

# Wireless LAN Network Configuration

# What is Wireless LAN?

- ▶ A wireless local-area network (WLAN) is a group of collocated computers or other devices that form a network based on radio transmissions rather than wired connections.
- ▶ A Wi-Fi network is a type of WLAN



# WLAN configuration

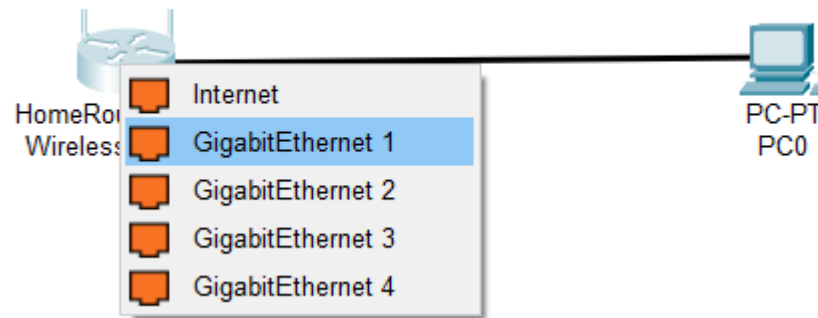
## Infrastructure configuration

- ▶ The endpoints are all connected and communicate with each other through a base station, which may also provide internet access.
- ▶ Components
  1. a wireless router, which acts as the base station,
  2. Endpoints, which can be computers, mobile devices, printers, and other devices.

