ADDRA Control Tool application

User manual

2023

Contents

Revision History

Version	Date	Author	Description
1.0	27.02.20	Valentin Acbiic	Original document.
1.1	07.02.23	Nadejda Sîrbu	Pct.1, 3.1, 3.2, 3.3 updated.
1.2	30.06.23	Nadejda Sîrbu	Pct. 3.2 updated. Pct. 3.2.5 added.
1.3	25.07.23	Nadejda Sîrbu	Pct. 3.2.6 added.

1 Purpose

The given user manual describes the managing of the ADDRA water meter (hereinafter referred to as meter) and associated flow control valve (valve) using the ADDRA Control Tool mobile application (application).

2 System requirements and Installation

## 2.1 System requirements

System requirements:

1. Mobile device

2. Android mobile operating system v.5.1 and higher

3. Bluetooth Low Energy (BLE)

2.2 Installation

Usually, for security reasons, Android blocks installation of third-party applications on your mobile device. Therefore, before application installation, make sure that third party applications are allowed on your mobile device. For most mobile devices perform the following: go to Menu > Settings > Security > Unknown Sources > allow your mobile device to install applications from sources other than the Google Play. Note that the steps can differ depending on your mobile device. If no such menu is found, then check your mobile device documentation.

To install the application, do the following:

1. Start the file with *.apk* extension.

2. Tap the *Install* button and wait until the application is installed successfully.

3. Start the application by tapping its icon.

4. Allow the application to access the mobile device location, photos, media and files by clicking *Allow* button.

5. The main window of the application will be displayed.
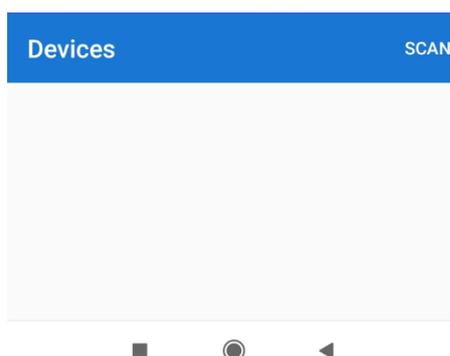
3 Application User Interface

3.1 Devices window

Start the application. The list of devices will be displayed (if any).

To add a meter to application, tap *SCAN* button. The meter that is in the range will appear in the devices list.

It is recommended to tap the SCAN button each time you start working with a new device or begin a new part of the configuration.

