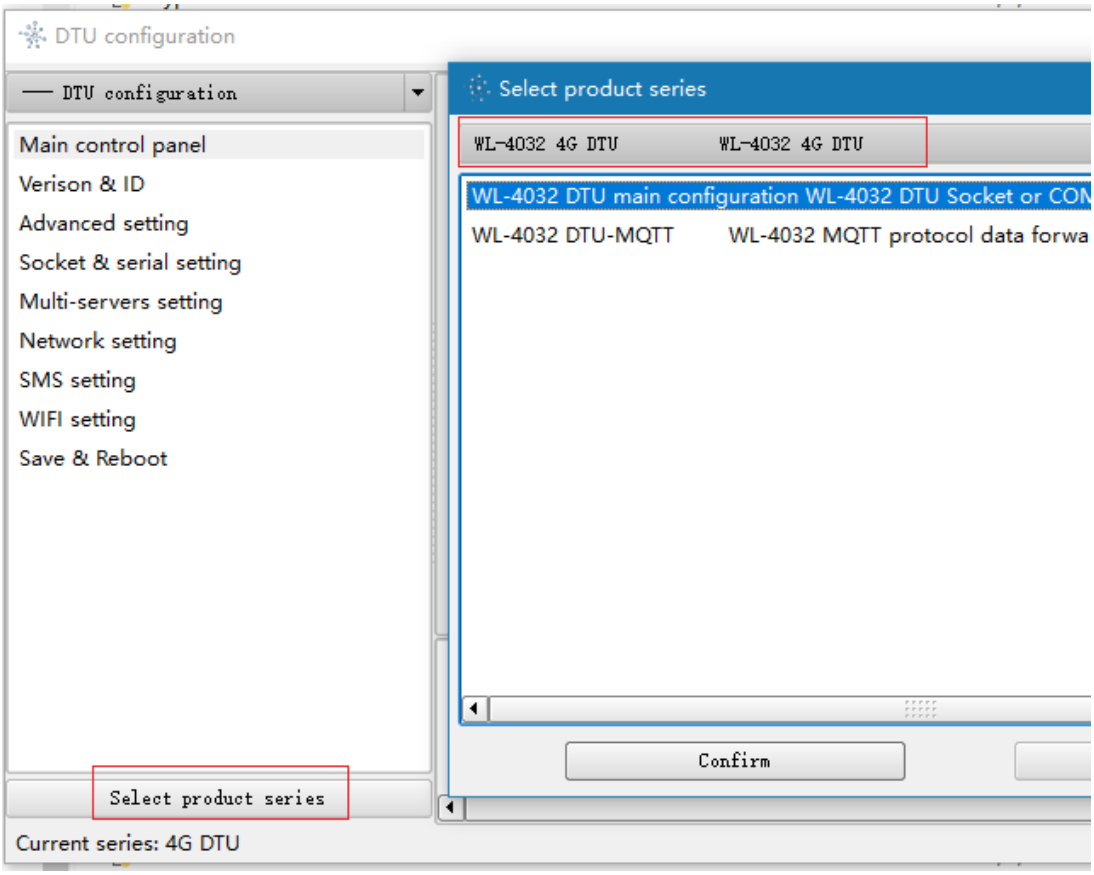
# WL-4032 4G DTU Configuration Guide

The latest WL-4032 4G DTU configuration software can connect to the DTU via serial port or TYPE-C to read and set the parameters of the WL-4032 4G DTU.

## I. Installing and Running the Configuration Software:

Download and extract the configuration software, run "dtu_config.exe". First, select the product series as shown below:



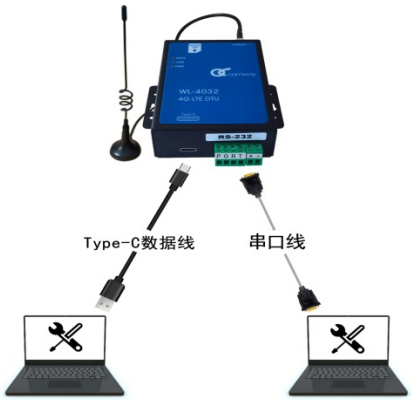

In the WL-4032 4G DTU function setting list, the main DTU configuration is based on the parameter settings of the basic DTU firmware program. Other specific function configurations are based on parameter settings of dynamic programs (e.g., DTU-MQTT-Multi-Topic), as shown in the figure above.

Select "DTU Main Configuration" in the configuration function list to perform parameter reading and configuration.

