The Drobo family of iSCSI storage arrays allows organizations to effectively leverage the capabilities of a VMware infrastructure, including vMotion, Storage vMotion, Distributed Resource Scheduling (DRS), and High Availability (HA). Storage must be network accessible, highly available, and easily scaled without impacting applications as workloads change and grow. The chosen storage solution must be simple to deploy, easy to manage, and, all things being equal, reduce operating costs to truly reap the economic benefits of server consolidation.

VMware virtual server software and Drobo's virtualized architecture are complementary technologies that deliver significant rewards. Because virtual servers require a simple, flexible, and cost-effective virtual storage solution, you can now choose Drobo iSCSI storage over other, less cost-effective iSCSI solutions. Simple integration, flexibility, and unmatched scalability are leading more and more organizations worldwide to embrace iSCSI storage for their new virtual server environments.

Topics

- ■ Initial configuration
- ■ Creating a Drobo iSCSI volume
- ■ Configuring a VMware iSCSI initiator
- ■ Creating a VMware VMFS datastore
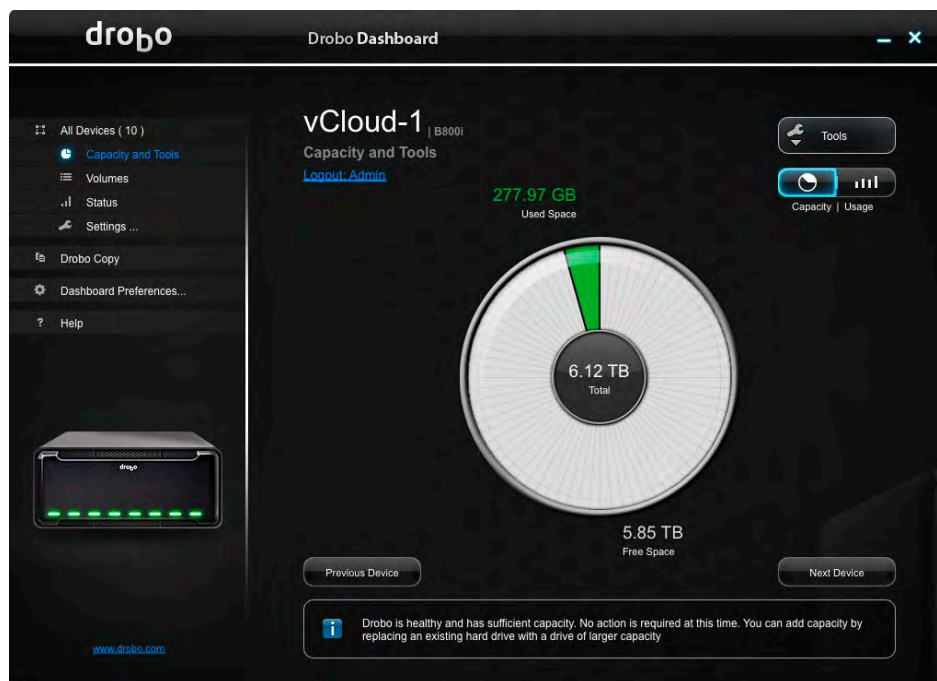- ■ Post-configuration options
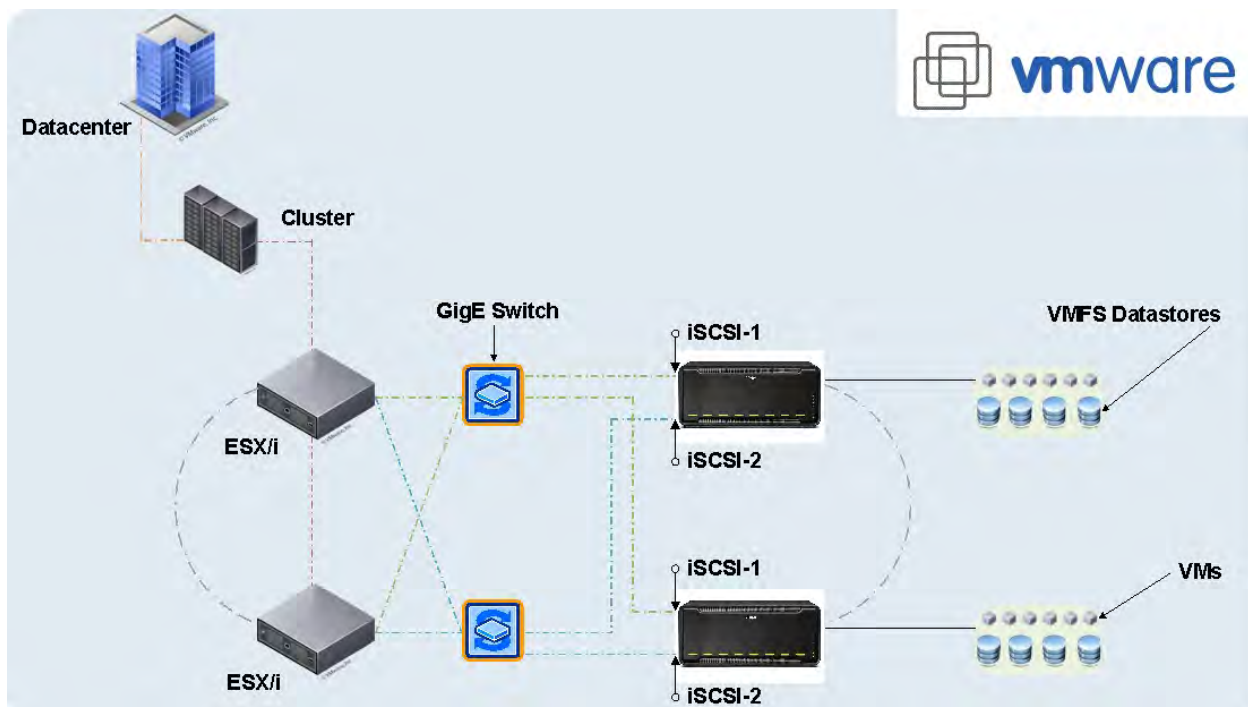
What You Will Need

- Drobo model B800i or B1200i
- Drobo Dashboard management software (most recent version)
- Enterprise-grade 7200RPM SAS or SATA disk drives (recommended)
- VMware ESX/ESXi up to 4.1 and vCenter Server 4.x
- Redundant gigabit Ethernet switches

Initial Configuration

Follow the directions in the Drobo Online User Guide to configure the Drobo and create an NTFS volume:
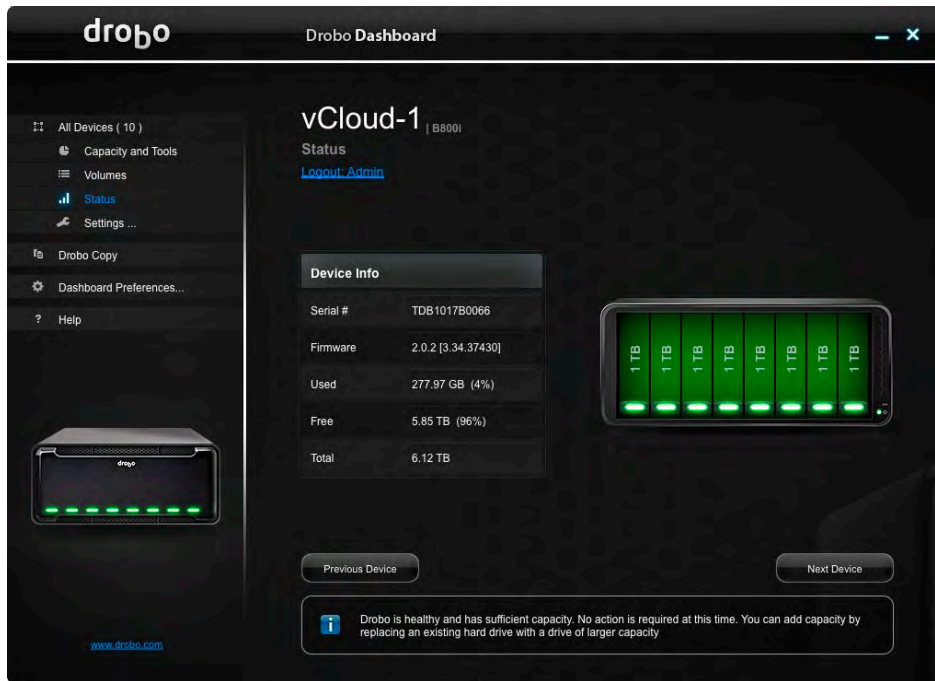http://www.drobo.com/support/documentation.php

STEP 1

Start with the basic configuration of the Drobo before creating a Drobo iSCSI volume to be presented to the VMware cluster.

