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V4.2.x

PCB solution FBL server - Hardware

Using software as an interface to test your actuators!

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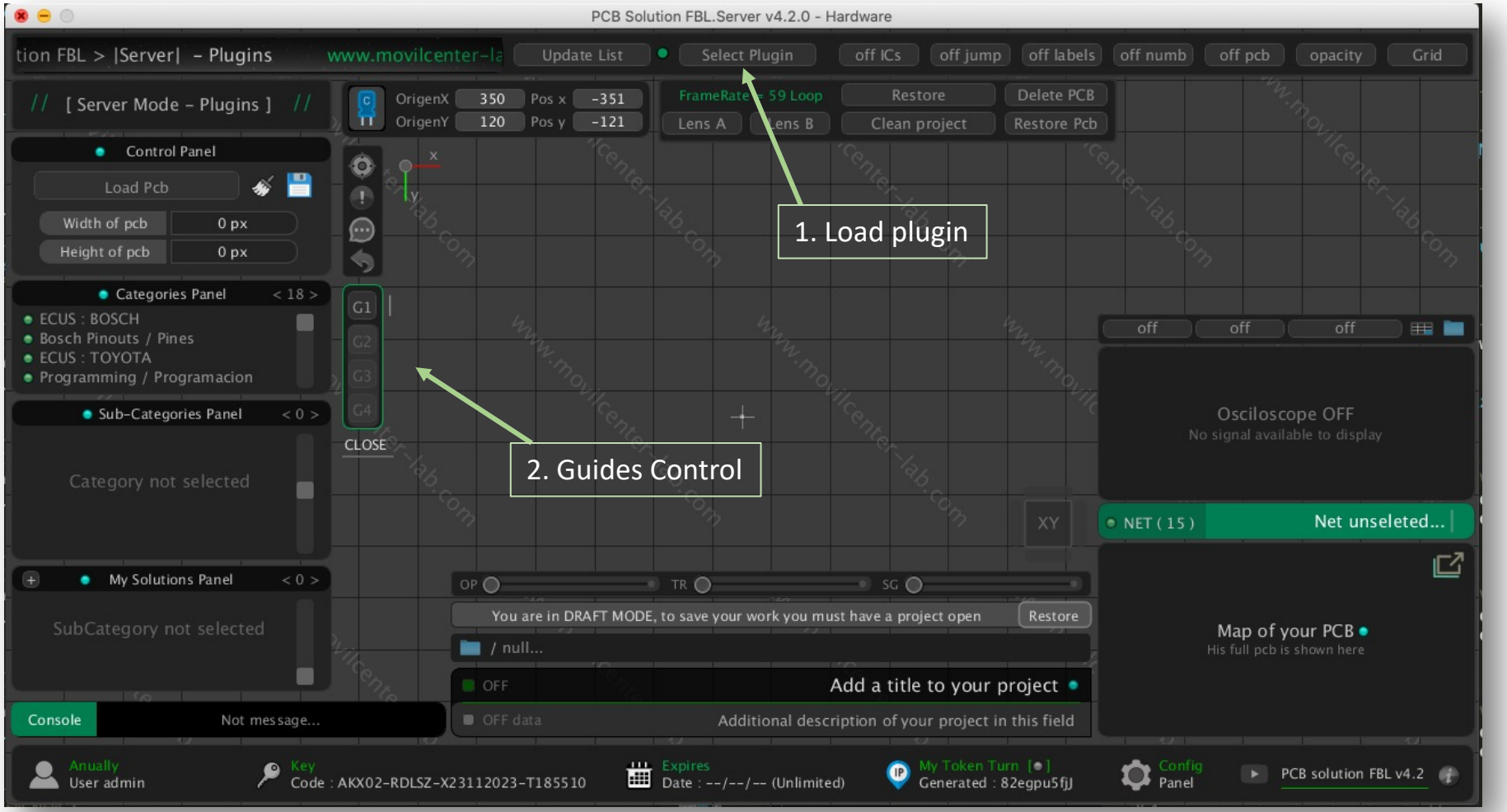
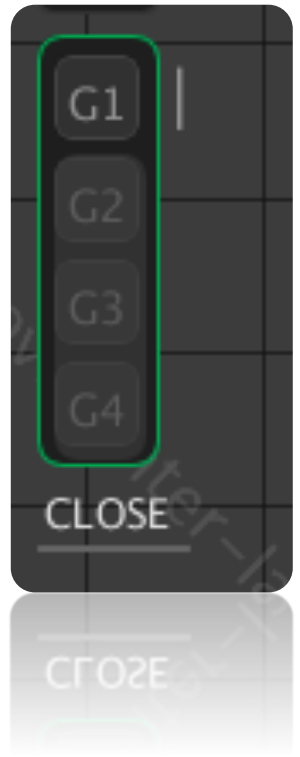
Activando Control de Guide

1. Load the automotive plugin as you normally do, and you will see this new control guide bar appear



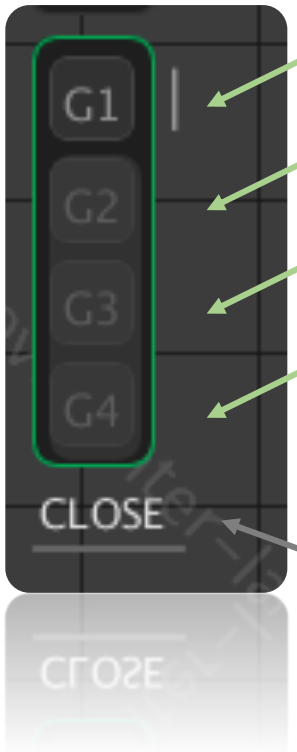
Visible Control Guide



From this panel, you can load controls to create your customized interface (also called Guides), open your saved interfaces, establish connection with your Arduino board, and start working on this new feature

