

# Computer Operating Systems

Linux Mint 21.1 "Vera" Installation (Cinnamon Edition)

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Today

## Operating Systems: Different Ways of Installing Linux

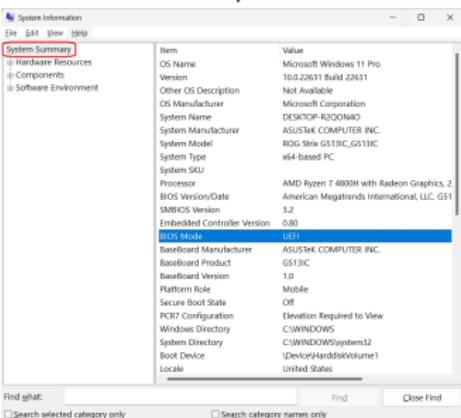
- A. Installation alongside with another OS (such as Windows + Ubuntu).
- B. Creating a Virtual Machine Using VirtualBox



# Step 1- Checking BIOS Mode Before Starting Installation

## Installation alongside with another OS:

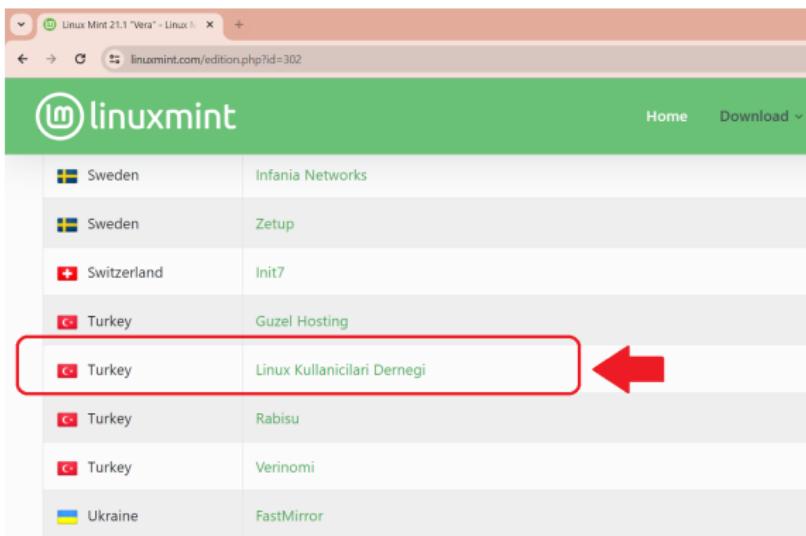
- ▶ This method enables you to set up **dual boot** on your computer.
- ▶ Before you continue with this method, make sure that your Windows system's "BIOS Mode" is set to **UEFI**. If not, it's recommended to create a virtual machine using VirtualBox instead.
- ▶ To check this out:
  - ▶ Click on the Start menu and search for "System Information" and open it.
  - ▶ Click on the "System Summary" tab at the top-left.
  - ▶ Scroll down a bit and find the BIOS Mode specification.



- ▶ If the default setting is 'UEFI', you can proceed with installing Linux for dual-boot. Otherwise, skip to the Virtual Machine[2] method.
- ▶ In any scenario, you will need to download the ISO file.

## Step 2- Downloading ISO image file of Linux Mint (cont'd ..)

- ▶ In this course, we will use Linux Mint 'Vera' 21.1 (Cinnamon edition) as operating system.
- ▶ Download iso file from <https://www.linuxmint.com/edition.php?id=302>
  - ▶ Choose the "Location" as "Turkey" for faster download.



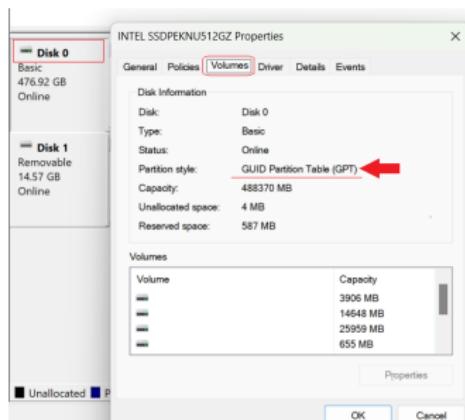
## Step 3- Creating bootable USB drive

- ▶ Download "**RUFUS**" software to create bootable USB drive.
  - ▶ <https://rufus.ie/tr/>
- ▶ Plug a USB drive into your computer
  - ▶ Make sure that there are no folders in the USB, because we will format it.
  - ▶ Right Click on the USB drive and Click "Format".
  - ▶ On the Format Screen choose the "**NTFS**" file system.
  - ▶ Select "**Quick Format**" in the checkbox and start the formatting process.



