esieabot: quick start

Installing esieabot-os

To install esieabot-os, the operating system of your esieabot which is based on Raspberry Pi OS, you must burn your SD card with the system disk image. Be careful, this will erase the contents of your SD card. To do this, follow these steps:

1. Install on your computer BalenaEtcher: https://www.balena.io/etcher/.
2. Download Raspberry Pi OS https://esieabot.esiea.fr/download, you don't need to unzip the file.
3. Plug your SD card to your computer. You can use the USB adapter if needed.
4. Launch BalenaEtcher software.
5. Click on « flash from file » and select the os.zip file you downloaded at step 2.
6. Then, click on « select target » and select your SD card.
7. Finally, click on « flash » and let BalenaEtcher to copy esieabot-os.
8. Unplug your SD card from your computer and plug it to your Raspberry Pi.
9. Power your Raspberry Pi with the battery or your computer. You have to use the "PWR" micro-USB port.

First start

Your esieabot will perform a cycle of actions during the first start. This cycle will last several minutes. You must wait for the green LED to turn off completely for more than 10s. Once finished, disconnect the power supply from your esieabot. If you want to test if your esieabot is working properly thanks to the installed test software, you can then plug back the power supply. If you want to work on your esieabot, do not reconnect the power supply and follow the next steps.

Getting login information

Once the esieabot is powered off, reconnect the SD card to your computer. If you are on Windows, it will ask you to format the first data partition. Of course, refuse. You should normally have access to another smaller partition that is readable by your computer called "boot".

On this "boot" partition, you should have an "esieabot" folder. Navigate to this folder, then to the "info" folder. You should find 3 .txt files there. You must copy them to your computer, you will need them later. You can then eject the SD card, reconnect it to your esieabot and turn it back on.

Connect to built-in esieabot Wi-Fi hotspot

While turned on, your esieabot hosts a Wi-Fi hotspot. You can connect to it to manage your esieabot remotely. To do this, you must first find the name of your esieabot. It is in the "hotspot.txt" file that you copied earlier. Then connect your computer to this Wi-Fi network as you would connect to any network. The password is also in the "hotspot.txt" file. Warning: on Windows, you will be asked to connect a PIN code and not a key. Be careful to choose the key mode. You should now be connected to the esieabot.

Connect to esieabot using SSH

Once on the same network as the esieabot, you should be able to open an SSH ("Secure SHell") connection. This will give you access to your esieabot's terminal, as if you had connected a keyboard and a screen, but remotely. To do this, open a terminal on your computer, regardless of your operating system (cmd or powershell on Windows). Type the following command:

```
ssh user@address
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The user is inside « pi.txt » file. The address is your esieabot's name or « 10.42.0.1 ». The password that will be asked is also in « pi.txt » file. You should see an esieabot logo appear. If so, congratulations, you are connected to your esieabot. If not, check that your computer is still connected to your esieabot via Wi-Fi.

Warning: the commands you will do on your SSH session are executed on your esieabot, not your computer. So be careful to clearly differentiate what is happening on your PC from what is happening on your esieabot.

Connect your esieabot to ESIEA Wi-Fi

You are connected to the network of your esieabot but the latter is not connected to the internet, which will be problematic. We will therefore connect it to the ESIEA Wi-Fi network. For this, an automatic configuration script is available. To use it, type this command in the terminal of your esieabot:

```
sudo /esieabot/available/official/connect-to-groupe-esiea.sh login pss
```

The login is @et.esiea.fr email address or your name. The password is your ESIEA password. To check if your esieabot is connect to ESIEA network, type the command « nmcli ». You should see 2 networks connections : « Groupe-ESIEA » and « Hotspot », everything in green. Otherwise, you mistyped your password.

You can do the "sudo apt update" and "sudo apt upgrade" commands to update your esieabot since it is now connected to the internet.

If you have successfully connected your esieabot to the internet, your computer connected to the hotspot should have internet. Indeed, your esieabot makes a connection relay via the hotspot. On the output of the "nmcli" command, you should see the IP address of your esieabot on the ESIEA Wi-Fi. It starts with 10.8.x.x. If you ever observe instabilities (very slow commands or frequent disconnections), do not hesitate to connect by SSH by connecting your computer to the ESIEA network and replacing the address of the SSH command above by the address in 10.8.x.x of your esieabot. Instabilities can be normal if everyone turns on their esieabot in the same room because of conflicting Wi-Fi frequency ranges, don't worry.

Connect your esieabot to your personal Wi-Fi network

If you want to work from home or via your mobile connection for example, you will also need to connect to the internet. To do this, you can type the command "sudo nmtui" which will open a small connection wizard. You can go to the "Activate connection" menu and choose your personal Wi-Fi network.

Select the softwares running at startup

In the "/esieabot" folder, there are several program folders. In the "/esieabot/services" folder are the programs launched at startup in parallel. You will find the demo program there, delete it before continuing your work.

To launch your program automatically when your esieabot starts, place your executable in the "/esieabot/services" folder. If you ever run into problems, your program's output can be read in "/esieabot/logs".

If you want to stop the current program that was launched at startup, do the command "sudo systemctl stop esieabot-manager". If you want to restart it, do the command "sudo systemctl restart esieabot-manager".

Transfer files to and from your esieabot

3 methods are possible to transfer files to your esieabot.

1. You can turn off your esieabot and plug its SD card into your computer. You can put all the files you want in the "esieabot" folder. This folder is then accessible on the esieabot at the path "/esieabot".

2. You can connect to your esieabot's file share over SMB, the Windows file sharing protocol. To do this, open a file explorer and type in the path "\\esieabot-ip" or "\\esieabot-name". You will be asked for a username and password. These are those of the "samba.txt" file that you previously copied.

3. You can connect to your esieabot using SFTP. To do this, install compatible software such as FileZilla. Initialize a new connection to your esieabot's IP address on port 22. The username and password requested are those of the "pi.txt" file that you previously copied.