iStorage Server

Working with iSCSI HBA Performing a Network Diskless Boot

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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 suitable for any size of business.

This article will demonstrate how to install iSCSI HBA Adapter and how to configurate iStorage Server to perform a network diskless boot. Network diskless boot is a process that runs the operating system on the remote server which is running iStorage Server instead of executing it locally. You can also use a local hard drive for SWAP files or crash dumps. That can provide enormous benefit for virtualization computing servers environments in relation to RAID arrays. To boot a machine without any hard drive you will need to have a HBA adapter installed. HBA (Host Bus Adapter) connects a host system (the computer) to other network and storage devices.

In this case we will need at least two computers – machine with installed iStorage Server and sufficient hard drive capacity for installing Operating System and a client machine equipped with a HBA Adapter.

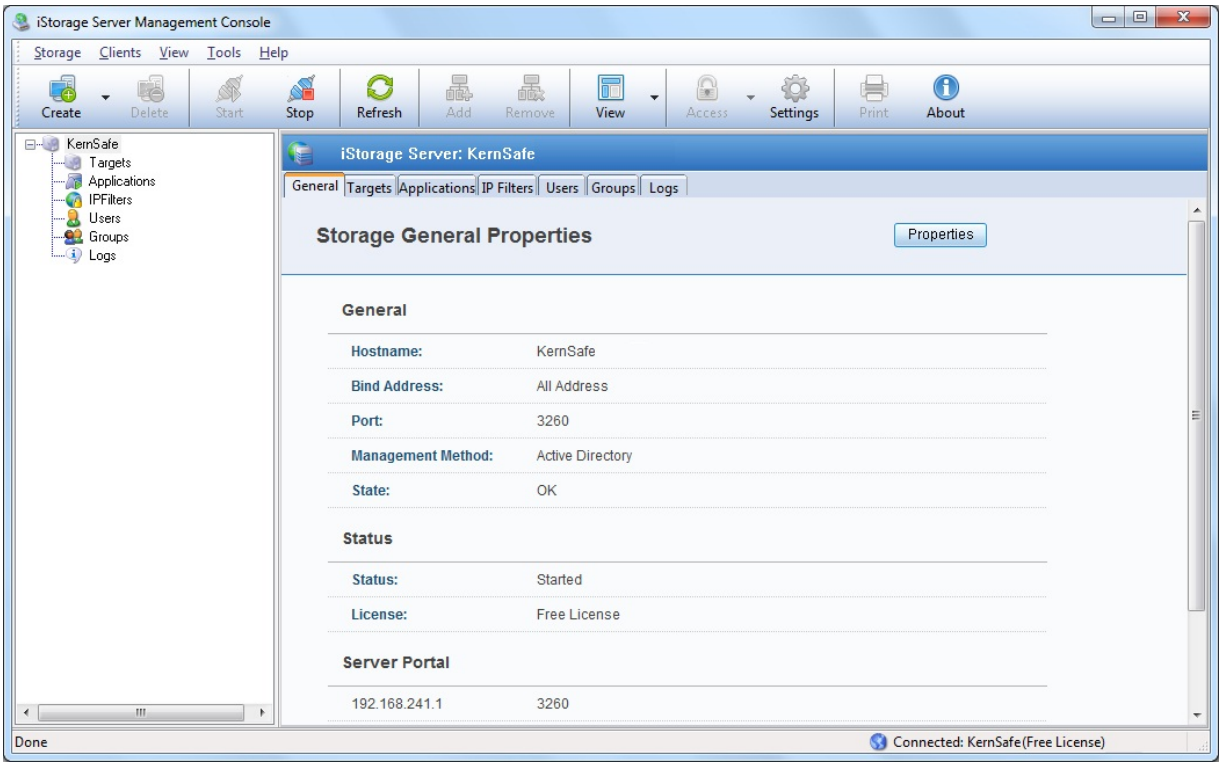
Configuring iStorage Server

Preparing server for network diskless boot

We will create iSCSI Target image file using iStorage Server on which we will install operating system for network diskless boot.

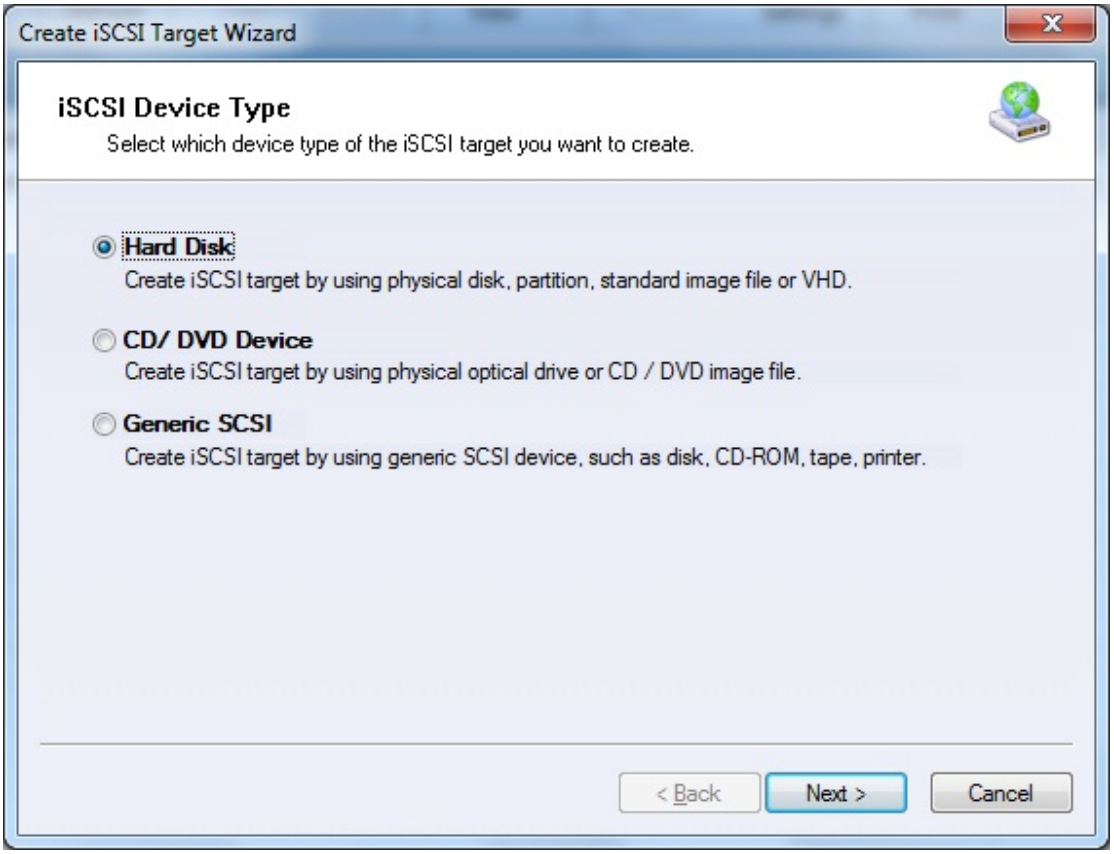
Creating Target

Open **iStorage Server Management Console**.



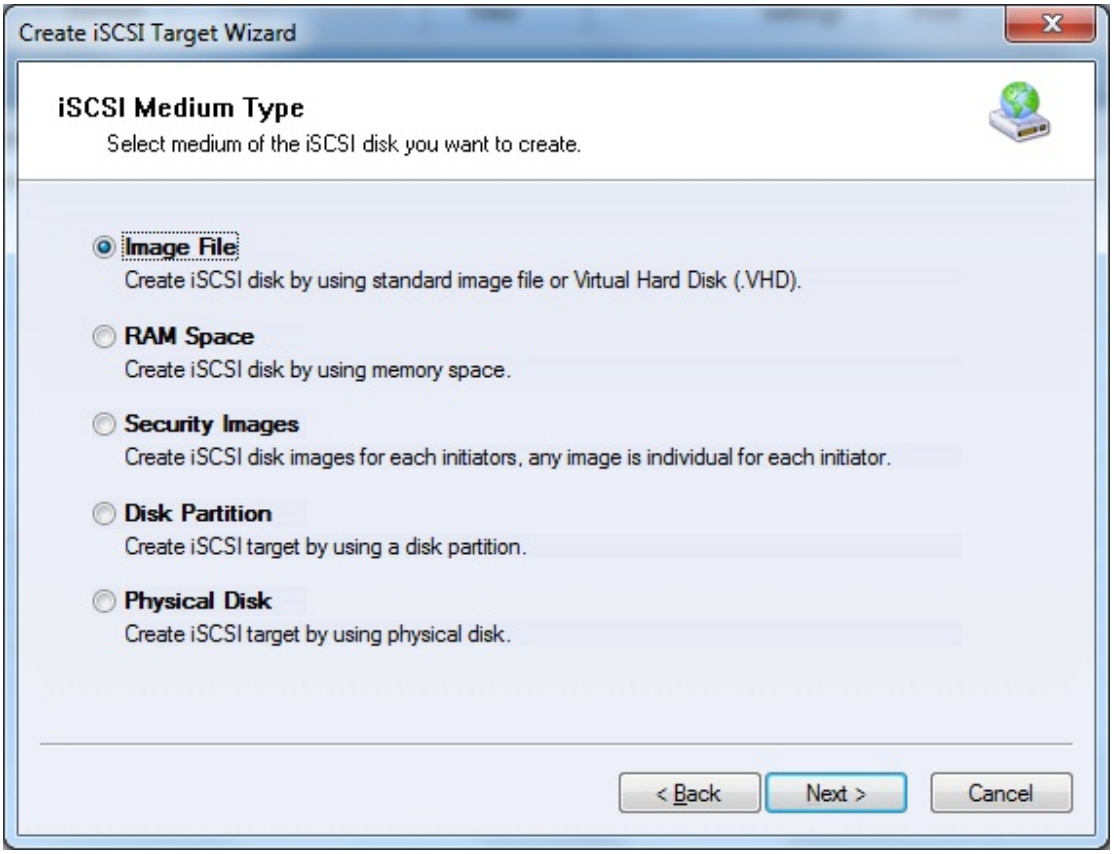
Launch the **iStorage Server Management Consolle**, press the **Create** button on the toolbar, the **Create iSCSI Target Wizard** will appear.

