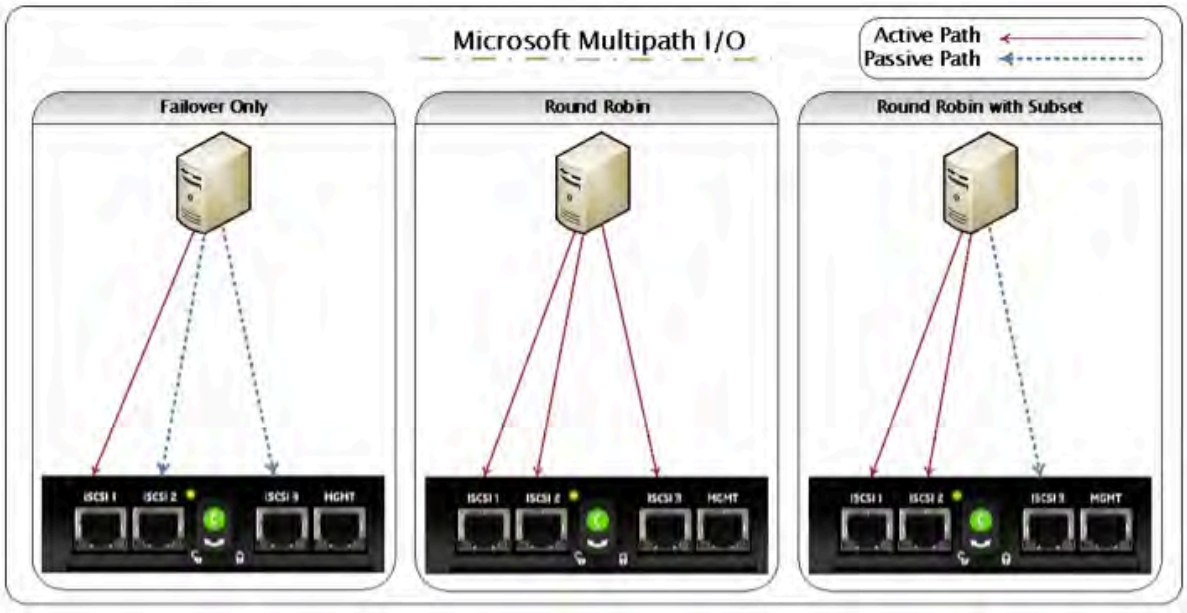
Multipath I/O (MPIO) enables the use of multiple iSCSI ports on a Drobo SAN to provide fault tolerance. MPIO can also boost performance of an application by load balancing traffic across multiple ports. This guide provides the steps to easily configure MPIO to Drobo iSCSI storage for a Windows server. See the Drobo B1200i iSCSI SAN at top right and the Drobo B800i at the bottom right.

Microsoft Windows Server 2008 natively supports a wide array of MPIO configuration scenarios. These policies can be configured on a per-volume basis to provide granular control of how Drobo SAN bandwidth is utilized. The figure below illustrates three of the most common multipathing configurations.



Topics

- What you will need & Prerequisites
- Provisioning Drobo storage
- Disabling Drobo Dashboard on MPIO-enabled hosts
- Enabling Windows MPIO support
- Gathering Drobo configuration details
- Configuring MPIO
- Selecting a routing policy

What You Will Need

- Drobo iSCSI SAN storage system: B1200i or B800i, updated to the current firmware version
- Drobo Dashboard management software, updated to the current software version
- Windows 2008 or 2008 R2 Server
- Ethernet network(s)

Prerequisites

This document assumes that the Drobo iSCSI SAN has been deployed and Drobo Dashboard has been installed on all hosts to enable MPIO. *Drobo Dashboard should be installed on a management server or workstation that will not use MPIO.* If the Drobo has not been configured, follow the directions in the Drobo *Getting Started Guide*.

- B800i - http://www.drobo.com/media/pdf/B800i_GSG_Rev02_US.pdf
- B1200i - http://www.drobo.com/media/pdf/Drobo_B1200i-getting-started.pdf

You can find the current versions of firmware and Drobo Dashboard software on www.drobo.com > Support > Updates.

