

# **iStorage Server: HA SAN for Windows Server 2008**

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# Overview

KernSafe iStorage Server is an advanced and powerful, full-featured software-only iSCSI Target that fully conforms to the latest iSCSI Standard 1.0 (former Draft 20). It is an IP SAN solution allowing you to quickly export existing storages such as disk images, VHD files, physical disks, partitions, CD/DVD-ROMs, tapes or any other type of SCSI based devices and even a variety of popular CD/DVD images to the client machines. The software thus delivers immediate benefits, as it allows storage to be consolidated, virtualized and centrally managed. iStorage Server also provides RAID-1 (mirror) feature enabling you to create two iSCSI devices for mirror backup. 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 popular in storage industry world and make iStorage Server is suitable for any size of business.

High availability is the implementation of technology so that if a component fails, another can take over for it. By using highly available platforms, the downtime for a system can be reduced, and, in many cases, it can be reduced to a short enough time that the users of the system do not see the failure.

This document gives you detailed step-by-step instructions on KernSafe iStorage Server configuring for Windows Server 2008. We need at least two servers and one client, in this document we prepare the three computers as follows:

Detail	IP Address	OS
iStorage Server1	192.168.0.199	Windows 2000 SP4 +
iStorage Server2	192.168.0.177	Windows 2000 SP4 +
Client	192.168.0.161	Windows Server 2008

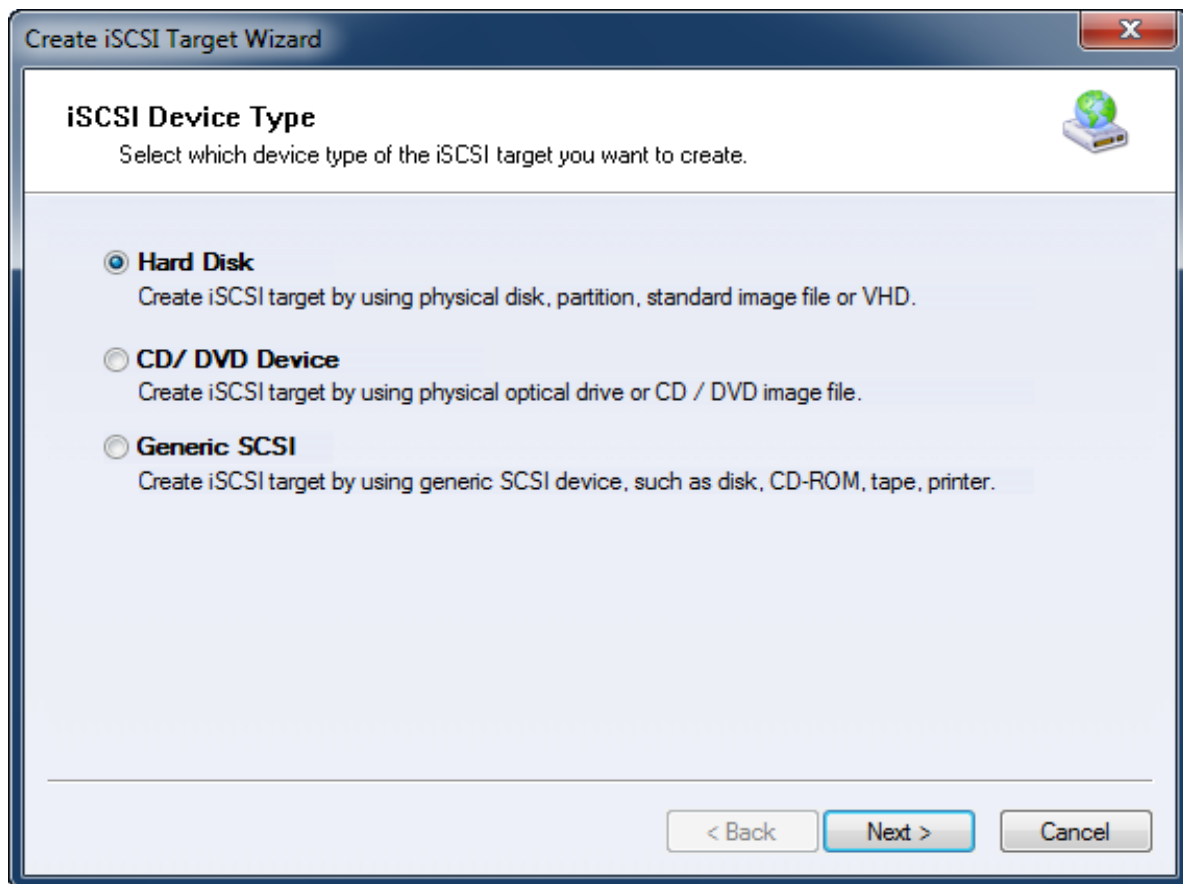
# Configuring on iStorage Server

## Preparing HA Storage

We create HA Storage on Server1.

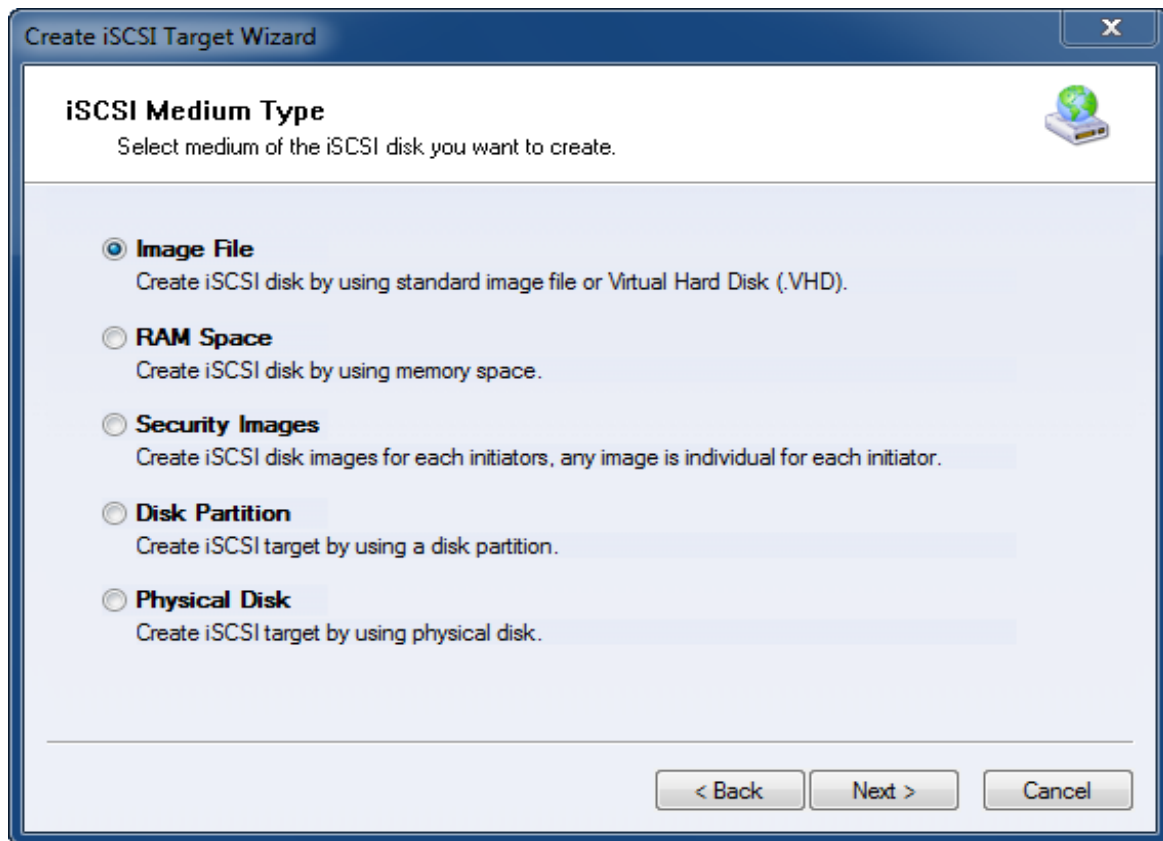
Launch the **iStorage Server management console**, press the **Create** button on the toolbar of iStorage Server management console, the **Create Device Wizard** is shown.

Select a device type



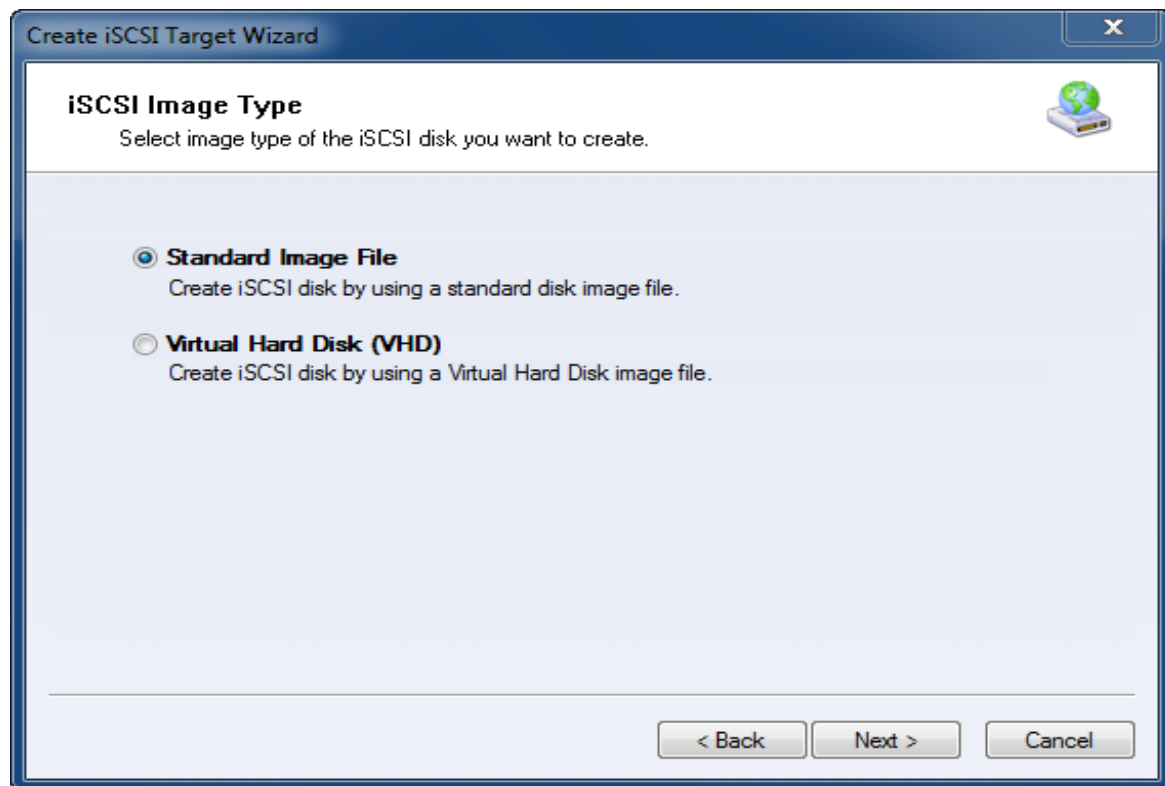
Choose **Hard Disk**.

