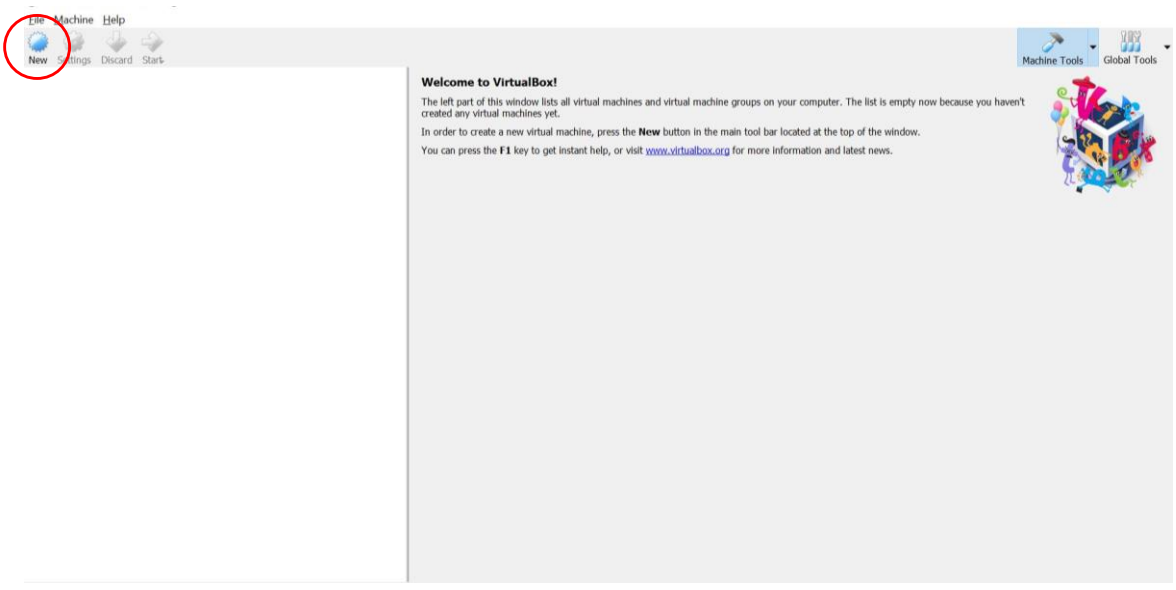
Installation Virtual Machine in VirtualBox

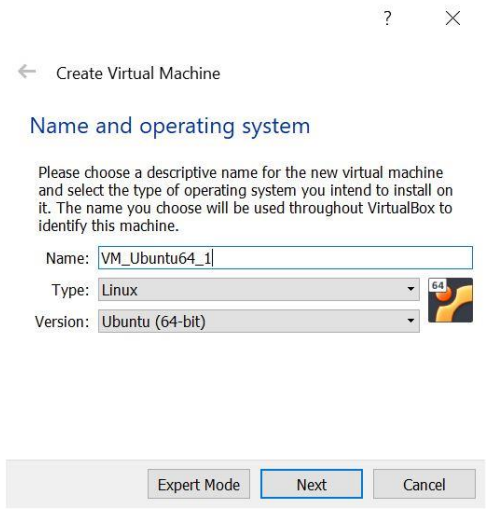
A Visual Guide

1



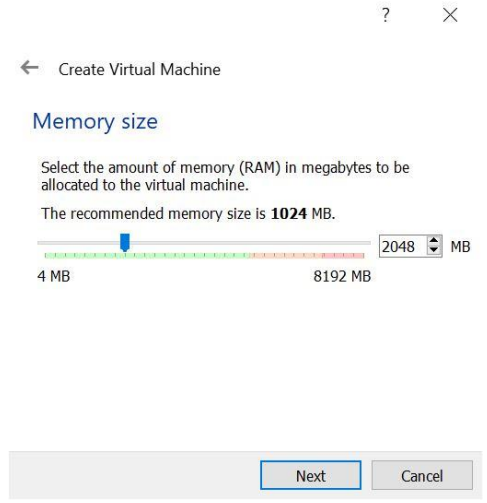
Open VB -> click ‘New’ (blue icon)