## II. Main Control Panel of the Configuration Software

### 1) Multiple Ways to Connect the Computer to the DTU:

The DTU can be connected to the computer via the TYPE-C interface or a serial port, as shown below:

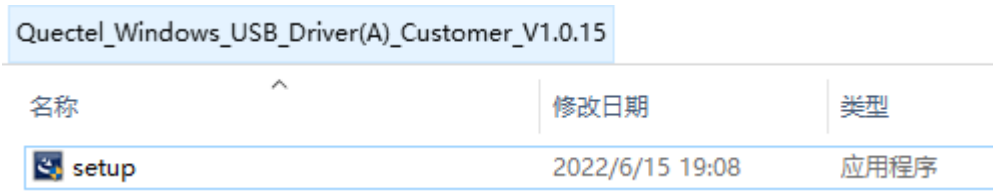



### 2) Connecting to the DTU via TYPE-C:

Use a Type-C data cable (some Type-C cables are for charging only) to connect the computer and the DTU.

No SIM card needs to be inserted during DTU configuration. Both USB 2.0 and USB 3.0 ports on the computer can power the DTU and enable data connection.

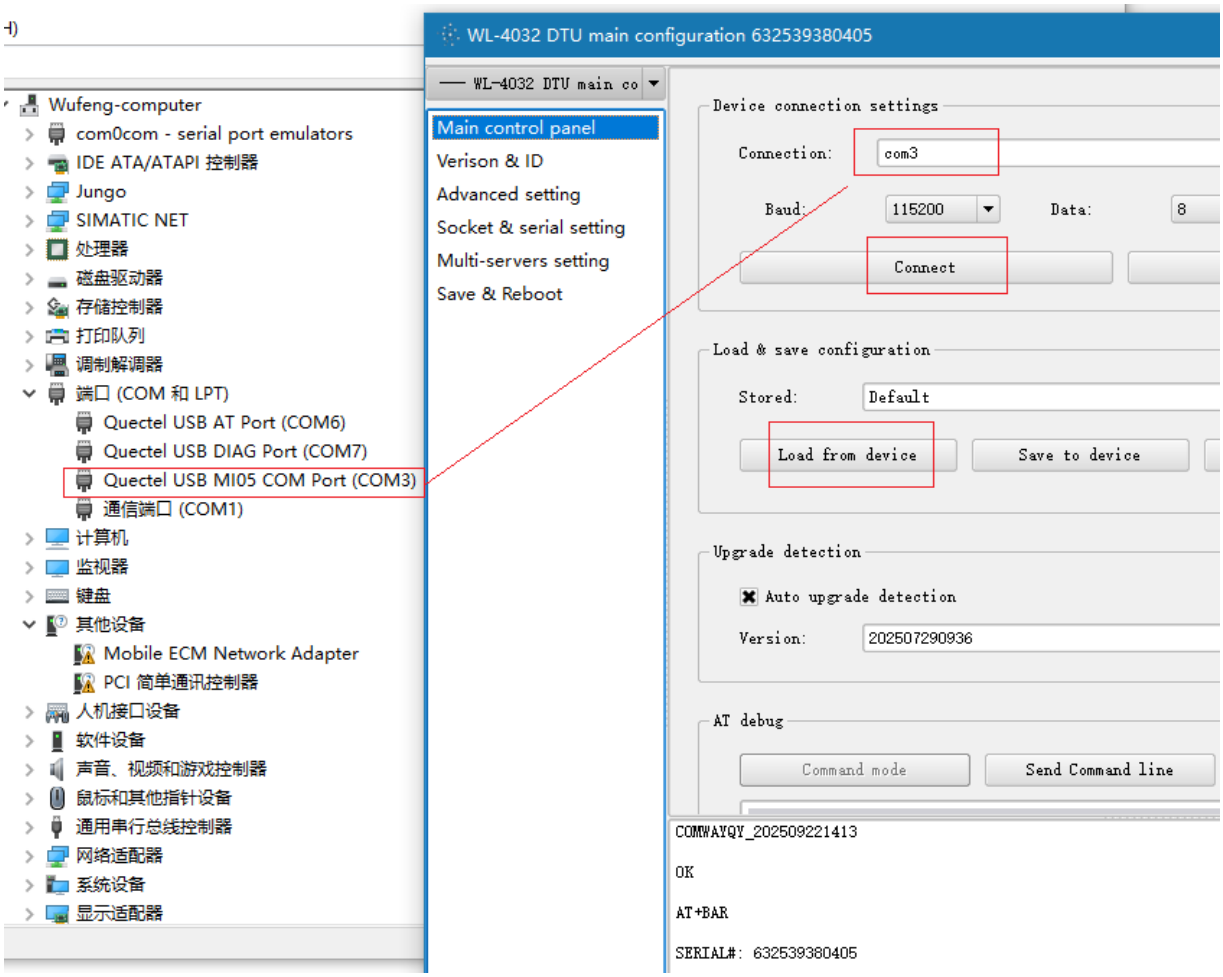
When using a Type-C data cable, the USB driver needs to be installed, as shown below:




After the USB driver is successfully installed, the COM port will be displayed under Ports (COM & LPT) in the Device Manager. Select the COM port number for USB M105, enter the port number in the connection parameters of the configuration software's main control panel, and click: "Connect Device", as shown below.

