Setting Up a Raspberry Pi on a Wireless Network

These instructions are for setting up your Raspberry Pi on your home network and to prepare it for remote connection.

Children should ask a parent's permission before they start plugging in a Raspberry PI to a home TV or monitor; or before connecting the Raspberry Pi to their home Wi-Fi

Note: If you received a Raspberry Pi from the Dripping Springs Community Library, the IP address will not be valid on your home wireless network.
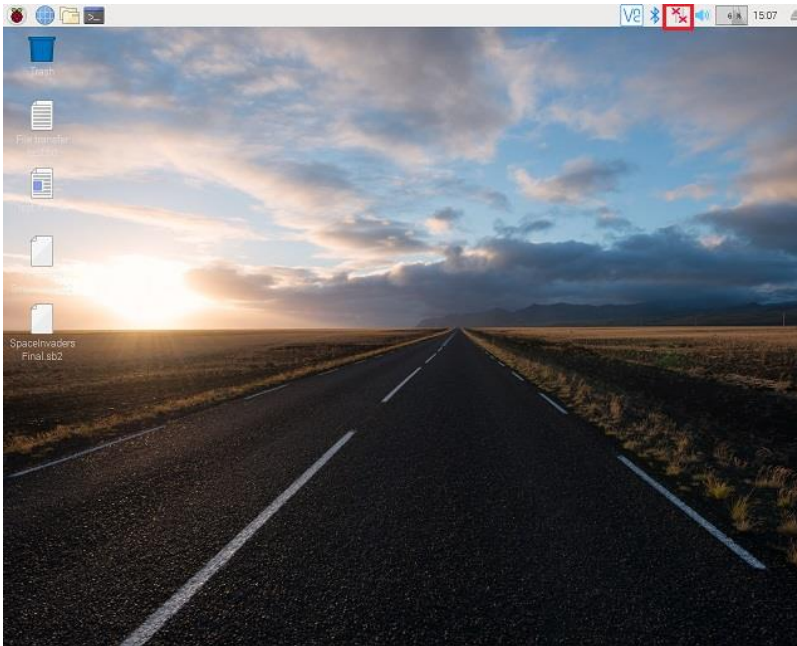
Materials Needed

- Raspberry Pi
- Raspberry Pi Power Adapter
- Mini HDMI Adapter – For Pi-Zeros (comes with your Pi-Zero)
- USB Adapter – For Pi-Zeros (comes with your Pi-Zero)
- HDMI cable
- Monitor or TV that has a HDMI port
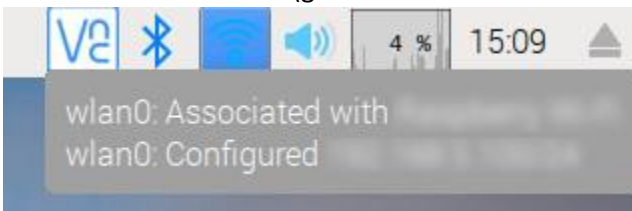- Keyboard
- Mouse

Setup Wi-Fi Connection

1. Connect your Raspberry Pi to a TV or Monitor with a HDMI port
2. Connect a mouse to your Raspberry Pi using the USB adapter
   a. Due to the single port of the USB adapter, you will need to switch between the mouse and keyboard
   b. If you are using a monitor with USB ports on it, it is recommended that you plug both keyboard and mouse into the monitor and then use a USB cable with a USB-b connector end (the one that looks like a square), to connect the monitor to the Raspberry Pi via USB adapter. This will eliminate the need to switch between the keyboard and mouse using the single port USB adapter.
3. Connect the power adapter to the Raspberry Pi and plug it in

4. Once the Raspberry Pi has booted to the desktop go to the Network connection symbol
in the taskbar at the top right of the screen and click on it

5. Select your Wi-Fi Network and connect to it
    a. This is where you will need to switch the mouse out with the keyboard so that you can enter your Wi-Fi network's password
    b. Once done, switch back to the mouse

6. Once connected to your home Wi-Fi Network, hover over the Wi-Fi symbol
and view the IP address (general IP addresses look like this, 192.168.xx.xxx) of the Raspberry Pi

    a. Write down the IP address of the Raspberry Pi, it will be required so that you can remotely connect to it.

