Application Note

Aug 2013

Assigning SnapSAN S3000/S5000 Logical Disks to VMware ESXi 5 Server

Summary

This application note describes how to bind pools, create logical disks, add a host to the storage array, and then assign logical disks to a host using SnapSAN Manager Server software for VMware ESXi 5 server. In addition, this document shows the user how to collect HBA WWPNs from an ESXi 5 server, add an iSCSI initiator, create a datastore, set a multipath policy, and check VAAI status on the ESXi host.

Required Information, Tools, and Files

Before beginning this procedure, the following information, tools, and files are required.

Prerequisites

1. Overland Storage SnapSAN S3000/S5000 Disk Array must be installed and configured. You can get additional technical support on the Internet at http://support.overlandstorage.com, or by contacting Overland Storage using the information found on the Contact Us page on our web site.
2. Verify:
   - **Java Runtime Environment** (JRE) is installed prior to running the SnapSAN Manager Server application.
   - **SnapSAN Manager Server** Web Management Interface is installed on the management server.
   - **VMware vSphere Client** is accessible.

Versions

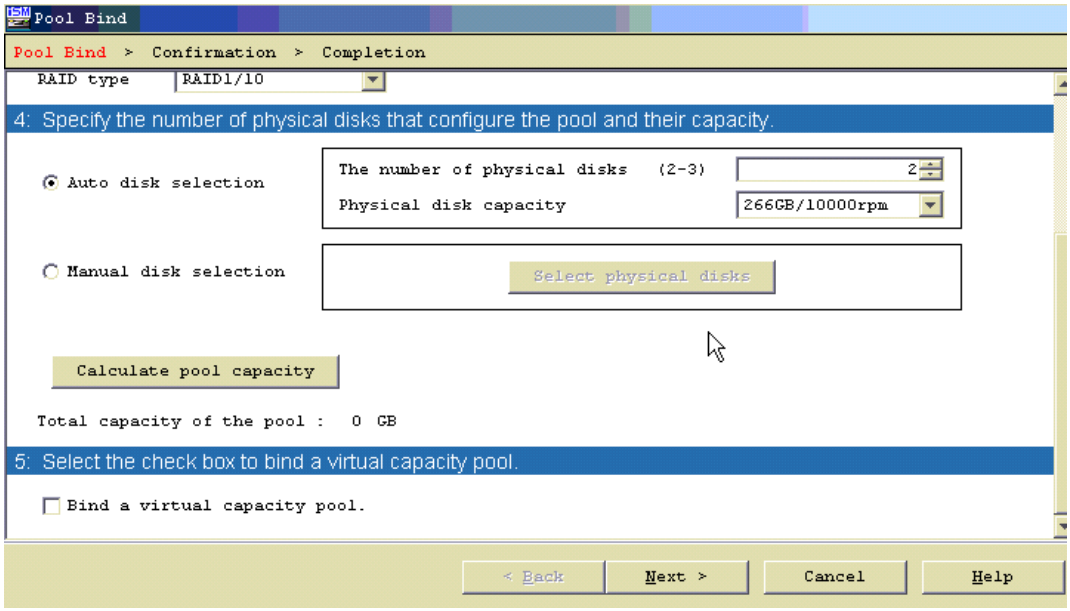
The test environment used for illustration in this document uses the following versions:

- ESXi Server 5
- Java JRE 7 update 13
- SnapSAN Manager Server 7.4.151
- SnapSAN S3000/S5000 at firmware U14B.007

Binding Pools

1. Open your browser and login to the **Web Manager Interface**.
2. Select product number **S5000 or S3000**.
3. Navigate to **Configuration > Pool > Pool Bind**.

4. Click **Show Pool List**.

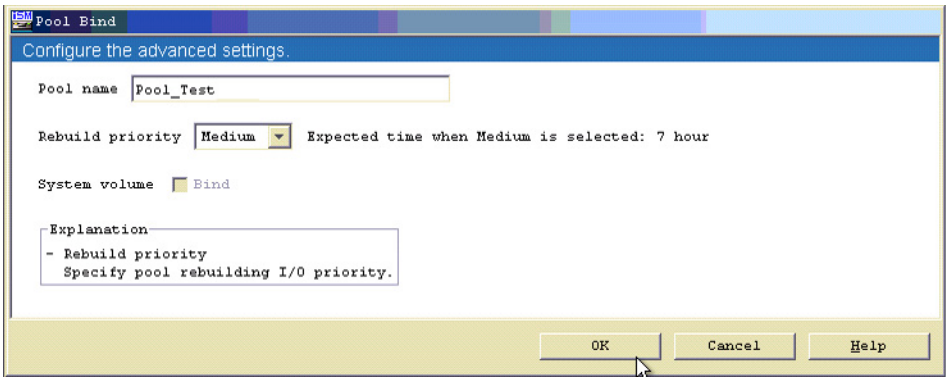


5. Select these **two** options:
   - **Physical Disk Type**
   - **RAID Type**
6. Select **one** of the following:
   - **Auto disk selection**
   - **Manual disk selection**
7. Click **Next**.
8. Verify the **basic settings**.
   To modify the default settings, proceed to Advanced Settings.
9. Click **Set**.
10. Click **Yes** to complete the binding.

