



# Getting started with Raspberry Pi B+ on Windows

# Table of Contents

1. Introduction
2. Getting Started
3. Connecting to Raspberry Pi – Windows
4. Connecting Raspberry Pi To Wi-Fi



# 1. Introduction

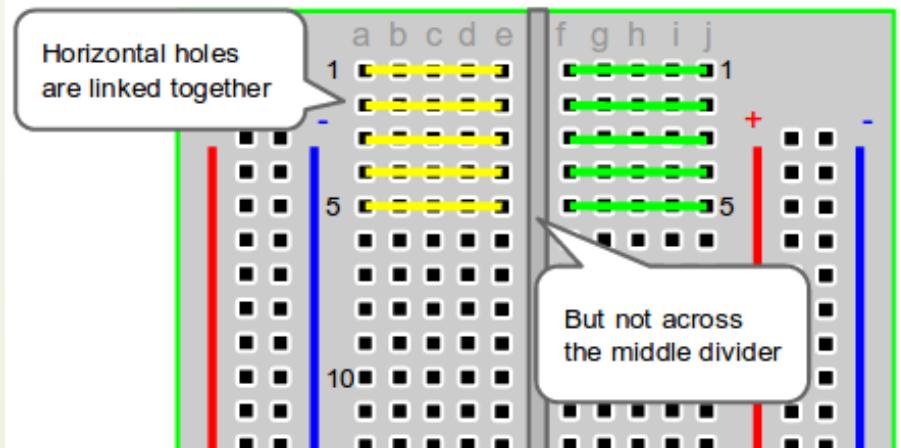
# Starter Kit

- ▶ Raspberry Pi B+ Starter Kit from Adafruit.com
- ▶ [http://www.adafruit.com/  
product/2125](http://www.adafruit.com/product/2125)
- ▶ Operating System is pre-installed on the flash memory
- ▶ Includes USB to TTL serial device so you don't need a keyboard and monitor
- ▶ Includes USB Wi-Fi device to get quickly connected to the internet

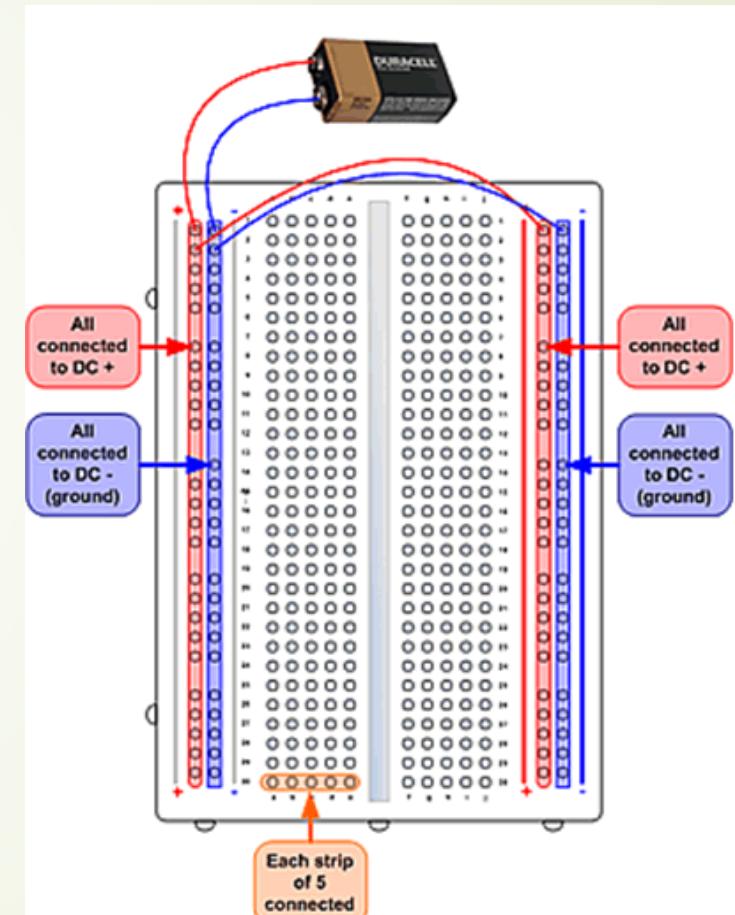


# Bread Board

Depending on which hole you plug into, it will link all the holes either on the vertical or horizontal to the same source as can be seen in the images. All you have to do is plug into one hole!



