

# Quick Start Guide:

## Creating HA Device with StarWind Virtual SAN Free

FEBRUARY 2017

TECHNICAL PAPER



## Trademarks

“StarWind”, “StarWind Software” and the StarWind and the StarWind Software logos are registered trademarks of StarWind Software. “StarWind LSF5” is a trademark of StarWind Software which may be registered in some jurisdictions. All other trademarks are owned by their respective owners.

## Changes

The material in this document is for information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, StarWind Software assumes no liability resulting from errors or omissions in this document, or from the use of the information contained herein. StarWind Software reserves the right to make changes in the product design without reservation and without notification to its users.

## Technical Support and Services

If you have questions about installing or using this software, check this and other documents first - you will find answers to most of your questions on the [Technical Papers](#) webpage or in [StarWind Forum](#). If you need further assistance, please [contact us](#).

## Copyright ©2009-2017 StarWind Software Inc.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written consent of StarWind Software.

## In 2016, Gartner named StarWind “Cool Vendor for Compute Platforms”.

Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

## 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.

# Contents

Introduction..... 4

Implementation ..... 5

Contacts..... 9

## Introduction

StarWind Virtual SAN Free allows creating a fault tolerant and high performing storage pool by mirroring existing server's internal storage between nodes. It is a free version of StarWind Virtual SAN that eliminates need in physical shared storage. StarWind Virtual SAN Free is a full-fledged production platform offering all the features of StarWind VSAN. It utilizes all the industry-standard uplink protocols like iSCSI, SMB3, NFS and the latest iSER and NVMe. It is shipped with a number of ready to use Powershell scripts and supports both hyper-converged and "compute and storage separated" configurations. It is completely functional and allowed for production.

This guide is intended for experienced Windows Server users and administrators who are willing to configure a two-node highly available device that will run on top of Windows Server 2012 R2 using StarWind Virtual SAN Free.

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.

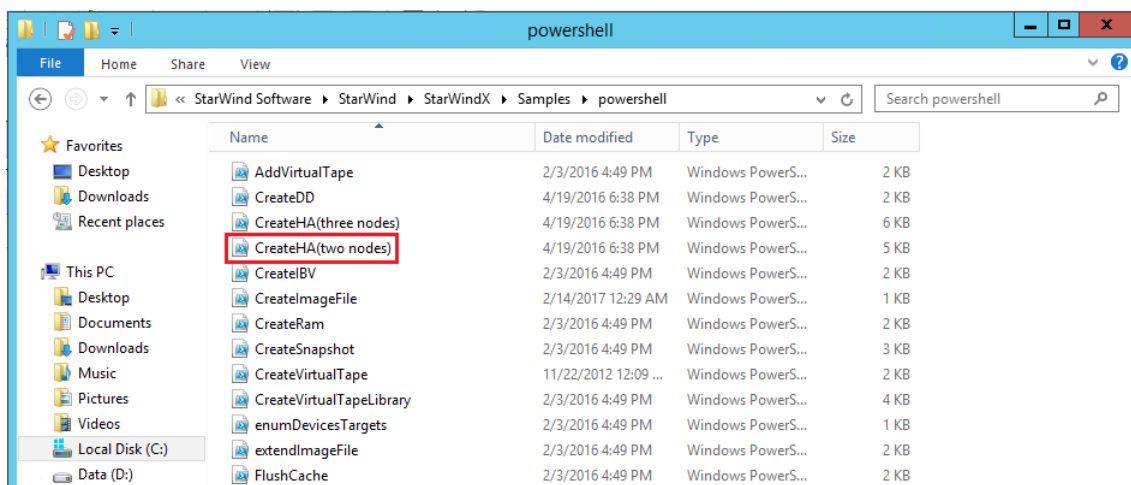
## Implementation

1. Open the folder containing StarWind PowerShell samples.

By default, samples are located under the path:

C:\Program Files\StarWind Software\StarWind\StarWindX\Samples\powershell.