Advanced Settings

If the default settings need modification:

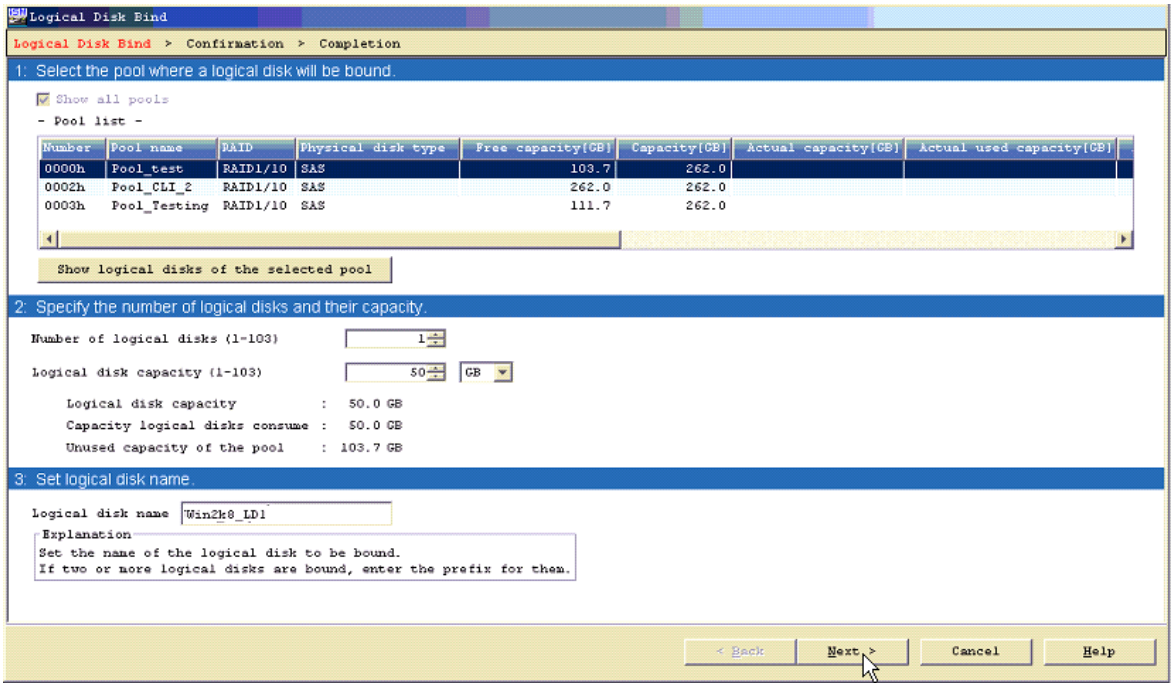
1. Click **Advanced Settings.**



2. Enter both items:
   - **Pool name**
   - **Rebuild Priority**
3. Click **OK**.
4. Click **Yes**.
5. Click **Finish**.

Binding a Logical Disk

1. Use **one** of the options:
   - From the Pool Bind Completion screen, click the **Bind Logical Disk**.
   - From the SnapSAN Manager Monitor screen, navigate to **Configuration > Logical Disk > Logical Disk Bind**.

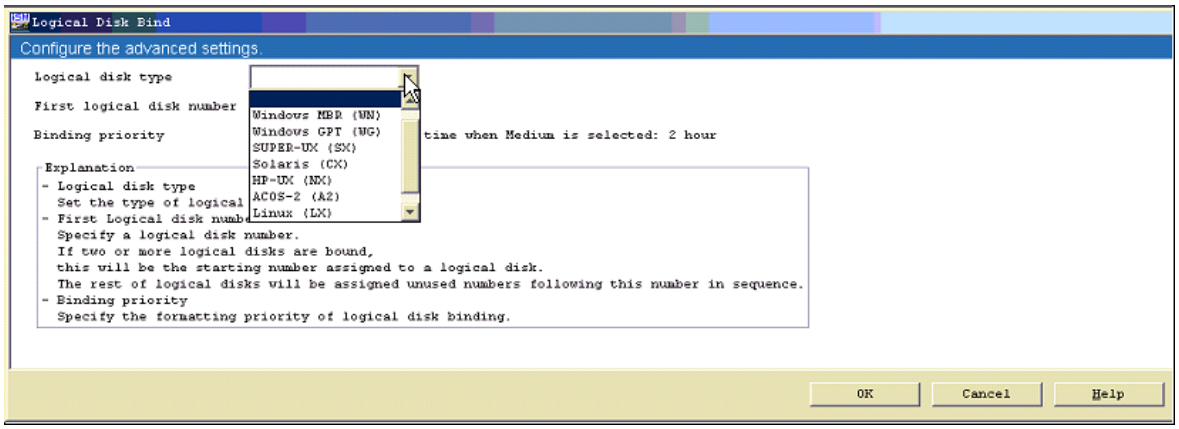


2. Enter:
   - **Number of Logical Disks**
   - **Logical Disk Capacity**
   - **Logical Disk Name**
3. Click **Next**.
4. Verify the basic **settings**.

Advanced Settings

To modify the default settings:

1. Click **Advanced Settings.**



2. Enter:
   - **Logical Disk type**
   - **First Logical Disk number**
   - **Binding Priority**
3. Click **OK**.
4. Click **Set**.
5. Click **Yes**.
6. Click **Finish**.

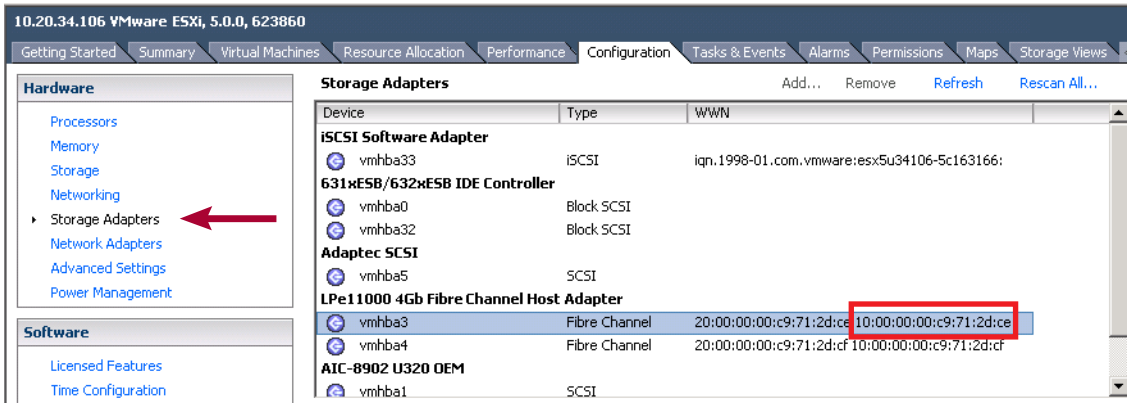
Gather vSphere Client Information

The FC WWPNs or iSCSI IQN addresses are needed to properly configure your system. This information is easily found using vSphere Client.