<http://computers.tutsplus.com/>



<http://www.beavisaudio.com/>

# Pinout

This is the Pinout (location of all the pins and their names) of the Raspberry Pi B+

Raspberry Pi B+ J8 Header		
Pin#	NAME	NAME
01	3.3v DC Power	DC Power 5v
03	GPIO02 (SDA1 , I2C)	DC Power 5v
05	GPIO03 (SCL1 , I2C)	Ground
07	GPIO04 (GPIO_GCLK)	(TXD0) GPIO14
09	Ground	(RXD0) GPIO15
11	GPIO17 (GPIO_GEN0)	(GPIO_GEN1) GPIO18
13	GPIO27 (GPIO_GEN2)	Ground
15	GPIO22 (GPIO_GEN3)	(GPIO_GEN4) GPIO23
17	3.3v DC Power	(GPIO_GEN5) GPIO24
19	GPIO10 (SPI_MOSI)	Ground
21	GPIO09 (SPI_MISO)	(GPIO_GEN6) GPIO25
23	GPIO11 (SPI_CLK)	(SPI_CE0_N) GPIO08
25	Ground	(SPI_CE1_N) GPIO07
27	ID_SD (I2C ID EEPROM)	(I2C ID EEPROM) ID_SC
29	GPIO05	Ground
31	GPIO06	GPIO12
33	GPIO13	Ground
35	GPIO19	GPIO16
37	GPIO26	GPIO20
39	Ground	GPIO21

Rev. 1.1  
16/07/2014

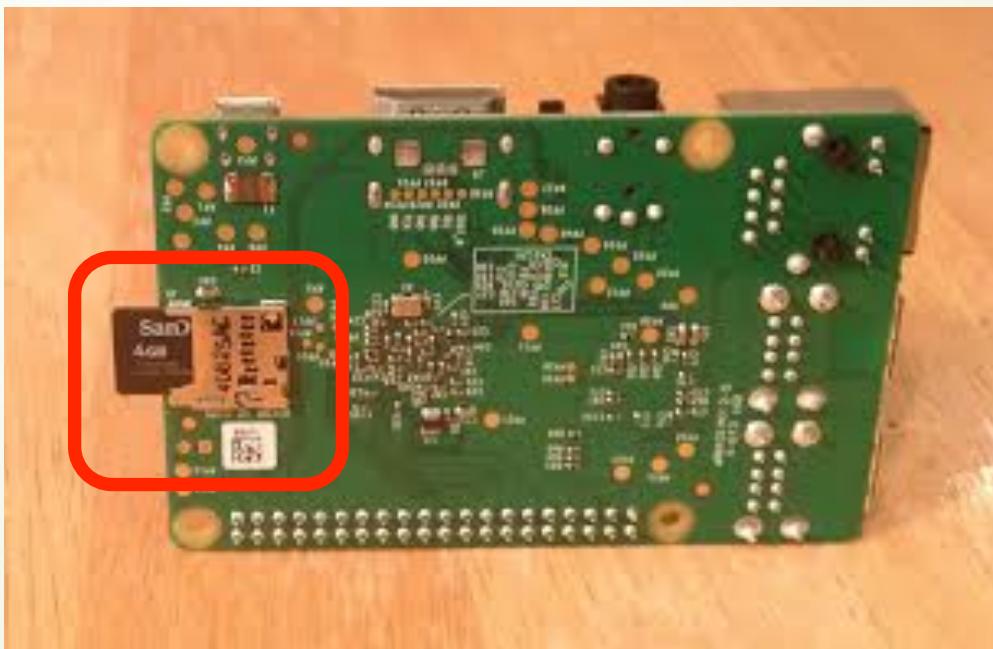
<http://www.element14.com>



## 2. Getting Started

# Inserting the Hard Drive (SanDisk 4GB SD card)

- ▶ Insert the 4GB SD card for Raspberry Pi preinstalled with Raspbian Wheezy into the port located on the under side of the Raspberry Pi