NOTE: Make sure that the meter and mobile device are in range of each other with BLE turned on and the meter is not connected to another software.
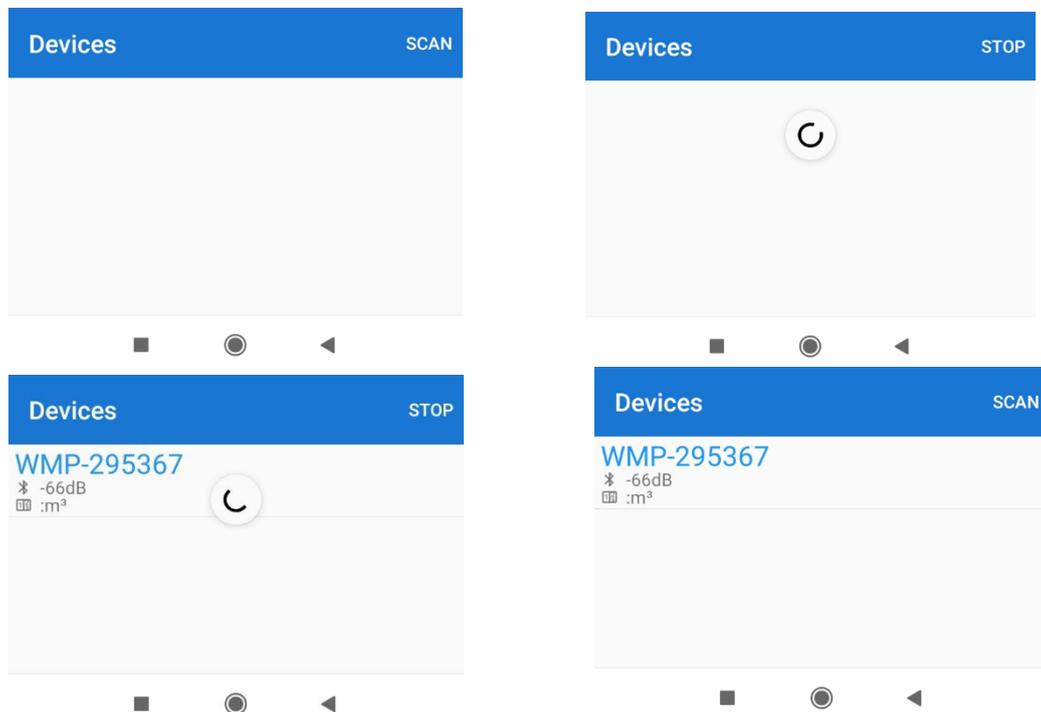
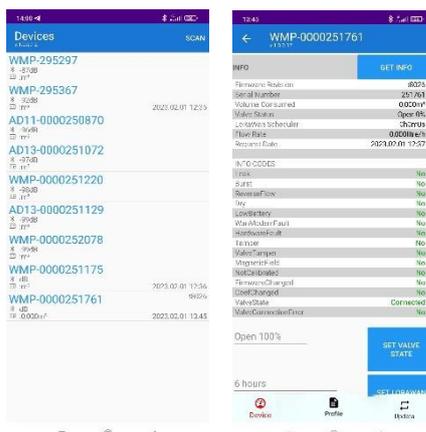To delete the meter, tap it and hold, and then tap *Delete* button.
To improve the functionality, it is recommended to clear the list of devices from the meters that are not being used now.
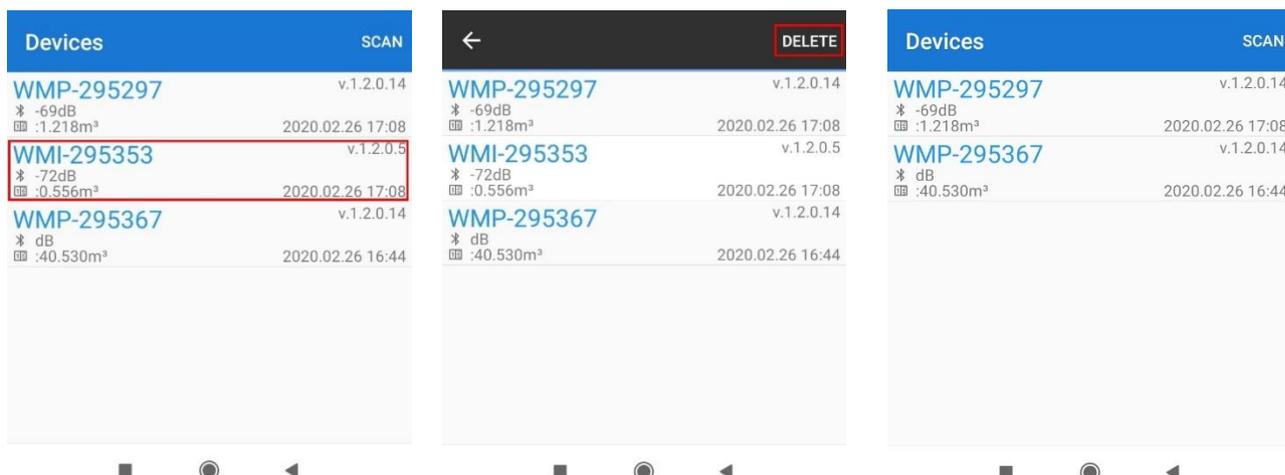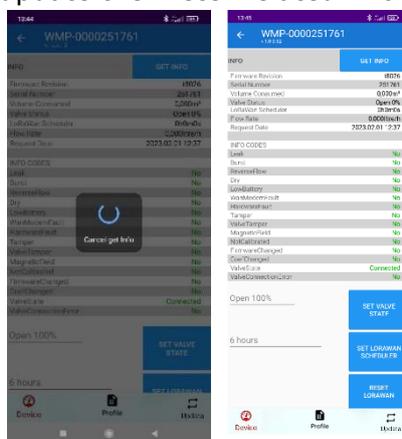
3.2 Device Information

Tap the meter to connect to it. The connection state is displayed.

NOTE: The connection with the meter is not an instant action, it takes time for the meter to be ready.

Tap *GET INFO* button, to see/update the meter related information.


The following information is displayed for the meter:
1) **Firmware Revision** – the meter firmware version e.g. v1234a.

2) **Serial Number** – the meter serial number, e.g. 295367.
3) **Volume Consumed** – the consumed volume of water, in cubic meters with three decimal places, e.g. 40.530 m^3.
4) **Valve Status*** – the valve opening degree, Open, %.
5) **LoRaWan Scheduler** – how often the meter is communicated with application, e.g. 2h0m0s (For first setting up of meter, it is recommended that this parameter to be set as 1 hour, further during exploitation it is recommended to set it – as 6 hours.).
6) **Flow Rate** – the meter flow rate, e.g.0,000litre/h
7) **Request Date** – the date when the displayed information has been requested and received, e.g. 2020.02.26 11:03.

8) **INFO CODES**
   a) **Leak** – the water flows continuously for more than 24 hours configured by COSEM CLIENT, by default isn't activated: Yes/No.
   b) **Burst** –the water flow is constantly high for more than 30 minutes configured by COSEM CLIENT, by default isn't activated: Yes/No.
   c) **ReverseFlow** – the water flows in wrong (reverse) direction: Yes/No. A separate register for water volume flowed in reverse direction is updated.
   d) **Dry** – the meter is not filled with water: Yes/No.
   e) **LowBattery** – the low battery for meter has been detected: Yes/No.
   f) **ClockInvalid –** system time not valid: Yes/No.
   g) **LowTemperature –** low ambient temperature detected: Yes/No.
   h) **WanModemFault** – the meter WAN modem fault has been detected: Yes/No.
   i) **HardwareFault** – the meter hardware error has been detected: Yes/No.
   j) **Tamper** – the meter case has been opened: Yes/No.
   k) **ValveTamper*** – the valve case has been opened: Yes/No.
   l) **MagneticField** – the magnetic field has been detected: Yes/No.
   m) **NotCalibrated** – the meter has not been calibrated: Yes/No.
   n) **FirmwareChanged** – the firmware has been changed: Yes/No.
   o) **CoefChanged** - the calibration coefficient has been changed by COSEM CLIENT at production or service support: Yes/No.
   p) **ValveClosed*** – the valve state is disconnected: Yes/No.
   q) **ValveConnectionError** – connection with valve has been failed: Yes/No.
   r) **ValveMagneticField** – the magnetic field has been detected by valve: Yes/No.
   s) **ManufactureSpecific** – parameters reserved by manufacture: Yes/No.

