

EECS 489 Virtual Machine Setup

1 Introduction

This document details how to set up the EECS 489 VM using VMWare Fusion Player. If you're using a different VM software, your software will almost certainly have the same options as what is described in this guide located in similar menus. Follow each step in sequence, exactly as is detailed in this document.

Code blocks such as

</> **Code**

```
$ echo "I am a command"  
$ echo Hello world
```

mean to first run `echo "I am a command"` **without** the dollar sign, and then run `echo Hello world` **also without the dollar sign** in the terminal on the virtual machine.

Instructions begin on the next page.

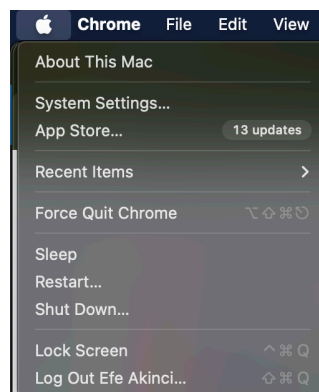
2 Downloading the VM Image

2.1 Identify Your CPU

i Info

This section describes how to identify your CPU architecture on a Mac. Windows machines are overwhelmingly on Intel/AMD chips on an x86 architecture. If you're not sure what architecture your non-Mac laptop uses, search up the model specs. If it is an ARM-based CPU, follow the instructions for "Apple Chip." If it's an x86 chip, follow the instructions for "Intel Chip."

First, click the Apple Logo on the top left of your screen, and click "About This Mac."



Make a note of what the item labelled "Chip" says.



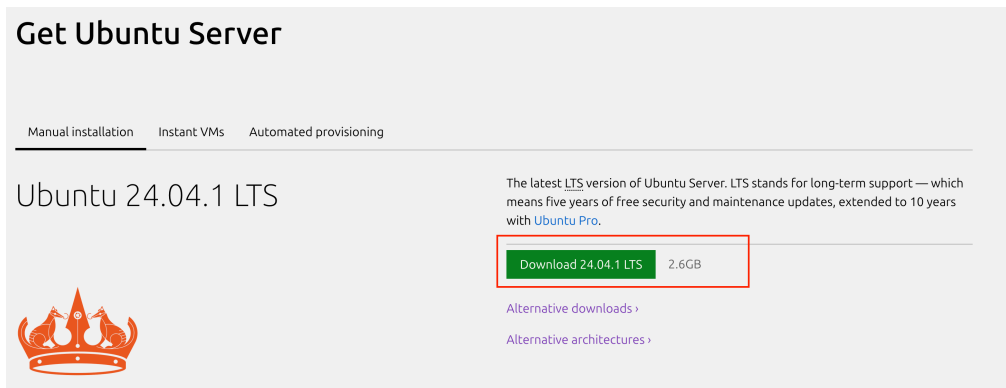
If the chip is of the form Intel *, follow the instructions for **Intel Chips** below. If it is of the form Apple M*, follow the instructions for **Apple Chips**.

2.2 Download the Ubuntu Image

Intel Chip

Go to <https://ubuntu.com/download/server>.

Click the big button that says “Download 24... LTS.”

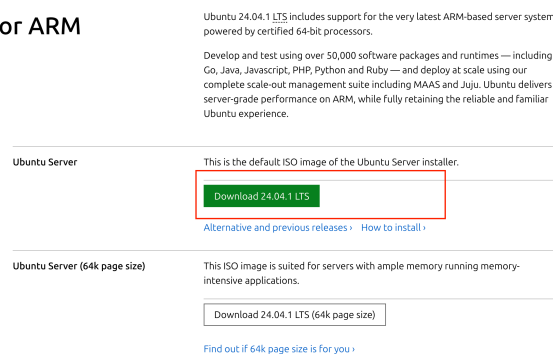


Apple Chip

Go to <https://ubuntu.com/download/server/arm>.

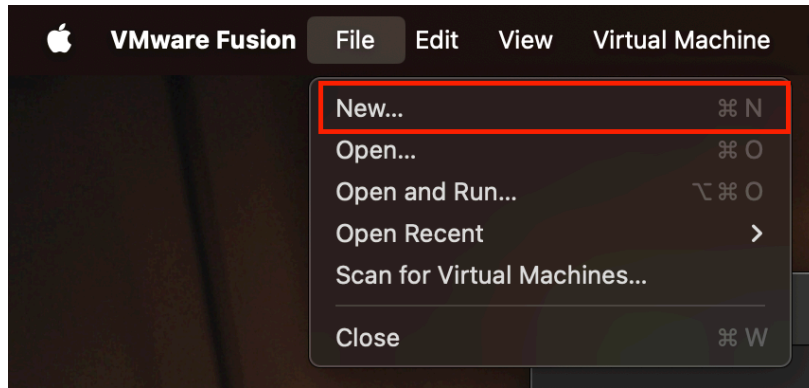
Click the big button that says “Download 24... LTS”

