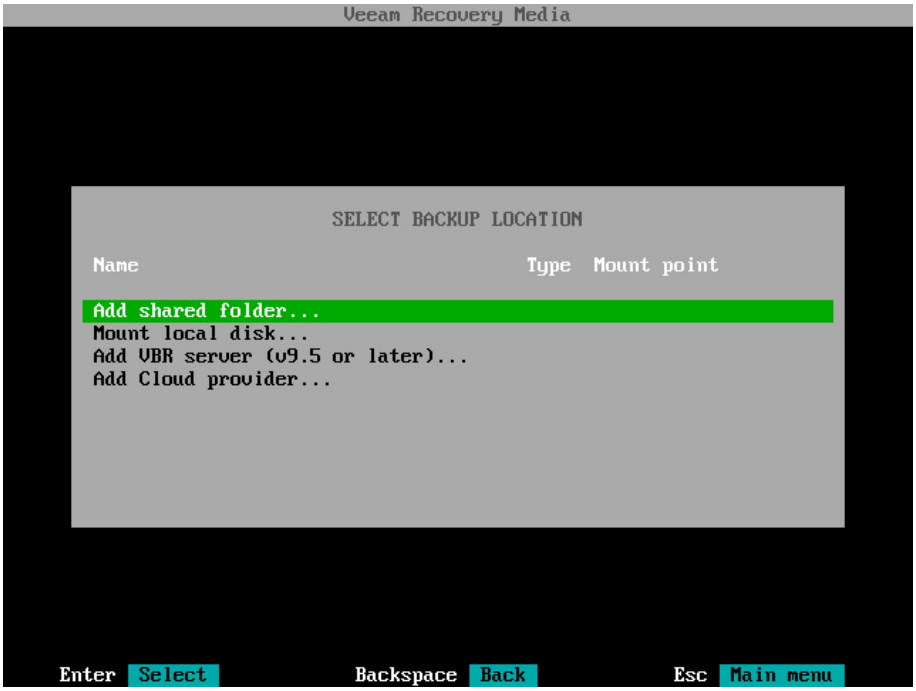
Step 4. Select Backup Location

At the **Select backup location** step of the wizard, specify where the backup file that you want to use for data recovery is located.

To recover data from backup, you need to mount the backup storage on which the backup file resides to the recovery image OS file system. Veeam Agent for Linux automatically mounts external USB drives that are connected to the computer and displays them in the list of available backup locations. You can select the necessary device and press **Enter** to pass to the Browse for backup files step of the wizard.

If the backup file is located in a network shared folder, on a local drive or on a Veeam backup repository, select one of the following options:

- **Add shared folder** — select this option if the backup file is located in a network shared folder. With this option selected, you will pass to the Mount shared folder step of the wizard.
- **Mount local disk** — select this option if the backup file resides on the local computer drive, external drive or removable storage device that is currently connected to your computer. With this option selected, you will pass to the Select local disk step of the wizard.
- **Add VBR server** — select this option if the backup file resides on a backup repository managed by the Veeam backup server. With this option selected, you will pass to the Specify backup server parameters step of the wizard.
- **Add Cloud provider** — select this option if the backup file resides on a cloud repository exposed to you by a Veeam Cloud Connect service provider. With this option selected, you will pass to the Specify Cloud provider parameters step of the wizard.



Step 5. Specify Backup Location Settings

Specify settings for the target storage that contains a backup file from which you plan to restore data:

- Specify shared folder settings — if you have selected the **Add shared folder** option at the Select backup location step of the wizard.
- Select local drive — if you have selected the **Mount local disk** option at the Select backup location step of the wizard.
- Specify Veeam backup repository settings — if you have selected the **Add VBR server** option at the Select backup location step of the wizard.
- Specify Veeam Cloud Connect repository settings — if you have selected the **Add Cloud provider** option at the Select backup location step of the wizard.

Specifying Shared Folder Settings

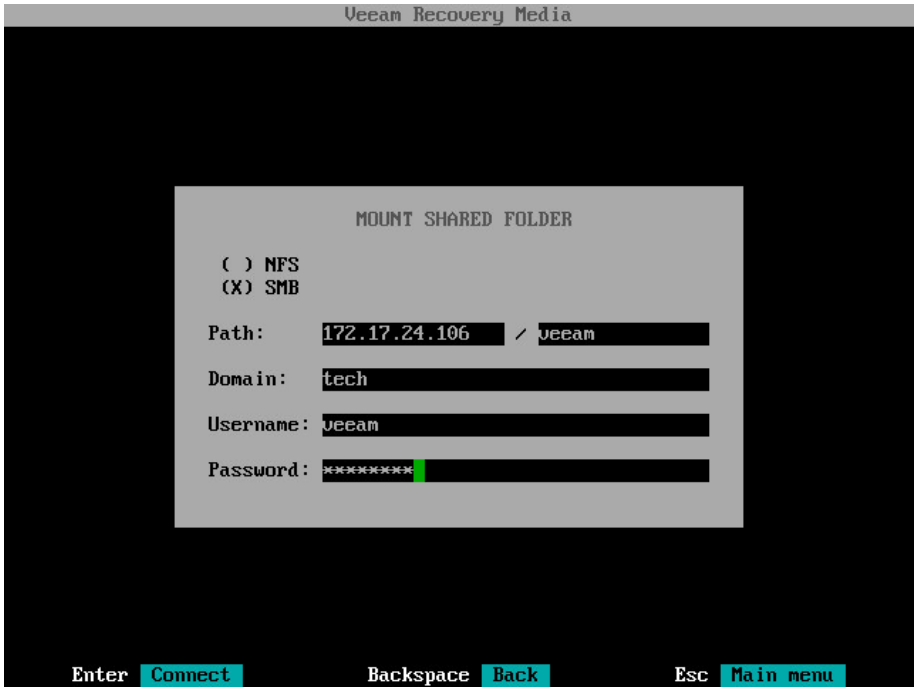
The **Mount shared folder** step of the wizard is available if you have selected to restore data from a backup file located in a network shared folder.

Specify settings for the network shared folder:

1. Select the type of a network shared folder:
    - **NFS** — to connect to a network shared folder using the NFS protocol.
    - **SMB** — to connect to a network shared folder using the SMB (CIFS) protocol.
2. In the **Path** field, specify the network shared folder name in the *SERVER/DIRECTORY* format: type an IP address or domain name of the server and the name of the network shared folder in which the backup file resides.
3. [For SMB network shared folder] In the **Domain** field, type a name of the domain in which the account that has access permissions on the shared folder is registered, for example: *DOMAIN*.
4. [For SMB network shared folder] In the **Username** field, type a user name of the account that has access permissions on the shared folder.
5. [For SMB network shared folder] In the **Password** field, type a password of the account that has access permissions on the shared folder.
6. Press **Enter** to connect to the network shared folder. Veeam Agent for Linux will mount the specified network shared folder to the `/media` directory of the recovery image OS file system and display content of the network shared folder.

TIP:

You can mount several network shared folders to work with backup files that are stored in different locations if needed. To do this, return to the Select Backup Location step of the wizard and select the **Add shared folder** option once again. For every mounted location, Veeam Agent for Linux displays its name, type and mount point. You can view the list of mounted network shared folders and browse for a backup file located on the necessary storage.

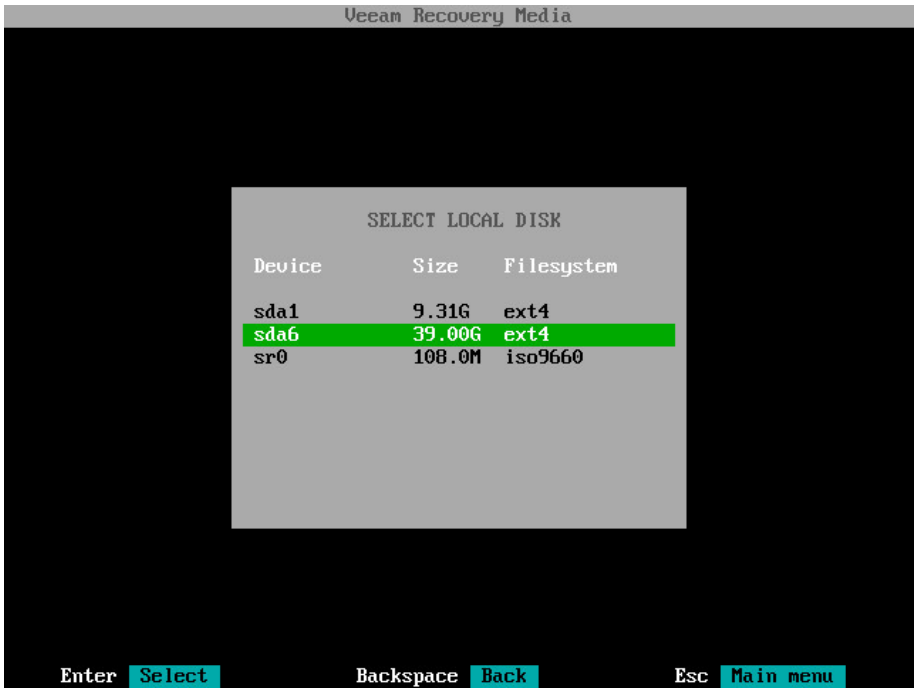


Selecting Local Drive

The **Select local disk** step of the wizard is available if you have selected to restore data from a backup file located on a computer drive.

In the list of devices, select the necessary disk or disk partition and press **Enter**. Veeam Agent for Linux will mount the selected device to the `/media` directory of the recovery image OS file system and display content of the directory.

> **TIP:**
>
> You can mount several devices to work with backup files that are stored in different locations if needed. To do this, return to the Select Backup Location step of the wizard and select the **Mount local disk** option once again. For every mounted location, Veeam Agent for Linux displays its name, type and mount point. You can view the list of mounted devices and browse for a backup file located on the necessary storage.

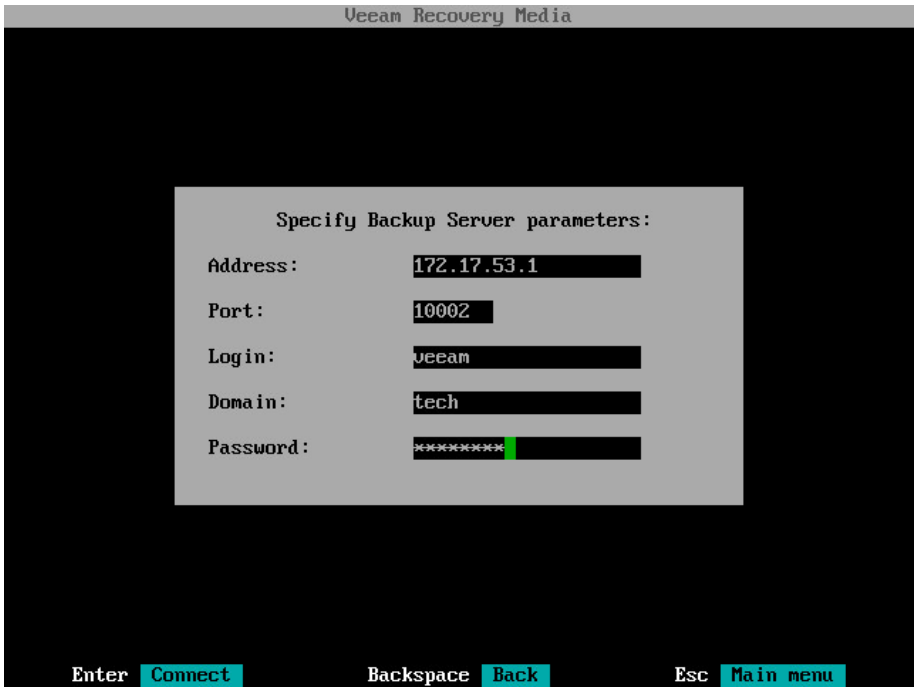


Specifying Backup Server Settings

The **Specify Backup Server parameters** step of the wizard is available if you have selected to restore data from a backup repository managed by the Veeam backup server.

Specify settings for the Veeam backup server that manages the backup repository where the backup file resides:

1. In the **Address** field, specify a DNS name or IP address of the Veeam backup server.
2. In the **Port** field, specify a number of the port over which Veeam Agent for Linux must communicate with the backup repository. By default, Veeam Agent for Linux uses port 10002.
3. In the **Login** field, type a user name of the account that has access to the Veeam backup repository.
4. In the **Domain** field, type a name of the domain in which the account that has access to the Veeam backup repository is registered, for example: *DOMAIN*.
5. In the **Password** field, type a password of the account that has access to the Veeam backup repository.
6. Press **Enter**. Veeam Agent for Linux will connect to the Veeam backup server, and you will pass immediately to the Backup step of the wizard.



Specifying Service Provider Settings

If you have selected to restore data from a backup file located on a Veeam Cloud Connect repository, specify settings to connect to the cloud repository:

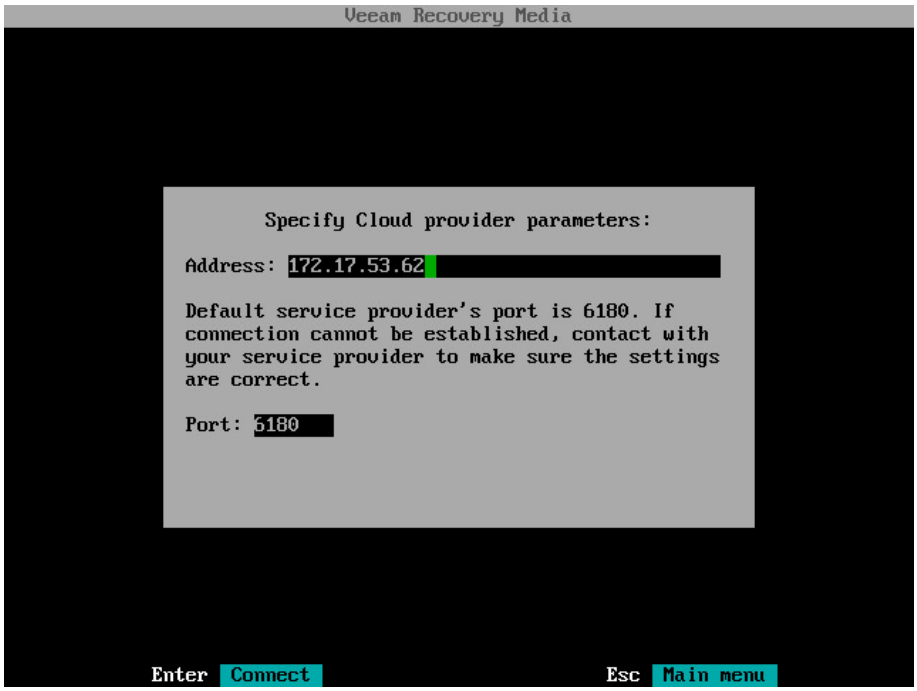
1. Specify service provider settings.
2. Verify the TLS certificate.
3. Specify user account settings.

Specifying Service Provider Settings

The **Specify Cloud provider parameters** step of the wizard is available if you have selected to restore data from a cloud repository exposed to you by a Veeam Cloud Connect service provider.

Specify service provider settings that the SP or your backup administrator has provided to you:

1. In the **DNS name or IP address** field, enter a full DNS name or IP address of the cloud gateway.
2. In the **Port** field, specify the port over which Veeam Agent for Linux will communicate with the cloud gateway. By default, port 6180 is used.
3. Press **Enter**. Veeam Agent for Linux will connect to the service provider and display the Certificate details window.

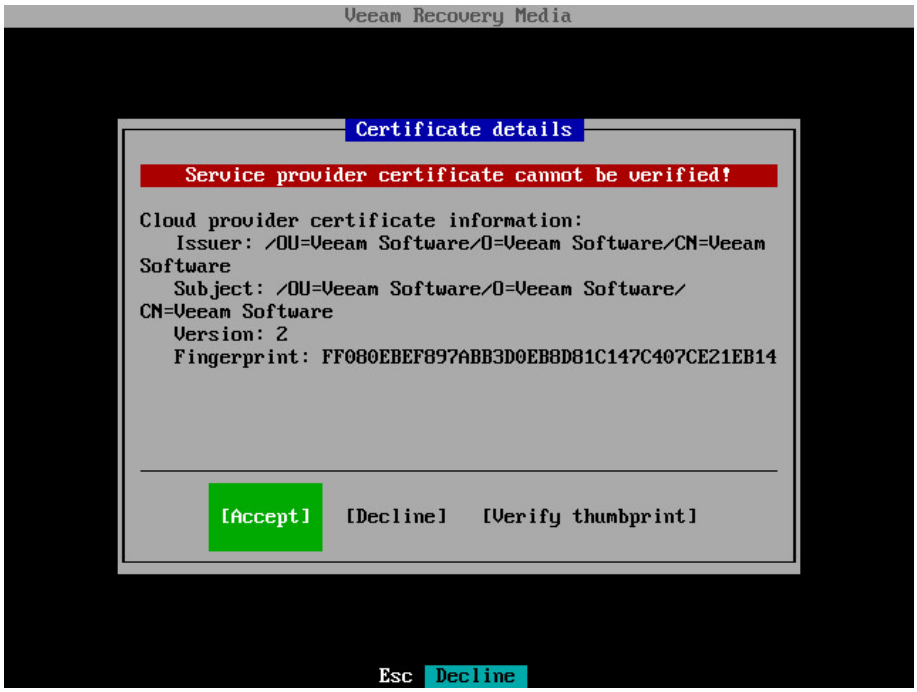


Verifying TLS Certificate

In the **Certificate details** window, review information about the TLS certificate obtained from the SP side and verify the TLS certificate.

- To accept the TLS certificate, select the **Accept** button with the **Tab** key and press **Enter**.
- [Optional] To verify the TLS certificate with a thumbprint, do the following:
    a. Select the **Verify thumbprint** button with the **Tab** key and press **Enter**.
    b. In the **Thumbprint verification** field, enter the thumbprint that you obtained from the SP.
    c. Switch to the **Verify** button and press **Enter**. Veeam Agent for Linux will check if the thumbprint that you entered matches the thumbprint of the obtained TLS certificate.

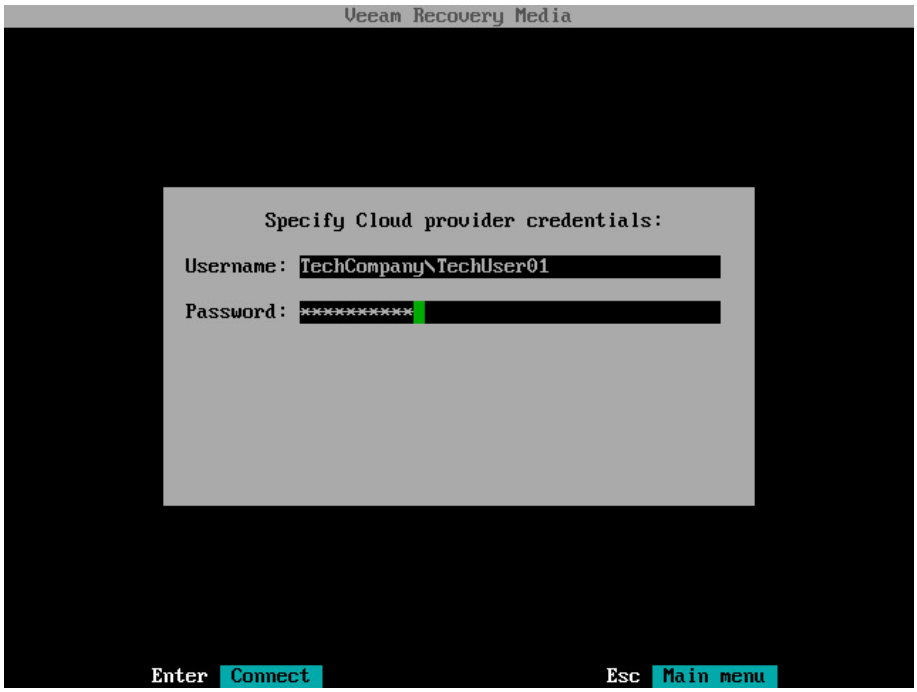
  TLS certificate verification is optional. You can use this option to verify self-signed TLS certificates. TLS certificates signed by the CA do not require additional verification.



Specifying User Account Settings

The **Specify Cloud provider credentials** step of the wizard is available if you have chosen to restore data from a cloud repository and specified settings for the cloud gateway.

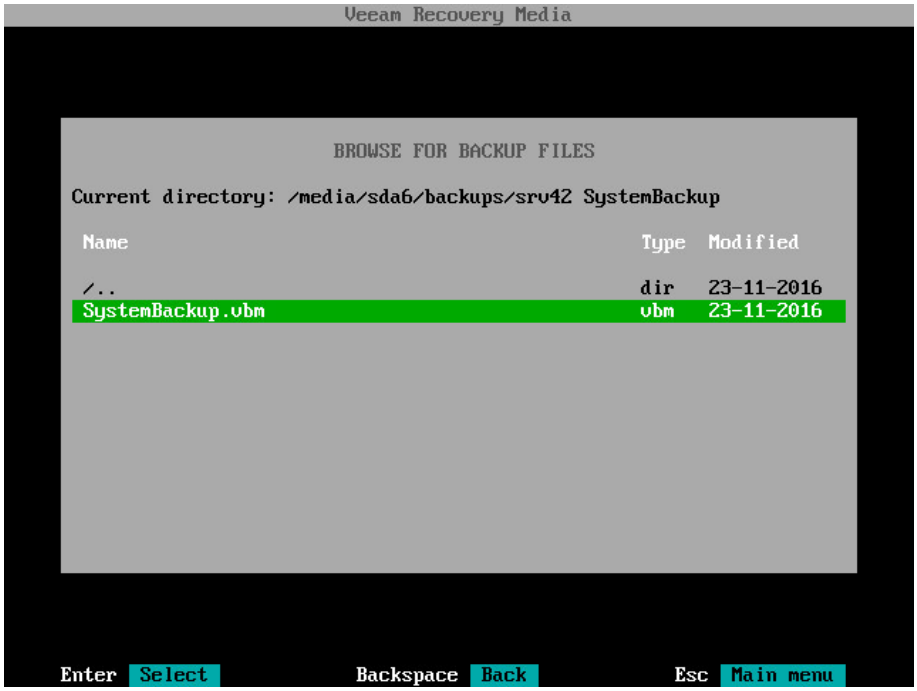
1. In the **Username** field, enter the user name of the tenant or subtenant account that the SP or your backup administrator has provided to you. The user name of the subtenant account must be specified in the *TENANT\SUBTENANT* format.
2. In the **Password** field, provide a password for the tenant or subtenant account.
3. Press **Enter**. Veeam Agent for Linux will connect to the cloud repository, and you will pass immediately to the Backup step of the wizard.



Step 6. Browse for Backup File

At the **Browse for backup files** step of the wizard, select the backup file that you plan to use for volume-level restore:

1. In the file system tree, select a directory in which the backup file you plan to use for restore resides:
    - Use **Up** and **Down** arrow keys to select a directory.
    - Use the **Enter** key to open the necessary directory.
2. In the directory where the backup file resides, select the backup file and press **Enter**.



Step 7. Select Backup and Restore Point

At the **Backup** step of the wizard, select a backup and restore point from which you want to recover data.

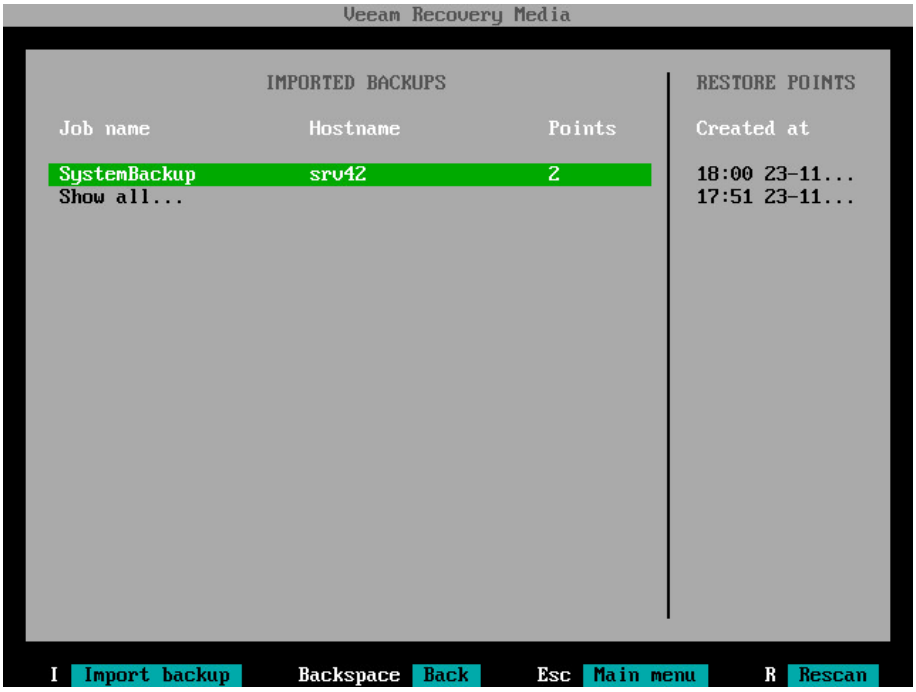
The **Backup** step window comprises two panes:

- The **Imported backups** pane on the left displays information about backup: host name of the computer whose data is stored in the backup file, backup job name and number of restore points.
- The **Restore points** pane on the right displays a list of restore points in the backup.

To select backup and restore point:

1. In the **Imported backups** pane, ensure that the backup from which you want to recover data is selected and press **Enter**.

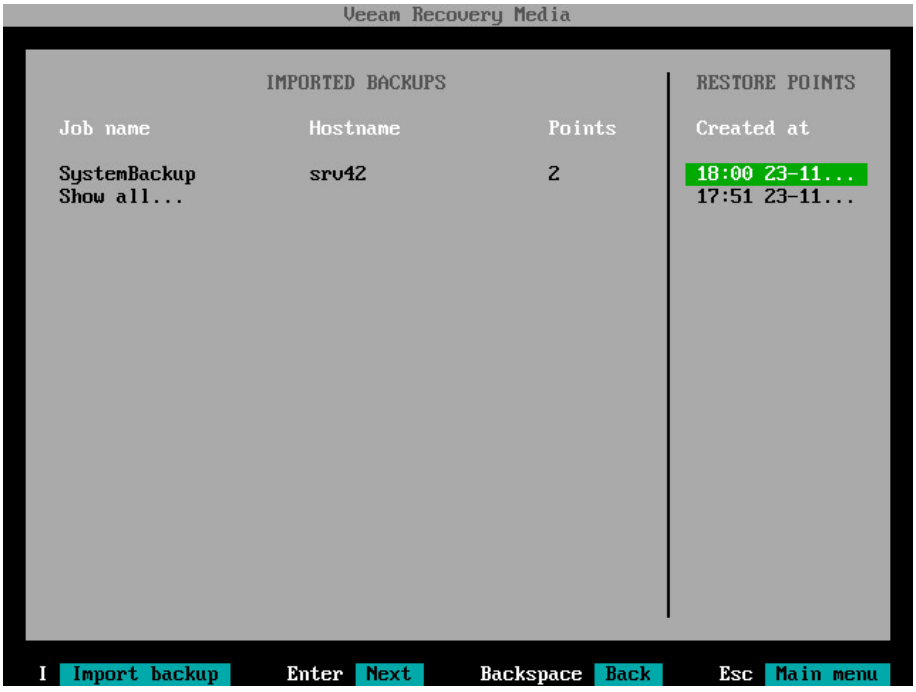
   If you want to select another backup, press the '**i**' key and browse for the necessary backup file. To learn more, see Locate Backup File.



2. In the **Restore points** pane, select with **Up** and **Down** keys the restore point from which you want to recover data and press **Enter**.

NOTE:

If you selected an encrypted backup for data restore, Veeam Agent for Linux will prompt you to provide a password to unlock the encrypted file. To lean more, see Restoring Data from Encrypted Backups.



Step 8. Map Restored Disks

At the **Disk Mapping** step of the wizard, select what volumes you want to restore and map volumes from the backup to volumes on your computer.

> **IMPORTANT!**
>
> It is strongly recommended that you change disk mapping settings only if you have experience in working with Linux disks and partitions. If you make a mistake, your computer data may get corrupted.

You can map volumes in the backup (source volumes) and volumes on your computer (target volumes) in one of the following ways:

- Map a source volume to a target volume
- Map a target volume to a source volume

As well as individual volumes, you can also map entire disks:

- Map a source disk to a target disk
- Map a target disk to a source disk

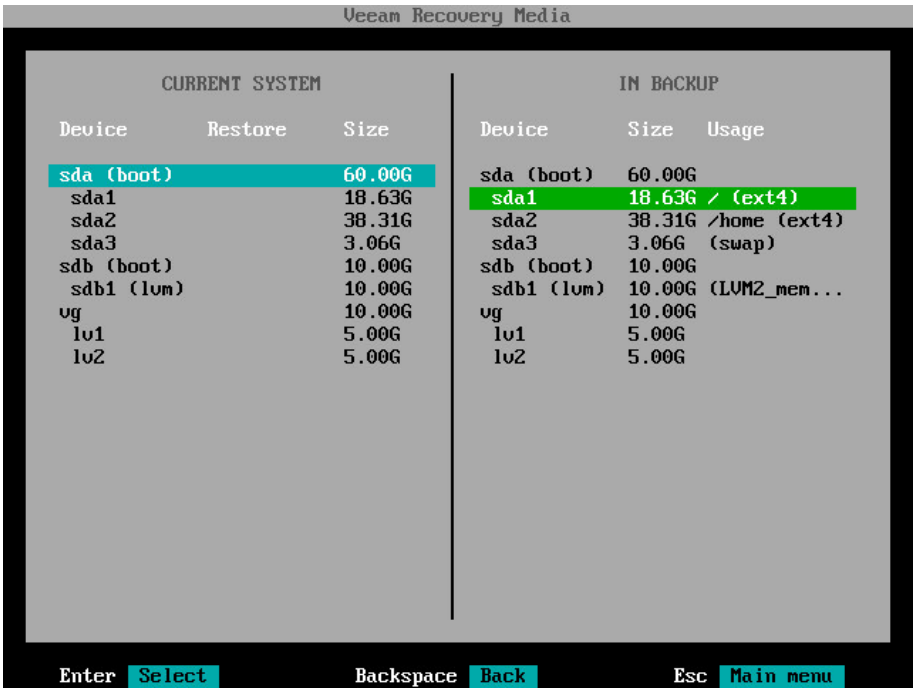
If you choose to restore an entire disk, Veeam Agent for Linux will try to map all volumes that reside on this disk.

Mapping Source Volume to Target Volume

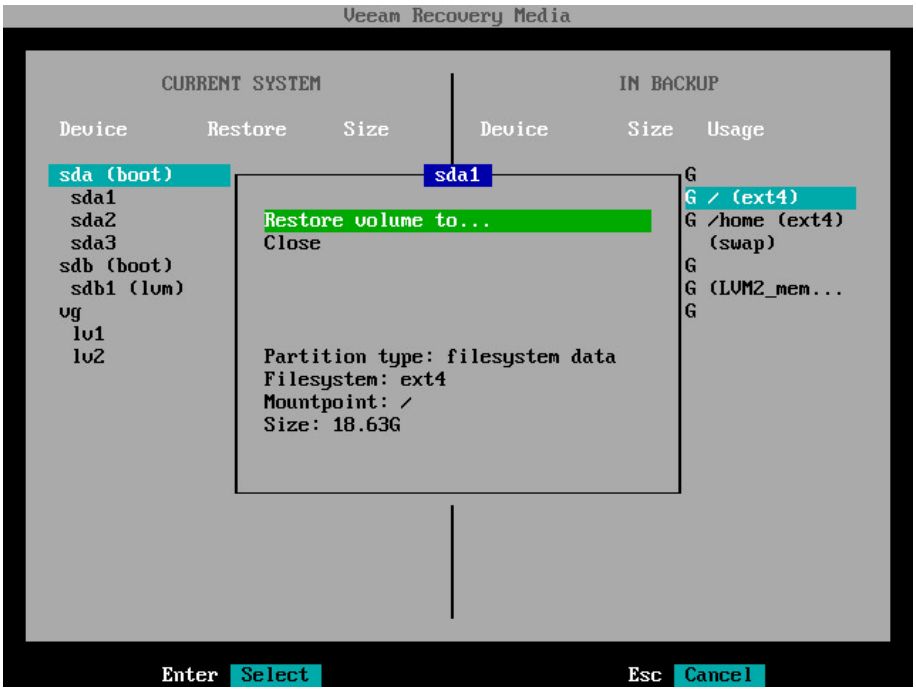
The **In backup** pane of the **Veeam Recovery Media** wizard contains a list of disks and volumes in the backup. You can select volumes in the backup that you want to restore to your computer and specify mapping rules for these volumes.

To map a source volume to a target volume:

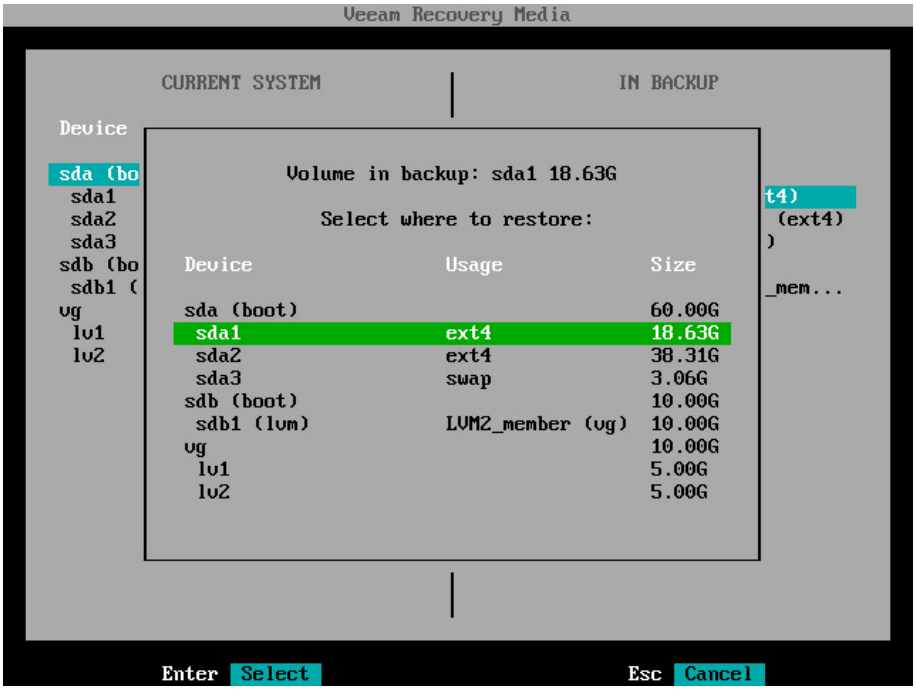
1. In the **In backup** pane, select a volume in the backup whose data you want to recover and press **Enter**.



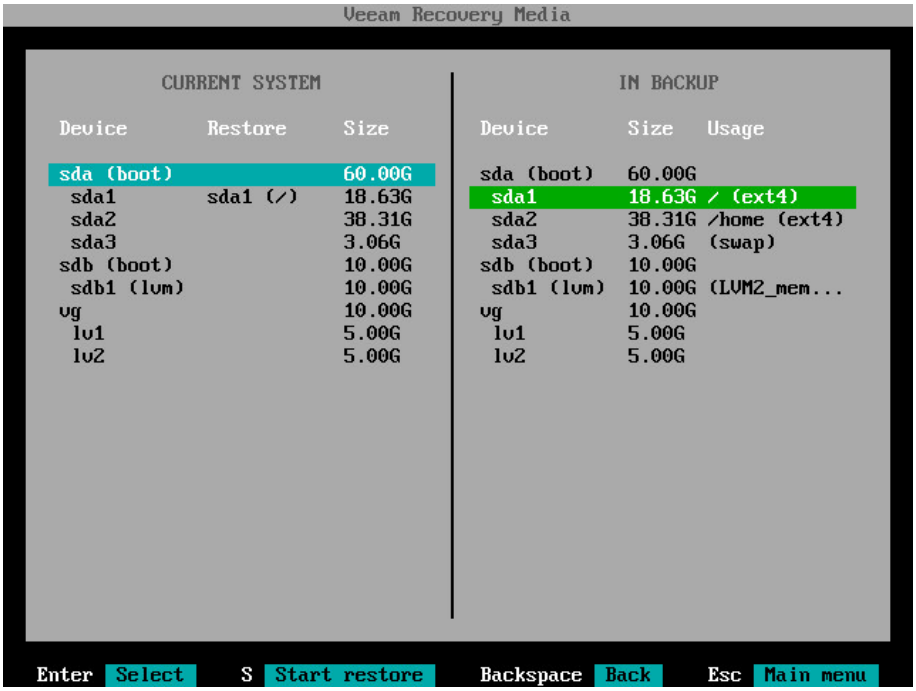
2. Veeam Agent for Linux will display a window with information on the selected volume (partition type, file system type, mount point and volume size) and a list of available operations:
   - **Restore volume to** — select this option if you want to restore the selected volume to your computer.
   - **Close** — select this option if you want to close the window and select another volume.
3. Select the **Restore volume to** option and press **Enter**.



4. Veeam Agent for Linux will display a list of volumes on your computer. Select the volume that you want to restore and press **Enter**.



5. In the **Current system** pane, in the **Restore** column, Veeam Agent for Linux will display which volume from backup will be restored to the target volume.



