StarWind iSCSI SAN & NAS:

HA Maintenance and Configuration Changes April 2013



STORAGE 🗯 HYPERVISOR



Works with Windows Server® 2008 R2





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CHANGING AN HA PARTNER NODE

Take the following actions to change an HA partner node:

1. Right-click the required HA device and select **Replication manager** from the shortcut menu.

Target List CHAP Permissions Acc	ccess Rights						SOFIWARE
Target Alias Targe	jet IQN				Clustering	Group	
HA iqn.2	2008-08.com.starwindsoftware	172.16.0.47-ha			Yes	General	
[HA]							
Devices ISCSI Sessions (5) CHAP Permiss	sions						
Device Name		LUN	Device Type	State			
HAImage 1		0	HA	Active			
Remove Device Serre Remove Device							
Synchronization							
Device Change Partner Authentication S	Settings						
Change Synchronization Priority	/						
Size: Mark & Supervised							
Extend Size of Hit Device							
First 5							

2. HA Device Replication manager appears. Click the Remove replica menu button.

Replication manager for HAI	mage1		×
Refresh Add replica	eplica		
Replication partner			
iqn.2008-08.cot Connection status: Synchronization sta Mode: Synchronous	m.starwindsoftware:172.16.0.48-hasecondnode Active tus: Synchronized		
Properties			
Host Name:	S3N8		
Target Name:	ign.2008-08.com.starwindsoftware:172.16.0.48-hasecondnode		
Mode:	Synchronous		
Priority:	Second		
Synchronization status:	Synchronized		
Synchronization channel:	172.16.11.48:3260 172.16.10.48:3260		
Heartbeat channel:	172.16.0.48:3260		
		Help	Close

3. Click **Yes** to confirm the deletion.





4. Click the Add replica menu button.

Replication manager for HAImage1	×
Refresh Add replica	
Replication partner	
There are no items to show.	
Properties	
Host Name:	
Target Name:	
Mode:	
Priority:	
Synchronization status:	
Synchronization channel:	
Heartbeat channel:	
	Help Close



3. Specify the partner node parameters.

partner node st: 172.16.0.46 Port: 3261 shentication: Use default credentials Username: root 2assword:	Device Configur	ation Wizard		
t: 172.16.0.46 Port: 3261	Add partner noo	le		
st: 172.16.0.46 Port: 3261 hentication: Use default credentials Jsername: root Password:				
hentication: Use default credentials Port: 3261 3261 Jsername: root Password: ••••••••				
hentication: Use default credentials Jsername: root Password: ••••••••	Host: 172.16.0	0.46	Port:	3261
Jsername: root	Authentication:	Use default credentials		•
Password:	Username:	root		
	Password:			
		,		

- 4. Click Next to continue.
- 5. Specify target and virtual disk parameters.

HA Device Configuration Wizard	×
Specify the target and virtual disk parameters.	
Server address: 172.16.0.46	
Target Alias: HAnewSecondNode	
Target Name iqn.2008-08.com.starwindsoftware:172.16.0.46-hanewsecondnode	
Mark as non-optimized path for ALUA	
• Create HA device from the virtual disk:	
Specify file name for the virtual disk on the second server:	
My Computer\D\HAnewSecondNode.img	
Create new Size: 100 GB	
C Create HA device from the device:	
Select device Create new	
< <u>B</u> ack <u>N</u> ext > Cancel Help	

6. Click **Next** to continue.



7. Specify synchronization and heartbeat channels.

Internates	Networks	Sync and heartbeat	Hearlbeal Unity
			· · · ·
🖃 Host Name: 172.:	16.0.46		
172.16.0.46	172.16.0.0		~
172.16.10.46	172.16.10.0	~	
172.16.11.46	172.16.11.0	v	
🖃 Host Name: S3N7	.SWS.COM		
172.16.0.47	172.16.0.0		v
172.16.10.47	172.16.10.0		
172.16.11.47	172.16.11.0		
172.16.11.47	172.16.11.0		

8. Click Next to continue.

9. Specify cache parameters (the cache type is set automatically in accordance with the partner cache type).

Cache	
۲	Write-back caching Data write is done to the memory, and then the client request is completed. Modified memory blocks are stored to the disk later. Each result of a read request is cached in the memory too.
0	Write-through caching Data write is done synchronously to the memory and to the disk. Each result of a read request is cached i the memory too.
0	No caching Read and write requests are processed by the disk storage without caching,
Set t ache s	he maximum available cache size ize (MB):

10. Click **Next** to continue.



- 11. Confirm the settings of a new HA partner target and click **Next** to continue.
- 12. Click **Finish** to close the wizard.



MANUAL SYNCHRONIZATION

If synchronization of HA device nodes did not start automatically after you brought the nodes online, you can manually start it.

To start an HA nodes synchronization:

1. Right-click the required HA device and select **Synchronization** from the shortcut menu.

Target List CHAP Permissions Access Right:	5									SOFTWARE
Target Alias Target IQN							Clustering	Group		
4 iqn.2008-08.co	m.starwindsoftware	:172.16.0.47-h	a				Yes	Genera		
[HA]										
Devices ISCSI Sessions CHAP Permissions										
Device Name		LUN	Device Ty	/pe		State				
HAImago1	1	0	HA			Active				
Serve Remove Device										
Synchronization	-									
Dev Change Factor Addrendedon Securgs										
Dev 🧞 Replication manager	ige1									
Size Mark As Synchronized	в									
Extend Size of HA Device										
Soloct the node	VOU	want	to		26	2	5011	rco	of	synchronization

Note: If you do not know which target has to be used as a source of synchronization, check the **Server Log** or **Event** tabs of each StarWind Server. Select the StarWind Service that went offline last.

9	StarWind	Management Console
	Â	All device nodes are not synchronized now. Please select the node that you want to use as source for synchronization.
	iqn.2008	3-08.com.starwindsoftware: 172.16.0.48-hasecondnode
		Synchronize Cancel

3. Click Synchronize.



PREPARING AN HA DEVICE FOR PROLONGED DOWNTIME

To prepare an HA device for prolonged downtime (for ESXi):

- 1. Disconnect targets of an HA device from the client nodes properly.
- 2. Launch vSphere Client: Start->All Programs->VMware->VMware vSphere Client.
- 3. Shut down all VMs that store their data on the StarWind HA device by right-clicking a VM and selecting Power -> Shut Down Guest.



4. Right-click each VM that stores its data on the StarWind HA device and click Remove from Inventory.





- 5. Click the Configuration tab.
- 6. Choose Storage in the Hardware pane. The list of datastores appears.
- 7. Right-click each datastore that belongs to the HA device and click Unmount on the shortcut menu.

- 8. Choose Storage Adapters in the Hardware pane. Select a storage adapter from the iSCSI Software Adapter list.
- 9. In the **Details** section right-click each device and click **Detach** on the shortcut menu.

