

Dell PowerVault MD3000i Configuration Guide for VMware ESX Server Software

January 2008

Dell Virtualization Solutions Engineering
www.dell.com/vmware

Table of Contents

1. Introduction.....	3
2. Architectural Setup	3
3. iSCSI Connectivity Support.....	4
4. PowerVault MD3000i Storage Setup and Configuration	4
5. iSCSI Software Initiator Configuration on ESX Server	5
6. Configure iSCSI storage on ESX Server	8
7. References.....	9

1. Introduction

The Dell™ PowerVault™ MD3000i storage solution consists of a standard or high availability configuration. The standard model has a single controller with two 1GbE ports. It can be deployed to support up to 16 hosts non-redundantly. The high availability model has dual controllers with two 1GbE ports per controller for a total of four 1GbE ports. The dual controller option can connect up to 16 fully redundant hosts. This document provides instructions to setup the MD3000i iSCSI storage solution for usage with VMware® ESX Server™ software.

The Dell PowerVault MD3000i iSCSI storage array contains four Ethernet ports through which the VD can be accessed affording both redundancy and availability of data. Provisioning of storage on servers in a VM environment is a multiple step process starting with definition of the server names for host access. The iSCSI connection is then established from the storage subsystem, and after detection and configuration is established as a two way link with the associated ESX server(s), completing the iSCSI communication subsystem. The final step allocates the detected storage to the individual virtual machines (VM's), where all or part of the configured storage can be assigned to individual VM's.

2. Architectural Setup

The following figure illustrates a typical high availability setup for using the MD3000i in an ESX Server farm. As a best practice, Dell recommends using a separate Gigabit Ethernet network switch to handle iSCSI storage traffic. Two servers are connected to two switches. Each switch has a path to the MD3000i via the two dual port controllers. In this base HA configuration, the servers, switches, and MD3000i ports share the same subnet. The NIC ports serving iSCSI traffic on the ESX servers are teamed.

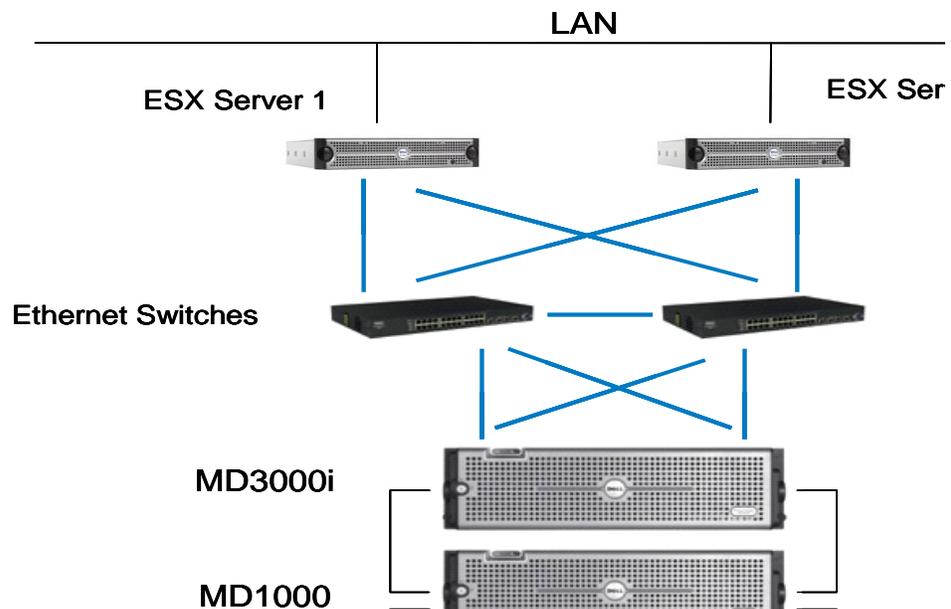


Figure 1: MD3000i High Availability Configuration

3. iSCSI Connectivity Support

Operating System	Host Bus Adapter
VMware ESX Server 3.5	iSCSI software initiator with ESX Server

4. PowerVault MD3000i Storage Setup and Configuration

Create virtual disks on MD3000i using steps described in:

<http://support.dell.com/support/edocs/systems/md3000i/en/IG/PDF/IGbk0HR.pdf>.

After opening the Modular Disk Storage Manager and selecting the MD3000i storage array to be configured, select the *Configure* tab.

