**How to set up local Linksys wifi network with Raspberry Pi 4**

(version 6/24/2023 by M. Lowe mlowe@loyola.edu)

Materials

* Raspberry Pi 4: Hook it up to a monitor, USB mouse, USB keyboard. Use the microHDMI port on Pi to go to the monitor. Buy adapter, if needed.
* Linksys Wifi router with its instructions that contain name and password (I have an E5400 router.)
* Laptop (I used a PC.)

Note: Sometimes the Linksys site (http://myrouter.local) displays a pink window with “400 Bad request.” Try to go to the site again and again. Also try disconnecting laptop from Linksys and reconnect. Eventually you will get a blue window.

Using the laptop to initially set up Linksys

1. (I did this but am not sure if it is necessary.) Attach ethernet cable between Linksys and a working router that can access the Internet.
2. Connect laptop wirelessly to network called Linksys (mine says Linksys04582).
   1. For password, push blue WPS button on Linksys. The LED on router will blink, and there will be a whirling circle on the laptop.
   2. When connected, the laptop will say “No internet, secured” with a rectangle that says “Disconnect,” and the network symbol will still look like an empty globe.
3. The Wizard will launch. If it doesn’t, you may need to push the red Reset button on Linksys. You may also need to disconnect and reconnect to Linksys.
4. In the Wizard, create the name and password of two network connections. For me, they are:
   1. 2.4GHz: Name: Linksys04582 and Password: Legolas2000
   2. 5 GHz: Name: Linksys5GHz and Password: Legolas 2000
   3. Password: fgihn4u2wq (I used the same password as on instruction sheet. Not sure if you have to.)
5. Disconnect laptop from Linksys.

Using the laptop and Pi keyboard/mouse to set up Raspberry Pi

1. You will need the MAC address of Pi. Do not connect Pi to Linksys yet. Open command terminal on Pi and type ifconfig. You will see:

eth0: ether e4:5f:01:ef:9c:46 (for ethernet, I think)

wlan0: ether e4:5f:01:ef:9c:46 (for wifi network)

Use the hex number on the wlan0 line. This is the MAC address of Pi.

Note: Somebody named Pi already. When did this occur and how was it done?

1. You need to associate an IP address with the MAC address of Pi. Reconnect laptop to Linksys using Legolas2000 as network security key.
2. Open web browser and type <http://myrouter.local> or 192.168.1.1
3. You will see a blue window. The password is fgihn4u2wq.
4. (This step may be unnecessary.) Record MAC address of router. (Mine is 80:69:1A:69:86:B7)
5. Click on Configuration tab > DHCP Reservation
6. You may see a client already with IP address. Mine corresponds to the laptop that is being used.
7. In the spot where you can manually add a client, type:

Name: raspberrypi7A IP address: 192.168.1.11 MAC address: e4:5f:01:ef:9c:46

When you select an IP address, 192.168.1 was given. I picked the 11.

Add; you will see the client in “clients already reserved” list. Save (There are two SAVE buttons to click.)

1. Now connect Pi to Linksys. If you hover over the wifi symbol, you should see “wlan0 configured 192.168.1.12”.

To check communication among the laptop, Pi, and router

1. Open DOS terminal (command prompt) or Anaconda Prompt terminal. Type ping 192.168.1.11. If you are communicating, you will see a reply from the device.
2. On laptop, open Putty and ssh to Pi.

Username: pi

Password: raspberry

1. If successful, you no longer need the monitor, keyboard, and mouse hooked up to Pi. But when I disconnect power and remove monitor, keyboard, and mouse, then repower, I cannot ping Pi. How does Pi know to connect to Linksys automatically upon startup? There must be something to configure that is read upon startup.

Google: how does raspberry pi automatically connect to router

/etc/wpa\_supplicant/wpa\_supplicant.conf