

VM Setup - Lubuntu 20.04.3 LTS (Focal Foss)

Last updated by | Shridhar | 30 Dec 2021 at 19:56 GMT

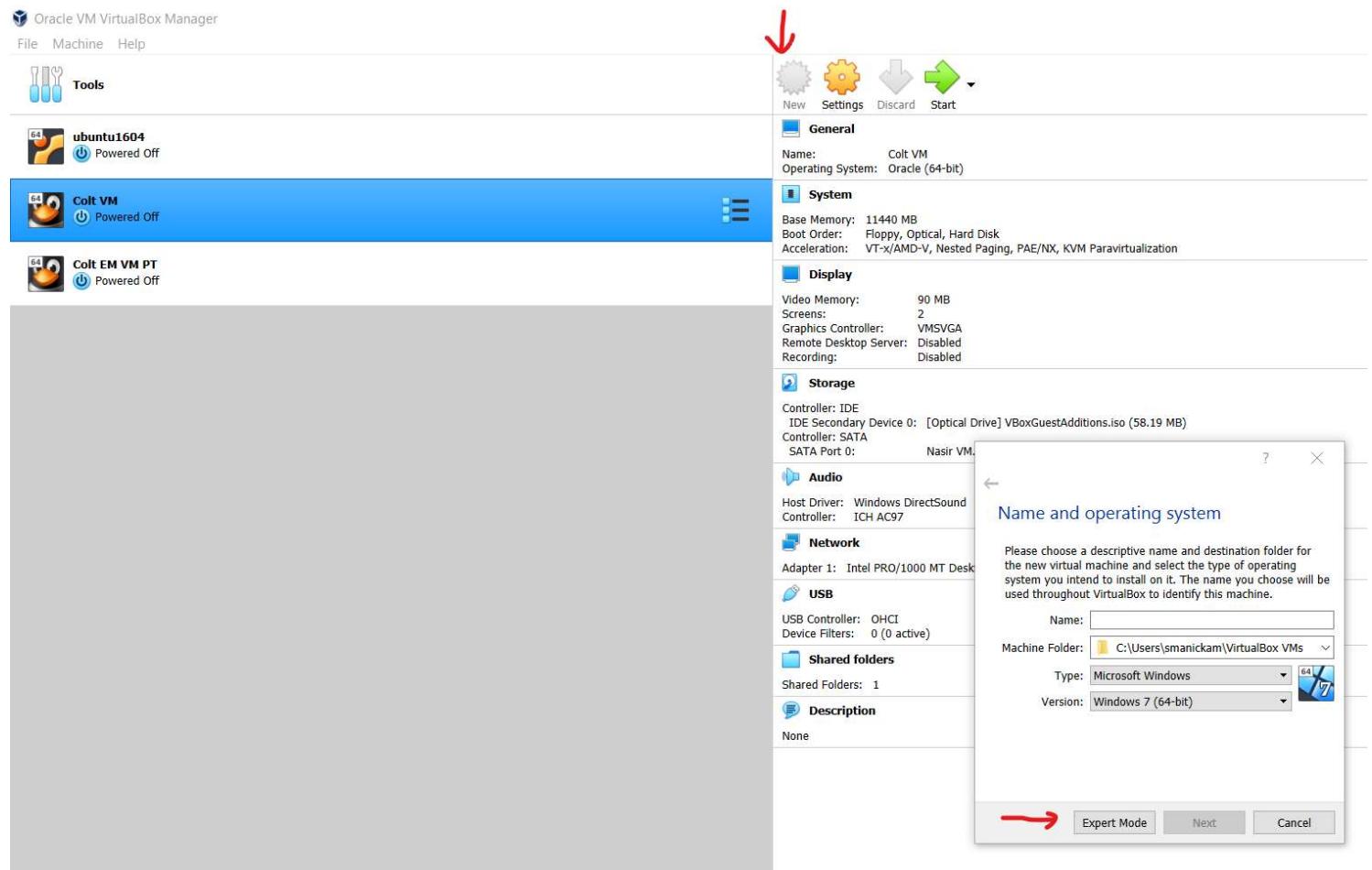
Please follow the below steps to install and set-up your own VM from scratch. These instructions are for Lubuntu 20.04.3 LTS (Focal Foss) version.

Step 1:

Download Lubuntu 20.04.3 (LTS version) (ISO) from <https://lubuntu.me/downloads/>

Step 2:

Open Oracle VM VirtualBox Manager application (Please contact IT if this software is not installed on your Colt Laptop (Host)). Set the setup wizard to "Expert Mode"



Step 3:

Please set the attributes as indicated in the image below and click on "Create"

Note: The RAM size may differ according to your host. Please do not exceed the red threshold. If we do so, the host operating system may not have sufficient RAM to work normally and you may experience lag.

Oracle VM VirtualBox Manager
File Machine Help

Tools

ubuntu1604
Powered Off

Colt VM
Powered Off

Colt EM VM PT
Powered Off

New Settings Discard Start

General

Name: Colt VM
Operating System: Oracle (64-bit)

System

Base Memory: 11440 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 90 MB
Screens: 2
Graphics Controller: VMVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Controller: IDE
IDE Secondary Device 0: [Optical Drive] VBoxGuestAdditions.iso (58.19 MB)
Controller: SATA
SATA Port 0: Nasir VM

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop

USB

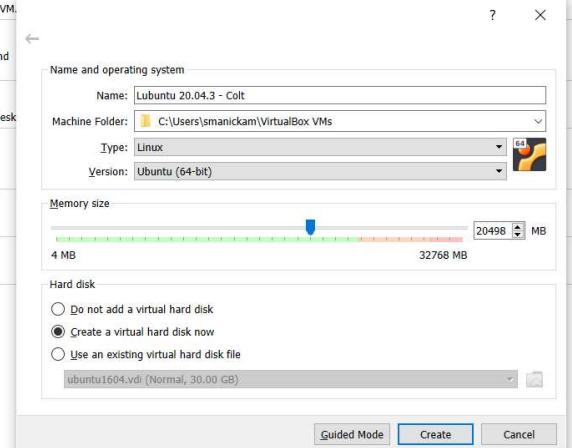
USB Controller: OHCI
Device Filters: 0 (0 active)

Shared folders

Shared Folders: 1

Description

None



Step 4:

Please create a Virtual disk image based on the available storage on your laptop. Minimum recommended is 30 GB. if we select dynamically allocated option, we can expand this latter, however try to allocate as much memory as possible now. Click on "Create" button.

The screenshot shows the Oracle VM VirtualBox Manager interface. On the left, a list of existing virtual machines is displayed: 'ubuntu1604' (Powered Off), 'Colt VM' (Powered Off), and 'Colt EM VM PT' (Powered Off). The 'Colt VM' entry is currently selected, highlighted with a blue bar. On the right, the configuration details for 'Colt VM' are shown. A modal dialog box is open, prompting for the creation of a new virtual disk. The dialog includes fields for 'File location' (set to 'C:/Users/smaniakam/VirtualBox VMs/Lubuntu 20.04.3 - Colt/Lubuntu 20.04.vdi'), 'File size' (set to 50 GB), and 'Hard disk file type' (set to 'VDI (VirtualBox Disk Image)'). Other options like 'Dynamically allocated' and 'Fixed size' are also visible. At the bottom of the dialog are buttons for 'Guided Mode', 'Create', and 'Cancel'.

File Machine Help

Tools

ubuntu1604
Powered Off

Colt VM
Powered Off

Colt EM VM PT
Powered Off

New Settings Discard Start

General

Name: Colt VM
Operating System: Oracle (64-bit)

System

Base Memory: 11440 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

Display

Video Memory: 90 MB
Screens: 2
Graphics Controller: VMSSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Controller: IDE
IDE Secondary Device 0: [Optical Drive] VBoxGuestAdditions.iso (58.19 MB)
Controller: SATA
SATA Port 0: Nasir VM

Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop

USB

USB Controller: OHCI
Device Filters: 0 (0 active)

Shared folders

Shared Folders: 1

Description

None

File location
C:/Users/smaniakam/VirtualBox VMs/Lubuntu 20.04.3 - Colt/Lubuntu 20.04.vdi

File size
50 GB

Hard disk file type
 VDI (VirtualBox Disk Image)
 VHD (Virtual Hard Disk)
 VMDK (Virtual Machine Disk)
 HDD (Parallels Hard Disk)
 QCOW (QEMU Copy-On-Write)
 QED (QEMU enhanced disk)

Storage on physical hard disk
 Dynamically allocated
 Fixed size
 Split into files of less than 2GB

Guided Mode Create Cancel

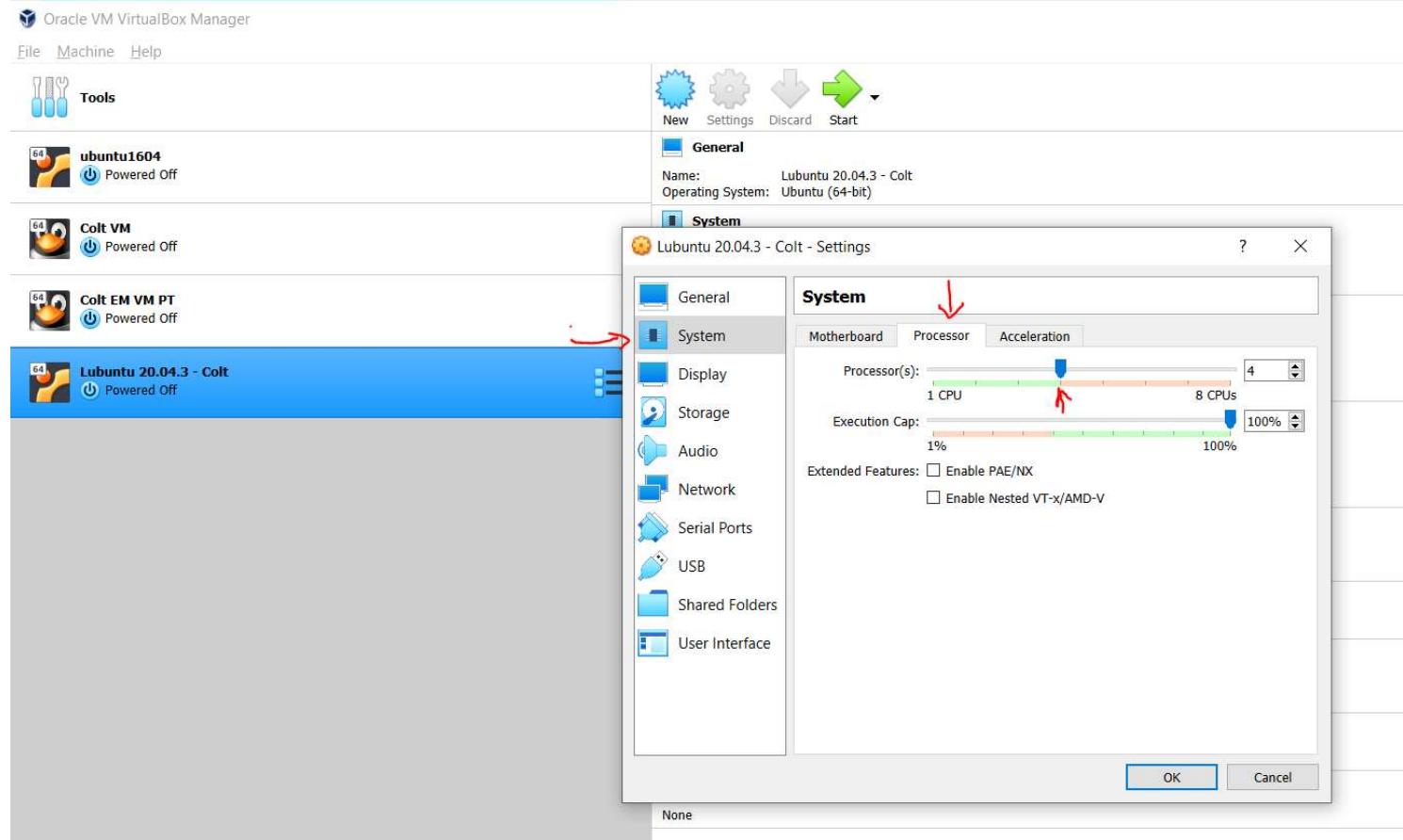
Step 5:

Now you should be seeing the VM created.

The screenshot shows the Oracle VM VirtualBox Manager interface. On the left, a list of existing virtual machines is displayed: 'ubuntu1604' (Powered Off), 'Colt VM' (Powered Off), 'Colt EM VM PT' (Powered Off), and 'Lubuntu 20.04.3 - Colt' (Powered Off). The 'Lubuntu 20.04.3 - Colt' entry is highlighted with a blue bar. On the right, the configuration details for this selected VM are shown. The top navigation bar includes 'Tools' (represented by a wrench and screwdriver icon) and a toolbar with 'New', 'Settings', 'Discard', and 'Start' buttons. The configuration tabs are: 'General' (Name: Lubuntu 20.04.3 - Colt, Operating System: Ubuntu (64-bit)); 'System' (Base Memory: 20498 MB, Boot Order: Floppy, Optical, Hard Disk, Acceleration: VT-x/AMD-V, Nested Paging, KVM Paravirtualization); 'Display' (Video Memory: 16 MB, Graphics Controller: VMSVGA, Remote Desktop Server: Disabled, Recording: Disabled); 'Storage' (Controller: IDE, IDE Secondary Device 0: [Optical Drive] Empty, Controller: SATA, SATA Port 0: Lubuntu 20.04.vdi (Normal, 50.00 GB)); 'Audio' (Host Driver: Windows DirectSound, Controller: ICH AC97); 'Network' (Adapter 1: Intel PRO/1000 MT Desktop (NAT)); 'USB' (USB Controller: OHCI, Device Filters: 0 (0 active)); 'Shared folders' (None); and 'Description' (None).

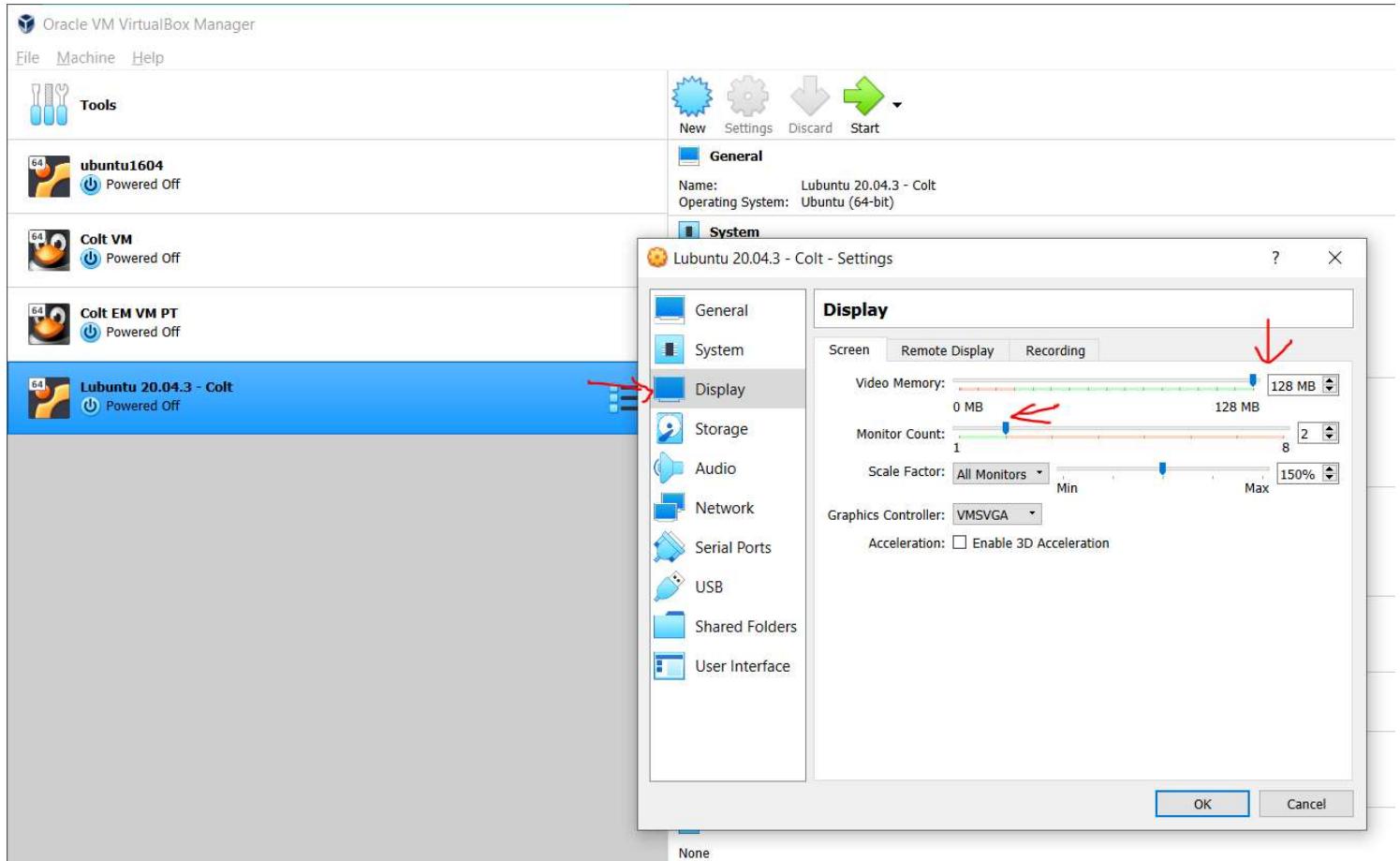
Step 6:

Set the number of processors which this VM instance can use (Recommended not exceed the green threshold).



