HOW TO: Tag and Configure a storage device as a Solid State Disk (SSD) in VMware vSphere 5.0 or 5.1 (ESXi 5.0 or ESXi 5.1)

https://www.experts-exchange.com/articles/10133/HOW-TO-Tag-and-Configure-a-storage-device-as-a-Solid-State-Disk-SSD-in-VMware-vSphere-5-0-or-5-1-ESXi-5-0-or-ESXi-5-1.html

In VMware vSphere 5.x (ESXi 5.x) there is a new feature called **Host Cache Configuration**. This new feature allows the VMware vSphere Administrator to configure the VMware vSphere 5.x (ESXi 5.x) host server to use a cache on a Solid State Disks (SSD) for the virtual machine's swapfile for better performance, because the SSD has much faster latency than a traditional mechanical disk. This is also known in VMware Administrator circles as *Swap to Host Cache* or *Swap to SSD*. Once Host Cache Configuration has been enabled, the virtual machines will be swapping to SSD, but this swapfile is not a true swap file, and the entire virtual machine swap file (.vswp) is not stored on the SSD.

However, not all SSD devices are correctly tagged as SSD. This tutorial shows how to tag a Non-SSD storage device as SSD, if you want to experiment with Host Cache Configuration but do not have a SSD to hand. *This is not supported by VMware, tagging a non-SSD as a SSD.*

The same procedure can be followed to tag a SSD, correctly, if it's not recognized by the VMware ESXi server.

With the current fall in prices for consumer SSDs, it can give a real performance boost to a VMware ESXi 5.x server which is short on memory. Consumer SSDs e.g. Kingston SSDNow V+200 Drive Model SVP200S37A/60G are generally cheaper than server memory. We recently purchased this model for £29.99 GBP.

The commands we will be using in this Tutorial, are the **esxcli** commands, these commands can be executed on the ESXi shell, through the vMA or PowerCLI esxcli remote version. In this tutorial I'll be logging into the ESXi server, and executing the commands on the ESXi shell.

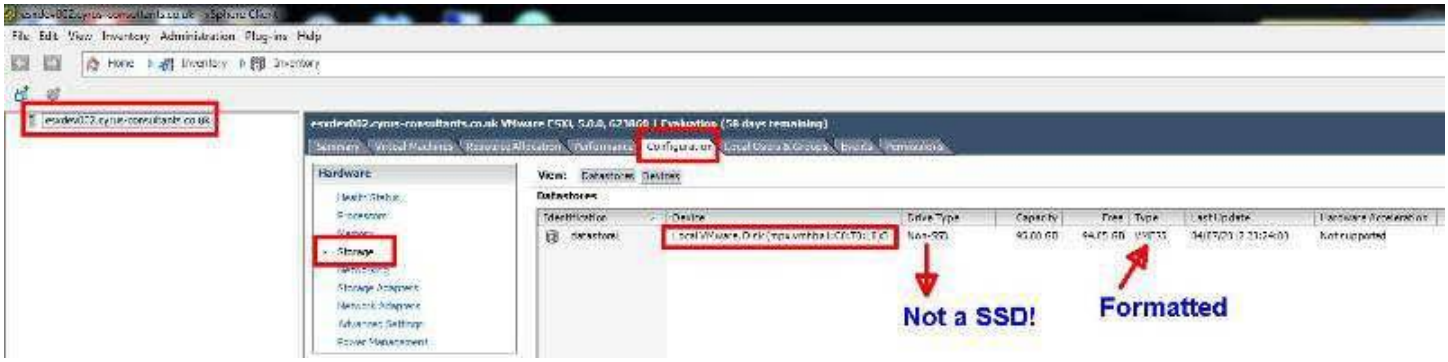
1. Connect to the VMware vSphere Hypervisor (ESXi) or VMware vSphere vCenter Server

Using the VMware vSphere Client, Login and Connect to the ESXi server, using IP address or hostname of the ESXi server, using root username and password credentials. If you have a VMware vSphere vCenter server, you could also specify IP address or hostname of the vCenter server.

