

0 – Install Linux within VirtualBox

Bálint Aradi

Course: Scientific Programming / Wissenschaftliches Programmieren (Python)



<https://www.bccms.uni-bremen.de/people/b-aradi/wissen-progr/python/2023>

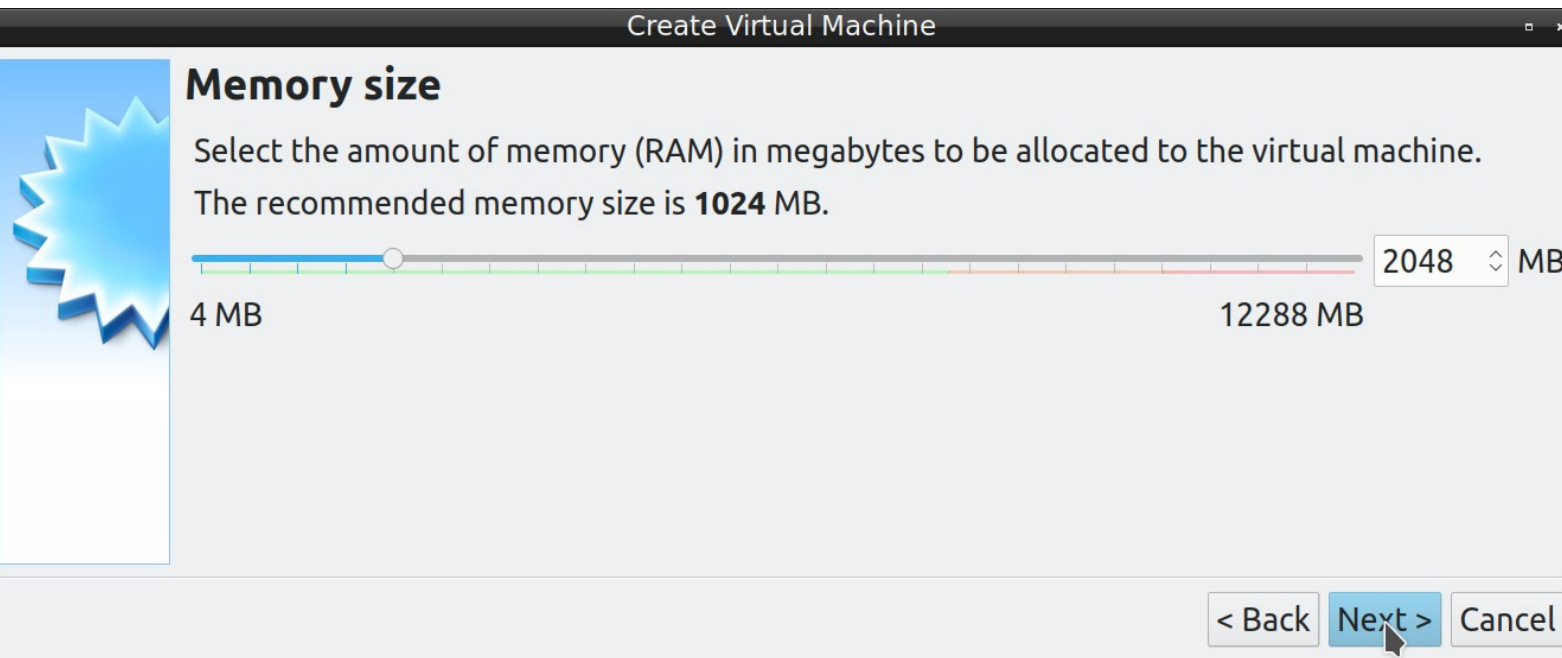
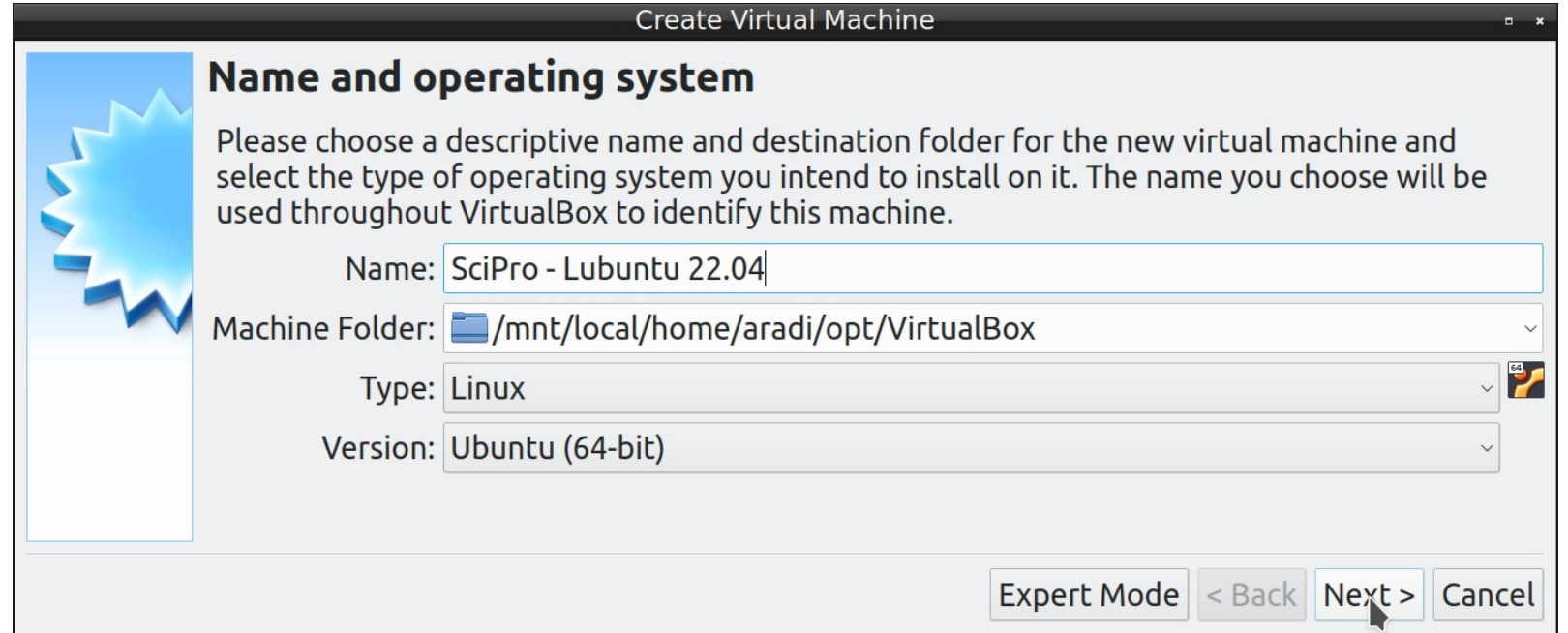
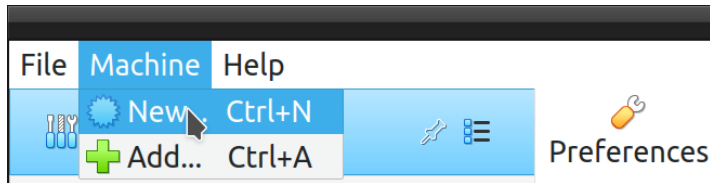
Install Linux (Lubuntu) within VirtualBox

- Install [Virtual Box](#) on your machine
- Download the ISO image of [Lubuntu 22.04](#) ([lubuntu-22.04.2-desktop-amd64.iso](#))

Notes

- Virtual Box won't work on Mac with M1 (arm) processors.

