

# Raspberry Pi



I'm Learning about  
Static IP Addresses

Card 1 of 7

**1** IP Addresses are the way in which computers talk to each other. Every machine on the internet can be identified by its unique or Public IP Address. When we connect machines together we do this in a Network. Each computer in your network will have a unique IP address, and this will be within a range of numbers determined by a subnet mask. To find out the IP address of your machine you can open a Command Prompt and type the command

```
ipconfig
```

```
Administrator: Command Prompt

Wireless LAN adapter Wireless Network Connection:

Connection-specific DNS Suffix . : net
Description . . . . . : Intel(R) Centrino(R) Advanced-N 6235
Physical Address. . . . . : C8-F7-33-DC-BA-1D
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
IPv4 Address. . . . . : 192.168.2.143(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : 06 November 2015 13:58:01
Lease Expires . . . . . : 07 December 2015 14:56:37
Default Gateway . . . . . : 192.168.2.1
DHCP Server . . . . . : 192.168.2.1
DNS Servers . . . . . : 208.67.222.123
                        208.67.220.123
                        192.168.2.1
NetBIOS over Tcpip. . . . . : Enabled
```

*Look for the tag **IPv4 Address***

*If your Pi is connected to the same network it will have a similar address. When you know its IP Address you will be able to connect to it.*

# Raspberry Pi



I'm Learning about  
Static IP Addresses

Card 2 of 7

**2** To find out your Pi's **Internet Protocol (IP) Address** you will need to open a terminal window. The first time you try to do this you will need to do this with a monitor, mouse and keyboard (because you will not know the IP Address of your Pi!). You will need to open a **Terminal** and get to the command prompt on the Pi. Once you have a Pi command prompt, run the command:

```
$ sudo ifconfig -a
```

```
pi@raspberrypi14 ~ $ sudo ifconfig -a
eth0      Link encap:Ethernet  HWaddr b8:27:eb:39:63:fb
          inet addr:192.168.2.29 Bcast:192.168.2.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:6862 errors:0 dropped:0 overruns:0 frame:0
          TX packets:225 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:432299 (422.1 KiB)  TX bytes:40749 (39.7 KiB)
```

*Look for the tag **Internet Address**. You should be connected to the same network, or you can connect your machine directly to the Pi with an Ethernet Cable.*

**!** “sudo” is a command that allows a normal user to execute a command using the same privilege as a root user.

# Raspberry Pi



I'm Learning about  
Static IP Addresses

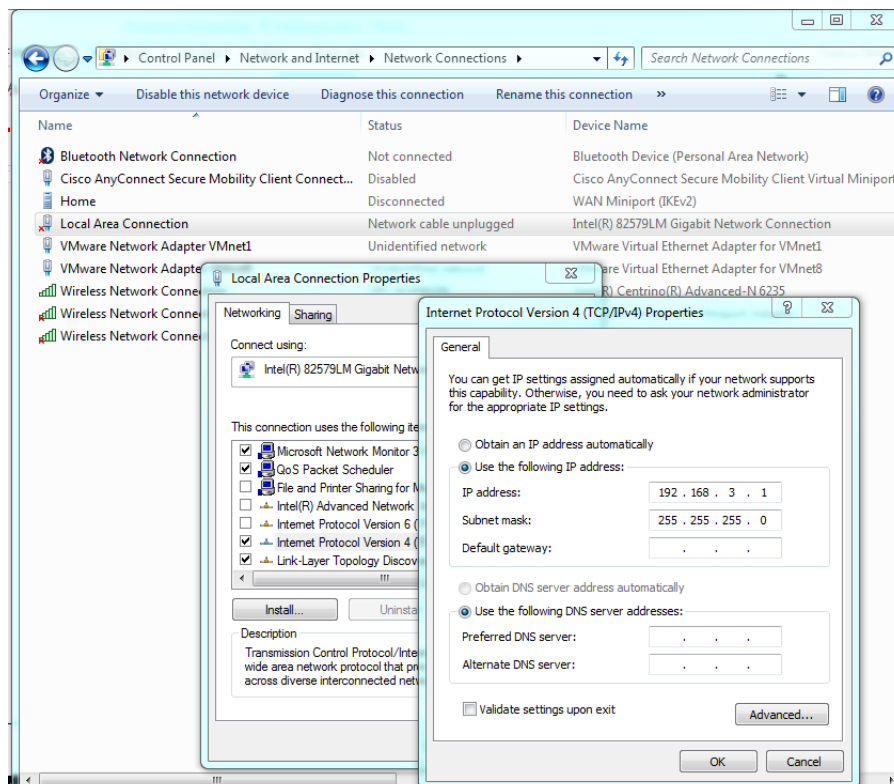
Card **3** of **7**

**3** You can create your own network by connecting the Pi directly to your machine using an Ethernet cable and configuring a Static IP address (assuming you are not connecting your PC to a network using its Ethernet port of course!)

