Installing the Operating System

The Raspberry Pi is a computer and like any other computer it needs an OS installed. The Pi doesn't have built-in memory, so you'll need a microSD card to install your OS. I recommend using a microSD card class 10 with at least 8GB of memory.

If you go to the Raspberry Pi website and you open the downloads section: https://www.raspberrypi.org/downloads.

I recommend using Raspbian, because it is the most supported OS by the Raspberry Pi community.

RASPBIAN

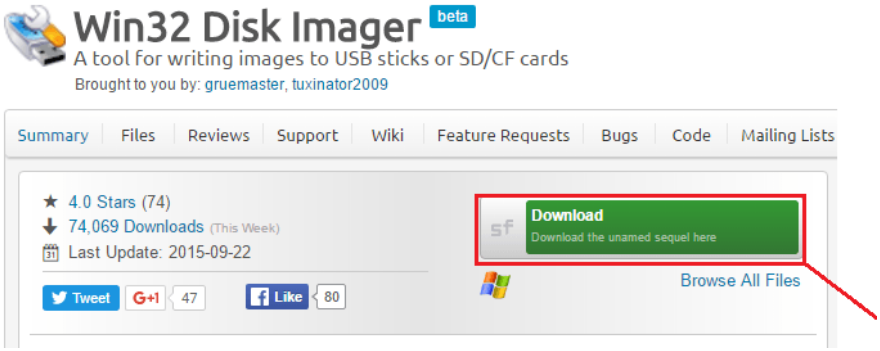
1. *Installing Raspbian in Your MicroSD Card*

After downloading the Raspbian OS, you should have a .zip file in your Downloads folder. Unzip it and inside you'll find a .img file.

To flash your microSD Card with a .img file on a Windows PC, it requires an application called ***Win32 Disk Imager***, which is available for free download.

Follow these steps to install it:

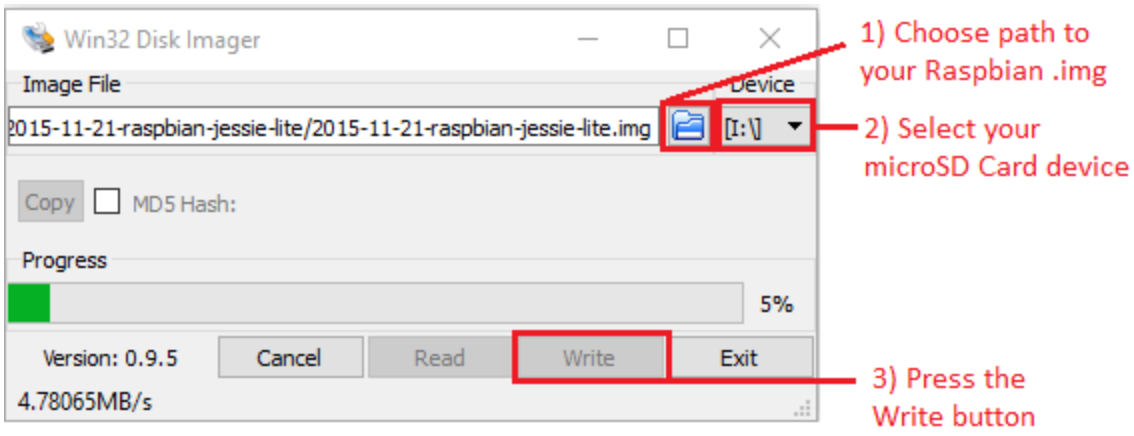
1. Go to the Win32 Disk Imager download page at http://sourceforge.net/projects/win32diskimager.



