

MOBILE COMPUTING LAB (CSD-427) LAB ASSIGNMENT 2

AKSHAT RAJ VANSI (185520)

FEBRUARY 23, 2022



Lab Assignment 2: You are supposed to configure mobile devices viz. laptops, mobiles on infrastructure based wireless networks like cellular networks (GSM, 3G, 4G, HSPS etc.) and on infrastructure less network like ad-hoc and sensor network.

1 Infrastructure Based Wireless Network

Infrastructure Based Wireless Network is a wireless network that requires the use of infrastructure devices such as base stations (BSs) used in traditional cellular systems or access points (APs) used in wireless local area networks (WLANs) to facilitate communication between mobile devices.

1.1 Mobile Hotspot

A mobile hotspot is a device that has the ability to cast a wireless signal for other devices to connect to while on-the-go. Mobile hotspots generally operate by taking an LTE connection, sometimes from your phone, and converting it into a Wi-Fi signal. You can then "connect" your computer or another device to it the same way those devices would connect to a home or public Wi-Fi network.

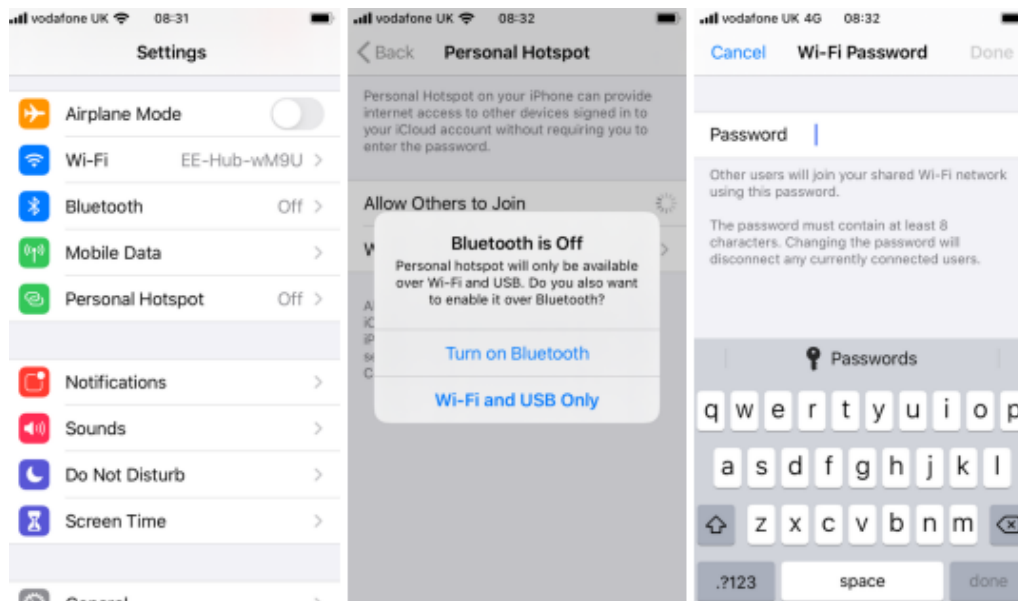
1.1.1 Steps to create Hostspot

1. On Android, open Settings > Network internet > Hotspot tethering.
2. Next, select Portable hotspot.
3. Tap On then confirm the message regarding interruptions to existing connections.
4. Click Configure hotspot.
5. Set a Network name (SSID)—this can be anything.
6. Choose the Security level—WPA2 PSK is the strongest.
7. Set a new Password.
8. When you're done, tap Save.

1.1.2 Features

1. Range : 20-100 m
2. Bandwidth : 2.4 GHz or 5 GHz
3. Limit : 8-10 devices

1.1.3 Figures



Setting Up Hotspot

2 Infrastructure Less Wireless Network

Infrastructureless wireless networks are an important class of wireless networks that is best suited for scenarios where there is temporary and localized telecommunication demand. Such networks consist of wireless devices that can form a network autonomously without the need for pre-deployed telecommunication infrastructures such as base-stations and access points.

2.1 Ad hoc Network

An ad hoc network is a temporary type of Local Area Network (LAN). If you set up an ad hoc network permanently, it becomes a LAN.

2.1.1 Steps to create Ad Hoc Network

1. Open the Command Prompt (CMD) as an Administrator Windows 8 8.1- Press the Windows key + X + A Windows 10 - Right click on the Start button and select Command Prompt (Admin).
2. To ensure that your network interface supports the Hosted Network feature, type the following command and press Enter:
netsh wlan show driver
3. If "Hosted network supported" shows "Yes", proceed to step 4. If it says "No", you can try to update your wireless driver. If the updated driver still does not help, then you will need to upgrade your hardware.

4. To configure Ad Hoc Wireless connection, type this command in the command prompt and press Enter:

```
netsh wlan set
```

```
hostednetwork mode=allow ssid=<your desired network name>
```

```
key=|your desired password>
```

5. To start your new network, type this command and press Enter:

```
netsh wlan start hostednetwork
```

6. Navigate to Control Panel > Network and Sharing Center. Click on “Change adapter settings”

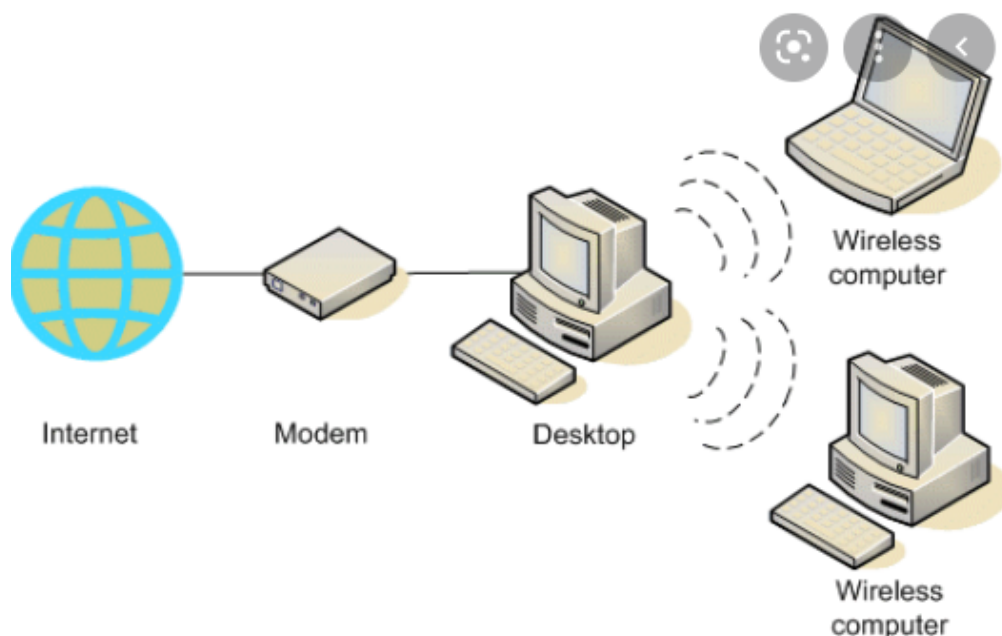
7. Right-click on Wi-Fi adapter > select Properties

8. Select the Sharing tab > Check the box to “Allow other network users to connect through this computer’s Internet connection” > Click on OK button.

2.1.2 Features

1. Range : 20-100 m
2. Bandwidth : 2.4 GHz or 5.8 GHz
3. Limit : 256 wireless modes

2.1.3 Figures



Ad Hoc Network Configuration