For more information, see the Drobo Online User Guide.

STEP 2

Record the serial number of the Drobo so that you'll have it if you need to call support. You'll also be able to track down Drobo iSCSI volumes if you have more than one Drobo.

Record the firmware and Drobo Dashboard versions and make sure that both are up to date. To see if your Drobo is up-to-date, visit this website.

STEP 3
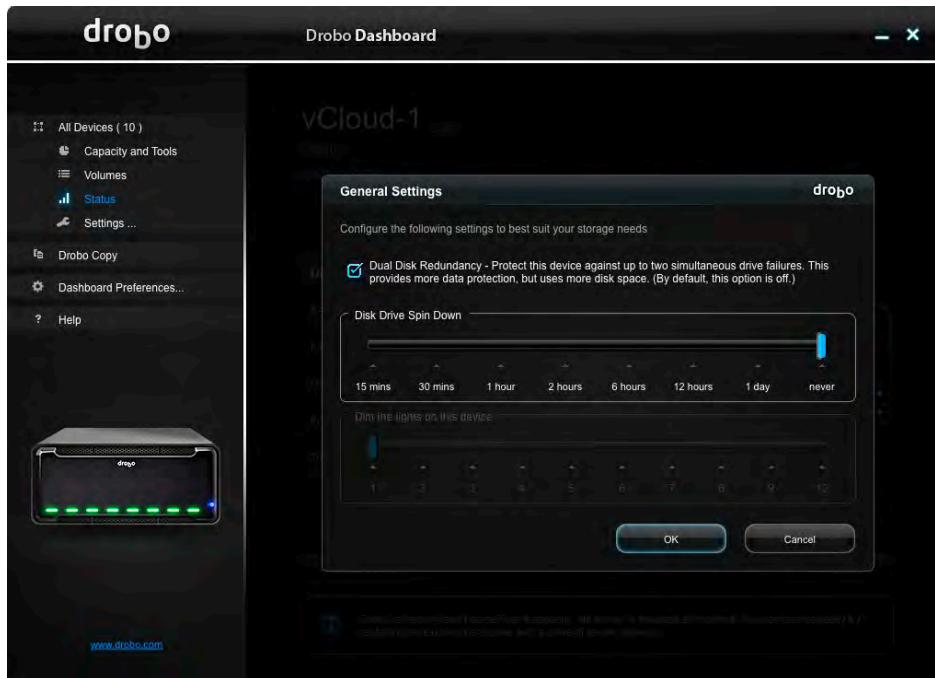
In the left panel, select **Settings > General.**

a) Select **Dual Disk Redundancy** so that Drobo will be able to protect you against a failure of more than one drive.

b) Set the Disk Drive Spin Down to **Never** in order to prevent spinup time when drives have spun down to conserve energy.

NOTE: While it is possible to take advantage of Drobo BeyondRAID™ technology by switching back and forth between single- and dual-disk redundancy, it is strongly recommended that you plan ahead so that you will be able to deploy Drobo into virtualized environments.

STEP 4

Drobo supports frames larger than 1500MTU (aka "jumbo frames"). When you configure larger frames sizes:

- Configure the interface to the desired frame size (make sure that interfaces in the data path are also capable of supporting the size you select).
- Test that you have connectivity via the IP address associated with the interface where you have set the frame size.
- If for any reason the frame size is set on both interfaces and you can no longer connect to the Drobo, connect to the system that has Drobo Dashboard installed via a USB cable to reverse these settings.
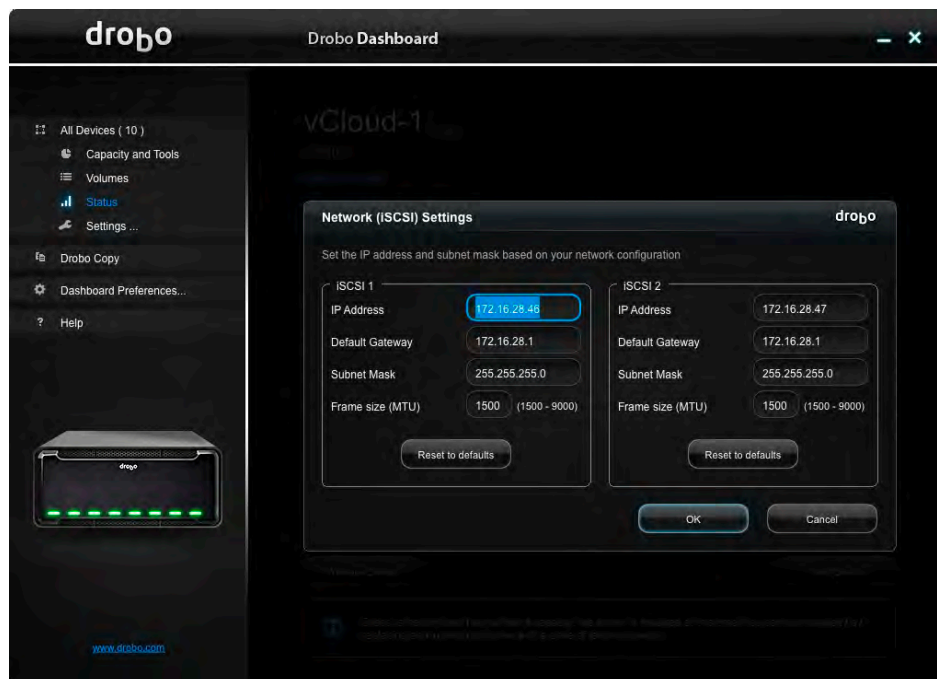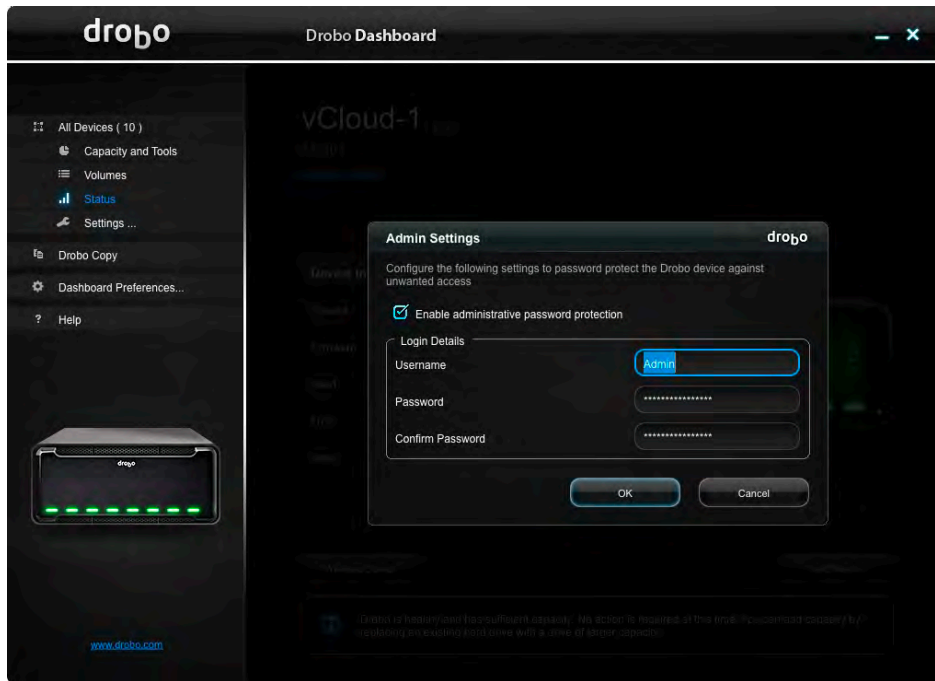

When setting up IP addresses, keep in mind that each interface acts independently.

Interfaces can be configured either on the same subnet or on separate subnets.