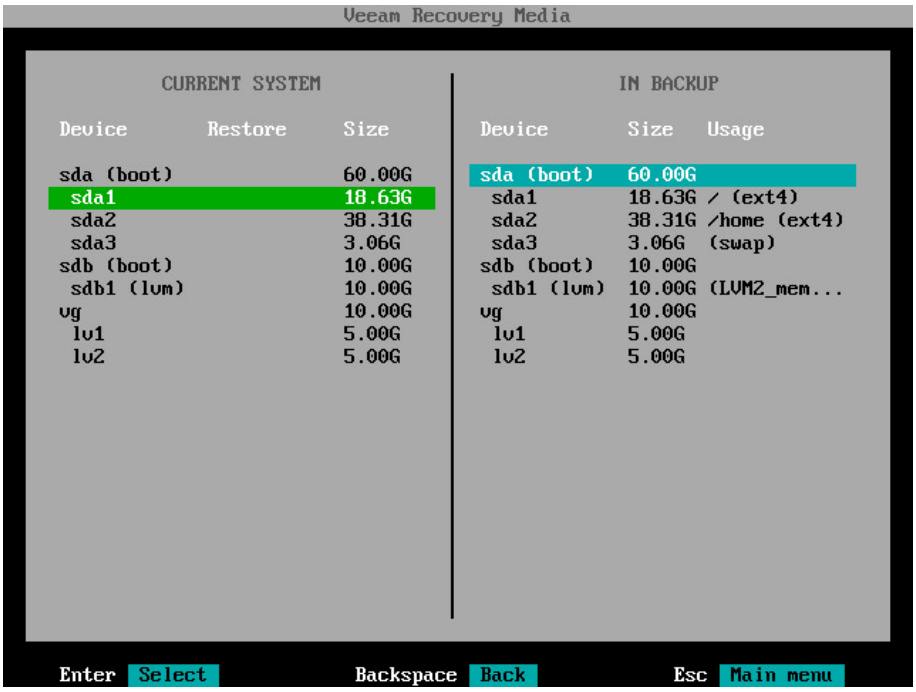
6. Repeat steps 1–5 for all volumes that you want to restore.
7. Press '**s**' to start the restore process.

Mapping Target Volume to Source Volume

The **Current system** pane of the **Veeam Recovery Media** wizard displays a partition table of your computer booted from the Veeam Recovery Media. In this pane, you can select volumes on your computer which you want to restore and specify mapping rules for these volumes. If necessary, you can edit the disk layout before restoring volumes.

To map a target volume to a source volume:

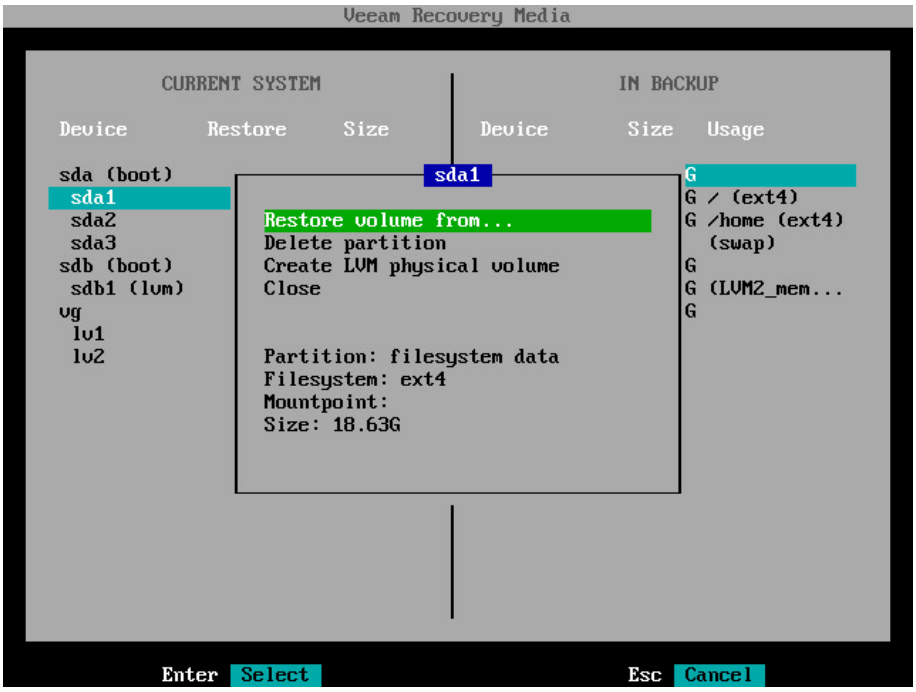
1. In the **Current system** pane, select a volume on your computer whose data you want to recover and press **Enter**.



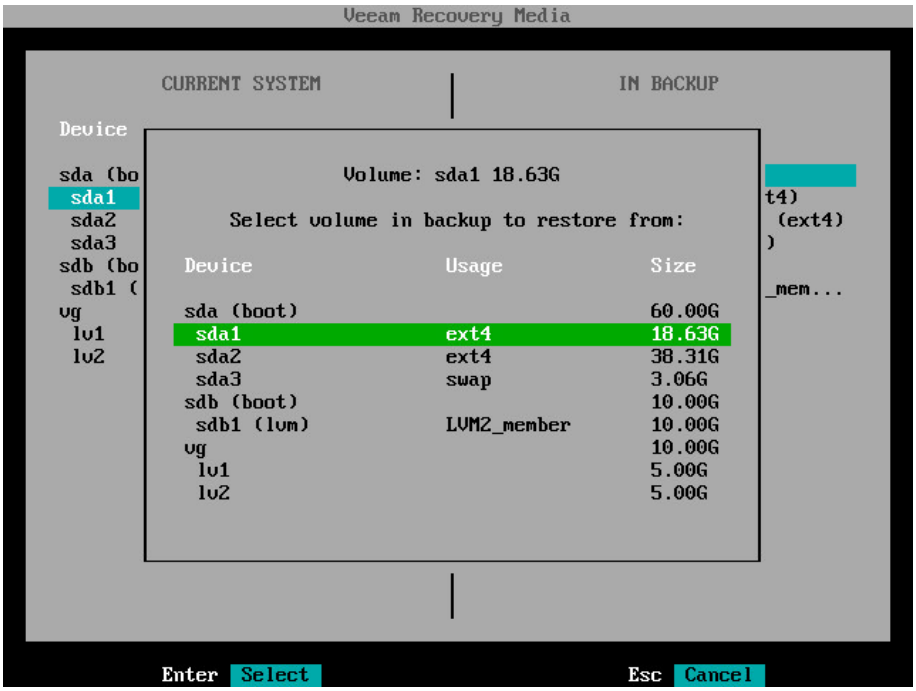
2. Veeam Agent for Linux will display a window with information on the selected volume (partition type, file system type, mount point and volume size) and a list of available operations:

   - **Restore volume from** — select this option if you want to recover the selected volume from the backup.
   - **Delete partition** [for simple volumes] or **Delete volume** [for LVM volumes] — select this option if you want to change the disk layout before restoring a volume. After you delete a partition or volume, you will be able to create a new partition or volume of the desired size and map a volume in the backup to the volume on your computer.
   - [For simple volumes] **Create LVM physical volume** — select this option if you want to create an LVM physical volume on the selected disk partition. In the created physical volume, you will be able to create a volume group and restore to this volume group LVM logical volumes from the backup.
   - **Close** — select this option if you want to close the window and select another volume.

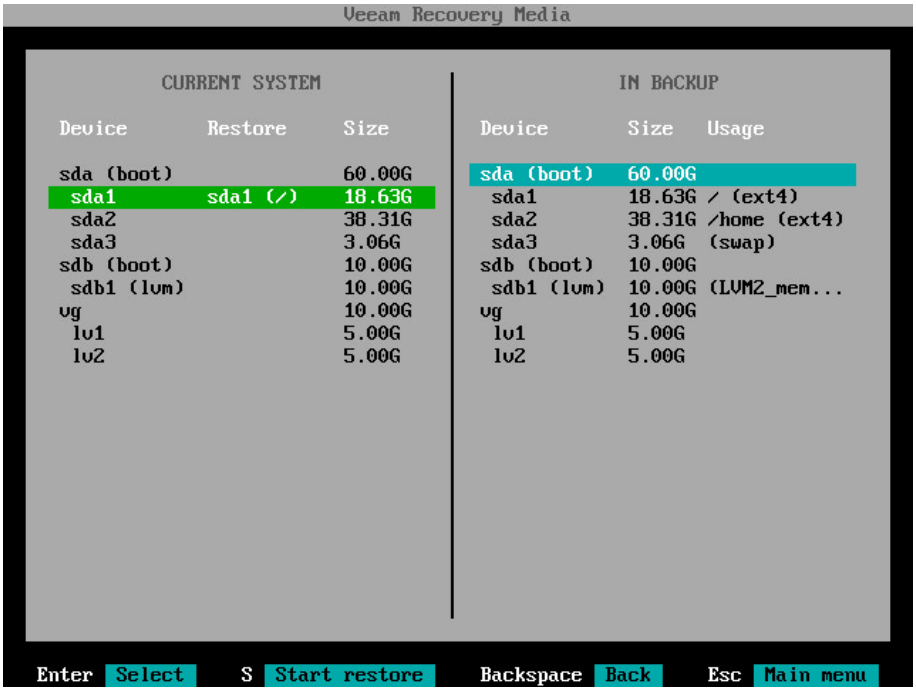
3. Select the **Restore volume from** option and press **Enter**.



4. Veeam Agent for Linux will display a window with a list of volumes in the backup. Select the volume that you want to restore and press **Enter**.



5. In the **Current system** pane, in the **Restore** column, Veeam Agent for Linux will display which volume from backup will be restored to the target volume.



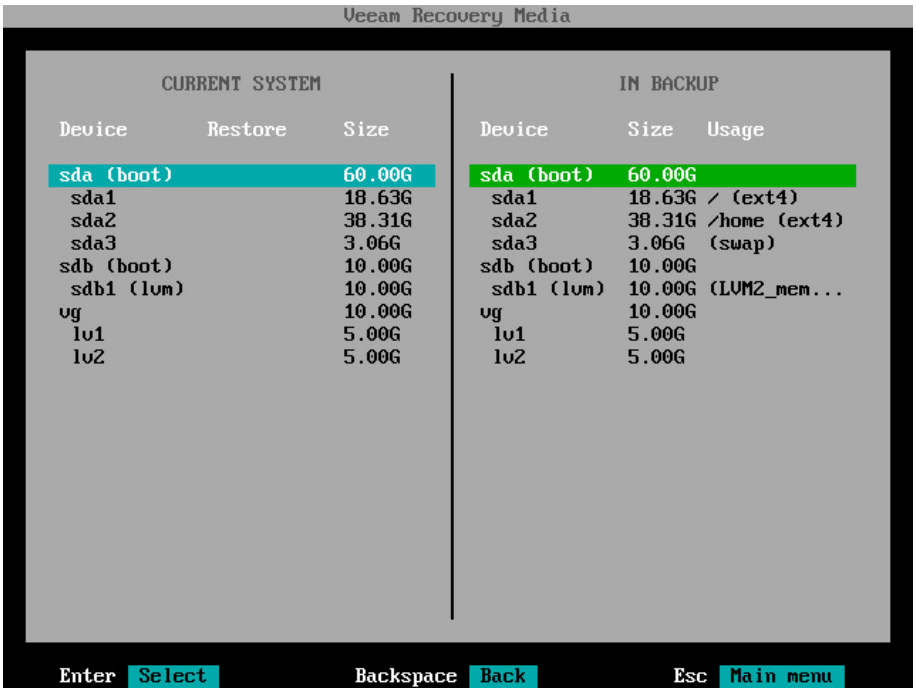
6. Repeat steps 1–5 for all volumes that you want to restore.
7. Press '**s**' to start the restore process.

Mapping Source Disk to Target Disk

The **In backup** pane of the **Veeam Recovery Media** wizard contains a list of disks and volumes in the backup. As well as individual volumes, you can select for restore entire computer disks.

To map a source disk to a target disk:

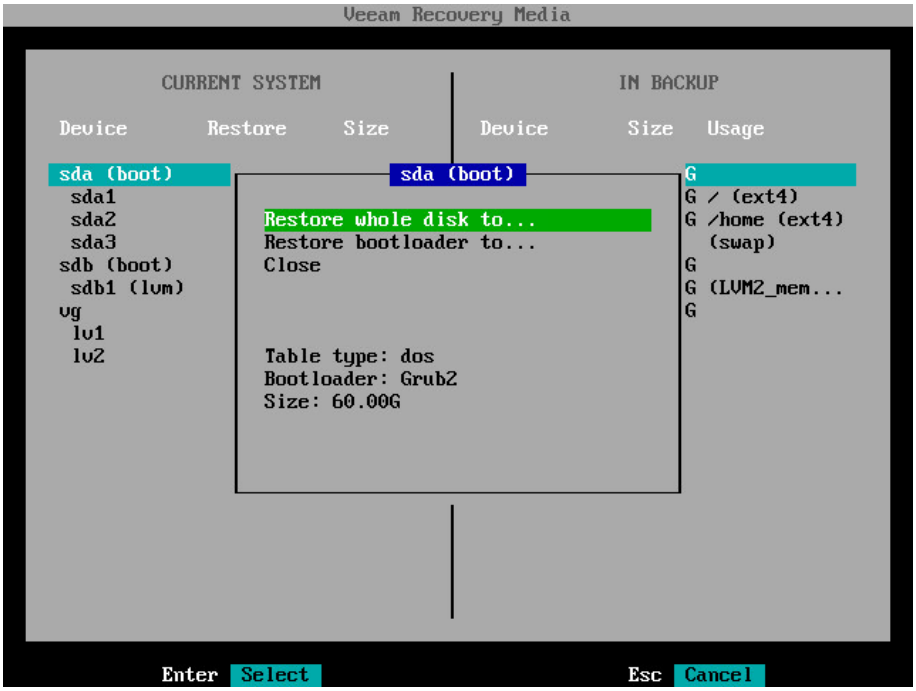
1. In the **In backup** pane, select a disk in the backup volumes on which you want to recover and press **Enter**.



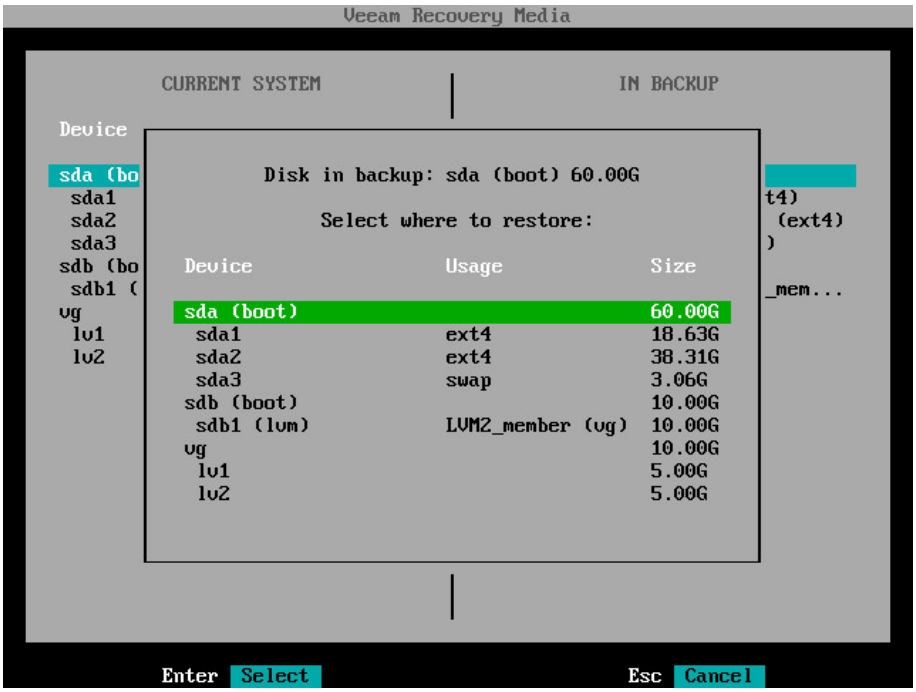
2. Veeam Agent for Linux will display a window with information on the selected disk (partition table type, bootloader type and disk size) and a list of available operations:

   - **Restore whole disk to** — select this option if you want to restore all volumes on the selected disk in the backup to your computer.
   - **Restore bootloader to** — select this option if you want to restore a bootloader from the disk in the backup to your computer.
   - **Close** — select this option if you want to close the window and select another disk or volume.

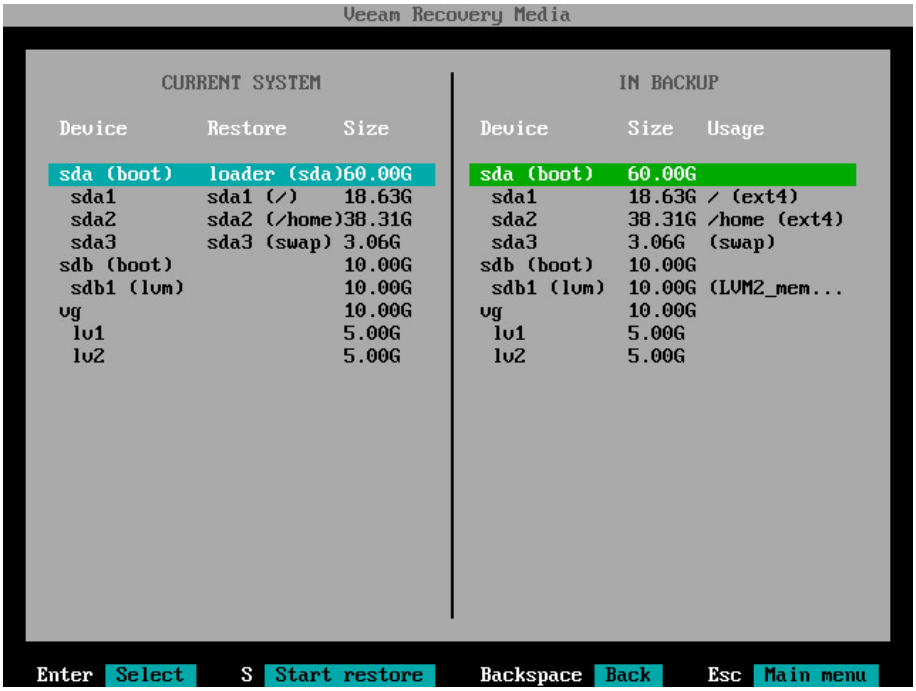
3. To restore volumes that reside on the selected disk, select the **Restore whole disk to** option and press **Enter**.



4. Veeam Agent for Linux will display a list of disks and volumes on your computer. Select the disk whose volumes you want to restore and press **Enter**.



5. In the **Current system** pane, in the **Restore** column, Veeam Agent for Linux will display which volumes from the disk in the backup will be restored to the target disk.



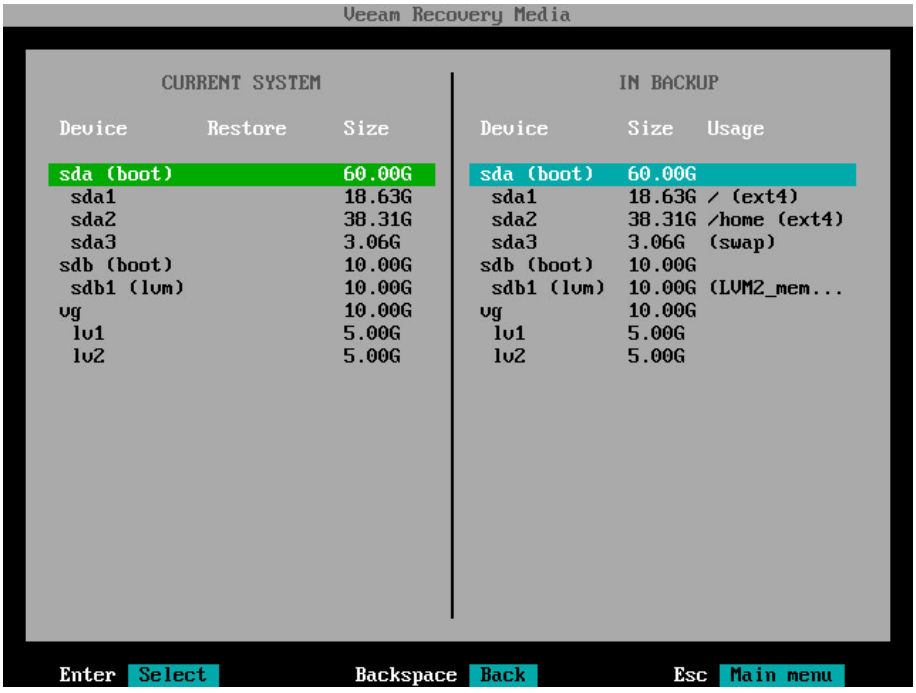
6. Repeat steps 1–5 for all computer disks whose volumes you want to restore.
7. Press '**s**' to start the restore process.

Mapping Target Disk to Source Disk

The **Current system** pane of the **Veeam Recovery Media** wizard displays a partition table of your computer booted from the Veeam Recovery Media. As well as individual volumes, you can select for restore entire computer disks. If necessary, you can edit the disk layout before restoring volumes.

To map a target disk to a source disk:

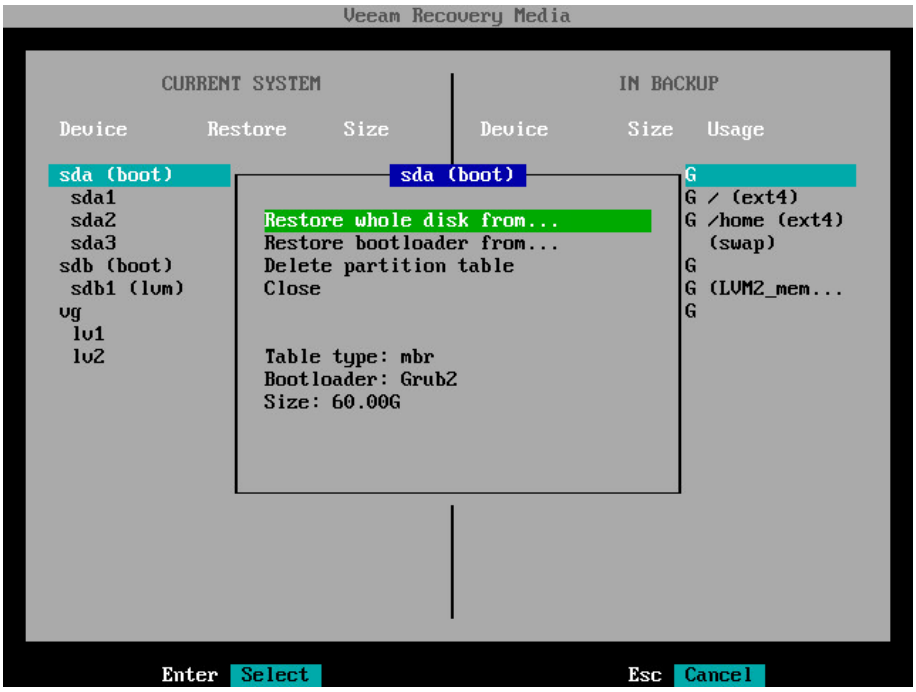
1. In the **Current system** pane, select a disk on your computer to which you want to restore volumes and press **Enter**.



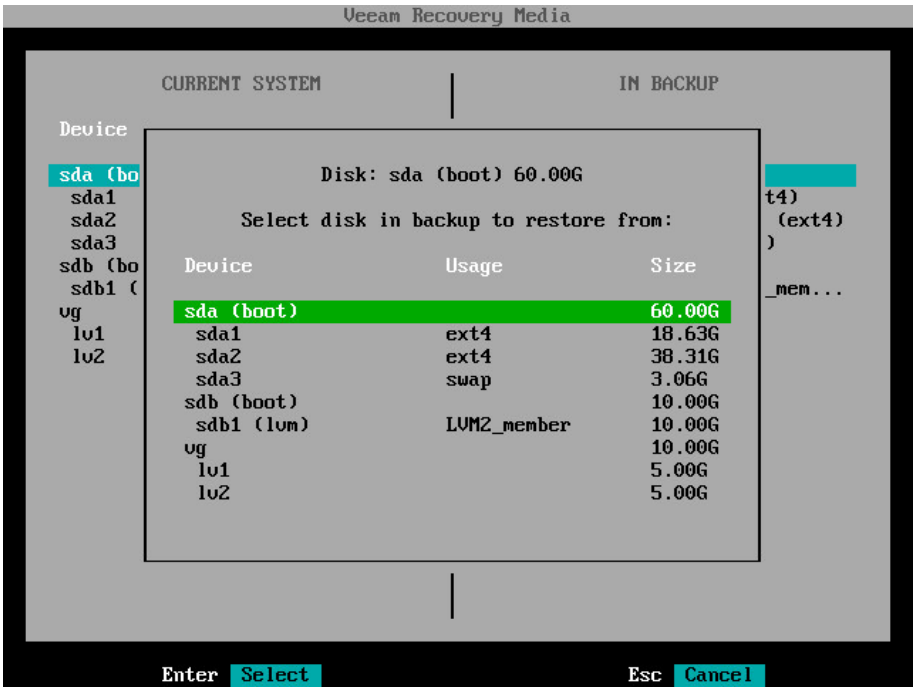
2. Veeam Agent for Linux will display a window with information on the selected disk (partition table type, bootloader type and disk size) and a list of available operations:

   - **Restore whole disk from** — select this option if you want to restore to the selected disk all volumes from a disk in the backup.
   - **Restore bootloader from** — select this option if you want to restore to the selected disk a bootloader from a disk in the backup.
   - **Delete partition table** — select this option if you want to change the disk layout before restoring volumes. After you delete a partition table, you will be able to create a new partition table, create disk partitions and volumes of the desired size, and map volumes in the backup to volumes on your computer.
   - **Close** — select this option if you want to close the window and select another disk or volume.

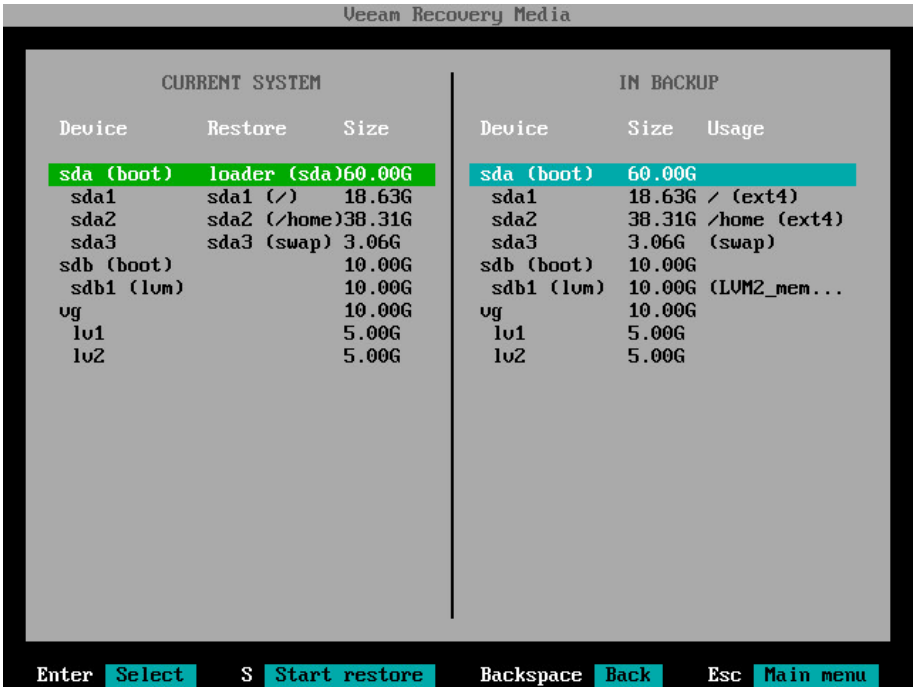
3. To restore volumes to the selected disk, select the **Restore whole disk from** option and press **Enter**.



4. Veeam Agent for Linux will display a list of disks and volumes in the backup. Select the disk whose volumes you want to restore and press **Enter**.



5. In the **Current system** pane, in the **Restore** column, Veeam Agent for Linux will display which volumes from the disk in the backup will be restored to the target disk.



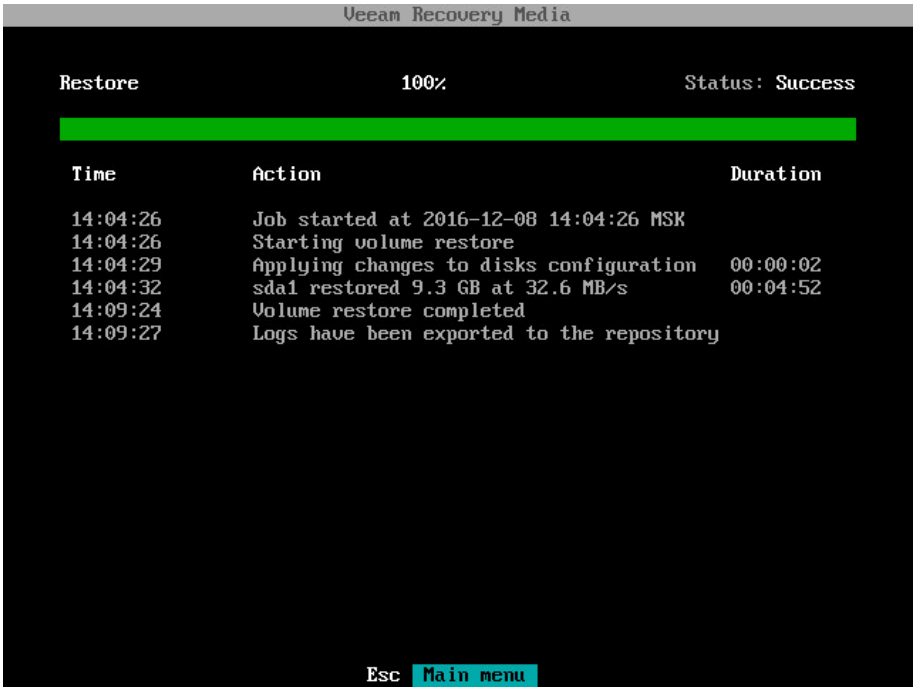
6. Repeat steps 1–5 for all disks whose volumes you want to restore.
7. Press '**s**' to start the restore process.

Step 9. Complete Restore Process

At the **Recovery summary** step of the wizard, complete the procedure of volume-level restore.

1. Review the specified recovery settings.

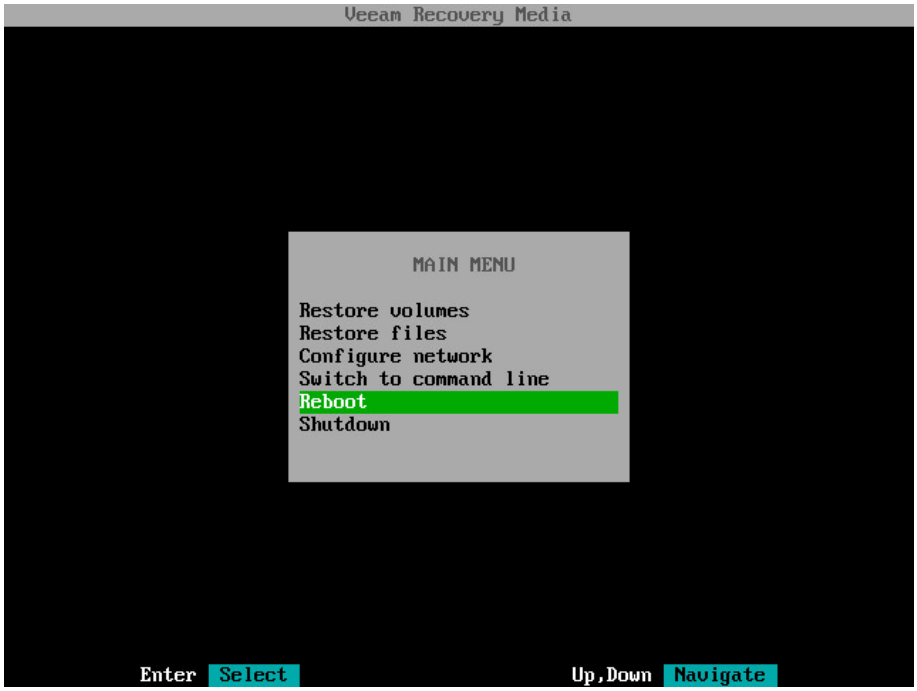
2. Press **Enter** to start the volume-level restore process. Veeam Agent for Linux will perform partition re-allocation operations if necessary, restore the necessary data from the backup and overwrite data on your computer with it.



Step 10. Finish Working with Veeam Recovery Media

When the restore operation completes, finish working with the Veeam Recovery Media and start your operating system.

1. Press **Esc** to return to the Veeam Recovery Media main menu.
2. Eject the media or removable storage device with the recovery image.
3. In the Veeam Recovery Media main menu, select the **Reboot** option and press **Enter**.
4. Wait for your Linux operating system to start.



Restoring Files and Folders

If some files and folders on your computer get lost or corrupted, you can restore them from backups. For file-level restore, you can use backups of any type:

- Volume-level backups (backups of the entire computer or specific volumes)
- File-level backups

When you perform file-level restore with the Veeam Recovery Media, Veeam Agent for Linux publishes the backup content directly into the recovery image OS file system and displays it in the file browser. You can restore files and folders to their initial location or copy files and folders to a new location.

Before You Begin

Before you boot from the recovery image and recover your data, check the following prerequisites:

- You must have a recovery image on any type of media: CD/DVD/BD or removable storage device.
- To recover data on your computer, you must have both the Veeam Recovery Media and data backup. For data recovery, you can use a volume-level or file-level backup created with Veeam Agent for Linux. Make sure that the backup or system image is available on the computer drive (local or external), on a network shared folder or on the backup repository managed by a Veeam backup server.
- The media type on which you have created the recovery image must be set as a primary boot source on your computer.
- The backup from which you plan to restore data must be successfully created at least once.
- [For backups stored in network shared folders, on Veeam backup repositories and Veeam Cloud Connect repositories] You must have access to the target location where the backup file resides.
- [For Veeam backup repository targets] If you plan to restore data from a backup stored on a Veeam backup repository, you must have access permissions on this backup repository. To learn more, see Setting Up User Permissions on Backup Repositories.

Step 1. Boot from Veeam Recovery Media

To boot from the Veeam Recovery Media:

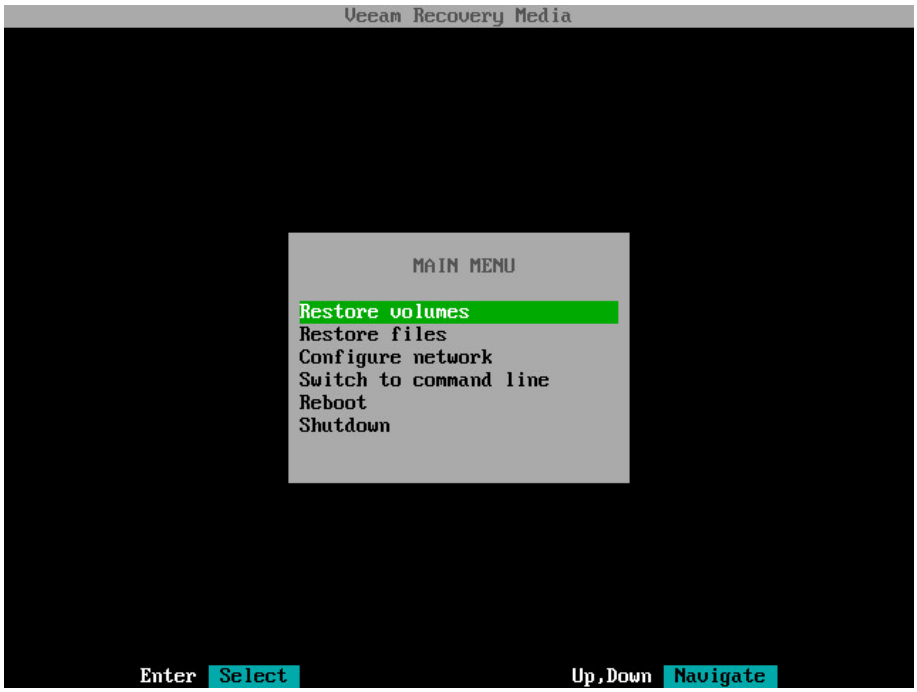
1. [For CD/DVD/BD] Power on your computer. Insert the media with the recovery image to the drive and power off the computer.

   [For removable storage device] Attach the removable storage device with the recovery image to your computer.
2. Start your computer.
3. Wait for Veeam Agent for Linux to load files from the Veeam Recovery Media.
4. After the recovery image OS has loaded, make sure that network settings are specified correctly and configure the network adapter if necessary. To learn more, see Configure Network Settings.

5. Choose the necessary recovery option. Veeam Agent for Linux offers the following tools:
    - **Restore volumes** — the Veeam Recovery wizard to recover data on the original computer or perform bare-metal recovery.
    - **Restore files** — the File Level Restore wizard to restore files and folders to the original location or to a new location.
    - **Switch to command line** — Linux shell prompt with standard utilities to diagnose problems and fix errors.

TIP:

To stop working with the Veeam Recovery Media and shut down or restart your computer, in the Veeam Recovery Media main menu, select the **Reboot** or **Shutdown** option and press **Enter**.

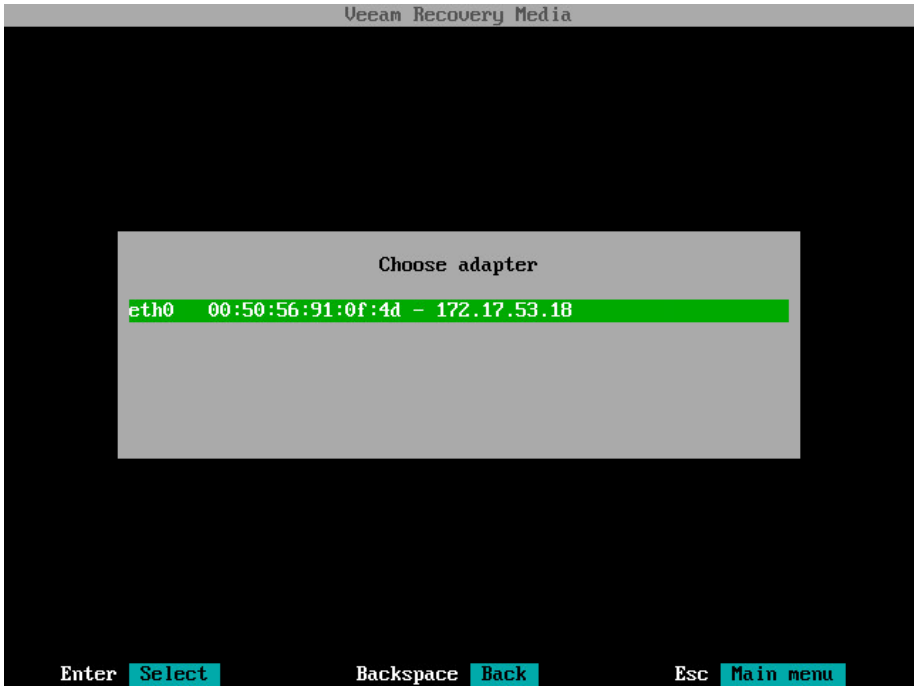


Step 2. Configure Network Settings

To open the **Network settings** dialog, in the Veeam Recovery Media main menu, select the **Configure network** option and press **Enter**.

