MTX-StarWater

App Software User Manual - Pulses

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1. Introduction

This guide aims to explain the StarWater App utility.

StarWater App is an application developed for Windows that contains a simple and friendly graphical interface: it allows reading and writing configuration parameters of the MTX-StarWater family devices.

2. Material Needed

- Tool "MTX-StarDebug cable" (code: 000199810001).

  This cable connects to the **DEBUG** connector of the MTX-StarWater through the provided external converter.

- 2.54mm pitch jumper (included inside the MTX-StarWater)

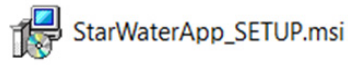 The jumper is connected to the **JUMPER BOOT** to be able to start the equipment in BOOT mode.

- Magnet to wake up the team.

  If a magnet is not available, the **SW1** button is accessible right next to the Reed magnetic sensor.
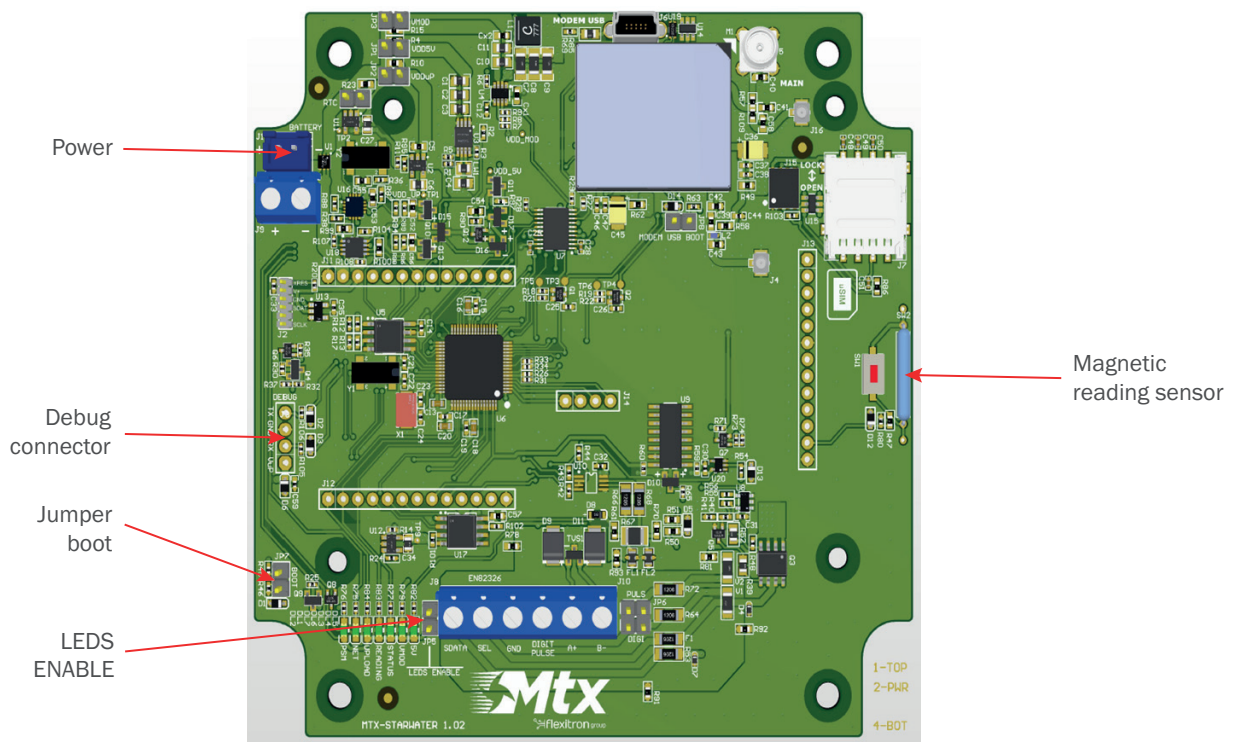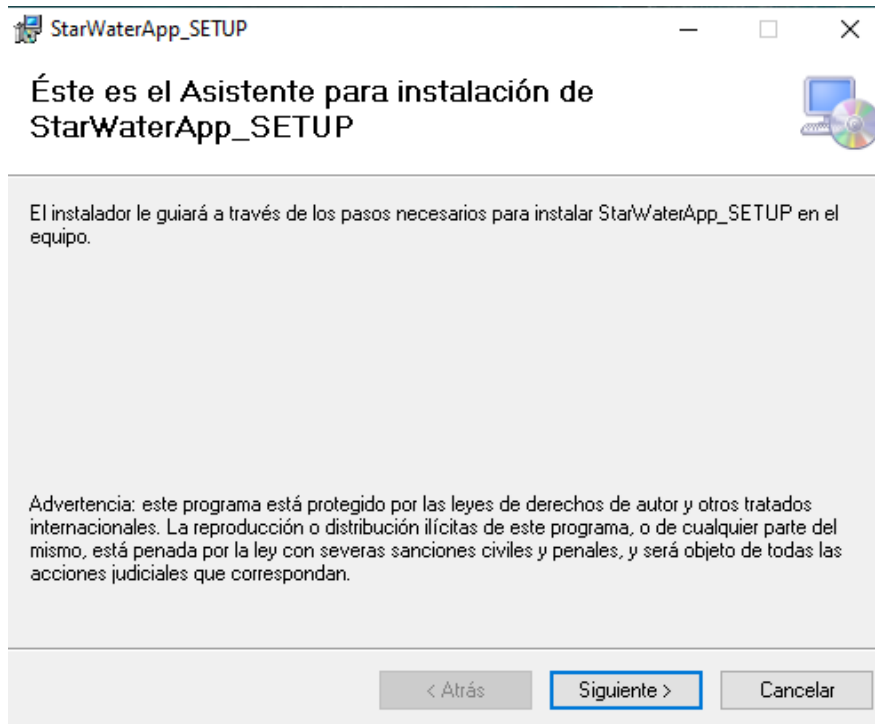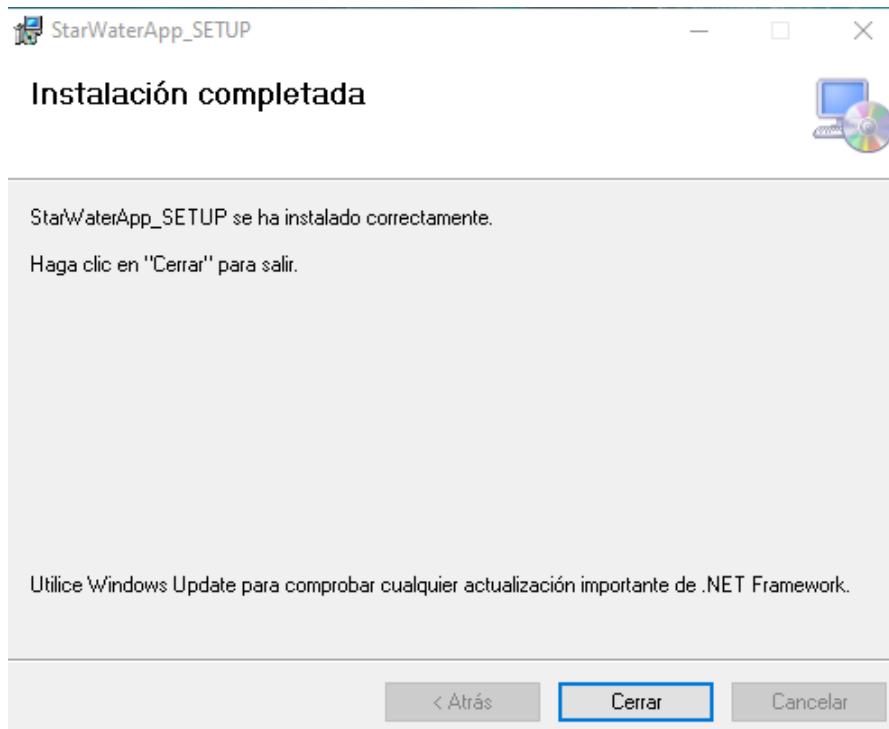
3. Installation

Run the following file to start the installation process on a Windows computer. This file is about 700 KB in size.

 StarWaterApp_SETUP.msi

A window will be displayed to guide you through the entire installation process.

