VEGA LORAWAN CONFIGURATOR

1.2.12 Version

User Manual

Contents

Introduction

This manual is designated for application “Vega LoRaWAN Configurator” developed by Vega-Absolute OOO for work with LoRaWAN® end devices manufactured by Vega-Absolute OOO.

This manual is intended for users of this software and equipment.

Vega-Absolute OOO reserves the right to make changes to the manual related to the improvement of equipment and software, as well as to eliminate typos and inaccuracies, without prior notice.

1. Program startup

Using the “Vega LoRaWAN Configurator” software (hereinafter referred to as “the Configurator”), you can manage and configure end devices.

To get started with the program, you need to install the **MSVCx64** or **MSVCx86** redistributable packages, depending on the bit depth of your source system. The packages are available for download at iotvega.com in the "Software" section of the IOT Vega Server page.

To connect devices via USB, you must first install the STSW-STM32102 COM port driver. This driver can be downloaded from iotvega.com on the product page of any supported device. Alternatively, the driver can be installed using the Vega Soft Manager application, which is also available for download in the “Software” section of iotvega.com.

Once the required redistributables and driver are installed, you may proceed to connect your device (see Section 2: “Connection via USB-UART-converter or USB”).

The "Vega LoRaWAN Configurator" application does not require the special installation. When the executable file is launched, the window for working with the application appears

2. Connection via USB-UART-converter or USB

When implementing this connection method, you will need a USB-UART-converter or Mini/Micro USB or USB Type-C.

To connect you will need:

1. Connect the USB-UART converter or USB[1] to the device and the USB port of a personal computer.
2. Run the "Vega LoRaWAN Configurator" application.
3. To activate UART expose the magnet to the Hall sensor and wait for the LED signal[2].
4. In the "Vega LoRaWAN Configurator" application, go to the menu bar, select "Advanced" mode, then choose the device model and assigned COM port in the left-hand menu. After that, click the "Connect" button.

The program will automatically recognize the device type, the device selection menu will become inactive, and the connection to the device will be established.

The Configurator supports manual selection of the device's COM port, enabling you to connect multiple end devices via USB simultaneously and launch multiple application windows. This way, you can configure and monitor different devices—each connected through a separate COM port—in individual windows. To select a COM port, switch to "Advanced" mode (see Section 4, "Application Interface," for details)

[1] Mini/Micro USB or USB Type-C
[2] When the device is powered by external power, the UART output is active by default

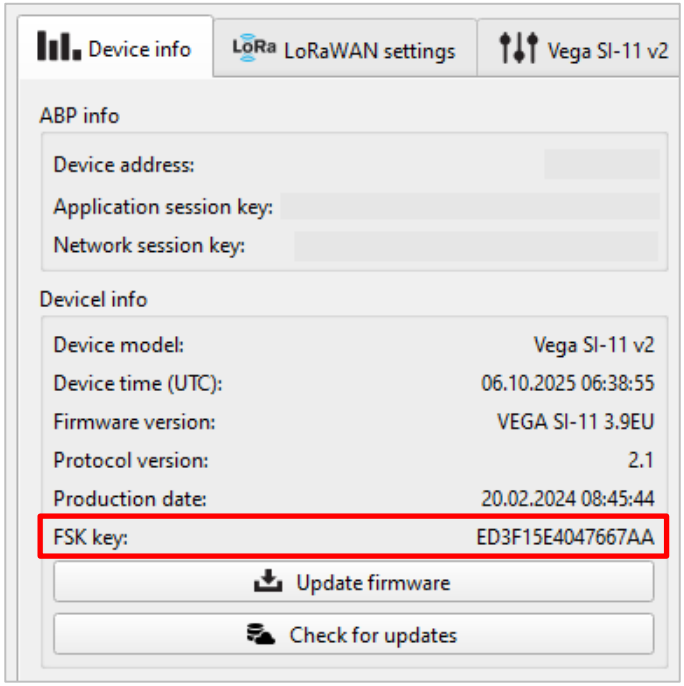
3. FSK Connection

FSK radio channel allows remote connection and customize LoRaWAN device in a distance up to 100 meters in the absence of line of sight.

To connect via FSK you will need:

- Special device – FSK dongle, which connects to PC via USB like any other LoRaWAN device,
- FSK key – is an individual LoRaWAN device key which you are connecting to.

FSK key can be found in QR code on the device package label also it can be checked during the connection in configurator's "Information" tab.



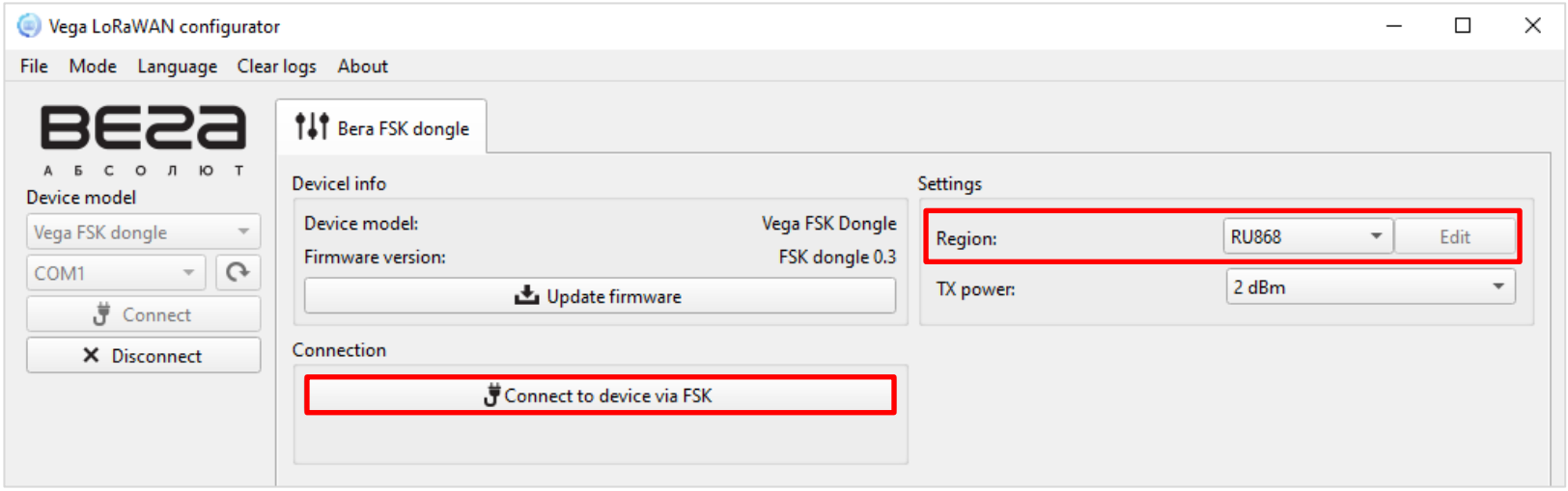
The connection procedure is as follows:

1. To connect FSK dongle to PC via USB
2. Run "Vega LoRaWAN Configurator" application
3. Click "Connect" button in left menu

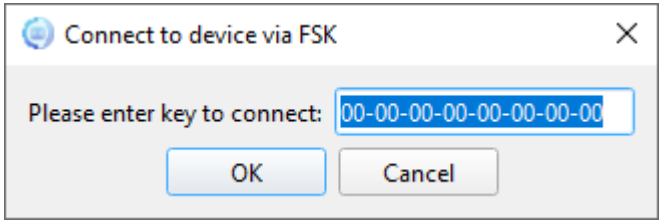
Application will automatically recognize device type and device model menu will be inactive.