The USB serial port is not a real physical serial port, so serial port parameters need not be considered.

After the configuration software successfully connects to the DTU, click: "Read from Device" to read all DTU parameters at once.

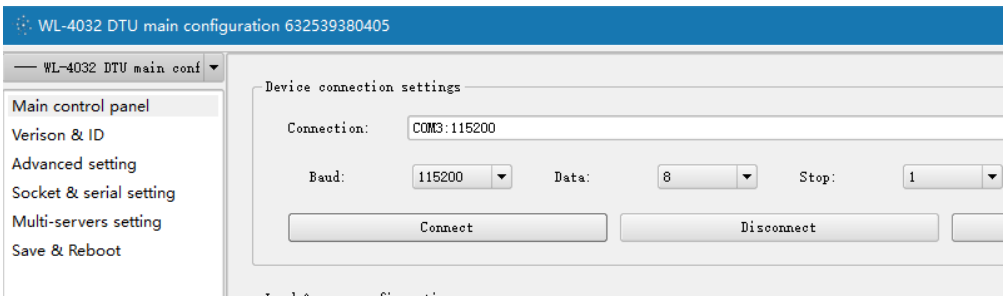



## 3) Connecting to the DTU via Serial Port

In the connection parameters section, select the computer's serial port number connected to the DTU (click "Update" in the dropdown menu to show all available ports) and the relevant communication parameters: Baud Rate and Parity Bit.

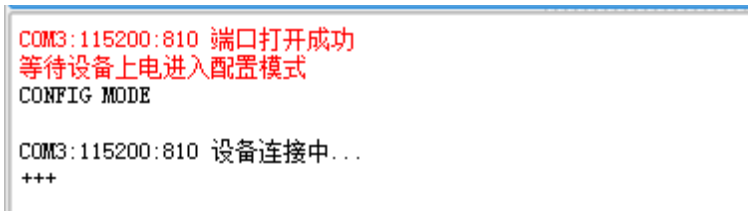
The DTU's factory default serial port parameters are: Baud Rate 115200, Data Bits 8, Stop Bits 1, Parity None.

When connecting via serial port, do not insert the SIM card (power off when inserting/removing SIM card) to prevent the DTU serial port from entering data connection mode.



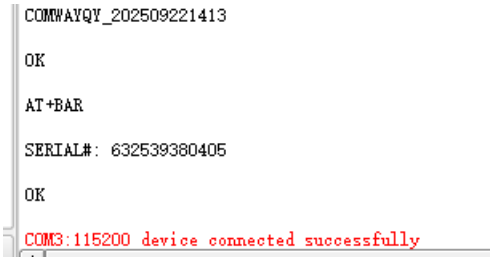
Set the correct serial port parameters and click: "Connect Device".

If the user cannot connect to the DTU normally via the serial port, they can first run the configuration software, click "Configuration Mode Connection". The message "Waiting for the device to power on and enter configuration mode" will appear. Then power on the device. (Pay attention to this order of operation)




COM3:115200:810 Port opened successfully. Waiting for the device to power on and enter configuration mode CONFIG MODE COM3:115200:810 Device connecting... +++

After serial communication is normal, "Device connected successfully" is displayed.

