

StarWind Virtual Tape Library: Configuration Guide for Local Storage, VTL Deployed as a Linux ISO using GUI

2024

TECHNICAL PAPERS



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About StarWind

StarWind is a pioneer in virtualization and a company that participated in the development of this technology from its earliest days. Now the company is among the leading vendors of software and hardware hyper-converged solutions. The company's core product is the years-proven StarWind Virtual SAN, which allows SMB and ROBO to benefit from cost-efficient hyperconverged IT infrastructure. Having earned a reputation of reliability, StarWind created a hardware product line and is actively tapping into hyperconverged and storage appliances market. In 2016, Gartner named StarWind “Cool Vendor for Compute Platforms” following the success and popularity of StarWind HyperConverged Appliance. StarWind partners with world-known companies: Microsoft, VMware, Veeam, Intel, Dell, Mellanox, Citrix, Western Digital, etc.

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Annotation

Relevant products

StarWind Virtual Tape Library (VTL)

Purpose

StarWind Virtual Tape Library (VTL) is software that allows you to emulate physical Tape Libraries while storing data on hard disk drives. The solution targets companies that want to completely discontinue using physical Tape libraries and simplify and accelerate data backup and recovery.

This document outlines how to configure the Linux version of StarWind Virtual Tape Library (VTL) on a physical bare-metal server using the StarWind Appliance ISO and includes steps on how to backup and restore data to VTL via Veeam Backup & Replication.

Audience

This technical guide is intended for storage and virtualization architects, system and backup administrators, and partners designing virtualized environments using StarWind Virtual Tape Library (VTL).

Expected result

The end result of following this guide will be a fully configured StarWind VTL on a bare-metal server with configured backup jobs to StarWind VTL using Veeam Backup & Replication.

Prerequisites

StarWind VTL system requirements

Prior to installing StarWind VTL, please make sure that the system meets the requirements, which are available via the following link:

<https://www.starwindsoftware.com/system-requirements#virtual-tape-library>

Recommended RAID settings for HDD and SSD disks:

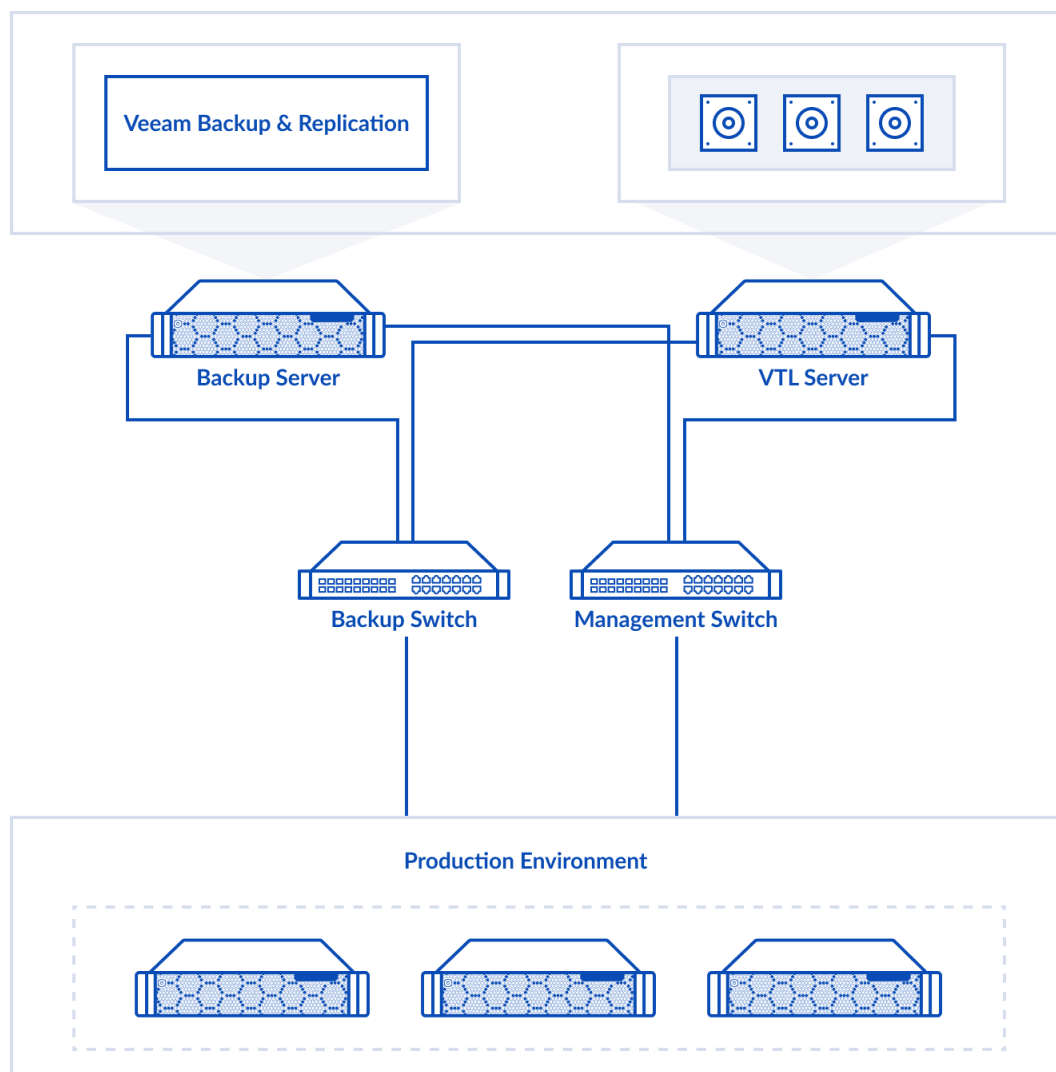
<https://knowledgebase.starwindsoftware.com/guidance/recommended-raid-settings-for-hdd-and-ssd-disks/>

StarWind VTL requires StarWind Management Console that can be deployed on the server where Veeam Backup & Replication software is installed or on a separate workstation or virtual machine with Windows OS (Windows 7 or higher, Windows Server 2008 R2 and higher) using the Windows installer file received in the download letter. Please make sure that the system requirements for StarWind Management Console are met: <https://www.starwindsoftware.com/system-requirements#management-console>

NOTE: In order to fit the ransomware resiliency, the VTL should be located on the dedicated storage/host, which must be isolated from the production environment. Please read the following document for details: [Backing up StarWind Virtual SAN Environment: Best Practice](#).

Solution diagram

The diagrams below illustrate the network and storage configuration of the solution:



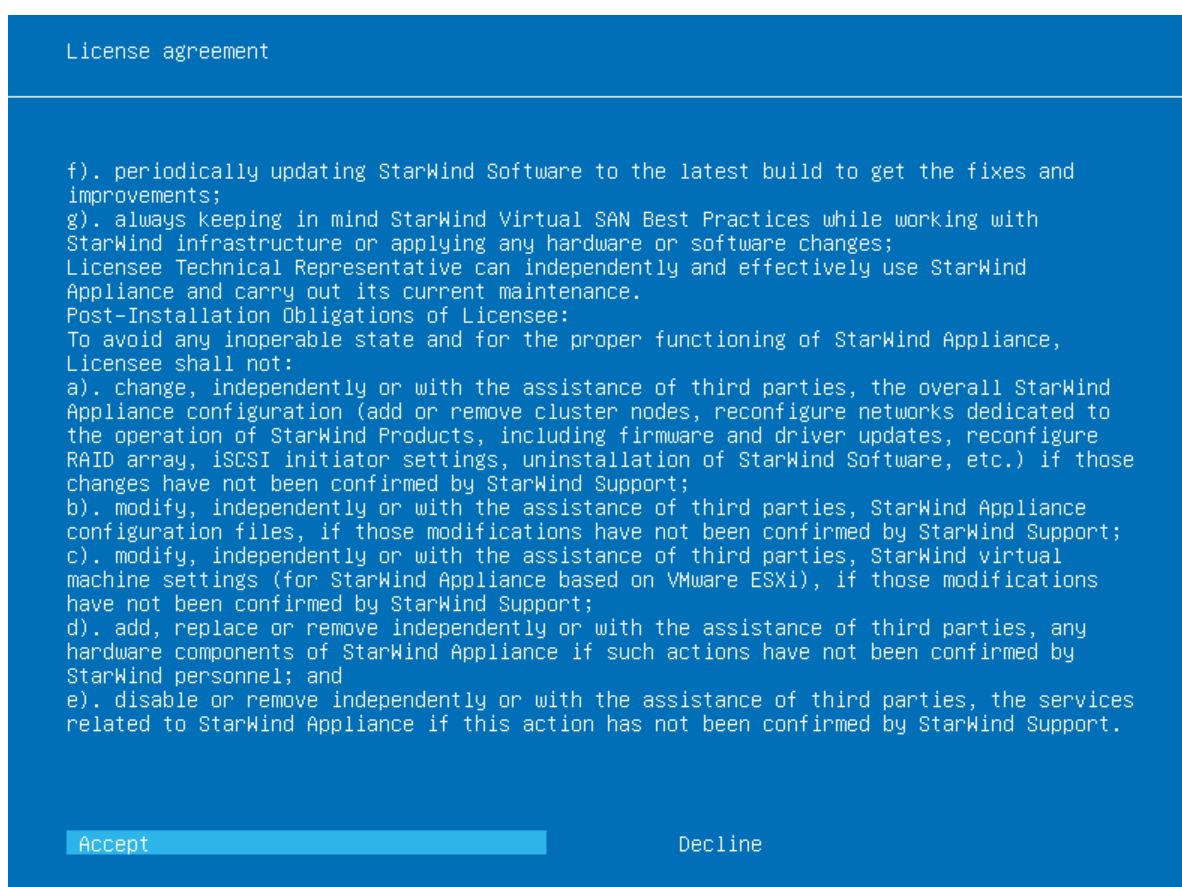
Deploying Starwind Virtual Tape Library

1. Download the StarWind Appliance ISO at the following link:
<https://www.starwindsoftware.com/vtl#download>
2. Prepare installation media using Etcher, Rufus on a Windows workstation, or the dd command-line tool on Linux and macOS. For Network boot, mount the ISO to your server using iDRAC, iLo, or IPMI user interfaces.
3. Connect the installation media to your server and start the host.

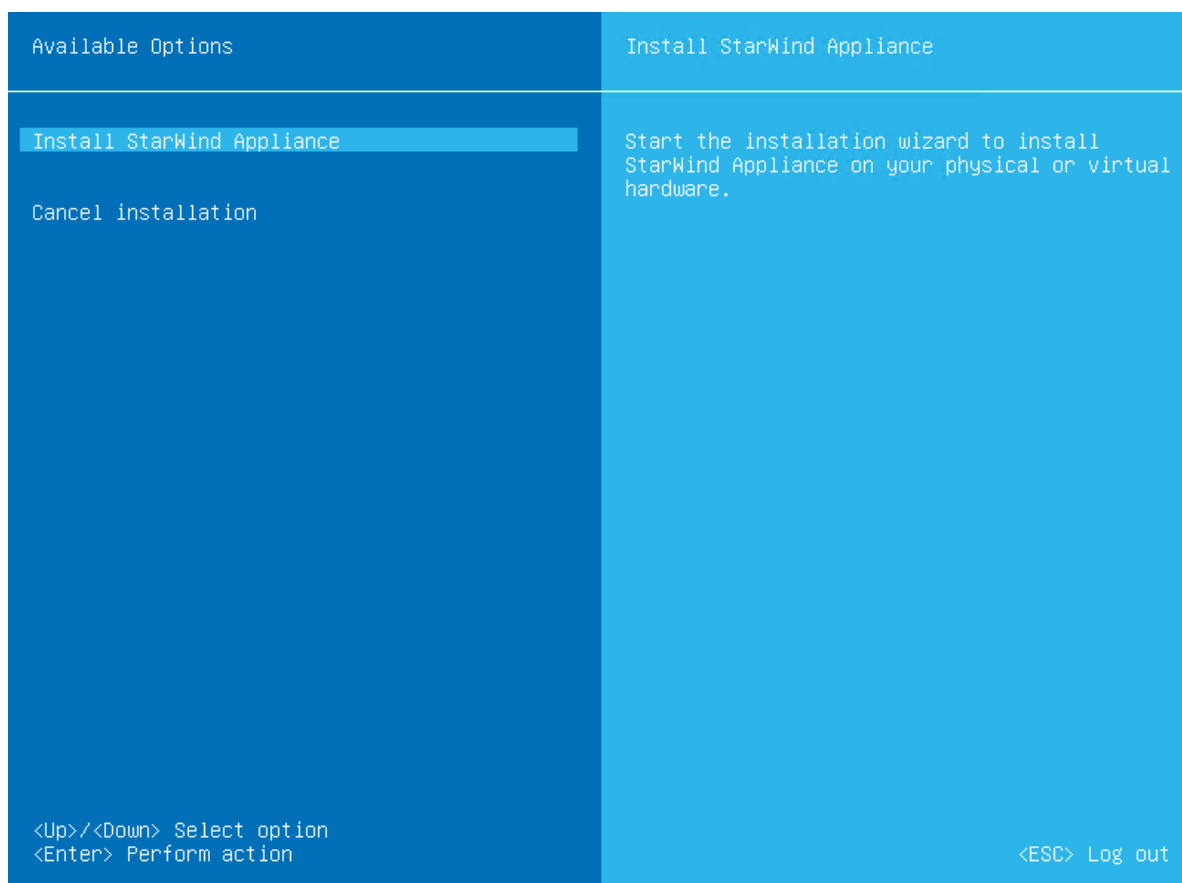
4. Boot into BIOS and enable the Legacy boot mode. Save changes and reboot the host.
5. On server boot, press F12 or F2 to start the one-time boot menu. Select CD\DVD-ROM as a boot device.

NOTE: Refer to the server documentation to find the boot menu key.

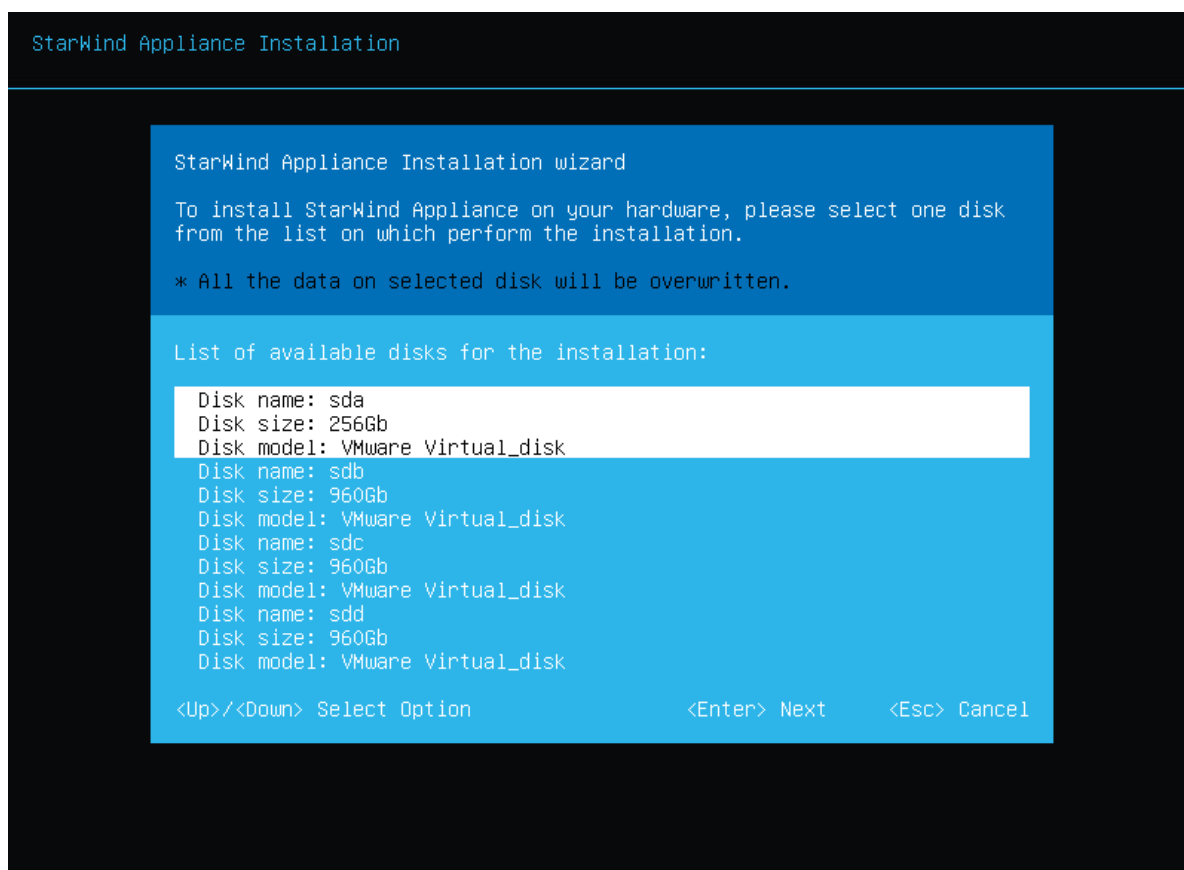
6. The server should start booting from StarWind Appliance ISO. Once the system boots, the StarWind Appliance Installer launches.
7. Read the End-user License Agreement. Use the Tab button and arrow keys to select the Accept option and press Enter.



8. In the menu, select the "Install StarWind Appliance" option and press Enter.

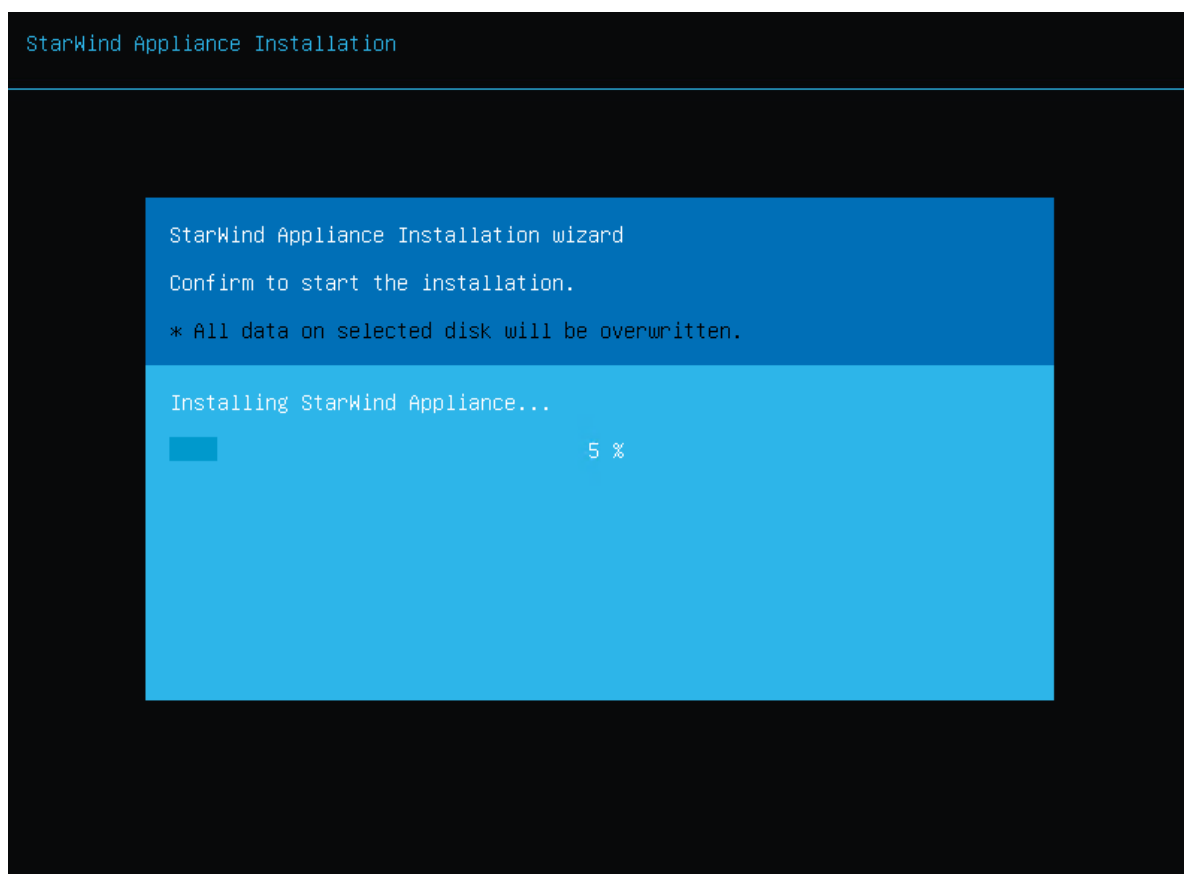


9. Select one of the available disks on which to install StarWind Appliance. Press Enter.

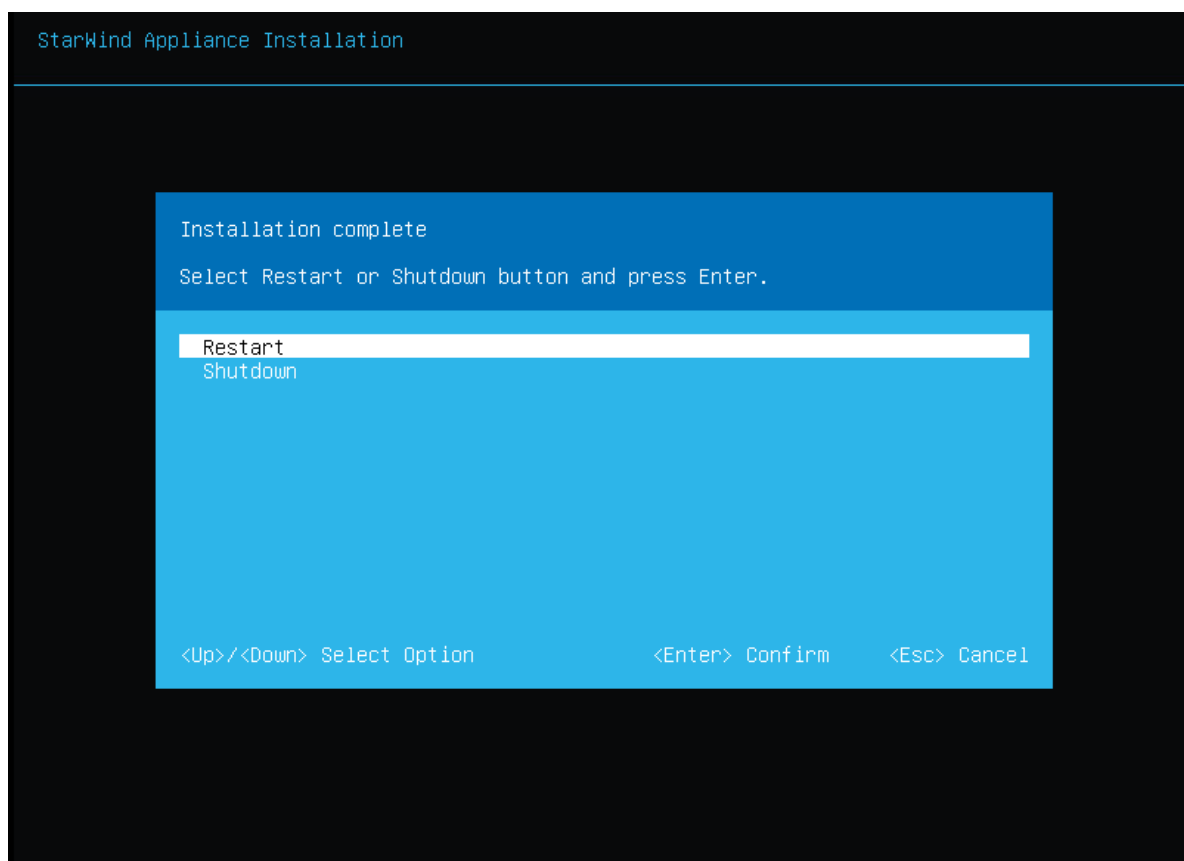


10. All the data on the selected disk will be overwritten. Confirm the installation by typing “yes” and pressing Enter.

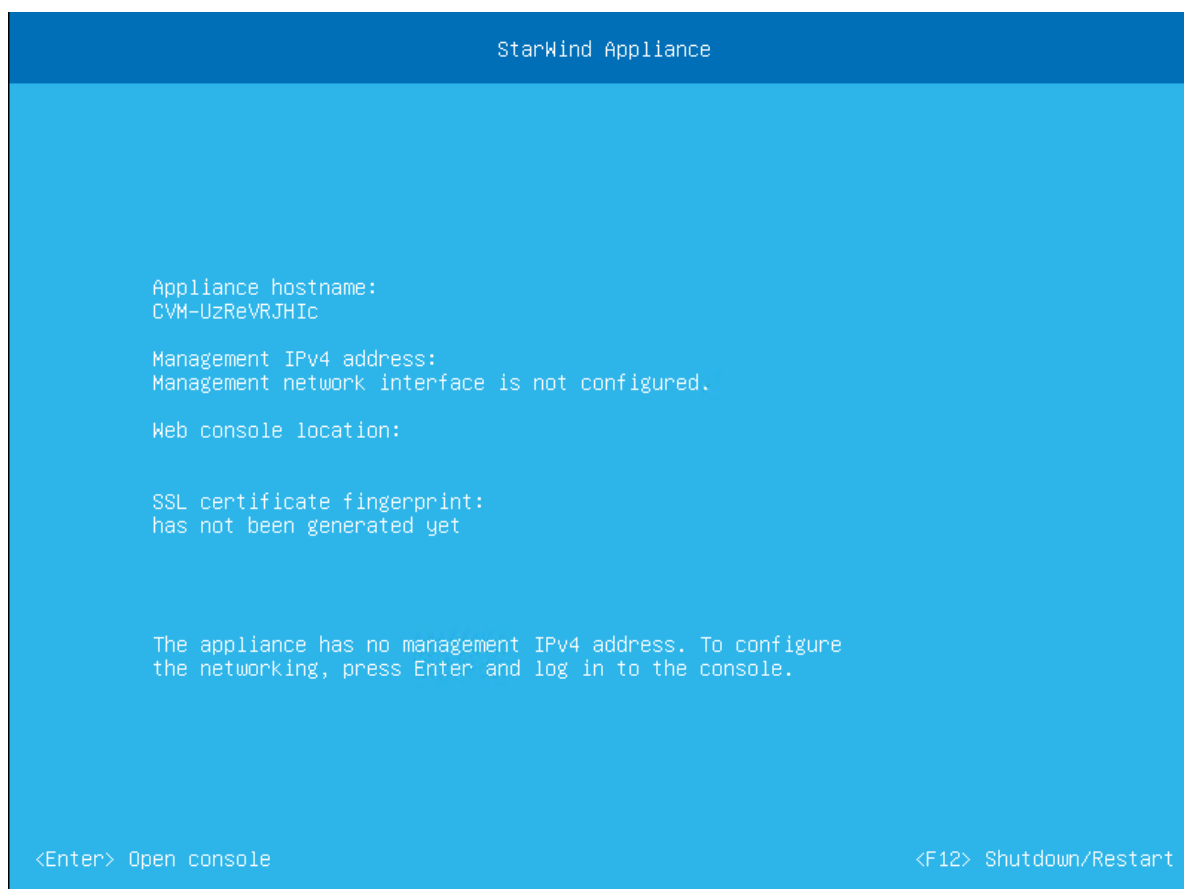
11. Wait until the installation is complete.



