

Geophonino user manual

Welcome to the Geophonino user manual. This document is organized as follows:

- 1) Loading sketch. It is done only for the first Geophonino use.
- 2) Launching Graphical User Interface. It is done every time that Geophonino is used.
- 3) Running the application. In this section, connection and acquisition configuration, besides of the Geophonino-to-computer data transfer are detailed.

1.- Loading Sketch

The first step is the connection of Geophonino to the PC through the USB port using “*Micro USB Programing Port*”. If you don’t have installed Arduino Due drivers, please visit the [Arduino Due Guide page](#) and follow the steps indicated in the section “*Installing Drivers for the Due*”.

You need to have installed the [Arduino development platform 1.5.6-r2](#). This has [its own user manual](#). When you launch Arduino Software IDE, you should first select *Arduino Due (Programming Port)* in the menu *Tools* → *Board* (Figure 1) and the *Com* port in the menu *Tools* → *Port*.

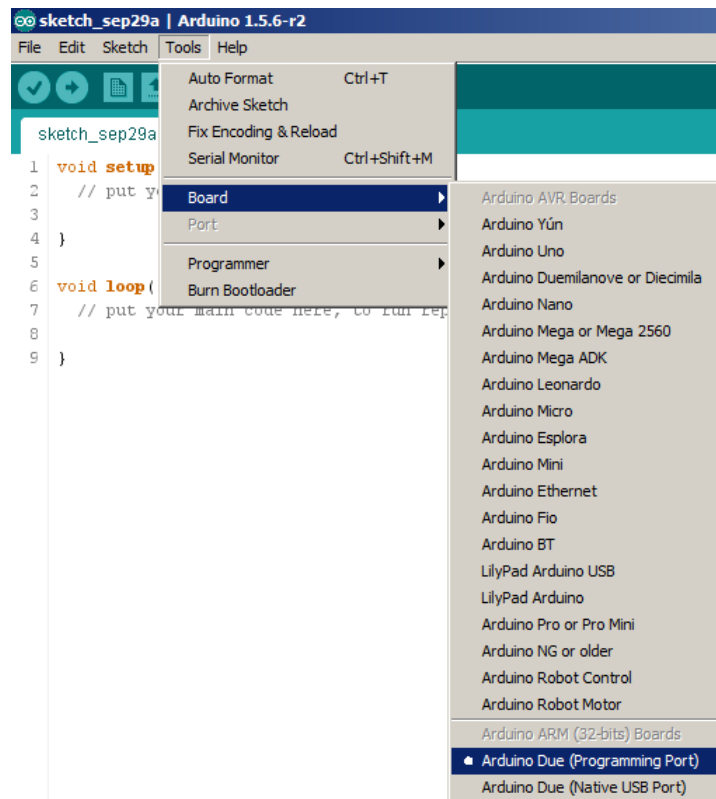



Figure 1: Arduino Due (Programming Port) selection in the Arduino Software IDE

After that, the sketch Geophonino.ino can be opened (*File* → *Open*) and subsequently loaded (*File* → *Upload*) to the Arduino Due board.

2.- Launching the Graphical User Interface

The second step is to start Geophonino user interface, which is executed by using the software Processing (<https://processing.org/download/?processing>). You should load Geophonino.pde and push *Run* button  .

You could make an executable application with the *File* → *Export Application* menu option (Figure 2). If you have installed Java, you do not need to check *Embed Java* option.

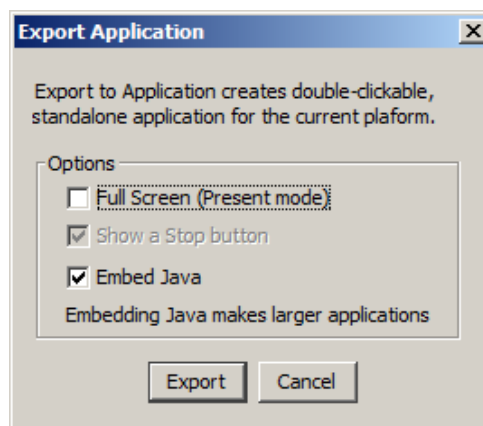


Figure 2: *Export application* menu option of Processing.

3.- Acquiring data with Geophonino

The Geophonino user interface is divided in three sections or blocks: *Connection configuration*, *Data acquisition configuration*, and *Data acquisition*. These blocks have to be set up in the established order. For that, the interface guides the user through the different steps, using a white background to indicate the current block. Moreover, the interface also shows different status messages at the bottom of the window to help the user to follow the process.

In the next paragraphs, the different parameters associated to the three blocks are commented.