2. Locate the file named CreateHA(two nodes).ps1 and copy it to any other place for further editing.



3. Open the file CreateHA(two nodes).ps1 file with PowerShell ISE (or any other text editor) and change the values marked with red.
4. For the first StarWind node:

```

CreateHA(two nodes).ps1 X
1  Import-Module StarWindX
2
3  try
4  {
5      $server = New-SWServer -host 127.0.0.1 -port 3261 -user root -password starwind
6
7      $server.Connect()
8
9      $firstNode = new-Object Node
10
11      $firstNode.ImagePath = "My computer\D\Starwind"
12      $firstNode.ImageName = "masterImg1"
13      $firstNode.Size = 2048
14      $firstNode.CreateImage = $true
15      $firstNode.TargetAlias = "targetha1"
16      $firstNode.AutoSynch = $true
17      $firstNode.SyncInterface = "#p2=172.16.30.20:3260,172.16.40.20:3260"
18      $firstNode.HBInterface = "#p2=172.16.10.20:3260,172.16.20.20:3260"
19      $firstNode.CacheSize = 128
20      $firstNode.CacheMode = "wb"
21      $firstNode.PoolName = ""
22      $firstNode.SyncSessionCount = 1
23      $firstNode.ALUAOptimized = $true
24
25      #
26      # device sector size. Possible values: 512 or 4096(May be incompatible with some clients!) bytes.
27      #
28      $firstNode.SectorSize = 4096
29
30      #
31      # 'SerialID' should be between 16 and 31 symbols. If it not specified StarWind Service will generate it.
32      # Note: Second node always has the same serial ID. You do not need to specify it for second node
33      #
34      # $firstNode.SerialID = "050176c0b535403ba3ce02102e33eab" |
35

```

- *host*; Enter the IP address of the host that has StarWind service installed;
- *port*; Enter the StarWind service connection port number (3261 by default);
- *user* and *password*; Enter the StarWind username and password (default values are: username: root, password: starwind);
- *firstNode.ImagePath*; Enter the path to an existing directory where image file will be located;
- *firstNode.ImageName*; Enter an image file name;
- *firstNode.Size*; Enter an image file size in megabytes;
- *firstNode.CreateImage*; Create an image file.

**NOTE** that *firstNode.CreateImage* value should be equal to `$true`;

- *firstNode.TargetAlias*; Enter the alias of the target;
- *firstNode.AutoSynch*; Make sure to specify automatic or manual synchronization after device creation by setting the value of this variable to either `$true` or `$false`;
- *firstNode.SyncInterface*; Synchronization interfaces. Enter the IP address(s) of the partner node interface(s) (the “second” StarWind node) which will be used as the synchronization channel;
- *firstNode.HBInterface*; Heartbeat interfaces. Enter the IP address(s) of the partner interface(s) (the “second” StarWind node) which will be used as the heartbeat channel;
- *firstNode.CacheSize*; Enter the L1 cache size in megabytes or leave it as `""` in case you would like it to be N/A;
- *firstNode.CacheMode*; Caching mode (“none” - without caching, “wt” – write-through mode or “wb” - write-back mode). Enter the necessary value;
- *firstNode.PoolName*; Enter the pool name in case you would like your resource to be tagged in SMI-S provider. Enter leave it as `""` in case you do not need to tag your resources to the SMI-S provider;
- *firstNode.SyncSessionCount*; Synchronization session count. Make sure you set the value of the variable to `“1”`;
- *firstNode.ALUAOptimized*; Set ALUA optimization by entering `$true` or `$false` values.
- *firstNode.SectorSize*; Enter device sector size (512 for ESXi or 4096 for Hyper-V, SOFS);
- *firstNode.SerialID*; Comment out this line.

5. For the second StarWind node:

```

CreateHA(two nodes).ps1 X
36     $secondNode = new-Object Node
37
38     $secondNode.HostName = "172.16.10.20"
39     $secondNode.HostPort = "3261"
40     $secondNode.Login = "root"
41     $secondNode.Password = "starwind"
42     $secondNode.ImagePath = "My computer\D\Starwind"
43     $secondNode.ImageName = "partnerImg1"
44     $secondNode.Size = 2048
45     $secondNode.CreateImage = $true
46     $secondNode.TargetAlias = "partnerha1"
47     $secondNode.AutoSynch = $true
48     $secondNode.SyncInterface = "#p1=172.16.30.10:3260,172.16.40.10:3260"
49     $secondNode.HBInterface = "#p1=172.16.10.10:3260,172.16.20.10:3260"
50     $secondNode.ALUAOptimized = $true
51
52     $device = Add-HADevice -server $server -firstNode $firstNode -secondNode $secondNode -initMethod "Clear"

