
Reader Comprehensive Demo Software

USER MANUAL

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The reader device is a non-universal device and software. The comprehensive version of the demonstration software integrates our company's multi-series device demonstration software into one. In order to make it more convenient and fast for you to understand and develop our reader devices, this description is specially compiled.

This manual corresponds to and only corresponds to the "RFID Reader and Writer Comprehensive Demonstration Software V 3.88 " software, which is suitable for our company's UHF, HF, 2.4G and other series of readers and writers. When using and reading this manual, it is recommended to consult our business manager or technical support engineer to confirm whether the reader and writer is compatible .

The following is the material and equipment used in this operation manual demonstration:

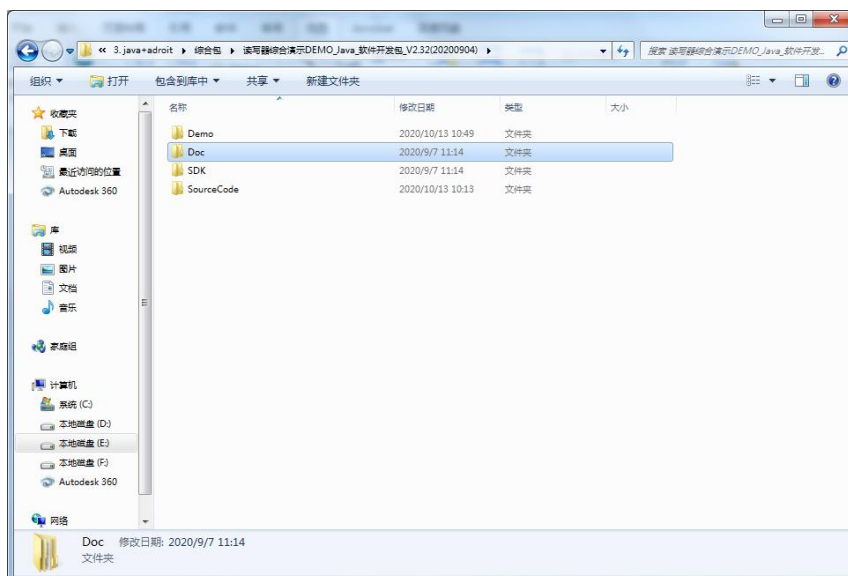
System	Windows 7 , 10, 11 64-bit operating system
Software	RFID reader comprehensive demo software V 3.88/V3.94
Reader model	UHF, HF, 2.4G series
Reader firmware	HW 3.1 - FW 2.6.4
Data cable	RJ-45 standard crystal head twisted pair

The operating instructions are only for demonstration guidance and are not for reference of specific device parameters. The parameters and functions listed in the document may differ from the actual ones. For specific device parameters, please refer to the device specification.