Next, select the directory where you want to install. It is recommended to do the installation in C:/ to avoid permission problems when generating templates.
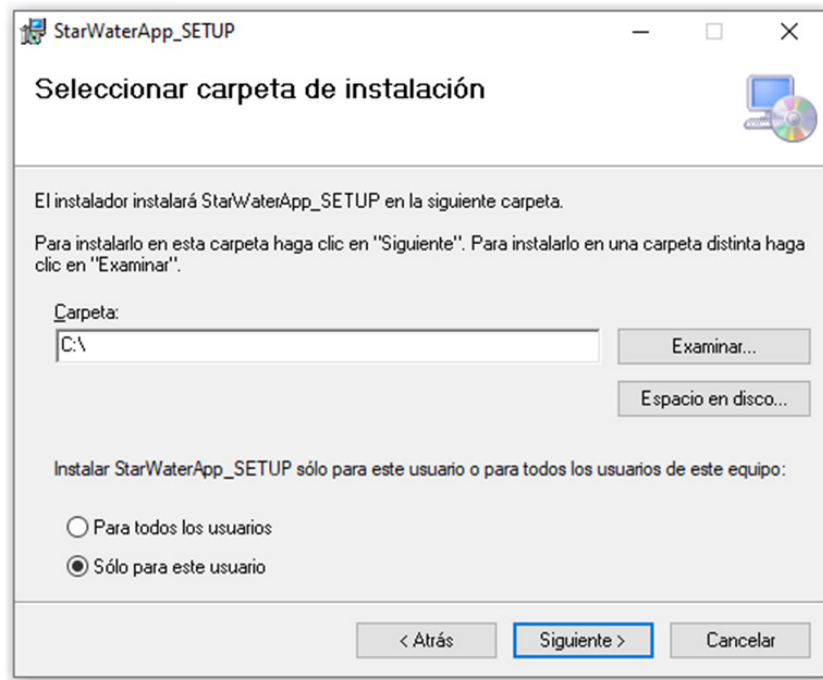
When the installation has been successfully completed, a desktop shortcut is created. Run the shortcut to start the StarWaterApp application.

Shortcut to StarWaterApp


4. Short User Manual

Open the enclosure of the MTX-StarWater equipment and connect the JUMPER BOOT.

Then connect the MTX-StarDebug cable to the PC serial port, and the DEBUG connector.

Select COM serial port. Open it: by default, the speed is always 115200 Baud.

IMPORTANT: with the **JUMPER BOOT** inserted, now disconnect the battery cable, and reconnect it. You only need to do it the first time. Press the SW1 button (or activate the magnet) to turn the equipment on again. In this way, we always make sure to start the MTX-StarWater in DEBUG mode.