2



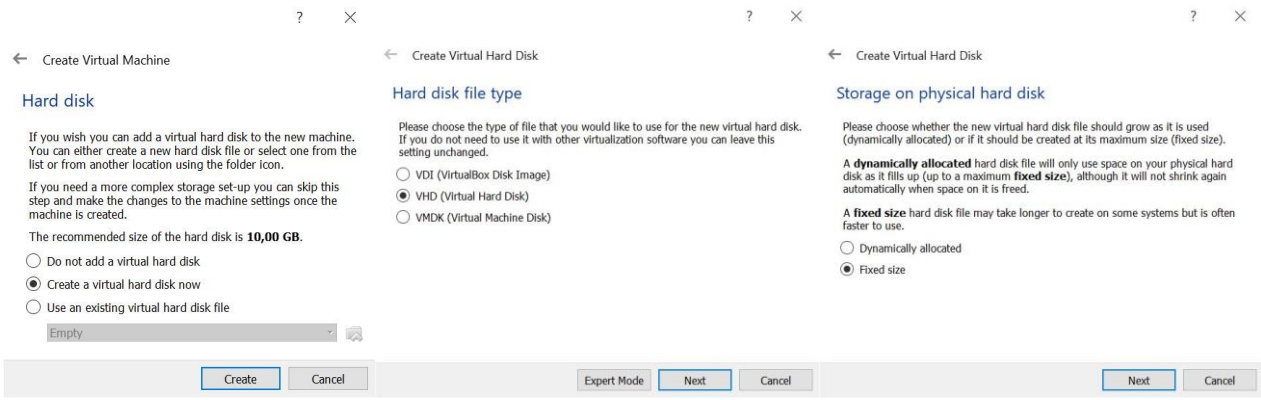
Choose OS, storage location and name

3

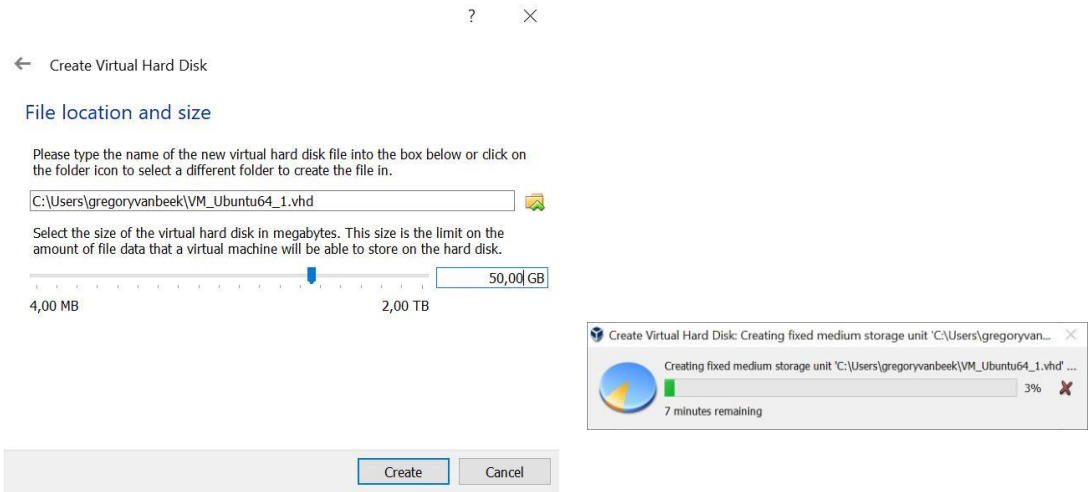


Allocate RAM memory (advised is to use not more than one fourth of your computer memory)

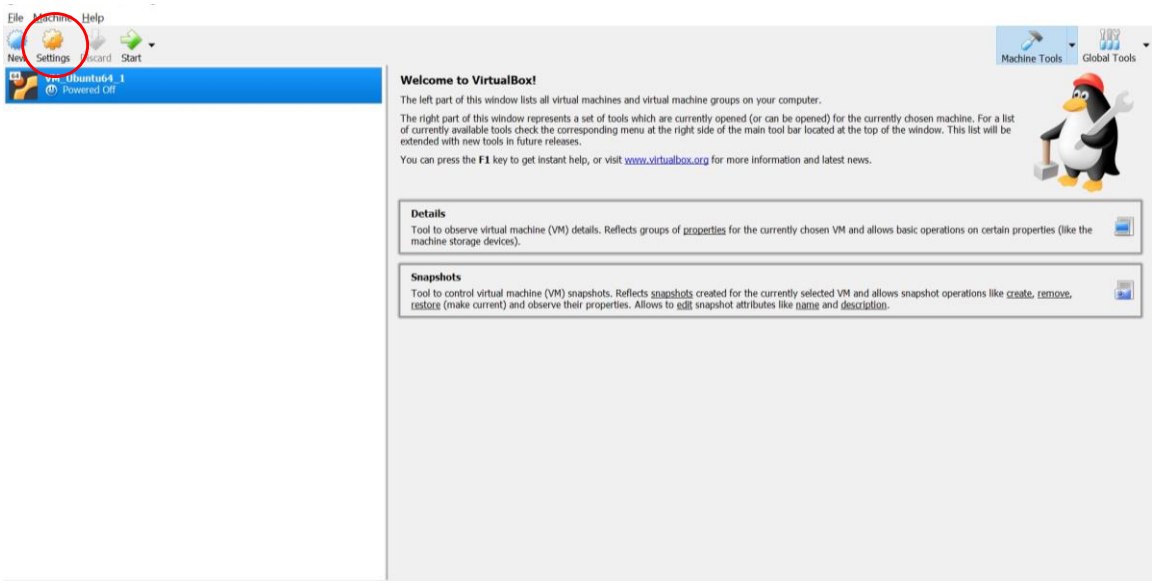
4



Make new virtual hard drive (choose VHD)



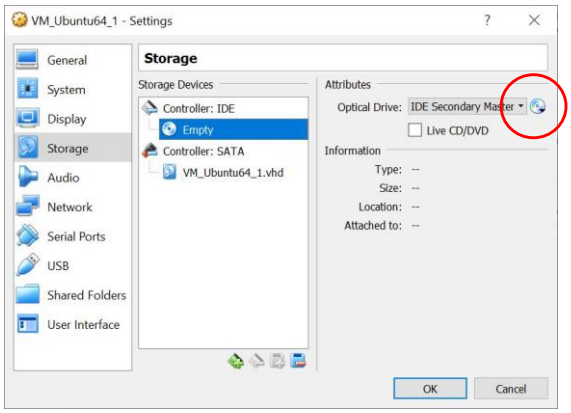
Choose size of VHD (recommended is a minimal amount 50GB)

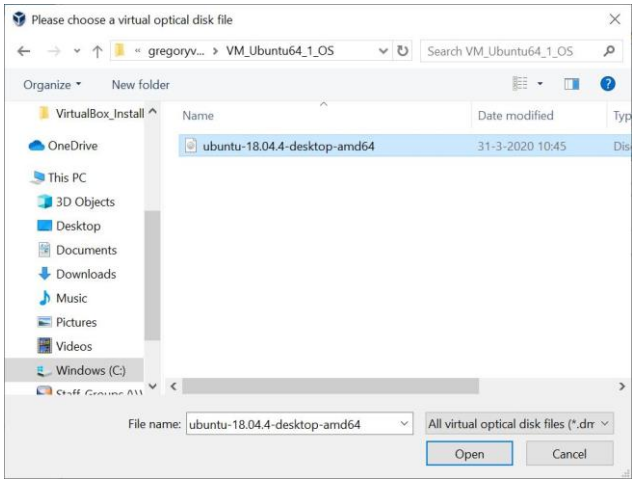


Download the Ubuntu 18.04.4 LTS operating system (https://ubuntu.com/download/desktop) and save the 'Disc Image File' at a convenient location.

Go to settings of your new virtual machine (VM) (yellow gear symbol) and go to the storage tab.

