Packet Tracer - Configure a Basic WLAN on the WLC

Addressing Table

Device	Interface	IP Address
R-1	G/0/0	172.31.1.1/24
	G0/0/1.5	192.168.5.1/24
	G0/0/1.200	192.168.200.1/24
SW-1	VLAN 200	192.168.200.100/24
LAP-1	G0	DHCP
WLC-1	Management	192.168.200.254/24
Server	NIC	172.31.1.254/24
Admin PC	NIC	192.168.200.200/24
Wireless Host	Wireless NIC	DHCP

Objectives

In this lab, you will explore some of the features of a wireless LAN controller. You will create a new WLAN on the controller and implement security on that LAN. Then you will configure a wireless host to connect to the new WLAN through an AP that is under the control of the WLC. Finally, you will verify connectivity.

- Connect to a wireless LAN controller GUI.
- Explain some of the information that is available on the WLC Monitor screen.
- Configure a WLAN on a wireless LAN controller.
- Implement security on a WLAN.
- Configure a wireless host to connect to a wireless LAN.

Background / Scenario

An organization is centralizing control of their wireless LAN by replacing their standalone access points with lightweight access points (LAP) and a wireless LAN controller (WLC). You will be leading this project and you want to become familiar with the WLC and any potential challenges that may occur during the project. You will configure a WLC by adding a new wireless network and securing it with WPA-2 PSK security. To test the configuration, you will connect a laptop to the WLAN and ping devices on the network.

Instructions

Part 1: Monitor the WLC

Wait until STP has converged on the network. You can click the Packet Tracer Fast Forward Time button to speed up the process. Continue when all link lights are green.

a. Go the desktop of **Admin PC** and open a browser. Enter the management IP address of **WLC-1** from the addressing table into the address bar. You must specify the **HTTPS** protocol.

b. Click **Login** and enter these credentials: User Name: **admin**, Password: **Cisco123**. After a short delay, you will see the WLC Monitor Summary screen.

Note: Packet Tracer does not support the initial dashboard that has been demonstrated in this module.

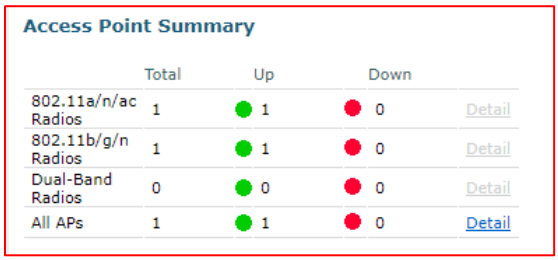
c. Scroll through the Monitor Summary screen.

What can be learned from this screen?

There is a lot of information available :
Information on the controller (summary, settings)
Access point summary
Statistics (for example, about the controller)
Connected clients
…

Is the WLC connected to an AP?

Yes as shown here :



d. Click Detail next to the All APs entry in the Access Point Summary section of the page. What information can you find about APs on the All APs screen?

We can find the following informations :

- AP name

- Ap IP address
- The device model
- AP mac address
- The time since it's been operational
- Admin status, operational status
- Number of clients
- ….

Part 2: Create a Wireless LAN

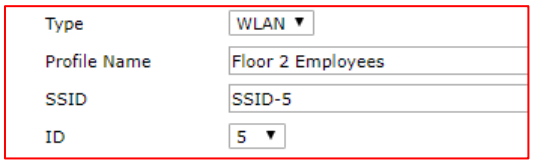
Now you will create a new wireless LAN on the WLC. You will configure the settings that are required for hosts to join the WLAN.

Step 1: Create and enable the WLAN.

a. Click **WLANs** in the WLC menu bar. Locate the dropdown box in the upper right had corner of the WLANs screen. It will say **Create New**. Click **Go** to create a new WLAN.

b. Enter the **Profile Name** of the new WLAN. Use the profile name **Floor 2 Employees.** Assign an SSID of **SSID-5** to the WLAN. Hosts will need to use this SSID to join the network.

c. Select the **ID** for the WLAN. This value is a label that will be used to identify the WLAN is other displays. Select a value of **5** to keep it consistent with the VLAN number and SSID. This is not a requirement but it helps with understanding the topology.



