

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

2024

TECHNICAL PAPERS





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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 baremetal 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-h dd-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.

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 Support; c). modify (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.



StarWind A	ppliance Installation			
	StarWind Appliance Installation wize To install StarWind Appliance on yo from the list on which perform the * All the data on selected disk wil	ard ur hardware, please sel installation. 1 be overwritten.	ect one disk	
	List of available disks for the ins Disk name: sda Disk size: 256Gb Disk model: VMware Virtual_disk	tallation:		
	Disk name: sdb Disk size: 960Gb Disk model: VMware Virtual_disk Disk name: sdc Disk size: 960Gb Disk model: VMware Virtual_disk Disk name: sdd			
	Disk size: 960Gb Disk model: VMware Virtual_disk <up>/<down> Select Option</down></up>	<enter> Next</enter>	<esc> Cancel</esc>	

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.



StarWind Appliance Installation		
	StarWind Appliance Installation wizard Confirm to start the installation. * All data on selected disk will be overwritten.	
	Installing StarWind Appliance 5 %	

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



StarWind A	appliance Inst	allation			
	Installatio Select Rest	n complete art or Shutdown bu	tton and press Enter.		
	<mark>Restart</mark> Shutdown				
	<up>/<down></down></up>	Select Option	<enter> Confirm</enter>	<esc> Cancel</esc>	

- 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.



Welcome! A	Authentication is required			
	Welcome! Authentication is required			
	Please enter a valid password.			
	User name: Password:	[user [<mark>жжжжжжжж</mark>		
		<enter> Confirm</enter>	<esc> Cancel</esc>	

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</enter></down></up>	<esc> Log out</esc>

18. Press Enter once more to modify the settings.



Configure	Management network			
	Step 1/4: Configure Management net Review current Management network s Press Enter to change network inter configuration.	work settings. ∽face and∕or modify IPv4		
	Network interface: MAC address:	ens192 00:50:56:bd:c6:f5		
	IP Mode: Management NIC IPv4 address:	Static		
	Subnet mask: Default gateway:	255.255.255.255		
	Primary DNS: Alternate DNS:			
		<enter> Modify</enter>	<esc> Cancel</esc>	

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 net	twork adapter		
	Step 3/4: Specify IPv4 configuration Set static IPv4 address and network default management connection. Pres	on k configuration for this appliance's ss "Enter" to Apply the configuration.	
	IP Mode:	Static	
	Management NIC IPv4 Address: Subnet Mask: Default gateway:	[172.27.31.119] [255.255.255.0] [172.27.31.10]	
	Primary DNS: Alternate DNS:	[172.27.31.1] [<u>8</u> .8.8.8]	
	<up>/<down> Select Option</down></up>	<enter> Apply <esc> Cancel</esc></enter>	

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



Configure	Management network		
	Step 4/4: Settings applied The specified network settings hav	e been applied.	
	Network interface:	ens192	
	IP Mode: Management NIC IPv4 address: Subnet mask: Default gateway:	Static 172.27.31.119 255.255.255.0 172.27.31.10	
	Primary DNS: Alternate DNS:	172.27.31.1 8.8.8.8	
		<enter> OK</enter>	<esc> Back</esc>

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.

Welcome to StarWind Appliance	
Failow the initial configuration wizard and complete the required steps for setting up the appliance.	

3. Upload the license file and click Next.



StarWind Appliance Initial configuration				
License EULA Management network	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			
Static hostname Administrator account Summary	Upload file StarWind_VTL_Trial_License_Key.swk 📀			
Configuration	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			

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

StarWind Appliance Initial confi	guration
 ✓ License EULA 	End-user license agreement
Management network	Review and accept the following license agreement to continue I. Modification and Termination.
Static hostname Administrator account	7.1. <u>Termination</u> . SharWind 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
Summary Configuration	Period: a) The functionally 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. 8.
	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.



NOTE: Static network settings are recommended for the configuration.

StarWind Appliance Initial configu	ration						
 ✓ License ✓ EULA Management network 	Managemo Specify the uni	ent network que IP address (static is rec nent network is used to commun	ommended) and	configure other netw such as DNS and NTP an	ork settings. d to access the applianc	e web UI from external c	lients.
	IP mode Static						
	NIC	Adapter model	Bandwidth	MAC address	IP address	Netmask 🛈	Gateway
	ens192	VMXNET3 Etherne	10 Gbit	00:50:56:BD:C	172.27.31.119	255.255.255.0	172.27.31.10
	Name server	s (optional):					
	DNS 1 172.27.31.1			DNS 2 8.8.8.8			
	Time setting	s (optional):					
	NTP server			Time zone UTC			
	Separate serve						
						Back	Next

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

StarWind Appliance Initial confi	guration		
✓ License ✓ EULA	Static hostname Set the current appliance hostname		
 Management network 	i Use Latin letters, numbers, and dash		
Static hostname Administrator account	Hostname SW-VTL		
Summary			
Configuration			
		Back	Next



7. Create an administrator account. Click Next.

StarWind Appliance Initial confi	guration		
✓ License ✓ EULA	Administrator account	ar account	
 Management network 	in the second as for the oppositive duminious data		
✓ Static hostname	Username swadmin		
 Administrator account Summary 	Password		
	Confirm password		
	Additional information (optional)		
	Full name		
	E-mail		
			Back Next

8. Review the settings and click Configure.

StarWind Appliance Initial config	uration		
✓ License ✓ EULA ✓ Management network	Summary		
 ✓ Static hostname 	License	Trial	
✓ Administrator account	Network settings		
• Summary	Interface	ens192 (VMXNET3 Ethernet Controller)	
Configuration	Bandwidth	10 Gbit	
	мти	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.

