

How to set and install an audiomoth

Grégoire Loïs, Yves Bas & Charlotte Roemer

Required material

- Make sure that you inserted a microSD card that is at least 32 Go (16 Go may not last for a full night in case of high activity). The constructor recommends SanDisk cards with a writing speed class UHS-I U3 minimum, but UHS-I U1 (PNY brand) used with Audiomoths and firmware >1.2 *seem* to function correctly. It is recommended to format the card in FAT32 on your computer (once the card is inserted, right-click on the place of your card and choo Format...)
- Make sure that your batteries have a sufficient charge. Beware of rechargeable batteries a little bit too old, because some Audiomoths experienced a short-circuit.
- You can verify the charge of the batteries by connecting your Audiomoth to your computer (see hereafter)

Update your Audiomoth

IMPORTANT but to only do once: **flashing your Audiomoth** (=update the firmware)

A specific software is required : Audiomoth Flash App [to download here](#) (different from the Audiomoth Configuration App that you will use at each deployment, see hereafter)

AudioMoth Flash App

The AudioMoth Flash App is used to easily flash your AudioMoth with new firmware. Keep your AudioMoth up to date by downloading and applying firmware through this app.

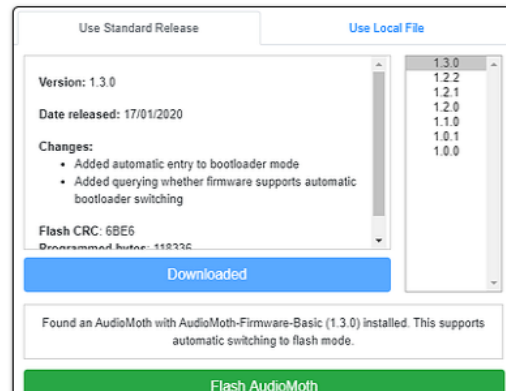
It can also be used to flash devices with your own custom firmware.

Download:

Current version: [1.3.0](#)

macOS

Windows

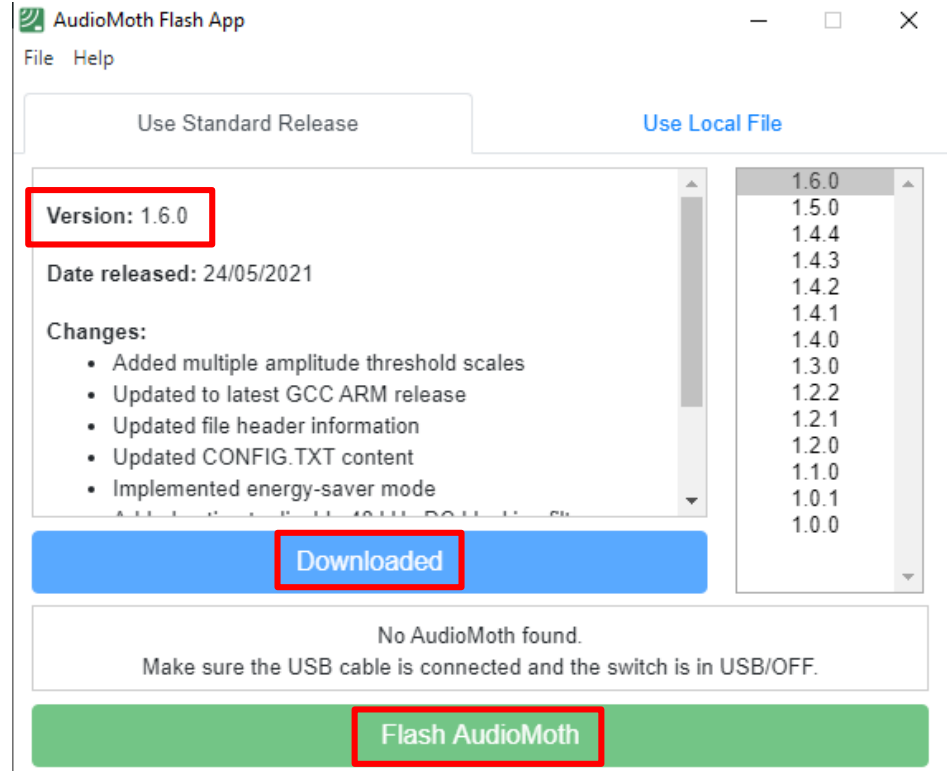


Update your Audiomoth

IMPORTANT but to only do once:
flashing your Audiomoth (=update the firmware)

