

iStorage Server and WinCE iSCSI Initiator For Windows CE Embedded and Windows Mobile

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Table of Contents

- Configuring iStorage Server..... 4
 - Creating Target 4
- Logging on to the target..... 12
 - Adding portal 12
 - Connecting to target 14
 - Accessing data 17
 - Logout from target..... 18
 - Removing portal 20
- Contact..... 21

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.

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

KernSafe Free WinCE iSCSI Initiator enables connection to a computer that is running any iSCSI SAN like iStorage Server from any Windows CE based devices, such as: WinCE Embedded device and Windows Mobile, in order to connect to iSCSI Target storage over Wi-Fi, 3G or 4G network. WinCE iSCSI Initiator can be used over existing wired and wireless (Wi-Fi, 3G, 4G etc.) networks to create storage area networks (SANs). That will help iSCSI Initiator device to expand their virtual storage without any additional hardware requirements which is a huge benefit for home and business solutions.

An embedded system is a computer system designed to do one or a few dedicated and/or specific functions often with real-time computing constraints. It is embedded as part of a complete device often including hardware and mechanical parts. Embedded systems control many devices in common use today.

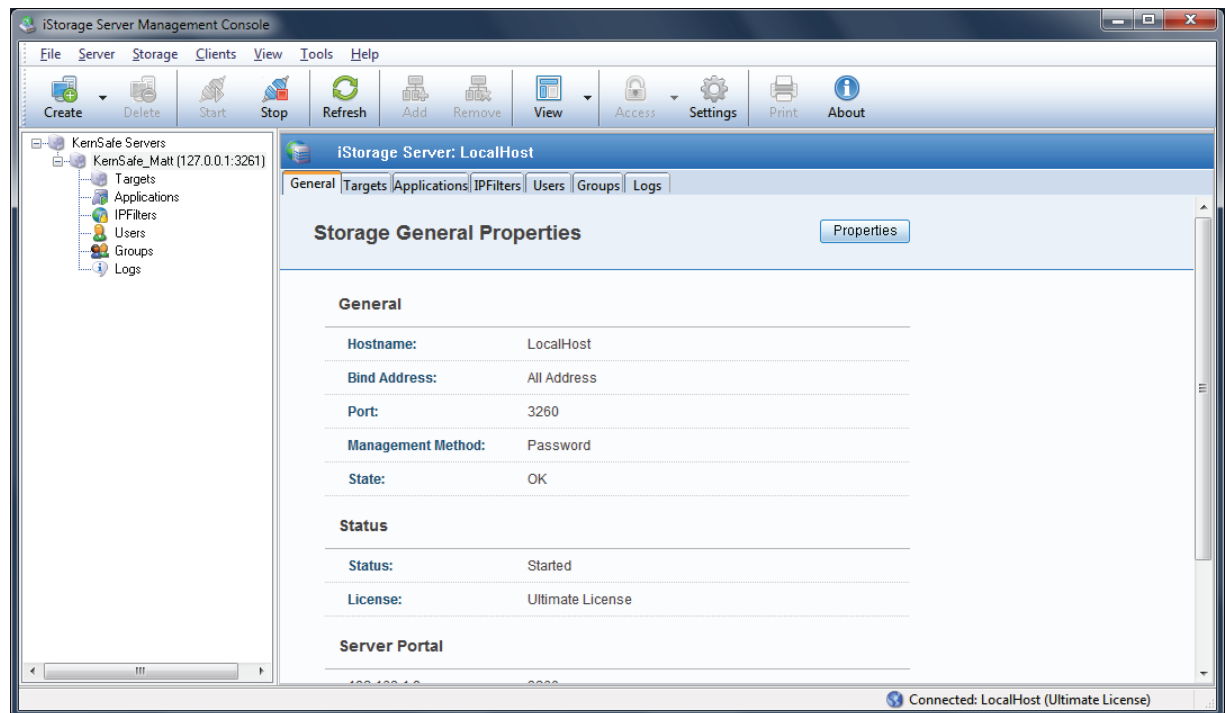
Windows Mobile is a mobile operating system developed by Microsoft that is used in smartphones and mobile devices. It is very common and easy to use since it looks similar to desktop version of Windows operating system.

This article demonstrates how to connect to iSCSI Target created by iStorage Server using KernSafe WinCE iSCSI Initiator on Windows Mobile device.