INFO CODES with * refer to the meters assembled with the valve.

INFO CODE values in green colour are the standard state and cannot be changed, if the colour of the value is red, it means that this value has achieved the critical value and the problem is signalized. Tap the INFO CODE if you want to change it.
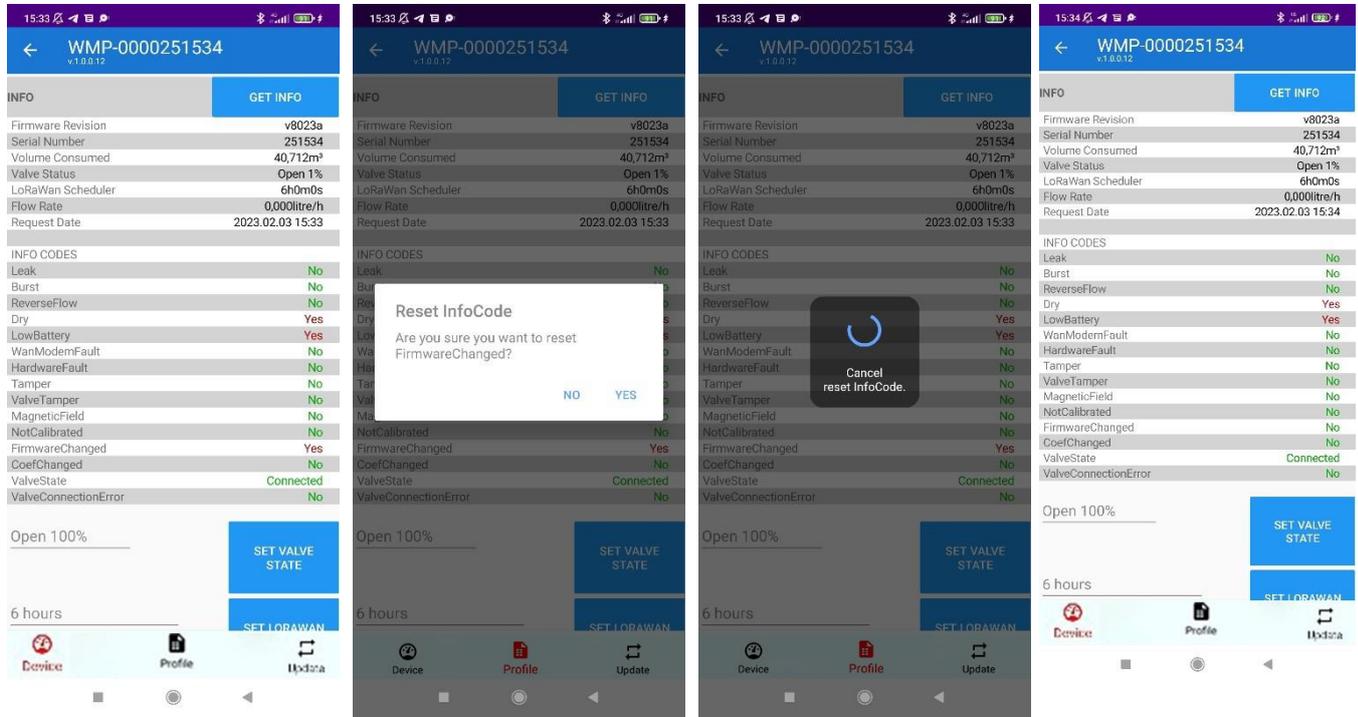
NOTE: The INFO CODE can be changed only if the problem that activated it was solved.

3.2.1 BURST and LEAK

BURST and LEAK INFO CODES initially are not active, these INFO CODES depend on water line pressure, specific water consumption etc.
For BURST/LEAK alarm setting there are three parameters: Threshold (Liters/hour), Duration over Threshold (seconds) (DOT), Duration under Threshold (seconds) (DUT).
Fig.1 is the illustration of the parameters mentioned above.
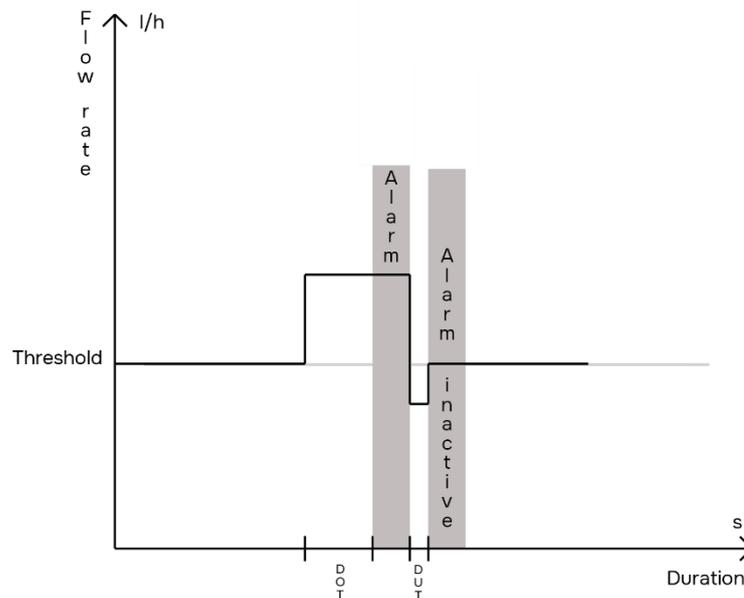
Fig.1 The illustration of the parameters Threshold, DOT, DUT.

