

Name: _____

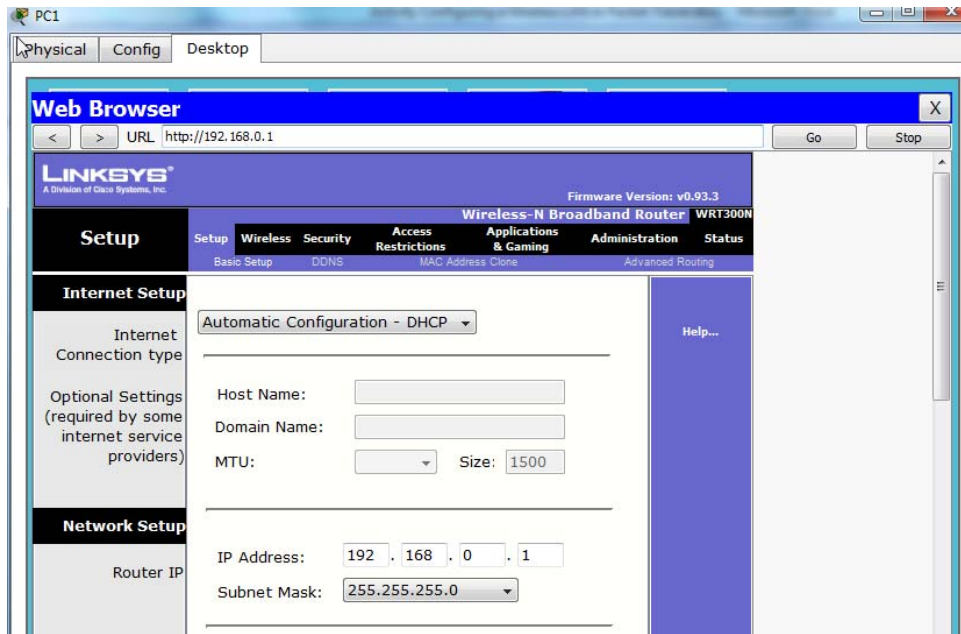
Activity Configuring and Securing a Wireless LAN in Packet Tracer

Objectives:

1. Configure a Wireless Access Point (WAP) local IP address.
 2. Configure a WAP with an SSID.
 3. Change the administrator's password on a WAP.
 4. Configure a WAP to use WPA encryption.
 5. Configure the DHCP server on a WAP.
 6. Configure a MAC filter on a WAP.
-
1. Open the file "Activity Configuring and Securing a Wireless LAN in Packet Tracer.pka"
 2. Open PC1 and select the Desktop tab.
 3. Select the command prompt and check the current IP address with the ipconfig command. Record the address here: _____
mask: _____
 4. What classification of IP address is this? _____
 5. Close the command prompt and select the IP Configuration window.
 6. Set the address to DHCP. What address does it obtain? _____
 7. What is the default gateway address? _____
 8. What device in the network is the default gateway? _____
 9. Close the IP Configuration window.
 10. Open the web browser and access the WAP by opening <http://192.168.0.1>
 11. The default login information for the WAP is:
User Name: admin
Password: admin

Name: _____

12. You should now be at the configuration window for the WAP.



13. What is the Internet Setup IP address assignment? _____

14. What is this connection used for? _____

15. What is the default network setup IP address? _____

16. Set the WAP Network Setup to the first IP address on the second private class C network with default subnet mask and record that address here: _____

17. Start the DHCP server on the 15-th IP address and set the maximum number of users to be 25.

18. What is the range of IP address that will be used for DHCP clients?
_____ through _____

19. List the four steps of the DHCP process:

<u>Device</u>	<u>Step name</u>
client PC	DHCP Discover

20. Scroll to the bottom and select Save Settings.

21. What happened to the connection? _____

22. What caused this to happen? _____

23. Close the web browser.

24. Open the command prompt on PC1 and request a new IP address assignment from the DHCP server with the ipconfig /renew command.