GUIDES CONTROLS FOR CREATING INTERFACES

Remember that these controls appear when you first load your automotive plugin. If not, they won't appear yet. Your license must be active



1. **GUIDE MODE**: Activate mode and block palette to create interface

2. GUIDES LIST: Open list of created and saved interfaces

3. HARDWARE COMMUNICATION: Opens list of connected Arduino boards and connects

4. SAVE: Save your currently open interface

Indicate whether you have an open project or a closed project

1. GUIDE MODE

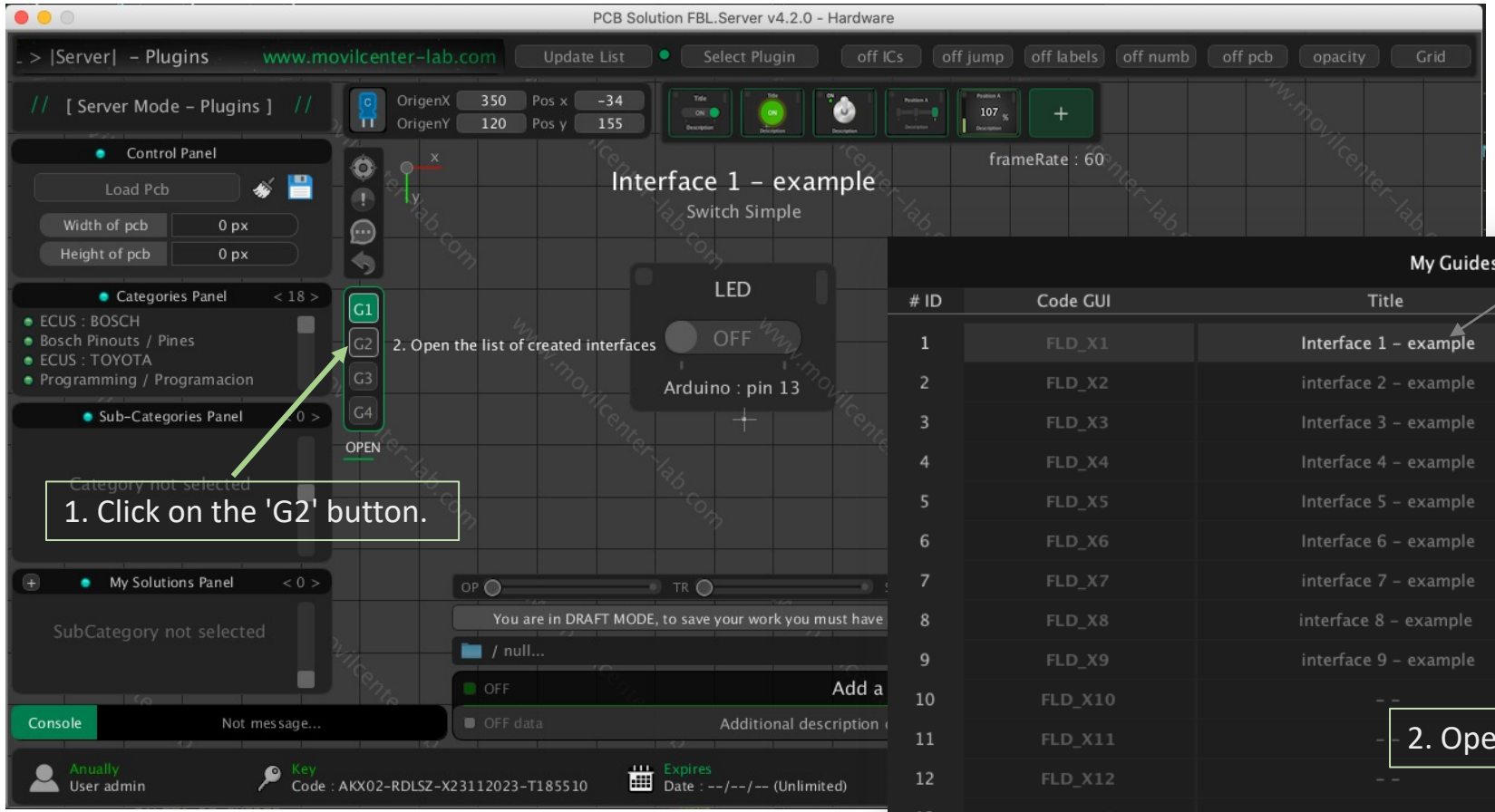
In the control panel, you must always activate the 'G1' button first. This informs the software that you will start working with control interfaces