# Connect to a Wireless Router

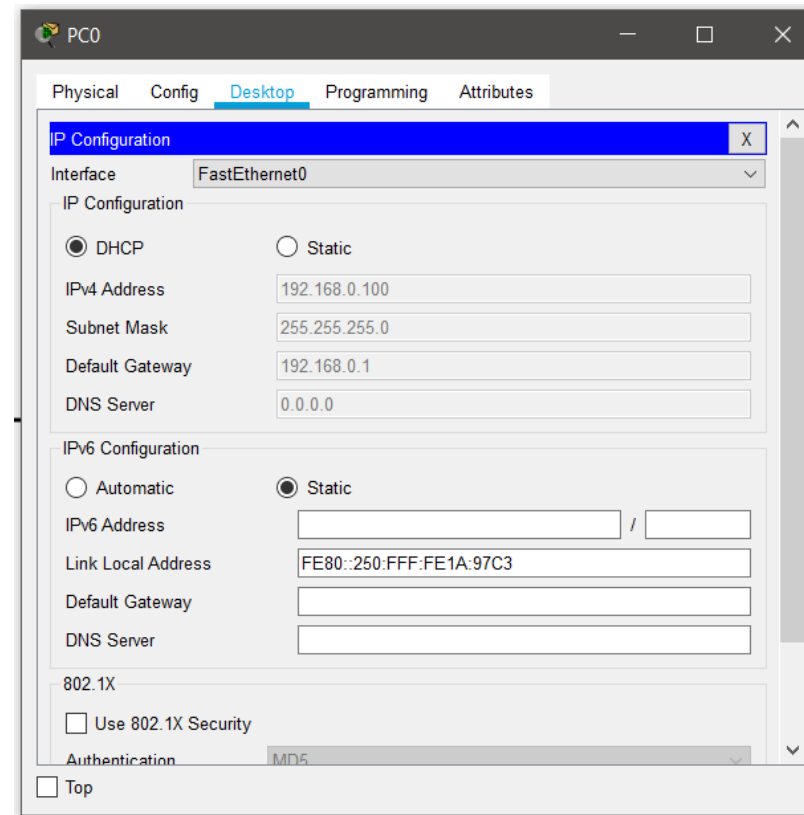
## ► Devices

1. PC
2. Wireless router from wireless device
3. Straight cable (PC FastEthernet0a and router Giga Ethernet 1 )



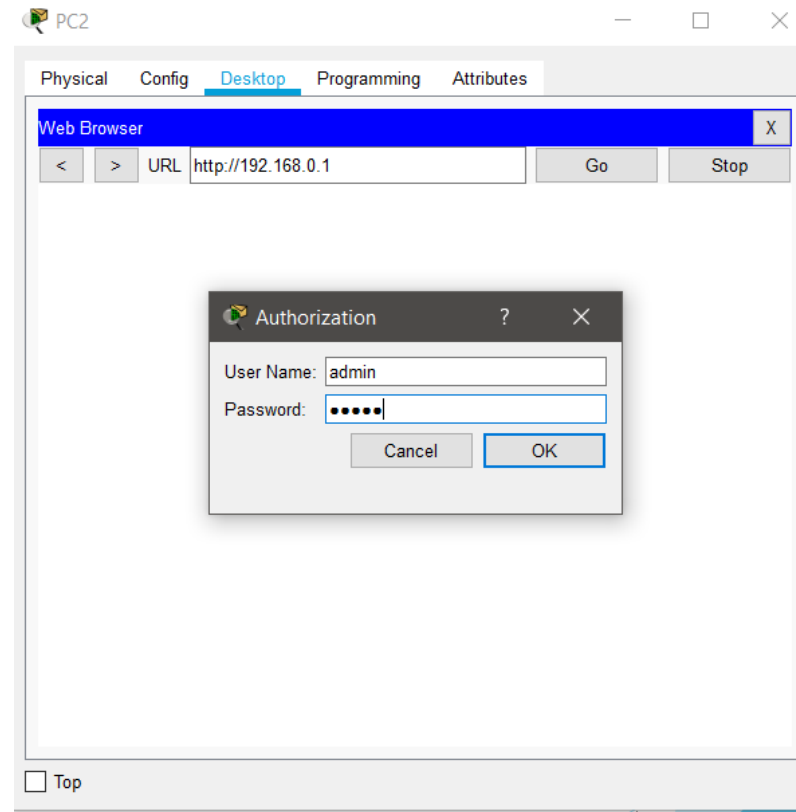
# Configure PC to use DHCP

- ▶ **Dynamic Host Configuration Protocol (DHCP)** is a network management protocol used to automate the process of configuring devices on IP networks
- ▶ Click on Pc then desktop then b. Click IP Configuration and select **DHCP**.
- ▶ A wireless router usually includes a DHCP server, and the DHCP server is usually enabled by default on the LAN. **Admin** will receive IP address information from the DHCP server on **WR**.



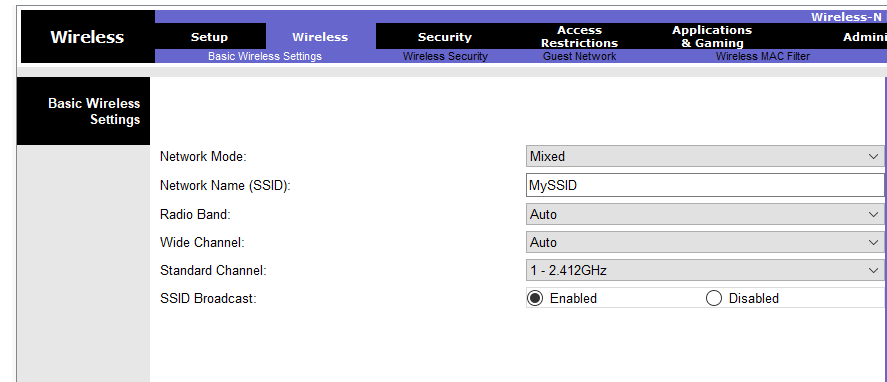
# Connect to the Wireless Router Web Interface.

- ▶ Click on PC then In the **Desktop**, choose **Web Browser**
- ▶ Enter 192.168.0.1 in the URL field to open the web configuration page of the wireless router.
- ▶ Use **admin** for both the username and password.



# Configure the Wireless Settings

- ▶ Configure the WR SSID
  - ▶ From GUI of WR at 192.168.0.1 URL goto **Wireless > Basic Wireless Settings**.
  - ▶ Change Network Name(SSID) to **MySSID**
  - ▶ Notice that SSIDs are case-sensitive.
  - ▶ Scroll to the bottom of the window and click **Save Settings**

