

StarWind Virtual Backup Appliance: Configuration Guide for Bare-metal Installation, Virtual Backup Appliance Deployed as a Linux ISO using Web UI

2026

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 Backup Appliance (VBA), StarWind Virtual Backup Appliance Free (VBA Free)

Purpose

StarWind Virtual Backup Appliance (VBA) is a software solution that can be deployed on a physical server baremetal using StarWind Appliance Linux ISO and turns it into a modern and robust backup repository.

This document outlines how to configure the StarWind Virtual Backup Appliance (VBA) on a physical server baremetal using StarWind Appliance Linux ISO. It covers the steps on how to create a Hardened Repository in StarWind VBA and connect it to Veeam Backup & Replication for achieving backups immutability. It also describes how to configure an iSCSI backup repository as well as NFS and SMB repositories for use with Veeam Backup & Replication or other backup software.

Audience

This technical guide is intended for storage and virtualization architects, system and backup administrators, and partners designing virtualized environments StarWind Virtual Backup Appliance (VBA).

Expected result

The end result of following this guide will be a fully configured StarWind Virtual Backup Appliance (VBA) on a physical server baremetal with different backup repository types created and Hardened Repository connected to Veeam Backup & Replication.

Prerequisites

StarWind VBA system requirements

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

<https://www.starwindsoftware.com/system-requirements#vba>

StarWind Software System Requirements

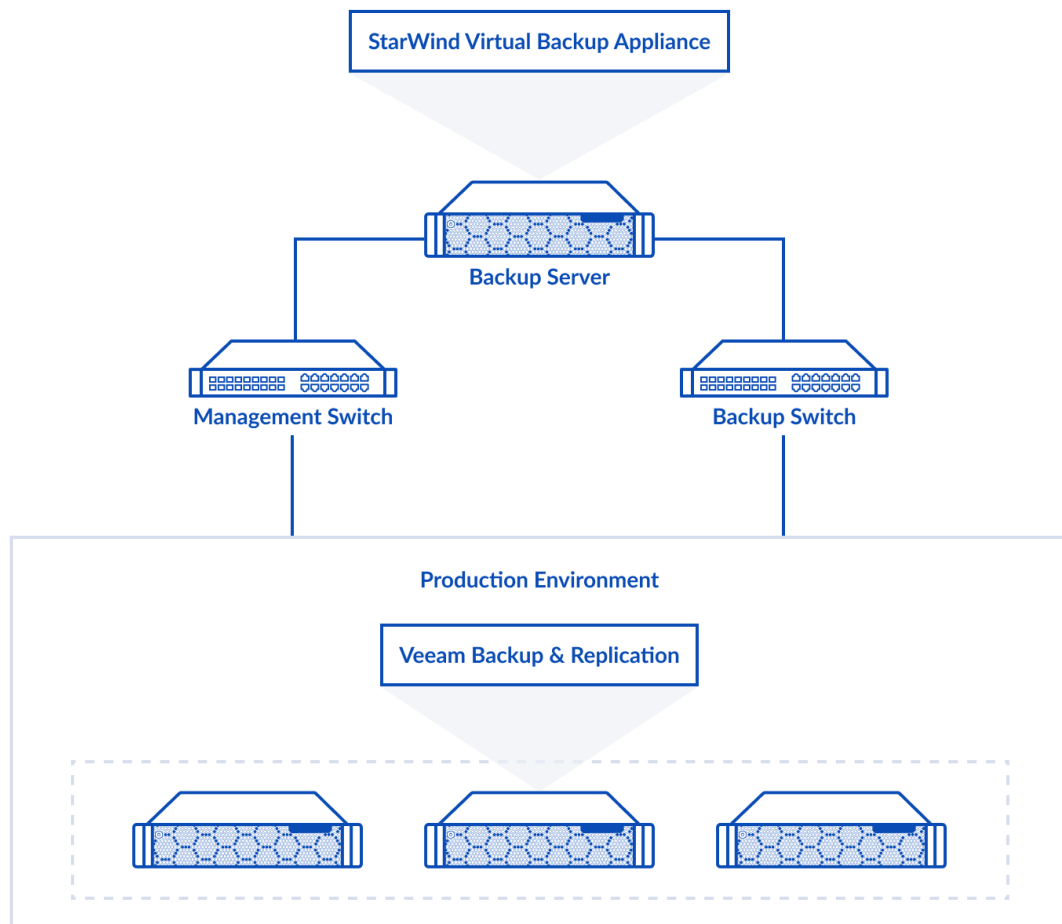
Check out the system requirements for StarWind solutions to ensure the promised performance and stability

Recommended RAID settings for HDD and SSD disks:

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

Solution diagram

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



Deploying Starwind Vba

1. Download the StarWind VBA archive at the following link and extract the ISO file: <https://www.starwindsoftware.com/backup-appliance#download>
2. Prepare installation media using Etcher, Rufus on Windows workstation, or 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 by pressing Enter.

License agreement

f). periodically updating StarWind Software to the latest build to get the fixes and improvements;

g). always keeping in mind StarWind Virtual SAN Best Practices while working with StarWind infrastructure or applying any hardware or software changes;

Licensee Technical Representative can independently and effectively use StarWind Appliance and carry out its current maintenance.

Post-Installation Obligations of Licensee:

To avoid any inoperable state and for the proper functioning of StarWind Appliance, Licensee shall not:

a). change, independently or with the assistance of third parties, the overall StarWind Appliance configuration (add or remove cluster nodes, reconfigure networks dedicated to the operation of StarWind Products, including firmware and driver updates, reconfigure RAID array, iSCSI initiator settings, uninstallation of StarWind Software, etc.) if those changes have not been confirmed by StarWind Support;

b). modify, independently or with the assistance of third parties, StarWind Appliance configuration files, if those modifications have not been confirmed by StarWind Support;

c). modify, independently or with the assistance of third parties, StarWind virtual machine settings (for StarWind Appliance based on VMware ESXi), if those modifications have not been confirmed by StarWind Support;

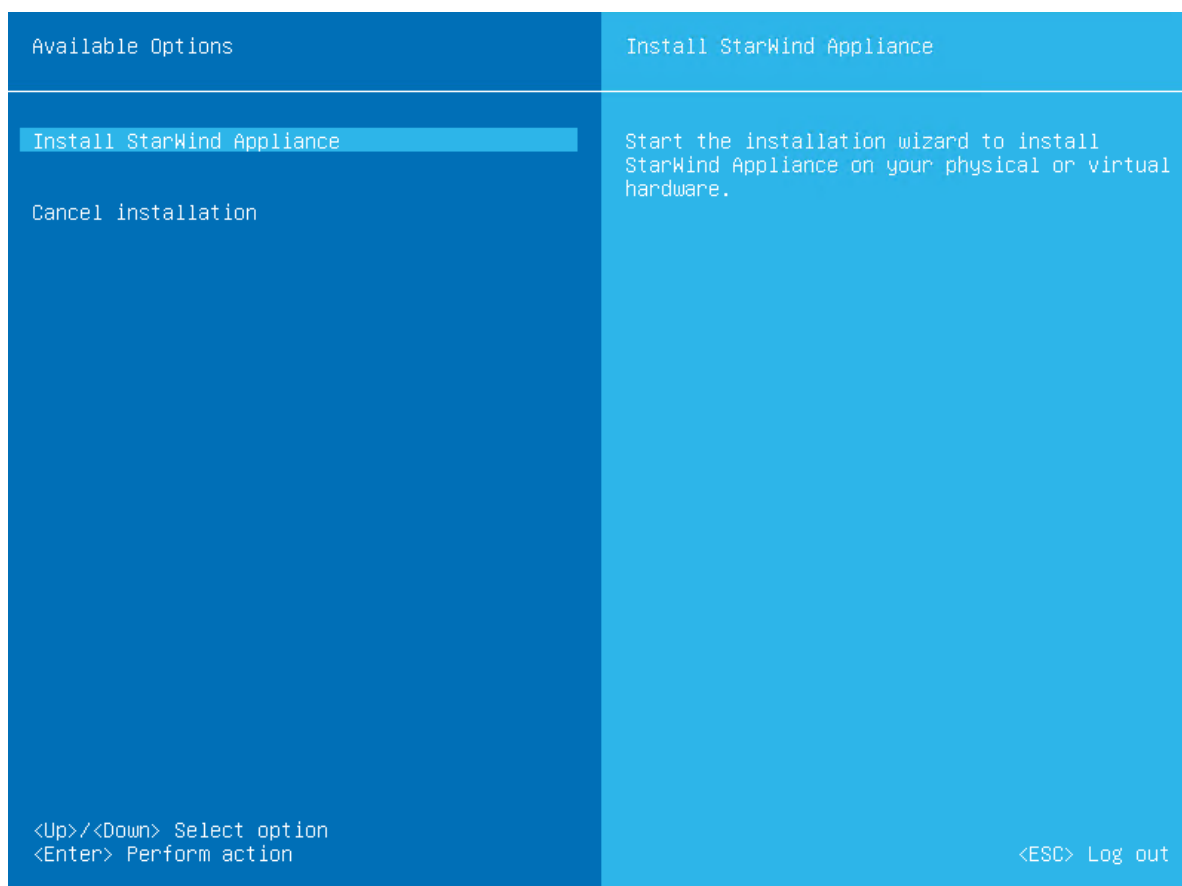
d). add, replace or remove independently or with the assistance of third parties, any hardware components of StarWind Appliance if such actions have not been confirmed by StarWind personnel; and

e). disable or remove independently or with the assistance of third parties, the services related to StarWind Appliance if this action has not been confirmed by StarWind Support.