Star Wind	
Legin swadmin Pasmot	
Stary signed in	
- Agrin	



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

								🗉 🌲 🌣 swadmin 🕶
Dashboard	Network							
🛢 Storage 👻								
A Network	Interface 🗘	Adapter model 🗘	Link status 🗢	Bandwidth 🗘	MAC address 💠	Role ≑	IP address 🗢	Appliance 🗢
Appliances	🔿 🖿 ens192	MT27800 Family (ConnectX		10 Gbit	00:50:56:8D:C6:F5	Management		SW-VTL
👗 Users	💿 📕 ens224	MT27800 Family [ConnectX	Down	100 Gbit	00:0C:29:46:FB:96	Unassigned		

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 notwork	de adam	tor cottin	-
Eail networ	k auau	iler sellin	25

Role DataIP mode StaticIPv4 address 172.16.30.10Netmask 255.255.255.0e.g. 192.168.100.100e.g. 255.255.255.0 or CIDR notation (e.g. 24).GatewayDNSe.g. 192.168.100.1 or leave the settings emptySeparate IP addresses with commas (,) or leave the settings emptyMTU 90009000	Name ens224	Adapter model MT27800 Family [ConnectX-5 Virtua
IPv4 address 172.16.30.10Netmask 255.255.255.0e.g. 192.168.100.100e.g. 255.255.255.0 or CIDR notation (e.g. 24)GatewayDNSe.g. 192.168.100.1 or leave the settings emptySeparate IP addresses with commas (,) or leave the settings emptyMTU 90009000	Role Data	IP mode Static
e.g. 192.168.100.100 e.g. 255.255.255.0 or CIDR notation (e.g. 24) Gateway DNS e.g. 192.168.100.1 or leave the settings empty Separate IP addresses with commas (,) or leave the settings empty MTU 9000	IPv4 address 172.16.30.10	Netmask 255.255.255.0
Gateway DNS e.g. 192.168.100.1 or leave the settings empty Separate IP addresses with commas (,) or leave the settings empty MTU 9000	e.g. 192.168.100.100	e.g. 255.255.255.0 or CIDR notation (e.g. 24)
e.g. 192.168.100.1 or leave the settings empty MTU 9000 Separate IP addresses with commas (,) or leave the settings empty	Gateway	DNS
мти 9000	e.g. 192.168.100.1 or leave the settings empty	Separate IP addresses with commas (,) or leave the settings empty
	мти 9000	
The valid value in the range of 1500-9000	The valid value in the range of 1500-9000	
Disable network adapter	Disable network adapter	
Connect automatically on boot	Connect automatically on boot	
Cancel Save		Cancel Save

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



StarWind								🗉 🌲 🌣 swadmin 🕶
🔮 Dashboard	Network							
🛢 Storage 👻								
Appliances	Interface 🗢	Adapter model 🗢	Link status 💲	Bandwidth 🗘	MAC address 🗘	Role ‡	IP address 🗢	Appliance 🗢
Users	💿 📜 ens192	MT27800 Family [ConnectX		10 Gbit	00:50:56:BD:C6:F5	Management		
🖹 Tasks and events 🔻) 🖿 ens224	MT27800 Family [ConnectX			00:0C:29:46:FB:96			

Configuring Storage

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

StarWind								🖹 🌲 🍄 swadmin v
🗳 Dashboard	Physical disks							
🗃 Storage 🔺	Selected 0 of 3 Rescan Mai							Q ±
👮 File shares								
🛢 LUNs	Disk name ≑	Media type 🗢	Size ≑	State ≑	Bus protocol 🗢	Slot number 🗢	Pool name ≑	Appliance 🗢
🗳 Volumes	🗌 💻 sdb		960 GB	Ready				SW-VTL
	🔲 💻 sdc		960 GB	Ready				SW-VTL
ini storage pools	🗌 💻 sdd		960 GB	Ready				SW-VTL
Physical disks								
📥 Network								
Appliances								
L Users								
🚊 Tasks and events 🔻								
. Maladar								
Minimize								

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.



StarWind		🗐 🌲 🏠 swadmin -
Dashboard	Storage pools	
🛢 Storage 🔺	Selected (n f () +)	
🚆 File shares		
皇 LUNS	There are no storage pools yet	
🔮 Volumes	③ Start building your storage infinistructure by creating a new one	
III Storage pools		
Physical disks		
A Network		
Appliances		
🚊 Users		
🖹 Tasks and events 👻		
Minimize		

3. Verify the prerequisites and click Next.

StarWind			🗉 🌲 🏟 swadmin *
Dashboard	Construction and		
🗧 Storage 🔷 🔺	Create storage pool		
📃 🛛 File shares	Prerequisites	Prerequisites	
🚊 LUNS		Learn supported storage configuration:	
🔮 Volumes		 StarWind CVM is installed on each server that is used to configure highly available storage. StarWind CVM is installed on a separate storage device available to the hypervisor host (e.g. RAID volume, SSD, HDD, etc.). 	
III Storage pools		The hypervisor hosts have all the drives connected through an HBA or RAID controller. HBA or RAID controller will be added via a DirectPath I/O passthrough device to a StarWind C/M.	
Physical disks		 Follow the instructions from VMware on how to add a RAID controller as a PCI device to StarWind VM: <u>Add a PCI</u> 	
alla Hetwork		Follow the instructions in our KB article to passthrough PCIe RAID or HBA controller or PCIe NVMe SSDs to StarWind	
Appliances		CVM deployed on Microsoft Hyper-Y: <u>The feature will be provided in the next version</u> • For VMware vSphere environments, the disks can be added to StarWind VM as Raw Device Mapping (RDM). The link to	
• Harris		VMware documentation is below: Add an RDM Disk to a Virtual Machine	
 Users Tasks and events 		Please contact <u>support@starwind.com</u> to get assistance, if you are uncertain about what configuration to use with your storage.	
		Glose Next	
< Minimize			