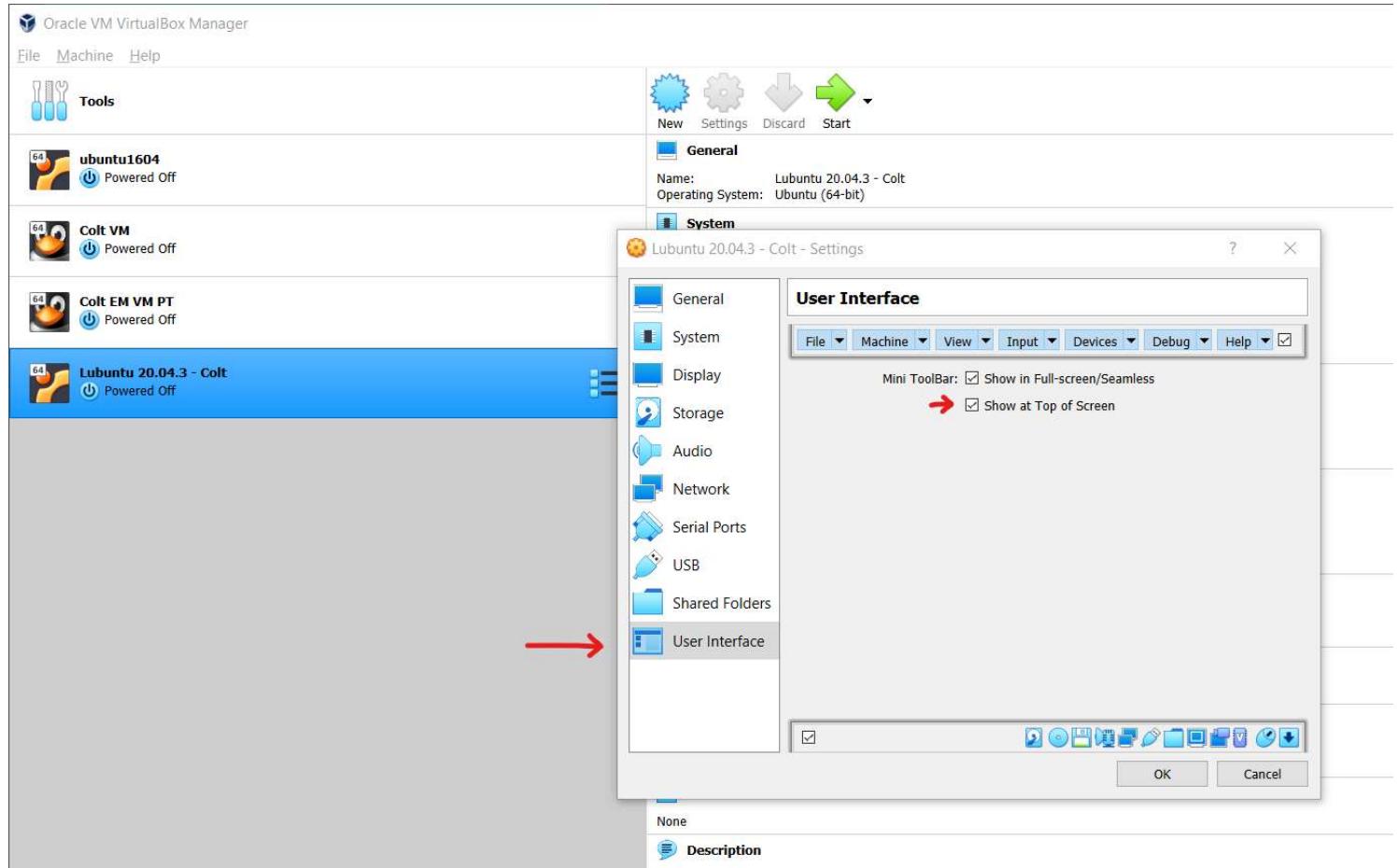
Step 7:

Set the Display count based on your case and increase Video Memory to Max. We need to install Virtual box VM guest additions inorder to use multiple monitors (will be covered in later steps).



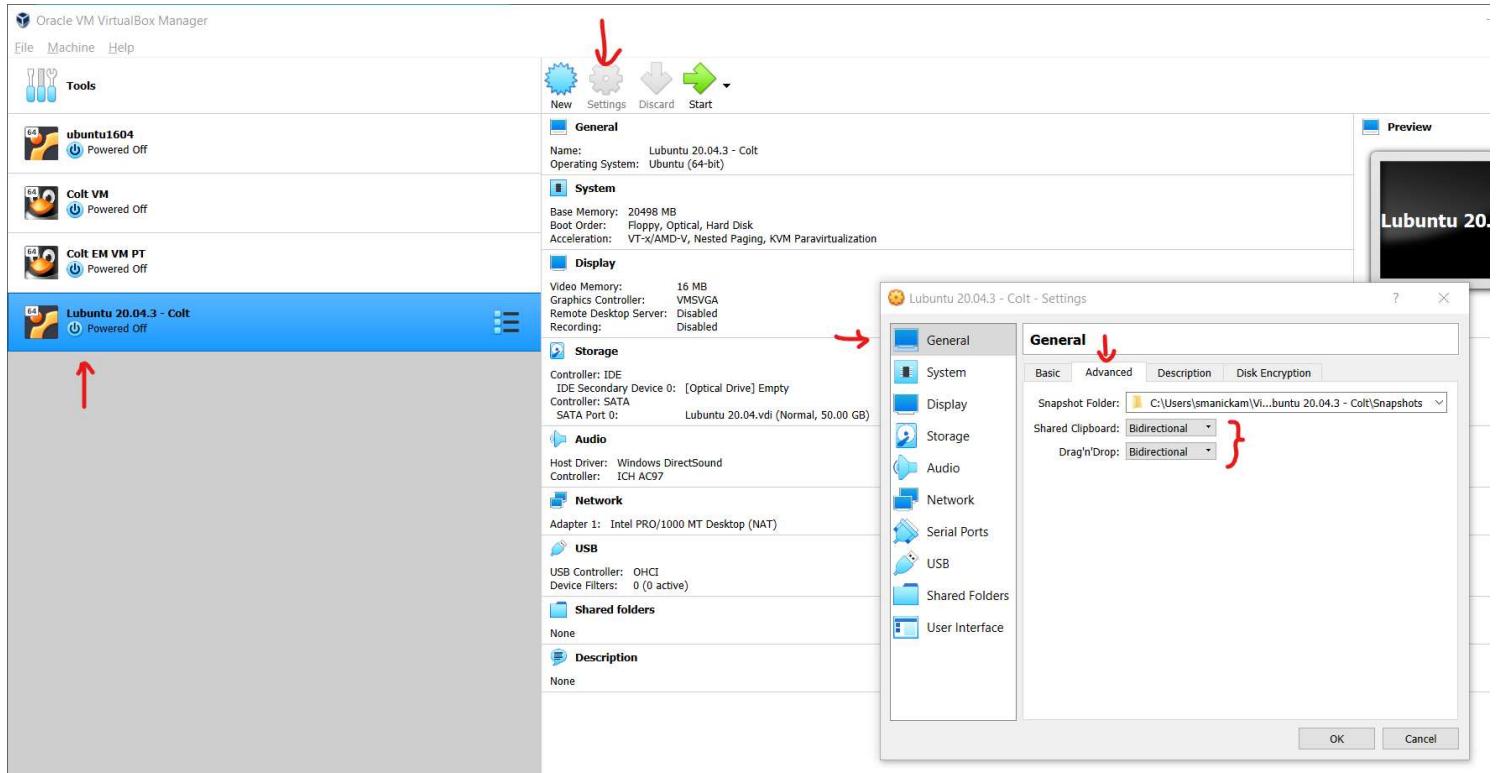
Step 8:

Enable the toolbar to be visible all the time for better control of VM.



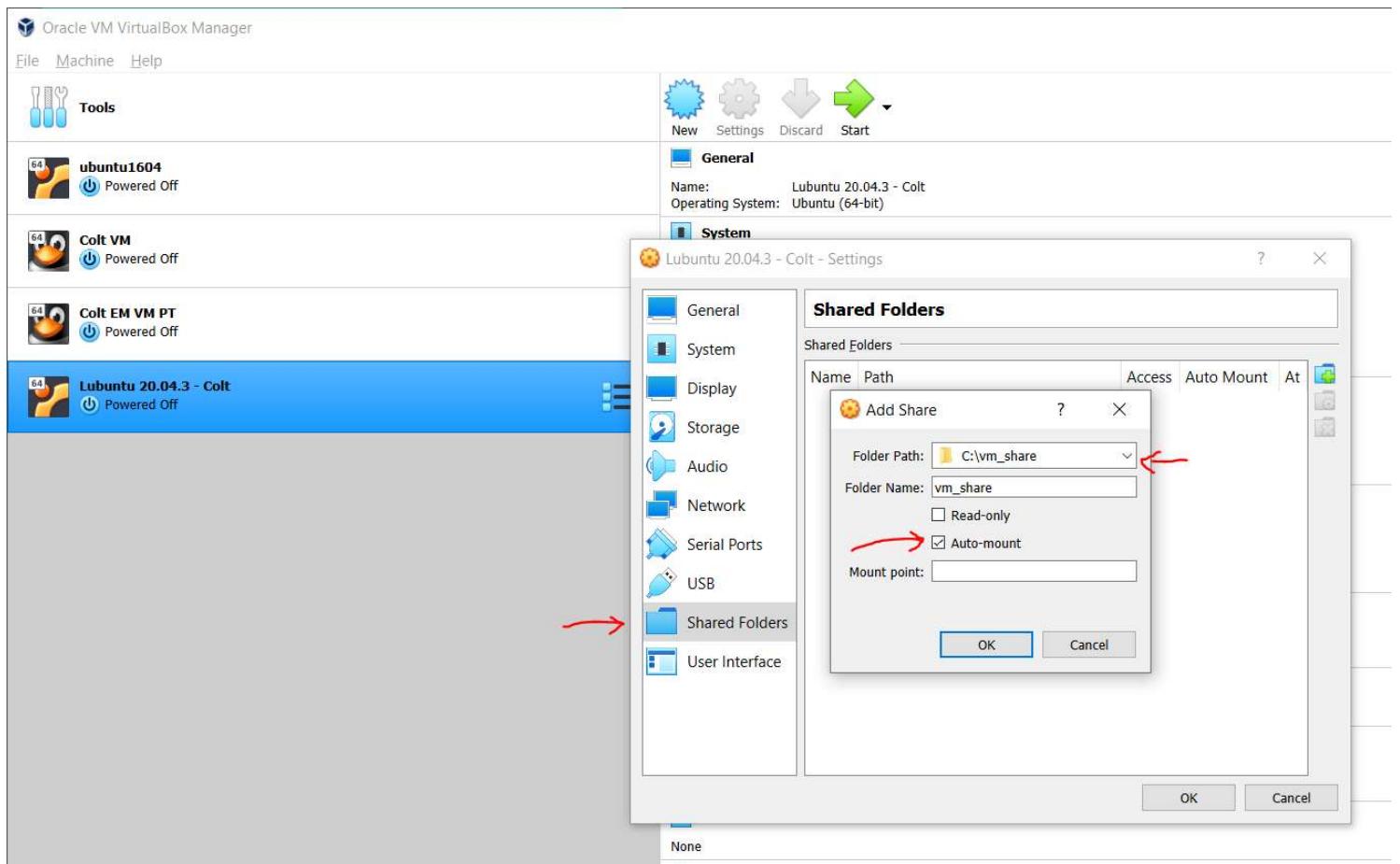
Step 9 (Enable shared clipboard) - Optional:

Let's tweak the VM setting to match our needs. First we need to enable bi-direction copy of clipboard contents if you like to seamlessly copy content between your host machine and the VM. Note that we need to configure shared folder in later steps for this to work after installing VM guest additions (Step 13 - Mounting shared folder).

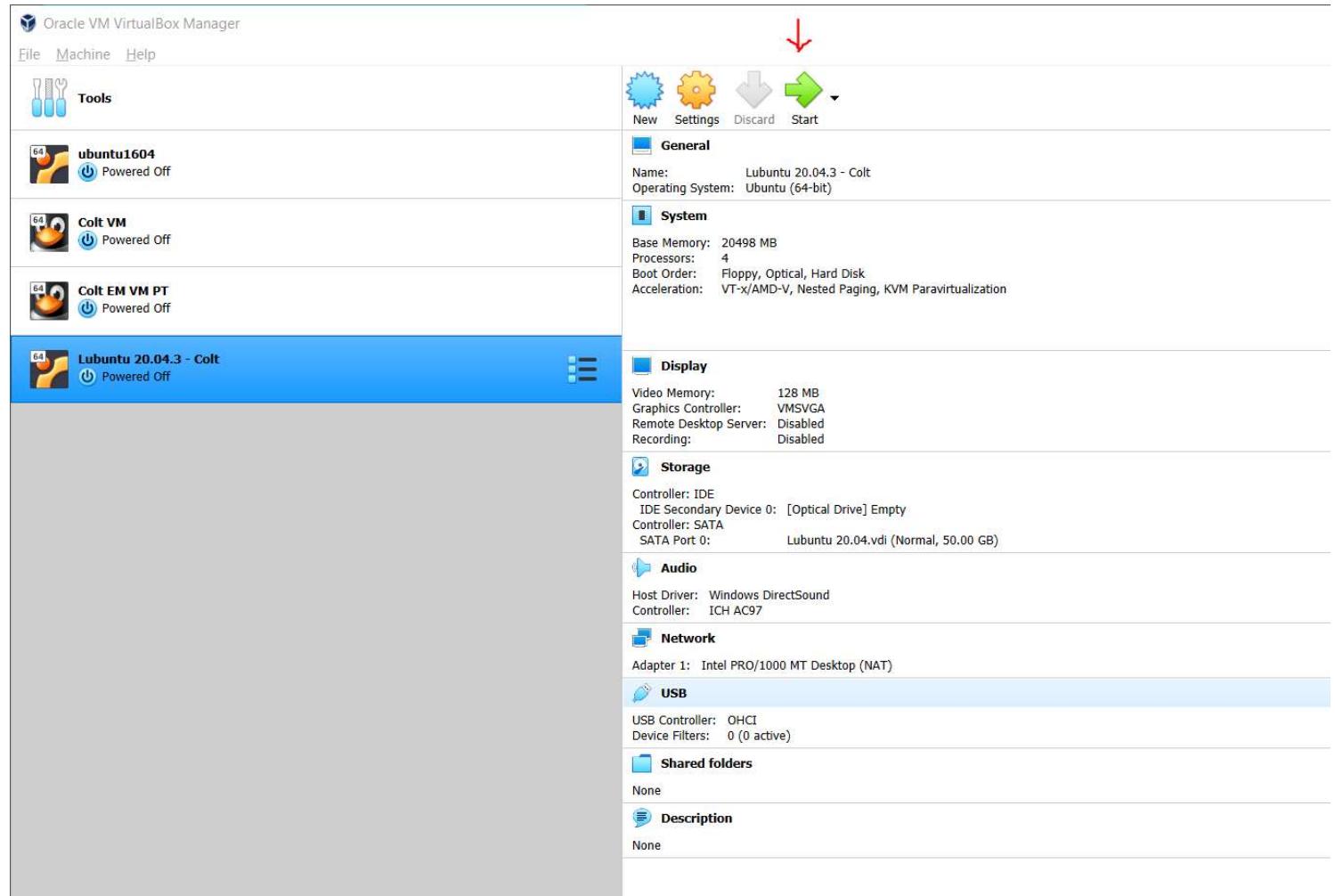


Step 10 (Enable shared folder) - Optional:

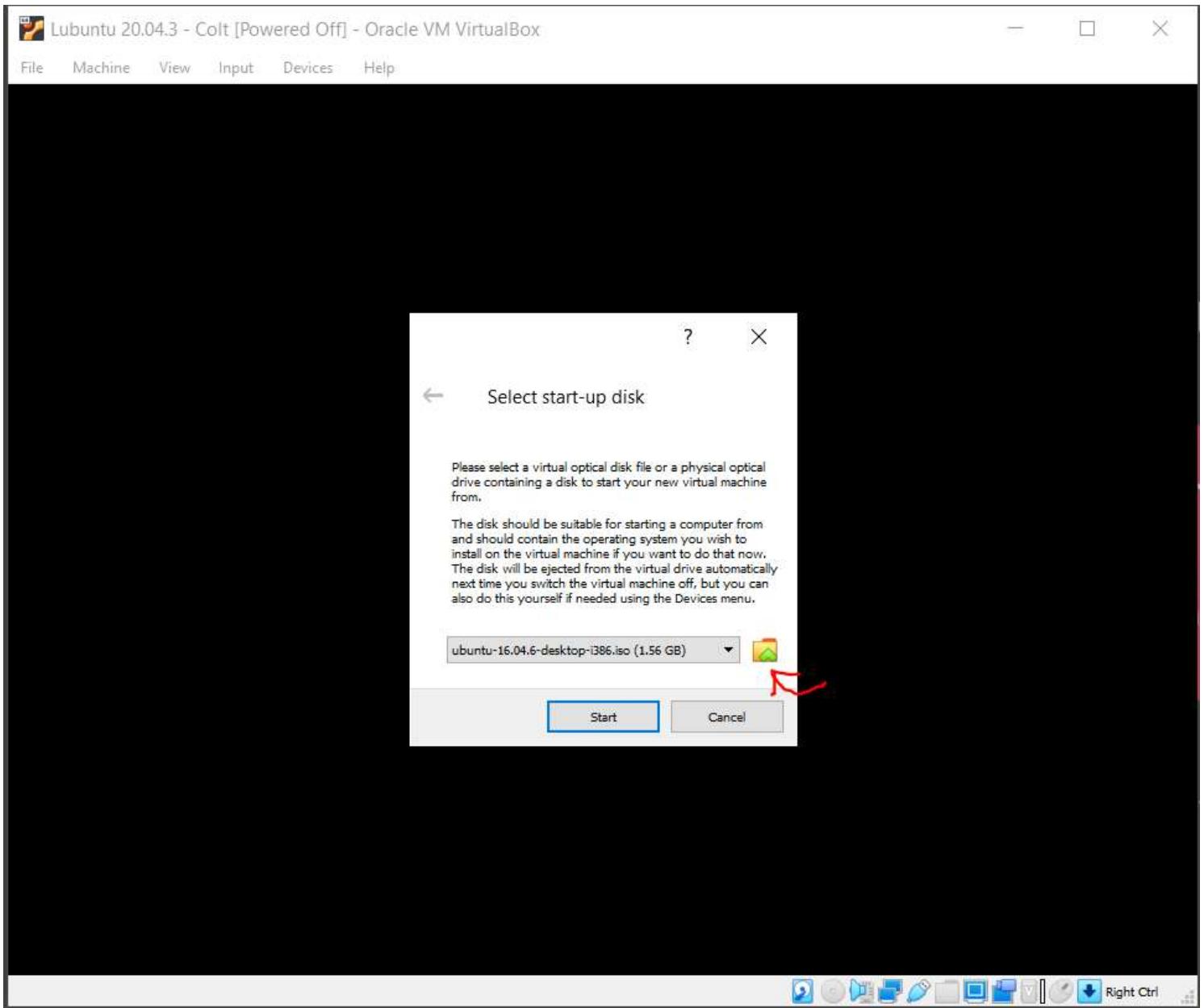
Create a shared folder of your choice and configure it as below. please select auto mount option. This will allow us to share files between host machine and the VM. Note that we need to configure shared folder in later steps for this to work after installing VM guest additions (Step 13 - Mounting shared folder).