Press the **Next** button to continue.



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

Then press **Next** button to continue.



We choose **Standard Image File** and then press the **Next** button to continue.

Specify image file path and size.

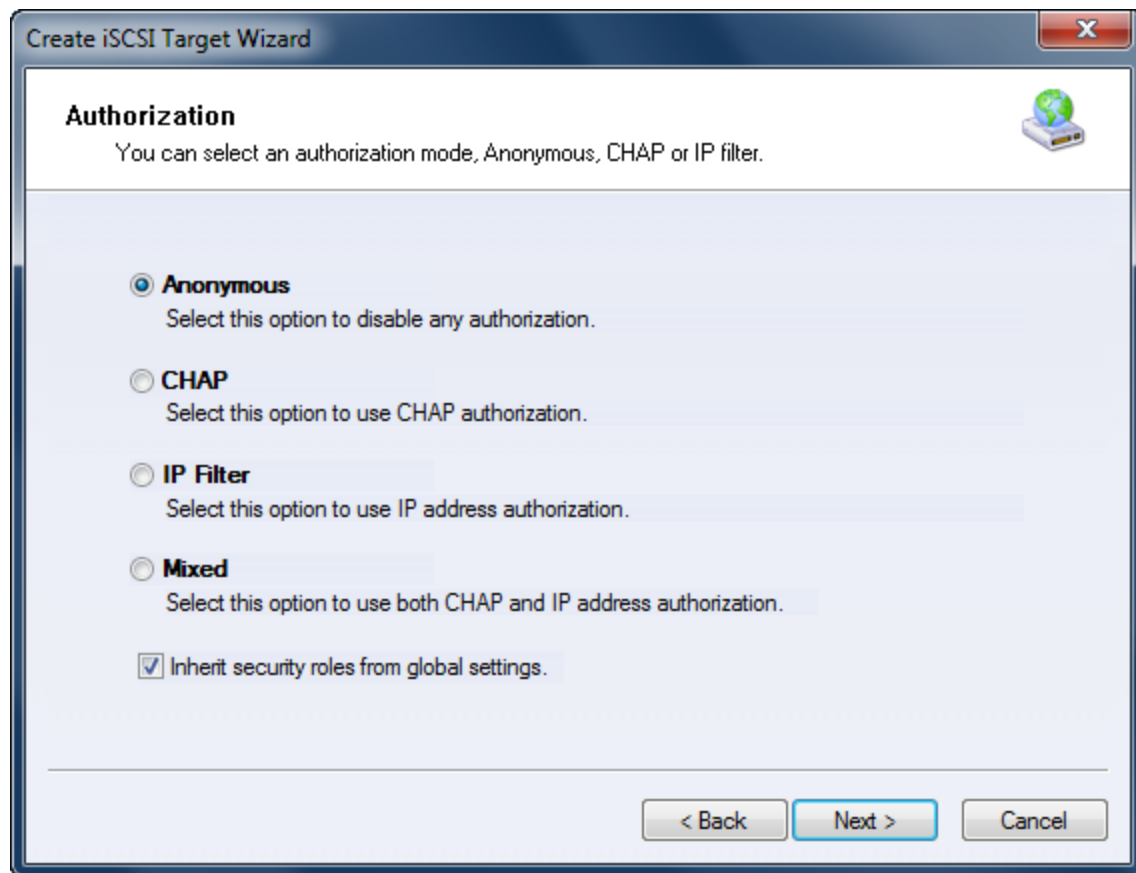


Select **Create a new image file** or **Use existing image file** if you already have one.

Specify the device size.

Press the **Next** button to continue.

Set authorization mode.



Specify authorization mode as you required, we take **Anonymous** as an example.

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:  
iqn.2006-03.com.kemsafe.iStorage.HA

☒ 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 initiator log on with full access, it will fail.  
But this option is useful for clustering, disk sharing and NAS.

< Back   Finish   Cancel

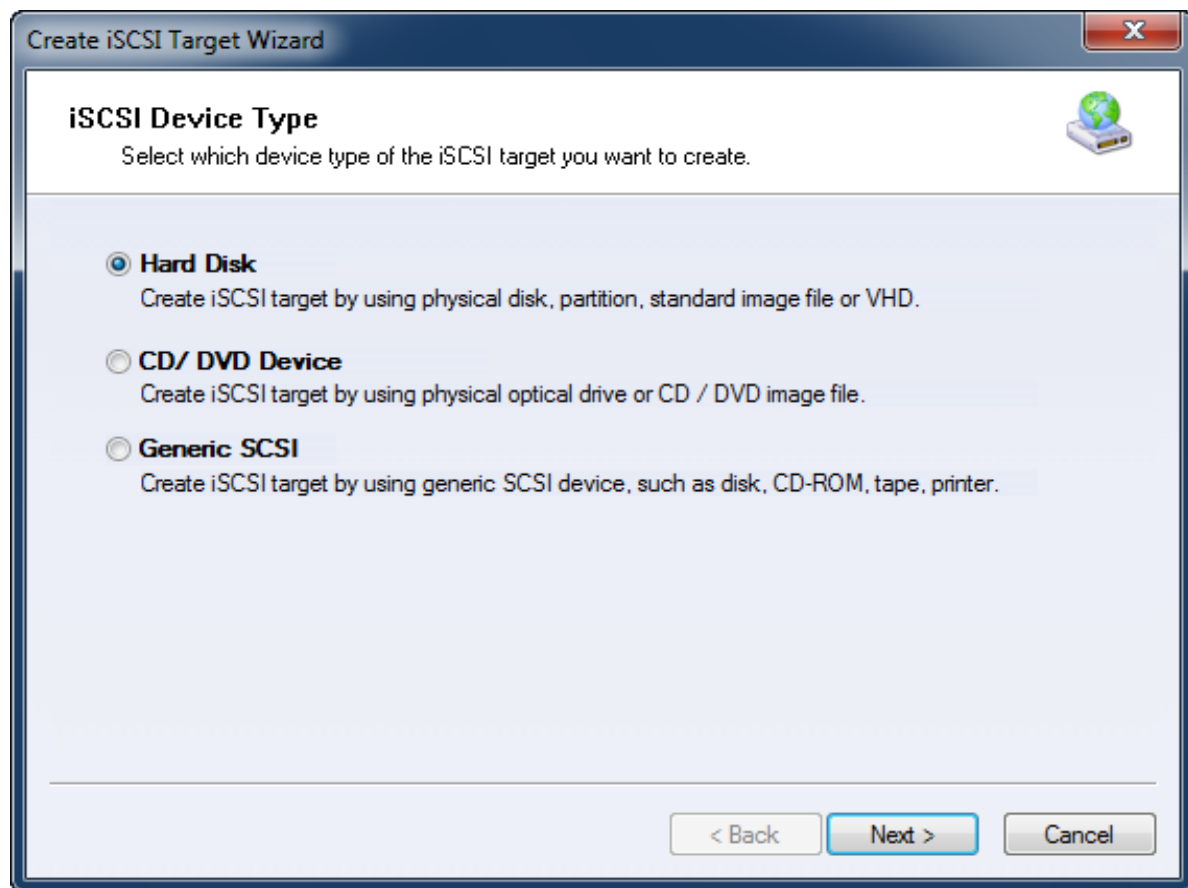
Type a target name in the Target Name field, or use the default.

Check the **Enable multiple initiators with full access connected (sharing and clustering)** check box.

Press the **Finish** button to continue.

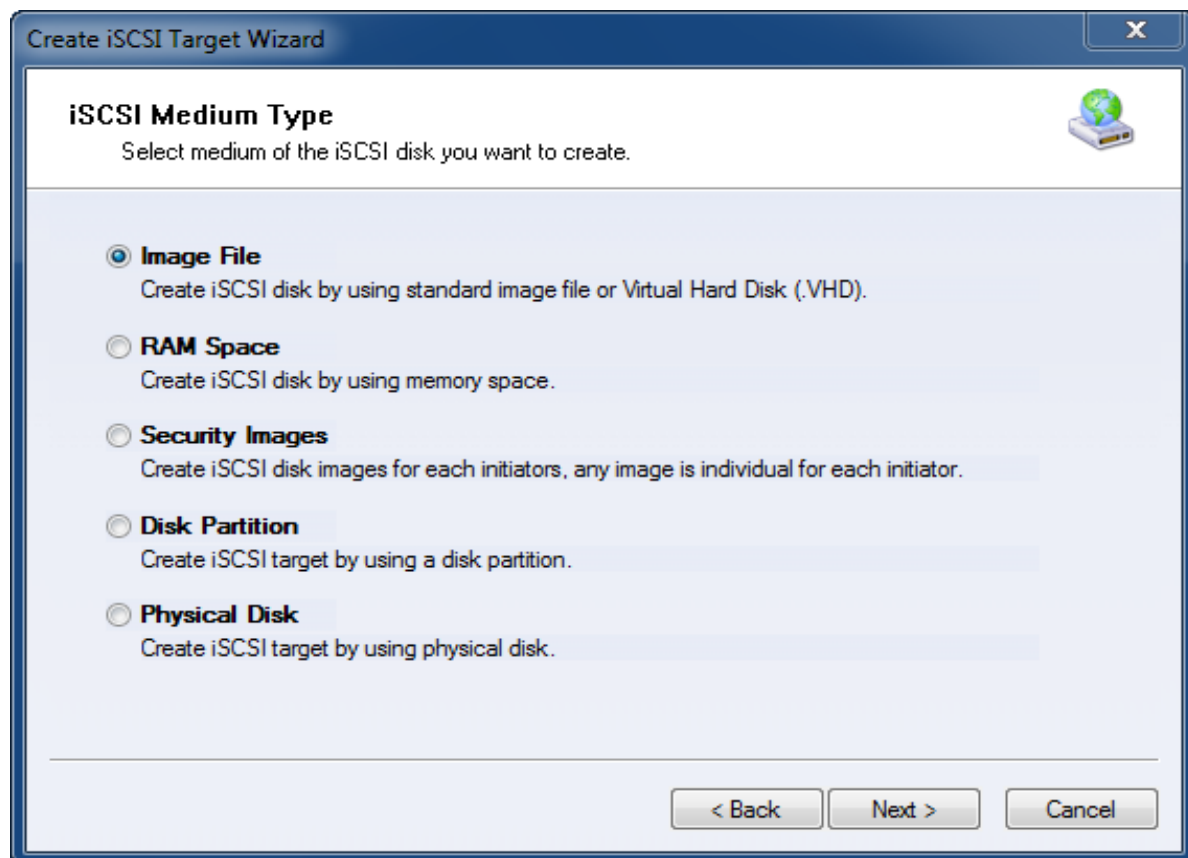
Now the sample images are shown in the iStorage Server management console if successful.





