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

**April 8, 2015**

**Install List:**

1. **Raspian OS**
2. **Mongo**
3. **Node**
4. **Remote Desk Top**
5. **Git Setup**
6. **Static IP**
7. **Autorun**
8. **Create image**
9. **Node Necessities**
10. **Autostart Browser**
11. **SSH Keys**
12. **Automatic USB Flash mounting**
13. **NTP Time Disable**
14. **Handy Shortcuts**

**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**

**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

**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**