.16.0.45 vm0	s3n5.sws.com VMware ESXi, 5.0.0, 76	8111										
vm4	Getting Started Summary Virtual Ma	achines Resource Allocation Perform	nance Configuration Lo	ocal Users & Groups Events	Permissions							
	Hardware	Storage Adapters							Add.	Remove	Refresh R	Rescan
	Health Statur	Device	Type V	VWN								
	Processors	Ibex Peak 6 port SATA AHCI C	ontroller									
	Memory	📀 vmhba0	Block SCSI									
	Storage	o vmhba34	Block SCSI									
	Networking	o vmhba35	Block SCSI									
	Storage Adapters	ymhba36	Block SCSI									
	Network Adapters	wmbba28	Block SCSI									
	Advanced Settings	GA-EP45-DS5 Motherboard	01000 3031									
	Power Management	wmbba32	Block SCSI									
		vmhba33	Block SCSI									
	Software	iSCSI Software Adapter										
	Licensed Features	🕝 vmhba39	ISCSI in	qn.1998-01.com.vmware:s3n5:								
	Time Configuration											
	DNS and Routing											
	Authentication Services											
	Virtual Machine Startup/Shutdown											
	Virtual Machine Swapfile Location											
	Virtual Machine Swapfile Location Security Profile											
	Virtual Machine Swapfile Location Security Profile Host Cache Configuration											
	Virtual Machine Swapfle Location Security Profile Host Cache Configuration System Resource Allocation	Details										
	Virtual Machine Swapfile Location Security Profile Host Cache Configuration System Resource Alocation Agent VM Settings Advanced Eattings	Details										
	Virtual Machine Swapfile Location Security Profile Host Cache Configuration System Resource Alocation Agent VM Settings Advanced Settings	Details wmbba39	afiwara Adaptar								F	Propert
	Virtual Machine Swapfile Location Security Profile Host Cache Configuration System Resource Alocation Agent IM Settings Advanced Settings	Details withba39 Model: ISCSI 55 GCSI Name: ion. 199	oftware Adapter 8-01.com.vmvware:s3n5								F	Propert
	Virtual Machine Snapfile Location Security Profile Host Cade Configuration System Resource Allocation Agent Wi Settings Advanced Settings	Details vmhba39 Model: ISCSI 5c ISCSI Name: Iqn.1991 ISCSI Name: Iqn.1991	oftware Adapter 8-01.com.vmware:s3n5								F	Properti
	Virbual Machine Swepfile Location Security Profile Host Cache Configuration System Resource Allocation Agent With Settings	Details vmhba39 iSCSI 5c iSCSI Name: ign.199i iSCSI Alas: Connected rargets: 6	oftware Adapter 8-01.com.vmwarets3n5 Devices: 3	Paths: 6							F	Propert
	White Machine Sweptle Location Search Profile Host Cache Configuration System Resource Advanced Agent Vis Settings Advanced Settings	Details vmhba39 Model: IDCST 5c ISCST Name: Ign. 1991 ISCST Name: Connected Targets: 6 Verw: Devices Pathal	oftware Adapter 8-01.com.vmvare:s3n5 Devices: 3	Paths: 6							F	Properti
	What Machine Swepfle Location Security Profile Host Cache Configuration System Resource Allocation Agent W Settings Advanced Settings	Details vmhba39 VotAvine: ISCSI 54 SCSI Alae: 6 SCSI Alae: 6 Verv: Detvice: Paths Verve: Detvice: Paths	oftware Adapter 8-01.com.vmwarets3n5 Devices: 3	Patro: 6	Duting Name		1110	1		Tassant	F	Properti
	White Machine Swept Excessor Sector Profile Host Cable Configuration System Resource Alocation Agent IN Settings Advanced Settings	Details vmba39 ISCSI & (SCSI Name: ion, 199) SCSI Alas: Connected Targets: 6 View: Derivices Name Dorivices	oftware Adapter 8-01.com.vmwaresi3n5 Devices: 3 330-67705-chc / Juneer-steer	Patho: 6 identifier and a 24250-62747-b-	Runtime Name	Operational State	LUN	Type	Drive Type	Trensport	Capacity 25.00 Cf	Properti
	Webail Machine Singhite Location Security Profile Host Cache Configuration System Resource Advances Agent With Settings Advanced Settings	Details Winkba39 Model: IOCSI 54 SCSI Name: Ion, 1991 SCSI Alars: Connected Targets: 6 View: [Devices] Paths] Name Procest Tocs (Date Alars 24) Devices (Date Alars 24) Device	oftware Adapter 8-01.com.vmware:s3n5 Devices: 3	Paths: 6 Identifier 11 2012/25/25/25/25/25/25/25/25/25/25/25/25/25	Runtime Name vmbba39:C0:73:0 vmbba39:C0:72:0	Operational State Unnounted Mounted		Type disk disk	Drive Type Non-S2D	Transport ISCSI	Capacity 25,00 GE 30,00 GE	Properti 7 Own 8 NMP 3 NMP
	Virbal Nachne Swepfle Locaton Security Profile Hot Carle Configuration System Resource Allocation Agent With Settings Advanced Settings	Details vmba39 ISCSI SS GCSI Mane: ISCSI SS Connected Targets: 6 View: Devices: Paths Name ROCKETTSCSI Disk (out ePacts BOCKETTSCSI Disk (out ePacts ROCKETTSCSI Disk (cotted) STATUSES ISCSI Disk (out ePacts	oftware Adapter 8-01.com.vmvare:s3n5 Devices: 3 330550755cbc) (unmounted 35bc8520411) StorRSSA4110	Paths: 6 Identifier out.e7.25395507955cbc ingl.201773bc3834e10 ingl.301773bc3834e10 ingl.301773bc3834e10	Runtime Name vmbba395C0173L0 vmbba395C0172L0	Operational State Unmounted Mounted Mounted	ບັນ 2000 00000000000000000000000000000000	Type disk disk disk	Drive Type Non-520 Non-520	Transport ISCSI ISCSI ISCSI	Capacity 25,00 GE 30,00 GE 40,00 GE	Properti 7 Own 8 NMP 3 NMP
	Wrbal Machine Singhie Location Security Profile Host Cache Configuration System Resource Adoction Agent With Settings Advanced Settings	Details Winbba39 KOST None: IDCST 6: ISCST None: ID: 1991 ISCST None: ID: 1991 Connected Targets: 6 View: Devices Paths None: ROCKETISCSD Inks (equilibrium Filter ROCKETISCSD Inks (equilibrium Filter) ROCKETISCSD Inks (equilibrium Filter)	oftware Adapter 8-0 L.com. vmware:s3n5 Devices: 3 33950755cb / (unmounted 33950755cb / (unmounted 33950755cb / (unmounted structstawth) Perame	Paths: 6 [Identifier 1/2 cdf.252390.50795cbc ul.31111d4497de80e3 ul.31111d4497de80e3	Runtime Name vmba39:C0:72:L0 vmba39:C0:71:L0 vmba39:C0:71:L0	Operational State Unnounted Mounted Mounted	0 0	Type disk disk disk	Drive Type Non-SSD Non-SSD	Trensport ISCST ISCSI ISCSI	Capacity 25,00 GE 30,00 GE 40,00 GE	Properti 7 Own 8 MMP 3 NMP
