

StarWind SAN & NAS: Technical Paper

2024

TECHNICAL PAPERS





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About StarWind

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

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Introduction

This guide covers the deployment of StarWind vHCI. In this guide, oVirt nodes and oVirt Engine with StarWind VSAN as shared storage will be deployed. StarWind VSAN will be deployed as Controller Virtual Machine and will use local storage to create replicated storage pool. The storage pool will be used as a shared iSCSI storage for oVirt Storage Domain.

Starwind San & Nas Virtual Machine Requirements

Prior to installing StarWind SAN & NAS virtual storage appliance, please make sure that the system meets the requirements, which are available at the following link: https://www.starwindsoftware.com/system-requirements

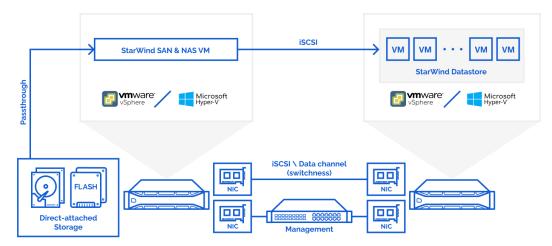
Pre-Configuring The Servers

The diagrams below illustrate the common network and storage configurations of the solution for specific deployment configurations.

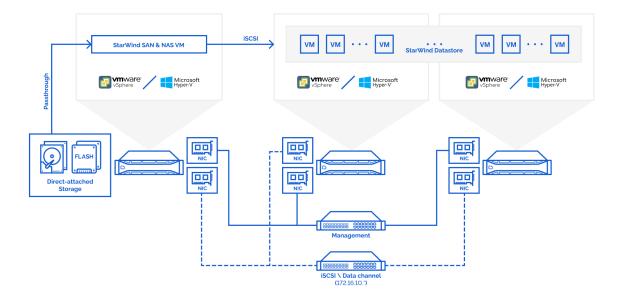
Please select your deployment scenario:

Standalone Storage Server

• Converged storage appliance for ESXi and Hyper-V compute servers:







• Converged storage appliance for vSphere and Hyper-V clusters:

1. Install the hypervisor of your choice, VMware vSphere Hypervisor ESXi or Hyper-V Server, on a single converged storage server, and the compute servers that are intended to connect and utilize the shared storage provisioned by the appliance.

2. StarWind SAN & NAS virtual machine is deployed on a single Hyper-V Server or VMware ESXi server with commodity direct-attached storage.

3. The network interfaces on each node for Management, Data/iSCSI, and Replication interfaces should be connected to different subnets and connected directly according to the network diagram above. Here, the 172.16.10.x subnet is used for the Data (iSCSI) storage traffic, and 172.16.20.x subnet is used for the Replication storage traffic.

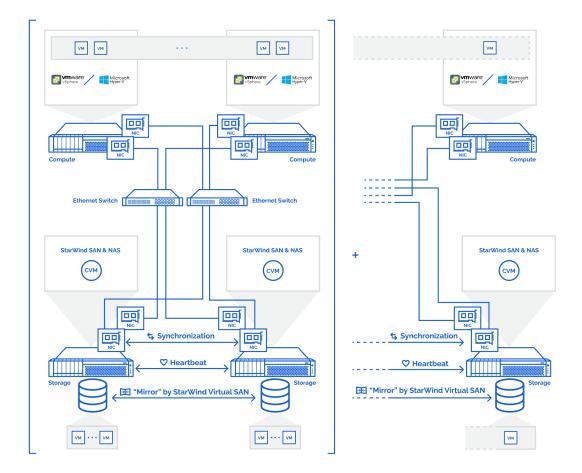
NOTE: The vCenter server is recommended for the deployment of multiple ESXi servers.

NOTE: The Failover Cluster feature is recommended for the deployment of multiple Hyper-V servers.

Highly Available Shared Storage Servers

• Dedicated 2 storage servers expose highly available shared storage for vSphere and Hyper-V clusters:





1. Install the hypervisor of your choice, VMware vSphere Hypervisor ESXi or Hyper-V Server, on two dedicated storage servers, and on the compute servers that are intended to connect and utilize the shared storage provisioned by the appliance.

2. StarWind SAN & NAS CVM is deployed on each Hyper-V Server or VMware ESXi server with commodity direct-attached storage.

3. The network interfaces on each node for Management, Data/iSCSI, and Replication interfaces should be connected to different subnets and connected directly according to the network diagram above. Here, the 172.16.10.x subnet is used for the Data (iSCSI) storage traffic, and 172.16.20.x subnet is used for the Replication storage traffic.

NOTE: The vCenter server is recommended for the deployment of multiple ESXi servers.

NOTE: The Failover Cluster feature is recommended for the deployment of multiple Hyper-V servers.



Setting Up Starwind San & Nas

This part describes how to prepare the environment to deploy and install StarWind SAN & NAS using your hypervisor of choice, either VMware ESXi and VMware vSphere web clients or Microsoft Hyper-V Server.

Please select the required option:

Configuring Single-Server Storage Appliance With Vmware Esxi

Configuring Networks On Vmware Esxi Server(S)

Configure network interfaces on each node to ensure that Management and iSCSI/StarWind data interfaces are in different subnets and connected physically according to the network diagram above. All actions below should be applied to each ESXi server for running StarWind SAN & NAS.

NOTE: Virtual Machine Port Group should be created for iSCSI/StarWind Data vSwitch. VMKernel port should be created only for iSCSI traffic. Static IP addresses should be assigned to VMKernel ports.

NOTE: It is recommended to set jumbo frames to 9000 on vSwitches and VMKernel ports for iSCSI traffic. Additionally, vMotion can be enabled on VMKernel ports.

1. Using VMware ESXi web console, create an additional vSwitch for the iSCSI/StarWind Data channel.



| vm ware esxí | | | | root@ | 192.168.12.203 | + Help + Q S | earch - | |
|------------------------|---------------------------------|---------------------------|---------------|-----------------------------|----------------|-------------------------|--------------|--|
| Been Navigator | ≣≣ Default TCP/IP stack | | | | | | | |
| ✓ ☐ Host Manage | | | ysical NICs | VMkernel NICs | | | | |
| Monitor | add standard virtual s | witch 📇 Add up | | ettings CR | efresh 🎲 Ac | tions (Q Search | | |
| 👘 Virtual Machines 👘 0 | Name | ✓ Port group | ips | Uplink: | | ∞ Туре | ~ | |
| Storage | vSwitch0 | 2 | | 1 | | Standard vSw | ritch | |
| Networking 1 | | | | | | | 1 items 🦼 | |
| | ndard virtual switch - v Switcl | 11 | _ | _ | _ | | | |
| | | | | | | _ | | |
| Add up | blink | | | | | | | |
| vSwitch | Name | vSwitch1 | | | | _ | | |
| MTU | | 9000 | | | | | | |
| Uplink 1 | | vmnic1 - Up, 10000 mbps ~ | | | | | | |
| Link disc | covery | Click to expand | | | | | | |
| ➤ Security | | Click to expand | | | | | | |
| | | | | | | | | |
| | | | | | Add | Cancel | | |
| | | | | | | | | |
| | 😰 Recent tasks | | | | | | | |
| | Task ~ 7 | Farget 🗸 | r Initiator 🗸 | Queued ~ | Started ~ | Result 🔺 | ✓ Complete ✓ | |
| | | ocalhost.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | | |
| | | ocalhost.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | | |
| | | ocalhost.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | | |
| | | ocalhost.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | | |
| | | ocalhost.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | | |

2. Create a VMKernel port for the iSCSI/StarWind Data channel.



| vm ware esxí | | root@192.168.12.203 - Help - Q Search | - |
|---------------------|---|--|------------|
| Navigator | BE Default TCP/IP stack | | |
| ▼ 🗍 Host Manage | | ical NICs VMkernel NICs TCP/IP stacks Firewall rules | |
| Monitor | Male Add VMkernel NIC | | |
| Storage | Port group | New port group | s ~ |
| Networking 1 | New port group | ISCSI_VMKernel | 1 items 🦼 |
| More networks | Virtual switch | vSwitch1 ~ | |
| | VLAN ID | 0 | |
| | МΤυ | 9000 | |
| | IP version | IPv4 only ~ | |
| | ✓ IPv4 settings | | |
| | Configuration | O DHCP Static | |
| | Address | 172.16.10.251 | |
| | Subnet mask | 255.255.255.0 | |
| | Rec TCP/IP stack | Default TCP/IP stack ~ | |
| | Task Refresh Services | ✓ vMotion □ Provisioning □ Fault tolerance logging | mplete ~ |
| | Update " Refresh | Management Replication NFC replication |)3/2021 13 |
| | Update 1 | Create Cancel | 3/2021 13 |
| | Refresh Update Network Config Iocalhost.starwind.l | |)3/2021 13 |

3. Add a Virtual Machine Port Group to the vSwitch for iSCSI/StarWind Data traffic.



| vm ware" ESXí" | | | | root@ | 192.168.12.203 | 🕶 Help 👻 🔍 | Search |
|----------------------------|--------------------------------|-------------------------------|-------------|-----------------|----------------|----------------------|------------------|
| 📲 Navigator | BE Default TCP/IP stack | | | | | | |
| ✓ ☐ Host Manage | Port groups Virtual swit | ches Phy | sical NICs | VMkernel NIC: | s TCP/IP st | acks Firewall rules | 5 |
| Monitor | ڲ Add port group 🥜 Edit | settings C | Refresh | | | Q Sear | ch |
| 🗉 🚰 Virtual Machines 👘 🛛 🛛 | Name | ✓ Active ✓ | VLAN ID ~ | Туре | ~ 1 | vSwitch | ✓ VMs ✓ |
| Storage | Q VM Network | 0 | 0 | Standard port g | roup | VSwitch0 | 0 |
| Networking 1 | Management Network | 1 | 0 | Standard port g | roup | vSwitch0 | N/A |
| ► ≣≣ Default TCP/IP stack | SCSI_VMKernel | 1 | 0 | Standard port g | roup | VSwitch1 | N/A |
| More networks | | SCSI_Data | | | | | 3 items 🦼 |
| Virtual s ▶ Security | Ľ | vSwitch1 ~ Click to expand | | | | | |
| | | | | | Add | Cancel | |
| | | | | | | | |
| | E Recent tasks | | | | | | |
| | Task 🗸 Tarç | get 🗸 🗸 | Initiator 🗸 | Queued ~ | Started ~ | Result 🔺 | ✓ Complete ✓ |
| | Refresh Network System local | host.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successful | ly 03/03/2021 13 |
| | Select Vnic For Nic Type local | host.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successful | ly 03/03/2021 13 |
| | Update Network Config local | host.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successful | ly 03/03/2021 13 |
| | Refresh Network System local | lhost.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successful | ly 03/03/2021 13 |
| | Update Network Config local | host.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successful | ly 03/03/2021 13 |
| | Refresh Network System local | host.starwind.l | root | 03/03/2021 13 | 03/03/2021 13 | Completed successful | ly 03/03/2021 13 |

4. Repeat steps 1-3 for any other links intended for iSCSI/StarWind Data on ESXi hosts.

Deploying Starwind San & Nas On The Esxi Server

1. Download zip archive that contains StarWind SAN & NAS: https://www.starwindsoftware.com/san-and-nas#download

2. Extract the virtual machine files.

3. Deploy the virtual machine on the ESXi server. Right-click on the Host or Virtual Machine menu and select "Create/Register VM" from a drop-down menu.



| m ware [.] E | 37 | | | 1.1.1 | | | | 7 | 10010 | 0192.168.12.203 | → Help → Q Sea | | _ |
|------------------------------|----------|---|------|--------------------|-------------|--|---|--------|----------------------------|-----------------|------------------------|---|---|
| 🔓 Navigator | | | | localhost.sta | arwind.loca | al | | | | | | | |
| Host Manage | | Host | | : | nter Server | Create/R | legister VM | 0 | Shut down 🔹 | Reboot C | Refresh 静 Actions | | |
| Monitor Monitor Storage | 10 | Create/Register Shut down Reboot | VM | Ĵ [0 | Version | nost.starwind | 15843807) | iny vC | enter S | | D: 131 MHz CAP | FREE: 20.7 GHz 1% ACITY: 20.8 GHz FREE: 14.69 GB 8% | |
| ▼ 🧕 Networkin → 📰 Defaul | i | Services | | • | | | | | | | | APACITY: 16 GB | |
| More r | | Enter maintenan Lockdown mode Permissions | ce m | ode | | | | | | USE | D: 1.41 GB CAPA | 0% CITY: 399.75 GB | |
| | | Generate suppo Get SSH for Chr | | | | | VMware, Inc. VMware Virtual Platform | | | | | | |
| (| - | | | 🕨 🗖 CPU | | 8 CPUs x Intel(R) Xeon(R) CPU E5-2650 v2 @ 2.60GHz | | | | | | | |
| | | | | 🛲 Memor | ry | | 16 GB | | | | | | |
| | | | | F 📷 SGX | | | 0 B / 0 B | | | | | | |
| | | | | ▶ ☐ Virtual | flash | | 0 B used, 0 | В сар | acity | | | | |
| | | | | - 🥥 Networ | rking | | localhost.starwind.local | | | | | | |
| | | | | Hostna | ame | | | | | | | | |
| | | | | IP add | resses | | 1. vmk0: 192 2. vmk0: fe8 | | 12.203 0:56ff:fe9c:bf24 | | | | |
| | | | 1 | Recent task | s | | | | | | | | E |
| | | | Ta | sk | ~ | Target | ~ Initiator | ~ | Queued ~ | Started ~ | Result 🔺 🗸 🗸 | Complete | ~ |
| | | | Up | load disk - Star V | Wind VS | 🚰 SW1 | root | | 03/03/2021 13 | 03/03/2021 13 | | Running 9 % | |
| | | | Cre | eate VM | | vm | | | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | 03/03/2021 13 | |
| | | | Up | load disk - Star V | Wind VS | 🚰 SW1 | root | | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | 03/03/2021 13 | |
| | | | | fresh Network S | | localhost.starwind. | | | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | 03/03/2021 13 | |
| | | | Up | date Network Co | onfig | localhost.starwind. | I root | | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | 03/03/2021 13 | |
| | | | Re | fresh Network Sy | ystem | localhost.starwind. | I root | | 03/03/2021 13 | 03/03/2021 13 | Completed successfully | 03/03/2021 13 | |

4. In the first step of the wizard, select the "Deploy a virtual machine from OVF or OVA file" and click Next.



| Navigator 🗉 🗍 | localhost.starwind.local | | | | |
|--|---|------------------|--|--|----------------|
| Host | | | | | |
| | 😰 Get vCenter Server 🕴 🎁 Create/Reg | ster VM 🛛 📷 Shut | down 💽 Reboot 🛛 🤇 | Refresh 🛛 🔂 Actions | |
| 🔁 New virtual machine | | | | | |
| 1 Select creation type | Select creation type | | | | |
| 2 Select OVF and VMDK files | How would you like to create a Virtual N | lachine? | | | |
| 3 Select storage | | | | | |
| 4 License agreements 5 Deployment options | Create a new virtual machine | | | ou through the process of crea an OVF and VMDK files. | ating a |
| 6 Additional settings | Deploy a virtual machine from an OVF | or OVA file | vinual machine from | an OVF and VIVIDK lifes. | |
| 7 Ready to complete | Register an existing virtual machine | | | | |
| | Register an existing virtual machine | | | | |
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| viniviai C | | | | | |
| | | | Deals | Neut | Canaal |
| | | | Back | Next Finish | Cancel |
| | Refresh Network System Tocalhost.starwind.1 | rbot 03/03 | 3/2021 13 03/03/2021 13 | V Completed successfully | 03/03/2021 13 |
| | Select Vnic For Nic Type localhost starwind.l | root 03/03 | 3/2021 13 03/03/2021 13 | . O Completed successfully | 03/03/2021 13 |
| | Select Vnic For Nic Type localhost.starwind.l Update Network Config localhost.starwind.l | | 3/2021 13 03/03/2021 13 3/2021 13 03/03/2021 13 | | 03/03/2021 13. |

5. In the second step of the wizard, specify the virtual machine name and point to the OVF template location. Select the VM files and click Next.



| vm | ware: ESXi | root@192.168.12.203 - Help - Q Search | P |
|-----------|---|--|-------|
| E N | lavigator 🔹 | Docalhost.starwind.local | |
| - 8 | Host | 🔗 Get vCenter Server 🏫 Create/Register VM 🐻 Shut down 📴 Reboot 🤁 Refresh 🍎 Actions | |
| | New virtual machine - SW1 | i te and and a server i in an argenerationer and i 100 and rown 1567 benot i C usiden i C argentia | |
| Ē | 1 Select creation type 2 Select OVF and VMDK files 3 Select storage 4 License agreements 5 Deployment options 6 Additional settings 7 Ready to complete | Select OVF and VMDK files or 0VA for the VM you would like to deploy Enter a name for the virtual machine. Suff Virtual machine names can contain up to 80 characters and they must be unique within each ESX instance. Y StarWindSANandNAS.ovf X StarWindSANandNAS-0.vmdk X StarWindSANandNAS-1.nvram | |
| | vm ware [.] | Back Next Finish Cancel | · · · |
| | | ▶ | |

6. Specify the direct-attached storage for the StarWind SAN & NAS VM system drive location.



| vmware esxí | | | | root@192. | 168.12.203 👻 | Help + | Q Search | |
|---|--|-----------------------|---------------------------|---------------------|---------------|-------------------|--------------|------------|
| 📲 Navigator 🗉 | localhost.starwind.local | | | | | | | |
| 🔻 📱 Host | 🝘 Get vCenter Server | The Croate/Pagister V | U B Shut | iown 🕞 Dob | nat 👩 Rof | roch Act | | |
| 1 New virtual machine - SW1 | Get voenter Server | | vi [1 6] Shut (| iowu 183 Kep | DOL C REI | iesni i 🗤 Aci | ions | |
| 1 Select creation type 2 Select OVF and VMDK files 3 Select storage 4 License agreements 5 Deployment options 6 Additional settings 7 Ready to complete | Select storage Select the storage type a Standard Persiste Select a datastore for t | nt Memory | onfiguration files | s and all of its' v | irtual disks. | | | |
| | Name | ~ | Capacity ~ | Free ~ | Type ~ | Thin pro ~ | Access ~ | |
| | Datastore | | 399.75 GB | 398.34 GB | VMFS6 | Supported | Single | |
| | | | | | | | 1 items | |
| vm ware | | | | Ба | ck | xt Finisi | h Cance | |
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| | | lhost.starwind.l root | | | | Completed succe | | 2021 13 |
| | | lhost.starwind.l root | | | | Completed succe | | 2021 13 |
| | Therean Network System 100a | root | 03/03/ | 03/0 | 2021 IS | - Sompleted Succe | corphy 03/03 | LOCT JOINT |

7. Select network and storage deployment options for the VM.



| vmware esxi | | root@192.168.12.203 - Help - Q Search - | | | | | | | |
|---|--|---|--|--|--|--|--|--|--|
| Navigator | ocalhost.starwind.local | | | | | | | | |
| 🕆 📱 Host | 🛛 Gat vConter Sanjor 👘 Creato/Ragi | ster VM 🛅 Shut down 🕞 Reboot 🥂 Refresh 🍈 Actions | | | | | | | |
| New virtual machine - SW1 | | sei vin Balaugi gaun 122 Kengar C Keiseu - M kengis | | | | | | | |
| 1 Select creation type | Deployment options | | | | | | | | |
| 2 Select OVF and VMDK files 3 Select storage | Select deployment options | | | | | | | | |
| ✓ 5 Select storage ✓ 4 Deployment options | Network mappings | | | | | | | | |
| 5 Additional settings 6 Ready to complete | Network mappings | VM Network | | | | | | | |
| o Ready to complete | | DATA Network iSCSI_Data ~ | | | | | | | |
| | Disk provisioning | ● Thin ○ Thick | | | | | | | |
| | Power on automatically | | | | | | | | |
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| vm ware [®] | | | | | | | | | |
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| | | Back Next Finish Cancel | | | | | | | |
| | sh Network System localhost.starwind.l | roor Us/Us/2021 13 Us/Us/2021 13 💟 Completed successfully Us/Us/2021 13 | | | | | | | |
| | t Vnic For Nic Type localhost starwind.l te Network Config localhost starwind.l | root 03/03/2021 13 03/03/2021 13 ✓ Completed successfully 03/03/2021 13 root 03/03/2021 13 03/03/2021 13 ✓ Completed successfully 03/03/2021 13 | | | | | | | |
| | sh Network System localhost.starwind.l | raot 03/03/2021 13 03/03/2021 13 🥑 Completed successfully 03/03/2021 13 | | | | | | | |

8. Specify the hostname, static IPv4 address, gateway, DNS, and additional network settings for Management and iSCSI/Data network interfaces:



| vmware' esxi" | | root@192.168.12.203 🛩 He | elp 🗸 🔍 Search 🕞 |
|---|---|--|--------------------|
| Navigator | calhost.starwind.local | | |
| 🕞 🖥 Host | Catulouter Carrier | 📑 Shut down 💽 Reboot 🛛 🥑 Refresh 🛛 🐴 Actions | 1 |
| New virtual machine - SW1 | | C Reliesii C Actions | |
| 1 Select creation type 2 Select OVF and VMDK files 3 Select storage | Additional settings Additional properties for the VM | | |
| ✓ 4 Deployment options 5 Additional settings | ✓ Management interface network settings | | |
| 6 Ready to complete | Hostname | | 0 |
| | Choose DHCP or Static for Management interface | DHCP ~ | 0 |
| | IPv4 address for Management interface | | 0 |
| | IPv4 netmask for Management interface | | 6 |
| | IPv4 gateway for Management interface | | 0 |
| | DNS Server for Management interface | | 0 |
| | ▼ Data Interface network settings | | |
| | Choose DHCP or Static for Data interfac e | DHCP ~ | 0 |
| | IPv4 address for Data interface | | 0 |
| | IPv4 netmask for Data interface | | 0 |
| vm ware* | MTU for Data interface | | |
| | | | 5:26 |
| | | Back Next | Finish Cancel |
| | | | |
| | | | |
| | | | |

NOTE: In order to manage the SAN & NAS appliance via StarWind vCenter plugin, the static IPv4 address must be assigned. As an example, all additional properties of the storage appliance specified:

| vmware' esxi" | | root@192.168.12.203 👻 He | lp - Q Search - |
|---|---|---|-------------------|
| Navigator | calhost.starwind.local | | |
| - 🖥 Host | Calue Carlos Carros | 🛛 🕞 Shut down 🕞 Reboot 🕴 🤁 Refresh 🛛 🍈 Actions | ſ |
| New virtual machine - SW1 | | and Shur uowin in Repoor in Contraction in Strategy Actions | |
| ✓ 1 Select creation type ✓ 2 Select OVF and VMDK files ✓ 3 Select storage | Additional settings Additional properties for the VM | | |
| 4 Deployment options 5 Additional settings | ✓ Management interface network settings | | |
| ✓ 6 Ready to complete | Hostname | SW1 | 0 |
| | Choose DHCP or Static for Management interface | Static ~ | 0 |
| | IPv4 address for Management interface | 192.168.12.61 | 0 |
| | IPv4 netmask for Management interface | 23 | 0 |
| | IPv4 gateway for Management interface | 192.168.12.1 | 0 |
| | DNS Server for Management interface | 192.168.1.17,192.168.8.17 | 0 |
| | | | |
| | Choose DHCP or Static for Data interfac e | Static ~ | 0 |
| | IPv4 address for Data interface | 172.16.10.100 | 0 |
| | IPv4 netmask for Data interface | 24 | 0 |
| vm ware [®] | MTU for Data interface | 9000 | |
| | | | 5:26 |
| | | Back Next | Finish Cancel |
| | | | |
| | | | |
| | | | |

NOTE: If a DHCP server is available on the given network, you can skip setting the additional parameters for that interface.

9. Review the information about the VM.



| vm ware' esxi" | | root@192.168.12.203 → Help → Q Search | • | | | | | | |
|---|--|--|------|--|--|--|--|--|--|
| 📲 Navigator 🗉 📳 loc | calhost.starwind.local | | | | | | | | |
| - 🛛 Host | | | | | | | | | |
| New virtual machine - SW1 | Get vCenter Server 🎦 Create/Register VM | 🛛 🔂 Shut down 🕞 Reboot 🕴 🤁 Refresh 🕴 🏠 Actions | | | | | | | |
| - | | | - 10 | | | | | | |
| 1 Select creation type 2 Select OVF and VMDK files | Ready to complete | | | | | | | | |
| ✓ 3 Select storage | leview your settings selection before finishing the wizard | | | | | | | | |
| ✓ 4 Deployment options | Product | StarWind NAS & SAN | | | | | | | |
| 5 Additional settings 6 Ready to complete | VM Name | SW1 | | | | | | | |
| | Files | StarWindNASandSAN-0.vmdk StarWindNASandSAN-1.nvram | | | | | | | |
| | Datastore | Datastore | | | | | | | |
| | Provisioning type | Thin | | | | | | | |
| | Network mappings | Management Network: VM Network, DATA Network: iSCSI_Data | | | | | | | |
| | Guest OS Name | Ubuntu Linux (64-bit) | | | | | | | |
| | ➡ Properties | | | | | | | | |
| | Hostname | SW1 | | | | | | | |
| | Choose DHCP or Static for Management interface | Static | | | | | | | |
| | IPv4 address for Management interface | 192.168.12.61 | | | | | | | |
| | IPv4 netmask for Management interface | 23 | | | | | | | |
| | IPv4 gateway for Management interface | 192.168.1.1 | | | | | | | |
| vm ware [®] | DNS Server for Management interface | 192.168.1.17,192.168.8.17 | • ~ | | | | | | |
| | Choose DHCP or Static for Data interfac | Static | 5:26 | | | | | | |
| | | Back Next Finish Cancel | A | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

10. Click "Finish" to start the deployment process.

Configuring Converged Storage Server With Vmware Vsphere

Creating Datacenter In Vmware Vsphere

1. Connect to the vSphere Client, right-click on the "vCenter Site" menu, and select the "Create Datacenter" option.



| 🕑 vSphere - 192.168.12.242 - Summ 🗙 🕂 | | | - 0 | × |
|--|---|---------------------------|----------------|-------|
| \leftarrow \rightarrow C \textcircled{D} https://192.1 | 8.12.242/ui/app/folder;nav=h/urn:vmomi:Folder:group-d1:dd2967e6-1d51-41bf-92a0-c7a0362479bf/summary | y tôs t≜ t | 9 🖻 🙎 | |
| vm vSphere Client Menu | ✓ Q. Search in all environments C ¹ (?) ✓ Ad | Iministrator@VSPHERE | Local V | ٢ |
| D D D | ₽ 192.168.12.242 ACTIONS ∨ | | | |
| 192.168.12.242 | Summary Monitor Configure Permissions Datacenters Hosts & Clusters VMs Datastore | es Networks | | |
| Actions - 192.168.12.242 | Version: 7.0.0 Updates Available | CPU | Free: 0 | Hz |
| 🗈 New Datacenter | Build: 15952599 Last Updated: Mar 4, 2021, 4:57 AM | Used: 0 Hz | Capacity: 0 | Hz |
| New Folder | Last Updated: Mar 4, 2021, 4:57 AM Last File-Based Backup: Not scheduled | Memory | Free: I | οв |
| Export System Logs | | Used: 0 B | Capacity: | D B |
| | Clusters: 0 | Storage | Free: | 0 B |
| Stream Assign License | Hosts: 0 | Used: 0 B | Capacity: | ОВ |
| Tags & Custom Attrib | tes Virtual Machines: 0 | | | |
| Add Permission | | | | |
| Alarms | • | | | |
| | Custom Attributes A Health Status | | ~ | |
| | Attribute Value | | | |
| | Autobie Value Overall Health | Good | | |
| | | | | - |
| Recent Tasks Alarms | | | | * |
| Task Name v Target | ✓ Status | Completion Time ~ | Server | ~ |
| Remove datacenter | ✓ Completed VSPHERE.LOCAL\A 10 ms | 03/04/2021, 6:27:00 AM | 192.168.12.242 | |
| Create cluster | ✓ Completed VSPHERE.LOCAL\A 8 ms | 03/04/2021, 6:25:07 ΔM | 192.168.12.242 | |
| All V | | | More 1 | lasks |

2. Specify the Datacenter Name and click "OK".

| vSphere - 192.168.12.2 | 242 - Sumr × + | | | | | | | | | | - | | × |
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| | | | | | | | | | | | | | |
| 192.168.12.242 | | 192.168.12 Summary Moni | | | | ers Hosts & Clusters | s VMs E | | Network | | | | |
| | | | | 7.0.0 Upo 15952599 | lates Available | | | | | | | Fre | e: 0 Hz |
| | | ^ للم | | | | | | | Used: 0 Hz Memory | | | Capacit Fr | ty: 0 Hz ree: 0 B |
| | | | New Datace | enter | | | × | | Used: 0 B Storage | | | | oity: 0 B ree: 0 B |
| | | | Name | | Datacenter | | - 8 | | Used: 0 B | | | Capac | city: 0 B |
| | | | Location: | | 192.168.12.3 | 242 | | | | | | | |
| | | Custom Attribu Attribute | | | | CANCEL | ок | Ø |) Good | | | | ^ |
| Recent Tasks Alar | | | | | | | | | | | | | * |
| Task Name 🗸 🖓 | Target ~ | Status | ✓ Details | ∼ Initia | tor ~ | Queued For V | Start Time 🧅 | ~ C | ompletion Time | ~ | Server | | ~ |
| Remove datacenter | Datacenter | ✓ Completed | | VSP | HERE.LOCAL\A | 10 ms | 03/04/2021, 6:2 AM | | 3/04/2021, 6:27: M | | 192.168.12.2 | 242 | |
| Create cluster | Datacenter | ✓ Completed | | VSP | HERE.LOCAL\A | 8 ms | 03/04/2021, 6:2 | | 3/04/2021, 6:25 M | 07 | 192.168.12.2 | 242 | |
| All 🗸 | | | | | | | | | | | | | |

