

# Quick Start Guide: Creating HA Device with **StarWind Virtual SAN®**

August 2017

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 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 technical paper describes how to create an HA device with **StarWind Virtual SAN™**. This virtualization software improves the performance and fault tolerance of your storage architecture. It eliminates the need for physical shared storage since StarWind mirrors the internal resources between the servers. Once StarWind iSCSI targets are connected to all cluster nodes, the HA devices are treated as local storage by both hypervisors and clustered applications. Fault tolerance is achieved by providing the multipath access to all storage nodes. Configuring **StarWind Virtual SAN** not only simplifies management and operation of a storage infrastructure but also boosts its performance with no dedicated storage hardware or proprietary equipment required.

This guide is intended for experienced Windows system administrators and IT professionals who would like to configure the **StarWind Virtual SAN** solution. This document provides detailed instructions on how to create a minimal 2-node shared storage configuration with high availability using **StarWind Virtual SAN** that runs on top of Windows Server 2012 R2.

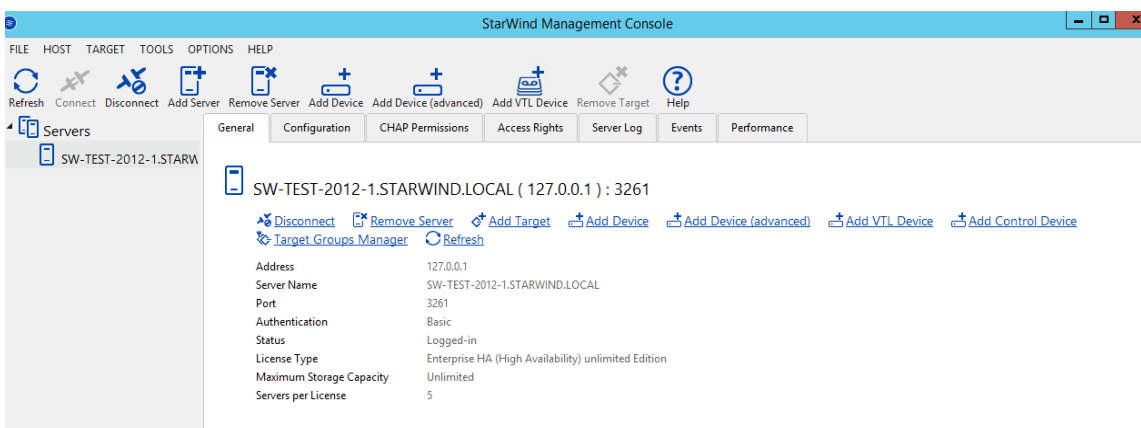
A full set of up-to-date technical documentation can always be found [here](#), or by clicking the Help button in the StarWind Management Console.

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

## Creating Shared Storage

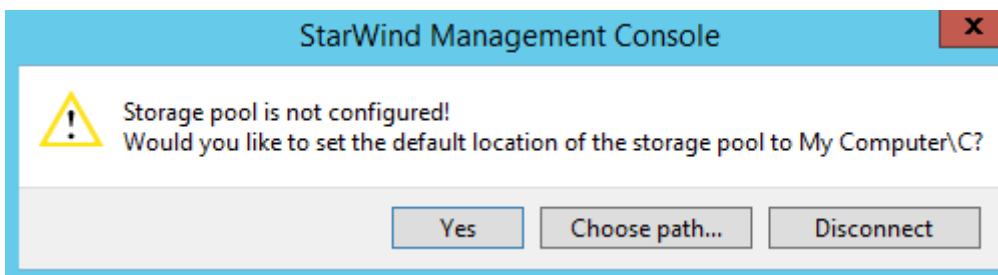
1. Launch the **StarWind Management Console**: double-click the StarWind tray icon.

**NOTE: StarWind Management Console** cannot be installed on a GUI-less OS. You can install the Console on any GUI-enabled Windows editions, including a desktop version of Windows.



If **StarWind Service** and **Management Console** are installed on the same server, the **Management Console** automatically adds the local StarWind instance to the Console tree after the first launch. Then, the **Management Console** automatically connects to the StarWind Service using the default credentials. To add remote StarWind servers to the Console, use the **Add Server** button on the control panel.

2. StarWind Management Console will ask you to specify a default storage pool on the server you're connecting to for the first time. Please, configure the storage pool to use one of the volumes you have prepared earlier. All the devices created through the Add Device wizard will be stored on the configured storage pool. Should you decide to use an alternative storage path for your StarWind virtual disks, please use the **Add Device (advanced)** menu item.



