13.2.7 Packet Tracer – Configure a Basic WLAN on the WLC – Instructions Answer

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13.2.7 Packet Tracer – Configure a Basic WLAN on the WLC (Instructor Version)



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Addressing Table

Interface	IP Address
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
VLAN 200	192.168.200.100/24
	Interface G/0/0 G0/0/1.5 G0/0/1.200 VLAN 200

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
		DUOD

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.

https://192.168.200.254



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?

Answers will vary. A lot of valuable information can be found here, including operating information about the WLC, information about the known access points and connected clients, and rogue APs and clients that have been detected on the network.

Is the WLC connected to an AP?

Yes, the WLC is connected to one AP. This is shown in the Access Point Summary section of the page.

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?

Information shown on the WLC includes the name of the AP, the IP address of the AP, the device model, MAC, software version, operational status, power source, etc.

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.

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Web Browser							x
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WLANS	WLANs					Entr	ries 0 - 0 of 0
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Advanced AP Groups	WLAN ID Type	Profile Name	e WLAN SSI	D Admin Status	Security Polic	ies	
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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.

4 Admin PC
Physical Config Desktop Programming Attributes
Web Browser X
< > URL https://192.168.200.254/frameWlanCreate.html Go Stop
CISCO MONITOR WLANS CONTROLLER WIRELESS SECORITY MANAGEMENT COMMANDS HELP FEEDBACK
WLANS WLANS > New _ < BACK _ Apply _ >
WLANS Type WLAN V
Advanced Profile Name Floor 2 Employees
AP Groups SSID
Пор

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.

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WLANs	WLANs > Edit 'Floo	or 2 Employees'		< BACK	Apply
WLANs WLANs	General Security	QoS Policy-	Mapping Advanc	ed	0
✓ Advanced AP Groups	Profile Name Type SSID Status Security Policies Radio Policy Interface/Interface Group(G) Multicast Vlan Feature Broadcast SSID NAS-ID	Floor 2 Employees WLAN SSID-5 Enabled Mone Modifications done under All Enabled Enabled Enabled	1	r after applying the cha	inges.)
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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**.

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WLANs	WLANs > Edit 'Floor 2	Employees'	< BACK	Apply
WLANs	General Security	QoS Policy-Mapping	Advanced	
▼ Advanced	Phonty		HTTP Profiling	
AP Groups	Scan Defer 100		Universal AP Admin Support	
	ElevConnect		Universal AP Admin	
	ElevConnect Local		11v BSS Transition Support	
	Switching 2	Enabled		
	FlexConnect Local Auth	🖉 Enabled 2		
	Learn Client IP Address			200
	5	Enabled		40
	Vlan based Central Switching 13			
	Central DHCP Processing		Tunneling	_
	Override DNS		Tunnel Profile	None 🔻
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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.

Web Browser									
< > URL	https://192.168.2	00.254/frame	eWlanEdit.html						Go
							Sa <u>v</u> e Conf	iguration	<u>P</u> ing Log
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		WP4	A2 Policy						
		WP4	A2 Encryption	I AES	U TKIP				
		Auther	itication key i	Management					
		802	.1X 0	Enable					
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		PSK	Format	ASCII V					
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		WP/ <u>14</u>	A gtk-randomize	State Disable	•				

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?

The WLAN name, SSID, security policy and admin status are available here. The Admin Status value indicates whether WLAN is in operational or not.

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.

🥐 Wireless Host	
Physical Config Desktop Programming Attributes	
	0
Link Information Connect Profiles	
Below is a list of available wireless networks. To search for more wireless networks, click the Refresh button. To view more information about a network, select the wireless network name. To connect to that network, click the Connect button below. Wireless Note Site Information SSID-5 1 63% Umbed Bigs Wireless Mode Infrastructure Network Type Mited Bigs Miceless Mode Infrastructure Network Type Network Type Mited Bigs National Auto Security WFA2-PSK MAC Address 0000.0C43.9802	2.4 ^{GHz}
Refresh Connect	
	Adapter is Inactive
Wireless - N Notebook Adapter Wireless Network Monitor v1.0	Mediel No. WPC300N
Пор	

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

Wireless Host Physical Config Desktop Programming Attributes	X
	0
	W
WPA2-Personal Needed for Connection	
This wireless network has WPA2-Personal enabled. To connect to this network, enter the required passphrase in the appropriate field below. Then click the Connect button.	Z
Security WPA2-Personal Please select the wireless security method used by your existing wireless network. Please select the wireless network.	
Pre-shared Key Cisco123 in length.	
Cancel Connect	tive
Wireless Network Monitor v1.0 Medel No. WPC300	N
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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.

			8
Link Information	Connect	Profiles	
Back	Statistics Wireless Ne	Save to Profile	2.4 ^{GHz}
Radio Band Wireless Network Na Wireless Mode Wide Channel Standard Channel Security Authentication	20MHz SSID-5 Infrastructure N/A 1 - 2.412GHz WRA2-Personal Auto	Network Type Mixed B/G/N IP Address 192.168.5.2 Subnet Mask 255.255.0 Default Gateway 192.168.5.1 DNS1 0.00.0 MAC Address 0000.0C43.9802	
Signal Strength		Link Quality	Adapter is Active

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.

r configuration			
Interface Wirel	ess0 ·		
OHCP	⊘ Static		
IPv4 Address	192.168.5.3		
Subnet Mask	255.255.255.0		
Default Gateway	192.168.5.1		
DNS Server	0.0.0.0		
IPv6 Configuration			
Automatic	⊘ Static		
IPv6 Address			
Link Local Address	FE80::2D0:97FF:FEB4:76A0		
Default Gateway			
DNS Server			

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



Ping Server

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<u>13.1.10 Packet Tracer – Configure a Wireless Network</u>

Next Lab

13.3.12 Packet Tracer - Configure a WPA2 Enterprise WLAN on the WLC

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