
UNIT 1: TETHERING FOR INTERNET ACCESS

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1.0 Learning Objectives

After learning this unit, you will be able to understand:

- About Tethering.
- About Tethering and Bluetooth.
- About Reverse Tethering.

1.1 Introduction

Tethering is the use of cell phone as modem for another device, usually a laptop or a Wi-Fi-only tablet. It is the best way to share phone's Internet Connection with Desktop or Laptop. It provides solution for those who use

Cellular Internet Connection on their phones and want to use the same Connection on their Desktop too.

Tethering can be done in three ways, via USB, via Wi-fi or via Bluetooth. USB Tethering is nice but why would you want to use a USB cable when you can tether wirelessly. Wi-fi tethering is again good but not economical; it drains the battery of your phone quickly. The best way to wirelessly tether your desktop using your phone is using Bluetooth Tethering.

This gives you internet access when you want and can be worked at hotel or at home. Tethering enables us to go online from our laptops, tablets, and other mobile devices like portable gaming systems even without a built-in 3G or 4G mobile data plan. Finally, tethering could help you conserve laptop battery power, because Wi-Fi can be turn off on laptop and further phone can be used as modem.

It is also noted that speed you get on tethered device may not be as fast as see on cell phone itself as the information has to take that extra step over the air or through the wire. With 3G service on your handset, upload and download speeds will typically be less than 1 Mbps. If you're in an area not covered by mobile broadband, you'll likely get speeds only a few times faster than dial-up.

1.2 Need and Motivation for Tethering

Tethering is the method of sharing smartphone's Internet connection with computers or with several other devices which can be done by connecting the devices with USB cable, Bluetooth wireless link or with Wi-Fi connection.

Tethering is a way of making cell phone to work as modem for another device which can be laptop or tablet. With this, the Internet can be taken from phone and can be shared with device that carries Internet connection quality. Tethering the phone is useful at that time when you need to get laptop online as fast as possible. It is easy and simple technology and depends mostly on service provider's conditions and phone capabilities.

With this method, people can use internet on their mobile devices. Since due to emerging technology, nowadays the people are very particular to check their mails anytime or can talk or write whatsapp messages, so such type of technology are nowadays preferred. With this fast technology timming, people are very much after the view of adopting such technology for faster updated features. It is seen that mostly all mobile devices are equipped with tethering quality that allows them to make the internet available to user along with voice anytime and anywhere.

Check your progress 1

1. Tethering works in:

- a. Desktop
- b. Laptop
- c. Palmtop
- d. Mobiles

1.3 Tethering with Wi-Fi

Tethering is a good and easy way to provide Internet access to other devices which can be laptop or desktop computer. Tethering is about what many people got excited long back in early days when the mobiles were there. Tethering will take less energy which makes the mobile to work faster by expending power through antenna which allows communicating with carrier. Since the tethered connection requires wires instead of wireless, still it is safer, secure and results in faster access.

Tethering using WiFi serves as a simple and easiest way to set which is perhaps well-matched with many types of devices. Simply put, if your laptop includes WiFi support, you should be able to tether with the use of WiFi by quickly and easily using any hotspot. The main advantages of such technique results in faster, quicker, easy and compatible activities those are compatible with everything. You're also not limited to connecting just one device like you are with the USB method, though some OEMs cap connections to five or so. WiFi, depending on what security configuration you use, could be anywhere from not secure at all, to "fairly" secured. Also, since you're not required to plug in to a USB port, your battery is going to wipe out while you're in the process of tethering. Bringing along a wall charger or a portable battery pack would be advisable.

Check your progress 2

1. Tethering Wi-Fi is:
 - a. Simple
 - b. Fast
 - c. Faster installation
 - d. All of above

1.4 Tethering with Bluetooth

Bluetooth is an excellent method for tethering. Similar to Wifi, you can connect multiple devices to your smartphone without using wires. Similar to WiFi, it requires no cable with less power consumption. Bluetooth tethering is a built in feature which is commonly available in Android mobiles that can be easily setup and requires pairing of smartphone with desktop or laptop for setting connection type on laptop bluetooth settings.

