How to install Linux in VMware Fusion

Original Authors: previous VE280 TAs. Detailed authorship information at https://github.com/ve280/tutorials

Modified-by: FOCS Group

Before Installation

This guide is primarily for Intel Mac users. If you purchased your Mac before 2021, it is likely that your Mac features an Intel chip.

If you purchased your Mac after 2021, it is likely that your Mac features an Apple silicon chip. You can confirm which chip your Mac is using by clicking the Apple button from the top-left corner, and clicking "About this Mac". If you are using Apple silicon, you should see something like this:

If you are indeed using an Apple silicon Mac, You can continue to follow the instructions below, but **you are strongly encouraged to prepare a Windows laptop as backup**. Apple silicon Macs cannot run the software that some courses require.

Part A: Installation

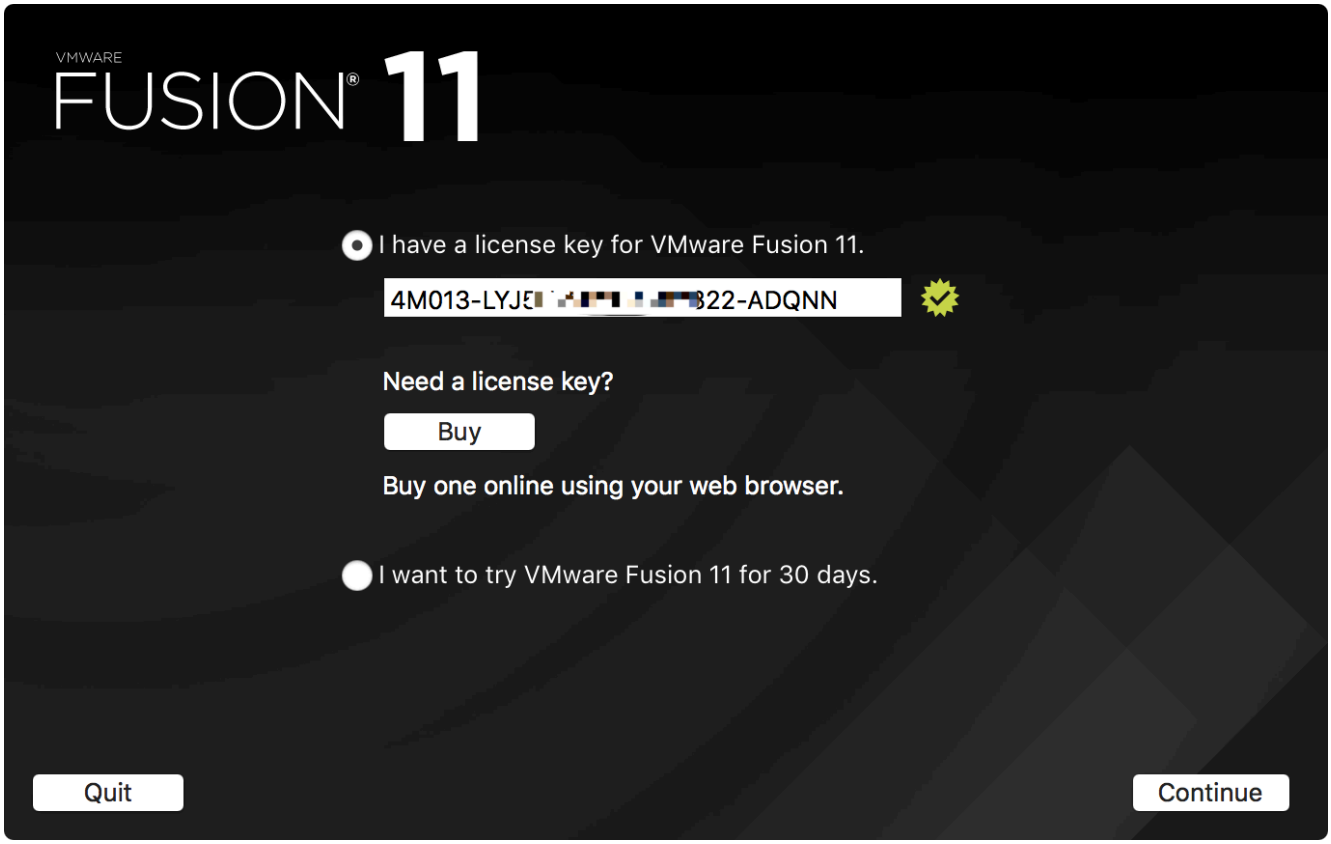
1. Obtain Linux install image

- If you are using Intel Mac, go to https://mirrors.ustc.edu.cn and find your favorite distribution