Configuring iStorage Server

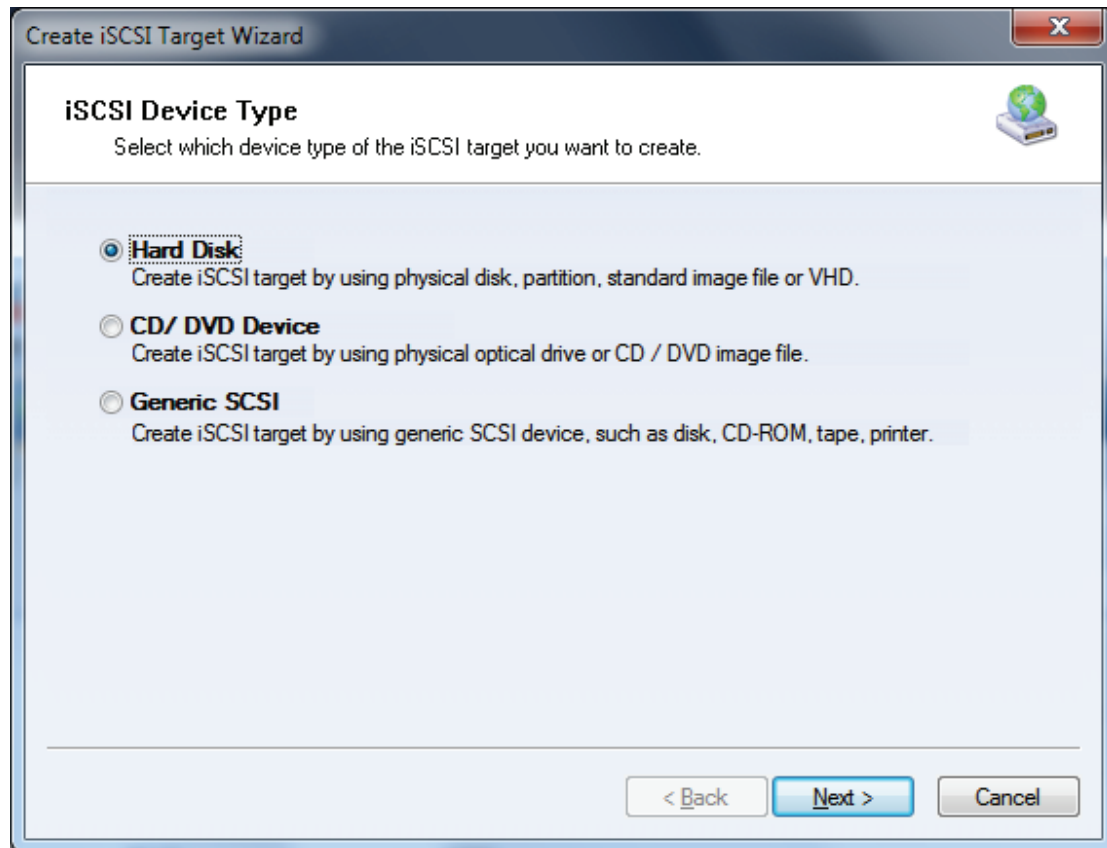
Creating Target

Open **iStorage Server Management Console**.



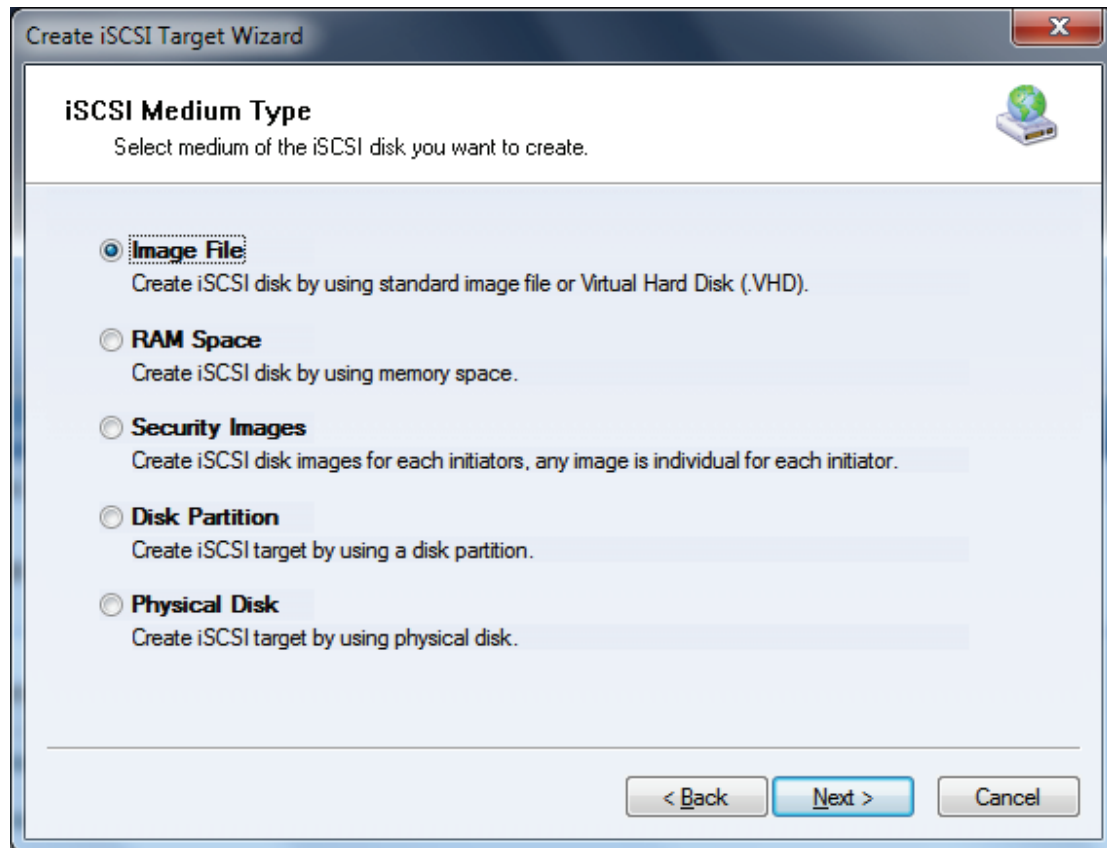
Launch the **iStorage Server Management Console**, press the **Create** button on the toolbar, the **Create iSCSI Target Wizard** will appear.