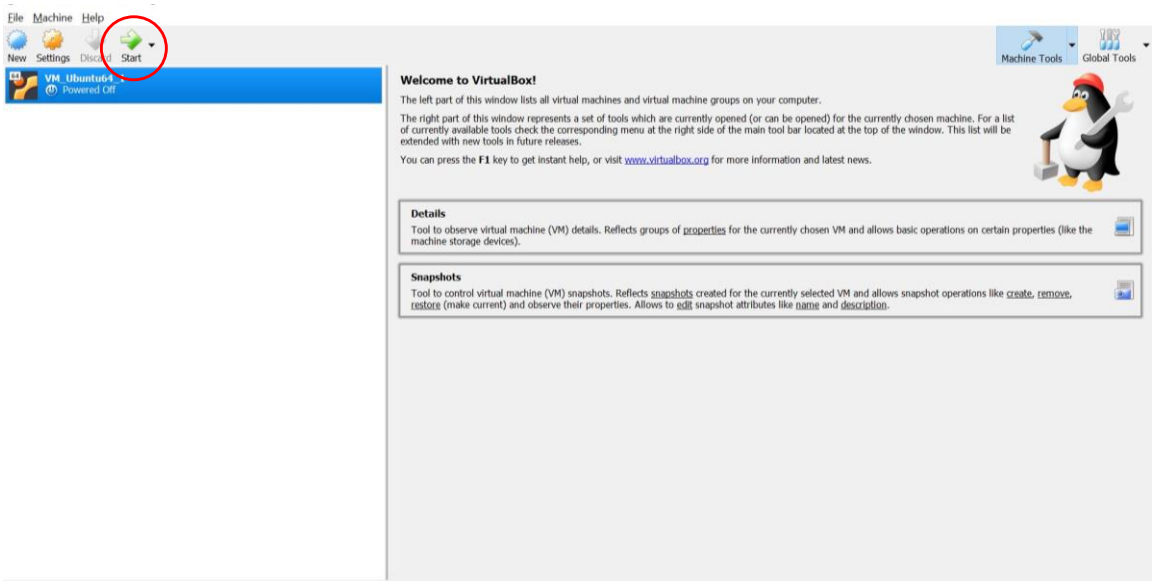
7





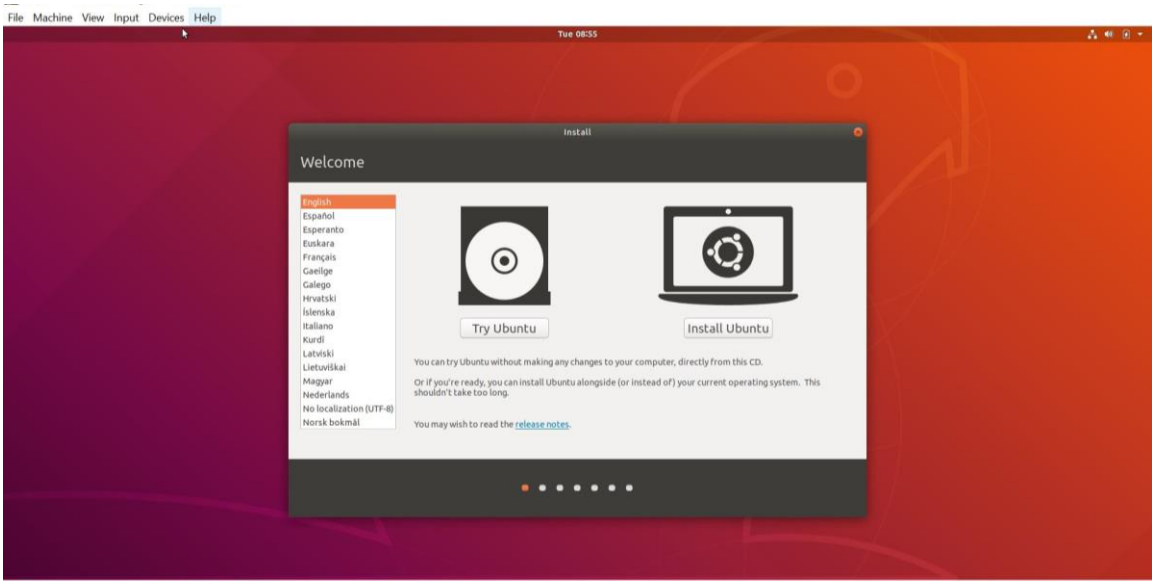
Click 'empty' under 'Controller IDE'. Next to 'IDE Secondary master' click the blue CD icon and select 'choose/create a virtual optical disk'. Click 'Add' and choose your downloaded Linux OS.

8



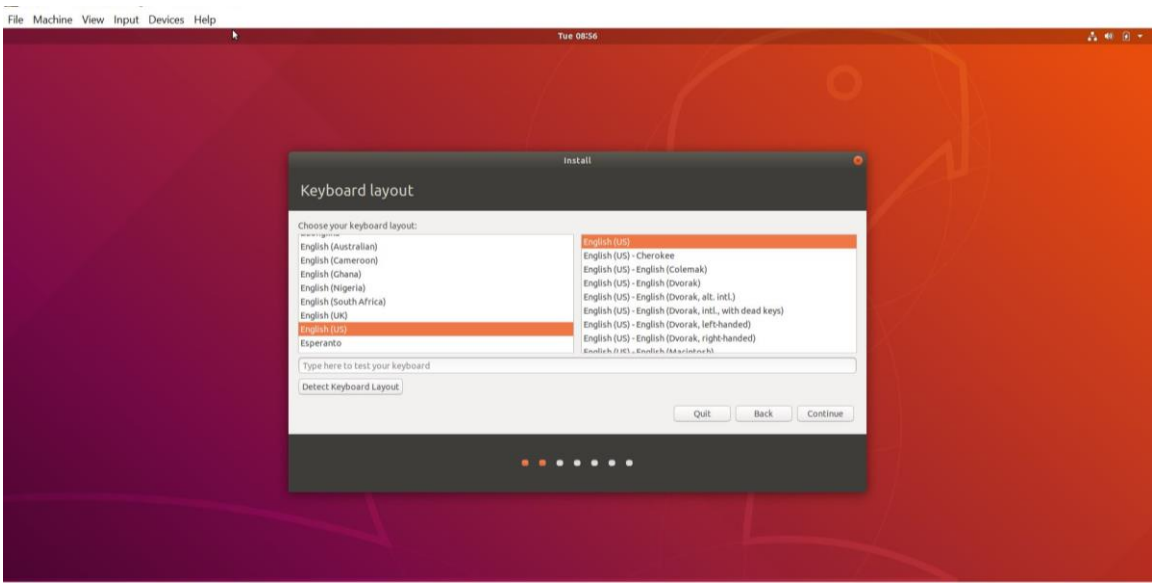
Start the VM and run the Linux install process with the recommended settings. Note that this might freeze sometimes, so it might be necessary to reinstall it a few times, especially with a slow computer or when little RAM memory is allocated for the VM.)

