Name _____   Group #_____

CPADS HW Activity VI
"Look Ma, No Wires!"

While making cables may (or may not) be fun, running them to every computer and switch can often be very cumbersome. Hence wireless network technologies have made great strides in providing both the convenience of mobility with ever improving performance. Now we will explore how wireless transfer rates compare to the wired ones (specifically gigabit Ethernet) from last time.

1. Install the Adapter

Obtain a USB wireless adapter from the instructor.

- Manufacturer: _____

- Model: _____

- *All* supported WiFi standards: _____

Again, use the Internet to find the most recent driver (do not download as it will be provided on a flash drive)

- Driver version: _____

Go into "Network and Sharing Center" (right click on the networking icon in the lower right corner of the Desktop). Select "Change adapter settings" from the left hand column. Right click on the Ethernet connection and select "Disable".

Be sure that the front panel USB ports are connected to the motherboard and plug the WiFi adapter into one of the front panel USB ports.

Locate and connect to the wireless network set up for this lab (**DO NOT** connect to the ycp wireless network). When prompted for a network password, use: `cpadswifi`

- SSID: _____

Since this wireless network has a DHCP server, determine the IP address assigned to your network card

- IP Address: _____

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2. Throughput Measurement

We will now perform the same crude measurement of the wireless speed as we did with the wired.

- Open `Task Manager (Ctrl-Alt-Del)` and select the `Performance -> Ethernet` tab.

  `Link Speed`: _____

This gives the *theoretical* maximum (secured) transfer rate.

- Locate the `CPADS` shared directory on **ASUS-3D**. From your Windows 8.1 desktop, click on the File Explorer icon in the taskbar (i.e. the yellow folder looking thingy). In the left column, select "Network". Windows 8.1 may indicate that you need to turn on "Network Discovery". Click the yellow bar and "Turn on" network discovery. From here, you should be able to see the **ASUS-3D** computer. If you are not able to find the **ASUS-3D** computer, *check your workgroup setting*. Select **ASUS-3D** computer from the list and use the login information to connect to the machine:

  Login: **cpads-guest**
  Password: **cpads**

- Drag and drop the file from that directory onto your desktop. In the copy dialog window, click "More Details" to get more information about the speed of the copy (cancel the transfer before it completes).

  Speed: _____ Approximate Network Utilization %: _____

3. Network Technology Comparison

Complete the following table for the wireless technology

Technology	Theoretical Throughput (Gbps)	% Achieved	Actual Throughput (MB/s)
Gigabit	1 Gbps	~76%	95.8 MB/s
802.11ac (secure)			

Which technology performed best in terms of actual throughput? Which technology performed best in terms of percentage of theoretical throughput (% achieved)? Compare and contrast the two technologies.