Select device type.



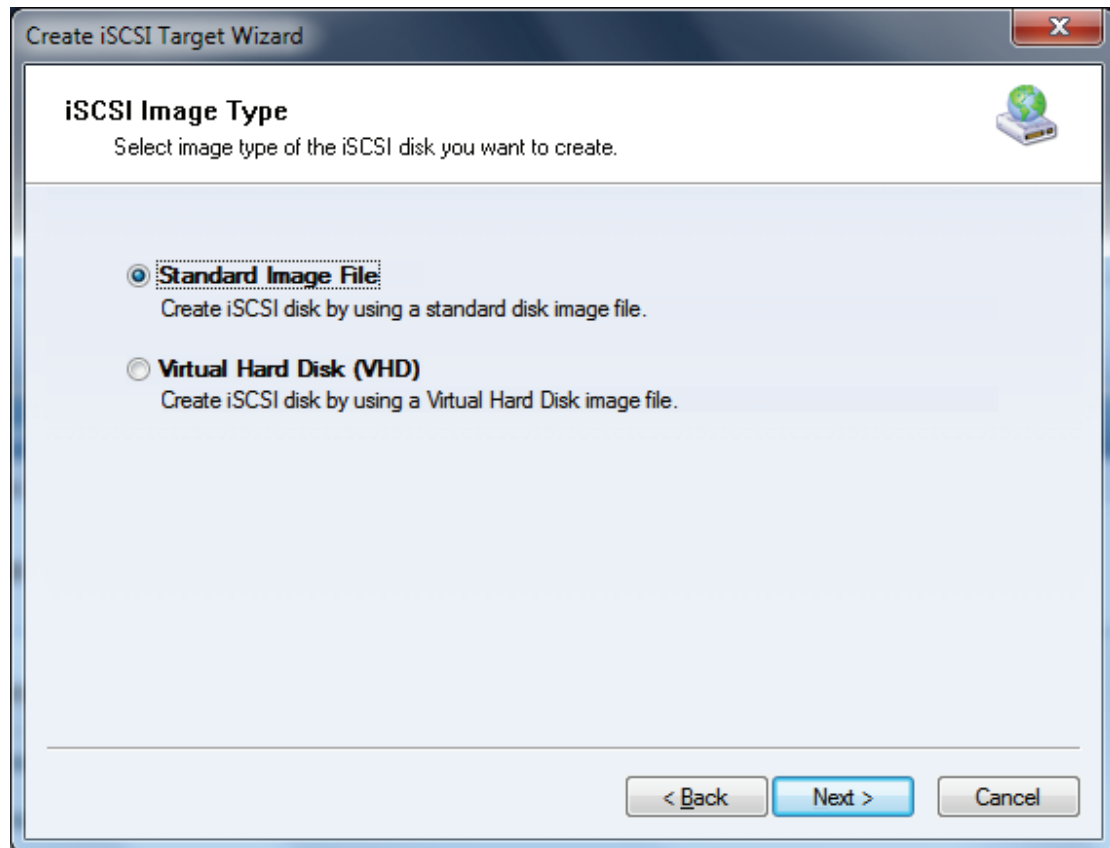
Chose **Hard Disk**.

Press the **Next** button to continue.



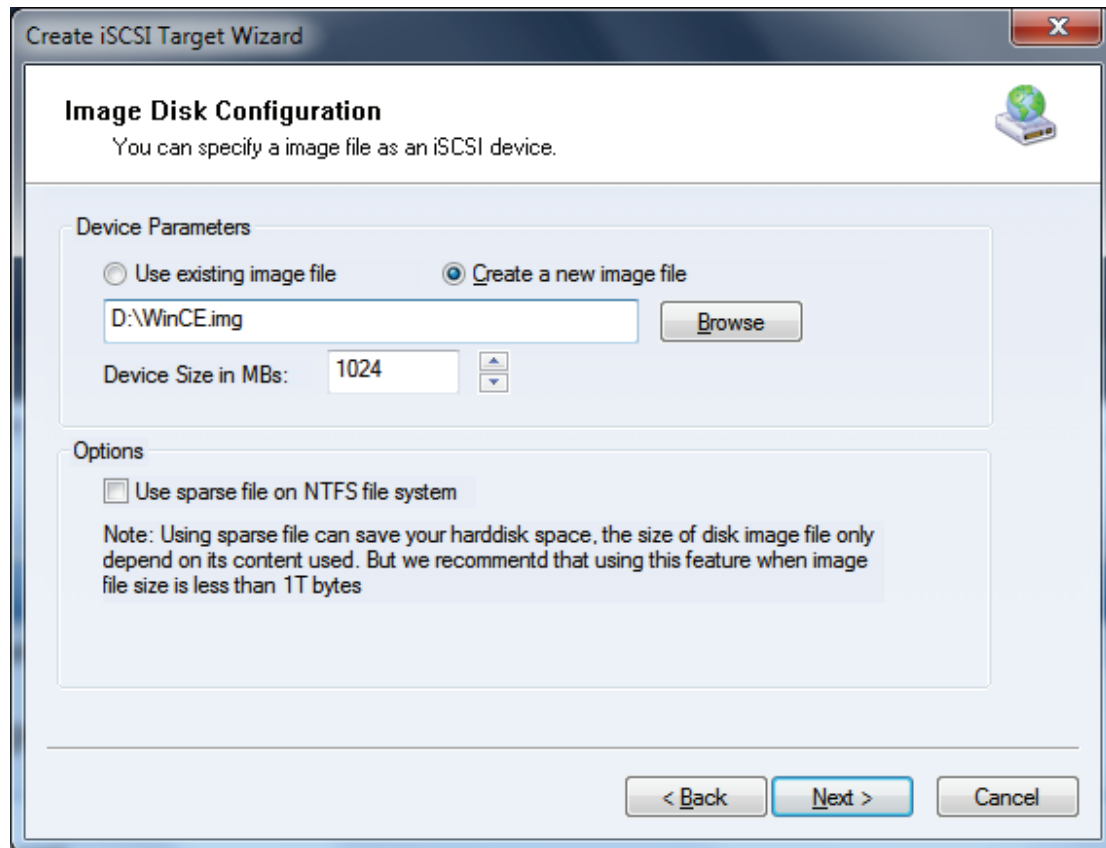
Choose **Image File** in **iSCSI Medium Type** page.