2. Check and record the storage device name to be tagged as a SSD

Check there is a VMFS volume already formatted on the storage device, you want to present to the Host ESXi server, as a SSD and record the device name for later in Step 4.

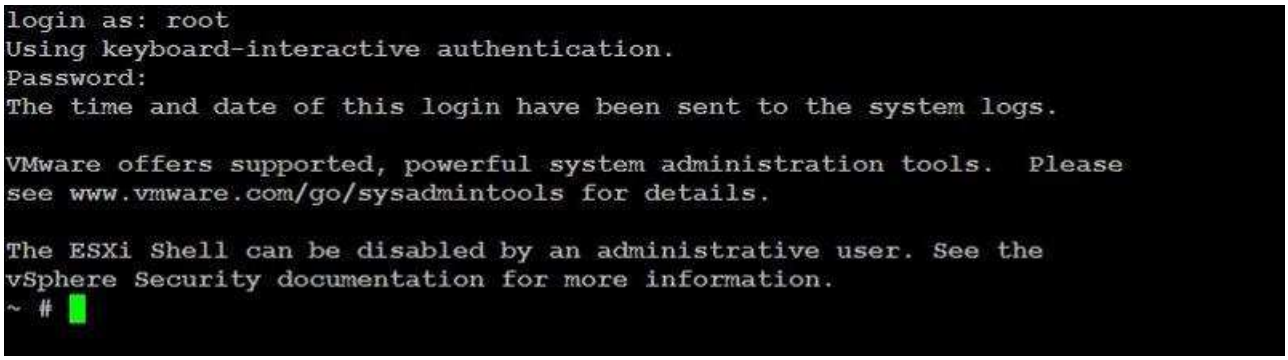
Select Host > Configuration > Storage



In the example above, the local storage device **mpx.vmhba1:C0:T0:L0** is a local disk, formatted with the datastore name datastore1 as VMFS5. Record the storage device name **mpx.vmhba1:C0:T0:L0**.

3. Logon to ESXi console (shell) via PuTTY

Using PuTTY a free telnet and SSH client or another SSH client Login and Connect to the VMware Hypervisor ESXi server, using IP address or hostname of the VMware Hypervisor ESXi server, using root username and password credentials.



4. Create a new SATP rule

At the console or SSH session type the following commands to create a new SATP rule.
esxcli storage nmp satp rule add --satp VMW_SATP_LOCAL --device mpx.vmhba1:C0:T0:L0 --option=enable_ssd

Open in new window

using the device name recorded in Step 2 above. The console will return a new line. To check the rule has been created correctly type the following commands

esxcli storage nmp satp rule list | grep enable_ssd

Open in new window

the following screenshot should be displayed confirming the creation of the rule.

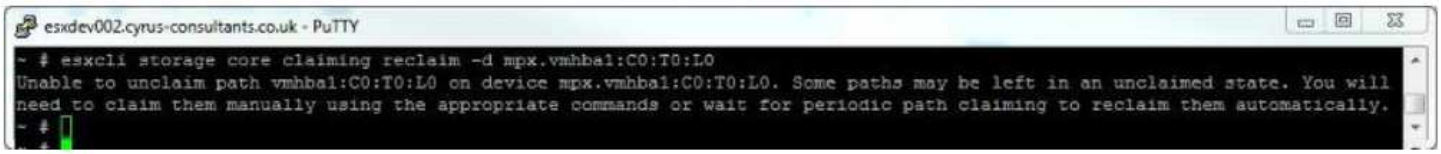
5. Claim storage device

At the console or SSH session type the following commands
esxcli storage core claiming reclaim -d mpx.vmhba1:C0:T0:L0

Open in new window

using the device name recorded in Step 2 above.