## Step 3- Creating bootable USB drive (cont'd ..)

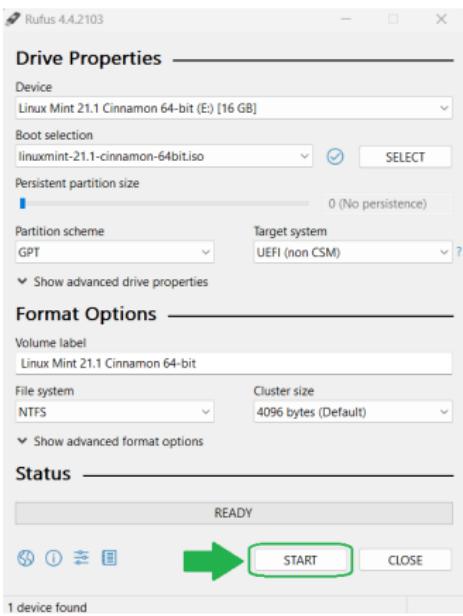
- ▶ Run the **RUFUS** software and make configurations
  - ▶ In the "Device" toolbar, your USB device will appear.
  - ▶ In the "Boot selection" toolbar, click "Select" and navigate to the Linux Mint ISO file you have previously downloaded.
  - ▶ To ensure the partition scheme either "MBR" or "GPT"
    - ▶ Click on the Start menu and search for "Disk Management".
    - ▶ Right Click on the main disk (Disk 0) and click "Properties", then navigate to "Volumes" tab.



- ▶ Select the "GPT" partition scheme, if the partition style is "GPT" on the "Volumes" tab.

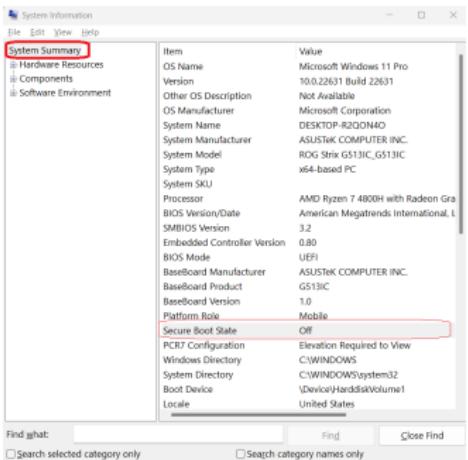
## 2- Creating bootable USB drive (cont'd ..)

- ▶ Run the **RUFUS** software and make configurations (cont'd..)
  - ▶ In the "File system" toolbar, select "NTFS".
  - ▶ Click on the "Start" button and wait a while for finishing the process.



## Step 4- Making configurations on Windows before starting installation

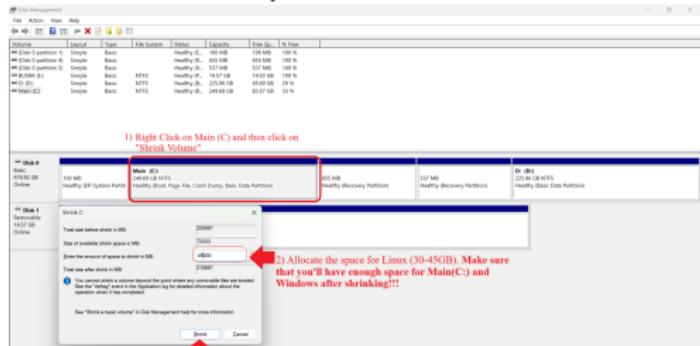
- ▶ Check the status of the "Secure Boot" on Windows (**It must be disabled.**)
  - ▶ Click on the Start menu and search for "System Information" and open it.
  - ▶ Click on the "System Summary" tab at the top-left.
  - ▶ Scroll down a bit and find the "Secure Boot State" specification.



- ▶ If the "Secure Boot State" is shown as "ON" or "Enabled" follow the instructions on the webpage to disable "Secure Boot"  
<https://learn.microsoft.com/en-us/windows-hardware/manufacture/desktop/disabling-secure-boot?view=windows-11>

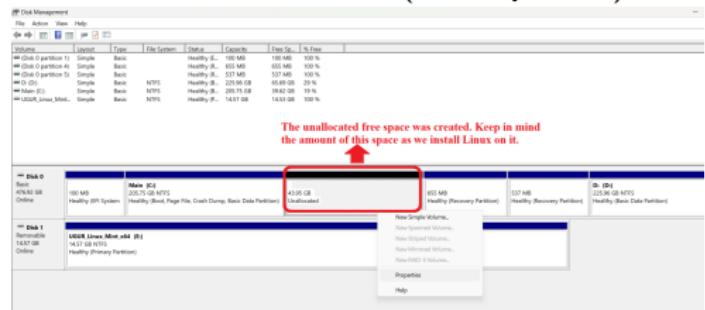
## Step 4- Making configurations on Windows before starting installation (cont'd ..)

- ▶ Create Disk Partitions for Linux installation (\*\* Important)
- ▶ **WARNING!!** Disk management and partitioning are among the most important and critical parts of the installation process. You need to be careful before allocating or shrinking free space for Linux. If you are not familiar with this concept and are confused, please search for a more detailed explanation on **YouTube** to prevent any errors!
  