9



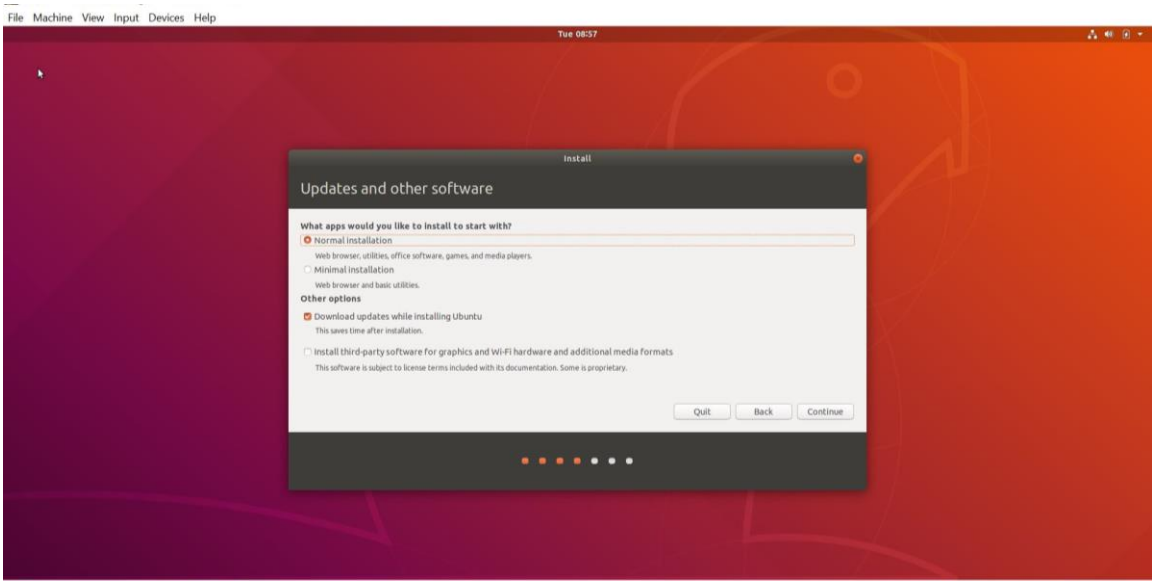
Click 'Install Ubuntu'.

10



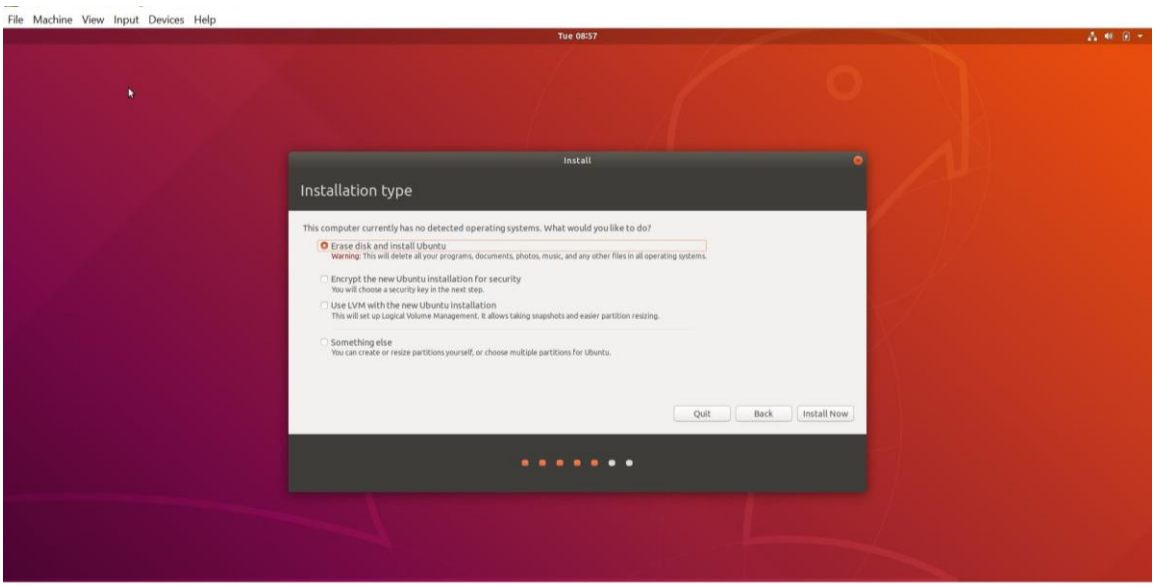
Select your preferred keyboard outlay.

11



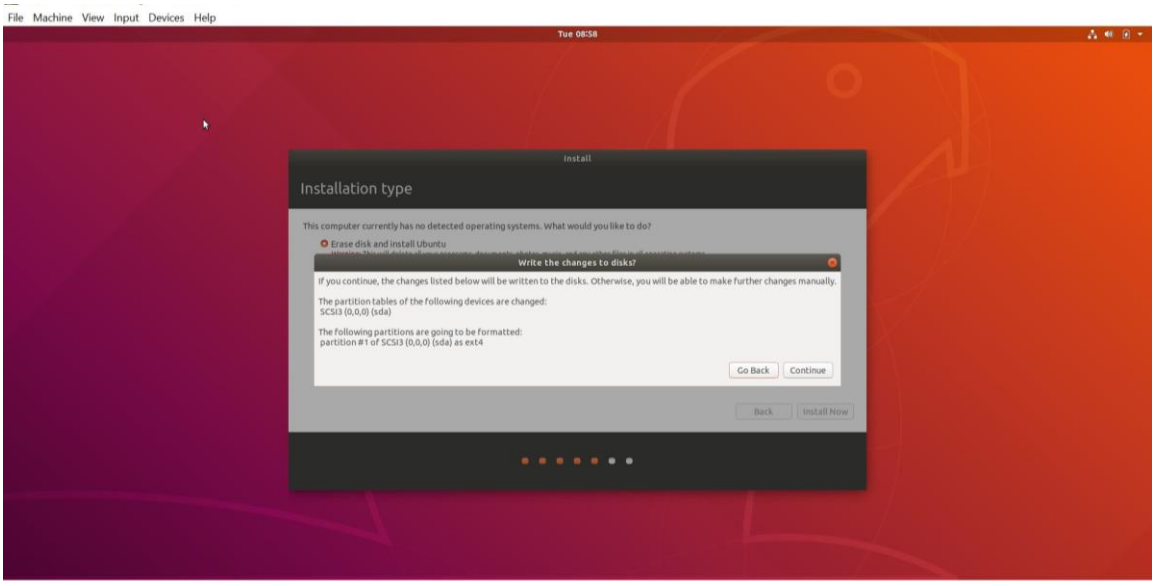
Click ‘Normal Installation’.

