

# How to virtual machines on the MTU College of Computing Cluster

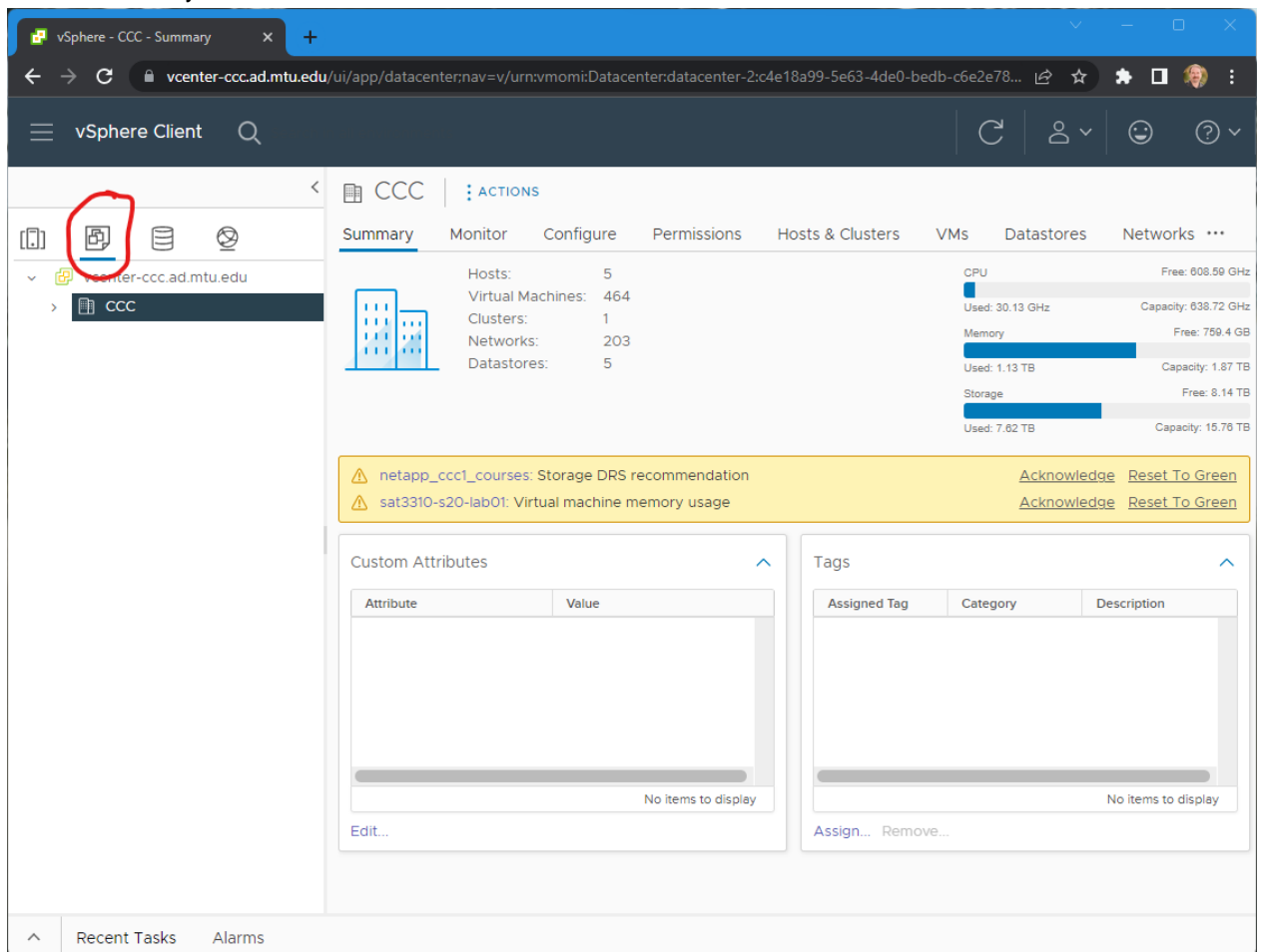
Version: Spring 2025

## 1. Introduction

The MTU College of Computing Cluster is designed for graduate and undergraduate lab work. This cluster allows remote access to virtual machines by using a web browser interface.

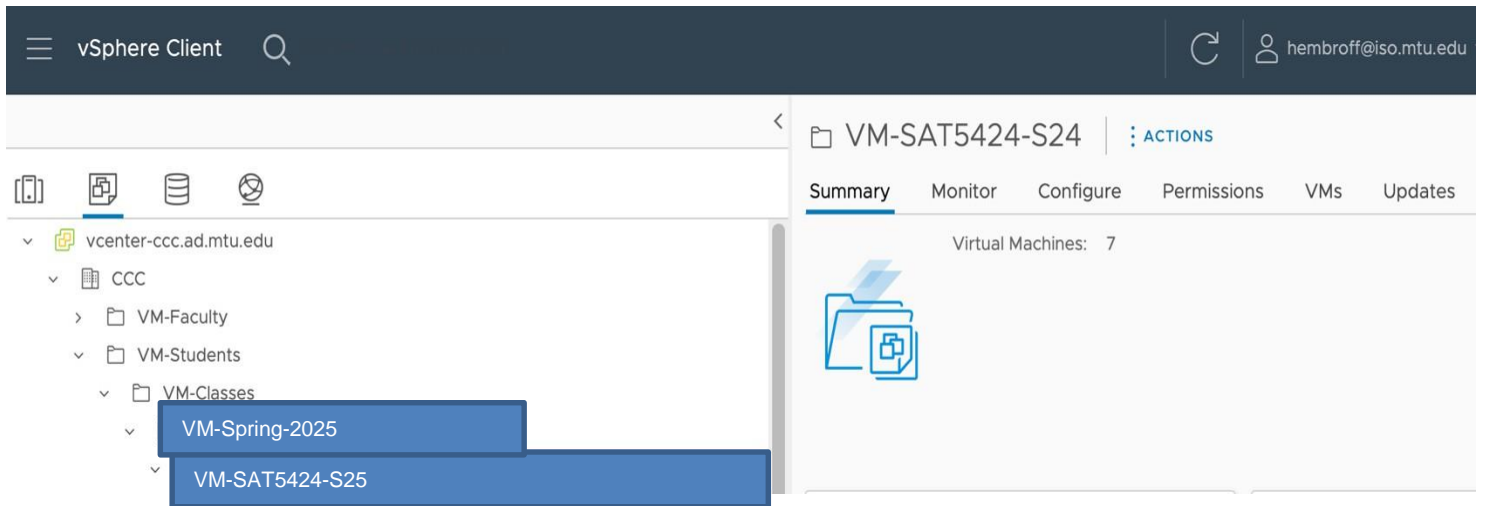
## 2. Navigating the MTU College of Computing Cluster

### 2.1. Make sure that you select the second icon




























### 2.2. Expand the CCC and look for your Class

2.2.1. Vcenter-ccc.ad.mtu.edu / VM-Students / VM-Classes / VM-Spring-2025 / VM-SAT5424-S25



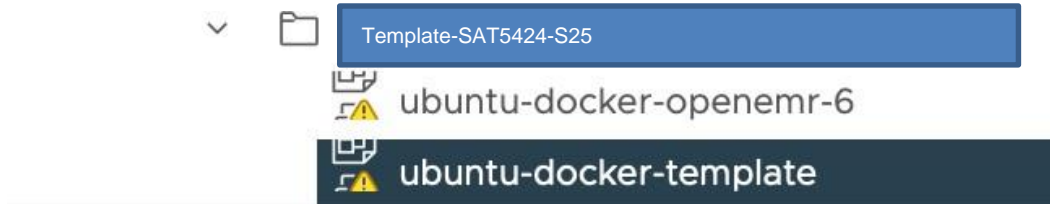
### 2.3. Expand the CCC and look for your Templates

2.3.1. Vcenter-ccc.ad.mtu.edu / VM-Students / VM-Student-Templates / Template-SAT5424-S25

- ▼  VM-Summer-2023
- ▼  VM-Student-Templates
  -  Template-Cai-2023
  -  Template-CEE4610-S22
  -  Template-CEE4610-S23
  -  Template-CTE-CCC-F20
  -  Template-Fedora-Cai-2024
  -  Template-Fedora-Cai-S24
  -  Template-SAT1610-S20
  -  Template-SAT2511-S22
  -  Template-SAT2711-F23
  -  Template-SAT3210-F20
  -  Template-SAT3210-F22
  -  Template-SAT3310-S22
  -  Template-SAT3611-F23
  -  Template-SAT4310-F22
  -  Template-SAT4411-S22
  -  Template-SAT4650-F23
  -  Template-SAT4816-5816-F23
  -  Template-SAT4816-F22
  -  Template-SAT4817-S23
  -  Template-SAT4880-L01-S20
  -  Template-SAT4997-SU20
  -  Template-SAT5165-S23
  - ▼  Template-SAT5424-S25

3. Expand the Template-SAT5424-S25 folder and look for Templates: eg: ubuntu-docker-template

3.1. Select the template, and right-click: "New VM from This Template..."



### 3.2. Name the virtual machine

name the other virtual machines with their respective hospital/hie names:

Example: **hembroff-aspirus-192.169.17.2**

## ubuntu-docker-template - Deploy From Template






- ✓ **1 Select a name and folder**
- 2 Select a compute resource
- 3 Select storage
- 4 Select clone options
- 5 Ready to complete

### Select a name and folder

Specify a unique name and target location

Virtual machine name: aspirus-hospital-ubuntu

Select a location for the virtual machine.

- ✓  vcenter-ccc.ad.mtu.edu
  - ✓  CCC
    - ✓  VM-Faculty
      - >  VM-hembroff
      - >  VM-Students

CANCEL

BACK

3.2.1. Expand the vcenter-ccc.ad.mtu.edu / CCC / VM-Students / VM-Classes / VM-Spring-2025 / VM-SAT5424-S25 and then select VM-youruserid (this is an example of my userid)

3.3. Next select a compute resource. You should only have one resource pool automatically selected for you:

## ubuntu-docker-template - Deploy From Template

✓ 1 Select a name and folder

**2 Select a compute resource**

3 Select storage

4 Select clone options

5 Ready to complete

### Select a compute resource

Select the destination compute resource for this operation

- ▼ CCC
  - ▼ CCC
    - esxccc-1.ad.mtu.edu
    - esxccc-2.ad.mtu.edu
    - esxccc-3.ad.mtu.edu
    - esxccc-4.ad.mtu.edu
    - esxccc-5.ad.mtu.edu
  - ▼ RP-Faculty
    - RP-hembroff**

### Compatibility

✓ Compatibility checks succeeded.

CANCEL

BACK

Select next

### 3.4. Select Storage

Select the "netapp\_ccc1\_course"

Select virtual disk format: Thin Provision

## ubuntu-docker-template - Deploy From Template

- ✓ 1 Select a name and folder
- ✓ 2 Select a compute resource
- 3 Select storage**
- 4 Select clone options
- 5 Ready to complete

### Select storage

Select the storage for the configuration and disk files

BATCH CONFIGURE

CONFIGURE PER DISK

Select virtual disk format

Thin Provision

VM Storage Policy

☐ Disable Storage DRS for this virtual machine

	Name	Storage Compatibility	Capacity	Provisioned	Free
🔍	netapp_cccl_cours...	--	14 TB	6.36 TB	7.64 TB
🔍	netapp_cccl_iso	--	180 GB	150.57 GB	31.43 Gi

### Compatibility

✓ Compatibility checks succeeded.

CANCEL

BACK

**Note: Make sure that it is Thin Provision**

Click Next

### 3.5. Select clone options

Leave as default (unless otherwise directed by your specific lab instructions)

CUSTOMIZE VIEW

Select clone options

Select further clone options

☐

Customize the operating system

☐

Customize this virtual machine's hardware

☐

Power on virtual machine after creation

CANCEL

BACK

NEXT

Click Next

Click Finish



## ubuntu-docker-template - Deploy From Template

×

- ✓ 1 Select a name and folder
- ✓ 2 Select a compute resource
- ✓ 3 Select storage
- ✓ 4 Select clone options

**5 Ready to complete**

**Ready to complete**

Click Finish to start creation.

Source template	ubuntu-docker-template
Virtual machine name	aspirus-hospital-ubuntu
Folder	VM-hembroff
Resource pool	RP-hembroff
Datastore	netapp_ccc1_courses [netapp_ccc1_ds02] (Recommended) <a href="#">more recommendations</a>
Disk storage	Thin Provision

CANCEL

BACK

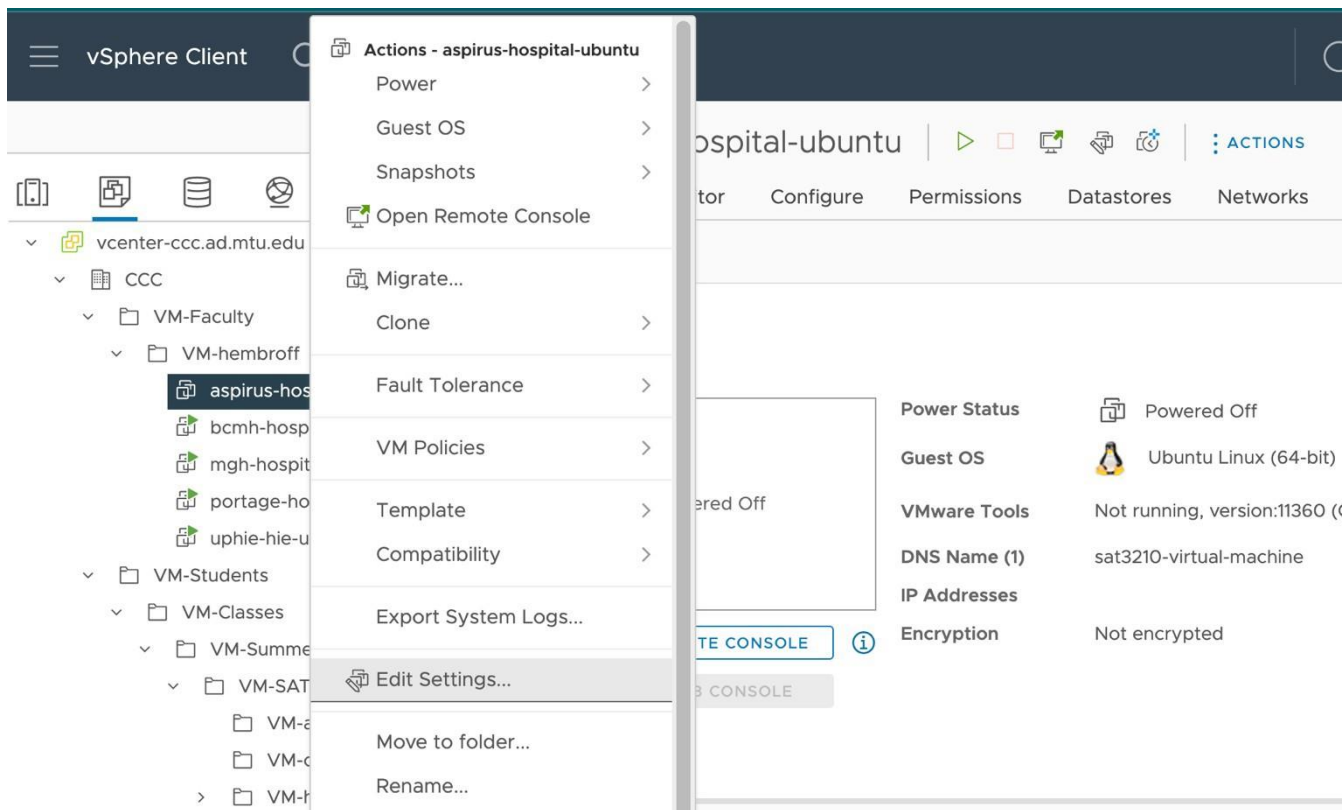
FINISH

### 3.6. Wait

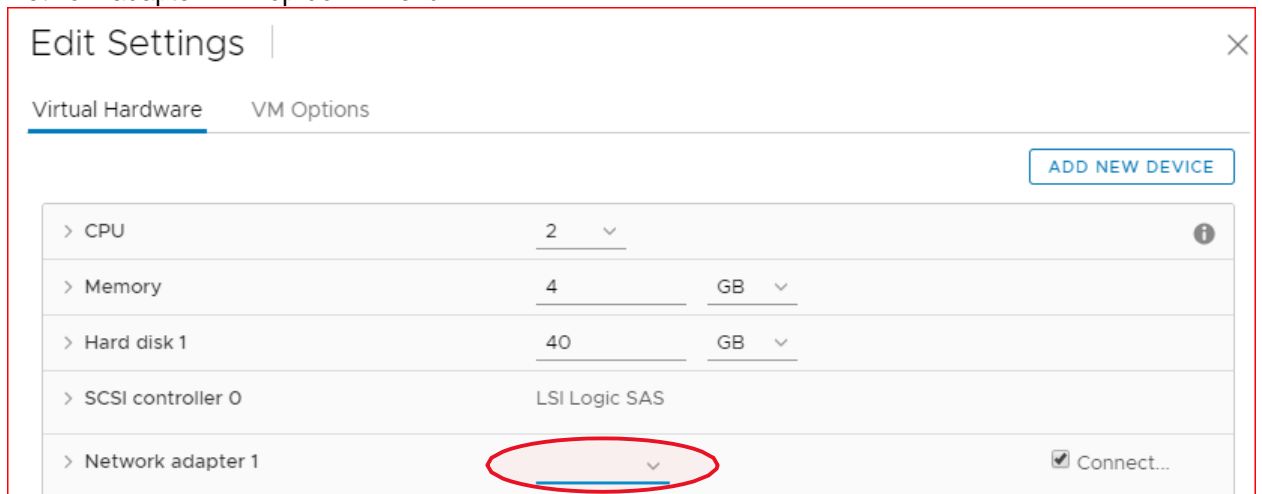
It can take up to 10 minutes to deploy a new virtual machine.

## 4. Post deployment VM configuration – Network

- 4.1. Expand the vcenter-ccc.ad.mtu.edu / CCC / VM-Students / VM-Classes / VM-Spring-2025/ VM-SAT5424-S25 and then select VM-youruserid
- 4.2. Right click on your virtual machine and click “Edit Settings”



Network adapter1 - Drop down menu - Browse...





Choose your private vlan for students. Example: pv-stu-v3065

## Select Network



Filter

Name	Distributed Switch
 pv-class_v3002	--
 pv-class_v3003	--
 pv-stu_v3065	--

3 items

CANCEL

OK

Note: You should only have one pv-stu\_v3XXX network available. Use this exact same one for ALL of your virtual machines.

5. Power on the virtual machine and connect – VMware Remote Console (VMRC) (**OPTIONAL**)

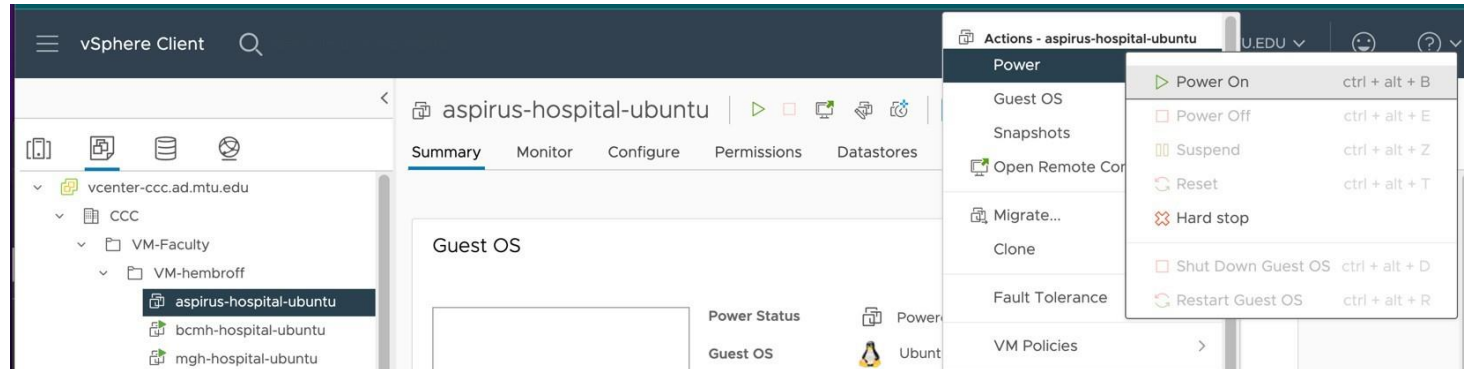
Note: This is only for advanced users.

Install the VMRC software for your OS (Windows, Linux, macOS). This is a free download from VMware:

<https://www.vmware.com/go/download-vmrc>

Note: You can also use the full version of VMware Workstation / Fusion to connect to the MTU College of Computing Cluster:

## 6. Power on the virtual machine and set the IP address.



Run and Click on Launch Web Console

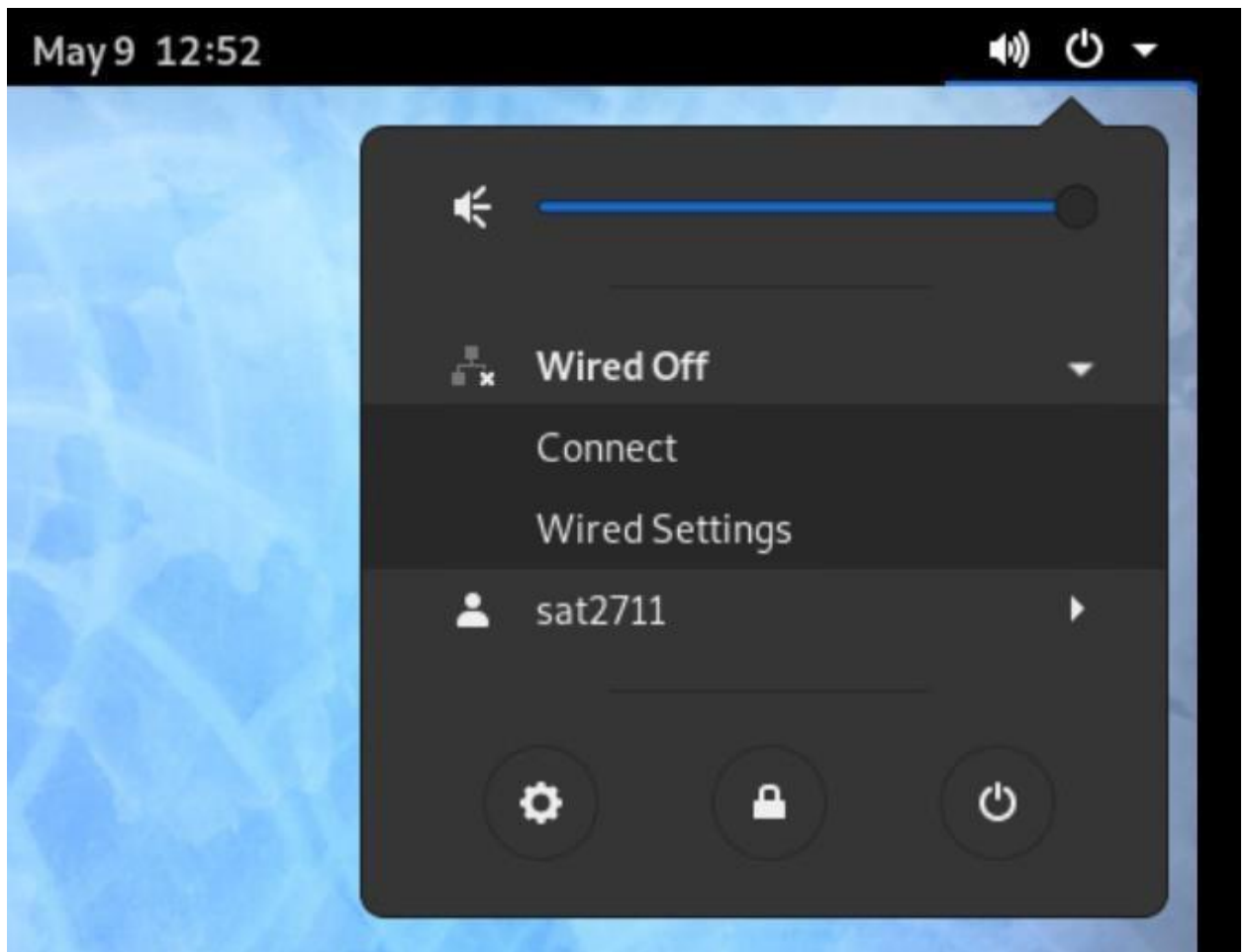
## 7. Virtual Machine – Guest OS – Passwords

Login to the “test” account

Password: P@ssw0rd

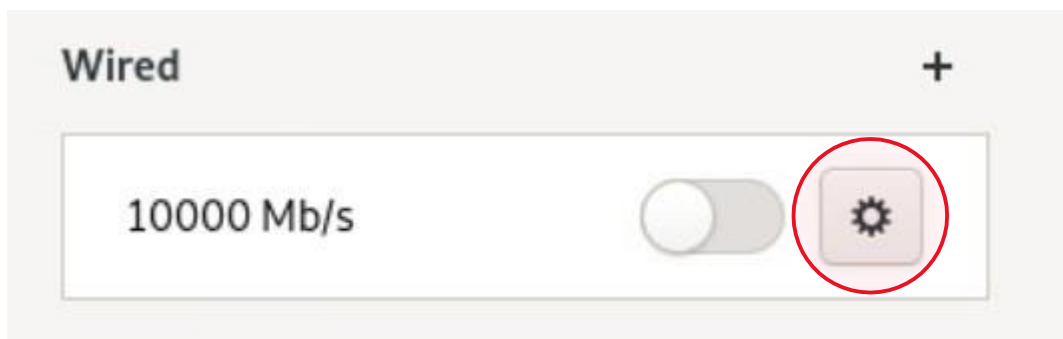
## 8. Virtual Machine - Guest OS setup – Network - Linux

### 8.1. Change the wired networking - Wired Settings



8.2. Select the “gear” icon

8.3. Note: Refer to individual class IP setup for your personal IP range, subnetmask, DNS, and gateway IPs.



- 8.4. Select IPv4, and manual  
Set IP, Subnet mask, Default gateway, DNS server

Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

**IPv4 Method**

☐ Automatic (DHCP) ☐ Link-Local Only

☒ **Manual** ☐ Disable

**Addresses**

Address	Netmask	Gateway	
192.168.10.200	255.255.255.0	192.168.10.1	✕
			✕

**DNS** Automatic ☒

192.168.10.1

Separate IP addresses with commas

**USE A DIFFERENT ADDRESS FOR EACH VM WITHIN THE ASSIGNED IP RANGE FOR YOU**

Examples:

- Addisu Abire
  - IPs to use: 192.168.17.26 - 192.168.17.33
  - Mask: 255.255.255.0
  - Gateway/DNS: 192.168.17.1
- Suhani Yalaga
  - IPs to use: 192.168.17.210 - 192.168.17.217
  - Mask: 255.255.255.0
  - Gateway/DNS: 192.168.17.1

## 9. Virtual Machine - Guest OS setup – VMware Tools (OPTIONAL)

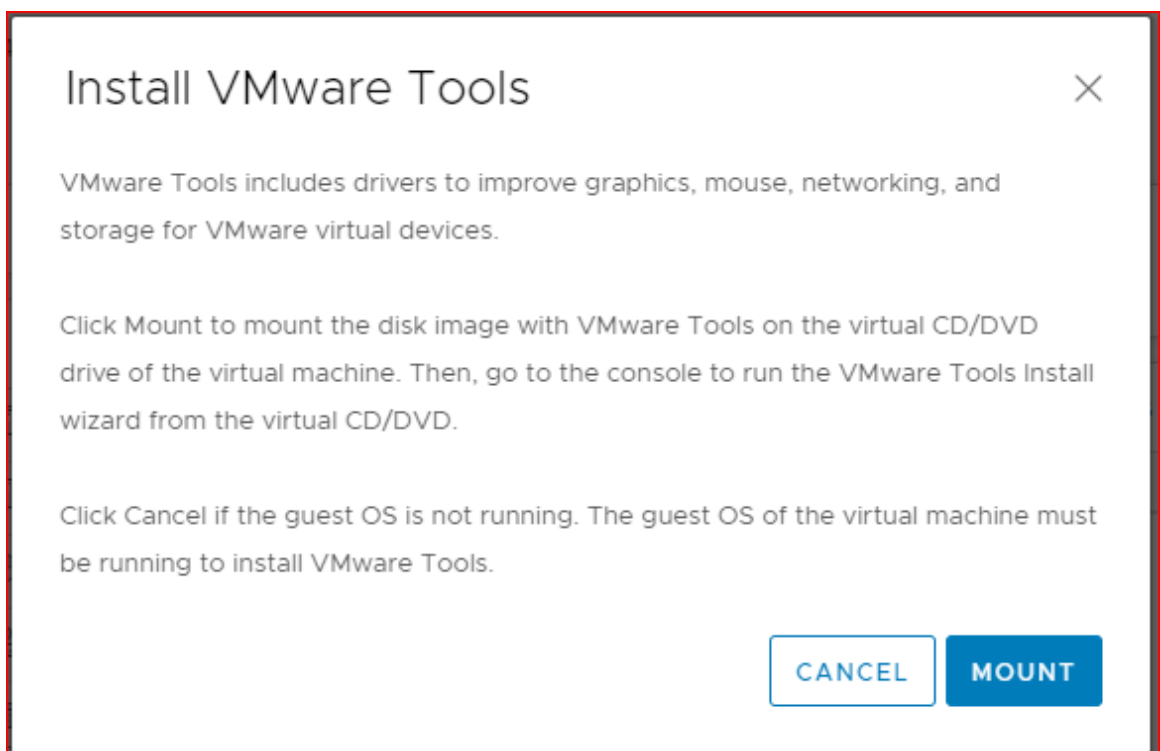
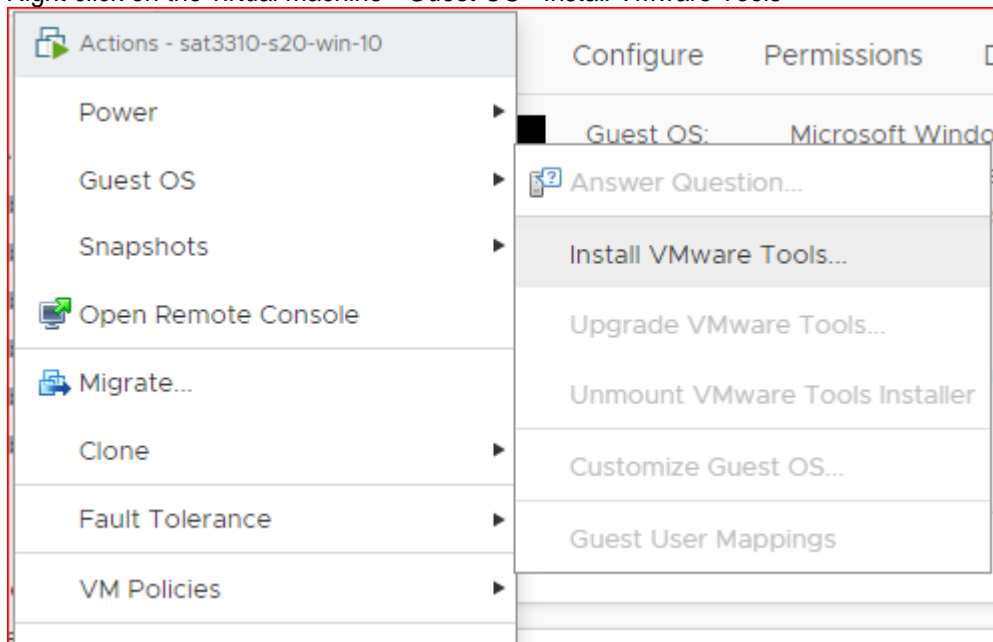
**Note:** These are generic instructions. Please follow your specific lab instructions for installing software and configuring the video settings.

To increase the responsiveness of your VM video, keyboard, and mouse, and to resize the screen, you will need to install VMware Tools on your guest OS.

### 9.1. VMware Tools - Windows:

9.1.1. Make sure the virtual machine is on and running.

9.1.2. Right click on the virtual machine - Guest OS - Install VMware Tools



Connect to your VM guest Windows machine, and continue the installation.

**Note: You may need to reboot your guest VM, and/or resize your browser tab/window for this to take effect.**

## 9.2. VMware Tools - Linux:

### 9.2.1. For DPKG based systems:

```
sudo apt install open-vm-tools
```

### 9.2.2. For RPM based systems:

```
sudo dnf install open-vm-tools
```

## 9.3. Net Tools - Linux: This will allow you to use ifconfig and other net tools helpful for troubleshooting.

### 9.3.1. For DPKG based systems:

```
sudo apt install net-tools
```

### 9.3.2. For RPM based systems:

```
sudo dnf install net-tools
```

**Note: You may need to reboot your guest VM, and/or resize your browser tab/window for this to take effect.**

## 10. Done

You have successfully created virtual machines on the MTU College of Computing Cluster. Please repeat the steps to create other virtual machines and name them:

- portage
- bcmh
- mgh
- uphie

**USE A DIFFERENT ADDRESS FOR EACH VM WITHIN THE ASSIGNED IP RANGE**

### Examples:

- Addisu Abire
  - IPs to use: 192.168.17.26 - 192.168.17.33
  - Mask: 255.255.255.0



- Gateway/DNS: 192.168.17.1
- Suhani Yalaga
  - IPs to use: 192.168.17.210 - 192.168.17.217
  - Mask: 255.255.255.0
  - Gateway/DNS: 192.168.17.1

**11. Optional: change 'test' user Password for all the Virtual Machines  
(just make certain to remember it/them if you do change it).**

