# HAReplicator: Remote Replication to iSCSI SAN

Wednesday, January 9, 2013



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# **Table of Contents**

Overview	1
Configuring on iStorage Server	1
Network Adapter	1
Choose the Authentication Mechanism	2
Create user	3
Create group	4
Creating target	5
Configuring on HAReplicator	10
Contact	20

## Overview

HAReplicator Remote replication from Disk / Volume to ISCSI SAN is a very popular feature in IT industry, which allows user to create a real-time replication between local storage such as disk and volume to remote iSCSI SAN, it not only allows to create synchronous replication in the Ethernet but also allows to create asynchronous replication over WAN.

This document gives detailed step-to-step instructions on HAReplicator configuring for Creating Remote Replication. Before to do so, prepare the following two computers or virtual machine.

Name	IP Address	Detail
ServerNode1	192.168.0.101	Remote Replication
iStorage Server	192.168.0.3	iSCSI target

Note, you can download our KernSafe free iSCSI target software (iStorage Server) via: <u>http://www.kernsafe.com/product/istorage-server.aspx</u>.

## **Configuring on iStorage Server**

### **Network Adapter**

For working in iSCSI SAN environment, the network adapter must be assigned a static IP address. Select the **Internet Protocol Version 4(TCP/IP4)** and then press the **Properties** button, the **Internet Protocol Version 4(TCP/IP4)** dialog is shown.

Internet Protocol Version 4 (TCP/IPv4)	Properties	
General		
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.		
Obtain an IP address automatica	lly	
• Use the following IP address:		
IP address:	192.168.0.3	
Subnet mask:	255 . 255 . 255 . 0	
Default gateway:	192.168.0.1	
Obtain DNS server address autor	matically	
O Use the following DNS server add	dresses:	
Preferred DNS server:	192.168.0.1	
<u>A</u> lternate DNS server:	· · ·	
Validate settings upon exit	Ad <u>v</u> anced	
	OK Cancel	

Type the **IP address, Subnet mask, Gateway and DNS server.** Press **OK** to save change.

### **Choose the Authentication Mechanism**

Decide which authentication mechanism you would like to use:

Anonymous , CHAP, IP address or Mixed authentication.

1) Anonymous

All initiators will get full access permission without any authentication required.

2) CHAP(Challenge-handshake authentication protocol )

All initiators need to specify a CHAP user and secret to connect to the target. iStorage Server has a built-in user called "Guest", which is used for initiators without CHAP secret specified.

3) IP Filters

All initiators will be authorized by the incoming IP address defined by the IP Filter roles.

4) Mixed

Security policy is determined by both CHAP and IP Filters.

**CHAP** is recommended authentication type for remote replication by considering security, we also use this type in this white paper. Press **OK** to save change.

#### **Create user**

Open the iStorage Server Management Console.

3 iStorage Server Management Console				
<u>File Server Storage Clients View</u>	v <u>T</u> ools <u>H</u> elp			
Create Delete Start Stop	Refresh Add Remove Vi	ew Access Settings	Print About	
Servers Tree ×	🍋 🛛 iStorage Server: LocalH	ost		
	General Targets Applications IP	Filters Users Groups Logs		
	Storage General Pro	perties		Properties
Logs	General			
	Hostname:	LocalHost		
	Bind Address:	All Address		
	Port:	3260		
	Management Method:	Password		
	State:	ОК		
	Status			
	Status:	Started		
	License:	Ultimate License		
			🧭 Connected:	LocalHost (Ultimate License)

#### Create user

Right click **Users** Tree Node on the left tree view. Press **Add** button in the toolbar. The **Create/Edit User** dialog is shown.

Create/Edit User	
User Name:	test
Password:	•••••
Confrim Password:	•••••
🔲 Enable mutual a	uthorization
Mutual Secret:	
Confrim Secret:	
User name and	d password are case sensitive.
	OK Cancel

Type user name and password as you like, but we recommend that the password should be 12-16 characters. We take the user name **test** and password **1111111111111** as an example.

Press the **OK** button to complete creating user.

### **Create group**

After creating user, we need a group to hold the user. Right click the **Groups** tree node in the left tree view. Press the **Add** button on the toolbar, the **Create/Edit Group** dialog is shown.

Create/Edit Group	x
Group name:	TEST
Default Access:	Full Access
Members:	
Add F	emove
	OK Cancel

Type a group name as you wish, now we take **TEST** as example. Press the **Add** button and select the user which we just created. Press the **OK** button to continue.

### **Creating target**

Launch the **iStorage Server Management Console**, press the **Create** button on the toolbar of **iStorage Server Management Console**, the **Create iSCSI Target Wizard** is shown.



Select Hard Disk type and press the Next button to continue.