Press the **Next** button to continue.



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

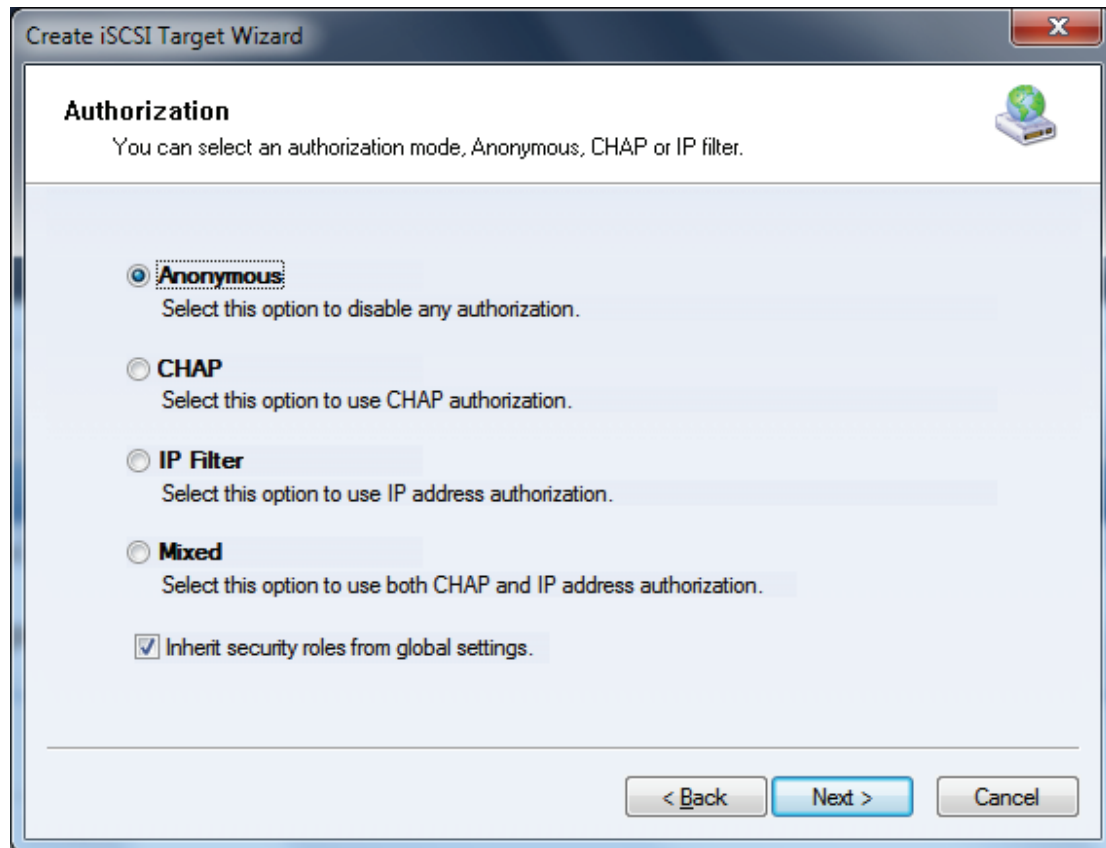
Press the **Next** button to continue.



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.



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 from global settings, otherwise, each client will have its own permission.

For purpose of this article, I will choose **Anonymous**.