	What Machine Swepfle Location Security Profile Host Carle Configuration System Resource Allocation Agent Whis Settings Advanced Settings	Details vmhba39 Model: BSCSI Science: Install CSCI Alas: resc159 Connector Targets: 6 Verw: Devices: Pathias Name ROCKET ISCSI Diak (our elvezs: ROCKET ISCSI Diak (our elvezs: ROCKET ISCSI Diak (our elvezs:	oftware Adapter 8-01.com. mmare::3n5 Devices: 3 39650755cb.cl/comounted 39650755cb.cl/comounted 39650755cb.cl/comounted Manage Patto Detech	Paths: 6 Identifier 0 exite32539550735cbc 1.012517735cbc5374e10 1.31111d487ce80cg	Runtime Name vmbba39cC0175L0 vmbba39cC017L10	Operational State Urimounted Mounted Mounted	0 0	Type disk disk disk	Drive Type Non-SSD Non-SSD Non-SSD	Trensport ISCST ISCSI ISCSI	Capadty 25,00 GE 30,00 GB 40,00 GB	Properti 7 Own 5 MMP 3 NMP
	What Machine Swoffe Location Security Profile Host Cache Configuration System Resource Adoction Agent Wickings Advanced Settings	Details Winbba39 KOST Name: IDCST 56 ICOST Name: IDCST 56 Connected Targies: 6 View: Device Paths Name ROCKETISCS Diak (equi APA25 ROCKETISCS DIAK ROCKETISCS DIAK R	sftware Adapter 8-01.com, vmware:s3n5 Devices: 3 J98/59/75/cb/ (vmmounted 3hbckK1sea10) Terrame Vmarge Patro Detach Cow ydentifier to dichoxid	Paths: 6 Identifier 10 eduk 202339557756bc 10.31111d487de80c0	Runtime Name vmbba39-C0:75L0 vmbba39-C0:71L0 vmbba39-C0:71L0	Operational State Unnounted Mounted Mounted	LUN 0 0	Type disk disk disk disk	Drive Type Non-SSD Non-SSD	Transport ISCST ISCSI ISCSI	Capadty 25,00 GE 30,00 GB 40,00 GB	Propert
	What Machine Secolific Location Security Profile Host Cache Configuration System Resource Allocation Agent W Settings Advanced Settings	Details vmhba39 BCSI 5- BCSI Nen: CSI Nen: Connected Targets: 6 Verw: Devices Paths Name ROCKETISCSI Diak (eu.e.) 24/55 ROCKETISCSI Diak (eu.e.) 24/55 ROCKETISCSI Diak (eu.e.) 24/55 ROCKETISCSI Diak (eu.e.) 24/55 F	oftware Adapter 8-01.com.vmvarexi3n5 Devices: 3 395-60755cbc/(unmounted 395-60755cbc/(unmounted 395-6454actm) Renome Renome Deckol Copy Identifier to dipboard	Paths: 6 1denofiler 0 eux.e3e2339650735cbc 1ux.2017735cbc394e10 ui.3111106487de80e3	Runtime Name vmbdu395CB172LB vmbbu395CB172LD vmbbu395CB172LD	Operational State Unmounted Mounted Mounted	0 0 0	Type disk disk disk	Drive Type Non-S2D Non-S2D	Transport ISCST ISCST ISCST ISCST	Capadity 25,00 GE 30,00 GB 40,00 GB	Propert
	Withial Machine Simple Location Search Profile Host Cache Configuration System Resource Advanced Agent Visitings Advanced Settings	Details Winiba39 KOST Name: IDCST Sc ISCST Name: IDCST Sc Connected Targets: 6 View: Device: Paths Name ROCKETISCS Diak (equil and Sc ROCKETISCS Diak (equil and Sc ROCKETISCS Diak (equil and Sc) ROCKETISCS Diak (equil and Sc) ROCKETISCS Diak (equil and Sc) C	oftware Adapter 8-01.com, vmware; 53:5 Devides: 3 396:50775:cb / (vmmounted 396:50775:cb / (vmmounted 396:5075:cb /	Paths: 6 Identifier 9 escience25398/59795/cbc wi.3111108487de80ed	Runtime Name vmbba39:Ctr7:LU vmbba39:Ctr7:LU vmbba39:Ctr7:LU	Operational State Unmounted Mounted Mounted	0 0 0	Type disk disk disk	Drive Type Non-SSD Non-SSD Non-SSD	Tressport ISCST ISCSI ISCSI	Capacity 25,00 GE 30,00 GB 40,00 GB	Propert 7 Own 8 NMF 3 NMF
	What Machine Singlife Location Security Profile Host Cache Configuration System Resource Advances Agent Wickstrage Advanced Settings	Details vmhba30 Model: BCCS 54 SCSI Nae: Connected Targets: 6 Verv: Devices Paths ROCKETISCSI Diak (eur e3:05 ROCKETISCSI E3:05 RO	oftware Adapter 6-01.com.vmvare:s3n5 Devices: 3 330:50795cbc) (unmountedo 330:65024cbc) Kanage Patha Betch Copy identifier to dipboard	Pathu: 6 1dentifier 10 col.e3253950735dc 1012027735d5534410 1011108487de80ed	Runtime Name vmbba39cCbr72LD vmbba39cCbr72LD vmbba39cCbr71LD	Operational State Unmounted Mounted Mounted	0 0 0	Type disk disk disk disk	Drive Type Non-SSD Non-SSD Non-SSD	Transport ISCSI ISCSI ISCSI	F Cepacity 25,00 GE 30,00 GE 40,00 GE	Propert
	What Machine Swept Excelon Security Profile Host Cache Configuration System Resource Advanced Advanced Sectings	Details whiba39 KoSI Name: ip.199 ISSI Name: ip.199 ISSI Name: ip.199 Connected Targets: 6 View: Devices Paths Name ROCKETISCSI Diak (guide Paths ROCKETISCSI Diak (guide Paths) ROCKETISCSI DIAK (guide Paths) ROC	oftware Adapter 8-01.com.vmware:s3h5 Devices: 3 3386507556.cl (ummounted 3386507556.cl (ummounted 338650756.cl (ummounted 338650756.	Pathu: 6 Identifier 9 esc. 82539559795cbc ===================================	Runtime Name vmbb395/Ct75L0 vmbb395/Ct75L0 vmbb395/Ct71L0	Operational State Unmounted Mounted	υ υ υ υ υ υ υ υ υ υ υ υ υ υ	Type diak diak diak	Drive Type Non-S2D Non-S2D	Transport ISCSI ISCSI ISCSI	F Capadity 25,00 Ge 40,00 GE	Propert
	What Machine Singhie Location Security Profile Host Cache Configuration System Resource Advances Agent Wistings Advanced Settings	Details vmbba30 Vcdit BCST 54 VSC3 Nane: Connected Targets: 6 Vew: Devices: Patho Nance: ROCKET/SCSIDIa/ (eu/2025) Rocket/SCSIDIa/ (eu/2025) NOCKET/SCSIDIa/ (eu/2015) ROCKET/SCSIDIa/ (eu/2015) Connected Targets:	oftware Adapter 8-0 L.com.vmware:s3n5 Devices: 3 2006/37795202 (comounted 3006/37795202 (comounted 3006/3795202 (comounted 3006/3795202 (comounted 3006/3795202 (comounted 3006/379520	Paths: 6 i Identifier // acid alta2339630795cbc wi 2d12735c8534e410 wi 31111084873c60cd	Runtime Name wmbba39:C0:7510 vmbba39:C0:7210 vmbba39:C0:7110	Operational Sate Unmounted Mounted Mounted	0 0	Type disk disk disk	Drive Type Non-S2D Non-S2D	Transport ISCSI ISCSI ISCSI	Capacity 25,00 GB 30,00 GB 40,00 GB	Propert 7 Own 8 NMF