Note: in the examples to follow the Storage array “sg23_training” is an MD3000i with virtual disks already configured using the Create Virtual Disks selection. The new server being added to an existing host group is named “Valhalla”.

From the Configure tab

1. Select *Configure Host Access (Manual)*.
2. Enter the host name for the server which has the ESX Server software is installed.
3. Select *Linux* as the host type.

From the next screen, specify the iSCSI Initiator by selecting the *New* button (lower right on screen). On the *Enter New iSCSI Initiator* screen enter a name for the iSCSI initiator name. The label is auto-populated from the server name.



Figure 2: iSCSI Initiator Window

Host Group configuration starts from the following screen titled “Configure Host Access (Manual) – Specify Host Group”. For ESX servers supporting VMotion, HA, and DRS, a host group must be defined so the MD3000i storage subsystem has a configured iSCSI path to each of the hosts.

- Select “Yes: This host will share access to the same virtual disks with other hosts”
- If a new host group is desired select the radio button for that option and enter in a name for your host group using standard host naming conventions (e.g. no spaces etc).
- Should you already have one or more host groups assigned, select the radio button enabling selection from a drop down list of existing host groups. This option is to be used when configuring the second, third, etc. host in a group. Once the host group is selected previously configured hosts for that host group will be displayed. Note that

these are shown as Linux hosts even though they are configured as ESX servers.

Selecting *Next* provides a Confirmation screen in which the new server being configured is shown and the other previously configured associated hosts are named. For the first server configured in a new host group there will be no associated hosts listed under the *Associated host group*.

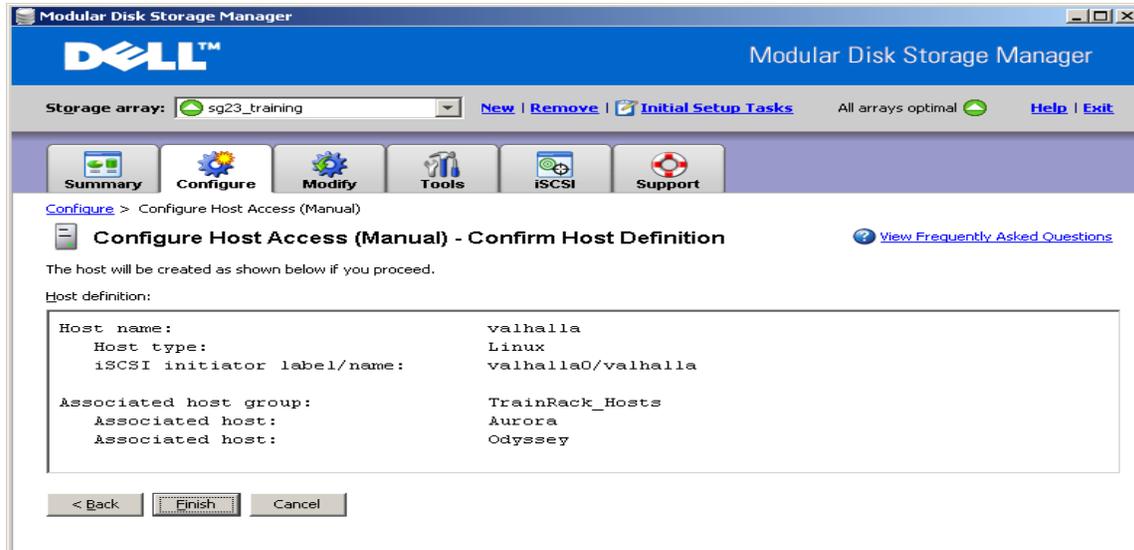


Figure 3: Modular Disk Storage Manager Configure Tab

Select *Finish* confirming the new host definition. This initiates the wizard configuration of the new host.

On completion,

- Select *Yes* to proceed to the next host you wish to configure, or
- Select *No* to end the configuration wizard.

