

# Installation and configuration Veeam backup server.

## Overview

A backup server is a must in hosting environments. You don't want to lose any files or servers if there is an unexpected outage or a fire in the server room. We are following the backup 3 2 1 rule.

- We have 3 copies of all our data and whole vm's
- This 3 copies are stored in 3 different locations (2 separate esxi hosts with an backup server and in the cloud)
- 1 copy is stored on an other place than the datacentre in this case in the cloud.

To make this backup setup possible we made use of Veeam Backup & Replication server and Veeam cloud connect.

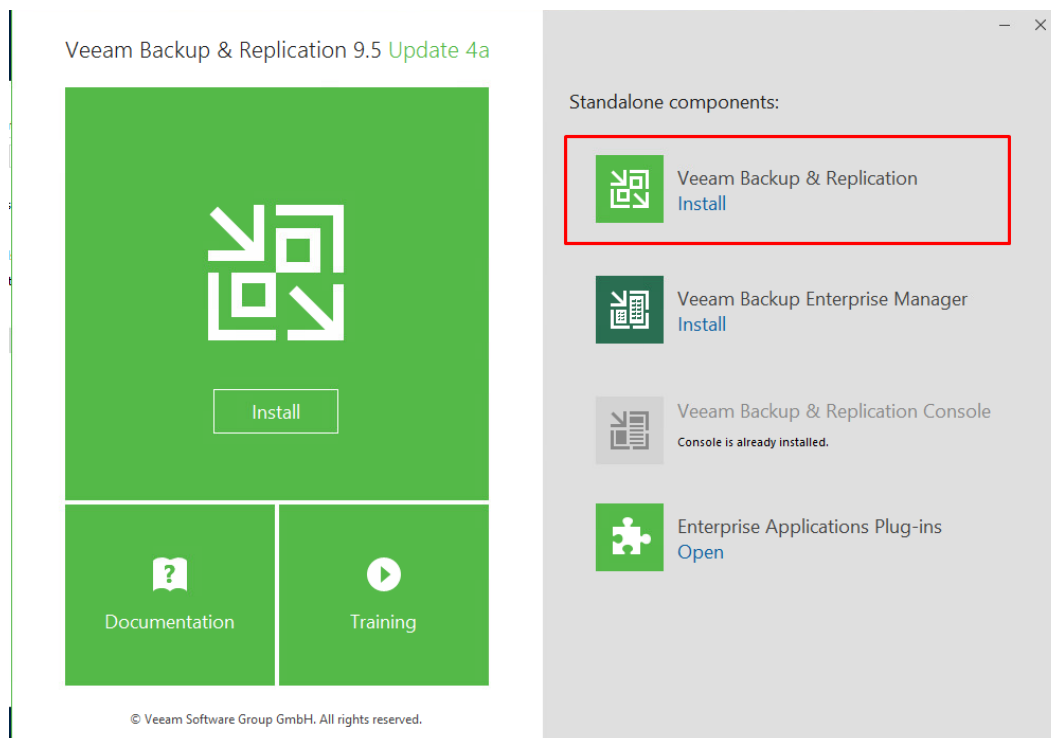
Bugs and problems can be reported using the bug tracker or the ticketing system. The guide for using these systems can be found in the OPSDoc bundle.

The primary contact person for this service is: Brent De Vos

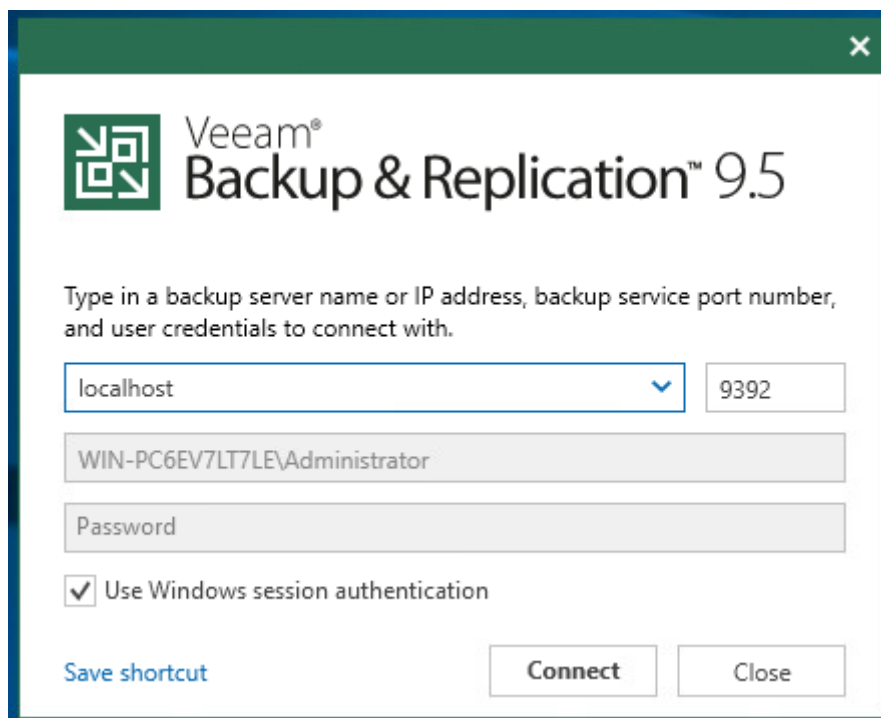
## Prerequisites

- Windows server 2016 or newer virtual machine

### Installation



## Configuration



The image shows a Windows-style configuration window for Veeam Backup & Replication 9.5. The window has a dark green title bar with a close button (X) in the top right corner. The main content area has a white background. At the top left is the Veeam logo, followed by the text "Veeam® Backup & Replication™ 9.5". Below this, a instruction reads: "Type in a backup server name or IP address, backup service port number, and user credentials to connect with." There are four input fields: a dropdown menu with "localhost" selected, a text box with "9392", a text box with "WIN-PC6EV7LT7LE\Administrator", and a text box labeled "Password". Below these fields is a checkbox labeled "Use Windows session authentication" which is checked. At the bottom left is a blue link "Save shortcut". At the bottom right are two buttons: "Connect" and "Close".

