iStorage Server: iSCSI SAN for Linux

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Table of Contents

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), 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.

Linux is an operating system -- very much like UNIX -- that has become very popular over the last several years.

This article demonstrates how iStorage Server works with Linux. Such powerful combination will expand the application scope of your Linux server and workstation, thereby enabling WINDOWS server to expand the storage of your Linux computer. It also allows you to directly use the storage devices of the existing Windows server for Linux Server. With IP SAN solution provided by iStorage Server, you may install application and server software, as well as store data required wish you like. Your Linux computer's storage can be expanded in the following 3-most-commonly-used ways:

- Use Virtual Image File Disk Device to create a file-based virtual storage device for Linux, this allows quick data migration and backup.
- Directly use the physical disk or partition of Windows server. This enables you to make good use of resource. No additional configurations, just add the storage media to iSCSI Targets.
- Use CD/DVD/RW bridge device or Virtual CD/DVD to map physical CD/DVD drives or CD/DVD image files (iso, .bin, .mdf, .cdi, .b5i, .nrg, .ccd, .sub, .img, .raw) on your Windows server to CD/DVD devices on Linux.

After iStorage Server 2.0, it supports server side mirroring, synchronous replication and failover which allows user to create a high-availability iSCSI SAN for Linux.

Install Linux

Linux must first be installed on to a suitable machine. For how to obtain or install Linux, please contact the Linux supplier.

Configuring on iStorage Server

Choose the Authentication Mechanism

Decide which authentication mechanisms you would want to use: **Anonymous, CHAP, IP address** or **Mixed** authentication.

1), Anonymous:

All initiators will get full access permission without any authorization 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.

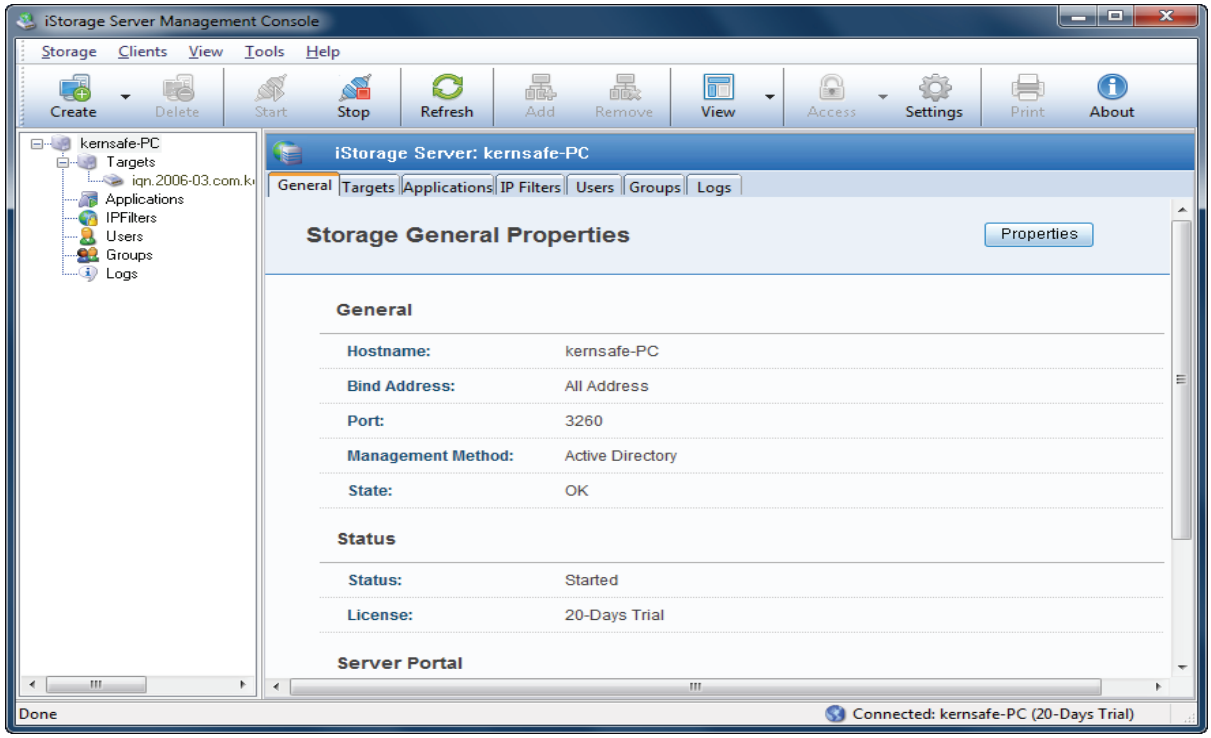
3) IP Filters

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

4) Mixed

Security policy is determined by both CHAP and IP Filters.

Open **iStorage Server Management Console.**

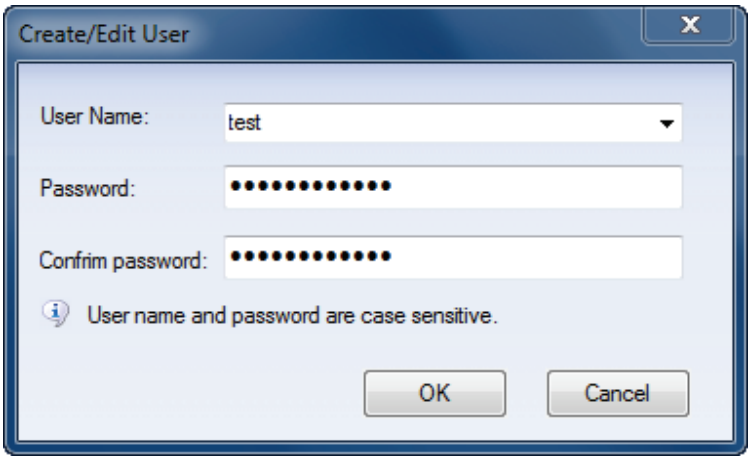


Create User

Right click **Users** Tree Node on the left tree view.

Press **Add** button in the tool bar.

Create/Edit User dialog is shown.



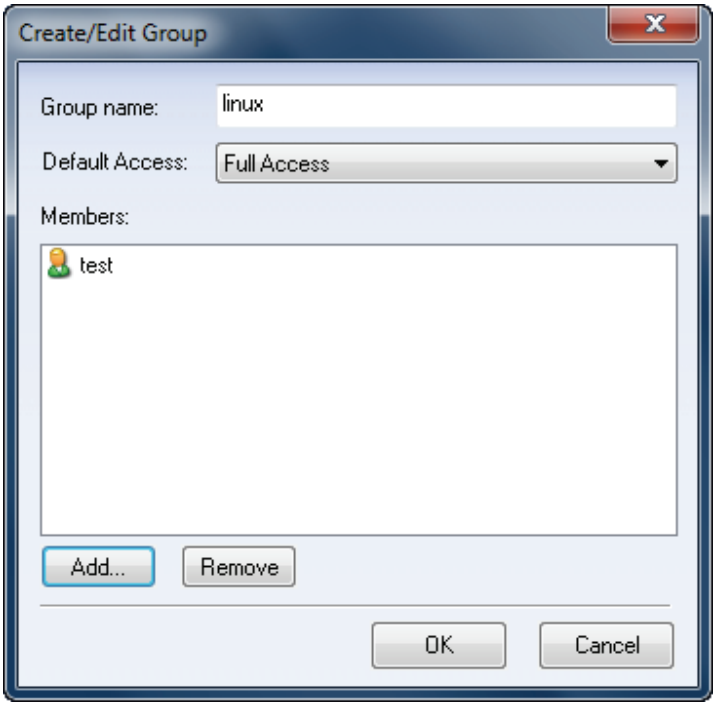
Type user name and password as you like, but we recommend that the password should be 12-16 characters. We take the user name **test** and password **111111111111** as an example.
Press **OK** button to complete creating user.