4. Click "Get settings" button and make sure frequency plan matches to frequency plan of LoRaWAN device you plan connect to via FSK.

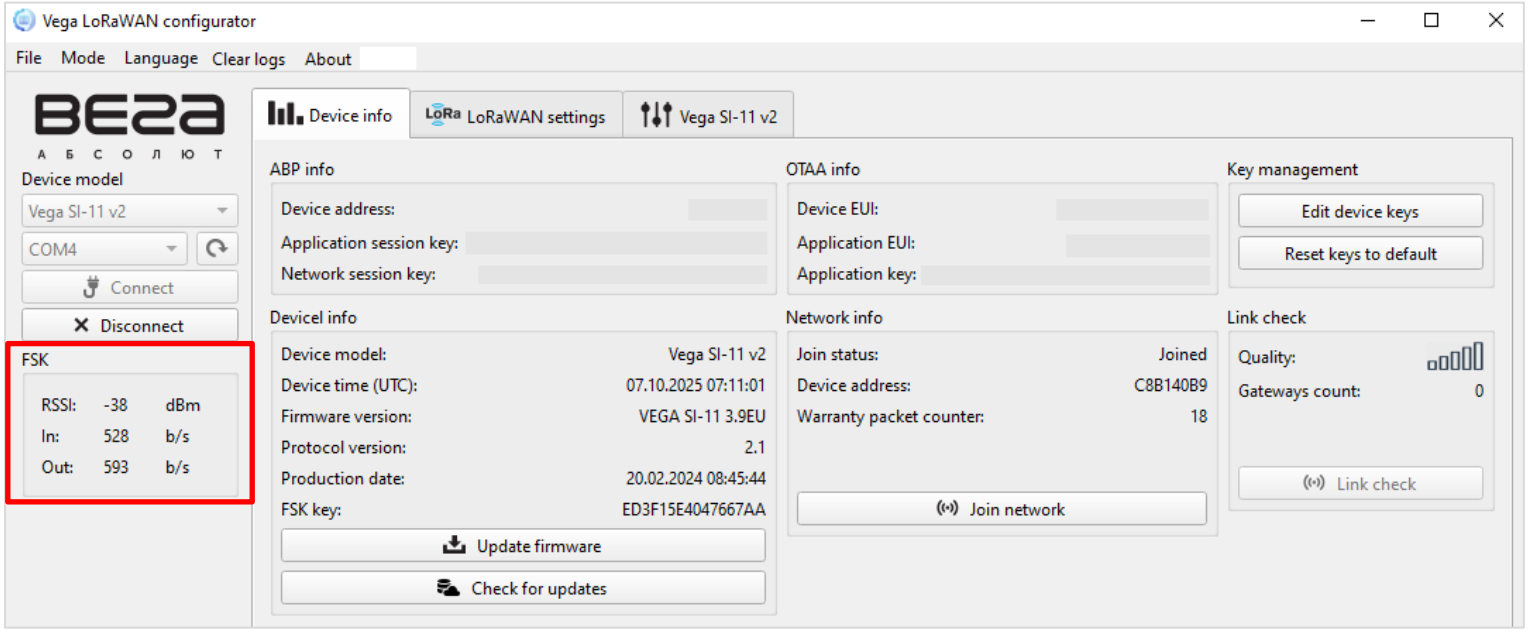
5. Click "Connect to device via FSK".



6. Insert FSK key of the device in appears window and click “OK”.



The connection to the device will occur as if it were connected via USB, but a window with FSK communication parameters will appear in the menu on the left. All settings are performed as with USB connection, using the buttons “Get settings” и “Save settings”.

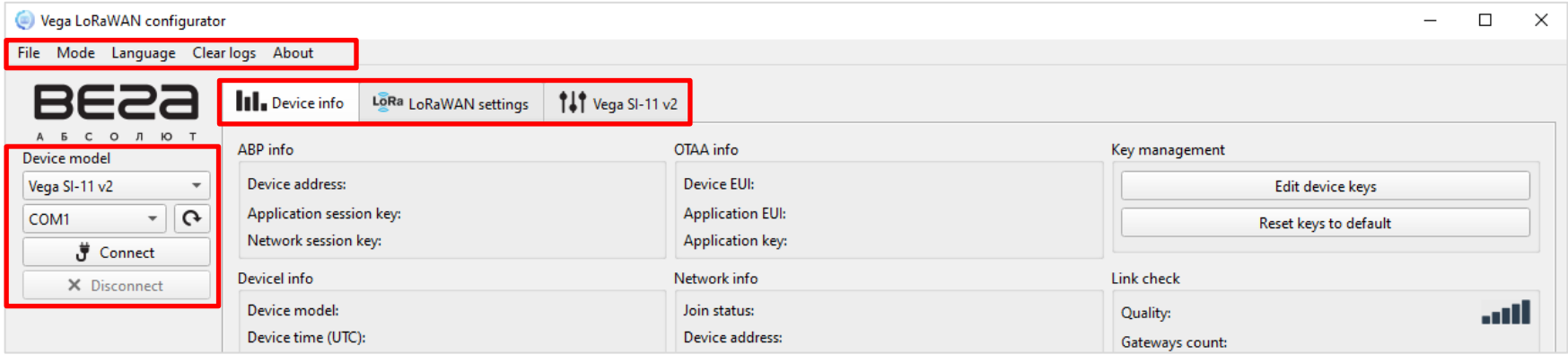


4. Application Interface

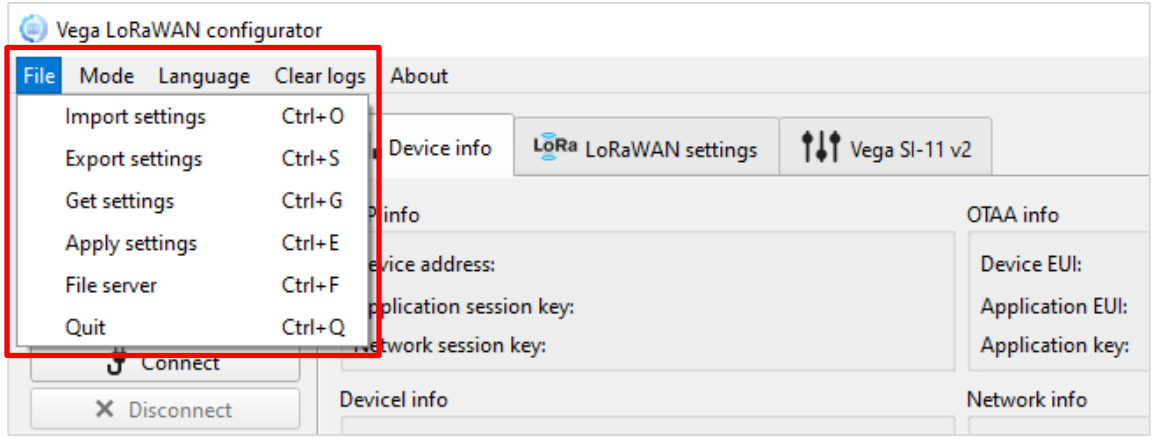
"Vega LoRaWAN Configurator" application is designed to configure the device via USB or remotely via FSK.