Bloques

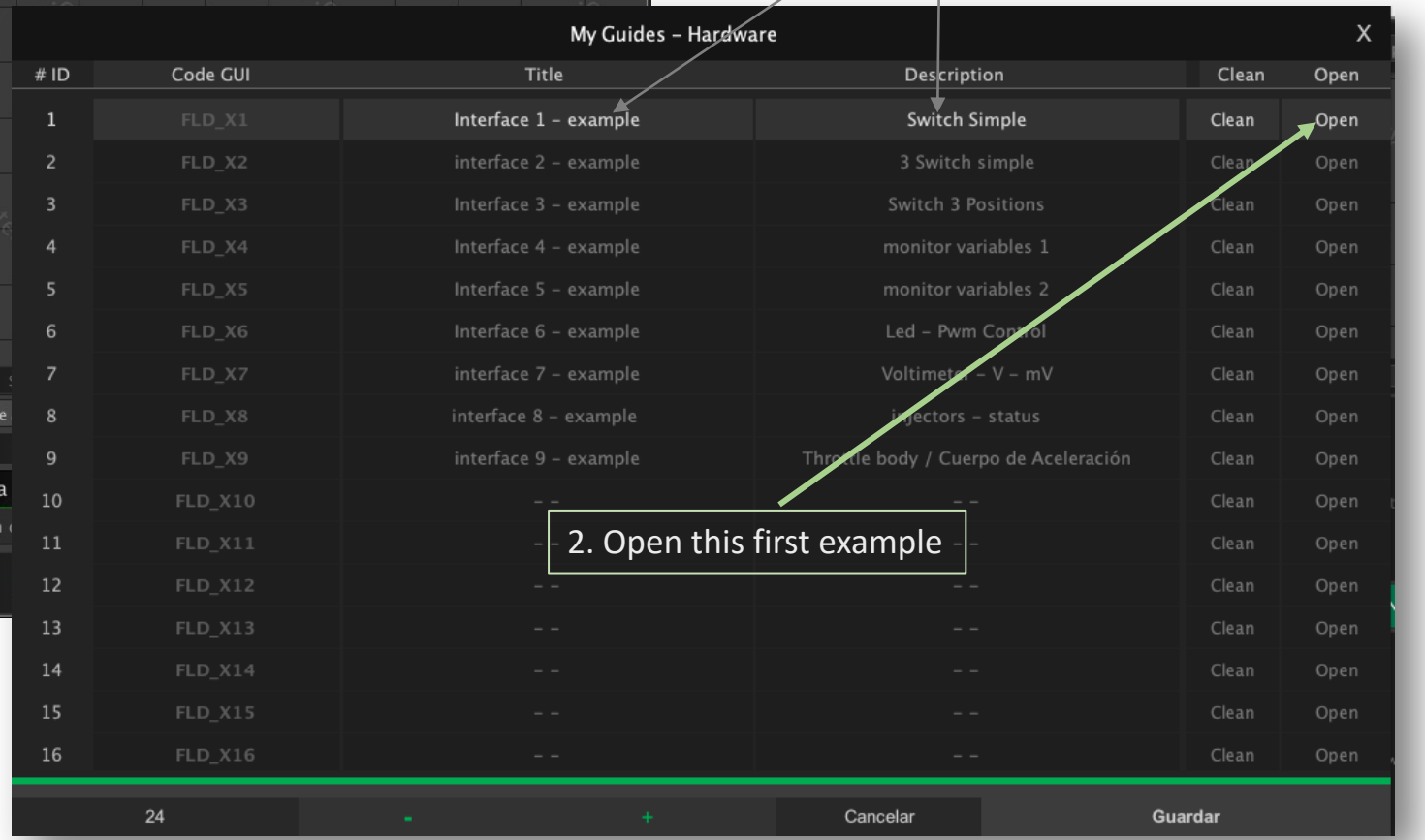
IMPORTANT: Although it's possible to add blocks at this point, remember that saving is not yet possible because you don't have an open Guide interface project. (For now, it's important just to notice how the block panel appears when activating GUIDE MODE)

2. INTERFACE LIST

Click on the 'G2' button to open the list of all saved guides. You can edit the title, edit description, and 'open' to open a saved interface



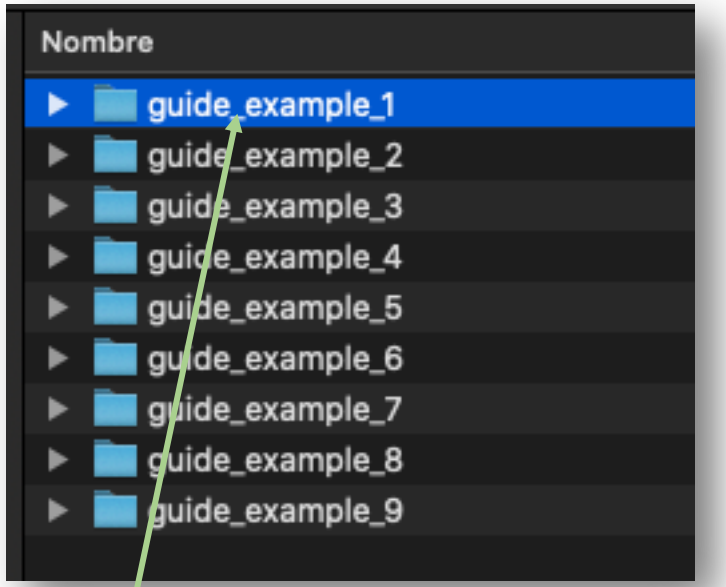
To edit the **title** or **description**, simply double-click with the left mouse button



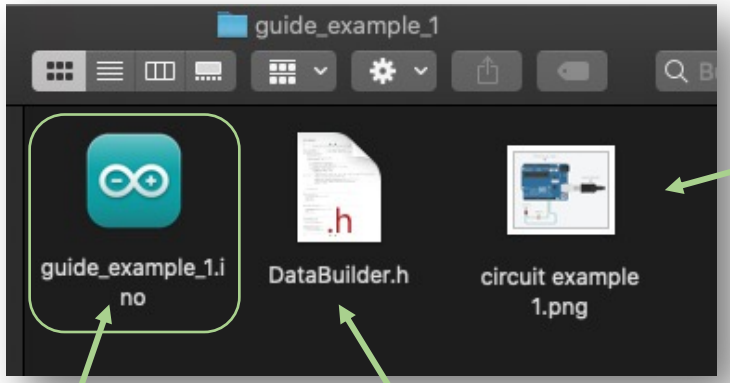
NOTE: When you open an interface from this list, you will be able to save your interface, as you will be inside a project, and it will say 'OPEN' below the buttons.