```

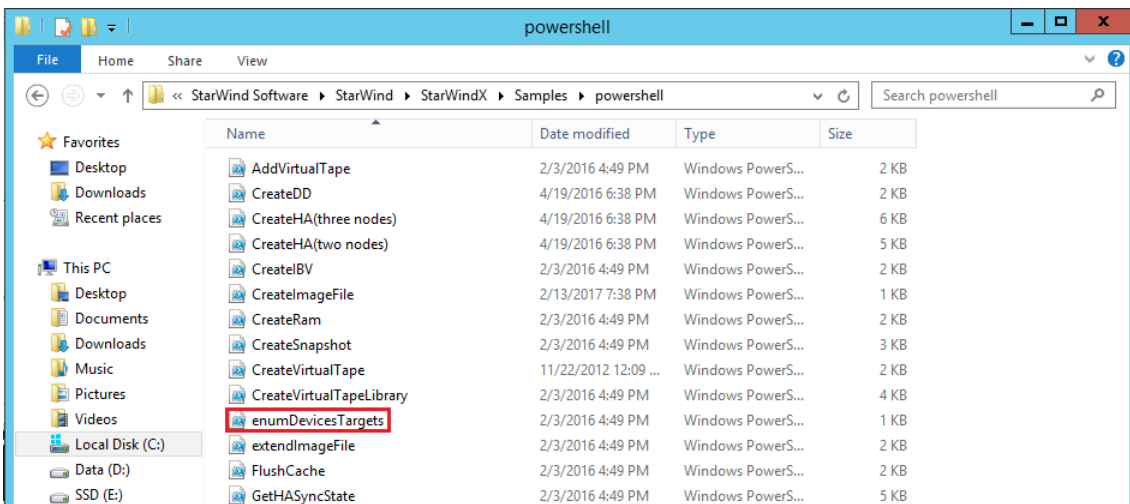
- *secondNode.HostName*; Enter a the IP address of a host where StarWind service is running;
- *secondNode.HostPort*; Enter the number of a port for connecting to the StarWind Service (3261 by default);
- *secondNode.Login* and *secondNode.Password*; Enter StarWind username and password (default values are: username: root, password: starwind);
- *secondNode.ImagePath*; Enter the path to an existing directory where image file will be located on the partner node (second node);
- *secondNode.ImageName*; Enter an image file name;
- *secondNode.Size*; Enter an image file size in megabytes. Note that is has be equal to the value of *firstNode.Size*;
- *secondNode.CreateImage*; Create an image file. **Note** that *secondNode.CreateImage* value should be equal to \$true;
- *secondNode.TargetAlias*; Enter the alias of the target;
- *secondNode.AutoSynch*; Make sure to specify automatic or manual synchronization after device creation by setting the value of this variable to either \$true or \$false;
- *secondNode.SyncInterface*;
- Synchronization interfaces. Enter the IP address(es) of the partner node interface(s) (the "first" StarWind node) which will be used as the synchronization channel;
- *secondNode.HBInterface*; Heartbeat interfaces. Enter the IP address(es) of the partner node interface(s) (the "first" StarWind node) which will be used as the heartbeat channel;
- *secondNode.ALUAOptimized*; Set ALUA optimization by entering \$true or \$false values.

- Run the script. After the HA device creation you should see the following:

```

PS C:\Windows\system32> C:\Program Files\StarWind Software\StarWind\StarWindX\Samples\powershell1
Synchronizing: 1%
Synchronizing: 20%
Synchronizing: 36%
Synchronizing: 53%
Synchronizing: 70%
Synchronizing: 86%
Synchronizing: 100%
PS C:\Windows\system32>
    
```

- In order to list all the devices and targets on the StarWind host, run the enumDevicesTargets.ps1 script.



- Make sure you modify the values marked with a red line in order to fit your setup (host IP, port, user, password), save the script and run it.

```








enumDevicesTargets.ps1 X
1 Import-Module StarWindX
2
3 $server = New-SWServer 127.0.0.1 3261 root starwind
4
5 $server.Connect()
6
7 if ( $server.Connected )
8 {
9     write-host "Targets:"
10    foreach($target in $server.Targets)
11    {
12        $target
13    }
14
15    write-host "Devices:"
16    foreach($device in $server.Devices)
17    {
18        $device
19    }
20
21    $server.Disconnect()
22 }
23
    
```

```

Name       : iqn.2008-08.com.starwindsoftware:127.0.0.1-targetimg1
Id         : 0x00000046268FE340
Alias      : targetimg1
IsClustered : True
Devices    : System.__ComObject
Permissions : System.__ComObject
Type       :
Name       : iqn.2008-08.com.starwindsoftware:sw-sup-node1-storage1
Id         : 0x00000046269160C0
Alias      : Storage1
IsClustered : True
Devices    : System.__ComObject
Permissions : System.__ComObject
Type       :
    
```



## Contacts

US Headquarters	EMEA and APAC
 1-617-449-7717	 +44 20 3769 1857 (UK)
 1-617-507-5845	 +49 302 1788 849 (Germany)
	 +33 097 7197 857 (France)
	 +7 495 975 94 39 (Russian Federation and CIS)
	 1-866-790-2646

Customer Support Portal: <https://www.starwind.com/support>

Support Forum: <https://www.starwind.com/forums>

Sales: [sales@starwind.com](mailto:sales@starwind.com)

General Information: [info@starwind.com](mailto:info@starwind.com)



**StarWind Software, Inc.** 35 Village Rd., Suite 100, Middleton, MA 01949 USA [www.starwind.com](http://www.starwind.com)

©2017, StarWind Software Inc. All rights reserved.