37 Wireless Fundamentals Configuration – Lab Exercise
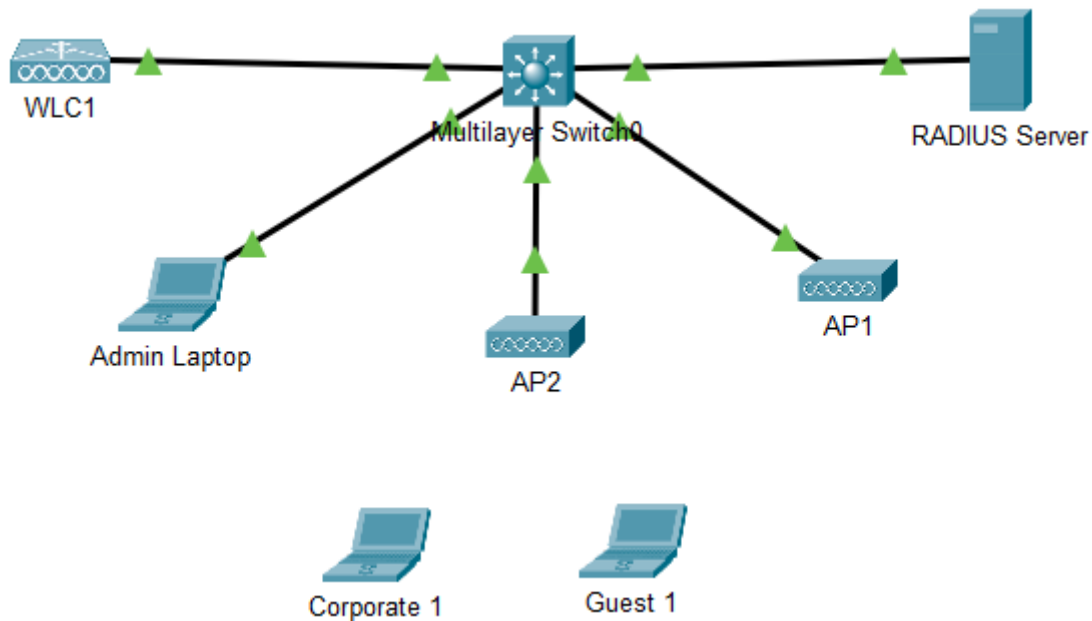
In this lab you will configure Corporate and Guest WLANs in a company campus.

Lab Topology

Load the Startup Configurations

Open the '37 Wireless Fundamentals Configuration.pkt' file in Packet Tracer to load the lab.

VLANs and IP subnets have already been set up for the company servers and IT administrators to connect via wired connections:

VLAN Name	VLAN Number	IP Subnet	Gateway (on switch)
Server	11	192.168.11.0/24	192.168.11.1
Admin	21	192.168.21.0/24	192.168.21.1

The IT administrators are restricted to wired connections for security reasons, an 'Admin' WLAN will not be created.

A new Wireless LAN Controller has been added to the network. Your colleague has already performed the initial setup at the command line to give the device IP address 192.168.10.11/24
Two Lightweight Wireless Access Points have just been unboxed and cabled to the Multilayer Switch.
Your job is to configure the new Corporate and Guest WLANs.

Note: Packet Tracer does not support a trunk port to the WLC so you will configure the VLAN information on 'dummy' ports on the switch. The devices are really connected to interfaces GigabitEthernet1/0/11 – 15. Do not change this.

Switch Configuration

1) On the multilayer switch, create a new VLAN for management of the wireless infrastructure devices. Use VLAN number 10 and name the VLAN 'Management'.

2) Create a VLAN interface on the multilayer switch to be used as the default gateway for the Management VLAN. Use IP address 192.168.10.1/24

3) Create a DHCP scope on the multilayer switch to allocate IP addresses to Wireless Access Points on the Management VLAN.
Use an address range of 192.168.10.101 to 192.168.10.254.
The default gateway is 192.168.10.1 and the Wireless APs should learn the address of the Wireless LAN Controller.
(A DNS server is not required in this lab environment.)

4) You will create a WLAN for Corporate users (staff members) later in this lab exercise. Create a new VLAN for the staff users. Use VLAN number 22 and name the VLAN 'Corporate'.