Select device type.



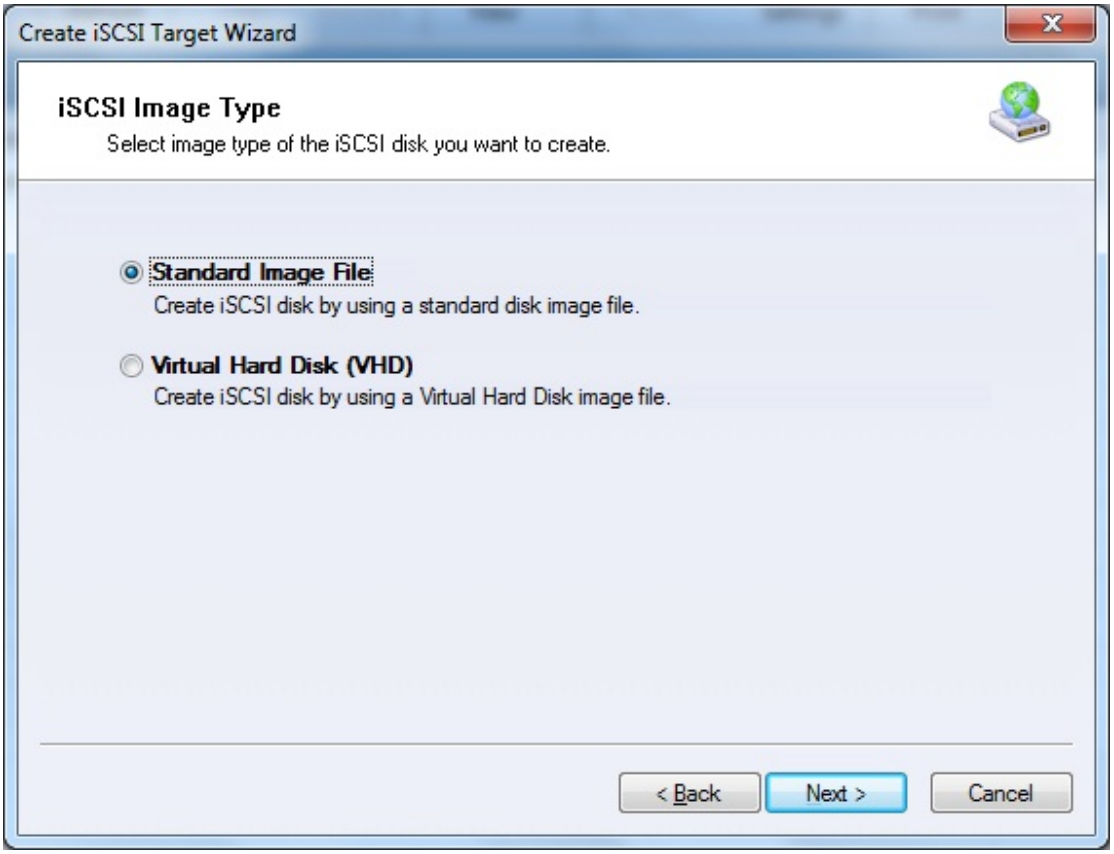
Chose **Hard Disk**.

Press the **Next** button to continue.



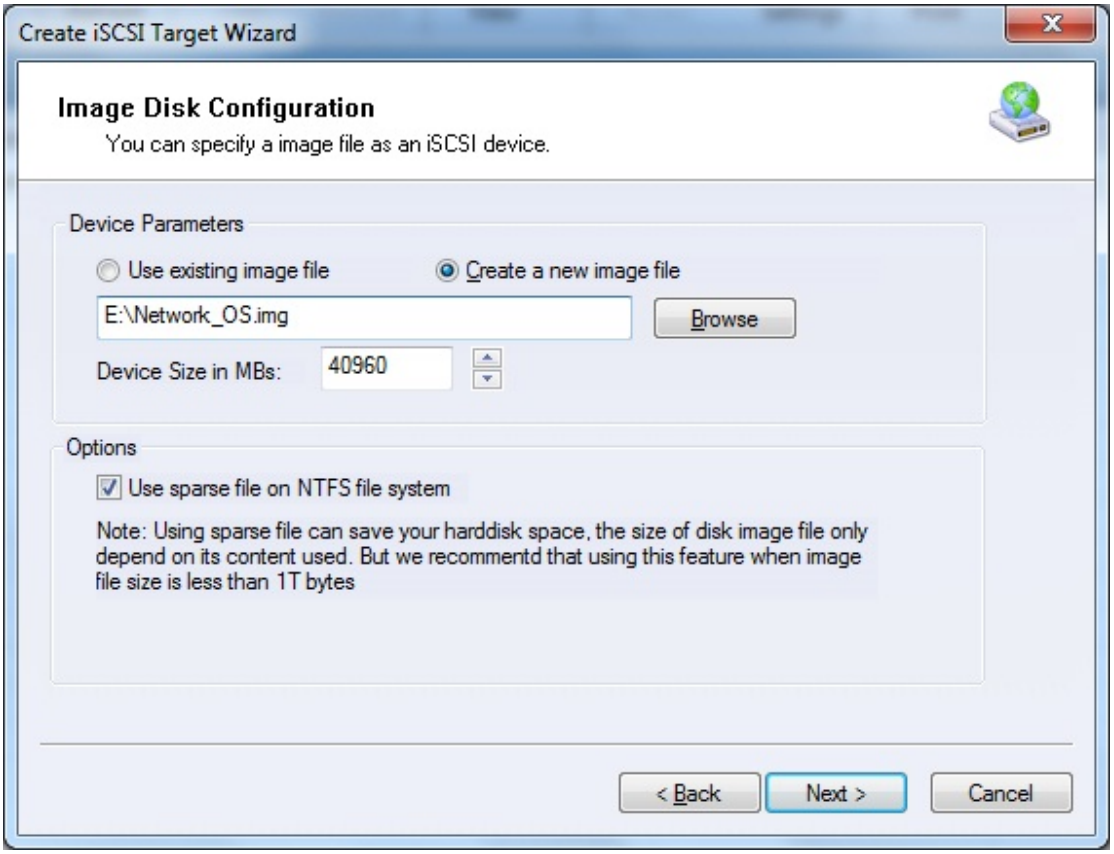
Choose **Image File** in **iSCSI Medium Type** page.

Press the **Next** button to continue.



Chose **Standard Image File** in **iSCSI Image Type**.