Create group

After create user, we need a group to hold this user.

Right click **Groups** tree node in the left tree view.

Press **Add** button on the toolbar, the **Create/Edit Group** Dialog is shown.



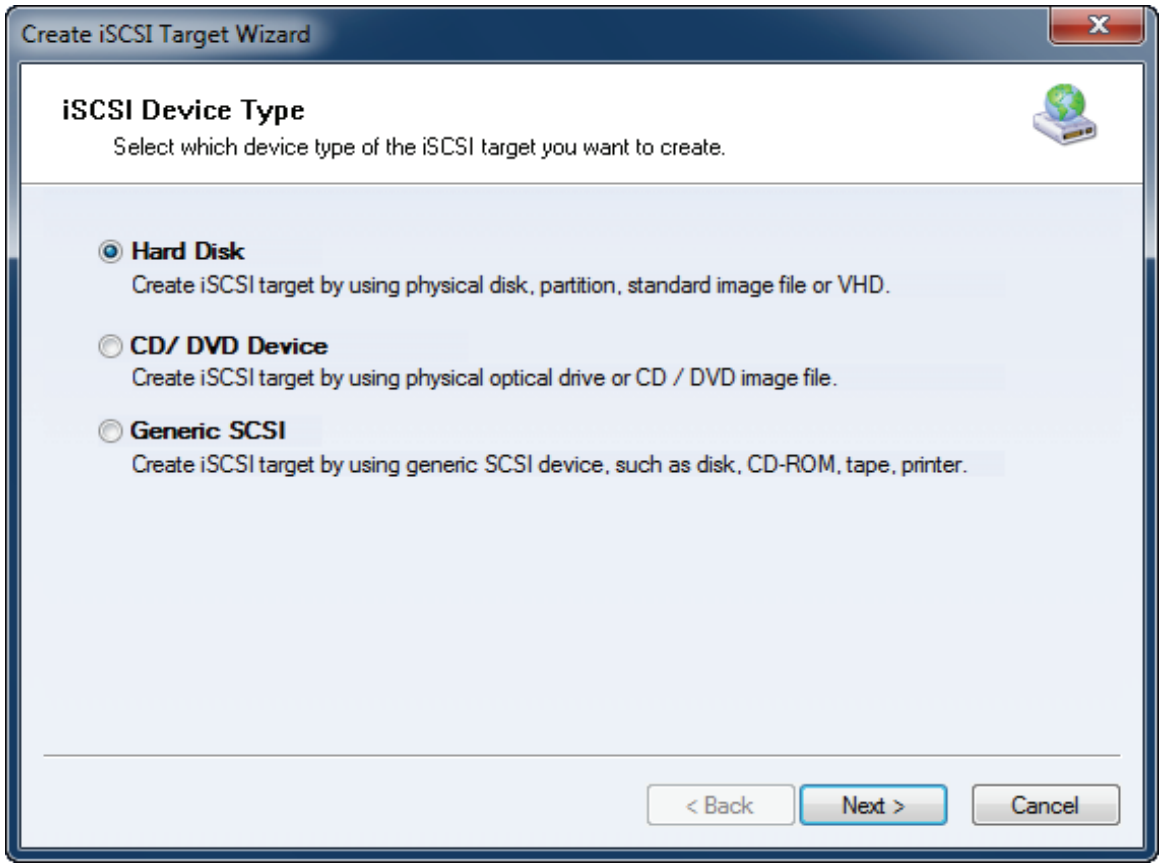
Take a group name as you like, we take **Linux** as an example.

Press the **Add** button and then select the user which we just created

Create Target

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

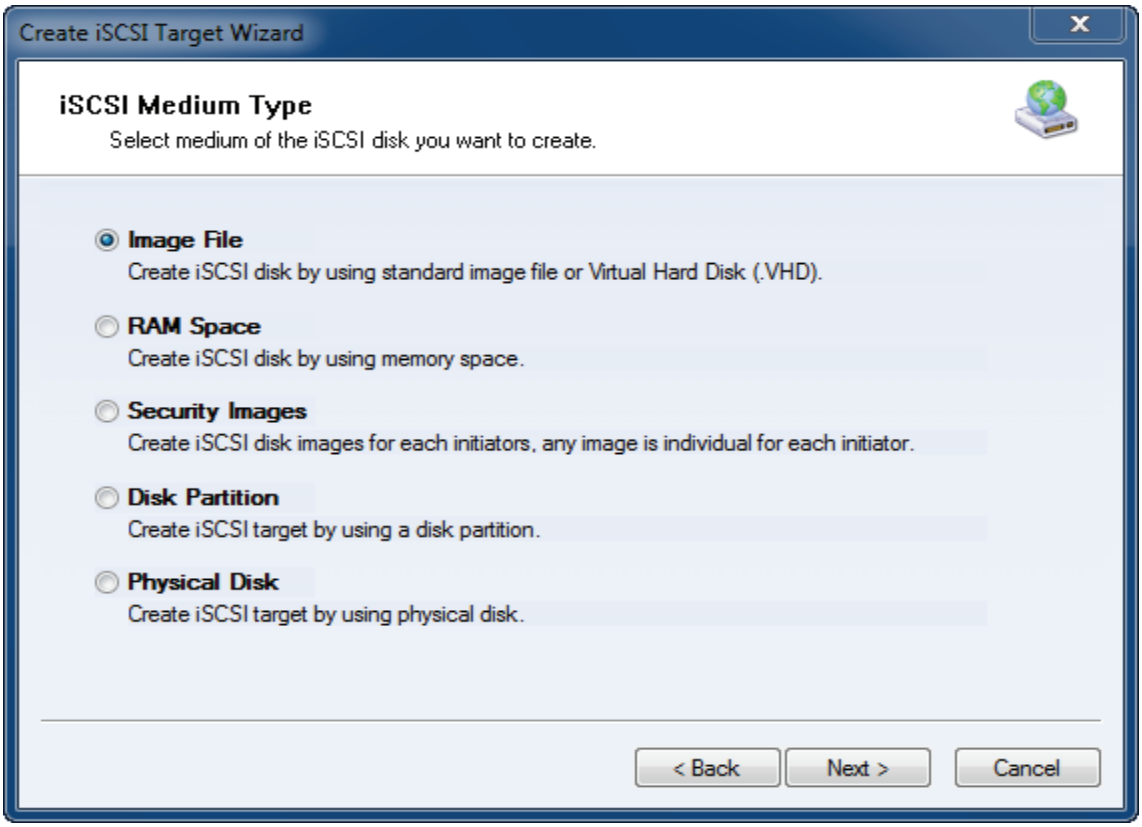
Select a device type



Choose **Hard Disk**.

Press the **Next** button to continue.

