How to update MODBUS RTU sensor and configure parameters using MBRTU-Update software

Teracom's Modbus RTU sensors can be updated using two methods. The first is by utilizing the built-in functionality of controllers that support Modbus RTU interface, such as TCG242, TCG260, TCG210, TCG140, TCG140-4, and more. Alternatively, the sensors can be updated using the MBRTU-Update software. We have previously described the process of updating sensors with Teracom controllers in this post – this document, we will demonstrate how to update sensors using the MBRTU-Update software.
We kindly ask you to read this article carefully from start to finish, as each sentence is significant.
To ensure that the sensor update process goes smoothly and successfully, there are five essential elements that you need to have:

- MBRTU-Update program
  The MBRTU-Update program is a specialized tool created by Teracom for updating their sensors. To begin, download the latest version of the software from www.teracomsystems.com and extract all files to the same folder.

- A suitable USB-to-485 or 232-to-485 converter with a driver installed.
  It's essential to have a suitable USB-to-RS485 or RS232-to-RS485 converter. Please note that not every converter is compatible, and for a guaranteed successful update, we recommend using TUB2104 (Teracom USB to UART Bridge converter). To connect the converter and the updated sensor, we advise using three wires - RS485+, RS485-, and Ground and ensuring short lines and a line terminator at the sensor.

- The sensor that requires updating.
  Please note that the sensor to be updated must be in bootload mode and alone on the RS485 line.

- An appropriate power supply for the sensor.
  TUB2104 (Teracom USB to UART Bridge converter) passes through the power of the USB port. For most Teracom MB RTU sensors, this is sufficient, and no external power supply is required.

- The current firmware version of the sensor.

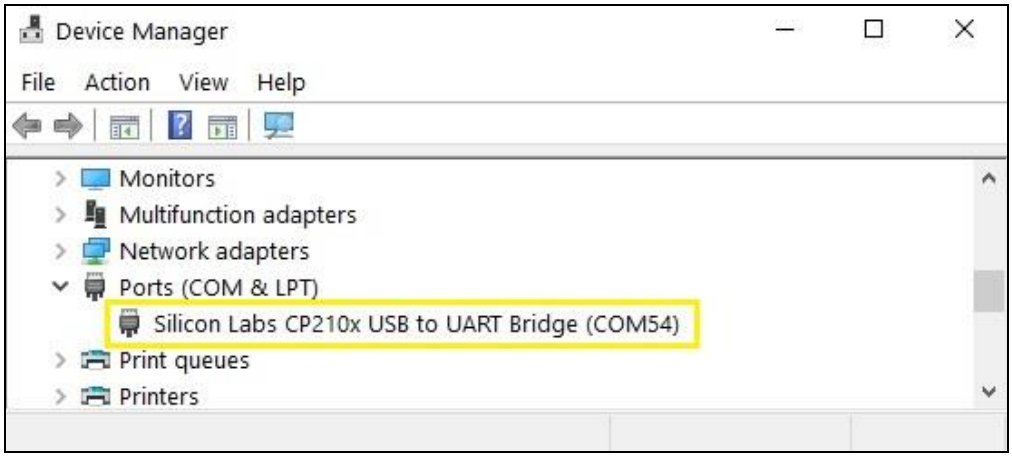
1. Firmware update

1.1. Install the converter driver

For the Teracom USB to UART Bridge TUB2104 by Teracom, this is done as follows:

- Download CP210x_Universal_Windows_Driver and save it to your computer.
- Plug the Teracom USB to UART Bridge into the USB port.
- Open Device Manager
- Find the Teracom USB to UART Bridge TUB2104 in the Other Devices section.
- Right-click on it and select Update driver.