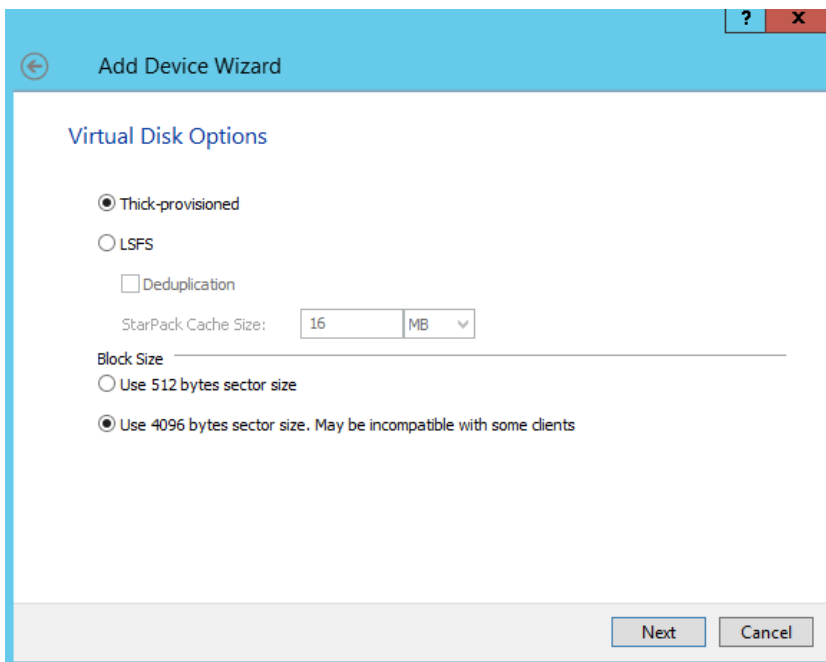
Press the **Yes** button to configure the storage pool. Should you require to change the storage pool destination, press **Choose path...** and point the browser to the necessary disk.

**NOTE:** Each of the arrays that will be used by **StarWind Virtual SAN** to store virtual disk images should meet the following requirements:

- initialized as GPT;
  - have a single NTFS-formatted partition;
  - have a drive letter assigned.
3. Select the StarWind server where you wish to create the device.
  4. Press the **Add Device (advanced)** button on the toolbar.
  5. **Add Device Wizard** will appear. **Select Hard Disk Device** and click **Next**.
  6. Select a Virtual disk and click Next.
  7. Specify the virtual disk name, location, and size and click Next.

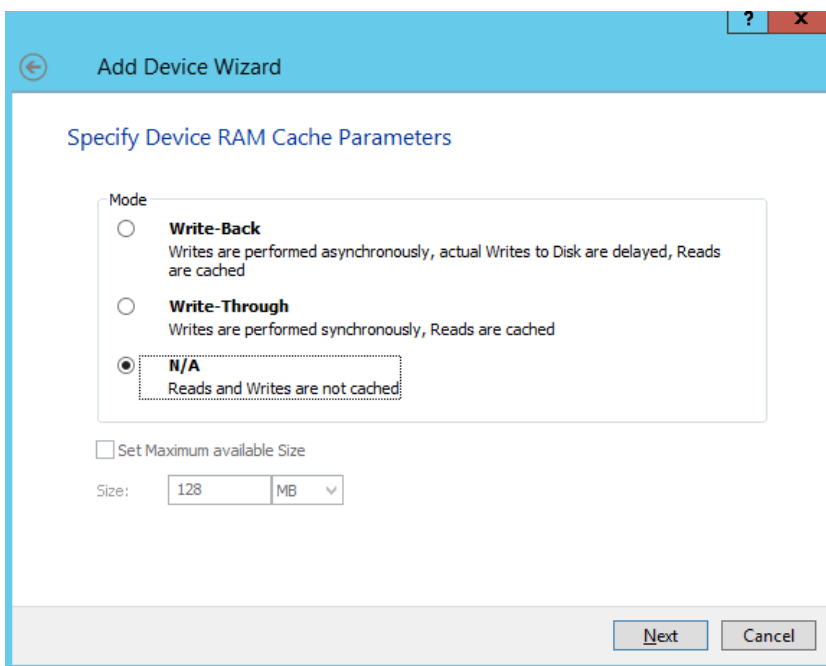
The screenshot shows the 'Add Device Wizard' dialog box with the title 'Add Device Wizard'. The main heading is 'Virtual Disk Location'. There are two radio button options: 'Create a New Virtual Disk' (which is selected) and 'Use an Existing Virtual Disk'. Under 'Create a New Virtual Disk', there are three input fields: 'Name' with the text 'Witness', 'Location' with the text 'My Computer\D\' and a browse button (...), and 'Size' with a numeric input '1' and a unit dropdown menu set to 'GB'. Under 'Use an Existing Virtual Disk', there is a 'Location' dropdown menu with a browse button (...) and a 'Read-Only Mode' checkbox which is unchecked. At the bottom right, there are 'Next' and 'Cancel' buttons.