Veeam® Backup & Replication™ 9.5

Type in a backup server name or IP address, backup service port number, and user credentials to connect with.

localhost 9392

WIN-PC6EV7LT7LE\Administrator

Password

☒ Use Windows session authentication

[Save shortcut](#) [Connect](#) [Close](#)

We connect to the Veeam backup instance on localhost (this machine).  
We choose to use Windows authentication.

## Veeam Backup & Replication 9.5

Type in a backup server name or IP address, backup service port number, and user credentials to connect with.

localhost

9392

T02BACKUPSRV\Administrator

Password

☒ Use Windows session authentication

Failed to connect to Veeam Backup & Replication server:  
No connection could be made because the target machine actively  
refused it 127.0.0.1:9392

[Save shortcut](#)

Connect

Close

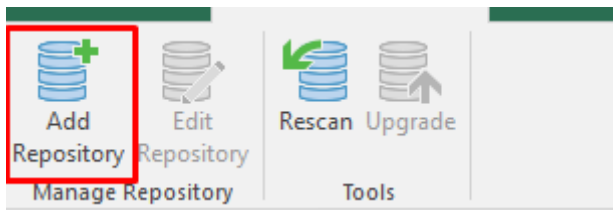
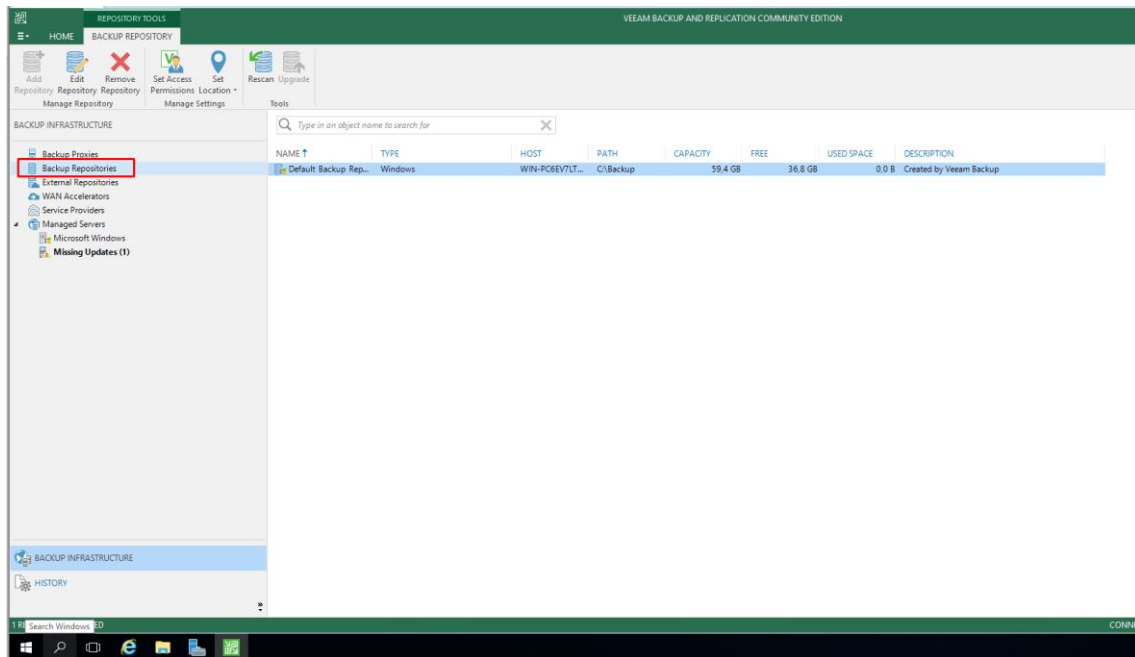
If you get this error, go to the Server Manager → Services and restart the Veeam backup service.

