1. Hardware
   1. Raspberry Pi Zero W
      1. <https://www.raspberrypi.org/products/raspberry-pi-zero-w/>
   2. USB to Micro USB cord
   3. USB Charger
   4. USB Micro SD reader for your pc
2. Create Raspberry Pi Zero W SD Card
   1. Download RASPBIAN STRETCH LITE OS
      1. <https://www.raspberrypi.org/downloads/raspbian/>
   2. Install RASPBIAN STRETCH LITE OS
      1. <https://www.raspberrypi.org/documentation/installation/installing-images/README.md>
   3. Add SSH and Wifi configuration files to the Micro SD card
      1. https://howchoo.com/g/ndy1zte2yjn/how-to-set-up-wifi-on-your-raspberry-pi-without-ethernet#add-your-wpa\_supplicantconf-file
         1. Reinsert SD Card into your computer
         2. Create an empty file “**ssh**” on the micro sd card
         3. Create “**wpa\_supplicant.conf**” on the micro sd card:

country=US

ctrl\_interface=DIR=/var/run/wpa\_supplicant GROUP=netdev

update\_config=1

network={

ssid="HIVEPIWIFI"

scan\_ssid=1

psk="HIVEPIWIFIPASSWORD"

key\_mgmt=WPA-PSK

}

1. Power on the Raspberry Pi
   1. Put the micro SD card into the PI zero
   2. Put the Pi Zero into the its case
   3. Connect the Micro USB cable and power block
   4. Plug the raspberry pi into the wall outlet
2. Log into your Raspberry Pi
   1. Connect your laptop to the wifi network
   2. Log into your raspberry pi via “ssh pi@raspberrypi” from your favorite terminal such as Putty
      1. Username: pi
      2. Hostname: raspberrypi
   3. Let’s confirm the Raspberry Pi is online
      1. ping –c 4 www.google.com
3. Let’s add software to the Raspberry Pi Zero W
   1. Switch user to root for software installation
      1. sudo -i
   2. Update the aptitude software repository
      1. apt-get update
   3. Upgrade Raspbian OS
      1. apt-get upgrade
   4. install vim
      1. apt-get install vim
   5. Install the Python package manager
      1. apt-get install python-pip
   6. Install Docker
      1. curl -fsSL get.docker.com -o get-docker.sh
      2. sudo sh get-docker.sh
      3. sudo usermod -aG docker pi
   7. Install docker-compose
      1. pip install docker-compose
   8. install git
      1. apt-get install git
   9. Reboot the Raspberry Pi (90 seconds)
      1. reboot
   10. Confirm docker version
       1. docker –-version
   11. Confirm docker-compose version
       1. docker-compose --version
4. Update the hostname and loopback adapter so your pi is unique on the network
   1. vi /etc/hostname
   2. vi /etc/hosts
   3. reboot
5. Deploy Helloworldarm Load Balanced Cluster
   1. git clone <https://github.com/bignay2000/helloworldarm.git>
   2. cd helloworldarm
   3. docker stack deploy -c docker-compose.yml helloworld