

StarWind iSCSI SAN Software: Using an existing SAN for configuring High Availability storage with Windows Server 2003 and 2008

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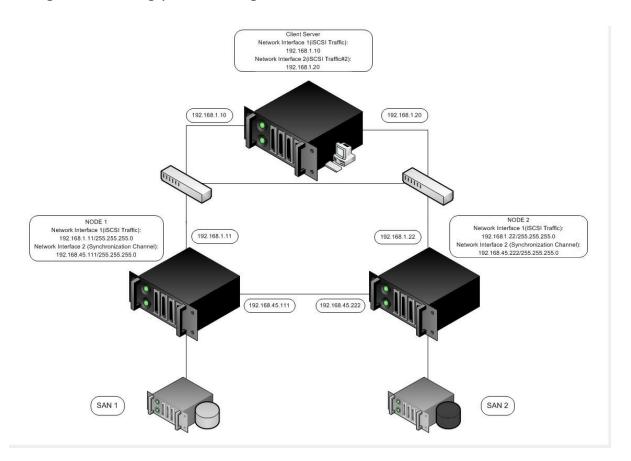
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Guide

Introduction

This document will walk you through the process of configuring HA configuration using your existing SAN.



Note: Data Synchronization Channel redundancy is required; use NIC teaming (link aggregation).



Configuring StarWind Server

Preconfiguring and connecting storage

Using HA requires some minor modifications to the servers that you will use as nodes for providing HA storage to the clients. You will have to configure iscsi initiator service and have it started before starwind service starts. It ensures that in the moment when starwind service is started, MS iSCSI Initiator is already up and connected to your storage where the virtual disk files are stored. You also need to bind volumes so that each time the initiator connects them to your server, they receive a constant drive letter.

- To set StarWind service dependent go **Start->Run**, type "cmd" and click **OK**.
- In the command line type "sc config starwindservice depend= msiscsi" and press the **Enter** key on your keyboard.

Now connect to your SAN using Microsoft iSCSI Initiator, initialize and format the disk you have connected, assign a drive letter to it.

• In the MS Initiator window click the Volumes and Devices tab and click Auto Configure button.

This will bind the volumes with the drive letters you have assigned to them. The procedure described above has to be performed on both StarWind Servers.



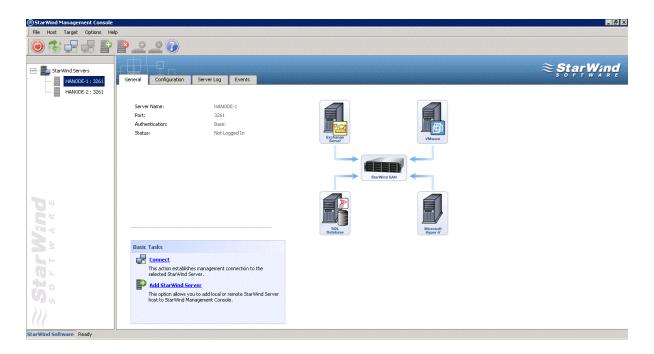
Preparing Storage

• To launch the StarWind Console, from the Start menu select StarWind Software -> StarWind.

Whenever the StarWind Console is running, its icon will appear in the system tray.

The StarWind Console may be accessed by double-clicking the icon using the left mouse button, or with a single click using the right mouse button and selecting **Start Management** from the pop-up menu.

• From the **Connections** tree, select the computer you want to provision the iSCSI target device on.



- Double-click the host to connect.
- Enter the login and password.

The default login and password are "root" and "starwind." You can always change them later.



Login	Enter the user name and password to connect to this server.	
	Login: root	
	Password:	
	Save password OK Cancel	

- To store password, select the **Save password** checkbox and click the **Yes** button.
- Click **OK** to continue.

Now when you are connected to the StarWind Service on the machine you can create targets on it.

StarWind Management Console		_ @ ×
File Host Target Options Hel	þ	
🙆 🔁 🖶 😭	P	
StarWind Servers	Target Lik CHAP Permissions Access Rights	≈ starWind
	Target Alias Target IQN Clustered	
HANODE-2 : 3261		
Q H	Device Properties	
111 <		
22		
And the second s		
20		
StarWind software		
(((<u>_</u>
StarWind Software Ready		

To create targets:

- Click the **Add Target** button to continue.
- In the wizard that appears, specify a unique target name. Using it the device will be declared to the iSCSI initiators connecting to StarWind over an IP network.



nmon target parameters			
Specify target alias and target name	.		
Target Alias:			
HA-storage			
Target Name:			
ign.2008-08.com.starwindsoftware	:hanode-1-ha-stora	ge	the second second
1			

- Click the **Next** button to continue.
- Select the HA device type by going Hard Disk->Advanced Virtual->High Availability device.
- Specify the partner server parameters. Enter the server's IP address or host, and specify the user name and password for the StarWind Service.



