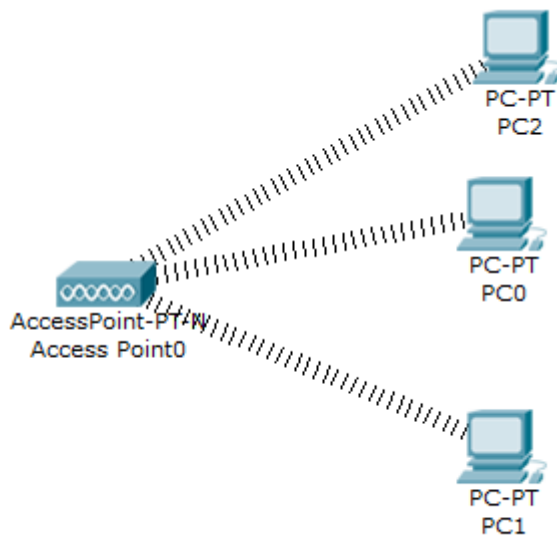


# CNE301 – Network I – Lab 06

## Building Extended Service Set using Wireless LAN.

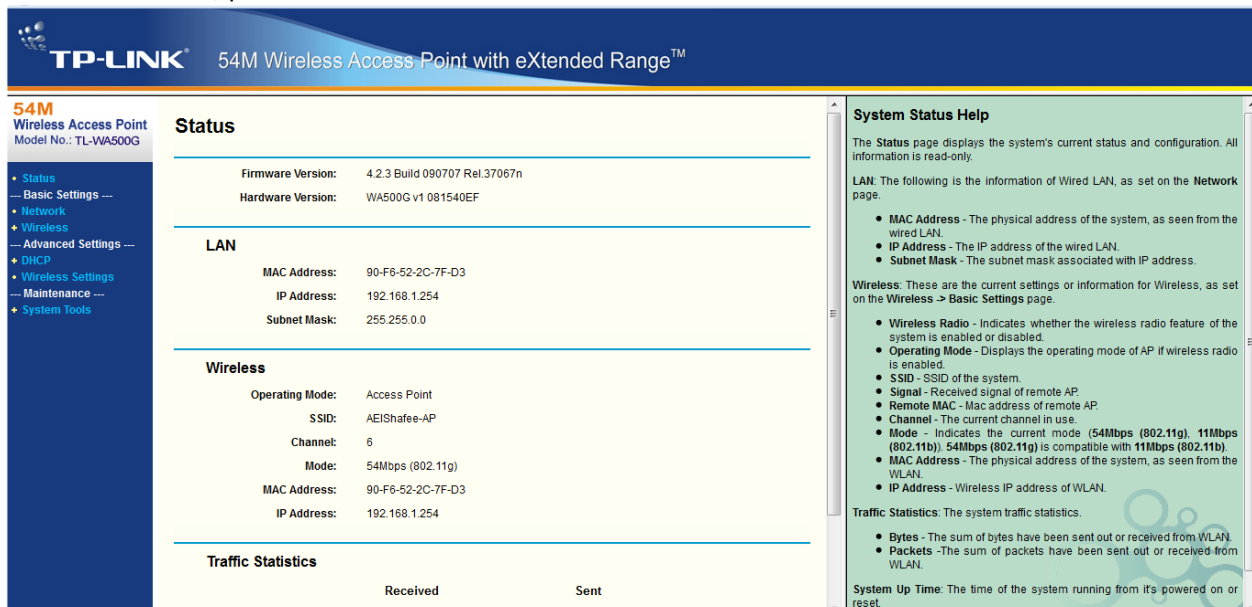
#	Student ID	Student Name	Grade (10)
1			

## Part1: Infrastructure Wireless Network



### Configuring Access point

1. restore default configuration of access point by pressing reset button till all leds in the access point front panel become off
2. connect access point to your PC using cross over cable
3. open access point configuration page on your web browser using it default IP address 192.168.1.254, username: admin, password: admin



**TP-LINK** 54M Wireless Access Point with eXtended Range™

**54M Wireless Access Point**  
Model No.: TL-WA500G

- Status
- Basic Settings
- Network
- Wireless
- Advanced Settings
- DHCP
- Wireless Settings
- Maintenance
- System Tools

#### Status

Firmware Version: 4.2.3 Build 090707 Rel.37067n  
Hardware Version: WA500G v1 081540EF

#### LAN

MAC Address: 90-F6-52-2C-7F-D3  
IP Address: 192.168.1.254  
Subnet Mask: 255.255.0.0

#### Wireless

Operating Mode: Access Point  
SSID: AEIShafee-AP  
Channel: 6  
Mode: 54Mbps (802.11g)  
MAC Address: 90-F6-52-2C-7F-D3  
IP Address: 192.168.1.254

#### Traffic Statistics

	Received	Sent
Bytes	0	37483
Packets	0	37483

#### System Status Help

The Status page displays the system's current status and configuration. All information is read-only.

