Fall2020-CSE120
Cisco03

# Instructions for Project

Github: https://github.com/NathanBlais/CSE-120-Cisco3

## System Installation

### Hardware Needed

- Raspberry pi with either an ethernet port or usb to ethernet adapter.
- Power USB power brick with USB cable that plugs into your pi's usb power port.
    - This will be either a USB-C or Micro USB depending on which pi.
    - https://www.raspberrypi.org/documentation/hardware/raspberrypi/power/README.md
- Ethernet cord
- Micro SD card

### Flash DietPi to the SD card

1. Download and unpack the 32bit version of the DietPi Operating System for Raspberry Pi
    - https://dietpi.com/downloads/images/DietPi_RPi-ARMv6-Buster.7z
2. Download and install the Raspberry Pi Imager for your desktop operating system
    - https://www.raspberrypi.org/software/
3. Insert the Micro SD card into your desktop's card drive
    - If you don't have one you will need to purchase a usb SD card reader to plug into your desktop.
4. Reformat the SD card to Fat32:
    - Open the Raspberry Pi Imager
    - Click the "Chose OS" box
    - Click on the "Format card as Fat32" option
    - Choose the SD card from the "Choose SD Card" box
    - Click "Write"

4.5* If that does not work you can reformat using your operating systems preferred method:

- Windows10:https://recoverit.wondershare.com/memorycard-recovery/format-sd-card-fat32.html
    - Archive: https://web.archive.org/web/20201218201958/https://recoverit.wondershare.com/memorycard-recovery/format-sd-card-fat32.html
- MacOS:https://havecamerawilltravel.com/photographer/how-to-format-sd-card-on-mac
    - Archive: https://web.archive.org/web/20201218202133/https://www.hellotech.com/guide/for/how-to-format-a-hard-drive-for-mac

- Linux/BSD:https://ragnyll.gitlab.io/2018/05/22/format-a-sd-card-to-fat-32linux.html
  - Archive: https://web.archive.org/web/20201218203116/https://ragnyll.gitlab.io/2018/05/22/format-a-sd-card-to-fat-32linux.html

5. Install the operating system:
   - In the Raspberry Pi Imager click the “Chose OS” box
   - Click on the “Use Custom” option
   - Choose the DietPi_RPi-ARMv6-Buster.img file you unpacked from the .7z file you downloaded
   - Choose the SD card from the “Choose SD Card” box
   - Click “Write”
6. Once it has finished installing eject and remove the SD card from the card reader.
7. Put the micro SD card into the Raspberry pi’s micro SD card slot.
8. Plug an ethernet cord into your router and connect it to your Raspberry Pi.
9. Plug your power brick into a socket and connect it to your Pi via your USB cable.

## Install the Operating System

### Connect to the Pi

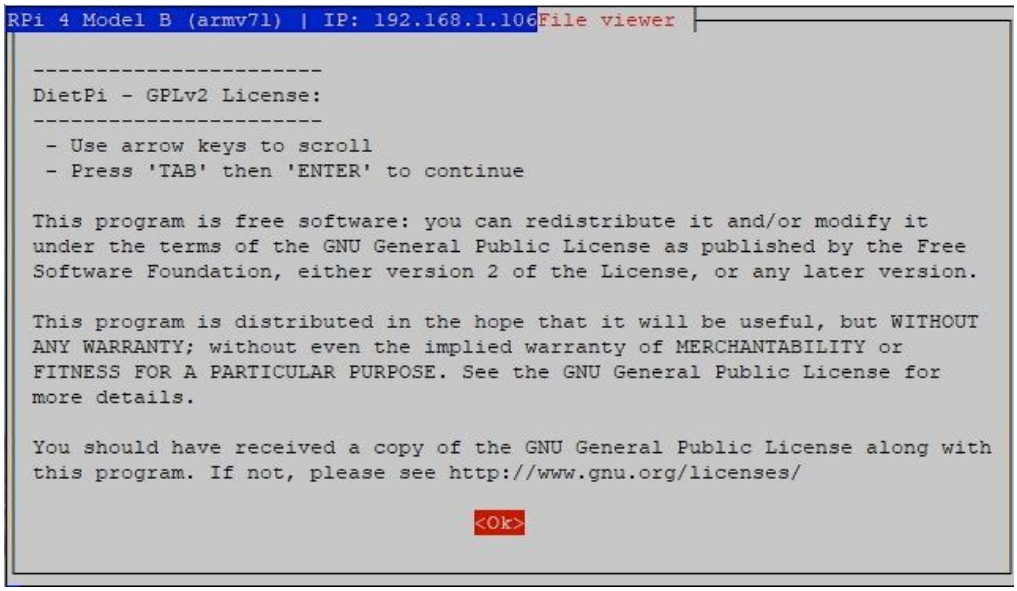
Here are a few examples of ways of doing this depending on your setup.

