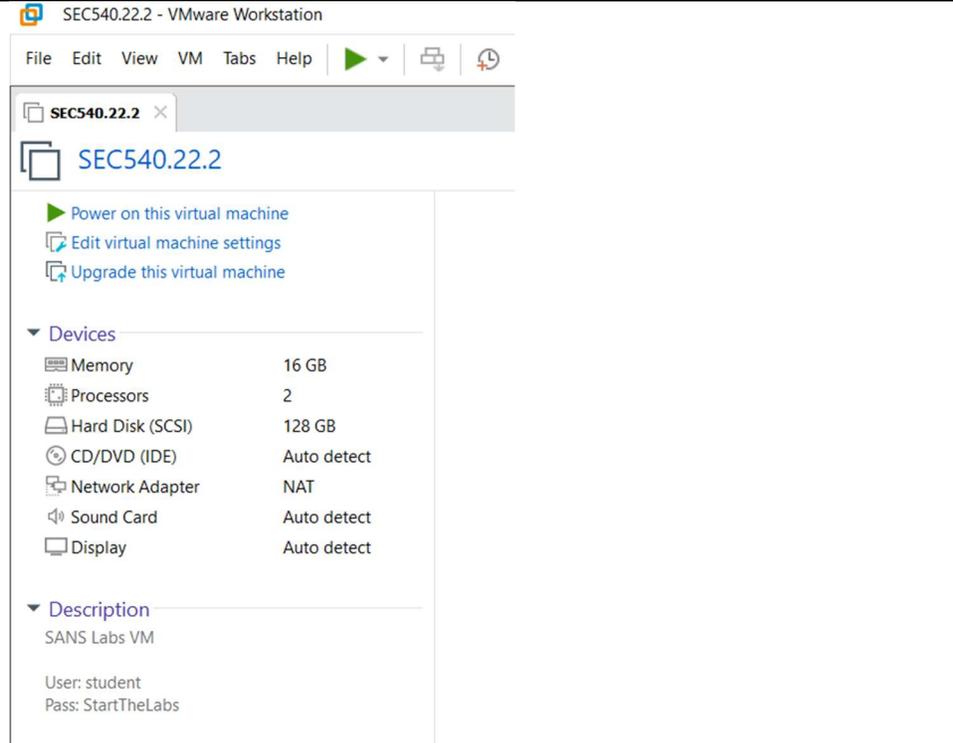
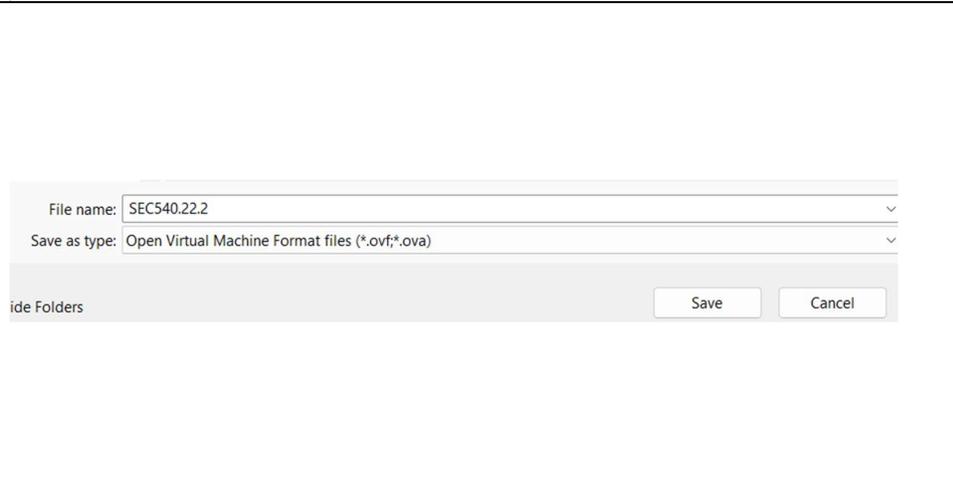


Migrating a SANS Virtual Machine VMware to Proxmox

A *hasty* walkthrough of the steps to migrate a VMware virtual machine to my Proxmox virtual environment. Specifically, I'm using the SEC540.22.2 VM on the 15th of February 2024. My hope is that the methodology remains firm for a while and can also be applied to VMs for other courses. Your mileage may vary – I'm incapable of providing additional support or warranty of this work.