It is important to download the latest version (≥ 1.6) to benefit from the trigger function, which allows to save a lot of space on the memory card

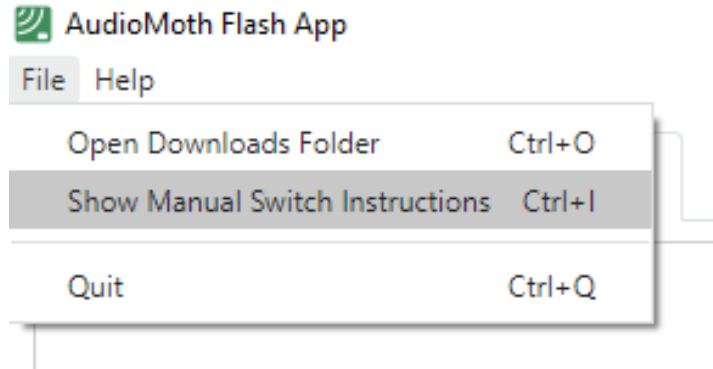
Once downloaded, click at the bottom on **Flash Audiomoth**



Update your Audiomoth

IMPORTANT but to only do once: flashing your Audiomoth (=update the firmware)

If your Audiomoth has an old firmware (< 1.3), you will need to **use a metal object such as a paper clip to make an electronic contact** that will allow the flashing. For this, follow exactly the instructions given when clicking on File and then on Show Manual Switch Instructions



Set the Audiomoth before field work

If it is not already done, [download and install the Configuration app of the Audiomoth by clicking here](https://www.openacousticdevices.info/config)

<https://www.openacousticdevices.info/config>

stic Devices

AudioMoth

Support Forum

The AudioMoth Configuration App is an easy to use tool for customising your AudioMoth devices.

Using it you can schedule recording periods, customise recording gain and sample rates as well as calculate approximate device lifespans given a configuration.

For usage instructions, click [here](#).

Download:

Current version: [1.2.2](#)

