Linux Installation on UTM

(For Apple Silicon users only)

Practical Class 1-b

Systems and Storage Laboratory
Department of Computer Science and Engineering
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UTM

- **UTM is the virtualization application only for macOS**
  - It extends the capabilities of your existing mac so that it can run multiple OSs, inside multiple virtual machines, at the same time.

- **Why Useful?**
  - Apple Silicon is supported
    - Employs Apple's Hypervisor virtualization framework to run ARM64 operating systems on Apple Silicon
  - Running multiple operating systems simultaneously
  - Easier software installations
  - Testing and disaster recovery
  - Infrastructure consolidation

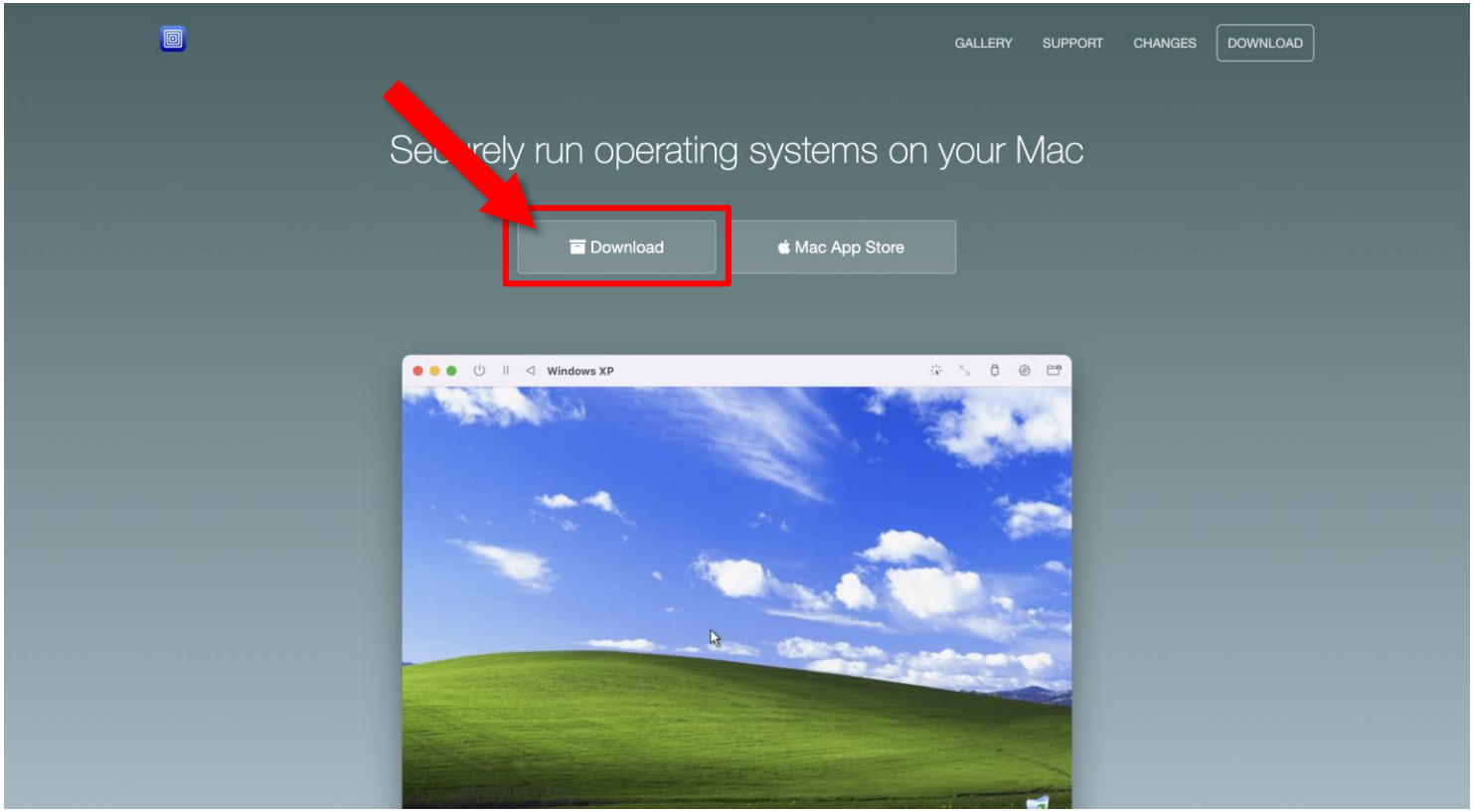
UTM

- **Recommended setting**
  - disk >= 40GB, RAM >= 4GB, # CPU >= 2
  - The more the better. Especially for Disk capacity, because we will compile our own kernel in the following weeks.
- **Use Shared folders for file sharing between Linux VM and your host machine.**

How to install UTM

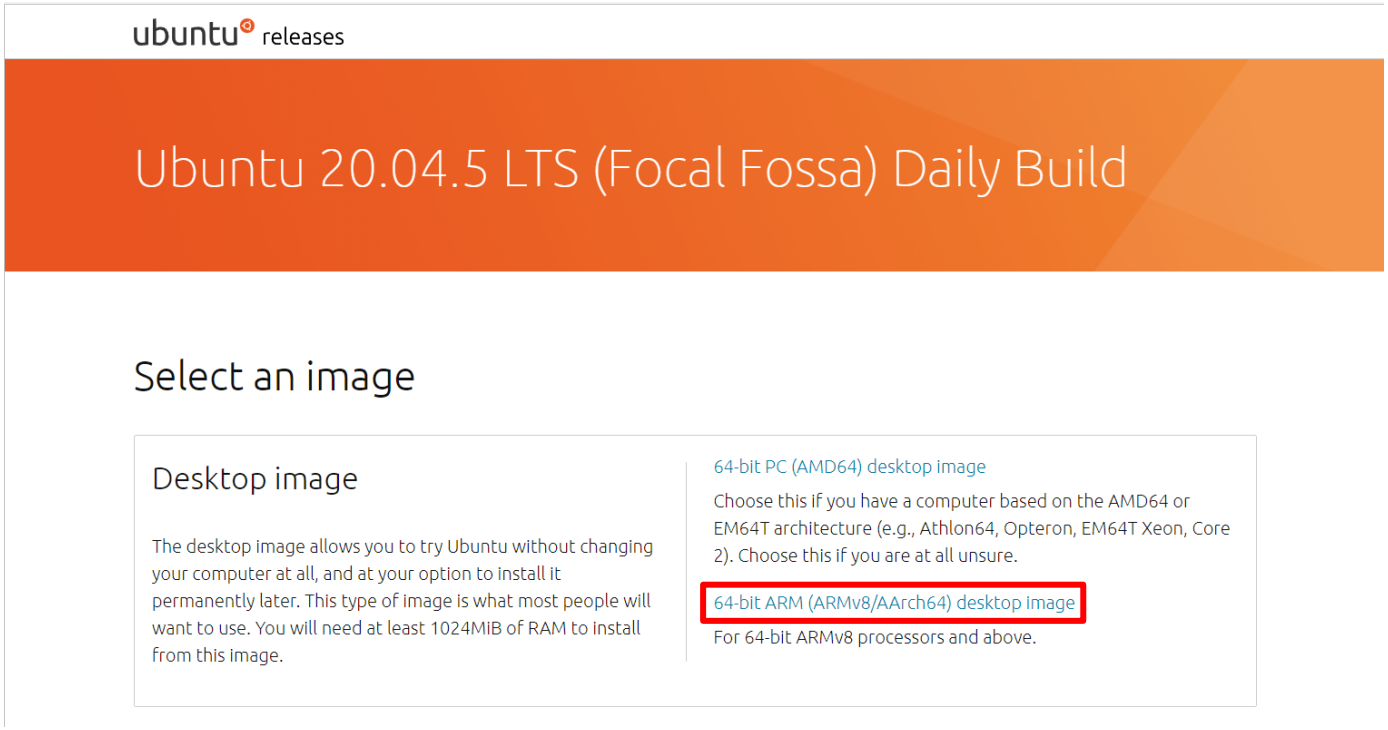
❖ Installation

- Download UTM 3.X.X disk image
  - Source : https://mac.getutm.app/
- You can also install through Homebrew (`brew install utm`)



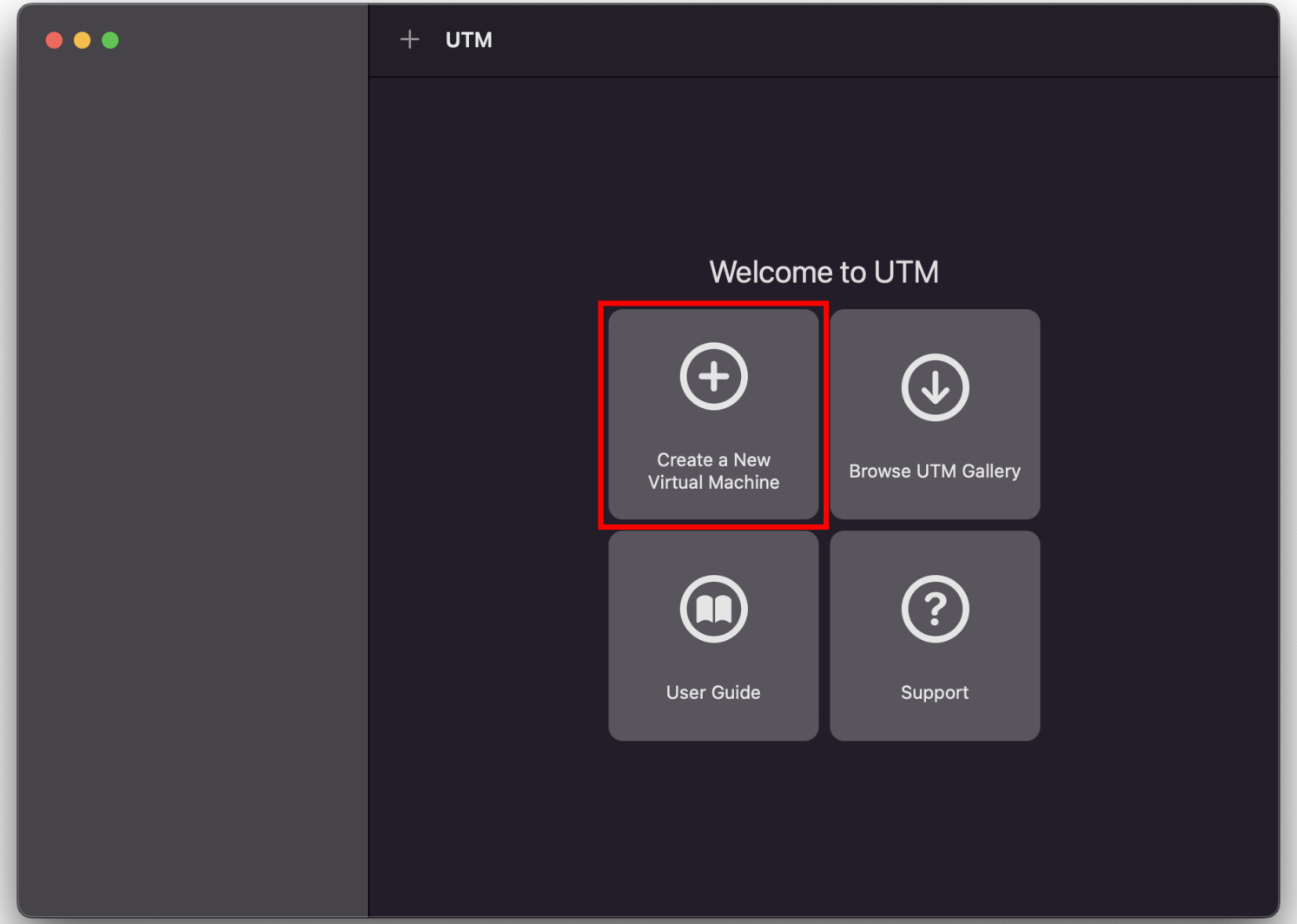
How to install Linux on UTM

- **Preparations**
  - Install UTM 3.X.X
- **Download Ubuntu 20.04 for ARM image file**
  - Currently Ubuntu Desktop is only available in Daily Build version
  - Link: https://cdimage.ubuntu.com/focal/daily-live/current/



How to install Linux on UTM

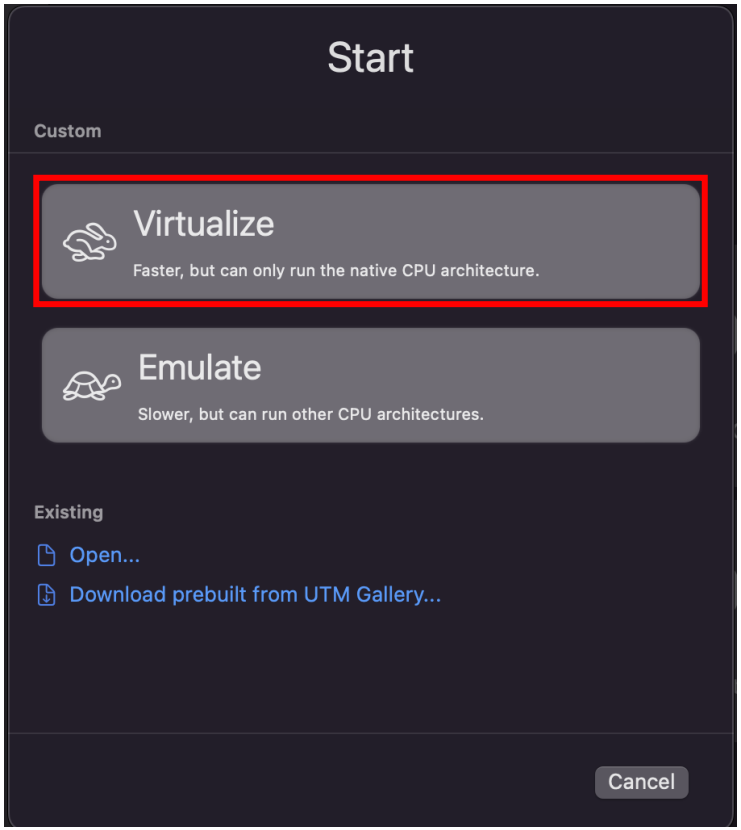
- Create Virtual Machine

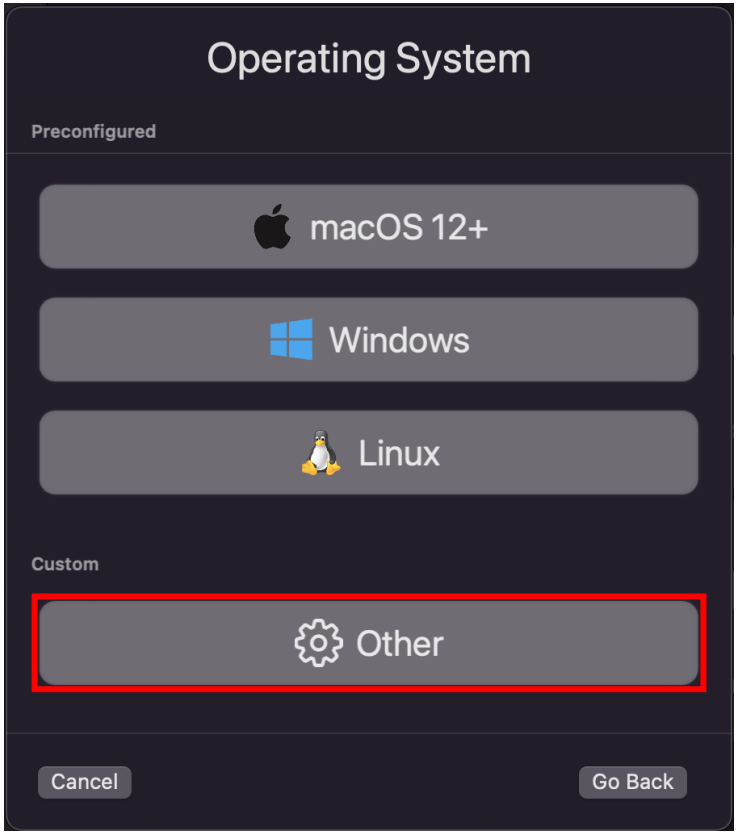


How to install Linux on UTM

❖ Create Virtual Machine

- Select Virtualize -> Operating System: Other

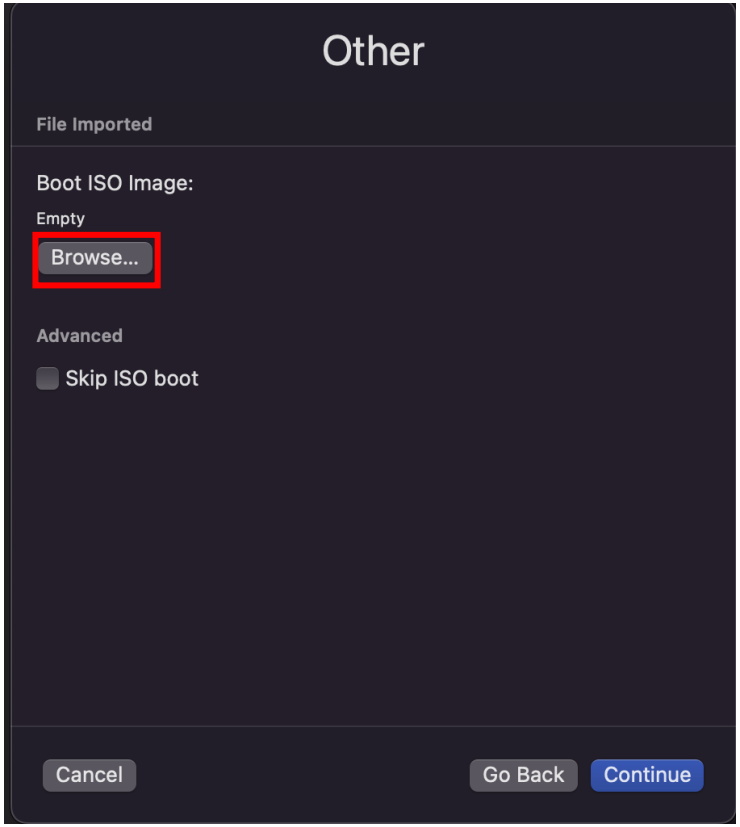


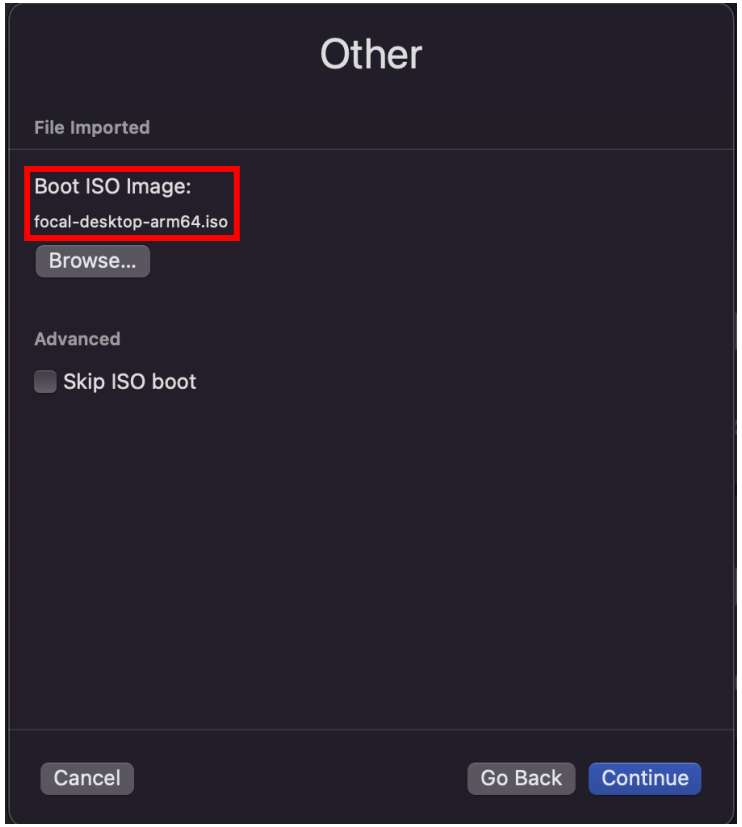


How to install Linux on UTM

❖ Create Virtual Machine

- Select Ubuntu for ARM iso image

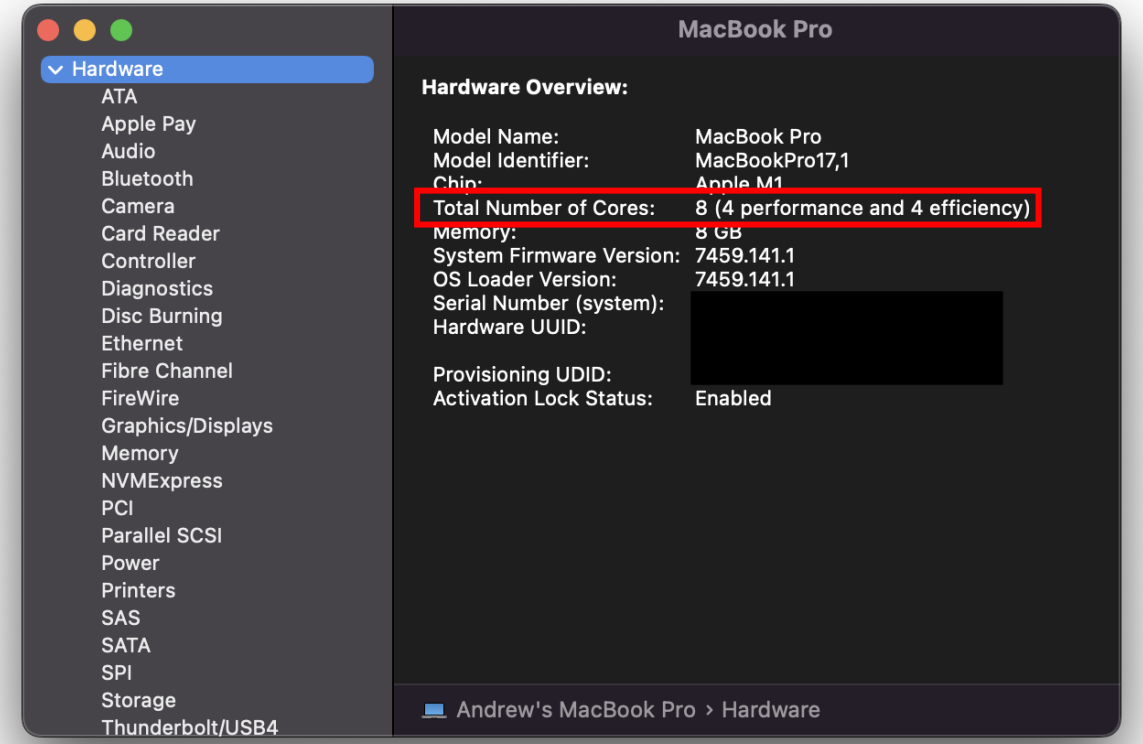




How to install Linux on UTM

❖ Create Virtual Machine

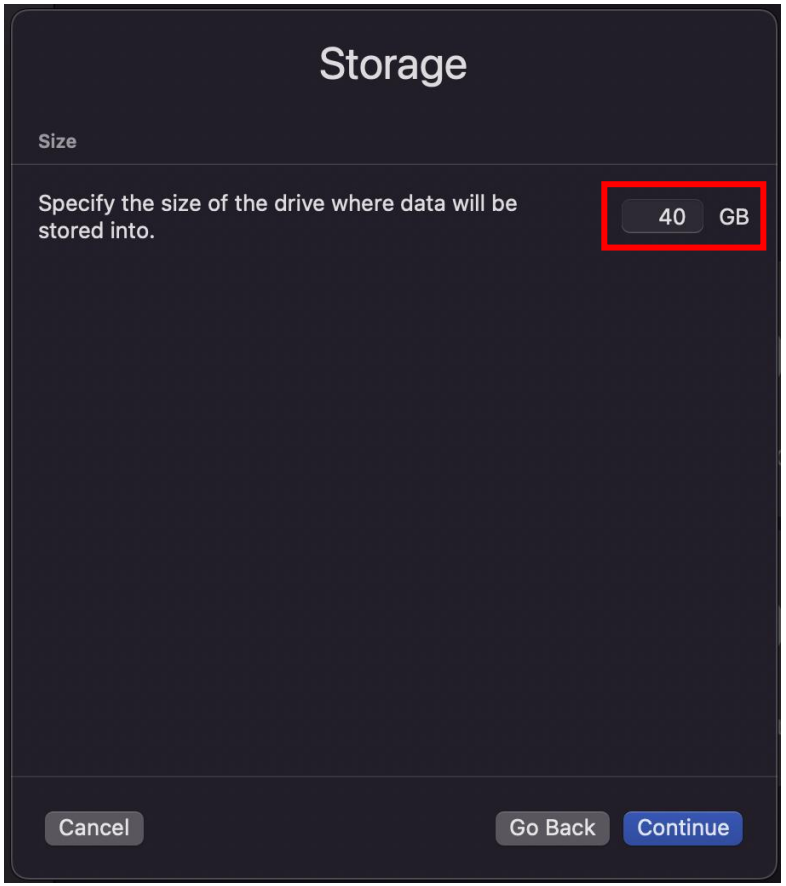
- Minimum size RAM should be at least 4GB
- The number of processors should be lower than your machine's physical cores
  - You can keep the default setting



How to install Linux on UTM

❖ Create a Virtual Machine

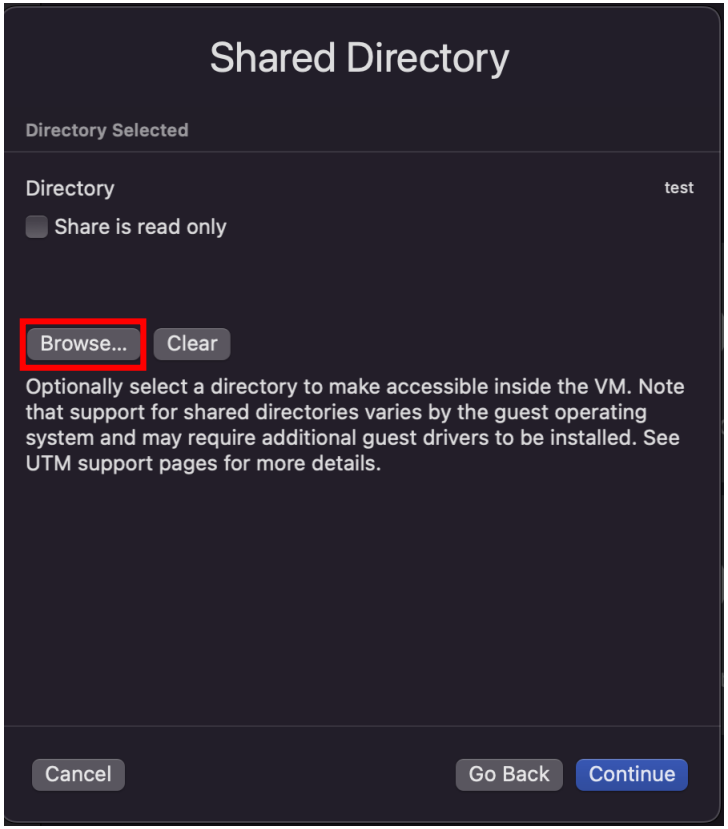
- Virtual Hard disk size should be at least 40 GB

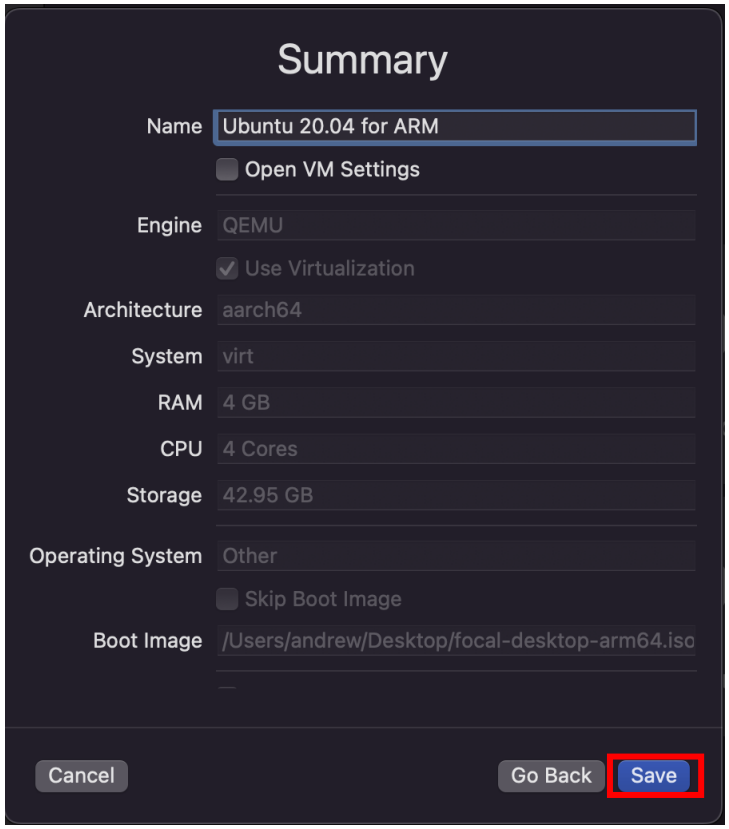


How to install Linux on UTM

❖ Create a Virtual Machine

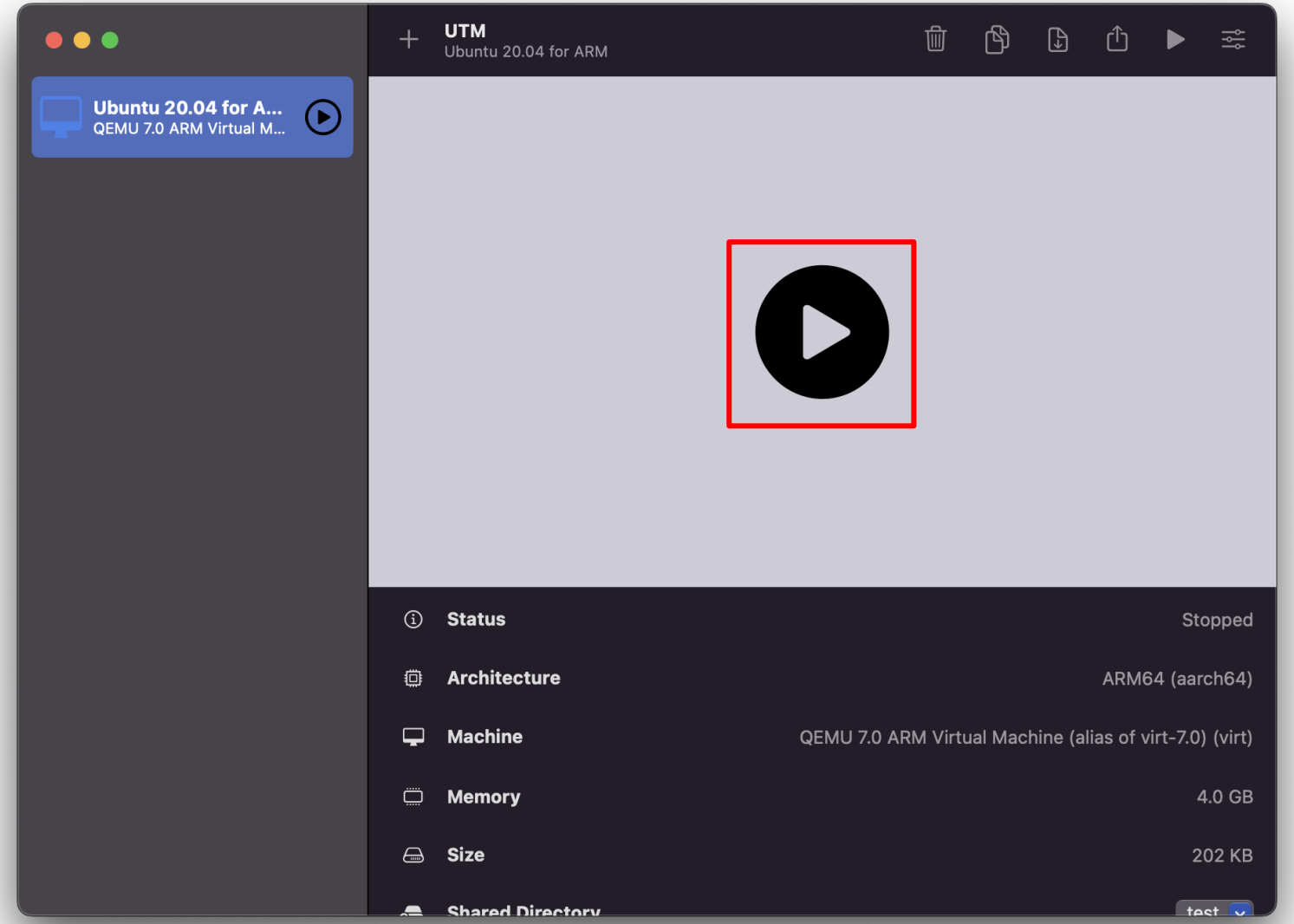
- You can connect to the shared directory or skip it for later
- In the summary step, you can proceed with the default options





How to install Linux on UTM

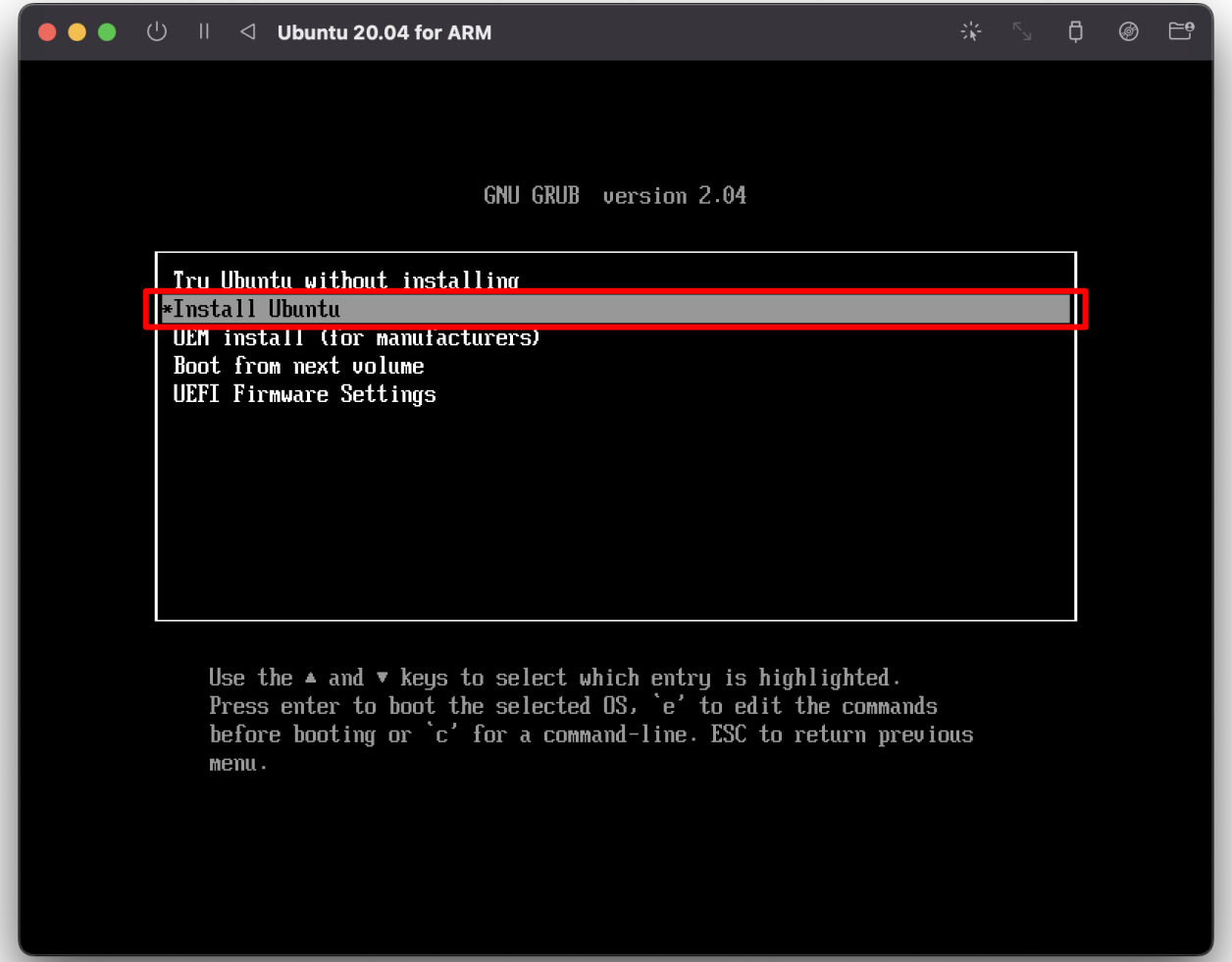
- Start a Virtual Machine



How to install Linux on UTM

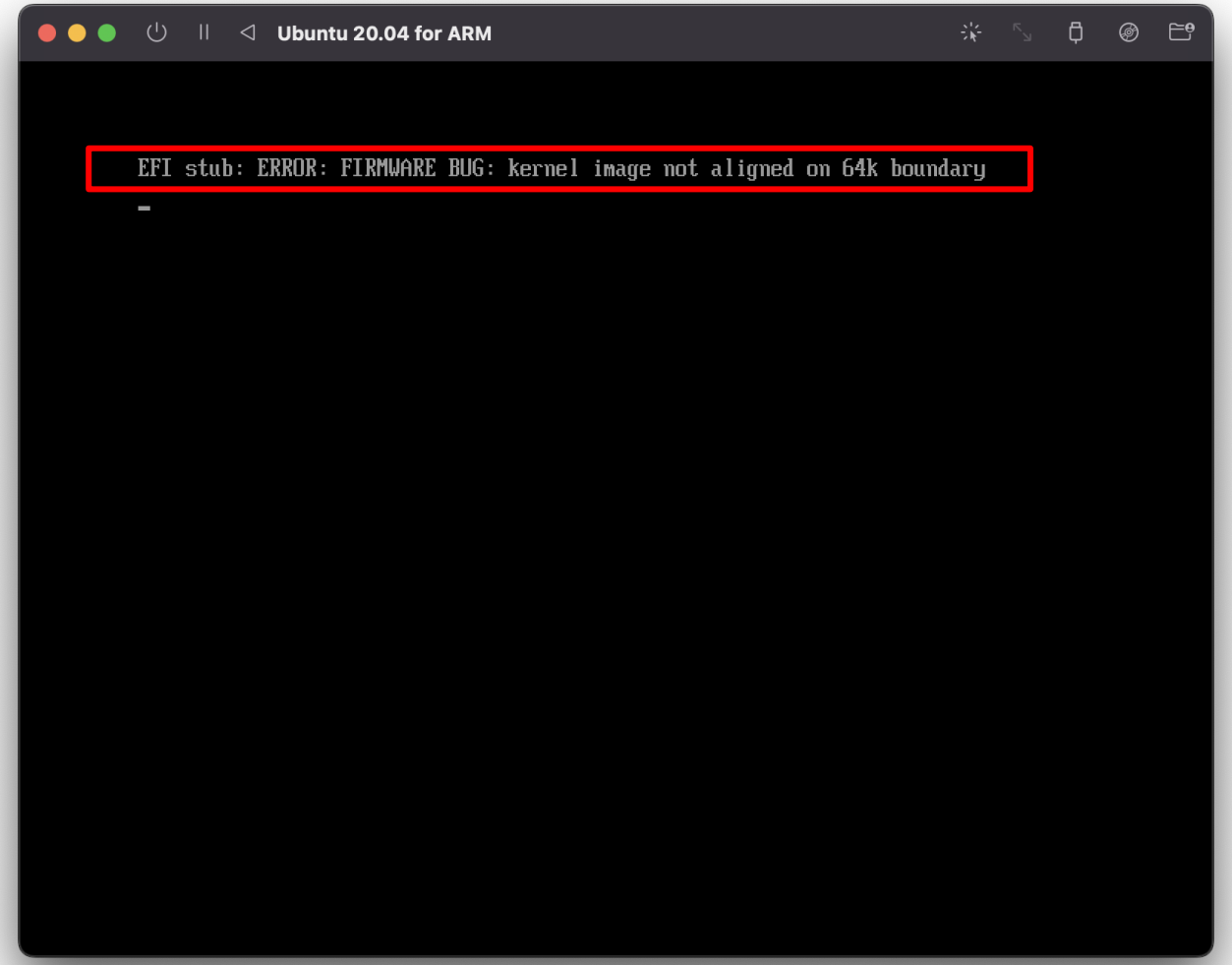
❖ Boot Menu

- Select ‘Install Ubuntu’ with the keyboard and press Enter



How to install Linux on UTM

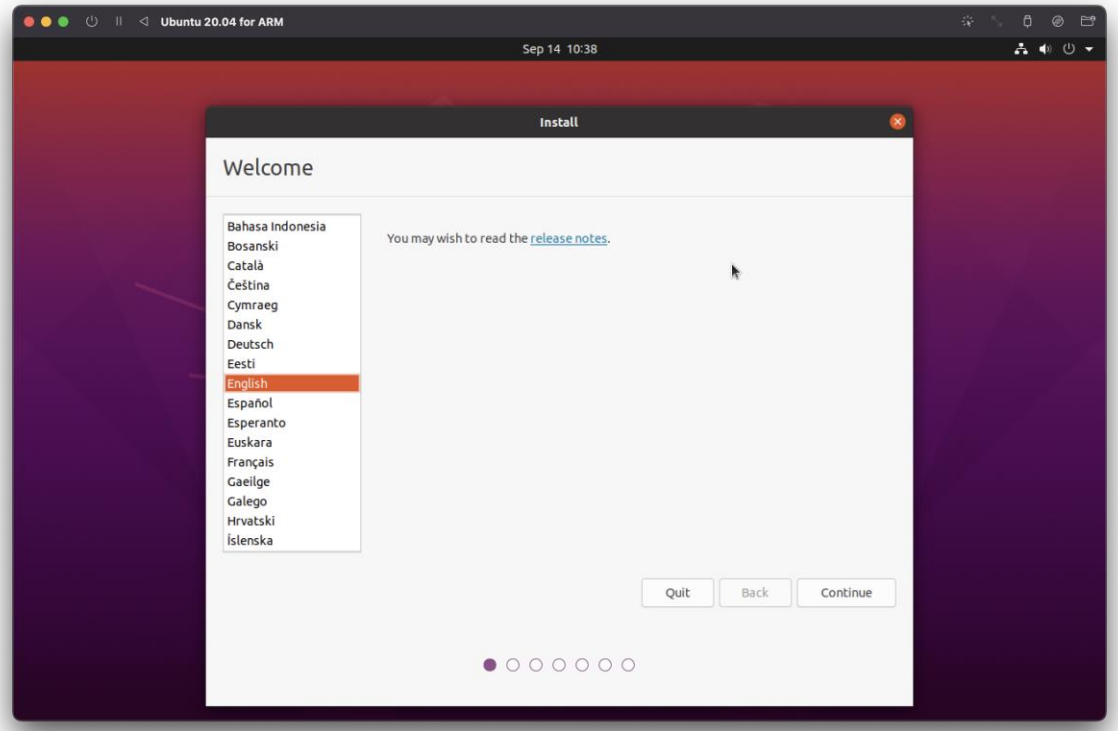
- **Don’t Painc**
  - Please be patient if you meet this screen



How to install Linux on UTM

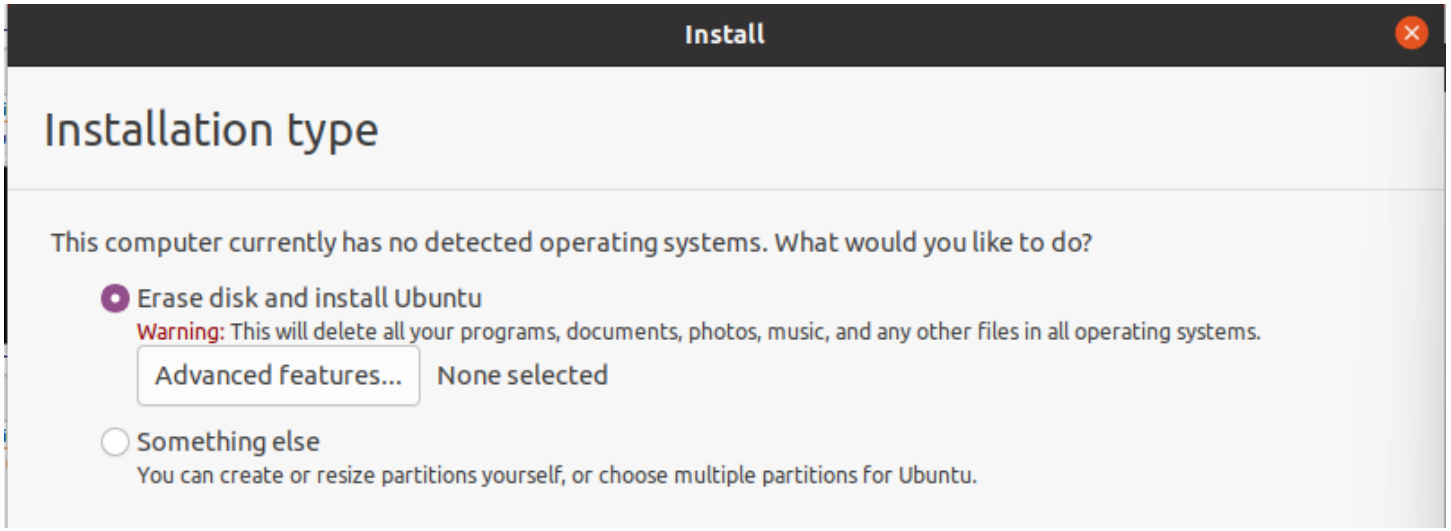
❖ Start to install

- You will meet our friendly installation screen sooner
- There are some personal configuration options that Ubuntu asks you to choose, which are not that important
- The only configuration we should pay attention to is “where to install the OS”
- (see next slide)



How to install Linux on UTM

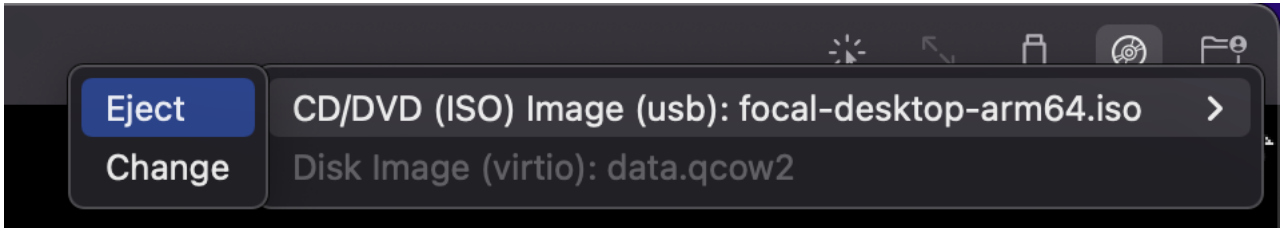
❖ Start to install



- We choose the "**Erase disk and install Ubuntu**" option here because we are using a new virtual machine
- If you plan to install Ubuntu on your host machine directly, please make sure that you choose the right disk
- Some tutorials online may tell you to create disk partition for root, swap mount point. You do not need to do that unless you know what you really want

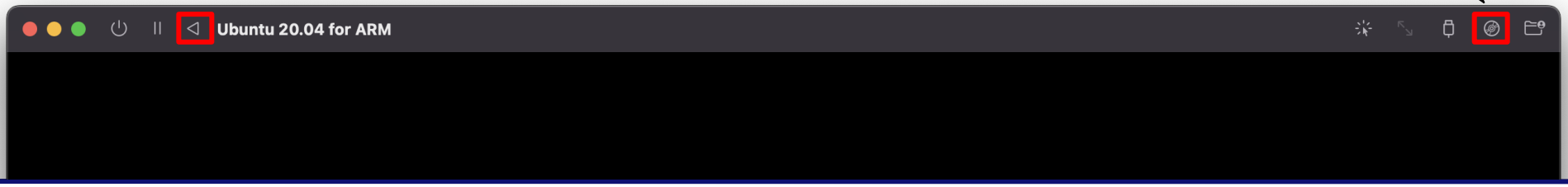
How to install Linux on UTM

- **After installation is done**
  - If your machine only shows black screen after you click ‘restart now’, just restart your virtual machine
  - Eject Ubuntu for ARM iso image from virtual CD/DVD rom



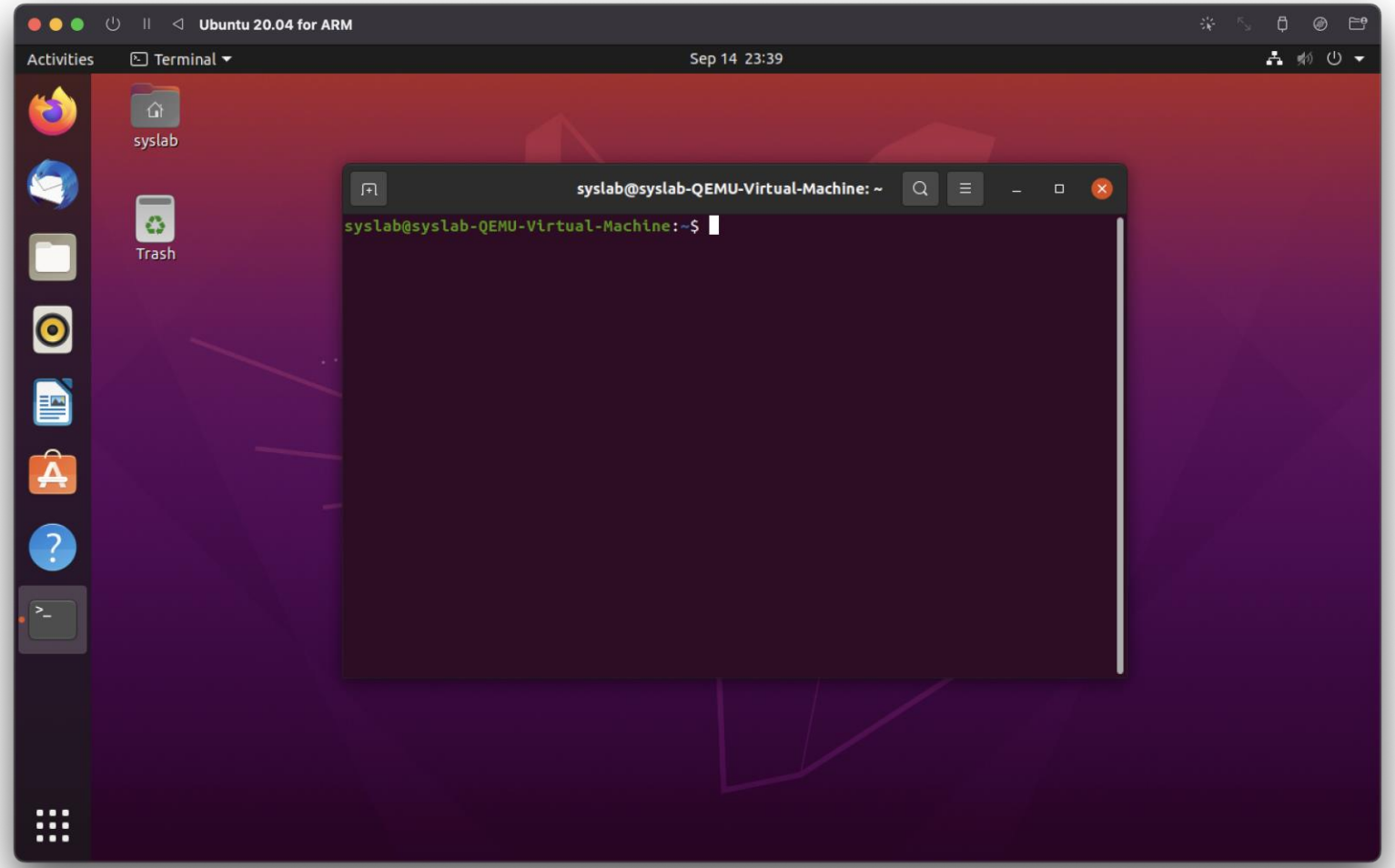
Restart Virtual Machine

Eject iso image



How to install Linux on UTM

- Ubuntu Desktop 20.04 for ARM on macOS



Appendix

Installing SPICE Guest Tools

- `$ sudo apt install spice-vdagent spice-webdavd`
  - Your shared directory shows up as a WebDAV server on http://127.0.0.1:9843/
  - You can use a WebDAV client to access it, or `mount.davfs` to mount it
    - ✓ `$ sudo apt install davfs2`
    - ✓ `$ mkdir <mount_point>`
    - ✓ `$ sudo mount.davfs http://127.0.0.1:9843/ <mount_point>`
  - You can also check more details from here:
    - ✓ https://mac.getutm.app/gallery/ubuntu-20-04
    - ✓ https://manpages.ubuntu.com/manpages/focal/man1/spice-vdagent.1.html