FIND THE EXAMPLE ARDUINO CODE

We have prepared some examples for you to quickly try out how to use the new function of interfaces or Guides

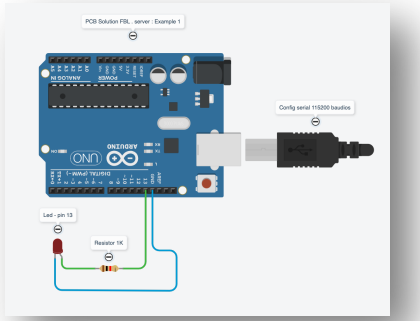


Open the folder of examples we have sent you and look for the first example



Open this example code to use a simple switch and control the Arduino LED

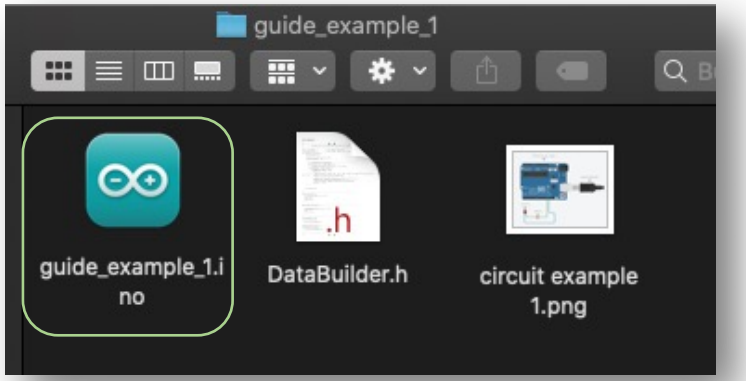
This file, **DataBuilder.h**, is a file we have created to facilitate communication between Arduino and PCB Solution FBL server. The file will be loaded automatically when opening the Arduino project **'guide_example_1.ino'.**



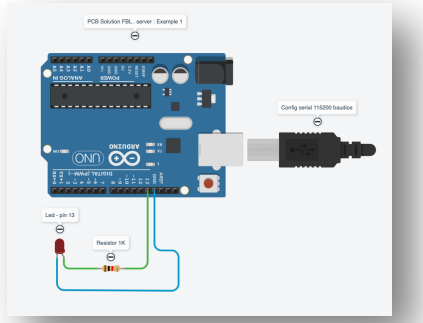
This image shows how to assemble the simple test circuit

UPLOAD CODE TO ARDUINO BOARD

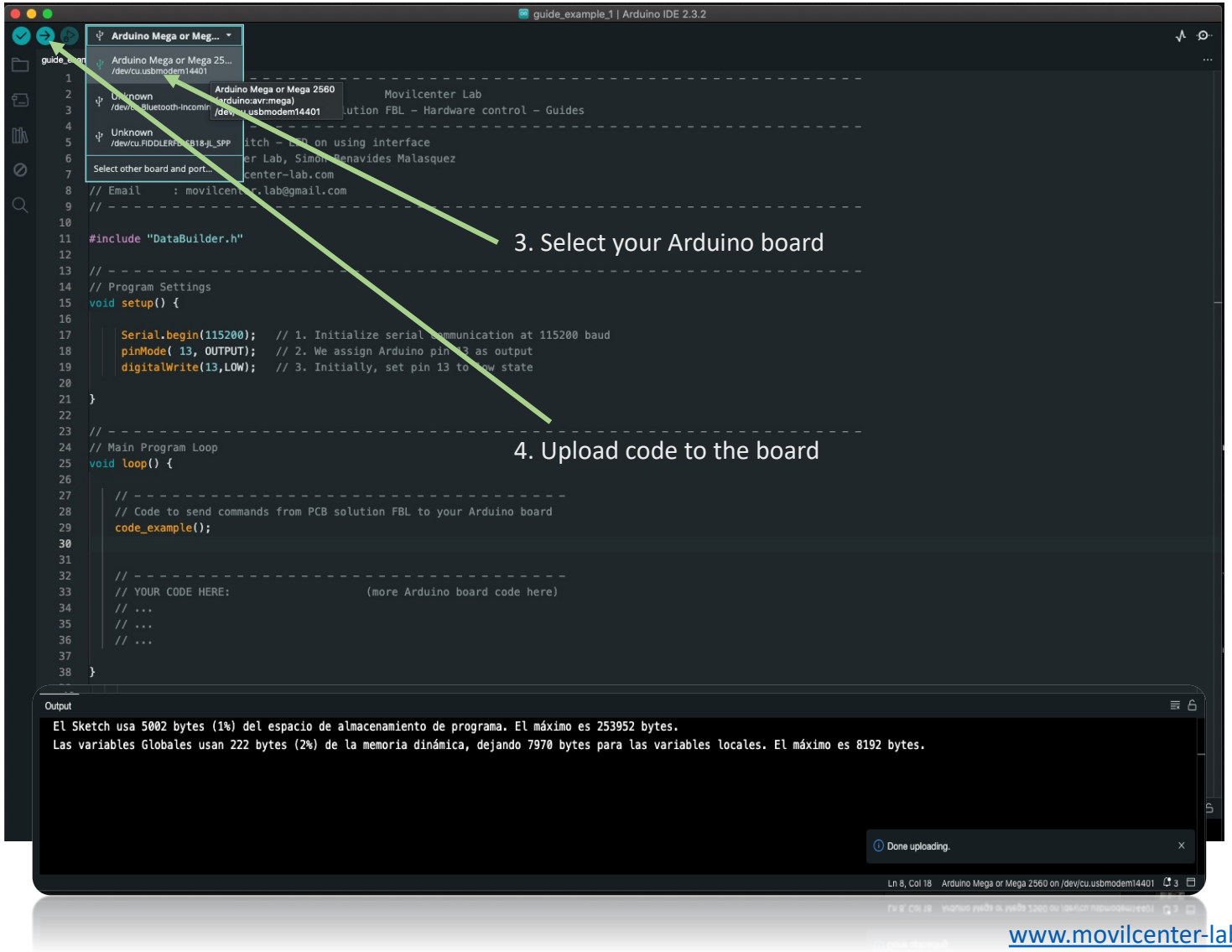
Open the first example, double-click on the file **'guide_example_1.ino'.** (You must download the Arduino program beforehand) https://www.arduino.cc/)