1. Connect a monitor and keyboard to your Pi (Most Reliable and Easy way)
   - Some Pi’s can’t use this method Without a USB hub.
     i. They are Models: Zero, Zero W, & Zero WH
2. Connect your Pi to your desktop via an ethernet cable (Best Alternative way)
   - Windows: https://medium.com/@jrcharney/connect-your-raspberry-pi-to-your-computer-via-ethernet-4564e1e68922
   - MacOS:https://medium.com/@tzhenghao/how-to-ssh-into-your-raspberry-pi-with-a-mac-and-ethernet-cable-636a197d055
3. Find your DietPi’s IP address and ssh into it over your network
   1. If you know what you're doing, log in to your router's admin page and check the DHCP client/reservation list for "DietPi"
   2. If you don't know how to do the above, download Angry IP scanner and run it: https://lmg.gg/8KVmS
   3. Look for the hostname "DietPi", on that line the IP and MAC address of our Raspberry Pi will also be listed
   4. Open a Terminal emulator application on your Desktop. Either the Terminal app for Mac & Linux or Putty for Windows
      i. Putty: https://dietpi.com/docs/user-guide_installation/#4-first-logon-on-dietpi
   5. You will need to run the command `ssh root@<*Your Pi’s IP address*>
   6. Then input the password **dietpi**
4. Other ways you can google to find help

- Connect your Pi to your desktop via a USB cable

### Install the OS

When you are connected and logged into DietPi your screen should look like this

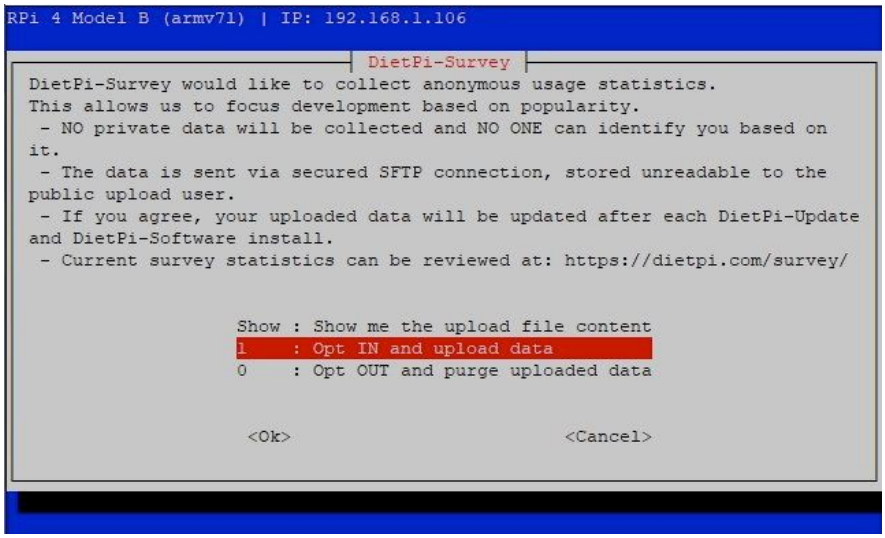



- To accept the DietPi GPL license. Hit the Enter key on your keyboard.

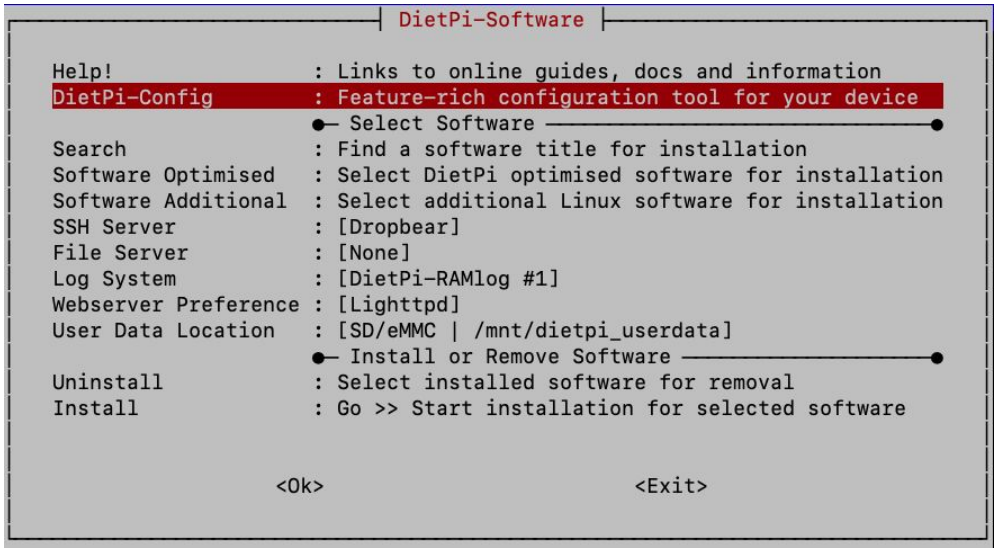
DietPi will then immediately begin to search for and install updated software packages, which will take some time to complete.