I have seen the following error messages when trying to claim devices, either restart the server or use the "unclaim" device command.



you can unclaim the device by specifying the device name.
esxcli storage core claiming unclaim --type device --device device_name

Open in new window

6. Reload the claim rules

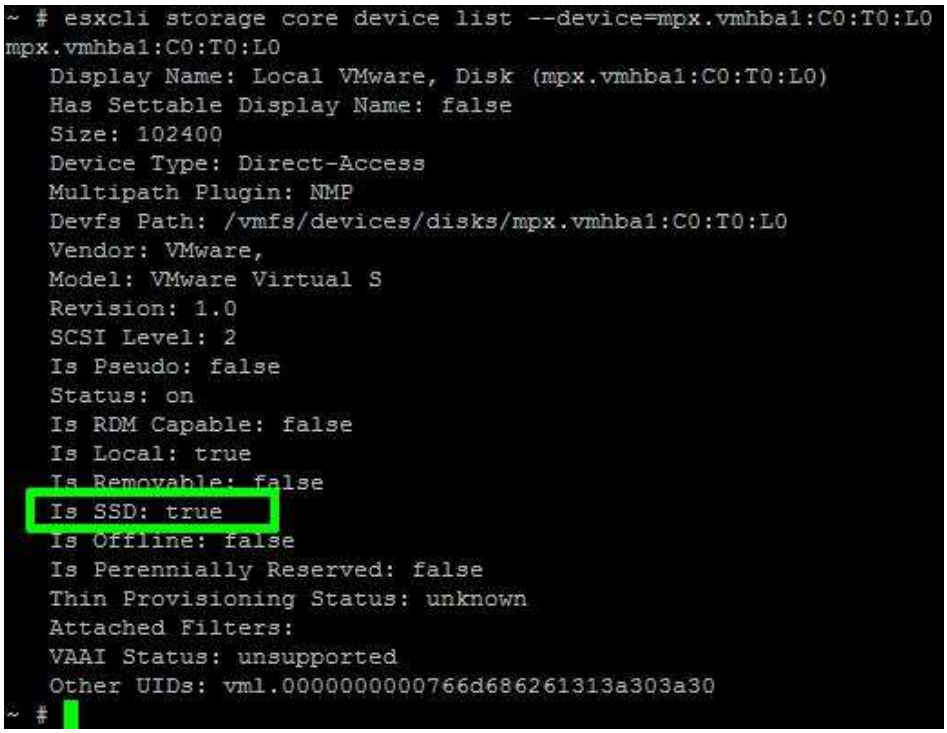
I usually reload the claim rules and run the rules using the following commands:
esxcli storage core claimrule load
esxcli storage core claimrule run

Open in new window

7. Confirm device is Tagged as SSD

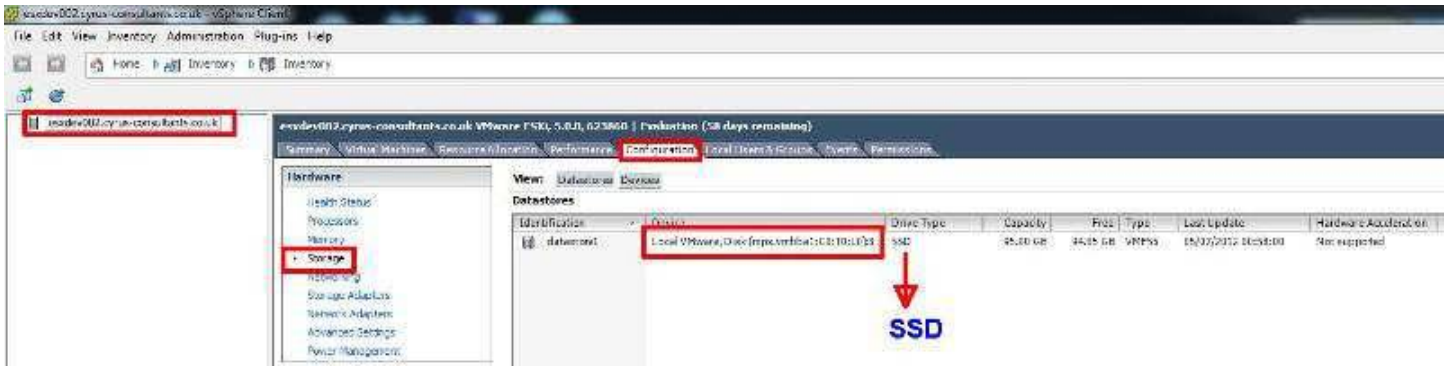
Use the following command at the console, to check if the device has successfully been tagged as a SSD
esxcli storage core device list --device=mpx.vmhba1:C0:T0:L0
Open in new window