12. Once the installation is finished, select “Restart” to reboot the server.

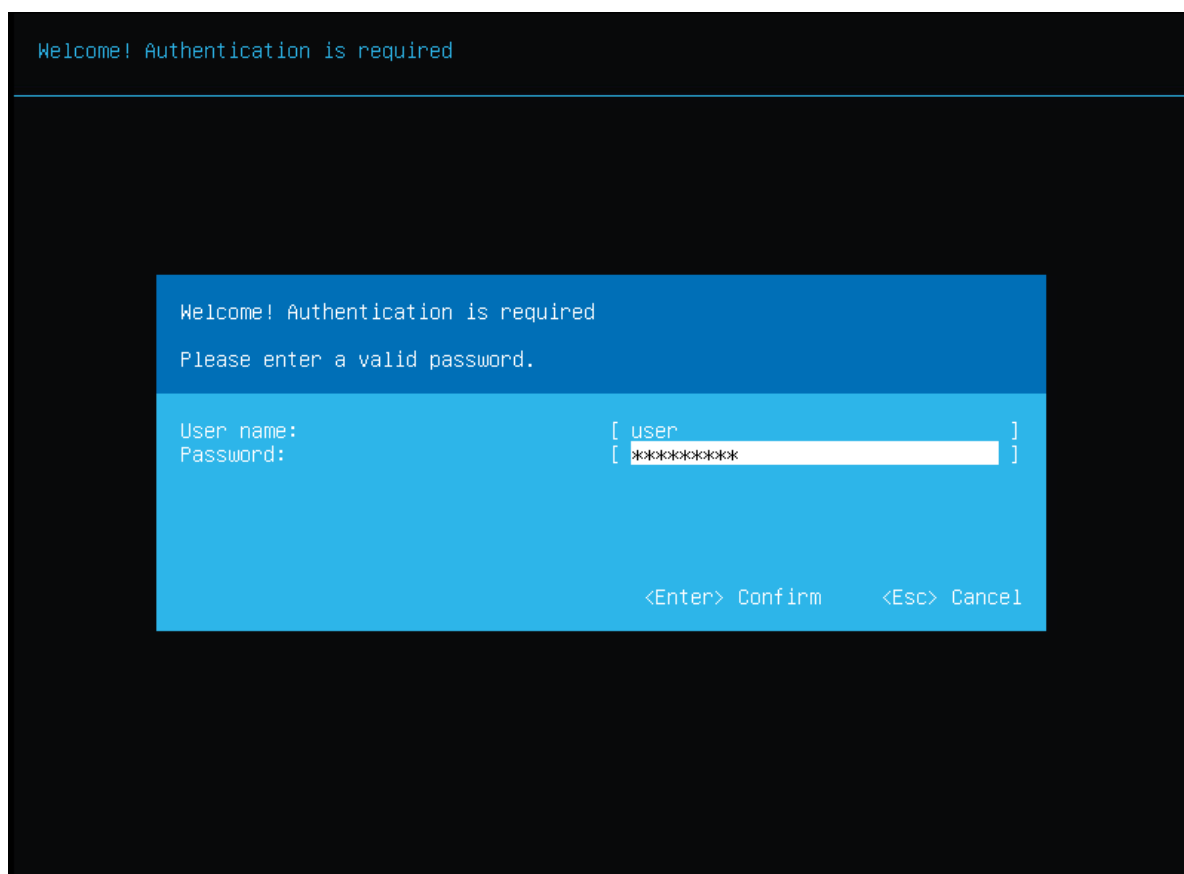


13. Eject the installation media.
14. The server now boots StarWind Appliance.
15. Press Enter to open the console.

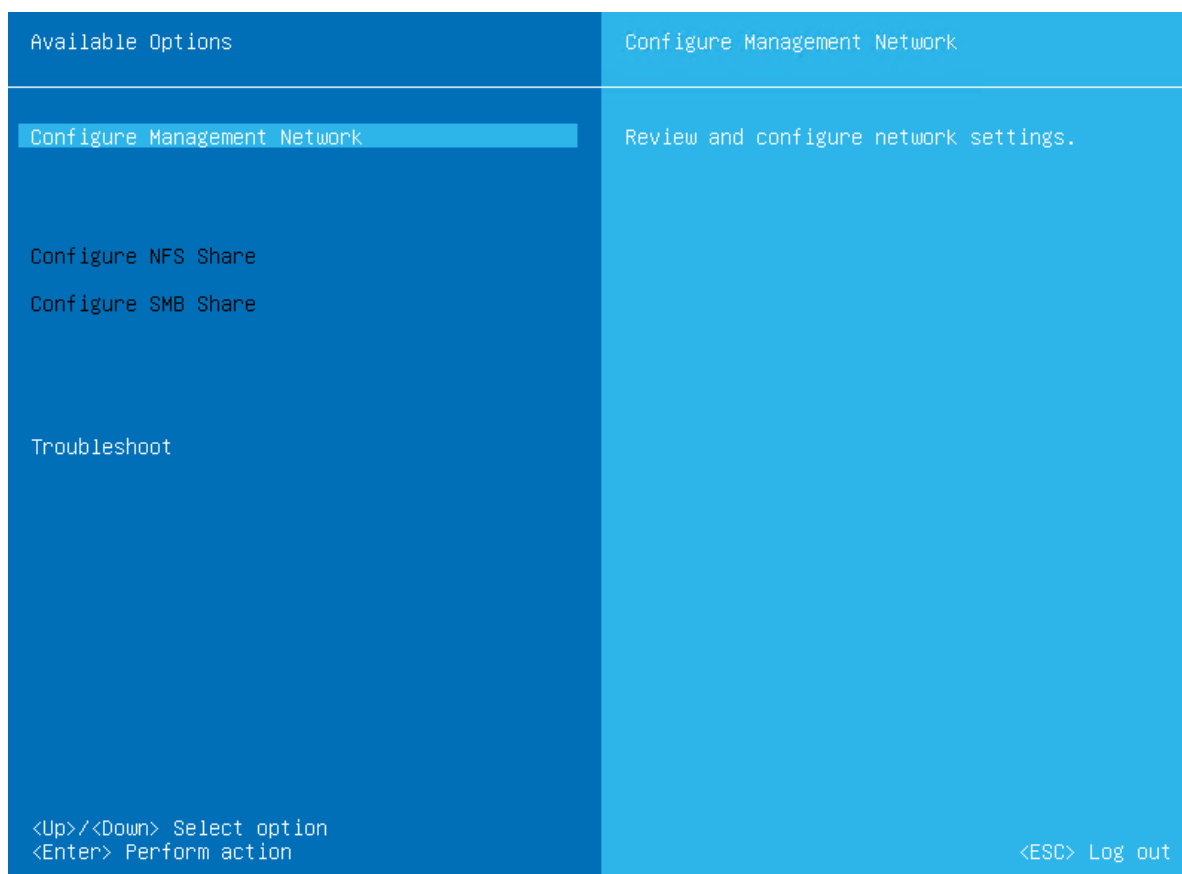


16. Specify the default user name and password.

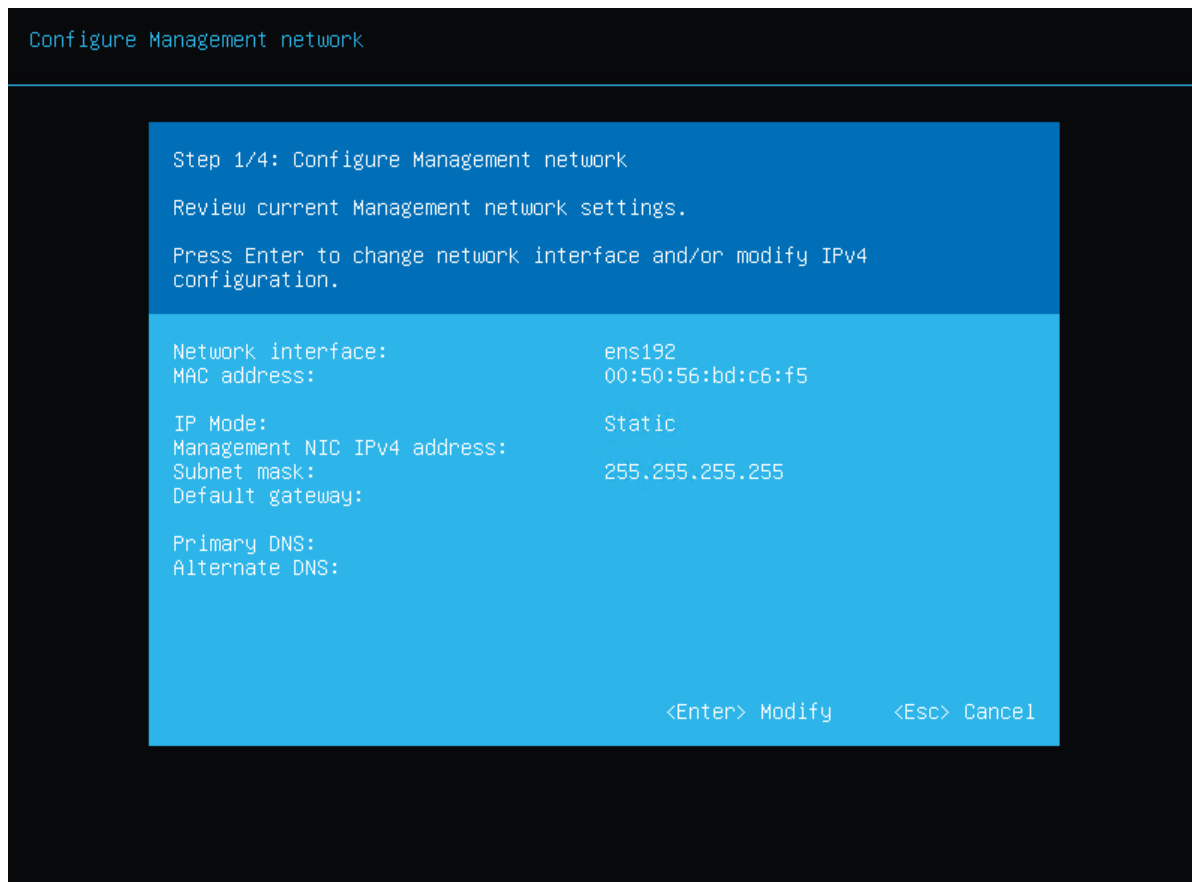
NOTE: The default account name is "user", and its password is "rds123RDS" without quotes. This account is removed from the appliance upon the completion of the Initial configuration wizard.



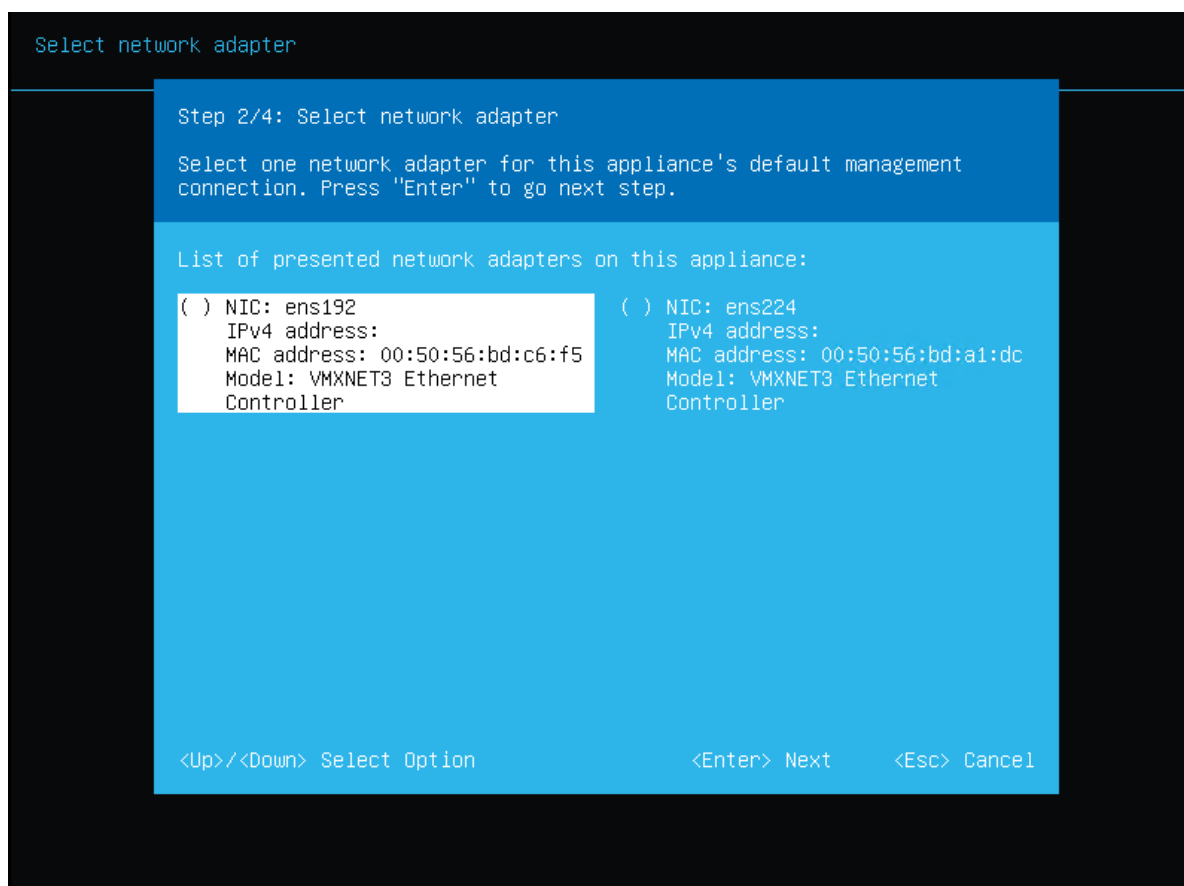
17. Select "Configure Management Network" and press Enter.



18. Press Enter once more to modify the settings.



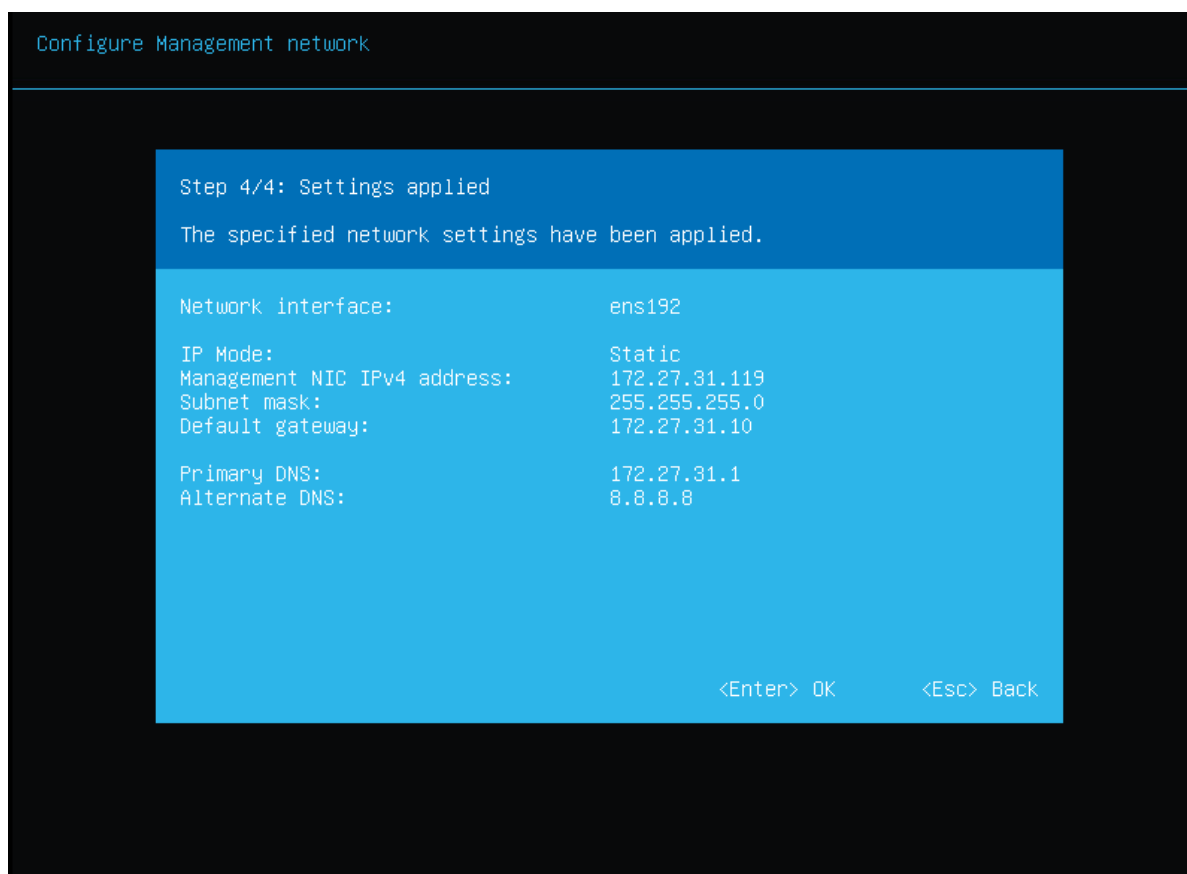
19. Select the network adapter that will be used for management connectivity and press Enter.



20. Specify the static IPv4 address, subnet mask, default gateway, and DNS addresses. Press Enter.

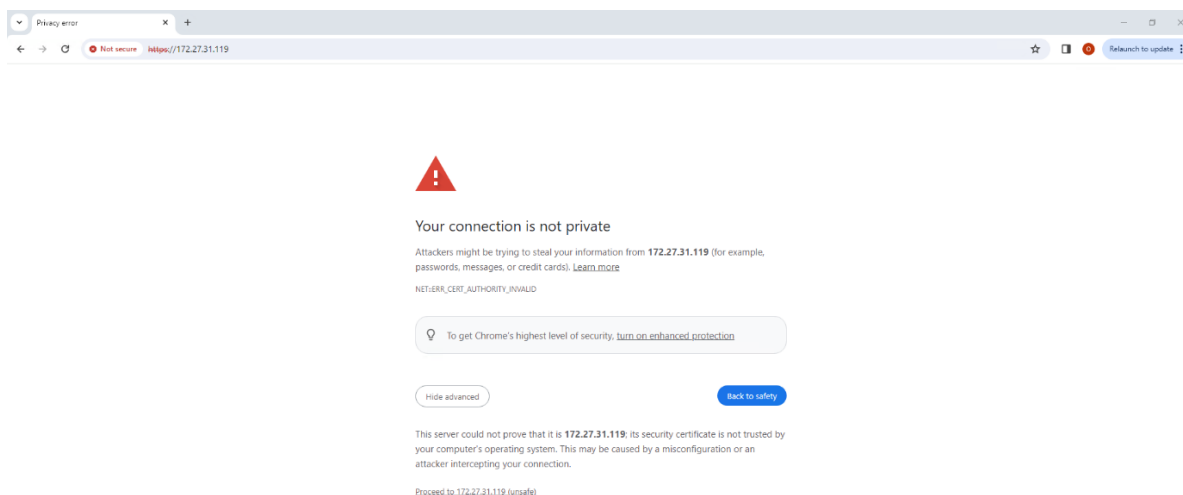


21. The management network settings have been applied. Press Enter.

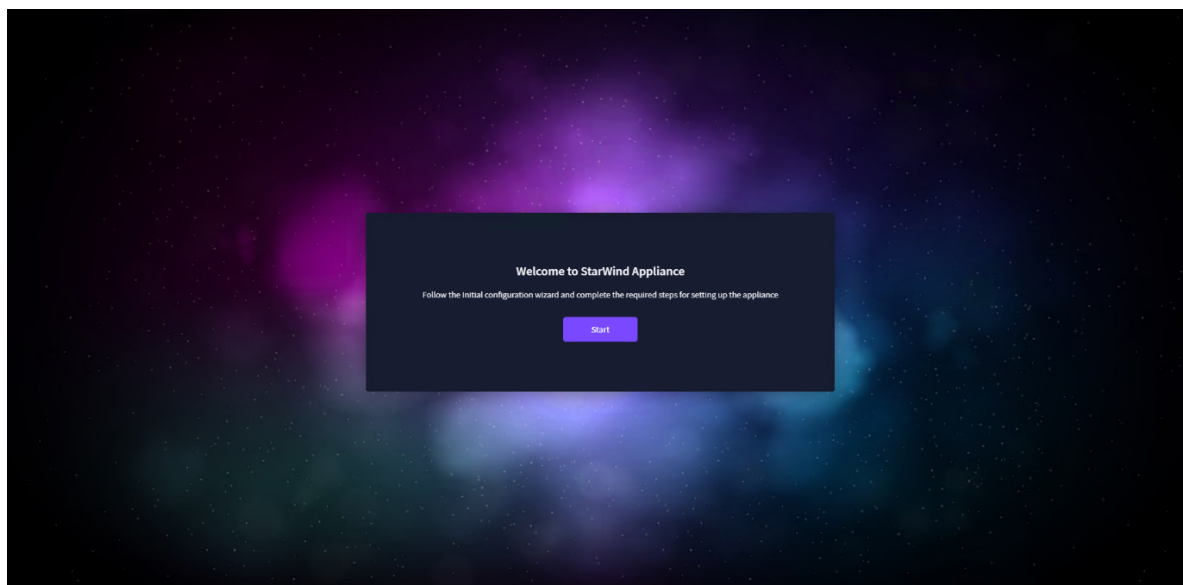


Initial Configuration Wizard

1. Using the web browser, open a new tab and enter the StarWind Appliance IPv4 address specified previously to open the Web Interface. Click "Advanced" and then "Continue to..."



