

## Connecting 3G / 4G USB modem to Raspberry Pi 3

In this tutorial we are attaching an 3G/4G USB modem to Raspberry Pi3 and setting everything up for automatic connection during startup.

The modems used are: 3G – ZTE MF668 (network unlocked, but not essential)  
4G – Huawei E3372

### Pre-requisite:

Remove any additional devices you may have connected to USB ports – Other than a keyboard.

As always we want to make sure system is up to date. So we enter:

**sudo apt-get update**

(and press ENTER)

Now we make sure we don't have **network-manager** or **ModemManager** installed.

Both seem to be incompatible with above mentioned devices and cause problems with connection.

So in order to check or remove those you can enter in Konsole:

**sudo apt-get remove network-manager**

and

**sudo apt-get remove ModemManager**

(and press ENTER)

A message indicating something about “not found” would indicate the program wasn't installed in the first place.

Now we can move to actually installing modem.

As many USB modems can also work as USB storage device we need to ensure that device is only operated and seen as a modem by the system. We achieve this by installing USB Modeswitch with following command:

**sudo apt-get install ppp usb-modeswitch**

Luckily for us it appears that Modeswitch automatically installs with correct settings for our modem and no further settings are required to keep modem in modem mode.

### 3G Modem:

For those wanting to use the 4G – Huawei E3372 modem you can skip this step and start using it right away. - See section 4G Modem below.

I've spent many days trying to make this work only to find other software was causing a conflict which prevented successful operation of modem. Hence important to ensure you haven't already installed any other software. If so, please remove such software prior to proceeding.

Now we need an oldie but good software to make this work. - Sakis3g

it appears to get much harder now to find an active link for it. The below mentioned link still worked for me in October 2019.

Enter following commands and hit ENTER after each line:

**sudo apt-get install ppp**

**wget "http://raspberrypi-at-home.com/files/sakis3g.tar.gz"**

```
sudo mkdir /usr/bin/modem3g
sudo chmod 777 /usr/bin/modem3g
sudo cp sakis3g.tar.gz /usr/bin/modem3g
cd /usr/bin/modem3g
sudo tar -zxvf sakis3g.tar.gz
sudo chmod +x sakis3g
```

Now we can start sakis3g in menu mode with:

```
/usr/bin/modem3g/sakis3g --interactive "menu" "console"
```

( may need “**sudo**” in front of this line)

In the menu we should see “1. Connect wit 3G”

Hit ENTER and it will ask for an interface number. Now strangely enough it doesn't appear to matter much which interface number you select, in my case both worked. But you can try the different options and see if anything changes.

Hit ENTER again and a message will indicate modem is being prepared.

After a few seconds a menu will pop up again asking which connection should be used. Now this depends entirely on your network provider. In my case Optus. So I select the “Optus 3G (CONNECT)” option.

-The word in the bracket is rather important as it refers to your network provider's APN. Make sure this is correct. (Check on your provider's website regarding APN settings if necessary)

Now highlight the appropriate option and hit ENTER.

A message will appear “Fixing connection”. This step might take a full minute or so and then you will get a message “MF668 connected to “YOUR PROVIDER” “

Hit ENTER and now you can select the “Exit” option in the menu.

- Congratulations, you are now connected to 3G network. -

#### Making it auto start during startup:

Most of us prefer not having to start connection manually, especially when running Pi in headless mode.

We can achieve this by using **rc.local**

Type:

```
sudo nano etc rc.local
```

You should see some remarks at the top of the file (remarks are starting with #).

Scroll down before you get to the “exit 0” line. Hit ENTER to create a new line – this has to be above the “exit 0”.

Type:

```
sudo usr/bin/modem3g/sakis3g connect USBINTERFACE="2" APN"CONNECT"
```

Make sure you use your network provider's APN instead of “CONNECT” and also the interface which was previously successfully used. (1,2,3,or4)

Hit CTR & X and then confirm saving of file by pressing Y.

Now reboot system and check if connection is starting automatically:

```
sudo reboot now
```

## 4G Modem

\*Fortunately this is much easier as it should work out of the box providing you've followed the steps under "Pre-requisite"

This device shows up on a desktop computer (at least on Ubuntu) as an Ethernet connection. So I did connect it first to my desktop computer in order to check for correct function and also noted the APN in the modem menu by typing: **http:// 192.168.8.1** into a browser. Followed by clicking on "Settings" and then "Profile Management"

(Check instructions provided with your USB-modem.)

However, did notice on the Pi it can at times take a minute or so to connect. - See status light on USB modem.

\* If it keeps disconnecting start with step2 in following instructions:

<https://www.thefanclub.co.za/how-to/how-setup-usb-3g-modem-raspberry-pi-using-usbmodeswitch-and-wvdial>

For some strange reason I've found that just using the "lsusb" command without creating a config file seem to work and after this keeps on working.