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



Star Wind								E \$	🔅 swadmin 👻
 Dashboard Storage + 	Create storage pool								
Elle shares	 Prerequisites Physical disks Profile 	Physical disks Select physical disks to inc	lude in storage pool	s on each node 🕤					
Storage pools Divisional disks		 Disk name \$ Isdb 	Media t ¢ SSD	Bus pro \$	Size ‡ 960 GB	Slot \$	Contro ¢ PVSCSI SCS		
alla Nebwork		sdc			960 GB		PVSCSI SCS		
Applänces		Total raw capacity of select	SSD ted disks: 2.81 TB		960 GB	2:0:3:0	PVSCSI SCS		
Tasks and events *									
						Back	Next		
< Minimize									

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.

StarWind							
 Dashboard Storage 	Create storage pool						
 File shares UNS 	 ✓ Prerequisites ✓ Physical disks Profile 	Profile Choose an optimal storage pool profile. Selected disks left	unused will be assi	igned to hot spares.			
Volumes	Summary	Storage pool profile	Usable capacity	Fault tolerance 🕢	Hot spares		
Physical disks		 High capacity (recommended) Maximize redundancy while maintaining high storage capacity (Software RAID/RAID-5) 	1.85 TB				
afa Network		High performance Maximize storage performance while maintaining redundancy (Software RAID/RAID-1)	950.4 GB				
🚊 Users		Manual Allows you to configure the storage pool layout manually.					
				Back	Next		
4 Malatin							

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



Star Wind			🗉 🌲 🖨 swadmin 👻
Dashbeard	Create storage pool		
 File shares LUNS 42 Volumes 	 ✓ Prerequisites ✓ Physical disks ✓ Profile 	Summary Review specified settings and create storage pools.	
 Storage pools Physical disks 	Summary	Storage pool bayeut Software RAID/RAID-5 Raw capacity LaT TB Usable capacity LAS TB	
🚓 Network 🖃 Appliances 🚊 Users			
📋 Tasks and events 🛛 🕈			
		Back Croste	
< Minimize			

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

Star Wind							🗐 🌲 💠 swadmin v
Dashboard	Storage pools						
🛢 Storage 🔺	Selected 0 of 1 + 🛍						
👮 File shares	□ Name ≑	Type ‡	State 🗢	Resiliency type 💠	Usable capacity 💠	Raw capacity 💲	Free space
皇 LUNS	🗌 🕅 md0	Software RAID	Online	RAID-5			1.87 TB SW-VTL
Columes							
Storage pools							
A Network							
Appliances							
💄 Users							
💼 Tasks and events 🔻							
 Minimize 							

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



Star Wind		🗐 🌲 🏟 swadmin 🕶
😫 Dashboard	Volumes	
🛢 Storage 🔺	Selected 0x/0 + Z ft Honoae Will inser	
File shares		
章 LUNs	There are no witimes wit	
🕒 Volumes	Start sharing your storage resources to clients by creating a new one	
III Storage pools		
💻 Physical disks		
🖧 Network		
Appliances		
Lusers		
🖻 Tasks and events 🔻		
< Minimize		

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

StarWind			
Dashiboard	Create volume		
I The shares	Storage pool Settings	Select storage pool Select one or more (in KA configurationa) storage pools to create a volume @	
Volumes		Name 0 Type 0 State 0 Resiliency1 0 Freespace 0	
Physical disks		n misaviltmoo sensule Umina kolu-s Lairte	
👫 Network			
 Users Tasks and events 			
		Close Noat	
< Minimize			

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



StarWind					
 Dashboard Storage 	Create volume				
 File tabares Libia Wohners Starsage pools Playst of data Regulations Applations Uners Tacks and sevents 	 Storage pool Settings Ellesystem type Summary 	Specify settings Specify the volume name and stru U W To can see attin letters, numbers, and data 1880 Available abreage poel capacity: 533371 GB	Units 68 *		
				Back Next	
(Minimize					

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

StarWind			
 Dashboard Storage 	Create volume		
File shares	 ✓ Storage pool ✓ Settings ● Filesystem type 	Choose filesystem settings Choose the preferred filesystem settings for the new volume	
Volumes Storage pools Physical disks		Standard The VM relative is construct with abridiand settings, Recommended for general use and the highest performance.	
🚠 Network		Raw An unformatical volume is created. Recommended for creating an WMM-off LUN	
 Users Tasks and events 		Backup repository The XP3 volume is created with additional refinit- (data block-intensit) and CRC check flags.	
		Back Next	

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



StarWind					
 Dashboard Storate 	Create volume				
 File shares LUNs 	 ✓ Storage pool ✓ Settings ✓ Filesystem type 	Review summary Review your settings before	e creating a volume		
Volumes Storage pools Physical disks	• Summary	Storage pool Volume name Size	SW-VTL:md0 vtl 1800 68		
Appliances		Filesystem setungs	Standard		
Tasks and events 🔹					
				Back Create	

13. The new Standard volume is created.

Star Wind								🗐 🌲 💠 swadmin 🗸
🛱 Dashboard	Volumes							
Storage 🔺								
🚆 File shares	🗌 Name 🗢	State \$	Storage pool 🗢	Usable capacity 🗘	Free space 🗢	Туре 🗘	VHR user ♀	Mount point 🗢
E LUNS	🗆 🗳 vit	Mounted	md0			Standard		/mnt/md0/vtl
C Volumes								
Storage pools								
Physical disks								
🚓 Network								
Appliances								
Lusers								
Tasks and events								
< Minimize								

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.

