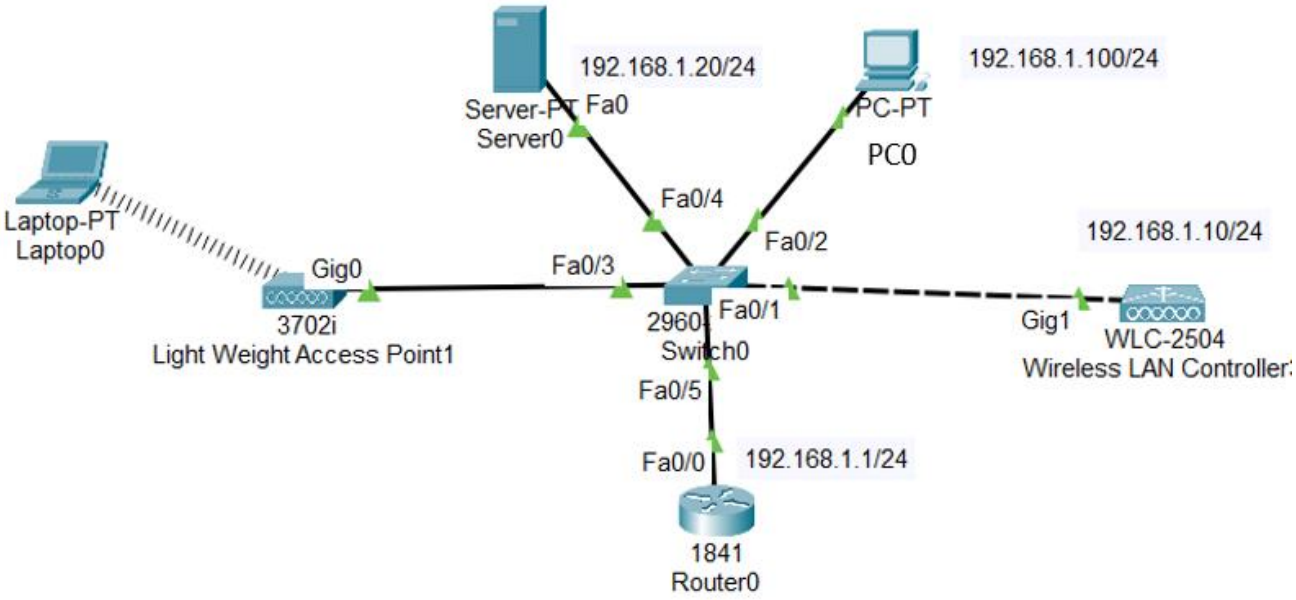
Cisco Packet Tracer Wireless Lab (ver 1.1)

Run Cisco Packet Tracer program on your computer to perform the following items. Download this program from the Internet or http://cs3.calstatela.edu/~egean/cs4471/software if needed. An introduction to Packet Tracer can be found at https://www.netacad.com/courses/packet-tracer/introduction-packet-tracer .

1. Configure the network shown below comprising of a WLC-2504 Wireless LAN Controller, 2960 Ethernet switch, 3702i Lightweight Access Point, Server, 1841 Router, and PC computer interconnected by Ethernet cables. A laptop computer will be used to the network via WiFi. Submit a screenshot of this. (initial screenshot may not show that laptop is connected to wireless access point).



2. Click on the Wireless LAN Controller icon and go to the **Config** tab. Click on the **Management** interface and set the management IP address to *192.168.1.10*, subnet mask to *255.255.255.0*, and default gateway to *192.168.1.1*. Submit a screenshot of these settings.

3. On computer PC0, configure IP address *192.168.1.100* and subnet mask *255.255.255.0*. Submit screenshots of the following three verifications.
   a. Open a command prompt window on PC0 and run command "ipconfig" to verify IP configuration settings.
   b. Verify that computer PC0 can ping its own IP address by running command "ping 192.168.1.100".
   c. Also verify that computer PC0 can ping the IP address of the Wireless Lan Controller.