**LAN:** The following is the information of Wired LAN, as set on the Network page.

- **MAC Address** - The physical address of the system, as seen from the wired LAN.
- **IP Address** - The IP address of the wired LAN.
- **Subnet Mask** - The subnet mask associated with IP address.

**Wireless:** These are the current settings or information for Wireless, as set on the Wireless -> Basic Settings page.

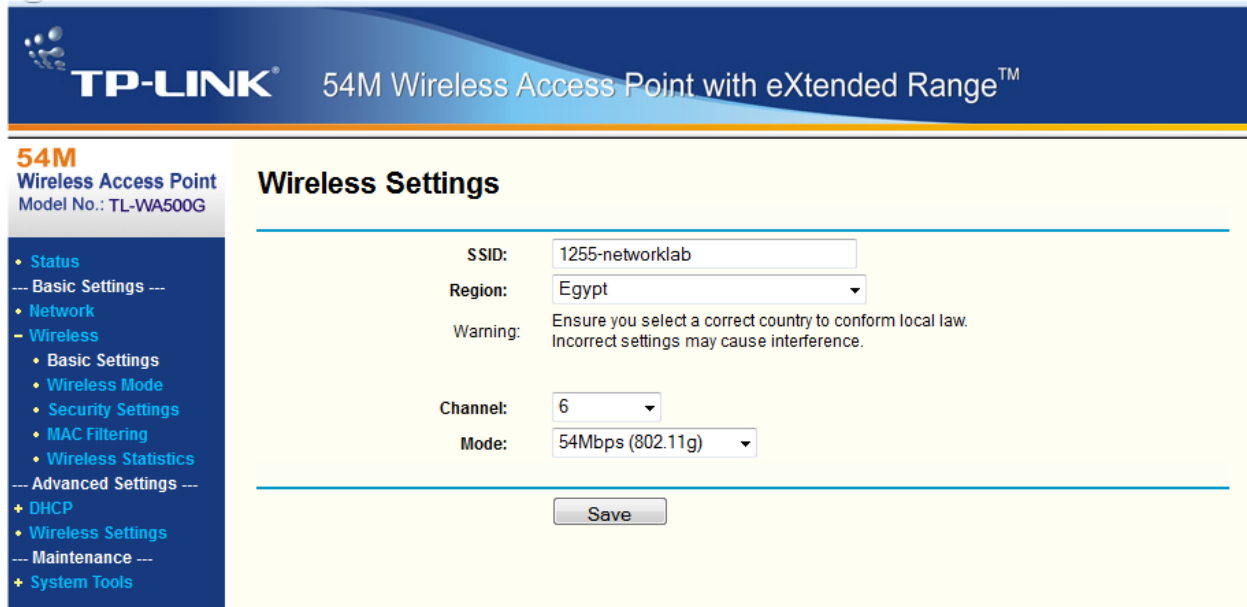
- **Wireless Radio** - Indicates whether the wireless radio feature of the system is enabled or disabled.
- **Operating Mode** - Displays the operating mode of AP if wireless radio is enabled.
- **SSID** - SSID of the system.
- **Signal** - Received signal of remote AP.
- **Remote MAC** - Mac address of remote AP.
- **Channel** - The current channel in use.
- **Mode** - Indicates the current mode (54Mbps (802.11g), 11Mbps (802.11b)). 54Mbps (802.11g) is compatible with 11Mbps (802.11b).
- **MAC Address** - The physical address of the system, as seen from the WLAN.
- **IP Address** - Wireless IP address of WLAN.

**Traffic Statistics:** The system traffic statistics.

- **Bytes** - The sum of bytes have been sent out or received from WLAN.
- **Packets** -The sum of packets have been sent out or received from WLAN.