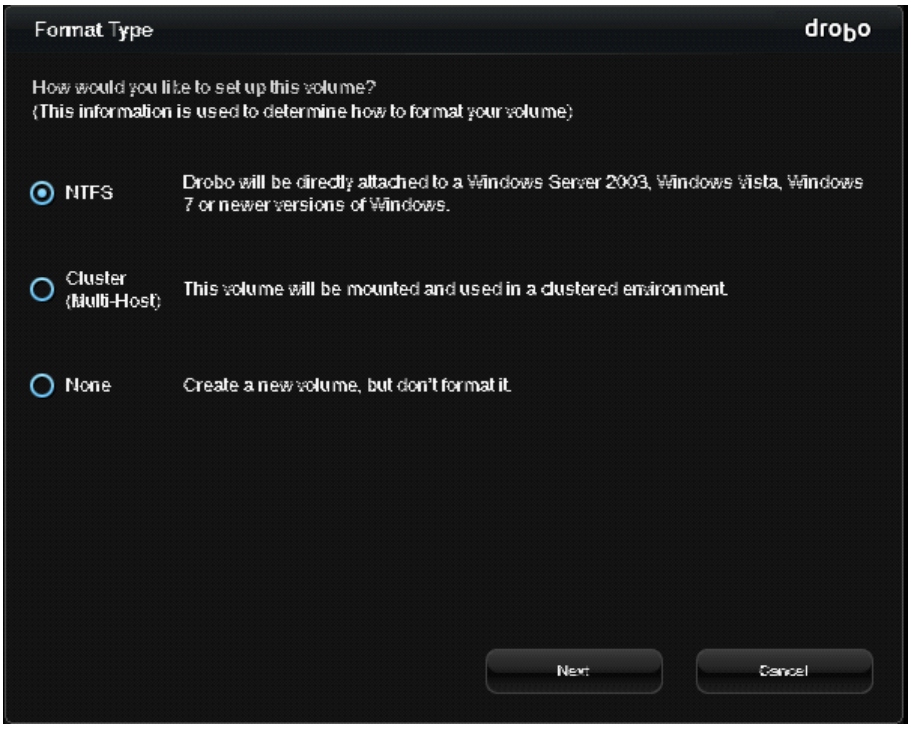
Provisioning Drobo Storage

STEP 1

Launch the Drobo Dashboard application and select the Drobo to use to provision storage.

On the Volumes menu, click **Add Volume** to launch the volume creation wizard.

STEP 2



On the Format Type screen, verify that the NTFS button is selected and click **Next**.

STEP 3

Select a volume size that is appropriate for your data set. Initially be sure to provision sufficient storage to support the lifecycle of the application to avoid having to migrate data in the future.

Because the Drobo is thinly provisioned, you can configure a volume greater than the size of the available physical storage.

STEP 4

Enter a name for the volume that describes what it will be used for.

In this example the volume is named *FileShares* and it will be used to house Windows file shares.

Click **Finish** and click **Apply**.

The Drobo storage is now provisioned *but should not be mounted from Drobo Dashboard.*

To configure MPIO, the volume must be mounted manually from the iSCSI initiator.

Disabling Drobo Dashboard on MPIO Hosts

Drobo Dashboard typically handles all aspects of provisioning and mapping storage on Windows hosts. During installation it also modifies a number of registry settings to optimize iSCSI performance with the Drobo SAN.

On MPIO-enabled hosts, the Dashboard's fault monitoring can interfere with manually configured initiator settings. For the best performance while ensuring that manual configuration is not modified, Drobo Dashboard must be installed and then disabled on all servers leveraging MPIO.

Once the service is disabled, a management server or workstation can be used to monitor and provision storage on the Drobo via the management port.