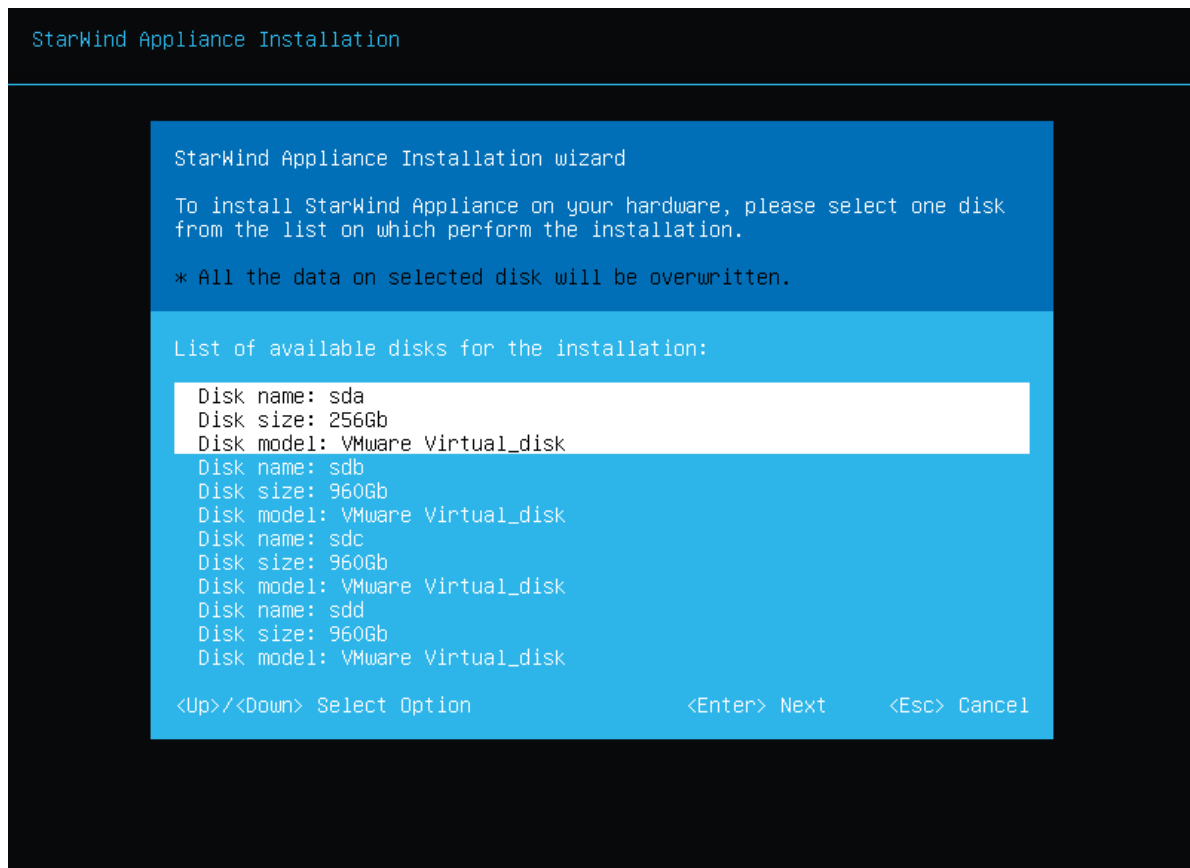
Accept

Decline

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

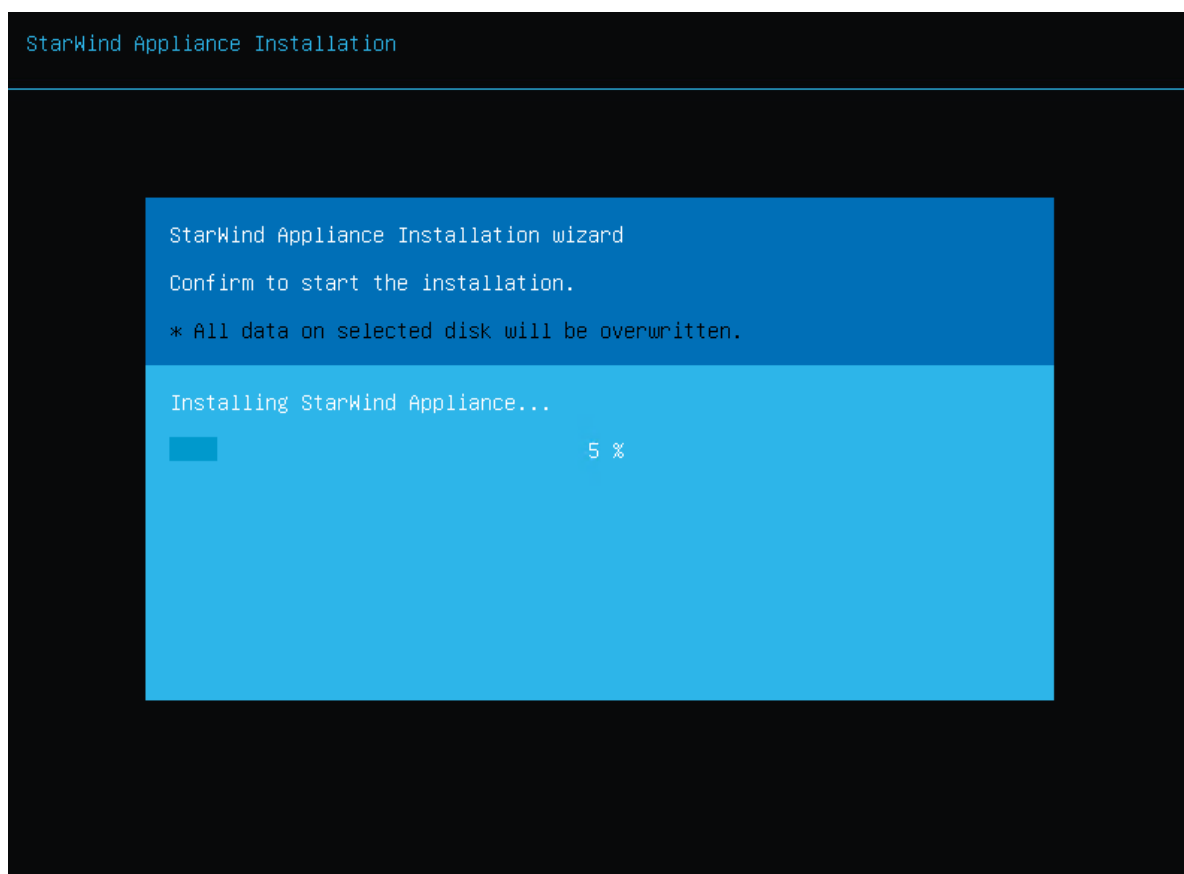


9. Select one of the available disks on which to install StarWind Appliance. Press Enter.

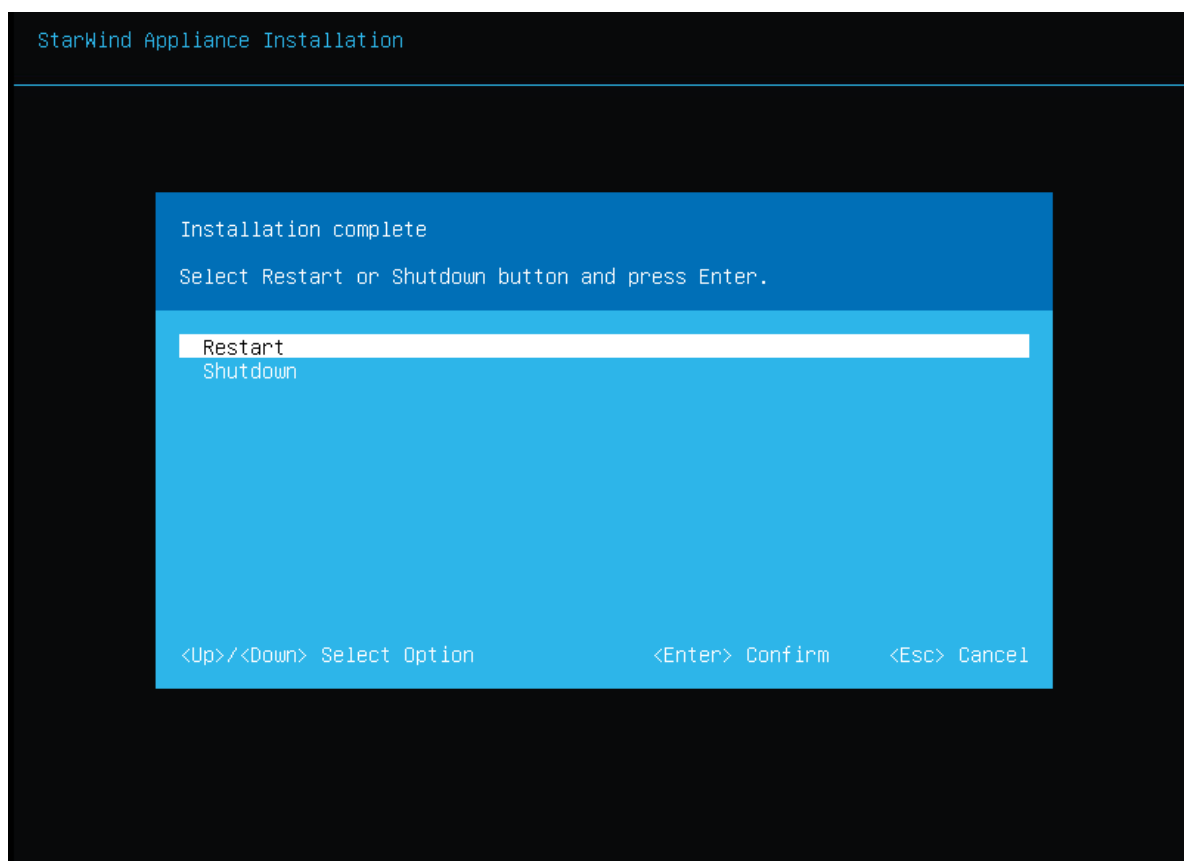


10. All the data on the selected disk will be overwritten. Confirm the installation by typing “yes” and pressing Enter.

11. Wait until the installation is complete.



12. The installation is finished. Select “Restart” to reboot the server.

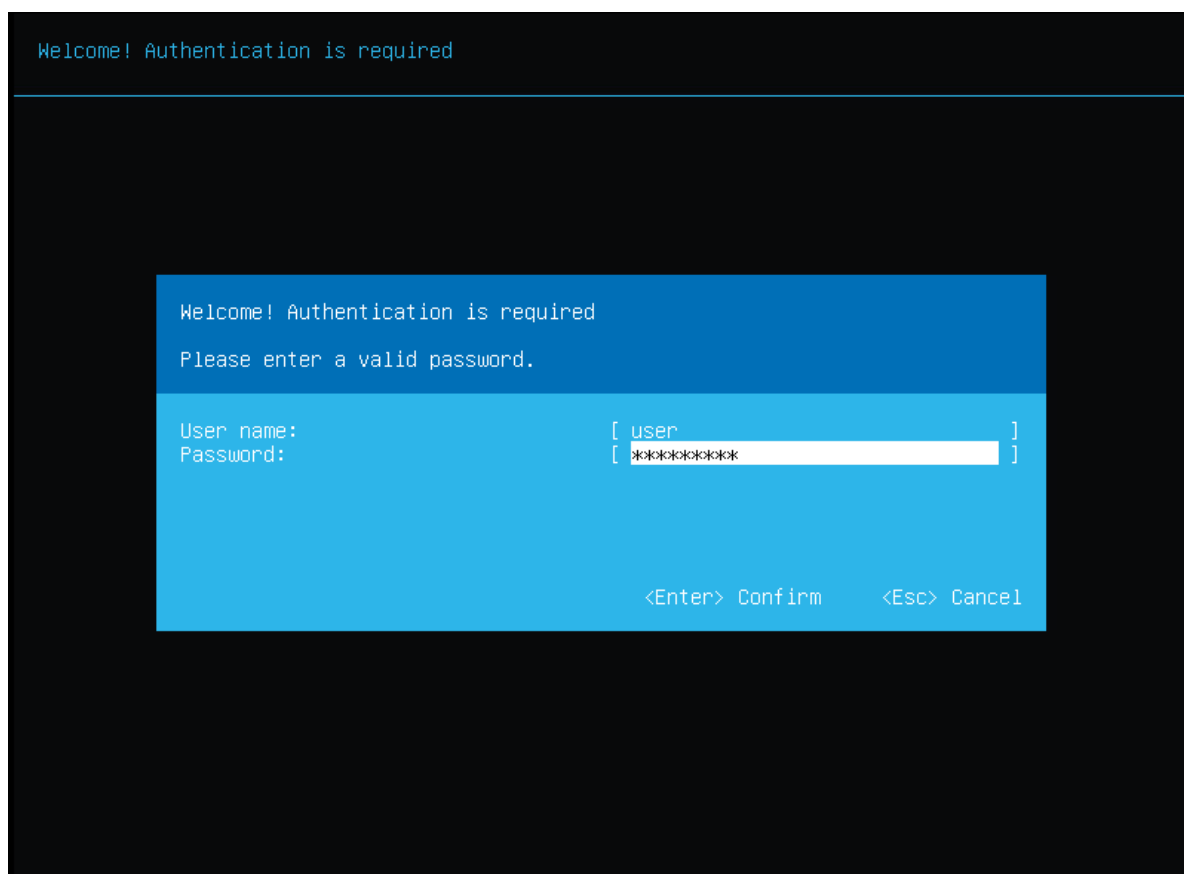


13. Eject the installation media.
14. The server now boots StarWind Appliance.
15. Press Enter to open the console.



16. Specify the default user name and password.

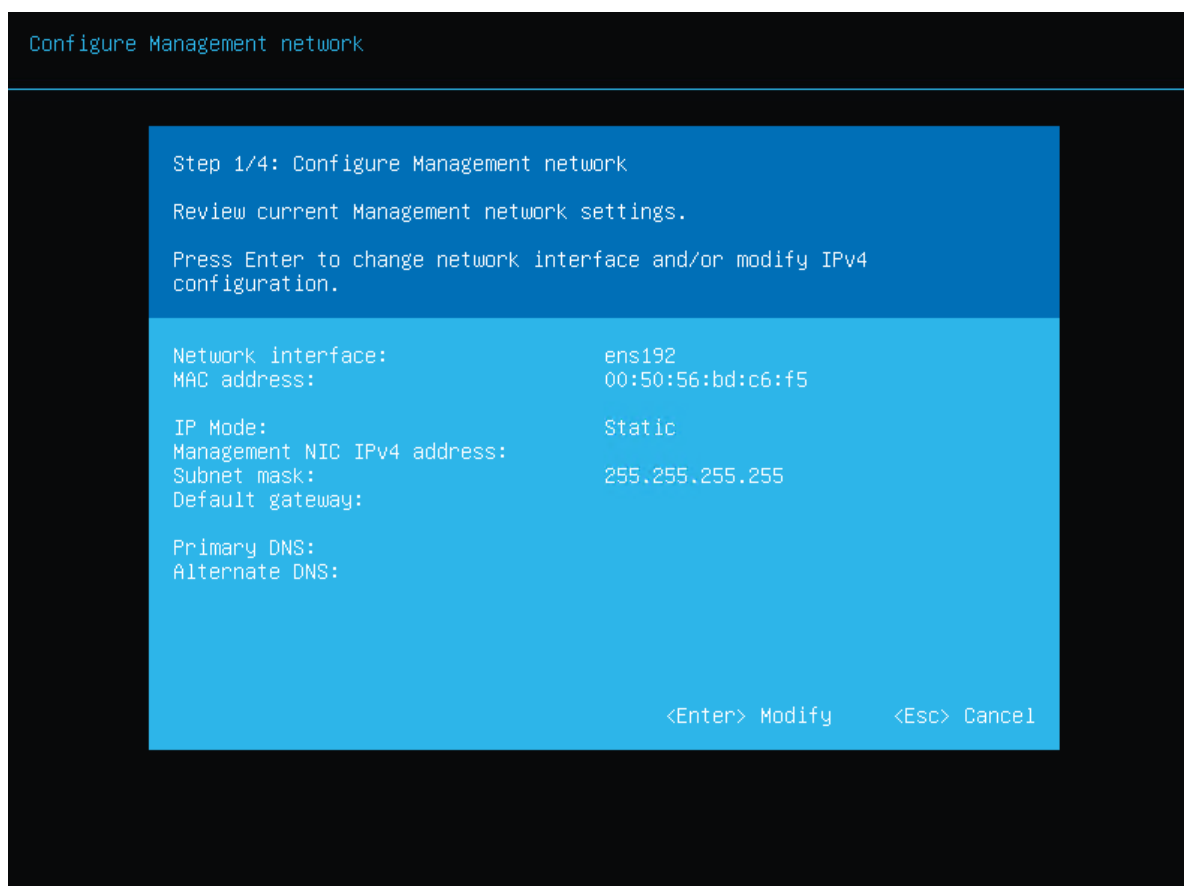
NOTE. The default account name is "user" and its password is "rds123RDS" without quotes. This account is removed from the appliance upon the completion of the Initial configuration wizard.



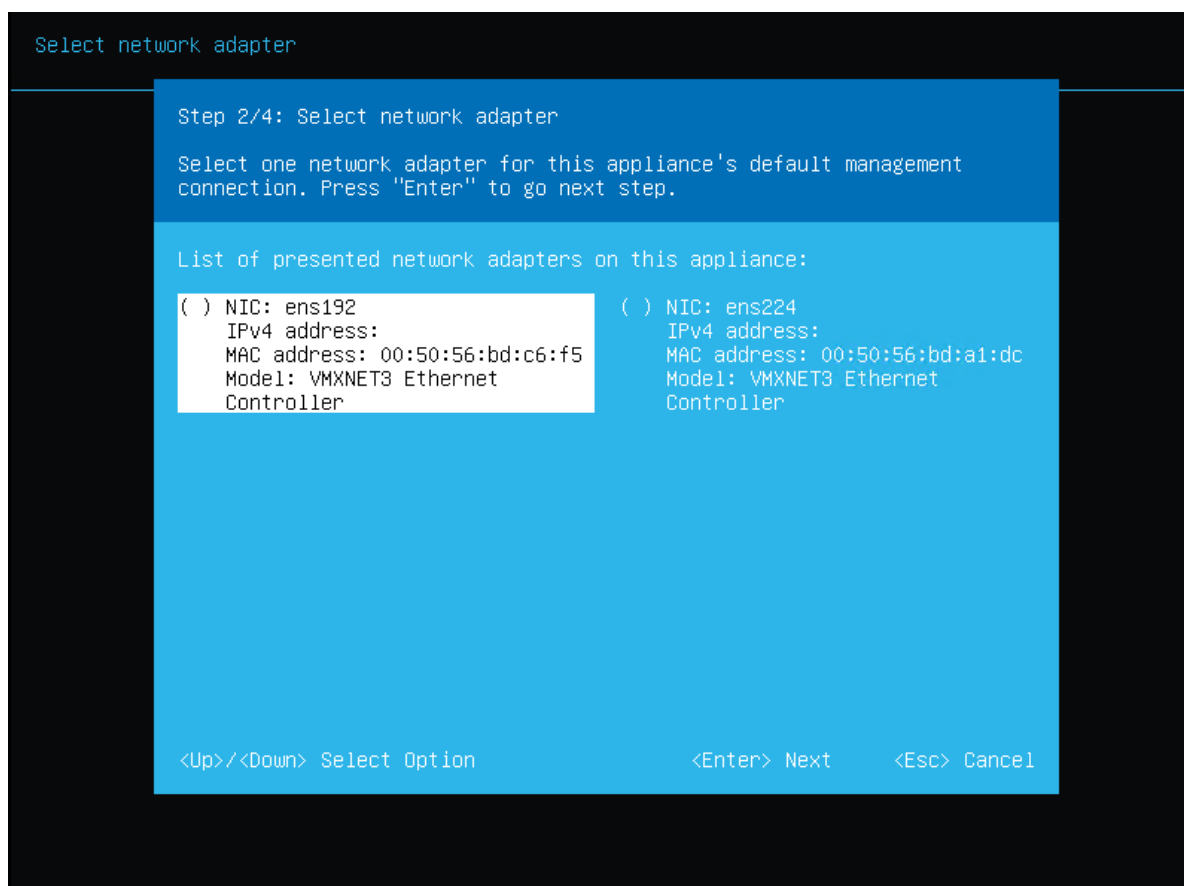
17. Select "Configure Management Network" and press Enter.

Available Options	Configure Management Network
Configure Management Network	Review and configure network settings.
Configure NFS Share	
Configure SMB Share	
Troubleshoot	
<Up>/<Down> Select option <Enter> Perform action	<ESC> Log out

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.

Select network adapter

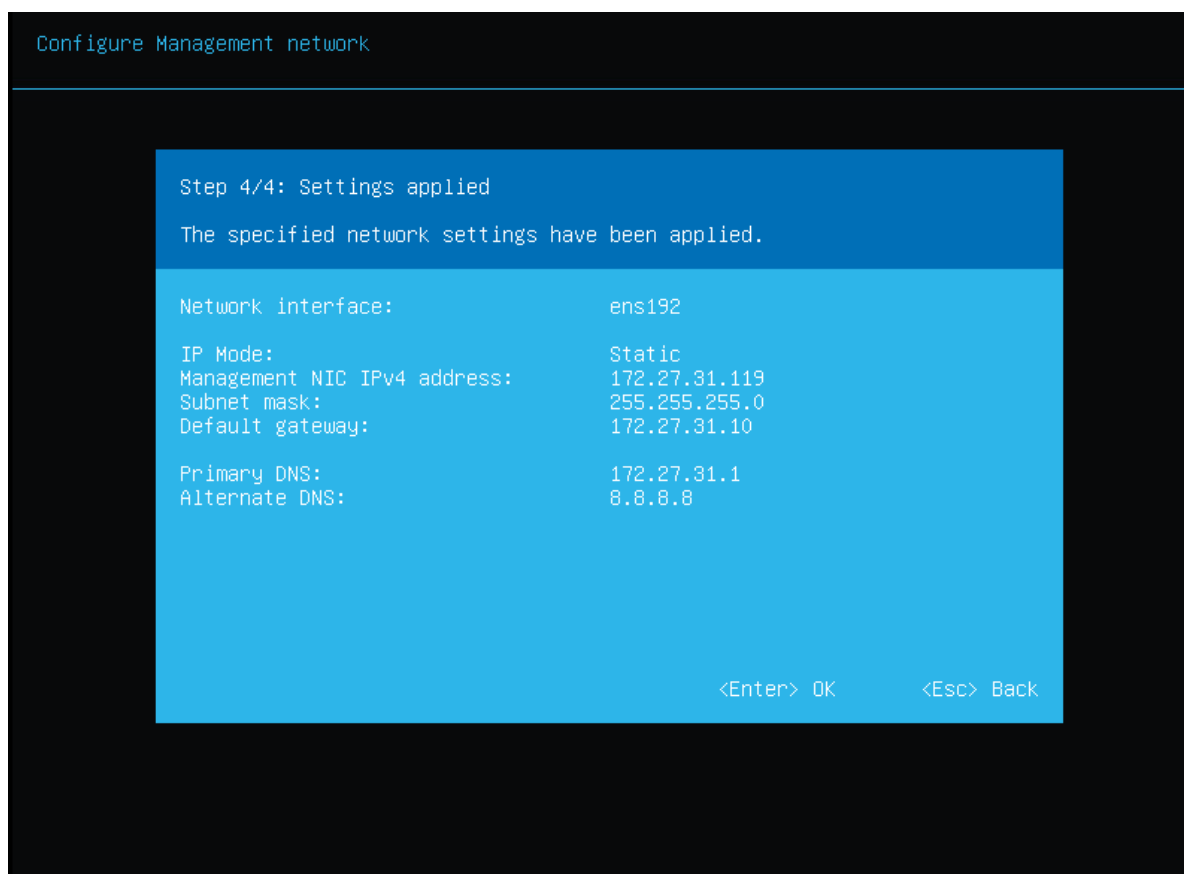
Step 3/4: Specify IPv4 configuration

Set static IPv4 address and network configuration for this appliance's default management connection. Press "Enter" to Apply the configuration.

IP Mode:	Static
Management NIC IPv4 Address:	[172.27.31.119]
Subnet Mask:	[255.255.255.0]
Default gateway:	[172.27.31.10]
Primary DNS:	[172.27.31.1]
Alternate DNS:	[8.8.8.8]

<Up>/<Down> Select Option <Enter> Apply <Esc> Cancel

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..."



Your connection is not private

Attackers might be trying to steal your information from **172.27.31.149** (for example, passwords, messages, or credit cards). [Learn more](#)

NET::ERR_CERT_AUTHORITY_INVALID

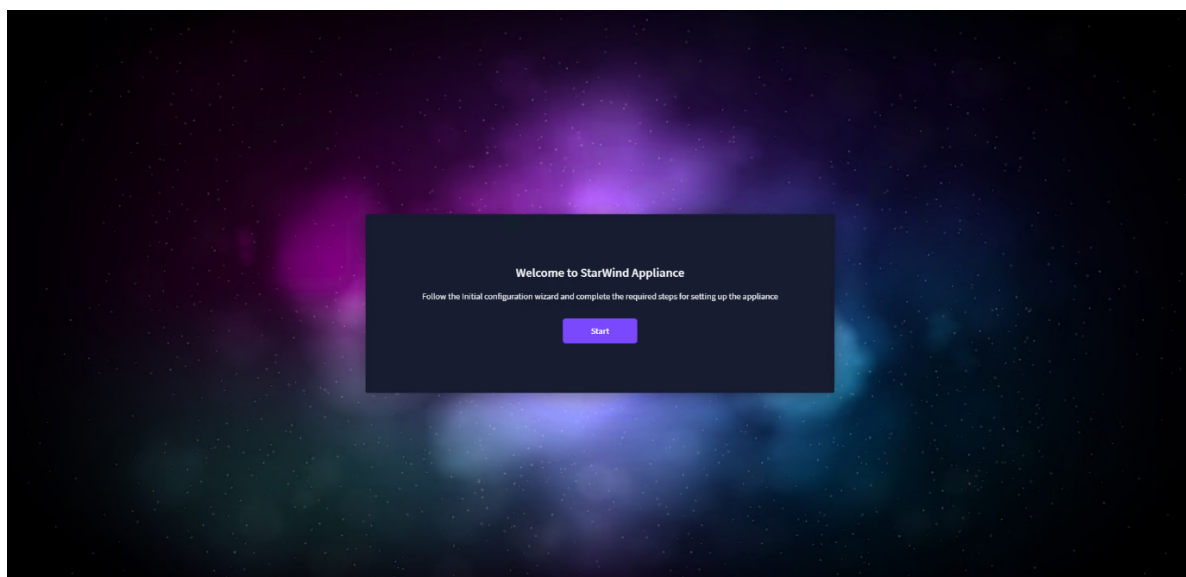


[Turn on enhanced protection](#) to get Chrome's highest level of security

Advanced

Back to safety

2. StarWind VBA web UI welcomes you, and the “Initial Configuration” wizard will guide you through the deployment process.



3. In the following step, upload the license file.

StarWind Appliance Initial configuration

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

License

Provide StarWind license file to continue

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

Upload file

StarWind license file (.swk)

Back

Next

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

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

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1. Definitions. Each of the expressions indicated below will have, in this Agreement, the meaning assigned to it, namely:

1.1. "Account Manager" shall mean the point of contact provided by StarWind to manage Licensee's account and support requests and identified as the Account Manager. StarWind may change the Account Manager in its sole discretion by giving

☒ I accept the terms of the license agreement

Back

Next

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

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.

IP mode

Static

NIC	Adapter model	Bandwidth	MAC address	IP address	Netmask ⓘ	Gateway
enp7s18	VirtIO Ethernet Co...	10 Gbit	BC:24:11:69:9...	172.27.31.64	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 and click Next.

StarWind Appliance Initial configuration

✓ License

✓ EULA

✓ Management network

• Static hostname

Administrator account

Summary

Configuration

Static hostname

Set the current appliance hostname

Use Latin letters, numbers, and dash

Hostname

VBA

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 your settings selection before setting up StarWind VBA.

StarWind Appliance Initial configuration

✓ License

✓ EULA

✓ Management network

✓ Static hostname

✓ Administrator account

● Summary

Configuration

Summary

License type

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

Network settings

Interface	enp7s18 (VirtIO Ethernet Controller)
Bandwidth	10 Gbit
MTU	1500
IP address	172.27.31.64
Appliance hostname	VBA