The configurator has two operation modes – "Simple" и "Advanced". In "Simple" mode only basic settings are available, in "Advanced" mode basic and advanced settings are available. As an example, the work of the application with the terminal device Vega SI-11 v2 in the "Advanced" mode is considered.

At the top of the application window is the menu bar containing program settings. Below it are three tabs: information, LoRaWAN® settings, and device settings. The left-side menu allows you to select the device model, choose a COM port, and connect to or disconnect from the device.



The **File** tab in the menu bar provides access to core functions for managing device settings and files:



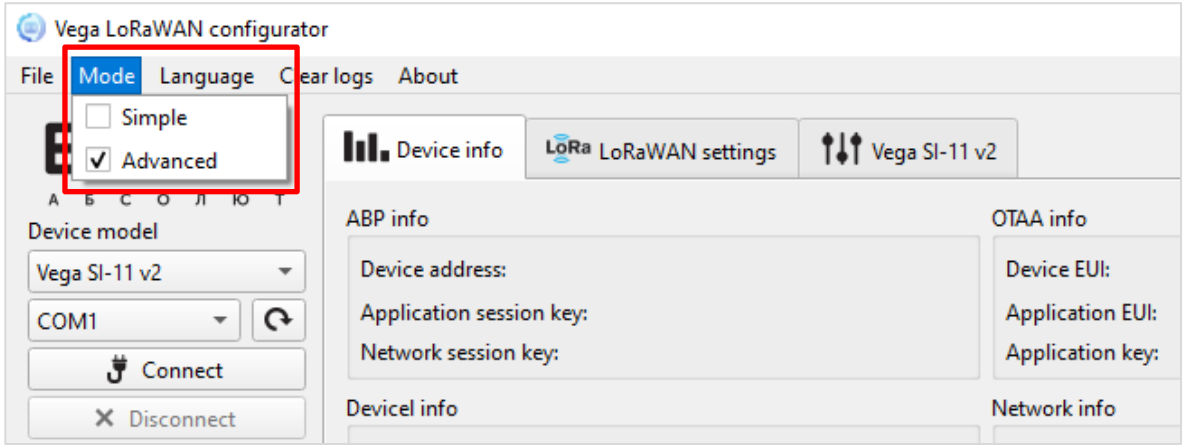
File server — opens a client interface to download firmware, software, drivers, user manuals, and other materials directly within the "Vega LoRaWAN Configurator" application.

Export settings and **Import settings** — allow you to save a configuration set to a file and later load it from that file.

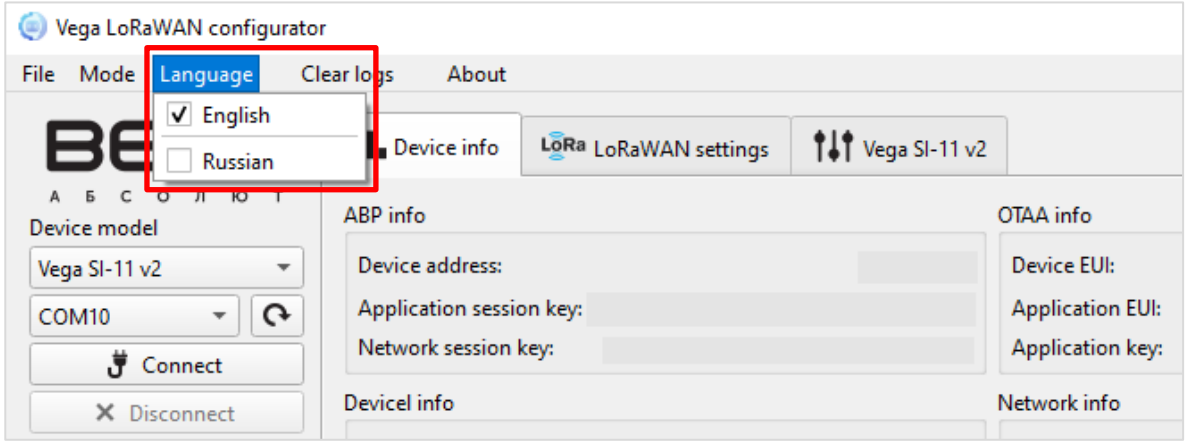
Get settings — retrieves the current parameters from the connected device. Until this operation is performed, the application displays default values or settings from the last saved device.

After making the necessary changes to the configuration, click the **Apply settings** button before disconnecting from the device using the **Disconnect** button.

The **Mode** tab in the menu bar allows you to switch between "Simple" and "Advanced" operating modes of the application.