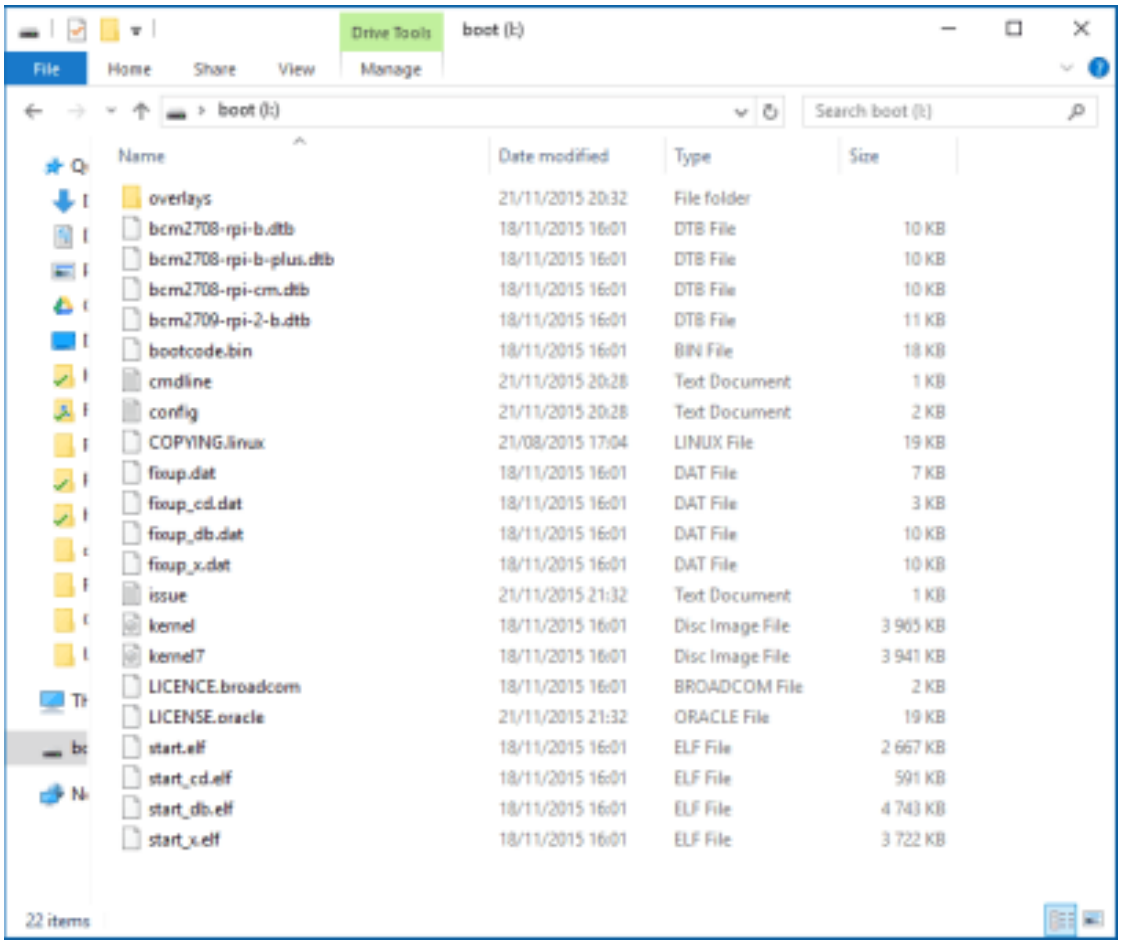
2. Click the Download button to retrieve the installer.
3. Run the Win32 Image Writer application installer. With Win32 Disk Imager installed, you're ready to write the .img file in your microSD card.
4. Connect your microSD card to your computer.

After opening Win32 Disk Imager, follow these steps:

1. Select your Raspbian Lite .img file.
2. Select your microSD card as the device.
3. Click Write to start writing the image to the microSD card.



After the flashing process is finished, open your microSD card and you should see something similar to the image below:



2. *Booting Up Your Pi*

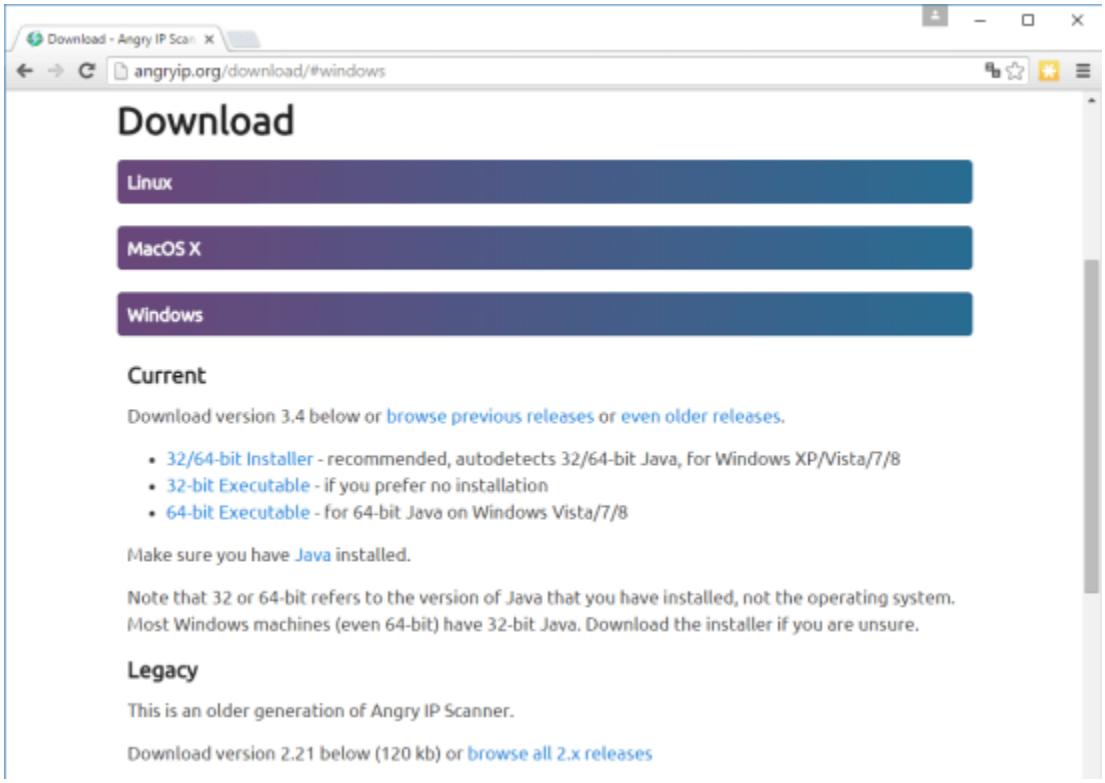
After installing Raspbian in your microSD, it is time to boot up your RPi for the first time.

1. Connect an Ethernet cable from your Raspberry Pi to your router to ensure you have an internet connection
2. Connect your 5V DC power adapter to power your Pi

3. *Searching for Your Pi on Your Network*

After booting up your Raspberry Pi, you need to find its **IP Address**. In order to find your RPi in your network, you need to install a software that scans your network for devices.
I'll use a software called ***Angry IP Scanner***. It runs on Windows, Mac OS X or Linux.

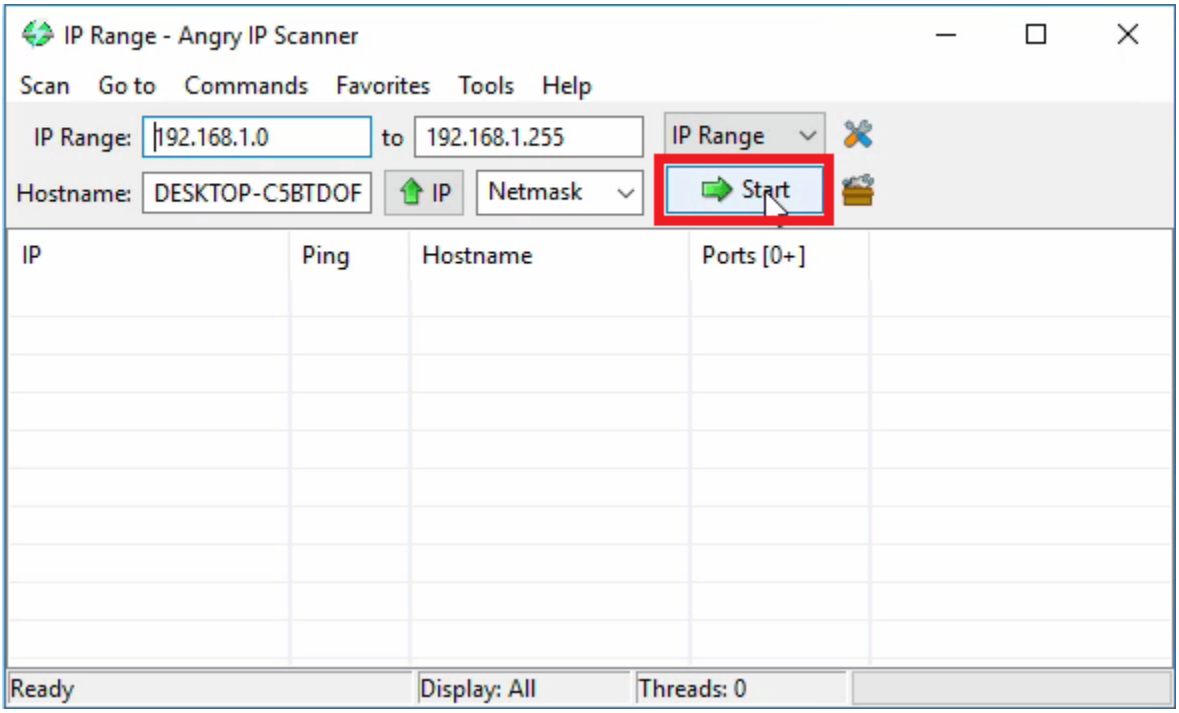
- Go to the downloads section of the Angry IP Scanner software: http://angryip.org/download. Select the right installation file for your computer



