DESERTBOT.IO

HOME (/#HOME-1-SECTION)   RASPBERRY PI (/#RASPBERRY-PI-SECTION)

JETSON NANO (/#JETSTON-NANO-SECTION)

ARDUINO (/#ARDUINO-SECTION)   ABOUT (/#ABOUT-SECTION)

BLOG (/BLOG)   PRIVACY (/PRIVACY)

SETUP PI ZERO W HEADLESS WIFI (/BLOG/SETUP-PI-ZERO-W-HEADLESS-WIFI)
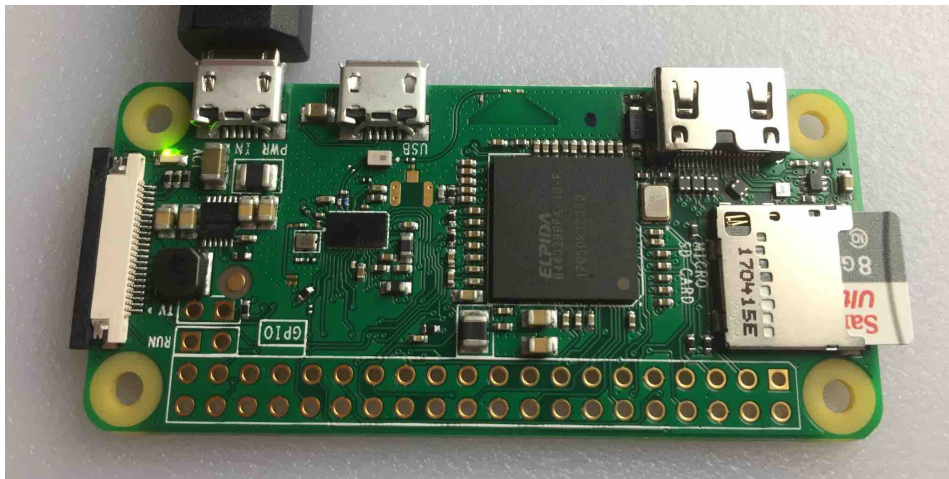
This article covers setting up the **Pi Zero W** for headless SSH access over WiFi using a Mac. The Windows version of these instructions can be found here: Headless Pi Zero W Setup (Windows) (/blog/headless-pi-zero-w-wifi-setup-windows).

If you have an older **Pi Zero 1.3**, see my article Setup Pi Zero Wifi (/blog/setup-pi-zero-wifi/).

Step 1. Download a lite Raspbian image

These instructions are for a Raspbian Jessie image that I downloaded from here:

https://www.raspberrypi.org/downloads/raspbian/ (https://www.raspberrypi.org/downloads/raspbian/)

I'm using the lite image (no desktop) version 4.9 from July 05, 2017.

Once you download the file, unzip it and note the location of the *.img file.

Step 2. Plug a micro SD card into your Mac

These steps emulate what an install script does.

Put a blank micro SD card in an adapter and plug it into your computer.

Open up a terminal window and type:

```
diskutil list
```

At the bottom of the output, you should get a result similar to this:

```
/dev/disk2 (internal, physical):
#: TYPE NAME               SIZE     IDENTIFIER
0: FDisk_partition_scheme *7.9 GB disk2
1: Windows_FAT_32 boot     66.1 MB disk2s1
2: Linux                   7.9 GB disk2s2
```

Assuming that your SD card is 8GB, you can tell that **/dev/disk2** is the SD card. *On your machine it may be different. Make sure you have the correct one before proceeding.*

Step 3. Unmount the micro SD card

Before you can burn an image to the card, you needs to unmount it first, by issuing this command (assuming **disk2**!):

```
diskutil unmountDisk /dev/disk2
```

Step 4. Burn the image to the micro SD card

To burn the image to the SD card, run this command (adjusting for the location and filename of the image that you downloaded):

```
sudo dd bs=1m if=~/Downloads/2017-07-05-raspbian-jessie-
lite.img of=/dev/disk2
```

The command should take several minutes. Once it's done you should
see the new Raspbian **boot** volume when you execute this command:

```
ls -ls /Volumes/
```

Step 5. Enable ssh

For security reasons, **ssh** is no longer enabled by default. To enable it, run
this command:

```
touch /Volumes/boot/ssh
```

Step 6. Add network info

Create a new empty file that will hold network info:

```
touch /Volumes/boot/wpa_supplicant.conf
```

Edit the file that you just created and paste this into it (adjusting for the
name of your country code, network name and network password):

```
country=US
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1

network={
    ssid="NETWORK-NAME"
    psk="NETWORK-PASSWORD"
}
```

Step 7. Eject the micro SD card

Issue an eject command:

```
diskutil eject /dev/disk2
```

The command won't physically eject the disk/card. It's more of a logical
eject: meaning it's safe to remove the card now. You can also do this by
right-clicking on the card on your desktop.

Step 8. Boot the Pi Zero W

- Put the SD card into the Pi Zero W

- Plug a Micro-USB power cable into the **power** port (the one closest to the end of the board)
- Give the Pi Zero plenty of time to bootup (it can take as much as 90 seconds -- or more)

Step 9. Login over Wifi

This part assumes that **ssh** is enabled for your image and that the default user is **pi** with a password of **raspberry**.

- Open up a terminal window
- Run the following commands:

```
ssh-keygen -R raspberrypi.local
ssh pi@raspberrypi.local
```

- Don't worry if you get a host not found error for the first command - the idea is to clear out any previous references to raspberrypi.local
- If the pi won't respond, press Ctrl-C and try the last command again
- If prompted with a warning just hit enter to accept the default (**Yes**)
- Type in the password -- by default this is **raspberry**

Congratulations! You can now access your Pi Zero W over wifi!

If you can't connect, see the troubleshooting section near the end of this article. You may need to make some adjustments for your network.

Step 10. Change your Hostname and Password

Because your pi is now on the network, you should immediately change the hostname and password.

At the command line type:

```
sudo raspi-config
```

Select the options for changing the hostname and password. On a new image, I would also recommend expanding the file system (now under the Advanced options). Once the changes are made, reboot.

Remember that once you reboot, you will need to use the new hostname to login over ssh. For example, if your new hostname is **mypi** you would connect like this:

```
ssh pi@mypi.local
```

Step 11. Get the updates

Once connected over WiFi, the next thing you should do is run some updates:

```
sudo apt-get update -y
sudo apt-get upgrade -y
```

Troubleshooting

If you have trouble connecting over wifi, see my instructions for accessing a Pi Zero over a USB cable: SSH into Pi Zero over USB (/blog/ssh-into-pi-zero-over-usb/). Once connected you should be able to fix any issues.

Here are some helpful commands for debugging network and wifi issues on your Pi:

- This command should list your network in the first line for **wlan0**:

  ```
  iwconfig
  ```
- This command should show info for **wlan0**:

  ```
  ifconfig
  ```
- This command should list your network name:
  ```
  iwlist wlan0 scan | grep ESSID
  ```
- To edit or review your wifi settings, run this command:
  ```
  sudo nano /etc/wpa_supplicant/wpa_supplicant.conf
  ```

References

- How to Backup your Pi (/blog/how-to-backup-your-pi/)
- SSH into Pi Zero over USB (/blog/ssh-into-pi-zero-over-usb/)
- Setup Pi Zero Wifi (/blog/setup-pi-zero-wifi/)
- Setting up WiFi via the Command Line (https://www.raspberrypi.org/documentation/configuration/wireless/wireless-cli.md)
- Etcher (https://etcher.io) - a tool that handles burning the image to the micro SD card for you

About the Author

Mitch Allen works for a robotics company in New England.

TAGGED: HEADLESS (/BLOG/TAG/HEADLESS), WIFI (/BLOG/TA…

♥ 22 LIKES   ⌁ SHARE

〈http   〈http   〈http

Mitch Allen (the owner of this site) is a participant in the Amazon Services LLC Associates Program, an affiliate advertising program designed to provide a means for sites to earn advertising fees by advertising and linking to Amazon.com