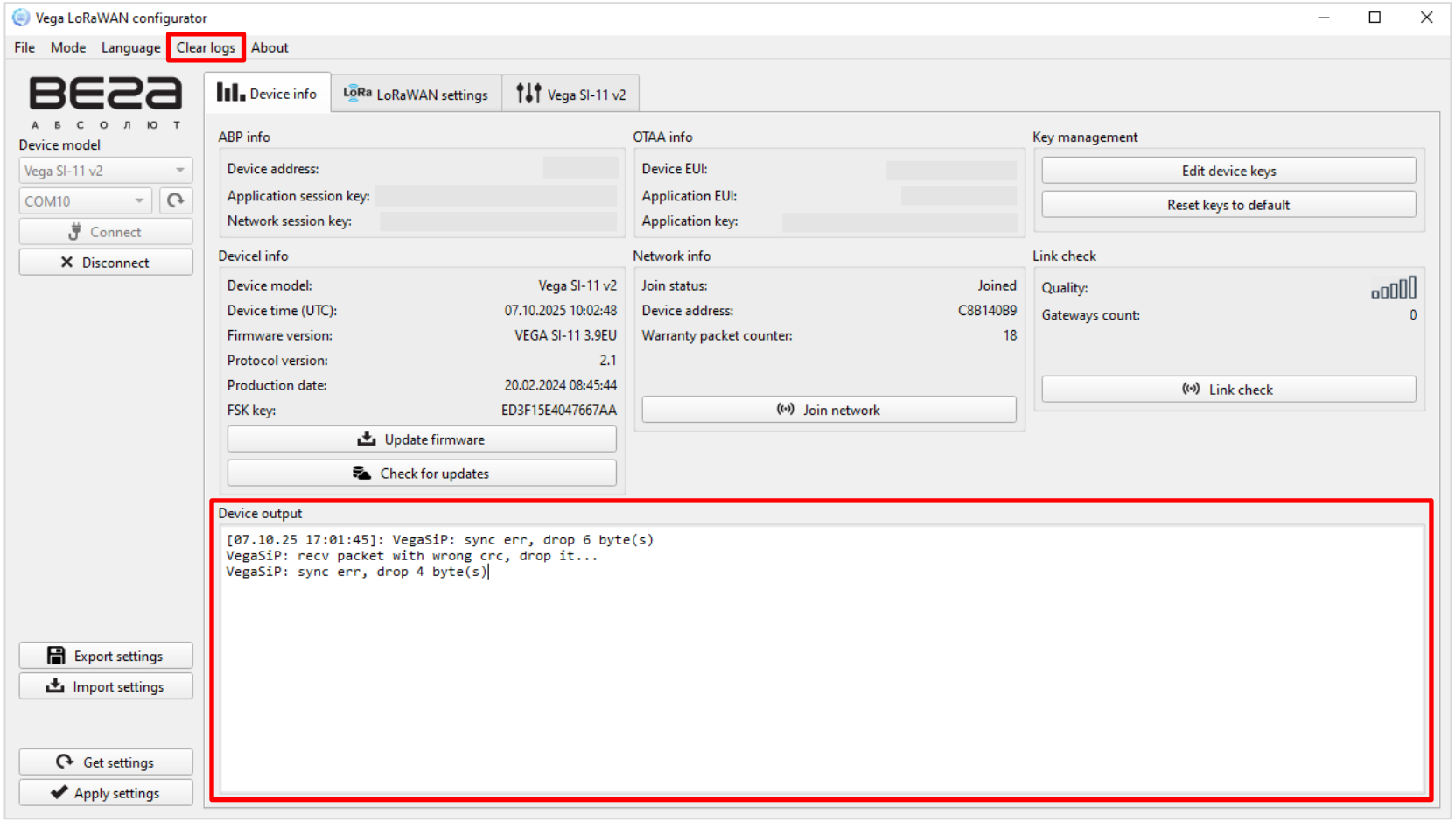


The “Language” tab in the menu bar allows you to select the application language and open the program help.



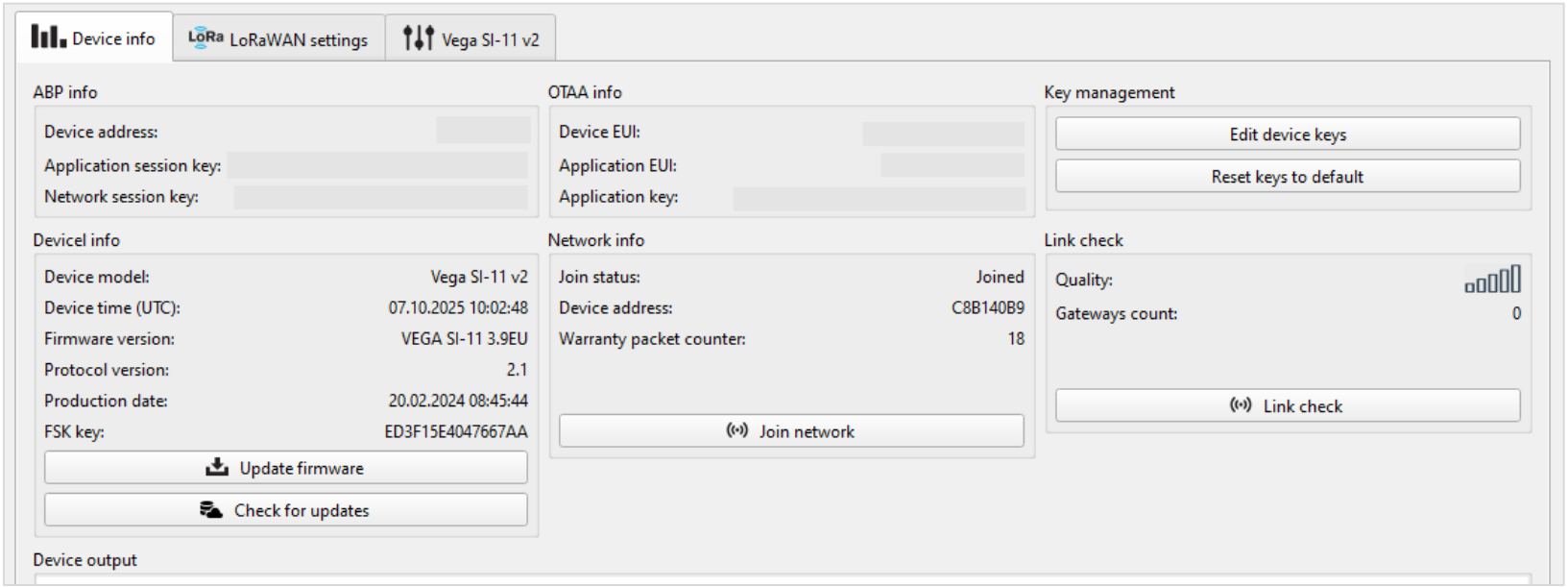
The “Clear Logs” tab in the menu bar allows you to clear the device operation log history displayed in the “Device Output” window.

Device output — the Device Output window displays the device operation log. Events are recorded in the log with a timestamp and a tag (which indicates the event type).



5. “Device info” Tab

The “Device info” tab displays information about the device, its status, and the data needed to register the device in the LoRaWAN® network.



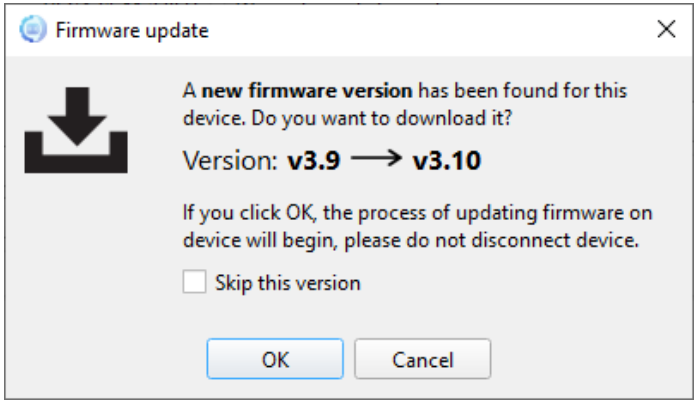
ABP info - displays the data necessary to register the device in the LoRaWAN® network with ABP method (Activation By Personalization).

OTAA info - the data required to register the device in the LoRaWAN® network with OTAA method (Over The Air Activation) is displayed.

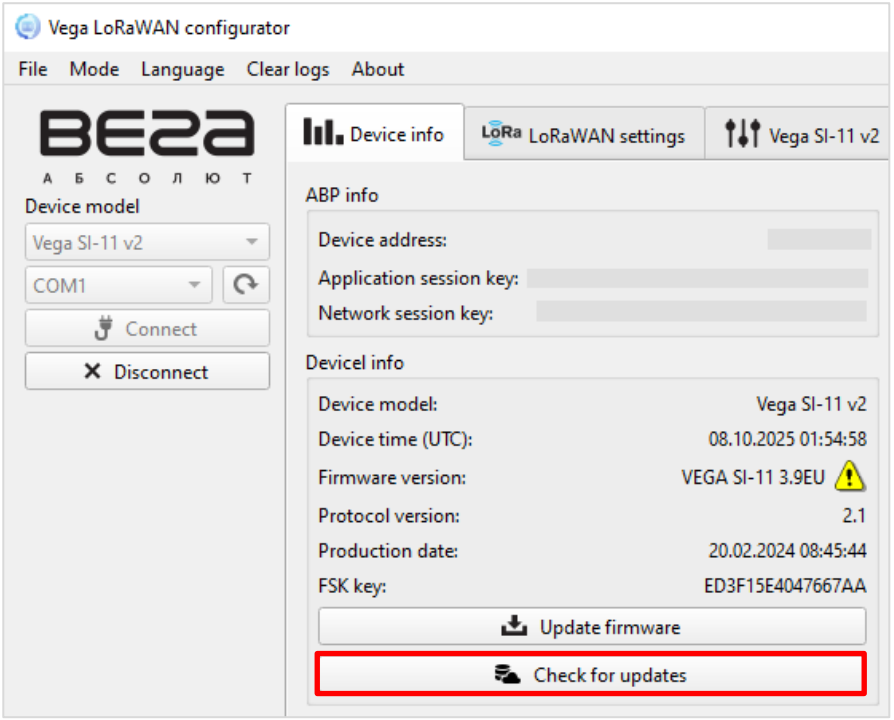
Key management (not displayed in the "Simple" mode) - allows you to change the factory keys to register the device on the network, as well as reset the keys back to default settings.