macOS

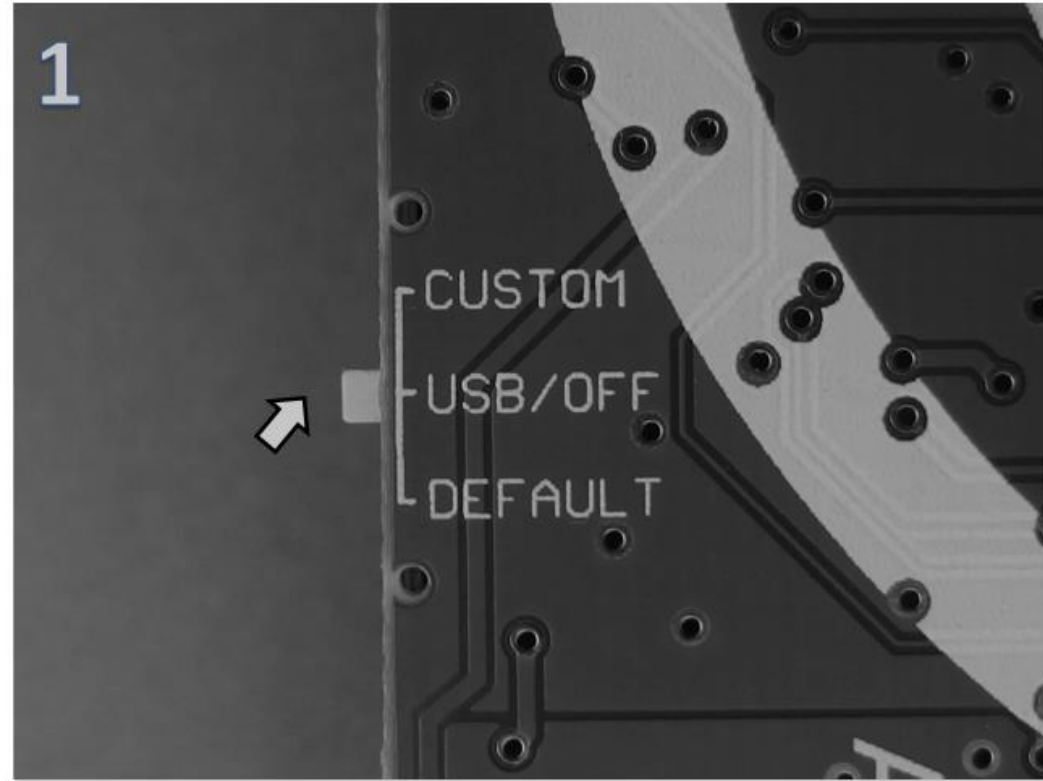
Windows

64-bit Linux

The screenshot displays the AudioMoth Configuration App interface. At the top, it shows the current time and date: 13:54:28 26/09/2018 UTC. Below this, the device ID is 2453AC045A34A93E, the firmware version is 1.2.0, and the battery level is < 3.6V. A timeline from 00:00 to 24:00 shows a red bar indicating a recording period from 07:00 to 16:30 (UTC). The 'Start recording' field is set to 7:00 and the 'End recording' field is set to 16:30. There are buttons for 'Add recording period', 'Remove selected period', and 'Clear all periods'. The 'Sample rate (kHz)' is set to 48, and the 'Gain' is set to 'Med'. The 'Sleep duration (s)' is set to 5 and the 'Recording duration (s)' is set to 10.

Set the Audiomoth before field work

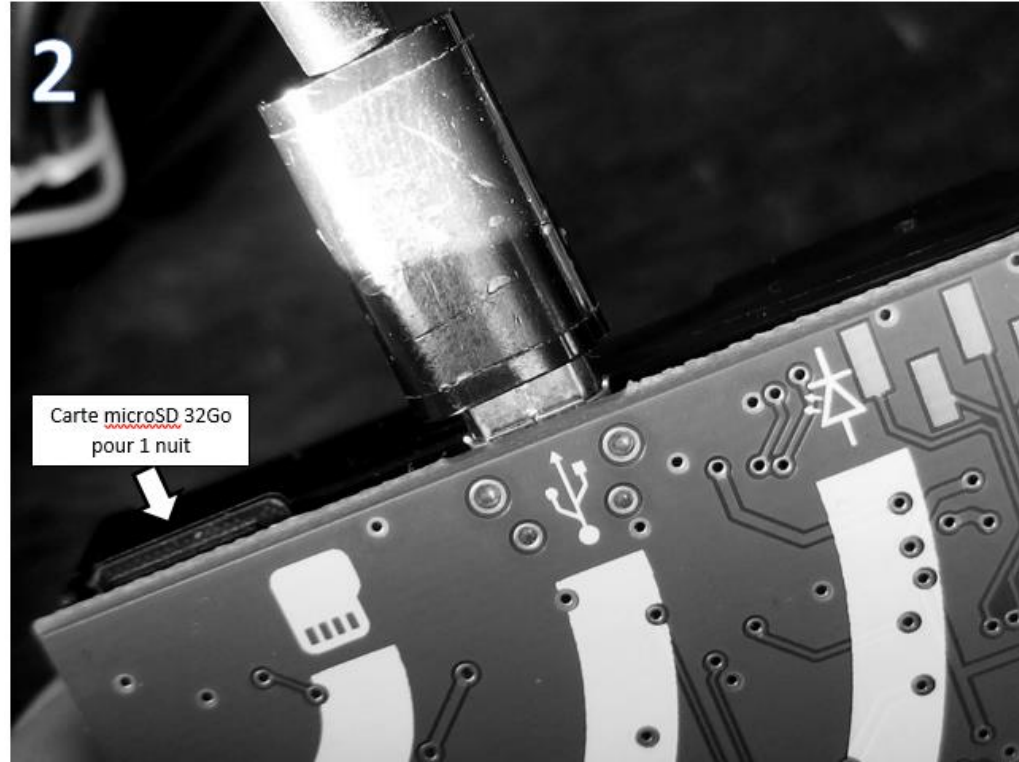
Set the switch on USB/OFF to connect it to your computer