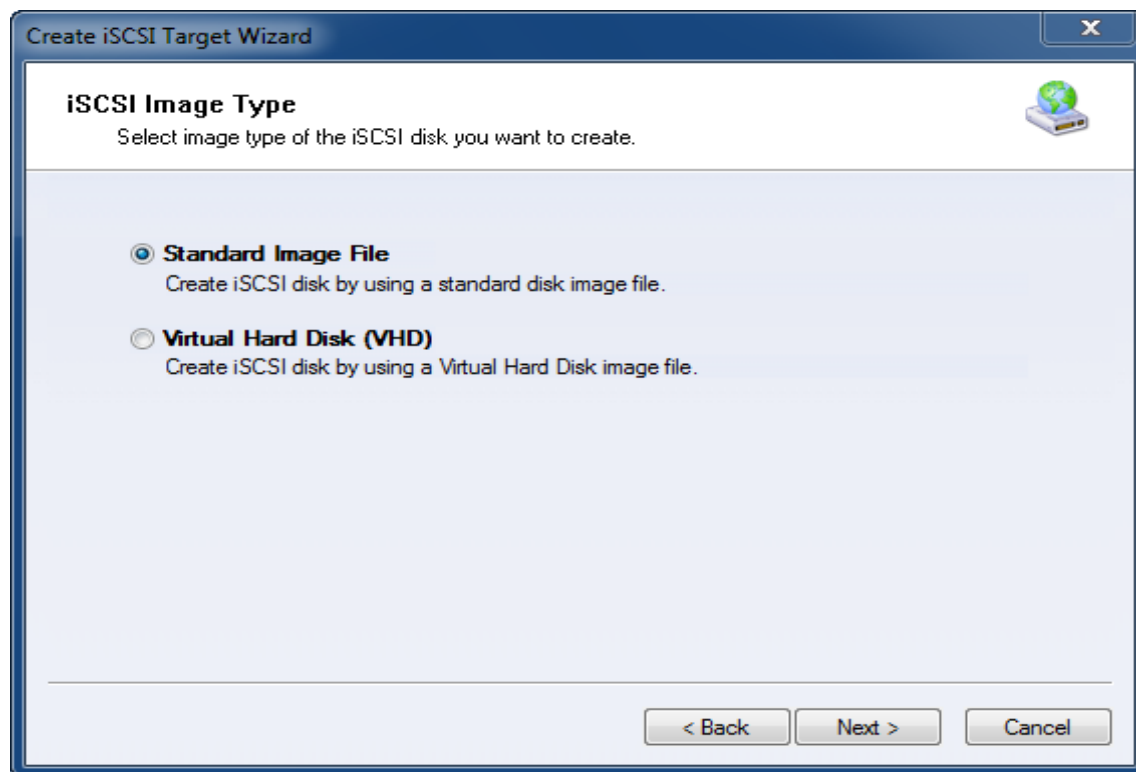
Choose **Hard Disk**.

Press the **Next** button to continue.



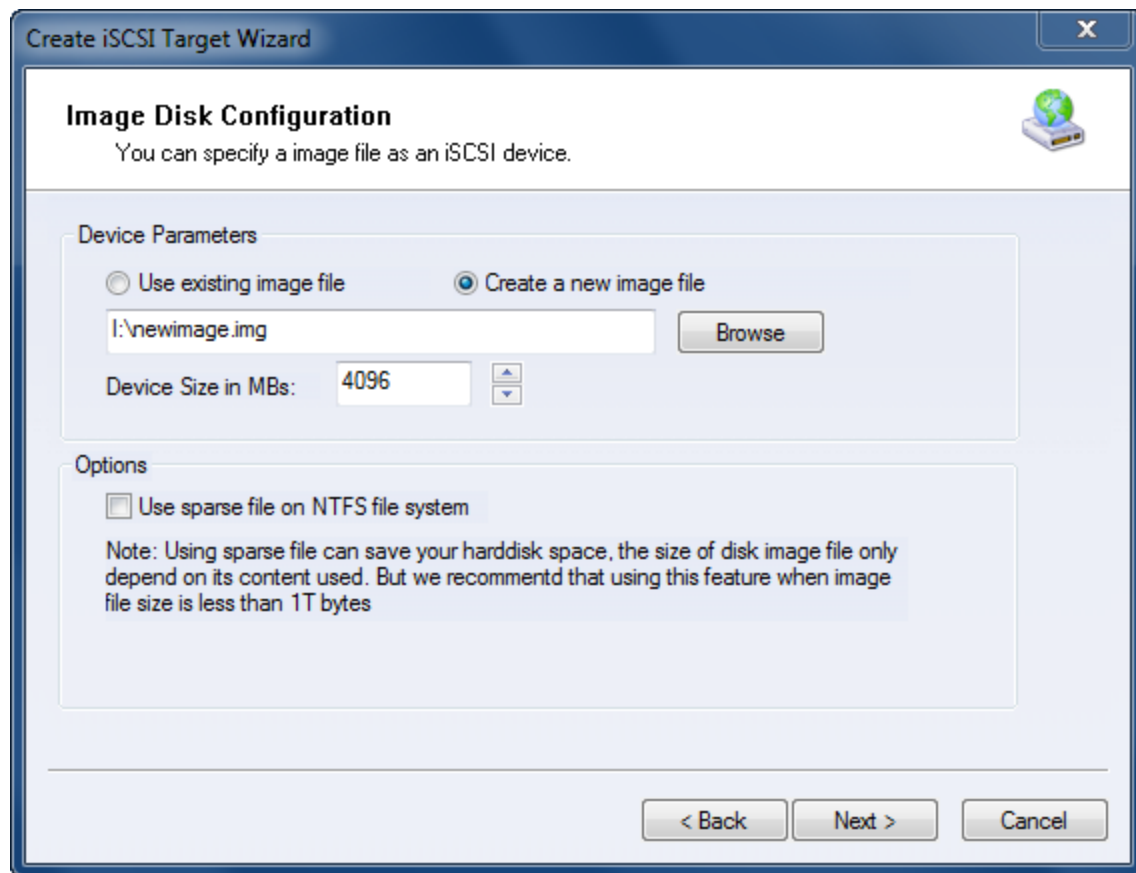
Choose **Image File** in **iSCSI Medium Type** window.

Then press **Next** button to continue.



We choose **Standard Image File** and then press **Next** button.

Specify image file path and size.

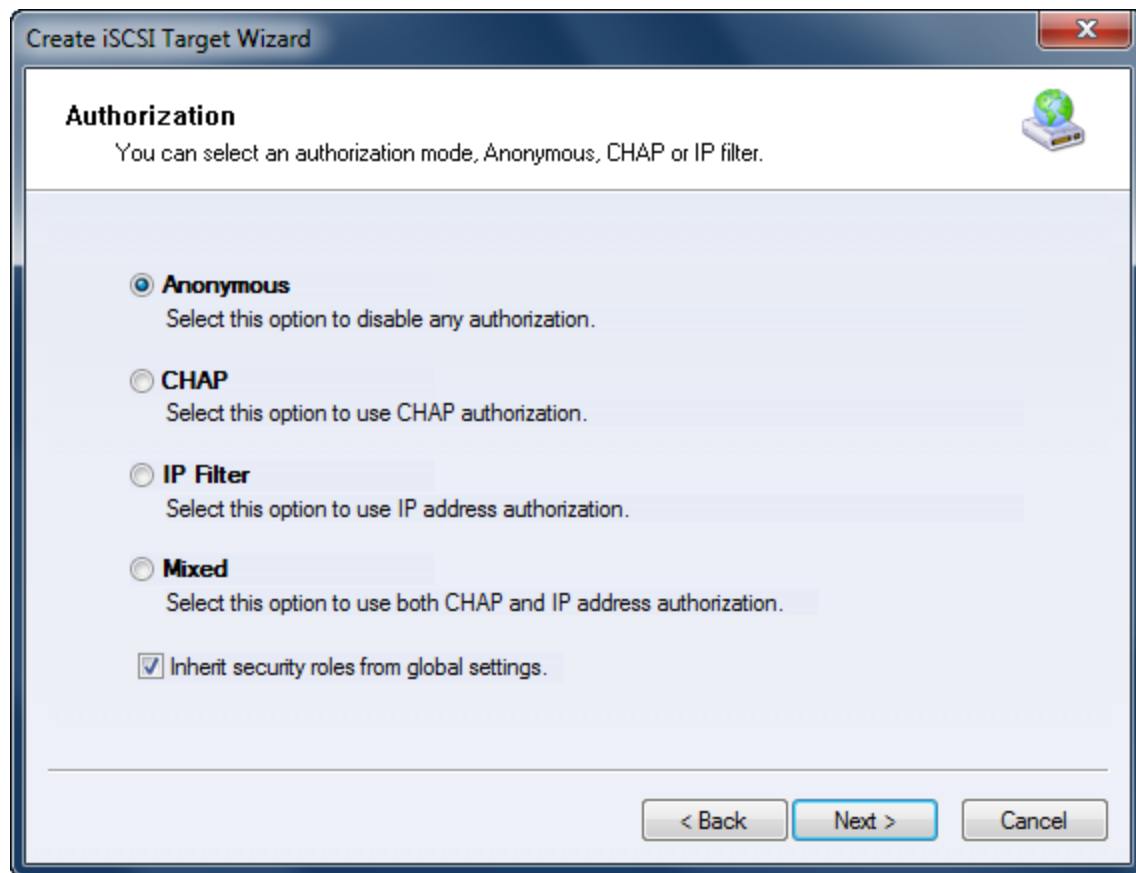


Select **Create a new image file** or **Use existing image file** if you already have one.

Specify the device size.

Press the **Next** button to continue.

