

StarWind Virtual Storage Appliance

Installation Guide with Hyper-V

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TECHNICAL PAPER

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In 2016, Gartner named StarWind "Cool Vendor for Compute Platforms".

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About StarWind

StarWind is a pioneer in storage 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 document describes the deployment and configuration process of the StarWind Virtual Storage Appliance with Hyper-V.

StarWind Linux-based VSA is a good opportunity for users who don't want to change their current infrastructure to quickly deploy StarWind to test features and functionality. Right now we are releasing the new Linux version, compatible with all industry-standard hypervisors: Microsoft Hyper-V, VMware ESXi, Xen and KVM. It includes Web Management Console, so you can use any convenient HTML5-capable browser to check and configure your infrastructure.

Additionally, StarWind Virtual Storage Appliance incorporates StarWind vCenter plugin in order to make it even more convenient for VMware users. StarWind VSA is easy in deployment and management – a typical Linux administrator will easily install and maintain it.

A full set of up-to-date technical documentation can always be found here, or by pressing the Help button in the StarWind Management Console.

For any technical inquiries please visit our [online community](#), [Frequently Asked Questions](#) page, or use the [support form](#) to contact our technical support department.

Components

StarWind Virtual Storage Appliance

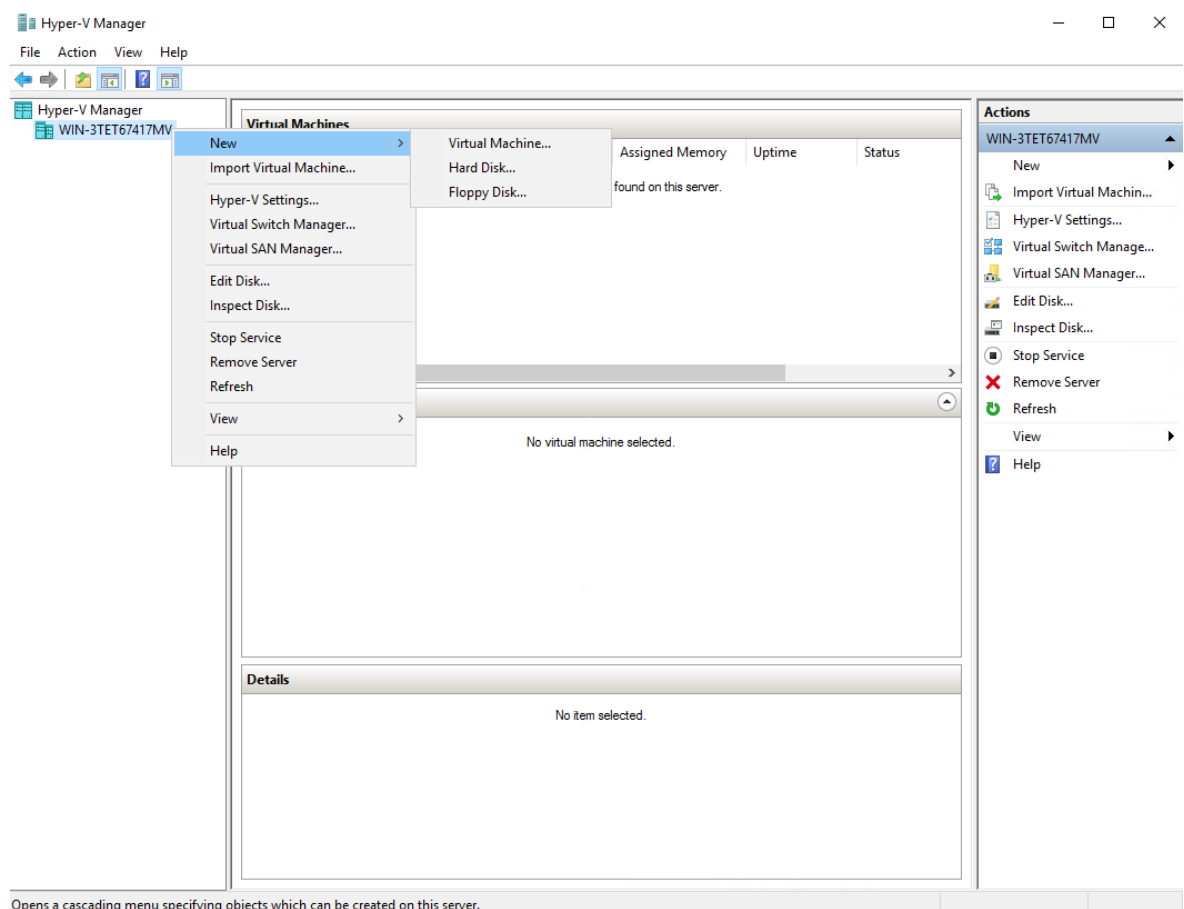
Linux virtual machine with StarWind Virtual SAN installed.

Virtual Machine requirements

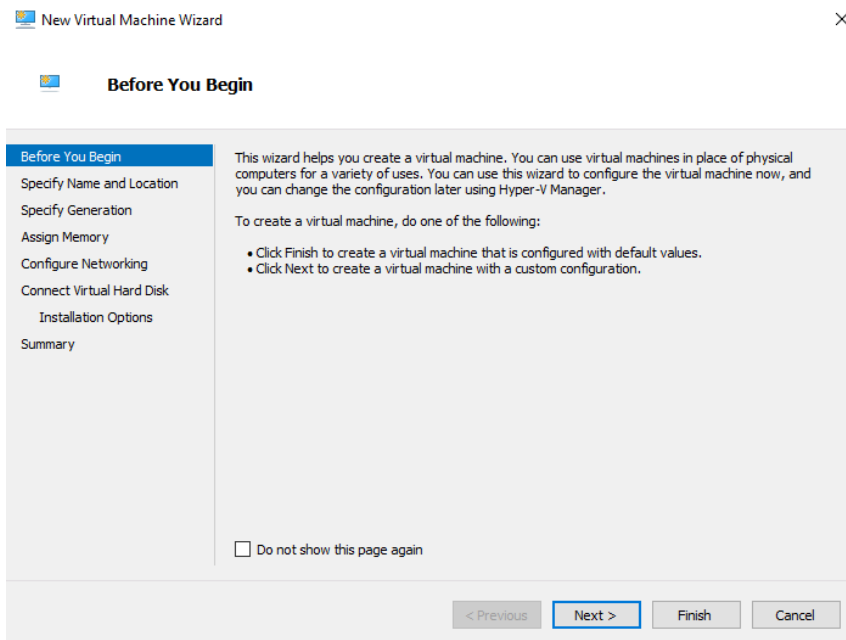
StarWind Virtual Storage Appliance VM requires having at least 4 virtual processors with 2 GHz reserved, at least 4 GB of RAM, 3 NIC ports dedicated as separate vSwitches for management, StarWind synchronization and iSCSI traffic to ensure the proper functioning of VSA.

