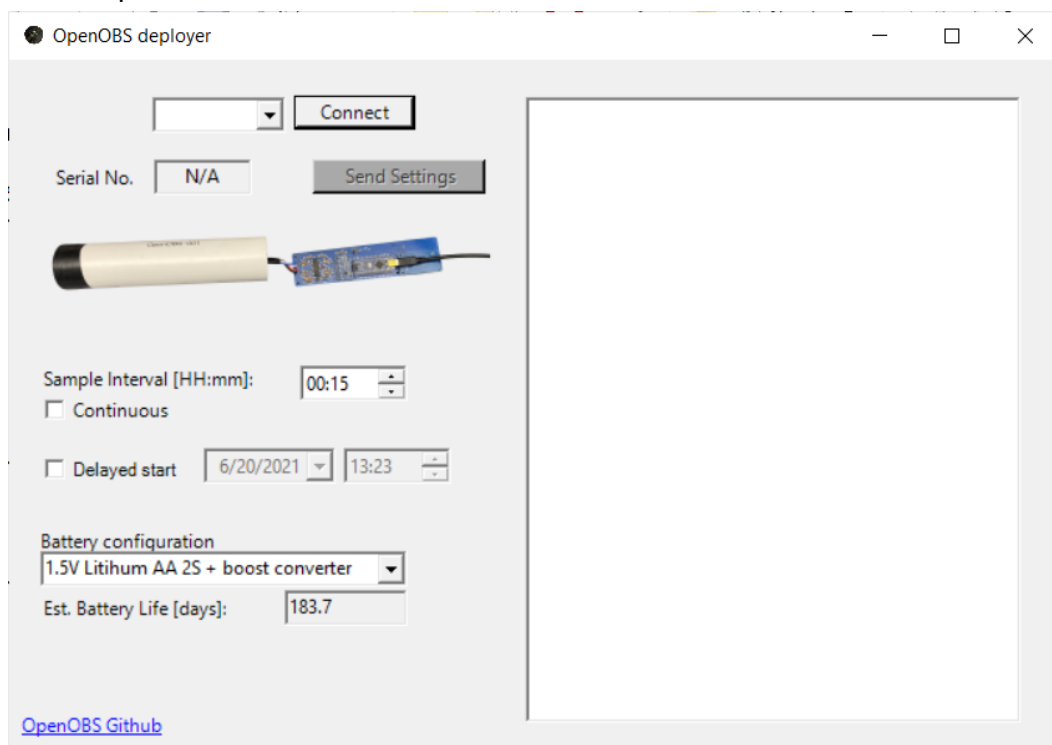


# OpenOBS Deploy Guide

This guide will take you through the setup, programming, and installing of an OpenOBS sensor. You will need a Windows computer, a mini-usb cable, an OpenOBS, two AA batteries and a CR2032 coin battery (per sensor). The setup only needs to be done once per computer and I recommend doing this with an internet connection for downloading files and troubleshooting issues.

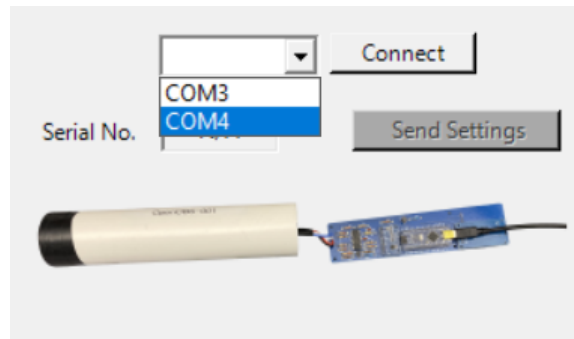
## 1. Setup

- 1.1. All of the latest OpenOBS project files and documentation are available on the [project github](https://github.com/tedlanghorst/OpenOBS) (github.com/tedlanghorst/OpenOBS), and are included on a USB thumb drive. Download the github repository and then navigate to the [OpenOBS/OpenOBS\\_deployGUI/bin](#) folder and try to run the executable .exe application. The program will only run on a Windows computer with the **.NET 5 Desktop Runtime**. If you don't have the correct runtime, an error will pop up and direct you to the download page (the .NET runtime is also included on the USB drive). The GUI should look like this on startup:

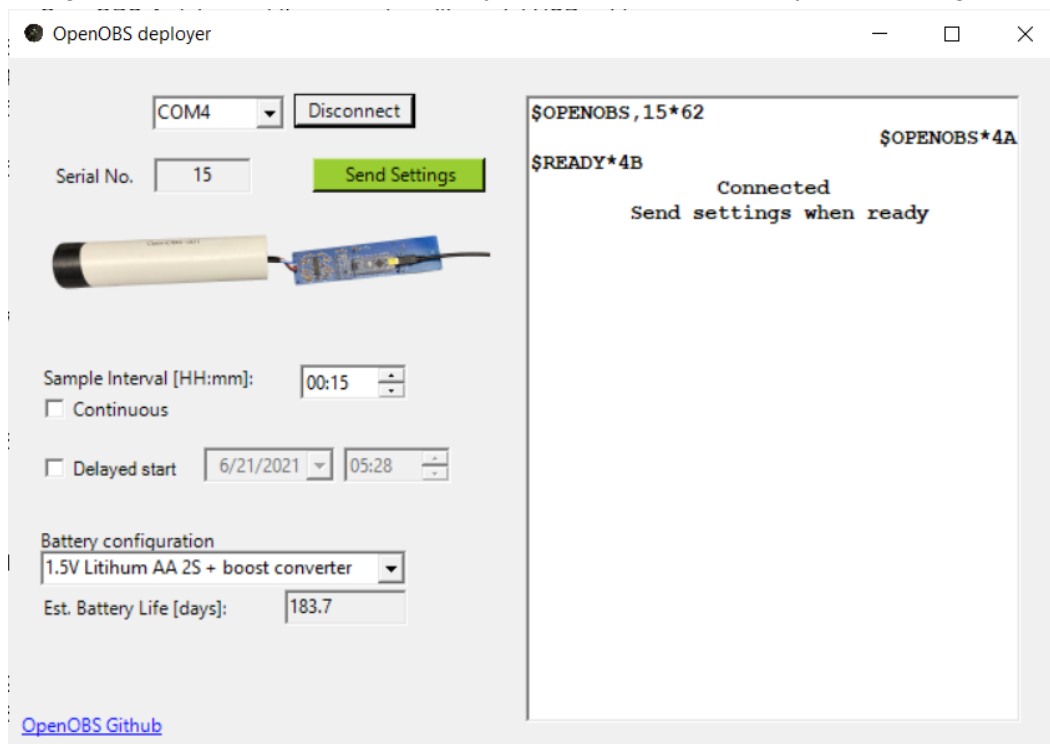


- 1.2. Open the OpenOBS, slide the circuit board out of the PVC housing, and connect the OpenOBS Arduino and the computer with a mini USB cable.
- 1.3. Click the dropdown menu at the top of the deploy GUI and select the COM port that corresponds to the OpenOBS. You can identify the right port by trial and error (press the connect button and wait a few seconds), or by noting the available COM ports, disconnecting the OpenOBS, opening the dropdown again to refresh the list, and

checking which COM port has disappeared. If you can't find the OpenOBS COM port, you likely need to download and install the CH340 [USB-Serial driver](#) on your computer.



- 1.4. After connecting to an OpenOBS, the sensor will go through a startup and self checkout before letting you program it. Any errors and possible solutions will be displayed on the right side of the GUI. If there are no errors, the “Send Settings” button will be enabled and turn green while the sensor waits for you to choose the deployment settings.



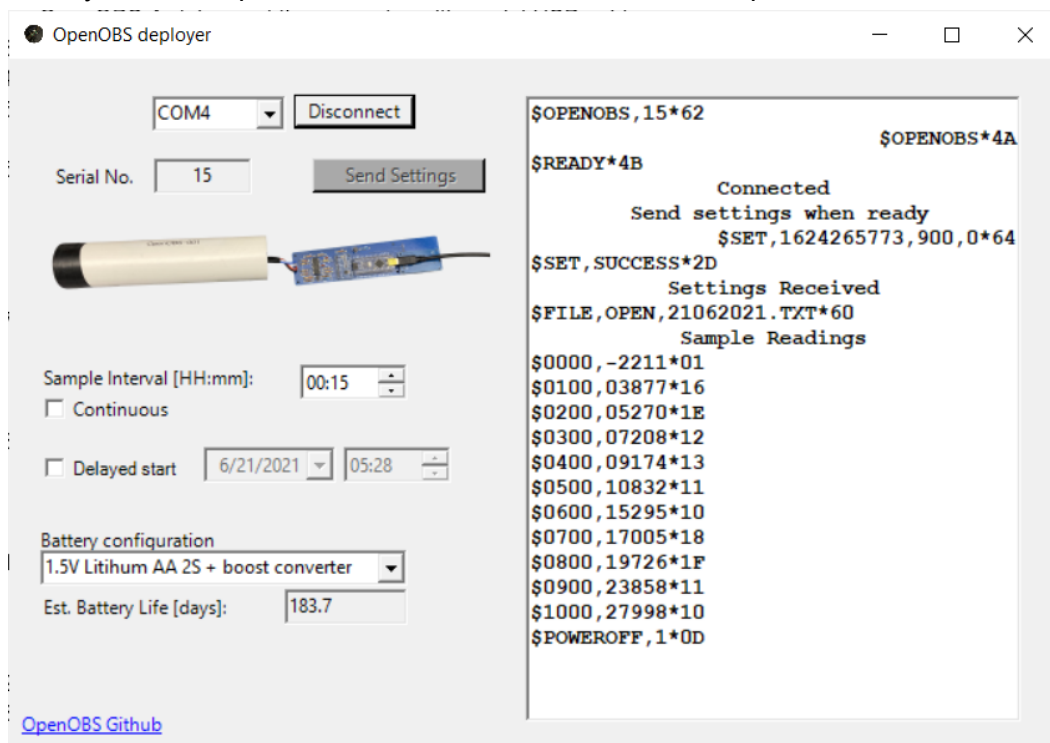
- 1.5. At this point you have successfully set up the deployment GUI. If you use the same USB port in the future, the COM port should be the same every time you connect an OpenOBS.