25. What address did PC1 obtain this time? _____

Name: _____

26. What is the default gateway address? _____
27. Close the command prompt window.
28. Open the web browser on PC1 and access the WAP.
29. Select the Wireless menu.
30. What are the options for the network mode?

_____	_____
_____	_____
_____	_____

31. Select BG-Mixed.
32. Complete the following table for 802.11 wireless networks:

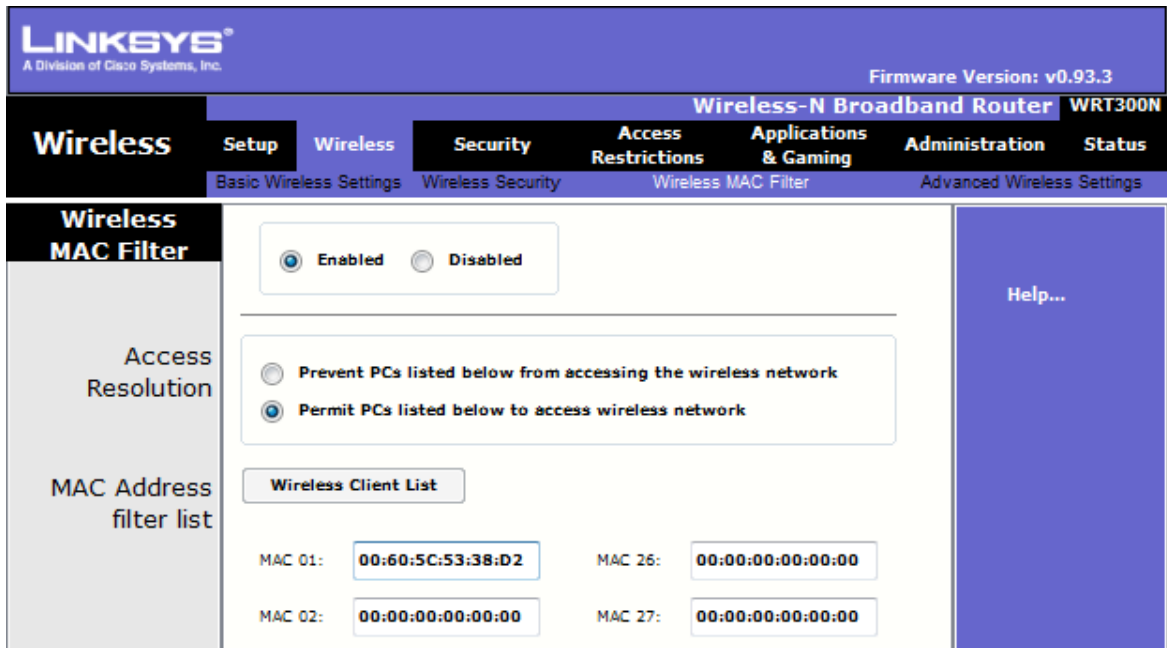
Wireless Standard	Bandwidth	Frequency	Range
IEEE 802.11a			
IEEE 802.11b			
IEEE 802.11g			
IEEE 802.11n			

33. Set the SSID to DHS001.
34. What does SSID stand for? _____
35. Disable the SSID broadcast.
36. If a WAP is not broadcasting its SSID, can clients still connect, and how? _____

37. Scroll to the bottom and select Save Settings.
38. Move back to the Packet Tracer main window and select Laptop1.
39. Open the laptop, select the physical tab, shut it down and remove the NIC and then add a Wireless NIC and turn the Laptop back on.
40. Repeat this for the remainder of the Laptop computers.
41. Access Laptop1, open the desktop and use the command prompt to determine the MAC addresses and record it here: _____
42. What command did you use? _____
43. What is the Block ID of Laptop1? _____
44. What is the device ID of Laptop1? _____
45. Access Laptop2, open the desktop and use the command prompt to determine the MAC addresses and record it here: _____