STEP 5

Set a user name and password to prevent unauthorized access to the configuration side of the Drobo.
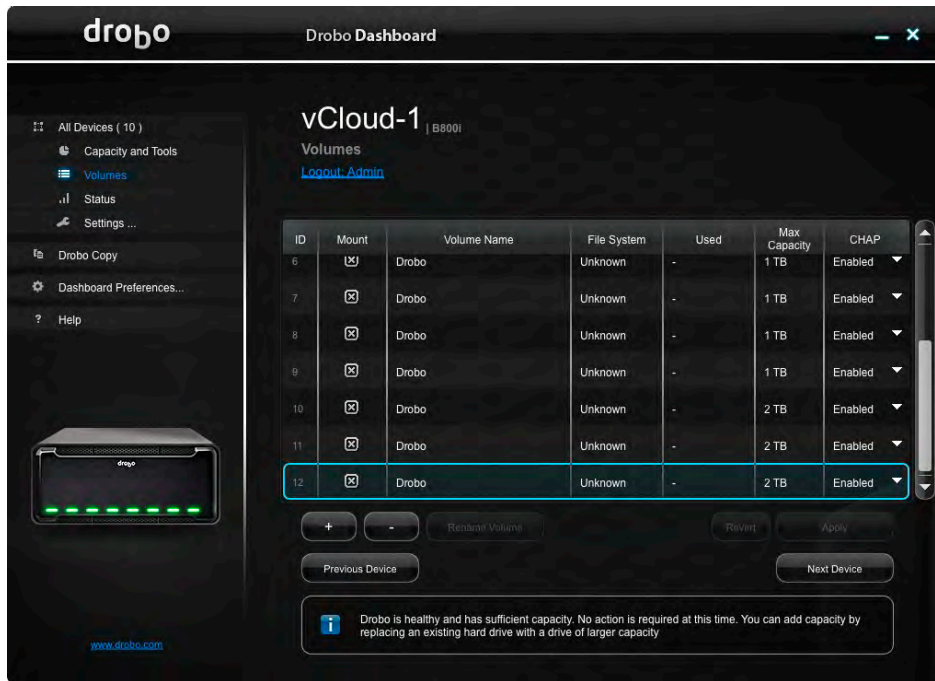
Creating a Drobo iSCSI Volume

When a volume is created, Drobo automatically configures all the settings necessary to present a Drobo iSCSI volume to the host. By default all Smart Volumes are thin provisioned and are presented as LUNs (Logical Unit Number) on both IP addresses.

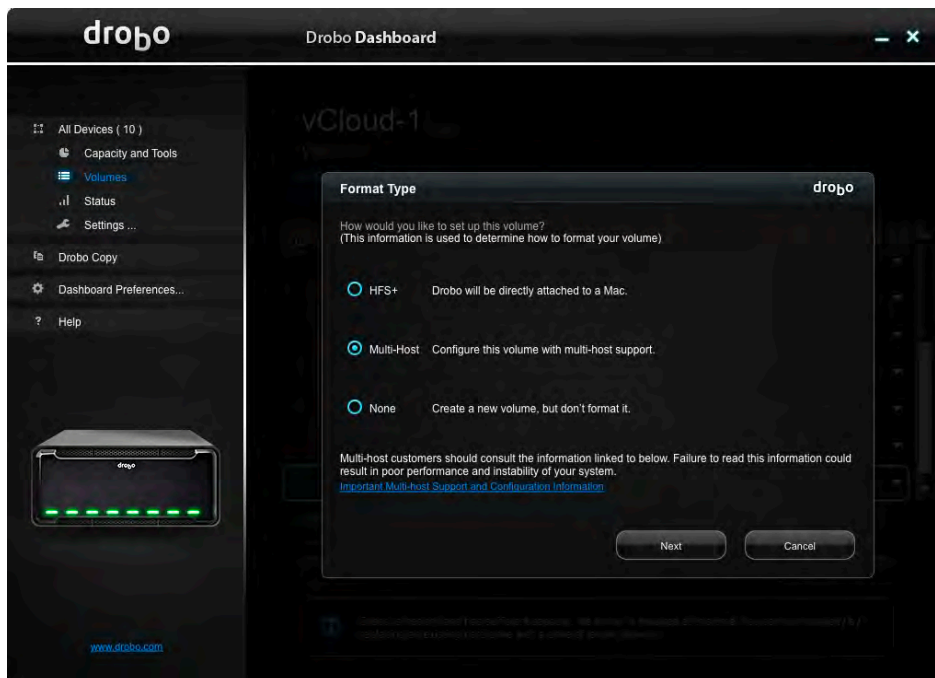To better understand how BeyondRAID works, visit: http://www.drobo.com/resources/beyondraid.php.

STEP 1

To create a Smart Volume on the Drobo, click the plus sign (+).

STEP 2

Select **Multi-Host** for the Smart Volume type.

Multi-host is required to present a Drobo iSCSI volume to all the hosts in a VMware cluster.

If you do not select this option, only one host is allowed to connect to the Drobo iSCSI volume at a time, which will prevent you from using vMotion, Storage vMotion, HA, DRS, and so on.

STEP 3

VMware ESX/ESXi server version up to 4.1 can support only VMFS2 and VMFS3 datastores no larger than 2TB in size. This is subject to change as Drobo adds support for VMFS5 in order to support vSphere 5. This paper, documents the processes needed to configure a Drobo iSCSI SAN and ESX/ESXi versions 4.1 and earlier.
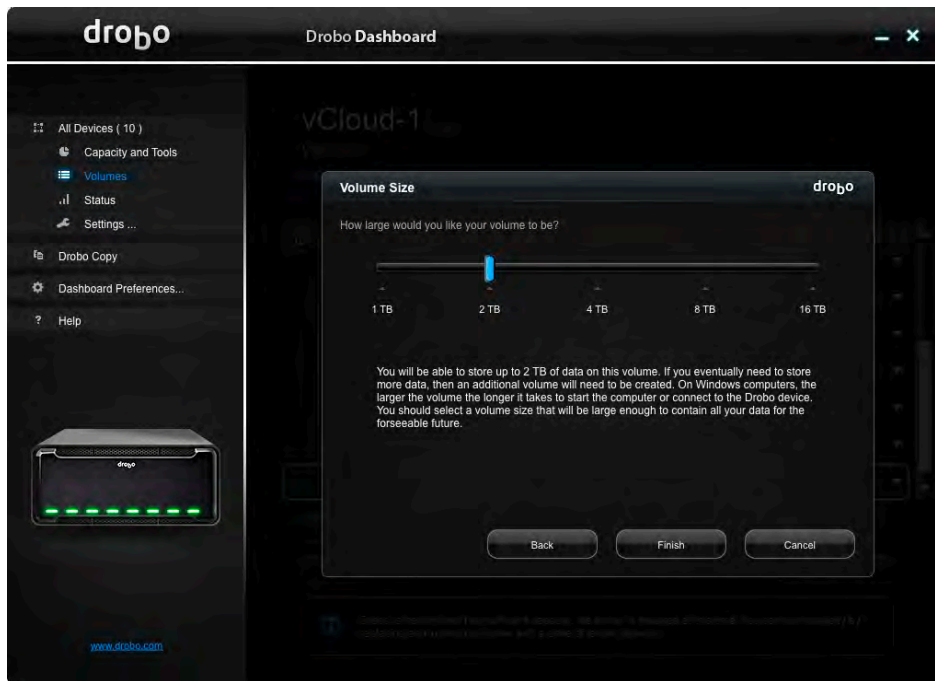
Select **2TB** as the Volume size in Drobo Dashboard.

STEP 4

After the changes are submitted, the Drobo iSCSI volume appears at the bottom of the list.

When a volume is created its identifier is the ID on the left: iqn.2005-06.com.drobo:b800i.tdb1017b0066.**id13**

This is important if you need to track the Drobo iSCSI volume presented to the vSphere cluster.

STEP 5

Best practice: While it is not necessary to set a CHAP password, if the Drobo iSCSI volumes will be accessed from multiple hosts in a hybrid environment (for example, ESX/ESXi hosts, Windows guest VMs, and physical servers), setting a CHAP password guarantees that only authorized systems will be able to probe/connect to the specified iSCSI Volumes.

Select **Enable** from the pull-down menu in the CHAP column.

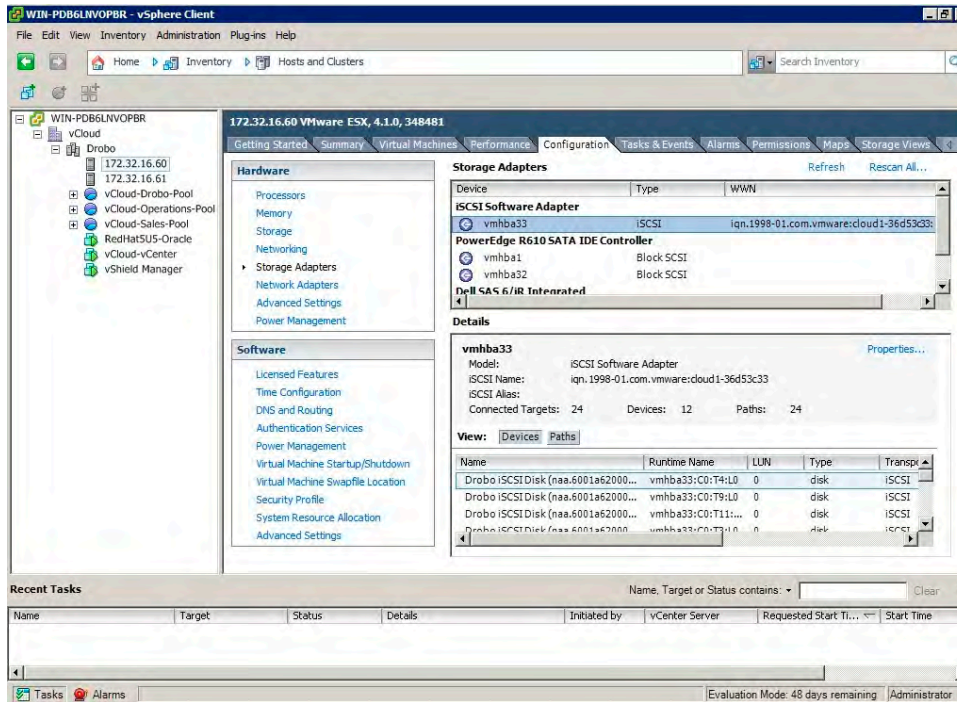## STEP 6

Notice that the username is Drobo and that it's case sensitive.

