

iSCSI Quick-Connect Guide for Windows

A supplement to the Microsoft Storage Administrators Guide

The Intel® Networking Division

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Revisions

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1 Introduction and Intended Audience

As a supplement to the Microsoft Storage Administrators Guide, this paper provides an introduction to iSCSI storage connectivity from a Windows server administrator's perspective and shows the basic connection from the Windows operating system to an iSCSI storage target.

As part of a series of iSCSI Quick Connect guides for multiple operating systems, our goal is to discuss the connection from a host perspective and review the requirements provided by and to storage and network administrators. Regrettably, switch and storage configuration are outside the scope of this paper.

The intended audience is experienced system administrators familiar with server, network, datacenter and SAN storage concepts and technologies.

2 iSCSI Basics

iSCSI has been in development since the early 2000s and Intel has been offering iSCSI solutions for over a decade. It is a flexible and powerful Storage Area Networking (SAN) protocol providing data availability, performance and ease of use. As a routable storage protocol, iSCSI imposes no inherent distance limitations and is scalable across LAN and WAN infrastructures.

The iSCSI Qualified Name (IQN) is typically shown as the literal IQN string plus date, reverse domain, and optional text such as storage target name as shown in the example below. The IQN or iSCSI name will be used in the assignment of the Logical Unit Number or LUN on the external storage. In some applications, there is the ability to customize the IQN. Basic iSCSI configuration includes setup of the storage array by creating the LUN and initiator group then assigning the server's iSCSI IQN to that initiator group.

Naming	String defined by
Type	Date Auth "example.com" naming authority
+++++-----+ +-----+ +-----+-----+-----+	
iqn.1998-01.com.microsoft:myservername-123abc0	

3 Administrative Ownership

Basic iSCSI connectivity touches three technology disciplines; server, network, and storage. The server administrator provides the IQN to the storage administrator and sets up the host with an IP address provided by the network administrator. Besides IP assignment, the network administrator ensures the network is setup end-to-end. The storage administrator creates the LUN and host entity then assigns each to a storage group to create the LUN masking and provides the target IQN to the server administrator.

Server Administrator	<ul style="list-style-type: none"> a. Assign the host IP address provide by the network administrator b. Identify the host IQN c. Provide the IQN and IP address to storage administrator d. Set discovery IP address for host for basic storage connection e. Setup the host to connect to the storage target and LUN
Network Administrator	<ul style="list-style-type: none"> a. Assign host IP address to server administrator b. Ensure end-to-end connectivity of host and storage
Storage Administrator	<ul style="list-style-type: none"> a. Add host it "Host List" <ul style="list-style-type: none"> i. Assign IP address to host entity ii. Assign IQN to host entity b. Create a LUN c. Create a "Storage Group" <ul style="list-style-type: none"> i. Assign host entity to the Storage Group ii. Assign LUN to the Storage Group

Figure 1: Administrative Ownership Table

4 Setting up the Network

The network administrator owns IP address assignment, network switch port configuration, and end-to-end connectivity between the storage array and the server. iSCSI network speeds are typically 1 or 10 gigabit. The server administrator provides speed requirements to the network administrator and enables the iSCSI initiator.

5 Obtaining the IQN and IP Address in Windows

This section shows how to obtain an IQN in the Windows operating system. Beginning at the Start Menu, navigate to Administrative Tools to launch the iSCSI Initiator Properties utility as shown in Figure 2.

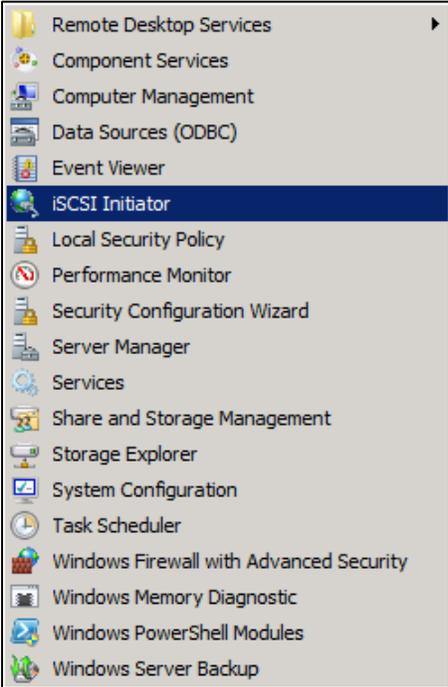


Figure 2: Write performance on 12 node cluster

In the iSCSI Initiator Properties utility, navigate to the Configuration tab to get the IQN or Initiator Name as shown in Figure 3.