Name: _____

46. Access Laptop3, open the desktop and use the command prompt to determine the MAC addresses and record it here: _____.
47. Access Laptop4, open the desktop and use the command prompt to determine the MAC addresses and record it here: _____.
48. Move back to the GUI for the WAP.
49. Select Wireless > Wireless MAC Filter.
50. Enable the Wireless MAC filter and select Permit PC's listed.
51. Enter the MAC addresses of the four laptops, be sure to follow the proper format for the MAC addresses, 2 digits followed by a colon..



52. Scroll to the bottom and select Save Settings.
53. Open Laptop1 and select the Config tab.
54. Select the wireless button and enter the SSID of your WAP.
55. Close the window and connect to the WAP. **If you do not connect, begin to troubleshoot.
56. The last step in configuring a wireless network is to configure all encryption security.
57. Move back to the GUI for the WAP and select Wireless > Wireless Security.
58. What options are available for the Security Mode?

59. Which of the options is the LEAST preferred security mode? _____
60. Set security to WPA2 Personal.

Name: _____

61. What are the two options under Encryption?

62. Set encryption to AES.

63. What does AES stand for? _____

64. Set the Passphrase to WirelessSecurity.

65. Scroll to the bottom and select Save Settings.

66. Move back to the Packet Tracer window.

67. What happened to your connection between the Laptop and the WAP? _____

68. Open Laptop1 and select the Config tab.

69. Select the wireless button and under the Authentication section select WPA2-PSK. What does PSK stand for? _____

70. Enter the PassPhrase that you configured.

71. Ensure that the Encryption Type is set to AES.

72. Move back to the Packet Tracer window.

73. What happened to your connection between the Laptop and the WAP? _____ **If your connection did not appear, begin to troubleshoot.

74. Move back to the GUI for the WAP and select the Administration section.

75. Set the router password to cisco.

76. Scroll to the bottom and select Save Settings.

77. Move back to the packet Tracer main window.

78. Connect Laptop2, Laptop3 and Laptop4 to the wireless network.

79. Set PC2 to obtain an IP address through DHCP.

80. Complete the following table:

PC Designation	IP Address
PC1	
PC2	
Laptop1	
Laptop2	
Laptop3	
Laptop4	

81. Verify full connectivity of each PC through PING:

PC1 PING successful, yes or no PC2 PING successful, yes or no
ping PC2 _____ ping PC1 _____

Name: _____

ping Laptop1 _____
ping Laptop2 _____
ping Laptop3 _____
ping Laptop4 _____

ping Laptop1 _____
ping Laptop2 _____
ping Laptop3 _____
ping Laptop4 _____

<u>Laptop1</u>	<u>PING successful, yes or no</u>
ping PC1	_____
ping PC2	_____
ping Laptop2	_____
ping Laptop3	_____
ping Laptop4	_____

<u>Laptop2</u>	<u>PING successful, yes or no</u>
ping PC1	_____
ping PC2	_____
ping Laptop1	_____
ping Laptop3	_____
ping Laptop4	_____

82. Each device should be able to ping all other devices.
83. Turn this paper in to your Instructor.
84. Score: _____ / 20