1. Development Kit File Guide

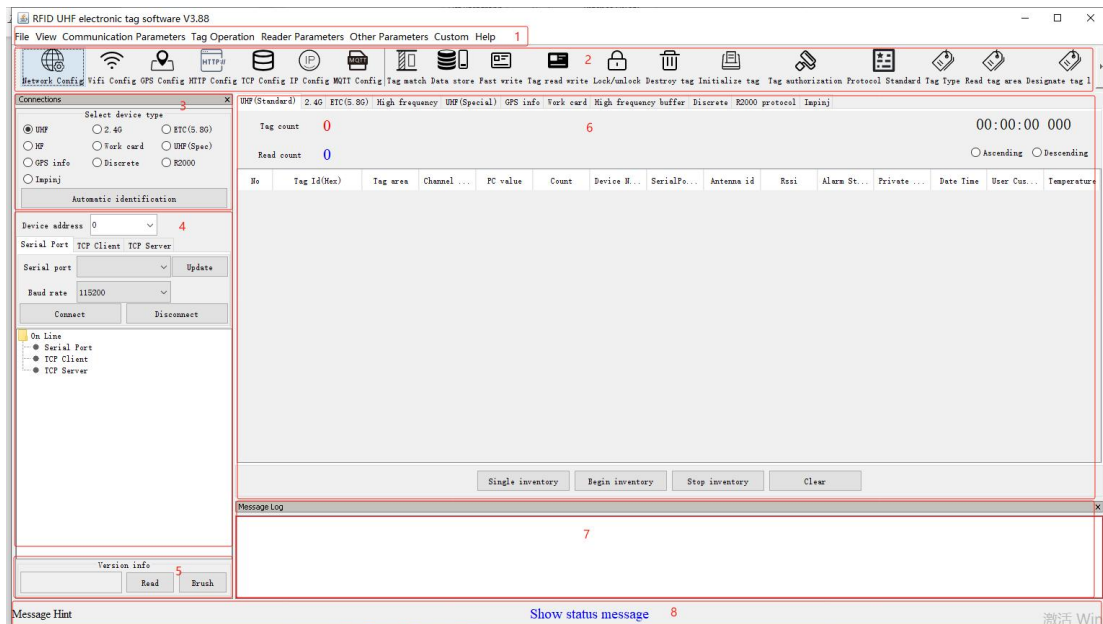
The "Reader Comprehensive DEMO_Java_SDK_V3.94 " development kit is a comprehensive version of the Java rapid development SDK provided by our company. The development kit includes secondary development SDKs for multiple series such as our UHF series, HF series, and 2.4G series. The development kit contains four folders: "Demo", "Doc", "SDK", and " SourceCode ", which correspond to demonstration software, development protocol description and operation instructions, library files, and sample codes.

The Doc folder contains the development documents for each of our three product series. When using the development kit, please specify the series to which the device you purchased belongs. For details, please consult the business manager and technical support engineer.



2. Software interface description

the Hybrid-Reader.exe executable file in the folder "...\\Reader Comprehensive DEMO_Java_SDK_V3.94\\Demo" , double-click to start the program and enter the main basic interface of the demo software. As shown below:



- ① Menu bar: All software functions and parameter settings can be found in the menu bar.
- ② Quick bar: Displays all functions and parameter setting buttons of the currently selected device type. Click to enter the sub-page.
- ③ Select the device column: Select the corresponding device type according to the device model or specification provided. You can obtain the specific device type from the business manager and technical support .
- ④ Connection status bar: displays the devices that are currently online and connected. Click to select the device to perform various operations and settings.
- ⑤ Version information bar: Click the Read button to query the firmware version number of the currently selected device.
- ⑥ Data display bar: Displays all tag data and corresponding output data fed back by the currently selected device or the currently connected device.
- ⑦ Log column: Displays the log information of the operation, including calling the interface, sending related instructions and other information.
- ⑧ Information prompt bar: Displays the current operation execution status.

3. Software Connection

1. Preparation before connection

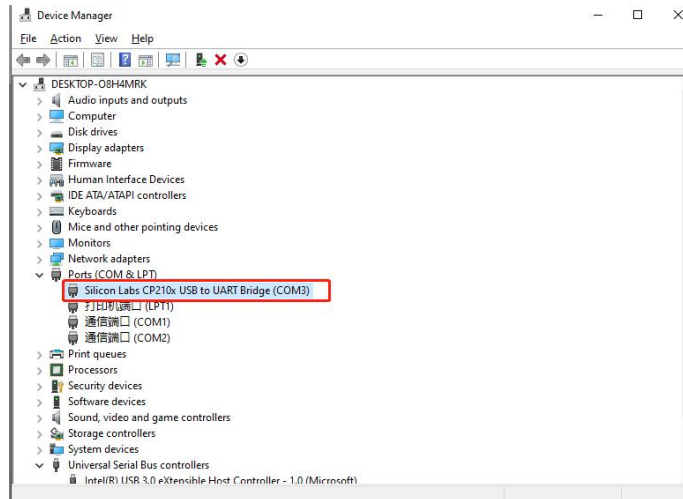
Before opening the DEMO software, please check and confirm whether the hardware device you want to connect has been powered on, connected and in standby working state. (For specific wiring methods and interface instructions, please refer to our equipment specification or equipment manual.)