12



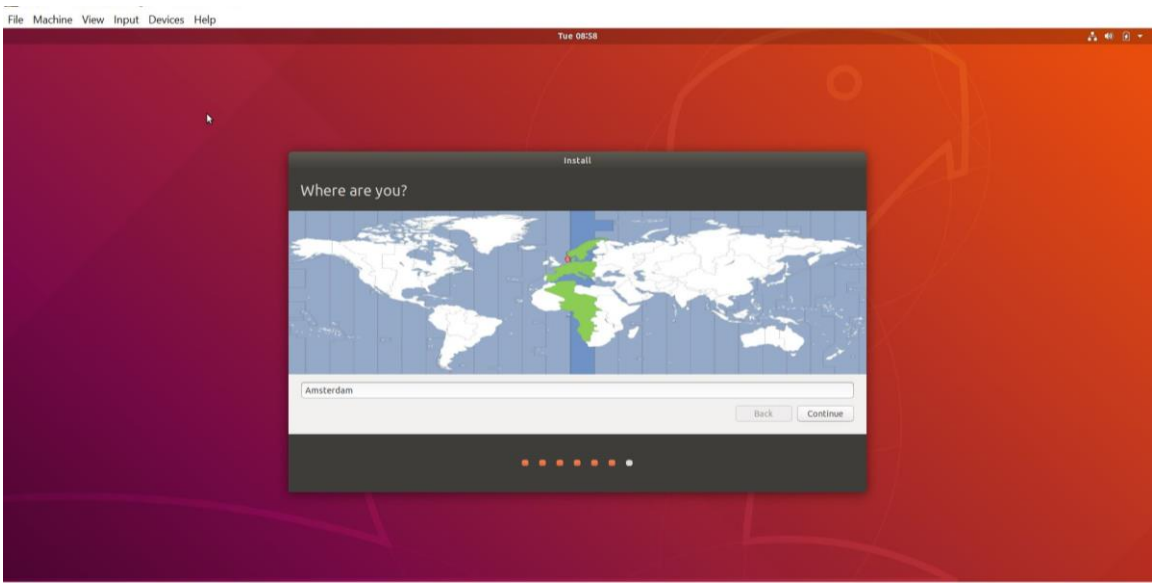
Click ‘Erase Disk and Install Ubuntu’.

13



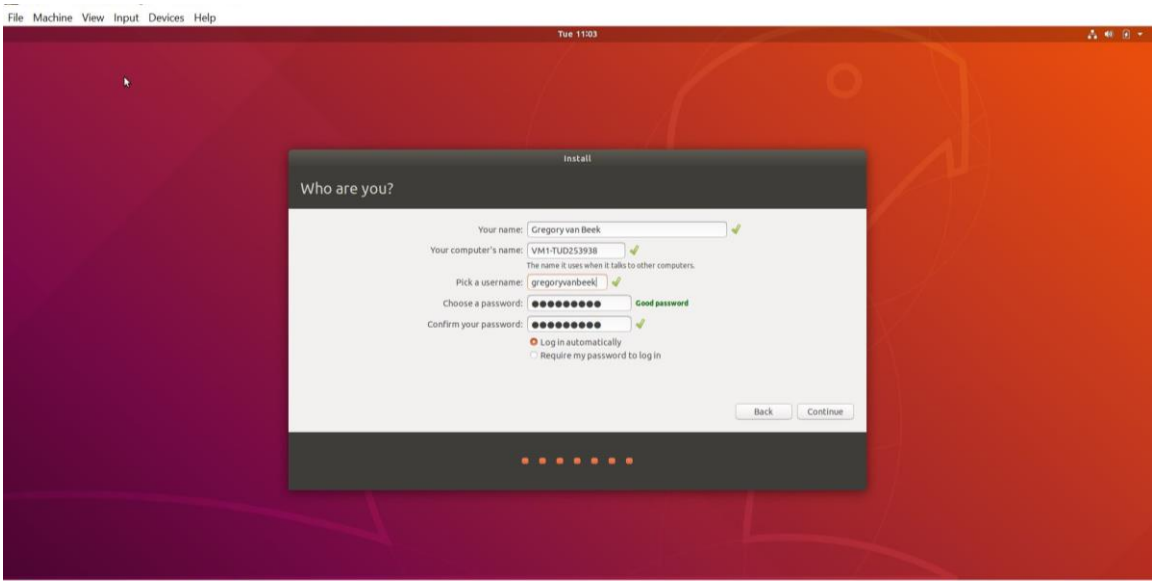
Click ‘Continue’.