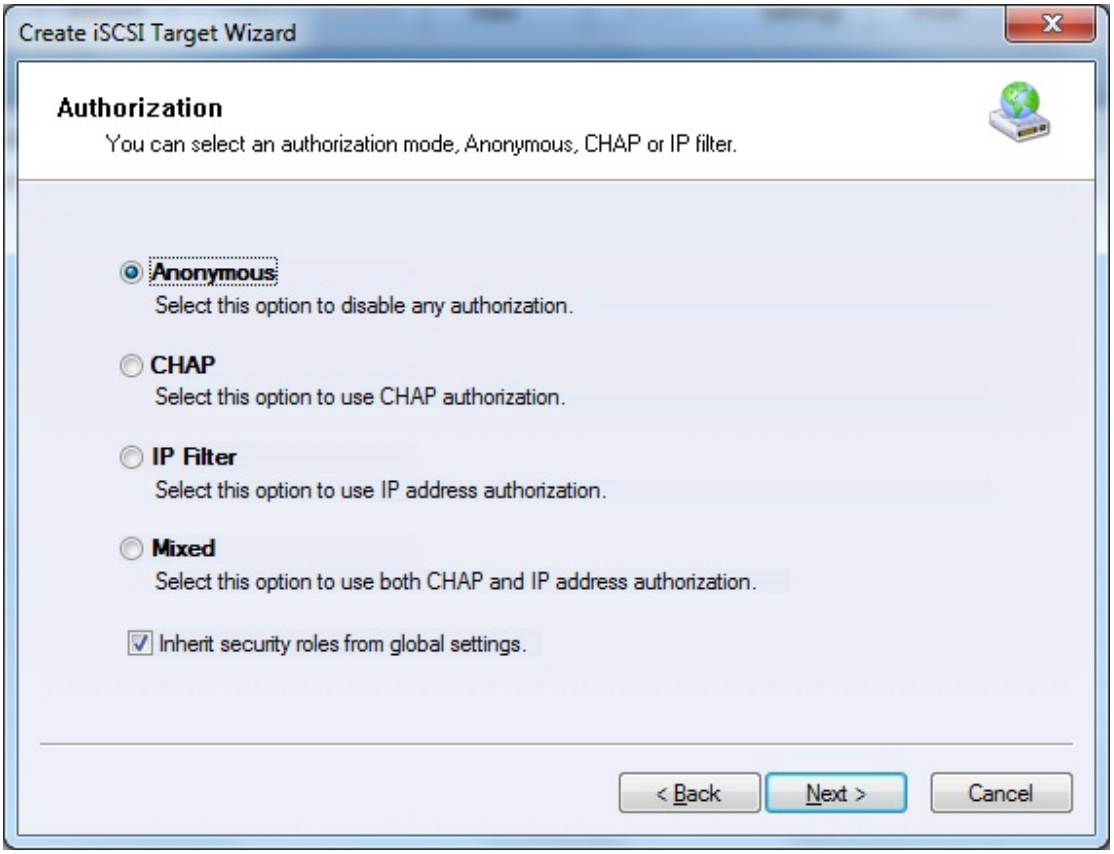
Press the **Next** button to continue.



Select **Create a new image file** or **Use existing image file** if you already have one. Then specify the device size.

Checking **Use sparse file on NTFS file system** will save your hard disk space by expanding image file depending on its content used.

Press the **Next** button to continue.



Choose the Authentication Mechanism. Decide which authentication mechanisms you would want to use: **Anonymous**, **CHAP**, **IP Filter** 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

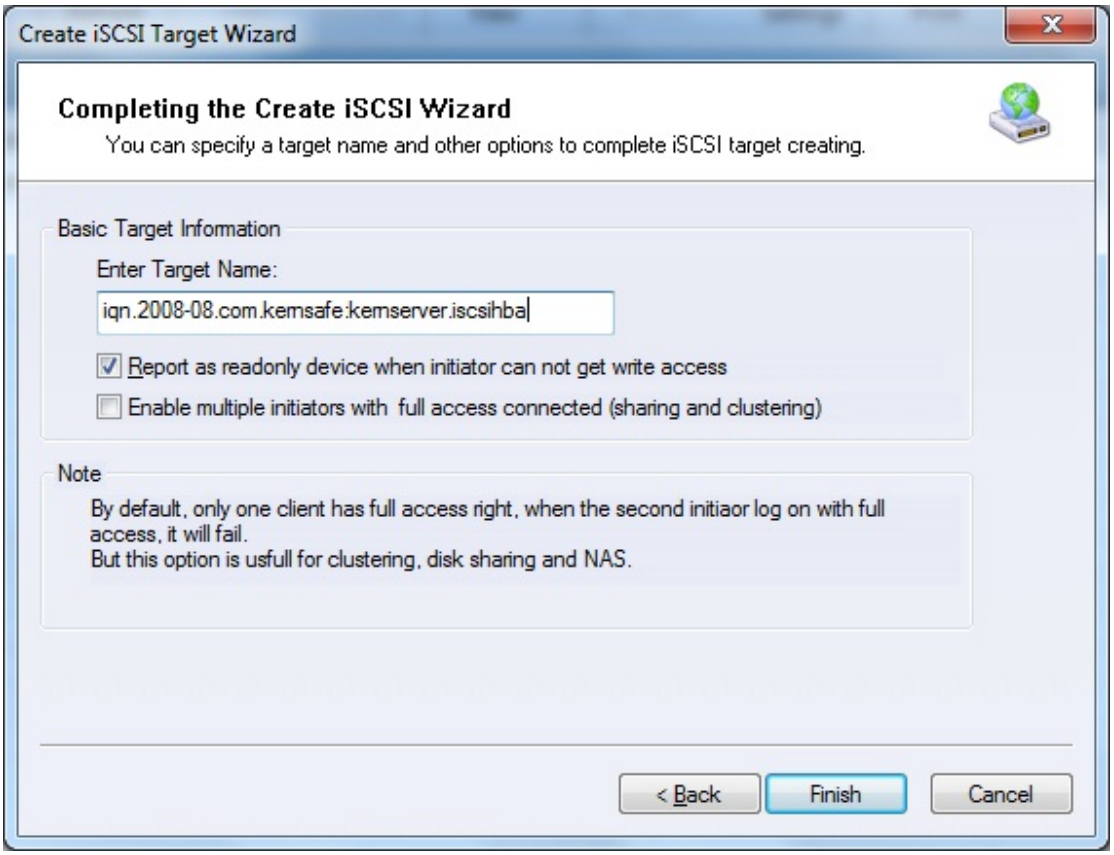
All initiators will be authorized by the incoming IP address defined by IP Filter roles.

4) Mixed

Security policy is determined by both CHAP and IP Filters.

If you check **Inherit security roles from global settings**, all client security roles are form global settings, otherwise, each client will have its own permission.

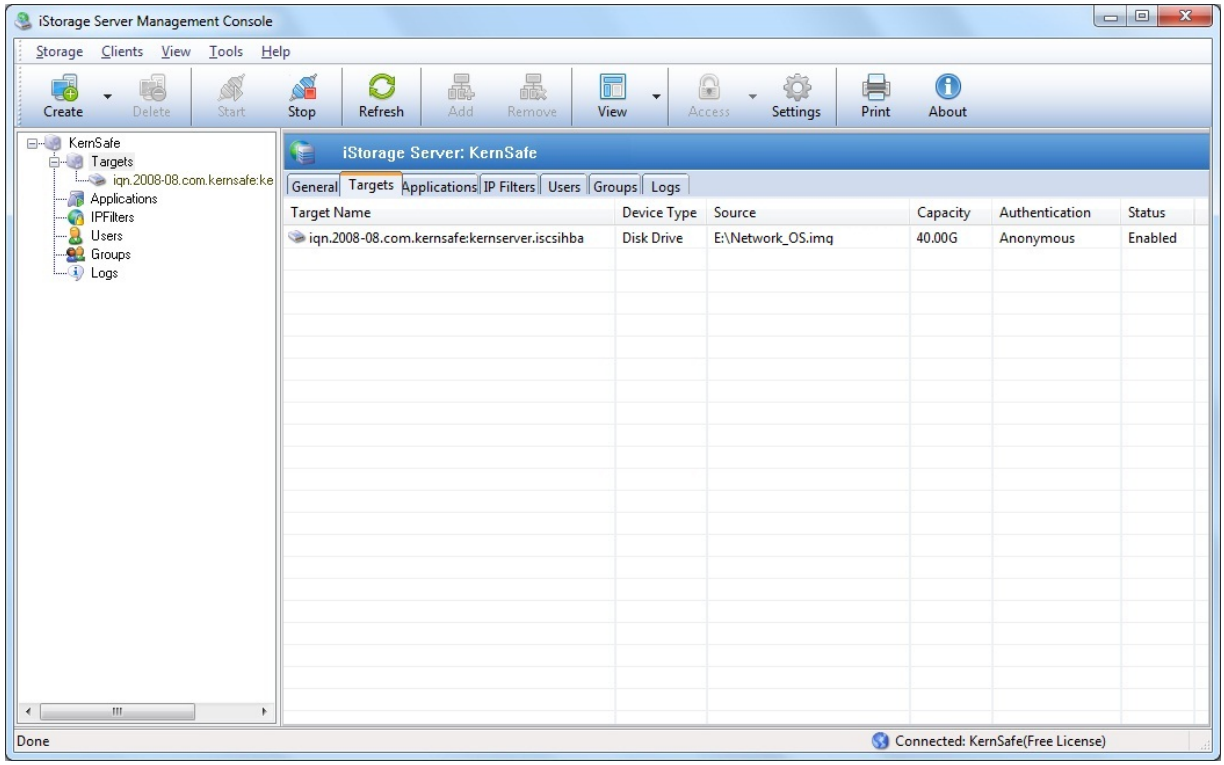
Press the **Next** button to continue.



Enter the name for your target device.

If you check **Report as readonly device when initiator cannot get write access**, the system will give you a report when you load the target without write access.

Press the **Finish** button to continue.



After successfully creating an iSCSI Target, you should be able to see it in your **Targets** tab in **iStorage Server Management Console**.

Installation and configuration of HBA adapter

Mounting HBA adapter

NOTE: Before purchasing HBA adapter, please make sure that your motherboard will be able to support it.