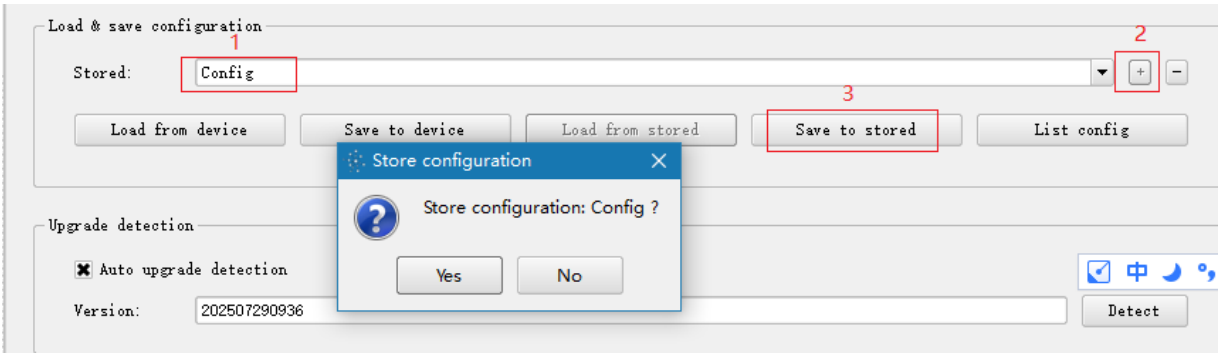



At this point, click the "Read from Device" button to correctly read the existing configuration parameters of the DTU.

## 4) Reading Device Parameters and Saving Parameters to a Configuration File:

In the following interface, click "Read from Device" to read all configuration parameters saved in the DTU.

In the following interface, click "Save to Device" to save all current parameters in the configuration software to the DTU at once.

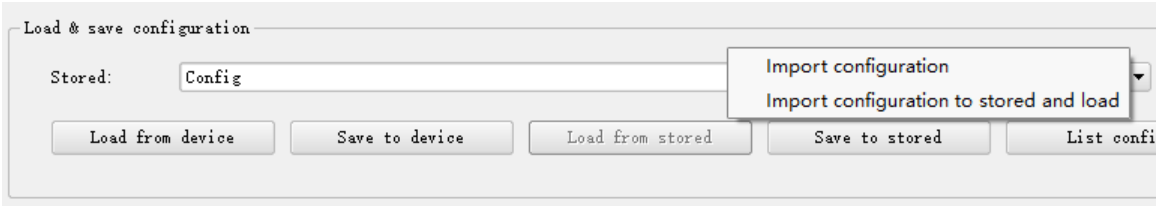



Click the "Save to Stored Configuration" button to save the user-modified configuration parameters as a file, facilitating quick DTU configuration in the future by directly reading the configuration file.

Click the "Read from Stored Configuration" button to directly read configuration parameters from an already configured settings file. Combined with the "Save to Device" button, it can conveniently and quickly configure DTU parameters. The steps are as follows:

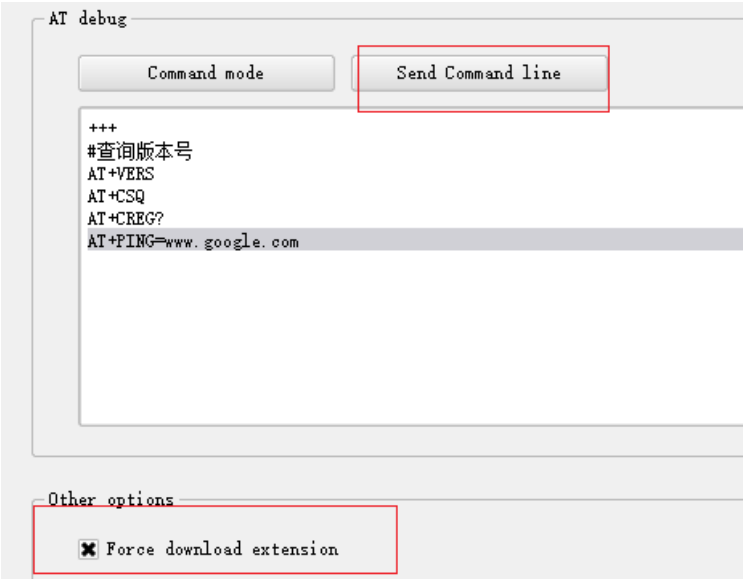
1: Enter the file name, 2: Click "+" to create a new file, 3: Click "Save to Stored Configuration". Alternatively, you can export the stored configuration file to a specified directory as shown below:

When you need to import or export saved configuration files, right-click in the blank area of the interface below to display the option to import configuration files:




## 5) Sending AT Commands via the Debug Tool and Allowing Extended Program Loading

Not all AT commands are displayed in the configuration software interface. Sometimes it is necessary to directly input AT commands for debugging. For this purpose, you can use the AT command debug tool. Click to enter: "Edit Mode", then input the AT command, and click: "Send the current line's AT command" to execute the AT command. The result will be displayed in the window below.




When loading an extended program to implement functions, this option needs to be checked for normal loading, such as MQTT-Multi-Topic.