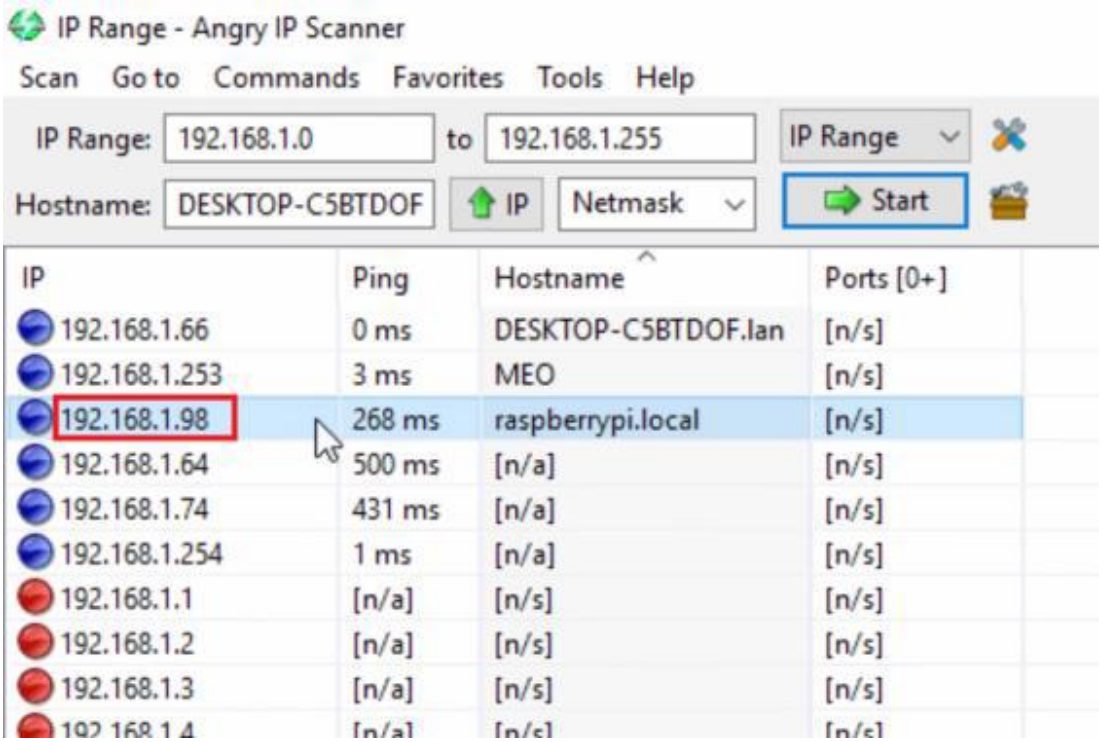
Make sure you have Java installed.

- Running Angry IP Scanner

Now, run the Angry IP Scanner. When you launch the software, it should automatically pick the IP Range for you network, so all you need to do is press Start and wait a few seconds.



Angry IP Scanner found your Pi on the local network with its default Hostname of "raspberrypi.local".



Save your IP address (for example 192.168.1.98), because you'll need it later

Your Raspberry Pi may have a different IP address depending on whether it's connected to your router through WiFi or Ethernet, and that address might even change from time to time. If you ever find yourself unable to connect via SSH, you can always double-check the IP address using the Angry IP software!

