

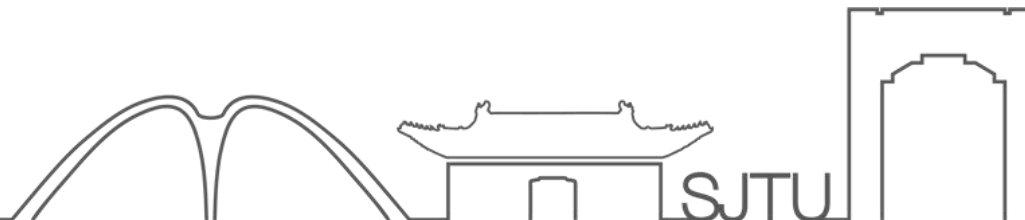


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ECE2800J RC0 - Linux setup on your Mac

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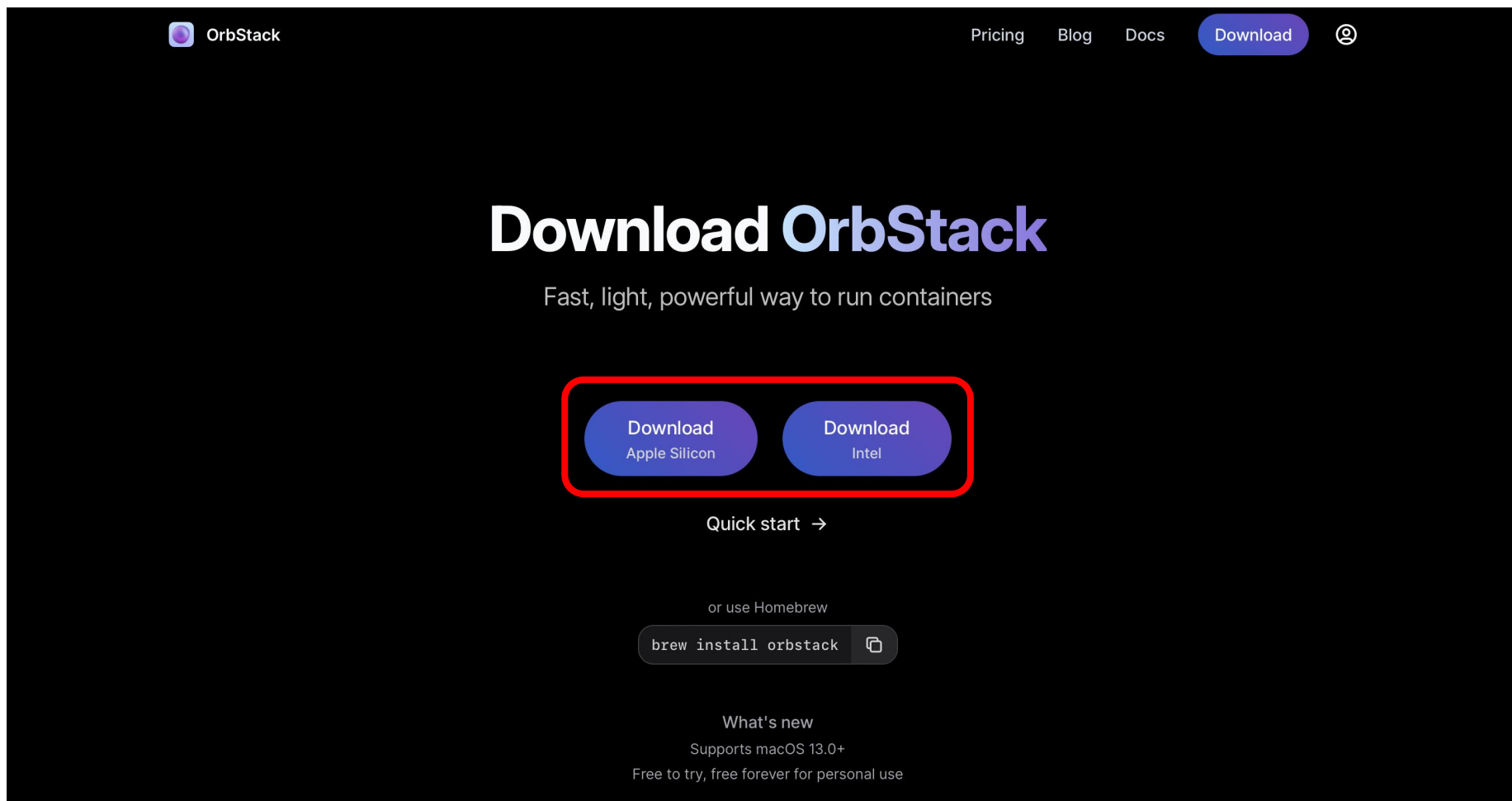


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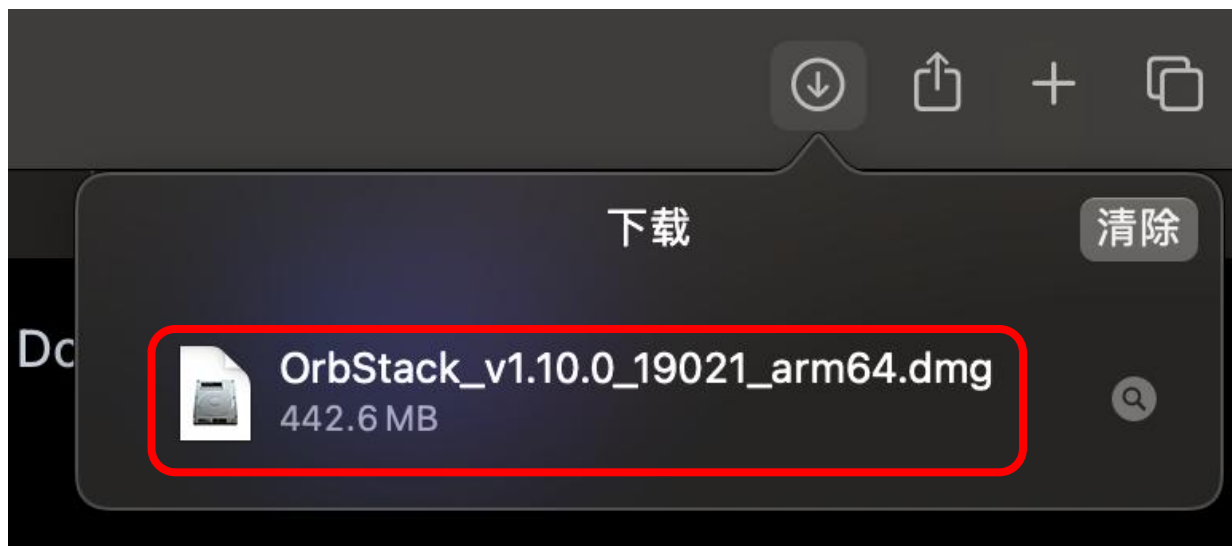
Check whether your Mac is with Apple Silicon or Intel.



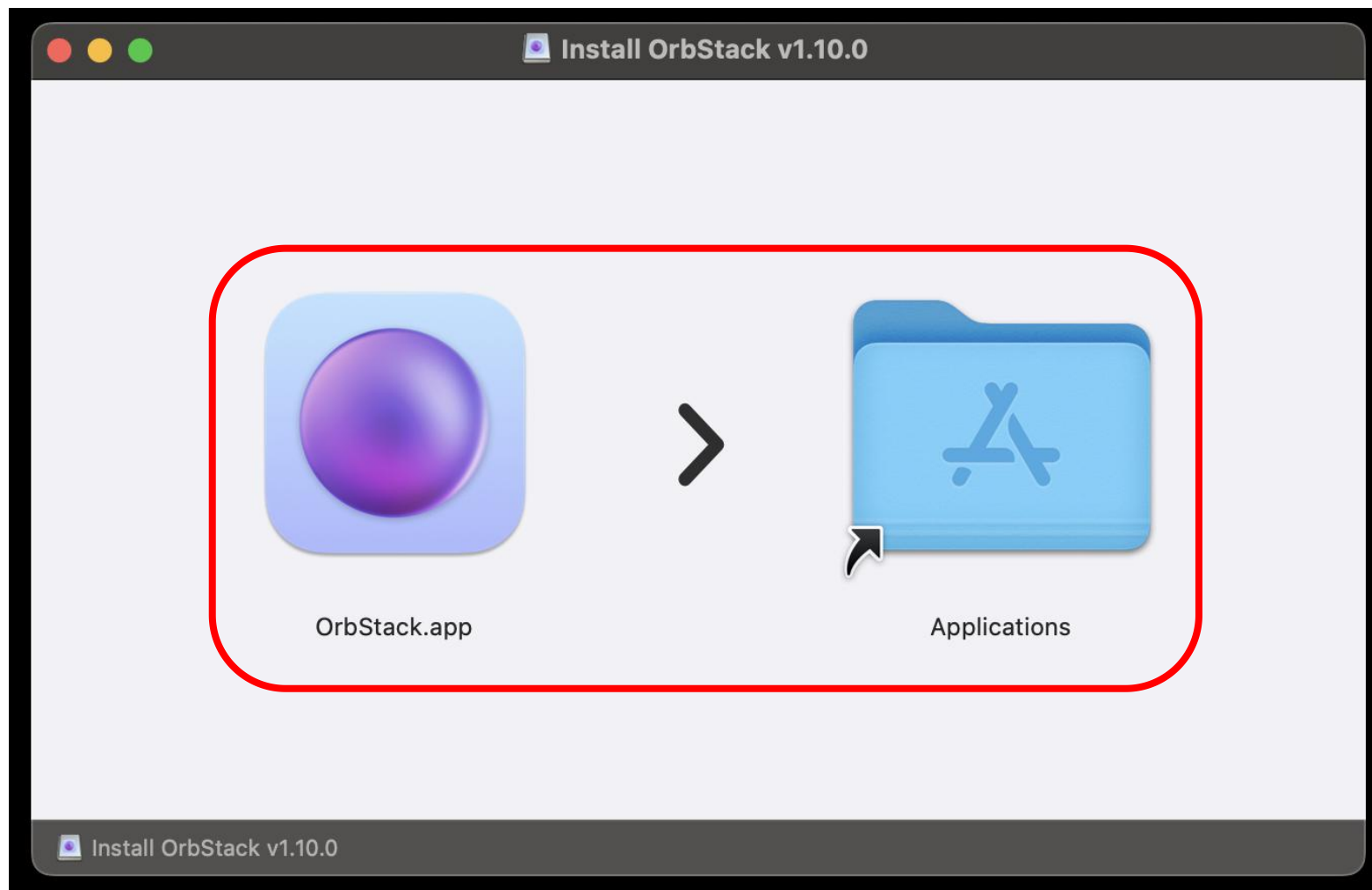
Go to <https://orbstack.dev/download> (Safari recommended), choose different download options according to your CPU type.



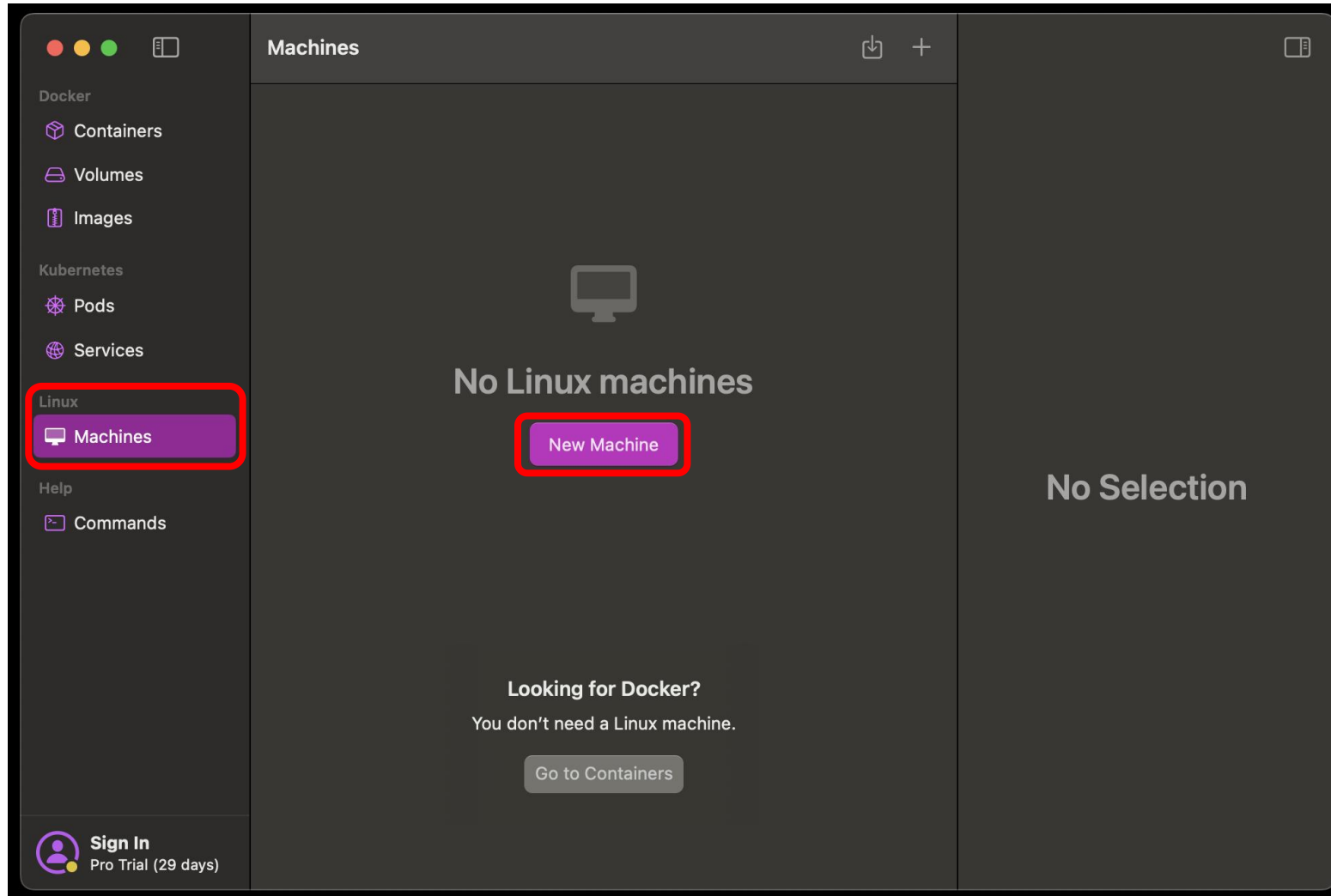
Take Apple Silicon as an example, double click the downloaded file.



Move OrbStack into Applications.



Now, you successfully download OrbStack.
Click OrbStack -> Machines -> New Machine



Then, you need to initialize your linux machine. Set as follows.
You need to choose **Apple** or **Intel** according to your CPU type.
Set the **Username** as you like. Then, click **Create**.

New Machine

Name

Distribution

Version

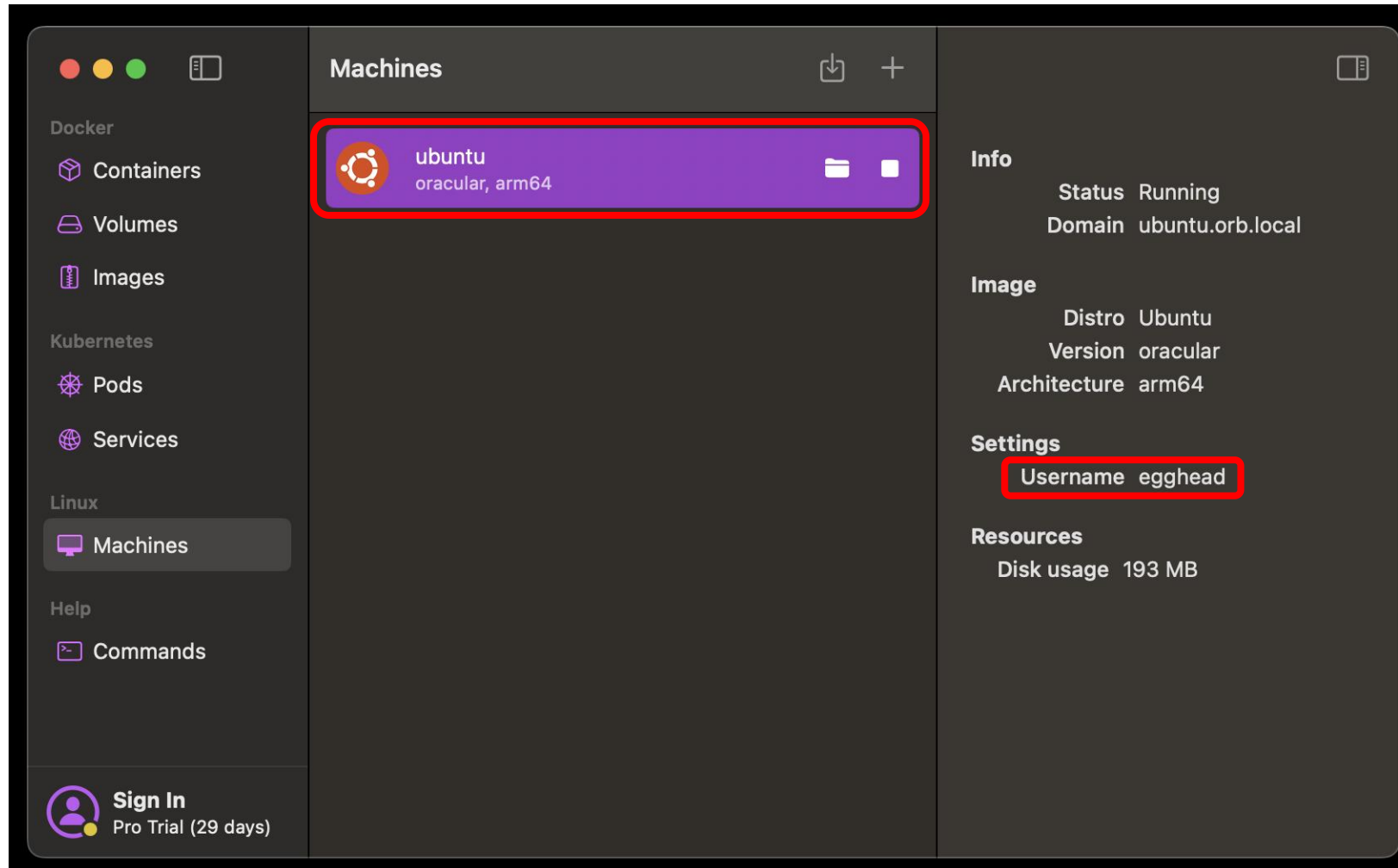
CPU type

✓ Advanced

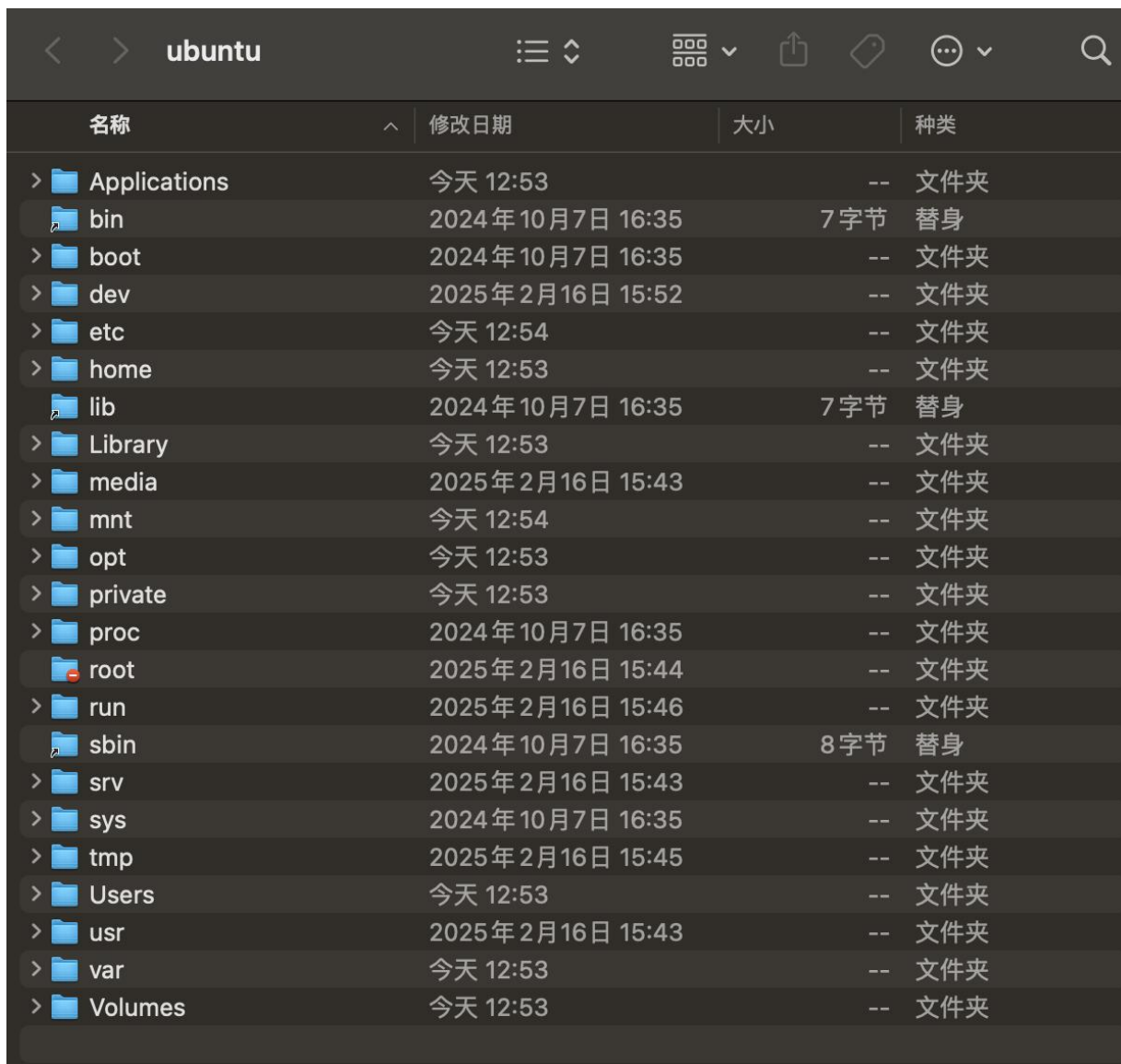
Cloud-init

Username

Wait for several seconds to allow your linux machine to get prepared. Then, you successfully initialize it.
The Username is set by you.



Click Open Files. All files related to your linux machine are shown.



名称	修改日期	大小	种类
> Applications	今天 12:53	--	文件夹
> bin	2024年10月7日 16:35	7 字节	替身
> boot	2024年10月7日 16:35	--	文件夹
> dev	2025年2月16日 15:52	--	文件夹
> etc	今天 12:54	--	文件夹
> home	今天 12:53	--	文件夹
> lib	2024年10月7日 16:35	7 字节	替身
> Library	今天 12:53	--	文件夹
> media	2025年2月16日 15:43	--	文件夹
> mnt	今天 12:54	--	文件夹
> opt	今天 12:53	--	文件夹
> private	今天 12:53	--	文件夹
> proc	2024年10月7日 16:35	--	文件夹
> root	2025年2月16日 15:44	--	文件夹
> run	2025年2月16日 15:46	--	文件夹
> sbin	2024年10月7日 16:35	8 字节	替身
> srv	2025年2月16日 15:43	--	文件夹
> sys	2024年10月7日 16:35	--	文件夹
> tmp	2025年2月16日 15:45	--	文件夹
> Users	今天 12:53	--	文件夹
> usr	2025年2月16日 15:43	--	文件夹
> var	今天 12:53	--	文件夹
> Volumes	今天 12:53	--	文件夹




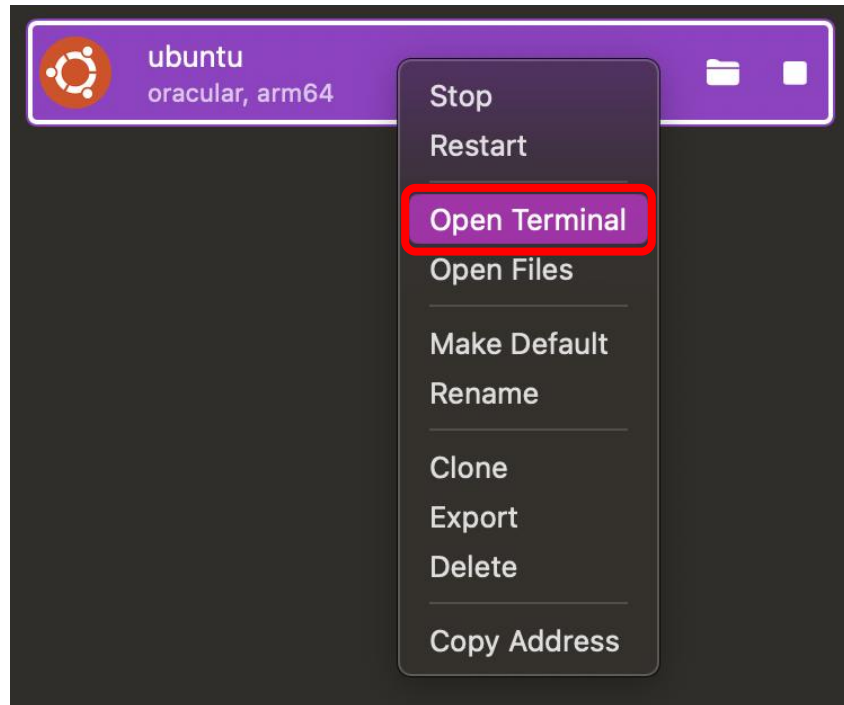
Take a close look at `home` file. The user you just created is in here. Also, I recommend you to put all files related to ECE2800J under the newly created user (here is `egghead`) although you can use linux everywhere on your Mac.



Tips: on Mac, press Shift + Command + . to hide or show all files whose name starts with . .



Next, you need to know how to run linux on your Mac.
Right-click your machine and then **Open Terminal**.
Then, you open the home directory of your Mac by default, under linux environment.

A screenshot of a terminal window. The title bar shows 'egghead@ubuntu: /Users/egghead'. The terminal content shows the execution of a script: `/var/folders/9z/v3tn2mts1w5dy6dxs495hdy00000gn/T/orbstack-open-terminal_45839CD8.sh; exit`. It then displays the last login information: `Last login: Wed Feb 19 13:24:26 on ttys000`. The prompt changes to `(base) egghead@yaoyunxiangdeMacBook-Air ~ %`. The user then runs the same script again: `/var/folders/9z/v3tn2mts1w5dy6dxs495hdy00000gn/T/orbstack-open-terminal_45839CD8.sh; exit`. A message follows: `To run a command as administrator (user "root"), use "sudo <command>". See "man sudo_root" for details.`. The final line shows the shell prompt: `egghead@ubuntu: /Users/egghead$`. A faint cartoon cat watermark is visible in the background of the terminal window.

Next, you need to install some tools which will be used in ECE2800J. These tools include `gcc`, `g++`, `tree` and `valgrind`. Vim has already been installed by default.

Run **`sudo apt-get install gcc g++ tree valgrind`** in the terminal. To check whether you successfully installed them, run following commands one by one:

`gcc --version`

`g++ --version`

`tree --version`

`valgrind --version`

```
egghead@ubuntu:/Users/egghead$ gcc --version
gcc (Ubuntu 14.2.0-4ubuntu2) 14.2.0
Copyright (C) 2024 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

egghead@ubuntu:/Users/egghead$ g++ --version
g++ (Ubuntu 14.2.0-4ubuntu2) 14.2.0
Copyright (C) 2024 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

egghead@ubuntu:/Users/egghead$ tree --version
tree v2.1.1 © 1996 - 2023 by Steve Baker, Thomas Moore, Francesc Rocher, Flo
rian Sesser, Kyosuke Tokoro
egghead@ubuntu:/Users/egghead$ valgrind --version
valgrind 3.23.0
```


Now, everything is done!

I recommend you to write all code related to this class under a single directory, which is the user directory just created. In this case, do not forget to first `cd` to that directory.

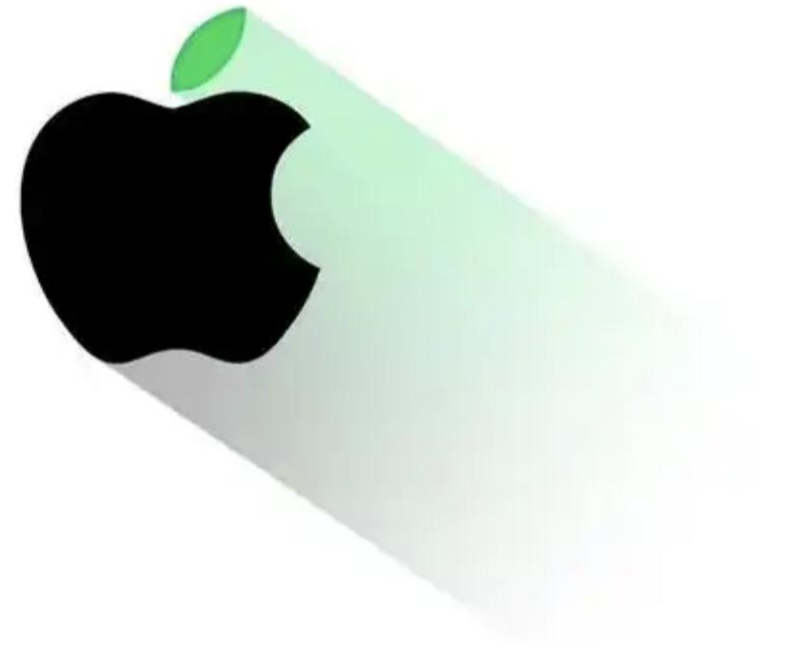
Tips: If you want to get the absolute location of a directory, single-click the directory and press `Option + Command + C` to copy its location.



```
egghead@ubuntu: /Users/egghead$ cd /Users/egghead/0rbStack/ubuntu/home/egghead
egghead@ubuntu: /Users/egghead/0rbStack/ubuntu/home/egghead$
```

Advanced topics

- Why Orbstack?
- Other useful tools



Why Orbstack?

- Free and Light:
low CPU and disk usage when running
share files and dictionaries with MacOS
- Specially designed for Mac
work well on Mac with M1 and M2

Why OrbStack?

- ⚡ **Lightning Fast.** Starts in 2 seconds, optimized [network](#) and file system, fast x86 emulation.
- 🕊 **Feather Light.** Low CPU and disk usage, [battery-friendly](#), works with less memory, native Swift app.
- 🍰 **Effortlessly Simple.** Automatic [domain names](#) and [migration](#), CLI & [container/image/volume file access](#), VPN and SSH support.
- ⚙ **Powerful.** Run [Docker containers](#), [Kubernetes](#), and [Linux distros](#). Manage containers quickly from your [menu bar](#). Explore volume and image files.



Other useful tools

<https://iterm2.com>



Other useful tools

<https://developer.apple.com/xcode/>



Xcode

Xcode enables you to develop, test, and distribute apps for all Apple platforms. Code and design your apps faster with predictive code completion, interactive previews, and live animations. Use Git staging to craft your next commit without leaving your code. Explore and diagnose your test results with redesigned test reports with video recording. And start deploying seamlessly to TestFlight and the App Store from Xcode Cloud. Creating amazing apps has never been easier.



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THANK YOU!

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