On the console, we will see that the MTX-StarWater has started in BOOT mode when we see this message:
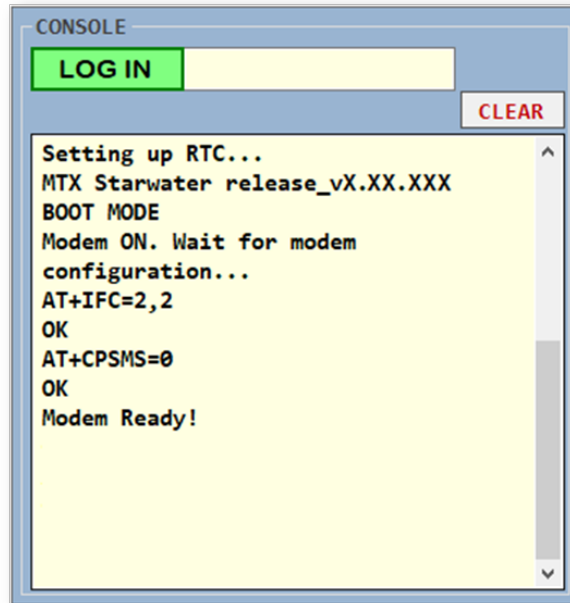
The next step is to enter the User **LOGIN** (by default: 0000): it must return OK as an answer; then, the application will automatically read all the internal data of the MTX-StarWater, and it will show it through the graphic interface.
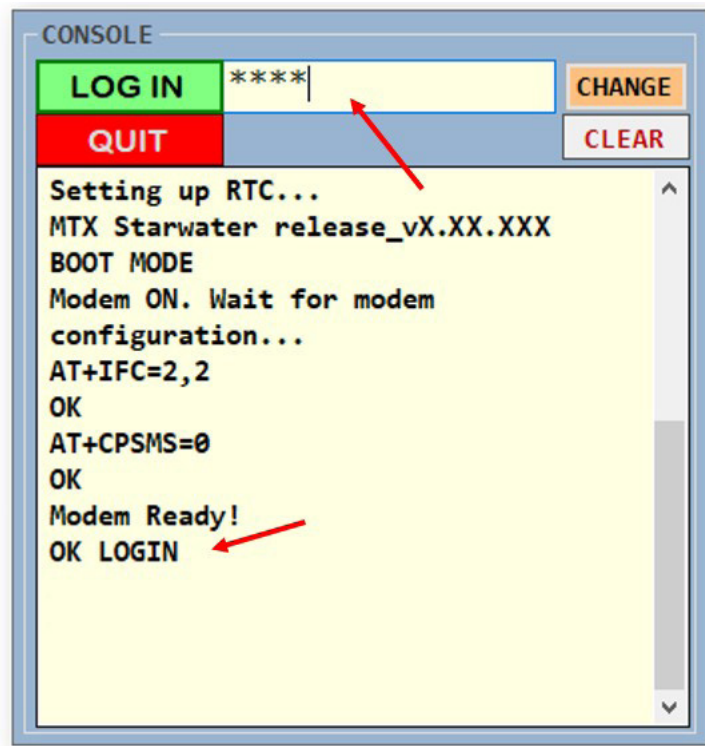
The **LOGIN** is a parameter that is defined and recorded during the manufacturing of the MTX-StarWater. It can be defined according to each project, please consult it with our commercial team.

The Application consists of two windows: "MAIN" and "WINDOWS".
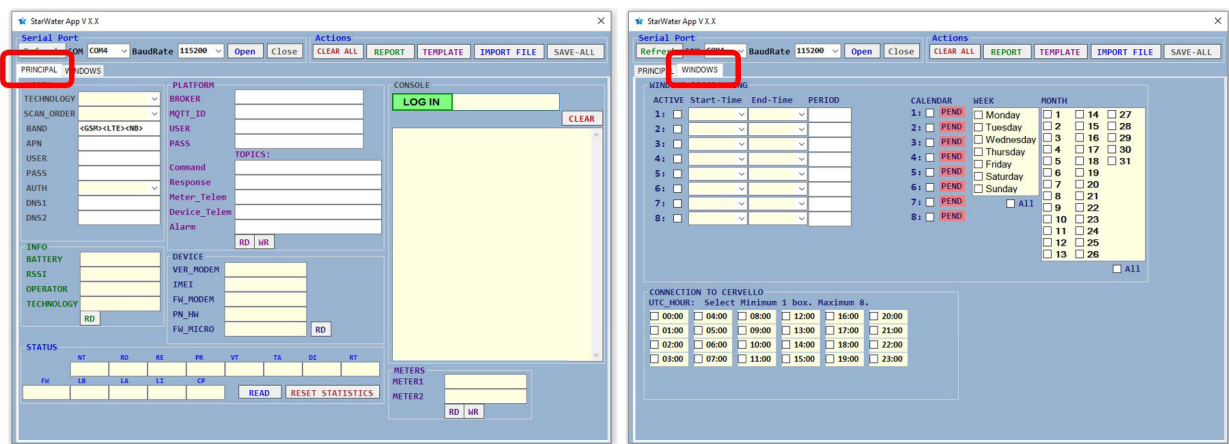
4.1 Main Window

In the MAIN window we can read and/or write configuration parameters of the MODEM and the Cervello Stem network, as well as check the features of the MTX-StarWater unit.

4.1.1 Modem

TECHNOLOGY: connection technology.

SCAN_ORDER: order of priority, connection by technology.

From left to right, from highest to lowest priority.

SCAN_ORDER	
NB->LTE-M->GSM	
NB->GSM->LTE-M	
LTE-M->NB->GSM	
LTE-M->GSM->NB	
GSM->LTE-M->NB	
GSM->NB->LTE-M	

BAND: radio frequency bands in GSM, LTE and NB (NBIoT) technologies.

