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: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Install the driver. Locate and connect to the wireless network set up for CPADS (**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: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2. Access Point Information**

Using a web browser, log into the *access point* using

URL: **192.168.10.1**

password: **ycpcsRouter**

Determine the MAC address of the *router* (check the Device List for the router info)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. Throughput Measurement (Unsecured)**

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 Networking tab.

Link Speed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

* Locate the CPADS shared directory on ASUS-3D (using My Network Places) using login information

Login: **cpads-guest**

Password: **cpads**

* Drag and drop the file from that directory onto your desktop and approximate the *average* percentage throughput obtained (cancel the transfer before it completes).

Approximate Network Utilization %: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Using the above information and the theoretical maximum speed, compute the *actual* achieved speed in MB/s (note the system gives Mb/s)

Achieved Throughput (MB/s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4. Network Technology Comparison**

Complete the following table for the wireless technology

|  |  |  |  |
| --- | --- | --- | --- |
| **Technology** | **Theoretical Throughput (Gbps)** | **% Achieved** | **Actual**  **Throughput (MB/s)** |
| Gigabit | 1 Gbps | ~50% | 62.5 MB/s |
| 802.11ac (open) |  |  |  |

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.