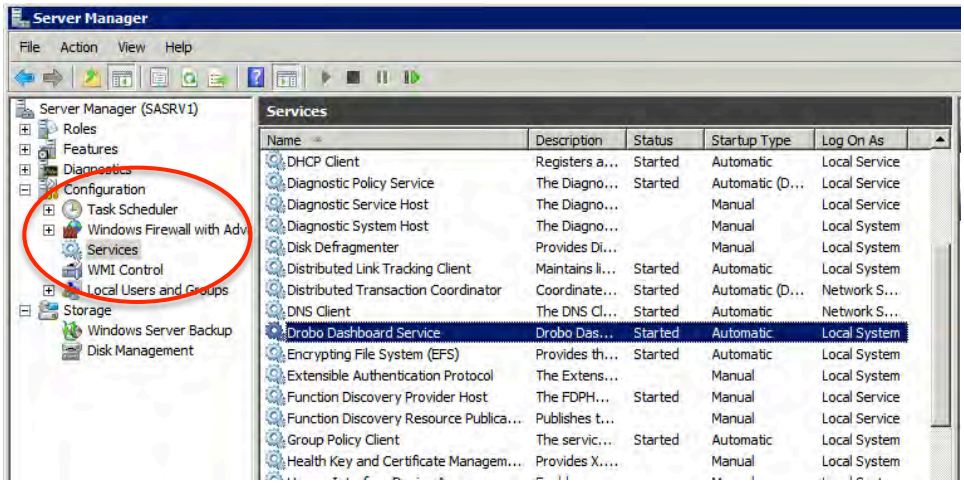
STEP 1

To load the Server Manager, select **Start > All Programs > Administrator Tools > Server Manager**.

Select **Action > Add Features** to launch the **Add Features** wizard.

To launch the Server Manager from the run command, enter *ServerManagerCmd.exe* and press **enter**.

STEP 2

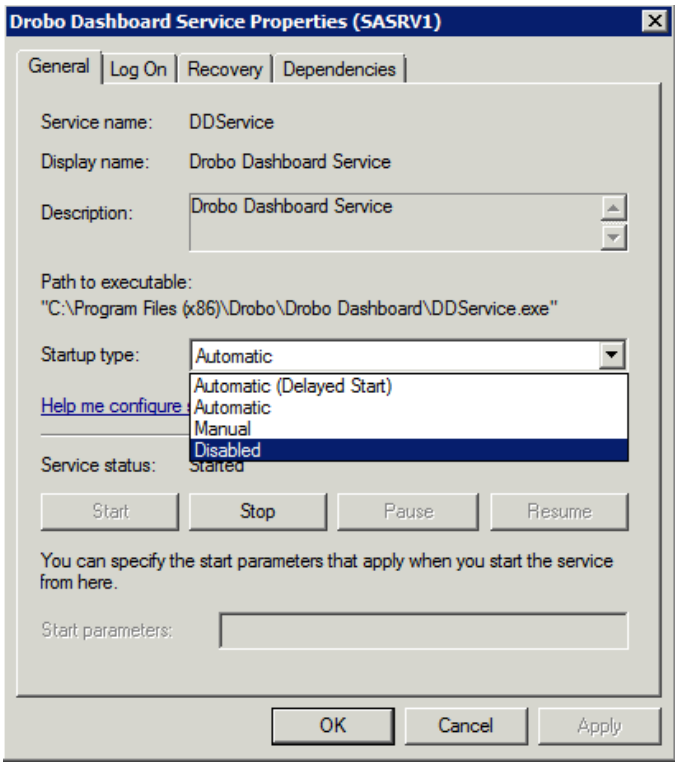


Expand the **Configuration** container and select **Services**.

Scroll down the list of services to find Drobo Dashboard Service.

Double -click **Drobo Dashboard Service** to display the properties screen.

STEP 3



In the General tab, choose **Disabled** from the Startup type drop-down menu.

In the Service status section toward the bottom of the window, click the **Stop** button to terminate the service currently running.

Click **OK** to save the changes.

The Drobo Dashboard service is now disabled and should not enabled on the host.

Management of the Drobo must now be performed from a management server, workstation, or any non-clustered host.

