WM-E Term®
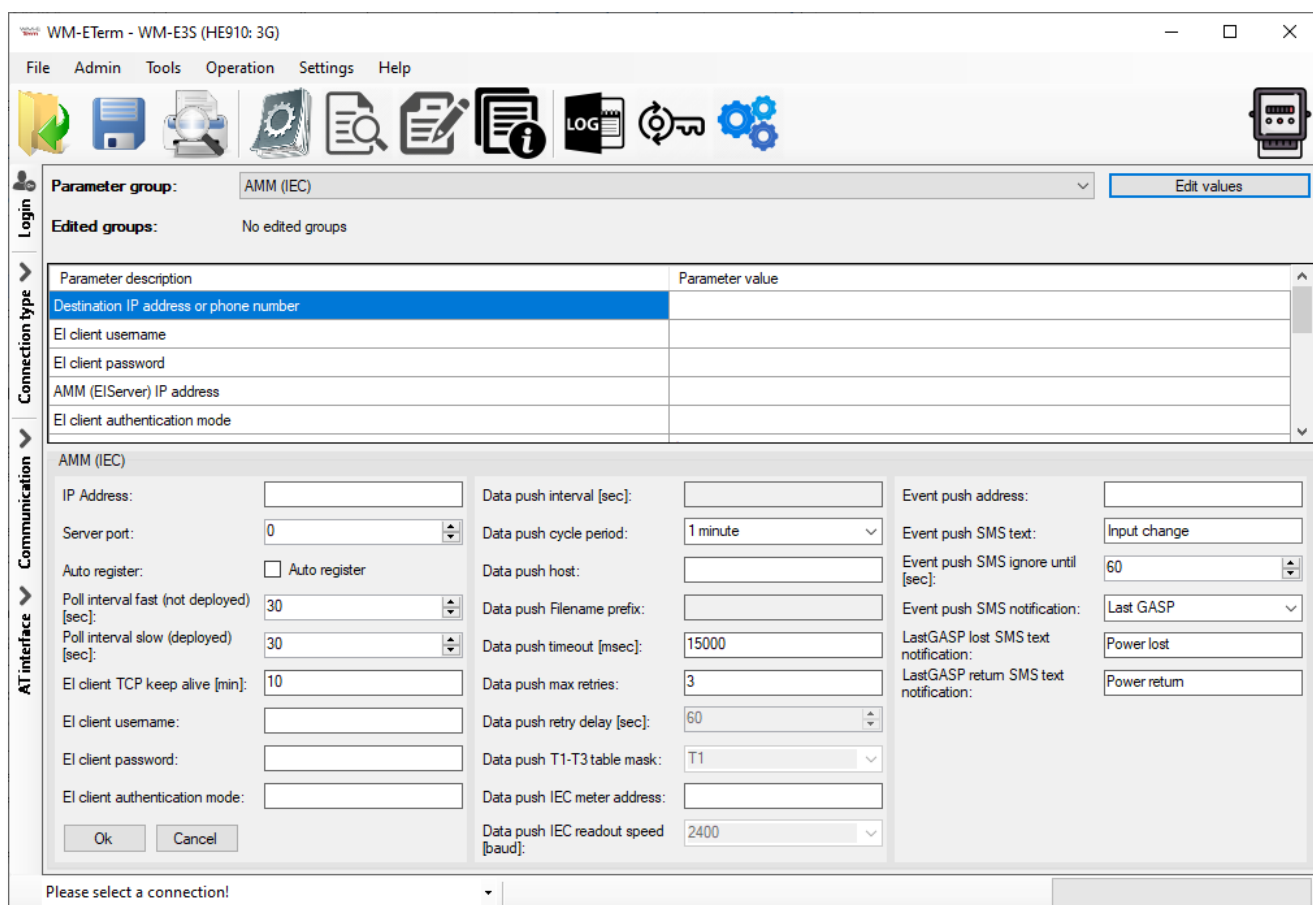
User Manual

Universal configuration tool for WM-E2S®, WM-E2SL®, E57C WM LTE® electricity metering modems

Document specifications

This documentation was made for the usage of the **WM-E TERM®** software.

The application is capable of configuring WM-E2S®, WM-E2SL® and E57C WM LTE® modems to connect to the meter by our modem and readout data.

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1. Connecting to the device

1.1 Introduction

The **WM-E Term®** application is capable of configuring the WM-ExS smart metering modems for receiving communication from the meter. The configuration can be performed through RS232 compatible connection of the modem, or by remote TCP connection.

After the configuration, the modem can initiate RS232/RS485 data connection with the connected meter.

Please, follow the next steps for configuring the connection of the communication modem (CM) and the meter system.

1.2 Preparing

1. The software can be used on Microsoft® Windows® 7 / 8 / 10 / 11 operating systems.

2. Microsoft® .Net Framework v4 must be installed on your computer. In case of missing this component, you have to install it after having downloaded it from the manufacturer's website:

https://www.microsoft.com/en-us/download/details.aspx?id=30653

3. You have to own administrator privileges for the directory, where running the program.

1.3 Start the WM-E Term application, connect to the Modem

1. Connect the optical head properly to the meter. Then connect it to the USB port of the computer. Connect to the modem through the reqiured interface.

2. Download **WM-E Term Appendix** document by the link, which can help the configuration.

https://www.m2mserver.com/m2m-downloads/WM-E-TERM_Appendix_V1_10.pdf

3. Download the WM-E TERM® configuration software to your computer by using this link:

https://www.m2mserver.com/m2m-downloads/WM-ETerm_v1_4.zip

4. Unpack the .zip file into a directory and **execute** the **WM-ETerm.exe** file. The following application screen appears, where fill the login data and press the **[Login]** button to enter.

Default **Username**: *Admin*   Default **Password**: *12345678*
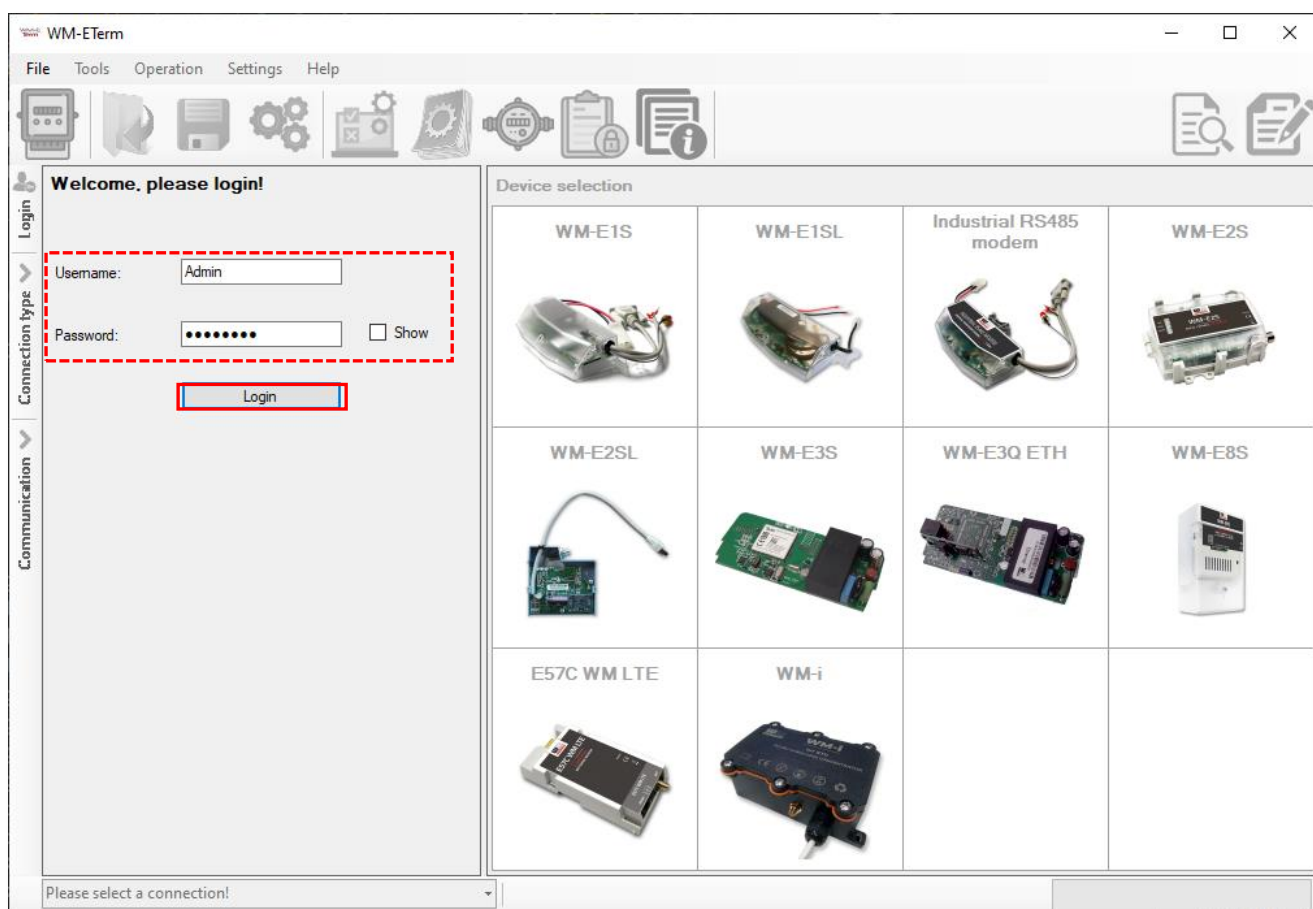
*Note, that you don't have to enter the **Password** if you did not changed it. The asterix characters are indicate that the password was already filled in.*
*You can use the **Show** checkbox option to check the filled password.*

5. By double-clicking with the mouse on the window, the size of the screen can be reduced to a smaller size.

6. You can also change the language settings in the **Settings** menu.

7. Select the metering modem type, according to the currently used model.
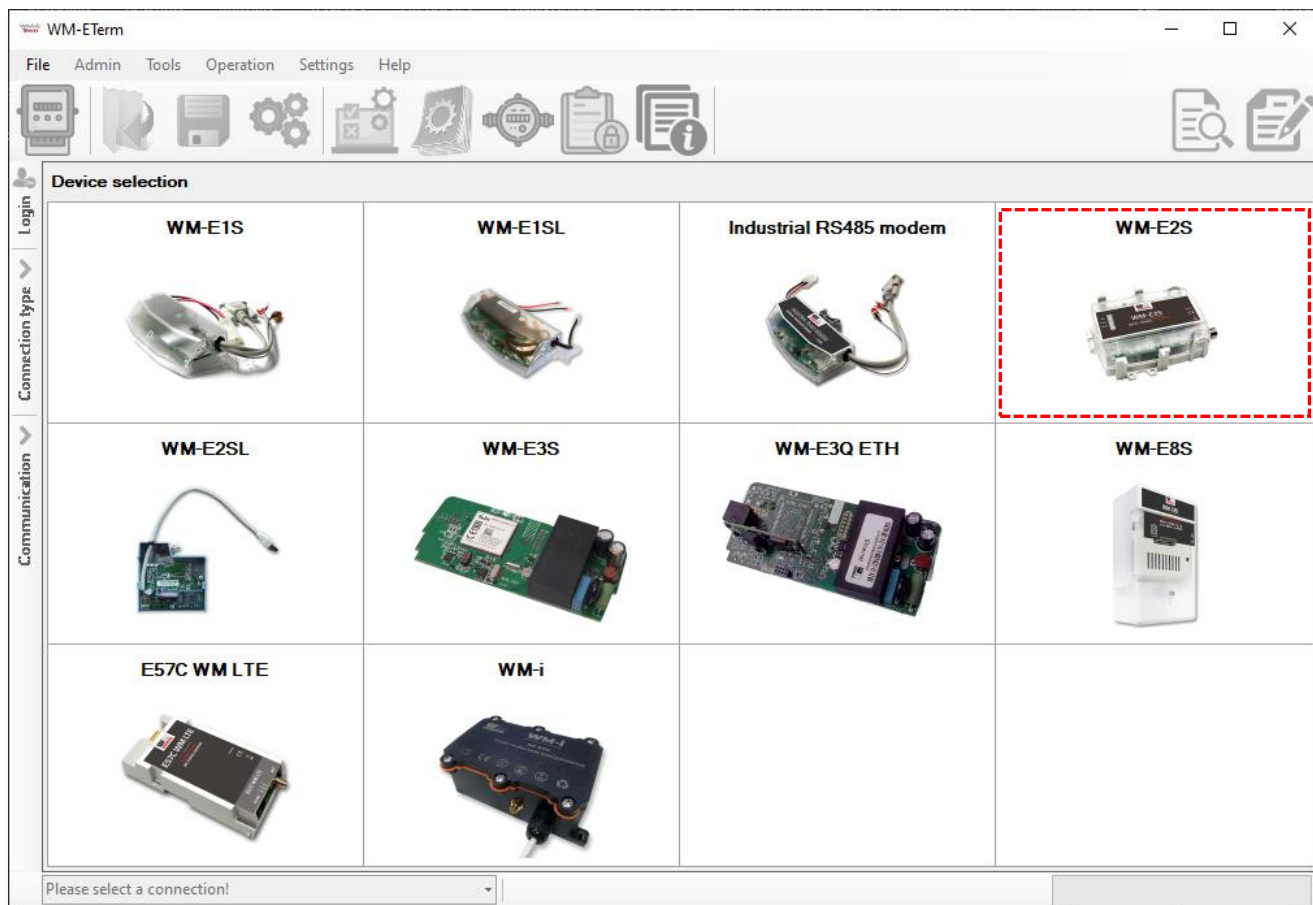
8. In the program window, you will find icons and menu items for performing settings, operation.
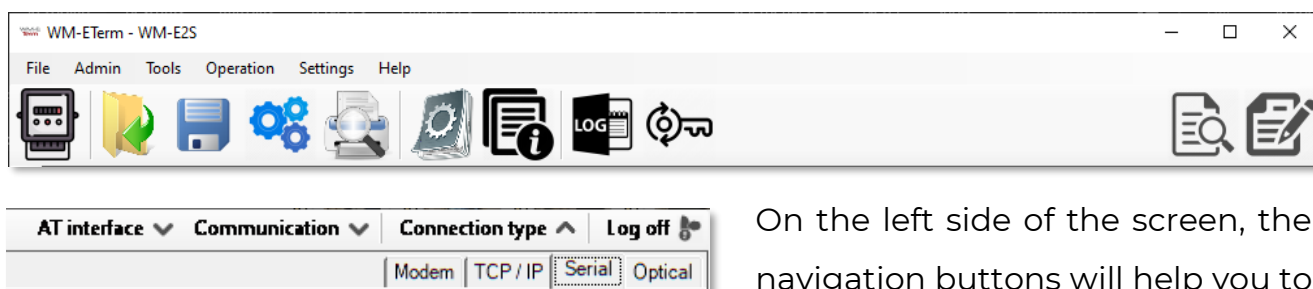
On the left side of the screen, the navigation buttons will help you to connect and check the communication.

At the bottom of the screen, on the left hand side, you can connect with a pre-configured profile to the modem (by selection).
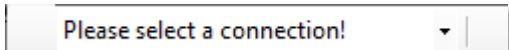
1.4 Setup the configuration connection

1. Configure the modem to the relevant interface. First you have to define at least one connection profile.

2. Choose the **Connection type** on the left side of the screen, then choose an *interface* regarding the required type of connection (**Modem / TCP-IP / Serial / Optical**).

Serial configuration profile:

1. Make serial RS232 connection by the RS485 USB Dongle between the modem and your computer (you should use RJ45-connection interface with WM-E2SL or RJ12-connection interface with the E57C WM LTE).

2. On the left-side of the screen click on the **Connection type** and choose the **Serial** interface.
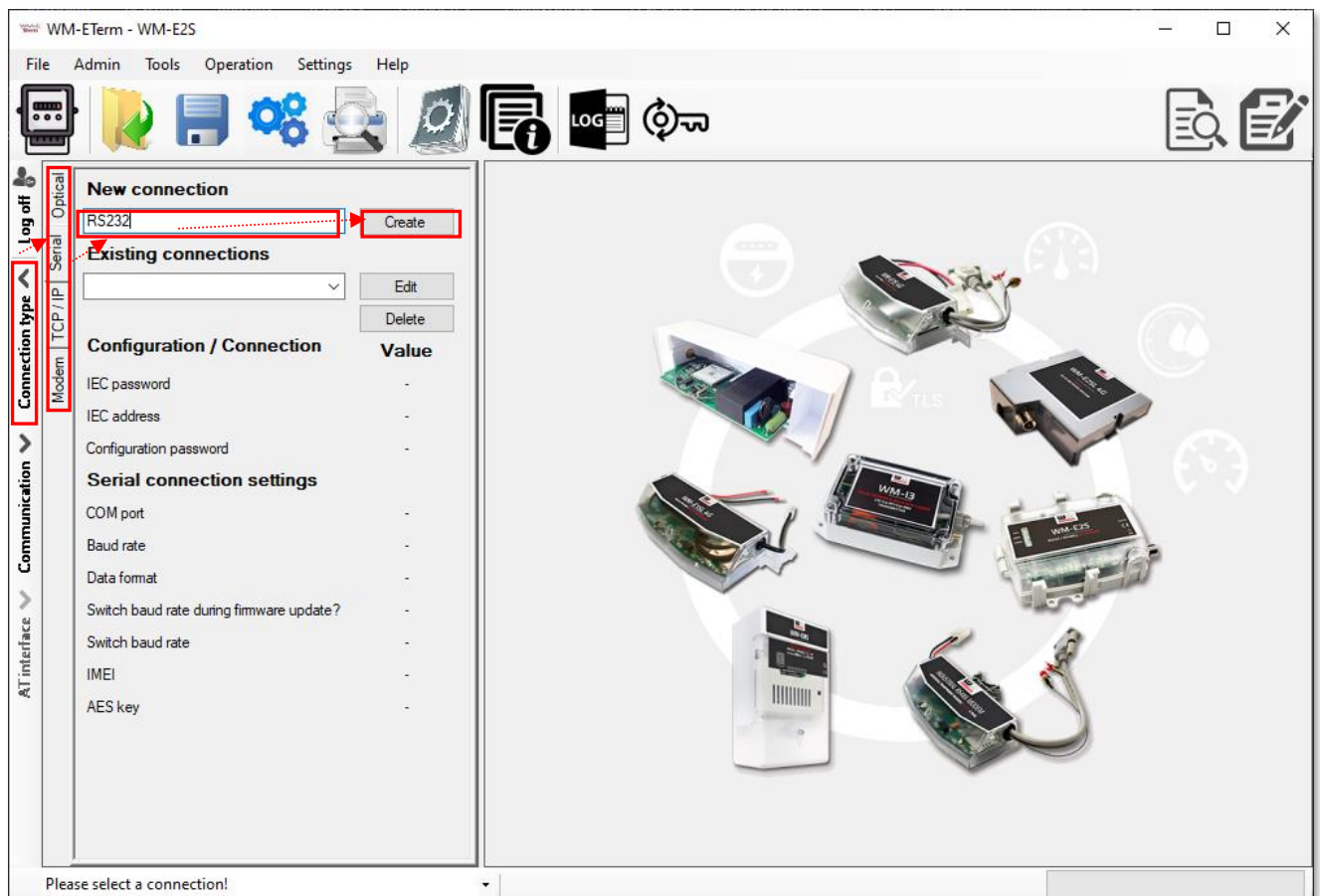
3. Add a name for the profile at the **New connection** field.

4. Push **[Create]** button and the next window connection settings will appear.

5. In the connection window you can define the connection profile parameters as **Connection Name**. At **Configuration / Connection settings** part, you can add the **IEC Password**, the **IEC address** of the SIM card, and you can require the communication to be logged (**Communication log**).
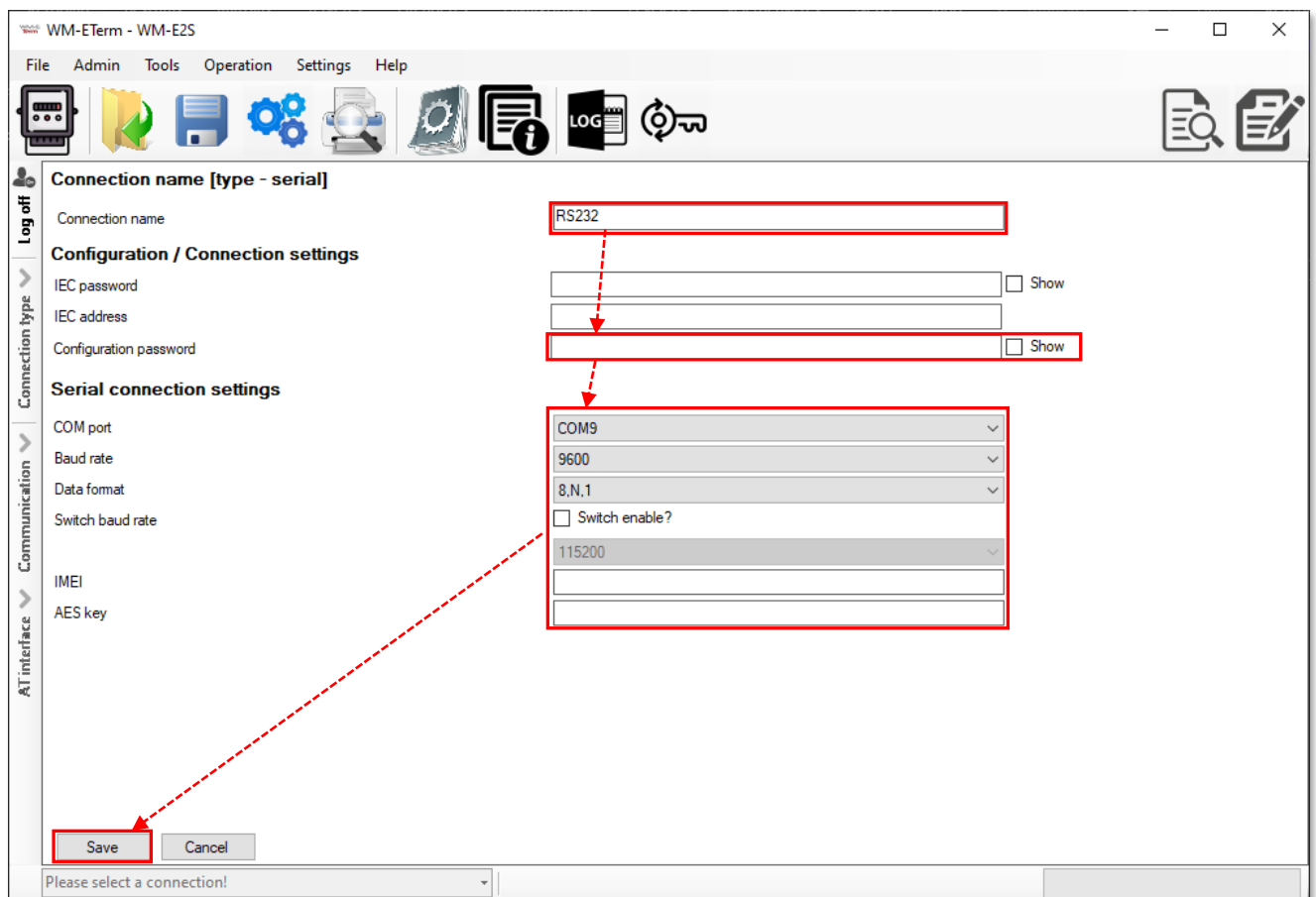
6. For newer modem firmware versions – such as v5.x version it is mandatory to use the **Configuration password** for the modem configuration. The default password is: **WMEXS!** You can check the written password by the **Show** option at right.

(Note that you can change the configuration password of the modem anytime by choosing the ⊕⊓ icon from the menu.)

7. It is mandatory to setup the connection parameters: as **COM port** according to the available serial/USB port, the dataspeed (**Baud rate***), and choosing the proper **Data format** (e.g. 8N1, 7E1, etc) from the dropdown list.

   *Warning! For modem type **E57C WM LTE**, the speed (baud rate) must be set the same on both the modem side and on both interfaces of the measuring device; it is currently max. 38 400 baud.*

8. You can **Switch baud rate** during the firmware by enabling the **Switch enable** option and choosing a baud rate from the list. This will be valid for the firmware update period.

9. Click on **[Save]** button to save the connection profile.

10. Connect with a connection profile and choose the **Parameters Readout** icon.
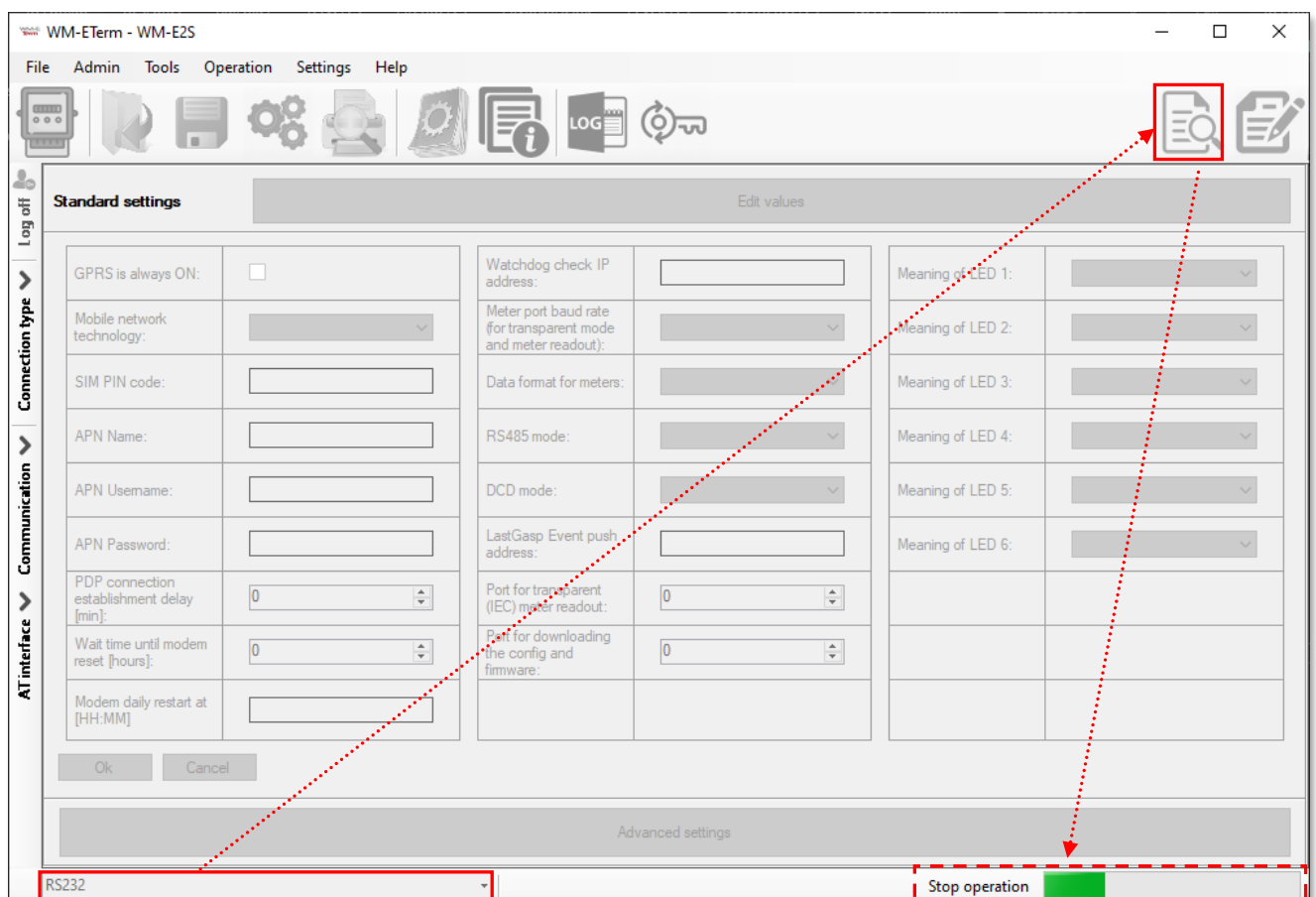
The screen change to a different view with the *Standard settings* and the modem will reading out parameter values from the modem after the connection. Continue from the **Chapter 1.5.**

Optical configuration profile:

1. Make the optical connection between the meter and your computer (connect the optical USB cable to your computer and the opto-head to the meter).

2. Click on the **Connection type** and choose the **Optical** interface – at left.
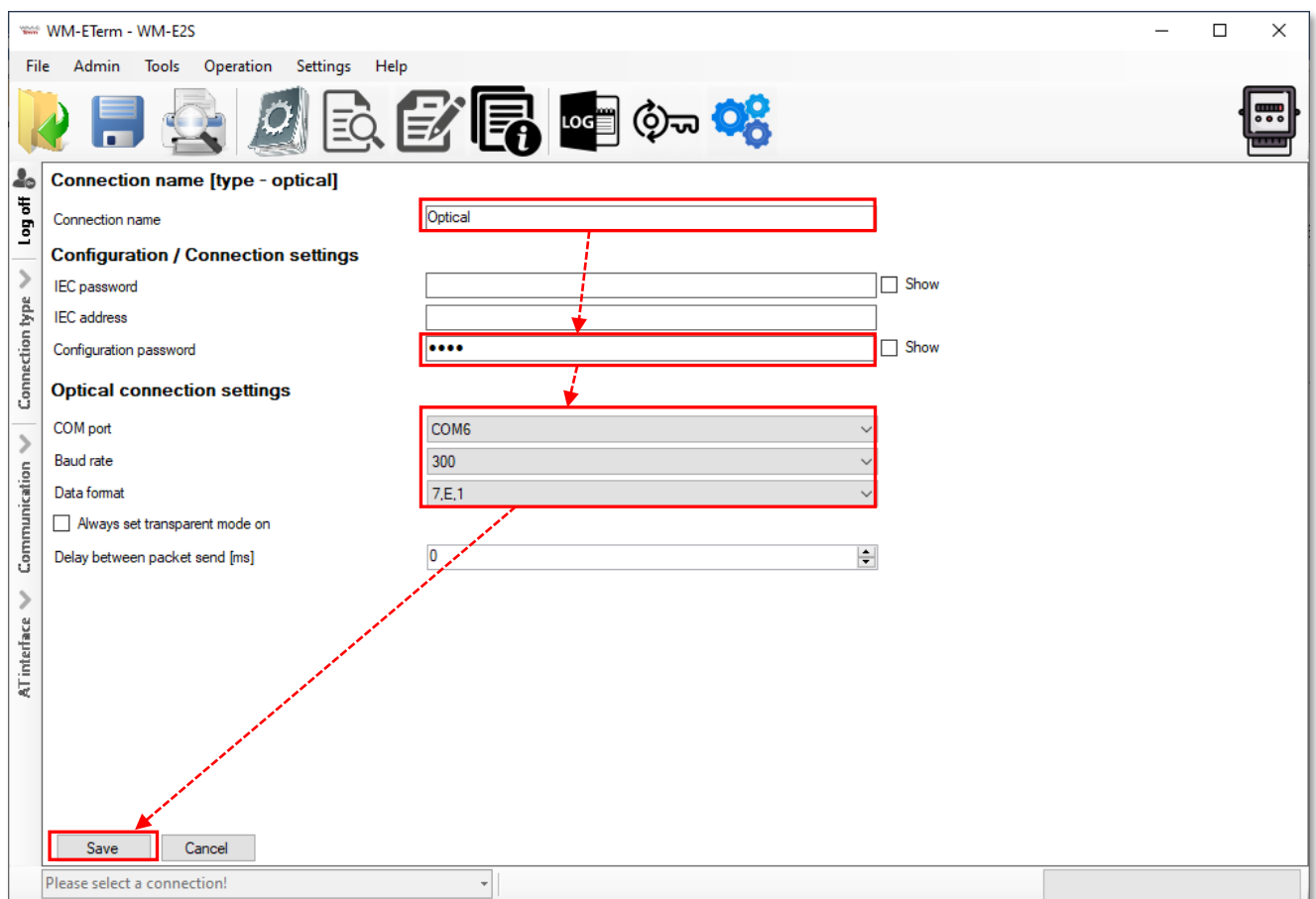
3. Add a name for the profile at the **New connection** field.