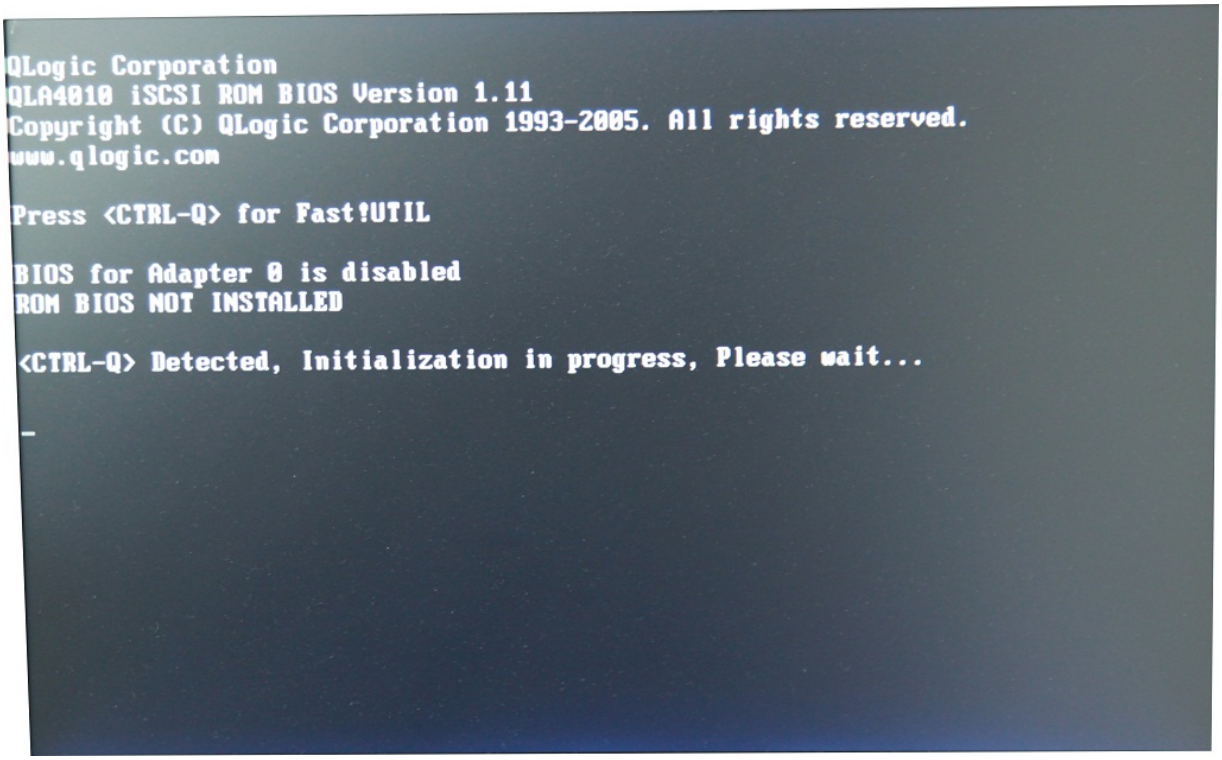
To mount HBA adapter in your computer, please follow these steps:

1. Turn off and plug out the computer.
2. Remove the computer cover by unscrewing the screws.
3. Chose empty PCI bus slot to mount the adapter.
4. Remove the slot cover.
5. Carefully place the HBA adapter into place.
6. Reinstall computer cover and tighten the screws.
7. Plug in and turn on the computer.
8. Install appropriate drivers (if needed) and fallow the manufacturer instructions.

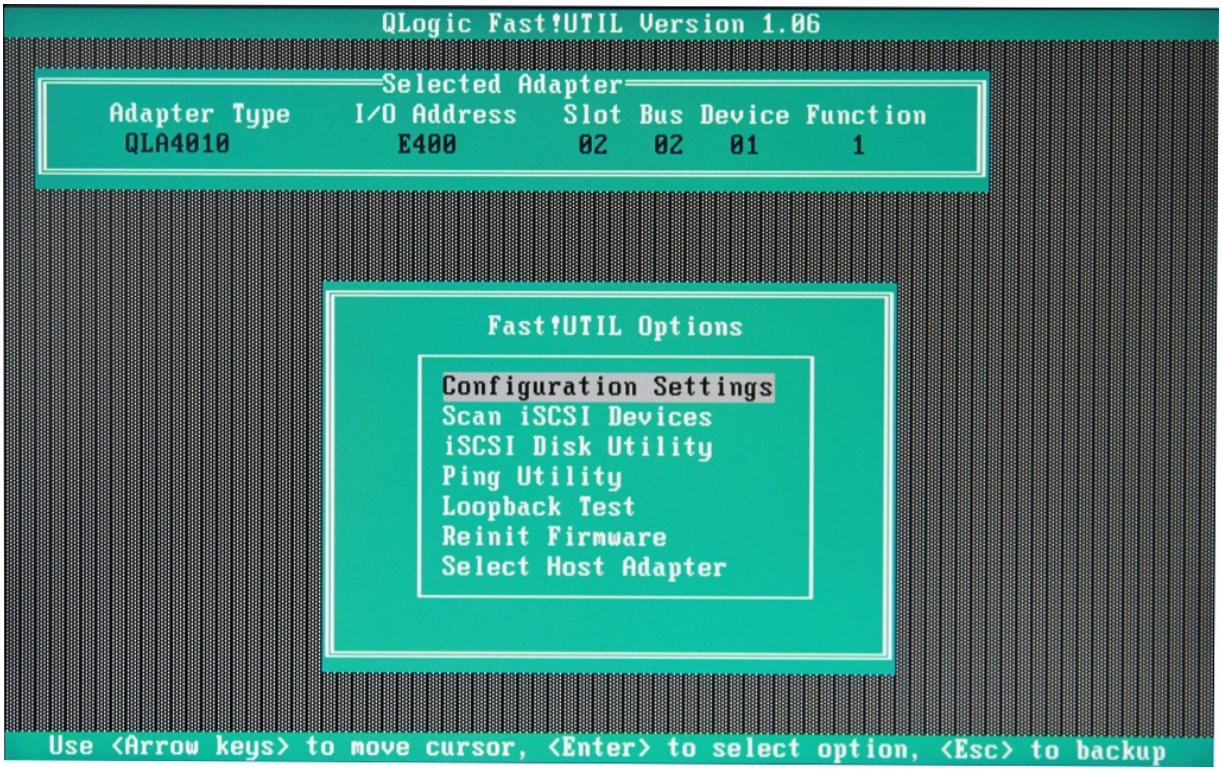
Configuring HBA adapter

NOTE: In this case I'm using QLogic QLA4010C iSCSI Adapter. Depending on HBA adapter you are using, steps may vary.

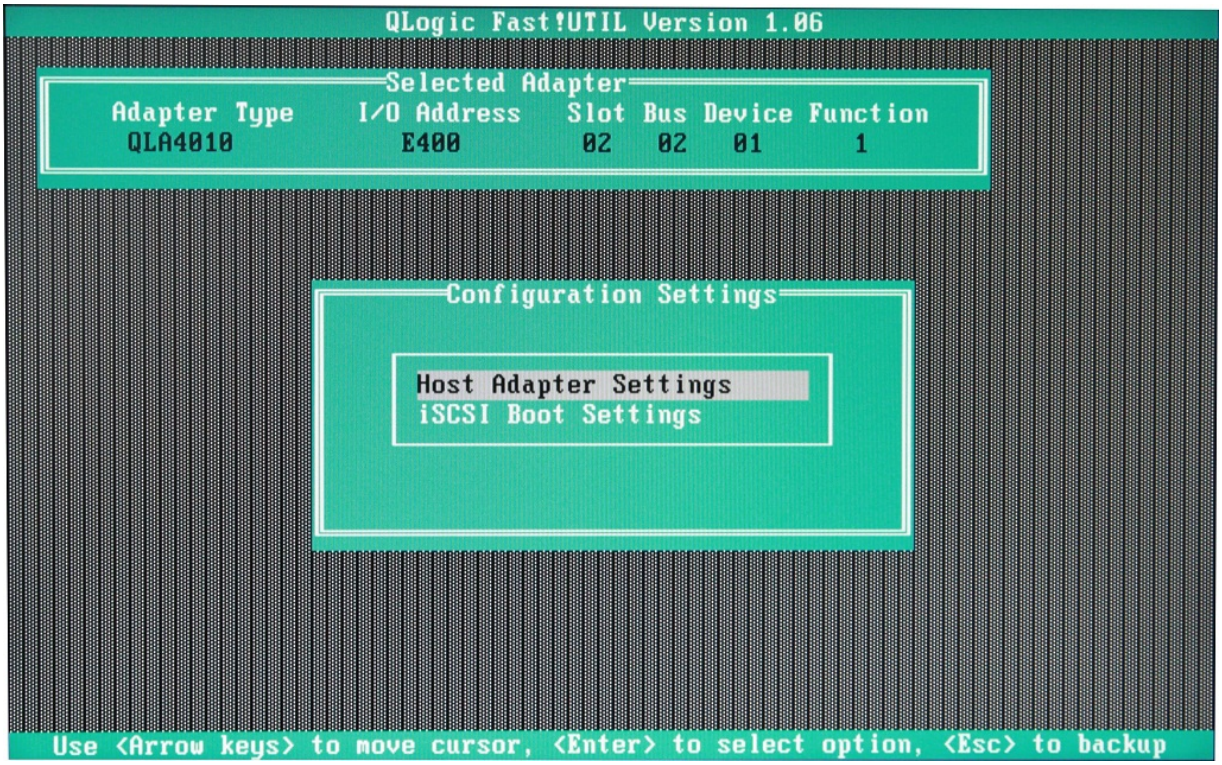
After successfully mounting HBA adapter in machine you will see information screen, as well as how you can access utility for managing the adapter.