4. On computer PC0, open a web browser and go to URL http://192.168.1.10. Create an admin account with an appropriate password that you can easily remember (eg. admin or Wlc-2504).

   Set up your controller with an appropriate system name along with management IP address *192.168.1.10*, subnet mask *255.255.255.0*, default gateway *192.168.1.1*, management vlan ID value of *0* (for untagged vlan). Click **Next** button.

   Create your wireless network by setting network name to *Employee*, security *to WPA2 Personal*, passphrase to *Employee*, vlan *Management VLAN*. Click **Next** button. Click **Next** button.

Confirm settings and click **Apply** button. After waiting one minute for the controller to reconfigure itself with the new settings, log back into the wireless LAN controller via https://192.168.1.10 .

Click on **WLANs** tab. A new Profile named ***Employee*** with an SSID of ***Employee*** should have already been created (if not, do create this new Profile named ***Employee*** with an SSID of ***Employee*** and ***c***lick button **Apply** to save these settings) Submit a screenshot that contains these settings.

Click on the WLAN ID number of the newly created profile to edit its settings. Click on the **Security** tab. Within the Layer2 settings, verify that Layer 2 Security is set to ***WPA+WPA2*** . WPA2 policy should be checkmarked , **AES** encryption should be checkmarked , and **PSK** authentication should be enabled . If not already configured, set **PSK** (Pre-Share Key) to a value that you can easily remember(eg. *Employee*). Submit a screenshot of these settings. Click **Apply** to save these settings.

5. On Server0, go to **Config** tab and clock on interface **FastEthernet0**. Configure static IP address *192.168.1.20* and subnet mask *255.255.255.0* . Submit a screenshot of these settings for FastEthernet0 interface.

   Configure Server0 as a DHCP server by going to **Services** tab and then click on **DHCP**. Verfiy that DHCP service radio button is ***on*** for FastEthernet0 interface. Create a DCHP pool to provide up to *100* DHCP addresses starting from IP address *192.168.1.101* . Click on **Save** button to save the settings. Submit a screenshot of these settings

6. On the Light Weight Access Point 1, click on its Config tab and click on the GigabitEthernet0 interface. Submit a screenshot of the GigabitEthernet0 settings, which should show its DHCP configured IP address and subnet mask (Note: if DHCP address is not within range configured in DCHCP server, try to renew DHCP address on access point by clicking **Static** radio button followed by **DHCP** radio button).

   From PC0 web browser, connect to the web interface of the wireless LAN controller and click the menu tab labelled **WIRELESS** . Submit a screenshot of this display, which should show the access point (and its IP address) that has established connectivity to the wireless LAN controller.

7. On Laptop0, go to **Physical** tab and turn off the power to the laptop. Afterwards replace its fast Ethernet network module with Linksys **WPC300N** wifi module. Turn on the power to the laptop. Go to **Config** tab and click on interface **Wireless0**. Configure the Wireless0 interface settings such that SSID is set to *Employee* , Authentication is set to *WPA2-PSK* , PSK Pass Phrase is set to *Employee* , Encryption Type is *AES*, and IP Configuration is set to *DHCP*. If the IP address obtained is not within the range configured on the DCHP server, try renewing the IP address by clicking on the Static and DHCP radio buttons. Submit a screenshot of these settings.

8. On Laptop0, verify that you can ping IP address of DHCP server. From a command prompt window on Laptop0, submit screenshots of output of "ipconfig /all" and "ping 192.168.1.20".

9. (2pts) In Simulation mode, capture and decode a CAPWAP packet while sending ping packets from wireless Laptop0 to wired desktop computer PC0. Submit a screenshot of a decoded Ethernet frame that also includes the CAPWAP packet decoded . What UDP port number is used to tunnel CAPWAP packets? What path does the ping packet take between Laptop0 and PC0 ?