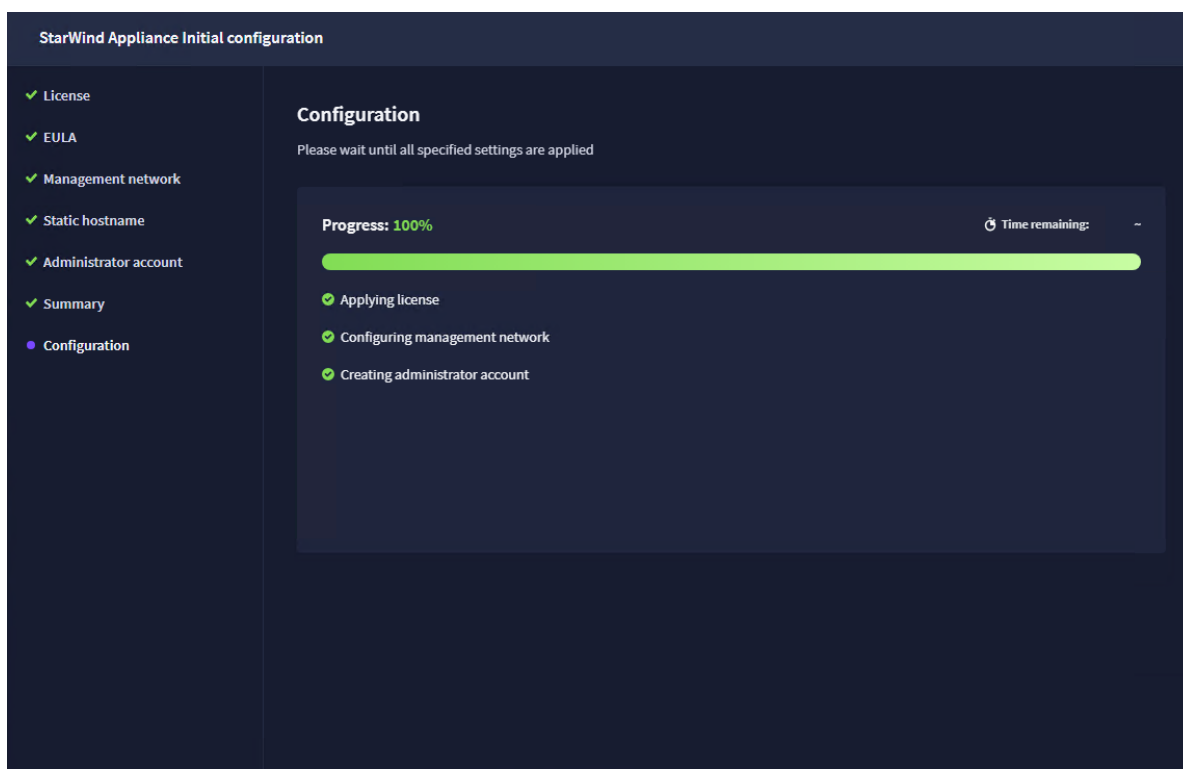
Credentials

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

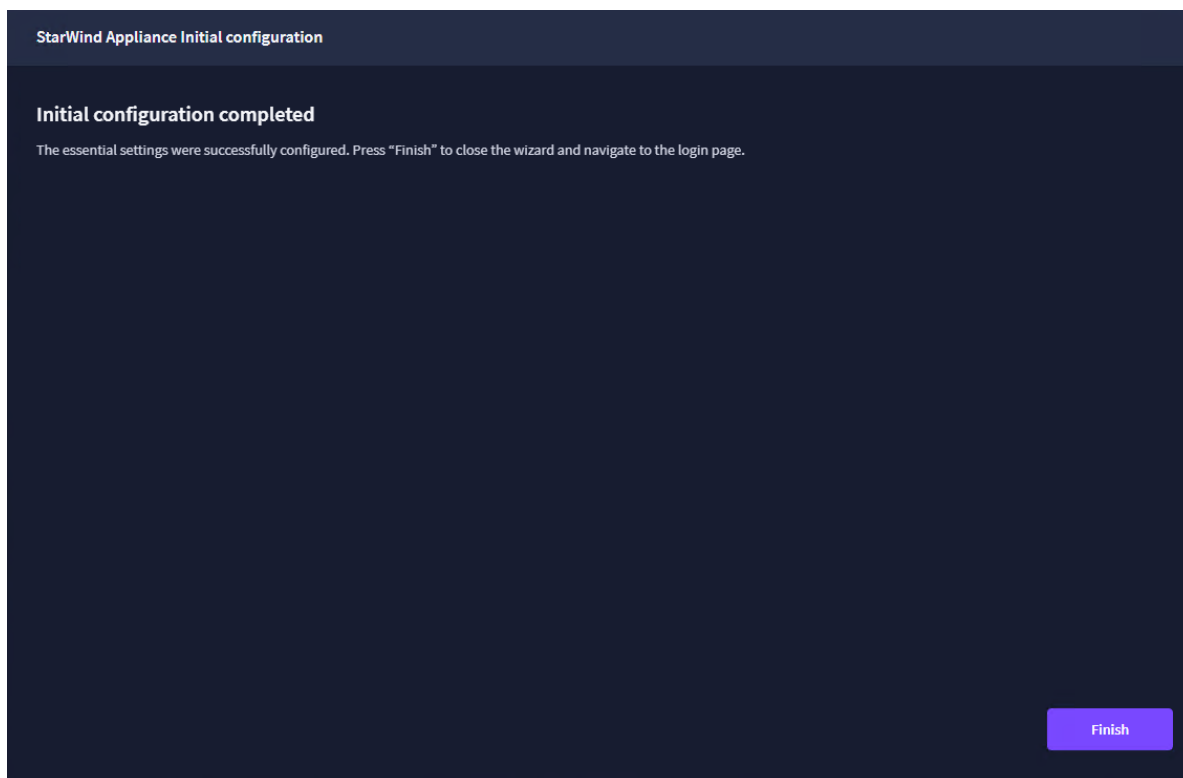
Back

Configure

9. Please standby until the Initial Configuration Wizard configures StarWind VBA for you.

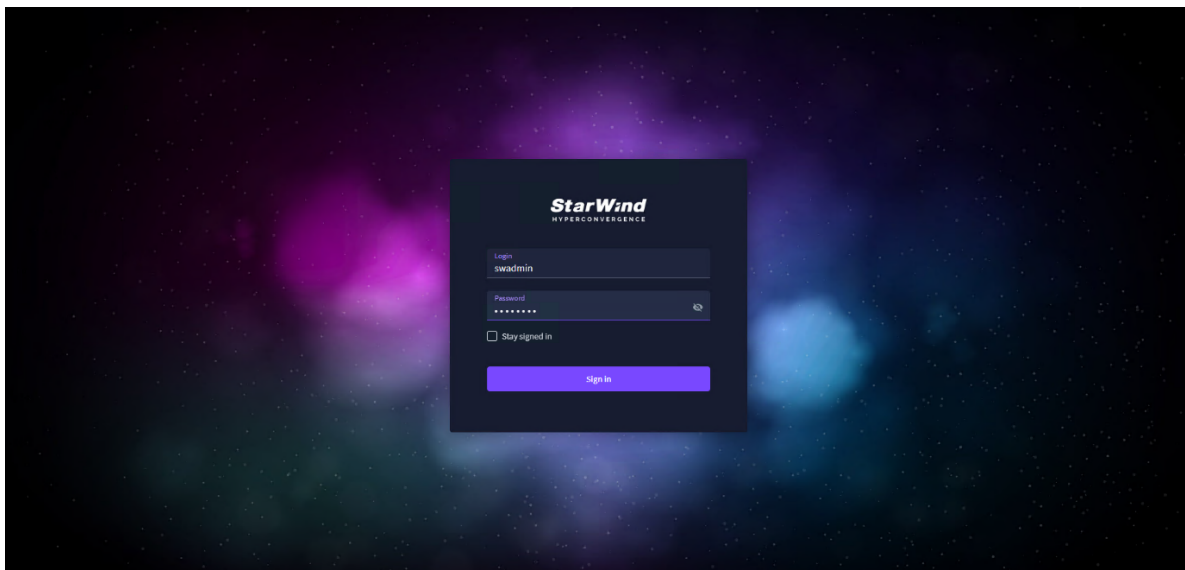


10. The appliance is set and ready. Click Finish to proceed to the Login page.

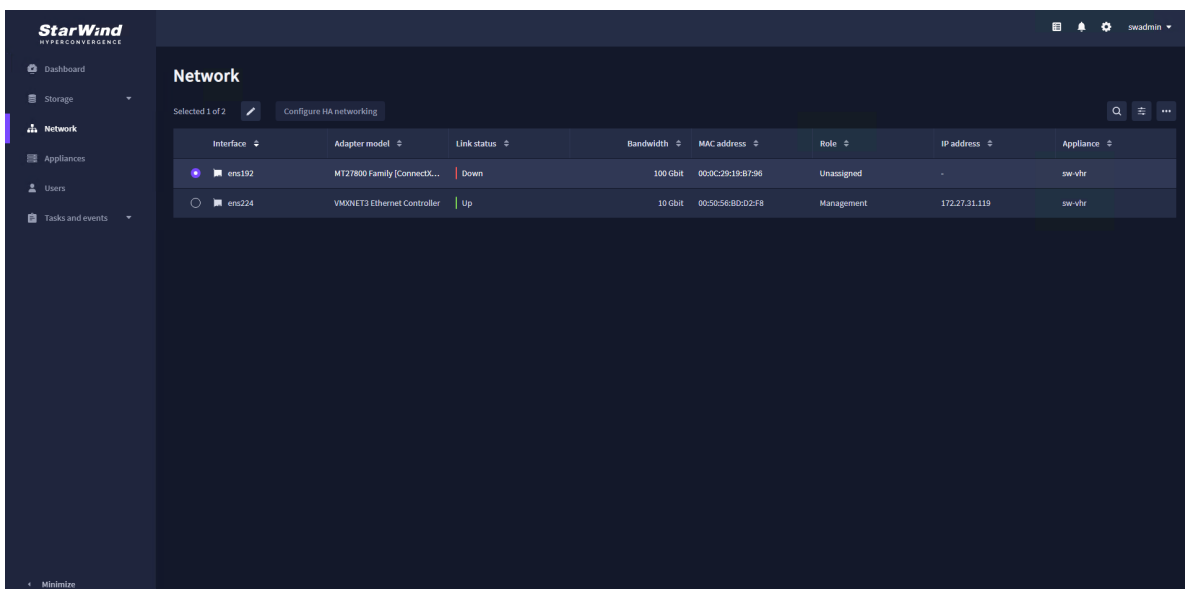


Configure Networking

1. Log in to the StarWind VBA 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 backup (Data) traffic in case a separate dedicated backup network is present 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
ens192

Adapter model
MT27800 Family [ConnectX-5 Virtua

Role
Data

IP mode
Static

IPv4 address
176.16.30.10
e.g. 192.168.100.100

Netmask
255.255.255.0
e.g. 255.255.255.0 or CIDR notation (e.g. 24)

Gateway
e.g. 192.168.100.1 or leave the settings empty

DNS
Separate IP addresses with commas (,) or leave the settings empty

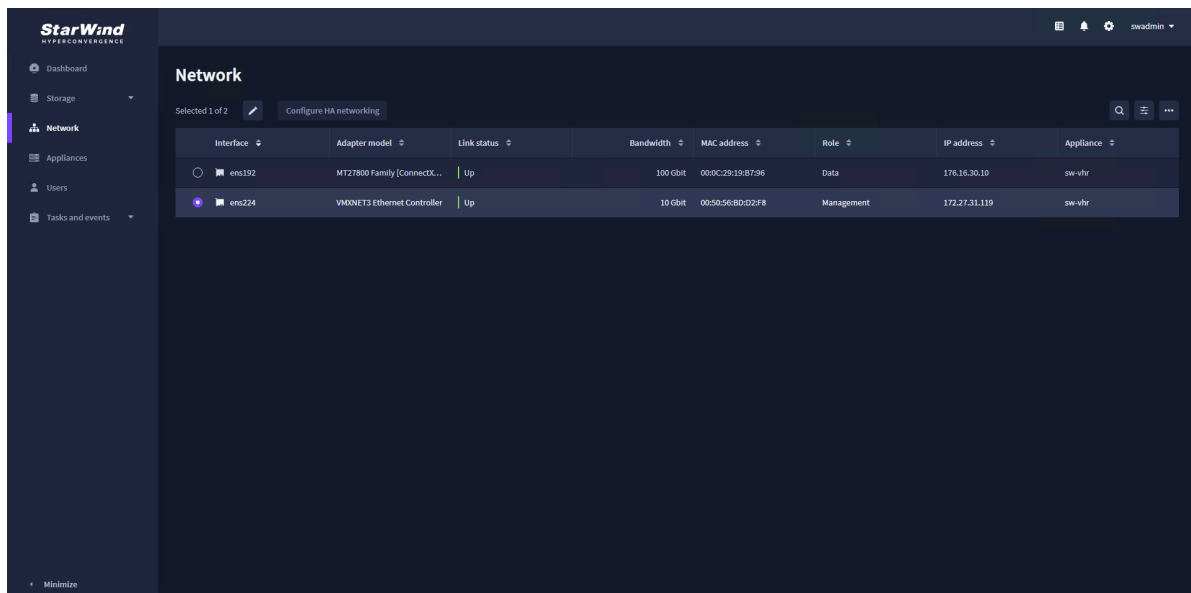
MTU
9000
The valid value in the range of 1500-9000

☐ Disable network adapter
☒ Connect automatically on boot

Cancel

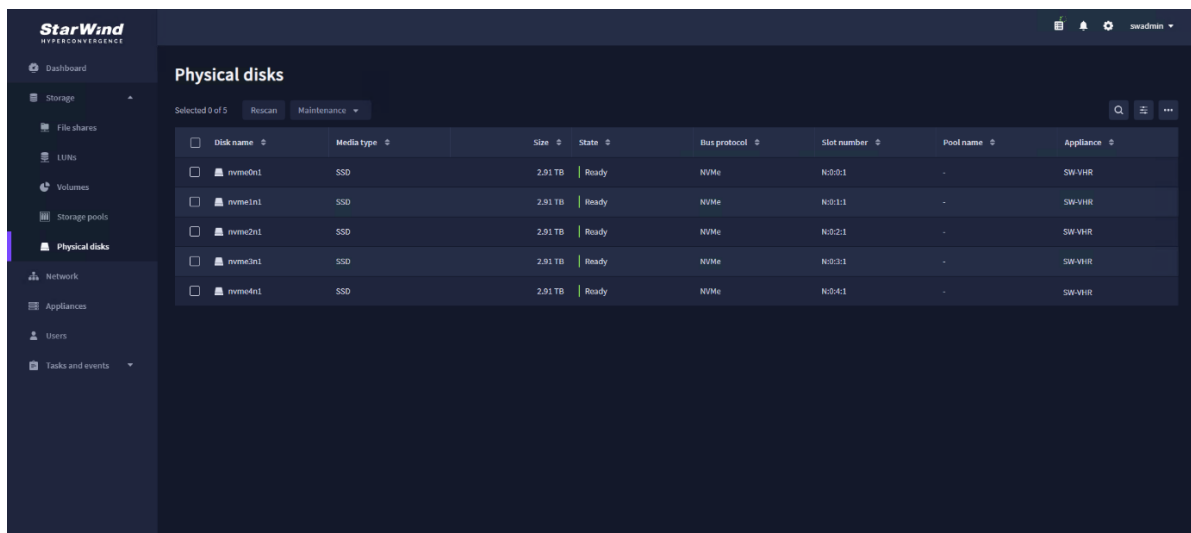
Save

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



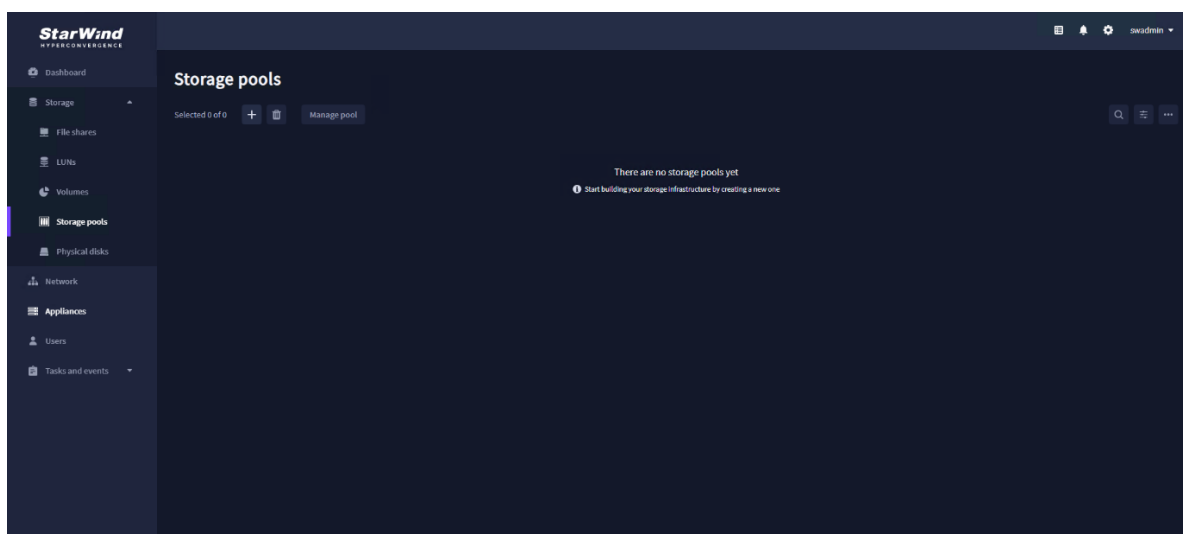
Create Storage Pool

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

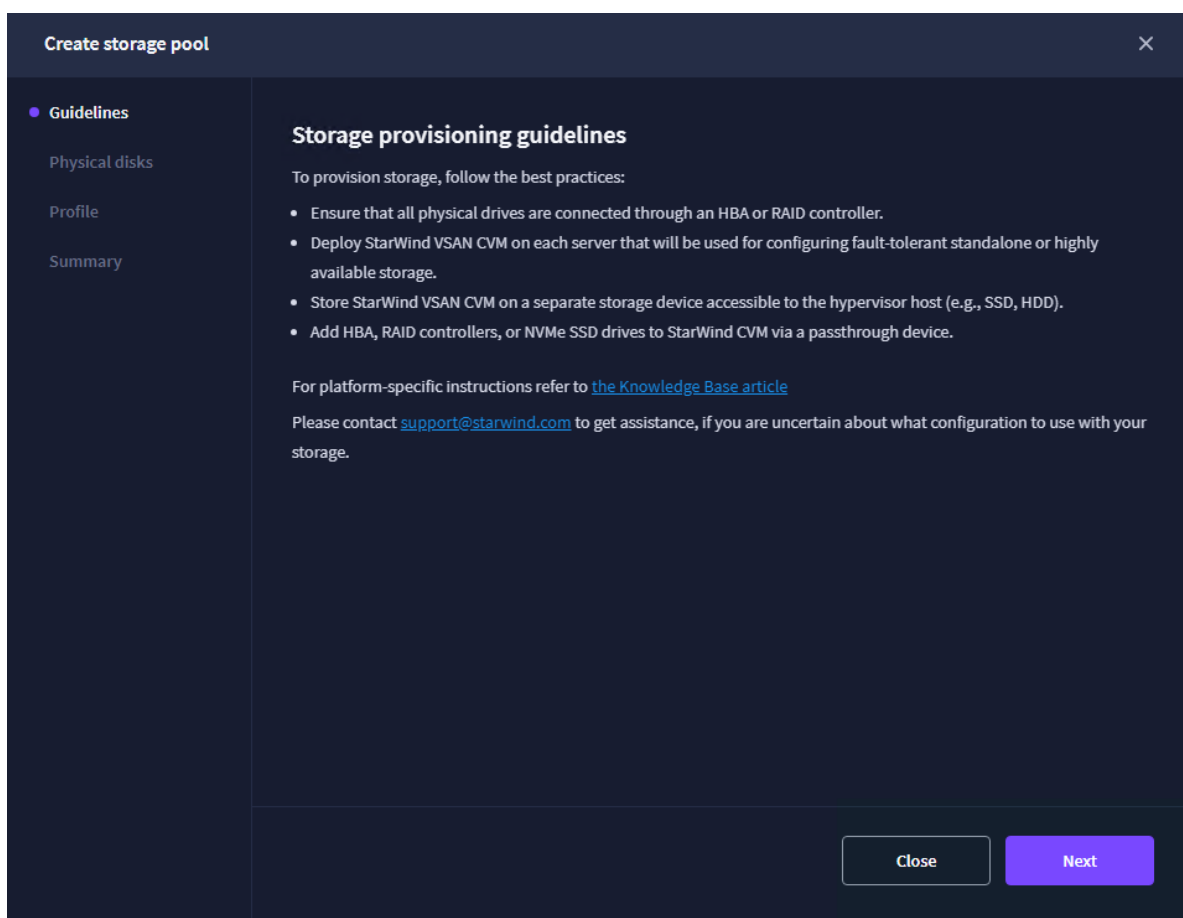


NOTE. StarWind VBA can use storage from a hardware RAID or create a Linux Software RAID or ZFS storage pools from the drives connected to an HBA controller. This guide uses Linux Software RAID as an example.

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.

Create storage pool

Guidelines

Physical disks

Profile

Summary

Physical disks

Select physical disks to include in storage pools on each node

SW-VHR

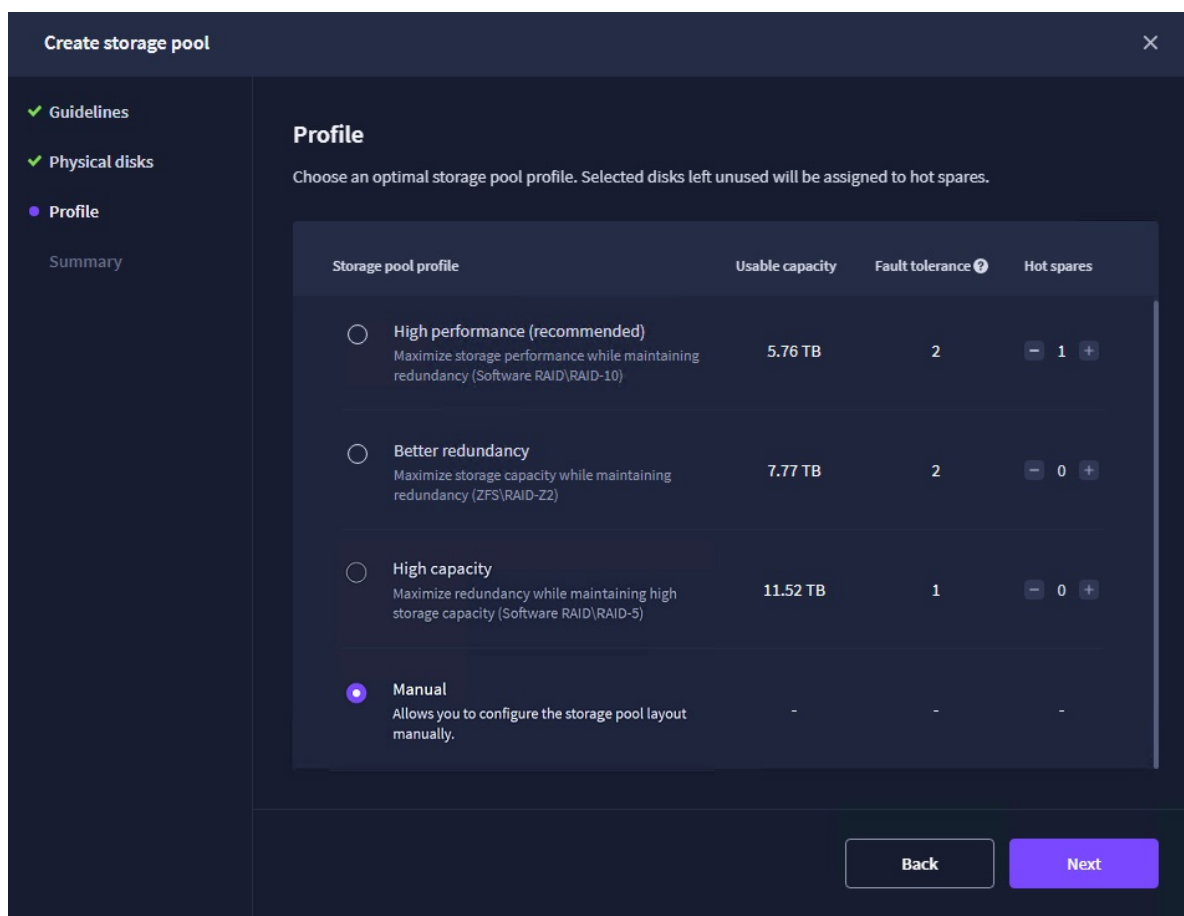
	Disk name	Media t...	Bus pro...	Size	Slot	Contro...
☒	nvme0n1	SSD	NVMe	2.91 TB	N:0:0:1	Micron_745...
☒	nvme1n1	SSD	NVMe	2.91 TB	N:0:1:1	Micron_745...
☒	nvme2n1	SSD	NVMe	2.91 TB	N:0:2:1	Micron_745...
☒	nvme3n1	SSD	NVMe	2.91 TB	N:0:3:1	Micron_745...
☒	nvme4n1	SSD	NVMe	2.91 TB	N:0:4:1	Micron_745...

Total raw capacity of selected disks: 14.55 TB

Back

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. Software RAID-6 is highly recommended. To configure it, select Manual and click Next.



6. Select Software RAID and then select Software RAID\RAID-6 from the Available storage pool layouts. Click Next.

Create storage pool

Guidelines

Physical disks

Profile

Manual configuration

Summary

Manual configuration

Choose the storage pool type and layout. Selected disks left unused will be assigned to hot spares.