2. StarWind Appliance welcomes you, and the “Initial Configuration” wizard will guide you through the deployment process. Click Start.



3. Upload the license file and click Next.

StarWind Appliance Initial configuration

License

EULA

Management network

Static hostname

Administrator account

Summary

Configuration

License

Provide StarWind license file to continue

If you cannot find the license file, please contact your StarWind Sales Representative or send the request to: sales@starwind.com

Upload file

StarWind_VTL_Trial_License_Key.swk

License details:

Product name: StarWind VTL

License type: Trial, 1 Node. (Active till 2024 May 31)

License ID: 24

Included features:

- Web-based UI management with basic monitoring
- Hardware RAID support and integration
- ZFS and Software RAID support and integration

Back

Next

4. Read and accept the End User License Agreement to proceed. Click Next.

StarWind Appliance Initial configuration

License

EULA

Management network

Static hostname

Administrator account

Summary

Configuration

End-user license agreement

Review and accept the following license agreement to continue

7. Modification and Termination.

7.1. Termination. StarWind may modify or discontinue Licensee's use or Operation of the Evaluation Software at any time and for any reason, or for no reason, at its sole discretion. StarWind may terminate this agreement, or any portion hereof, at any time and for any reason, or no reason.

7.2. Actions upon Termination. In the event of termination and/or expiration of this Agreement and/or the Evaluation Period:

- a) The functionality of the Evaluation Software may become limited and/or blocked, which may lead to inaccessibility of the data, related and/or operated by/with the Evaluation Software;
- b) Licensee shall as soon as practicable, destroy, uninstall, delete, or return to StarWind all of StarWind's Confidential Information in Licensee's possession or under its control and all and every part of the Products and all copies thereof, including, without limitation, any copies installed on any hard-drive or other fixed, electronic, optical, magnetic or other media and any authorized or unauthorized modifications of the Evaluation Software, and any software into which the Evaluation Software have been merged (except that if destruction of such software shall be precluded by written agreement, then it shall remove and destroy the software to the extent so merged with or incorporated within any such software) or as contained in any other form or media; and
- c) upon termination of this Agreement Licensee will no longer be authorized to Operate or use the Evaluation Software in any way.

EXHIBIT A

Evaluation Software Products

StarWind Software Products: <https://www.starwindsoftware.com/download-starwind-products>

☒ I accept the terms of the license agreement

Back

Next

5. Review or edit the Network settings and click Next.

StarWind Virtual Tape Library: Configuration Guide for Local Storage, VTL Deployed as a Linux ISO using GUI

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NOTE: Static network settings are recommended for the configuration.

StarWind Appliance Initial configuration

- ✓ License
- ✓ EULA
- **Management network**
- Static hostname
- Administrator account
- Summary
- Configuration

Management network

Specify the unique IP address (static is recommended) and configure other network settings.

i The Management network is used to communicate with services such as DNS and NTP and to access the appliance web UI from external clients.

IP mode
Static

NIC	Adapter model	Bandwidth	MAC address	IP address	Netmask i	Gateway
ens192	VMXNET3 Etheme...	10 Gbit	00:50:56:BD:C...	172.27.31.119	255.255.255.0	172.27.31.10

Name servers (optional):

DNS 1: 172.27.31.1 DNS 2: 8.8.8.8

Time settings (optional):

NTP server: Time zone: UTC

Separate servers with commas, a maximum of 3 servers

Back Next

6. Specify the hostname for the StarWind Appliance and click Next.

StarWind Appliance Initial configuration

- ✓ License
- ✓ EULA
- ✓ Management network
- **Static hostname**
- Administrator account
- Summary
- Configuration

Static hostname

Set the current appliance hostname

i Use Latin letters, numbers, and dash

Hostname
SW-VTL

Back Next

7. Create an administrator account. Click Next.

StarWind Appliance Initial configuration

- ✓ License
- ✓ EULA
- ✓ Management network
- ✓ Static hostname
- Administrator account
- Summary
- Configuration

Administrator account

Specify new credentials for the appliance administrator account

Username
swadmin

Password
••••••

Confirm password
••••••

Additional information (optional)

Full name

E-mail

Back Next

8. Review the settings and click Configure.

StarWind Appliance Initial configuration

- ✓ License
- ✓ EULA
- ✓ Management network
- ✓ Static hostname
- ✓ Administrator account
- Summary
- Configuration

Summary

License type

License	Trial
---------	-------

Network settings

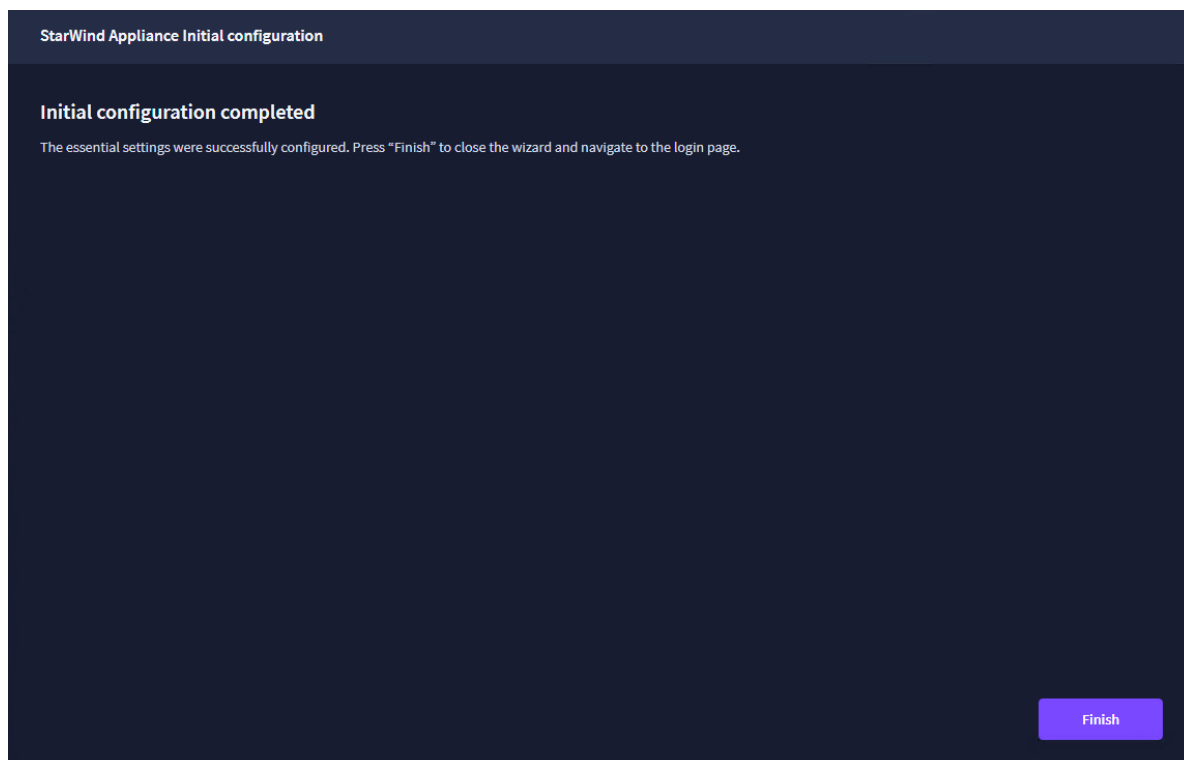
Interface	ens192 (VMXNET3 Ethernet Controller)
Bandwidth	10 Gbit
MTU	1500
IP address	172.27.31.119
Appliance hostname	SW-VTL

Credentials

Administrator username	swadmin
------------------------	---------

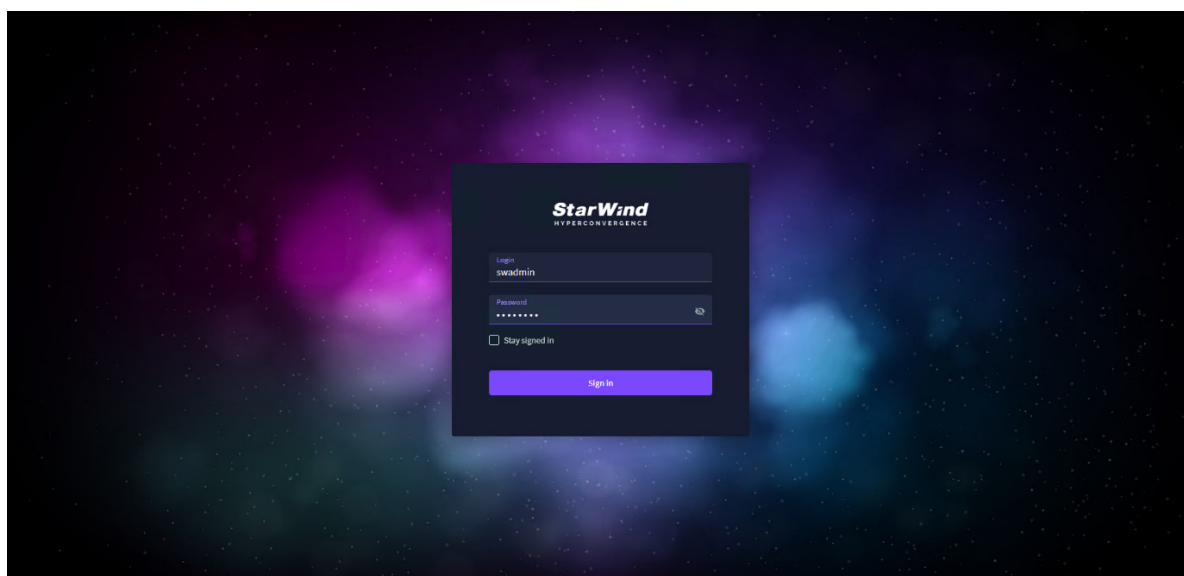
Back Configure

9. The initial StarWind Appliance configuration is now complete. Click Finish.

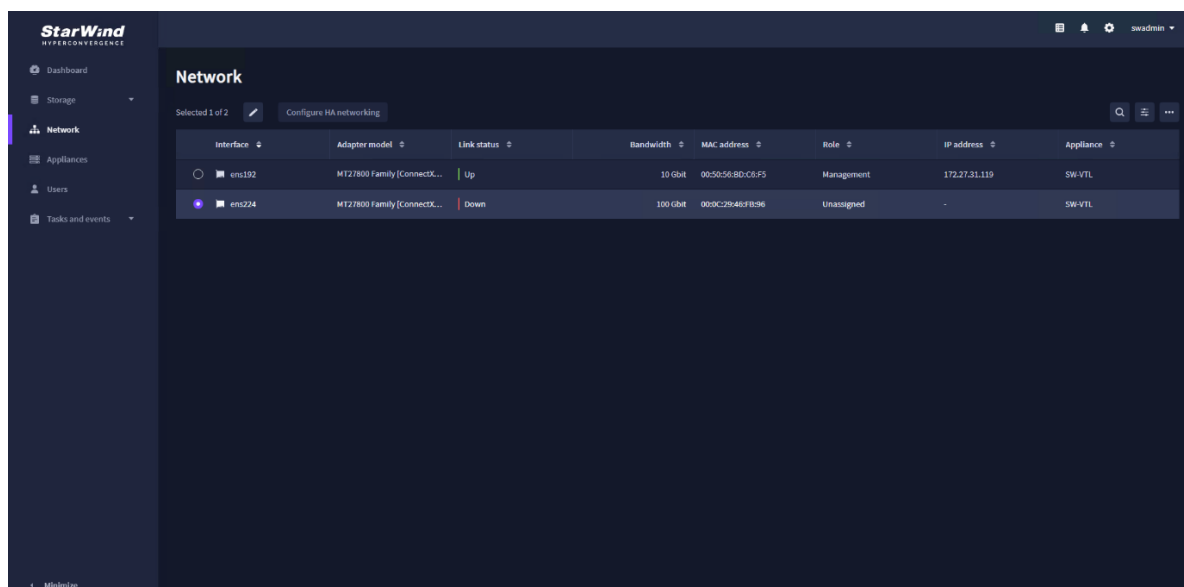


Configure Networking

1. Log in to the appliance using the username and password specified during the initial configuration.



2. Navigate to the Network tab, select the network adapter that will be used for Data (VTL) traffic, and click the Edit icon.

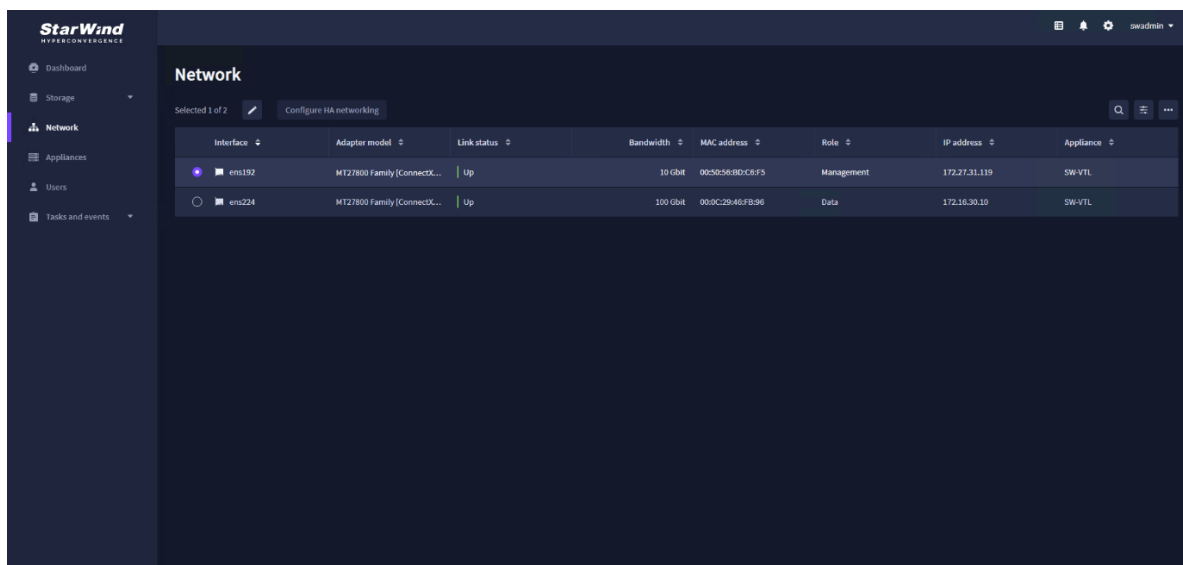


3. Uncheck the “Disable network adapter” checkbox, check the “Connect automatically on boot” checkbox, set MTU to 9000, assign the Data role to the network adapter, and specify the IPv4 address and network mask. Click Save.

Edit network adapter settings ✕

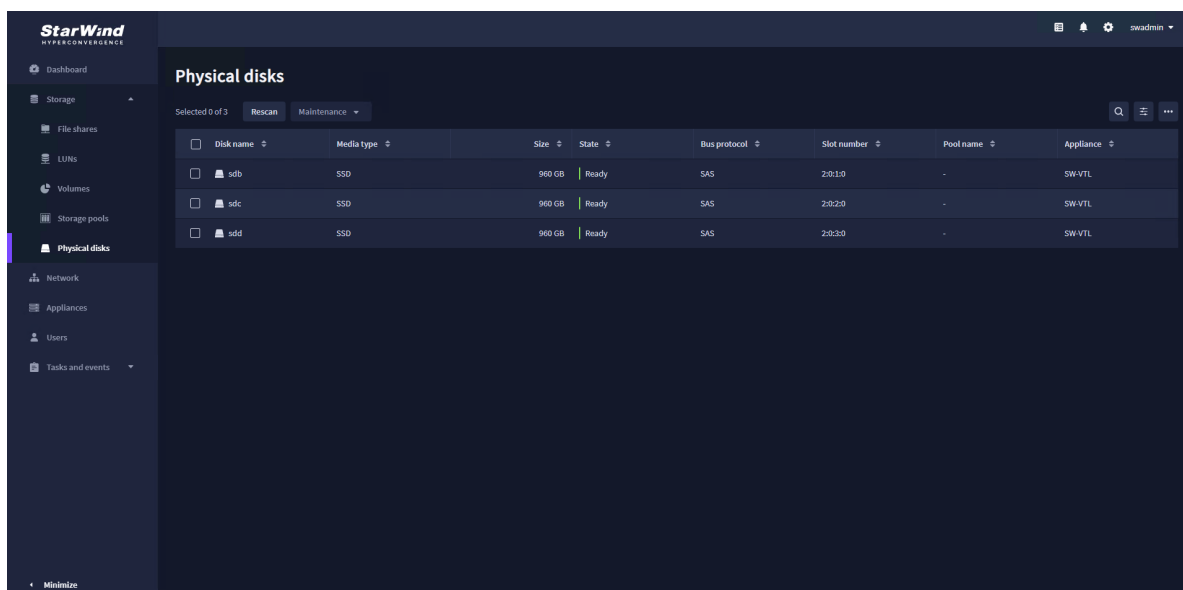
Name ens224	Adapter model MT27800 Family [ConnectX-5 Virtua
Role Data	IP mode Static
IPv4 address 172.16.30.10 <small>e.g. 192.168.100.100</small>	Netmask 255.255.255.0 <small>e.g. 255.255.255.0 or CIDR notation (e.g. 24)</small>
Gateway <small>e.g. 192.168.100.1 or leave the settings empty</small>	DNS <small>Separate IP addresses with commas (,) or leave the settings empty</small>
MTU 9000 <small>The valid value in the range of 1500-9000</small>	
<input type="checkbox"/> Disable network adapter <input checked="" type="checkbox"/> Connect automatically on boot	
<div> <div>Cancel</div> <div>Save</div> </div>	

4. The network adapter changes the Link Status to Up.



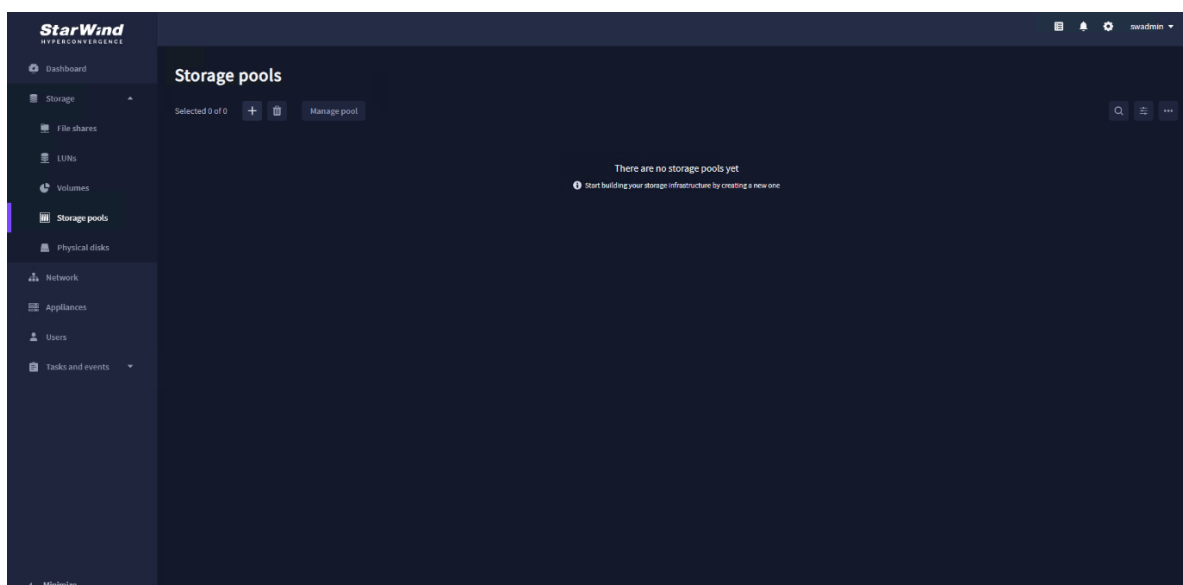
Configuring Storage

1. Navigate to the Storage tab, select Physical disks, and click Rescan.

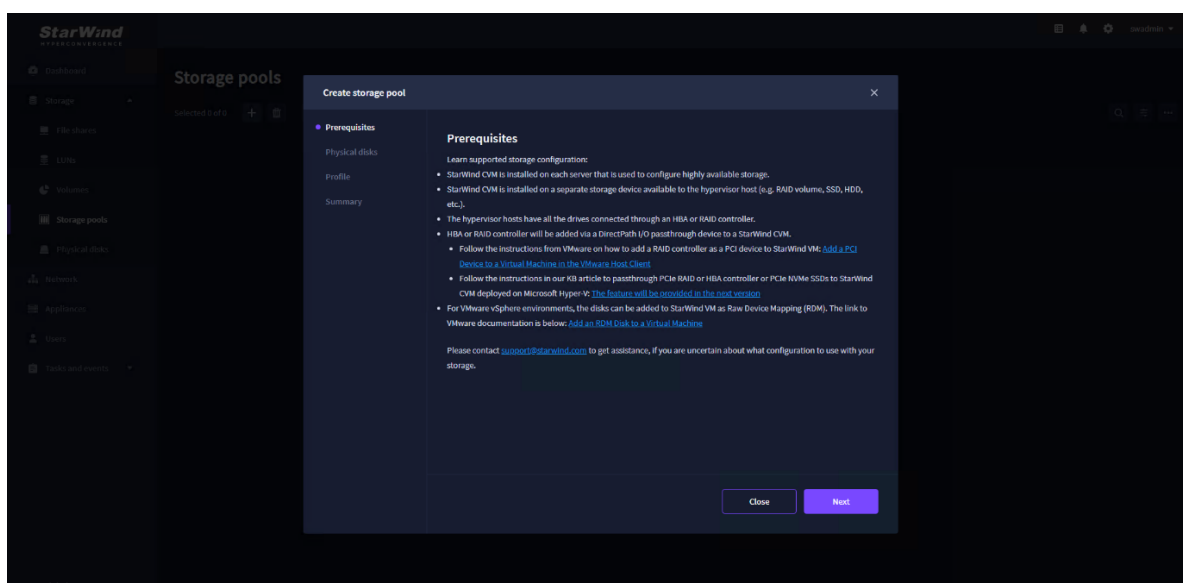


NOTE: StarWind Appliance can use storage from a hardware RAID or create a Linux Software RAID or ZFS storage pools from the drives connected to an HBA controller. This guide uses Linux Software RAID as an example.

