**Setting up the Raspberry PI from Start to Finish**

**April 15, 2015**

**Install List:**

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**1. Raspin install**

Go to: http://www.raspberrypi.org/downloads

scroll down to raw images and select Raspian

Burn image to SD card using "Win32 Disk Imager" It is located in /Hardware Info/Disk imager for pi

put SD card into Pi and turn on - select your defaults.

Then run:

sudo apt-get update

sudo rpi-update

**2. Mongo Install**

Follow these instructions: https://github.com/RickP/mongopi

sudo apt-get install git-core build-essential scons libpcre++-dev xulrunner-dev libboost-dev libboost-program-options-dev libboost-thread-dev libboost-filesystem-dev

NOTE: for RPI 2:

sudo apt-get install git-core build-essential scons libpcre++-dev libboost-dev libboost-program-options-dev libboost-thread-dev libboost-filesystem-dev

git clone git://github.com/RickP/mongopi.git

cd mongopi

scons

sudo scons --prefix=/opt/mongo install

PATH=$PATH:/opt/mongo/bin/

export PATH

now create data directory for Mongo:

From root: sudo mkdir \data

cd data

sudo mkdir \db

then: sudo chmod 777 /data/db

**3. Node Install – note two ways**

From here: <https://github.com/nathanjohnson320/node_arm>

wget http://node-arm.herokuapp.com/node\_latest\_armhf.deb

sudo dpkg -i node\_latest\_armhf.deb

# Check installation

node -v

Create the project directory: mkdir \Serialmango

**OR to install a specific version:**

Change 10.23

to desired version in 3 lines below

wget [**http://nodejs.org/dist/v0.10.23/node-v0.10.23.tar.gz**](http://nodejs.org/dist/v0.10.23/node-v0.10.23.tar.gz)

tar -xzf **node-v0.10.23**.tar.gz

cd **node-v0.10.23**

./configure

make

sudo make install

**4. Remote DeskTop**

sudo apt-get install xrdp

Then restart: sudo shutdown -r now

**5. Git Setup**

git clone git://[github.com/twitzel/Serialmango](http://github.com/twitzel/Serialmango)

cd Serialmango

npm install

npm

To pull(update)cd the code:

git pull

**6. Static IP**

**$ sudo nano /etc/network/interfaces**

This will allow you to edit the file using nano.  Change the line that reads

**iface eth0 inet dhcp**

to

**iface eth0 inet static**

Below this line enter the following: (assumes router at 192.168.2.200 and static ip of .11)

address 192.168.2.11

netmask 255.255.255.0

network 192.168.2.0

broadcast 192.168.2.255

gateway 192.168.2.200

**7. Autorun**

Auto run on boot script file:

create file: sudo nano /etc/init.d/autorun.sh

copy contents below dashed line and save it

Then: cd /etc/init.d

sudo chmod 755 autorun.sh

To make auto start: sudo update-rc.d autorun.sh defaults -->> makes autostart

----------------------------------------

#!/bin/bash

### BEGIN INIT INFO

# Provides: autorun.sh

# Required-Start: $all

# Required-Stop: $all

# Default-Start: 2 3 4 5

# Default-Stop: 0 1 6

# Short-Description: Short script description

# Description: Longer script description.

### END INIT INFO

#script file to remove mongod.lock if it exists

if [ -f /data/db/mongod.lock ];

then

rm /data/db/mongod.lock

echo "Mongod.lock deleted"

else

echo "Mongod.lock does not exist"

fi

/opt/mongo/bin/mongod &

echo "Started Mongo"

#/home/pi/node-v0.10.18/out/Release/node /home/pi/Serialmango/app.js cs4 &

#make sure where node is located!!

/usr/local/bin/node /home/pi/Serialmango/app.js cs4 &

echo "Started Node"

**8. Create Image**

git clone https://github.com/billw2/rpi-clone.git

cd rpi-clone

cp rpi-clone /usr/local/sbin

sudo apt-get install rsync

To USE: sudo rpi-clone sda -f -v

NOTE: sdX is the location of the SD card

Then follow prompts. Problems see: <https://github.com/billw2/rpi-clone/blob/master/README.md>

