

StarWind iSCSI SAN:

Global Deduplication with Veeam Backup&Replication

May 2012

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ABOUT THIS GUIDE

The guide is intended for experienced Window system administrators who are going to enhance Veeam Backup & Replication 6.0 with Global Deduplication technology from StarWind.

INTRODUCTION

You can use one physical server for StarWind and Veeam Backup & Replication software, if you have enough resources (including RAM). Otherwise, it is strongly recommended to install each solution on a separated physical server.

The sequence of software installation makes no difference.

Note: If you first set up Veeam Backup & Replication server, you will have to connect it to StarWind deduplicated storage later and reconfigure backup jobs.

SYSTEM REQUIREMENTS OF VEEAM BACKUP AND REPLICATION V6

Hardware CPU: modern x86/x64 processor (minimum four cores recommended)

Memory: 2048MB RAM

Hard Disk Space: 200 MB for product installation. A 100 GB per VM for guest file system catalog folder. Sufficient free space for Instant VM Recovery cache (non-persistent data, at least 10GB recommended)

Network: 1Gbit/sec recommended due to backup performance considerations.

OS (Both 32-bit and 64-bit):

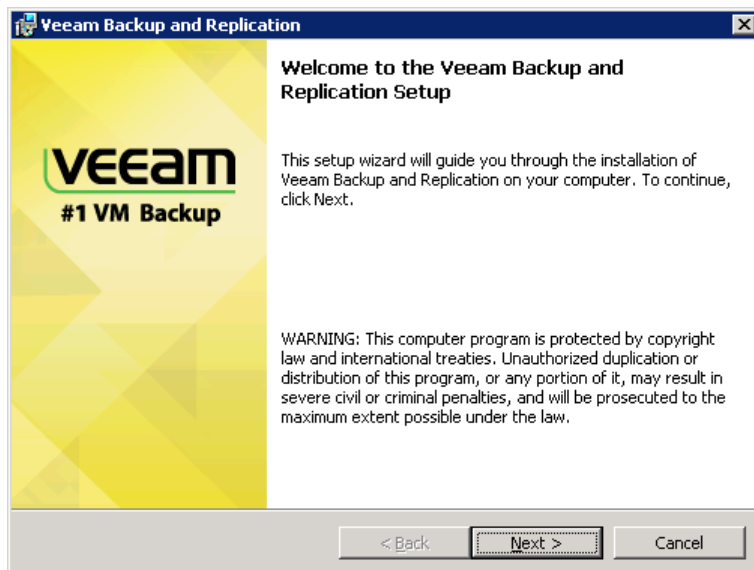
- Microsoft Windows 2008 R2
- Microsoft Windows 7

Software

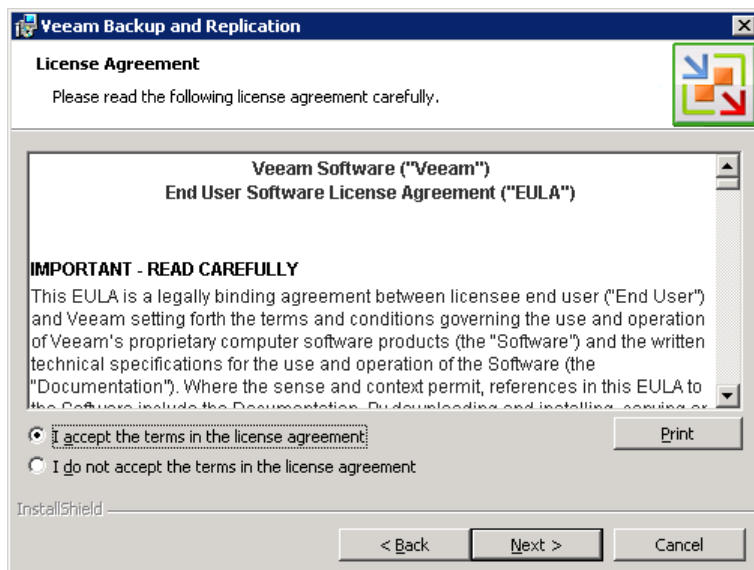
- Microsoft SQL Server 2005 or 2008 (SQL 2005 Express is included in the setup)
- Microsoft .NET Framework 2.0 SP1 (included in the setup)
- Microsoft PowerShell 2.0 or later

INSTALLING VEEAM BACKUP AND REPLICATION SERVER

1. Run previously downloaded **Veeam Backup and Replication setup file**. The setup wizard appears.

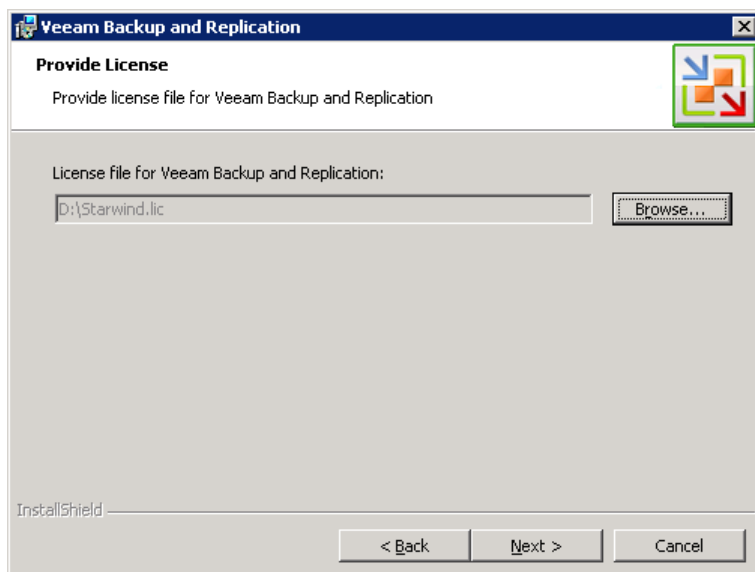


2. Click **Next** to continue.
3. Read and accept the **License Agreement**.



4. Click **Next** to continue.

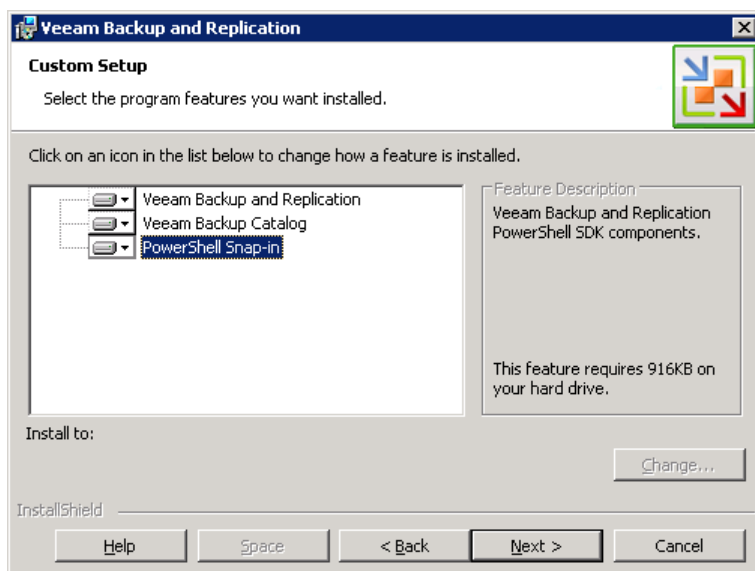
- To apply the license file, click **Browse...** and select it from your file list.



- Click **Next** to continue.
- Specify the installation folder for each Veeam component.

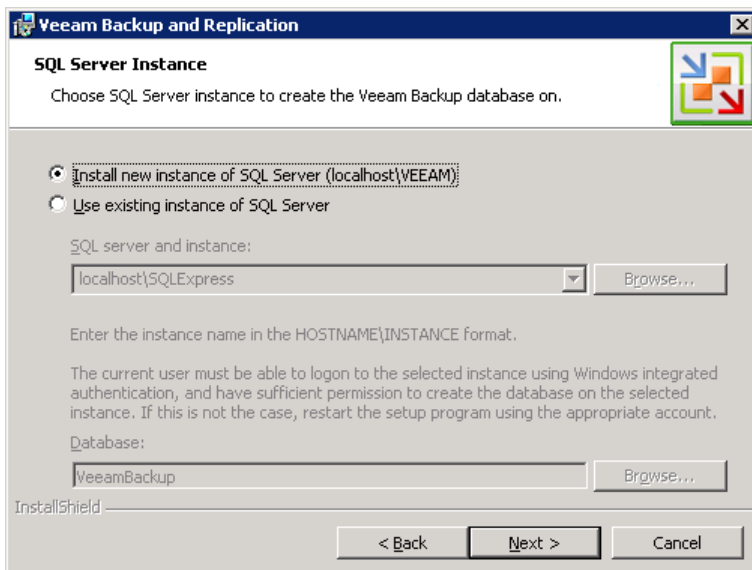
Note: At least 256 MB is required to install **Veeam Backup & Replication 6.0**, at least 51 MB to install **Veeam Backup Catalog**, and at least 916 Kb to install **Veeam Backup PowerShell snap-in**.