## 2. Programming

- 2.1. Open the OpenOBS and slide the circuit board out of the PVC housing. Install 2 AA batteries in the battery pack and make sure a 2032 coin cell battery is installed positive

side up in the clip on the back side of the sensor. The AA batteries are a tight fit and occasionally get stuck out of position so make sure each battery is pushed up against the non-spring contact otherwise the sensor will never log. **Communicating with the sensor over USB is not indication that the batteries are correctly installed because the USB cable provides power while connected.**

- 2.2. Connect the OpenOBS Arduino and the computer with a mini USB cable.
- 2.3. Open the deployment GUI program.
- 2.4. Select the correct COM port and click “Connect”.
- 2.5. If there are no errors on startup, the “Send Settings” button will be enabled and turn green while the sensor waits for you to choose the deployment settings.
- 2.6. Select the correct sample interval and click “Send Settings”. The delayed start is not yet implemented on the sensor and any input will be ignored. In addition to setting the measurement interval, sending the settings to the OpenOBS synchronizes the clock with your computer. Make sure your laptop time is accurate and set to your time zone of choice, as only there are no time zones recorded on the OpenOBS.
- 2.7. The OpenOBS will start printing samples after receiving the settings. Each OpenOBS has been calibrated in the lab but to quickly verify the sensor is still working as expected, move your hand up to the sensor face and watch the sample values increase.

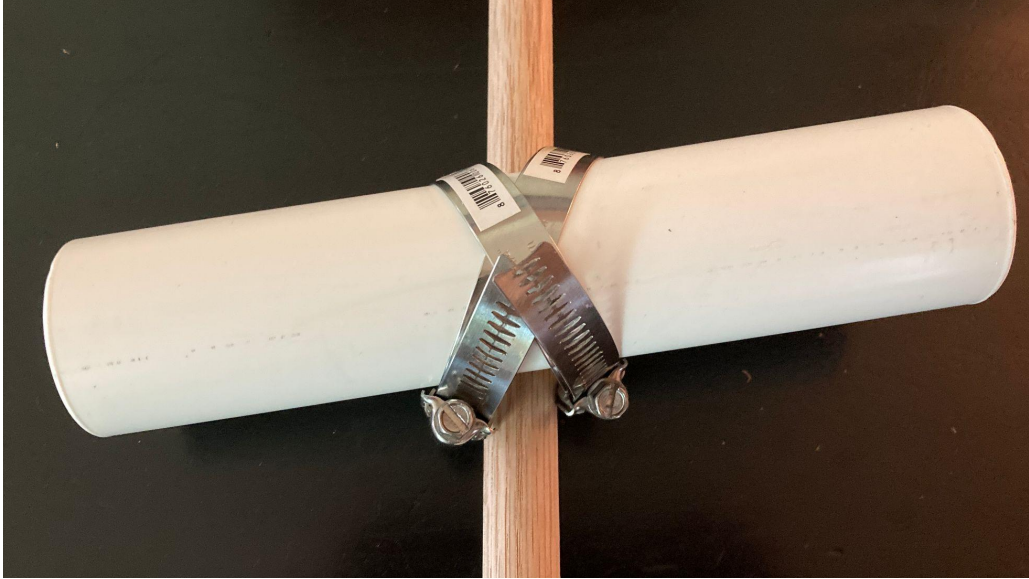


- 2.8. If you want to change anything or test the sensor again, click the 'disconnect' button and go back to Step 2.4. If you're happy with the settings, remove the USB cable, slide the

circuit board back into the PVC housing and insert the yellow compression plug in the open end.

### **3. Installing**

- 3.1.** The sensor should be deployed >20 cm below the water surface to avoid daylight contamination and >20 cm above the bed to avoid bottom reflections. Installing at low river stage or low tide will be safer and ensure the sensor is low enough for good measurements through the deployment. Sensors should be deployed facing in the same direction, perpendicular to the flow - facing towards the deeper part of the channel.
- 3.2.** Make sure the yellow compression plug is tight to keep the OpenOBS dry.
- 3.3.** Hammer rebar or t-post into the bed and hose clamp and/or zip tie the sensor to the post. Orient the sensor perpendicular to the post to avoid bed reflections and bubbles sitting on the sensor face. The deployment below is in the coastal surf zone which allows relatively easy installation at low tide.



**3.4.** Take notes before leaving the site:

Serial number

Install date/time

- |   |  |
|---|--|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Deployment settings (msmt. interval)             |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Depth below surface and height above bed         |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Photo or sketch of the site                      |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | GPS coordinates of the site                      |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Water sample bottle number                       |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Turbidity measurement if you have another sensor |