Create virtual machine



Select **2048** MB memory if your laptop has at least 8 GB of RAM, or **1024** MB otherwise

Create virtual hard disk

Create Virtual Machine

Hard disk

If you wish you can add a virtual hard disk file or select one from the list.

If you need a more complex storage configuration, you can change the storage controller and disk settings once the machine is created.

The recommended size of the hard disk is 70,00 GB.

- Do not add a virtual hard disk
- Create a virtual hard disk now
- Use an existing virtual hard disk

windisk2.vdi (Normal, 70,00 GB)

Create Virtual Hard Disk

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)

Create Virtual Hard Disk

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.

- Dynamically allocated
- Fixed size


< Back Next > Cancel

Create virtual hard disk

Create Virtual Hard Disk

File location and size

Please type the name of the new virtual hard disk file into the box below or click on the folder icon to select a different folder to create the file in.



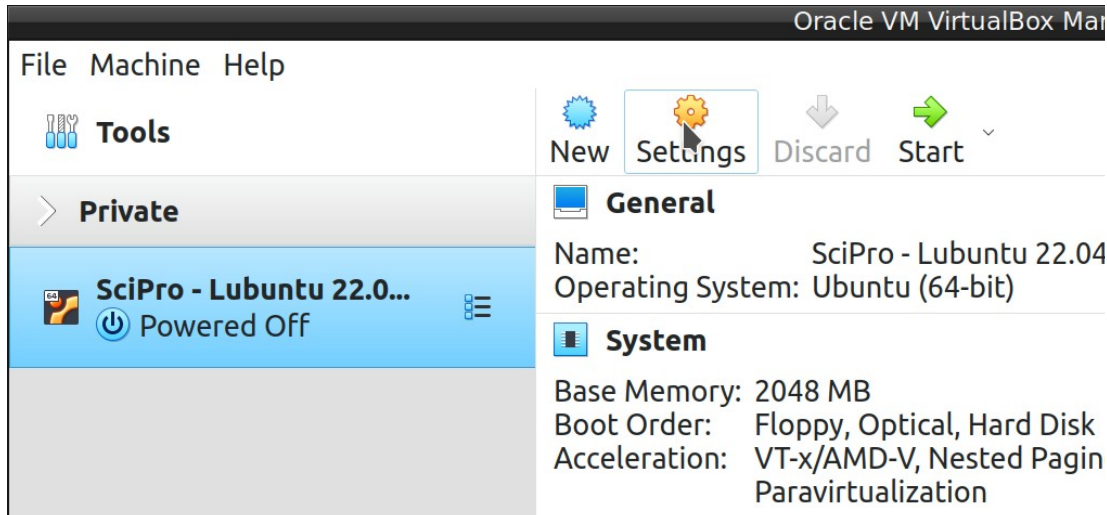
Select the size of the virtual hard disk in megabytes. This size is the limit on the amount of file data that a virtual machine will be able to store on the hard disk.