- ▶ After watching a few videos, you can follow the instructions once you're familiar with the topic.
- ▶ Click on the Start menu and search for "Disk Management" and click Enter.
- ▶ You need to allocate at least **30-45GB** of free space from the **Main (C:)** volume for Linux.
- ▶ Right Click on Main (C) volume and Click on the "Shrink Volume"
- ▶ **You must remember the size of the allocated free space for Linux. We highly recommend taking a photo of the volumes after shrinking because you will need to install Linux in that allocated free space.**

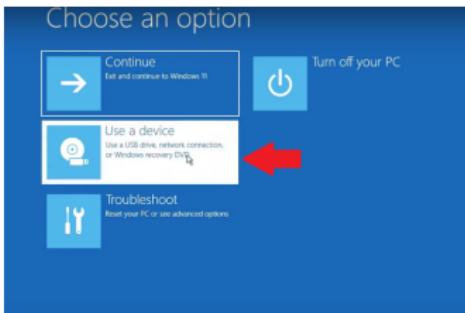


## Step 4- Making configurations on Windows before starting installation (cont'd ..)

- ▶ Create Disk Partitions for Linux installation (\*\* Important)

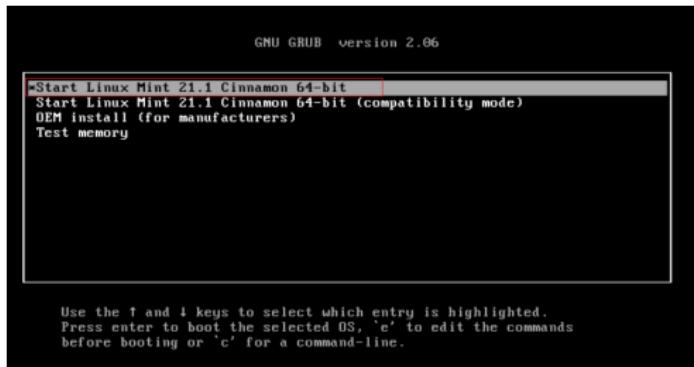


- ▶ Now it is time to restart the computer and install Linux on the unallocated free space.
- ▶ Plug in the **Bootable USB drive** we have prepared before.
- ▶ Click on the Start menu, then click on the 'Power' button. Hold the (Left) Shift key and click on 'Restart'.
- ▶ Choose the 'Use a device' menu and select the **Linux USB drive** for booting.

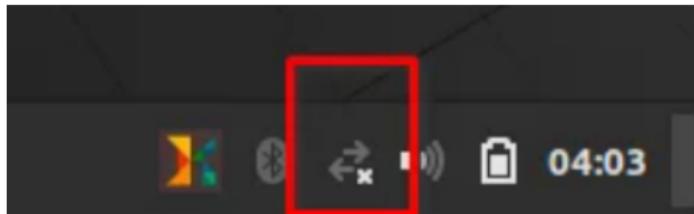


## Step 5- Installing Linux Mint beside Windows

- ▶ Follow the installation guide:
  - ▶ Select the first option on boot loader menu and continue.

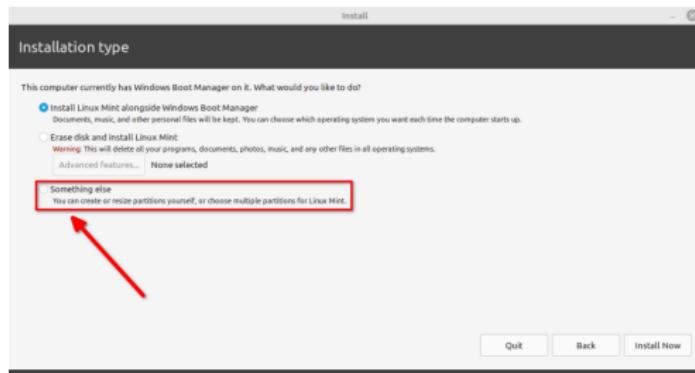


- ▶ The desktop will open. Before continuing with the installation of Linux Mint, we recommend connecting to the Internet, as some external packages (codec files) may need to be installed during the installation process.



## Step 5- Installing Linux Mint beside Windows (cont'd ...)

- ▶ Follow the installation guide:
  - ▶ Click the "**Install Linux Mint**" disk icon from the desktop and launch the installer.
  - ▶ Choose the language and click "Continue".
  - ▶ Choose the keyboard layout and click "Continue".
  - ▶ Select the checkbox for "**installing multimedia codecs**" and click "Continue".
  - ▶ In this step, you need to choose the "Installation type". Select "**Something else**" and click "Install now".



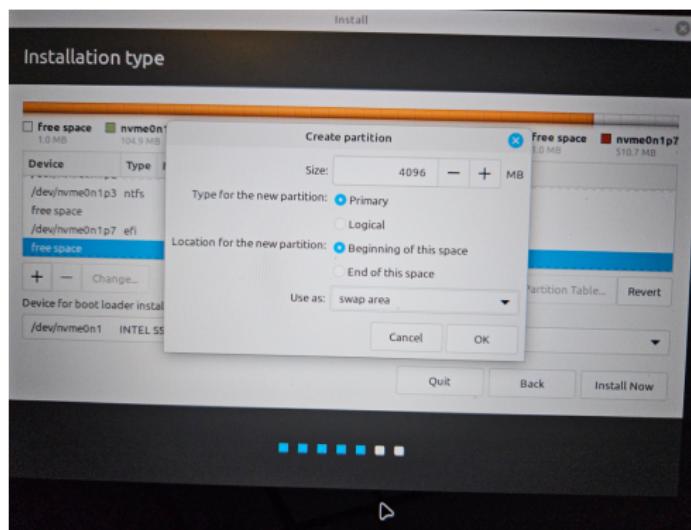
- ▶ **WARNING!!:** Now that we've reached the most important step, please follow the instructions carefully. See the next page for further guidance.