3. Right-click on the Datacenter icon and select the "New Cluster..." action.



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| $\leftarrow \rightarrow$ (| C 🗅 https://192.1 | 168.12.242/u | i/app/d | atacenter;nav=l | ı/urn:vmo | mi:Datacen | ter:datacer | ter-10:dd | 2967e6-1 | d51-41bf-92 | 2a0-c7a0362 | 247 to | ≨ 5 | 9 @ | ٢ | |
| vm vSph | ere Client Menu | • C |) Searc | n in all environme | nts | | | | | C | ? ~ <i>•</i> | Administrator@ | VSPHERE | local 🗸 | | C |
| D D | 8 2 | <u>n</u> Data | | | | | | | | | | | | | | |
| 192.168.12.2 | | Summary | Moni | tor Configu | e Perr | nissions | Hosts & Cl | usters | VMs D | Datastores | Networks | Updates | | | | |
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| | Distributed Switch | | | | | | | | | | | Storage | | | Free: | |
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| | 🚹 New Virtual Machine. | | | | | | | | _ | | | | | | | |
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| | Storage | | • | | Value | | | | Assigned | Tag | Category | | Descripti | on | | |
| | Edit Default VM Com | patibility | | | | | | | | | | | | | | |
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| isk Name | Tags & Custom Attrib | outes | • | ✓ Details | ~ | Initiator | ~ | Queued Fo | or v | Start Time | | Completion Tin | | Server | | ~ |
| reate datacente | Add Permission | | ed | | | VSPHERE.L | OCAL\A | 7 ms | | 03/04/202 AM | 1, 6:27:59 | 03/04/2021, 6: AM | 27:59 | 192.168.12 | 242 | |
| emove datacen | Alarms | | ► sed | | | VSPHERE.L | OCAL\A | 10 ms | | 03/04/202 | 1, 6:26:59 | 03/04/2021, 6 | 27:00 | 192.168.12 | 242 | |
| ~ | 🗙 Delete | | | | | | | | | ΔM | | ΔΜ | | | More 1 | Task |

4. Specify the cluster name and enable the required services.

| vSphere - Datacenter - Sum | mary × + | | | | | | | | | - | | × |
|---|-----------------------|----------------|---------------------------------|-----------------------------|-------------------------|-------------------|-----------|------------------------------------|-----------|-------------|----------|--------------------|
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| | <u>⊚</u> ∎ D | atacenter | ACTIONS 🗸 | | | | | | | | | |
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| | | | Name | Cluster | | | | Used: 0 Hz Memory | | | Capacity | r: 0 Hz He: 0 B |
| | | | Location | Datacenter | | | | Used: 0 B | | | Capacit | |
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| | | om Attribu | vSAN | | | _ | | | | | | ^ |
| | Attri | | acco convicos will have d | efault settings - these can | be changed later in the | _ | Categor | | Descripti | on | | |
| | | | uster Quickstart workflo | | be changed later in the | | | | | | | |
| | | |] Manage all hosts in the | cluster with a single imag | ie (j) | | | | | | | |
| | | | | | | _ | | | | | | |
| Recent Tasks Alarms | | | | | CANCEL | ок | | | | | | |
| Task Name 🗸 Targe | t ~ Stat | us | | | | 03/04/2021. | | Completion Time 03/04/2021. 6:27:5 | × s | erver | | ~ |
| Create datacenter 🛃 1 | 192.168.12.242 🗸 | Completed | | VSPHERE.LOCAL\A | 7 ms | 03/04/2021, AM | 0.27.09 | O3/04/2021, 6:27:5 AM | | 92.168.12.2 | 42 | |
| Remove datacenter 🛛 🕅 🛙 | Datacenter 🗸 | Completed | | VSPHERE.LOCAL\A | 10 ms | 03/04/2021, AM | 6:26:59 | 03/04/2021, 6:27:0 | | 92.168.12.2 | 42 | |
| All 🗸 | | | | | | ΔM | | ΔM. | | | | |

5. Right-click on "Cluster" and select the "Add Hosts" action.



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| ← → C ê | https://192.168.12.242/ui/app/ | cluster;nav=h/urn:vmomi:ClusterComputeResource:domain-c15:dd2 | 967e6-1d51-41bf-92a0-c7 🏠 🖆 🕲 储 🚇 |
| vm vSphere Clie | nt Menu V O Sear | ch in all environments | C ¹ (?) ~ Administrator@VSPHERELOCAL ~ |
| 192.168.12.242 | Add Hosts | ACTIONS V or <u>Configure</u> Permissions Hosts VMs Datastores | Networks Updates |
| ✓ <u> I</u> Datacenter | New Resource Pool New Namespace Deploy OVF Template New vApp | Cluster quickstart We have collected some common configuration tasks to m configure your cluster manually, you can choose not to use | SKIP QUICKSTART ake it easier to get your cluster up and running. If you prefer to this automated workflow. |
| | Storage | I. Cluster basics | 2. Add hosts |
| | Host Profiles Edit Default VM Compatibility Assign License Settings Move To Rename | No selected services. | Add new and existing hosts to your cluster. |
| ecent Tasks Alarm | Tags & Custom Attributes | • | |
| sk Name 🗸 🗸 Ta | Add Permission | V Details VSPHERE.LOCAL\A 6 ms | Start Time ↓ ∨ Completion Time ∨ Server 03/04/2021, 6:29:02 03/04/2021, 6:29:02 192:168:12.242 AM AM AM |
| eate cluster | Alarms | | |
| eate cluster | Alarms | VSPHERE.LOCAL\A 7 ms | 03/04/2021, 6:27:59 03/04/2021, 6:27:59 192:168:12:242 |

6. In the "Add Hosts" wizard, specify the IPv4 or FQDN, login, and password of each ESXi server intended to be added to the cluster and managed using VMware vSphere.

NOTE: For the converged deployment with StarWind SAN & NAS CVM running on VMware ESXi servers, it is recommended to add the VMware ESXi servers that host the CVMs.

NOTE: For the converged deployment with StarWind SAN & NAS installed bare metal, make install of StarWind vCenter plugin to manage the SAN & NAS nodes from the vSphere web interface.



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|------------------------------------|--------------------------------|---|---------------------------------|------------------------|-----------------|------|----------|---|
| ← → C | b https://192.168.12.242/ui/ap | pp/cluster;nav=h/urn:vmomi:ClusterCompt | iteResource:domain-c15:dd2967e6 | -1d51-41bf-92a 🖉 | to t≞ | 9 | ۲ | |
| | | | | | | | | |
| | Add hosts | Add new and existing I | posts to your cluster | | | × | | |
| 🗗 192.168.12 🗸 <u> n</u> Datace | Add Hosts | Add new and existing i | losts to your cluster | | | ~ | | |
| Clus | 1 Add hosts | New hosts (3) Existing hosts (0 |) from 0) | | | | TART | |
| | | ✓ Use the same credentials for all ho | sts | | | | refer to | |
| | 2 Host summary | 192.168.12.205 | root | | | × | | |
| | 3 Ready to complete | 192.168.12.154 | root | | | × | | |
| | | IP address or FQDN | Username | | | | | |
| | | IP address or FQDN | Username | | | | | |
| | | | | | | | | |
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| eate cluster | | | AM | AM | | | 2.242 | |
| | - 🗗 192.168.12.242 ✓ Complet | | 03/ | 04/2021, 6:27:59 03/04 | 4/2021, 6:27:59 | | | |
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7. Manually verify the ESXi servers' certificates and accept the thumbprints. Click "OK" to proceed.

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| vm vSphe | | | | | | | | | | |
| 192.168.12 | Add hosts | Add n | ew and | existing hosts to your cluster | | | | | × | |
| Clus | 1 Add hosts | Security Alert | | | | × | | | 51 | |
| | 2 Host summa 3 Ready to co | The certificates on 3 hosts could not t connecting, manually verify these cer | | The SHA1 thumbprints of the certificates are listed b accept the thumbprints below. | elow. To continue | | | × × | | |
| | | Hostname / IP Address 192.168.12.205 | Ŧ | SHA1 Thumbprint 7A:1C:30:9E:58:1D:1D:D1:C4:C8:FC:FF:F9:5D:1D:ED:D | D2/B1/9E/A4 | Ŧ | | × | | |
| | | 192.168.12.154 | | F2:7E:AA:C7:74:8B:F9:82:CE:A7:5D:89:A9:AF:E2:C4 | | | | | | |
| | | 192.168.12.172 | | 33:A2:A1:AD:39:58:B0:50:FD:4F:41:F6:CB:6C:58:71: | 26:A6:F3:29 | | | | | |
| | | 3 | | | | | | | | |
| | | | | | CANCEL | ок | | | | |
| Recent Tasks | | | | G | | | | | | |
| Task Name | | | | | | CANC | EL | | | |
| Query connection Information from a of hosts | set 🛄 Datacenter | Completed | | VSPHERE.LOCALVA | AM | АМ | | 192 | 2168.12.2 | |
| | | | | | | | | | | |

8. Review settings and finish adding servers to the cluster.



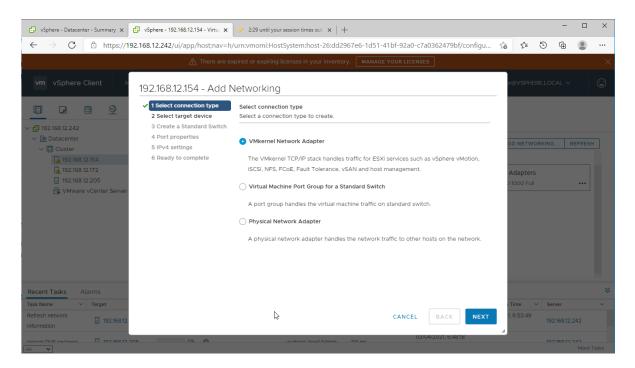
Configuring Networks On Vsphere Servers

Configure network interfaces on each node to ensure that Management and Data/iSCSI interfaces are in different subnets and connected physically according to the network diagram above. All actions below should be applied to each ESXi server for running StarWind SAN & NAS.

NOTE: Virtual Machine Port Group should be created for the Data/iSCSI and Replication vSwitches. VMKernel port should be created only for Data/iSCSI traffic. Static IP addresses should be assigned to VMKernel ports.

NOTE: It is recommended to set jumbo frames to 9000 on vSwitches and VMKernel ports for Data/iSCSI and Replication traffic. Additionally, vMotion can be enabled on VMKernel ports.

1. Using the VMware vSphere Client console, start the "Add Networking" wizard. Add a new VMKernel network adapter for the Data/iSCSI channel.



2. Create a new standard switch for the Data/iSCSI channel. Set MTU accordingly.

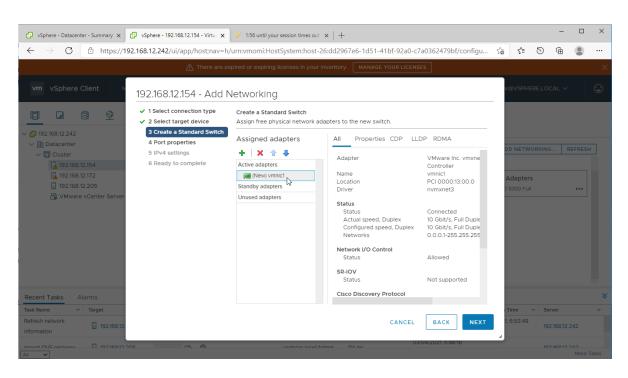


| 🕑 vSphere - Datacenter - Summary 🗙 | 🕑 vSphere - 192.168.12.154 - Virtu: 🗙 | 🥜 2:22 until your session times out $ 	imes +$ | | | | - | | × |
|---|---|--|-----------------------------------|----------------|----------|---------------------|---------------------------------------|------|
| \leftarrow \rightarrow C \textcircled{b} https://19 | 2.168.12.242/ui/app/host;nav=h/ | urn:vmomi:HostSystem:host-26:dd2967e6-1d | 51-41bf-92a0-c7a0362479bf/configu | τõ | 1 ℃ |) @ | ۲ | |
| | | | | | | | | |
| vm vSphere Client N | 192.168.12.154 - Add N | letworking | | or@' | | | | |
| | ✓ 1 Select connection type 2 Select target device | Select target device Select a target device for the new connection. | | | | | | |
| ✓ 192.168.12.242 ✓ 10 Datacenter ✓ Cluster ✓ 192.168.12.154 | 3 Create a Standard Switch 4 Port properties 5 IPv4 settings 6 Ready to complete | Select an existing network | | DD | NETWORKI | NG | REFRESH | |
| ☐ 192.168.12.172 ☐ 192.168.12.205 ☐ VMware vCenter Server | | Select an existing standard switch | | _ | apters | | | |
| | | New standard switch MTU (Bytes) 9000 | EROWSE | | | | | |
| Recent Tasks Alarms Task Name V Target Refresh network Information Image: 19236832 | | | CANCEL BACK | 1 Tim 1, 6: | :53:49 | Server 192.168.1 | 2.242 | * |
| Import OV/E packago | 05 0% 🔿 | venhoro locali Admin - 414.me | 03/04/2021, 6:48:18 | | | 1001601 | A A A A A A A A A A A A A A A A A A A | asks |

3. Assign the second network adapter to the virtual switch. Click Next.

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| | | | | | | | | | |
| vm vSphere Client M | 192.168.12.154 - Add N | letworking | | pri | | | | | |
| | 1 Select connection type 2 Select target device | Create a Standard Switch Assign free physical network add | apters to the new switch. | | | | | | |
| ↓ 192.168.12.242 ↓ Datacenter ↓ 192.168.12.154 ▲ 192.168.12.172 ↓ 192.168.12.205 ↓ Wware vCenter Server | 3 Create a Standard Switch 4 Port properties 5 IPv4 settings 6 Ready to complete | Assigned adapters | Select a physical network adapter from the list to view its details. | Д | D NETW | 5 | | RESH | |
| Recent Tasks Alarms | | | | 1 | | | | | * |
| Task Name Target Refresh network 192.168.12 Information 192.168.12 | | | CANCEL BACK NEXT | | Fime 6:53:49 | ✓ Ser 192 | ver .168.12.24: | | × |
| Import OV/5 package | ns nº: 👁 | venhoro-loca®Ad | 03/04/2021, 6:48:18 | | | 10.2 | 16010.04 | n Aore Ta | sks |





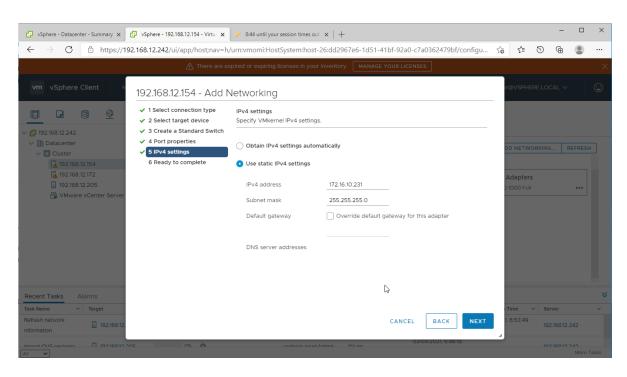
4. Specify port properties such as Network Label, MTU, and enable required services. Click Next.

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| vm vSphere Client | 192.168.12.154 - Add N | letworking | | | | | | | | | |
| | 1 Select connection type2 Select target device | Port properties Specify VMkernel port se | ttings. | | | | | | | | |
| 192.168.12.242 Datacenter Cluster | 3 Create a Standard Switch 4 Port properties 5 IPv4 settings | VMkernel port settings Network label | iSCSI_VMkernel | | | | | ORKING | 6 R | | - |
| 192.168.12.154 192.168.12.172 192.168.12.205 | 6 Ready to complete | VLAN ID IP settings | None (0) V IPv4 V | | | H | Adapter | | | | |
| VMware vCenter Server | | MTU | Custom ~ | 9000 | | | | | | ••• | |
| | | TCP/IP stack Available services | Default v | | | 1.1 | | | | | |
| | | Enabled services | VMotion | | | 1.1 | | | | | |
| | | | Provisioning | | | | | | | | |
| | | | Fault Tolerance logging | | | | | | | | |
| | | | Management | | | | | | | | |
| | | | VSphere Replication | | | | | | | | |
| | | | vSphere Replication NFC | | | | | | | | |
| ecent Tasks Alarms | | | □ vSAN | | | | | | | | |
| sk Name 🗸 Target | | | | | | - 1 | Time | ∽ Se | rver | | |
| fresh network 192:168.12. | | | | CANCEL | BACK | Т | 1, 6:53:49 | 192 | 2.168.12.2 | 42 | |
| nort OVE nackago 🔲 10216912.2/ | 0% | venhoro | local Admin 114 mc | 03/ | 04/2021, 6:48:18 | - 4 | | | | | |

5. Assign static IPv4 address settings to the virtual switch. Click Next.

NOTE: In this document, the 172.16.10.x subnet is used for Data traffic and 172.16.20.x subnet is used for Replication traffic.





6. Review the summary of your settings and click "Finish" to add networking.

7. Start the "Add Networking" wizard again to create a "Virtual Machine Port Group for a Standard Switch".

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| \leftarrow \rightarrow $ m C$ $ m b$ https://192.168.12.242/ui/a | pp/host;nav=h/urn:vmomi:HostSystem:host-23:dd2967e6-1d51-41bf-92a0-c7a0362479bf/configu | τô | £≞ | 3 | æ | ۲ | |
| | | | | | | | |
| vm vSphere Client 192.168.12. | 72 - Add Networking | | @VSPHI | ERE.LO | CAL 🗸 | | <u>:</u> |
| Image: Select constraints ✓ 1 Select constraints > 192:168.12.242 3 Connection | et device Select a connection type to create. | | | | | | |
| → Datacenter 4 Ready to 6 | VMkernel Network Adapter | - 1 | | | | EFRESH | |
| 192.168.12.154 192.168.12.172 192.168.12.205 | The VMkernel TCP/IP stack handles traffic for ESXi services such as vSphere vMotion, ISCSI, NFS, FCoE, Fault Tolerance, vSAN and host management. | SI | ICAL AD | APTERS | | | |
| VMware vCenter Server | Virtual Machine Port Group for a Standard Switch | | Adapter | | | | |
| | A port group handles the virtual machine traffic on standard switch. | | | | | | |
| | O Physical Network Adapter | | | | | | |
| | A physical network adapter handles the network traffic to other hosts on the network. | | | | | | |
| Recent Tasks Alarms | | | | | | | * |
| Task Name 🗸 Target | | | Time | ∽ Se | erver | | ~ |
| Select virtual NIC | CANCEL BACK NEXT | | 6:57:41 | | 2.168.12.2 | 242 | |
| Update network | 103/04/2021, 6:57:39 03/ VCDUEDE LOCALLA 32 mc 03/04/2021, 6:57:39 03/ | 14/2021, | 6:57:40 | | n 160 In 1 | More T | |

8. Specify the previously created vSwitch. Click Next.



| 🛃 vSphere - Datacenter - Summary 🗙 | vSphere - 192.168.12.172 - Virtua 🗙 | 🥜 Log in - VMware ESXi | $\times +$ | | | | | | - | | × |
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| | | | | | | | | | | | |
| vm vSphere Client | 192.168.12.172 - Add N | Vetworking | | | | or@ | | | | | |
| | 1 Select connection type 2 Select target device | Select target device Select a target device for | the new connection. | | | 1 | | | | | |
| ✓ ☐ 192.168.12.242 ✓ ☐ Datacenter ✓ ☐ Cluster | 3 Connection settings 4 Ready to complete | Select an existing star | ndard switch | | | DC | NETWO | ORKING. | . REF | RESH | |
| 192.168.12.154 | | vSwitch1 | | В | ROWSE | sic | CAL ADA | PTERS | | | |
| 📄 192.168.12.205 🚰 VMware vCenter Server | | O New standard switch | | | | - 84 | dapters | | | | |
| | | MTU (Bytes) | | | | | | | | | |
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| Recent Tasks Alarms | | | | | | | | | | | * |
| Task Name v Target | | | | ſ | | | | Serv | er | | ~ |
| Select virtual NIC | | | | CANCEL | BACK | 1, 6 | 6:57:41 | 192. | 168.12.242 | | |
| Update network | 05 Completed | Veduco | 5100AUA 32 mc | 03/04 | /2021, 6:57:39 03/04 | 1/2021, 6 | 6:57:40 | 10.2 | 16010.010 N | | ks |

9. Set the Network label and click Next. Optionally, set VLAN ID if used.

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| \leftarrow \rightarrow C $	begin{tabular}{ll} $ https://19 \end{tabular}$ | 2.168.12.242/ui/app/host;nav=h, | /urn:vmomi:HostSystem:he | ost-23:dd2967e6-1d5 | i1-41bf-92a0-c7 | a0362479bf/configu | τô | 5⁄≡ | 9 | œ | | |
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| vm vSphere Client N | 192.168.12.172 - Add N | Vetworking | | | | | r@VSPH | ERE.LO | CAL 🗸 | | : |
| □ □ □ □ □ □ | ✓ 1 Select connection type ✓ 2 Select target device 3 Connection settings | Connection settings Use network labels to iden hosts. | tify migration-compatibl | le connections cor | nmon to two or more | | | | | | |
| ✓ In Datacenter ✓ In Cluster | 4 Ready to complete | Network label | iSCSI-vSwitch | | | D | D NETW | ORKING | RE | FRESH | |
| 192.168.12.154 | | VLAN ID | None (0) | ~ | | s | ICAL AD | APTERS | | | |
| 192.168.12.172 | | | | | | - 1 | | | | | |
| 192.168.12.205 | | | | | | - 1 | Adapter | | | | |
| VMware vCenter Server | | | | | | 2 | Adapter | | | | |
| | | | | | | - 1 | | | | | |
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| Recent Tasks Alarms | | | | | | - 1 | | | | | ≈ |
| Task Name v Target | | | | | | | | ∽ Se | rver | | ~ |
| Select virtual NIC | | | | CANCEL | BACK NEXT | n 1. | , 6:57:41 | 192 | 2.168.12.2 | 42 | |
| Update network | 05 Completed | VCOLLEDE | LOCALLA 22 mc | 03/ | 04/2021, 6:57:39 03/ |) ⊿ 04/2021, | , 6:57:40 | | | | |
| All 🗸 | | | | | | | | | | More T | asks |

10. Review the port group setting and click Finish to apply.



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| \leftarrow \rightarrow C $rightarrow$ https://1 | 92.168.12.242/ui/app/host;nav=h/ | /urn:vmomi:HostSystem:host-2 | 6:dd2967e6-1d51-41 | bf-92a0-c7a03 | 362479bf/cor | nfigu ជំ | ōΣ≞ | 9 | œ (| |
| vm vSphere Client M | enu 🗸 🛛 📿 Search in all envir | ronments | | C | ? v | Administrat | tor@VSPHE | | | |
| | 192.168.12.154 - Add N | letworking | | | | | | | | |
| ✓ | 1 Select connection type 2 Select target device | Ready to complete Review your settings selections | before finishing the wiza | ard. | | | | | | |
| ✓ ☐ Datacenter ✓ ☐ Cluster ▲ 192.168.12.154 | ✓ 3 Connection settings 4 Ready to complete | Virtual machine port group Standard switch | iSCSI-vSwitch vSwitch1 | | | | DD NETWO | RKING. | REF | |
| 192.168.12.172 192.168.12.205 | | VLAN ID | None (0) | | | | ICAL ADAF | TERS | | |
| 🛱 VMware vCenter Server | | | | | | | Adapters | | | |
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| Recent Tasks Alarms | | | | | | | | | | ≈ |
| Task Name 🛛 🗸 Target | | | | | | | Time | Sen | /er | ~ |
| Update network I 192.168.12. | | | | CANCEL | ВАСК | | 1, 7:00:23 | | 168.12.242 | |
| Select virtual NIC | 205 V Completed | VSPHERE.LOCA | LEVA 5 ms | | _ | | 1, 6:57:41 | | 168.12.242 | |
| All 🗸 | | | | | | | | | 1 | |

10. Repeat steps 7-9 to configure the network for Replication traffic on each vSphere server.

11. Repeat steps 1-9 for any other links intended for the Data/iSCSI and Replication connections on each vSphere server.

Deploying Starwind San & Nas Cvm On Vsphere Servers

1. Download the zip archive that contains StarWind SAN & NAS CVM https://www.starwindsoftware.com/san-and-nas#download

2. Extract the virtual machine files.

3. Deploy the control virtual machine to the VMware vSphere. Right-click on the Datacenter, cluster, or node menu and select the "Deploy OVF Template..." option from a drop-down menu.



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| vm vSphere | Client Menu 🗸 | Q Sea | | | | | C | @~ | Administrator | @VSPHE | RE.LOCAL | | ٢ |
| | <u> </u> | Datacen | nter Action | | Hosts & Clusters | VMs | Datastores | Network | s Update | s | | | |
| vcenter01.stary Datacenter | Actions - Datacenter | | osts: 1 | | | | | | CPU | | | Free: 14.18 | GHz |
| | Add Host | | irtual Machines: 4 | | | | | | Used: 6.62 G | Hz | Ca | pacity: 20.8 | GHz |
| | 🗐 New Cluster | | lusters: 0 etworks: 2 | | | | | | Memory | | | Free: 16.2 | 5 GB |
| | New Folder | , | atastores: 2 | | | | | | Used: 15.75 (| 3B | | Capacity: 3 | |
| | Distributed Switch | | | | | | | | Storage | | | Free: 213.3 | |
| | New Virtual Machin | | | | | | | | Used: 686.3 (| ЗB | Ca | pacity: 899.5 | 5 GB |
| | Deploy OVF Tem | | s | | ~ | Tag | s | | | | | / | |
| | Storage | J.c | | Value | | As | signed Tag | Category | | Descri | ption | | |
| | Edit Default VM Cor | na a tila liitu (| - | | | | | | | | | | |
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| | 🕺 Migrate VMs to And | other Network | | | | | | | | | | | |
| | Move To | | | | | | | | | | | | |
| | Rename | | | | | | | | | | | | |
| Recent Tasks | Tags & Custom Attr | ibutes | • | | | | | | | | | | |
| fask Name | Add Permission | | ✓ Details | ~ Initiator | ~ Queueo | For | ✓ Start Tim | e↓ ~ | Completion T | ime 🔨 | Server | | ~ |
| | Alarms | , | • | | | | | | | | | | |
| u 🗸 | 🗙 Delete | | | | | | | | | | | More | Tasks |

4. In the first step of the wizard, point to the location of the OVF template. Select the VM files and click Next.

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| vm vSphere Client Menu ∨ Q Search in all environm | | | | |
| C Contractor Contract | Select an OVF template Select an OVF template from remote URL or local file system Enter a URL to download and install the OVF package from the internet, or browse to a location accessible from your computer, such as a local hard drive, a network share, or a CD/DVD drive. O URL http://temoteserver-address/filetodeploy.ovf i.ova e Local file UPLOAD FILES 4 files | ption | Free: 18.2 Capacity: 20.1 Free: 18.1 Capacity: 2 Free: 23 Capacity: 899 | 2 GHz 24 GB 32 GB .2 GB |
| Recent Tasks Alarms Task Name Target | | v Serve | er | ~ |
| Import OVF package 192.168.12.154 0% 🛞 | vsphere.local/Admin 162 ms 05/28/2021,4:33:18 | vcen | ter01.starwir Mor | nd.l e Tasks |

5. Specify the VM name and target location.



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| vm vSphere Client Menu v Q Search in all environm | ents C 🖓 v Administrator@V | SPHER | E.LOCA | \checkmark | | |
| Deploy OVF Templat | e | | | | | |
| ✓ ✓ ✓ vcenter01.starwind.local ✓ 1 Select an OVF template ✓ | Select a name and folder | | | | | |
| 2 Select a name and folder 3 Select a compute resource | Specify a unique name and target location | | | | | |
| 4 Review details | Virtual machine name: SW1 | | | | : 16.24 G | |
| 5 Select storage | | | | | | |
| 6 Ready to complete | Select a location for the virtual machine. | | | Free | | в |
| | | | | Capacity | | в |
| | > El Datacenter | | | | | |
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| Task Name v Target | | | Serve | er | | ~ |
| Import OVF package 🔲 192:168:12:154 0% ⊗ | vsphere.local/Admin 162 ms DM | | vcent | ter01.sta | arwind.I | |
| All 🗸 | | | | | More Ta | sks |

6. Select a compute resource intended to run the StarWind SAN & NAS CVM

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| vm vSphere Client Menu | | | | | | | | |
| ♥ vcenter01 starwind local > □ Datacenter | Deploy OVF Template | Select a compute resource Select the destination compute resource for this operation Datacenter) 192.168.12.154 | | | | Capacity Free Capac Free | 18.21 GH : 20.8 GH : 18.24 Gi oty: 32 Gi : 213.2 Gi : 899.5 Gi | z B B |
| Recent Tasks Alarms Task Name v Target | | Compatibility Compatibility checks succeeded. | CANCEL BACK NEXT |] | Serv | rer | | ~ |
| Import OVF package 192.168.12.154 | 0% 😵 | vsphere.local\Admin 162 ms | 05/28/2021, 4:33:18 | | vcer | nter01.sta | | |

7. Review the template details. Click Next.



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| vm vSphere Client Menu v Q Search in all environm | ents | C ? v Administrator@ | VSPHER | E.LOC/ | ∟ ~ | | <u> </u> |
| Deploy OVF Templat | e | | | | | | |
| ✓ I Select an OVF template ✓ 1 Select an OVF template ✓ 2 Select a name and folder | Review details Verify the template details. | | | | Free: | 18.21 GH | |
| 3 Select a compute resource 4 Review details 5 Select storage 6 Select networks | | nced configuration options, which might pose a ed configuration options below. Click next to accept the | | • | Free Capar | : 20.8 GH : 16.24 Gf oty: 32 Gf | B |
| 7 Customize template 8 Ready to complete | Publisher | No certificate present | | | | | |
| | Product | StarWind SAN & NAS | | | | ^ | |
| | Vendor | StarWind Software | ip | tion | | | |
| | Download size | 1.9 GB | | | | | |
| | Size on disk | Unknown (thin provisioned) 50.0 GB (thick provisioned) | | | | | |
| | Extra configuration | nvram = ovf:/file/file2 | | | | | |
| | | | - 1 | | | | |
| Recent Tasks Alarms | | | | | | | ~ |
| Task Name v Target | | | | Serve | ér | | ~ |
| Import OVF package 192.168.12.154 0% All V | vsphere.local\Admin 50 | 05/28/2021, 4:34:47 | | vcen | iter01.sta | arwind.l. More Ta | |

8. In the second step of the wizard, specify the virtual machine provisioning type, VM Storage Policy, and select the direct-attached storage for the appliance system drive. Click Next.