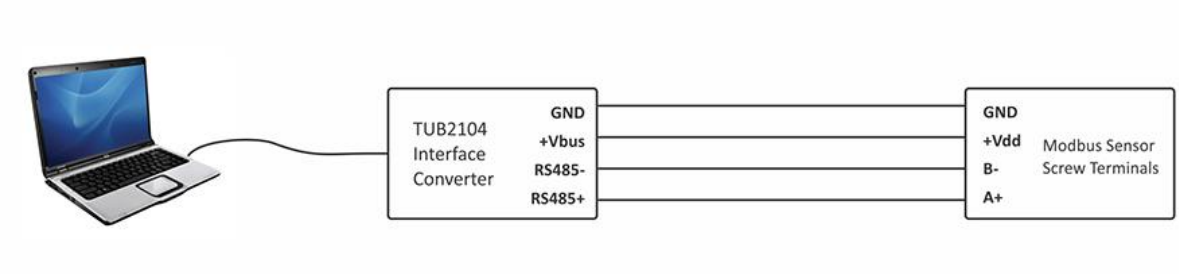
- Point to the CP210x_Universal_Windows_Driver folder.
- Wait for the diver to install.
- You will find the device in the Ports section:



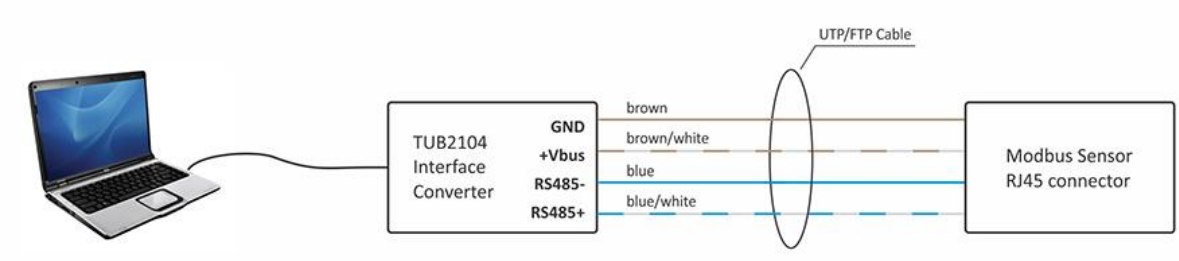
The COM port number (COM54) may be different. Third-party converters should be installed in a similar manner.

1.2. Connections

Connect the RS485+, RS485-, and Ground lines between the converter and the device. Make sure there is only one device on the RS485 line. Depending on the type of sensor connectors, the following connection schemes are possible:

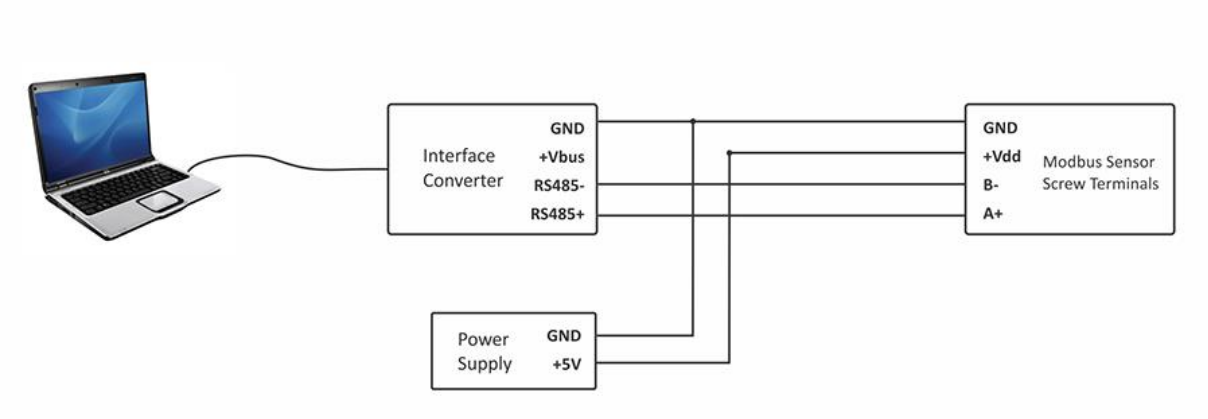


TUB2104 + Modbus Sensor with screw terminals

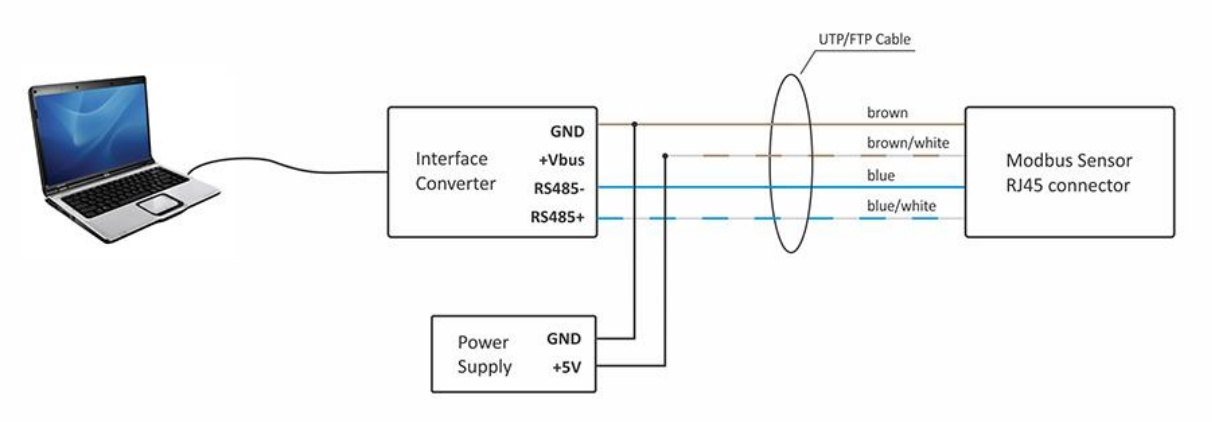


TUB2104 + Modbus Sensor with RJ45 connector

If you cannot power the sensor from the interface converter you are using, please use an external power supply by connecting it as follows:



Modbus Sensor with screw terminals and external power supply



Modbus Sensor with RJ45 connector and external power supply

1.3. Sensor in Bootload mode

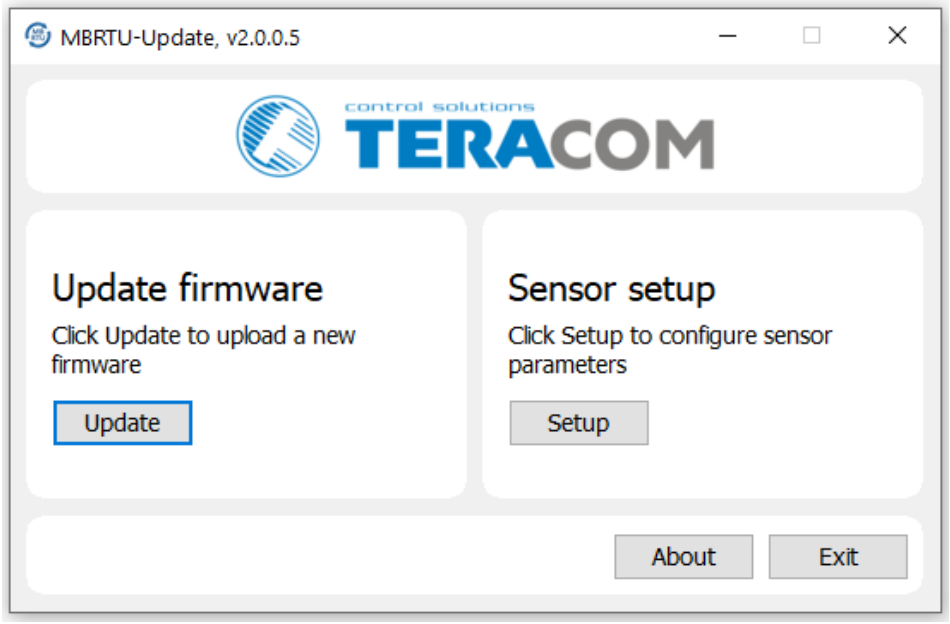
Use an appropriate power supply according to each sensor's documentation and put the sensor into Bootload mode.

All Teracom sensors are put into Bootload mode in the same way, but just in case, read this section in the documentation of the specific sensor:

- Press and hold the config button while powering on the sensor.
- The LED will light up and stay on.
- In the following 3 seconds, release the button and press it three times in quick succession.
- The LED will flash once and then stay lit, indicating that the sensor has entered Bootload mode.
- The sensor will remain in this mode until the next power off, and is ready to be updated.