Use **Space** to estimate how much free space is available on your local drives.



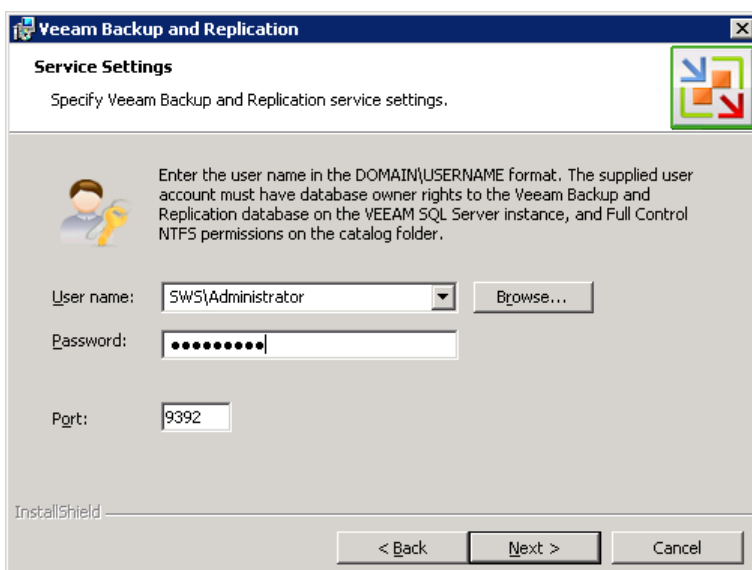
- Click **Next** to continue.
- Select an SQL Server instance where Veeam Backup database should be created, or install a new SQL Server instance. To use an existing instance of SQL Server, select the appropriate option. If the SQL Server is not installed, select the **Install new instance of SQL Server** option.

Note: The user account under which the installation is being performed should have sufficient rights to log on to the selected SQL Server instance and create a database.



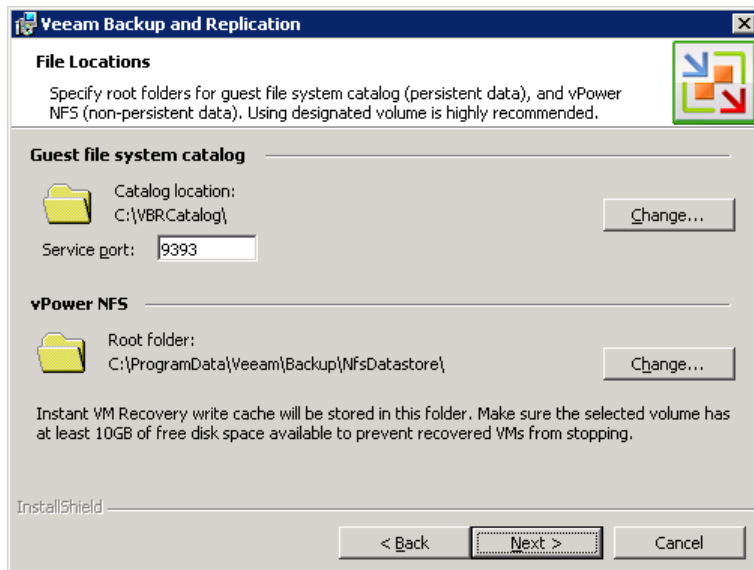
10. Click **Next** to continue.

11. Enter the administrative credentials of the account under which you want to run the **Veeam Backup Service**. The user name should be specified in the DOMAIN\USERNAME format. If necessary, change the number of TCP port. By default, Veeam Backup & Replication services use port 9392.

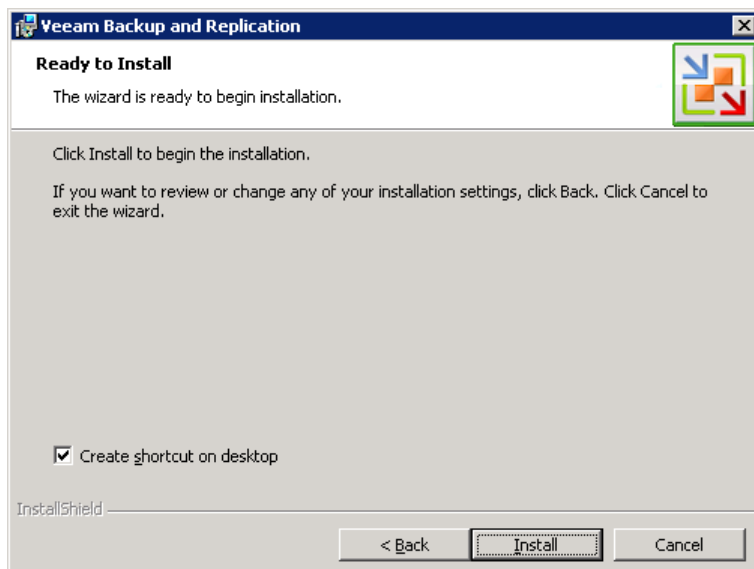


12. Click **Next** to continue.

- Specify the name and destination for catalog folder where index files should be stored. If necessary, change the number of port to be used by Veeam Backup Catalog components. By default, port 9393 is used. In the **vPower NFS** section, specify the folder where instant VM recovery write cache will be stored. Please note that the selected volume should have at least 100 Gb of free disk space.



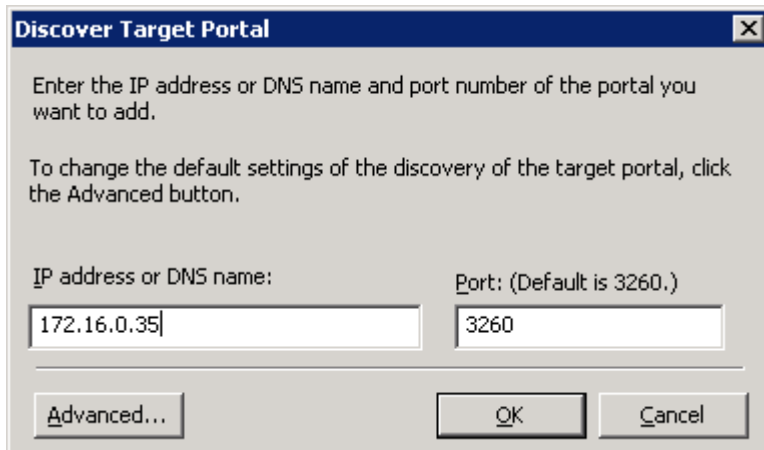
- Click **Next** to continue.
- Click **Install** to start the installation.