FC WWPN

To find the fibre channel WWPN:

1. In **VMware vSphere Client**, navigate to **Configuration > Storage Adapters.**
2. Select the appropriate **fibre channel adapter**.
   The example below is for FC adapter vmhba3. The last eight number pairs are the WWPN.

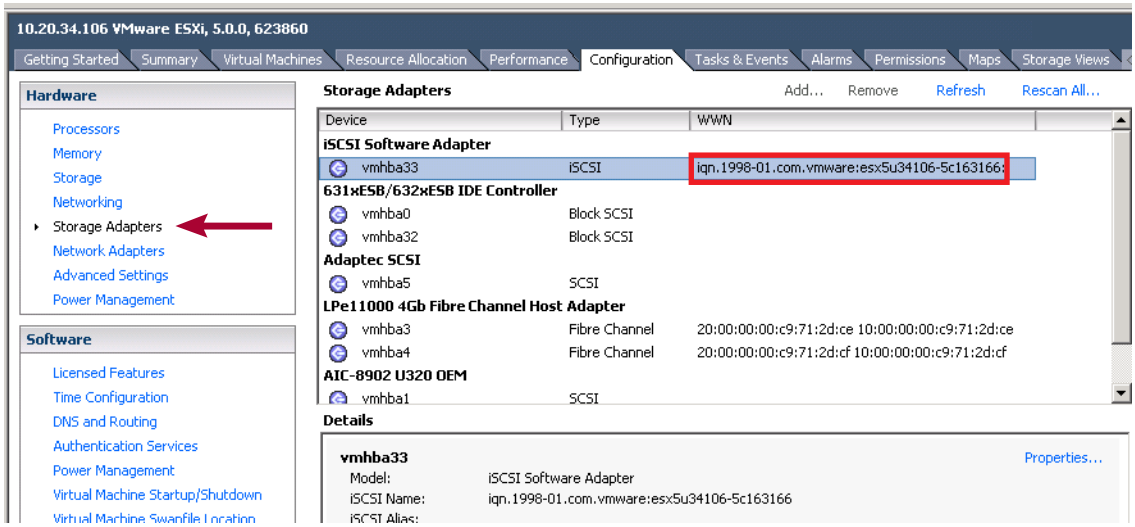


iSCSI IQN

To find the iSCSI IQN address:

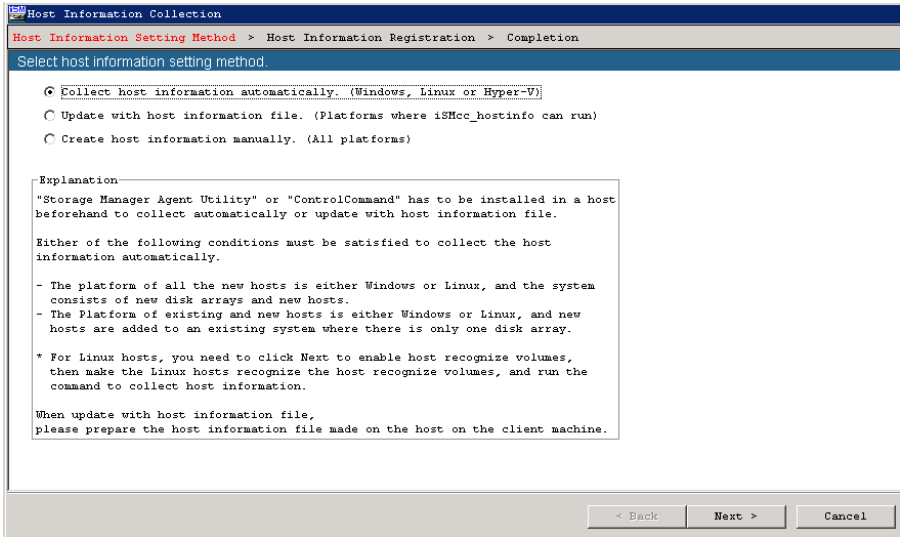
1. In **VMware vSphere Client**, navigate to **Configuration > Storage Adapters.**
2. Select the appropriate **iSCSI Software Adapter**.

   The example below is for iSCSI software adapter vmhba3. Make careful note of the IQN address shown to the right.



Adding Host To The Storage Array

1. Use **one** of these options:
   - From the Logical Disk Bind Completion screen, click the link **Set the host to which logical disks will be assigned**.
   - From the SnapSAN Manager Monitor screen, navigate to **Configuration > Host > Host Operation > Host Information Collection.**