Veeam Agent for Linux will display network adapters that are available on the system. If there is a DHCP server in your network, Veeam Agent for Linux will configure the network settings automatically and display the IP address assigned to the network adapter. You can then press **Esc** to return to the Veeam Recovery Media main menu and launch the Volume Restore wizard.

You can manually configure TPC/IP v4 settings for network adapters if necessary. To learn more, see Specifying Network Settings.



Specifying Network Settings

You can manually configure TPC/IP v4 settings for the network adapter. To configure network settings:

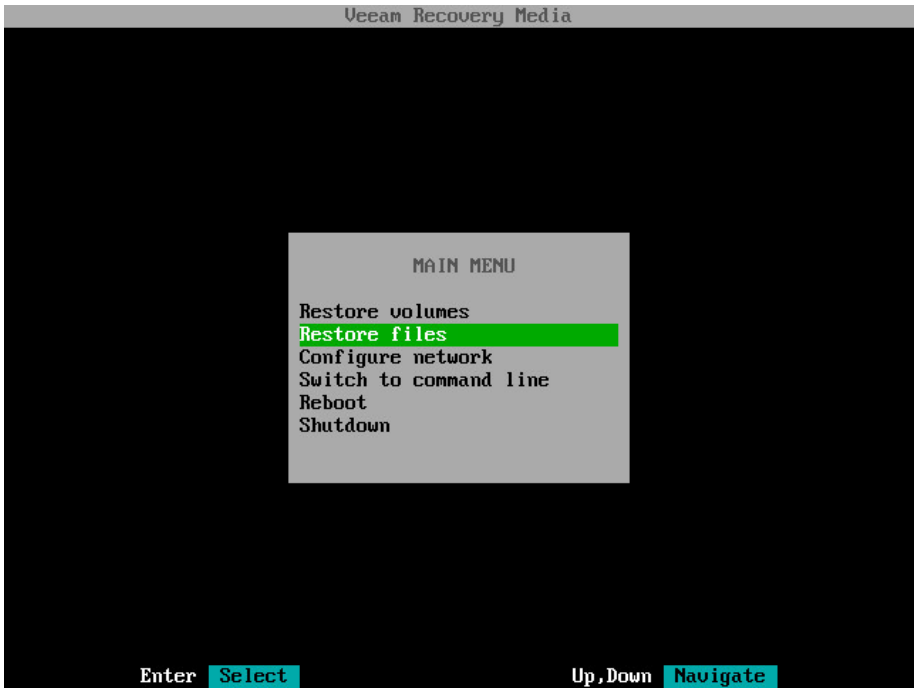
1. In the **Choose adapter** list, select the network adapter that you want to use to connect to the network shared folder or Veeam backup repository where the backup resides and press **Enter**.
2. In the **Configure adapter** dialog, select the **Manual** option and press **Enter**.
3. In the **Adapter settings** dialog, specify the following network settings:
    - IP address
    - Subnet mask
    - Default gateway
    - DNS server
4. Select the **Apply** button and press **Enter**.

If there is a DHCP server in your network, you can return to automatic IP addressing:

1. In the **Choose adapter** list, select the necessary network adapter and press **Enter**.
2. In the **Configure adapter** dialog, select the **Auto** option and press **Enter**. Veeam Agent for Linux will automatically configure network settings for the adapter.

Step 3. Launch File Level Restore Wizard

To launch the file-level restore wizard, in the Veeam Recovery Media main menu, select **Restore files** and press **Enter**.



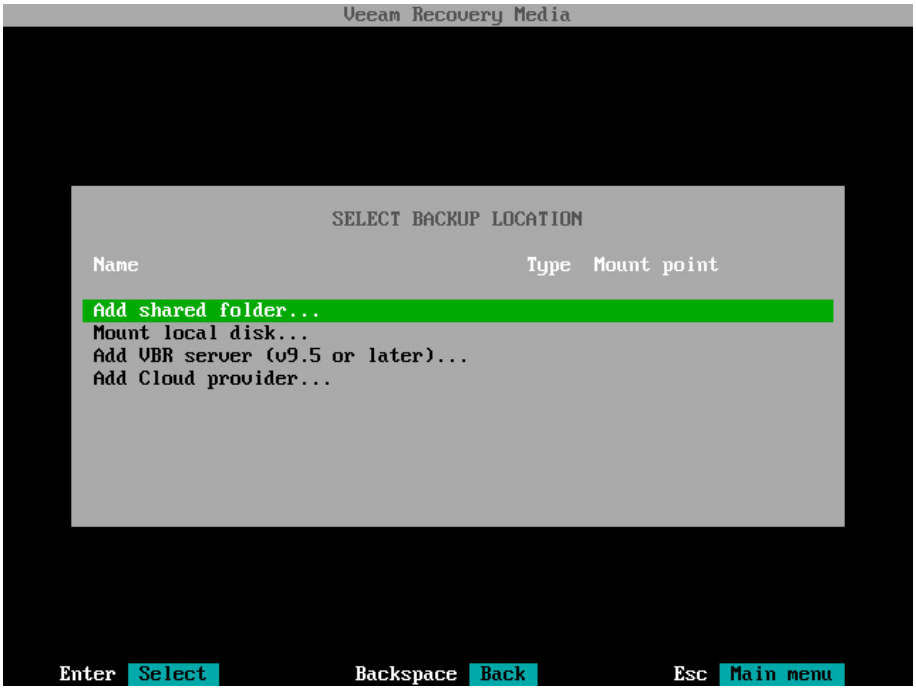
Step 4. Select Backup Location

At the **Select backup location** step of the wizard, specify where the backup file that you want to use for data recovery is located.

To recover data from backup, you need to mount the backup storage on which the backup file resides to the recovery image OS file system. Veeam Agent for Linux automatically mounts external USB drives that are connected to the computer and displays them in the list of available backup locations. You can select the necessary device and press **Enter** to pass to the Browse for backup files step of the wizard.

If the backup file is located in a network shared folder or on a local drive, select one of the following options:

- **Add shared folder** — select this option if the backup file is located in a network shared folder. With this option selected, you will pass to the Mount shared folder step of the wizard.
- **Mount local disk** — select this option if the backup file resides on the local computer drive, external drive or removable storage device that is currently connected to your computer. With this option selected, you will pass to the Select local disk step of the wizard.
- **Add VBR server** — select this option if the backup file resides on a backup repository managed by the Veeam backup server. With this option selected, you will pass to the Specify backup server parameters step of the wizard.
- **Add Cloud provider** — select this option if the backup file resides on a cloud repository exposed to you by a Veeam Cloud Connect service provider. With this option selected, you will pass to the Specify Cloud provider parameters step of the wizard.



Step 5. Specify Backup Location Settings

Specify settings for the target storage that contains a backup file from which you plan to restore data:

- Specify shared folder settings — if you have selected the **Add shared folder** option at the Select backup location step of the wizard.
- Select local drive — if you have selected the **Mount local disk** option at the Select backup location step of the wizard.
- Specify Veeam backup repository settings — if you have selected the **Add VBR server** option at the Select backup location step of the wizard.
- Specify Veeam Cloud Connect repository settings — if you have selected the **Add Cloud provider** option at the Select backup location step of the wizard.

Specifying Shared Folder Settings

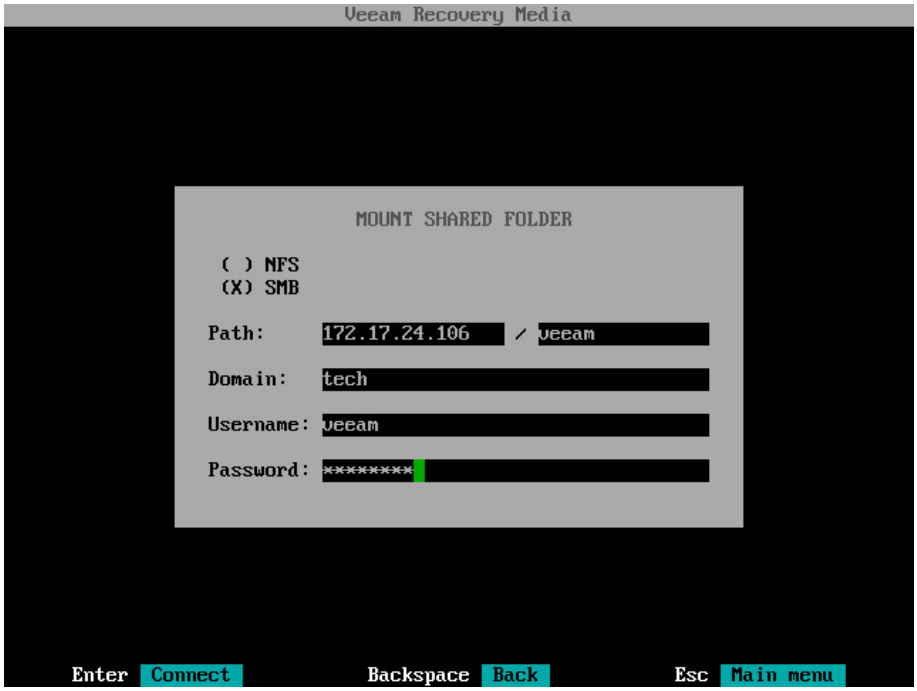
The **Mount shared folder** step of the wizard is available if you have selected to restore data from a backup file located in a network shared folder.

Specify settings for the network shared folder:

1. Select the type of a network shared folder:
    - **NFS** — to connect to a network shared folder using the NFS protocol.
    - **SMB** — to connect to a network shared folder using the SMB (CIFS) protocol.
2. In the **Path** field, specify the network shared folder name in the *SERVER/DIRECTORY* format: type an IP address or domain name of the server and the name of the network shared folder in which the backup file resides.
3. [For SMB network shared folder] In the **Domain** field, type a name of the domain in which the account that has access permissions on the shared folder is registered, for example: *DOMAIN*.
4. [For SMB network shared folder] In the **Username** field, type a user name of the account that has access permissions on the shared folder.
5. [For SMB network shared folder] In the **Password** field, type a password of the account that has access permissions on the shared folder.
6. Press **Enter** to connect to the network shared folder. Veeam Agent for Linux will mount the specified network shared folder to the `/media` directory of the recovery image OS file system and display content of the network shared folder.

TIP:

You can mount several network shared folders to work with backup files that are stored in different locations if needed. To do this, return to the Select Backup Location step of the wizard and select the **Add shared folder** option once again. For every mounted location, Veeam Agent for Linux displays its name, type and mount point. You can view the list of mounted network shared folders and browse for a backup file located on the necessary storage.

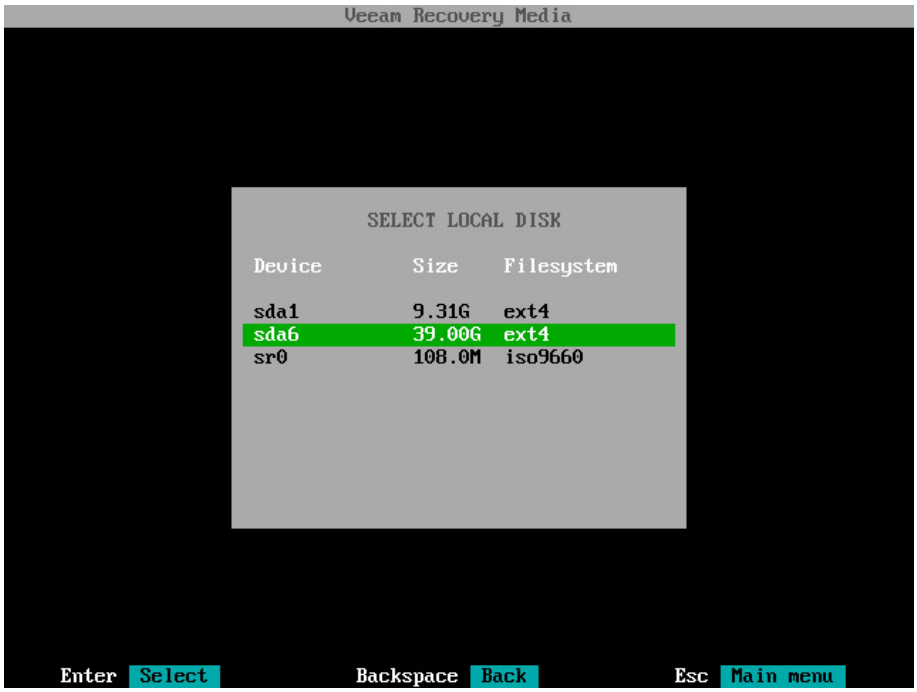


Selecting Local Drive

The **Select local disk** step of the wizard is available if you have selected to restore data from a backup file located on a computer drive.

In the list of devices, select the necessary disk or disk partition and press **Enter**. Veeam Agent for Linux will mount the selected device to the `/media` directory of the recovery image OS file system and display content of the directory.

> **TIP:**
>
> You can mount several devices to work with backup files that are stored in different locations if needed. To do this, return to the Select Backup Location step of the wizard and select the **Mount local disk** option once again. For every mounted location, Veeam Agent for Linux displays its name, type and mount point. You can view the list of mounted devices and browse for a backup file located on the necessary storage.

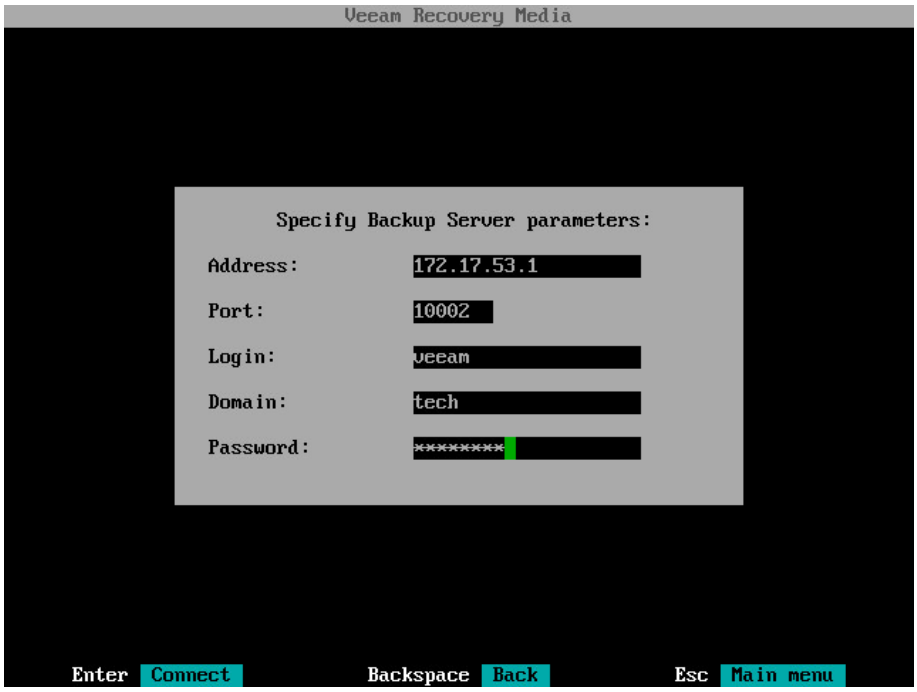


Specifying Backup Server Parameters

The **Specify backup server parameters** step of the wizard is available if you have selected to restore data from a backup repository managed by the Veeam backup server.

Specify settings for the Veeam backup server that manages the backup repository where the backup file resides:

1. In the **Address** field, specify a DNS name or IP address of the Veeam backup server.
2. In the **Port** field, specify a number of the port over which Veeam Agent for Linux must communicate with the backup repository. By default, Veeam Agent for Linux uses port 10002.
3. In the **Login** field, type a user name of the account that has access to the Veeam backup repository.
4. In the **Domain** field, type a name of the domain in which the account that has access to the Veeam backup repository is registered, for example: *DOMAIN*.
5. In the **Password** field, type a password of the account that has access to the Veeam backup repository.
6. Press **Enter**. Veeam Agent for Linux will connect to the Veeam backup server, and you will pass immediately to the Backup step of the wizard.



Specifying Service Provider Settings

If you have selected to restore data from a backup file located on a Veeam Cloud Connect repository, specify settings to connect to the cloud repository:

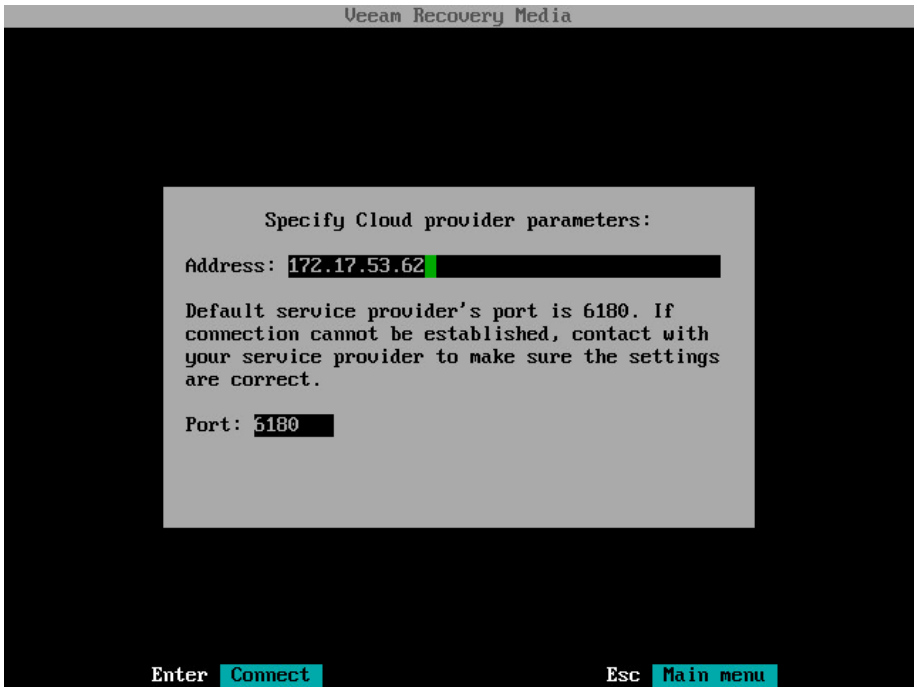
1. Specify service provider settings.
2. Verify the TLS certificate.
3. Specify user account settings.

Specifying Service Provider Settings

The **Specify Cloud provider parameters** step of the wizard is available if you have selected to restore data from a cloud repository exposed to you by a Veeam Cloud Connect service provider.

Specify service provider settings that the SP or your backup administrator has provided to you:

1. In the **DNS name or IP address** field, enter a full DNS name or IP address of the cloud gateway.
2. In the **Port** field, specify the port over which Veeam Agent for Linux will communicate with the cloud gateway. By default, port 6180 is used.
3. Press **Enter**. Veeam Agent for Linux will connect to the service provider and display the Certificate details window.

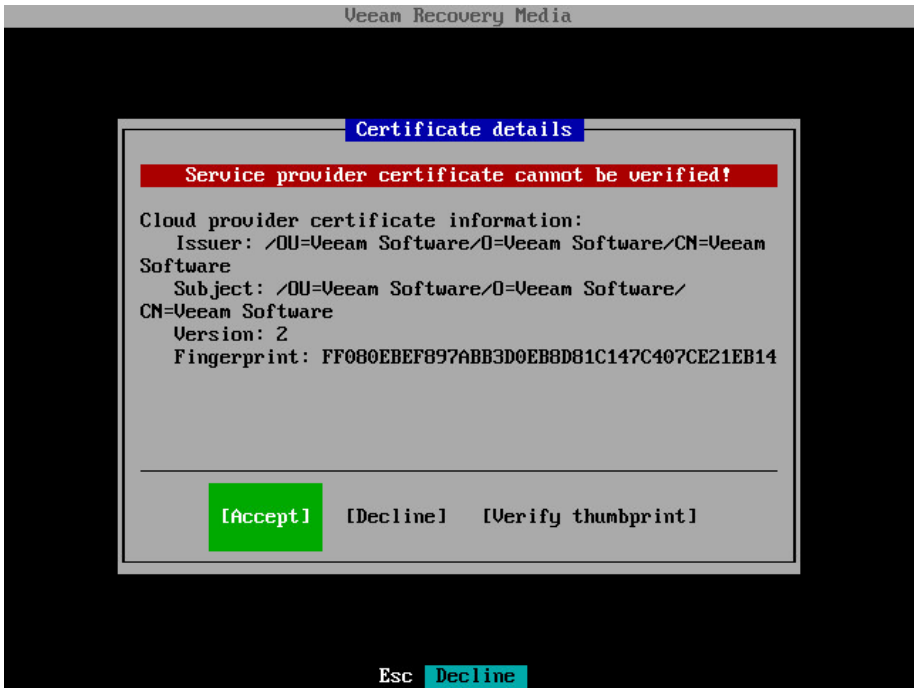


Verifying TLS Certificate

In the **Certificate details** window, review information about the TLS certificate obtained from the SP side and verify the TLS certificate.

- To accept the TLS certificate, select the **Accept** button with the **Tab** key and press **Enter**.
- [Optional] To verify the TLS certificate with a thumbprint, do the following:
    a. Select the **Verify thumbprint** button with the **Tab** key and press **Enter**.
    b. In the **Thumbprint verification** field, enter the thumbprint that you obtained from the SP.
    c. Switch to the **Verify** button and press **Enter**. Veeam Agent for Linux will check if the thumbprint that you entered matches the thumbprint of the obtained TLS certificate.

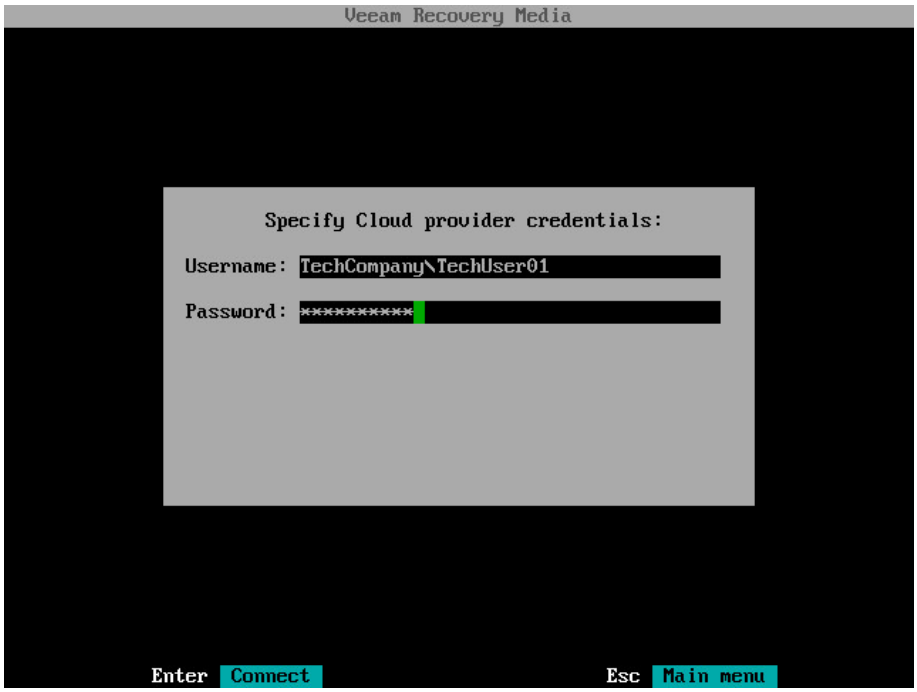
  TLS certificate verification is optional. You can use this option to verify self-signed TLS certificates. TLS certificates signed by the CA do not require additional verification.



Specifying User Account Settings

The **Specify Cloud provider credentials** step of the wizard is available if you have chosen to restore data from a cloud repository and specified settings for the cloud gateway.

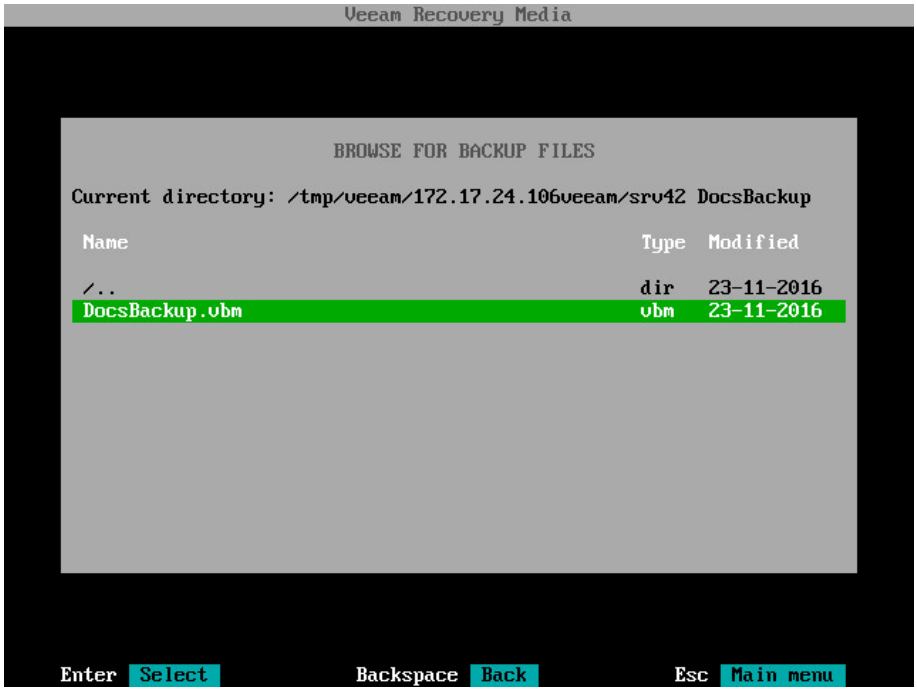
1. In the **Username** field, enter the user name of the tenant or subtenant account that the SP or your backup administrator has provided to you. The user name of the subtenant account must be specified in the *TENANT\SUBTENANT* format.
2. In the **Password** field, provide a password for the tenant or subtenant account.
3. Press **Enter**. Veeam Agent for Linux will connect to the cloud repository, and you will pass immediately to the Backup step of the wizard.



Step 6. Browse for Backup File

At the **Browse for backup files** step of the wizard, select the backup file that you plan to use for volume-level restore:

1. In the file system tree, select a directory in which the backup file you plan to use for restore resides:
    - Use **Up** and **Down** arrow keys to select a directory.
    - Use the **Enter** key to open the necessary directory.
2. In the directory where the backup file resides, select the backup file and press **Enter**.



Step 7. Select Backup and Restore Point

At the **Backup** step of the wizard, select a backup and restore point from which you want to recover data.

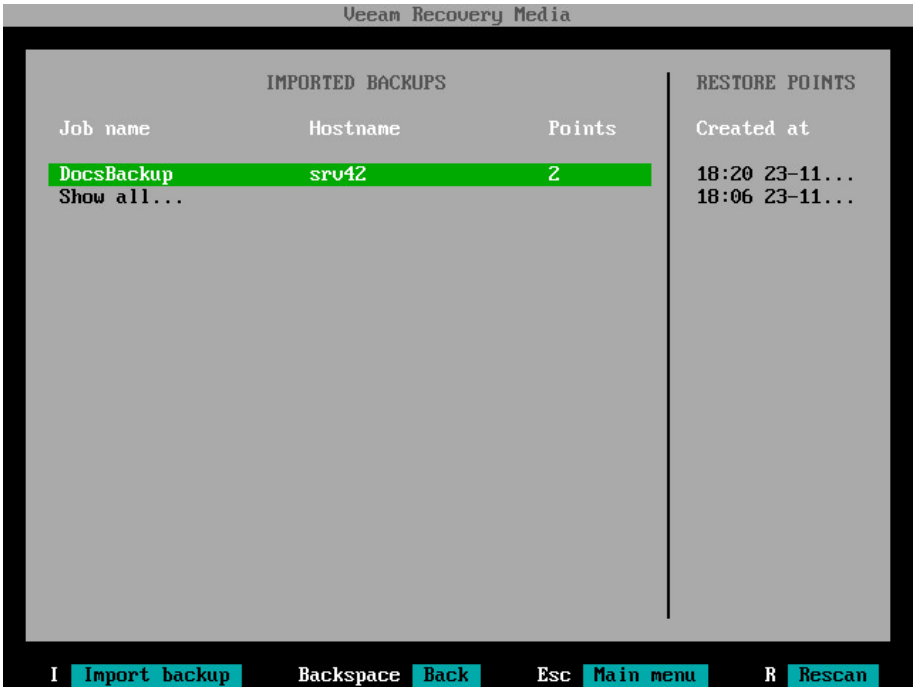
The **Backup** step window comprises two panes:

- The **Imported backups** pane on the left displays information about backup: host name of the computer whose data is stored in the backup file, backup job name and number of restore points.
- The **Restore points** pane on the right displays a list of restore points in the backup.

To select backup and restore point:

1. In the **Imported backups** pane, ensure that the backup from which you want to recover data is selected and press **Enter**.

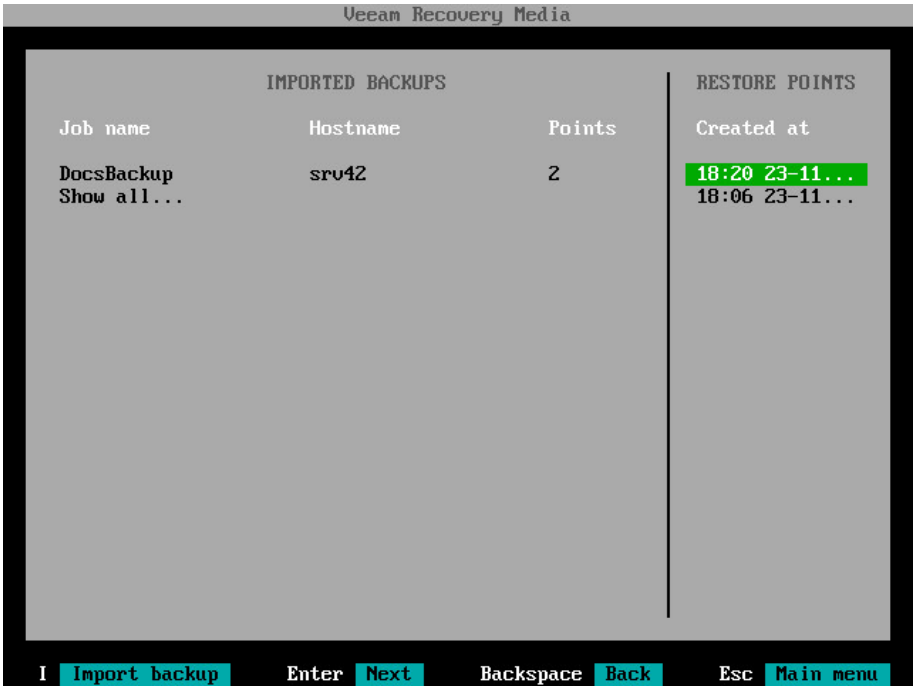
   If you want to select another backup, press the '**i**' key and browse for the necessary backup file. To learn more, see Locate Backup File.



2. In the **Restore points** pane, select with **Up** and **Down** keys the restore point from which you want to recover data and press **Enter**.

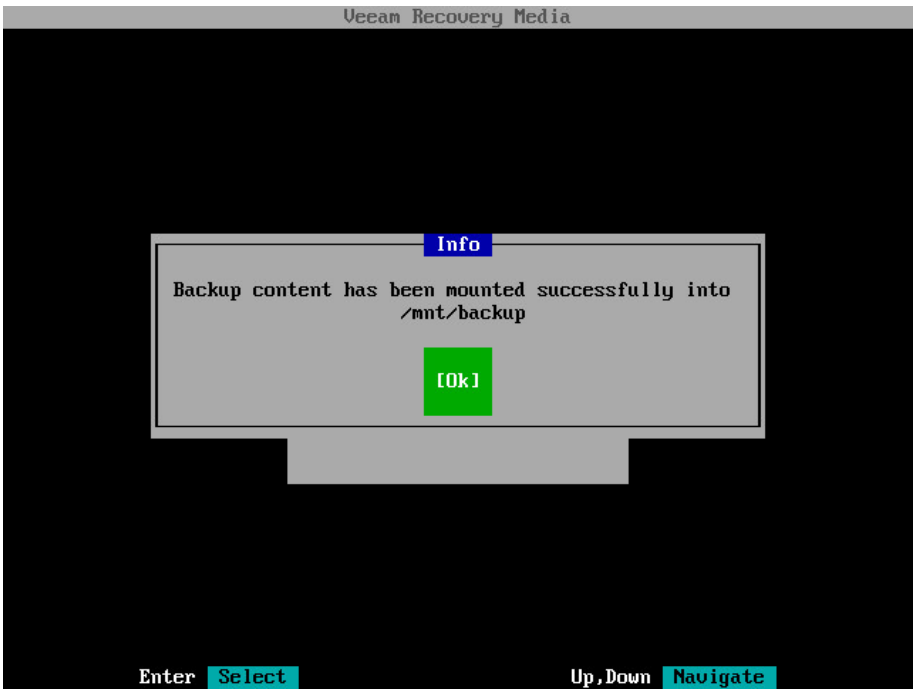
NOTE:

If you selected an encrypted backup for data restore, Veeam Agent for Linux will prompt you to provide a password to unlock the encrypted file. To lean more, see Restoring Data from Encrypted Backups.



3. Veeam Agent for Linux will mount the content of the backup file to the `/mnt/backup` directory in the recovery image OS file system and display a notification window with the corresponding message. Press **Enter** to proceed to the File Level Restore wizard menu, open the file manager and save restored files.

   When you perform file-level restore with the File Level Restore wizard, Veeam Agent for Linux always mounts the backup to the `/mnt/backup` directory. If you want to specify another directory for backup mount, you can perform file-level restore with the Veeam Agent for Linux command line interface. To learn more, see Restoring Files and Folders with Command Line Interface.



Step 8. Save Restored Files

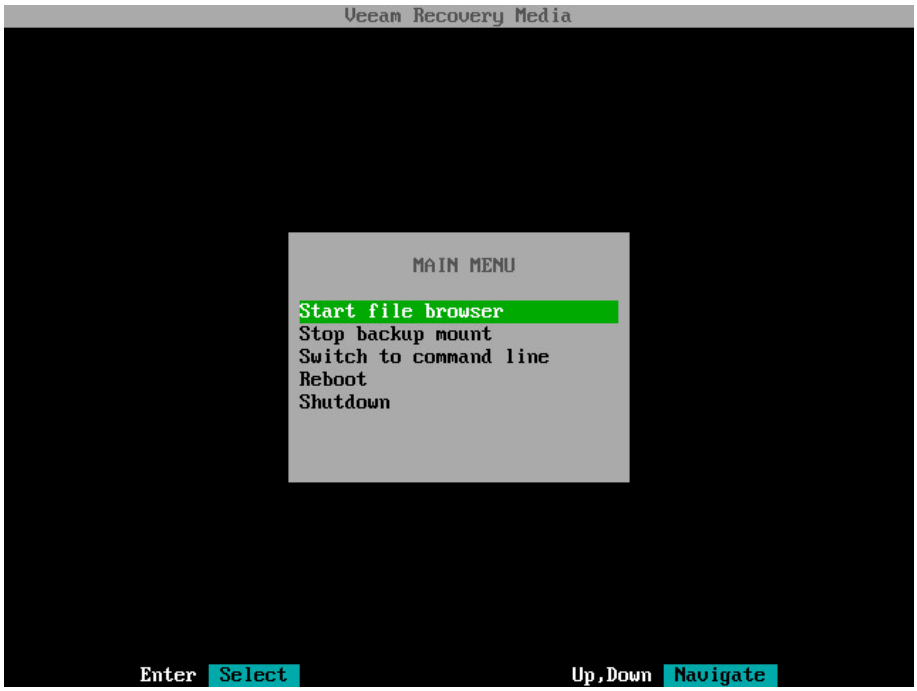
When the backup file content is mounted to the recovery image OS file system, Veeam Agent for Linux opens the File Level Restore wizard menu displaying a list of available operations.

You can perform the following operations with file-level backup:

- **Start file commander** — select this option if you want to start the file manager and work with restored files and folders. To learn more, see Working with Midnight Commander.
- **Stop backup mount** — select this option if you want to stop the backup mount session and unmount the backup file content from the `/mnt/backup` directory of the recovery image OS file system. To learn more, see Stopping Backup Mount Session.
- **Switch to command line** — select this option if you want to open the Linux shell prompt and use common Linux command-line tools.

TIP:

To stop working with the Veeam Recovery Media and shut down or restart your computer, in the File Level Restore wizard menu, select the **Reboot** or **Shutdown** option and press **Enter**.



Working with Midnight Commander

To work with restored files and folders, you can use Midnight Commander — a file manager that is included into the Veeam Recovery Media. With the Midnight Commander file manager, you can browse the mounted backup content and file system on your computer, and save restored files and folders to the original location or to a new location.

To launch the file manager, in the File Level Restore wizard menu, select **Start file browser** and press **Enter**.