Enabling Windows MPIO Support

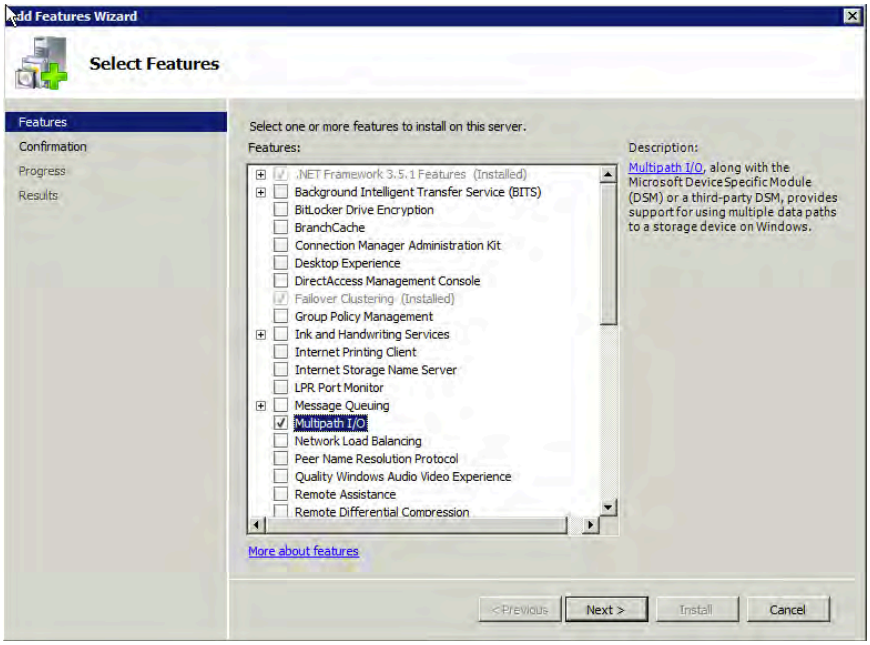
STEP 1

To load the Server Manager, select **Start > All Programs > Administrator Tools > Server Manager**.

To launch the Add Features wizard, select **Action > Add Features**.

To launch the Server Manager from the run command, enter *ServerManagerCmd.exe* and press **enter**.

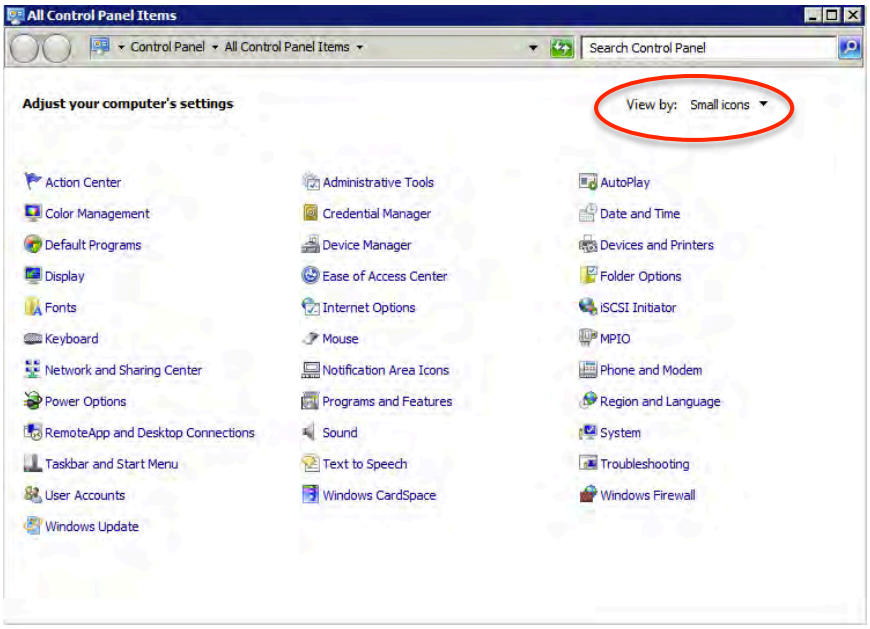
STEP 2



Although iSCSI connectivity is enabled, MPIO support is not enabled by default.

In the Select Features screen, select the **Multipath I/O** check box to install MPIO. Click **Next** and then **Install** to complete the wizard.

STEP 3

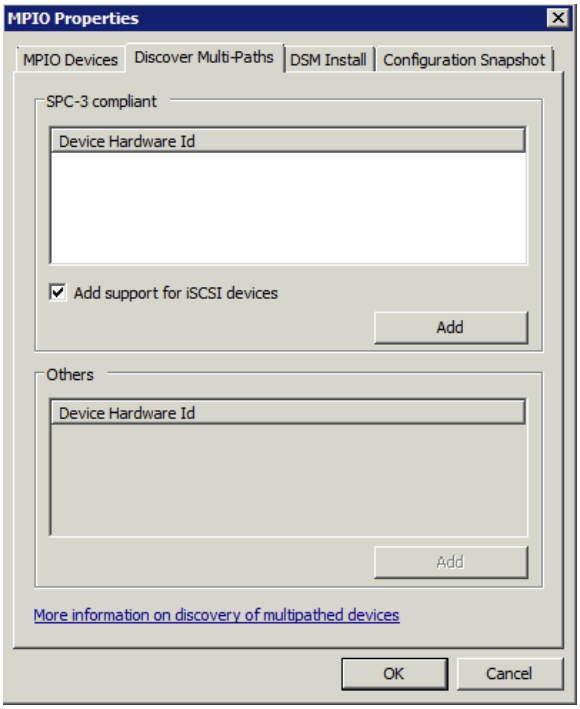


To enable iSCSI MPIO support, select **Start > Control Panel** and click the **MPIO** icon.