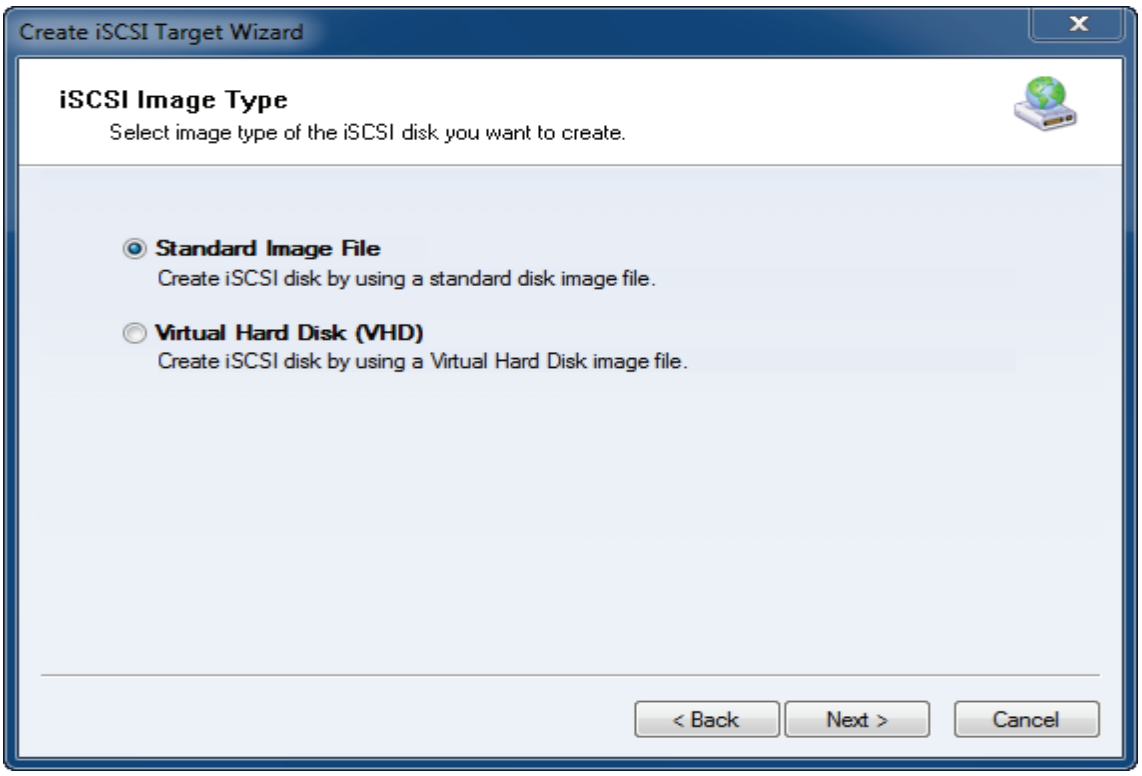
Select a medium type.



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

Then press **Next** button to continue.

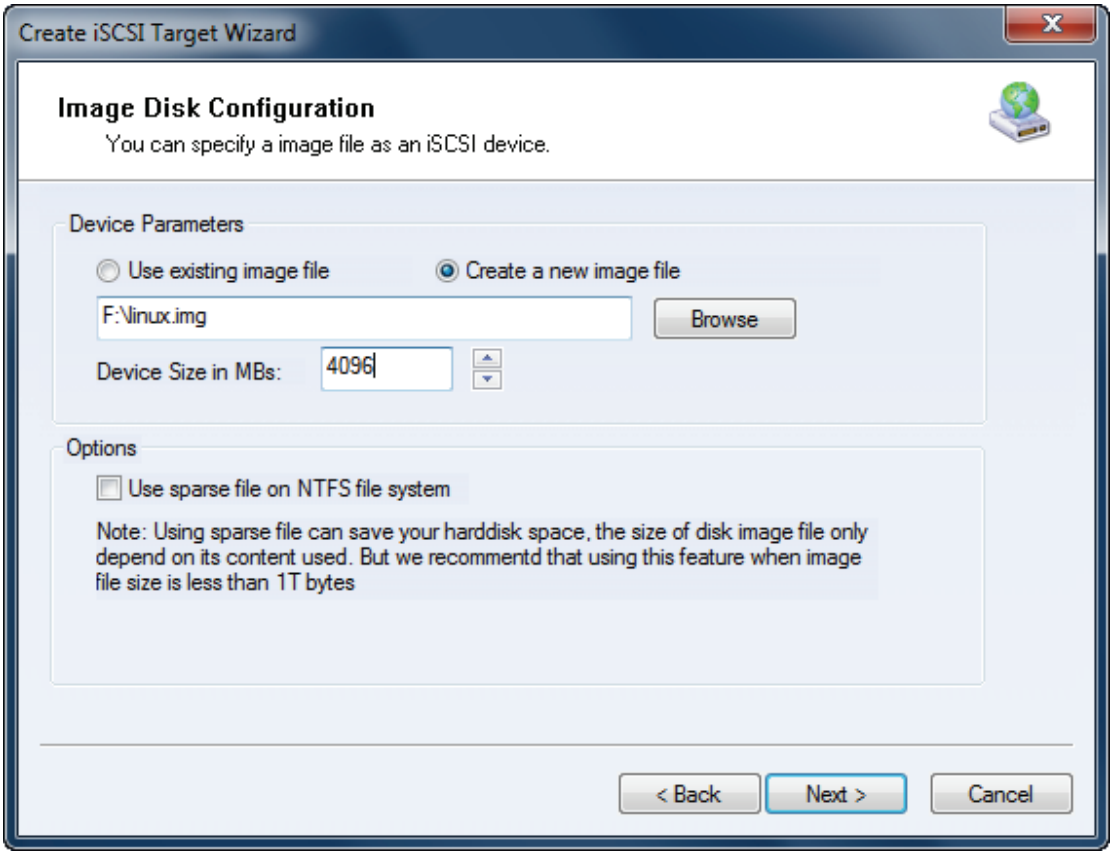
Select an Image type.



Choose **Standard Image File.**

Press the **Next** button to continue.

Specify image file path and size.



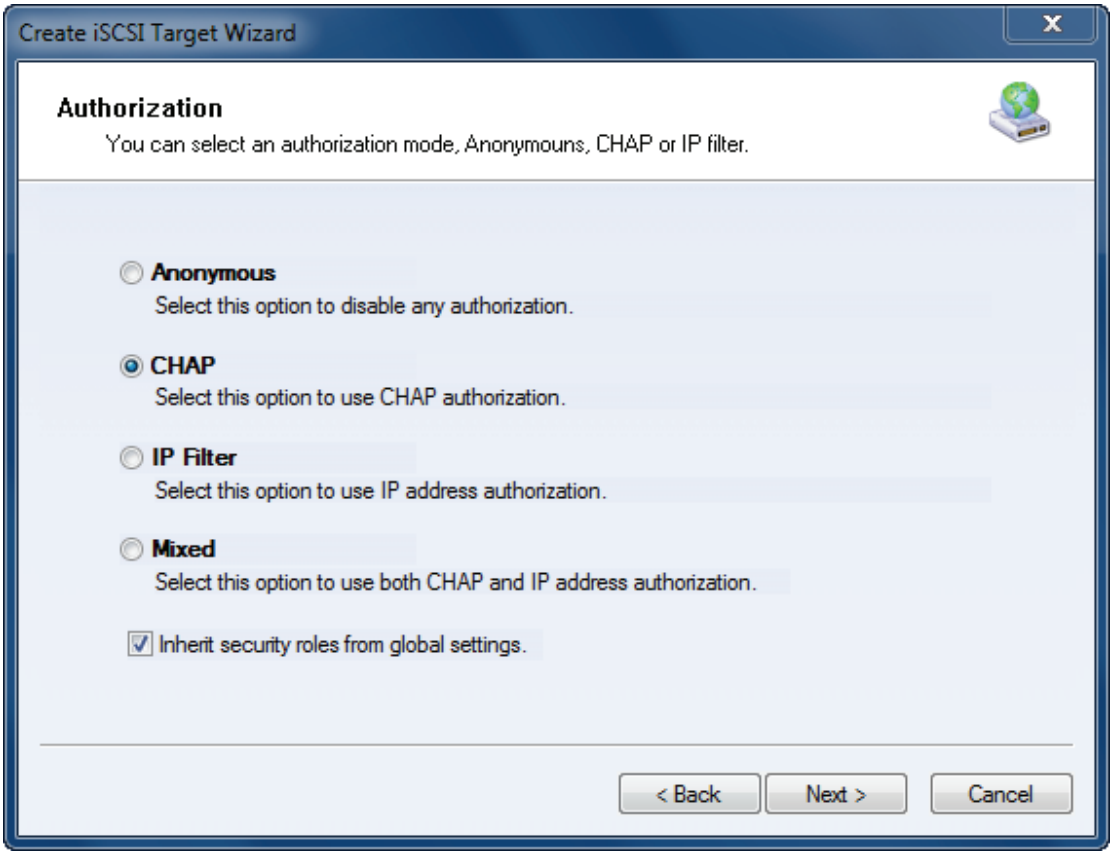
Specify the image file.