4. Push **[Create]** button, and in the next window the connection settings will appear – similar to what was described at the serial connection.

5. For modem firmware v5 versions it is mandatory to use the **Configuration password** for the modem configuration. The default password is: **WMEXS!**

You can check the written password by the **Show** option at right.

(Note that you can change the configuration password of the modem anytime by choosing the ⊘⤶ icon from the menu.)

6. If it is necessary to use a secured IEC connection, in the **Configuration / Connection Settings** section you can add **IEC password** and the **IEC address** and a **Configuration password**.

(You can see and check the written password by the **Show** option.)

7. Choose **COM port**, **Baud rate** and **Data format*** values – similar as for the serial connection.

*Note that value of **Data format** is usually *7E1* instead of *8N1*.

8. You can enable **Always set transparent mode** by its check box – for performing transparent communication between the IP address and the metering modem.
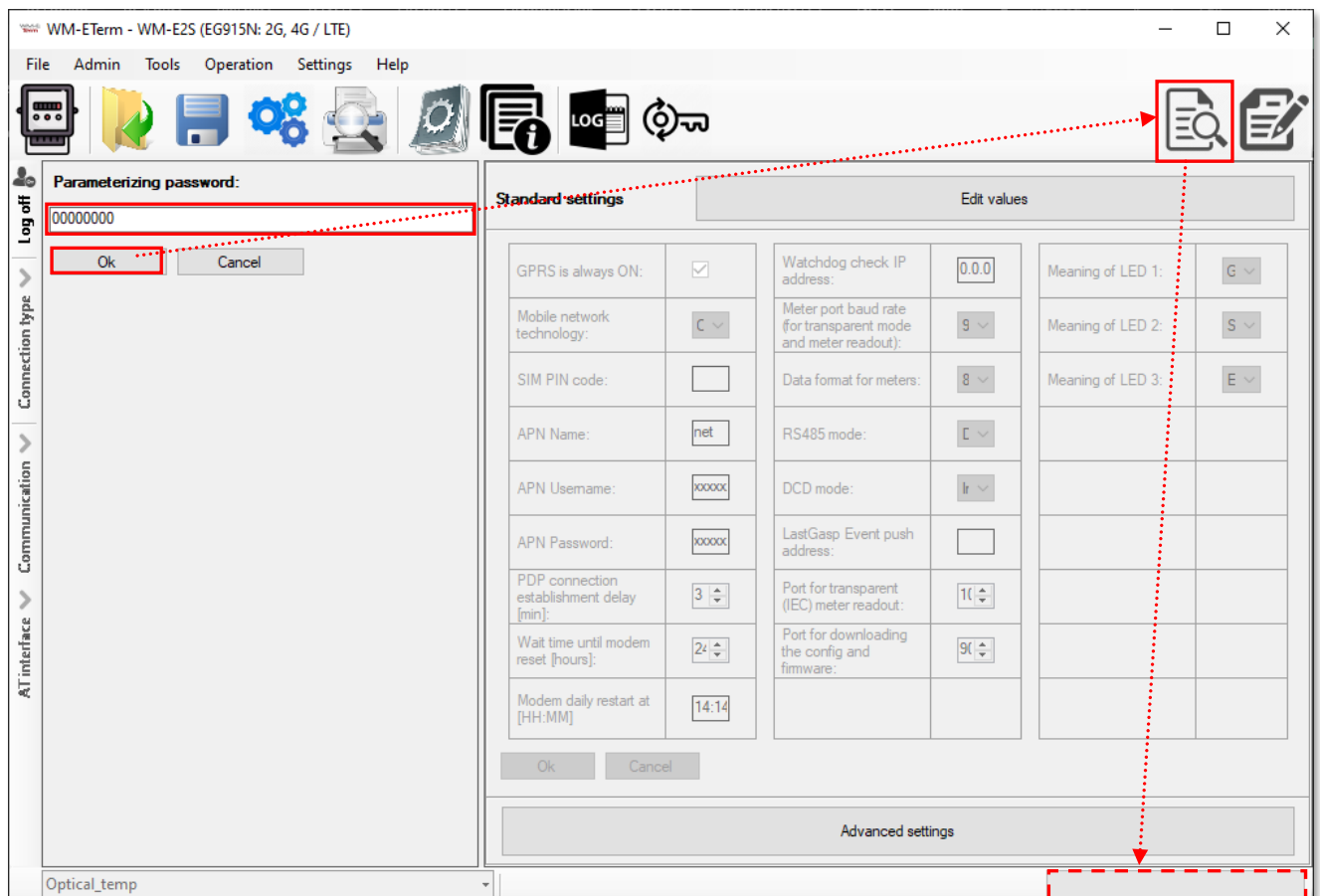
9. You can setup the **Delay between packet send [ms]** where you can define the time interval (pause) between packages - value in milliseconds.

10. Then press the **[Save]** button to save the profile settings.

11. Fill the **Parameterizing Password** according to the meter information, then press the **[OK]** button.

12. Then push to the **Parameters Read** icon, then the screen change to a different view with the *Standard settings*, and the modem will be reading out parameter values from the modem after connecting. Continue from the ***Chapter 1.5.***

TCP/IP configuration profile:

You need to know the IP address of the SIM card for connection and the pre-configured port number to setup the TCP/IP settings.

1. On the left-side of the screen click on the **Connection type** and choose the **TCP/IP** interface.

2. Add a name for the profile at the **New connection** field.

3. Press the **[Create]** button, and in another window the connection settings will appear – similar to what was described at the serial connection.

4. For modem firmware v5 versions it is mandatory to use the **Configuration password** for the modem configuration. The default password is: **WMEXS!**
   You can check the written password by the **Show** option at right.
   (Note that you can change the configuration password of the modem anytime by choosing the icon from the menu.)
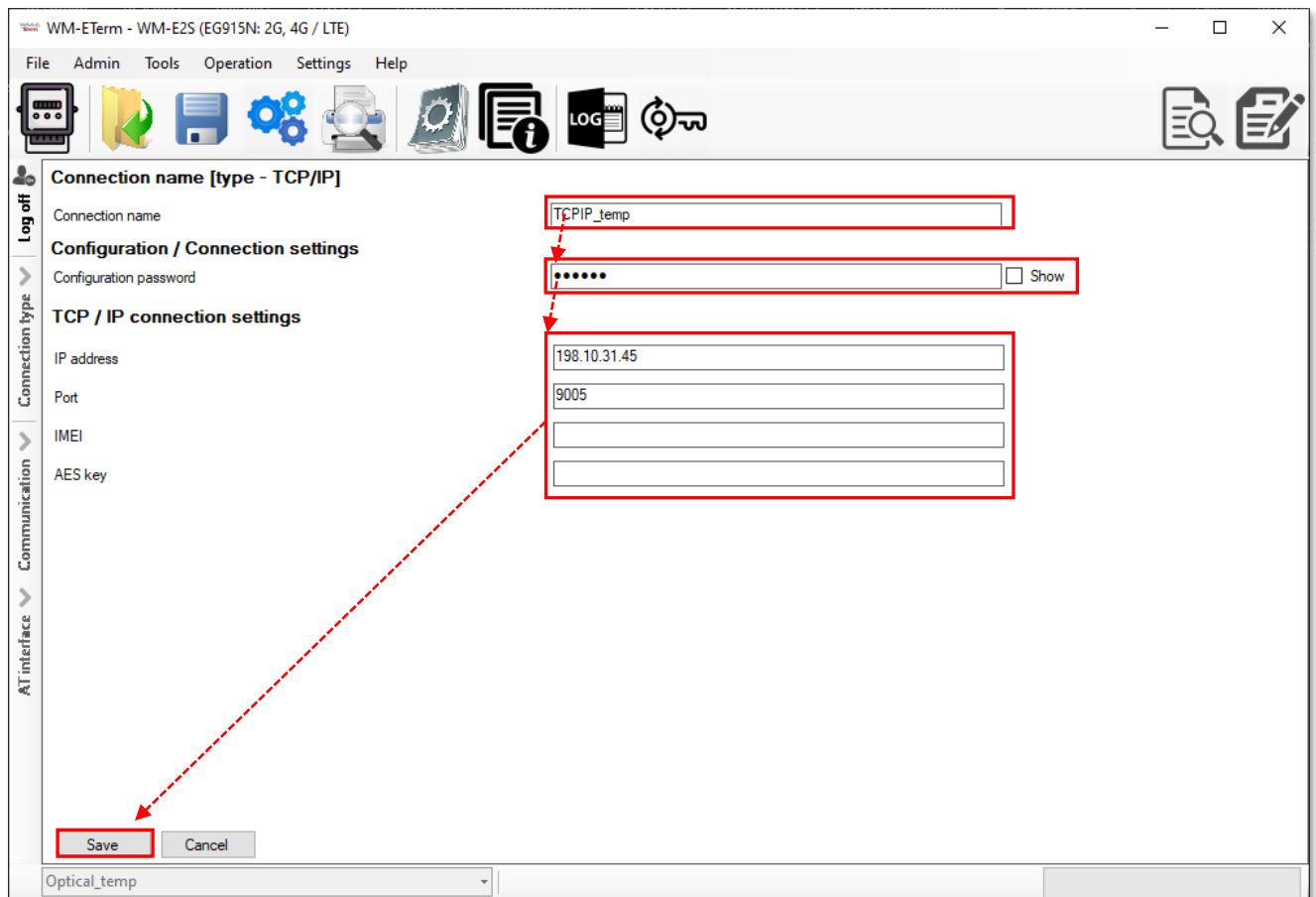
5. Define the **IP address** to the connected SIM card and the **Port** for the connection.

6. Press then the **Save** button to save the profile settings.

7. Then push to the **Parameters Read** icon, then the screen change to a different view with the *Standard settings*, and the modem will be reading out parameter values from the modem after connecting. Continue from the *Chapter 1.5.*

Modem configuration profile:

1. On the left-side of the screen, click on the **Connection type** and choose the **Modem** interface.

2. Define a name to the profile at the **New connection** field.

3. Push **[Create]** button, and in another window the connection settings will appear – similar to what was described at the serial connection.

4. For modem firmware v5 versions it is mandatory to use the **Configuration password** for the modem configuration. The default password is: **WMEXS!** You can check the written password by the **Show** option at right. (Note that you can change the configuration password of the modem anytime by choosing the ⟨◎⟩ icon from the menu.)
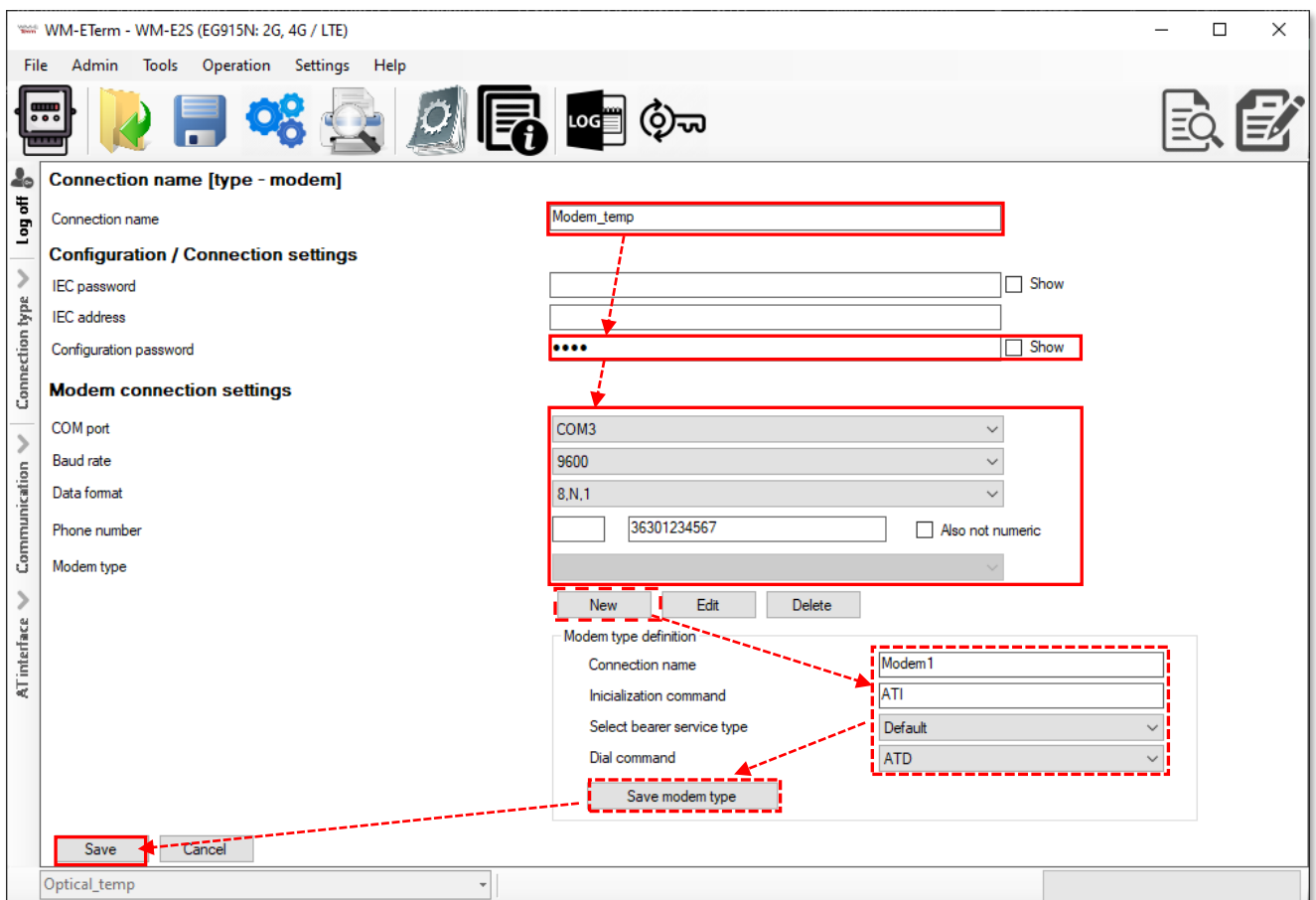
5. Define then the **COM port**, the **Baud rate** values and select a **Data format** type.

6. Add the **Phone number*** of the modem (SIM card's phone call number). *The first part is the prefix – it is not obligatory to be used. *The phone number is the second part, which can contain special (command) characters, if you enabled the *Also not numeric option*.

7. Create a **New Modem type.** Some new parameters will then be listed at the bottom side of the screen. You can define the modems here (e.g. analog, ADSL, etc.), or you can edit or delete a registered one.

   Fields:

   - Add the **Connection name** and the modem **Initialization command**.
   - **Select bearer service type**, and add the **Dial command.**
   - Define the **Initialization command** for the connecting modem.
   - Configure further modem types also, use a **Bearer service** and define the **Dial command**.

8. For storing the *Modem type* parameters and the connection type, press the **[Save modem type]** button.

9. When you have finished the settings, press the **[Save]** button to save the connection profile.

10. Then push to the **Parameters Read** 📄 icon, then the screen change to a different view with the *Standard settings*, and the modem will be reading out parameter values from the modem after connecting.

1.5 Modify or deletion of a configuration profile

You can delete the unnecessary connection profiles by choosing the **Connection type** button on left edge of the screen.

1. Choose an **Existing connections** at the connection selection part and the relevant settings will be loaded to the right part of the screen.

2. Choose then **[Edit]** and you can modify the existing profile settings. (You can **[Delete]** also a stored connection profile).
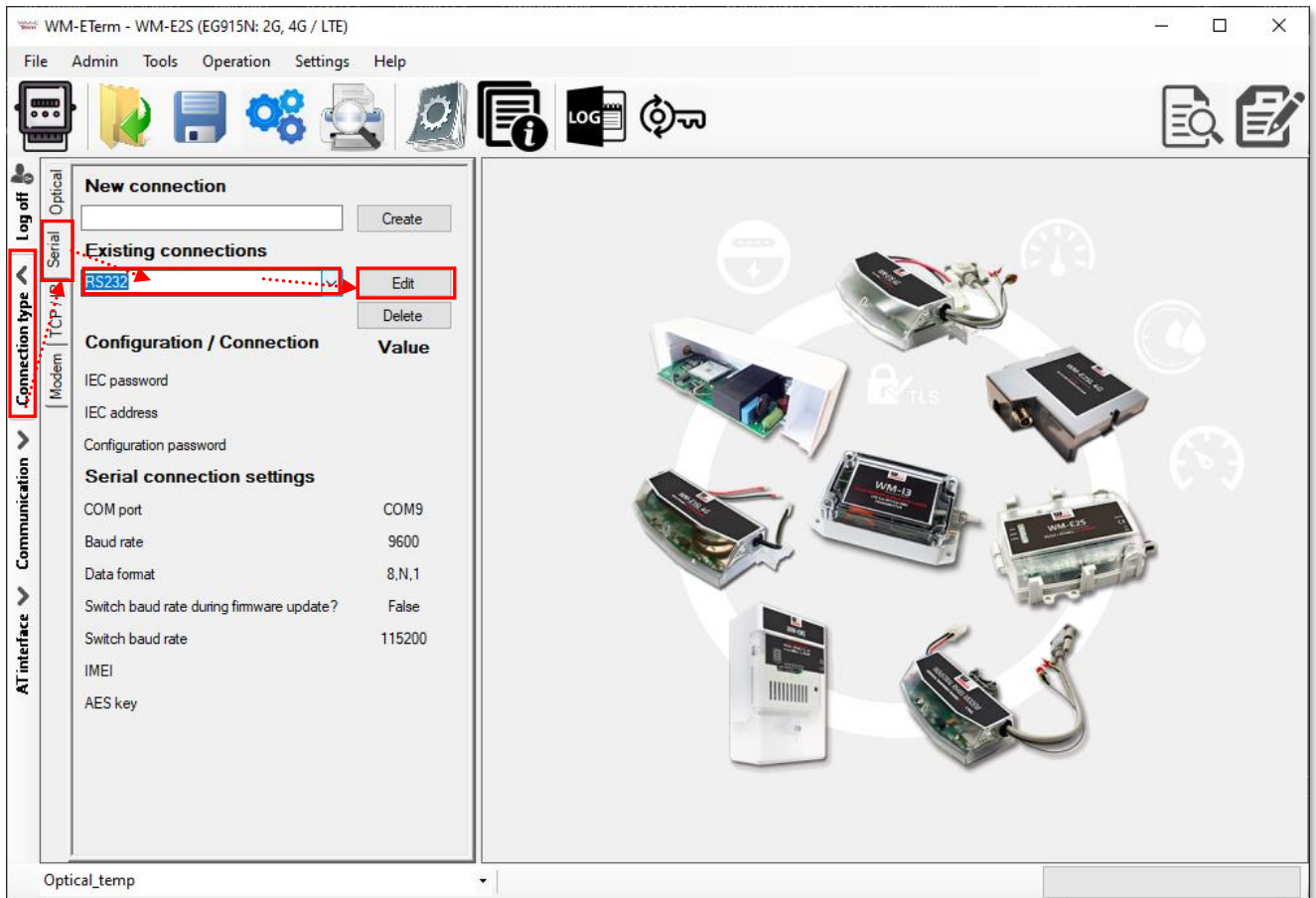
1.6 Connect to the modem - Choose a configuration profile

Previously you have created configuration profile(s). Note that the connection profile will NOT be automatically selected. Therefore, you have to choose a profile manually at the bottom of the screen to connect to the modem before readout or configure the settings!

1. Once the **connection profile** has been chosen, then click on the **Parameters Read** icon to readout parameter values from the modem.

2. Then the screen will change to a different view by listing *Standard settings* with all parameter values which has been read out. The progress will be signed by the indicator bar on the righ-bottom side of the screen.
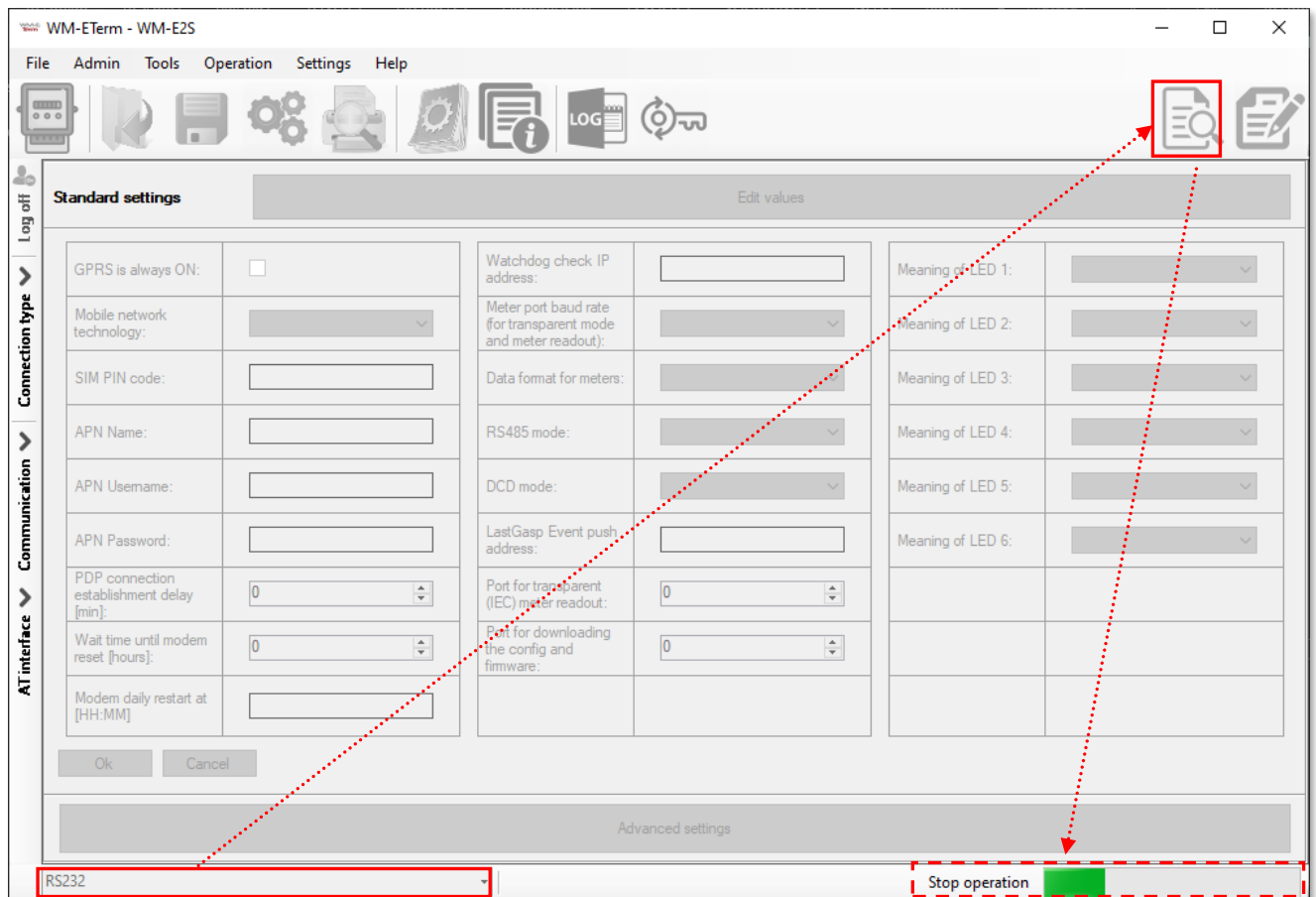
3. Then confirm the parameter readout success by the **[OK]** button at the left side of the screen.

4. Afterall, the most important modem parameter values will be listed on the screen – in this *Standard settings* view.

5. If you want to configure additional settings beyond the basic **[Edit]** settings (above) or press the **[Advanced Settings]** button (below) on the bottom of the screen.

1.7 Configuration in Standard settings mode

Here in *Standard settings* mode, you can edit the parameter settings by the **[Edit values]** button. Then the standard (basic) parameters will be editable on the screen – as APN settings, GPRS settings, RS485- and port configuration, LastGASP settings, LED configuration, etc.
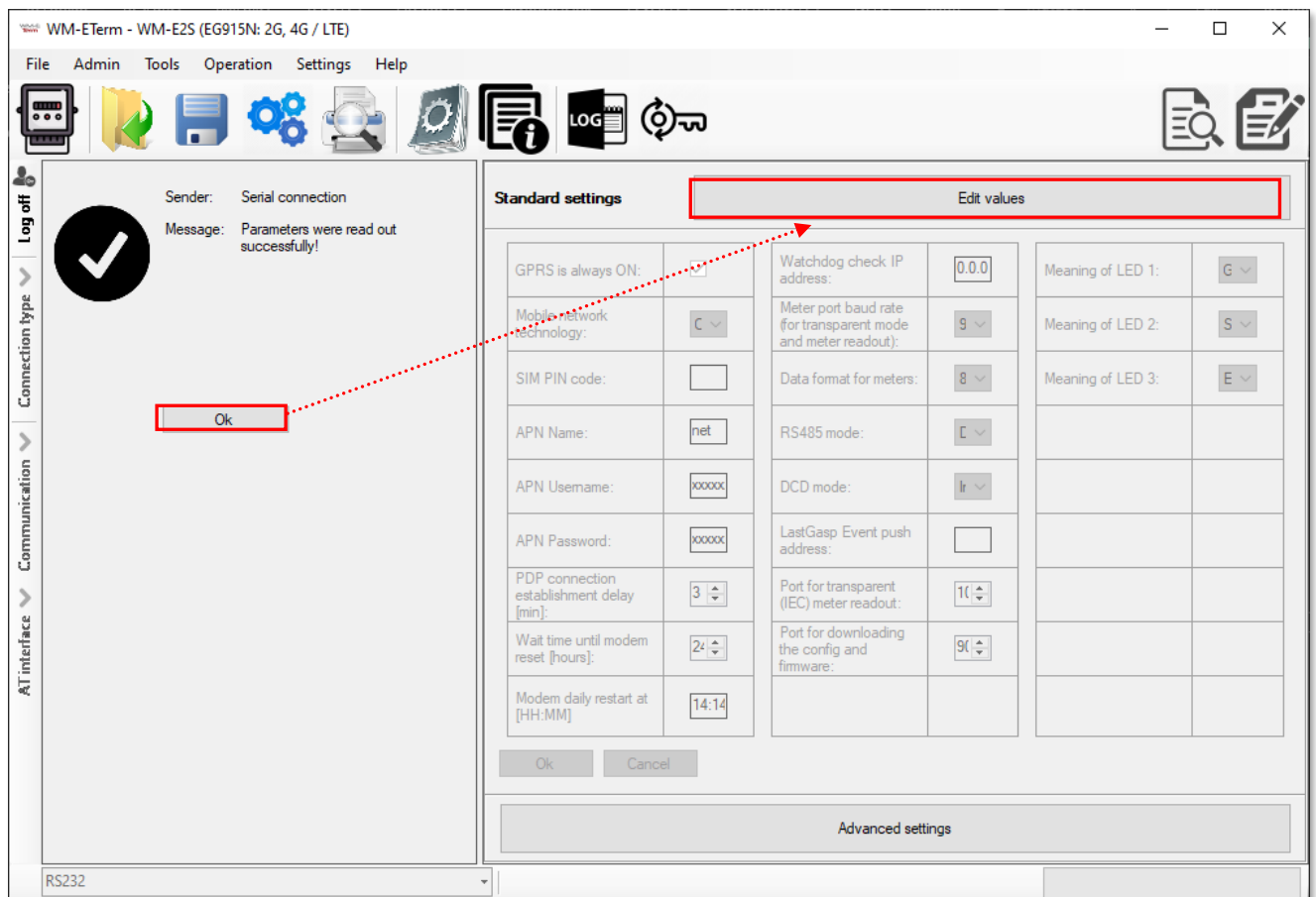
Left column parameters:

1. **GPRS is always ON** – check in the field if it was empty (it will always be online) – when enabling, it will connect to PDP only if it's in „push" mode, in any other case the GPRS part will be inactive (for FTP push or UDP/TCP push).

2. **Mobile network technology** – here you can define the mobile access technology algorhythm for network use (for 2G, 3G, LTE, Cat.M networks and for fallback* feature). See Chapter 3.3 for further details.
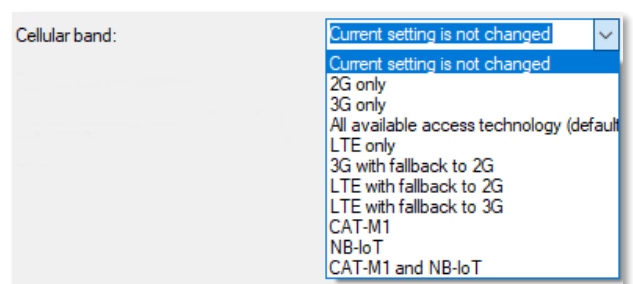
3. **SIM PIN code** – check in the field if the SIM card that you are using needs a PIN code and fill in the code here.
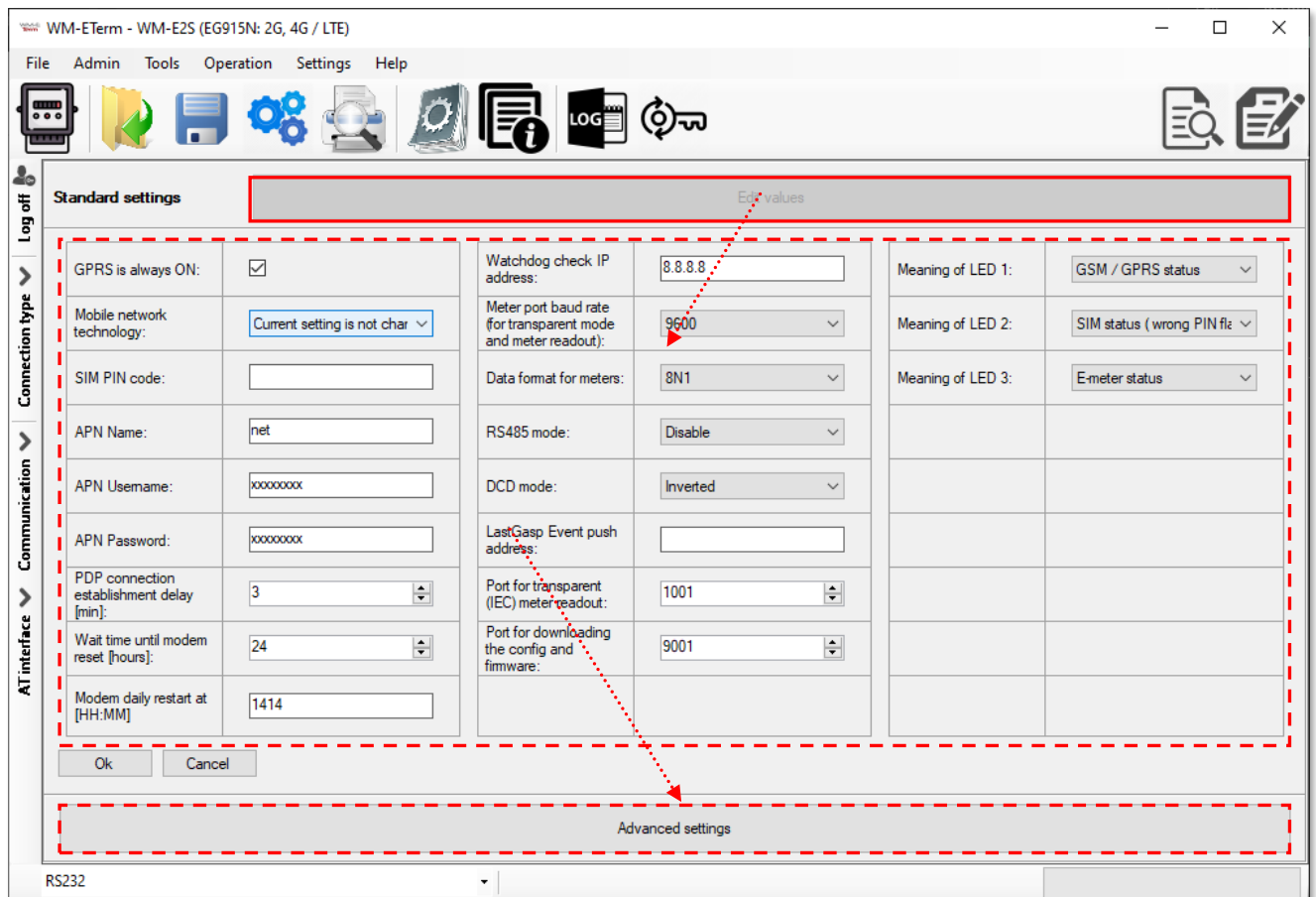
4. **APN Name** – here you have to add the APN zone name according to the modem SIM card (ask your Mobile Operator).