Name: _____

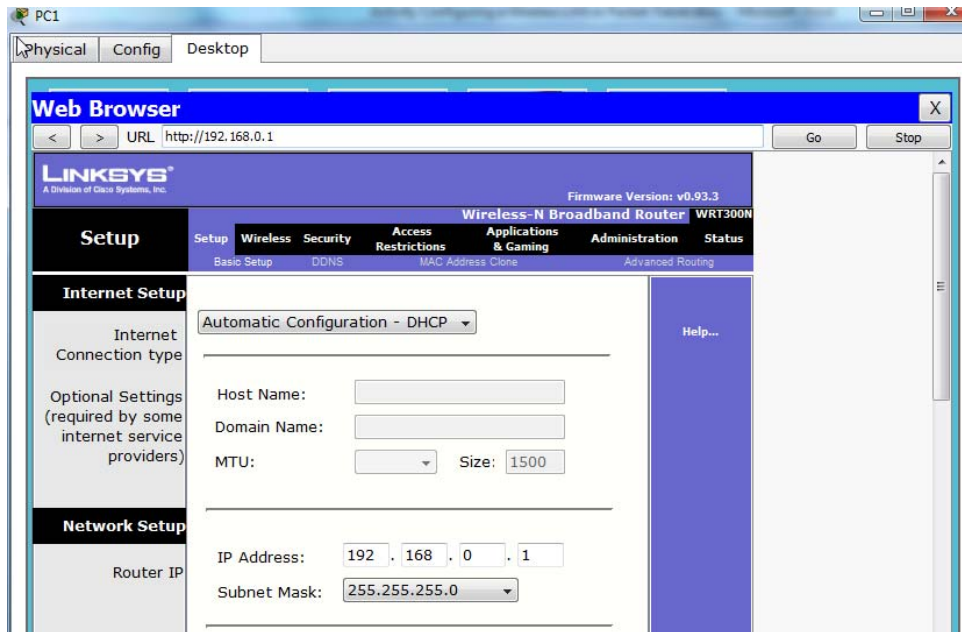
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 5. Configure the DHCP server on a WAP.
 6. Configure a MAC filter on a WAP.
-
1. Open the file "Activity Configuring and Securing a Wireless LAN in Packet Tracer.pka"
 2. Open PC1 and select the Desktop tab.
 3. Select the command prompt and check the current IP address with the ipconfig command. Record the address here: **169.254.1.1**
mask: **255.255.0.0**
 4. What classification of IP address is this? **Automatic Private Internet Protocol Addressing (APIPA)**
 5. Close the command prompt and select the IP Configuration window.
 6. Set the address to DHCP. What address does it obtain? **192.168.0.100**
 7. What is the default gateway address? **192.168.0.1**
 8. What device in the network is the default gateway? **The wireless access point**
 9. Close the IP Configuration window.
 10. Open the web browser and access the WAP by opening <http://192.168.0.1>
 11. The default login information for the WAP is:
User Name: admin
Password: admin

Name: _____

12. You should now be at the configuration window for the WAP.



13. What is the Internet Setup IP address assignment? **DHCP**

14. What is this connection used for? **Connection to an ISP/Internet connection**

15. What is the default network setup IP address? **192.168.0.1**

16. Set the WAP Network Setup to the first IP address on the second private class C network with default subnet mask and record that address here: **192.168.1.1 / 24**

17. Start the DHCP server on the 15-th IP address and set the maximum number of users to be 25.

18. What is the range of IP address that will be used for DHCP clients?
192.168.1.15 through 192.168.1.39

19. List the four steps of the DHCP process:

<u>Device</u>	<u>Step name</u>
client PC	DHCP Discover
DHCP server	DHCP Offer
client PC	DHCP Request
DHCP server	DHCP Acknowledgement

20. Scroll to the bottom and select Save Settings.

21. What happened to the connection? **Timed out**

22. What caused this to happen? **PC and WAP now on different networks**

23. Close the web browser.

24. Open the command prompt on PC1 and request a new IP address assignment from the DHCP server with the `ipconfig /renew` command.

25. What address did PC1 obtain this time? **192.168.1.15**

26. What is the default gateway address? **192.168.1.1**
27. Close the command prompt window.
28. Open the web browser on PC1 and access the WAP.
29. Select the Wireless menu.
30. What are the options for the network mode?