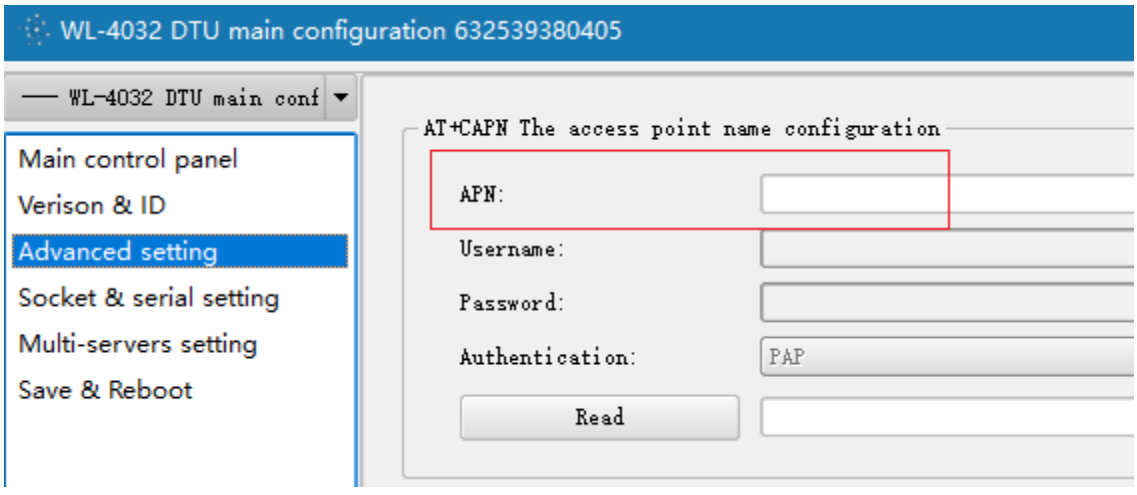
### 6) Operation Process for Modifying Parameters with the Configuration Software:

Send (Confirmation Command) -> Save Configuration -> Restart DTU -> Modification Takes Effect.

## III. Methods for DTU to Connect to the INTERNET or an APN Private Network:

Insert a public network SIM card. The APN address is usually left blank. After powering on, the DTU's PWR light will be steady on, indicating a connection to the INTERNET.

When connecting to an APN private network, you need to set the APN address, username, password, and authentication method of the private network card in the "Advanced Options", as shown below.



## IV. Configuration of 4G DTU Serial Port Communication Parameters

Select the Serial Communication Main Server configuration page. The configuration process is as follows:

■ Select the communication protocol.

■ Set the main server address and port number. The server address can be a fixed IP address or a dynamic domain name.

■ Select the main server connection method.

You can choose whether the DTU's working mode is Active Constant Connection Mode or Passive Single Mode.

Active Constant Connection Mode means the DTU automatically connects to the pre-set server after power-on and immediately reconnects if a disconnection occurs. Passive Single Mode means after the DTU completes startup, the serial port enters AT command mode, enabling scenarios such as SMS sending/receiving or other applications requiring AT command responses.

■ Set DTU serial port communication parameters.

You can set the DTU's serial port communication parameters: Baud Rate, Data Bits, Stop Bits, and Parity Bit. These parameters must be completely consistent with the connected device's serial port communication parameters to ensure normal serial communication.

The following explanations are provided by communication protocol:

Protocol 0: TRANSPARENT (Transparent Transmission Protocol)

Protocol 1: COMWAY Protocol (Wireless Serial Port)

Protocol 2: ID_TRANSPARENT (Transparent Transmission + ID Mode)