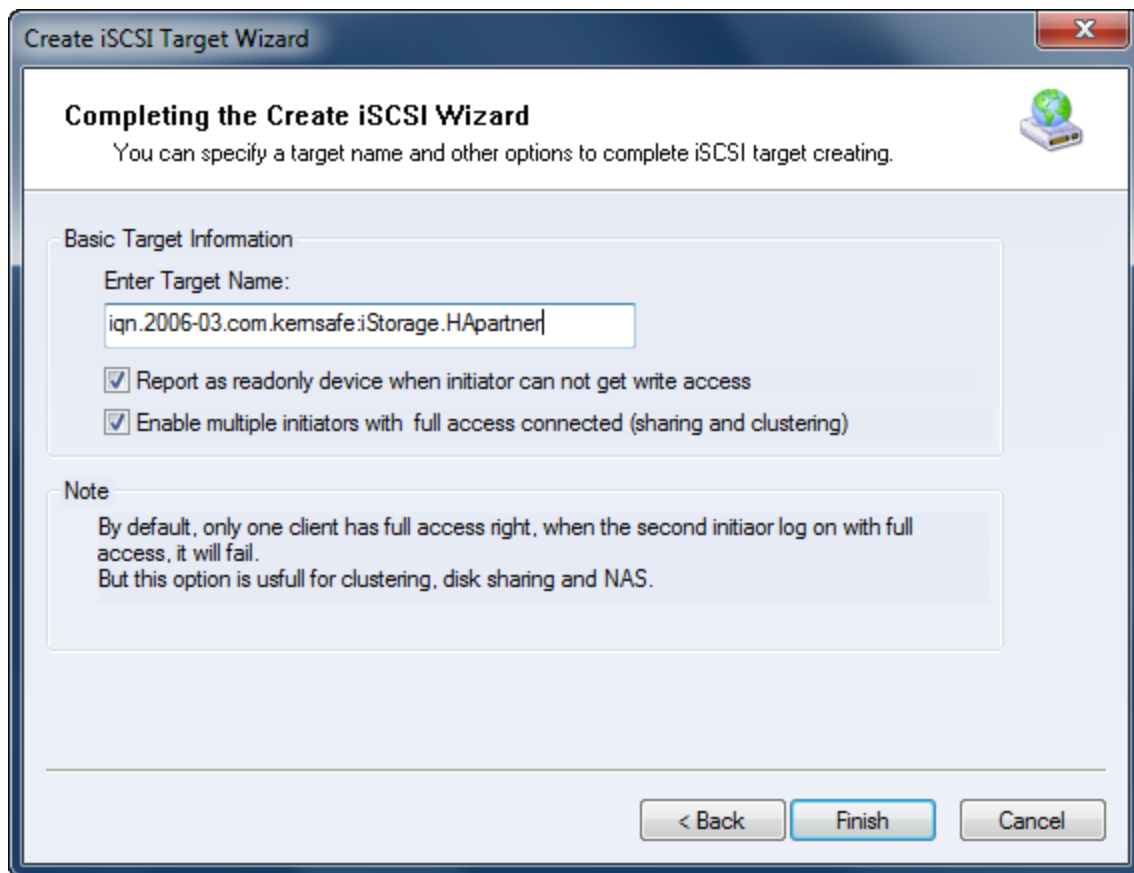
Set authorization mode.



Specify authorization mode as you required, here we use **Anonymous** type.

Press the **Next** button to continue.

Finish creating iSCSI Target



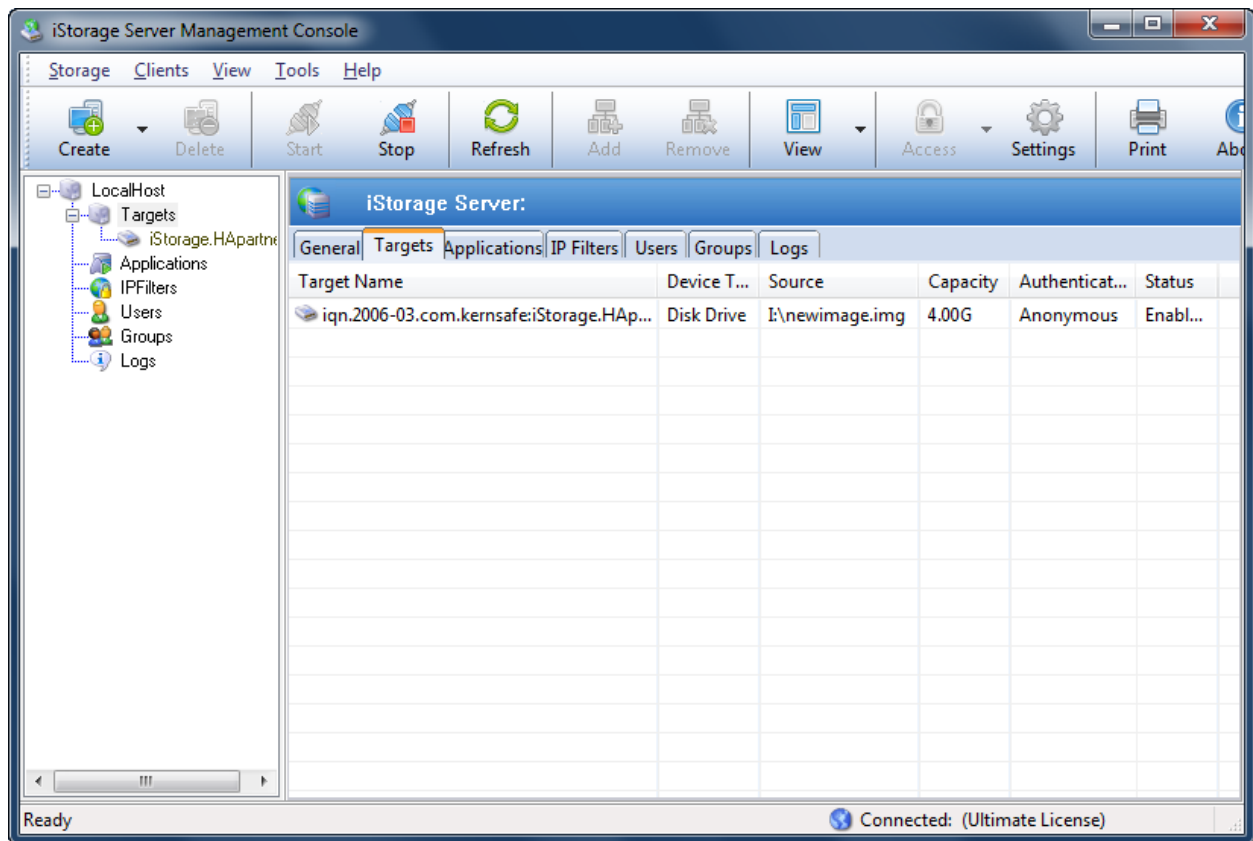
Type a target name in the Target Name field, or use the default.

Check the **Enable multiple initiators with full access connected (sharing and clustering)** check box.

Press the **Finish** button.

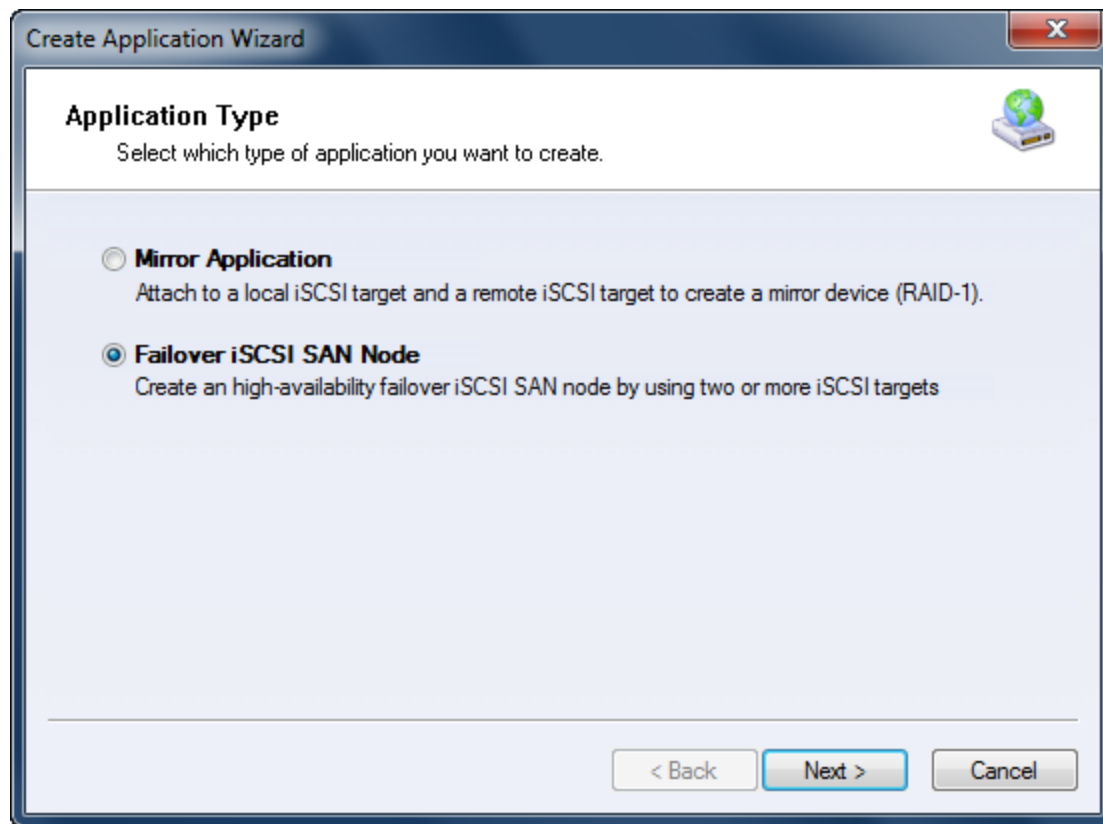
Now the sample images are shown in the iStorage Server management console if successful.





## Creating Application

On iStorage Server 1, right click **Applications** on the left tree of the main interface, choose **Create Application** on the pop-up menu, the **Create Application Wizard** is shown.



Choose **Failover iSCSI SAN Node**.

Then press **Next** to continue.

**Create Application Wizard**

## Fail Over Configuration

You can specify two servers to fail over each other.

**Base Target**

Target Name	Device Type
<input checked="" type="checkbox"/> iqn.2006-03.com.kernsafe.iStorage.HA	Disk

**Mirror Target**

**Edit**

**< Back** **Next >** **Cancel**

Check the HA storage and click **Edit** to find the mirror target.

**Select iSCSI Target**

**iSCSI Source**

Host Name: 192.168.0.177 Port: 3260

**CHAP**

☐ Use CHAP to logon

User Name:

Secret:

**Target**

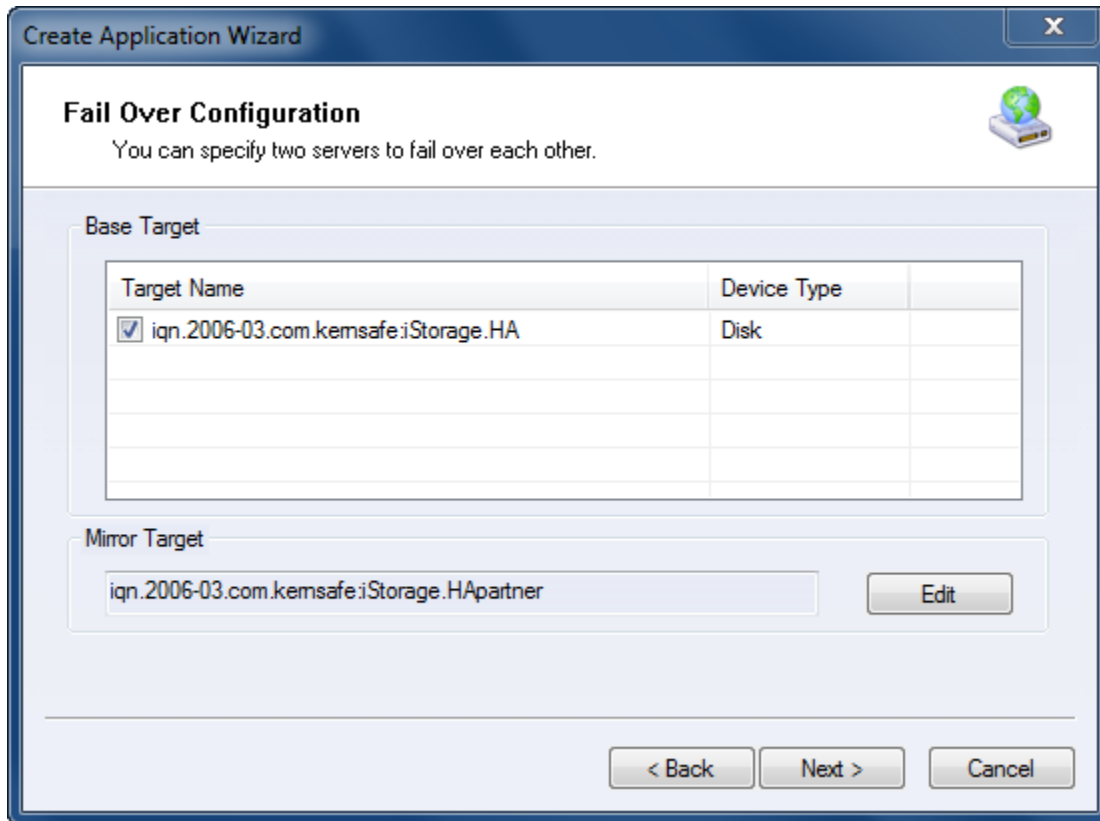
Target: iqn.2006-03.com.kernsafe.iStorage.HApartner

**Discovery** **OK** **Cancel**

Input the IP and port of server2 in **iSCSI Source** tab, then click **Discovery** on the bottom of the window to find the mirror target, choose the **HApartner** in the down-list.

