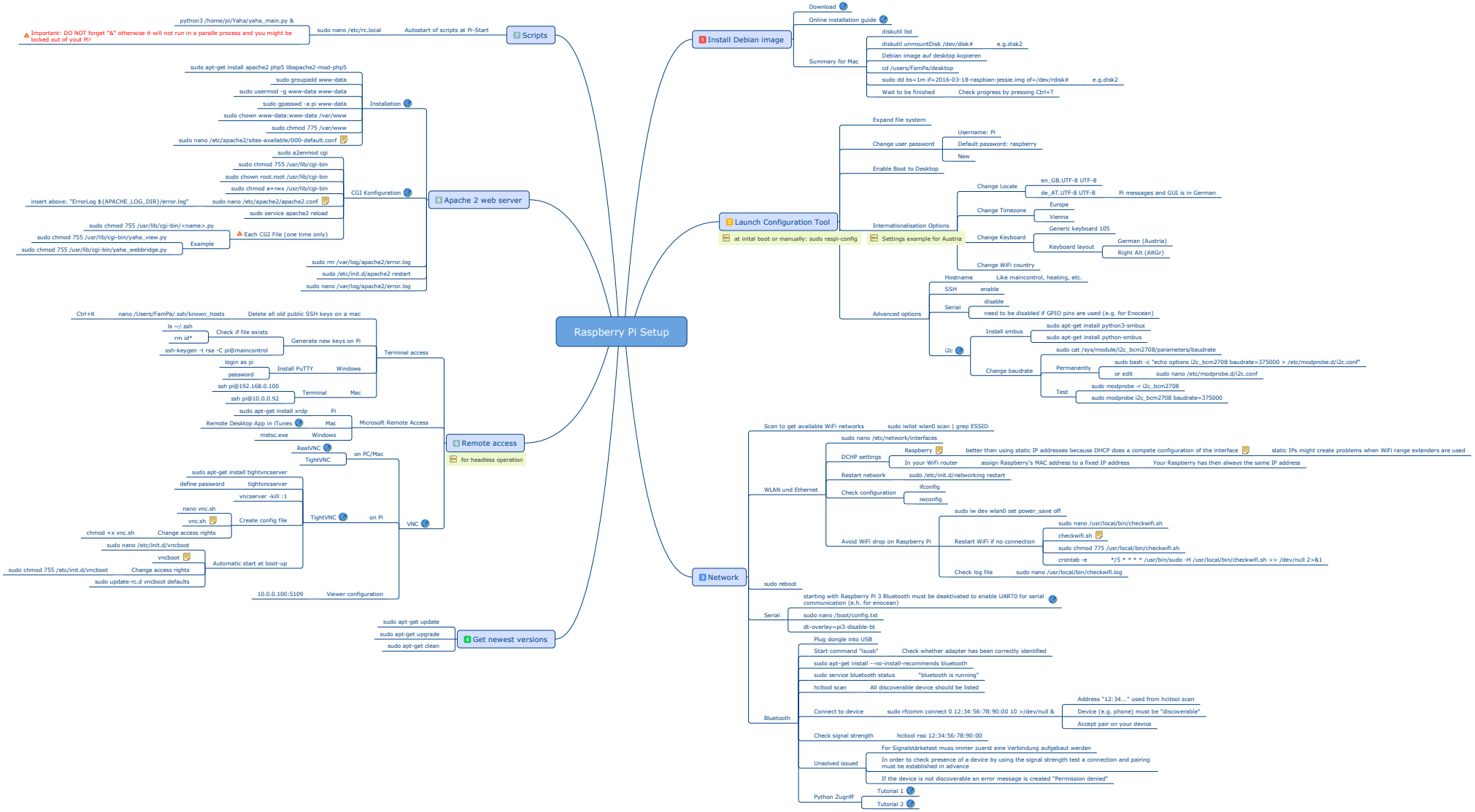
Raspberry Pi Setup
1 Install Debian image
Download
Online installation guide
Summary for Mac
diskutil list
diskutil unmountDisk /dev/disk# e.g.disk2
Debian image auf desktop kopieren
cd /users/FamPa/desktop
sudo dd bs=1m if=2016-03-18-raspbian-jessie.img of=/dev/rdisk# e.g.disk2
Wait to be finished Check progress by pressing Ctrl+T
2 Launch Configuration Tool
at initial boot or manually: sudo raspi-config
Expand file system
Change user password
Username: Pi
Default password: raspberry
New
Enable Boot to Desktop
Internationalisation Options
Settings example for Austria
Change Locale
en_GB.UTF-8 UTF-8
de_AT.UTF-8 UTF-8 Pi messages and GUI is in German
Change Timezone
Europe
Vienna
Change Keyboard
Generic keyboard 105
Keyboard layout
German (Austria)
Right Alt (AltGr)
Change WiFi country
Advanced options
Hostname Like maincontrol, heating, etc.