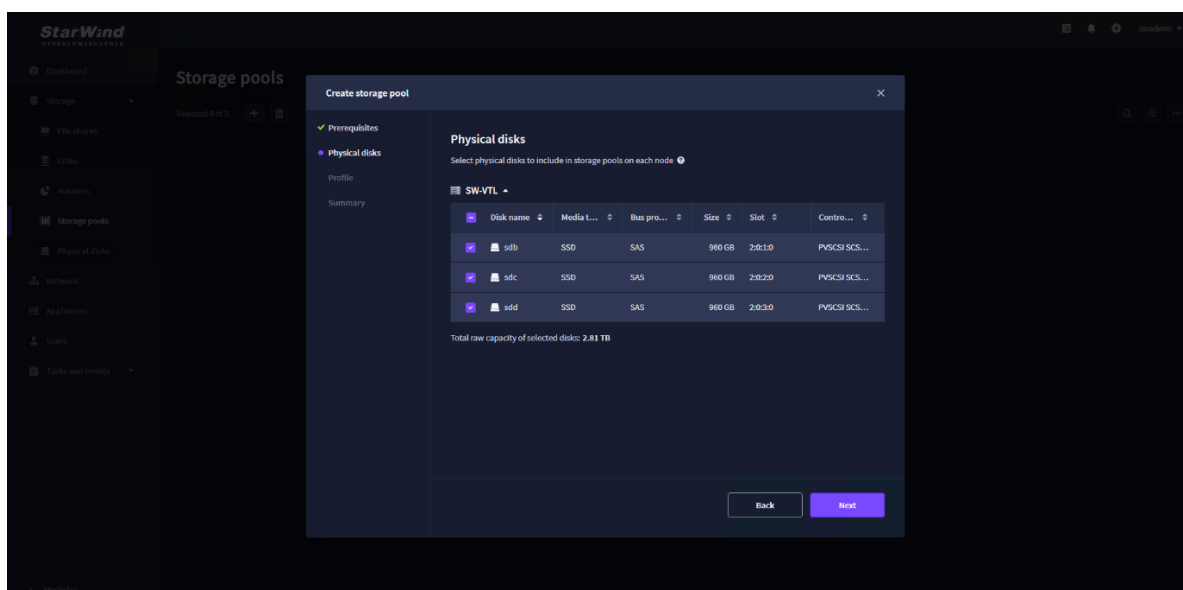
2. In the Storage tab, navigate to the Storage pools and click the “+” sign.



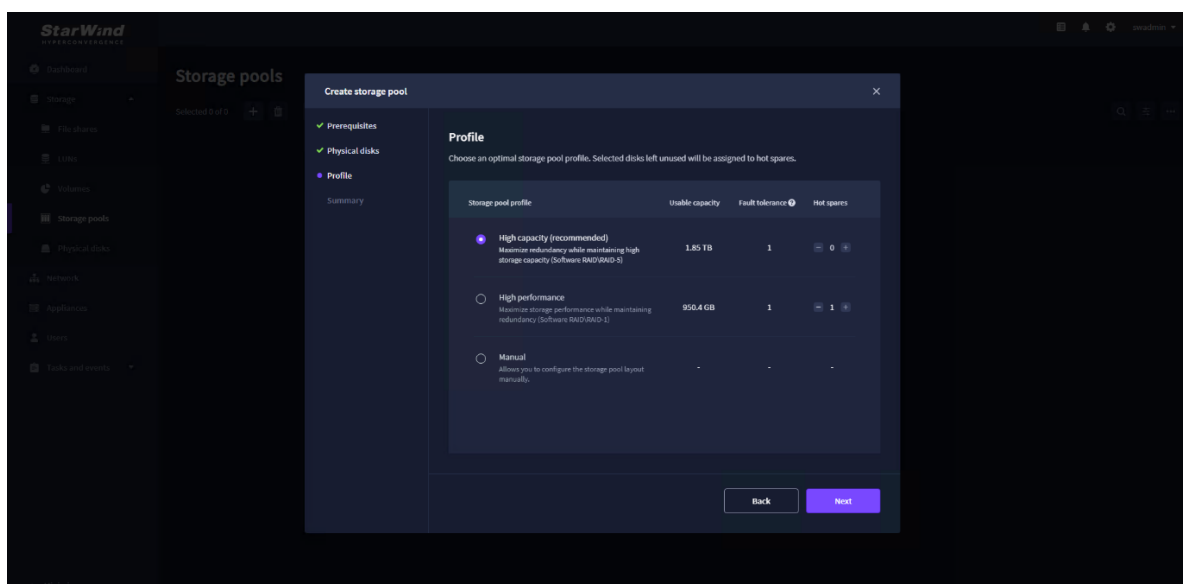
3. Verify the prerequisites and click Next.



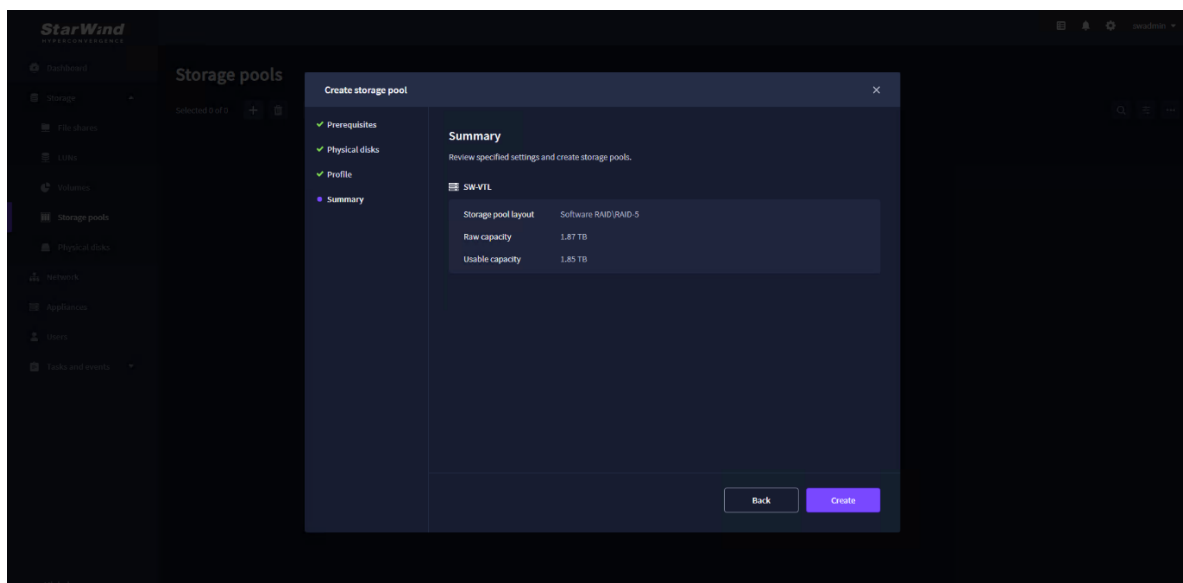
4. Select the drives to create a Linux Software RAID and click Next.



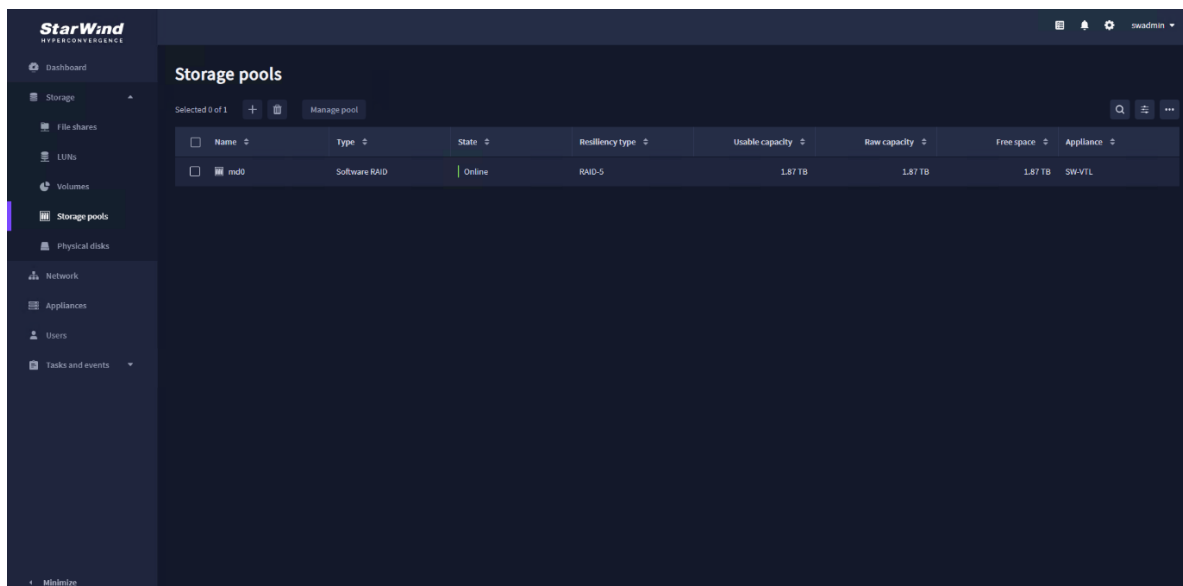
5. Select one of the preconfigured storage profiles or create a redundancy layout for the new storage pool manually according to your redundancy, capacity, and performance requirements. Click Next.



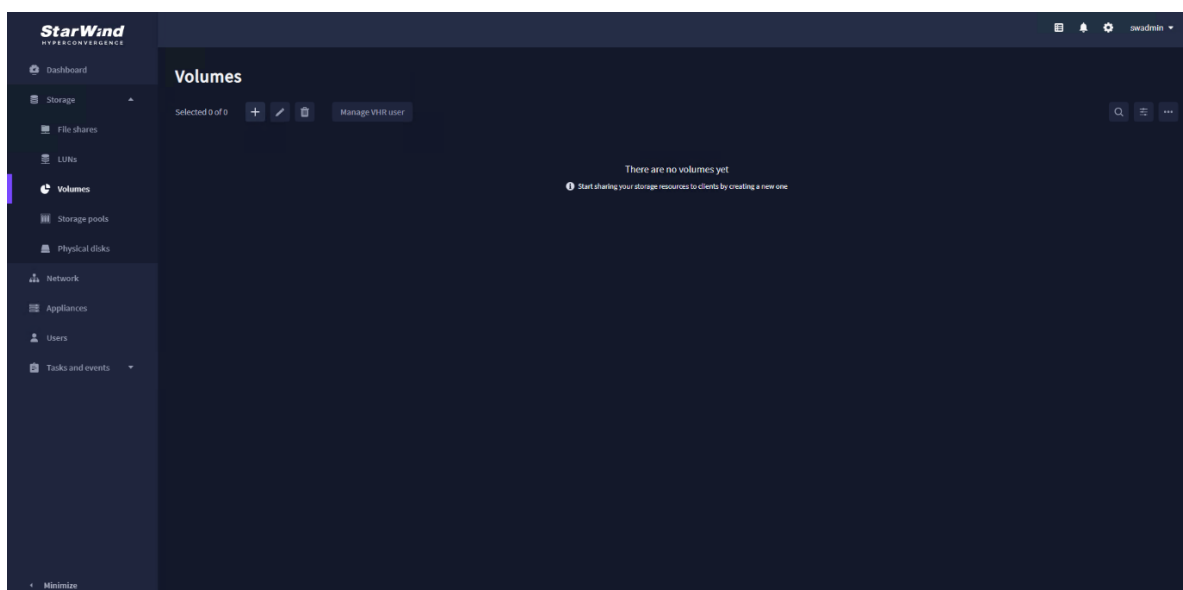
6. Review “Summary” and click the “Create” button to create the storage pool.



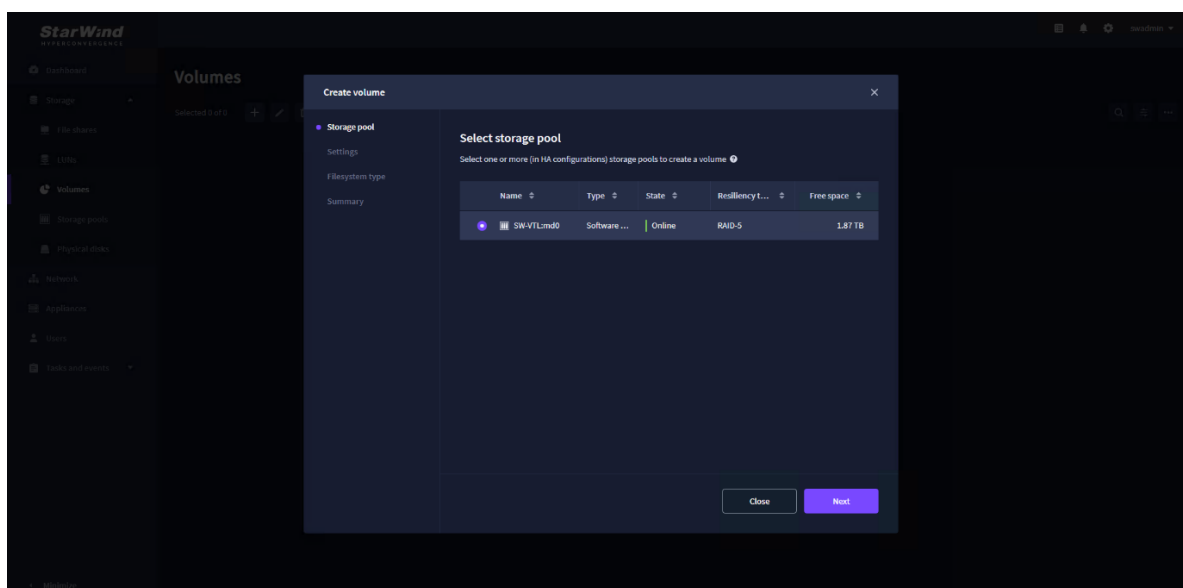
7. Wait until the Linux Software RAID synchronization process is fully complete and its state changes to Online.



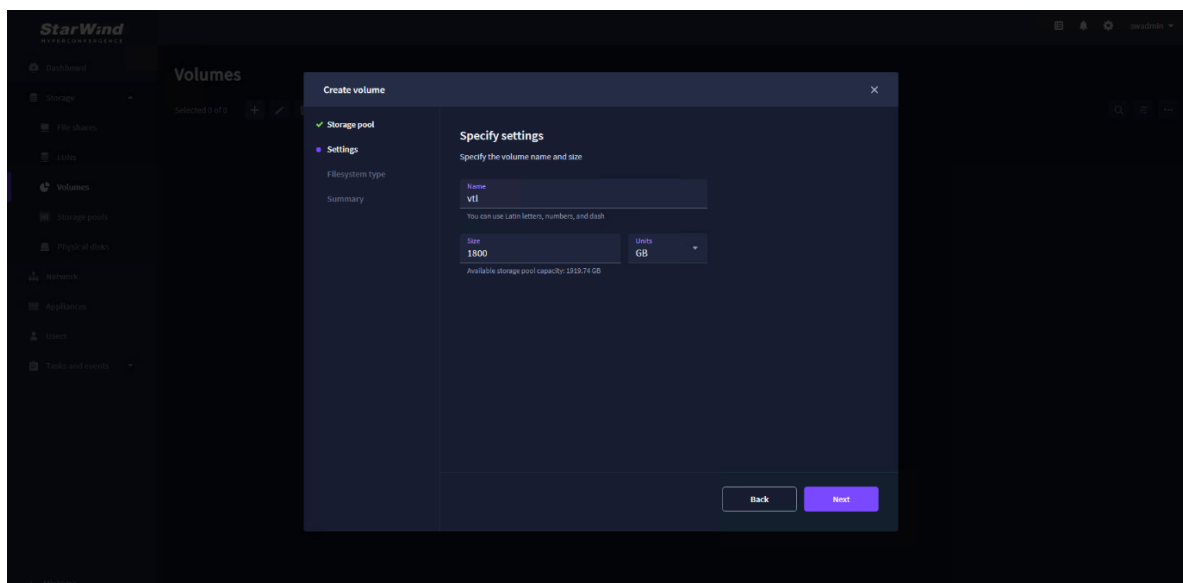
8. Once the storage pool is created, navigate to the “Volumes” tab and click the “+” button to open the “Create volume” wizard.



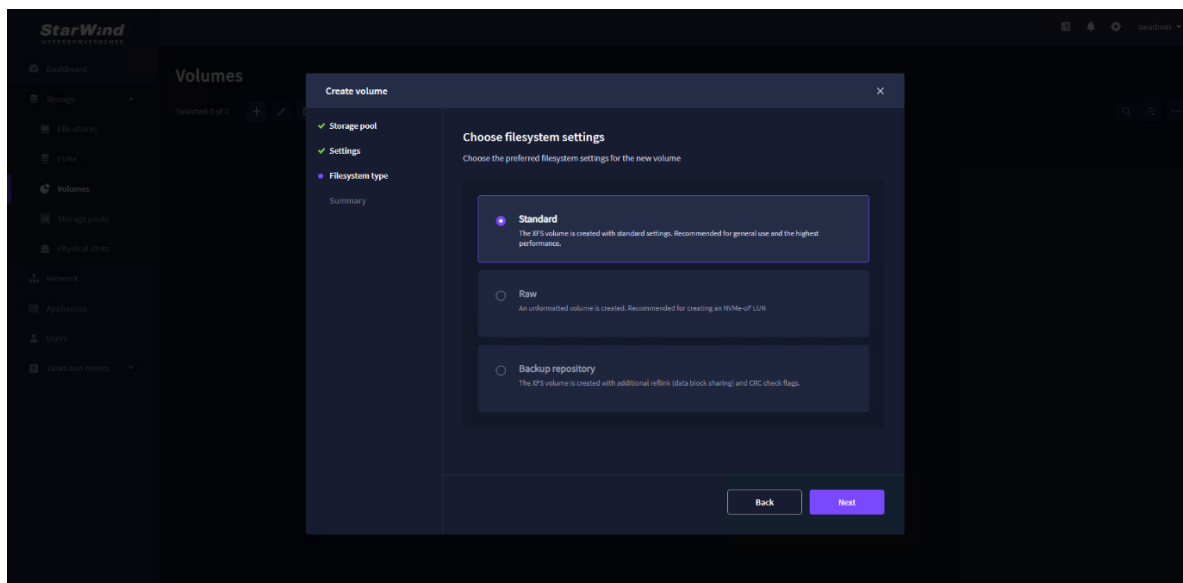
9. Select the storage pool that will be used for a new volume and click Next.



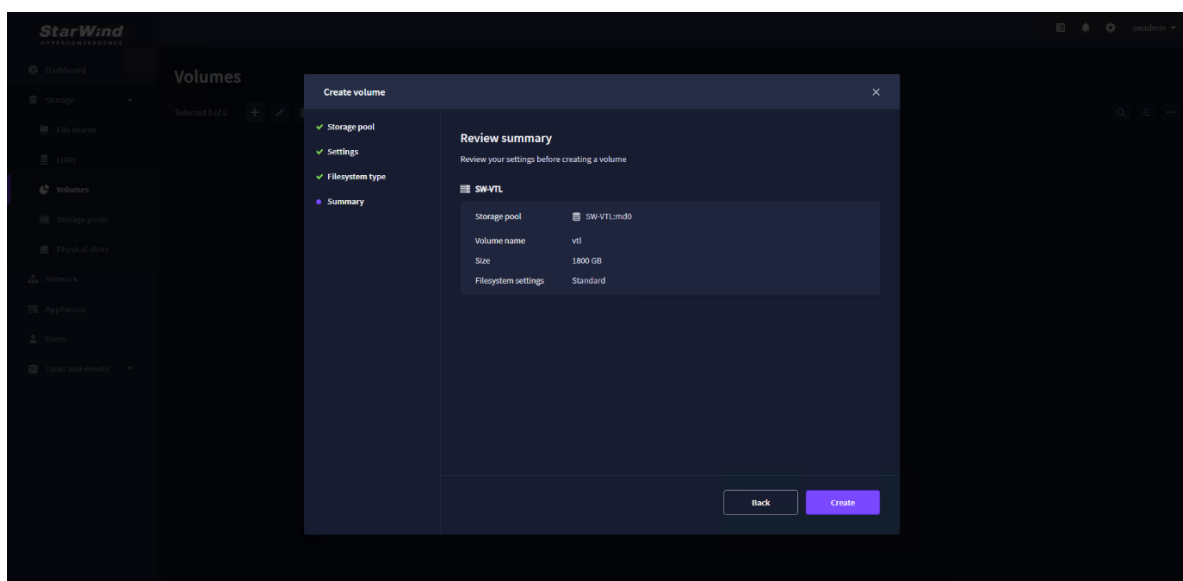
10. Specify the volume name and capacity. Click Next.



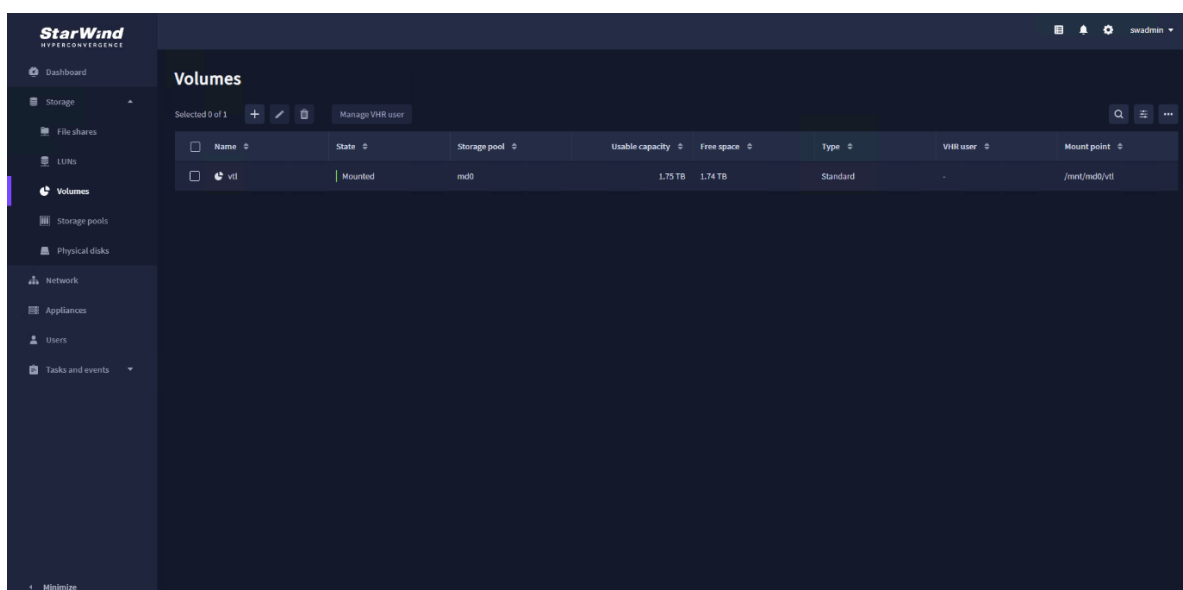
11. For StarWind VTL, only the “Standard” volume type is included in the licenses and selected automatically. Click Next.