When you first display the icons, the Windows groups control panel icons and the MPIO configuration utility will not be displayed.

To display them, select **Small Icons** from the **View By** menu at the top right.

STEP 4



On the MPIO Properties screen, in the Discover Multi-Paths tab, click the **Add support for iSCSI devices** check box and click **OK**.

A reboot may be required to complete the process. If prompted to reboot, click **OK**.

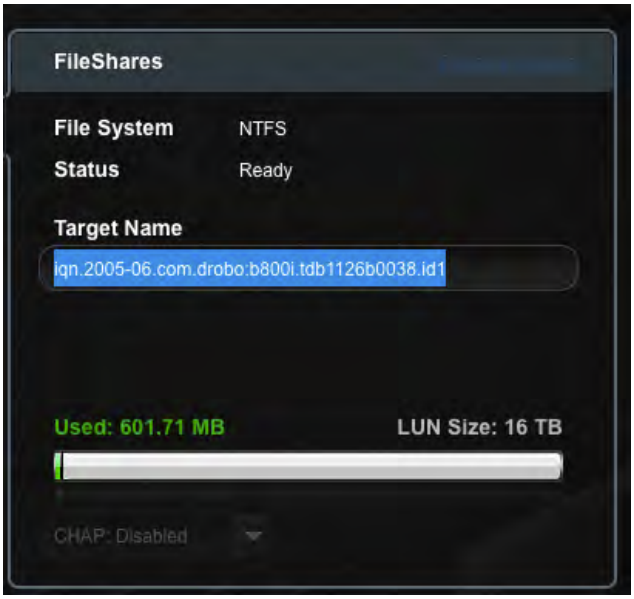
Gathering Drobo Configuration Details

STEP 1

All iSCSI addresses assigned to the Drobo will be required in the next section.

Load Drobo Dashboard and select **Device Settings > Network** to display the iSCSI IP address settings. Note the IP address and then click **Cancel** to exit Network Settings.

STEP 2

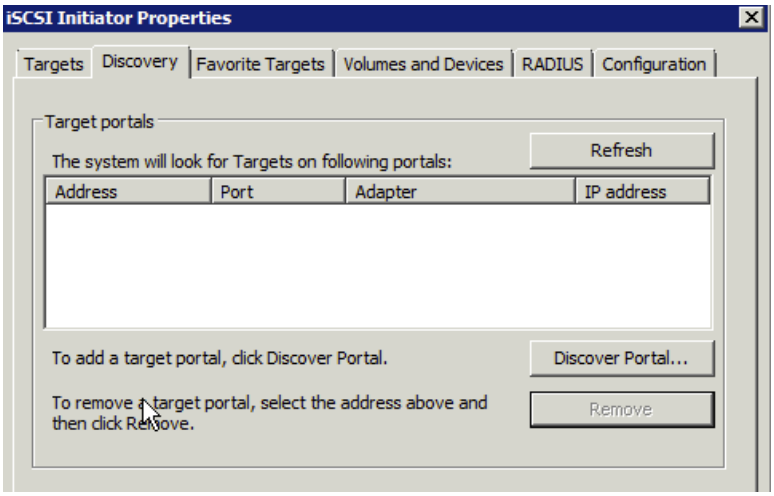


While the Drobo typically handles all aspects of the iSCSI provisioning process, to configure MPIO some manual configuration of the iSCSI initiator is required.

Make a note of the **Target Name** for the newly created volume displayed in the FileShares screen, as it will be referenced throughout this document.

Configuring MPIO

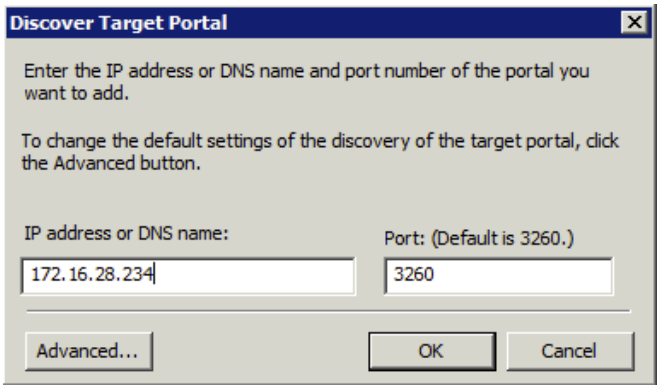
STEP 1



Select **Start > Control Panel > iSCSI** to load the iSCSI initiator.