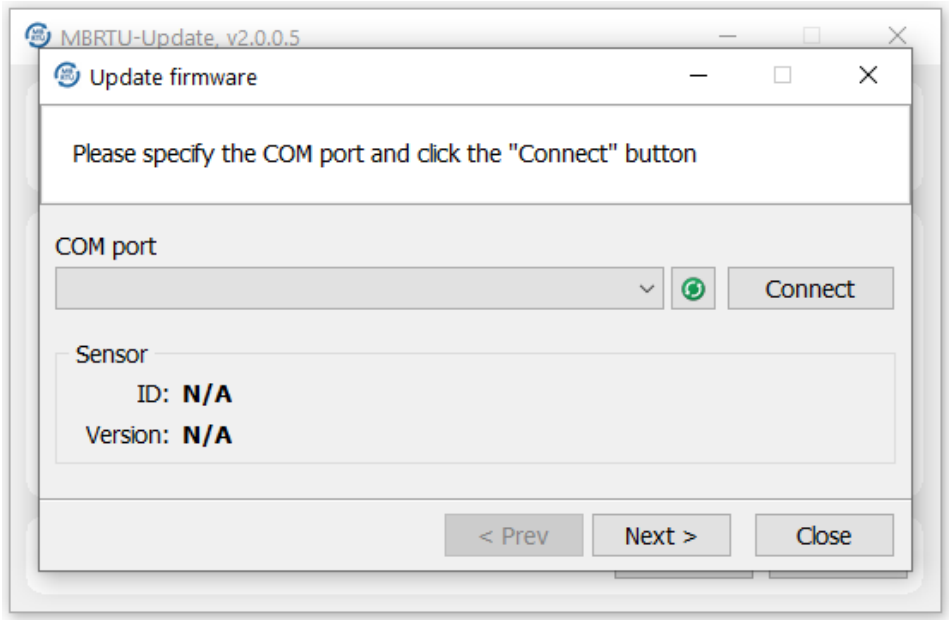
1.4. Run the MBRTU-Update program

The following window will appear. Click on the Update button.

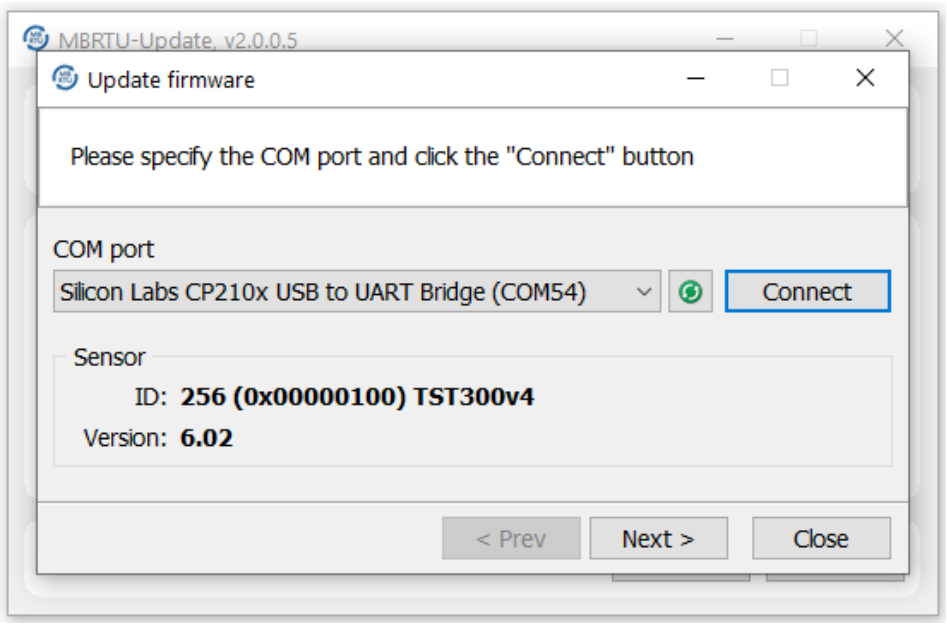


1.4.1. Selecting a COM port

Select the appropriate COM port and press Connect.