For this, initially you need to do pairing of mobile phone with your computer with the help of Bluetooth technology. On enabling Bluetooth both on Android phone and PC, you can open System Preferences by clicking on Bluetooth and by Setting up of New Device in Device and Printer section. Now, in phone, go to Settings, in Wireless & Networks and click on Tethering & portable hotspot as shown in fig 1.1.

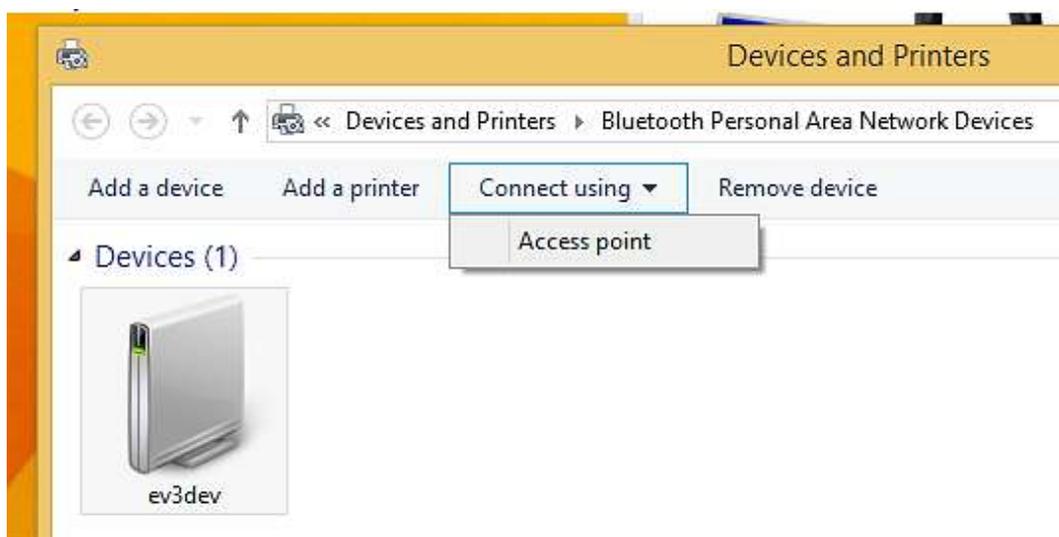


Fig 1.1 Bluetooth setting

In computer, you need to go to Bluetooth Preferences selection area and select phone from the list and click on Connect to Network option which will automatically connect. Further you can check Show Bluetooth in menu bar option which is located in Bluetooth Preferences. After checking, it displays Bluetooth icon in the menu bar and make use of icon so as to connect to phone quickly. Now clicking on Bluetooth icon, you have to select the device which you want to connect with and then click on Connect to Network.

As the speed is slower in WiFi tethering, the main advantage to Bluetooth tethering is low battery drain which is in comparison with WiFi tethering just like USB tethering where single connection is allowed through Bluetooth as shown in fig 1.2.

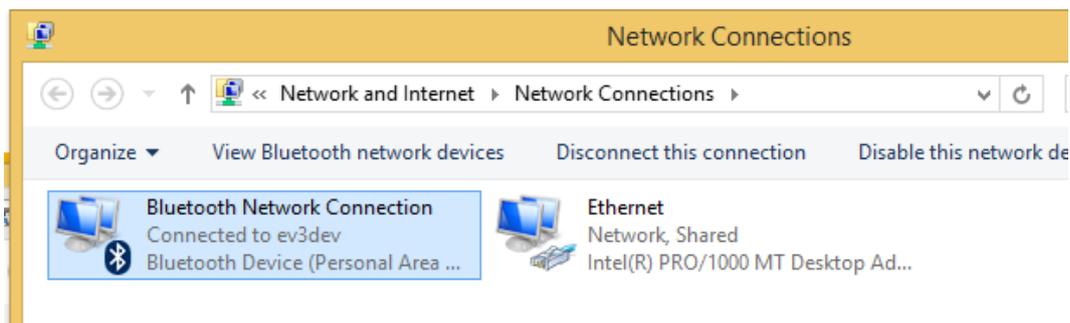


Fig 1.2 Connection of Bluetooth

It is found that Bluetooth is mainly designed for mobile use, where it is comfortable for battery prospects as it consumes less power to do particular job as compared to WiFi tethering.