Deployment quick steps

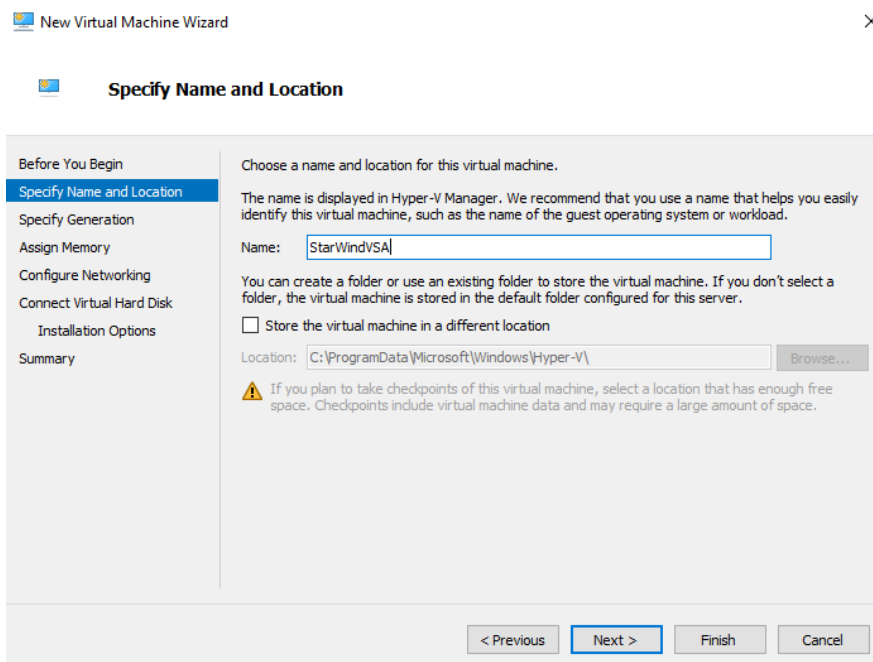
1. Download zip archive that contains [StarWind Virtual Storage Appliance for Hyper-V](#).
2. Extract virtual machine files.
3. Create New VM using Hyper-V manager.



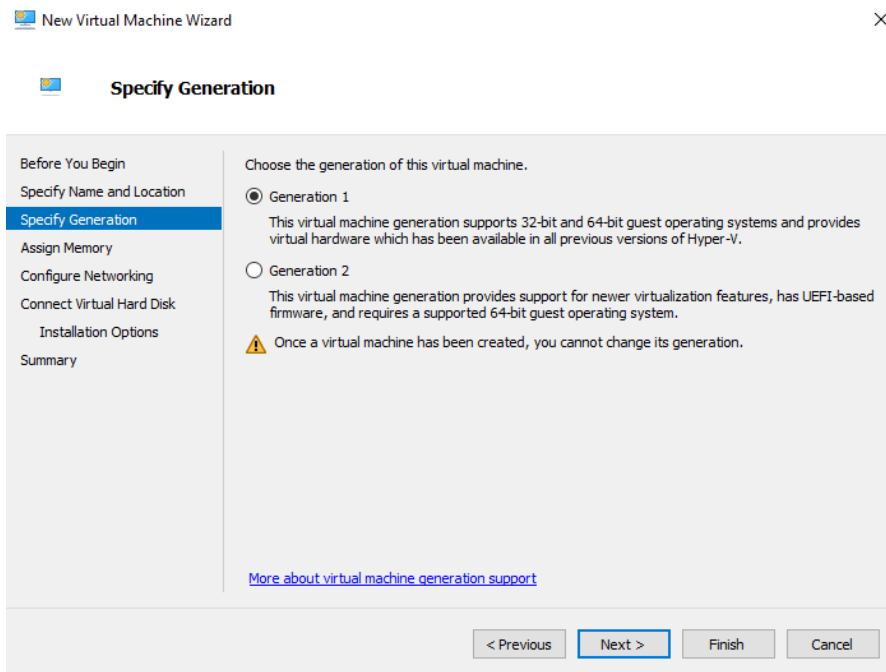
4. Click **Next** on the first page of the wizard.



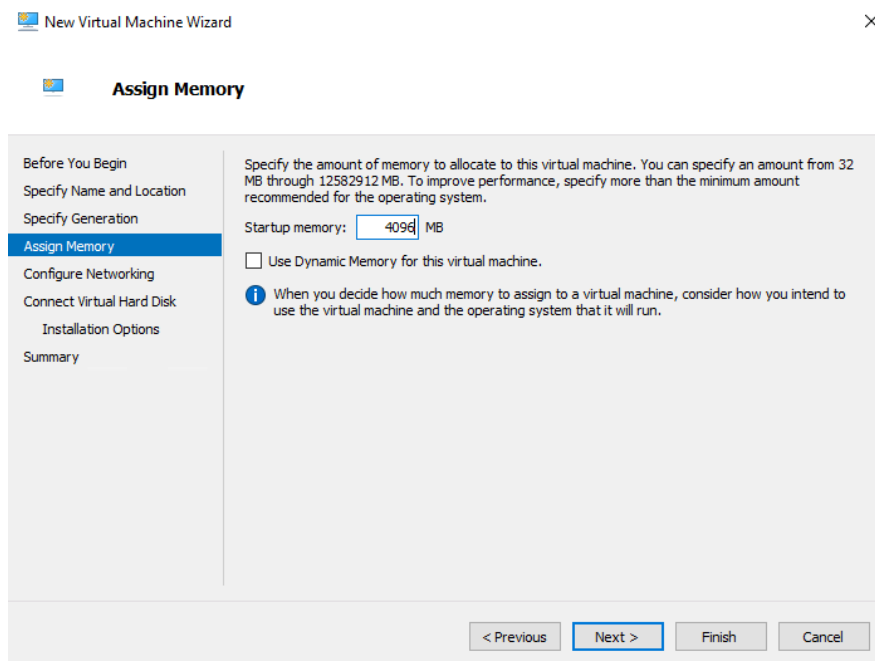
5. Specify Name and Location of the VM and click **Next**.



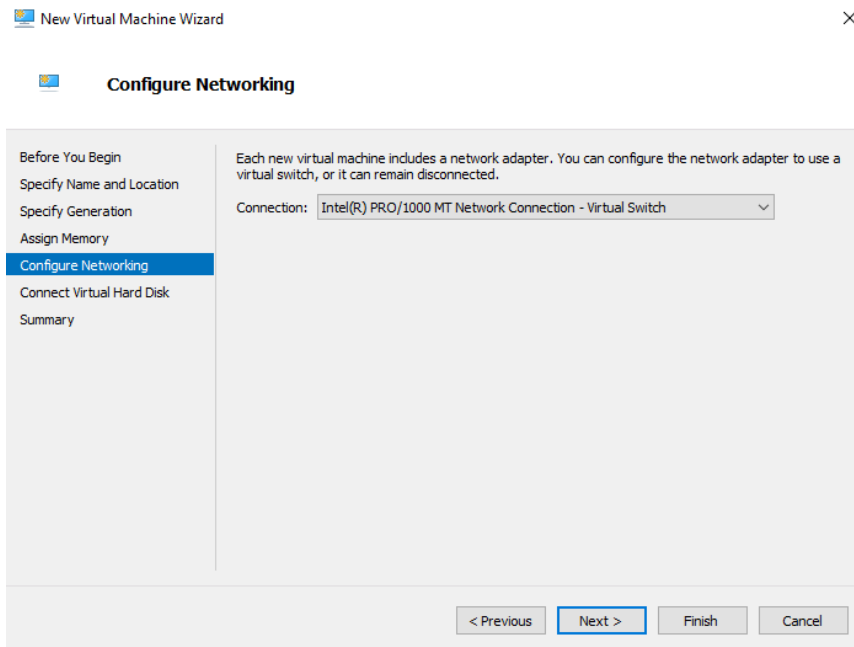
6. Choose **Generation 1** and click **Next**.