- Specify virtual disk options.



Click **Next**.

- Define the caching policy and specify the cache size.



**NOTE:** It is recommended to put 1 GB of L1 cache in the Write-Back mode per 1 TB storage capacity. Click **Next**.

10. Define the **Flash Cache Parameters** policy and size if necessary. Choose an SSD location in the wizard. Click **Next** to continue.

The screenshot shows a dialog box titled "Add Device Wizard" with a sub-header "Specify Flash Cache Parameters". It contains two radio button options: "No Flash Cache" (selected) and "Use Flash Cache". Below the "Use Flash Cache" option, there are three input fields: "Name" with the value "Flash-Witness", "Location" with the value "My Computer\D\" and a browse button "...", and "Size" with the value "1" and a unit dropdown menu set to "GB". At the bottom right, there are "Next" and "Cancel" buttons.

**NOTE:** The recommended size of the L2 cache is 10% of the initial StarWind device size.



- Specify target parameters.

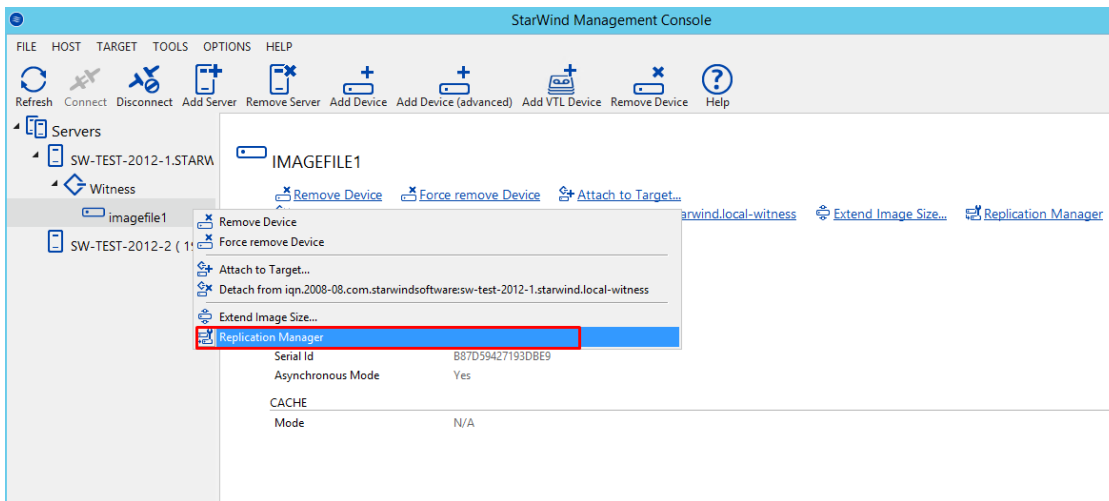
Select the **Target Name** checkbox to enter a custom name of a target. Otherwise, the name will be generated automatically based on the target alias.

Click **Next** to continue.

- Click **Create** to add a new device and attach it to the target. Then, click **Close** to close the wizard.
- Right-click the servers field and select **Add Server**. Add a new StarWind Server which will be used as the second HA node.