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| vm vSphere Client Menu | ✓ Q Search in all environm | ents | | C | ?∽ ∧ | dministrator@\ | /SPHERE.L | -ocal V | | |
| V P vcenter01.starwind.local | Deploy OVF Template | e | | | | | - | | | |
| > Datacenter | 1 Select an OVF template 2 Select a name and folder | Select storage Select the storage for the conf | iguration and dis | k files | | | - 8 | Fn | ie: 18.21 G | |
| | ✓ 3 Select a compute resource | | | | | | - 8 | Capa | | |
| | ✓ 4 Review details | Encrypt this virtual machine | e (Requires Key N | lanagement Serve | | | - 8 | | ree: 16.24 (| GB |
| | 5 Select storage 6 Select networks | Select virtual disk format: | | Thick Provision | Lazy Zeroed 🗸 🗸 | | - 11 | | pacity: 32 C | |
| | 7 Customize template | VM Storage Policy: | | Dai | tastore Default | ~ | - 2 | | ree: 213.2 C | |
| | 8 Ready to complete | Name | Capacity | Provisioned | Free | Туре | - 8 | Capa | sity: 899.5 C | |
| | | DAS | 699.75 GB | 613.4 GB | 94.94 GB | VMFS 6 | - 8 | | ~ | |
| | | Datastore | 199.75 GB | 90.09 GB | 118.25 GB | VMFS 6 | | | | |
| | | | | | | | iptio | | | |
| | | | | | | | - 8 | | | |
| | | Compatibility | | | | | - 8 | | | |
| | | ✓ Compatibility checks succ | eeded. | | | | - 8 | | | |
| | | | | | | | - 84 | | | |
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| Recent Tasks Alarms | | | | CA | NCEL BAC | K MEXT | | | | × |
| Task Name v Target | | | | 05/20 | /2021. 4:34:47 | | | Server | | ~ |
| Import OVF package 192.168.12.154 | 0% 😮 | vsphere.local\Admit | n 50 ms | 05/28 | /2021, 4.34.47 | | | vcenter01 | | |
| All 🗸 | | | | | | | | | | |

9. Select the destination network for each network adapter assigned to the VM.

The default naming for virtual switches:



- the Management virtual switch is "Management vSwitch",
- the iSCSI virtual switch is "Data/iSCSI vSwitch",
- the Synchronization virtual switch is "Replication/Sync vSwitch ".

Specify corresponding network connections according to your virtual network naming. Click Next.

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| vm vSphere Client Menu ∨ O. | Search in all environments | | C ?~ Adi | ministrator@VSPHI | ERE.LOC | al V | | <u>;</u> |
| | OVF Template | | | | | | | |
| > Datacenter | | n network for each source ne | twork. | | | Free: 1 | | |
| ✓ 3 Select✓ 4 Review | | Ŧ | Destination Network | | | Capacity: Free: | 20.8 GHz 18.24 GB | |
| ✓ 5 Select 6 Select | networks DATA Network | WORK | Management ISCSI_Data | ~ | | | | |
| | to complete | | | 2 items | | Capacity: | | |
| | IP Allocation S | ettings | | | | | ^ | |
| | IP allocation: | | atic - Manual | | iption | | | |
| | IP protocol: | IPv | /4 | | | | | |
| | | | | | | | | |
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| Recent Tasks Alarms | | | CANCEL BACK | NEXT | | | | * |
| Task Name V Target | | | 05/28/2021, 4:34:47 | 5 | Serv | | | ~ |
| Import OVF package 192.168.12.154 | ovs 😵 vsphe | re.local\Admin 50 ms | 014 | | vcer | nter01.star | rwind.i More Tas | ks |

10. Specify the hostname, static IPv4 address, gateway, DNS, and additional network settings for Management and iSCSI/Data network interfaces:



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| vm vSphere Client Menu v | Q Search in all environmen | ts | C ? ~ Administrator@V | SPHERE.L | DCAL 🗸 | | ٢ |
| | Deploy OVF Template | | | | | | |
| Center01.starwind.local Datacenter | ✓ 1 Select an OVF template ✓ 2 Select a name and folder | Management interface network settings | 6 settings | 18 | | e: 18.21 Gł | |
| | 3 Select a compute resource 4 Review details 5 Select storage | Hostname | Hostname of StarWind SAN & NAS VM | | | ity: 20.8 GH ee: 18.24 G pacity: 32 G | ЗB |
| | 6 Select networks 7 Customize template 8 Ready to complete | Choose DHCP or Static for Management interface | If DHCP, leave fields below empty | B | Fr | ee: 213.2 G ity: 899.5 G | ЗB |
| | | IPv4 address for Management interface | IPv4 address for Management Interface (example 192.168.1.100) | iption | | ^ | |
| | | IPv4 netmask for Management interface | IPv4 netmask for Management interface (example 24) | I | | | |
| | | IPv4 gateway for | IPv4 gateway for Management interface (example | | | | |
| Recent Tasks Alarms | | | CANCEL BACK NEXT | | Server | | * |
| Import OVF package 192.168.12.154 | 0% 🔇 | vsphere.local/Admin 5 | 05/28/2021, 4/34/47 0 ms | | /center01.s | t arwind . More T | |

NOTE: To manage the SAN & NAS appliance via StarWind vCenter plugin, the static IPv4 address must be assigned.

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|--------------------------------------|---|---|--|--------------|---|---|--|--|--|
| vm vSphere Client Menu | ↓ ✓ Q Search in all environmer | nts | C | SPHERE,LOCAL | ~ | Ċ | | | |
| | Deploy OVF Template | one contor for management | טופופייט פרויני איז אינט פווינט (פאניוויטט פוויט) | | | | | | |
| vcenter01.starwind.local | 1 Select an OVF template2 Select a name and folder | interface | 192.168.1.17,192.168.8.17 | | Free: 18.21 | | | | |
| | 3 Select a compute resource 4 Review details | Data Interface network settings | 4 settings | Ca | pacity: 20.8 Free: 16.24 | | | | |
| ✓ 6 Se 7 Cu | ✓ 5 Select storage ✓ 6 Select networks 7 Customize template | Choose DHCP or Static for Data interface | If DHCP, leave fields below empty Static | | Capacity: 32 Gi Free: 213.2 Gi Capacity: 899.5 Gi | | | | |
| | 8 Ready to complete | IPv4 address for Data interface | IPv4 address for Data interface (example 172.16.10.10) | Ca | | | | | |
| | | | 172.16.10.100 | iption | | | | | |
| | | IPv4 netmask for Data interface | IPv4 netmask for Data interface (example 24) | | | | | | |
| | | MTU for Data interface | MTU for Data interface (example 9000) 9000 | | | | | | |
| cent Tasks Alarms | | | CANCEL BACK NEXT | | | | | | |

NOTE: if a DHCP server is available on the given network, you can skip setting the additional parameters for that interface.

11. Review the deployment summary information and click to start the VM creation.



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| vm vSphere Client Menu V | Q Search in all environmen | nts | C | ? v Adminis | trator@VSPHE | ERE.LOC | al 🗸 | | <u>.</u> |
| | Deploy OVF Template | | | | | | | | |
| Vcenter01.starwind.local Datacenter | | Ready to complete Click Finish to start creation. | | | | | Free | | |
| | ✓ 3 Select a compute resource | | | | - 1 | | | | |
| | 4 Review details5 Select storage | Name | SW1 | | | | | e: 18.24 G | |
| | ✓ 6 Select networks ✓ 7 Customize template 8 Ready to complete | Template name | StarWindSANandNAS | | | | 213.2 G | | |
| | | Download size | 1.9 GB | | | | pacity: 899.5 GB | | |
| | | Size on disk | 50.0 GB | | | | | ^ | |
| | | Folder | Datacenter | | | iption | | | |
| | | Resource | 192.168.12.154 | | | | | | |
| | | Storage mapping | 1 | | | | | | |
| | | All disks | Datastore: Datastore; Format: Thick | provision lazy zeroed | | | | | |
| | | Network mapping | 2 | | | | | | |
| | | Management Network | Management | | | | | | <u> </u> |
| Recent Tasks Alarms | | | CAN | NCEL BACK | FINISH | C.r. | | | * |
| | | | 05/28 | /2021, 4:34:47 | V 4 | y Ser | | | |
| Import OVF package 192.168.12.154 | 0% 😵 | vsphere.local\Ad | min 50 ms | | | | nter01.st | | |

12. Repeat the VM deployment on each partner server which is used for configuring 2node or 3-node highly available storage according to your licensing.

Installing Starwind Vcenter Plugin

NOTE: This step is optional. StarWind vCenter plugin integrates the Controller Virtual Machines management into VMware vSphere user interface allowing managing compute and storage resources from a single web console.

1. To install the StarWind Plugin ensure that the version of your VMware vCenter Server Appliance 7.0 or newer, then click Next.



| 🗗 vSphere - SW1 - Summary 🛛 🗙 📚 S | itarWind vCenter Plugin x + | | | | - | | × |
|--|--|---|----|-----|---|---|---|
| \leftarrow $ ightarrow$ \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc Not secure ht | tps ;// 192.168.12.206 :5044/#/deploy | ŵ | £≘ | 5 | œ | ٢ | |
| ⋧ StarWind vCe | nter Plugin | | | | | | |
| | Welcome | | | | | | |
| | This installer allows you to deploy StarWind vCenter Plugin to your VMware vCenter Server Appliance | | | | | | |
| | Prerequisites: • VMware vCenter Server Appliance 6.7u3 or higher • StarWind SAN & NAS v1 For additional information regarding StarWind vCenter Plugin installation, see: https://www.starwindsoftware.com/resource-library/starwind-san-and-nas/ | | | | | | |
| | | | | | | | |
| | | | N | ext | | | |

2. Specify the vCenter Server FQDN or IP Address and administrator credentials and click Next.

| 🛃 vSphere - | - com.starwind.san_nas. 🗙 📚 StarWind vCenter P | Yugin x + | | | | - | × |
|--------------------------|--|---|----|-----|------|---|---|
| $\leftarrow \rightarrow$ | C A Not secure https://192.168.12 | 2.206:5044/#/deploy | τô | £_≡ | 9 | Ē | |
| | ≋ StarWind vCenter Plugin | | | | | | |
| | 1 PLUGIN DEPLOYMENT TARGET | Plugin Deployment Target | | | | | |
| | | Specify the plugin deployment target settings. The target is the vCenter Server Appliance instance on which the plugin will be installed | | | | | |
| | | | | | | | |
| | | VMware vCenter Server FQDN or IP address | | | | | |
| | | Administrator username | | | | | |
| | | Administrator password | | | | | |
| | | | | | | | |
| | | | | N | lext | | |



| e v | Sphere - | - com.starwi | ind.san_nas∴ 🗙 📚 StarWind vCenter | Plugin × + | | | | - | × |
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| | | <i>m</i> | StarWind vCenter Plugin | | | | | | |
| | | | PLUGIN DEPLOYMENT TARGET | Plugin Deployment Target | | | | | |
| | | | | Specify the plugin deployment target settings. The target is the vCenter Server Appliance instance on which the plugin will be installed | | | | | |
| | | | | VMware vCenter Server FQON or IP address 192.168.13.236 | | | | | |
| | | | | Administrator username administrator@vsphere.local | | | | | |
| | | | | Administrator password | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | N | ext | k | |

3. Confirm the connection to your vCenter Server Appliance.

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|---|---|----|----|---|---|---|---|
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| ≈ StarWind vCenter Plugin | | | | | | | |
| | | | | | | | |
| . 2 SUMMARY | | | | | | | |
| | 192.1 Certificate Warning | | | | | | |
| (4) INSTALLATION COMPLETED | If an untrusted SSL certificate is installed on 192.168.13.236, secure communication cannot be guaranteed. Depending on your security policy, this issue does not represent a security concern. | | | | | | |
| | The SHA1 thumbprint of the certificate is: 03:D6:66:C4:30:A3:69:2C:18:AD:C4:D1:AD:13:71:CD:F4:B5:29:2C | | | | | | |
| | Cancel Confirm | | | | | | |
| | | | | | | | |
| | | | | | | | |

4. Review Summary and click the Install button.



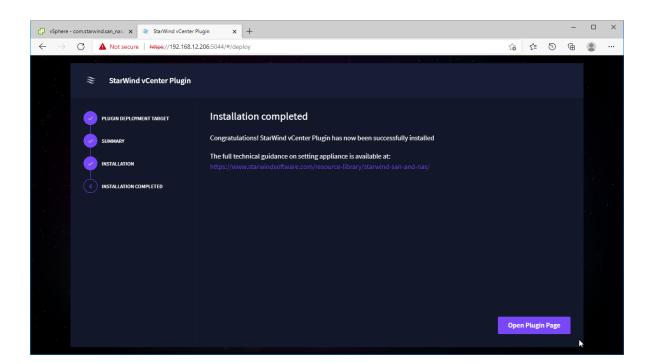
| 🛃 vSphere - | - com.starwind.san_nas. 🗙 📚 StarWind vCenter P | lugin × + | | | | | - | | × |
|--------------------------|--|--------------------------------|--|-----|----|-------|-----|---|---|
| $\leftarrow \rightarrow$ | C A Not secure https://192.168.12 | .206:5044/#/deploy | | í. | £≘ | Ð | œ | ٢ | |
| | ≈ StarWind vCenter Plugin | | | | | | | | |
| | PLUGIN DEPLOYMENT TARGET | Summary | | | | | | | |
| | 2 SUMMARY | Review your settings selection | on before deploying the StarWind vCenter Plu | gin | | | | | |
| | | vCenter Server IP address | 192.168.13.236 | | | | | | |
| | | Administrator username | administrator@vsphere.local | | | | | | |
| | | Administrator password | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
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5. Wait until the plugin is installed.

| 🕑 vSphere - o | com.starwind.san_nas. 🗙 🏾 📚 StarWind vCenter Plu | igin x + | | | - | × |
|----------------------------|--|--|-------|---------|---|---|
| \leftarrow \rightarrow | C A Not secure https://192.168.12.2 | 206:5044/#/deploy | £≞ | 9 | Ē | |
| | ≋ StarWind vCenter Plugin | | | | | |
| | PLUGIN DEPLOYMENT TARGET | Installation | | | | |
| | SUMMARY | Please wait until the Setup Wizard deploys StarWind vCenter Plugin | | | | |
| | 3 INSTALLATION | Install progress: | | 100 % | | |
| | | | ✓ Com | npleted | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | Cancel | | ext | | |

6. Click the Open Plugin page to start using StarWind SAN & NAS via the vCenter Plugin interface.





Configuring Converged Storage Server With Hyper-V Server

Configuring Networks On Microsoft Hyper-V Server

Configure external virtual switches on a hypervisor server, at least one for Management, one for Data, and one for Replication. Ensure the interfaces are in different subnets and connected physically according to the network diagram above. All actions below should be applied to each Hyper-V server for running StarWind SAN & NAS. In this document, the 172.16.10.x subnet is used for Data traffic and 172.16.20.x subnet is used for Replication traffic.

NOTE: It is recommended to set jumbo frames to 9000 on the virtual switch and network interfaces used for Data/iSCSI traffic.

1. Using Virtual Switch Manager create a new external virtual switch for the Management network.



| <u> </u> | Virtual Switches | 🛃 Virtual Switch Properties |
|----------|---|---|
| | 📌 New virtual network switch | |
| F | Anagement vSwitch | Name: |
| | Intel(R) 82574L Gigabit Network C Data/iSCSI vSwitch | Management vSwitch |
| | Intel(R) 82574L Gigabit Network C | Notes: |
| | Global Network Settings | |
| | MAC Address Range 00-15-5D-00-59-00 to 00-15-5D-0 | |
| | | Connection type |
| | | What do you want to connect this virtual switch to? |
| | | External network: |
| | | Intel(R) 82574L Gigabit Network Connection $$ |
| | | Allow management operating system to share this network adapter |
| | | Enable single-root I/O virtualization (SR-IOV) |
| | | O Internal network |
| | | |
| | | |
| | | VLAN ID |
| | | Enable virtual LAN identification for management operating system |
| | | The VLAN identifier specifies the virtual LAN that the management operating system will use for all network communications through this network adapter. This setting does not affect virtual machine networking. |
| | | Remove |
| | | SR-IOV can only be configured when the virtual switch is created. An external virtual switch with SR-IOV enabled cannot be converted to an internal or private switch. |

2. Create a second external virtual switch for the Data network.

| Virtual Switches | 🚜 Virtual Switch Properties |
|--|---|
| 👫 New virtual network switch | Name: |
| Management vSwitch Intel(R) 82574L Gigabit Network C | |
| The light receiver a second se | Data/iSCSI vSwitch |
| Intel(R) 82574L Gigabit Network C | Notes: |
| Global Network Settings | · · · · · · · · · · · · · · · · · · · |
| MAC Address Range 00-15-5D-00-59-00 to 00-15-5D-0 | · |
| | Connection type |
| | What do you want to connect this virtual switch to? |
| | External network: |
| | Intel(R) 82574L Gigabit Network Connection #2 V |
| | Allow management operating system to share this network adapter |
| | Enable single-root I/O virtualization (SR-IOV) |
| | O Internal network |
| | |
| | |
| | VLAN ID |
| | Enable virtual LAN identification for management operating system |
| | The VLAN identifier specifies the virtual LAN that the management operating system will use for all network communications through this network adapter. This setting does not affect virtual machine networking. |
| | Remove SR-IOV can only be configured when the virtual switch is created. An external virtual switch with SR-IOV enabled cannot be converted to an internal or private switch. |

3. Repeat the procedure, create a third external virtual switch for the Replication (Synchronization) network.

Deploying Starwind San & Nas Cvm On Hyper-V Servers

1. Download the zip archive that contains StarWind SAN & NAS CVM https://www.starwindsoftware.com/san-and-nas#download

2. Extract the virtual machine files.



3. Deploy the control virtual machine to the Microsoft Hyper-V Server using the "Import Virtual Machine" wizard in Hyper-V Manager.

| /per-V Manager | Virtual | lachines | | | | | | | Acti | ons | |
|--|---------|----------|-------|-----------|--|---------------------------------|---------------|-------------|------|--|--|
| Nucann New Import Victual Mac Hyper V Settings Virtual SAN Manag Edit Disk Inspect Disk Stop Service Remove Server | jine | ^ | State | CPU Usage | Assigned Memory No vitual machines were | Uptime e found on this serve | Status ar. | Configurati | | 019 New Import Virtual Machine Hyper-V Settings Virtual SAN Manager Edit Disk Inspect Disk Stop Service | |
| Refresh View Help | > | ints | | | No virtual mach | ine selected. | | | U | Remove Server Refresh View Help | |
| | Details | | | | No item se | ected. | | | | | |

4. On the second page of the wizard, point to the location of the VM template. Select the VM folder and click Next.



| Import Virtual Machine | | × |
|---|--|--------|
| Locate Folder | | |
| Before You Begin | Specify the folder containing the virtual machine to import. | |
| Locate Folder Select Virtual Machine | Folder: C:\Users\sw\Downloads\StarWind SAN & NAS\ | Browse |
| Choose Import Type | | |
| Summary | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | < Previous Next > Finish | Cancel |

5. Click Next on the "Select Virtual Machine" step.



| Import Virtual Machine | | × |
|---|--|---|
| Select Virtual | Machine | |
| Before You Begin | Select the virtual machine to import: | |
| Locate Folder Select Virtual Machine | Name Date Created | |
| Choose Import Type Summary | StarWind SAN & NAS 12/16/2021 3:51:59 PM | |
| | < Previous Next > Finish Cancel | |

6. Select the "Copy the virtual machine" import type and click Next.



| Import Virtual Machine | | × |
|------------------------|---|---|
| Choose Impo | ort Type | |
| Before You Begin | Choose the type of import to perform: | |
| Locate Folder | \bigcirc Register the virtual machine in-place (use the existing unique ID) | |
| Select Virtual Machine | \bigcirc Restore the virtual machine (use the existing unique ID) | |
| Choose Import Type | Opy the virtual machine (create a new unique ID) | |
| Summary | | |
| | | |
| | < Previous Next > Finish Cancel | |

7. Specify new or existing folders to store virtual machine files, such as configuration, snapshots, smart paging, and virtual disk. Click Next.



| Import Virtual Machine | | × |
|---|--|---|
| Choose Fold | ers for Virtual Machine Files | |
| Before You Begin Locate Folder Select Virtual Machine Choose Import Type | You can specify new or existing folders to store the virtual machine files. Otherwise, the wizard imports the files to default Hyper-V folders on this computer, or to folders specified in the virtual machine configuration. Store the virtual machine in a different location Virtual machine configuration folder: | |
| Choose Destination Choose Storage Folders Summary | C:\Hyper-V VMs\StarWind SAN & NAS\Virtual Machines Browse Checkpoint store: C:\Hyper-V VMs\StarWind SAN & NAS\Snapshots Smart Paging folder: Browse C:\Hyper-V VMs\StarWind SAN & NAS\ Browse | |
| | < Previous Next Finish Cancel | |



| Import Virtual Machine | | | Х |
|---|---|--------|---|
| Choose Folde | ers to Store Virtual Hard Disks | | |
| Before You Begin Locate Folder Select Virtual Machine Choose Import Type Choose Destination | Where do you want to store the imported virtual hard disks for this virtual machine? Location: C:\Hyper-V VMs\StarWind SAN & NAS\Virtual Hard Disks\ | Browse | |
| Choose Storage Folders Summary | | | |
| | < Previous Next > S Finish | Cancel | |



| Import Virtual Machine | × |
|---|---|
| Choose Folde | ers to Store Virtual Hard Disks |
| Before You Begin Locate Folder Select Virtual Machine Choose Import Type | Where do you want to store the imported virtual hard disks for this virtual machine? Location: C:\Hyper-V VMs\StarWind SAN & NAS\Virtual Hard Disks\ Browse |
| Choose Destination Choose Storage Folders | Description without band disk destination |
| Summary | Preparing virtual hard disk destination |
| | |
| | |
| | |
| | < Previous Next > Finish Cancel |

8. In the second step of the wizard, the "VM import" wizard will validate the network.

The default naming for virtual switches:

- the Management virtual switch is "Management vSwitch",
- the iSCSI virtual switch is "Data/iSCSI vSwitch",
- the Synchronization virtual switch is "Replication/Sync vSwitch ".

If existing virtual switches have different names, specify corresponding network connections. Click Next.



| Import Virtual Machine | | × |
|--|--|---|
| Connect Net | work | |
| Before You Begin Locate Folder Select Virtual Machine Choose Import Type Choose Destination Choose Storage Folders Connect Network Connect Network Summary | This page allows you to connect to virtual switches that are available on the destination computer. The following configuration errors were found for virtual machine 'StarWind SAN NAS'. Could not find Ethernet switch 'Management vSwitch'. Specify the virtual switch you want to use on computer "WS2019". Connection: Not Connected Not Connected Management Virtual Switch Data Virtual Switch | |
| | < Previous Next > Finish Cancel | |



| Import Virtual Machine | | × |
|--|--|---|
| Connect Net | work | |
| Before You Begin Locate Folder Select Virtual Machine Choose Import Type Choose Destination Choose Storage Folders Connect Network | This page allows you to connect to virtual switches that are available on the destination computer. The following configuration errors were found for virtual machine 'StarWind SAN NAS'. Could not find Ethernet switch 'Data/iSCSI vSwitch'. Specify the virtual switch you want to use on computer "WS2019". Connection: Not Connected Not Connected | |
| Connect Network Summary | Management Virtual Switch Data Virtual Switch | |
| | < Previous Next > Finish Cancel | |

9. Review the import configuration and click Finish to complete the import.



| Import Virtual Machine | | × |
|--|--|---|
| Completing | Import Wizard | |
| Before You Begin Locate Folder Select Virtual Machine Choose Import Type Choose Destination Choose Storage Folders Connect Network Connect Network Summary | You are about to perform the following Description: Virtual Machine: Import file: Import Type: Virtual machine configuration folder: Checkpoint folder: Smart Paging file store: Virtual hard disk destination folder: Network connection: Network connection: | operation. StarWind SAN & NAS C: \Users\sw\Downloads\StarWind SAN & NAS\Virtual Machines\ Copy (generate new ID) C:\Hyper-V VMs\StarWind SAN & NAS\Virtual Machines\ C:\Hyper-V VMs\StarWind SAN & NAS\Snapshots\ C:\Hyper-V VMs\StarWind SAN & NAS\ C:\Hyper-V VMs\StarWind SAN & NAS\ C:\Hyper-V VMs\StarWind SAN & NAS\Virtual Hard Disks\ Management Virtual Switch Data Virtual Switch |
| | To complete the import and close this v | <pre>vizard, click Finish.</pre> |



| Import Virtual Machine | × |
|--|---|
| Completing | Import Wizard |
| Before You Begin Locate Folder Select Virtual Machine Choose Import Type Choose Destination Choose Storage Folders Connect Network Connect Network Summary | You are about to perform the following operation. Description: Virtual Machine: StarWind SAN & NAS Import file: C:\Users\sw\Downloads\StarWind SAN & NAS\Virtual Machines\ Import Type: Copy (generate new ID) Virtual machine configuration folder: C:\Hyper-V VMs\StarWind SAN & NAS\Virtual Machines\ Ch Copying file 1 of 1 (StarWindSANandINAS.vhdx) nd SAN & NAS\Virtual Hard Disks\ Virtual machine: Management Virtual Switch Network connection: Data Virtual Switch |
| | To complete the import and close this wizard, click Finish. |
| | < Previous Next > Finish Cancel |

10. Repeat the VM deployment on each partner server which is used for configuring 2node or 3-node highly available storage according to your licensing.

Getting Started With Starwind San & Nas

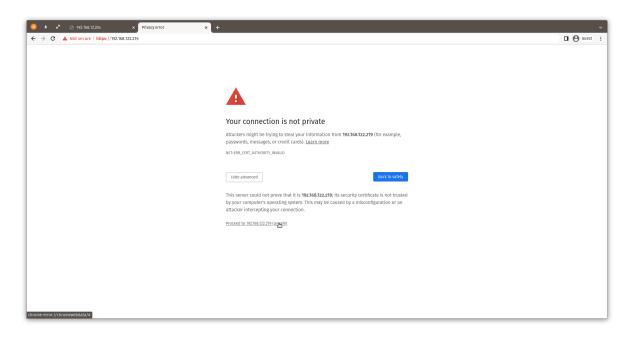
1. Start StarWind SAN & NAS CVM.

2. Launch Console to see the VM boot process and get the IPv4 address of the Management network interface.

Note: in case VM has no IPv4 address obtained from a DHCP server, use the Text-based User Interface (TUI) to set up a Management network.

3. Using the web browser, open a new tab and enter the VM IPv4 address to open StarWind SAN & NAS Web Interface. Click "Advanced" and then "Continue to..."