- ***Download PuTTY***

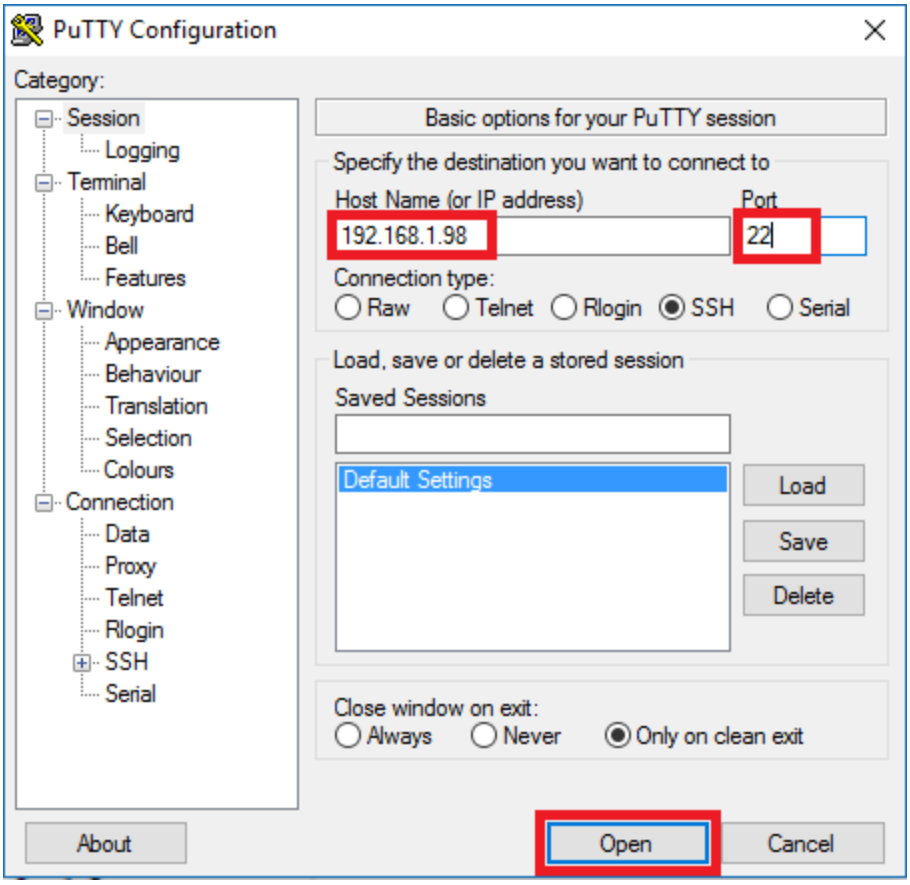
If you use Windows, you need to download and install a free application called **PuTTY**. Here's how to install it:

1) Open your web browser.

2) Go to www.putty.org.

3) Click the putty.exe file to download it.

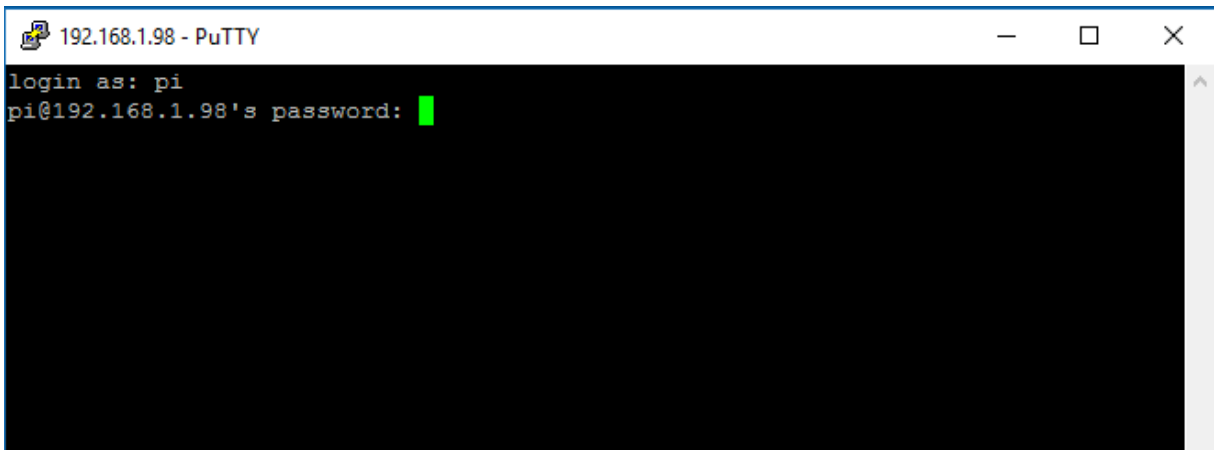
4) Run the putty.exe file to install the software.