**SERVICES**  
Filtered results | 12 of 206 total

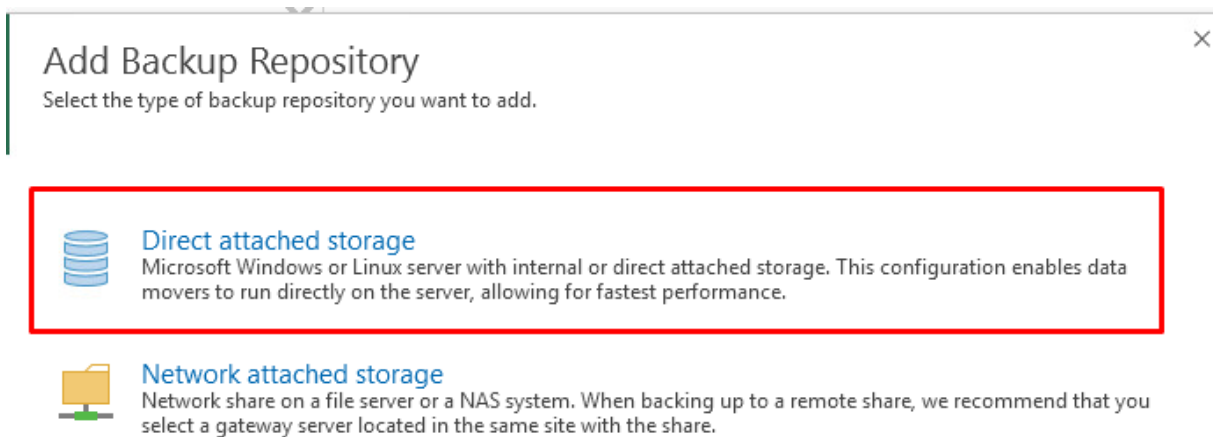
veeam

Server Name	Display Name	Service Name	Status	Start Type
T02BACKUPSRV	SQL Server CEIP service (VEEAMSQL2016)	SQLTELEMETRY\$VEEAMSQL2016	Running	Automatic
T02BACKUPSRV	Veeam Backup Service	VeeamBackupSvc	Start Pending	Automatic (Delayed Start)
T02BACKUPSRV	Veeam Distribution Service	VeeamDistributionSvc		Automatic
T02BACKUPSRV	Veeam vPower NFS Service	VeeamNFSSvc		Automatic
T02BACKUPSRV	SQL Server Agent (VEEAMSQL2016)	SQLAgent\$VEEAMSQL2016		Enabled
T02BACKUPSRV	Veeam Broker Service	VeeamBrokerSvc		Automatic (Delayed Start)
T02BACKUPSRV	Veeam Guest Catalog Service	VeeamCatalogSvc		Automatic (Delayed Start)


- Start Services
- Stop Services
- Restart Services
- Pause Services
- Resume Services
- Copy



We make a new repository by clicking on 'add repository'.




Choose for 'Direct attached storage'.




## Direct Attached Storage

Select the operating system type of a server you want to use as a backup repository.



### Microsoft Windows

Adds local server storage presented as a regular volume or Storage Spaces. For better performance and storage efficiency, we recommend using ReFS.




### Linux

Adds local server storage, or locally mounted NFS share. The Linux server must use bash shell, and have SSH and Perl installed.

This is a Windows server so choose for 'Microsoft Windows'.

### New Backup Repository



#### Name

Type in a name and description for this backup repository.

Name

Server

Repository

Mount Server

Review

Apply

Name:

T02BackupRepo

Description:

Use this repo for all backup from the TEAM 2 server pool

Give the necessary name and description.

**New Backup Repository**

**Server**  
Choose repository server. You can select server from the list of managed servers added to the console.

**Name**

**Server**

Repository server: **T02BackupSRV (Backup server)** Add New...

Path	Capacity	Free

Populate

Repository

Mount Server

Review

Apply

Choose for this server (the backup server itself)

This PC > BackupDrive (B:) > **T02BackupRepo**

Name	Date modified	Type	Size
<b>T02BackupRepo</b>	26/04/2020 14:04	File folder	

On the B-drive iss a folder that we are going to use as repository location.

This drive is formatted as ReFS volume with a 64 KB cluster size that makes fast cloning possible.

**New Backup Repository**

**Repository**  
Type in path to the folder where backup files should be stored, and set repository load control options.

**Name**

**Server**

**Repository**

Mount Server

Review

Apply

**Location**

Path to folder: **B:\T02BackupRepo** Browse...

Capacity: Populate

Free space:

**Load control**

Running too many concurrent tasks against the same repository may reduce overall performance, and cause I/O operations to timeout. Control storage device saturation with the following settings:

☒ Limit maximum concurrent tasks to: **4**

☐ Limit read and write data rates to:  MB/s

You adjust the 'Path to folder' to the early created folder. You can leave all other settings on default.

New Backup Repository X

**Mount Server**

Specify a server to mount backups to for file-level restores. vPower NFS service allows for running virtual machines directly from backup files, enabling advanced functionality such as Instant VM Recovery, SureBackup and On-Demand Sandbox.

Name

Server

Repository

**Mount Server**

Review

Apply

Mount server: T02BackupSRV (Backup server) Add New...

☒ **Enable vPower NFS service on the mount server (recommended)**

Specify vPower NFS write cache location on the mount server. Make sure the selected volume has enough free disk space available to store changed disk blocks of instantly recovered VMs.

Folder: B:\ProgramData\Veeam\Backup\NfsDatastore Browse...

Make sure that 'Enable vPower NFS service on the mount server (recommended)' is enabled and keep all other settings on default.

New Backup Repository X

**Review**

Please review the settings, and click Apply to continue.

Name

Server

Repository

Mount Server

**Review**

Apply

Repository type:

Mount host:

Account:

Backup folder:

Write throughput:

Max parallel tasks:

**Windows**

**T02BackupSRV**

**Not set**

**B:\T02BackupRepo**

**Unlimited**

**4**

The following components will be processed on server T02BackupSRV:


Component name	Status
Transport	already exists
vPower NFS	already exists
Mount Server	already exists

☐ Import existing backups automatically

☐ Import guest file system index

A short overview from the configuration from this backup repository and click on apply.

New Backup Repository


 **Apply**  
Please wait while backup repository is created and saved in configuration. This may take a few minutes...

Name	Message	Duration
Server	✓ Starting saving job	0:00:01
Repository	✓ Discovering installed packages	
Mount Server	✓ Registering client T02BACKUPSRV for package Transport	
	✓ Registering client T02BACKUPSRV for package vPower NFS	
	✓ Registering client T02BACKUPSRV for package Mount Server	
	✓ Discovering installed packages	
	✓ All required packages have been successfully installed	
	✓ Detecting server configuration	
	✓ Reconfiguring vPower NFS service	0:00:07
	✓ Creating configuration database records for installed packages	
	✓ Creating database records for repository	
	✓ Backup repository has been added successfully	

< Previous   Next >   **Finish**   Cancel

Now, the repository is made successful. Click on finish.

Veeam Backup and Replication

 Change the configuration backup location to the newly created repository?