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.

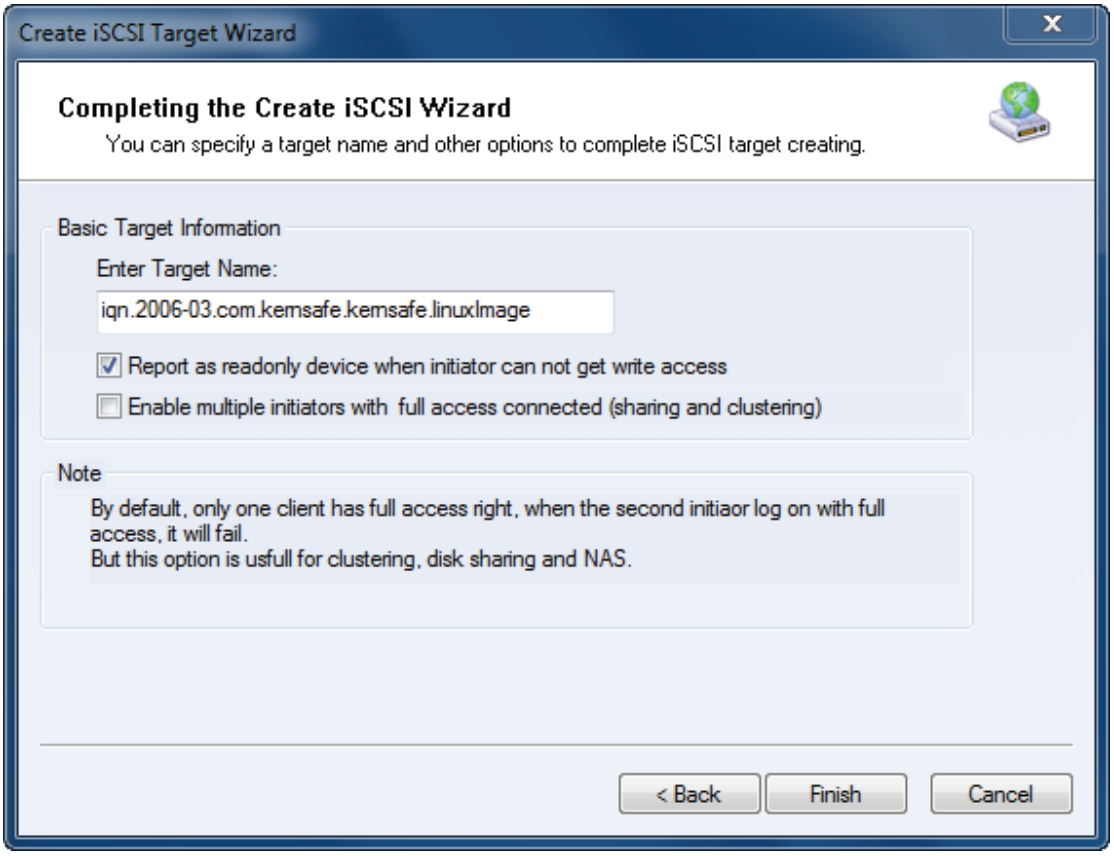
Set authorization mode.



Choose **CHAP** Authorization.

Press the **Next** button to continue.

Finish creating iSCSI Target



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

Press the **Finish** button to continue.

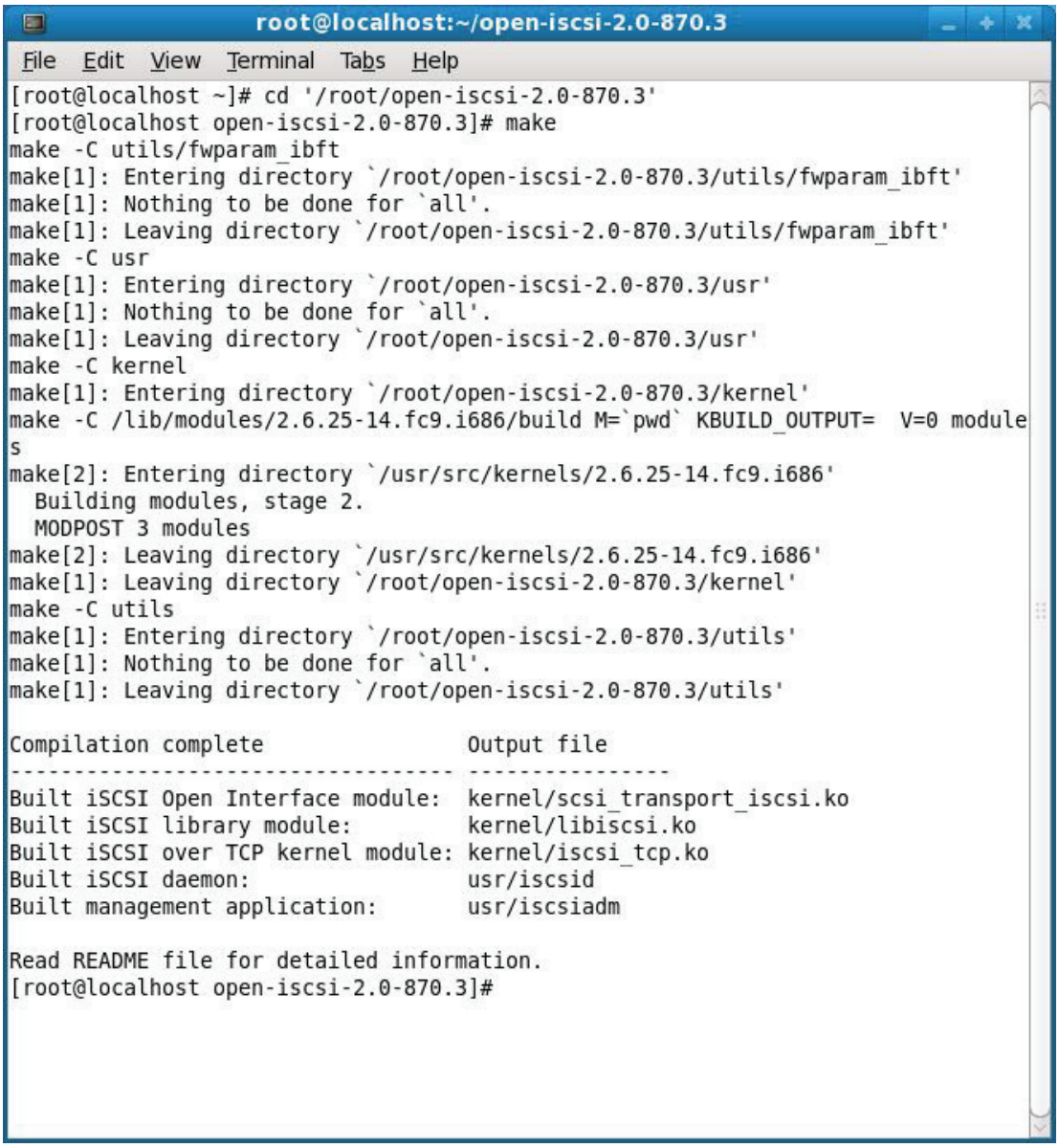
Configure Linux

Install open-iscsi

Download open-iscsi from http://www.open-iscsi.org.