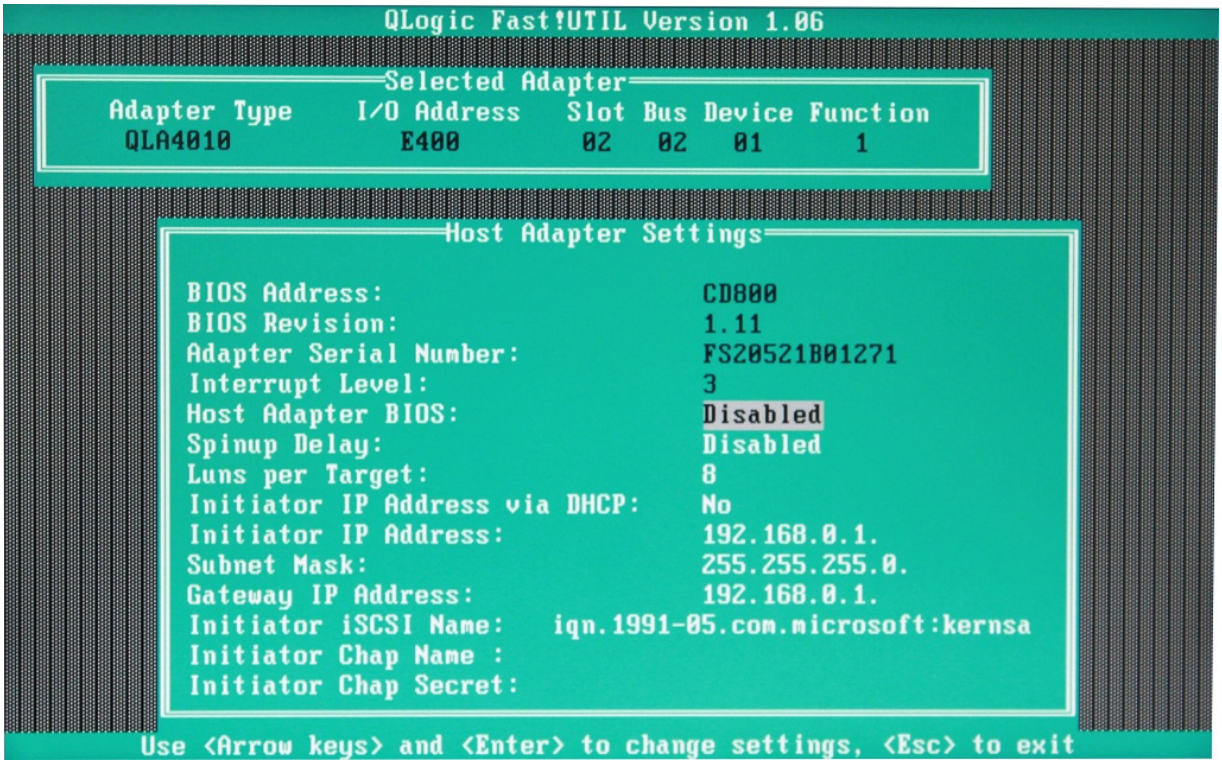
Using QLogic card, you need to press **CTRL+Q** to access Fast!UTIL.



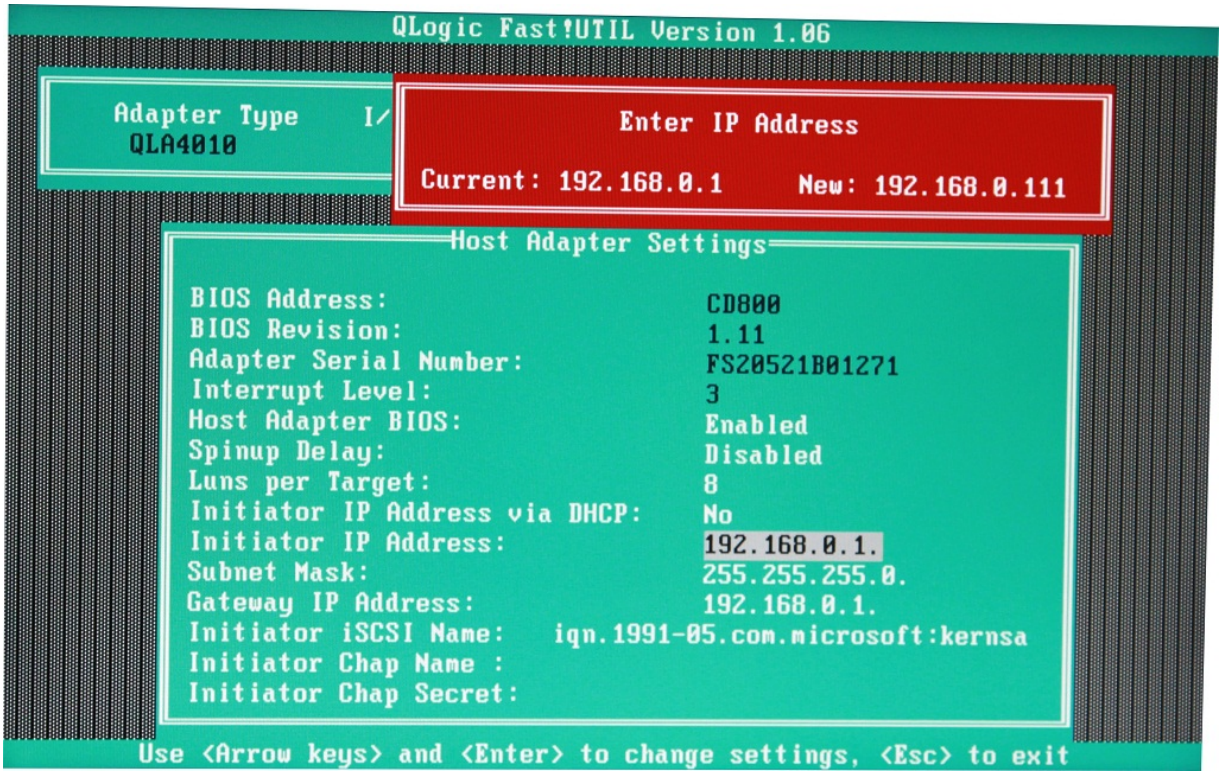
After loading Fast!UTIL, please choose **Configuration Settings** to set up HBA adapter.



Choose **Host Adapter Settings**.

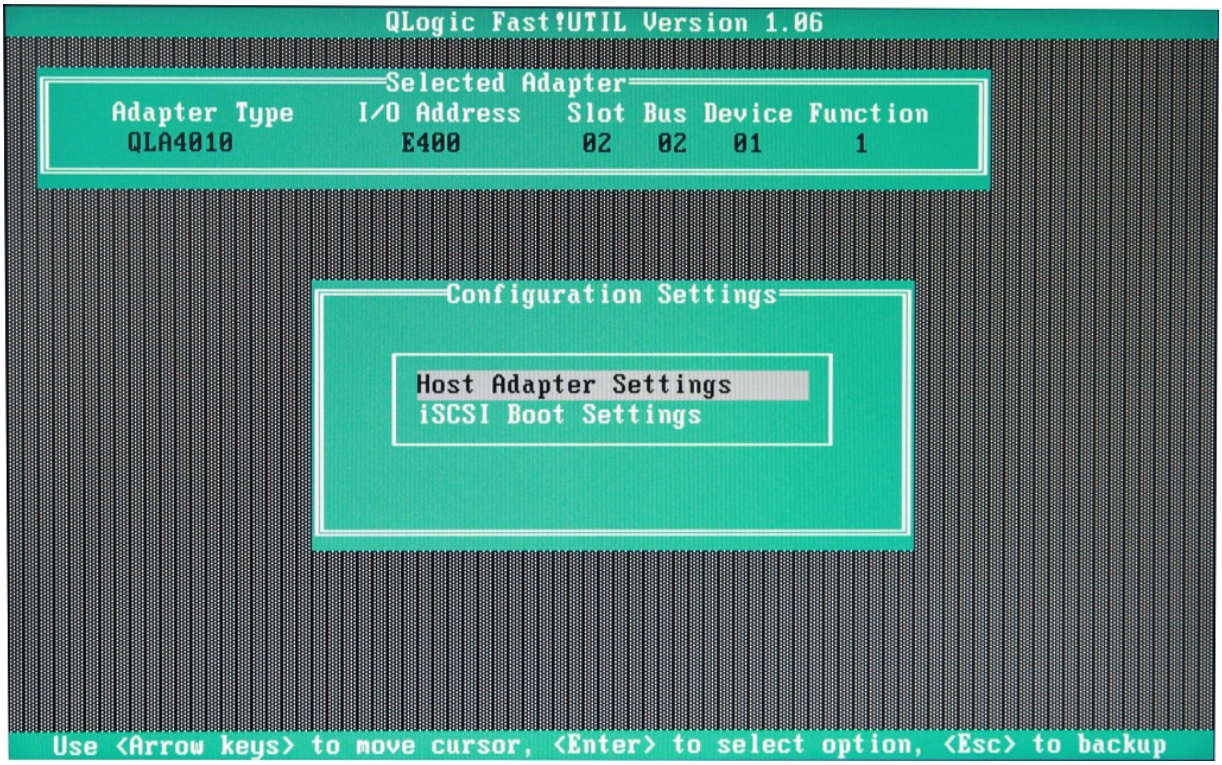


Change setting of **Host Adapter BIOS** to **Enabled**.