5. If the SIM requires a APN username, add the **APN Username** according the mobile operator hints of the SIM card.

6. Fill the **APN Password** if the SIM card uses a password for the APN access. *Important! If the SIM is not using **APN Username** or **APN Password** values, then leave these fields blank.*

7. If the modem restarts due to an incorrect configuration, it is possible to access it with a CSD call. Its operation can be fine-tuned by setting the **PDP connection estabilishment delay [min]** value, where you can add a delay time (in minutes) used before the PDP activation – the parameter can be set between 1 and 255 value. This PDP Delay feature can be disabled by using the value 0). See Chapter 3.1 for further details.

8. **Wait time until modem reset [hours]** – from the start of the modem, the watchdog restarts the module at these hourly intervals. (This is true if the following field is not filled. If the **Daily Restart on a fix, parametrized time** field is filled, then only the settings there will take effect, meaning the modem will be restarted at a fixed time).

9. **Modem daily restart at [format HH:MM]** – to schedule a daily restart time for the device – use **HH:MM** time format. Or leave the field empty if you do not want the device to be restarted every day.

   Note, that the scheduled restart will be executed in the exact time only if the NTP settings are done and the modem also getting proper time information from the NTP server. Otherwise you can use the Mobile Operator provided time information, but at first please verify that the received time value is correct.

Middle column parameters:

1. **Watchdog check IP address** – add an IP address which can be accessed from the IP zone of the SIM card. This will be used for continuous checking of the network availability.

2. **Meter port baud rate (for transparent mode and meter readout)** E-meter serial port speed (during readout) can be also configured – define the serial data baud rate (baud) for the connection. The default and recommended value is 9600* baud and 8,N,1 mode.

   * Warning! For the modem type **E57C WM LTE**, the speed (baud rate) must be set the same on both the modem side and on both interfaces of the measuring device; it is currently max. 38,400 baud.

3. **Data format for meters** means data connection mode for the serial port of E-meter. Select the proper value from dropdown list (e.g. 8N1, 7E1, etc.)

4. ***RS485 mode** – select a wire mode to configure the RS485 operation.

- **2-wire** – means half duplex 2-wire pinout
- **4-wire** – means full duplex 4-wire pinout
- **Disable** – *RS485 will be used automatically (for modem versions which are having only RS232 cable, it is recommended to configure this mode).*

Important! In case of **E57C WM LTE modem, the RS485 mode is detected automatically (will be set to Disabled (which means automatic)). Note, that if you will override this setting (e.g. to **4-wire** or **2-wire**), then the modem will be not operating properly and cannot be accessed locally – will be accessible only via TCP connection!*
Therefore, we suggest not to set or configure the RS485 mode in case of this modem type.

*In case of firmware v2 this parameter is used automatically - controlled by the current firmware. Only in case of firmware v5 can be used the configured parameter setting.

5. If you need **DCD mode** (data carrier detection) in case of RS485 version, then configure by choosing the DCD operation mode: *Fix 0* / *Fix 1* / **Standard** / *Inverted*

6. **LastGasp Event push address** – here you can add the notification address (SMS phone number / FTP or TCP/UDP (IP) address) for alarm notification (e.g. in case of power lost, input status change, etc.). In case of SMS (phone number), use the international format.

7. Here you can define the **Port for the transparent (IEC) meter readout.**

8. To define a different **Port for downloading the config and firmware** refresh.

Right column parameters:

1. **Meaning of LED 1…LED6** fields*, where you can change the LED operation for each available LED. The LED operations are pre-programmed, but can be changed if you want here.

   *_WM-E2S / WM-E2SL / E57C WM LTE modems have only 3 LEDs (LED1..LED3)._

2. The configured settings can be saved by the **[OK]** button.

3. In **_Advanced settings_** mode, you can change any available parameter by choosing the required parameter group from the roll-down list and by pushing the **[Edit values]** button the reconfiguration will be available for the listed parameter fields and values.
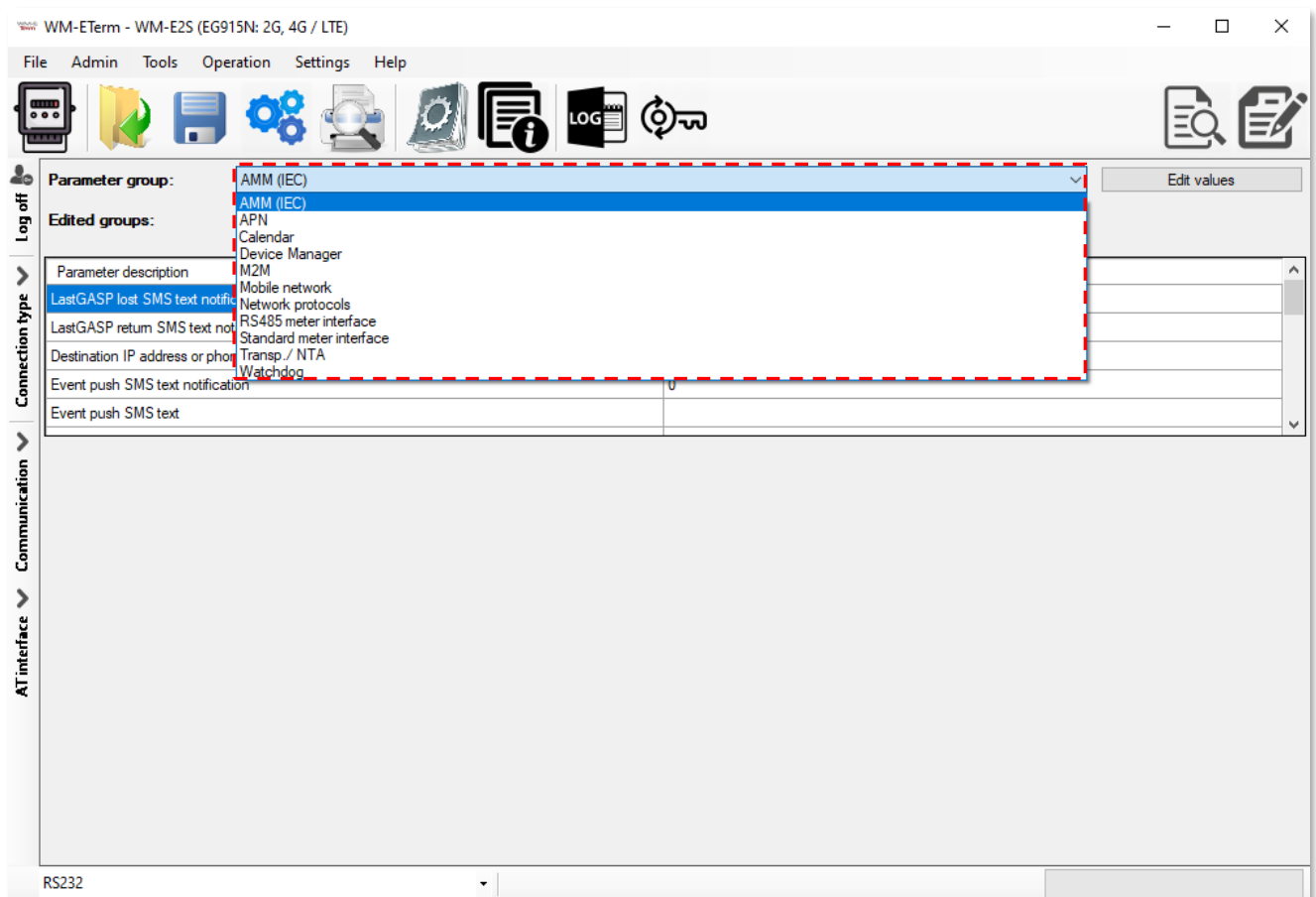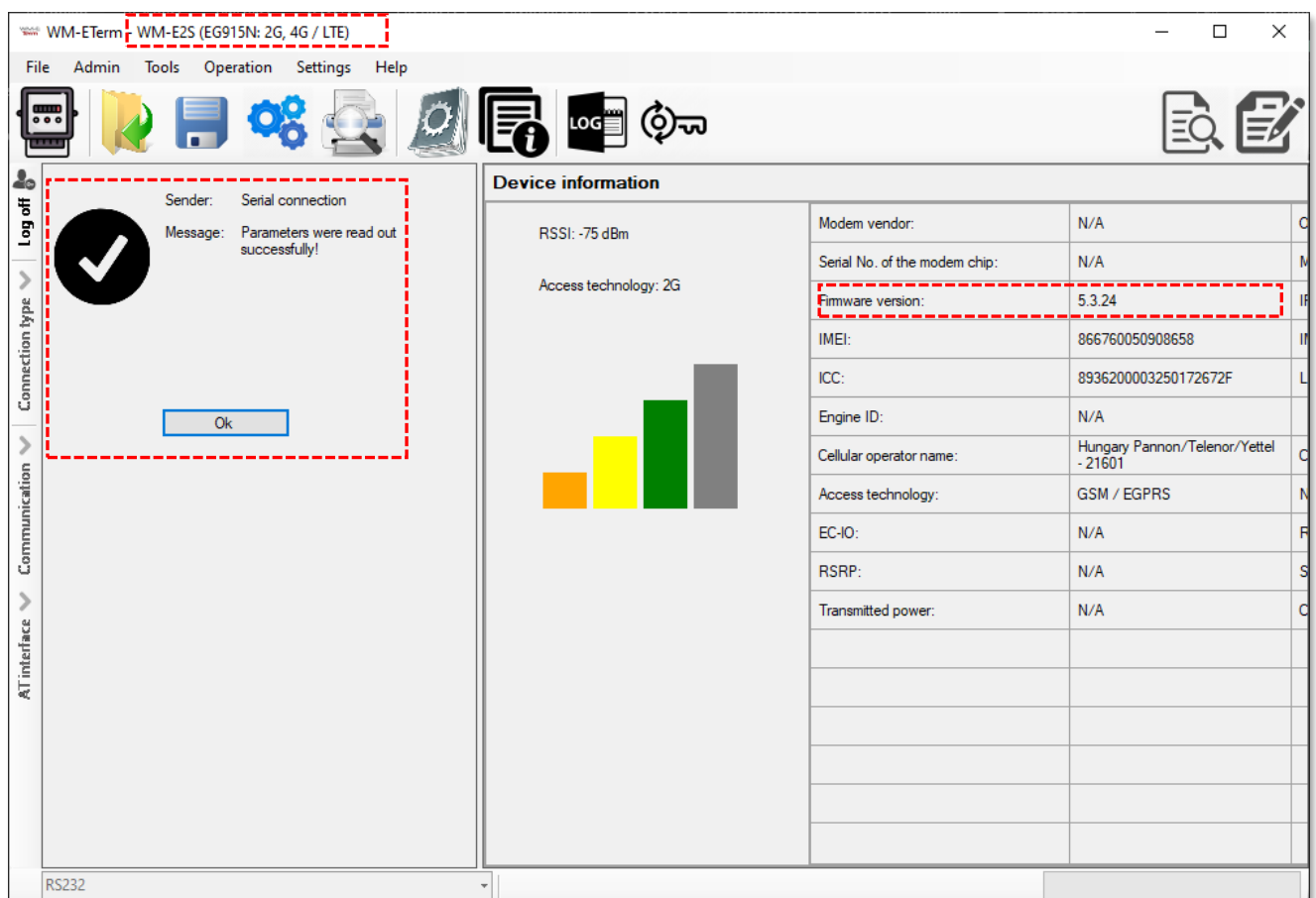
4. Change the settings and push to the **[Save]** button to confirm settings. Note that you still have to **Write the settings** to the modem to apply.

5. Later, if you want to go to the **Standard settings** mode, you can do it by pushing the **Parameters view** icon at the menu.

Important! *In case of WM-E2S modem, before connecting to RS232 check that the modem jumpers are configured for RS232 mode. If it is necessary, jumpering the device and retry the connection.*

1.8 Device Information

After connecting to the modem, you can check the device current status with the icon (or choose **Operation / Device Information view** menu).

Here, the modem type and identifiers, modem firmware and device firmware version as identifiers are listed.

The current connection settings are listed here, as modem and firmware indentifiers, cellular network provider code and operator name, available network and access technology.

After pushing the **[OK]** button, the celluar signal strength (**RSSI**) can be seen on left and the **Access technology** – as it is displayed by coloums.

Note, that if you are not satisfied with the results, then move the antenna to an another position which has better cellular network fidelty and after 30-60 seconds, repeat the **Device Information** request.

If the **IP address** is filled, that means that the device is currently communicating properly on the cellular network. There you can check the IP address is given by the MO service provider for the SIM card.

Note that at <u>top part of the screen</u> the **modem type** will be also listed with the **available cellular network technologies** by the modem.

1.9 Transparent mode (for Optical type connection)

In case of using Optical connection, there is an **[End Transparent mode]** button at the bottom of the screen. You can switch this mode on/off and control the meter to allow or disable the transparent mode for the connecting metering modem.

Important!

The WM-E Term will switch off the Transparent mode after 15 minutes, then the button will disappear. If you cannot connect to the meter, try to reconnect again and switch again the button.

1.10 Using fixed and dynamical IP addresses

The modem can receive dynamic IP addresses - which are given by the GPRS / 3G / 4G LTE / LTE Cat.M or Cat.NB network provider's DHCP service - and use them thanks to the APN settings and is able to receive and transmit data through the network. It can also use fixed public IP and fixed private IP addresses of the cellular network services during data call, transmission and data exchange.

After performing the proper APN settings, you can check the given IP address of the network provider, when connecting to the modem via the serial link.

At the **Log communication** tab on the left edge of the screen you can see the log for checking the current IP address or choose **Operation** / **Device Information view** menu or press the icon.

Chapter 2. Configuration

2.1 Parameter readout (from the meter)

1. Open the **Parameters read** icon to read out the parameters from the modem.

2. This will initiate the modem connection in the background via the used connection profile. The program tries to readout the parameters, which can be checked by the progress indicator on the righ-bottom side of the screen.
   (If you want to cancel the readout and the connection you can **Stop operation**.)

3. You can check the connection any time by the „**Communication**" tab on the left-side. Then the current modem communication messages, commands and answers will be listed on the left side of the screen.
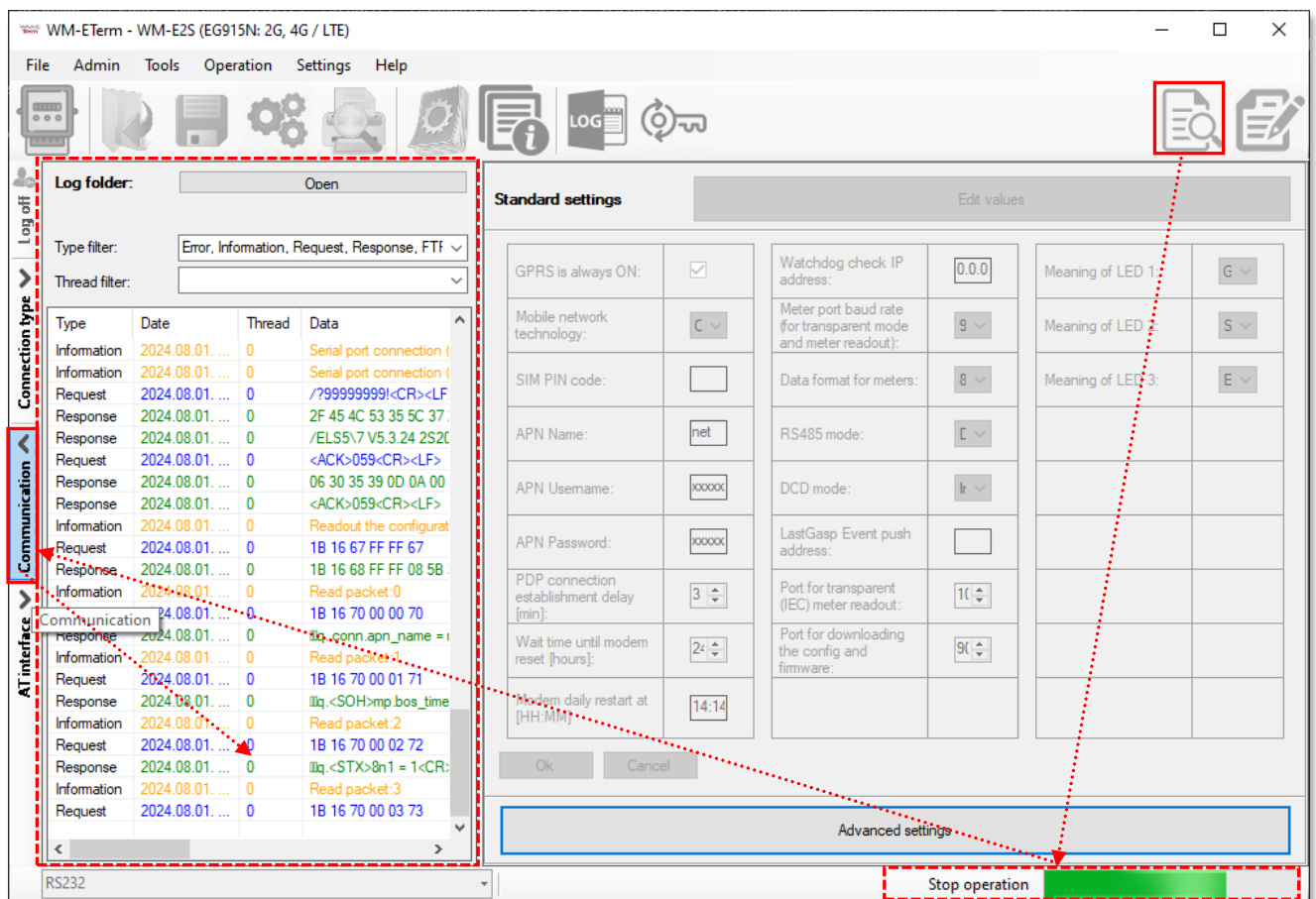
4. In the Communication Log, the following messages will be apperaing "*connection open... Readout the configuration... Read Packet 1... Read Packet 2... etc*". (In case of a connection failure the error message will also appear here.)

5. The WM-E Term then loads the listed and read out parameter values.

6. Confirm the readout process by pushing the **[OK]** button – on the left.

7. If you want to configure more settings beyond the basic **[Edit]** settings (above), press the **[Advanced Settings]** button (below) on the bottom side of the screen.
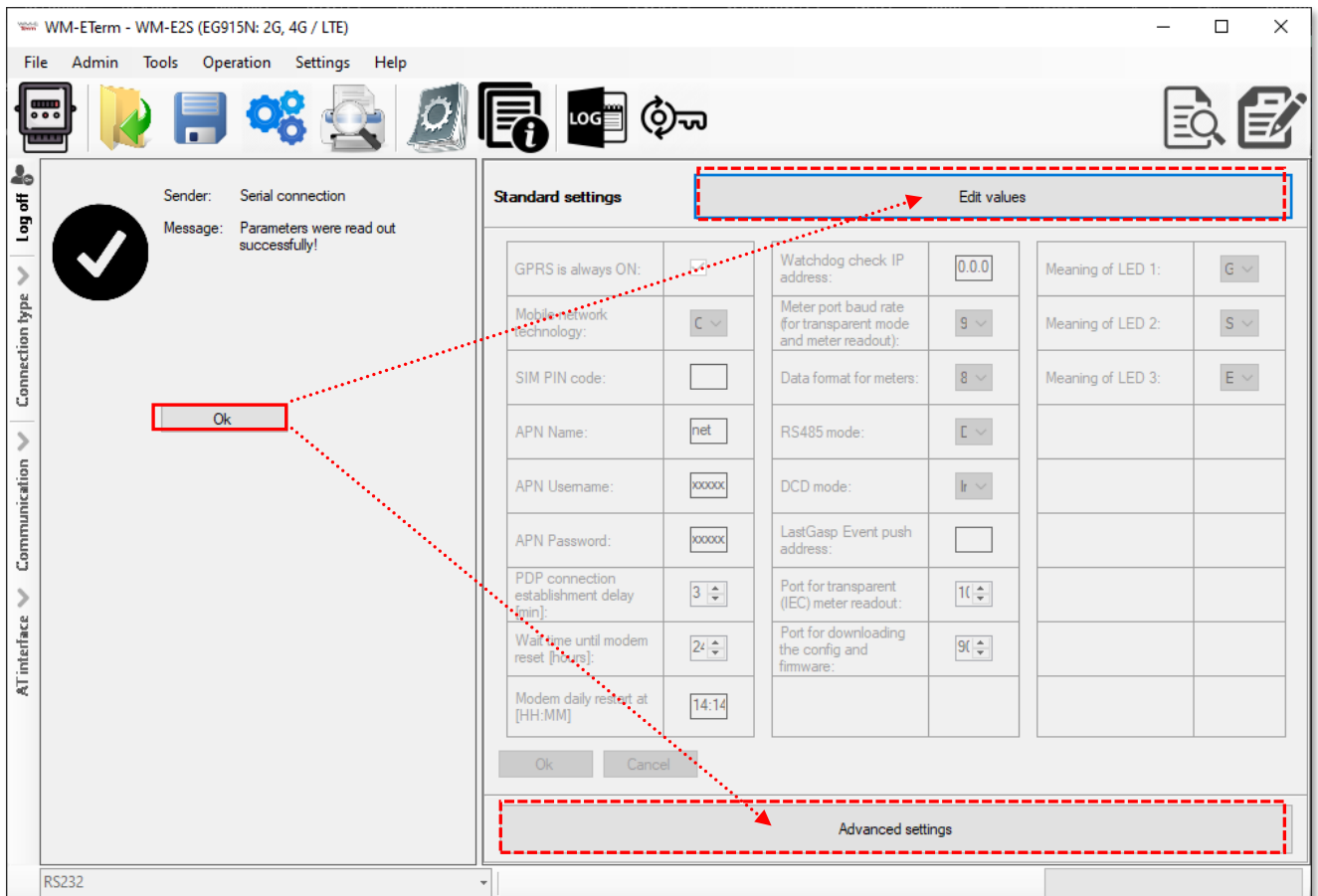
8. After pushing the bottom **[Advanced Settings]** button, the available parameter groups and their listed parameters are displayed – according to the current modem type.

   Here you can select another group using the corresponding button.

9. After pressing **[Edit values]** button, the available groups depend on the currently used modem model and firmware.
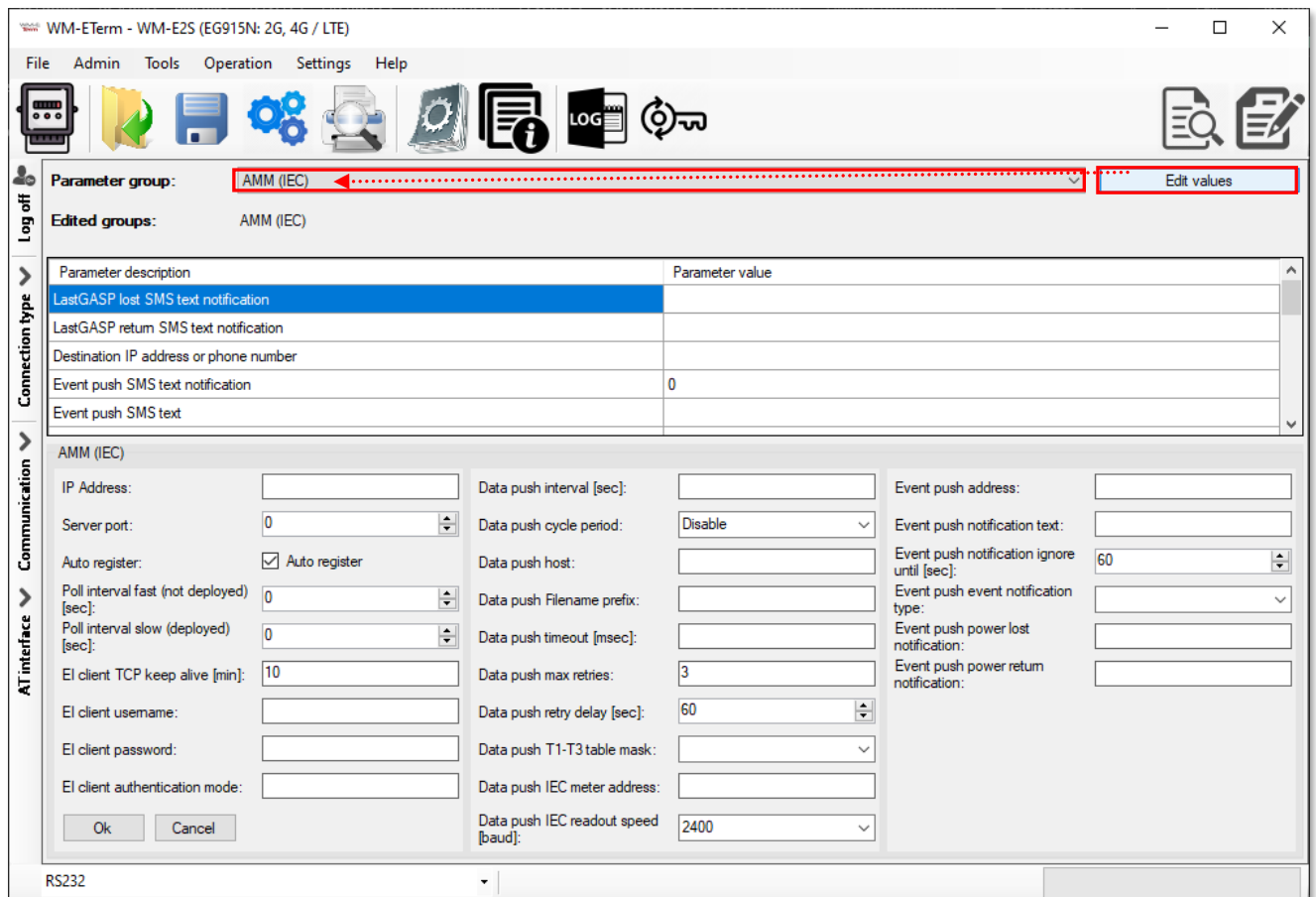
10. At the top of the settings, the available parameter groups and its listed parameters can be seen. There you can choose any **Parameter group**.

The available parameter groups depend on the currently used metering modem model and the used firmware.
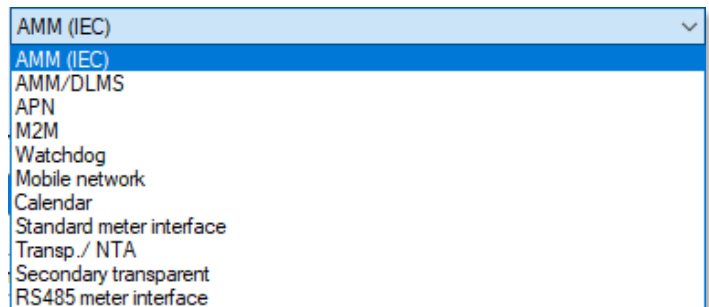
11. After loading the parameters at the top of the screen, you will then see the readout parameters and its values - at the bottom.

Available parameter groups:

- **AMM (IEC)** – Data push, Event push (SMS messages*, LastGASP*) and EI client

- **APN** – APN zone settings (for the SIM card)

- **Calendar** – Calendar settings and time zone (daylight) settings

- **Device Manager** – for configuring the Device Manager® server connection for monitoring and maintaining the modems remotely

- **M2M** – GPRS connection settings

- **Mobile Network** – Cellular network settings of the internet module / SIM

- **Network protocols** – in case of *TLS* firmware for *SNMP, NTP settings*

- **RS485 meter interface** –for RS485 meter connection settings – do not use this group in case of **E57C WM LTE®** modem type.

- **Standard meter interface** – Date format, identifiers, LED operation settings

- **Transp./NTA** – serial data transmitting settings (transparent mode, etc.)

- **Watchdog** – GPRS watchdog- and modem restart settings

12. By pushing the **Parameters readout** [icon] icon you can repeat the whole readout, when it is necessary, or even if you want to test the settings.