- 10. Choose Storage Adapters in the Hardware pane.
- 11. Select a storage adapter from the iSCSI Software Adapter list.
- 12. Click the Properties link in the Details section.
- 13. In the iSCSI Initiator window, switch to the Dynamic Discovery tab.
- 14. Select each StarWind Server and click the Remove button.

iSCSI Initiator (vmhba39) Properties			_0
General Network Configuration Dynamic Discovery Static [Discovery		
Send Targets			
Discover iSCSI targets dynamically from the following locations	s (IPv4, host name)	:	
iSCSI Server Location		1	
172.16.11.47:3260			
172.16.11.48:3260			
	<u>A</u> dd <u>R</u>	emove <u>S</u>	ettings

- 15. Switch to the Static Discovery tab of the iSCSI Initiator window.
- 16. Select each StarWind target and click Remove.

iSCSI Initiator (vmhba39) Pro	perties	<u>_ ×</u>
General Network Configuration	Dynamic Discovery Static Discovery	
Discovered or manually entered iS	CSI targets:	
iSCSI Server Location	Target Name	
172.16.11.47:3260	iqn.2008-08.com.starwindsoftware:172.16.0.47-ha	
172.16.11.48:3260	iqn.2008-08.com.starwindsoftware:172.16.0.48-hasecondnode	e
]		
	Add <u>R</u> emove <u>S</u> etti	ngs
	Close	Help

To prepare an HA device for prolonged downtime (for Hyper-V servers):

- 1. Disconnect targets of an HA device from the client nodes properly.
- 2. Launch Hyper-V Manager: Start->Administrative Tools->Hyper-V Manager.
- 3. Right-click each VM that stores its data on the StarWind HA device and click Shut Down.

∐ ≝Hyper-¥ Manager							
File Action View Window H	telp						_8×
🗢 🔿 🔰 🖬 🚺 🖬							
Hyper-V Manager	Victoral	Mashinas					Actions
53N6	Name	A	State	CPIIIIsage	Assigned Memory	Memor	53N6 🔺
	Vm ^A	D-IIIC	Running	1%	1024 MB	in onioi,	New
	vn	Connect	Off				🕞 Import Virtual Machine
		Settings	Off				🚰 Hyper-V Settings
	_ ···	Turn Off	01				Virtual Network Manager
		Shut Down Save					🔏 Edit Disk
	-	Dausa					Inspect Disk
		Reset					Stop Service
		Spanshot					X Remove Server
	-	Bonamo					Defrech
	Snaps	Rename					(Refresh
		Help					View •
		Т	he selected virtual	machine has no si	hapshots.		New Window from Here
							👔 Help

- 4. Launch iSCSI Initiator: Start->Administrative Tools->iSCSI Initiator.
- 5. Click each StarWind target and click Disconnect.

gets	Discovery	Eavorite Targets	l Volumes an	d Devices É RA	DIUS Í Configurati
- I uick Ci		r aroneo rargoeo			
o disco NS na	over and log me of the ta) on to a target usi arget and then click	ng a basic coi < Quick Conne	nnection, type act.	the IP address or
					Quick Copport
arget:					Quick connect,
scove	red targets				
					<u>R</u> efresh
Vame				Status	
qn.20	08-08.com.:	starwindsoftware:	172.16.0	Connected	
qn.20	08-08.com.	starwindsoftware:	172.16.0	Connected	
qn.20	08-08.com.:	starwindsoftware::	172.16.0	Connected	
qn.20	08-08.com.:	starwindsoftware:	172.16.0	Connected	
qn.20	08-08.com.:	starwindsoftware::	172.16.0	Connected	
qn.20	08-08.com.:	starwindsoftware:	172.16.0	Connected	
o conr lick Co	nect using a nnect.	dvanced options, s	elect a targe	t and then	Connect
o com nen cli	pletely disco ck Disconne	innect a target, se ct.	lect the targe	et and	Disconnect
or tarç elect t	get properti he target ar	es, including config nd click Properties.	juration of se	ssions,	Properties
or con	figuration o	f devices associate	ed with a targ	et, select	De <u>v</u> ices

6. Switch to the Favorite Targets tab. Select each HA target and click the Remove button.



iI Initiator Prop	erties			
rgets Discovery	Favorite Targets Volum	ies and Devices	RADIUS Configura	ation
he iSCSI initiator s vailable. An attem me this computer r	ervice ensures that all volu pt to restore connections t estarts.	mes and devices to targets listed h	on a favorite target here will be made eve	are ry
o add a target to t he list of Favorite 1	his list you must use the da "argets" or use the "Quick (fault selection of Connect" option.	f "Add this connection	n to
avorite targets:			R <u>e</u> fresh	
iqn.2008-08.com.	starwindsoftware:172.16.0	I.48-hasecondnoi	de	
o view the target (details, select a target and	then click Details	;. <u>D</u> etails	
o remove a target fter a system rest	from this list and make it no	ot reconnect en click	<u>R</u> emove	1

7. Launch StarWind Management Console and select the Targets item. Go to the Target List tab and select the iSCSI Sessions tab. Make sure that there are no client connections.

-HA	ign.2008-08.com.starwindsoftware:172	.16.0.47-ha	Yes	General
[HA]				
Devices iSCSI Sessions	(5) CHAP Permissions			
Initiator Name				
🚴 iqn.2008-08.com.starwir	dsoftware:172.16.0.48-hasecondnode			
💫 iqn.2008-08.com.starwir	dsoftware:172.16.0.48-hasecondnode			
💫 ign.2008-08.com.starwin	dsoftware:172.16.0.48-hasecondnode			
💫 ign.2008-08.com.starwir	dsoftware:172.16.0.48-hasecondnode			
💫 ign.2008-08.com.starwin	idsoftware:172.16.0.48-hasecondnode			

8. Go to Start->Administrative Tools->Services.



🖏 Services			
File Action View	Help		
(> ⇒ 🗖 🖸 !	o 🗟 🚺 📷 🕨 🔳 🛛 🕪		
🔍 Services (Local)	🔕 Services (Local)		
	StarWind iSCSI SAN Software	Name A Description Status	Startup Type Log On As
	Stop the service	Spl Server VSS Wri Provides th Started	Automatic Local System Disabled Local Service
	Restart the service	Start Wind iSCST Start Started	Automatic (D Local System Automatic Local System
	Description: Exports local physical/virtual storage	Started	Automatic Local System
	devices as iSCSI targets	TCP/IP NetBio Resume . Started	Automatic Local System Automatic Local Service
		Thread Order All Tasks +	Manual Local Service
		TPM Base Ser Refresh Refresh	Manual Local Service Disabled Local Service
		User Profile S Virtual Disk	Automatic Local System Manual Local System
		Volume Shade Help	Manual Local System
		Windows Audio End Manages a	Manual Local System
		Windows CardSpace Securely e	Manual Local System Manual Local Service
		Windows Driver Fo Manages u	Manual Local System
		Windows Event Coll This servic	Manual Network S
		🧠 Windows Event Log This servic Started	Automatic Local Service Automatic Local Service -
		Windows Font Cac Optimizes Started	Automatic (D Local Service Manual Local System
	Extended Standard	Windows inscaler Adds, mourth	Fichidar Edda System
on service StarWind iS	CSLSAN Software on Local Computer		



RESTORING A STARWIND SERVER AFTER DOWNTIME

- 1. Go to Start->Administrative Tools->Services.
- 2. In the Services window, right-click the StarWind iSCSI SAN service and click Start on the shortcut menu.