Set the Audiomoth before field work

Insert batteries

Connect your Audiomoth to your computer using the USB cable provided



Set the Audiomoth before field work

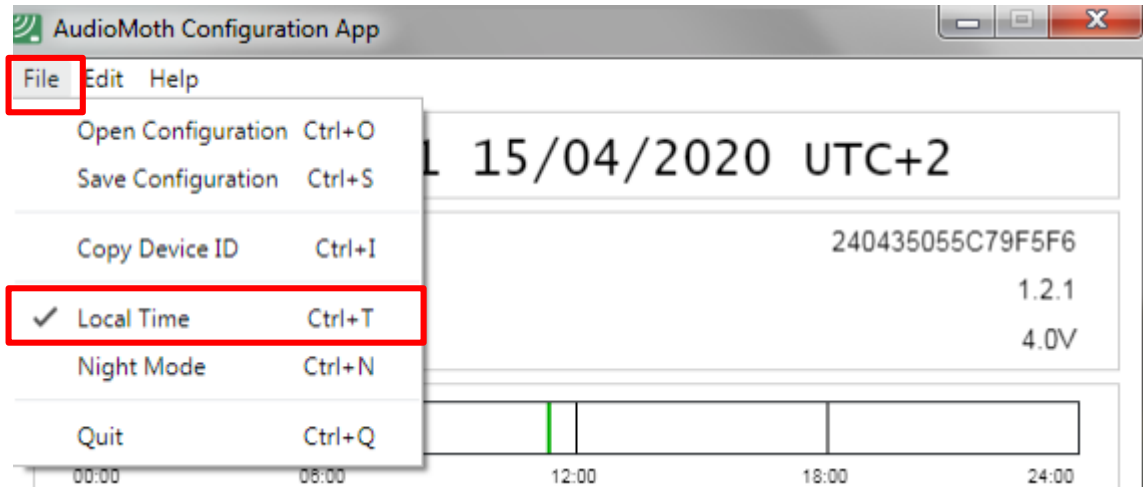
Connect your Audiomoth to your computer using the USB cable provided



Set the Audiomoth before field work

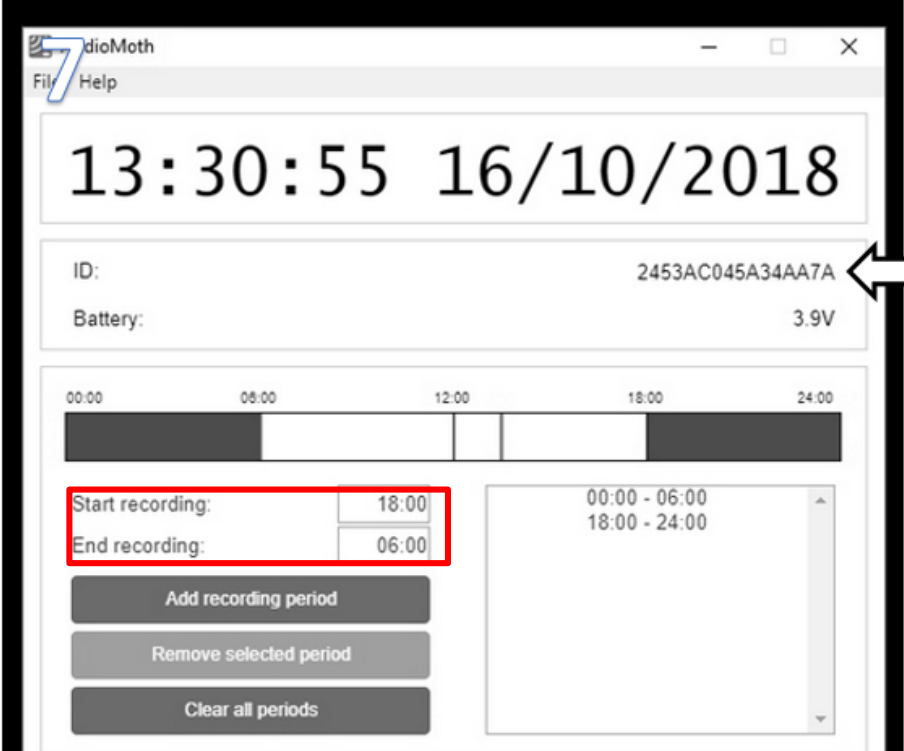
Step 1 : you need to set the time in local time. For this, click on **File** and make sure that **Local Time** is checked.