Enable VNC

VNC is needed for remote connection to be established. By default it is off. If you received a Raspberry Pi from the Dripping Springs Community Library, VNC has already been enabled.
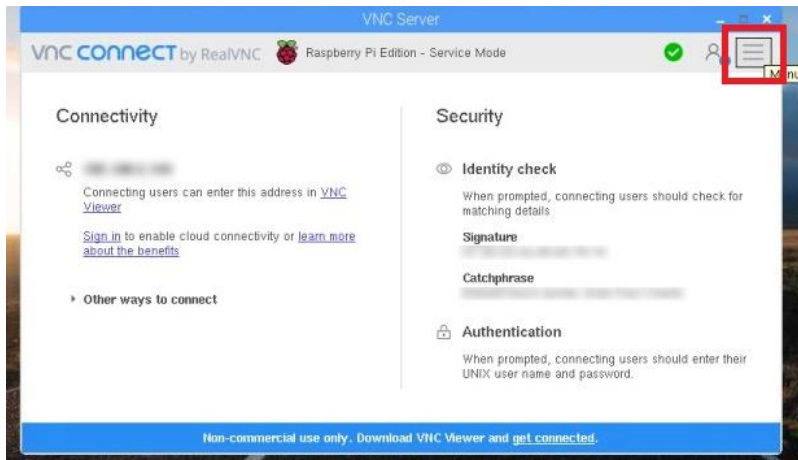
The following instructions are for enabling VNC on a Raspberry Pi in case it has been turned off or you have a fresh OS install.

1. Click the Raspberry Pi icon at the top-left of the screen
2. Select Preferences > Raspberry Pi Configuration
3. Click the Interfaces tab

4. Click the "Enabled" radio button beside VNC.
5. Click "OK" at the bottom

6. Click on the VNC icon [VNC icon] that appears on the right side of the taskbar
   a. You will see your Raspberry Pi's IP address and Security check information. When you attempt to remotely connect to the Raspberry Pi from another computer using the RealVNC Viewer it will show the Signature and catchphrase to make sure the connection is authentic

Advanced steps:

Setting a Static IP for the Raspberry Pi

By default, IP addresses handed out by your router are dynamic, meaning that they change over time. A Dynamic IP address is an IP address that is leased to a device only for a set amount of time (about 24 hours by default). If you were using your home Wi-Fi on your tablet and then leave home with tablet in hand for a few hours; then return home, your tablet will still have the same IP address since it is communicating with the router within the 24 hour period. In fact your tablet will keep the same IP address over time as long as it regularly connects with the router within the lease time.

However, if you were to leave home for a few days and while you are away and someone at home connected multiple new devices to the home Wi-Fi; it is likely your tablet will not be assigned the same IP address once you return. This is because your tablet did not check in with the router before its IP address lease timed out, therefore making the IP address available for another device.

Because of this, if you will regularly be remotely connecting to your Raspberry Pi, it is suggested you set a Static IP address for the Raspberry Pi.

A Static IP address is an IP address reserved for use by a specific device, its lease time will not expire.

To set a static IP address you must go into your router's configuration settings. Due to the number of different routers on the market, this guide cannot give instructions on setting a static IP address, you will need to consult the user manual of the router which can usually be found on the manufacturer's website.

You will be able to identify the Raspberry Pi on the router by either its name which by default is: raspberrypi

OR

By its MAC address

The MAC address for the Raspberry Pi can be found by clicking on the Terminal icon in the Raspberry Pi taskbar.

The Terminal is a text based command prompt similar to DOS in the Windows operating system.

Enter the following command: ifconfig -a

NOTE: There is a space between "ifconfig" and "-a"

You will find the MAC address on the line that starts with "ether"

It will look similar to this: b8:27:eb:xx:xx:xx