Lab 3 Constructing Wireless Network

1. What is the meaning of Wireless Connection?

Wireless is an adjective that describes any **network or device that does not need a wired connection to transmit information or perform tasks**. Instead of physical wires (copper or optical fiber), wireless networks and devices use light waves or radio frequencies to function.

2. Wireless Networks

Wireless networks use radio waves to connect devices such as laptops to the Internet, the business network and applications. When laptops are connected to Wi-Fi hot spots in public places, the connection is established to that business's wireless network.

There are four main types of wireless networks:

- Wireless Local Area Network (LAN): Links two or more devices using a wireless distribution method, providing a connection through access points to the wider Internet.
- > Wireless Metropolitan Area Networks (MAN): Connects several wireless LANs.
- Wireless Wide Area Network (WAN): Covers large areas such as neighboring towns and cities.
- Wireless Personal Area Network (PAN): Interconnects devices in a short span, generally within a person's reach.

Wireless Devices

There are many types of wireless devices such as smartphones, tablet, WIFI computers, and WIFI printers. All wireless devices use wireless media to send and receive data

Aim of This Lab

The aim of this Lab is to show how to construct wireless network and how to configure wireless devices using cisco packet tracer.

After this Lab, the Student can know how to work with wireless networks and how to configure it by using cisco packet tracer.

Experiment Procedure

- 1. Design the network which consist of
 - a) PC.
 - b) Wireless Router.
 - c) Wireless Access Point.
 - d) Laptop.
 - e) Tablet.
 - f) Smartphone.





Requirements:

- 1. Connect laptop to the access point.
- 2. Connect tablet to the access point.
- 3. Connect smartphone to the router.
- 4. Connect the PC to the router using wire.

1. Configure the wireless router

• Click on the router and go to **Config.**

🥐 Wireless Router0		_	×
Physical Config C	JUI		
Physical Config C GLOBAL Settings Algorithm Settings INTERFACE Internet LAN Wireless	Global Settings		

• Select Wireless form the left side menu

🤻 Wireless R	louter0						_		×
Physical	Config G	GUI							
Physical GLOB Settir Algorithm 3 INTERF Intern LAN Wireld	Config G AL ngs Settings FACE net N ess		SSID Channel Authentication Disabled Key WPA-PSK Pass Phrase WPA RADIUS Server Set IP Address Shared Secret Encryption Type	Wireless	S Setting	gs Defaul 2-PSK 2	t	6	
	~		спогураон туре		Disablet				
L		1							

- a) Give name to the SSID of the router.
- b) Select the security method
- c) Give password
- d) Remove the screen

🤻 Wireless Router0		_		×
Physical Config G	UI			
GLOBAL ^	Wireles	ss Settings		
Algorithm Settings INTERFACE Internet	SSID	R0	6	- -
LAN Wireless	Authentication		0	
	 Disabled Key 	() WEP		
	O WPA-PSK	WPA2-PSK		
	Pass Phrase	12345678		
	RADIUS Server Settings	O WPA2		
	IP Address Shared Secret			
	Encryption Type	AES	•	
>				

• Select the GUI from the router Main Menu as shown below

🥐 Wireless Router0		_		\times
Physical Config 0	GUI			
LINKSYS [®] A Division of Claso Systems, Inc. Setup	Wireless-N Br Setup Wireless Security Access Applications Restrictions & Gaming Basic Setup DDNS MAC Address Clone	Firmware Versi Toadband Ro Administra Advan	on: v0.93. uter Wi tion S iced Routin	3 RT Ita
Internet Setup Internet Connection type	Automatic Configuration - DHCP •		Help.	
Optional Settings (required by some internet service providers)	Host Name: Domain Name: MTU: Size: 1500]]]		
Network Setup Router IP	IP Address: 192. 168. 0. 1 Subnet Mask: 255.255.255.0]		v
<			3	>

- a) From the **SETUP** make the DHCP Auto as show up
- b) From the **WIRELESS** make the broadcast enable as shown below
- c) Go to the end and press save

🤻 Wireless Router0			_		\times
Physical Config	GUI				
LINKSYS° A Division of Cisco Systems, Inc.		Firm	nware Ver	sion: v0.93.3	3
Wireless	Setup Wireless Securi Basic Wireless Settings Wireless Set	Wireless-N Broad ty Access Applications Restrictions & Gaming courity Wireless MAC Filter	dband R Adminis Advanc	tration S wed Wireless Se	e
Basic Wireless Settings				Help	
	Network Mode:	Mixed •			
	Network Name (SSID):	RO			
	Radio Band:	Auto 🝷			
	Wide Channel:	Auto 🔻			
	Standard Channel:	1 - 2.412GHz 🔹			
	SSID Broadcast:	Enabled O Disabled			
<				>	~