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

Enter Target Name:
iqn.2006-03.com.kemsafe:WinCE

☒ Report as readonly device when initiator can not get write access

☐ Enable multiple initiators with full access connected (sharing and clustering)

Note

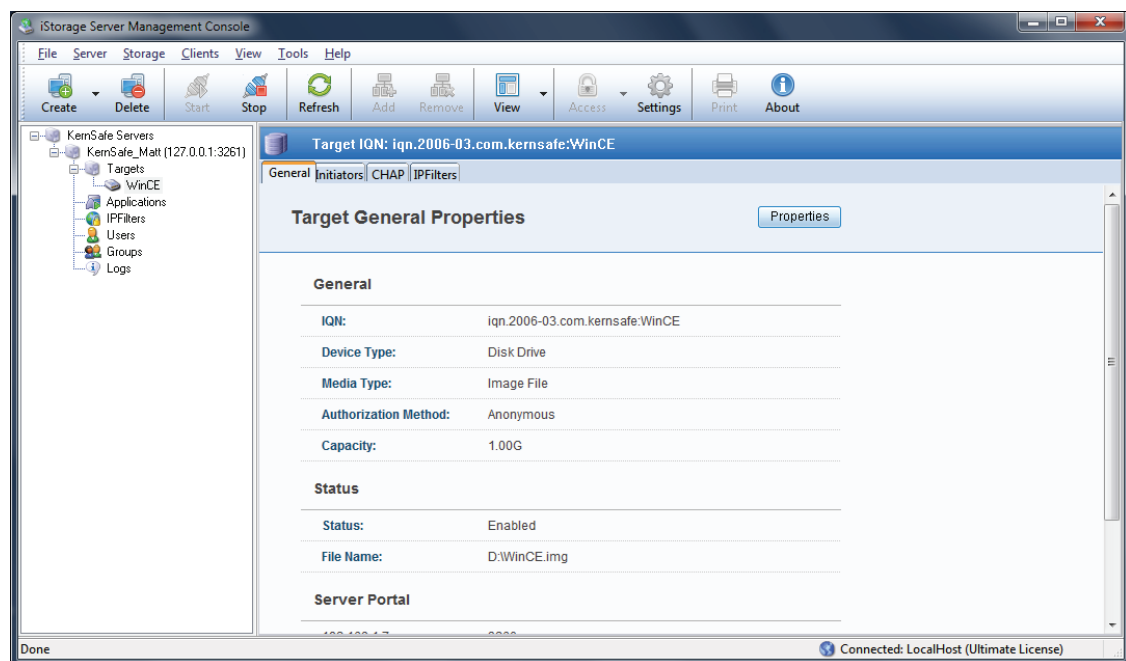
By default, only one client has full access right, when the second initiaor log on with full access, it will fail.
But this option is usfull for clustering, disk sharing and NAS.

< Back Finish Cancel

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.



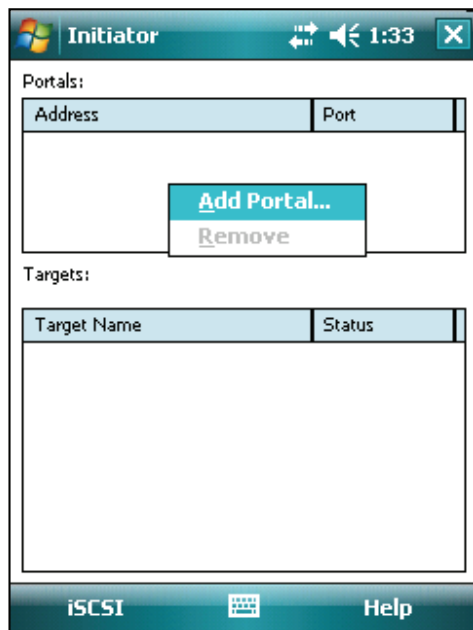
We successfully created iSCSI Target. We can now connect to it using KernSafe WinCE iSCSI Initiator.

Logging on to the target

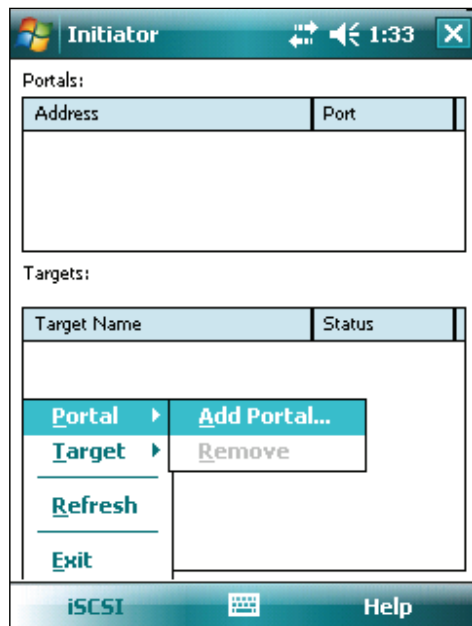
After installing KernSafe WinCE iSCSI initiator on either WinCE or Windows Mobile device, please turn on Initiator. I will use Windows Mobile but the procedure on WinCE device is exactly the same.