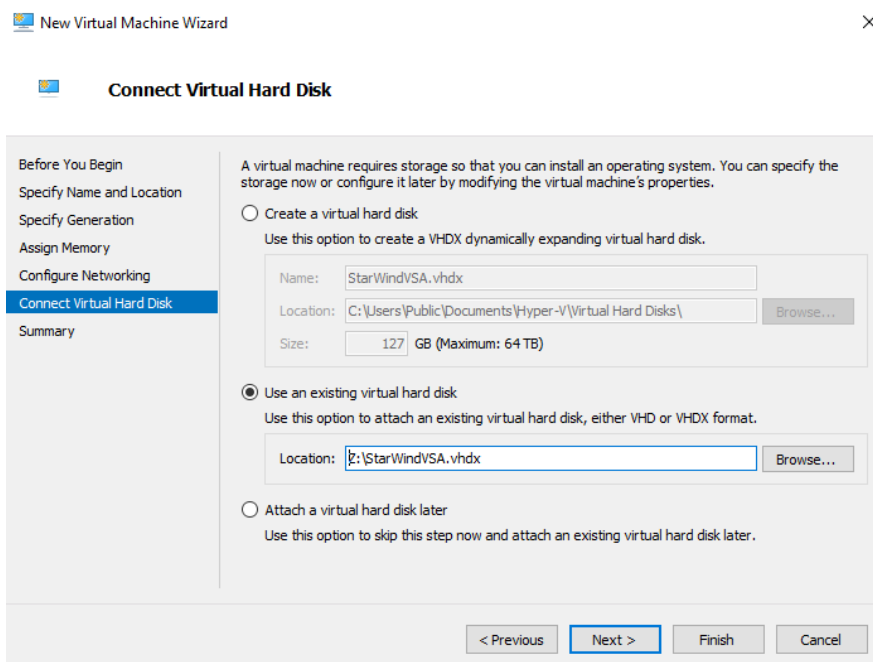
7. Specify the amount of RAM. We recommend to provision at least 4 GB. Click **Next**.



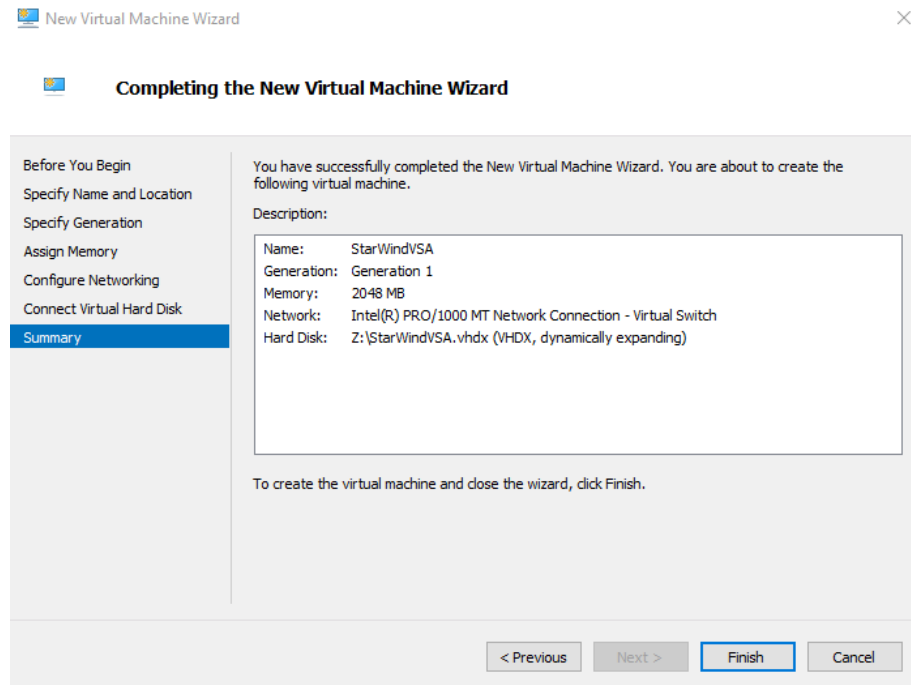
8. Select Management network and click **Next**.



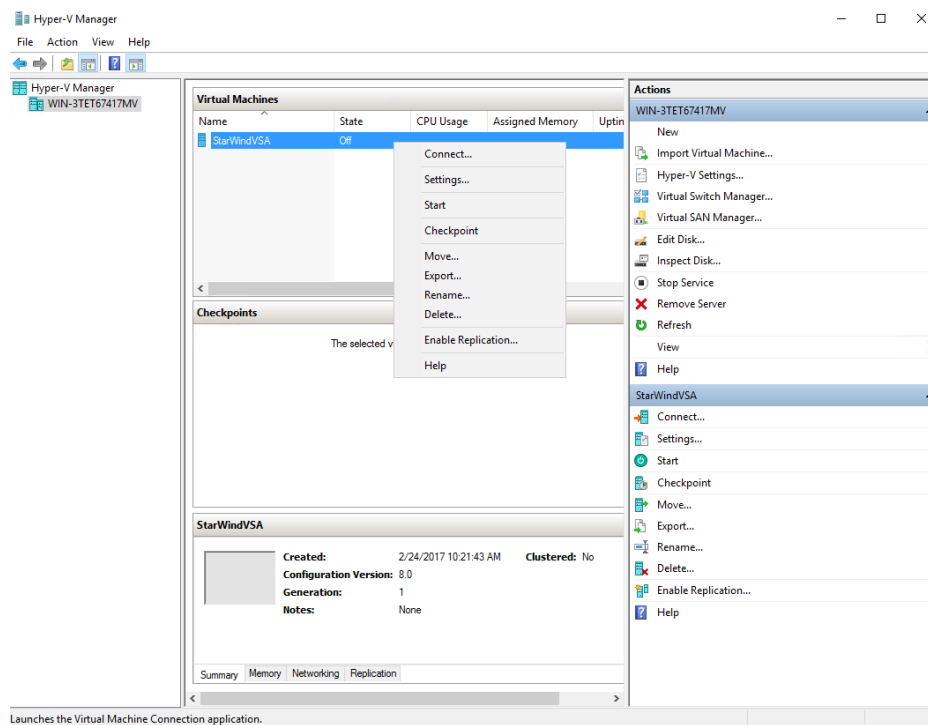
9. Select **Use an existing virtual hard disk** and specify the path to the StarWind VSA VHDX file. Click **Next**.



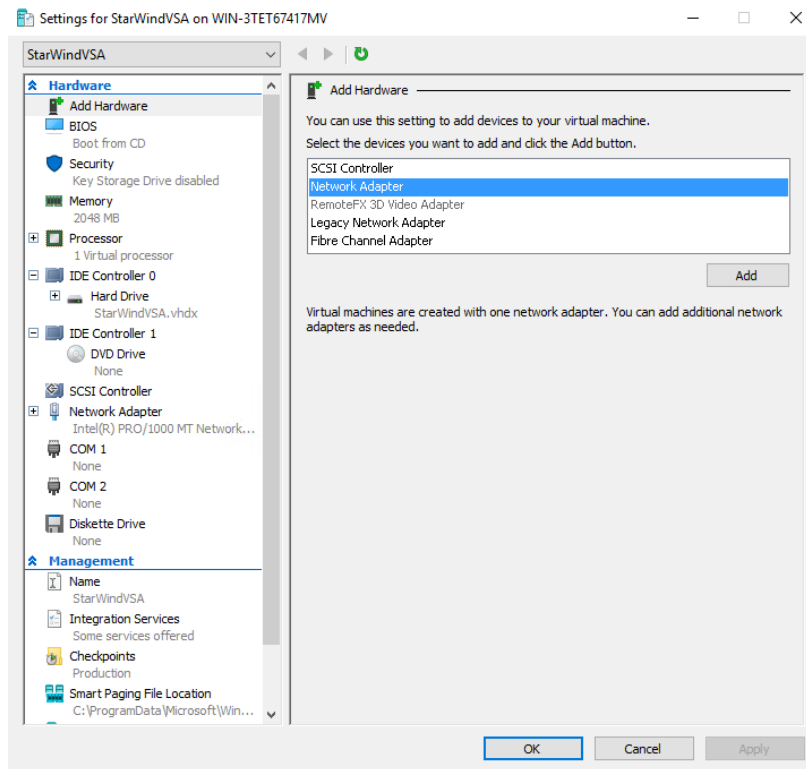
10. StarWind VSA VM has been successfully created. Click **Finish**.