BAND	<GSM><LTE><NB>

By double clicking with the mouse on the text box, a help menu will be displayed with some examples on how to edit this text field.

Info about BAND ✕

Format must be <GSM><LTE><NB>

Example #1: <0><B18,B20><all>
Example #2: <900,1900><all><B1,B2,B3,B4>
where:
'0' means do not change current bands.
'all' means that all bands will be selected.

BG96 Bands:
+ GSM: <900,1800,850,1900>
+ LTE:
<B1,B2,B3,B4,B5,B8,B12,B13,B18,B19,B20,B26,B28,B39>
+ NB:
<B1,B2,B3,B4,B5,B8,B12,B13,B18,B19,B20,B26,B28>

BG95 Bands:
+ GSM: <900,1800,850,1900>
+ LTE:
<B1,B2,B3,B4,B5,B8,B12,B13,B18,B19,B20,B25,
B26,B27,B28,B66,B85>
+ NB:
<B1,B2,B3,B4,B5,B8,B12,B13,B18,B19,B20,B25,
B28,B66,B71,B85>

Aceptar

By pressing the read button (RD) we can see the configured parameters of the MODEM, which come by default from the factory.

We can edit any of these parameters in the text box or selection tab, and by pressing the write button (WR) we can load the new configuration of the parameters (APN, USER, PASSWORD, DNS1, DNS2). Some of these factory default parameters are blank.

(APN, USER, PASSWORD, DNS1, DNS2) are parameters that are defined and recorded during the manufacturing of the MTX-StarWater. It can be defined according to each project, please consult it with our sales team.

NOTE: When pressing WR, the TECHNOLOGY, SCAN_ORDER and BAND parameters are saved both in EEPROM memory (configuration values) and in the MODEM itself (immediate effect).

In reading (RD) it will only show us the values that the MODEM has at that moment.

4.1.2 Platform

This subgroup refers to the configuration of the MQTT platform, be it Cervello or any other. Likewise, we can read and write by editing in the text boxes.

4.1.3 Info

This subgroup gives us information about the battery level of the equipment, the RF signal coverage (RSSI), as well as the name of the operator and the connection technology. They are read-only parameters.

4.1.4 Device

This subgroup gives us information about the MTX-StarWater equipment, such as the hardware version of the MODEM, firmware version of the MODEM, firmware version of the microcontroller, IMEI number, Part Number of the equipment, and hardware version.

4.1.5 Staus

This subgroup is used to review the team's statistics with the READ button. A reset can be done using the RESET STATISTICS button to reset all the values to zero (by default, they come from factory to zero). The FW field indicates the firmware version of the microcontroller.

4.1.6 Meters

In this subgroup we can read and write the names of the pulse counters (METER1, METER2).

4.2 Windows

In the WINDOWS tab we will access the window panel. We have two types of windows: hourly windows for meter reading, and hourly windows for sending data to the Cervello Stem IoT platform.

4.2.1 Meter Reading Windows:

In this section we can configure all the parameters corresponding to the windows for reading and sending data from the meters.

On the left, the **ACTIVE column** indicates which windows are activated. We can choose a start time, and an end time, in each of the windows, as well as the sampling period within the selected interval (period in seconds: **minimum 300, maximum 86400**) and the type of frame that we want to use (A, B, C).

The next step is to save the calendars for each of the selected windows in the **CALENDAR column**.

There is only one calendar of week and year available, so we must select them one by one on the CALENDAR column to view the calendar we want and make the modifications. The CALENDAR number corresponds to the window number in the ACTIVE column.

Before moving on to the next calendar, you must save it with the WRITE CALENDAR button so as not to lose the changes made. We have to save the eight calendars **compulsory**.

Finally, by pressing the WRITE WINDOWS button we will record the meter reading windows in the MTX-StarWater, with their corresponding calendars previously preloaded.

4.2.2 Windows for Sending Data to Cervello Stem IoT Platform:

These windows define the hour at which a radio connection is established with Cervello Stem IoT Platform, to exchange all the relevant information between the MTX-StarWater and the Cervello Stem platform. It is allowed to select a minimum one window, and a maximum of eight.