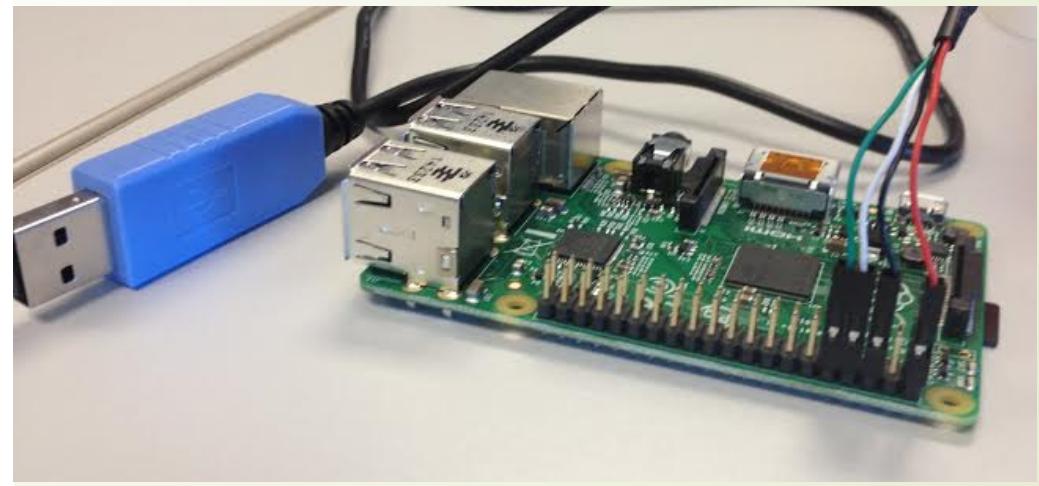
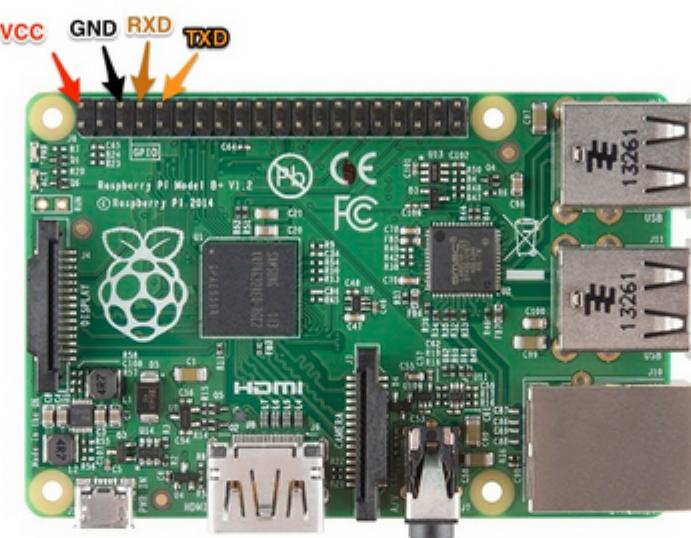
# Connecting the Hardware

<http://workshop.raspberrypiaustralia.com/usb/ttl/connecting/2014/08/31/01-connecting-to-raspberry-pi-via-usb/>

Use the included USB to TTL serial cable to connect the RPi (Raspberry Pi) to the computer.

VCC – Red (Pin 02 – DC Power 5V) RXD – White (Pin 08 – TX)

GND – Black (Pin 06 – Ground) TXD - Green (Pin 10 – RX)



# Software Installation (Windows)

- ▶ Since Windows does not come with a terminal application to connect to the Raspberry Pi, we will need to download a program called PuTTY (putty.exe)
- ▶ This program can be downloaded from the website: <http://www.putty.org>

The screenshot shows the official Putty website at [www.putty.org](http://www.putty.org). The main content is titled "Download PuTTY". It describes Putty as an SSH and telnet client developed by Simon Tatham for the Windows platform. A red box highlights the link "You can download PuTTY [here](#)". Below this, there is information about Bitvise Tunnelier and Bitvise WinSSHD, each with its own screenshot and download links.

