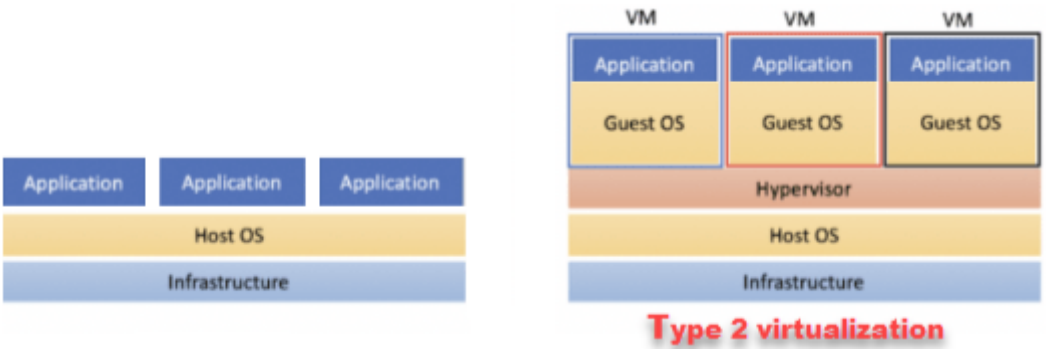
Installation

Virtualisation

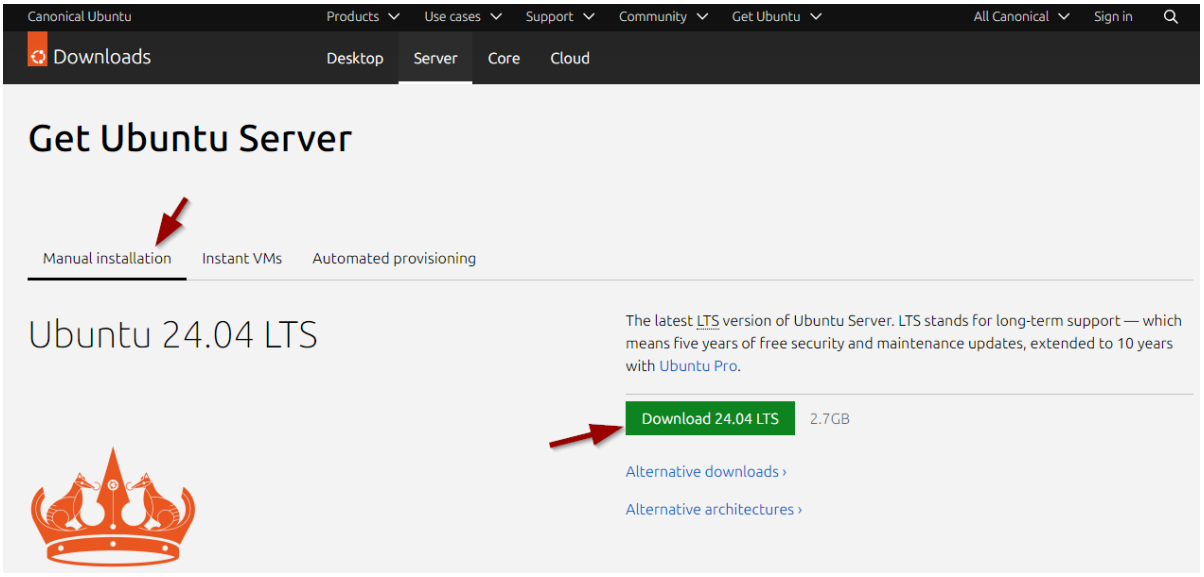
To install servers that offer services (such as a minecraft server!) you will need a server with a public IP address. Usually you would go to a cloud provider where you can rent a server for a fixed fee / month. For this course we will simulate this process by using a virtual machine.

Virtualisation is a concept where you can run a computer system with an operating system virtually on another system. This makes it possible to have multiple *guest operating systems* with their own virtual hardware on one *host system*.



For this course we want to use and install the operating system Ubuntu server in a virtual environment. For this course we will use a debian based distro.

?> :fa-solid fa-list-check: *Download the `.iso` file for Ubuntu server using this link. A `.iso` file is an exact copy of a CD/DVD. You will use this later to install the operating system in your virtual machine.*



Virtualisation software

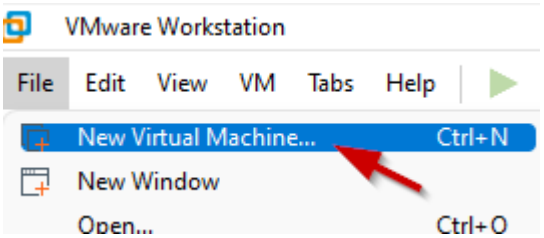
To use virtualisation there are several options. The most common virtualisation software is:

- VMware Workstation
- Virtualbox
- Hyper-V

In this course we will use and support VMware Workstation but the other software packages have the same purpose.

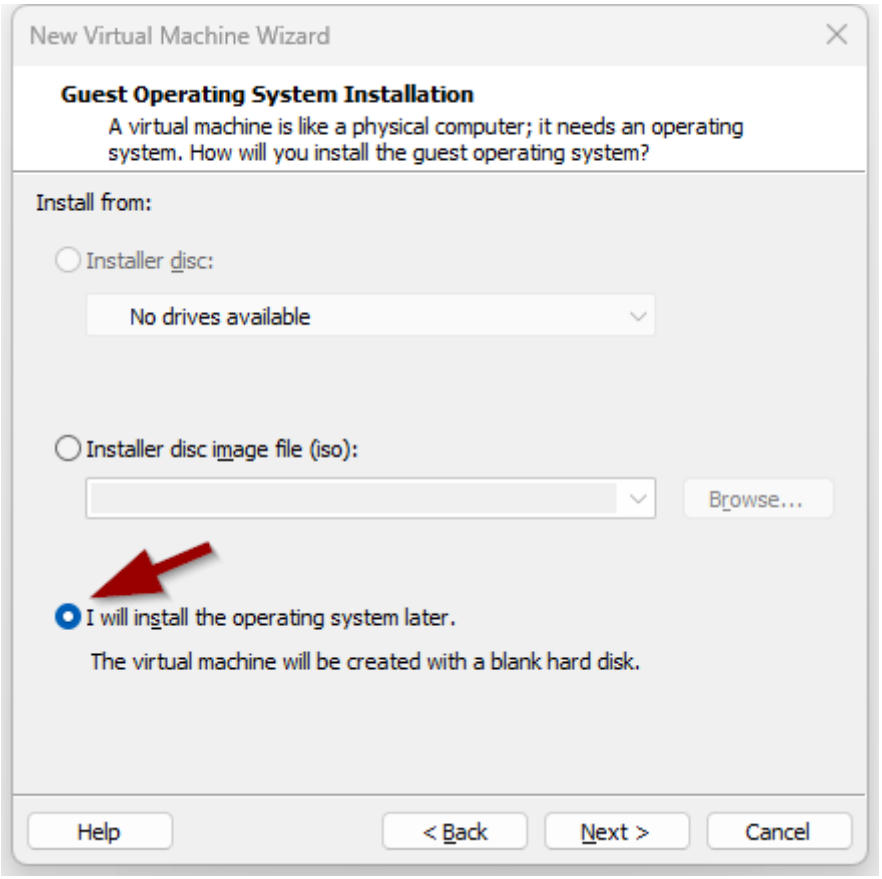
Create a new VM

To create a new virtual machine (VM) in VMWare you go to the menu `File` > `New Virtual Machine`. The wizard to create a new VM will appear.

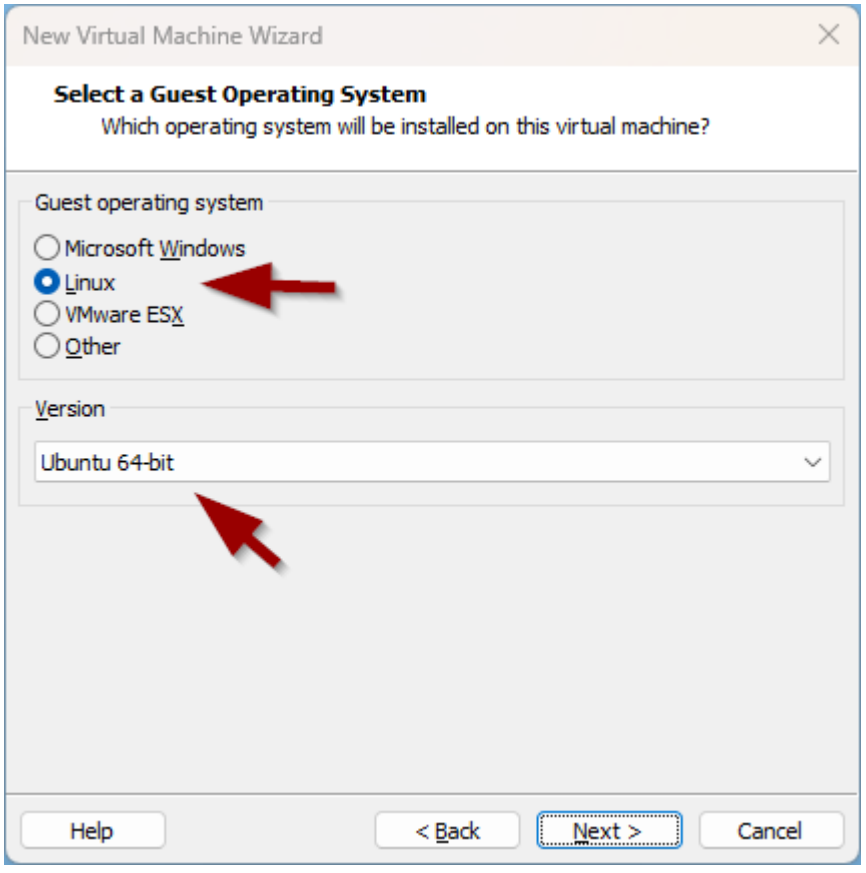


In the first screen we select the option `Typical`:

Next we choose to `I will install the operating system later`:



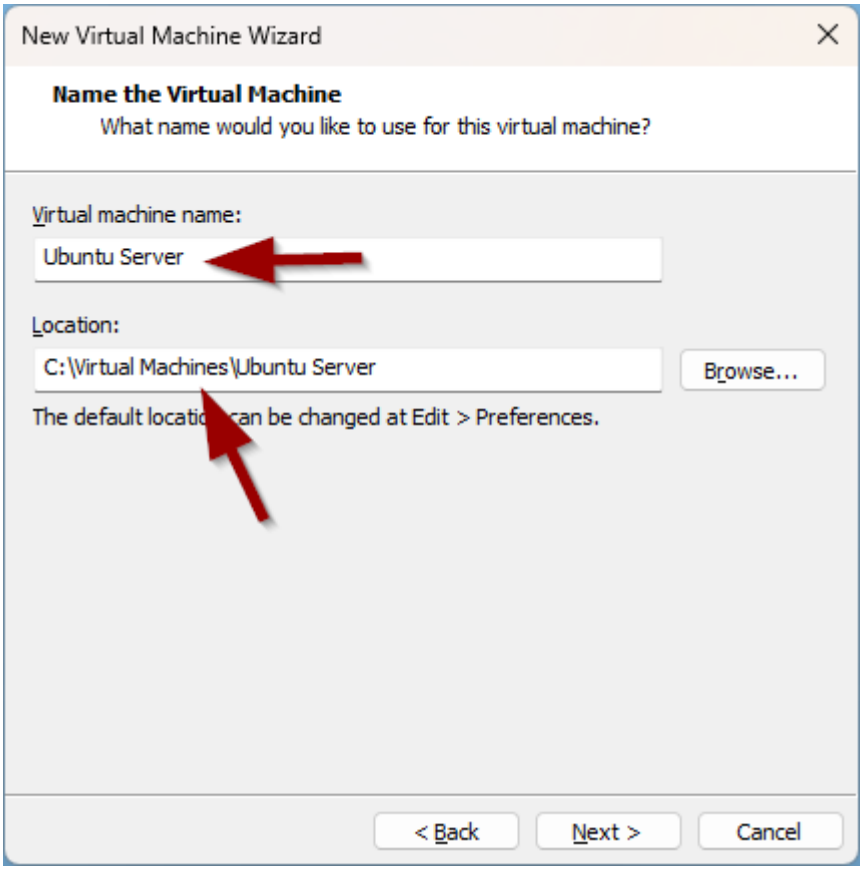
Next we choose the operating system `Linux`. In the version dropdown we select `Ubuntu 64 bit`. This is the Linux distribution that we will use during this course.