When you launch Midnight Commander, Veeam Agent for Linux displays in the file manager the directory with the backup content and your computer's file system:

- In the left pane, Veeam Agent for Linux displays a directory of your computer's file system mounted under the `/mnt/system` directory of the recovery image OS file system. By default, Veeam Agent for Linux mounts to the recovery image OS file system the following volumes of your computer:
    - If you use a volume-level backup for file-level restore, Veeam Agent for Linux detects the partition table in the backup, mounts to the `/mnt/system` directory block devices that represent volumes of your computer with the same names as volumes in the backup. For example, if your volume-level backup contains `/dev/sda1` and `/dev/sda6` volumes with `/` and `/home` mount points, Veeam Agent for Linux will mount to the `/mnt/system` directory both root (`/`) and `/home` partitions.

- If you use a file-level backup for file-level restore, Veeam Agent for Linux mounts to the `/mnt/system` directory only the system volume of your computer, for example, `/dev/sda1`. If you want to save restored files and folders to a directory on another computer volume or to a network shared folder, you need to mount this volume or folder manually. To mount a target storage for restored files:

    a. In Midnight Commander, press **F10** to close the file manager.

    b. In the **File Level Restore** wizard menu, select the **Switch to command line** option and press **Enter**.

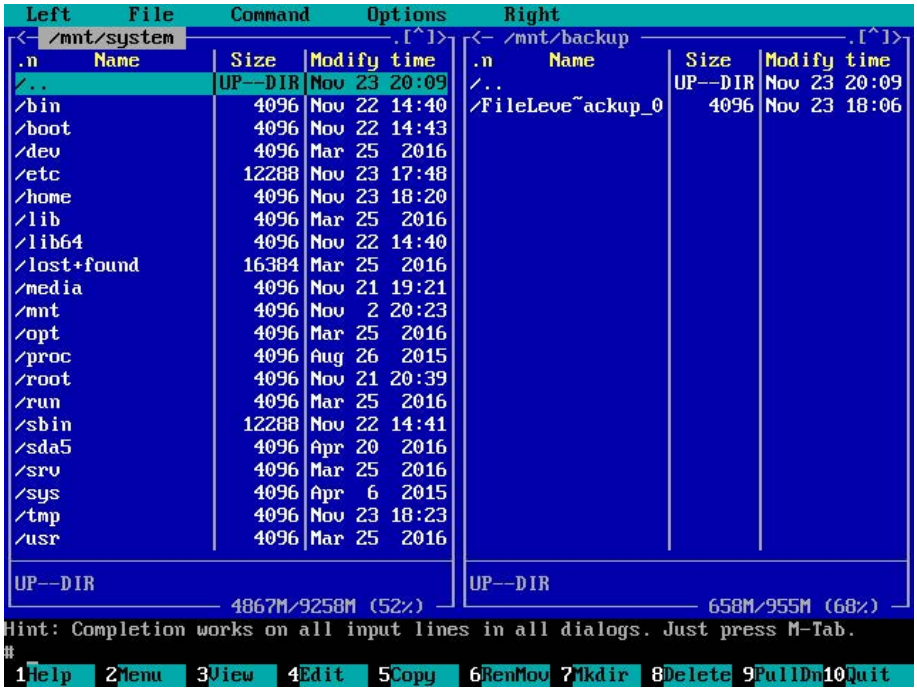
    c. Mount the target storage for the restored files and folders with the `mount` command.

- In the right pane, Veeam Agent for Linux displays a directory in which the backup content is mounted. Veeam Agent for Linux mounts the backup content under the `/mnt/backup` folder.

While the Midnight Commander file manager is open, you can perform the following operations with restored files and folders:

- Save files to initial location
- Save files to a new location

After you finish working with files and folders, finish working with the Veeam Recovery Media.

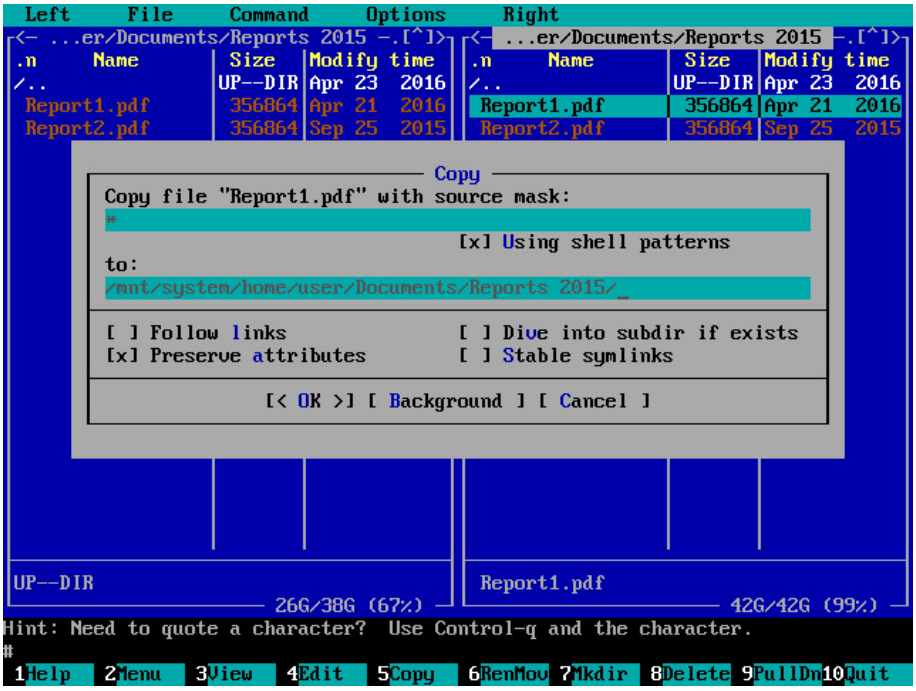


Saving Files to Initial Location

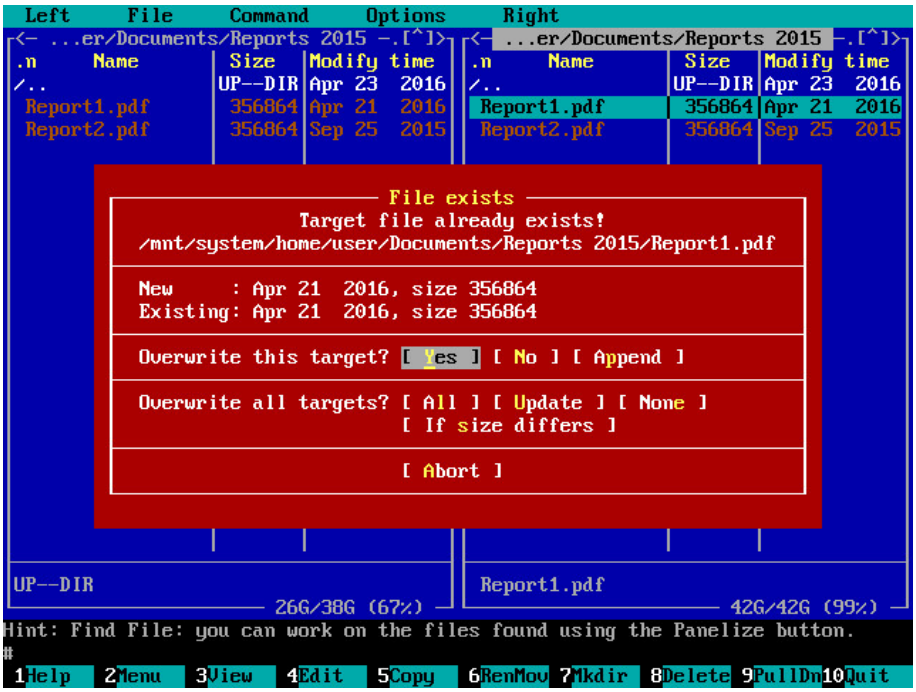
To save restored files or folders to their initial location on your computer, do the following:

1. In the left pane of the file manager window, open the directory in your computer's file system in which the backed-up file or folder that you want to restore originally resided.
2. In the right pane of the file manager window, open the directory that contains the file or folder in the backup that you want to restore to its original location.
3. Select the file or folder that you want to restore and press **F5**.

4. In the **Copy** dialog window, review the file or folder copy settings, select **Ok** and press **Enter**.



5. If the file or folder you want to restore exists in its original location, Midnight Commander will display a warning. In the warning window, select the necessary operation with the target file or folder and press **Enter**. Midnight Commander will save the file or folder in its original location.

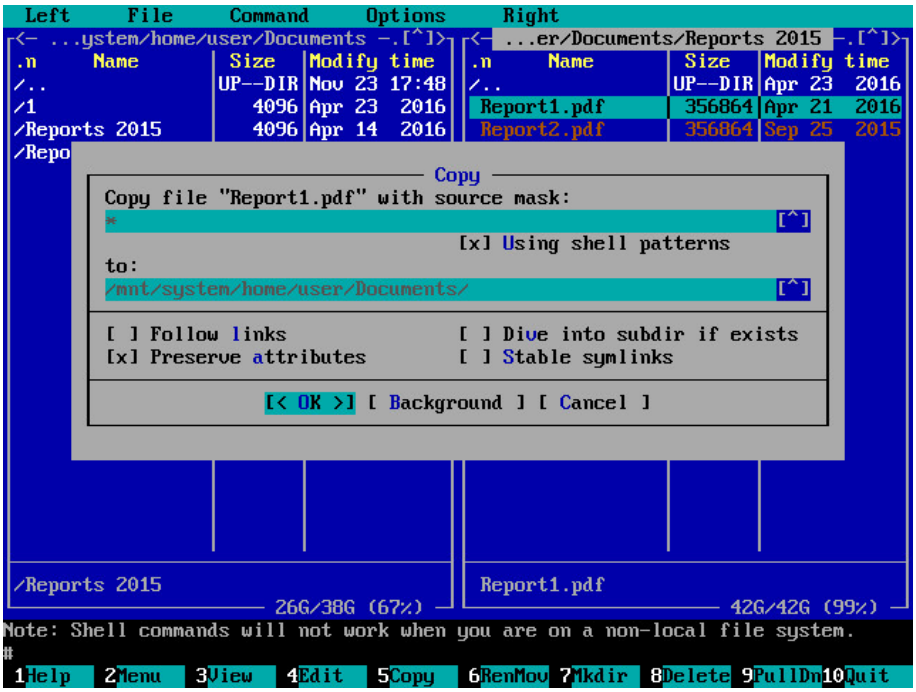


6. After you finish working with files and folders, press **F10** to close the file manager.

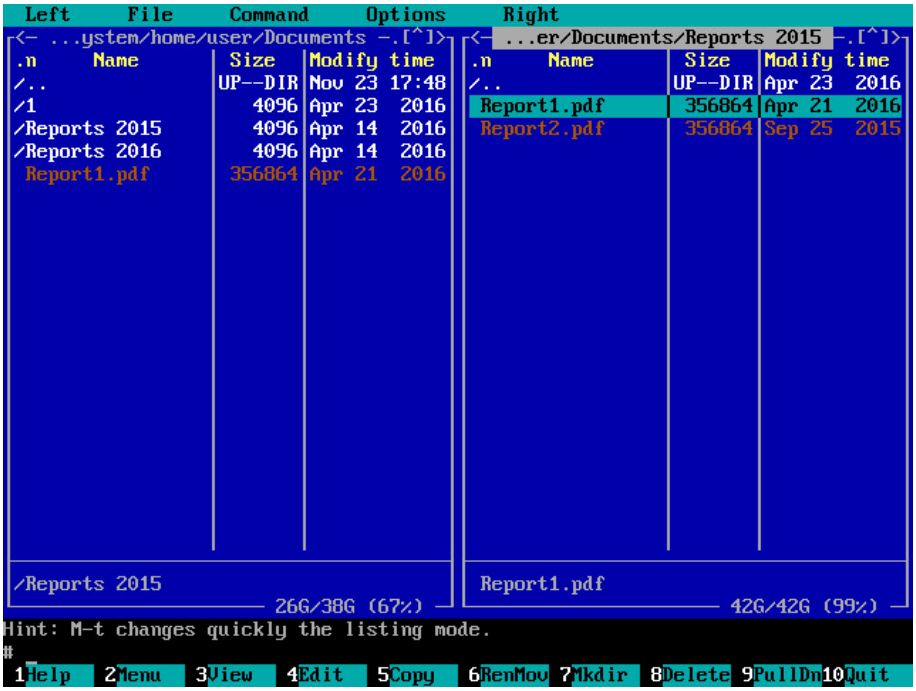
Saving Files to New Location

To save restored files or folders to a new location on your computer or to a network shared folder, do the following:

1. In the left pane of the file manager window, open the directory in your computer's file system in which you want to restore a file or folder.
2. In the right pane of the file manager window, open the directory that contains the file or folder in the backup that you want to restore.
3. Select the file or folder that you want to restore and press **F5**.
4. In the **Copy** dialog window, review the file or folder copy settings, select **Ok** and press **Enter**.



5. Midnight Commander will save the file or folder to the specified location.

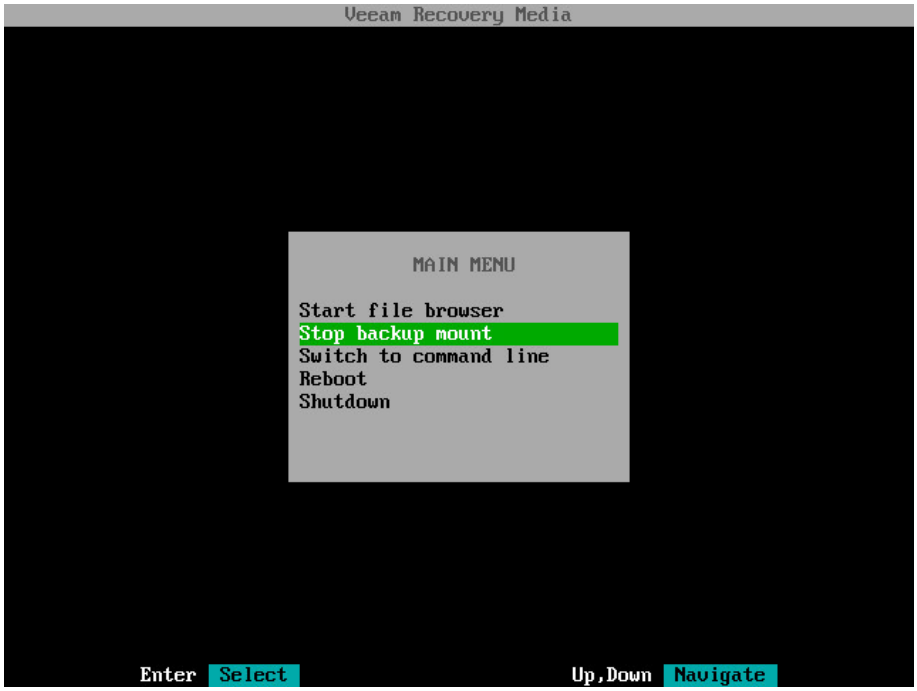


6. After you finish working with files and folders, press **F10** to close the file manager.

Stopping Backup Mount Session

When Veeam Agent for Linux mounts a backup for file-level restore, Veeam Agent for Linux starts a new backup mount session. To unmount a backup, you need to stop the backup mount session. This may be required, for example, if you want to stop working with files and folders in one backup and mount another backup for file-level restore.

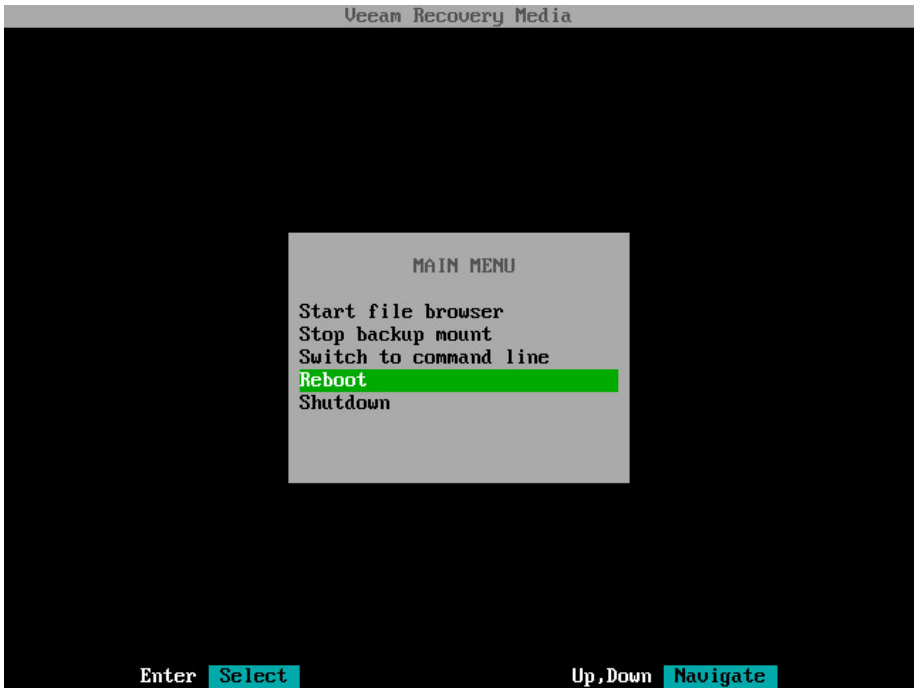
To stop the backup mount session with the Veeam Recovery Media, in the File Level Restore wizard menu, select the **Stop backup mount** option and press **Enter**. Veeam Agent for Linux will stop the backup mount session, unmount the backup from the `/mnt/backup` directory of the recovery image OS file system, exit the File Level Restore wizard and display the Veeam Recovery Media main menu.



Step 9. Finish Working with Veeam Recovery Media

When the restore operation completes, finish working with the Veeam Recovery Media and start your operating system.

1. Eject the media or removable storage device with the recovery image.
2. In the File Level Recovery wizard menu or Veeam Recovery Media main menu, select the **Reboot** option and press **Enter**.
3. Wait for your Linux operating system to start.



Restoring Volumes with Command Line Interface

You can restore a specific computer volume or all volumes from the volume-level backup.

Volumes can be restored to their original location or to a new location.

- If you restore a volume to its original location, Veeam Agent for Linux will overwrite the data on the original volume with the data restored from the backup.
- If you restore volume data to a new location, Veeam Agent for Linux will restore data from the backup and write it to the selected destination. If necessary, you can specify new disk mapping settings for the restored volume.

You can use Veeam Agent for Linux commands to restore volumes from a backup or restore point:

- Restore from backup

  When you restore a volume from the backup, Veeam Agent for Linux will automatically select the latest restore point in the backup. The volume will be restored to the state in which the volume was at the time when the latest restore point was created.

- Restore from a restore point

  When you restore a volume from the restore point, you can select the necessary restore point in the backup to recover data to a specific point in time.

Before You Begin

Before you begin the volume-level restore process, check the following prerequisites:

- The volume-level backup from which you plan to restore data must be successfully created at least once.
- [For backups stored in network shared folders and on Veeam backup repositories] You must have access to the target location where the backup file resides.
- [For Veeam backup repository targets] If you plan to restore data from a backup stored on a backup repository, you must have access permissions on this backup repository. To learn more, see Setting Up User Permissions on Backup Repositories.

Volume-level restore has the following limitations:

- You cannot restore the system volume to its original location.
- You cannot restore a volume to the volume on which the Linux swap space is hosted.
- You cannot restore a volume to the volume where the backup file that you use for restore is located.

To overcome the first two limitations, you can boot from the recovery image and use the Veeam Recovery Media tools for volume-level restore. To learn more, see Restoring from Veeam Recovery Media.

Restoring from Backup

With Veeam Agent for Linux command line interface, you can restore volumes from the backup. When you restore a volume from the backup, Veeam Agent for Linux automatically selects the latest restore point in the backup and restores the volume to the state in which the volume was at the time when the latest restore point was created.

Step 1. Locate Backup

To view a list of backups created by Veeam Agent for Linux, use the following command:

```
veeamconfig backup list
```

In the list of backups, Veeam Agent for Linux displays information about all backups stored in all backup repositories. If Veeam Agent for Linux is connected to a Veeam backup server, backups that are kept on a Veeam backup repository also appear in this list. For each backup, Veeam Agent for Linux displays the following information:

Parameter	Description
Job name	Name of the backup job by which the backup was created.
Backup ID	ID of the backup.
Repository	Name of the backup repository in which the backup was created.
Created at	Date and time of the backup creation.

For example:

```
user@srv01:~$ veeamconfig backup list
Job name                  Backup ID                                  Repository
Created at
srv01 SystemBackup        {45f074d2-d2d9-423d-84e9-8f1798b08d4c}  Repository_1  2016-
11-11 17:37
srv01 DocumentsBackup     {ea64a7e5-038a-4c86-970a-6d59d4cf3968}  Repository_1  2016-
11-11 18:30
srv01 HomePartitionBackup {4f75bb20-a6b6-4323-9287-1c6c8ceccb6b}  Repository_2  2016-
11-15 11:28
```

TIP:

If you want to recover data from a backup that is stored in another location, for example, a backup created with another instance of Veeam Agent for Linux, you can import such backup into the Veeam Agent for Linux database on your computer. To learn more, see Importing Backups.

Step 2. Explore Backup Content

To view detailed information about specific backup, use the following command:

```
veeamconfig backup show --id <backup_id>
```

where:

<backup_id> — ID of the backup for which you want to view detailed information.

For a volume-level backup, Veeam Agent for Linux displays the following information:

Parameter	Description
Machine name	Host name of the machine on which the backup job is configured and the name of the job.
Name	Name of the volume in the backup.
Device	Path to the block device that represents the volume.
FS UUID	File system ID.
Offset	Position of the volume on the computer disk.
Size	Size of the volume in the backup.

For example:

```
user@srv01:~$ veeamconfig backup show --id 4f75bb20-a6b6-4323-9287-1c6c8ceccb6b
      Machine name: srv01 HomePartitionBackup
         Name:       [sda6]
         Device:     [/dev/sda6]
         FS UUID:    [4967f2eb-e8bb-48fe-a694-5ba67b9030a5]
         Offset:     [11813257216] bytes (23072768 sectors)
         Size:       [41872785408] bytes (81782784 sectors)
```

Step 3. Start Restore Process

To start the process of volume-level restore from the backup, use the following command:

```
veeamconfig backup restore --id <backup_id> --targetdev <target_volume> --backupdev
<volume_in_backup>
```

where:

- <backup_id> — ID of the backup.
- <target_volume> — path to a block device that represents a volume on your computer that you want to recover.

- <volume_in_backup> — path to a block device that represents a volume in the backup.

  This parameter is optional. If you do not specify this parameter, Veeam Agent for Linux will restore from the backup a volume that has the same name as a <target_volume>.

For example:

```
user@srv01:~$ veeamconfig backup restore --id 4f75bb20-a6b6-4323-9287-1c6c8ceccb6b --
targetdev /dev/sdb --backupdev /dev/sda6
Restoring backup.
 Backup: 4f75bb20-a6b6-4323-9287-1c6c8ceccb6b
 Devices:
    Device in current system: [/dev/sdb]  In backup: [/dev/sda6];
You are sure? (y/n)
y
Volume restore from backup has been started.
Session ID: [{0b72ef45-4c88-4639-b940-ad3828b1cd4e}].
Logs stored in: [/var/log/veeam/Restore/Session_{0b72ef45-4c88-4639-b940-
ad3828b1cd4e}].
```

IMPORTANT!

You can restore a backed-up volume only to a target volume that is not used by your Linux OS (that does not have file system mount points). For example, you can add a new disk to your computer and restore a volume in the backup to this disk. To restore a volume to its original location or to another volume used by Linux OS, you should boot from the Veeam Recovery Media and perform volume-level restore with the Volume Restore wizard.

Step 4. Monitor Restore Process

You can monitor the restore process by viewing the restore session log in the command line interface.

To view Veeam Agent for Linux session log, use the following command:

```
veeamconfig session log --id <session_id>
```

where:

<session_id> — ID of the restore session.

For example:

```
user@srv01:~$ veeamconfig session log --id 0b72ef45-4c88-4639-b940-ad3828b1cd4e
2016-11-27 11:04:04 UTC {b141f32a-3e77-45a6-b55a-c100a1464d67} [info] Job started at
2016-11-27 14:04:04
2016-11-27 11:04:04 UTC {9b60ac03-2de0-4fe2-a00e-bec556d98ee8} [info] Starting volume
restore
2016-11-27 11:04:07 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [processing] sdb
2016-11-27 11:04:15 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb 512.0kB at
58.6kB/s (0%)

...
```

```
2016-11-27 11:14:35 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb 6.5GB at
10.6MB/s (97%)
2016-11-27 11:14:37 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb 6.5GB at
10.6MB/s (100%)
2016-11-27 11:14:37 UTC {00add723-cbfa-4cc8-b299-d2349a051d6f} [warn] /dev/sdb has a
duplicate filesystem UUID
2016-11-27 11:14:37 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb restored
6.5GB at 10.6MB/s
2016-11-27 11:14:37 UTC {8b8742a2-1c80-4e14-bbf1-45a3612bc3a7} [info] Volume restore
completed
```

TIP:

You can also check the restore session status with the `veeamconfig session info` command. To learn more, see Viewing Session Status.

Restoring from Restore Point

With Veeam Agent for Linux command line interface, you can restore volumes from the specific restore point. When you restore a volume from the restore point, you can select the necessary restore point in the backup to recover data to a desired point in time.

Step 1. Locate Backup

To view a list of backups created by Veeam Agent for Linux, use the following command:

```
veeamconfig backup list
```

In the list of backups, Veeam Agent for Linux displays information about all backups stored in all backup repositories. If Veeam Agent for Linux is connected to a Veeam backup server, backups that are kept on a Veeam backup repository also appear in this list. For each backup, Veeam Agent for Linux displays the following information:

Parameter	Description
Job name	Name of the backup job by which the backup was created.
Backup ID	ID of the backup.
Repository	Name of the backup repository in which the backup was created.
Created at	Date and time of the backup creation.

For example:

```
user@srv01:~$ veeamconfig backup list
Job name                   Backup ID                                    Repository
Created at
srv01 SystemBackup         {45f074d2-d2d9-423d-84e9-8f1798b08d4c}  Repository_1  2016-
11-11 17:37
srv01 DocumentsBackup      {ea64a7e5-038a-4c86-970a-6d59d4cf3968}  Repository_1  2016-
11-11 18:30
srv01 HomePartitionBackup  {4f75bb20-a6b6-4323-9287-1c6c8ceccb6b}  Repository_2  2016-
11-15 11:28
```

TIP:

If you want to recover data from a backup that is stored in another location, for example, a backup created with another instance of Veeam Agent for Linux, you can import such backup into the Veeam Agent for Linux database on your computer. To learn more, see Importing Backups.

Step 2. Explore Restore Points

To view information about restore points in the backup, use the following command:

```
veeamconfig backup info --id <backup_id>
```

or

```
veeamconfig point list --backupid <backup_id>
```

where

<backup_id> — ID of the backup for which you want to view information on restore points.

You can view the following information about restore points in the backup:

Parameter	Description
Job name	Name of the backup job by which the backup was created.
OIB ID	ID of the restore point in the backup.
Type	Type of the restore point. Possible values: ▪ Full ▪ Increment.
Created at	Date and time of the restore point creation.
Is corrupt	Indicates whether restore point in the backup is corrupted. Possible values: ▪ True ▪ False

For example:

```
user@srv01:~$ veeamconfig backup info --id 4f75bb20-a6b6-4323-9287-1c6c8ceccb6b
Job name                  OIB ID                                  Type       Created
at       Is corrupt
srv01 HomePartitionBackup  {23cb927d-5e2d-42fe-a4a4-e5f254a6413e}  Full       2016-11-
15 11:28  false
srv01 HomePartitionBackup  {25e31075-4c30-4d67-86a6-293c0887f4eb}  Increment  2016-11-
15 11:58  false
srv01 HomePartitionBackup  {9375140d-720a-4d3e-a69b-ab9cf60d53fa}  Increment  2016-11-
27 13:15  false
```

or

```
user@srv01:~$ veeamconfig point list --backupid 4f75bb20-a6b6-4323-9287-1c6c8ceccb6b
Job name                  OIB ID                                  Type       Created
at       Is corrupt
srv01 HomePartitionBackup  {23cb927d-5e2d-42fe-a4a4-e5f254a6413e}  Full       2016-11-
15 11:28  false
srv01 HomePartitionBackup  {25e31075-4c30-4d67-86a6-293c0887f4eb}  Increment  2016-11-
15 11:58  false
srv01 HomePartitionBackup  {9375140d-720a-4d3e-a69b-ab9cf60d53fa}  Increment  2016-11-
27 13:15  false
```

Step 3. Start Restore Process

To start the process of volume-level restore from the specific restore point, use the following command:

```
veeamconfig point restore --id <point_id> --targetdev <target_volume> --backupdev
<volume_in_backup>
```

where:

- `<point_id>` — ID of the restore point.
- `<target_volume>` — path to a block device that represents a volume on your computer that you want to recover.
- `<volume_in_backup>` — path to a block device that represents a volume in the backup.

  This parameter is optional. If you do not specify this parameter, Veeam Agent for Linux will restore from the backup a volume that has the same name as a `<target_volume>`.

For example:

```
user@srv01:~$ veeamconfig point restore --id 9375140d-720a-4d3e-a69b-ab9cf60d53fa --
backupdev /dev/sda6 --targetdev /dev/sdb
Restoring point.
 Restore point: 9375140d-720a-4d3e-a69b-ab9cf60d53fa
 Devices:
    Device in current system: [/dev/sdb]  In backup: [/dev/sda6];
You are sure? (y/n)
y
Volume restore by point has been started.
Session ID: [{697d9348-9001-4845-8764-3cc4fb3f296b}].
Logs stored in: [/var/log/veeam/Restore/Session_{697d9348-9001-4845-8764-
3cc4fb3f296b}].
```

IMPORTANT!

You can restore a backed-up volume only to a target volume that is not used by your Linux OS (that does not have file system mount points). For example, you can add a new disk to your computer and restore a volume in the backup to this disk. To restore a volume to its original location or to another volume used by Linux OS, you should boot from the Veeam Recovery Media and perform volume-level restore with the Volume Restore wizard.

Step 4. Monitor Restore Process

You can monitor the restore process by viewing the restore session log in the command line interface.

To view Veeam Agent for Linux session log, use the following command:

```
veeamconfig session log --id <session_id>
```

where:

<session_id> — ID of the restore session.

For example:

```
user@srv01:~$ veeamconfig session log --id 697d9348-9001-4845-8764-3cc4fb3f296b
2016-11-27 10:35:47 UTC {b9604775-d265-4537-b98e-848fd77c7375} [info] Job started at
2016-11-27 13:35:47
2016-11-27 10:35:47 UTC {ed66a1f6-5216-4596-a7b5-be10dd10c32f} [info] Starting volume
restore
2016-11-27 10:35:50 UTC {2e37de47-c4e2-46f9-8b70-f24fbff3697d} [processing] sdb
2016-11-27 10:35:59 UTC {2e37de47-c4e2-46f9-8b70-f24fbff3697d} [info] sdb 512.0kB at
59.1kB/s (0%)

...

2016-11-27 10:46:27 UTC {2e37de47-c4e2-46f9-8b70-f24fbff3697d} [info] sdb 6.5GB at
10.5MB/s (100%)
2016-11-27 10:46:28 UTC {dae118c8-eb7c-4e14-9832-f0bfd089b329} [warn] /dev/sdb has a
duplicate filesystem UUID
2016-11-27 10:46:28 UTC {2e37de47-c4e2-46f9-8b70-f24fbff3697d} [info] sdb restored
6.5GB at 10.5MB/s
2016-11-27 10:46:28 UTC {a21a89d9-d0ca-4f5c-8399-28ae599f2f1c} [info] Volume restore
completed
```

TIP:

You can also check the restore session status with the `veeamconfig session info` command. To learn more, see Viewing Session Status.

Restoring Files and Folders with Recovery Wizard

If some files and folders on your computer get lost or corrupted, you can restore them from backups. For file-level restore, you can use backups of any type:

- Volume-level backups (backups of the entire computer or specific volumes)
- File-level backups

When you perform file-level restore, Veeam Agent for Linux publishes the backup content directly into the computer file system. You can browse to files and folders in the backup, restore files and folders to their initial location, copy files and folders to a new location or simply target applications to restored files and work with them as usual.

Before You Begin

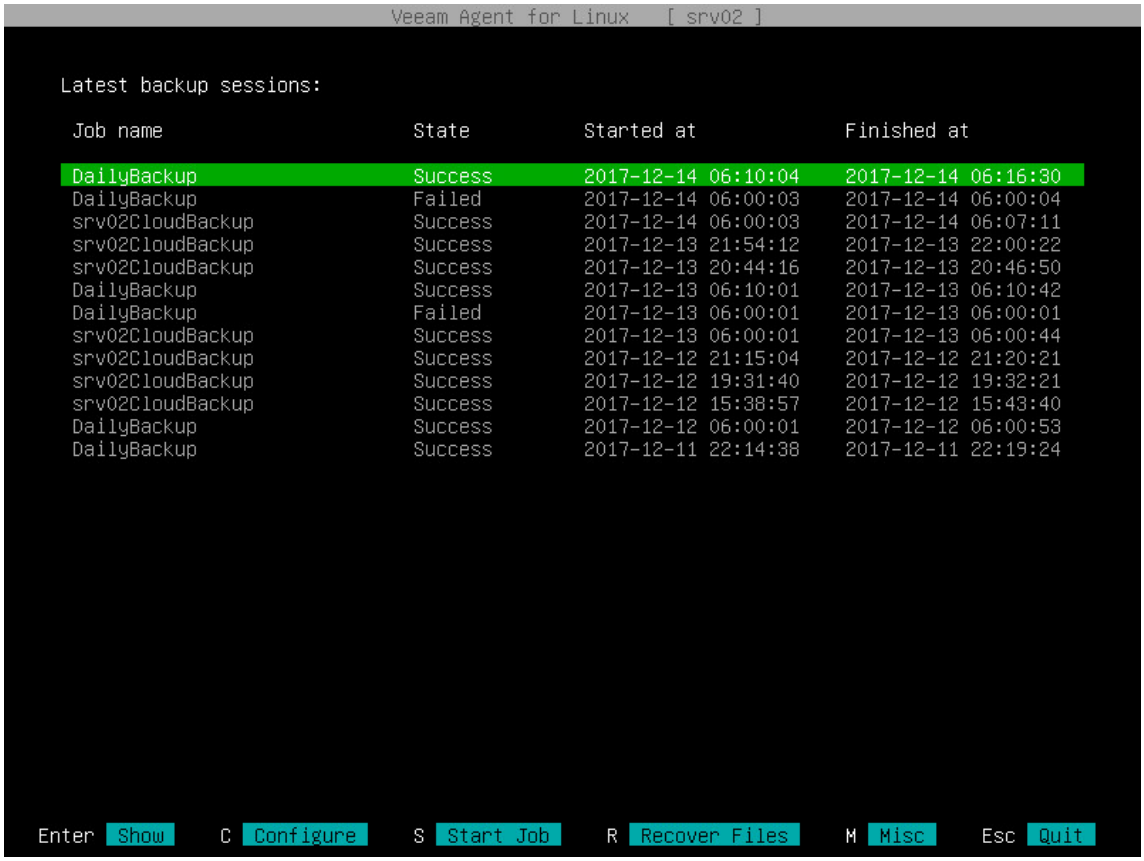
Before you begin the file-level restore process, check the following prerequisites:

- The backup from which you plan to restore data must be successfully created at least once.
- [For backups stored in network shared folders, on Veeam backup repositories and Veeam Cloud Connect repositories] You must have access to the target location where the backup file resides.
- [For Veeam backup repository targets] If you plan to restore data from a backup stored on a backup repository, you must have access permissions on this backup repository. To learn more, see Setting Up User Permissions on Backup Repositories.

Step 1. Launch File Level Restore Wizard

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

1. Launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command.
2. In the Veeam Agent for Linux control panel, press the '**r**' key to proceed to the File Level Restore wizard.



Step 2. Select Backup and Restore Point

At the **Backup** step of the wizard, select a backup and restore point from which you want to recover data.

The **Backup** step window comprises two panes:

- The **Imported backups** pane on the left displays available backups and information about each backup: host name of the computer whose data is stored in the backup file, backup job name and number of restore points.
- The **Restore points** pane on the right displays a list of restore points in the backup.

To select backup and restore point:

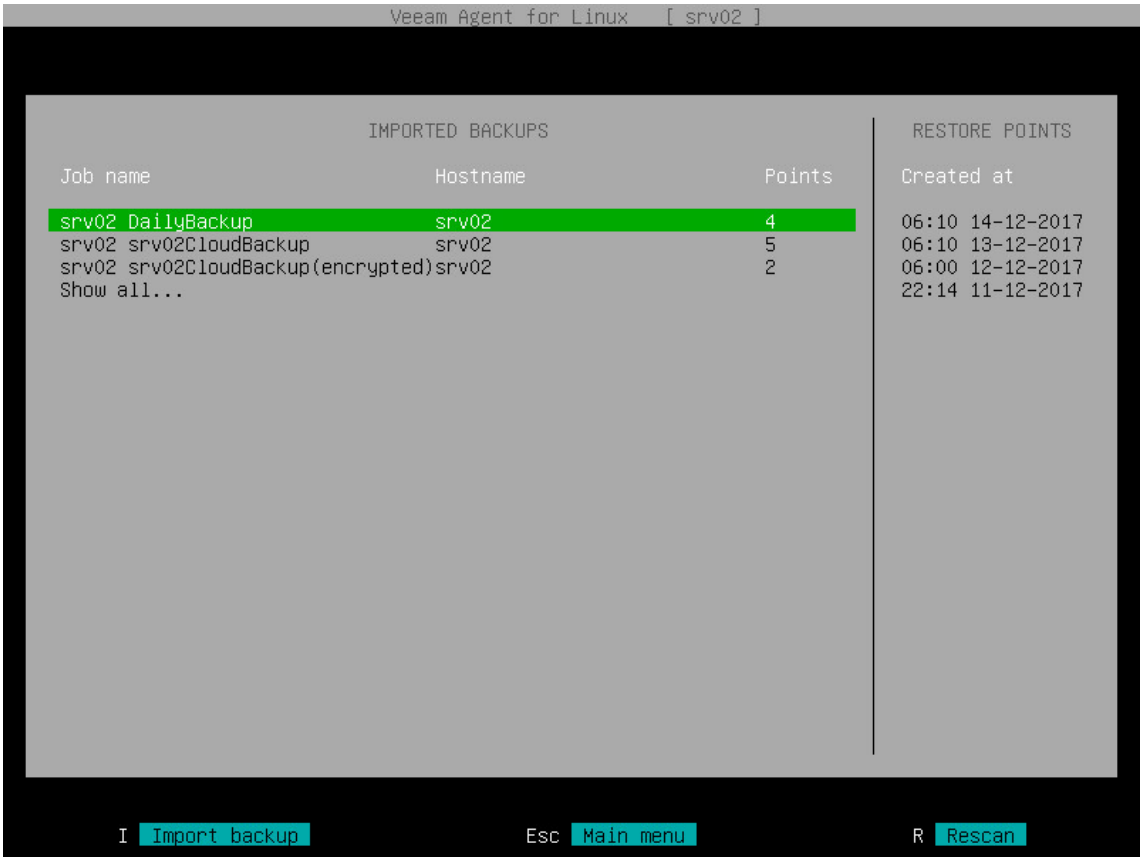
1. In the **Imported backups** pane, select with **Up** and **Down** keys the backup from which you want to recover data and press **Enter**.