Press **OK** button to continue.

**Note:** If the target needs CHAP authorization, you should provide User name and secret to logon.



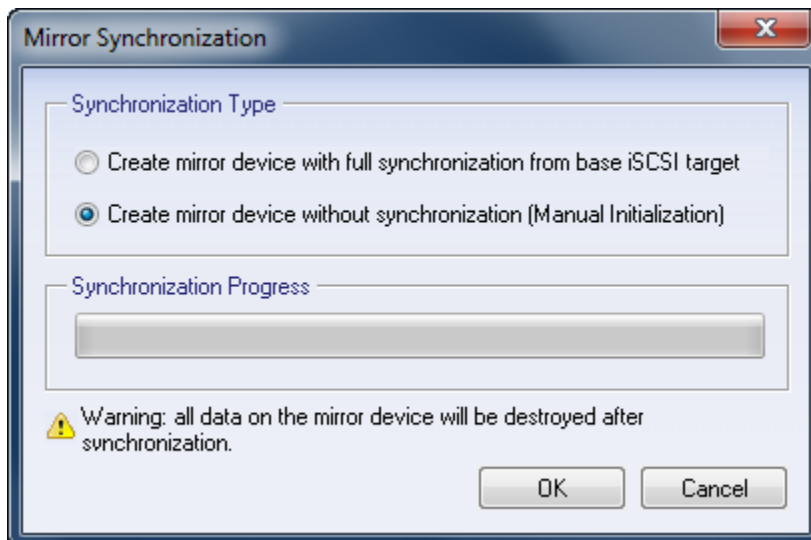
The screenshot shows the 'Create Application Wizard' window, specifically the 'Fail Over Configuration' step. The window has a title bar with a close button (X). Below the title bar, the text 'Fail Over Configuration' is displayed, followed by a subtitle 'You can specify two servers to fail over each other.' and a small icon of a server. The main area is divided into two sections: 'Base Target' and 'Mirror Target'. The 'Base Target' section contains a table with two columns: 'Target Name' and 'Device Type'. The first row in the table is checked and contains the text 'iqn.2006-03.com.kemsafe.iStorage.HA' and 'Disk'. The 'Mirror Target' section contains a text box with the text 'iqn.2006-03.com.kemsafe.iStorage.HApartner' and an 'Edit' button. At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Target Name	Device Type
<input checked="" type="checkbox"/> iqn.2006-03.com.kemsafe.iStorage.HA	Disk

Mirror Target: iqn.2006-03.com.kemsafe.iStorage.HApartner [Edit]

< Back   Next >   Cancel

The mirror target will be added to the window, then press the **Next** button to continue.



The screenshot shows the 'Mirror Synchronization' window. It has a title bar with a close button (X). The main area is divided into two sections: 'Synchronization Type' and 'Synchronization Progress'. The 'Synchronization Type' section contains two radio buttons: 'Create mirror device with full synchronization from base iSCSI target' and 'Create mirror device without synchronization (Manual Initialization)'. The 'Synchronization Progress' section contains a progress bar. At the bottom of the window, there is a warning icon and text: 'Warning: all data on the mirror device will be destroyed after synchronization.' and two buttons: 'OK' and 'Cancel'.

Synchronization Type

- ☐ Create mirror device with full synchronization from base iSCSI target
- ☒ Create mirror device without synchronization (Manual Initialization)

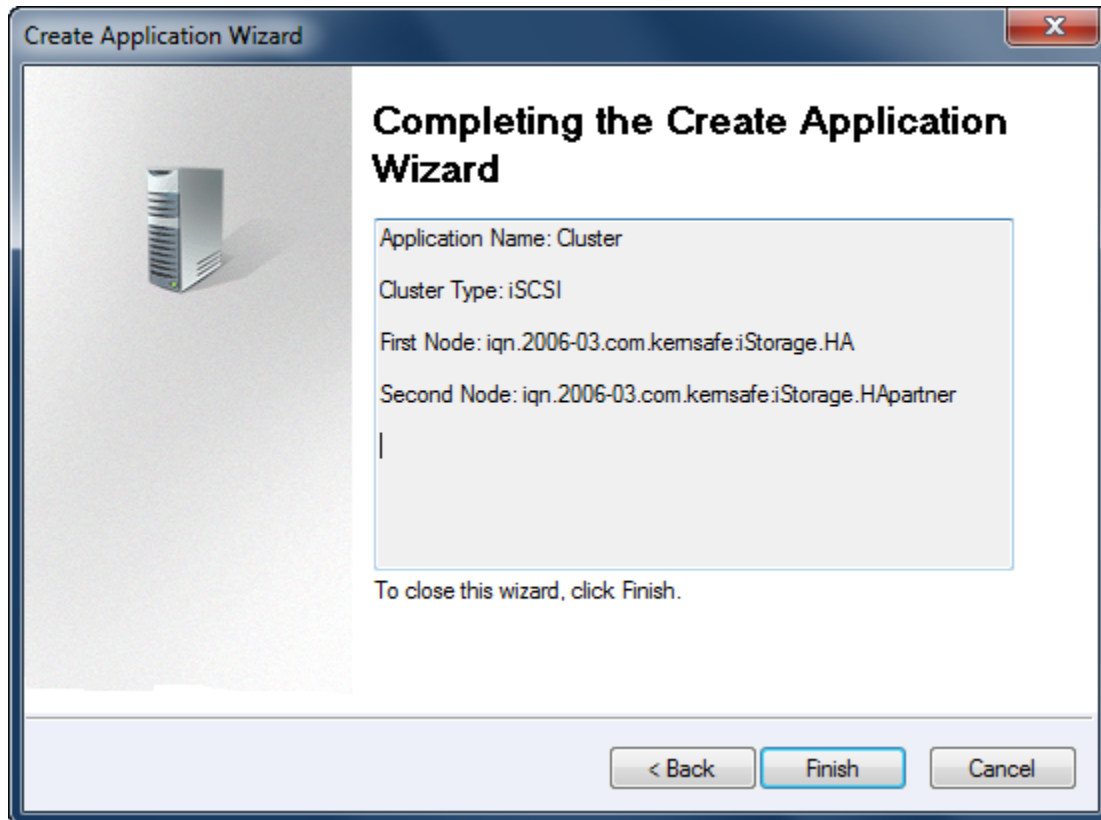
Synchronization Progress

Warning: all data on the mirror device will be destroyed after synchronization.

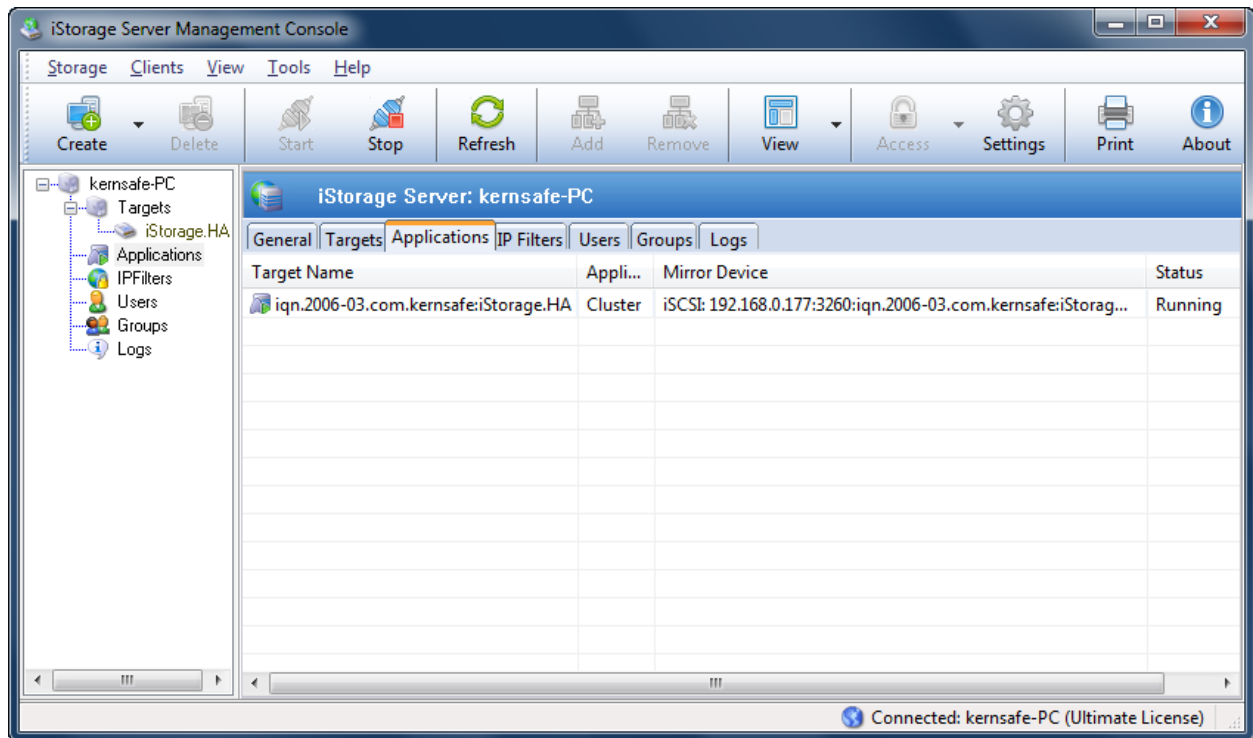
OK   Cancel

Now, the mirror target should be synchronized to the base target, if the two targets are both the new one and do not be initialized, we can choose **Create mirror device without synchronization (Manual Initialization)**, otherwise, we must choose **Create mirror device with full synchronization from base iSCSI target**.