Device info - the configurator reads information about the device model, its firmware and automatically corrects the device's time when connected to it. This section contains the FSK key required to connect to the device remotely.

When you start the program, the device automatically checks for new firmware and, if necessary, offers to download it.



If you do not update the firmware at this step, then a notification will appear in the corresponding field on the Device info tab.



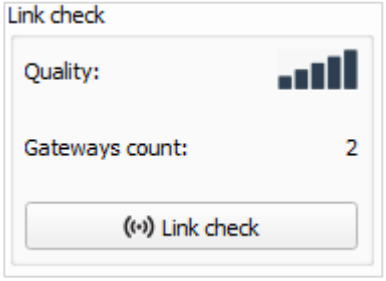
Update firmware - allows you to select the firmware file from your computer's hard drive and load it into the device. The device will automatically disconnect from the configurator when the download is complete. The latest firmware version for the device is available for download on the iotvega.com website on the corresponding product page or via the built-in client in the "Vega LoRaWAN Configurator" program on the file server.

Check for updates - allows you to check firmware updates directly via "Vega LoRaWAN Configurator".

Network info - shows whether the device is connected to the LoRaWAN® network and its network address. This section also displays the number of packets sent by the device since the first time it was turned on.

Join network button (does not work when FSK connection is used)- launch the LoRaWAN® network connection procedure with the previously selected ABP or OTAA method. If the device is already connected to the network, reconnection procedure will occur.

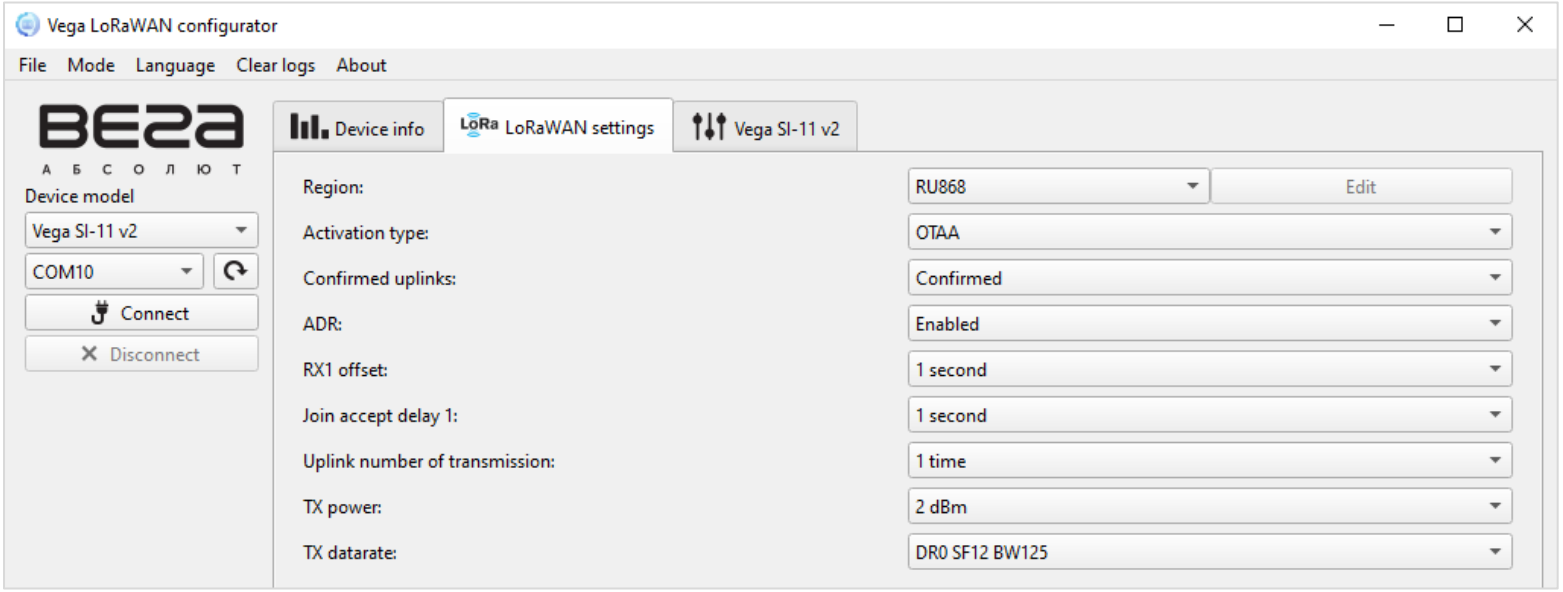
Link check (not displayed in the “Simple” mode, does not work when FSK connection is used) - when pressed, the device sends a special signal to the LoRaWAN® network, in response to which the network informs it of the number of gateways that received this signal and the signal quality. This button only works when the device is connected to the network.



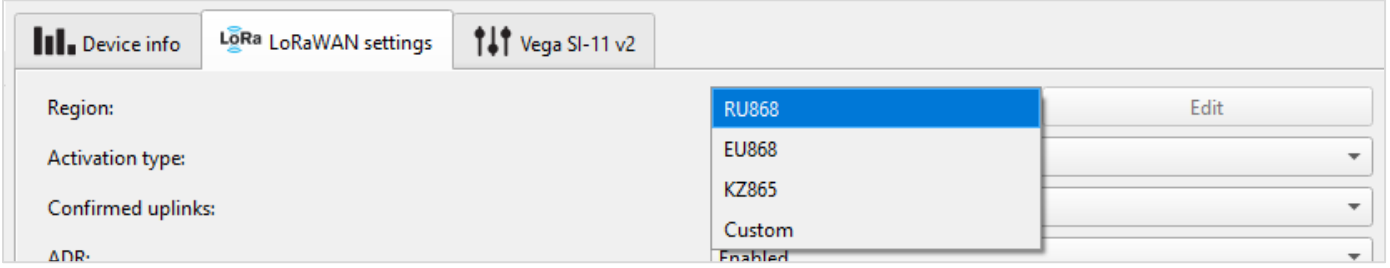
Device output (not displayed in the “Simple” mode) - monitoring the device status, all events in real time are displayed.

6. “LoRaWAN settings” Tab

The “LoRaWAN Settings” tab allows you to configure various parameters of the LoRaWAN® network.