5) Create a VLAN interface on the multilayer switch to be used as the default gateway for the Corporate VLAN. Use IP address 192.168.22.1/24

6) You will also create a WLAN for guest users (non-staff members) later in this lab exercise. Create a new VLAN for the guest users. Use VLAN number 23 and name the VLAN 'Guest'.

7) Create a VLAN interface on the multilayer switch to be used as the default gateway for the Guest VLAN. Use IP address 192.168.23.1/24

8) Verify you now have these VLANs and VLAN interfaces configured (do not worry about the VLAN interface status being up/down, that is expected in this lab environment):

VLAN Name	VLAN Number	IP Subnet	Gateway (on switch)
Management	10	192.168.10.0/24	192.168.10.1
Server	11	192.168.11.0/24	192.168.11.1
Admin	21	192.168.21.0/24	192.168.21.1
Corporate	22	192.168.22.0/24	192.168.22.1
Guest	23	192.168.23.0/24	192.168.23.1

9) Port GigabitEthernet1/0/5 on the multilayer switch is connected to the Wireless LAN Controller.
Configure the switchport to support the Corporate and Guest WLANs and management of the Wireless Access Points.
The spanning tree protocol should not check for possible layer 2 loops on the port.

10) Port GigabitEthernet1/0/3 and GigabitEthernet1/0/4 on the multilayer switch are connected to the Lightweight Access Points.
Configure the switchports to support the Corporate and Guest WLANs and management of the Wireless Access Points.
The spanning tree protocol should not check for possible layer 2 loops on the port.

Wireless LAN Controller and RADIUS Server Integration

11) Check you can ping the Wireless LAN Controller at 192.168.10.11 from the Admin laptop.

12) Open https://192.168.10.11 (use https, not http) in a web browser window on the Admin laptop to open the Wireless LAN Controller administration GUI.
Login with username **admin** and password **Flackbox1**
If you get a 'Host Name Unresolved' error message then close the web browser window, then reopen it and try again.

13) On the dashboard Summary page, verify the two Access Points have registered with the WLC.

14) Add the RADIUS AAA server at 192.168.10.10 to the Wireless LAN Controller.
Your colleague has already added the Wireless LAN Controller as a client on the RADIUS server with shared secret **Flackbox1**.

DHCP on Wireless LAN Controller

15) Wireless DHCP clients can receive their IP address from an external DHCP server or from the Wireless LAN Controller.
Configure a DHCP scope on the WLC for Corporate wireless clients with the address range 192.168.22.101 to 192.168.22.254.
Enter all other relevant details (a DNS server is not required in this lab environment.)

16) Configure a DHCP scope on the WLC for Guest wireless clients with the address range 192.168.23.101 to 192.168.23.254.
Enter all other relevant details (a DNS server is not required in this lab environment.)

Logical Interfaces on the Wireless LAN Controller

17) Create a logical interface on the Wireless LAN Controller in the Corporate VLAN, with IP address 192.168.22.2.
Wireless clients on the Corporate VLAN should get an IP address from the Wireless LAN Controller.

18) Create a logical interface in the Guest VLAN with IP address 192.168.23.2.
Wireless clients on the Guest VLAN should get an IP address from the Wireless LAN Controller.

Wireless LANs

19) Create the wireless LAN named 'Corporate'. Clients should be authenticated by the 192.168.10.10 RADIUS server you added earlier, and WPA2 AES encryption should be used.

20) Create the wireless LAN named 'Guest'. WPA2 AES encryption should be used, and clients should authenticate with the pre-shared key **Flackbox3**.

21) Save the configuration on the Wireless LAN Controller.

Join Clients to the Wireless LANs

22) A username **Flackbox** with password **Flackbox2** has been configured on the RADIUS server.
Connect to the 'Corporate' WLAN from the Corporate1 laptop using this username.

23) Connect to the 'Guest' WLAN from the Guest1 laptop.

Note that the wireless clients will be assigned IP addresses from the 192.168.10.0/24 subnet in this Packet Tracer lab, rather than the Corporate and Guest DHCP scopes as would happen in a real world environment.