In the Discovery tab**,** click the **Discover Portal** button.

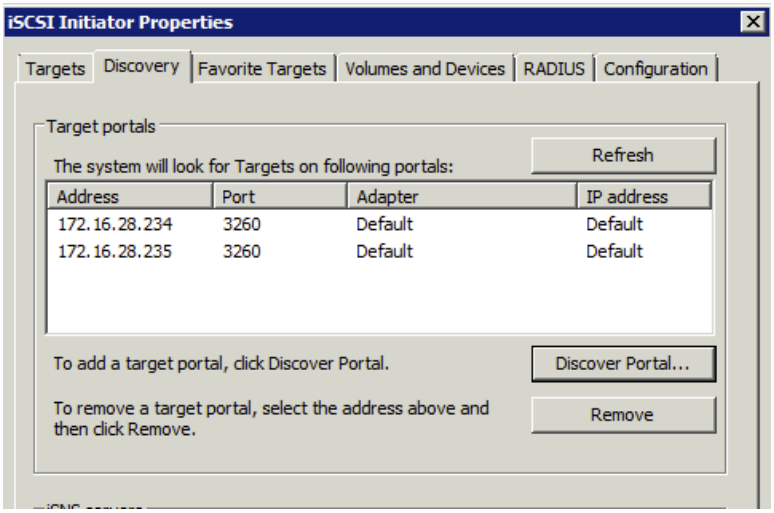
STEP 2



Enter the first Drobo iSCSI IP address in the IP address or DNS name field and verify the port is set to 3260.

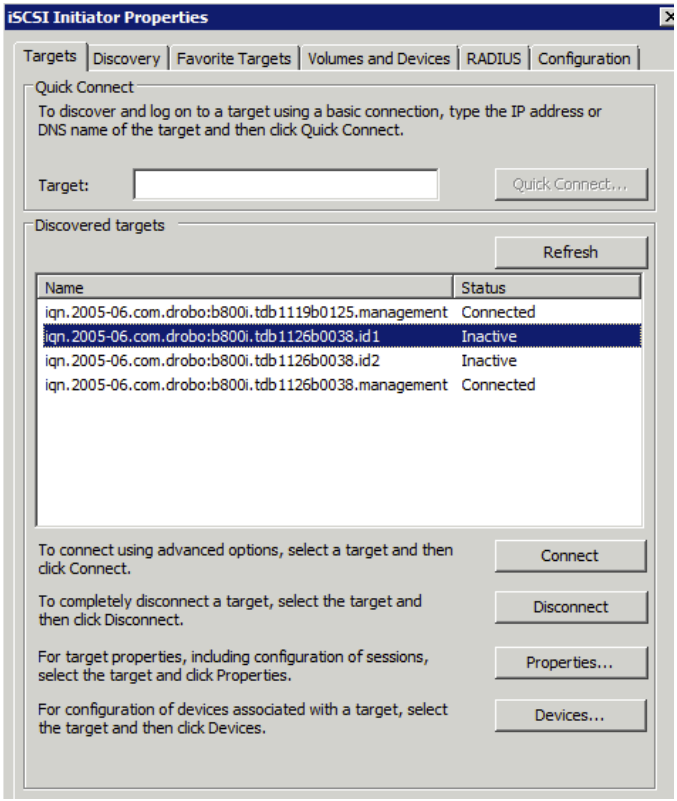
Click **OK** and repeat the process for all Drobo iSCSI IP addresses.

STEP 3



Verify that all Drobo iSCSI IP addresses are listed under Target portals in the Discovery tab.

STEP 4

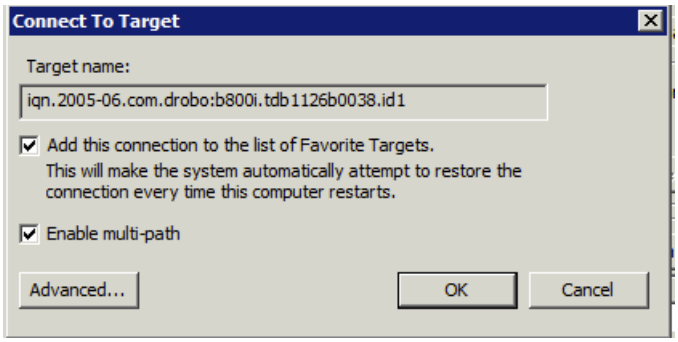


In the Targets tab, s under Discovered targets, select the target name that corresponds with the target name that was recorded in step 2 of the "Gathering Drobo Configuration Details" section and click **Connect**.