Software RAID

- Better random write performance
- Better scalability
- Optimal for highly available (HA) SSD or HDD configurations

ZFS

- Enables storage snapshots
- Provides "bit rot" protection
- Optimal for HDD-based standalone configurations

Available storage pool layouts

Software RAID\RAID-6

Number of disk groups

1

Hot spare

0

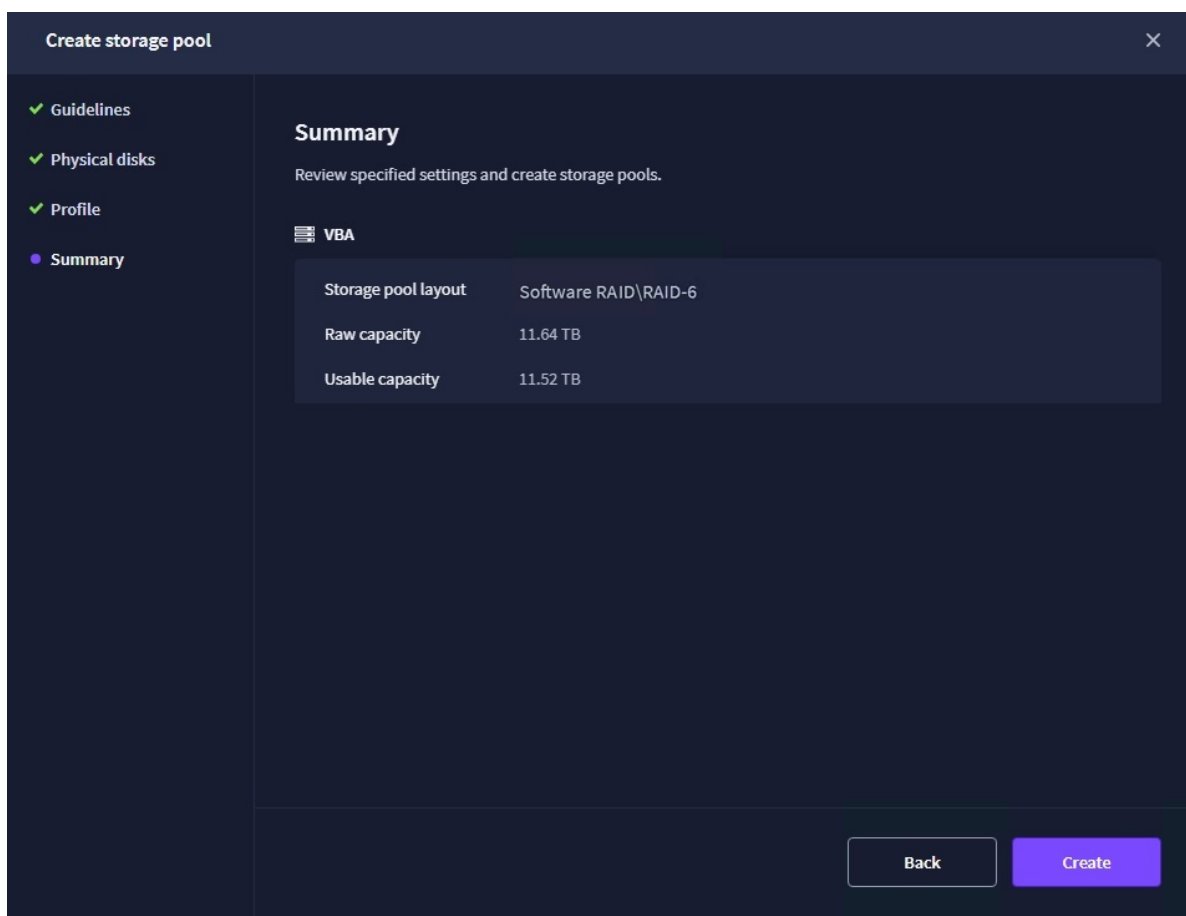
Disks in each group: 5

The estimated usable capacity for the configured storage pool layout:

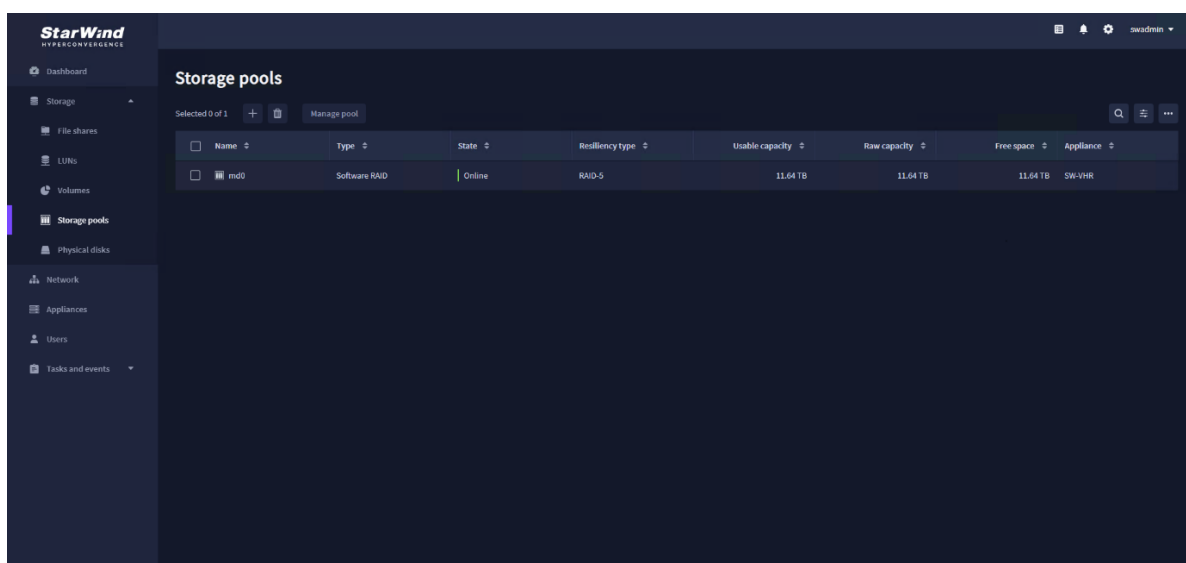
Back

Next

7. Review "Summary" and click the "Create" button to create the storage pool.



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



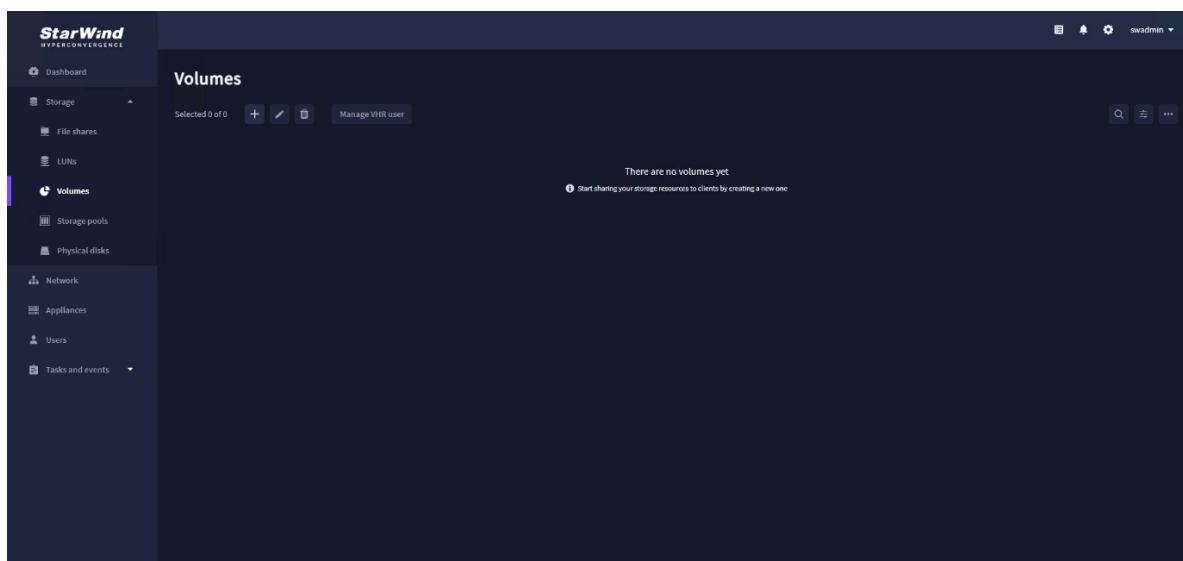
Create Backup Repository

There are multiple options to present storage from StarWind VBA to backup software for use as backup repository. Hardened Repository is recommended for use with Veeam Backup & Replication to ensure immutability for backup files. Otherwise, StarWind VBA can present backup repository as an iSCSI target, NFS or SMB file share.

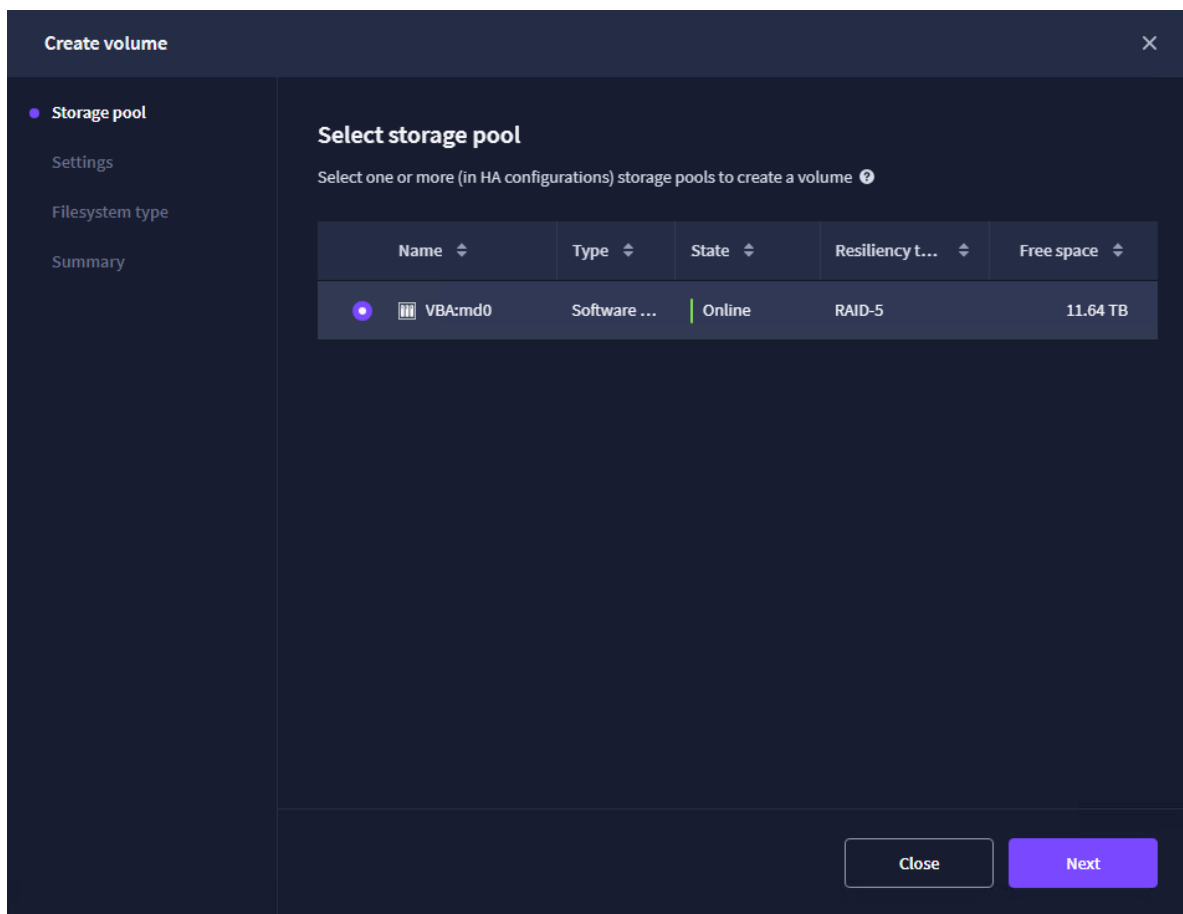
NOTE. Hardened Repository ensures immutability only when used with Veeam Backup & Replication.

Hardened Repository For Veeam Backup & Replication

1. Navigate to the “Volumes” tab and click the “+” button to open the “Create volume” wizard.



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



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

Create volume

✓ Storage pool

● Settings

Filesystem type

Summary

Specify settings

Specify the volume name and size

Name

sw-hardened-repo

You can use Latin letters, numbers, and dash

Size

11

Units

TB

Available storage pool capacity: 11.643 TB

Back

Next

4. Select the “Backup repository” volume type and click Next. Backup repository volume type has been specifically designed for use with Veeam Backup & Replication.

Create volume

✓ Storage pool

✓ Settings

● **Filesystem type**

Summary

Choose filesystem settings

Choose the preferred filesystem settings for the new volume

☐ **Standard**
The XFS volume is created with standard settings. Recommended for general use and the highest performance.

☐ **Raw**
An unformatted volume is created. Recommended for creating an NVMe-oF LUN

☒ **Backup repository**
The XFS volume is created with additional reflink (data block sharing) and CRC check flags.

Back

Next

5. Review Summary and click Create.

Create volume

✓ Storage pool

✓ Settings

✓ Filesystem type

Summary

Review summary

Review your settings before creating a volume

VBA

Storage pool

VBA:md0

Volume name

sw-hardened-repo

Size

11264 GB

Filesystem settings

Backup repository

Back

Create

6. Select the recently created Volume and click “Manage VHR user”. This will create a dedicated Veeam Hardened Repository user with limited permissions for the selected volume.

StarWind

HYPERCONVERGENCE

Dashboard

Storage

File shares

LUNs

Volumes

Storage pools

Physical disks

Network

Appliances

Users

Tasks and events

Volumes

Selected 1 of 1

+

✎

🗑

Manage VHR user

🔍

⌵

⋮

Name	State	Storage pool	Usable capacity	Free space	Type	VHR user	Mount point
sw-hardened-repo	Mounted	md0	11 TB	10.92 TB	Backup repository	-	/mnt/md0/sw-hardened...

NOTE. If Hardened Repository is not required, you can skip the further steps of creating a VHR user. The backup repository can be then added to Veeam Backup & Replication as a Direct Attached Linux storage to benefit from faster Veeam transport Service.

7. Click the “+” sign to create a new VHR user.

Manage VHR user

Create a new or choose the existing Veeam hardened repository (VHR) user that will have exclusive access to **sw-hardened-repo**

+
Q

User	Date created	SSH access
------	--------------	------------

Cancel
Save

8. Specify the user name and password. Make sure to enable SSH access for VHR user.

Click Save.

Create Veeam user

×

The new user will be assigned to the **Veeam service** group. ?

Veeam user name

veeamuser

Can contain lowercase Latin letters, digits, underscores, periods and dashes

Password

••••••••

Must contain 8-64 characters, including numbers, symbols and capital letter

☒ Enable SSH for this user

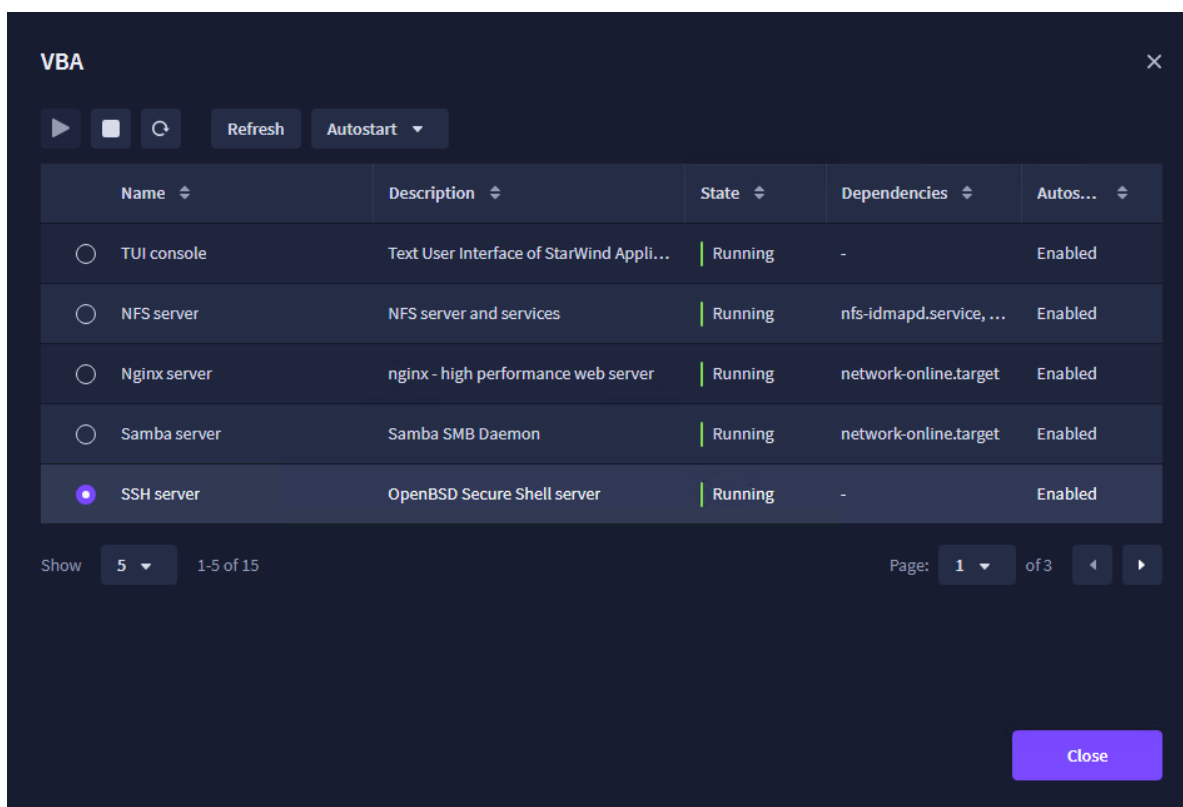
!

Disable SSH after adding the host and creating the hardened repository in the Veeam Backup & Replication console.

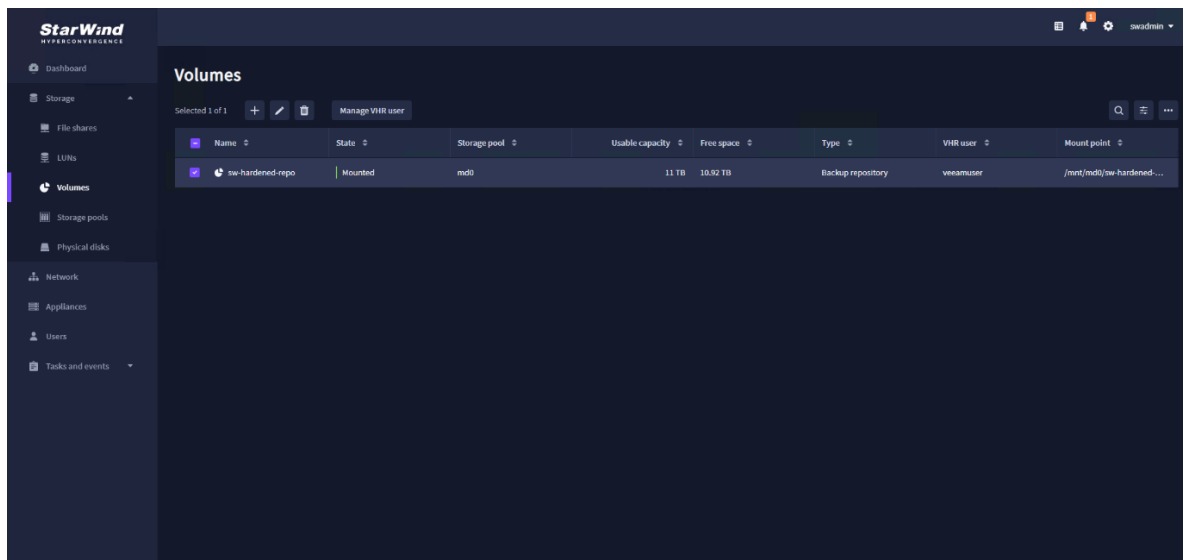
Cancel

Save

9. Make sure that SSH service is started and running in StarWind VBA. For this, click the “settings icon”, navigate to “Services” and start SSH server.