## Step 5- Installing Linux Mint beside Windows (cont'd ..)

### ► Disk partitioning for Linux Mint:

#### ► Step-1: Swap area

- Right click on the unallocated free space (it was approximately 45GB in our case / initial case).
- Allocate **4GB** of space for the **swap area** as shown in the figure below.



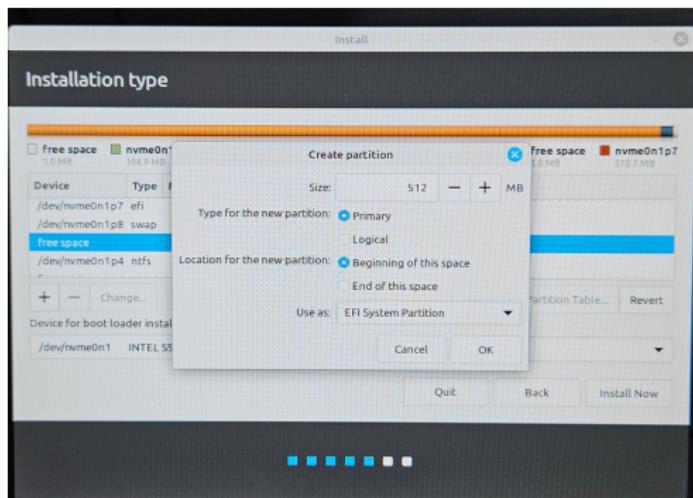
- NOTE THAT!! All configurations must match those depicted in the figure.

## Step 5- Installing Linux Mint beside Windows (cont'd ..)

### ► Disk partitioning for Linux Mint:

#### ► Step-2: EFI system partition

- Right click on the *remaining unallocated free space (41GB)* and allocate **512MB** of space for the **EFI System Partition** as shown in the figure below.



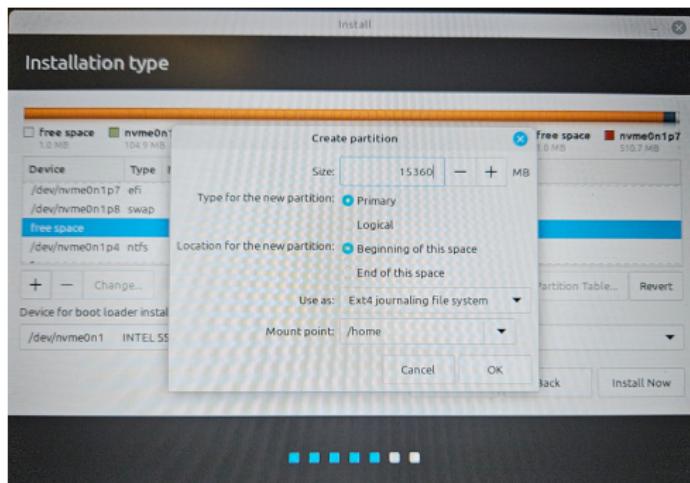
- NOTE THAT!! All configurations must match those depicted in the figure.

## Step 5- Installing Linux Mint beside Windows (cont'd ..)

### ► Disk partitioning for Linux Mint:

#### ► Step-3: /home partition

- Right click on the *remaining unallocated free space* (40GB) and allocate **15GB** of space for the **/home** partition as shown in the figure below.



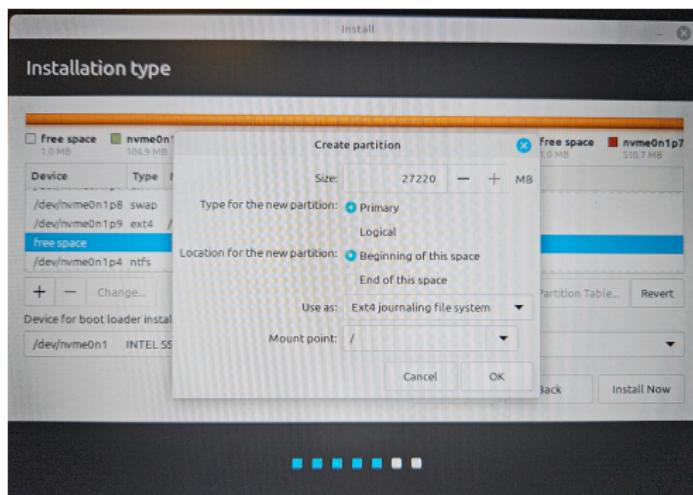
- NOTE THAT!! All configurations must match those depicted in the figure. "**Ext4 journaling file system**".