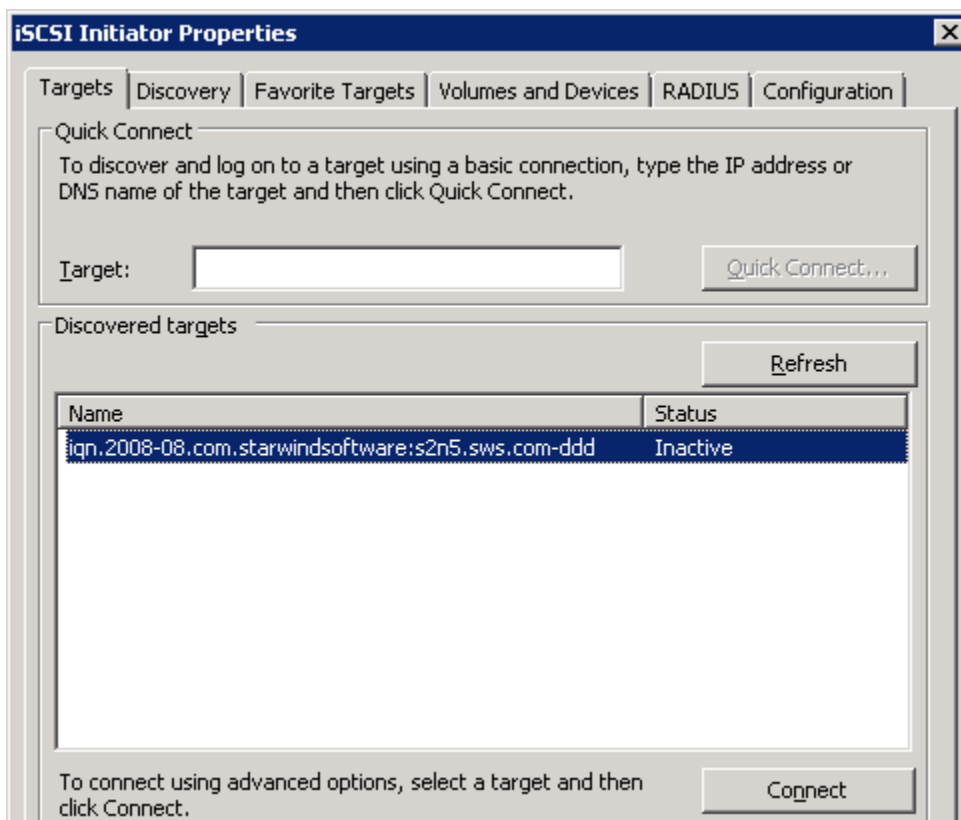
- Once the installation is complete click **Finish** to close the wizard. To launch **Veeam Backup & Replication** click the relevant icon on your desktop.

CONNECTING STORAGE

1. Open **Microsoft iSCSI Initiator: Start -> Administrative Tools -> iSCSI Initiator**.
2. Go to the **Discovery** tab.
3. To add the StarWind server, click **Discover Portal ...** and specify server IP address.

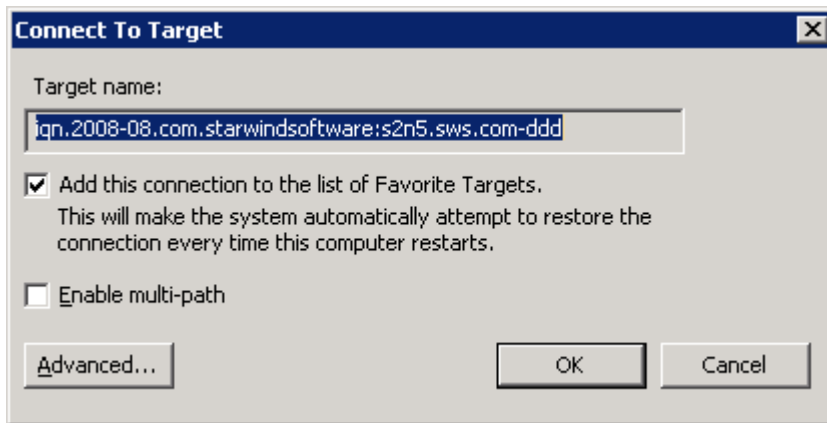


4. Click **OK**.
5. Switch to the **Targets** tab.



6. Clicking **Connect** to connect the targets.

7. Select the **Add this connection to the list of Favorite Targets** checkbox in the dialog window.



8. Click **OK**.
9. Once you have connected storage, start **Server Manager** to initialize and format it. Switch to the **Storage->Disk Management**, and find your disk in the volume list and right click it.
10. Select **New Simple Volume...** from shortcut menu and follow the instructions.

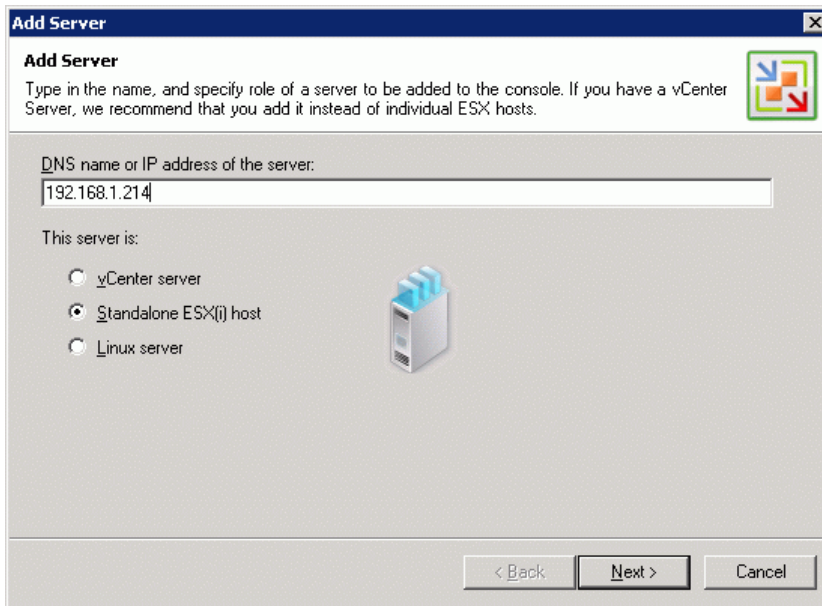
Note: It is recommended to format connected storage with the same block size as it was specified during deduplicated device creation.

Do not enable file and folder compression!

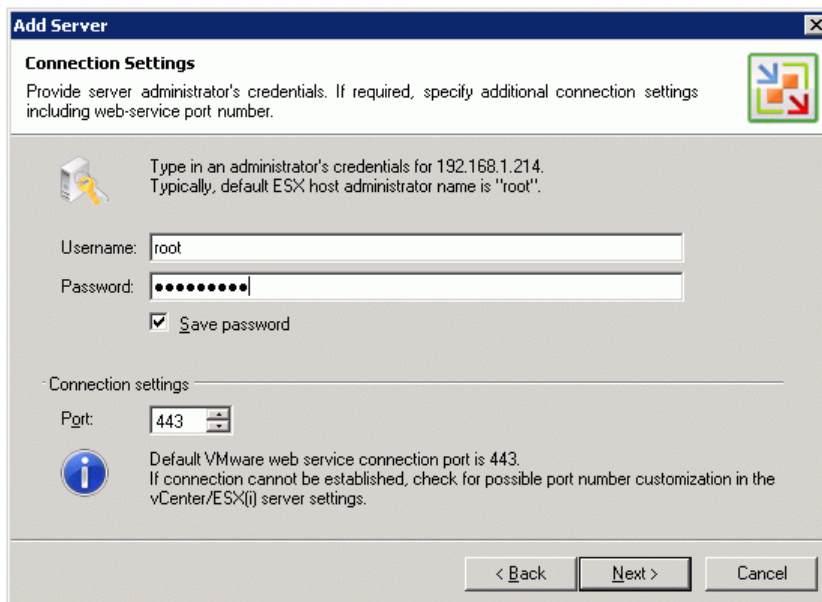
CREATING AND EXECUTING A BACKUP JOB

Adding a ESX/ESXi Server

1. Enter a full DNS name or IP address of the server and select the server type: **ESX** or **ESXi host**.



2. Click **Next** to continue.
3. Provide server administrator's credentials (typically, default ESX host administrator name is "root"). If required, specify additional connection settings including web-service port number. Select **Save password**, if needed.

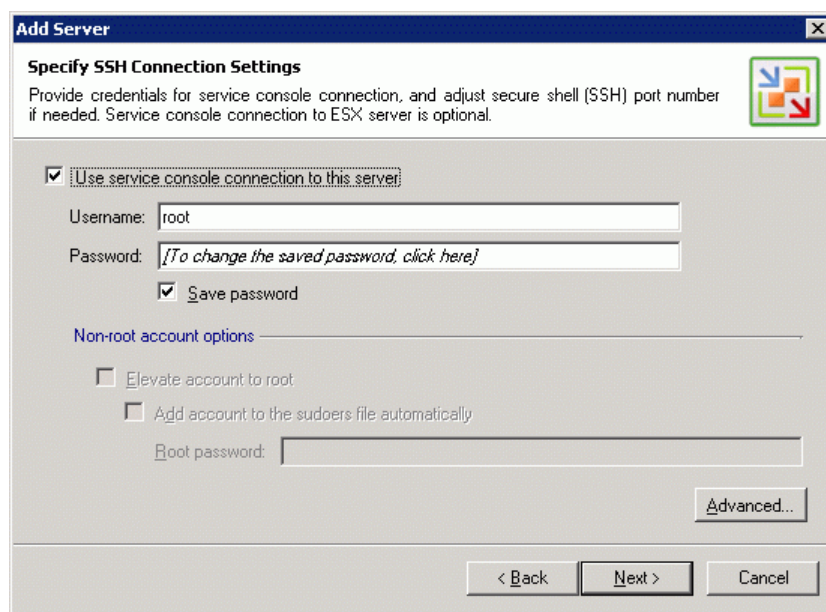


4. Click **Next** to continue.

- Specify service console connection settings and adjust SSH port number if necessary. If you do not want to use the service console, clear the **Use service console connection to this server** checkbox and click **Next**. In this case, Veeam Backup & Replication will work in the agentless mode.