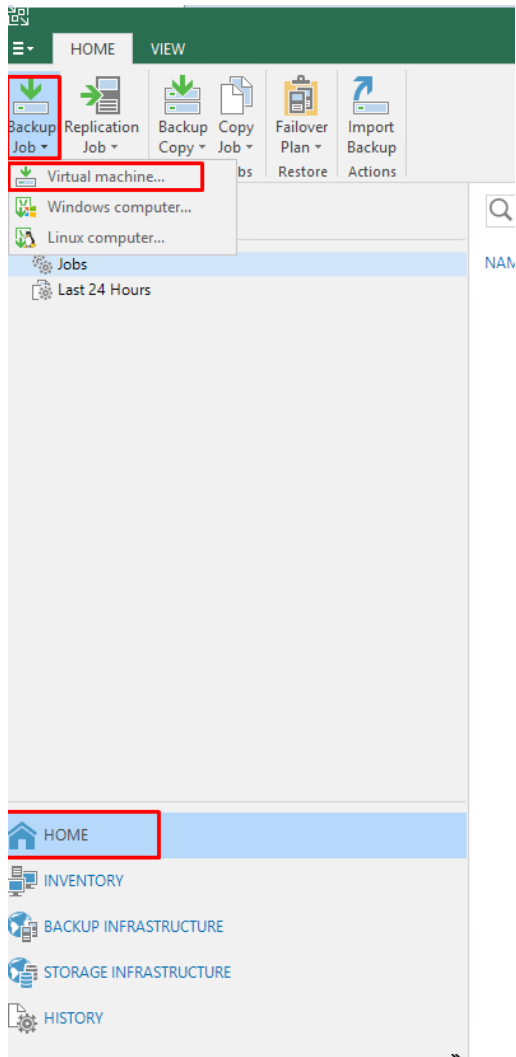
Yes   **No**

By this notification you click on 'Yes' as we going to use this repository for all our backups.

**The second backup server is configured in the same way**



## Configuration automatic backup jobs



Through the 'Home' view and Backup Job → Virtual machine..., you can go to the 'Backup Job' menu.

**New Backup Job**

**Name**  
Type in a name and description for this backup job.

**Name:**  
WebServer1 Backup

**Description:**  
Maakt elke 12 uur een backup van de webservers

< Previous   **Next >**   Finish   Cancel

Set a matching name and description.

**New Backup Job**

**Virtual Machines**  
Select virtual machines to process via container, or granularly. Container provides dynamic selection that automatically changes as you add new VM into container.

**Virtual machines to backup:**

Name	Type	Size
<b>Add...</b>		
Remove		
Exclusions...		
↑ Up		
↓ Down		
Recalculate		
Total size: 0 B		
Cancel		

**Add Objects**

Select objects:

- Pfsense-team5
- Restorebackup test
- T01MGMT01
- T01PROD01
- T01PROD02
- T01PROD03
- T01PROD04
- T01PROD05
- T02BackupSRV
- T02BugTrackingSRV
- T02OpenSupportSRV
- T02PuppetMasterSRV
- T02WEBSRV1**
- T02ZabbixMonitorSRV
- TestMachine
- Ubuntu Apache Server
- Ubuntu Automatisatie
- Ubuntu Client

Type in an object name to search for

Add   Cancel

We are going to select the virtual machines that we will backup in this backup job. Click on add, you get a list from all virtual machines on VMWare vSphere. Select the machine(s) that you want to

backup in this backup job. In this example we choose for our webserver. Click on add and then on next.

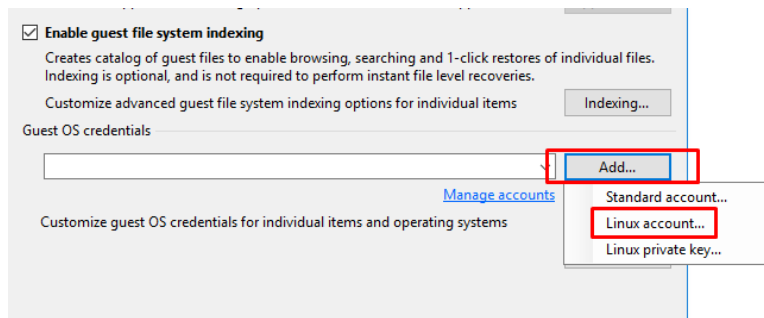
The screenshot shows the 'New Backup Job' wizard with the 'Storage' tab selected. The left sidebar lists 'Name', 'Virtual Machines', 'Storage', 'Guest Processing', 'Schedule', and 'Summary'. The main area is titled 'Storage' and includes a sub-header 'Specify processing proxy server to be used for source data retrieval, backup repository to store the backup files produced by this job and customize advanced job settings if required.' Below this, there are fields for 'Backup proxy:' (set to 'Automatic selection') and 'Backup repository:' (set to 'T02BackupRepo (Use this repo for all backup from the TEAM 2 server pool)'). The 'Backup repository' field is highlighted with a red box. Below the repository field, it shows '188 GB free of 189 GB' and a 'Map backup' link. There is also a section for 'Restore points to keep on disk' set to '14' and a checkbox for 'Configure secondary destinations for this job'. At the bottom, there is an 'Advanced' button and navigation buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.

Let backup proxy on automatic selection. Check that the backup repository is configured on our previous configured repository. Click on next.