StarWind		🗄 🌲 🔯 swadmin 👻
Dashboard Storage	Settings	
A Network	General Services Plugins Software update Downloads IVMe-of-service settings	
Appliances	PowerShell samples	
L Users	StarWind VSAV Free has limited management for creating Standalone and HA LUNe to PowerShell scripts. Use the propared scripts to create, edit, and remove LUNes, configure replication, and monitor ISCS storage.	
Tasks and events	Download samples	
	Management Console for Windows	
	StarWind VTL can be managed using the legacy Management Console. Download and install the Management Console on any Windows computer to remotely create and manage virtual tapes.	
	Download console	
< Minimize		

2. Open StarWind Management Console and click Add Server.

Stat/Vind Management Console	-	σ×
FILE HOST TARGET OPTIONS HELP		
[] servers		
Add Server This Option allows you to add local or remote SamiVine Server Hosts to SarVinind Management Console		
StarWind Software Redy		

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



_			
StarWind Management Console			- 0 ×
FILE HOST TARGET OPTIONS HELP			
		op	
	Add Server. The Option and Howy you to add to all or remets the Wind Server Hots its SerWind Management Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional Convolutional C	* Add new StarWind Server ? Yest: [12,27,31,19 Advanced >> OK	
startening sortening Nebuy			

- 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.



Add Device Wiza	r.	?
Add Device Wiza		
rtual Tape Lib	rary	
Create a New \	/irtual Tape Library	
Name:	VTL1	
Location:	VSA Storage\mnt\md0\vtI\	
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	\sim
Device Model:	HP MSL8096 LTO8	\sim

Fill Storage Slots with Empty Tapes after Create

|--|

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



? ×

Next

Cancel

Add Device Wizard

Target Parameters

Choose a Target Attachment Method	
Create new Target	~
Target Alias	
VTL1	
Target Name	
iqn.2008-08.com.starwindsoftware:172.27.31.119-vtl1	
Allow multiple concurrent iSCSI Connections	

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


		?	\times
←	Add Device Wizard		
	Creation Page		
	Press "Create" to add new Device and attach it to new Target		
	Progress		
	Creating Device Folder		
	Creating Image File		
	Creating Device		
	Creating Target and attaching Device		
	Contra	Cre	
	Create	Can	cel

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



		?	\times
~	Add Device Wizard		
	Device Creation completed		
	Following Device was created		
	VTL1		
	Target Name: iqn.2008-08.com.starwindsoftware:172.27.31.119-vtl1		
	Close	Can	cel

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.

StarWind Management Console			- D ×
Refereth Connect Disconnect Add Server Remove Server Add Dev			
Refer Connect Ducomet Addrew Removisive Addre Servers Servers VII VII VII VII	Ret Reference AdVIL Device Reference Device Main Image: Close of the service VIL1 Service Main Device VIL1 Service Main Transport Service 1 Device Service Device Service 1 Device Device Service Service Service Device Service Service Service Device Service Service Service Device Location Transport Service Service Device Location Content Tape Type Service Device Location Content Tape Type Service Device Location Content Tape Type Service Bercode Location Content Tape Type Service Offline Shelf (o) Service Service No Toper </th <th>2-08.com.starwindsoftwarer172.272.31.119-x111</th> <th></th>	2-08.com.starwindsoftwarer172.272.31.119-x111	
starwind software Keady			

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 File	es are Located in Custom		
Use Custom Path	to Tape Files		
Tape Files Location			
		-	
	Next	Cance	el

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.



				?	Χ.
← Create Tape					
Specify Tape Para	meters				
Custom Barcode					
Barcode					
Number of Tapes	1		▲ ▼		
Таре Туре	LTO-8 Ultrium 8/32	Т (12.0 ТВ)	\sim		
Custom Tape Size					
Tape Size	100	GB \sim			
Split Into Parts					
Part Size	1	$_{\rm GB} ~\sim~$			
			Create	Cano	el:

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

StarWind Management Console		-
FILE HOST TARGET OPTIONS HELP	* ddd Deser Johanner B. ddd Will Desir Remover Deser	
Marten Connect Disconect Add Sever Remore Sever Add Deve	k ddderief gelwaredd AddYIL Deice Remove Deice Heij WrL1 Sentrac Deice Sfore remove Deice S Attach to Target. % Detach from iop.2008-08.com.starwindorhwerel Deice VIII Provide Research in the sentrace in the sentr	2227 21 119-ин

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.



CSI Initi	ator Proper	ties)
argets	Discovery	Favorite Targets	Volumes and Devices	RADIUS	Configuration	
Targe	t portals					
The s	ystem will lo	ok for Targets on fo	llowing portals:	Refresh		
Address Port Adapter		Adapter	IP address			
To ad	ld a target p	ortal, click Discover	Portal.	Disco	over Portal	
To re then	move a targ click Remove	et portal, select the 2.	address above and		Remove	
Name	2					
To ad	ld an iSNS se	erver, click Add Serv	ver.	Add Server		
To re then	move an iSN dick Remove	S server, select the 2.	server above and	Remove		
			OK	Cance	<u>A</u> pply	r

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, dick the Advanced button.					
IP address or DNS name: 172.16.30.10	Port: (Default is 3260.) 3260				
Advanced	OK Cancel				

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.



