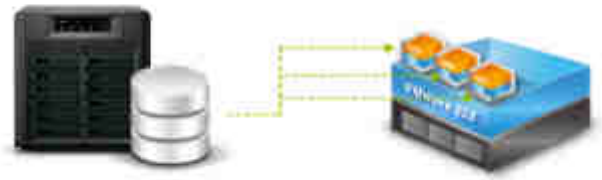
# How to set up LUNs as VMware server datastores

https://kb.synology.com/en-global/DSM/tutorial/How_to_set_up_Synology_NAS_as_VMware_server_datastore

**Details**

A datastore is an independent storage space for a virtual machine's physical data. This article will guide you through the process of configuring LUNs as datastores in your VMware environment.



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**Environment**

The instructions in this article are based on VMware vSphere 6.7. If you are using other versions, refer to the links provided in each section.

**Resolution**

**Before you start**

**Make sure you have:**

1. Set up a Synology NAS that supports iSCSI.
2. Installed Synology DiskStation Manager (DSM).[1]
3. Configured the iSCSI settings on DSM.[2]
4. Installed the VMware vSphere Client on your computer.
5. Set up a VMware ESXi host.

**Create a VMkernel adapter[3]**

1. Log in to the vSphere Client and navigate to the host.
2. On the Configure tab, expand Networking, and select VMkernel adapters.
3. Click Add Networking.
4. Select VMkernel Network Adapter as the connection type.
5. Select the target device.
    - If you have created a standard switch, choose **Select an existing standard switch**. Click **BROWSE** and choose a previously created standard switch.
    - If you haven't created a standard switch, choose **New standard switch**, and set up the MTU[4]. In the next step, assign free physical network adapters to the new switch.
6. Configure the Port properties.
7. Specify the IPv4 settings for the VMkernel.
8. Review your settings selections and click FINISH.

**Configure the software iSCSI adapter[5]**

1. On the **Configure** tab, expand **Storage**, and select **Storage Adapters**.
2. Click **Add Storage Adapter**.
3. Select **Add software iSCSI adapter** and click **OK** to enable the software iSCSI adapter.[6]
4. Click on the **Network Port Bonding** tab.
5. Select a VMkernel adapter to bind with the iSCSI adapter.
6. Click **OK**.

**Establish iSCSI connections**[7]

1. On the **Configure** tab, expand **Storage**, and click **Storage Adapters**. Select the adapter, whose name should be vmhba# (e.g., vmhba1).
2. Configure the discovery method.
    - **Dynamic Discovery**
        1. Click **Dynamic Discovery** and click **Add**.
        2. Enter the IP address or DNS name of your Synology NAS and click **OK**.
        3. Rescan the iSCSI adapter.
    - **Static Discovery**
        1. Click **Static Discovery** and click **Add**.
        2. Enter the target's information and click **OK**.
        3. Rescan the iSCSI adapter.
3. Click **Advanced Options** > **Edit...** and modify the following settings for better iSCSI connection stability.
    - LoginTimeout: Change the value to **60**.
    - NoopTimeout: Change the value to **30**.
    - DelayedAck: Change the status to **false**.

**Set up the VMFS datastore on your Synology NAS**[8]

1. Right-click on your VMware ESXi host, select **Storage** > **New Datastore...**.
2. Select **VMFS** and click **NEXT**.
3. Name the datastore and select a LUN.[9]
4. Specify the datastore version.[10]
5. Review your settings and click **FINISH**.
6. You can find the new, ready-to-use datastore on the **Datastores** tab.

**Notes:**

1. Refer to the Hardware Installation Guides for more information about hardware and software installation.
2. Read this article for instructions on configuring iSCSI on DSM.
3. Read Create a VMkernel Adapter on a vSphere Standard Switch for instructions on creating a VMkernel adapter in other versions.
4. The MTU value usually depends on your network environment. In general, an MTU of 1500 is set for a 1GbE network and 9000 is set for a 10GbE network.
5. Read Activate or Disable the Software iSCSI Adapter and Bind iSCSI and VMkernel Adapters for instructions for different vSphere versions.
6. If the option is unavailable, it means that the software iSCSI adapter is already enabled.
7. Read Configure Dynamic or Static Discovery for iSCSI and iSER and Configuring Advanced Parameters for iSCSI for instructions for different vSphere versions.
8. Read Create a VMFS Datastore for instructions for different vSphere versions.
9. If you can't tell by the LUNs' names listed here, you can check the target they're mapped to. Go to **Configure** > **Storage** > **Storage Device**, choose the storage device, and click **Paths**. The **Target** you see here is the IQN of the target to which the LUN is mapped on your Synology NAS.
10. For more information on VMFS limitations and configuration, refer to this article.