- 2. Configure the Access Point
 - Click on the access point
 - From the top menu select the Config
 - From the left side menu select port 1

Recess Point0			_		\times
Physical Config					
GLOBAL		D. I.I.			
Settings		Port 1			- 1
INTERFACE	Port Status			🗹 Or	<u> </u>
Port 0	SSID	Defa	ult		
Port 1	Channel Authentication			6 •	•
	Disabled	○ WEP			
	Кеу				
	O WPA-PSK	O WPA2-PSK			
	Pass Phrase				
	Encryption Type	Disable	ed	-	
>					

On Port 1 menu

- Put SSID name to the access point
- Select the security method
- Put the password
- Exit

Recess F	Point0			—		×
Physical	Config					
GLO	DBAL ^		Port 1			
INTE	RFACE	Port Status			⊘ ⊇	n
Po	rt O	SSID		AP0		
Po	rt 1	Channel Authentication			6	•
		O Disabled	○ WEP			
		Кеу				
		O WPA-PSK	WPA2-	PSK		
		Pass Phrase	1	0101010		
		Encryption Type	F	AES	•	
	~					

- 3. Configure the laptop
 - Click on the laptop
 - Select Desktop from the top menu



• Select PC wireless



• Select connect and make refresh

Laptop0			– 🗆 X
vsical Config	Desktop Custon	n Interface	
LINKSY A Division of Cisco System	(S [°] ms, Inc.		(
Link Information	Connect	Profiles	;er
Below is a list of availa	able wireless networks. Tr	easish for more wireless networks, click	
the Refresh button. To name. To connect to th Wireless Network N	are CH Signal	bout a network, select the wireless network nect button below.	[•] 2,4 ^{GHz}
the Refresh button. To name. To connect to th Wireless Network N AP0 R0	ame CH Signal 1 99% 1 99%	Site Information Site Information Wireless Mode Infrastructure Network Type Mixed B/G/N Radio Band Auto Security WPA2-PSK MAC Address 000B.BE00.6306	 2,4,GHz tor
the Refresh button. To name. To connect to th Wireless Network N APO RO	lame CH Signal 1 99% 1 99%	Site Information Site Information Wireless Mode Infrastructure Network Type Mixed B/G/N Radio Band Auto Security WPA2-PSK MAC Address 000B.BE00.6306 Refresh Connect	4 2,4 GHz

• Choose the access point SSID name and click connect

🔻 Laptop0	_		×
Physical Config Desktop Custom Interface			
LINKSYS* A División of Cisco Systems, Inc.		0)
WPA2-Personal Needed for Connection			jer
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. Security WPA2-Personal Please select the wireless security method used by ye existing wireless network. Please enter a Pre-shared Key that is 8 to 63 character	our	[z	
in length.		J	tor
Cancel Co	onnect	ctive	
Wireless-N Notebook Adapter Wireless Network Monitor v1.0 Model 1	NO. WPC	300N	

• Enter the password of the access point and click connect you will see that the laptop connect to the access point as shown below



- 4. Configure the tablet
 - Click on the tablet and select config from the top menu

🥐 Tablet PC0		_	×
Physical Config	Desktop Custom Interface		
Tablet PC0 Physical Config GLOBAL Settings Algorithm Settings Firewall IPV6 Firewall INTERFACE Wireless0	Desktop Custom Interface Global Settings Display Name Tablet PCO Gateway/DNS DHCP Static Gateway DNS Server Gateway/DNS IPv6 DHCP Auto Config Static		×
	IPv6 Gateway		

- Select wireless from the left side menu
- Give the name of access point and the password

hysical Config	De	sktop Custom Inter	face			
GLOBAL	_ ^		Wire	less0		^
Algorithm Setting Firewall IPV6 Firewall	S	Port Status Bandwidth		54	Mbps	On
INTERFACE Wireless0		Authentication –	0050.0FC2.C0AB			
		○ WEP		Кеу		
		O WPA-PSK	WPA2-PSK	Pass Phrase 10101	1010	
		⊖ wpa	O WPA2			
		User ID Password				
		Encryption Type			AES	•
		IP Configuration				
	4	OHCP		○ Static		

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