1. The reader antenna has been connected;
2. The data connection with the computer (host computer) has been connected (RS232 / RJ45, etc.);

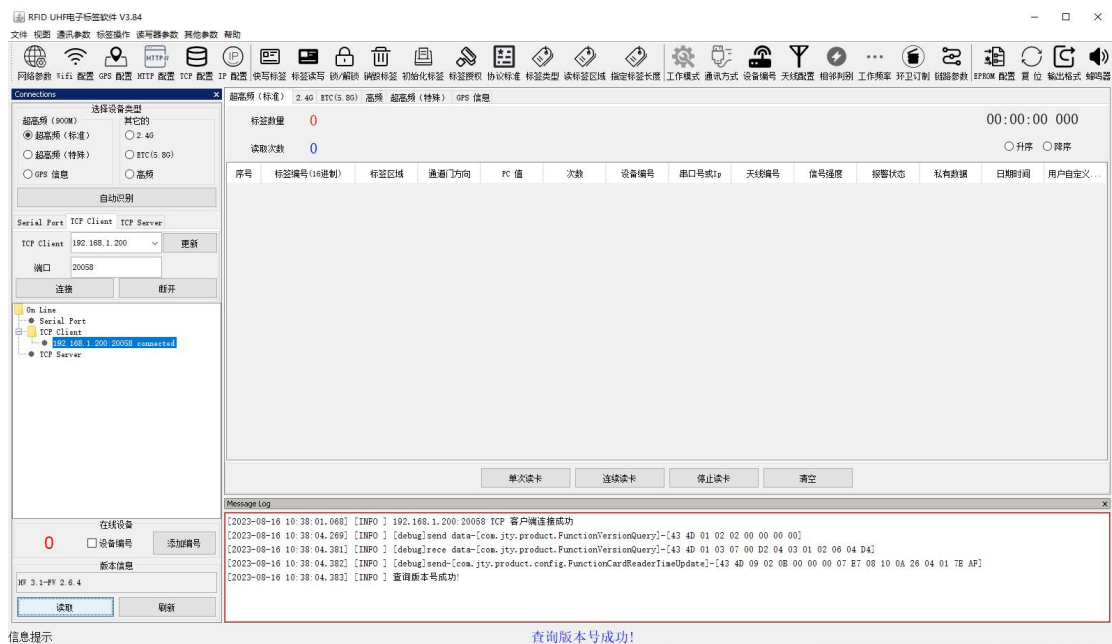
3. The equipment has a normal and stable power supply;

2. Serial Port

Before connecting the serial port, please confirm the specific serial port number and the serial port parameters of our equipment. The serial port number can be viewed on Windows: Control Panel - Device Manager - Port (COM and LPT). If the corresponding serial port is not found, please check the serial port driver or physical connection. The serial port of our equipment only supports parallel serial port lines; the **default factory serial port parameters of the device are baud rate 115200/230400, data bit 8, stop bit 1.**



When the connection between the device and the host computer (computer) is RS232 (serial port), select the [Serial Port] page in the device column, select the corresponding com number found in the previous step in the serial port position drop-down box, select the default baud rate 115200/230400, and click the [Connect] button. If you ignore the step of querying the serial port number, you can click the [Update] button to automatically search for the device connection serial port number.