4. StarWind SAN & NAS welcomes you, and the "Initial configuration" wizard will guide you through the deployment process.

| 🤹 🔺 📌 → Log in -vMaure ESA × 📑 StarWind SAN 8. MAS 🗙 + | ~ |
|--|---------|
| ← → C ▲ Not secure https://102.106.122.219 | suest : |
| | |
| Welcome to Starwind SAN & NAS | |
| Follow the initial configuration wizard and complete the required steps of the appliance setup | |
| | |
| | |
| | |

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



| 🙁 🔹 🗈 🖉 Log in - VMware ESXi 🛛 🗙 🧮 StarWind SAN & NAS | × + | ~ |
|---|--------------|---------|
| ← → C ▲ Not secure https://192.168.122.219 | | Guest : |
| SAN & MAS Initia | onfiguration | |
| SN & A ASS initial configuration • Updat locans • Very RUA Configuration • Very Busic • Order administrator account • Very Busic • Order administrator account • Very Busic • Order administrator account • Very Busic • Very Busic <th></th> | | |
| | Back Next | |

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

| 🙁 🗴 🦨 Log in - VMware ESXi 🗙 🔳 | StarWind SAN & NAS × | + | |
|--|---------------------------------|--|-------------|
| ← → C ▲ Not secure https://192.168.122.219 | | | 🖬 🕲 Guest 🚦 |
| | SAN & NAS Initial configuration | | |
| | ✓ Upload license | Review end-user license agreement | |
| | Review EULA | Review and accept the following license agreement to continue | |
| | | STARWIND LICENSE AGREEMENT FOR FREE PRODUCTS | |
| | | LICENSEE IS SUBJECT TO THE TERMS AND CONDITIONS OF THIS AGREEMENT WHETHER LICENSEE ACCESSES OR OBTAINS FREE SOFTWARE DIRECTLY FROM https://www.starwindsoftware.com/, OR THROUGH ANY OTHER SOURCE, BY USING, | |
| | | INSTALLING, AND/OR OPERATING FREE SOFTWARE, LICENSEE AGREES TO BE BOUND BY THE TERMS OF THIS AGREEMENT. LICENSEE WILL HAVE THE OPPORTUNITY TO ACCEPT THIS OFFER OF AGREEMENT THROUGH A CLICK-THROUGH PROFERING IF LICENSEE DOTS NOT WASH TACCEPT THE TRANSO FT THIS AGREEMENT ADURED TO DICL ON THIS | |
| and the second second | | AGREEMENT, LICENSEE SHALL NOT USE, INSTALL, OR OPERATE THE FREE SOFTWARE. IF LICENSEE CHOOSES TO ACCEPT THE TERMS OF THIS AGREEMENT, LICENSEE MAY DO SO BY CHECKING "I AGREE" USING THE DESIGNATED CHECK BOX, | |
| | | AND BY CLICKING ON THE "I AGREE TO TERMS OF THIS AGREEMENT" BUTTON, LICENSEE CONSENTS TO BE BOUND BY AND BECOME A PARTY TO THIS AGREEMENT AND AGREES THAT THIS AGREEMENT IS ENFORCEABLE AGAINST LICENSEE | |
| | | LICENSEE DOES NOT AGREE TO ALL OF THE TERMS OF THIS AGREEMENT, THEN LICENSEE SHOULD NOT OPERATE THE FREE SOFTWARE AND LICENSEE WILL NOT BE ALLOWED TO USE, INSTALL, OR OPERATE THE FREE SOFTWARE. FOR | |
| | | TO REFUSE ACCEPTING THIS AGREEMENT AND NOT TO PROVIDE LICENSEE WITH THE RIGHT TO USE, INSTALL, OR OPERATE THE FREE SOFTWARE AS CONTEMPLATED HEREUNDER FOR ANY REASON OR NO REASON. | |
| | | Definitions: Each of the economic indicated halow will have in this instance the meaning estimate in a material of the increase agreement | |
| | | | |
| | | Back | Next |
| | | | |
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| | <page-header></page-header> | | |
| | | | |

7. Review or edit the Network settings and click Next. Note: Static network settings are recommended for the configuration.



| starWind SAN & NAS × + | | Guest |
|---|---|-------|
| | | |
| SAN & NAS Initial configuration | | |
| ✓ Upload license | t Configure management network | |
| Review EULA Configure management network | Specify the unique IP address (static is recommended) and configure other network settings. • Nanagement network is used to communicate with services such as DNS and NTP and to access the appliance web UI from external clients. | |
| Verify hostname | IP mode Static | |
| | | |
| | NIC Model Bandwidth MAC address IP address Netmask Gatoway eth0 825744.Gigabit Ne 1 Gbit 52:54:00.6FF 192.168.122.221 255.255.255.0 192.168.122.1 | |
| | Name servers (optional): | |
| | DNS 1 192.168.122.1 DNS 2 | |
| | Time settings (optional): | |
| | NTP server | |
| | Back Next | |
| | | |
| | | |

8. Specify the hostname for the virtual machine and click Next.

| 🙁 🔹 📽 🛞 192.168.12.204 🛛 🗙 🗮 Star | rivind San & NAS × + | ~ |
|--|--|---------|
| ← → C ▲ Not secure https://192.168.122.219 | | Guest : |
| | N & NAS Initial configuration | |
| √u • | Upload license Verify hostname Review EULA Choc the current appliance hostname and modify it if required Configure management network 0 Use Juin Intern, numbers, and dash | |
| •• | Hototaane Hototaane Sv71 Sv71 Review summary Sv71 | |
| | | |
| | Back | |
| | | |

9. Create an administrator account. Click Next.



| 🙁 🔹 🖌 🍙 Log in - VMware ESXi 🛛 🗙 📑 StarWind SAN & NAS | × + | Ŷ |
|---|-----------|-------------|
| ← → C ▲ Not secure https://192.168.122.219 | | 🖬 🕙 Guest 🗄 |
| SAN & NAS Initial con | iguation | |
| ✓ Upload license ✓ Review EULA ✓ Configure management ✓ Verify hostname Craste administrator i Review cummary Configuring settings | starwind | |
| | | |
| | Back Next | |
| | | |

10. Review your settings selection before setting up StarWind SAN & NAS.

| 🙁 🛨 🖍 🥜 Log in - VMware ESXi 🗙 🧧 | 🛃 StarWind SAN & NAS 🛛 🗙 🕂 | | | ~ |
|--|---|--|----------------|---------|
| ← → ♂ ▲ Not secure https://192.168.122.219 | | | | Guest : |
| | SAN & NAS Initial configuration | | | |
| | ✓ Upload license ✓ Review EULA ✓ Configure management network | Review summary License type License | | |
| | ✓ Verify hostname ✓ Create administrator account Review summary | Network settings | | |
| | | Bandwidth MTU IP address Appliance hostname | | |
| | | Credentials Administrator username | | |
| | | | Back Configure | |
| | | | | |

11. Please standby until the Initial Configuration Wizard configures StarWind SAN & NAS for you.



| 🙁 🔹 🖍 🥜 Log in - VMware ESXi 🛛 🗙 StarWind SAW | 8 MAS × + | ~ |
|---|--------------------------------|---------|
| ← → C ▲ Not secure https://192.168.122.219 | | Guest : |
| SAN & NASI | nitial configuration | |
| ✓ Upload lice ✓ Review EU | | |
| ✓ Verify hostr | | |
| ✓ Create adm ✓ Review sun ● Configuring | Configuring management network | |
| | Creating administrator account | |
| | | |
| | | |

12. The appliance is set and ready. Click on the Done button to install StarWind vCenter Plugin right now or uncheck the checkbox to skip this step and proceed to the Login page.

| 🙁 🗴 🖍 Log in - Winare ESNi 🛛 x 🔛 StarWind SAN & NAS 🛛 🗙 🕂 | ~ |
|---|---------|
| ← → C ▲ Not secure https://92.168.122.219 | Guest : |
| | |
| SAN & NAS Initial configuration | |
| Initial configuration completed The essential settings were successfully configured. Press "Finish" to close the wizard and navigate to the login page. You can also install StarWind SAN & NAS visiblere plag in if you want to access SAN & NAS web UI from your visiblere console. | |
| Laura an min on a no spine page management. | |
| | |
| | |
| Finish | |
| | |

13. Repeat the initial configuration on other StarWind SAN & NAS CVMs that will be used to create 2-node or 3-node HA shared storage.



Web Console

This part provides a detailed description of StarWind SAN & NAS monitoring and management capabilities using the web console.

Login Page

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

| 🙁 🔹 🖋 🎤 Log in - VMware ESXi 🛛 🗙 🔣 StarWind SAN & NAS 🗙 🕂 | | |
|---|----------------|---------|
| ← → C ▲ Not secure https://192.168.122.219 | | Guest : |
| | | |
| | | |
| | StarWind | |
| | | |
| | | |
| | Stay signed in | |
| | | |
| | | |

Dashboard

The DASHBOARD item provides a set of widgets that allow monitoring of a storage appliance.



| tar Wind | | | | | | | Gue |
|-------------|-------------------|-------------------|----------------------------|-----------------|----------------------|-----------------------|-----|
| Dashboard | Dashboard | | | | | | |
| Storage - | Appliance summary | | | Virtual disk(s) | availability | | |
| Disks Pools | Hostname | sw1 | | | High availability | | |
| | Operating system | | | | Limited availability | | |
| | | | | | | | |
| | | | | | Simple | | |
| | Uptime | | | | | | |
| | Resource usage | | | | | | |
| | | CPU Used 7% | Memre 270 1.04 68 64 | 4/6 | | Storage Used O% | |
| | | | | | | | |
| | | | | | | | |
| Minimize | Performance | | | | | | |

DASHBOARD consists of the following widgets:

• Appliance Summary – delivers general information about the SAN & NAS, such as hostname, StarWind Service version, appliance type, and system uptime.

| Appliance summary | |
|-------------------|--|
| Hostname | SW1 |
| Operating system | Ubuntu 20.04.1 LTS |
| Core | StarWind Virtual SAN (vSAN) v8.0.0 (Build 14429) |
| License | Free |
| Uptime | 37 minutes |

 Virtual Disks(s) Availability – delivers the overall information on the state of StarWind virtual disks, including those that are of high availability (StarWind HA disks that are synchronized and available on both nodes), limited availability (StarWind HA disks that are synchronized and available currently only from one node) and ones that are not available (offline StarWind volumes) and simple (StarWind virtual disks that are not replicated).

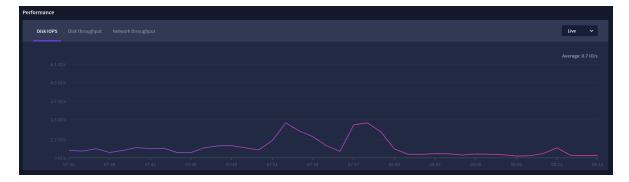


| Virtual disk(s) | Virtual disk(s) availability | | | | | | | | |
|-----------------|------------------------------|----------------|--|--|--|--|--|--|--|
| | High availability | Not licensed | | | | | | | |
| Total | Limited availability | Not applicable | | | | | | | |
| 0 | Down | | | | | | | | |
| | Simple | ٥ | | | | | | | |
| | | | | | | | | | |

• Resource usage – delivers information on the CPU, Memory, and Storage usage.



• Performance – delivers the information in the form of graphs about IOPS, Disk Throughput, and Network Throughput. These metrics can be checked live, last hour, last day, last week, last month, or last year.



• Tasks and events – delivers the information on tasks and events in StarWind SAN & NAS.

| Tasks and events | | | |
|------------------|--|--|--|
| Tasks Events | | | |
| Name | | | |
| | | | |



Storage

The Storage item provides Disks, Pools, Volumes and Virtual Disks pages and allows performing the inventory of the attached storage to the appliance, listing, creating, and editing storage pools, volumes and virtual disks.

Disks

The Disks page delivers the ability to rescan the storage attached to the StarWind SAN & NAS and check the drive state.

| Disks | | | | | | |
|-----------------|---------------|------------------|--|---------|--|--|
| Selected 0 of 5 | Rescan storag | ge Maintenance V | | | | |
| 🗌 Disk n | | Media type 🗢 | | Model 🗢 | | |
| 🗆 💻 sd | | | | | | |
| 🗆 🛋 sd | | | | | | |
| □ ≞ s⊄ | | | | | | |
| □ ≞ s⊄ | | | | | | |
| 🗆 🛋 sd | | | | | | |
| Show 10 | 1-5 of 5 | | | | | |

Two control buttons are provided for disk management:

- Rescan Storage button executes storage identification tasks, seeks physical controllers, virtual and physical disks. Devices appear in the table once identified.
- Maintenance button lists Check State maintenance operation. The Check State button launches a disk state check task and fixes the disk state if the drive is not in use by any storage pool.

Pools

The Pools page delivers the ability to create, list, edit and delete storage pools. Hardware RAID, Linux Software RAID and ZFS storage pools are supported and integrated into StarWind SAN & NAS web interface.



| ★ ▲ S 192.168. ← → C ▲ Not secure | 12.204 × 📑 StarWind SA | N & NAS × + | | | v □ ⊖ Guest : |
|--|------------------------|-------------|--|------|------------------|
| StarWind | | | | ₽ \$ | starwind ~ |
| 🛱 Dashboard | Pools | | | | |
| 🛎 Storage 🔺 | | Aanage pool | | | Q = |
| Pools | | | | | |
| 🕑 Volumes | 🔲 🛢 md0 | | | | 39.93 GB |
| L. Network ▲ Uters ▲ Tasks and events → | | × | | | |
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Create Storage Pool

- 1. Click the "Add" button to create a storage pool.
- 2. Select two storage nodes to create a storage pool on them simultaneously.

| StarWind | | 🗐 🌲 🏟 admin v |
|------------------------------|--|--------------------------|
| 🔹 Dashboard | Storage pools | |
| 🛢 Storage 🔺 | Selected 0 of 0 + Create a new pool > pool | |
| 👮 File shares | | |
| 👮 LUNS | There are no storage pools yet | |
| 🕒 Volumes | Start building your storage infrastructure by creating a new one | |
| Storage pools | | |
| Physical disks | | |
| 🚠 Network | | |
| Appliances | | |
| 2 Users | | |
| 📋 Tasks and events 🛛 🔻 | | |
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| Minimize | | |



| StarWind Hyperconvergence | | | | |
|-------------------------------------|--------------------------|--|---|--|
| Dashboard | Stol Create storage pool | | | |
| Storage * File shares | Selecter • Appliance | Appliance | | |
| 💇 LUNS | | Select one or more storage nodes to create a storage pool O | | |
| Uolumes | | Node name | disks \Leftrightarrow Available capa \Leftrightarrow 3 15 GB | |
| Physical disks | | ☑ 🛤 SW2 Online | | |
| 📇 Network | | | | |
| Appliances | | | | |
| 💄 Users | | | | |
| 📋 Tasks and events 🛛 💌 | | | | |
| | | | | |
| | | | | |
| | | | Cancel Next | |
| ∢ Minimize | | | | |

3. Select physical disks to include in the storage pool name and click the "Next" button. NOTE: Select identical type and number of disks on each storage node to create identical storage pools.

| StarWind Hyperconvergence | | | |
|--|--|---|--|
| 😂 Dashboard | Sto Create storage pool | | |
| E Storage A | Selecter Appliance Physical disks Profile | Physical disks Select physical disks to include in storage pools on each node • | |
| Volumes Storage pools Physical disks | | ■ Disk name ● Media t ● Bus pro ◆ Size ◆ Slot ◆ Contro ◆ ■ ■ sdb HDD SAS 5 GB 32:0:1:0 SAS1068 PC ■ ■ sdc HDD SAS 5 GB 32:0:2:0 SAS1068 PC | |
| 🔹 Network Appliances Users | | Image: Solid HDD SAS 5 GB 32:01:3:0 SAS1068 PC Total raw capacity of selected disks: 15 GB Image: SW2 ▲ | |
| 📄 Tasks and events 🛛 💌 | | Size Size Size Size Contro Contro | |
| | | Selected number of disks is equal | |
| ∢ Minimize | | | |

4. 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.

| StarWind hyperconvergence | | | |
|--|--|---|--|
| 🙆 Dashboard | Create storage pool | | |
| Storage * | ✓ Appliance ✓ Physical disks ● Profile | Profile Choose an optimal storage pool profile. Selected disks left unused will be assigned to hot spares. | |
| 🕒 Volumes | | Storage pool profile Usable capacity Fault tolerance O Hot spares | |
| Storage pools Physical disks | | High capacity (recommended) Maximize redundancy while maintaining high 9.9 GB 1 = 0 + storage capacity (Software RAID/RAID-5) | |
| 🚑 Network | | High performance Maximize storage performance while maintaining 4.95 GB 1 = 1 + redundancy (Software RAID)RAID-1) | |
| 🏩 Users. | | Manual Allows you to configure the storage pool layout manually. | |
| | | Back | |
| < Minimize | | | |

Hardware RAID, Linux Software RAID, and ZFS storage pools are supported and integrated into the StarWind CVM web interface. To make easier the storage pool configuration, the preconfigured storage profiles are provided to configure the recommended pool type and layout according to the direct-attached storage:

- hardware RAID configures Hardware RAID's virtual disk as a storage pool. It is available only if a hardware RAID controller is passed through to the CVM
- high performance creates Linux Software RAID-10 to maximize storage performance while maintaining redundancy
- high capacity creates Linux Software RAID-5 to maximize storage capacity while maintaining redundancy
- better redundancy creates ZFS Stripped RAID-Z2 (RAID 60)) to maximize redundancy while maintaining high storage capacity
 - manual allows users to configure any storage pool type and layout with attached storage

5. Review "Summary" and click the "Create" button to create the pools on storage servers simultaneously.



| StarWind Hyperconvergence | | | | | | 4 Q | admin 💌 |
|--|--|--|---------------------------|------|----|-----|---------|
| Dashboard | Create storage pool | | | | | | |
| Elle shares | ✓ Appliance ✓ Physical disks ✓ Profile | Summary Review specified settings a | ind create storage pools. | | | | |
| Volumes Storage pools Physical disks | • Summary | Storage pool layout Raw capacity Usable capacity | | | | | |
| an Network Ⅲ Appliances ≗ Users | | Storage pool layout Raw capacity | | | | | |
| Tasks and events * | | Usable capacity | | | | | |
| | | | | Back | te | | |
| < Minimize | | | | | | | |

Manage Storage pool

- 1. To edit a storage pool, select the pool and click the "Manage pool" control button.
- 2. On the General tab find basic pool information such as name, layout, and capacity.

| | | | | | | e + + | starwind -> |
|--|-----------------|-----------------|---|----------|--|-------|-------------|
| | | | | | | | |
| | Manage pool | | | | | | |
| | General | General | | | | | |
| | Layout Disks | Properties | | Capacity | | | |
| | Hot spare | Name | | | ● Used: 0.8 ● Available: 39.93 G8 | | |
| | | | | | ○ Usable capacity: 39.93 GB ◎ Raw capacity: 40 GB | | |
| | | Fault tolerance | | | | | |
| | | | × | | | | |
| | | | | | Close | | |



- 3. Extend the storage pool by:
 - adding more physical disks to the appliance and using the Add disks wizard.

| Solution ★ → C ▲ Not secure | .204 × 🔣 StarWind https://192.168.122.219/storagePools | | | | | | | | Guest : |
|---|---|--------------------------|-------|-----------|---------------|--|-------|-------|---------|
| Star Wind | | | | | | | | 目 ♠ ⊄ | |
| Dashboard Storage + | | | | | | | | | |
| Disks | | Manage pool | | | | | | | |
| Pools | | | Disks | | | | | | |
| 🕑 Volumes | | Disk | | Add disks | Replace disks | | | | |
| 🖨 Virtual disks | | Hot spare | | | | | | | |
| 🖧 Network | | | 💻 sda | | | | | | |
| Lusers | | | 💻 sdb | | | | | | |
| 📋 Tasks and events 👻 | | | 🛋 sdc | | | | | | |
| | | | 💻 sdd | | | | | | |
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• adding groups of physical disks to the appliance and using the Change pool layout wizard.

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|----------------------|---|------------------|--|-------|---------|
| | re https://192.168.122.219/storagePool: | 1 | | | Guest : |
| StarWind | | | | | |
| Dashboard | | | | | |
| 👼 Storage 🔺 | | Manage pool | | | |
| Disks. | | | | | |
| Pools | | | Layout | | |
| G Volumes | | Layout Disks | Storage pool type Software RAID Storage pool layout RAID-10 | | |
| 🖨 Virtual disks | | Hot spare | | | |
| z∐, Network | | | Change pool layout | | |
| 🚊 Users | | | | | |
| 💼 Tasks and events 👻 | | | | | |
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4. Add or remove hot spare drives to the pool using the Assign hot spare wizard.



| | https://192.168.122.219/storagePools | | | | | | | | | |
|------------------------|--------------------------------------|-------------|-----------|--------------|------|--|--|-------|--|----------------|
| StarWind | | | | | | | | | | 🔅 🕞 starwind 🗸 |
| 🙆 Dashboard | | | | | | | | | | |
| 🗟 Storage 🔺 | | Manage pool | | | | | | | | Q ± |
| 📕 Disks | | | | | | | | | | Q == == |
| Pools | | | Hot spare | | | | | | | Free space 🗢 |
| G Volumes | | Disks | | Assign hot s | pare | | | | | 39.93 GB |
| 😑 Virtual disks | | Hot spare | | | | | | | | |
| 🖧 Network | | | | | | | | | | |
| 🚊 Users | | | | | | | | | | |
| 📋 - Tasks and events 👻 | | | | | | | | | | |
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Delete Storage Pool

1. To delete a storage pool, select the pool and click the Delete button.

NOTE: A storage pool can be deleted only when it does not contain any volumes. Remove volumes prior to removing the storage pool.



| 4 | A Delete stor | age pool | × | | | | | | |
|---|--|----------|--------|--|--|--|--|--|--|
| | md0 | | | | | | | | |
| | This action will permanently destroy selected storage pool | | | | | | | | |
| | | Canchi | Delete | | | | | | |

Volumes

The Volumes page allows creating, listing, editing, and deleting volumes (partitions) on a storage pool. Standard and Backup repository volume types are provided in StarWind SAN & NAS web interface.

Note: Prior to creating a volume, create a storage pool.



| | 2.204 × StarWind SAM | 18.NAS × + | | | | Guest : |
|---|-----------------------|---------------------------------|--|--|------------|--|
| Star Wind HYPERCONVERGENCE Dashboard | Volumes | | | | | L 🔅 ⊡ starwind ~ |
| Disks Pools Volumes | Selected 1 of 2 + 2 1 | Manage VHR user State Mounted | | | VHR user © | Q ≢ ··· Mount point ¢ /mnt/md0/backup-repo |
| | | | | | | |
| 💼 Tasks and events 🔻 | | | | | | |
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| < Minimize | | | | | | |

Create Volume wizard

- 1. To create a volume on a storage pool, click the "Add" button.
- 2. Select the storage pool on which to create the volume and click the "Next" button.

| C A Not secure https://192.168. | 122.219/storageVolumes | | | Guest |
|-----------------------------------|--|---|----------------|-------|
| | 8S Create volume | | | |
| | + / 0 • Select storage pool Specify settings | Select storage pool Select one or more (in HA configurations) storage pools to create a volu | me 9 | |
| | | | ic ≑ Free sp ≑ | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | Cancel | Next | |

3. Specify volume name and capacity.



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|--|---|---|-------------|--------------------|
| ← → C ▲ Not secure https://192.168.122.219/storageVolume | s | | | Guest : |
| StarWind Hyperconvergence | | | | 🗐 🌲 🔅 ⊡ starwind ~ |
| Dathboard Volumes Storage | Create volume | | | |
| Selected 0 of 0 + 🖉 🛍 | ✓ Select storage pool | Specify settings | | Q. ‡ … |
| Pools Wolumes | Specify settings Choose filesystem settings | Specify the volume name and size Name primary | | |
| Virtual disks Activity | | | | |
| 🚊 Users | | 10 GB Available storage pool capacity: 39.92 GB | | |
| 📋 Tasks and events 👻 | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | Back Next 🛌 | |
| | | | | |
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4. Specify volume type.

Note: use Standard volume for most cases, and Backup repository volume for Veeam Hardened Repository.

| 🤨 ± 🖍 📀 192.168 | _ | | | ~ |
|--------------------|---|---|--|---------------------|
| ← → C ▲ Not secur | re https://192.168.122.219/storageVolumes | | | Guest : |
| Star Wind | | | | 😫 🌲 🏟 ⊡ starwind. 🗸 |
| Dashboard | | Create volume | | |
| Disks | | ✓ Select storage pool ✓ Specify settings | Choose filesystem settings Choose the preferred filesystem settings for the new volume | Q = |
| Uolumes | | Choose filesystem settings | | |
| Virtual disks | | | Standard The XP's volume is created with standard settings. Recommended for general use and the highest performance. | |
| Tasks and events 💌 | | | Backup repository The VPS volume is considered with additional refine (data block sharing) and CRC creck flags. | |
| | | | k Back Next | |
| < Minimize | | | | |

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



| ▲ ▲ ③ 192.168.1 ← → C ▲ Not secure | 12.204 × 🛃 StarWind SA | | | | | | Guest : |
|--|------------------------|---|--|---|------|------|---------|
| StarWind | | | | | | | |
| Dashboard | | Create volume | | | | | |
| Disks Pools Volumes | | ✓ Select storage pool ✓ Specify settings ✓ Choose filesystem settings | Review summary Review your settings befo | ore creating a volume | | | |
| Virtual disks A Network Users | | Review summary | Storage pool Volume name Size Filesystem settings | md0:primary primary 10 GB Standard | | | |
| Tasks and events * | | | | | | | |
| | | | | | | | |
| | | | | | Back | pate | |
| ← Minimize | | | | | | | |

Edit Volume wizard

1. To edit a volume, select on in a table of volumes and click the "Edit" button.

2. Only extending volume is allowed. Specify the new size for the selected volume and click the "Save" button.

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| Star Wind | | | | 田 | 🌲 🤹 🕞 starwind 🗸 |
| Dashboard Storage Disks | | | | | |
| Pools | | | | | |
| 🕒 Volumes | | | | | |
| Mensal disk Mensal disk Users Taska and events * | | Edit volume Nume Volume | n 10 68 and 19.98 68 | | |



Manage VHR user

This wizard allows configuring SAN & NAS as Hardened Repository for Veeam by creating and assigning a user account to a Backup repository volume. Once the user is set to a backup repository, the appliance can be connected as a Hardened Repository in Veeam Backup and Repository management.

1. To create a VHR user, select any Backup repository type volume and click the "Manage VHR user" button.

2. Click the "Add" button.

Note: A user account also can be created on the Users page.

| a | https://192.168.122.219/storageVolumes | | | | | | r | Guest : |
|---|--|-----------|-------------------|--------|------|--|---|---------|
| | | | | | | | | |
| | | | | | | | | |
| | | Manage VH | Ruser | | | | | |
| | | | oose the existing | | | | | |
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| | | | | | | | | |
| | | | | Cancel | Save | | | |
| | | | | | | | | |
| | | | | | | | | |

3. Type the username and password. Click Save.



| StarWind | 2204 × StarWind S | | Cuest : |
|------------|-------------------|---|---------|
| | | | |
| | | | |
| | | Ma Crea Create Veeam user X ve Type * | |
| | | exch The new user will be assigned to the Veeam service Backup repository | |
| | | Sele group. Q Standard | |
| | | Veeam user name veeam | |
| | | | |
| | | Must contain 8-64 characters, including numbers and symbols and capital | |
| | | Enable SSH for this user | |
| | | Disable SSH after adding the host and creating the hardened repository in Veeam Backup & Replication console. | |
| | | Cancel Save | |
| | | | |
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| + Minimize | | | |

4. Wait for user creation as see the account appears in the wizard. Click Save.

| 🙁 ± 🖍 📀 192.168.1 | 12.204 × 🗮 StarWind | SAN & NAS × + | | | | | |
|----------------------|--------------------------------------|---------------|--|--------|-----------|--|---------|
| ← → C ▲ Not secure | https://192.168.122.219/storageVolum | es | | | | | Guest : |
| StarWind | | | | | | | |
| Dashboard | | | | | | | |
| Disks | | | | | | | |
| Pools | | | Manage VHR user | | | | |
| 🔮 Volumes | | | exclusive access to backup-repo | | | | |
| 🖨 Virtual disks | | | | | | | |
| ala Network | | | | | | | |
| 🚊 Users | | | | | Enabled 👻 | | |
| 📋 Tasks and events 🔻 | | | | | | | |
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5. SAN & NAS is set and ready to be connected as a Hardened Repository in Veeam Backup and Repository management.



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|---|---------|-----------------|--|--|--|-------------------|-------|----------------------|
| Dashboard Storage Disks | Volumes | Manage VHR user | | | | | | |
| Pools | | | | | | | | |
| C Volumes ⊖ Virtual disks | | | | | | Backup repository | veeam | /mnt/md0/backup-repo |
| ⊥ Network ▲ Uhers ➡ Tasks and events → | | | | | | | | |
| < Minimize | | | | | | | | |

Note: by creating a user account for Veeam Hardened Repository, SSH is enabled for the user by default. Once the Hardened Repository is configured in Veeam Backup & Replication, it is recommended to disable SSH access for the account.

Luns

The LUNs page allows creating, listing, extending, and removing StarWind virtual disks using the corresponding controls.



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| Star Wind | | | | \Xi 🌲 🏟 🛄 starwind 🗸 |
| 🛱 Dashboard | Virtual disks | | | |
| Disks | | | | |
| Pools | | | | |
| 🕑 Volumes 🖨 Virtual disks | | | | |
| A Retwork A Retwork Users Tasks and events * | | | | |
| < Minimize | | | | |

The LUN availability is limited by your license and can be:

- Standalone a non-replicated LUN hosted on a single appliance. It becomes inaccessible if the storage server goes down.
- High availability a synchronously replicated LUN hosted on two or three identical appliances. LUN remains accessible if one of the replication partners becomes unavailable.

Create Standalone LUN

- 1. To create a LUN, click the Add button.
- 2. Choose the "Standalone" LUN availability type.



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|---|---|-------|
| ← → C ▲ Not secure https://192.168.12.201/storageVirtualDisks | 🖬 \varTheta 😡 | est : |
| Star Wind | | nd 🔻 |
| Dashboard LUNS Storage Create ISCSI LUN | | |
| | ■ Constant and the second | |
| 4. Mininga | | |

3. Select the appliance that will host the LUN. This step is skipped if the appliance has no partners connected.

| ⊗ - □ StarWind SAN & NAS × ← → C ▲ Not secure https://192.168.12.201/s | | + | | | | □ ⊖ Guest ; |
|--|-------------------------|---|------------------------------------|--------------------|-----------|------------------|
| StarWind | 10102511100051515 | | | | | E ♠ ✿ starwind ▼ |
| Dashboard LUNS | | | | | | |
| Storage A Selected 0 of 0 | Create iSCSI LUN | | | | | |
| 🖉 Columes | Appliances | Appliances Select the appliance that should host | | | | |
| Storage pools Physical disks | Volumes LUN settings | The selected appliance must have a confi | gured storage pool, volume, and da | ta network. | | |
| a Network | | Appliance | Status | Software version | Capacity | |
| Appliances | | | | 1.4.331.28+9a9c9ad | | |
| Tasks and events | | | | | | |
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4. Select a volume to store the LUN data.



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|--------------------------|-------------------------|---|-------|----------------------|------------|--------------|------------|--------------|--------|--|--------------|
| ← → C ▲ Not secure htt | lps://192.168.12.201/st | orageVirtualDisks | | | | | | | | | Guest : |
| StarWind | | | | | | | | | | | 🕼 starwind 🔻 |
| Dashboard | | | | | | | | | | | |
| 🚍 Storage 🔺 | | Create iSCSI LUN | | | | | | | | | Q ± |
| 💆 LUNS | | 🖌 LUN availability | Volun | nes | | | | | | | |
| 🔮 Volumes | | ✓ Appliances | | a volume to store th | e LUN data | | | | | | |
| III Storage pools | | Volumes LUN settings | | Volume 🗘 | State ≑ | RAID level 💠 | Capacity 🖨 | Free Space 🗘 | туре ≑ | | |
| Physical disks | | | | | | | | | | | |
| 🚓 Network | | | | | | | | | | | |
| Appliances | | | | | | | | | | | |
| 🚊 Users | | | | | | | | | | | |
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| 4 Minimize | | | | | | | | | | | |

5. Specify the LUN settings, e.g. name, size, and block size. Click Next.

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|---|---|------------------|
| ← → C ▲ Not secure https://192.168.12.201/storage | ngeVirtualDisks | Guest : |
| StarWind HVPERCONVERGENCE | | 🗉 🌲 💠 starwind 🛪 |
| Dashboard LUNS | Create ISCSILUN X | |
| 😍 Volumes 📲 Storage pools | LUN solutions: Volumes: uur sentings summary LUN settings uur sentings summary LUN settings uur settings create VUTS distance create V | Q 3 N |
| < Minimize | | |

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



| | | + | ↓ Guest : |
|-------------------------------------|---|---|------------------|
| StarWind HYPERCONVERGENCE | | | 🗉 🌲 🔯 starwind 🕶 |
| Cashboard LUNS | | | |
| Selected 0 of 0 | Create iSCSI LUN | Summary | Q == |
| 😍 Volumes | ✓ Appliances ✓ Volumes | Summary LUN availability Standalone Wolumenames volumo | |
| Physical disks | LUN settings Summary | volume kannek volume Volume käses 8 68 LUNname sedun-01 | |
| 🚓 Network 🔠 Appliances | | LUNISISE 468 MPO Enabled | |
| 🔔 Users | | Create VMS6 datatore No RQN6 liqn 2008-08.com.starwindsoftware:192.168.12.201-ow-lun-01 | |
| 💼 Tasks and events 📼 | | | |
| | | | |
| | | | |
| | | Back Create 1265, UNI | |
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| + Minimize | | | |

Create HA LUN

The LUN availability for StarWind LUN can be Standalone and High availability (2-way or 3-way replication) and is narrowed by your license.