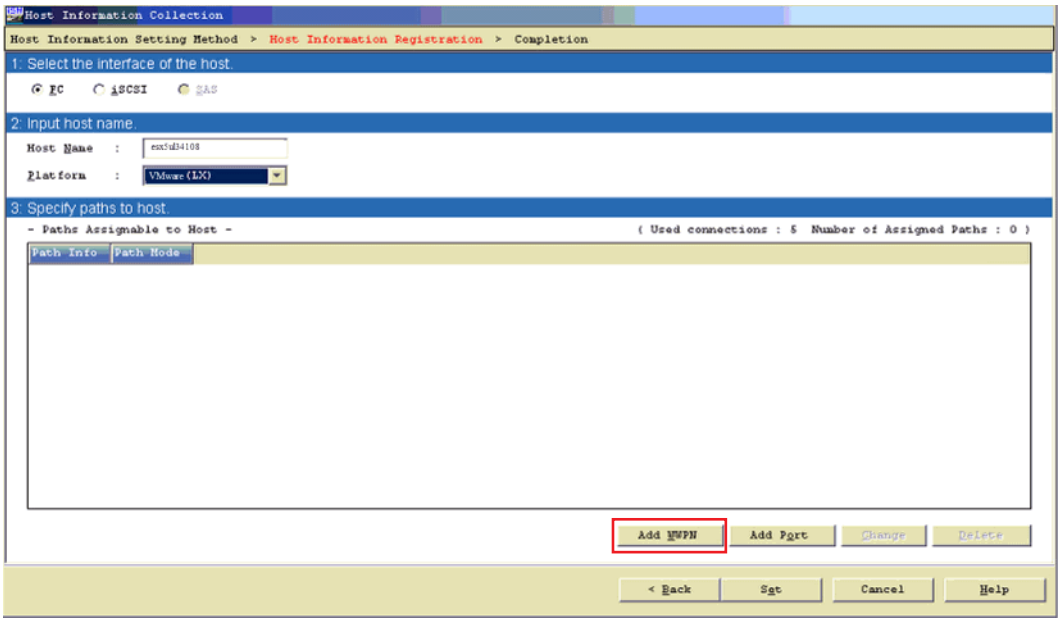


2. Select **Create Host Information Manually** and follow the next procedure to install it.

Create Host Information Manually

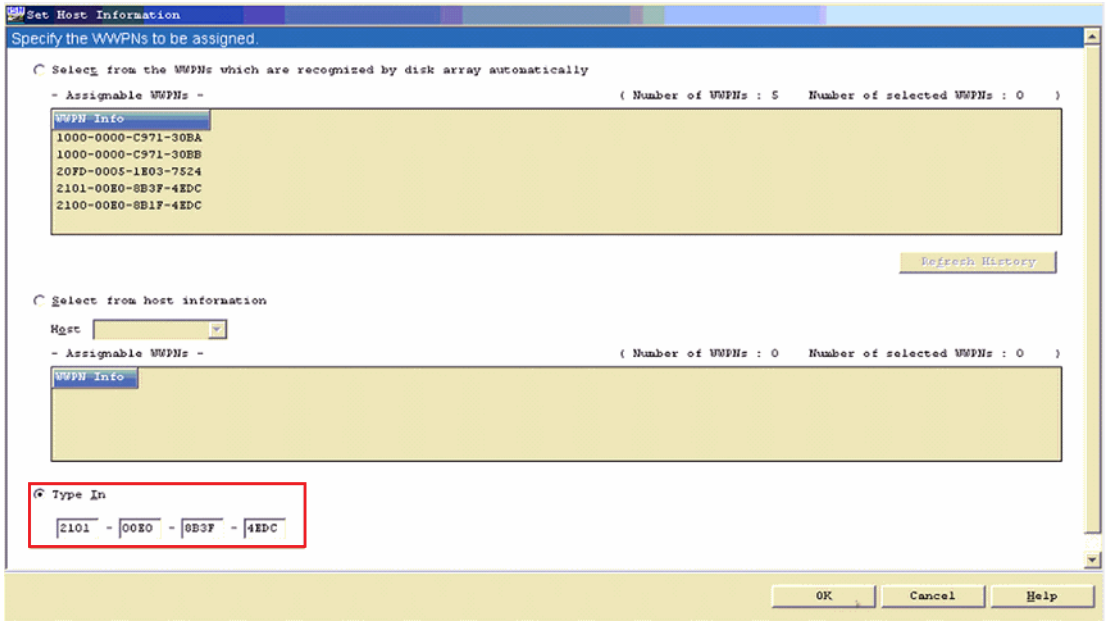
There are two interface options: **FC** and **iSCSI**. Follow the appropriate procedure below.

FC Option

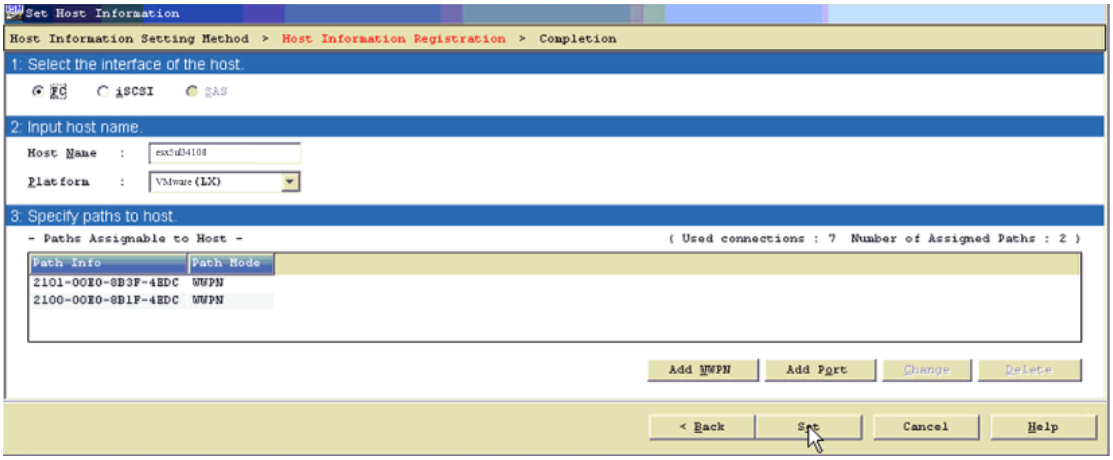


1. Login to the **ESXi server**.
2. Click **FC**.
3. Enter:
   - **Host Name**
   - **Platform**
4. Click **Add WWPN.**
5. Enter the WWPN into the **Type In** field at the bottom of the screen, and click **OK**.