1. Double-click on this file

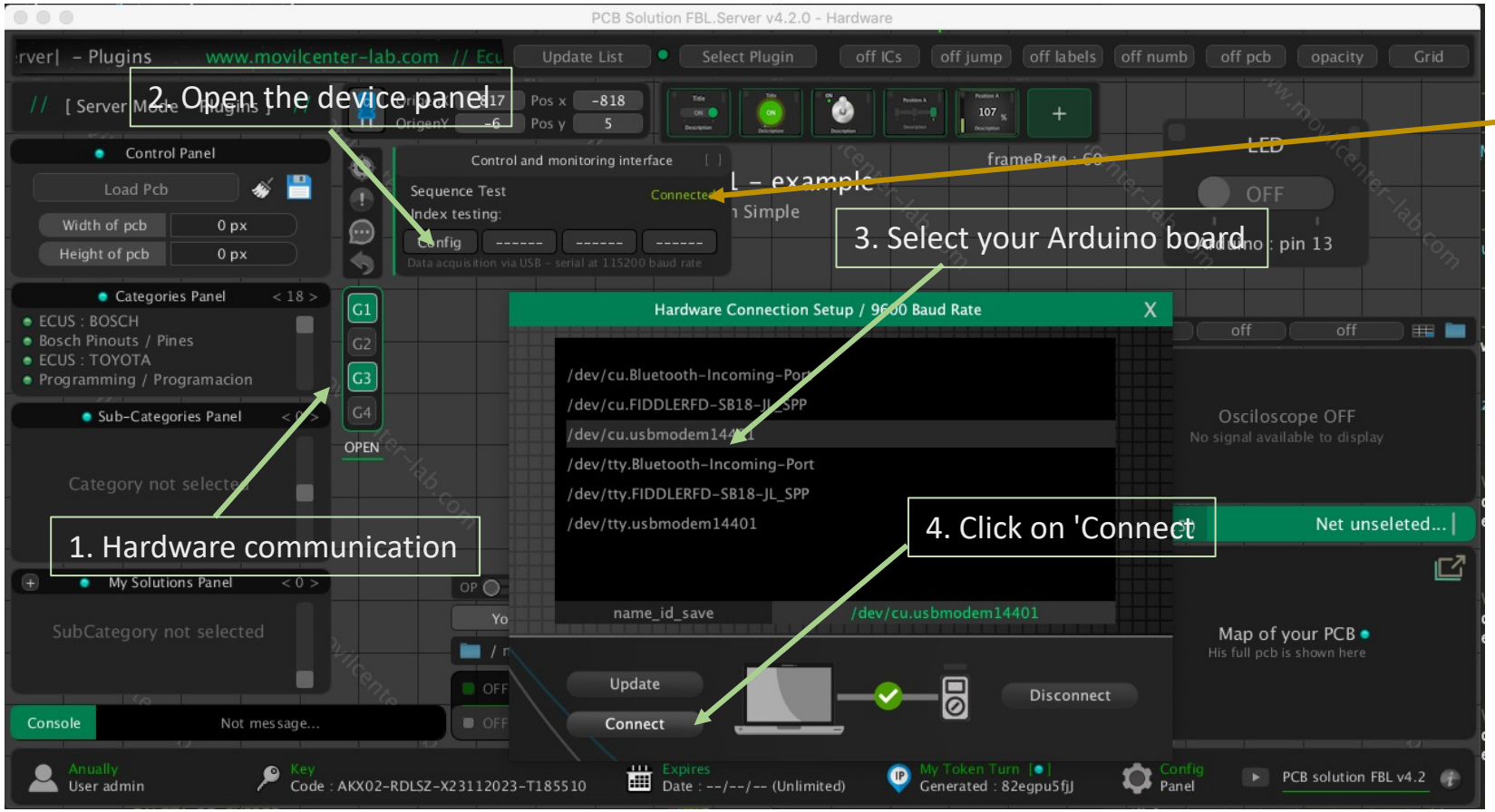


2. Assemble the circuit and connect your Arduino board



3. HARDWARE COMMUNICATION

Activate the 'G3' button. A control panel will open to connect your Arduino board to the PCB Solution FBL server software. Activate it



Successful connection!