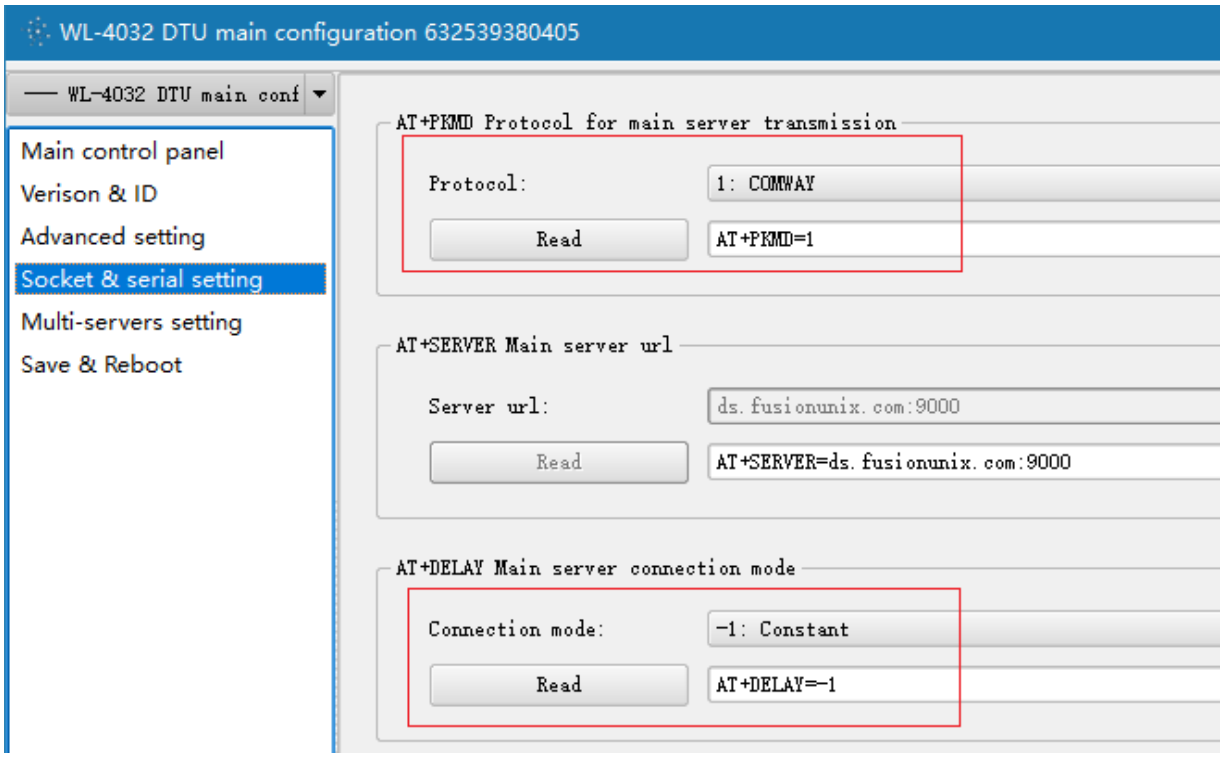
Protocol 3: HONGDIAN (Compatible with Hongdian Protocol)

### 1) COMWAY Protocol

The Comway protocol is a communication protocol developed by Beijing Tiantong Chuangxin Communication Co., Ltd. based on TCP/IP, used only for establishing

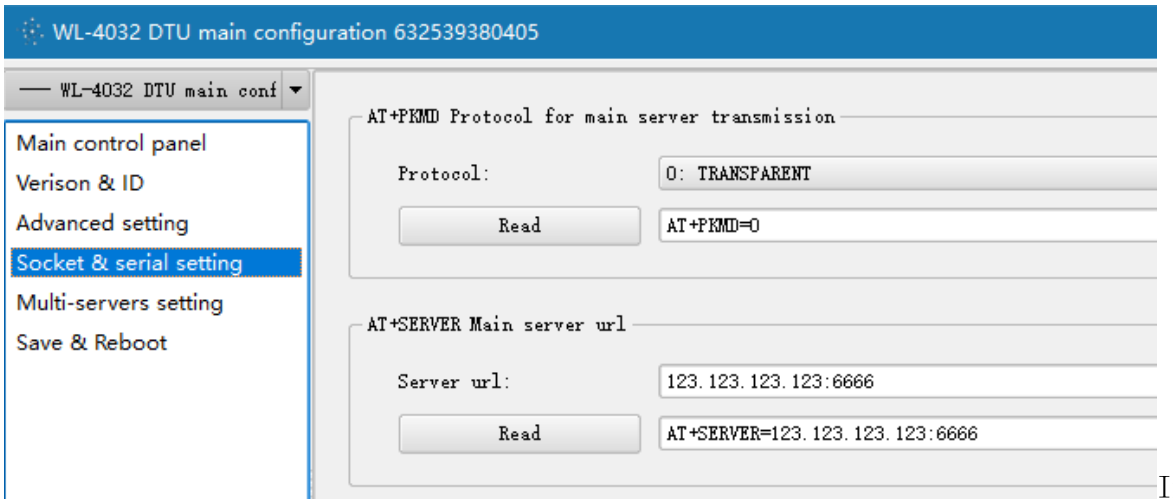
connections with the COMWAY DATA-SERVER communication server. The specific configuration is shown in the following interface:

On the Serial Communication Main Server configuration page shown below, you need to select 1: COMWAY Protocol, the default server address: ds.fusionunix.com and port number (9000). The DTU's 12-digit serial number is the unique identification ID set at the factory.