1.4.2. Establishing connection with a sensor

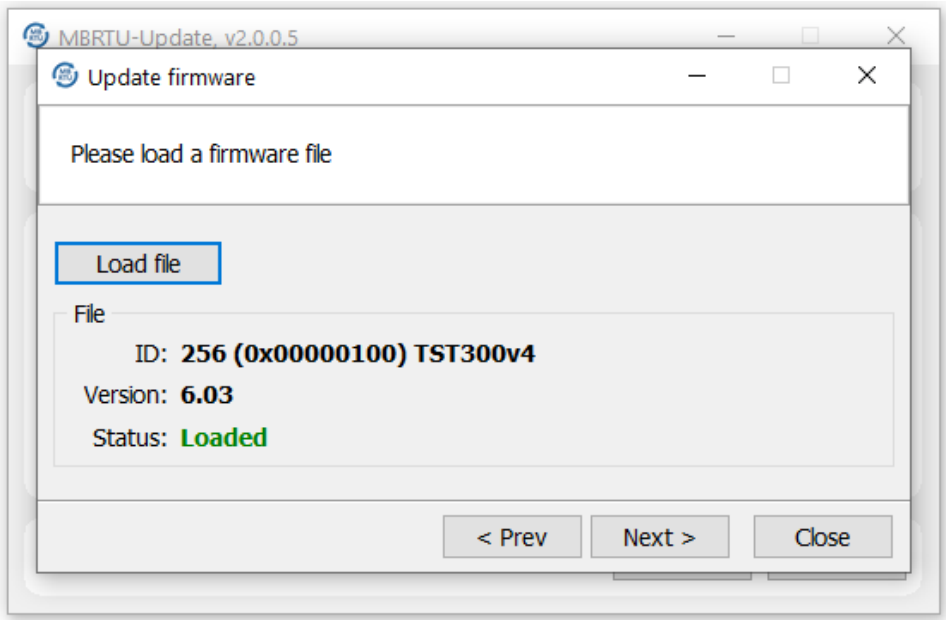


1.4.3. Loading a firmware file

Press Next and select the file which you want to update the sensor.

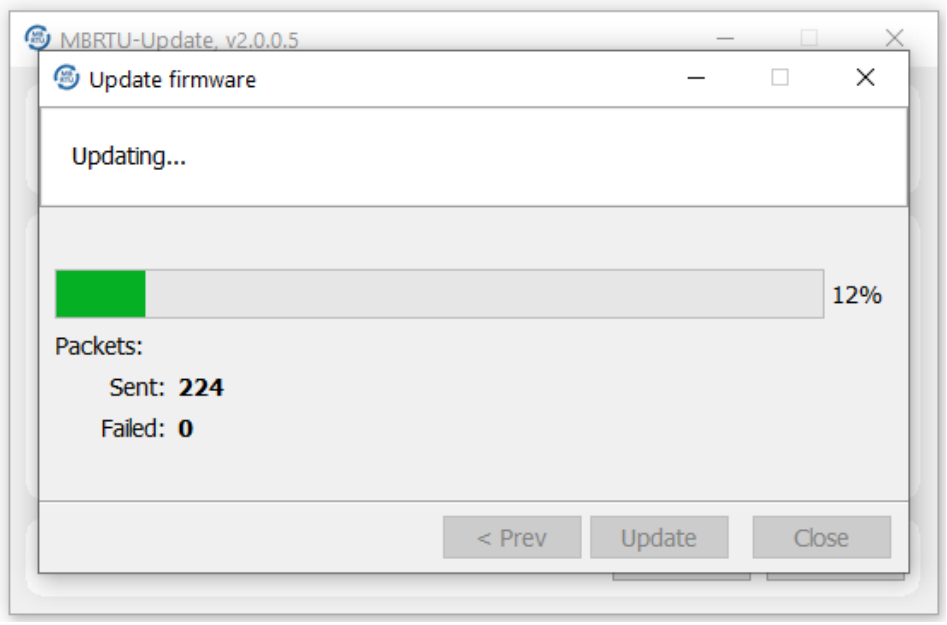
The file can be downloaded from here: https://www.teracomsystems.com/sensors/.

If the file is correct you will see the following message according to the sensor type.