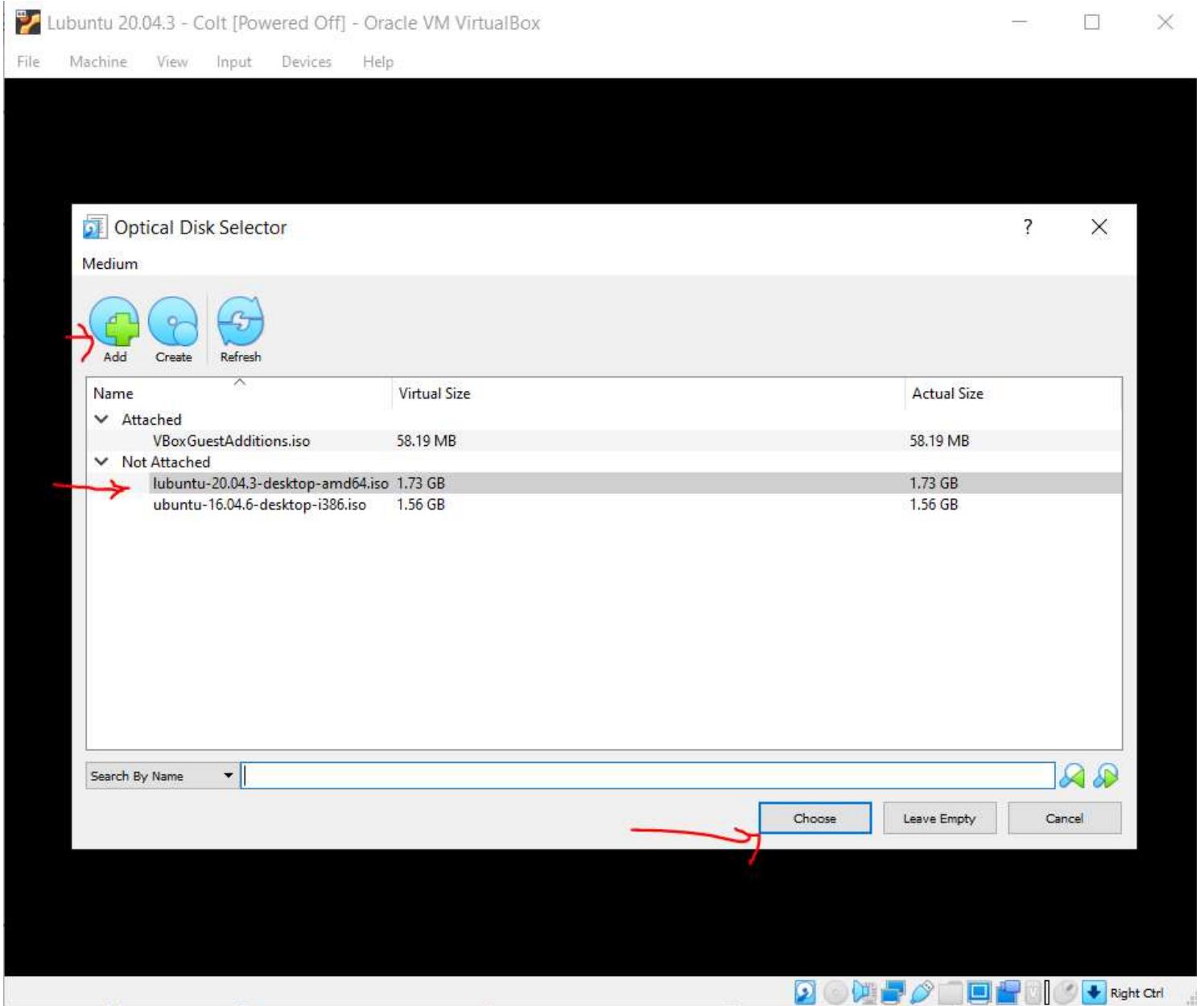


Step 11 (Start the VM and install Lubuntu 20.04.03 on to VDI):



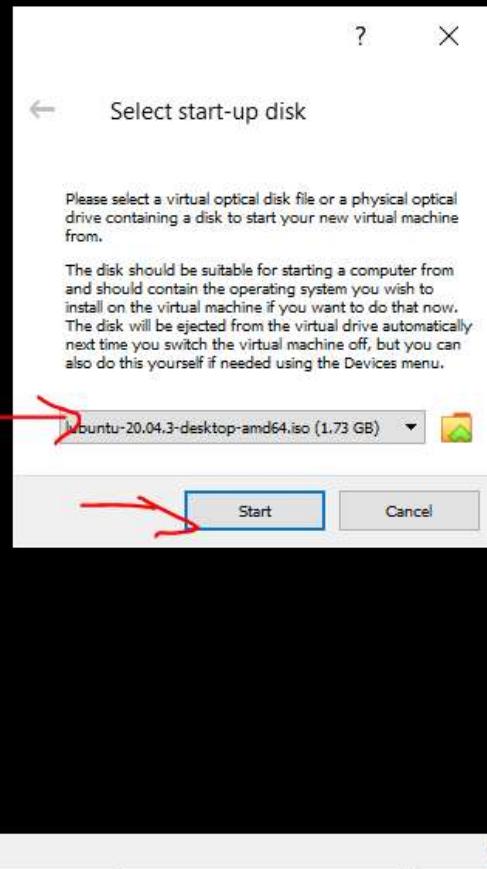
The screenshot shows the Oracle VM VirtualBox Manager interface. On the left, a list of virtual machines is displayed: 'ubuntu1604' (Powered Off), 'Colt VM' (Powered Off), 'Colt EM VM PT' (Powered Off), and 'Lubuntu 20.04.3 - Colt' (Powered Off). The 'Lubuntu 20.04.3 - Colt' VM is selected, highlighted with a blue bar. At the top right, there are four buttons: 'New', 'Settings', 'Discard', and 'Start'. A red arrow points to the 'Start' button. The main pane shows the configuration for the selected VM, divided into sections: General, System, Display, Storage, Audio, Network, USB, Shared folders, and Description. The 'General' section shows the VM's name as 'Lubuntu 20.04.3 - Colt' and its operating system as 'Ubuntu (64-bit)'. The 'System' section shows base memory (20498 MB), processors (4), boot order (Floppy, Optical, Hard Disk), and acceleration (VT-x/AMD-V, Nested Paging, KVM Paravirtualization). The 'Display' section shows video memory (128 MB) and graphics controller (VMSVGA). The 'Storage' section shows the SATA port 0 assigned to 'Lubuntu 20.04.vdi' (Normal, 50.00 GB). The 'Network' section shows the adapter 1 as 'Intel PRO/1000 MT Desktop (NAT)'. The 'USB' section shows the USB controller as 'OHCI' and device filters as '0 (0 active)'. The 'Shared folders' and 'Description' sections are empty.

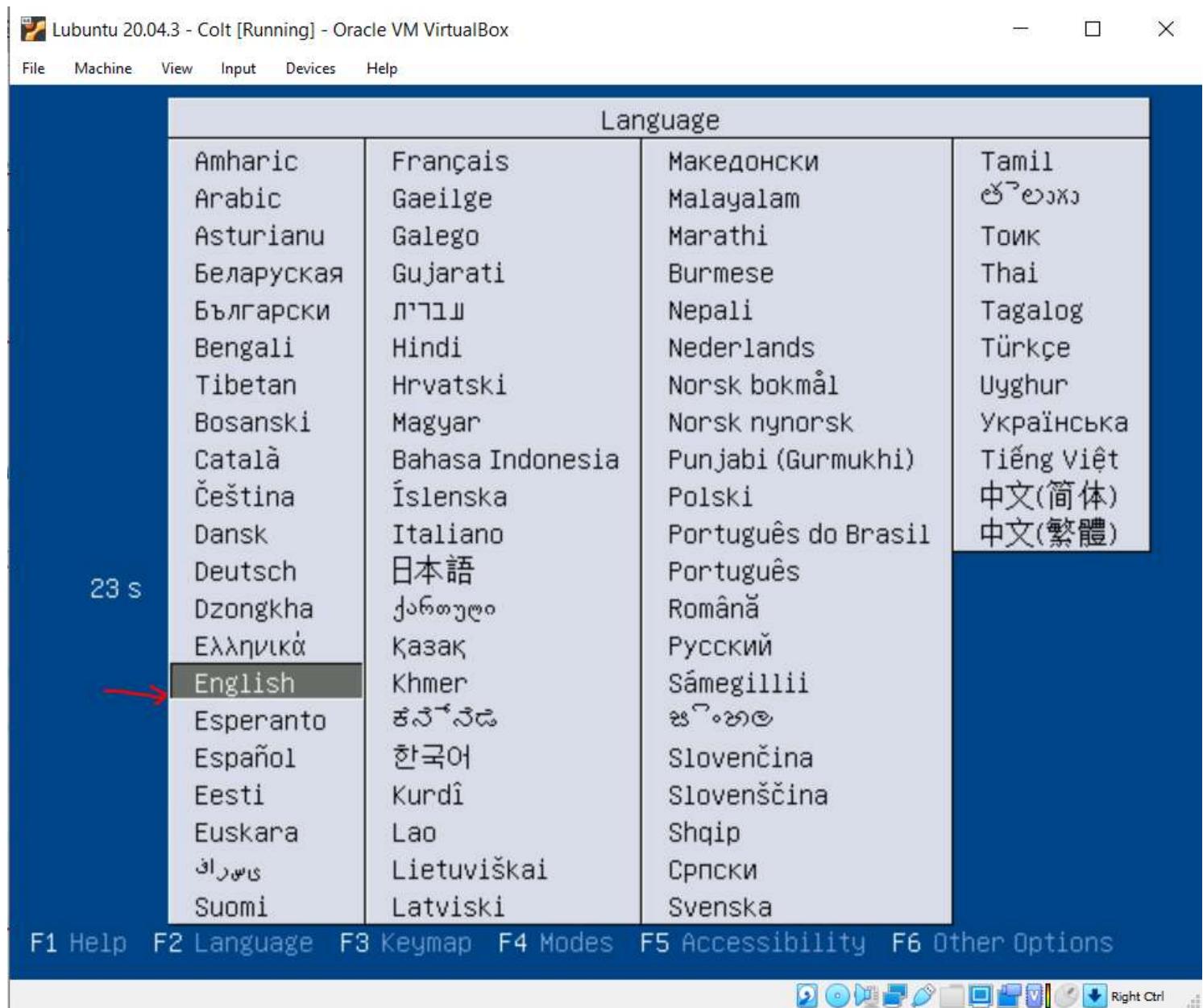




Lubuntu 20.04.3 - Colt [Powered Off] - Oracle VM VirtualBox

File Machine View Input Devices Help





Lubuntu 20.04.3 - Colt [Running] - Oracle VM VirtualBox

— □ ×

File Machine View Input Devices Help

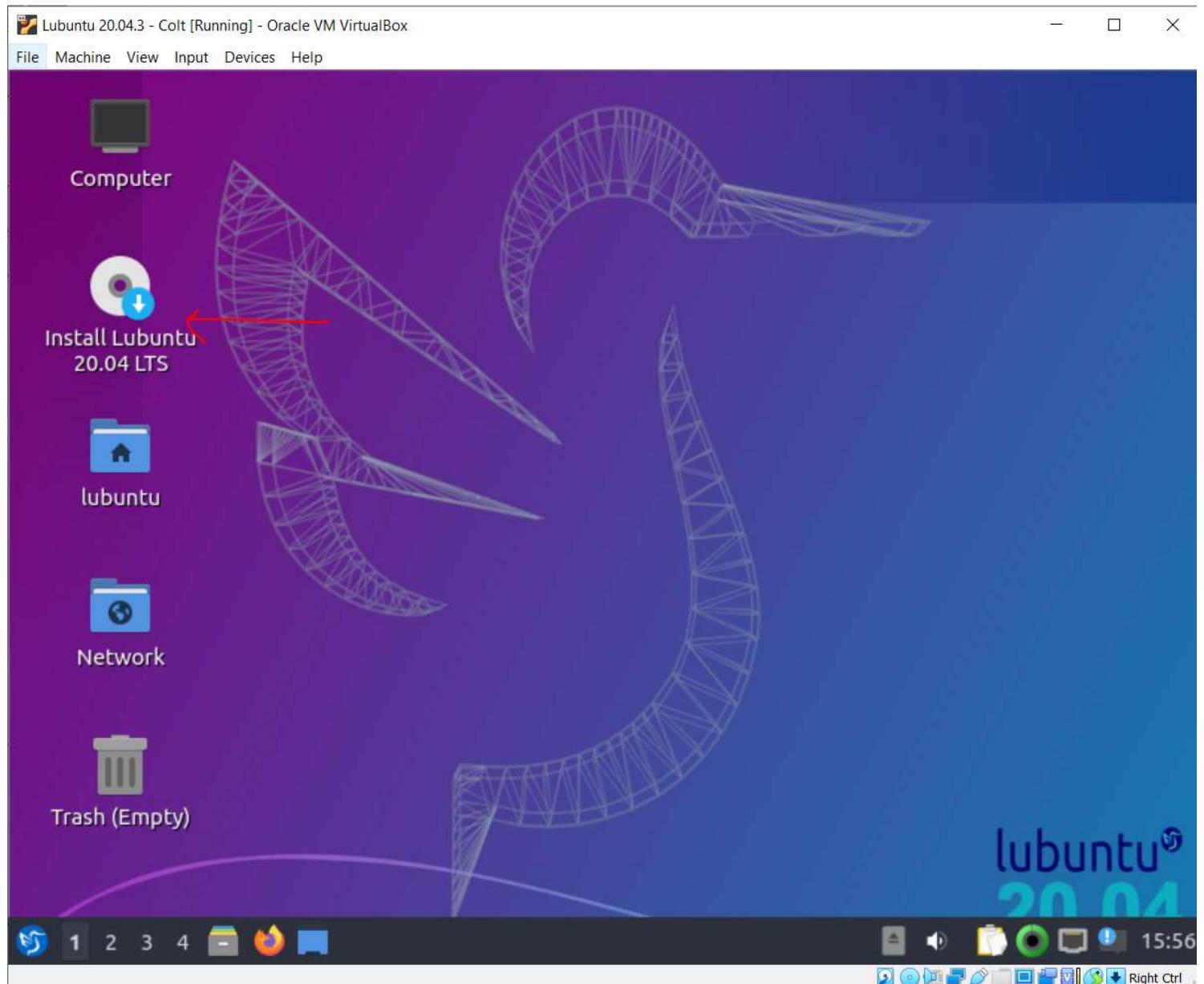
lubuntu



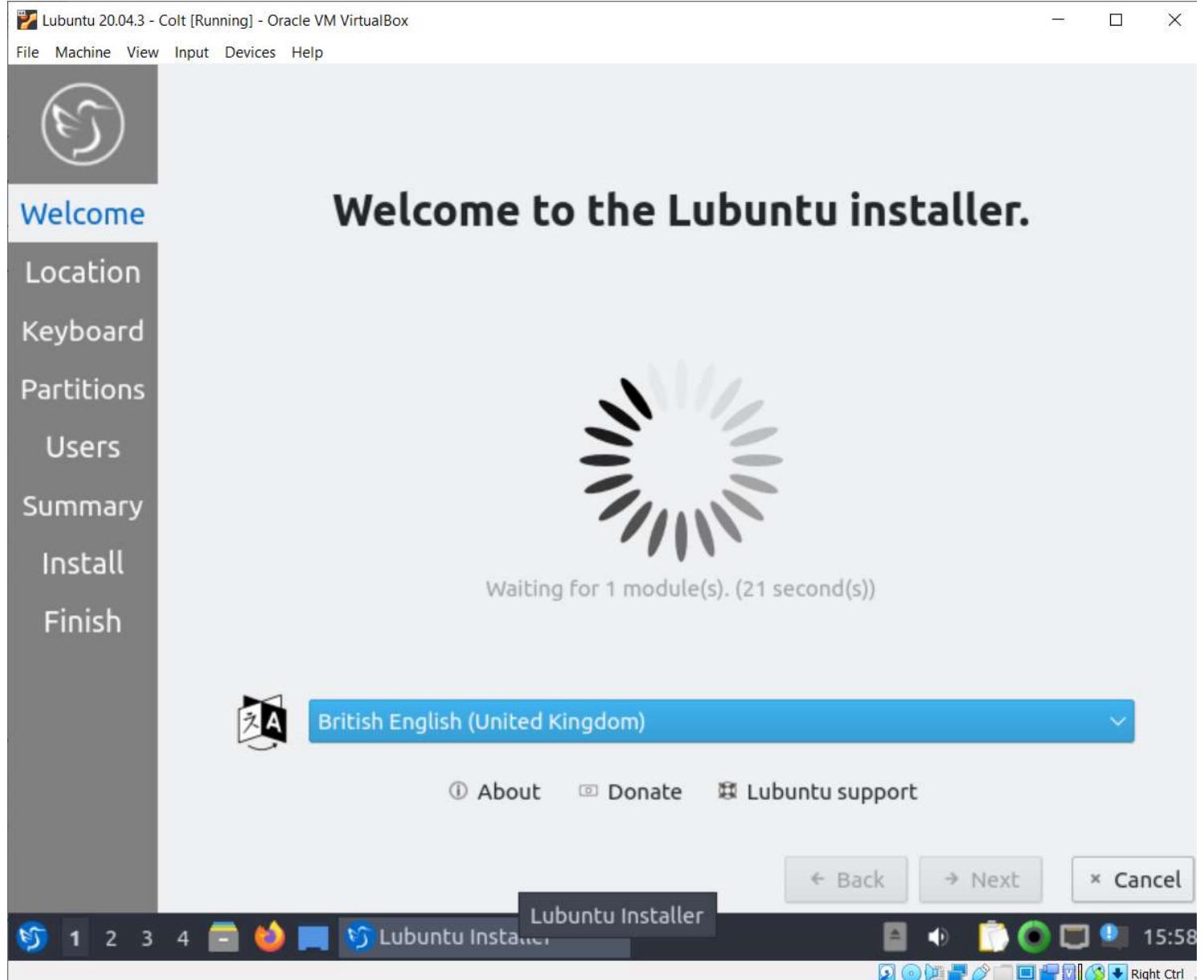
- Start Lubuntu
- Start Lubuntu (safe graphics)
- Test memory
- Boot from first hard disk