**9. Node Necessities**

Items necessary to compile node add ons:

sudo npm install -g node-gyp

sudo apt-get install libudev-dev libusb-1.0-0-dev

**10. Autostart Browser (https://github.com/MobilityLab/TransitScreen/wiki/Raspberry-Pi)**

Install matchbox - to control midori size: sudo apt-get install matchbox

Install unclutter to get rid of curser: sudo apt-get install unclutter

Create script file to store commands for xinit: sudo nano /home/pi/browser.sh

**Raspberry PI Original** -Add below to the script between the 2 dashed lines:

#!/bin/sh

xset -dpms  
 xset s off

unclutter &  
 matchbox-window-manager &  
 midori -e Fullscreen -a http://localhost:3000/cs4Home/test

**Raspberry PI 2** -Add below to the script between the 2 dashed lines:

#!/bin/sh

xset -dpms  
 xset s off

unclutter &  
 matchbox-window-manager &  
 epiphany-browser  http://localhost:3000/cs4Home/test

**Add** these as the last line of the auto start script: sudo nano /etc/init.d/autorun.sh

sleep 30;

xinit /home/pi/browser.sh ?

**11. SSH KEYS (**[**http://raspisimon.no-ip.org/key\_windowsbased.php**](http://raspisimon.no-ip.org/key_windowsbased.php)**)**

putty key gen for pi - files in Hardware Directory

**Public key:**

ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEAnYb4iV/8ME+nMNAFIKYUV7+gWgAyaI04R4VwuXGPh5pywtXLwADwhE0SjYRnMejT0SXjqZsi1iI4PmPjZxFfvRZT3rzjXJvvwJuLHKi/Z0PNEsFY4ING6agLi1IZmtqOGy3y8lMJShle8ZS8ULA9noTEueqwGzhJy3XZNbdIvo5RCF6t/R/hfZajQC6pSDPQueKzfHZLCHUbWrlO1/7eDlgEtniyKRbBe1JBljltqNCXGJNu4+1yHniY9gXJsNGEmiZXSBfVrcAwdCP180+KwVtXiEZizwoC6faXiRNFAM610zFqSB5b5ETBNAHkkZdfInBulFED3yQVHYjk2y7Zbw== rsa-key-20150125

Public key also in file: ‘cs4 public key’ (no suffix)

**Private key:**

cs4 private key.ppk

**Pass phrase: cs4**

**Create file /home/pi/.ssh – use remote desktop if necessary**

**sudo nano /home/pi/.ssh/authorized\_keys**

At a new line paste the public key above and save the file using ctrl+o.

To disable password (except from console) and/or change port #:

**sudo nano /etc/ssh/sshd\_config**

change port to 9090 – or whatever

change: #PasswordAuthentication yes to:

PasswordAuthentication no

**sudo reboot**

**To save login name and private key:** [**https://www.howtoforge.com/ssh\_key\_based\_logins\_putty**](https://www.howtoforge.com/ssh_key_based_logins_putty)

**12 USB Auto Start**

**For info see:** <http://www.instructables.com/id/Raspberry-Pi-Wi-Fi-Media-Server/step8/Install-USBmount/>

sudo apt-get install usbmount

**13 NTP Time Disable**

**To prevent internet time updates:**

sudo update-rc.d -f ntpdate remove

**14. HANDY SHORTCUTS**

**a. To create image: sudo rpi-clone sda -f -v**

**b.** To turn OFF autostart: *sudo* ***update-rc.d autorun.sh remove***

**c.** To turn ON autostart: **sudo update-rc.d autorun.sh defaults**

d. To find MAC address: **cat /sys/class/net/eth0/address**

e. To kill a process: ps axg (then find pid of process to kill)

sudo kill -9 pid

**15 MISC.**

**Mounting Flash Drive:**

sudo mkdir /media/usbstick

sudo mount -t vfat -o uid=pi,gid=pi /dev/sda1 /media/usbstick/

sudo umount /media/usbstick

Various Disk Commands for USB:

lsblk, df –h, lsusb, dmesg

**16 Update node:**

I hope you have NPM installed, if not then do it using **sudo apt-get install npm.**You can update to any version using node helper (n). Here how to update node to any version using npm.

First of all clean the NPM cache. You can do this using.

**sudo npm cache clean -f**

Install node helper (n) globally using following command.

**sudo npm install -g n**

Once node helper is installed. You can either get the latest stable version using

**sudo n stable**

Or if you want specific version like i needed 0.11.10 then you can do this using.

**sudo n 0.11.10**

After upgrade you can check the latest version of node using **node –version**or **node -v.**