1. To create a virtual disk, click the Add button.



| StarWind | | 💼 🌲 🏟 admin v |
|--|---|--------------------------|
| 😰 Dashboard | LUNs | |
| Storage File shares | Selected 0 of 0 + Create a new LUN 2 LUN | |
| 👮 LUNS | There are no LUNs yet | |
| Uolumes | Start sharing your storage resources to clients by creating a new one | |
| Storage poolsPhysical disks | | |
| 🚓 Network | | |
| Appliances | | |
| 💄 Users | | |
| 📋 Tasks and events 🛛 🔻 | | |
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2. Select the protocol.

| StarWind | | |
|--|--|--|
| | LUN Create LUN | |
| Storage Fileshares Uthe Volumes III Storage pools Physical disks Applaness Applaness Users Tasks and events | Create LIN Create LIN Protocol Solutions Polocol Solutions Solutions NVMs-oF Note or flaters (MVMs-of) is a recommended option for high-pierformance SSD or NVMs usetups. Sist SS Sist is a recommended protocol for most HDD based setups or medium performance SSD based setups. This option offers broader compatibility for storage clients. | |
| 4 Minimize | | |

3. Choose the "High availability" LUN availability type.



| StarWind hyperconvergence | | 🗒 🌲 🏟 admin 💌 |
|-------------------------------------|---|---------------|
| | LUN Create LUN | × |
| | Protocol UN availability Appliances Volumes Fallover strategy UN settings Summary Inter squichtonouly replicated UN hosted on two or three identical appliances. The UN style accessible if fair of the replication partners becomes unavailable. Standaine Crate anon seplicated SCSI UN hosted on a single appliance. The UN will not be accessible if fair host becomes unavailable. Back Next_ Back N | |
| 4 Minimize | | |

4. Select the appliances that will host the LUN. Partner appliances must have identical hardware configurations, including CPU, RAM, storage, and networking.

| Star Wind | | | | | | 🗎 🌲 🏠 admin 🕶 |
|-------------------|-----------------------|--|--------|--|-----------|---------------|
| Dashboard LUN | Create LUN | | | | | |
| Selected | 🖌 I I IN availability | Appliances | | | | |
| 🚊 LUNs | Appliances Volumes | Select two or three replication partners f | | | etworking | |
| III Storage pools | Failover strategy | Appliance | Status | Software version | Capacity | |
| Physical disks | Summary | ✓ SW1 ✓ SSW2 | Online | 1.5.460.5391+76fc51b 1.5.460.5391+76fc51b | | |
| Appliances | | | | | | |
| Tasks and events | | | | | | |
| | | | | | | |
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| | | | | Back | Next | |
| 4 Minimize | | | | | | |

5. Select a volume to store the LUN data. Selected volumes must have identical storage configurations.



| StarWind hyperconvergence | | | 🗉 🌲 🏠 admin 🔻 |
|-------------------------------------|--|---|---------------|
| | LUN Create LUN | | |
| | Selector V Protocol LUN availability Vappliances Volumes | Volumes Select one volume on each appliance to store the HALUN data. Selected volumes must have identical storage configurations. | |
| | Failover strategy LUN settings | Volumes have identical configurations III SW1 ▲ Volume ♦ State ♥ RAID Ie ♥ Capacity ♥ Free Sp ♥ Type ♥ | |
| | Summary | | |
| | | Wolume ÷ State ÷ RAID le ÷ Capacity ÷ Free Sp ÷ Type ÷ | |
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6. Select the "Heartbeat" failover strategy.

NOTE: To use the Node witness or the File share witness failover strategies, the appliances should have these features licensed.

| StarWind | | | ⊟ ≜ ; | 🎽 admin 🔻 |
|--|---|-----------|-------|-----------|
| 🙆 Dashboard | LUN Create LUN | | | |
| E Storage | Selecter Protocol LUN availability Failover strategy Appliances base a UPS unit at your disposal. | ou do not | | |
| Volumes Storage pools Physical disks | ✓ Volumes Failover strategy LUN settings LUN settings To minimice the chances of Split bain' during blackats, configure UPS to prevent the simultaneous shuddown | | | |
| Appliances Users | Summary I both appliances. Node witness A thred appliance acts as a "router" for replication partners. The working witness node excludes the possibility of a "split brain" condition. | | | |
| 💼 Tasks and events 🛛 👻 | | | | |
| | Back | | | |
| ∢ Minimize | | | | |

7. Specify the HA LUN settings, e.g. name, size, and block size. Click Next.



| StarWind | | | 🖽 🌲 🛟 admin 🔻 |
|------------|---|---|---------------|
| | LUN Create LUN | | |
| | Protocol LUN availability Appliances Volumes Failover strategy LUN settings Summary | LUN settings Specify the HA LUN settings LUN name Lun Lun <th></th> | |
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8. Review "Summary" and click the "Create" button to create the LUN.

| LUN Create LUN | | | | |
|--|--|--|------------|--|
| Selecter V Protocol LUN availab Appliances V Volumes Failover stra LUN setting: Summary | Protocol LUN availability Appliance 1 Appliance 2 | ISCSI High availability (two-way replication) S SW1 SW2 volume0, volume0 5 GB Heartheat Lun0 4 GB Enabled No Ign 2008-08.com.starwindsoftware:192.168.12.206-lun0 Ign 2008-08.com.starwindsoftware:192.168.12.166-lun0 | Create LUK | |
| | | | | |



Manage LUN

1. To edit a LUN, select it and click the "Manage LUN" control button.

2. On the General tab find basic LUN information such as name, host volume, capacity, and related alerts.

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| StarWind | | | | | | | 🗐 🌲 🏟 starwind 🛩 |
| Dashboard | | | | | | | |
| 🖶 Storage 🔺 | | Manage LUN | | | | | Q == ··· |
| 👤 LUNs | | General Storage | General | | | | Capacity 🌣 🛛 Free Space 💠 ISCSI targets 🗢 |
| | | | | | | | 4 GB 4 GB iqn.2008-08.com.starwind |
| III Storage pools | | | Name | | | | |
| Physical disks | | | | | | | |
| 🖧 Network | | | | | | | |
| E Appliances | | | | | | | |
| 🚊 Users | | | | * | | | |
| 💼 Tasks and events 👻 | | | | | | | |
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| | | | | | | Cancel | |
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3. To extend a LUN, open the Storage tab and specify the new size. Click Save.

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|---|--------------------------------|--|---|
| ← → C ▲ Not secure https://192.168.1 | 12.201/storageVirtualDisks | | Guest : |
| Star Wind | | | |
| Dashboard LUNS | | | |
| Storage Selected 1 | Manage LU | N | |
| | General Name ≑ ● Storage | Storage | |
| | A sw-lun-01 | Applia ♦ Status ♦ Storage ♦ RAID type | e 🗢 Volume 🗢 Available 🗢 4.68 4.68 kgn.2009-08.com.starwind |
| III Storage pools Show | | | |
| ■ Physical disks 本 Network ■ Applances 上 Users | | Expand size LM size 4 O Robbite space 7.89 CB | |
| Trada and severity • | | k | |
| | | | Cancel Save |
| 4 - Minimize | | | |



Delete LUN

1. To delete a LUN, select one and click the Delete button.

2. Check "Ignore active sessions and force remove the selected virtual disks" if the selected disk has active connections.

3. Check "Remove configuration and img files from volume" to remove the LUN completely from the appliance.

4. Click the Confirm button to delete the LUN.

| A Delete LUNs | × |
|--|---|
| sw-lun-01 | |
| Remove configuration and img files from the volume | |
| This action will permanently destroy selected LUN | |
| Cancel Delete | |

Network

The Network page allows performing the inventory of the attached network adapters to the appliance, listing, and editing network settings.



| Star Wind | | | | | | | | 🗉 🌲 🔅 starw |
|-----------|-------------------------|---------------------------|---------------|-------------|---------------|--------|--------------|-------------|
| | Network | | | | | | | |
| | Selected 0 of 6 🧪 Confi | gure HA networking | | | | | | |
| Network | 🗌 Interface 🗢 | Adapter model 💠 | Link status 🗢 | Bandwidth 💠 | MAC address 🗢 | Role ¢ | IP address 🗢 | Appliance 🗢 |
| | | 82574L Gigabit Network Co | | | | | | |
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Edit Network Adapter Settings

- 1. To edit network settings, select a network adapter and click the Edit button.
- 2. Specify target network settings:
 - Set the Management role to the network adapter connected to the management network switch.
 - Set Data role to the network adapter connected to the storage network and used for Data (iSCSI) traffic.
 - Set the Replication role to the network adapter connected to the isolated storage network and used for Replication traffic between SAN & NAS appliances.
 - Select Static or DHCP mode. For Static mode selected, specify IPv4, Netmask, Gateway, and DNS server(s). Static IP address assignment is recommended.
 - Set MTU according to your network configuration. For Data and Replication traffic, MTU set to 9000 is recommended.



| t Network Adapter Settings | | 1 |
|--|--------|------|
| | | |
| | | |
| | | |
| Description VMXNET3 Ethernet Controller | | |
| | | |
| | | |
| Management | | ~ |
| | | |
| IP mode | | |
| Static | | ~ |
| | | |
| 192.168.12.63 | | |
| | | |
| | | |
| 255.255.254.0 | | |
| | | |
| Gateway 192.168.12.1 | | |
| | | |
| | | |
| 192.168.1.17, 192.168.8.17 | | |
| | | |
| мти 1500 | | |
| | | |
| Disable network adapter | | |
| - | | |
| Connect automatically on boot | | |
| | | |
| | | |
| | Cancel | Save |



Configure Ha Networking

1. Launch the "Configure HA Networking" wizard.

| StarWind | | | | | | | Ē | 🌲 🏟 admin 🕶 |
|------------------|---------------|------------------------|---------------|-------------|-------------------|------------|--------------|-------------|
| 💁 Dashboard | Network | | | | | | | |
| Storage | | onfigure HA networking | | | | | | |
| Appliances | 🗌 Interface 🗘 | Adapter model 🗘 | Link status 单 | Bandwidth 🗘 | MAC address 🗢 | Role ≑ | IP address 🗢 | Appliance 🗢 |
| Users | 🔲 📜 ens160 | 82574L Gigabit Net | Up | | 00:50:56:9C:E5:A5 | Management | | |
| Tasks and events | 🔲 📕 ens160 | 82574L Gigabit Net | | | | Management | | |
| _ | 🗌 📜 ens224 | VMXNET3 Ethernet | Up | | | Unassigned | | |
| | 🗌 🔚 ens224 | VMXNET3 Ethernet | | | | Unassigned | | |
| | 🗌 📜 ens256 | VMXNET3 Ethernet | Down | | | Unassigned | | |
| | 🔲 🛄 ens256 | VMXNET3 Ethernet | | | | Unassigned | | |
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2. Select appliances for network configuration.

NOTE: the number of appliances to select is limited by your license, so can be either two or three appliances at a time.



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|----|-------------------------|---|---------------------------------|------------|---------------|
| | | | | | |
| | Configure HA networking | | | | |
| | • Appliances | Appliances | | | |
| | | Select appliances for network configuration. You can configure up | o to three appliances at a time | | |
| | | Appliance 🗢 | Status 🗢 | Adapters 🗢 | |
| | | ✓ ■ SW1 | Online | | |
| | | ✓ ■ Sw2 | Online | | |
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| | | | | Close Next | |
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3. Configure the "Data" network. Select interfaces to carry storage traffic, configure them with static IP addresses in unique networks, and specify subnet masks:

- assign and configure at least one interface on each node
- for redundant configuration, select two interfaces on each node
- ensure interfaces are connected to client hosts directly or through redundant switches

4. Assign MTU value to all selected network adapters, e.g. 1500 or 9000. Ensure the switches have the same MTU value set.



| StarWind Hyperconvergence | | | | | | | | | 🖽 🌲 🎄 admin 💌 |
|--|--|--------------------------------------|------------------------|----------------------|--|------------|-----------|-------------|----------------------|
| Dashboard Storage | Configure HA networking | | | | | | | | |
| 💼 Network | ✓ Appliances Data network | ❶ <u>Show sample netw</u> ■ SW1 ▲ | ork diagram | | | | | | Q ≞ … Appliance ¢ |
| Appliances | | 😑 Interface | Model | Bandwidth | MAC address | IP address | Netmask | Link status | SW1 |
| 💼 Tasks and events 🔹 🔻 | | | VMXNET3 Ethernet | 10 Gbit 10 Gbit | 00:50:56:9C:21:E1 00:50:56:9C:C4:73 | | | Up Down | SW2 SW1 |
| | | i SW2 ▲ | | | | | | | SW2 |
| | | Interface ens224 | Model VMXNET3 Ethernet | Bandwidth 10 Gbit | MAC address 00:50:56:9C:D8:13 | IP address | Netmask ① | Link status | SW1 SW2 |
| | | | VMXNET3 Ethernet | | | | | Down | |
| | | Cluster MTU size: MTU 9000 | | | | | | | |
| | | | | | | | Back | Next | |
| < Minimize | | | | | | | | | |

5. Click Next to validate Data network settings.

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| | | |
| | | |
| | Interface Model Bandwidth MAC address IP address Netmask © Link status ens ▲ Non-redundant configuration × | |
| | em: Only 1 Data network is configured. Configure more Data | |
| | SW2 | |
| | ver teconinienied assigning at teast two data network interfaces to eliminate a single point of failure. | |
| | Acknowledge and continue? ent No, cancel Yes, continue Cluster MTU si HTU 90000 | |
| | | |
| | k | |

6. Configure the "Replication" network. Select interfaces to carry storage traffic, configure them with static IP addresses in unique networks, and specify subnet masks:

- assign and configure at least one interface on each node
- for redundant configuration, select two interfaces on each node



• ensure interfaces are connected to client hosts directly or through redundant switches

7. Assign MTU value to all selected network adapters, e.g. 1500 or 9000. Ensure the switches have the same MTU value set.

| StarWind | | | |
|----------------------------------|--|--|--------------------------------------|
| Dashboard Storage | Configure HA networking | | |
| storage Appliances Users | Appliances Data network Replication network Summary | Select interfaces to carry data replication traffic, configure them with unique IP addresses, and specify subnet masks. | Q ± ··· Appliance ¢ SW1 SW2 |
| Tasks and events | | ■ Interface Model Bandwidth MAC address IP address Netmask ● Link status ■ ens256 VMXNET3 Ethernet 10 Gbit 00:50:56:9C:C4:73 172:16:20:10 24 Down | SW1 SW2 |
| | | Interface Model Bandwidth MAC address IP address Netmask • Link status ens:256 VMXNET3 Ethernet 10 Gbit 00:50:56:9C:91:2C 172.16.20.20 24 Down | SW1 SW2 |
| | | Cluster MTU size: 9000 | |
| | | Back Next | |
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8. Click Next to validate the Replication network settings completion.

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| 👛 Dashboard | | |
| Storage | | |
| Appliances | | |
| 🚊 Users | Shewsame Shewsame Shewsame Sw1 * A Non-redundant configuration × | |
| 📋 Tasks and events 🛛 🔻 | Inte Only 1 Replication network is configured. Configure more | |
| | Replication networks to eliminate a single point of failure. 72.1620.10 24 Down | |
| | We recommended assigning at least two data network Inter interfaces to eliminate a single point of failure. Paddress Netmask O Link status | |
| | Acknowledge and continue? 72.16.20.20 24 Down | |
| | Cluster MTU si | |
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9. Review the summary and click Configure.

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| Dashboard | Configure HA networking | | | | | | |
| Storage * | ✓ Appliances ✓ Data network | Summary | | | | | |
| Appliances Users Tasks and events | Replication network Summary | Appliance name Data networks Replication networks | Data networks 172.16.10.10 | | | | |
| | | Appliance name Data networks Replication networks | ₩ SW2 172.16.10.20 172.16.20.20 | | | | |
| | | Replication networks | | | | | |
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| | | | | | Back Config | we la | |
| ∢ Minimize | | | | | | | |



Appliances

The Appliances page provides the ability to add the existing appliance to another in order to manage multiple SAN & NAS appliances from the same UI and cluster the storage by creating the HA LUNs between them.

| | https://192.168.12.201/appliances | | | | | Guest |
|---------------------|-----------------------------------|--------------|----------|--------------------|-----------------|------------------|
| StarWind | | | | | | ₩ ¥ ¥ starwing . |
| 🙆 Dashboard | Appliances | | | | | |
| Storage 👻 | 🛱 Add appliance | | | | | |
| h Network | Appliance 🗢 | IP address 🗢 | Status 🗢 | Software version 🗢 | Free capacity 🗢 | Raw capacity 💠 |
| Appliances Users | ○ ■ sw1 | | | | | |
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| Tasks and events 👻 | | | | | | |
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Add Appliance

To create 2-way or 3-way synchronously replicated highly available storage, add partner appliances that use the same license key.

1. Add StarWind appliance(s) in the web console, on the Appliances page. NOTE: The newly added appliance will be linked to already connected partners.



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2. Provide credentials of partner appliance.

| Star Wind | | | |
|---|--------------------------|---|--|
| Dashboard App | Add appliance | | |
| Storage • Image: Storage • Image: Appliances • Image: Storage • Image: Tasks and events • | • Credentials Summary | Credentials Specify the appliance IP address and its administrator or edentials The newly added appliance will be linked to already connected partners. IP adress 1P adress 1P adress 1P adress 1P adress 2P adress 2 | |
| | | Cancel | |
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3. Wait for connection and validation of settings.



| StarWind hyperconvergence | | 🗉 🌲 🔅 admin 👻 |
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| | | α = |
| | | Raw capacity © 0 Bytes |
| | 192.168.12.166 Adminutration summaries admin Adminutration password Connecting to appliance | |
| | | |
| | Caricel | |
| 4 Minimize | | |

4. Review the summary and click "Add appliance".

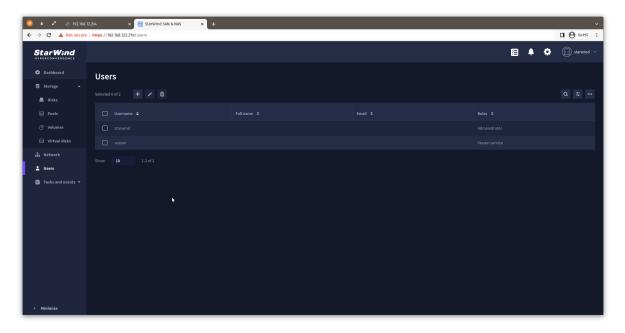
| Star Wind | | | |
|---|---|---|--|
| 😂 Dashboard | App Add appliance | | |
| 🖶 Storage 👻 | CredentialsSummary | Summary | |
| Appliances Users Tasks and events * | | Appliance name SW2 Storage capacity 0.68 Storage pools 0 Volumes 0 | |
| | | | |
| | | | |
| | | | |
| | | Back Add appliance | |
| < Minimize | | | |



Users

The Users page delivers role-based management for user accounts created on the appliance. Three roles are provided to choose from:

- Administrator administrative level access to manage the entire appliance in the web and text user consoles.
- User read-only level access to view all in the web console
- Veeam service service level account to create and access Veeam repositories.



Create user.

1. To create a user account press the "Add" button.



| ⊗ ± ▲ ⑤ 192.168.12 ← → C ▲ Not secure | | | | v □ ⊖ Guest : |
|---|-----------------|--|-------|------------------|
| StarWind | | | E ؋ 🌣 | 🕞 starwind 🗸 |
| 😫 Dashboard | Users | | | |
| i≊ Storage ▲ | Selected 0 of 2 | | | Q = |
| Pools | | | | |
| (G Volumes | | | | |
| G Virtual disks | | | | |
| ⊥ Network | | | | |
| Tasks and events + | | | | |
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2. Specify the username, password, and additional information (optionally).

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|---|-------------------------------|------------------------|---|------|---------|
| ← → C ▲ Not secure | https://192.168.122.219/users | | | | Guest : |
| StarWind | | | | | |
| Dashboard Storage + | | Create user | | | |
| Disks | | Enter user information | Enter user information | | |
| 😑 Pools | | Assign user roles | Specify the username, password and optional information. | | |
| @ Volumes | | | Username | | |
| 🖨 Virtual disks | | | guest Can contain lower case Latin letters, digits, underscores, periods, and dashes | | |
| _1_ interest ★ Users ☐ Tasks and events * | | | Kor contain 84 characters, including numbers and symbols and capital Contemp passage Contain and an | | |
| | | | Cancel | Next | |
| < Minimize | | | | | |

3. Select the user role.



| 🤞 ± 🔹 ⊗ 102.168.12.204 x 🔝 51.47Wind 54.4 & A.4.5 x + | | | | | | |
|---|-------------------------------|--|--|---------------------------------|--|--------------|
| ← → C ▲ Not secure | https://192.168.122.219/users | | | | | Guest : |
| StarWind | | | | | | € starwind × |
| Dashboard Storage * | | Create user | | | | |
| Disks | | Enter user information | tester otes | | | Q == |
| Pools | | Assign user roles | Assign roles Select the preferred role(s) for the new user. | | | |
| G Volumes | | | | | | |
| 😑 Virtual disks | | | Roles 🗢 | | | |
| 🖧 Network | | | | | | |
| 🚊 Users | | | User | Can view all in the web console | | |
| 📋 Tasks and events 👻 | | | | | | |
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| < Minimize | | | | | | |

4. Review summary.

| 🙁 ± 🖍 📀 192.168. | 12.204 × 🔜 StarWind SA | N & NAS × + | | | | | ~ |
|--------------------|-------------------------------|---------------------------------------|---------------|--|------|-----------------|---------|
| ← → C ▲ Not secure | https://192.168.122.219/users | | | | | | Guest : |
| StarWind | | | | | | | |
| 🙆 Dashboard | | Create user | | | | | |
| Disks | | ✓ Enter user information | D | | | | |
| 🔒 Pools | | Assign user roles | Review summar | y : before creating the new user | | | |
| G Volumes | | Review summary | | | | | |
| 🔒 Virtual disks | | | | | | | |
| 🖧 Network | | | | | | | |
| 🏨 Users | | | | | | | |
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Tasks And Events

This item delivers information on the tasks and events running in StarWind SAN & NAS.



Tasks

The Tasks tab provides information on tasks performed in StarWind SAN & NAS. The Tasks tab displays the task name, the appliance entity type where this task has been performed, entity name, owner of the task, its status, and timestamp.

| - 🗆 X | | | | × ≈ https://192.168.12.206:864 | vSphere - SW1 - Summary |
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| 6 16 19 16 2 … | | | 2.206:8643/tasks | : secure https ://192.168.12.2 | |
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| 🗇 0 Running 🛛 🥝 0 Failed | | | | Tasks Events | 🛱 DASHBOARD |
| Q ± | | | | | Storage |
| | | | | | 🖧 NETWORK |
| Start Time 🔶 End Time 🗘 | Dwner Status | Name 🗘 Owner | Entity 🏺 🛛 Entity Na | Name 🗢 Entit | 및 proactive support |
| 28 May 14:16:53 28 May 14:17:37 | iser Completed | | | | TASKS AND EVENTS |
| 28 May 14:15:44 28 May 14:15:56 | iser Completed | epool-edited user | Pool storagepo | | |
| 28 May 14:15:21 28 May 14:15:29 | iser Completed | | | | |
| 28 May 14:14:25 28 May 14:14:27 | iser Completed | epool-edited user | Pool storagepo | | |
| 28 May 14:13:47 28 May 14:14:14 | iser Completed | | | | |
| 28 May 14:12:36 28 May 14:13:36 | iser Completed | | | | |
| 28 May 14:08:01 28 May 14:08:45 | iser Completed | | | | |
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| 28 May 14:14:25 28 May 14:14:27 28 May 14:13:47 28 May 14:14:14 28 May 14:12:36 28 May 14:13:36 28 May 14:08:01 28 May 14:08:45 | iser Completed iser Completed iser Completed iser Completed | repool-edited user ame user ame user user | Pool storagepr Pool poolname Pool poolname Appliance SW1 | | < MINIMIZE |

Events

The Events tab contains information on the events that occurred in StarWind SAN & NAS. The Events tab displays the event severity level, event source, time of the event, description, entity type where the event has occurred, entity name, number of occurrences, and the current event status.

1. To check the events in the StarWind SAN & NAS, navigate to the Events tab.



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| ≋ StarWind SAN & NAS Free | | | | | | | | | • • (|) user 🗸 |
| 🙆 DASHBOARD | Tasks | Events | | | | | | | itical 🔺 0 War | ning 🚯 9 Info |
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| E TASKS AND EVENTS | | Severity ≑ | Source ÷ | Time 🕈 | Description 🗘 | Entity ≑ | Entity Name 🗘 | Occurrences ÷ | Resolved ÷ | Acknowle 🗘 |
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2. To mark the recent event as Acknowledged or Resolved, select the event and select the required option.

General Settings

To modify the appliance settings, click the gear icon in the top right corner of the StarWind SAN & NAS interface.

The General tab allows performing an inventory of the appliance, checking and modifying its state, license, and general settings.



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| 🙆 DASHBOARD | General Plugins | | | | |
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| U [®] proactive support | | | | | |
| TASKS AND EVENTS | Power V License Support Bundle | ▶ | | | |
| | Connectivity | | | | |
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| < MINIMIZE | Change Password | | | | |

The Plugins tab lists the available plugins, shows their state, and allows to launch plugin wizards.

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| 🖄 DASHBOARD | General Plugins | | | | | | | | |
| STORAGE | vCenter Plugin | | : | | | | | | |
| 인 PROACTIVE SUPPORT | Status | | Open vCenter Plugin Open Plugin Installer | | | | | | |
| E TASKS AND EVENTS | Version | | | | | | | | |
| | vCenter Server Appliance IP | 192.168.13.236 | | | | | | | |
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Controls

Power

To perform shut down and restart operations with the appliance, click Power, then Power Off or Restart buttons in the appliance block.

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| ≋ StarWind SAN & NAS Free | | []] | ¢ | \$ | Ē |) user | |
| 🙋 DASHBOARD | General | | | | | | |
| STORAGE | | | | | | | _ |
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| ပြာ proactive support | | | | | | | |
| E TASKS AND EVENTS | Power ^ License Support Bundle | | | | | | |
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| | Restart Appuance name | | | | | | |
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License

To check the appliance license, included features, upgrade the appliance by activating the new license, click the License control.



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| | | i License Information | | | | | | |
| | | StarWind SAN & NAS Free is activated. | | | | | | |
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| | | Hardware RAID support and integration ZFS and MDADM support and integration VMware vCSA plug-in integration services | | | | | | |
| | | NFS3, NFS4 and SMB/CIFS support Free license does not include features: | | | | | | |
| | | StarWind HA Virtual Disks StarWind ProActive Support | | | | | | |
| | | Backup integration | | | | | | |
| | | Close Upgrade | | | | | | |
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Support bundle.

To provide the StarWind Support Team with information on the appliance's issues, click Support bundle to download the support bundle.

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| ≋ StarWind SAN & NAS Free | | | | | | | |
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| d. network | | | | | | | |
| QF proactive support ☐ tasks and events | | () Download Support Bundle X | | | | | |
| | | SW1 | | | | | |
| | | The minimum set of necessary logs is generated. Logs do not include sensitive data such as credentials or IP addresses. | | | | | |
| | | Cancel Download | | | | | |
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| < MINIMIZE | Change Password | | | | | | |



Modifying General Settings

To modify the general StarWind SAN & NAS settings such as the appliance hostname, change password, time zone, click Edit in the General tab.

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| ≋ StarWind SAN & NAS Free | | | | | |
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| | Time zone | | | | |
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Services

The Services page lists services that are running on the StarWind SAN & NAS appliance and provides controls to change their state.



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| Dashboard | General Services | | | | | | |
| 🛢 Storage 🔺 | Appliance list | | | | | | |
| 📕 Disks | | | | | | | |
| Pools | | - | | | | | |
| 🕒 Volumes | | | | | | | |
| 🖨 Virtual disks | | | | | | | |
| 🚓 Network | | | | | | | |
| 🚊 Users | | | | | | | |
| 💼 🛛 Tasks and events 🔺 | | | | | | | |
| E Tasks | | | | | | | |
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| 🚊 Users | | | | | |
| Tasks and events * | | | | | |
| Tasks | | | Running | | |
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Starwind Vcenter Plugin

On this page, you can find information about installed vCenter plugins, their installation status, version, and IP address of the vCenter Server Appliance for installed plugins.



| VSphere - com.starwind.san_nas. | × ≈ https://192.168.12.206:8643/sett | × + | | | | | | - | | × |
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| ≋ StarWind san & nas | | | | | []] | ¢ | ¢ | (:) u | iser 🗸 | |
| | General Plugins | | | | | | | | | |
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| E NETWORK | vCenter Plugin | | | | | | | | | |
| Up proactive support | Status | | Open vCenter Plugin Open Plugin Installer | | | | | | | |
| TASKS AND EVENTS | Version | | | | | | | | | |
| | vCenter Server Appliance IP | 192.168.13.236 | | | | | | | | |
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Two control actions are available Open vCenter Plugin or Open Plugin Installer by pressing the corresponding controls.