If necessary, click on the Configure Audiomoth button to validate the time.



Set the Audiomoth before field work

Step 2 : Copy the identification number of your Audiomoth so that you can use it on the online portal of Vigie-Chiro



The screenshot shows the Audiomoth software interface. At the top, the title bar reads "Audiomoth" with a blue "7" icon. Below the title bar, there is a large display showing the time "13:30:55" and the date "16/10/2018". Below this, the "ID:" field displays "2453AC045A34AA7A", and the "Battery:" field displays "3.9V". An arrow points from the text "ID of the Audiomoth" to the ID field. Below the ID and battery fields, there is a timeline from 00:00 to 24:00 with a bar chart showing recording periods. Below the timeline, there are two input fields: "Start recording:" with the value "18:00" and "End recording:" with the value "06:00". These two fields are highlighted with a red rectangle. Below the input fields, there are three buttons: "Add recording period", "Remove selected period", and "Clear all periods". To the right of the input fields, there is a list of recording periods: "00:00 - 06:00" and "18:00 - 24:00".

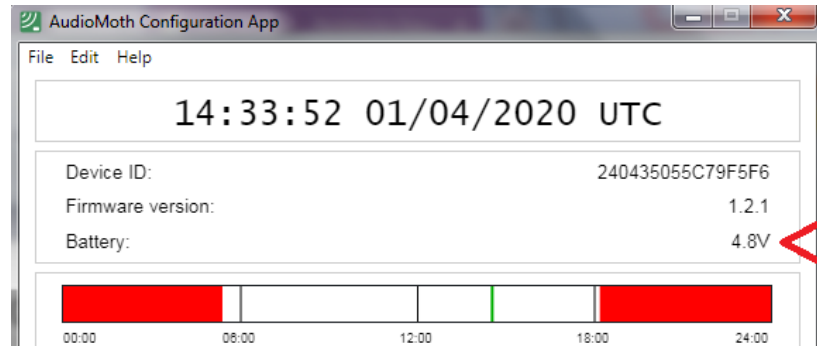
ID of the
Audiomoth

Set the Audiomoth before field work

Here, you can check the charge of the batteries

A charge of 4,8V corresponds to new alkaline batteries, rather 4,3 V rechargeable batteries with a mean capacity (2100 mAh)

A charge of 4,0 V seems to be the limit to last 1 full night.



New LR6
alkaline
batteries
4.1V lasts 1
night max

Set the Audiomoth before field work

Step 3 : Recording settings

Set the sample rate, the gain and the duration of files as follows :

The recording must be continuous so ***Sleep Duration*** must be 0. A warning will tell you that this setting is problematic but you can ignore it!