**System Up Time:** The time of the system running from its powered on or reset.

4. go to wireless/basic settings page and update SSID, Region fields, press save



**TP-LINK** 54M Wireless Access Point with eXtended Range™

**54M**  
Wireless Access Point  
Model No.: TL-WA500G

- Status
- Basic Settings ---
- Network
- Wireless
  - Basic Settings
  - Wireless Mode
  - Security Settings
  - MAC Filtering
  - Wireless Statistics
- Advanced Settings ---
- DHCP
- Wireless Settings
- Maintenance ---
- System Tools

### Wireless Settings

SSID:

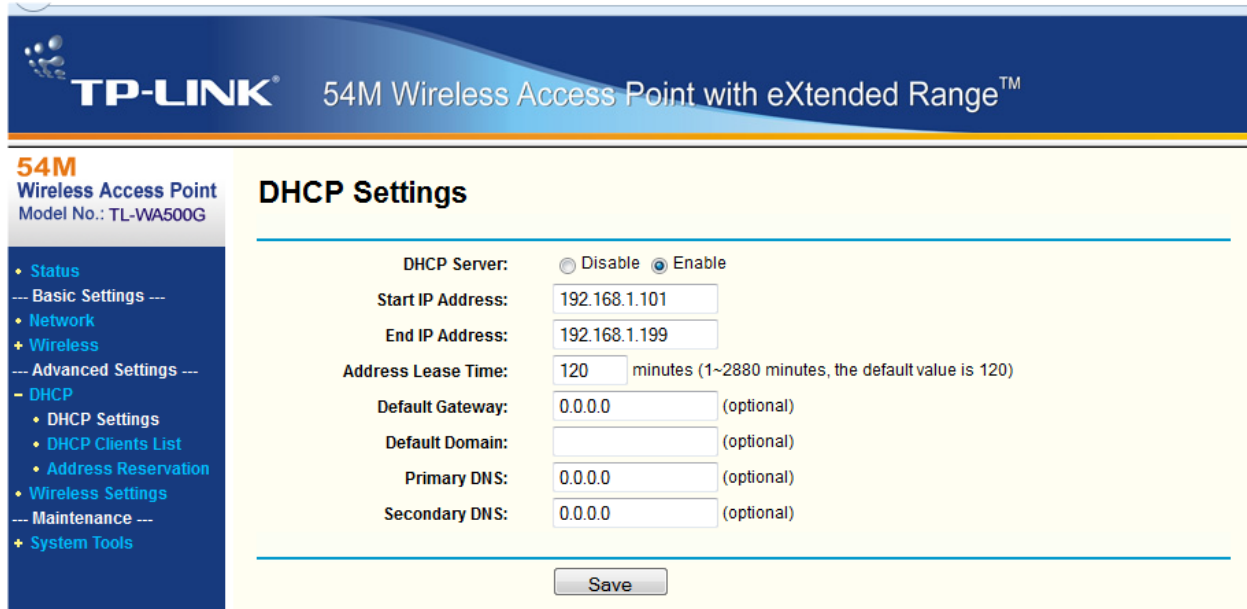
Region:

Warning: Ensure you select a correct country to conform local law. Incorrect settings may cause interference.

Channel:

Mode:

5. go to DHCP page update its field as shown, press save



**TP-LINK** 54M Wireless Access Point with eXtended Range™

**54M**  
Wireless Access Point  
Model No.: TL-WA500G

- Status
- Basic Settings ---
- Network
- Wireless
- Advanced Settings ---
- DHCP
  - DHCP Settings
  - DHCP Clients List
  - Address Reservation
- Wireless Settings
- Maintenance ---
- System Tools

### DHCP Settings

DHCP Server:  Disable  Enable

Start IP Address:

End IP Address:

Address Lease Time:  minutes (1~2880 minutes, the default value is 120)

Default Gateway:  (optional)

Default Domain:  (optional)