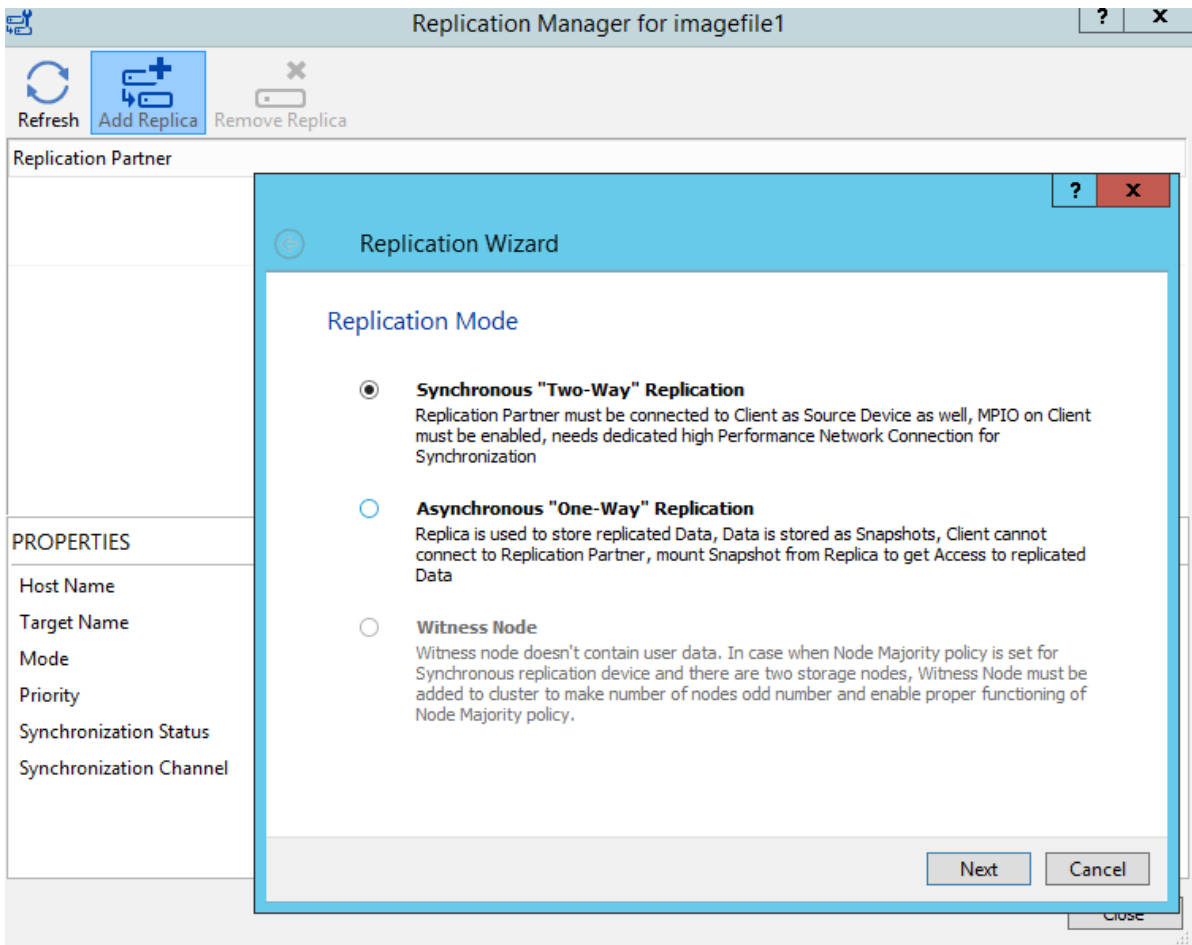
Click **OK** and **Connect** button to continue.

14. Right-click the recently created device and select the **Replication Manager**.



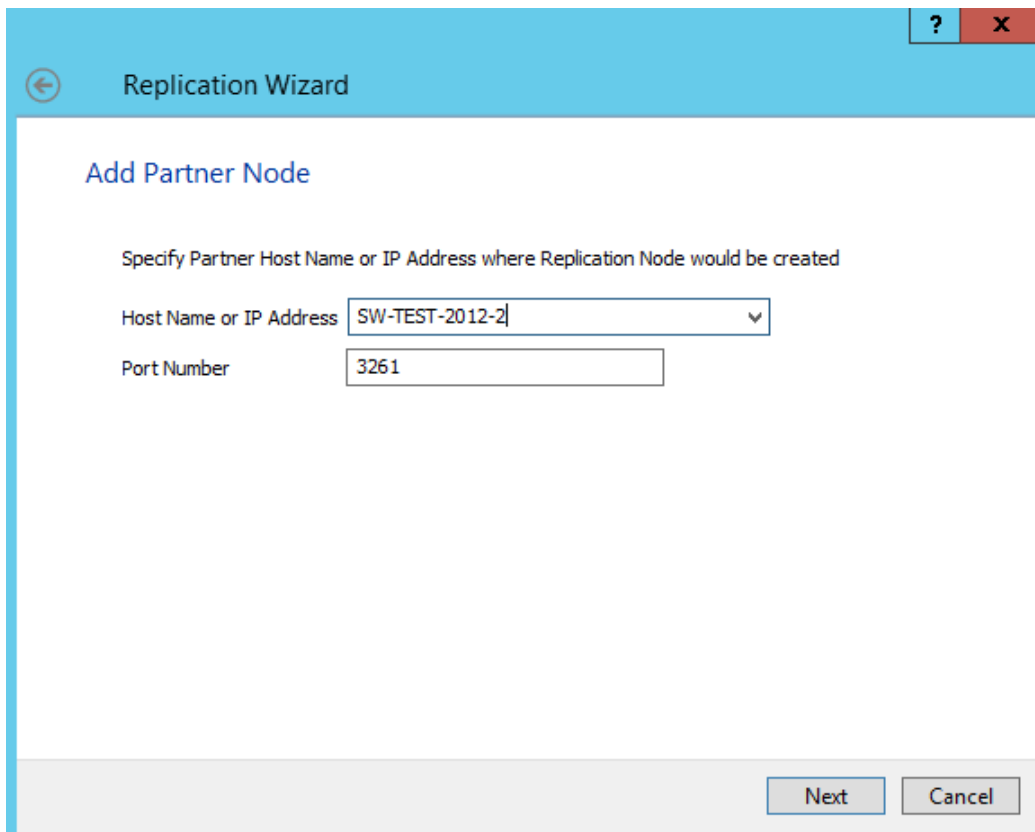
The **Replication Manager** window will appear. Press the **Add Replica** button.