Ubuntu Server for ARM

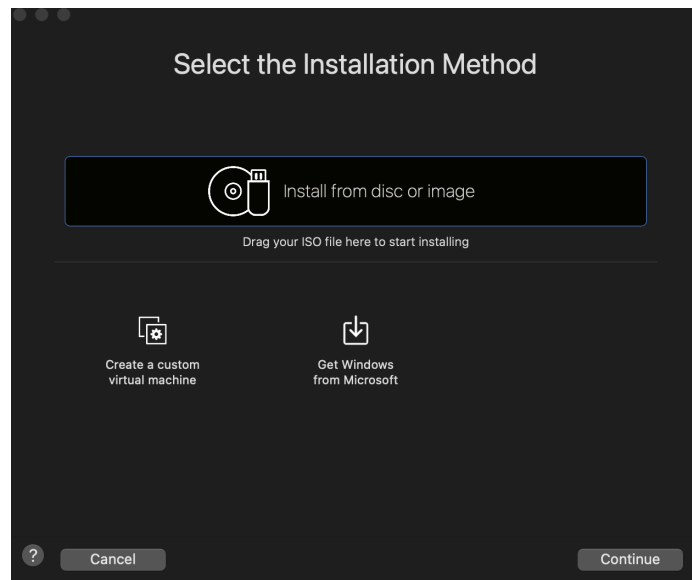


3 Creating the VM

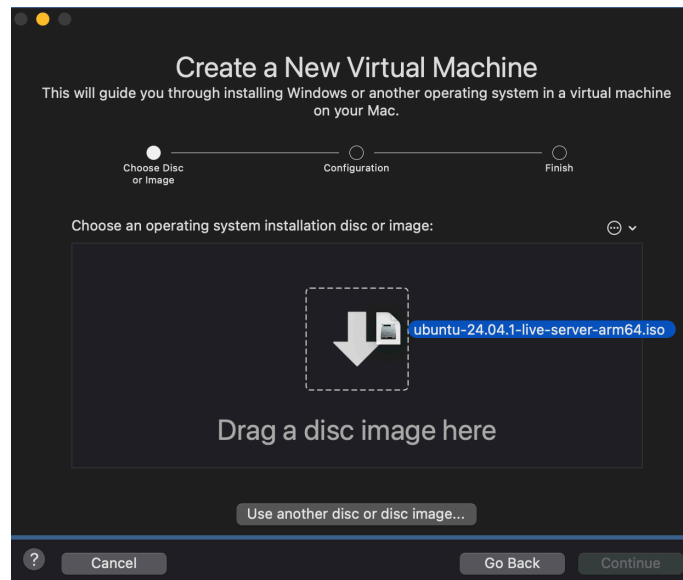
Launch VMWare Fusion. Once it is launched, on the toolbar, select “File,” followed by “New.”



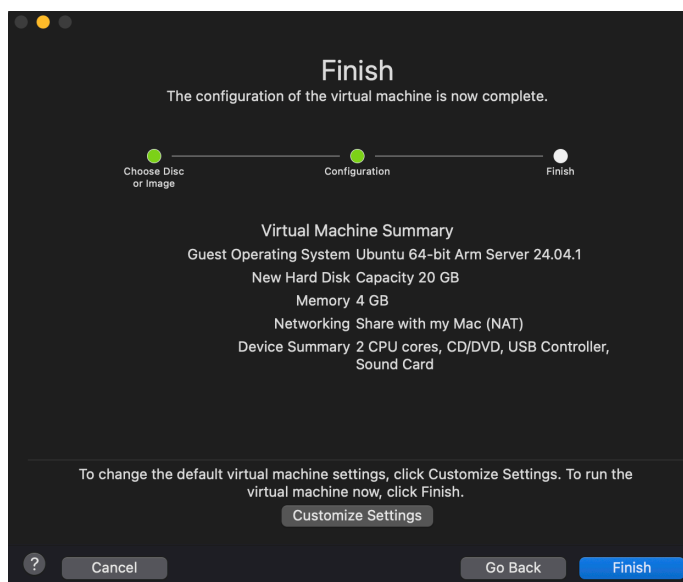
Make sure that “Install from disc or image” is selected, and click “Continue.”



Drag the .iso file you downloaded from the Ubuntu website onto VMWare Fusion and click continue.



On the next screen, make sure that 4GB of RAM is allocated to the Virtual Machine.