The screenshot shows a mirror page for Putty at [www.chiark.greenend.org.uk/~sgtatham/putty/download.html](http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html). The top navigation bar includes links for Home, Licence, FAQ, Docs, Download, Keys, Links, Mirrors, Updates, Feedback, Changes, Wishlist, and Team. The page lists several Putty files:

- Putty (the Telnet and SSH client itself)
- PSCP (an SCP client, i.e. command-line secure file copy)
- PSFTP (an SFTP client, i.e. general file transfer sessions much like FTP)
- PutTYtel (a Telnet-only client)
- Plink (a command-line interface to the Putty back ends)
- Pageant (an SSH authentication agent for Putty, PSCP, PSFTP, and Plink)
- Puttygen (an RSA and DSA key generation utility)

A legal warning states that using Putty, PSCP, PSFTP and Plink is illegal in countries where encryption is outlawed. A note says that the Telnet-only binary (PutTYtel) is unrestricted by any cryptography laws. A section for "Binaries" shows the latest release version (beta 0.63) and a table of files for Windows on Intel x86:

For Windows on Intel x86
Putty: <a href="#">putty.exe</a> (or by FTP) (RSA sig) (DSA sig)
PutTYtel: <a href="#">puttytel.exe</a> (or by FTP) (RSA sig) (DSA sig)
PSCP: <a href="#">pscp.exe</a> (or by FTP) (RSA sig) (DSA sig)
PSFTP: <a href="#">psftp.exe</a> (or by FTP) (RSA sig) (DSA sig)
Plink: <a href="#">plink.exe</a> (or by FTP) (RSA sig) (DSA sig)
Pageant: <a href="#">pageant.exe</a> (or by FTP) (RSA sig) (DSA sig)

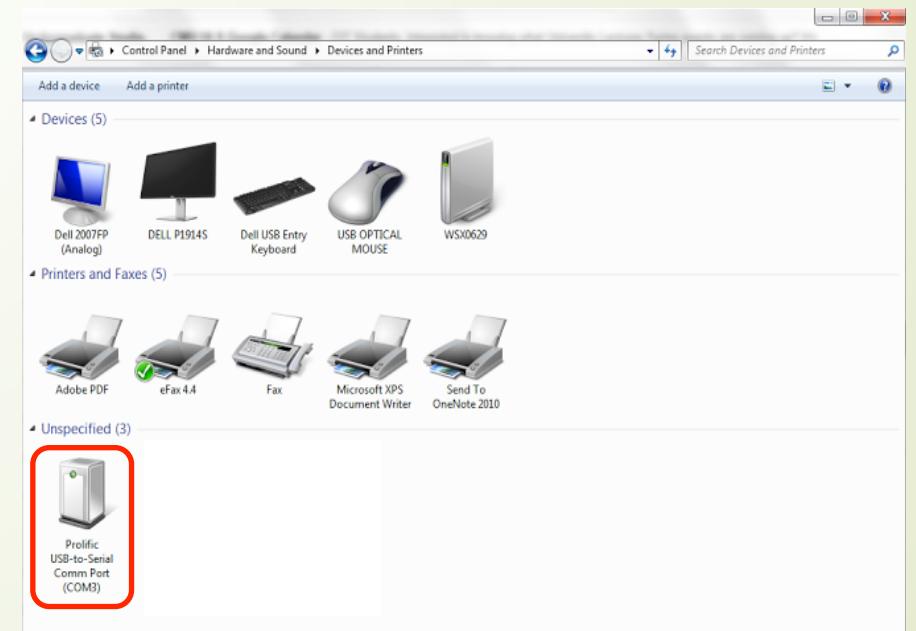
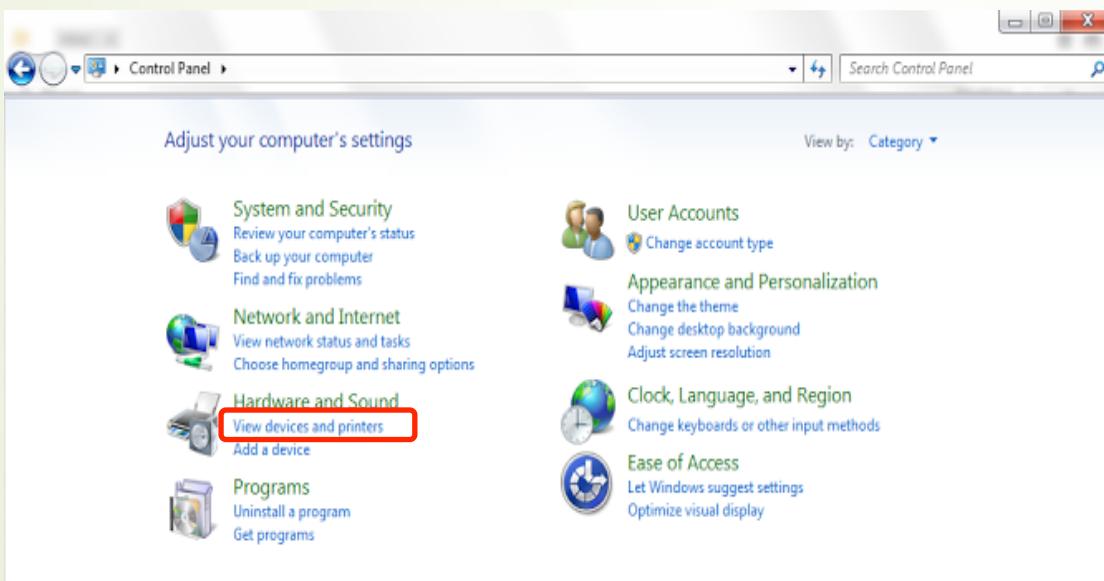