Make sure current directory is the open-iscsi's source directory.

Type **make install** in the console.

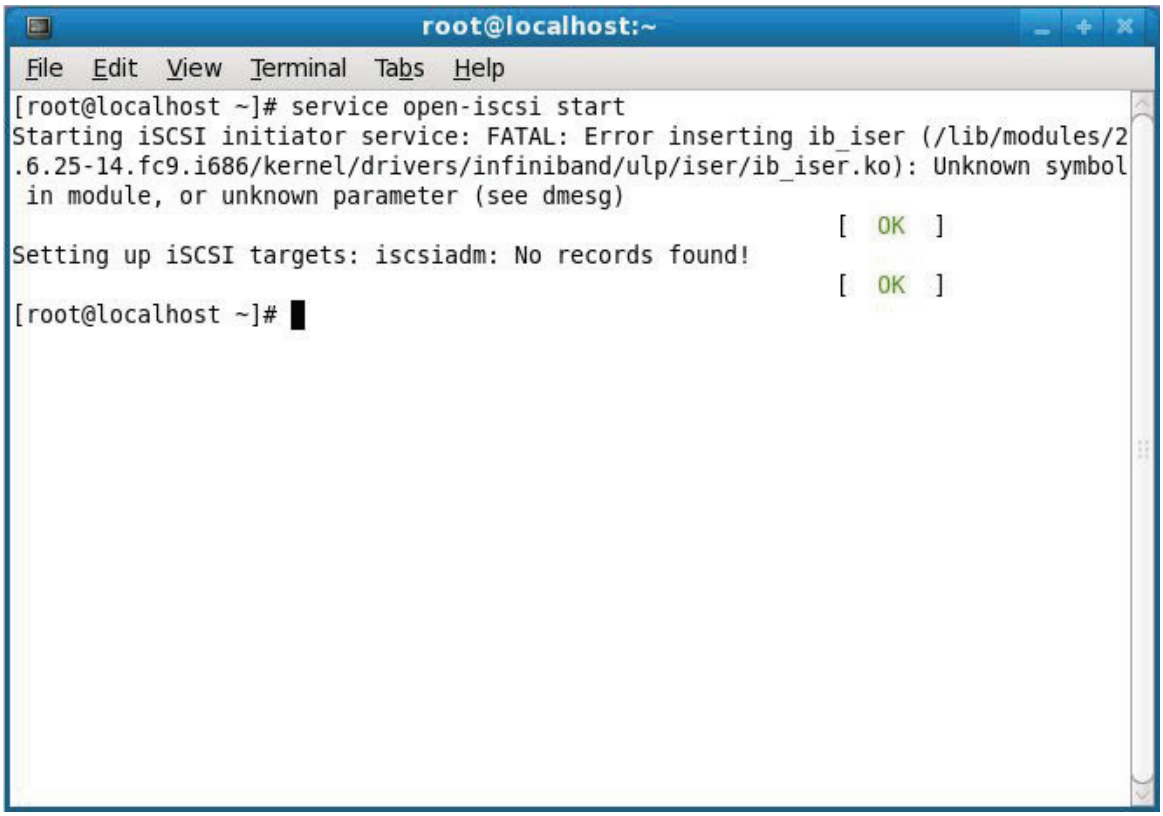


Hit the **Enter** key to continue.

Start iSCSI service.

By default, the iscsi service is stopped, you need to start it manually.

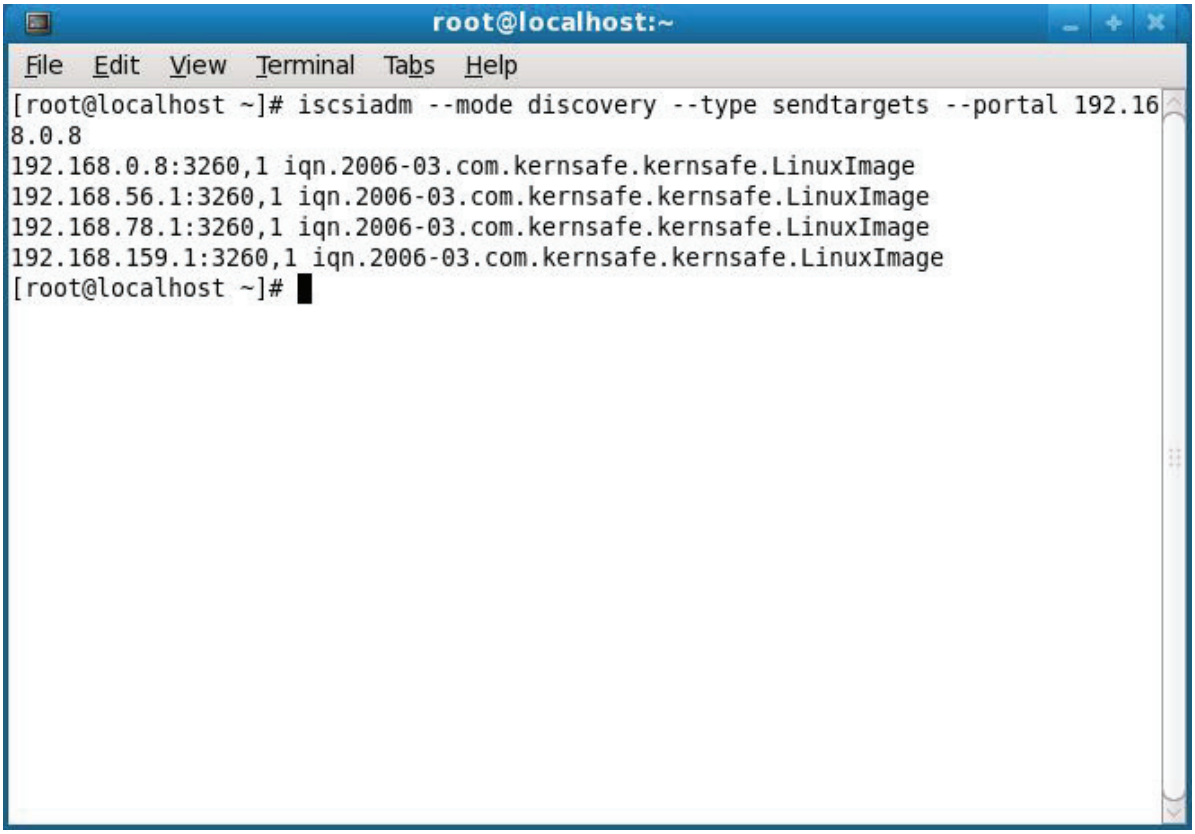
Type **service open-iscsi start** in the console.



Hit the **Enter** key to continue.