12. Review Summary and click Create to create the volume.



13. The new Standard volume is created.

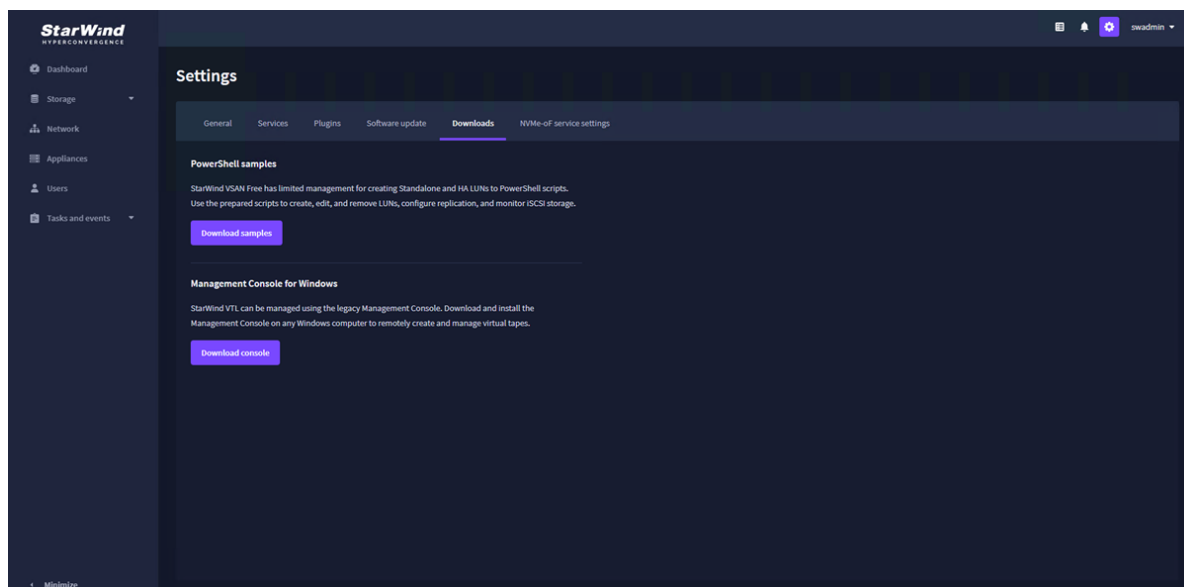


Creating Starwind Vtl Device

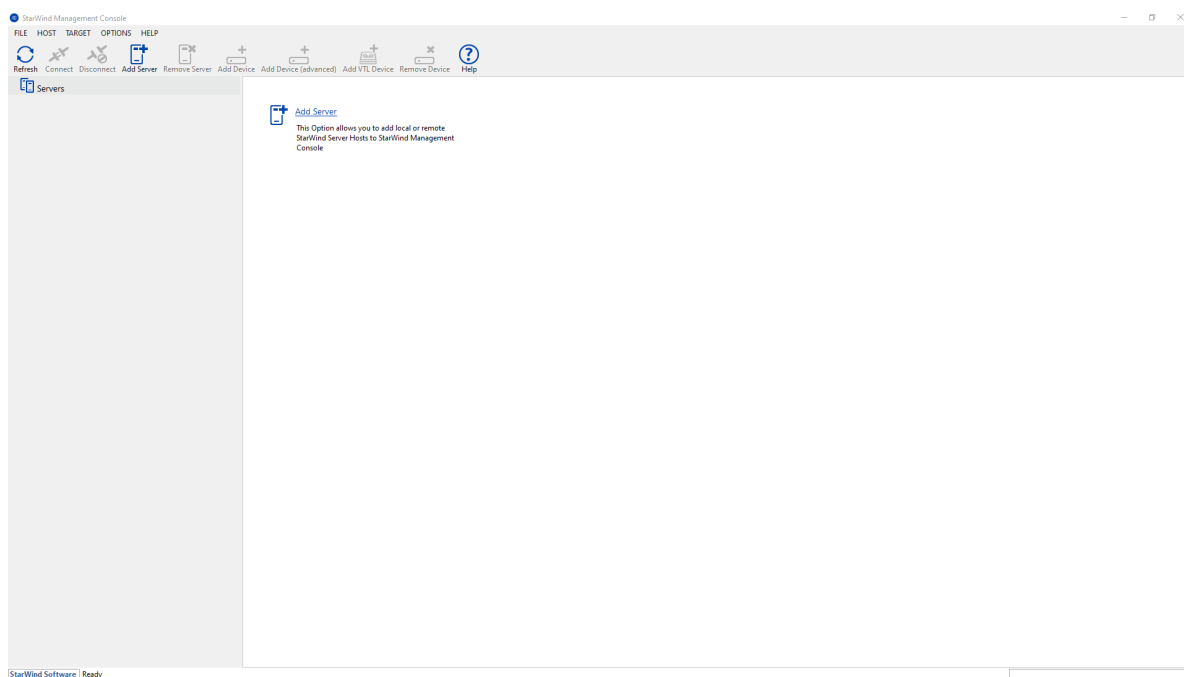
1. Click the “Settings” icon, navigate to Downloads and click Download Console. Install StarWind Management Console on the server where Veeam Backup & Replication software is installed or on a separate workstation or virtual machine with Windows OS (Windows 7 or higher, Windows Server 2008 R2 and higher).

NOTE: StarWind Management Console and PowerShell Management Library components

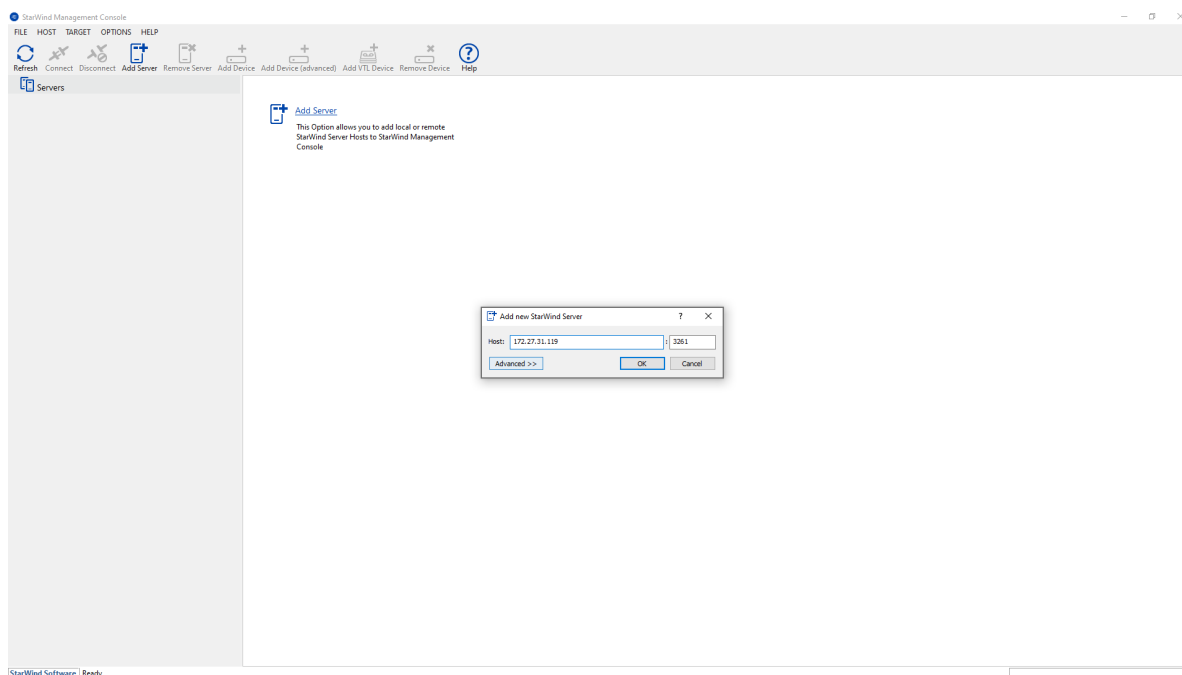
are required.



2. Open StarWind Management Console and click Add Server.

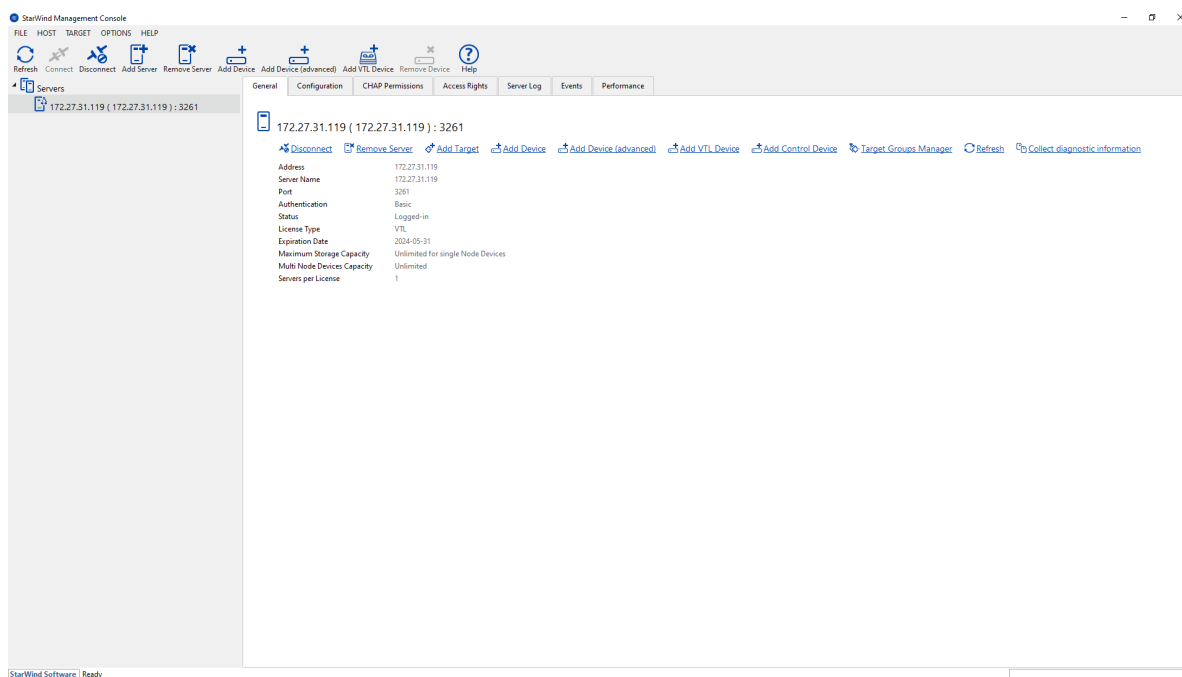


3. Enter the IP address of the StarWind Appliance in the pop-up window and click OK.



4. Select the server and click Connect.

5. Click the “Add VTL Device” button on the toolbar.



6. Specify the VTL device name and location to the storage pool and volume created in StarWind Appliance. Click Next.

? X

← Add Device Wizard

Virtual Tape Library

☒ Create a New Virtual Tape Library

Name:

Location: ...

☐ Use an Existing Virtual Tape Library

Location: ...

7. Select the Device Model from a drop-down list. You can also fill all slots in the newly created Tape Library with empty tapes. Click Next.

? ×

← Add Device Wizard

Select Device Model to emulate:

Device Model: HP MSL8096 LTO8 ▼

☐ Fill Storage Slots with Empty Tapes after Create

Next Cancel

8. Provide a Target Alias or choose the default one.

? X

← Add Device Wizard

Target Parameters

Choose a Target Attachment Method

Create new Target
▼

Target Alias

VTL1

☐ Target Name

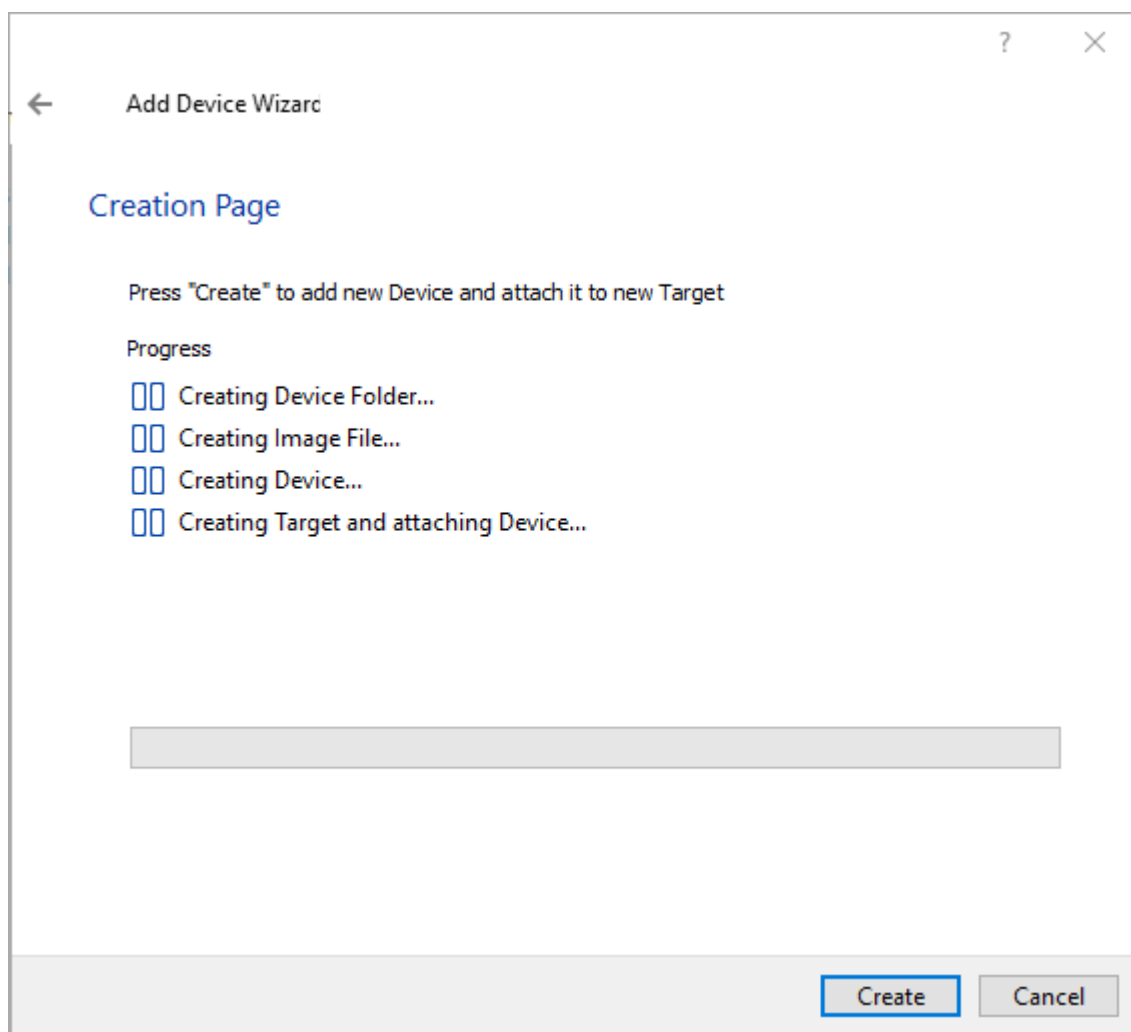
iqn.2008-08.com.starwindssoftware:172.27.31.119-vtl1

☒ Allow multiple concurrent iSCSI Connections

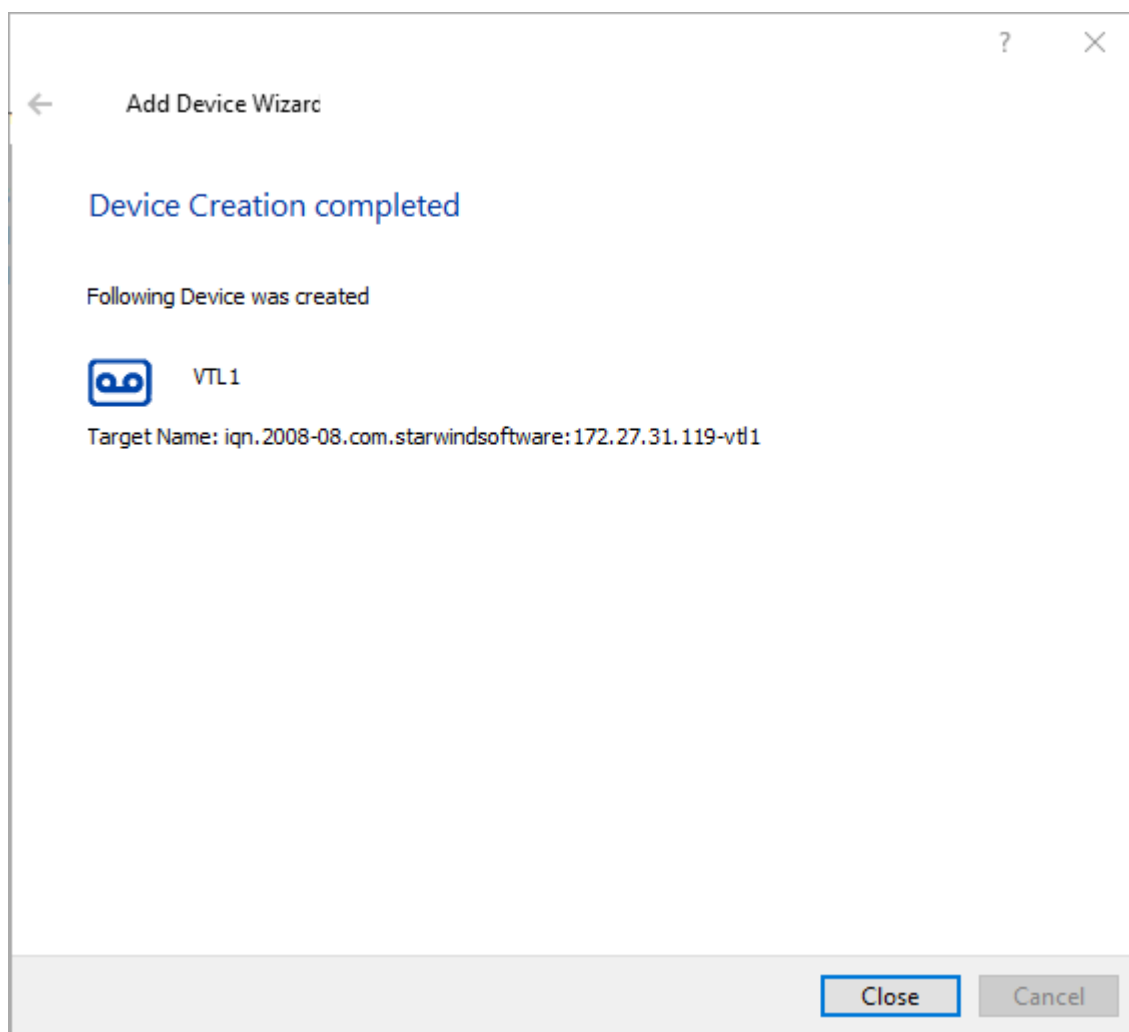
Next

Cancel

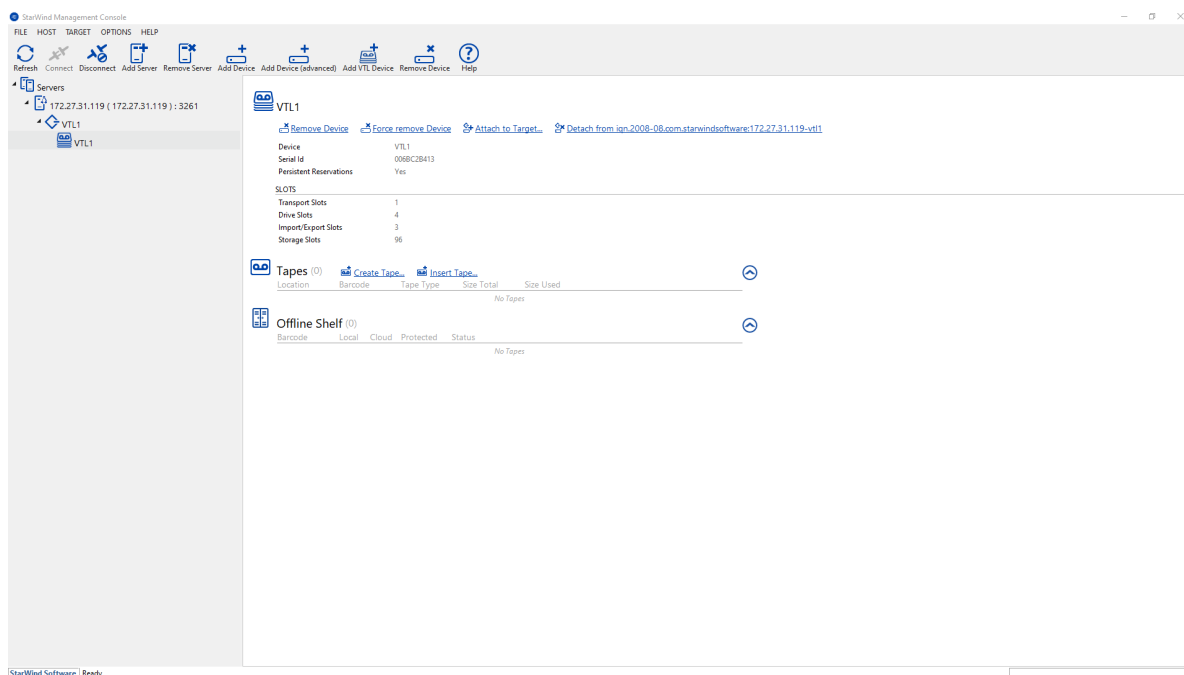
9. Press the Create button to start the creation process.



10. Once the device creation is completed, click Close.



11. Once the VTL device is created, the tapes can be added. To do this, select the VTL device and click the "Create Tape..." button located in the Tapes section.



12. Leave the Tape Files Location as default. Optionally, select the checkbox and specify the custom path where the tape files must be stored.

← Create Tape

Specify if Tape Files are Located in Custom

☐ Use Custom Path to Tape Files

Tape Files Location ...

Next Cancel

13. Specify the Number of Tapes and Tape Type. Additionally, you can specify Custom Barcode prefix, Custom Tape Size, and Split into Parts of the required size. Click Create.

← Create Tape

Specify Tape Parameters

☐ Custom Barcode

Barcode

Number of Tapes

Tape Type

☐ Custom Tape Size

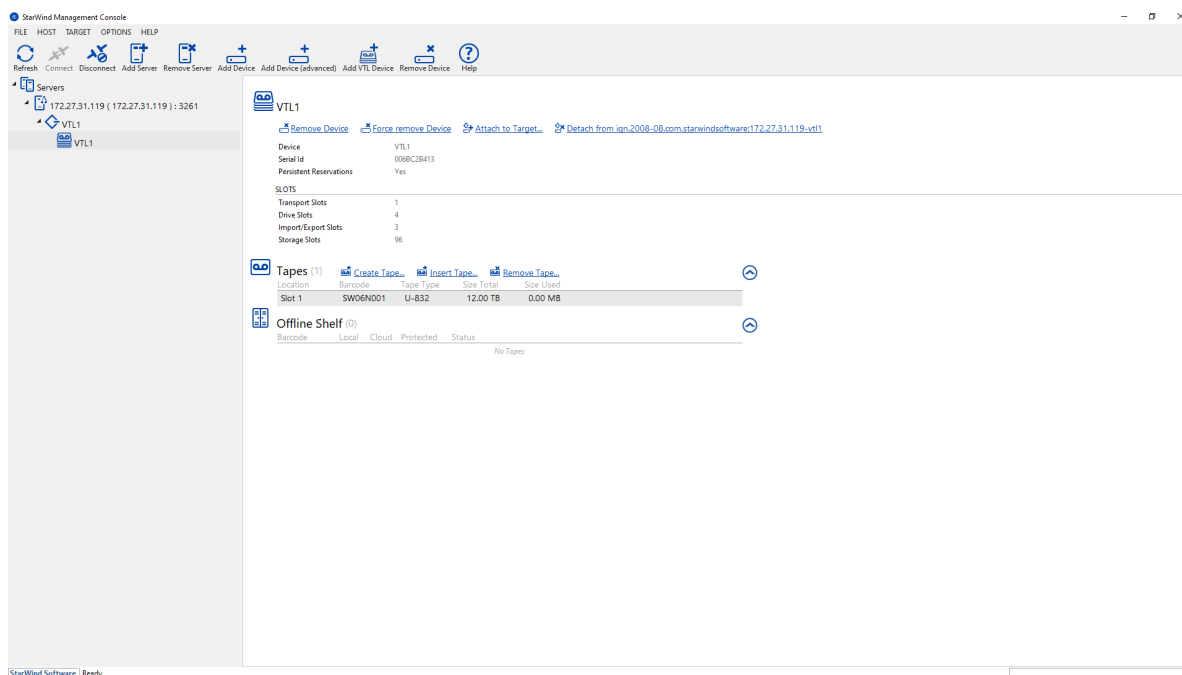
Tape Size GB

☐ Split Into Parts

Part Size GB

Create Cancel

14. The created tape appears in the first slot of the VTL device in the StarWind Management Console.



Mounting Vtl On The Backup Host

To pass-through the VTL device to the Windows server with Veeam Backup & Replication, the corresponding VTL iSCSI target should be mounted first.