# 3. Connecting to Raspberry Pi

Windows

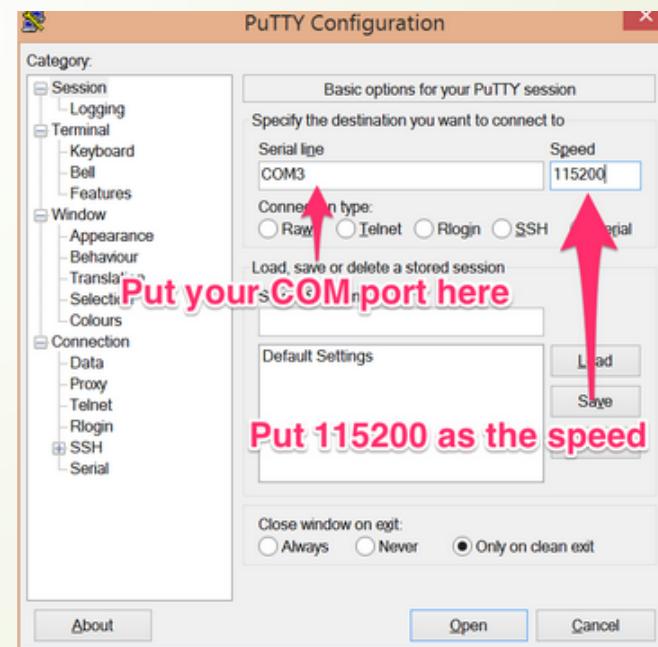
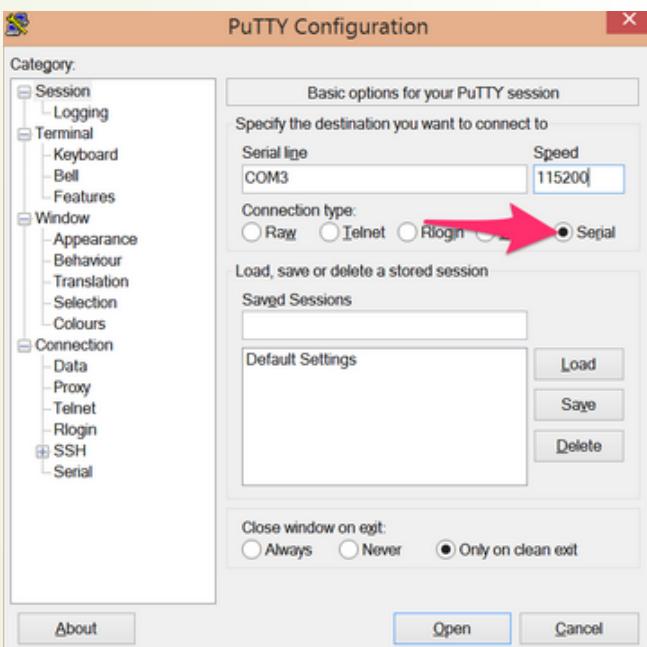
# Finding COM Port RPi Is Plugged Into

- Now that the RPi is connect to the computer via COM port (USB), we must find out which port it is specifically connected to
- To do this must go into Control Panel on the computer and under 'Hardware and sounds', click on the words 'View devices and printers'
- Then under 'Unspecified', find the words 'Prolific USB-to-Serial Comm Port' and remember the information in parenthesis below this. Something along the lines of (COM#)



# Opening Up PuTTY to Log Into RPi

- ▶ When opening up PuTTY the following screen will appear that must be modified as shown
- ▶ Once accomplished you can click open