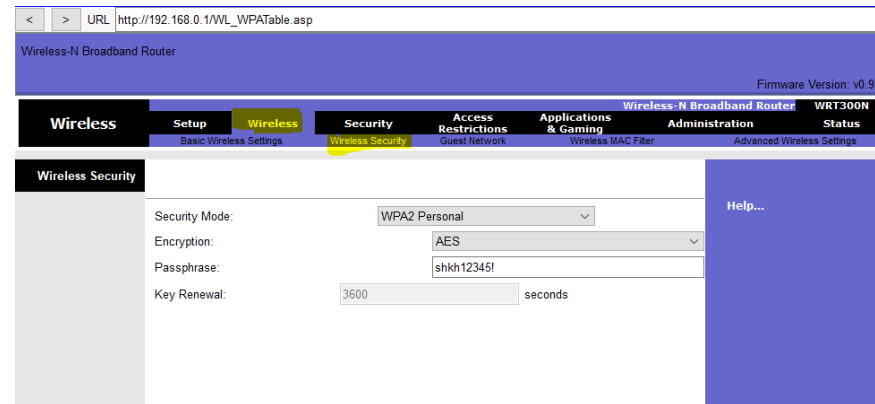


The screenshot shows the 'Basic Wireless Settings' page in the WR GUI. The page has a top navigation bar with tabs: 'Wireless', 'Setup', 'Wireless', 'Security', 'Access Restrictions', 'Applications & Gaming', and 'Admin'. The 'Wireless' tab is selected, and the 'Basic Wireless Settings' sub-tab is active. The left sidebar shows 'Basic Wireless Settings' as the selected option. The main content area contains the following settings:

Network Mode:	Mixed
Network Name (SSID):	MySSID
Radio Band:	Auto
Wide Channel:	Auto
Standard Channel:	1 - 2.412GHz
SSID Broadcast:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled

# Configure wireless security settings.

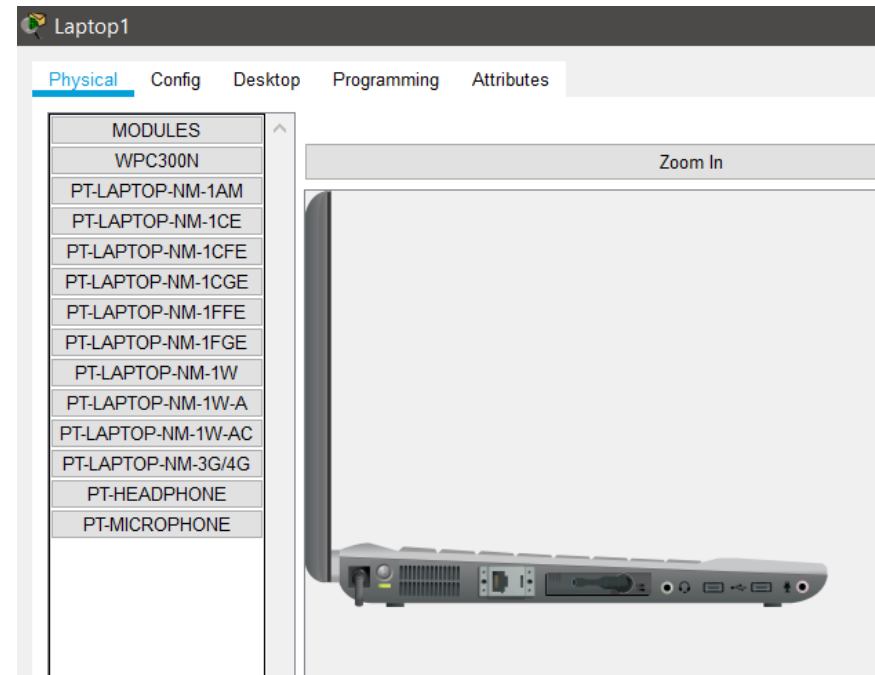
- ▶ Navigate to **Wireless > Wireless Security**.
- ▶ Under the 2.4 GHz heading, select WPA2 Personal for the Security Mode.
- ▶ For the Encryption field, keep the default AES setting.
- ▶ In the Passphrase field(password), enter **shkh12345!** as the passphrase.
- ▶ Click Save Settings.