14



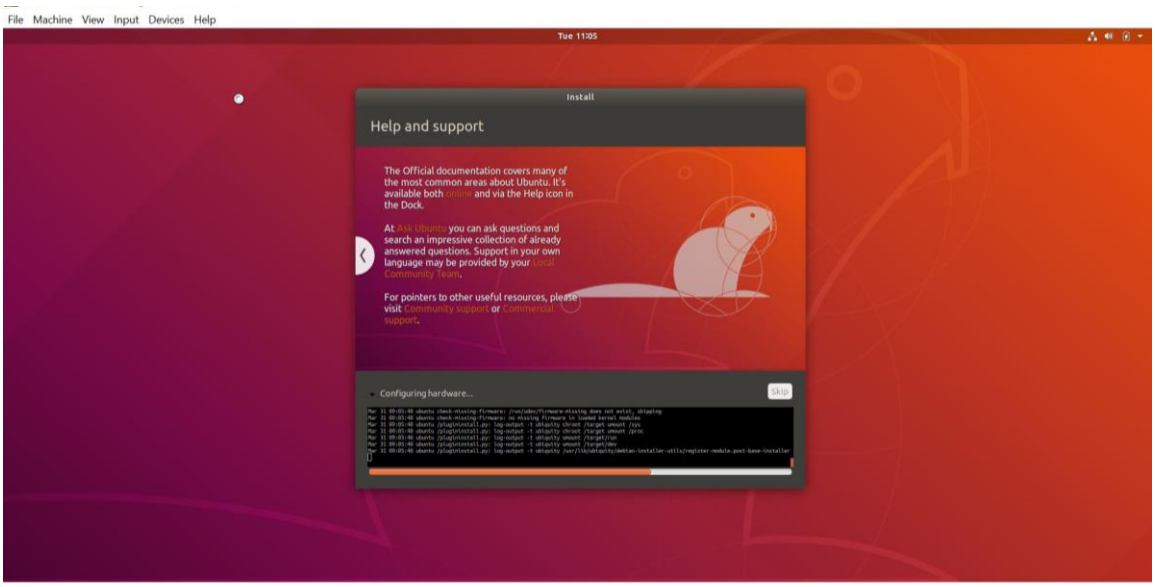
Select your current time region

15



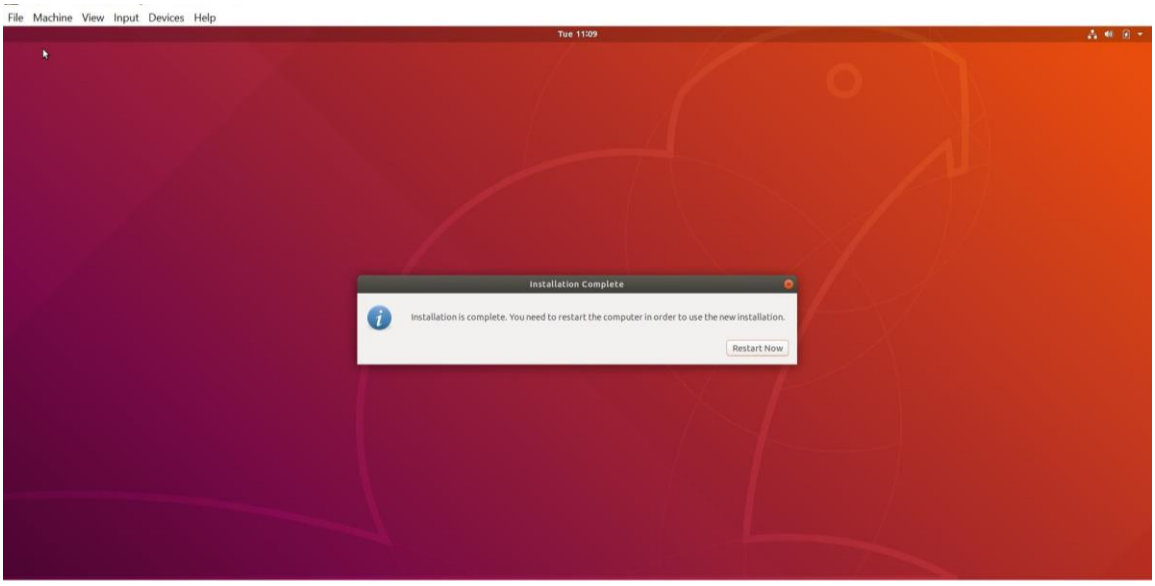
Enter your name, computername, username and password.

16



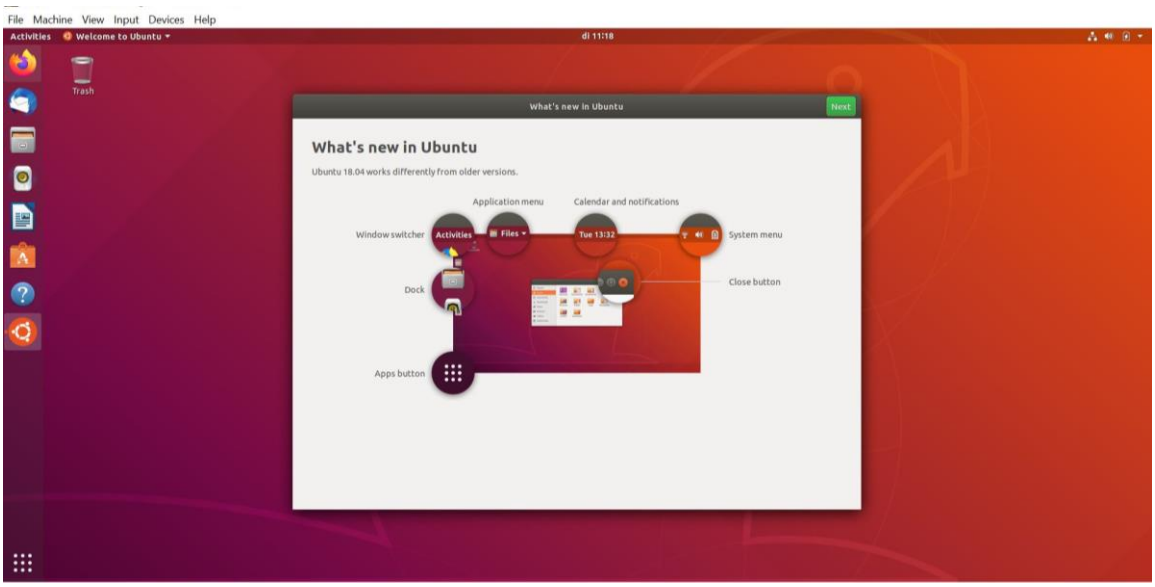
The install process should now start and should last more than 15 to 30 minutes (depending on how fast your computer is). If it takes a lot of time without progressing, restart the machine with the arrow in the top right corner.

17



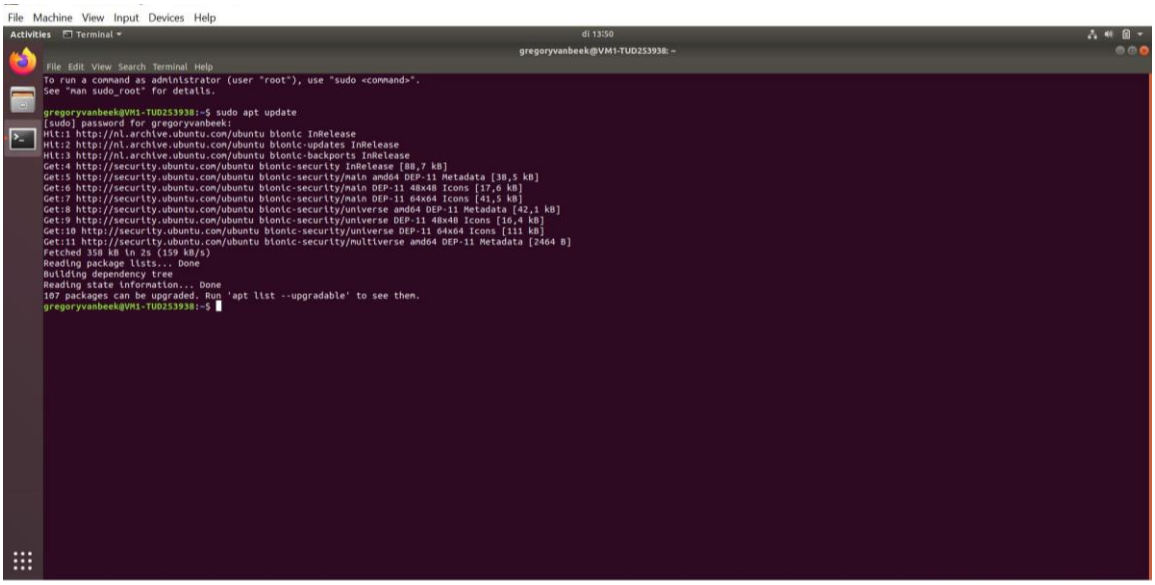
Restart the VM. If after restarting the VM ask to 'remove the start up medium', press enter. If the VM doesn't start up after that, turn the VM off (press the cross in the top right corner to close the window) and start the VM again.

18



If the installation is successful, the VM should look something like this. It is advised not to install many programs other than the ones needed for data processing (to save memory). The VM is now working, but for easy sharing of files between the physical computer and the VM, a shared folder can be created.