Set the password and click **OK**.

Configuring a VMware iSCSI Initiator

This section describes the steps required to configure the software iSCSI initiator on ESX/ESXi. For more information, see the *VMware Configuration Guide* at www.vmware.com.
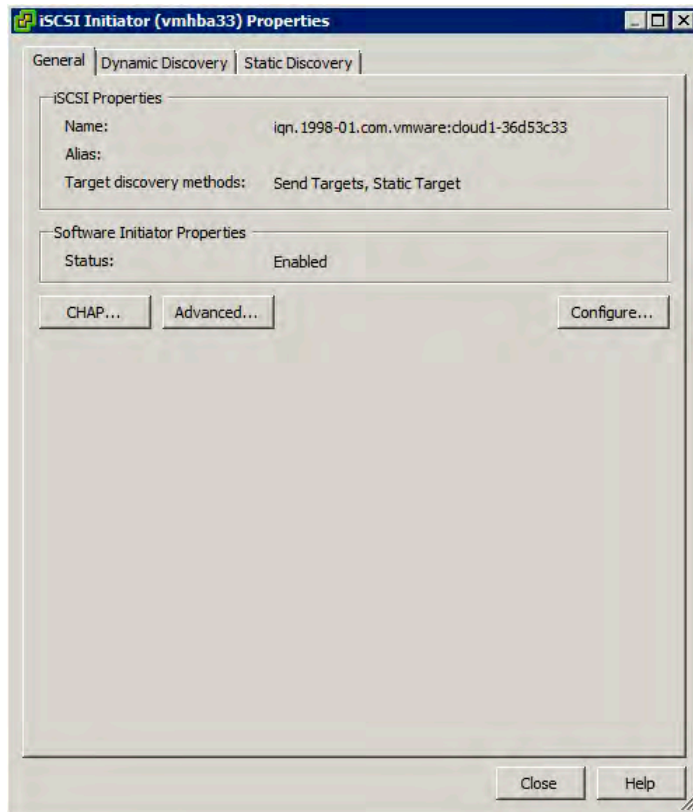
STEP 1

Open the VMware vSphere client. For the purpose of this document, a vCenter server will be connected, instead of a single ESX/ESXi host.

To check the iSCSI Software Adapter and enable it if it's not enabled already, go to: **Home > Inventory > Hosts and Clusters > ESX Host > Configuration > Storage Adapters**.

Select **iSCSI Software Adapter** and click **Properties**.

STEP 2

In the iSCSI Initiator Properties window, ensure that the Software Initiator Properties > Status" is Enabled. If not then enable the iSCSI initiator to allow the ESX server to connect to a Drobo iSCSI volume.

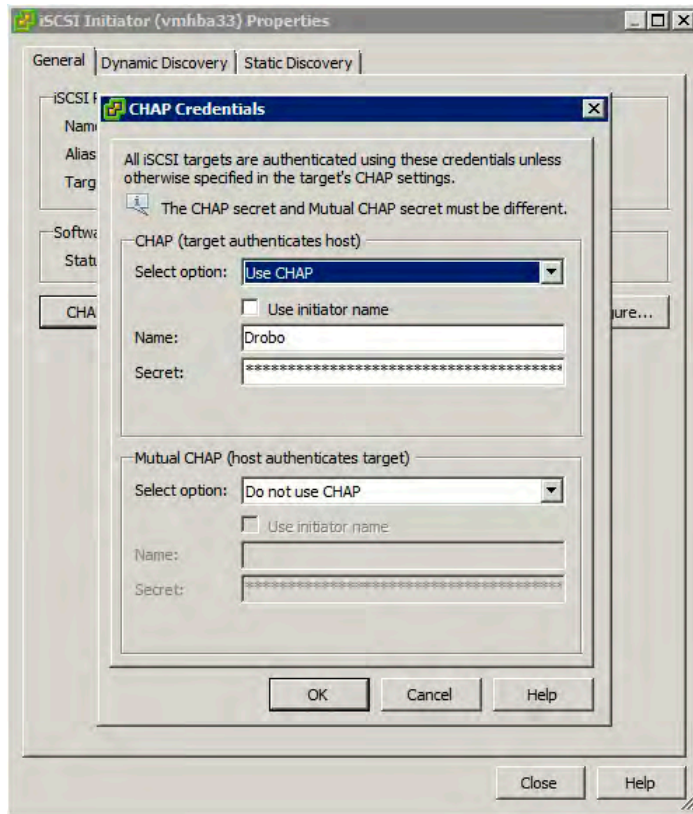In the General tab, click **Configure**.

STEP 3
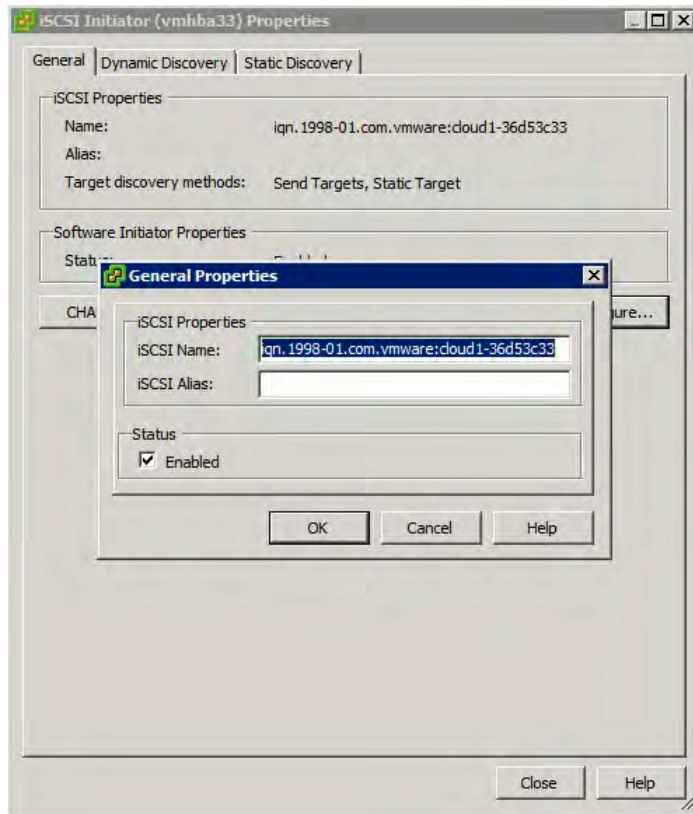
In the General Properties dialog, ensure the Status is set to Enabled. If not, click the **Enabled** checkbox. Click **OK**.
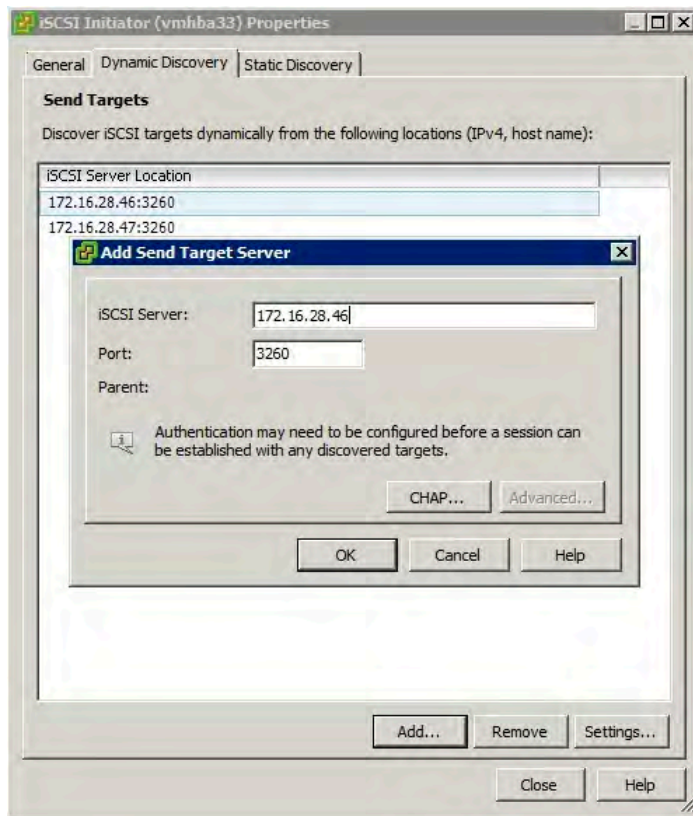
STEP 4

Back at the iSCSI Initiator Properties, in the General tab, click the **CHAP** button and set the CHAP name (username) and password and click **OK**.