## Step 5- Installing Linux Mint beside Windows (cont'd ..)

### ► Disk partitioning for Linux Mint:

#### ► Step-4: '/' partition (root partition)

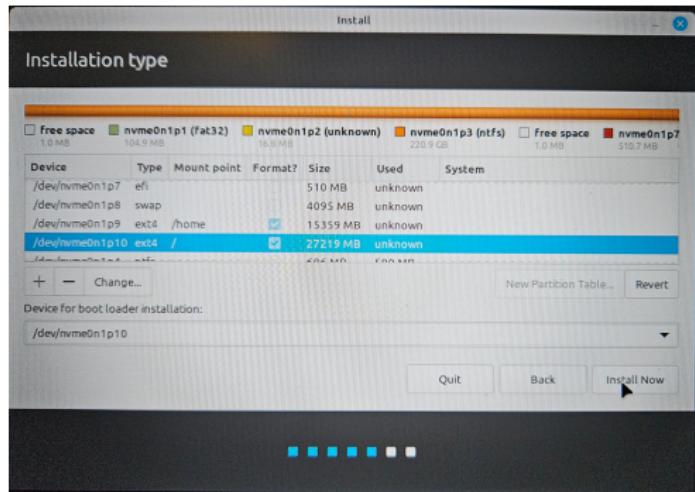
- Right click on the *remaining* unallocated free space (25GB) and allocate **25GB** of space for the '/' (root) partition as shown in the figure below.



- NOTE THAT!! All configurations must match those depicted in the figure. "**Ext4 journaling file system**".

## Step 5- Installing Linux Mint beside Windows (cont'd ...)

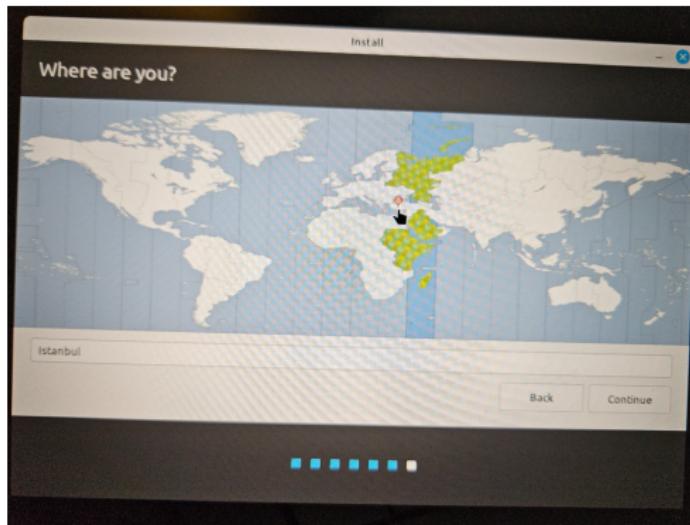
- ▶ Select the correct partition for the Linux installation:
  - ▶ "Select the '/' partition (root partition) as the installation partition and click 'Install Now'.
  - ▶ **WARNING!!** Make sure that the '/' root partition number is p10. Choose the root partition correctly and proceed with the installation.



- ▶ NOTE THAT!! All configurations must match those depicted in the figure. Choose "/" root partition as installation partition. Then Click Install Now.

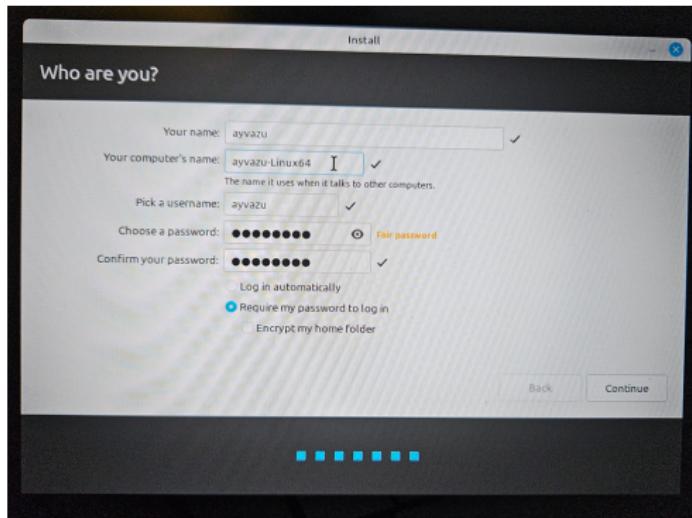
## Step 5- Installing Linux Mint beside Windows (cont'd ..)

- ▶ Select your region and click "Continue".



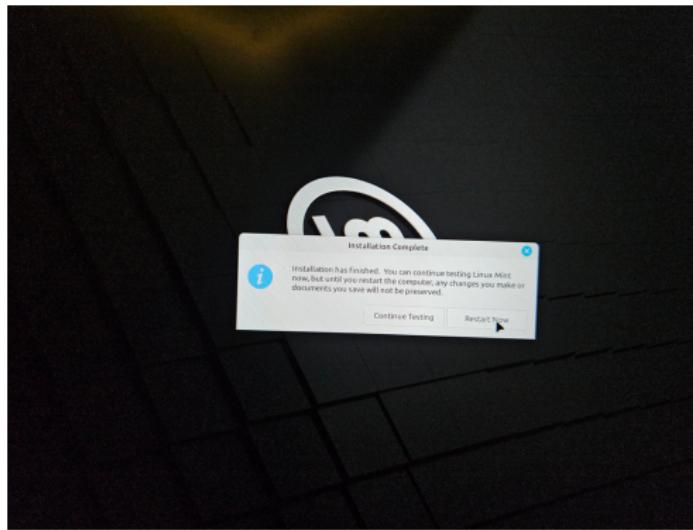
## Step 5- Installing Linux Mint beside Windows (cont'd ..)

- ▶ Pick your username and password (Please do not forget.)



