# iStorage Server: Working with MetaSAN to share iSCSI volumes

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KernSafe Technologies, Inc.

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#### **Overview**

iStorage Server is a network based storage virtualization software powered by KernSafe Technologies, Inc. Being a powerful, full-featured and software-only iSCSI Target SAN solution, that can quickly convert existing Windows computer into IP SAN. Storage media of iSCSI Target can include existing storage devices such as the entire hard disks or partitions, CD-RWs, tapes and USB storage devices, as well as disk image file or CD image files including ISO9660(,iso), .bin, .mdf, .cdi, .b5i, .nrg, .ccd, .sub, .img, .raw and other image file formats. Furthermore, iStorage Server also supports a lot of features such as: VHD (Virtual Hard Disk) target, snapshots, STPI, RAID-1 and failover, these features are very important and poplar in storage industry world and make iStorage Server is suitable for any size of business.

MetaSAN is a high-speed file sharing Storage Area Network (SAN) management software that sets new standards for cross-platform workgroup collaboration. MetaSAN enables multiple users to share access to common data files in workgroups where heavy bandwidth requirements are the norm. With MetaSAN, film and video editors, digital artists, healthcare specialists, and corporate users can simultaneously access a common pool of data files such as video clips, databases, satellite imagery, medical archives, or CAD files - as easily and transparently as if the content was stored on their local drive.

MetaSAN can seamlessly integrate SAN and LAN networks. With the addition of metaLAN, a multi-point gateway software that connects your enterprise LAN with your high-speed SAN, your entire facility can now benefit from many unique SAN advantages.

This article demonstrates how iStorage Server works with MetaSAN. MetaSAN is compatible with standard iSCSI Initiators (computers) and Targets (shared storage) and prevents data corruption by arbitrating simultaneous accesses. Hardware and software agnostic, MetaSAN allows companies to easily customize their SAN environments to accommodate particular workflow needs, both from a technical and budgetary perspective.

## **Configuring on iStorage Server**

### **Create Target**

Open iStorage Server Management Console.

🥹 iStorage Server Managem	ent Console		
<u>Storage</u> <u>Clients</u> <u>V</u> iew	<u>T</u> ools <u>H</u> elp		
Create Delete	Start Stop Refresh	Add Remove	Print
kernsafe-PC     Targets     Applications     IPFilters     Users     Groups     Logs	iStorage Server: kerns: General Targets Applications IP Fil Storage General Pro	afe-PC Iters Users Groups Logs operties	<u> </u>
	General		
	Hostname:	kernsafe-PC	F
	Bind Address:	All Address	
	Port:	3260	
	Management Method:	Active Directory	
	State:	ок	
	Status		
	Status:	Started	
	License:	Ultimate License	Ŧ
			- F
		😗 Connected: kernsafe-PC (Ultimate	License)

Press the Create button on the toolbar, the Create Device Wizard is shown.

Select device type

Create iSCSI Target Wizard	×
iSCSI Device Type Select which device type of the iSCSI target you want to create.	<u></u>
Iterate iSCSI target by using physical disk, partition, standard image file or VHD.	
CD/ DVD Device Create iSCSI target by using physical optical drive or CD / DVD image file.	
Generic SCSI Create iSCSI target by using generic SCSI device, such as disk, CD-ROM, tape, printer.	
< Back Next >	Cancel

Choose Hard Disk.

Press the **Next** button to continue.

Select a medium type.

Create iSCSI Target Wizard	×
iSCSI Medium Type Select medium of the iSCSI disk you want to create.	
<ul> <li>Image File Create iSCSI disk by using standard image file or Virtual Hard Disk (.VHD).</li> <li>RAM Space Create iSCSI disk by using memory space.</li> </ul>	
<ul> <li>Security Images         Create iSCSI disk images for each initiators, any image is individual for each initiator.     </li> <li>Disk Partition         Create iSCSI target by using a disk partition     </li> </ul>	
Physical Disk Create iSCSI target by using physical disk.	
< Back Next > Car	ncel

Choose Image File in iSCSI Medium Type window.