NOTE: These settings should be considered as parent, since they will apply to all the iSCSI volumes/iSCSI targets in this initiator. CHAP settings can also be set on iSCSI targets to override the parent settings.

STEP 5

Click the **Dynamic Discovery** tab, click **Add**, and type the IP address of the Drobo. Do this for both iSCSI interfaces of the Drobo.

There may be a slight delay while the iSCSI discovery process is completed.

NOTE: It's important that both Drobo IP addresses are entered in this section if you want to configure redundant iSCSI paths. Not doing so will cause VMware to not be able to identify redundant paths, if a path were to fail.
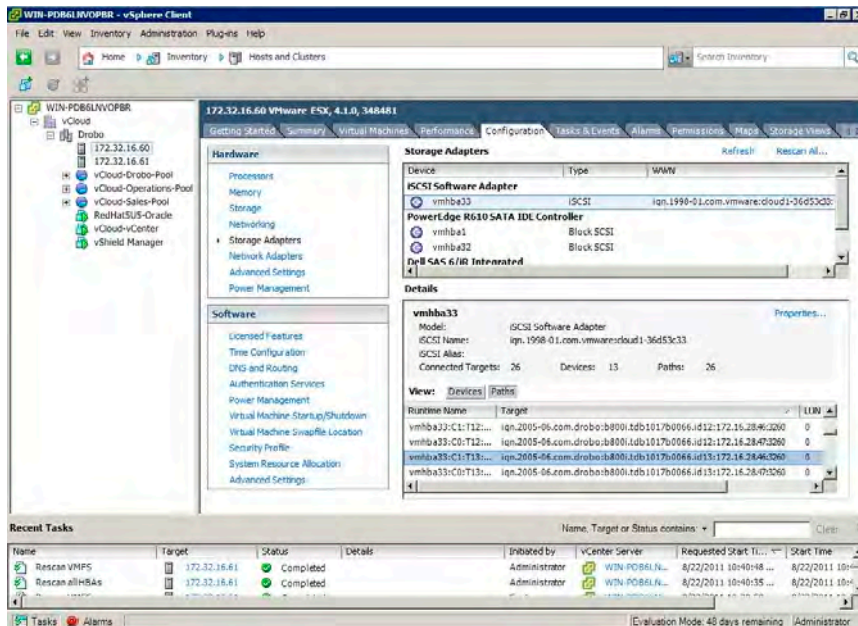
STEP 6
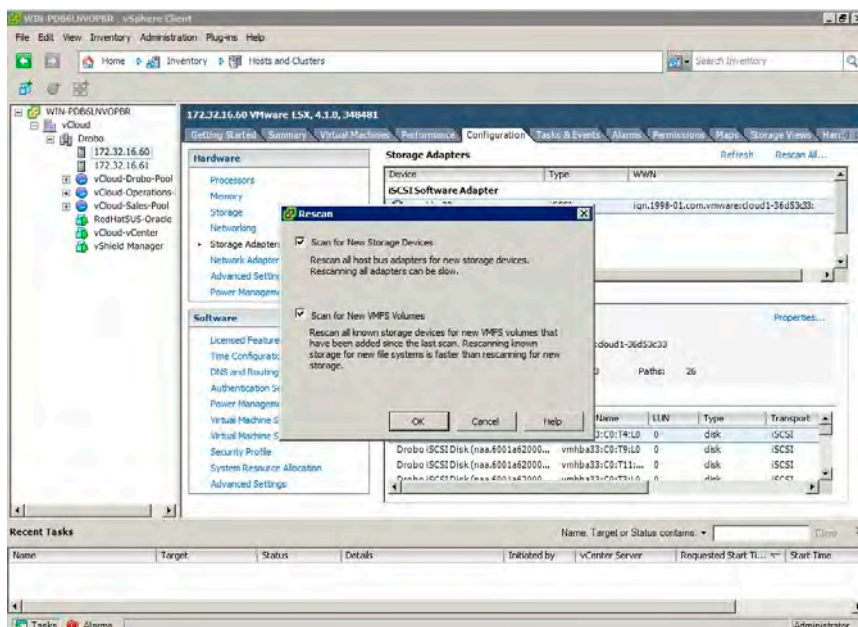
Click **Close**. Navigate back the main screen and click **Rescan All.** Select both options in the Rescan screen.

Repeat for all hosts in the cluster.

STEP 7

Make sure that you can see all the Drobo iSCSI volumes in the Details section.

Check the IQN in the Target section—it should reflect the serial number and IP addresses of the Drobo: iqn.2005-06.com.drobo:b800i.**tdb1017b0066**.**id13**:**172.16.28.46**:**3260**

If you do not see the volumes, check that:

- The Drobo IP addresses are on the same subnet as the Network Port group of the ESX/ESXi hosts (e.g. 255.255.255.0).
- The IP addresses of the Drobo can be pinged within that network.
- The USB port on the Drobo is not connected, which is used only to assign an IP address to the Drobo. After this, the USB port is no longer used.
- The CHAP name/password are correct on both the VMware iSCSI initiator and Drobo iSCSI volumes.

Creating a VMware VMFS Datastore

NOTE: Operating system alignment is critical within a VMFS datastore. Although vSphere4 ensures proper alignment at the (VMFS) volume level, proper guest operating system alignment is still a potential issue with VMware performance with Drobo. It is critical to ensure proper alignment of the guest operating systems in the virtual machines (VMs). Misaligned guest O/S partitions are likely to result in degraded performance and could ultimately cause a loss of connectivity to the datastore on the Drobo. Be sure to consult VMware documentation on this topic.

Although, the following VMware document was created for version 3.0, the section entitled "Instructions for Guest File System Alignment" is still applicable to vSphere4.