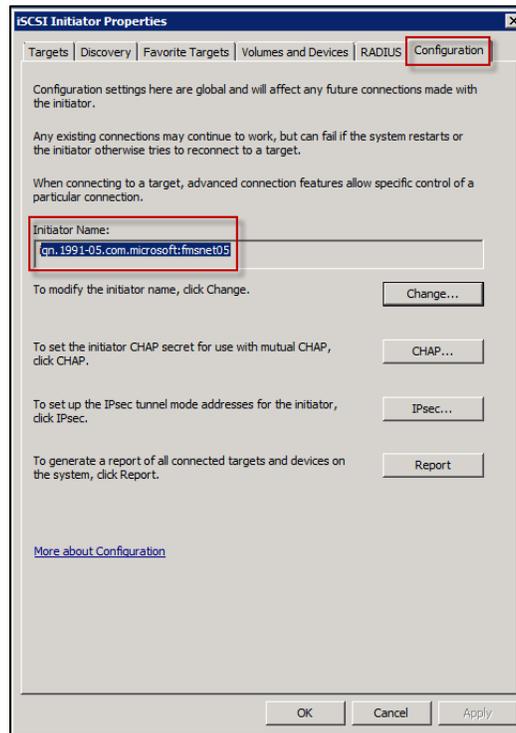


Figure 3: iSCSI Initiator Properties

Use ipconfig from a Command prompt to get the server's IP address as shown in Figure 4.

```
C:\>ipconfig

Windows IP Configuration

Ethernet adapter v25:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::bc88:d155:4ee2:695b%17
    IPv4 Address. . . . . : 192.168.25.5
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :
```

Figure 4

The server administrator provides both the IQN and the IP address to the storage administrator. The storage administrator then uses the IQN and IP address to assign a LUN to the host.

6 Operating System Setup for Windows

This section shows the steps required on the server once the storage administrator has created the storage target. The storage administrator provides the Target IP address and IQN once the target has been created.

Return to the iSCSI Initiator Properties utility and navigate to the Targets tab. Use the target IP provided by the storage administrator to enter the IP address of the storage array in the Target dialog box. Click the Quick Connect button to establish the connection between the server and the storage array as shown in Figure 5.

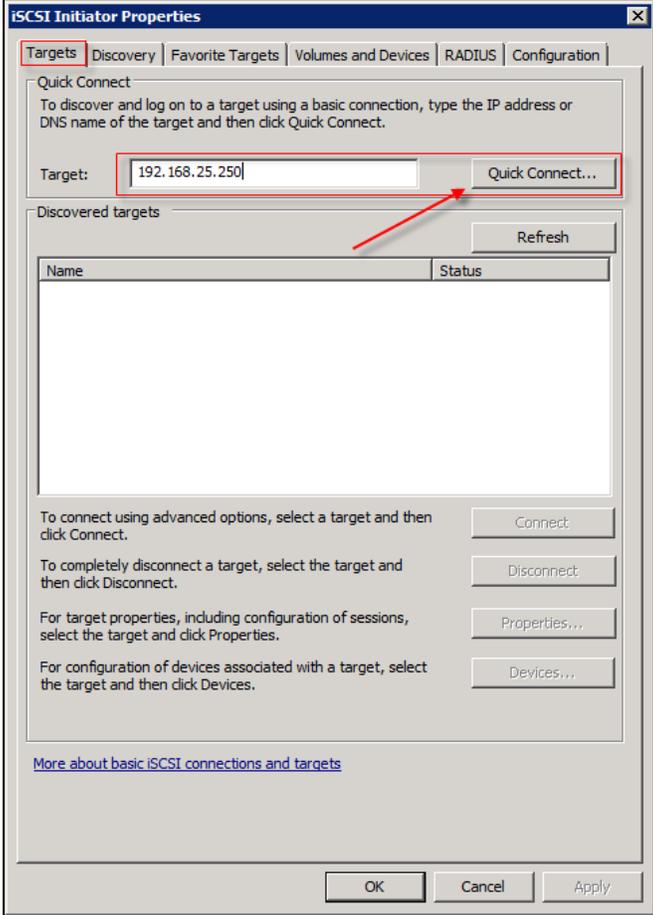


Figure 5

Select the IQN provided by the storage administrator and click the Connect button to establish a connection between the server and the target as shown in Figure 6.