If the connection is successful, the device window closes, and a 'Connected' message appears.

NOTE: If your board does not appear in the list, disconnect your board and reconnect it, then press 'Update' until it appears

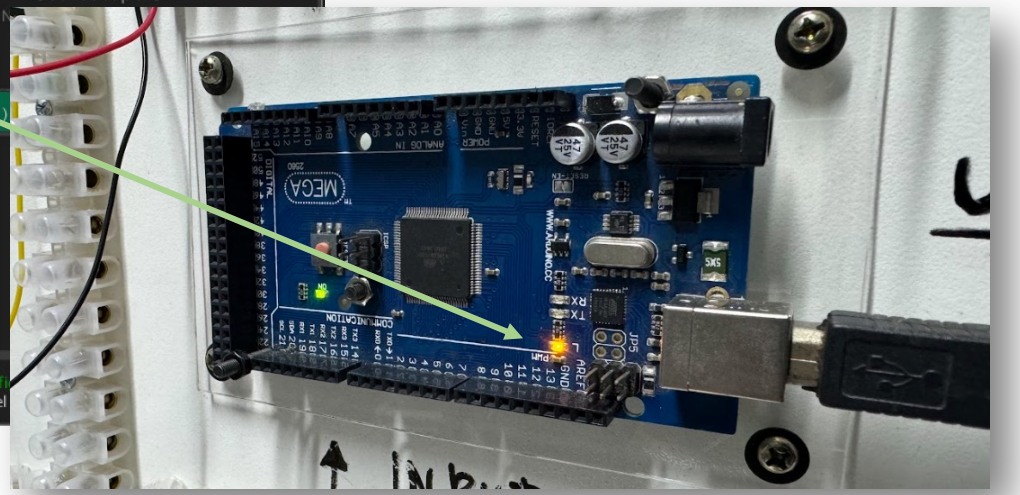
ARDUINO ON MAC: It typically appears as **'/dev/cu.usbmodem14401**' (in your case, it might be a different number at the end).

ARDUINO ON WINDOWS: It typically appears as COM ports such as COM1, COM2, COM7, etc

Time to test the created control!

It's time to test our switch! Click the switch to turn on the LED on your Arduino board connected to pin 13

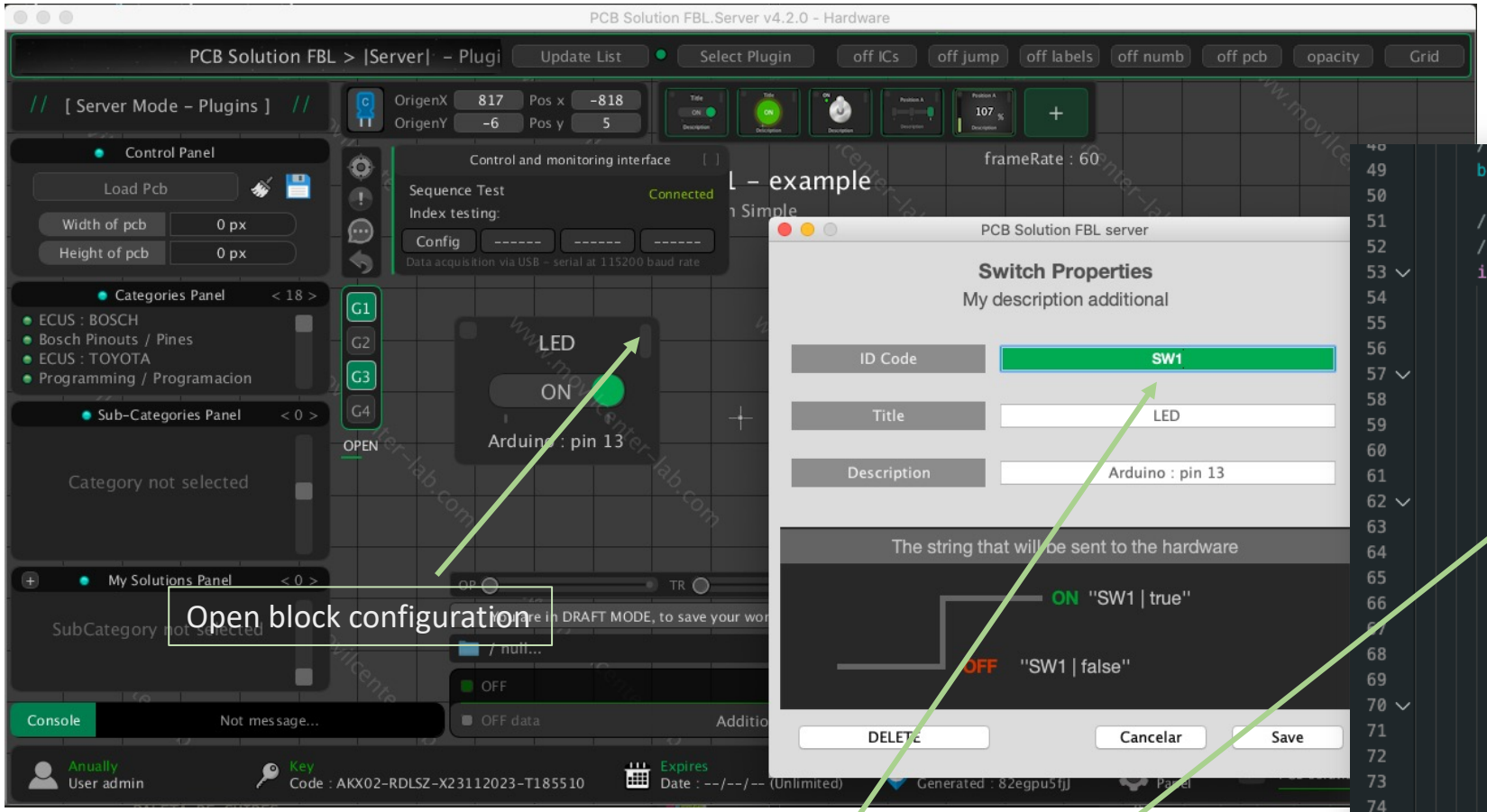
For this example, assembling the resistor-LED circuit is optional because several Arduino boards have an SMD LED on pin 13 by default