Then press **Next** button to continue.

Select an Image type.



Choose Standard Image File.

Press the **Next** button to continue.

Specify image file path and size.

Create iSCSI Target Wizard	×
Image Disk Configuration You can specify a image file as an iSCSI device.	3
Device Parameters	
<ul> <li>Use existing image file</li> <li>Oreate a new image file</li> </ul>	
H:\newimage.img Browse	
Device Size in MBs: 1024	
Options	
Use sparse file on NTFS file system	
Note: Using sparse file can save your harddisk space, the size of disk image file only depend on its content used. But we recommentd that using this feature when image file size is less than 1T bytes	
< Back Next > (	Cancel

Choose **Create a new image file** to create a new image file or choose **Use existing image file** if already you have one.

Specify image file full path name.

Specify the device size.

If you check **Use sparse file on NTFS file system**, the size of disk image file only depend on its content used, it can save your hard disk space.

Press the **Next** button to continue.

Set authorization mode.

Create iSCSI Target Wizard	×
Authorization You can select an authorization mode, Anonymous, CHAP or IP filter.	
O Anonymous	
Select this option to disable any authorization.	
CHAP Select this option to use CHAP authorization.	
IP Filter	
Select this option to use IP address authorization.	
Mixed	
Select this option to use both CHAP and IP address authorization.	
Inherit security roles from global settings.	
< Back Next > C	Cancel

Choose IP Filter Authorization.

Press the **Next** button to continue.

Finish creating iSCSI Target.

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	
Enter Target Name:	
ign.2006-03.com.kemsafe:meta	
Report as readonly device when initiator can not get write access	
Enable multiple initiators with full access connected (sharing and clustering)	
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.	
< Back Finish C	Cancel

Type a target name in the **Target Name** field, or use the default.

Check "Enable multiple initiators with full access connected (sharing and clustering)".

Press the Finish button to continue.

#### **Add IP Filters**

Right click **IP Filters** on the left tree of the main interface, click **New Role** on the pop-up menu.

Add clients to IP fil	ter									×
Add Type										
Any	© IP /	Addre	SS		C	) IP	Ra	nge		
- IP or IP Range -										
Begin IP:		0		0		0		0		
End IP:		0		0		0		0		
Access Mode -										
		Full A		ess				•		
					С	ΙK		С	ancel	

Check Any and select Full Access of the access mode.

Press **OK** to finish add IP filters.

Now, the target is created.

🧶 iStorage Server Managen	nent Console		- <b>O</b> - X
Storage Clients View	<u>I</u> ools <u>H</u> elp		
Create Delete	Start Stop Refresh	Add Remove View	Access Settings
E-U kernsafe-PC E-U Targets	👔 iStorage Server: kernsaf	e-PC	
énnications	General Targets Applications IP Filter	rs Users Groups Logs	
IPFilters	Target Name	Device Source	Capac Authenticat Status
-20 Groups -99 Groups -30 Logs	iqn.2006-03.com.kernsafe:meta	Disk Dr H:\newimage.img	1.00G IP Filters Ena
< >			
Ready		S Connect	ted: kernsafe-PC (Ultimate License)

## **Configuring on First Client as MetaSAN**

#### **Connecting target**

Open **iSCSI Initiator**, click the **Discover Portal...** button on the **Discovery** page, input the IP address of the computer which running iStorage server and the port.

Discover Target Portal	×			
Enter the IP address or DNS name and port number of the portal you want to add.				
To change the default settings of the discovery of the target portal, click the Advanced button.				
IP address or DNS name:	Port: (Default is 3260.)			
192.168.0.195 3260				
Advanced	OK Cancel			

Press **Ok** button to continue.