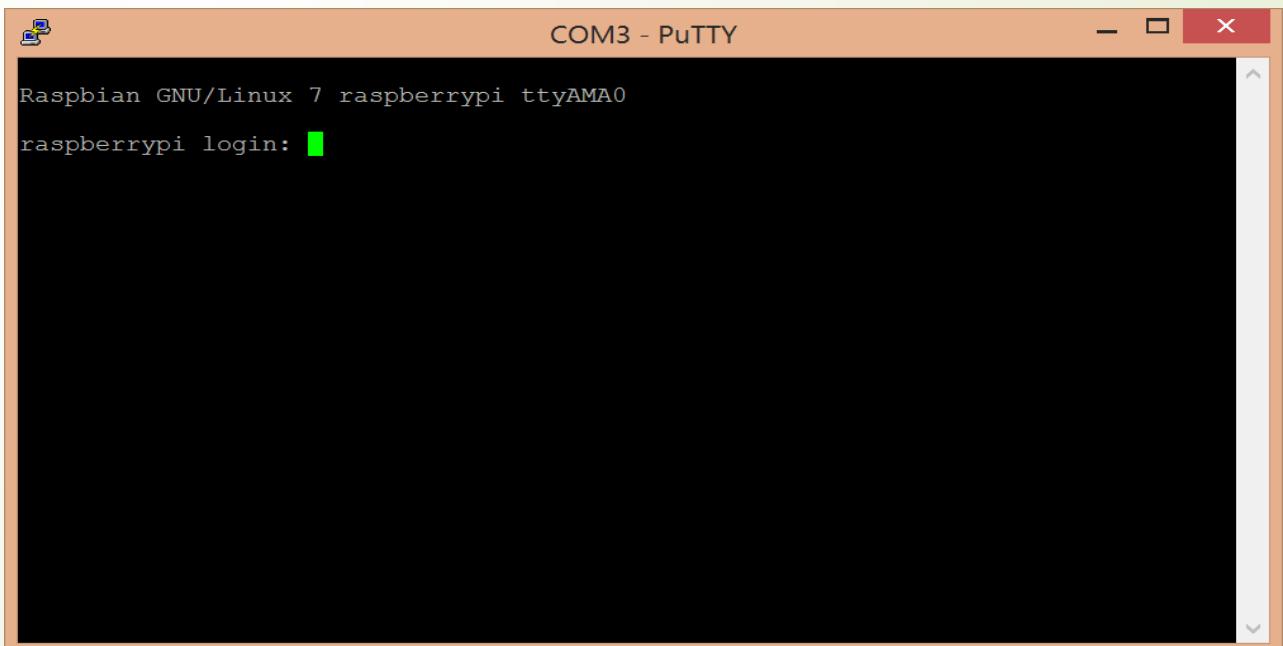


# Logging Into RPi

A screen like the one below will pop up and in order to login you must enter the following:

raspberrypi login: **pi**

Password: **raspberry**

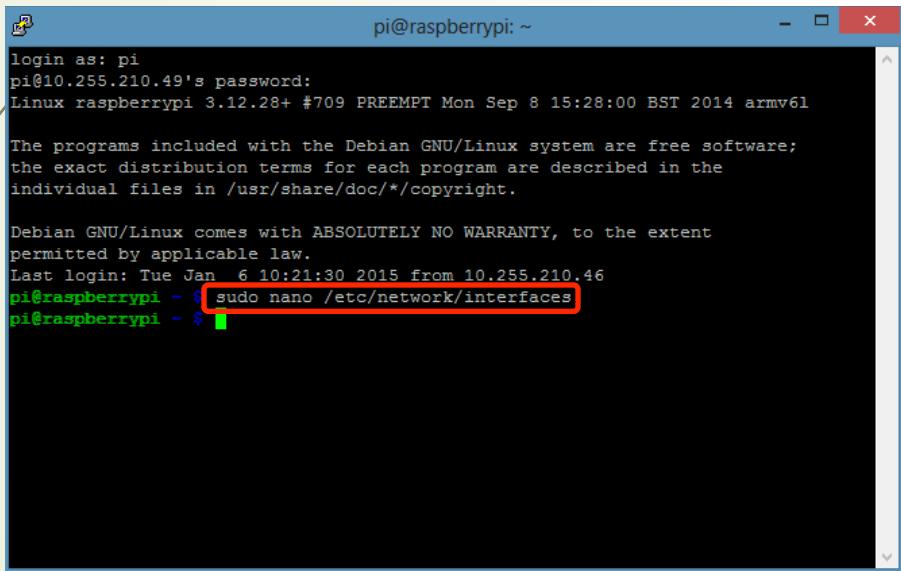




## 4. Connecting Raspberry Pi To Wi-Fi

# Modifying RPi to Connect to Wi-Fi

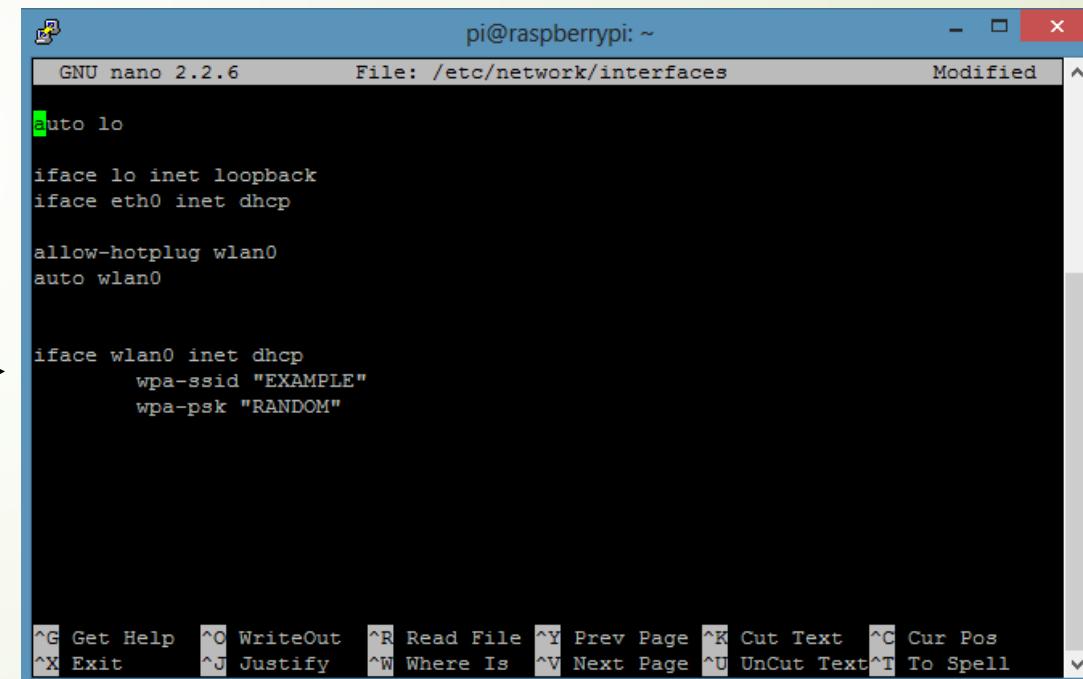
- ▶ Assuming trying to connect to a network with the following properties:  
**Network Name: EXAMPLE      Password: RANDOM**
- ▶ Type the following command and change the file so that it is exactly as seen below:



```
pi@raspberrypi: ~
login as: pi
pi@10.255.210.49's password:
Linux raspberrypi 3.12.28+ #709 PREEMPT Mon Sep 8 15:28:00 BST 2014 armv6l

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Tue Jan  6 10:21:30 2015 from 10.255.210.46
pi@raspberrypi - $ sudo nano /etc/network/interfaces
pi@raspberrypi - $
```



```
GNU nano 2.2.6          File: /etc/network/interfaces          Modified

auto lo

iface lo inet loopback
iface eth0 inet dhcp

allow-hotplug wlan0
auto wlan0

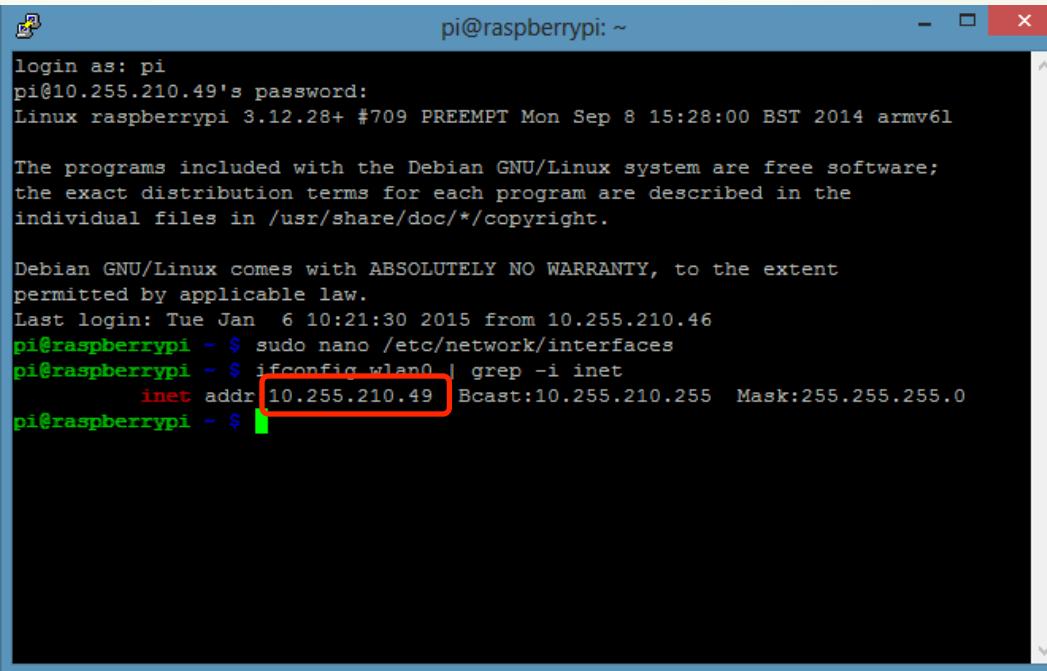
iface wlan0 inet dhcp
    wpa-ssid "EXAMPLE"
    wpa-psk "RANDOM"

^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Page  ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is   ^V Next Page  ^U UnCut Text ^T To Spell
```