Open vCenter Plugin

The control opens the vCenter Plugin page which connects to the corresponding SAN & NAS appliance.

| 🚱 vSphere - SW1 - Summary 🛛 🗙 🗎 📚 | StarWind vCenter Plugin 🗙 | VSphere - StarWind Plugin x + | | | | | | - | |
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| $\leftarrow \rightarrow \mathbb{C}$ A Not secure + | https://192.168.13.236/ui/app/plugin/ | com.starwind.san_nas.client/com.starwind. | san_nas.client~HOME_VIEW~~HOME_VIEW?rpxcl | d=com.starwind.san_nas.client | :1.0.0.277:1998569624 | | £} €≐ | 0 @ | ۲ |
| vm vSphere Client Menu | ✓ Q Search in all environm | | | | | | | | |
| Ĥ Home ♦ Shortcuts | StarWind Plugin INSTANCE | 192.168.12.206:8643 * | | | | | | | |
| Hosts and Clusters VMs and Templates | ≋ StarWind SAN & NAS | | | | | | | 8 | ı ø |
| Storage | | Appliance Summary | | Virtus | al Disk(s) Availability | | | | |
| Content Libraries | LE STORAGE | Hostname | | | High Availabil | ty | | | |
| Global Inventory Lists | PROACTIVE SUPPORT | Operating System | | | Limited Avail: | bility | | | |
| 見 Policies and Profiles 习 Auto Deploy 砂 Hybrid Cloud Services | TASKS AND EVENTS | StarWind Service | | | 1 Down | | | | |
| Prysina Cloba Services Developer Center | | License | | | Simple | | | | |
| Administration | | Uptime | | | | | | | |
|] Events Tags & Custom Attributes | | Resource Usage | | | | | | | |
| P Lifecycle Manager | _ | СРО | | Memory | | | Storage | | |
|) StarWind Plugin | | used 4% | | used 14% | | | Used 52% | | |
| | | | | | * | | | | |
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| | < MINIMIZE | Performance | | | | | | | |
| ecent Tasks Alarms | | | | | | | | | |



The StarWind Plugin also can be launched from the vSphere Client Menu:

| vSphere - 192.168.13.235 - Sumr | x ≈ StarWind vCenter Plugin x ⊕ vSphere - SW1 - Summary x + | - 0 | × |
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| vm vSphere Client | Menu V Q Search in all environments C ⑦ V Administrator@VSPHERE | Local V | ٢ |
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| iavascrintvoid(0) | StarWind Plugin Constant and the second se | | |

Open Plugin Installer

This control allows you to deploy, update, or uninstall the StarWind Plugin in your VMware environment.

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| | | | $\widehat{}$ StarWind vCenter P | lugin | | | | | | |
| Tİ | Deploy This option allows you to deploy StarWind vCenter Plugin to your Mware vCenter Server Appliance | [<u></u> <u></u>] | Update This option allows you to update StarWind vCenter Plugin deployed on your VMware vCenter Server Appliance | | Uninstall This option allows you to uninstall StarWind vCenter Plugin deployed on your VMware vCenter Server Appliance | | | | | |
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Deploy Wizard

This wizard installs the StarWind plugin to the VMware virtualization environment.

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

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| StarWind vCenter Plugin | | |
| 1 EULA End User License Agreement | | |
| 2 PLUGIN DEPLOYMENT TARGET Please read and accept the following license agreement | | |
| StarWind License Agreement for FREE Products Licensee is subject to the terms and conditions of this Agreement whether Licensee accesses or obtains Free Software, Licensee agrees to be bound by the terms and conditions of this Agreement whether Licensee accesses or obtains Free Software, Licensee agrees to be bound by the terms of this Agreement. UCENSEE WILL HWR THE OPPORTUNITY TO ACCEPT THE TERMS OF THIS AGREEMENT AND/OR TO DECLINE THIS AGREEMENT, LICENSEE SHALL NOT this Agreement. UCENSEE WILL HWR THE OPPORTUNITY TO ACCEPT THE TERMS OF THIS AGREEMENT, LICENSEE SHALL NOT tors, INSTALLATION Soft Licensee Agreement of the Agreement whether Licensee accesses or obtains Free Software, Licensee SHALL NOT tors, INSTALLATION Soft Licensee Agreement LICENSEE WILL HWR THE OPPORTUNITY TO ACCEPT THE TERMS OF THIS AGREEMENT, LICENSEE SHALL NOT VIECKING 'I AGREE' USING THE PERS GOFTWARE, INCOMENT OF THE SAGREEMENT, UNCENSEE SHALL NOT VIECKING 'I AGREE' USING THE OPERATION OF THE SAGREEMENT BUTTON, LICENSEE SHALL NOT OF LICENSEE'S SIGNATURE OF THE RES SOFT WARE, HOR SOF THIS AGREEMENT, UNCENSEE SHALL NOT BECOME A PARKY TO THIS AGREEMENT AND NOT TO STERMS OF THIS AGREEMENT STORE DE BOLD OW AND BECOME A PARKY TO THIS AGREEMENT BUTTON, LICENSEE OF THAR AFT LICENSEE OF DALL OF THE SARKS OF THIS AGREEMENT STORE SHOULD DO USING AND AGREES THAT THE AGREEMENT SHORE DE DI LICENSEE DO ALL OF THE SARKS OF THIS AGREEMENT, THEN UNCERSE SHOULD DO UGIT, AND MOTIVITISTANINNO ANYTHING TO THE CONTARKY HEERING OF THIS AGREEMENT, FIGN ANDIANCE OF DOUGH, AND HORVING THE RES SOFTWARE. HOL LICENSEE DO ALL OF THE FREE SOFT WARE ARD CONTEMPLATED HEERUNDER FOR AWA DRESENSE THE RIGHT TO USE, INSTALL, OR OPERATE THE FREE SOFTWARE. FOR ANDIANCE OF DOUGH, AND HORVINTISTANINNO ANYTHING TO THE CONTARKY HEERIN, STARWIND RESERVES THE RIGHT TO REFUSS AGREEMENT AND NOTIT OR PROVIDE LICENSEE WILL HIST ARE ALLOWED TO USE, INSTALL, OR OPERATE THE FREE SOFTWARE. FOR AND HEERUNDE | | |
| Annuale shall mean, which expect to a given reason, any peson of entity which, unectry of indurectry, controls, is controlled by, or is under I accept the terms of license agreement | | |
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2. Specify the vCenter Server FQDN or IP Address and administrator credentials and click Next.



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| | eula | Plugin Deployment Target | | | | | | |
| | 2 PLUGIN DEPLOYMENT TARGET | Specify the plugin deployment target settings. The target is the vCenter Server Appliance instance on which the plugin will be installed | | | | | | |
| | | VMware vCenter Server FQON or IP address 192.168.13.236 | | | | | | |
| | | Administrator username administrator@vsphere.local | | | | | | |
| | | Administrator password | | | | | | |
| | | | | N | ext | | Ŧ | |

3. Confirm the connection to your vCenter Server Appliance.

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| 📚 StarWind vCenter Plugin | | | | | | |
| EULA | | | | | | |
| 2 PLUGIN DEPLOYMENT TARGET | | | | | | |
| SUMMARY | 192.1 Certificate Warning | | | | | |
| (4) INSTALLATION (5) INSTALLATION COMPLETED | If an untrusted SSL certificate is installed on 192.168.13.236, secure communication cannot be guaranteed. Depending on your security policy, this issue does not represent a security concern. | | | | | |
| | The SHA1 thumbprint of the certificate is: 03:D6:66:C4:30:43:69:2C:18:ADI:ADI:ADI:ADI:ADI:ADI:ADI:ADI:ADI:ADI | | | | | |
| | Cancel | | | | | |
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4. Review Summary and click the Install button.



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| | 📚 StarWind vCenter Plugin | | | | | | |
| | EULA | Summary | | | | | |
| | PLUGIN DEPLOYMENT TARGET | Review your settings selection bef | fore deploying the StarWind vCenter Plugin | | | | |
| | 3 SUMMARY | vCenter Server IP address 19 | 92.168.13.236 | | | | |
| | | | dministrator@vsphere.local | | | | |
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5. Wait until the plugin is installed.

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| | pprox StarWind vCenter Plugin | | | | | | |
| | | | | | | | |
| | EULA | Installation | | | | | |
| | PLUGIN DEPLOYMENT TARGET | Please wait until the Setup Wizard deploys StarWind vCenter Plugin | | | | | |
| | SUMMARY | Install progress: | | 100 % | | | |
| | 4 INSTALLATION | | 🗸 Co | mpleted |) i | | |
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6. Click the Open Plugin page to start using StarWind SAN & NAS via the vCenter Plugin interface.



Uninstall Wizard

This wizard uninstalls the StarWind Plugin from your vCenter Server Appliance.

1. Specify the vCenter Server FQDN or IP Address and administrator credentials and click Next.

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| $\leftarrow \rightarrow$ | C A Not secure https://192.168.1 | 2.206 :5044 | τô | €≣ | 9 | œ | |
| | ≋ StarWind vCenter Plugin | | | | | × | |
| | 1 PLUGIN DEPLOYMENT TARGET | Plugin Deployment Target | | | | | |
| | | Specify the plugin deployment target settings. The target is the vCenter Server Appliance instance on which the plugin has been installed | | | | | |
| | | VMware vCenter Server FQON or IP address 192.168.13.236 | | | | | |
| | | Administrator username administrator@vsphere.local | | | | | |
| | | Administrator password | | | | | |
| | | | | | | | |
| | | | | | i | | |
| | | | | N | ext | k | |

2. Confirm the connection to your vCenter Server Appliance.



| 🕑 vSphere - 192.168.13.235 - Sum : 🗙 📚 StarWind vCenter Plug | ain x 🗗 vSphere - SW1 - Summary x + | | | | - | | × |
|--|--|----|----|---|---|---|---|
| ← → C ▲ Not secure https://192.168.12.20 | 06:5044 | τô | £≡ | 9 | œ | ۲ | |
| ≋ StarWind vCenter Plugin | | | | | | | |
| | | | | | | | |
| PLUGIN VERSION INFORMATION | | | | | | | |
| (3) UNISTALLING | Image: Second secon | | | | | | |
| | k | | | | | | |
| | | | | | | | |

3. Review Summary and click Uninstall button.

| 🛃 vSphere - | - 192.168.13.235 - Sumr 🗙 🏾 ≋ StarWind vCenter P | lugin 🗙 🛃 vSphere - SW1 - | Summary × + | | | | - | × |
|--------------------------|--|----------------------------------|---|-------------------------------------|----------|---|---|---|
| $\leftarrow \rightarrow$ | C A Not secure https://192.168.12 | .206:5044 | | <u>ک</u> ور | ₹^≡ | 3 | Ē | |
| | 📚 StarWind vCenter Plugin | | | | | | | |
| | PLUGIN DEPLOYMENT TARGET | Plugin Version Infor | mation | | | | | |
| | 2 PLUGIN VERSION INFORMATION | 1 StarWind vCenter Plugin | and all its components will be uninstalle | d from your VMware vCenter Server A | ppliance | e | | |
| | | vCenter Server IP address | 192.168.13.236 | | | | | |
| | | Plugin version | | | | | | |
| | | Last checked | 7/16/2021 5:46:38 PM | | | | | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | Back to Homepage | | | | |
| | | | | Back to nonepage | | | | |
| | | | | | | | k | |

4. Close the wizard upon finish or go back to the installer homepage.

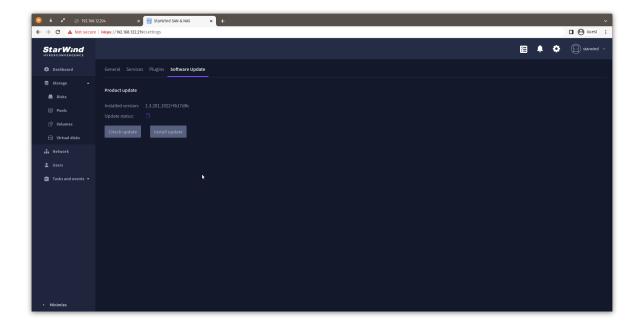


| 🛃 vSphere - | - 192.168.13.235 - Sumn 🗙 🏾 ≋ StarWind vCenter P | Nugin x 🗗 vSphere - SW1 - Summary x + | | - | | × |
|---------------------------|--|---|--------------|-----|---|---|
| $\leftarrow \rightarrow$ | C A Not secure https://192.168.12 | 2206:5044 | \$ € |) @ | | |
| | 🗧 StarWind vCenter Plugin | | | | | |
| | PLUGIN DEPLOYMENT TARGET | Uninstalling | | | | |
| | PLUGIN VERSION INFORMATION | Please wait until the Wizard uninstall StarWind vCenter Plugin and all its components | | | | |
| | 3 UNISTALLING | Uninstalling progress: | 91 | 7 % | | |
| | | | | | | |
| | | 🔅 Time rer | maining: ~30 | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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| | | | | | | |
| | | | | | | |
| | | | to Homepa | | | |
| | | Cancel Back | то потера | ige | | |
| | | | | | • | |

Software Update

To update SAN & NAS to the latest published version use the Software Update page.

1. Click Check update



2. If a newer version of SAN & NAS is released, it will be listed on the page. Click Install



update.

| 😣 ± 🖍 📀 192.168.1 | 2204 x 😸 Starwind San & Mas 🗙 + | | | Ý |
|----------------------|--|----------|---|--------------|
| ← → C ▲ Not secure | https://92.168.122219/settings | | | Guest : |
| StarWind | | <u>۽</u> | ٥ | ⊡ starwind 🗸 |
| 🛱 Dashboard | General Services Plugins Software Update | | | |
| 🛎 Storage 🔺 | Product update | | | |
| 🚔 Disks | | | | |
| Pools | Installed version: 1.3.201.1922-tb17d8c Update status: 0 1.3.209.1949-0896881 | | | |
| 🕒 Volumes | | | | |
| 🖨 Virtual disks | Check update Install update | | | |
| A Network | | | | |
| 💄 Users | | | | |
| 💼 Tasks and events 🔺 | | | | |
| 🗄 Tasks | k. | | | |
| 🌲 Events | | | | |
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| | | | | |
| < Minimize | | | | |

3. Wait for the update to finish.

| S ± ∠* S 192.168. | | | |
|-------------------|----------------------------------|---|-------------------------|
| | https://192.168.122.219/settings | | • ● ■ •• (□) ◆ ↓ (□) |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | Update status: | |
| | | Please wait, installing updates When the update is finished, please re-login to the web console. | |
| | | Installation progress: 95% | |
| | | Time remaining: -2 min. | |
| | | Go to the Login page | |
| | | | |
| | | | |
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| | | | |

4. Log back in to SAN & NAS to start using the updated version of the product.



Text Console

This part provides a detailed description of Text-based User Interface (TUI) management capabilities.

Welcome Page

The Welcome page provides the network connection settings, such as hostname, management IPv4 address, web console location, and SSL certificate and allows to log in to the appliance.

NOTE: If no network settings were previously applied upon the appliance deployment or no DHCP server is connected to the management network, use Text Console to configure the management network settings manually.

| 8 | - | • | sw1 - 192.168.12.121 - VMware Remote Console | |
|---|----------|--------------|--|------------------------------|
| File | Virtua | al Machine | Help | |
| | | | StarWind Appliance | |
| | | | | |
| | | | | |
| | | | | |
| | | Appl | iance hostname: | |
| | | sw1 | ance nostname. | |
| | | Mana 192. | gement IPv4 address: 168.12.201 | |
| | | | console location: s://192.168.12.201 | |
| | | SSL EDAC | certificate fingerprint: 4469DA1E5B63A72714B9D1BE26231CBADFD7 | |
| | | | | |
| | | To c | onfigure the appliance, please log in to the Web console. | |
| | | | | |
| | | | | |
| <e< th=""><th>nter></th><th>Open c</th><th>insole</th><th><f12> Shutdown/Restart</f12></th></e<> | nter> | Open c | insole | <f12> Shutdown/Restart</f12> |
| To g | grab inp | out, press C | rl+G | |



Login Screen

Enter the username and password to log into the text console.

NOTE: User accounts with an Administrator role can only access TUI.

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.

| 2 | - | • | sw1 - 192.168 | 3.12.191 - VMware Remote Console | | |
|------|-----------|-------------|-----------------------------|--|----------------|--|
| File | Virtual | Machine | Help | | | |
| We | lcome | ! Authe | ntication is required | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | We | lcome! Authentication is re | quired | | |
| | | Pl | ease enter a valid password | | | |
| | | | er name: | [starwind | j | |
| | | Pa | ssword: | [жжжжжжж | | |
| | | | | | | |
| | | | | <enter> Confirm <e< td=""><td>sc> Cancel</td><td></td></e<></enter> | sc> Cancel | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Tog | grab inpu | ut, press C | trl+G | | Q Q Q Q | |

Text Console Menu

The Text Console menu allows modifying the appliance settings.



| 🐱 🗕 🗖 sw1 - 192.168.12.191 - VMware Remote Console | | | | | |
|--|------------------------------|--|--|--|--|
| File Virtual Machine Help | | | | | |
| Available Options | Configure Management Network | | | | |
| Configure Management Network | Configure network settings | | | | |
| Configure NFS Share | | | | | |
| Configure SMB Share | | | | | |
| | | | | | |
| Troubleshoot | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| <up>/<down> Select option <enter> Perform action</enter></down></up> | <esc> Log out</esc> | | | | |
| To grab input, press Ctrl+G | | | | | |

Configure Management Network

In order to use the SAN & NAS appliance, the management network should have an IPv4 address assigned.

Possible configurations:

- static IP obtained from VMware vApp/OVF template import
- dynamic IP obtained from a DHCP server



| Configure Management Network | | | | | |
|------------------------------|---|---|-------|--|--|
| | | | | | |
| | Step 1/3: Review Management Network | < Interface Settings | | | |
| | Please review the Management NIC settings. Modify settings to set a static IPv4 address. | | | | |
| | IP Mode: | DHCP | | | |
| | Management NIC IPv4 Address: Subnet Mask: Default gateway: | 192.168.12.158 255.255.254.0 192.168.12.1 | | | |
| | Hostname: Primary DNS: Alternate DNS: | StarWindSANandNAS-79195563 192.168.12.17 192.168.8.17 | | | |
| | | < Enter> Modify → (Esc> Ca | ancel | | |
| | | | | | |
| | | | | | |
| | | | | | |

NOTE: If no IP address was assigned after VMware vApp/OVF template import or was not obtained from the DHCP server, Text Console will show only the hostname on the 1/3 configuration step:



| Configure Management Network | | | | | |
|------------------------------|--|------------------------|--------------------|--|--|
| | | | | | |
| | Step 1/3: Review Management Networ Please review the Management NIC s Modify settings to set a static IP | ettings. | | | |
| | IP Mode: | DHCP | | | |
| | Management NIC IPv4 Address: Subnet Mask: Default gateway: | | | | |
| | Hostname: Primary DNS: Alternate DNS: | StarWindSANandNAS-7919 | 5563 | | |
| | | <enter> Modify</enter> | <esc> Cancel</esc> | | |
| | | | | | |
| | | | | | |
| | | | | | |

Press Enter to Modify settings, set the static IP configuration on 2/3 step.

NOTE: IP address and subnet mask are required fields. Gateway and DNS servers are optional.



| Configure Management Network | | | | | | |
|------------------------------|--|--|--------|--|--|--|
| ======= | | | | | | |
| | Step 2/3: Specify Management Network Interface Settings Please specify Management NIC settings. Press "Enter" to apply. | | | | | |
| | IP Mode: | Static | | | | |
| | Management NIC IPv4 Address: Subnet Mask: Default gateway: | [192.168.12.158 [255.255.254.0 [192.168.12.1 | | | | |
| | Hostname: Primary DNS: Alternate DNS: | [<mark>SW01</mark> [192.168.12.17 [192.168.8.17 |] | | | |
| | < Up>/<down></down> Select Option | <enter> Apply <esc> (</esc></enter> | Cancel | | | |
| | | | | | | |
| | | | | | | |

Press Enter to apply the new network settings.

Step 3/3 will show the applied network settings. Press Enter or Esc to go back to the main menu.



| Configure Management Network | | | | | |
|------------------------------|---|---|-------------------|--|--|
| | | | | | |
| | Step 3/3: Settings applied The specified network settings have | e been applied. | | | |
| | IP Mode: | Static | | | |
| | Management NIC IPv4 Address: Subnet Mask: Default gateway: | 192.168.12.158 255.255.254.0 192.168.12.1 | | | |
| | Hostname: Primary DNS: Alternate DNS: | SW01 192.168.12.17 192.168.8.17 | | | |
| | | | | | |
| | | < Enter> OK | <esc> Close</esc> | | |
| | | | | | |
| | | | | | |
| | | | | | |

NOTE: You can now use the web console to manage the appliance. The Welcome screen of the text console now shows the network information.

Configure Smb Share

Create SMB Share

1. Open the Configure SMB Share menu, select the Create SMB Share option and press Enter.



| Sw1 - 192.168.12.191 - VI | Aware Remote Console |
|--|---|
| File Virtual Machine Help | |
| Available Options | Create SMB Share |
| | |
| Create SMB Share | Create and expose Samba/CIFS share for external clients. |
| Remove SMB Share | |
| Change SMB Password | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| <up>/<down> Select option <enter> Perform action</enter></down></up> | |
| <enter> Perform action</enter> | <esc> Log out</esc> |
| To grab input, press Ctrl+G | |

2. To create an SMB share, select a volume created using the web console and type the name of the network share. Press Enter to go to the next step.



| 8 | - 0 | | sw1 - 192.168.12.191 | - VMware Remote Console | | |
|------|---------------|--|----------------------|-------------------------|--------------------|--|
| File | Virtual Ma | chine Help | | | | |
| Co | nfigure | SMB Share | | | | |
| | | | | | | |
| | | | | | | |
| | | Step 1/3: Configure | SMB Share | | | |
| | | To create and expos name of a new SMB s | e a SMB/CIFS sh | are, select a volume an | d specify the | |
| | | * Make sure that yo this appliance. | u have already | configured static IP an | d hostname for | |
| | | Select a volume: | | | | |
| | | (X) volume0 | | | | |
| | | Specify SMB share r | | [smb-share_ |] | |
| | | | | | | |
| | | | | | | |
| | | <up>/<down> Select</down></up> | Option | <enter> Next</enter> | <esc> Cancel</esc> | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| To g | grab input, p | ress Ctrl+G | | | <u> </u> | |

NOTE: if the appliance has no volumes, network shared folders can't be created.

3. Set the allowed IP address range to access the network share.

Use * to allow all clients on your Management and Data network. Limit access by specifying the corresponding IP range i.e. 192.168.0.0/24



| 8 - 0 | | sw1 - 192.168.12.191 - | VMware Remote Console | | |
|-----------------|--------------------------------|------------------------------------|---|-----------------------------------|---------|
| File Virtual Ma | achine Help | | | | |
| Configure | SMB Share | | | | |
| | | | | | |
| | Step 2/3: Configure | e SMB Share | | | |
| | Specify the client | IP or subnet ra s using x.x.x.x | nge allowed to access or x.x.x.x/x format, d dress. | the SMB share. or use asterisk | |
| | Allowed IP range: | | [<u>*</u> | 1 | |
| | | | | | |
| | <up>/<down> Select</down></up> | Option | <enter> Next</enter> | <esc> Cancel</esc> | |
| | | | | | |
| | | | | | |
| To grab input, | press Ctrl+G | | | 2 2 2 2 2 | • • • • |

4. Review the configuration, press Enter, and then the Y key to confirm the operation.



| 😣 – 🛛 | • | sw1 - 192.168.12.191 - | VMware Remote Console | | |
|---------------|---|------------------------|-----------------------|--------------------|--|
| File Virtual | Machine Help | | | | |
| Configur | e SMB Share | | | | |
| | | | | | |
| | | | | | |
| | Step 3/3: Configure | SMB Share | | | |
| | Verify settings. * Check settings an | d press "Enter" | to create SMB share. | | |
| | | | | | |
| | SMB share name: | | smb-share | | |
| | Selected volume: | | volume0 | | |
| | Allowed IP range: | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | <up>/<down> Select</down></up> | Option | <enter> Next</enter> | <esc> Cancel</esc> | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| To grab input | i, press Ctrl+G | | | | |



| 8 - 0 | sw1 - 192.168.12.191 - VMware Remote Console | |
|-------------------|---|--------------------------|
| File Virtual Mac | hine Help | |
| Configure S | MB Share | |
| | | |
| | | |
| | Step 3/3: Configure SMB Share | |
| | Verify settings. * Chec | |
| | Request | |
| | SMB sh The path to your network share | |
| | Select /mnt/smb/smb-share | |
| | Allowe | |
| | Press <y> or <enter> to Press <n> or <esc> to confirm decline</esc></n></enter></y> | |
| | | |
| | <pre><up>/<down> Select Option <enter> Next <esc></esc></enter></down></up></pre> | Cancel |
| | | |
| | | |
| | | |
| | | |
| To grab input, pr | ess Ctrl+G | ~ ~ ~ ~ ~ ~ ~ ~ ~ |

5. The SMB share is created on a volume and is available at the /mnt/smb/share-name-folder.

Remove SMB share

This menu allows removing any share created on the appliance.

1. Open the Remove SMB Share menu, select the Remove SMB Share option and press Enter.



| 🙁 _ 🗆 sw1 - 192.168.12.191 - VA | Aware Remote Console |
|--|-----------------------------------|
| File Virtual Machine Help | |
| Available Options | Remove SMB Share |
| Create SMB Share | Remove existing Samba/CIFS shares |
| List SMB Shares | |
| Remove SMB Share | |
| Change SMB Password | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| <pre></pre> | |
| <up>/<down> Select option <enter> Perform action</enter></down></up> | <esc> Log out</esc> |
| To grab input, press Ctrl+G | |

NOTE. All the data located on the selected share will be permanently removed.

2. Select share name to remove.



| 8 - 0 | sw1 - 192.168.12.191 - VMware Remote Console | |
|----------------|--|--|
| File Virtual M | Aachine Help | |
| Remove SM | IB share | |
| | | |
| | Remove SMB share | |
| | Select share name to remove it. * All the data on the selected share will be permanently removed. | |
| | () smb-share | |
| | Type "yes" to confirm removal: [] | |
| | | |
| | <up>/<down> Select Option</down></up> | |
| | | |
| | | |
| To grab input, | , press Ctrl+G | |

3. Type yes to confirm.



| 8 - 0 | sw1 - 192.168.12.191 - VMware Remote Console | |
|----------------|--|--|
| File Virtual M | Aachine Help | |
| Remove SM | 18 share | |
| | | |
| | Remove SMB share | |
| | Select share name to remove it. * All the data on the selected share will be permanently removed. | |
| | (X) smb-share | |
| | Type "yes" to confirm removal: [yes]] | |
| | | |
| | <up>/<down> Select Option</down></up> | |
| | | |
| | | |
| To grab input, | , press Ctrl+G | |

4. The selected network share has been removed.



| Remove share | |
|-------------------------------------|--------------------|
| | |
| | |
| | |
| Selected network share remo | ved |
| Selected network share has storage. | been removed from |
| | |
| | <enter> OK</enter> |
| | |
| | |
| | |
| | |
| | |

Change SMB password

This menu allows changing and setting a new password to the "user" account to access to access SMB shares on this appliance.

Enter a new password twice. Press Enter to set a new password.



| 8 - 0 | sw1 - 192.168.12.191 | - VMware Remote Console | | |
|----------------|---------------------------------------|----------------------------|------------------|----|
| File Virtual M | achine Help | | | |
| Set SMB p | assword | | | |
| | | | | |
| | | | | |
| | Set SMB password | | | |
| | Create a password for current use | r to access SMB shares. | | |
| | Username: | starwind | | |
| | Password: | | 1 | |
| | Confirm password: | [<mark>***********</mark> | 1 | |
| | | | | |
| | | | | |
| | | | | |
| | <up>/<down> Select Option</down></up> | <enter> Confirm</enter> | <esc> Back</esc> | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| To grab input, | press Ctrl+G | | | ۲. |

Configure Nfs Share

Create NFS Share

1. Open the Configure NFS Share menu, select the Create NFS Share option and press Enter.



| Sw1 - 192.168.12.191 - VI | Mware Remote Console |
|--|---|
| File Virtual Machine Help | |
| Available Options | Create NFS Share |
| Create NFS Share List NFS Shares Remove NFS Share | Create and expose NFS share for external clients. |
| | |
| | |
| | |
| <up>/<down> Select option <enter> Perform action</enter></down></up> | <esc> Log out</esc> |
| To grab input, press Ctrl+G | |

2. To create an NFS share, select a volume created using the web console and type the name of the network share. Press Enter to go to the next step.



| 8 - 0 | | sw1 - 192.168.12.191 | - VMware Remote Console | | |
|-----------------|--|----------------------|--------------------------|--------------------|---------|
| File Virtual Ma | achine Help | | | | |
| Configure | NFS Share | | | | |
| | | | | | |
| | | | | | |
| | Step 1/3: Configure | | | | |
| | To create NFS share share. | , select a volu | ume and specify the name | of a new NFS | |
| | * Make sure that yo this appliance. | u have already | configured static IP and | d hostname for | |
| | Select a volume: | | | | |
| | (X) volumeO | | | | |
| | Specify NFS share n | | [nfs-share_ | 1 | |
| | | | | | |
| | <up>/<down> Select</down></up> | Option | <enter> Next</enter> | <esc> Cancel</esc> | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| To grab input, | oress Ctrl+G | | | | • • • • |

NOTE: if the appliance has no volumes, network shared folders can't be created.

