

Wireless Router/AP Investigation

CSCD 433/533

Due: Feb. 16th, 2017

Goals:

1. To learn about your wireless router. Its speed, backward compatibility, channel configuration and optimization.
2. To use tools to view wireless AP's in your neighborhood.
3. Explore the use of WiFi tools. Ideally, use a tool you have not yet used before.

Part 1 – Your WiFi Router/AP

- a. Log in to your wifi router as the system administrator

Answer the Questions Regarding your Router

1. What version of AP/router do you have (b/g/a/n/ac)? What is the frequency at which your router is operating? What other frequencies does your router support?
2. What speed are you getting at this frequency? Try changing the frequency. Does it change your speed and if yes, in what way?
3. What channel are you currently on? Try changing your channel. Does it change your speed, how?
4. What is the IP address of your router? Is it the same as your external IP address? Why or why not?
5. Is your wireless AP MAC address the same as your router MAC address?

Part 2 – WiFi Discovery and WiFi Tool Use

We are going to use some tools in this part of the lab. Your tool should at the least, list the neighborhood AP's around you, list their names, signal strength, channel and frequency. A plus, would be if you can see the AP's security too.

- a. **Linux:** If you have a linux machine, there are built in tools that you can use to view the AP's in your neighborhood, look at your own connection information and signal strength

These tools are: **iwlist**, **iwspy**, **iwconfig** and a few others. Mostly you need **iwconfig** and **iwlist**.

You can also use the plain `ifconfig` to see your 802.11 connection.

You can use the man pages to see what they do and how to use them or Google.

Another tool at least built in to Debian and Ubuntu is **nm-tool**.

nm-tool also gives a list of neighborhood access points and information about them.

- b. **Mac OS X:** For Mac OS X there is something called **Wireless Diagnostics**. This tool is good.

Here is a link that shows how to use it:

<http://www.howtogeek.com/211034/troubleshoot-and-analyze-your-mac%E2%80%99s-wi-fi-with-the-wireless-diagnostics-tool/>

Also something called airport tool. The link that explains it is below:

<http://osxdaily.com/2007/01/18/airport-the-little-known-command-line-wireless-utility/>

c. Windows: You can download tools to view neighborhood AP's.

Here are 7 tools for Windows:

<http://www.networkworld.com/article/2924320/wi-fi/7-free-wi-fi-stumbling-and-surveying-tools-for-windows-and-mac.html>

Another set of tools. InSSIDer is not free at this time. There are some older versions around.

<http://www.techrepublic.com/blog/five-apps/five-free-wireless-networking-tools/>

Procedure and Questions

Whatever OS you use and tools, the goal is WiFi AP discovery with details.

1. List the WiFi AP's around you. If there are more than 10, just list the ones with the strongest signal strength. Along with the name, record their channel and signal strength.

What is the most popular channel? Is this the channel you are also using? What freq. bands are in use in your neighborhood? What freq is the most popular? How many are using security and what type?

2. Look at the range of signals and their strength. Is the AP you are associated with have the strongest signal? Given your laptop is supposed to connect with the strongest signal, is that what your laptop appears to be doing? Explain. Now, move farther away from your AP. Move to the backyard or front yard. What is your signal strength now? As you move farther away, is there a point where you can no longer see your AP? Also, does your AP neighborhood list change as you move around?

3. Tool Reporting

In this question, you should report on the tool(s) that you used to capture the WiFi information. How easy was it to use and learn? Did it provide all the information you needed to know or did you have to use multiple tools? Would you recommend it to others?

Turning in the Lab

1. Answer the questions and email to me, put CSCD433-Lab3 in the subject line.