- ▶ Lastly restart the network interface by running the following command:  
**sudo /etc/init.d/networking restart**

# Finding RPi's IP Address

- ▶ To do this run type the following command into the RPi Terminal:  
`ifconfig wlan0 | grep -i inet`
- ▶ If done correctly, the IP address should be returned:



A screenshot of a terminal window titled "pi@raspberrypi: ~". The window shows a login prompt, system information, and a copyright notice. At the bottom, the command `ifconfig wlan0 | grep -i inet` is run, and its output is highlighted with a red box. The output shows the IP address 10.255.210.49.

```
pi@raspberrypi: ~
login as: pi
pi@10.255.210.49's password:
Linux raspberrypi 3.12.28+ #709 PREEMPT Mon Sep 8 15:28:00 BST 2014 armv6l

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Tue Jan  6 10:21:30 2015 from 10.255.210.46
pi@raspberrypi ~ $ sudo nano /etc/network/interfaces
pi@raspberrypi ~ $ ifconfig wlan0 | grep -i inet
inet addr:10.255.210.49 Bcast:10.255.210.255 Mask:255.255.255.0
pi@raspberrypi ~ $
```

# Enabling Wi-Fi (SSH access)

- ▶ To enable SSH access the following command must be entered:  
`sudo raspi-config`
- ▶ Select option '8. Advanced Options' and then 'A4 SSH Enable/Disable' remote command line access to your Pi using SSH'
- ▶ Lastly select 'Enable' and then 'esc' until you're back to the command prompt

# Hardware to Connect to Wi-Fi

- ▶ In order to begin this step, the Raspberry Pi must be shutdown and disconnected from the computer
- ▶ To do this run the following command and wait for the RPi to fully shutdown:  
**`sudo shutdown -h now`**
- ▶ Insert the USB Wi-Fi Module to any of the four USB slots on the Raspberry Pi and connect the RPi to a power source using the *5V 2A Switching Power Supply w/ 6' MicroUSB Cable* as can be seen below:



# Logging Into RPi Through Wi-Fi (Windows)

- ▶ Find an outlet and plug the RPi into it
- ▶ From the computer, make sure you are connected to the same network as the one entered on the RPi. So from our example before:

Network Name: EXAMPLE Password: RANDOM

- ▶ Open up putty and change the start up screen to look like the one below, click open and log in like before:
- ▶ \* If given a 'PuTTY Security Alert' simply click 'Yes'

