

iSCSI TARGET AND INITIATOR

iSCSI

Internet Small Computer System Interface (iSCSI) is an interconnect protocol used to establish and manage a connection between a computer (initiator) and a storage device (target). It does this by using a connection through TCP port 3260, which allows it to be used over a LAN, a WAN, or the Internet. Each initiator is identified by its iSCSI Qualified Name (iqn), and it is used to establish its connection to an iSCSI target.

iSCSI was developed to allow block-level access to a storage device over a network. This is different than using a network attached storage (NAS) device that connects through the use of Common Internet File System (CIFS) or Network File System (NFS).

Block-level access is important to many

applications that require direct access to storage. MS-Exchange and MS-SQL are examples of applications that require direct access to storage.

By being able to leverage the existing network infrastructure, iSCSI was also developed as an alternative to Fibre Channel storage by alleviating the additional hardware costs associated with a Fibre Channel storage solution.

iSCSI also has another advantage over Fibre Channel in that it can provide security for the storage devices. iSCSI can use Challenge Handshake Authentication Protocol (CHAP or MS-CHAP) for authentication and Internet Protocol Security (IPsec) for encryption. Windows Server 2012 is able to connect an iSCSI storage device out of the box with no additional software needing to be installed. This is because the Microsoft iSCSI initiator is built

into the operating system.

Windows Server 2012 supports two different ways to initiate an iSCSI session:

- Through the native Microsoft iSCSI software initiator that resides on Windows Server 2012
- Using a hardware iSCSI host bus adapter (HBA) that is installed in the computer

Both the Microsoft iSCSI software initiator and iSCSI HBA present an iSCSI Qualified Name that identifies the host initiator. When the Microsoft iSCSI software initiator is used, the CPU utilization may be as much as 30 percent higher than on a computer with a hardware iSCSI HBA. This is because all of the iSCSI process requests are handled within the operating system. Using a hardware iSCSI HBA, process requests can be offloaded to the adapter, thus freeing the CPU overhead associated with the Microsoft iSCSI software

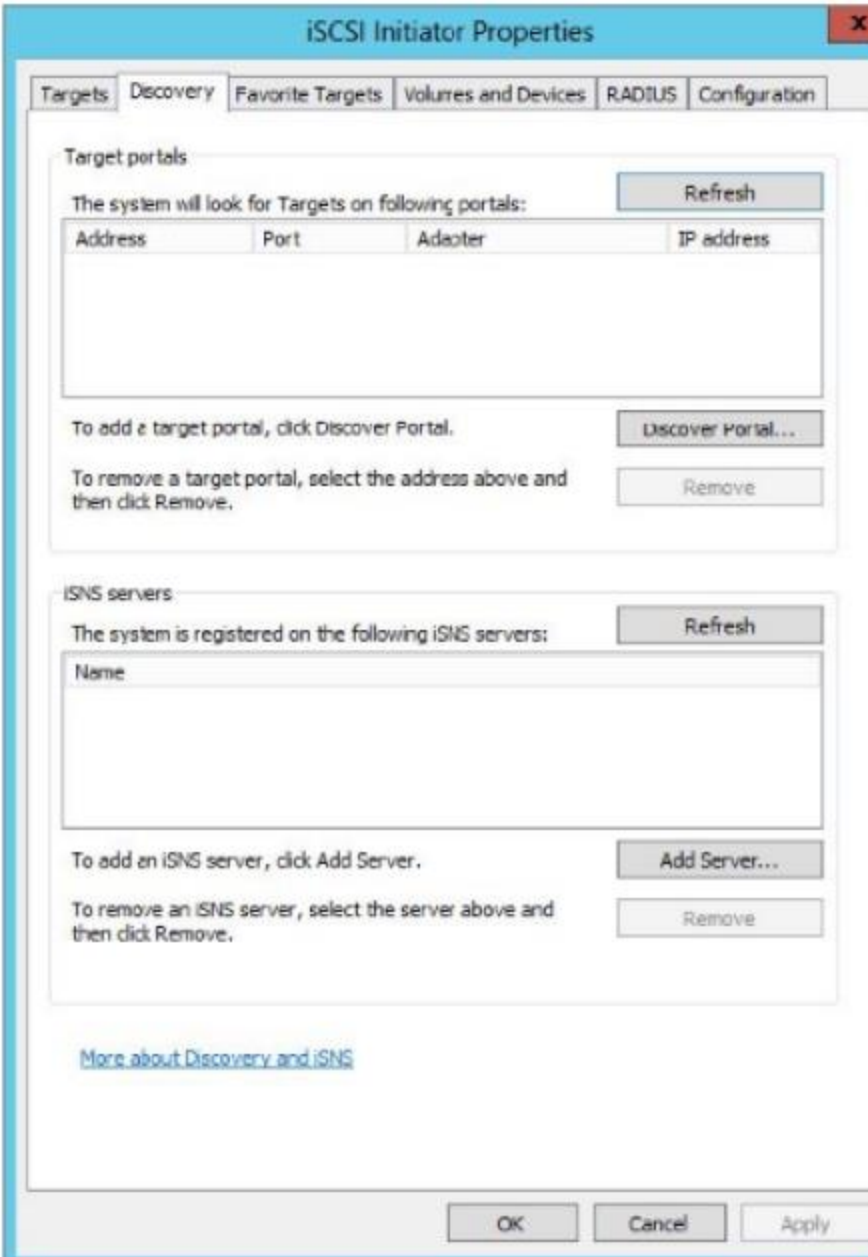
initiator. However, iSCSI HBAs can be expensive, whereas the Microsoft iSCSI software initiator is free.