	?	×
	~	
	\sim	
	\sim	
tem unless another na a-ol	ime is	
onfiguration page or u	ise	
ĸ	K Cancel	K Cancel Ap

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.



iSCSI Initiator Properties	×
Targets Discovery Favorite Targets Volumes and Devices	RADIUS Configuration
Quick Connect	
To discover and log on to a target using a basic connection, DNS name of the target and then click Quick Connect.	type the IP address or
Target:	Quick Connect
Discovered targets	
	Refresh
Name	Status
iqn.2008-08.com.starwindsoftware:172.27.31.119-vtl1	Inactive
To connect using advanced options, select a target and ther click Connect.	Connect
To completely disconnect a target, select the target and then click Disconnect.	Disconnect
For target properties, including configuration of sessions, select the target and click Properties.	Properties
For configuration of devices associated with a target, select the target and then click Devices.	Devices
ОК	Cancel Apply

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



Connect To Target		×
Target name: iqn.2008-08.com.starwindsoftware:172.27.3	1.119-vtl1	
Add this connection to the list of Favorite Ta This will make the system automatically atte connection every time this computer restant	argets. empt to restore the ts.	
Enable multi-path		
<u>A</u> dvanced	OK Can	cel

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	l Settings		?	\times
General	IPsec			
Conne	ect using			
Local a	dapter:	Microsoft iSCSI Initiator	\sim	
Initiate	or TP:	172.16.30.20	~	
Target	portal IP:	172.16.30.10 / 3260	~	
CRC /	Checksum			
Da	ta digest	Header digest		
To use initiato specifi	ator. , specify the same r. The name will de ed.	name and CHAP secret that was configured on the target for fault to the Initiator Name of the system unless another name	this is	
Target	secret:			
Per To use RADIL Use Use Use Use	form mutual auther mutual CHAP, eith S. RADIUS to genera RADIUS to auther	ntication er specify an initiator secret on the Configuration page or use ate user authentication credentials aticate target credentials		
		OK Cancel	Арр	ly

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



ISCSI Initiator Properties			×
Targets Discovery Favorite Targets Volumes and Devices	RADIUS	Configuration	
Quick Connect			
To discover and log on to a target using a basic connection, a DNS name of the target and then click Quick Connect.	type the IP	address or	
Target:	Qu	uick Connect	
Discovered targets		Refresh	
Name	Status		
iqn.2008-08.com.starwindsoftware:172.27.31.119-vtl1	Connecte	d	
To connect using advanced options, select a target and then	_	Connect	
To completely disconnect a target, select the target and		Disconnect	
then dick Disconnect.		Disconnect	11
For target properties, including configuration of sessions, select the target and click Properties.		Properties	
For configuration of devices associated with a target, select the target and then click Devices.		Devices	
ОК	Cance	Apply	/

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-installingtape-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.

畵	Devic	e Manager	-	×
File	Ac	tion View Help		
•		III 🖫 🗾 III 🖳 💺 🗙 💿		
× :	ve	eam-ba-ol		
3	- 8	9 Batteries		
3	- <u>-</u>	Computer		
3	-	Disk drives		
3		Display adapters		
3		DVD/CD-ROM drives		
3	- AH	Human Interface Devices		
2	- 10	IDE ATA/ATAPI controllers		
3		Keyboards		
`	/ 🗄	Medium Changer devices		
	-	Hewlett Packard Enterprise MSL G3 Series library (x64 based)		
2		Mice and other pointing devices		
2		Monitors		
2		Network adapters		
2		I Print queues		
2		Processors		
2		Software devices		
2	- 🔄	Storage controllers		
		System devices		
`	- 🚆	Tape drives		
		🚆 Hewlett Packard Enterprise LTO Ultrium-8 drive		
		🚆 Hewlett Packard Enterprise LTO Ultrium-8 drive		
		🚆 Hewlett Packard Enterprise LTO Ultrium-8 drive		
		🚆 Hewlett Packard Enterprise LTO Ultrium-8 drive		
2	÷Ψ	Universal Serial Bus controllers		

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.



祖明 Tape Tools ヨー Home Tape	Veent Backup and Replication	- 8 X ()
Add Tape Add NDMP Add Media Server Server Pool - Wedia Pool - Vault Manage Tape		Veeam Al Online Assistant
Topo Infrastructure	 Af a procession of the procession o	
There There The		v
	Connected te: localhost Build: 12.1.1.56 Enterprice Plus Edition	NFR: 179 days remaining

2. Choose the local server and press Next.

Server Choose a server to install tape server components on. You can select Microsoft Windows or Linux servers added to the manage servers tree in the console. Server Choose server: Traffic Choose server: Review Add New Apply Description: Summary Created by localhost\Administrator at 5/1/2024 9:10 AM.	<
Server Choose server: Traffic veeam-ba-ol (Backup server) Review Description: Apply Created by localhost\Administrator at 5/1/2024 9:10 AM. Summary Image: Summary in the server in the se	d
Traffic Review Apply Summary veeam-ba-ol (Backup server) Description: Created by localhost\Administrator at 5/1/2024 9:10 AM.	
Traffic Description: Review Created by localhost\Administrator at 5/1/2024 9:10 AM. Apply Summary	
Review Created by localhost\Administrator at 5/1/2024 9:10 AM. Apply Summary	
Apply Summary]
Summary	
< Previous Next > Finish Cancel]