## Step 5- Installing Linux Mint beside Windows (cont'd ..)

- ▶ Finally, click "**Restart Now**" and reboot the computer.



- ▶ After restarting, you will see the GRUB menu welcome screen. From there, you can choose between two operating systems: either Windows or Linux Mint.

## Installing on a virtual machine

- ▶ Linux distribution is installed on a virtual machine (using a virtualization tool such as VirtualBox).



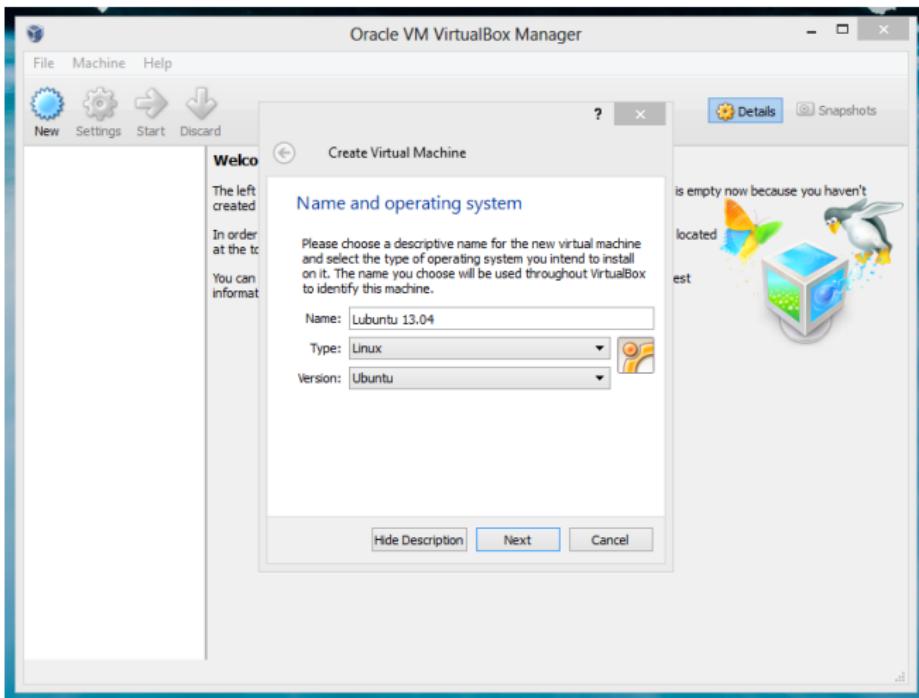
## Oracle VM VirtualBox

- ▶ Download VirtualBox from <https://www.virtualbox.org/wiki/Downloads>
  - ▶ Select appropriate version for the host operating system you use.
- ▶ Finish the installation of VirtualBox.
- ▶ We will use previously downloaded .iso file for the Linux distribution. (see.  
<https://www.linuxmint.com/edition.php?id=302> )
  - ▶ **WARNING!!** The following slides demonstrate the installation process for a virtual machine using **Lubuntu 16.04.1**. However, in this course, we will be utilizing **Linux Mint Vera (Cinnamon 21.1)**. Therefore, please follow those instructions for **Linux Mint**.



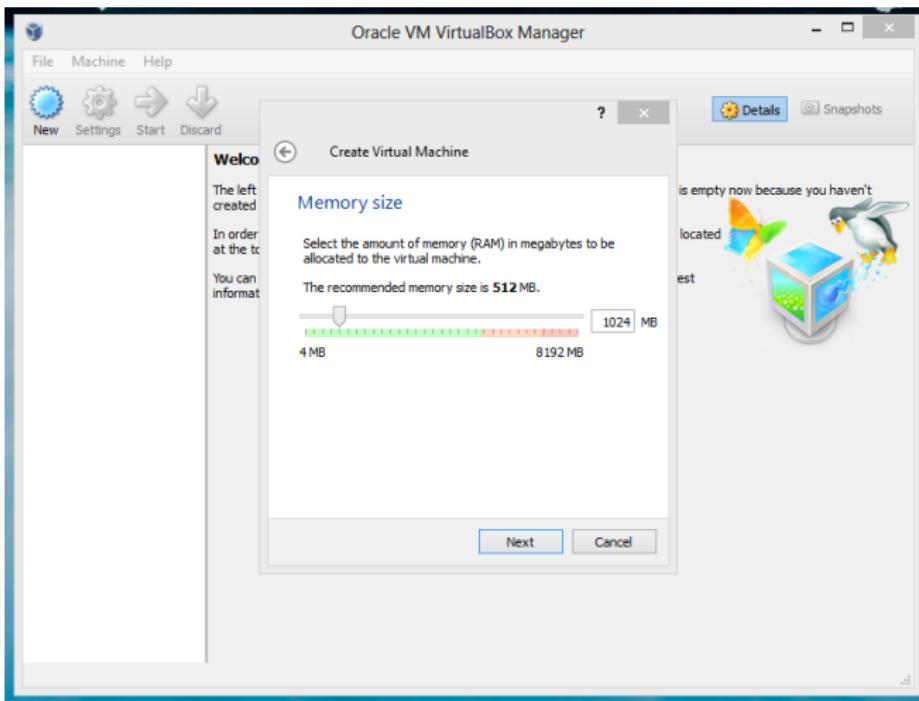
## Step 1

- ▶ Open VirtualBox and select "New" from the menu above.
- ▶ The type must be set as "Linux" and the appropriate Linux version must be determined (e.g., "Ubuntu").