6. Repeat Steps 4–5 to manually add **other** WWPNs.



7. At the Completion screen, click **Set.**

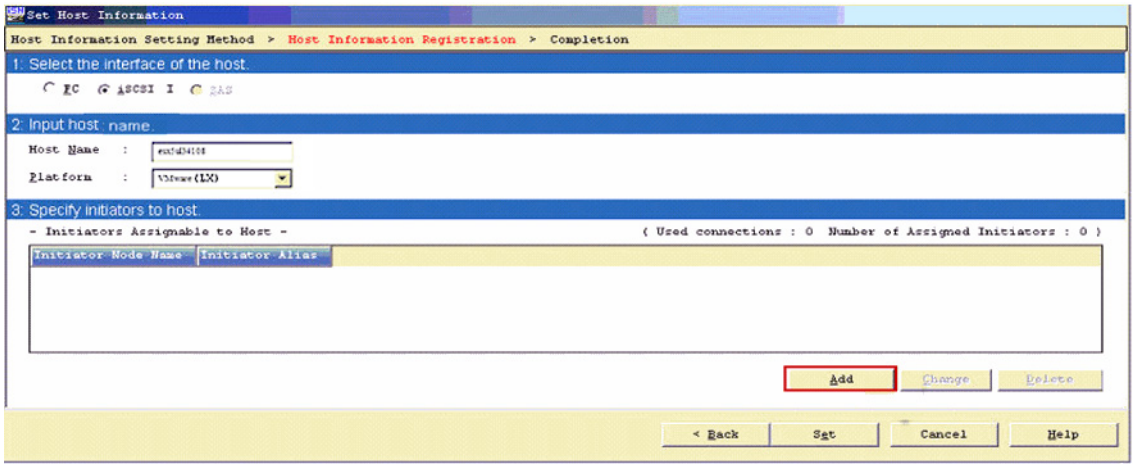


8. Click **Finish**.

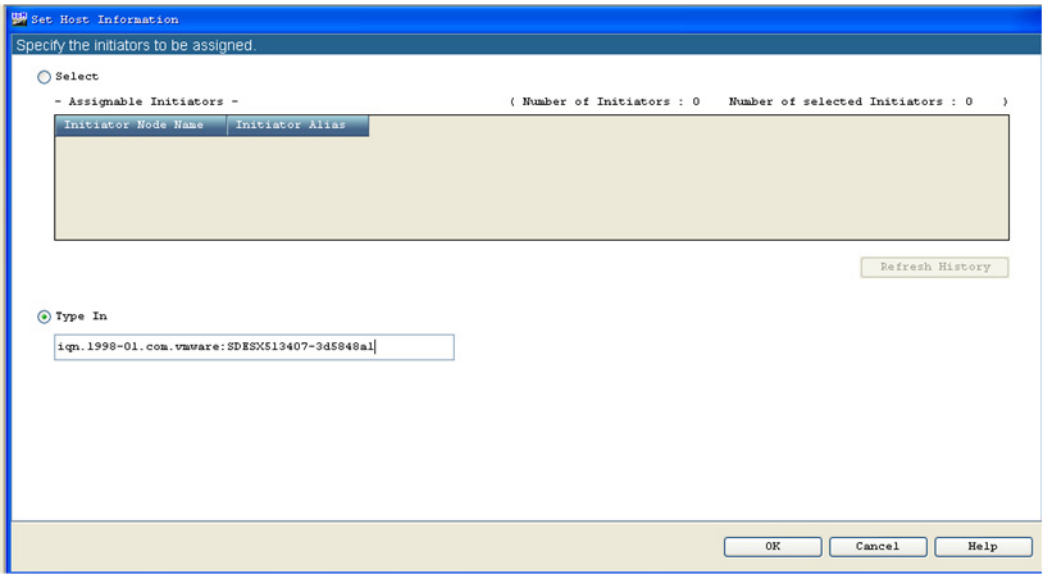
iSCSI Option

1. Login to the **ESXi server**.
2. Enter:
   - **Host Name**
   - **Platform**

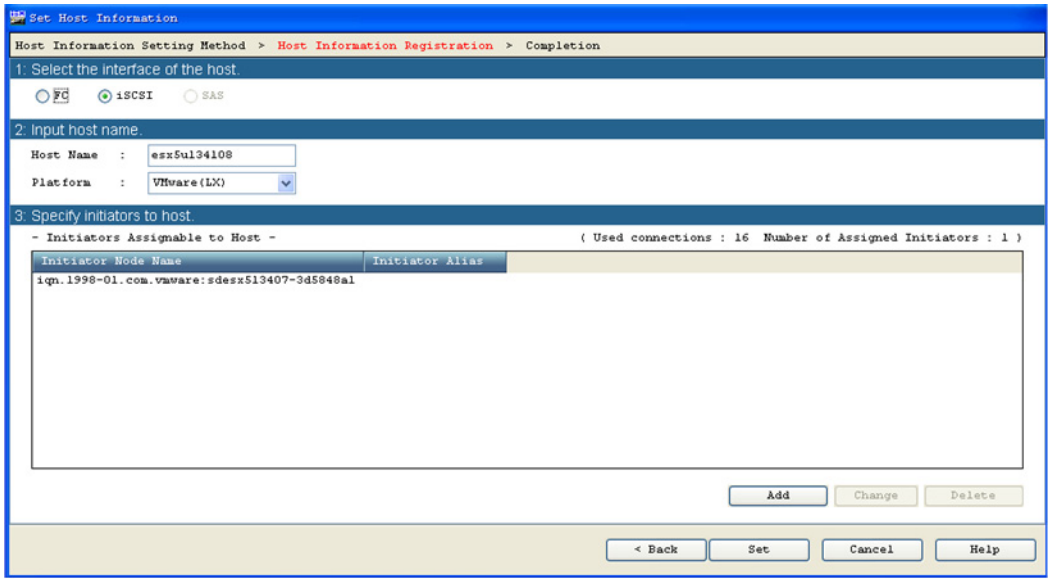
3. Click **Add**.