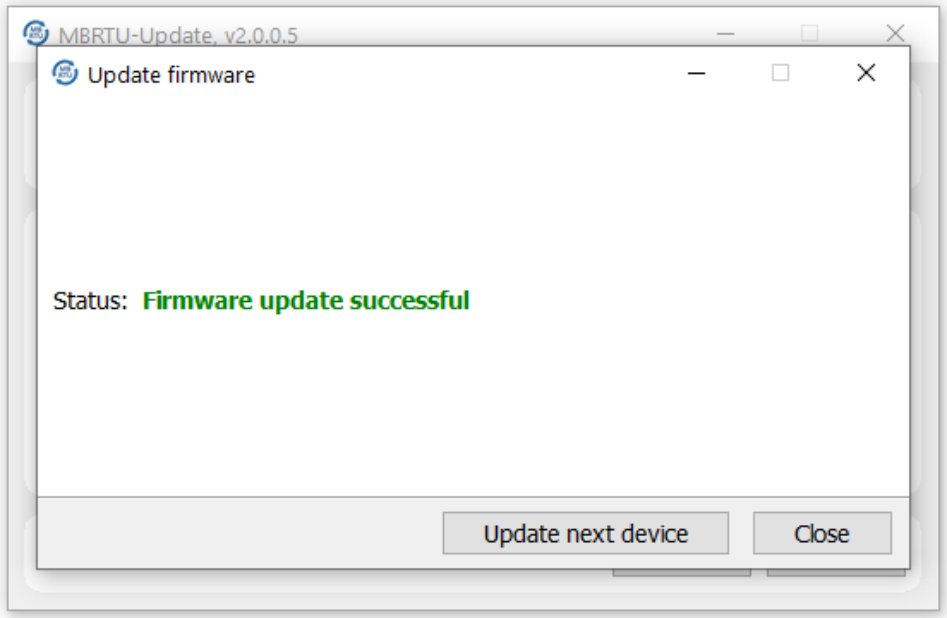
1.4.4. Updating firmware

Press next, then Update and wait for the process to complete.



1.4.5. End of update

If the update is successful, the indication is as follows:

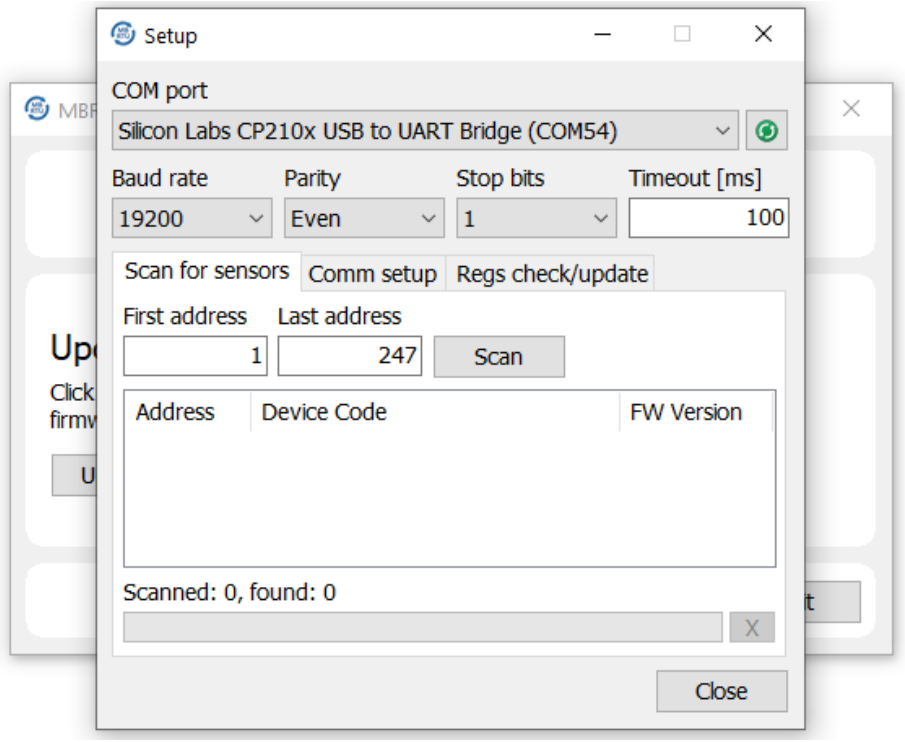


In case of an unsuccessful update, just repeat the process starting from point 1.4.1.