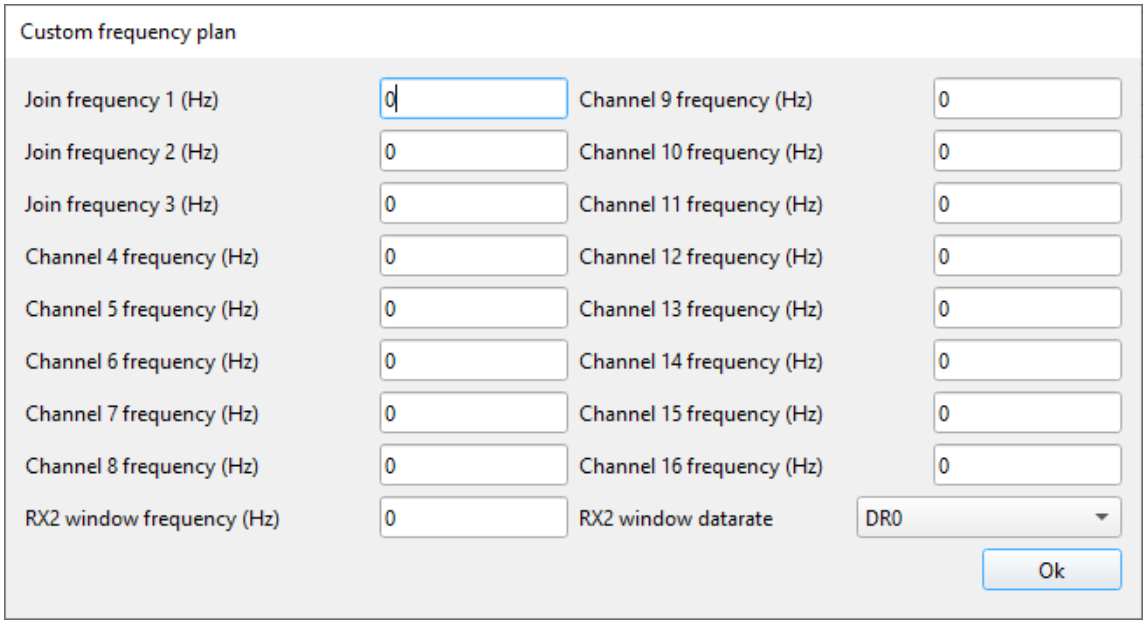


Region - allows you to select one of the frequency plans available on the device or set custom frequency plan. The custom frequency plan operates on the basis of the EU-868 frequency plan.



In the device frequency plan, only those channels are active by default, on which sending requests for connection to the network (join channels). The remaining channels (that the device should use) can be transferring by the LoRaWAN® network server during the device activation procedure (only OTAA).

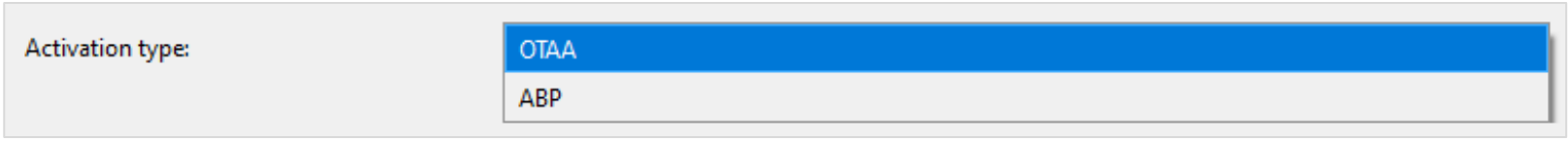
If you select “Custom” in the “Region” field, you must manually specify the frequencies that the device will use. To do this, click the “Edit” button, the channel frequency editing window will appear:



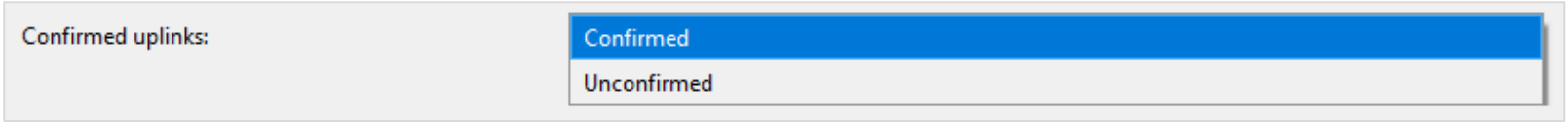
This frequency plan allows you to set up to 16 channels, as well as the frequency and speed of the second receiving window.

The first three channels and the second receiving window parameters are mandatory. Without these parameters the custom frequency plan will be considered empty

Activation type – selecting ABP or OTAA device activation method.



Confirmed uplinks – set up confirmation of the packet delivery.



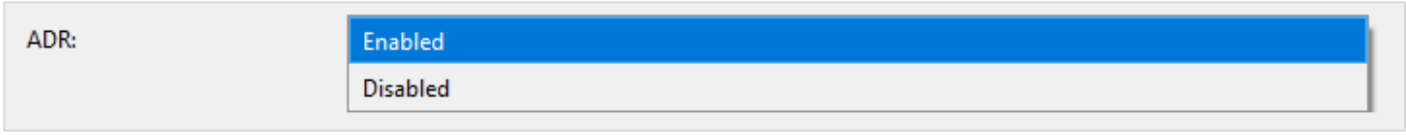
With the "Confirmed uplinks" option turned on, the device will retry sending the packet until it receives the server confirmation, or until the "Uplink number of transmission" is over (see below), then device completes the communication session until the next one according to the schedule. In this case, the device continues to collect data according to the data collection period and store it in memory.

Non-transmitted packets remain in the device memory until the next communication session.

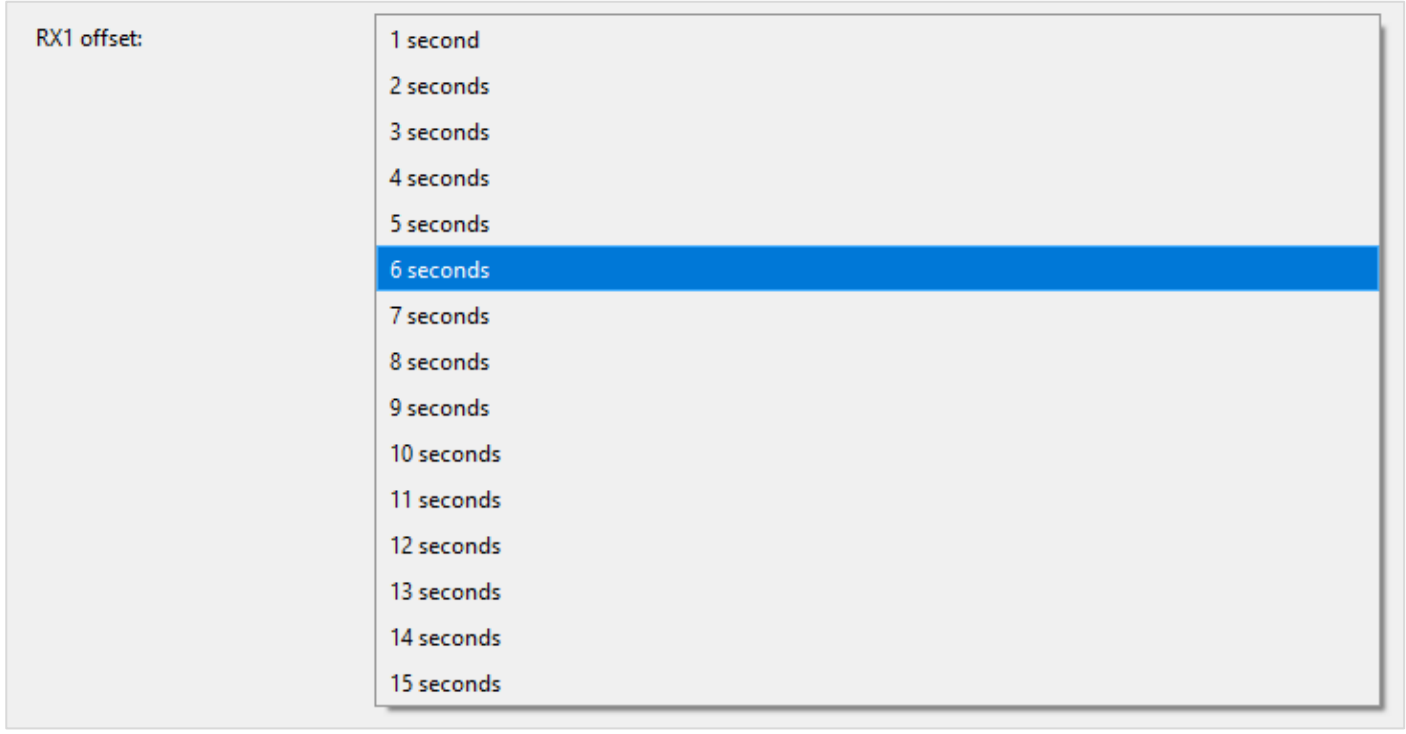
When the device black box overflows, the oldest packages will be overwritten with new ones