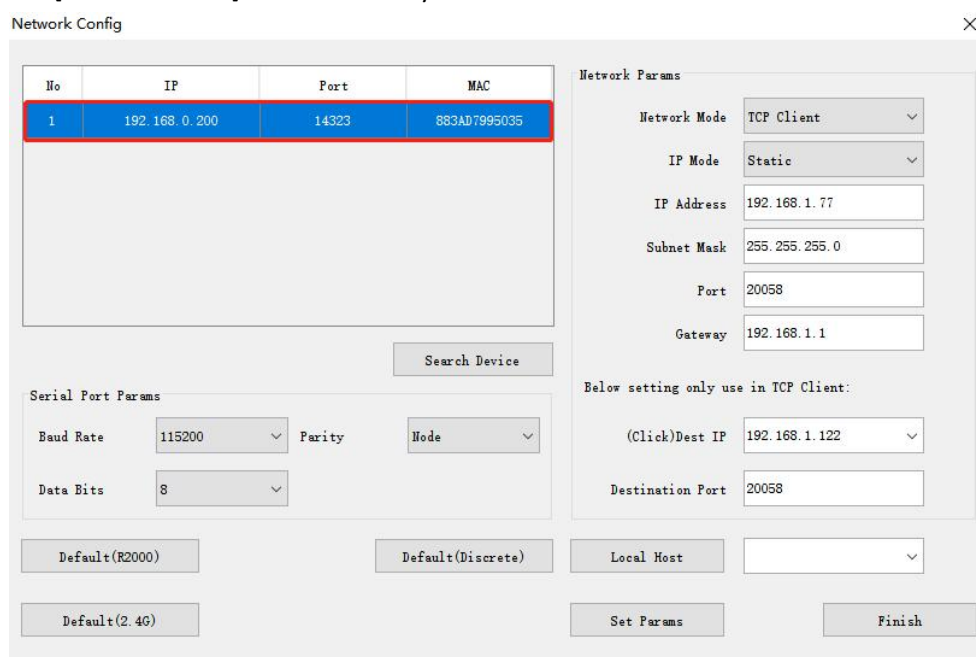


As shown in the figure, the information prompt bar shows that the connection is successful and the corresponding serial port connection data appears in the connection status bar, indicating that the data connection is successful. At this time, you can click the [Read] button in the version information bar to query the device firmware version number. If the version number query fails, please repeat the above steps. If the connection is normal, you can consult our technical support personnel.

3. Network port (RJ-45)

When the device is connected to the computer (host computer) via RJ45 (network port communication), select the [TCP Client] or [TCP server] page in the device column.

Click [Network Parameters] in the shortcut bar (or select Communication Parameter Settings - Network Parameters in the menu bar) to enter the network parameter settings page. Left-click [Search Devices] to automatically search for all our devices in this LAN.



As shown in the figure: Click the device in the list to view the RJ45 (network port) communication parameters of the currently selected device on the right. At this time, you can modify the RJ45 (network port) communication parameters of the device. The modified parameters need to comply with the communication address protocol of the local area network.

[Network Parameters]: The network working mode of the reader is divided into two types: client (TCP Client) and server (TCP server).

[IP Mode]: This is the way to obtain the network card parameters of the reader, which is divided into two methods: static IP (Static) and DHCP acquisition (Dynamic/dynamic acquisition). Static IP parameters need to be defined by the user, and the IP address will not change automatically after the setting is completed. In the DHCP acquisition method, the reader automatically obtains the IP allocation of the LAN device by the router, which may change according to the changes in the routing settings.

[IP address]: The IP address will be preset at the factory, but the access to the LAN may not conform to the LAN IP address definition. Please consult the user's network administrator for LAN IP address allocation.

[Subnet Mask]: One of the network card address parameters. Please consult the user's LAN network administrator for specific parameters.

[Port]: Data output channel, only works when the reader device acts as a [TCP server].

[Gateway]: One of the network card address parameters. For specific parameters, please consult the user's LAN network administrator.

[Destination IP]: The IP address of the server when the reader acts as a [TCP Client].

[Destination Port]: When the reader acts as a [TCP Client], the receiving port for data transmission to the server. In this mode, the connection port needs to fill in the destination port.

[Local IP]: Automatically obtain the local IP address.

[Set parameters]: Write the filled network card parameters and corresponding data into the network card to complete the settings.

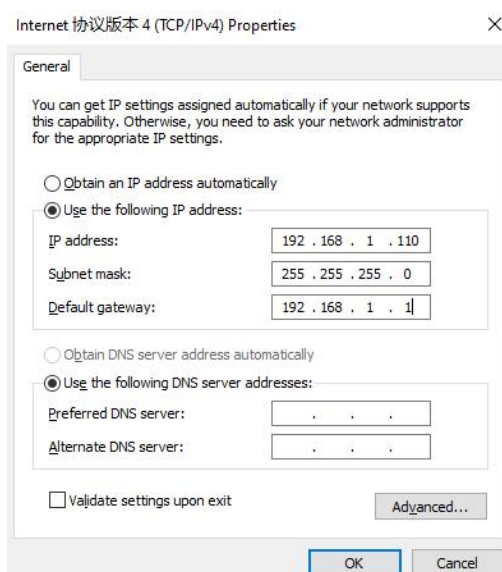
[Finish]: Exit the network parameter setting page.