For the BURST:
Duration over Threshold (seconds) represents admissible time interval during which actual flowrate could exceed the Threshold value (represents a water flowrate from which water meter stars to follow for alarm, Liters/hour), without any alarm. In this case, we have an "ordinary" water consumption. If we will maintain the flowrate higher than Threshold value during this time interval and will exceed it, the corresponding Burst alarm will appear both with special symbol on the display.
Duration under Threshold (seconds) represents a minimal time interval during which actual flowrate not exceed the Threshold value (mentioned above), while the Burst alarm/state was already generated, but water consumption was normalized. With the other words, if our water flowrates not exceed Threshold value during at least this minimal time interval, then display indication must disappear. It is to note, that the Burst alarm generated previously will not disappear, therefore we must reset it manually.
For the LEAK:
Duration over Threshold (seconds) represents admissible time interval during which actual flowrate could exceed the Threshold value (mentioned above), without any alarm. In this case, we have an "ordinary" water consumption. If we will maintain the flowrate higher than Threshold value during this time interval and will exceed it, the corresponding Leak alarm will appear both with special symbol on the display.
Duration under Threshold (seconds) represents a minimal time interval during which actual flowrate not exceed the Threshold value (mentioned above), while the Leak alarm/state was already generated, but water consumption was normalized. With the other words, if our water flowrates not exceed Threshold value during at least this minimal time interval, then display symbol must disappear. It is to note, that Leak alarm generated previously will not disappear, therefore we must reset it manually.

Usually BURST situations require higher Threshold and lower Duration over/under Threshold in order to avoid dramatic damages, while LEAK situations require lower Threshold and higher Duration over/under Threshold in order to avoid "false" INFO CODE due to water consumption specifics.

3.2.2 SET VALVE STATE

To manage the state of valve, tap the SET VALVE STATE button.

NOTE: The valve can only be managed via the meter.

In order to connect the water meter to the valve, it is necessary to place these two devices as close as possible to each other.

The initial connection of the valve is a secure procedure, which makes the use of another valve impossible.

NOTE: It is not recommended to place connected devices for a distance more than 15 meters.

Tap the button and wait for 40 seconds to finish the valve opening/closing. Make sure that the *Success* status is displayed near to the tapped button and the corresponding state for the *ValveState* INFO CODE.

Also, you can verify meter-valve connection state by the icon ⊙⊙ on the water meter DISPLAY.
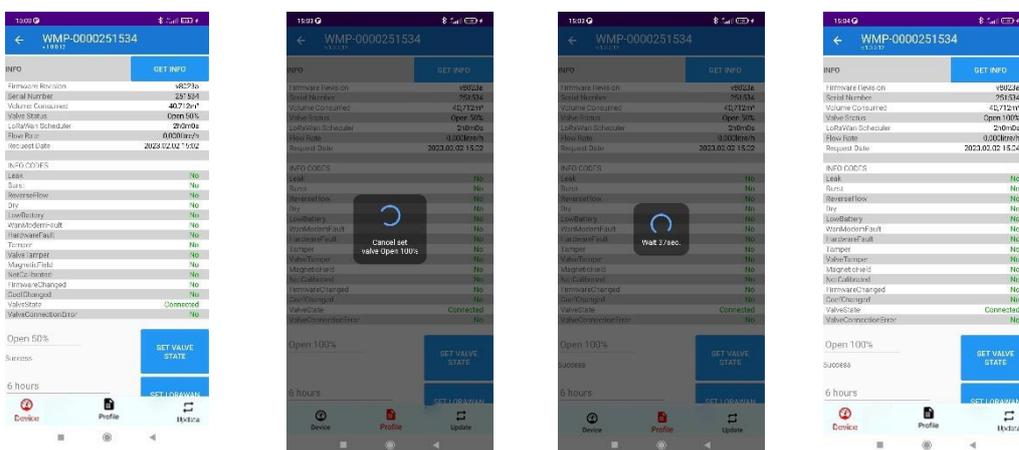
To change Valve Status, tap the value near the SET VALVE STATE button. Choose the required value in the open window, after that tap the SET VALVE STATE button and tap GET INFO button for actualization of Valve Status.
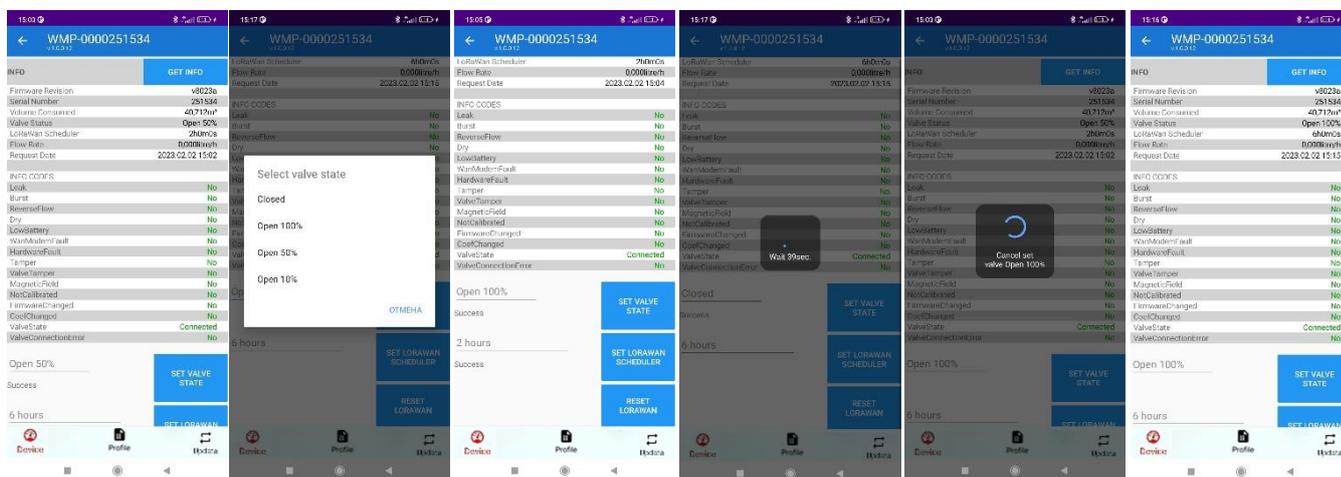