   In the list of backups, Veeam Agent for Linux displays backups that were created by backup jobs configured with Veeam Agent for Linux on your computer. If Veeam Agent for Linux is connected to a Veeam Backup & Replication server or a Veeam Cloud Connect service provider, backups created in the Veeam backup repository or cloud repository also appear in the list.

   By default, Veeam Agent for Linux displays in the list only those backups in the Veeam backup repository that were created under your account. If you used an account to which the Veeam Backup Administrator role is assigned to connect to the Veeam backup server, you can also view all Veeam Agent for Linux backups that are stored in the Veeam backup repository to which Veeam Agent for Linux is connected. To view such backups, click the **Show all** link at the bottom of the list.

   If Veeam Agent for Linux fails to display backups stored in the Veeam backup repository for some reason, you can press the '**r**' key to rescan the backup repository. Veeam Agent for Linux will try to reconnect to the Veeam backup server and refresh the list of backups.

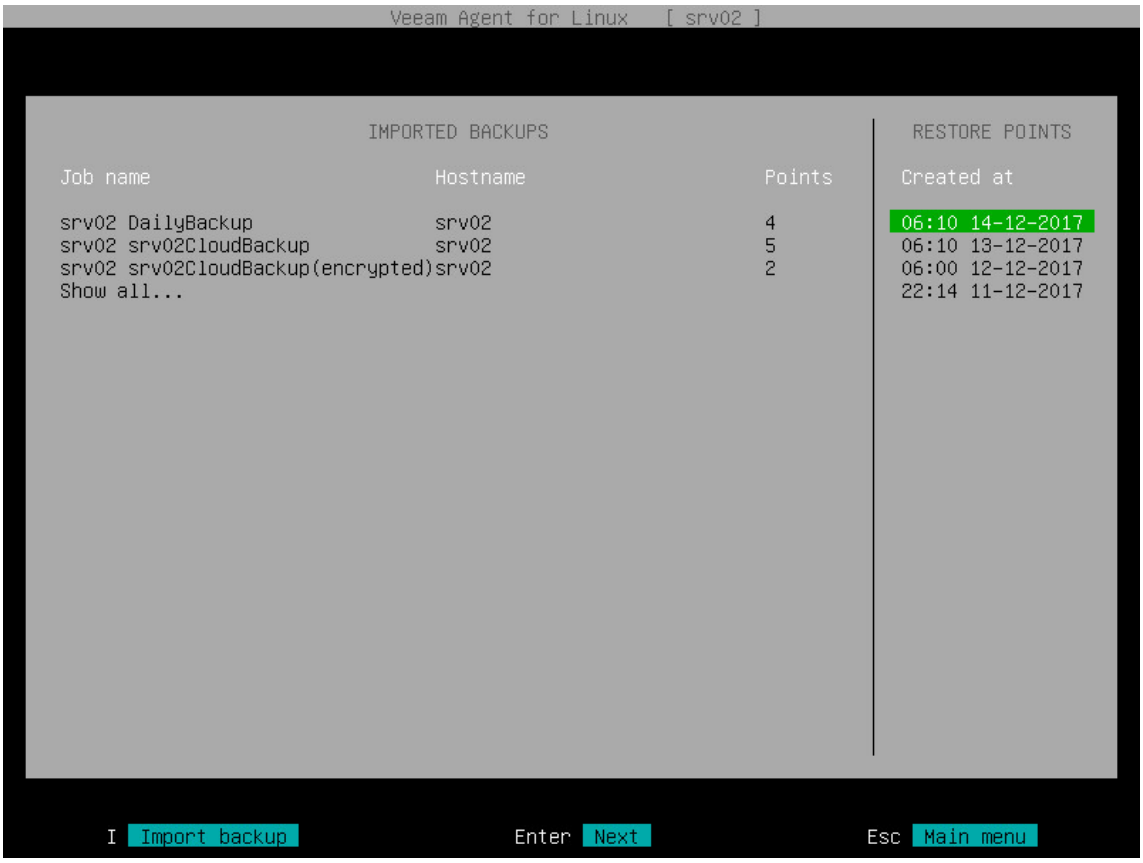
   If you want to recover data from a backup that is stored in another location, for example, a backup created with another instance of Veeam Agent for Linux in a network shared folder, you can import such backup. Press the '**i**' key, browse to the directory in which the backup file resides and select the necessary backup file. The selected backup file will be added to the list of backups.



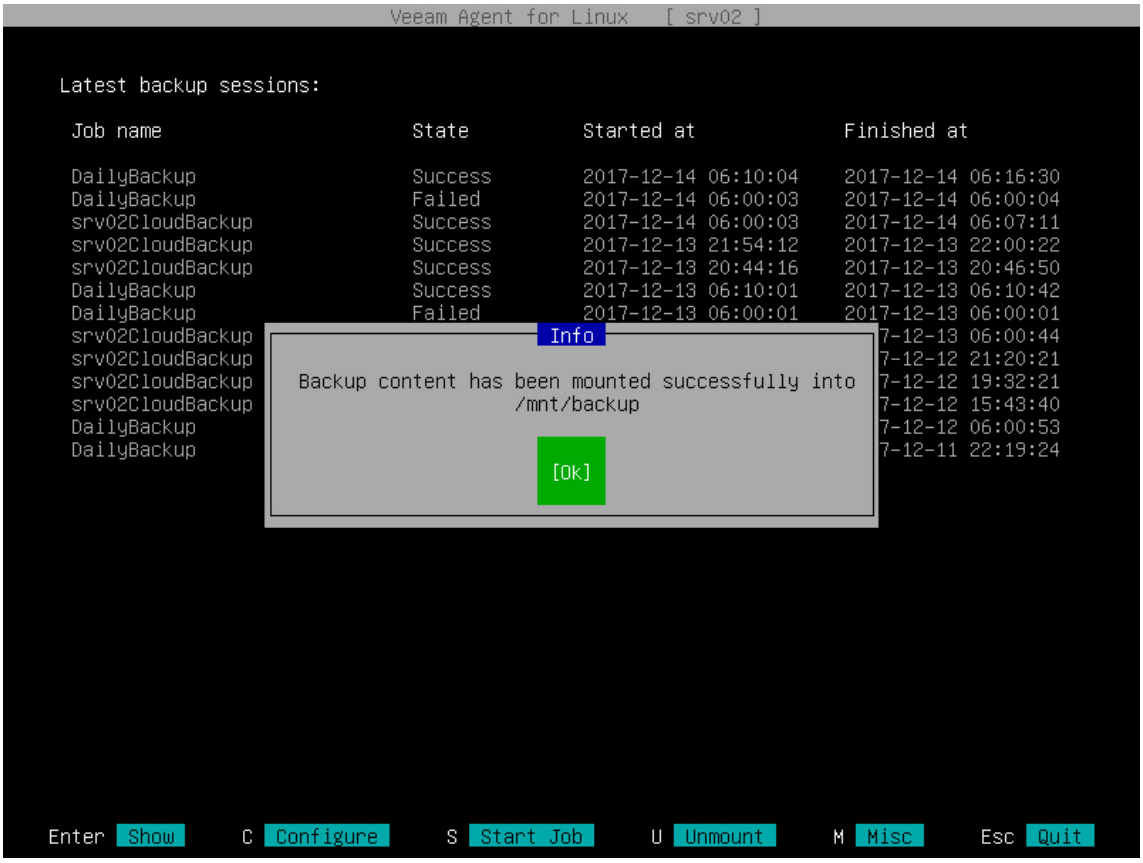
2. In the **Restore points** pane, select with **Up** and **Down** keys the restore point from which you want to recover data and press **Enter**.

NOTE:

If you selected an encrypted backup for data restore, Veeam Agent for Linux will prompt you to provide a password to unlock the encrypted file. To lean more, see Restoring Data from Encrypted Backups.



3. Veeam Agent for Linux will mount the content of the backup file to the `/mnt/backup` directory in the computer's file system and display a notification window with the corresponding message. Press **Enter** to close the window and return to the Veeam Agent for Linux control panel.



TIP:

When you finish working with restored files and folders, you can unmount the backup from the `/mnt/backup` folder. To learn more, see Stop Backup Mount Session.

Step 3. Save Restored Files

When the backup file content is mounted to the `/mnt/backup` directory in the computer's file system, you can use Linux command line utilities or preferred file browser to work with restored files and directories. You can browse for files and directories in the mounted backup and copy files and directories that you want to restore to their initial location or to a new location.

In the following example, the restored file `Report1.pdf` is copied from the mounted backup to the new location with Linux command line utilities:

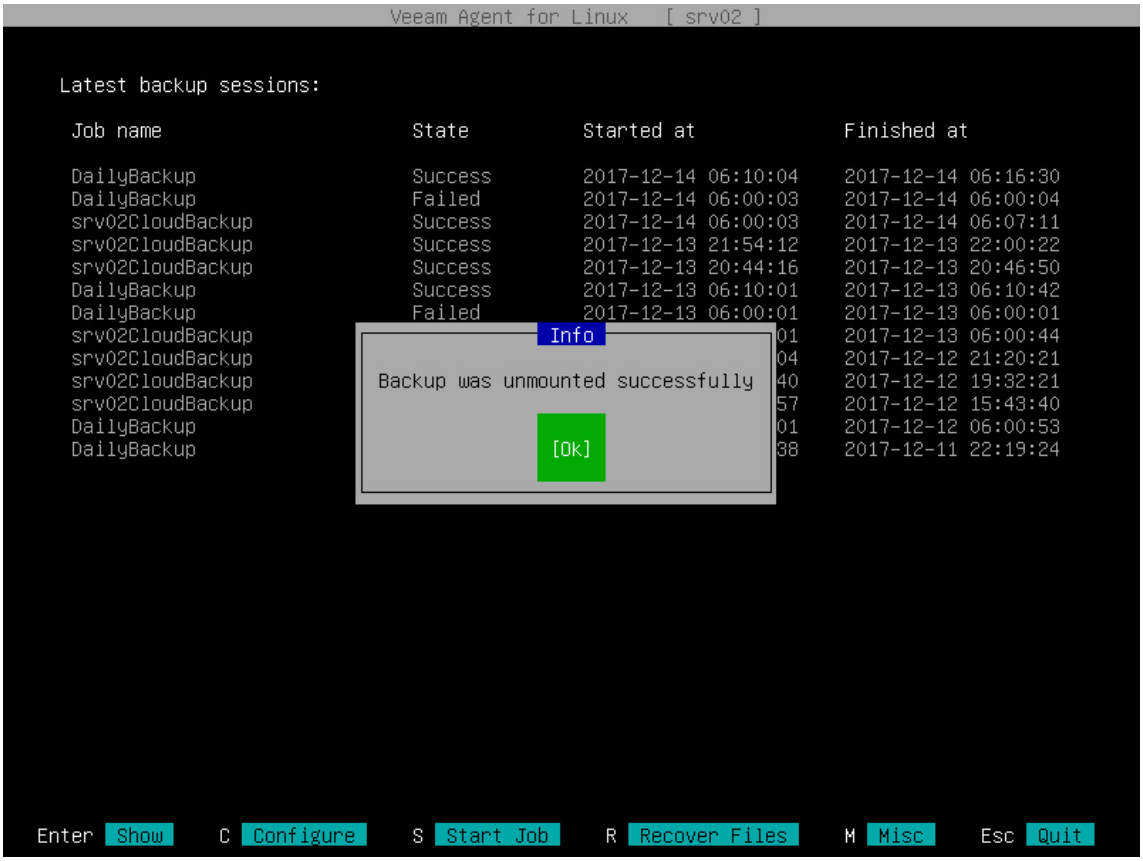
```
user@srv01:~$ ls Documents/
Reports
user@srv01:~$ ls /mnt/backup/FileLevelBackup_0/home/user/Documents/Reports/
Report1.pdf  Report2.pdf
user@srv01:~$ cp /mnt/backup/FileLevelBackup_0/home/user/Documents/Reports/Report1.pdf
Documents/
user@srv01:~$ ls Documents/
Report1.pdf  Reports
```

Step 4. Stop Backup Mount Session

When Veeam Agent for Linux mounts a backup for file-level restore, Veeam Agent for Linux starts a new backup mount session. To unmount a backup, you need to stop the backup mount session. This may be required, for example, if you want to stop working with files and folders in one backup and mount another backup for file-level restore. You can also stop the backup mount session to unmount a backup after you have finished working with restored files and folders.

To stop the backup mount session, do the following:

1. Launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command:
2. In the Veeam Agent for Linux control panel, press the '**u**' key to unmount a backup.
3. Veeam Agent for Linux will stop the backup mount session and display a notification window. Press **Enter** to close the window and return to the Veeam Agent for Linux control panel.



Restoring Files and Folders with Command Line Interface

If some files and folders on your computer get lost or corrupted, you can restore them from backups. For file-level restore, you can use backups of any type:

- Volume-level backups (backups of the entire computer or specific volumes)
- File-level backups

When you perform file-level restore, Veeam Agent for Linux publishes the backup content directly into the computer file system. You can browse to files and folders in the backup, restore files and folders to their initial location, copy files and folders to a new location or simply target applications to restored files and work with them as usual.

With the Veeam Agent for Linux command line interface, you can restore files and folders in a more flexible way than with the use of the File Level Restore wizard. In particular, you can specify a directory in which Veeam Agent for Linux should mount the backup file content for file-level restore. You can also mount several backups to different directories to work with files and folders restored from different backups simultaneously.

You can use Veeam Agent for Linux commands to restore files and folders from backup or from specific restore point:

- Restore from backup

  When you restore files and folders from the backup, Veeam Agent for Linux will automatically select the latest restore point in the backup. You can restore files and folders to the state in which they were at the time when the latest restore point was created.

- Restore from a restore point

  When you restore files and folders from the restore point, you can select the necessary restore point in the backup to recover data to a specific point in time.

Before You Begin

Before you begin the file-level restore process, check the following prerequisites:

- The backup from which you plan to restore data must be successfully created at least once.
- [For backups stored in network shared folders, on Veeam backup repositories and Veeam Cloud Connect repositories] You must have access to the target location where the backup file resides.
- [For Veeam backup repository targets] If you plan to restore data from a backup stored on a backup repository, you must have access permissions on this backup repository. To learn more, see Setting Up User Permissions on Backup Repositories.

Restoring from Backup

With Veeam Agent for Linux command line interface, you can restore files and folders from the backup. When you perform file-level restore from the backup, Veeam Agent for Linux automatically selects the latest restore point in the backup. You can restore files and folders to the state in which they were at the time when the latest restore point was created.

Step 1. Locate Backup

To view a list of backups created by Veeam Agent for Linux, use the following command:

```
veeamconfig backup list
```

In the list of backups, Veeam Agent for Linux displays information about all backups stored in all backup repositories. If Veeam Agent for Linux is connected to a Veeam backup server, backups that are kept on a Veeam backup repository also appear in this list. For each backup, Veeam Agent for Linux displays the following information:

Parameter	Description
Job name	Name of the backup job by which the backup was created.
Backup UUID	ID of the backup.
Repository	Name of the backup repository in which the backup was created.
Created at	Date and time of the backup creation.

For example:

```
user@srv01:~$ veeamconfig backup list
Job name                  Backup ID                                  Repository
Created at
srv01 SystemBackup        {45f074d2-d2d9-423d-84e9-8f1798b08d4c}  Repository_1  2016-
11-11 17:37
srv01 DocumentsBackup     {ea64a7e5-038a-4c86-970a-6d59d4cf3968}  Repository_1  2016-
11-11 18:30
srv01 HomePartitionBackup {4f75bb20-a6b6-4323-9287-1c6c8ceccb6b}  Repository_2  2016-
11-15 11:28
```

TIP:

If you want to recover data from a backup that is stored in another location, for example, a backup created with another instance of Veeam Agent for Linux, you can import such backup into the Veeam Agent for Linux database on your computer. To learn more, see Importing Backups.

Step 2. Explore Backup Content

For file-level restore, you can use backups of any type:

- Volume-level backups (backups of the entire computer or specific volumes)
- File-level backups

To view detailed information about specific backup, use the following command:

```
veeamconfig backup show --id <backup_id>
```

where:

<backup_id> — ID of the backup for which you want to view detailed information.

For a volume-level backup, Veeam Agent for Linux displays the following information:

Parameter	Description
Machine name	Host name of the machine on which the backup job is configured and the name of the job.
Name	Name of the volume in the backup.
Device	Path to the block device that represents the volume.
FS UUID	File system ID.
Offset	Position of the volume on the computer disk.
Size	Size of the volume in the backup.

For a file-level backup, Veeam Agent for Linux displays the following information:

Parameter	Description
Machine name	Host name of the machine on which the backup job is configured and the name of the job.
Backed up	Backup scope for the file-level backup job.

For example:

```
user@srv01:~$ veeamconfig backup show --id ea64a7e5-038a-4c86-970a-6d59d4cf3968
      Machine name: srv01 DocumentsBackup
         File-level backup
         Backed up:
            /home/user/Documents
```

Step 3. Mount Backup

To mount a backup for file-level restore, use the following command:

```
veeamconfig backup mount --id <backup_id> --mountdir <path>
```

where:

- <backup_id> — ID of the backup that you want to mount to the computer file system for file-level restore.
- <path> — path to the directory to which you want to mount the backup file content.

For example:

```
user@srv01:~$ veeamconfig backup mount --id ea64a7e5-038a-4c86-970a-6d59d4cf3968 --
mountdir /mnt/backup
Backup is mounted.
Session ID: [{2a313184-32d0-4d3a-a1b0-2eebac986047}].
Logs stored in: [/var/log/veeam/Mount/Session_{2a313184-32d0-4d3a-a1b0-2eebac986047}].
```

Step 4. Monitor Mount Process and Result

You can monitor the backup mount process by viewing the mount session log in the command line interface.

To view Veeam Agent for Linux session log, use the following command:

```
veeamconfig session log --id <session_id>
```

where:

<session_id> — ID of the backup mount session.

For example:

```
user@srv01:~$ veeamconfig session log --id 2a313184-32d0-4d3a-a1b0-2eebac986047
2016-11-22 17:30:34 UTC {30878c82-27d0-45dc-ab21-6f27d5082fd4} [info] Job started at
2016-11-22 20:30:34
2016-11-22 17:30:34 UTC {714b21d0-0d20-486e-b1e5-22d5fb5a8ee9} [info] Mounting restore
point
2016-11-22 17:30:35 UTC {d331f038-5b7c-4549-85cf-5e1b54dbaf71} [info] Restore point
has been mounted
```

To ensure that the backup is successfully mounted, you can browse to the directory that you specified in the `veeamconfig backup mount` command. For example:

```
user@srv01:~$ ls /mnt/backup/
FileLevelBackup_0
```

TIP:

You can also check the restore session status with the `veeamconfig session info` command. To learn more, see Viewing Session Status.

Step 5. Save Restored Files

When the backup file content is mounted to the computer file system, you can use Linux command line utilities or preferred file browser to work with restored files and folders. You can browse for files and folders in the mounted backup and copy files and folders that you want to restore to their initial location or to a new location.

In the following example, the restored file `Report1.pdf` is copied from the mounted backup to a new location with the Linux command line utilities:

```
user@srv01:~$ ls Documents/
Reports
user@srv01:~$ ls /mnt/backup/FileLevelBackup_0/home/user/Documents/Reports/
Report1.pdf  Report2.pdf
user@srv01:~$ cp /mnt/backup/FileLevelBackup_0/home/user/Documents/Reports/Report1.pdf
Documents/
user@srv01:~$ ls Documents/
Report1.pdf  Reports
```

Step 6. Stop Backup Mount Session

When Veeam Agent for Linux mounts a backup for file-level restore, Veeam Agent for Linux starts a new backup mount session. After you have finished working with restored files and folders, you can stop the backup mount session to unmount the backup.

To stop the backup mount session, use the following command:

```
veeamconfig session stop --id <session_id>
```

where:

`<session_id>` — ID of the backup mount session that you want to stop.

Veeam Agent for Linux will stop the mount session and unmount the backup from the computer file system. For example:

```
user@srv01:~$ veeamconfig session stop --id 2a313184-32d0-4d3a-a1b0-2eebac986047
Session has stopped.
user@srv01:~$ ls /mnt
user@srv01:~$
```

Restoring from Restore Point

With Veeam Agent for Linux command line interface, you can restore files and folders from the specific restore point. When you restore files and folders from the restore point, you can select the necessary restore point in the backup to recover data to a specific point in time.

Step 1. Locate Backup

To view a list of backups created by Veeam Agent for Linux, use the following command:

```
veeamconfig backup list
```

In the list of backups, Veeam Agent for Linux displays information about all backups stored in all backup repositories. If Veeam Agent for Linux is connected to a Veeam backup server, backups that are kept on a Veeam backup repository also appear in this list. For each backup, Veeam Agent for Linux displays the following information:

Parameter	Description
Job name	Name of the backup job by which the backup was created.
Backup ID	ID of the backup.
Repository	Name of the backup repository in which the backup was created.
Created at	Date and time of the backup creation.

For example:

```
user@srv01:~$ veeamconfig backup list
Job name                  Backup ID                                  Repository
Created at
srv01 SystemBackup        {45f074d2-d2d9-423d-84e9-8f1798b08d4c}  Repository_1  2016-
11-11 17:37
srv01 DocumentsBackup     {ea64a7e5-038a-4c86-970a-6d59d4cf3968}  Repository_1  2016-
11-11 18:30
srv01 HomePartitionBackup {4f75bb20-a6b6-4323-9287-1c6c8ceccb6b}  Repository_2  2016-
11-15 11:28
```

TIP:

If you want to recover data from a backup that is stored in another location, for example, a backup created with another instance of Veeam Agent for Linux, you can import such backup into the Veeam Agent for Linux database on your computer. To learn more, see Importing Backups.

Step 2. Explore Restore Points

To view information about restore points in the backup, use the following command:

```
veeamconfig backup info --id <backup_id>
```

or

```
veeamconfig point list --backupid <backup_id>
```

where:

<backup_id> — ID of the backup for which you want to view information on restore points.

You can view the following information about restore points in the backup:

Parameter	Description
Job name	Name of the backup job by which the backup was created.
OIB ID	ID of the restore point in the backup.
Type	Type of the restore point. Possible values: ▪ Full ▪ Increment.
Created at	Date and time of the restore point creation.
Is corrupt	Indicates whether restore point in the backup is corrupted. Possible values: ▪ True ▪ False

For example:

```
user@srv01:~$ veeamconfig backup info --id ea64a7e5-038a-4c86-970a-6d59d4cf3968
Job name              OIB ID                                  Type       Created at
Is corrupt
srv01 DocumentsBackup  {0f3c9f3e-3985-4dc9-8cd6-979dba810c2f}  Full       2016-11-11
18:31    false
srv01 DocumentsBackup  {ff0c6969-8b9b-4865-b4f9-d686faf41d50}  Increment  2016-11-14
13:35  false
srv01 DocumentsBackup  {a9e420df-d749-4b9a-b675-19d8e94c3bf1}  Increment  2016-11-14
13:43  false
srv01 DocumentsBackup  {51e6056b-c0ae-40bc-bcf4-4ad7339f647a}  Increment  2016-11-14
15:48  false
srv01 DocumentsBackup  {b127e64e-1f1c-4e0b-bb36-b087761267b3}  Increment  2016-11-20
19:52  false
```

or

```
user@srv01:~$ veeamconfig point list --backupid ea64a7e5-038a-4c86-970a-6d59d4cf3968
Job name               OIB ID                                  Type       Created at
Is corrupt
srv01 DocumentsBackup  {0f3c9f3e-3985-4dc9-8cd6-979dba810c2f}  Full       2016-11-11
18:31  false
srv01 DocumentsBackup  {ff0c6969-8b9b-4865-b4f9-d686faf41d50}  Increment  2016-11-14
13:35  false
srv01 DocumentsBackup  {a9e420df-d749-4b9a-b675-19d8e94c3bf1}  Increment  2016-11-14
13:43  false
srv01 DocumentsBackup  {51e6056b-c0ae-40bc-bcf4-4ad7339f647a}  Increment  2016-11-14
15:48  false
srv01 DocumentsBackup  {b127e64e-1f1c-4e0b-bb36-b087761267b3}  Increment  2016-11-20
19:52  false
```

Step 3. Mount Restore Point

To mount a backup for file-level restore, use the following command:

```
veeamconfig point mount --id <point_id> --mountdir <path>
```

where:

- <point_id> — ID of the restore point that you want to mount to the computer file system for file-level restore.
- <path> — path to the directory to which you want to mount the backup file content.

For example:

```
user@srv01:~$ veeamconfig point mount --id b127e64e-1f1c-4e0b-bb36-b087761267b3 --
mountdir /mnt/backup
Restore point is mounted.
Session ID: [{4d69dd85-ac60-4cff-883d-50f25f49a9c8}].
Logs stored in: [/var/log/veeam/Mount/Session_{4d69dd85-ac60-4cff-883d-50f25f49a9c8}].
```

Step 4. Monitor Mount Process and Result

You can monitor the restore point mount process by viewing the mount session log in the command line interface.

To view Veeam Agent for Linux session log, use the following command:

```
veeamconfig session log --id <session_id>
```

where:

<session_id> — ID of the restore point mount session.

For example:

```
user@srv01:~$ veeamconfig session log --id 4d69dd85-ac60-4cff-883d-50f25f49a9c8
2016-11-23 12:44:55 UTC {9c5c8ece-cb88-4742-bb90-1f8ff79b4bdc} [info] Job started at
2016-11-23 15:44:55
2016-11-23 12:44:55 UTC {4ac10045-a74b-4a41-9c5e-53521cba1045} [info] Mounting restore
point
2016-11-23 12:44:56 UTC {540a61f7-5d5c-47d5-a2b8-51daa694d5ec} [info] Restore point
has been mounted
```

To ensure that the restore point is successfully mounted, you can browse to the directory that you specified in the `veeamconfig point mount` command. For example:

```
user@srv01:~$ ls /mnt/backup/
FileLevelBackup_0
```

TIP:

You can also check the restore session status with the `veeamconfig session info` command. To learn more, see Viewing Session Status.

Step 5. Save Restored Files

When the restore point is mounted to the computer file system, you can use Linux command line utilities or preferred file browser to work with restored files and folders. You can browse for files and folders in the mounted backup and copy files and folders that you want to restore to their initial location or to a new location.

In the following example, the restored file `Report1.pdf` is copied from the mounted restore point to a new location with the Linux command line utilities:

```
user@srv01:~$ ls Documents/
Reports
user@srv01:~$ ls /mnt/backup/FileLevelBackup_0/home/user/Documents/Reports/
Report1.pdf  Report2.pdf
user@srv01:~$ cp /mnt/backup/FileLevelBackup_0/home/user/Documents/Reports/Report1.pdf
Documents/
user@srv01:~$ ls Documents/
Report1.pdf  Reports
```

Step 6. Stop Backup Mount Session

When Veeam Agent for Linux mounts a restore point for file-level restore, Veeam Agent for Linux starts a new restore point mount session. After you have finished working with restored files and folders, you can stop the mount session to unmount the restore point.

To stop the restore point mount session, use the following command:

```
veeamconfig session stop --id <session_id>
```

where:

<session_id> — ID of the restore point mount session that you want to stop.

Veeam Agent for Linux will stop the mount session and unmount the restore point from the computer file system. For example:

```
user@srv01:~$ veeamconfig session stop --id 4d69dd85-ac60-4cff-883d-50f25f49a9c8
Session has stopped.
user@srv01:~$ ls /mnt
user@srv01:~$
```

Exporting Backup to Virtual Disk

You can export a backup to a virtual disk in the VHD format. You can then attach the created VHD disc to a virtual machine to recover your computer in a virtual environment.

- Exporting Backups
- Exporting Restore Points

Exporting Backups

You can export the backup file to a virtual disk in the VHD format. When you export a backup, you export to a virtual disk data pertaining to the latest restore point in the backup. The created VHD disk will reflect the state in which backed-up volumes were at the time when the latest restore point was created.

To export backup to a VHD disk:

1. Start the export process with the following command:

   ```
   veeamconfig backup export --id <backup_id> --outdir <path>
   ```

   where:

   - <backup_id> — ID of the backup that you want to export to a virtual disk.
   - <path> — full path to a directory in which you want to save the created virtual disk. Specifying relative paths is not supported.

   For example:

   ```
   user@srv01:~$ veeamconfig backup export --id 45f074d2-d2d9-423d-84e9-
   8f1798b08d4c  --outdir /home/user/disk
   Export has been started.
   Session ID: [{5f001367-8937-46e0-a756-449bf9f1a182}].
   Logs stored in: [/var/log/veeam/Export/Session_{5f001367-8937-46e0-a756-
   449bf9f1a182}].
   ```

2. You can monitor the export process and result by viewing the export session log with the following command:

   ```
   veeamconfig session log --id <session_id>
   ```

   where:

   <session_id> — ID of the export session.

For example:

```
user@srv01:~$ veeamconfig session log --id 5f001367-8937-46e0-a756-449bf9f1a182
2016-11-27 11:20:56 UTC {b54af37c-35a6-4807-80d2-0f070f024e69} [info] Job
started at 2016-11-27 14:20:56
2016-11-27 11:20:56 UTC {48d699d2-86cf-4a32-b9c8-ab51b8325f3c} [info] Exporting
virtual disks content
2016-11-27 11:20:57 UTC {0e2e7d97-f067-4823-8dde-084c401eb62b} [processing]
Restoring device: [30460cb5].
2016-11-27 11:22:59 UTC {0e2e7d97-f067-4823-8dde-084c401eb62b} [info] Device
[30460cb5] has been exported
2016-11-27 11:23:00 UTC {36f0d0c5-2af7-48d8-abc2-c8ef9aaffc54} [info] Virtual
disks content has been exported
```

You can also check the restore session status with the `veeamconfig session info` command. To learn more, see Viewing Session Status.

3. Exported backup will be saved as a virtual disk file in the specified directory. You can check this with a file browser or with the following command:

```
ls <path>
```

where:

`<path>` — path to the directory in which the virtual disk with the backup is saved.

For example:

```
user@srv01:~$ ls disk/
dev_30460cb5.vhd
```

Exporting Restore Points

You can export the specific restore point to a virtual disk in VHD format. When you export a restore point, you select the necessary restore point in the backup to recover data to a desired point in time. The created VHD disk will reflect the state in which backed-up volumes were at the time when the selected restore point was created.

To export restore point to a VHD disk:

1. Start the export process with the following command:

```
veeamconfig point export --id <point_id> --outdir <path>
```

where:

- `<point_id>` — ID of the restore point that you want to export to a virtual disk.
- `<path>` — full path to a directory in which you want to save the created virtual disk. Specifying relative paths is not supported.

For example:

```
user@srv01:~$ veeamconfig point export --id b319ea1f-59a2-41ea-9ca3-b668e86ac941
--outdir /home/user/veeam/
Export has been started.
Session ID: [{aeb9c549-a660-4a0e-b89c-cb076b8bfa85}].
Logs stored in: [/var/log/veeam/Export/Session_{aeb9c549-a660-4a0e-b89c-
cb076b8bfa85}].
```

2. You can monitor the export process and result by viewing the export session log with the following command:

```
veeamconfig session log --id <session_id>
```

where:

`<session_id>` — ID of the export session.

For example:

```
user@srv01:~$ veeamconfig session log --id aeb9c549-a660-4a0e-b89c-cb076b8bfa85
2016-05-05 11:15:21 UTC {b950503d-55c9-435f-946e-1078184f5a86} [info] Job
started at 2016-05-05 14:15:21
2016-05-05 11:15:21 UTC {32d56391-9002-431e-ae6b-2285537a67e5} [info] Exporting
virtual disks content
2016-05-05 11:15:22 UTC {ba3dabe0-0556-430c-9671-9448a6dc4bcb} [processing]
Restoring device: [30460cb5].
2016-05-05 11:17:26 UTC {ba3dabe0-0556-430c-9671-9448a6dc4bcb} [info] Device
[30460cb5] has been exported
2016-05-05 11:17:26 UTC {9e945c29-900e-4a07-9e3b-ccf7f156807d} [info] Virtual
disks content has been exported
```

You can also check the restore session status with the `veeamconfig session info` command. To learn more, see Viewing Session Status.

3. Exported backup will be saved as a virtual disk file in the specified directory. You can check this with a file browser or with the following command:

```
ls <path>
```

where

`<path>` — path to the directory in which the virtual disk with the backup is saved.

For example:

```
user@srv01:~$ ls /home/user/veeam/
dev_30460cb5.vhd
```

Restoring Data from Encrypted Backups

When you restore data from an encrypted backup, Veeam Agent for Linux performs data decryption automatically in the background or requires you to specify a password.

- If encryption keys required to unlock the backup file are available in the Veeam Agent for Linux database, that is, if you encrypt and decrypt the backup file on the same Veeam Agent computer, you do not need to specify the password. Veeam Agent for Linux uses keys from the database to unlock the backup file. Data decryption is performed in the background, and data restore from the encrypted backup does not differ from that from an unencrypted one.
- If encryption keys are not available in the Veeam Agent for Linux database, you need to provide a password to unlock the encrypted file. The password must be the same as the password that was used to encrypt the backup file. If the password has changed once or several times, you need to specify the latest password. In Veeam Agent for Linux, you can use the latest password to restore data form all restore points in the backup chain, including restore points that were encrypted with an old password and restore points that were created before you have enabled the encryption option for the job.

  The process of unlocking an encrypted backup file differs depending on what Veeam Agent for Linux user interface you use for data restore.

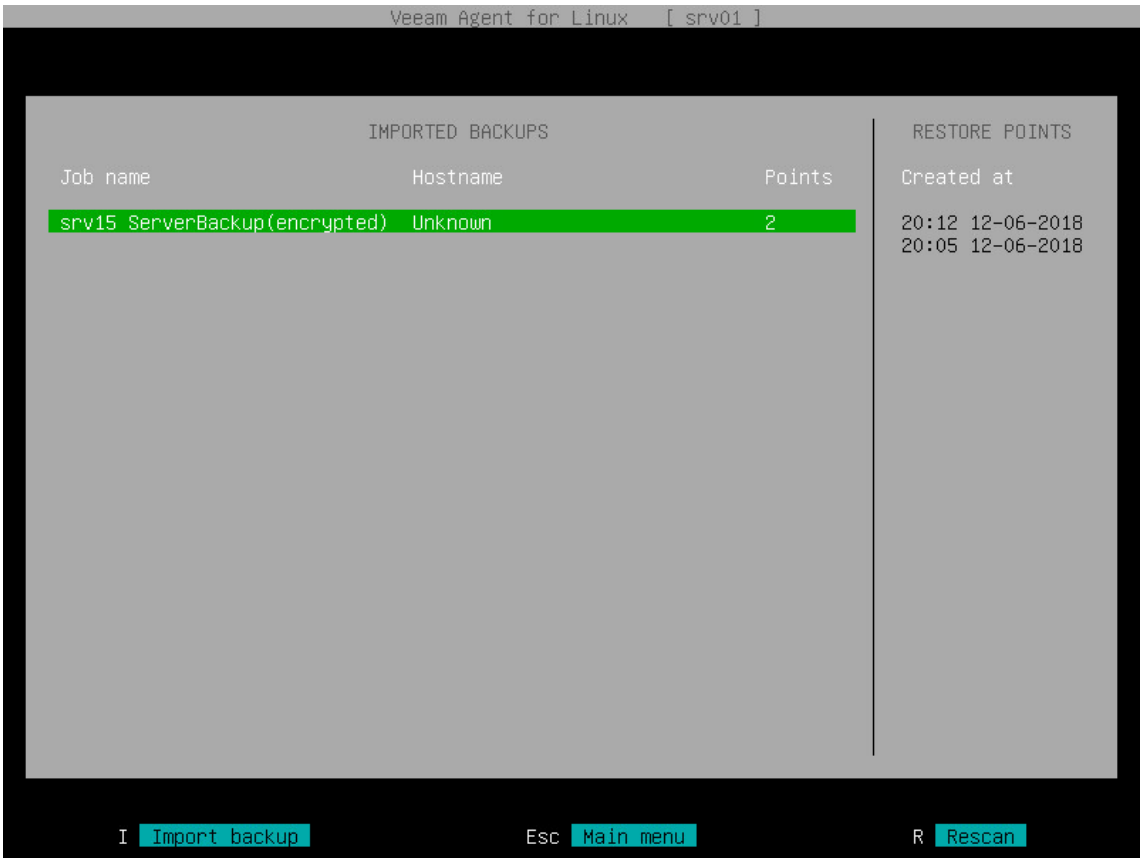
  - Veeam Agent for Linux graphical user interface
  - Veeam Agent for Linux command line interface

Restoring Data from Encrypted Backups Using GUI

To restore data from an encrypted backup using the Veeam Agent for Linux graphical user interface:

1. Launch the necessary data restore wizard:
   - If you want to perform file-level restore from an encrypted backup that was created on another Veeam Agent computer, launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command. To learn more, see Restoring Files and Folders.
   - If you want to perform volume-level restore or file-level restore recovery from an encrypted backup, boot from the Veeam Recovery Media and launch the necessary data restore wizard. To learn more, see Restoring from Veeam Recovery Media.
2. Follow the steps of the wizard to specify where the encrypted backup file that you plan to use for restore resides. If the backup file resides in a remote location, select the backup location type and specify settings to connect to the backup location.