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



New Tape	Server						×
	Traffic Review the network to	raffic rules that apply to this serv	/er.				
Server		Network traffic rules control e Throttling is global, with set b	encryption and andwidth spl	d throttling of i it equally acros	network traffic k is all backup pro	based on the de exies falling into	stination. the rule.
Traffic		The following network traffic	rules apply to	this proxy:			
Review		Name	Encryption Enabled	Throttling Disabled	Time period		View
Apply							
Summary	1						
		Manage network traffic rules					
			<	Previous	Next >	Finish	Cancel

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



Please wait while	e we are installing and configuring required components, this may take a few	minutes.
Server	Message	Duration
Traffic	Starting infrastructure item update process	0:00:02
name	Connecting to Veeam Installer service	
Review	Discovering installed packages	
	Creating temporary folder	
Apply	📀 Package VeeamTape.msi has been uploaded	
C	🕑 Installing package Tape Proxy	0:00:06
Summary	🕑 Deleting temporary folder	
	🛛 Registering client veeam-ba-ol for package Transport	
	🛇 Registering client veeam-ba-ol for package Tape Proxy	
	Discovering installed packages	
	All required packages have been successfully installed	
	Setting tape service owner	
	Creating configuration database records for tape server	
	Collecting tape libraries info	0:00:08
	Tape server created successfully	

5. Click Finish to start the tape libraries inventory.



New Tape Server	×
Review the	results, and click Finish to exit the wizard.
Server	Summary:
Traffic	Tape server has been created successfully
Review	
Apply	
Summary	
	। ☑ Start tape libraries inventory when I click Finish
	< Previous Next > Finish Cancel

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.

Media Tools					Veeam Backup and Replication			- 8 ×
E- Home Tape Media								Veeam Al Online Assistant
Tape Infrastructure	Name	Location Expire	sin Med	dia Pool	Media Set	Sequence Number Last written	Canacity Free Description	
() Tape Infrastructure () () () () Tape Infrastructure () () () Tape Servers () ()	KW06N001	Slot 1 Not de	fined Free	-		1	12 TB 12 TB	
 () En X4 Hours () Success () Failed 								
A Home								
E Inventory								
Call Backup Infrastructure								
Storage Infrastructure								
Tape Infrastructure								
Files								
ណ៍ 🗣 ៖								



Performing Backup To Starwind Vtl

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

Media Poo	ol Tools			Veeam Backup and Re	plication			- 8 ×
E Home Media P	Pool							0
📩 📲 🎬	📥 🖆 😤 🛛	1 📩 💼 🔔 🗋)					
Backup Replication CDP	Tape Backup Copy SureBackup	Restore Failover Import Export Security Plan * Backup Backup Com	ity & liance					Veeam Al
Primary Jobs	Bi Objects)bs	Restore Actions						Online Assistant
Tape Infrastructure	Files							
	i Backups	Name T Tape Library	Location Media	Set Sequ	Jance Number Last written	Expires in Capac Not defined	city Free Description	
Generation Tape Infrastructure Meria Pools						Not defined	1210 1210	
Free (1)								
Tape Servers								
 NDMP Servers Libraries 								
 Last 24 Hours 								
Success								
Ex Failed								
A Home								
Diventory								
Backup Infrastructure								
Storage Infrastructure								
Tape Infrastructure								
Files								
	ណ៍ 🕞 🤋							

2. Specify the job Name and Description.



New File to Tape Job	×
Name Type in a name and c	lescription for this job.
Name	Name:
Files and Folders	File to Tape Job 1
Full Backup	Created by localhost\Administrator at 5/1/2024 10:23 AM.
Incremental Backup	
Options	
Summary	
	< Previous Next > Finish Cancel

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



New File to Tape Job

 \times

Files and Folders
Specify files and folders to back up to tape by this job.

ime	File or folder	Server	File mask	
s and Folders	C:\Users\Public\Documents\test-files	veeam-ba-ol	Only *.*	_
l Backup				
emental Backup				
ons				4
imary				+
				_

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



New File to Tape Job Full Backup Choose media pool a	ind set schedule for full backups.					×
Name Files and Folders Full Backup Incremental Backup Options	Media pool for full backup:				~	Add New
Summary	 Daily at this time: Monthly at this time: 	6:00 PM +	On these days Fourth	Saturday	~	Days Months
		< Pr	evious Ne	t > Fini:	sh	Cancel

5. Specify the media pool name. Click Next.



New Media Pool	×
Name Type in name and de	scription for the media pool.
Name	Name:
Tapes	VIL Description:
Media Set	Created by VEEAM-BA-OL\Administrator at 5/1/2024 10:25:16 AM.
Retention	
Options	
Summary	
	< Previous Next > Finish Cancel

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



New Media Pool						×
Add tapes to the me	dia pool.					
Name	Tape lib	Select Tapes			×	
Tapes	HP MS	•				✓ Manage
MIRICA	Tapes:	Name	Media pool	Capacity		
Media Set	Name	HP MSL G3 Series 9.50				Add
Retention		🖳 SW06N001	Free	12 TB		Remove
Ontinen						
Options						
Summary						
						Capacity
						0 B
	1	1 tapes for a total of 12 TB capacity	y			Remaining: 0 B
	🗹 Add		04	Cana		
			UK	Cance		
		<	Previous N	lext >		Cancel

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



New Media Pool					×
Add tapes to the med	dia pool.				
Name	Tape library:				
	HP MSL G3 Series 9.50 (veeam-ba	a-ol)			Manage
Tapes	Tapes:				
Media Set	Name	Capacity	Remaining		Add
Retention	 HP MSL G3 Series 9.50 SW06N001 	12 TB	12 TB		Remove
Options					
Summary					
					Capacity: 12 TB Remaining: 12 TB
	Add tapes from Free media po	ool automaticall	y when more ta	pes are required	
		< Previ	ous Next	> Finish	Cancel