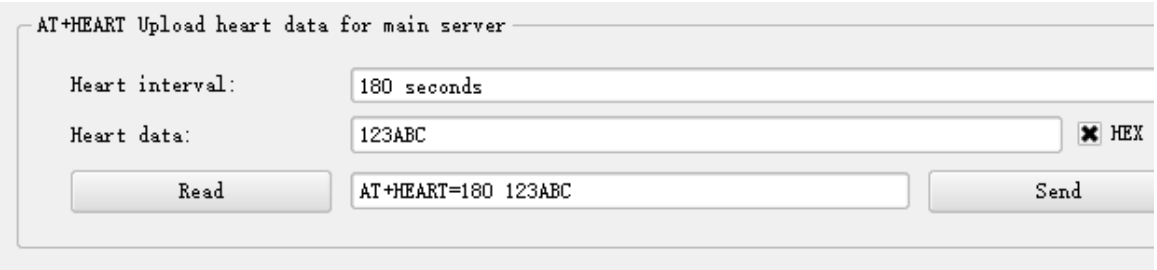

## 2) Transparent Transmission Protocol:

0: TRANSPARENT (Transparent Transmission Protocol) is the standard TCP/IP protocol.

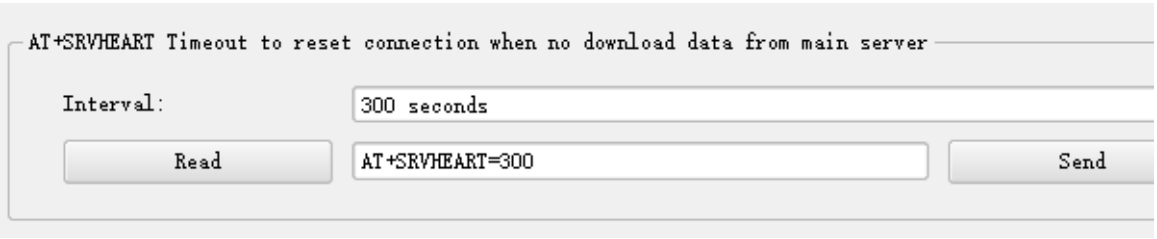



In the interface shown below, users can set the content (ASCII or hexadecimal data)

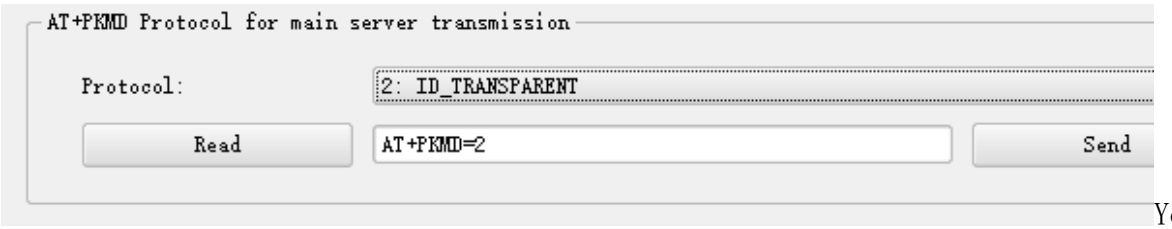
and time interval of the heartbeat packet. The heartbeat packet is a data packet sent periodically to avoid the carrier disconnecting the link when the wireless communication is idle.



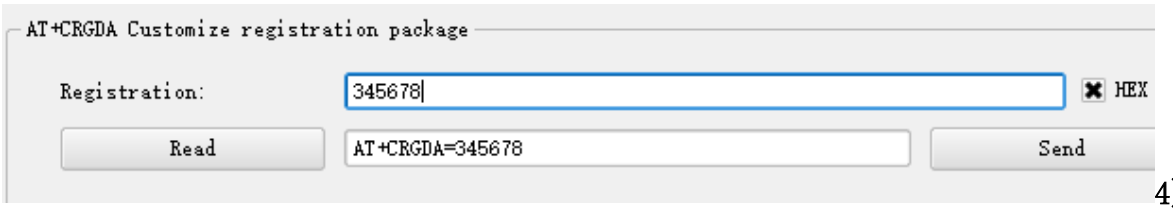

The setting for the server downlink data interval, as shown below, is to handle unexpected disconnection of the communication channel that the DTU end is not yet aware of (at this time, the DTU continues to forward data received from the serial port, but the forwarded data will be lost). If the downlink data interval is set to 240 seconds, if the DTU does not receive any data from the server within 240 seconds, it considers the connection to the server interrupted and will attempt to re-establish the connection. If set to 0, the DTU completely ignores whether data is received from the server.