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	<p>Open VMware Workstation.</p> <p>With the virtual machine powered off, click File and select Export to OVF.</p>
	<p>Browse to the appropriate path and click Save The File.</p> <p>Even with NVMe solid state storage, this file operation can take a LONG time. Feel free to fetch a cup of coffee, stretch your legs, etc.</p>

<p>Create: Virtual Machine</p> <p>General OS System Disks CPU Memory Network Confirm</p> <p>Node: indigo Resource Pool:</p> <p>VM ID: 900</p> <p>Name: SEC540.22.2</p> <hr/> <p>Start at boot: <input type="checkbox"/> Start/Shutdown order: any</p> <p>Startup delay: default</p> <p>Shutdown timeout: default</p> <p>Tags</p> <p>No Tags +</p>	<p>In the Proxmox administrative console click, Create VM.</p> <p>I'm naming mine SEC540.22.2 for convenience, and have assigned VM ID 900. We'll need this ID when we import the OVF file.</p> <p>Click Next.</p>
<p>Create: Virtual Machine</p> <p>General OS System Disks CPU Memory Network Confirm</p> <p><input type="radio"/> Use CD/DVD disc image file (iso)</p> <p>Storage: local</p> <p>ISO image:</p> <p>Guest OS:</p> <p>Type: Linux</p> <p>Version: 6.x - 2.6 Kernel</p> <p><input type="radio"/> Use physical CD/DVD Drive</p> <p><input checked="" type="radio"/> Do not use any media</p>	<p>On the OS tab select "Do not use any media" and leave the remaining settings at default and click Next.</p>
<p>Create: Virtual Machine</p> <p>General OS System Disks CPU Memory Network Confirm</p> <p>Graphic card: Default SCSI Controller: VirtIO SCSI single</p> <p>Machine: Default (i440fx) Qemu Agent: <input type="checkbox"/></p> <p>Firmware</p> <p>BIOS: Default (SeaBIOS) Add TPM: <input type="checkbox"/></p>	<p>Accept the defaults on the System tab and click Next.</p>

<p>Create: Virtual Machine</p> <p>General OS System Disks CPU Memory Network Confirm</p> <p>scsi0  Disk Bandwidth</p> <p>Bus/Device: SCSI 0 Cache: <input type="checkbox"/></p> <p>SCSI Controller: VirtIO SCSI single Discard: <input type="checkbox"/></p> <p>Storage: local IO thread: <input checked="" type="checkbox"/></p> <p>Disk size (GiB): 32</p> <p>Format: QEMU image format</p> <hr/> <p>SSD emulation: <input type="checkbox"/> Backup: <input checked="" type="checkbox"/></p> <p>Read-only: <input type="checkbox"/> Skip replication: <input type="checkbox"/></p> <p>Async IO: <input type="checkbox"/></p>	<p>Here on the Disks tab again accept the defaults and click Next.</p>
<p>Create: Virtual Machine</p> <p>General OS System Disks CPU Memory Network Confirm</p> <p>Sockets: 2 Type: x86-64-v2-AES</p> <p>Cores: 2 Total cores: 4</p> <hr/> <p>VCPUs: 4 CPU units: 100</p> <p>CPU limit: unlimited Enable NUMA: <input type="checkbox"/></p> <p>CPU Affinity: All Cores</p> <p>Extra CPU Flags:</p>	<p>I'm assigning Two Sockets and Two Cores for the VM and leaving remainder at default.</p> <p>In some rare occasions I've seen the need to change "Type" to either qemu64 or host, but not with this VM.</p>
<p>Create: Virtual Machine</p> <p>General OS System Disks CPU Memory Network Confirm</p> <p>Memory (MiB): 16384</p> <hr/> <p>Minimum memory (MiB): 16384</p> <p>Shares: Default (1000)</p> <p>Ballooning Device: <input checked="" type="checkbox"/></p>	<p>I'm assigning 16 GB of RAM for the VM.</p> <p>Click Next.</p>