Note: You will need to start the service in two cases:

- Host operating system of StarWind was online during planned downtime
- Automatic start for StarWind service was disabled

Services						-	
File Action View	Help						
	🗟 🚘 🛛 📰 🕨 🔳 🕕 🕩						
🤹 Services (Local)	🔍 Services (Local)	_					
	StarWind iSCSI SAN Software	Name 🔺	Description	Status	Startup Type	Log On As	
		🎑 SQL Server Reporti	Manages,		Automatic	SWS\vlad	
	<u>Start</u> the service	🔍 SQL Server VSS Wri	Provides th	Started	Automatic	Local System	
		🔍 SSDP Discovery	Discovers		Disabled	Local Service	
	Description:	StarWind iSCSI SA.	Charles		Automatic (D	Local System	
	Exports local physical/virtual storage	🧟 System Center Virt 💻	Stop	Started	Automatic	Local System	
	devices as ISCSI targets	🥋 System Event Notif	Bouco	Started	Automatic	Local System	
		🏩 Task Scheduler	Pecime	Started	Automatic	Local System	
		🐏 TCP/IP NetBIOS He	Dectort	Started	Automatic	Local Service	
		🔍 Telephony 📃	Nestart	-	Manual	Network S	
		🏩 Thread Ordering Se	All Tasks 💦 🕨	•	Manual	Local Service	
		🔍 TPM Base Services 👘	Defrech	-	Manual	Local Service	
		🔍 UPnP Device Host 📃	Refresh	_	Disabled	Local Service	
		🥋 User Profile Service	Properties	Started	Automatic	Local System	
		🏩 Virtual Disk 👘 👘		5tarted	Manual	Local System	
		🔍 Volume Shadow Co	нер		Manual	Local System	
		🎑 Windows Audio	Manages a		Manual	Local Service	
		🥋 Windows Audio End	Manages a		Manual	Local System	
		🥋 Windows CardSpace	Securely e		Manual	Local System	
		🥋 Windows Color Sys	The WcsPl		Manual	Local Service	
		🥋 Windows Driver Fo	Manages u		Manual	Local System	
		🥋 Windows Error Rep	Allows erro		Manual	Local System	
		🥋 Windows Event Coll	This servic		Manual	Network S	
		🎑 Windows Event Log	This servic	Started	Automatic	Local Service	
		🏩 Windows Firewall	Windows Fi	Started	Automatic	Local Service	
		🎡 Windows Font Cac	Optimizes	Started	Automatic (D	Local Service	-
	Extended Standard						
Start service StarWind iS	CSI SAN Software on Local Computer						

- **3.** Launch **StarWind Management Console** and connect StarWind Servers (please refer to StarWind Help or <u>StarWind Quick Start Guide</u> for more detailed information).
- 4. Select an HA device on the Target List tab and check its synchronization status below, in Device Properties.
- **5.** If synchronization does not start automatically, perform start it manually (see the **Manual Synchronization** section). Wait until synchronization is complete.



StarWind Management Console						_ D ×
File Host Target Options Help						
Refresh Connect Disconnect Add StarWind Server Remo	ove Host Add Device Remove Target Help	😫 Deduplicated Disk 💾 High Ava	ilability Image 🚺 Image File	RAM RAM Disk		
StarWind Servers	Target List CHAP Permissions A	ccess Rights		â	≥ Şt a	
	Target Alias Tar	get IQN		c	lustering	Group
Devices	ZHASecondNode iqn.	2008-08.com.starwindsoftware:172.16.0.48	-hasecondnode	Y	es	General
H Backup						
	[HASecondNode]					
	Devices (SCSI Sessions (5) CHAP Permis	sions				
	Device Name		Device Type	State		
	HAImage1	0	HA	Active		
	Deuise Preparties					
	Device Propercies					
	Device:	HAImage1				
	Size:	100 GB				
	First Server					
	Target Name:	ign.2008-08.com.starwindsoftware:	172.16.0.48-hasecondnode			
	Virtual Disk:	My Computer\D\HA.img				
	Priority:	Second				
	Auto synchronization after failure:	Yes				
	Synchronization Type:	Full				
	Synchronizing:	1%				
A A A	Second Server					
		: 2000 00ti-dft	170.14.0.47.5-			
	Priority	First	172.10.0.47-Ma			
	Synchronization Channel	172 16 11 47:3260:1 🐼 172 16	10 47:3260:1 🔗			
	Heartheat Channel:	172.16.0.47:3260:1	101111020011 🐨			
	Synchronization Status:	Synchronized				
VO	Cache					
	Cache:	Write-back caching				
	Cache size:	128				
StarWind Software Ready						

6. Connect HA targets to the client node.

Take the following steps on ESXi servers:

- 1. Launch vSphere Client: Start->All Programs->VMware->VMware vSphere Client.
- 2. Switch to the Configuration tab and click Storage Adapters in the Hardware pane.
- **3.** Select a storage adapter from the **iSCSI Software Adapter** list and click the **Properties** link in the **Details** section.
- 4. Switch to the Dynamic Discovery tab of the iSCSI Initiator window.
- 5. Click Add.
- 6. Enter an IP address and port of a StarWind Server.
- 7. Click OK.

ć	Add Send Target	Server	×					
	iSCSI Server:	172.16.11.47	-					
	Port:	3260						
	Parent:							
	Authentication may need to be configured before a session can be established with any discovered targets.							
		<u>C</u> HAP						
		OK Cancel <u>H</u> el	>					



8. Perform the same action for all StarWind Servers.

iSCSI Initiator (vmhba39) P	roperties			
eneral Network Configuration	Dynamic Discovery	Static Discovery		
Send Targets				
Discover iSCSI targets dynamica	ally from the following	locations (IPv4, host	name):	
iSCSI Server Location				
172.16.11.47:3260				
		<u>A</u> dd	<u>R</u> emove S	ettings
			Close	Help

- 9. Switch to the Configuration tab and select Storage Adapters in the Hardware pane.
- 10. Select a storage adapter from the iSCSI Software Adapter list.
- **11.** Right-click each device and click **Attach.**

Details								
vmhba39 Model: iSCSI Software Ad iSCSI Name: ign. 1998-01.com.v iSCSI Allas: Connected Targets: 2	lapter vmware:s3n5 es: 1 Paths: 2							Properties
View: Devices Paths								
Name	Identifier	Runtime Name	Operational State	LUN	Туре	Drive Type	Transport	Capacity Owner
ROCKETISCSIDisk (eui f1d89380ch434)	eui.f1d89380cb434275	5 vmhba39:C0:T0:L0	Unmounted	0	disk	Non-SSD		0,00 B NMP
Rename								
Manage Paths								
Attach								
Copy identifier to	dipboard							

12. Select Storage in the Hardware pane. Right-click the required datastore and select Mount.

View:	Datasto	ores D	evices												
Datast	atastores Refresh Delete Add Storage Rescan All.													Rescan All	
Identi	ification		Device	Drive	Type C	Capacity	Free	Туре	Last Update	Hardware Acceleration					
	datastore	2	Local ATA Disk (t	Non-S	SD 14	14,00 GB	124,73 GB	VMFS5	17.10.2012 18:21:22	Unknown					
	HAstoragi	e (inacti	ROCKET iSCSLD	Non-S		N/A	N/A	N/A		Unknown					
		Br	owse Datastore												
		Re	name												
		Mo	unt												
		De	lete												
		Re	fresh												
		Co	py to Clipboard Ctrl+C												



13. Now you can register a virtual machine. Right-click the appropriate datastore and click **Browse Datastore** on the shortcut menu.