With the "Confirmed uplinks" option turned off, the device just sends all accumulated packets to the network in order from the earliest to the latest. There are no checks of package delivery in this mode. After communication session there are no non-transmitted messages in the device memory.

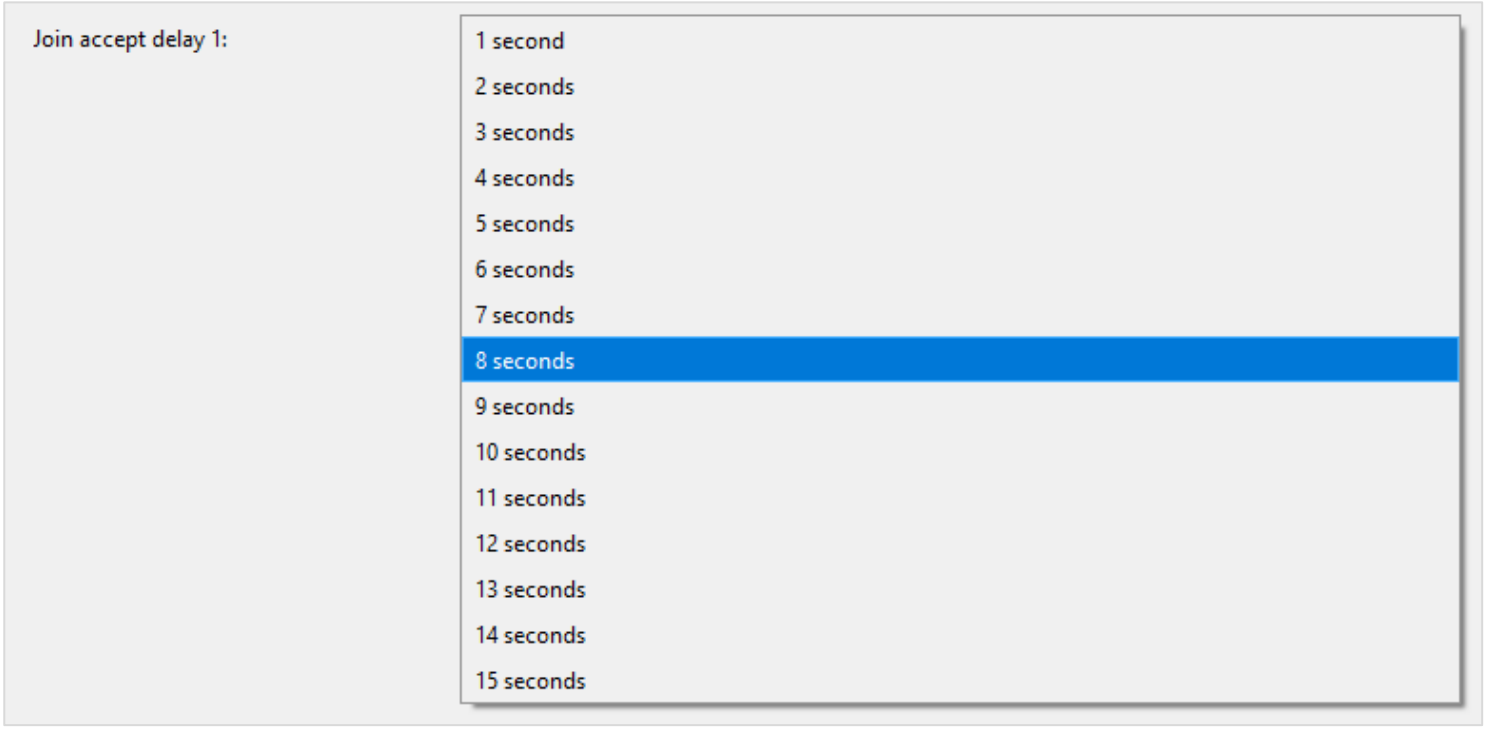
ADR – this option activates the Adaptive Data Rate algorithm for automatic control of the data transfer rate from the LoRaWAN® network server side. The higher the quality of the signal received by the network, the higher the speed will be installed on the device. This option is recommended only on permanently installed devices.



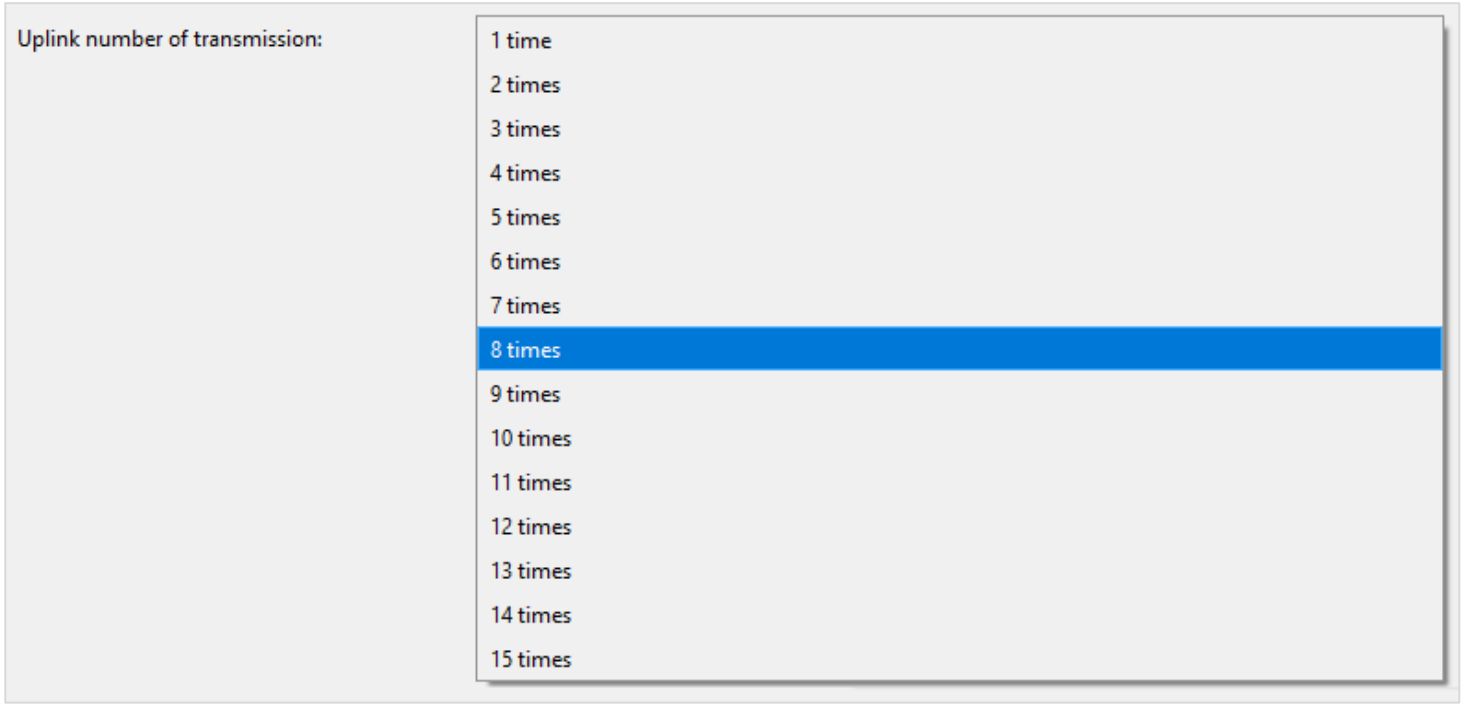
RX1 offset (not displayed in the "Simple" mode) – specifies the time between end of packet transmission and first receiving window opening. The second receiving window always opens after 1 second after the first.