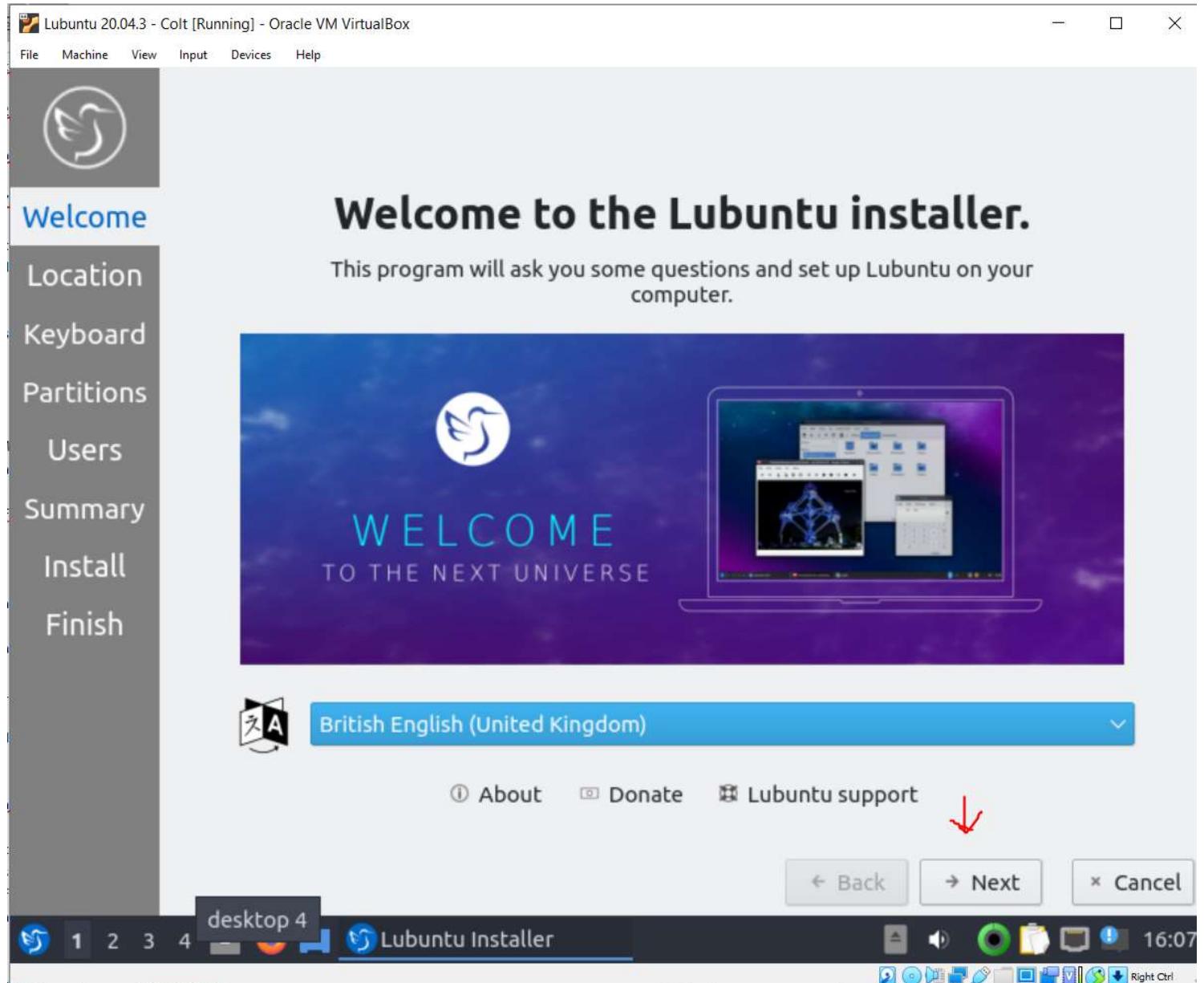
F1 Help F2 Language F3 Keymap F4 Modes F5 Accessibility F6 Other Options



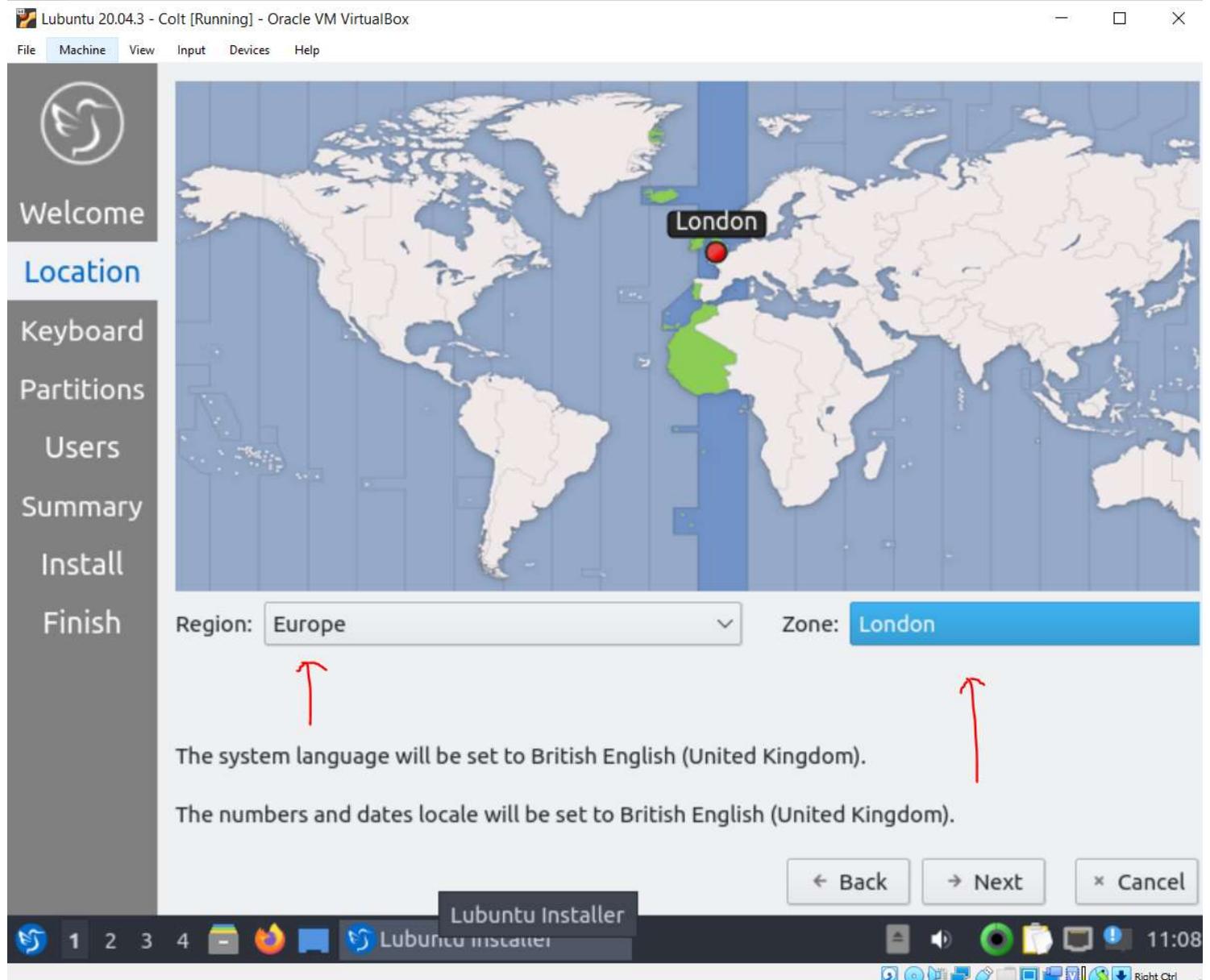


- **Installer is started and it will prompt to select the preferred language. Choose the language of your choice and click continue. If you happen to see "waiting for 1 module(s)", then please wait for a brief period of time. Then the "Next" button will be enabled.**

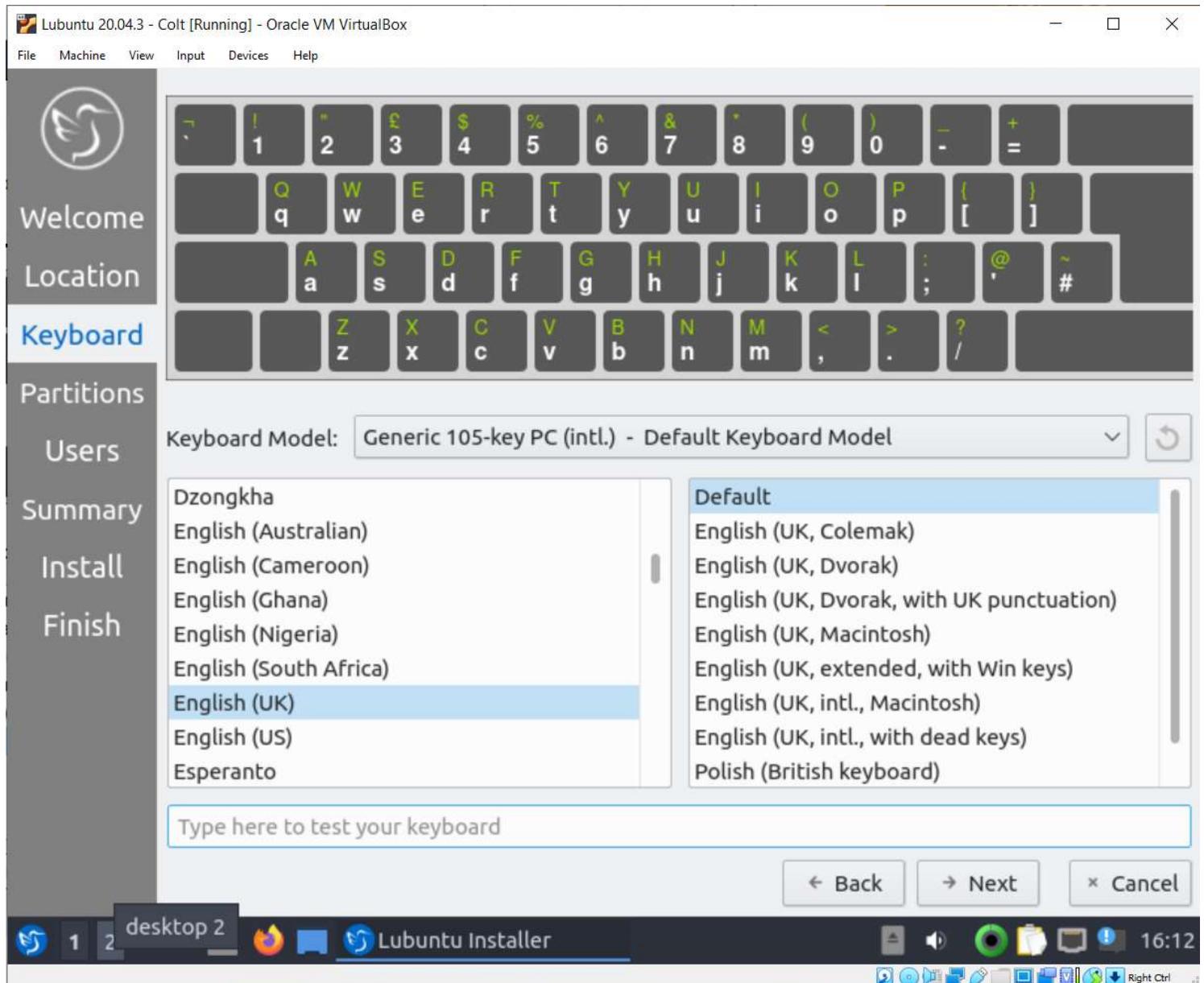




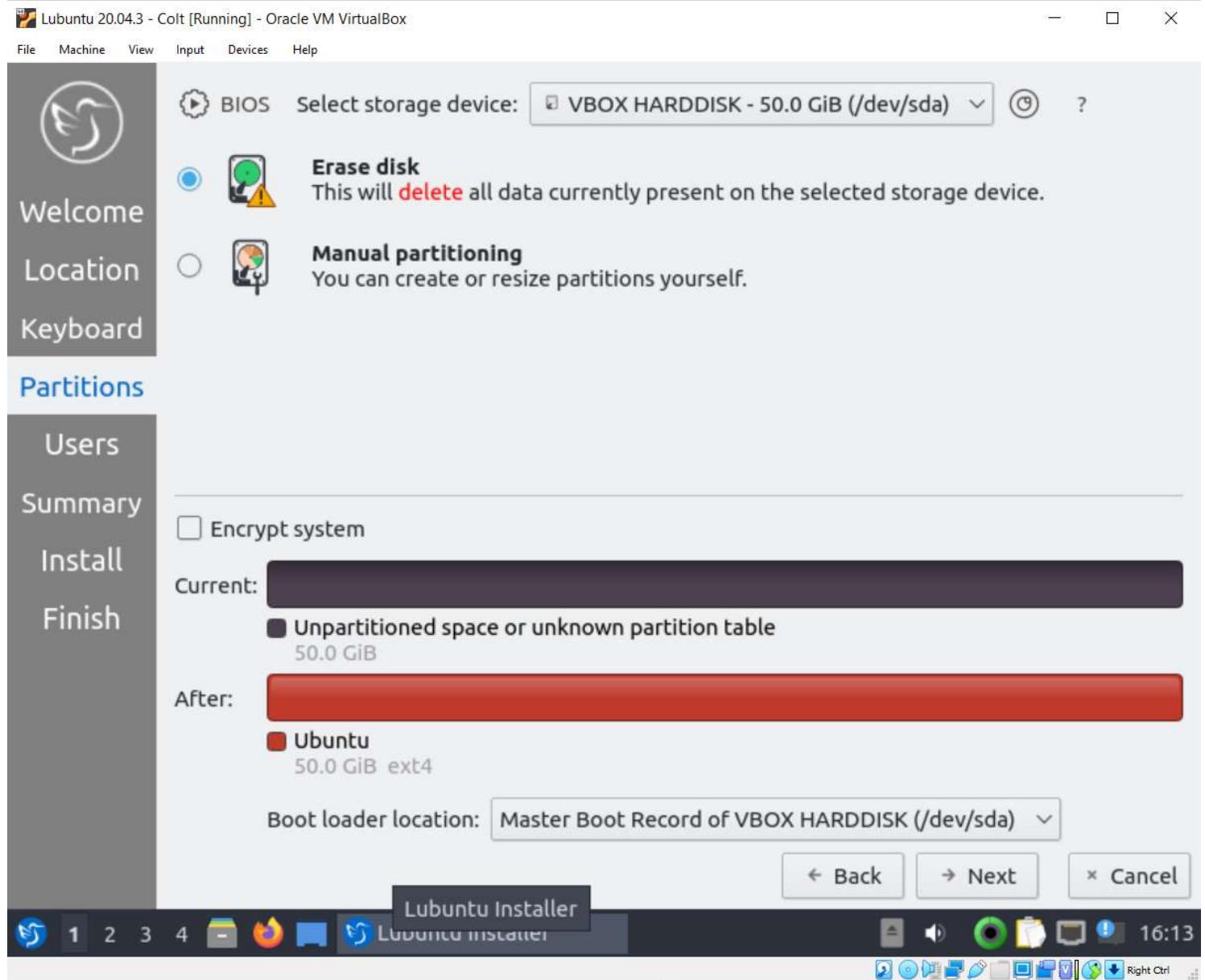
- Select the location (Region and zone) and click continue.



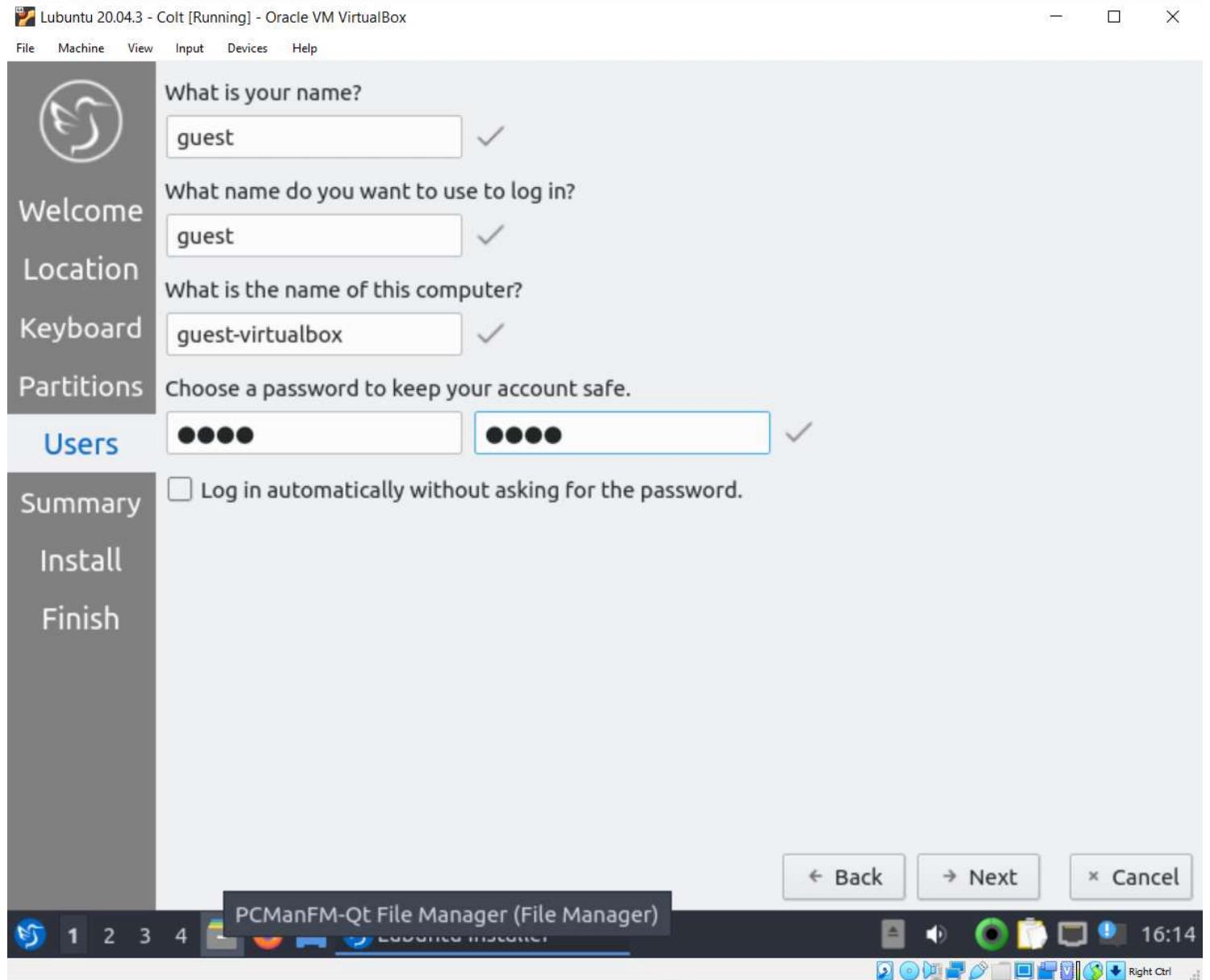
- Select a keyboard layout and click continue.



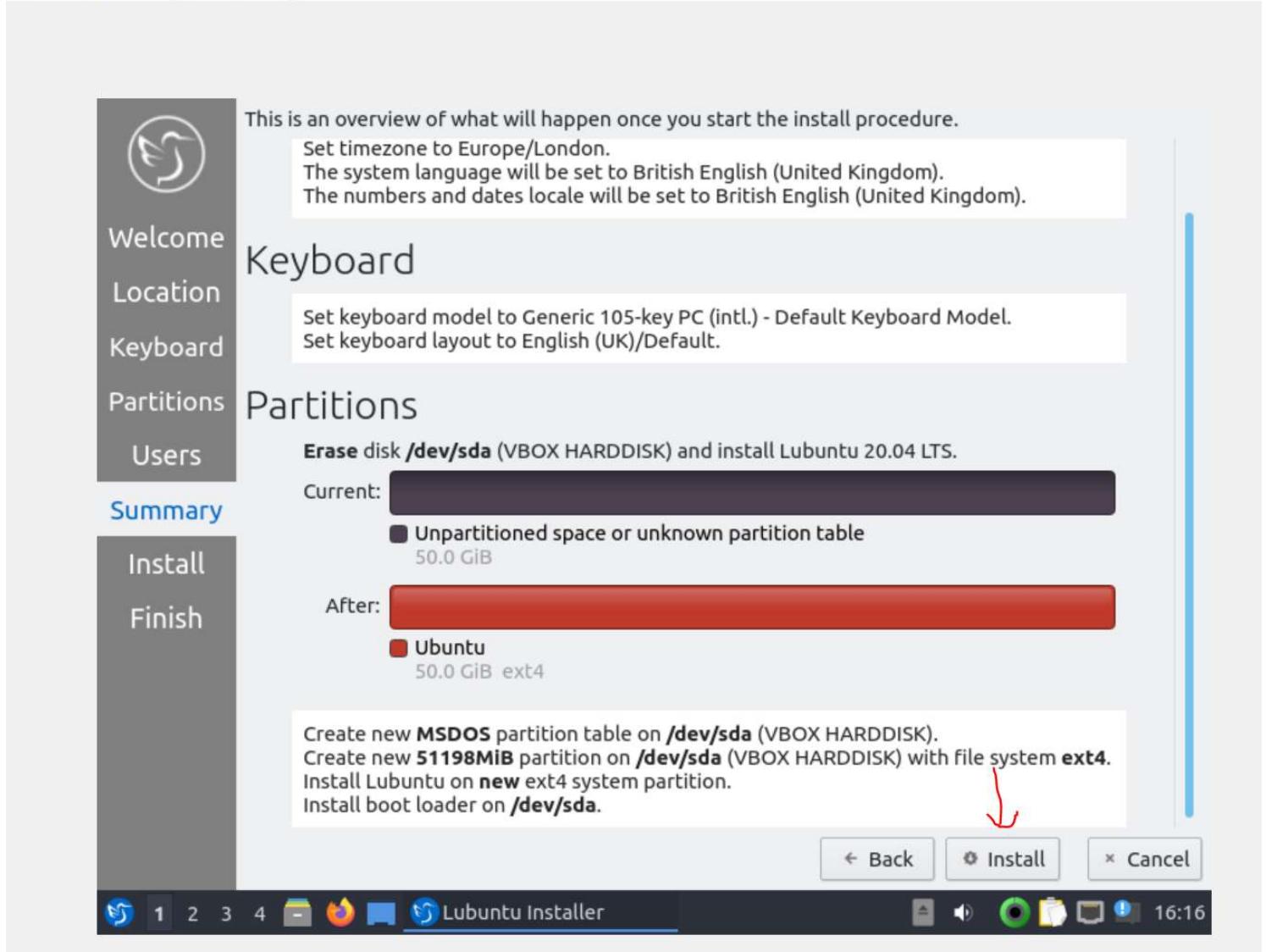
- You can erase the disk completely or do manual partitioning. I am proceeding with the erase the disk.



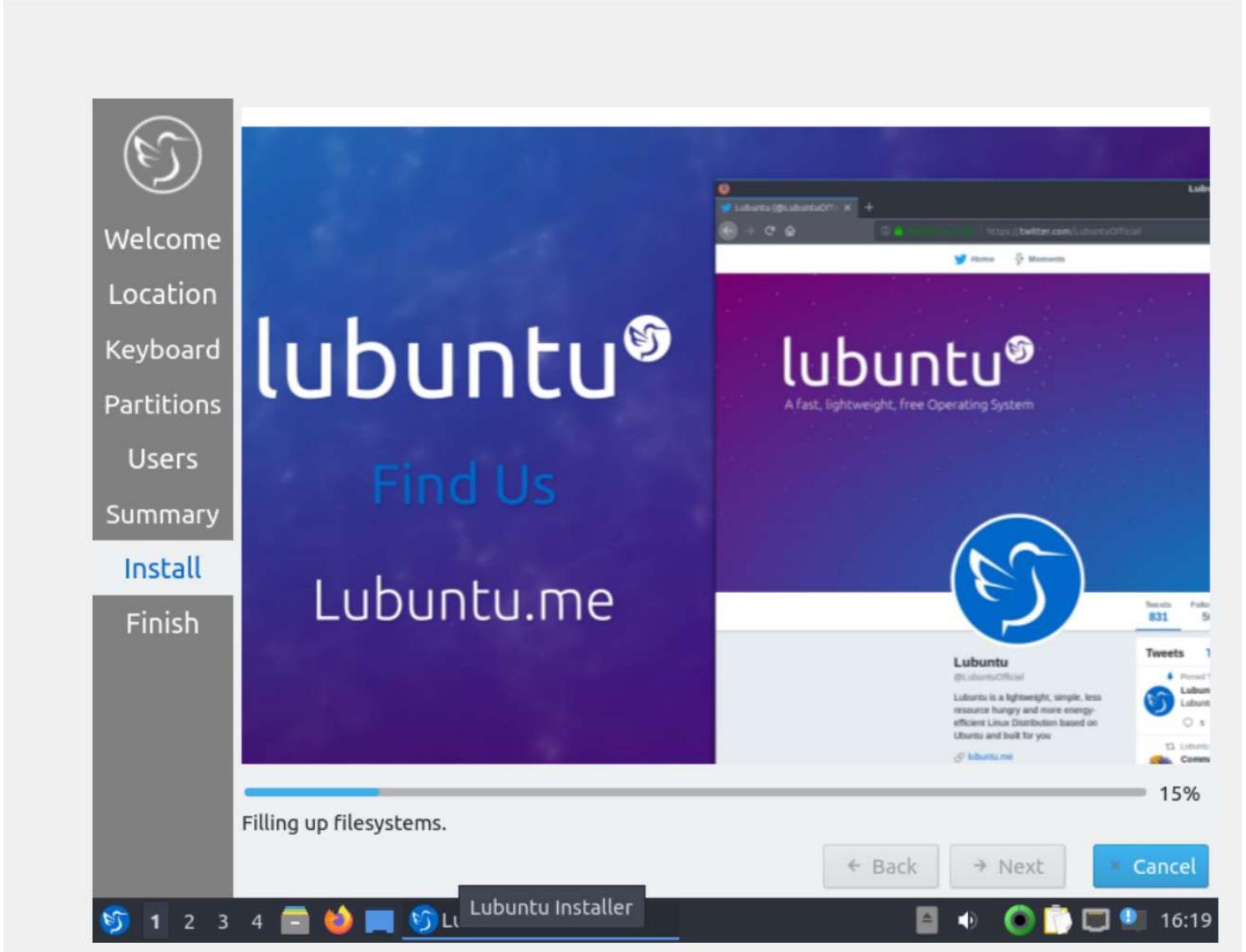
- **Setup a system account – system name, user, password and click continue.**



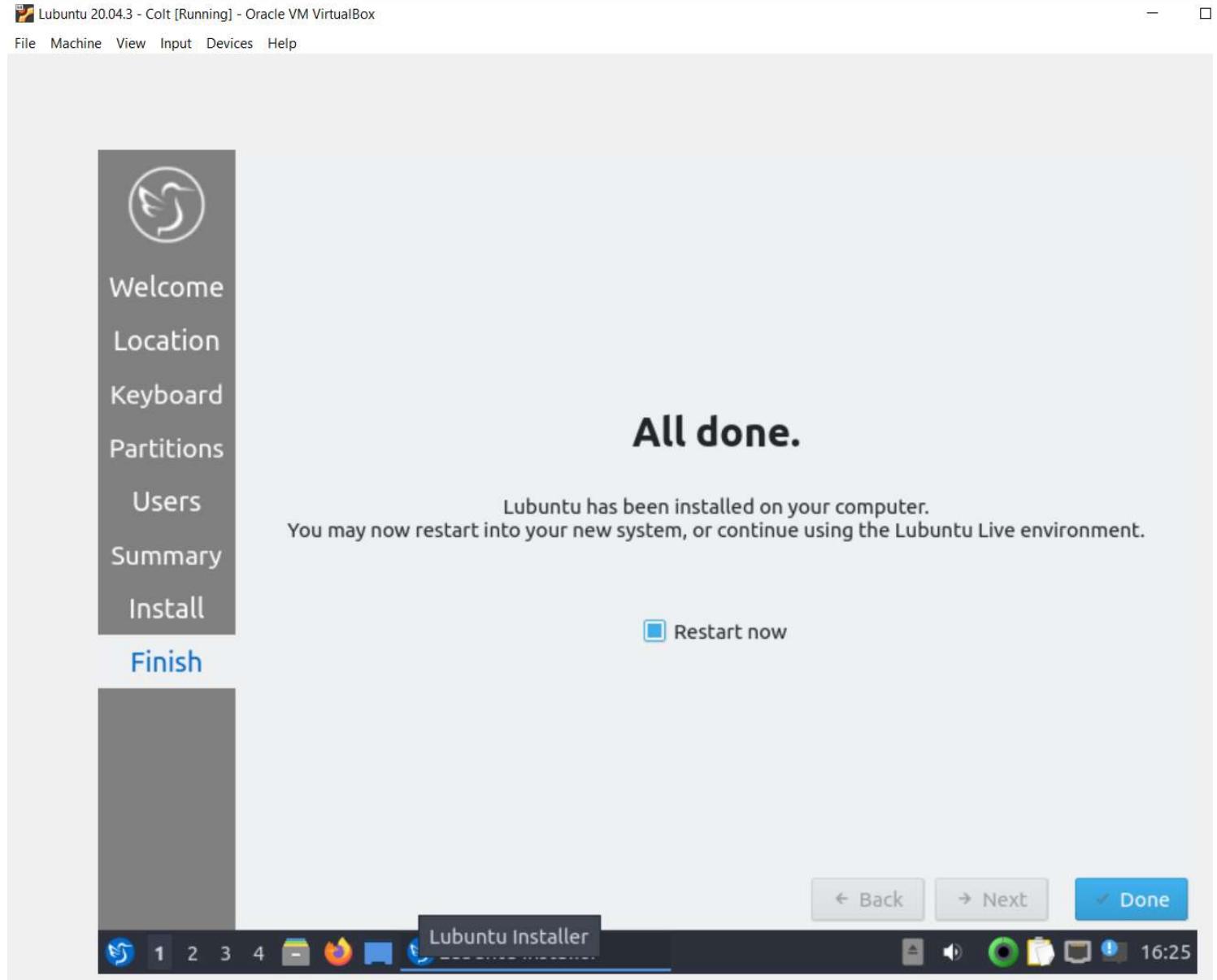
- Review the previous steps in the summary section and click "Install".



- Now the installation has begun and in comparison with other Ubuntu-based distributions, the Lubuntu installation will be much quicker.



- Installation is completed. Go ahead and restart the machine.



- If you happen to see this screen, please wait for few minutes or try to restart the VM.

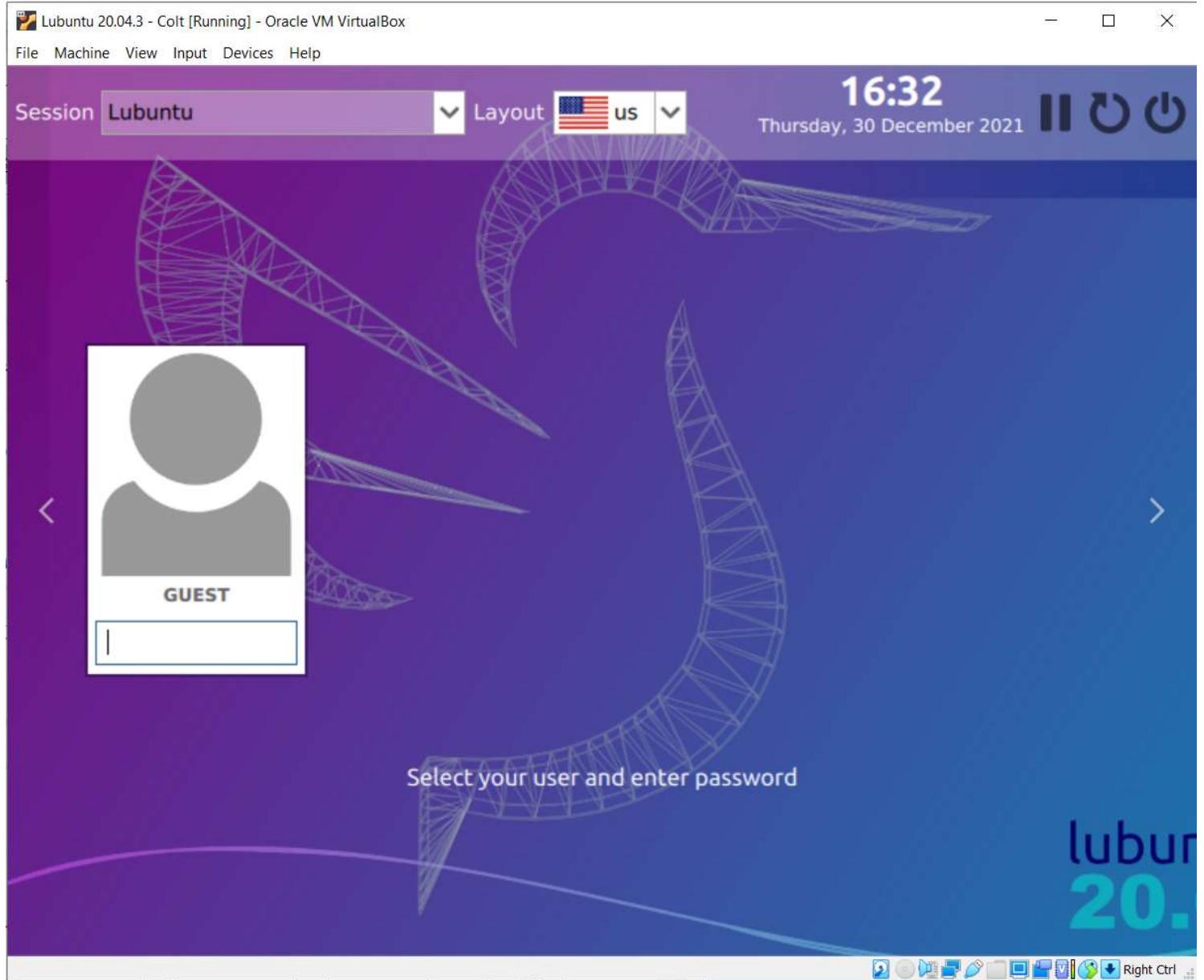
 Lubuntu 20.04.3 - Colt [Running] - Oracle VM VirtualBox- □ ×[File](#) [Machine](#) [View](#) [Input](#) [Devices](#) [Help](#)

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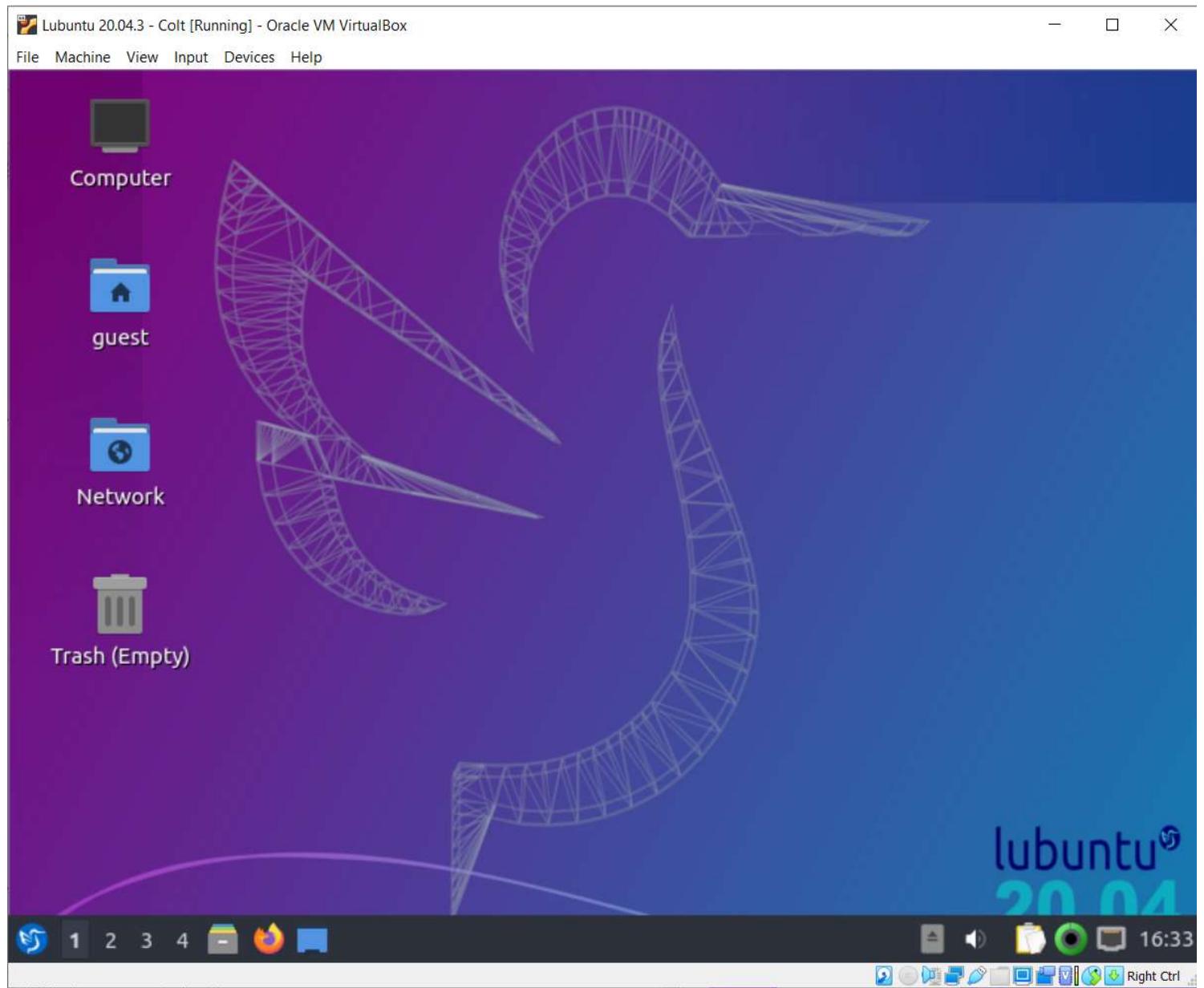
Please remove the installation medium, then press ENTER:



- **After reboot it will prompt with a login screen. Enter the username and password we created during the installation process.**



- Now, a freshly installed copy of Lubuntu 20.04 is ready for use. We need to customise it for networking and other features.



Step 13 - Configure System wide Colt proxy (for internet access)

Warning: This step assumes you are connected to Colt VPN.

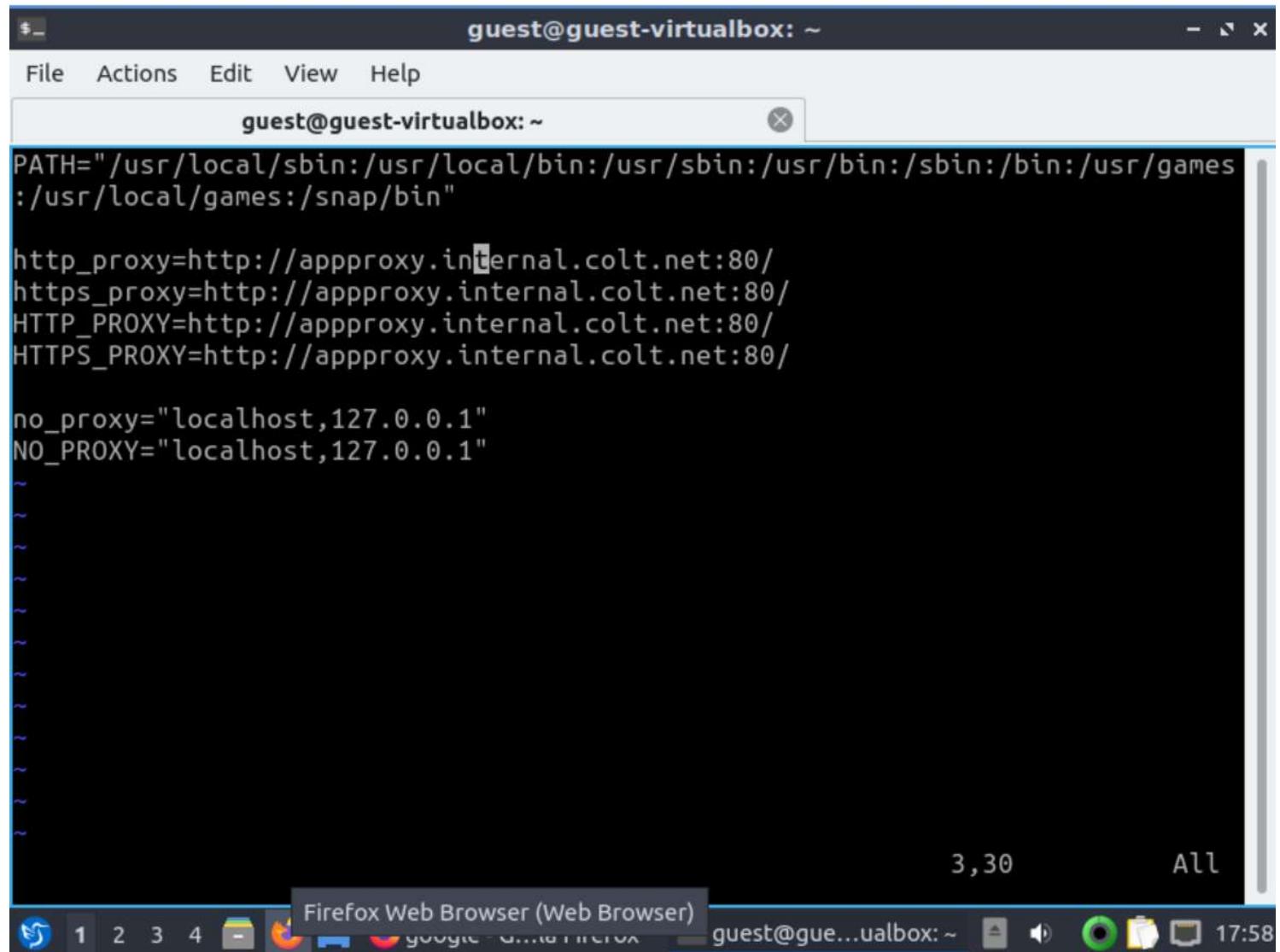
Reference: <https://itectec.com/ubuntu/ubuntu-how-to-set-system-wide-proxy-servers-in-xubuntu-lubuntu-or-ubuntu-studio/>

1. Set up the proxy/proxies for most programs

Open the `/etc/environment` file with sudo access. This file stores the system-wide variables initialised upon boot. Add the following lines, modifying appropriately. You must duplicate in both upper-case and lower-case because (unfortunately) some programs only look for one or the other:

```
sudo vi /etc/environment
```

```
http_proxy=http://appproxy.internal.colt.net:80/
https_proxy=http://appproxy.internal.colt.net:80/
ftp_proxy=http://appproxy.internal.colt.net:80/
no_proxy="localhost,127.0.0.1,localaddress,.localdomain.com"
HTTP_PROXY=http://appproxy.internal.colt.net:80/
HTTPS_PROXY=http://appproxy.internal.colt.net:80/
FTP_PROXY=http://appproxy.internal.colt.net:80/
NO_PROXY="localhost,127.0.0.1,localaddress,.localdomain.com"
```



```
guest@guest-virtualbox: ~
File Actions Edit View Help
guest@guest-virtualbox: ~
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games
:/usr/local/games:/snap/bin"

http_proxy=http://appproxy.internal.colt.net:80/
https_proxy=http://appproxy.internal.colt.net:80/
HTTP_PROXY=http://appproxy.internal.colt.net:80/
HTTPS_PROXY=http://appproxy.internal.colt.net:80/

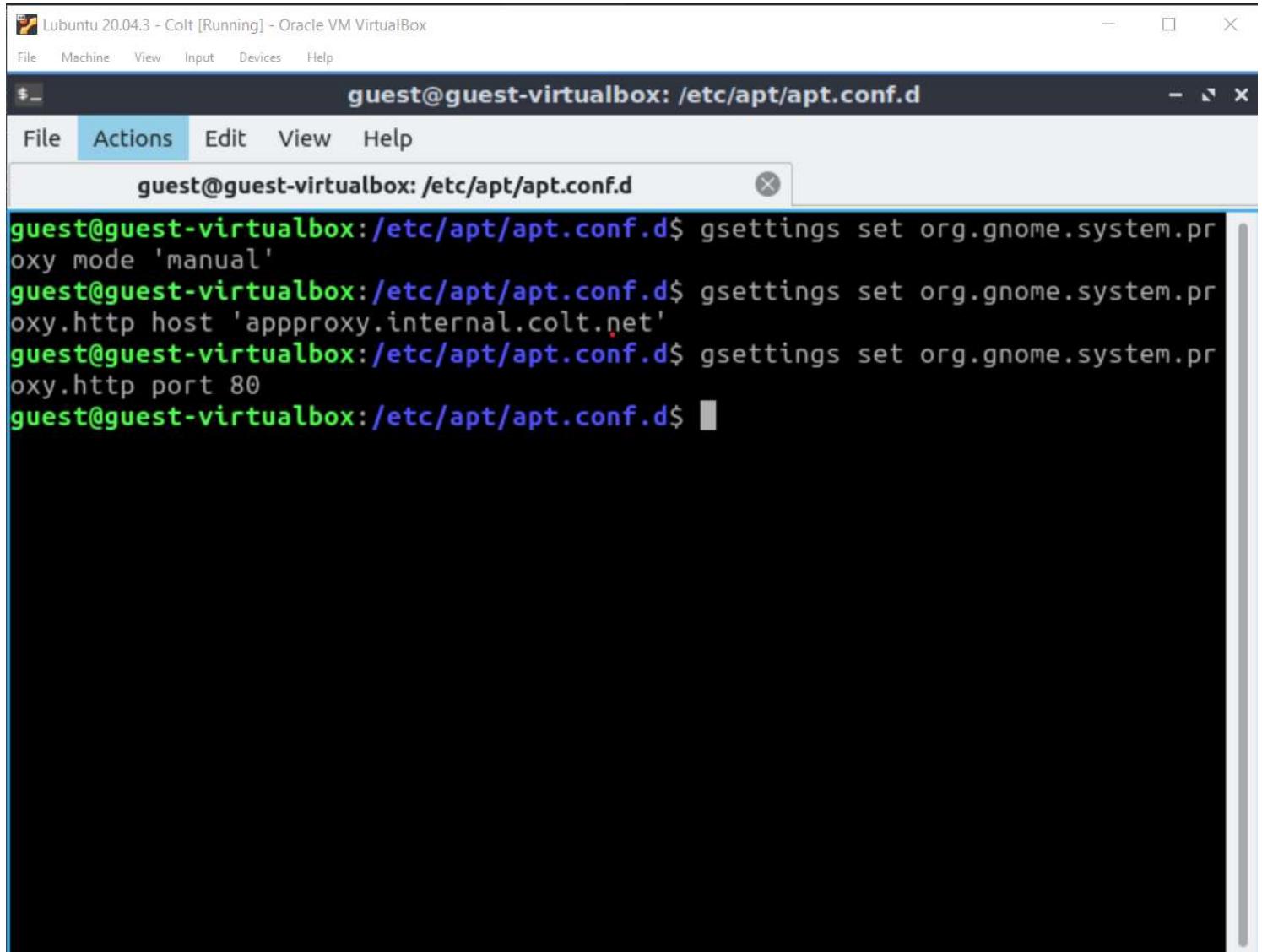
no_proxy="localhost,127.0.0.1"
NO_PROXY="localhost,127.0.0.1"

~
```

2. Then set up proxies for GTK3 programs such as Rhythmbox:

Some newer GTK3 programs such as Rhythmbox ignore the environment variables set above, and rely on Gnome settings instead. To make sure they are covered, open a terminal and paste the below line-by-line, modifying as appropriate:

```
gsettings set org.gnome.system.proxy mode 'manual'
gsettings set org.gnome.system.proxy.http host 'appproxy.internal.colt.net'
gsettings set org.gnome.system.proxy.http port 80
```



The screenshot shows a terminal window titled "guest@guest-virtualbox: /etc/apt/apt.conf.d". The window is part of the Oracle VM VirtualBox interface. The terminal content is as follows:

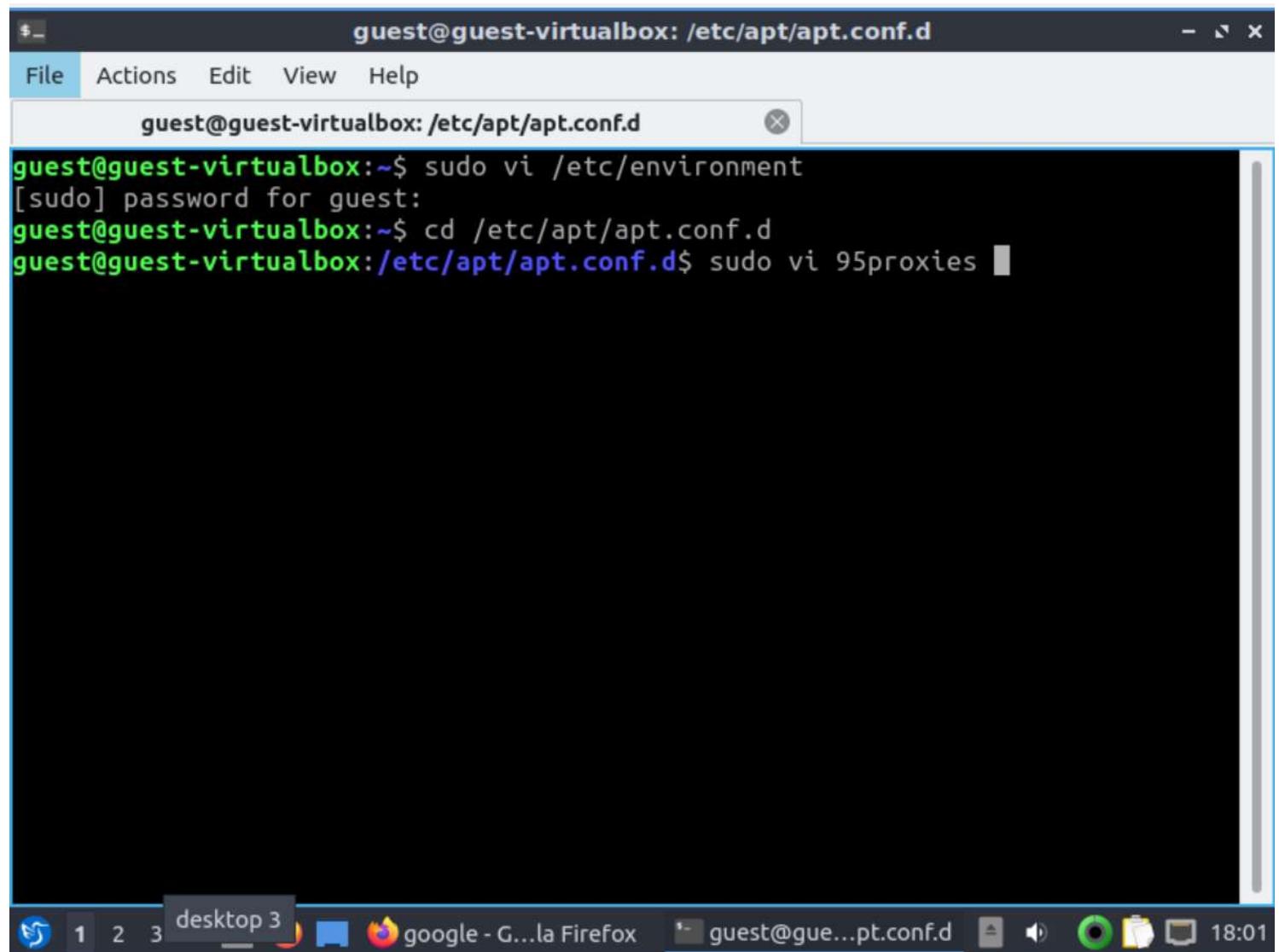
```
guest@guest-virtualbox:/etc/apt/apt.conf.d$ gsettings set org.gnome.system.proxy mode 'manual'
guest@guest-virtualbox:/etc/apt/apt.conf.d$ gsettings set org.gnome.system.proxy.http host 'appproxy.internal.colt.net'
guest@guest-virtualbox:/etc/apt/apt.conf.d$ gsettings set org.gnome.system.proxy.http port 80
guest@guest-virtualbox:/etc/apt/apt.conf.d$ █
```

3. Finally, set up the proxies for apt-get and Update Manager

These programs will not obey the environment variables either. Create a file called 95proxies in /etc/apt/apt.conf.d/, and include the following:

```
cd /etc/apt/apt.conf.d/
sudo vi 95proxies
```

```
Acquire::http::proxy "http://appproxy.internal.colt.net:80/";
Acquire::ftp::proxy "ftp://appproxy.internal.colt.net:80/";
Acquire::https::proxy "https://appproxy.internal.colt.net:80/";
```



guest@guest-virtualbox: /etc/apt/apt.conf.d

File Actions Edit View Help

guest@guest-virtualbox:~/

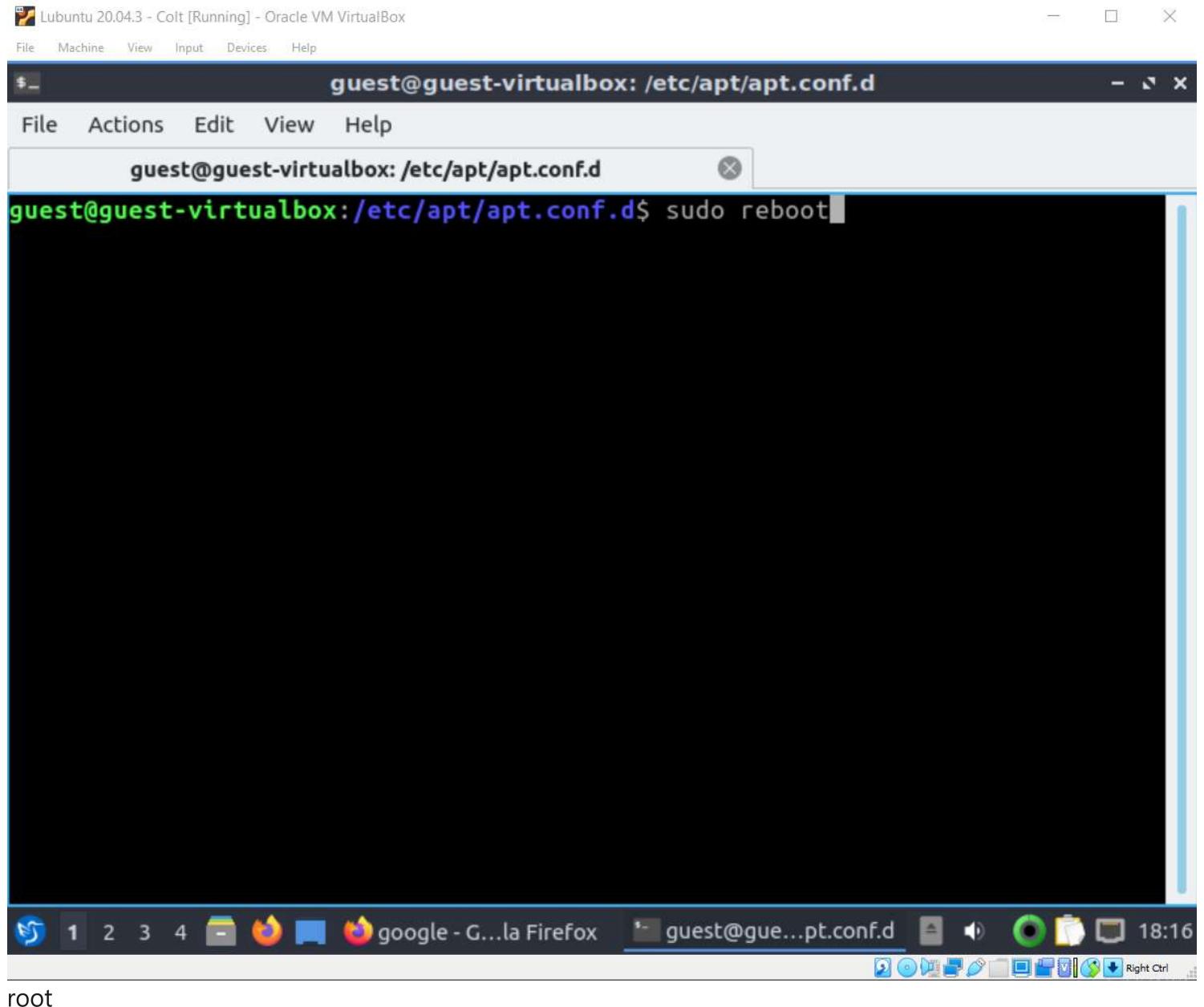
```
guest@guest-virtualbox:~$ sudo vi /etc/environment
[sudo] password for guest:
guest@guest-virtualbox:~$ cd /etc/apt/apt.conf.d
guest@guest-virtualbox:/etc/apt/apt.conf.d$ sudo vi 95proxies
```

1 2 3 desktop 3 18:01

google - G...la Firefox guest@gue...pt.conf.d

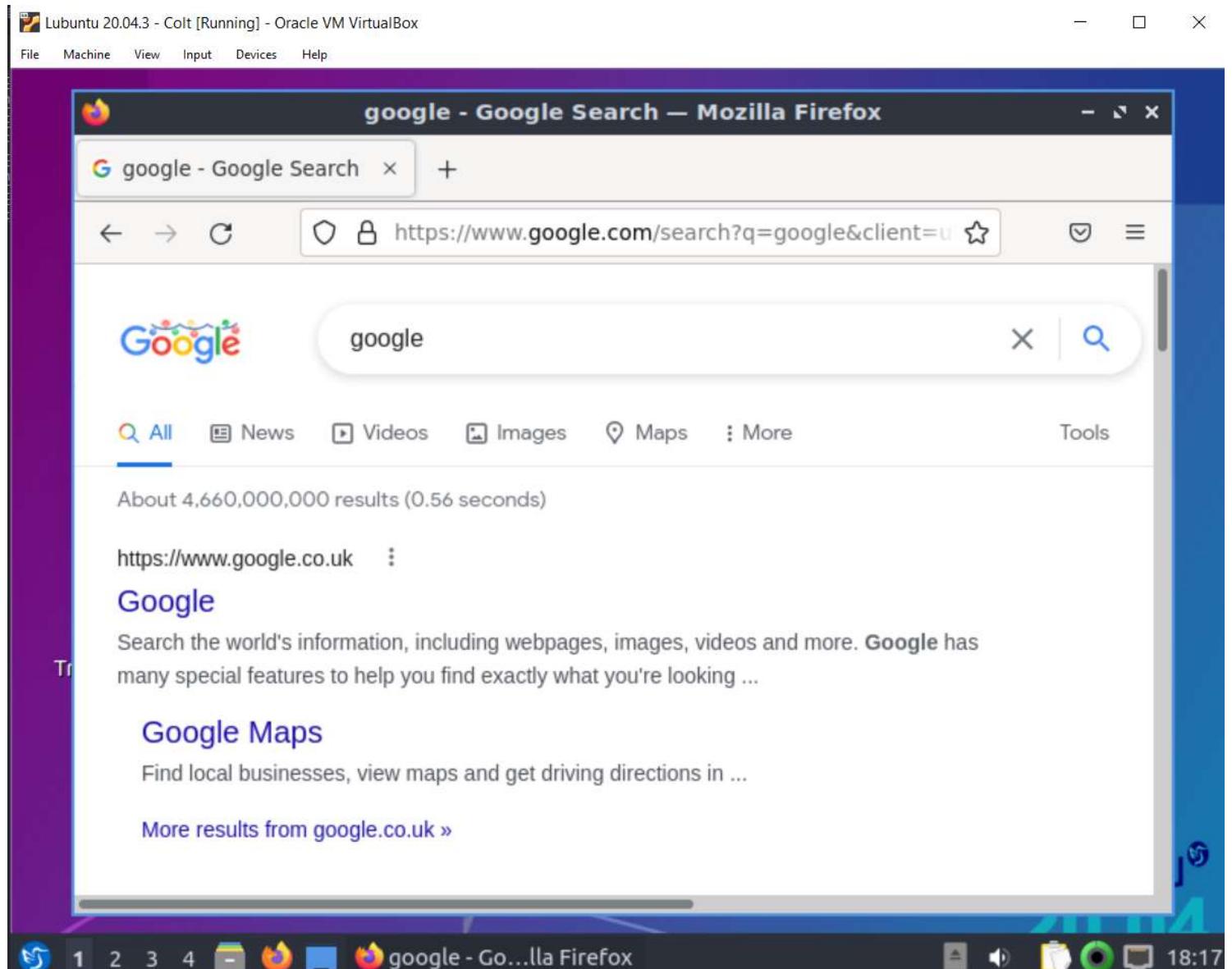
This screenshot shows a terminal window titled 'guest@guest-virtualbox: /etc/apt/apt.conf.d'. The window has a blue header bar with 'File', 'Actions', 'Edit', 'View', and 'Help' buttons. The main area of the terminal shows a command-line session. The user runs 'sudo vi /etc/environment' and is prompted for a password. Then, they change to the directory '/etc/apt/apt.conf.d' and run 'sudo vi 95proxies'. The terminal window is part of a desktop environment, with a taskbar at the bottom showing other open applications like a file manager and a browser. The desktop environment is Lubuntu 20.04.3 LTS (Focal Foss).

4. Finally, logout and reboot to make sure the changes take effect.



root

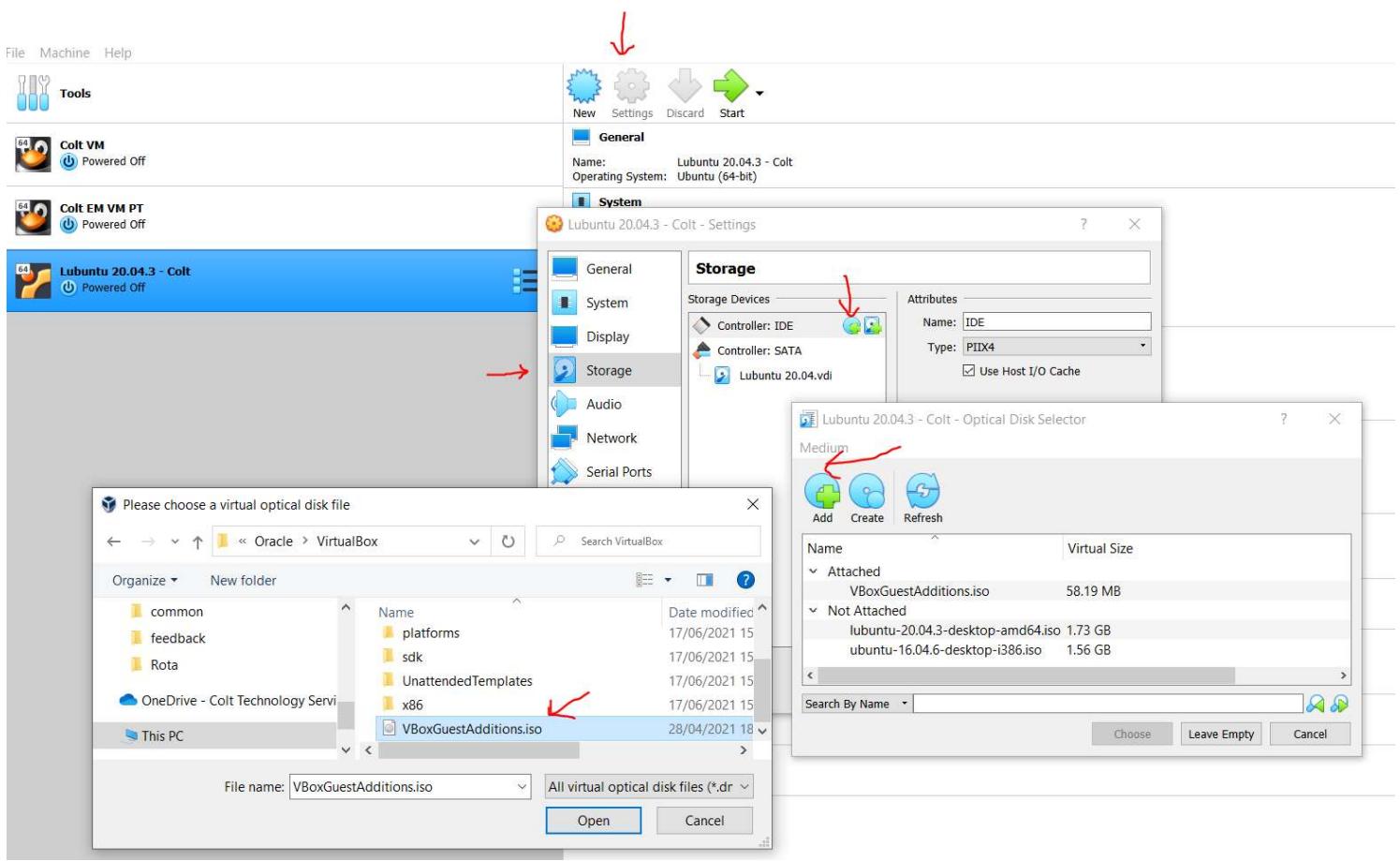
After successful reboot, we should be able to access the internet using colt proxy (with VPN connected)



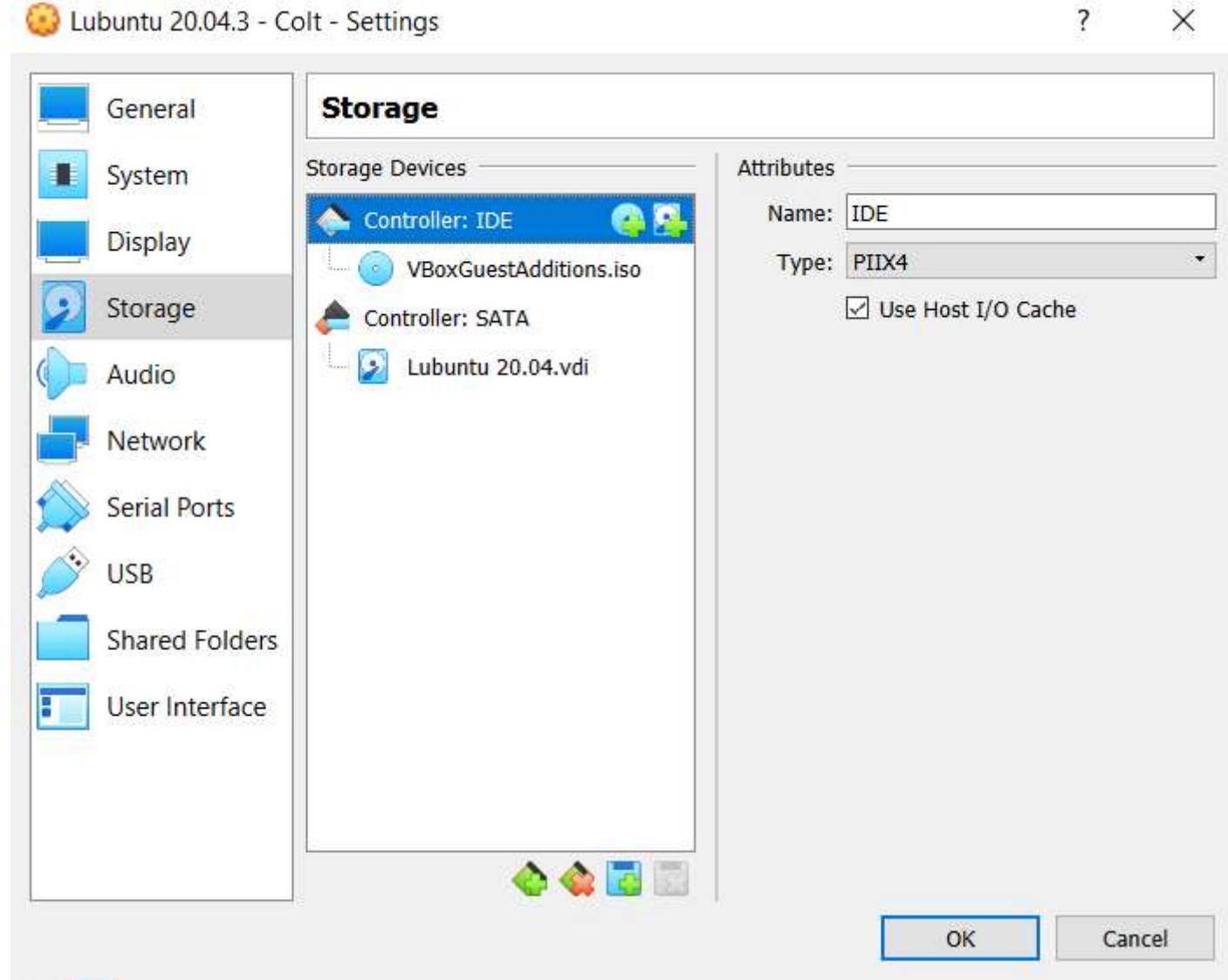
Step 12 - Install VM guest additions:

Ensure to logoff and power off the VM before proceeding further (`sudo reboot`).

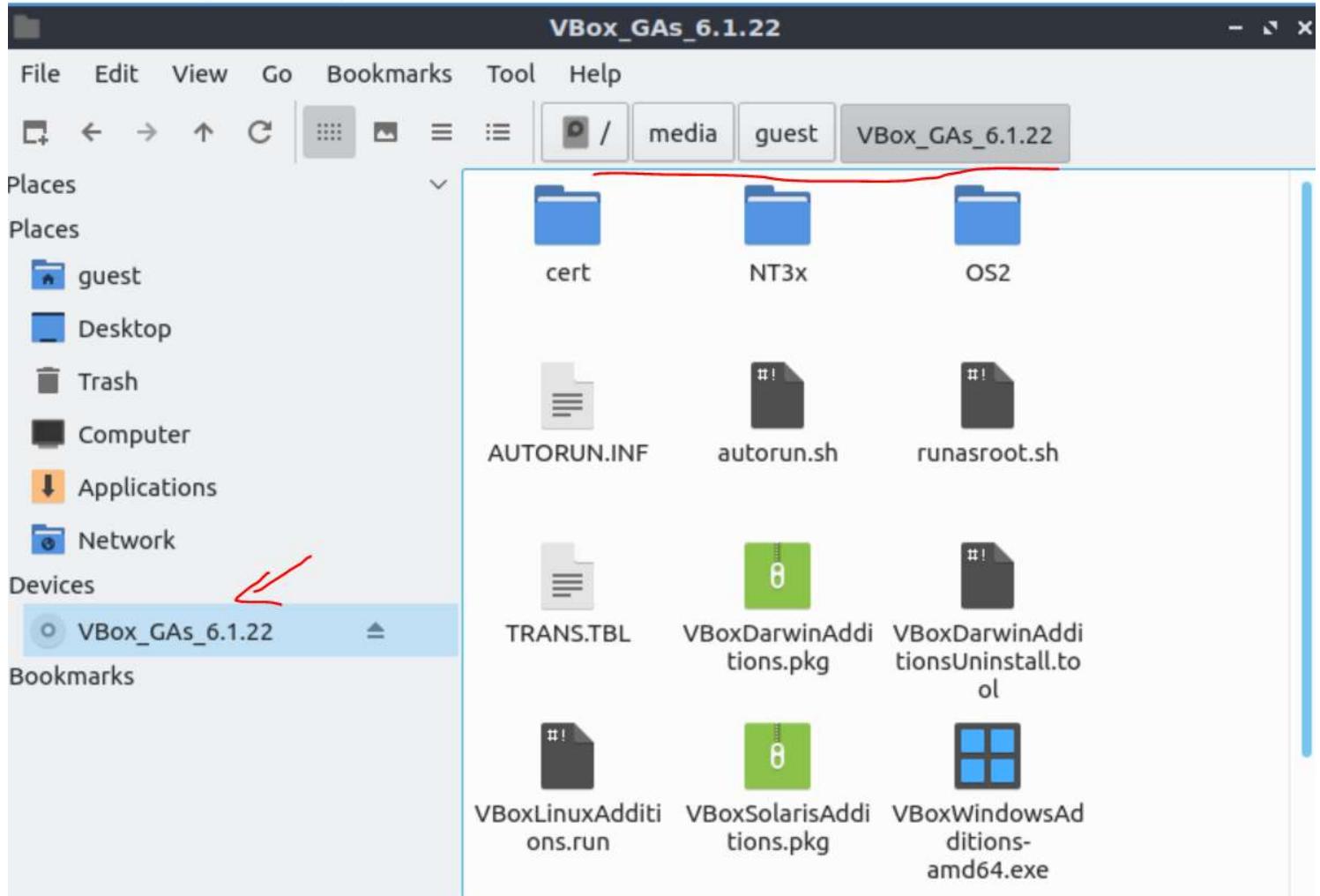
Mount the `VBoxGuestAdditions.iso` to VM available in `C:/Program Files/Oracle/VirtualBox` and start the VM.



The storage setting should look like this now.



