

RPi

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Anweisungen: siehe Teams

pModul RPi 1 (Basis Installation)

1. Start / Remote Login

Download von Raspberry Pi Imager (Windows)

https://downloads.raspberrypi.com/imager/imager_latest.exe

OS Customisation

Generel:

```
Set hostname: leo.local
Set username and password:
  Username: leo
  Password: ***
Set local settings:
  Time zone: Europe/Vienna
  Keyboard layout: at
```

Services:

```
Enable SSH
Use password authentication
```

End-to-End-Connection

IP vom RPi ermitteln

```
187hahaxd@MacBook ~ % nmap -sn 192.168.20.0/24
Starting Nmap 7.98 ( https://nmap.org ) at 2025-11-14 13:34 +0100
Nmap scan report for 192.168.20.51
Host is up (0.00022s latency).
Nmap scan report for 192.168.20.52
Host is up (1.0s latency).
Nmap done: 256 IP addresses (2 hosts up) scanned in 33.13 seconds+
```

Ping an leo.local (MacOS)

```
187hahaxd@187hahaxD-2 Matjeka % ping leo.local
PING leo.local (192.168.20.53): 56 data bytes
64 bytes from 192.168.20.53: icmp_seq=0 ttl=64 time=0.950 ms
```

Ping an .local (Kali)

```
—(parallels@kali-linux-2024-2)-[~]
└─$ ping leo.local
ping: leo.local: Name or service not known
  Download von avahi
  sudo apt update    # optional
  sudo apt install avahi-daemon libnss-mdns
```

Start bei jedem boot

```
sudo systemctl enable avahi-daemon
sudo systemctl start avahi-daemon
```

Auf Funktionalität überprüfen

```
—(parallels@kali-linux-2024-2)-[~]
└─$ ping leo.local
PING leo.local (192.168.20.52) 56(84) bytes of data.
64 bytes from 192.168.20.53: icmp_seq=1 ttl=64 time=1.62 ms
```

SSH-Zugriff

```
ssh leo@host.local
```

SSH Keys

Key erstellen

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

key in `./ssh` des RPi kopieren

```
ssh-copy-id -i /PATH/TO/sshkey.pub leo@leo.local
```

Remote Development

Vorraussetzungen

- Visual Studio Code
- Remote - SSH Extension

Hinzufügen des Remote Zugriffs

1. REMOTE EXPLORER —> REMOTES (TUNNELS/SSH) —> SSH
2. Auf das + drücken
3. ssh Verbindung

```
ssh leo@leo.local
```

4. config file auswählen

Node JS express Server

1. Node.js und npm installieren

```
sudo apt-get update  
curl -sL https://deb.nodesource.com/setup_lts.x | sudo -E bash -  
sudo apt-get install -y nodejs
```

2. Express generator installieren

```
sudo npm install -g express-generator
```

```
-g...global
```

3. Application erstellen

```
express myExpressApp --view pug
```

```
--view pug...pug template engine benutzen
```

```
cd myExpressApp  
npm install
```

4. Ausführen

```
npm start
```