13. To edit the parameters, press the **[Edit values]** button to the right from the **Parameter group**.

14. You will then see the parameter values listed, and you can modify them.

15. When you have modified the required parameters, press the **[OK]** button to the settings.

    Important! The settings will NOT be saved / sended automatically to the modem! To send/write parameters to the modem, push to „**Parameters write"** [icon] icon!
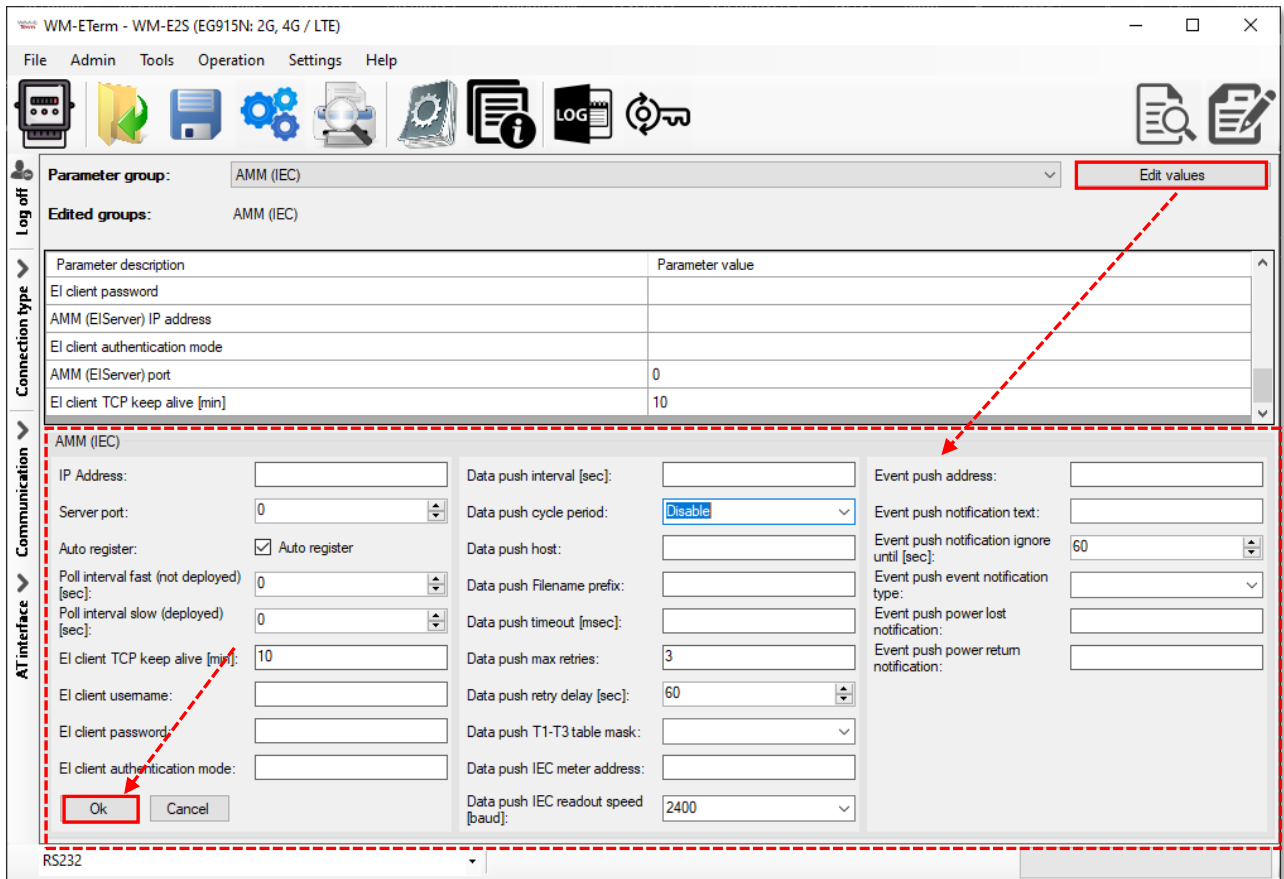
16. Then the whole parameter list and the values will then be sent to the modem.

    The right bottom progress indicator will show the percentage of the writing.
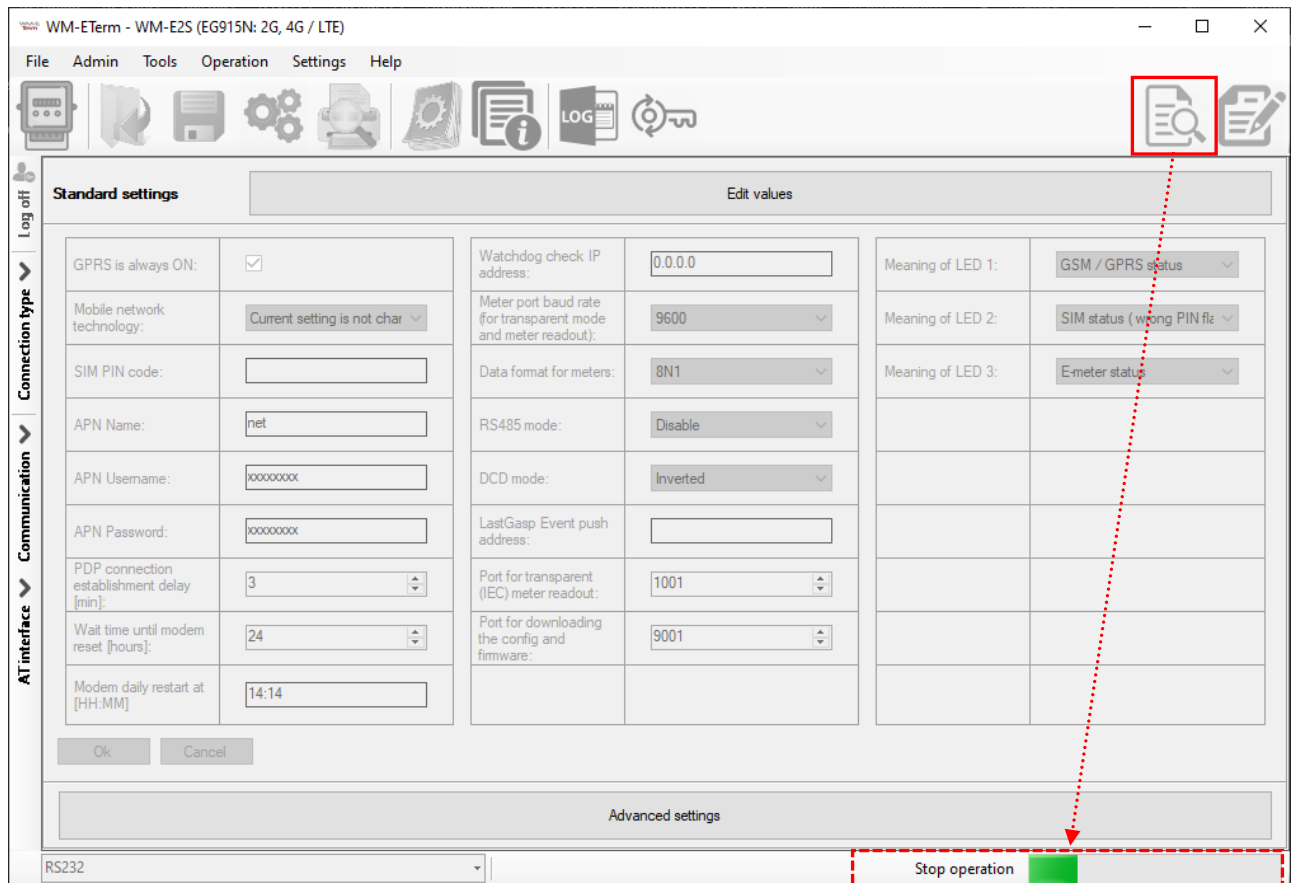
17. A success message will then appear. Press the **[OK]** button to continue.

Important! After parameter writing/sending, the modem will be automatically disconnected and rebooting. Afterall, it will be operating with the new settings.

The reboot process could take about 2-3 minutes until the modem's availability. During this you cannot access to the meter. Wait, while the modem will be available again!
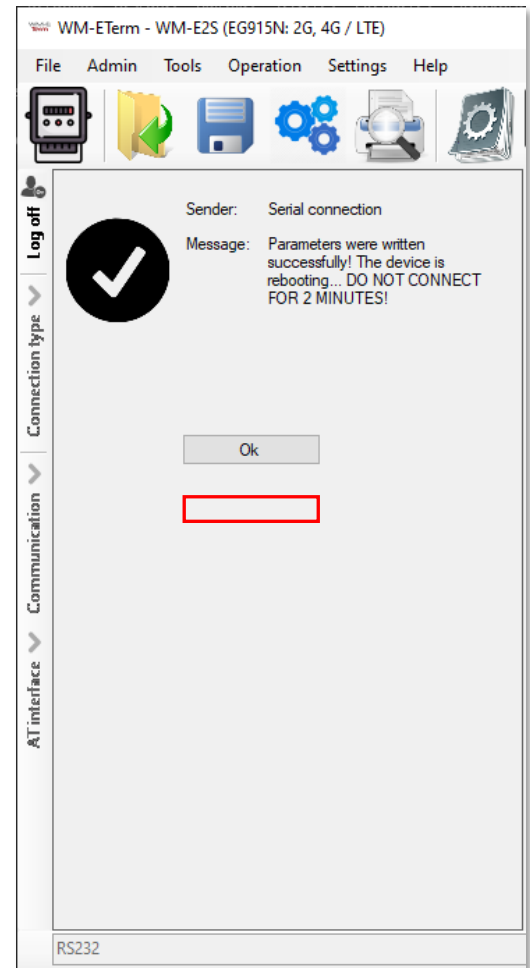
2.2 Saving the parameters

Open the **File** / **Save** menu to save the currently modified **configuration** (into a .CFG extension file).

2.3 Loading the saved parameters

1. When you already have a previously saved and prepared configuration, you can open it from the **File** / **Open** menu.

2. Browse the required configuration file (with .CFG extension) and press the **[Open]** button.

3. The program will then load the parameters, and you can write the parameters to the modem/meter as it was described before.
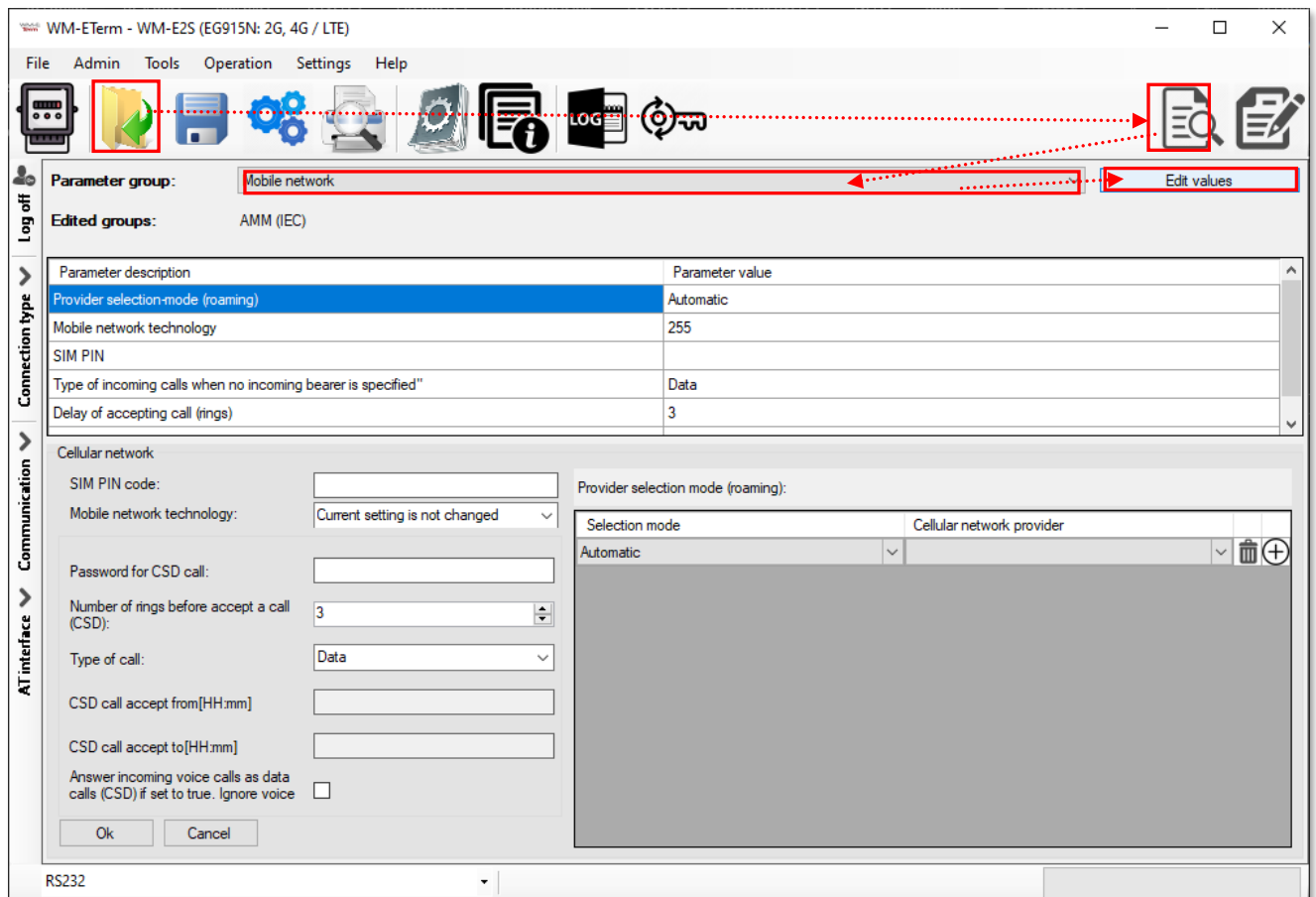
4. For the editing, choose a **Parameter Group** from the drop-down menu, the stored parameters will be listed automatically.

5. Click on the **[Edit values]** button and you can edit or change the stored modem parameters.

6. Press the **[OK]** button after the modification.

7. You can also save these settings to an another configuration file (.CFG).

   Important! Note that by saving or pushing OK, the modified parameters will not be automatically saved or sent/written to the modem.

   You have to send the parameters to the modem directly - choose the **Parameters write** button for the sending of the parameters!

Chapter 3. Parameter settings

Here you will find the minimal and recommended settings of the meter device for the proper data connection, mobile network communication and operation. Read out the parameters of the modem with the **Parameter Read** icon.

When the readout process has been finished, choose a **Parameter group** by the next listed hints and following steps. After this stage, you have to send the parameters to the modem – see later.

3.1 APN settings

1. Choose the **APN** group.

2. Press the **[Edit values]** button, and the relevant parameters and their values will be listed.

3. At the bottom side of the screen fill in the following fields, as **APN Name** – here you have to add the APN zone name according to the modem SIM card (ask your Mobile Operator).

4. If the SIM requires a APN username, add the **APN Username** according the mobile operator hints of the SIM card.

5. Then fill the **APN Password** if the SIM card uses a password for the APN access.

   *If the SIM is not using **APN Username** or **APN Password** values, then leave these fields blank.*

   *Note that **APN Username** or **APN Password** fields' content – if they are used – these are replaced by substitute **xxxxxx** characters by security reasons.*

   *If you change one of these fields, always rewrite /refresh the field content, never leave the characters on **xxxxxx** when you are modify the **APN settings** parameter group!*

   ***Important!** The PIN settings of the SIM can be configured in the **Cellular network** parameter. Check the setting if your SIM uses a PIN code for authentication.*

6. If the modem restarts due to an incorrect configuration, it may be possible to access it due to a CSD call. This operation can be fine-tuned by setting the **PDP connection estabilishment delay** value, where you can add a delay time (in minutes) which will be used before the PDP activation. The PDP parameter can be set between 1 and 255 (minutes) and by value 0 the delay feature can be disabled).

   You may need this function because it is possible that the modem did not receive an IP address the first time - in some cases not even several times, and in this case it waits for the specified time - to have a chance to connect, so it can give the CSD connection more time than usual for modem.

Operation of PDP delay in case of v2.x firmware versions:
- The firmware tries to perform PDP activation three times - if it could not connect to the network and did not receive an IP address.
- Waits a short time between attempts, then continues with the next attempt.

- If 3-times the PDP activation fails, it waits the specified number of minutes until the next attempt, based on the value specified in the **PDP connection setup delay** field.

- After the PDP connection establishment delay value expires, it returns to the first point.

Operation of PDP delay in case of v5.x firmware versions:

- The firmware tries to perform PDP activation three times - if it could not connect to the network and did not receive an IP address.

- Take a 1-minute break between each attempt, then continue with the next attempt.

- If the PDP activation fails, the PDP waits for the specified number of minutes until the next attempt, based on the value specified in the **PDP connection setup delay** field.

- After the PDP connection establishment delay value expires, it returns to the first point.

7. Press the **[OK]** button and continue with the next part.

3.2   Wireless settings

1. Choose the **M2M** group for cellular communication settings (2G, 3G, 4G etc).

2. Push **[Edit values]** button, and relevant parameters and values will be listed.

3. **Encryption password via MD5 algorithm** – You can ask for encryption of the password via MD5 algorithm. Values: 0 = false, 1 = true

4. Fill in the following fields on the screen:

   - **GPRS is always ON** – check in the field if it was empty (it will always be online). When enabling, it will connect to PDP only if it's in „push" mode, in any other case the GPRS part will be inactive (for FTP push or UDP/TCP push).

- You can enable the **Connection timer** – only if you are not using the **GPRS always ON** option (when it is disabled)
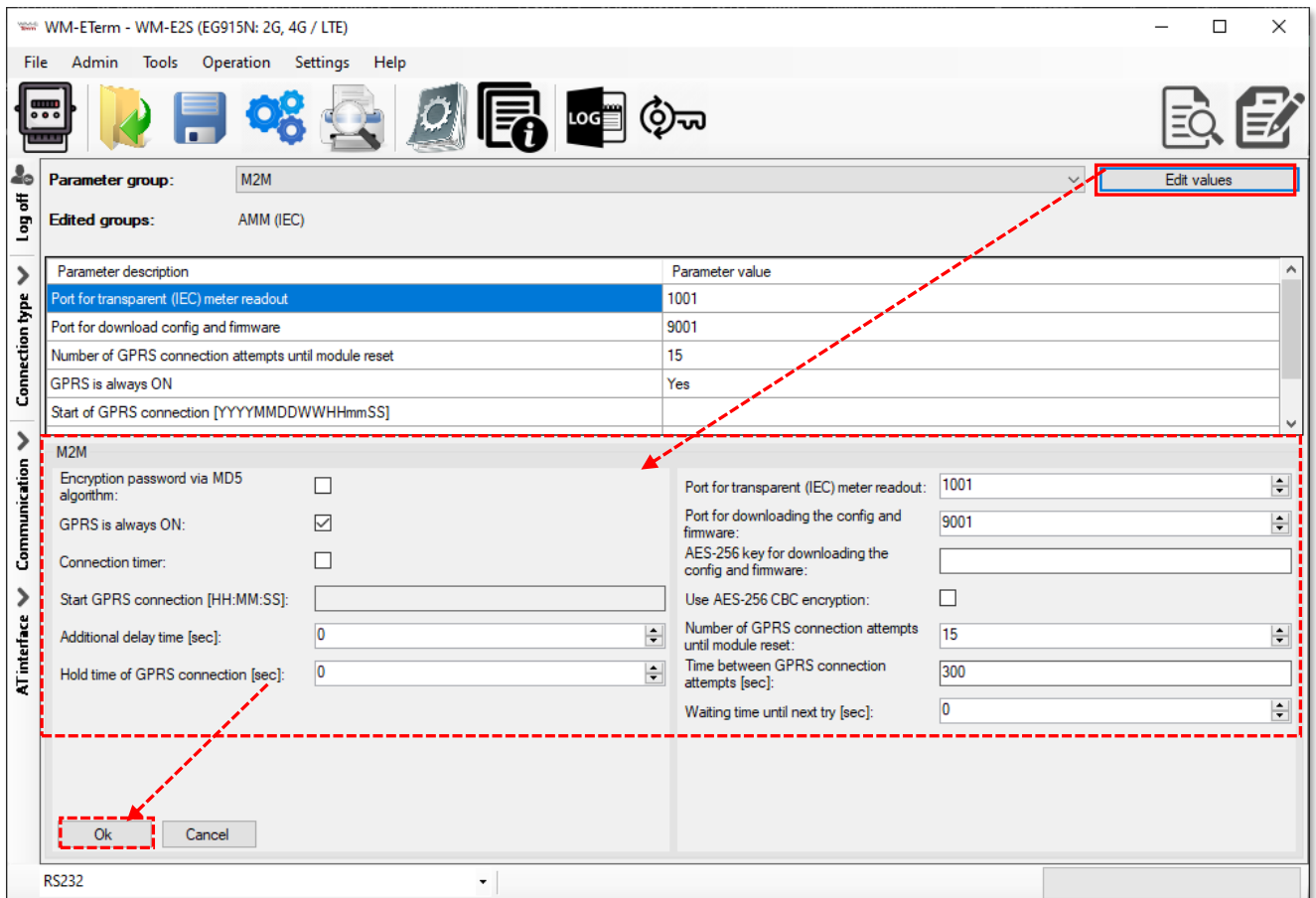
5. In case of enabling the **Connection timer**, the **Start GPRS connection** can be defined for the modem's GPRS connection / to push data (in HH:MM:SS format / syntax) via cellular network. Note that it is usable only if the **GPRS Always ON** parameter was disabled!

6. **Additional delay time [sec]** – in case of using "push" to give some delay (in seconds) before build-up the connection.

7. **Hold time of GPRS connection [sec]** – When there is no available GPRS connection, after the defined time (in seconds) will try to reconnect the GPRS connection. After alarm push, the PDP context will be deactivated and disconnected after this defined interval. Will be valid only if the **GPRS Always ON** parameter was set to „**disable**".

Important! *Note, that the modem uses the default nr. 9000 port for communication and the port nr. 9001 for configuration and firmware refresh.*

8. Here you can define the **Port for the transparent (IEC) meter readout*.**

9. To define a different **Port for downloading the config and firmware*** refresh.

   *Warning! *The two ports should be set to different port numbers.*

10. Enable the **AES-256 CBC encryption** if you want to use and **AES-256 key for download config and firmware**.

11. You can also configure the **Number of GPRS connection attempts until module reset** – means the number of maximum GPRS (PDP) connection attempts 'till module-restart.

12. There are presetend some refine settings to define as **Time between GPRS connection attempts [sec]** – if the PDP context activation was not successful, it will delay the reconnection according by the following: from the value list e.g. „*15, 15, **300**, 15, 15, **300**, 15, 15, **3600***" the last position – the value „3600" (seconds)- will be the first valid delay value. When that time has elapsed, the three earlier position will be valid – the value in our example is „300" (seconds) – after this time has elapsed, the the three earlier posititon will be active – the value „***300***".

13. **Waiting time until next try [sec]** field – waiting time between connection attempts. If the PDP context activation was not succesful, then it will wait until for the defined interval to the re-activation. If that reached the end of the time [secs] between **GPRS connection attempts** parameter value timeout, it goes back to the list, otherwise it is not used. (The parameter is not implemented yet.)

14. Press the **[OK]** button and continue with the next part.

3.3 Cellular network settings

1. Choose the **Mobile network** group for editing the cellular connection parameters.
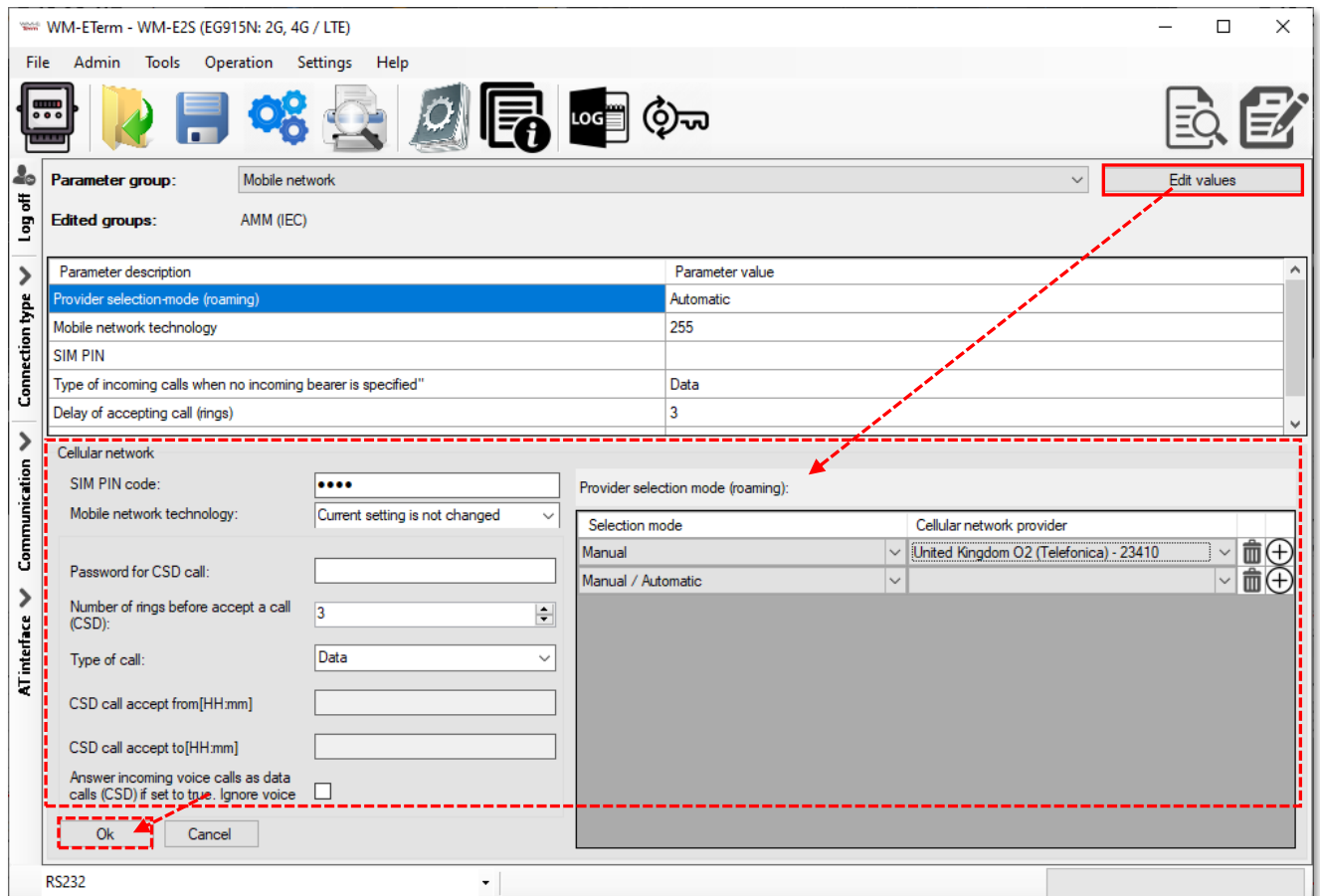
2. Press the **[Edit values]** button, and the relevant parameters and their values will be listed. Configure the parameters.

3. **SIM PIN code** – check in the field if the SIM card that you are using needs a PIN code and fill in the code here

4. **Mobile network technology** – here you can define the mobile access technology algorhythm for network use (for 2G, 3G, LTE, Cat.M networks and for fallback* feature).

The useable network technology options of the current internet module are listed on the top of the screen as it is marked on the next figure.
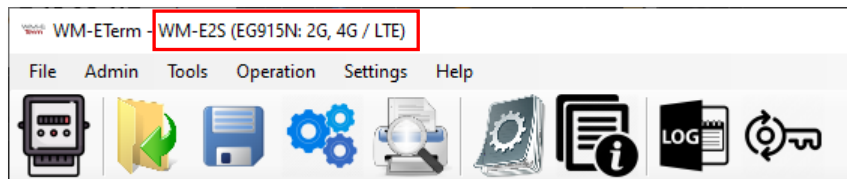
Options – according to the current cellular module type:

Current settings is not changed – the modem will trying to use the default factory settings for connection. By using this option, the modem will try to register to the last succesfully used technology.
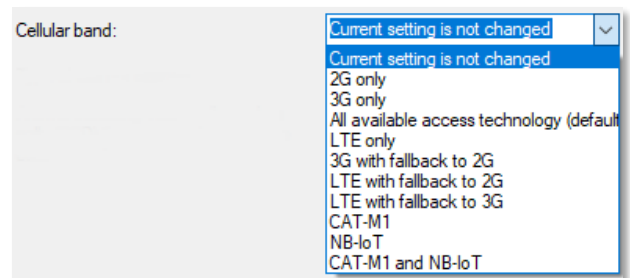
Note, that if you change the SIM card in the modem, we do not recommend to use this option.

Warning! *Here you can always found only the modem related network technology settings and cellular network combinations (e.g. only-modes, fallback-modes, etc.).*

All available access technology – usable only for the modules, which are supporting the 4G and 3G and 2G networks!

- *LTE with fallback to 2G / 3G* – usable only for modules, which are supporting fallback channels (etc. LTE module with 3G/2G fallback). Fallback means, that in case of outage of the primary selected network (e.g. LTE), the module will switch to the fallback network (e.g. 2G or 3G) and will be operating further on that channel. When the primary band will be available again, the modem will switch back to the primary technology (to the LTE). It's a fail-safe setting.

- **2G only, 3G only, Cat.M1, NB-IoT** – the modem will be operating only on the selected network type, if the internet module supports the selected cellular network technology. If the technology cannot be accessed temporary, the module won't be operating. It's not a fail safe setting.

- **LTE only** – in case of LTE and Cat.M modems, we suggest to choose this option.

- **Cat-M1 and NB-IoT** – usable only for Cat.M/NB modules. The available network will be used automatically.

- **Cat.M / Cat.NB with 2G fallback** – we suggest do not change the value of the All available access technology field.

Further parameters here are for configuring the CSD:

- Add a **Password for CSD call** – login pass for call and SMS

- **Number of rings before accept a call (CSD)** – it waits for the defined number of rings before accepting the data call (CSD)

- **Type of call** – here you can define *Data*, *Fax* or *Voice* mode for the barrier type of incoming calls (CSD). We suggest you to use the *Data* option here.

- **CSD call accept from [HH:mm]** – here you can configure a scheduled time for the initialization of the CSD call. Format is "hours and minutes", e.g. 14 hours and 20 minutes lasts *14:20* value.

- **CSD call answering until [HH:mm]** – here you can configure a scheduled time during which the CSD call will be active and when it will be disconnected. Format: hours:minutes, e.g. *14:20*

- **Answer incoming voice calls as data calls (CSD) if set to true. Ignore voice calls otherwise** – here you can enable the CSD transformation of voice calls.

5. On the right side of the screen you can define the **Provider selection mode** (**roaming**) – the cellular network provider change parameter. Fill, only if you attempt to define a dedicated mobile network to use. The selection list is provided by the international mobile operators.
   The connection method can be *Manual* or *Automatic*.
   Here you can also ***add*** *or* ***delete*** the selection mode in the list.

6. Press the **[OK]** button and continue with the next part.

3.4 Watchdog settings (monitoring the modem operation, scheduled modem restart)

The device is able to perform manual/auto reboot with the following options configurable from both the configuration program (WM-E Term) and SNMP.

You can configure here the following reboot options:

- Auto reboot to be disabled (configurable)
- Manual reboot (caused by any configuration modification)
- Auto reboot will run periodically based on a configurable timer which can be set up to 24 hours (configurable and can be scheduled)

The automatic restart monitors the "keep alive" message from the processor through the watchdog timer at predetermined intervals. If the watchdog timer stops receiving the "keep alive" message, it initiates a restart. The watchdog function operates independently of the processor. The device is set with a hardware watchdog, which continuously monitors the modem's operation, thus during the GSM module startup, SIM card initialization, network registration, and active communication.