Press the **Refresh** button on the **Targets** page, the target will be shown, select the target you want to connect and click the **Connect** button to log on the target. In the **Connect To Target** window click on **OK** button to connect to the target device.

iSCSI Initiator Properties	×
Targets         Discovery         Favorite Targets         Volumes and Devices           Quick Connect         To discover and log on to a target using a basic connection, to DNS name of the target and then click Quick Connect.	RADIUS Configuration
Target:	Quick Connect
Discovered targets	Refresh
Name	Status
To connect using advanced options, select a target and then click Connect.	Connect
To completely disconnect a target, select the target and then dick Disconnect.	Disconnect
For target properties, including configuration of sessions, select the target and click Properties.	Properties
For configuration of devices associated with a target, select the target and then click Devices.	Devices
More about basic iSCSI connections and targets	
OK	Cancel Apply

Now, the target is connected.

iSCSI Initiator Properties	×
Targets         Discovery         Favorite Targets         Volumes and Devices           Quick Connect         To discover and log on to a target using a basic connection, to DNS name of the target and then click Quick Connect.	RADIUS Configuration
Target:	Quick Connect
Discovered targets	Refresh
Name	Status
To connect using advanced options, select a target and then click Connect.	Connect
To completely disconnect a target, select the target and then click Disconnect.	Disconnect
For target properties, including configuration of sessions, select the target and click Properties.	Properties
For configuration of devices associated with a target, select the target and then click Devices.	Devices
ОК	Cancel Apply

After the target is connected you have to initialize and format it. Open Computer Management (Start | Right-click My Computer | Manage). Choose the Disk Management option. Window will pop up with the **Disk Initialization** wizard.

🛃 Computer Management					_ <b>_</b> X
File Action View Help					
🜆 Computer Management (Local	Volume	Layout Type File System	Status	Capac	Actions
System Tools	📾 (C:)	Simple Basic NTFS	Healthy (Boot, Page File, Crash Dump, Logical Drive)	20.00	Disk Management
Task Scheduler	📼 (D:)	Simple Basic NTFS	Healthy (System, Active, Primary Partition)	20.00	Mara Astions
Event Viewer	(G:)	Simple Basic NTFS	Healthy (Logical Drive)	40.00	Wore Actions
Shared Folders	(H:)	Simple Basic NTES	Healthy (Logical Drive)	200.00	
Eccal Users and Groups	New Volume (E	) Simple Basic NTFS	Healthy (Logical Drive)	40.00	
Performance	New Volume	nitialize Disk		125.75	
Device Manager					
Dick Management		You must initialize a disk before Lo	ogical Disk Manager can access it.		
Services and Applications		Select disks:			
p is services and reprications		✓ Disk 1			
		Use the following partition style for	the selected disks:		
	•	MBR (Master Boot Record)		•	
		GPT (GUID Partition Table)		- A	
	Disk 0	0			
	465.76 GB	Note: The GPT partition style is no	t recognized by all previous versions of 125 75 GP		
	Online	Windows. It is recommended for d Itanium-based computers	isks larger than 21B, or disks used on Healthy (	Le	
		tanian based compaters.			
			OK Cancel		
	🐨 Disk 1	1			
	Unknown				
	1.00 GB	1.00 GB			
	Not initialized	Unallocated			
		<u> </u>			
	CD-ROM 0				
	DVD (J:)				
	No Media	Drimony partition Extended	estition Errormon Lonical drive	*	
4		enmary partition Extended	partición 💼 Free space 🔤 Lógical drive		1

You need to initialize the new drive, create a partition, and format the new volume.

New Simple Volume Wizard			
Format Partition To store data on this partition, you must format it first.			
Choose whether you want to format this volume, and if so, what settings you want to use.			
O not format this volume			
Format this volume with the following settings:			
File system:	NTFS		
Allocation unit size:	Default 👻		
Volume label:	MetaSAN		
Perform a quick format			
Enable file and folder compression			
	< Back Next > Cancel		

# **Configuring MetaSAN**

Run the MetaSAN installer. Accept the license agreement. After the installation is completed, the **MetaSAN Configuration Wizard** is shown.



Select Create to create a new SAN definition.