[Default (R2000)]: Fill in the factory default network port parameters of the R2000 reader device in the network card parameter text box, and click [Set Parameters] to apply the default parameters to the network card.

[Default (Discrete)]: Fill in the factory default network port parameters of the Discrete reader device in the network card parameter text box, and click [Set parameters] to apply the default parameters to the network card.

[Default (2.4G)]: Fill in the factory default network port parameters of the 2.4G reader device in the network card parameter text box, and click [Set parameters] to apply the default parameters to the network card.

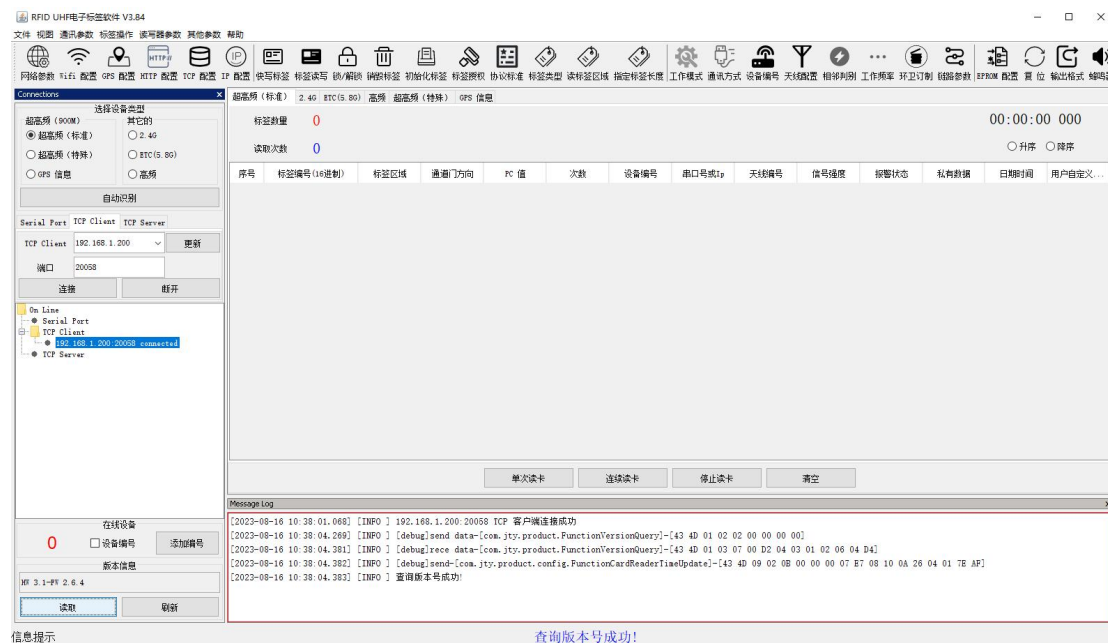
When a single machine is directly connected (using RJ45 standard crystal head twisted pair cable to connect the host computer (computer) and the reader device) : Please change the host computer (computer) IP address to 192.168.1.xxx network segment. Setting method: Control Panel - Network and Sharing Center - Change Adapter Settings - Local Area Connection, right-click the local area connection and select Properties, and modify the IPv4 settings. As shown below:



After the parameters and IP settings are completed, it is recommended to verify whether the network communication is unobstructed. Press the win + R keys and enter ping 192.168.1.200 (the set reader IP address) - t in the pop-up window.