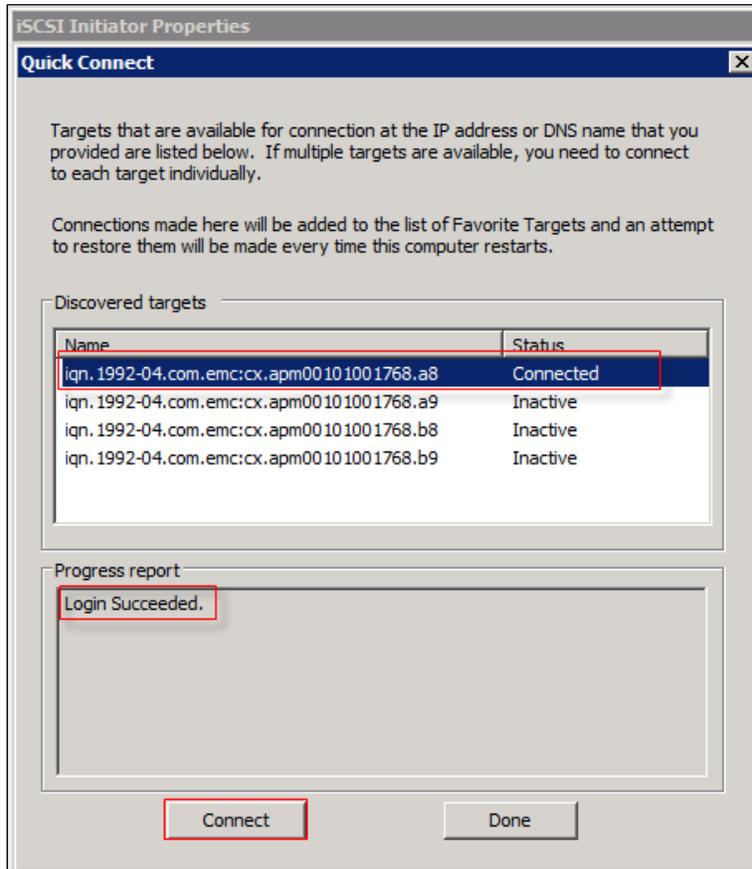


Figure 6

Navigate to the Disk Management area of Server Manger and scan for new disks. Add and initialize the newly added storage as necessary to create a new volume as shown in Figure 7.

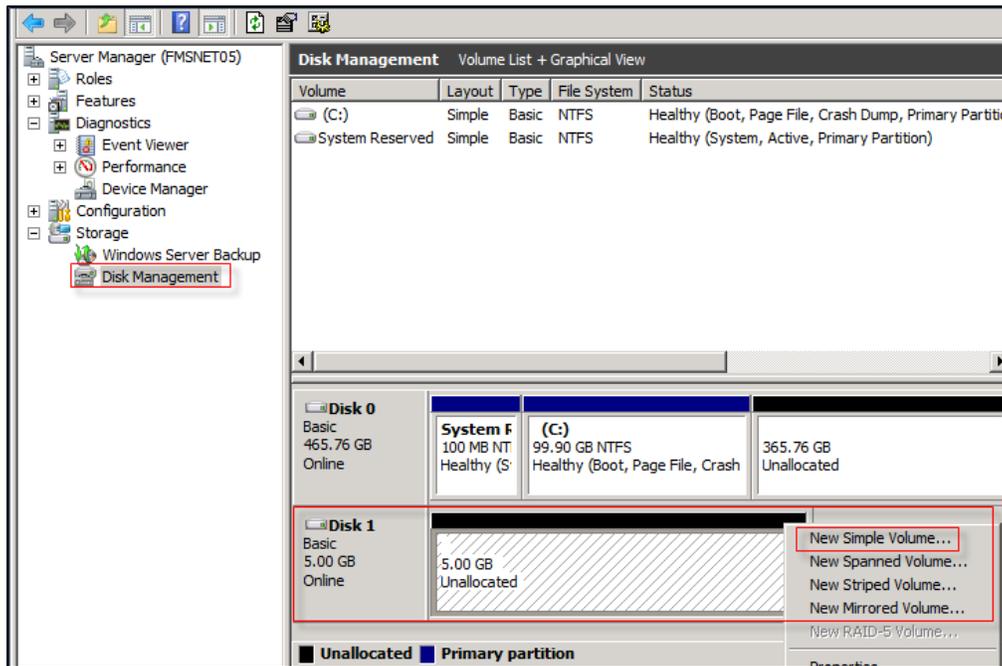


Figure 7

7 Summary

Intel's Server adapter line, in both 1 gigabit and 10 gigabit solutions, fully support a wide range of storage capabilities. Customers get the ease of Ethernet support along with Windows iSCSI storage support in a single adapter.

For more information on iSCSI on Windows see the [Windows Server® 2003/2008 iSCSI Users Guide](#).