# Hardwareaufgaben

## Einrichtung Raspberry Pi

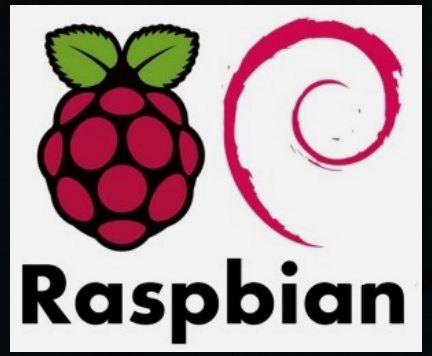
# Evaluierung des Betriebsystems

## Anforderungen:

- Vielseitigkeit
- Einfachheit
- Große Community


## Auswahl an OS:

- Arch Linux
- Raspbian
- RetroPi
- OpenELEC




https://github.com/Philipp-Inverso/RasPi/blob/master/Tab-OS.odt

# Einrichtung Access-Point

1. apt-get install dnsmasq hostapd
2. nano /etc/dhcpcd.conf
   - interface wlan0
   - static ip_address = 192.168.4.1/24
   - nohook wpa_supplicant
3. nano /etc/dnsmasq.conf
   - interface = wlan0
   - dhcp-range : 192.168.4.2 , 192.168.4.20 , 255.255.255.0 , 24h

# Einrichtung Access-Point

4. nano /*etc*/hostapd/hostapd.conf

```
interface = wlan0
driver = nl80211
hw_mode = g
channel = 6
ieee80211n = 1
wmm_enabled = 1
macaddr_acl = 0
auth_algs = 1
ignore_broadcast_ssid = 0
wpa = 2
wpa_key_mgmt = WPA-PSK
wpa_passphrase = <Passwort>
rsn_pairwise = CCMP
```

5. nano /etc/default/hostapd

```
DAEMON_CONF = „/etc/hostapd/hostapd.conf“
```

6. iptables -t nat -A POSTROUTING -o eth0 -j MASQUERADE

7. sh -c „iptables-save > /etc/iptables.ipv4.nat“

8. nano /etc/cr.local

```
iptables-restore < /etc/iptables.ipv4.nat
```

# Erweiterung AP zu Bridge

1. apt-get install bridge-utils
2. nano /etcdhcpcd.conf
   - denyinterface wlan0
   - denyinterface eth0
3. brctl addbr br0
4. brctl addif br0 eth0
5. nano /etc/network/interfaces
   - auto br0
   - iface br0 inet manual
   - bridge_ports eth0 wlan0
6. nano /etc/hostapd/hostapd.conf
   - bridge = br0

# Bridge in Router umwandeln

1. Bridge entfernen
2. nano hostapd.conf

   ht_capab=[HT=40][SHORT-GI-40][DSSS_CCK-40]
3. nano /etc/dhcpcd.conf

   interface wlan0

   static ip_address = 192.168.4.1

   static routers =

   static domain_name_servers =
4. nano /etc/dnsmasq.conf

   domain-needed

   bogus-priv

Vergleich Router-Bridge auf:
https://github.com/Philipp-Inverso/RasPi/blob/master/bridge-router.odt

# Proxyserver einrichten

1. apt-get install polipo
2. nano /etc/polipo/config
3. proxyAddress = 192.168.4.1
4. allowedClients = 192.168.4.1, 192.168.23.1/24
5. Update-rc.d polipo defaults
6. Browser immer starten mit: chromium-browser –proxyserver=“192.168.4.1:8118“

# DNS-Server mit dnsamsq

1. sudo nano /etc/dnsmasq.conf
   - domain-needed
   - bogus-priv
   - no-resolv
   - server = 8.8.8.8
   - cache-size = 150
   - local = /inverso.local/
   - expand-hosts
   - resolv-file = /etc/resolv.dnsamsq
2. Sudo nano /etc/resolv.dnsamsq
   - nameserver 192.168.32.1
   - nameserver 8.8.8.8

# Mailserver einrichten

sehr detailierte Anleitung unter:

https://samhobbs.co.uk/raspberry-pi-email-server

# Zeitliche Verfügbarkeit des AP

Sudo nano /etc/crontab

0 12 * * * root ifconfig wlan0 down

0 13 * * * root ifconfig wlan0 up