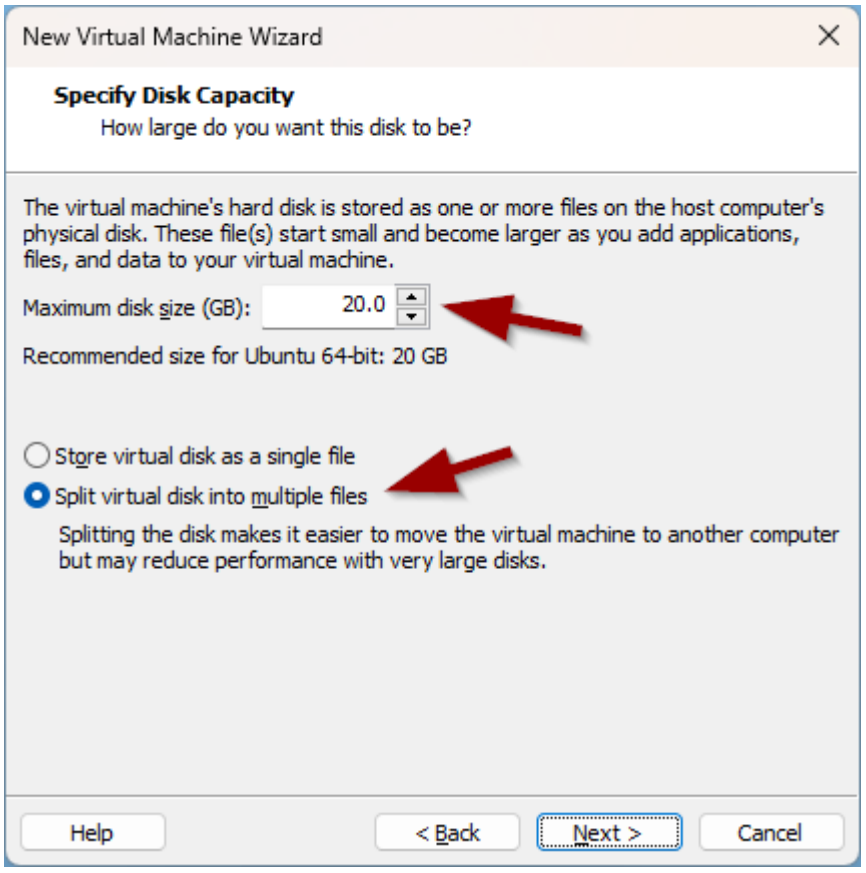
In the next screen we give the virtual machine a name. You can also specify a different folder to store the virtual machine on your computer.

?> Caution! Do not save your VM files to a directory on your host that is synced with the cloud

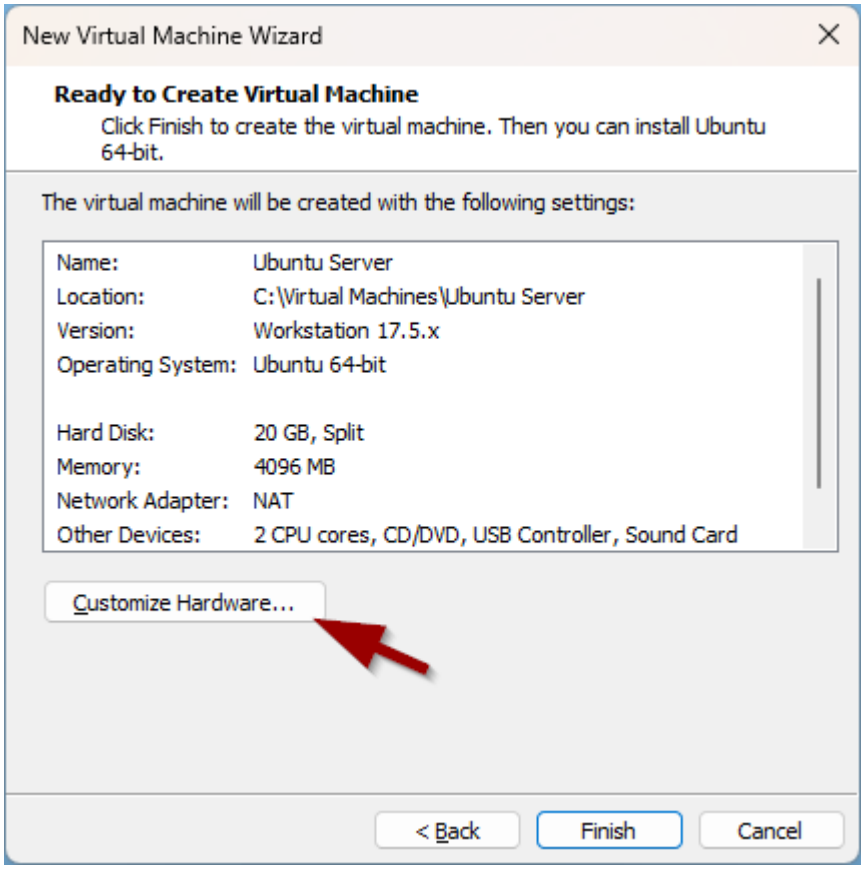
(OneDrive, Dropbox, Google Drive)?. Your VM will crash and you will lose everything from within this VM!



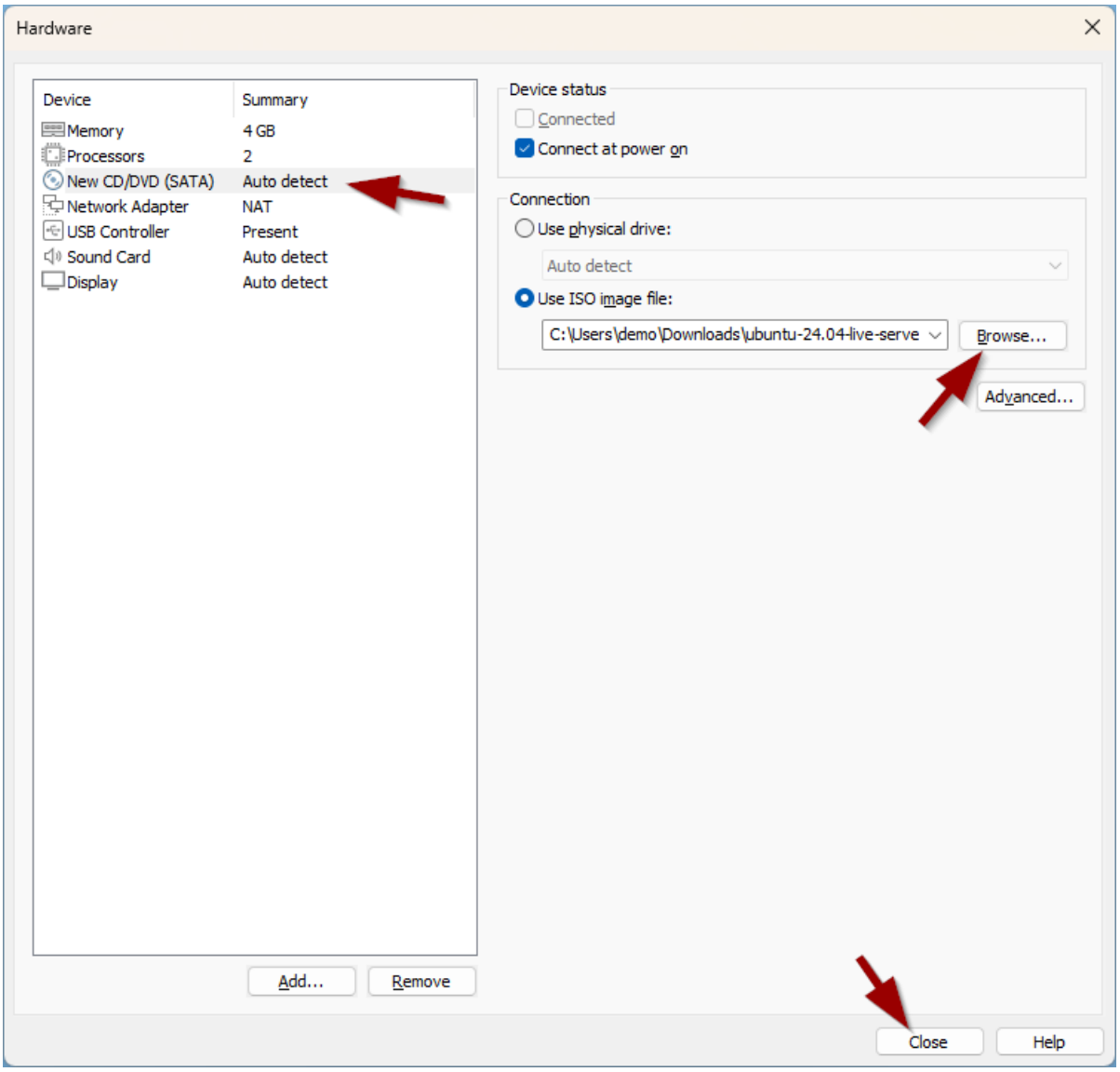
In the next screen we configure the virtual harddisk size for the VM. We will create a disk that has 20GB storage. We can expand this later if needed:



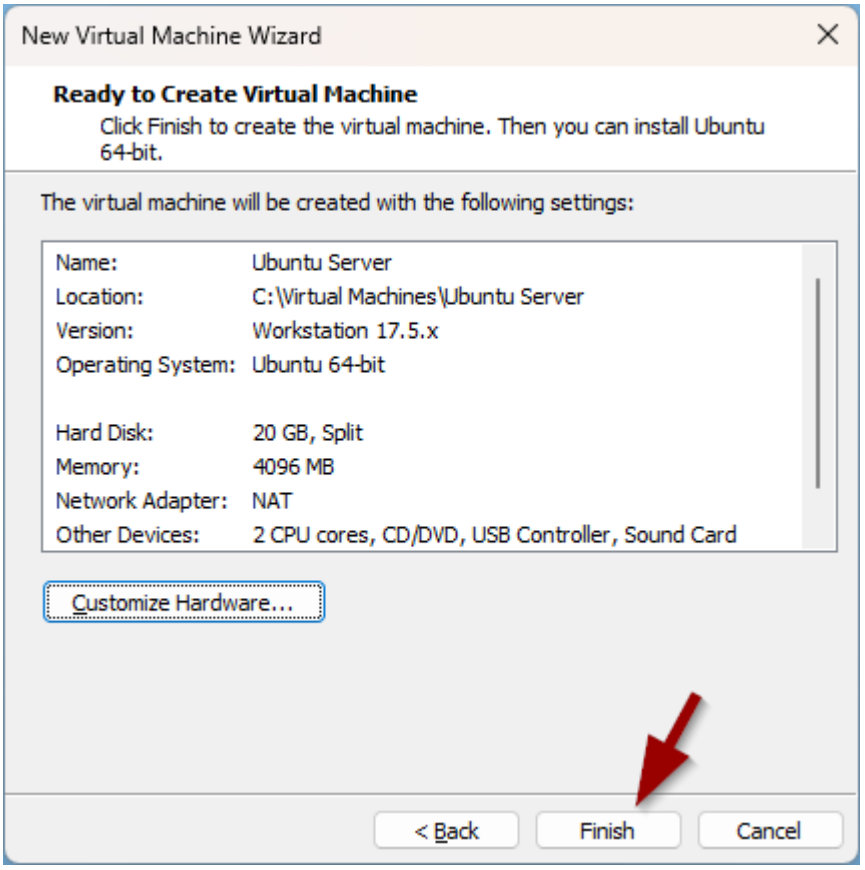
We have to click on `Customize Hardware` to configure the virtual machine a little more:



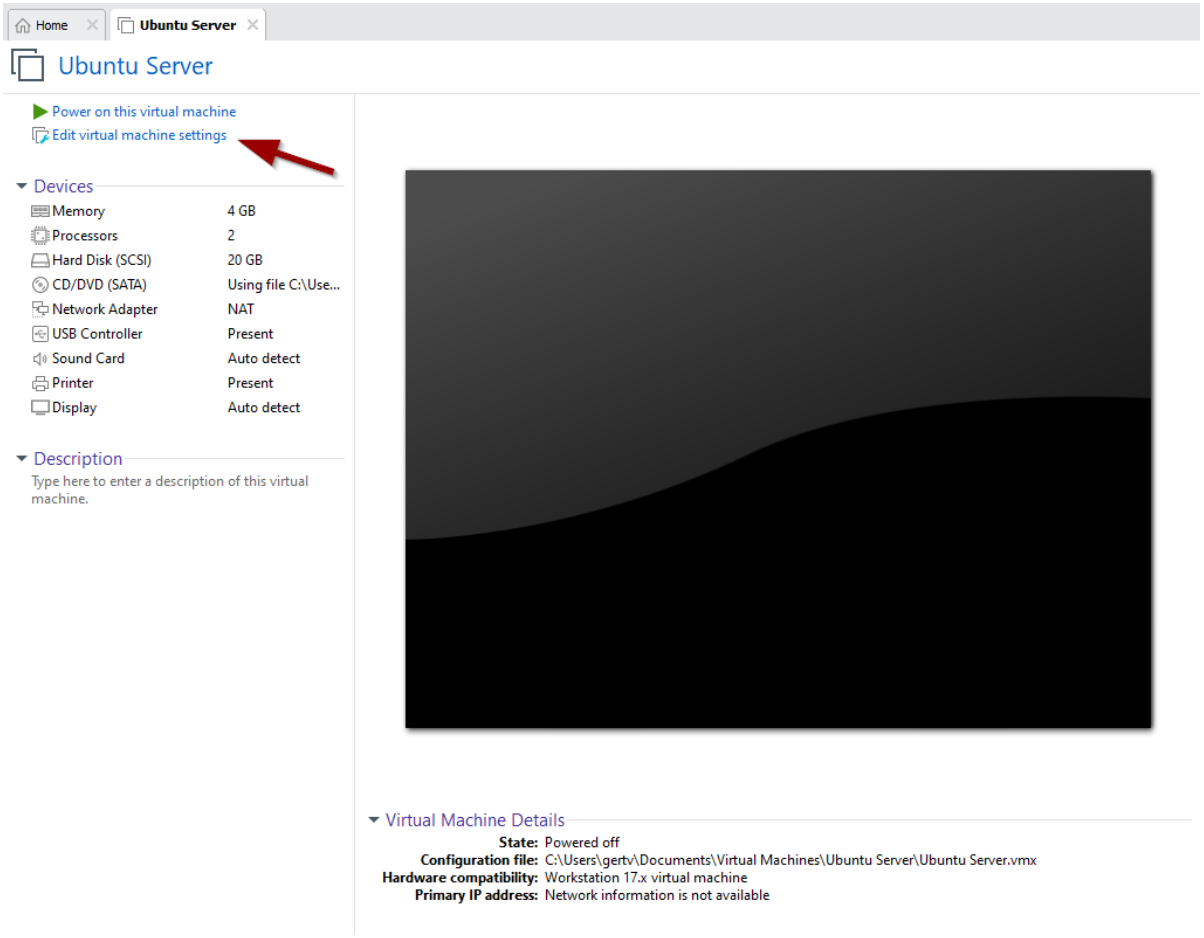
We still need to link the Ubuntu-server ISO file to the virtual CD-rom drive. We do this by selecting `New CD/DVD` and browsing to the downloaded `iso` file:



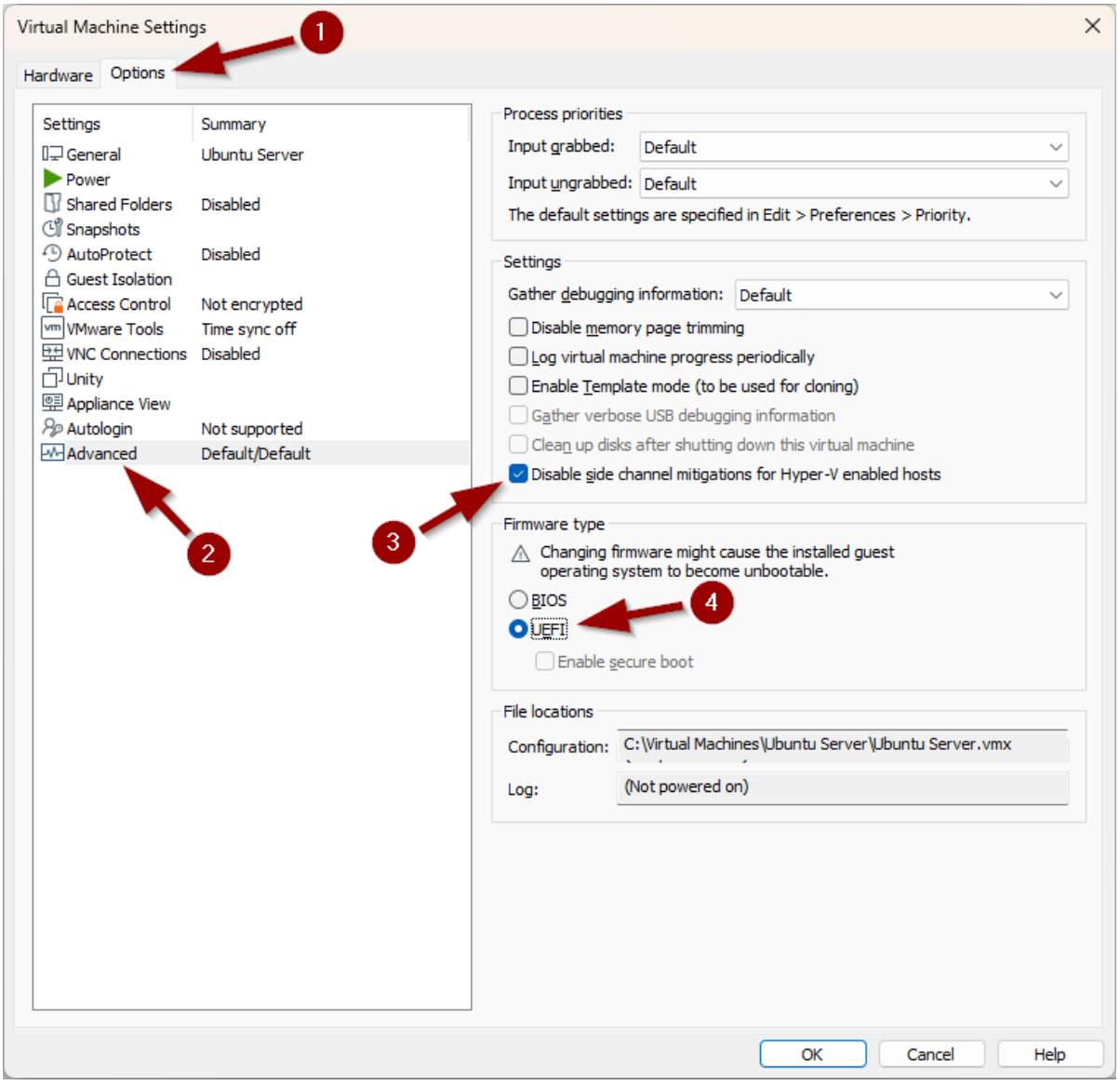
Click on `Finish` and the virtual machine will be created.



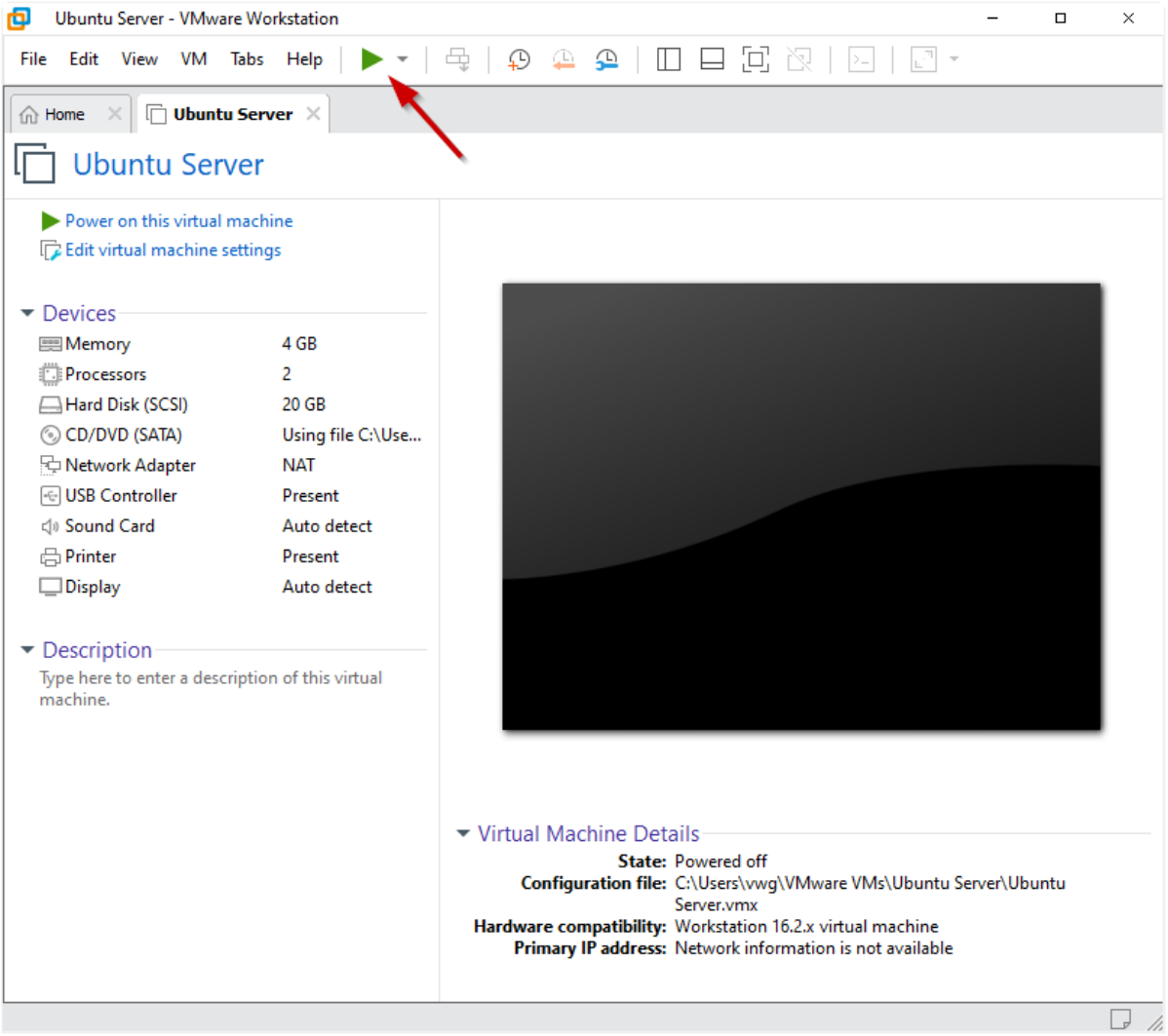
At this point we only need to change the bios to UEFI. To do this we click on `Edit virtual machine settings`.



Go to the tab `Options`, click on `Advanced` and select the option `UEFI`. Note that you'll also find the setting `Side channel mitigations` here in case you get a warning later on when starting your Virtual Machine.



You can now boot the VM by clicking the green arrow icon. This will boot the virtual machine and run the installation process.



Installation Ubuntu server

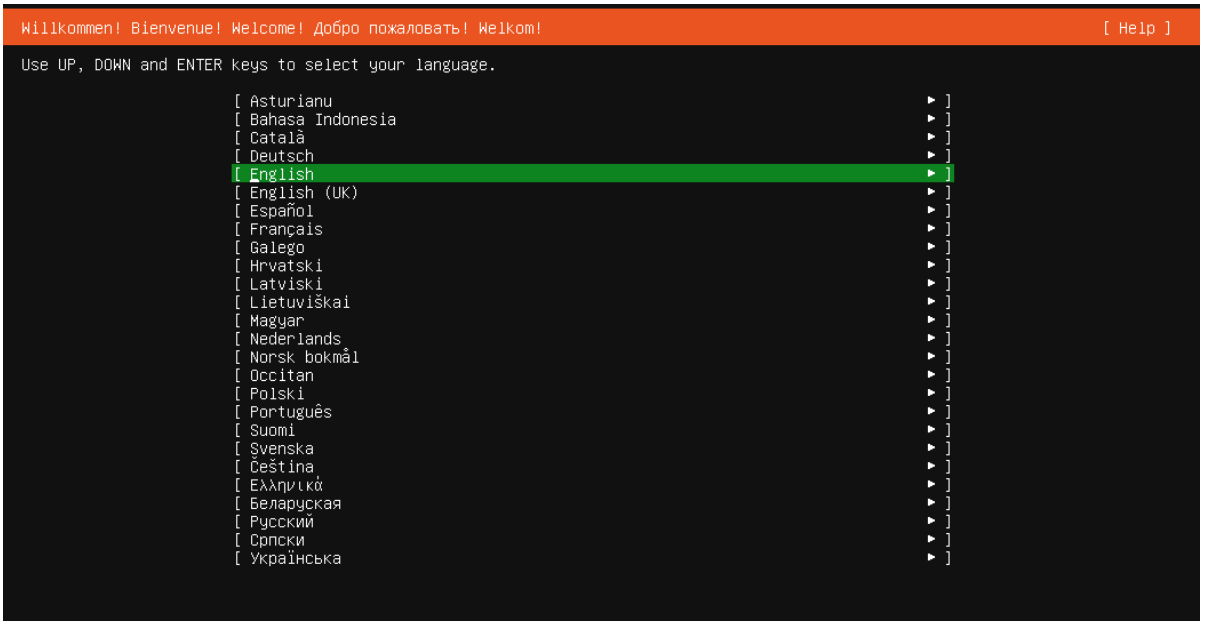
As described before we will use the distro Ubuntu. After creating and booting the virtual machine there will be an installation process that we need to run through. You will notice that there is no mouse pointer available. We will use the keypoint arrow keys & enter key to navigate through the steps.

?> Does booting the VM result in the error `This host supports Intel VT-x, but Intel VT-x is diabled`? You will have to activate the VT-X option in the BIOS of your laptop. More information can be found in this article.

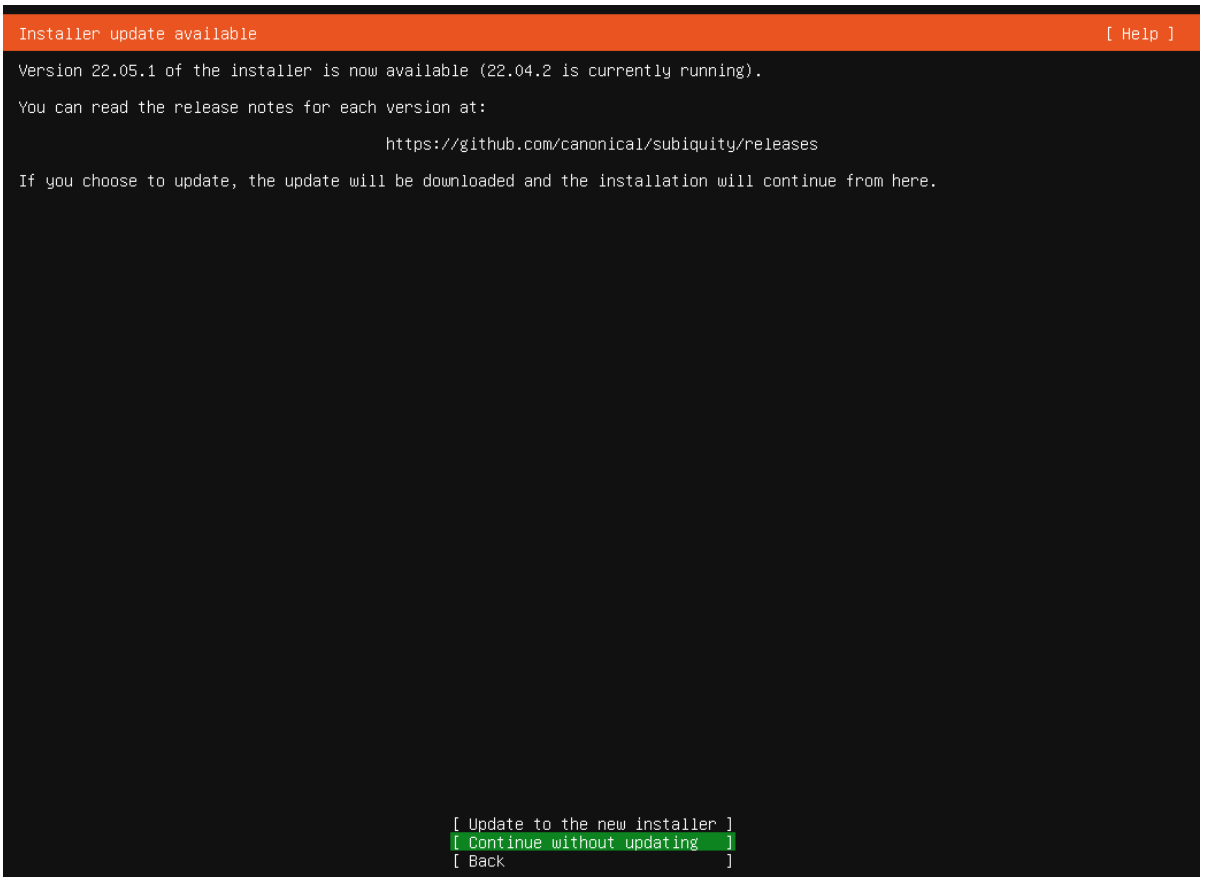
?> If you want to leave your VM and get your mouse back in the OS of your laptop (=Windows) you'll have to press `CTRL+ALT` !

We make the choice to Try or Install:

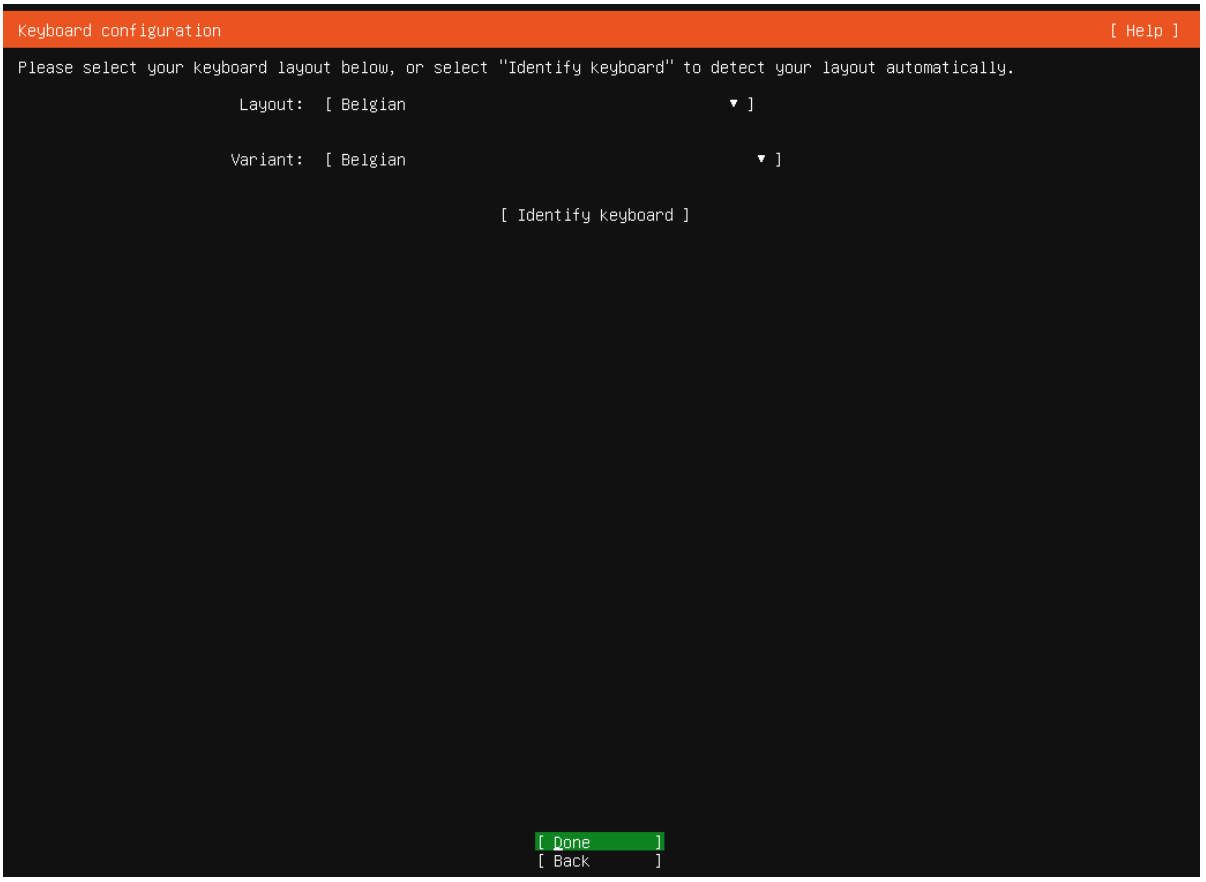
We start the installation process by selecting the language. We choose English:



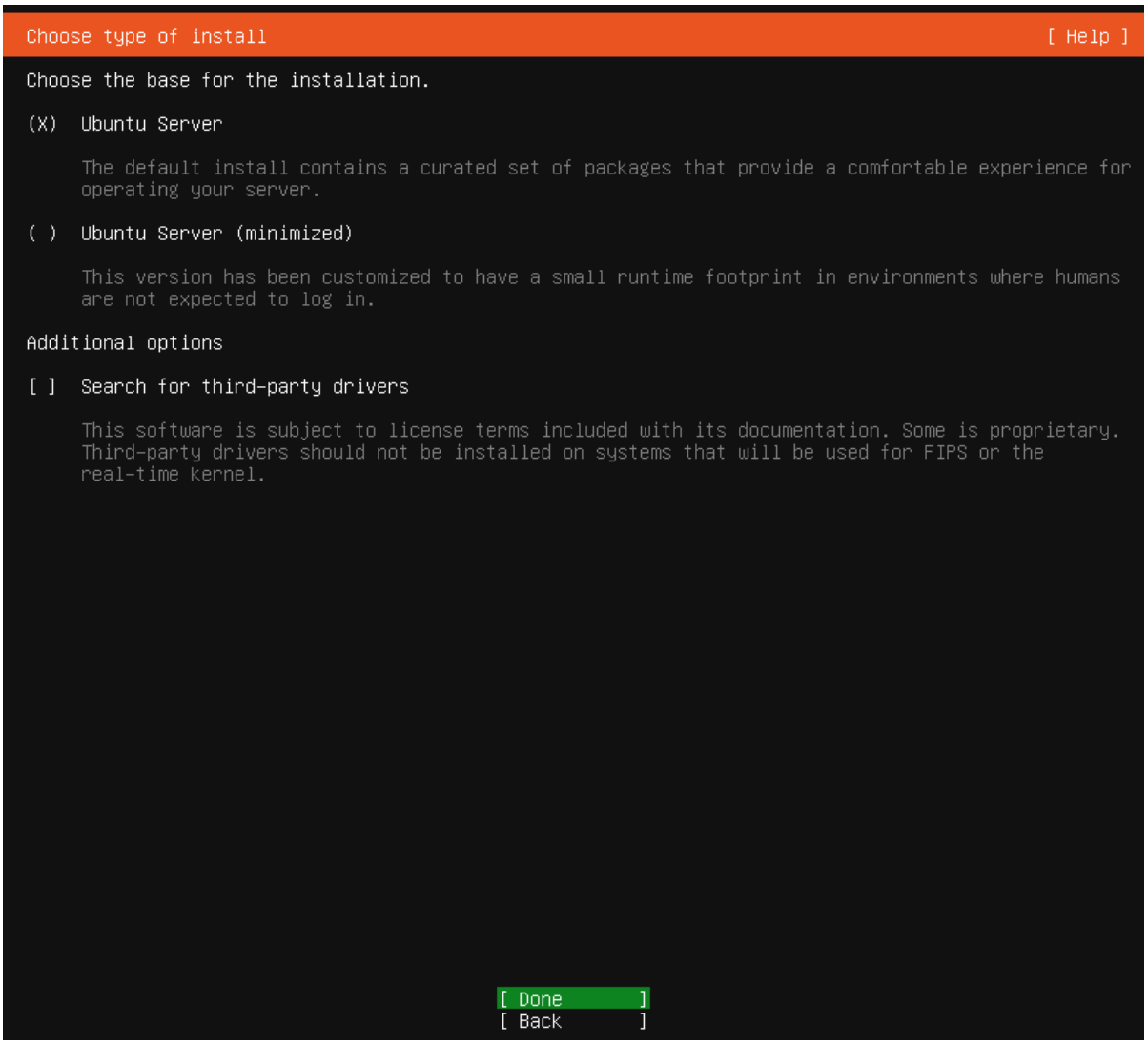
We skip the installer update if you see this screen:

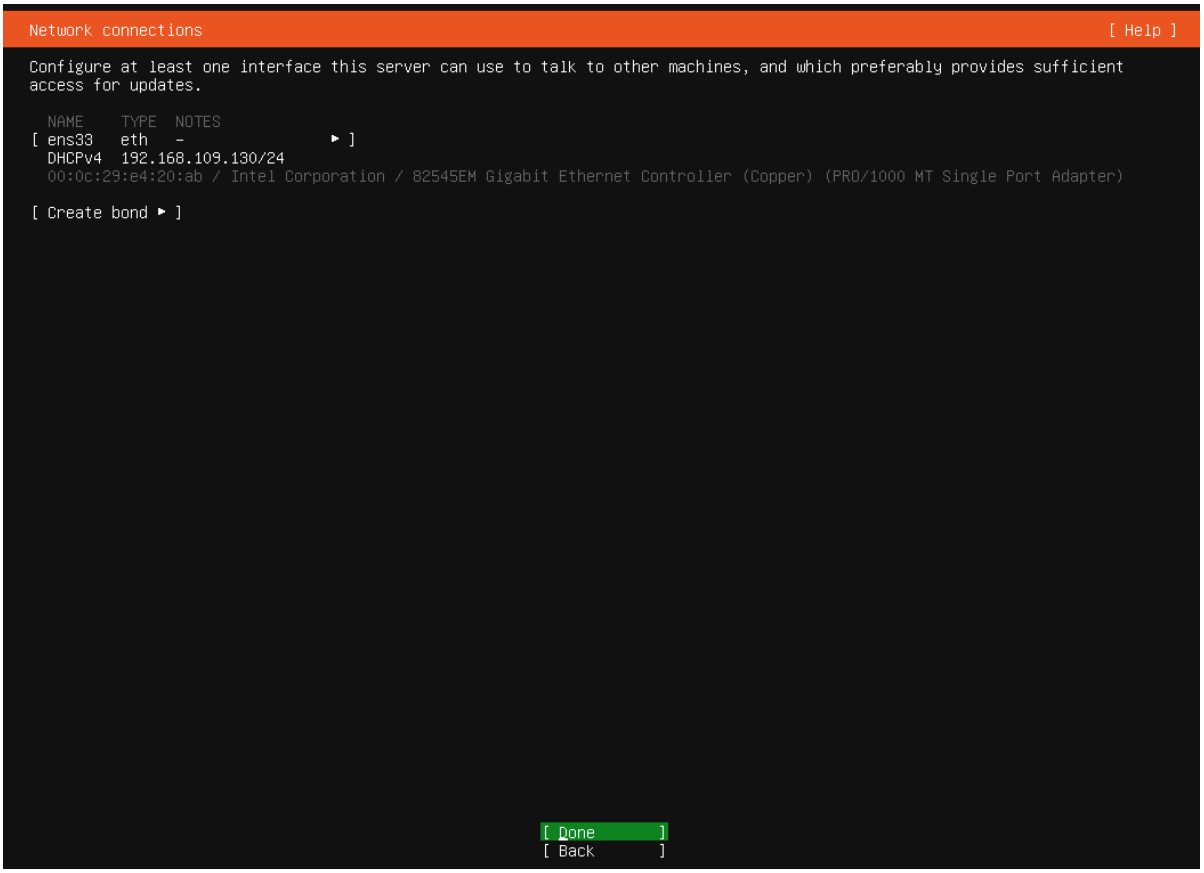


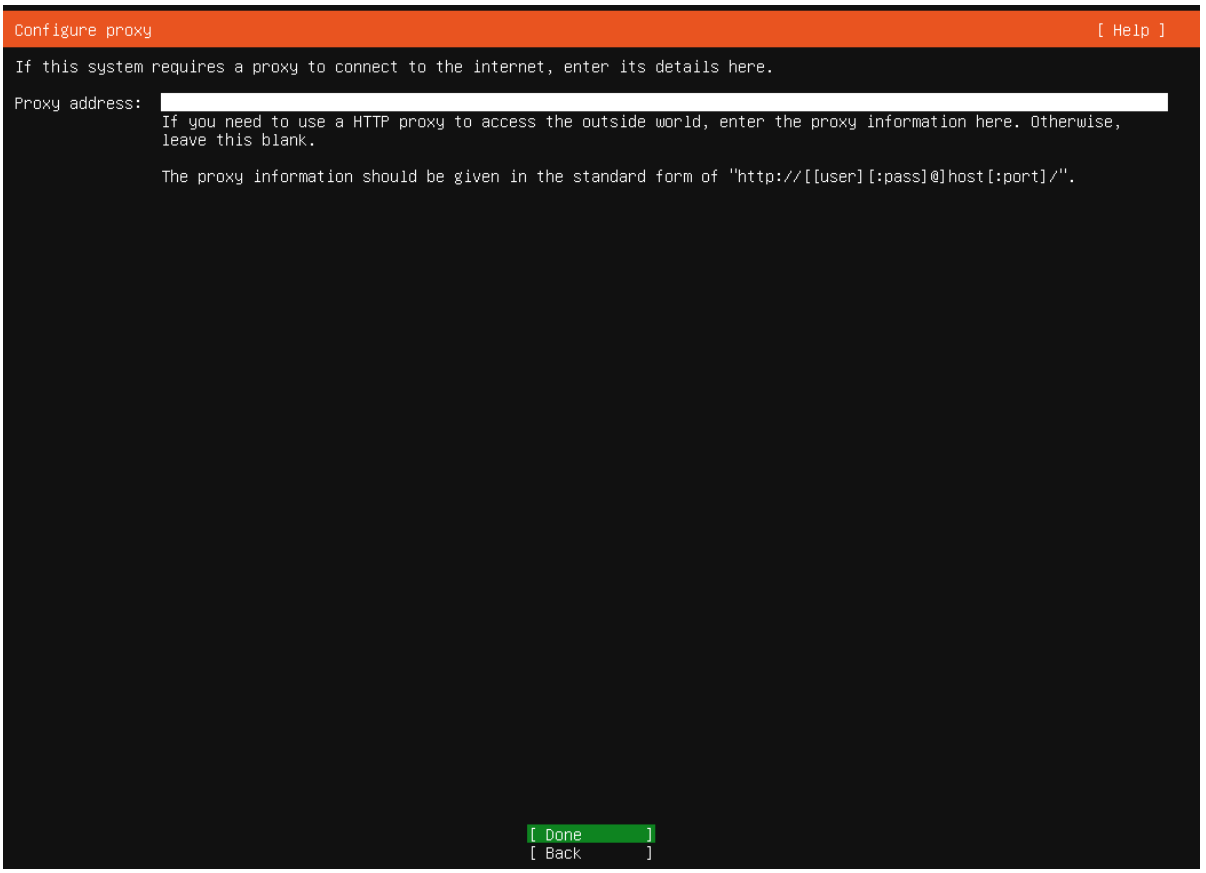
Choose the correct keyboard layout. For `azerty` select `Belgian`:

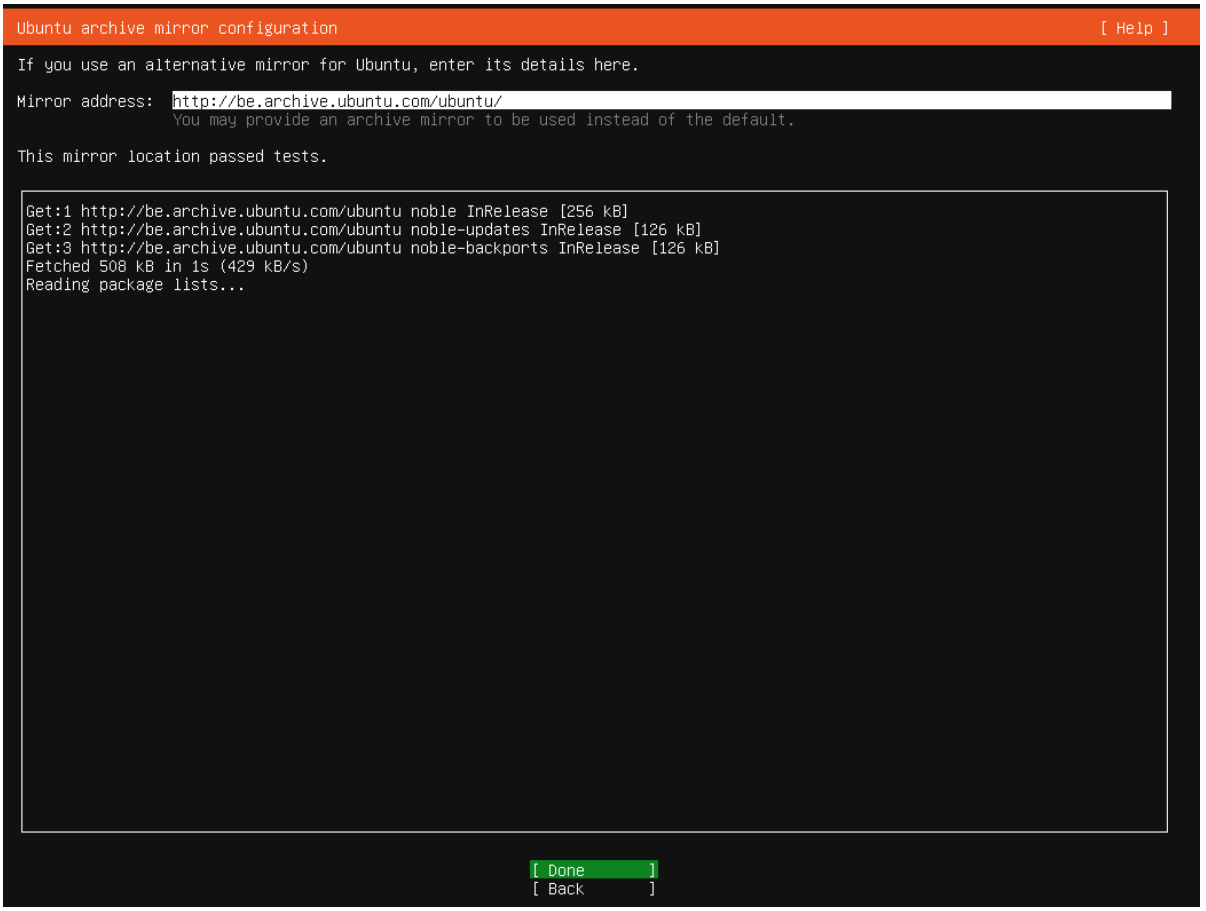


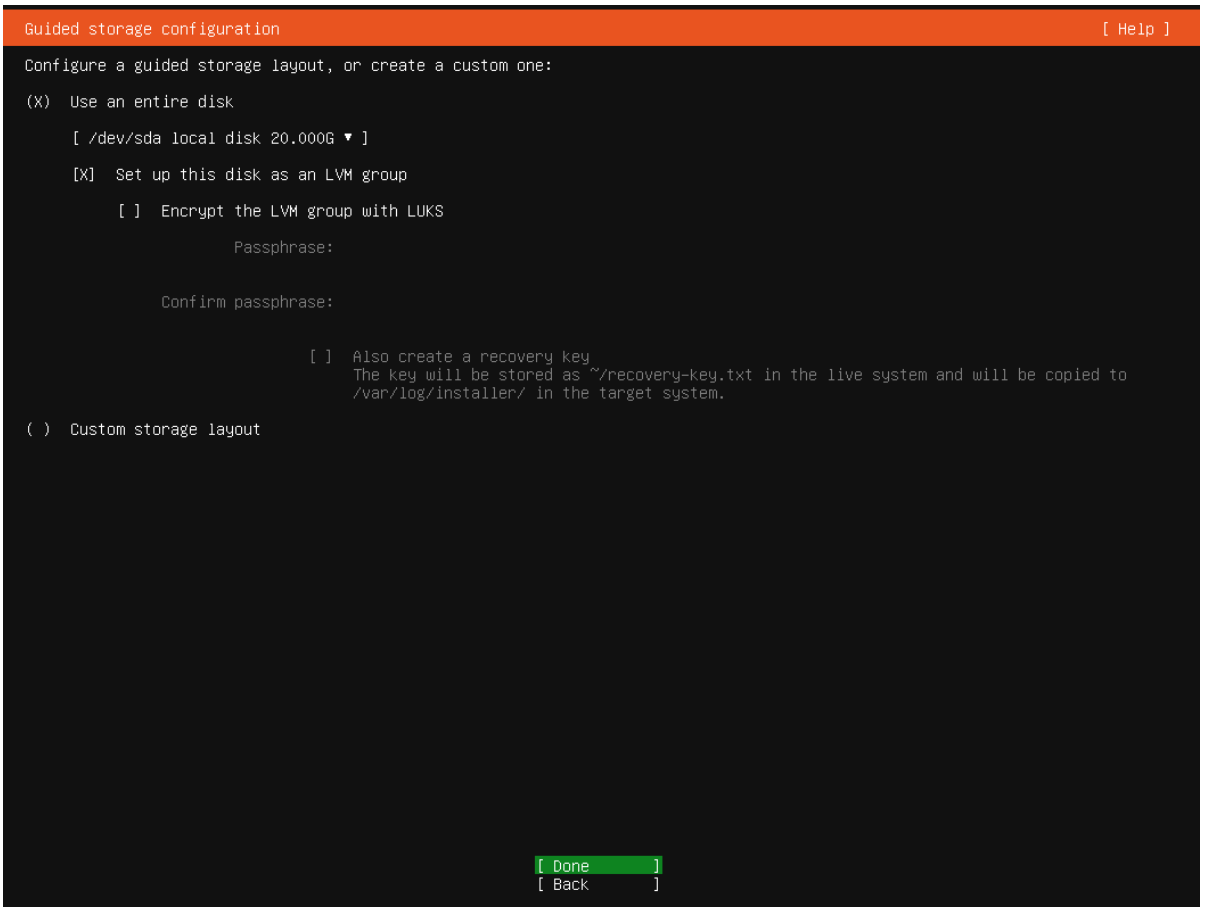
In the next 7 steps we dont make any changes. We just press `Done` or `Continue` :

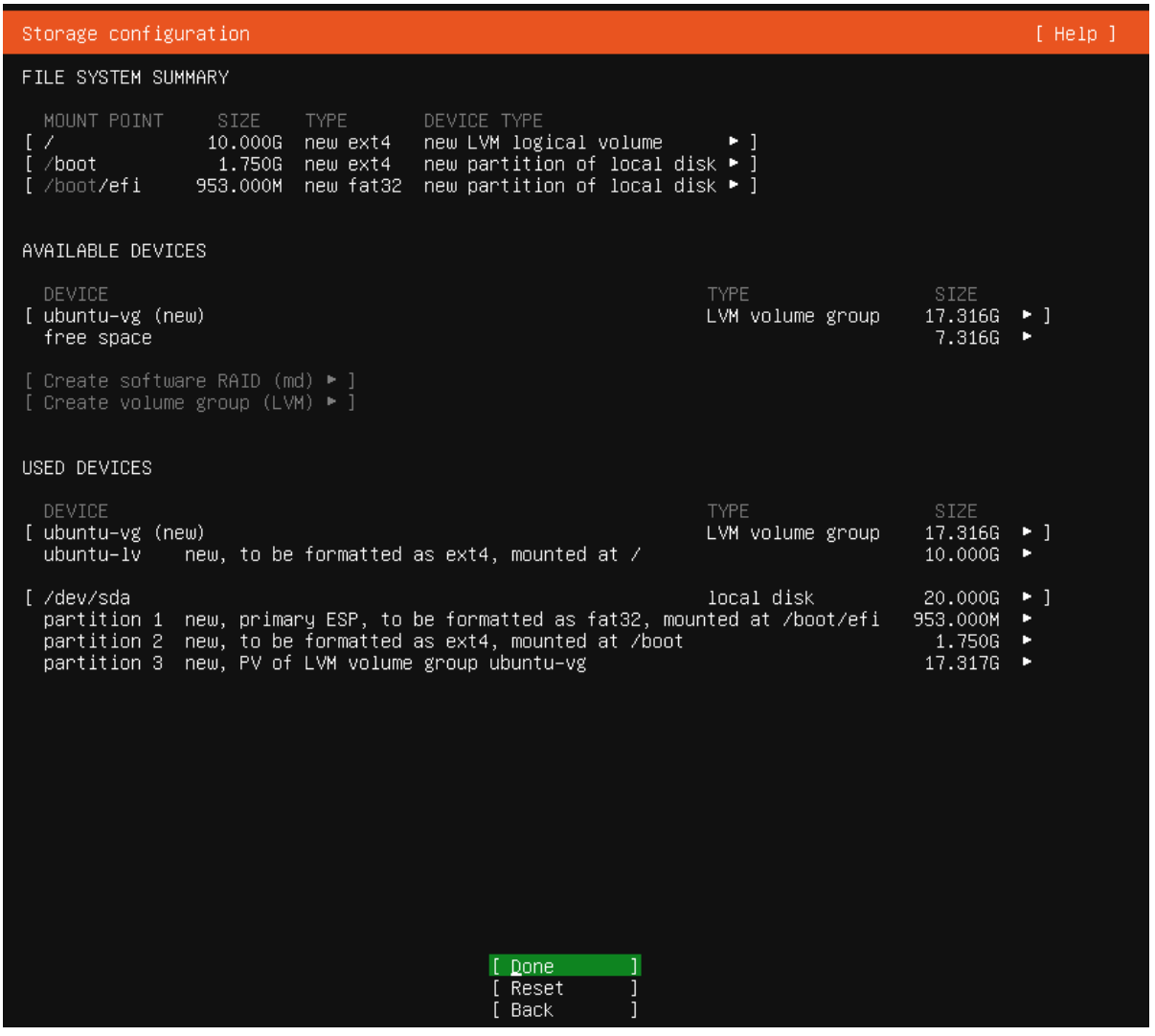

Choose type of install
[Help]
Choose the base for the installation.
(X) Ubuntu Server
The default install contains a curated set of packages that provide a comfortable experience for operating your server.
( ) Ubuntu Server (minimized)
This version has been customized to have a small runtime footprint in environments where humans are not expected to log in.
Additional options
[ ] Search for third-party drivers
This software is subject to license terms included with its documentation. Some is proprietary. Third-party drivers should not be installed on systems that will be used for FIPS or the real-time kernel.
[Done]
[Back]

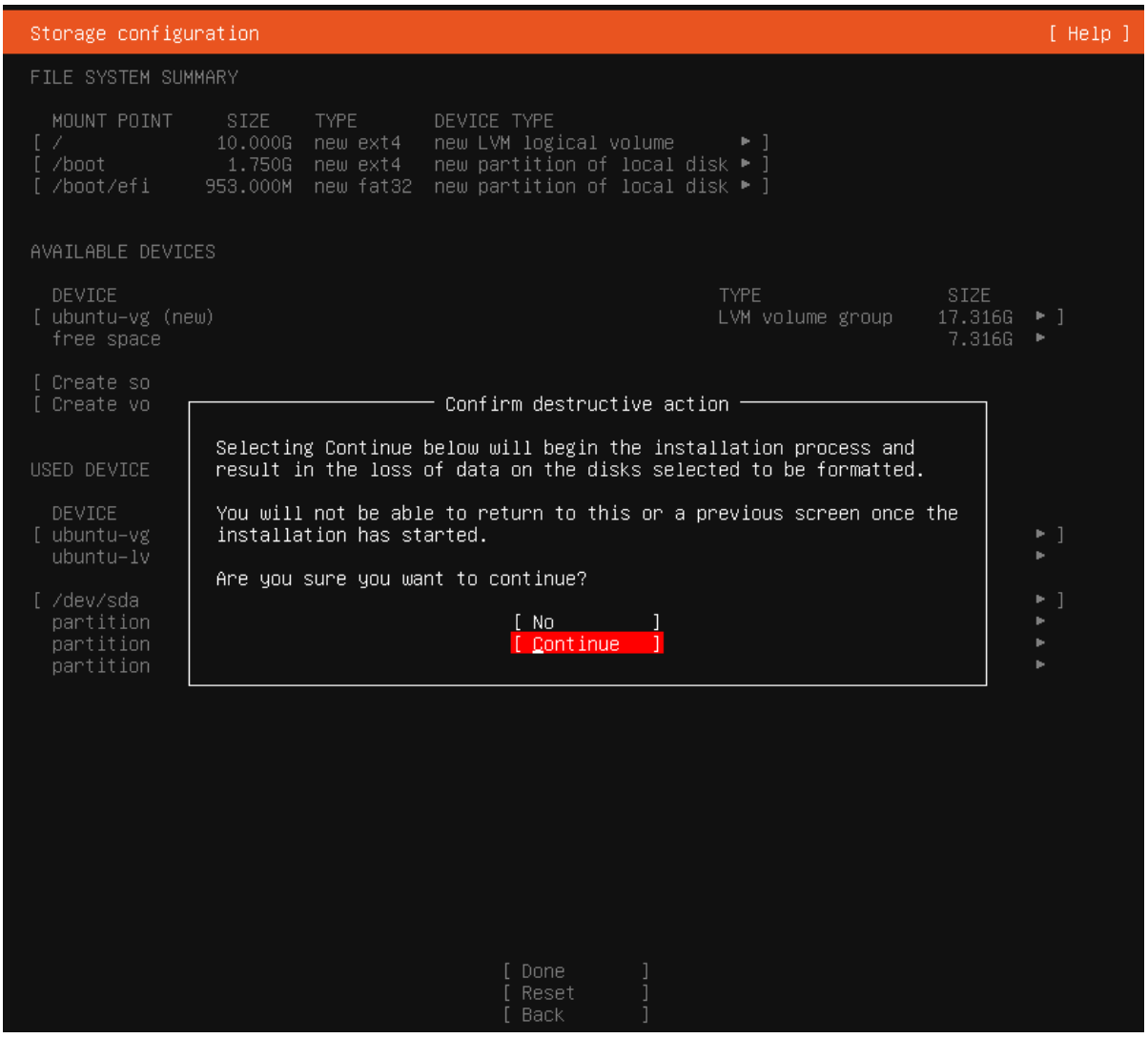

Network connections
[Help]
Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.
NAME TYPE NOTES
[ens33 eth - ▸]
DHCPv4 192.168.109.130/24
00:0c:29:e4:20:ab / Intel Corporation / 82545EM Gigabit Ethernet Controller (Copper) (PRO/1000 MT Single Port Adapter)
[Create bond ▸]
[Done]
[Back]


Configure proxy
[Help]
If this system requires a proxy to connect to the internet, enter its details here.
Proxy address:
If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.
The proxy information should be given in the standard form of "http://[[user][:pass]@]host[:port]/".
[Done]
[Back]


Ubuntu archive mirror configuration
[Help]
If you use an alternative mirror for Ubuntu, enter its details here.
Mirror address: http://be.archive.ubuntu.com/ubuntu/
You may provide an archive mirror to be used instead of the default.
This mirror location passed tests.
Get:1 http://be.archive.ubuntu.com/ubuntu noble InRelease [256 kB]
Get:2 http://be.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://be.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Fetched 508 kB in 1s (429 kB/s)
Reading package lists...
[Done]
[Back]

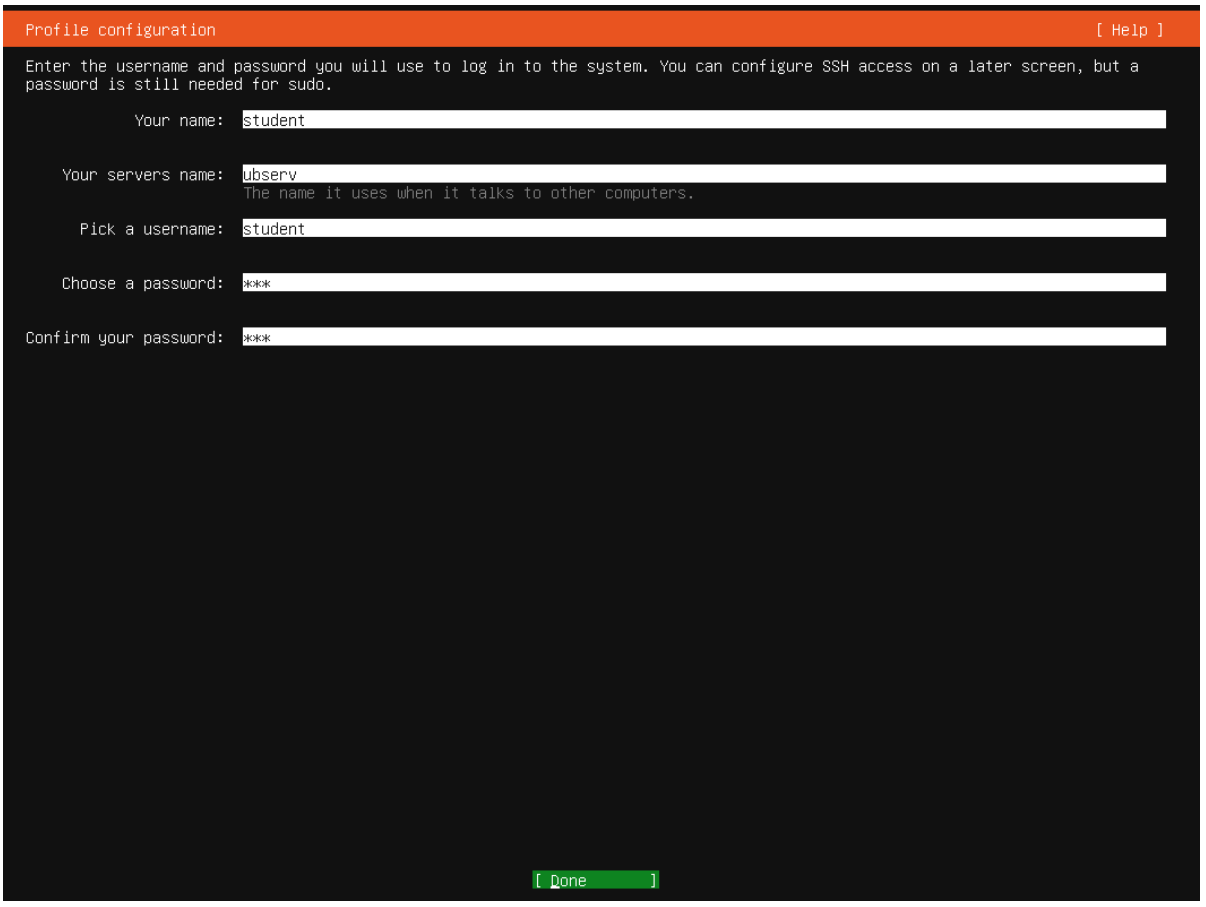

Guided storage configuration
[Help]
Configure a guided storage layout, or create a custom one:
(X) Use an entire disk
[/dev/sda local disk 20.000G ▾]
[X] Set up this disk as an LVM group
[ ] Encrypt the LVM group with LUKS
Passphrase:
Confirm passphrase:
[ ] Also create a recovery key
The key will be stored as ~/recovery-key.txt in the live system and will be copied to /var/log/installer/ in the target system.
( ) Custom storage layout
[Done]
[Back]


Storage configuration
[Help]
FILE SYSTEM SUMMARY
MOUNT POINT SIZE TYPE DEVICE TYPE
[/ 10.000G new ext4 new LVM logical volume ▸]
[/boot 1.750G new ext4 new partition of local disk ▸]
[/boot/efi 953.000M new fat32 new partition of local disk ▸]
AVAILABLE DEVICES
DEVICE TYPE SIZE
[ubuntu-vg (new) LVM volume group 17.316G ▸]
free space 7.316G ▸
[Create software RAID (md) ▸]
[Create volume group (LVM) ▸]
USED DEVICES
DEVICE TYPE SIZE
[ubuntu-vg (new) LVM volume group 17.316G ▸]
ubuntu-lv new, to be formatted as ext4, mounted at / 10.000G ▸
[/dev/sda local disk 20.000G ▸]
partition 1 new, primary ESP, to be formatted as fat32, mounted at /boot/efi 953.000M ▸
partition 2 new, to be formatted as ext4, mounted at /boot 1.750G ▸
partition 3 new, PV of LVM volume group ubuntu-vg 17.317G ▸
[Done]
[Reset]
[Back]

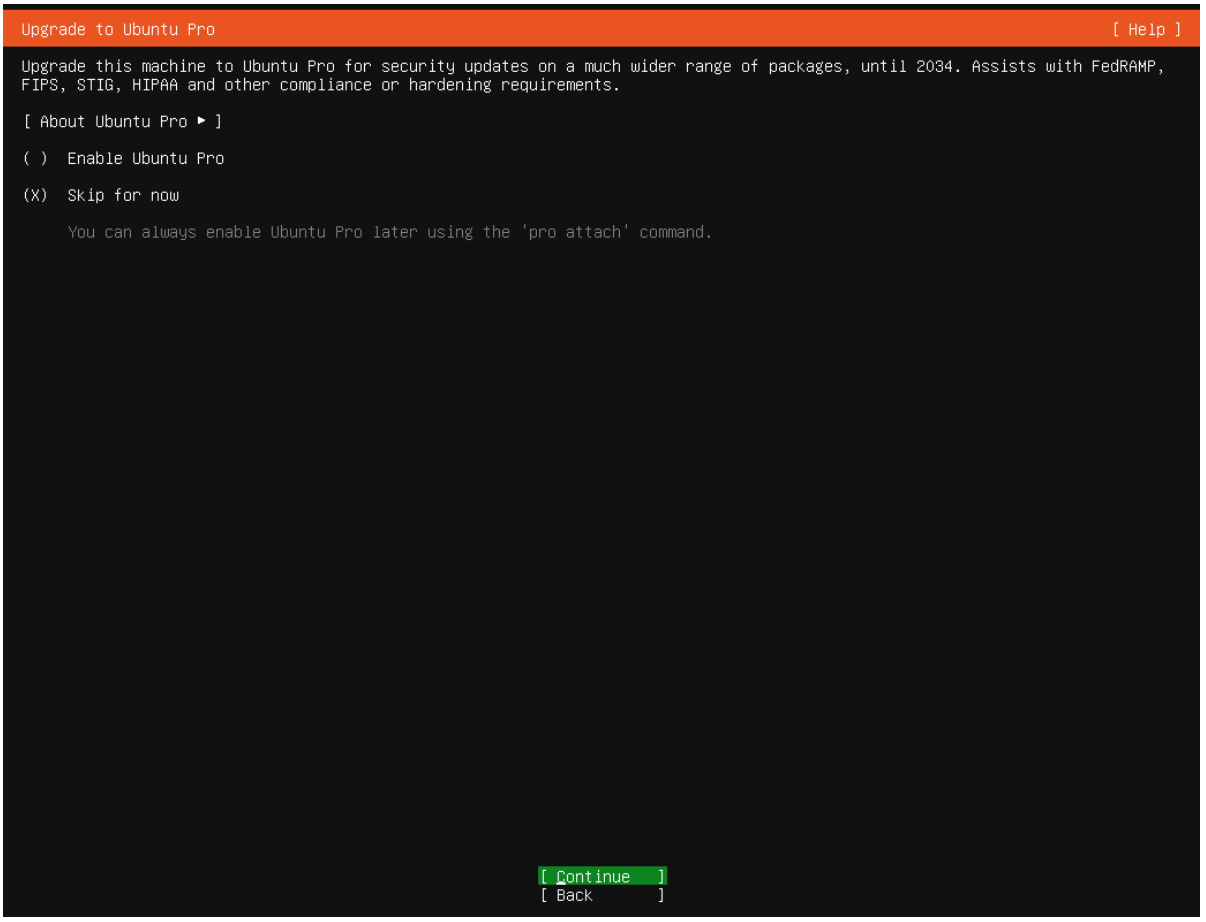


Next up we create a user account that we use to login to the operating system. We use following credentials:

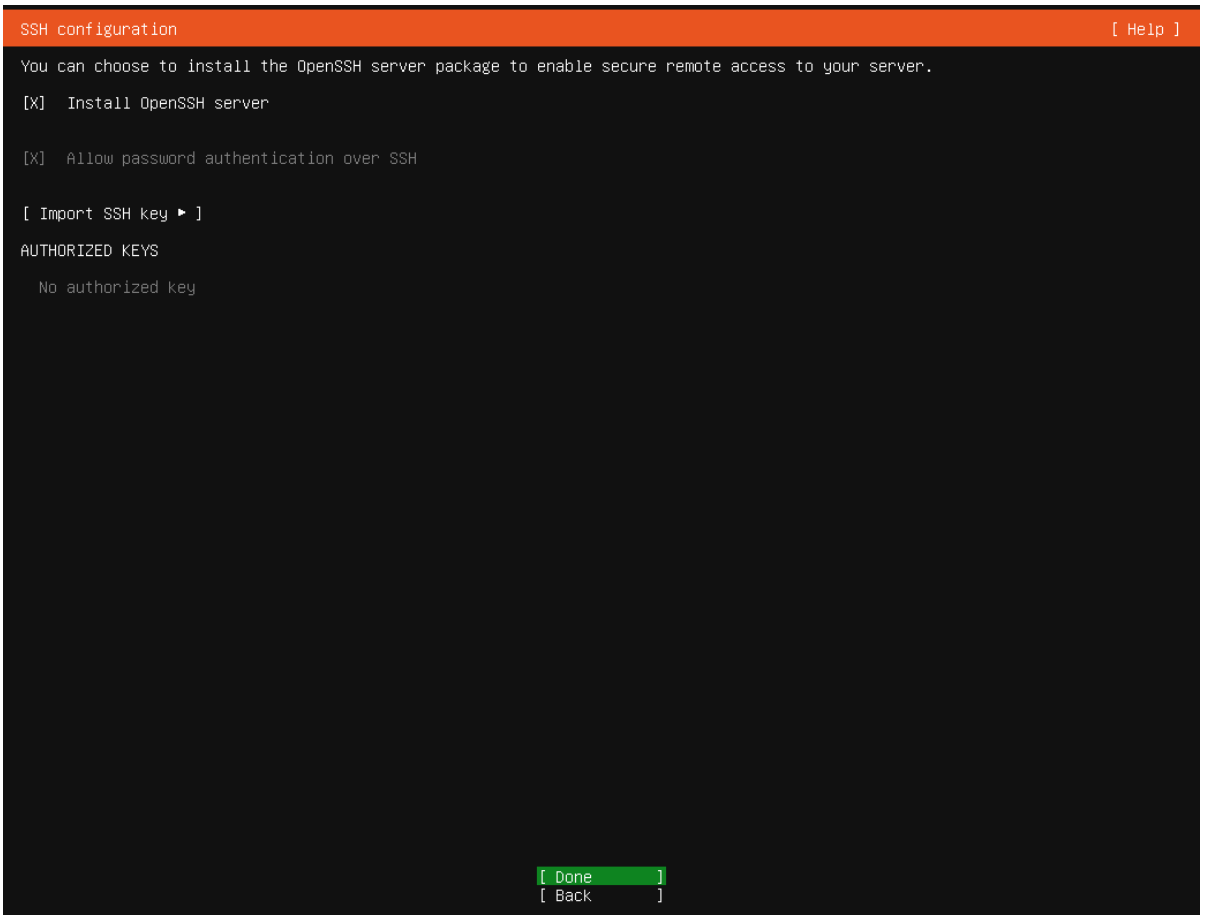
```
username: student
server name: ubserv
password: pxl
```

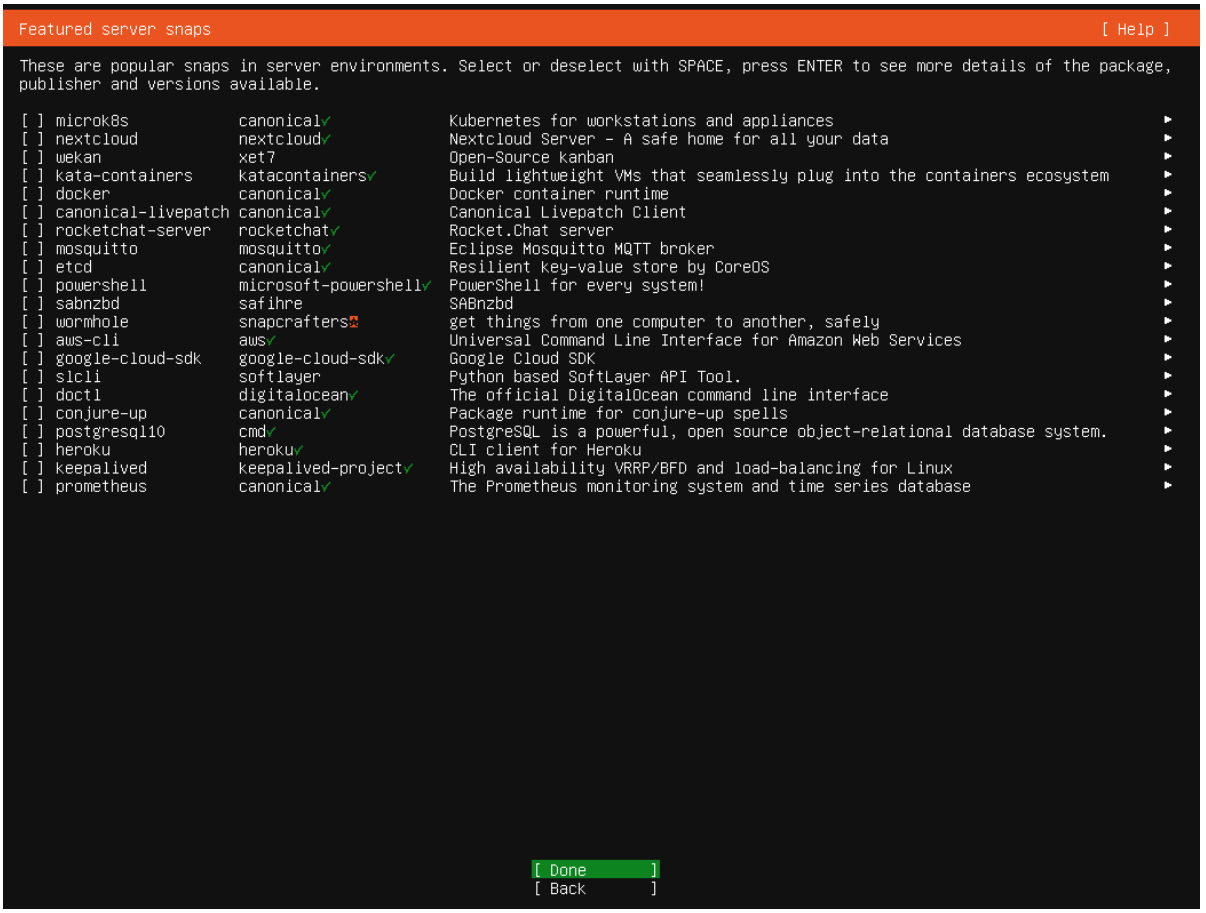


We answer the question to upgrade to Ubuntu Pro with `Skip for now`

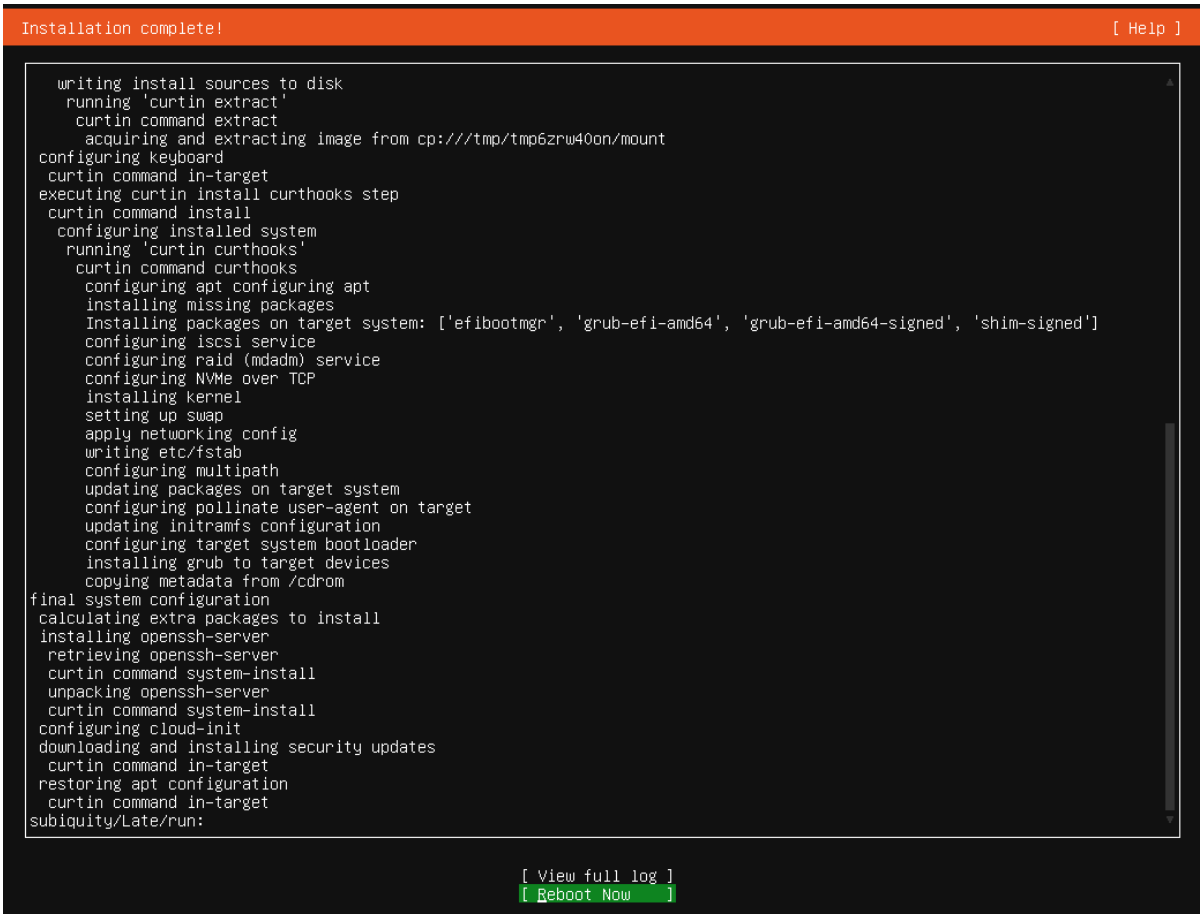


For Extra Packages we will only opt to install `SSH server`:

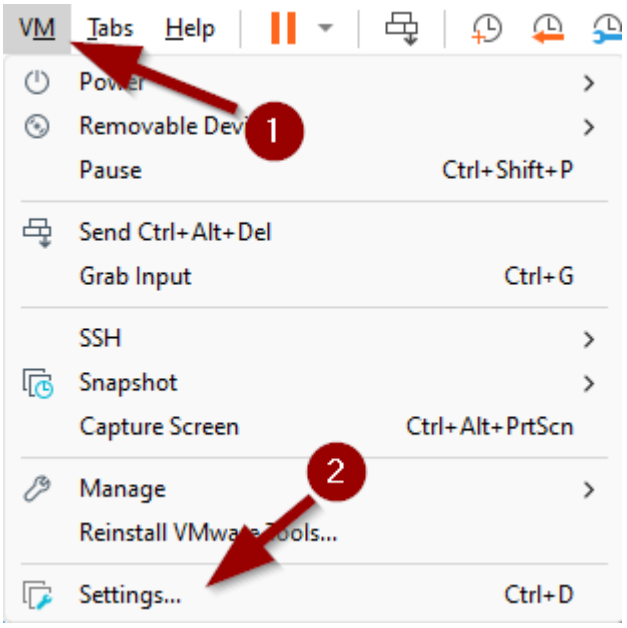

SSH configuration
[Help]
You can choose to install the OpenSSH server package to enable secure remote access to your server.
[X] Install OpenSSH server
[X] Allow password authentication over SSH
[Import SSH key ▸]
AUTHORIZED KEYS
No authorized key
[Done]
[Back]


Featured server snaps
[Help]
These are popular snaps in server environments. Select or deselect with SPACE, press ENTER to see more details of the package, publisher and versions available.
[ ] microk8s canonical✓ Kubernetes for workstations and appliances ▸
[ ] nextcloud nextcloud✓ Nextcloud Server - A safe home for all your data ▸
[ ] wekan xet7 Open-Source kanban ▸
[ ] kata-containers katacontainers✓ Build lightweight VMs that seamlessly plug into the containers ecosystem ▸
[ ] docker canonical✓ Docker container runtime ▸
[ ] canonical-livepatch canonical✓ Canonical Livepatch Client ▸
[ ] rocketchat-server rocketchat✓ Rocket.Chat server ▸
[ ] mosquitto mosquitto✓ Eclipse Mosquitto MQTT broker ▸
[ ] etcd canonical✓ Resilient key-value store by CoreOS ▸
[ ] powershell microsoft-powershell✓ PowerShell for every system! ▸
[ ] sabnzbd safihre SABnzbd ▸
[ ] wormhole snapcrafters get things from one computer to another, safely ▸
[ ] aws-cli aws✓ Universal Command Line Interface for Amazon Web Services ▸
[ ] google-cloud-sdk google-cloud-sdk✓ Google Cloud SDK ▸
[ ] slcli softlayer Python based SoftLayer API Tool. ▸
[ ] doctl digitalocean✓ The official DigitalOcean command line interface ▸
[ ] conjure-up canonical✓ Package runtime for conjure-up spells ▸
[ ] postgresql10 cmd✓ PostgreSQL is a powerful, open source object-relational database system. ▸
[ ] heroku heroku✓ CLI client for Heroku ▸
[ ] keepalived keepalived-project✓ High availability VRRP/BFD and load-balancing for Linux ▸
[ ] prometheus canonical✓ The Prometheus monitoring system and time series database ▸
[Done]
[Back]

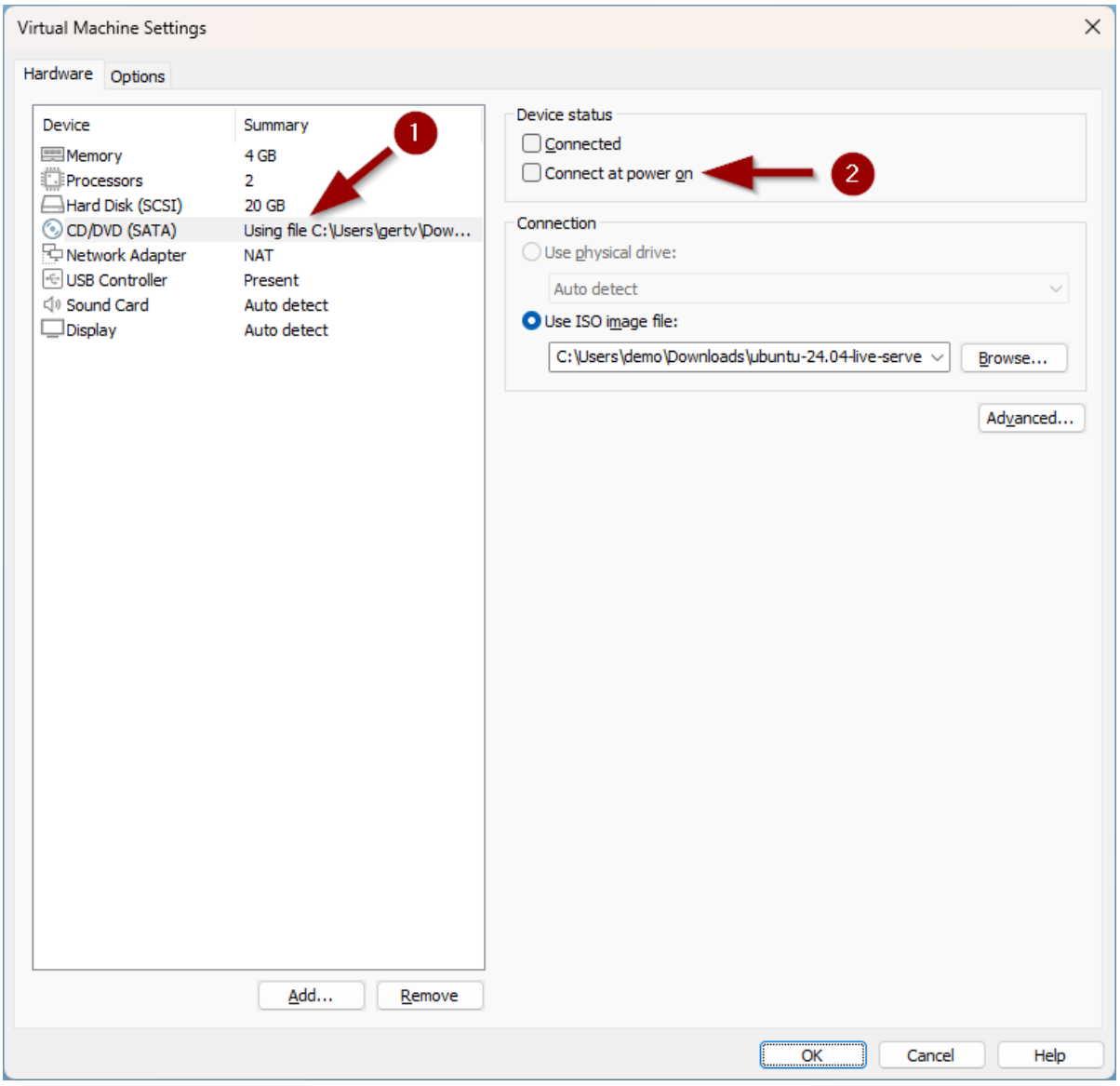
The operating system will be installed and configured. After a while the `Reboot now` option will appear. This indicates that the installation is complete:



When we see the screen where they ask to push the 'enter'-key, we first go into the settings of the Virtual Machine :



There we uncheck that the CD/DVD has to be connected at boot time (otherwise the installation will load again each time we boot)



And then we push the 'enter'-key

Once the server is rebooted, you will have to press the `enter` key again to see the login prompt.

Now you can log in and start working on your server. After the text login you can type `student` and push enter. Then you have to type your password (you don't see what you are typing) and push enter.