If the GSM module startup, SIM card initialization, or modem network registration fails, or access is not assured, then at specified intervals, the modem repeats these tasks and attempts to set up and start the module, until the mobile network

connection and communication are established. In addition, communication monitoring of the modem is also solved.
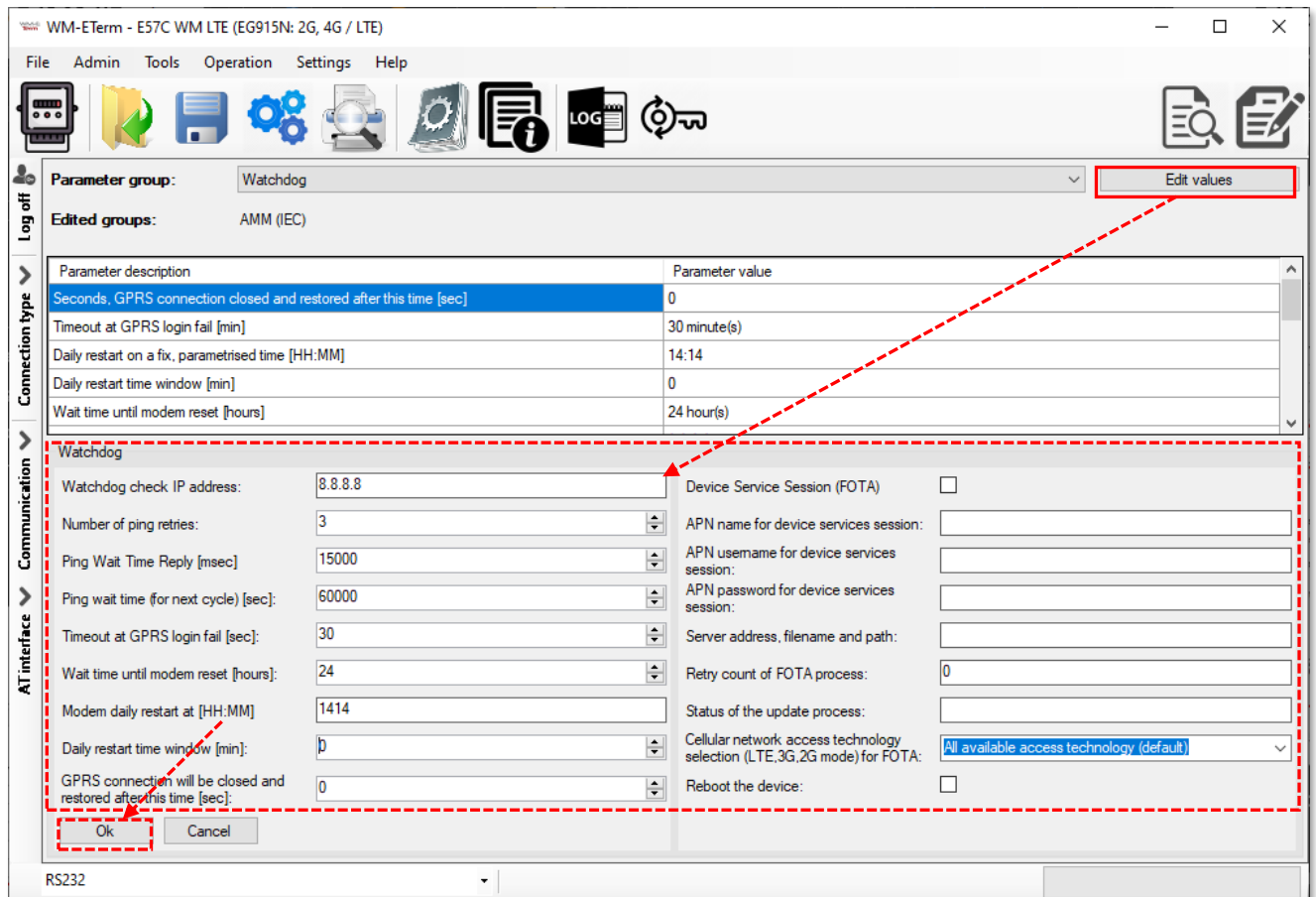
The following events can be set in the program regarding the operation of the watchdog:

- module restart in case of cellular module firmware shutdown
- network search restart in case of network outage
- cellular module restart after several unsuccessful attempts
- cellular module restart after multiple unsuccessful GPRS connection attempts
- fixed restart after a specified runtime

Management of the vital signs, GSM modem disconnection from the mobile network, and its reconnection can also be configured in the program as follows.

If the mobile network provider disconnects the modem from the mobile network due to network inactivity, there are certain parameters available, which if set, then the connection automatically and periodically rebuilds.

When the mobile service provider sends a message to the modem that the data connection has been interrupted, the connection is automatically restored. If no message is sent, set the pinging in the **Watchdog** parameter group, press the **[Edit Values]** button, and configure the following parameters:

You can configure the ping parameters as these are listed below:

1. **Watchdog check IP address** – add an IP address which can be accessed from the IP zone of the SIM card. This will be used for continuous checking of the network availability.

2. **Number of ping retries** – connection attempts.

3. **Ping wait time reply [msec]** – it is a timeout of ping interval (for checking the cellular network availability) – value in milliseconds.

4. **Ping wait time (for next cycle) [sec]** – it is an interval (wait time in seconds) between ping cycles, time interval until the next ping sequence occuring (for checking the cellular network availability). If there is no ping response, it reconnects to the network after the specified time interval (in seconds), where the GPRS connection will be closed and restored after spending the defined interval.

If there is no response to the ping request, the device is reconnected to the network after the time interval specified in the T**imeout at GPRS login fail [sec]** and the device reconnecting to the cellular network.

Attention! *In case of frequent ping using, the data traffic will be higher, but the chances are higher that the device will remain on the cellular network.*

Further settings:

1. **Timeout at GPRS login fail [sec]** – it is timeout when GPRS (PDP) login fail accours - tolerance interval of PDP connection establishment error

2. **Wait time until modem reset [hours]** – from the start of the modem, the watchdog restarts the module at these hourly intervals. (This is true if the following field is not filled. If the **Daily Restart on a fix, parametrized time** field is filled, then only the settings there will take effect, meaning the modem will be restarted at a fixed time).

3. **Modem daily restart at [HHMM]** – to schedule a time for daily restart of the modem – set an exact time it in *HHMM* time format. Or leave the field empty if you do not wish to restart every day. E.g. 14 hours and 20 minutes – value *1420*. (This will applied if the previous field - **Wait time until modem reset** - is not filled. If it is filled, then the settings there will take effect, meaning the timing starts from the last restart of the modem, and upon the completion of the number of hours set there, the device will be restarted).

4. **Daily restart time window [min]:** The use of this field allows for random restarts. It works by specifying an interval here (in minutes) relative to the previously set **Daily Restart** value, and the restart will occur within „N" minutes of the time specified in the previous field. For example, if you set the **Daily Restart** to *10:00*, and then set the **Daily restart time window** field to *120* (120 minutes, which is 2 hours), the modem will be randomly restarted sometime between 10:00 and 12:00.

   Important! The scheduled restart will be executed in the exact time only if the NTP settings are done and the modem also getting proper time information from the NTP server. Otherwise you can use the Mobile Operator provided time information, but at first please verify that the received time value is correct.

5. **GPRS connection will be closed and restored after this time [sec]-** Waiting time (in seconds) between establishing the PDP connection. This value is also used for ping! (If ping is configured (**Ping Waiting Time (for response)** parameter), then after the specified delay, it will automatically reconnect at the specified interval/repetition time.)

Here you can specify how long the device should wait after the provider cuts off the modem from the network before trying to reconnect to the mobile network again. Ask your mobile service provider for recommended settings!

Attention! If there is less data traffic and there is no ping configured, the device may not stay on the network for a long time. If you set this parameter to a low value that can cause frequent network reconnections. Therefore, according to the circumstances, should you set this value lower as your mobile service provider recommends. (because there are some mobile network providers that limit the number of the modem network connection and registering attempts during the time (e.g. limit to four times per hour – or similar used to configured by MOs).

FOTA (Firmware-Over -The-Air Update) settings (right side of the screen):

1. **Device Service Session (FOTA)** checkbox – here you can enable the remote Firmware refresh (FOTA) service.

2. Here you can fill **APN name for device services session** and **APN username for device services session** and the **APN password for device services session** fields.

3. **Server address, filename and path*** is used for Telit module FTP OTA support – an FTP server address and connection parameters (protocol, IP address as user and password) to refresh the module's firmware. Leave it empty if it is not used.

*Syntax (ftp):

FTP OTA parameters (FTP host, user/pass, path, filename)

<protocol>://<user>:<password>@<ip_address>/<directory>

Example (ftp): ftp://user:password@11.22.33.44/fw-upload/

4. **Retry count of FOTA process** – this means the number of remote firmware upgrade retries – in case of FOTA progress.

5. **Status of the update process** – here you can get a message for the device's current FOTA status.

6. **Cellular network access technology selection (LTE, 3G, 2G mode) for FOTA** - the device has the ability to manually force to refresh the firmware remotely (FOTA – FTP OTA) by selecting a network technology. E.g. LTE only, etc.

7. **Reboot the device** checkbox –immediate restart option is implemented only in case of some special firmware versions – *ask our Sales!*

8. Press the **[OK]** button and continue with the next part.

3.5 Calendar settings

1. Choose the **Calendar** group and press the **[Edit values]** button, and the relevant parameters and their values will be listed.

2. Here you can enable the **Switching daylight saving time** – if you wish to use this feature (using the annual daylight saving time as standard – DST date/time), then check the box, in any other cases leave it empty.

3. You can also define the type of the time correction of the daylight saving by choosing one of the possible radio buttons: **EU standard**, **Standard time**, **Daylight saving time.**

   If you select the *Standard time* or *Daylight saving time* option, further data should be defined as **Month, Day** and **Time**. Then you shoudld have to push to the **[Set date]** button.
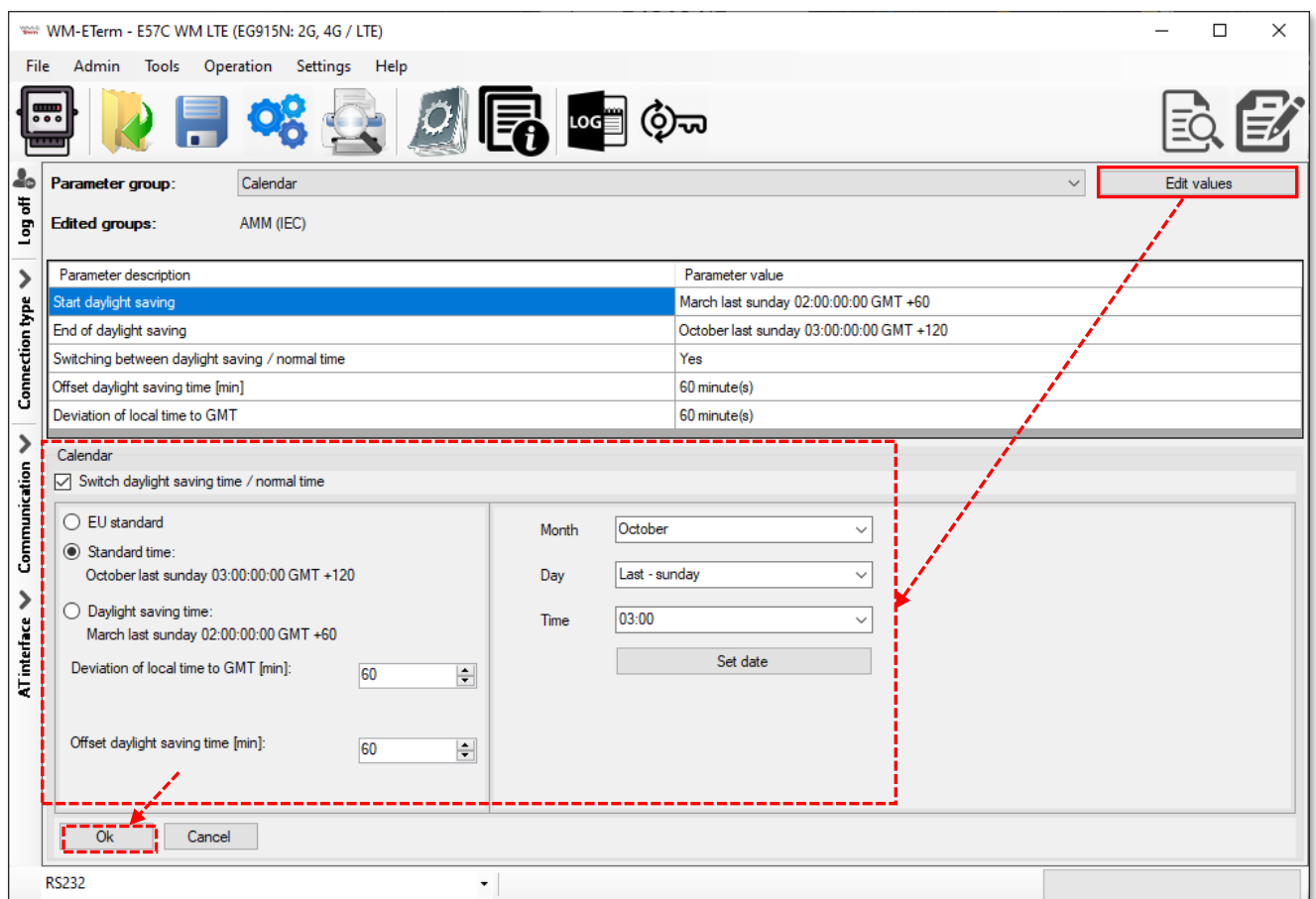
4. You can also use **Deviation of local time to GMT [min]** and the **Offset daylight saving time [min]** for time DST synchronisation regarding (in minutes) the needs and habits.

5. Press the **[OK]** button and continue with the next part.

3.6 Serial data transmission meter ← → modem settings (Transp. / NTA)

1. Choose the **Transp./NTA** group and press the **[Edit values]** button, and the relevant parameters and their values will be listed.

2. You can choose the **Multi utility mode (DLMS active)** – here you can define the *Transparent mode* (of data transmitting) or the *Multi-utility mode* (not implemented yet). It activates the E-Meter LED.
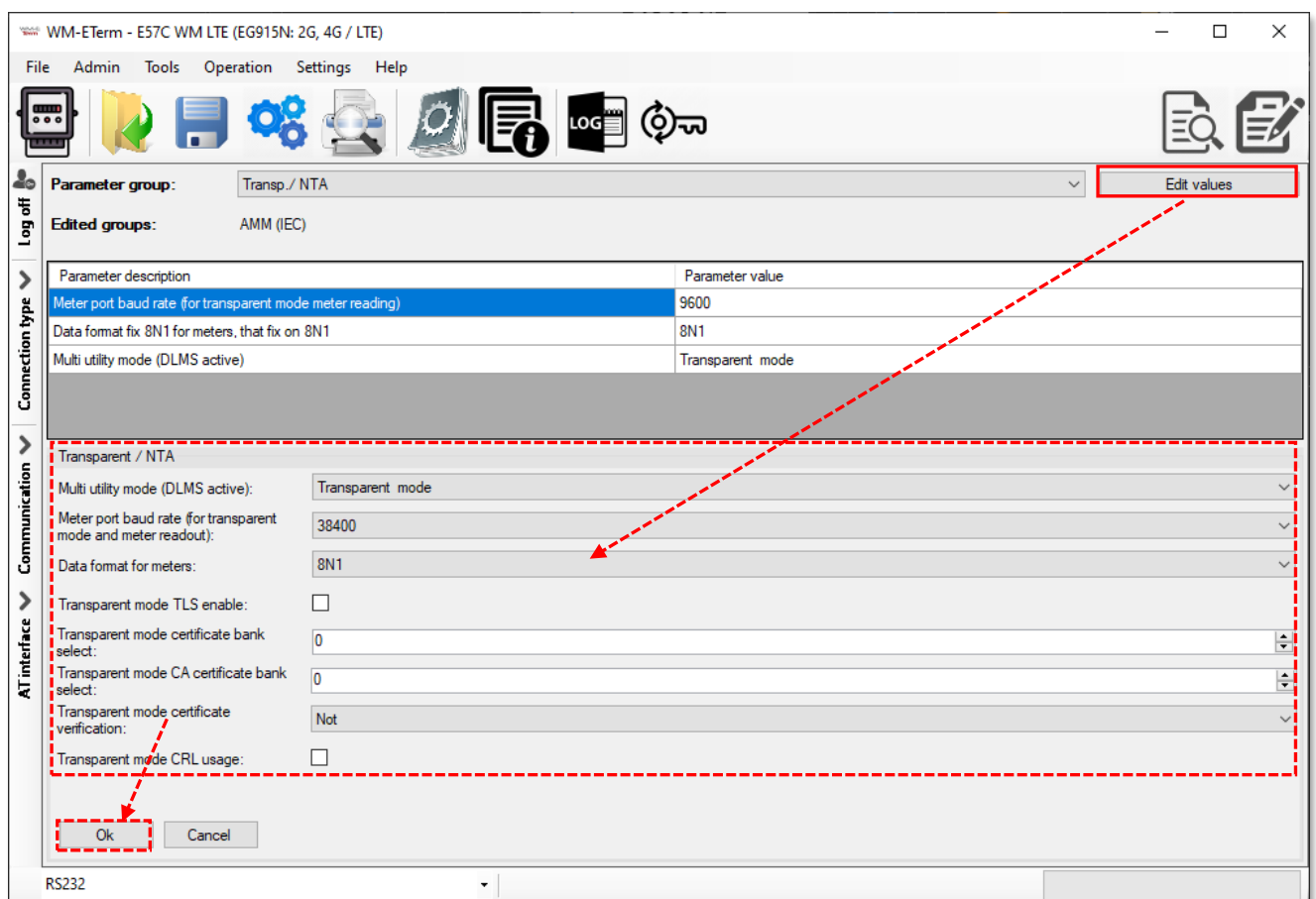
3. Then the **Meter port baud rate (for transparent mode and meter readout)*** E-meter serial port speed (during readout) can be also configured – define the serial data baud rate (baud) for the connection.

   * The default and recommended value is 9 600 baud in case of **WM-E2S** / **WM-E2SL** Modems and 38 400 Baud for the **E57C WM LTE** Modem.

4. **Data format for meters** – data mode for emeter serial port. You can select *8N1* (if it is *enabled*) or *7E1* (if it is *disabled*).

5. You can use TLS protocol encryption (between the modem and the meter), by choosing the **Transparent mode TLS enable** option.

6. You can then insert the **Transparent mode certificate bank select** and the **Transparent CA certificate bank select** here.
The **bank** value „**0**" means the default certificate used by the firmware, or you can choose the „**1**" which means that the uploaded certificate will be used. You can upload the certification file in the **Tools / CA-certificate handle** or the **Tools / Certificate handle** menu.

7. You can also configure the **Transparent mode certificate verification** mode (Possible values are: *Not / Optional / Mandatory*).

8. Press the **[OK]** button and continue with the next part.

3.7 IEC server settings (AMM/IEC)

1. Choose the **AMM (IEC)** group for meter connection settings.

2. Press the **Edit values** button, and the relevant parameters and their values will be listed.

3. **IP Address** (AMM (IEC)) – here you can define the remote server's IP address where the data will be transmitted through the wireless network

4. **Server port** (AMM (IEC)) – AMM (EIServer) port (ftp client port), define the port number of the server IP.

5. **Auto register** – Automatic registration to the address - checkbox. In case of data push send automatically or not.
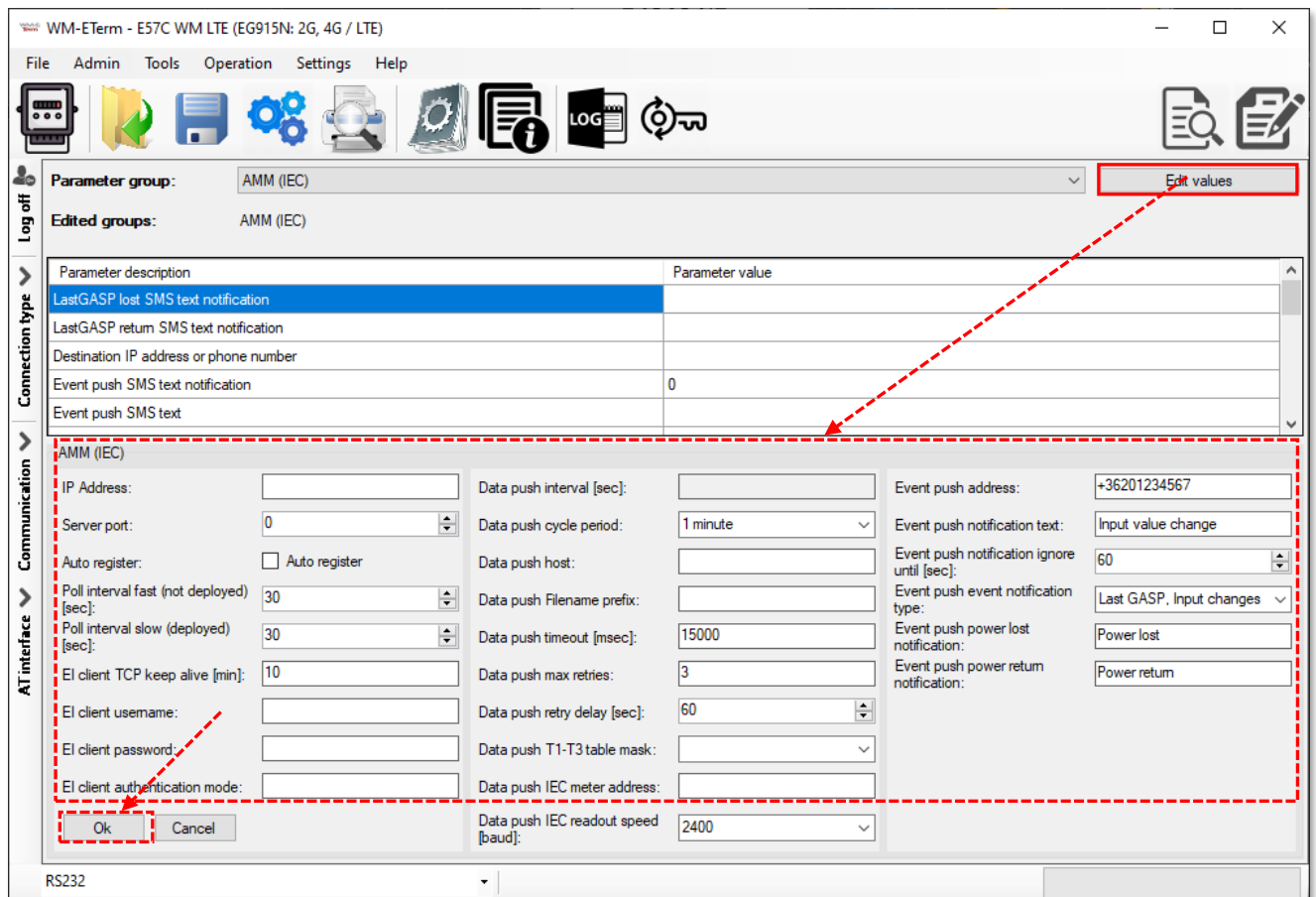
6. **Poll interval fast (not deployed)** – Value of Poll interval fast (not deployed) in seconds.

7. **Poll-interval slow (deployed)** – Value of Poll-interval slow (deployed) in seconds.

8. Define the **EI client TCP keep alive [min]** – Keeps the EI client connection alive for the defined time range – value in minutes.

9. **EI Client username** for the connection IP address, and **EI Client password** are also also required, then fill these fields.

10. **EI client authentication mode** means that a remote device cn be configured and allowed to be connected to the modem and readout the data – by selecting authentication mode. Values: **N** - no authentication, **E** - EI authetication: define the **Username** and the **Password**.

Data push settings (ftp):

In the next column on the right you will find the **Data Push** Parameters setting – Configure these settings if you want to use the FTP/Data Push service on the modem.

1. **Data push interval [sec]** – Not available for all modem types. The interval of next data / FTP push connection trying - the data push will be inactive until the interval spent and then it will try again (if **Data push max retries** was not exceeded) – value in seconds.

2. **Data push cycle period** – Not available on WM-E2S / WM-E2SL modems.

3. Fill the **Data Push Host** field – for defining the SMS phone number or / FTP server or TCP/UDP server's IP address.

   Syntax (ftp):
   FTP OTA parameters (FTP host, user/pass, path, filename)
   <protocol>://<user>:<password>@<ip_address>/<directory>
   Example (ftp): ftp://user:password@11.22.33.44/fw-upload/

   Syntax (TCP/UDP):
   <protokoll>://<ip_address>:<port_number>
   Example (TCP): **tcp://11.22.33.44:8088**
   Example (UDP): **udp://11.22.33.44:8088**

   Syntax (SMS):
   <protokoll>://+<country_code><network_operator_code><call_number>
   Example (SMS): **sms://+43071234567** or similar

4. **Data push Filename prefix** – Not available on **WM-E2S** / **WM-E2SL** / **E57C WM LTE** modems.

5. Add the **Data push timeout [msec]** – Interval of data / FTP push connection wait - it waits until the declared interval whether it was successful or not – value in milliseconds.

6. **Data push max retries** means the number of retries of data push operation in case of connection failure.

7. **Data push retry delay [sec]** means an applicable delay value, after the data push until the next periodic data push will be initiated.

8. **Data push T1-T3 table mask –** tariff table readout selectable options. Optional to use.

9. **Data push IEC meter address** – source meter address.

10. **Data push IEC readout speed [baud]**– source meter communication / readout speed rate in baud.

Event push settings (LastGASP):

*Note, that this feature is NOT working with the **E57C WM LTE** modem.*

1. At right side of the screen, you will found the **Event push** settings.

2. The **Event push** feature is available only with the metering modem, which contains a supercapacitor! – e.g for the Modem type **WM-E2S** / **WM-E2SL**.

Important! *The following settings will be valid and useful only if there is a supercapacitor on the related WM-E modem version, and if you requested the compatible firmware version to configure the „Last GASP" event push notification alert.*
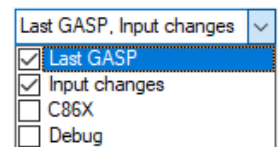
1. **Event push address** – here you can add the notification address (SMS phone number / FTP or TCP/UDP (IP) address) for alarm notification (e.g. in case of

power lost, input status change, etc.). In case of SMS (phone number), use the international format.

2. **Event push notification text** – SMS alarm message text – not available on WM-E2S / WM-E2SL modems.

3. **Event push notification ignore until [sec]** – SMS alarm message text – Not available on WM-E2S / WM-E2SL modems.

4. **Event push notification type** – SMS notification type options to select. Multiply selection:

- *Last GASP* notification - quite useful for reporting an occurring and unexpected power outage event. In case of *power outage* event, the modem's supercapacitor allows to futher operate the Iodem for a limited time (only for a couple of minutes).

   When detecting this power loss of the mains/input power source, the modem generates a "**POWER LOST**" event and the alert message will be transmitted immediately as an SMS text to the pre-configured phone number. In case the mains/power source is recovered, the modem generates a newer, "**POWER RETURN**" message and will send it by SMS text to the phone number which was configured.

   Some firmware versions of the modem support the LastGASP feature – *ask our sales!*

- *Input changes* – Input signal/value changes are notified via SMS messages - Not available on **WM-E2S / WM-E2SL / E57C WM LTE** modems.

- *C86X* – meter messages will be notified by SMS

- *Debug*

Warning! *This feature only works properly if you are using a compatible firmware version. Please ask our Sales!*

5. ***Event push power lost notification** – you can define a power outage alarm/event message.

6. ***Event push power return notification** – you can define a power outage release/return event message.

*Important! *Check LastGasp, Input changes in next chapters for proper settings.*

The parameter modifications will not be overriden automatically on the modem side. Therefore, press the **[OK]** button and then you have to press the **Parameters write** icon to send the parameters to the meter.

3.8 RS485 / DCD meter interface settings

The **RS485 meter interface** parameter group is useful for configuring the RS485 meter connection settings.
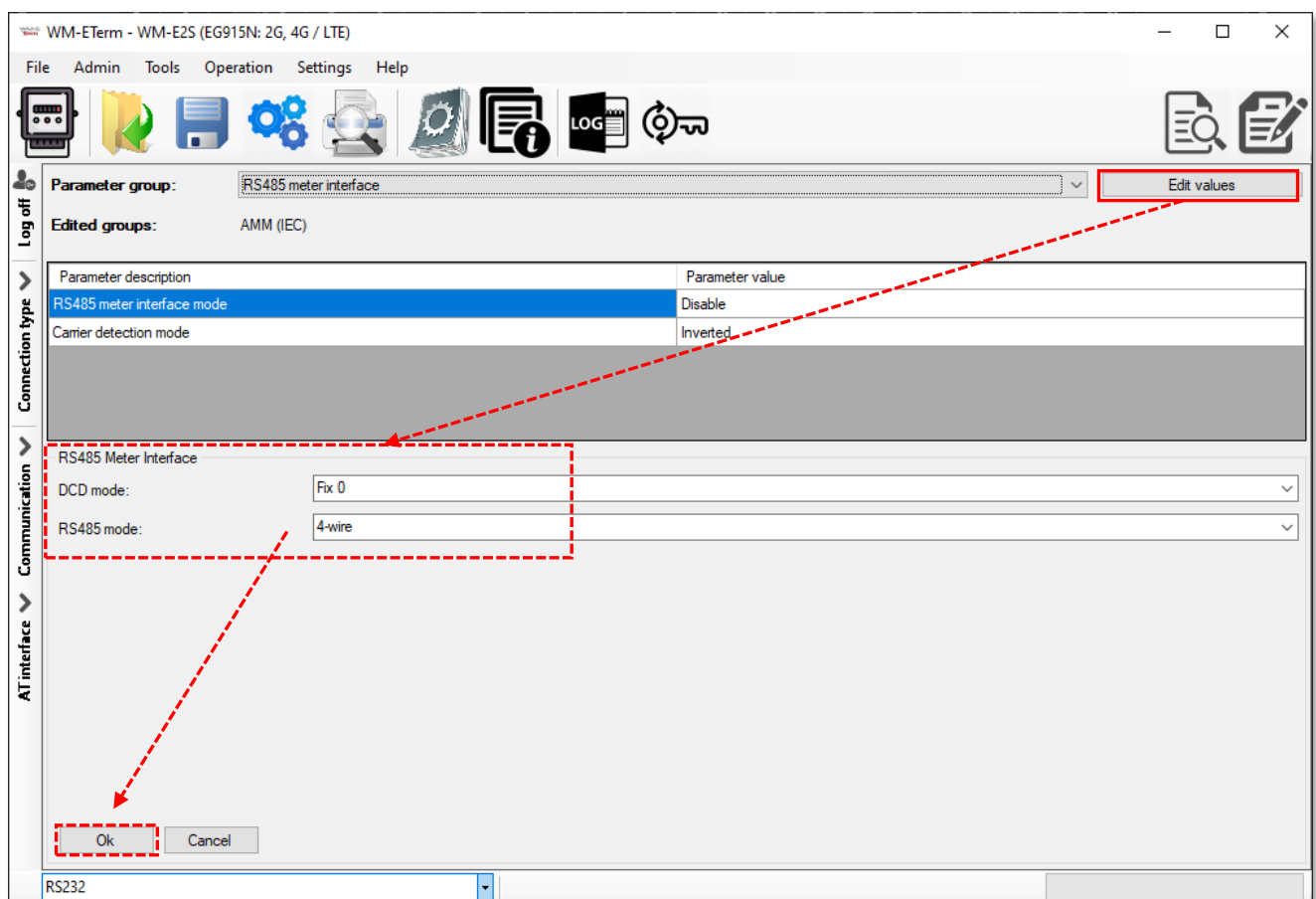
Important! *The DCD (Data Carrier Detect) feature can be set up on the meter based on its' user manual. This parameter can be used for defining the connection type, i.e. which mode is used for the modem during communication: the modem attempts to communicate online (transparent) or offline (not transparent) mode with the connected meter.*

Some meters are using the DCD value 1 as transparent, some others are using the value 0.

1. To configure it, choose the **RS485 meter interface** parameter group.

2. Press the **[Edit values]** button, and the relevant parameters and their values will be listed.

3. Define **DCD mode** (data carrier detection). Configure by choosing the DCD operation mode:

   a. *Fix 0* (logical '0' value at meter's side, where it can be configured as online or offline)

   b. *Fix 1* (logical '1' value at meter's side, where it can be configured as online or offline)

   c. **Standard** (normal operation without changing the transparent communication)
      - 1: online
      - 0: offline

   d. *Inverted* (opposite of the standard)
      - 1: offline
      - 0: online

4. ***RS485 mode** – select a wire mode to configure the RS485 operation.
   - *2-wire* – means half duplex 2-wire pinout
   - *4-wire* – means full duplex 4-wire pinout
   - *Disable* – *RS485 will be used automatically (for modem versions which are having only RS232 cable, it is recommended to configure this mode).*

__Important!__ In case of __E57C WM LTE__ modem, the RS485 mode is detected automatically (will be set to Disabled (which means automatic)). Note, that if you will override this setting (e.g. to 4-wire or 2-wire), then the modem will be not operating properly and cannot be accessed locally – will be accessible only via TCP connection! Therefore, we suggest not to set or configure the RS485 mode in case of this modem type.