- http://www.vmware.com/pdf/esx3_partition_align.pdf and follow the instructions carefully.
- VMware's Best Practices for vSphere4:
  http://www.vmware.com/pdf/Perf_Best_Practices_vSphere4.0.pdf
  Refer to the section entitled: "ESX Storage Considerations."
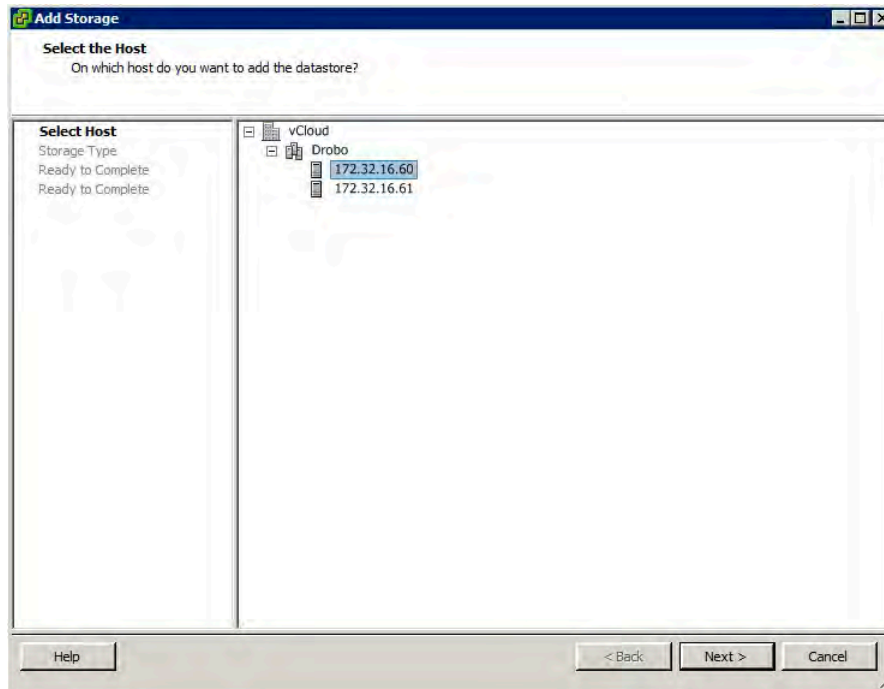
STEP 1
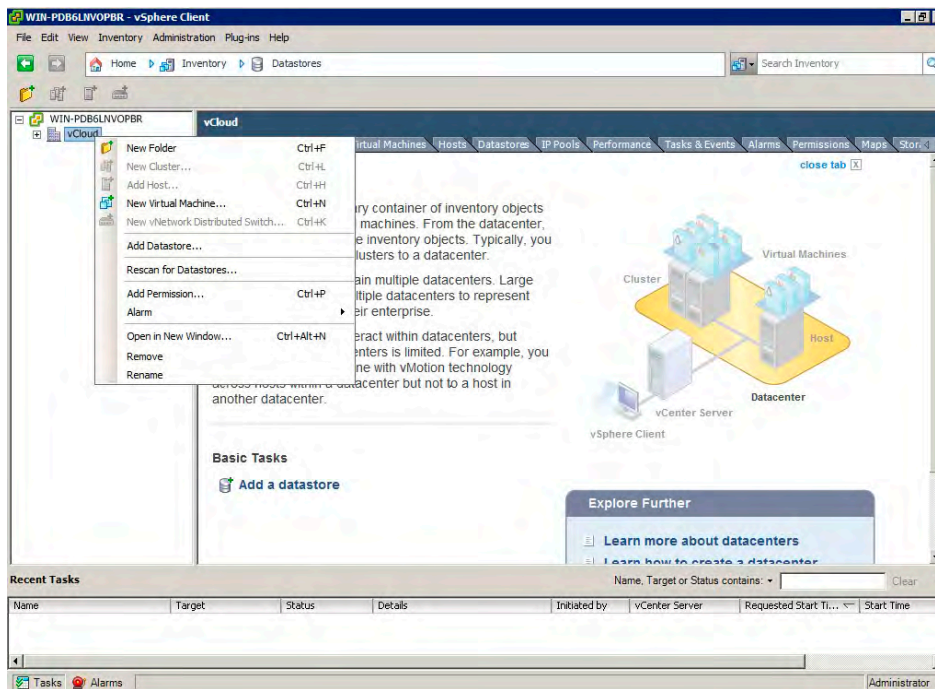
Go to **Home > Inventory > Datastores**.

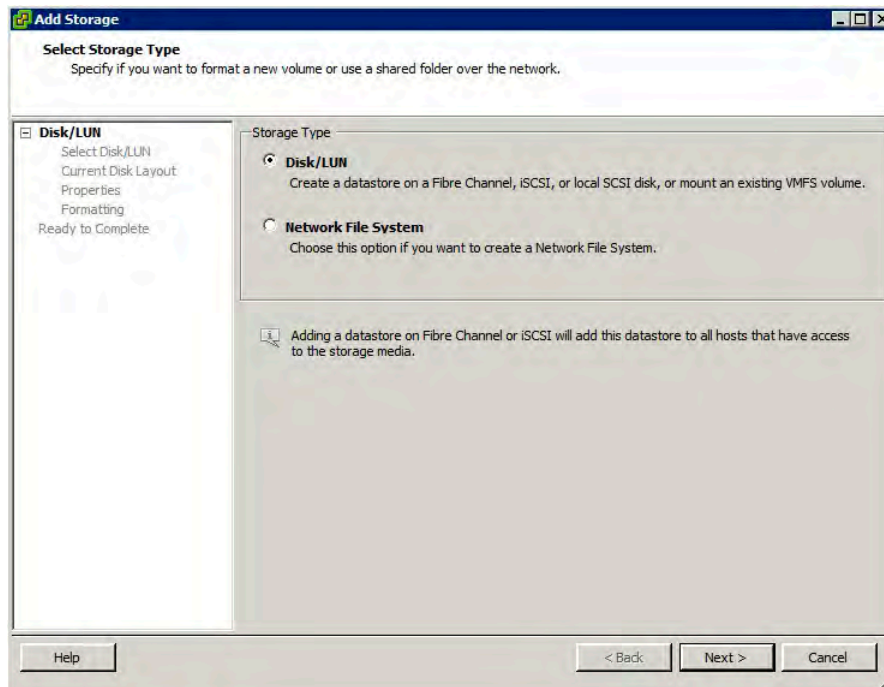In the left navigation, right-click on the cluster and from the pop-up menu, choose **Add Datastore**.
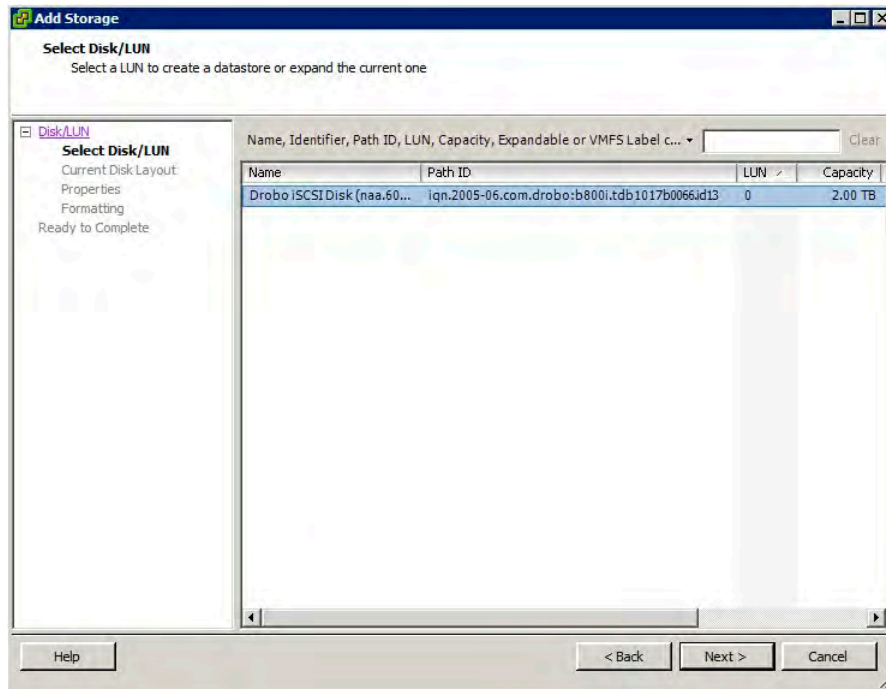
STEP 2

Select which host to add the datastore to.

STEP 3

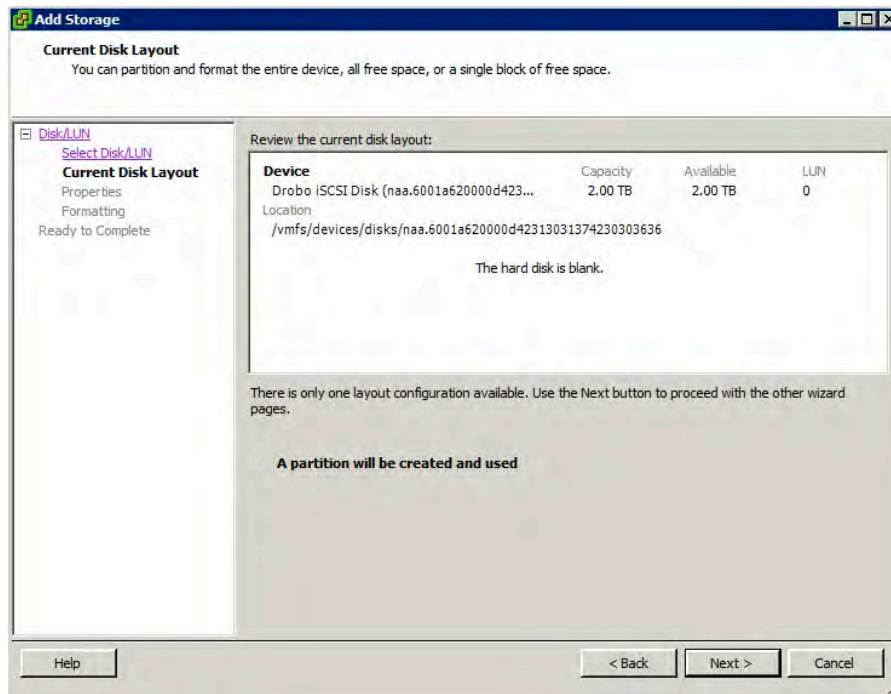Select **Disk/LUN** and click **Next**.