20,00 GB

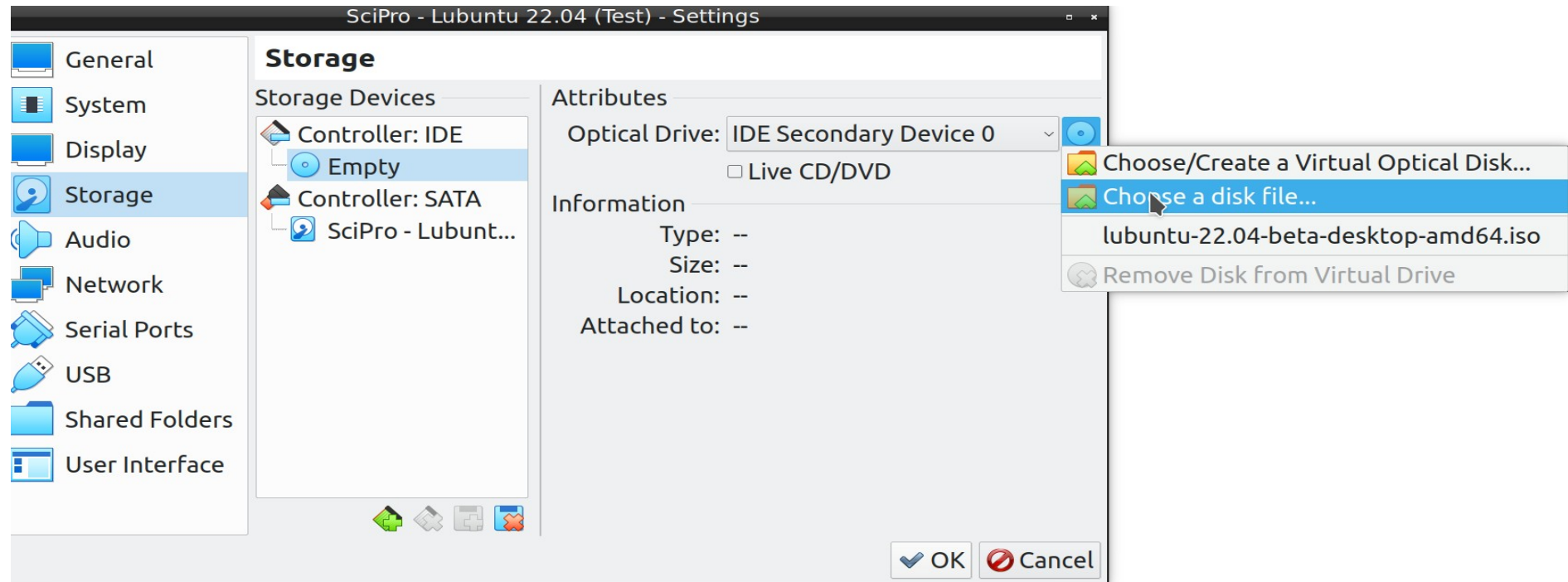
4,00 MB 2,00 TB

Set hard disk size to 20 GB

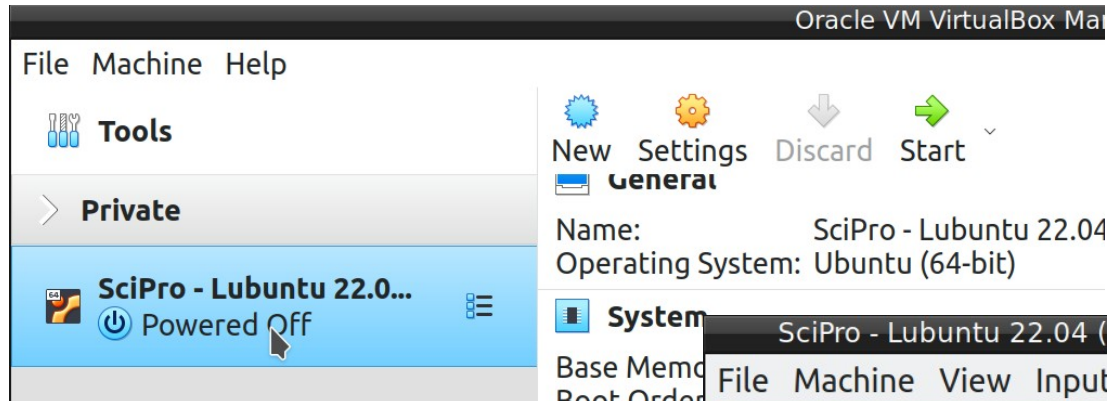
Add ISO-image as optical drive



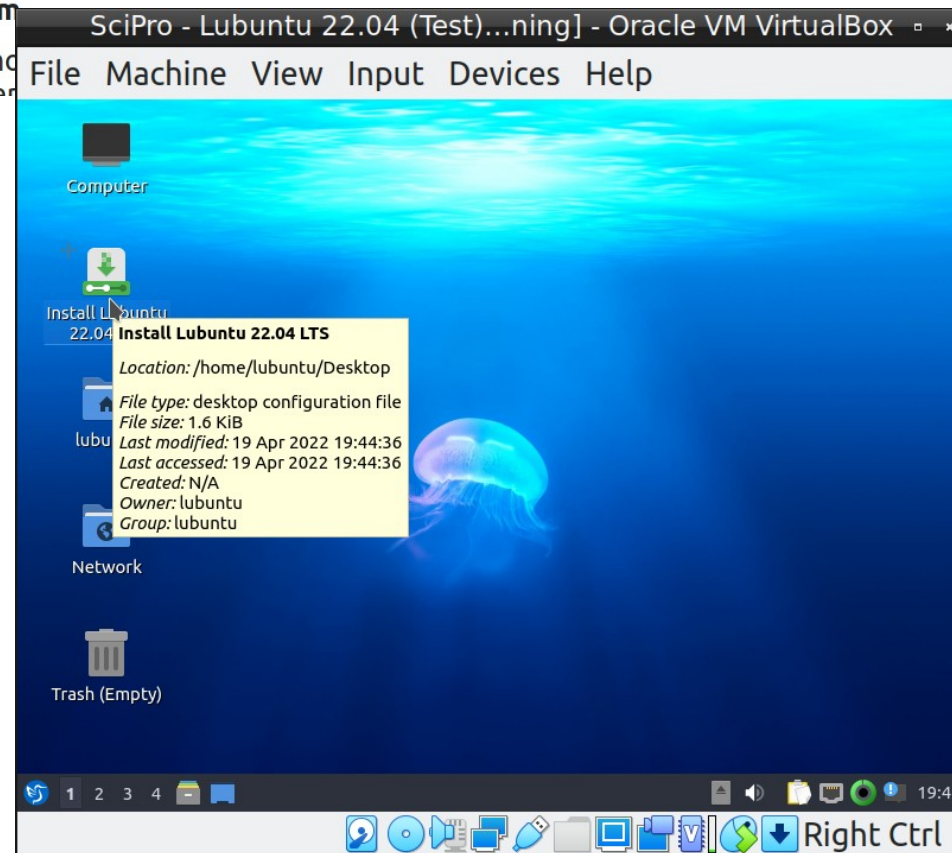
Select the downloaded
Lubuntu 22.04 ISO-file



Start Lubuntu installation



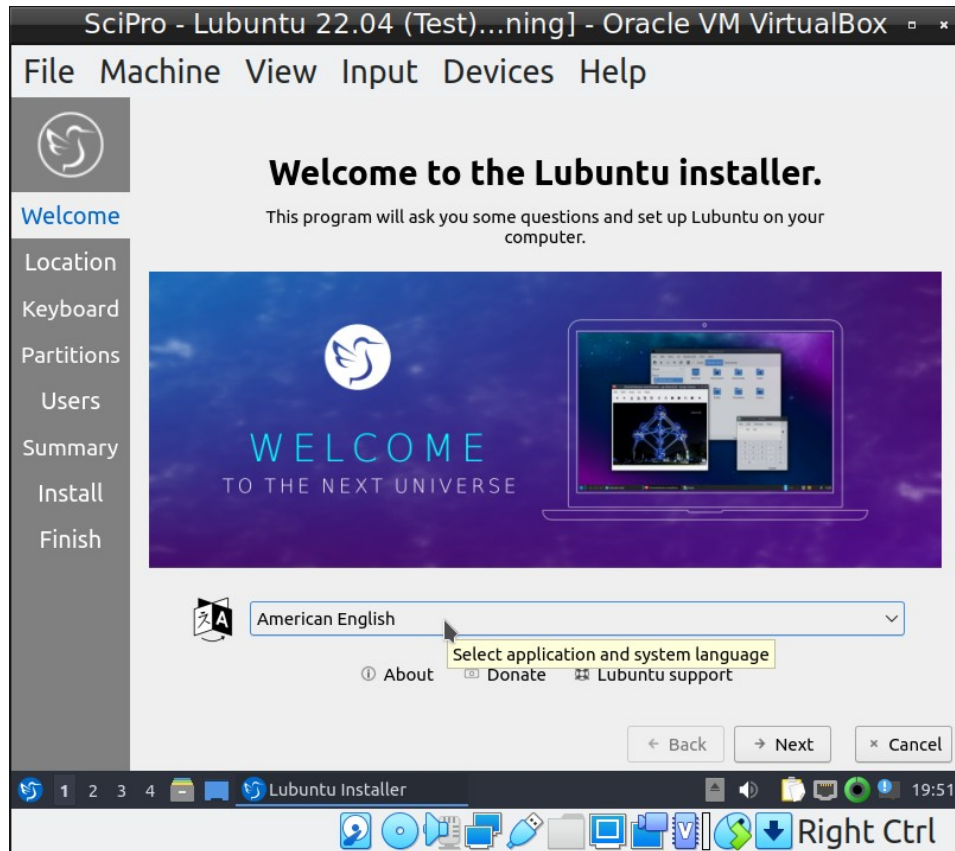
Start Lubuntu by a double click on the virtual machine



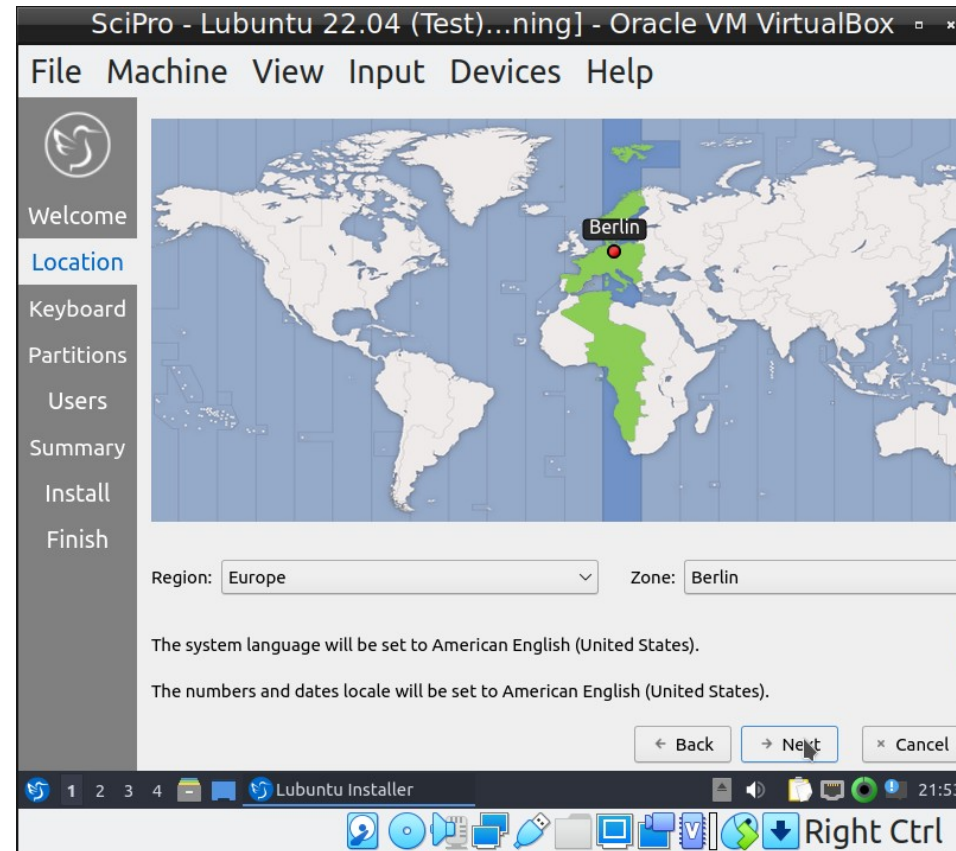
Start the installation program

Configure installation

Select the language (preferably American English)

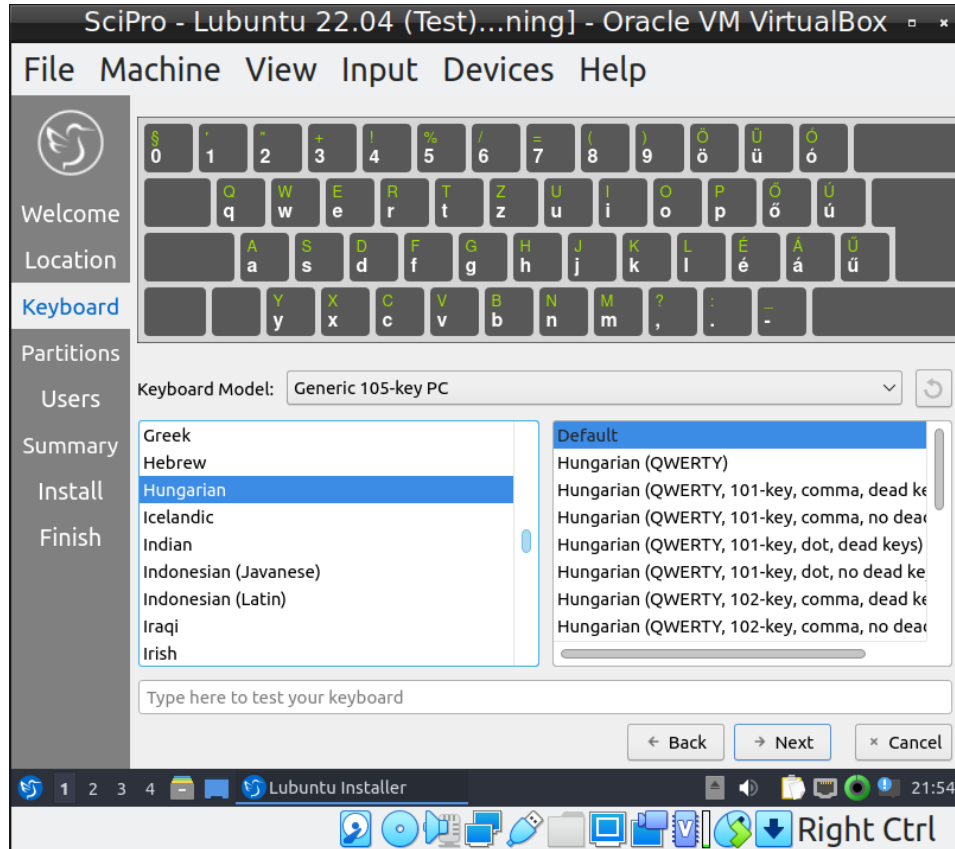


Select time zone

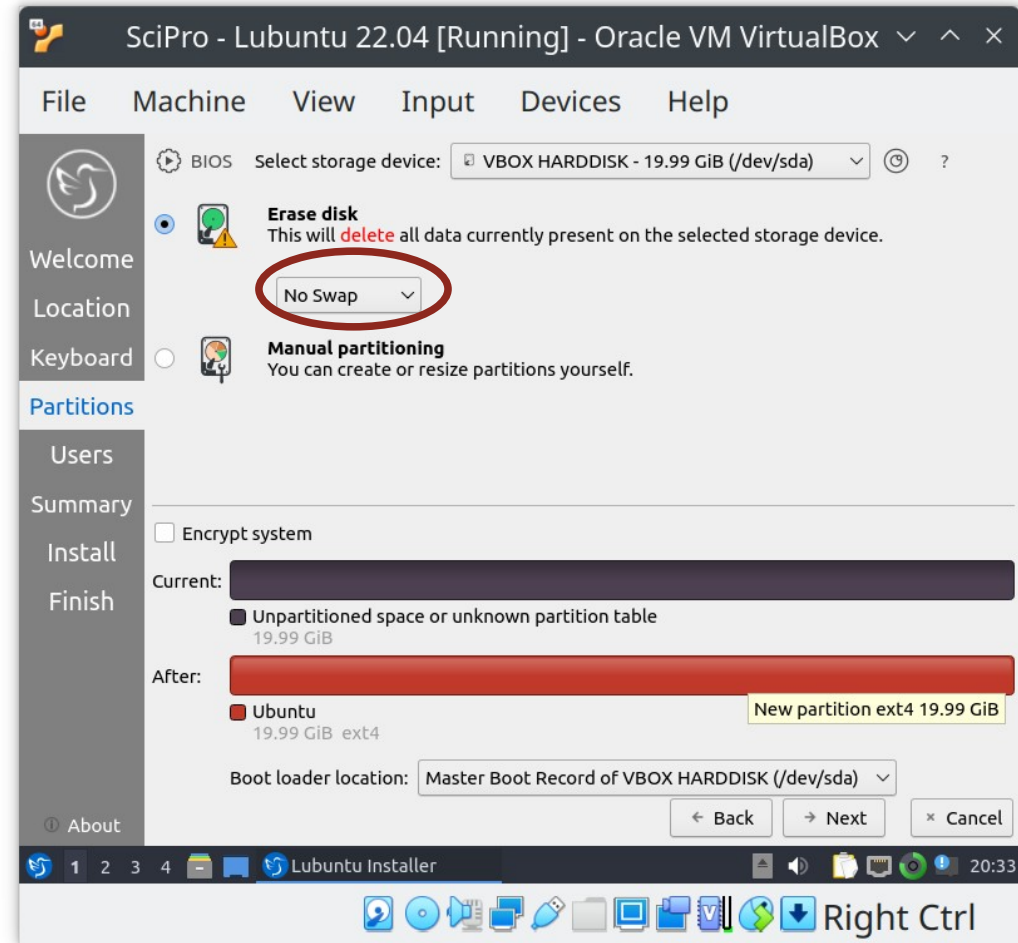


Configure installation (#2)

Select the keyboard layout you use

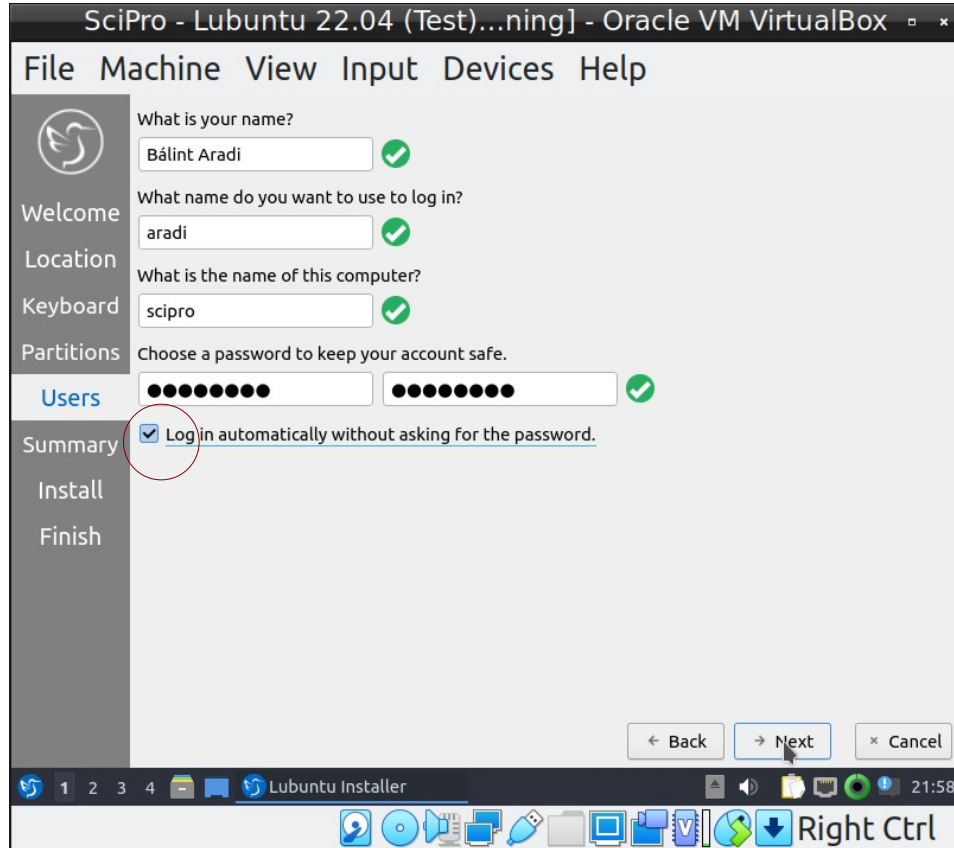


Choose single partition installation **Erase disk** and **No Swap**



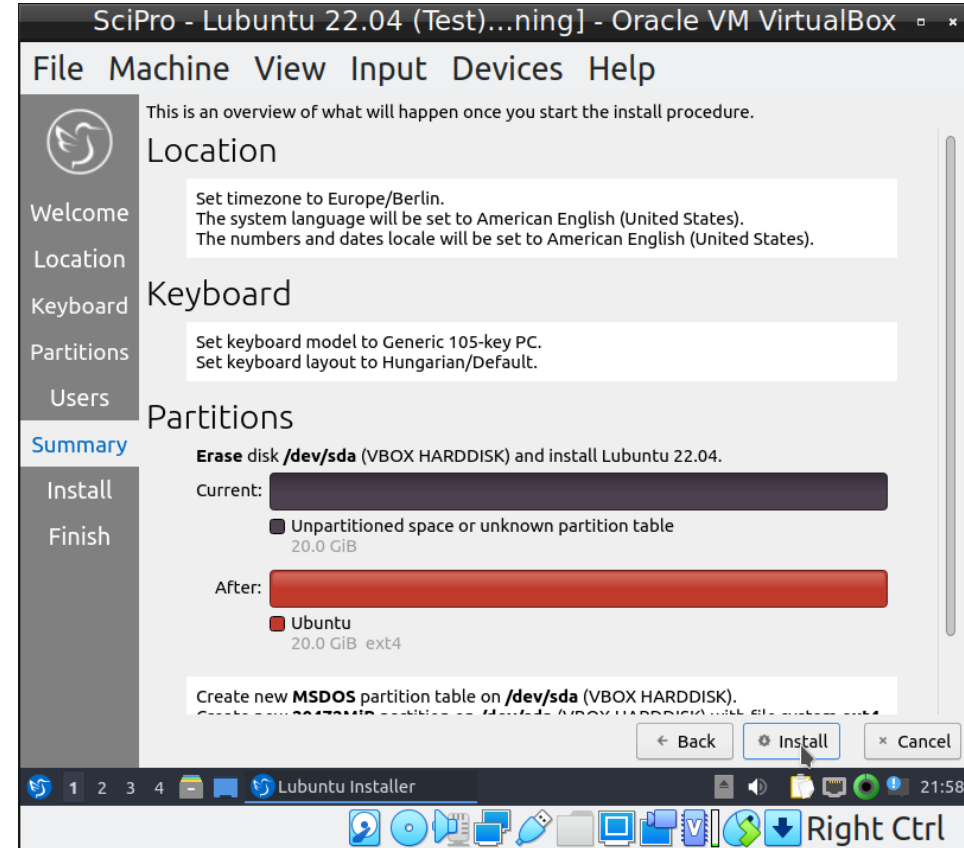
Configure installation (#3)

Create a user



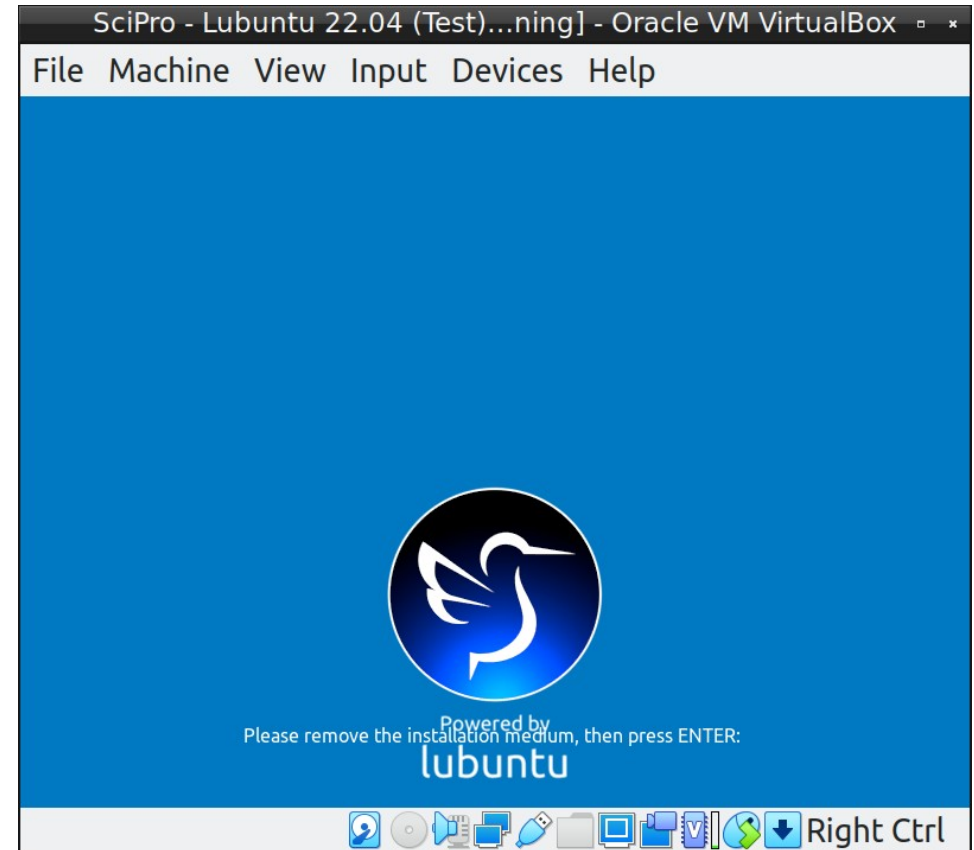
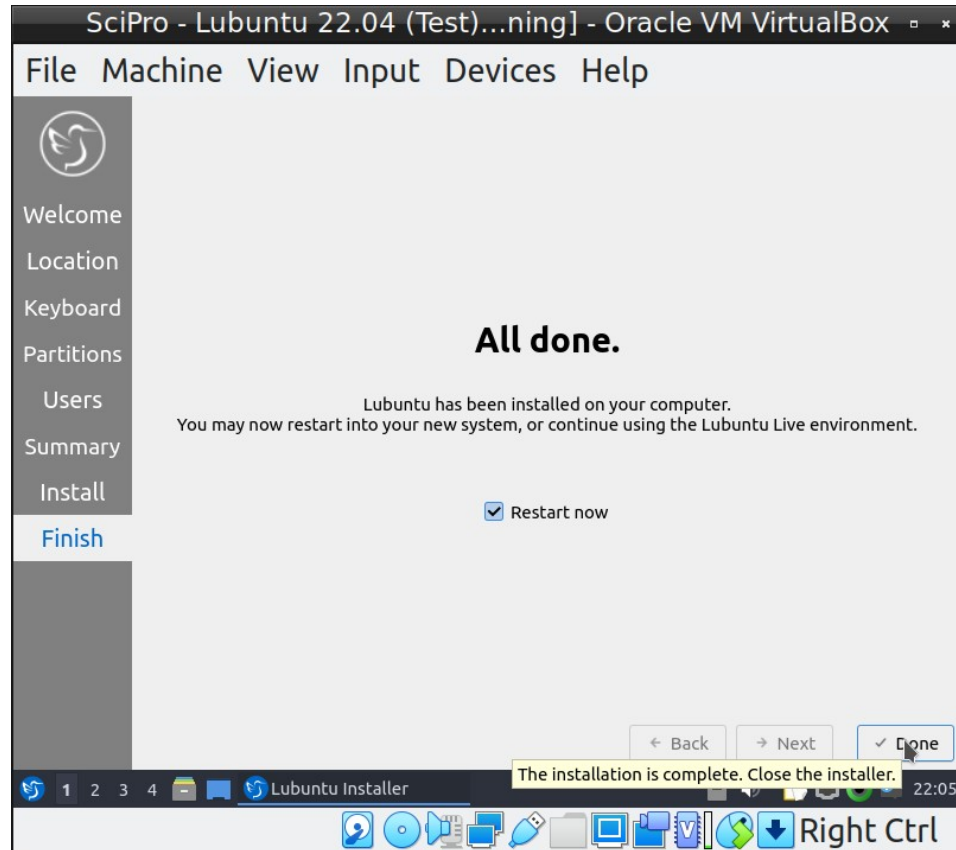
- Select the option for automatic login

Start installation



Finishing installation

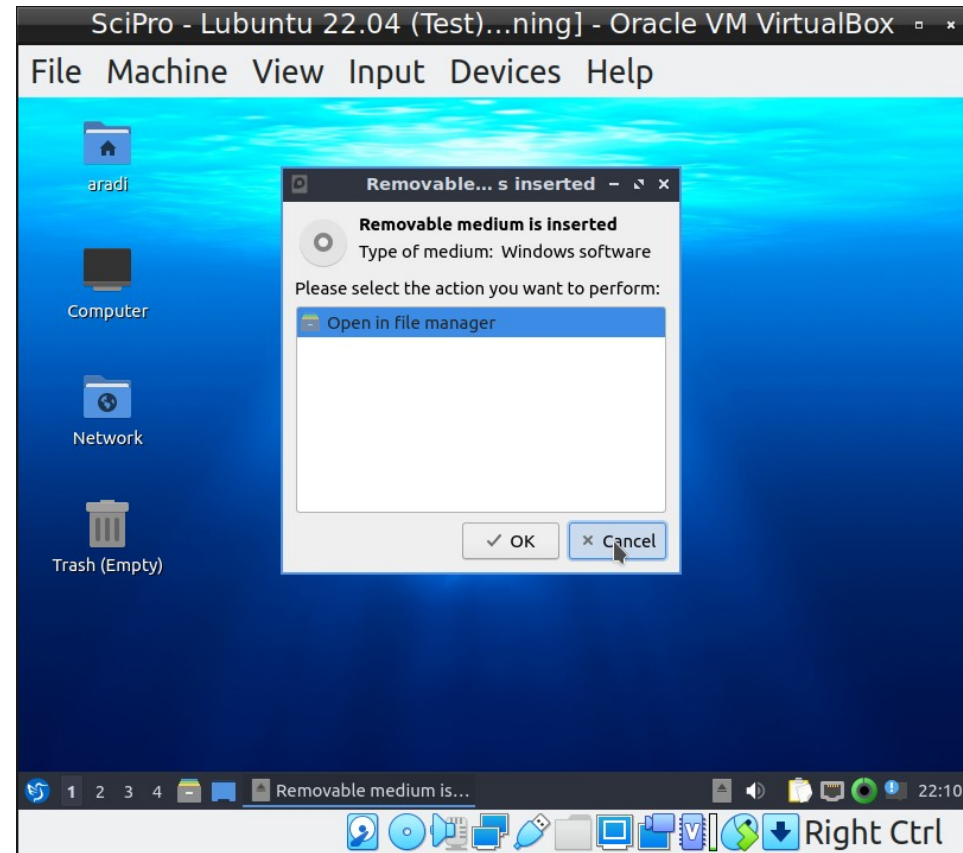
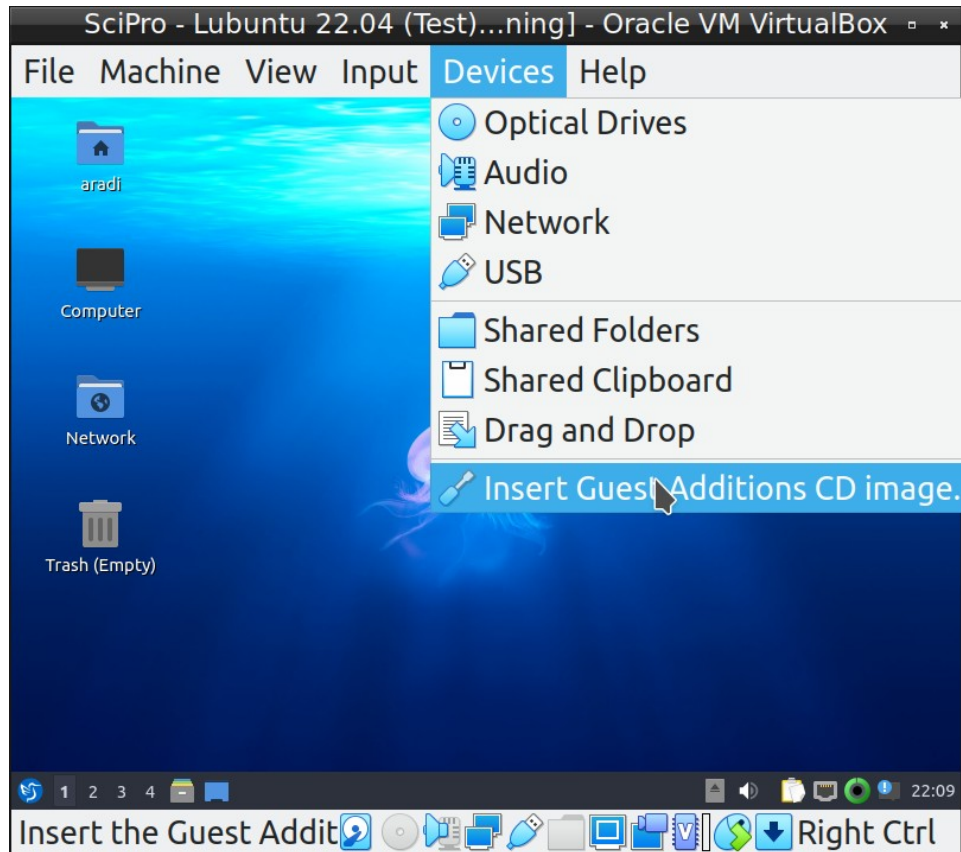
Finish installation



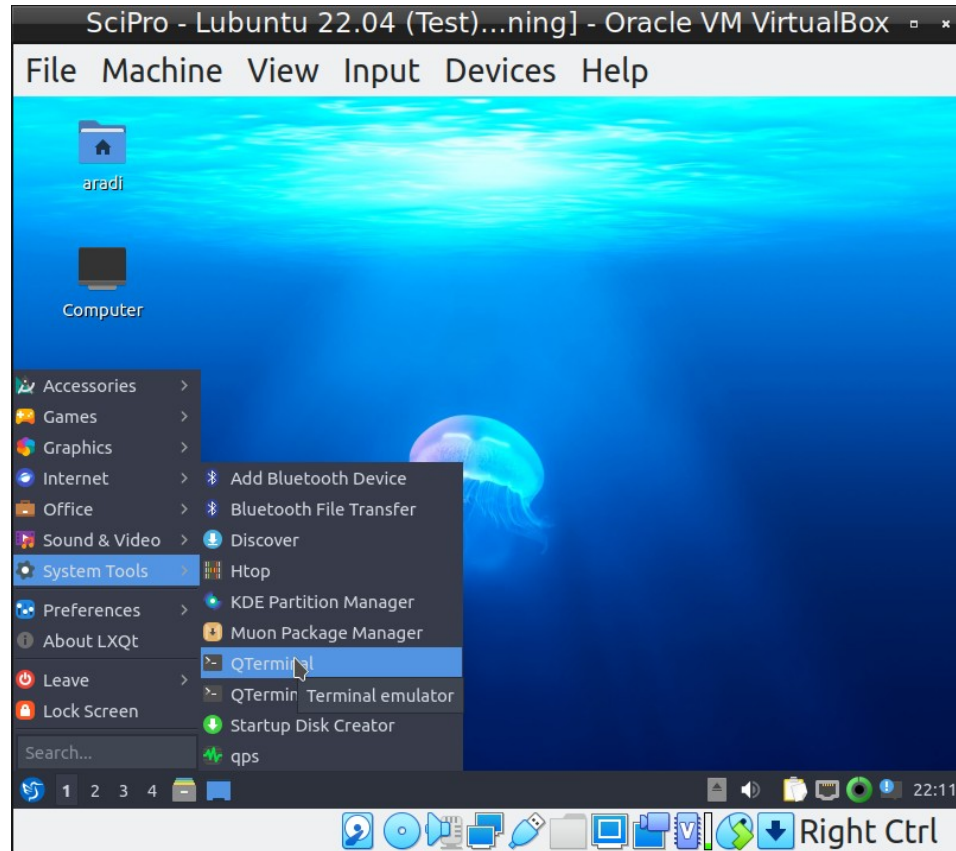
Hit Enter, the ISO image will automaticall deattached from the virtual machine

Install guest additions

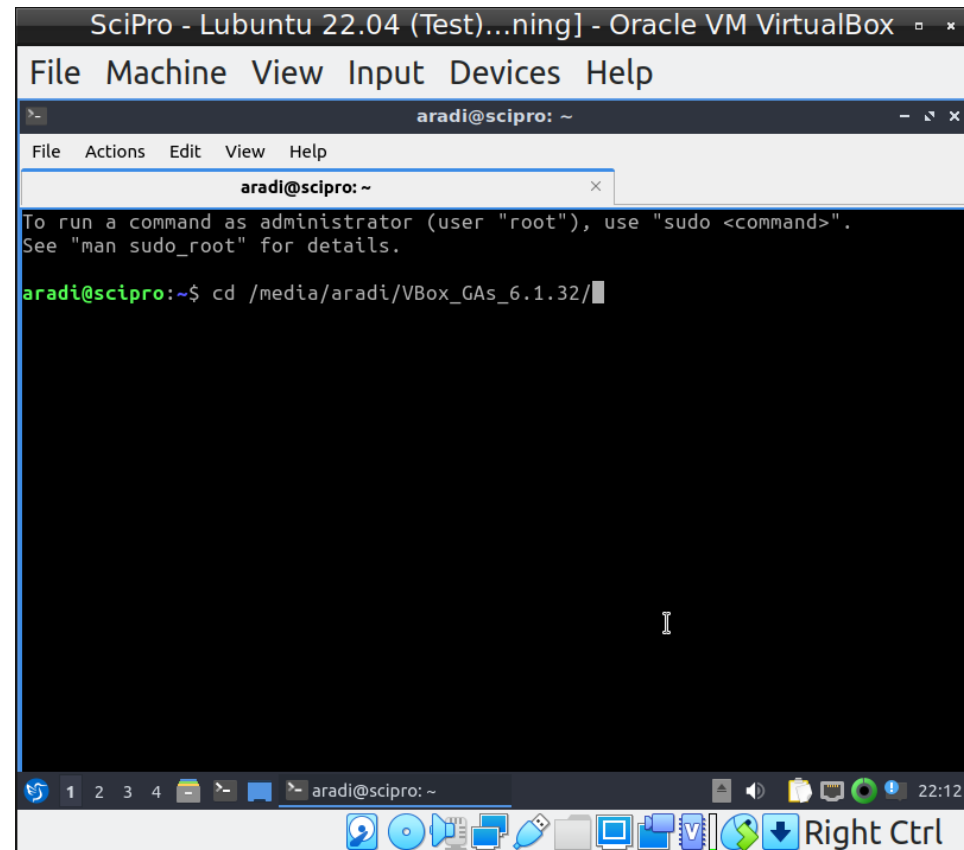
Start installation



Install guest additions (#2)



Start command terminal (QTerminal)



Install guest additions (#3)

<code>cd /media</code>	Change to the folder /media
<code>ls</code>	List the content of the folder (you should see a folder named as your user name)
<code>cd aradi</code>	Use the folder with your user name
<code>cd VBox*</code>	Change to the folder which starts with the prefix VBox
<code>sudo apt update</code>	Update the list of packages (as admin)
<code>sudo apt install gcc make perl</code>	Install necessary packages (as admin)
<code>sudo ./VBoxLinuxAdditions.run</code>	Execute the program which generates the guest additions
<code>reboot</code>	

After the reboot, the screen should resize itself when you change the size of the window.

Configure a shared folder

- Configure shared folder when machine is switched off

The screenshot shows the 'Settings' window for 'SciPro - Lubuntu 22.04 (Test)'. The 'Shared Folders' section is active, displaying a table with columns for Name, Path, Access, Auto Mount, and At. Below the table are 'Machine Folders' and 'Transient Folders' sections. Two dialog boxes are overlaid: 'Add Share' and 'Edit Share'. The 'Add Share' dialog has fields for 'Folder Path', 'Folder Name', and 'Mount point', with checkboxes for 'Read-only', 'Auto-mount', and 'Make Permanent'. The 'Edit Share' dialog has similar fields, with 'Folder Path' set to 'e/aradi/vboxshare' and 'Folder Name' set to 'vboxshare'. A red arrow points from the text 'Shared folder on host system' to the 'Other...' button in the 'Add Share' dialog.

Shared folder on host system

Shared folder enables seamless data/file exchange between host and guest systems

Configure shared folder (#2)

- Start machine, open terminal
- Find out your user and group id using the “id” command
- Edit the file /etc/fstab as admin

```
aradi@sciprs:~$ id
uid=1000(aradi) gid=1000(aradi) groups=1000(aradi),4(adm),24(cdrom),27(sudo),30(dtp),46(plugdev),120(lpadmin),999(sambashare)
```

```
sudo featherpad /etc/fstab
```

Make sure to adapt user name, uid and gid!

```
# /etc/fstab: static file system information.
# ...
# <file system>          <mount point> <type> <options> <dump> <pass>
UUID=3699f1ad-d7ff-4349-a7df-291fccca6ace4 / ext4 defaults 0 1
vboxshare /media/aradi/vboxshare vboxsf uid=1000,gid=1000 0 2
```

- Create mount point directory
- Mount the shared directory

```
sudo mkdir /media/aradi/vboxshare
```

```
sudo mount -a
```

The folder */media/aradi/vboxshare* will access the associated host directory



Have fun!