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



New Media Poo	ol
Spe	e dia Set ecify media set name and how often a new media set should be automatically created.
Name	Media set name:
Tapes	Media set # %id% %date%
Media Set	Automatically create new media set O not create, always continue using current media set
Retention	O Create new media set for every backup session
Options	O Daily at 12:00 PM 📮 Everyday ∨ Days
Summary	
	< Previous Next > Finish Cancel
Media Set Retention Options Summary	 Do not create, always continue using current media set Create new media set for every backup session Daily at 12:00 PM + Everyday Days

9. Specify the tape Retention settings. Click Next.



New Medi	a Pool		×
010 /****	Retention Specify the tape reter	ntion settings for this media pool.	
Name		Data retention policy	
Tapes		 Do not protect data (cyclically overwrite tapes as required) 	
Media Set	t	O Protect data for 1 → Weeks ∨	
Patantian		Never overwrite data	
Retention		Offline media tracking	
Options		Move all offline tapes from this media pool into the following media vault:	
Summary		 Add New 	
		< Previous Next > Finish Cancel	

- 10. Specify additional settings if required and click Apply.
- 11. Review the Summary and click Finish.



New Media Pool		\times
Summary Review the settings a	nd click Finish to apply. You can copy these settings for the future reference.	
Name Tapes Media Set Retention Options Summary	Summary: Media pool name: VTL Media pool description: Created by VEEAM-BA-OL\Administrator at 5/1/2024 10:30:21 AM. Tapes count: 1 Capacity: 12 TB Remaining: 12 TB Libraries: HP MSL G3 Series 9.50 (Active)	
	< Previous Next > Finish Cance	

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 a	and set schedule for	full backups								
Name	Media pool for f	ull backup:								
Files and Folders	VTL (HP MSL G	Series 9.50)						~	Add New	
Full Backup	Tapes: Capacity:	1 12 TB								
Incremental Backup	Remaining:	12 TB								
Options	WORM:	False								
Summary	Run the full backup automatically									
	Daily at t	his time:	6:00 PM	* *	On these	days		\sim	Days	
	O Monthly	at this time:	10:00 PM	*	Fourth	\sim	Saturday	\sim	Months	
				< Pre	vious	Next	> F	inish	Cancel	

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



New File to Tape Job									×
Choose media pool a) and set schedule for	incremental	backups.						
Name	Media pool for in	cremental ba	ckup:						
Files and Falders	VTL (HP MSL G3	Series 9.50)						~	Add New
Flies and Folders	Tapes:	1							
Full Backup	Capacity:	12 TB							
Incremental Backup	Remaining:	12 TB							
Options	WORM:	False							
Summary	Run incremer								
	Daily at the second	nis time:	3:00 AM	* *	On weekd	lays		\sim	Days
	O Monthly	at this time:	10:00 PM	*	Fourth	\sim	Saturday	\sim	Months
				< Pre	vious	Next	> Fir	hish	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.

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New File to Tape Job Options Specify tape job options. General Name Use Microsoft volume shadow copy (VSS) Files and Folders 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 Full Backup

Тапраскар	a source.
Incremental Backup	Media automation
Options	Eject tape media upon job completion
Summary	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.
	Export current media set upon job completion Days
	This option makes the job automatically close and export the current media set on specific days.
	post-job activity and other settings. 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	X
You can copy the job	settings below for the future reference.
Name Files and Folders Full Backup Incremental Backup Options Summary	Summary: Name: File to Tape Job 1 Media pool for full backups: VTL Media pool for incremental backups: VTL PowerShell cmdlet for starting the job: Get-VBRTapeJob -Name "File to Tape Job 1" Start-VBRJob
	< Previous Next > Finish Cancel

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

Session Tools						Veeam Backup and Replica	tion				- 8 ×
≣ + Home View Session											0
Stop Statistics Report Actions Details											Veeam Al Online Assistant
Home	Q. Type in an object nam	e to search for		X							
 Sets Betugs Betugs Otok (Ophanel) A Tape A Tape A Tape A Tape Secrets Manning 	Job Name	Sesion Ty (HP File to Tag	rpe Status pe Bac 99% compl	Start Tim	e ↓ 4 10-49 AM						
	Job progress:						99%				4.4 GB of 4.4 GB
	SUMMARY	0543	DATA	4.4 GB (00%)	STATUS	1.0	THROUGHPUT (LAST 5 MIN)				Speed: 449 MB/s
A Home	Processing rate:	287 MB/s	Read:	4.4 GB	Warnings						
and inventory	Bottleneck	Target	Transferred:	4.4 GB (1x)	Errors	0					
Backup Infrastructure	Heat	Status	Action								Duration
Storage Infrastructure	weeam-ba-ol	Success	Job started at 5/1	1/2024 10:49:02 AM							Juration
Tape Infrastructure			Processing tasks	liet							00:00
The files			 Total backup job 	size: 1 files and 1 fol	lders (4.4 GB)						00:06
(1) ·····			All hosts have be Processing versa	een queued for proce m-ba-ol	ssing						00:23
1 session selected			_ ,					Connected to: localhost	Build: 12.1.1.56	Enterprise Plus Edition	NFR: 179 days remaining



Restoring Data From Tape

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

通 Media Pool Tools E- Home Media Pool			Veeam Backup and Replication		- 8 ×
Backup Replication CDP Job - Policy J Primary Jobs	Restore Failover Plan * WharevSpiere Attions				Veeam Al Online Assistant
Tape Infrastructure	Tape	Location Media Set	Sequence Number Last written Expires	n Capacity Free Description	
G Tape Infrastructure Media Pools G VTL (1) Tors Courses	E SW06N001 HP MSL G3 Series 9.50	Offline Media set # 1 5/1/2024 10:49 AM	1 less than a day ago Never	zs than a day ago Never 12 TB 12 TB	
WDMP Servers WDMP Servers Will Libraries Will Last 24 Hours Success The Success The Success					
Di vanen					
A Home					
Inventory					
Backup Infrastructure					
Storage Infrastructure					
Tape Infrastructure					
Files					
ai 🖡 S	2				

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 objects or versions from tape to object storage.