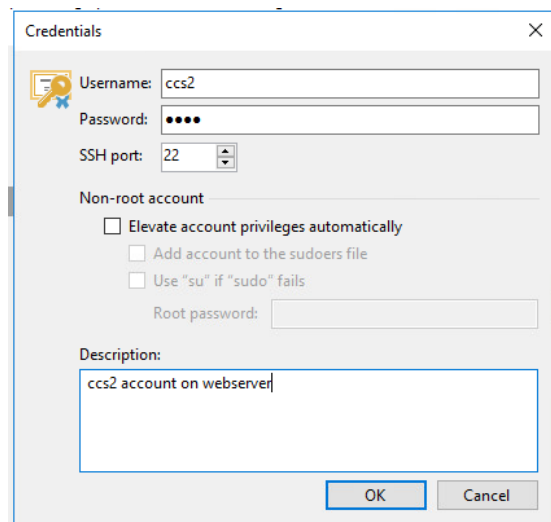
The screenshot shows the 'New Backup Job' wizard with the 'Guest Processing' tab selected. The left sidebar lists 'Name', 'Virtual Machines', 'Storage', 'Guest Processing', 'Schedule', and 'Summary'. The main area is titled 'Guest Processing' and includes a sub-header 'Choose guest OS processing options available for running VMs.' Below this, there are checkboxes for 'Enable application-aware processing' and 'Enable guest file system indexing'. The 'Enable guest file system indexing' checkbox is checked and highlighted with a red box. Below the checkboxes, there are sections for 'Customize application handling options for individual items and applications' (with an 'Applications...' button), 'Customize advanced guest file system indexing options for individual items' (with an 'Indexing...' button), and 'Guest OS credentials' (with a dropdown menu, an 'Add...' button, a 'Manage accounts' link, and buttons for 'Credentials...' and 'Test Now'). At the bottom, there are navigation buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.

Because we want to restore for our webserver just for individual files and not always the whole virtual machine, we check the option 'enable guest file system indexing'.

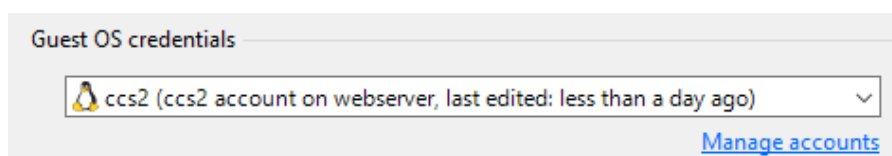
For to use this option, this backup job has to know the login credentials from the machine. We have to adjust this. This we do as follow:



Click on 'add...', 'Linux account...'.



Fill in the credentials from the virtual machine as also the SSH port that we use on that server



Click on 'OK' and we see that the credentials are adjusted. Afterwards go to the next menu.

**New Backup Job** [X]

**Schedule**  
Specify the job scheduling options. If you do not set the schedule, the job will need to be controlled manually.

**Name**  
Virtual Machines  
Storage  
Guest Processing  
**Schedule**  
Summary

☒ Run the job automatically

☐ Daily at this time: 23:00 Everyday Days...

☐ Monthly at this time: 22:00 Fourth Saturday Months...

☒ Periodically every: 12 Hours Schedule...

☐ After this job: [dropdown]

**Automatic retry**

☒ Retry failed items processing: 3 times  
Wait before each retry attempt for: 10 minutes

**Backup window**

☐ Terminate job if it exceeds allowed backup window  
If the job does not complete within allocated backup window, it will be terminated to prevent snapshot commit during production hours. [Window...]

< Previous Apply Finish Cancel

Through this schedule menu, you can configure easily when this backup job have to be perform. How you configure this speaks for itself. Then click on apply.

**New Backup Job** [X]

**Summary**  
The job's settings have been saved successfully. Click Finish to exit the wizard.

**Name**  
Virtual Machines  
Storage  
Guest Processing  
Schedule  
**Summary**

**Summary:**

Name: WebServer1 Backup  
Target Path: B:\T02BackupRepo  
Type: VMware Backup  
Enable guest file system indexing  
Source items:  
T02WEBSRV1 (172.27.66.10)

Command line to start the job on backup server:  
"C:\Program Files\Veeam\Backup and Replication\Backup\Veeam.Backup.Manager.exe" backup  
1f9cc13e-d554-402b-839f-18de9631ef44

☐ Run the job when I click Finish

< Previous Next > Finish Cancel

We see that this job is adjusted in the job list. For to test this job, we start this manually. Richt-click on the job → start.

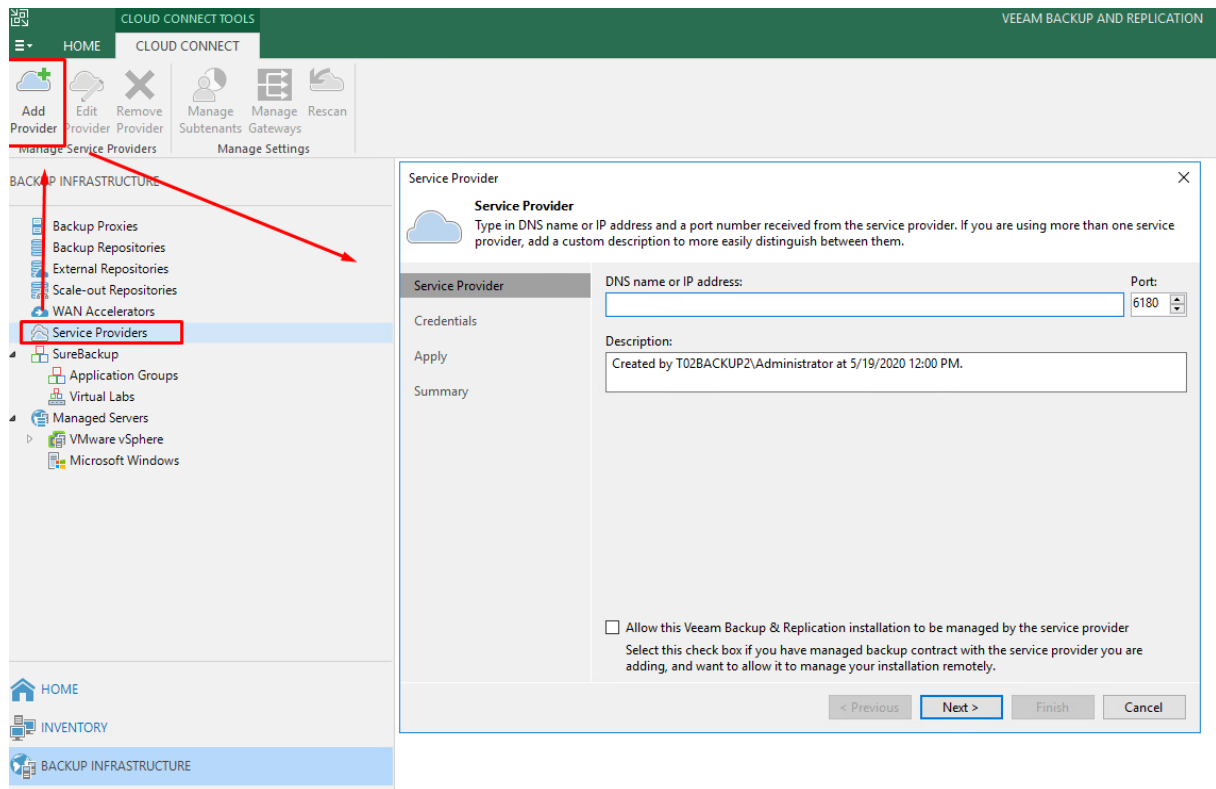
HOME	Type in an object name to search for				
Jobs	JOB NAME	SESSION TYPE	STATUS	START TIME	END TIME ↓
Backup	WebServer1 Backup (Full)	Backup	Success	1/05/2020 15:26	1/05/2020 15:29
Backups					
Disk					
Last 24 Hours					
Success					