The screenshot shows the Audiomoth web interface with the 'Recording' tab selected. The settings are as follows:

Setting	Value
Sample rate (kHz):	250
Gain:	Low
Enable sleep/record cyclic recording:	<input checked="" type="checkbox"/>
Sleep duration (s):	0
Recording duration (s):	300
Enable LED:	<input checked="" type="checkbox"/>
Enable low-voltage cut-off:	<input checked="" type="checkbox"/>
Enable battery level indication:	<input checked="" type="checkbox"/>

Set the Audiomoth before field work

Etape 4 : Schedule settings

Manually define the hours of start and end of recording. The Audiomoth does not calculate the time of sunset and sunrise, so you must manually choose a starting time (***Start recording***) that is before sunset and an ending time (***End recording***) that is after sunrise.

We recommend starting 30 before sunset and ending 30 min after sunrise.

To validate, click on [“add recording period”](#).

The screenshot shows the 'Schedule' tab of the Audiomoth interface. At the top, there are four tabs: 'Recording' (highlighted in blue), 'Schedule', 'Filtering', and 'Advanced'. Below the tabs is a 24-hour timeline from 00:00 to 24:00. The timeline has a red bar from 00:00 to 06:00, a green vertical line at 18:00, and another red bar from 21:30 to 24:00. Below the timeline, there are two input fields: 'Start recording:' with a value of 21:30 and 'End recording:' with a value of 06:30. These fields are enclosed in a red rectangular box. Below the input fields are three buttons: 'Add recording period' (blue), 'Remove selected period' (light blue), and 'Clear all periods' (blue). To the right of the input fields, there is a list of recording periods: '00:00 - 06:30 (UTC)' and '21:30 - 24:00 (UTC)'. The 'Add recording period' button is highlighted with a red border.

Set the Audiomoth before field work

Step 5 : Filtering settings

It is the famous new trigger function. This setting is very important and must be followed to ensure compatibility of your data accros space and time!

Check Enable amplitude threshold

- Select 2 seconds
- Select a level of 1% d'amplitude threshold (the level is given below the bar)

The screenshot shows the Audiomoth configuration interface with the 'Filtering' tab selected. The settings are as follows:

- Recording** (tab)
- Schedule** (tab)
- Filtering** (tab, active)
- Advanced** (tab)

Enable filtering: ☒

Filter type: Low ☐ Band ☒ High ☐

0kHz **125kHz**

Recordings will be filtered to frequencies between 6.0 and 18.0 kHz.

Enable amplitude threshold: ☒

Minimum trigger duration (s): 0 ☐ 1 ☐ **2** ☒ 5 ☐ 10 ☐ 15 ☐ 30 ☐ 60 ☐

0.001% **100%**

Amplitude threshold of 1% will be used when generating T.WAV files.

Set the Audiomoth before field work

Step 6 (last one) : Click on the big green button [Configure Audiomoth](#)

The screenshot shows the 'AudioMoth Configuration App' window. At the top, it displays the time '02:14:35' and date '01/01/1970 UTC+2'. Below this, a table lists device information: Device ID (242A26045F575A2F), Firmware description (AudioMoth-Firmware-Basic), Firmware version (1.6.0), and Battery (4.2V). The 'Filtering' tab is selected, showing options to 'Enable filtering' (checked), 'Filter type' (Band), and a frequency range slider from 0kHz to 125kHz, currently set between 6.0 and 18.0 kHz. Below this, the 'Enable amplitude threshold' option is also checked, with a 'Minimum trigger duration (s)' set to 2 seconds and an 'Amplitude threshold' slider set to 1%. A note states: 'Amplitude threshold of 1% will be used when generating T.WAV files.' At the bottom, a summary line reads: 'Each day this will produce 108 files, each up to 150 MB, totalling up to 16 GB. Daily energy consumption will be between 100 and 240 mAh.' A large green button labeled 'Configure AudioMoth' is at the bottom, highlighted with a red rectangle.

AudioMoth Configuration App

File Edit Help

02:14:35 01/01/1970 UTC+2

Device ID:	242A26045F575A2F
Firmware description:	AudioMoth-Firmware-Basic
Firmware version:	1.6.0
Battery:	4.2V

Recording Schedule Filtering Advanced

Enable filtering: ☒

Filter type: Low Band High

0kHz 125kHz

Recordings will be filtered to frequencies between 6.0 and 18.0 kHz.