As you can see, you can easily control an LED, a relay, a light bulb, or anything you want to connect to your Arduino. Additionally, this is just an example; in your Arduino code, you can perform many more tasks upon receiving the command sent by the switch

How to set up a block to work with Arduino?

The most important parameter is the **'ID Code',** which identifies the block to differentiate it from another




```
bool state_RX = getData_PCB_Solution_FBL() ;

// - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
// 2. If data is available, check the guide's ID and its value
if( state_RX == true ){

    // - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    // GUIDE ID : SWITCH SIMPLE
    if ( Id_RX("SW1") == true ) {

        // - - - - - - - - - - - - - - - - - - - - - -
        //              LED - ON
        // - - - - - - - - - - - - - - - - - - - - - -
        if( Value_RX("true") == true ){
          digitalWrite(13,true);
          delay(1);
        }

        // - - - - - - - - - - - - - - - - - - - - - -
        //              LED - OFF
        // - - - - - - - - - - - - - - - - - - - - - -
        if( Value_RX("false") == true ){
          digitalWrite(13,false);
          delay(1);
        }

    }
    // - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    // 2.x : more guides here
```

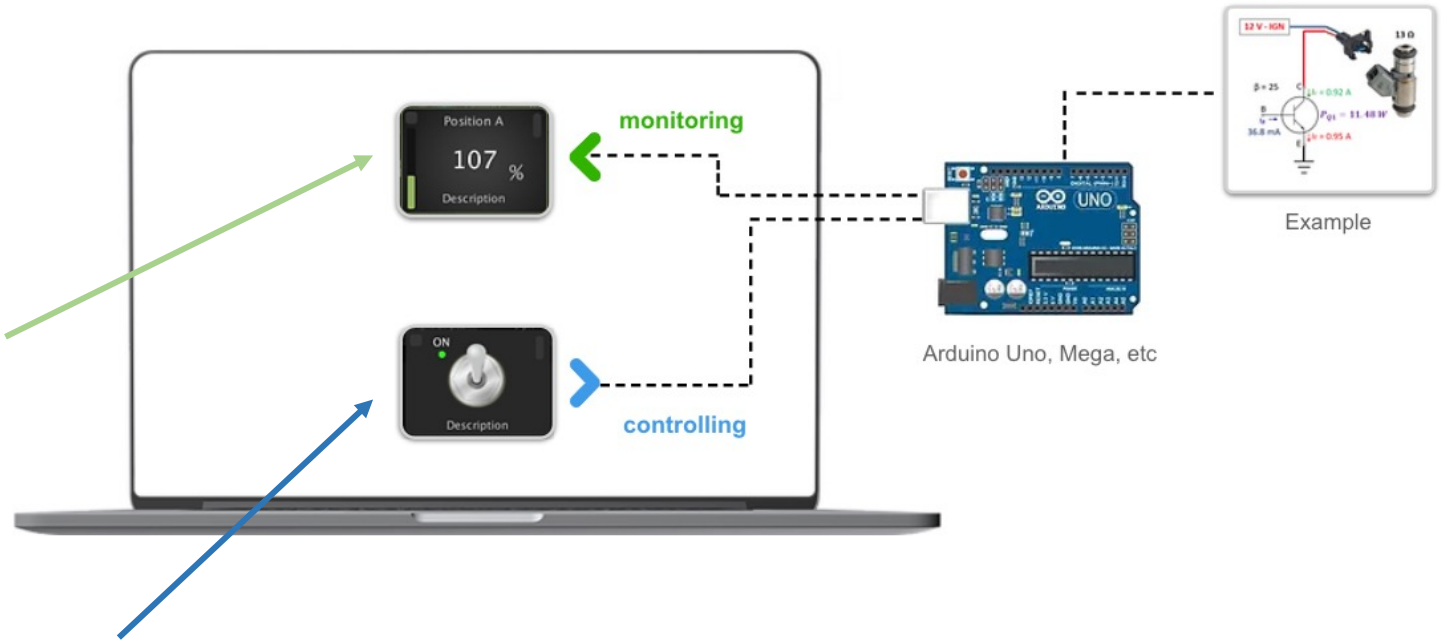
You can see that the 'ID Code' of the Switch block is **'SW1',** and in Arduino, we also use this code to capture commands coming from the block

(Whether the block sends commands or receives data, the ID Code serves to differentiate it from other blocks)

What types of blocks are there?