15. Select Synchronous two-way replication and click Next to proceed.



16. Specify the partner server IP address.

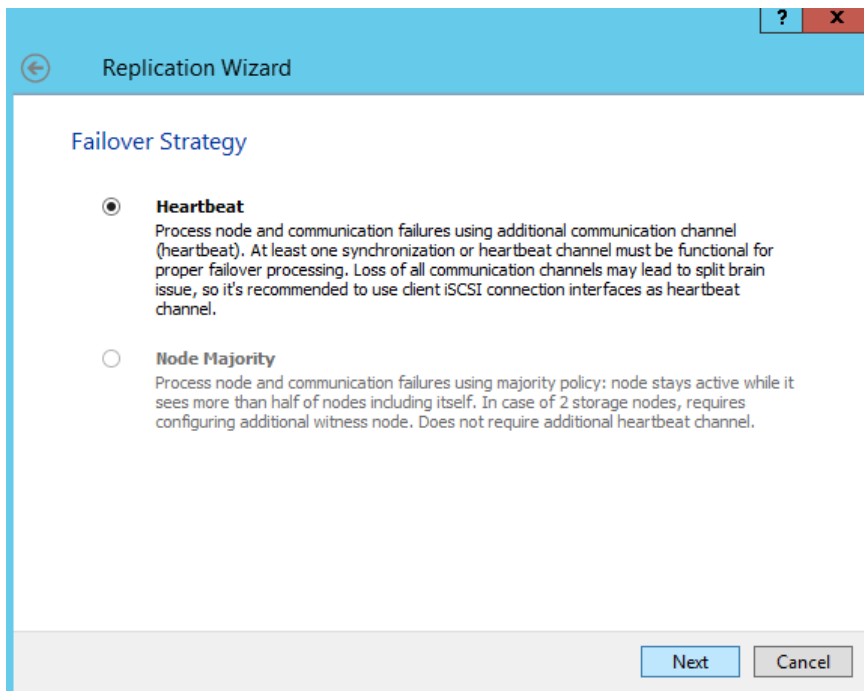
The default StarWind management port is 3261. If you have configured a different port, please, type it in the **Port number** field.