3. Select the encrypted backup and restore point from which you want to restore data.

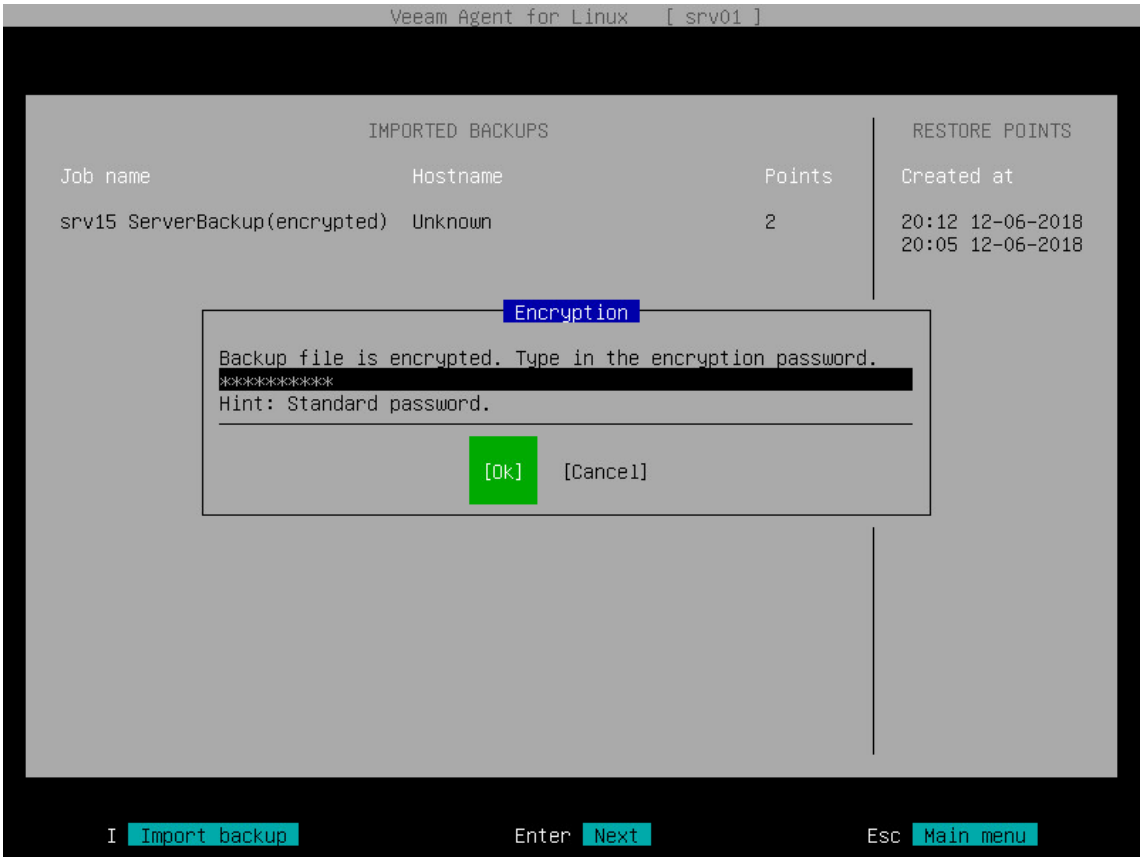


4. Veeam Agent for Linux will display the **Encryption** window. Enter the password for the backup file.

   In the **Hint** field of the **Encryption** window, Veeam Agent for Linux displays a hint for the password that was used to encrypt the backup file. Use the hint to recall the password.

   If you changed the password one or several times while the backup chain was created, you need to specify the latest password. In Veeam Agent for Linux, you can use the latest password to restore data form all restore points in the backup chain, including those restore points that were encrypted with an old password.

   If you enter correct password, Veeam Agent for Linux will decrypt the backup metadata. You will be able to continue the restore operation in a regular manner.



Restoring Data from Encrypted Backups Using Command Line Interface

To restore data from an encrypted backup using the Veeam Agent for Linux command line interface, complete the following steps:

1. Import the encrypted backup file to the Veeam Agent for Linux database. To learn more, see Importing Encrypted Backups.
2. Perform the necessary restore operation in a regular manner. To learn more, see Restoring Volumes with Command Line Interface and Restoring Files and Folders with Command Line Interface.

Reporting

Veeam Agent for Linux provides several ways to get information about performed operations:

- With the Veeam Agent for Linux control panel
- With the Veeam Agent for Linux command line interface

For every data transfer operation, for example data backup and restore, backup import and export, Veeam Agent for Linux starts a new session. You can monitor performance of sessions started by Veeam Agent for Linux in the following ways:

- Monitor backup job session progress with the control panel.
- View real-time backup job session statistics with the control panel.
- View backup job sessions results with the control panel.
- View the session status using the command line interface.
- View session logs.

Viewing Job Session Progress

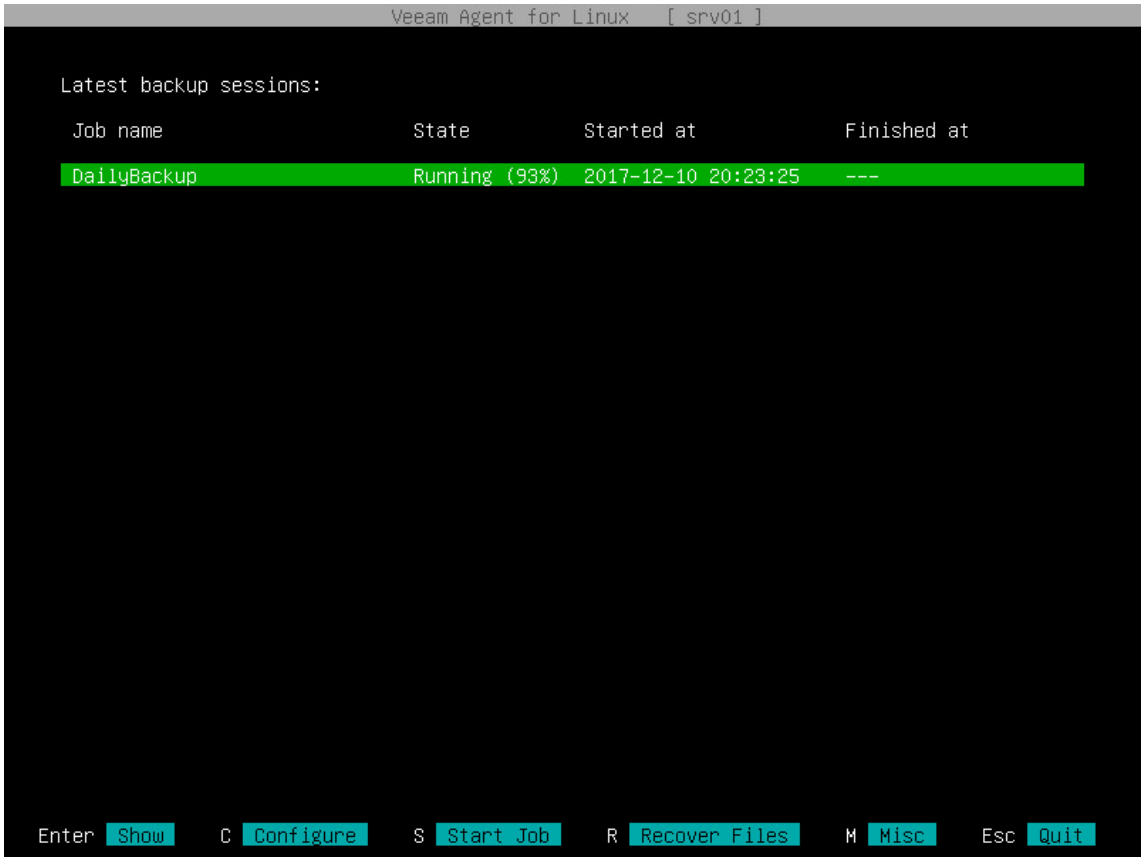
You can monitor the backup job session progress in the list of sessions in the Veeam Agent for Linux control panel. For the currently running backup job session, Veeam Agent for Linux shows session status and percentage of session completion in the **State** column of the list of sessions.

To view backup job session progress, do the following:

1. If you have started the backup job from the command line, launch the Veeam Agent for Linux control panel with the `veeam` command.
2. In the Veeam Agent for Linux control panel, in the list of backup job sessions, monitor progress of the currently running session.

   If you have started the backup job from the Veeam Agent for Linux control panel, Veeam Agent for Linux will immediately display the list of backup job sessions with the currently running session.

> **TIP:**
>
> You can stop the backup job session at any time. To stop the backup job session, press the '**s**' key.



Viewing Real-Time Job Session Statistics

You can view real-time statistics for a job session in the Veeam Agent for Linux control panel. Veeam Agent for Linux shows detailed data for every backup job session: job progress, duration, processing rate, performance bottlenecks, amount of processed data, read and transferred data and details of the session performance, for example, warnings and errors that have occurred in the process of operation.

To view detailed information on the currently running backup job session, do the following:

1. If you have started the backup job from the command line, launch the Veeam Agent for Linux control panel with the `veeam` command.
2. In the Veeam Agent for Linux control panel, in the list of backup job sessions, select the currently running session with **Up** and **Down** keys and press **Enter**.

   If you have started the backup job from the Veeam Agent for Linux control panel, the current session will be already selected in the list of backup job sessions.

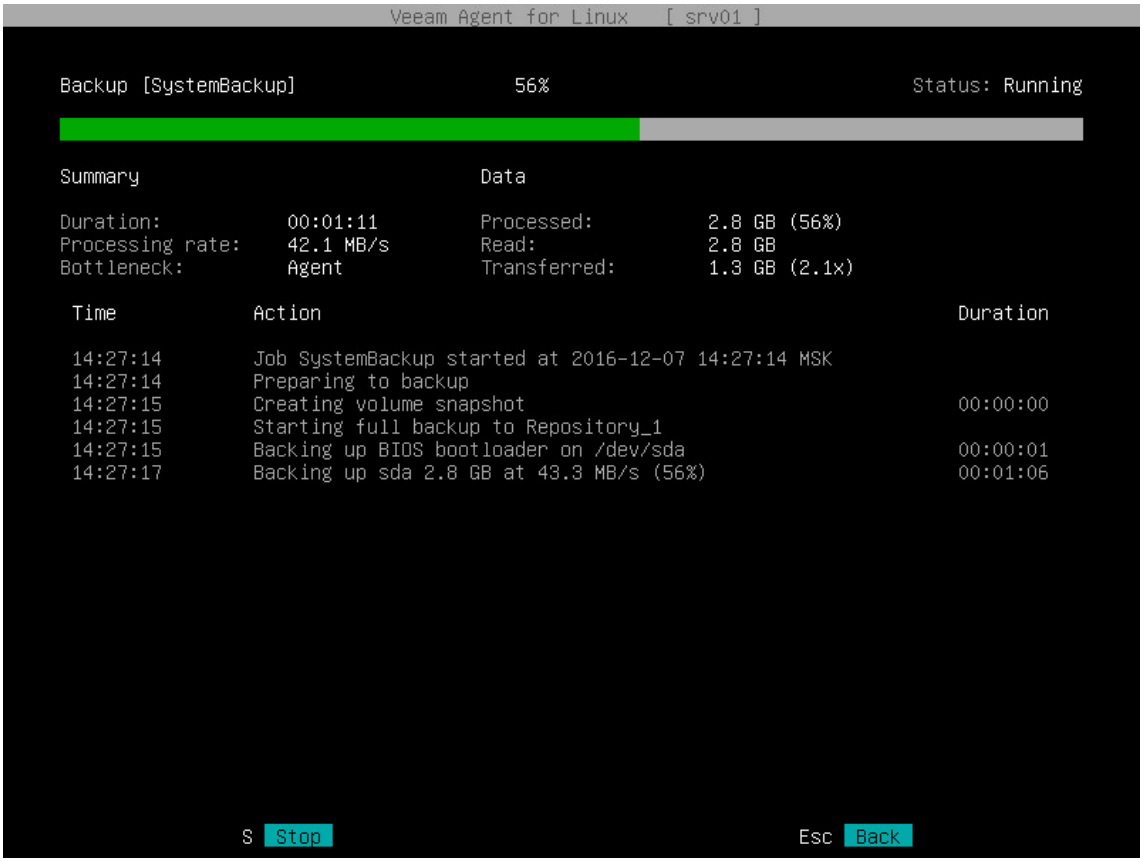
> **TIP:**
>
> You can stop the backup job session at any time. To stop the backup job session, press the '**s**' keyboard key.

Statistics Counters

Veeam Agent for Linux displays jobs statistics for the following counters:

- The pane at the top of the control panel shows information on the job session type, percentage of the job completion and session status. If Veeam Agent for Linux operates in the server mode and you have created more than one backup job, the job name also appears on the pane.
- The **Summary** box shows general information about the job:
  - **Duration** — time from the job start till the job end.
  - **Processing rate** — average speed of data processing. This counter is a ratio between the amount of processed data (**Processed** counter) and job duration (**Duration** counter).
  - **Bottleneck** — bottleneck in the data transmission process.
- The **Data** box shows information about processed data:
  - **Processed** — total size of all volumes processed by the job.
  - **Read** — amount of data read from the backed-up volume by Veeam Agent for Linux prior to applying compression. For incremental job runs, the value of this counter is typically lower than the value of the **Processed** counter. Veeam Agent for Linux reads only data blocks that have changed since the last job session, processes and copies these data blocks to the target location.
  - **Transferred** — amount of data transferred from the backed-up volume to the backup location after applying compression. This counter does not directly indicate the size of the resulting file(s). Depending on the backup infrastructure and job settings, Veeam Agent for Linux can perform additional activities with data, for example, decompress data prior to writing the file to disk. The activities can impact the size of the resulting file.

- The box in the center of the control panel shows a list of operations performed during the job session, their start time and duration time. To scroll the list of operations, use **Up** and **Down** arrow keys on the keyboard.
- The pane at the lower side of the control panel shows help information on how to navigate the control panel.



Viewing Job Session Result

You can view detailed statistics on every backup job session performed by Veeam Agent for Linux.

To view statistics for a specific job session:

1. Open the Veeam Agent for Linux control panel with one of the following commands:

   ```
   veeam
   ```

   or

   ```
   veeamconfig ui
   ```

   or

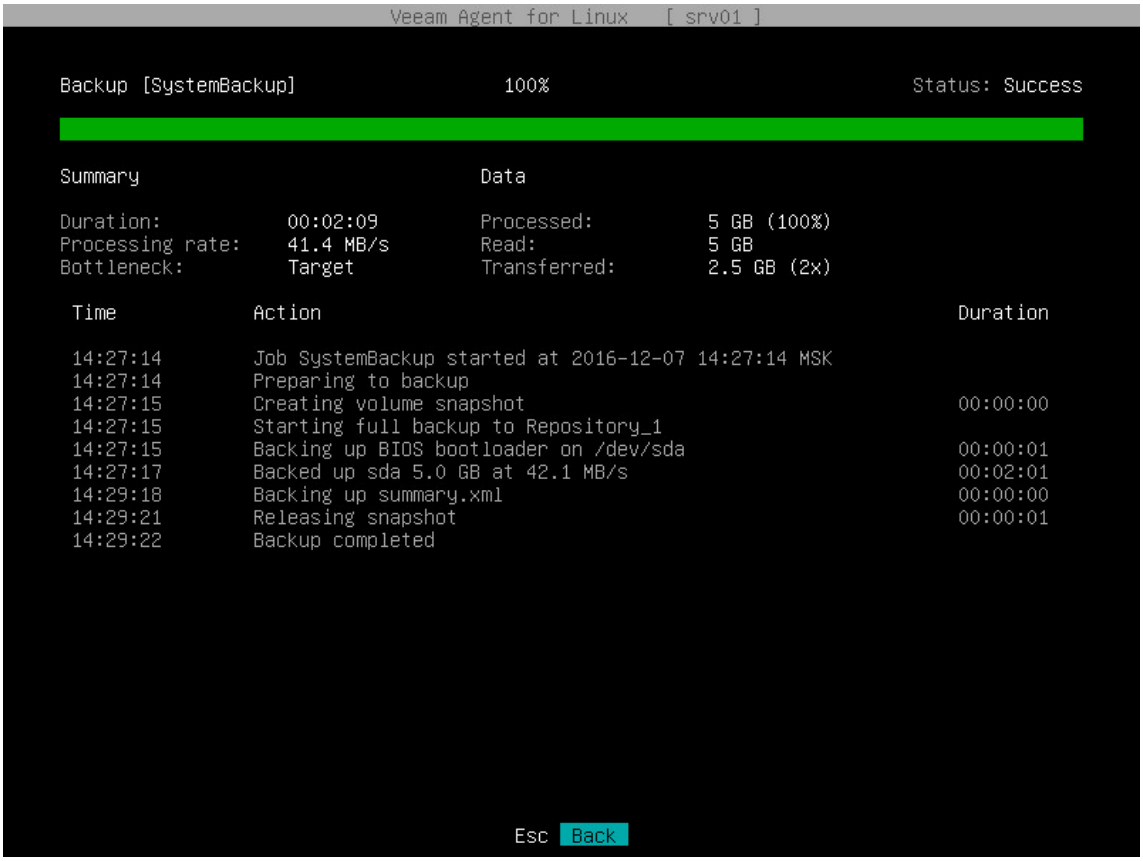
   ```
   veeamconfig session ui
   ```

2. In the **Latest backup sessions** list, select the necessary backup job session with **Up** and **Down** keys and press **Enter**.

TIP:

To return to the list of backup job sessions, press **Esc**. You can then select another backup job session or exit the Veeam Agent for Linux control panel in one of the following ways:

- with the **Esc** key — if you opened the control panel with the `veeam` or `veeamconfig ui` command.
- with the '**q**' key — if you opened the control panel with the `veeamconfig session ui` command.



Viewing Session Status

You can view status of every session that was started by Veeam Agent for Linux. To view the session status, use the following command:

```
veeamconfig session info --id <session_id>
```

where:

<session_id> — ID of the session for which you want to check status.

Veeam Agent for Linux displays the following information about sessions:

Parameter	Description
ID	ID of the session.
Job name	Name of the backup job parent to the session. Veeam Agent for Linux displays value for this parameter only for backup job sessions.
Job ID	ID of the backup job parent to the session. Veeam Agent for Linux displays value for this parameter only for backup job sessions.
State	Current status of the session.
Start time	Date and time of the session start.
End time	Date and time of the session completion. Veeam Agent for Linux displays value for this parameter only for completed sessions.

The following example shows status information on the completed backup job session:

```
user@srv01:~$ veeamconfig session info --id 1592755d-3a2b-40a9-a036-5c81853b369e
Backup session
   ID: {1592755d-3a2b-40a9-a036-5c81853b369e}
   Job name: SystemBackup
   Job ID: {2495911e-58db-4452-b4d1-f53dcfbc600e}
   State: Success
   Start time: 2016-11-11 14:37:21 UTC
   End time: 2016-11-11 14:40:02 UTC
```

The following example shows status information on the running volume restore session:

```
user@srv01:~$ veeamconfig session info --id 697d9348-9001-4845-8764-3cc4fb3f296b
Restore session
   ID: {697d9348-9001-4845-8764-3cc4fb3f296b}
   State: Running
   Start time: 2016-11-27 10:35:47 UTC
   End time:
```

Viewing Session Logs

You can monitor the backup and restore process by viewing the backup job session and restore session logs in the Veeam Agent for Linux command line interface.

To view Veeam Agent for Linux session log, use the following command:

```
veeamconfig session log --id <session_id>
```

where:

<session_id> — ID of the backup job or restore session.

For example:

```
user@srv01:~$ veeamconfig session log --id 0b72ef45-4c88-4639-b940-ad3828b1cd4e
2016-11-27 11:04:04 UTC {b141f32a-3e77-45a6-b55a-c100a1464d67} [info] Job started at
2016-11-27 14:04:04
2016-11-27 11:04:04 UTC {9b60ac03-2de0-4fe2-a00e-bec556d98ee8} [info] Starting volume
restore
2016-11-27 11:04:07 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [processing] sdb
2016-11-27 11:04:15 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb 512.0kB at
58.6kB/s (0%)
2016-11-27 11:04:25 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb 125.0MB at
6.7MB/s (0%)
2016-11-27 11:04:35 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb 238.5MB at
8.3MB/s (1%)

...

2016-11-27 11:14:32 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb 6.5GB at
10.7MB/s (92%)
2016-11-27 11:14:35 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb 6.5GB at
10.6MB/s (97%)
2016-11-27 11:14:37 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb 6.5GB at
10.6MB/s (100%)
2016-11-27 11:14:37 UTC {00add723-cbfa-4cc8-b299-d2349a051d6f} [warn] /dev/sdb has a
duplicate filesystem UUID
2016-11-27 11:14:37 UTC {ced9af4a-6af1-4756-8ffb-8ec1325e18ec} [info] sdb restored
6.5GB at 10.6MB/s
2016-11-27 11:14:37 UTC {8b8742a2-1c80-4e14-bbf1-45a3612bc3a7} [info] Volume restore
completed
```

Managing Configuration Database

You can perform the following operations with the Veeam Agent for Linux configuration database:

- Export configuration database to a configuration file.
- Import configuration database to Veeam Agent for Linux.

Exporting Configuration Database

You can export the Veeam Agent for Linux configuration database to a configuration file in the XML format. This may be useful, for example, if you want to change Veeam Agent for Linux settings by editing a configuration file or copy the Veeam Agent for Linux configuration to another computer.

To export the Veeam Agent for Linux configuration database, use the following command:

```
veeamconfig config export --file <path>
```

where:

<path> — path to a configuration file to which you want to import configuration.

For example:

```
user@srv01:~$ veeamconfig config export --file veeam/config.xml
```

NOTE:

A directory in which you want to save the configuration file must exist in the file system.

Importing Configuration Database

You import the Veeam Agent for Linux configuration from a file in the XML format to the configuration database. This may be useful, for example, if you have changed Veeam Agent for Linux settings by editing a configuration file or want to apply configuration of another instance of Veeam Agent for Linux to Veeam Agent for Linux installed on your computer.

> **NOTE:**
>
> Veeam Agent for Linux 2.0 does not support import of XML configuration files generated by earlier versions of Veeam Agent for Linux.

To import the Veeam Agent for Linux configuration database, use the following command:

```
veeamconfig config import --file <path>
```

where:

<path> — path to a configuration file from which you want to import the configuration database.

For example:

```
user@srv01:~$ veeamconfig config import --file veeam/config.xml
```

Exporting Product Logs

Veeam Agent for Linux offers a simple and convenient way to collect product logs and export them to an archive file. This operation may be required if you want to report an issue and need to attach log files to the support case.

When you export logs, Veeam Agent for Linux collects its log files and configuration files, exports them to an archive file in the `tar.gz` format and saves this archive file to a directory on the Veeam Agent computer.

You can perform the export logs operation in one of the following ways:

- With the Veeam Agent for Linux control panel — in this case, you can specify a directory to which Veeam Agent for Linux should save the log archive.
- With the command line interface — in this case, Veeam Agent for Linux will save the log archive to the current working directory.

TIP:

When you perform restore operations after booting from the Veeam Recovery Media, Veeam Agent for Linux also saves restore logs to the backup location. Restore logs are saved to an archive file with the name `veeam_logs_<date>_<time>.tar.gz`. The archive is placed to the folder that contains the backup file from which you restored data.

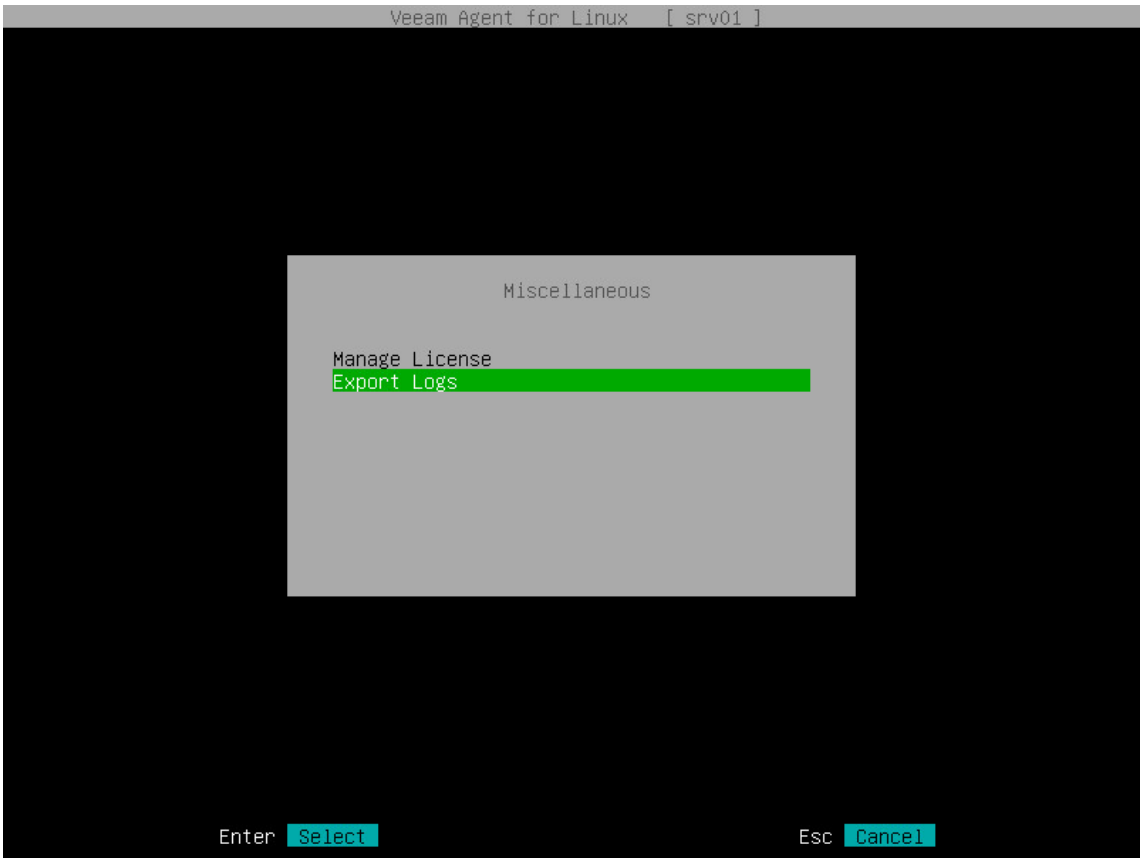
If you encounter problems after restoring from the Veeam Recovery Media, it is recommended that you attach restore logs, as well as product logs collected by Veeam Agent for Linux, to the support case.

Exporting Logs with Control Panel

You can use the Veeam Agent for Linux control panel to collect and export product logs. When you export logs with the control panel, you can choose where Veeam Agent for Linux should save the resulting log archive.

To export logs:

1. Launch the Veeam Agent for Linux control panel with the `veeam` or `veeamconfig ui` command.
2. In the Veeam Agent for Linux control panel, press the '**m**' key to open the **Miscellaneous** menu.
3. In the menu, select the **Export Logs** option and press **Enter**.



4. In the **Choose logs directory** window, specify a directory to which you want to save the log archive:
    a. In the **Choose logs directory** window, select the necessary directory and press **Enter**.
    b. Repeat the step 'a' until a path to the directory in which you want to save exported logs appears in the **Current directory** field.
    c. To create a new directory, switch to the **Create Dir** button, press **Enter**, then type a name for the new directory and press **Enter**.
    d. Switch to the **Ok** button and press **Enter**. Veeam Agent for Linux will collect logs, export them to an archive file with the name `veeam_logs_<date>_<time>.tar.gz`, and save the archive to the specified directory.

Exporting Logs with Command Line Interface

You can use the Veeam Agent for Linux command line interface to collect and export product logs. To export logs, use the following command:

```
veeamconfig config grablogs
```

Veeam Agent for Linux will collect logs, export them to an archive file with the name `veeam_logs_<date>_<time>.tar.gz`, and save the archive to the current working directory.

For example:

```
user@srv01:~$ veeamconfig config grablogs
Logs have been exported successfully.
```

Getting Support

If you have any questions or want to share your feedback about Veeam Agent for Linux, you can use one of the following options:

- You can search for the information on the necessary subject in the current Veeam Agent for Linux User Guide.
- You can visit Veeam Community Forums at https://forums.veeam.com and share your opinion or ask a question.
- If you use Veeam Agent for Linux with a paid license installed, you can submit a support case to the Veeam Support Team at www.veeam.com/support.html.

Using with Veeam Backup & Replication

If you have the Veeam backup infrastructure deployed in the production environment, you can use Veeam Agent for Linux together with Veeam Backup & Replication.

The subsequent sections describe tasks available for Veeam Agent for Linux operating in the standalone mode. For information about Veeam Agent management in Veeam Backup & Replication, see the Veeam Agent Management Guide at: https://www.veeam.com/documentation-guides-datasheets.html.

> **IMPORTANT!**
>
> If you plan to use Veeam Agent for Linux with Veeam Backup & Replication, you must install Veeam Backup & Replication 9.5 Update 3 or later on the Veeam backup server.

Veeam Agent for Linux integrates with Veeam Backup & Replication and lets you perform a number of additional disaster recovery tasks and administrative actions with Veeam Agent for Linux backups. You can:

Data protection tasks

- Create Veeam Agent for Linux backups on backup repositories
- Create Veeam Agent for Linux backups on a Veeam Cloud Connect repository
- Copy Veeam Agent for Linux backups to secondary backup repositories
- Archive Veeam Agent for Linux backups to tape

Restore tasks

- Restore files and folders from Veeam Agent for Linux backups
- Restore disks from Veeam Agent for Linux backups
- Restore data from Veeam Agent for Linux backups to Microsoft Azure

Administrative tasks

- Import Veeam Agent for Linux backups
- Enable and disable Veeam Agent for Linux backup jobs
- View Veeam Agent backup job statistics
- Delete Veeam Agent for Linux backup jobs
- Remove Veeam Agent for Linux backups
- View Veeam Agent for Linux backup statistics
- Configure global settings
- Assign roles to users

Setting Up User Permissions on Backup Repositories

To be able to store backups on a backup repository managed by a Veeam backup server, the user must have access permissions on this backup repository.

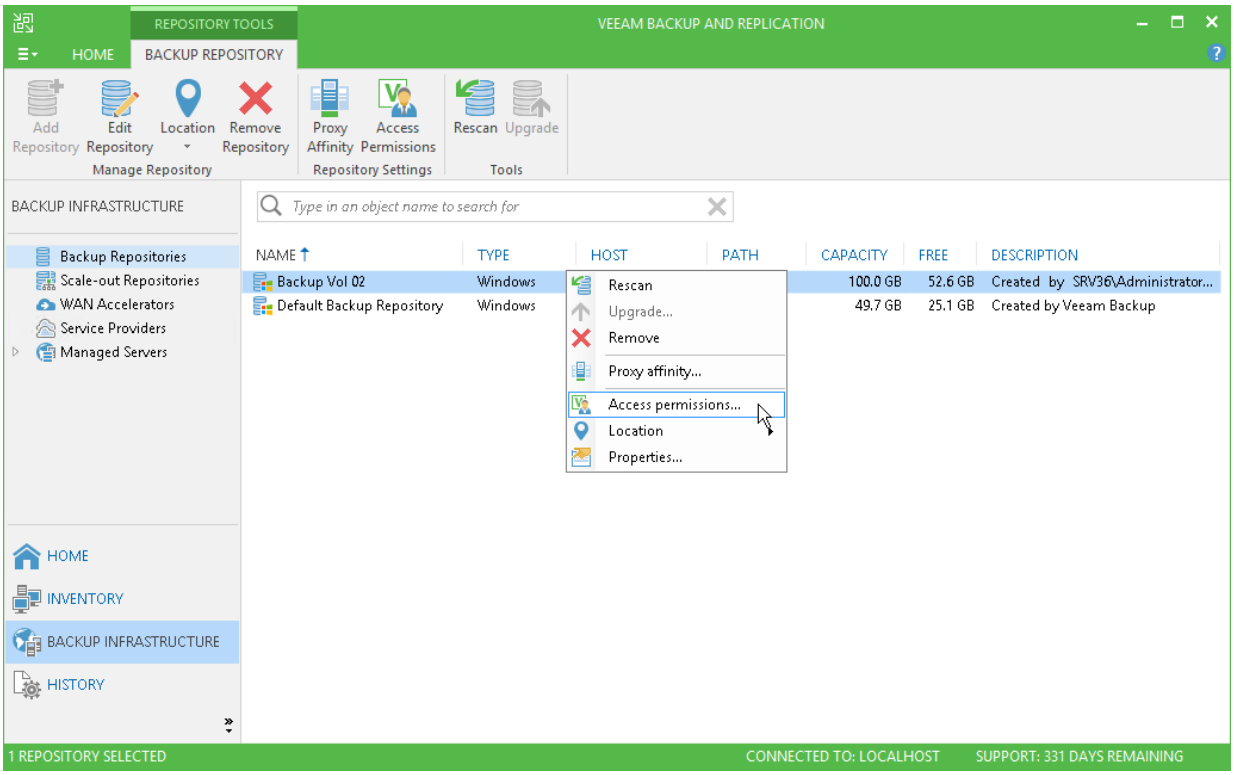
> **NOTE:**
>
> If you plan to create backups on a Veeam backup repository with Veeam Agent backup jobs configured in Veeam Backup & Replication, you do not need to grant access permissions on the backup repository to users. In the Veeam Agent management scenario, to establish a connection between the backup server and protected computers, Veeam Backup & Replication uses a TLS certificate. To learn more, see the *Configuring Security Settings* section in the Veeam Agent Management Guide at: https://www.veeam.com/documentation-guides-datasheets.html.

Access permissions are granted to security principals such as users and AD groups by the backup administrator working with Veeam Backup & Replication. Users with granted access permissions can target Veeam Agent for Linux backup jobs at this backup repository and perform restore from backups located on this backup repository.

Right after installation, access permissions on the default backup repository are set to *Everyone* for testing and evaluation purposes. If necessary, you can change these settings.

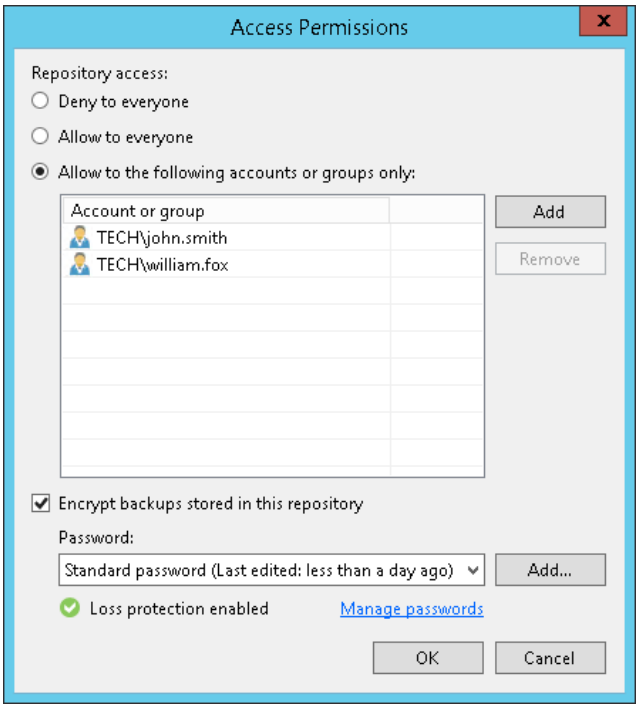
To grant access permissions to a security principal:

1. In Veeam Backup & Replication, open the **Backup Infrastructure** view.
2. In the inventory pane, click one of the following nodes:
   - The **Backup Repositories** node — if you want to grant access permissions on a regular backup repository to Veeam Agent users.
   - The **Scale-out Repositories** node — if you want to grant access permissions on a scale-out backup repository to Veeam Agent users.
3. In the working area, select the necessary backup repository and click **Access Permissions** on the ribbon or right-click the backup repository and select **Permissions**. If you do not see the **Access Permissions** button on the ribbon or the **Access permissions** command is not available in the shortcut menu, press and hold the **[CTRL]** key, right-click the backup repository and select **Access permissions**.



4. In the **Access Permissions** window, specify to whom you want to grant access permissions on this backup repository:
   - **Allow to everyone** — select this option if you want all users to be able to store backups on this backup repository. Setting access permissions to *Everyone* is equal to granting access rights to the *Everyone* Microsoft Windows group (*Anonymous* users are excluded). Note, however, this scenario is recommended for demo environments only.
   - **Allow to the following accounts or groups only** — select this option if you want only specific users to be able to store backups on this backup repository. Click **Add** to add the necessary users and groups to the list.

5. If you want to encrypt Veeam Agent for Linux backup files stored on the backup repository, select the **Encrypt backups stored in this repository** check box and choose the necessary password from the field below. If you have not specified a password beforehand, click **Add** on the right or the **Manage passwords** link to add a new password. Veeam Backup & Replication will encrypt files at the backup repository side using its built-in encryption mechanism. To learn more, see Veeam Backup & Replication Documentation.