Create iSCSI Target Wizard	x
<b>iSCSI Medium Type</b> Select medium of the iSCSI disk you want to create.	
Image File Create iSCSI disk by using standard image file or Virtual Hard Disk (.VHD).	
RAM Space	
Create iSCSI disk by using memory space.	
Security Images Create iSCSI disk images for each initiators, any image is individual for each initiator.	
Disk Partition	
Create iSCSI target by using a disk partition.	
Physical Disk Create iSCSI target by using physical disk.	
< <u>B</u> ack <u>N</u> ext > (	Cancel

Choose Image File in **iSCSI Medium Type** page.

Then press the **Next** button to continue.

Create iSCSI Target Wizard	×
<b>iSCSI Image Type</b> Select image type of the iSCSI disk you want to create.	
Standard Image File Create iSCSI disk by using a standard disk image file.	
○ Virtual Hard Disk (VHD)	
Create iSCSI disk by using a Virtual Hard Disk image file.	
< <u>B</u> ack <u>N</u> ext >	Cancel

Select Standard Image File and press Next to continue.

Create iSCSI Target Wizard	×
Virtual Image Disk Configuration Specify a image file full path and parameters.	<u></u>
Image file parameters	
<ul> <li><u>Create a new image file</u></li> <li>Use existing image file</li> <li>Full path and name of the image file:</li> </ul>	
C:\newimage.img	Browse
Device Size in MBs: 61440	
Fill with zeros	
File system options Sparse file (Recommended for image files smaller then 1TB) Compressed (Enable file system compress feature) Encrypted (Enable NTFS encryption feature)	
< <u>B</u> ack <u>N</u> ext >	Cancel

Specify the Location and Size of the image file.

Note: the size should be more than or equal to the disk/volume which is used to create remote replication.

Press the **Next** button to continue.

Create iSCSI Target Wizard
Authorization You can select an authorization mode, Anonymous, CHAP or IP filter.
<ul> <li>Anonymous Select this option to disable any authorization.</li> <li>CHAP Select this option to use CHAP authorization.</li> <li>IP Filter Select this option to use IP address authorization.</li> <li>Mixed Select this option to use both CHAP and IP address authorization.</li> </ul>
✓ Inherit security roles from global settings.
< <u>B</u> ack <u>N</u> ext > Cancel

Select the CHAP authorization and then press the Next button to continue.

Create iSCSI Target Wizard
Completing the Create iSCSI Wizard You can specify a target name and other options to complete iSCSI target creating.
Basic Target Information Target Name: iqn.2006-03.com.kemsafe.kemstorage.iscsireplication          Image:
Note By default, only one client has full access right, when the second initiaor log on with full access, it will fail. But this option is usfull for clustering, disk sharing and NAS.
< <u>B</u> ack Finish Cancel

Type the **Target Name** and keep other default. Press the **Finish** button to continue.

## **Configuring on HAReplicator**

Launch the **HAReplicator Management console** and add the server to the **HAReplicator Management console**.

Click the **Create** button on the toolbar, the **Create Application Wizard** shows.

Create Replication Wizard	×
Replication Type Select which type of the replication service you want to create.	
<ul> <li>High Availability Storage</li> <li>Create high availability storage for windows cluster and hyper-v.</li> <li>Bernate Benlication</li> </ul>	
Create disk/volume real-time replication to remote iSCSI SAN	
Create mirror to local image file. Create mirror (RAID-1) between two hard disks or volumes.	
Volume Mirror Create mirror (RAID-1) between two hard disks or volumes.	
< Back Next >	Cancel

Select the **Remote Replication** and press **Next** to continue.

Create Replication Wizard			
Add Nodes Select one server	to build iSCSI remote replication.		
Enter name: Selected server:	SERVERNODE1(192.168.0.101)	<u>R</u> efresh <u>A</u> dd <u>R</u> emove	
	< <u>Back</u> Next >	Cancel	

You can choose a server from Enter name combo box, and then click Add to add the

#### server to **Selected server** list box

Create Replication Wiza	rd	×
Add Nodes Select one server	to build iSCSI remote replication.	
Enter name: Selected server:	▼ SERVERNODE1(192.168.0.101)	<u>R</u> efresh <u>A</u> dd <u>R</u> emove
	< <u>B</u> ack <u>N</u> ext >	Cancel

Click the **Next button** to continue.

Cre	eate Replication Wizard		×	
	Choose Source Storage Select one disk or volume disks to build remote replication to iSCSI SAN.			
	First Node			
	Device Tree	Size (G)	Signature	
	Volume: WDC WD32 00AAJS-60Z0A0	298	HD0(6E697373)\1.00M	
	Volume: M4-CT064 M4SSD2 [D:]	59	HD1(ED6A45E9)\1.00M	
		465	HD2(FA0D3688)\1.00M	
		298	D056C686	
		59	ED6A45E9	
	HD2: 02-1BD142	465	FA0D3688	
	< <u>B</u> a	ack	Next > Cancel	

Select a disk or a volume to be mirrored to an ISCSI SAN. Press the **NEXT** button to continue.