It is normally seen that people will perform such type of setting since very few involves in setting of WiFi which in comparison with Bluetooth tethering. If power consumption is an issue, Bluetooth is mostly the way to go, if you're ready to configure it.

Features of Bluetooth Tethering are as follows:

- It is another form of Wireless Tethering and it is independent and does not require any router.
- One can easily connect it with PC and use phone as modem for Internet.
- It can be enabled with a touch of your finger.
- It saves Battery if compared to Wi-Fi and USB tethering.
- One needs to have Bluetooth in both the connected devices.

Check your progress 3

1. The excellent method for tethering is:
 - a. Wi-Fi
 - b. Bluetooth
 - c. Network
 - d. None of above

1.5 Tethering with USB Cable

Connect internet in Computer or Laptop by android mobile with USB cable is more common today. Today many android phones have facility to share its data packet with personal computer or laptop by just allowing only single check box of your mobile. It is normally seen that connecting internet to laptop using USB cable will be easy. You will not be requiring any PC suite for connecting to access internet nor do you need user-id and password to access. This is all possible by tethering feature which actually applied for sharing of Internet connection of mobile phone with other devices with the use of cable. You can even access internet on PC by mobiles using WI-FI tethering and Bluetooth tethering feature.

There are steps to be followed while using tethering with USB cable:

Step 1: Initially you need to connect your mobile with Computer or Laptop with the help of USB cable.

Step 2: Now check whether your data packet is enable or not and further ensures that your internet is properly working in mobile and also you are able to open web pages on your android mobile.

Step 3: After performing this, go to mobile setting and select wireless and networks and select “Tethering and portable hotspot”.

Setting -> Wireless and networks ->Tethering and portable hotspot.

Now select “USB Tethering” and make it enable as shown in fig 1.3.



Fig 1.3 Setting screen

Step 4: In this, check for internet network which appears in your computer in the bottom right position as shown in fig 1.4. You have to click on that icon to check the notification that if you can make internet access.



Fig 1.4 Internet network access screen

Check your progress 4

1. Internet network icon on computer screen is located on:
 - a. Taskbar
 - b. Desktop
 - c. Desktop icons
 - d. None of these

1.6 Reverse Tethering

Reverse tethering is a method which can be used to share your PC internet connection with other devices such as android phone or tablet. This is a reverse

process of tethering. Reverse tethering can be done in many ways. It is a method of sharing computers internet connection to Android based device using USB cable. To use Reverse Tether, simply connect your phone to your computer using a USB cable. After setting Reverse Tethering, you can connect to Internet immediately and easily. Every time if you want to work on Internet, you need to simply insert your phone in your computer using USB cable. Initially, you need to have your device rooted for Reverse Tether to work. You should have a tether option on mobile device and you computer should have an option to edit network connections, which most computers do. Reverse Tether has certain disadvantages as it is not functional on all devices. As per the feedback, application worked on certain devices which can be Samsung Galaxy S2, Samsung Galaxy 5 and Sony Xperia Arc. It involves factors related to carrier restrictions or configuration of phone that shows whether Reverse Tether will work on phone or not. The application is not free and comes with trial version which allows connecting for certain time. Reverse Tethering can be done by following the steps shown:

Step 1: Select USB Internet option which is built-in option available in specific model devices. It works both on rooted and non-rooted devices and requires USB Cable.

Step 2: Connect the android with the laptop using USB cable using settings option in android phone.

Step 3: In wireless & networks option, select option of USB internet and select an operating system.

Step 4: Now click the next option and finally click on done button.

