Networking on the Raspberry Pi / Debian Linux

Finding out your Raspberry Pi’s IP address for Networking
First either launch a terminal from the desktop or type into the console “ifconfig”
This will display an output like the one on the other side of this sheet.

The following information is key:
eth* / lo / wlan* = The network interface and the IP address.
  eth = Hardware / Lan connection, provided by either the network port on the
  RPi or a USB to Ethernet Adaptor.
  wlan = Wireless connection, provided by a USB wireless card if plugged in.
  lo = Loopback, this is just a virtual device to allow the Pi to connect to itself.

HWaddr = The mac Address of the network device
inet addr: = The IPv4 Address of the Network Device
inet6 addr: = The IPv6 Address of the network device

Pinging another device on the network on linux
First either launch a terminal from the desktop or boot the Pi up to the console and
then type in the following
“ping IP.ADD.RE.SS” Replacing IP Address with the other device or computer you
want to ping.

You should then see a screen like this:

```
pi@raspberrypi-5 ~ $ ping 192.168.0.1
PING 192.168.0.1 [192.168.0.1] 56(84) bytes of data.
64 bytes from 192.168.0.1: icmp_req=1 ttl=64 time=28.2 ms
64 bytes from 192.168.0.1: icmp_req=2 ttl=64 time=10.5 ms
64 bytes from 192.168.0.1: icmp_req=3 ttl=64 time=10.4 ms
64 bytes from 192.168.0.1: icmp_req=4 ttl=64 time=10.6 ms
64 bytes from 192.168.0.1: icmp_req=5 ttl=64 time=10.5 ms
^C
--- 192.168.0.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4007ms
rtt min/avg/max/mdev = 10.469/14.093/28.207/7.058 ms
```

Then Press CTRL + C to stop the ping program if ping is successful.

This confirms that network communication was possible from the Pi to the Device,
You can also use a website domain such as google.com to ping the outside network
if connected.
Setting up a Static IP address on the Raspberry Pi

First either launch a terminal from the desktop or login to the console

1. Edit the network configuration file by typing “sudo /etc/network/interfaces”
2. Change “iface eth0 inet dhcp” to “iface eth0 inet static”
3. Directly below put the following information without the quotation marks:
   “address 192.168.0.<Raspberry Pi Number>
   netmask 255.255.255.0
   network 192.168.0.0
   broadcast 192.168.0.255
   gateway 192.168.0.1”
4. Type in “sudo /etc/init.d/networking stop”
5. And then type in “sudo /etc/init.d/networking start”
6. Now the network card on the RPi has been rebooted it then should have the static IP address configured. Type in “ifconfig” again to confirm that the IP address has changed, the screenshot below is an example where it has been set to 192.168.0.239

```
pi@raspberrypi-5 ~ $ ifconfig
eth0  Link encap:Ethernet  HWaddr b8:27:eb:be:22:ee
     inet addr:192.168.0.239  Bcast:192.168.0.255  Mask:255.255.255.0
     UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
     RX packets:122220  errors:0  dropped:0  overruns:0  frame:0
     TX packets:67309  errors:0  dropped:0  overruns:0  carrier:0
     collisions:0  txqueuelen:1000
     RX bytes:32631135 (31.1 MiB)  TX bytes:18263856 (17.4 MiB)
lo   Link encap:Local Loopback
     inet addr:127.0.0.1  Mask:255.0.0.0
     UP LOOPBACK RUNNING  MTU:16436  Metric:1
     RX packets:0  errors:0  dropped:0  frame:0
     TX packets:0  errors:0  dropped:0  carrier:0
     collisions:0  txqueuelen:0
     RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```