Target Wizard		
artner server parameters Specify partner server parameters.		(
Host: 192.168.45.222	Port:	3261
Authentication: Basic		•
User Name: root		
Password:		
Password:		
< <u>B</u> ack	<u>N</u> ext > Ca	ancel Help

- Click the **Next** button to continue.
- Enter target alias and target name that will be assigned to the partner target.



Target Wizard Partner server common ta	arget parameters			-
Specify partner server tar	get alias and target r	name.		L
Partner Target Alias: HA-storagePartner				
Partner Target Name:				
ign.2008-08.com.starwinds	oftware:192.168.45	.222-ha-storagep	artner	
				<u> </u>
		Next >	Cancel	

- Click the **Next** button to continue.
- Specify the location and name of your local virtual disks and your partner's virtual disks by clicking the "..." button.
- If you want to create new virtual disks, select the **Create New** checkbox.



Target Wizard				
'irtual disks parameters Specify virtual disks paramete	ers,			0
Current server virtual disk par	ameters			
My Computer\D\Virtual Disk	s\HA-Disk1.img			▼
Create new				
Partner server virtual disk par	ameters			
My Computer\D\Virtual Disk	s\HA-Disk1(partne	er).img		•
Create new				
C 10 CD				
Size: 10 GB				
		<u> </u>		1
	< <u>B</u> ack	<u>N</u> ext >	Cancel	Help

- Click the **Next** button to continue.
- Configure the data synchronization and heartbeat channels parameters by specifying the network interface for synchronization and heartbeat respectively. You can also set node priority by designating it as Primary or Secondary.



nnel parameters				CONTRACTOR -
tion channel paramete	rs.			
s				
08-08.com.starwindsc	oftware:	hanode-1-l	na-storage	
92.168.45.111	-] \$	Port:	3260	
92.168.1.11	- \$	Priority:	Primary	-
after failure				
s				
08-08.com.starwindsol	ftware::	192.168.45	.222-ha-storagepa	artner
92.168.45.222	- \$	Port:	3260	
92.168.1.22	- \$	Priority:	Secondary	-
after failure				
	s 008-08.com.starwindso 92.168.45.111 92.168.1.11 after failure s	s 92.168.45.111 92.168.1.11 92.168.1.11 after failure s 08-08.com.starwindsoftware: 92.168.45.222 92.168.45.222 92.168.1.22 \$	s 008-08.com.starwindsoftware:hanode-1-l 92.168.45.111 92.168.1.11 92.168.1.11 92.168.1.11 92.168.45.222 92.168.45.222 92.168.45.222 92.168.1.22	s 92.168.45.111 S Port: 3260 92.168.1.11 S Priority: Primary after failure s 08-08.com.starwindsoftware:192.168.45.222-ha-storagepa 92.168.45.222 S Port: 3260 92.168.1.22 Secondary

- Click the **Next** button to continue.
- Specify HA device cache type and size.



ers,			0
			-
	64 📩		
hrink w/o not;	ice if specified to	o large for destir	nation machine
	5000 ÷		
< <u>B</u> ack	Next >	Cancel	Help
		64 🛃	64 ਦ shrink w/o notice if specified too large for destin 5000 🛫

- Click the **Next** button to continue.
- Specify the method to initialize your HA device.



Initialization method Specify initialization method.				6
Select initialization method:				
Clear virtual disks (WARNING initialization process has finish	: All data will be ied.)	deleted. Device w	ill be accessible af	fter the
C Synchronize partner server vi	irtual disk with c	urrent server one:		
C Synchronize current server vi	rtual disk with p	artner server one		
C Do not synchronize virtual dis	ks			

- Click the **Next** button to continue.
- Make sure that the device parameters are correct. Click the **Back** button if you need to make any changes.





• Click the **Next** button to continue.



A summary is displayed on the last wizard page.

Add Target Wizard		×
SAN	Add Target Wizard	
	The following device was created:	
iscsi san	HAImage1	
	Target name:	
	iqn.2008-08.com.starwindsoftware:hanode-1-ha-storage	×
≈ Ştạr Wind	To close this wizard click Finish.	
	< Back Finish Cancel	Help

• Click the **Finish** button to close the wizard.



Configuring Windows Server 2008

Install MPIO Feature

To open Server Manager:

- From the Start menu, select Administrative Tools->Sever Manager.
- Click the **Features** item.
- Click Add Features. An Add Features Wizard will appear.
- In the features list select the Multipath I/O checkbox and install it.

Add Features Wizard		X
Select Features		
Features Confirmation Progress Results	Select one or more features to install on this server. Eeatures: .NET Framework 3.0 Features BitLocker Drive Encryption BITS Server Extensions Connection Manager Administration Kit Desktop Experience Failover Clustering Group Policy Management Internet Printing Client Internet Storage Name Server LPR Port Monitor Message Queuing Multipath I/O Network Load Balancing Peer Name Resolution Protocol Quality Windows Audio Video Experience Remote Differential Compression Remote Sorage Manager PPC over HTTP Proxy Simple TCP/IP Services CMTP Services Wore about features	Description: Multipath I/O, along with the Microsoft DeviceSpecific Module (DSM) or a third-party DSM, provides support for using multiple data paths to a storage device on Windows.