Discovery iSCSI Target

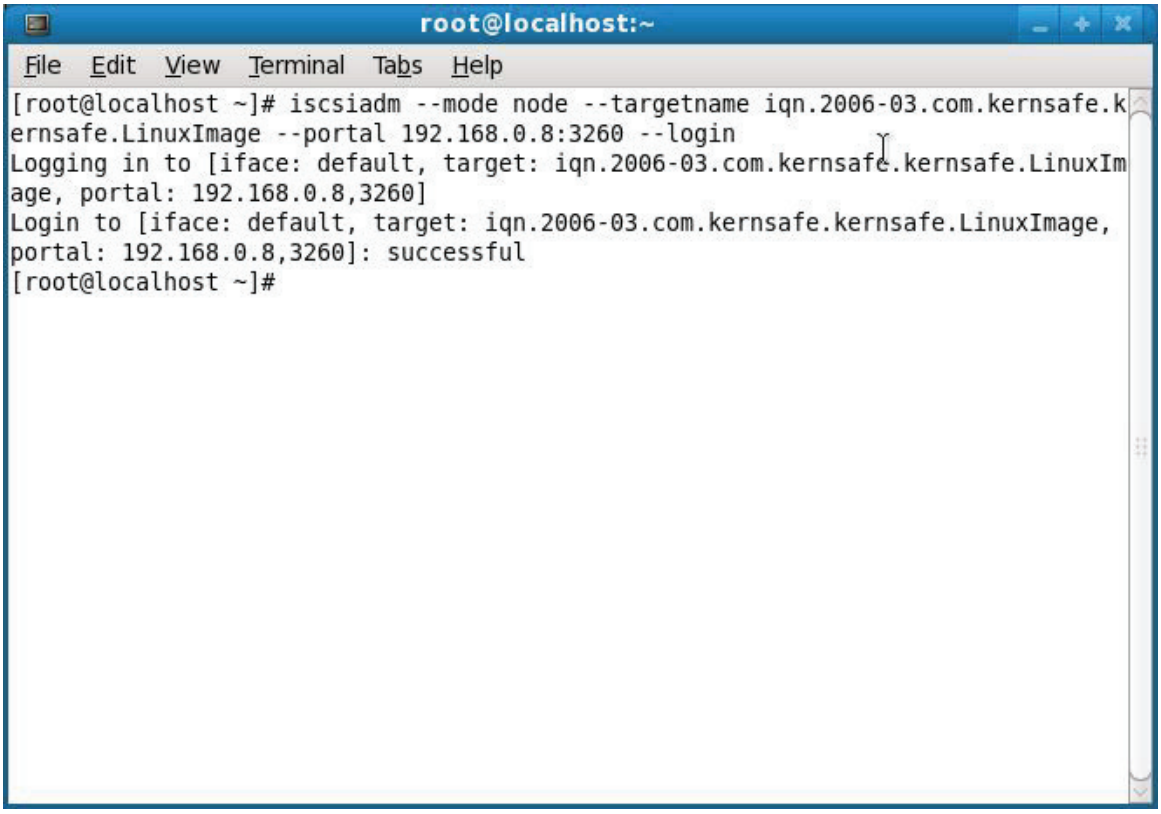
Type **iscsiadm --mode discovery --type sendtargets --portal 192.168.0.8** in the console, the server address **192.168.0.8** can be changed to the IP address of your own iSCSI Target server.



Hit the **Enter** key to continue.

Log on to iSCSI Target

Log on without authorization, type **iscsiadm --mode node --targetname Iqn.2006-03.com.kernsafe.kernsafe.LinuxImage --portal 192.168.0.8:3260 --login** in the console.



Hit the Enter key to continue.

Log on with CHAP user, type the following command in the console:

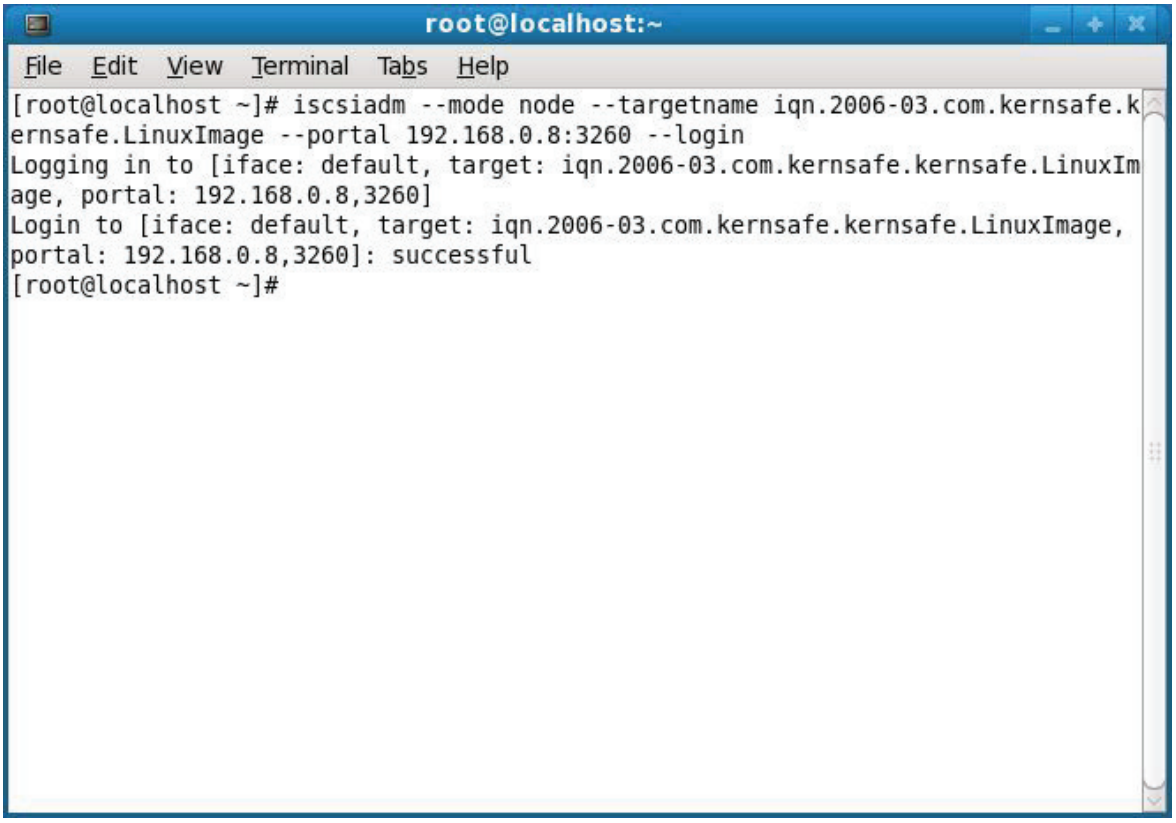
Iscsiadm --mode node --targetname Iqn.2006-03.com.kernsafe.kernsafe.LinuxImage --portal 192.168.0.8:3260 --name node.session.auth.authmethod --value=CHAP --op=update

Iscsiadm --mode node --targetname Iqn.2006-03.com.kernsafe.kernsafe.LinuxImage --portal 192.168.0.8:3260 --name node.session.auth.username --value=test --op=update

Iscsiadm --mode node --targetname Iqn.2006-03.com.kernsafe.kernsafe.LinuxImage --portal 192.168.0.8:3260 --name node.session.auth.password --value=111111111111 --op=update

Hit the **Enter** key for each command to modify the configuration file of open-iscsi, so that open-iscsi can make CHAP log on.

