

Quick Guide - OSP Hardware (macOS, Linux)

For Windows installation, see the other [Quick Guide](#).

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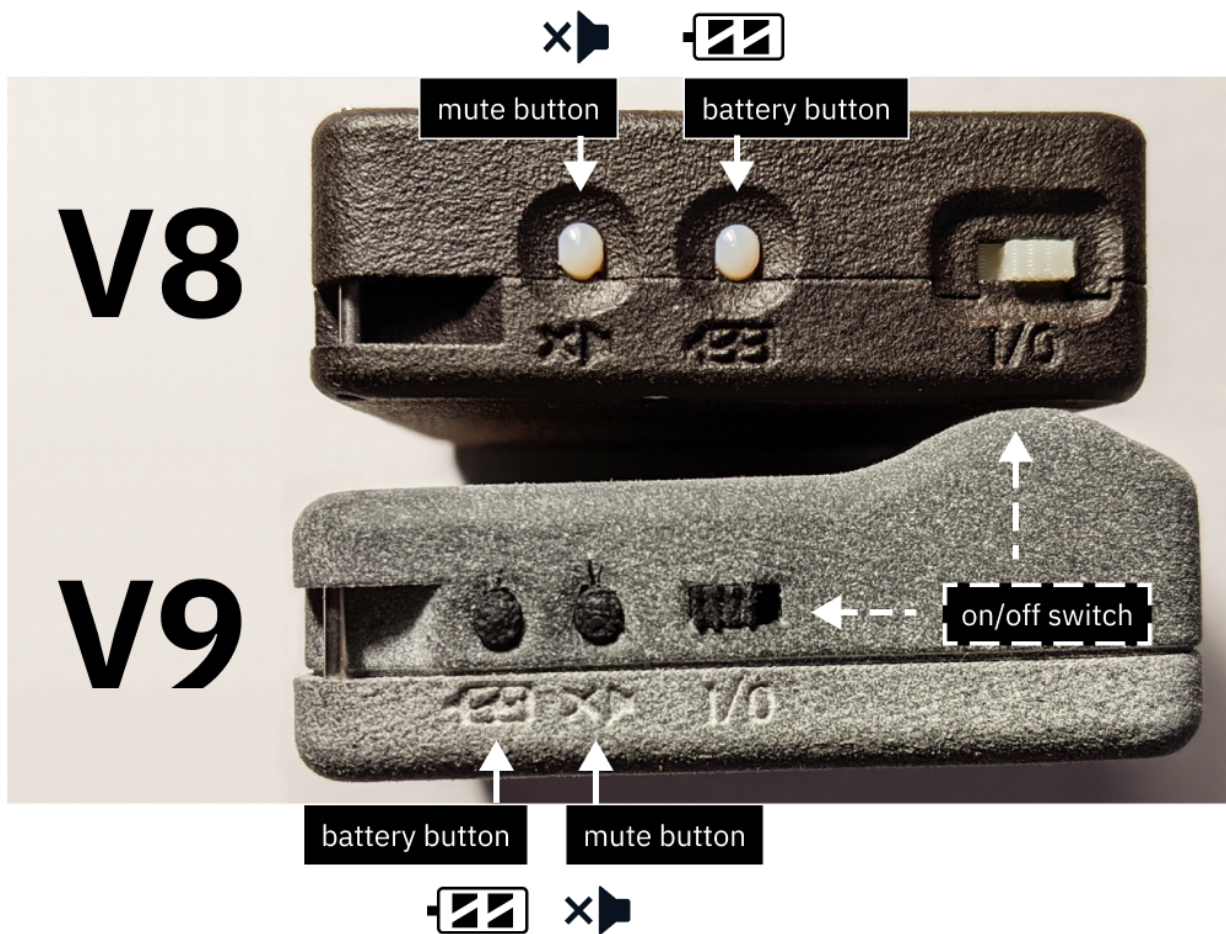
Disclaimer - Device Overheating Issue

While the device is plugged in with a USB cable(s) and operating at the same time for a prolonged period of time, the device will eventually overheat, which can reduce its audio quality and performance. The OSP team is working to resolve this.