5) Click Open.

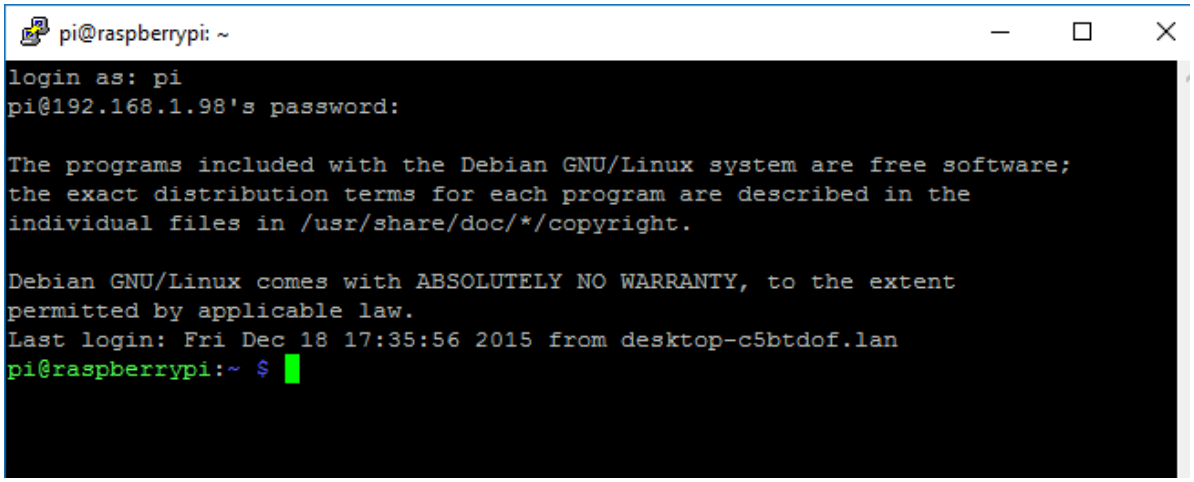
6) When you're asked to log in, type pi and press Enter.

When you're asked to type a password, type raspberry



Default settings for Raspbian OS are: username = pi and password = raspberry

When you connect your computer to your Raspberry Pi for the first time, you're prompted by a message warning you that you're attempting to establish connection with an unknown host. Simply click OK to proceed.



Now you have an SSH communication established with your Raspberry Pi. This will be useful to install software in your Pi, run your programs, create folders or files, etc...