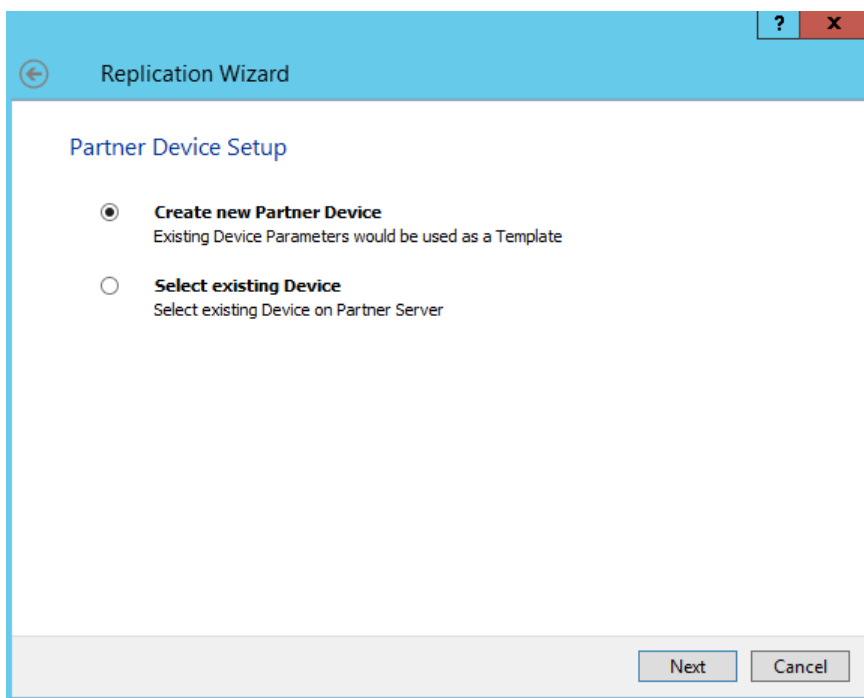
The screenshot shows a window titled "Replication Wizard" with a sub-header "Add Partner Node". Below the sub-header, there is a prompt: "Specify Partner Host Name or IP Address where Replication Node would be created". There are two input fields: "Host Name or IP Address" with a dropdown menu containing "SW-TEST-2012-2", and "Port Number" with a text box containing "3261". At the bottom right, there are "Next" and "Cancel" buttons.

Click **Next**.

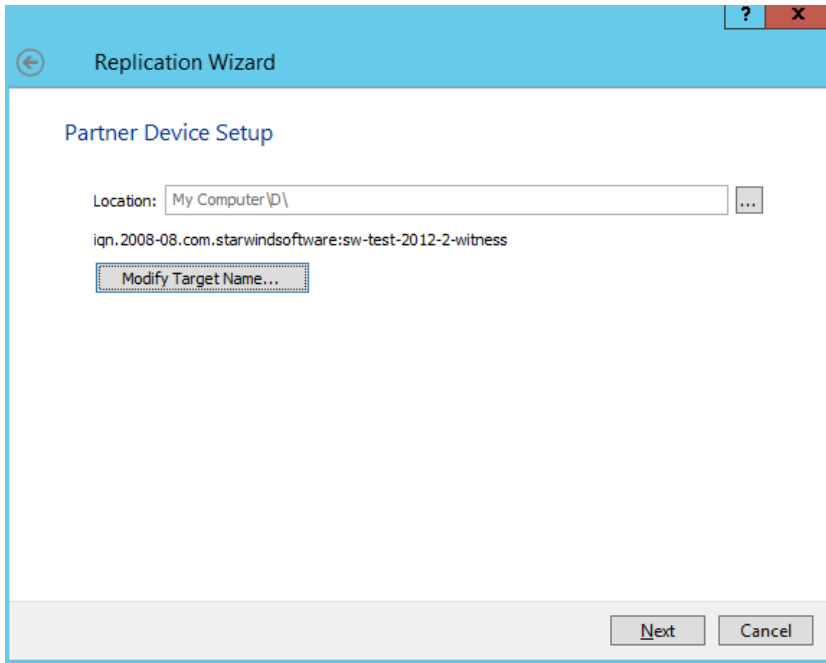
17. Select Heartbeat as the Failover Strategy



