Category: Computer Projects

Sub Category: Raspberry Pi (s)

Topic: Raspberry Pi 3 Tor Network Router

If you encounter any problems, please contact support@computerprojectsolutions.co.uk including the Topic name and the problem. (due to high demand of emails, sometimes it can take us as long as 48 hours to reply.)

1 . Getting started you will need the following:

Quantity	Component, Description and Price (Items Highlighted in Orange is the Component and Red is the price |Estimates Prices May Vary|)	Check List (Tick)
1 x	Raspberry Pi Model B, B+, or Pi 2 B, any model of B (256mb or 512mb) is fine, as is the B+ and Pi 2 B. The Model A and A+ won't work because you need either 2 USB ports or just one and an Ethernet port. Only the B models have these. (£40-45, $45-50)	
1 x	WIFI Dongle *IMPORTANT* This requires a specific chipset to be an AP. A second normal one can be used in a completely wireless system. I will explain in the instructions. (£17, $20)	
1 x	Raspberry Pi Case, any case will do just fine. Nothing is over clocked, so heat shouldn't be an issue. (£5.50, $7.50) (You can Buy cases with built in screens! (optional)	
1 x	4gb or larger SD card The B uses full size SD cards, the B+ and Pi 2 use microSD. Make sure you get the right kind for yours. (£6, $8)	
1 x	Battery Pack – (optional) Only necessary if you are going completely wireless. (£10, $12)	
1 x	Power Supply At least 1 amp for the B and B+. 2 amps for the Pi 2. Wireless cards use a surprisingly high amount of power, so the more you give it, the better it will work. This Will come with the Pi. --**NOTES** (IF PRINT OFF ONLY)	

These are your Instructions. Please read and handle with care, we are NOT responsible for any damages caused during the practical.

STEP 1

Download the latest version of Raspbian. This tutorial also works with Raspbian Lite. You can find this at www.raspberrypi.org/downloads/raspbian/ **You could probably also use NOOBS and then install Raspbian from there, but that would be an extra step.**

STEP 2

Do not insert your WIFI dongle into the Raspberry Pi yet. If you already connected it, cut the Pi off and take it back out. The required software won't install correctly with it already inserted.

STEP 3

Burn Raspbian to your SD card (this tutorial assumes you are familiar enough with a Raspberry Pi to do this. Follow the instructions at https://www.raspberrypi.org/documentation/installation/installing-images/README.md **(if you need help), boot the OS and run 'sudo raspi-config' from the command line or terminal. The default log-in info is username: pi and password: raspbian**

First, hit Enter on 'Expand Filesystem'. This will allow Raspbian to use the entirety of your SD card. Now, it is only using about 1.5gb, which is the size of the OS image you burned to the SD card. Change the password to something more secure, or don't. It is your choice, but a recommended change.

Under 'Boot Options', change this to boot to 'Console' or 'Console Autologin'

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Under 'Internationalisation Options', change your Locale, Time zone and keyboard layout to whatever is appropriate for where you live. Use the Space Bar to select or de-select different options and Enter to accept changes. Under 'Advanced Options' you can change your Hostname to something else if you wish, or leave it alone. Also under 'Advanced Options' you can go to 'Memory Split' and set the GPU memory to the lowest setting of 16. Since we won't be doing anything that involves graphics, 16mb is more than enough memory for our GPU. If you are using the full version of Raspbian (not the lite version) this may also cause issues for the desktop if you boot there rather than the command line. Reboot for everything to take effect.

STEP 4

From a terminal or command line, run 'sudo apt-get update' and then 'sudo apt-get upgrade' to update all the software to the latest version. We need to do this before installing the Hot Spot software since it needs to be a specific version, and an update would break its ability to work correctly.

STEP 5

Now we can set up the WIFI access point. Again, make sure your WIFI device is NOT plugged into your Pi. Type the following in a console to download the Pifi script: ' wget https://cdn.hackaday.io/files/4223180676832/pifi.sh   '

STEP 6

We need to make pifi.sh executable so we can run it. Do so by typing the following: '   chmod +x pifi.sh   '   Now type the following to run the script and setup your new WiFi Access Point: '   sudo ./pifi.sh 'Follow all the instructions on the screen. The script will reboot your Pi when it is finished

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STEP 7

Log back in and safely shut down your Pi. Insert your WIFI dongle and power everything back on. You should now see an extra WIFI source in your home!

Now, it is just a normal WIFI source, just like your wireless router.

The SSID is whatever you named it in the previous step, and the password will be whatever you specified.

if you want to SSH into your Pi, you can do so over the Ethernet IP address that your primary router assigned, or over the new WIFI connection if you connect through it.   That address would be 192.168.42.1 over WIFI.

STEP 8

To add the Tor routing capability, download the Tor script with this command:

  ' **wget** https://cdn.hackaday.io/files/4223180676832/tor.sh '

 Just like before, we need to make it executable: '   chmod +x tor.sh   '

STEP 9

Run the script by typing: ' sudo ./tor.sh '

Follow any prompts and wait for your Pi to reboot.

STEP 10

That's it! When you connect to this WIFI source, all your web traffic should be routed through the Tor.

You can verify this by going to https://check.torproject.org/