For now, it is recommended to set up a SSH connection so that you don't have to use a cable to connect and operate the Processing and Communication Device (PCD) to your computer for long periods of time.

1 - Requirements

- macOS/Linux computer with 2+ GB of storage space.
- Knowledge of using a macOS/Linux computer to navigate and use a file manager application (such as Finder), a terminal, and a browser (like Chrome). You will need to know your password credentials on your computer.
- one Processing and Communication Device (PCD)
 - *V8 version* - Has two micro-usb ports labeled "UART" and "ADB"
 - *V9 version* - single micro-usb port
 - **The PCD may need to be charged for at least a few hours before, otherwise it will not function properly during installation. For V8 versions, charge using the ADB port.**



- Micro-usb cable(s) that **can exchange data, not charge-only**
 - 2 cables for the V8 version, 1 cable for the V9 version



- Behind-the-Ear, Receivers-in-the-Canal (BTE-RICs)



- Software packages. This guide will explain how to set them up in the terminal.
 - *Linux Only* - "fastboot" package from android tools
 - *Linux and macOS* - Python3, and python packages "pyserial" and "colorama".

2 - Installation Steps

Refer to “3 - Installation Steps Part 1 (macOS, Linux)” of the ["Manual - OSP Hardware"](#) if any of the steps are confusing.

1. Go to this [link to the "Binaries" folder on GitHub](#).
2. Select the link labeled “pcd-2021A.zip” and download the .zip file.

3. Save it to a convenient location on your computer, such as “Downloads” or “Desktop”.
4. Find the .zip file and extract the contents of the .zip file. You should see a folder with the corresponding name.



5. Attach the micro-USB cable(s) to the ports on the device.
 - a. *V8 version* - Attach one to the “ADB” port, the other to your computer’s USB hub.
 - b. *V9 version* - Attach one cable from the device to your computer’s USB hub.
6. Open a (new) terminal window.
7. In the terminal, install Python3 by entering the following **command(s)**.
 - a. For Linux:
 - i. install the "fastboot" package:
sudo apt install fastboot
 - ii. Depending on the type of Linux you're using (e.g. Debian or Fedora), command(s) used for installing Python3 may vary. Use your package manager to install Python3.
 - b. For macOS
 - i. install Homebrew:
ruby -e "\$(curl -fsSL

```
https://raw.githubusercontent.com/Homebrew  
/install/master/install)"
```

- ii. install Python3 with Homebrew:

```
brew install python3
```

- 8. In the terminal, install Python3 software packages “pyserial” and “colorama”:

```
pip3 install pyserial colorama
```

You may need to prefix this command with **sudo** depending on how Python3 is installed on your system. Step #8 should be a one-time process.

- 9. Take each of your BTE-RICs and put them in the ports labeled “left” and “right”.
- 10. Turn on the device in Boot mode (you will not see lights, which is expected).

- a. *V8 Version* - While pressing and holding down the *battery button*, flick the on/off switch **towards the battery button**.
- b. *V9 Version* - While pressing and holding down the *mute button*, flick the on/off switch **towards the mute button**.

- 11. In the terminal, navigate to the “pcd-[NAME]” folder:

```
cd [PATH_TO_“pcd-[NAME]”_FOLDER]
```

For example, if you have extracted a .zip file named “pcd-2021A”, you will see a folder named “pcd-2021A”.