[Connect]: After filling in the connection parameters, click the [Connect] button to connect to the reader device. After the connection is completed, the IP of the currently connected and online device will be displayed in the connection status bar, and the information prompt bar will display "Device IP connection successful". At this time, click the [Read] button in the version information bar to query the firmware version of the currently selected device, and the information bar will display "Read version number successful". *If the reading fails, please return to the connection preparation and repeat the above steps to confirm that the network connection is normal.*

When the reader network parameters are in TCP Client mode, the connection is as follows:



[Local IP]: The text box contains the server IP. When the demo is connected, it is the local IP address of the host computer. Click the [Update] button to automatically obtain the local IP address and fill it in. For a host computer with multiple network cards, you need to click the small triangle, enter the drop-down box and select the network card where the [Destination IP] in [Network Parameter Settings] is located.

[Port]: Fill in the [Destination Port] in the network parameters, do not fill in the [Port].

[Connect]: After filling in the connection parameters, click the [Start Monitoring] button to start the server port monitoring. At this time, the IP of the currently connected and online device will be displayed in the connection status bar, and the information prompt bar will display "TCP service started successfully". At this time, click the [Read] button in the version information bar to query the firmware version of the currently selected device, and the information bar will display "Read version number successfully". *If the reading fails, please return to the connection preparation and repeat the above steps to confirm that the network connection is normal.*

Notice:

- * When using the network to connect the reader, you need to turn off the anti-virus software and system firewall;
- * When connecting via a laptop or other computer, the WiFi function needs to be turned off in [Search Device];

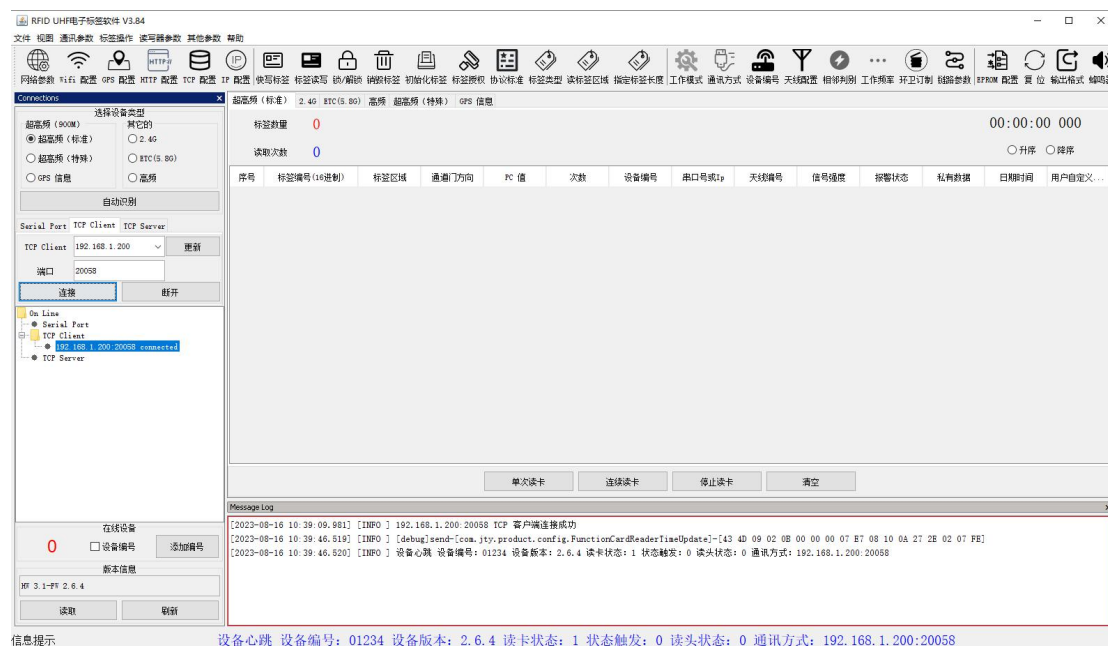
* When the reader is connected as a TCP server, the host computer can only be a TCP Client; similarly, when the reader is a TCP Client, the host computer can only be a TCP server;

* The baud rate and other serial port parameters on the network parameter page should not be modified unless necessary. The serial port parameters in the communication mode must be modified before modification. After modification, the corresponding serial port baud rate and other parameter values must be remembered.

* When connecting to the WIFI network, the parameters are configured on the WIFI management page. For details, refer to the "--Reader WIFI Connection Operation Manual.doc" file.