Create Replic	ation Wizard	<b>X</b>
Remote Spec	Replication Setting ify parameters for remote iSCSI SAN replication.	
- Remote Po	ortal	
Target:		Select
Portal:	✓ Port: 3260	
Local Port	al	
Portal:	192.168.0.101 • Port: 63261	
- Synchroni: Replication	ze Options on Type: Synchronous <ul> <li>Initilize Type: Full Synchronize</li> </ul>	•
	< <u>B</u> ack Next >	Cancel

Set parameters for ISCSI SAN replication.

Click Select to select an ISCSI target, the ISCSI Initiator dialog is shown.

iSCSI Initiator			×
Target portals			
Host Name		Port	Add
			Remove
iSCSI Discovery T	gets		Refresh
CHAP logon			
User Name:			
Target Secret:			
		ОК	Cancel

There will show list of targets in the **ISCSI Discovery Targets** list, first time using this feature, click the **Add** button to add a target portal, the **Add Host** dialog shows.

Add Host	<b></b>
IP address or DNS name:	Port:
192.168.0.3	3260
	OK Cancel

Type the **IP address or NDS name** of an ISCSI SAN server and press the **OK** button to continue.

iSCSI Initiator			X	
Target portals				
Host Name		Port	Add	
😪 192.168.0.3		3260		
			Remove	
iSCSI Discovery Tar	gets			
ign.2006-03.com.k	ernsafe:kernstorage.	iscsireplication	- Refresh	
CHAP logon				
User Name:	test			
Taxaab Caasab				
raiget seciet.				
		ОК	Cancel	

Select a suitable target from **ISCSI Discovery Targets** list.

If the target needs **CHAP** authorization, please select **CHAP logon**, and specify CHAP **User Name** and **Target Secret**.

Press the **OK** button to continue.

Create Replic	cation Wizard	<b></b>
Remote Spec	e Replication Setting cify parameters for remote iSCSI SAN replication.	
-Remote Po	ortal	
Target:	iqn.2006-03.com.kemsafe.kemstorage.iscsireplication	Select
Portal:	192.168.0.3         ▼         Port:         3260	
Local Port	al	
Portal:	192.168.0.101	
Synchroniz		_
Replication	on Type: Synchronous   Initilize Type: Full Synchronize	_
	< <u>B</u> ack <u>N</u> ext >	Cancel

Specify **ISCSI target Portal** and Port which you want to used for mirror data traffic. Specify **Local Portal** and **Port**, if you want to set specified NIC to transmit mirror data, you need to set the address in the local **Portal**.

Choose **Synchronous** or **Asynchronous**, for learn difference between synchronous and asynchronous replication, please read the topic: synchronous and asynchronous. Choose **Full Synchronize** as Initialize Type, if you reach to the following conditions, you can select **Don't Synchronize** to save your time:

1. Source storage is a completely empty hard disk (even not initialized in windows disk management console).

2. The source storage and target storage was synchronized before, they are consistent already.

Except the above two conditions, you much select Full Synchronize.

Click the **Next** button to continue.

Create Replication Wiza	rd	<b></b>
Encryption Speicfy if encypt	target medium and encryption password.	
Target Storage	adium.	
Comfirm Password:		
	< Back Next >	Cancel

Choose if target medium will be encrypted.

If you want to encrypt target medium, select the **Encrypt target medium** option, and then input **Password** and **Confirm Password**.

Click the **Next** button to continue.

Complete the Application Creation.



Please check if all settings are correct, press the **Back** button if you need to modify something or click Cancel to cancel application creation.

KernSafe HAReplicator <u>File Servers Replication View Tools H</u>elp C F Ô **(i)** ♥ . Exit Add Remove Create Delete Refresh Settings Tools About Hide Servers and Replications Status Interface Partner Device 🗾 Servers ÷--iSCSI: HD1: M4-CT064 M4SSD2 (59.63G) iqn.2006-03.com.kernsafe:kernstorage.iscsireplicat.. Running 192.168.0.3:3260 Copyright (C) www.kernsafe.com all right reserved. Connected: 192.168.0.101 (Enterprise License)

Press the **Finish** button to complete application creating.

Now, everything changed to the Local disk drive will be synchronized to the remote iSCSI SAN automatically.

## Contact

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- Product Page: <u>http://www.kernsafe.com/product/hareplicator.aspx</u>
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