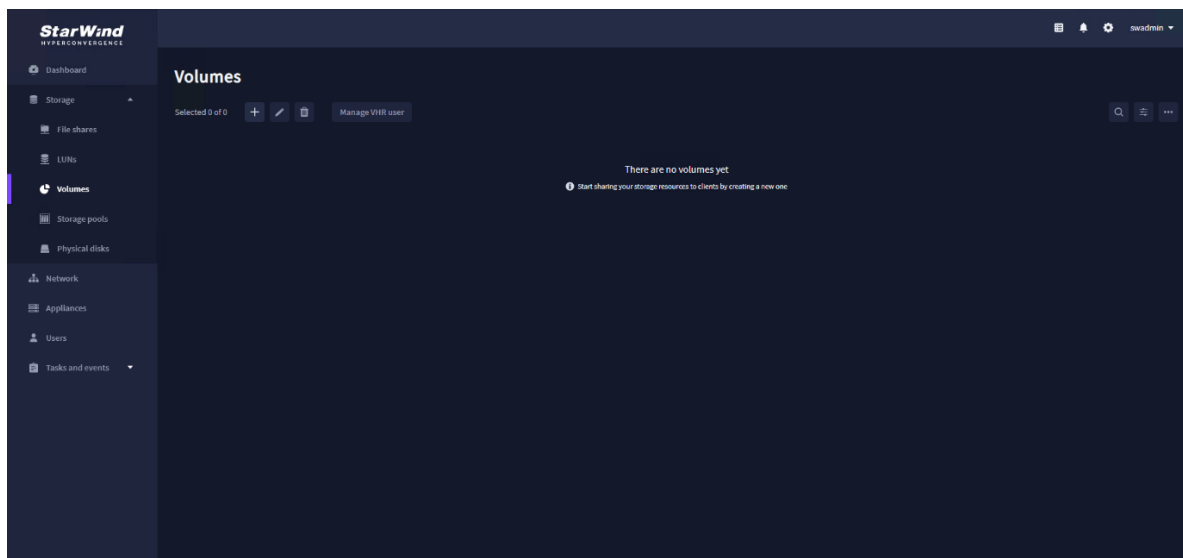


10. The recently created VHR user has been assigned to the volume.

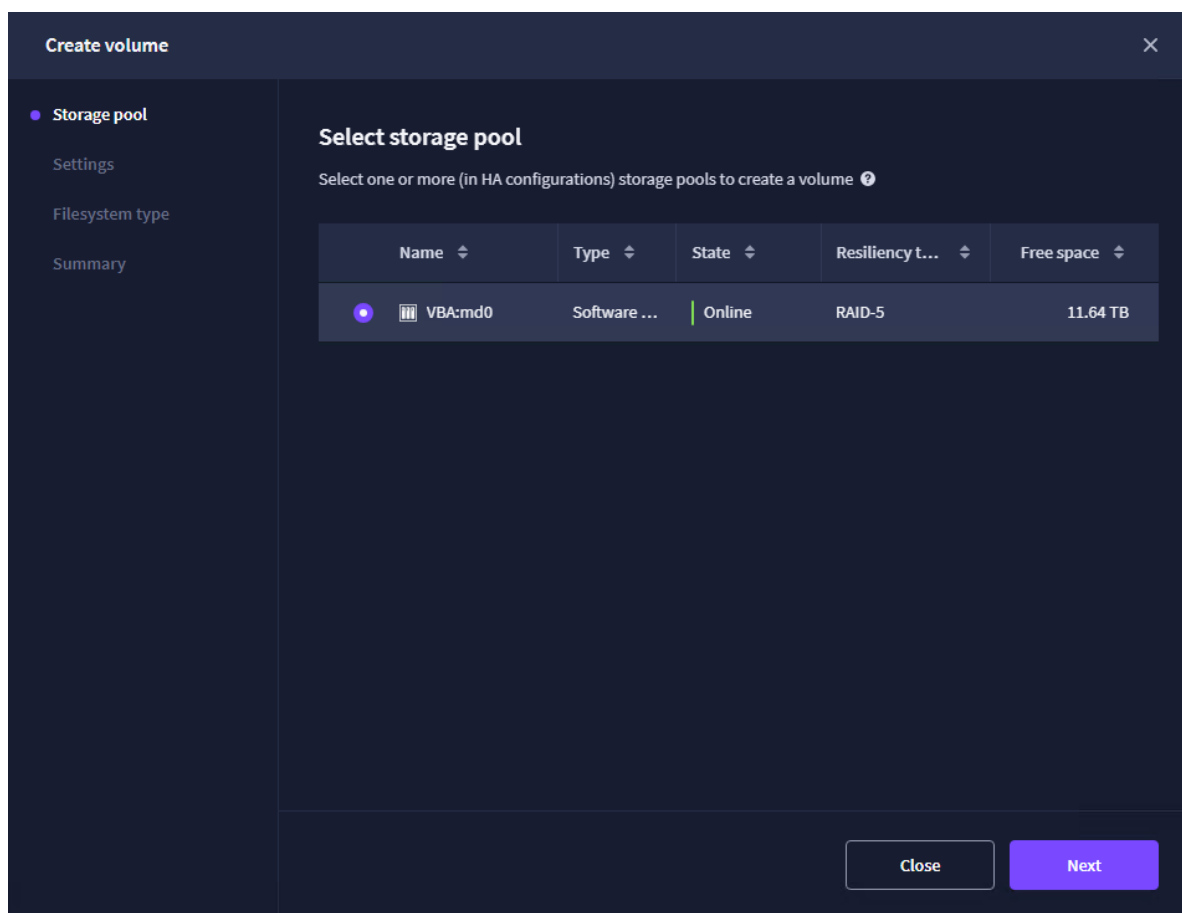


Creating Iscsi Backup Repository

1. Navigate to the “Volumes” tab and click the “+” button to open the “Create volume” wizard.



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



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

Create volume

✓ Storage pool

● Settings

Filesystem type

Summary

Specify settings

Specify the volume name and size

Name

iSCSI-repository

You can use Latin letters, numbers, and dash

Size

11

Units

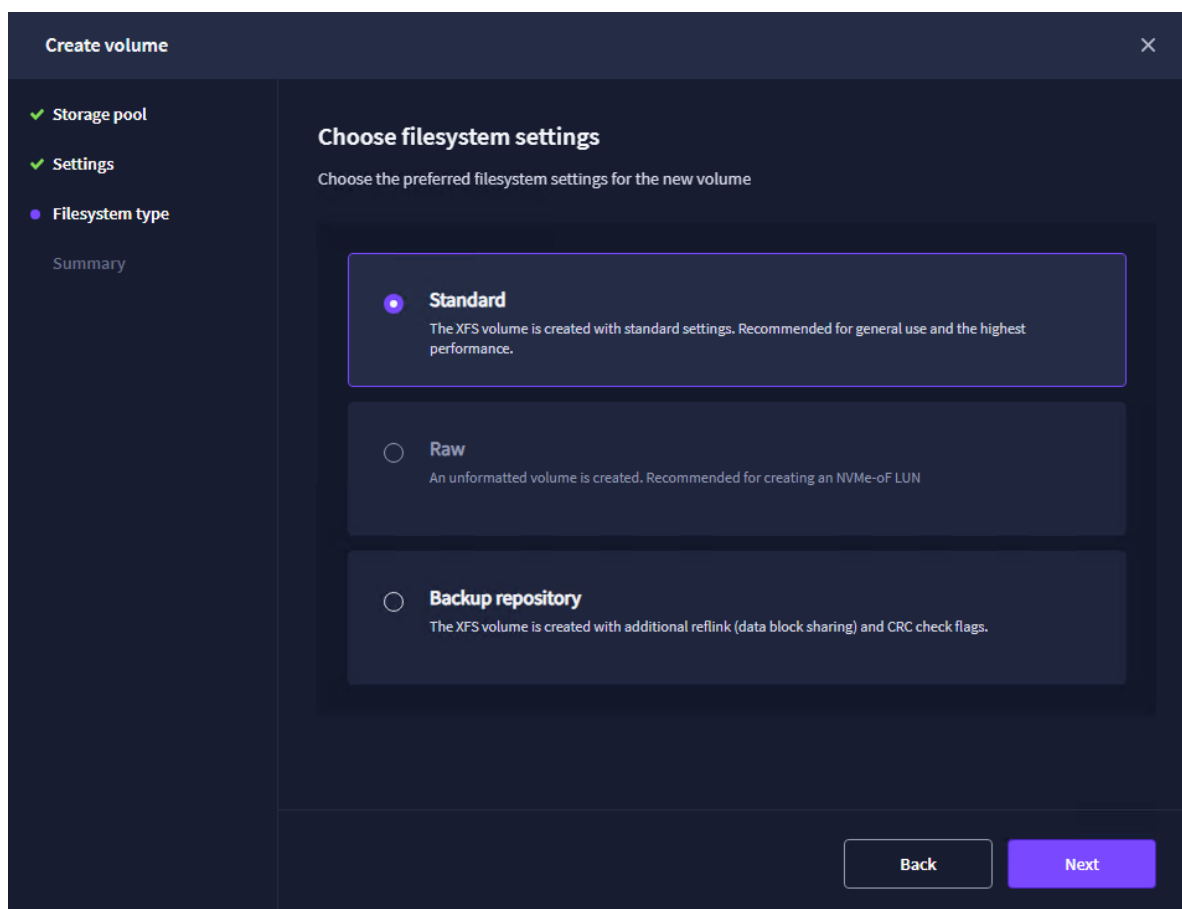
TB

Available storage pool capacity: 11.643 TB

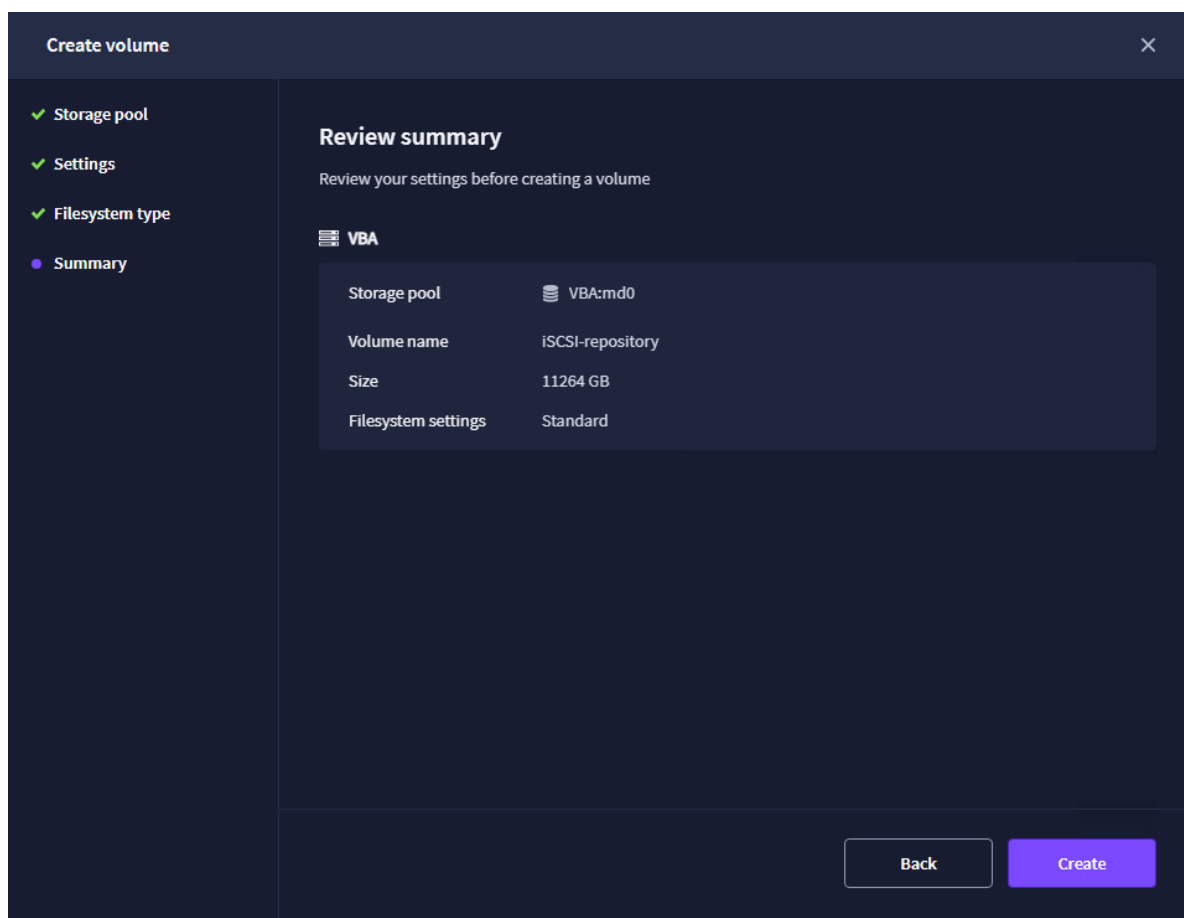
Back

Next

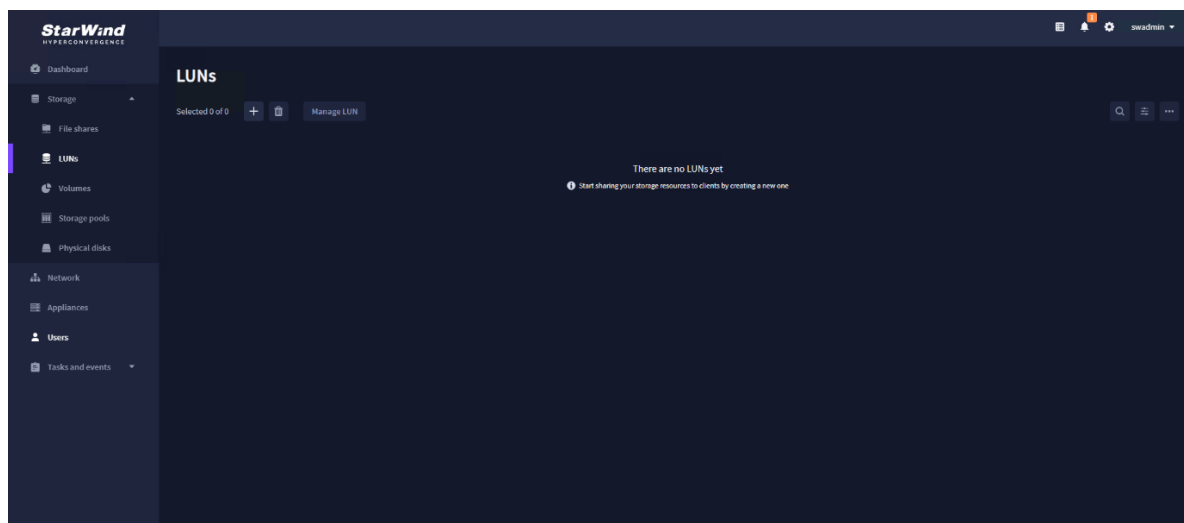
4. Select the "Standard" volume type and click Next.



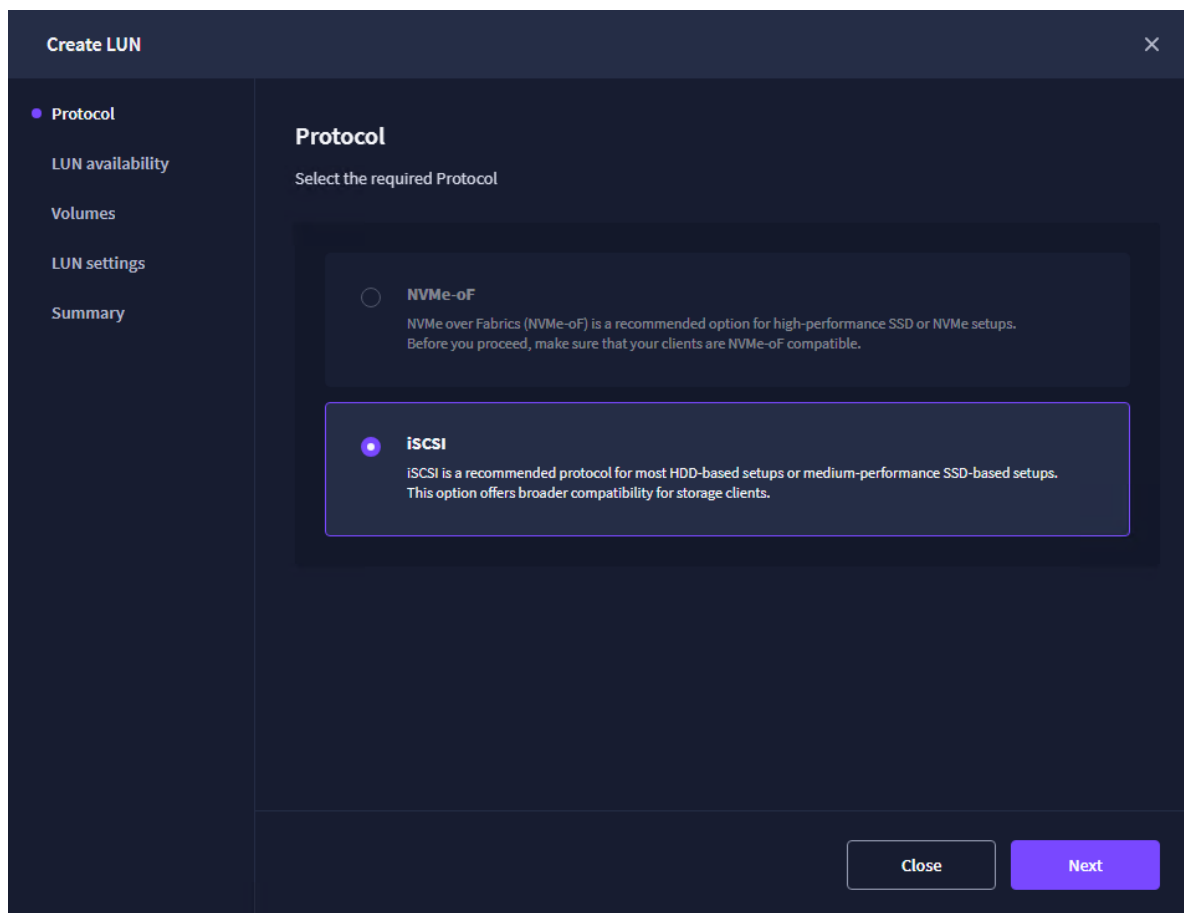
5. Review the Summary and click Create.



6. Navigate to the LUNs tab and click the “+” sign to create an iSCSI target.



7. Click Next.



The screenshot shows the 'Create LUN' dialog box with a sidebar on the left containing the following items: Protocol (selected), LUN availability, Volumes, LUN settings, and Summary. The main area is titled 'Protocol' and contains the instruction 'Select the required Protocol'. There are two options:

- NVMe-oF**: NVMe over Fabrics (NVMe-oF) is a recommended option for high-performance SSD or NVMe setups. Before you proceed, make sure that your clients are NVMe-oF compatible.
- iSCSI**: iSCSI is a recommended protocol for most HDD-based setups or medium-performance SSD-based setups. This option offers broader compatibility for storage clients.

The 'iSCSI' option is selected, indicated by a blue dot. At the bottom right, there are two buttons: 'Close' and 'Next'.

8. Standalone LUN availability is the only option for iSCSI backup repository. Click Next.

Create LUN

✓ Protocol

LUN availability

Volumes

LUN settings

Summary

LUN availability

Select the required LUN availability

☐

High availability (two-way or three-way replication)

Create a synchronously replicated LUN hosted on two or three identical appliances. The LUN stays accessible if one of the replication partners becomes unavailable.

☒

Standalone

Create a non-replicated iSCSI LUN hosted on a single appliance. The LUN will not be accessible if its host becomes unavailable.

Back

Next

9. Select the volume on which the iSCSI LUN will be stored.

Create LUN

✓ Protocol

✓ LUN availability

• Volumes

LUN settings

Summary

Volumes

Select a volume to store the LUN data

Volume	State	RAID le...	Capacity	Free Sp...	Type
iSCSI-re...	Mounted	RAID-5	11 TB	10.92 TB	Standard

Back

Next

10. Specify the iSCSI LUN name and size. Click Next.

Create LUN

✓ Protocol

✓ LUN availability

✓ Volumes

● LUN settings

Summary

LUN settings

Specify the LUN settings

LUN name

iSCSI-repo

LUN size

10

Units

TB

Block size

512 bytes

Available space: 10.921 TB

☐ Create VMFS6 datastore ⓘ

Review target IQNs

Appliance 1 IQN

iqn.2008-08.com.starwindsoftware:172.27.31.64-iscsi-...

☒ Allow multiple concurrent connections to iSCSI targets (MPIO)

Back

Next

11. Review the Summary and click Create LUN.

Create LUN

✓ Protocol

✓ LUN availability

✓ Volumes

✓ LUN settings

Summary

Summary

Protocol

iSCSI

LUN availability

Standalone

Volume names

iSCSI-repository

Volume sizes

11 TB

LUN name

iSCSI-repo

LUN size

10 TB

MPIO

Enabled

Create VMFS6 datastore

No

Target name

iqn.2008-08.com.starwindsoftware:172.27.31.64-iscsi-repo

Back

Create LUN

12. The iSCSI target has been created and is ready to be connected to the backup software.

StarWind

HYPERCONVERGENCE

Dashboard

Storage

File shares

LUNS

Volumes

Storage pools

Physical disks

Network

Appliances

Users

Tasks and events

LUNs

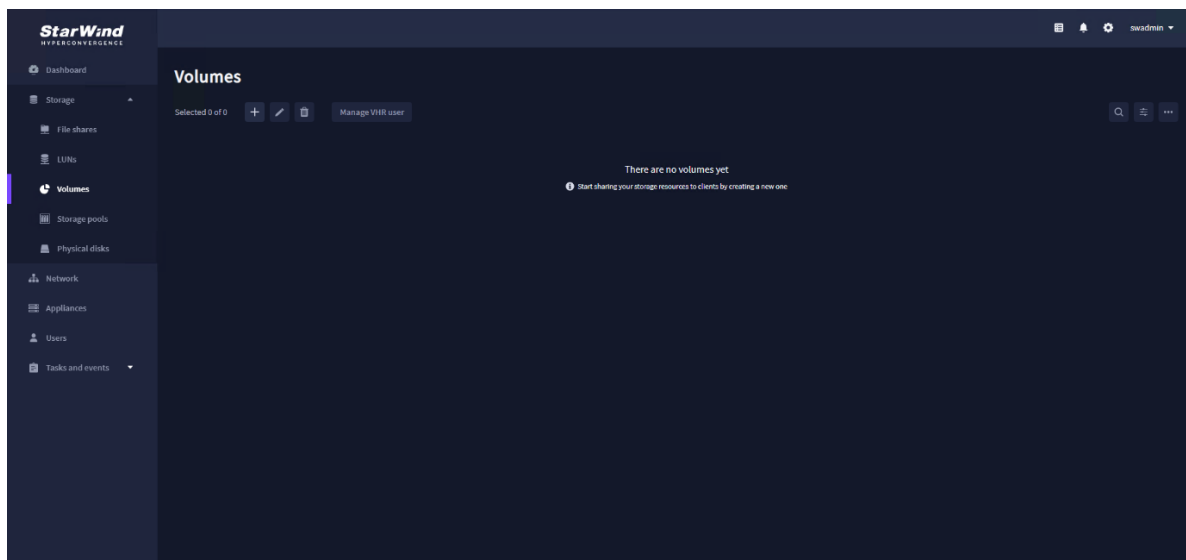
Selected 0 of 1

Manage LUN

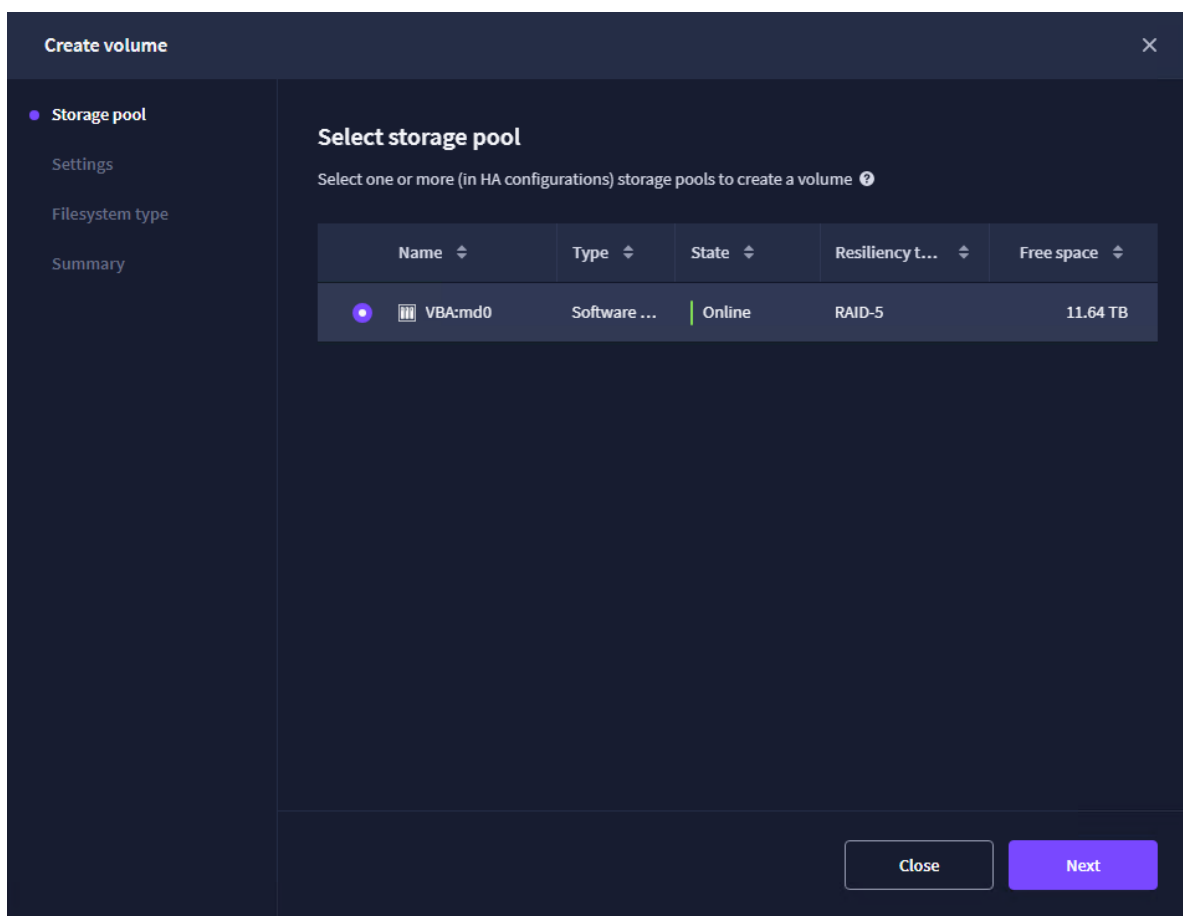
	Name	Availability	Sessions	State	Volume Name	Capacity	Target type	Targets
☐	iSCSI-repo	Standalone	-	Online	iSCSI-repository	10 TB	iSCSI	iqn.2008-08.com.starwin...

