

Setup Operating System

1. Flash Raspberry Pi OS to MicroSD using Raspberry Pi Imager
 - a. Set hostname
 - b. Enable SSH
 - c. Set username and password
 - d. Configure LAN (wifi)
2. Using a computer on the same LAN connect to Raspberry over ssh
 - a. Run `ssh brunomcebola@depthpi.local` or `ssh brunomcebola@IP-Address`
3. Finish initial setup by updating libraries
 - a. Run `sudo apt update`
 - b. Run `sudo apt upgrade`
 - c. Run `sudo apt autoremove`

Setup Remote Communication

1. Setup Ngrok (needed to have ssh over different networks)
 - a. Install on raspberry accordingly to <https://ngrok.com/download> using Apt
 - b. Run `ngrok config add-authtoken TOKEN`
 - c. Run `sudo su` to enter the root user console
 - d. Run `ngrok config add-authtoken TOKEN` to also give root user ngrok access
 - e. Run `exit` to return to the normal user
 - f. Check installation with `ngrok -v`
2. Make ngrok tunnel be auto (by creating a bash script on loop that executes on boot)
 - a. Run `cd /`
 - b. Run `sudo touch tunnel.sh`
 - c. Run `sudo touch tunnel.out`
 - d. Run `sudo touch tunnel.log`
 - e. Run `sudo chmod 777 tunnel.*`
 - f. Run `sudo nano tunnel.sh` and add the following lines:

```
#!/bin/bash
while true
do
    if ! pgrep -x "ngrok" > /dev/null
    then
        sudo ngrok tcp 22 --log=stdout > /tunnel.out &
        echo "$(date +%F-%T) New ngrok instance" >> /tunnel.log
    fi
    sleep 5
done
```
 - g. Run `sudo chmod u+x tunnel.sh` to make bash file executable
 - h. Run `sudo nano /etc/rc.local` and add the following line before the exit 0 instruction:

```
/tunnel.sh &
```
 - i. Run `sudo reboot`
3. Make possible to create ngrok tunnel by hand
 - a. Run `nano ~/.bashrc` and add the following lines to the end of the file (to be able to control ngrok tunnel from the command line if needed):

```
alias start_tunnel="sudo ngrok tcp 22 --log=stdout > /tunnel.out &"
alias tunnel_info="cat /tunnel.out"
alias tunnel_logs="cat /tunnel.log"
alias stop_tunnel="pgrep -x ngrok | sudo xargs kill -9"
```

- b. Run `source ~/.bashrc` to make the changes take effect