STAR Raspberry PI setup

From cogentwiki

This details the complete process of installing the STAR software onto a fresh Raspbian Install

Contents

Preparing the SD Card

1. Download the Latest Copy of Raspbian Lite from https://www.raspberrypi.org/downloads/raspbian/
2. Copy onto the SD Card (either use dd, or PiBaker)
3. Place a file named "ssh" (without any extension) onto the boot partition of the SD card
4. Delete `init=/usr/lib/raspi-config/init_resize.sh` from cmdline.txt
5. If wifi is required create a file called wpa_supplicant.conf with

```
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
```

```
update_config=1
```

```
network={
```

```
    ssid="....."
```

```
    psk="....."
```

```
    key_mgmt=WPA-PSK
```

```
}
```

Resize the main partition

1. Log into the Raspberry pi using the default login credentials
2. Setup the partition table

```
sudo fdisk /dev/mmcblk0
```

```
Command: p
```

```
Command: d
```

```
Partition number: 2
```

```
Command: n
```

```
Partition type: p
```

```
Partition number: 2
```

```
First sector: 94208 #Double check this number based on the current portion table
```

```
Last sector: 4592339
```

```
Remove the signature?: n
```

```
Command: p
```

```
Command: w
```

```
sudo reboot
```

3. Log back in after rebbot

```
sudo resize2fs /dev/mmcblk0p2
```

```
df -h
```

Update, and configure PI

1. Standard pi setup

    - set hostname

- set passwords
- enable ssh
- enable i2c
- set gpu to 16

2. Update and install required packages

```
sudo apt-get update
```

```
sudo apt-get -y upgrade
```

```
sudo rpi-update
```

```
sudo apt-get -y install supervisor emacs subversion usbmount python-setuptools python-pip i2c
```

```
sudo pip install pyserial
```

3. Disable swapping

```
sudo systemctl disable dphys-swapfile
```

```
sudo apt-get -y remove dphys-swapfile
```

```
sudo apt-get -y autoremove
```

```
sudo apt-get -y clean
```

```
sudo reboot
```

4. Enable usb auto mounting. Edit /lib/systemd/system/systemd-udevd.service and change the line MountFlags=slave to MountFlags=shared

Setup pi face RTC

```
wget https://raw.github.com/piface/PiFace-Real-Time-Clock/master/install-piface-real-time-clock.sh
```

```
chmod +x install-piface-real-time-clock.sh
```

```
sudo ./install-piface-real-time-clock.sh
```

```
cd /etc/rc2.d
```

```
sudo ln -s ../init.d/pifacertc S01pifacertc
```

```
cd ../rc5.d
```

```
sudo ln -s ../init.d/pifacertc S01pifacertc
```

```
sudo reboot
```

```
sudo hwclock --systohc
```

Setup SSH

1. Generate SSH key

```
ssh-keygen -t rsa
```

2. Copy key and ask someone with sudo access to add to pi user on cogentee (James)

```
cat .ssh/id_rsa.pub
```

3. Test the ssh connection by

```
ssh cogentee.coventry.ac.uk
```

```
Reply if necessary to prompt
```

Install STAR monitoring code

1. Checkout the code

```
cd ~
```

```
mkdir svn
```

```
cd svn
```

```
svn co  svn+ssh://cogentee.coventry.ac.uk/svn/STAR/Software/RPI
```

```
cd RPI/opt/STAR/STAR/IAM/energenie/drv/
```

```
. ./build_rpi
```

2. Optional install weather station

   1. Install PYWWS (https://swabbster.wordpress.com/2015/04/20/installation-of-pywws-on-raspberry-pi-2/)
   2. Uncomment weather lines in supervisor config

   ```
   emacs ~/RPI/etc/supervisor/supervisor.config
   ```

   3. reboot

3. Copy files

   ```
   sudo  rsync -rv  RPI/opt/ /opt
   ```

   ```
   sudo  rsync -rv  RPI/etc/ /etc/
   ```

4. Install

   ```
   cd /opt/STAR
   ```

   ```
   sudo python setup.py develop
   ```

5. Set up auto-ssh

   ```
   sudo chmod 755 /etc/init.d/autossh
   ```

   Edit and set remote port

   ```
   sudo emacs /etc/default/auto-ssh
   ```

   ```
   sudo update-rc.d autossh defaults
   ```

   ```
   sudo update-rc.d autossh enable
   ```

6. Disable tv service (only when all setup is sorted). Add the line to /etc/rc.local: `/usr/bin/tvservice -o` (-p to re-enable).
7. Disable ACT LED & WiFi & BT & Audio (only when all setup is sorted). Add to /boot/config.txt

```
# disable audio and bluetooth (loads snd_bcm2835)
```

```
dtparam=audio=off
```

```
gpu_mem=16
```

```
dtoverlay=pi3-disable-wifi
```

```
dtoverlay=pi3-disable-bt
```

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