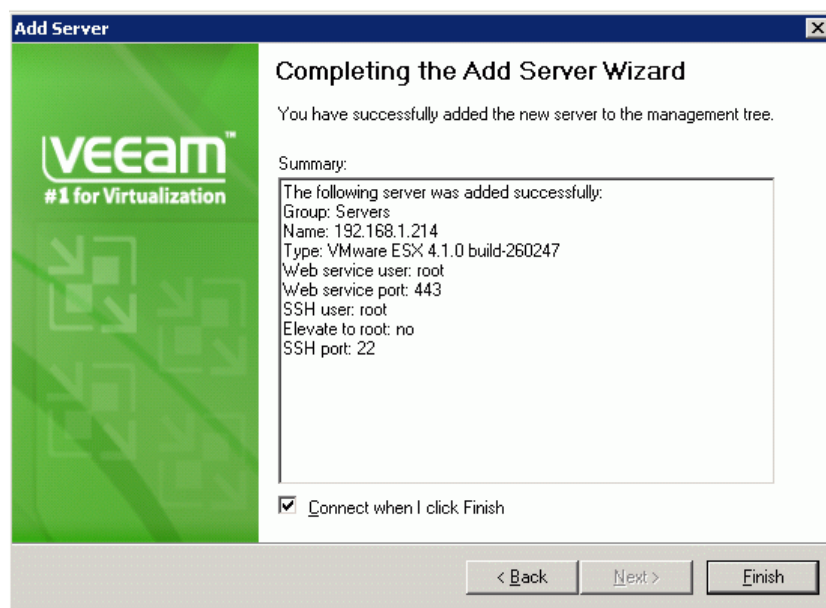
Note: The agentless mode may be activated in ESX server 3.5 and later versions. However, it is recommended to use the service console.

If you choose to use a non-root account that does not have sudo permissions on the ESX server, you can use the **Non-root account** options section to grant sudo rights to this account. Select the **Elevate account to root** checkbox to provide a non-root user with access to the added server. You can add the account to sudoers file automatically by selecting the **Add account to the sudoers file automatically** checkbox.



The screenshot shows the 'Add Server' wizard window with the title 'Specify SSH Connection Settings'. The instructions state: 'Provide credentials for service console connection, and adjust secure shell (SSH) port number if needed. Service console connection to ESX server is optional.' The 'Use service console connection to this server' checkbox is checked. The 'Username' field contains 'root' and the 'Password' field contains '[To change the saved password, click here]'. The 'Save password' checkbox is also checked. Under 'Non-root account options', both 'Elevate account to root' and 'Add account to the sudoers file automatically' checkboxes are unchecked. There is a 'Root password' field which is empty. An 'Advanced...' button is located at the bottom right. At the bottom of the window are '< Back', 'Next >', and 'Cancel' buttons.

- Click **Next** to continue.
- To connect to the added ESX server after the wizard is closed select **Connect when I click Finish**.

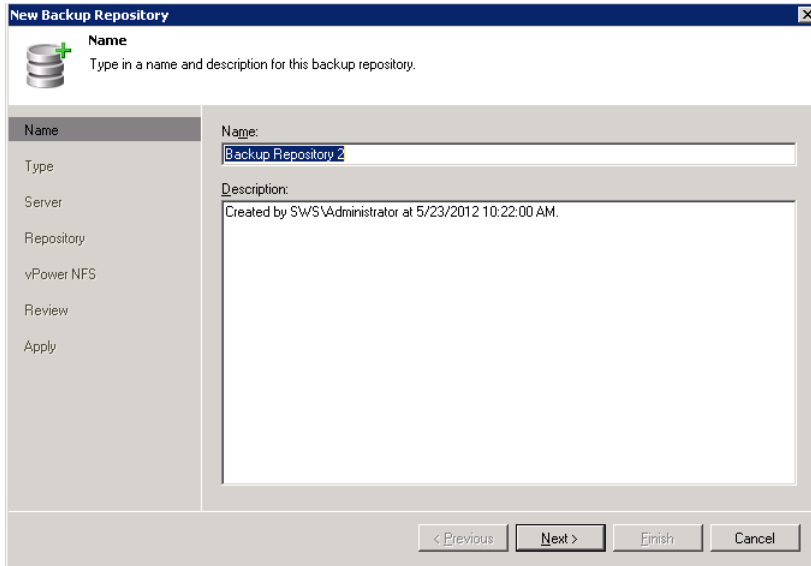


The screenshot shows the 'Add Server' wizard window at the 'Completing the Add Server Wizard' step. The Veeam logo and '#1 for Virtualization' are on the left. The main text says: 'You have successfully added the new server to the management tree.' Below this is a 'Summary' box containing the following information: 'The following server was added successfully: Group: Servers, Name: 192.168.1.214, Type: VMware ESX 4.1.0 build-260247, Web service user: root, Web service port: 443, SSH user: root, Elevate to root: no, SSH port: 22'. At the bottom, the 'Connect when I click Finish' checkbox is checked. The bottom of the window features '< Back', 'Next >', and 'Finish' buttons.

- Click **Finish** to close the wizard.

Creating a New Repository

1. Open **Veeam Backup & Replication** window.
2. Right click the **Backup Infrastructure** item and click **Add Backup Repository...**
3. Specify the repository name and description.



New Backup Repository

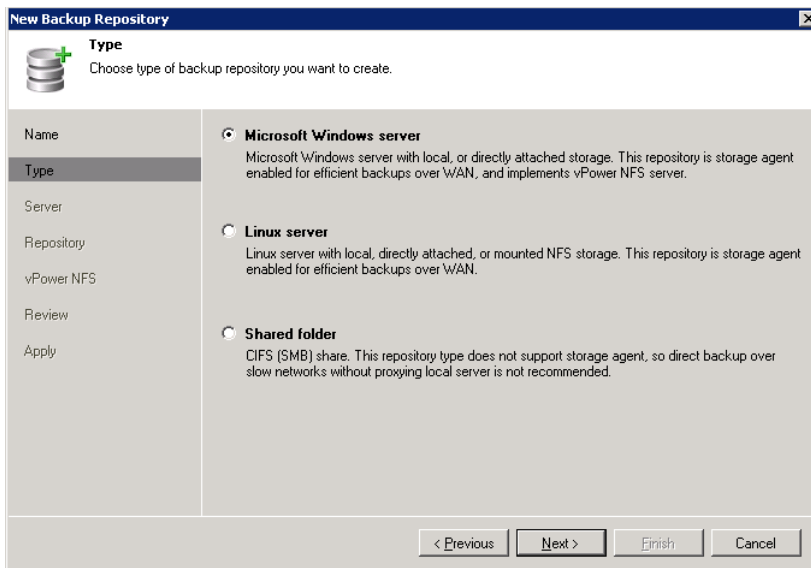
Name
Type in a name and description for this backup repository.

Name: Backup Repository 2

Description: Created by SWS\Administrator at 5/23/2012 10:22:00 AM.

< Previous Next > Finish Cancel

4. Click **Next** to continue.
5. Select **Microsoft Windows server** as a backup repository type.



New Backup Repository

Type
Choose type of backup repository you want to create.

Microsoft Windows server
Microsoft Windows server with local, or directly attached storage. This repository is storage agent enabled for efficient backups over WAN, and implements vPower NFS server.