In case of disconnection, place the meter as close as possible to the valve for at least 6 hours (sometimes it takes longer, up to 24 hours).

Reconnection take place automatically. As a result, the icon ⊙⊙ is displayed on the meter display to indicate that it has been connected to the valve.

3.2.3 RESET LORAWAN SCHEDULER

To change LoRaWan Scheduler, tap the value near the SET LORAWAN SCHEDULER button. Choose the required value in the open window, after that tap the SET LORAWAN SCHEDULER button and tap GET INFO button for actualization of LoRaWan Scheduler.
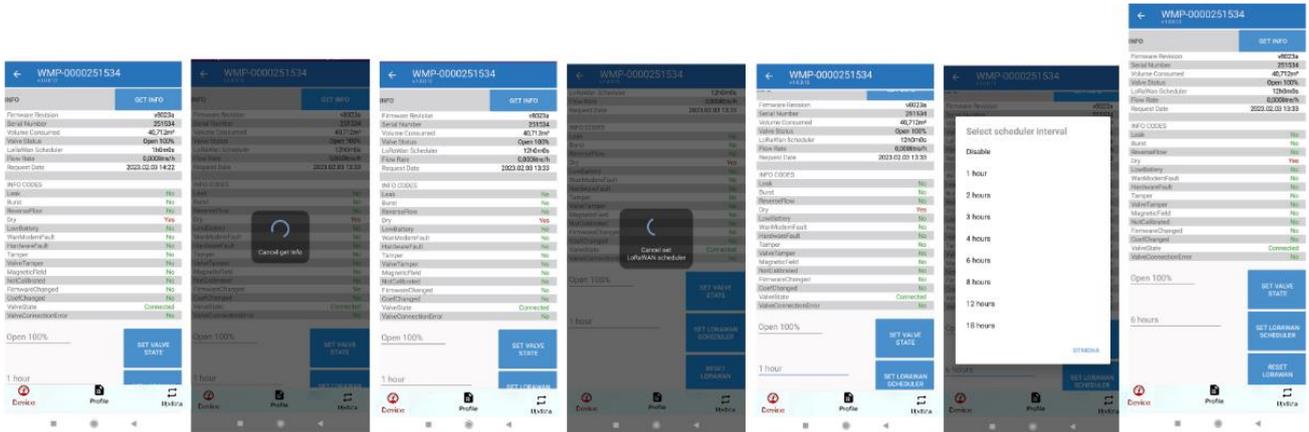

3.2.4 RESET LORAWAN OBJECTS

To reset the objects responsible for communication with the LORAWAN to their default settings, tap RESET LORAWAN.

NOTE: Don't forget to delete all information about the meter on the LORAWAN server.

