Configuring RPi to use its wifi to fetch internet and provide internet input to windows system though RJ45 ethernet connector

We will use dnsmasq package for this purpose because it is combined DHCP and DNS server and also easy to configure.

If you want something a little more 'heavyweight', you can use the isc-dhcp-server and bind9packages for DHCP and DNS respectively, but for our purposes, dnsmasq works just fine.

sudo apt-get install dnsmasq

We need to configure interfaces. We will assign a static IP address to eth0 which will be used as gateway. Open the interfaces file

sudo nano /etc/network/interfaces

Edit the eth0 section like this:

allow-hotplug eth0

iface eth0 inet static

address 192.168.2.1

netmask 255.255.255.0

network 192.168.2.0

broadcast 192.168.2.255

Next, we will configure dnsmasq. The shipped dnsmasq config file contains a lot of information on how to use it. So, I will advise to move it and create a new one.

sudo mv /etc/dnsmasq.conf /etc/dnsmasq.conf.orig

sudo nano /etc/dnsmasq.conf

Paste the following into the new file

interface=eth0 # Use interface eth0

listen-address=192.168.2.1 # listen on

# Bind to the interface to make sure we aren't sending things

# elsewhere

bind-interfaces

server=8.8.8.8 # Forward DNS requests to Google DNS

domain-needed # Don't forward short names

# Never forward addresses in the non-routed address spaces.

bogus-priv

# Assign IP addresses between 192.168.2.2 and 192.168.2.100 with a

# 12 hour lease time

dhcp-range=192.168.2.2,192.168.2.100,12h

Edit the /etc/sysctl.conf file to enable packet forwarding

sudo nano /etc/sysctl.conf

Remove the # from the beginning of the line containing net.ipv4.ip\_forward=1 This will enable packet forwarding on next reboot. But if you want to try it right now without reboot then do this.

sudo sh -c "echo 1 > /proc/sys/net/ipv4/ip\_forward"

We also need to share RPi’s internet connection with the devices connected over Wi-Fi. We will configure a NAT between eth0 and wlan0:

sudo iptables -t nat -A POSTROUTING -o wlan0 -j MASQUERADE

sudo iptables -A FORWARD -i wlan0 -o eth0 -m state --state RELATED,ESTABLISHED -j ACCEPT

sudo iptables -A FORWARD -i eth0 -o wlan0 -j ACCEPT

However, we need these rules to be applied every time we reboot the Pi, so run sudo sh -c "iptables-save > /etc/iptables.ipv4.nat" to save the rules to the file /etc/iptables.ipv4.nat. Now we need to run this after each reboot, so open the /etc/rc.localfile with sudo nano /etc/rc.local and just above the line exit 0, add the following line:

iptables-restore < /etc/iptables.ipv4.nat

And that’s all! Now just Reboot your RPi and you will be able to access Internet

sudo reboot