

Assignment 0 - Get your VM setup!

Tutorial link: <https://youtu.be/9chtBTXn5pQ>

The purpose of this assignment is to setup a virtual machine for the course with the required specifications. Dual booting is discouraged since the tools we would be using could cause issues with the entire system. This assignment is not graded. This is only a guideline for the setup for future assignments.

In every place where an SRN is present, replace it with your SRN **IN LOWER CASE**. This is very important since all auto-evaluations of hands-on tutorials will be based on that.

Make sure that you have stable internet connection during the whole setup process.

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2. Virtual Machine Provisioning
3. VM Configuration
 - VMWare Workstation Player
 - Oracle VirtualBox
 - UTM (We recommend this for Macs with Apple Silicon)
4. Virtual Machine Boot-up
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Step 1 - Downloads

Download a Virtual Machine hypervisor. You are free to choose any of the following options. However, it is recommended that you use VMWare Workstation Player.

- Oracle VirtualBox
- VMWare Workstation Player
- UTM (We recommend this for Macs with Apple Silicon)

Download the latest Ubuntu image, that is **22.04. 20.04 OR ANYTHING LOWER IS NOT ACCEPTED**. Link to the image is [here](#).

Step 2 - Virtual Machine Provisioning

Specification Type	Minimum	Recommended
Processors	2	Half the processors available
RAM	4GB	8GB (or) Half the RAM available
Storage	32GB	64 GB
OS Image	Ubuntu 22.04	Ubuntu 22.04

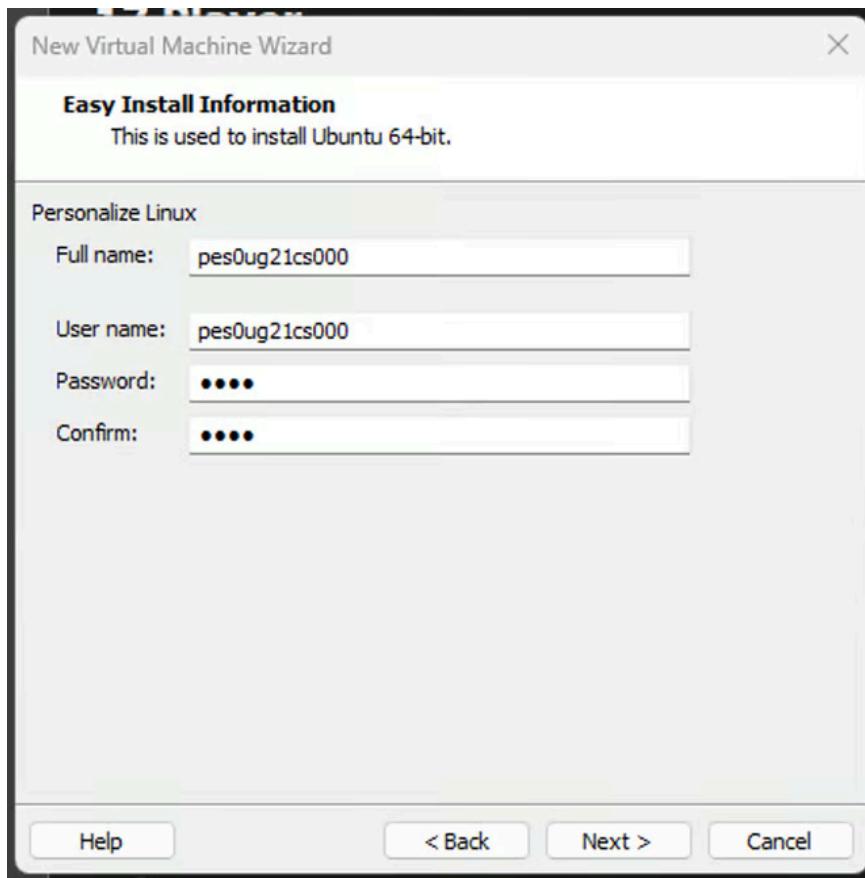
Step 3 - VM Configuration

Step 3a - for VMWare Workstation Player users

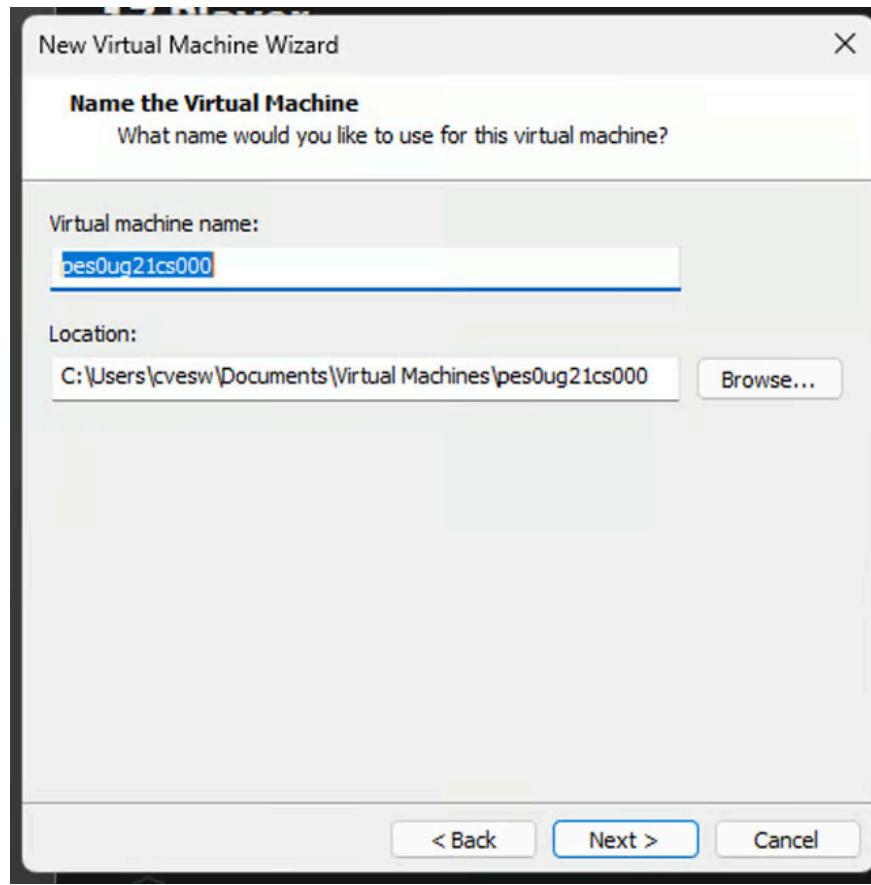
Enable for non-commercial use.



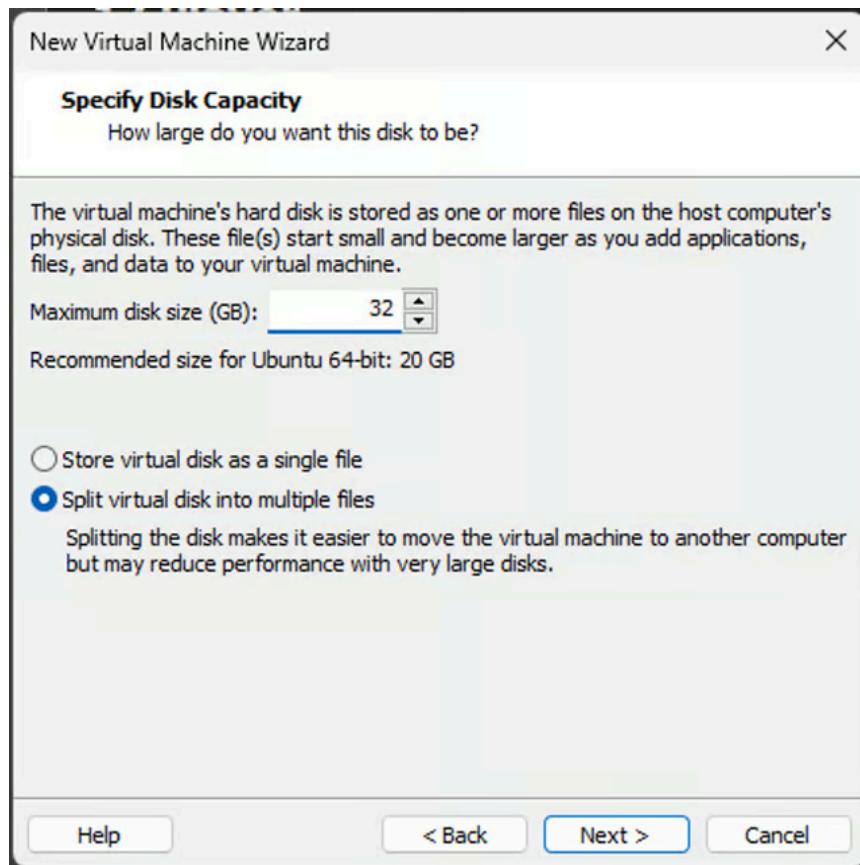
The full name and username of the VM should be your SRN in lowercase as shown in the pic.