Once the packages have been updated, DietPi will ask you to confirm whether you would like to enable user analytics.

- Choose no by pressing the down arrow to highlight the 0 row and press the Enter

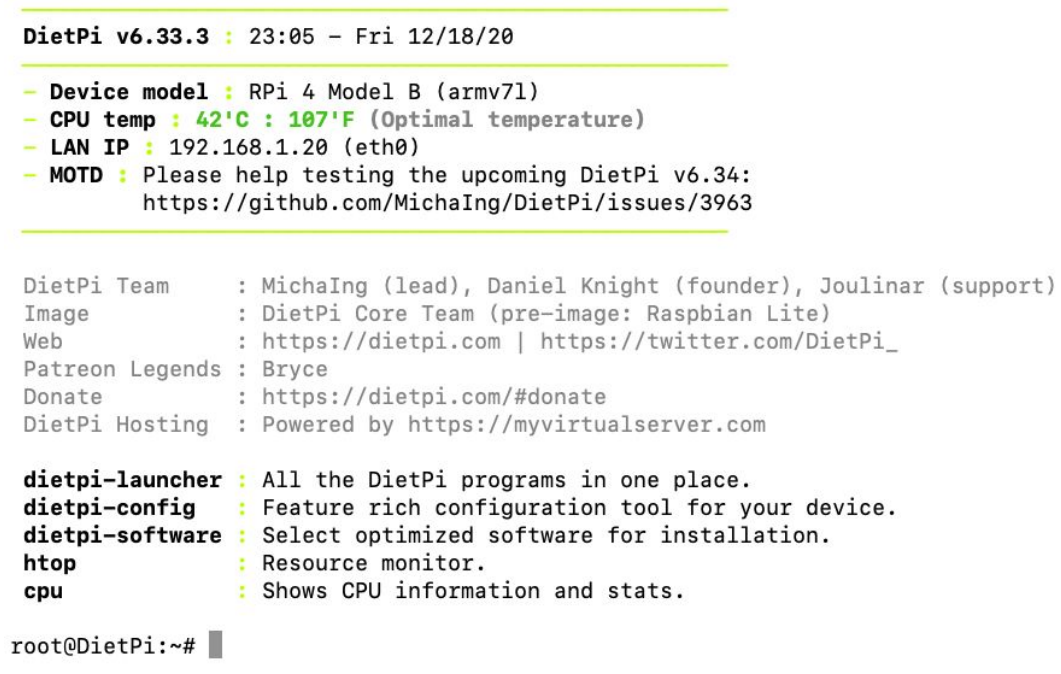


You will eventually reach this screen




- Press the Tab key twice to highlight the Exit.
    - Press Enter
- Confirm by pressing Tab to highlight Ok
    - Press Enter

There may be more instructions, but keep them default and accept them with Enter.
It should finish installing and look like this

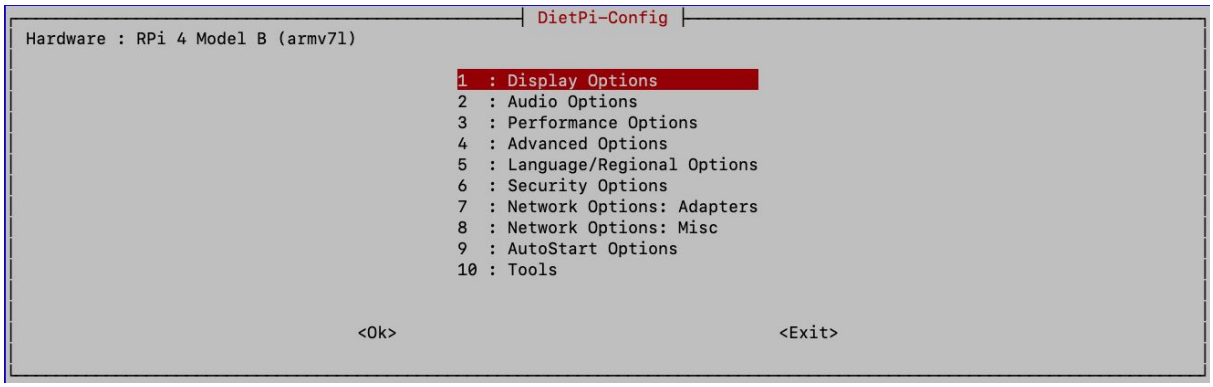


# Configure the Operating System

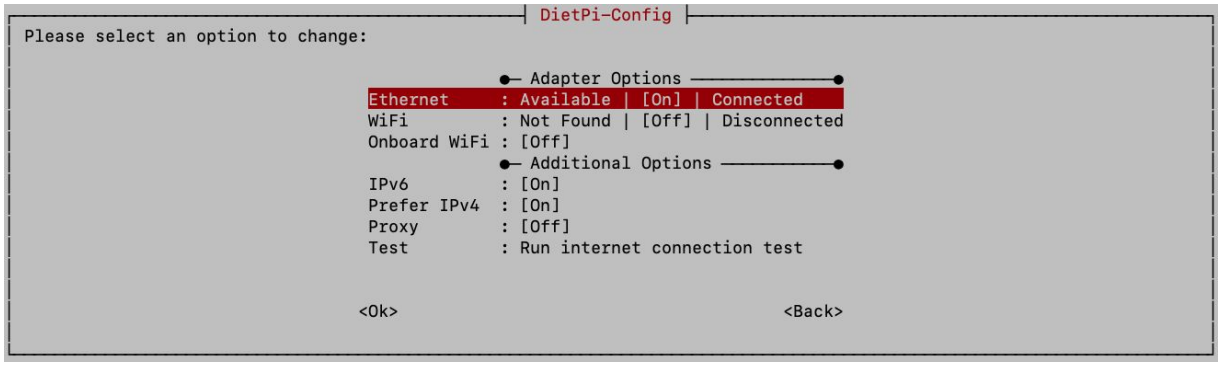
## Set a Static IP

1. Type the command “dietpi-config” and Enter

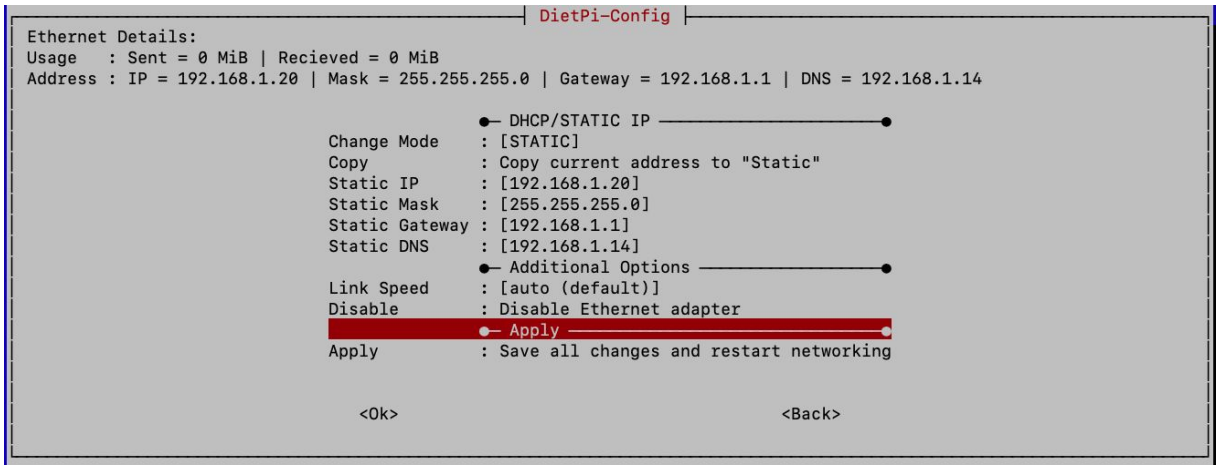
You should see this




2. Scroll down to “7 : Network Options: Adapters” and Enter




3. Next choose and Enter “Ethernet”




4. Here you can set your static IP. Here is what mine looks like.
5. All you will need to do is Apply your changes and exit the program by using Enter on the Back’s and Exit
    - If you have SSH’d into the Pi. You may need to disconnect and reconnect using the new IP address if you assigned one.

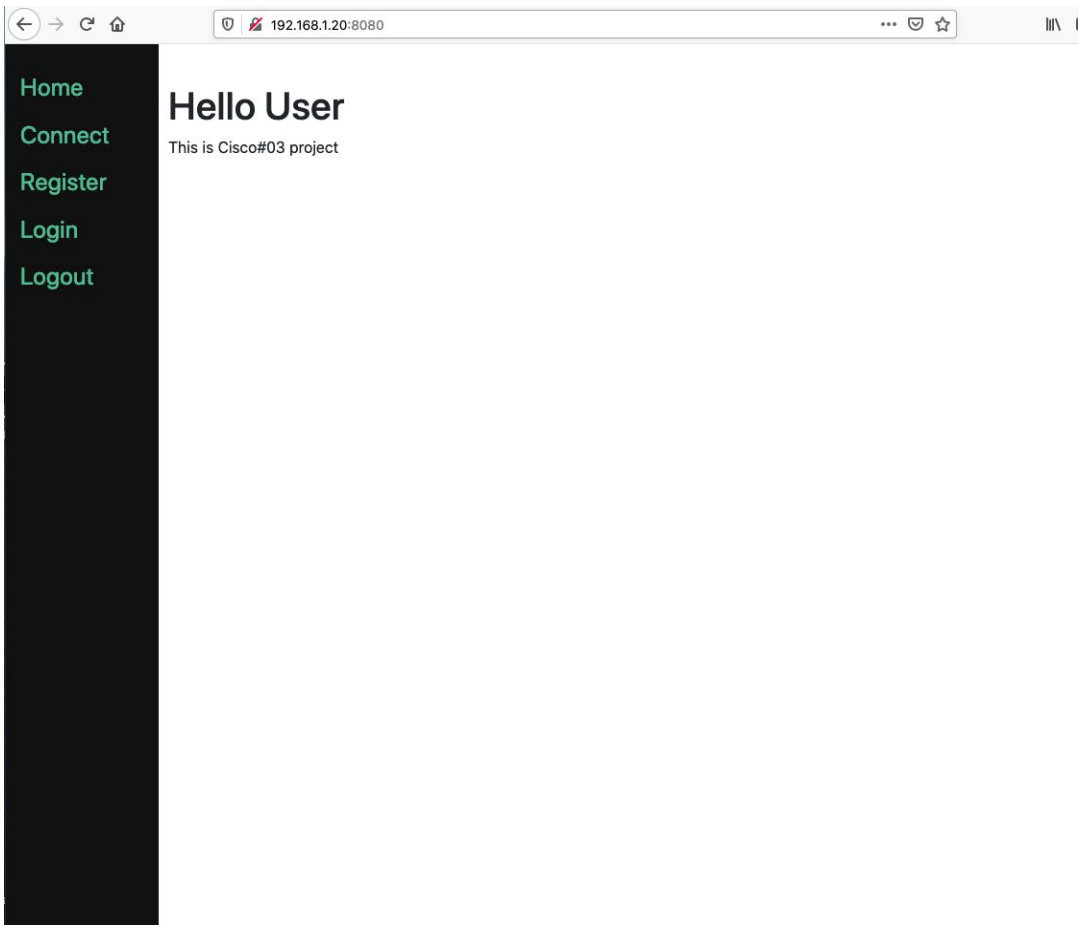
# Application Installation

## Server:

1. Run the command `wget https://github.com/NathanBlais/CSE-120-Cisco3/archive/main.zip`
2. Run the command `unzip main'
3. Run the command `chmod -R 755 CSE-120-Cisco3-main/`
4. Run the command `cd CSE-120-Cisco3-main`
5. Run the command `python3 manage.py runserver 0.0.0.0:8080`

The website should be working now

- To access it you need to put the <Your Pi's IP Address>:8080 into your Desktops internet browser
    - You should see the website look like this




## Client

- There are different WireGuard clients available for different operating systems and platforms
- You will need to download the one you need from here: https://www.wireguard.com/install/

# Notes on Running the Application

- Here is the admin account used to initially sign in
    - username: cisco3
    - password: ciscoproject
- The code to transfer the clients config file was not fully implemented. So if you have issues you can manually retrieve the config in the /etc/wireguard/client-conf/ directory.
- If you want to generate a QR code of the config file you run this command in the terminal
    - `rencode -t ansiutf8 < /etc/wireguard/<client config you want>.conf`