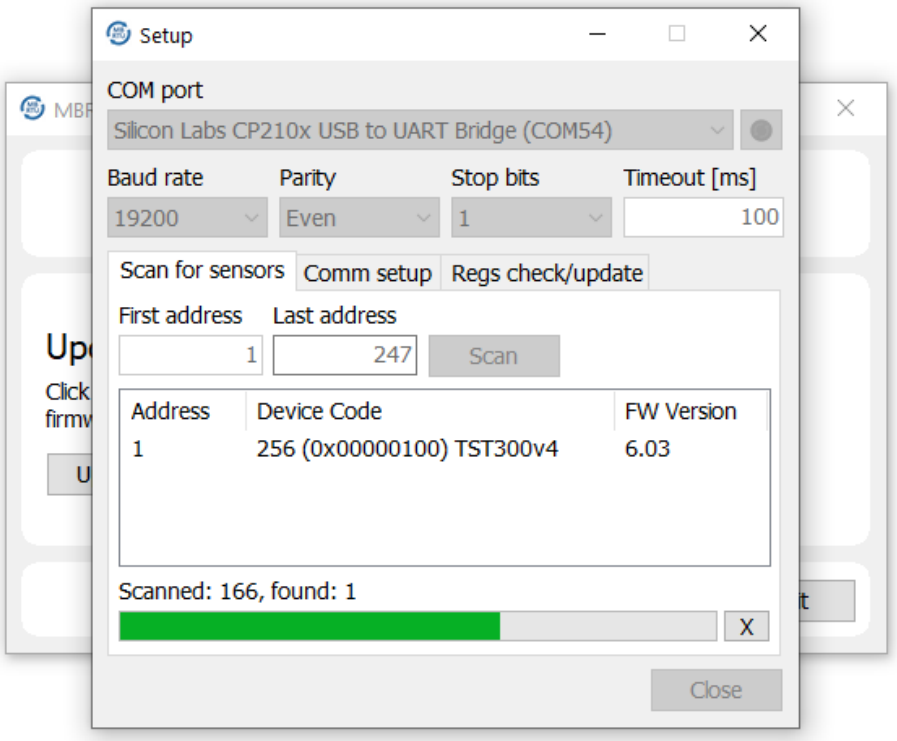
2. Setup to configure sensors parameters

2.1. Selecting a COM port

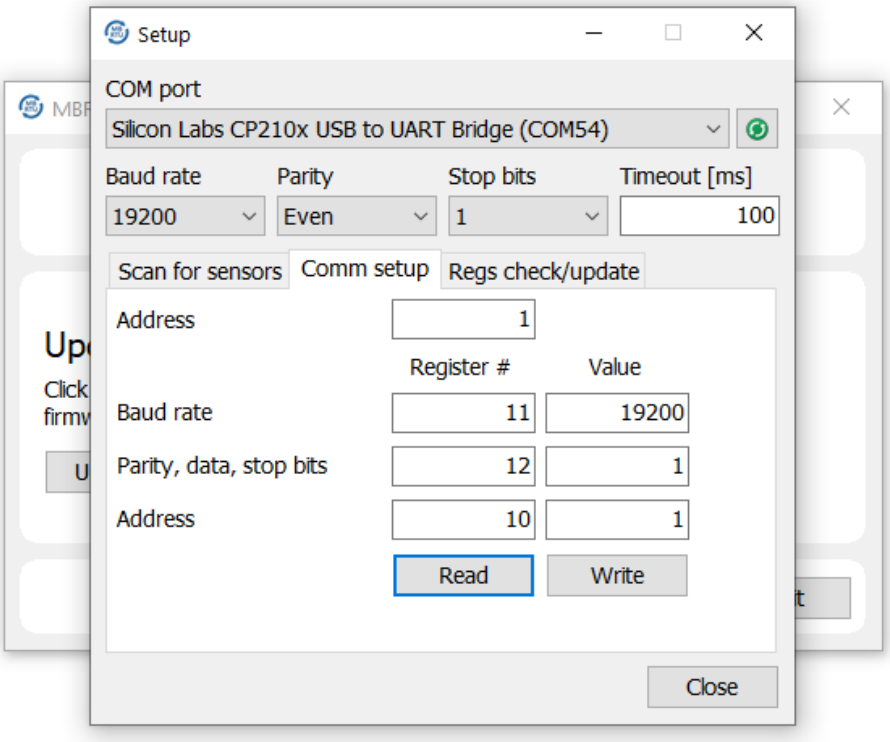
Click on the Setup button and select the appropriate COM port



2.2. Scanning for sensors



2.3. Communication setup



2.4. Perform register read and write