Mixed	BG- Mixed
Wireless –G only	Wireless – B only
Wireless-N only	Disabled
31. Select BG-Mixed.
32. Complete the following table for 802.11 wireless networks:

Wireless Standard	Bandwidth	Frequency	Range
IEEE 802.11a	54 Mbps	5 GHz	25 m
IEEE 802.11b	11 Mbps	2.4 GHz	100 m
IEEE 802.11g	54 Mbps	2.4 GHz	100 m
IEEE 802.11n	>200 Mbps	2.4 / 5 GHz	> 250 m

33. Set the SSID to DHS001.
34. What does SSID stand for? **Service Set Identifier**
35. Disable the SSID broadcast.
36. If a WAP is not broadcasting its SSID, can clients still connect, and how? **Yes, the SSID of the network needs to be manually entered**
37. Scroll to the bottom and select Save Settings.
38. Move back to the Packet Tracer main window and select Laptop1.
39. Open the laptop, select the physical tab, shut it down and remove the NIC and then add a Wireless NIC and turn the Laptop back on.
40. Repeat this for the remainder of the Laptop computers.
41. Access Laptop1, open the desktop and use the command prompt to determine the MAC addresses and record it here: **Varies, a valid MAC address**
42. What command did you use? **ipconfig /all**
43. What is the Block ID of Laptop1? **First half of MAC address**
44. What is the device ID of Laptop1? **Second half of MAC address**
45. Access Laptop2, open the desktop and use the command prompt to determine the MAC addresses and record it here: **Varies, a valid MAC address**

61. What are the two options under Encryption?
AES TKIP
62. Set encryption to AES.
63. What does AES stand for? **Advanced Encryption Standard**
64. Set the Passphrase to WirelessSecurity.
65. Scroll to the bottom and select Save Settings.
66. Move back to the Packet Tracer window.
67. What happened to your connection between the Laptop and the WAP? **It was lost**
68. Open Laptop1 and select the Config tab.
69. Select the wireless button and under the Authentication section select WPA2-PSK. What does PSK stand for? **Pre-Shared Key**
70. Enter the PassPhrase that you configured.
71. Ensure that the Encryption Type is set to AES.
72. Move back to the Packet Tracer window.
73. What happened to your connection between the Laptop and the WAP? **It was reestablished** **If your connection did not appear, begin to troubleshoot.
74. Move back to the GUI for the WAP and select the Administration section.
75. Set the router password to cisco.
76. Scroll to the bottom and select Save Settings.
77. Move back to the packet Tracer main window.
78. Connect Laptop2, Laptop3 and Laptop4 to the wireless network.
79. Set PC2 to obtain an IP address through DHCP.
80. Complete the following table:

PC Designation	IP Address
PC1	In range of 192.168.1.15 – 192.168.1.39
PC2	In range of 192.168.1.15 – 192.168.1.39
Laptop1	In range of 192.168.1.15 – 192.168.1.39
Laptop2	In range of 192.168.1.15 – 192.168.1.39
Laptop3	In range of 192.168.1.15 – 192.168.1.39
Laptop4	In range of 192.168.1.15 – 192.168.1.39

81. Verify full connectivity of each PC through PING: **All pings should be successful**
PC1 PING successful, yes or no PC2 PING successful, yes or no
ping PC2 _____ ping PC1 _____

Name: _____

ping Laptop1 _____
ping Laptop2 _____
ping Laptop3 _____
ping Laptop4 _____

ping Laptop1 _____
ping Laptop2 _____
ping Laptop3 _____
ping Laptop4 _____

<u>Laptop1</u>	<u>PING successful, yes or no</u>
ping PC1	_____
ping PC2	_____
ping Laptop2	_____
ping Laptop3	_____
ping Laptop4	_____

<u>Laptop2</u>	<u>PING successful, yes or no</u>
ping PC1	_____
ping PC2	_____
ping Laptop1	_____
ping Laptop3	_____
ping Laptop4	_____

82. Each device should be able to ping all other devices.
83. Turn this paper in to your Instructor.
84. Score: _____ / 20