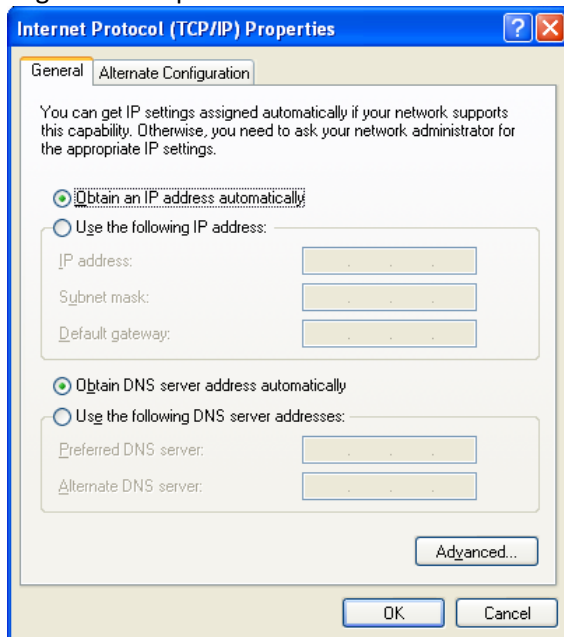
Primary DNS:  (optional)

Secondary DNS:  (optional)

