

# Milestone 6.1 Storage and Roles

## Part 1: Storage with NFS

💣 NFS is not natively secure and it is easily abused. There are options for authentication. For right now our NFS access is limited to the Joyce network

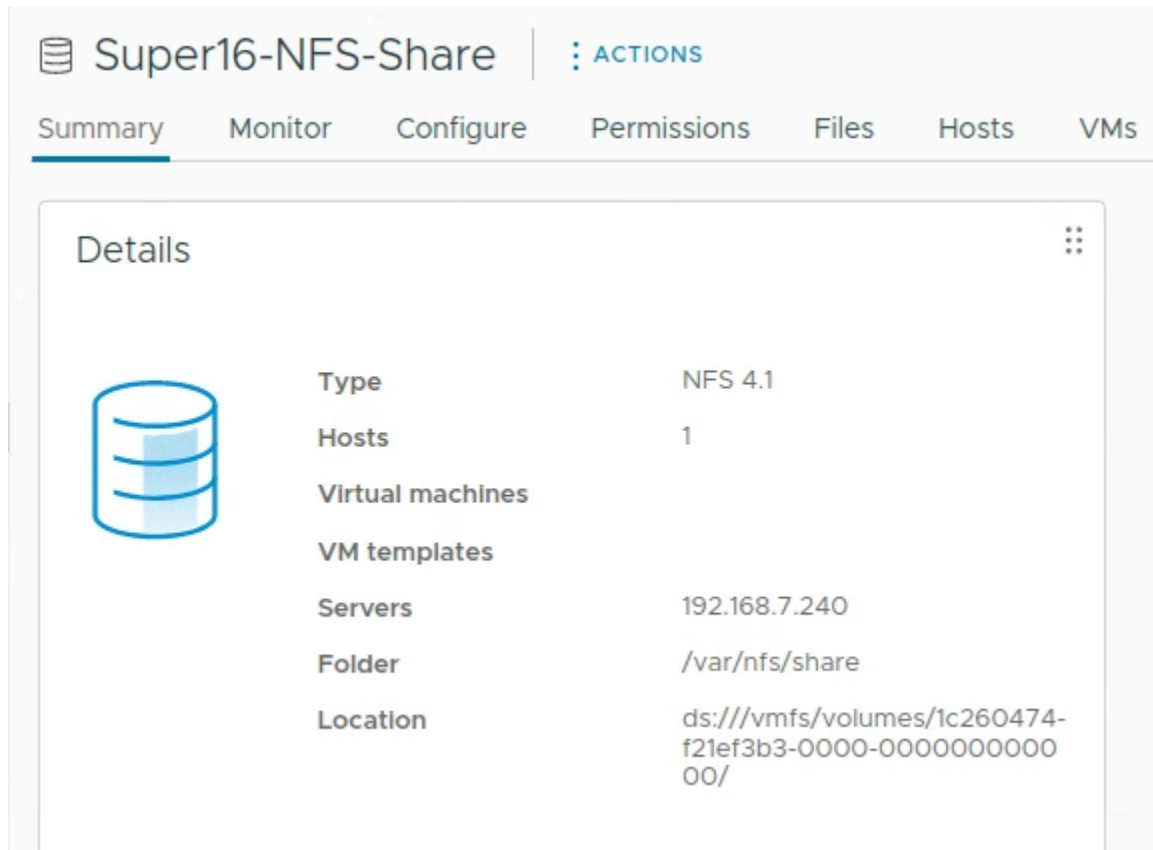
One thing we do for the NFS shares used in the data center is have a dedicated private LAN where those NFS shares are exposed to the associated storage only interfaces on our hypervisors. This connection is high speed and the NFS shares are SSD backed.

The NFS Shares are set up on the two web servers we have used to download ISOs for the class.

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## Task 1: NFS File Share on Host


Deliverable 1. Provide a screenshot similar to the one below that shows the NFS properties of your NFS share.