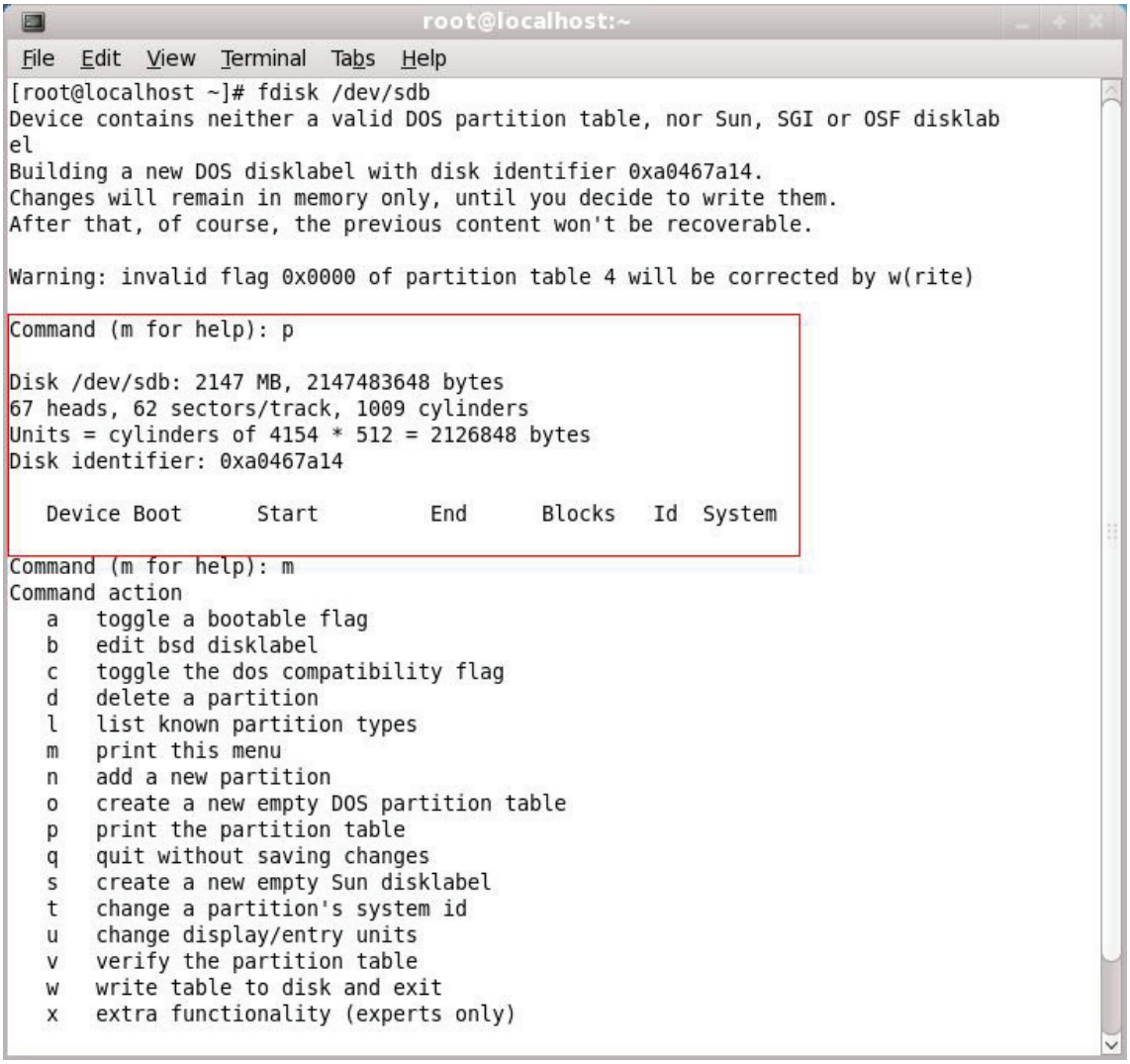
Type **iscsiadm --mode node --targetname Iqn.2006-03.com.kernsafe.kernsafe.LinuxImage --portal 192.168.0.8:3260 –login** in the console.



Hit the **Enter** key to complete iSCSI log on.

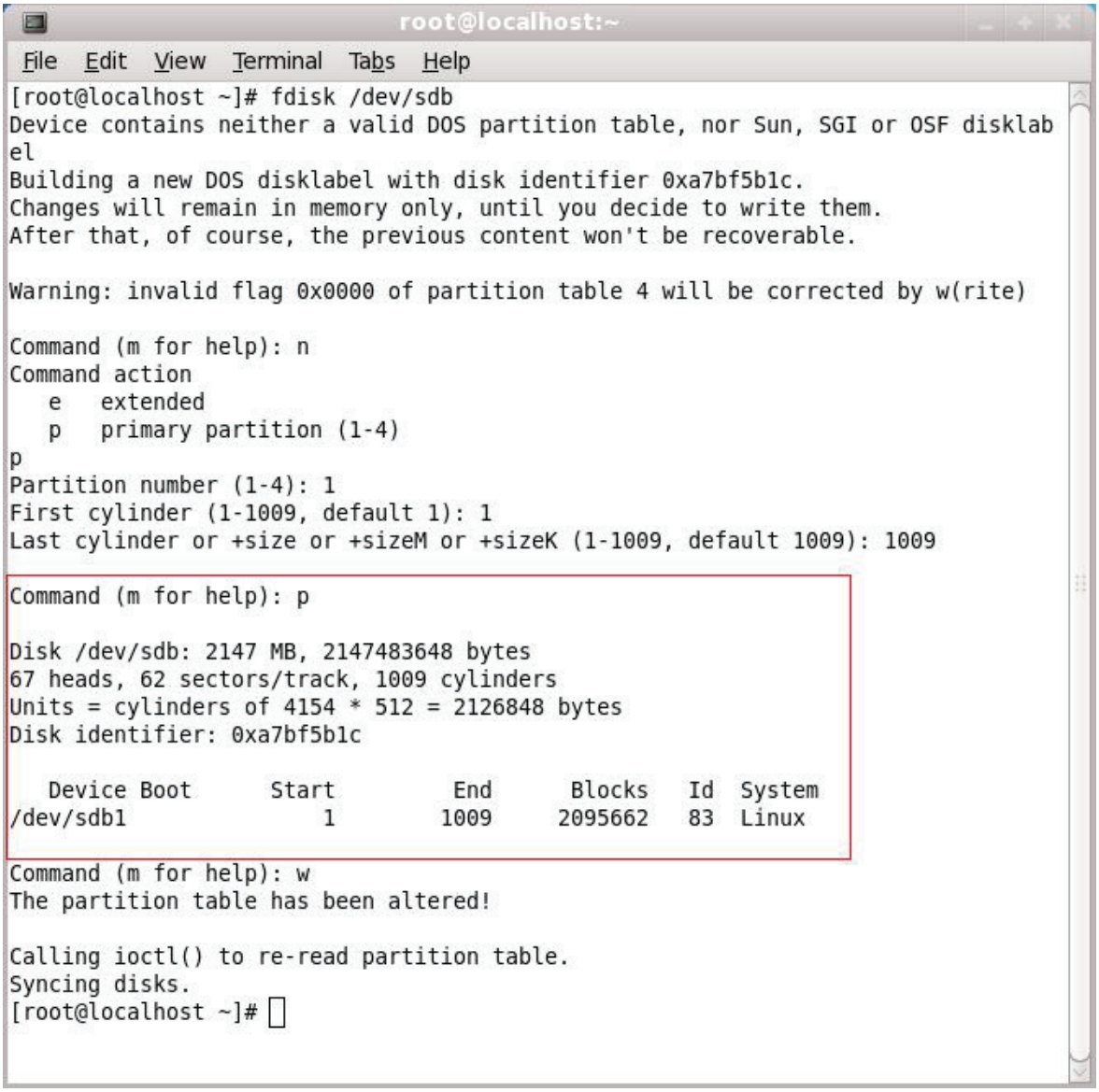
Partition Disk

Use the **fdisk** utility to make disk partition, type **fdisk /dev/sdb** in the console.



Hit the **Enter** key to continue.