Adding portal

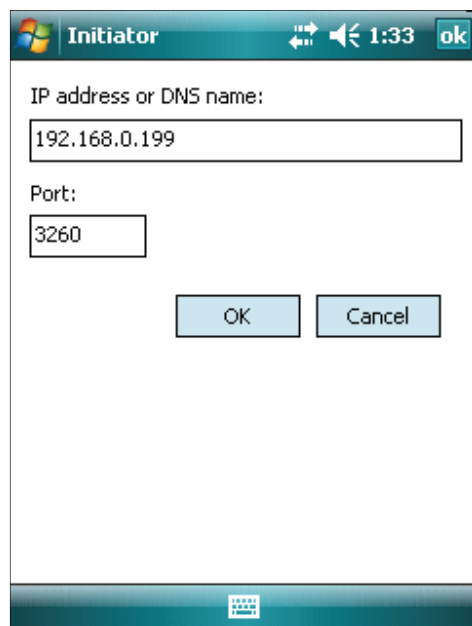
To add a new portal, you can either **tap and hold** stylus in **Portals** group and choose **Add Portal**.



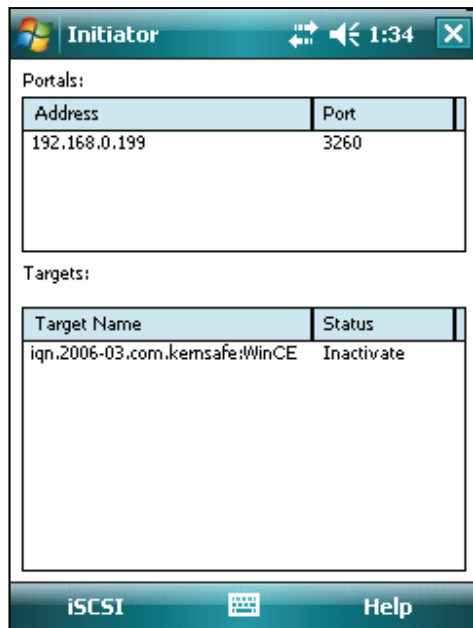
Or you can access same option by tapping on **iSCSI** button, **Portal-->Add Portal**.



When you will do it, you will be prompted to type **IP address** or **DNS** name. (Default port is 3260.)



After finishing, tap on **OK** button to connect to the portal. You will notice that portal was successfully discovered as well as all targets within this portal.

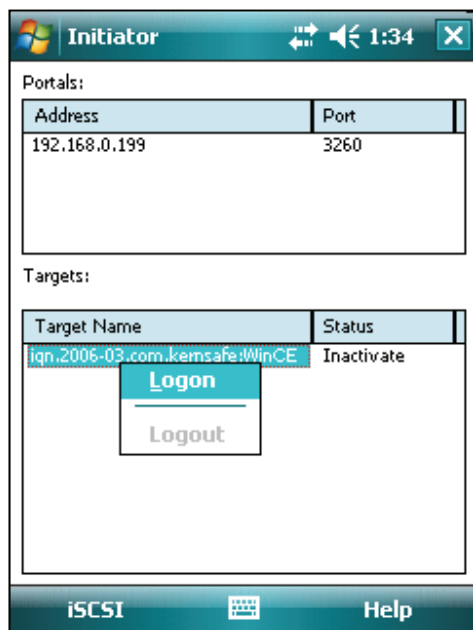


You can add multiple portals to WinCE iSCSI Initiator.

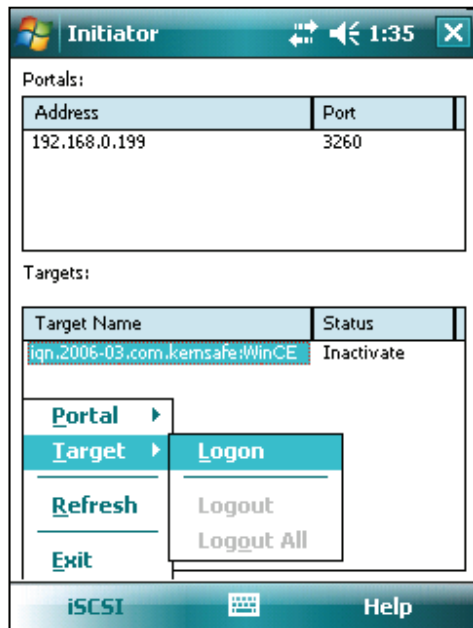
NOTE: If you will type incorrect IP or DNS, portal won't appear on the list.

Connecting to target

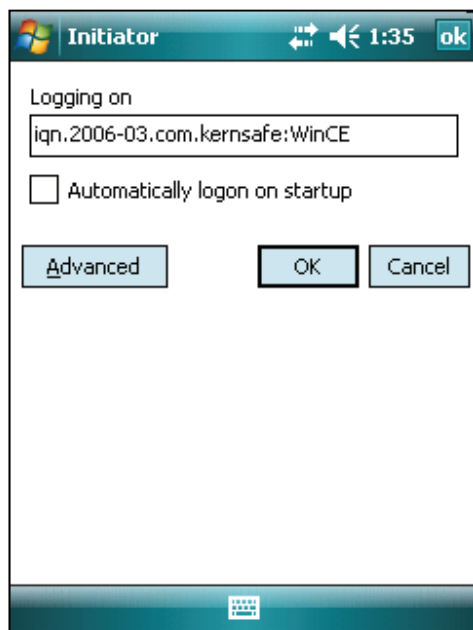
You can connect to new target in two ways. First one is to tap and **hold stylus** on **target name** in target list, and choose **Logon**.



Or you can tap on target and then tap on **iSCSI** button--->**Target**-->**Logon**.