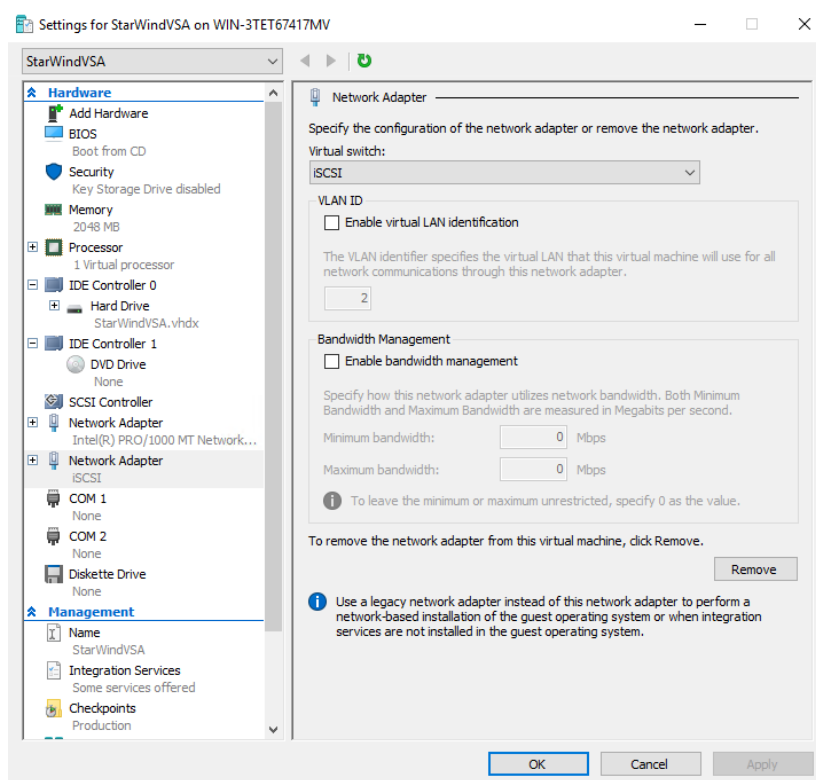
11. Right click on previously created VM and open **Settings** from the dropdown menu.

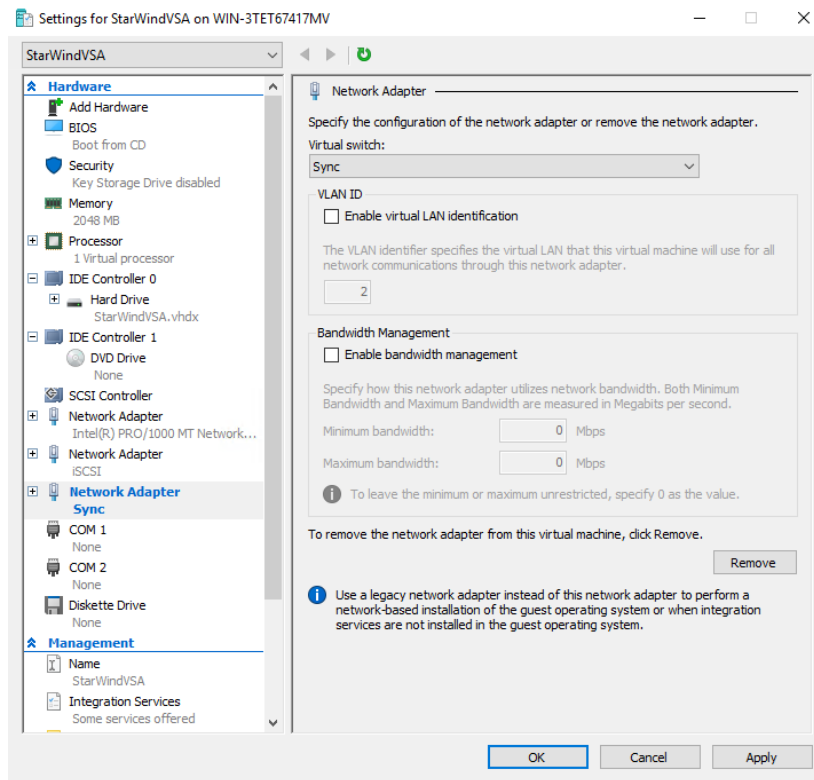


12. Click Add Hardware and select Network Adapter. Click Add.

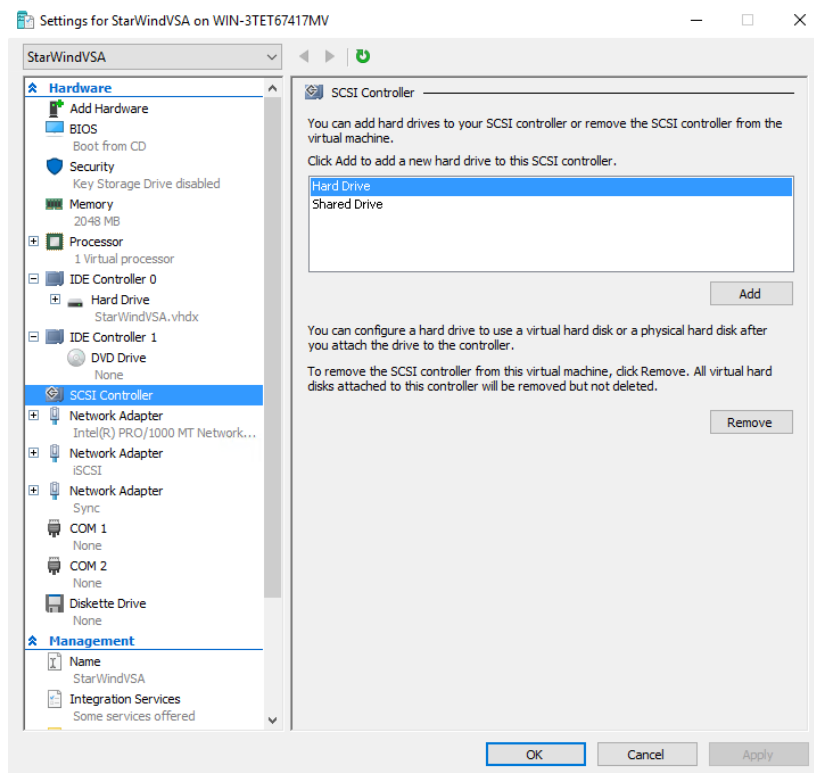


Add Network adapters for iSCSI and Synchronization purposes.