4. Enter the IQN into the **Type In** field at the bottom of the screen, and click **OK**.



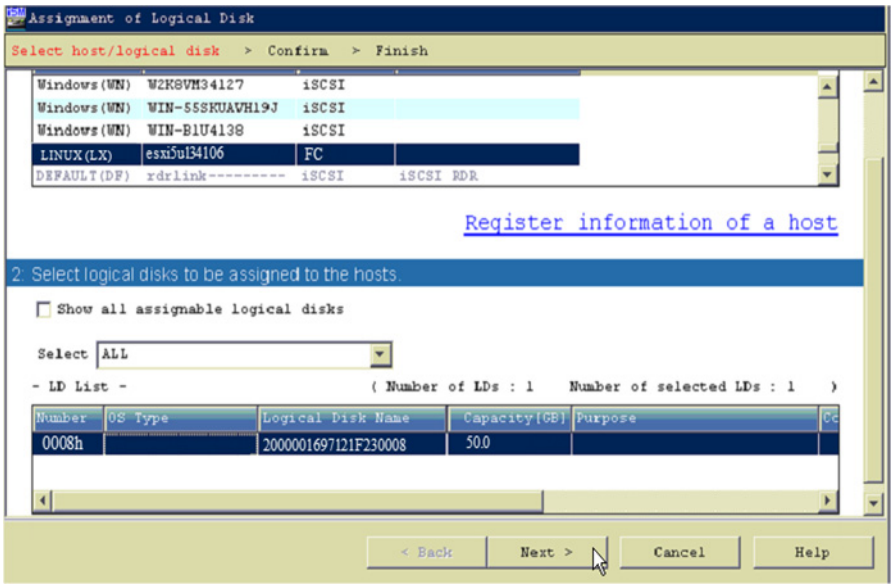
5. Click **Set**.



6. Click **Yes**.
7. Click **Finish**.

Assigning Logical Disks To The Host

1. Use **one** of these options:
   - From the 'Host Information Setting Method Completion' screen, click the **Assign Logical Disks To The Host** link.
   - From the SnapSAN Manager Monitor screen, navigate to the **Configuration > Host > Assignment of Logical Disk** page.

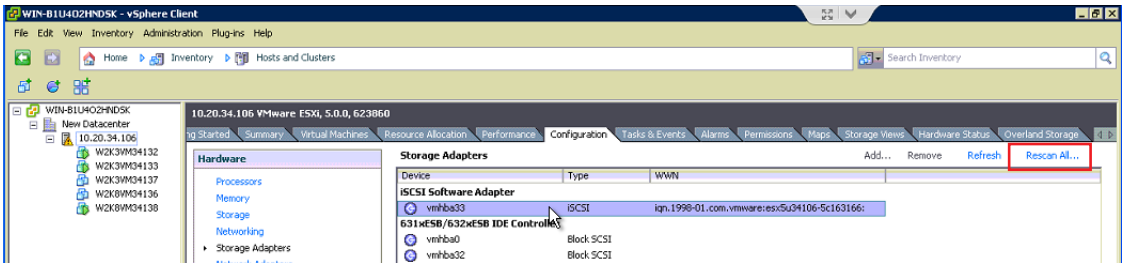


2. Select both the **Host** and the **Logical Disk**.

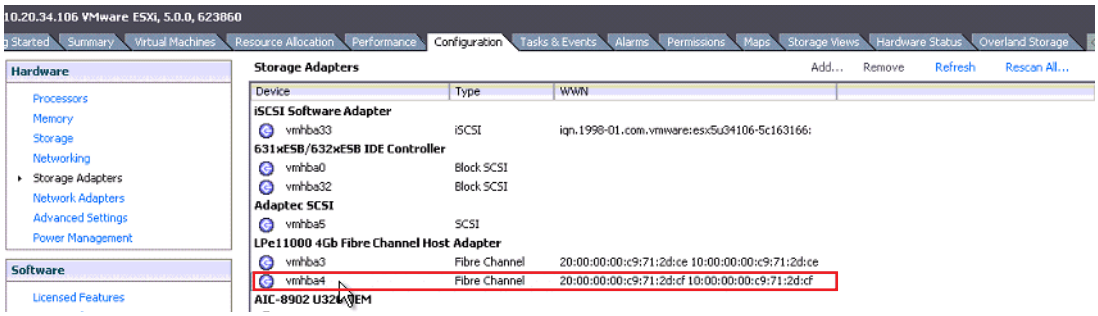
3. Click **Next**.
4. Click **Set**.
5. At the confirmation page, click **Yes**.
6. Click **Finish**.

Verify Assigned LUN Visible

1. Login to the **vSphere Client**.
2. Navigate to **Home > Hosts and Clusters**.
3. From the left panel select the **ESXi host**.
4. From the **Hardware** list under the **Configuration** tab, select **Storage Adapters**.
5. Click the **Rescan All**.



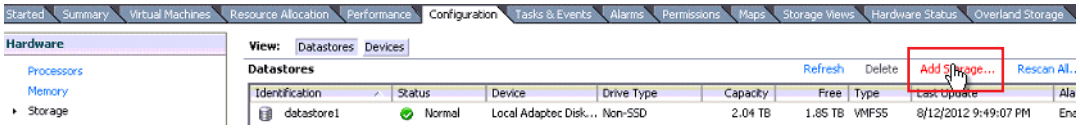
6. Select the **FC adapter** from the **Storage Adapters** list.
   The assigned LUN is shown in the right panel.



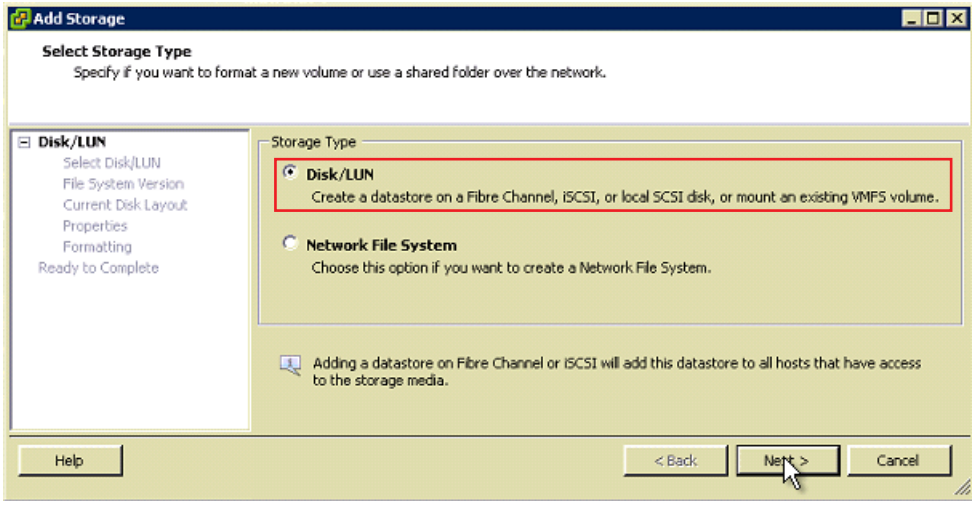
Create a Datastore

The following section details how to create a datastore.