18. Choose **Create new Partner Device** and click **Next**.

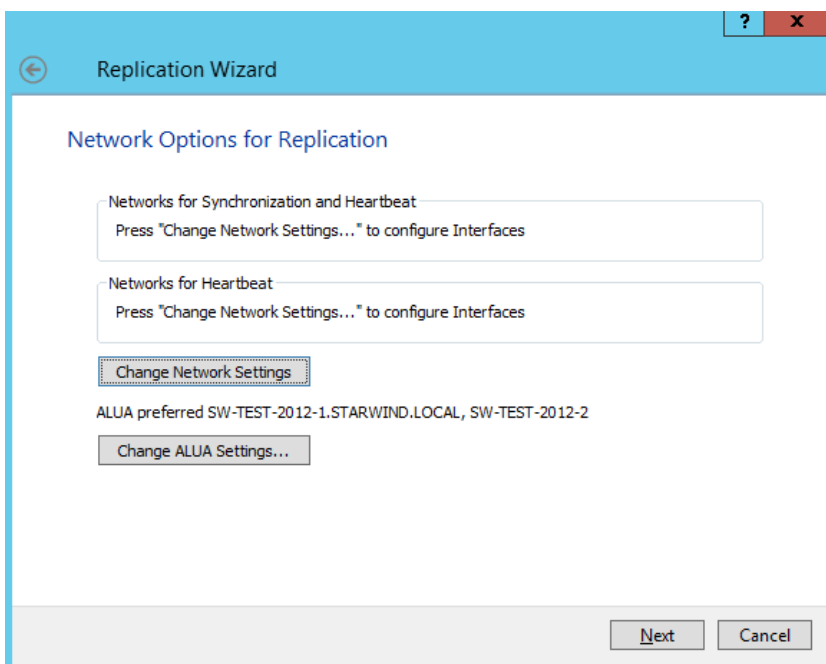


19. Specify the partner device location if necessary. You can also modify the target name of the device.



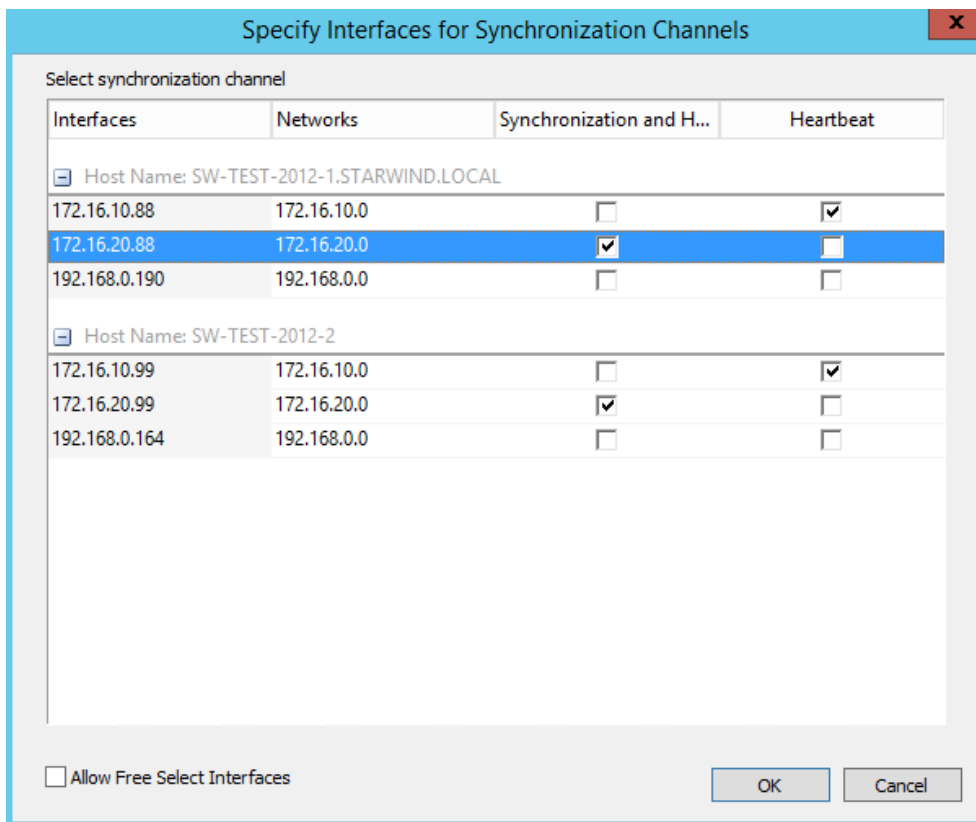
Click **Next**.

You can specify the synchronization and heartbeat channels for the HA device on this screen. You can also modify the ALUA settings.



Click **Change Network Settings**.

