

# System Requirements

## CPU: Intel Xeon E5620 (or higher), or equivalent AMD Opteron

With 75% of server workloads being virtualized, virtualization is just getting started. VDI and SMB clouds have just started to emerge and will grow rapidly in the next few years. As IT is moving forward at an ever increasing pace, datacenters are becoming hyper-converged.

The minimum recommended CPU is Intel Xeon E5620 or equivalent. Intel Xeon X5660 or equivalent can be used in order to maximize performance.

**Important notice:** A multi-core CPU with low frequency cores is preferred compared to one with higher core frequency but fewer cores/sockets. E.g. having a six core Intel Xeon 5660 with 2.8 GHz per core is better than having a four core Intel Xeon 5667 with 3.02 GHz per core.

## RAM: 4GB Minimum

4GB is the minimum RAM amount that should be installed on a server that is running StarWind Virtual SAN. If implementing StarWind High-Speed caching, an appropriate RAM amount should be installed additionally. The cache-dedicated RAM amount should be equal or higher than one reserved for iSCSI targets caching.

In-line deduplication with LSFS requires 3.5 GB of RAM per 1 TB of deduplicated storage.

**Important notice:** Always reserve at least 4 GB RAM for Windows internal processes and the StarWind Virtual SAN engine.

## Storage recommendations

It is required to have at least 2 GB of disk space for StarWind installation and logging. The StarWind virtual disks must reside on the separate partition from StarWind installation.

The RAID array type depends on your required storage performance. An SAS/SSD based RAID10 should be used in order to get the maximum storage performance with minimal Seek Time. RAID 50/RAID60 can be used for linear access purposes. Use of SAS/SATA based RAID 5/RAID 6 and their generics for Tier 1 storage is recommended only with StarWind LSFS. Please consult your hardware vendor for more detailed information on available RAID arrays and their performance.

Advanced format support: Both AF and non-AF disks are supported.

**Important notice:** Please note that the use of software based RAID arrays in the StarWind Virtual SAN environment is not recommended.

**Important notice:** The Log-Structured File System StarWind Virtual SAN device requires having 3 time more usable disk space capacity from the original device size. For example: 1 TB LSFS device requires having 3TB of the disk space on the server.

## Network: 1 GbE minimum

Minimal recommended bandwidth is 1 GbE. In case of an intensive workload consider scaling to a 10 GbE or 40 GbE infrastructure. It is highly recommended to use 9K Jumbo frame capable network equipment in order to maximize the SAN environment performance.

The HA synchronization channel has a prerequisite of both NIC and switch (if used) fault tolerance measures. Use of STP (Shielded twisted pair) CAT6 (or higher) cable is a prerequisite for the synchronization channel for both crossover and server-switch connections.

Use of STP cables is recommended for all 1 GbE links within the Storage Area Network in order to avoid any possible electronic interference from power lines or wireless connections; Unshielded Twisted Pair (UTP) is also supported.

Maximum synchronization channel latency should not exceed:

- HA SANs are located in different buildings/datacenters – 5 ms
- HA SANs are located in one building/datacenter – 2 ms

Link latency higher than 5 ms may lead to HA performance degradation.

## Recommended Operating Systems: Windows Server 2012 R2

StarWind Software recommends using the latest Server-class Windows Operating Systems. StarWind supports all Windows Operating Systems from Windows Server 2008 R2 to Windows Server 2012 R2, including Server Core editions and free Microsoft Hyper-V Server. StarWind is not supported installation on Windows Storage server or Web server editions.

StarWind requires identical operating systems installed on all the storage nodes including service packs to be supported in production environment.

**Please note:** if you are planning to use Windows Server Core or Microsoft Hyper-V Server as a base OS you will not be able to install StarWind Management Console locally. In this case, the StarWind Management console can be installed on any other computer. The StarWind management console runs

on any OS from Windows XP to Windows 8. Please note that for remote management, port 3261 has to be open in both machine's firewalls.

**Important notice:** StarWind Virtual SAN itself does not provide hypervisor specific VM migration features. These features are delivered with select hypervisor Editions. Please refer to your hypervisor licensing guide for more information.

For specific recommendations please [contact us](#).

## System requirements if StarWind is deployed as the virtual machine:

### Number of virtual processors

It is required to have at least 4 virtual processors with 2 GHz reserved to ensure the proper functioning of VSA. Network Settings It is required to have at least 2 NIC ports dedicated as separate vSwitches for StarWind synchronization and backup iSCSI traffic. Minimal recommended bandwidth is 1 GbE. In case of an intensive workload consider scaling to a 10 GbE or 40 GbE infrastructure. Supported vSphere version: 5.x

For specific recommendations please [contact us](#).

### Asynchronous replication

**RAM.** Primary storage system must have 128 MB of RAM additionally to what is used or planned to be used for primary storage workload handling. Disaster recovery location must be equipped with additional 1GB of RAM. Please note that this requirement mentions only StarWind-related RAM expenses. OS, hypervisor, and other application memory should be sized separately.

**Bandwidth.** The minimal required throughput is 1 Mbps. It is recommended to use the data link that is physically capable of transmitting the replicated amount of data within the desired backup window time.

**Physical Storage Consideration.** The performance of the disk which stores the replication journal on the primary node, benchmarked/measured using 8MB block size 100% sequential write must be greater or equal than the maximum write throughput of the production storage array. Journal disk free space reserve must be greater than the amount of data written to the production storage array within the time frame between the snapshots, plus additional 25%.