1. Open Microsoft iSCSI Initiator, navigate to the Discovery tab, and press the Discover Portal button.

iSCSI Initiator Properties
✕

Targets
Discovery
Favorite Targets
Volumes and Devices
RADIUS
Configuration

Target portals

The system will look for Targets on following portals:

Refresh

Address	Port	Adapter	IP address

To add a target portal, click Discover Portal.

Discover Portal...

To remove a target portal, select the address above and then click Remove.

Remove

iSNS servers

The system is registered on the following iSNS servers:

Refresh

Name

To add an iSNS server, click Add Server.

Add Server...

To remove an iSNS server, select the server above and then click Remove.

Remove

OK

Cancel

Apply

2. Enter the IPv4 address of the Data (VTL traffic) network adapter in the StarWind Appliance and click the Advanced button.

Discover Target Portal
✕

Enter the IP address or DNS name and port number of the portal you want to add.

To change the default settings of the discovery of the target portal, click the Advanced button.

IP address or DNS name:

Port: (Default is 3260.)

3. Select Microsoft iSCSI Initiator from the Local Adapter drop-down list. Then, select the corresponding IP address that is used for VTL traffic on the Veeam Backup & Replication server and that is on the same subnet as the IPV4 address for Data (VTL traffic) on the StarWind Appliance. Click OK.

Advanced Settings ? X

General IPsec

Connect using

Local adapter: Microsoft iSCSI Initiator

Initiator IP: 172.16.30.20

Target portal IP:

CRC / Checksum

☐ Data digest ☐ Header digest

☐ Enable CHAP log on

CHAP Log on information

CHAP helps ensure connection security by providing authentication between a target and an initiator.

To use, specify the same name and CHAP secret that was configured on the target for this initiator. The name will default to the Initiator Name of the system unless another name is specified.

Name: iqn.1991-05.com.microsoft:veeam-ba-ol

Target secret:

☐ Perform mutual authentication

To use mutual CHAP, either specify an initiator secret on the Configuration page or use RADIUS.

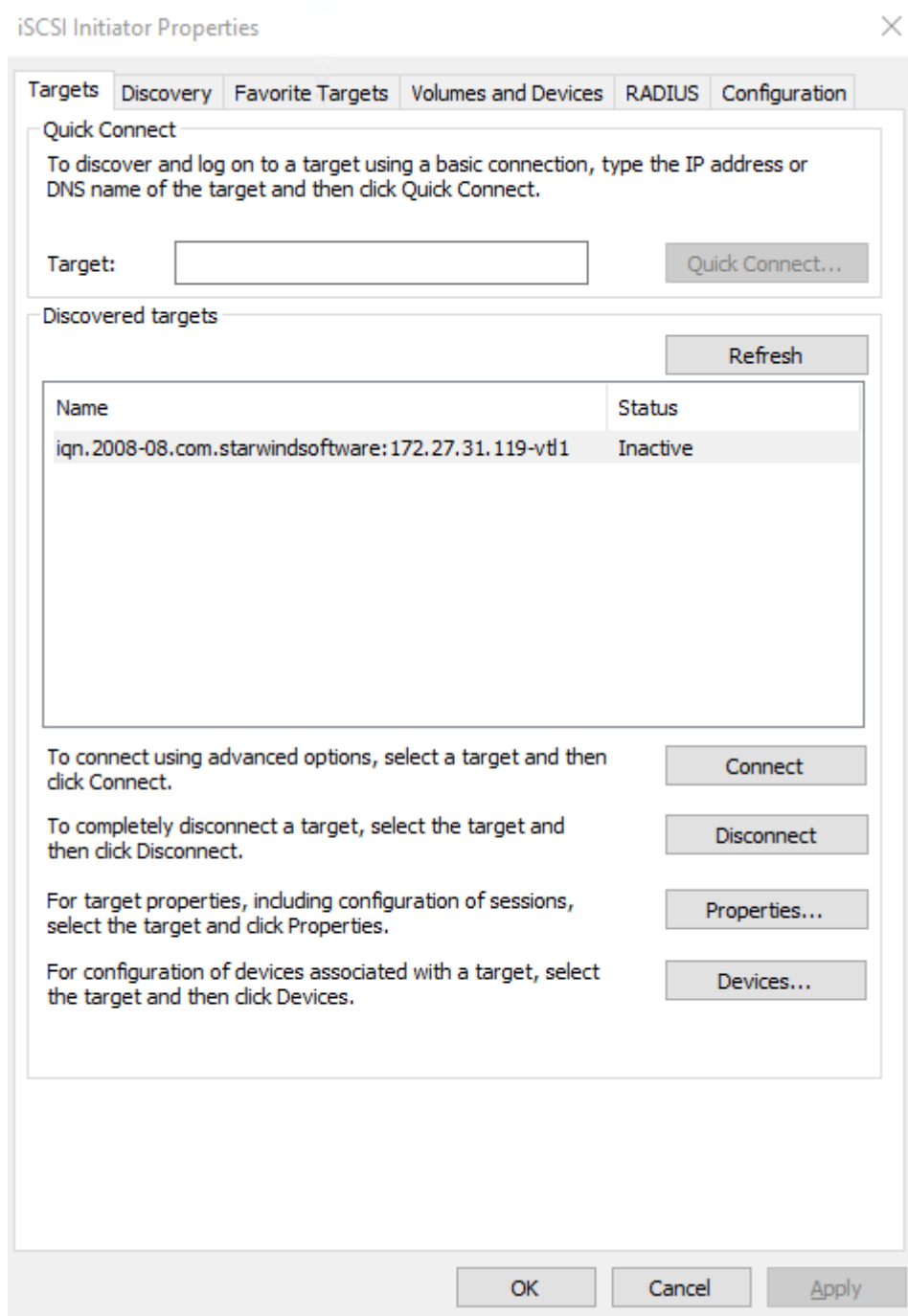
☐ Use RADIUS to generate user authentication credentials

☐ Use RADIUS to authenticate target credentials

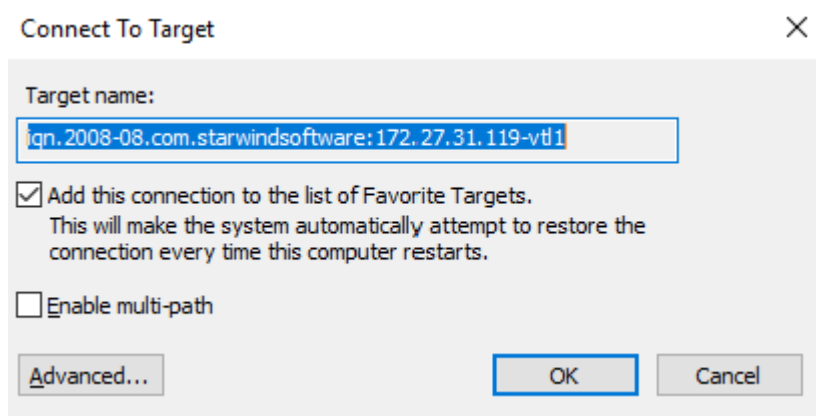
OK Cancel Apply

4. The newly added Discovery Portal will appear in the list.

5. Navigate to the Targets tab, and find the iSCSI target which corresponds to the StarWind VTL device.



6. Click the Connect button. Leave the Enable Multipath checkbox empty and press the Advanced button.



7. Set Local adapter as Microsoft iSCSI Initiator, specify the corresponding Initiator and Target portal IP addresses that correspond to Data (VTL traffic) IPv4 addresses on StarWind Appliance and Veeam Backup & Replication server. Click OK.

Advanced Settings ? X

General IPsec

Connect using

Local adapter: Microsoft iSCSI Initiator

Initiator IP: 172.16.30.20

Target portal IP: 172.16.30.10 / 3260

CRC / Checksum

☐ Data digest ☐ Header digest

☐ Enable CHAP log on

CHAP Log on information

CHAP helps ensure connection security by providing authentication between a target and an initiator.

To use, specify the same name and CHAP secret that was configured on the target for this initiator. The name will default to the Initiator Name of the system unless another name is specified.

Name: iqn.1991-05.com.microsoft:veeam-ba-ol

Target secret:

☐ Perform mutual authentication

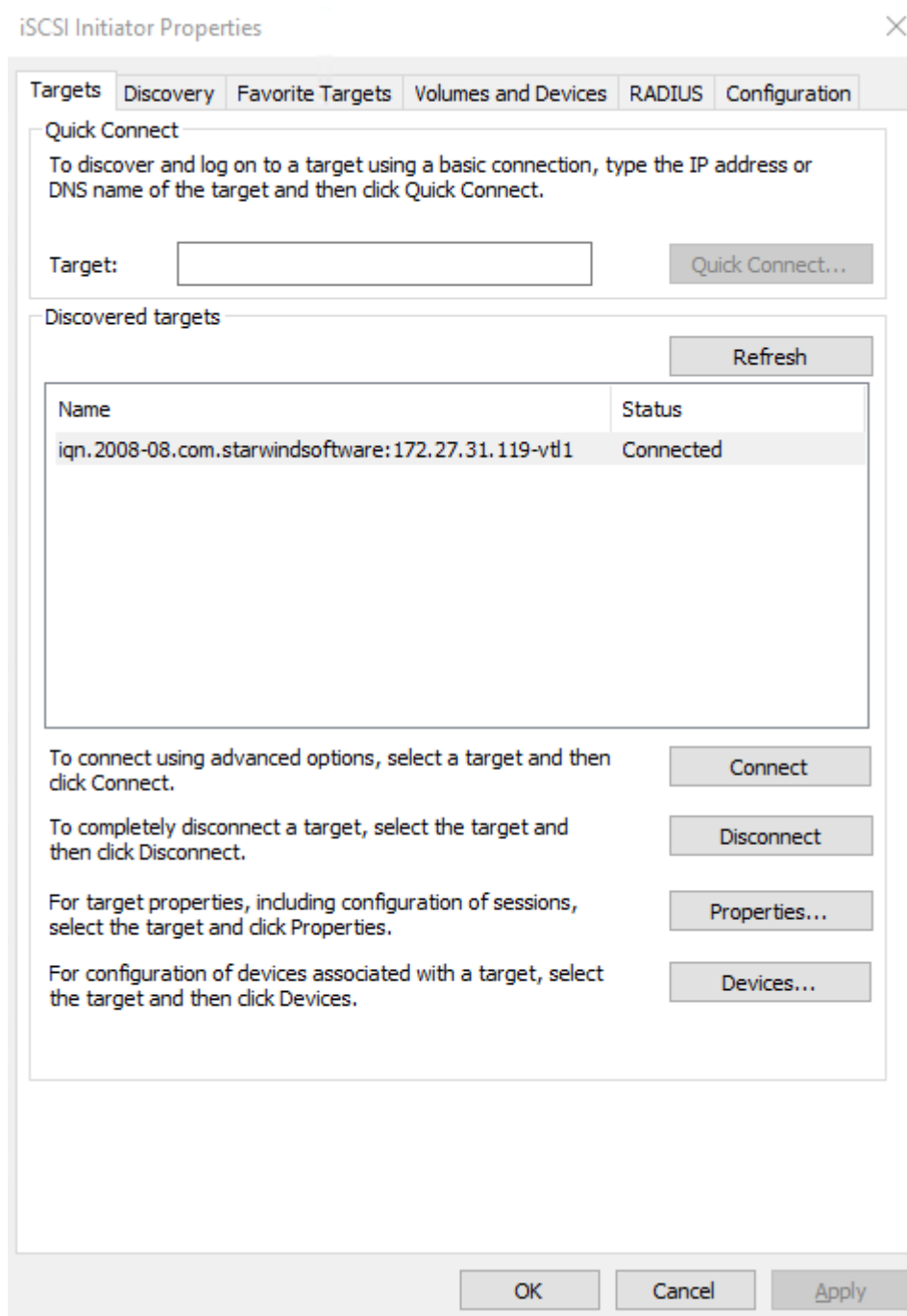
To use mutual CHAP, either specify an initiator secret on the Configuration page or use RADIUS.

☐ Use RADIUS to generate user authentication credentials

☐ Use RADIUS to authenticate target credentials

OK Cancel Apply

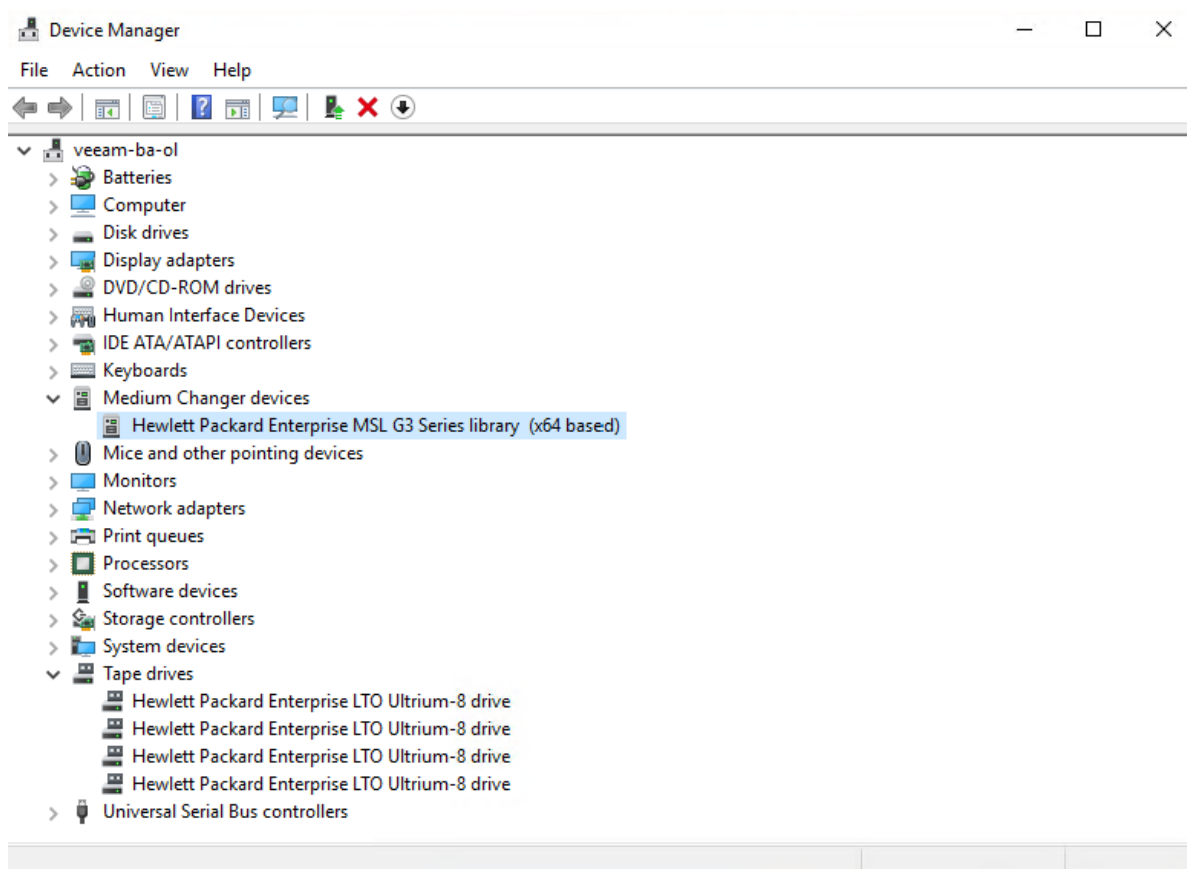
8. The VTL iSCSI target should be shown as Connected in the list.



9. Install the tape library drivers.

- The driver for HP MSL8096 can be downloaded here: [HPE StoreEver Tape Drivers for Microsoft Windows](#)
- The driver for IBM TS03584 can be downloaded here: <https://www.ibm.com/docs/en/spectrum-archive-le/2.4.0.0?topic=system-installing-tape-driver-windows>

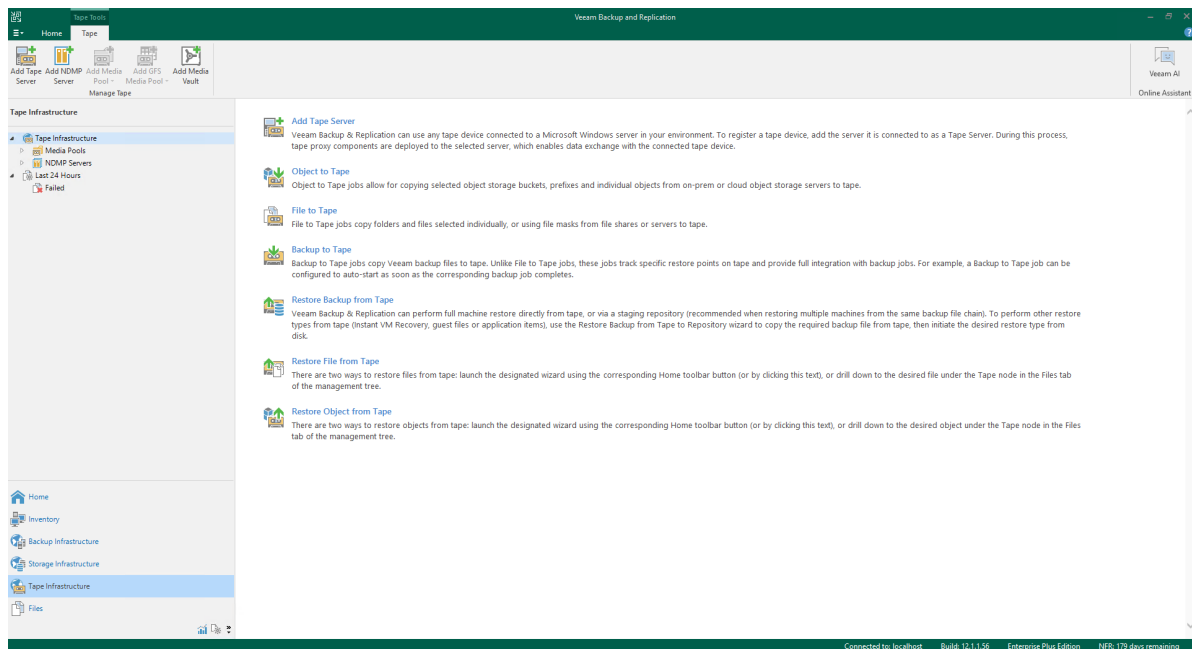
10. Once the drivers are installed, the Medium Changer devices is shown as Hewlett Packard MSL G3 Series library (x64 based) in this example.



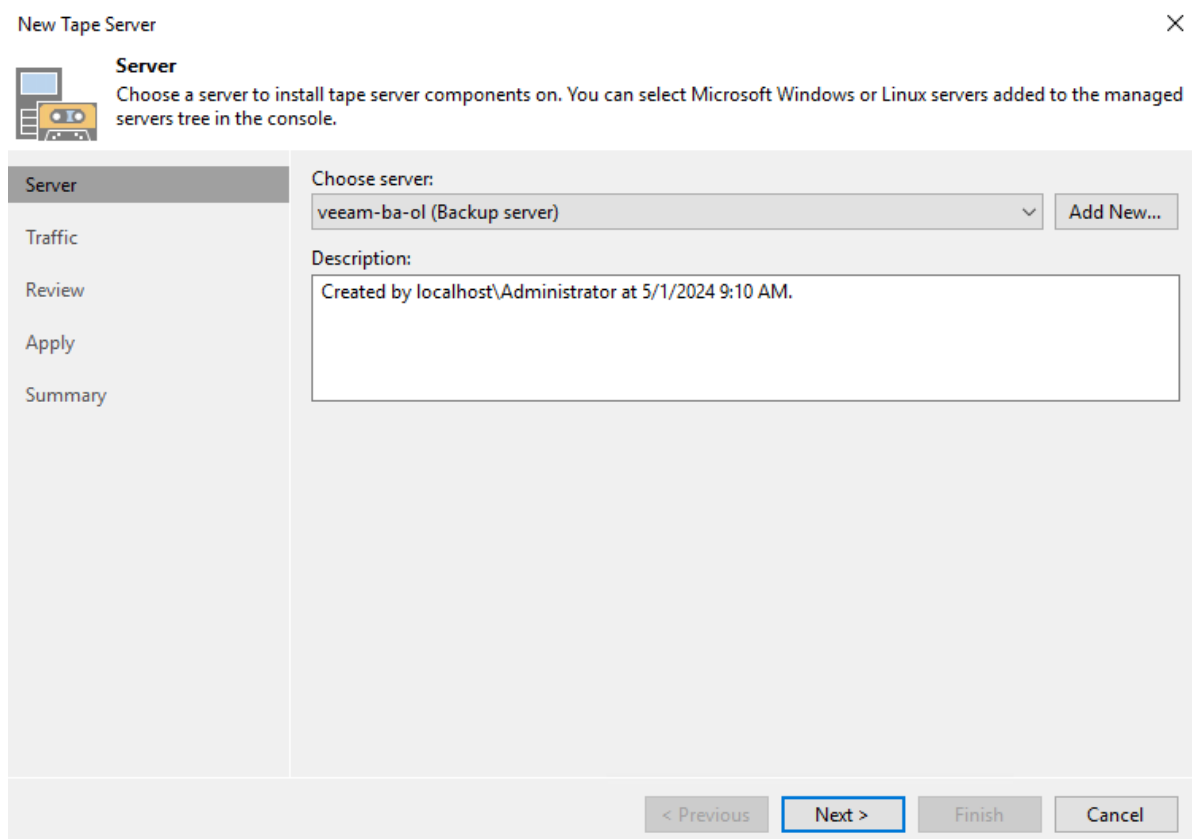
11. The tape library is ready to be added to Veeam Backup & Replication.

Adding Starwind Vtl To Veeam Backup & Replication

1. Open Veeam Backup & Replication. Open the Tape Infrastructure tab and click Add Tape Server.




2. Choose the local server and press Next.



3. Review the network traffic rules and change them if required. Click Next, then click Apply.

New Tape Server

×



Traffic
Review the network traffic rules that apply to this server.

Server

Traffic

Review

Apply

Summary

Network traffic rules control encryption and throttling of network traffic based on the destination. Throttling is global, with set bandwidth split equally across all backup proxies falling into the rule.