View	: Datas	tores Devi	ces										
Data	stores										Refresh Dele	te Add Storage F	Rescan All
Ide	ntification	~	Status	Device	Drive Type	Capacity	Free	Туре	Last Update	Alarm Actions	Storage I/O Control	Hardware Acceleration	
	datasto	re2	Normal	Local ATA Disk (t	Non-SSD	144,00 GB	124,15 GB	VMFS5	18.10.2012 17:09:08	Enabled	Disabled	Unknown	
	HAs	Browse D	atastore		Non-SSD	99,75 GB	83,79 GB	VMFS5	18.10.2012 17:09:08	Enabled	Disabled	Not supported	
		Alarm		•									
		Assign Us	er-Defined Storag	e Capability									
		Rename											
		Unmount Delete											
		Open in N Refresh	ew Window	Ctrl+Alt+N									
		Properties	s										
		Copy to C	lipboard	Ctrl+C									

14. Navigate to the folder named after the virtual machine. Right-click the <virtual machine>.vmx file and click **Add to Inventory**.

🕑 Datastore Browser - [HAstorage]			
B (K) (7) (8) (8) (8) (8) (8) (8) (8) (8) (8) (8			
Folders Search	[HAstorage] vmF5 Name vmr5, vmv of transformation vmvat Add to Inventory vmvat Go to Folder vmwat Outl vmwat Copy vmwat Paste vmwat Inflate vmwat Download Move to Rename	Size Type Path 0,00 KB Virtual Machine [HAstorage] vmF 284,43 KB Virtual Machine [HAstorage] vmF 8,48 KB Non-volatile me [HAstorage] vmF 197,90 KB Virtual Machine [HAstorage] vmF 188,46 KB Virtual Machine [HAstorage] vmF 84,46 KB Virtual Machine [HAstorage] vmF 263,58 KB Virtual Machine [HAstorage] vmF 152,13 KB Virtual Machine [HAstorage] vmF 102,15 KB Virtual Machine [HAstorage] vmF 28 640,00 K Virtual Disk [HAstorage] vmF	Modif 5 18.10. 5 18.10.
1 object selected 0,00 B	Delete from Disk)

15. The **Add to Inventory** wizard opens. Follow the wizard's steps to add a virtual machine.

🛃 Add to Inventory	
Name Enter a name for this	virtual machine
Name	Name:
Resource Pool	vmFS
Ready to Complete	Virtual machine (VM) names may contain up to 80 characters and they must be unique within each vCenter Server VM folder.
	VM folders are not viewable when connected directly to a host. To view VM folders and specify a location for this VM, connect to the vCenter Server.
Help	Sack Next ≥ Cancel

16. Right-click a VM and click Power -> Power On.

🛃 172.16.0.45	- vSphere Client						
File Edit View	Inventory Administra	tion Plug-ins Help					
	🔥 Home 🕨 🚮 Inve	entory 🕨 🛐 Inver	ntory				
) G 🔯 🕅	19 🖻 🄛	🧇 🤣				
□ □ 172.16.0	0.45	vm2 Getting Starter	Summary Resource All	ocation Perf	ormance Events	Console Permissions	
	Power	•	Power On	Ctrl+B			close tab 🗵
1 1 1 1	Guest Snapshot Open Console Edit Settings Add Permission Report Performance Rename Open in New Window. Remove from Inventor Delete from Disk	Ctrl+P Ctrl+Alt+N ry	Power Off Suspend Reset Shut Down Guest Restart Guest Virtual machine is ou can use virtual vironments, as test ver applications. es run on hosts. Th achines.	Ctrl+E Ctrl+Z Ctrl+T Ctrl+D Ctrl+R an isolated machines as ing environr	like a and a virtual computing s desktop or ments, or to st can run	Virtual Machines	Host
		Basic Tasks Power or Bedit virtu	n the virtual mach Jal machine settin	ine gs		vSphere Client	

Take the following steps on Hyper-V servers:

- 1. Launch iSCSI Initiator: Start->Administrative Tools->iSCSI Initiator.
- 2. Select each target and click Connect.

	Discovery	Favorite Targets	Volumes and Devic	es RAD)IUS Configurat	ion
uick Cor	nnect					
lo discov DNS nam	er and log e of the ta) on to a target usin arget and then click	ng a basic connectio Quick Connect.	n, type tl	he IP address or	
[arget:					Quick Connect	i
iscovere	ed targets					
					<u>R</u> efresh	
Name					Status	
iqn.200	3-08.com.:	starwindsoftware:1	72.16.0.47-ha		Connected	
iqn.200	3-08.com.:	starwindsoftware:1	72.16.0.48-haseco	ndnode	Connected	

3. Launch Server Manager: Start->Administrative Tools->Server Manager.



4. Click the **Disk Management** item and check whether the disk is online. If needed right-click the disk and click **Online** on the shortcut menu.

📕 Server Manager		
File Action View Help		
🗢 🔿 🖄 📅 🔽 🖬 🛃 🖆	월 😼	
Server Manager (S3N6)	Disk Management Volume List + Graphical View	Actions
	Volume Layout Type File System Status Capacity Fre	ee Disk Managem 🔺
Diagnostics	G (C:) Simple Basic NTF5 Healthy (System, Boot, Page File, Active, Crash Dump, Primary Partition) 47,85 GB 5,	More Actions
Configuration Storage	Call ATA (C:) Simple Basic NTPS Reaking (Primary Parktion) 101,20 GB 9,	
Windows Server Backup		
📄 Disk Management	4	
		3
	Basic (C:) DATA (E:)	
	149,05 GB 47,85 GB NTFS Online Healthy (System, Boot, Page File, Active, Crash D Healthy (Primary Partition)	
	GDisk 1	
	Basic 465,76 GB 300,00 GB 165,76 GB	
		-
	GDisk 2 Basic	
	100,00 GB 100,00 GB 00,00 GB	
	Help	
	Properties	
	Help	
	Unallocated Primary partition	

5. Virtual disks stored on the HA device will become available for the previously created VMs. Now you can start VMs in **Hyper-V Manager**.