**!** Static IP Addresses are ones that do not change. They can be set manually on your device. Dynamic IP Addresses are allocated by a DHCP server on your network, at home this function is provided by your Service Provider's Wifi Router.

**4** First you will need to set your machine with a static IP address and network mask. Open the network configuration and set your Local Area Connection to the **xxx.xxx.xxx.1** address of the same network. In the example above we are on a 192.168.3.0 network.

*Ensure your Ethernet Cable is plugged in to your machine and the Pi. Look for the **IP Address** in the properties of your **IPV4** address of your **Local Area Connection**. Then manually set the IP Address to 192.168.3.1 and the Subnet*



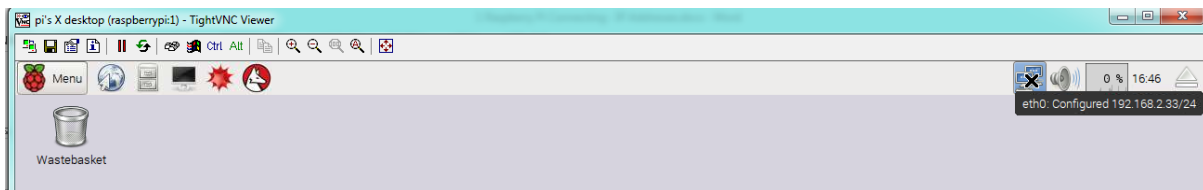
# Raspberry Pi



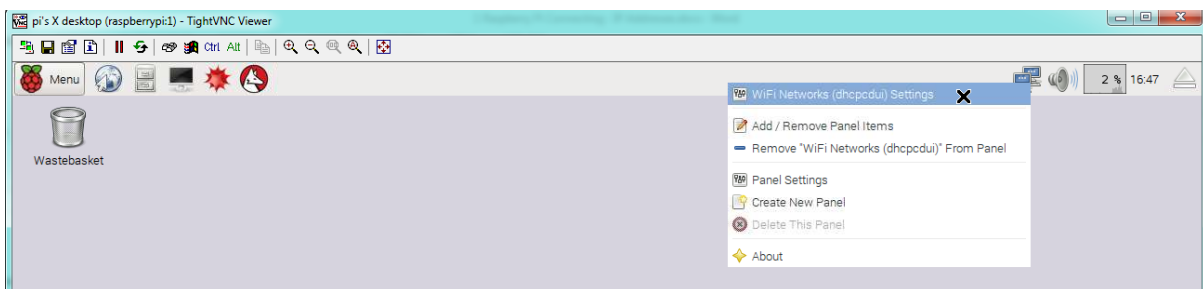
**I'm Learning about**  
Static IP Addresses

Card **4** of **7**

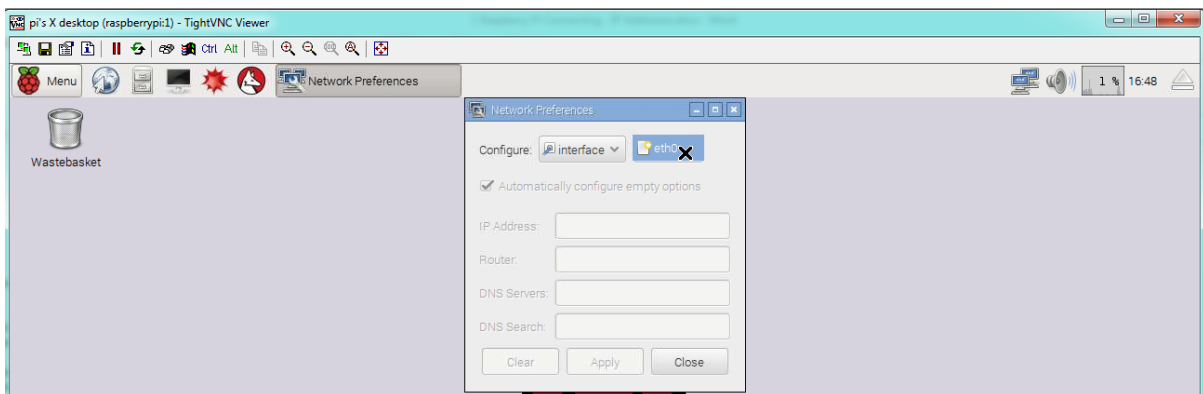
**5** Now you have to do the same with your Pi. The easiest way is to use the Network Manager to set a static IP address. Hover over the Network Icon and you will see the current address.