STEP 4

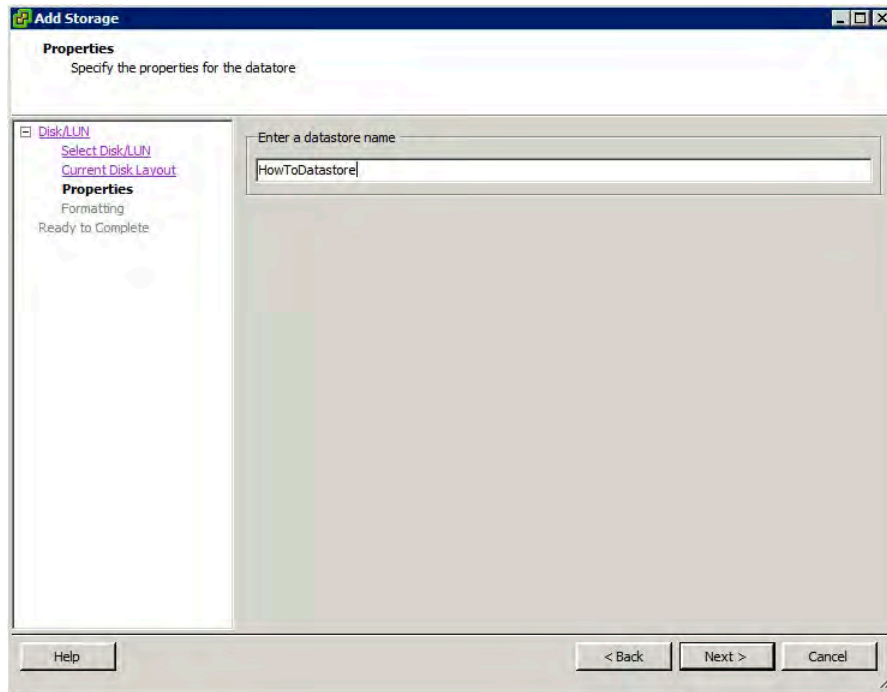Select the newly created iSCSI LUN and click **Next**.

STEP 5

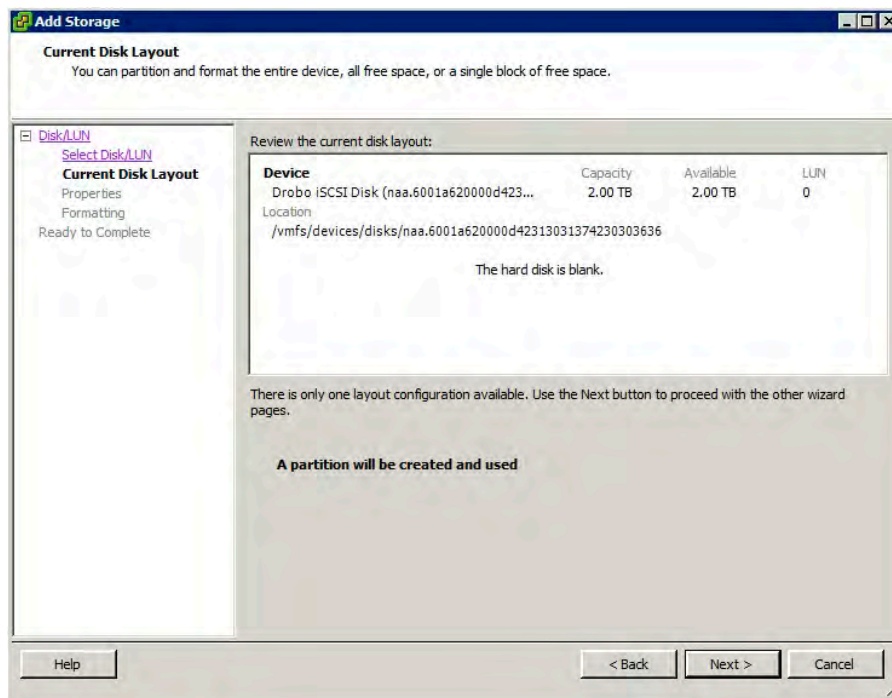Review the disk layout and click **Next**.

STEP 6

Provide a name for the VMFS datastore and click **Next**.

STEP 7

Select the appropriate block size (8 MB) and capacity for the VMFS datastore and click **Next**.

NOTE: Drobo has determined that using 8 MB block sizes results in optimal performance. Block sizes smaller than 8 MB adversely impacts performance. Also the block size defines the MAX VMDK size, as per VMware specifications:

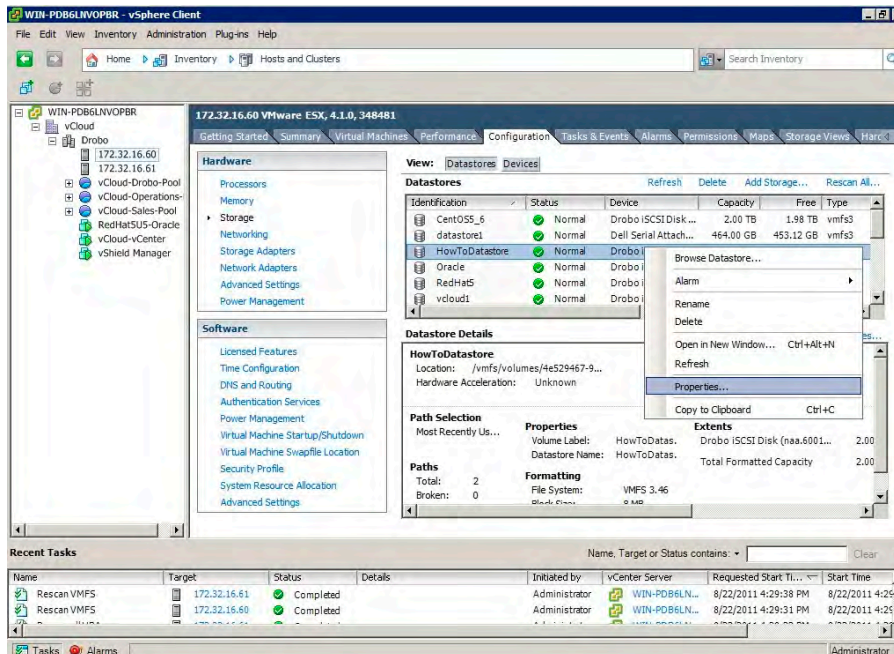| Block size	Max VMDK size
1	256 GB
2	512 GB
4	1024 GB
8	2048 GB

STEP 8
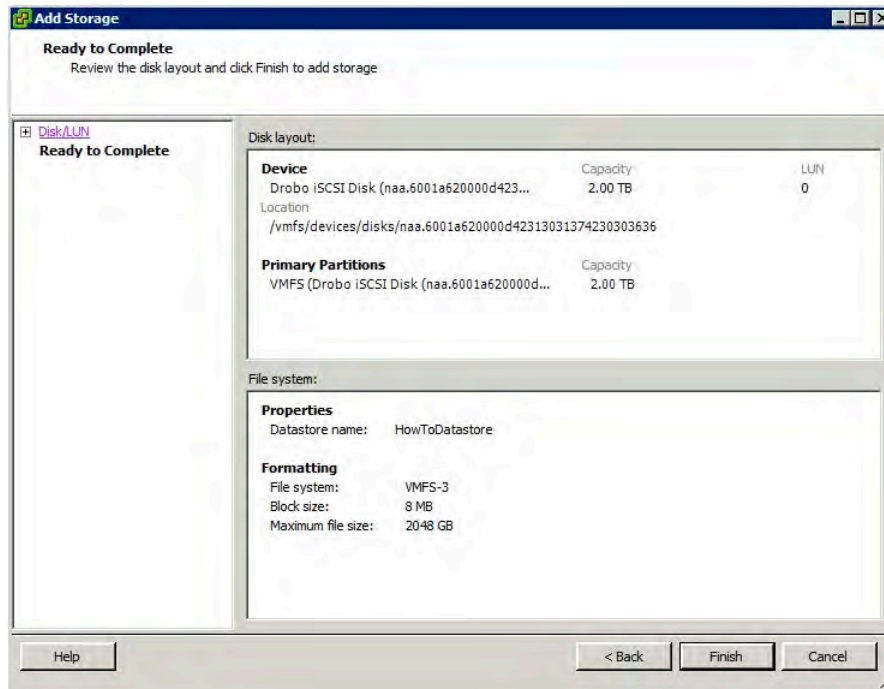
Review the disk layout and click **Finish** to create the VMFS datastore.

The new datastore is ready for storing virtual machine images.