If the .zip file and folder are saved within “Downloads”, you would enter: **cd Downloads/pcd-2021A**

```
MacBook-Pro:~ USER$ cd Downloads/pcd-2021A
MacBook-Pro:pcd-2021A USER$
```

12. Check that you see the “pcdtool” file and relevant files by entering the command: **ls**
13. For the V8 version of the PCD only, you need to reconnect the cable from the ADB port to the uART port (see labels imprinted).
14. In the terminal, flash the device: **./pcdtool flash**
You may be prompted to enter your computer login password before the terminal proceeds executing the command. If something goes wrong, the bootloader in the device may have been corrupted. If so, try entering this terminal command:
./pcdtool flash -b
15. If your password was successful, wait for the rootfs processes to complete and for the device to restart itself. You would then see LED lights blinking.
16. In the terminal, connect to the device: **./pcdtool conn**

17. Press the "Enter" key once or twice for terminal feedback. You'll see **root@ospboard:~>** and you'll be able to type freely. On Linux, you may see the error *"can't open device "/dev/ttyUSB0": Permission denied"*. Refer to the [manual](#) to resolve this error.
18. The device has two different modes for wifi connectivity; default for the device is "Hotspot mode", the other is "NetworkManager mode". Follow one of these series of steps based on which mode you choose:
 - a. **"Hotspot mode"** uses the PCD as a wifi hotspot instead of an external internet connection. To start OSP in this mode:
 - i. Find the wifi hotspot name "ospboard" under your computer's available wifi networks and entering the password "hearingaid".
 - b. **"NetworkManager mode"** uses an external internet connection to run the OSP software: **set_mode nm**
 - i. Your device will restart itself, so wait a few moments until the terminal messages stop and you see the text "OSP VERSION". If this doesn't happen, try manually switching the device on and off.
 - ii. Check that you are in NetworkManager mode:
print_mode
You should see a list of available Wifi hotspot names, under "SSID".

- iii. Connect the device to your desired Wifi hotspot:

```
nmcli dev wifi con "SSID/HOTSPOT NAME"  
password "SSID/HOTSPOT PASSWORD"
```

In the terminal, this command would execute successfully if a message similar to this appears: *"Device 'wlan0' successfully activated..."*.

- c. Enter this command to finalize wifi connectivity:

```
ssh -i ospboard_id root@ospboard.local
```

If this command doesn't work, try:

```
ssh -i ospboard_id root@ospboard.lan
```

- d. When asked to confirm connectivity, enter: **yes**

- 19. Open a web browser (Google Chrome, Firefox, etc.).

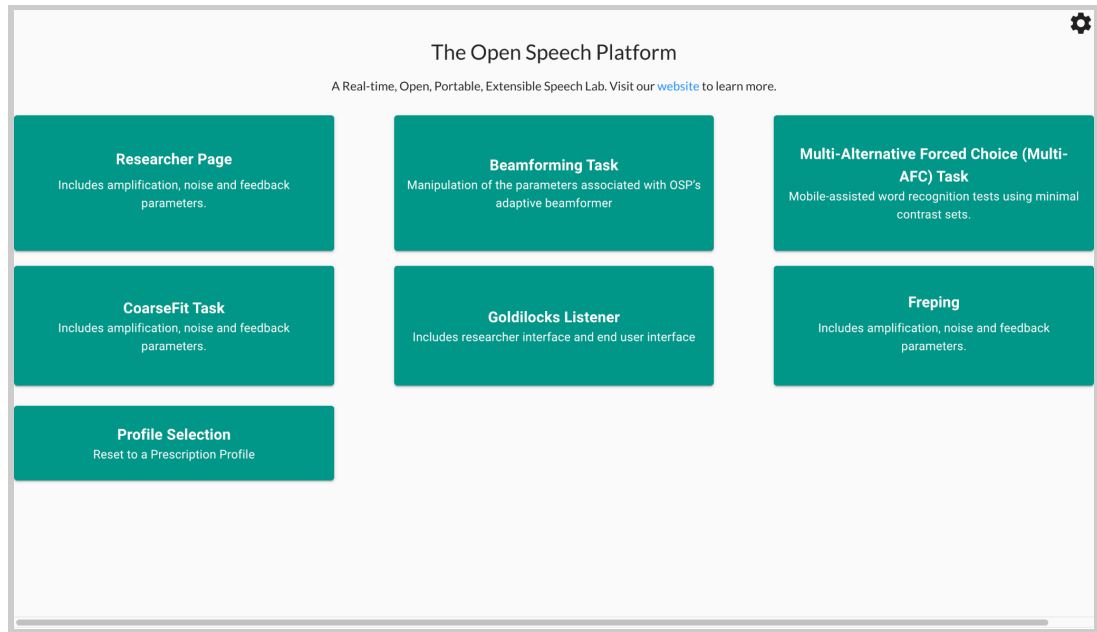
- 20. Enter one of the following into the search bar:

```
http://ospboard.local:5000 or
```

```
http://ospboard.lan:5000
```

