Packet Tracer – WEP/WPA2 PSK/WPA2 RADIUS

Addressing Table

Device	Private IP Address	Public IP Address	Subnet Mask	Site
NTP/AAA Server	10.44.1.252	209.165.201.5	255.255.255.0	Metropolis Bank HQ

Objectives

Part 1: Configure WEP for Healthcare at Home

Part 2: Configure WPA2 PSK for Gotham Healthcare Branch

Part 3: Configure WPA2 RADIUS for Metropolis Bank HQ

Background

In this activity, you will configure WiFi networks for all three geographic sites. This activity will utilize WEP, WPA2 PSK, and WPA2 RADIUS to demonstrate the varying configuration of WiFi networks and their security considerations. Healthcare at Home will be setup using WEP. Gotham Healthcare Branch will be configured with WPA2 PSK and Metropolis Bank HQ will be using WPA2 Radius. The IP addressing, network configuration, and service configurations are already complete. You will use the wireless routers and client devices in the differing geographic regions to setup multiple secure wireless networks.

Part 1: Configure WEP for Healthcare at Home

Step 1: Setup the Wireless SSID.

a. Click the **Healthcare at Home** site and click **PC0**.

b. Select **Desktop** tab. Click **Command Prompt**. At the prompt, enter **ipconfig**.

```
PC> ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.........: FE80::20B:BEFF:FEB4:1262
    IP Address......................: 10.44.3.100
    Subnet Mask.....................: 255.255.255.0
    Default Gateway.................: 10.44.3.1
```

What is the IP address for the default gateway?

c. Navigate to the **Web Browser** and enter the IP address for the default gateway. Enter **admin** as the username and password when prompted. Click **OK**.

d. The **Wireless Router** is the default gateway for this network. Click **Wireless** tab.

e. Change the **SSID** from **DefaultWIFI** to **Home**.

f. Set the SSID to **Broadcast**.

g. Click **Save Settings**. Click **Continue**.

Step 2: Setup Wireless Security.

a. Within the Wireless Router, click **Wireless** > **Wireless Security**.

b. Click the drop down menu and set the Security Mode to **WEP**.

c. Keep the encryption option set to 40/64-bits and enter the key **0123456789** as Key 1.

d. Click **Save Settings**. Click **Continue**.

   WEP and the key 0123456789 are not secure. Why is WEP not recommended for use in securing wireless networks?

Step 3: Connect the Clients.

a. Within the **Healthcare at Home** site, click **Dave's** Laptop.

b. Click the **Desktop** tab and click **PC Wireless**.

c. Click the **Connect** tab and click **Refresh**.

d. Select the Wireless Network Name of **Home** and click **Connect**.

e. Enter the key **0123456789** as WEP Key 1 and click **Connect**.

a. Repeat steps **a - e** for **Mary's** Laptop.

Part 2: Configure WPA2 PSK for Gotham Healthcare Branch

Step 1: Setup the Wireless SSID.

a. Click the **Gotham Healthcare Branch** site and click **PC1**.

b. Select **Desktop** tab. Click **Command Prompt**. At the prompt, enter **ipconfig**.

   Record the IP address for the default gateway:

c. Navigate to the **Web Browser** and enter the IP address for the default gateway. Enter **admin** as the username and password when prompted. Click **OK**.

d. Click **Wireless** tab.

e. Change the **SSID** from **DefaultWIFI** to **BranchSite**.

f. Change the Standard Channel to **6 – 2.437GHz**.

g. Set the SSID to **Broadcast**.

h. Click **Save Settings**. Click **Continue**.

Step 2: Setup Wireless Security.

a. Within the wireless router, click on **Wireless** > **Wireless Security**.

b. Click the drop down menu and set the Security Mode to **WPA2 Personal**.

c. Keep the encryption option set to **AES** and enter the passphrase **ciscosecure**.

d. Click **Save Settings**. Click **Continue**.

Step 3: Connect the Clients.

a. Within the **Gotham Healthcare Branch** site, click **Tim's** computer.

b. Click the **Desktop** tab and click on **PC Wireless**.

c. Click the **Connect** tab and click **Refresh**.

d. Select the Wireless Network Name of **BranchSite** and click the **Connect**.

e. Enter the Pre-shared Key **ciscosecure** and click **Connect**.

f. Repeat steps **a - e** for **Mike's** computer.

Part 3: Configure WPA2 RADIUS for Metropolis Bank HQ

Step 1: Setup the Wireless SSID.

a. Click the **Metropolis Bank HQ** site and click **Sally**.

b. Navigate to the **Web Browser** and enter the IP address for the wireless router (**10.44.1.251**). Enter **admin** as the username and password when prompted. Click **OK**.

c. Click the **Wireless** tab. Change the **SSID** from **DefaultWIFI** to **HQ**.

d. Change the Standard Channel to **11 – 2.462GHz**.

e. Set the SSID to **Broadcast**.

f. Click **Save Settings**. Click **Continue**.

Step 2: Setup Wireless Security.

a. Within the **Wireless Router**, click on **Wireless** > **Wireless Security**.

b. Click the drop down menu and set the Security Mode to **WPA2-Enterprise**.

c. Keep the encryption option set to **AES** and enter the following RADIUS server credentials:

RADIUS SERVER IP: **10.44.1.252**

Shared Secret: **ciscosecure**

d. Click **Save Settings**. Click **Continue**.

Step 3: Configure the RADIUS server.

a. Within the **Metropolis Bank HQ** site, click the **NTP/AAA** server.

b. Click the **Services** tab and click on **AAA**.

c. Enter the following information in **Network Configuration**:

Client Name: .... **HQ**

Client IP: **10.44.1.251**

Secret: .... **ciscosecure**

ServerType: ..... **Radius**

d. Click **Add**.

e. Enter the following information in **User Setup** and click **Add** to add the new username:

Username: **bob**   Password: **secretninjabob**

Username: **phil**   Password: **philwashere**

Step 4: Connect the Clients.

a. Within the **Metropolis Bank HQ** site, click **Bob's** computer.

b. Click the **Desktop** tab and click on **PC Wireless**.

c. Click the **Profiles** tab and click **New**.

d. Name the Profile **RADIUS** and click **OK**.

e. Click **Advanced Setup**.

f. Enter the Wireless Network Name **HQ** and click **Next**.

g. Do not modify the Network Settings and click **Next**.

h. Change the Wireless Security drop down menu to **WPA2-Enterprise** and click **Next**.

i. Enter the login name of **bob** and the password of **secretninjabob** and click **Next**.

j. Click **Save** and then **Connect to Network**.

k. **Bob's** computer will connect automatically.

l.   Repeat steps **a-j** for **Phil's** laptop using the authentication information from Step 3e.

When considering a large organization, why is WPA2 RADIUS more beneficial than WPA2 PSK?

Suggested Scoring Rubric

Activity Section	Question Location	Possible Points	Earned Points
Part 1: Configure WEP for Healthcare at Home	Step 2	5	
Part 3: Configure WPA2 RADIUS for Metropolis Bank HQ	Step 4	5	
Questions		10	
Packet Tracer Score		90	
Total Score		100	