Post-Configuration Options

STEP 1

Once the datastore has been created, if you want redundant iSCSI paths, Drobo has been certified to work with the VMware "Most Recently Used" option. To enable this option go to: **Home > Inventory >Hosts and Clusters >ESX Host > Configuration > Storage**.

In the Datastores section, select the newly created datastore, right-click, and choose **Properties** from the menu.
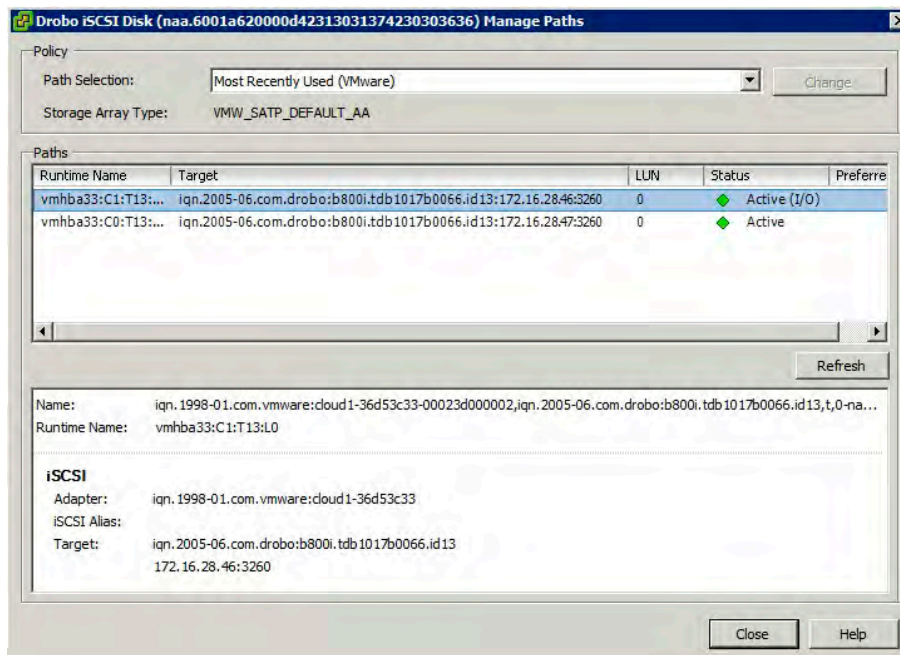
STEP 2
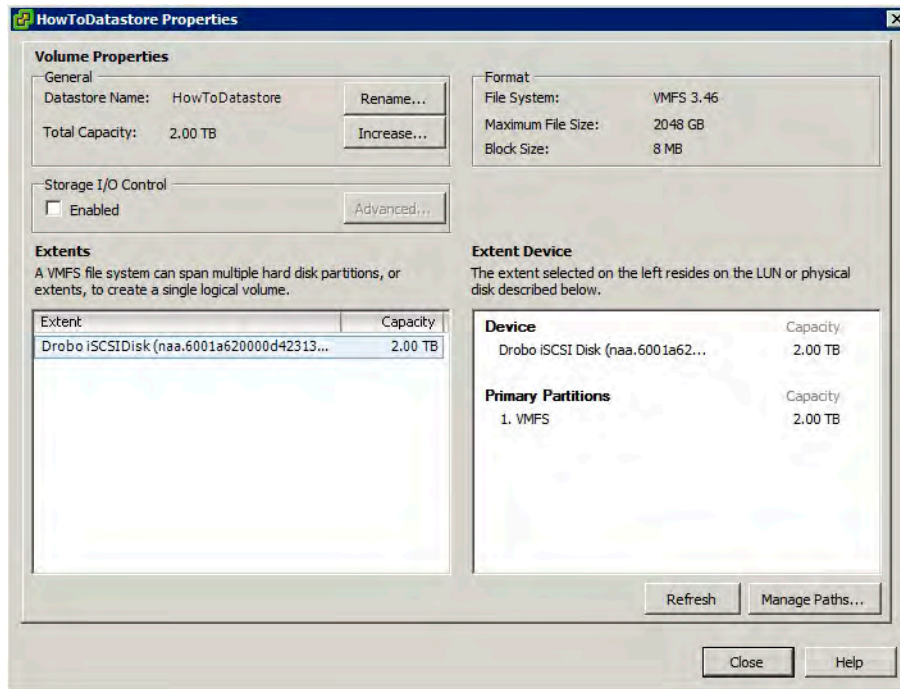
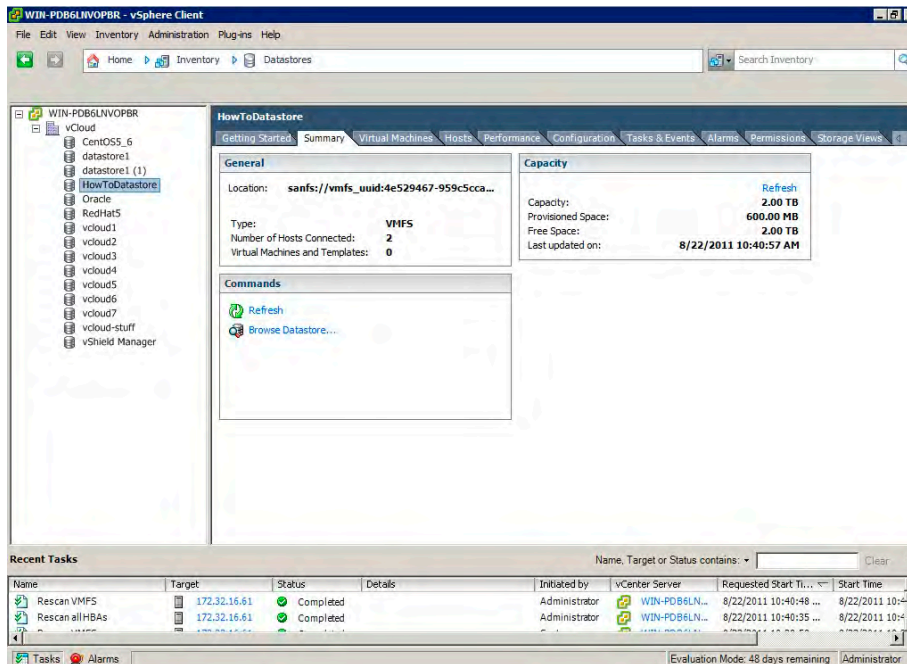Click **Manage Paths**.

STEP 3

In the Policy section, from the Path Selection drop-down menu, choose **Most Recently Used**.

Click **Close** and **Close** once again to apply the changes to the datastore.
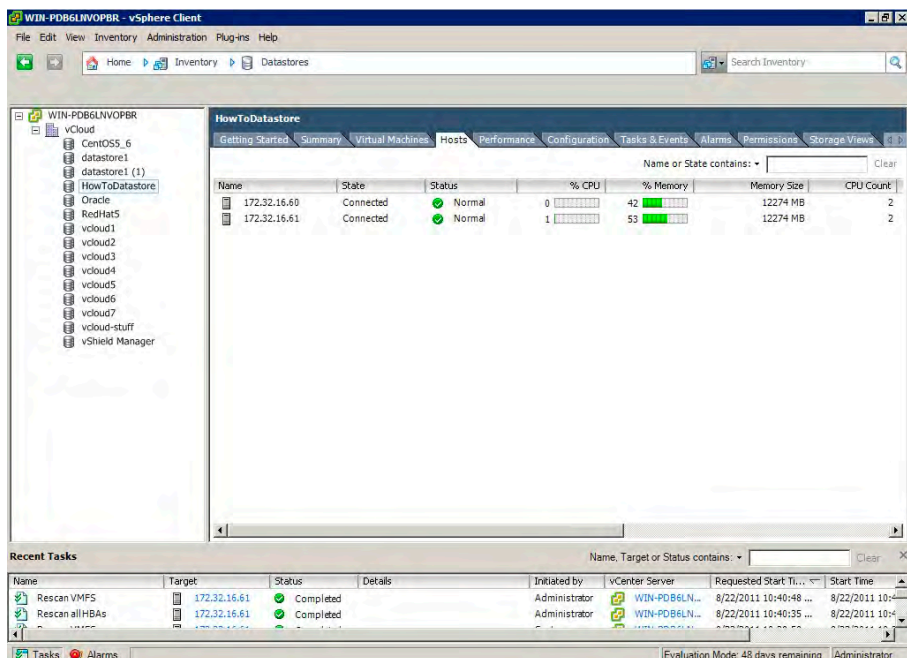
STEP 4

Take a minute to verify that all hosts in the cluster can connect to the datastore. Go to **Home > Inventory > Datastores**.

Select the newly created datastore and click the **Summary** tab.

STEP 5

Click the **Hosts** tab, which shows all hosts that are attached to the datastore.

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