Create: Virtual Machine

General OS System Disks CPU Memory **Network** Confirm

No network device

Bridge: Model:

VLAN Tag: MAC address:

Firewall:

Disconnect: Rate limit (MB/s):

MTU: Multiqueue:

Accept the defaults for Network by clicking Next.

Create: Virtual Machine

General OS System Disks CPU Memory Network **Confirm**

Key ↑	Value
cores	2
cpu	x86-64-v2-AES
ide2	none,media=cdrom
memory	16384
name	SEC540.22.2
net0	virtio,bridge=vibr0,firewall=1
nodename	indigo
numa	0
ostype	l26
scsi0	local:32,format=qcow2,iotthread=on
scsihw	virtio-scsi-single
sockets	2
vmid	900

Start after created

Advanced **Back** **Finish**

Review to confirm settings and then click Finish.

Virtual Machine 900 (SEC540.22.2) on node 'indigo' No Tags

Summary Add Detach Edit Disk Action Revert

- Console Memory 16.00 GiB
- Hardware** Processors 4 (2 sockets, 2 cores) [x86-64-v2-AES]
- Cloud-Init BIOS Default (SeaBIOS)
- Options Display Default
- Task History Machine Default (i440fx)
- Monitor SCSI Controller VirtIO SCSI single
- Backup CD/DVD Drive (ide2) none,media=cdrom
- Replication Hard Disk (scsi0) local:900/vm-900-disk-0.qcow2,iotthread=1,size=32G
- Snapshots Network Device (net0) virtio=BC:24:11:5D:74:AE,bridge=vibr0,firewall=1
- Firewall
- Permissions

In the Proxmox administrative console select your new VM and click the Hardware tab.

Highlight the 32GB hard drive we created earlier and click the “Detach” button.

Virtual Machine 900 (SEC540.22.2) on node 'indigo' No Tags

Summary	Add	Remove	Edit	Disk Action	Revert
Console	Memory	16.00 GiB			
Hardware	Processors	4 (2 sockets, 2 cores) [x86-64-v2-AES]			
Cloud-Init	BIOS	Default (SeaBIOS)			
Options	Display	Default			
Task History	Machine	Default (i440fx)			
Monitor	SCSI Controller	VirtIO SCSI single			
Backup	CD/DVD Drive (ide2)	none,media=cdrrom			
Replication	Network Device (net0)	virtio=BC:24:11:5D:74:AE,bridge=vibr0,fi			
Spanshots	Unused Disk 0	local:900/vm-900-disk-0.qcow2			

The name of the disk will change to "Unused Disk 0". Highlight this disk and click the "Remove" button. This will delete the disk entirely from Proxmox.

Name	Date modified	Type	Size
SEC503	2/6/2024 10:46 AM	File folder	
SEC540.22.2	2/15/2024 12:13 PM	File folder	
SEC540.22.2.mf	2/15/2024 12:13 PM	MF File	1 KB
SEC540.22.2	2/15/2024 12:13 PM	Open Virtualizatio...	14 KB
SEC540.22.2-disk1	2/15/2024 12:13 PM	VMDK File	16,542,463 ...