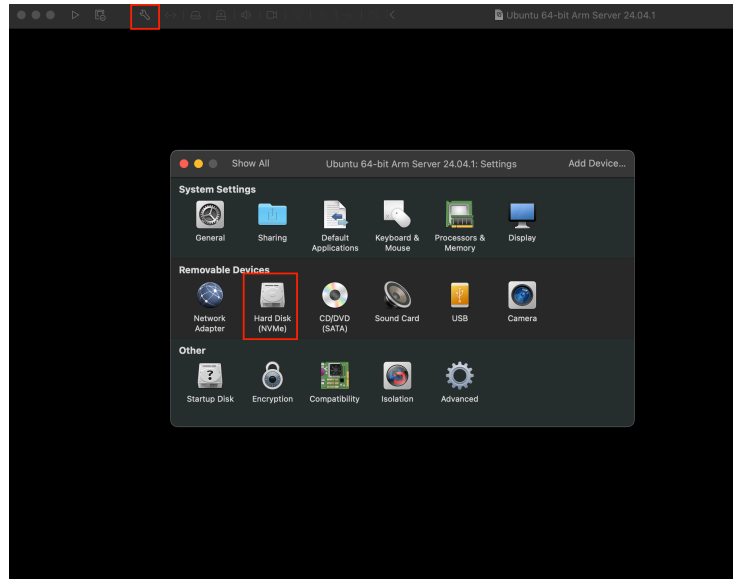


Click continue, and finish.

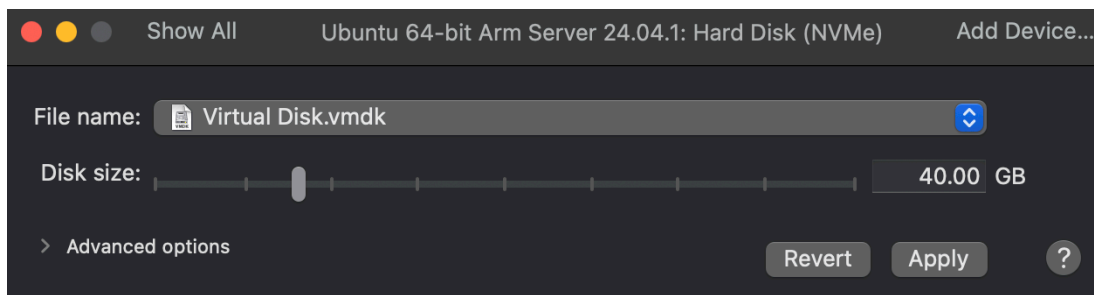
Warning

Do not run the Virtual Machine yet! If the machine is automatically ran when you clicked finish, click “Virtual Machine” on the toolbar, and click “Shut Down.” If the option is grayed out, your machine is suspended. To unsuspend it, click the play button on the window. You should now be able to shut the machine down.

Click on the settings icon on the virtual machine. This will launch the settings window. On the settings window, click “Hard Disk”.



Here, increase the hard drive size to 40GB, and click “Apply.”



Now, launch the VM by clicking the play icon on the window.

4 Setting Up the VM

⚠ Warning

It is important you do **everything** as directed during the setup. Do not enter a username that is different than what we provide, or change any settings differently. Some of our scripts depend on the username being the same as what we provide.

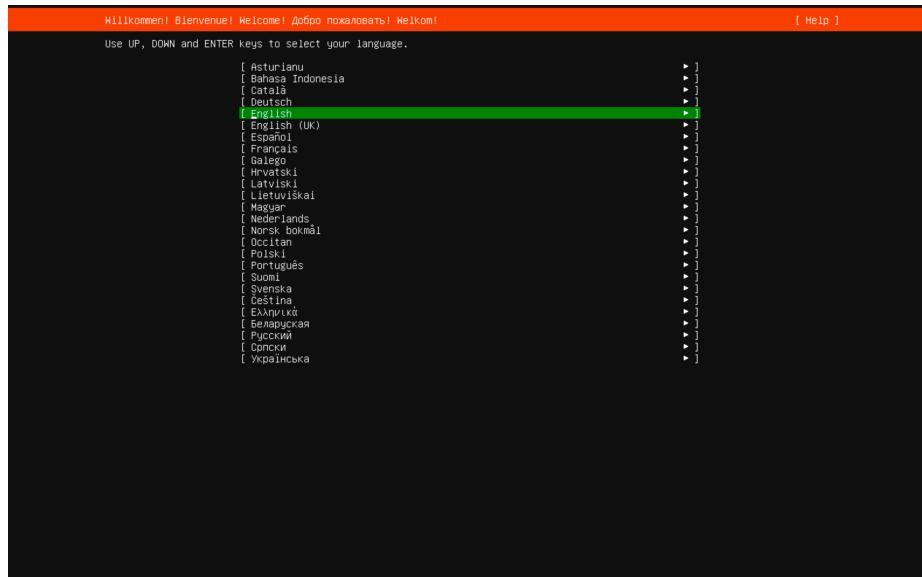
i Info

You cannot use your mouse at this step. Navigate the menus with the arrow keys on your keyboard, and use the “Enter/Return” key to select.

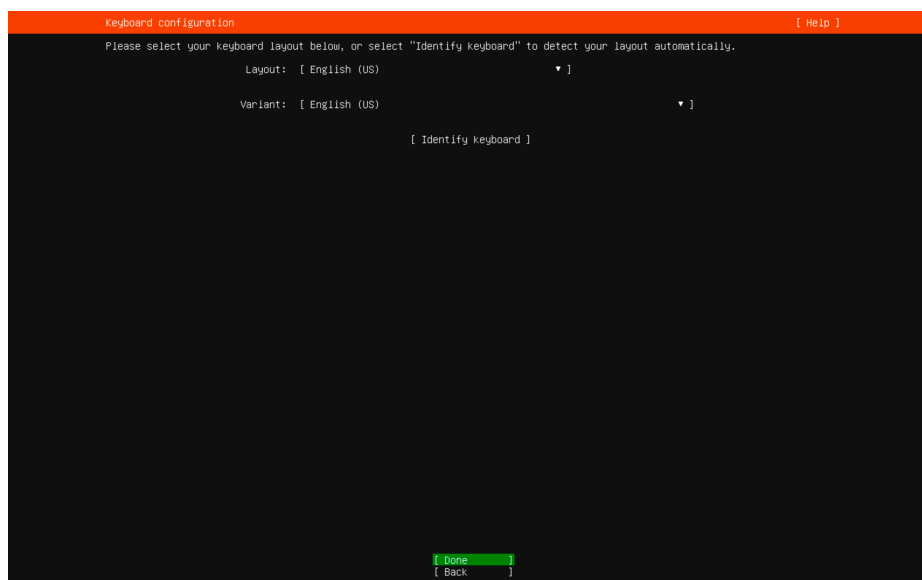
i Info

VMWare fusion will “capture” your mouse, which may prevent you from using your cursor outside of the VM. To release your cursor, press the Ctrl and Cmd keys at the same time (CTRL + CMD).

Select “Try or Install Ubuntu Server”, and wait for the machine to boot up until you get arrive at this screen. Select English as your language.



Click “Done” on the next page.



Click through the given options on each of the following screens. You do not need to change anything on the following screens, simply keep hitting “Continue”.

Choose the type of installation [help]

Choose the base for the installation.

☒ 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 configuration [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
[ens160 eth]		
DHCPv4 192.168.75.130/24		
00:0c:29:1a:2d:04 / Intel Corporation / i225G4 25GbE Network Connection		

[Create bond]

Done

Back

Proxy configuration [help]

If this system requires a proxy to connect to the internet, enter its details here.