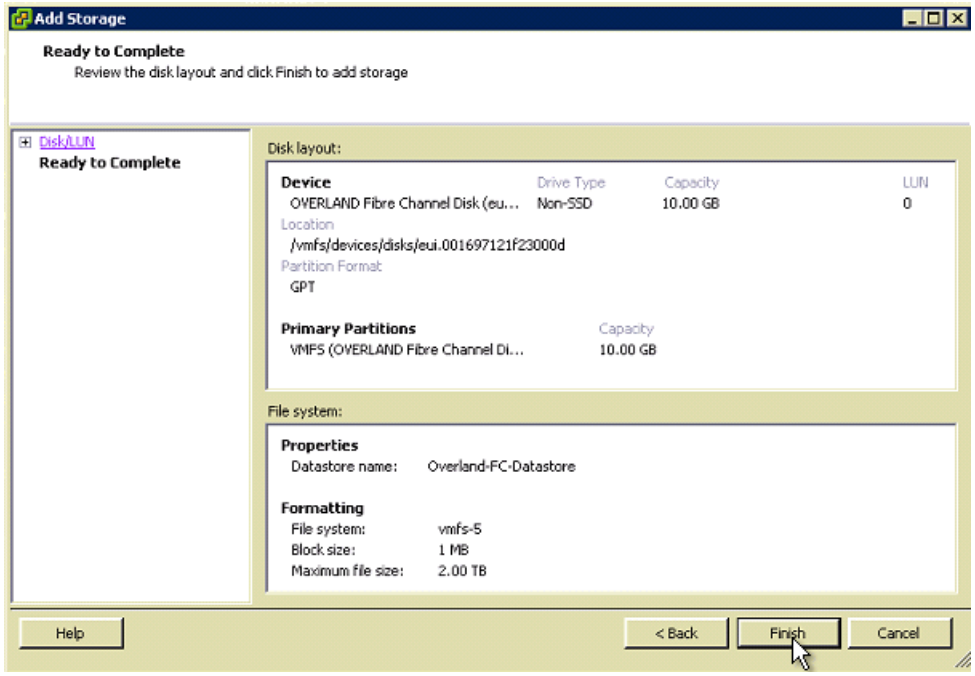
1. At the vSphere Client console, from the **Hardware** list under the **Configuration** tab, select **Storage**.
2. Click **Add Storage** to the right to start the wizard.



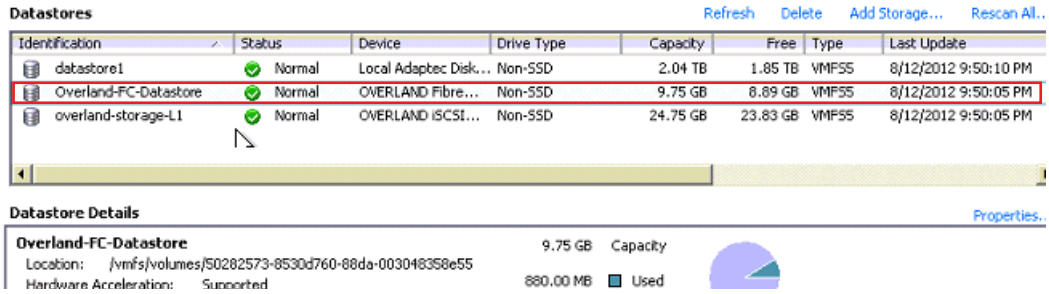
3. At the Add Storage screen, select the **Disk/LUN** storage type, and click **Next**.



4. For creating a datastore, provide the following **details in sequence**.
   These details are presented back-to-back when you click the **Next** button in the wizard.
   a. Select the **LUN**.
   b. Select the preferred **File System Version**.
   c. Verify the **current disk layout** details.
   d. Provide the **Datastore Name**.
   e. Click **Finish** to complete the task.



5. To verify the **newly added datastore** in the vSphere Client console, look under the **Datastores** list.
   Click the name to see its details in the lower field.



Setting the Multipath Policy

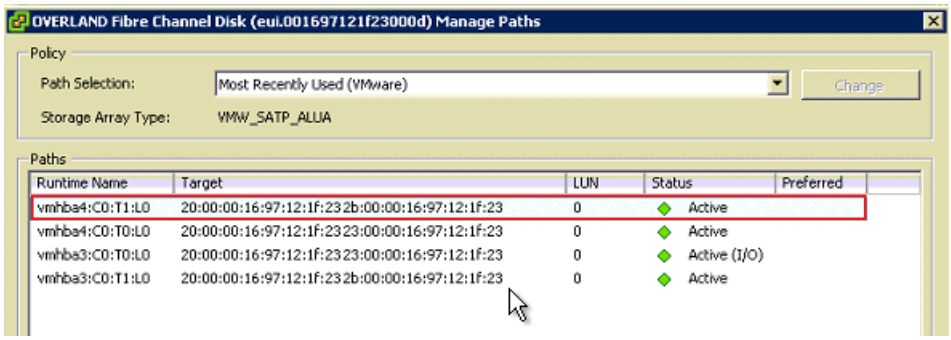
The following section details how to set a multipath policy for a datastore.

IMPORTANT: Overland recommends using the Most Recently Used (VMW_PSP_MRU) policy as a multipath policy.