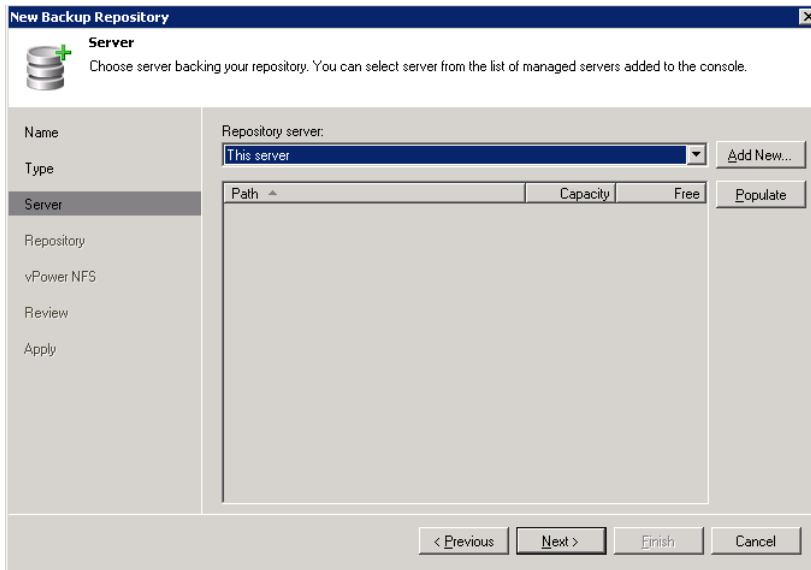
Linux server
Linux server with local, directly attached, or mounted NFS storage. This repository is storage agent enabled for efficient backups over WAN.

Shared folder
CIFS (SMB) share. This repository type does not support storage agent, so direct backup over slow networks without proxying local server is not recommended.

< Previous Next > Finish Cancel

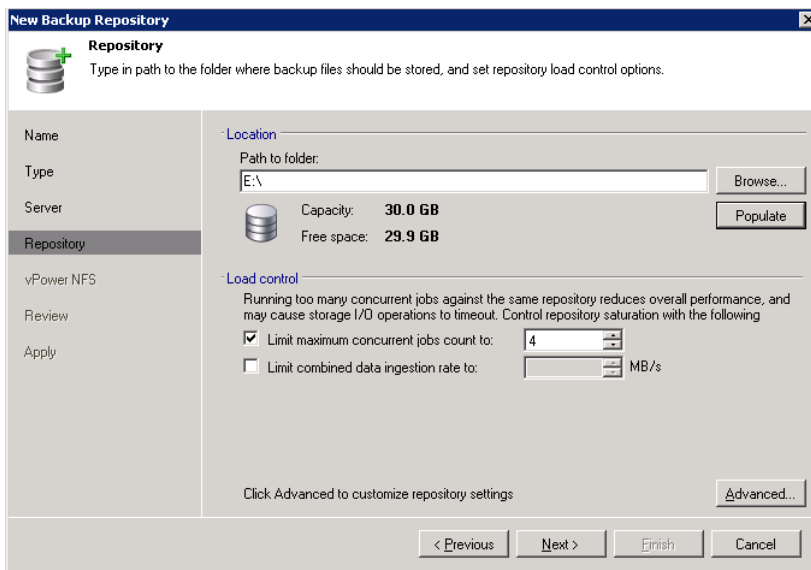
6. Click **Next** to continue.

7. Select a repository server or add new one.



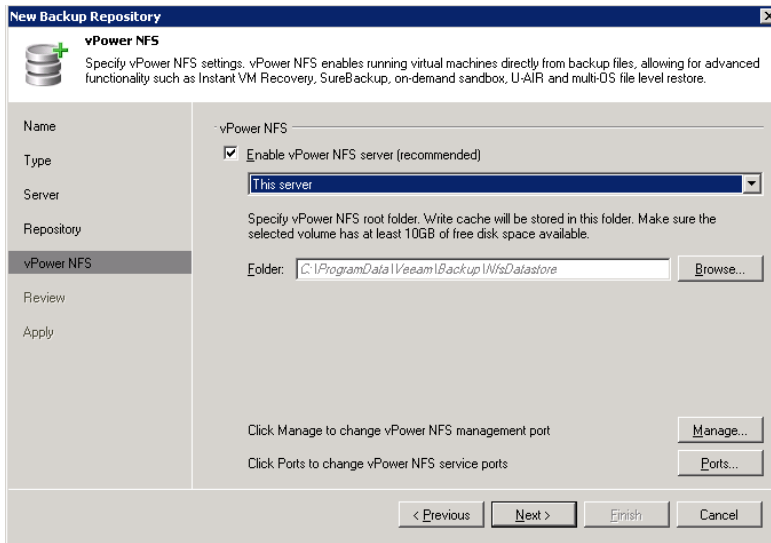
8. Click **Next** to continue.

9. Specify the path to the directory where backup files should be stored. Optionally, modify the **Load control** settings.



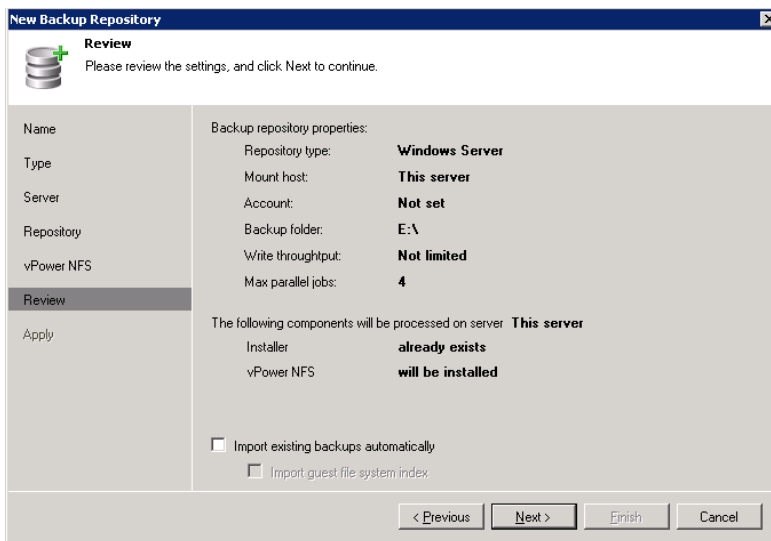
10. Click **Next** to continue.

11. Specify **vPower NFS** settings.



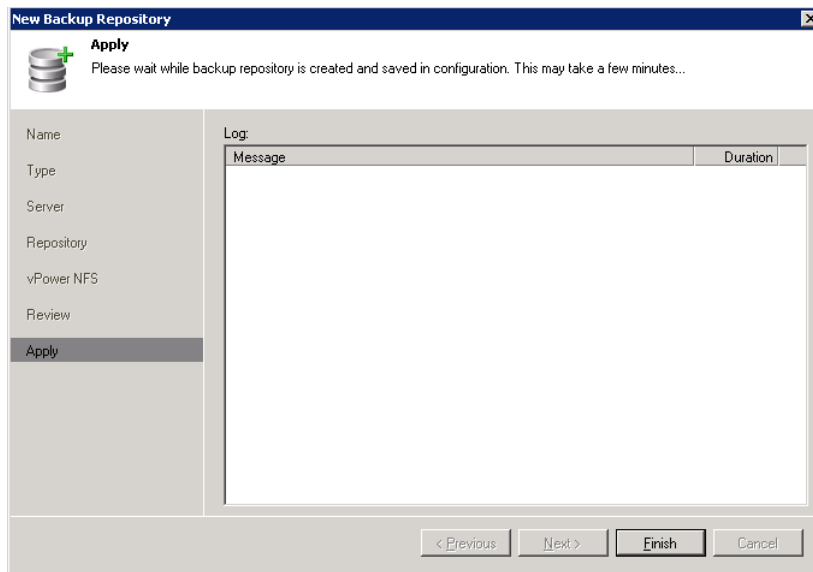
12. Click **Next** to continue.

13. Review the selected settings.



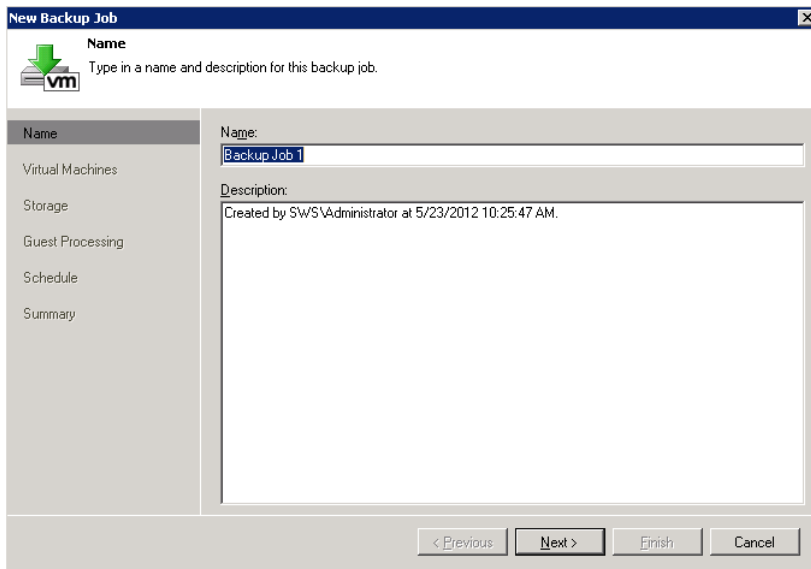
14. Click **Next** to continue.