Cancel

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



Restore from Tape

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Objects to Restore Specify files, folders or volumes to restore from tape. When an entire tape is added to the recovery scope, all of its content will be restored.

Objects to Restore	Objects to restore:			
Destination	□ ✓ Type in an object name to search for			
	Item	Host	Restore point	Add
Options	C:\Users\Public\Documents\test-files	Veeam-ba-ol	5/1/2024 10:49 AM	Point
Summary				Remove
	<)	Previous Ne	ext > Finish	Cancel

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.



Restore from Tap	De la construcción de la const	\times
Obje Spec be re	ects to Restore	ent will
Objects to Resto Destination Options Summary	The restore process will require data from multiple tapes. We recommend you load the following tapes into the library now to speed up the restore. Otherwise, you will need to be providing them when prompted during the actual restore. Name Tape (SW06N001) with sequence number 1 from Media set Media set # 1 5/1/2024 10:49 AM Remot Copy to clipboard Continue Cancel	
	< Previous Next > Finish Canc	el

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

StarWind Management Console		-	×
FILE HOST TARGET OPTIONS HELP			
Refresh Connect Disconnect Add Server Remove Server Add Device	Add Device (edvanced) Add VIL Device Remove Device Help		
 Servers 	A		
4 📑 172.27.31.119 (172.27.31.119) : 3261	VTL1		
▲ ♦ VTL1	Remove Device Force remove Device		
VTL1	Detach from ign.2008-08.com.starwindsoftware:172.27.31.119-vtl1		
	Device VTL1		
	Serial Id 006BC2B413		
	SLUIS Transport Slots 1		
	Drive Slots 4		
	Import/Export Slots 3		
	storage slots 90		
6	Tapes (0) mi Croste Tape mi locart Tape		
	Location Barcode Tape Type Size Total Size Used	0	
	No Tapes		
	T Offline Shelf (1) 🖬 Insert 📾 Delete Local Conv. 📾 Write protect		
	Barcode Local Cloud Protected Status	_0	
	SW06N001 🖌 🗙 Replication not scheduled		
StarWind Software Ready			//


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

StarWind Management Console		- 🗆 X
FILE HOST TARGET OPTIONS HELP		
Refresh Connect Disconnect Add Server Remove Server Add Dev	rice Add Device (advanced) Add VII. Device Remove Device Help	
Servers		
- 1/2.2/.31.119 (1/2.2/.31.119): 3261	WIL1	
VTL1	Remove Device Force remove Device St Attach to Target	
VTL1	Detach from iqn.2008-08.com.starwindsoftware:172.27.31.119-vtl1	
	Device VTL1	
	Serial Id 0006C28413 Persistent Reservations Yes	
	STOTS	
	Transport Slots 1	
	Drive Slots 4	
	Import/Export Slots 3 Storage Slots 96	
	Tapes (1) Create Tape Consert Tape	\bigcirc
	Location Barcode Tape Type Size Total Size Used	
	Slot 1 SW06N001 U-832 12.00 TB 4.60 GB	
	Offline Shelf (0)	0
	Barcode Local Cloud Protected Status	
	No Tapes	
StarWind Software Ready		1.

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



Restore from Tape		×
Destination Specify where to res	tore selected objects to.	
Objects to Restore	Restore files and folders to	
Destination	Original location	
Destination	O This server:	
Options	veeam-ba-ol 🗸	Add
Summary	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 co	onflict resolution options.
Objects to Restore Destination	If a restored file already exist Keep the existing file Overwrite only if backup contains a newer file version
Options	Overwrite always
Summary	
	< Previous Next > Finish Cancel

9. Review the Summary and click Finish.



Restore from Tape		×
Summary Review the settings, a	and click Finish to exit the wizard and start the restore process.	
Objects to Restore Destination Options Summary	Summary: Objects to restore: C:\Users\Public\Documents\test-files Destination: Original location	
	< Previous Next > Finish Cancel	

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	4
Initiated by:	localhost\Administrator	End time:	5/1/2024 11:07:13 AM	4
Log				
Message				Duration
🛛 Restored 2	objects with the total size of 4.4 GB			0:01:22
Processing	g started at 5/1/2024 11:05:51 AM			
🛛 Building t	he list of root objects to restore			
🛛 🖉 Building t	he list of content to restore			
SW06N00	1 tape media resources have been acqu	uired		
💙 Drive 1 (Se	erver: veeam-ba-ol, Library: HP MSL G3	Series 9.50, D	rive ID: Tape0) lock	
🛛 🖉 Loading ta	ape SW06N001 from Slot 1 to Drive 1 (S	erver: veeam-	ba-ol, Library: HP	
🛛 🛇 Restoring	file CentOS-7-x86_64-DVD-2009.iso to	C:\Users\Pub	lic\Documents\test	0:01:16
🛛 🙄 Complete	d successfully at Wednesday, May 1, 20	024 11:07:13 A	M	
				Close

Conclusion

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

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