i ver i idnager							_ 0
Action View Help							
🔿 🙋 📊 🚺							
erver Manager (53N6)	53N6					Acti	ons
Roles II = File Services						53N	6
- Kite Services	¥irtual Machines	1 -	1		- 1		New
🖃 🏭 Hyper-V Manager	Name A	State	CPU Usage	Assigned Memory Memory De	emand Memory Status Uptime	1	Import Virtu
3N6	VMAD+IIS	Ult Off				1	Import virtus.
Features	vmClusterNode2	Off				1	Hyper-V Se
Diagnostics	vmClusterNode3	Off				2	Virtual Net
Storage	vmDataCenter	Off					Edit Diak
Windows Server Backup	vmFS	Off					LUIC DISK
Disk Management	vmSQL	Running	2%	512 MB	00:00:2		Inspect Dis
							Stop Service
						X	Remove Se
	-					Q	Refresh
							View
	Snapshots				۲	2	Liele
		-					пер
	I he selected virtual machine has no snapshots.						5QL
						-	Connect
							Settings
							Turn Off
						0	Shut Down
						0	Save
							Pause
							Reset
	vmSQL					3	Snapshot
						=1	Rename
	Create	ed: 17.10.2012 20	:05:19	Heartbeat:	No Contact	2	Help
	Notes	: None		Assigned Memory:	512 MB		-



CHANGING SYNCHRONIZATION AND HEARTBEAT CHANNELS

To change synchronization or heartbeat channels or replace a NIC:

1. Launch StarWind Management Console and connect to the first StarWind HA partner.

2. Right-click the required HA device and click **Replication manager** on the shortcut menu.

Target List CHAP Permissions A	ccess Rights						SOFIWAR
Target Alias Tar	get IQN				Clustering	Group	
📥 HA iqn.	2008-08.com.starwindsoftware	e:172.16.0.47-ha			Yes	General	
[HA]							
Devices iSCSI Sessions (5) CHAP Permis	ssions						
Device Name		LUN	Device Type	State			
HAImage1	1	0	HA	Active			
Remove Device							
Force Remove Device							
synchronization							
Device	Settings						
Change Synchronization Priorit	/						
Device 🚓 Replication manager							
Size: Mark As Synchronized							
Extend Size of HA Device							

3. HA Device Replication manager appears. Click the Remove replica button on the toolbar.

Replication manager for HAI	mage1 🛛 🗙
Refresh Add replica Remove r	eplica
Replication partner	
iqn.2008-08.cor Connection status: Synchronization sta Mode: Synchronous	n.starwindsoftware:172.16.0.48-hasecondnode Active tus: Synchronized
Properties	
Host Name:	S3N8
Target Name:	iqn.2008-08.com.starwindsoftware:172.16.0.48-hasecondnode
Mode:	Synchronous
Priority:	Second
Synchronization status:	Synchronized
Synchronization channel:	172.16.11.48:3260 172.16.10.48:3260
Heartbeat channel:	172.16.0.48:3260
	Help Close

4. Click Yes to confirm the deletion.



5. Connect to the second HA partner node.

StarWind Management Console							<u>- 🗆 ×</u>
File Host Target Options Help							
Refresh Connect Disconnect Add StarWind Server Remove Host	Add Device Remove Target	Deduplicated Disk	Availability Im	age 🧾 Image File RAM RAI	M Disk		
StarWind Servers S3X7 (172.16.0.47) : 3261	Target List CHAP Permissions	Access Rights				≈şţą	ar Wind
Targets	Target Alias	Target IQN	172 16 0 40			Clustering	Group
Devices	ASecononode	ign.2008-08.com.starwindsoftware	:172.16.0.464	nasecondnode		tes	General
S3N8 (172.16.0.48): 3261	[HASecondNode]						
Devices	Devices SCSI Sessions CHAP Per	missions	IUN	Device Type	State	1	
+ Backup	All HAImage 1		0	HA	Active		
	Device Properties						
	Device:	HAImage 1					
	Size:	100 GB					
9	First Server						
	Target Name:	iqn.2008-08.com.star	vindsoftware:1	72.16.0.48-hasecondnode			
A A A A A A A A A A A A A A A A A A A	Virtual Disk:	My Computer \D \HA.im	g				
	Priority:	Second					
	Auto synchronization after failure:	Yes					
la h	Synchronization Status:	Not synchronized					
	Cache						
	Cache:	Write-back caching					
	Cache size:	128					
///							
11/							
StarWind Software Ready							//

6. Right-click the target and click **Remove Target**.

Target List	CHAP Permissions Access Rights					50	FTWARE
Target Alias	Target IQN					Clustering	Group
HASecond	Add Target	otarwinds	oftware: 172. 16.0.4	18-hasecondnode		Yes	General
	Add a New Device to the Target Add an Existing Devices to the Target						
Device Nam 8	Remove Target Force Remove Target	┡	LUN	Device Type	State		
HAImag —	Move to group		0	HA	Active		
Device Prop	Refresh erues						

7. Click Yes to confirm the deletion.



8. Select the first HA partner node again. Right-click the target and click Manage nodes.

Target	Alias	Target IQN			Clusteri	ng Group		
🛄 HA	HA iqn. 2008-08.com.starwindsoftware:			a	Yes	General		
	[HA]							
Dev	ices (ISCSI Sessions (2) CHAP P	ermissions						
Device	Name		LUN	Device Type	State			
НА НА	8 Remove Device		0	HA	Active			
	8 Force Remove Device							
Dev	Synchronization							
Dev	👰 Change Partner Authenticatio	n Settings ge1						
Size	Change Synchronization Priori	ty β						
Ein	🖧 Manage nodes							
	Mark As Synchronized			-				
Tar	Extend Size of HA Device,	08-08.com.	starwindsoftware: 17	'2.16.0.47-ha				

9. HA Device Replication manager appears. Click Add replica on the toolbar.

Replication manager for HAImage1	×
Refresh Add replica	
Replication partner	
There are no items to show.	
Properties	
Host Name:	
Target Name:	
Mode:	
Priority:	
Synchronization status:	
Synchronization channel:	
Heartbeat channel:	
	Help



10. Specify an IP address of the second StarWind HA partner node.

dd partner no	de			
Host: 172.16.	0.48	Port:		3261
Authentication:	Use default credentials			•
Username:	root			
Password:	•••••			

- 11. Click Next to continue.
- **12.** Specify target and virtual disk parameters.
- 13. Select Create HA from virtual disk radio button.

14. Specify the previously used image file as a virtual disk on the second server.

specify the target and virtual disk parameters.	
Server address: 172.16.0.48	
Target Alias: HASecondNode	
Target Name Iqn.2008-08.com.starwindsoftware:172.16.0.48-hasecondnode	_
Mark as non-optimized path for ALUA	
• Create HA device from the virtual disk:	
Specify file name for the virtual disk on the second server:	
My Computer\D\HA.img	
Create new Size: 100 GB Y	
C Create HA device from the device:	
Select device Create new	
<u>Back</u> <u>N</u> ext > Cancel H	elp

15. Click Next to continue.



16. Specify synchronization and heartbeat channels.

Select channel for synchronization and at least one heartbeat channel that is independent from the sync channel.						
Interfaces	Networks	Sync and heartbeat	Heartbeat only			
- Host Name: 172.	16.0.48					
.72.16.0.48	172.16.0.0					
.72.16.1.48	172.16.1.0		v			
72.16.10.48	172.16.10.0	✓				
72.16.11.48	172.16.11.0					
Host Name: S3N7	.SWS.COM					
.72.16.0.47	172.16.0.0		~			
.72.16.1.47	172.16.1.0		v			
72.16.10.47	172.16.10.0	v				
72.16.11.47	172.16.11.0	v				

- 17. Click Next to continue.
- **18.** Specify cache parameters (the cache type is set automatically in accordance with the partner cache type).