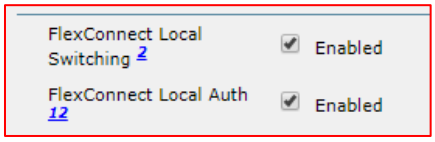
d. Click **Apply** so that the settings go into effect.

e. Now that the WLAN has been created, you can configure features of the network. Click **Enabled** to make the WLAN functional. It is a common mistake to accidentally skip this step.

f. Choose the VLAN interface that will be used for the WLAN. The WLC will use this interface for user traffic on the network. Click the drop-down box for Interface/Interface Group (G). Select the **WLAN-5** interface. This interface was previously configured on the WLC for this activity.

g. Click the **Advanced** tab.

h. Scroll down to the FlexConnect portion of the page. Click to enable **FlexConnect Local Switching** and **FlexConnect Local Auth**.



i. Click **Apply** to enable the new WLAN. If you forget to do this, the WLAN will not operate.

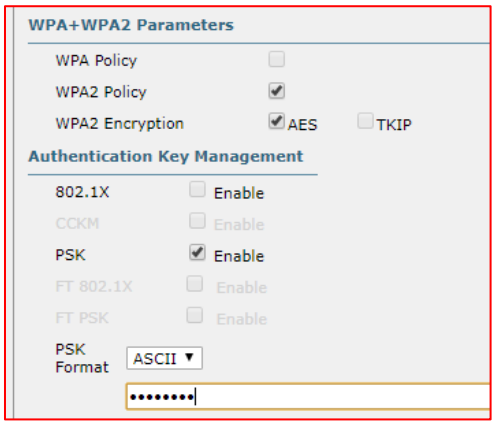
Step 2: Secure the WLAN.

The new WLAN currently has no security in place. This WLAN will initially use WPA2-PSK security. In another activity, you will configure the WLAN to use WPA2-Enterprise, a much better solution for larger wireless networks.

a. In the WLANs Edit screen for the Floor 2 Employees WLAN, click the **Security** tab. Under the **Layer 2** tab, select **WPA+WPA2** from the **Layer 2 Security** drop down box. This will reveal the WPA parameters.

b. Click the checkbox next to **WPA2 Policy**. This will reveal additional security settings. Under **Authentication Key Management**, enable **PSK**.

c. Now you can enter the pre-shared key that will be used by hosts to join the WLAN. Use **Cisco123** as the passphrase.



d. Click **Apply** to save these settings.

Note: It is not a good practice to reuse passwords when configuring security. We have reused passwords in this activity to simplify configuration.

Step 3: Verify the Settings

a. After Applying the configuration, click **Back**. This will take you back to the WLANs screen.

What information about the new WLAN is available on this screen?

We can see the name, the SSID, the status and the security policies.

b. If you click the WLAN ID, you will be taken to the WLANs Edit screen. Use this to verify and change the details of the settings.

Part 3: Connect a Host to the WLAN

Step 1: Connect to the network and verify connectivity.

a. Go to the desktop of **Wireless Host** and click the **PC Wireless** tile.

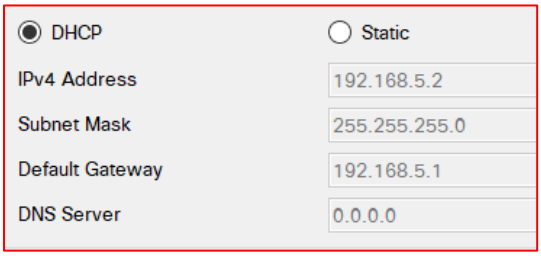
b. Click the **Connect** tab. After a brief delay you should see the SSID for the WLAN appear in the table of wireless network names. Select the **SSID-5** network and click the **Connect** button.

c. Enter the pre-shared key that you configured for the WLAN and click **Connect**.

d. Click the **Link Information** tab. You should see a message that confirms that you have successfully connected to the access point. You should also see a wireless wave in the topology showing the connection to LAP-1.

e. Click the **More Information** button to see details about the connection.

f. Close the PC Wireless app and open the IP Configuration app. Verify that Wireless Host has received a non-APIPA IP address over DHCP. If not, click the Fast Forward Time button a few times.



g. From Wireless Host, ping the WLAN default gateway and the Server to verify that the laptop has full connectivity.