There are 2 types of blocks that you can use according to your needs

You can select a **block to send data** (controller block) or you can use a **block to receive data** (monitor block)



Monitor Block

This type of block is designed to receive a data type from a variable and display it

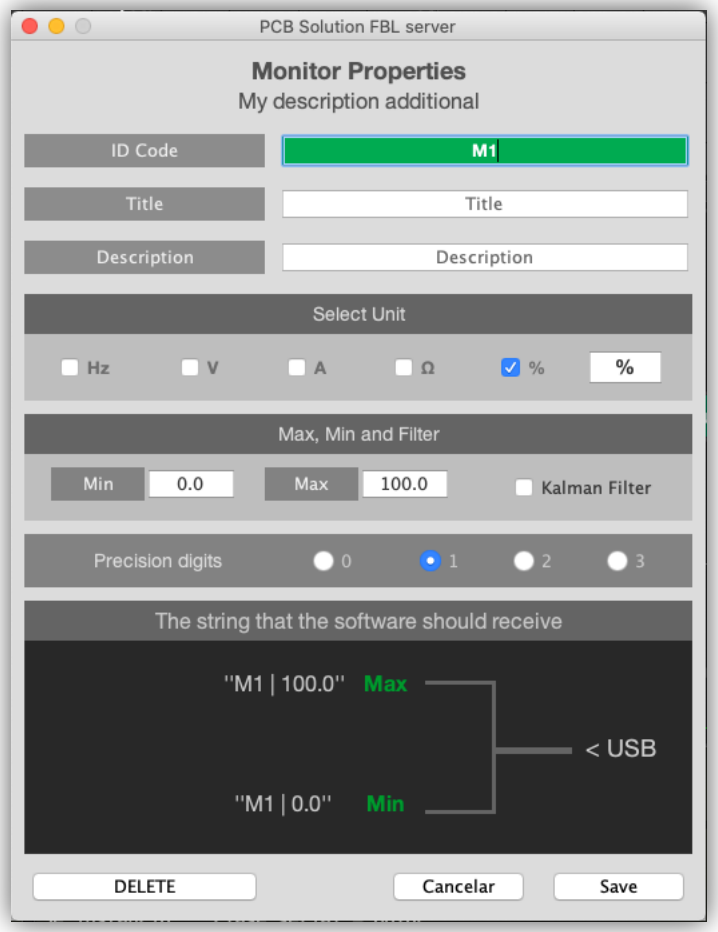
Controller block

This type of block sends commands such as: true, false, or it can also send integers or decimals.

Note: You can use both types of blocks or just one type, depending on your project, your interface, and the complexity of the Arduino code. There are many possibilities.

Properties of a block

All blocks have a configuration button located in the upper right corner



Block Properties

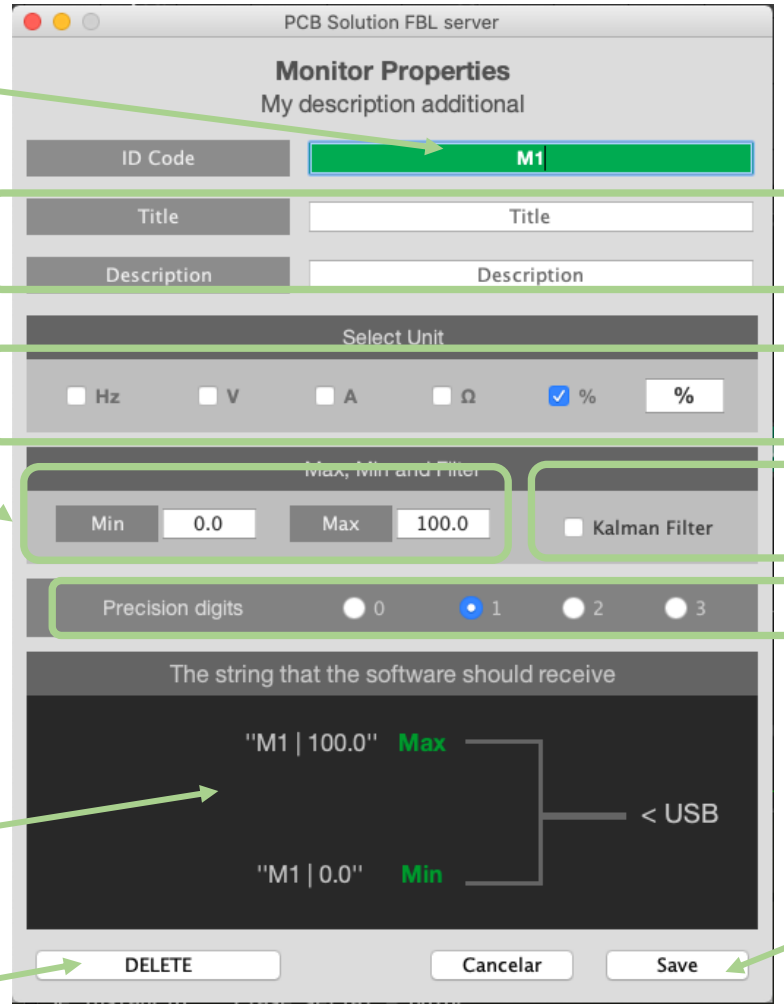
Here you can see more of the properties of this monitor block, which will receive data from Arduino

ID Code
Identifies the block from the others

We configure the minimum and maximum values

Example of how the data will arrive from Arduino to PCB solution FBL server

Delete guide



Block Title and Description

Assign unit: voltage, current, or enter it manually in the field

By activating this filter, the data is displayed with less noise, optionally

Set precision digits, meaning if you want one decimal 1.5, or more digits like 1.50, maybe even more like 1.500

Save changes

You can now create your own control interface

Drag the blocks you need for your project, you can create many interfaces for your applications

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