15. Click **Finish**.

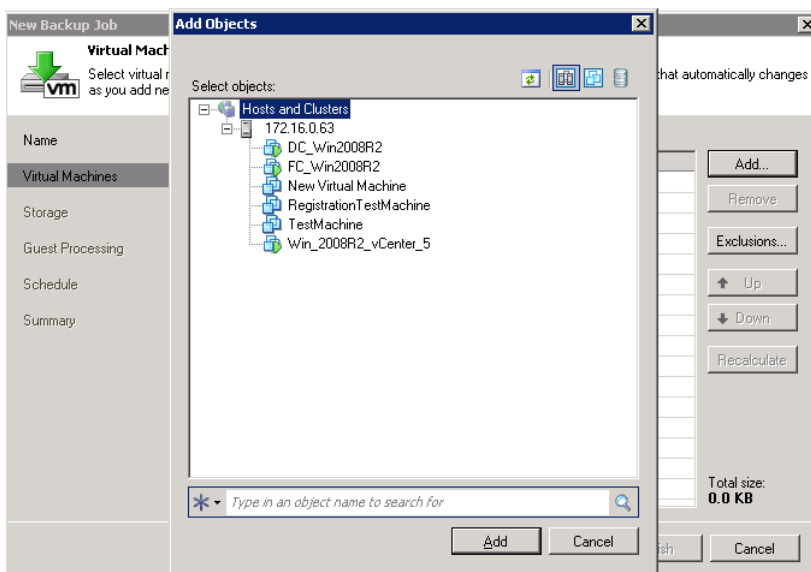


Creating a Backup Job

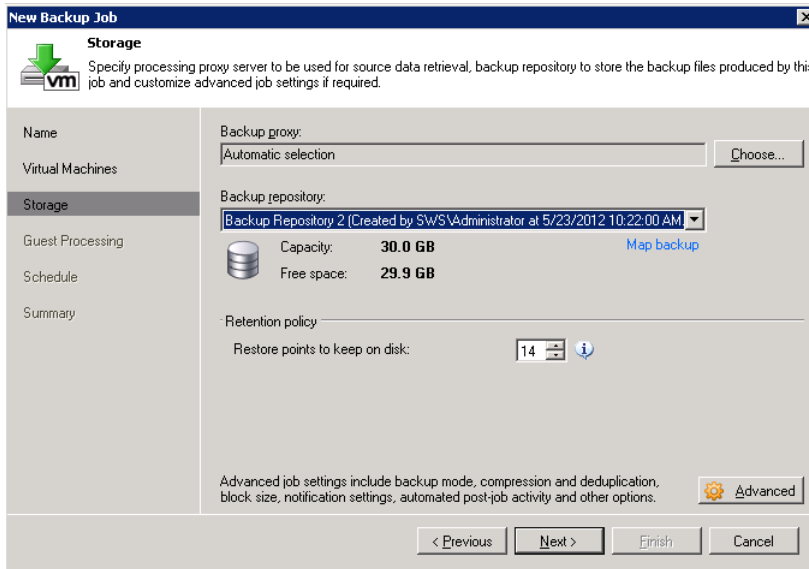
- To run the **New Backup Job** wizard take one of the following action:
 - Click **Backup** on **Veeam Backup and Replication** toolbar.
 - Select **Backup -> Backup...** from the main menu.
 - Click the **Jobs** item in the management tree, right click anywhere on the blank area of the right pane and select **Backup....**
 - Right-click the **Backups** item in the management tree and select **Backup...** from the shortcut menu.
- Enter a name and description of the created job in the wizard window.



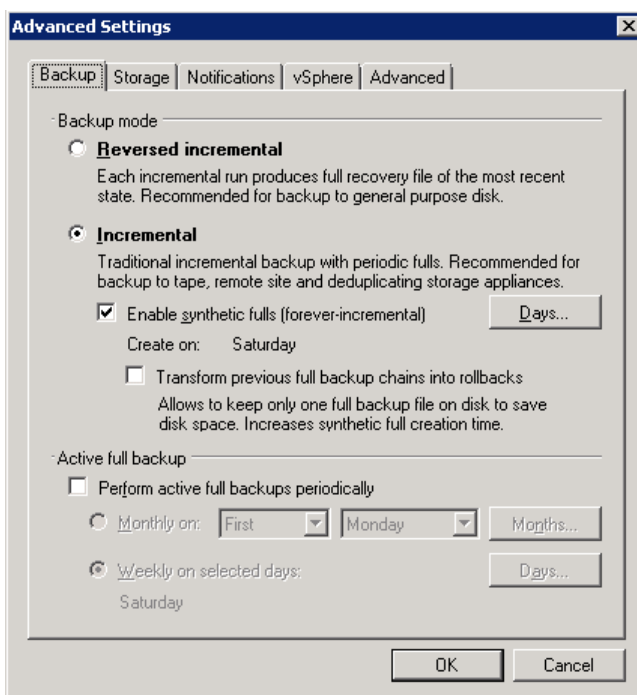
- Click **Next** to continue.
- Select an individual VM or a VM container you want to back up. Click **Add...** to browse to needed VMs and VM containers.
- Select the VMs and click **Add**.



- Specify storage for the backup files produced by this job, and additional job settings. From the **Backup repository** list, select a backup repository where created backups should be stored.

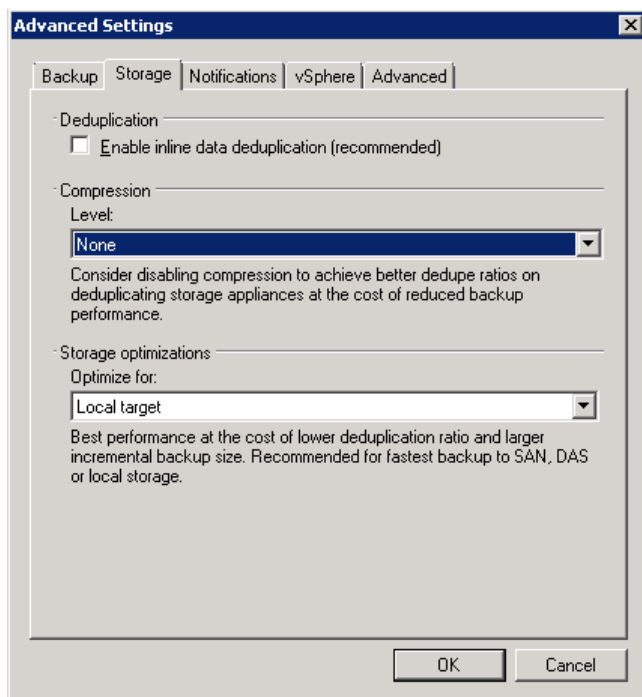


- Click **Advanced...** to specify advanced options for a created backup job.
- In **Backup settings** select the **Incremental** method.



- Switch to the **Storage** tab. Select **Local target**.
- Clear the **Enable inline deduplication** checkbox to disable de-duplication.