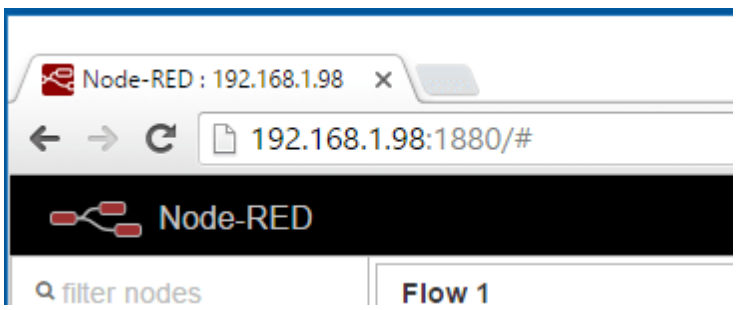
4. Installing Node-RED

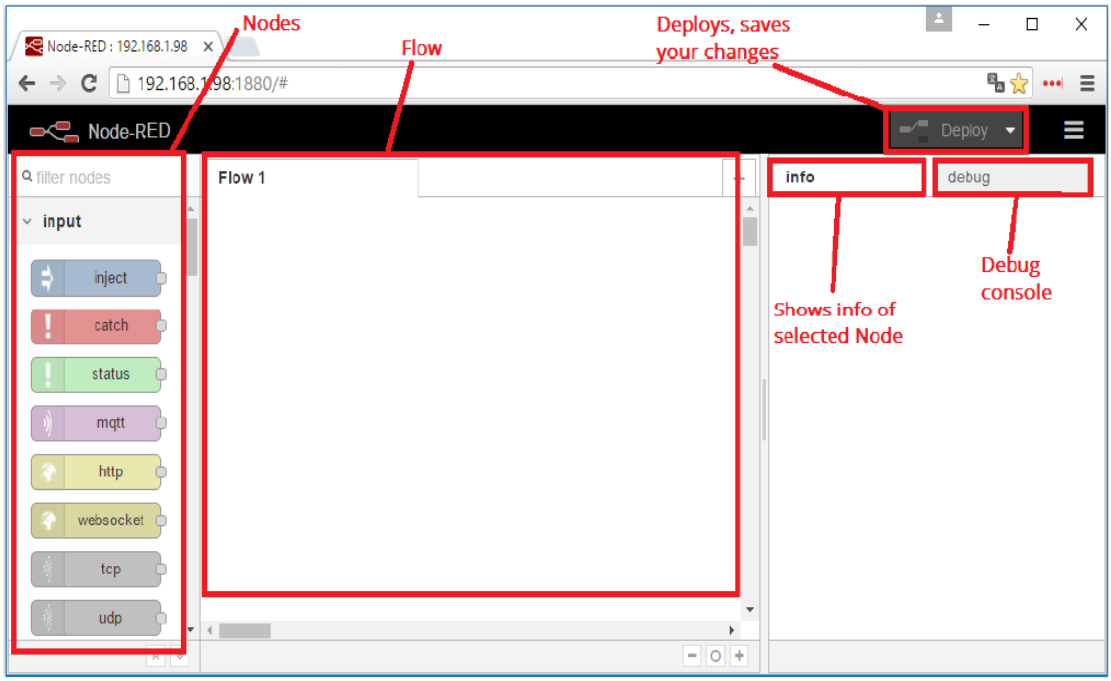
The installation by entering the IP address of your Pi in a web browser followed by the 1880 port number:

http://YOUR_RPi_IP_ADDRESS:1880

Example:

http://192.168.1.98:1880





.

On the left-side, you can see a list with a bunch of blocks. These blocks are called nodes and they are separated by their functionality. If you select a node, you can see how it works in the info tab.

In the center, you have the Flow and this is where you place the nodes.

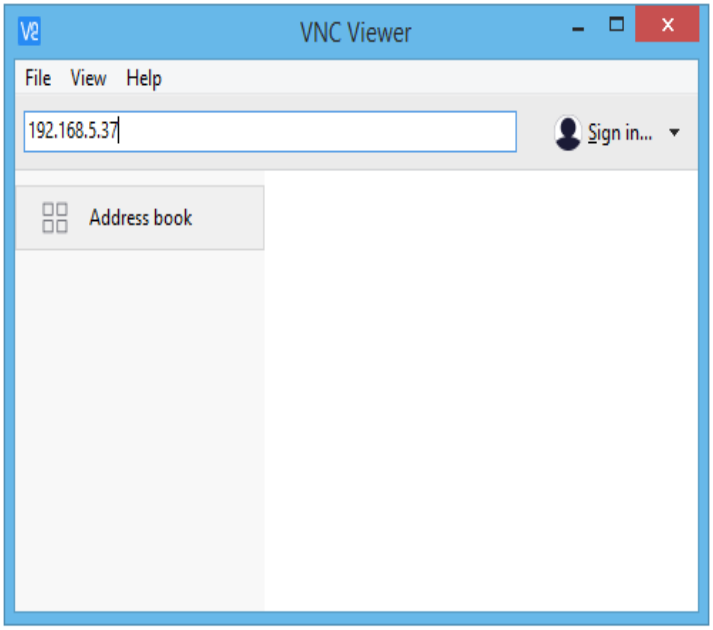
5. *VNC Viewer*

You'll also need a VNC Viewer application for the Windows, Max or Linux computer, or Android mobile device.

VNC is a graphical desktop sharing system that allows you to remotely control the desktop interface of one computer (running VNC Server) from another computer or mobile device (running VNC Viewer).

VNC Viewer transmits the keyboard and either mouse or touch events to VNC Server, and receives updates to the screen in return**.**

On the device you will use to take control, run VNC Viewer and enter the IP address in the search bar:



You will see the desktop of the Raspberry Pi inside a window on your computer or mobile device. You'll be able to control it as though you were working on the Raspberry Pi itself.