Connect Targets

You connect targets in the Microsoft iSCSI Initiator:

- 1. From the **Start** menu, select **Administrative Tools -> iSCSI Initiator**.
- 2. Click the **Discovery** tab.
- 3. To add StarWind servers, click the **Add Portal** ... button and specify the servers' IP addresses.

iSCSI Initiator Properties	×
General Discovery Targets Persistent Targets Bound Volumes/Devic	es
Select a target and click Log On to access the storage devices for that target. Click details to see information about the sessions, connections and devices for that target.	
_argess.	1
ign.2008-08.com.starwindsoftware:192.168.45 Inactive	'
ign.2008-08.com.starwindsoftware:hanode-1-h Inactive	
<u>D</u> etails <u>Log On</u> R <u>e</u> fresh	
OK Cancel Apply	

- 4. Switch to the Targets tab.
- 5. To connect the targets, click the **Log On...** button. A **Log On to Target** dialog appears.
- 6. Select the Automatically restore this connection when the system boots checkbox.

Target 1





Target 2

Target name:			
iqn.2008-08.com.starwinds	software:hanod	e-1-ha-storag	ge
Automatically restore th	is connection wh	nen the comp	uter starts
Enable multi-path			
Only select this option i on your computer.	if iSCSI multi-pat	th software is	already installed
Advanced	F		Cancel

Click the **OK** button to connect the target.



Enable Multipath Support

To enable Mutlipath Support:

- 1. Open the MPIO manager by selecting from the **Start** menu **Administrative Tools->MPIO**.
- 2. Click **Discover Multi-Paths** tab. Select the **Add support for iSCSI devices** checkbox.

IPIO-ed Devices	Discover Mul	ti-Paths	DSM Ir	stall		
<u>SPC-3 complian</u>	t	Ĩ		102		
-						_
Device Hardy	vare Id					
1						
Add support	t for <u>i</u> SCSI de	vices				
				(Add	
Others						
Others						_
Others	vare Id					
-	vare Id					
-	vare Id					
-	vare Id					
-	vare Id					
-	vare Id				Add	
-	vare Id				Add	

3. Click the Add button.



Windows will prompt you to reboot the server.



4. Click **Yes** to restart your server.



Configuring Windows Server 2003

Enable Multipath Support

1. Download Microsoft iSCSI Initiator and install it. Make sure the **Microsoft MPIO Multipathing Support for iSCSI** checkbox is selected.

Software Upd	late Installation Wizard
Microsoft	iSCSI Initiator Installation
Microsoft	iSCSI Initiator will be installed
_ Installatio	on Options
ম	Virtual Port Driver
V	Initiator Service
	Software Initiator
V	Microsoft MPIO Multipathing Support for iSCSI
	< <u>B</u> ack <u>N</u> ext > Cancel

2. Restart the computer before continuing.



Connect Targets

To connect targets:

- 1. Launch the MS iSCSI Initiator by selecting from the **Start** menu **All Programs->Microsoft iSCSI Initiator**.
- 2. Click the Discovery tab. by
- 3. To add each of the StarWind servers, click the **Add** button and specify server IP address.

5CSI Initiator Prop	erties		2
General Discovery	Targets	Persistent Targel	ts Bound Volumes/Devices
_ <u>T</u> arget Portals _			
Address	Port	Adapter	IP Address
192.168.1.11	3260	Default	Default
192.168.1.22	3260	Default	Default
Add		<u>R</u> emove	R <u>e</u> fresh
_iSNS Servers			
Name			
A <u>d</u> d		Remove	Re <u>f</u> resh
		OK	Cancel Apply

4. Click the Targets tab.



iSCSI Initiator Properties	×
General Discovery Targets Persistent Targets Bound Vo	lumes/Devices
Select a target and click Log On to access the storage device target. Click details to see information about the sessions, conr devices for that target. <u>T</u> argets:	
Name Status	
ign.2008-08.com.starwindsoftware:192.168.45 Inactive	
iqn.2008-08.com.starwindsoftware:hanode-1-h Inactive	
<u>D</u> etails <u>Log On</u>	R <u>e</u> fresh
OK Cancel	Apply

- 5. Click the **Log On...** button to connect the targets. A **Log On to Target** dialog appears.
- 6. Select the **Automatically restore this connection when the system boots** checkbox.

Target 1

Log On to Target	×
Target name:	
ign.2008-08.com.starwindso	oftware: 192. 168. 45. 222-ha-storagepartner
Automatically restore this	connection when the computer starts
Enable multi-path	
Only select this option if on your computer.	iSCSI multi-path software is already installed
<u>A</u> dvanced	Cancel



Target 2

Target name:	
ign.2008-08.com.starwinds	oftware:hanode-1-ha-storage
Automatically restore thi	s connection when the computer starts
Enable multi-path	
 Only select this option i on your computer. 	f iSCSI multi-path software is already installed
Advanced	OK Cancel

7. Click **OK** to connect the target.



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