3. Set the allowed IP address range to access the network share.

Use * to allow all clients on your Management and Data network. Limit access by specifying the corresponding IP range i.e. 192.168.0.0/24



| 8. | - 0 | | sw1 - 192.168.12.191 - | VMware Remote Console | | |
|---------|------------|--------------------------------|------------------------|------------------------------------|--------------------|---------|
| File V | ʻirtual Ma | chine Help | | | | |
| Conf | igure | NFS Share | | | | |
| | | | | | | |
| | | Step 2/3: Configuro | NEC Chapa | | | |
| | | | | nge allowed to access [.] | the NFS share. | |
| | | | ss using x.x.x.x | or x.x.x.x/x format, (| | |
| | | Allowed IP range: | | [* | 1 | |
| | | | | | | |
| | | | | | | |
| | | <up>/<down> Select</down></up> | Option | <enter> Next</enter> | <esc> Cancel</esc> | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| To grat | b input, p | oress Ctrl+G | | | | • • • • |

4. Review the configuration, press Enter, and then the Y key to confirm the operation.



| 8 | - 0 | | sw1 - 192.168.12.191 | - VMware Remote Console | | |
|------|-----------------------------|--|----------------------|-------------------------|--------------------|--|
| File | Virtual Ma | chine Help | | | | |
| Coi | nfigure | NFS Share | | | | |
| | | | | | | |
| | | | | | | |
| | | Step 3/3: Configure | NFS Share | | | |
| | | Verify settings. * Check settings and | d press "Enter | " to create NFS share. | | |
| | | | | | | |
| | | NFS share name: | | nfs-share | | |
| | | Selected volume: | | volume0 | | |
| | | Allowed IP range: | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | <up>/<down> Select (</down></up> | Uption | <enter> Next</enter> | <esc> Cancel</esc> | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| To g | To grab input, press Ctrl+G | | | | | |



| 8 - • | sw1 - 192.168.12.191 - VMware Remote Console | | | | |
|-------------------|---|--------|--|--|--|
| File Virtual Mac | ine Help | | | | |
| Configure N | FS Share | | | | |
| | | | | | |
| | | | | | |
| | Step 3/3: Configure NFS Share | | | | |
| | Verify settings. * Chec | | | | |
| | Request | | | | |
| | NFS sh The path to your network share | | | | |
| | Select /mnt/nfs/nfs-share | | | | |
| | Allowe | | | | |
| | Press <y> or <enter> to Press <n> or <esc> to confirm decline</esc></n></enter></y> | | | | |
| | | | | | |
| | <up>/<down> Select Option <enter> Next <esc></esc></enter></down></up> | Cancel | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| To grab input, pr | To grab input, press Ctrl+G | | | | |

5. The NFS share is created on a volume and is available at the /mnt/nfs/share-name-folder.

Remove NFS share

This menu allows removing any share created on the appliance.

1. Open the Remove NFS Share menu, select the Remove NFS Share option and press Enter.



| × _ □ | sw1 - 192.168.12.191 - VMware Remote Console |
|--|--|
| File Virtual Machine Help | |
| Available Options | Remove NFS Share |
| Create NFS Share | Remove existing NFS shares |
| List NFS Shares | |
| Remove NFS Share | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| <up>/<down> Select option <enter> Perform action</enter></down></up> | |
| <enter> Perform action</enter> | <esc> Log out</esc> |
| To grab input, press Ctrl+G | |

NOTE. All the data located on the selected share will be permanently removed.

2. Select share name to remove.



| 8 - | sw1 - 192.168.12.191 - VMware Remote Console | |
|-----------|--|--|
| File Virt | al Machine Help | |
| Remove | NFS share | |
| | | |
| | Remove NFS share | |
| | Select share name to remove it. * All the data on the selected share will be permanently removed. | |
| | (_) nfs-share | |
| | Type "yes" to confirm removal: [] | |
| | | |
| | <up>/<down> Select Option</down></up> | |
| | | |
| | | |
| To grab i | put, press Ctrl+G | |

3. Type yes to confirm.



| 8 - | sw1 - 192.168.12.191 - VMware Remote Console | |
|-------------|--|-------|
| File Virtua | ıl Machine Help | |
| Remove | NFS share | |
| | | |
| | Remove NFS share | |
| | Select share name to remove it. * All the data on the selected share will be permanently removed. | |
| | (X) nfs-share | |
| | Type "yes" to confirm removal: [yes] | |
| | | |
| | <up>/<down> Select Option</down></up> | |
| | | |
| | | |
| To grab inp | out, press Ctrl+G | H W 🐿 |

4. The selected network share has been removed.



| Remove share | |
|--------------|---|
| | |
| | |
| | |
| | Selected network share removed |
| | Selected network share has been removed from storage. |
| | <enter> OK</enter> |
| | |
| | |
| | |
| | |

Troubleshoot

Change password

This menu allows changing and setting a new password to the "user" account to access the appliance over SSH and web console.



| 🙁 – | □ sw1 - 192.168.12. | 191 - VMware Remote Console | | | |
|--------------|---------------------------------------|-------------------------------|------------|--|--|
| File Virtual | Machine Help | | | | |
| Set Appl | iance Administrator Password | | | | |
| | | | | | |
| | | | | | |
| | Set Appliance Administrator Pass | sword | | | |
| | Set new password for current use | er. | | | |
| | This account is used to access t | the Text and Web consoles, ar | nd SSH. | | |
| | User name: | starwind | | | |
| | Password: | [| 1 | | |
| | Confirm password: | | 1 | | |
| | | | | | |
| | | | | | |
| | <up>/<down> Select Option</down></up> | (Enton) Confirm | | | |
| | CODALCOMINA SELECT ODITOU | KENTERS CONTINU | KESU/ DALK | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| To grab inpu | To grab input, press Ctrl+G | | | | |

Type a new password twice.



| 🙁 – | sw1 - 192.16 | 8.12.191 - VMware Remote Console | | | | | | |
|----------|---------------------------------|----------------------------------|------------|--|--|--|--|--|
| File Vir | File Virtual Machine Help | | | | | | | |
| Set A | ppliance Administrator Password | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | Set Appliance Administrator F | Password | | | | | | |
| | Set new password for current | user. | | | | | | |
| | This account is used to acces | ss the Text and Web consoles, a | nd SSH. | | | | | |
| | User name: | starwind | | | | | | |
| | Password: | | 1 | | | | | |
| | Confirm password: | [<mark>*****************</mark> | 1 | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | ZUn\ZZDown\ Select Ontion | <enter> Confirm</enter> | ZECCN Back | | | | | |
| | | | NESC/ DOCK | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| To drab | input proce (Hel. C | | | | | | | |
| To grab | To grab input, press Ctrl+G | | | | | | | |

Press Enter key to set it up.



| 🙁 – | • | sw1 - 192.168.12.191 - VMware Remote Console | | | |
|----------|-----------------------------|---|--------|--|--|
| File Vir | tual Ma | chine Help | | | |
| Set A | pplia | nce Administrator Password | | | |
| | | | | | |
| | | | | | |
| | | Set Appliance Administrator Password | | | |
| | | Set new password for current user. | | | |
| | | This a Please wait | | | |
| | | User n | | | |
| | | Passwo Password changes successfuly | 1 | | |
| | | Confir Alert will automatically close in 2 sec. |] | | |
| | | | | | |
| | | | | | |
| | | (Un) (/Down) Colort Option (Enton) Confirm (Eco | | | |
| | | <up>/<down> Select Option</down></up> | > васк | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| To grab | To grab input, press Ctrl+G | | | | |

Additional settings

Press Enter key to open Additional settings

Enable or disable SSH Access by pressing the Enter key.

NOTE: SSH Access needs to be enabled to create HA LUNs.



| 8 | - 0 | | sw1 - 192.168.12.191 - | VMware Remote Console | | |
|-----------------------------|------------|---------------------|------------------------|-----------------------|------------------|--|
| File | Virtual Ma | chine Help | | | | |
| Ad | ditional | settings | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | Additional settings | | | | |
| | | Enable or disable a | dditional setti | ngs. | | |
| | | SSH Access: | | [<u>X</u>] Enabled | | |
| | | Son HUUESS. | | (A) LHADIEU | | |
| | | | | | | |
| | | | | <enter> Apply</enter> | <esc> BACK</esc> | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| To grab input, press Ctrl+G | | | | | ••• | |

Open Shell Terminal

This menu option allows to open a command-line console over the text-based user interface.



| user@SW01:/\$ | |
|-------------------|--|
| | |
| | |
| | |
| | |
| | |
| Terminal in focus | Release terminal: 'CTRL X'. Quit: 'ESC' when terminal not in focus. |

To exit the command-line console, press Ctrl + x to release focus, then press the Esc key.



| user@SWO1:/\$ ls bash_completion.d boot etc bin dev home user@SWO1:/\$ uptime | lib lib32 | lib64 libx32 | lost+found media | mnt opt | proc root | run sbin | <mark>sr∨</mark> swapfile | sys tmp | usn van |
|--|--------------|-----------------|---------------------|------------|--------------|-------------|------------------------------|------------|------------|
| 08:02:01 up 4 min, 0 users, user@SW01:/\$ _ | load a | verage: | 1.14, 0.56, | 0.24 | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Terminal not in focus | | | | Quit: | 'ESC' | | se termina terminal n | | |

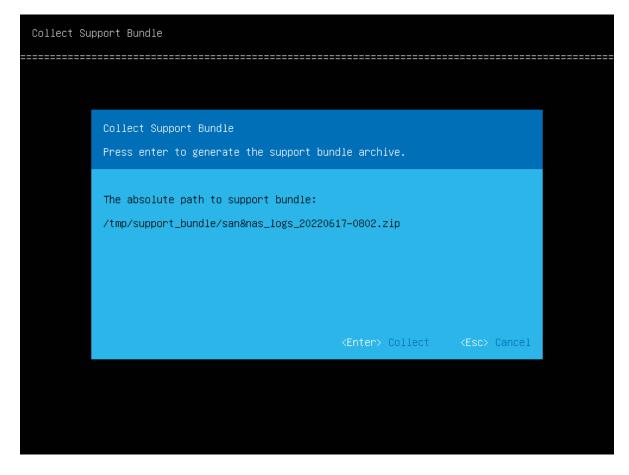
Collect Support Bundle

Collect Support Bundle allows collecting all logs to a file generated into /tmp/support_bundle/ folder.

- 1. Press Enter to generate the support bundle which is a zip file with system logs.
- 2. Once it is generated, it is available to download from /tmp/support_bundle folder

NOTE: Upon system reboot, all data is removed from the /tmp folder





3. Download the support bundle by connecting to the appliance using external SFTP or SSH clients.

NOTE: Ensure that the SSH service is enabled in TUI -> Additional settings -> SSH access.

Connecting Starwind San & Nas To The Hypervisor Server

Connecting Starwind Virtual Disk To Vmware Esxi Server

- 1. Log in VMware ESXi server.
- 2. Navigate to the Storage sidebar-menu, then open the Adapters tab.



3. Click the "Software iSCSI" button to launch the "Configuring iSCSI" wizard.

4. Set the "iSCSI enabled" option as Enabled.

| 🥜 localhost.starwind.local - VMwari 🗙 | ≈ https://192.168.12.61:8643/dash × + | | | - 0 | × |
|---|--|---|--------------------------------|-----------------|-----------|
| \leftarrow \rightarrow C \blacktriangle Not sec | re https://192.168.12.203/ui/#/host/storage/a | dapters | ۲.0 | r 🖻 😩 | |
| vmware" Esxi" | | | root@192.168.12.203 🛩 Help • | - I Q Search | • |
| Navigator | Iocalhost.starwind.local - Storage Detastores Adapters Devices Persistent Merr | 994 | | | |
| Manage Monitor | Configure ISCSI Software ISCSI Rescan C Refr | | | Q Search | \supset |
| > 🔂 Virtual Machines 🚺 | Name | ~ Model | ~ Status ~ | Driver ~ | |
| Storage 1 | wmbba0 | PVSCSI SCSI Controller | Unknown | pvscsi | |
| > Q Networking 2 | Configure iSCSI - vmhba65 | | | | |
| | ISCSI enabled O Disabled | Enabled | | 3 items | |
| | ▶ Name & alias iqn.1998-01.0 | om.vmware:603f89fb-3778-bb30-518a-0050569cbf24-42fa52fc | | | |
| | CHAP authentication Do not use | HAP ~ | | | |
| | Mutual CHAP authentication Do not use | HAP ~ | | | |
| | Advanced settings Click to expan | 1 | | | |
| | Network port bindings 🔛 Add port | binding 🙀 Remove port binding | | | |
| | 😰 Rec VMkernel N | | ✓ IPv4 address | ~ | |
| | Task | No port bindings | | ipleted 🔻 | ~ |
| | Update Sc Static targets 2 Add stat | c target 🛛 👰 Remove static target 🥒 Edit settings | Q Search | 4/2021 02:37:01 | |
| | | | Save configuration | Cancel | |
| | | | | | |
| | | | | | |

5. Add the IPv4 address of StarWind SAN & NAS iSCSI/Data network interface to the Dynamic targets. Save the configuration.

| - localhost.starwind.local - VMware 🗙 | ≈ ht | tps://192.168.12.61:8643/dasht × + | | | | | | | | - | | × |
|---|----------------------|--|----------------------------|------------------------|-------------------|----------|-------------------|--------|-----------|--------|----------------|---|
| \leftarrow \rightarrow C \blacktriangle Not sec | ure h t | t tps ://192.168.12.203/ui/#/host | /storage/adapters | | | | | τõ | £≡ | Ē | ۲ | |
| vmware" esxi" | | | | | | root | @192.168.12.203 👻 | Help 👻 | 1 Q | Search | | • |
| Navigator | 🔲 locali | nost.starwind.local - Storage | | | | | | | | | | |
| ▼ 🗒 Host | Datasto | res Adapters Devices | Persistent Memory | | | | | | | | | |
| Manage Monitor | Co | nfigure ISCSI 🛛 🔯 Software ISCSI 💻 Resca | n 🤁 Refresh 💮 Acti | ions | | | | | Q Search | 1 | |) |
| > 🔂 Virtual Machines 🚺 | Name | | ~ | Model | | ~ | Status | ~ | Driver | | ~ | |
| Storage 1 | WE VI | nhba0 | | PVSCSI SCSI Controller | | | Unknown | | pvscsi | _ | | |
| > 🔮 Networking 🔹 2 | FR 8 | Configure iSCSI - vmhba65 | | | | | | | | | | |
| | FEE | Advanced settings | Click to expand | | | | | | | | 0.1 | |
| | | Network port bindings | Add port binding R | emove port binding | | | | | | | 3 items | ß |
| | | | VMkernel NIC | | rt group | ✓ IPv4 : | address | | ~ | | | |
| | | | | | No port b | indings | | | | | | |
| | | Static targets | 🛃 Add static target 🛛 👰 Re | emove static target 🧳 | Edit settings | | Q Search | | \supset | | | |
| | | | Target | | ~ | Address | ✓ Port | | ~ | | | |
| | | | | | No static | targets | | | | | | |
| | 🖹 Rec | Dynamic targets | 🔯 Add dynamic target 🛛 🧕 | Remove dynamic targe | t 🥖 Edit settings | | Q Search | | \supset | lt: | | |
| | Task | | Address | | ~ | Port | | | ~ | plete | d v | ~ |
| | Update Sc | | 172.16.10.100 | | | 3260 | | | | 4/2021 | 02:37:01 | |
| | | | | | | | Save configurat | tion | Cancel | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | _ | | | | |
| | | | | | | | | | | | | |

6. Switch to the Devices tab and click the "Rescan" button.



| localhost.starwind.local - VMware 🗙 | ≈ https://192.168.12.61:8643/dash | \times + | | | | | | | | | - | | |
|---|--|--|----------------------|---|--------|---|----------------------|------------------------------------|----------------------|----------|---|---|------|
| ightarrow ightarro | :ure https://192.168.12.203/u | ii/#/host/storage/device | es | | | | | | τœ | s S_≡ | œ | | |
| nware" Esxi" | | | | | | | root@192.1 | 168.12.203 👻 | Help | - 1 0 | , Search | | |
| Navigator 🗆 | localhost.starwind.local - Storage | 3 | | | | | | | | | | | |
| E Host | Datastores Adapters De | vices Persistent Memory | | | | | | | | | | | |
| Manage Monitor | 🔠 New datastore 🛛 Encrease capacit | | Action: | 3 | | | | | | Q Sear | ch | | |
| 🕆 Virtual Machines | Name | 1 I | ~ | Status | ~ Туре | ie v | Capacity ~ | Queue Depth | ~ | Vendor | | ~ | |
| Storage 1 | Local NECVMWar CD-ROM (mpx.vmht | ba1:C0:T0:L0) | | Normal | CDR | ROM | Unknown | N/A | | VMware | | | |
| Networking 2 | Local VMware Disk (mpx.vmhba0:C0: | T1:L0) | | Normal | Disk | ik | 400 GB | 1024 | | VMware | | | |
| | Local VMware Disk (mpx.vmhba0:C0: | T0:L0) | | Normal | Disk | k | 10 GB | 1024 | | VMware | | | |
| | | | | | | | | | | | | 3 items | |
| | | | | | | | | | | | | 3 items | IS . |
| | | | | | | | | | | | | 3 items | |
| | E Recent tasks | | | | | | | | | | | | |
| | Task ~ | | Initiator | V Queued | | Started | ✓ Result ▲ | | | | Completed 4 | , | A |
| | Task ~ Update Internet Scsi Alias | localhost.starwind.local | root | 03/04/2021 02:38:22 | | 03/04/2021 02:38:22 | 📀 Comp | vieted successfu | | | 03/04/2021 02 | * | A |
| | Task ~ Update Internet Scsi Alias Update Internet Scsi Advanced Options | localhost.starwind.local localhost.starwind.local | root root | 03/04/2021 02:38:22 03/04/2021 02:38:22 | | 03/04/2021 02:38:22 03/04/2021 02:38:22 | Comp | eleted successfu | illy | 1 | 03/04/2021 02 03/04/2021 02 | * *38:22 *38:22 | A |
| | Task ~ Update Internet Sci Alias Update Internet Sci Advanced Options Add Internet Scs Send Targets | localhost.starwind.local localhost.starwind.local localhost.starwind.local | root root root | 03/04/2021 02:38:22 03/04/2021 02:38:22 03/04/2021 02:38:22 | | 03/04/2021 02:38:22 03/04/2021 02:38:22 03/04/2021 02:38:22 | Comp | leted successfu leted successfu | illy illy | 1 | 03/04/2021 02 03/04/2021 02 03/04/2021 02 | • *38.22 *38.22 *38.22 | |
| | Task ~ Update Internet Scsi Alias Update Internet Scsi Advanced Options | localhost.starwind.local localhost.starwind.local | root root | 03/04/2021 02:38:22 03/04/2021 02:38:22 | | 03/04/2021 02:38:22 03/04/2021 02:38:22 | Comp Comp Comp | eleted successfu | illy illy illy | | 03/04/2021 02 03/04/2021 02 | • -38:22 -38:22 -38:22 -38:22 | |

7. Once scanned, the created StarWind virtual disks appear.

| 🥜 localhost.starwind.local - VMwari 🗙 | https://192.168.12.61:8643/stora | × + | | | | | | | | - | | × |
|---|---------------------------------------|--------------------------|-----------|---------------------|-------------------|------------|------------------|--------|----------|--------------|---------|-----|
| $\leftarrow \rightarrow \ C$ A Not secu | ure https://192.168.12.203/u | i/#/host/storage/device | es | | | | | τô | £^≡ | œ | ٢ | |
| vmware" esxi" | | | | | | root@192.1 | 68.12.203 👻 | Help 👻 | 1 Q | Search | | Ţ |
| 🚆 Navigator | localhost.starwind.local - Storage | , | | | | | | | | | | |
| ▼ 🗒 Host | Datastores Adapters De | vices Persistent Memory | | | | | | | | | | |
| Manage Monitor | 🖆 New datastore 🔳 Increase capacit | y 📃 Rescan 🛛 Ċ Refresh | Actions | | | | | (| Q Search | h | | |
| > 🔂 Virtual Machines | Name | | ~ | Status ~ | Туре 🗸 | Capacity ~ | Queue Depth | ~ Ve | endor | | ~ | |
| Storage 1 | STARWIND iSCSI Disk (eui.717e59bbc) | 42796a3) | | 📀 Normal | Disk | 20 GB | 128 | S | TARWIND | | | |
| > 🧕 Networking 📃 2 | Local NECVMWar CD-ROM (mpx.vmht) | va1:C0:T0:L0) | | Normal | CDROM | Unknown | N/A | v | Wware | | | |
| | Local VMware Disk (mpx.vmhba0:C0: | F1:L0) | | Normal | Disk | 400 GB | 1024 | V | Wware | | | |
| | Local VMware Disk (mpx.vmhba0:C0: | TO:LO) | | Normal | Disk | 10 GB | 1024 | V | Mware | | | |
| | | | | | | | | | | | 4 items | |
| | 2∕ Recent tasks | | | 1 | <i>v</i> | | | | | | | |
| | | Target ~ | Initiator | ~ Queued | ✓ Started | ✓ Result ▲ | | | ~ 0 | ompleted 🔻 | , | ~ |
| | Rescan Vmfs | localhost.starwind.local | root | 03/04/2021 02:39:30 | 03/04/2021 02:39: | | leted successful | ly | | /04/2021 02: | | |
| | Rescan All Hba | localhost.starwind.local | root | 03/04/2021 02:38:22 | 03/04/2021 02:38: | | leted successful | | 03 | /04/2021 02: | 38:23 | |
| | Update Internet Scsi Alias | localhost.starwind.local | root | 03/04/2021 02:38:22 | 03/04/2021 02:38: | 2 Scomp | leted successful | ly | 03 | /04/2021 02: | 38:22 | |
| | Update Internet Scsi Advanced Options | localhost.starwind.local | root | 03/04/2021 02:38:22 | 03/04/2021 02:38: | 2 Comp | leted successful | ly | 03 | /04/2021 02: | 38:22 | - 1 |
| | | | | | | | | | | | | |
| | Add Internet Scsi Send Targets | localhost.starwind.local | root | 03/04/2021 02:38:22 | 03/04/2021 02:38: | 2 Comp | leted successful | ly | 03 | /04/2021 02: | 38:22 | |

- 8. Click the "New datastore" button.
- 9. The Datastore creation wizard appears. Specify the Datastore name.



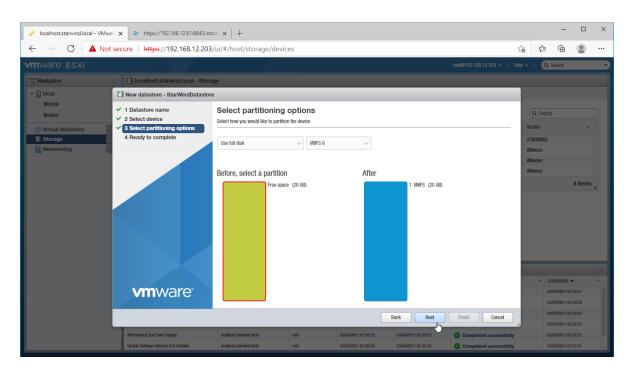
| - localhost.starwind.local - VMware | x ≈ https://192.168.12.61:8643/sto | • × + | | | | | | | - 1 | - × |
|---|--|---|------|---------------------|------------------|-----------------------|--------|------------------|------------------------------------|--------|
| \leftarrow \rightarrow C \blacktriangle Not set | ecure https://192.168.12.203/ | ui/#/host/storage/devid | es | | | | τœ | £≡ | ۵ (| |
| vm ware [,] ESXi ^{-,} | | | | | | root@192.168.12.203 🛩 | Help 👻 | | arch | - |
| Navigator | localhost.starwind.local - Storag | le | | | | | | | | |
| | 🗂 New datastore - StarWindDatastore | | | | | | | | | |
| Manage Monitor > 😤 Virtual Machines | 1 Datastore name 2 Select device 3 Select partitioning options | Datastore name Provide a name for the new datastor | e | | | | Ven | Q, Search dor | |) · |
| E Storage | 4 Ready to complete | Name | | | | | _ | RWIND | | |
| • 🧕 Networking | | StarWindDatastore | | | | | _ | vare vare | | |
| | | | | | | | | vare | | |
| | | | | | | | | | 4 ite | ems " |
| | | | | | | | ļ | → Con | npleted v | |
| | vm ware | | | | | | | | 4/2021 02:39:31 | |
| | | | | | | · • | _ | | 4/2021 02:38:23 | |
| | | | | | Back | Next Finish Cancel | | | 4/2021 02:38:22 4/2021 02:38:22 | |
| | Add Internet Scsi Send Targets | localhost.starwind.local | root | 03/04/2021 02:38:22 | 03/04/2021 02:38 | 22 Completed successf | ully | | 4/2021 02:38:22 | |
| | Update Software Internet Scsi Enabled | localhost.starwind.local | root | 03/04/2021 02:36:58 | 03/04/2021 02:36 | | | 03/0 | 4/2021 02:37:01 | |

10. Select the StarWind virtual disk.

| e localhost.starwind.local - VMwar | × ≈ https://192.168.12.61:8643/stor | a × + | | | | | | | - | | × |
|---|---|---|-------------------------------------|-------------|-------------------|------------|----------------|--------------------|-----------------|--------|---|
| \leftarrow \rightarrow C \blacktriangle Not s | secure https://192.168.12.203/ | ui/#/host/storage/devic | es | | | | ť | ō €≣ | Ē | | |
| vmware [,] ESXi ⁻ | | | | | | | | Q | Search | | P |
| Navigator | localhost.starwind.local - Storag | le | | | | | | | | | |
| ▼ 🗍 Host | 🕲 New datastore - StarWindDatastore | | | | | | | | | | |
| Manage Monitor | ✓ 1 Datastore name ✓ 2 Select device | Select device Select a device on which to create a | new VMFS partition | | | | | Q Searc | h | | |
| | 3 Select partitioning options 4 Ready to complete | The following devices are unclaimed | and can be used to create a new VMi | S datastore | | | | STARWIND VMware | | | |
| Networking | | Name | | | | Free space | ~ | VMware | | | |
| | | STARWIND ISCSI Disk (eui.717 | e59bbd42796a3) | Disk | 20 GB | 20 GB | | VMware | | | |
| | | | | | | | 1 items | | 4 | titems | |
| | | | | | | | | ~ (| Completed 🔻 | | |
| | vm ware [®] | | | | | | | | 3/04/2021 02:3 | | |
| | | | | Back | Next | Finish | Cancel | | 3/04/2021 02:31 | | |
| | | | | Васк | | PIIIISII | Cancer 4 | 0 | 3/04/2021 02:31 | :22 | |
| | Add Internet Scsi Send Targets | localhost.starwind.local | root 03/04/2021 | | /04/2021 02:38:22 | Complete | | | 3/04/2021 02:31 | | |
| | Update Software Internet Scsi Enabled | localhost.starwind.local | root 03/04/2021 | 2:36:58 03 | /04/2021 02:36:58 | Complete | d successfully | 0 | 3/04/2021 02:3 | :01 | |

11. Specify the partition options and create the VMFS 6 partition using the entire disk capacity.





12. Review the configuration summary and click "Finish" to create the datastore.

| - localhost.starwind.local - VMwa | ★ ************************************ | a × + | | | | | | - | | × |
|---|--|--------------------------|------|-------------------------------|---------------------|-------------------------|---------------|---------------|---------|---|
| \leftarrow \rightarrow C \blacktriangle Not | secure https://192.168.12.203/ | ui/#/host/storage/devic | es | | | | 20 T | <u>^</u> | | |
| VMWare' Esxi" | | | | | | root@192.168.12.203 🛩 🛛 | Help 👻 丨 | Q Search | | P |
| Navigator | 🗆 📄 localhost.starwind.local - Storaç | le | | | | | | | | |
| ← 🔲 Host | Provide the starwind Datastore | | | | | | | | | |
| Manage Monitor | 1 Datastore name 2 Select device 3 Select partitioning options | Ready to complete | | | | | Q S Vendor | earch | ~ | |
| Storage | 4 Ready to complete | Name | | StarWindDatastore | | | STARW | IND | | |
| • 🧕 Networking | | Disk | | STARWIND ISCSI Disk (eul.717e | 59bbd42796a3) | | VMware | | | |
| | | Partitioning | | Use full disk | | | VMware | | | |
| | | VMFS version | | 6 | | | | | 4 items | |
| | | | | VMFS (20 GB) | | | | | | |
| | | | | | | | | | | |
| | vm ware | | | | | | Ň | Completed | | Ť |
| | | | | | | | | 03/04/2021 02 | | |
| | | | | | Back Next | Finish Cancel | 4 | 03/04/2021 02 | | |
| | Add Internet Scsi Send Targets | localhost.starwind.local | root | 03/04/2021 02:38:22 | 03/04/2021 02:38:22 | Completed successfully | | 03/04/2021 02 | 38:22 | |
| | Update Software Internet Scsi Enabled | localhost.starwind.local | root | 03/04/2021 02:36:58 | 03/04/2021 02:36:58 | Completed successfully | | 03/04/2021 02 | 37:01 | |

13. Confirm virtual disk erase if ESXi warning appears.



| - localhost.starwind.local - VMwa | arr 🗙 📚 https://192.168.12.61:8643/std | ora: x + | | | - | - 0 | × |
|---|--|---|---|---------------|-------|------------------------------------|---|
| \leftarrow \rightarrow C \blacktriangle Not | secure https://192.168.12.203 | /ui/#/host/storage/devices | | tî | i € 6 | | |
| vm ware' esxi" | | | | | | | |
| °t≝ Navigator | | | | | | | |
| ✓ ☐ Host | 🔁 New datastore - StarWindDatastor | 0 | | | | | |
| Manage Monitor | ✓ 1 Datastore name ✓ 2 Select device ✓ 3 Select partitioning options | Ready to complete | | | | | |
| E Storage | ✓ 4 Ready to complete | Name | StarWindDatastore | | | | |
| • 💁 Networking | | Disk | STARWIND ISCSI Disk (eui.717e59bbd42796a3) | | | | |
| | 🔔 W. | arning | | | | | |
| | | The entire contents of this disk a configuration, are you sure? | re about to be enseed and replaced with the specified | | | | |
| | | | Yes No | | | | |
| | vm ware [,] | | | | | ed 🔻 11 02:30:31 11 02:38:23 | |
| | | | Back Next | Finish Cancel | | | |
| | | | | | | | |

14. Check the StarWind datastore in the Datastores tab.

| 🥐 localhost.starwind.local - VMwari 🗙 | ≈ https://192.168.12.61:8643/stora | × + | | | | | | | - | | × |
|--|--|--------------------------|---|-----------------------------------|-------------|---------------------|---------------------|-------------------|--------------|-------------|-----------|
| \leftarrow \rightarrow C \blacktriangle Not sect | ure https://192.168.12.203/u | ii/#/host/storage/ | datastores | | | | | to | ć⊨ @ | ۲ | |
| vmware: ESXi | | | | | | | root@192.168.12.203 | 👻 Help 🕶 | Q Search | | • |
| Navigator | localhost.starwind.local - Storage | 9 | | | | | | | | | |
| 👻 🗒 Host | Datastores Adapters Dev | vices Persistent Mer | nory | | | | | | | | |
| Manage Monitor | 😫 New datastore 🔳 Increase capaci | ty 🔰 💕 Register a VM | 🤯 Datastore browse | r 🛛 🤁 Refresh 🗍 | Actions | | | (Q | Search | | \supset |
| > 🔂 Virtual Machines 🗾 1 | Name | ~ | Drive Type ~ | Capacity ~ | Provisioned | ∽ Free | ~ Туре ~ | Thin provisioning | ~ Access | ~ | |
| 🛛 🗮 Storage 📃 2 | Datastore | | Non-SSD | 399.75 GB | 142.36 GB | 257.39 GB | VMFS6 | Supported | Single | | |
| > 🧕 Networking 🛛 💈 | StarWindDatastore | | Non-SSD | 19.75 GB | 1.41 GB | 18.34 GB | VMFS6 | Supported | Single | | |
| | | | | | | | | | | 2 items | |
| | StarWindData: Type: Location: UUID: Hosts: Vrfual Machines: | VMFS6 /vmfs/vc | lumes/60402d5f-e7(5f-e768541b-a20a-0) | i8541b-a20a-005056 i50569cbf24 | Gebt24 | | USED: | 1.41 GB | CAPA | CITY: 19.75 | 7% GB |
| | Recent tasks | | | | | | | | | | |
| | | Target | ✓ Initiator | ~ Queued | | | ✓ Result ▲ | | ~ Completed | | ~ |
| | Create Vmfs Datastore | localhost.starwind.local | root | 03/04/2021 | | 03/04/2021 02:44:06 | Completed succ | | 03/04/2021 0 | | - 11 |
| | Rescan Vmfs Rescan Vmfs | localhost starwind local | root | 03/04/2021 | | 03/04/2021 02:42:22 | Completed suce | | 03/04/2021 0 | | -11 |
| | Rescan All Hba | localhost starwind local | root | 03/04/2021 | | 03/04/2021 02:38:22 | Completed such | | 03/04/2021 0 | | |
| | Update Internet Scsi Alias | | | | | | - · | | | | |
| | | localhost.starwind.local | root | 03/04/2021 | 32:38:22 | 03/04/2021 02:38:22 | Completed suce | cessfully | 03/04/2021 0 | 2:38:22 | |

Connecting Starwind Luns To Vmware Vsphere



Servers

1. Log in to VMware vSphere Client.

2. Select the ESXi server in the sidebar-menu, then navigate to the "Configure" tab and open the "Storage Adapters" submenu page.