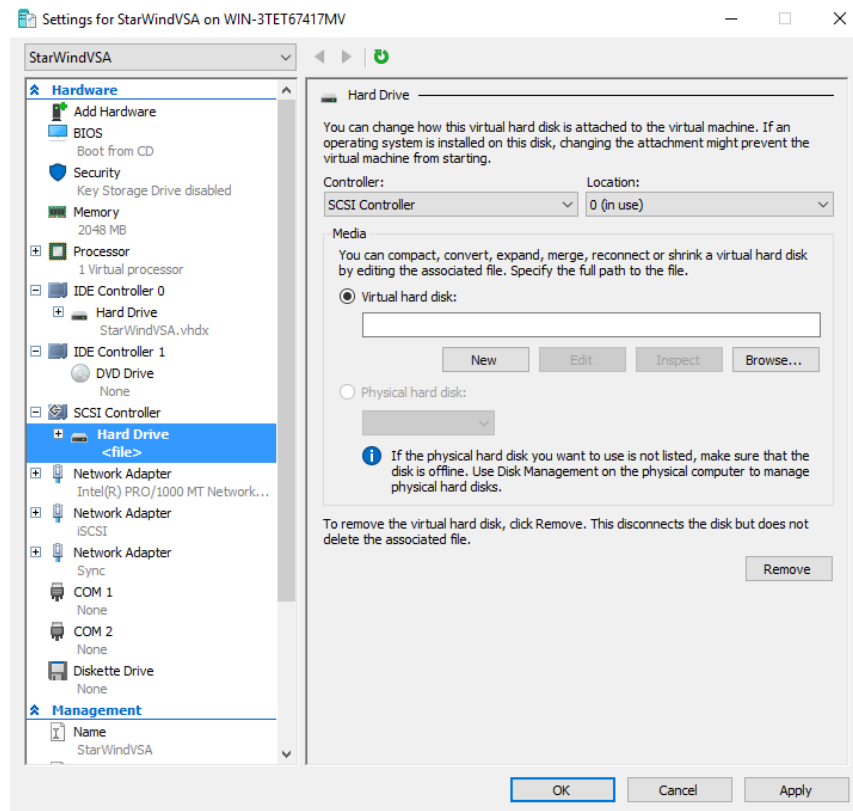




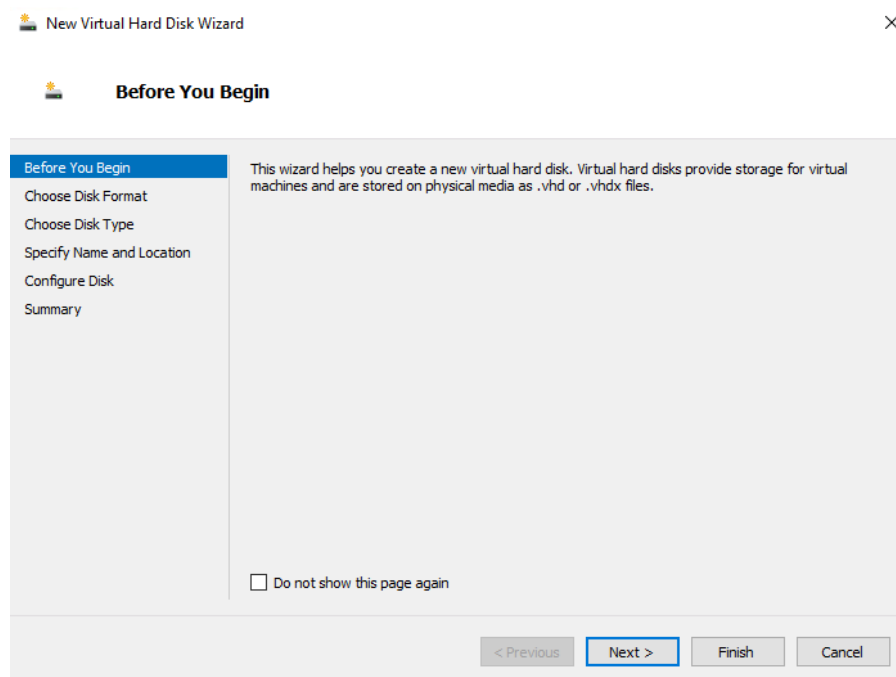
13. Click on **SCSI controller** in Settings window and add new **Hard Drive** via clicking on **Add** button.



Click **New**.



Click **Next** on the first page of the wizard.



Choose VHDX format of the Virtual Disk and click **Next**.

New Virtual Hard Disk Wizard

Choose Disk Format

Before You Begin
Choose Disk Format
Choose Disk Type
Specify Name and Location
Configure Disk
Summary

What format do you want to use for the virtual hard disk?

☐ VHD
Supports virtual hard disks up to 2,040 GB in size.

☒ VHDX
This format supports virtual disks up to 64 TB and is resilient to consistency issues that might occur from power failures. This format is not supported in operating systems earlier than Windows Server 2012.

< Previous **Next >** Finish Cancel

Choose Virtual Hard Disk Type. Click **Next**.

Note that disk size has to be **Fixed**.

New Virtual Hard Disk Wizard

Choose Disk Type

Before You Begin
Choose Disk Format
Choose Disk Type
Specify Name and Location
Configure Disk
Summary

What type of virtual hard disk do you want to create?

☒ Fixed size
This type of disk provides better performance and is recommended for servers running applications with high levels of disk activity. The virtual hard disk file that is created initially uses the size of the virtual hard disk and does not change when data is deleted or added.

☐ Dynamically expanding
This type of disk provides better use of physical storage space and is recommended for servers running applications that are not disk intensive. The virtual hard disk file that is created is small initially and changes as data is added.

☐ Differencing
This type of disk is associated in a parent-child relationship with another disk that you want to leave intact. You can make changes to the data or operating system without affecting the parent disk, so that you can revert the changes easily. All children must have the same virtual hard disk format as the parent (VHD or VHDX).

< Previous **Next >** Finish Cancel

Specify the **Name** and **Location** of the Virtual Hard Disk and click **Next**.

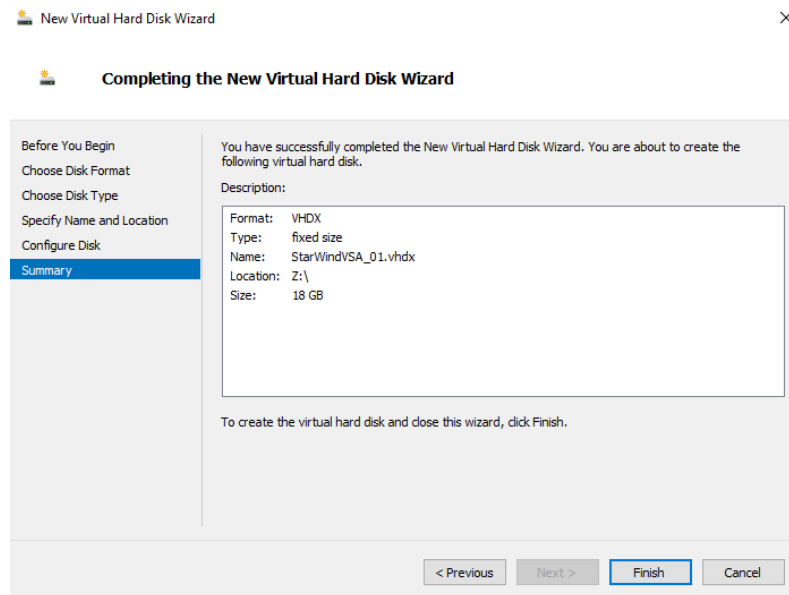
The screenshot shows the 'Specify Name and Location' step of the 'New Virtual Hard Disk Wizard'. The wizard has a sidebar with steps: 'Before You Begin', 'Choose Disk Format', 'Choose Disk Type', 'Specify Name and Location' (selected), 'Configure Disk', and 'Summary'. The main area contains the text 'Specify the name and location of the virtual hard disk file.' Below this, there are two input fields: 'Name:' with the value 'StarWindVSA_01.vhdx' and 'Location:' with the value 'Z:\'. A 'Browse...' button is next to the location field. At the bottom, there are four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.

