

Brain Invaders quick start guide

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Preparation:

- 1) Make sure you have the correct electrode setup (electrode positions)
- 2) Make sure you will be using a well charged battery for the GTEC mini-ampli. If you are using a rechargeable 9v battery then make sure you recharge it well (6 hours)
- 3) Dry electrodes should be cleaned from time to time with alcohol

Precedure (steps 1 - 7)

1) Montage:

- Put Ground (Left) and **Reference (Right)**
- Check if all electrodes are position well (pins facing the scalp)
- Check if the little ampli box is on

2) Acquisition Server (AS)

- Start the AS. Restart it if is already running.
- **Activate the trigger channel (if you are using hardware tagging)**
- **Make sure the frequency is 512 Hz (Gipsa-lab GTEC setup)**
- You can load the electrodes names from: `openvibe\share\bi_openvibe_electrodes.map`
- For "Software Tagging" activate Drift Correction - "Force" mode

3) Signal verification

- Start the OpebVibe Designer. Choose and start "Signal Monitor" scenario.
- Select tab "Filtered" on the top left
- Vertical scale (not the time!) has a recommended value of 100 for Signal Display box.
- Stop the scenario and close the Designer (quit application)

Instruct the subject to:

- Close the eyes / Ferme les yeux - check for alpha
Open the eyes / Ouvre les yeux - alpha should disappear
- Blink (with the eyes) / Clignote les yeux - it should be easy to observe the blinks.

4) Brain Invaders Launcher

- Switch to second tab "Advanced"
- **Select modality** - adaptive / non-adaptive with/without software/hardware tagging, etc. Changing this dropdown will automatically select OpenVibe scenarios and start-up options.
- Enter: subject "name", "session", "Output folder" - these are used for the path where the resulting files will be stored.

Remarks:

"Output folder" is where the recorded EEG files will be saved along with a log file called "game-session.txt". The game-session.txt contains the current configuration, the final BI score and the elapsed play time for the subject. Score is also available in the console window of Brain Invaders.

5) Experiment start

Click on button "Start Train Phase" or "Start Adaptive". One of these buttons is available according to the modality selected in 4). This will start both OpenVibe and Brain Invaders.

- Quickly verify that there are no errors at startup in the Designer in the console (warning and info messages are OK)
- once BI is active and running, verify that in the BI's console that each shot does not contain the word "random" - which will mean that OV does not provide result to BI. Alternatively when a shot is performed and life is lost, which is indicated by a circle at the bottom of the game, then the circle must be red colored and not grey (grey means a random shot).

6) All levels in BI have passed:

- First stop the Designer - so that the EEG signal is saved (wait if needed), exit the Designer, close BI (they should be restarted per subject)
- Remove ground, reference and EEG cap

7) Shutdown of equipment:

- **Switch off the mini-ampli** (otherwise the battery will be depleted)
- Switch off the amplifier
- Switch off the computer
- Switch off central power supply