**Super16-NFS-Share** | : ACTIONS

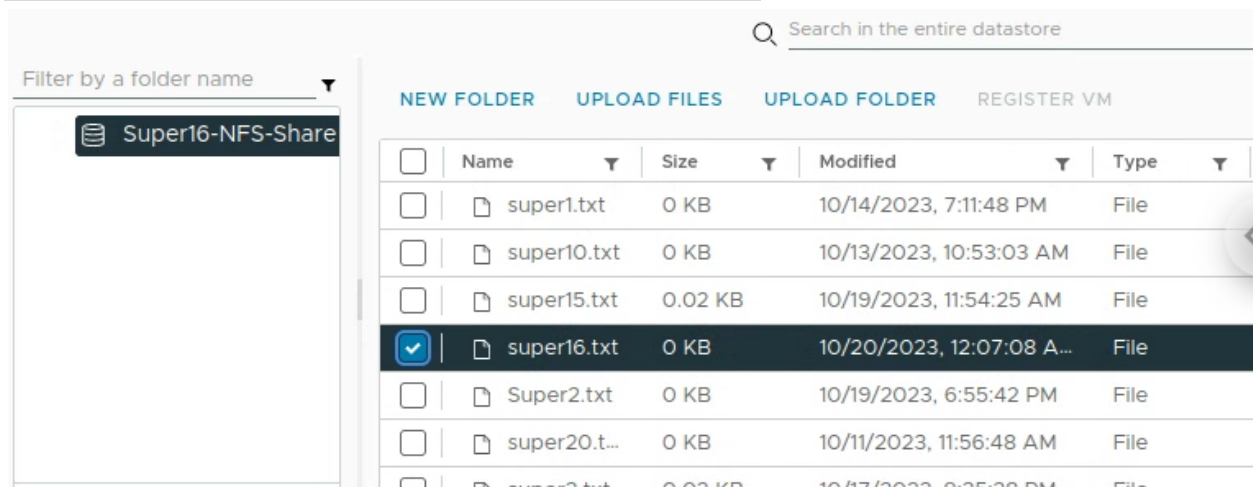
Summary Monitor Configure Permissions Files Hosts VMs

**Details**



Type	NFS 4.1
Hosts	1
Virtual machines	
VM templates	
Servers	192.168.7.240
Folder	/var/nfs/share
Location	ds:///vmfs/volumes/1c260474-f21ef3b3-0000-000000000000/00/

Deliverable 2. Provide a screenshot similar to the one below that shows the uploaded file in your NFS share.



Search in the entire datastore

Filter by a folder name

**Super16-NFS-Share**

NEW FOLDER UPLOAD FILES UPLOAD FOLDER REGISTER VM

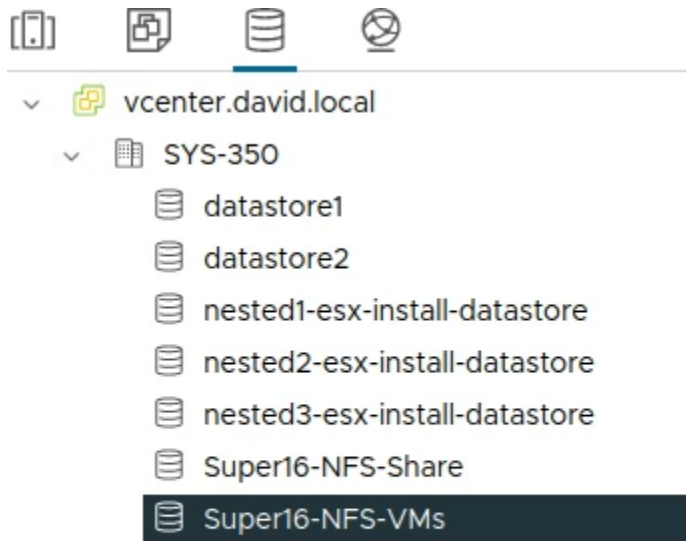
<input type="checkbox"/>	Name	Size	Modified	Type
<input type="checkbox"/>	super1.txt	0 KB	10/14/2023, 7:11:48 PM	File
<input type="checkbox"/>	super10.txt	0 KB	10/13/2023, 10:53:03 AM	File
<input type="checkbox"/>	super15.txt	0.02 KB	10/19/2023, 11:54:25 AM	File
<input checked="" type="checkbox"/>	super16.txt	0 KB	10/20/2023, 12:07:08 A...	File
<input type="checkbox"/>	Super2.txt	0 KB	10/19/2023, 6:55:42 PM	File
<input type="checkbox"/>	super20.t...	0 KB	10/11/2023, 11:56:48 AM	File
<input type="checkbox"/>	super3.txt	0.02 KB	10/17/2023, 9:35:28 PM	File

## Task 2: Another NFS Datastore for VMs

In this next task, you will add a second NFS Datastore to your SuperX Host and use your Rocky Template to launch a **Thin Provisioned VM** (**NOTE: Must be thin provisioned to have enough capacity on the NFS share!**)

### Steps:

1. Using vcenter - add a **second datastore**. The following screenshot should have enough information for the settings. Call is "superX-NFS-VMs" as we can use this for VM storage



2. **Deliverable 3** Take a screenshot similar to the one above showing the second NFS Datastore

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The screenshot shows the vSphere interface for the 'Super16-NFS-VMs' datastore. The 'Summary' tab is selected, displaying the following details:

- Type:** NFS 4.1
- Hosts:** 1
- Virtual machines:**
- VM templates:**
- Servers:** 192.168.7.241
- Folder:** /mnt/student\_vms
- Location:** ds:///vmfs/volumes/947dd9d9-9b56b315-0000-000000000000/

- 3.
4. Use your Rocky8 Template to launch a new VM called “SuperX-Rocky-NFS”
  - a. Make sure to pick the superX-NFS-VM Datastore
  - b. **And**, make sure it is **thin-provisioned**!
  - c. Should be something like list when your are launching the VM

**Deliverable 3.5: Take a screenshot of your new VM like the one below**

The screenshot shows the vSphere interface for the 'Super16-Rocky-NFS' VM. The 'Datastores' tab is selected, displaying a table of available datastores:

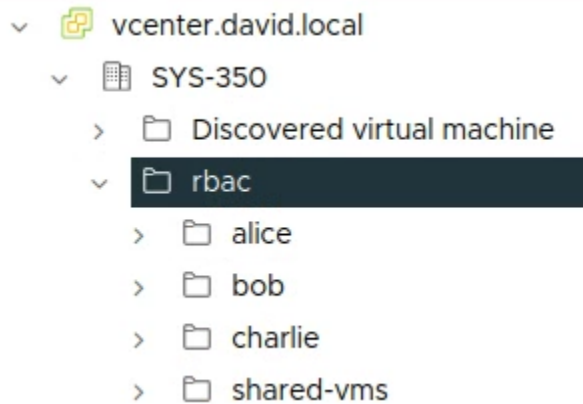
	Name	Status	Type	Datastore Cluster	Capacity	Free
<input type="checkbox"/>	datastore2	✓ Normal	VMFS 6		476.75 GB	271.46 GB
<input type="checkbox"/>	Super16-NFS-VMs	✓ Normal	NFS 4.1		456.89 GB	357.92 GB

The left sidebar shows the vcenter.david.local tree with the 'Super16-Rocky-NFS' VM selected under the '192.168.7.26' host.

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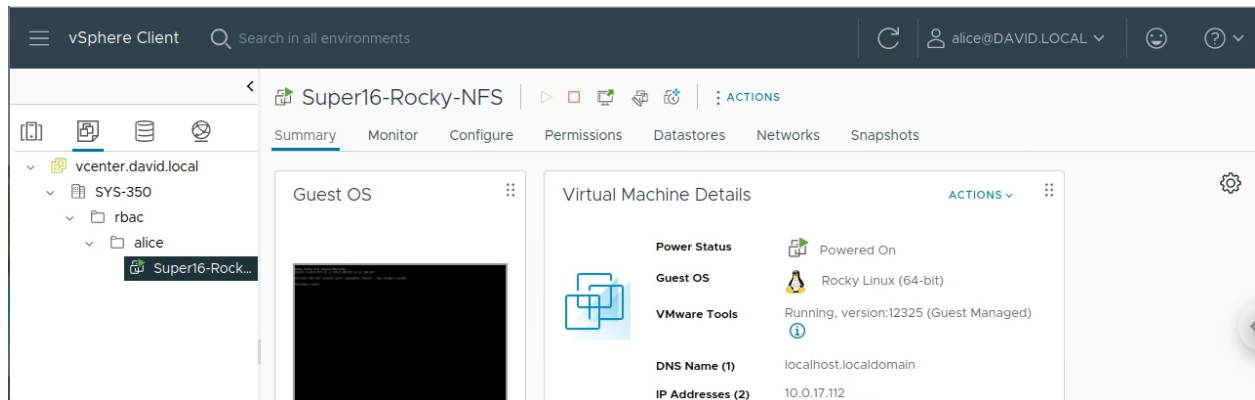
## Part 2: Roles

Create an rbac folder with folders for three users (alice, bob and charlie in the example) and a shared-vm's folder as shown below.



Create 3 AD-Users (alice, bob and charlie). Make sure passwords don't need to be changed at first login.

**Deliverable 4** Login as alice and demonstrate you are limited to the VM placed in the alice folder. Provide a screenshot similar to the one below.



Move another VM into the shared-vm's folder and assign the following permissions to that folder

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The screenshot shows the vSphere Client interface with the 'Permissions' tab selected for the VM 'ubuntu01-david'. The left sidebar shows the folder hierarchy: vcenter.david.local > SYS-350 > rbac > shared-vms > ubuntu01-david. The main pane displays a table of permissions assigned to various users and groups.

