DFRobot project

# Raspberry Pi B+ configuration

Connecting the Raspberry Pi to the Macbook via the ethernet cable:We want to connect the Pi to the Macbook through the Ethernet cable so we can control the Pi with the keyboard / screen of the Macbook and also provide internet access to the Pi. The latter is done by enabling internet sharing on the Macbook.

* First configure the Ethernet network settings to static IP 192.168.2.1. It must be this address because this is the fixed IP address which the OS X Mavericks uses when enabling internet sharing. The address 192.168.2.1 address means thet the Pi must have a static address in the same subnet, e.g. 192.168.2.2. This is accomplished by setting this in **/etc/network/interfaces**. Also the gateway of the Pi has to be set there and this must be the IP of the Macbook: IP 192.168.2.1.
* Internet sharing from Macbook:  
  When enabling internet sharing on the Macbook the Macbook apparently always uses 192.168.2.1. This is on a different subnet then the Wifi, so the Macbook acts a a router.
* A reboot might be needed before internet sharing is really working. Still the setup seems not very reliable.

## Network configuration in /etc/network/interfaces:

auto lo

iface lo inet loopback

iface eth0 inet static

address 192.168.2.2

netmask 255.255.255.0

gateway 192.168.2.1

allow-hotplug wlan0

iface wlan0 inet dhcp

wpa-conf /etc/wpa\_supplicant/wpa\_supplicant.conf

iface default inet dhcp

## Wifi configuration in /etc/wpa\_supplicant/wpa\_supplicant.conf:

ctrl\_interface=DIR=/var/run/wpa\_supplicant GROUP=netdev

update\_config=1

network={

ssid="wifiwifiwifi"

psk="xxx"

# Protocol type can be: RSN (for WP2) and WPA (for WPA1)

proto=RSN

# Key management type can be: WPA-PSK or WPA-EAP (Pre-Shared or Enterprise)

key\_mgmt=WPA-PSK

# Pairwise can be CCMP or TKIP (for WPA2 or WPA1)

pairwise=CCMP

#Authorization option should be OPEN for both WPA1/WPA2 (in less commonly used $

auth\_alg=OPEN

}

Testing internet speed from command line:  
wget -O /dev/null http://speedtest.wdc01.softlayer.com/downloads/test10.zip

Connecting the Raspberry Pi to the wireless network (no Ethernet cable):

* Configure the file /etc/network/interfaces and the /etc/wpa\_supplicant/wpa\_supplicant.conf like above.
* The Pi will get an IP address assigned by DHCP: 192.168.1.235.

Logging into the Raspberry Pi:

* Connect to Pi via SSH: ssh pi@192.168.1.235.
* Install VNC server on Pi and VNC client on Macbook

Raspberry Pi camera module:

Follow the instructions at ‘http://jacobsalmela.com/raspberry-pi-webcam-using-mjpg-streamer-over-internet/’ and ‘http://blog.miguelgrinberg.com/post/how-to-build-and-run-mjpg-streamer-on-the-raspberry-pi’to install the MJPG streamer.

Part of this is to add:

#Added by ReneB: enable finding mjpg streaming libraries

export LD\_LIBRARY\_PATH=/usr/local/lib/

to the end of ~/.bashrc to enable finding the MJPG streamer files.

Start the camera:

$ mkdir /tmp/stream $ raspistill --nopreview -w 640 -h 480 -q 5 -o /tmp/stream/pic.jpg -tl 100 -t 9999999 -th 0:0:0 &

Start the MJPG streamer:

LD\_LIBRARY\_PATH=/usr/local/lib mjpg\_streamer -i "input\_file.so -f /tmp/stream -n pic.jpg" -o "output\_http.so -w /usr/local/www"

Then the stream can be viewed at 192.168.1.235:8080.