Once the VMware export to OVF is completed there are three files in the export path matching the name of the VM.

```

nefario@green: /mnt/d/VM
nefario@green: /mnt/d/VM$ ls -lh
total 16G
drwxrwxrwx 1 nefario nefario 512 Feb  6 10:46 SEC503
drwxrwxrwx 1 nefario nefario 512 Feb 15 12:20 SEC540.22.2
-rwxrwxrwx 1 nefario nefario 16G Feb 15 12:13 SEC540.22.2-disk1.vmdk
-rwxrwxrwx 1 nefario nefario 187 Feb 15 12:13 SEC540.22.2.mf
-rwxrwxrwx 1 nefario nefario 14K Feb 15 12:13 SEC540.22.2.ovf
nefario@green: /mnt/d/VM$ scp SEC540.22.2* root@indigo.1on1.lan:
SEC540.22.2: not a regular file
SEC540.22.2-disk1.vmdk

```

Use the transfer method of your choice to copy the three files to your Proxmox server. I'm using WSL2 on my workstation.

```

nefario@green: ~
root@indigo:~# ls
SEC540.22.2-disk1.vmdk SEC540.22.2.mf SEC540.22.2.ovf
root@indigo:~# qm importdisk 900 SEC540.22.2-disk1.vmdk local-lvm -format qcow2
importing disk 'SEC540.22.2-disk1.vmdk' to VM 900 ...
Logical volume "vm-900-disk-0" created.
transferred 0.0 B of 128.0 GiB (0.00%)
transferred 1.3 GiB of 128.0 GiB (1.00%)
transferred 2.6 GiB of 128.0 GiB (2.00%)
transferred 3.8 GiB of 128.0 GiB (3.00%)
transferred 5.1 GiB of 128.0 GiB (4.00%)

```

With the files now transferred to the Proxmox server, ssh into the server.

The qm command is used to import the disk.
 Here specify the VM created earlier by ID, 900,
 The filename for the disk to import.
 The storage location of the imported disk.
 The format of the disk.
 qm importdisk 900 SEC540.22.2-disk1.vmdk local-lvm -format qcow2

Execute the import command to bring your hard disk into the storage location for your environment. I'm using local-lvm.

Virtual Machine 900 (SEC540.22.2) on node 'indigo' No Tags

Summary Add Remove Edit Disk Action Revert

- Console
- Hardware
- Cloud-Init
- Options
- Task History
- Monitor
- Backup
- Replication
- Snapshots

Memory	16.00 GiB
Processors	4 (2 sockets, 2 cores) [x86-64-v2-AES]
BIOS	Default (SeaBIOS)
Display	Default
Machine	Default (i440fx)
SCSI Controller	VirtIO SCSI single
CD/DVD Drive (ide2)	none,media=cdrom
Network Device (net0)	virtio=BC:24:11:5D:74:AE,bridge=vibr0,firewall=1
Unused Disk 0	local-lvm:vm-900-disk-0

Returning to the settings of the new VM in the Proxmox console, there is now an “Unused Disk 0” listed. This is recently imported disk.

Add: Unused Disk

Disk Bandwidth

Bus/Device: SCSI 0 Cache: Default (No cache)

SCSI Controller: VirtIO SCSI single Discard:

Disk image: local-lvm:vm-900-disk-0 IO thread:

SSD emulation: Backup:

Read-only: Skip replication:

Async IO: Default (io_uring)

Help Advanced Add

Select the disk and click the Edit button.

Details for the disk will be listed. I place a check in the box for SSD emulation.

Click the Add button.

Virtual Machine 900 (SEC540.22.2) on node 'indigo' No Tags

Summary Edit Revert

- Console
- Hardware
- Cloud-Init
- Options
- Task History
- Monitor
- Backup
- Replication
- Snapshots

Name	SEC540.22.2
Start at boot	No
Start/Shutdown order	order=any
OS Type	Linux 6.x - 2.6 Kernel
Boot Order	ide2, net0
Use tablet for pointer	Yes
Hotplug	Disk, Network, USB
ACPI support	Yes
KVM hardware virtualization	Yes
Freeze CPU at startup	No
Use local time for RTC	Default (Enabled for Windows)

Return to the Options tab and select Boot Order.

Click the Edit button.

	<p>Click the check boxes to disable ide2 and net0, then enable the scsi0 device and click OK.</p>
	<p>Select the >_Console tab for the VM and click Start Now.</p>

In a few short moments the VM is read! Enjoy!