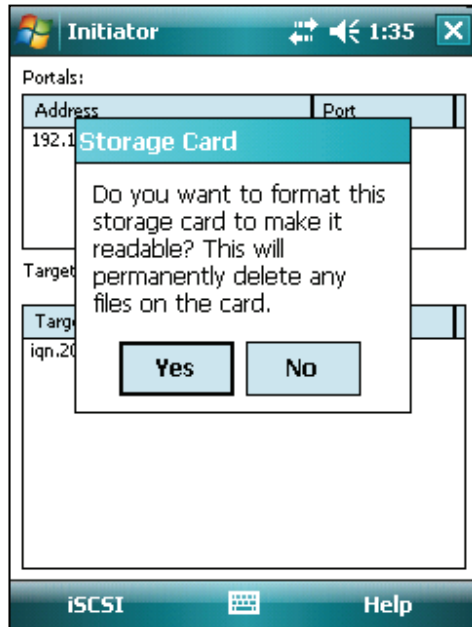
You will see new screen with all login information.



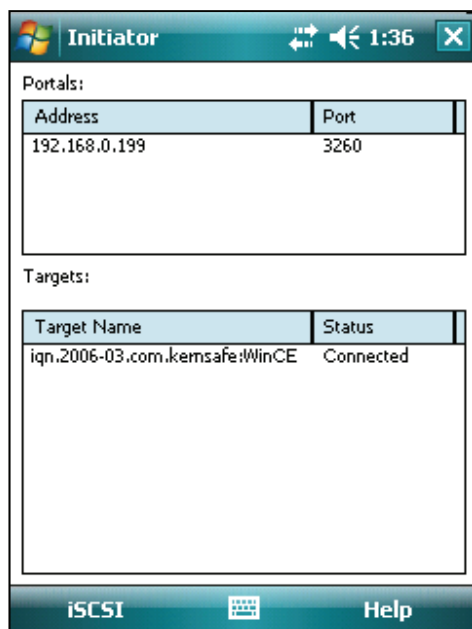
Checking **Automatically logon on startup** option will result that target will be automatically mounted upon turning on the device.

You may connect to as many targets as you want.

Upon successful connection to the iSCSI Target, you will notice window asking to format new memory card.



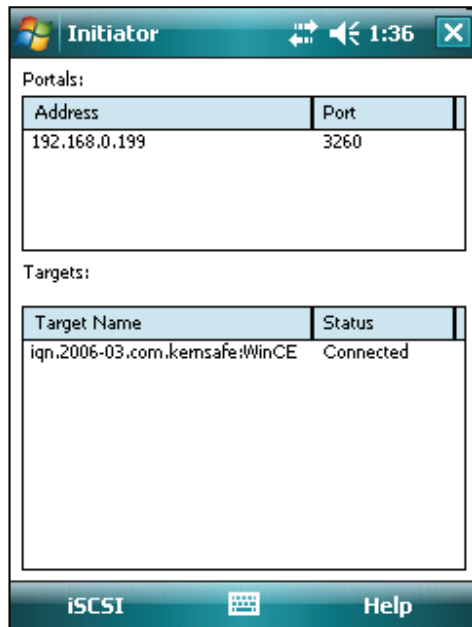
This is because we connected to RAW target that was created in iStorage Server. This information will appear only for the first time using this target. Tap **Yes** to continue.



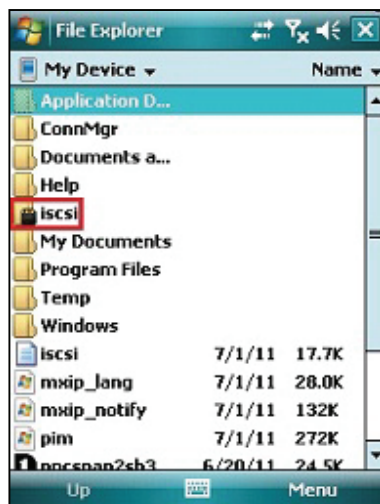
You may now access this storage through **File Explorer**.

Accessing data

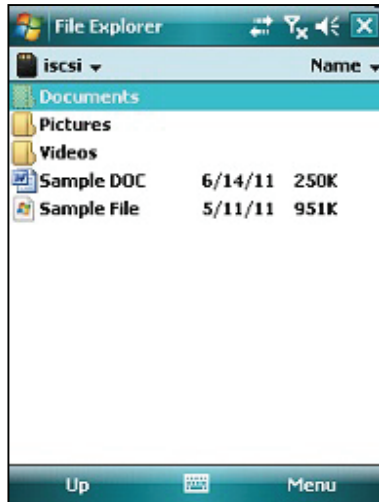
Upon successful connection to the iSCSI Target, you can access data stored on it.



You may now access this storage through File Explorer.