The following output will be displayed for the device.



Check the output states **"Is SSD: true"**

You have successfully configured and tagged a local device as a SSD. If you now repeat Step 2 above, you will see the device now states SSD.



In my next Article, I show you how to configure Host Cache Configuration.

Further reading can be found here in the VMware
vSphere 5 Documentation Center :- Tag Devices as SSD

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Tag Devices as SSD

http://pubs.vmware.com/vsphere-50/index.jsp?topic=%2Fcom.vmware.vsphere.storage.doc_50%2FGUID-99BB81AC-5342-45E5-BF67-8D43647FAD31.html

You can use PSA SATP claim rules to tag SSD devices that are not detected automatically.

Only devices that are consumed by the PSA Native Multipathing (NMP) plugin can be tagged.

If you need more information about the commands listed in this topic, see the *Getting Started with vSphere Command-Line Interfaces* and *vSphere Command-Line Interface Concepts and Examples* documentation.

Procedure

1	Identify the device to be tagged and its SATP.
	
	`esxcli storage nmp device list`
	
	The command results in the following information.
	
	`naa.6006016015301d00167ce6e2ddb3de11`
	`Device Display Name: DGC Fibre Channel Disk`
	`(naa.6006016015301d00167ce6e2ddb3de11)`
	`Storage Array Type: VMW_SATP_CX`
	`Storage Array Type Device Config: {navireg ipfilter}`
	`Path Selection Policy: VMW_PSP_MRU`
	`Path Selection Policy Device Config: Current Path=vmhba4:C0:T0:L25`
	`Working Paths: vmhba4:C0:T0:L25`

2	Note down the SATP associated with the device.
3	Add a PSA claim rule to mark the device as SSD. You can add a claim rule by specifying the device name. ■ `esxcli storage nmp satp rule add -s SATP --device device_name --option=enable_ssd` You can add a claim rule by specifying the vendor name and the model name. ■ `esxcli storage nmp satp rule add -s SATP -V vendor_name -M model_name --option=enable_ssd` You can add a claim rule based on the transport protocol. ■ `esxcli storage nmp satp rule add -s SATP --transport transport_protocol --option=enable_ssd` You can add a claim rule based on the driver name. ■ `esxcli storage nmp satp rule add -s SATP --driver driver_name --option=enable_ssd`
4	Unclaim the device. You can unclaim the device by specifying the device name. ■ `esxcli storage core claiming unclaim --type device --device device_name` You can unclaim the device by specifying the vendor name and the model name. ■ `esxcli storage core claiming unclaim --type device -V vendor_name -M model_name` You can unclaim the device based on the transport protocol. ■ `esxcli storage core claiming unclaim --type device --transport transport_protocol`

	You can unclaim the device based on the driver name. ■`esxcli storage core claiming unclaim --type device --driver driver_name`

5	Reclaim the device by running the following commands.
	
	`esxcli storage core claimrule load`
	`esxcli storage core claimrule run`

6	Verify if devices are tagged as SSD.
	
	`esxcli storage core device list -d device_name`
	
	The command output indicates if a listed device is tagged as SSD.
	
	`Is SSD: true`

What to do next

If the SSD device that you want to tag is shared among multiple hosts, make sure that you tag the device from all the hosts that share the device.