SSH enable
Serial
disable
need to be disabled if GPIO pins are used (e.g. for Enocean)
i2c
Install smbus
sudo apt-get install python3-smbus
sudo apt-get install python-smbus
Change baudrate
sudo cat /sys/module/i2c_bcm2708/parameters/baudrate
Permanently
sudo bash -c "echo options i2c_bcm2708 baudrate=375000 > /etc/modprobe.d/i2c.conf"
or edit sudo nano /etc/modprobe.d/i2c.conf
Test
sudo modprobe -r i2c_bcm2708
sudo modprobe i2c_bcm2708 baudrate=375000
3 Network
Scan to get available WiFi networks sudo iwlist wlan0 scan | grep ESSID
WLAN und Ethernet
sudo nano /etc/network/interfaces
DCHP settings
Raspberry
better then using static IP addresses because DHCP does a compete configuration of the interface
static IPs might create problems when WiFi range extenders are used
In your WiFi router assign Raspberry's MAC address to a fixed IP address Your Raspberry has then always the same IP address
Restart network sudo /etc/init.d/networking restart
Check configuration
ifconfig
iwconfig
Avoid WiFi drop on Raspberry Pi
sudo iw dev wlan0 set power_save off
Restart WiFi if no connection
sudo nano /usr/local/bin/checkwifi.sh
checkwifi.sh
sudo chmod 775 /usr/local/bin/checkwifi.sh
crontab -e */5 * * * * /usr/bin/sudo -H /usr/local/bin/checkwifi.sh >> /dev/null 2>&1
Check log file sudo nano /usr/local/bin/checkwifi.log
sudo reboot
Serial
starting with Raspberry Pi 3 Bluetooth must be deaktivated to enable UART0 for serial communication (e.h. for enocean)
sudo nano /boot/config.txt
dt-overlay=pi3-disable-bt
Bluetooth
Plug dongle into USB
Start command "lsusb" Check whether adapter has been correctly identified
sudo apt-get install --no-install-recommends bluetooth
sudo service bluetooth status "bluetooth is running"
hcitool scan All discoverable device should be listed
Connect to device sudo rfcomm connect 0 12:34:56:78:90:00 10 >/dev/null &
Address "12:34..." used from hcitool scan
Device (e.g. phone) must be "discoverable"
Accept pair on your device
Check signal strength hcitool rssi 12:34:56:78:90:00
Unsolved issued
For Signalstärketest muss immer zuerst eine Verbindung aufgebaut werden
In order to check presence of a device by using the signal strength test a connection and pairing must be established in advance
If the device is not discoverable an error message is created "Permission denied"
Python Zugriff
Tutorial 1
Tutorial 2
4 Get newest versions
sudo apt-get update
sudo apt-get upgrade
sudo apt-get clean
7 Scripts
python3 /home/pi/Yaha/yaha_main.py &
Important: DO NOT forget "&" otherwise it will not run in a paralle process and you might be locked out of yout Pi!
sudo nano /etc/rc.local Autostart of scripts at Pi-Start
8 Apache 2 web server
Installation
sudo apt-get install apache2 php5 libapache2-mod-php5
sudo groupadd www-data
sudo usermod -g www-data www-data
sudo gpasswd -a pi www-data
sudo chown www-data:www-data /var/www
sudo chmod 775 /var/www
sudo nano /etc/apache2/sites-available/000-default.conf
CGI Konfiguration
sudo a2enmod cgi
sudo chmod 755 /usr/lib/cgi-bin
sudo chown root.root /usr/lib/cgi-bin
sudo chmod a+rwx /usr/lib/cgi-bin
insert above: "ErrorLog ${APACHE_LOG_DIR}/error.log" sudo nano /etc/apache2/apache2.conf
sudo service apache2 reload
Each CGI File (one time only)
sudo chmod 755 /usr/lib/cgi-bin/<name>.py
Example
sudo chmod 755 /usr/lib/cgi-bin/yaha_view.py
sudo chmod 755 /usr/lib/cgi-bin/yaha_webbridge.py
sudo rm /var/log/apache2/error.log
sudo /etc/init.d/apache2 restart
sudo nano /var/log/apache2/error.log
8 Remote access
for headless operation
Terminal access
Ctrl+K nano /Users/FamPa/.ssh/known_hosts Delete all old public SSH keys on a mac
Generate new keys on Pi
ls ~/.ssh
Check if file exists
rm id*
ssh-keygen -t rsa -C pi@maincontrol
Install PuTTY Windows
login as pi
password
Terminal Mac
ssh pi@192.168.0.100
ssh pi@10.0.0.92
Microsoft Remote Access
Pi
sudo apt-get install xrdp
Mac
Remote Desktop App in iTunes
Windows
mstsc.exe
VNC
on PC/Mac
RealVNC
TightVNC
on Pi
TightVNC
sudo apt-get install tightvncserver
define password tightvncserver
vncserver -kill :1
Create config file
nano vnc.sh
vnc.sh
Change access rights
chmod +x vnc.sh
Automatic start at boot-up
sudo nano /etc/init.d/vncboot
vncboot
Change access rights
sudo chmod 755 /etc/init.d/vncboot
sudo update-rc.d vncboot defaults
Viewer configuration
10.0.0.100:5109