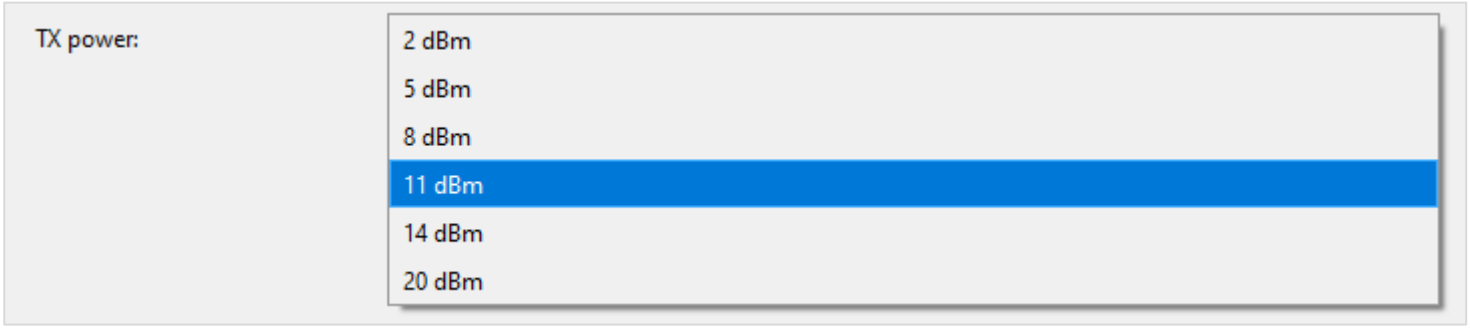
Join accept delay (not displayed in the “Simple” mode) – sets the time that the device will open the first receiving window to receive confirmation for the join request from the LoRaWAN® network while OTAA mode active. The second window always opens after 1 second after the first.



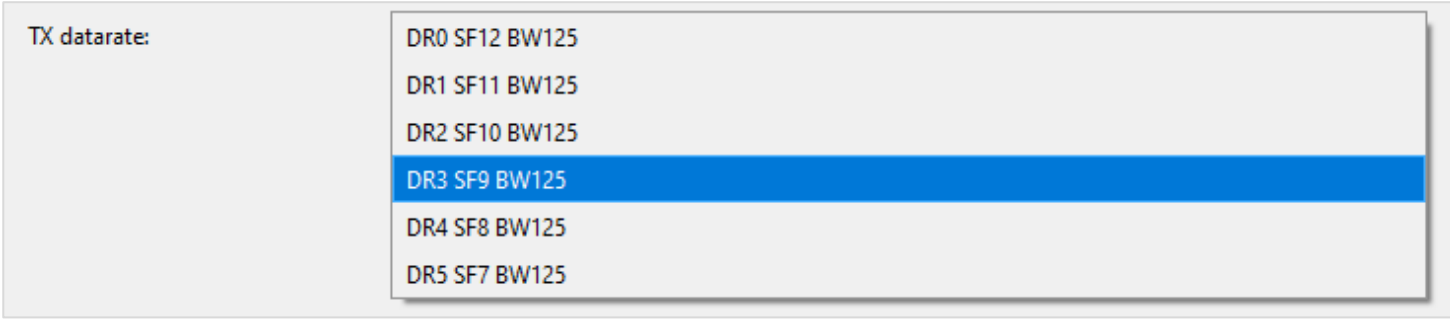
Uplink number of transmission (not displayed in the “Simple” mode) – if the “Confirmed uplinks” function is disabled, the device will simply send each packet as many times as specified in this option. If “Confirmed uplinks” is enabled, the device will send packets until it receives a confirmation or until it sends as many packets as specified in this option.



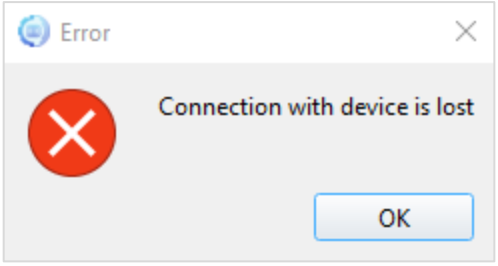
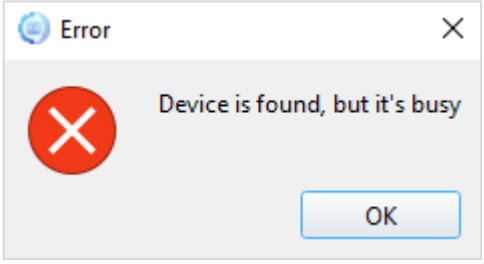
TX power (not displayed in the "Simple" mode) – the device RF transmitter power is adjusted to this value when sending packets to the LoRaWAN® network. This option can be changed by the network server.



TX datarate (not displayed in the “Simple” mode) – the device transmission data rate at which it will transfer packets to the LoRaWAN® network. This speed can be changed by the network server if the ADR algorithm is enabled.



7. System messages and errors

ERROR	POSSIBLE REASON	USER ACTIONS
	Incorrect COM port selected when connecting in “Advanced” mode	Try to choose another COM port or reconnect in “Simple” mode. In “Simple” mode configurator looks over all COM ports, till finds the one it can connect.
	The specified COM port is being used by another program	Carry out the procedure for connecting the device again.

DOCUMENT INFORMATION	
Title	Vega LoRaWAN Configurator
Document type	Manual - Translation from Russian
Document number	V02-config-01
Revision and date	05 of 08.10.2025

Revision of manual	Firmware version	Date	Name	Comments
01	1.0.42	16.06.2021	KEV	Document creation date
02	1.0.55	24.06.2021	KEV	Updating because of new application version has been released
03	1.0.58	17.08.2021	KEV	Update due to the application new version release, description of the new functionality (FSK)
04	1.0.82	09.01.2023	KMA	Updating because of new application version has been released
05	1.2.12	08.10.2025	NEE	Document update due to the release of a new version of the software

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