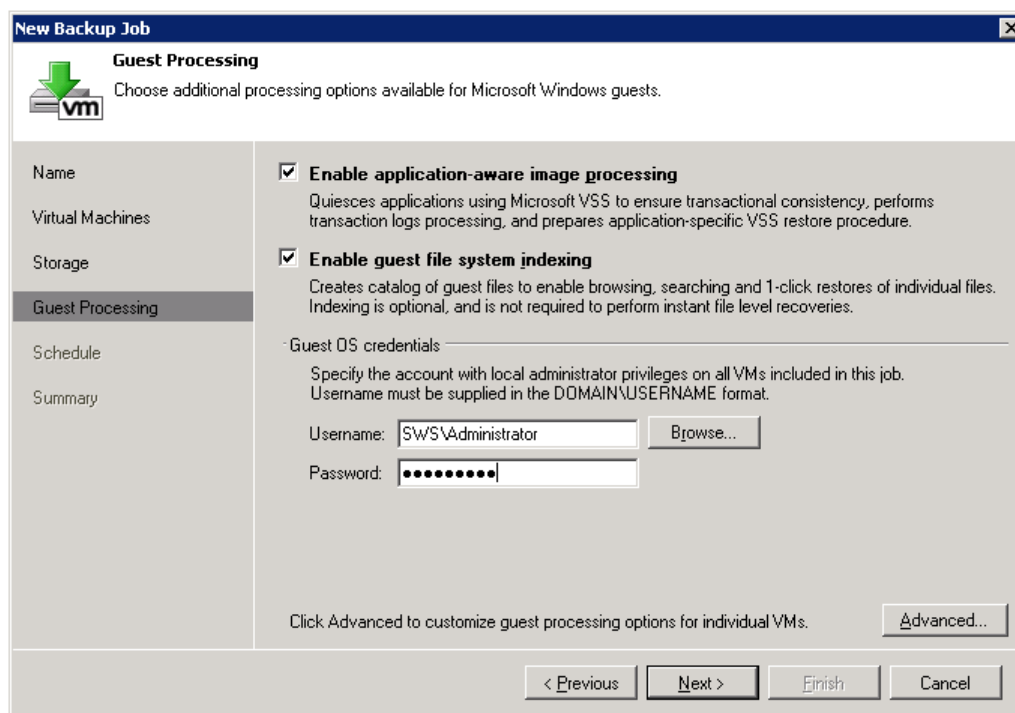
11. Select **None** in the **Compression** section.



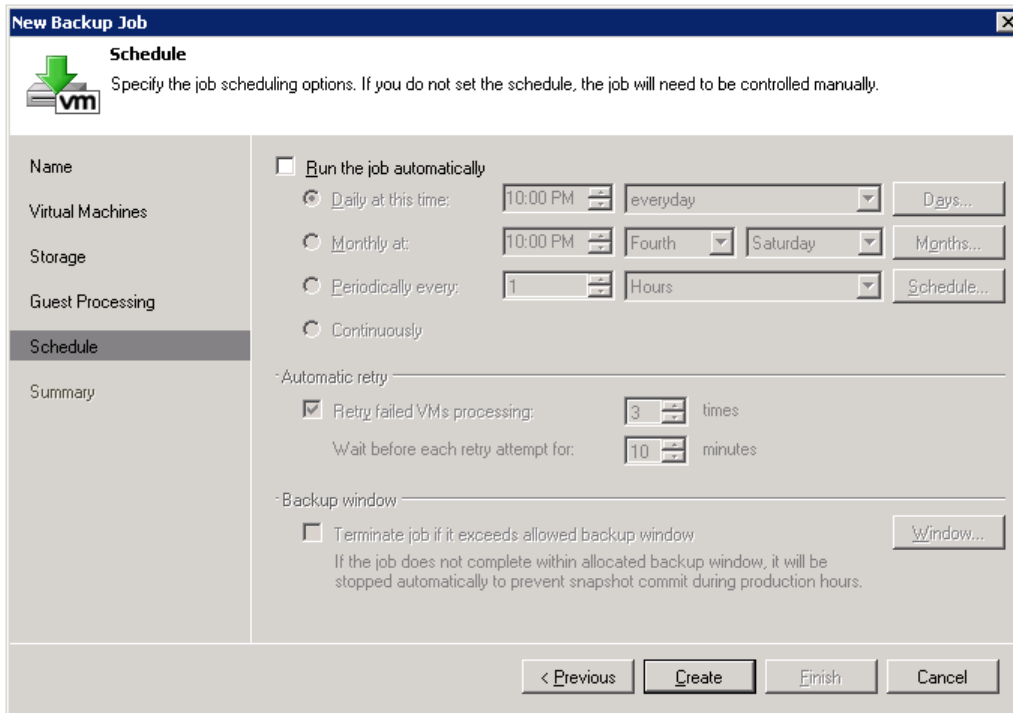
12. Click **OK** to close **Advanced settings**.

13. Click **Next** to continue.

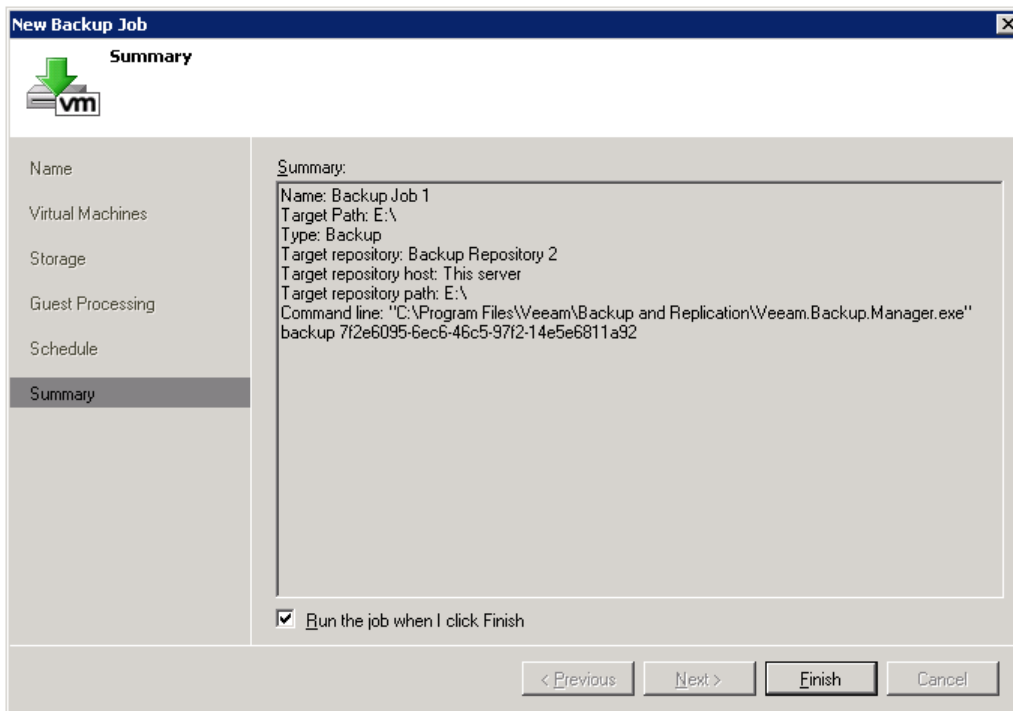
14. To create a transactionally consistent backup ensuring successful recovery of VMs, select **Enable application-aware image processing** (recommended). To index guest files in a backed up VM, select **Enable guest file system indexing**. In the **Guest OS credentials** section, specify guest operating system credentials for a target VM that are required to deploy the agent. Please note that the user name must be supplied in the *DOMAIN\USERNAME* format.



15. Click **Next** to continue.
16. To specify the job schedule, either select **Run the job automatically**, or perform backup jobs manually, when needed. For automatic backup jobs specify time and periodicity.

