

# System Requirements

To ensure the promised performance and stability, the systems running StarWind solutions must meet the minimum system requirements that are listed below:

## StarWind Virtual SAN (VSAN) for Hyper-V

<b>CPU</b>	Minimum one physical 1.7 GHz processor
<b>RAM</b>	4GB If using cache or Asynchronous Replication, an appropriate amount of RAM should be added
<b>Network</b>	Heartbeat failover strategy: 2x network interfaces (1xStarWind Synchronization and 1xiSCSI traffic/Heartbeat) + 1x network interface (Management/Heartbeat)  At least one Heartbeat interface must be on a separate network adapter and redundant  Node Majority failover strategy: 2x network interfaces (1xStarWind Synchronization and 1xiSCSI traffic) + 1x network interface (Management/Witness node)
<b>Network Bandwidth</b>	Synchronous Replication: Minimum 1 GbE or higher Latency requirements: <5 ms Asynchronous Replication: Minimum 100 MbE or higher. The data link must be capable to transmit the replicated amount of data within the desired backup window
<b>OS</b>	Supported Windows Server version: 2012 or later
<b>Storage</b>	3 GB disk space reserved for installation and logging. The StarWind virtual disks must reside on the separate partition from the StarWind installation disk Hardware RAID controller is <a href="#">highly recommended</a> Microsoft Storage Spaces is supported <a href="#">Asynchronous Replication</a> : The storage with replication journals on the primary server should have higher or equal write performance in comparison with the production storage array (on 100% sequential write with 8MB block size). The space reserved for the journal disk must exceed the amount of data written to the production storage array within the time frame between snapshots plus extra 25%

Software RAID implementations are NOT supported. For recommended RAID settings, please, read the [KB article](#).

**IMPORTANT NOTE:** Server with LFSFS devices and Data Recovery (DR) server (in case of Asynchronous Replication) should fit the [LSFS device requirements](#).

## StarWind Virtual SAN (VSAN) for vSphere

<b>CPU</b>	Minimum 4 virtual 1.7 GHz processors reserved
<b>RAM</b>	4GB If using cache, an appropriate amount of RAM should be assigned
<b>Network</b>	Heartbeat failover strategy: 2x network interfaces (1xStarWind Synchronization and 1xiSCSI traffic/Heartbeat) + 1x network interface (Management/Heartbeat) At least one Heartbeat interface must be on a separate network adapter and redundant Node Majority failover strategy: 2x network interfaces (1xStarWind Synchronization and 1xiSCSI traffic) + 1x network interface (Management/Witness node)
<b>Network Bandwidth</b>	Synchronous Replication: Minimum 1 GbE or higher Latency requirements: <5 ms
<b>Hypervisor</b>	Supported vSphere version: 5.5 or later
<b>Storage</b>	20 GB Virtual Disk reserved for OS. The StarWind virtual disks must reside on the separate partition from the StarWind installation disk All Virtual Disks must be Thick Provision Eager Zeroed or the entire HBA/RAID controller must be passed through to the Virtual Machine

For recommended RAID settings, please, read the [KB article](#).

## StarWind SAN & NAS

<b>CPU</b>	Minimum 4 virtual 1.7 GHz processors reserved If using ZFS pools, 8 virtual 1.7 GHz processors reserved
<b>RAM</b>	4GB If using cache, an appropriate amount of RAM should be assigned If using ZFS pools, at least 16GB of RAM should be assigned
<b>Network</b>	2x network interfaces (1xManagement and 1xiSCSI/Data traffic) At least one Heartbeat interface must be on a separate network adapter and redundant
<b>Network Bandwidth</b>	iSCSI/Data traffic: Minimum 1 GbE or higher Latency requirements: <5 ms
<b>Hypervisor</b>	Supported VMware vSphere Hypervisor ESXi version: 6.5 or later
<b>Storage</b>	<ul style="list-style-type: none"> <li>&gt; 20 GB Virtual Disk reserved for OS. The StarWind virtual disks must reside on a partition that is separate from the StarWind installation disk.</li> <li>&gt; All Virtual Disks are recommended to be Thick Provision Eager Zeroed or the entire HBA/RAID controller must be passed through to the Virtual Machine.</li> <li>&gt; Supported direct-attached storage configurations:                         <ul style="list-style-type: none"> <li>&gt; Passthrough Hardware RAID Controller</li> <li>&gt; Passthrough Host Bus Adapter</li> <li>&gt; Attach VMDK disks based on top of Datastore</li> <li>&gt; Attach Physical disks via RDM</li> </ul> </li> </ul>

For recommended RAID settings, please, read the [KB article](#)

## StarWind Virtual Tape Library (VTL)

<b>CPU</b>	Minimum one 1.7 GHz processor
<b>RAM</b>	4GB
<b>Network</b>	1 NIC interface (VTL traffic) + 1 NIC (Management)
<b>Network Bandwidth</b>	Minimum 100 MbE or higher Latency requirements: 100 ms or less
<b>Hypervisor</b>	Supported Windows Server version: 2012 or later
<b>Storage</b>	3 GB disk space reserved for installation and logging. The StarWind virtual disks must reside on the separate partition from StarWind installation disk
<b>Supported Backup</b>	Acronis Backup (10 – 12.5), ArcServe Backup (11.5 – 17), ArcServe UDP (5.x – 7.0), Bacula (9.2.0 – 9.6.6), Commvault (9.0 – 11.20), EMC AVAMAR (via ADMe) (6.1 – 7.5), EMC NetWorker (7.6 – 19.2), IBM TSM & Spectrum Protect (6.2.2 – 8.1.11), HP DataProtector (7.x – 9.0), Microsoft DPM* (2012 – 2019), Unitrends (9.1 – 10), Veeam Backup & Replication (9.0 – 11.0), Veritas/Symantec BackupExec (12.x – 20.6), Veritas/Symantec NetBackup (6.x – 8.3), Quest NetVault Backup (12.x – 13.x)

\*Microsoft DPM 2016 may require additional tweaks due known connection stability issues with LTO Tape Libraries.

Software RAID implementations are NOT supported. For recommended RAID settings, please, read the [KB article](#).

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

## StarWind Management Console

<b>CPU</b>	Minimum one 1 GHz processor
<b>RAM</b>	256MB
<b>Network</b>	1 NIC interface
<b>Network Bandwidth</b>	Minimum 100 MbE or higher
<b>Supported OS</b>	Server OS: Microsoft Windows Server 2008 R2; 2012; 2012 R2; 2016; 2019; 2022 Desktop OS: Windows 7; 8; 8.1; 10
<b>Storage</b>	256 MB disk space reserved for installation and logging

**IMPORTANT NOTE:** Windows Server Core or Microsoft Hyper-V Server as a base OS is incompatible with the StarWind Management Console local installation. In this case, StarWind Management Console should be installed on any other computer. Please note that for remote management with default settings, port 3261 must be open.

## Contacts



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