Choose Create blank disk option. Specify the size of the Virtual Hard Disk.

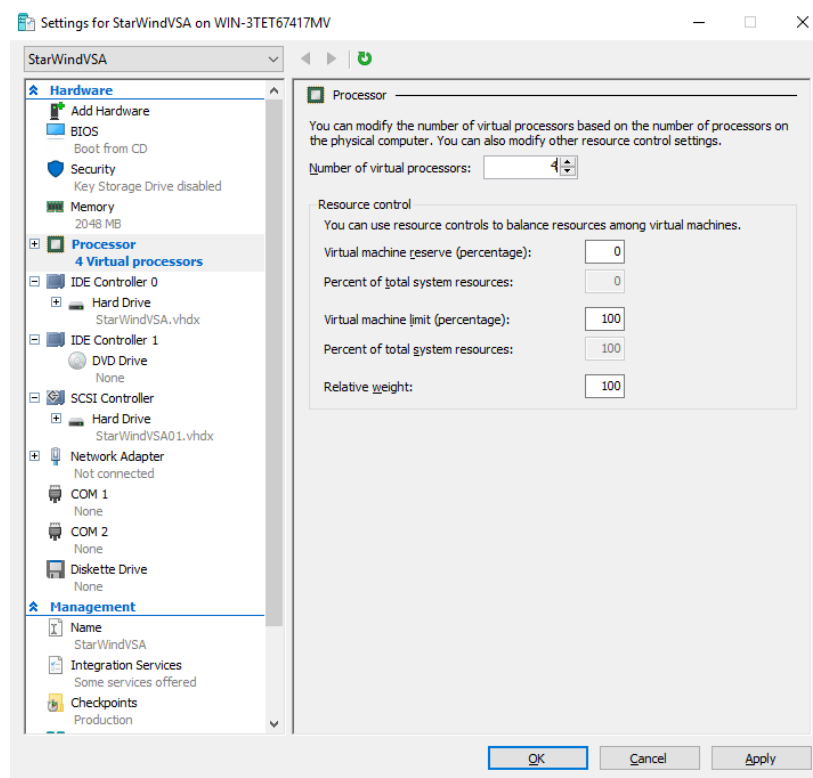
The screenshot shows the 'Configure Disk' step of the 'New Virtual Hard Disk Wizard'. The sidebar is the same as the previous step. The main area contains the text 'You can create a blank virtual hard disk or copy the contents of an existing physical disk.' There are three radio button options: 'Create a new blank virtual hard disk' (selected), 'Copy the contents of the specified physical disk:', and 'Copy the contents of the specified virtual hard disk:'. The first option has a 'Size:' field with the value '18' GB (Maximum: 64 TB). The second option has a table listing physical hard disks. The third option has a 'Path:' field and a 'Browse...' button. At the bottom, there are four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.

Physical Hard Disk	Size
\\.\PHYSICALDRIVE0	29 GB
\\.\PHYSICALDRIVE1	99 GB

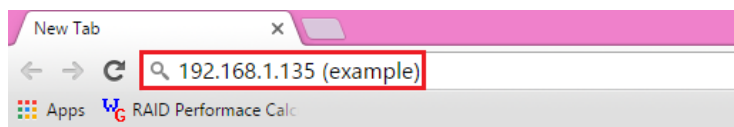
Complete the process by clicking the **Finish** button.



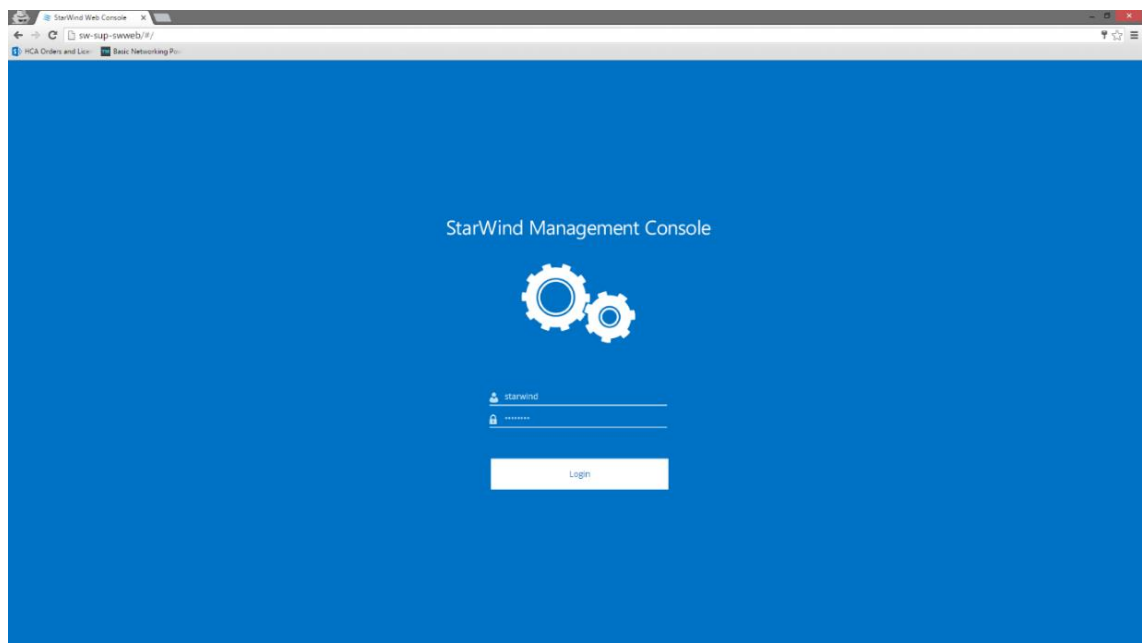
14. In the Settings window go to Processor menu and change the Number of Virtual Processors. Note that it is recommended to assign 4 Virtual Processors for StarWind Linux VSA.



15. By default, StarWind VSA virtual machine will receive IP address automatically via DHCP. It is recommended to create a DHCP reservation and set a static IP address for this VM. In order to access StarWind VSA from the local network, the virtual machine must have access to the network. In case you do not have a DHCP server, you can connect to the VM using VMware console and configure static IP address manually.
16. Now open web browser and enter the IP address of the VM.