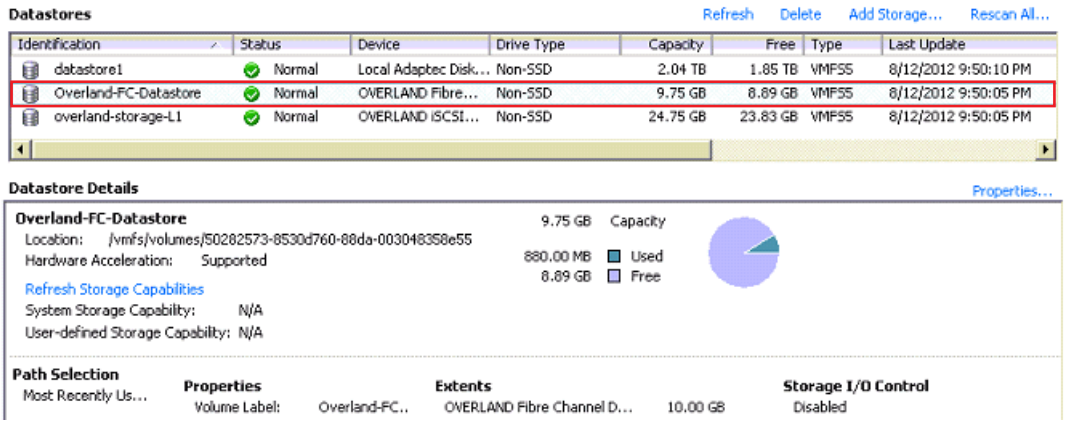
To set the multipath policy, perform the following steps:

1. From the vSphere Client console, select the **host** in the left panel and, from the **Hardware** list under the **Configuration** tab, select **Storage**.
2. From the **Datastores** section, select the **datastore** for which you want to set/change the multipath policy.
3. In the **Datastore Details** section, click **Properties**.

   The particular datastore Properties dialog box appears (here we are using Overland-Fibre Channel).
4. Click the **Manage Paths** button.
5. From the **Manage Paths** dialog box, select the **Path Selection** field value as **Most Recently Used (VMware)**. Click **Change**.



6. To verify if the datastore **multipath policy value** is set properly, check the particular **datastore details** from the **Datastores** list, as shown in the following image:

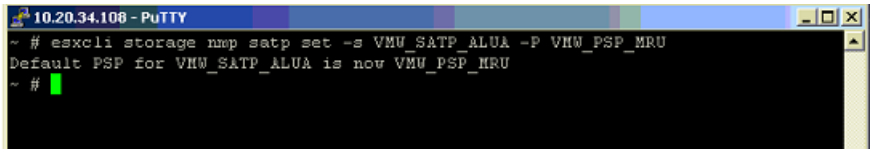


7. To set the default **multipath policy** to **VMW_PSP_MRU**, run the following command followed by a reboot:

   `esxcli storage nmp satp set -s VMW_SATP_ALUA -P VMW_PSP_MRU`

   NOTE: Rebooting is required to take the changes effect.

   This changes the default multipath policy to **MRU (Most Recently Used)** for all the LUNs of the storage type VMW_SATP_ALUA.

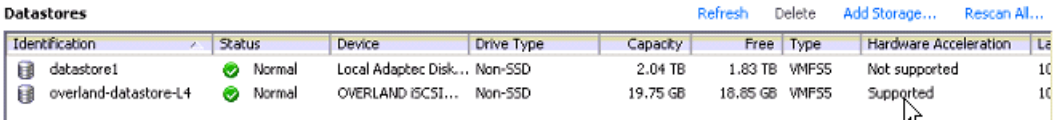


Checking VAAI Status on the Host

By default, vSphere Storage API for Array Integration (VAAI) is enabled in ESXi 5. The following section details how to check if the VAAI is enabled on the ESXi host:

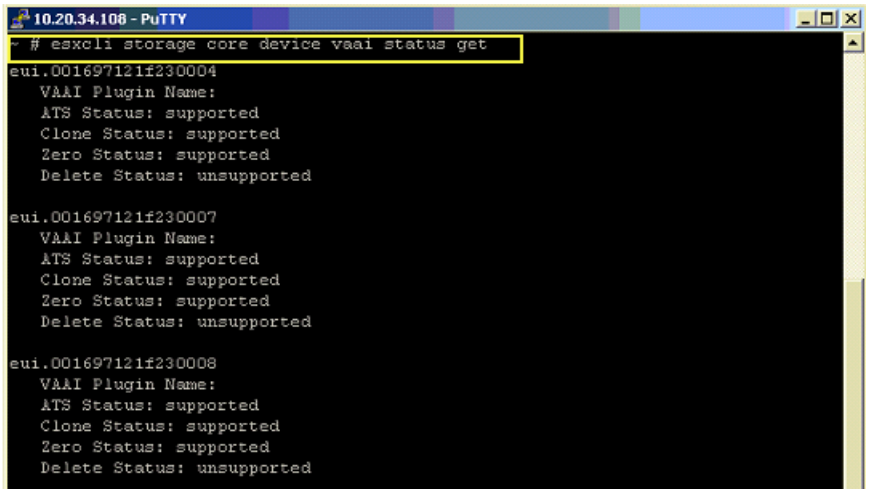
1. From the vSphere Client console, select the **host** in the left panel and, from the **Hardware** list under the **Configuration** tab, select **Storage**.

   Available datastores are shown under the Datastores list. You can check the status from the Hardware Acceleration column value for the particular datastore. The value **Supported** indicates that VAAI is enabled.



2. To check the status of VAAI from the CLI, run the following command:

   `# esxcli storage core device vaai status get`



3. To check if the VAAI is enabled on the ESXi host, run the following commands and check if the **Int** value is set to **1** (enabled):

   # esxcli system settings advanced list -o /DataMover/HardwareAcceleratedMove
   # esxcli system settings advanced list -o /DataMover/HardwareAcceleratedInit
   # esxcli system settings advanced list -o /VMFS3/HardwareAcceleratedLocking

   If the value is **1**, then it indicates that VAAI is enabled.

   For example: