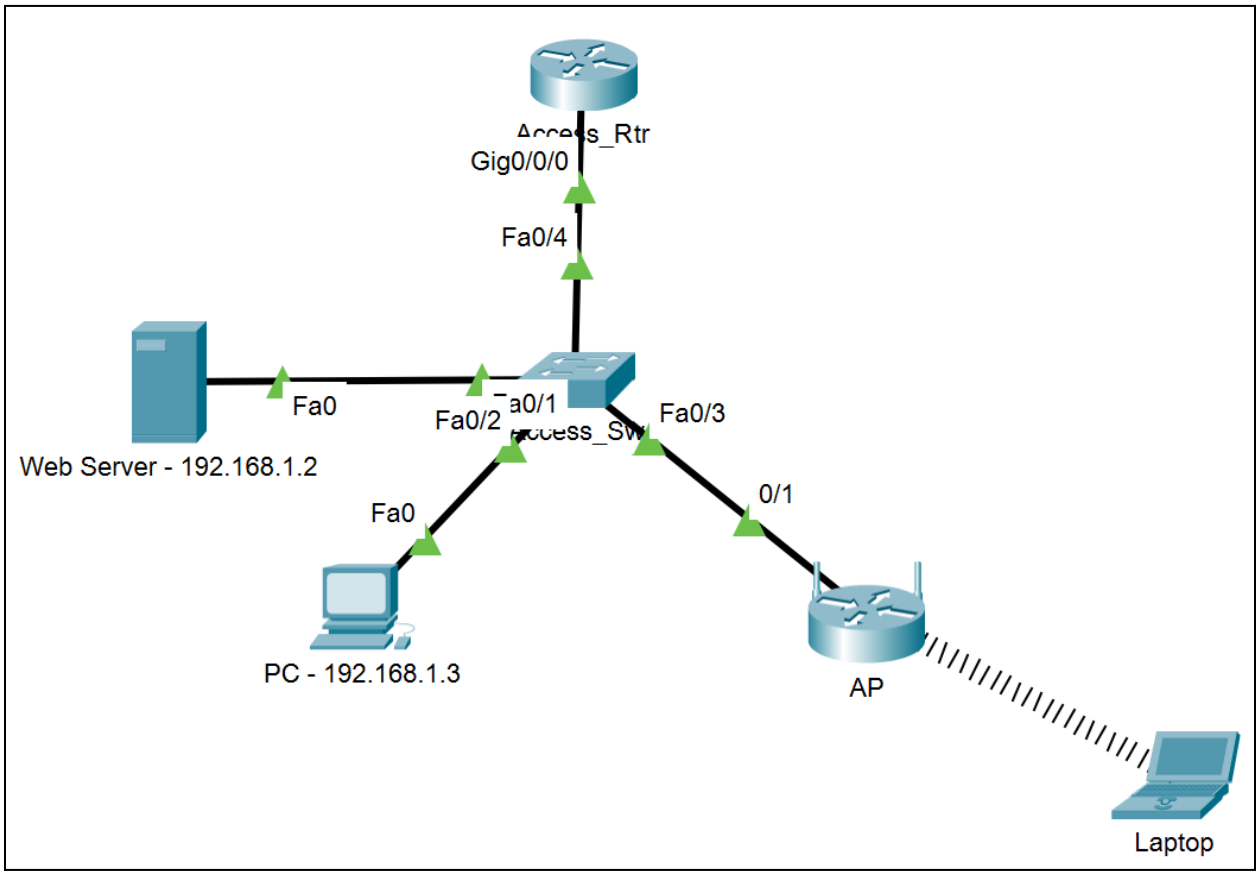
Wifi: Fall 2022

Purpose:
Today, you will create an autonomous WLAN that people can connect to from their wireless device. Once connected, people will try to connect to the website on that WLAN.

Note: Any direction that includes an “X” is representative of the station number you are working at. Please enter the station number you are at anytime there is an “X”.



Part 1:
Next, we will configure the PC for DHCP.

- Follow the instructions below to enable the DHCP on the PC
    - Control Panel> Network and Internet> Network and Sharing Center> Change adapter settings> Ethernet> Properties> Internet Protocol Version 4 (TCP/IPv4)> Obtain an IP address automatically> OK.
    - DO NOT CLICK THE RED X, CLICK OK TO SAVE CONFIGURATIONS.

Part 2:
Next we need to install basic configurations on the router such as hostname and the enable mode password. Use the console into the router to configure it.

- Use the following commands to name the router
    - `router> enable`
    - `router# configure terminal`
    - `router(config)# hostname Cisco1`
    - `Cisco1(config)# enable secret aggies`
    - `Cisco1(config)# service password-encryption`
    - `Cisco1(config)# banner motd "Welcome to Cisco Academy at TAMU!"`

Part 3:
Now we need to configure the port addresses and a DHCP pool on the router.

- Use the following commands to configure the port address on the router
    - `Cisco1# configure terminal`
    - `Cisco1(config)#interface g0/0/0`
    - `Cisco1(config-if)# ip address 192.168.x.1 255.255.255.0`
    - `Cisco1(config-if)# no shutdown`
    - `Cisco1(config-if)#exit`

- Use the following commands to configure the DHCP pool on the router

- `Cisco1(config)# ip dhcp excluded-address 192.168.x.1 192.168.x.10`
- `Cisco1(config)# ip dhcp pool Cisco1`
- `Cisco1(dhcp-config)# network 192.168.x.0 255.255.255.0`
- `Cisco1(dhcp-config)# default-router 192.168.x.1`
- `Cisco1(dhcp-config)# dns-server 192.168.x.2`
- `Cisco1(dhcp-config)# end`
- `Cisco1# copy run start`
- `Cisco1# show ip dhcp binding`

- ****IF**** you don't see your PC's MAC address, go to the command prompt and enter the following:
  - `C:\Users\Cisco1> ipconfig/ release`
  - `C:\Users\Cisco1> ipconfig/ renew`

Part 4:

Now, instead of configuring the rest of the router using the console cable, we will use SSH.

- Use the following commands to configure SSH on the router
  - `Cisco1(config)# username texas password aggies`
  - `Cisco1(config)# ip domain-name tamu.com`
  - `Cisco1(config)# crypto key generate rsa general-keys modulus 1024`
  - `Cisco1(config)# ip ssh version 2`
  - `Cisco1(config)# line vty 0 4`
  - `Cisco1(config-line)# login local`
  - `Cisco1(config-line)# transport input ssh`
  - `Cisco1(config-line)# end`
  - `Cisco1# copy run start`
- Unplug the blue console cable from the router.
- Open Putty
- In the address bar, type the following IP address

    - `192.168.x.1`
- Click Open
- When prompted, enter the following credentials that we configured earlier
    - `Username: texas`
    - `Password: aggies`
- Enter the password we configured for enable mode
    - `Cisco1> enable`
    - `aggies`

Part 5:

Now we will verify connectivity on the network using the ping command from the Windows command prompt.

- Open command prompt and type the following
    - `C:\Users\Cisco1> ping 192.168.x.1`
- Then test connectivity to the DNS server
    - `C:\Users\Cisco1> ping 192.168.x.10`

Part 6:

Next, we need to activate the website on the raspberry pi. Use the following commands to activate it.

- Open Putty
- In the address bar, type the following IP address
    - `192.168.x.10`
- Enter the credentials
    - `Username: pi`
    - `Password: raspberry`
- Search for the website in the directory
    - `pi@raspberrypi:~ $ cl`
- Access the website and boot it up
    - `pi@raspberrypi:~ $ cd filename`
    - `pi@raspberrypi:~ $ filename/ python -m SimpleHTTPServer`
- Your website should be up and running

Part 7:

Finally, we need to set up the wireless access point for people to connect to.

- Using your wireless device, set your IP address to the following
  - `192.168.x.5 , 255.255.255.0`
- Open your web browser on your device
- In the URL bar type
  - `192.168.1.1`
- Select **“NO”**
- For any passwords and security questions, enter “**aggies”** for the password
- Login with the following credentials
  - Username: `admin`
  - Password: `aggies`
- Once you’re in the GUI, click the **Wireless Setup** tab
- Change the SSIDs to **CiscoX**
- Change the passwords to **aggies**
- Click **APPLY**
- Next, click the **ADVANCED** Tab
- Click **Wireless AP**
- Select **Enable AP Mode**
- Click **APPLY**

Part 8:

Now we can test network connectivity by attempting to reach the websites.

- Using your wireless device, find an SSID to connect to
- Once connected to that network, open your browser
- In the URL bar, type the IP address
  - `192.168.x.10:8000`
- Try to connect to every active network and see what website is on it

Part 9:

Now, we need to wipe all of our devices and reset them.

- To reset the Wireless AP, hold the reset button on the back of the AP
- To reset the Raspberry Pi, unplug and replug the power supply
- Use the following commands to wipe the router, be sure to console in
    - `Cisco1# write erase`
    - `Cisco1# reload`
- On your PC turn off DHCP by giving it the static IP address
    - `192.168.0.1`

Conclusion:

Now, you know how to configure the router as the DHCP, modify settings on a WAP, and boot a website running on a local server.