GoPiGo and Raspberry Pi – WiFi Setup Guide

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Date: April 27th, 2015

Synopsis: This is a brief guide that will cover how to setup and access the Pi over three different kinds of WiFi connectivity methods: ad-hoc (no router), using a static IP and using DHCP (with a router). This should have already been done for you, but may serve as a good reference for troubleshooting if you are having networking issues on your home network. Have the WiFi network name and password, if any, available to you for this guide. This will be provided by the instructor. Issue all commands exactly and remember: **Linux is case sensitive!**

Method #1: Static IP

1. If wireless is already configured for DHCP, first issue ‘sudo ifdown wlan0’. This disconnects the wireless that is currently active.
2. Follow steps 1-7 from Method #2.
   1. In step 6, if there is already a .bak file in the directory, leave it! You can check the contents of a directory (see what is there) by typing ‘ls’
   2. Skip step 7.b & 7.c if lines are already commented out. Otherwise, follow them.
3. At step 7.D, add this text to the file instead of the text listed in Method #2
   1. <screenshot of static IP config text>
   2. Be sure to comment your change!
   3. Ctrl + x, y and enter again to save changes and exit
4. Type ‘sudo ifup wlan0’ to bring the wireless back up.
5. [Note to self: Having issues here. Might just link to [this website](http://www.modmypi.com/blog/tutorial-how-to-give-your-raspberry-pi-a-static-ip-address) instead]

Method #2: DHCP

1. Connect a monitor, keyboard, mouse, and Ethernet cable for temporary configuration
2. On the desktop, double click the ‘LXTerminal’ icon.
3. Let’s get some baseline information, first, so we can use SSH and remove the mouse/keyboard/monitor from the equation. Leave the Ethernet cable connected until configuration is complete.
4. First, type ‘ifconfig’. This will give you the IP address of the Ethernet connection, called eth0. Use this to SSH into the Pi.
5. Next, type ‘iwconfig’. This shouldn’t show anything connected, but is the command we use to get information for the wireless connection, known as wlan0. We can use this IP address, which is separate from the eth0 IP, to remote into the Pi after it’s been disconnected from Ethernet and is connected to the GoPiGo. **This method (ssh via WiFi) is how you will connect to the Pi for the remainder of the project**.
   1. <insert screenshot of iwconfig command>
6. Type ‘sudo cp /etc/network/interfaces /etc/network/interfaces.bak’. THERE IS A SPACE BETWEEN THE COMMANDS DENOTED BY THE \_\_\_\_ MARK. DO NOT TYPE THE \_\_\_\_ MARK, BUT A SPACE. So, you should type (without quotes) “sudo cp /etc/network/interfacesSPACE/etc/network/interfaces.bak”
   1. This makes a backup copy of the original file, in case anything messes up.
7. Now type ‘sudo nano /etc/network/interfaces’
   1. The file will have contents similar to the following:
      1. <screenshot of contents>
   2. Comment out all lines having to do with ‘wlan0’
      1. <screenshot of commented out lines>
   3. Add a commented line (using #) to explain what change you are making
      1. <screenshot of comment>
   4. Add the following text, verbatim
      1. <screenshot of code>
   5. Press ctrl + x, then y, then enter to save your changes.
8. Type ‘sudo ifdown wlan0’, then ‘sudo ifup wlan0’. This will disconnect, then reconnect the wifi network with the name and password you provided. Some text will scroll by and you’ll see something similar to “bound to 192.168.1.###”. This is a good sign!
9. Type ‘iwconfig’ and you should see the name of the WiFi network you just joined.
10. Wireless is now working and you can SSH into the Pi using the IP address from the last step.

Method #3: Ad-Hoc

**This method is very useful because it doesn’t require a router or any internet connectivity except for initial setup, which can be done with the help of your instructor. Your Pi will talk directly to your computer, so this method can be used on JMU’s campus as well!**

Instructions adapted from here: <http://spin.atomicobject.com/2013/04/22/raspberry-pi-wireless-communication/>