In case of firmware v2 this parameter is used automatically - controlled by the current firmware. Only in case of firmware v5 can be used the configured parameter setting.

5. The parameter modifications will not be overriden automatically on the modem side. Therefore, press the __[OK]__ button and then you have to press the __Parameters write__ icon to send the settings to the modem.

__Important!__ *This feature will only be effective, if you use a compatible firmware. Ask our sales!*

3.9 SNMP parameter settings

The SNMP parameter readout and settings for the SNMP Manager compatibility are available for some __WM-E2SL__ type modems only (Landis+Gyr meter-connected).

Over the classic readout and write of parameters through local serial link or TCP connection, there is a possibility of readout the parameters via SNMP v3 protocol and write some of them to the modem.

Only a few, limited numbers of SNMP parameters are supported here – due to the Customer requirements. The following, listed values can be handled by the MIB file (a description file, which can be imported) at the SNMP manager.

Please note, that SNMP v1, v2 are not supported, only the SNMP v3 is supported!

SNMP Parameter Group	Name	Read Only (RO)/ Read Write (RW)	OID	Name in mib file	Remarks
Device info	vendor	RO	1.3.6.1.4.1.52174.1.1.1	wmeTEvendor	
	modelname	RO	1.3.6.1.4.1.52174.1.1.2	wmeTEmodelname	
	hwversion	RO	1.3.6.1.4.1.52174.1.1.3	wmeTEhwversion	
	softwareversion	RO	1.3.6.1.4.1.52174.1.1.4	wmeTEsoftwareversion	
	imei	RO	1.3.6.1.4.1.52174.1.1.5	wmeTEimei	
	imsi	RO	1.3.6.1.4.1.52174.1.1.6	wmeTEimsi	
	lteband	RO	1.3.6.1.4.1.52174.1.1.7	wmeTElteband	use the output form of the LTE Module, list of supported LTE bands, separated by commas: B<number>[(frequency)]. The definition of the frequency is optional
	reboot	RW	1.3.6.1.4.1.52174.1.1.8	wmeTEreboot	cause instant reset
System Information	keepAliveDuration	RW	1.3.6.1.4.1.52174.1.2.1	wmeTEkeepAliveDuration	seconds, but minute steps, Reading values will be 0 or mulipies of 60. written values will be rounded down. Except less than 60 will be 1, but 0 will be 0
	autoreboot	RW	1.3.6.1.4.1.52174.1.2.2	wmeTEautoreboot	seconds, but hour steps. Reading values will be 0 or multiplies of 3600. written values will be rounded down. Except less than 3600 will be 1, but 0 will be 0.
	battVoltage	RO	1.3.6.1.4.1.52174.1.2.3	wmeTEbattVoltage	in mV
	battCapacity	RO	1.3.6.1.4.1.52174.1.2.4	wmeTEbattCapacity	0-100 (in percentage) e.g. 50 = 50%
Network Information	usimstatus	RO	1.3.6.1.4.1.52174.1.3.1	wmeTEusimstatus	READY
	ltenetworkstatus	RO	1.3.6.1.4.1.52174.1.3.2	wmeTEltenetworkstatus	0 not LTE network 1 LTE network registartion
	operator	RO	1.3.6.1.4.1.52174.1.3.3	wmeTEoperator	
	ecio	RO	1.3.6.1.4.1.52174.1.3.4	wmeTEecio	value 255 means Not Available.
	rsrp0	RO	1.3.6.1.4.1.52174.1.3.5	wmeTErsrp0	value 255 means Not Available.
	rsrq	RO	1.3.6.1.4.1.52174.1.3.6	wmeTErsrq	value 255 means Not Available.
	rssi	RO	1.3.6.1.4.1.52174.1.3.7	wmeTErssi	
	sinr	RO	1.3.6.1.4.1.52174.1.3.8	wmeTEsinr	
	txPower	RO	1.3.6.1.4.1.52174.1.3.9	wmeTEtxPower	
	pCID	RO	1.3.6.1.4.1.52174.1.3.10	wmeTEpCID	
	MCC	RO	1.3.6.1.4.1.52174.1.3.11	wmeTEMCC	
	MNC	RO	1.3.6.1.4.1.52174.1.3.12	wmeTEMNC	

APN	apn	RO	1.3.6.1.4.1.52174.1.4.1	wmeTEapnName	
Alarm	pwshute-en	RW	1.3.6.1.4.1.52174.1.5.1	wmeTEpwshute	
	TRAP_pwshut	RO	1.3.6.1.4.1.52174.3.0.1	wmeTETrapPowerOff	

Configure the SNMP parameter readout and settings for the SNMP Manager compatibility.

1. Readout the meter settings, then choose the **Network Protocols** group.

2. Choose the **[Edit values]** button to edit the settings.

3. Here you can configure the **SNMP** related settings and manager settings, according to the SNMP Manager connection needs.

4. At the right side you can also setup the **NTP server** (network time server) settings.
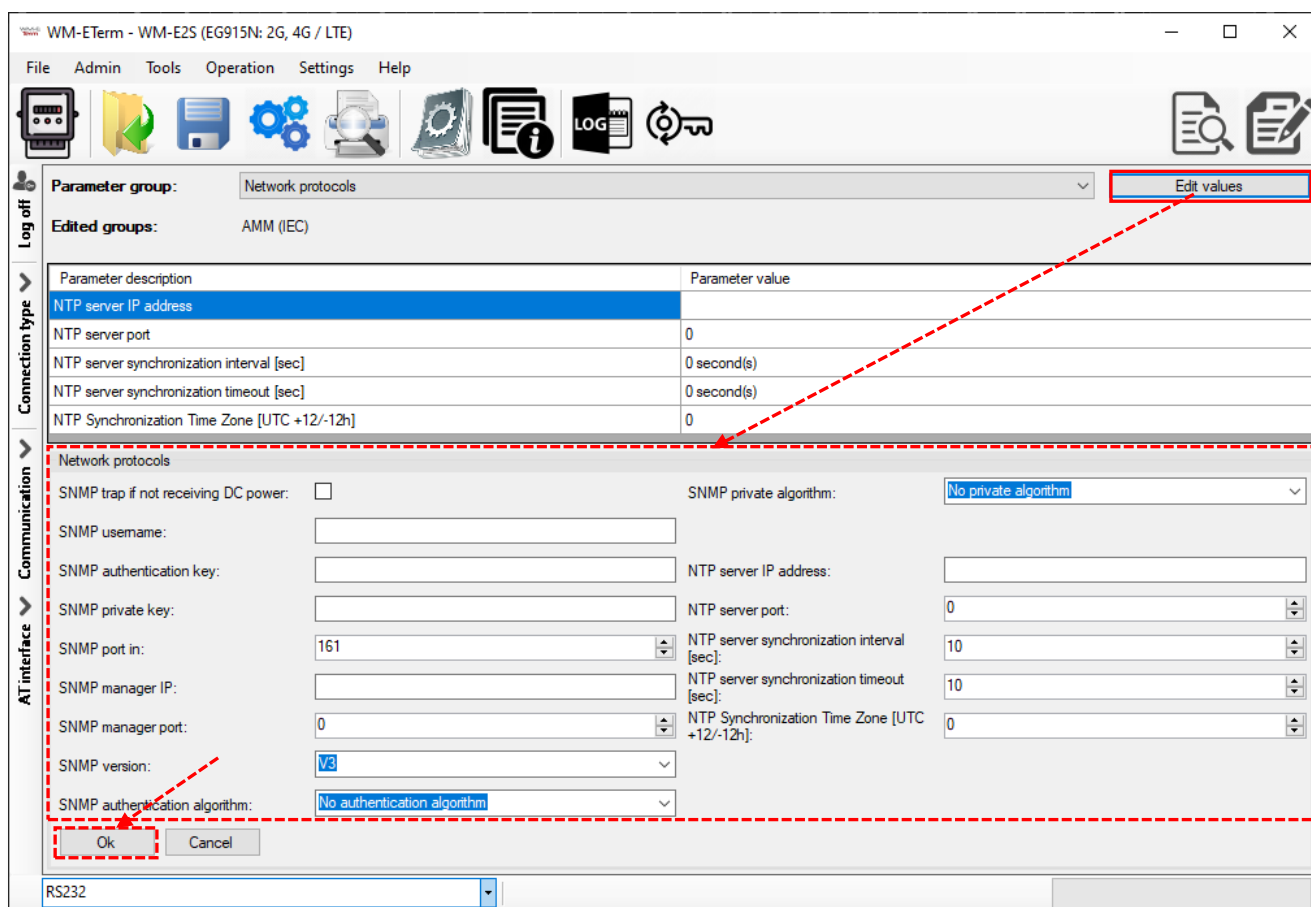
5. Press the **[OK]** button to save the values and push to the **Parameters write** icon to send the settings to the modem.

3.10 Standard meter interface settings

1. Choose the **Parameter readout** icon, and select the **Standard meter interface** parameter group, then push to the **[Edit Values]** button.

2. **Date format for readout** - IEC date format for readout (Syntax: *YYMMDD**). **YY= Years, MM=Months, DD=Days.*

3. **Tarrif Mode Selection** – Not available for **WM-E2S / WM-E2SL / E57C WM LTE** modems.
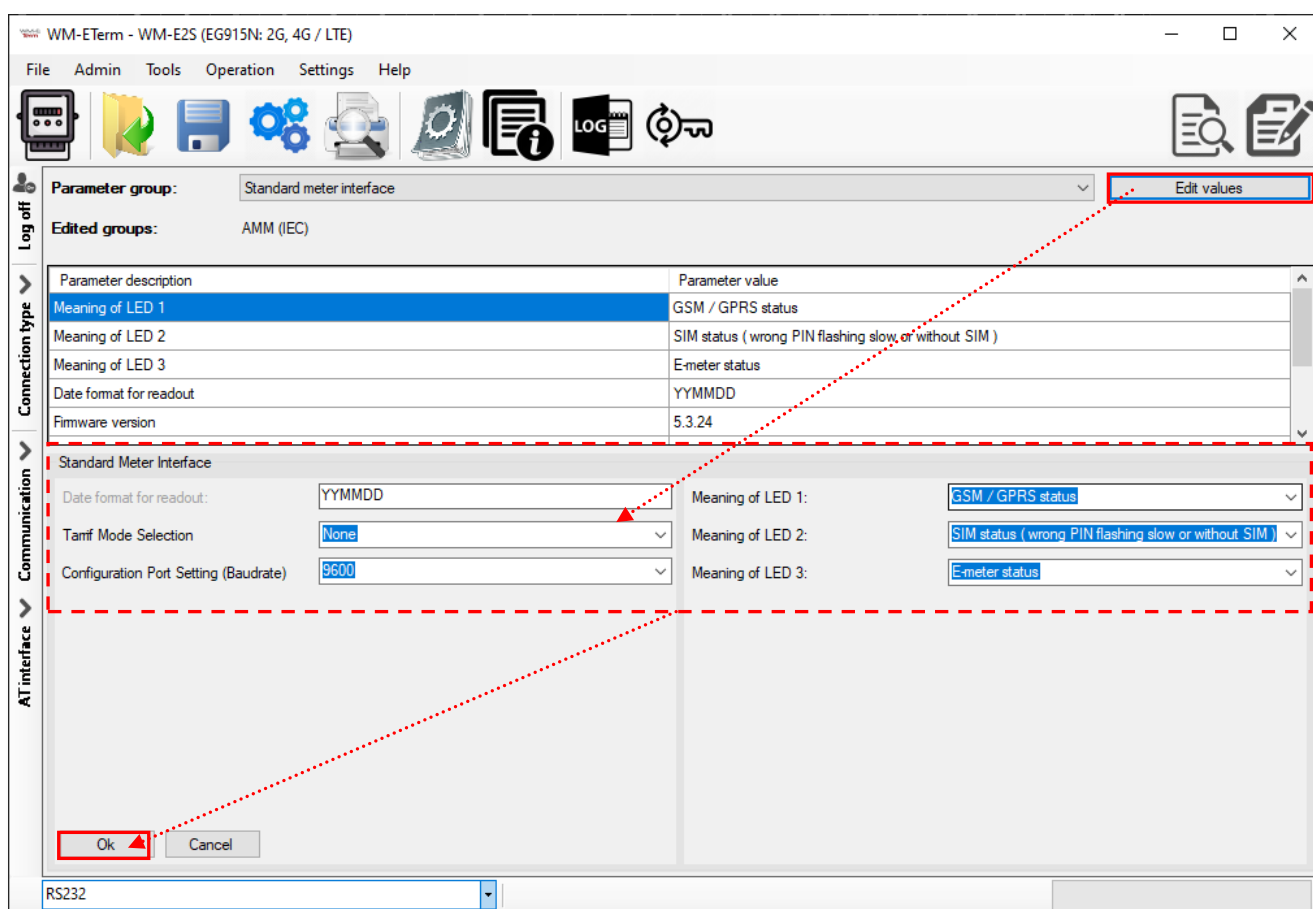
4. **Configuration port settings (Baudrate)** – Configuration interface speed rate and operation mode - *Available only on **WM-E2SL TNB** modem type.*

5. **Meaning of LED 1…LED6** fields*, where you can change the LED operation for each available LED. The LED operations are pre-programmed, but can be changed if you want here.

   *In case of **WM-E2S / WM-E2SL / E57C WM LTE** modems only 3 LEDs are available (LED1..LED3)*

   The WM-E Term will always make editable only the available LEDs according to the chosen modem type.

6. Save your settings by pushing the **[OK]** button.

7. You will need to press then the **Parameter write** icon to send it to the modem.

3.11 Device Manager settings

The Device Manager® is an optional remote management software (order option) which can be used to maintain and to monitore the modems via cellular network (TCP/IP connection).

The settings can be achieved by selection of the **Device Manager** parameter group. The Device Manager® can be used with or without TLS encryption.

1. If you allow the **Device Manager TLS enable** option, mark the checkbox.

Important!

By using this feature, the modem will further on be visible only from the Device Manager software and cannot be used any more by the WM-E Term configuration software for security reasons, due to the different and encrypted communication protocol.
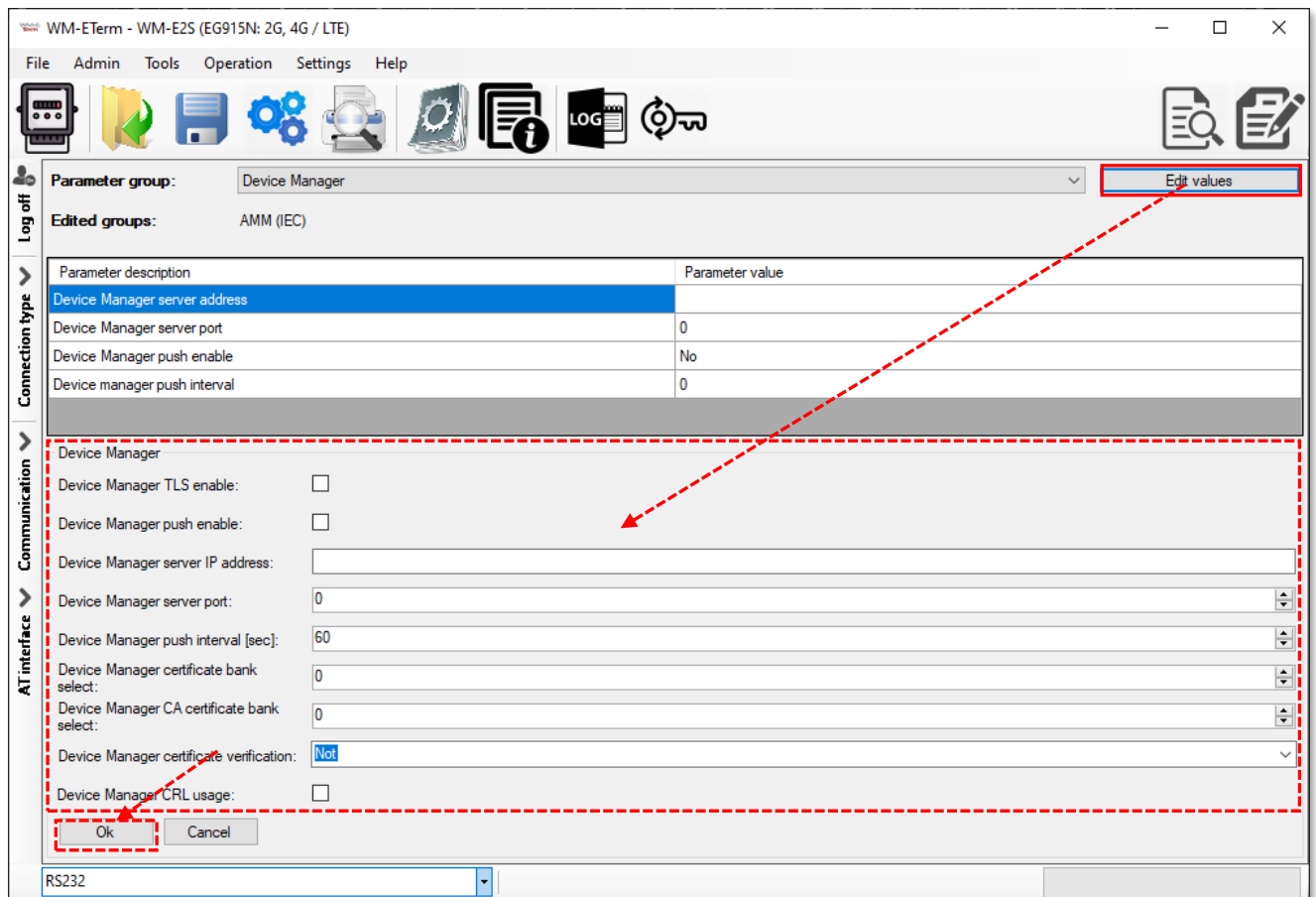
2. **Device Manager push enable** – it allows the option for the modem to send status messages (by configurable cycles/intervals) to the Device Manager® software.

3. **Device Manager server IP address** required to build the connection.

4. **Device manager server port** (nr. 443 by default) must be added for the connection.

5. **Device Manager push interval [sec]** is used to define the status message sending cycle (in seconds).

   Important! When you have set all this, the Device Manager connection will not automatically be useable, you still need to configure the Device Manager-side of the settings. You will find more information about the exact

sequence of the settings in the Device Manager® manual – ask our sales department.

6. The **Device Manager certificate bank select** and **Device Manager CA certificate bank select** can be also configured here.
   (The **bank** value „**0**" means the default certificate used by the firmware, or you can choose the „**1**" which means that the uploaded certificate will be used. You can upload the certification file from the **Tools / CA certificate handle** menu or **Tools / Certificate** handle menu.)

7. You have the option to use the **Device Manager certificate verification** option as verification mode (Possible values: *Not* / *Optional* / *Mandatory*).

8. You can also use the **Device Manager CRL usage** option to apply the uploaded CRL file.

9. Save your settings by pushing the **[OK]** button.

10. You have to push to the **Parameter write** icon to send it to the modem.

3.12 CSD connection

If the Client wants to access the modem only with a CSD call, but does not configure the modem's *APN* settings, and the value of the *Mobile Network Technology* parameter is "*LTE with fallback to 2G*" (technically 4G/2G) or "*LTE only*" (4G), then the CSD connection is not working properly.

Symptoms:

- If the *Mobile Network Technology* parameter is "*LTE only*" (4G), the modem will not be available with CSD calls at all, and the modem will restart from time to time.

- If the **Mobile Network Technology** parameter is "**LTE with fallback to 2G**", the modem sometimes restarts, while the modem cannot be reached with a CSD call or is only very difficult to reach.

Solution:

If the Client want to access the modem only with a CSD call:

1. If the modem has a firmware version lower than v5.1.30, update the firmware to the latest version!
2. The **Mobile Network Technology** parameter cannot be "**LTE only**", since the CSD service is only available on the 2G network, not on the LTE network.
3. The **Mobile Network Technology** parameter should be "**2G only**".
4. The "**GPRS always enabled**" option in the **M2M** parameter group must be disabled (unchecked).

If the Client want to use the modem on an LTE network, but I want to reach it with a CSD call:

1. The modem may only be used with active IP connection settings.
2. If the modem has lower firmware version than v5.1.30, update it to the latest!
3. The **Mobile Network Technology** parameter must be "**LTE with fallback to 2G**".
4. The "**GPRS always enabled**" option in the **M2M** parameter group must be enabled.
5. The **APN** settings must be made (**APN name**, **APN username**, **APN password**)

**If the Client want to use the modem on 4G as well as with CSD:**

1. In addition to the above, it is also necessary to make the following settings.
2. The "**PDP connection establishment delay (CSD)**" parameter in the **APN** parameter group must also be set to **3** minutes. This is necessary because if the IP connection goes down, the modem restarts so quickly that it will not be available on CSD.

The above changes must be made using the **WM-E Term** software.

Chapter 4. Firmware updates

4.1 Single firmware update

1. Choose the **Tools** / **Single Firmware update** menu.

2. Press then the **[Browse]** button to select the .DWL extension firmware file.

3. Press the **[Start firmware update]** button for performing the singular firmware upload.
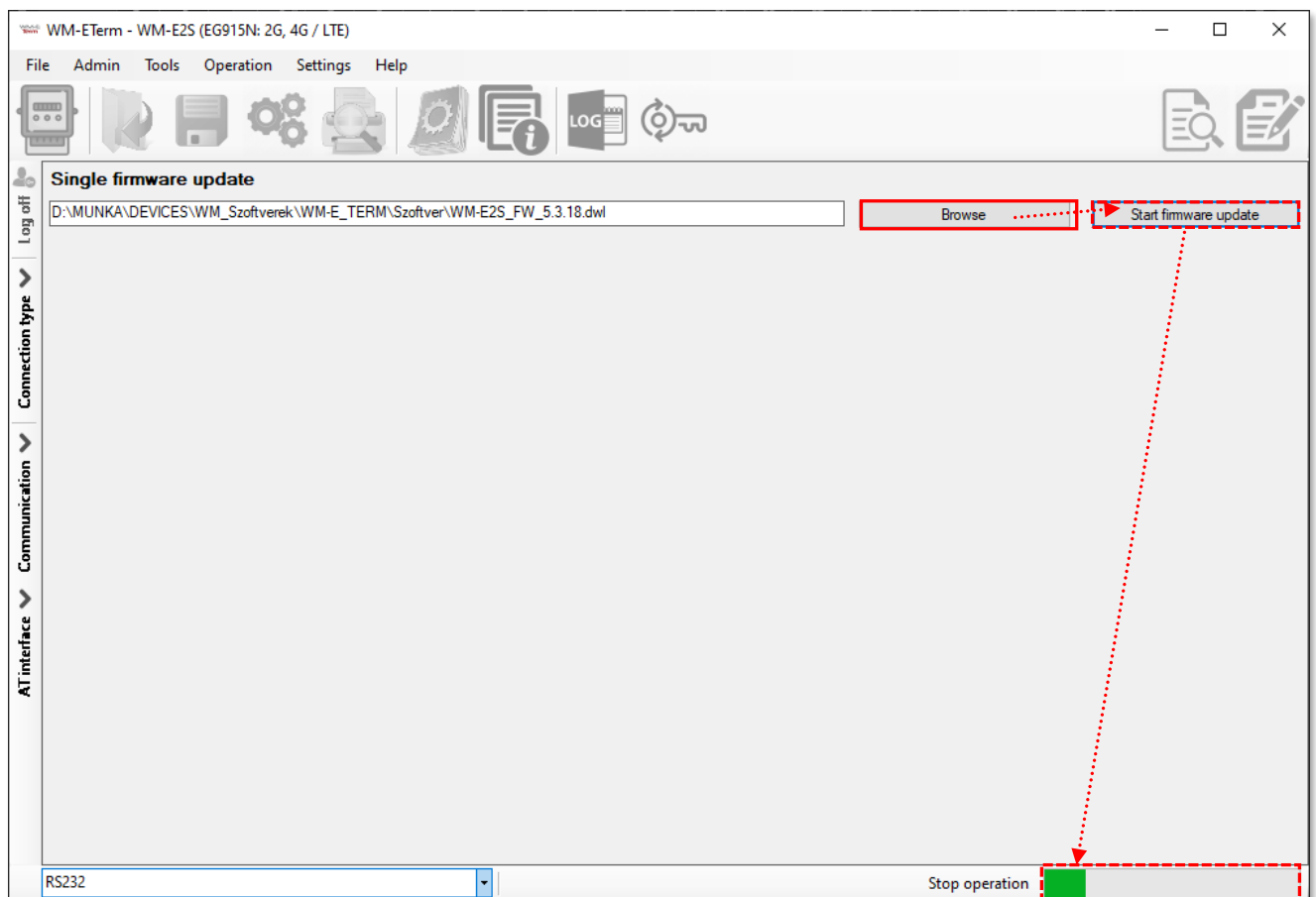
4. The progress of upload will be shown at the right-bottom progress indicator bar. This can take in case of normal firmware version for 3-5 minutes, in case of TLS firmware for 5-15 minutes.

5. The firmware upload progress can be also checked in the left **Communication** tab.

The firmware refresh will be started from „*Firmware sending*" message and continues further with „*Sending packets*" sequence.

6. At the end of the Firmware update, the a „*New firmware refresh has been started...*" message appears. Then soon the modem will be automatically restarted with the new firmware – this could take 2-3 minutes to apply. The LEDs will be also signing the reboot.

4.2 Single bootloader update

There is an option for bootloader update (.DWL extension file).

1. Choose the **Tools / Single bootloader update** menu.
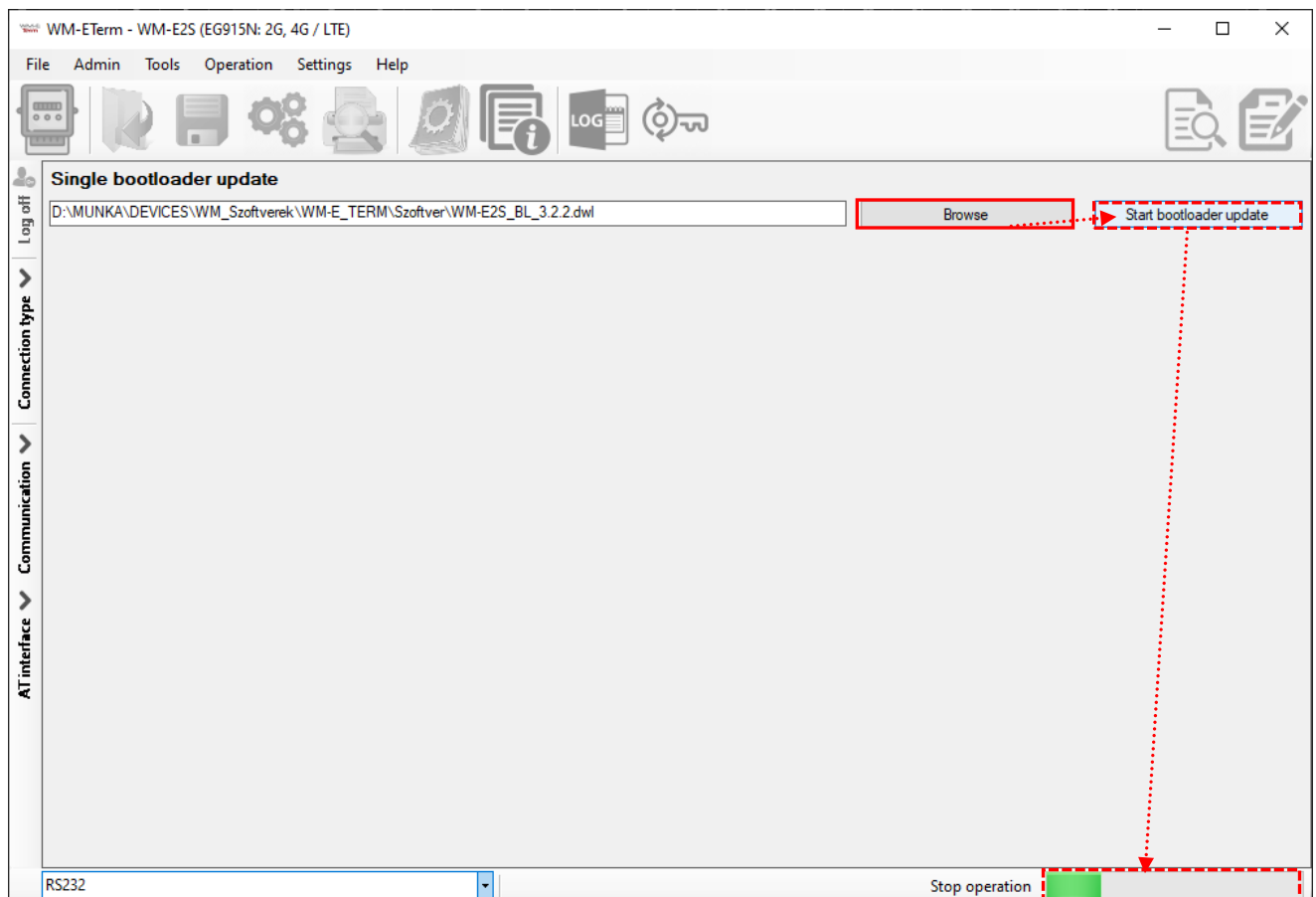
2. Press then the **[Browse]** button to select the .DWL extension bootloaderfile.
   Important! *Ask your sales for the appropriate update file before updating.*

3. Press the **[Start firmware update]** button for performing the singular bootloaderupload.

4. The progress of upload will be shown at the right-bottom progress indicator bar. This can take 1-2 minutes.

5. The bootloader upload progress can be also checked in the left **Communication** tab.

6. At the end of the Bootloader update, the a „*New firmware refresh has been started…*" message appears. Then soon the modem will be automatically restarted with the new bootloader – this could take 2-3 minutes to apply. The LEDs will be also signing the reboot.

4.3 About the certification files

The certification files can be generated by a PKI software. The CSR (Certificate Signing Request) file should be generated and the further CERT or PEM extension, CA Certification and normal Certification files and CRL files will be created automatically.

In the WM-E Term program, you will found a few menus, where you can upload each certification file and you can set up them for the operation of the modem.

4.4 CA certificate upload

Here you can upload the TLS encrypted CA certification file (with .PEM or .CERT extension) to the modem.

1. Choose the **Tools** / **CA certificate handle** menu.

2. Press then the **[Browse]** button to select the CA certification file (.PEM or .CERT extension file).

3. Press then the **[CA certificate upload]** button to begin the certification file upload. The modem will then use the TLS encryption effectively during the communication.
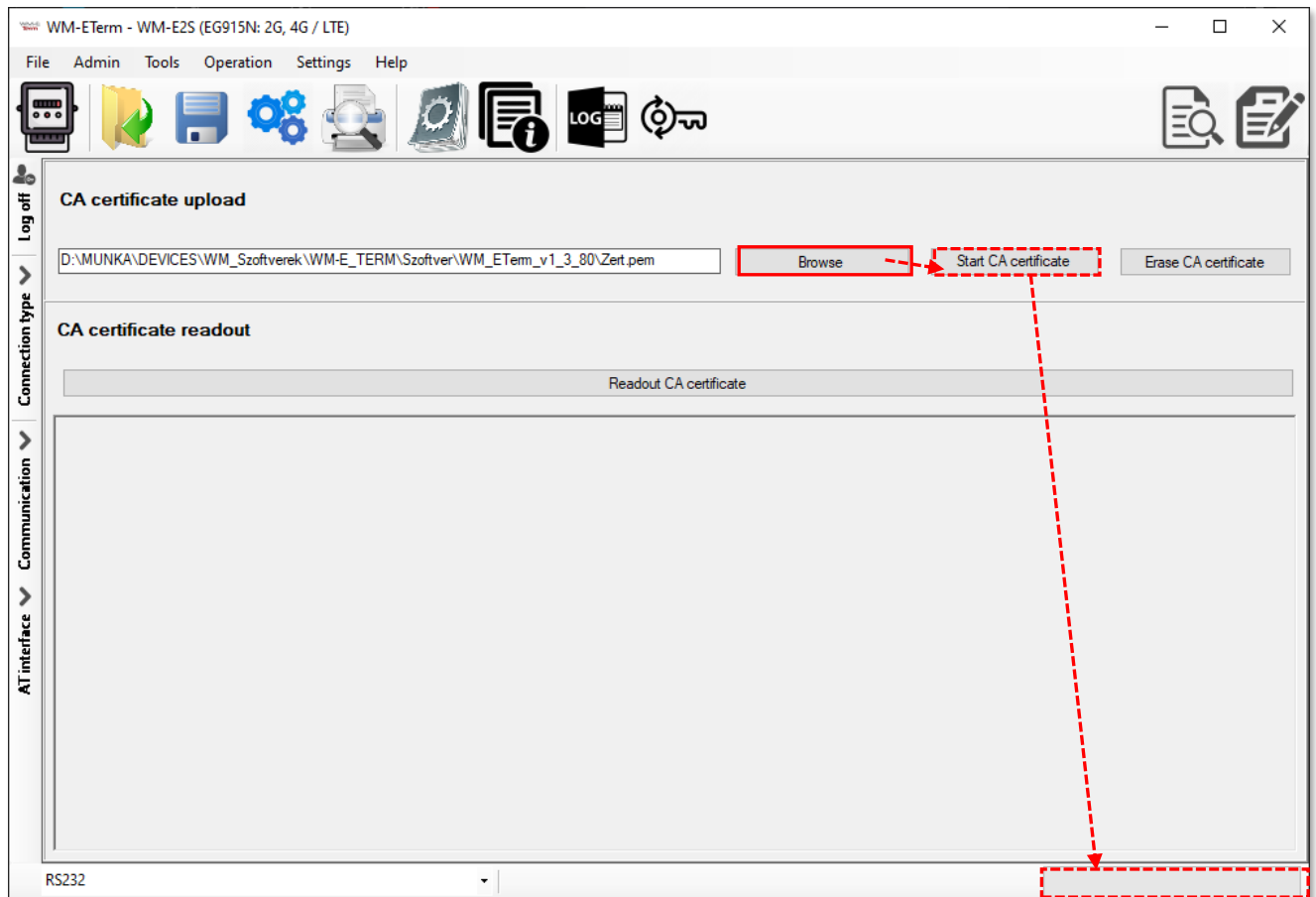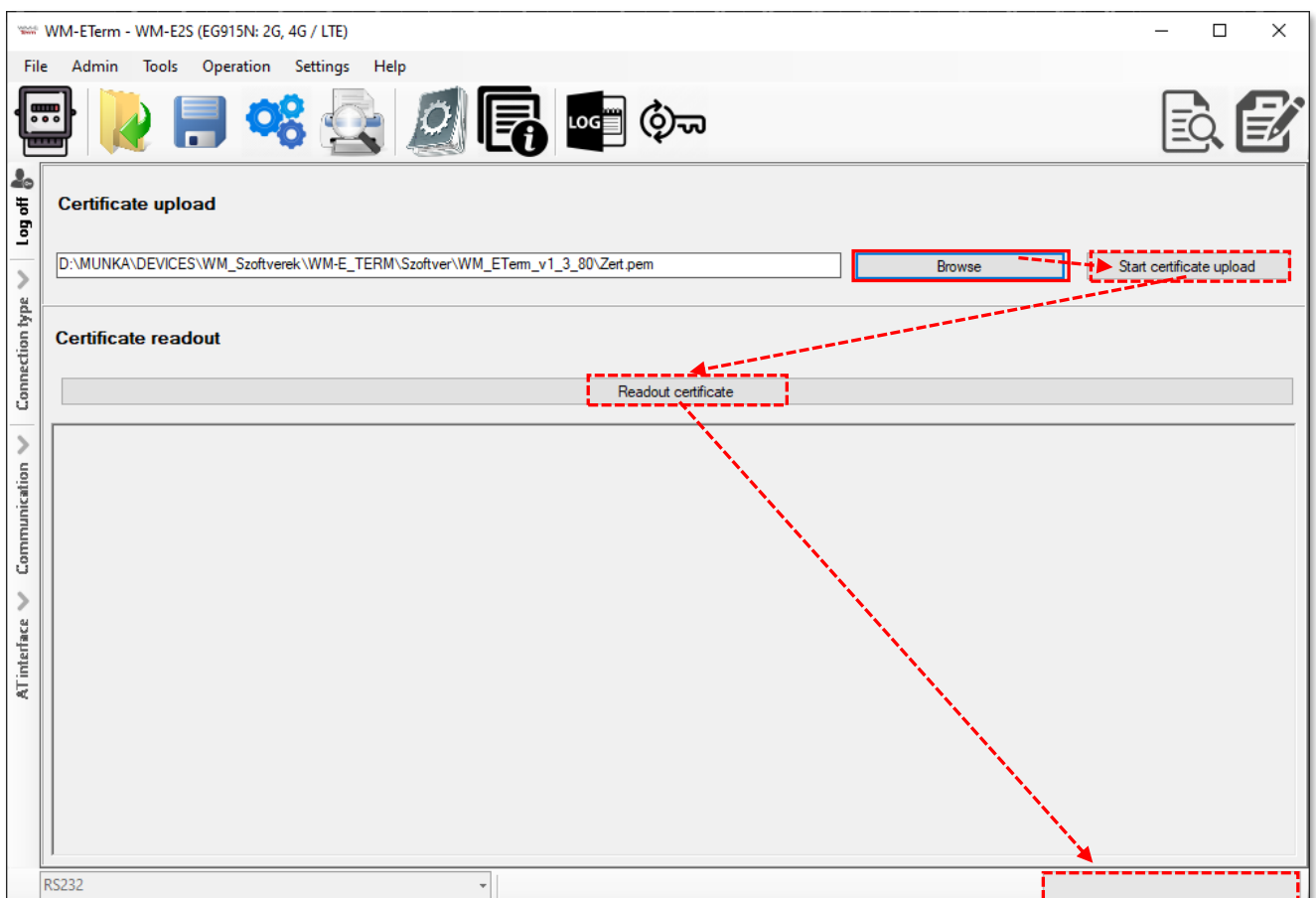

4. You can **[Readout CA certificate]** from the device with its button and check the uploaded file.

Important! This feature will be only effective, if you use TLS- compatible firmware version on the modem! Please, ask your sales product manager about the useful and appropriate firmware version before configuring this feature or updating the current firmware of the device.

4.5 TLS certificate upload

Here you can upload the TLS encrypted certification file (with .PEM or .CERT extension) to the modem.

1. Choose the **Tools** / **Certificate handle** menu.

2. Press then the **Browse** button to select the certification file (.PEM or .CERT extension file).

3. Press the **[Start certificate upload]** button to begin the certification file upload.

   The modem will then be using the TLS encryption effectively during its communication.

4. Readout certificate from the device is possible with the **[Readout certificate]** button to check the uploaded certification.


Important! *This feature will be only effective, if you use TLS- compatible firmware version on the modem! Please, ask your sales product manager about the useful and appropriate firmware version before configuring this feature or updating the current firmware of the device.*

4.6 CRL upload

Here you can define a CRL file (Certificate Revocation List) for the revoked modems (which don't have right or their right was already revoked).

With this you can handle these devices as exceptions when using certifications.

1. Choose the **Tools** / **CRL handle** menu.

2. Press then the **[Browse]** button to select the revocation file (.CRL).

3. Press the **[Start CRL upload]** button to begin the certification file upload.
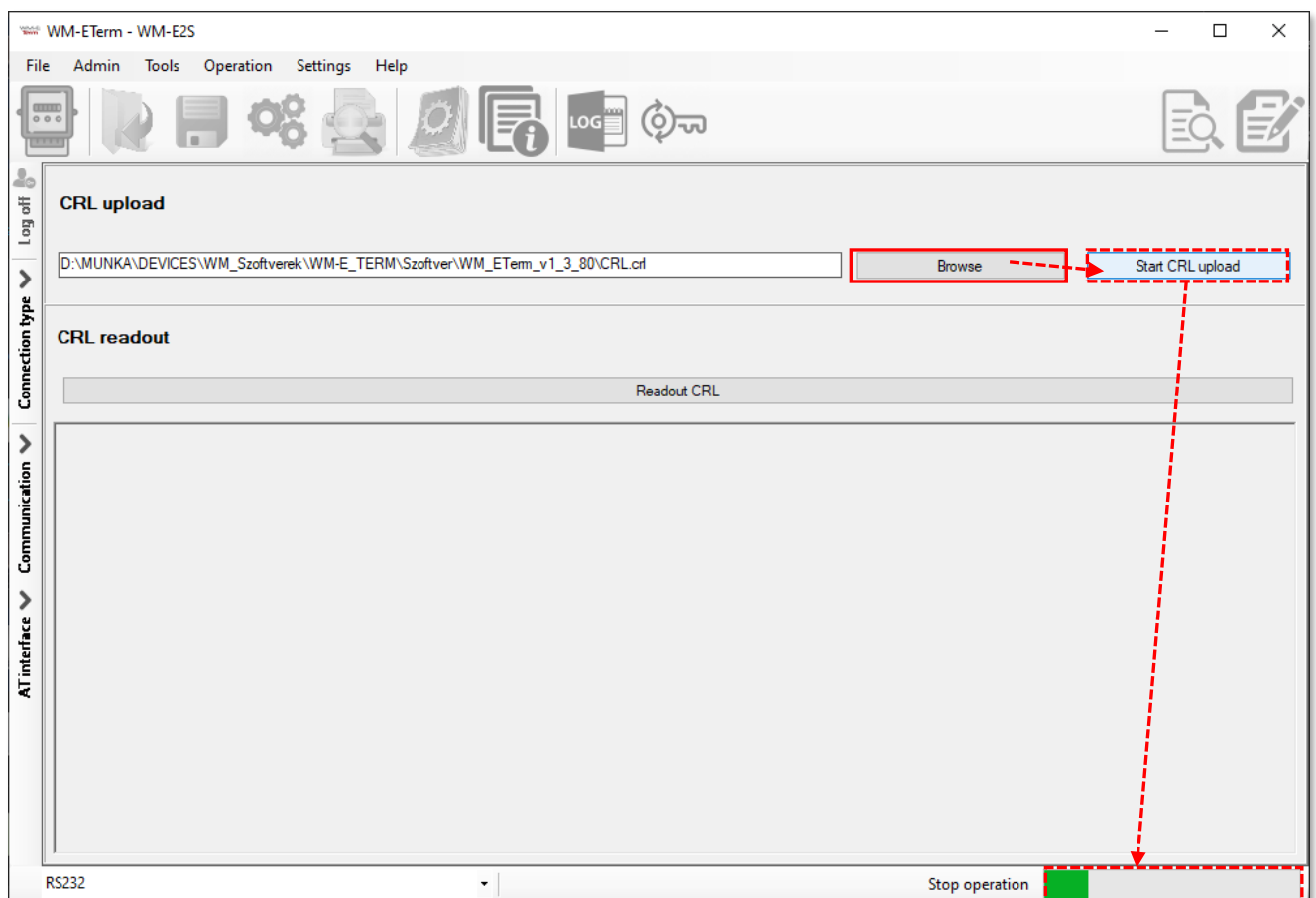
4. The modem will then use the TLS encryption effectively during its communication.

5. You can also **[Readout CRL]** (certification revoke list) from the device with this button and check the uploaded revoke file.

4.7 CSR upload

Here you can check the CSR file (Certificate Signing Request) of the PKI certification. Therefore here you can handle the CSR contents of the used certifications.

Choose the **Tools** / **CSR handle** menu.

1. The ***CSR read (no PK generate)*** can be read and checked with the **[Read CSR]** button, which will show the request file content of the generated key.
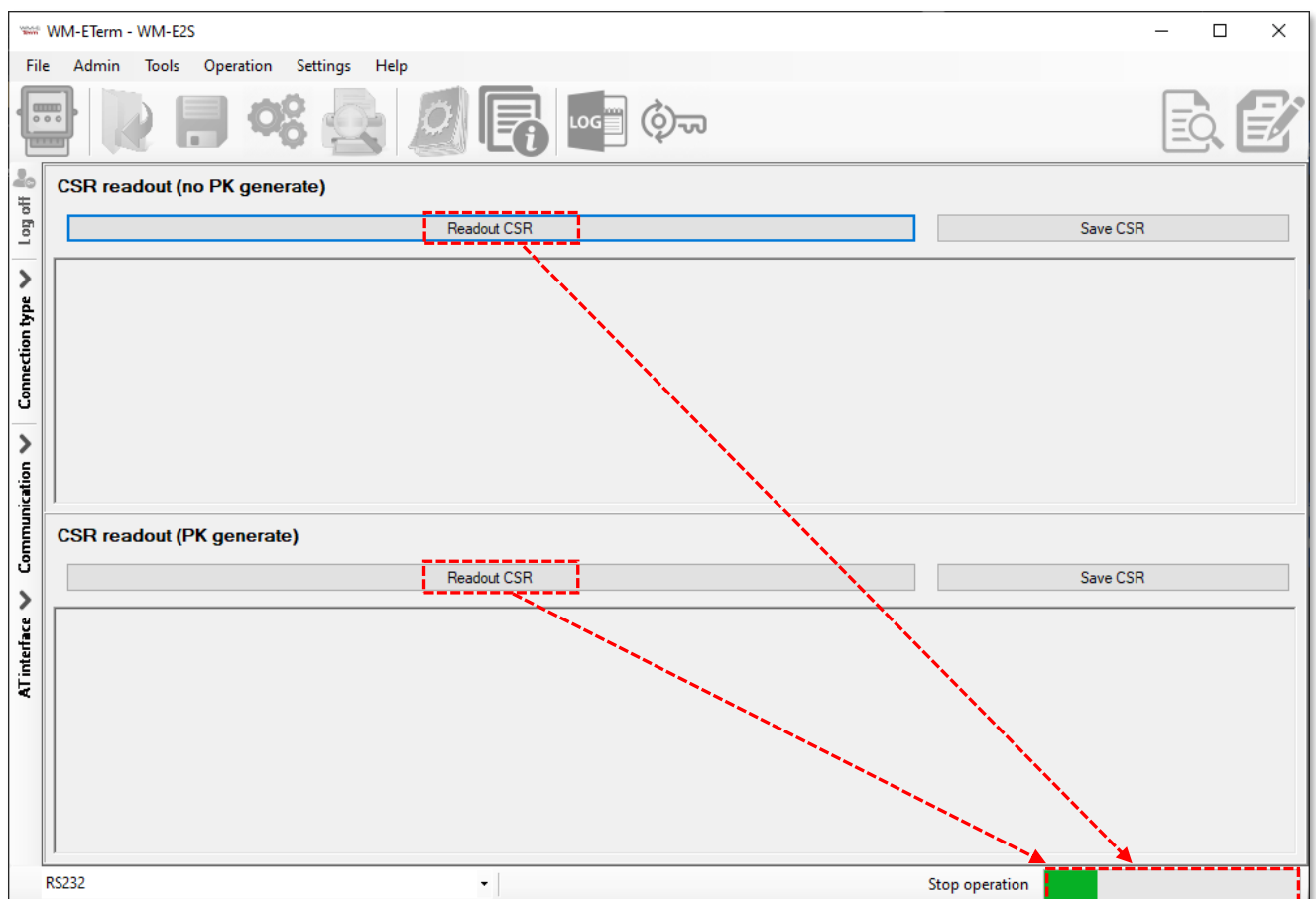

2. The ***CSR read (PK generate)*** can be read and checked with the **[Read CSR]** button, which will show the request file contents of the Private Key generated.

4.8 Status readout

In the **Tools / Status readout** menu you can get current status of the modem - as current firmware version, OS version (modem model release), current signal

strength of the cellular network (RSSI), used APN settings, IP address), the serial number / IMEI of the modem, ICC of the SIM card. This is useful for checking the modem status and the configuration settings (as IP address, SIM / APN, etc.).

1. Press the **[Read status]** button to read the current status of the modem.
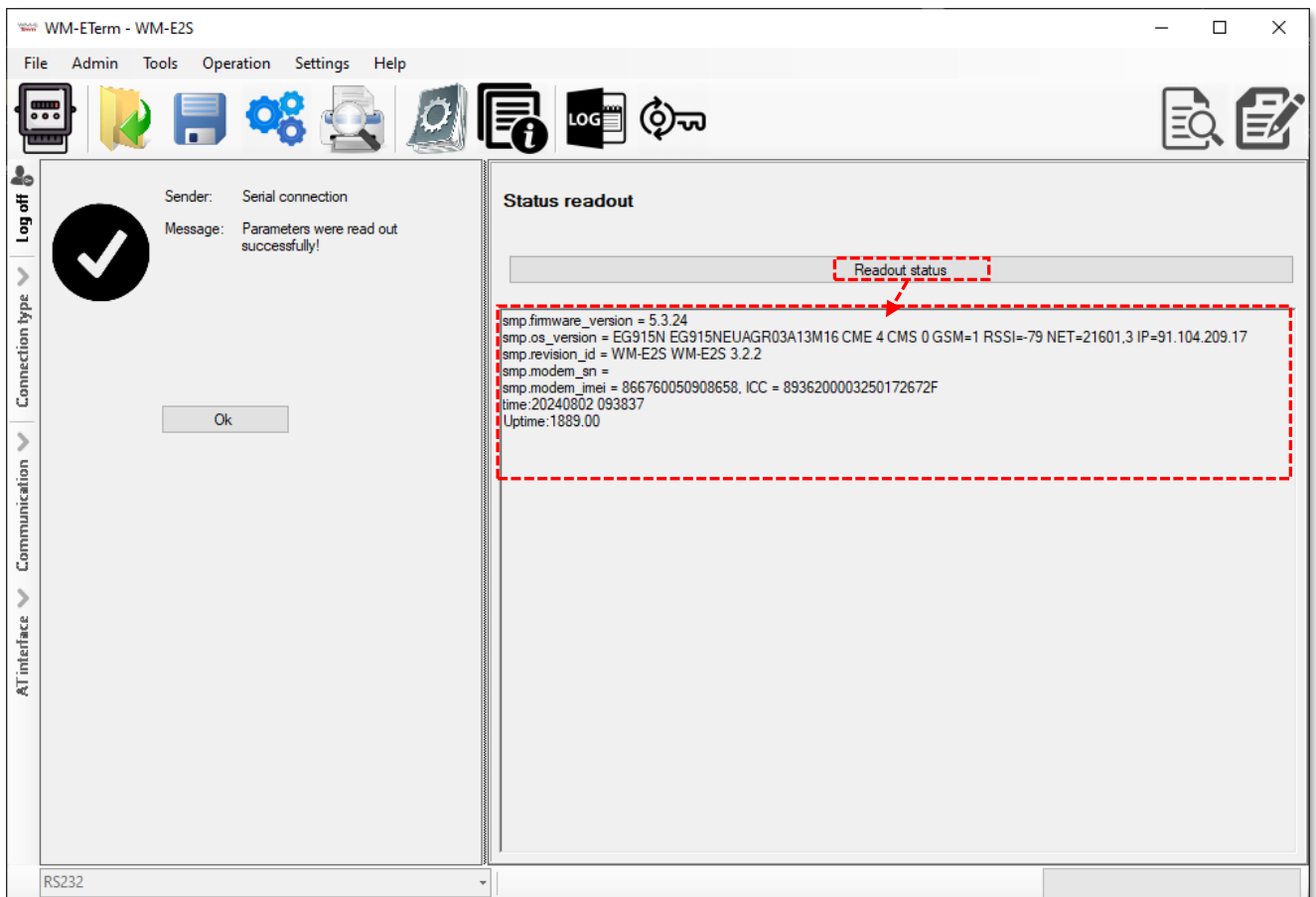

4.9 AES key import

Here you can define a list of devices, which will be using AES-256 encrypted communication during their configuration and firmware update process. The defined AES keys will be used for the listed modems.

1. Choose the **Tools / AES key import** menu.

2. Press then the **[Browse]** button to select the .CSV extension list file of the certification.

3. Modify the IMEI identifiers of the modems if necessary, the IP address of the modems' SIM card and the relevant AES key of the modems' encrypted communication.

4. Press then the **[Export to database]** button to begin the AES-256 encrypted configuration. The modem will then be able to use the AES key effectively during the further configuration and firmware upload processes.

Important! *This feature will only be effective, if you use AES-compatible firmware version on the modem. Ask our sales!*
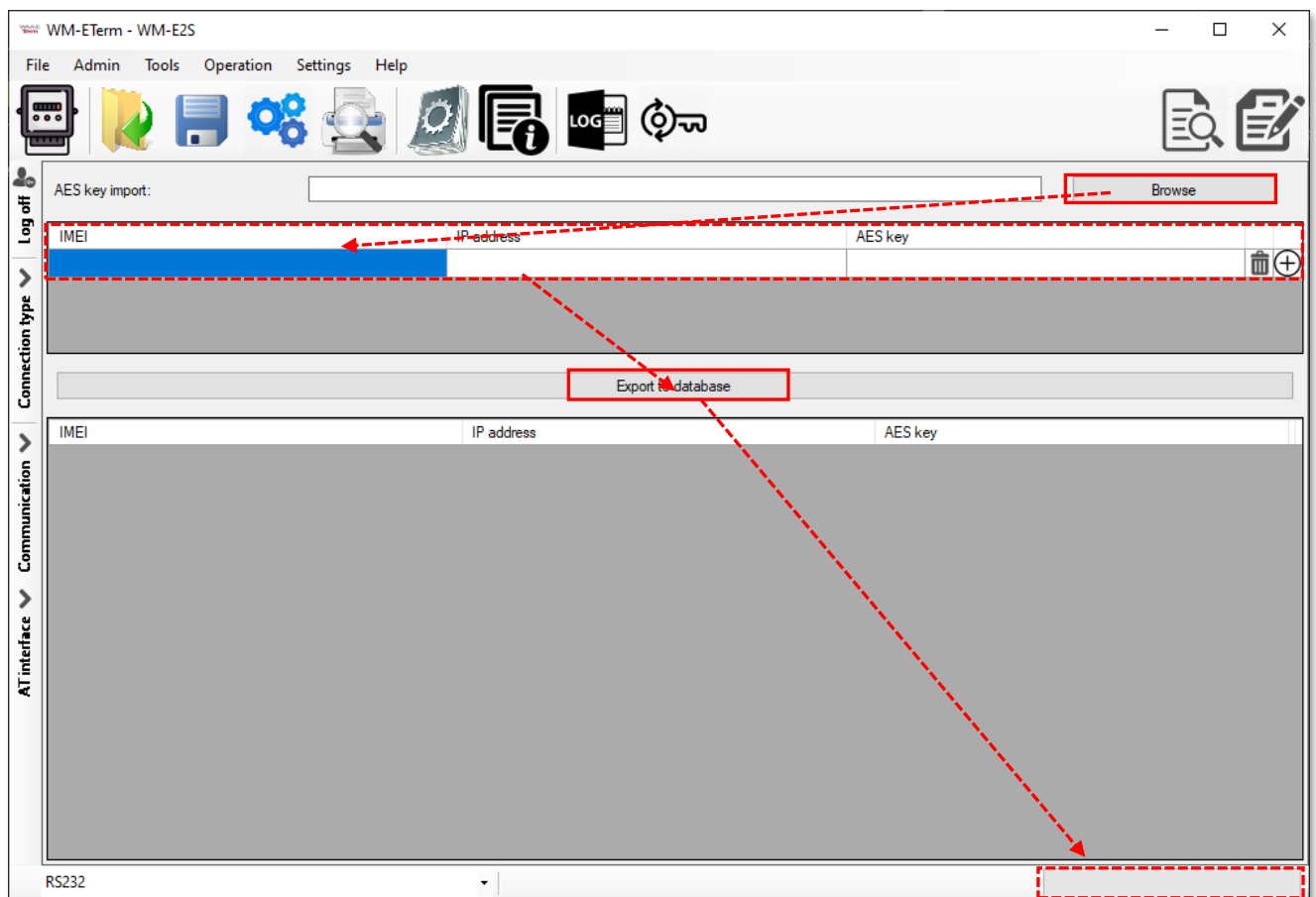
4.10 Connection import

Here you can load a CSV file with a list of connection profiles. These will be imported into the WM-E Term and later selectable by one-click at the left bottom of the screen as a direct connection profile.

1. Choose the **Tools** / **Connection import** menu.

2. Press then the **[Browse]** button to select the .CSV extension list file of the connection profiles.

3. The list will be loaded and you can modify the data if you want.

4. Press the **[Import to WM-E Term]** button for importing the connection profiles.
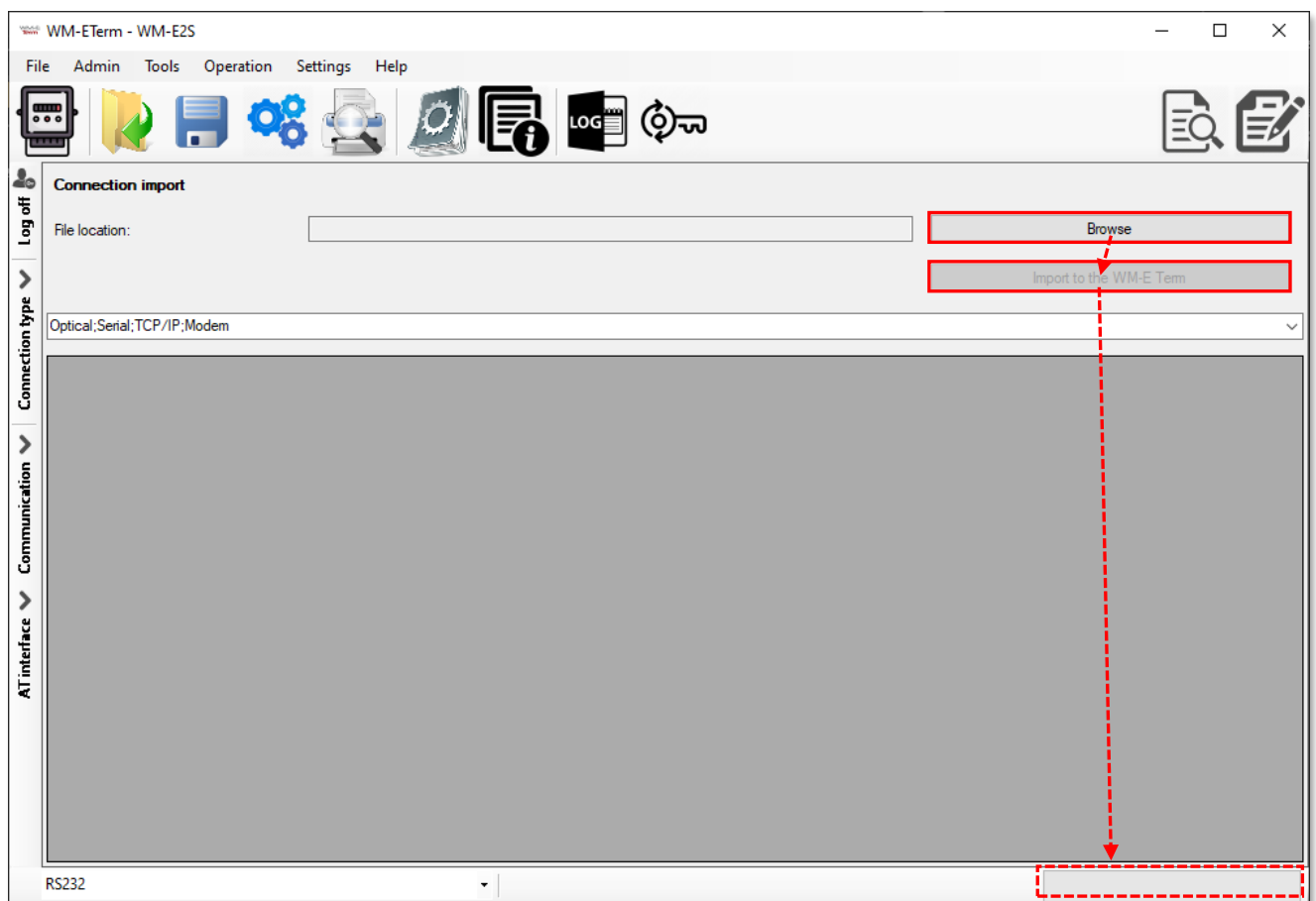
Chapter 5. Other features

5.1 User Management

1. Choose the **Admin** / **Manage users** menu.

   Here you can *Add* a new user or *Modify*, *Delete* an existing one.

2. Press the **[Add new user profile]** button for creating a new user account.
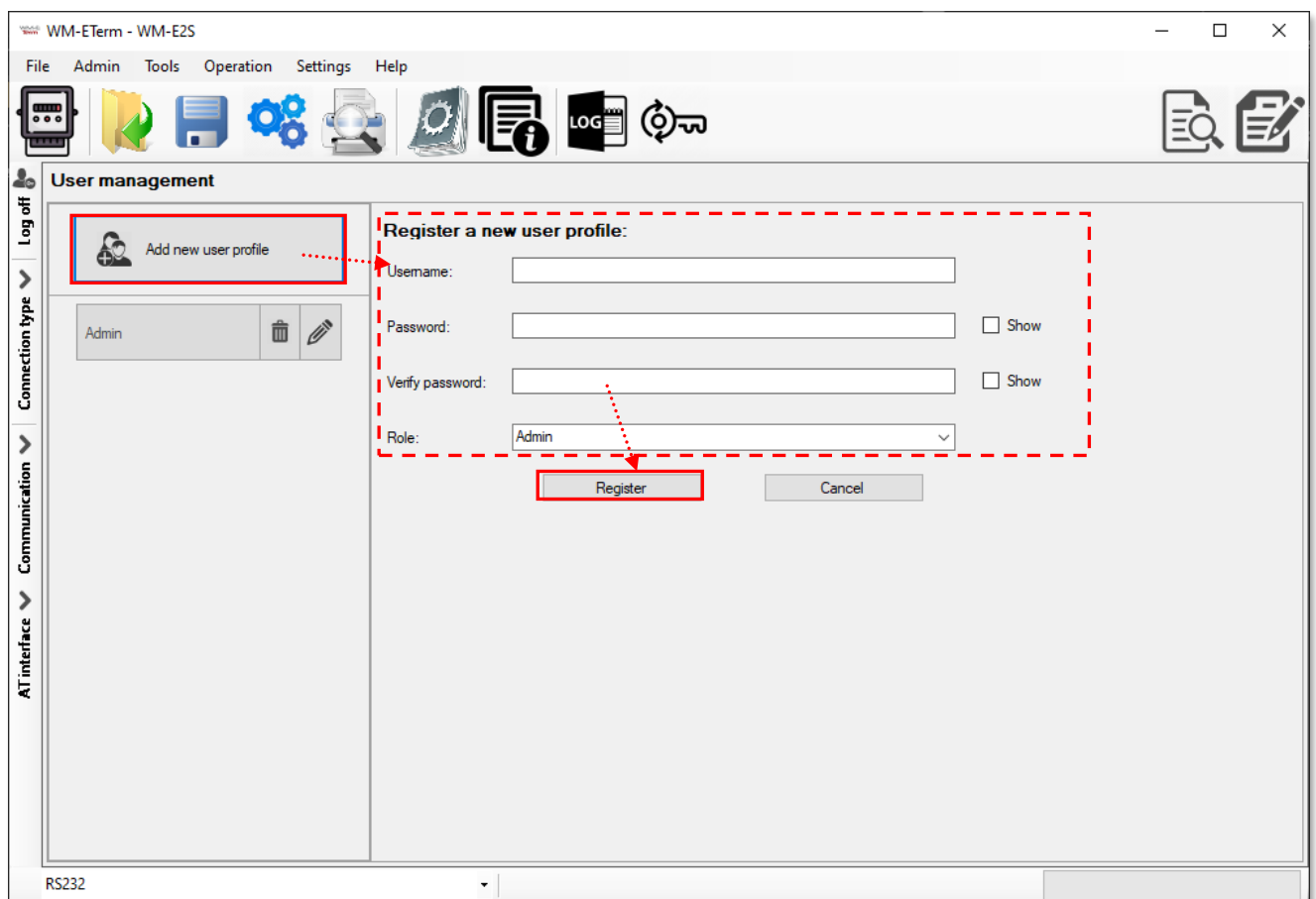
3. Add a **Username** for the new profile and define a **Password*** for the account. Then fill the password again to the **Verify password*** field.

   *Note, that you can use the **Show** checkbox option to check the filled password.*

4. Choose a Role for the user profile: *Admin* / *Installer* / *User*.

5. **[Save]** it. The new account will be available from the nex log in attempt.

6. To change the currently used / existing password of a profile, press the **Edit** (pencil) icon and fill the new **Password**, then **[Save]** it.
Note, that the new password will be valid from the next WM-E Term starting when you will attempt to login.

5.2 Event log

You can check the events of operation and modem interaction, communication by the Event log item.

1. Open the icon for listing the previously recorded log entries (or choose the **Operation / Log view** menu item).

2. Choose a saved log file from the list and press the **Load** button.

3. The program will list all recorded entries of the log file (as communication messages, failures and system messages).

5.3 Check modem communication

You can check the current activity of the modem by choosing the **Communication** tab (on the left side of the screen), where the incoming messages will be listed. There you can filter the message types by the **Type filter** and **Thread filter** field options by selecting the required items.
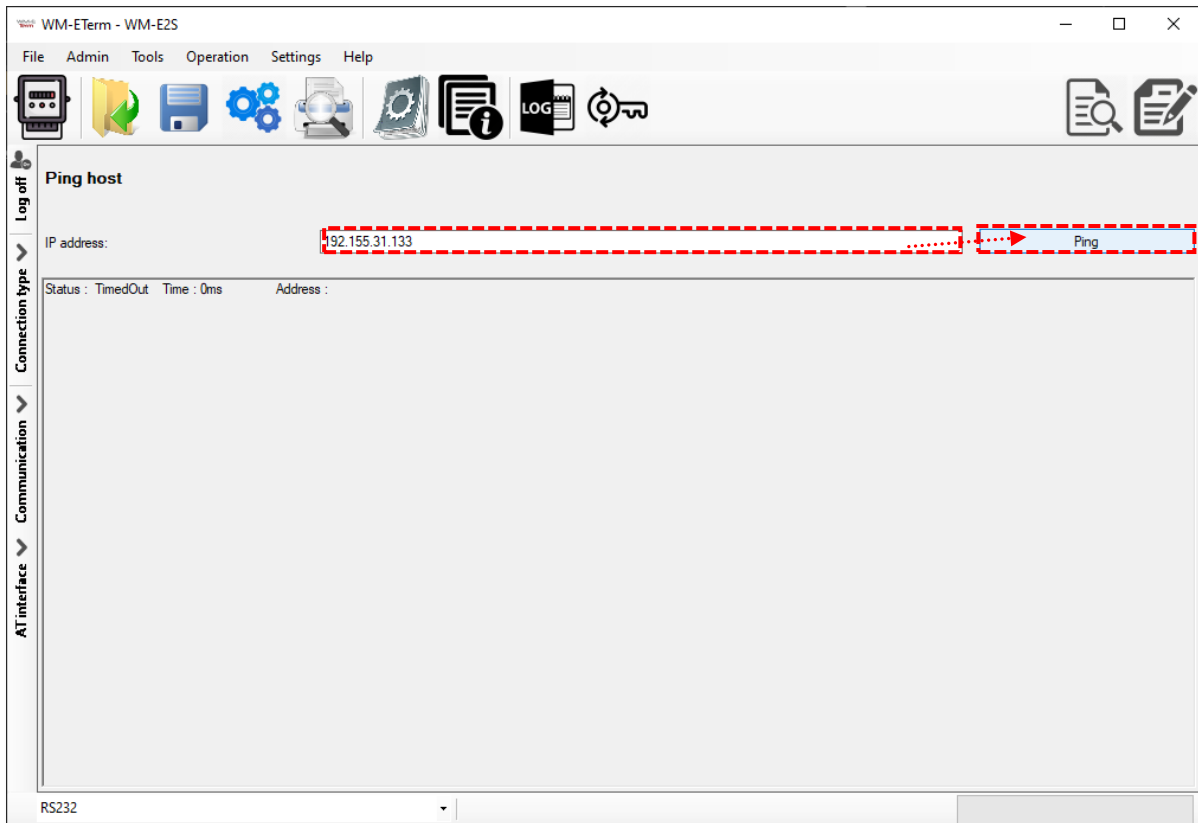
At the **Log Folder** title with the **[Open]** buttons you can read a stored, previous log file for analyzing.
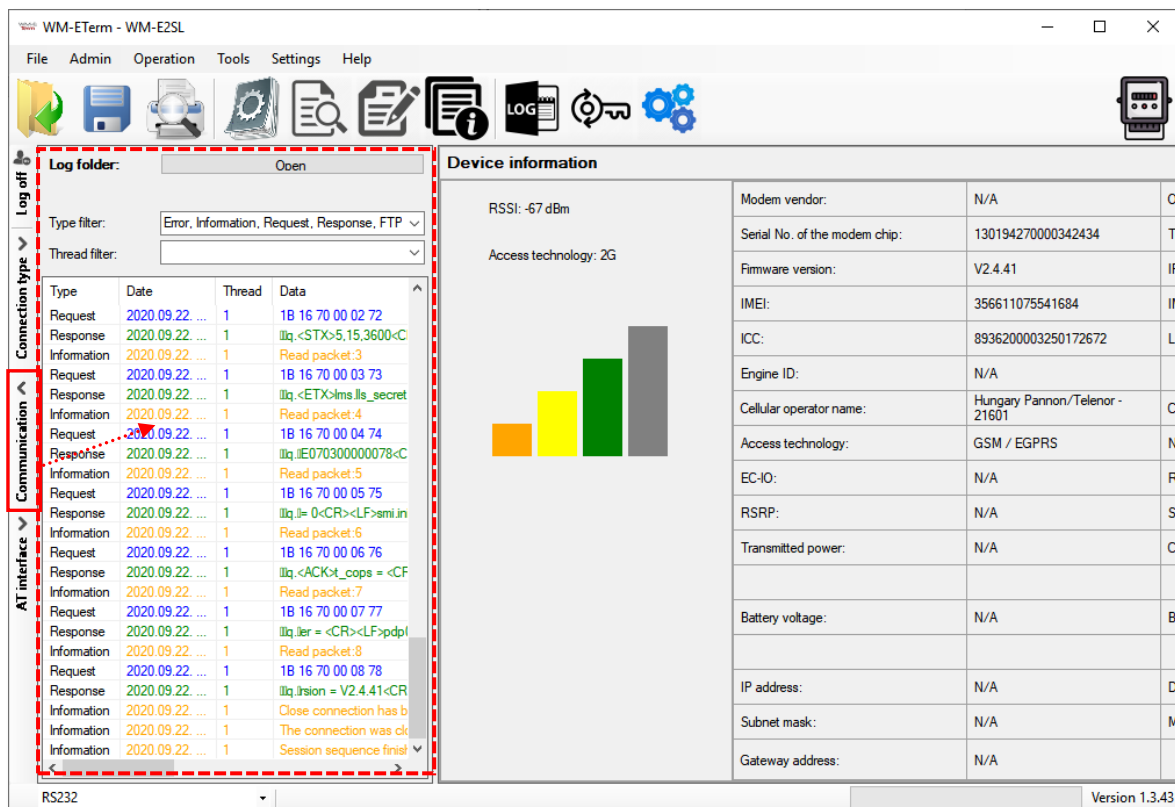
5.4 Ping host

You can ping a remote host IP address, by selecting the **Tools** / **Ping host** menu.

Enter the **IP address** you want to check to ping and push to the **[Ping]** button.

5.5 AT commands

Select the **AT interface** tab on the left side of the screen.
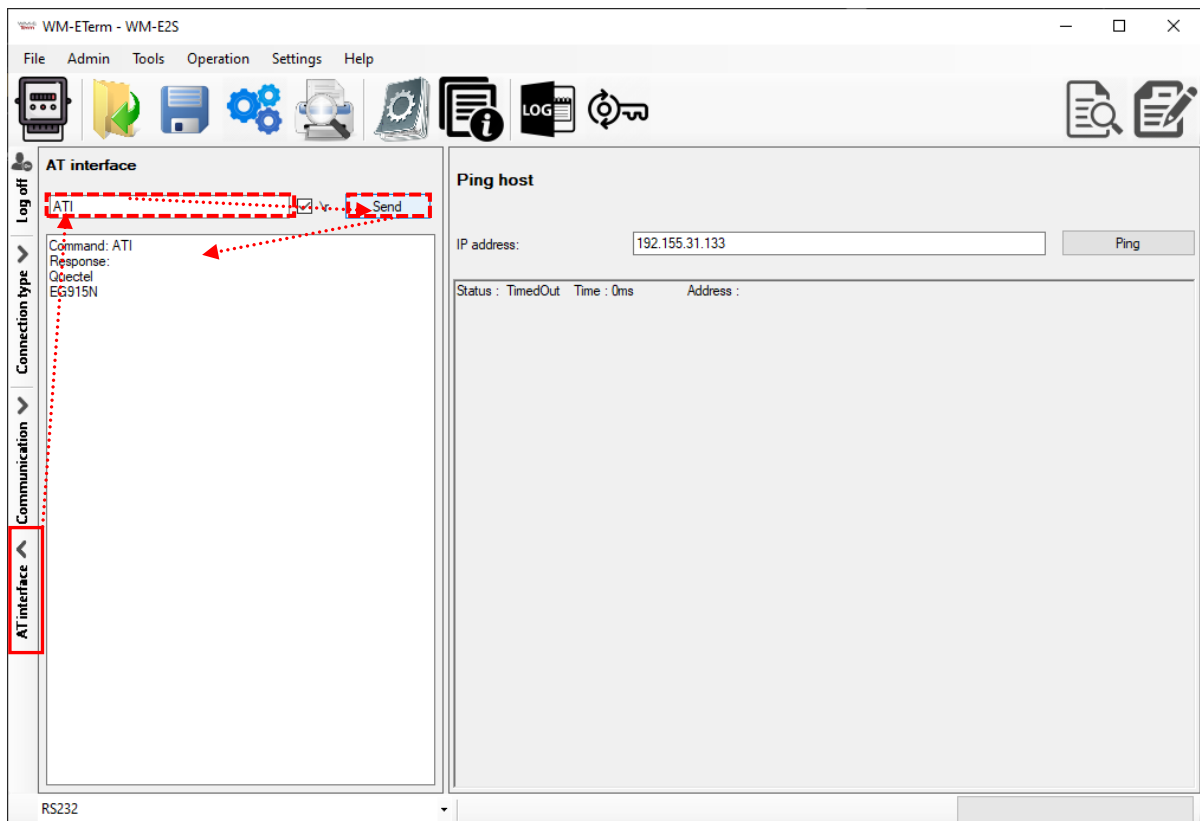
Here you can use AT commands on the modem's current cellular module, by filling the command at the **AT interface** and by pushing the **[Send]** button.

You can check the „**/r**" option for the carrier handling if you want.

5.6 Print

You can print the current parameter settings of the modem.

After choosing the log period (by selecting the Log icon and a logged interval), press the ![icon] icon from the menu (or choose **File / Print** item from the menu).

The print view of the parameter configuration will then appear. Now you can print the current configuration.

5.7 General settings

The general program settings can be done by this menu item.
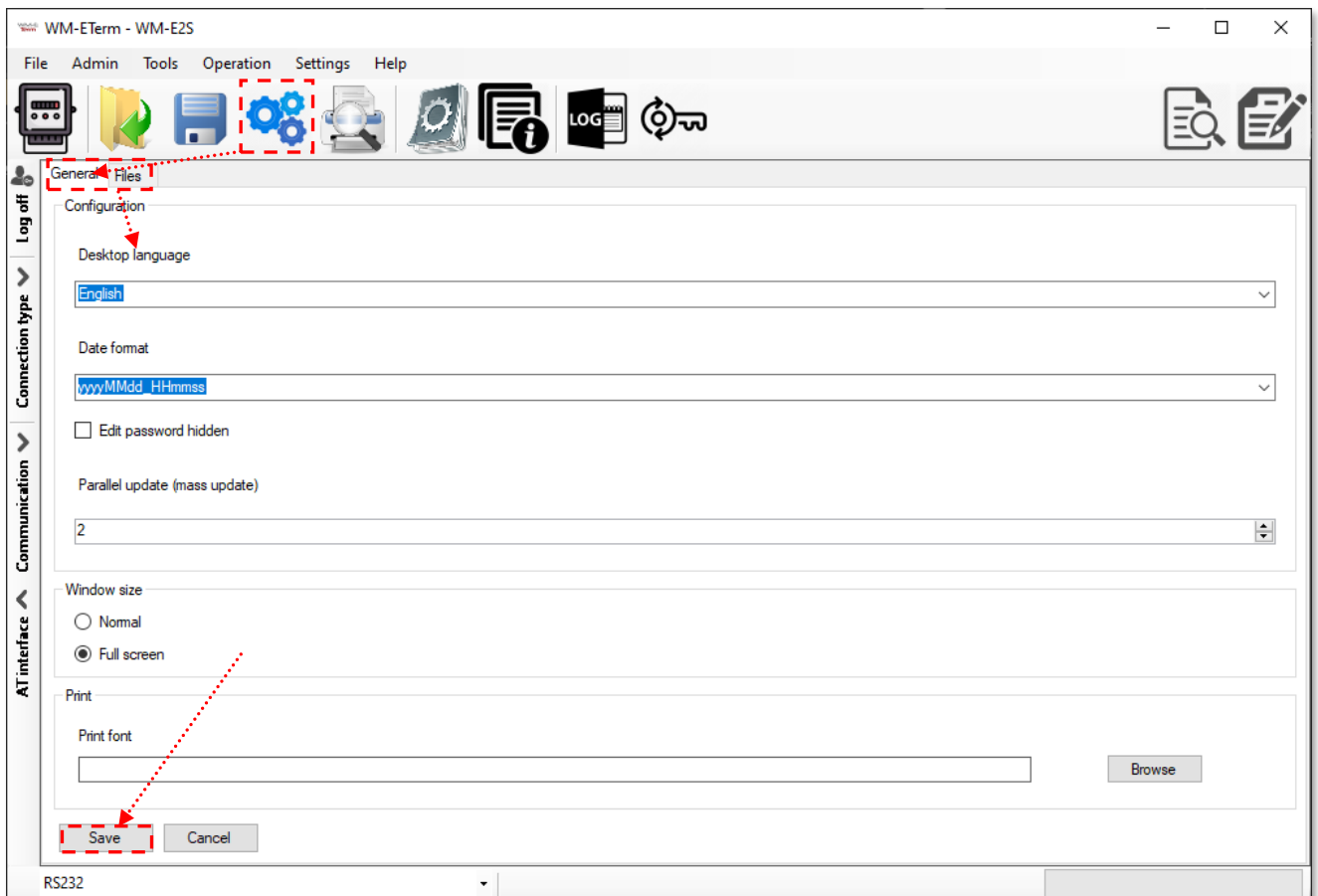
1. Choose the **Settings** icon from the menu (or choose the **Settings / Edit settings** menu).

2. If needed, you can change the "**General"** tab settings (as language, Date format, Window size, Print font type or hide the password).

3. **[Save]** your settings when you have modified the configuration.

4. On the "**Files"** tab you can define the path/directory for the configuration files, firmware, log.

5. **[Save]**your settings when you have modified the configuration.

Important! *The WM-E Term software will store the changed settings and when you start the software next time, they will automatically be loaded.*

5.8 Apply Password usage

1. Choose the **Communication Password Settings** icon from the menu. Note, that the **Communication password** field should be empty!

2. At **Select connection** choose the configuration profile name, which you want to change its password.

3. Ensure that *Enabled* option was selected at **Usage of configuration password?** field.

4. Then push to the **[Apply password usage]** button. The modem will setup the password usage, which can be seen on the progress bar indicator at right bottom side of the screen.
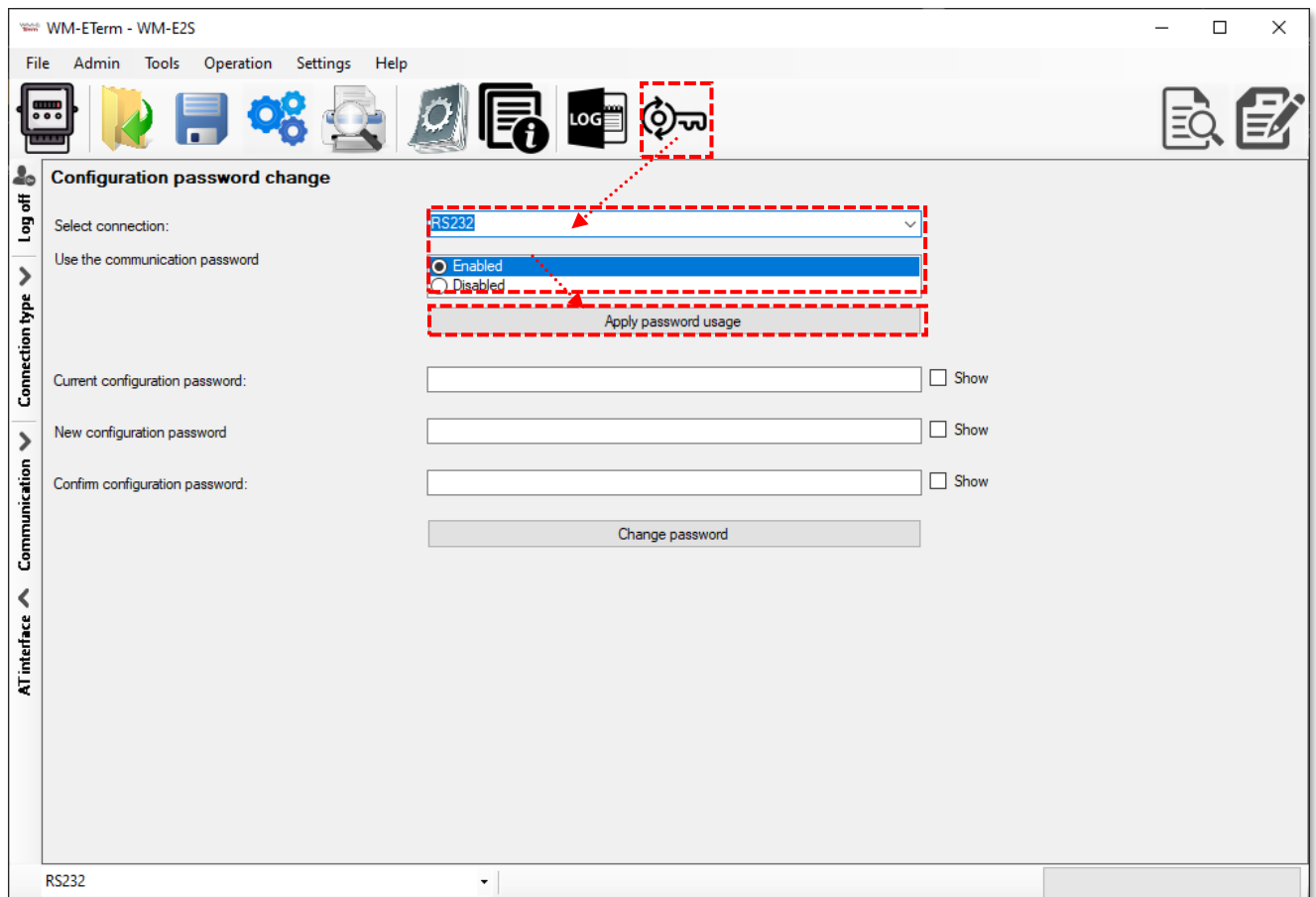
5.9 Password change

For modem firmware v5.x or newer versions it is possible to use the **Communication password** for the modem configuration – for each connection type (optical, serial, TCP, etc).

Important! *Only modem firmware v5 and newer versions can use a password. Note, that v5 versions has a default password.* The default password is: **WMEXS!**

This password can be changed, but before doing this, you have to connect with the default password to the configuration profile – by following the steps of Chapter 5.8 (Allow Password usage).

1. Open the left-side **Connection type** tab, choose the currently used configuration profile and **[Edit]** the settings.

2. Fill the default password (or the last known password to the **Configuration password** field.
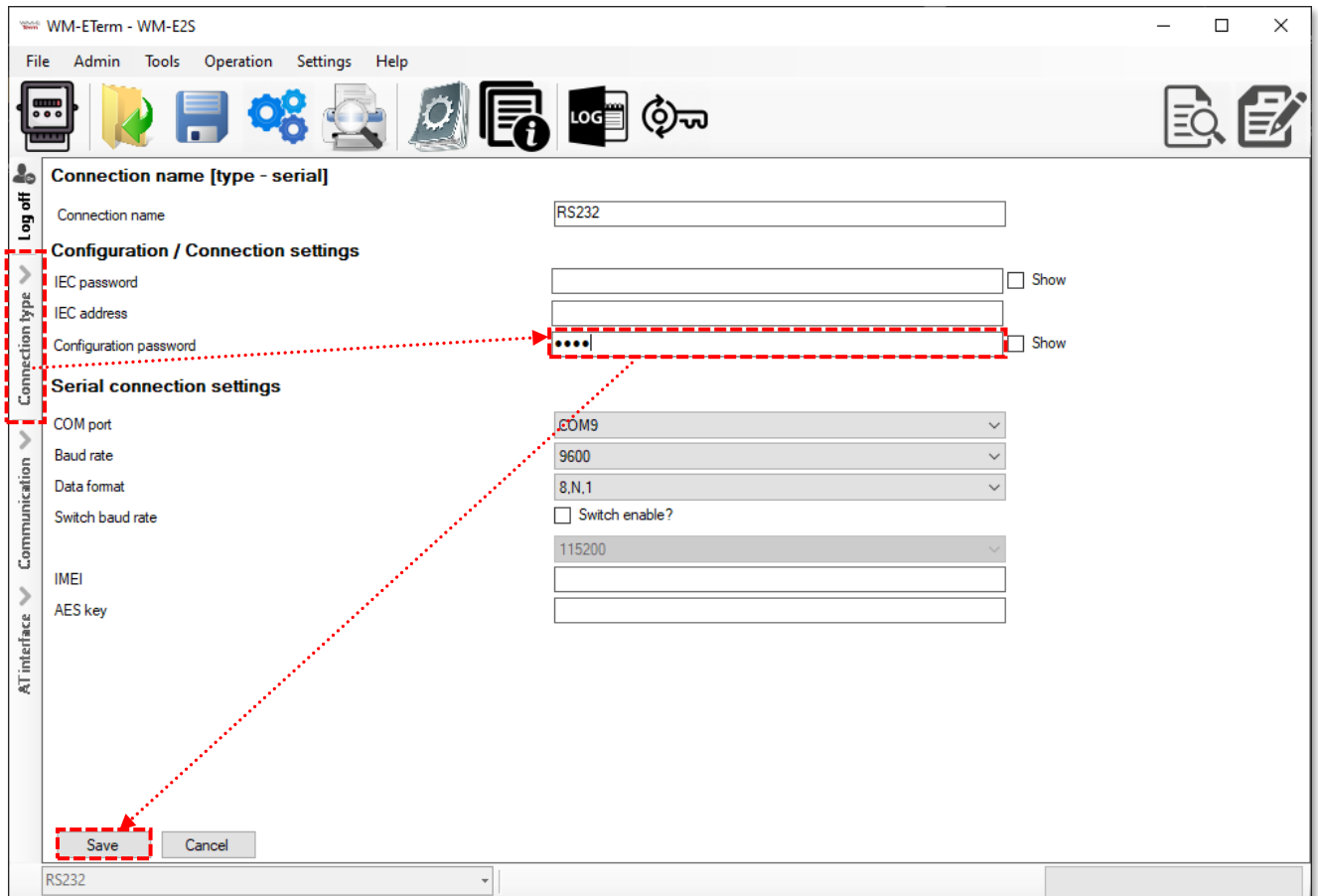

3. Push to the **[Save]** button.

4. Choose the **Communication Password Settings** ⊙⟃ icon from the menu.

5. At the **Select connection** field, choose the configuration profile, which you want to choose the password belonging to the profile.

6. Fill the current **Current configuration password** – where you can check it by enabling the **Show** option.

7. Then define a **New configuration password**, then **Confirm configuration password** also.

Important! *The password length can be between 1 and 16 characters. Only alphanumerical characters (lower case and upper case letters and*

numbers) and the „!" sign (exclamation mark) can be set here.

Note, that the password characters are substituted by asterix characters during the password fill in – by security reasons.
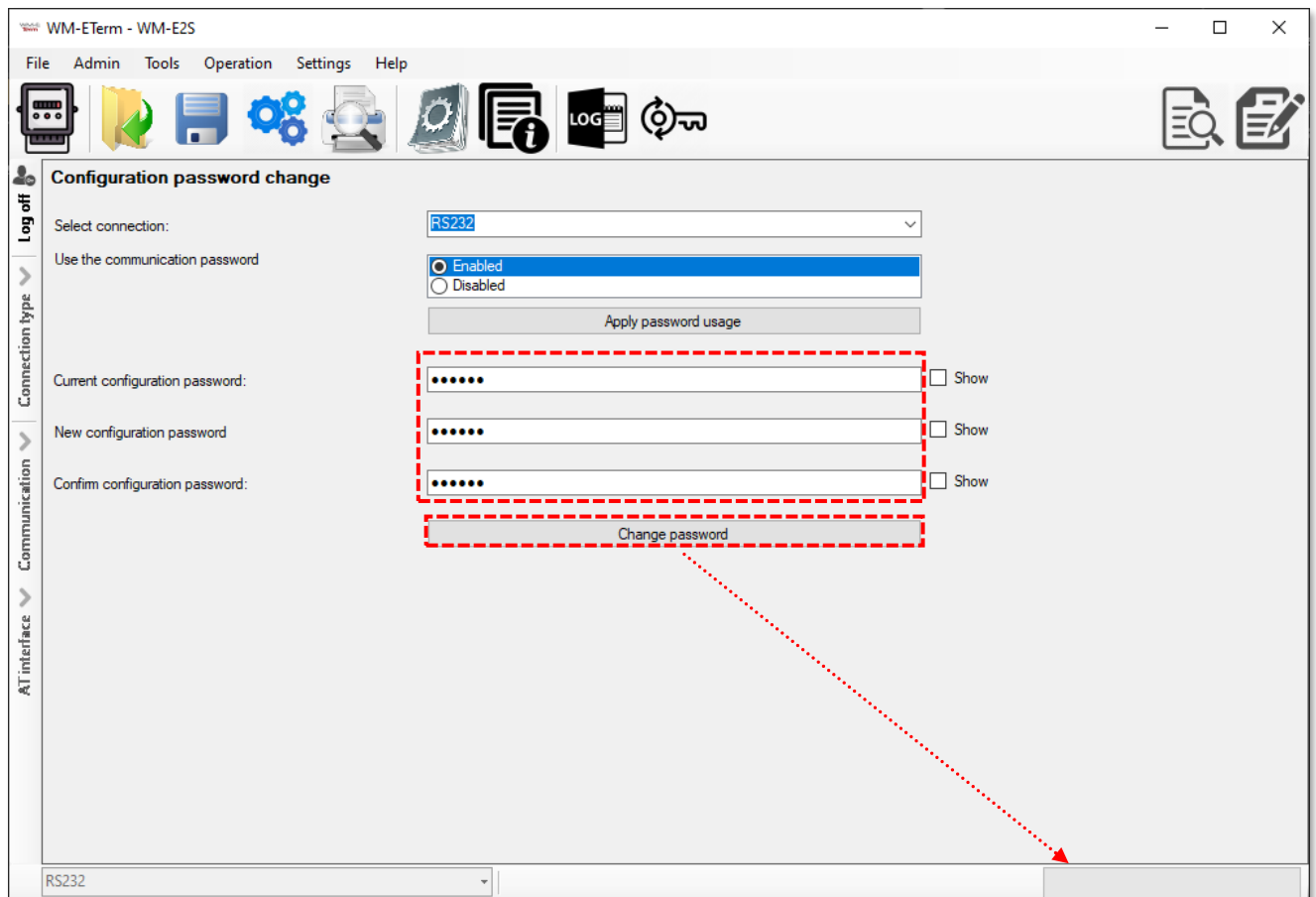
8. Then push to the **[Change password]** button to perform the password change.

Important! *After configuring this, you have to disconnect the connection with the WM-E Term software and you have to login again. Then you have to reconfigure the Configuration password at the connection profile – to the newly configured password – do it at the same place as it was showed in step nr. 1. Afterall, you should connect with the profile again to the modem (with the new password).*

5.10 Modem restart

There i no direct option for immediate modem restart in the WM-E Term software. But it is very easy to press the modem to be restarted by doing the following sequence:

1. Choose any parameter from the read out values.

2. Change a parameter value

3. Push to the **[Save]** button.

4. Send the settings by **Parameters Write** icon to the modem.

5. At the end of the writing process, the modem will be restarted.

6. The restart of the device is signed by its LED signals.

If you wish to restart the modem later, you can schedule the time by using the **Watchdog settings** (see Chapter 3.4 for more).

Chapter 6. Parameter description

The detailed description of the parameters can be found on the website of the required modem product at the **Downloads** part!

WM-E2S (Itron type): https://m2mserver.com/en/product/wm-e2s/

WM-E2SL (Landis+Gyr type): https://m2mserver.com/en/product/wm-e2sl/

Important!

The „TLS" related parameters can be used only with a TLS-compatible firmware, and configured TLS encryption.

Chapter 7. Support

If you have a technical question regarding the usage You can find us on the following contact possibilities:

Email: iotsupport@m2mserver.com

Phone: +36 20 333-1111

Product page: https://m2mserver.com/en/product/wm-e-term/

Online support: https://www.m2mserver.com/en/support/

Chapter 8. Legal notice

Warning

Any fault or upcoming error during the software upload/refresh can lead to the device breakdown. When this situation happens call our specialists.