The following network traffic rules apply to this proxy:

Name	Encryption	Throttling	Time period
Internet	Enabled	Disabled	

[Manage network traffic rules](#)

View

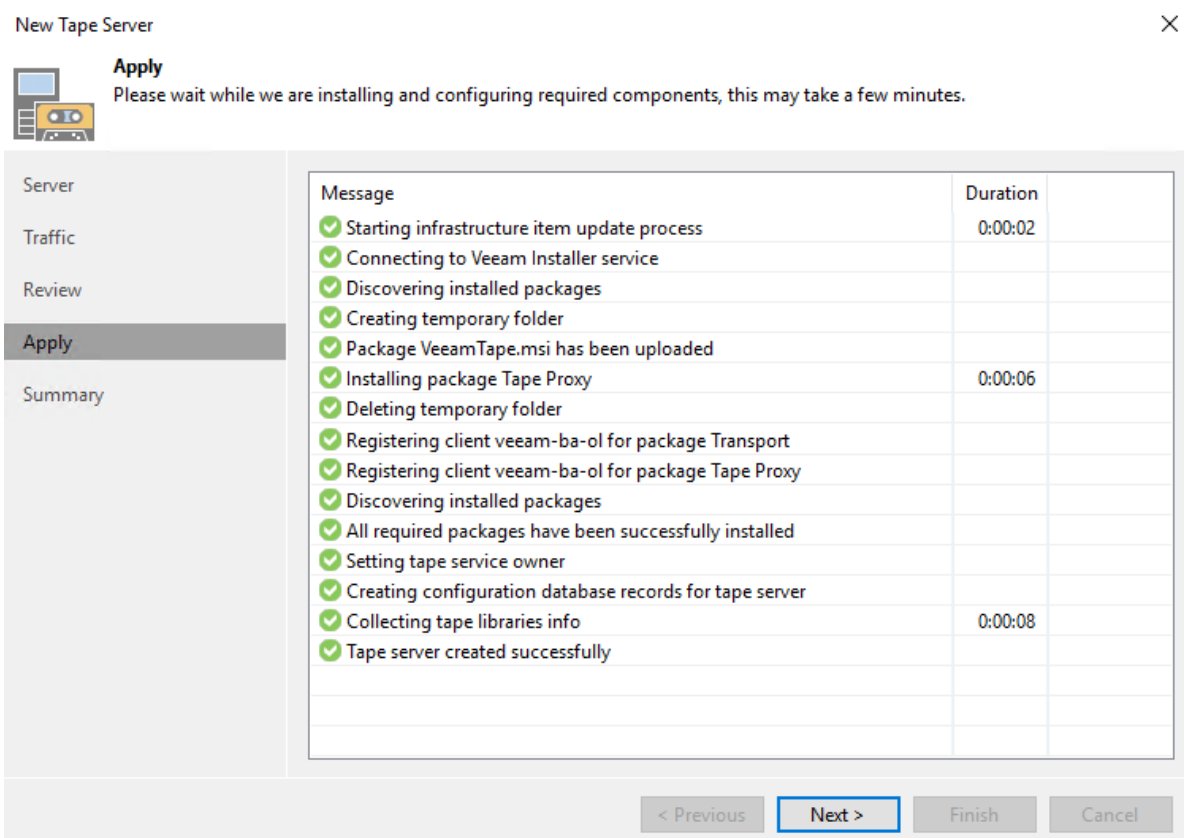
< Previous

Next >

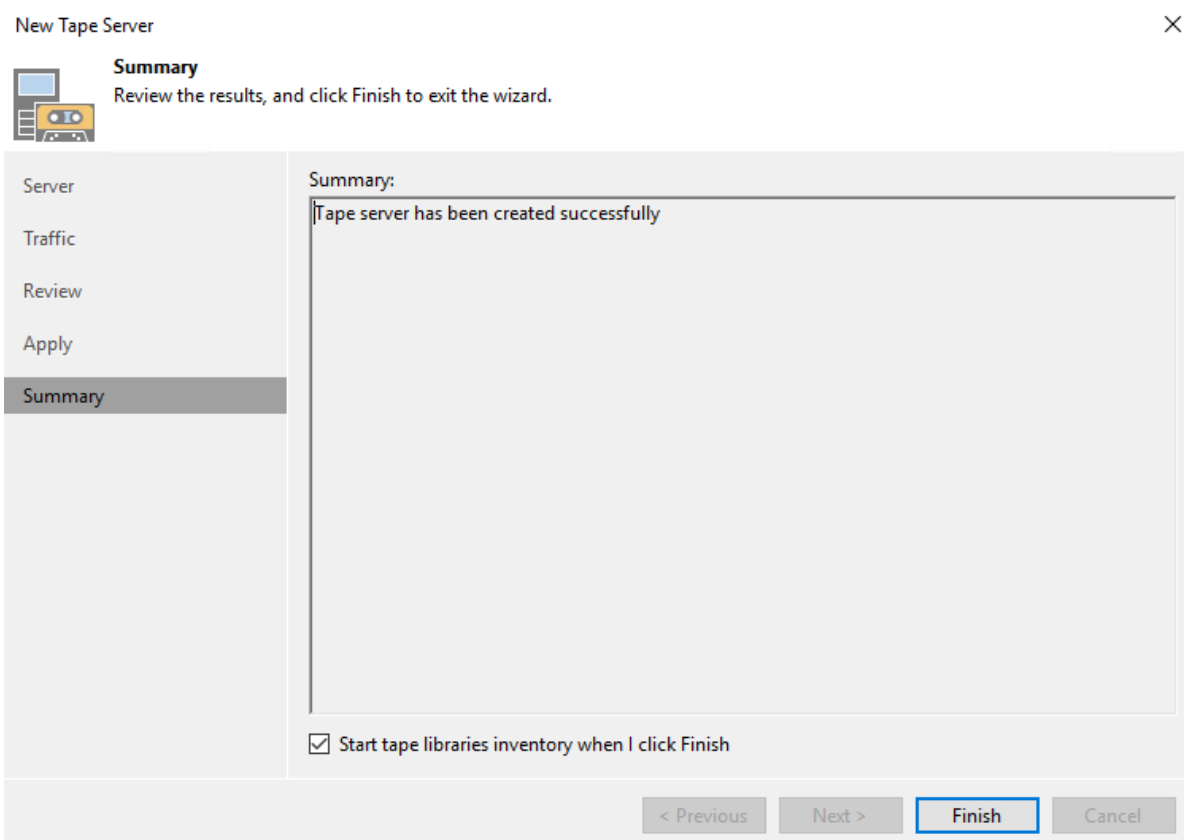
Finish

Cancel

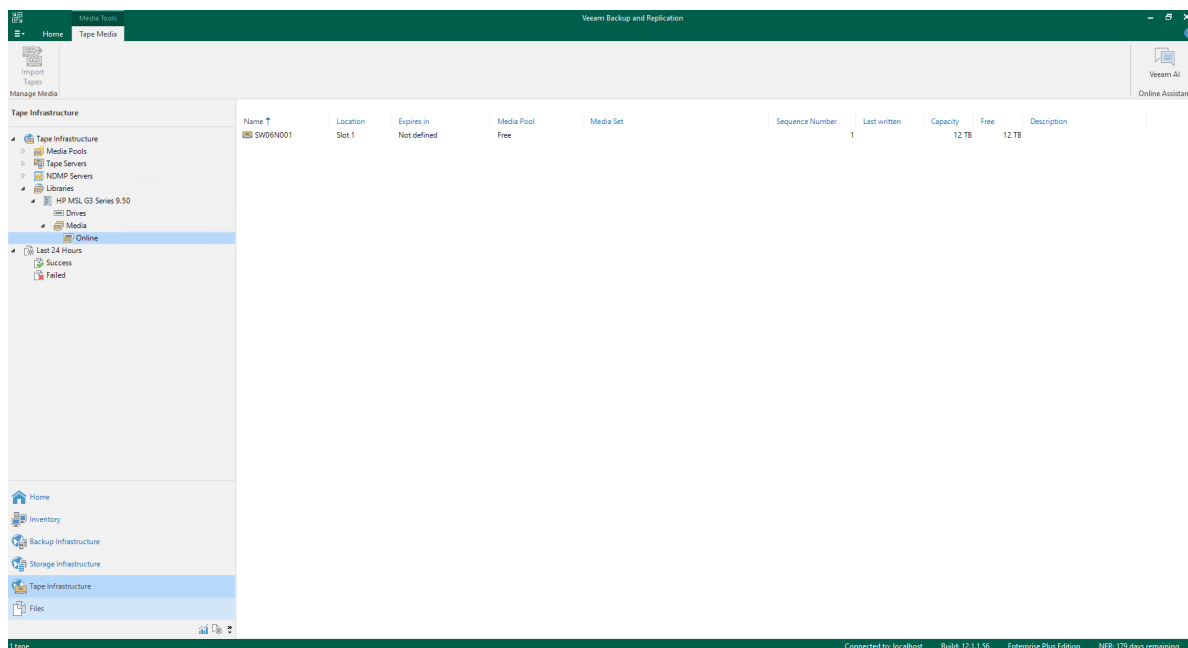
4. Once the Tape Server has been added, click Next.



5. Click Finish to start the tape libraries inventory.

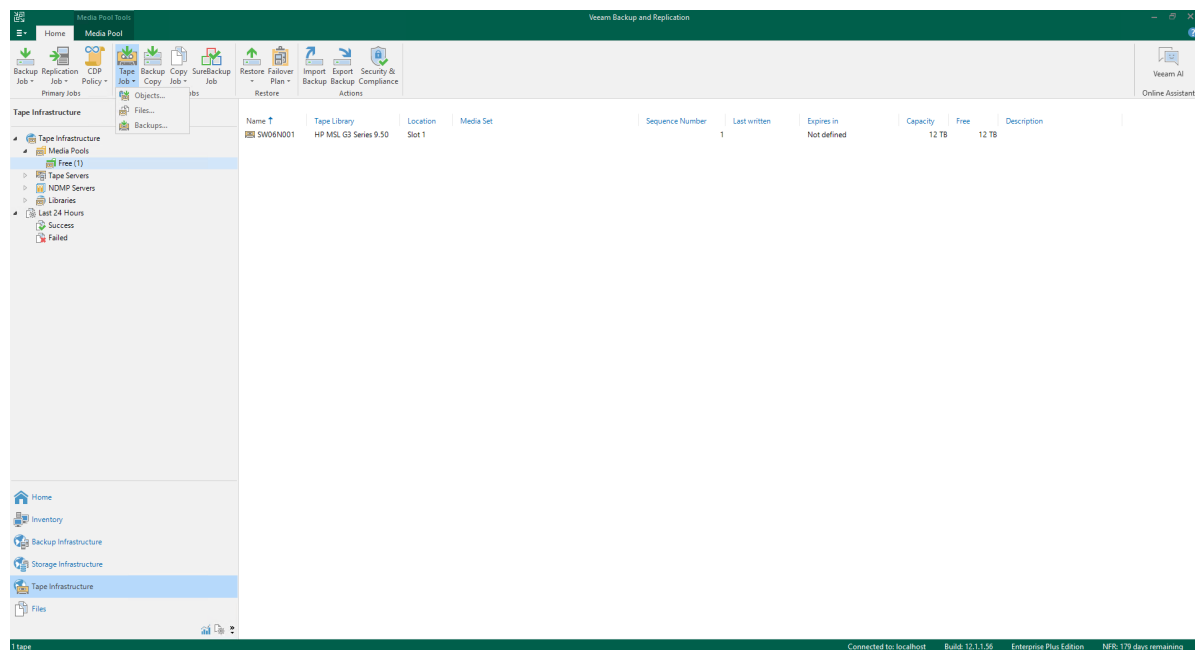


6. After the Tape Inventory job is finished, the newly added tape library device with StarWind tape will appear. The tape is automatically added to the Free Media Pool.




Performing Backup To Starwind Vtl

1. In Veeam Backup & Replication, navigate to the Home page, select Tape Job and then select Files.



2. Specify the job Name and Description.

New File to Tape Job
×

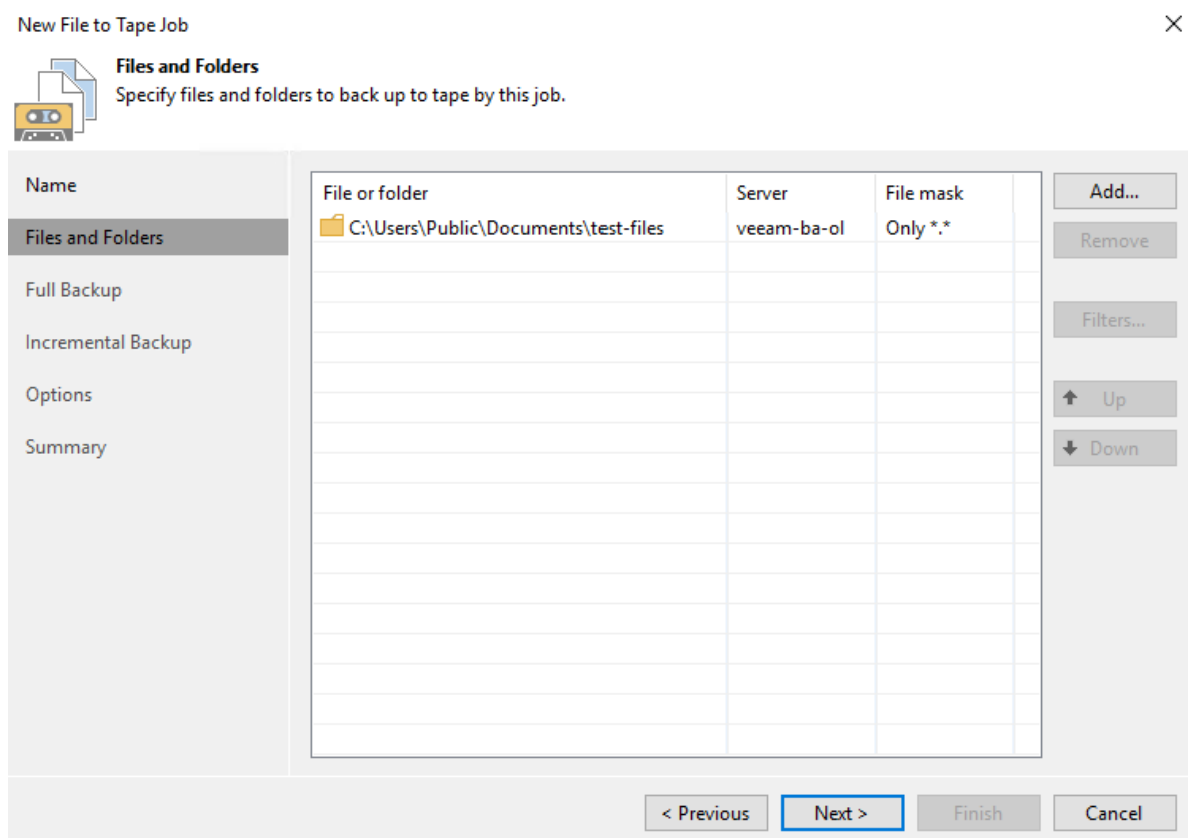


Name
Type in a name and description for this job.

Name	Name: <input type="text" value="File to Tape Job 1"/>
Files and Folders	Description: <input type="text" value="Created by localhost\Administrator at 5/1/2024 10:23 AM."/>
Full Backup	
Incremental Backup	
Options	
Summary	

< Previous
Next >
Finish
Cancel


3. Specify the files and folders to be backed up. Click Next.



4. Create a new Standard Media Pool by clicking the “Add New...” button.

New File to Tape Job

×



Full Backup
Choose media pool and set schedule for full backups.

Name

Files and Folders

Full Backup

Incremental Backup

Options

Summary

Media pool for full backup:

Add New...

☐ Run the full backup automatically

☒ Daily at this time:

6:00 PM

On these days

Days...

☐ Monthly at this time:

10:00 PM

Fourth

Saturday

Months...

< Previous


Next >

Finish

Cancel

5. Specify the media pool name. Click Next.

New Media Pool
×

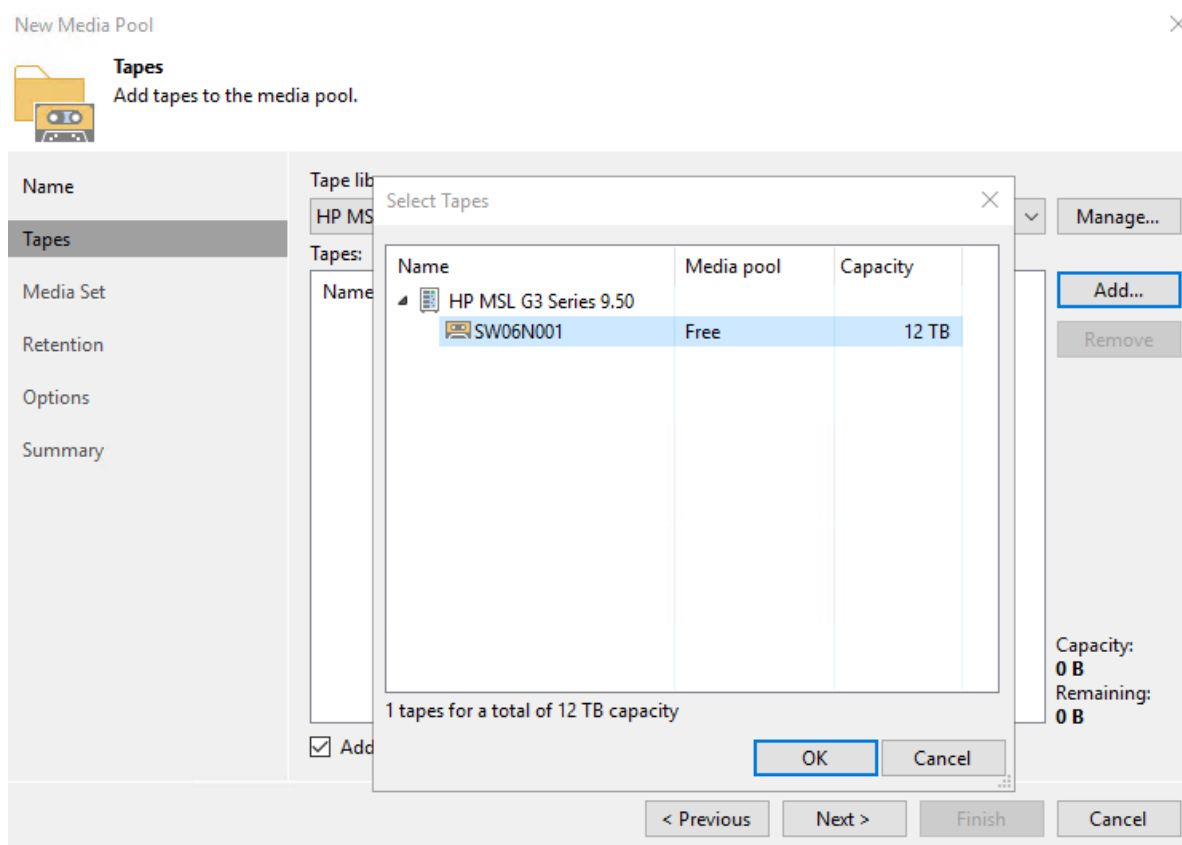


Name
Type in name and description for the media pool.

Name	Name: <input type="text" value="VTL"/>
Tapes	Description: <input type="text" value="Created by VEEAM-BA-OL\Administrator at 5/1/2024 10:25:16 AM."/>
Media Set	
Retention	
Options	
Summary	


< Previous
Next >
Finish
Cancel

6. Select the StarWind VTL tape library and add tapes from the Free media pool. Click OK.



7. The new tape has been added. Click Next.



New Media Pool
×


Tapes
Add tapes to the media pool.

Name
Tapes
Media Set
Retention
Options
Summary

Tape library:
HP MSL G3 Series 9.50 (veeam-ba-ol) Manage...

Tapes:

Name	Capacity	Remaining
<div>  HP MSL G3 Series 9.50  SW06N001 </div>	12 TB	12 TB

Add...
Remove


Capacity:
12 TB
Remaining:
12 TB

☒ Add tapes from Free media pool automatically when more tapes are required

< Previous
Next >
Finish
Cancel

8. Enter Media set name. Specify the automatic creation settings if necessary. Click Next.

New Media Pool
×


Media Set
Specify media set name and how often a new media set should be automatically created.


Name
Tapes
Media Set
Retention
Options
Summary

Media set name:

Automatically create new media set
☒ Do not create, always continue using current media set
☐ Create new media set for every backup session
☐ Daily at

9. Specify the tape Retention settings. Click Next.

New Media Pool
×


Retention
Specify the tape retention settings for this media pool.

Name
Tapes
Media Set
Retention
Options
Summary

Data retention policy

☐ Do not protect data (cyclically overwrite tapes as required)
☐ Protect data for
☒ Never overwrite data

Offline media tracking

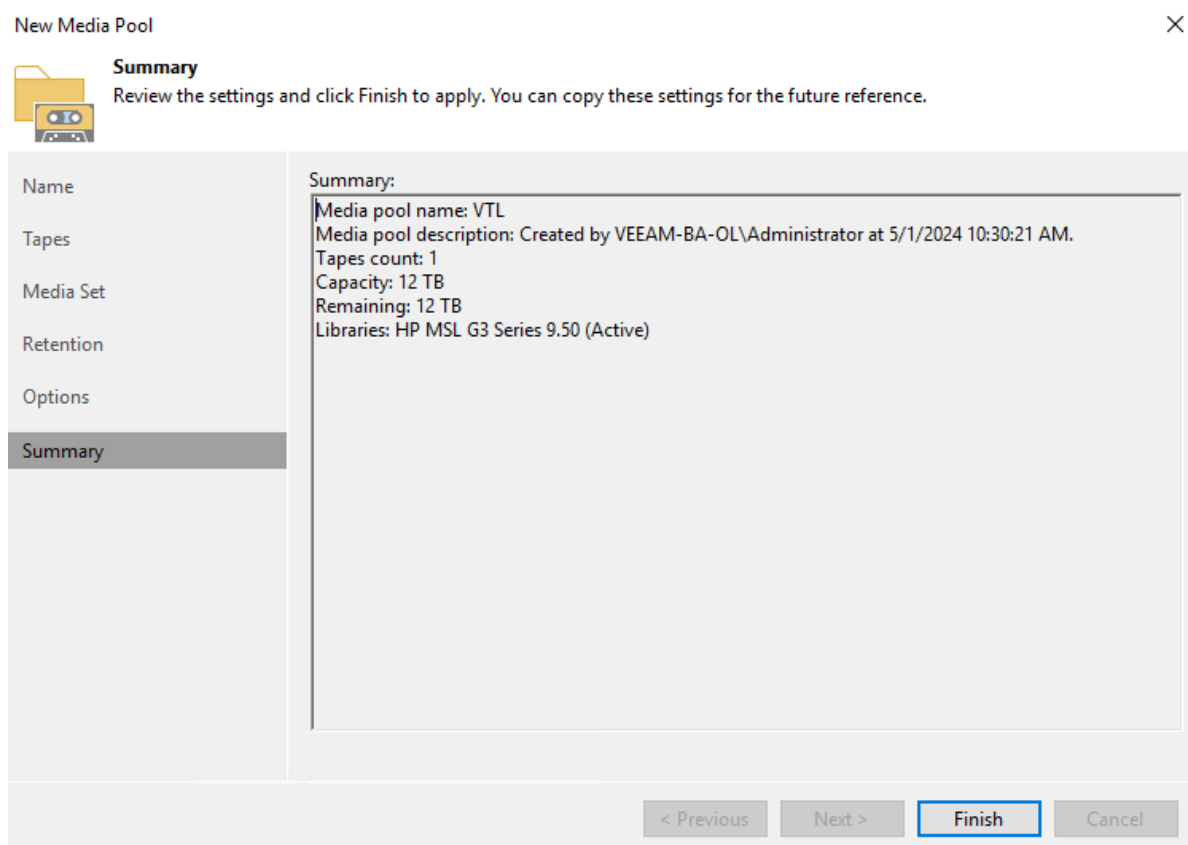
☐ Move all offline tapes from this media pool into the following media vault:

Add New...

< Previous
Next >
Finish
Cancel


10. Specify additional settings if required and click Apply.

11. Review the Summary and click Finish.



12. Select the Media pool for full backup and set the schedule if necessary. Click Next.

New File to Tape Job
×




Full Backup
Choose media pool and set schedule for full backups.

Name	Media pool for full backup:		
Files and Folders	VTL (HP MSL G3 Series 9.50) Add New...		
Full Backup	Tapes:	1	
Incremental Backup	Capacity:	12 TB	
Options	Remaining:	12 TB	
Summary	WORM:	False	
<input type="checkbox"/> Run the full backup automatically			
<input checked="" type="radio"/> Daily at this time:		6:00 PM	On these days Days...
<input type="radio"/> Monthly at this time:		10:00 PM	Fourth ▼ Saturday ▼ Months...

< Previous
Next >
Finish
Cancel

13. Select Media pool for incremental backup and set the schedule if necessary. Click Next.

New File to Tape Job
×



Incremental Backup
Choose media pool and set schedule for incremental backups.

Name Files and Folders Full Backup Incremental Backup Options Summary	Media pool for incremental backup:			
	VTL (HP MSL G3 Series 9.50) ▼			Add New...
	Tapes:	1		
	Capacity:	12 TB		
	Remaining:	12 TB		
	WORM:	False		
	<input type="checkbox"/> Run incremental backup automatically			
<input checked="" type="radio"/> Daily at this time:		3:00 AM ▼	On weekdays ▼	Days...
<input type="radio"/> Monthly at this time:		10:00 PM ▼	Fourth ▼	Saturday ▼ Months...