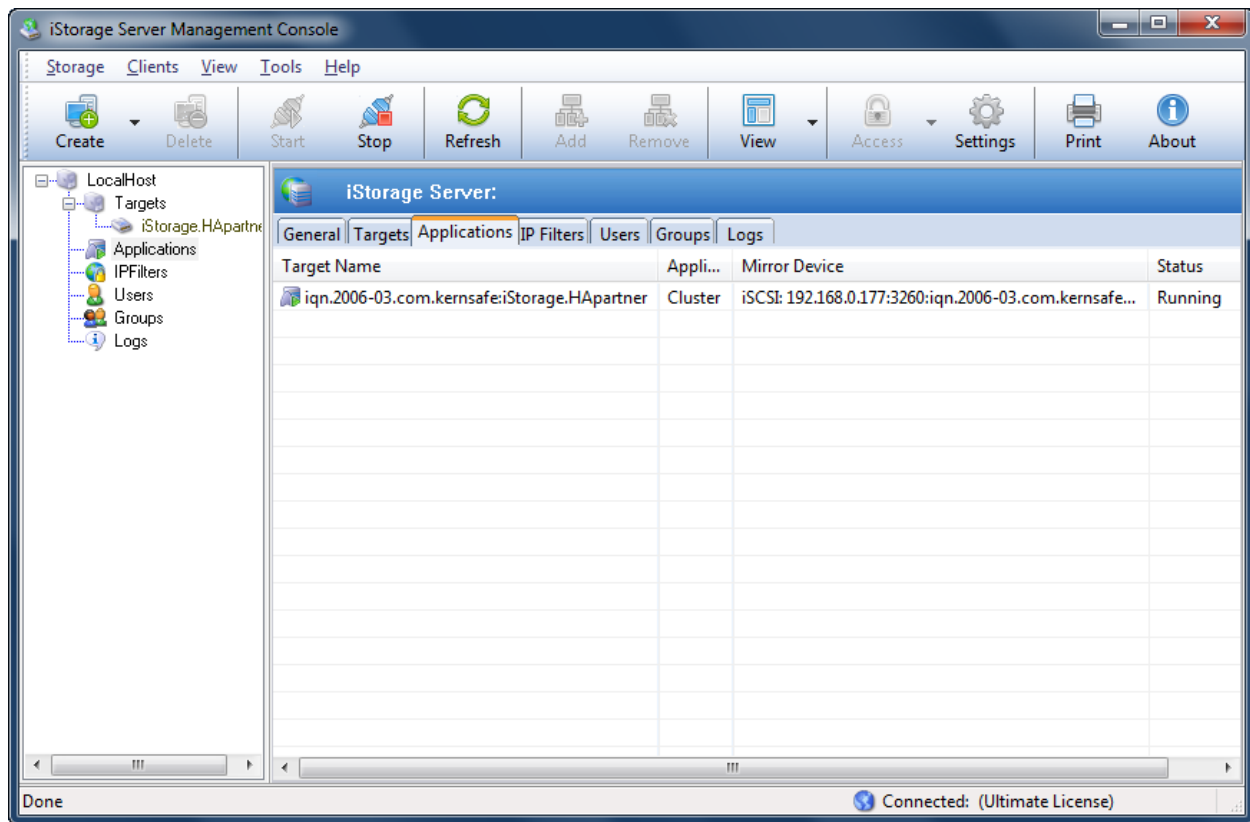
Press the **OK** button to continue.



Click the **Finish** button to complete the application creation.



Now the application will be shown in the main interface if successful and the configuration on the server1 is completed. We do the same operations on iStorage Server2 to create an application, choose HA as the mirror target, after the creation, the main interface will be shown as follows:

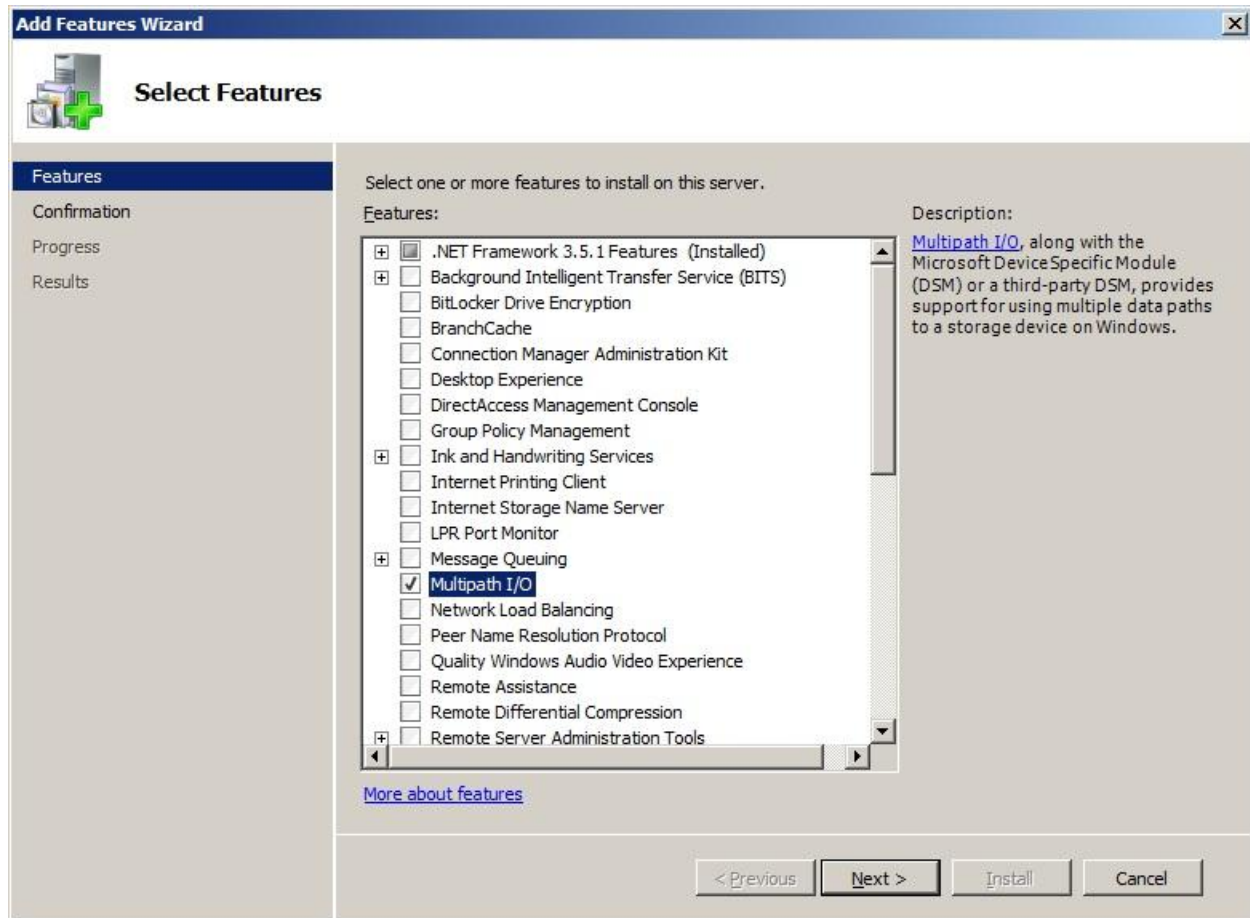


## Configuring on Client

### Install MPIO Feature

Launch **Start->Administrative Tools->Server Manager**, go to **Features** item, and click **Add** Features.

An **Add Features Wizard** will appear. In the features list select **Multipath I/O** feature and install it.