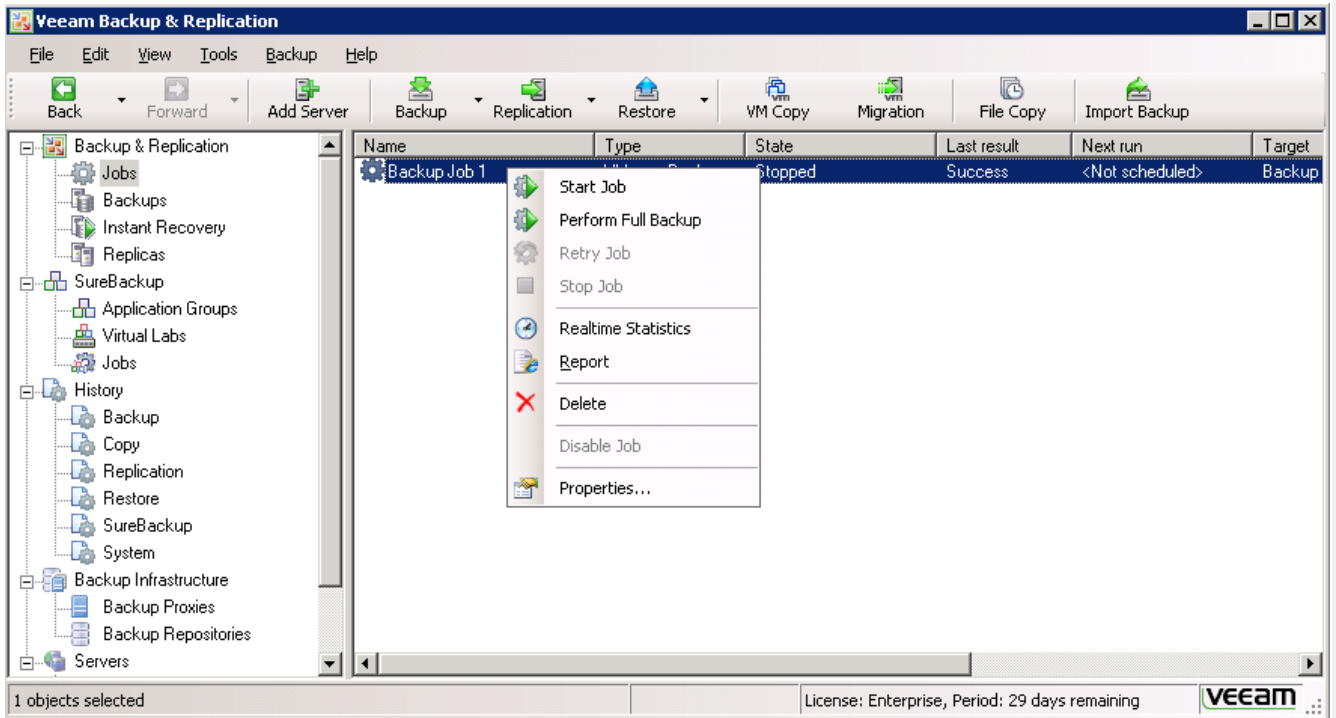


17. After you have specified schedule settings, click **Create**.
18. Select **Run the job when I click Finish** to start the created job right after you complete working with the wizard. Click **Finish**.

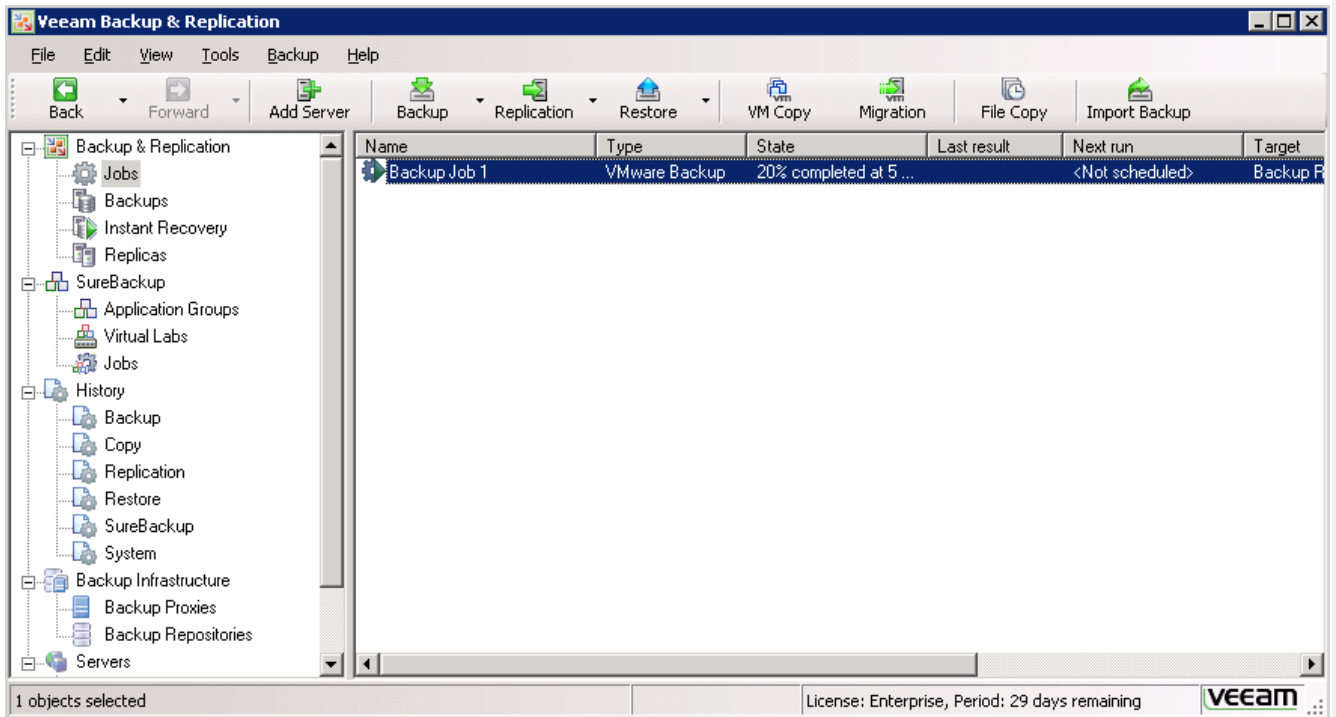


Executing a Backup Job

1. To run previously created backup job manually right click it and select **Start Job**.

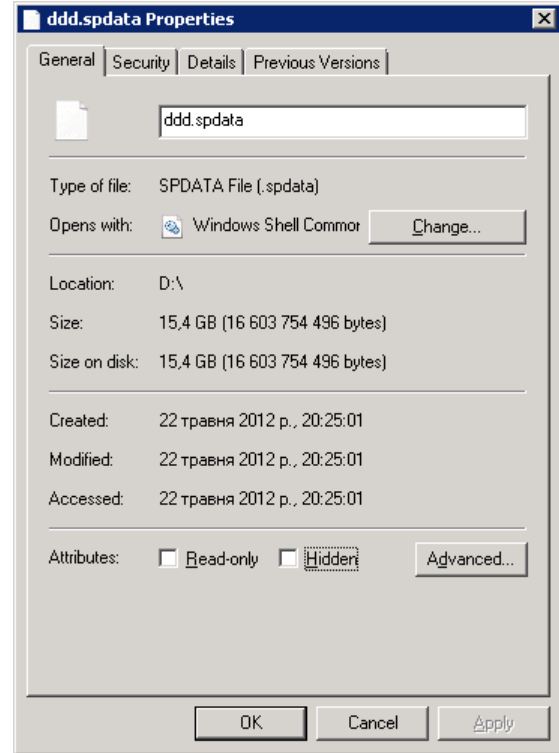
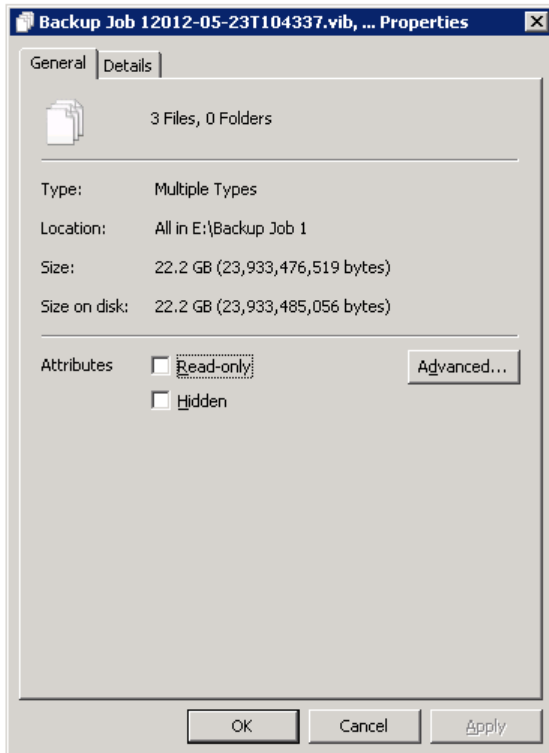


2. If successful you will see the backup job progress.



CONCLUSION

Implementation of StarWind Global Deduplication significantly reduces storage space requirements of Veeam backup files. In this particular case, the backup job must have occupied 22.2 GB (see the left screenshot). Since, these files were backed up for the first time, the full backup was performed. Nevertheless, owing to Deduplication, storage space consumption was reduced by 30 % (see the right screenshot).



Note: StarWind Global Deduplication efficiency grows with the number of backups and increments performed and has a potential to save up to 90% of disk space.

CONTACTS

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