It is worthwhile to install the Microsoft iSCSI software initiator and perform load testing to see how much overhead the computer will have prior to purchasing an iSCSI HBA or HBAs, depending on the redundancy level. [Exercise 17.6](#) explains how to install and configure an iSCSI connection.

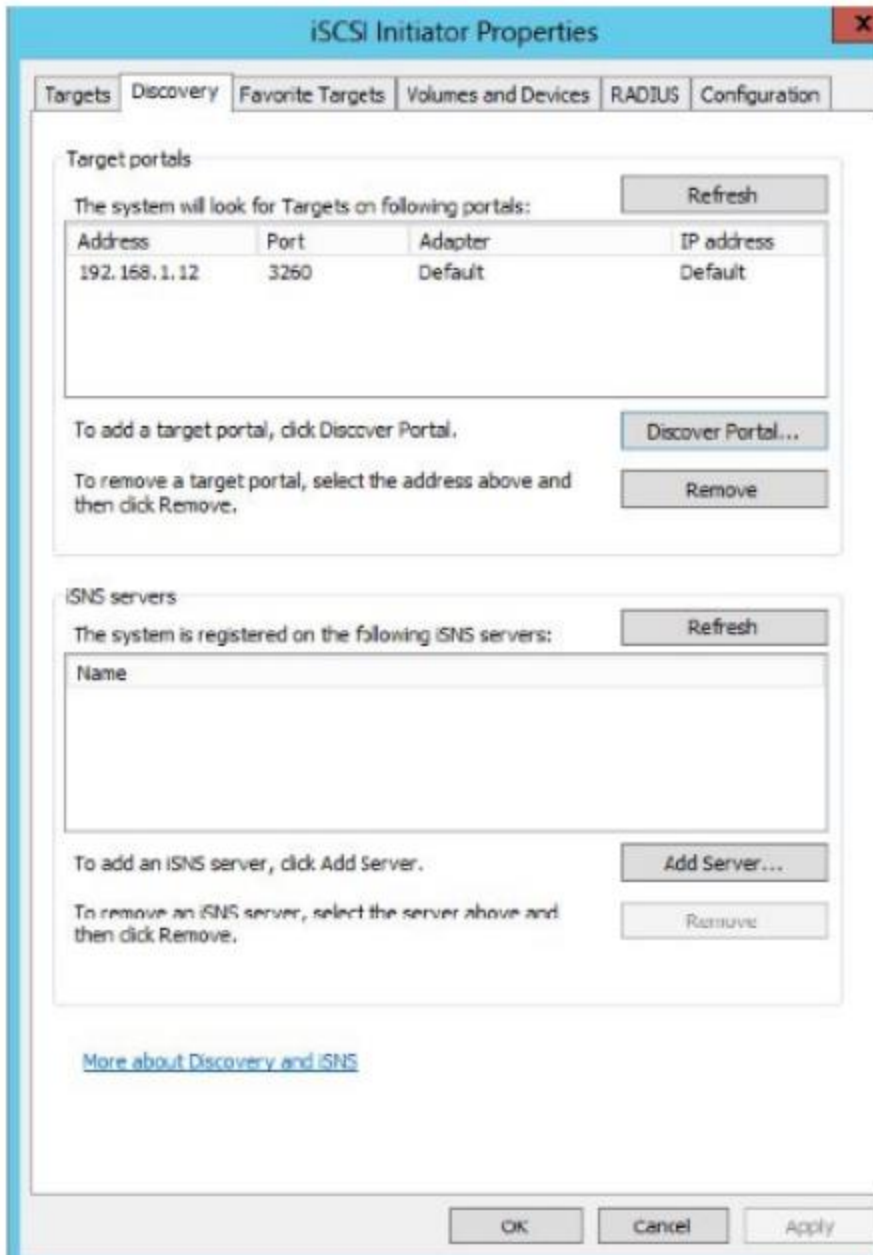
[EXERCISE 17.6](#)

Configuring iSCSI Storage Connection

- 1.** Click the Windows Key > Administrative Tools > iSCSI Initiator.
- 2.** If a dialog box appears, click Yes to start the service.
- 3.** Click the Discovery tab.



- 3.** In the Target Portals portion of the page, click Discover Portal.
- 4.** Enter the IP address of the target portal and click OK.
- 5.** The IP address of the target portal appears in the Target Portals box.



6. Click OK.

To use the storage that has now been presented to the server, you must create a volume on it and format the space.