Creating Nfs Backup Repository

1. Navigate to the “Volumes” tab and click the “+” button to open the “Create volume” wizard.



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



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

Create volume

✓ Storage pool

● Settings

Filesystem type

Summary

Specify settings

Specify the volume name and size

Name

backup-repository

You can use Latin letters, numbers, and dash

Size

11

Units

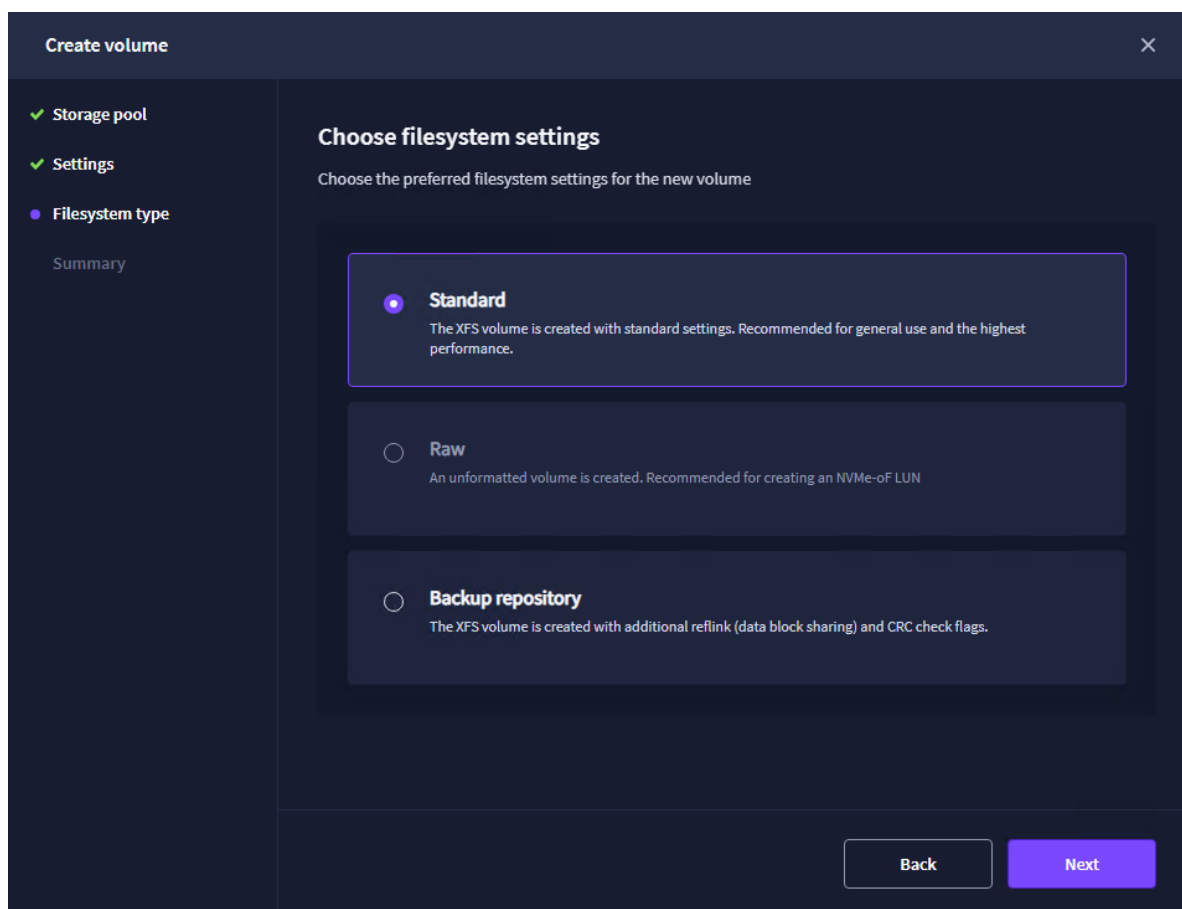
TB

Available storage pool capacity: 11.643 TB

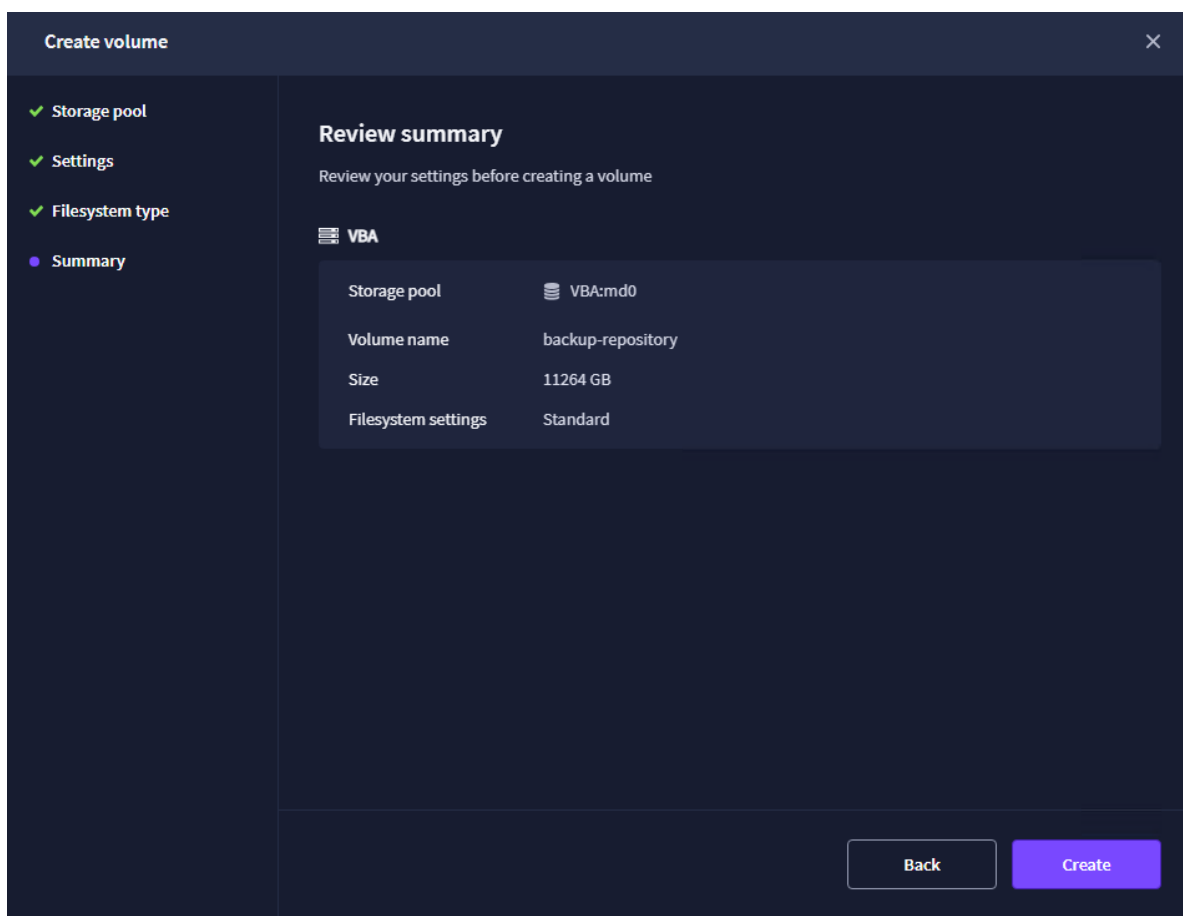
Back

Next

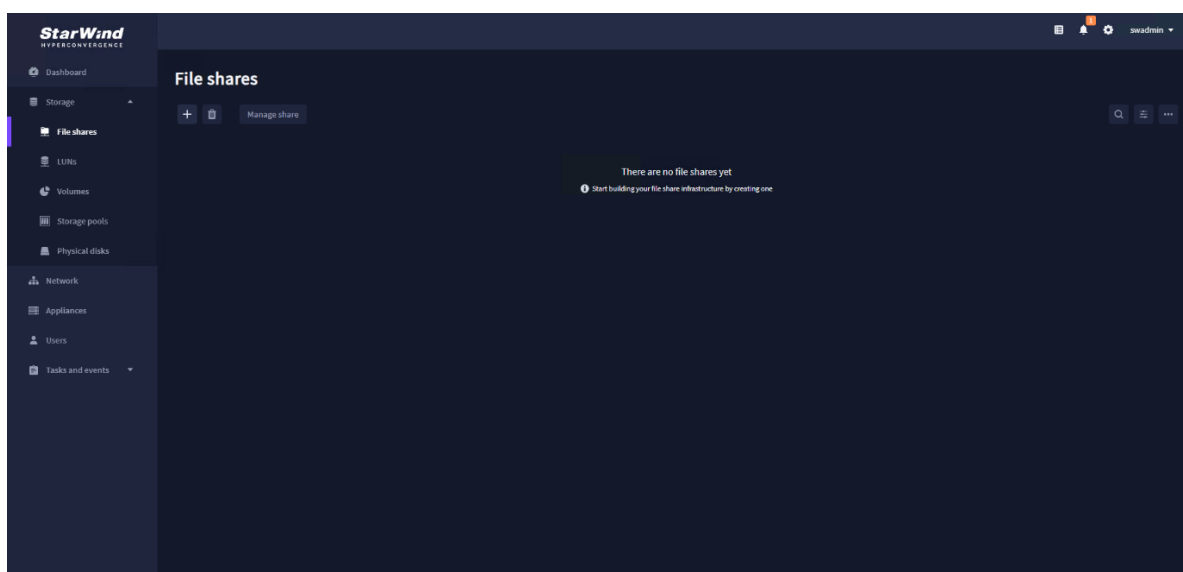
4. Select the "Standard" volume type and click Next.



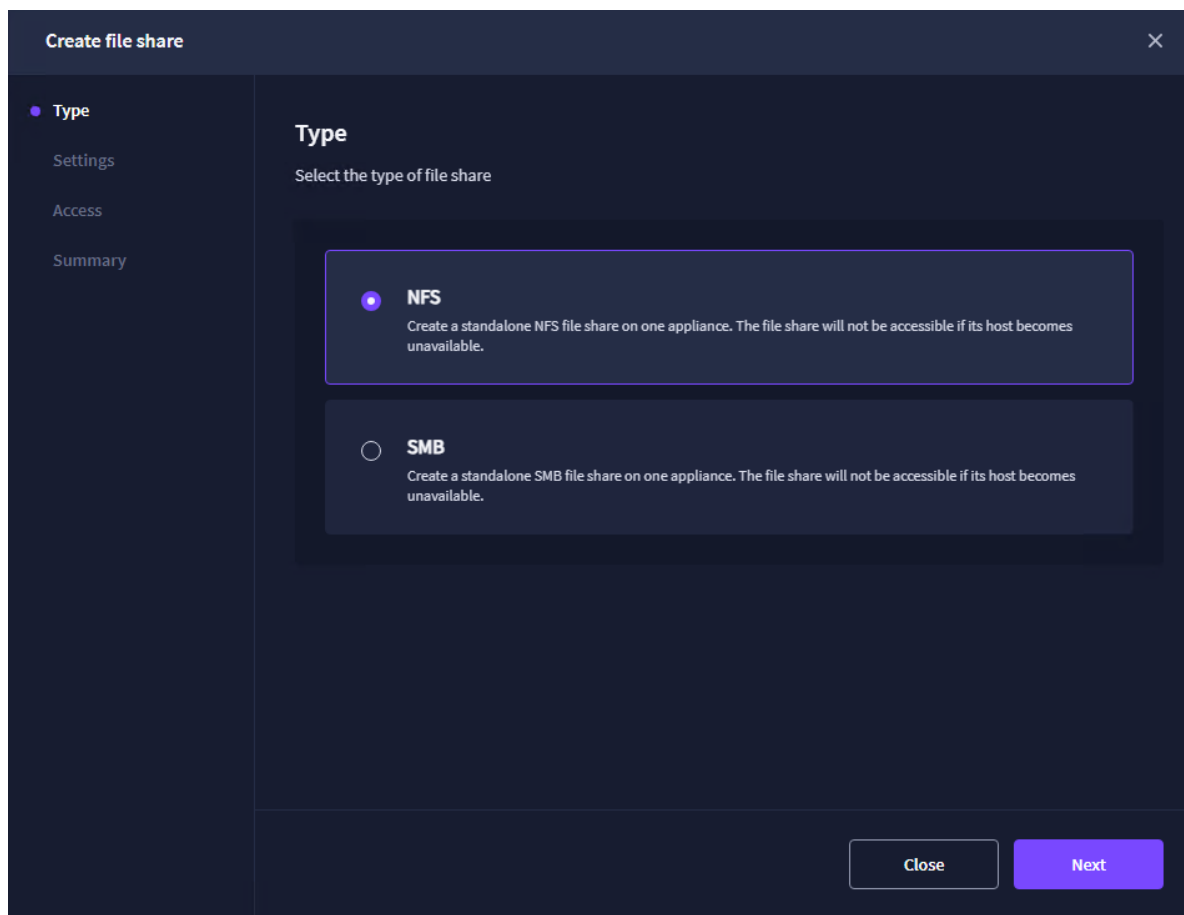
5. Review the Summary and click Create.



6. Navigate to the File shares tab and click the “+” sign.



7. Select the NFS file share type and click Next.



The screenshot shows a 'Create file share' window with a sidebar on the left containing 'Type', 'Settings', 'Access', and 'Summary'. The 'Type' section is active, displaying the title 'Type' and the instruction 'Select the type of file share'. Two options are presented: 'NFS' (selected with a blue dot) and 'SMB' (unselected with a white dot). Both options include a description: 'Create a standalone [NFS/SMB] file share on one appliance. The file share will not be accessible if its host becomes unavailable.' At the bottom right, there are 'Close' and 'Next' buttons.

8. Specify the file share name and volume on which it will be located.

Create file share

×

✓ Type

● Settings

Access

Summary

Settings

Specify the file share settings

File share name

vba-nfs

Name should be unique

Volume

backup-repository

Network path

VBA:/mnt/md0/backup-repository/vba-nfs

ⓘ

The network share can be connected using all configured network interfaces

Back

Next

9. Specify the required access settings to the NFS share. Click Next.

Create file share

✓ Type

✓ Settings

● Access

Summary

Access

Set access to the file share for specific networks or hosts. If needed, use the Network interfaces table to list current networks.

Network interfaces

Set the read-write access for hosts/IPs

☒ All hosts/IPs
☐ Specified hosts/IPs

Address/network mask, CIDR network or FQDN

Separated by commas

Set the read-only access for hosts/IPs

☒ None
☐ All hosts/IPs

Back

Next

10. Review Summary and click Create.

StarWind Virtual Backup Appliance: Configuration Guide for Bare-metal Installation, Virtual Backup Appliance Deployed as a Linux ISO using Web UI

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Create file share

✓ Type

✓ Settings

✓ Access

Summary

Summary

Appliance

VBA

File share name

vba-nfs

Type

NFS

Volume

backup-repository

Path on volume

/mnt/md0/backup-repository/vba-nfs

Network Path

VBA:/mnt/md0/backup-repository/vba-nfs

Read-write access

All hosts

Read-only access

None

Back

Create

11. The NFS share repository is ready to be connected to the backup software.

StarWind

Dashboard

Storage

File shares

LUNs

Volumes

Storage pools

Physical disks

Network

Appliances

Users

Tasks and events

File shares

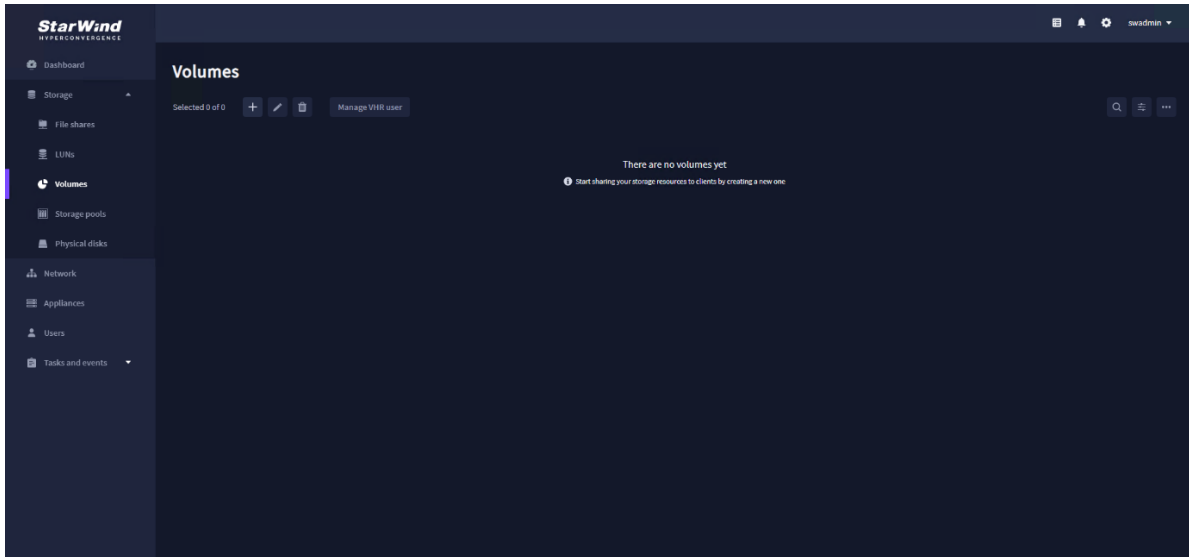
+

Manage share

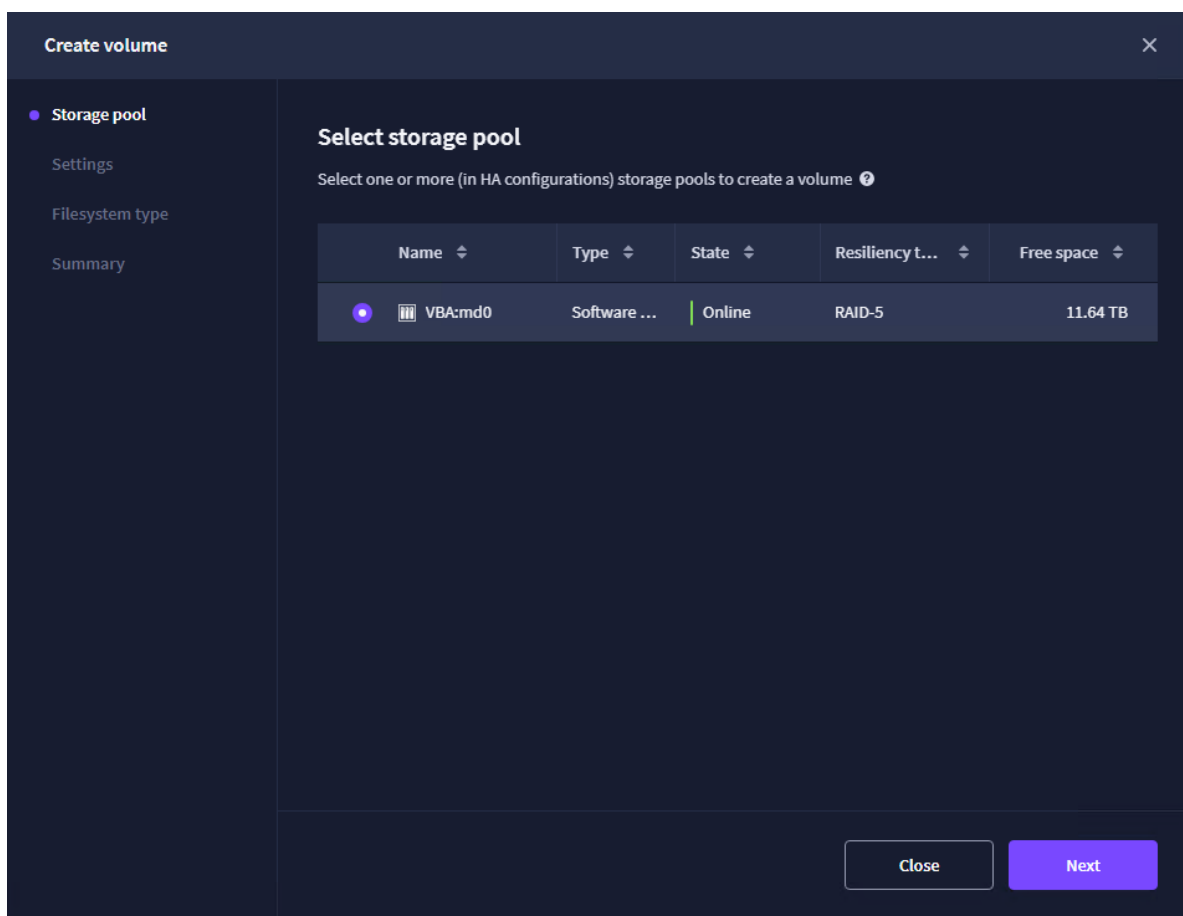
Name	Path	Network path	Type	Appliance	Used capacity	Free capacity
vba-nfs	/mnt/md0/backup-repository/v...	172.27.31.64:/mnt/md0/backup...	NFS	VBA	6 Bytes	10.92 TB