If the target is not listed click **Refresh** to rescan for available targets. If the target still does not appear, verify that the discovery portals were entered correctly in step 2.

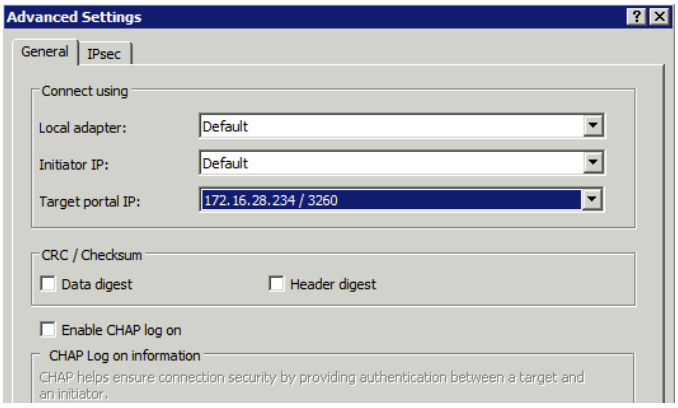
NOTE: There may be a large number of discovered targets, but modifying settings on the incorrect target name can degrade performance or result in iSCSI connectivity failures.

STEP 5



In the **Connect to Target** screen, verify that both boxes are checked and click **Advanced**.

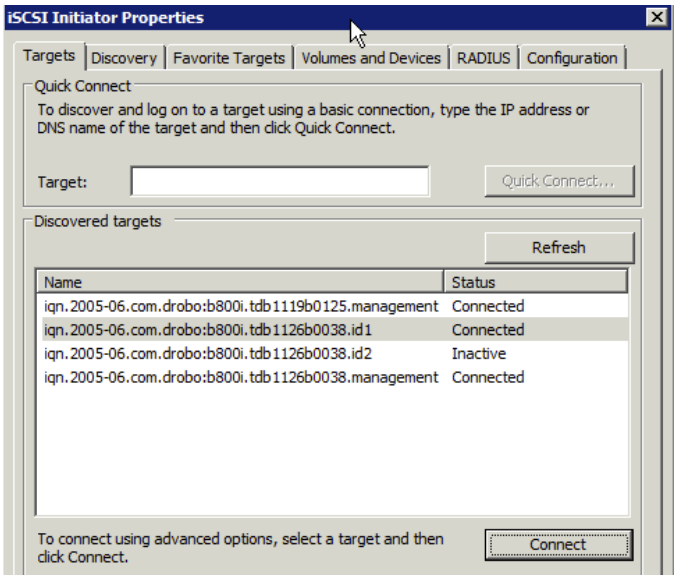
STEP 6



In the Advanced Settings screen, in the General tab, select the first Drobo iSCSI address that was recorded earlier and click **OK** to exit Advanced Settings.

Click **OK** on the Connect to Target menu and **OK** again on the iSCSI Initiator Properties to add connection to the Drobo.

STEP 7



If the first port has been successfully configured, the target Status will now show *Connected*.

Repeat steps 4 - 6 for the remaining Drobo iSCSI IP addresses.

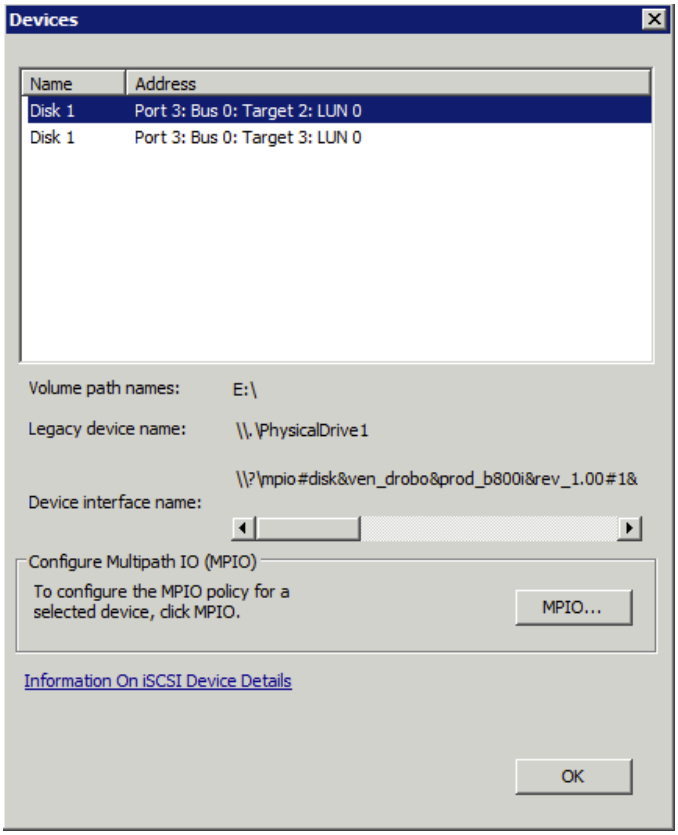
Once all addresses have been connected, click **OK** to save changes and exit iSCSI initiator Properties.