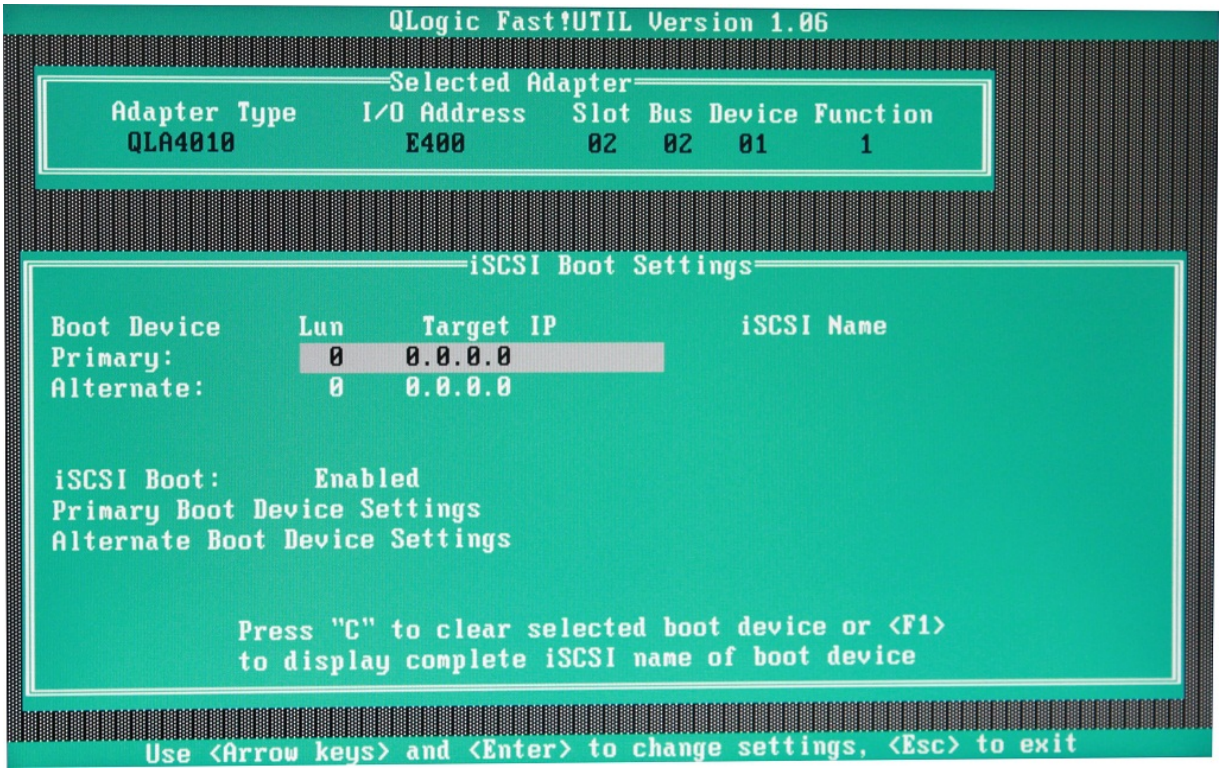


Type **Initiator IP Address**.

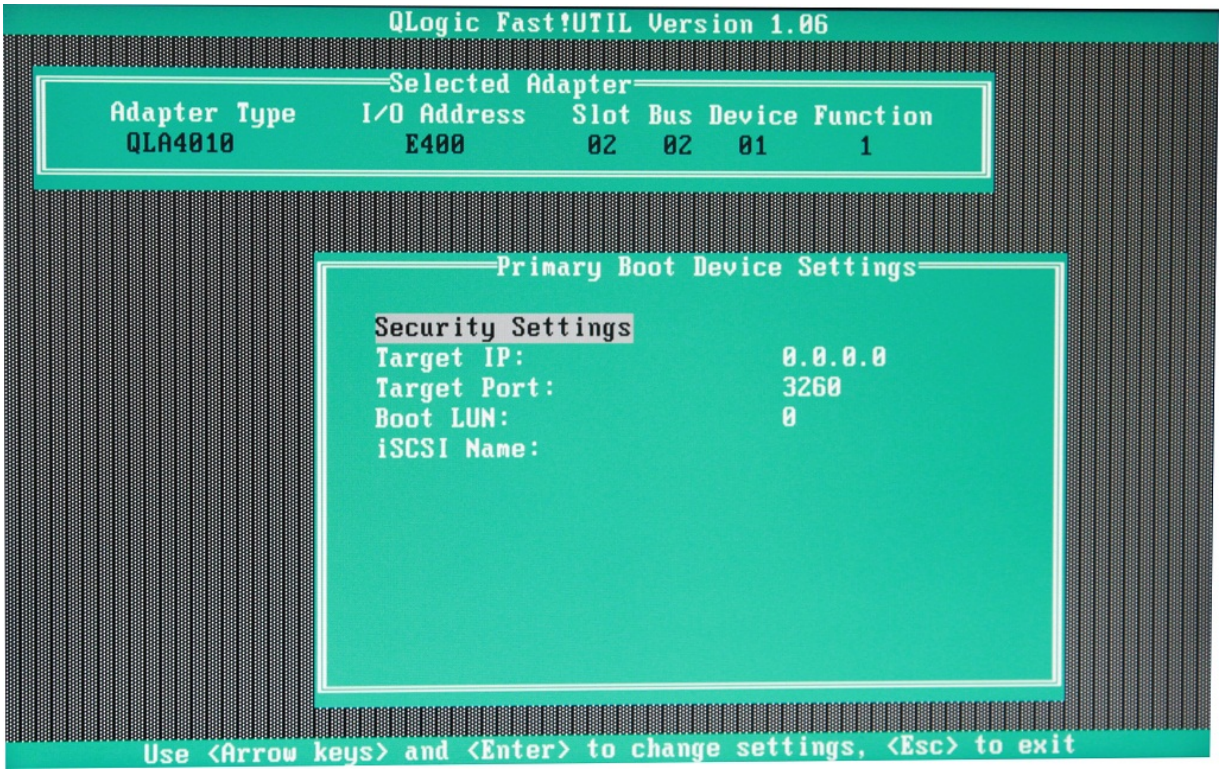
Press **ESC** key to go back to **Configuration Settings** screen.



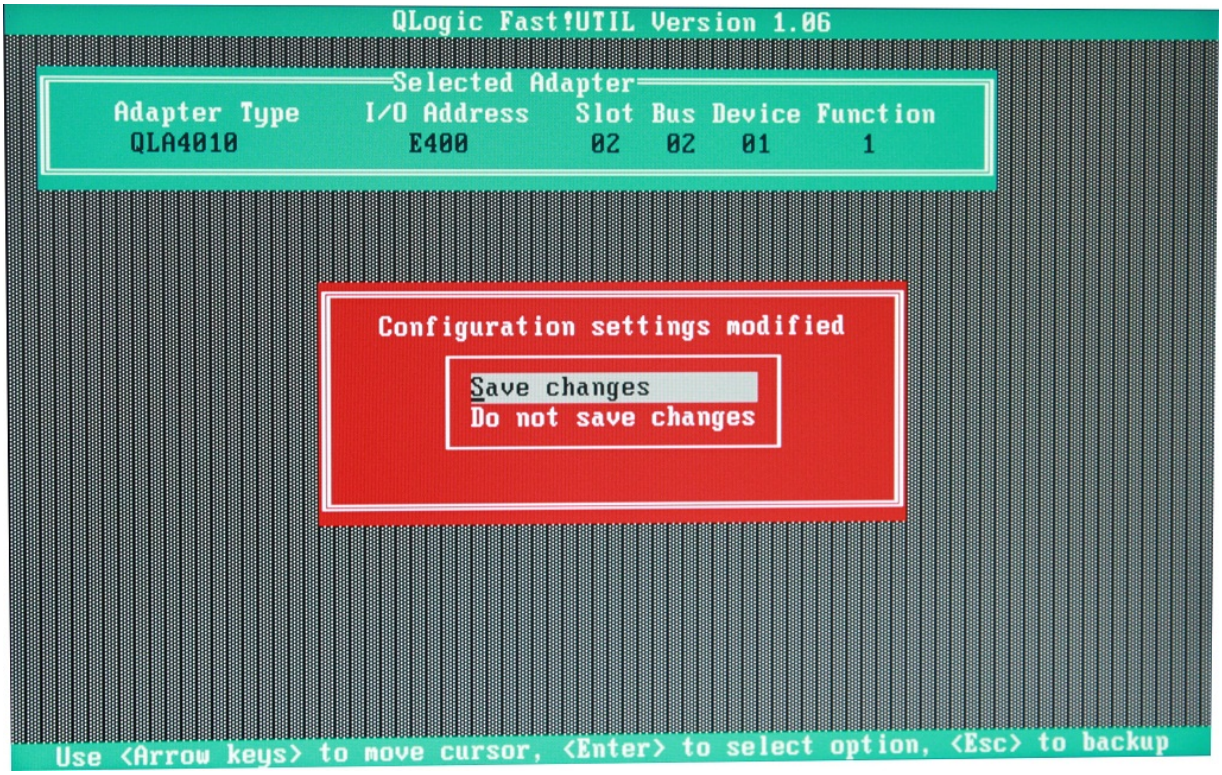
Chose **iSCSI Boot Settings**.