With a mouse click on the checkbox, the box is activated and it is painted green (enabled). With another click, the box is deactivated and it is painted red (disabled).

By pressing the READ CONNECTIONS button we read the current configuration of the MTX-StarWater.

By pressing the WRITE CONNECTIONS button we will save the new configuration in the MTX-StarWater.

NOTE: The WRITE CONNECTIONS method records the configuration of eight exact windows, even if we have marked a lower number (the total number of boxes in green or red). The connection windows are saved in chronological order until a total of eight are completed: those not selected will be completed with the last chronological value marked in the table.

4.3 Files: Import/Report/Template

Once the LOGIN is finished, the application will show a series of buttons in the Actions section that will allow us to extract the data read from an MTX-StarWater, save the configuration or load a previously saved configuration.
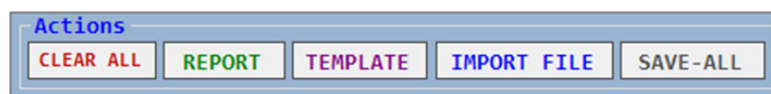
- **REPORT:** exports to a TXT the data and calendars of an MTX that has been previously READ.

- **TEMPLATE:** generates reference template with the file format that will be interpreted by the IMPORT FILE button later.

- **IMPORT FILE:** allows you to load a template previously filled with the desired data.

- **SAVE-ALL:** loads the imported file data into an MTX-StarWater.

There is the possibility of modifying a template using an external text editor and later importing it. Example:

- Login and wait for the MTX-StarWater data to be read.

- Generate a REPORT.

- Generate a TEMPLATE.

- Copy the REPORT data in the TEMPLATE and modify only the ones we want.

- Make an IMPORT FILE of the previously modified template.

- Save the content of the template in the MTX-StarWater that we want (having previously logged in) using SAVE-ALL.

4.4 Controlled Shutdown of the MTX-StarWater

It is very important to turn off the MTX-StarWater correctly, to return it to its normal working mode. To do this, before closing the StarWaterApp application, we must press the QUIT button.

The first step will be to remove the BOOT jumper before continuing with the process.


```
⚠  REMOVE BOOT JUMPER, AND THEN PRESS OK
```
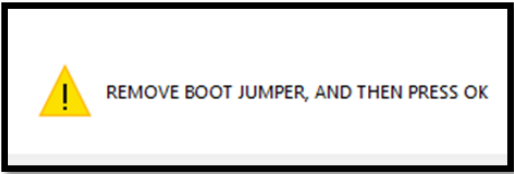
Once the absence of the BOOT jumper has been detected, the MODEM will be turned off.

```
BOOT JUMPER REMOVED! OK
TURNING OFF MODEM...
OK
```
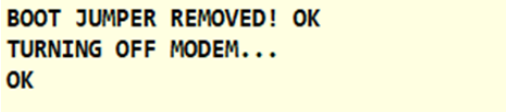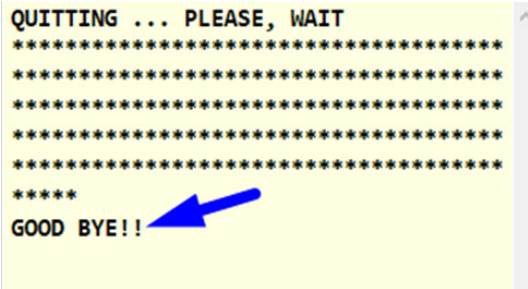
This process can take several seconds.

```
QUITTING ... PLEASE, WAIT
*******************************************
*******************************************
*******************************************
*******************************************
*******************************************
*****
GOOD BYE!!
```

5. Document Revisions

Revision	Date	Description
1.0	05-28-2021	First version of the document.
1.2	06-03-2021	Text corrections. Change screenshot section "Band", "Counter reading windows" and "Pulses". Removal screenshot "Device" section.
1.3	06-24-2021	QUIT button to properly turn off the MTX-StarWater: new section. EXPORT FORM button to save LOG file: new section. Modem BG95-M3 Bands: B31, B72, B73 are eliminated.
1.4	02-10-2022	Updated the screenshots and added the "Actions" section.
1.5	02-16-2022	Added clarification about MQTT in the Platform section.

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