3. Click the "+Add Software Adapter" button to launch the corresponding wizard.

| ¹ vSphere - 192.168.12.154 - Stora × ¹ vSph | | ـــــــــــــــــــــــــــــــــــــ |
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| vm vSphere Client Menu v | Q Search in all environments | |
| | 🔁 192.168.12.154 🛛 🗛 сти | ons 🗸 |
| 192.168.12.242 | Summary Monitor Configur | e Permissions VMs Datastores Networks Updates |
| → In Datacenter | Storage 🗸 🗸 | Storage Adapters |
| 192.168.12.154 | Storage Adapters | + Add Software Adapter 🗟 Refresh 🗓 Rescan Storage 🔤 Rescan Adapter 🗙 Remove |
| 192.168.12.172 | Storage Devices | Adapter Type Type Status V Identifier Tar V Dev V P |
| 192.168.12.205 | Host Cache Configuration | Model: PIIX4 for 430TX/440BX/MX IDE Controller |
| 品 sw1 | Protocol Endpoints | 🕼 vmhba1 Block S Unknown 1 1 1 |
| | I/O Filters | 🕼 vmhba64 Block S Unknown 0 0 C |
| | Networking V | Model: PVSCSI SCSI Controller |
| | Virtual switches | Copy All 3 items |
| | Virtual switches VMkernel adapters | Copy All 3 items |
| | | |
| | Physical adapters TCP/IP configuration | |
| | | |
| | Virtual Machines 🗸 🗸 | No. Newscool and a |
| | | No items selected |
| Recent Tasks Alarms | | |
| ask Name 🗸 Target 🗸 | Status V Details V | ✓ Initiator v Queued For v Start Time ↓ v Completion Time v Server |
| Deploy OVF template | ✓ Completed | VSPHERE.LOCAL.vp 24 ms 03/04/2021, 7:09:19 03/04/2021, 7:24:35 192:168:12:242 AM AM AM |
| mport OVF package 192.168.12.205 | ✓ Completed | vsphere.local/Admin 102 ms 03/04/2021, 7:07:39 03/04/2021, 7:24:36 192:168.12:242 |
| tps://192.168.12.242/ui/ | | More Ta |

4. Mark the "Add software iSCSI adapter" option and click OK.



| 🕑 vSphere - 192.168.12.154 - Stora 🗙 🛃 | vSphere - 192.168.12.205 - Virtue 🗙 + | | | | | | - | | × |
|---|---|--|-----------------------------------|----------|--|--------|--|---------|------|
| \leftarrow \rightarrow C $	begin{tabular}{ll} & \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $ | 68.12.242/ui/app/host;nav=h/urn:vm | omi:HostSystem:host-26:dd2967 | e6-1d51-41bf-92a0-c7a0362479bf/co | P | to t | 9 | Ē | | |
| vm vSphere Client Menu | ✓ Q Search in all environment | S | C (?~ * | ldminist | rator@VSF | HERE.L | OCAL ∨ | | ٢ |
| | Add Software Adapter | 192.168.12.154 | | \times | | | | | |
| ✓ Datacenter ✓ Cluster ✓ 192 168.12.154 ✓ 192 168.12.172 ✓ 192 168.12.205 ↔ Structure Server | Add software ISCSI adapter A new software ISCSI adapter will be Details section to complete the confi Add software NVMe over RDMA adap Discover software NVMe adapters at Add Software FCoE Adapter Discover software FCoE adapters as Physical Network Adapter: VLAN ID: Priority Class: | guration. Iter ssociated with the following RMDA d | | - | × Remu | f Y | Dev y 1 0 | 1 | |
| Recent Tasks Alarms Task Name Target Deploy OVF templete Import OVF package Import OVF package 19216812.205 | Priority Class: Controller MAC Address: | 00:50:56:9c:7a:06 | CANCEL OU USURAULT, FURSU | < by | on Time D21, 7:24:3 z021, 7:24:3 | | Server 192.168.12.2 192.168.12.2 | | ~ ~ |
| All 🗸 | | | | | | | | More Ta | isks |

5. Add the IPv4 address of StarWind CVM Data\iSCSI network interface to the "Dynamic Discovery". Save the configuration

| 🕑 vSphere - 192.168.12.154 - Stora 🗙 🛃 vSpher | re - 192.168.12.205 - Virtur 🗙 + | - | |
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| \leftrightarrow \rightarrow C $rightharpoonup https://192.168.12.$ | 242/ui/app/host;nav=h/urn:vmomi:HostSystem:host-26:dd2967e6-1d51-41bf-92a0-c7a0362479bf/co 🖉 🏠 | € © ⊕ | • |
| vm vSphere Client Menu v | Q Search in all environments C (?) ~ Administrator | @VSPHERE.LOCAL ~ | · |
| | Image: | | |
| 192.168.12.242 | Summary Monitor Configure Permissions VMs Datastores Networks Updates | | |
| ✓ In Datacenter ✓ In Cluster | storage Storage Adapters | | |
| 192.168.12.154 | Storage Adapters + Add Software Adapter 🗟 Refresh 🖏 Rescan Storage 💐 Rescan Adapter 🗙 | | |
| 192.168.12.172 | | Tar y Dev | T Pat |
| 192.168.12.205 | Host Cache Configuration Model: ISCSI Software Adapter | | |
| 🗗 swi | Protocol Endpoints C vmbba65 ISCSI Online Ign.1998-01.com.vmware:6040 | 0 0 | 0 |
| 🕞 VMware vCenter Server | V/O Filters Model: PIIX4 for 430TX/440BX/MX IDE Controller | | |
| | Networking V G vmhba1 Block S Unknown | 1 1 | 1 |
| | Virtual switches | | |
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| | TCP/IP configuration + Add × Remove Authentication Advanced | | |
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| | VM Startup/Shutdown 172:16:10:110:3260 | | |
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| | Default VM Compatibility | | |
| | Swap File Location | | |
| | System V | | |
| | Licensing | | 1 items |
| ecent Tasks Alarms | | | |

6. Click on the "Rescan" button to discover StarWind virtual disk.



| \rightarrow C \triangle https://192.168. | ohere - 192.168.12.205 - Virtu: × + | |
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| | | |
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| Datacenter | Storage 🗸 🗸 | Storage Adapters |
| ✓ ☐ Cluster ▲ 192.168.12.154 | Storage Adapters | 🕂 Add Software Adapter 🛛 🗟 Refresh 📲 Rescan Storage 🛛 🦉 Rescan Adapter 🛛 🗙 Remove |
| 192.168.12.172 | Storage Devices | Adapter y Type Y Status y Identifier y Tar y Dev y Pat |
| 192.168.12.205 | Host Cache Configuration | Model: ISCSI Software Adapter |
| 🗗 SW1 | Protocol Endpoints | C vmhba65 ISCSI Online Iqn.1998-01.com.vmware:6040 0 0 0 |
| 🕞 VMware vCenter Server | I/O Filters | Model: PIIX4 for 430TX/440BX/MX IDE Controller Symbol mobal Block S.,, Unknown 1 1 1 |
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7. Once scanned, the created StarWind LUNs appear on the "Storage Devices" submenu page.



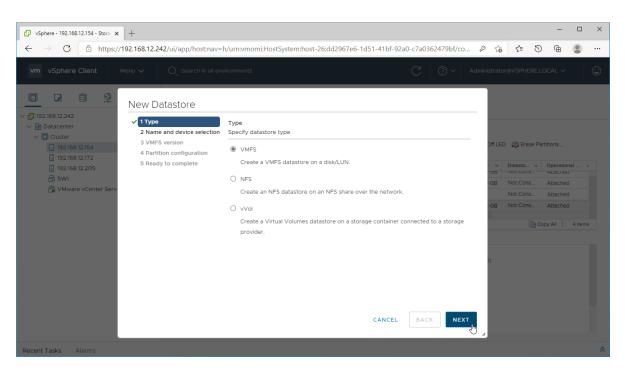
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| | VMkernel adapters Physical adapters TCP/IP configuration Virtual Machines | Properties Paths Partition Details General Name STARWIND ISCSI Disk (eui.717e59bbd42796a3) |
| | VM Startup/Shutdown Agent VM Settings Default VM Compatibility Swap File Location | Identifier eui.77/E95bbd42796a3 Type disk Location /vmfs/devices/disks/eui.717e59bbd42796a3 Capacity 20.00 GB Drive Type HDD Hardware Acceleration Supported Transport ISSI |
| | System V | Owner NMP Sector Format 512n |

8. Right-click on the ESXi server to open the "Actions" menu, click on "Storage" and click the "New datastore" button.

| vSphere - 192.168.12.154 | - Stora × + | | | | | | | | | | | × |
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| | 🚼 New vApp | | ~ | Storage Devices | | | | | | | | |
| | Maintenance Mode | e Adapters | | Refresh 🔂 Attach 🐼 | | | | Turn Off LE | D 🛛 🔊 Erase | Partitions | | |
| | Connection | e Devices | | 🖬 Mark as Flash Disk 🛛 🖳 Mar | | | | 0 | | | | |
| | Power | ache Configuration | | Name Local viviware Disk (mpx.vinnor | | L V | Туре ~ | Capacity ~ | Datasto | Operation Autourie | | |
| | Certificates | | | Local VMware Disk (mpx.vmhb | a0:C0:T0:L0) | 0 | disk | 10.00 GB | Not Cons | Attache | d | |
| 🕞 VMware vCe. | Storage | Pres 1 | ~ | Local NECVMWar CD-ROM (mp | x.vmhba1:C0:T0 | 0 | cdrom | | Not Cons | Attache | d | |
| - | 🔮 Add Networking | 🗒 Rescan Storage | ~ | STARWIND ISCSI Disk (eui.717e | 59bbd42796a3) | 0 | disk | 20.00 GB | Star | Attache | d | |
| - | Host Profiles | nel adapters | | Copy All 4 item | | | | | | | s | |
| | Export System Logs | al adapters configuration | | Properties Paths Partition | n Detalls | | | | | | | |
| | Reconfigure for vSpher | lachines | ~ | General Name | STARWIND ISC | | i.717e59bb | d42796a3) | | | | |
| | ₽ Assign License | artup/Shutdown | | Identifier Type | eui.717e59bbd4 disk | 2796a3 | | | | | | |
| | Settings | VM Settings | | Location Capacity | /vmfs/devices/ 20.00 GB | disks/eui.7 | 17e59bbd4 | 2796a3 | | | | |
| - | Move To | It VM Compatibility File Location | | Drive Type Hardware Acceleration | HDD Supported | | | | | | | |
| | Tags & Custom Attribut 🕨 | | ~ | Transport Owner | ISCSI NMP | | | | | | | |
| - | Remove from Inventory | ing | | Sector Format | 512n | | | | | | | |
| ecent Tasks Alarm | Add Permission | | | | | | | | | | | |

9. The Datastore creation wizard appears. Specify the Datastore type as VMFS.



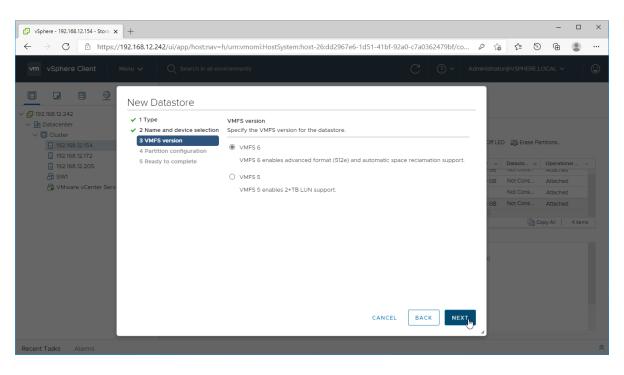


10. Specify the datastore name. Select the StarWind virtual disk.

| 🖓 vSphere - 192.168.12.154 - Stora 🗙 🚽 | F | | | | | | | | | - | × |
|--|---|---|----------------------|---|---------------------------------------|--------------------------------|----------|--------------------------------|----------------------|--|---|
| \leftrightarrow \rightarrow C $rightharpoonup definition definition of the definiti$ | .168.12.242/ui/app/host;nav=h | n/urn:vmomi:HostSystem:hc | st-26:dd2 | 967e6-1d51-4 | 1bf-92a0-c7a0 |)362479bf/co | Pi | ō ≦ | 9 | Ē | |
| | | | | | | | | | | | |
| | New Datastore | | | | | | Т | | | | |
| Z Le Datacenter | 1 Type 2 Name and device selection 3 VMFS version | Name and device selection Select a name and a disk/LUN Datastore name: StarWindDa | | oning the datast | tore. | | Off L | ED 🛷 Era | ise Partit | tions | |
| ☐ 192.168.12.172 ☐ 192.168.12.205 毌 SWI 础 VMware vCenter Serv | 4 Partition configuration 5 Ready to complete | | LUN × 0 0 0 | Capacity 20.00 GB 100.00 GB 10.00 GB | Hardware V Supported Not suppor | Drive T V HDD HDD HDD | GB GB | Datasto. Not Con Not Con | 15 / 15 / 15 / | Operation Attached Attached Attached Attached y All | |
| | | | | CA | NCEL BA | CK NEXT | m _ | | | | |
| cent Tasks Alarms | | | | | | | | | | | |

11. Specify the VMFS6 version for the datastore.



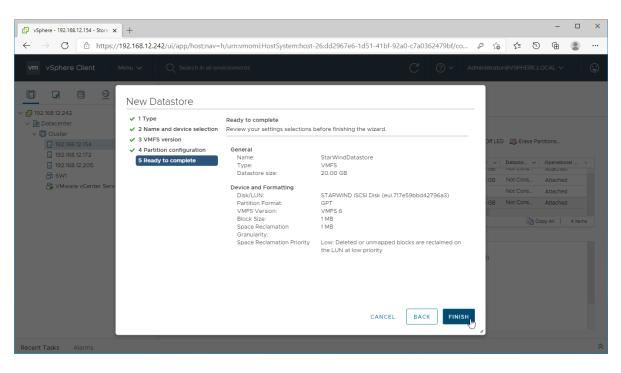


12. Specify the datastore size using the entire disk capacity.

| 🕑 vSphere - 192.168.12.154 - Stora 🗙 🕂 | | | | | | | | - 0 | × | |
|--|--|--|---|---------------|-------------|----------------------|------------|---------------------|-----|--|
| \leftarrow \rightarrow C $rac{D}$ https://192.168.12.242/ui/ | app/host;nav=h | n/urn:vmomi:HostSystem:host | -26:dd2967e6-1d51-41bf-92a0-c7a0 | 362479bf/co 🖉 | τô | €≡ | Ð | @ |) | |
| vm vSphere Client Menu ∨ O | Search in all env | ironments | C | ? v Admir | histrator | @VSPHE | RE.LOCA | LV | ٢ | |
| New Datas | tore | | | | | | | | | |
| ✓ 192.168.12.242 ✓ 1 Type ✓ Datacenter ✓ 2 Name and c | | Partition configuration Review the disk layout and spec | ify partition configuration details. | | | | | | | |
| ☐ 192.168.12.154 | 3 VMFS version 4 Partition configuration 5 Ready to complete | Partition Configuration | Use all available partitions | ~ | Off LED | i Eras | e Partitio | artitions | | |
| 192.168.12.205 5 Ready to co | | Datastore Size | 0 | 20 GB | GB Not Cons | | | erational tacnea | | |
| 🔓 SW1 🕆 VMware vCenter Serv | | Block size | 1 MB ~ | | | | Att | Attached | | |
| | | Space Reclamation Granularity | 1 MB v | | | GB Not Cons Attached | | | | |
| | | Space Reclamation Priority | | 0 | GB | | Att | | | |
| | | | Low: Deleted or unmapped blocks are r on the LUN at Low priority | reclaimed | | | Copy A | All 4 it | ems | |
| | | | on the convacion phoney | | | | | | | |
| | | | | _ | p | | | | | |
| | | | | | | | | | | |
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| | | | CANCEL | CK NEXT | | | | | | |
| | | | | | | | | | | |
| Recent Tasks Alarms | | | | | | | | | \$ | |

13. Review the configuration summary and click "Finish" to create the datastore.





14. Check the StarWind datastore in the Datastores tab.

| 🕑 vSphere - Datacenter - Datastore 🗙 🕂 | | | | - 0 | > |
|--|--|--|---------------------------|------------------|---|
| \leftarrow \rightarrow C | 42/ui/app/datacenter;nav=s/urn:vmomi:Datacenter:datac | enter-10:dd2967e6-1d51-41bf-92a0-c7a03 | | 9 🖻 🙎 | |
| vm vSphere Client Menu v | $Q_{\ }$ Search in all environments | C (| Administrator@VSPHERE | | C |
| □ □ □ ⊙ (□) 192.166.12.242 □ Datacenter | Datacenter ACTIONS ~ Summary Monitor Configure Permissions Datastores Datastore Clusters Datastore Folde | | Networks Updates | | |
| StarWindDatastore | | | ۲ | Filter | |
| | Name ↑ ✓ Status | ✓ Type ✓ Datastore Clu | Capacity | Free ~ | |
| | Datastore VN | ormal VMFS 6 | 499.75 GB | 3.11 GB | |
| | StarWindDatastore | ormal VMFS 6 | 19.75 GB | 18.34 GB | |
| | 6 | | e | Export 2 items | s |
| Recent Tasks Alarms | | | | | |
| ask Name v Target v Sta | tus 🗸 Details 🗸 Initiator | \checkmark Queued For \lor Start Time ↓ \lor | Completion Time V | Server | ` |
| rocess VMFS 192.168.12.172 V latastore updates | ' Completed System | 9 ms 03/04/2021, 7:42:53 AM | 03/04/2021, 7:42:54 AM | 192.168.12.242 | |
| Create VMFS | Completed VSPHERE.LOCALVA | 5 ms 03/04/2021, 7:42:45 | 03/04/2021, 7:42:53 | 192.168.12.242 | |
| | | | | | |

15. Repeat the configuration steps 6-13 to add newly created StarWind LUNs as datastores on your VMware vSphere cluster.



Connecting Starwind Virtual Disk To Hyper-V Servers

Enabling Multipath Support on Hyper-V Servers

1. Install the Multipath I/O feature by executing the following command in the PowerShell window:

```
dism /online /enable-feature:MultipathIo
```

2. Open MPIO Properties by executing the following command in the CMD window:

mpioctl

3. In the Discover Multi-Paths tab, select the Add support for iSCSI devices checkbox and click Add.



| MPIO Properti | es | | | × |
|---------------|------------------------|-------------|---------------|----------|
| MPIO Devices | Discover Multi-Paths | DSM Install | Configuration | Snapshot |
| SPC-3 comp | liant | | | |
| Device Ha | ardware Id | | | |
| | | | | |
| | | | | |
| Add sup | port for iSCSI devices | | | |
| Add sup | port for SAS devices | | | _ |
| | | | Add | |
| Others | | | | |
| Device Ha | ardware Id | | | |
| | | | | |
| | | | | |
| | | | Add | |
| | | | | |
| | | _ | | |
| | | | OK | Cancel |

4. When prompted to restart the server, click Yes to proceed.

5. Repeat the same procedure on the other compute server that will be connected to SAN & NAS appliance.

Provisioning StarWind SAN & NAS Storage to Hyper-V Server Hosts

1. Launch Microsoft iSCSI Initiator by executing the following command in the CMD window:

iscsicpl

2. Navigate to the Discovery tab.

3. Click the Discover Portal button. The Discover Target Portal dialog appears. Type the IP address assigned to iSCSI/Data interface, i.e. 172.16.10.100.



| Discover Target Portal | | | | | | | |
|--|---------------------------|--|--|--|--|--|--|
| Enter the IP address or DNS name and port number of the portal you want to add. | | | | | | | |
| To change the default settings of the discovery of the target portal, click the Advanced button. | | | | | | | |
| IP address or DNS name: 172.16.10.100 | Port: (Default is 3260.) | | | | | | |
| <u>A</u> dvanced | <u>O</u> K <u>C</u> ancel | | | | | | |

4. Click the Advanced button. Select Microsoft iSCSI Initiator as a Local adapter and as Initiator IP select the IP address of a network adapter connected to the Data\iSCSI virtual switch. Confirm the actions to complete the Target Portal discovery.



| Connect using | |
|---|---|
| - | |
| ocal adapter: | Microsoft iSCSI Initiator V |
| nitiator <u>I</u> P: | 172.16.10.10 \checkmark |
| [arget portal IP: | \sim |
| CRC / Checksum | |
| Data digest | <u>H</u> eader digest |
| CHAP Log on inform CHAP helps ensure co an initiator. To use, specify the sa nitiator. The name w | |
| THAP helps ensure co an initiator. To use, specify the sa nitiator. The name w specified. | nation onnection security by providing authentication between a target and ame name and CHAP secret that was configured on the target for this |
| CHAP Log on inform CHAP helps ensure co an initiator. To use, specify the sa | nation onnection security by providing authentication between a target and ame name and CHAP secret that was configured on the target for this vill default to the Initiator Name of the system unless another name is |

5. The target portals are added on this server.



| iSC | SI Initi | ator Proper | ties | ; | | | | | | | × |
|-----|----------|-----------------------------|------|--------------------------|-----------------|---------------------|------|----------------|--------------------|---------------|---|
| Та | rgets | Discovery | Fa | vorite Targets | Volur | mes and Devices | RADI | JS | Configura | tion | |
| | Targe | t portals — | | | | | | | | | |
| | | | ok f | or <u>T</u> argets on fo | ollowin | g portals: | | R | <u>e</u> fresh | | |
| | Addr | ess | | Port | Ada | apter | | IP | address | | |
| | 172. | 16.10.100 | | 3260 | Mic | rosoft iSCSI Initia | tor | 17 | 2.16.10.1 | 10 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | To ad | ld a target p | orta | al, click Discover | Porta | l. | D | scov | er <u>P</u> ortal. |] | |
| | | move a targ click Remove | | ortal, select the | e addre | ess above and | | Re | emove | | |
| | | | | | | | | | | | |
| | iSNS s | ervers | | | | | | | | | |
| | The s | ystem is reg | iste | red on the follo | wing <u>i</u> S | NS servers: | | R | e <u>f</u> resh | | |
| | Name | 2 | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | H :0NG | | | | | | ر ار ار ار | 6 | | |
| | | | | r, click Add Serv | | | | A <u>a</u> a : | Server | | |
| | | move an ISN click Remove | | erver, select the | e serve | er above and | | Re | e <u>m</u> ove | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | OK | Car | ncel | 4 | <u>A</u> pply | |

6. Click the Targets tab. The previously created targets (virtual disks) are listed in the Discovered Targets section.



| iSCSI Initi | ator Prope | ties | | | | × |
|----------------|-------------------------------|---|---|--------------|------------------|---|
| Targets | Discovery | Favorite Targets | Volumes and Devices | RADIUS | Configuration | |
| Quick C | onnect | | | | | |
| | |) on to a target usin arget and then click | g a basic connection, t Quick Connect. | ype the IP | address or | |
| <u>T</u> arget | : | | | Qu | uick Connect | |
| Discove | ered targets | | | | | |
| | | | | | <u>R</u> efresh | |
| Name | | | | | Status | |
| ign.20 | 08-08.com. | starwindsoftware:1 | 92.168.12.158:3261-s | w-virtual-di | isk Inactive | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| < | | | | | > | |
| | nect using a | dvanced options, se | elect a target and then | | Co <u>n</u> nect | |
| | pletely disco ick Disconne | onnect a target, sel ct. | ect the target and | | Disconnect | |
| | | es, including configu nd click Properties. | ration of sessions, | į | Properties | |
| | | f devices associated n click Devices. | d with a target, select | | De <u>v</u> ices | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | OK | Cancel | <u>A</u> pply | |

- 7. Select the target created in StarWind SAN & NAS web console and click Connect.
- 8. Enable checkboxes as shown in the image below. Click Advanced.



| Connect To Target | × |
|---|----|
| Target name: | |
| 18-08.com.starwindsoftware: 192.168.12.158:3261-sw-virtual-disk | |
| Add this connection to the list of Favorite Targets. This will make the system automatically attempt to restore the connection every time this computer restarts. | |
| Enable multi-path | |
| Advanced OK Canc | el |

9. Select Microsoft iSCSI Initiator in the Local adapter dropdown menu. In the Initiator IP field, select the IP address for the Data/iSCSI channel. In the Target portal IP, select the corresponding portal IP from the same subnet. Confirm the actions.



| ieral IPsec | | |
|--|--|---|
| Connect using | | |
| ocal adapter: | Microsoft iSCSI Initiator $\qquad \qquad \lor$ | |
| initiator <u>I</u> P: | 172.16.10.10 ~ | |
| Target portal IP: 172.16.10.100 / 3260 V | | |
| CRC / Checksum | | |
| Data digest | Header digest | |
| pecified. | - | _ |
| <u>√</u> ame: | iqn.1991-05.com.microsoft:ws2019 | |
| | | |
| larget <u>s</u> ecret: | | |

10. Repeat steps 1-9 for all remaining device targets.

11. Repeat steps 1-9 on the other compute servers, specifying corresponding Data/iSCSI channel IP addresses.

Connecting Disks to Servers

To initialize the connected iSCSI target disks and create the partitions on them use DISKPART.

1. Run diskpart in the CMD window:



List disk

Select disk X //where X is the number of the disk to be processed

Online disk

Clean

Attributes disk clear readonly

Convert GPT

Create Partition Primary

Format fs=ntfs label=X quick //where X is the name of the Volume

NOTE: It is recommended to initialize the disks as GPT.

| Administrator: C:\Windows\system32\cmd.exe - powershell | | | | | |
|--|--|--|--|--|--|
| Copyright (C) 1999-2013 Microsoft Corporation. On computer: HYPER-V-1 | | | | | |
| DISKPART> list disk | | | | | |
| Disk ### Status Size Free Dyn Gpt | | | | | |
| Disk 0 Online 100 GB 0 B * Disk 1 Offline 21 GB 21 GB Disk 2 Offline 1024 MB 1024 MB | | | | | |
| DISKPART> select disk 1 | | | | | |
| Disk 1 is now the selected disk. | | | | | |
| DISKPART> online disk | | | | | |
| DiskPart successfully onlined the selected disk. | | | | | |
| DISKPART> attributes disk clear readonly | | | | | |
| Disk attributes cleared successfully. | | | | | |
| DISKPART> convert GPT | | | | | |
| DiskPart successfully converted the selected disk to GPT format. | | | | | |
| DISKPART> Create Partition primary | | | | | |
| DiskPart succeeded in creating the specified partition. | | | | | |
| DISKPART> format fs=ntfs label=CSV1 quick | | | | | |
| 100 percent completed | | | | | |
| DiskPart successfully formatted the volume. | | | | | |
| DISKPART> | | | | | |



2. Perform the steps above on other compute servers.



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