Select **Primary Boot Device Settings** to set up settings of your iSCSI target device.

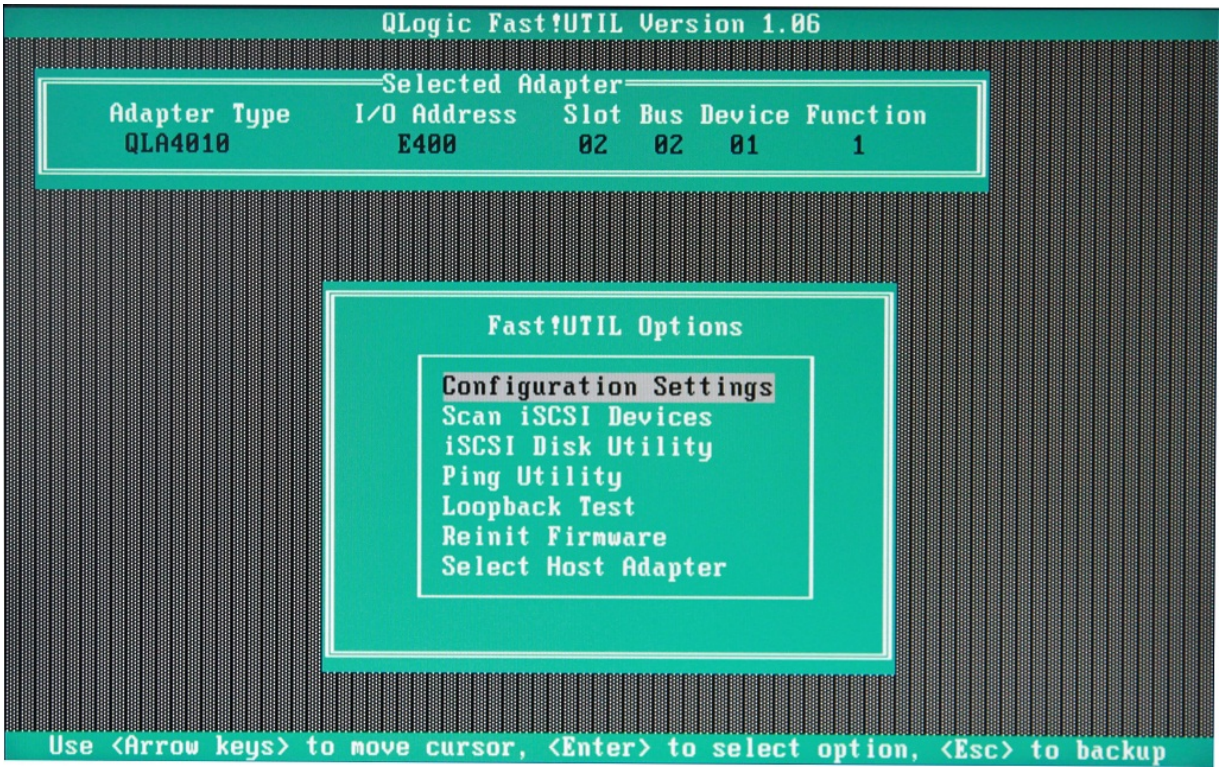


Type **Target IP** and **iSCSI Name** for iSCSI device you wish to connect during booting process.

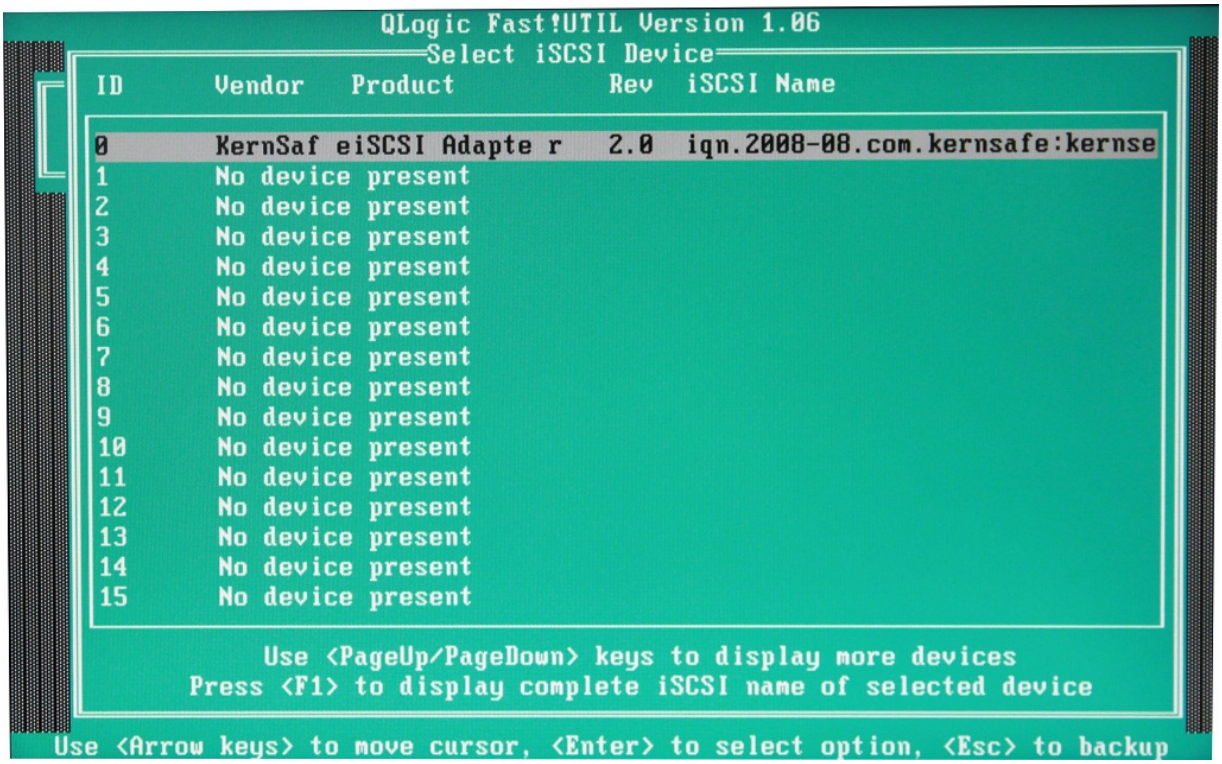


Press **ESC** key to go back to main menu.

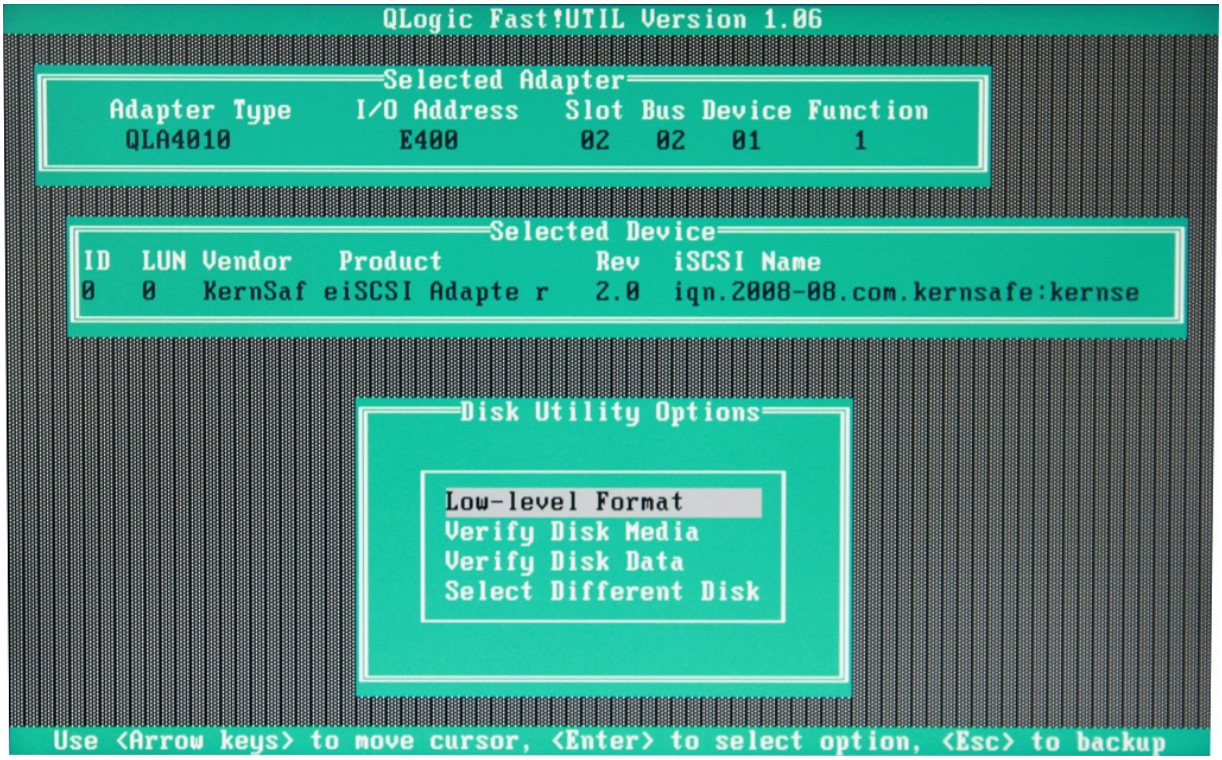
A confirmation window will appear, choose **Save changes**, to save all settings.