Input the name of your new SAN definition and select the volume which you want to add to the SAN definition.

metaSAN Configuration	n Wizard			x
	Write the name of your SAN definition New SAN			
meta SAN	metaSAN has dete Place a check mar SAN definition.	cted the follow k next to each	ing volumes on your computer volume you want to add to th	e.
Dec Dec	Name	Size	SAN	
	<ul> <li>New Volum</li> <li>(H:)</li> <li>(G:)</li> <li>New Volum</li> <li>New Volum</li> <li>✓ MetaSAN (</li> </ul>	125.75 GB 200.01 GB 40.00 GB 40.00 GB 20.00 GB 1021.00 MB		
		< Back	Next > Can	cel

Select Floating Metadata Master option.



Now you can specify the time interval, leave it without changing and press the **Next** button. Wizard will ask you to restart your computer, accept it and press the **Finish** button.



Your computer will be restarted. After reboot, you have to register your version of MetaSAN to gain access to the disk.

Open **Control Panel** and run **MetaSAN**. Press the **Activate MetaSAN**... button on the **About** page. Select **Manual Activation** and press **Continue**.

Activation Mode
<ul> <li>Choose Activation Method</li> <li>Automatic Activation Activation key is generated automatically by sales order and password</li> <li>Manual Activation Activation key is obtained manually by serial number</li> </ul>
Continue Cancel

Enter your activation code in the **MetaSAN registration** window and press **OK**. Now your MetaSAN is activated and the access to the iSCSI drive is granted.

#### Configuring on the second Client as MetaSAN

#### **Connecting target**

Firstly, we have to connect to the iSCSI target. It is the same way as we did on the first client and those two clients must be connect to the same target.

## **Configuring MetaSAN**

Install MetaSAN on the second client.



Press the **Next** button to continue.

#### Choose Add to existing SAN definition(s).

metaSAN Configuratio	n Wizard
	You can add your machine to an existing SAN definition or search for SAN definitions through other machines.
meta SAN	C Create Select Create to create new SAN definition.
	Add to existing SAN definition(s) Select Add to add to existing SAN definition(s).
	< Back Next > Cancel

Press the **Next** button to continue.

Select Add to SAN definitions and check SAN you want to add to.

metaSAN Configuratio	n Wizard
meta SAN	<ul> <li>Add to SAN definitions metaSAN has detected the following SAN definitions on this machine: </li> <li>SAN Definition </li> <li>New SAN </li> <li>Place a check mark next to each definition you want to add your workstation to. </li> <li>Join/Search on other machines </li> <li>Password: </li> </ul>
	< Back Next > Cancel

Your computer will be restarted. After reboot, you have to register your version of MetaSAN to gain access to the disk.

Open the **Control Panel** and run **MetaSAN**. Press the **Activate MetaSAN**... button on the **About** page. Select **Manual Activation** and press **Continue**.

Activation Mode		
Choose Activation Method		
Activation key is generated automatically by		
Sales order and password     Manual Activation		
Activation key is obtained manually by serial number		
Continue Cancel		

Enter your activation code in the **MetaSAN registration** window and press **OK**. Now your MetaSAN is activated and the access to the iSCSI drive is granted.

🙀 metaSAN - kernsafe-PC (192.168.0.195)			
Volumes SAN Management Settings Utilities About	1		
New SAN 💌 New	Delete Advanced		
Members	Import		
🍠 kernsafe-PC (192.168.0.111)	Export		
<b>利</b> kernsafe-PC (192.168.0.195)			
	Members		
Volumes LAN Sha	ires		
MetaSAN ( L: )			
Volumes LAN Sh	ares		
Refresh	Close Help		

Now, you have two PCs with the active connections to the same iSCSI target.

You can also add the third client in the same way as we did with the second client.

#### Contact

- Support: <u>support@kernsafe.com</u>
- Sales: <u>sales@kernsafe.com</u>
- Marketing: <u>marketing@kernsafe.com</u>
- Home Page: <u>http://www.kernsafe.com/</u>
- Product Page: <u>http://www.kernsafe.com/product/istorage-server.aspx/</u>
- Licenses <u>http://www.kernsafe.com/product/istorage-server/license-compares.aspx/</u>
- Forum: <u>http://www.kernsafe.com/forum/</u>



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