Performing Data Protection Tasks

You can perform the following data protection tasks:

- Back up your data and store the resulting backup files on a backup repository managed by a Veeam backup server
- Back up your data and store the resulting backup files on a Veeam Cloud Connect Repository
- Copy Veeam Agent for Linux backups from the backup repository to a secondary backup repository with backup copy jobs
- Archive Veeam Agent for Linux backups to tapes with backup to tape jobs

Backing Up to Backup Repositories

You can store backups created with Veeam Agent for Linux on backup repositories connected to Veeam backup servers. To do this, you must perform the following actions:

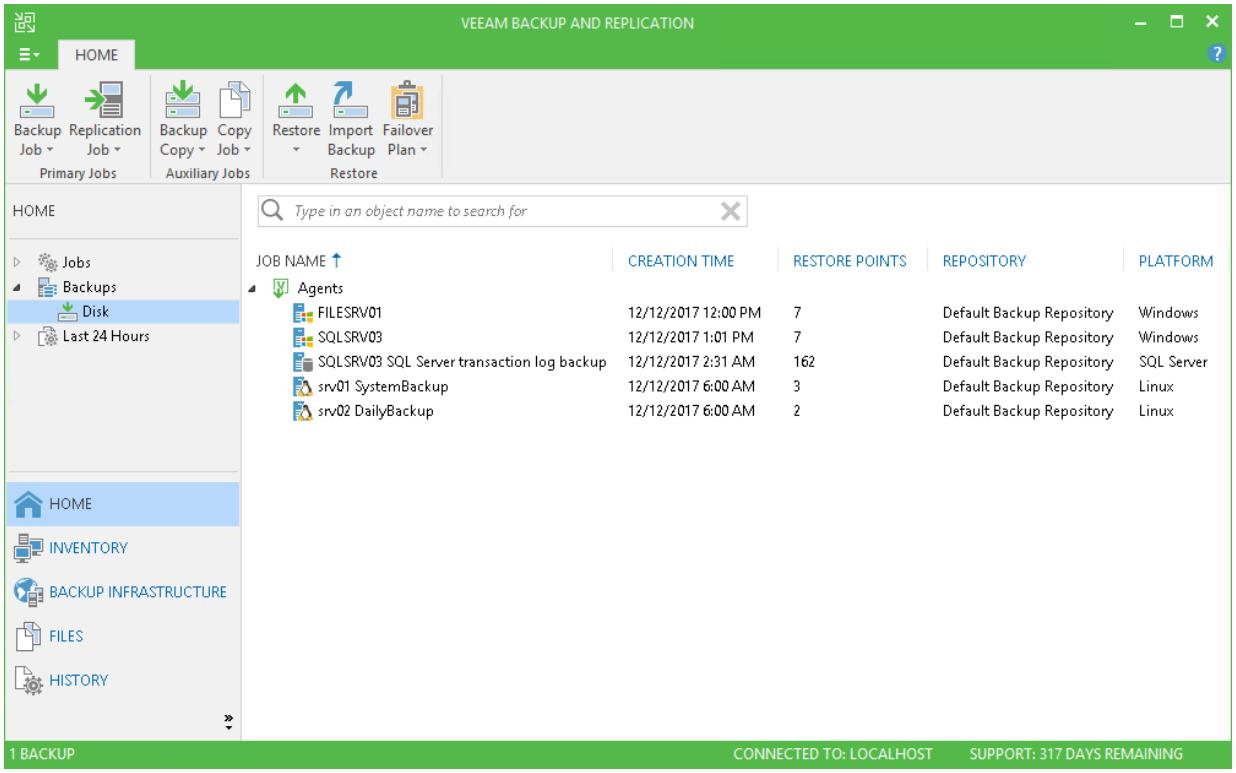
1. Set up user permissions at the backup repository side.
2. Point the Veeam Agent for Linux backup job to the backup repository.

The user who creates a Veeam Agent for Linux backup on the Veeam backup repository is set as the owner of the backup file. Only the backup file owner can access this file and restore data from it. Other users cannot see backups created by the backup file owner.

> **NOTE:**
>
> If the user is granted restore permissions on the Veeam backup server, he or she will be able to see all backups on the backup repository.

Backup jobs targeted at the backup repository become visible in Veeam Backup & Replication under the **Jobs** > **Backup** node in the **Home** view. Backups created with Veeam Agent for Linux are available under the **Backups** > **Disk** node in the **Home** view.

The backup administrator working with Veeam Backup & Replication can manage Veeam Agent for Linux backup jobs and restore data from these backups. To learn more, see Performing Restore Tasks and Performing Administration Tasks.



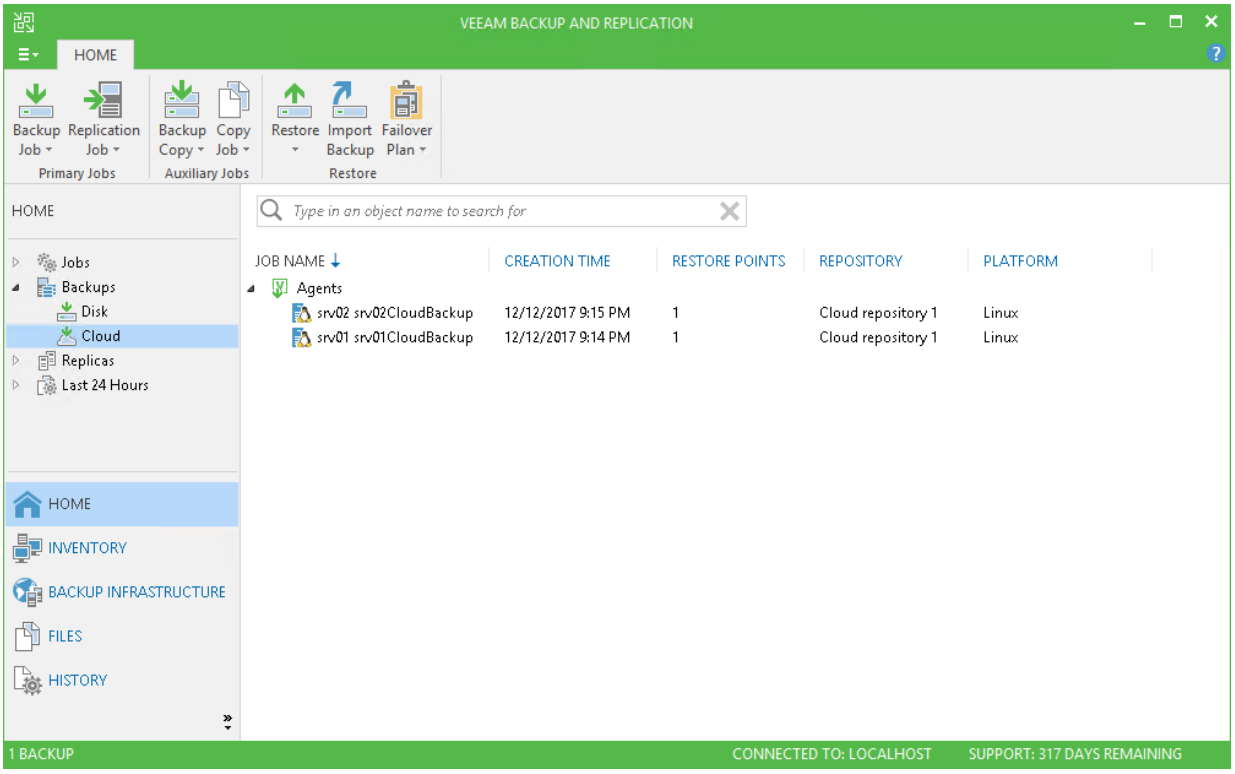
Backing Up to Cloud Repositories

You can use Veeam Agent for Linux to create backups on cloud repositories provided to you by a Veeam Cloud Connect service provider. To do this, you must connect to the service provider and point the backup job to the cloud repository. To connect to the service provider, you can use credentials of the tenant or subtenant account that your provider or backup administrator communicated to you. To learn more, see Veeam Cloud Connect Repository Settings.

Veeam Agent Backups on Tenant Side

Backups created with Veeam Agent for Linux are available under the **Backups** > **Cloud** node in the **Home** view of the Veeam Backup & Replication console deployed on the tenant side.

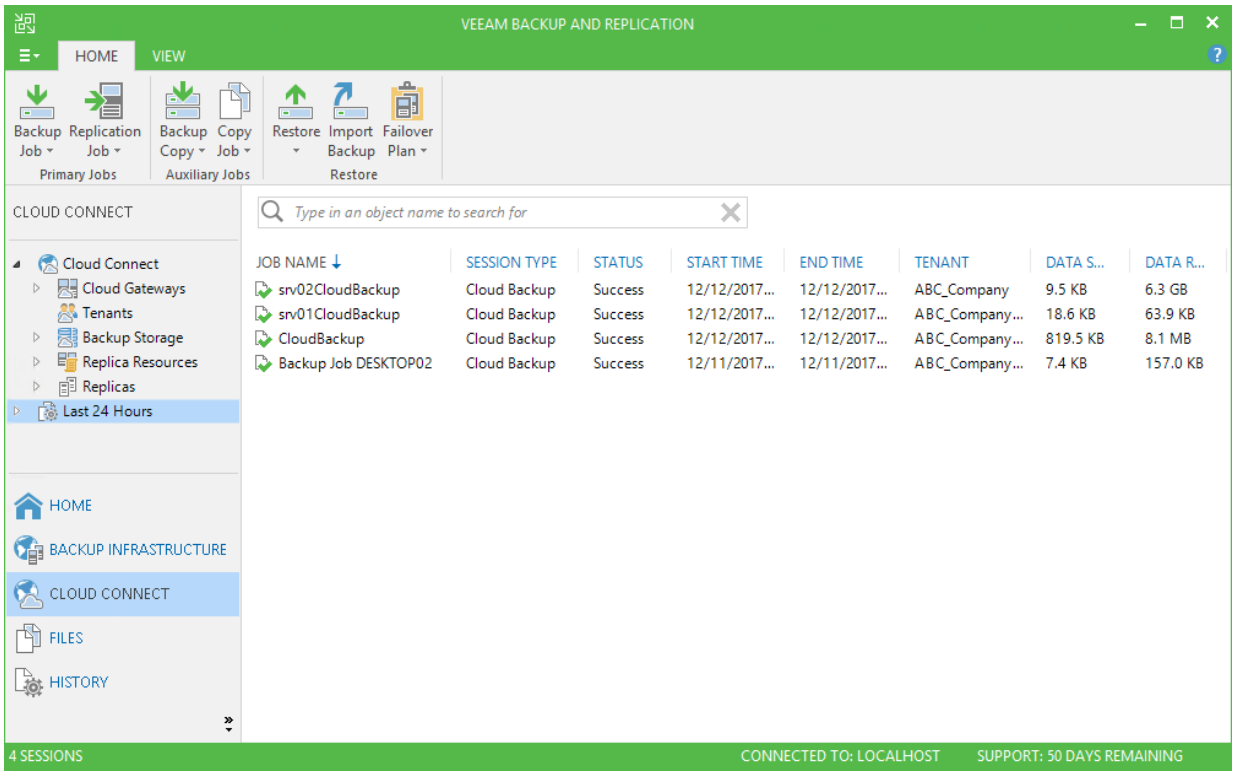
The backup administrator working with Veeam Backup & Replication on the tenant side can manage Veeam Agent backups created on the cloud repository and restore data from such backups. To recover data from a Veeam Agent for Linux backup, you can export disks of the Veeam Agent computer as virtual disks. To learn more, see Exporting Disks.



Veeam Agent Backups on Service Provider Side

The service provider can view information about backup and restore sessions performed by Veeam Agent users within the last 24 hours period. The list of sessions is available under the **Last 24 hours** node in the **Cloud Connect** view of the Veeam Backup & Replication console deployed on the service provider side.

The service provider cannot perform restore tasks with Veeam Agent backups that are stored on the cloud repository.



Performing Backup Copy for Veeam Agent Backups

You can configure backup copy jobs that will copy backups created with Veeam Agent for Linux to a secondary backup repository.

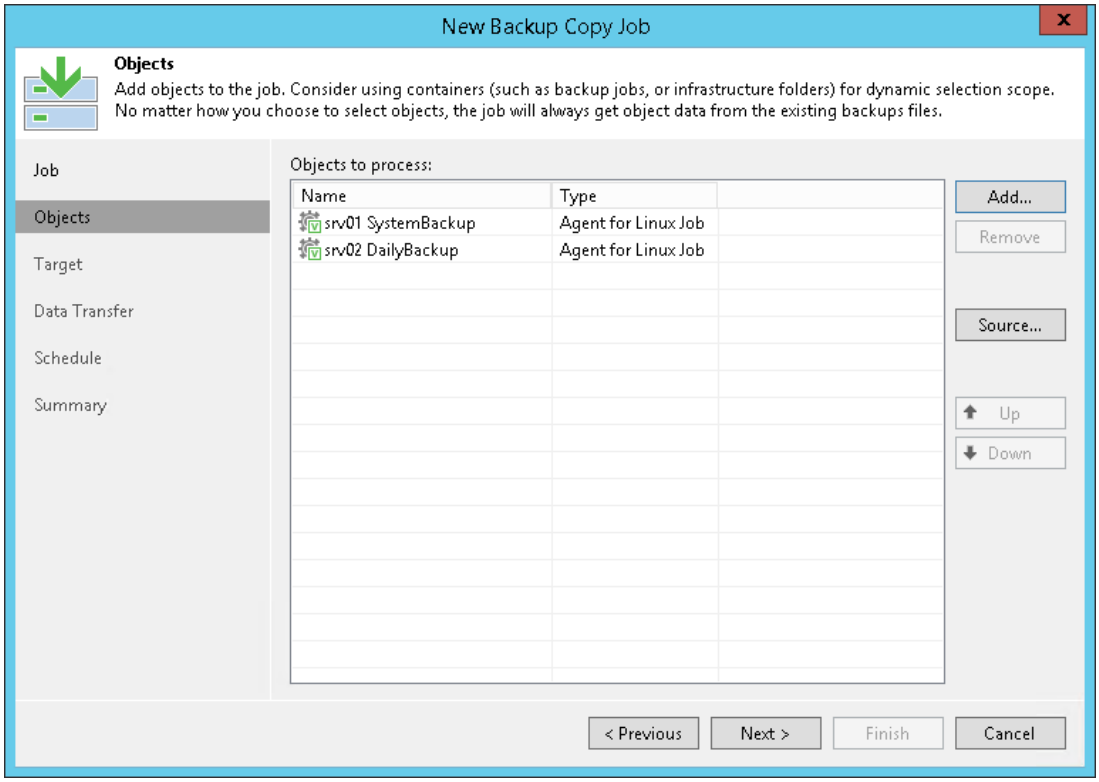
Backup copy jobs treat Veeam Agent for Linux backups as usual backup files. The backup copy job setup and processing procedures practically do not differ from the regular ones. To learn more about backup copy jobs, see Veeam Backup & Replication Documentation.

NOTE:

You can map a Veeam Agent backup copy job only to backups created by the following types of jobs:

- Veeam Agent backup copy job that processes backups created by Veeam Agent for Linux operating in the standalone mode
- Veeam Agent backup job configured directly on a Veeam Agent Computer

You cannot map a backup copy job to a backup created by a Veeam Agent backup job configured in Veeam Backup & Replication.



Restoring Data from Copies of Veeam Agent Backups

Backups copied to the secondary backup repository do not preserve user access permissions. At the same time, users who created backups do not have access permissions on these secondary repositories. For this reason, users cannot restore data from their backups residing in the secondary site.

To overcome this limitation, you can delegate the restore task to backup administrators who work with Veeam Backup & Replication. Backup administrators can use Veeam Backup & Replication to export data contained in backup files as virtual disks.

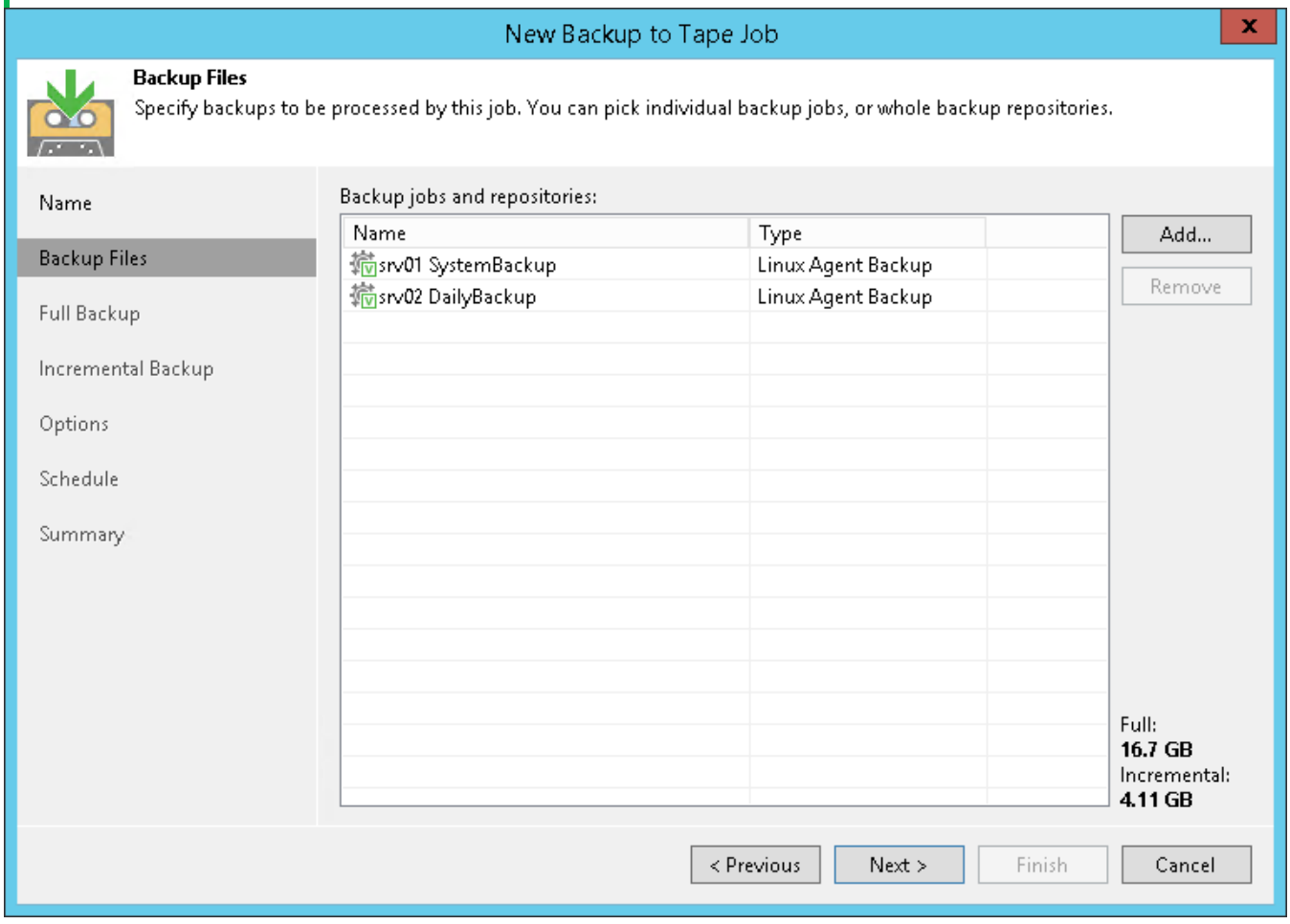
Archiving Veeam Agent Backups to Tape

You can configure backup to tape jobs to archive Veeam Agent for Linux backups to tape.

Backup to tape jobs treat Veeam Agent for Linux backups as usual backup files. The archiving job setup and processing procedures practically do not differ from the regular ones. To learn more about backup to tape jobs, see Veeam Backup & Replication Documentation.

NOTE:

Note that in backup to tape job schedule, you cannot select the **After this job option** for a Veeam Agent job configured directly on a Veeam Agent computer.



Performing Restore Tasks

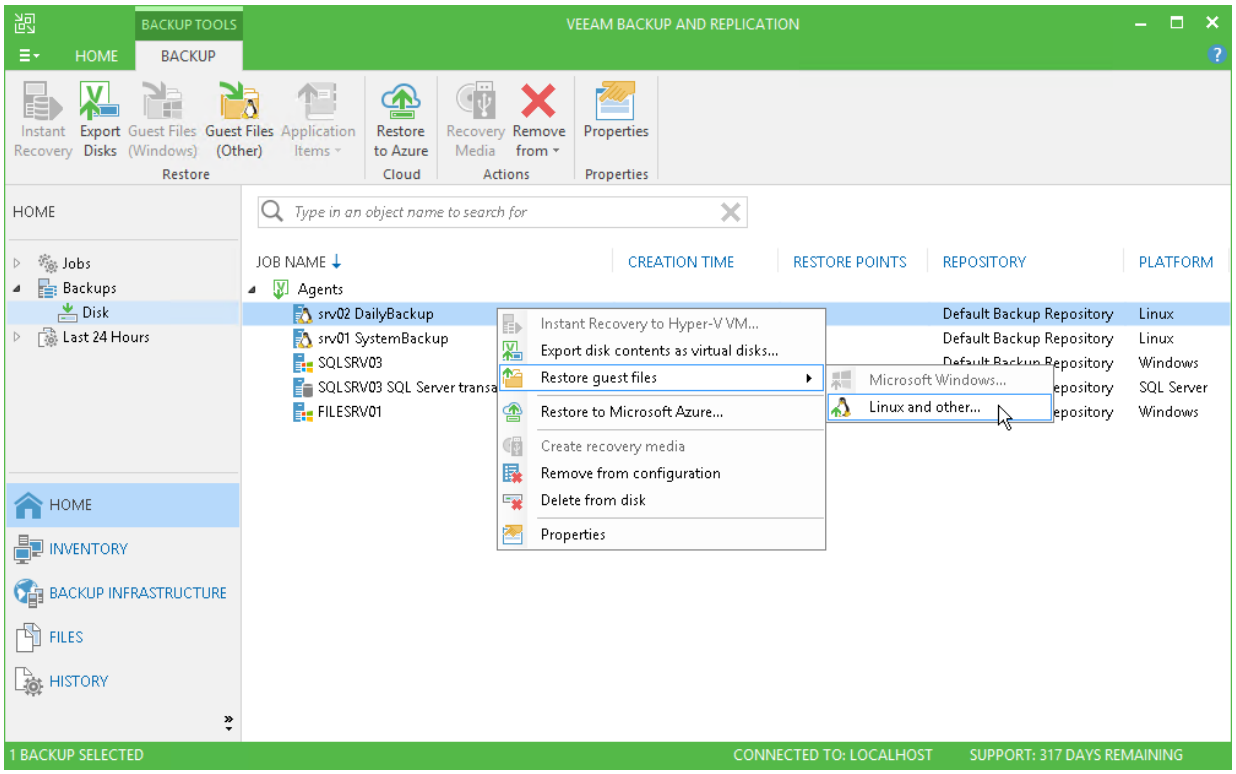
You can perform the following restore operations:

- Restore individual files and folders from Veeam Agent for Linux backups
- Export computer disks as VMDK, VHD or VHDX disks
- Restore data from Veeam Agent for Linux backups to Microsoft Azure

Restoring Files and Folders

You can restore individual files and folders from Veeam Agent for Linux backups.

The procedure of file-level restore practically does not differ from a regular one. To learn more about file-level restore, see Veeam Backup & Replication Documentation.



Exporting Disks

You can restore computer disks from volume-level backups and convert them to disks of the VMDK, VHD or VHDX format.

During disks restore, Veeam Agent for Linux creates standard virtual disks that can be used by VMware vSphere and Microsoft Hyper-V VMs.

- When you restore a disk in the VMDK format, Veeam Agent for Linux creates a pair of files that make up the VM virtual disk: a descriptor file and file with the virtual disk content.
- When you restore a disk in the VHD/VHDX format, Veeam Agent for Linux creates a file of the VHD or VHDX format.

You can save converted disks locally on any server added to the backup infrastructure or place disks on a datastore connected to an ESX(i) host (for VMDK disk format only). VMDK disks can be restored as thin provision and thick disks:

- Disks restored to a datastore are saved in the thin provisioned format.
- Disks restored to a server are saved in the thick format.

VHD/VHDX disks are always restored as dynamically expanding.

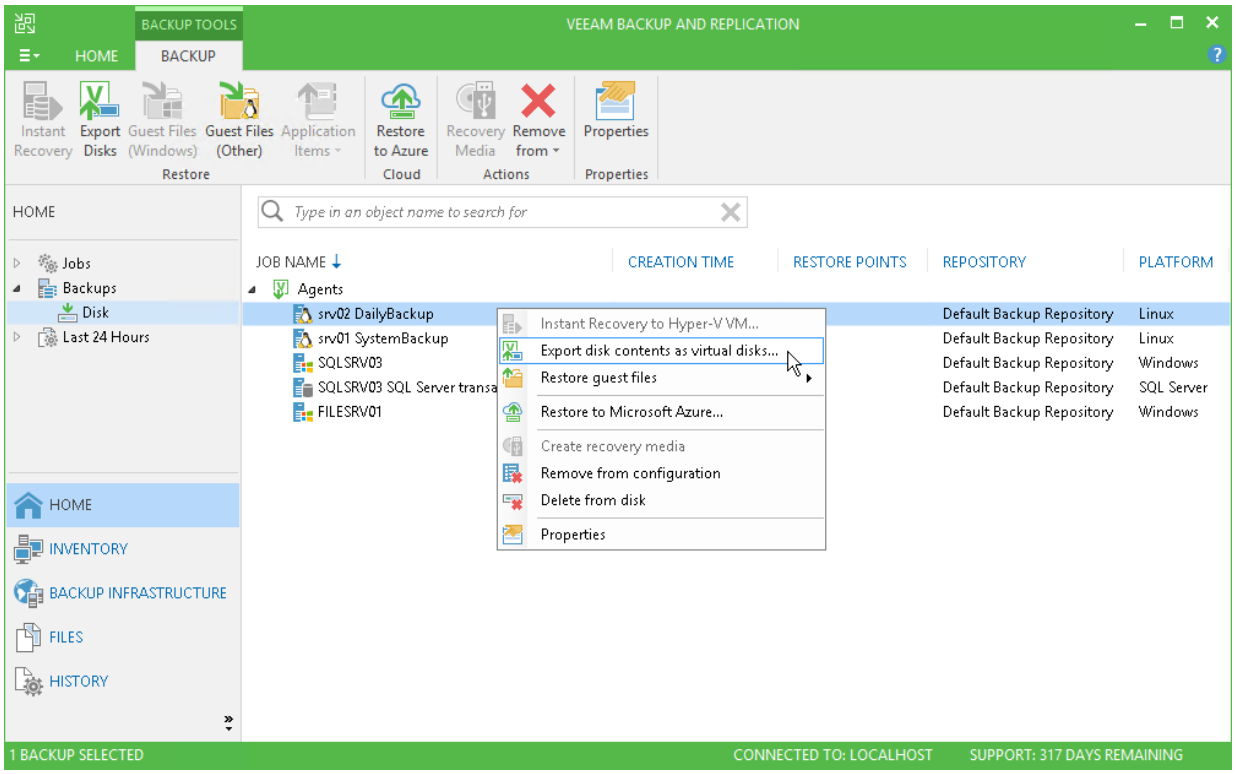
Veeam Agent for Linux supports batch disk restore. For example, if you choose to restore 2 computer disks, Veeam Agent for Linux will convert them to 2 virtual disks and store these disks in the specified location.

To restore disks and convert them to the VMDK, VHD or VHDX format, use the **Export Disk** wizard.

Step 1. Launch Export Disk Wizard

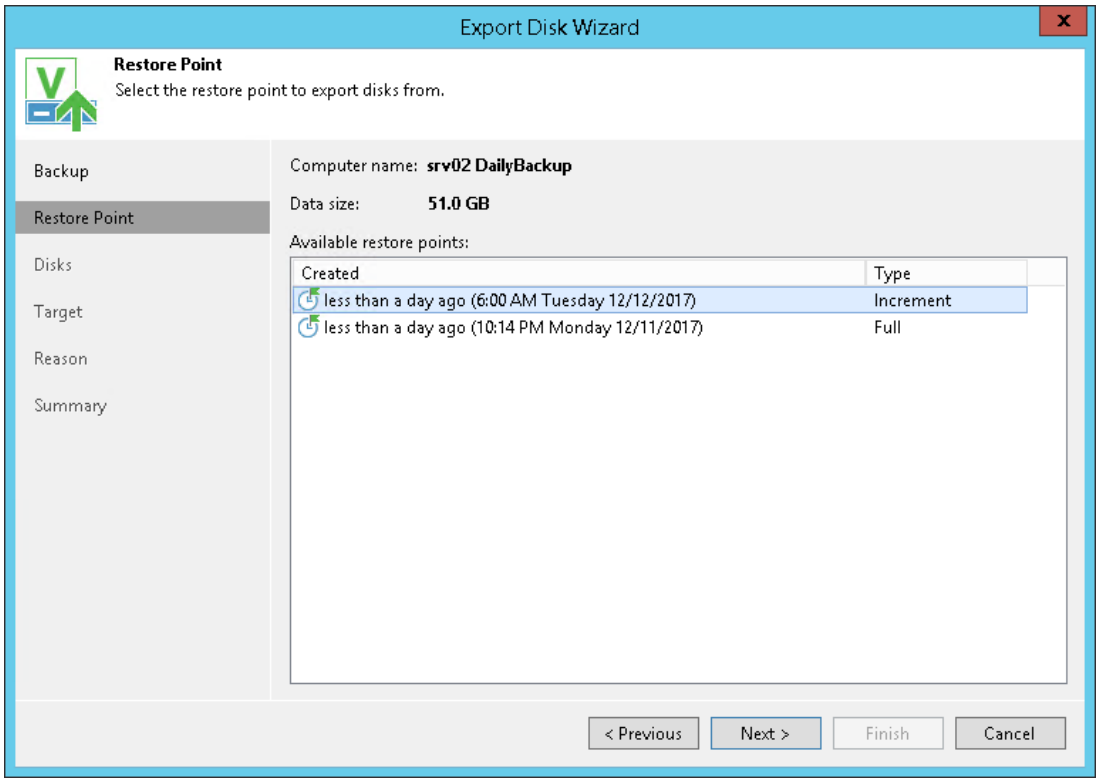
To launch the **Export Disk** wizard:

1. In Veeam Backup & Replication, open the **Home** view.
2. In the inventory pane, click **Disk** under the **Backups** node. In the working area, expand the **Agents** node, right-click the necessary backup and select **Export disk contents as virtual disks**. You will pass to the Restore Point step of the wizard.



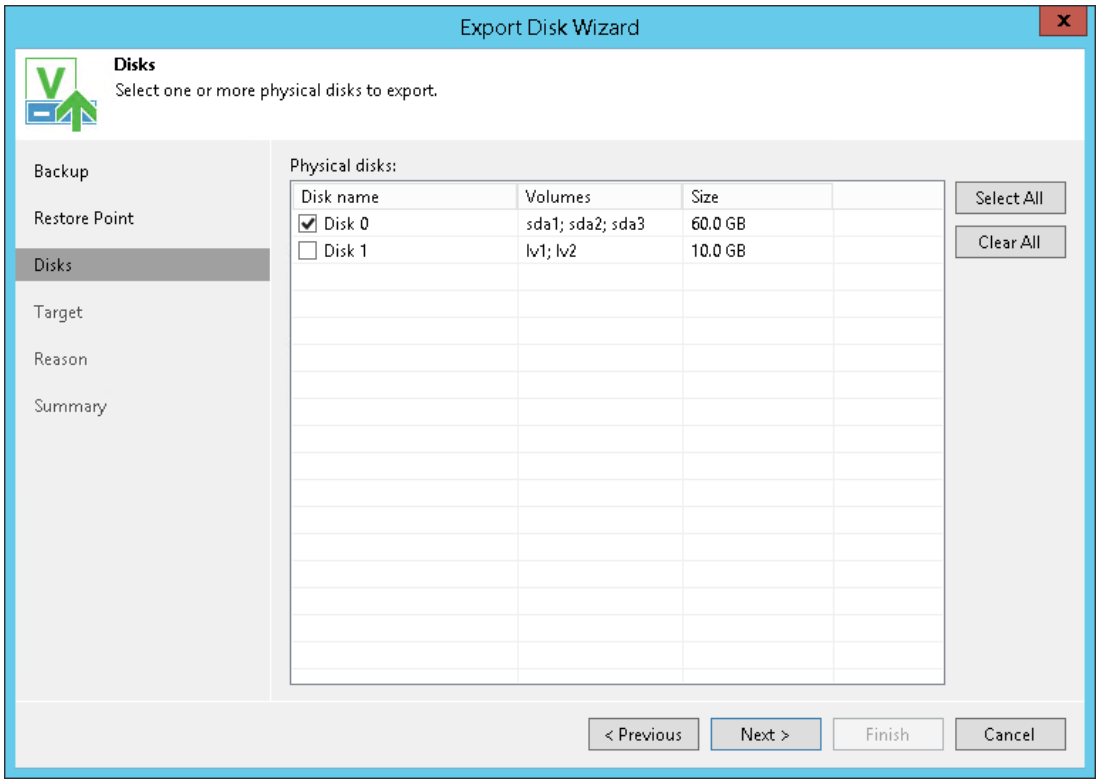
Step 2. Select Restore Point

At the **Restore Point** step of the wizard, select the necessary restore point from which you want to restore disk(s). In the list of restore points, Veeam Agent for Linux displays all restore points that have been created. Make sure that you select a restore point that relates to a volume-level backup.



Step 3. Select Disks

At the **Disks** step of the wizard, select check boxes next to those disks that you want to export.



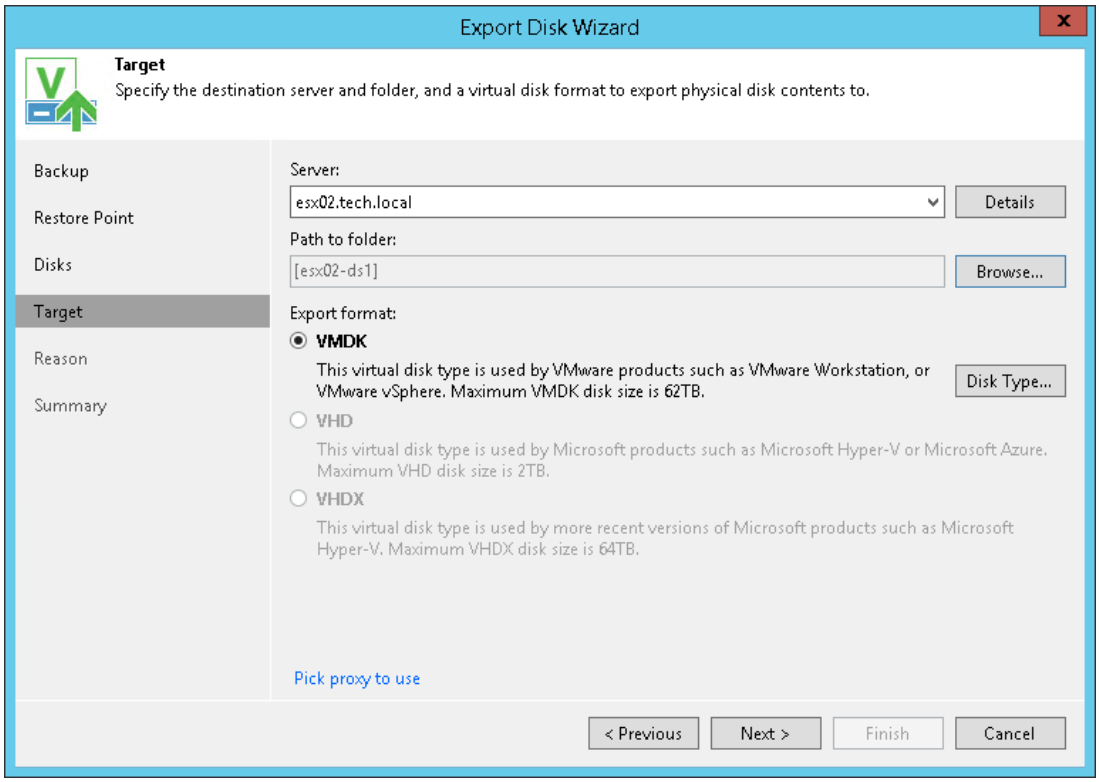
Step 4. Select Destination and Disk Format

At the **Target** step of the wizard, select the destination for disk export and format in which you want to save the resulting virtual disk.

1. From the **Server** list, select a server on which the resulting virtual disks must be saved. If you plan to save the disks in the VMDK format on a datastore, select an ESX(i) host to which this datastore is connected.
2. In the **Path to folder** field, specify a folder on the server or datastore where the virtual disks must be placed.
3. Select the export format for disks:
    - **VMDK** — select this option if you want to save the resulting virtual disk in the VMware VMDK format.
    - **VHD** — select this option if you want to save resulting virtual disk in the Microsoft Hyper-V VHD format.
    - **VHDX** — select this option if you want to save resulting virtual disk in the Microsoft Hyper-V VHDX format (supported by Microsoft Windows Server 2012 and later).