Creating Smb Backup Repository

1. Navigate to the “Volumes” tab and click the “+” button to open the “Create volume” wizard.



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



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

Create volume

✓ Storage pool

● Settings

Filesystem type

Summary

Specify settings

Specify the volume name and size

Name

backup-repository

You can use Latin letters, numbers, and dash

Size

11

Units

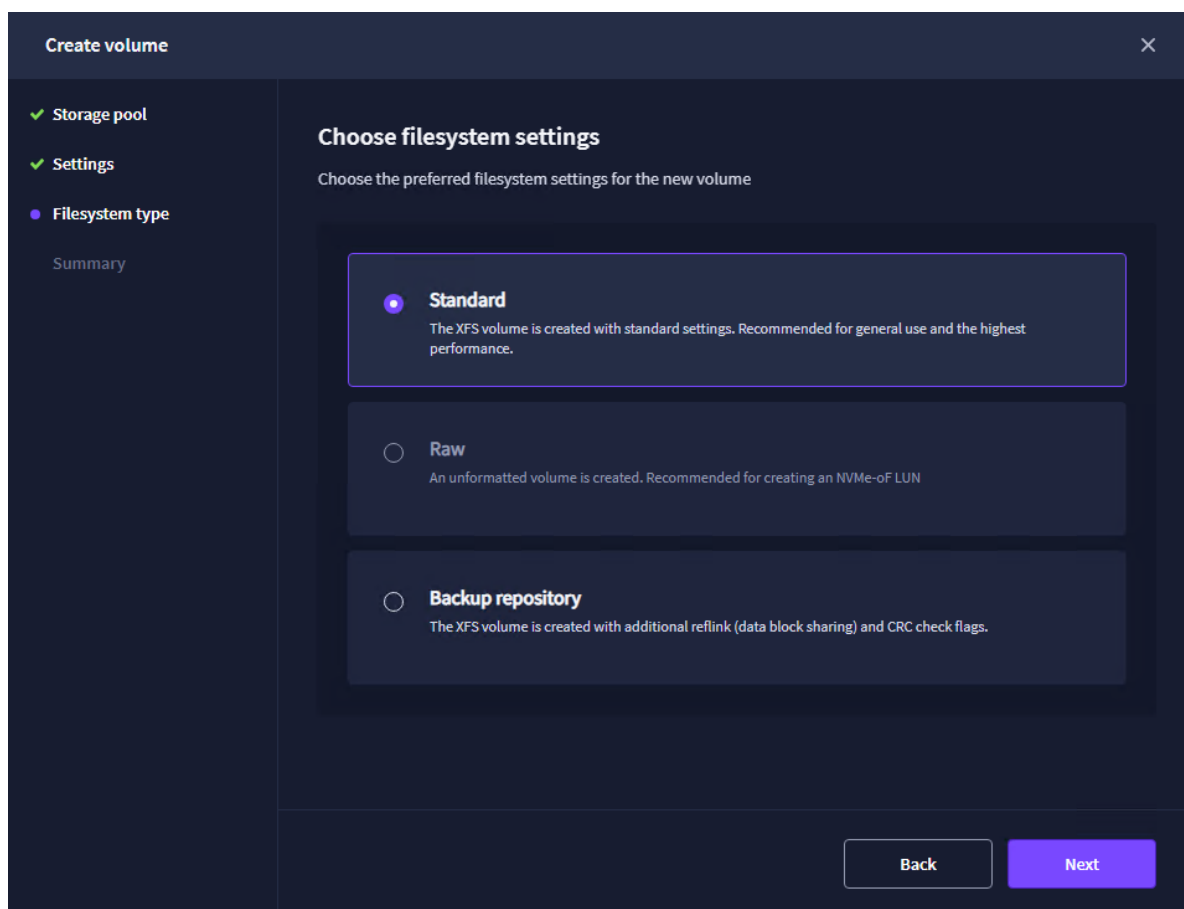
TB

Available storage pool capacity: 11.643 TB

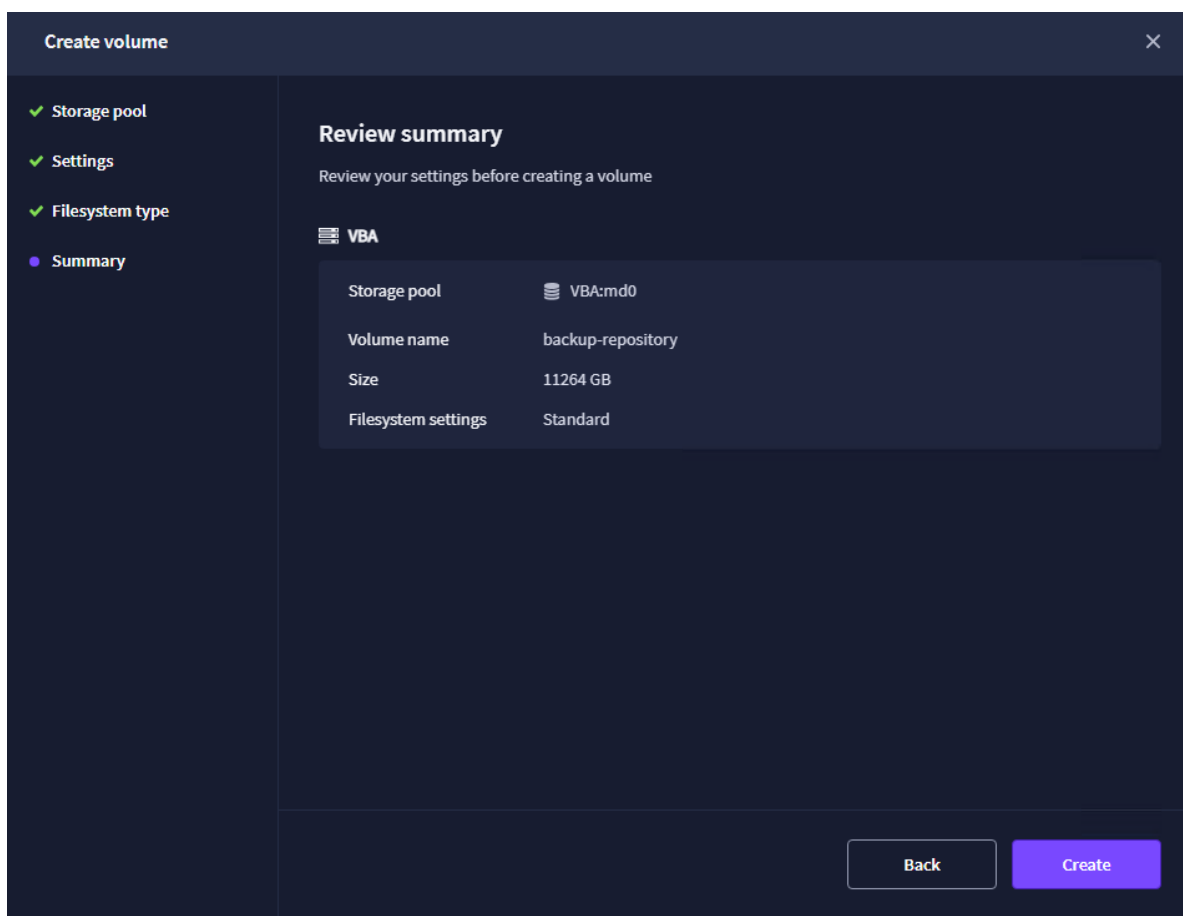
Back

Next

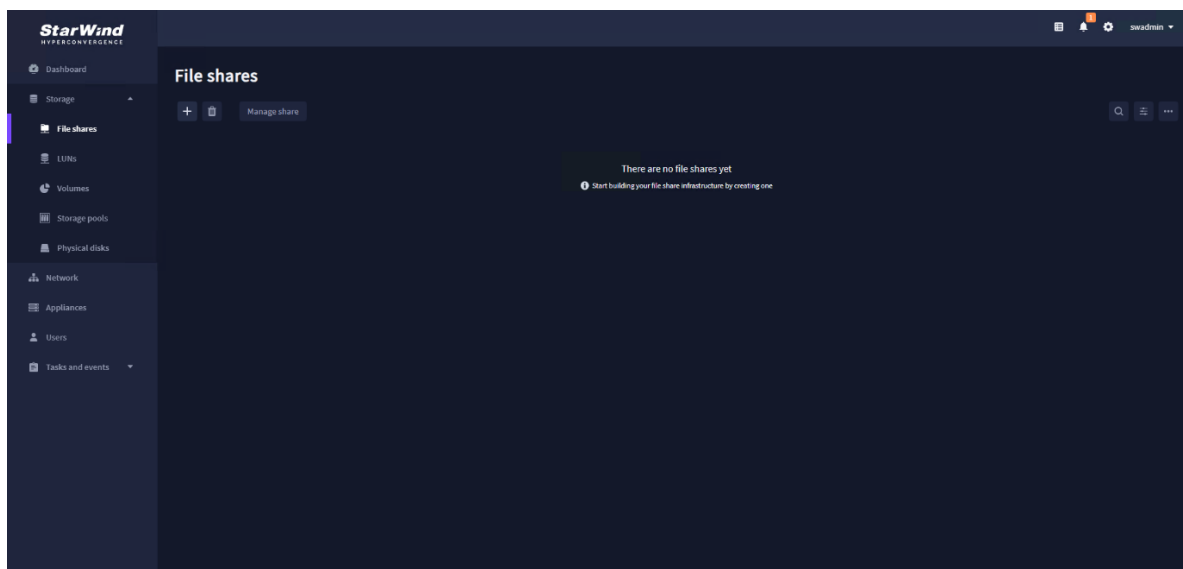
4. Select the "Standard" volume type and click Next.



5. Review the Summary and click Create.



6. Navigate to the File shares tab and click the “+” sign.



7. Select the SMB file share type and click Next.

Create file share [X]

Type

Select the type of file share

☐ **NFS**
Create a standalone NFS file share on one appliance. The file share will not be accessible if its host becomes unavailable.

☒ **SMB**
Create a standalone SMB file share on one appliance. The file share will not be accessible if its host becomes unavailable.

[Close] [Next]

8. Specify the file share name and volume on which it will be located.

Create file share

×

✓ Type

● Settings

Access

Summary

Settings

Specify the file share settings

File share name

vba-smb

Name should be unique

Volume

backup-repository

Network path

\\VBA\vba-smb

ⓘ

The network share can be connected using all configured network interfaces

Back

Next

9. Specify the required access settings to the SMB share. Click Next.

Create file share

✓ Type

✓ Settings

● Access

Summary

Access

Set the access for users

User	Permissions	Access level
swadmin	Administrator	read-write
Guests	Guests	no access

☒ Browseable

Back

Next

10. Review Summary and click Create.

Create file share

✓ Type

✓ Settings

✓ Access

Summary

Summary

Appliance

VBA

File share name

vba-smb

Type

SMB

Volume

backup-repository

Path on volume

/mnt/md0/backup-repository/vba-smb

Network Path

\\VBA\vba-smb

Read-write access level

swadmin

Anonymous access

no access

Browseable

Yes

Back

Create

11. The SMB share repository is ready to be connected to the backup software.

StarWind

HYPERCONVERGENCE

Dashboard

Storage

File shares

LUNs

Volumes

Storage pools

Physical disks

Network

Appliances

Users

Tasks and events

File shares

+

Manage share

Q

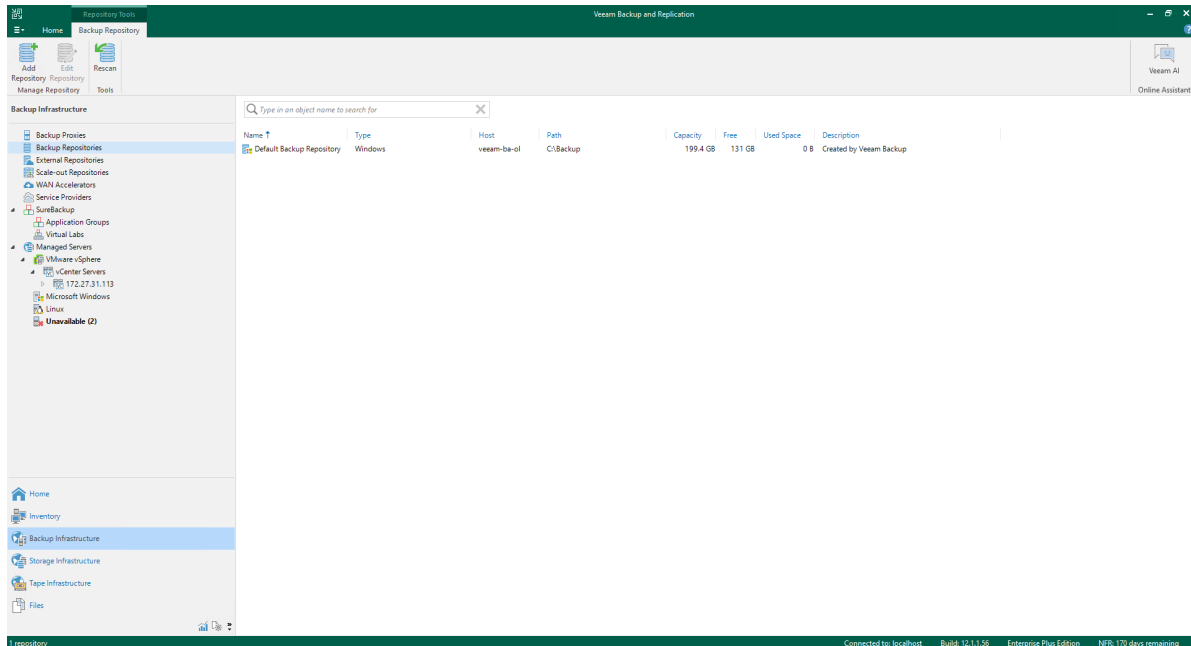
≡

...

Name	Path	Network path	Type	Appliance	Used capacity	Free capacity
vba-smb	/mnt/md0/backup-repository/v...	\\172.27.31.64\vba-smb, \\172.1...	SMB	VBA	6 Bytes	10.92 TB

Adding Hardened Repository To Veeam Backup & Replication

1. Open the Veeam Backup and Replication console, navigate to “Backup Infrastructure”, and select “Backup Repositories”.



2. Click “Add Repository” and select “Direct attached storage”.

Add Backup Repository ✕

Select the type of backup repository you want to add.



Direct attached storage

Microsoft Windows or Linux server with internal or direct attached storage. This configuration enables data movers to run directly on the server, allowing for fastest performance.



Network attached storage

Network share on a file server or a NAS device. When backing up to a remote share, we recommend that you select a gateway server located in the same site with the share.



Deduplicating storage appliance

Dell Data Domain, ExaGrid, Fujitsu ETERNUS CS800, HPE StoreOnce, Infinidat InfiniGuard or Quantum DXi. If you are unable to meet the requirements of advanced integration via native appliance API, use the network attached storage option instead.



Object storage

On-prem object storage system or a cloud object storage provider.

Cancel

3. Select "Linux (Hardened Repository)".



Direct Attached Storage

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

✕



Microsoft Windows

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



Linux

Adds local storage or locally mounted NFS share. For better performance and storage efficiency, we recommend using XFS. The Linux server must use bash shell, and have SSH and Perl installed.



Linux (Hardened Repository)

Requires a Linux server with internal or direct attached storage. This configuration enables protection against cybersecurity threats with immutable backups. The Linux server must use bash shell and have SSH installed. For reduced attack surface, minimal Linux installation is highly recommended.

Cancel

4. In the “New Backup Repository” wizard, specify the name and description for the new repository and click “Next”.

New Backup Repository
×



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

Name	
Server	
Repository	
Mount Server	
Review	
Apply	
Summary	

Name:

Description:

< Previous
Next >
Finish
Cancel

5. Click “Add New...”.

New Backup Repository
×



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

Name

Server

Repository
Mount Server
Review
Apply
Summary

Repository server:

Add New...

Path	Capacity	Free

Populate

< Previous

Next >

Finish

Cancel

6. In the “New Linux Server” wizard, specify the IP address of the backup traffic network interface (Data) on StarWind VBA and click “Next”.

NOTE. You can add a backup repository using the management IP address of StarWind VBA or DNS name. It is recommended to add the backup traffic network (Data) to Veeam preferred Networks after the addition of backup repository in case a separate dedicated backup (Data) network is present:

https://helpcenter.veeam.com/docs/backup/vsphere/select_backup_network.html?ver=120

New Linux Server
×



Name
Specify DNS name or IP address of Linux server. The server must have SSH and Perl installed.

Name	DNS name or IP address: 172.16.30.10
SSH Connection	Description: Created by SW-VEEAMBR-OL\Administrator at 10/4/2024 8:09 AM.
Review	
Apply	
Summary	

< Previous
Next >
Finish
Cancel

7. Click “Add...” to add the VHR user account created previously that will be used for single-use credentials.

New Linux Server
×


SSH Connection
 Provide credentials for service console connection, and adjust secure shell (SSH) port number using advanced settings if required.

Name	Single-use credentials:
SSH Connection	Add new single-use credentials ▼ Add...
Review	
Apply	
Summary	

Customize advanced connection settings such as SSH timeout and service ports.
 Advanced...

< Previous
Next >
Finish
Cancel

8. Specify the VHR user account credentials and click OK. Specify Advanced settings if required and then click Next.

Credentials

Username:

veeamuser

Password:

••••••••

SSH port:

22

Non-root account

☒ Elevate account privileges automatically
 ☐ Add account to the sudoers file
 ☐ Use "su" if "sudo" fails

Root password:

Description:

veeamuser

OK

Cancel

9. Review the components that will be installed and click Apply.

StarWind Virtual Backup Appliance: Configuration Guide for Bare-metal Installation, Virtual Backup Appliance Deployed as a Linux ISO using Web UI

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New Linux Server
×



Review
Please review your settings and click Apply to continue.