If neither of them work, you can try using the IP address found from the **ifconfig** command. For example, if your IP address is "192.168.8.1", you would enter "**http://192.168.8.1:5000**".

You'll see the landing page like the image below.



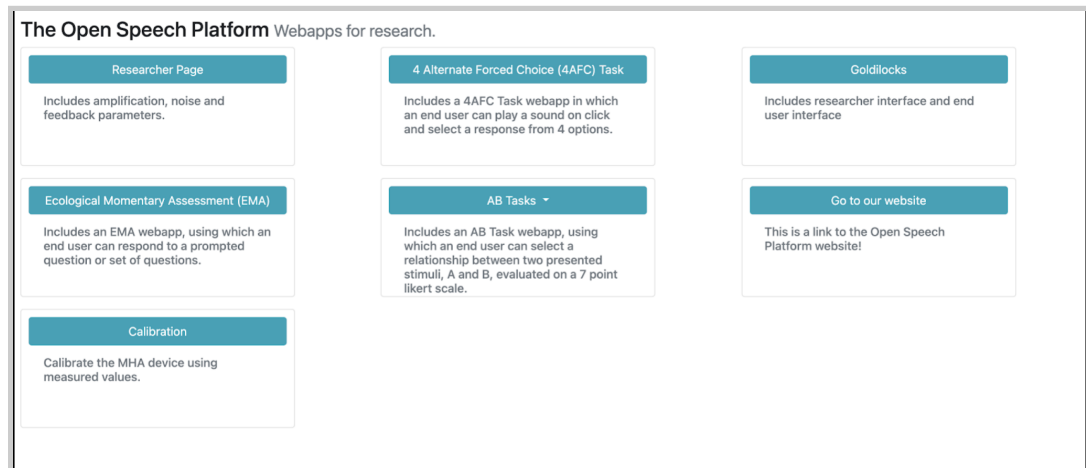
Optionally, you can access the legacy version of OSP software by simply entering one of the following into the search bar:

- <http://ospboard.local>
- <http://ospboard.lan>
- [http://\[YOUR_IP_ADDRESS\]](http://[YOUR_IP_ADDRESS])

Your IP address can be found from the **ifconfig** command.

For example, if your IP address is “192.168.8.1”, you would enter “<http://192.168.8.1>”.

You'll see the landing page like the image below.



3 - Next Steps and Resources

At this point, your PCD should be ready to go.

You should refer to section 6 of this [Getting Started Guide](#) to verify that components of the OSP hardware and software function as intended.

To learn more about the PCD's full capabilities or to troubleshoot any of these steps, refer to the [OSP Hardware Manual](#). Sanity checks for OSP can also be found here.

To take advantage of the device's software features over the browser, refer to the [OSP Software Manual](#).

Below are hyperlinks to other OSP-related resources:

- [OSP Website](#) - General information of OSP.
- [OpenSpeechPlatform on GitHub](#) - This is a public repository where you will find installer files and other documentation files for setting up both OSP software and hardware. Check back for future OSP release notes, updated installer files, and other updates.
 - [“Binaries” folder on GitHub](#) - This is the specific folder where you can download the software builds for either macOS or for the OSP hardware provided.
- [Google Form “OSP Feedback Form”](#) - You can complete this form if you would like to follow up regarding any topics or issues using OSP to a project staff member.