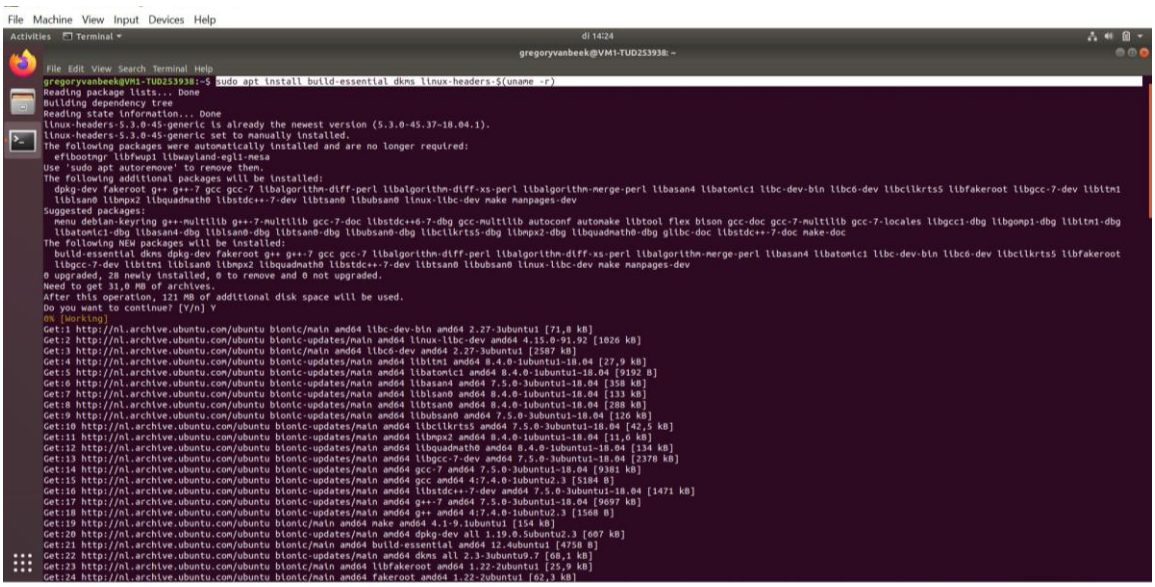
19



To add a shared folder, ‘guest additions’ needs to be installed in the VM. For this, enter 'sudo apt update‘

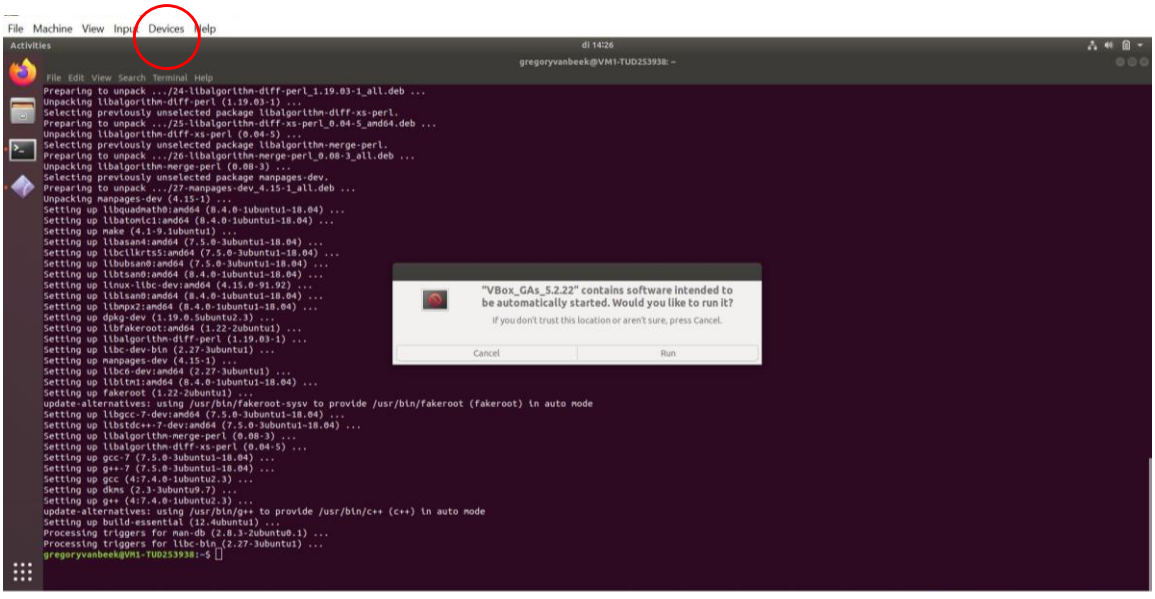
When finished, enter 'sudo apt upgrade' and restart the system and restart the VM.

20



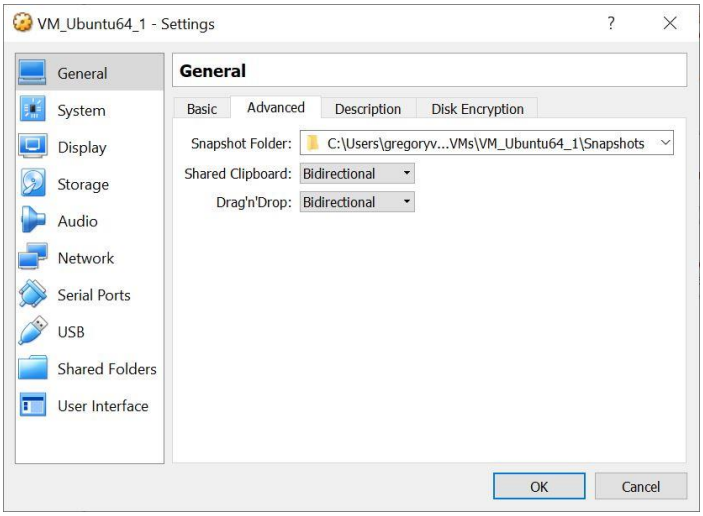
Enter 'sudo apt install build-essential dkms linux-headers -$(uname -r)'

21



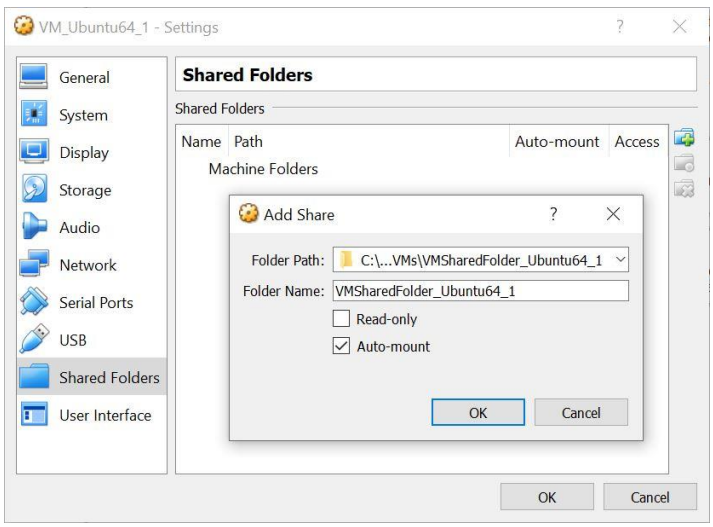
Click the ‘devices’ tab in the top of the window. Click ‘Insert Guest Additions CD Image’ and run the installer. Power off the VM when done.