1) *Connection configuration*:

In this block, the serial COM port is selected. Once connected Geophonino to the USB port of the computer, then you have to select the corresponding COM port and push the *CONNECT...* button (Figure 3). If the serial COM port is not shown in the list, please reconnect Geophonino and press the *REFRESH PORT LIST* button.

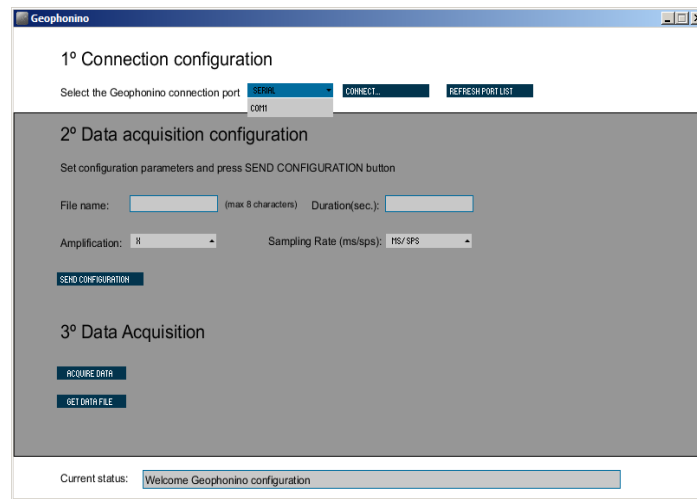


Figure 3: Connection configuration step.

2) Data acquisition configuration:

In this second block, the user has to configure the following data acquisition parameters:

- File name: It is the name of the file that will be stored to the SD card (maximum 8 characters long due to the SD library restrictions). Anyway you can rename it once the file has been downloaded to the PC.
- Duration: It is the record time duration in seconds.
- Sampling rate: The available sampling rate values are 100 Hz, 250 Hz, 500 Hz, 1.000 Hz.
- Geophonino amplification: Three different amplification values can be selected, i.e. 0.5, 1 and 2.

After introducing these parameters, the *SEND CONFIGURATION* button has to be pressed to send the information to Geophonino. When data acquisition configuration is sent successfully, then a “*Configuration sent successfully*” message will be displayed in the current status field (Figure 4). If one parameter was wrong, then an error message would be shown in the current status field. For example, if the selected file name already exists in the SD card, then an error message will be displayed. In this case, the user could change the filename or press again *SEND CONFIGURATION* button to overwrite the file.

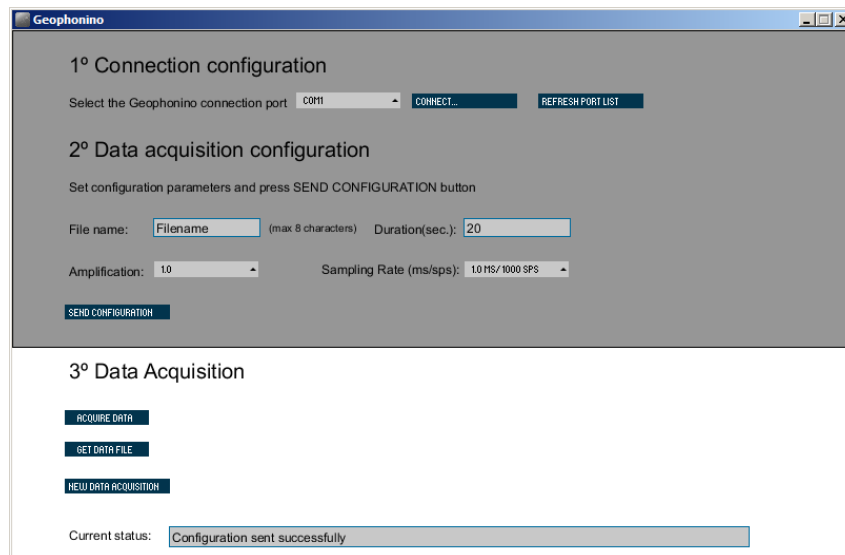


Figure 4: Data acquisition configuration sent successfully.

3) *Data acquisition:*

The data acquisition starts exactly when *ACQUIRE DATA* button is pressed. A progress bar indicates record time. In case that Geophonino was supplied by an external voltage source, then it would be possible to switch off the computer and disconnect USB port during the data acquisition. The message "*Data file FileName generated successfully*" will be shown in the current status field when the data acquisition ends.

To download the file to the PC, the *GET DATA FILE* button has to be pressed. However, it is not recommended if the file is too large because it will take too much time. In this case, it is much better to extract the SD card from Geophonino and insert it in a card reader connected to the PC.

The *NEW DATA ACQUISITION* button allows acquiring a new register. In this case, you should be aware of the selecting file name to avoid overwriting a previous file.