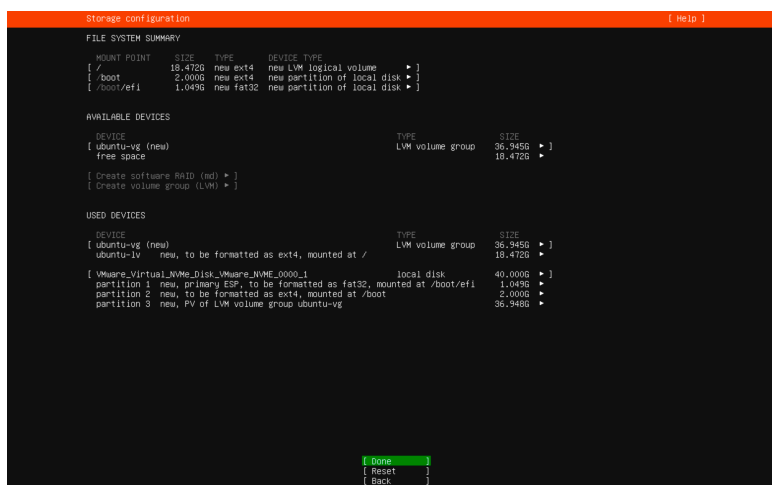
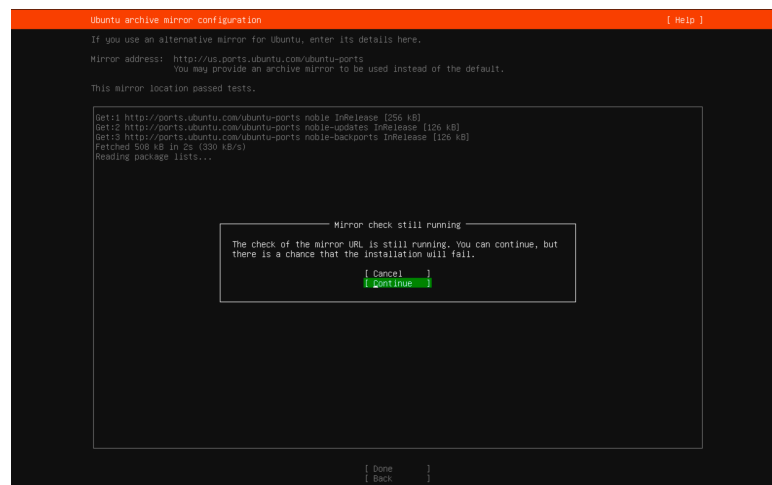
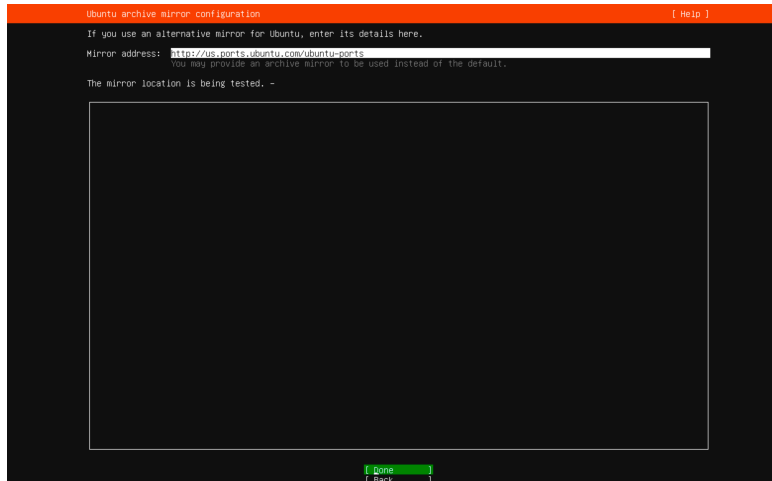
Proxy address:

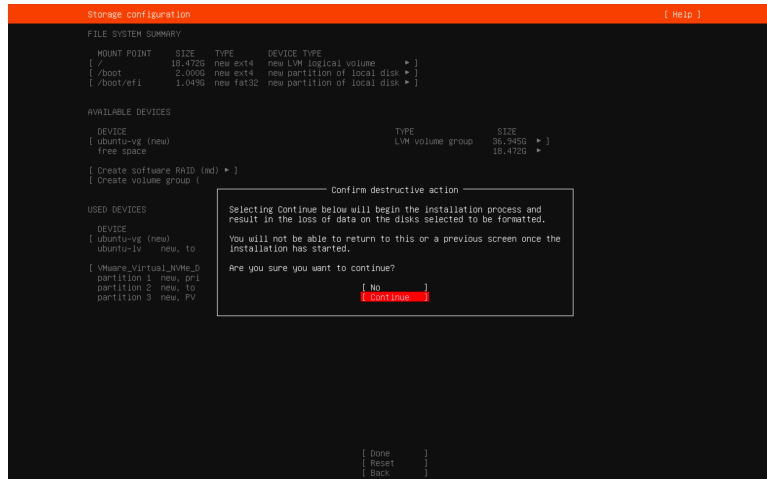
If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.

The proxy information should be given in the standard form of "http://[user]([pass])@host[:port]/".

Done

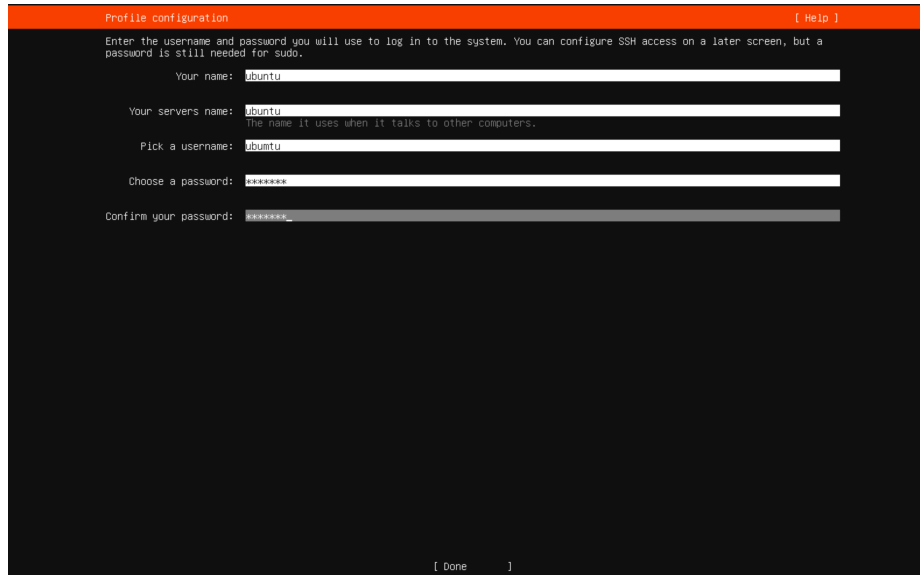
Back



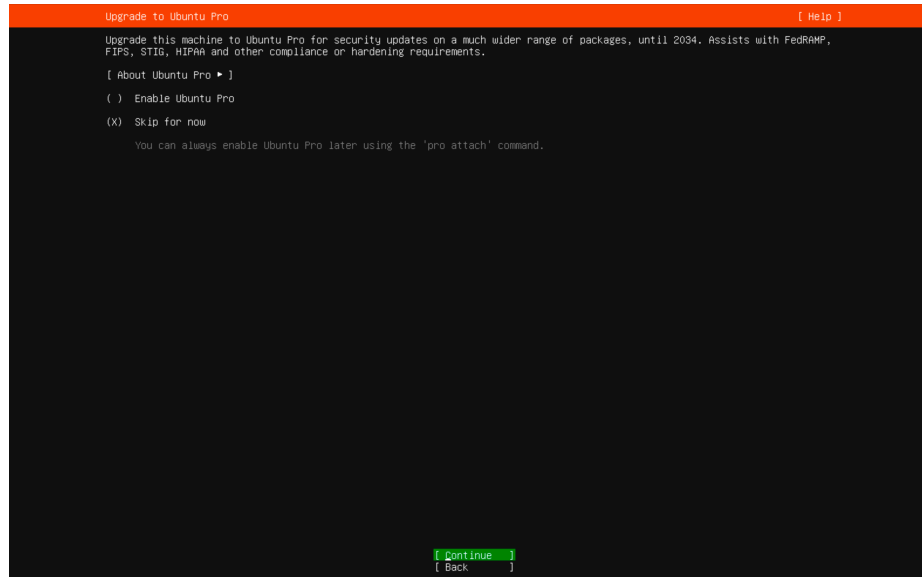


After this screen, enter the following information on the “Profile configuration screen” and hit continue.

Your name	ubuntu
Your servers name	ubuntu
Pick a username	ubuntu
Choose a password	eeecs489
Confirm your password	eeecs489



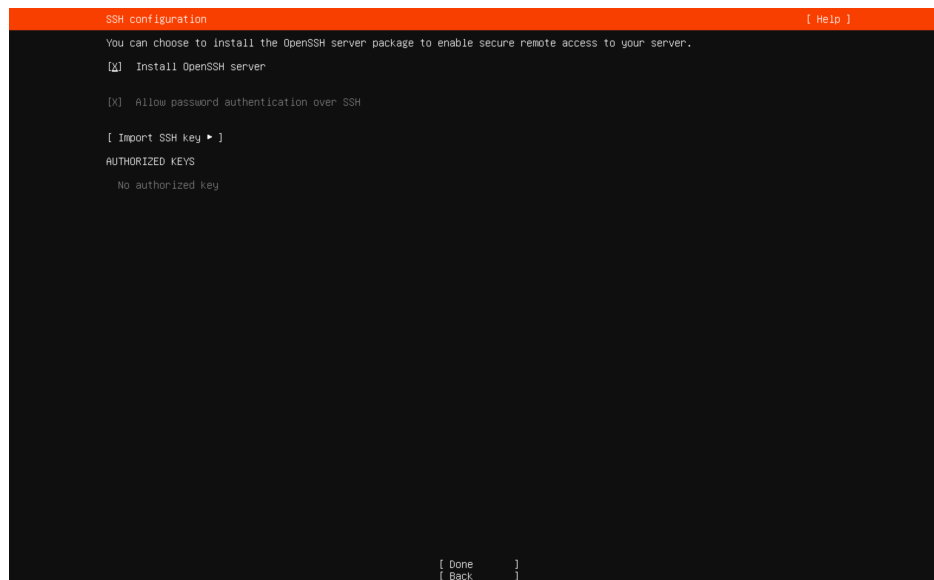
On the next screen, click “continue.”



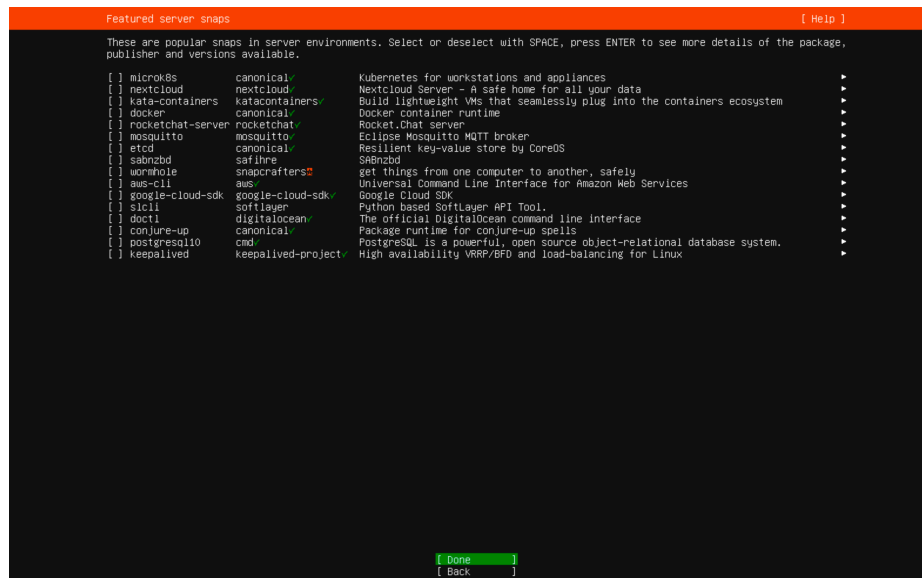
On the next screen, make sure your selections look like the image below, and hit Done.

Warning

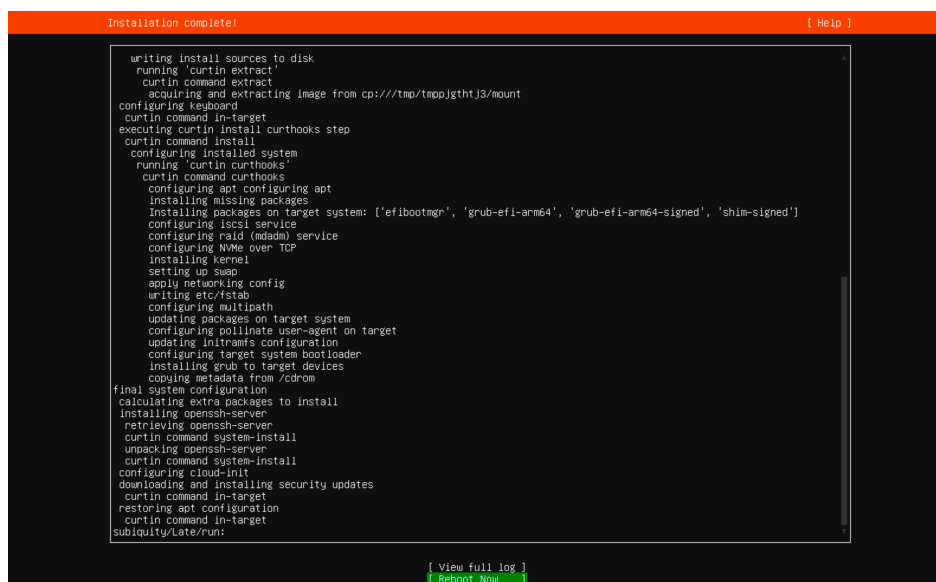
Make sure `Install OpenSSH server` is checked!



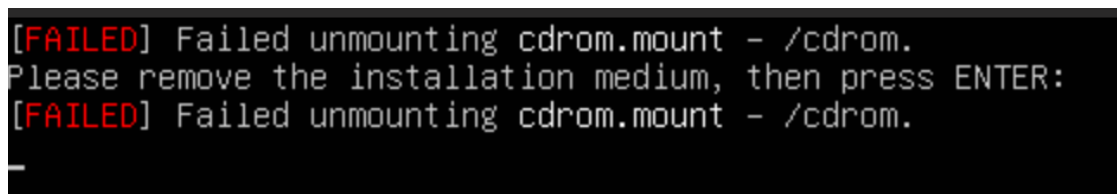
On the final page, hit “Done”.



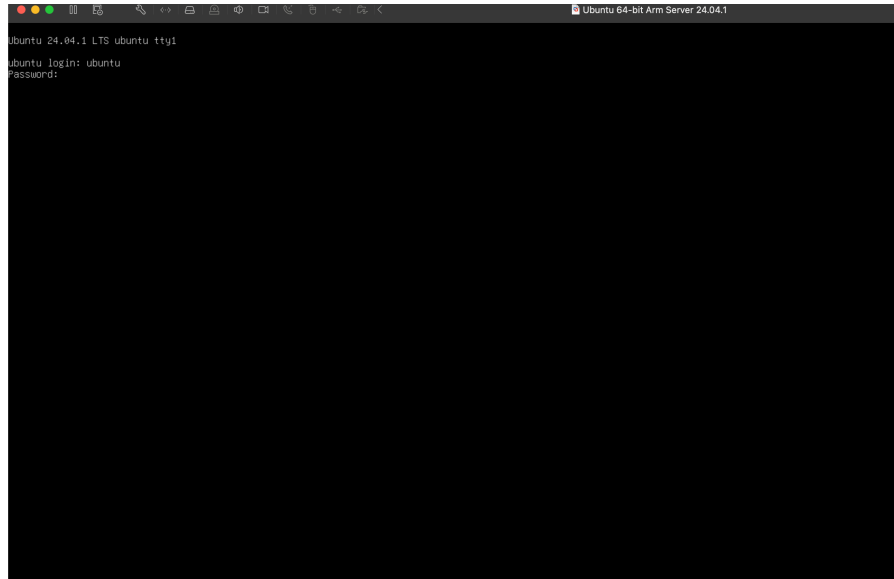
Wait until the installation finishes, and hit “Reboot Now.”



If you see this, just hit “Enter”



On the next screen, enter ubuntu as your ubuntu login, and eecs489 as your password.



Once you are at the command line, run the following commands:

</> Code

```
$ sudo apt update  
$ sudo apt install -y build-essential cmake libboost-all-dev open-vm-tools
```

Once the above commands are complete, run

</> Code

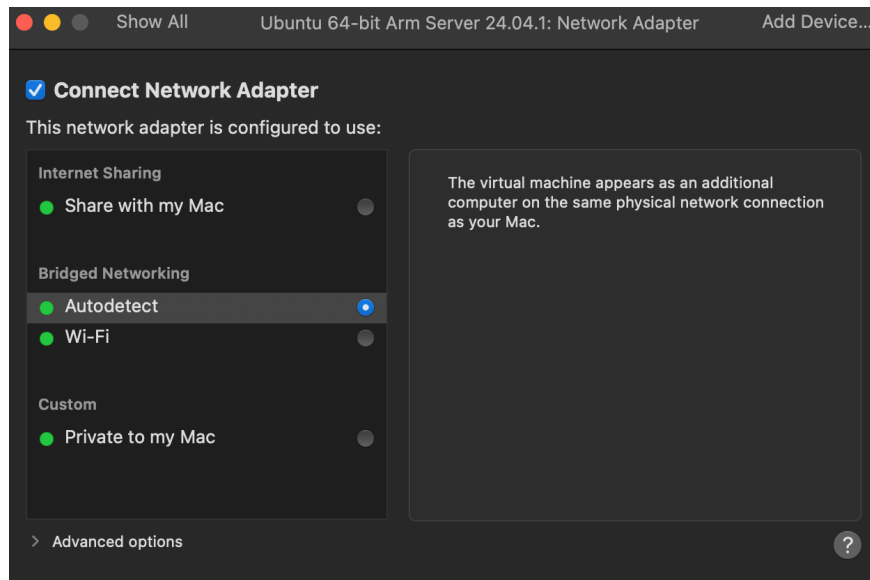
```
$ sudo reboot now
```

5 Setting Up Remote Development

You can now use the terminal to `git clone` the projects from GitHub and get to work.

You will find it helpful to use `ssh` with tools like [VSCode Remote Development](#) or [CLion Remote Development](#) to complete your projects.

To `ssh` into your VM, you first need to go to the VMWare settings menu, click on “Network Adapter”, and choose “Autodetect” under “Bridged Networking.”



You can then run

Code

```
$ ip a
```

on your terminal, which will produce an output that looks like

```
efe@efe:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 00:0c:29:88:19:21 brd ff:ff:ff:ff:ff:ff
    altname enp2s0
    inet 192.168.75.135/24 metric 100 brd 192.168.75.255 scope global dynamic ens160
        valid_lft 1794sec preferred_lft 1794sec
    inet6 fe80::20c:29ff:fe88:1921/64 scope link
        valid_lft forever preferred_lft forever
```

You can use the `ip` address of `ens160` (or whichever adapter other than `lo` that has a field called `inet`). In the above photo, the IP is `192.168.75.135`.

Using that IP address, **on your Mac**, you can run

</> **Code**

```
$ ssh ubuntu@<IP>
```

and enter the password eecs489 to login. You can use the same username/password combination for remote development tools.