We see that the backup is successful. This will be executed every 12 hours, now.

You can repeat this steps for configuring backup jobs for other vm's and set your own schedule.

## Backing up to the cloud with Veeam cloud connect

We have a veeam cloud connect license from the Veeam partner any.cloud from revert global. They provided us the following credentials to connect to the cloud: (credentials can be found in the password safe)




Fill in these credentials in these setup steps and you are successfully connected to the cloud repository

NAME	OWNER ↑	DESCRIPTION
 cc.revirt.dk	rstudentthomasmorebe	Created by T02BACKUP2\Administrator at 5/18/20...

The steps for backing up a VM to the cloud are the same as the previously described procedure for local stored backups.

New Backup Job

 **Storage**  
Specify processing proxy server to be used for source data retrieval, backup repository to store the backup files produced by this job and customize advanced job settings if required.

**Name**  
Virtual Machines  
**Storage**  
Guest Processing  
Schedule  
Summary

Backup proxy:  
Automatic selection Choose...

Backup repository:  
Default Backup Repository (Created by Veeam Backup) ▼  
**cloud-rstudentthomasmorebe-01 (Cloud repository)**  
Default Backup Repository (Created by Veeam Backup)

Retention policy: 7 restore points i

☐ Keep certain full backups longer for archival purposes  
GFS retention policy is not configured

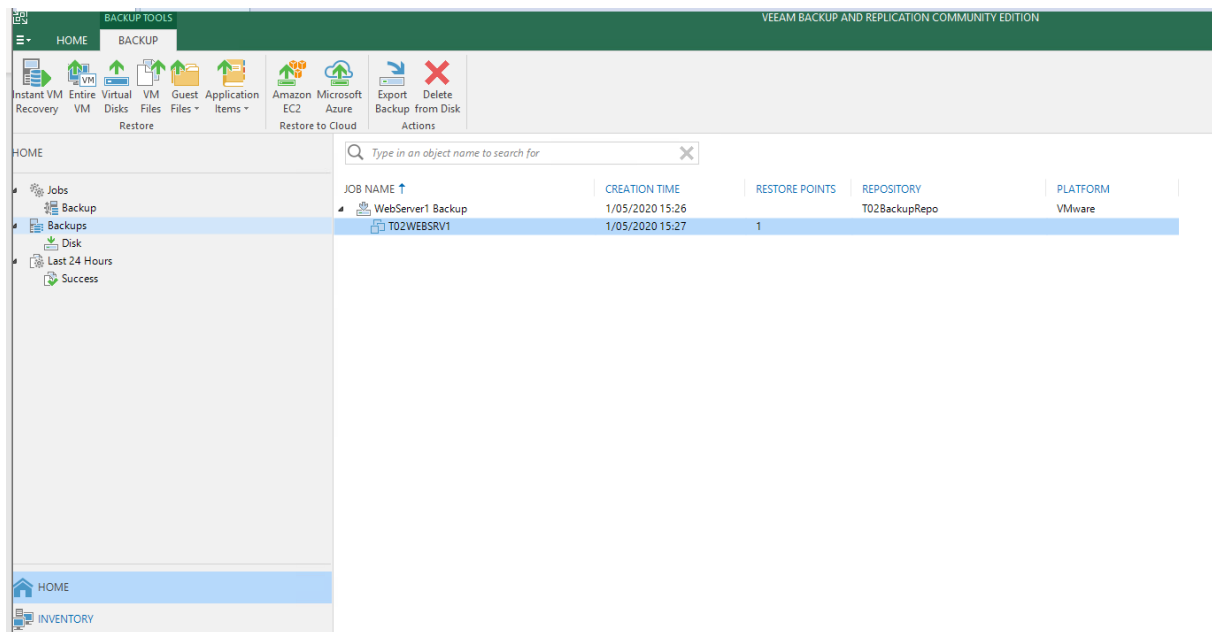
☐ Configure secondary backup destinations for this job  
Copy backups produced by this job to another backup repository, or tape. We recommend to make at least one copy of your backups to a different storage device that is located off-site.

Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other settings. ⚙️ Advanced

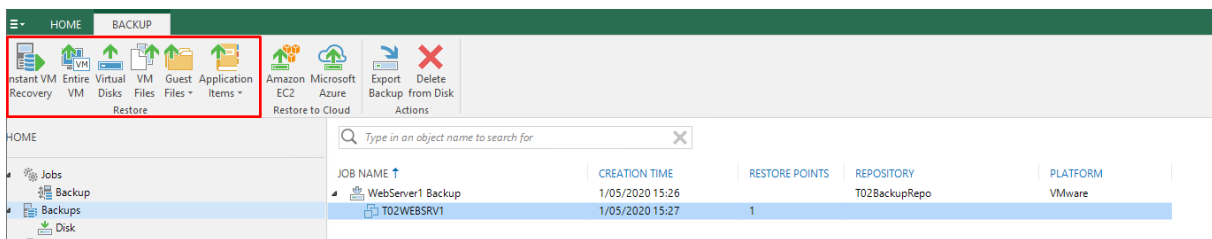
< Previous Next > Finish Cancel

The one and only difference is 'backup repo' setting in the storage tab. This must be set to the Cloud repository we've added in the steps above.

## Restoring a VM



Through the view 'Home', we can see all our made backups into the tab backups.



Select a backup from the server that you want to restore.

On the upper left we get some restore options:

### Instant VM recovery:

With this option you can run a server VM right trough from a backup file. With this option you have rather to very little downtime, because the VM can be restart directly.

### Entire VM:

With this the whole VM get restored off a backup file.

### Virtual disks:

If a virtual disk is damaged by for example a virus. You can restore the virtual disk to a defined point in the past with this option (it depends on your backups). The new restored virtual disk become connected to the original VM.

### VM files:

With this you can restore some specific VM files (.vmdk .vmx, ...) if these are deleted or damaged.

### Guest files:

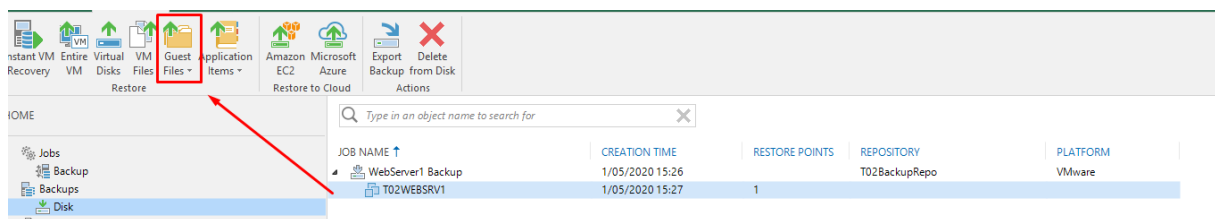
With this option you can restore a specific file or directory from the VM. For example: You want to restore the directory /var/www/html on your webserver to bring a point back in the time. That is with this option perfectly possible.



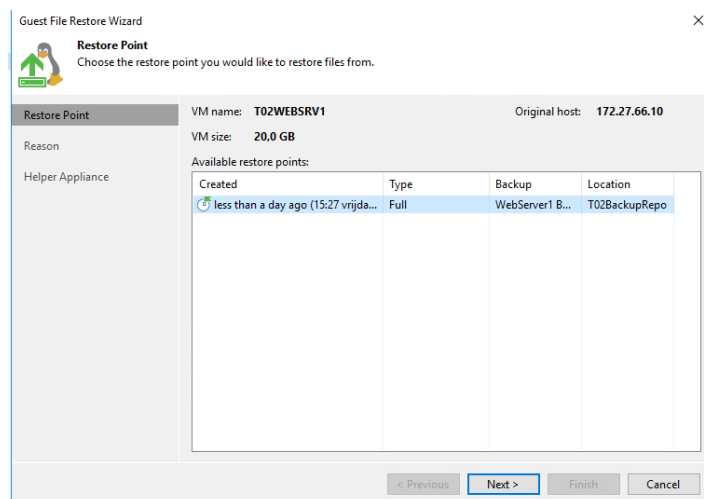
### Application items:

With this option you can restore application items from different Windows servers. With this option, only Microsoft servers are possible but this isn't relevant for our hosting setup.

Now that we know what every option contains, we are going to make a choice. We want to restore the www directory on our webserver to our latest backup. The method of working for all other option speaks for itself. This is matter of to select a backup file and a VM, where you can perform the restore. Because restoring a guest file is more complex, we write this out:



Select the backup that you want to restore and click on guest files.



Select one from the available restore points.

Guest File Restore Wizard

**Reason**  
Provide the reason for performing this restore. This information will be saved in the restore sessions history for later reference.

Restore Point	Restore reason: restoren van de www directory
<b>Reason</b>	
Helper Appliance	

☐ Do not show me this page again

< Previous   **Next >**   Finish   Cancel

You can give a restore reason.