< Previous
Next >
Finish
Cancel

14. Specify the additional settings if required and check the Export current media set upon job completion box to automatically move StarWind virtual tape to the offline shelf. It is also recommended to Eject media upon job completion. Click Apply.

New File to Tape Job
×



Options
Specify tape job options.

Name	General
Files and Folders	<input checked="" type="checkbox"/> Use Microsoft volume shadow copy (VSS) <small>Enables backup of files locked by running applications and provides file-level quiescence. Requires Microsoft Windows machine or SMB v3 file share with VSS compatible backup proxy as a source.</small>
Full Backup	
Incremental Backup	Media automation
Options	<input checked="" type="checkbox"/> Eject tape media upon job completion <small>This option makes the job automatically eject tape from drives upon completion, so that tape does not stay in the drive, which is a best practice.</small>
Summary	<input checked="" type="checkbox"/> Export current media set upon job completion Days... <small>This option makes the job automatically close and export the current media set on specific days.</small>
	<small>Advanced job settings include compression, notification settings, automated post-job activity and other settings.</small> Advanced...

< Previous
Apply
Finish
Cancel

15. Check the summary. For immediate job execution, select Run the job when I click Finish and click Finish.

New File to Tape Job



Summary

You can copy the job settings below for the future reference.

<p>Name</p> <p>Files and Folders</p> <p>Full Backup</p> <p>Incremental Backup</p> <p>Options</p> <p>Summary</p>	<p>Summary:</p> <p>Name: File to Tape Job 1 Media pool for full backups: VTL Media pool for incremental backups: VTL</p> <p>PowerShell cmdlet for starting the job: Get-VBRTapeJob -Name "File to Tape Job 1" Start-VBRJob</p> <p><input checked="" type="checkbox"/> Run the job when I click Finish</p>
---	---

16. The job status can be monitored from the Jobs - Tape tab.

The screenshot shows the Veeam Backup and Replication console. The left sidebar has a tree view with 'Jobs' expanded, showing 'Tape' and 'Backups'. The 'Tape' tab is selected. The main pane shows a table of jobs with columns: Job Name, Session Type, Status, and Start Time. The job 'File to Tape Job 1 (Full) (HP...)' is highlighted, showing a status of '99% completed' and a start time of '3/1/2024 10:49 AM'.

Below the table, there is a 'Job progress' bar showing 99% completion. To the right, a 'THROUGHPUT (LAST 5 MIN)' graph shows a speed of 449 MB/s.

At the bottom, a 'SUMMARY' table provides details:

SUMMARY		DATA		STATUS	
Duration:	00:42	Processed:	4.4 GB (99%)	Success:	1
Processing rate:	287 MB/s	Read:	4.4 GB	Warnings:	0
Bottleneck:	Target	Transferred:	4.4 GB (1x)	Errors:	0

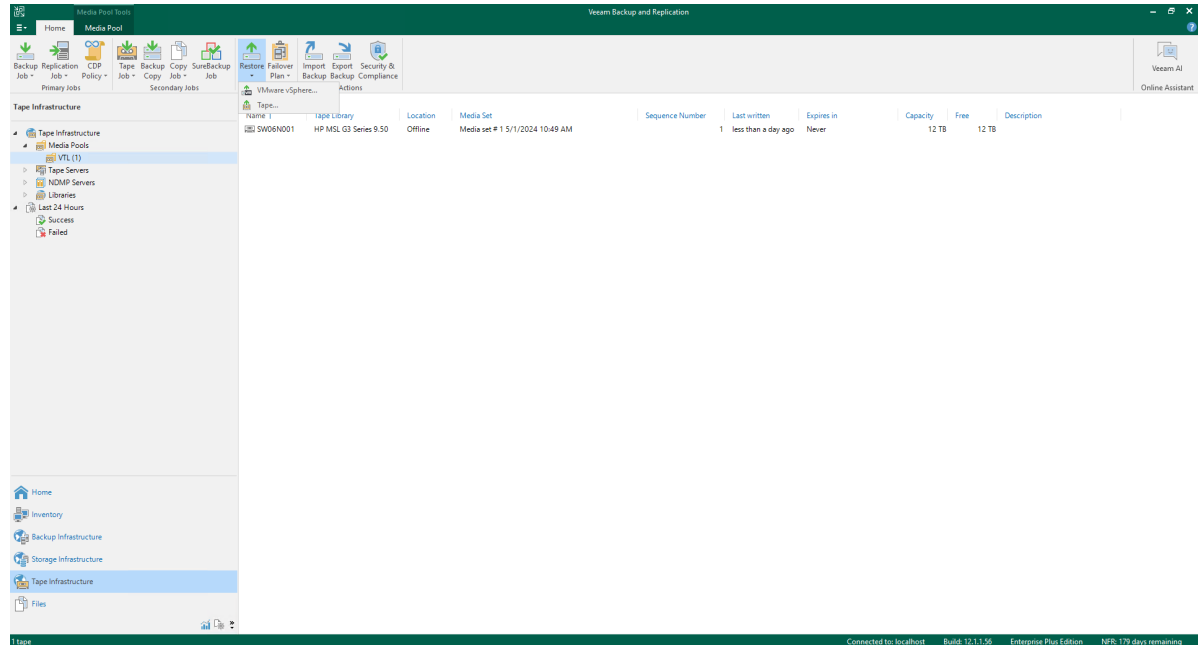
Below the summary, a 'Host' section shows the status of the 'veeam-ba-01' host as 'Success'. An 'Action' log shows the following steps:

- Job started at 3/1/2024 10:49:02 AM
- Processing tasks
- Building volume list...
- Total backup job size: 1 files and 1 folders (4.4 GB)
- All hosts have been queued for processing
- Processing veeam-ba-01

The bottom status bar indicates 'Connected to localhost', 'Build: 12.1.1.56', 'Enterprise Plus Edition', and 'NBR: 179 days remaining'.

Restoring Data From Tape

1. Navigate to the Home tab, select Restore, and select "Tape..."



2. Select Restore Files.

Restore from Tape



Select the type of restore you want to perform.



Restore Backups

Restore backup files from tape to backup repository.



Restore Files

Restore volumes, folders or files from tape to a server.

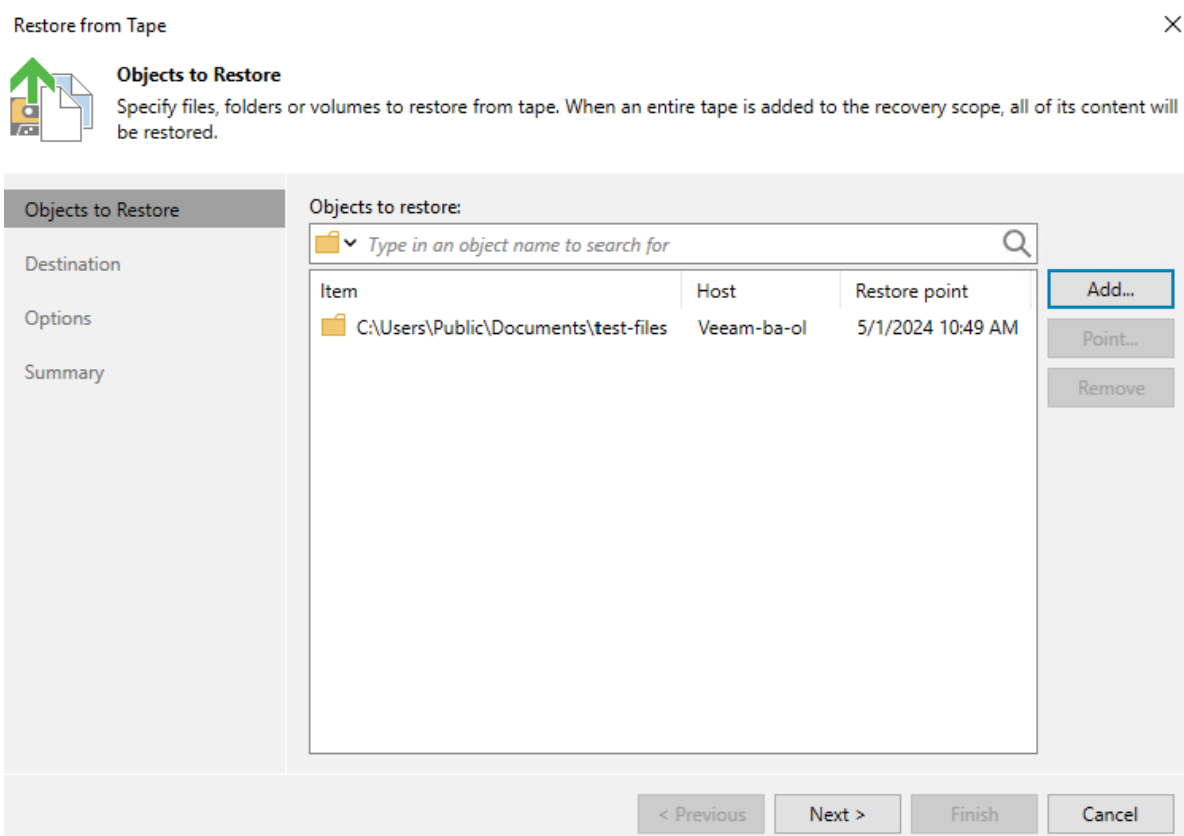


Restore Objects

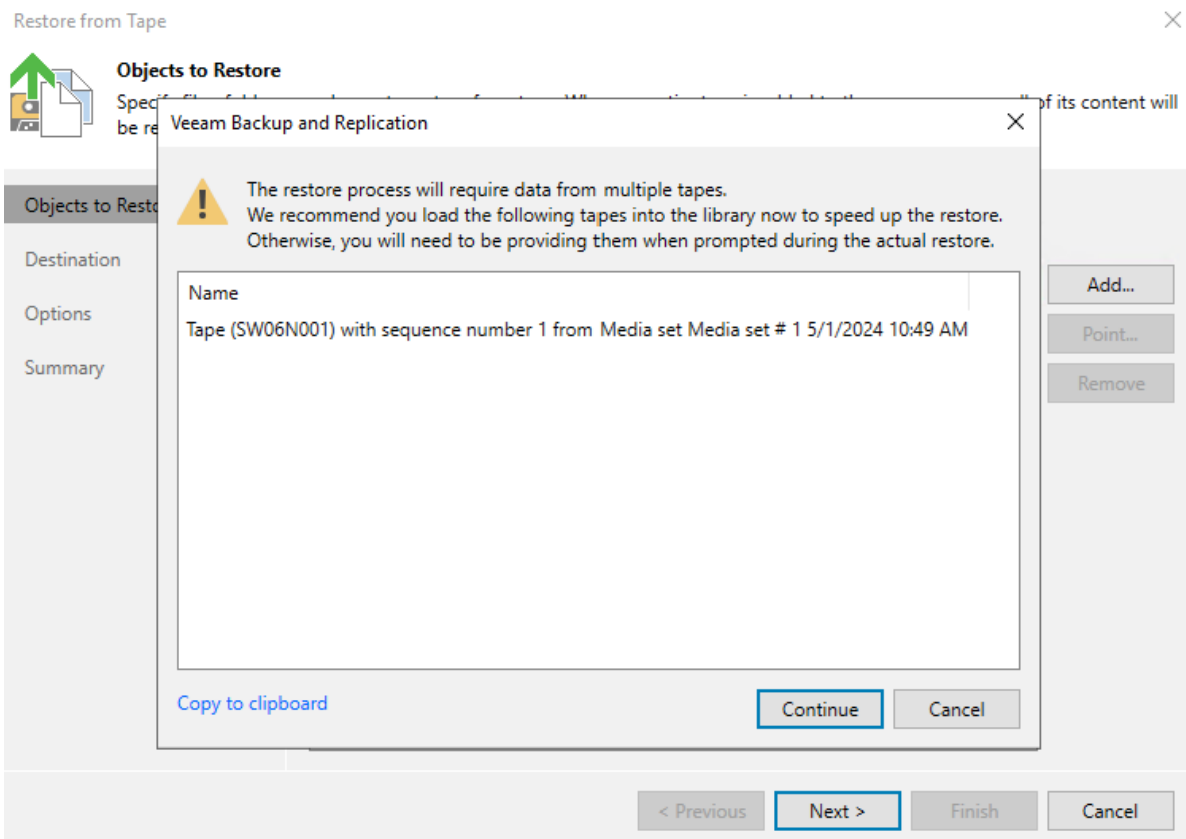
Restore the entire content of a bucket or a prefix, individual objects or versions from tape to object storage.

Cancel

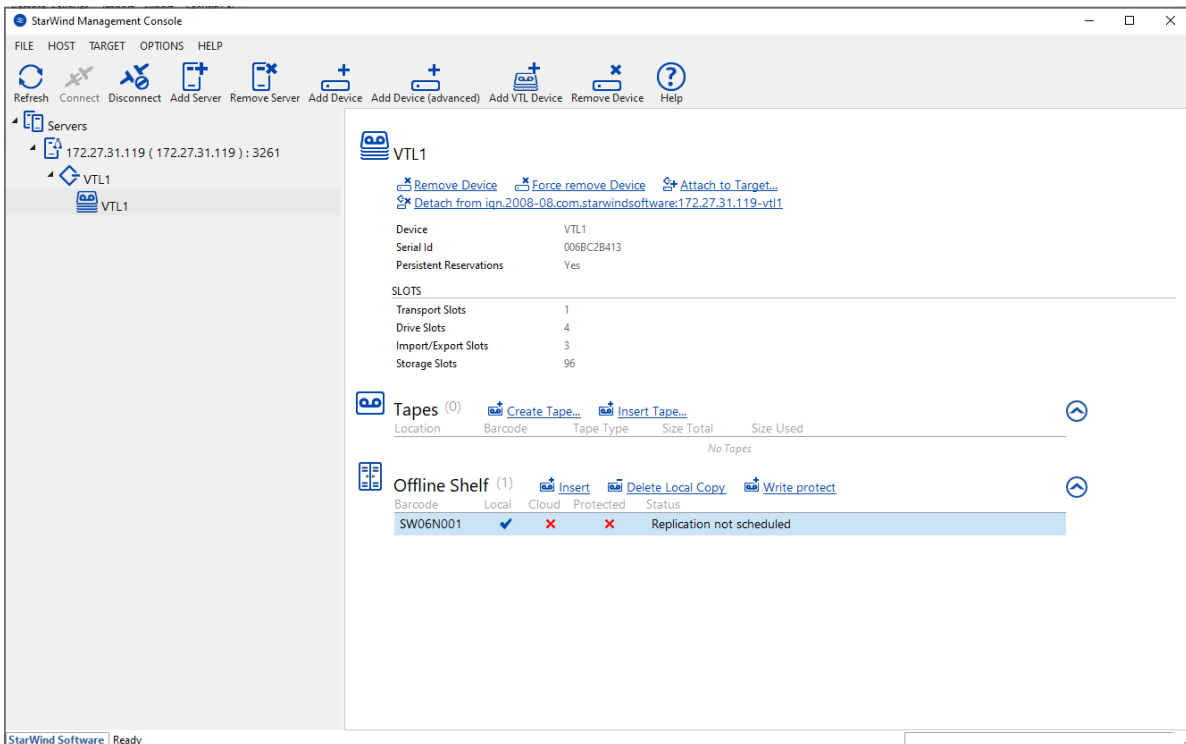
3. Specify the files and folders to restore and click Next.



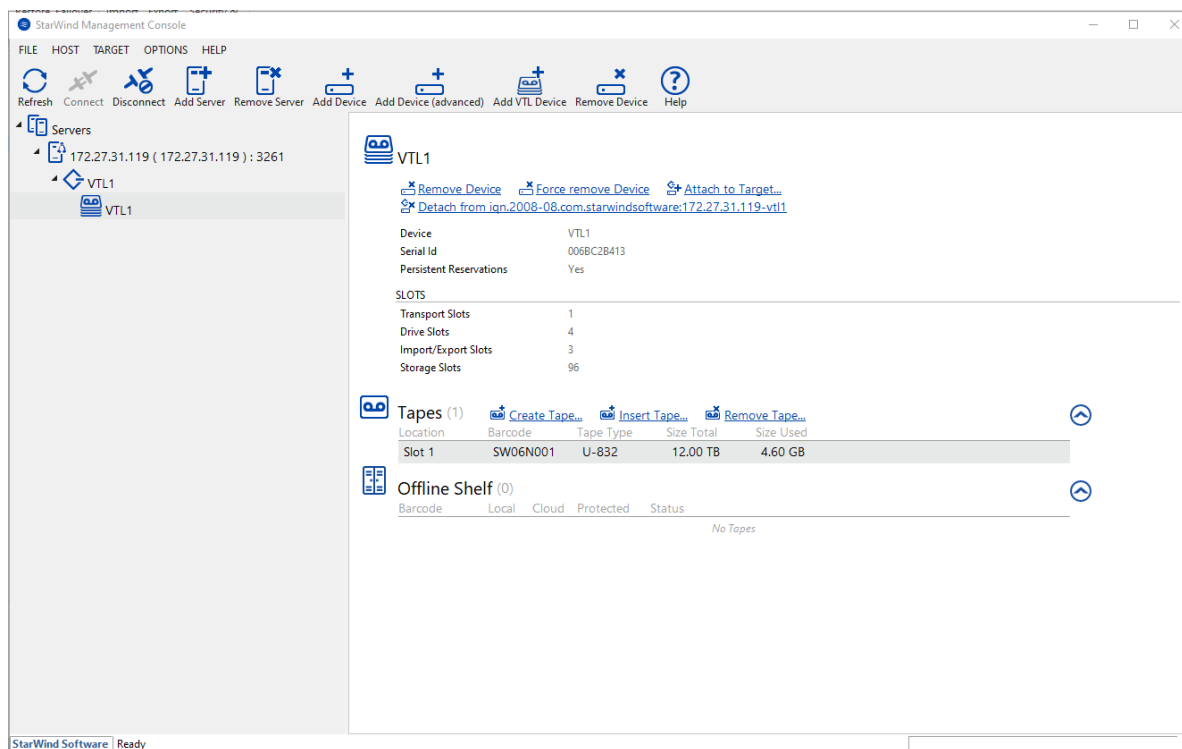
4. Veeam prompts to load the tape with the specific barcode which stores the backed up files. You can load the tape at this point or during the actual restore process. Click Continue.



5. Navigate to StarWind Management Console, locate the StarWind virtual tape with the corresponding barcode on the offline shelf and click Insert.




6. The StarWind virtual tape has been moved to the online shelf.



7. Navigate back to Veeam Backup & Replication and specify the Destination for restoring files. Click Next.

Restore from Tape
×


Destination
Specify where to restore selected objects to.

Objects to Restore
Destination
Options
Summary


Restore files and folders to

☒ Original location
☐ This server:

veeam-ba-ol
Add...

Path to a folder:

Browse...


 Not selected

☒ Preserve folder hierarchy

< Previous
Next >
Finish
Cancel

8. Select the required Automatic conflict resolution option and click Next.

Restore from Tape
×

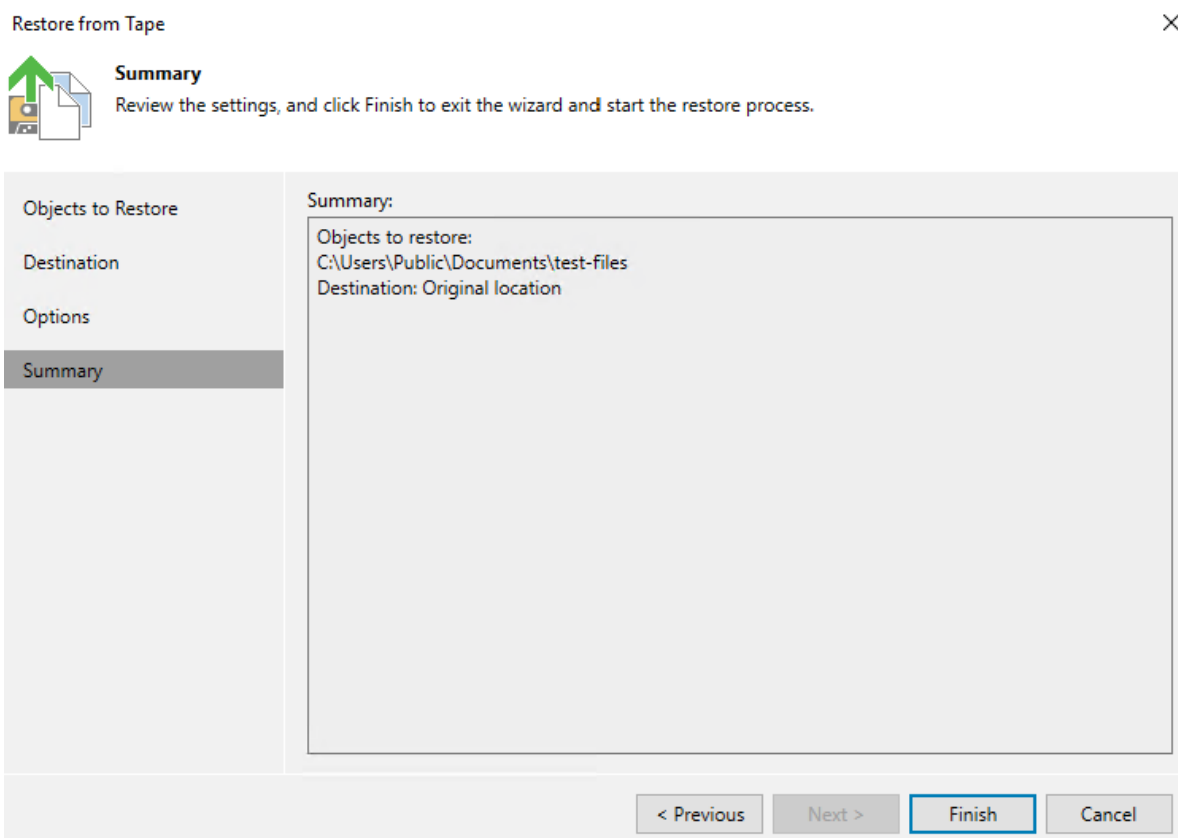


Options
Specify automatic conflict resolution options.

Objects to Restore	If a restored file already exist <input checked="" type="radio"/> Keep the existing file <input type="radio"/> Overwrite only if backup contains a newer file version <input type="radio"/> Overwrite always
Destination	
Options	
Summary	

< Previous
Next >
Finish
Cancel

9. Review the Summary and click Finish.



10. The restoration progress will appear in the pop-up window or can be checked in the Last 24 Hours history tab.

Restoring files from tape ×

Name: File from Tape Restore
 Status: Success

Restore type: File from Tape Restore
 Start time: 5/1/2024 11:05:51 AM

Initiated by: localhost\Administrator
 End time: 5/1/2024 11:07:13 AM

Log








Message	Duration
✓ Restored 2 objects with the total size of 4.4 GB	0:01:22
✓ Processing started at 5/1/2024 11:05:51 AM	
✓ Building the list of root objects to restore	
✓ Building the list of content to restore	
✓ SW06N001 tape media resources have been acquired	
✓ Drive 1 (Server: veeam-ba-ol, Library: HP MSL G3 Series 9.50, Drive ID: Tape0) lock...	
✓ Loading tape SW06N001 from Slot 1 to Drive 1 (Server: veeam-ba-ol, Library: HP ...	
✓ Restoring file CentOS-7-x86_64-DVD-2009.iso to C:\Users\Public\Documents\test...	0:01:16
✓ Completed successfully at Wednesday, May 1, 2024 11:07:13 AM	

Close

Conclusion

Following this guide, the Linux version of StarWind VTL has been deployed on a bare-metal physical server using StarWind Appliance ISO. Also, backup jobs were configured to StarWind VTL using Veeam Backup & Replication.

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