Cache	· · · · · · · · · · · · · · · · · · ·
۲	Write-back caching Data write is done to the memory, and then the client request is completed. Modified memory blocks are stored to the disk later. Each result of a read request is cached in the memory too.
0	Write-through caching Data write is done synchronously to the memory and to the disk. Each result of a read request is cached in the memory too.
0	No caching Read and write requests are processed by the disk storage without caching.
Set t ache s	he maximum available cache size ize (MB): 128

19. Click **Next** to continue.



20. Confirm the settings of a new HA partner target.

HA Node Wizard	X
3 0	Add Device Wizard
S	The following device will be added:
scsi	HAImage4
H	You specified the following settings:
	New Partner Host : 172.16.0.48 New Partner Management Port : 3261 New Partner Authentication : Use default credentials New Partner Username : iqn.2008-08.com.starwindsoftware:172.16.0.48-hasecondnod Mark as non-optimized path for ALUA : No Partner Image : My Computer\D\HA.img Create new : No Cache mode : wb Cache size : 128
≈ <mark>ŞtarWind</mark>	Click Next to add new device.
	< <u>B</u> ack <u>N</u> ext > Cancel Help

21. Click **Next** to continue.

HA Node Wizard		×
3 0	Add Device Wizard	
S	The following device was created:	
scsi	HAImage4	
	Target name:	
		×
≈ ŞtarWind	To close this wizard click Finish.	
	< <u>B</u> ack Finish Cancel	Help

22. Click Finish to close the wizard.



CONFIGURING CHAP FOR AN HA DEVICE

- 1. Launch StarWind Management Console and connect the first StarWind HA partner node.
- 2. Right-click the HA device on the CHAP Permissions tab and click Add permission.

Target List	CHAP Permissions	Access Rights					
Target Alias		Target IQN				Clustering	Group
Awb iqn.2008-08.com.starwindsoftware:172.16.0.48-hawb					Yes	General	
Devices 15C	[HAwb] Devices / BCSI Sessions (6) / CHAP Permissions						
Target Chiar Na	ine i raig	erbener	Iniciacor Crime Name	Thiddloi Secret			
	Add Permission Edit Permission Delete Permission						

- 3. Specify the values in the Target CHAP name, Target secret and Confirm secret fields.
- 4. Select Mutual CHAP authentication checkbox to ensure a higher level of iSCSI security.

N	ew Permission Item		x
	CHAP Authentication C	ptions	٦
	Target CHAP name:	HA	
	Target secret:	•••••	
	Confirm secret:	•••••	
	Mutual CHAP auth	entication	
	Initiator CHAP name:		
	Initiator secret:		
	Confirm secret:		
		OK Cancel	

- 5. Click OK.
- 6. Read the notification and click OK.



7. Connect to the second HA partner node.



8. Right-click HA device and click Change Partner Authentication Settings.

Note: If you don't change partner authentication settings, the HA device will not be able to synchronize after the service restart.

/ Devices \iS	CSI Sessions (6) CHAP Permissions			
Device Name		LUN	Device Type	State
HAImac 🧯	Remove Device	0	HA	Active
8	Force Remove Device			
Device P	Synchronization			
Device: 👔	Change Partner Authentication Settings			
Size:	Change Synchronization Priority			
First Se 🤻	Replication manager Mark As Synchronized			
Target N	Extend Size of HA Device	8.com.starwindsoftwar	re:172.16.0.48-hasecondnode	
Virtual Draw	Pry Compo	er\D\HA.img		

- 9. Select the partner target with installed CHAP.
- **10.** Specify CHAP as an authentication type and enter local name and secret specified for the first server (refer to the item 2-4 of this section).

ner Authentication	Settings	×
Authentication para Specify partner au	Interior Int	
Partner: ign.2008-0	8.com.starwindsoftware:172.16.0.47-ba	
raidion paneooo a		
Authentication type:	CHAP	
Local name:	HA	
Local secret:	••••••	
Peer name:		
Peer secret:		
		-
	< <u>B</u> ack Finish Cancel Help	

- 11. Click Finish.
- **12.** Perform the actions described in the item 1-11 for another HA partner node.
- **13.** Specify a local name and secret to connect to the client node.

Take the following steps on ESXi servers:

- 1. Launch vSphere Client: Start->All Programs->VMware->VMware vSphere Client.
- 2. Switch to the Configuration tab and select Storage Adapters in the Hardware pane.
- 3. Select a storage adapter from the **iSCSI Software Adapter** list and click the **Properties** link in the **Details** section.
- 4. Switch to the Static Discovery tab of the iSCSI Initiator window.



5. Select the target and click Settings.

iSCSI Initiator (vmhba39) Pro	perties	<u> </u>
General Network Configuration D	Dynamic Discovery Static Discovery	
Discovered or manually entered iS	CSI targets:	
iSCSI Server Location	Target Name	
172.16.11.47:3260	iqn.2008-08.com.starwindsoftware:172.16.0.47-ha	
	Add <u>R</u> emove <u>Setti</u>	ngs
	Close	Help

6. Click CHAP.

ć	Static Target Serv	er Settings	×
	iSCSI Server:	172. 16. 11. 47	
	Port:	3260	
	iSCSI Target Name:	2008-08.com.starwindsoftware: 172.16.0.47-ha	
	Parent:	172.16.11.47:3260	
	Authenticatio be established	n may need to be configured before a session can d with the specified target.	
		<u>C</u> HAP <u>A</u> dvanced	
		Close <u>H</u> elp	

7. Clear the Inherit from parent checkbox and specify a CHAP name and secret.

Note: If you have specified mutual CHAP earlier, clear the **Inherit from parent** checkbox and specify a mutual CHAP name and secret.

CHAP (target a	secret and Mutual CHAP secret must be different. authenticates host)
Select option:	Use CHAP
	Use initiator name
Name:	HA
Secret:	**********
Mutual CHAP (n parent host authenticates target)
Select option:	Do not use CHAP
	Use initiator name
Name:	
Secret:	

f. Click OK.



Take the following steps on Hyper-V servers:

- 1. Launch iSCSI Initiator: Start->Administrative Tools->iSCSI Initiator.
- 2. Select the required target and click Connect.



3. Click Advanced.

Connect To Target	×
Target name:	
iqn.2008-08.com.starwindsoftware:172.16.0.47-ha	
✓ Add this connection to the list of Favorite Targets. This will make the system automatically attempt to restore the connection every time this computer restarts.	
Enable multi-path	
Advanced	Cancel



4. Select the Enable CHAP log on checkbox and specify a name and target secret.

Connect using	
ocal adapter:	Default
Initiator <u>I</u> P:	Default
[arget portal IP:	Default
CRC / Checksum —	
<u>D</u> ata digest	🔲 <u>H</u> eader digest
	will defead to the Teitistey Name of the suchers wellage prother parts is
specified.	will default to the Initiator Name of the system unless another name is
specified.	will default to the Initiator Name of the system unless another name is
vame: Farget <u>s</u> ecret:	will default to the Initiator Name of the system unless another name is HA

5. Click OK.



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