Selecting a Routing Policy

Multipathing provides multiple paths to access a volume configured on the Drobo. Windows 2008 server supports a diverse set of routing policies that can be customized on a per-volume basis. The avialable routing metrics are described below:

- **Fail Over Only**. No load balancing is performed. If the primary path fails, one of the available standby paths are used. If the Drobo has more than two iSCSI paths, the standby paths will be selected based on a preference. The standby port with the highest preference will be used first.
- **Round Robin.** Traffic is distributed to all configured iSCSI paths equally. This is the recommended policy for all Drobos.
- **Round Robin with Subset.** Traffic is routed in the same manner as Round Robin, but permits the definition of standby ports. Use this option on Drobos with more than two iSCSI ports to provide more granular traffic segmentation.
- **Least Queue Depth.** Traffic is distributed across available paths based on the least number of outstanding requests
- **Weighted Path.** Traffic is distributed based on weights of each available path. Traffic will be sent to the port with the lowest priorty. In the event of a port failure, traffic will be sent to the next available port with the lowest priority
- **Least Blocks.** This routing policy is not supported by Drobo.

STEP 1



To load the iSCSI initiator select **Start > Control Panel > iSCSI**.

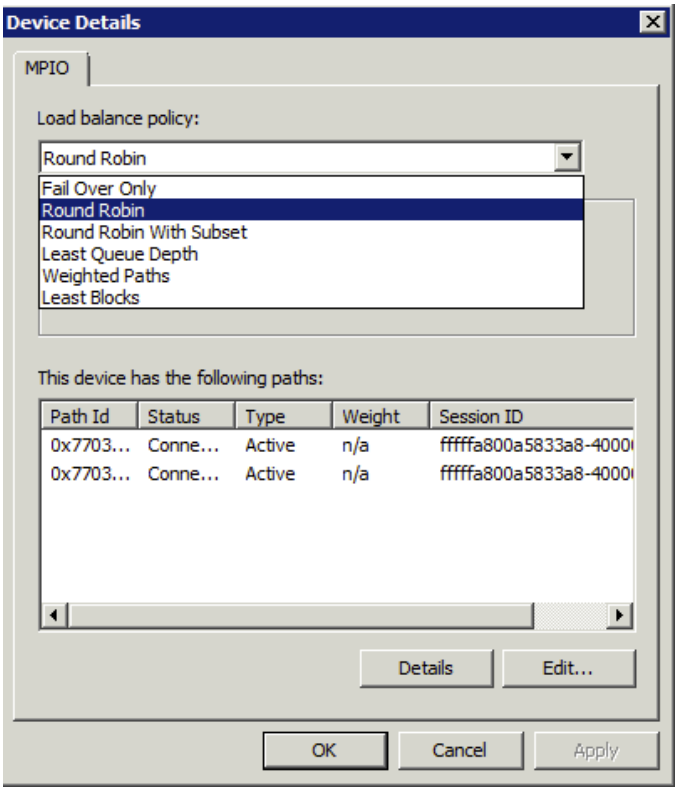
Select the **Target Name** from the Discovered Targets and click **Devices**.

In the **Devices** screen, verify that two paths are displayed for the same disk. In this example there are two paths listed for Disk 1.

If two disk paths are not displayed, verify that the steps in the "Configuring MPIO" section were followed.

When two disks are displayed, click **MPIO** to configure a routing policy.

STEP 2



In the Device Details screen, select a routing policy from the **Load balance policy** drop-down menu.

The **Round Robin** policy is recommended for all Drobo iSCSI products.

Then click **OK** to exit the device settings,