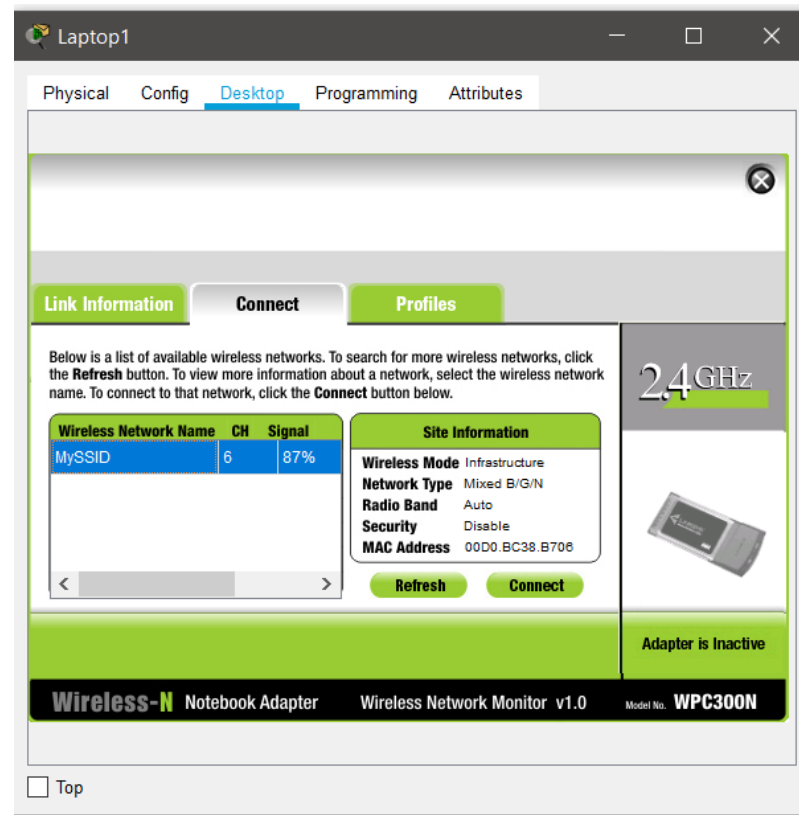
# Connect the Wireless Clients.

- ▶ We will add laptop to use it as client
- ▶ Open desktop then physical tap shutdown the lap top then remove card then add WPC300N (wireless card)

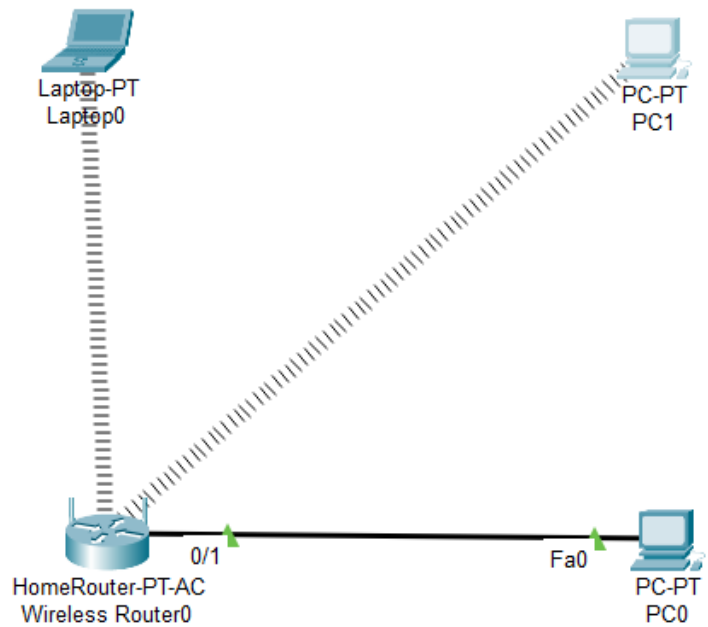


# Connect the Wireless Clients.

- ▶ From **Desktop** tab. Click **PC Wireless**
- ▶ Select the **Connect** tab then select  
Select the Wireless Network Name  
**MySSID**



# Test network connection



Realtime										
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	Laptop0	PC0	ICMP	Green	0.000	N	0	(edit)	(delete)
	Successful	Laptop0	PC1	ICMP	Red	0.000	N	1	(edit)	(delete)
	Successful	PC1	PC0	ICMP	Green	0.000	N	2	(edit)	(delete)

# Change the WR Access Password

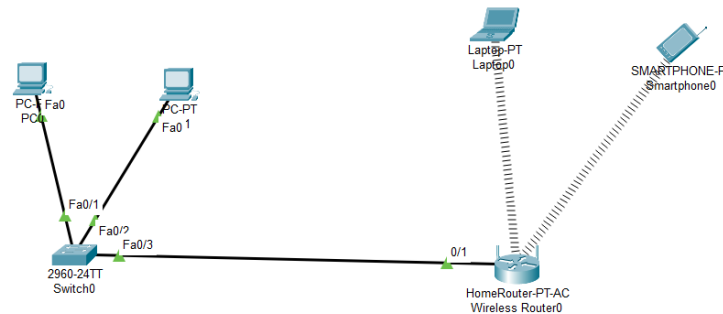
- ▶ Open router GUI from PC then go to Navigate to **Administration > Management** and change the current **Router Password** to **12345**
- ▶ Scroll to the bottom of the window and click Save Settings.
- ▶ Use the username admin and the new password 12345 when prompted to log in to the wireless router.