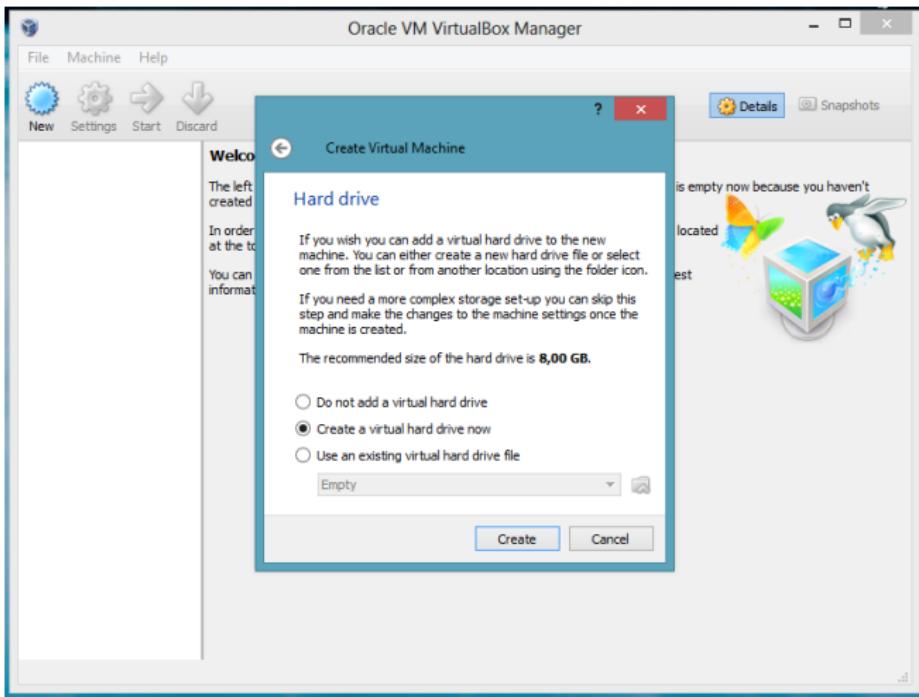
## Step 2

- Determine the amount of maximum memory (RAM) available for the virtual machine.



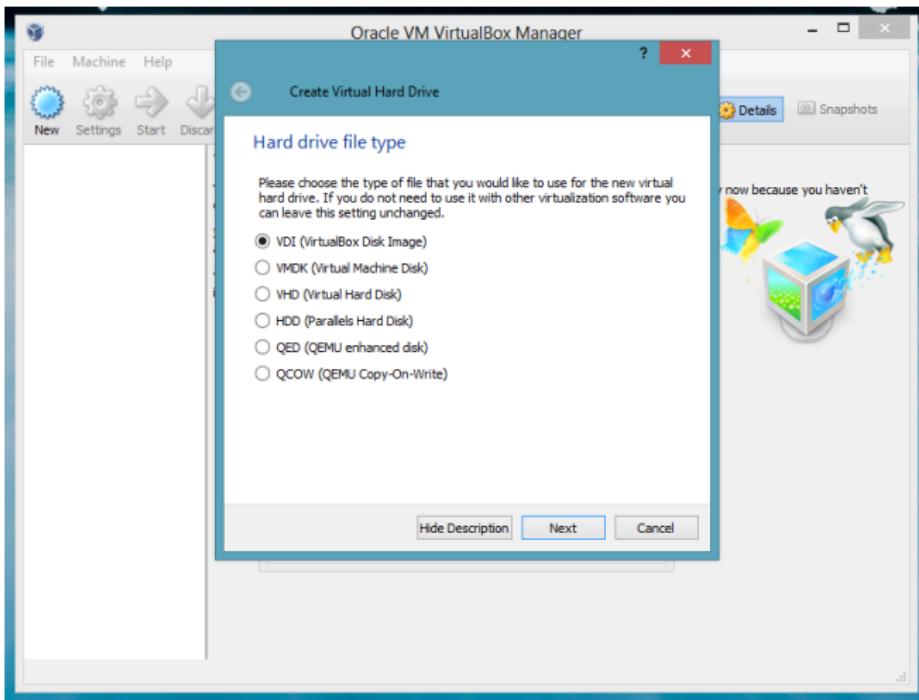
## Step 3

- ▶ Select "Create a virtual hard drive for the machine.", and press "Create".