Guest File Restore Wizard

**Helper Appliance**  
We have gathered all the required information to start the helper appliance.

Restore Point	After you click Finish, the file-level restore appliance will be started up automatically, and you will be presented with the Backup Browser window giving you access to the guest file system of the selected virtual machine.
Reason	
<b>Helper Appliance</b>	

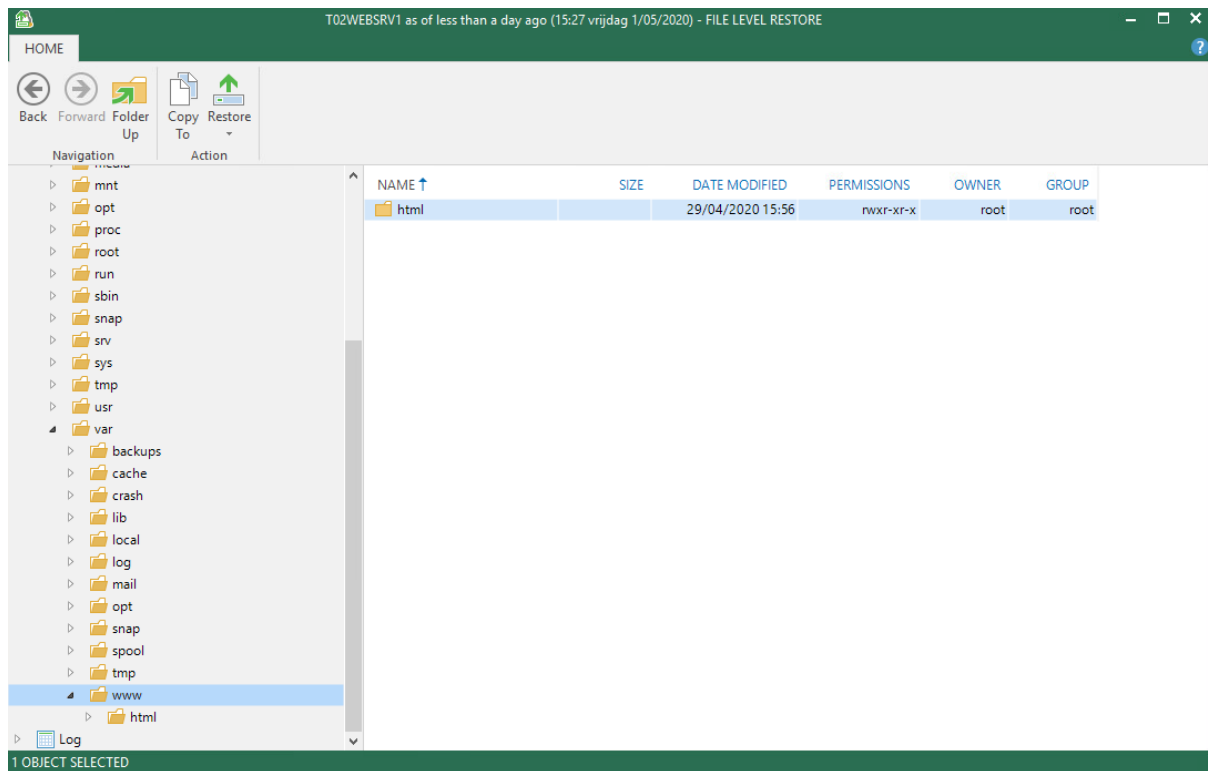
The virtual appliance usually takes less than 20 seconds to boot.

✓ Using 172.27.66.21 to run FLR appliance.   **Customize**

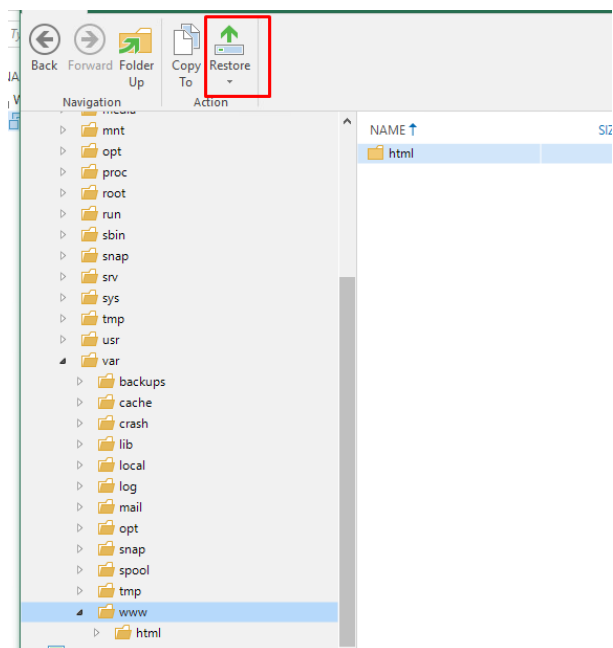
< Previous   Next >   Finish   Cancel

To browse in the guest files, there have to run a helper appliance. For this you have to select a ESXI host where they can run temporarily. Click on finish.

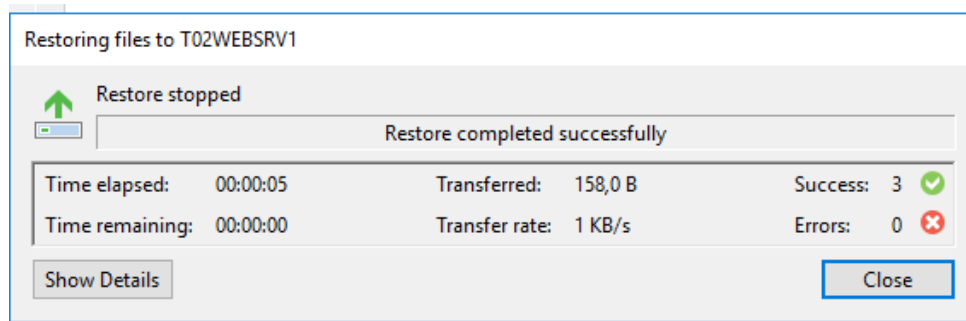
Wait a second until the helper appliance is started. it can take some time.



The appliance opens the upper screen where you can browse in the file system from the VM that you want to restore. Select the directory that you want to restore. In this example, that is the www directory where the website is saved.



Click on restore. You have the choice between 'overwrite' and 'keep'. Keep will let your old files also into the folder. Overwrite will overwrite the existing files. Click on the choice that you want and the restore will begin. It can take some time.



Like you can see, the restore is successful and you can click on close. The helper appliance screen, you can close it.