The screenshot displays the 'Administration' section of a 'Wireless Tri-Band Home Router' (model HomeRouter-PT-AC). The 'Management' tab is selected, and the 'Router Password' field is highlighted. The current password is masked with dots. Below it, the 'Re-enter to confirm' field is also masked. The 'Web Access' section shows 'Web Utility Access' with 'HTTP' selected and 'HTTPS' unselected. 'Web Utility Access via Wireless' is set to 'Enabled'. The 'Remote Access' section shows 'Remote Management' set to 'Disabled' and 'Web Utility Access' set to 'HTTP'. 'Remote Upgrade' is set to 'Disabled'. The 'Allowed Remote Ip Address' section has 'Any Ip Address' selected. The 'Remote Management Port' is set to 8080.

Management
Router Access
Router Password: .....
Re-enter to confirm: .....
Web Access
Web Utility Access: <input checked="" type="checkbox"/> HTTP <input type="checkbox"/> HTTPS
Web Utility Access via Wireless: <input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Remote Access
Remote Management: <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
Web Utility Access: <input checked="" type="radio"/> HTTP <input type="radio"/> HTTPS
Remote Upgrade: <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
Allowed Remote Ip Address: <input checked="" type="radio"/> Any Ip Address <input type="radio"/> 0 . 0 . 0 . 0 to 0
Remote Management Port: 8080

# WLAN and LAN Example

- ▶ Construct LAN from two PCs and connect them using Switch
- ▶ Construct WLAN from laptop , smart phone and wireless router
- ▶ Connect switch to wireless router using straight cable
- ▶ Change IP configuration for all device to DHCP



# Test connection

- ▶ Send message from PC0 to the Laptop and from PC1 to smart phone
- ▶ Send message from PC0 to PC1
- ▶ Send message from laptop to smart phone

Realtime										
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	Laptop0	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC1	Smartpho...	ICMP		0.000	N	1	(edit)	(delete)
	Successful	PC0	PC1	ICMP		0.000	N	2	(edit)	(delete)

# Configure wireless MAC Filter

- ▶ Navigate to **Wireless > Wireless MAC Filter**.
- ▶ Click on Enable to enable this property , then choose permit to allow mac address or prevent to allow all MAC address except the address in this page
- ▶ Add the MAC address
- ▶ Click Save Settings.

The screenshot shows the 'Wireless MAC Filter' configuration page. The 'Wireless' menu is selected, and the 'Wireless MAC Filter' sub-menu is highlighted. The 'Wireless Port' is set to '2.4G'. The 'Enabled' radio button is selected, and the 'Permit PCs listed below to access wireless network' option is chosen. The 'Wireless Client List' table contains 41 rows, each with a MAC address field. The 'MAC Address filter list' label is on the left. The 'Help...' link is on the right.

MAC Address	MAC Address
MAC 01: 00:00:00:00:00:00	MAC 26: 00:00:00:00:00:00
MAC 02: 00:00:00:00:00:00	MAC 27: 00:00:00:00:00:00
MAC 03: 00:00:00:00:00:00	MAC 28: 00:00:00:00:00:00
MAC 04: 00:00:00:00:00:00	MAC 29: 00:00:00:00:00:00
MAC 05: 00:00:00:00:00:00	MAC 30: 00:00:00:00:00:00
MAC 06: 00:00:00:00:00:00	MAC 31: 00:00:00:00:00:00
MAC 07: 00:00:00:00:00:00	MAC 32: 00:00:00:00:00:00
MAC 08: 00:00:00:00:00:00	MAC 33: 00:00:00:00:00:00
MAC 09: 00:00:00:00:00:00	MAC 34: 00:00:00:00:00:00
MAC 10: 00:00:00:00:00:00	MAC 35: 00:00:00:00:00:00
MAC 11: 00:00:00:00:00:00	MAC 36: 00:00:00:00:00:00
MAC 12: 00:00:00:00:00:00	MAC 37: 00:00:00:00:00:00
MAC 13: 00:00:00:00:00:00	MAC 38: 00:00:00:00:00:00
MAC 14: 00:00:00:00:00:00	MAC 39: 00:00:00:00:00:00
MAC 15: 00:00:00:00:00:00	MAC 40: 00:00:00:00:00:00
MAC 16: 00:00:00:00:00:00	MAC 41: 00:00:00:00:00:00

# Thank You