### 3) Transparent Transmission + ID Mode




You can set the content of the registration packet in the custom registration packet text box as shown below. The registration packet data can be ASCII code or hexadecimal data. The custom registration packet is the content sent in the first TCP packet when the DTU establishes a connection with the host computer, often used as the DTU identification ID or socket connection authentication code.



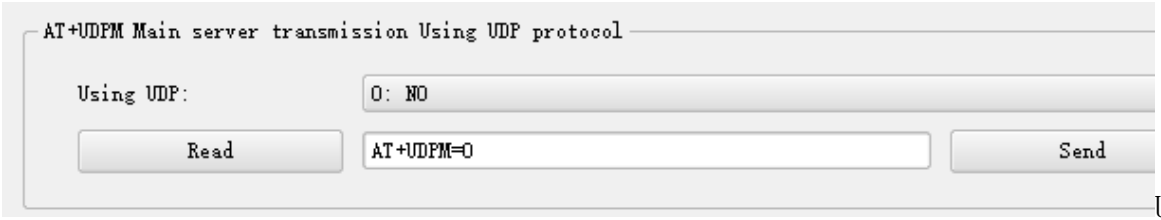

4)

## V. Advanced Options Configuration

On the Advanced Options configuration page, users can set the following:

### 1) TCP or UDP Selection:

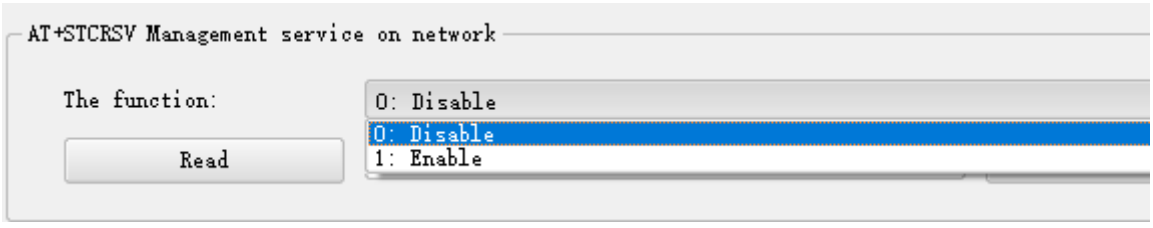
TCP or UDP connection. The default "0: No" means TCP connection.




UDP communication is connectionless. It is necessary to set the heartbeat packet interval on the serial port communication configuration page to no more than 20 seconds; otherwise, it is easy for the carrier to cut the connection, leading to communication failure.

### 2) Enabling Network Management:

You can enable network management, download the Netview network management software, to achieve remote online reading and modification of DTU configuration parameters. For details, refer to the relevant instructions.

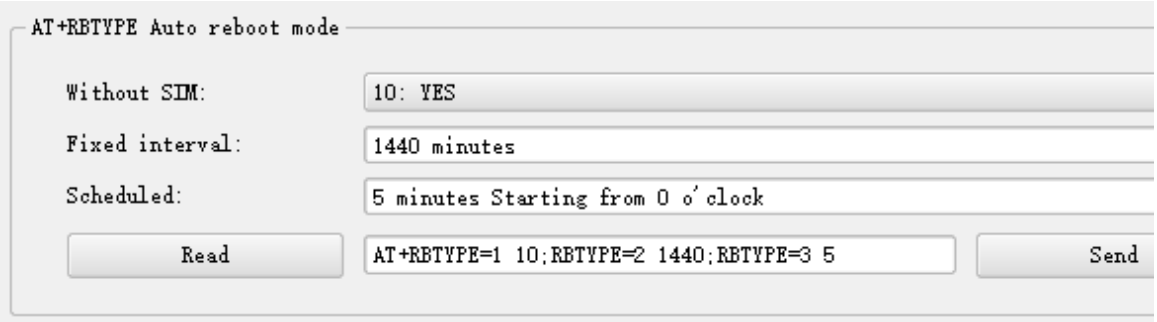



### 3) DTU Restart Modes:

"No SIM Card Restart": If there is no signal on site, the SIM card is locked, or there is arrears, etc., causing the DTU to fail to register with the carrier network, the DTU automatically restarts after the set time. The system default no-service restart time is 10 minutes.

"Fixed Interval Restart": This means the DTU is forced to restart 1440 minutes after it starts running. This is a reliability guarantee mechanism.

"Scheduled Restart": You can set a specific time after 0:00 to achieve a scheduled restart of the DTU.




## VI. Multi-Server Parallel Communication

For multi-server parallel communication settings, click the "Multi-Server Configuration" page to make settings. The relevant parameters are similar to the serial port server configuration parameters. Each server can select a different communication protocol. It supports setting up two servers for parallel communication, as shown below: