

Virtual Machine Setup - Assignment 0

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.

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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](#)

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

Minimum specifications for the virtual machine:

- 2 processors.
- 4GB memory.
- 30GB storage/HDD space.
- OS Image : Ubuntu 22.04

Recommended specifications:

- Half the processors available.
- 8GB memory or half the memory available.
- 50GB storage/SSD space.

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.

New Virtual Machine Wizard

✕

Easy Install Information
This is used to install Ubuntu 64-bit.

Personalize Linux

Full name:

pes1ug20cs999

User name:

pes1ug20cs999

Password:

●●●●●●●●●●

Confirm:

●●●●●●●●●●

Help

< Back

Next >

Cancel

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

New Virtual Machine Wizard

Name the Virtual Machine
What name would you like to use for this virtual machine?

Virtual machine name:

Location:

The default location can be changed at Edit > Preferences.

< Back Next > Cancel

Provide 30GB (or more, check recommended specs) of storage space and split it into multiple disks.

New Virtual Machine Wizard ✕

Specify Disk Capacity
How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB):

Recommended size for Ubuntu 64-bit: 20 GB

☐ Store virtual disk as a single file

☒ Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

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

Hardware

Device	Summary
Memory	4 GB
Processors	2
New CD/DVD (SATA)	Using file C:\Users\sachi\Do...
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Add...

Remove

Memory

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

Memory for this virtual machine: 4096 MB

128 GB

64 GB

32 GB

16 GB

8 GB

4 GB

2 GB

1 GB

512 MB

256 MB

128 MB

64 MB

32 MB

16 MB

8 MB

4 MB

Maximum recommended memory
(Memory swapping may occur beyond this size.)
13.4 GB

Recommended memory
4 GB

Guest OS recommended minimum
2 GB

Close

Help

Hardware

Device	Summary
Memory	4 GB
Processors	2
New CD/DVD (SATA)	Using file C:\Users\sachi\Do...
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Processors

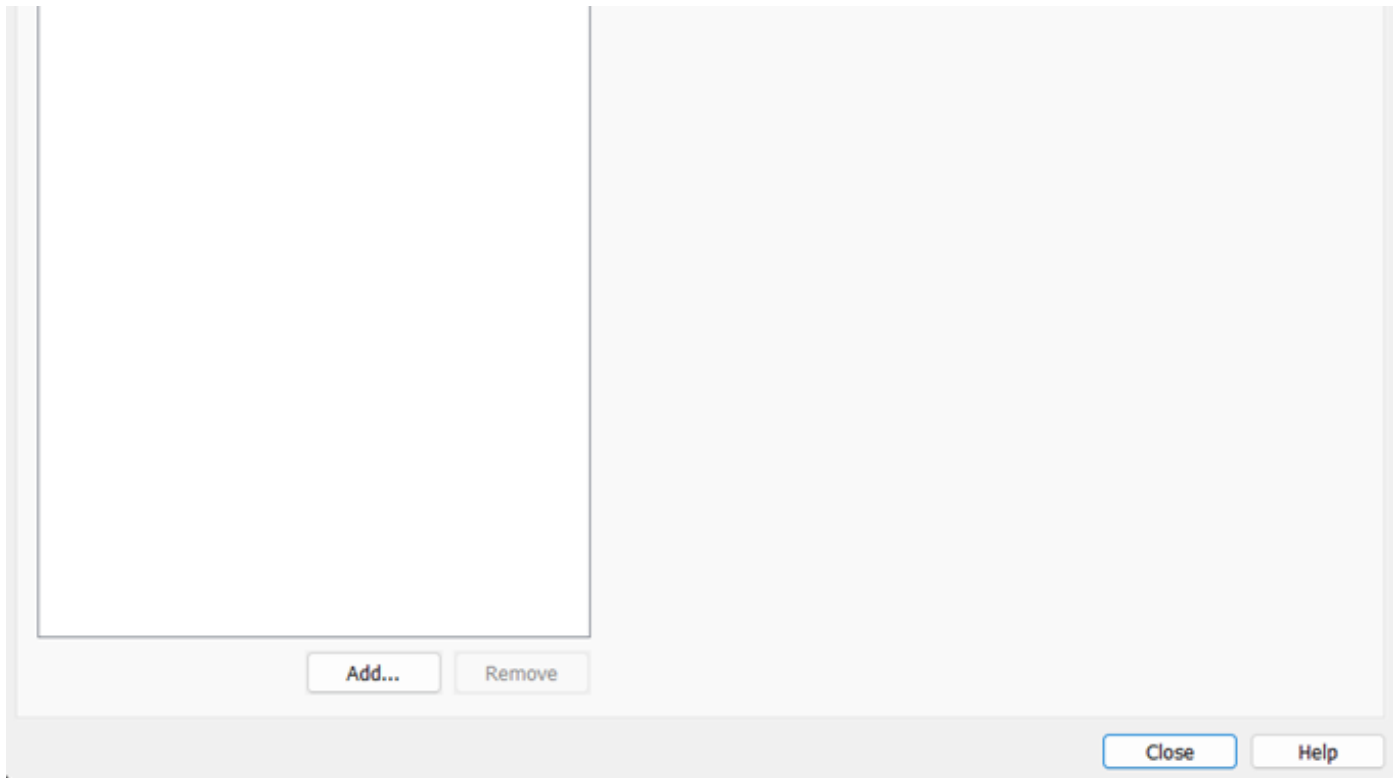
Number of processor cores: 2

Virtualization engine

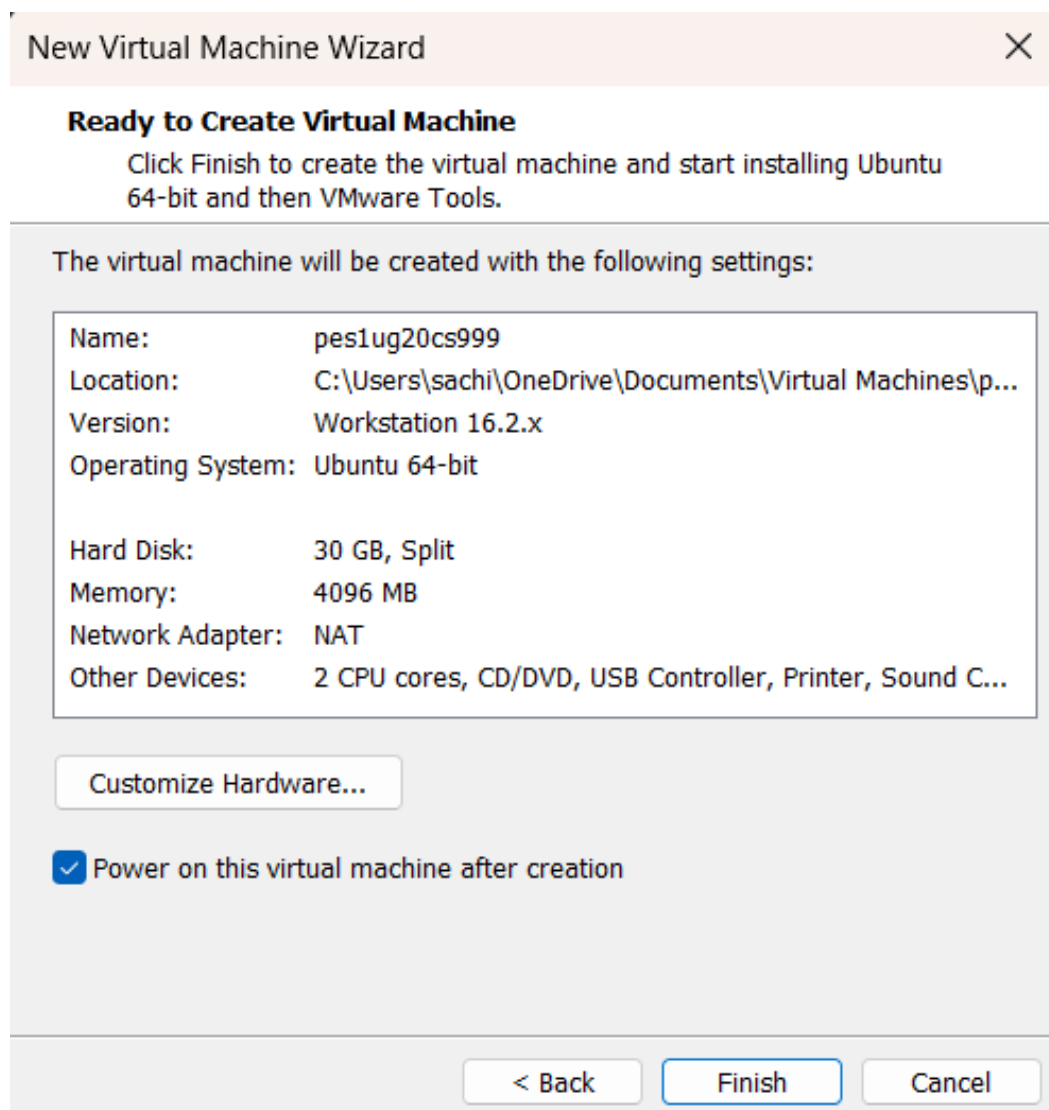
☐ Virtualize Intel VT-x/EPT or AMD-V/RVI

☐ Virtualize CPU performance counters

☐ Virtualize IOMMU (IO memory management unit)

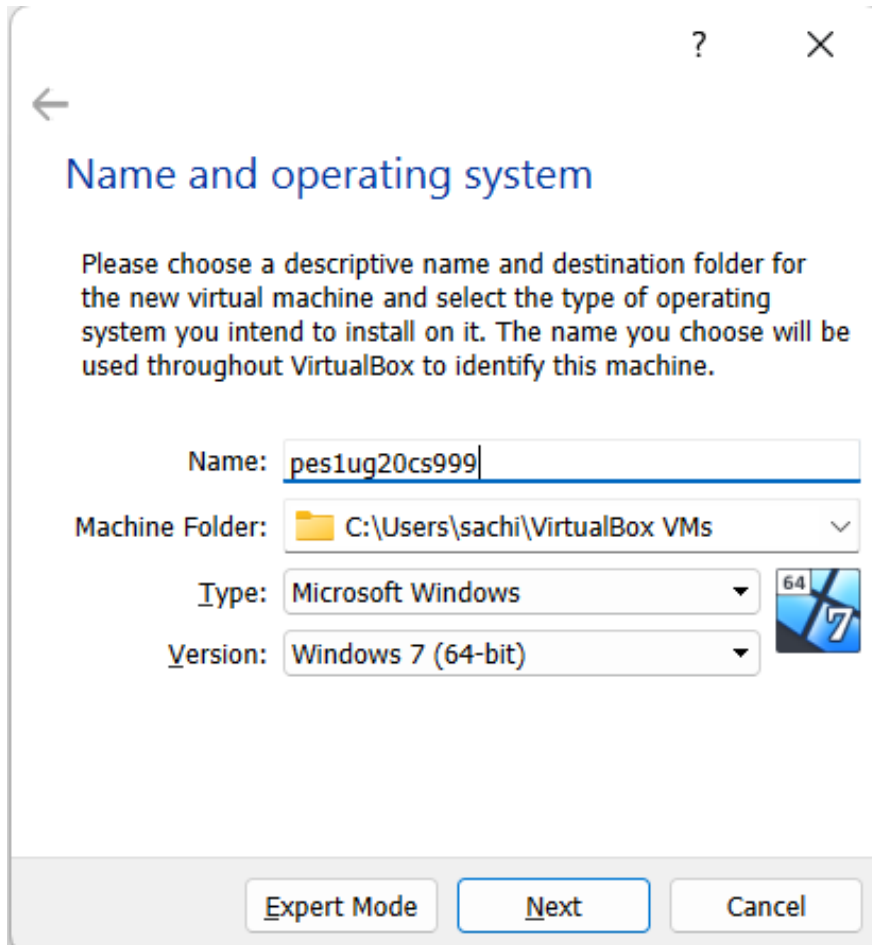


Your final configuration should resemble the image given below.



Step 3b - for VirtualBox users

Name your OS with your SRN in lowercase



The screenshot shows the 'Name and operating system' dialog box in VirtualBox. It has a title bar with a question mark and a close button. A back arrow is in the top left. The main title is 'Name and operating system' in blue. Below it is a paragraph: 'Please choose a descriptive name and destination folder for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.' There are four input fields: 'Name' with the text 'pes1ug20cs999', 'Machine Folder' with a folder icon and the path 'C:\Users\sachi\VirtualBox VMs', 'Type' with a dropdown menu showing 'Microsoft Windows', and 'Version' with a dropdown menu showing 'Windows 7 (64-bit)'. To the right of the 'Version' dropdown is a small icon of Windows 7 with '64' and '7' on it. At the bottom are three buttons: 'Expert Mode', 'Next', and 'Cancel'.

← ? ×

Name and operating system

Please choose a descriptive name and destination folder for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.

Name:

Machine Folder:

Type:

Version:

Provide at least 4GB of memory.

?

×

←

Memory size

Select the amount of memory (RAM) in megabytes to be allocated to the virtual machine.

The recommended memory size is **2048 MB**.

4 MB

16384 MB

4096 MB

Next

Cancel

Create a new VMDK hard-disk of fixed size and at least 30GB of storage space.

?

×

←

Hard disk

If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select one from the list or from another location using the folder icon.

If you need a more complex storage set-up you can skip this step and make the changes to the machine settings once the machine is created.

The recommended size of the hard disk is **32.00 GB**.

☐ Do not add a virtual hard disk

☒ Create a virtual hard disk now

☐ Use an existing virtual hard disk file

Empty

Create

Cancel



Hard disk file type

Please choose the type of file that you would like to use for the new virtual hard disk. If you do not need to use it with other virtualization software you can leave this setting unchanged.

- ☐ VDI (VirtualBox Disk Image)
- ☐ VHD (Virtual Hard Disk)
- ☒ VMDK (Virtual Machine Disk)

Expert Mode

Next

Cancel



Storage on physical hard disk

Please choose whether the new virtual hard disk file should grow as it is used (dynamically allocated) or if it should be created at its maximum size (fixed size).

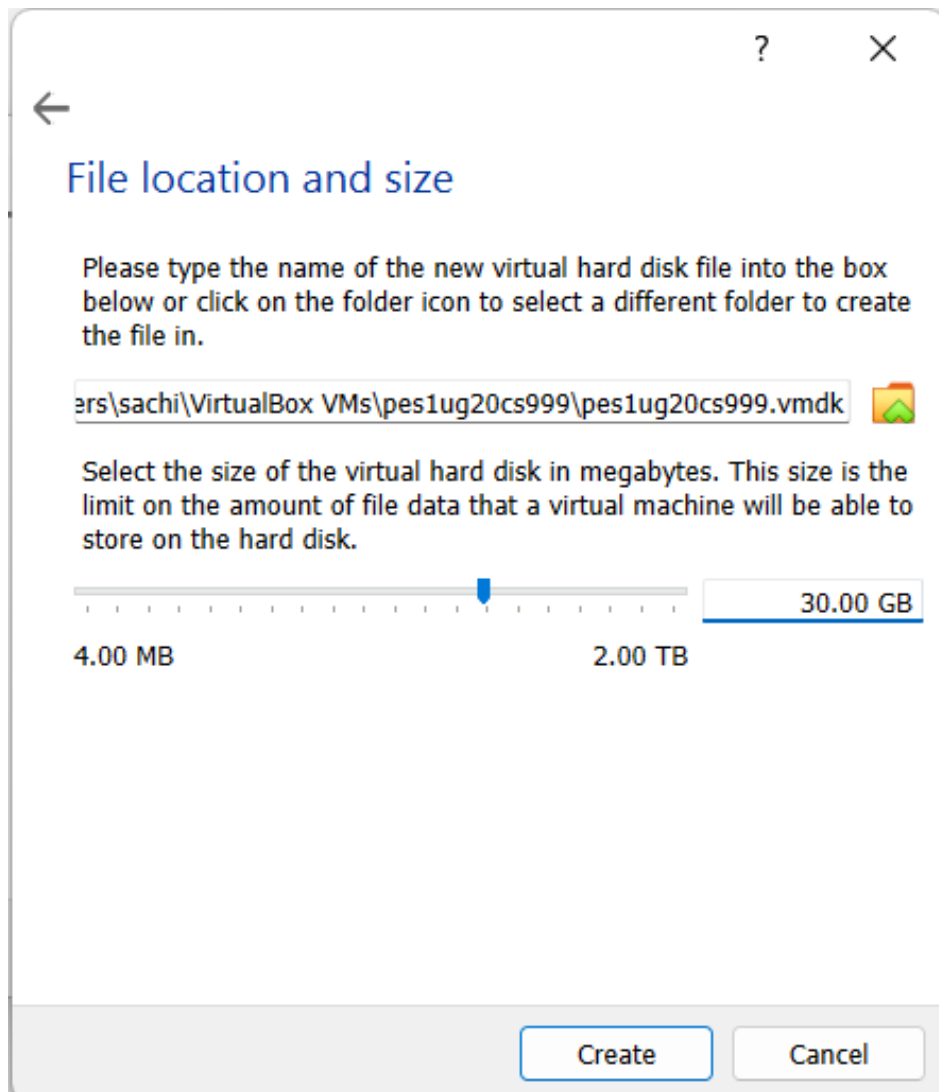
A **dynamically allocated** hard disk file will only use space on your physical hard disk as it fills up (up to a maximum **fixed size**), although it will not shrink again automatically when space on it is freed.

A **fixed size** hard disk file may take longer to create on some systems but is often faster to use.

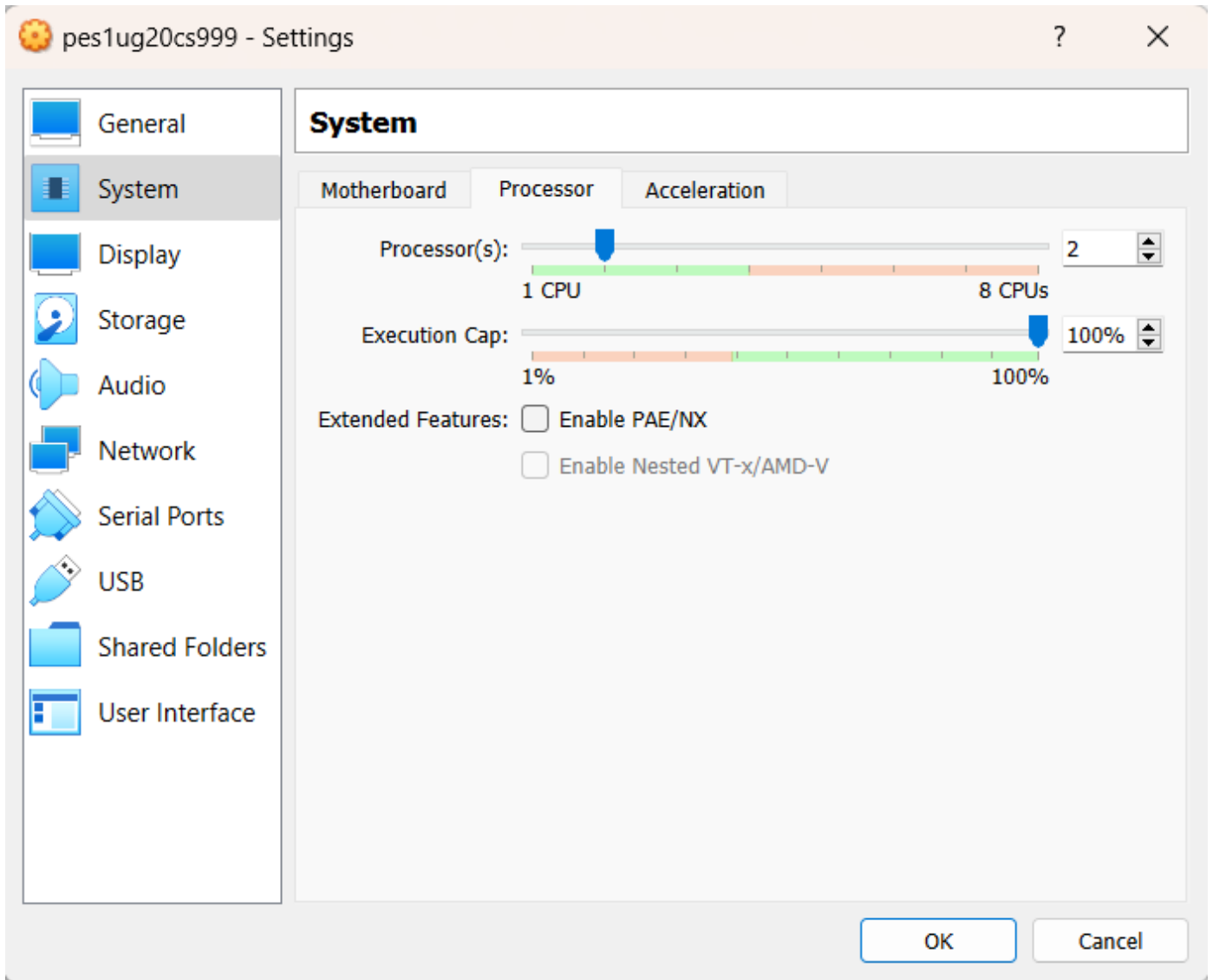
You can also choose to **split** the hard disk file into several files of up to two gigabytes each. This is mainly useful if you wish to store the virtual machine on removable USB devices or old systems, some of which cannot handle very large files.

- ☐ Dynamically allocated
- ☒ Fixed size
- ☐ Split into files of less than 2GB

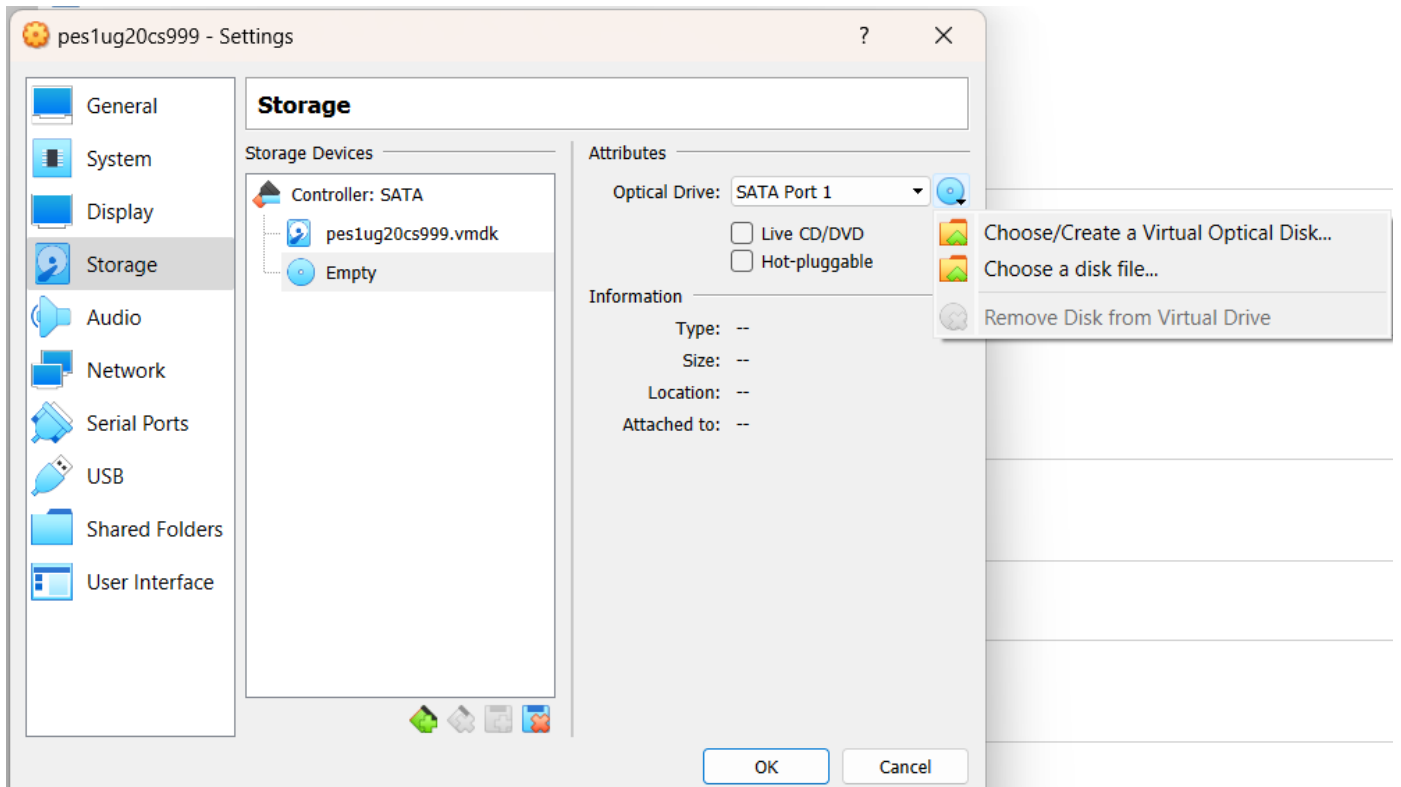
[Next](#)[Cancel](#)



Once the VM is created, head over to Settings -> System -> Processor. Provide at least 2 processors and 100% execution cap.



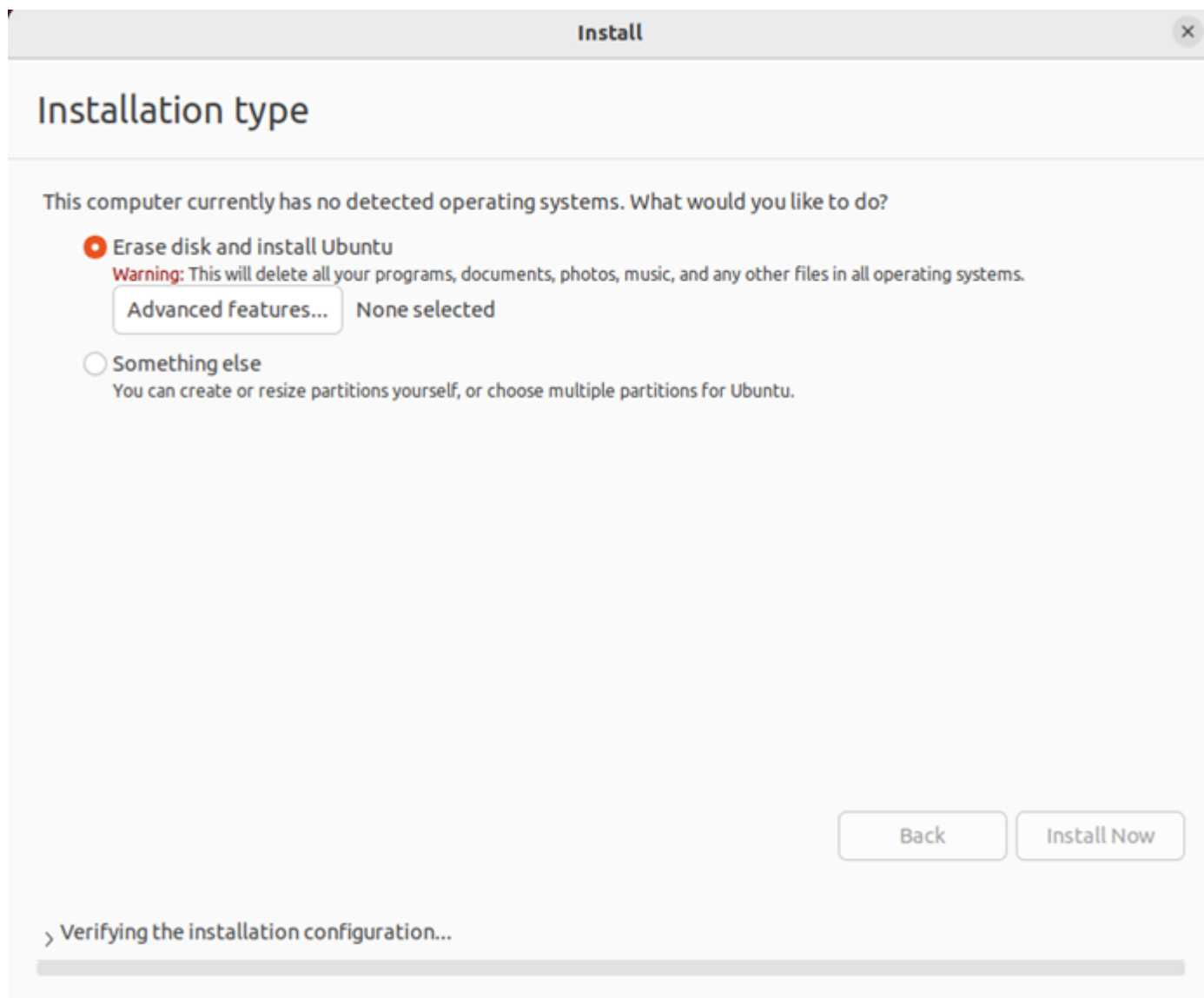
Then under Settings -> Storage, choose the OS image you want to use.



Step 4 - Virtual Machine Boot-up

The initial boot-up might take up to 90 minutes. During this, a few more fields have to be filled.

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 computer's name" and "Pick a username".

Aug 1 19:31


Install

Who are you?

Your name: ✓

Your computer's name: ✓
The name it uses when it talks to other computers.

Pick a username: ✓

Choose a password:  Good password

Confirm your password: ✓

☐ Log in automatically

☒ Require my password to log in

☐ Use Active Directory

You'll enter domain and other details in the next step.

Back Continue

Other configuration choices are up to you.

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
```

Step 5 - Installation Verification

To verify that the installation went well, head over to the terminal and type the following command:

```
# Clone the repository first
git clone https://github.com/Cloud-Computing-Big-Data/UE20CS322-A0.git
cd UE20CS322-A0
python3 verify-installation.pyc
```