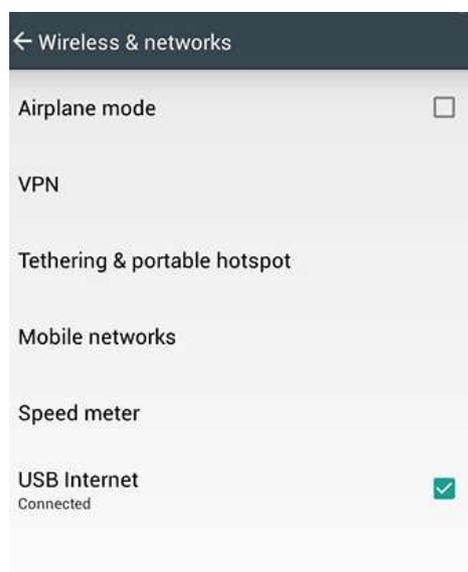


Fig 1.5 USB internet - reverse tether

Step 5: On final selection, you will find the device get connected with new adapter in computer.

Step 6: Click on properties of internet connection which you wish to share using the navigation sharing tab.

Step 7: Select the first option and choose new adapter from drop-down list and press OK button.

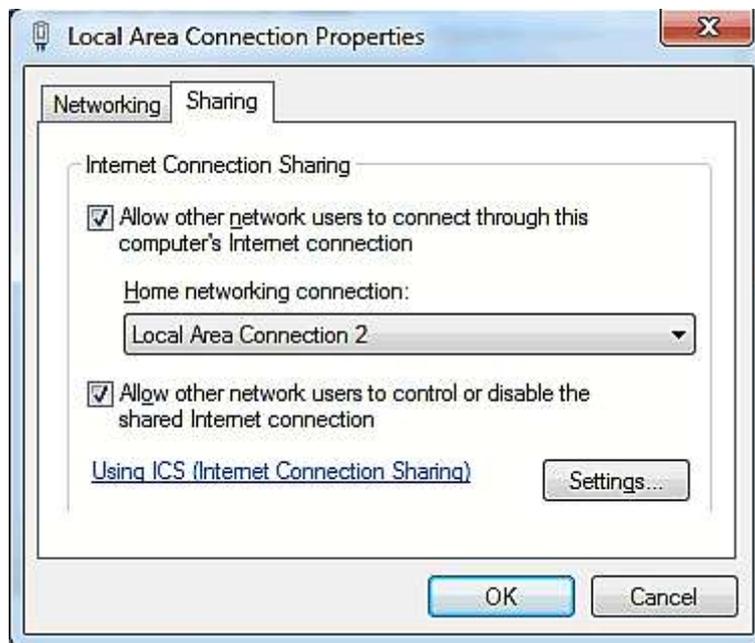


Fig 1.6 reverse tethering - share internet connection

Finally you will find that the internet is shared with android with the help of USB internet option.

Check your progress 5

1. Reverse tethering involves sharing of PC internet connectivity with:
 - a. Pen drive
 - b. Dongle
 - c. Mobile
 - d. All of above

1.7 Let Us Sum Up

In this unit we have learnt that tethering uses cell phone as modem to share phone's Internet Connection with Desktop or Laptop. It is known that tethering shares smartphone's Internet connection with computers or with other devices by connecting devices with USB cable, Bluetooth wireless link or with Wi-Fi connection.

It is known that tethering uses WiFi which serves as simple and easy way to set and match with many devices. It is found that bluetooth is method for tethering which is same as Wifi that connects various devices to smartphone without wires. It is seen that reverse tethering allow sharing of PC internet connection with other devices like android phone or tablet which shares computers internet connection to Android based device using USB cable.

1.8 Answers for Check Your Progress

Check your progress 1

Answers: (1 – d)

Check your progress 2

Answers: (1 - d)

Check your progress 3

Answers: (1 – b)

Check your progress 4

Answers: (1 – a)

Check your progress 5

Answers: (1 - c)

1.9 Glossary

1. **Tethering** - Method that uses cell phone as modem for sharing phone's Internet Connection with Desktop or Laptop.
2. **Bluetooth** - It is a method for tethering which connects many devices to smartphone without wires.
3. **Reverse tethering** - It is a method that shares PC internet connection with devices and shares computers internet connection to Android based device with USB cable.

1.10 Assignment

What is tethering?

1.11 Activities

Explain the role of tethering in mobile devices?

1.12 Case Study

What are the features of tethering activities?

1.13 Further Readings

1. Internet processes tethering, Ronald, 2010
2. An Introduction to Networks, Marconi, 2006
3. Introduction to Understanding the Internet, Worth Godwin, 2010