Enable amplitude threshold: ☒

Minimum trigger duration (s): 0 1 2 5 10 15 30 60

0.001% 100%

Amplitude threshold of 1% will be used when generating T.WAV files.

Each day this will produce 108 files, each up to 150 MB, totalling up to 16 GB.
Daily energy consumption will be between 100 and 240 mAh.

Configure AudioMoth

Set the Audiomoth before field work

Disconnect the Audiomoth from the computer. Set the switch on CUSTOM.

Check that the LED is clicking green.

Do not remove the batteries, because the settings will disappear!

Make your Audiomoth waterproof

Required ingredients: a waterproof box and some **cellophane**
(=plastic sheet for food)

Optional ingredients: big rubber band, tape, dessicant (silica gel)

For the waterproof box, we recommend a small junction box which costs a few euros and that you can find in hardware stores. This model particularly fits the Audiomoth:

<https://www.materielelectrique.com/boite-de-derivation-etanche-gris-ip55-60x60x40-mm-debflex-p-327285.html>

But you can also use what you have at home.

For information, Audiomoths measure 58 x 48 x 20 mm.



Make your Audiomoth waterproof

If possible, tape the batteries so that they cannot jump out.

DO NOT COVER THE MICROPHONE WITH THE TAPE !! ;)



Make your Audiomoth waterproof

Cut a band of cellophane of about twice the width of the Audiomoth



Make your Audiomoth waterproof

Position the Audiomoth below the centre of the piece of cellophane



Make your Audiomoth waterproof

To ensure tension, it is better to twist what is left of the cellophane back



Make your Audiomoth waterproof

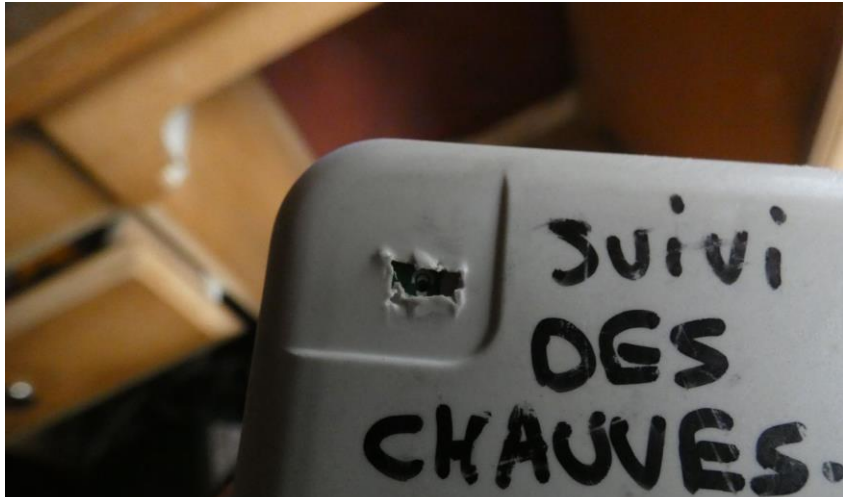
Pull the cellophane back so that it is stretched and not crumpled, particularly where the microphone is placed.



Make your Audiomoth waterproof

Put the Audiomoth against the cover with the microphone well in front of the hole

Make sure that your Audiomoth does not move after you close the cover



Make your Audiomoth waterproof

Here is another example for a different box. You can use foam to make the Audiomoth fit perfectly and you can paint it for camouflage.



Make your Audiomoth waterproof

Close the cover

You can now put it on the field!

Do not hesitate to use iron wire, tape or a big rubber band to put it on a stick or on the branch of a tree.

Usually, the more information you write on the box (purpose and telephone number), the lower the probability is for it to be stolen.

If you expect rain, put it with the microphone toward the horizont or a little bit toward the ground.