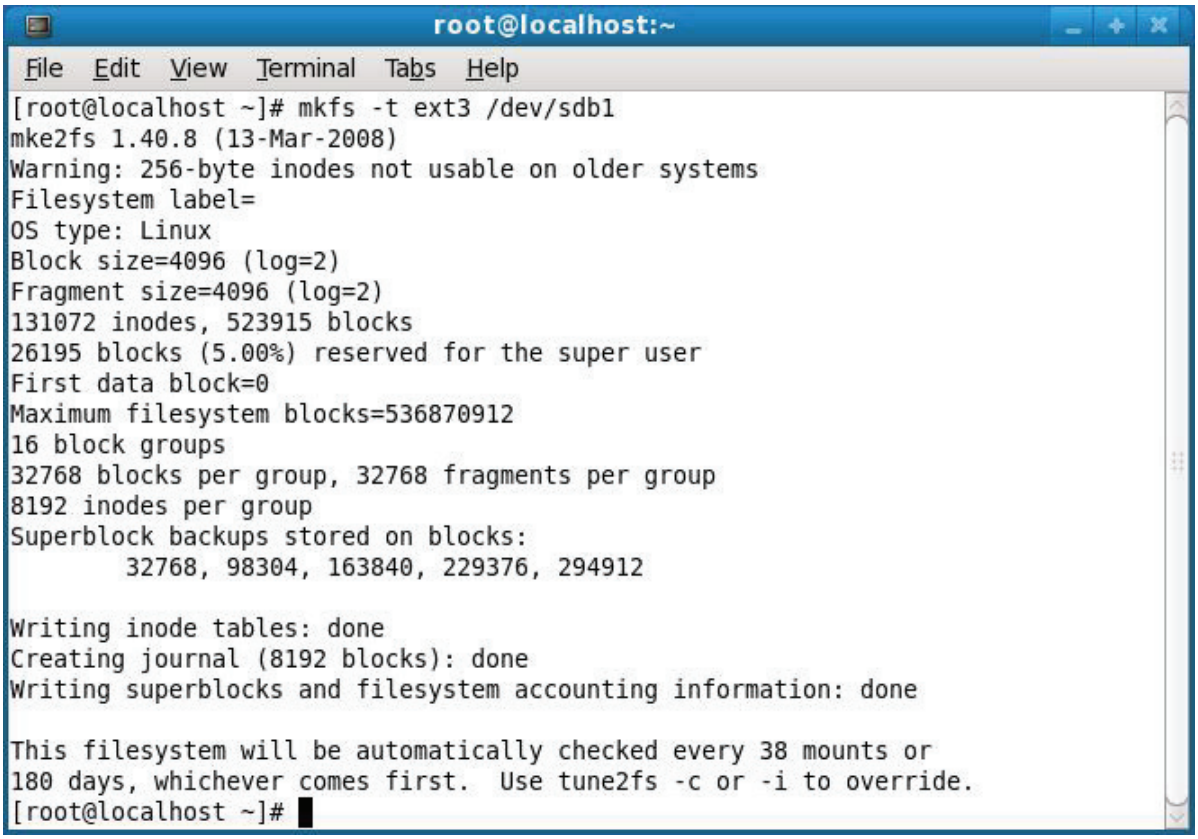
We found the blank disk in the screen, type the command followed by the below screen.



Type **w** command to complete partition table creation.

Format Disk

Type **mkfs -t ext3 /dev/sdb1** in the console, or you can change **ext3** to another file system.

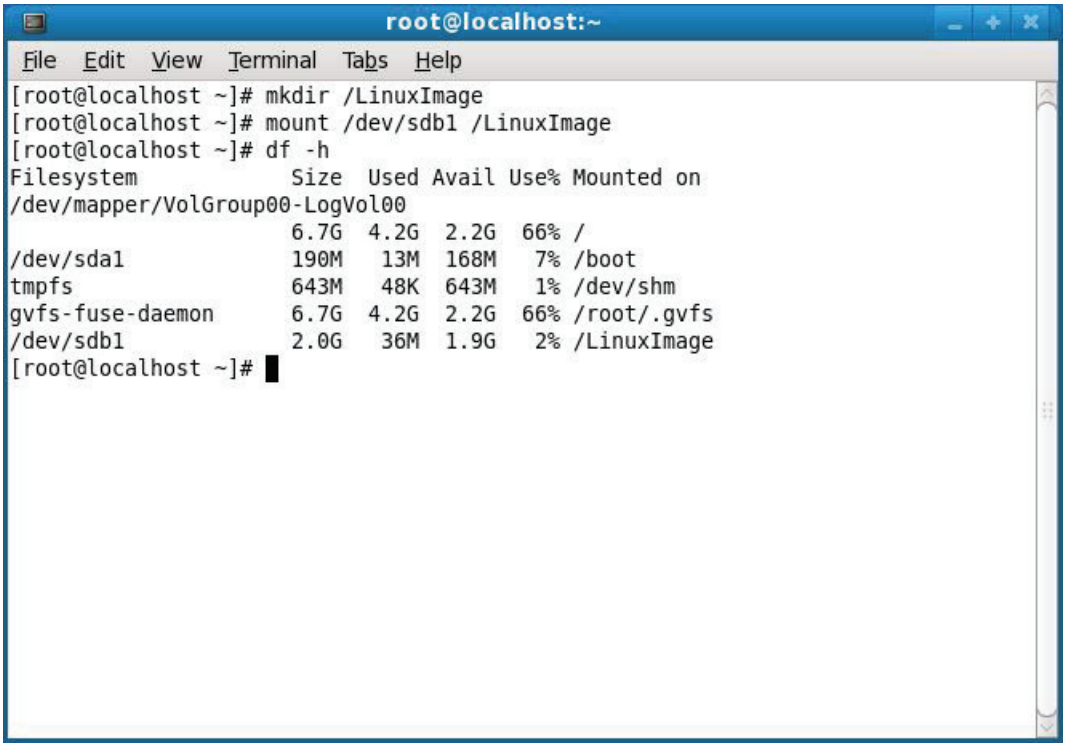


Hit the **Enter** key to continue.

Mount Disk

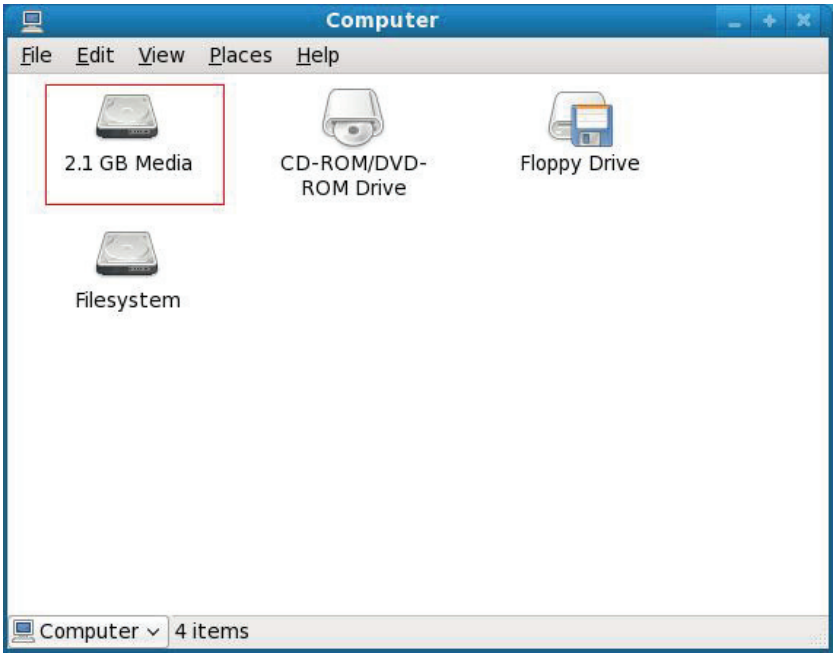
Type **mkdir /linuximage** and hit **Enter** key to create a folder to hold his iSCSI disk.

Type **mount /dev/sdb1 /linuximage** in the console.



Hit the **Enter** key to mount.

We will find the disk in the machine.



Now, you can do anything with the disk just as local hard disk.

Contact

Support:	support@kernsafe.com
Sales:	sales@kernsafe.com
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