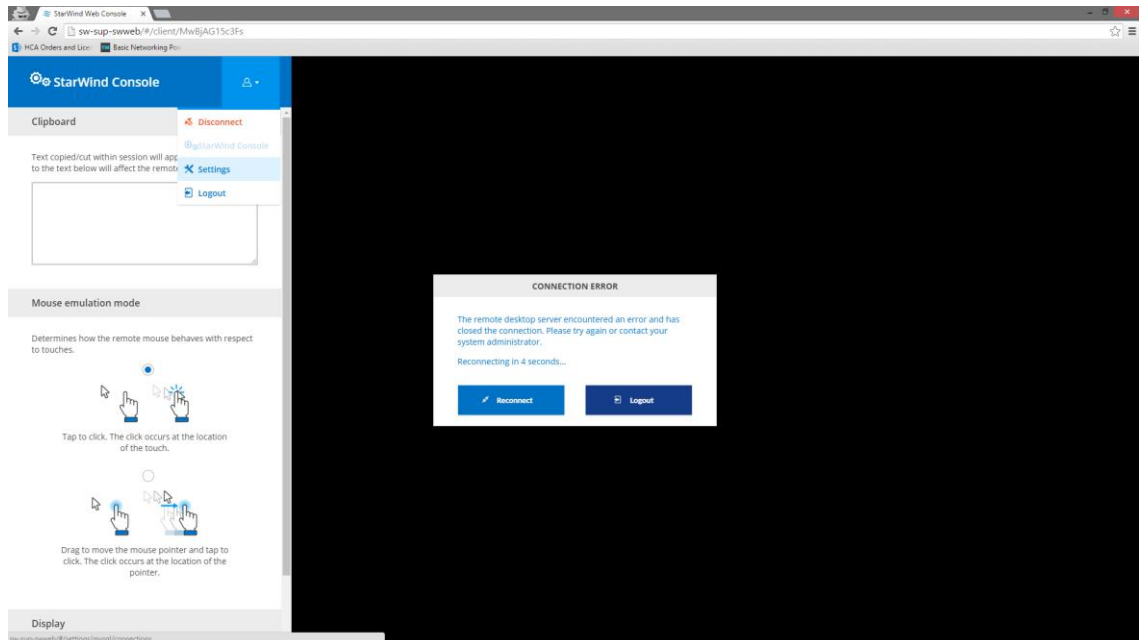


17. Log into StarWind Virtual Storage Appliance using default credentials:
Username: **starwind**
Password: **starwind**

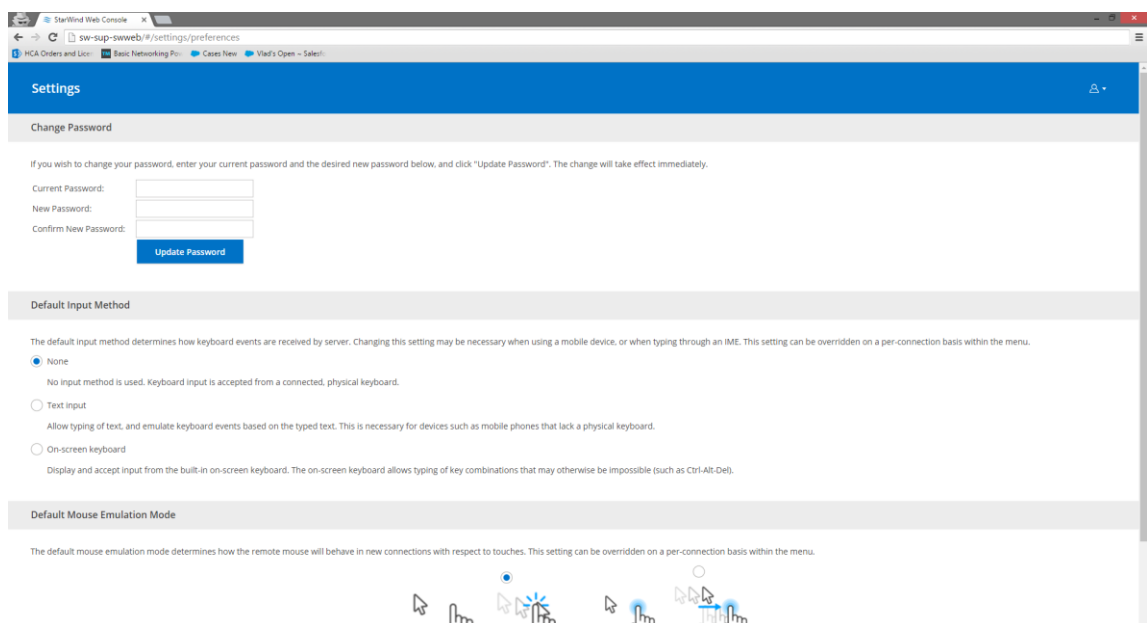


18. After successful login, press **ALT+CTRL+SHIFT** combination.

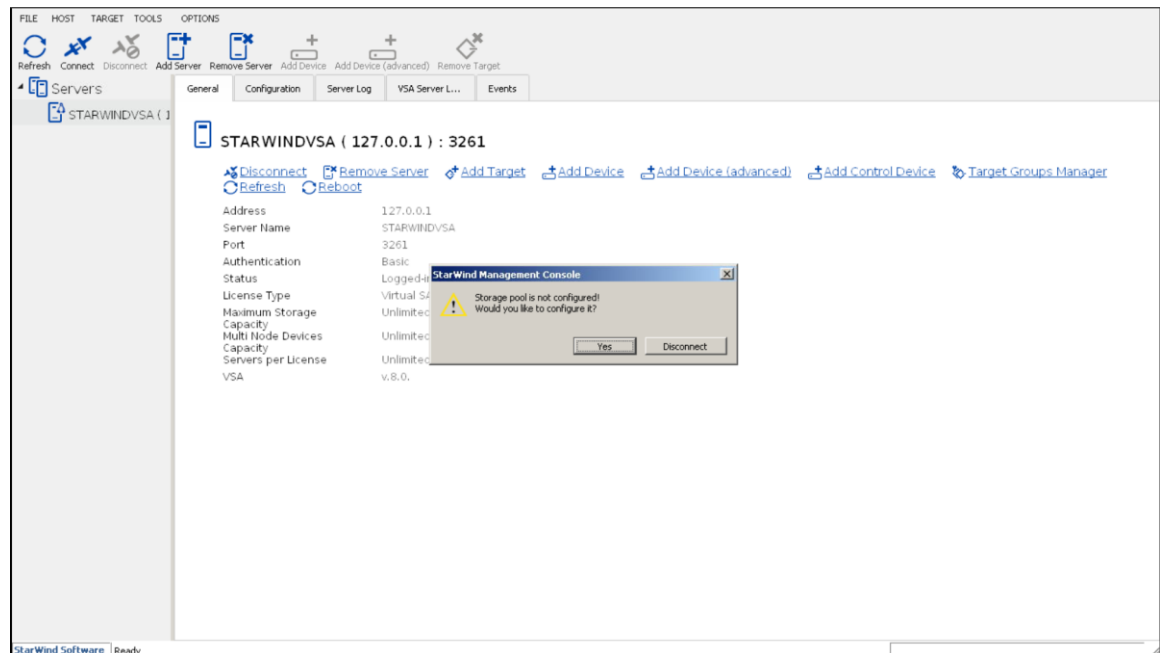
19. Navigate to **Settings** menu using pop-up sidebar:



20. For security reasons, please, change the default password using the corresponding option and press **Update Password** button:

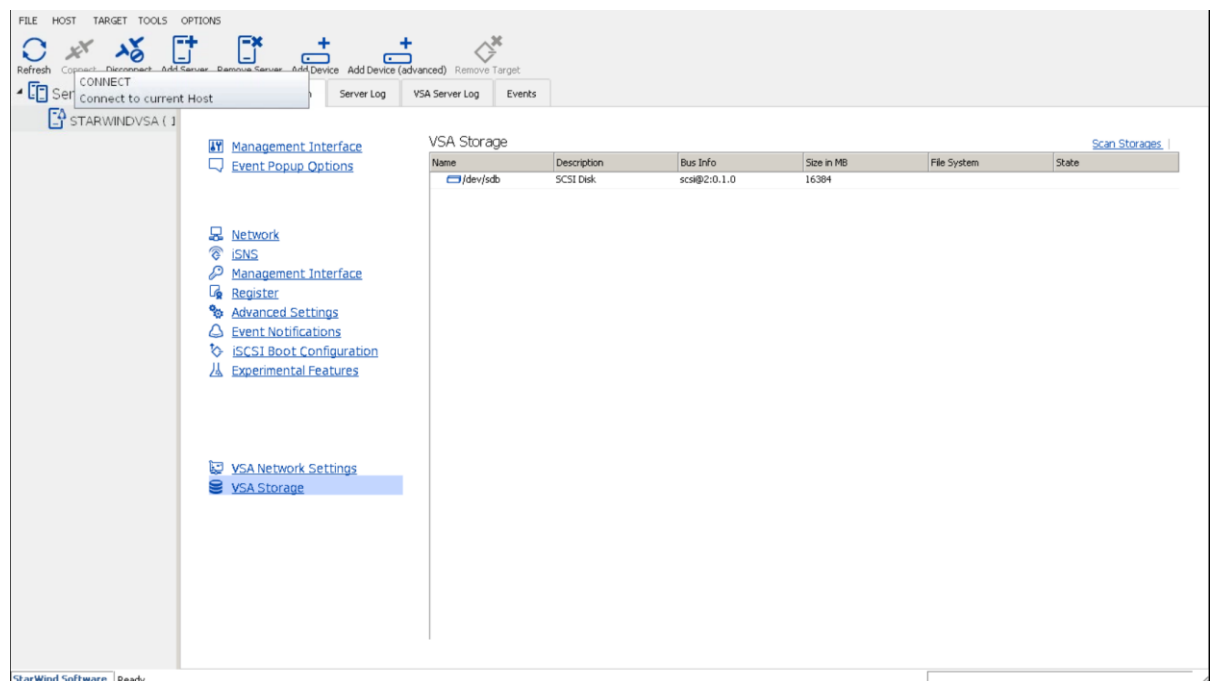


21. Connect to StarWind VSA via IP assigned to VM by DHCP.




Press X in the opened window.

22. Browse to **Configuration** tab and click **VSA Storage**





23. Click **Scan Storages** and you will see the recently attached Virtual Disk. Click **Create Volume**.

VSA Storage [Scan Storages](#)

Name	Description	Bus Info	Size in MB	File System	State
 /dev/sdb	SCSI Disk	scsi@2:0.1.0	16384		

Once the process is finished, you will see the created volume.

VSA Storage [Scan Storages](#)

Name	Description	Bus Info	Size in MB	File System	State
 /dev/sdb	SCSI Disk	scsi@2:0.1.0	16384		
 /dev/sdb1	EXT4 volume	scsi@2:0.1.0,1	15997	ext4	mounted

Default storage pool will be selected automatically. Click **Advanced settings**.

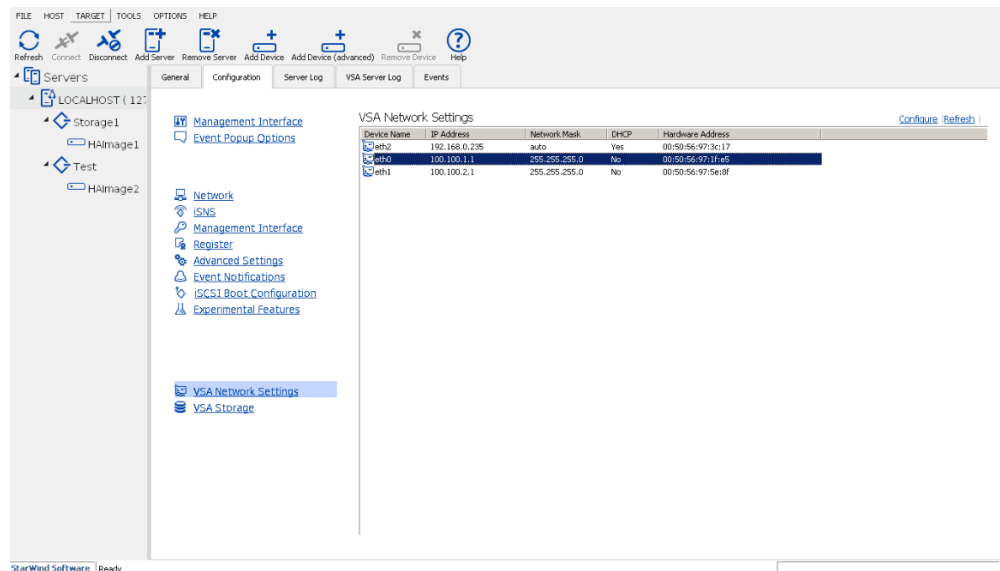
General Configuration Server Log VSA Server Log Events

- Management Interface
- Event Popup Options
- Network
- ISNS
- Management Interface
- Register
- Advanced Settings**
- Event Notifications
- iSCSI Boot Configuration
- Experimental Features
- VSA Network Settings
- VSA Storage

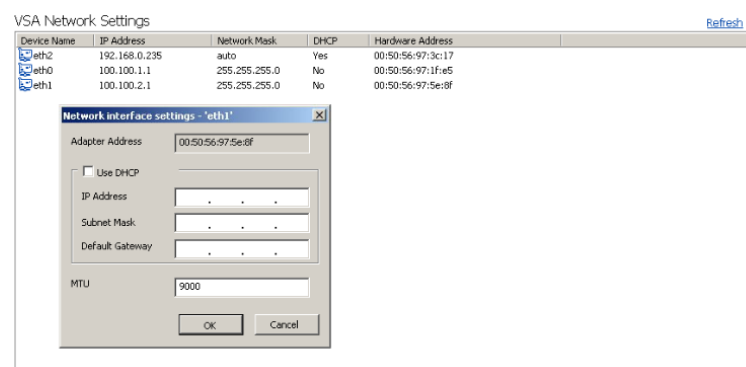
Advanced Settings [Modify](#)

COMMON	
Maximum pending Requests	256
Minimum Buffer Size	65536
TCP	
Keep Alive Period	5
iSCSI	
Initial R2T	0
Immediate Data	1
Default Time to Wait	0
First Burst Length	65536
Maximum Burst Length	262144
Maximum Receive Data Segment Length	65536
Strict iSCSI protocol parameters checking	Yes
LOG ROTATION	
Maximum File Size in MB	100
Log Rotate Period	0
Keep last	5
Log Level	1
FREE SPACE MONITOR	
Free Space Monitor Enabled	Yes
Generate Event on free Space Percent is less than	30 %
STORAGE POOL	
Path	My Computer\sdb1\

24. Click **VSA Network Settings**. Configure NICs for Management, iSCSI and Synchronization purposes.



25. Click **Configure** and assign configuration needed for each NIC.



26. Preconfiguration process is finished. You can now create StarWind devices and work with them.

For more information on how to work with StarWind devices, follow the link below:








<https://www.starwindsoftware.com/resource-library?type=tp>

You can find more information about deploying StarWind HyperConverged scenarios here:

<https://www.starwindsoftware.com/starwind-virtual-san-hyper-converged-2-nodes-scenario-2-nodes-with-hyper-v-cluster>

<https://www.starwindsoftware.com/starwind-virtual-san-hyper-converged-2-node-cluster-vmware-vsphere>

Contacts

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