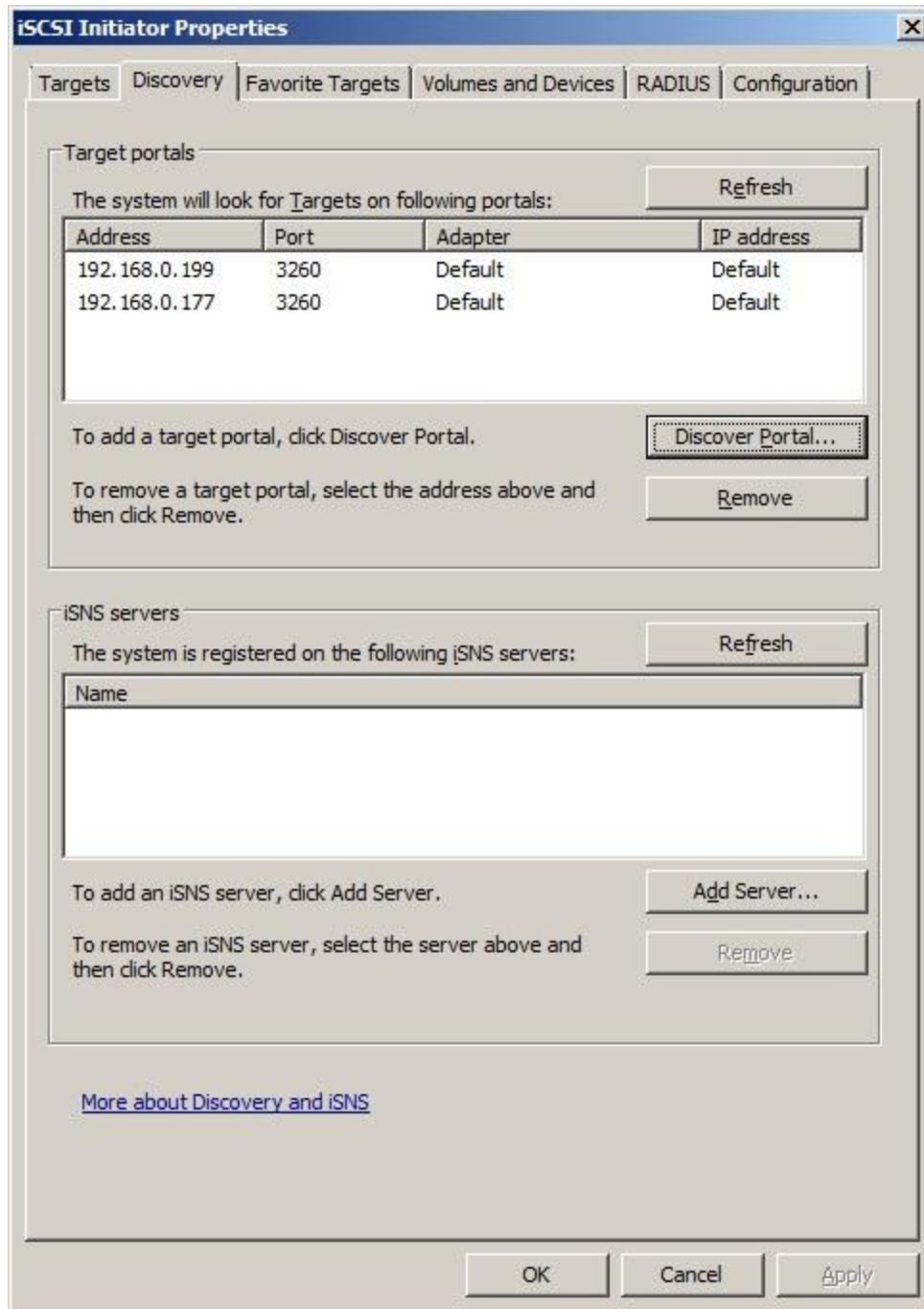


## Connect Targets

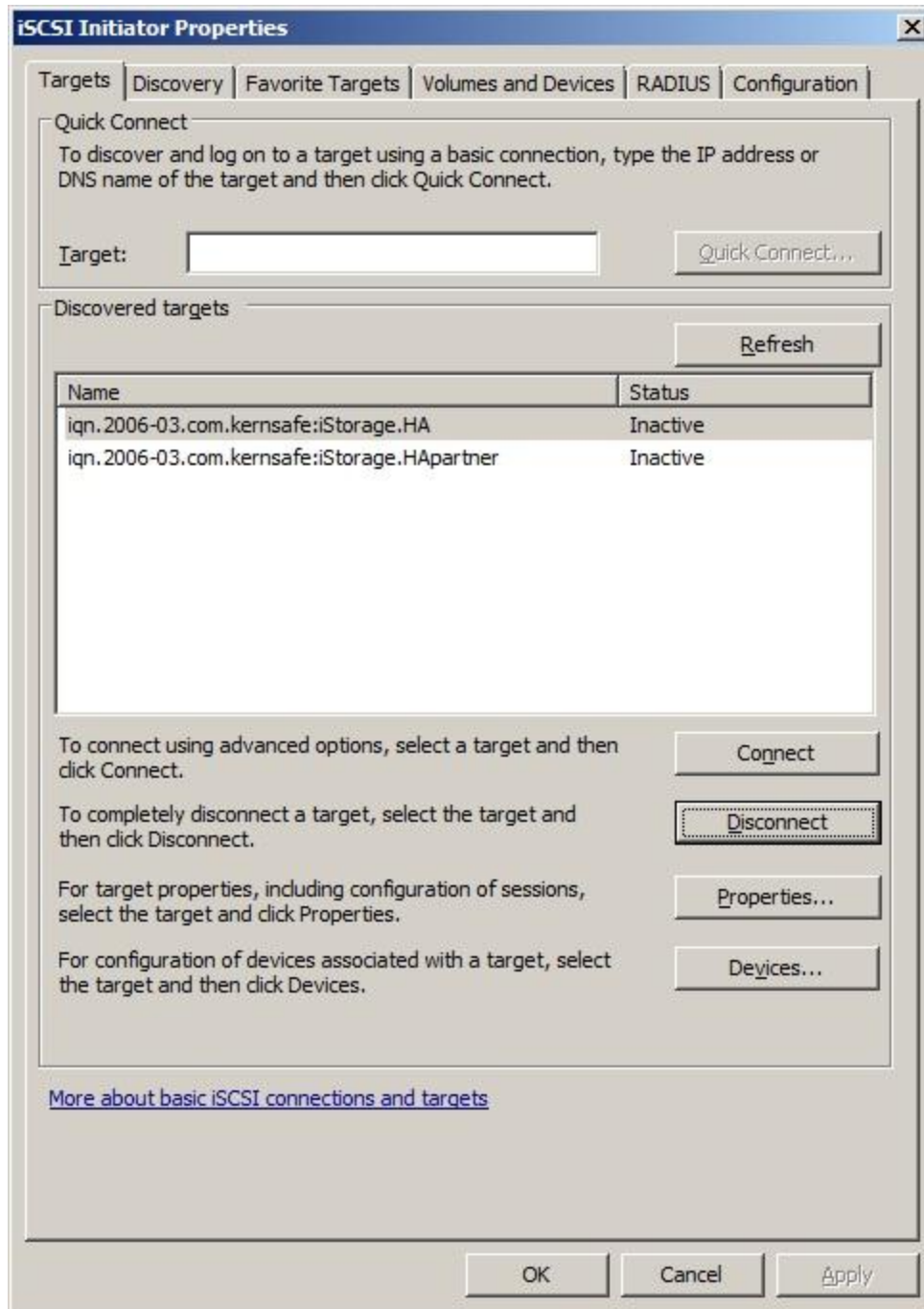
Launch the Administrative Tools -> Microsoft iSCSI initiator.

Switch to the **Discovery** tab. Add each IP address of the iStorage servers by clicking the **Discover Portal...** button and specifying server IP address.





Switch to the **Targets** tab.

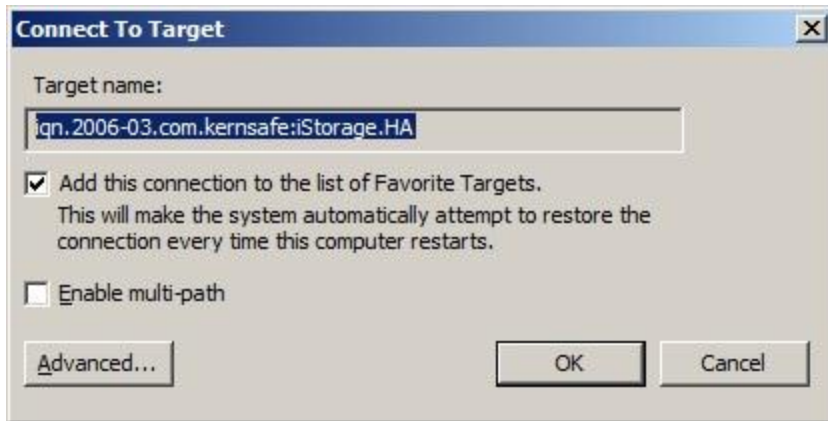


Connect the targets by clicking the **Connect** button.

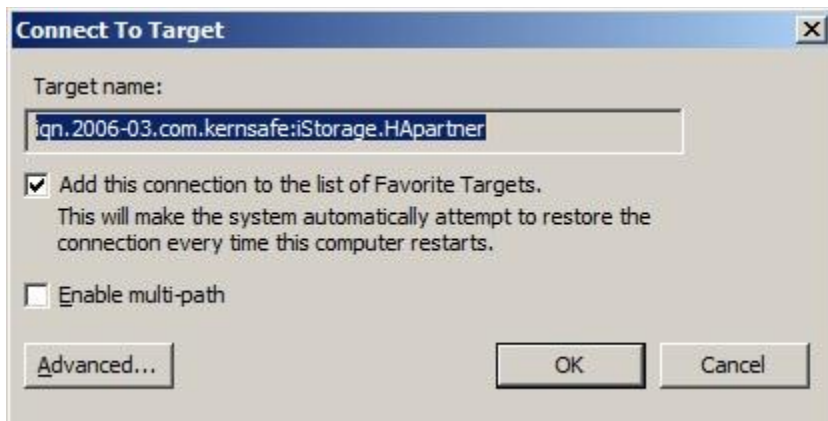
A **Connect to Target** dialog is shown.

Check **Add this connection to the list of Favorite Targets**.