22



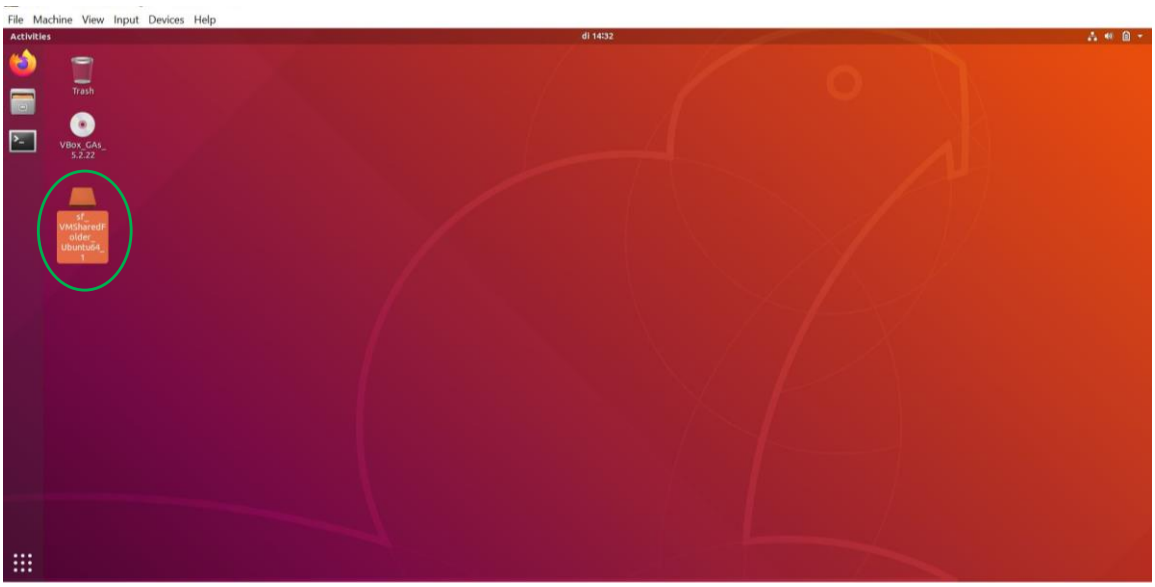
In VB click 'settings' (yellow gear symbol) and go to the 'General' tab; 'Advanced'. Set both 'shared clipboard' and 'drag n drop' to bidirectional and click 'ok'

23



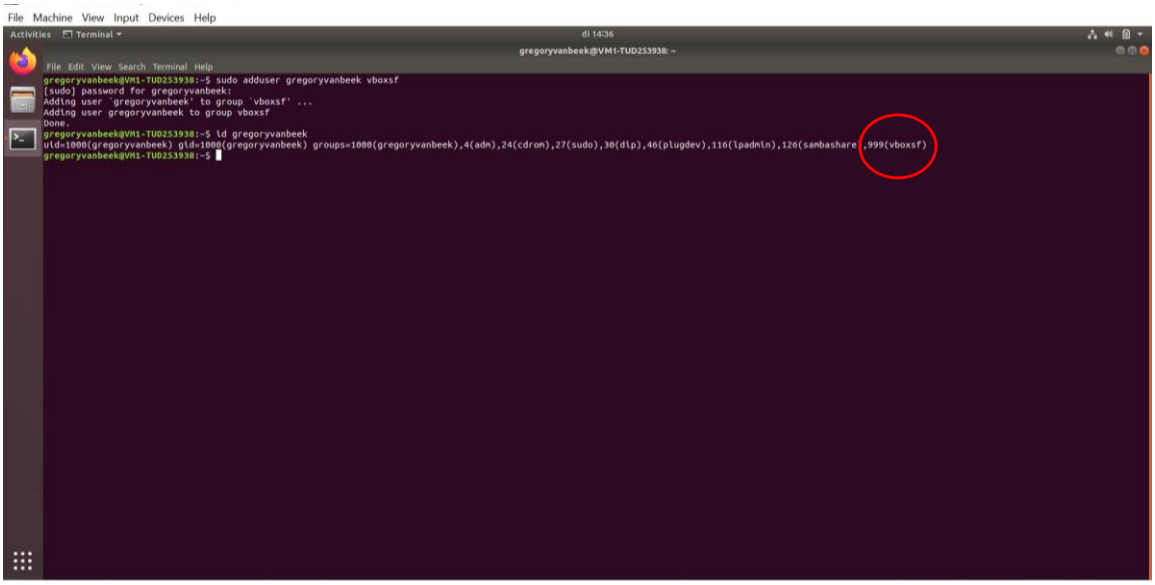
In VB click 'settings' again (yellow gear symbol) and go to the 'Shared Folders'. Add path to a folder that is going to be used as shared folder. Set 'Auto Mount' and click 'Ok'

24



Start the VM and check if the shared folder is present (either on the desktop, the files folder or in the media folder).

25



To be able to access the folder, special permission needs to be given. For this open the Terminal app. Enter 'sudo adduser [username] vboxsf' (where [username] should be replaced with your actual username of the VM). To check, enter 'id [username]'. This should give a list that needs to include ‘vboxsf’ Restart the VM.

26

To test the shared folder, try copying the folders for 'BWA', 'SAMTools' and 'Sambamba' as well as the reference sequence(s) and check if they show up in the VM. To unpack the software folders, copy them to the VM (e.g. the Documents folder).

The virtual machine should now be fully operational.

If a new shared folder is wanted, the 'guest additions' in Linux do not need to be installed again. The new shared folder only needs to be selected in the settings menu of VirtualBox (i.e. the yellow gear symbol). Do the following steps:

- In VB click 'settings' again (yellow gear symbol) and go to the 'Shared Folders'. Add path to a folder that is going to be used as shared folder. Set 'Auto Mount' and click 'Ok'

- Start the VM and check if the shared folder is present (either on the desktop, the files folder or in the media folder).

- To be able to access the folder, special permission needs to be given. For this open the Terminal app.

27

28