**6** Now right-click on the Network Icon and click on Settings



**7** Now click on the Interface drop down until Eth0 appears. This is the default Ethernet port/



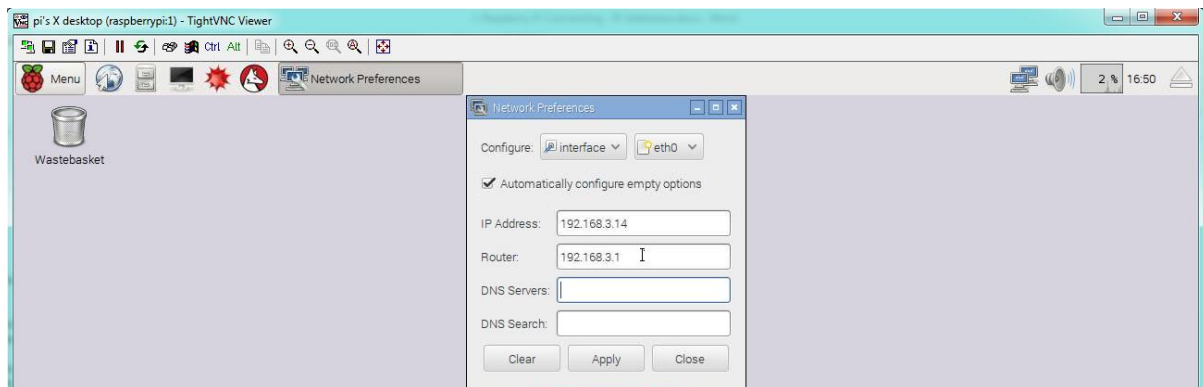
# Raspberry Pi



**I'm Learning about**  
Static IP Addresses

Card **5** of **7**

**8** Add in the IP Address you want to set the interface to (eg 192.168.3.14) and then set the Gateway to the .1 address ie 192.168.3.1. Then click Apply



# Raspberry Pi



I'm Learning about  
Static IP Addresses

Card **6** of **7**

**9** If you are not running the graphical terminal you can do this from the command line.

The commands are different, this time you have to edit a file with the following command.

```
sudo nano /etc/network/interfaces
```

*Set the parameter iface to static, and add parameters for address, network, netmask, broadcast and gateway. Save the changes and exit.*

# Raspberry Pi



I'm Learning about  
Static IP Addresses

Card 7 of 7

**10** Now reboot your Pi to apply the changes

```
sudo reboot
```

**11** Now test you can reach your Pi. Open a **Command Prompt** on your local machine and try to communicate with the Pi using the **ping** command using the IP Address you used in step 2.

```
ping 192.168.3.29
```

A screenshot of a Windows Command Prompt window titled "Administrator: Command Prompt". The window shows the command "ping 192.168.2.29" being entered at the prompt "C:\Users\francisr>". The output shows four successful replies from 192.168.2.29 with 32 bytes of data, each taking less than 1ms. Ping statistics show 4 packets sent, 4 received, and 0% loss. The IP address 192.168.2.29 in the command is circled in yellow.

```
C:\Users\francisr>ping 192.168.2.29

Pinging 192.168.2.29 with 32 bytes of data:
Reply from 192.168.2.29: bytes=32 time=1ms TTL=64
Reply from 192.168.2.29: bytes=32 time=1ms TTL=64
Reply from 192.168.2.29: bytes=32 time<1ms TTL=64
Reply from 192.168.2.29: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.2.29:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\francisr>
```

*Make sure you get a Reply from the Pi and not a timeout!*

More information about setting IP Address on your Pi can be found at:

<http://www.modmypi.com/blog/tutorial-how-to-give-your-raspberry-pi-a-static-ip-address>