User/Group	Role
DAVID\sys350-power-user	Virtual machine power user (sample)
DAVID\sys350-restricted-user	Virtual Machine console user
VSPHERE.LOCAL\Administrator	Administrator
VSPHERE.LOCAL\Administrators	Administrator
VSPHERE.LOCAL\applmgmtSvcUsers	applmgmtSvcRole
VSPHERE.LOCAL\AutoUpdate	AutoUpdateUser
VSPHERE.LOCAL\CAAdmins	Read-only
VSPHERE.LOCAL\certificateauthority-b2270116-ff18-4621-9eae-5d66f589fa...	Read-only
VSPHERE.LOCAL\NsxAdministrators	NSX Administrator
VSPHERE.LOCAL\NsxAuditors	NSX Auditor
VSPHERE.LOCAL\NsxVIAdministrators	NSX VI Administrator
VSPHERE.LOCAL\ReadOnlyUsers	Read-only
VSPHERE.LOCAL\RegistryAdministrators	Content Library Registry administrator (sa...
VSPHERE.LOCAL\SyncUsers	SyncUsers
VSPHERE.LOCAL\vmtoolsd-svc-h2270116-ff18-4621-9eae-5d66f589fa...	vmtoolsd-svcUser

Alice should enjoy power level privileges over VMs in the shared-vms folder. Bob and Charlie should be limited to a handful of console operations. For instance Bob should not be able to Grab a snapshot.

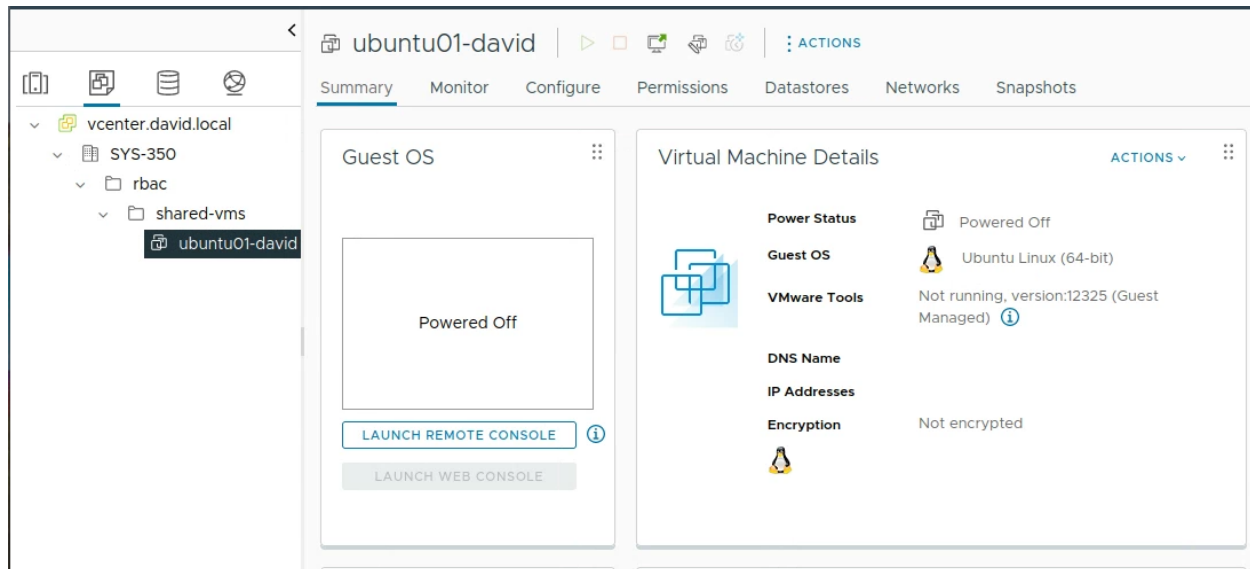
**Deliverable 5.** Provide a screenshot demonstrating that Bob's Take snapshot option is grayed out.

The screenshot shows the vSphere Client interface with the 'Snapshots' tab selected for the VM 'ubuntu01-david'. The left sidebar shows the folder hierarchy: vcenter.david.local > SYS-350 > rbac > shared-vms > ubuntu01-david. The main pane displays a table of snapshots.

Name	Description	Timestamp	Size	Snapshot the virtual machine's memory	Quiesce guest file system
testing!	please work	10/6/23, 1:33 PM	6.49 GB	No	No

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**Deliverable 6.** Ok, we've decided that the Virtual Machine console user role has far too much power. Figure out how to clone the role, name it something like "Virtual Machine console no power user". Edit this cloned role such that those assigned that role will not be able to perform power operations. Change the permissions for share-vms so that the restricted user group gets your new limited role. Provide a screenshot of Charlie's VM with the PowerOn, Off actions disabled.



**Deliverable 7.** Provide a link to your tech journal that details how you created a new NFS datastore and how Permissions are applied to folders (and objects) in vSphere.

**Deliverable 8.** Cover any issue you had in the completion of the lab. Consider the security implications for NFS (version 3 in particular).