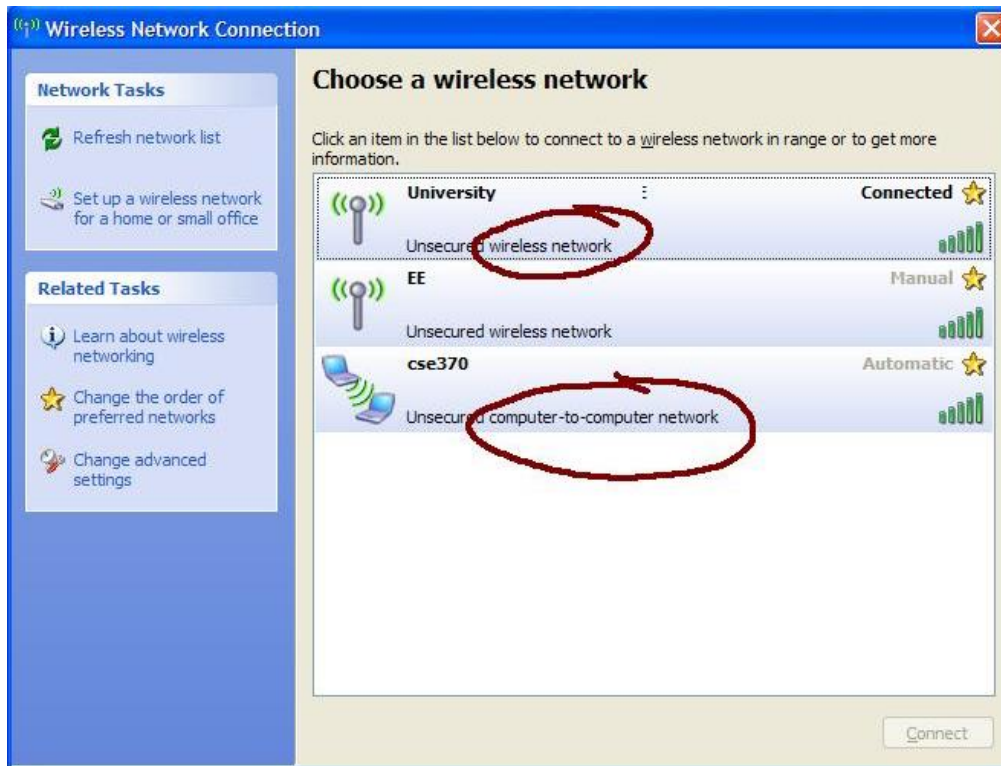
Now your access point is ready

## Configuring client

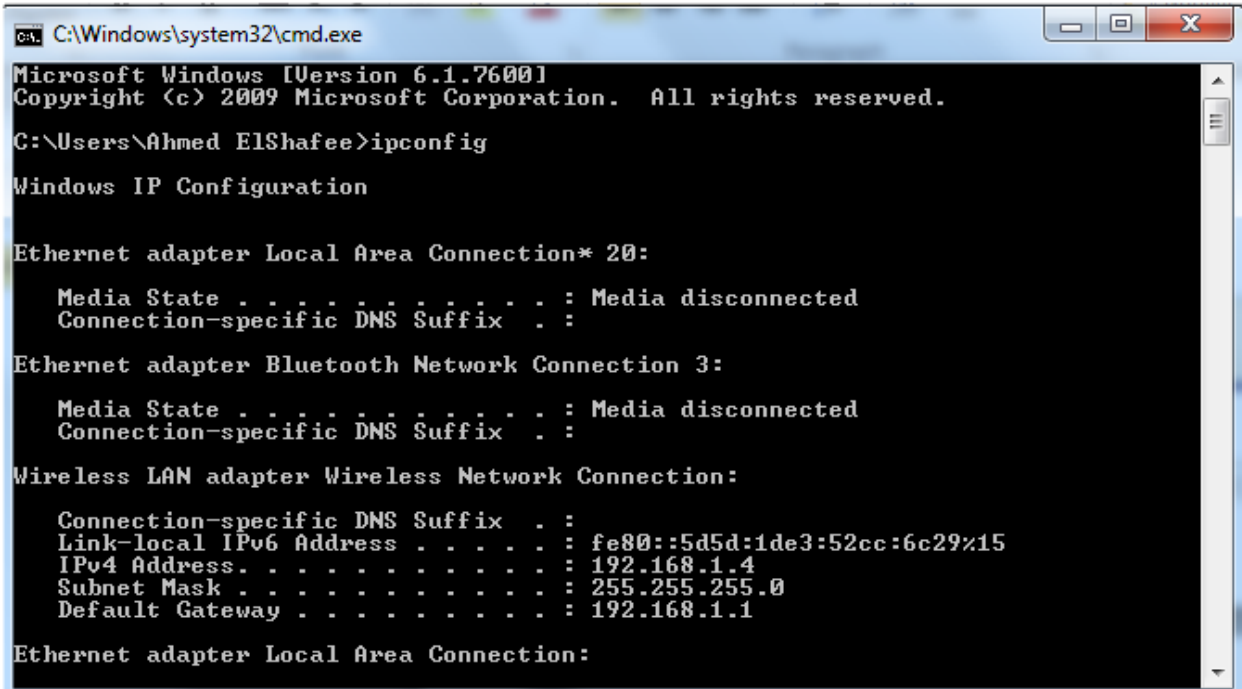
1. go to client pc make sure wireless network connection/TCP/IP settings in automatic mode



2. Go to client PC brows the available wireless networks



3. get ip address of connected hosts using ipconfig command



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Ahmed ElShafee>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection* 20:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Bluetooth Network Connection 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

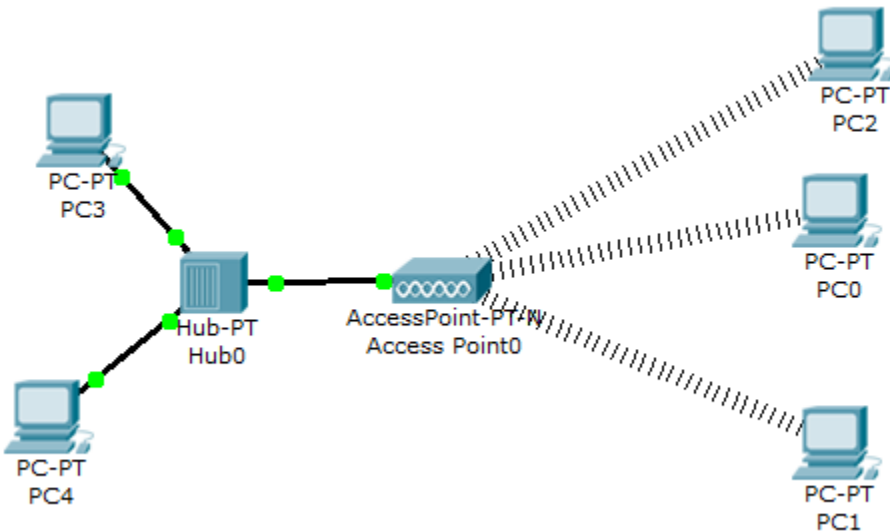
Wireless LAN adapter Wireless Network Connection:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::5d5d:1de3:52cc:6c29%15
    IPv4 Address. . . . . : 192.168.1.4
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter Local Area Connection:
```

4. test connectivity between clients and access point using ping command

### Part3: Wired Ethernet and Wireless Ethernet Integration (Extended service set)



1. connect Access point to 8 ports hub using straight through cable
2. connect 2 PCs to hub using straight through cables too
3. make sure that the wired network connection tcp/ip configuration in automatic mode.
4. check IP of wired clients using ipconfig command
5. check connectivity between wired and wireless clients using ping command

**Conclusions:**

1. Wireless access point is acting as wireless hub not a wireless switch? Discuss?

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2. The physical layer speed of wired LAN is about twice the speed of wireless LAN. But when user transferee a huge files, wireless transferee speed is lower than expected if compared to wired LAN. Discuss?

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