NOTE:

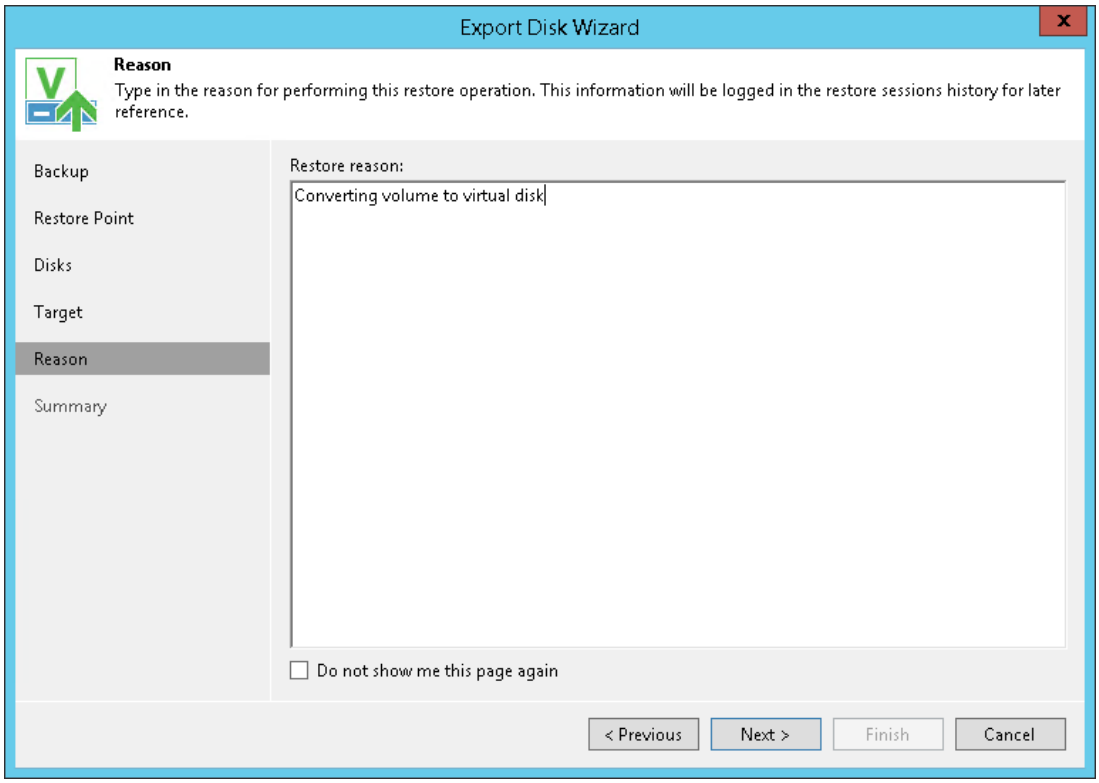
If you have selected to store the resulting virtual disk to a datastore, you will be able to save the virtual disk in the VMDK format only. Other options will be disabled.



Step 5. Specify Restore Reason

At the **Reason** step of the wizard, enter a reason for restoring the computer volume.

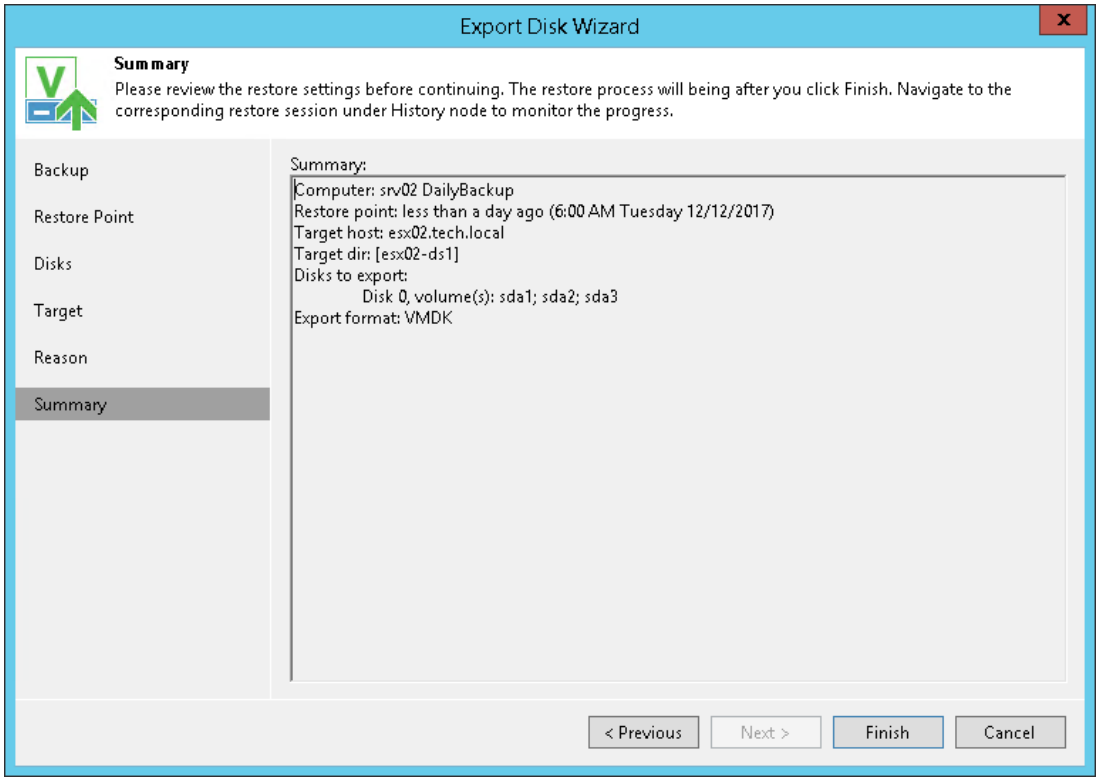
> **NOTE:**
>
> If you do not want to display the **Restore Reason** step of the wizard in future, select the **Do not show me this page again** check box



Step 6. Complete Restore Process

At the **Summary** step of the wizard, complete the procedure disk restore.

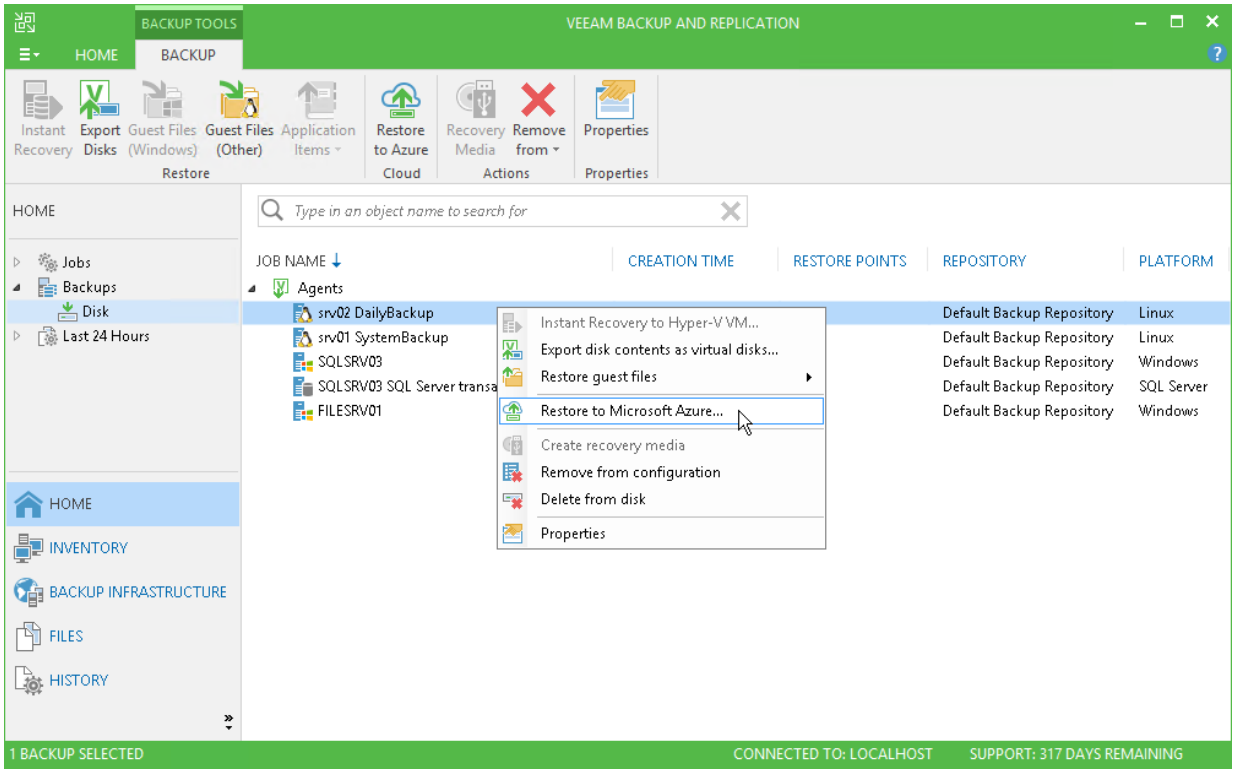
1. Review details for the disk to be restored.
2. Click **Finish** to start the restore procedure and exit the wizard.



Restoring to Microsoft Azure

You can restore Linux machines from Veeam Agent backups to Microsoft Azure.

The procedure of restore to Microsoft Azure practically does not differ from a regular one. To learn more about restore to Microsoft Azure, see Veeam Backup & Replication Documentation.



Performing Administration Tasks

You can manage Veeam Agent for Linux backup jobs and backups created with these jobs. Veeam Backup & Replication allows you to perform the following administration tasks:

- Import Veeam Agent for Linux backups
- Enable and disable Veeam Agent for Linux backup jobs
- Remove Veeam Agent for Linux backup jobs
- Remove Veeam Agent for Linux backups
- View Veeam Agent for Linux backup properties
- Configure global settings
- Assign roles to users

Importing Veeam Agent Backups

You may need to import a Veeam Agent for Linux backup in the Veeam Backup & Replication console in the following situations:

- The Veeam Agent for Linux backup is stored on a drive managed by another computer (not the Veeam backup server).
- The Veeam Agent for Linux backup is stored on a backup repository managed by another Veeam backup server.
- The Veeam Agent for Linux backup has been removed in the Veeam Backup & Replication console.

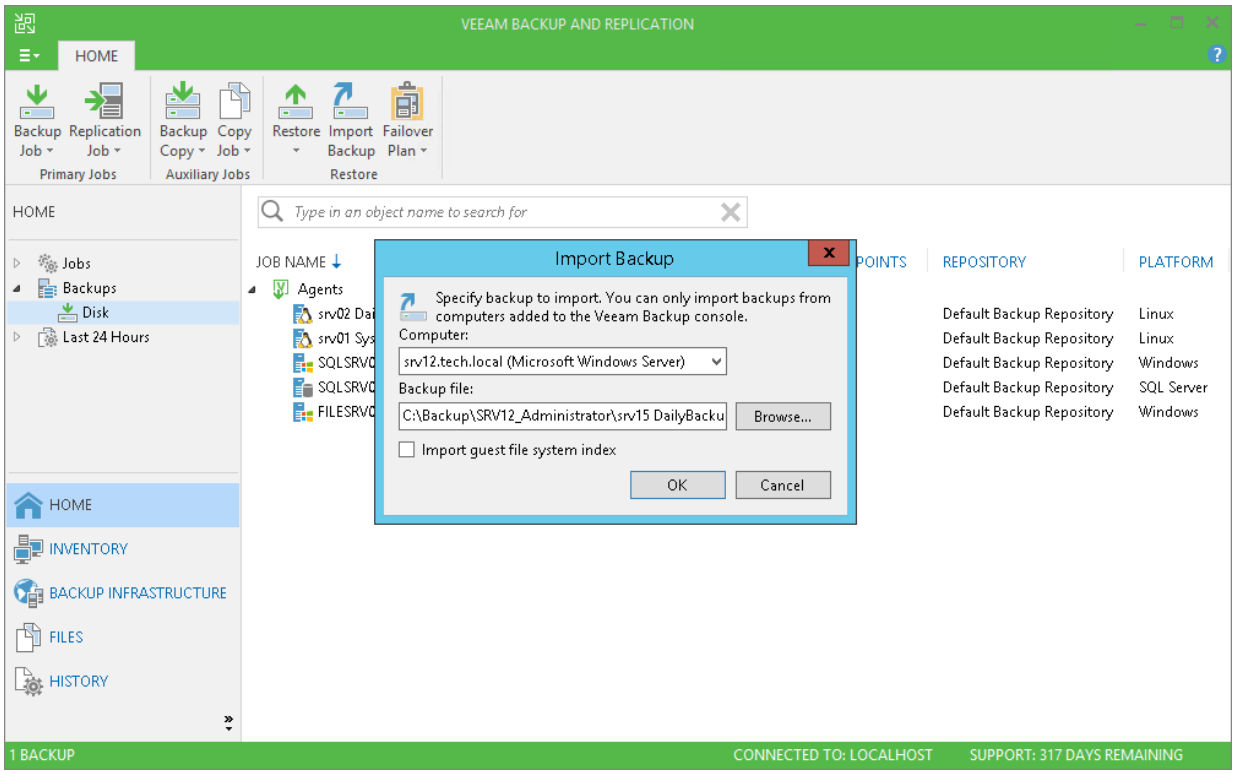
After importing, the Veeam Agent for Linux backup becomes available in the Veeam Backup & Replication console. You can restore data from such backup in a regular manner.

Before importing a backup, check the following prerequisites:

- The computer or server from which you plan to import the backup must be added to Veeam Backup & Replication. Otherwise you will not be able to access backup files.
- To be able to restore data from previous backup restore points, make sure that you have all incremental restore points in the same folder where the full backup file resides.

To import a Veeam Agent for Linux backup:

1. In Veeam Backup & Replication, click **Import Backup** on the **Home** tab.
2. From the **Computer** list, select the computer or server on which the backup you want to import is stored.
3. Click **Browse** and select the necessary VBM or VBK file. If you select the VBM file, the import process will be notably faster. It is recommended that you use the VBK files for import only if a corresponding VBM file is not available.
4. Click **OK**. The imported backup will become available in the **Home** view, under the **Backups** > **Disk (imported)** node in the inventory pane.



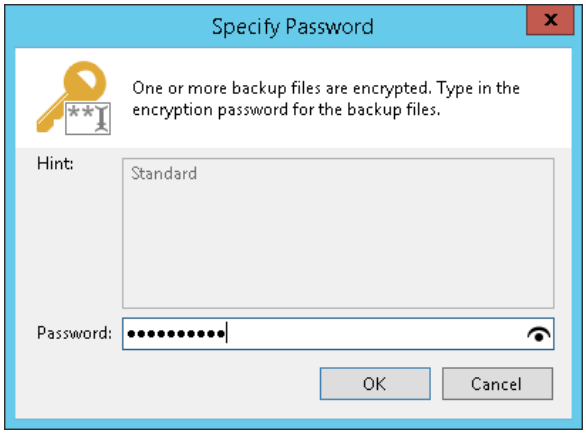
Importing Encrypted Backups

You can import Veeam Agent backups that were encrypted by Veeam Backup & Replication or Veeam Agent for Linux.

To import an encrypted backup file:

1. On the **Home** tab, click **Import Backup**.
2. From the **Computer** list, select the host on which the backup you want to import is stored.
3. Click **Browse** and select the VBM or VBK file.
4. Click **OK**. The encrypted backup will appear under the **Backups** > **Disk (encrypted)** node in the inventory pane.
5. In the working area, select the imported backup and click **Specify Password** on the ribbon or right-click the backup and select **Specify password**.
6. In the **Password** field, enter the password for the backup file. If you changed the password one or several times while the backup chain was created, you need to specify the latest password. For Veeam Agent backups, you can use the latest password to restore data form all restore points in the backup chain, including those restore points that were encrypted with an old password.

If you enter correct password, Veeam Backup & Replication will decrypt the backup file. The backup will be moved under the **Backups** > **Disk (imported)** node in the inventory pane.



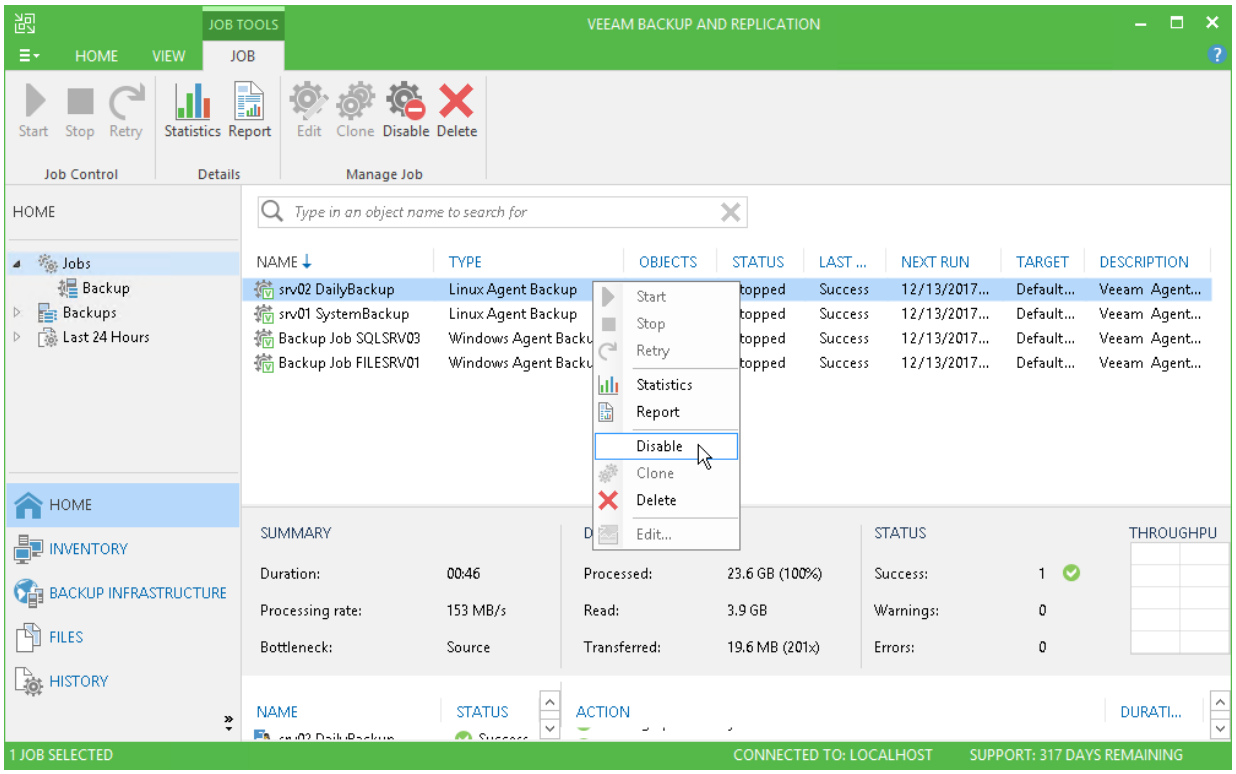
Enabling and Disabling Backup Jobs

You can disable and enable Veeam Agent for Linux backup jobs in Veeam Backup & Replication.

When you disable the job, you prohibit the user to store the resulting backup to the backup repository. If the user starts a disabled job manually or the job starts by schedule, the job session will fail and report the "*Job is disabled on backup server*" error. To let Veeam Agent for Linux store backups to the backup repository again, you must enable the disabled job.

To disable or enable the scheduled backup job in Veeam Backup & Replication:

1. In Veeam Backup & Replication, open the **Home** view.
2. In the inventory pane, click the **Jobs** node.
3. Select the necessary job in the working area and click **Disable** on the ribbon or right-click the necessary job in the working area and select **Disable**. To enable the disabled job, click **Disable** on the toolbar or right-click the job and select **Disable** once again.



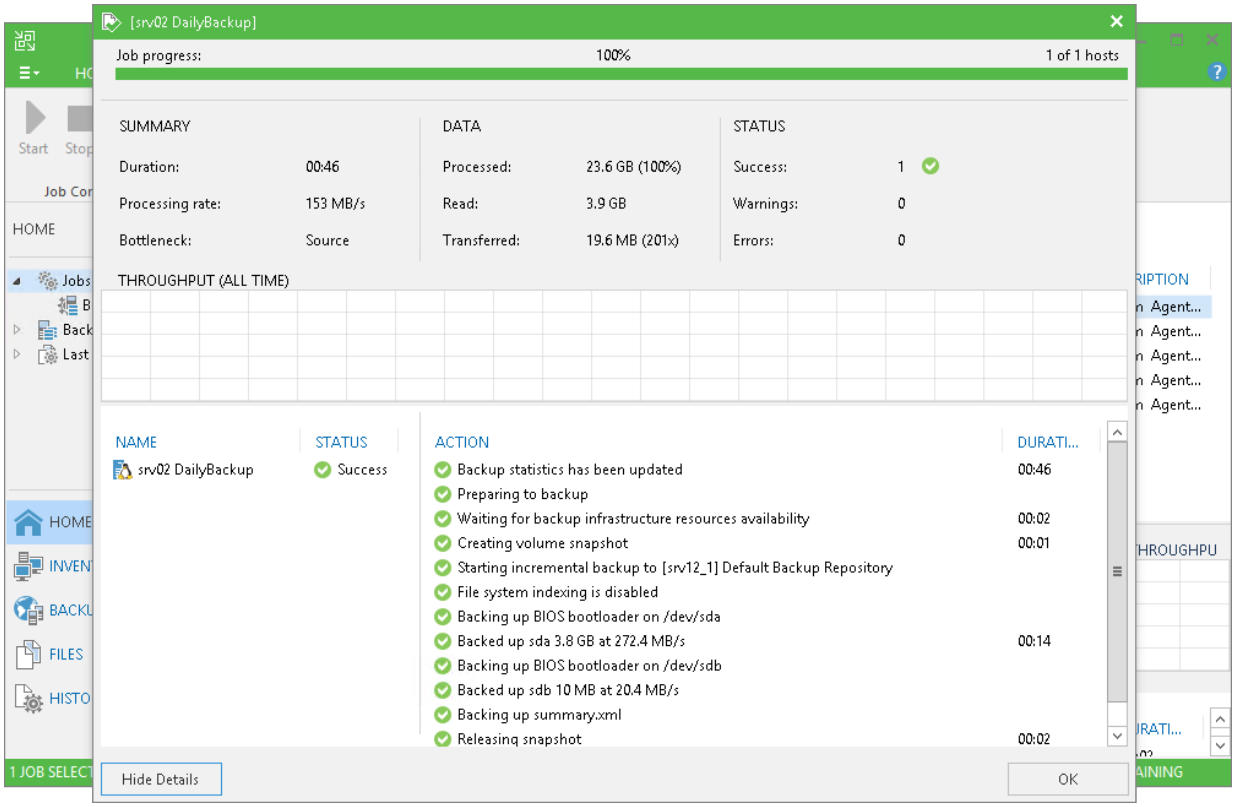
Viewing Veeam Agent Backup Job Statistics

You can view statistics about Veeam Agent backup jobs in the Veeam Backup & Replication console. Veeam Backup & Replication displays statistics for Veeam Agent backup jobs in the similar way as for regular backup jobs. The main differences are the following:

- The list of objects included in the job contains a Veeam Agent computer instead of one or several VMs.
- Detailed statistics become available in the Veeam Backup & Replication console after the Veeam Agent job session completes. For currently running sessions, Veeam Backup & Replication displays duration and the name of the Veeam Agent computer only.

To view Veeam Agent backup job statistics:

1. In Veeam Backup & Replication, open the **Home** view.
2. In the inventory pane, click the **Jobs** node.
3. In the working area, select the necessary Veeam Agent backup job and click **Statistics** on the ribbon or right-click the job and select **Statistics**.



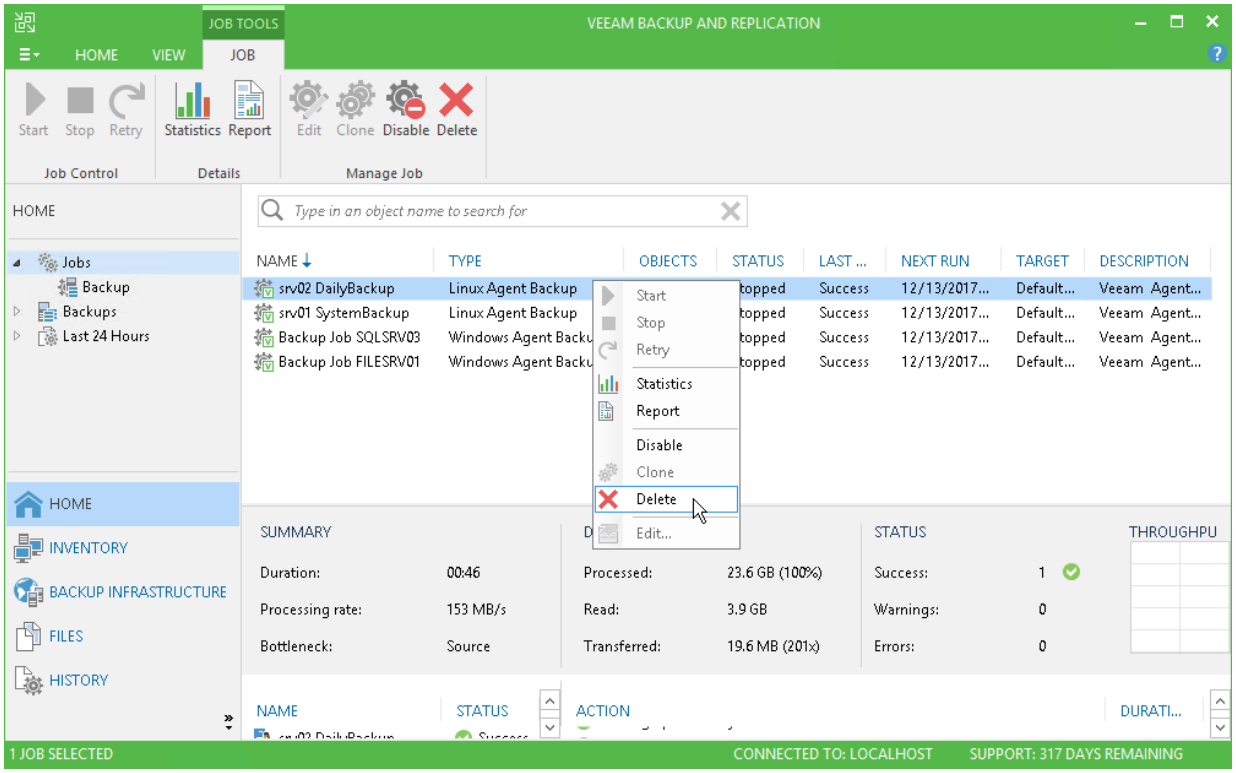
Deleting Veeam Agent Backup Jobs

You can delete Veeam Agent for Linux backup jobs.

When you delete a Veeam Agent for Linux backup job, Veeam Backup & Replication removes all records about the job from its database and console. When the user starts a new Veeam Agent for Linux backup job session manually or the job starts automatically by schedule, the job will appear in the Veeam Backup & Replication console again, and records about a new job session will be stored to the Veeam Backup & Replication database. To remove the job permanently, you must delete the job and unassign access rights permissions for this user from the backup repository.

To remove a job:

1. In Veeam Backup & Replication, open the **Home** view.
2. In the inventory pane, click the **Jobs** node.
3. Select the necessary job in the working area and click **Delete** on the toolbar or right-click the necessary job in the working area and select **Delete**.



Removing Veeam Agent Backups

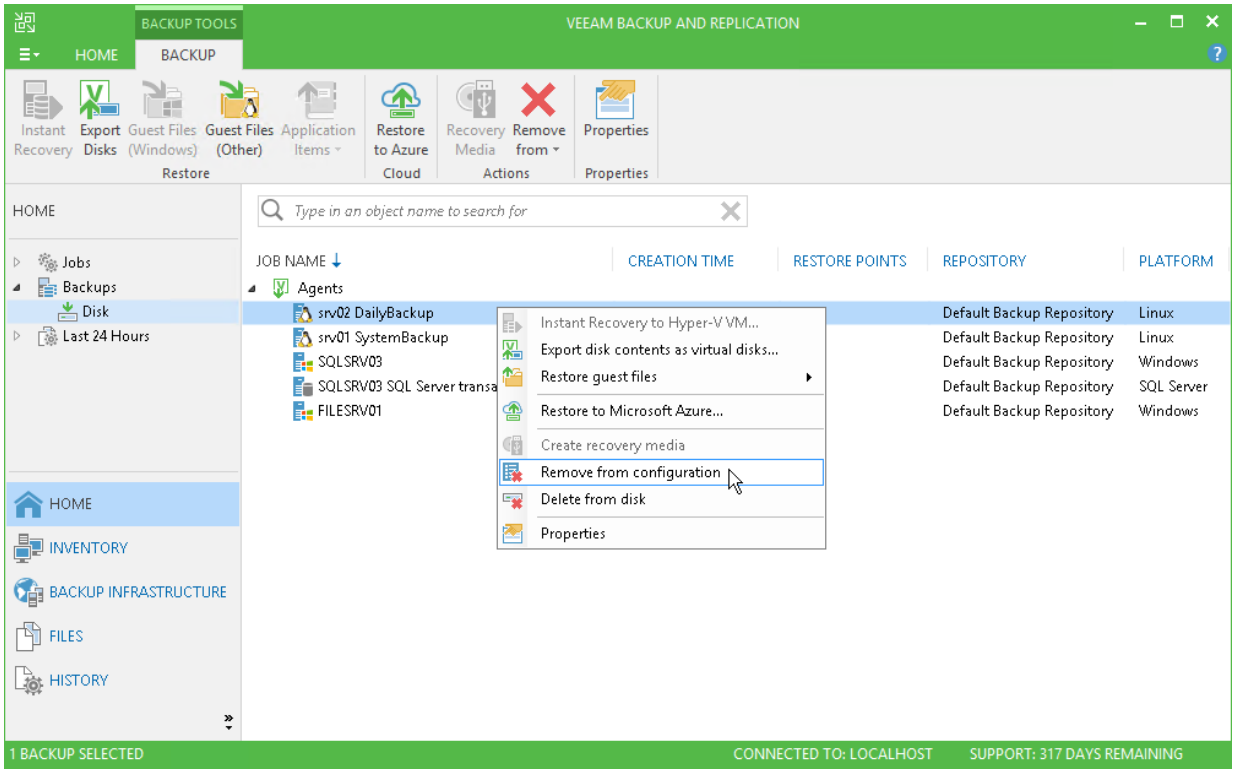
You can remove Veeam Agent for Linux backups from Veeam Backup & Replication or permanently delete Veeam Agent for Linux backups from the Veeam backup repository.

Removing from Configuration

When you remove a Veeam Agent for Linux backup from configuration, Veeam Backup & Replication deletes all records about the backup from its database and console. The actual backup files remain on the backup repository. You can import the backup to the Veeam Backup & Replication at any time later and restore data from it. To learn more, see Importing Veeam Agent for Linux Backups.

To remove a Veeam Agent for Linux backup from configuration:

1. In Veeam Backup & Replication, open the **Home** view.
2. In the inventory pane, click **Disk** under the **Backups** node.
3. In the working area, expand the **Agents** node, select the necessary backup and click **Remove from > Configuration** on the toolbar or right-click the backup and select **Remove from configuration**.

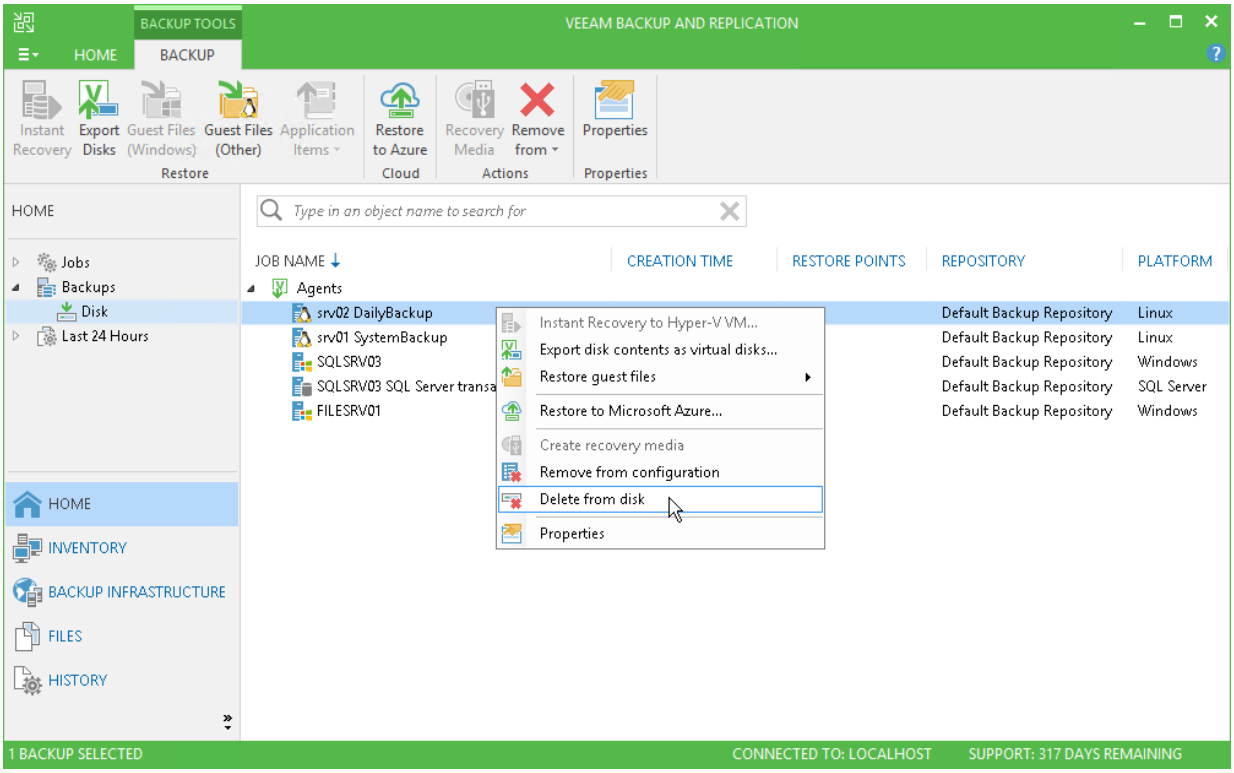


Removing from Veeam Backup Repository

When you remove a Veeam Agent for Linux backup from the Veeam backup repository, Veeam Backup & Replication deletes all records about the backup from its database and console. The actual backup files are removed from the backup repository, too.

To remove a Veeam Agent for Linux backup from the backup repository:

1. In Veeam Backup & Replication, open the **Home** view.
2. In the inventory pane, click **Disk** under the **Backups** node.
3. In the working area, expand the **Agents** node, select the necessary backup and click **Remove from** > **Disk** on the toolbar or right-click the backup and select **Delete from disk.**

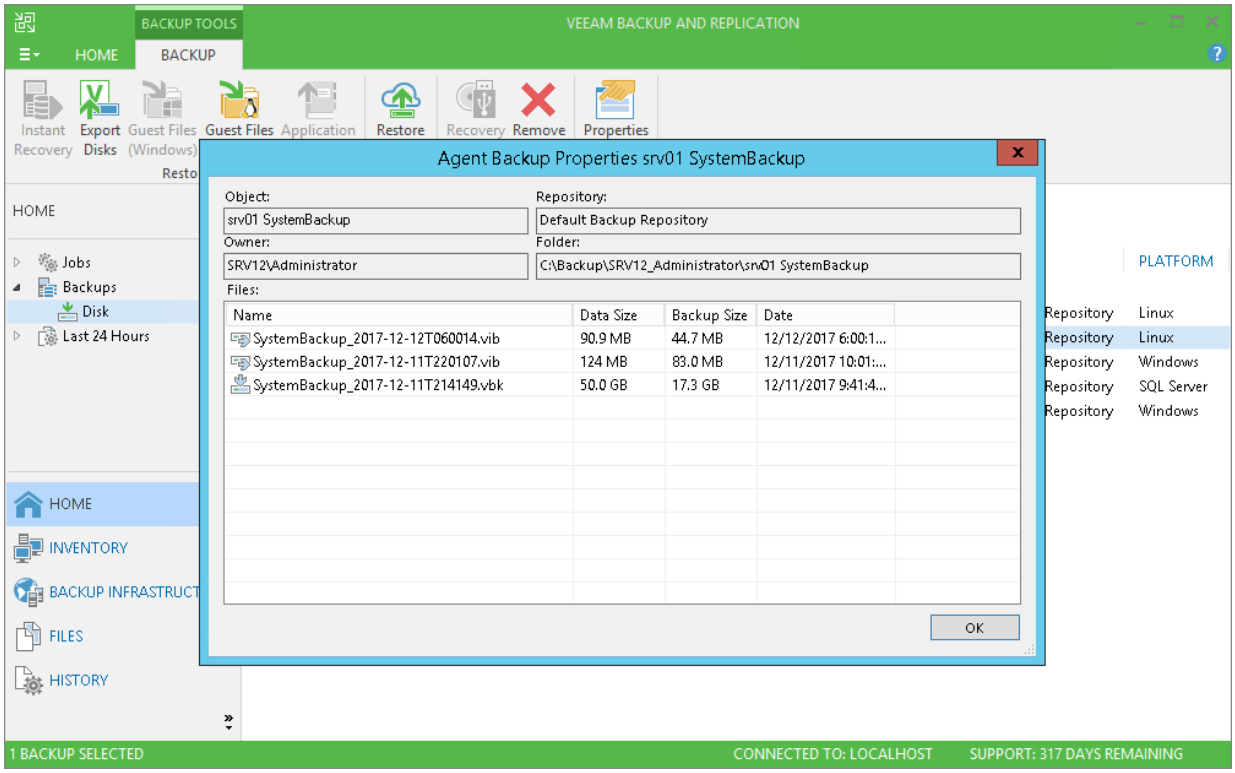


Viewing Veeam Agent Backup Statistics

You can view statistics about Veeam Agent for Linux backups.

To view Veeam Agent for Linux backup statistics:

1. In Veeam Backup & Replication, open the **Home** view.
2. In the inventory pane, click **Disk** under the **Backups** node.
3. In the working area, expand the **Agents** node, select the necessary backup and click **Properties** on the toolbar or right-click the backup and select **Properties**.



Configuring Global Settings

Global settings configured on the Veeam backup server apply to Veeam Agent for Linux backup jobs as well. You can:

- Configure network throttling settings so that Veeam Agent for Linux backup job does not consume all network resources.
- Configure global email settings to get alerted about the Veeam Agent for Linux backup job results.

To learn more, see Veeam Backup & Replication Documentation.

Assigning Roles to Users

User roles configured on the Veeam backup server apply to Veeam Agent for Linux backup jobs as well.

To learn more, see Veeam Backup & Replication Documentation.