Helpful Hint: Record the MD3000i IP address for later configuration

5. iSCSI Software Initiator Configuration on ESX Server

This section lists the steps required to configure the software initiator on the VMware ESX Server. Connect to the ESX server/VirtualCenter using VI Client, and follow the below steps:

1. Select *Configuration->Security Profile* on the ESX server.

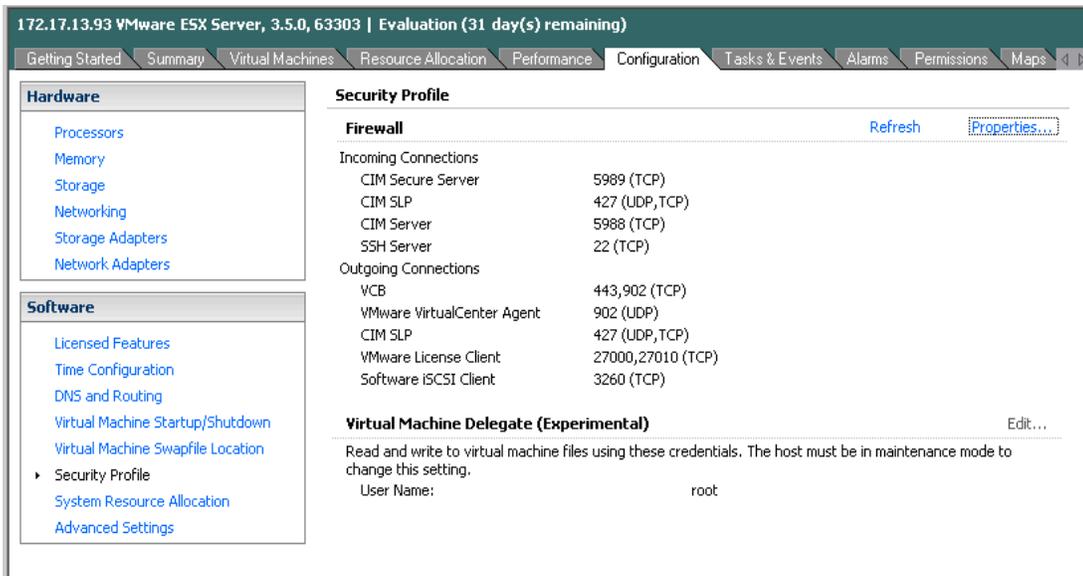


Figure 4: Security Profile Configuration Tab

2. Click on *Properties*. The *Firewall Properties* box appears.

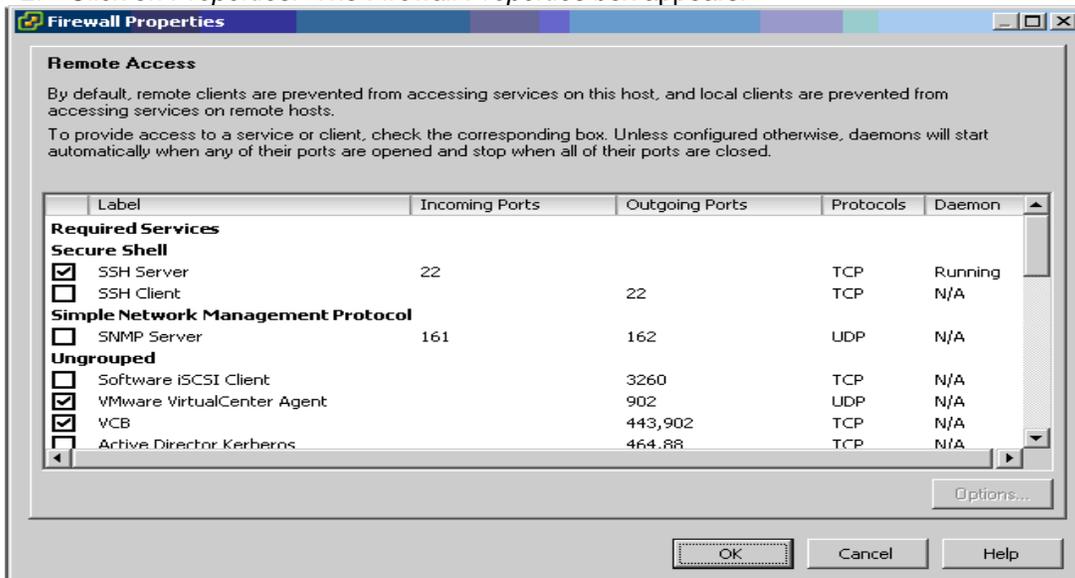


Figure 5: Firewall Properties Window

3. Check *Software iSCSI Client*.
4. Select *Configuration->Storage Adapters* on the ESX server.
5. Select iSCSI software adapter and click on *Properties*.

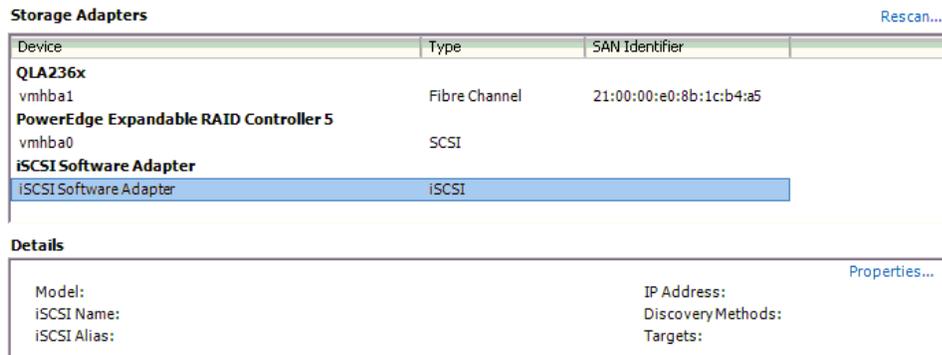


Figure 6: iSCSI software adapter under Storage Adapters on VI client

6. The iSCSI initiator Properties window appears.
7. Under the general tab select Configure tab. Select the *Enabled* checkbox and click *OK*. Select Close.

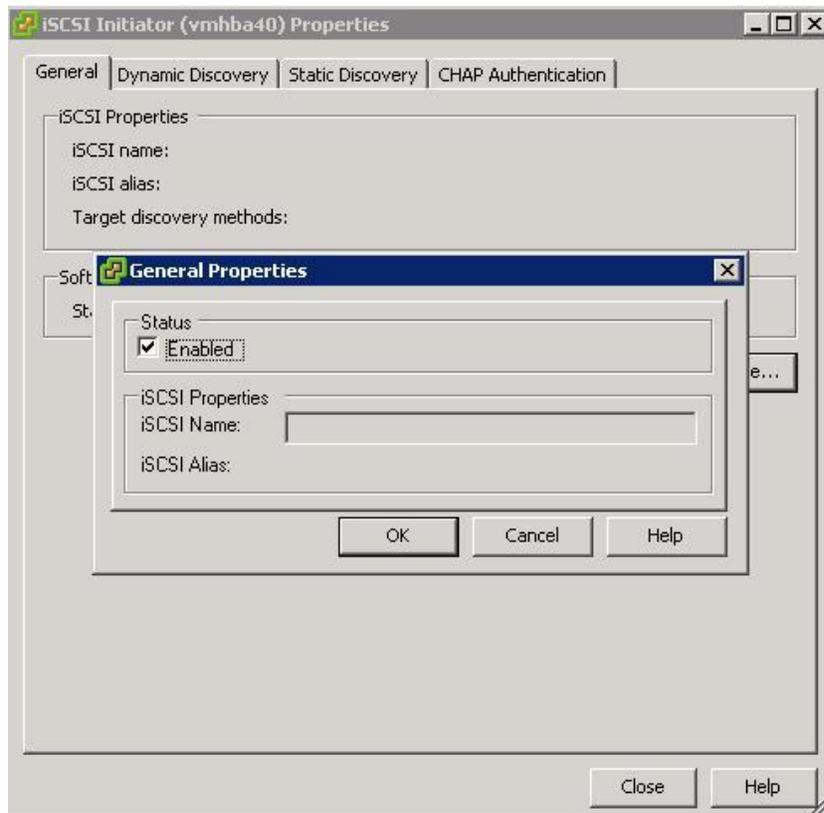


Figure 7: iSCSI software initiator properties window

8. Select iSCSI software adapter under storage. You should now see your iSCSI Target name listed.

Device	Type	SAN Identifier
iSCSI Software Adapter		
vmhba40	iSCSI	iqn.1998-01.com.vmware:...
LSI1068		
vmhba1	SCSI	
PowerEdge Expandable RAID Controller 5		
vmhba0	SCSI	

Figure 8: iSCSI software adapter after initial configuration

9. Select Properties under storage adapters. Select Dynamic Discovery. Select *Add*. Provide the IP address of the MD3000i and click OK. There may be a slight delay before the process completes.