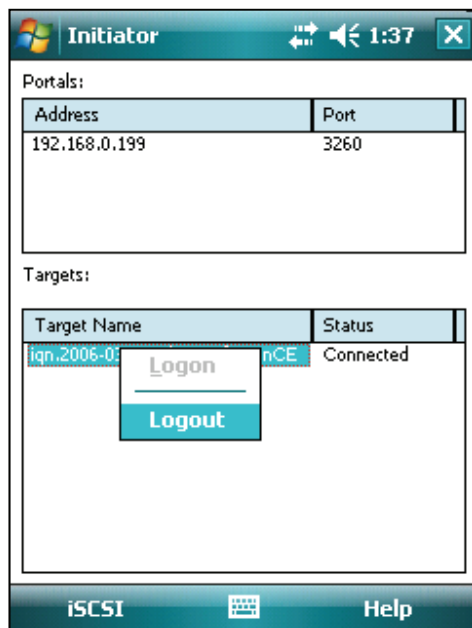


You can now copy, move and delete files to and from iSCSI Target.

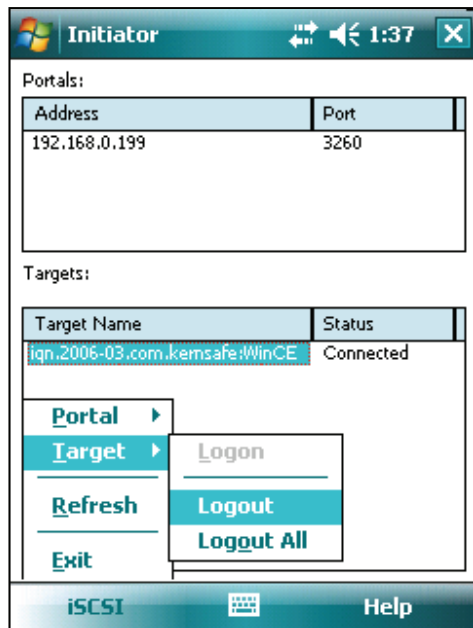


Logout from target

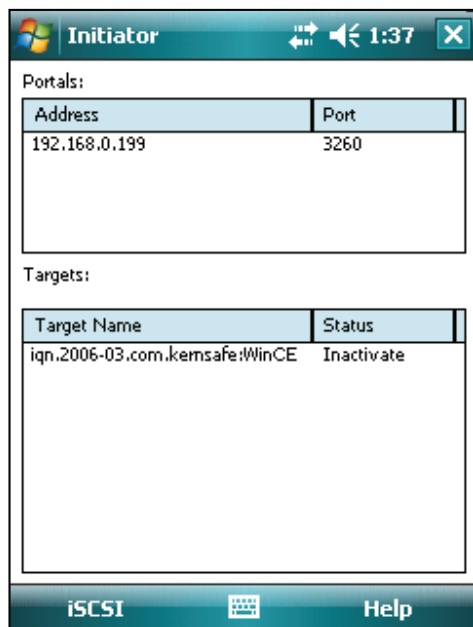
To logout from target to what you are currently connected to, you can either tap and hold your stylus on that target and choose **Logout**.



Or you can tap on target then tap on **iSCSI** button and choose **Target-->Logout**.



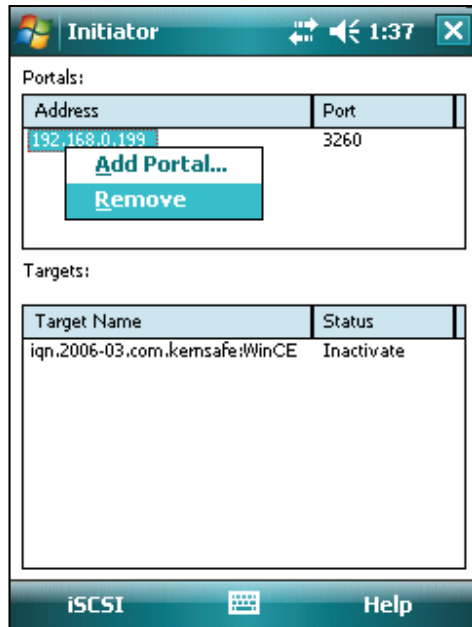
Then you will successfully logout from selected target.



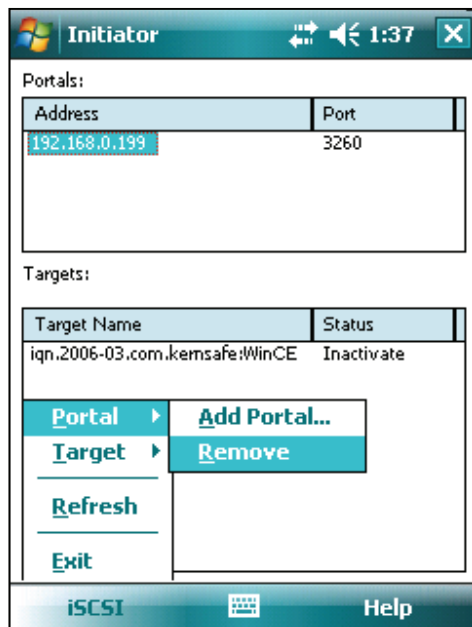
If you are connected to more then one target, and you wish to disconnect from all of them, you may do so by taping on **iSCSI** button and choose **Target-->Logout All**. That will result in logging out from all active targets.

Removing portal

To remove portal, simply either tap and hold stylus on **portal IP** on the portals list, and choose **Remove**.



Or tap on portal IP and tap on **iSCSI** button and choose **Portal-->Remove**.



Contact

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