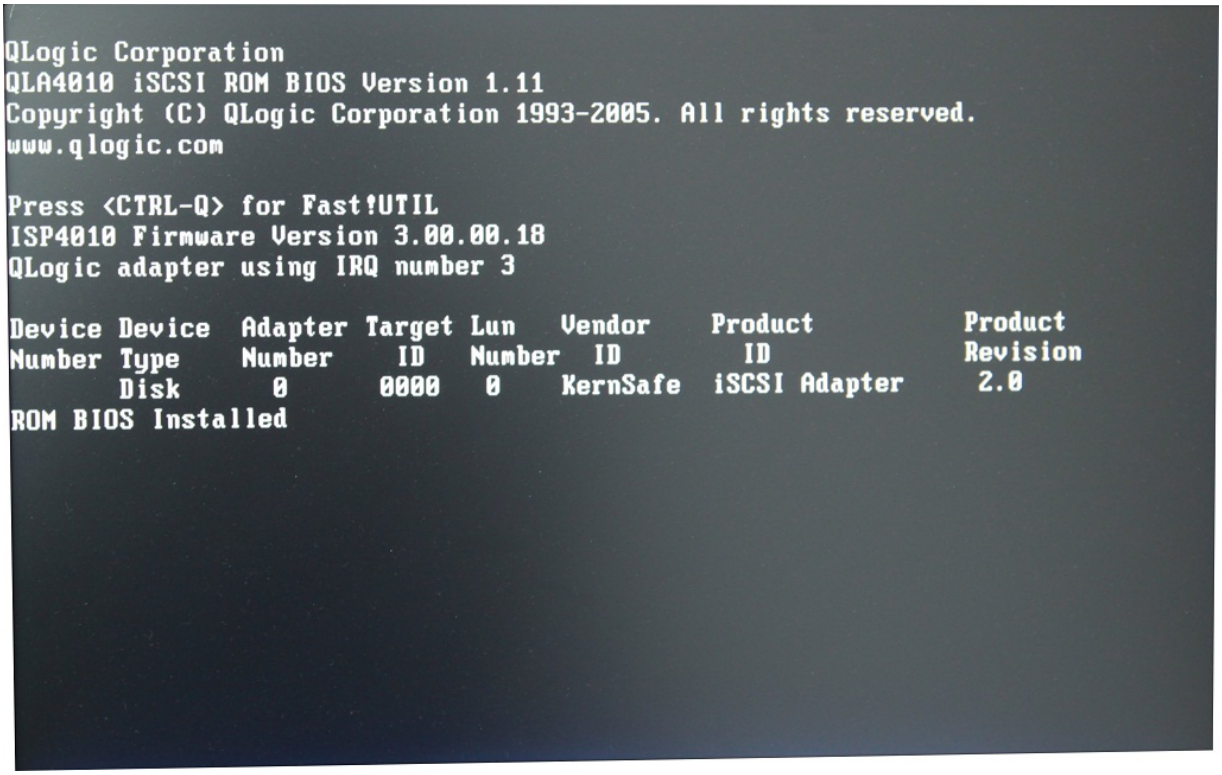
While at main menu, chose **iSCSI Disk Utility** to check if initiator successfully found the device.



Select device and press **Enter** if you want to perform operations on that disk.



Chose which operations you want to perform, whereupon press **Esc** key to exit Fast!UTIL.



After successfully setting up iSCSI Target Device, you will see that HBA adapter is connected to that device.

Installing Operating System on the network hard drive

Installing Operating System, such as Windows, on the network hard drive is as simple as it would be on normal physical hard drive. After placing the CD/DVD into the Optical Drive, just follow the instructions and choose the network drive as a disk on which you want to install OS.

NOTE: Older operating systems such as Windows XP or Windows Server 2003 may require additional drivers to successfully perform installation of OS.

Follow Windows 7 installation steps to install OS on iSCSI Target Device.


Install Windows
Windows 7
Language to install: English
Time and currency format: English (United States)
Keyboard or input method: US
Enter your language and other preferences and click "Next" to continue.
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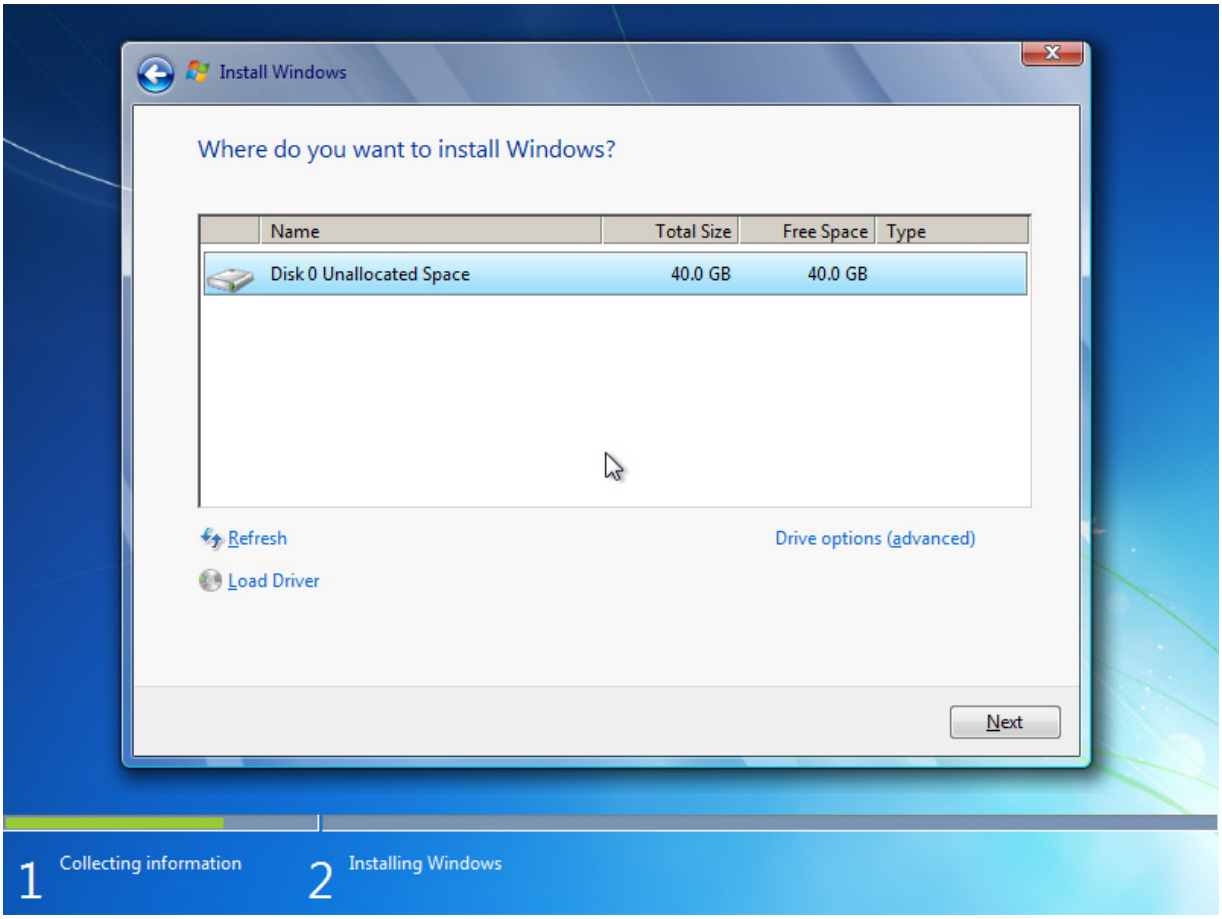
Next



iSCSI Target Device looks just like a normal disk, you may format it or partition it, just like a normal physical hard drive.

After successfully installing OS, you may boot to Windows and start using it as a normal OS, every network task will be performed transparently to the user.

Contact

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