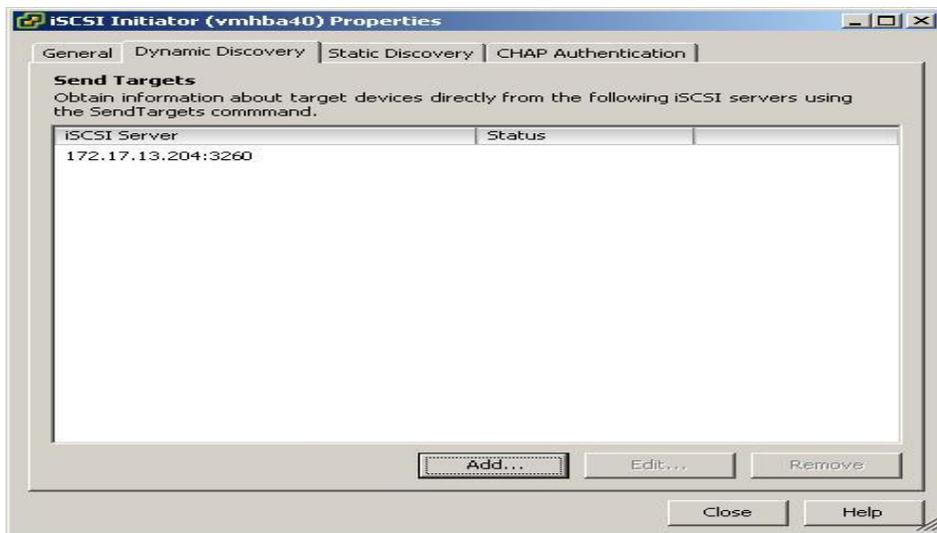


Figure 9: iSCSI software initiator properties window

10. Click *Close*.

6. Configure iSCSI storage on ESX Server

Connect to the ESX server/Virtual Center using VI Client and follow the steps below.

1. Go to the configuration tab and select *Storage Adapters*. Select the iSCSI Software Adapter and click *Rescan*. The newly created iSCSI target and LUN should be visible from the ESX server.

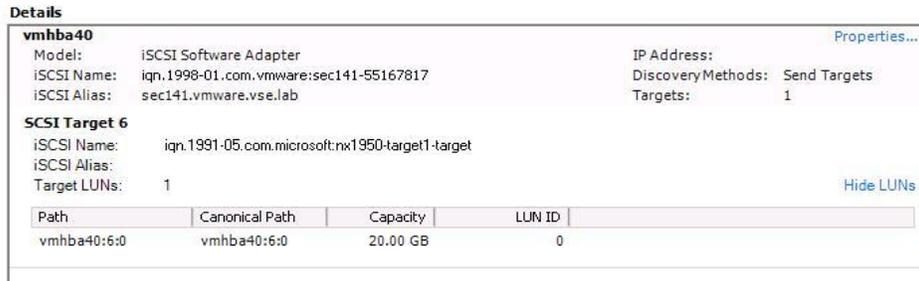


Figure 10: iSCSI target and LUNs as visible through VI client

2. Go to the configuration tab and select *Storage*. Click on *Add Storage*, select *Disk/Lun* and click *Next*. Select the newly added storage and click *Next*.
3. Select the newly created iSCSI LUN and click *Next*.
4. Review the disk layout and click *Next*.
5. Provide a name for the VMFS datastore and click *Next*.
6. Select the appropriate block size and capacity for the VMFS datastore and click *Next*.
7. Review the disk layout and click *Finish* to create the VMFS datastore. The new datastore is now ready to be used for storing virtual machine images.

7. References

1. Dell PowerVault MD3000i support documents:
<http://support.dell.com/support/edocs/systems/md3000i/>
2. Drivers download page for MD3000i:
http://support.dell.com/support/downloads/driverslist.aspx?c=us&cs=555&l=en&s=biz&ServiceTag=&SystemID=PWW_MD3000I&os=NAA&osl=EN
3. VMware Virtual Infrastructure 3 Documentation:
http://www.vmware.com/support/pubs/vi_pubs.html
4. Dell|VMware alliance home page: www.dell.com/vmware

THIS DOCUMENT IS FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND.

Microsoft and Windows are registered trademarks of Microsoft Corporation. VMware is a registered trademark and VMotion, Virtual SMP, and ESX Server are trademarks of VMware, Inc. Intel and Xeon are registered trademarks of Intel Corp. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell disclaims proprietary interest in the marks and names of others.

Copyright 2007 Dell Inc. All rights reserved. Reproduction in any manner whatsoever without the express written permission of Dell Inc. is strictly forbidden. For more information, contact Dell. Information in this document is subject to change without notice.