Name
SSH Connection
Review
Apply
Summary

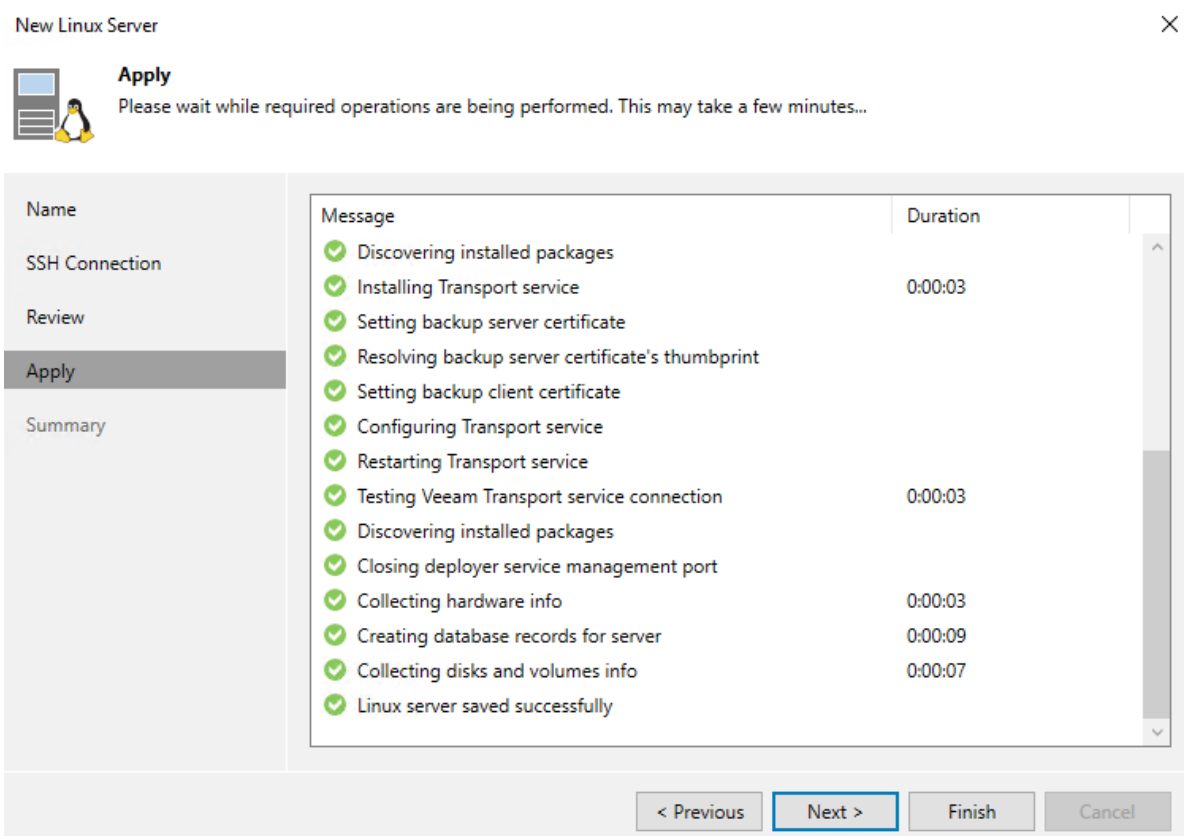
Due to these modifications the following components will be installed or removed on the target host:

Component name	Status
Installer	will be installed
Transport	will be installed

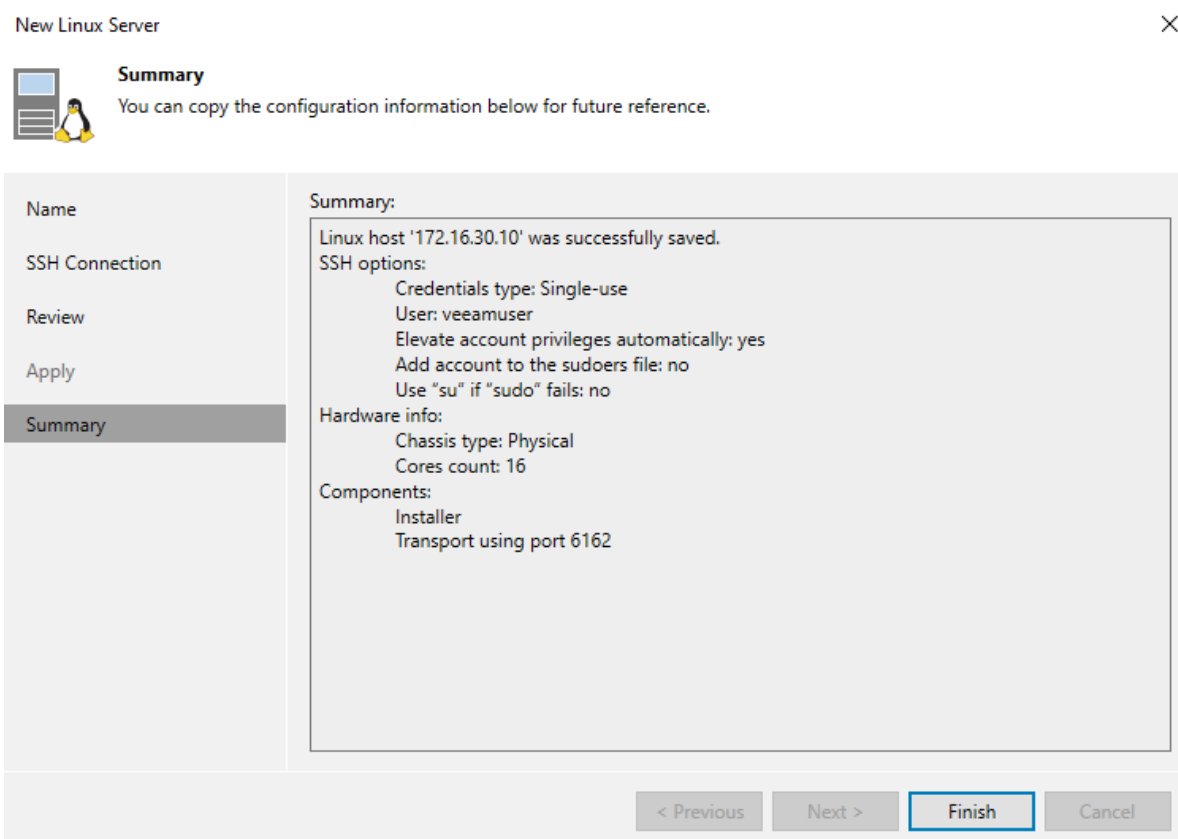
After you click Apply missing components will be installed on the target host.

< Previous
Apply
Finish
Cancel

10. Wait until the installation is complete and click “Next”.



11. Review the summary and click Finish.



12. In the “New Backup Repository” wizard, select the newly added StarWind VBA server and click “Populate”. Select the Backup repository volume created in StarWind VBA and click Next.

New Backup Repository



Server

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

Name	Repository server:																																						
Server	172.16.30.10 (Created by SW-VEEAMBR-OL\Administrator at 10/4/2024 8:09 AM.) Add New...																																						
Repository	<table border="1"> <thead> <tr> <th>Path</th> <th>Capacity</th> <th>Free</th> </tr> </thead> <tbody> <tr> <td>/ (/dev/mapper/main-root)</td> <td>28.7 GB</td> <td>18.5 GB</td> </tr> <tr> <td>/boot (/dev/sda3)</td> <td>456 MB</td> <td>240.6 MB</td> </tr> <tr> <td>/boot/efi (/dev/sda2)</td> <td>240.2 MB</td> <td>240.2 MB</td> </tr> <tr> <td>/dev (udev)</td> <td>3.8 GB</td> <td>3.8 GB</td> </tr> <tr> <td>/dev/shm (tmpfs)</td> <td>3.9 GB</td> <td>3.9 GB</td> </tr> <tr> <td>/mnt/md0/sw-hardened-repo (/dev/mapper/vg...</td> <td>11 TB</td> <td>10.9 TB</td> </tr> <tr> <td>/run (tmpfs)</td> <td>793.4 MB</td> <td>790.8 MB</td> </tr> <tr> <td>/run/lock (tmpfs)</td> <td>5 MB</td> <td>5 MB</td> </tr> <tr> <td>/run/user/1002 (tmpfs)</td> <td>793.3 MB</td> <td>793.3 MB</td> </tr> <tr> <td>/run/user/1003 (tmpfs)</td> <td>793.3 MB</td> <td>793.3 MB</td> </tr> <tr> <td>/sys/fs/cgroup (tmpfs)</td> <td>3.9 GB</td> <td>3.9 GB</td> </tr> </tbody> </table> Populate			Path	Capacity	Free	/ (/dev/mapper/main-root)	28.7 GB	18.5 GB	/boot (/dev/sda3)	456 MB	240.6 MB	/boot/efi (/dev/sda2)	240.2 MB	240.2 MB	/dev (udev)	3.8 GB	3.8 GB	/dev/shm (tmpfs)	3.9 GB	3.9 GB	/mnt/md0/sw-hardened-repo (/dev/mapper/vg...	11 TB	10.9 TB	/run (tmpfs)	793.4 MB	790.8 MB	/run/lock (tmpfs)	5 MB	5 MB	/run/user/1002 (tmpfs)	793.3 MB	793.3 MB	/run/user/1003 (tmpfs)	793.3 MB	793.3 MB	/sys/fs/cgroup (tmpfs)	3.9 GB	3.9 GB
Path	Capacity	Free																																					
/ (/dev/mapper/main-root)	28.7 GB	18.5 GB																																					
/boot (/dev/sda3)	456 MB	240.6 MB																																					
/boot/efi (/dev/sda2)	240.2 MB	240.2 MB																																					
/dev (udev)	3.8 GB	3.8 GB																																					
/dev/shm (tmpfs)	3.9 GB	3.9 GB																																					
/mnt/md0/sw-hardened-repo (/dev/mapper/vg...	11 TB	10.9 TB																																					
/run (tmpfs)	793.4 MB	790.8 MB																																					
/run/lock (tmpfs)	5 MB	5 MB																																					
/run/user/1002 (tmpfs)	793.3 MB	793.3 MB																																					
/run/user/1003 (tmpfs)	793.3 MB	793.3 MB																																					
/sys/fs/cgroup (tmpfs)	3.9 GB	3.9 GB																																					
Mount Server																																							
Review																																							
Apply																																							
Summary																																							

< Previous
Next >
Finish
Cancel

13. Make sure that the “Use fast cloning on XFS volumes” setting is enabled and specify the required retention period for immutability as well as other settings if required. Click Next.

New Backup Repository
×


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

Name	Location
Server	Path to folder: /mnt/md0/sw-hardened-repo/backups Browse...
Repository	 Capacity: <Unknown> Populate  Free space: <Unknown>
Mount Server	☒ Use fast cloning on XFS volumes (recommended) Reduces storage consumption and improves synthetic backup performance.
Review	Make recent backups immutable for: 7 days Protects backups from modification or deletion by ransomware, malicious insiders and hackers. GFS backups are made immutable for the entire duration of their retention policy.
Apply	Load control Running too many concurrent tasks against the repository may reduce overall performance, and cause I/O timeouts. Control storage device saturation with the following settings:
Summary	☒ Limit maximum concurrent tasks to: 4 ☐ Limit read and write data rate to: 1 MB/s
	Click Advanced to customize repository settings. Advanced...

< Previous
Next >
Finish
Cancel

14. Select the Mount server and instant-recovery write cache folder. Specify additional Ports settings if required.

New Backup Repository
×



Mount Server
Specify a server to mount backups to when performing advanced restores (file, application item and instant VM recoveries).
Instant recoveries require a write cache folder to store changed disk blocks in.

Name	Mount server:	sw-veeambr-01 (Backup server) ▼ Add New...
Server	Instant recovery write cache folder:	C:\ProgramData\Veeam\Backup\IRCache\ Browse...
Repository	Ensure that the selected volume has sufficient free disk space to store changed disk blocks of instantly recovered machines. We recommend placing the write cache folder on an SSD drive.	
Mount Server	☒ Enable vPower NFS service on the mount server (recommended) Ports... Unlocks instant recovery of any backup (physical, virtual or cloud) to a VMware vSphere VM. vPower NFS service is not used for instant recovery to a Microsoft Hyper-V VM.	
Review		
Apply		
Summary		

< Previous
Next >
Finish
Cancel

15. Review the settings and components that will be installed and click Apply.

New Backup Repository



Review

Please review the settings, and click Apply to continue.

Name	The following components will be processed on server sw-veeambr-ol:	
Server	Component name	Status
Repository	vPower NFS	already exists
Mount Server	Mount Server	already exists
	VMware VDDK	already exists
Review		
Apply		
Summary		
☐ Search the repository for existing backups and import them automatically ☐ Import guest file system index data to the catalog		
< Previous Apply Finish Cancel		

16. Wait until the backup repository is created and click Next.

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 infrastructure item update process	0:00:02	
Repository	✓ Discovering installed packages		
Mount Server	✓ Registering client sw-veeambr-ol for package vPower NFS		
	✓ Registering client sw-veeambr-ol for package Mount Server		
	✓ Registering client sw-veeambr-ol for package VMware VDDK		
Review	✓ Discovering installed packages		
	✓ All required packages have been successfully installed		
Apply	✓ Detecting server configuration		
	✓ Reconfiguring vPower NFS service	0:00:07	
	✓ Creating configuration database records for installed packages		
	✓ Collecting backup repository info	0:00:03	
	✓ Opening deployer service management port		
	✓ Checking write permissions for the repository folder		
	✓ Enabling restricted mode for Installer		
	✓ Closing deployer service management port		
	✓ Creating database records for repository	0:00:04	
	✓ Backup repository has been saved successfully		

< Previous

Next >

Finish

Cancel

17. Review the summary and click Finish.

New Backup Repository



Summary

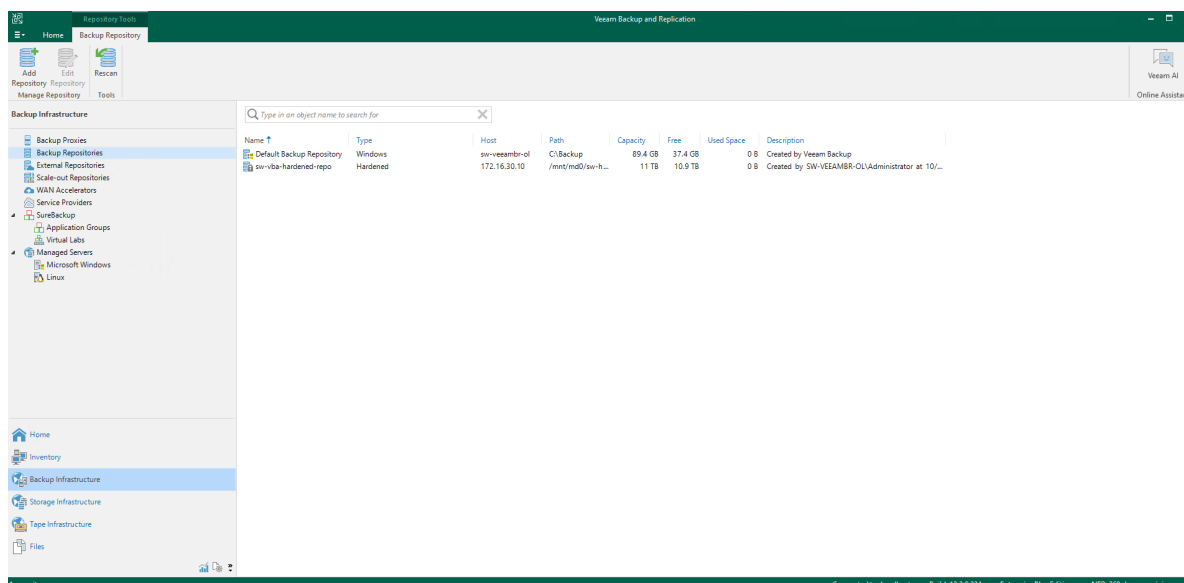
You can copy the configuration information below for future reference.

Name	Summary:
Server	Hardened backup repository 'sw-vba-hardened-repo' was successfully saved.
Repository	Mount host: sw-veeambr-ol
Mount Server	Backup folder: /mnt/md0/sw-hardened-repo/backups
Review	Write throughput: unlimited
Apply	Max parallel tasks: 4
Summary	Fast cloning on XFS volumes: enabled
	Days of immutability: enabled for 7 days

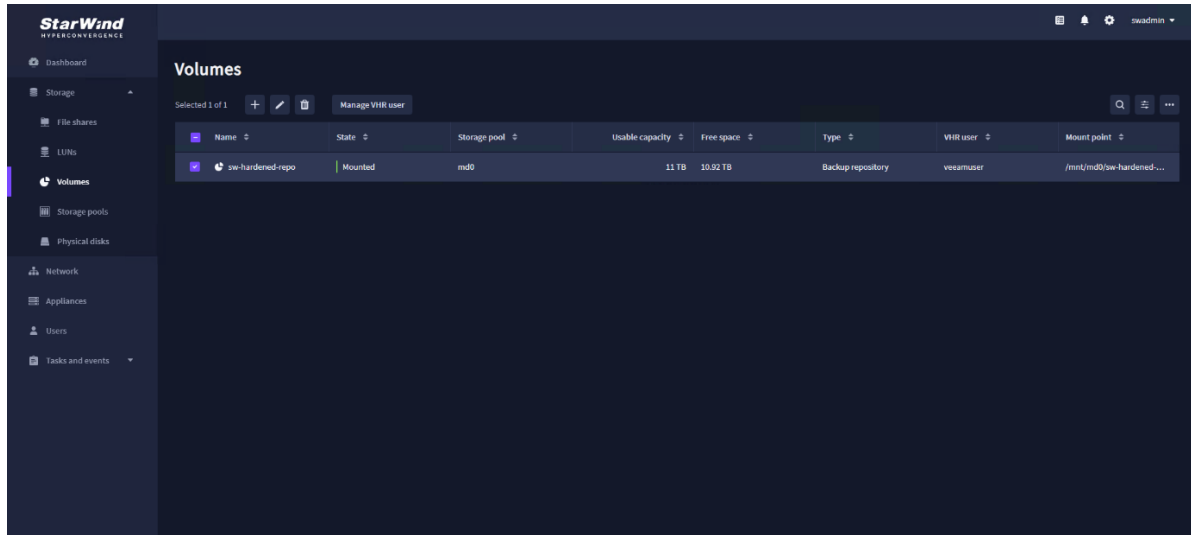
< Previous
Next >
Finish
Cancel

18. Veeam prompts whether you want to change the configuration backup location to the newly added repository. Select the preferred option according to your requirements.

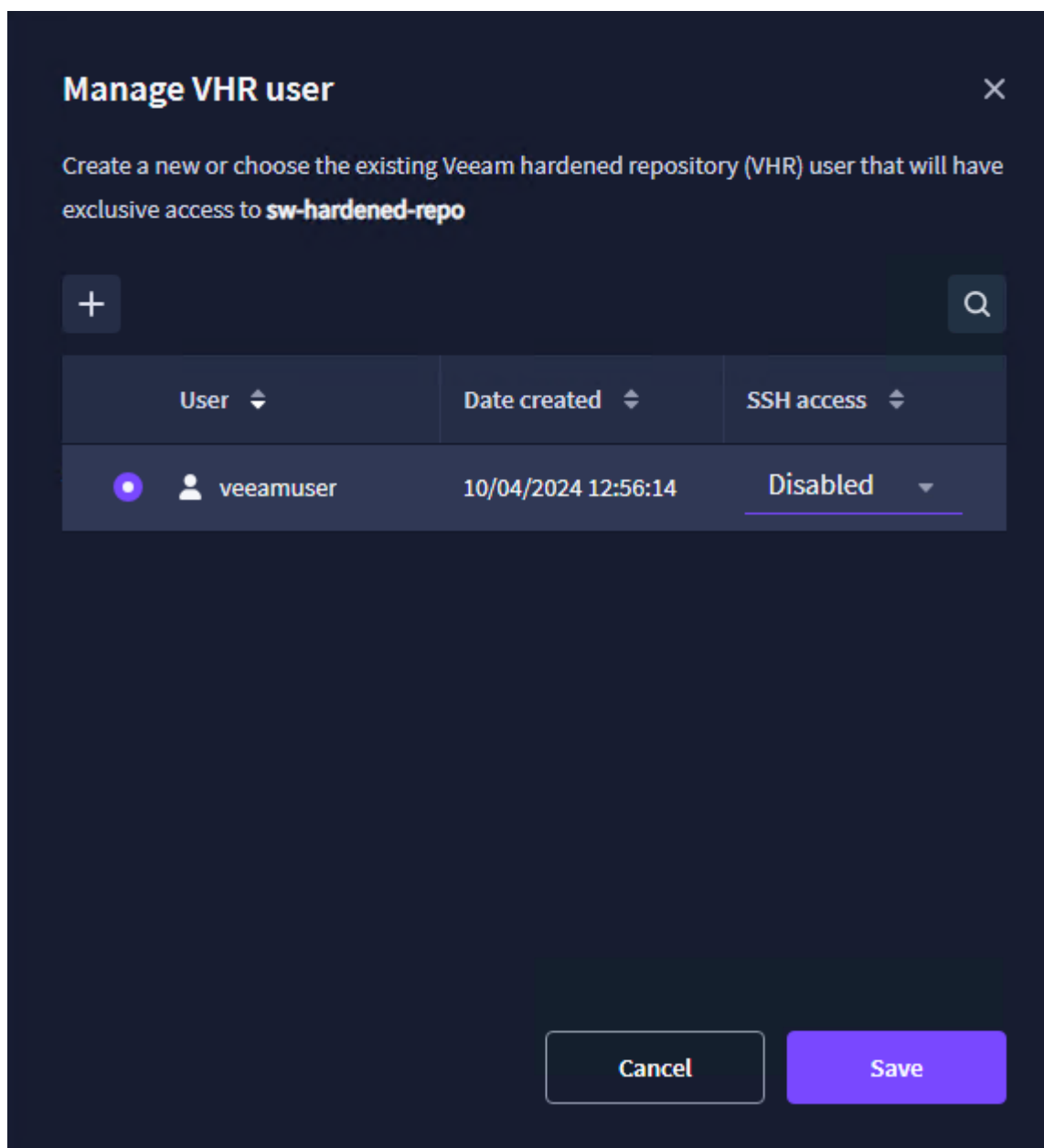
19. Hardened Repository has been successfully added to Veeam Backup & Replication.



20. Navigate back to the “Volumes” tab in StarWind VBA WEB UI, select the Backup repository volume and click “Manage VHR user”.



21. Change SSH access to “Disabled” to secure the StarWind VBA from potential local threats such as credentials theft. Click “Save”.



Conclusion

Following this guide, Veeam Hardened Linux Repository has been configured in StarWind VBA installed on a physical server baremetal and added to Veeam Backup & Replication. This guide also showed the steps on how to configure an iSCSI backup repository as well as NFS and SMB repositories for use with Veeam Backup & replication or other backup software.

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