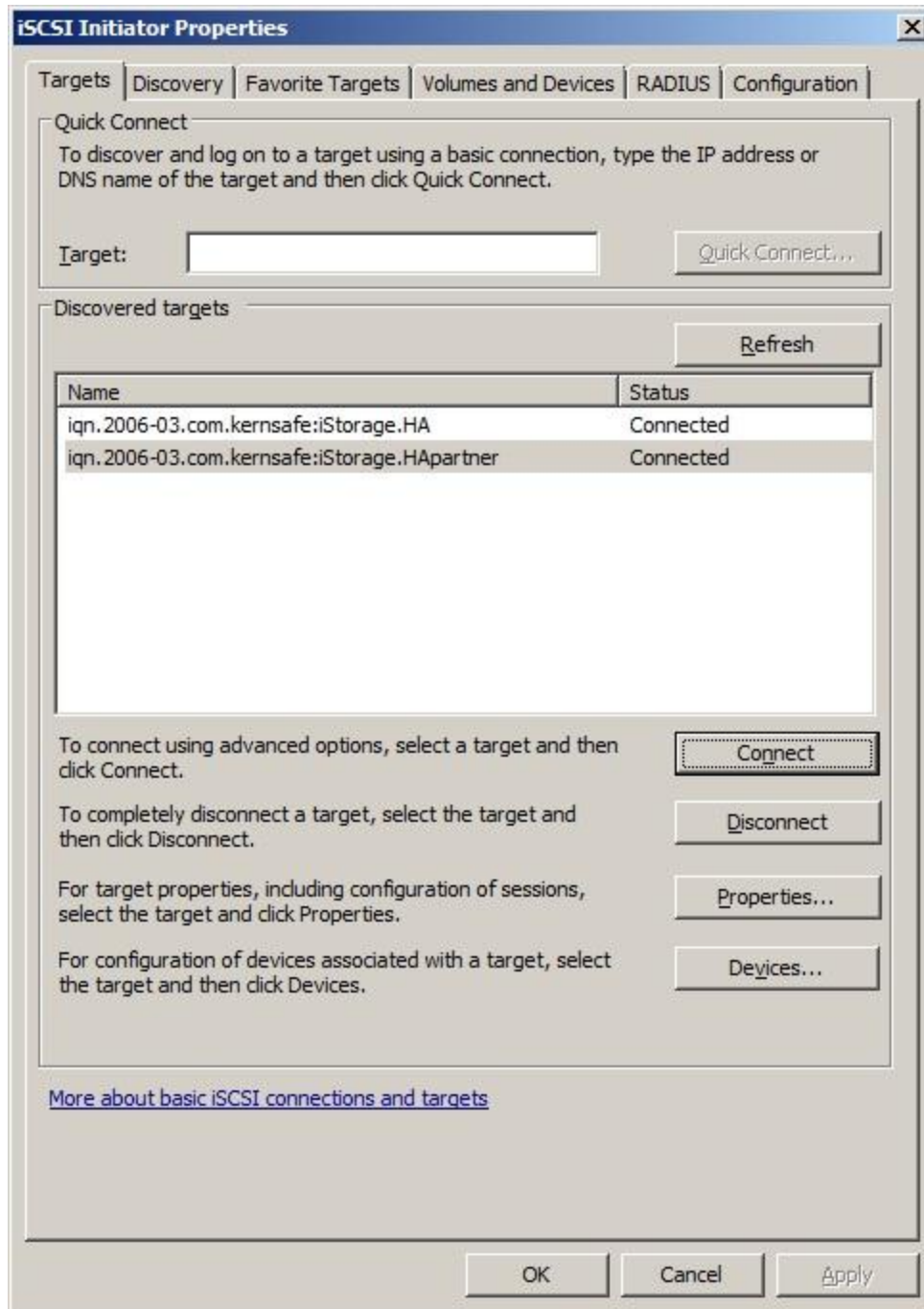
Target 1



Target 2



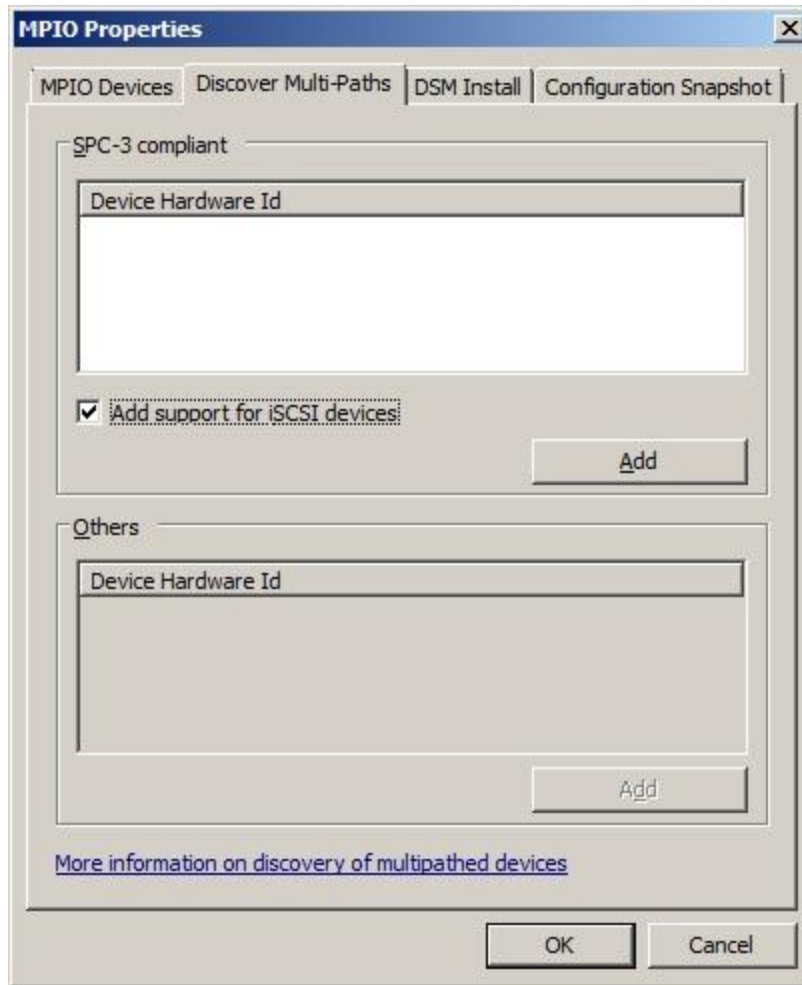
Click the **OK** button to connect the target.



Now, the client is connected to the two targets.

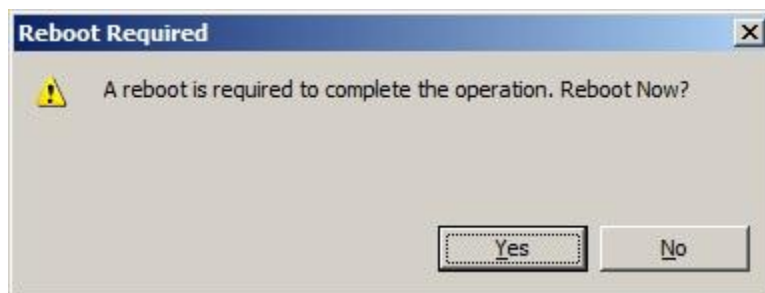
## Enable Multipath Support

Launch MPIO manager by clicking **Start->Administrative Tools->MPIO**. Go to **Discover Multi-Paths** tab, check **Add support for iSCSI devices**.



Click the **Add** button.

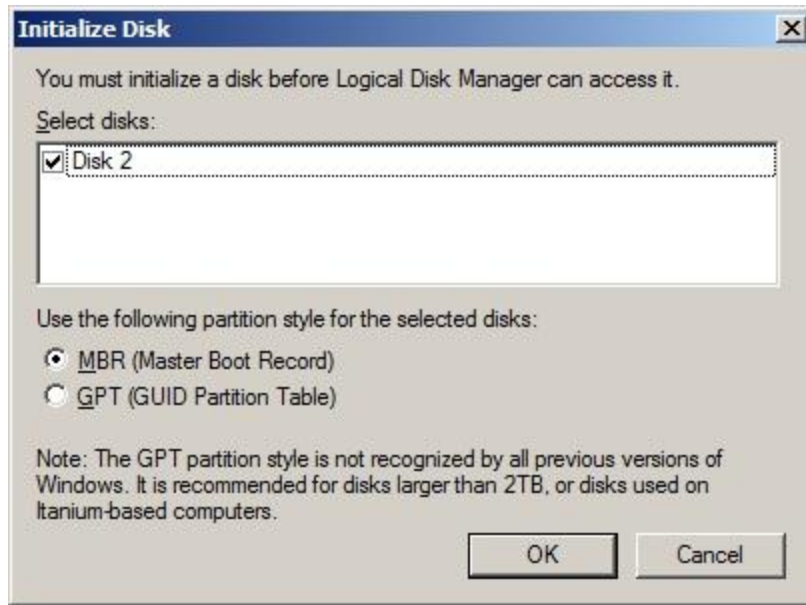
Windows will prompt you to reboot the server.



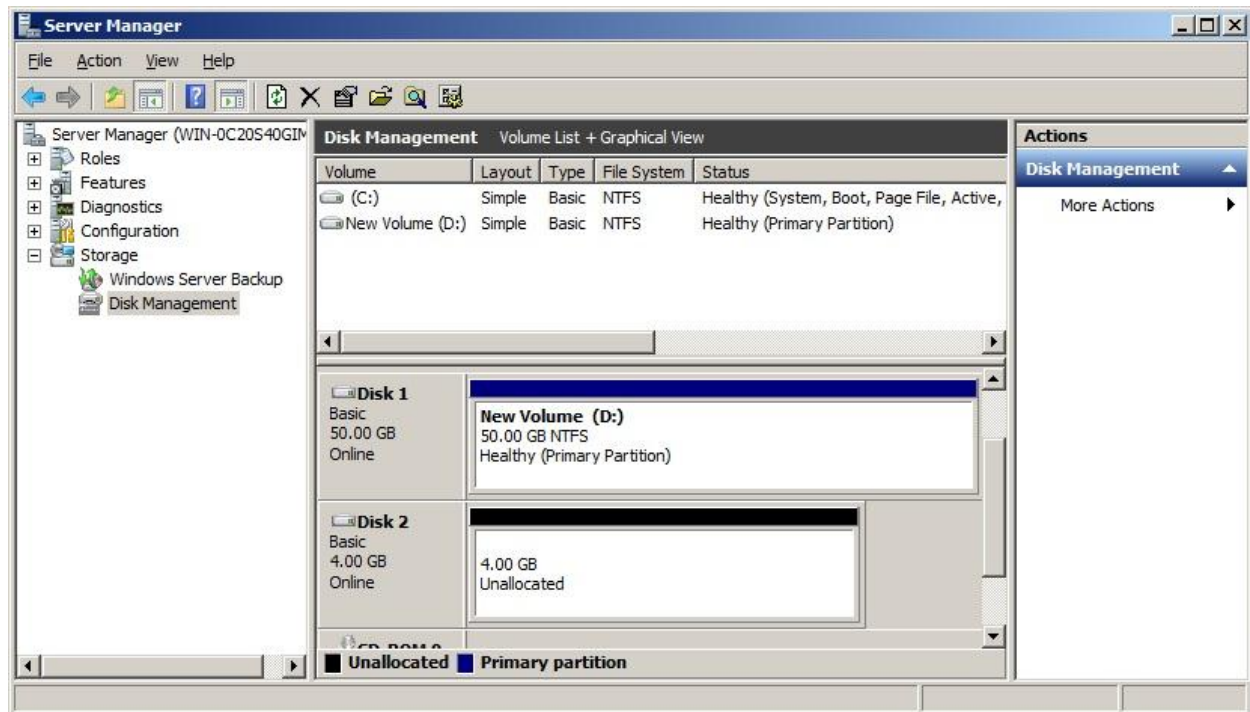
Click the **Yes** button to restart your server.

We have to initialize the disk before we use it.

Click **Start->Computer->Manage->Disk Management**, the **Initialize and Convert Disk Wizard** window is shown.

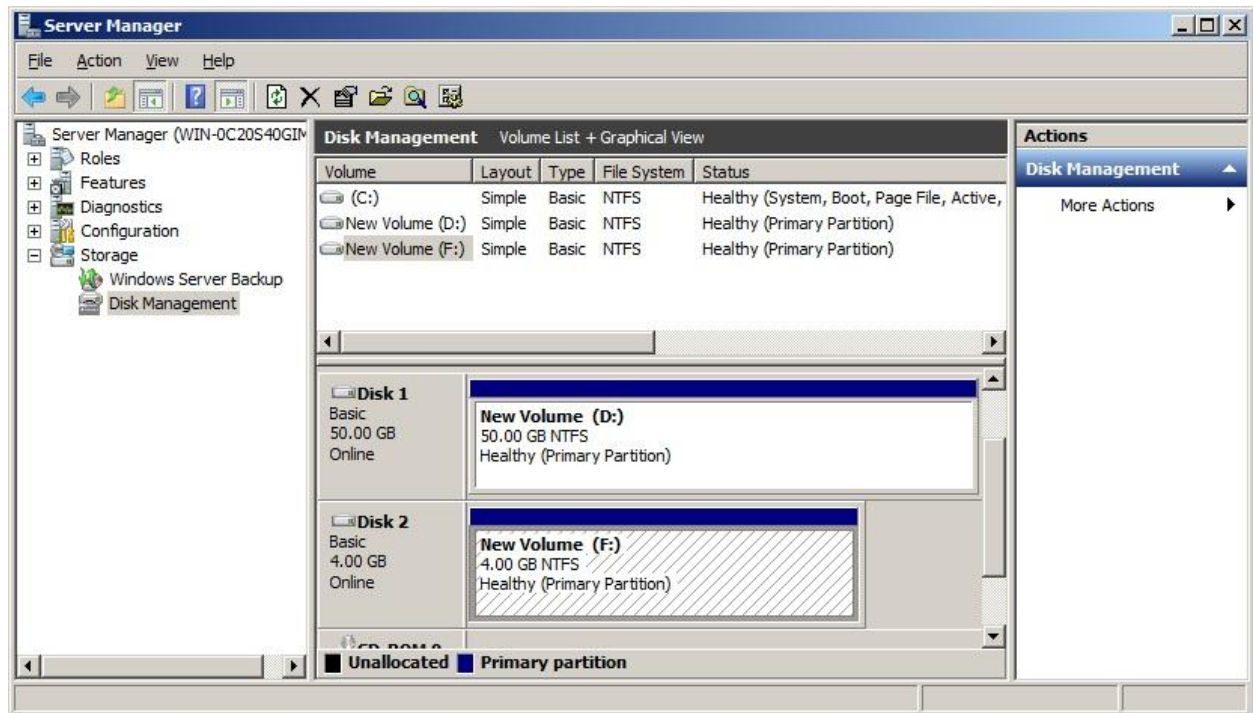


Check **Disk 2** and press **OK** to finish the initialization.



Right click on the Disks and then select New Simple Volume, partition and format the two disks followed by wizard.

If successful, the new volumes created are shown in the figure below.



**Note:** Although we connect two targets, there will be only one disk on the client it working on both two active connections.

## Contact

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