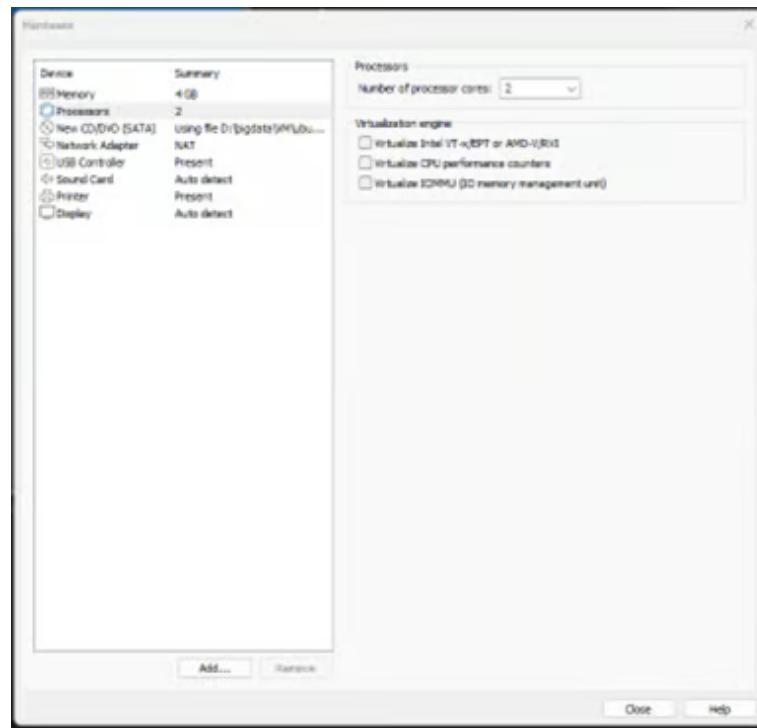
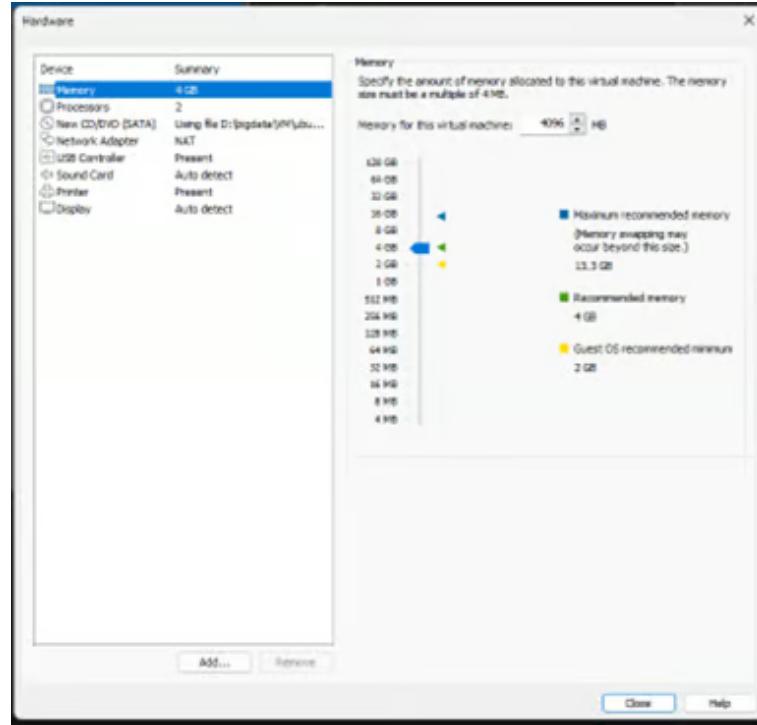
Your virtual machine name should also be your SRN in lowercase.



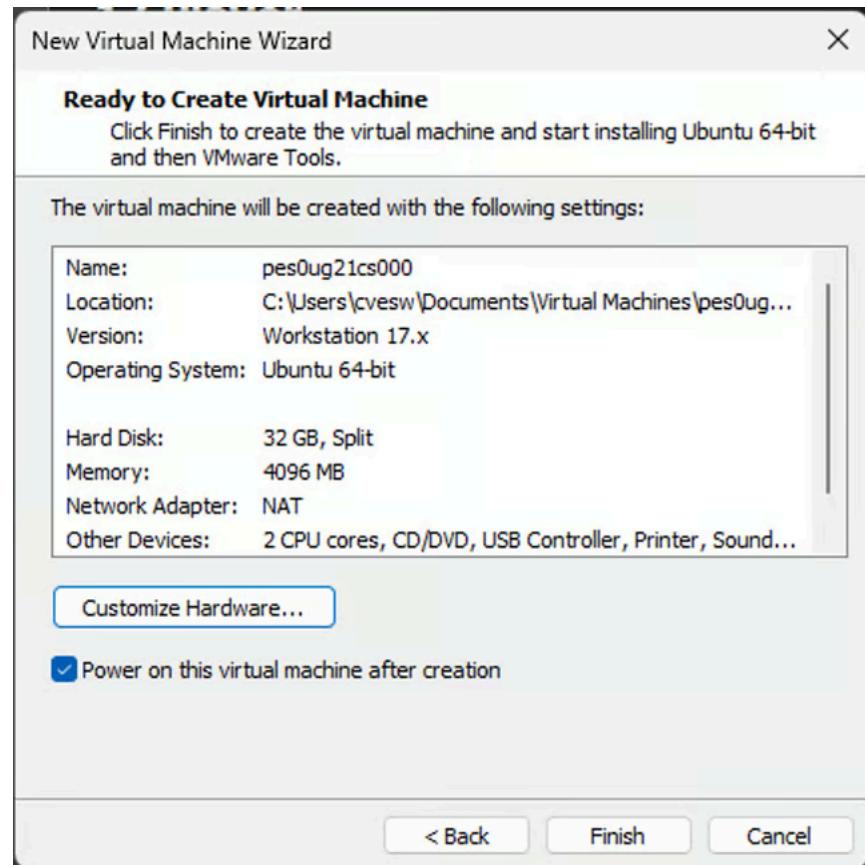
Provide **32GB** (or more, check recommended specs) of storage space and split it into multiple disks.



Head over to "Customize Hardware". Provide at least 4GB of memory and 2 processors. Refer to Virtual Machine Provisioning above for better performance.



Your final configuration should resemble the image given below.

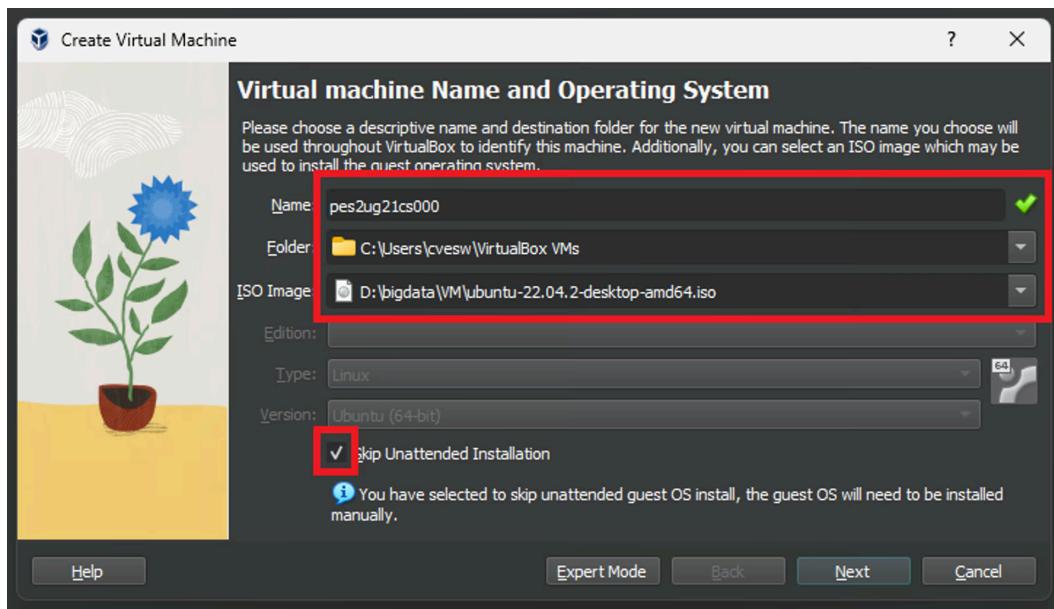


Step 3b - for VirtualBox users

Select **New** or click **ctrl + n**

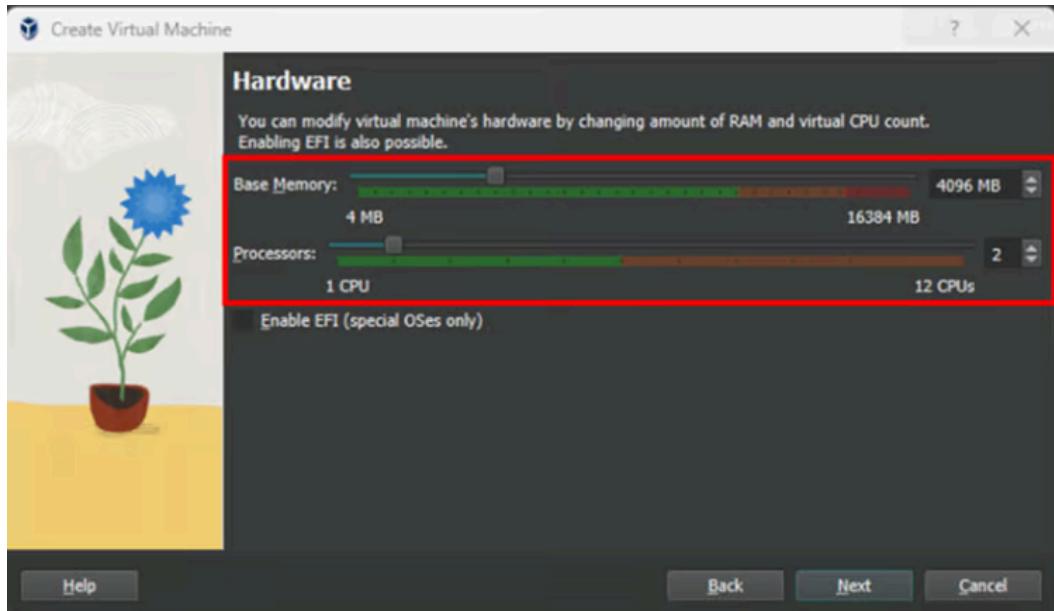
Name your OS with your SRN in lowercase and select the downloaded ISO file. Check the **Skip Unattended Installation** box.

Replace **pes0ug21cs000** with your SRN in lowercase.



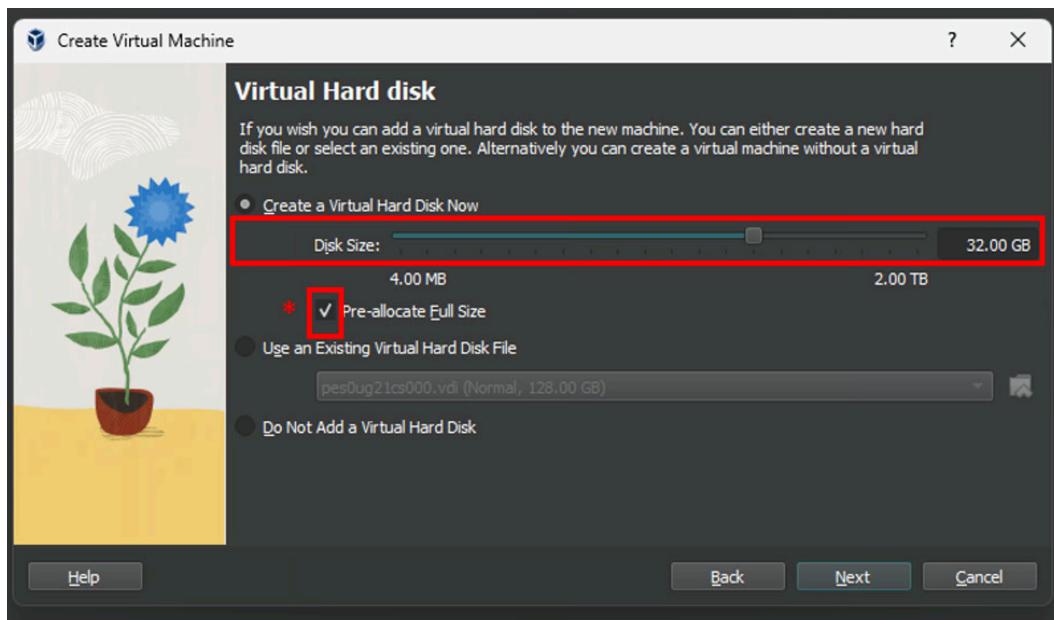
Configure Memory and Processors

Allocate Memory (RAM) and Processors based on your preferences. Refer Virtual Machine Provisioning for more details.



Configure Virtual Hard Disk

Configure the size of virtual hard disk. Refer Virtual Machine Provisioning for the configuration.

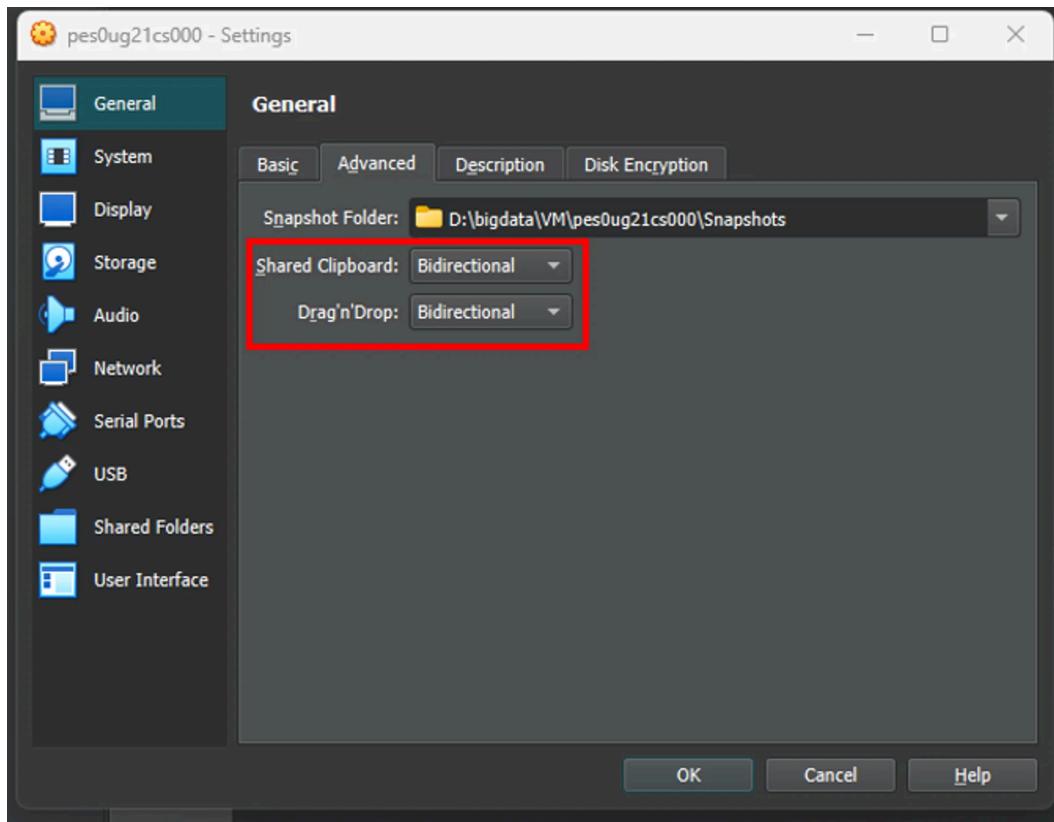


Click **Next** till you reach the end of the setup and click **Finish**.

VM will restart after completing installation process. This can take time (depends on your system's specifications and your internet speed).

Enable Clipboard sharing and Drag and Drop between VM and host machine

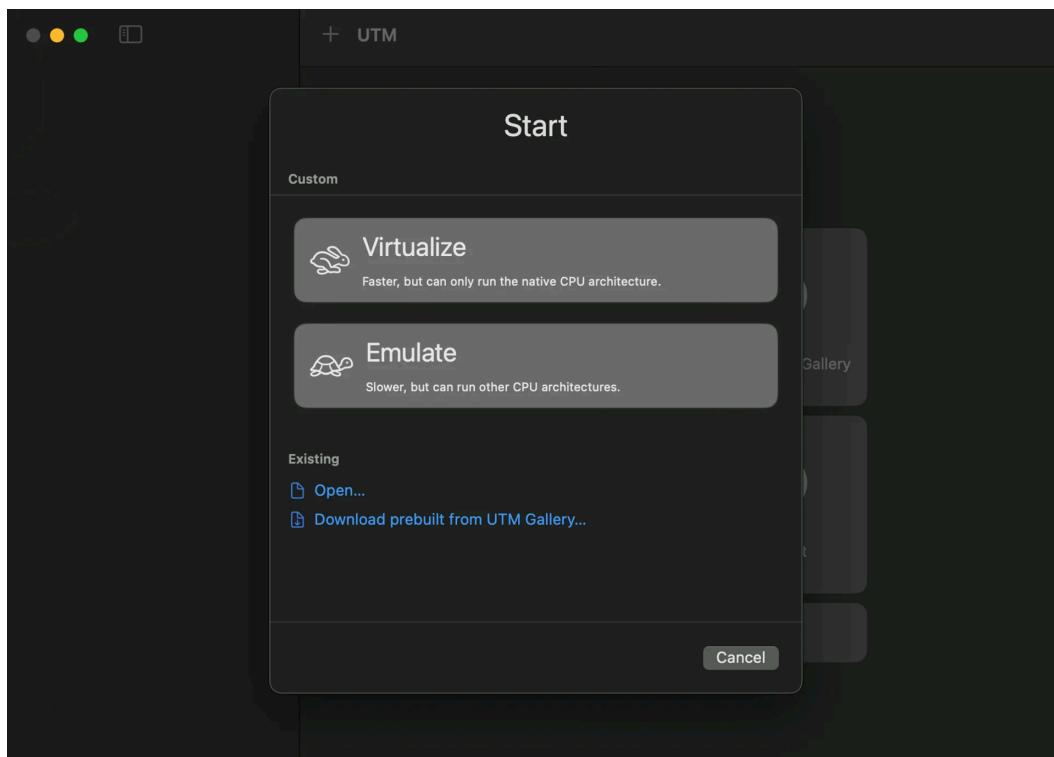
Go to VM Settings (Right click on VM in Virtualbox home page and click on settings. Go to General → Advanced) and set **Shared Clipboard** and **Drag n Drop** as *Bidirectional*



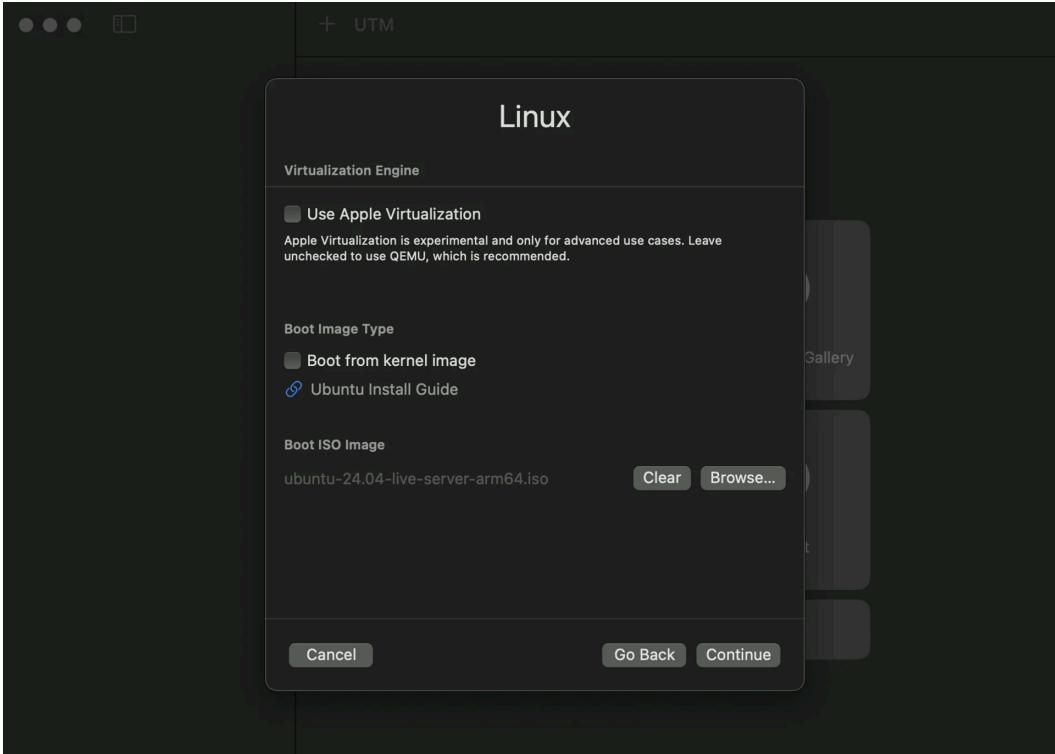
Step 3c - for UTM users [MacOS Users]

NOTE: Make sure you have downloaded the [ARM version of Ubuntu](#) from here <https://ubuntu.com/download/server/arm>.

Open the UTM application after installation and create a new virtual machine. Then select Virtualize

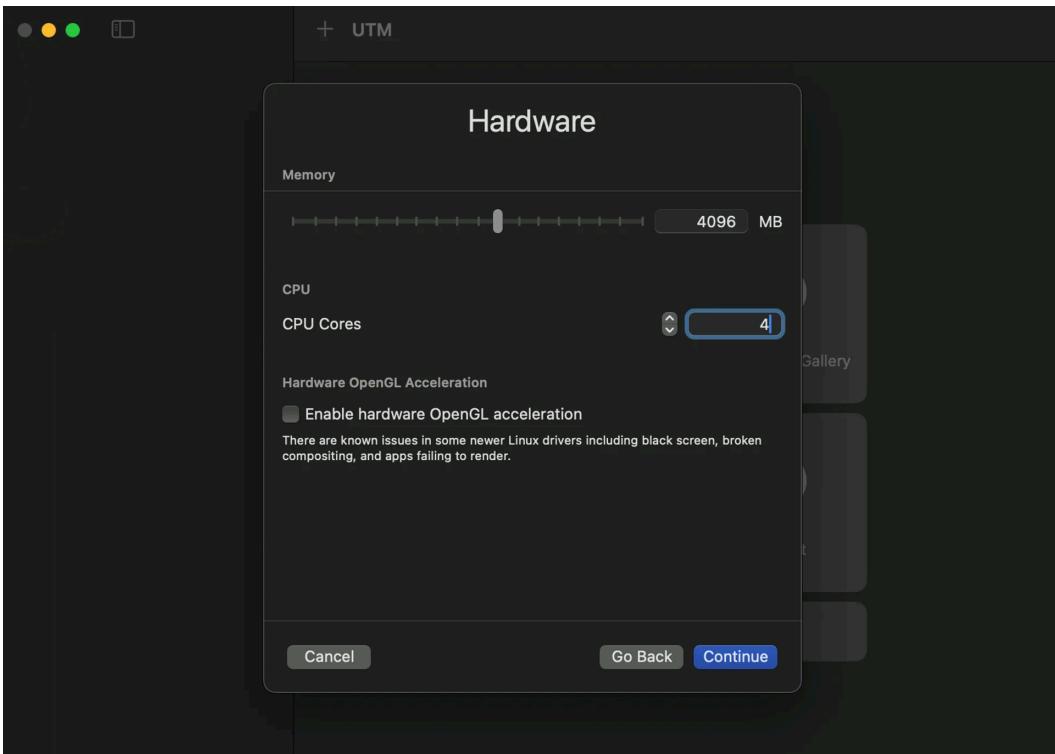


Leave the “Use Apple Virtualization” checkbox unchecked. Select browse and choose the downloaded Ubuntu image file.

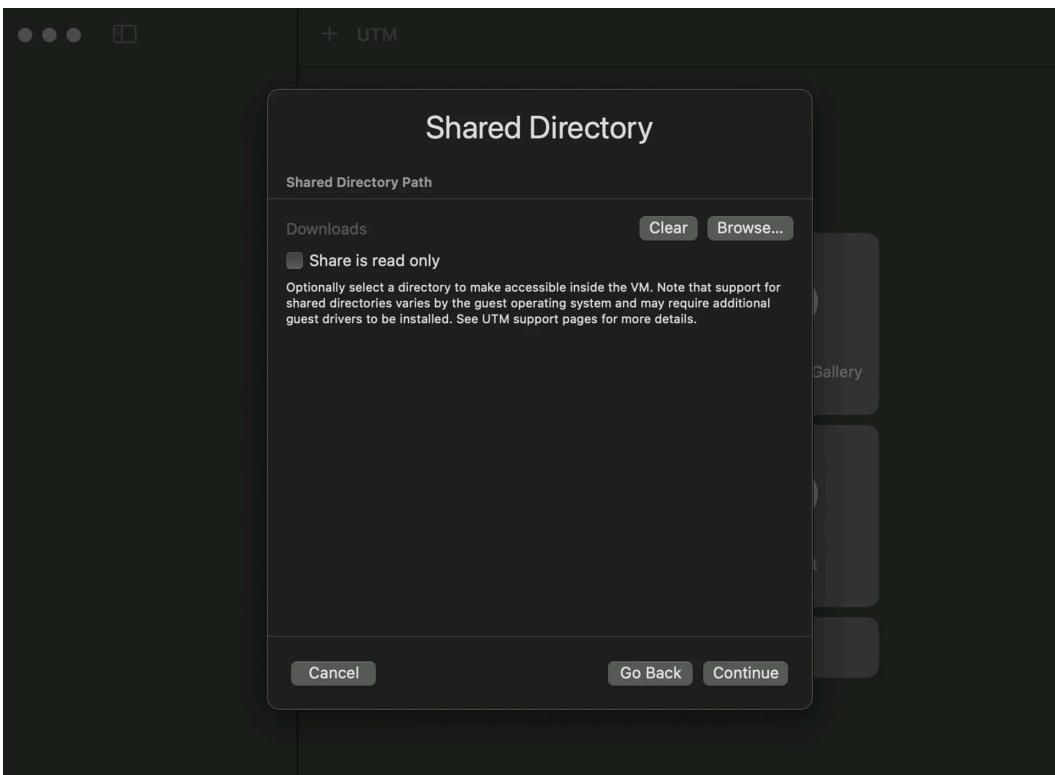


Configure the VM as per the guidelines provided earlier under Virtual Machine Provisioning. If you unsure of how much memory or cores your device has:

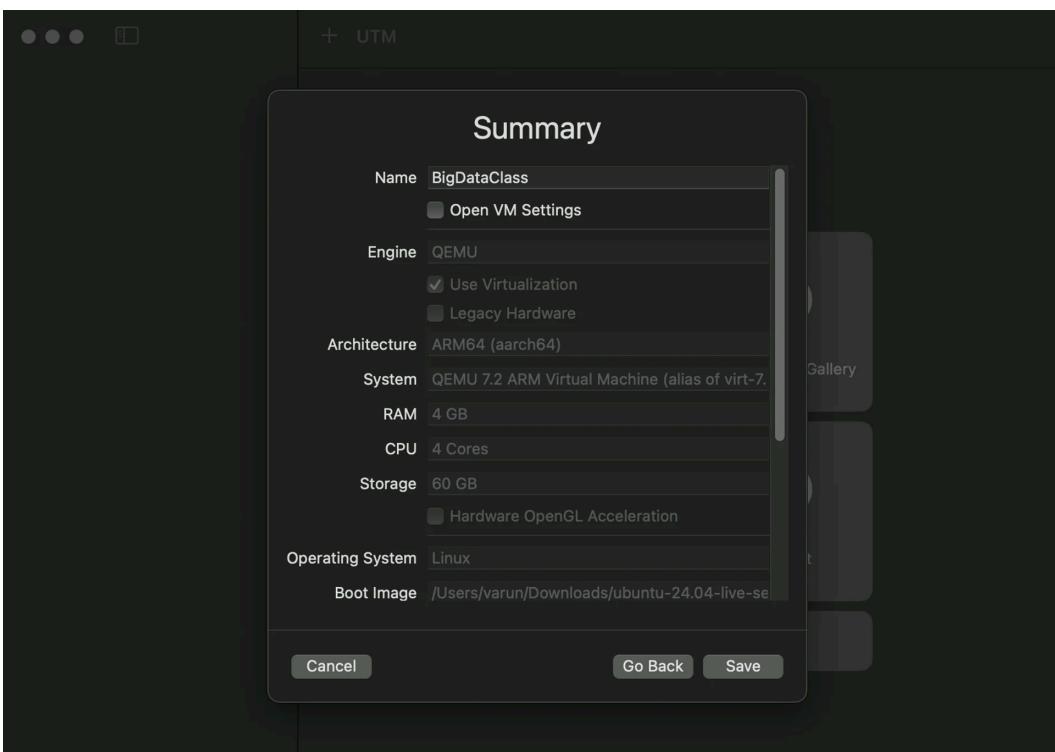
- Click the Apple logo at the top left corner of your screen.
- Click "About This Mac" > "More Info" > "System Report"



Optional: In the Shared Directory configuration you can enable any directory on your machine to be accessible inside the Ubuntu virtual machine.



Review your configuration and click save.



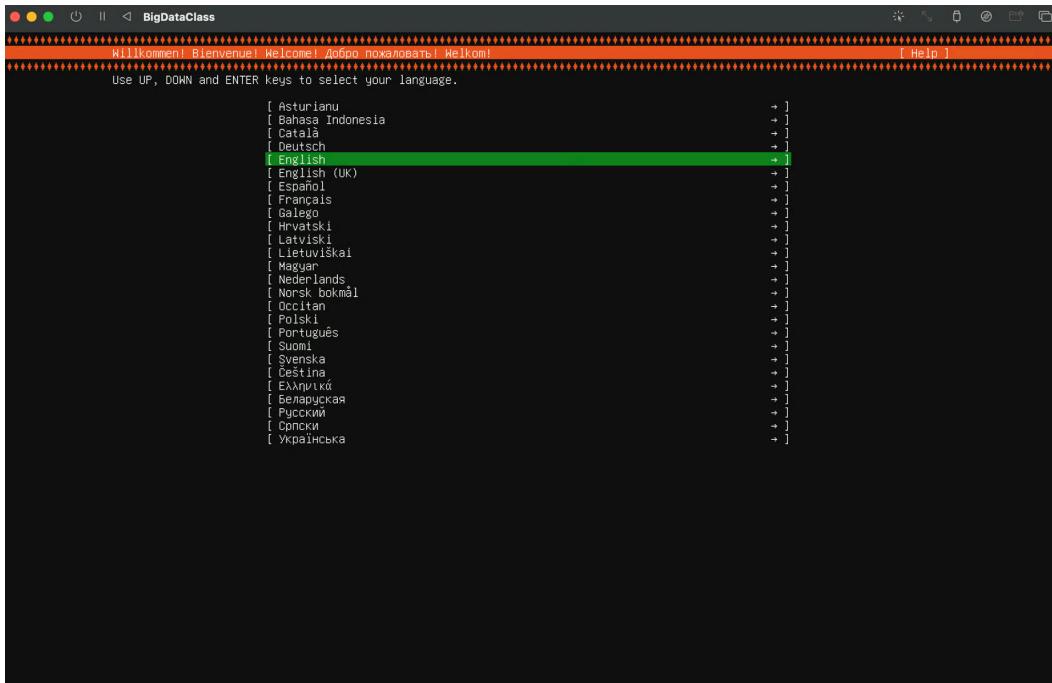
Launch the VM by clicking the play button. Select “Try or Install Ubuntu Server”.

NOTE: If the cursor control is bounded to the guest OS you can release the control by pressing Control+Option.

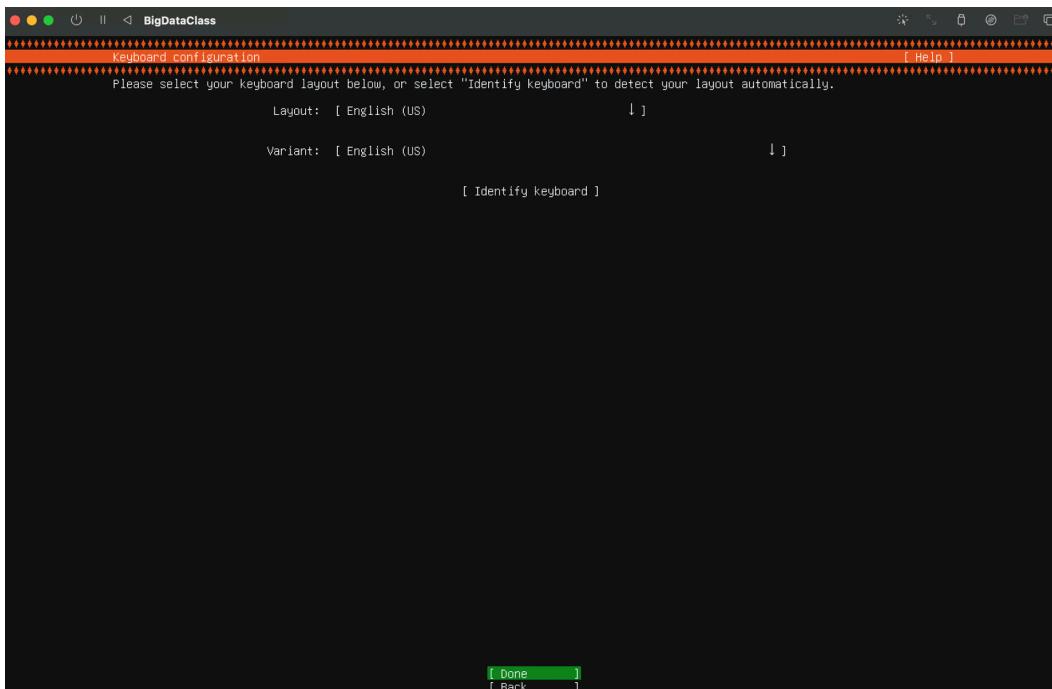
Setup Ubuntu server:

Arrows keys control the selection, Enter is final confirmation, Tab key is used to move to different options.

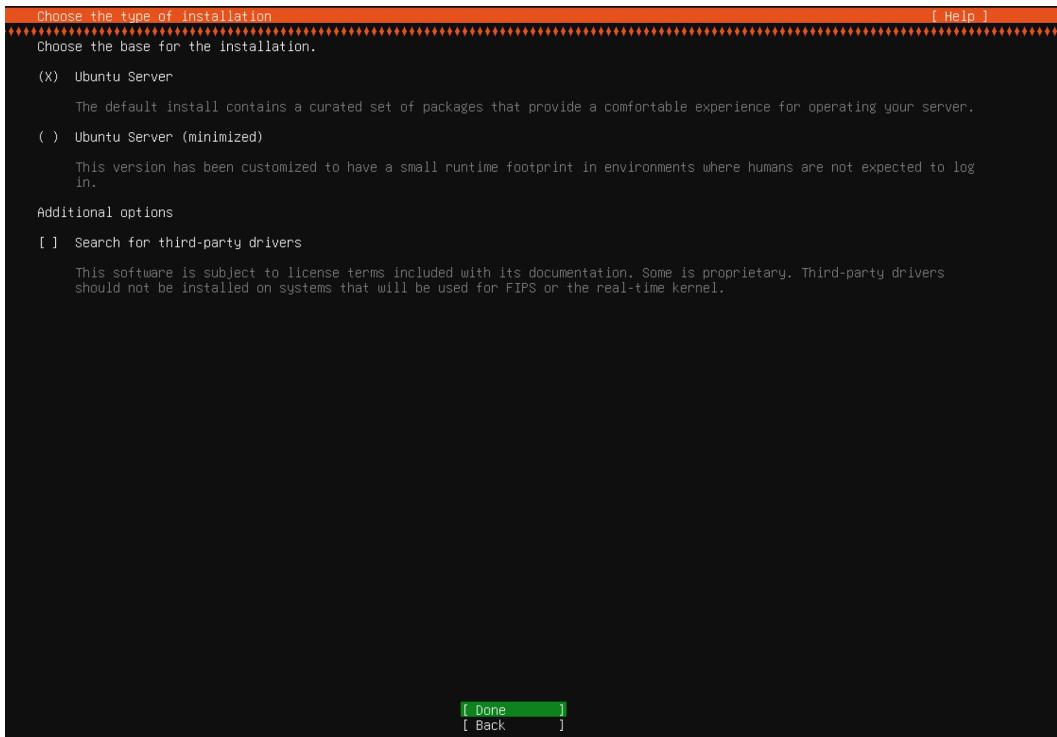
Select language:



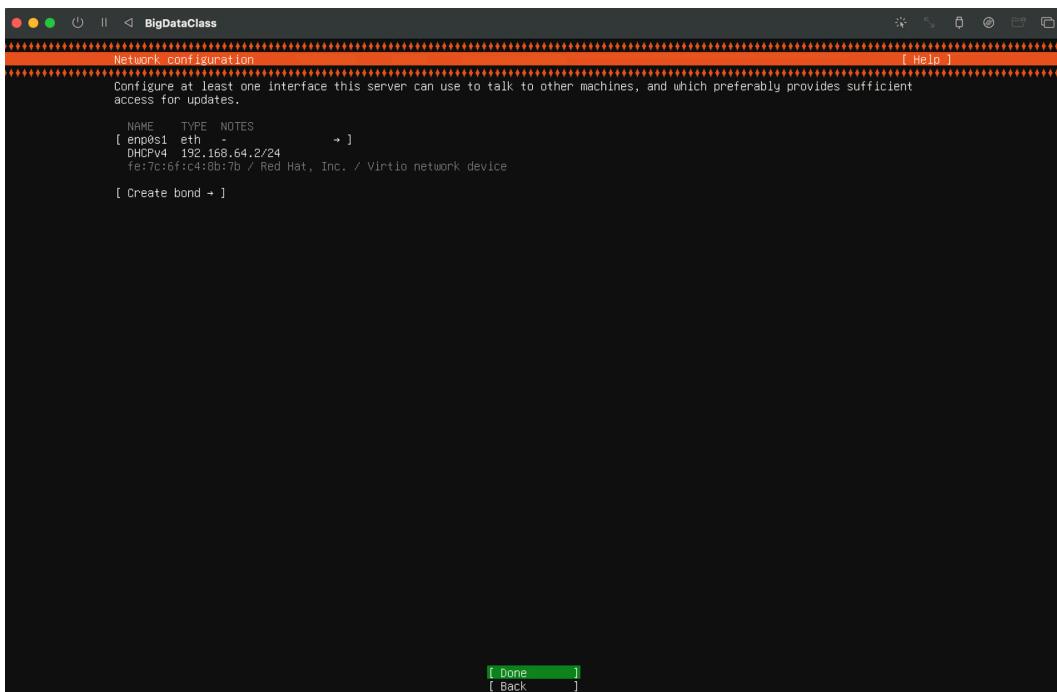
Select keyboard:



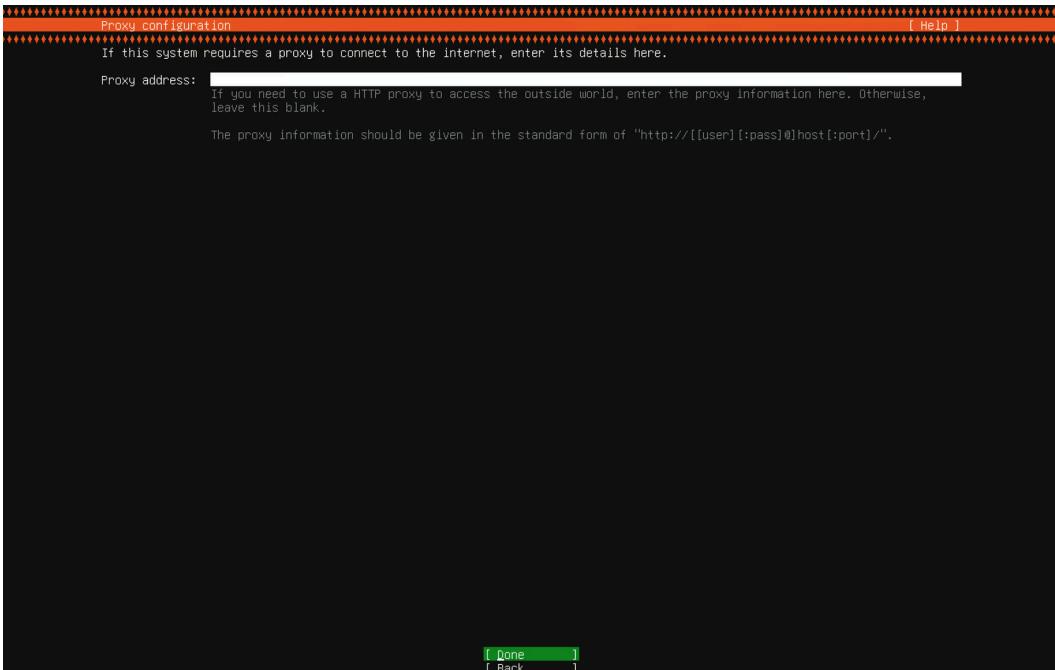
Choose Ubuntu server:



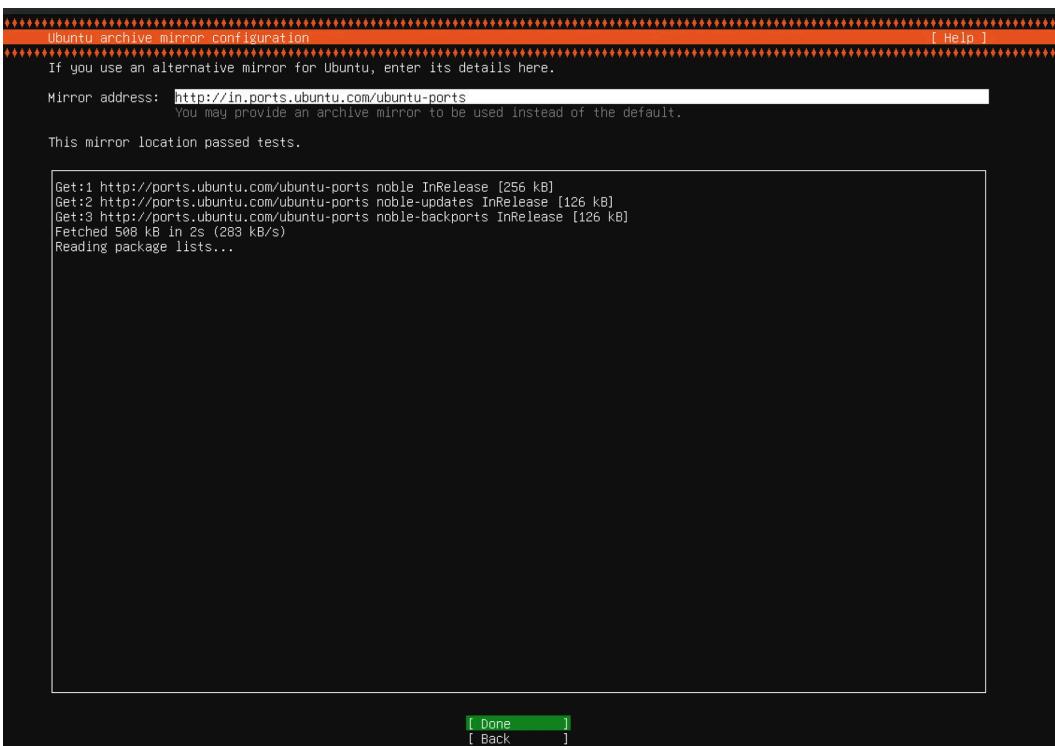
Leave the network configurations as default and click done.



Leave the proxy address as blank

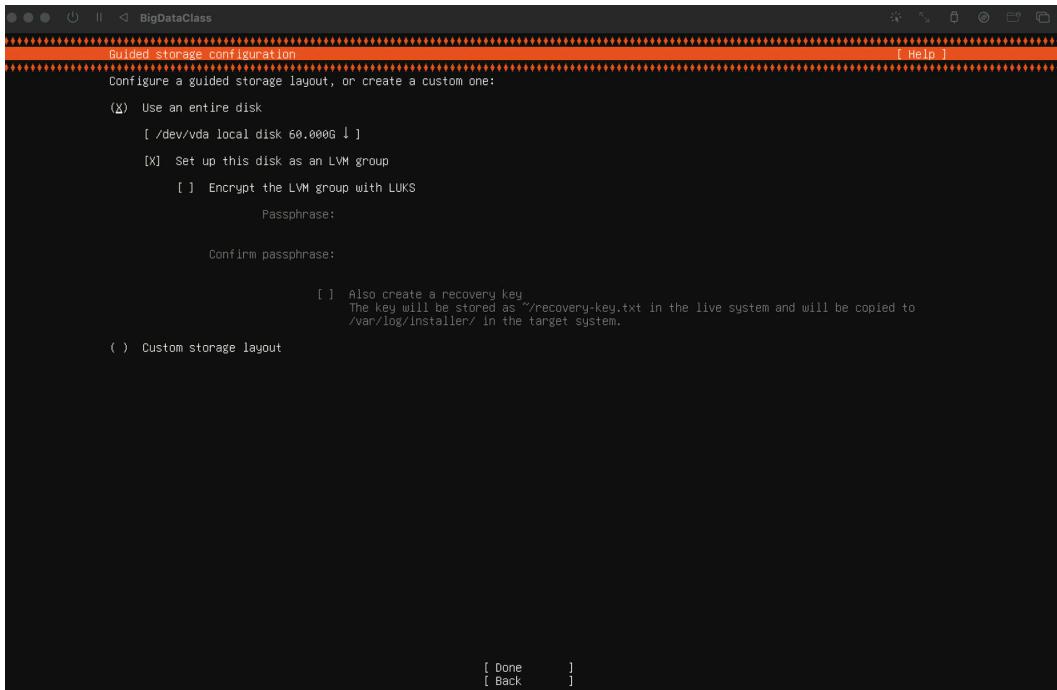


Leave the mirror address as default

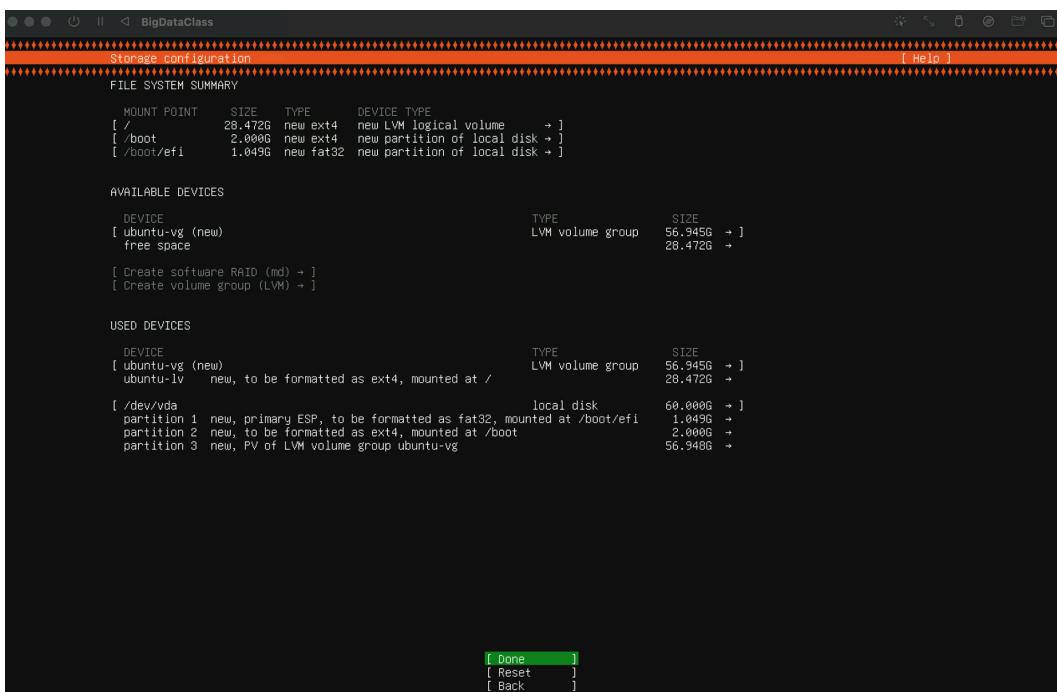


For the storage configuration select “Use an entire disk” and click done. Use the tab key to switch between options.

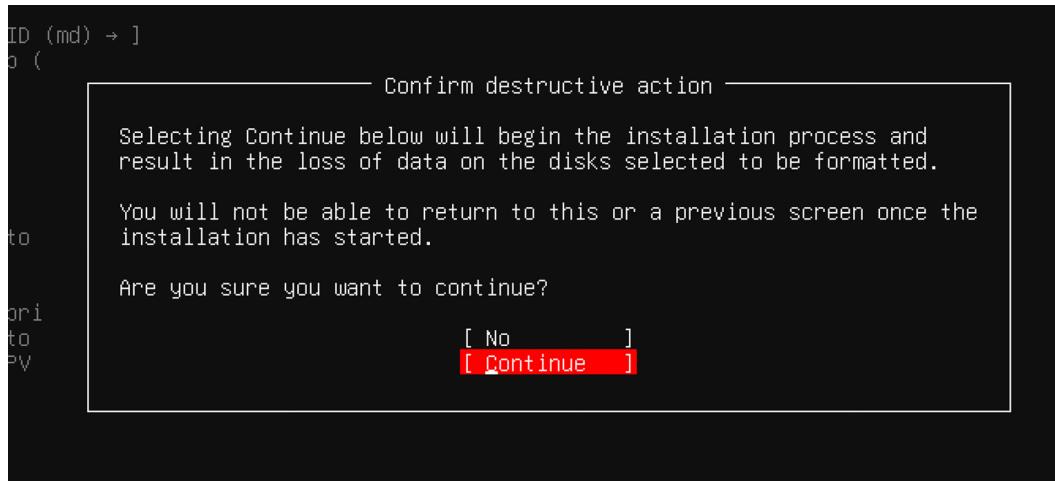
Note: Don’t worry, this will not erase any data on your mac.



In the partition config screen leave them as default and click done:



In the confirmation dialog box select continue:

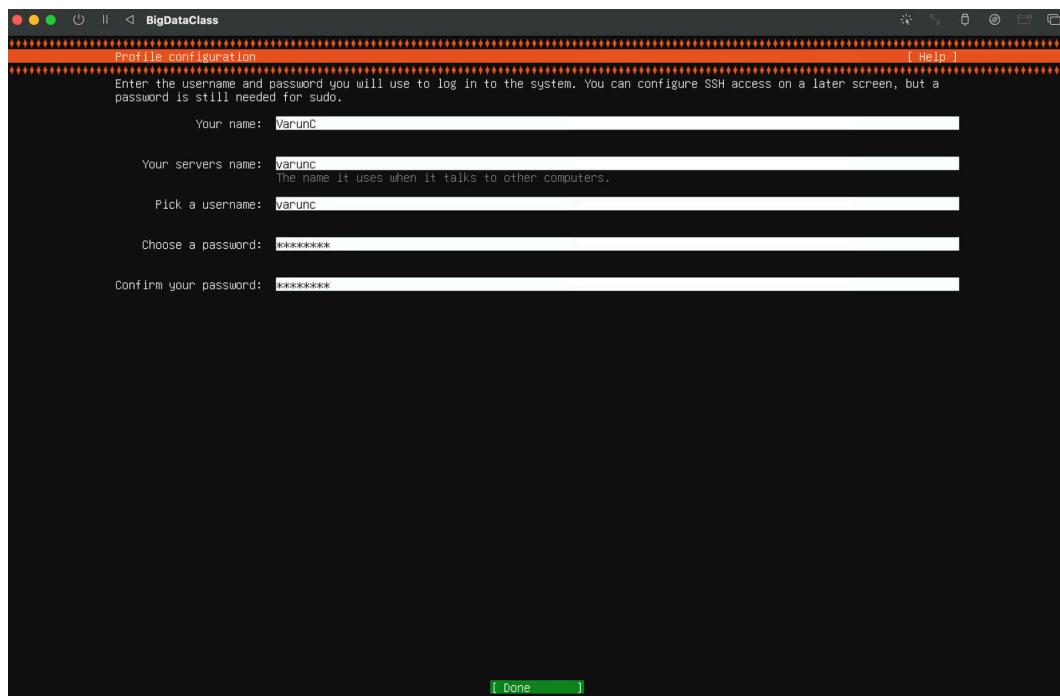


Setup up a user profile.

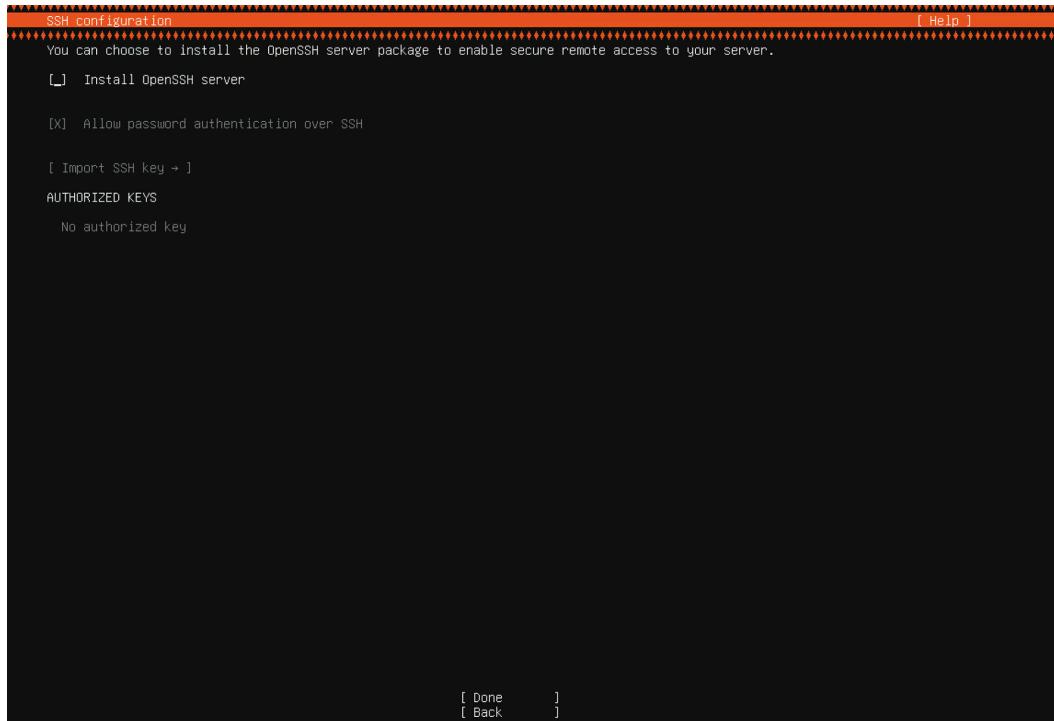
You need to provide your SRN in lowercase in "Your name", "Your server's name" and "Pick a username".

For example: pes2ug21csxxx

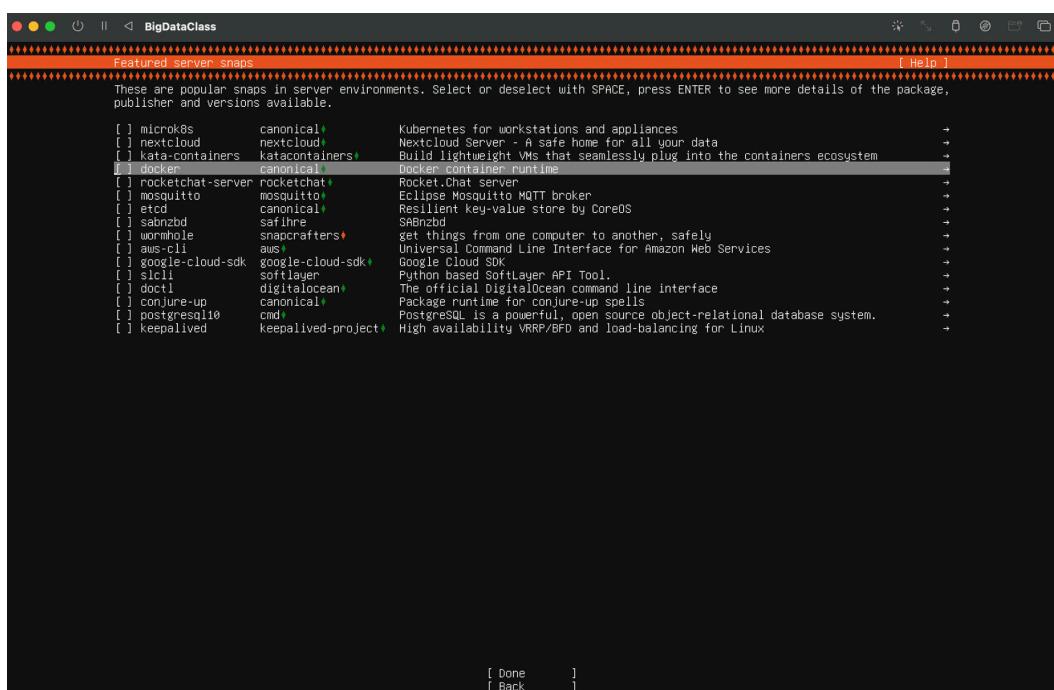
REMEMBER THE PASSWORD as we will need it for login.



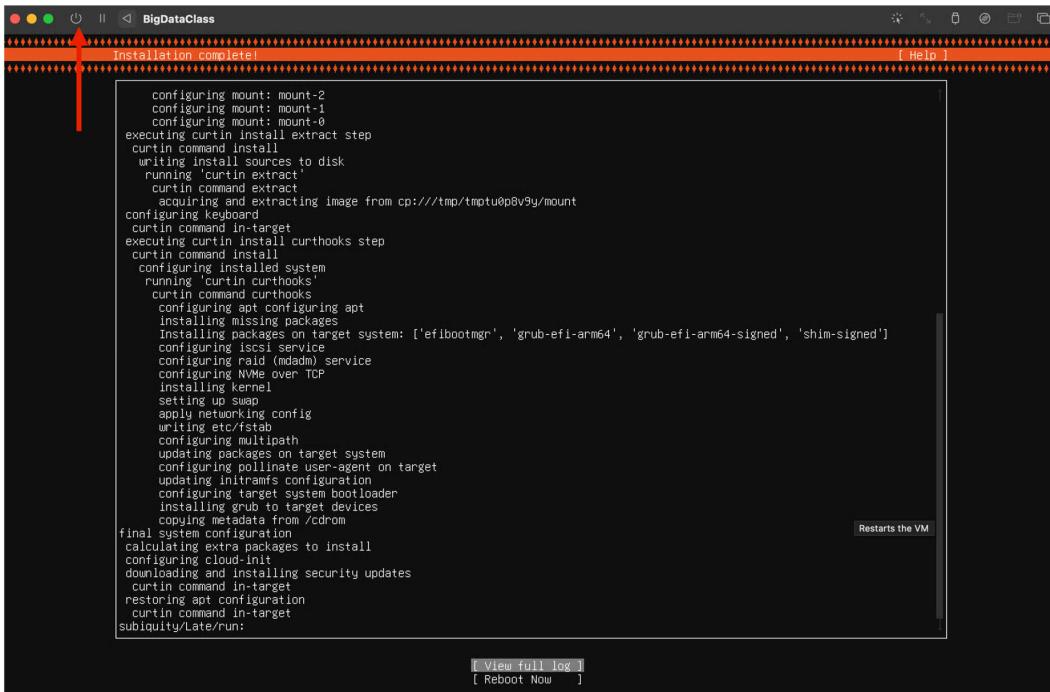
You can additionally setup SSH if you want to login to the VM via macOS. But I will leave it blank.



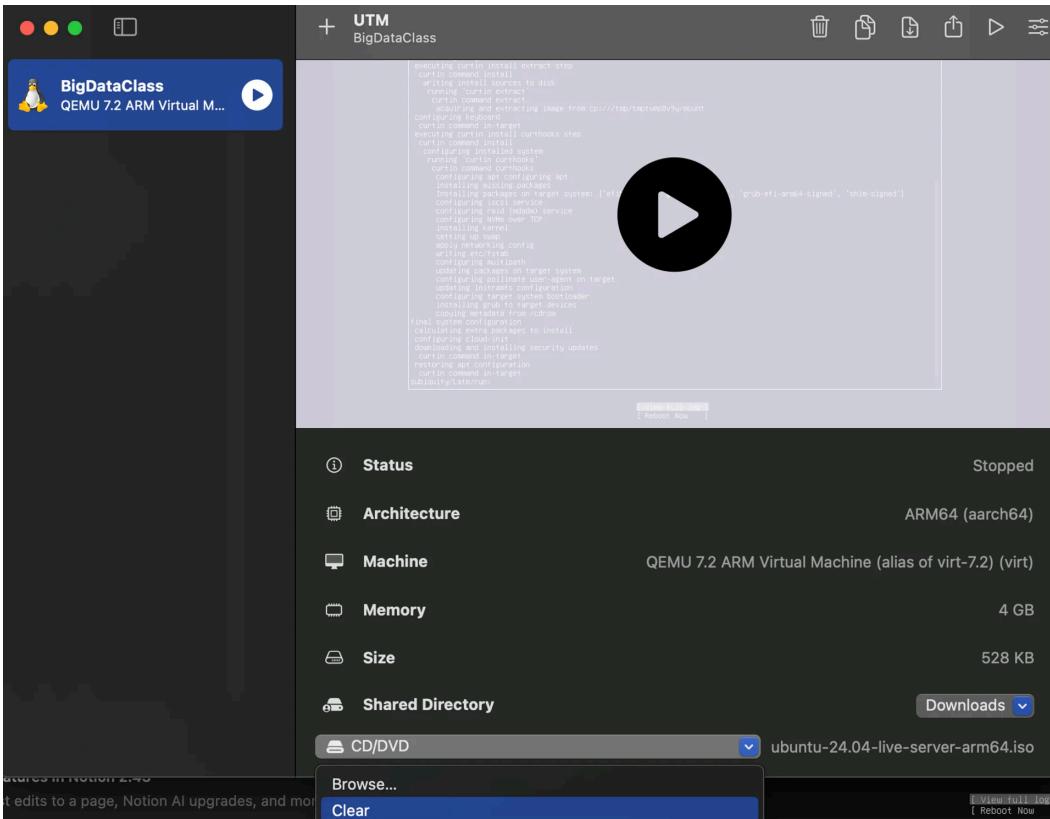
Snaps are package management systems for installing, distributing, and updating software on Ubuntu. You can choose which ever you think you'll need. I will not be installing snaps.



After the kernel is installed **DO NOT CLICK REBOOT NOW**. Instead exit full screen mode and turn off the virtual machine.



Now go back to UTM and clear the image file under CD/DVD option. This will unmount the iso which prevents the VM from booting into the setup again.



Tap on the play button to start the VM again. Then login with username and password. After log in run these commands one after the another in the terminal to setup gnome desktop.

- `sudo apt update` (Update the system)

- `sudo apt upgrade -y` (Upgrade all installed packages to latest available versions)
- `sudo apt install ubuntu-desktop` (Install the gnome desktop environment)
- `sudo reboot`

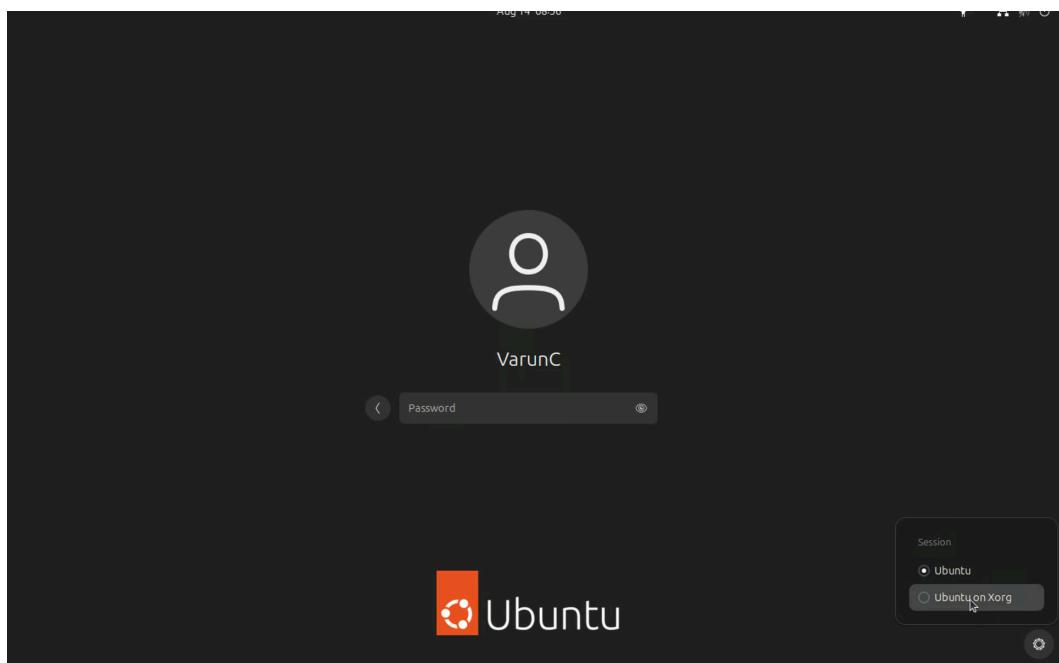
This will take a while. After this you should be able to login to the desktop! You can skip step 4.

If you need further help setting up UTM check out this video:
<https://www.youtube.com/watch?v=O19mv1pe76M&t=796s>

OPTIONAL:

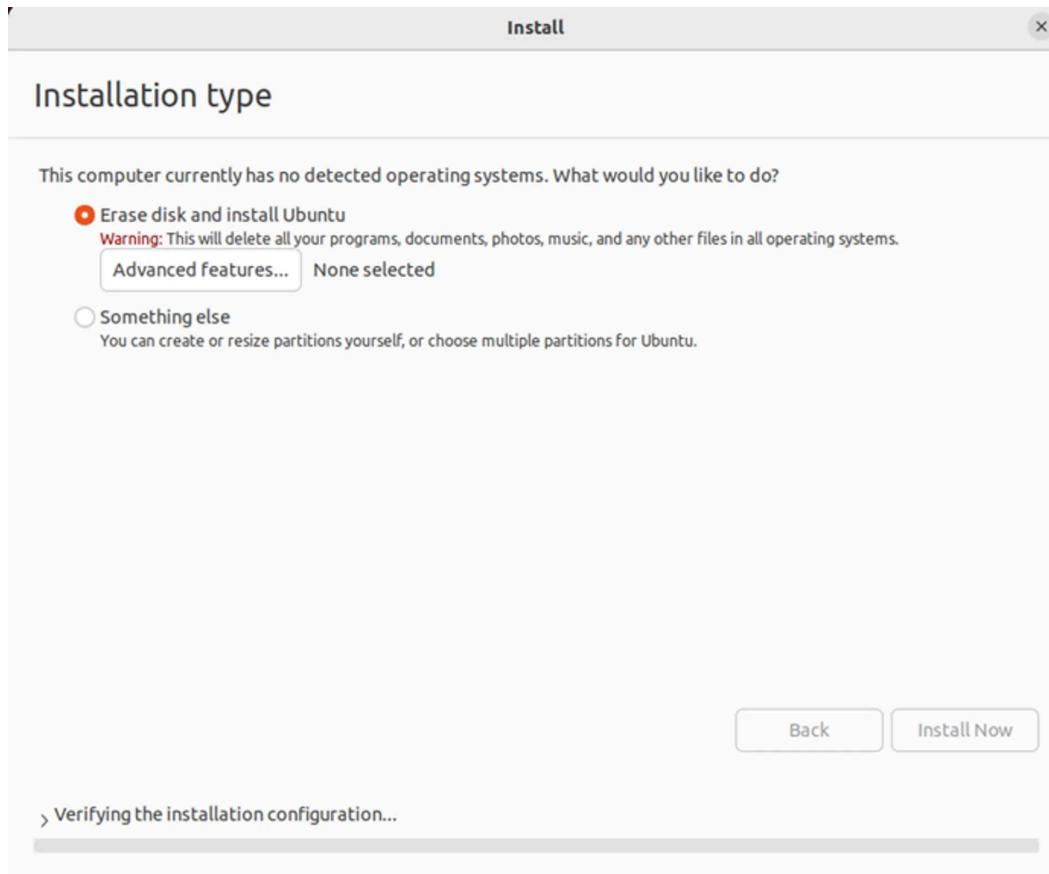
- To enable file sharing: `sudo apt install spice-vdagent spice-webdavd` (SPICE agent is required for clipboard sharing). Once installed reboot the virtual machine. Shared directories can be accessed at `http://127.0.0.1:9843`

Note: If you face any issue with any application you can try booting on Xorg and check if the issue is fixed.



Step 4 - Virtual Machine Boot-up

Do not worry about this pop-up:



This just means that the virtual machine disk created does not have any OS on it. Your host storage will not be affected.

Irrespective of whether you are using VMWare or VirtualBox, you need to provide your SRN in lowercase in "Your name", "Your computer's name" and "Pick a username".

A screenshot of the "Who are you?" configuration screen. The title bar says "Install". The heading is "Who are you?". It contains fields for "Your name" (pes0ug21cs000), "Your computer's name" (pes0ug21cs000), "Pick a username" (pes0ug21cs000), and "Choose a password" (a masked password). The "Choose a password" field has a "Strong password" indicator. It also shows "Confirm your password" (another masked password). Below these are radio buttons for "Log in automatically" (unchecked) and "Require my password to log in" (checked). There is also a checkbox for "Use Active Directory" (unchecked). A note says "You'll enter domain and other details in the next step." At the bottom are "Back" and "Continue" buttons.

Other configuration choices are up to you.

Step 5 - Download and Update system packages

Update Commands

At the end of the boot-up, head over to the terminal and type the following command:

```
sudo apt-get update -y  
sudo apt-get upgrade -y
```

Note: If you get error like `pes0ug21cs000 is not in the sudoers file.`

`This incident will be reported.` Execute below commands:

```
su  
# enter your password  
# Replace pes0ug21cs000 with your SRN in Lowercase.  
echo "pes0ug21cs000 ALL=(ALL:ALL) ALL" >> /etc/sudoers  
exit
```

For other FAQ's please refer this sheet :

<https://docs.google.com/spreadsheets/d/1rESxdmKmCycklskbcfPCe839PQZs12RHNKTa34abu7g/edit?gid=0#gid=0>