Simply restarting the meter will not solve the problem with the LORAWAN server, as all parameters and settings are stored in this device and will not disappear when the meter is restarted.
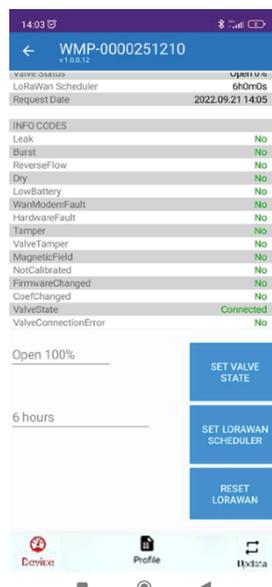
It is recommended temporary switching off communication device for 5-15 min to verify connection.
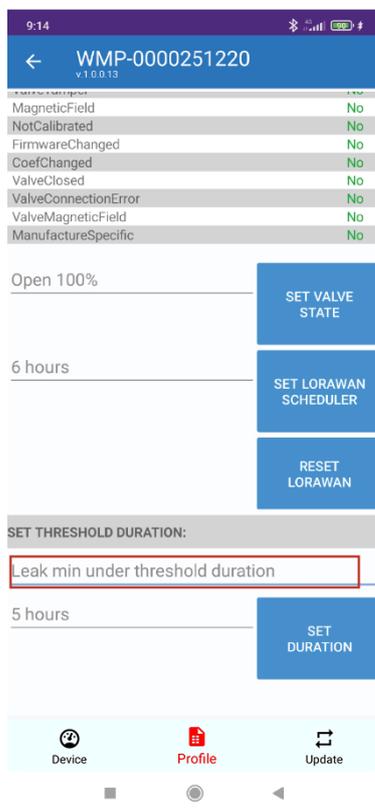For each water meter, this procedure is repeated.
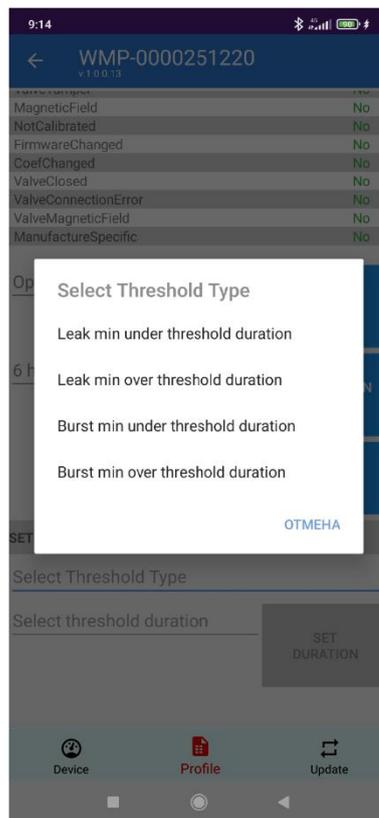

3.2.5 SET THRESHOLD DURATION

To track burst and leak alarms relevant threshold values should be specified:

- Leak min under threshold duration;

- Leak min over threshold duration;

- Burst min under threshold duration;

- Burst min over threshold duration.
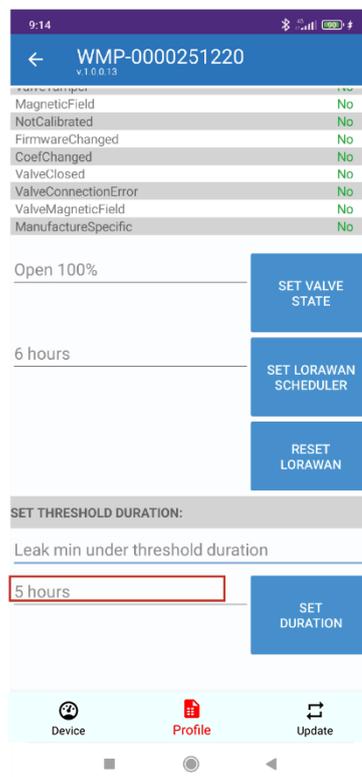
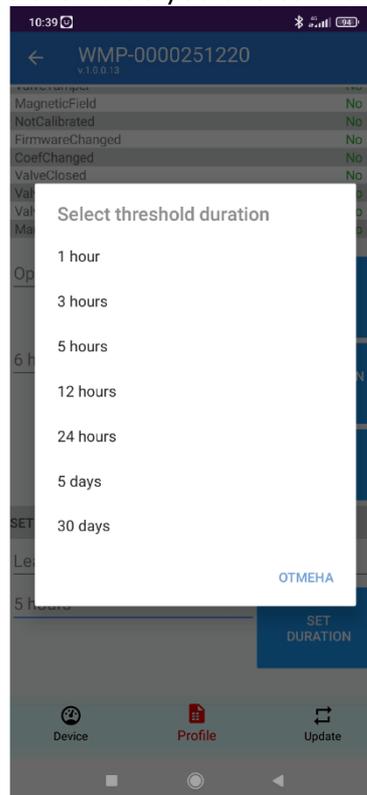To set threshold duration select:

List of parameters appears:
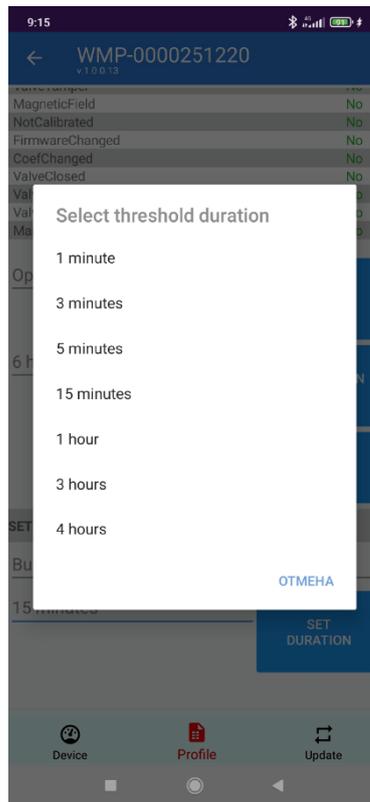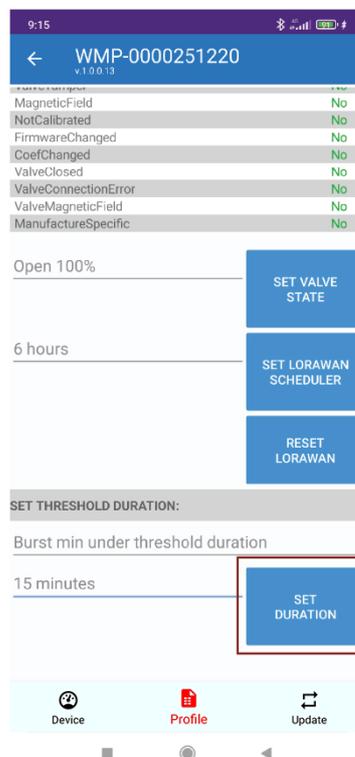
Select one of them by pressing it.

Tape:

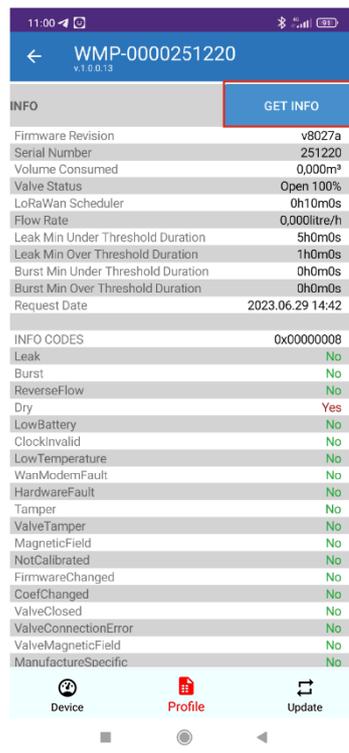To select Leak duration, press the value you are comfortable with from the list below.

For Burst duration, you can also select the necessary value from the list below.

When all parameters are established press *SET DURATION* button.

Press the GET INFO key and the selected duration values will appear in the INFO pane. An example is shown below.
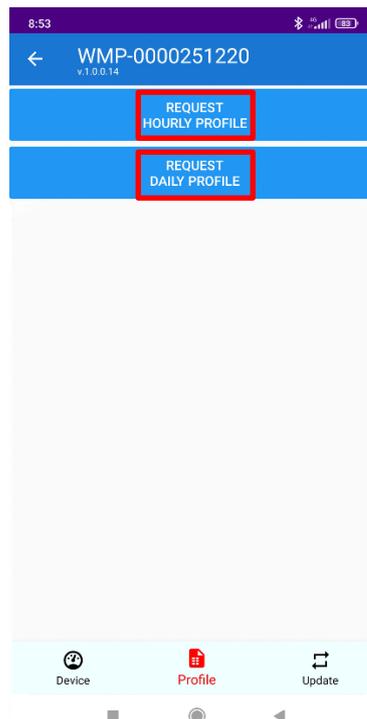
3.2.6   EXPORT INTERVAL PROFILES TO CSV FILE

To export the profiles intervals, tap *PROFILE* button.

To choose the day or hourly profiles, tap *REQUEST HOURLY PROFILE* button or REQUEST *DAILY PROFILE* button.

To send chosen profile for processing tap *Distribution* button.

To send the .csv file choose the way suitable for you: Cloud, Viber, Gmail, etc.
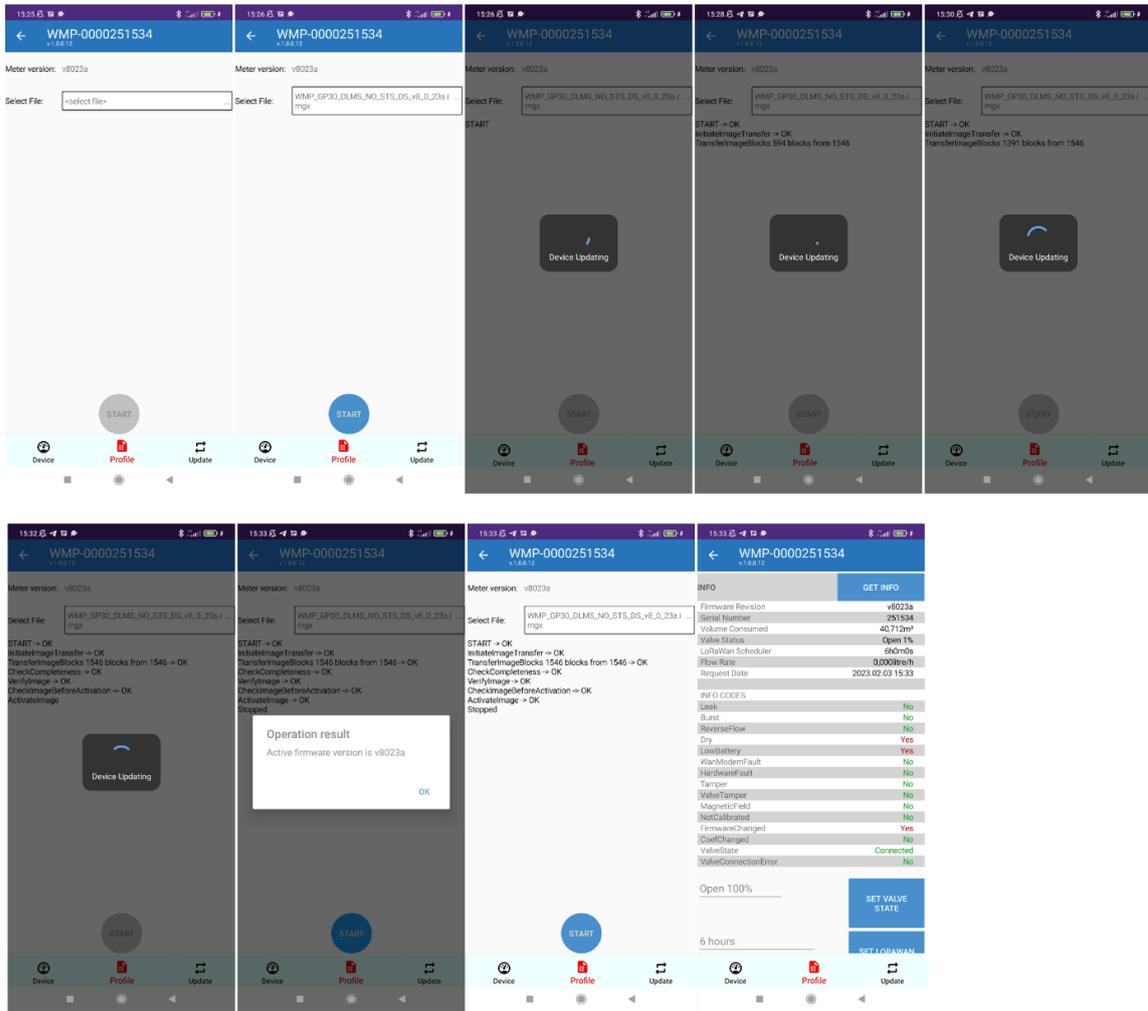
3.3 Device Update

To update the meter, tap the UPDATE button and select the update file. Note that the application accepts only files with .imgx extension (it must be already downloaded on your android device). If the file with different extension is selected, the application rejects it - the Fimware update Error window is displayed.
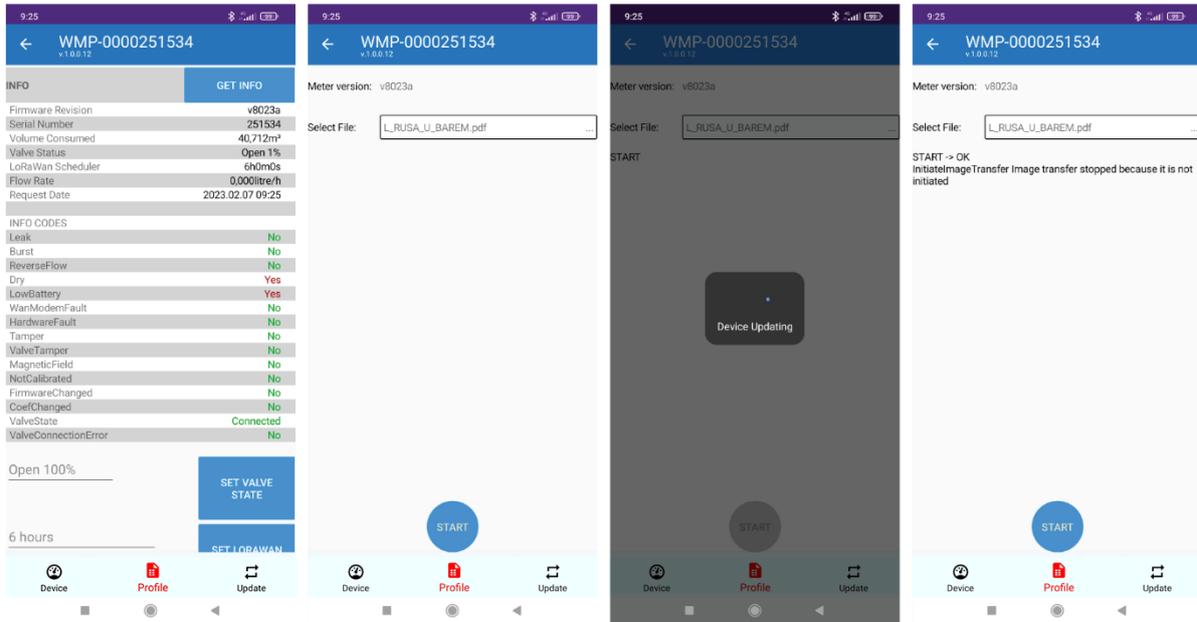
Tap the *UPDATE* button. The meter update takes place in several steps:
1. The image file is transferred to the meter.
2. The image integrity is verified.
3. The image is activated and the *Firmware update Success* window is displayed.

Go to *Device* tab and make sure that the meter firmware version has changed.

NOTE: No action is permitted for LORAWAN server during the process of Device Update.