

Headless Installation in the Raspberry Pi

1. Download Balena Etcher Software from this site: <https://www.balena.io/etcher/>
2. Download the latest Raspbian OS Image ZIP file from here: <https://www.raspberrypi.org/downloads/raspbian/>
3. Extract the ZIP File and Use Balena Etcher to flash the Image to a Formatted microSD Card
4. Open the Boot Drive of the microSD Card in your PC
5. Step 6 & 7 should be done before ever inserting your microSD Card to the Pi
6. Create a blank text file with the name "ssh" inside the boot drive, and remove the extension of the text file. That is remove the ".txt" part of the File name. Now this is a blank file with no extension and "ssh" as name. This enables SSH Communication
7. Similarly create a text file named "wpa_supplicant" inside the boot drive, and open it. Inside it copy and paste the following code.

```
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1
country=<Insert country code here>

network={
    ssid="Name of your WiFi"
    psk="Password for your WiFi"
}
```

After copying modify the above code and change your country code, and add your Wi-Fi router's name and password. Then save the file and replace the ".txt" extension with ".conf". Thus the full file name with extension is "wpa_supplicant.conf".

Because of the Step 6 and 7, when the Pi first boots up, will enable SSH and then connect to a WiFi network directly, without us giving any commands. This will make it easy to get remote access to the Pi in the coming steps

8. Eject the microSD Card from your PC and insert it in your Pi for the first time
9. Power on the Pi, and wait for 1-3 minutes
10. Now make sure your PC is also connected to the same network
11. Now on your PC in the command prompt type "ipconfig" and press enter.
12. Now note the IP Address gateway of your WiFi network
13. Open an IP Scanner App like Advanced IP Scanner and search with this IP.
 - a. For example if gateway is 196.128.1.1, then search between 196.128.1.1-256
 - b. You will see the Pi listed here. Please note down the IP address of the Pi
14. Open Putty Terminal and enter this IP address
15. Enter the username which is "pi" and password which is "raspberry" to establish command line communication with the Pi over the WiFi
16. Now in the Pi Terminal, type "vncserver" and press enter to enable VNC Server.
17. Now you can use the VNC Viewer to view the GUI of the Pi 4 Remotely.