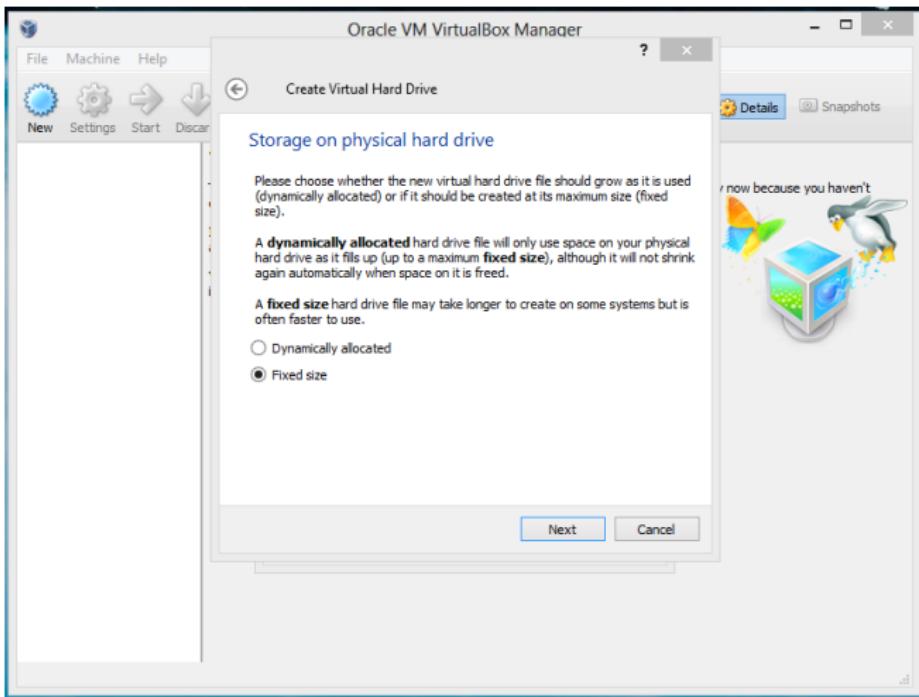
## Step 4

- ▶ Select "VDI (VirtualBox Disk Image)" from the list of options.



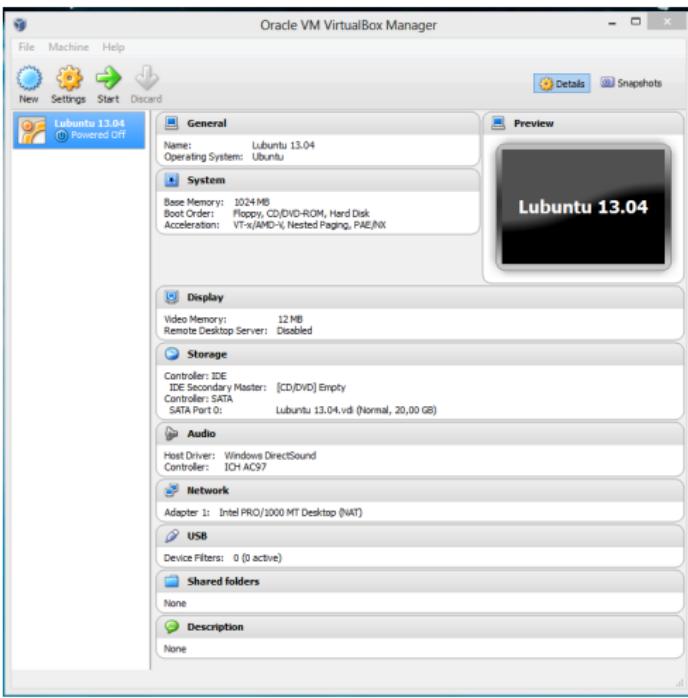
## Step 5

- Determine the type of storage as fixed size.



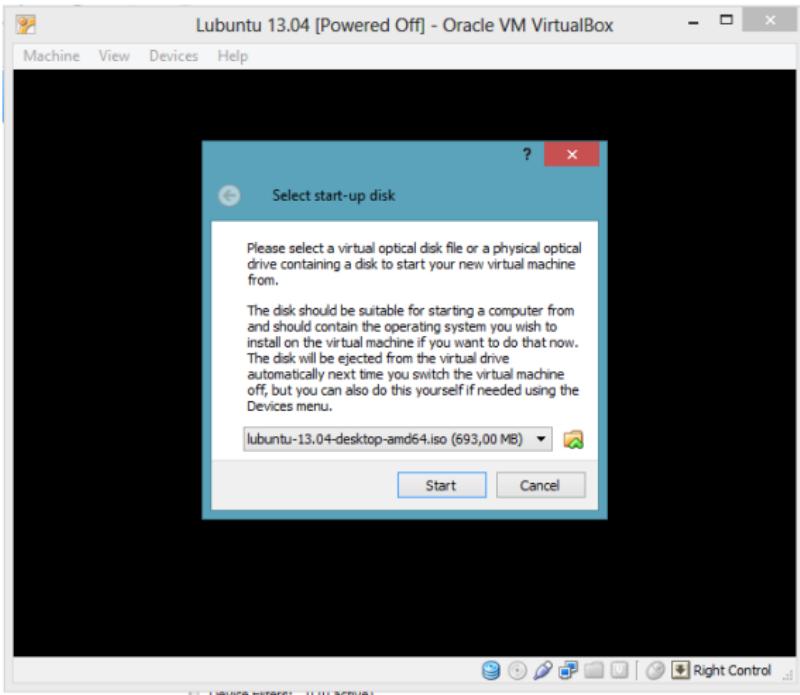
## Step 6

- ▶ Virtual machine is successfully installed.
- ▶ Press "Start" from the menu above.



## Step 7

- ▶ Select the .iso file you downloaded before.



## Step 8

- ▶ Set the language (F2).
- ▶ Set the keymap (F3).
- ▶ Select "Install Lubuntu" for starting installation.
- ▶ The rest of the installation is straightforward.