- If you are on Apple silicon Mac, you have several choices:
  - There's no *official* Ubuntu Desktop image available for ARM Macs
  - Fedora: https://fedoraproject.org/workstation/download/ (**choose "ARM® aarch64 systems"**)
  - openSUSE: https://get.opensuse.org/leap/15.5/#download (**choose "UEFI Arm 64-bit servers..."**)
  - Other distros, such as Debian or Manjaro, are available; However they require manual installing the system, which is out of this guide's scope

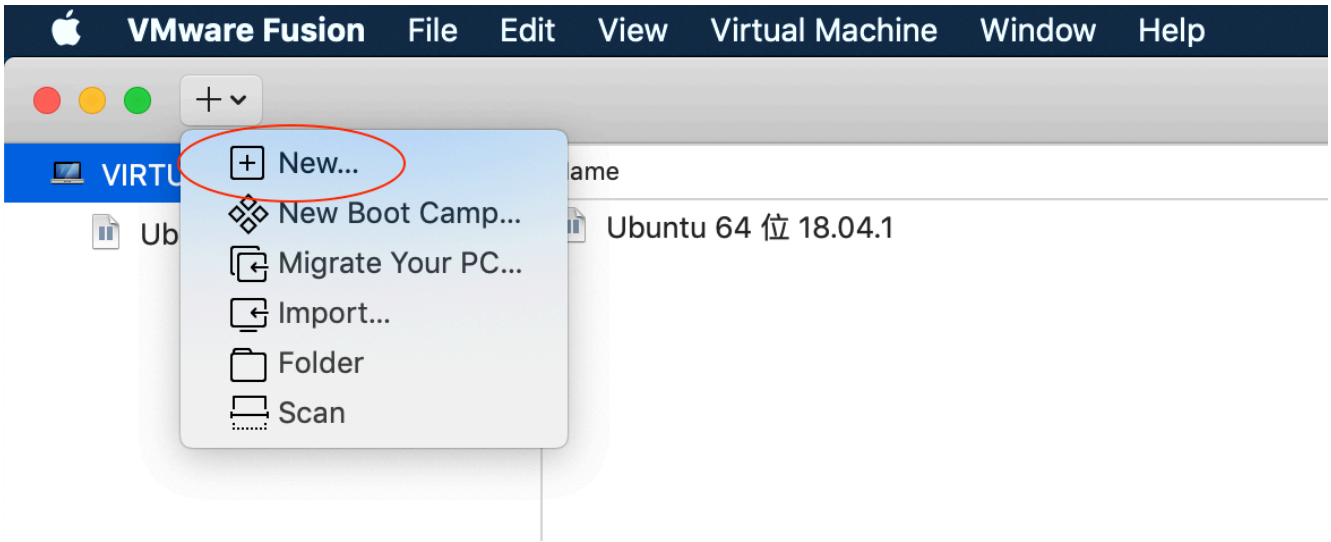
2. Install VMware Fusion

- **VMWare Fusion is free for personal use**, but you need to obtain a license.
  - Go to https://customerconnect.vmware.com/evalcenter?p=fusion-player-personal to register a VMware account and obtain a free license. You will get a Serial Number after you registered for a free personal license.
- **Install VMware Fusion.** After the download is finished, you can install VMware Fusion on your Mac. Please paste your Serial Number here and click "Continue".

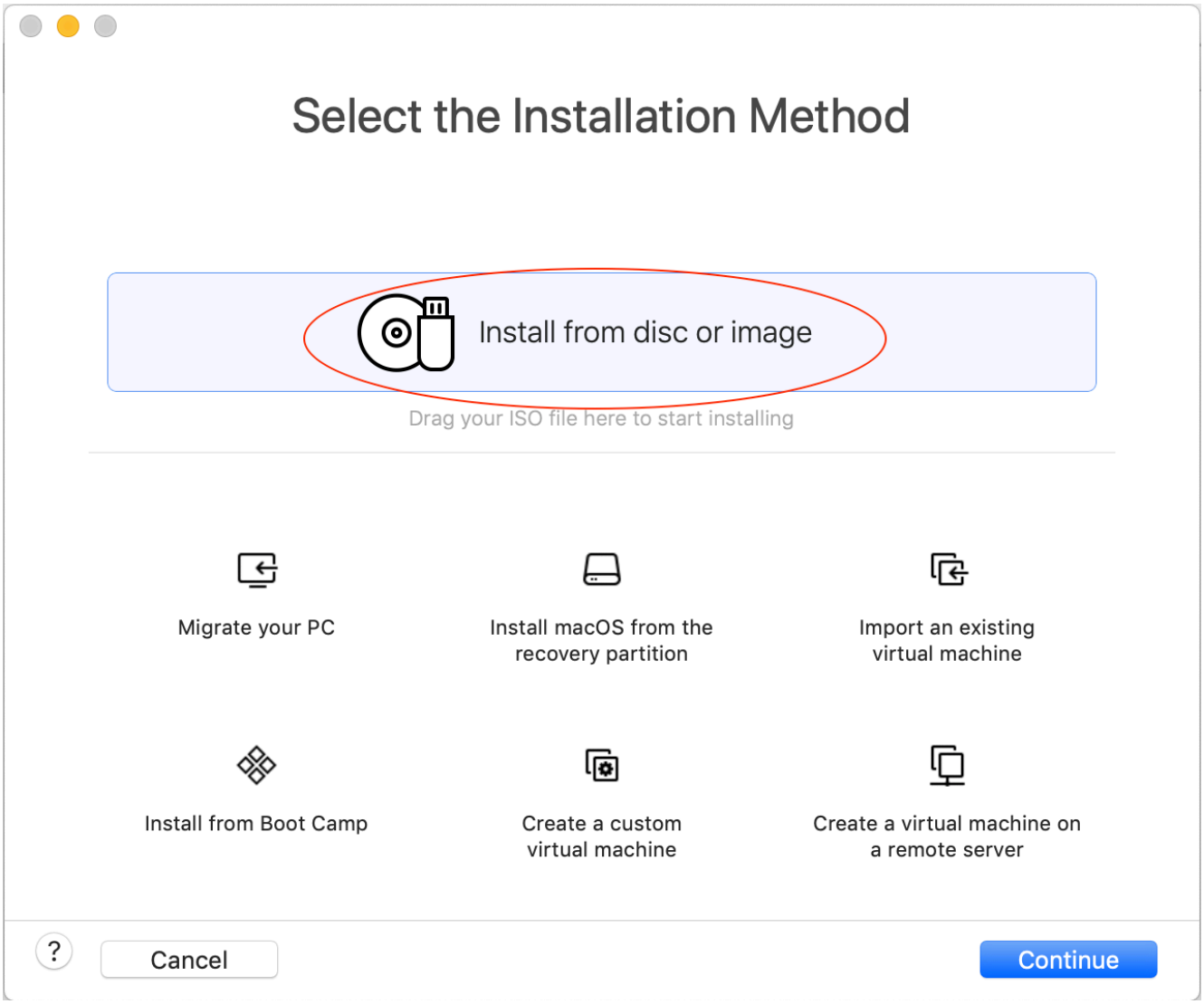


3. Install Linux in VMware Fusion

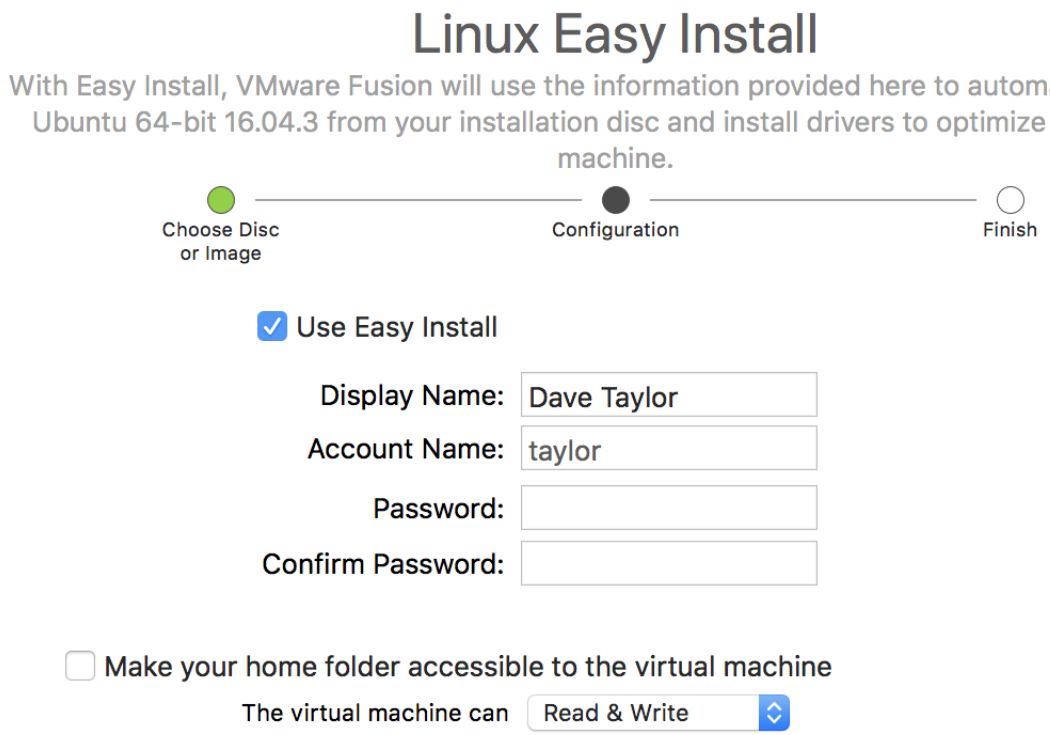
- **Click "+".** On the top-left of the main screen there'll be a "+" button. Click on it and choose "New..." to create a new VM.



- **Drag the ISO file icon onto the drop target.** The new virtual machine window will pop up, ready to go. Simply drag the ISO file icon onto the target marked by the red circle.



- **Click "Continue".** Once the file image is loaded, VMware Fusion for Mac will automatically move to the next step. VMware Fusion is smart enough to go through the entire Linux setup process without bothering you at all, so this is where you specify your basic account and password. If you want to be able to access your main Mac desktop while within Linux, check “Make your home folder accessible to the virtual machine” too. Then click “Continue”.



- **Click "Finish".** VMware Fusion for Mac completes all the work for you.

4. Enjoy your journey on Linux

You'll be prompted to log into your new Linux virtual machine.

Part B - Mirror Setup

Fedora

On `Fedora` based systems, the package manager is called `dnf`. You also need a superuser (administrator) privilege to install packages, so you need to use `sudo`, which means "switch user do".

The official repository of `Fedora` may be very slow to visit from China, you can switch them to the SJTUG Mirror. SJTUG Mirror is maintained by members of the SJTU Linux User Group.

- First, backup the original repository files, using the following command.

```
sudo mkdir -p /etc/yum.repos.d.bak && sudo cp /etc/yum.repos.d/* /etc/yum.repos.d.bak/
```

- Then, update the repository files using the following command:

```
sudo sed -e 's|^metalink=|#metalink=|g' \
         -e
's|^#baseurl=http://download.example/pub/fedora/linux|baseurl=https://mirror.sjtu.edu.c
n/fedora|g' \
         -i.bak \
         /etc/yum.repos.d/fedora.repo \
         /etc/yum.repos.d/fedora-modular.repo \
         /etc/yum.repos.d/fedora-updates.repo \
         /etc/yum.repos.d/fedora-updates-modular.repo
```

From then, you can install packages from your new source.

openSUSE

On `SLE` based systems (including `openSUSE`), the package manager is called `zypper`. You also need a superuser (administrator) privilege to install packages, so you need to use `sudo`, which means "switch user do".

The official repository of `openSUSE` may be very slow to visit from China, you can switch them to the SJTUG Mirror. SJTUG Mirror is maintained by members of the SJTU Linux User Group.

- First, disable system repositories.

```
sudo zypper mr -da
```

- Then, add SJTUG repositories by **issuing the following commands one by one (don't copy-and-paste)**:

```
sudo zypper ar -fcg
https://mirror.sjtu.edu.cn/opensuse/distribution/leap/\$releasever/repo/oss SJTUG:OSS
sudo zypper ar -fcg
https://mirror.sjtu.edu.cn/opensuse/distribution/leap/\$releasever/repo/non-oss
SJTUG:NON-OSS
sudo zypper ar -fcg https://mirror.sjtu.edu.cn/opensuse/update/leap/\$releasever/oss
SJTUG:UPDATE-OSS
sudo zypper ar -fcg https://mirror.sjtu.edu.cn/opensuse/update/leap/\$releasever/non-
oss SJTUG:UPDATE-NON-OSS
sudo zypper ar -fcg https://mirror.sjtu.edu.cn/opensuse/update/leap/\$releasever/sle
SJTUG:UPDATE-SLE
sudo zypper ar -fcg
https://mirror.sjtu.edu.cn/opensuse/update/leap/\$releasever/backports SJTUG:UPDATE-
BACKPORTS
```

From then, you can install packages from your new source.

After you have successfully switched software sources, it's time to install some new software.

You may find these packages helpful:

```
# debian
sudo apt install gcc g++ make cmake gdb valgrind git git-lfs
# fedora
sudo dnf install gcc g++ make cmake gdb valgrind git git-lfs
# opensuse
sudo zypper in gcc g++ make cmake gdb valgrind git git-lfs
```

How to install Linux in OrbStack(without GUI)

Original Authors: TechJI and FOCS Group

For now, OrbStack is free for personal use.

OrbStack is suitable for both intel chip users and Apple Silicon users.

Installation

You can either download `.dmg` package from website or use homebrew.

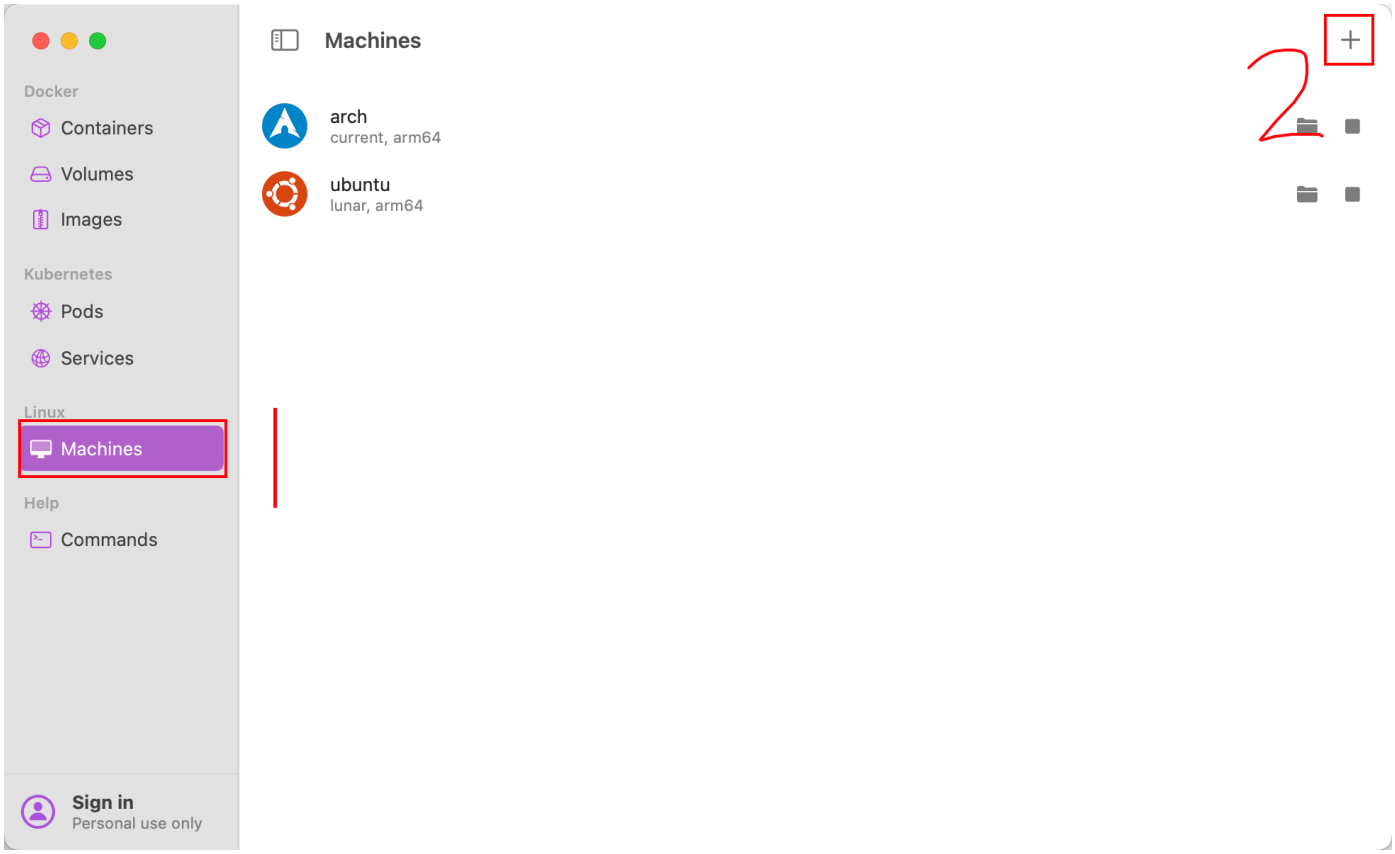
```
brew install orbstack
```

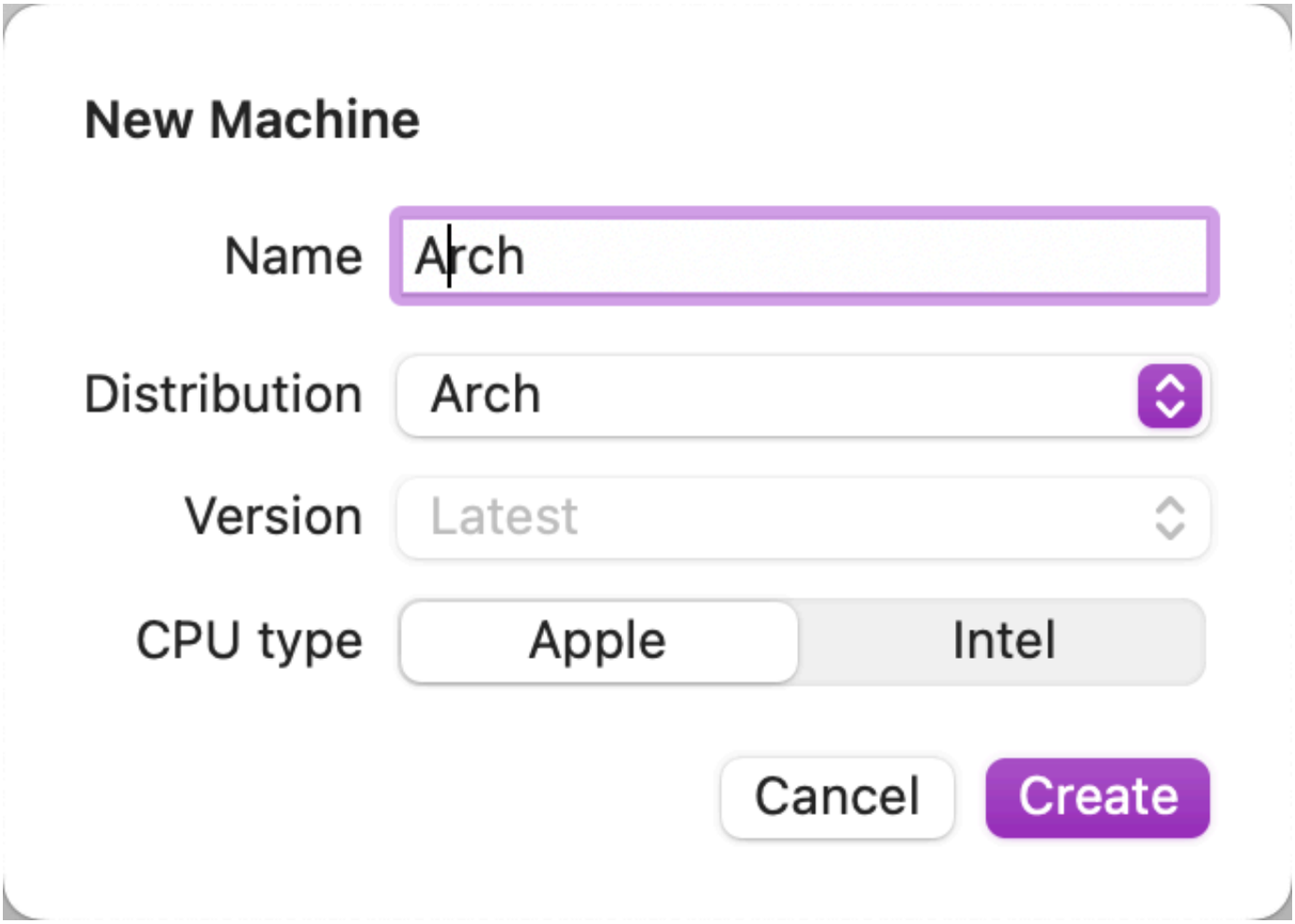
Set up Linux machines

You may refer to official documents

1. Create image

It may take a long time to download.





2. Login in

(take arch as an example)

```
ssh root@arch@orb
```

For advanced usage, you may refer to doc