- Now start your VM and open file explorer. You should be able to see the VBox guest iso mounted in `/media/guest/VBox_GA_6.1.22`



- Open a terminal window and change dir to `/media/guest/VBox_GA_6.1.22` and run

```
sudo sh ./VBoxLinuxAdditions.run
```

```
guest@guest-virtualbox: /media/guest/VBox_GAs_6.1.22
File Actions Edit View Help
guest@guest-virtualbox: /media/guest/VBox_GAs_6.1.22 ×
guest@guest-virtualbox: /media/guest/VBox_GAs_6.1.22
-r-xr-xr-x 1 guest guest 4821 Apr 28 2021 runasroot.sh
-r-xr-xr-x 1 guest guest 6384 Apr 28 2021 autorun.sh
-r-xr-xr-x 1 guest guest 7423412 Apr 28 2021 VBoxLinuxAdditions.run
-r-xr-xr-x 1 guest guest 270792 Apr 28 2021 VBoxWindowsAdditions.exe
-r-xr-xr-x 1 guest guest 9982304 Apr 28 2021 VBoxWindowsAdditions-x86.exe
-r--r--r-- 1 guest guest 3990707 Apr 28 2021 VBoxDarwinAdditions.pkg
-r-xr-xr-x 1 guest guest 16881064 Apr 28 2021 VBoxWindowsAdditions-amd64.exe
-r--r--r-- 1 guest guest 547 Apr 28 2021 TRANS.TBL
dr-xr-xr-x 2 guest guest 2652 Apr 28 2021 OS2
dr-xr-xr-x 2 guest guest 1824 Apr 28 2021 NT3x
dr-xr-xr-x 2 guest guest 792 Apr 28 2021 cert
guest@guest-virtualbox:/media/guest/VBox_GAs_6.1.22$ sudo ./VBoxLinuxAdditions.run
[sudo] password for guest:
Verifying archive integrity... All good.
Uncompressing VirtualBox 6.1.22 Guest Additions for Linux.....
VirtualBox Guest Additions installer
Copying additional installer modules ...
Installing additional modules ...
VirtualBox Guest Additions: Starting.
VirtualBox Guest Additions: Building the VirtualBox Guest Additions kernel
modules. This may take a while.
VirtualBox Guest Additions: To build modules for other installed kernels, run

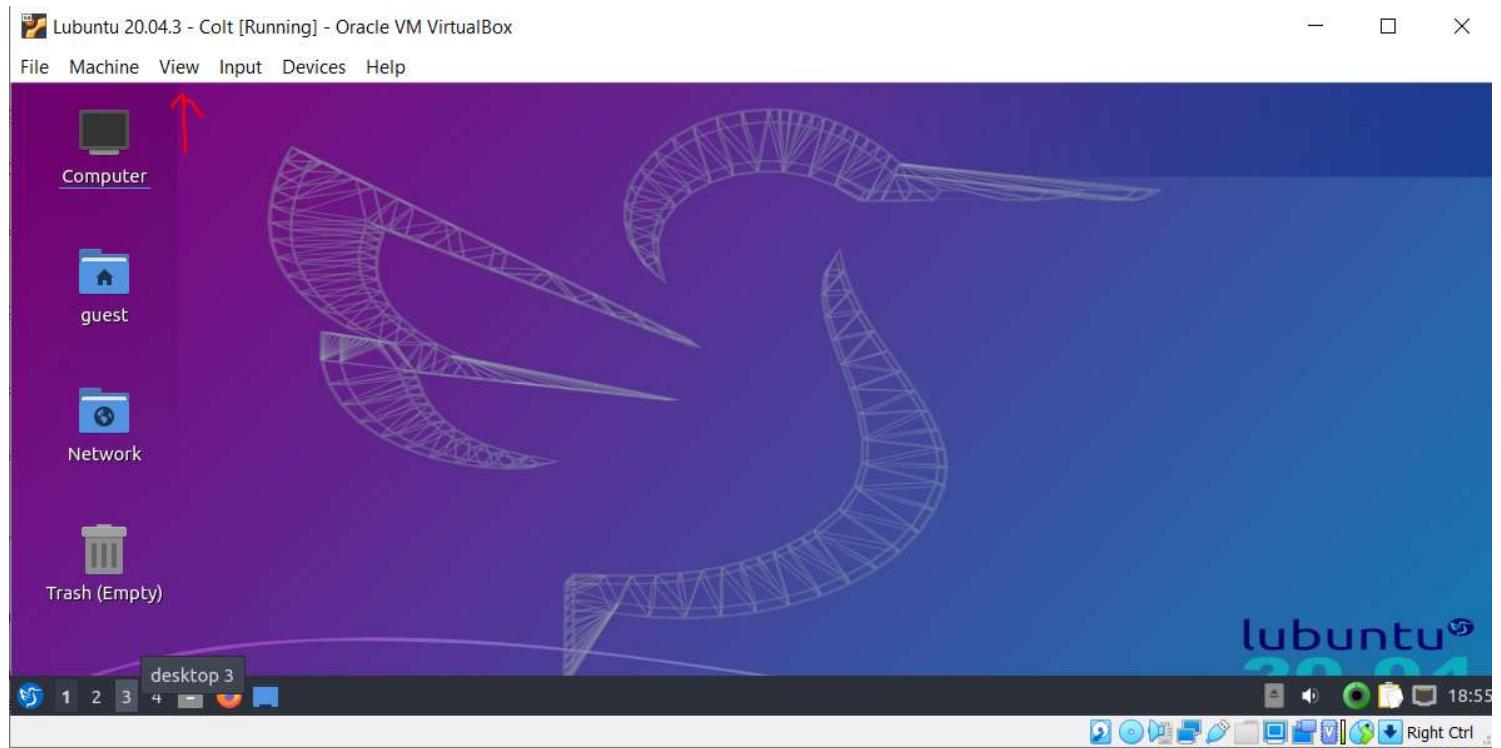
```



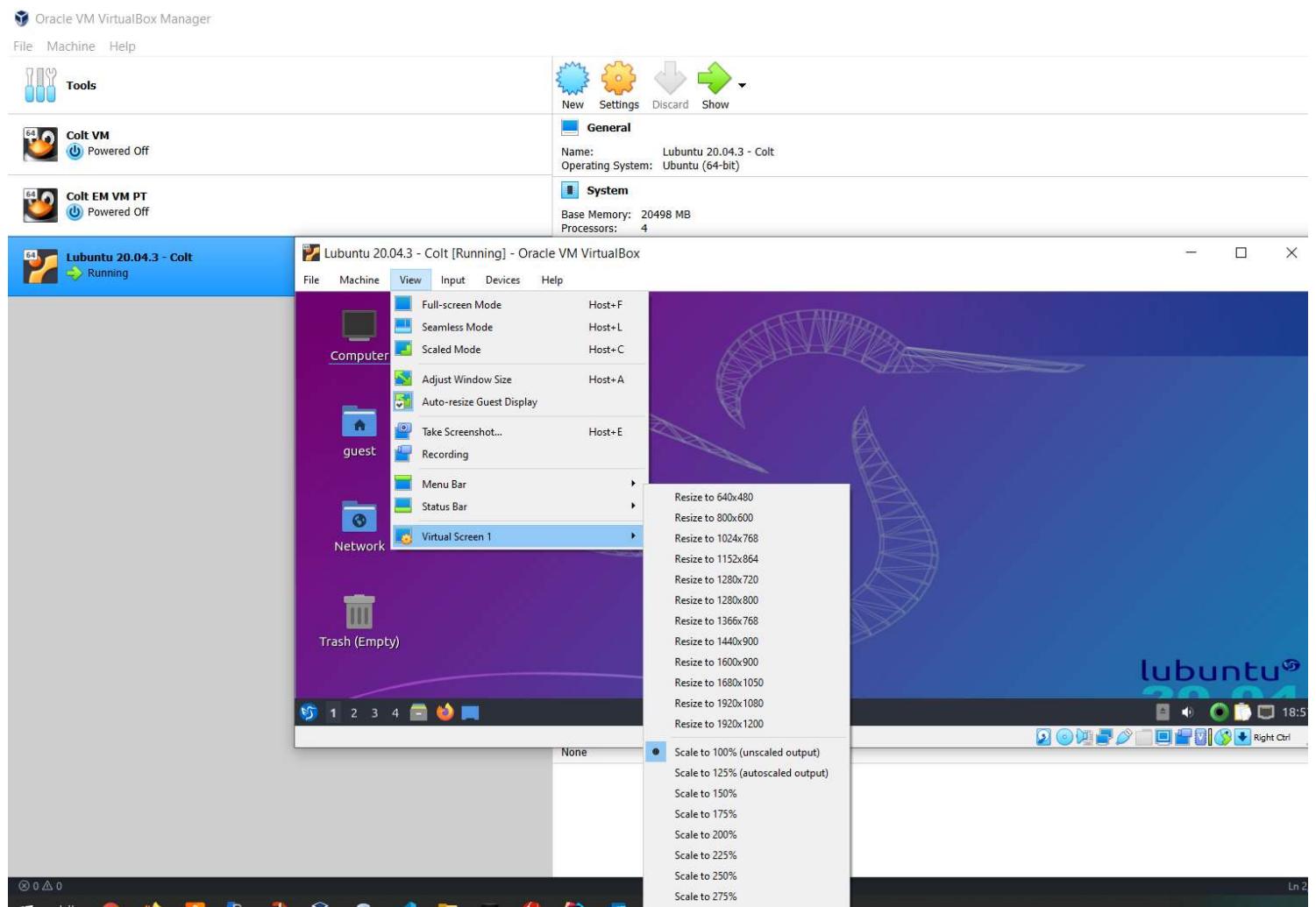
- Reboot the guest VM using

```
sudo rebootroot
```

Now you should be able to Auto size and extend your screens. Click on "View" and then "Adjust window size"



You can change the display resolution to 100% (that's how I like) as below.



Step 13 - Mount shared folder (Continue from Step 9 && 10 for sharing clipboard and files):

Step 1 - Auto-Mount through Virtual Box Manager:

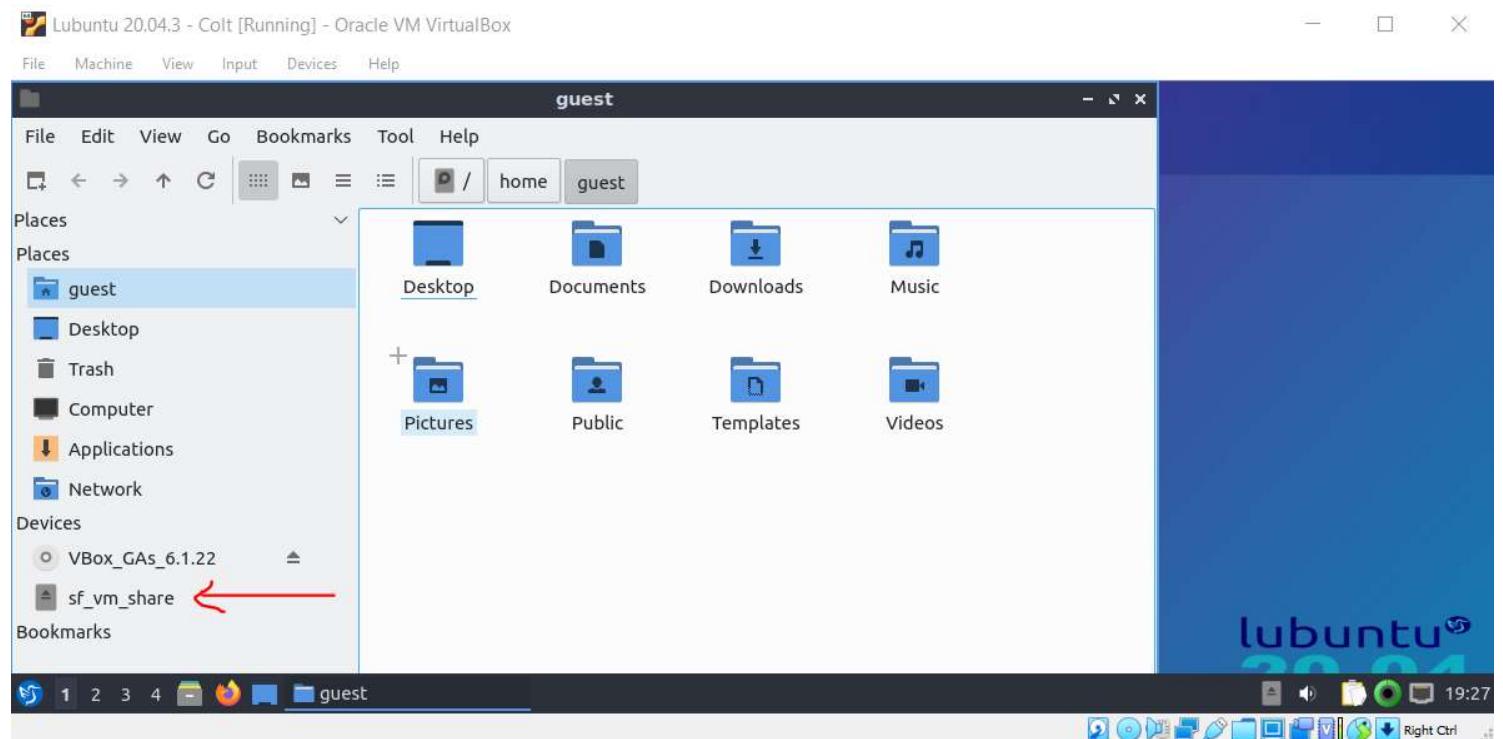
In case we enabled auto-mounting on creating a shared folder from the Virtual Box Manager those shared folders will automatically be mounted in the guest with mount point `/media/sf_<name_of_folder>`. To have access to these folders users in the guest need to be a member of the group `vboxsf`.

```
sudo usermod -aG vboxsf userName --> sudo usermod -aG vboxsf guest
```

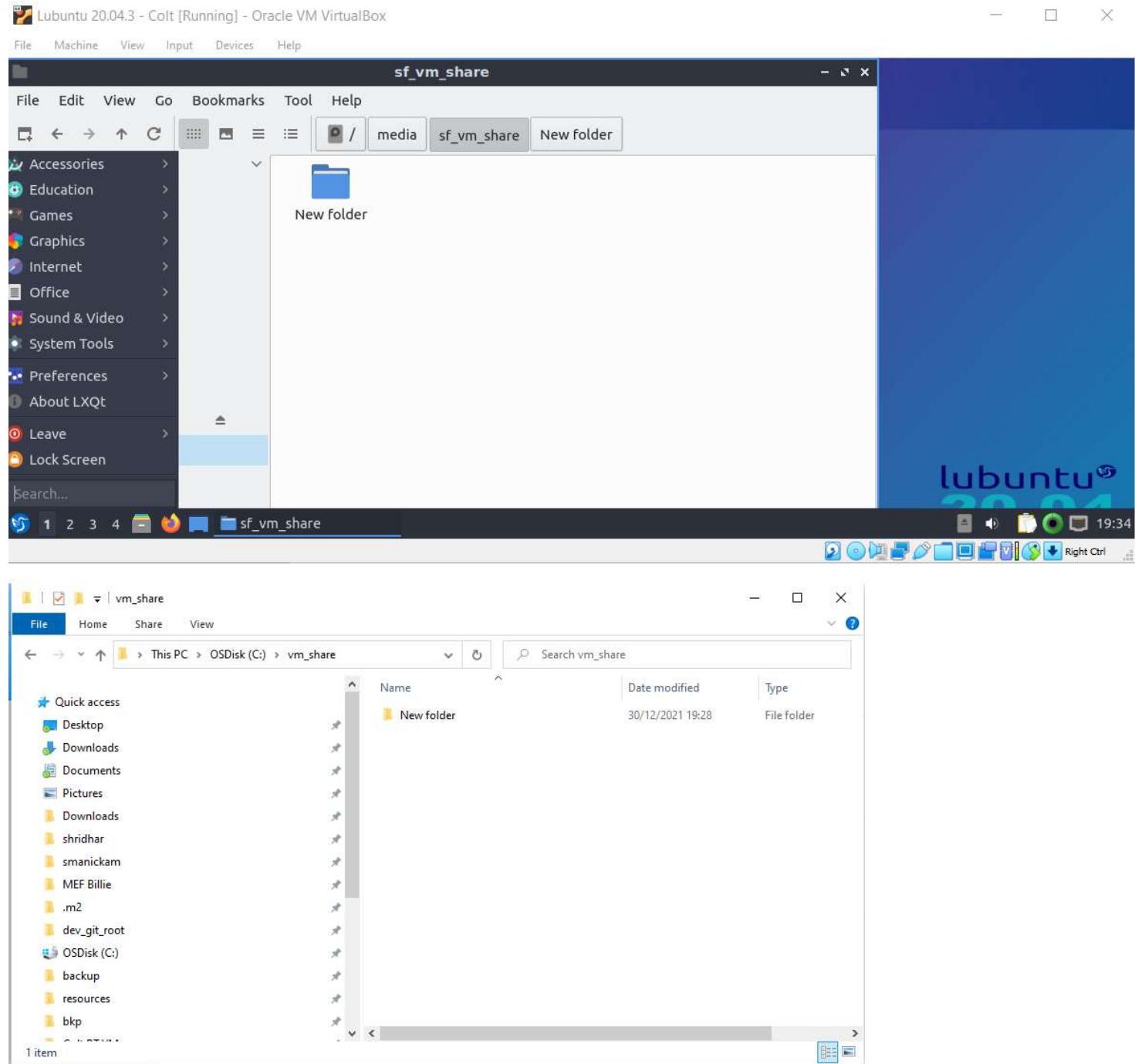
Note: The guest will need to restart to have the new group added.

- **Repeat Step 10 (Enable shared folder) - Optional, if you are unable to see the `/media/sf_vm_share` folder**

[https://dev.azure.com/NetworkOnDemand/On Demand/_wiki/wikis/On-Demand.wiki?wikiVersion=GBwikiMaster&pagePath=/On Demand Team Wiki/Onboarding/VM setup&pageId=14&_a=edit&anchor=step-10-\(enable-shared-folder\)--optional%3A](https://dev.azure.com/NetworkOnDemand/On Demand/_wiki/wikis/On-Demand.wiki?wikiVersion=GBwikiMaster&pagePath=/On%20Demand%20Team%20Wiki/Onboarding/VM%20setup&pageId=14&_a=edit&anchor=step-10-(enable-shared-folder)--optional%3A)



You should be able to share files between guest and host, if not see next step.



Step 2 (Optional) - do this only if you do not have write access on the shared folder - Access to shared folders in Virtual Box:

By default, VirtualBox shared folders are created with read/write permission for the guest. This can be done from the command line on the host with:

```
VBoxManage sharedfolder add "VM name" --name sharename --hostpath "C:\test"
```

By adding the option --readonly we can restrict these for read-only access.

Use the --transient option if you only want the shares to appear in the present session but not persistent for following sessions. There are some limitations for shared folders (see this question for details). If prerequisites are met we may mount these shared folders manually by running the following commands in the guest:

```
mkdir /home/<user>/vboxshare
sudo mount -t vboxsf -o uid=1000,gid=1000 sharename /home/<user>/vboxshare
```

Of course, we can also use different mount options to mount as read/only or mount with read access only to root.

Source and further reading: [Virtual Box User Manual](#) ↗