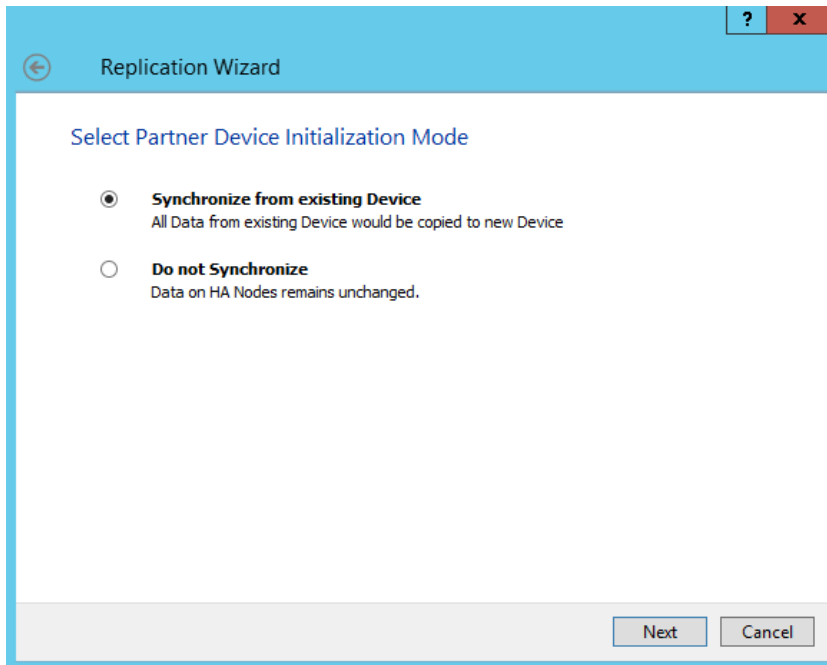
20. Specify the interfaces for synchronization and Heartbeat.



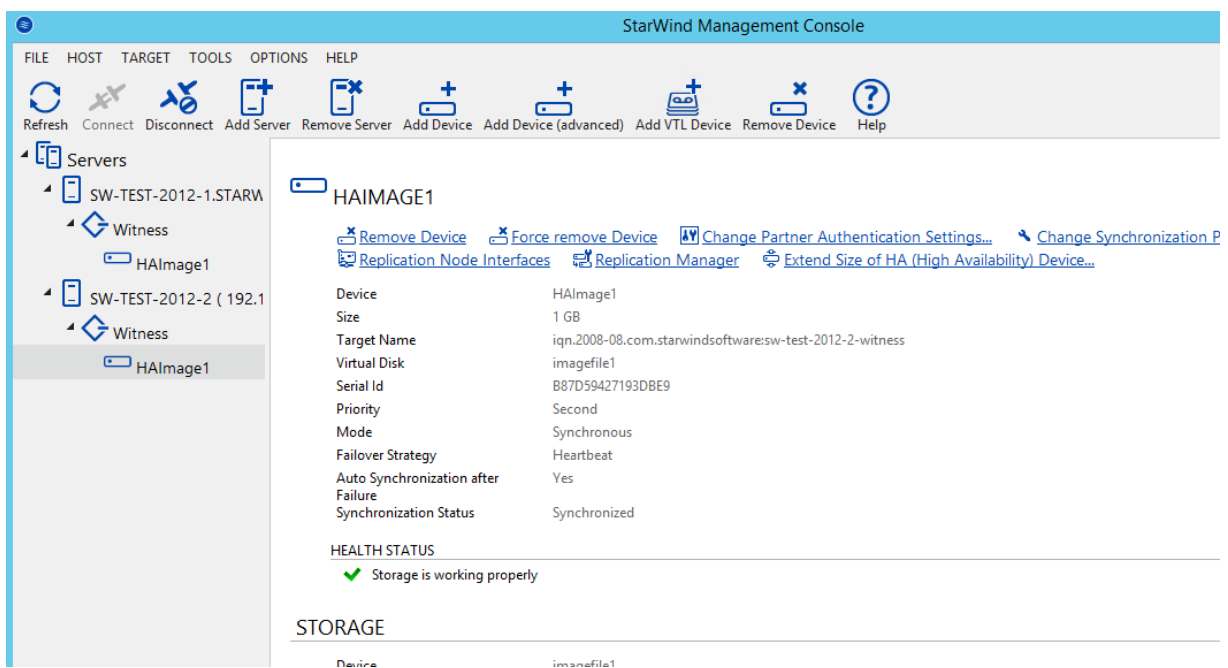
Click **OK**. Then click **Next**.

**NOTE:** It is recommended configuring Heartbeat and iSCSI channels on the same interfaces to avoid the split-brain issue.

21. Select **Synchronize from existing Device** as a partner device initialization mode and click **Next**.



22. Press the **Create Replica** button and click **Close**.
23. The added device will appear in the **StarWind Management Console**.



24. Discover and connect created targets in iSCSI initiator which you are using in your environment.

## Conclusion

StarWind makes it possible to achieve redundancy and fault tolerance in your storage environment with only 2 nodes available and no additional storage hardware or proprietary equipment required. With StarWind Virtual SAN, the HA shared storage configuration significantly improves data availability. Data remains available at a second node should a first node go down because of hardware failure, network congestion or otherwise. Thus, the HA storage allows avoiding the single point of failure in your virtual infrastructure and restarting the VM on the other host.



## Contacts

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