4. Basic Operation

When the device is in communication (i.e. the version number is read normally), you can click [Auto Identify] to identify the device as a certain type. Click the corresponding device type to access the relevant settings interface and data display interface. The following is a demonstration using an ultra-high frequency (standard) device.



1. Card Reader

The data display bar of the software's main basic interface is the basic card reading demonstration interface, which has four buttons: [Search card once], [Continuous card reading], [Stop], and [Clear].

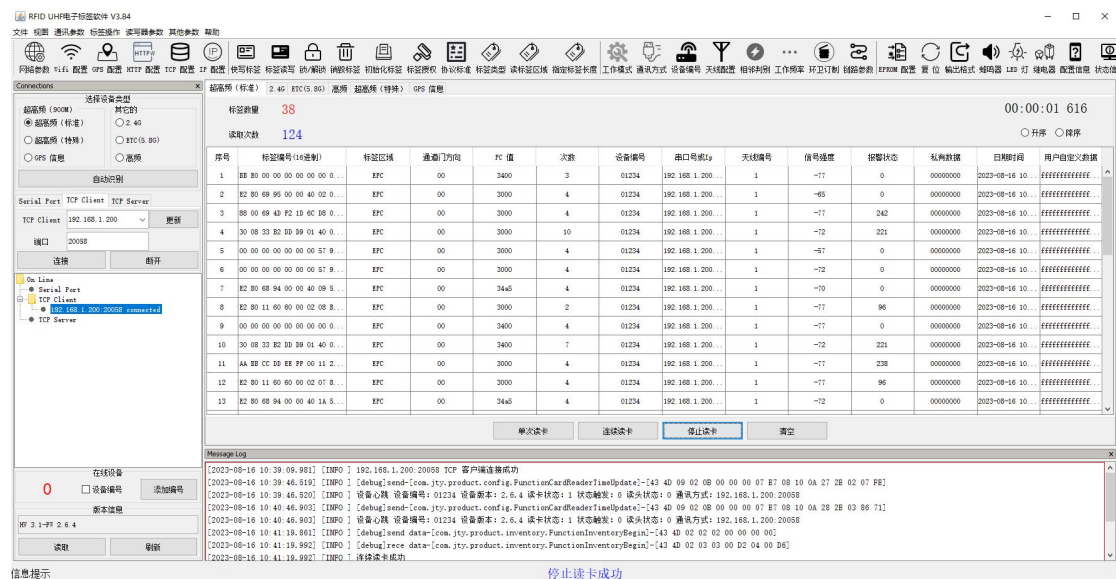
There are two card reading modes: "Search card once" and "Continuous card reading".

Search for card once: Select the reader device to be operated in the connection status bar, and left-click the [Search for card once] button to perform the "Search for card once" operation. Each time you click [Search for card once], the Demo software sends a search for card command

to the reader by default, allowing it to read the card once. If the card is read successfully, the ID number of the corresponding tag will be displayed in the [Data Display Bar].

Continuous card reading: Select the reader device to be operated in the connection status bar, and left-click the [Continuous Card Reading] button to perform the "Continuous Card Reading" operation. Click the [Continuous Card Reading] button once, and the Demo software will send a continuous card reading command to the reader, allowing it to continue to search for cards. If the card reading is successful, the ID number of the corresponding tag will be displayed in the data display column. Until the user actively clicks the [Stop] button, the Demo sends a stop card reading command to the reader, allowing it to stop searching for cards.

as the picture shows:



Interface display data and button introduction:

[Search Card Once]: Select [Search Card Once] in the data display column. Each time you click [Search Card Once], the DEMO software will send a search card command to the reader by default, allowing it to read the card once. If the card is read successfully, the ID number of the corresponding tag will be displayed in the [Search Card Demo] area.

[Continuous Card Reading]: Click [Continuous Card Reading], and the DEMO software will send a card search command to the reader by default, allowing it to continuously search for cards. If the card is read successfully, the ID number of the corresponding tag will be displayed in the [Card Searching Demonstration] area.

[Stop]: Click the "Stop" button once when you need to stop continuous card punching. Note: If the device is in the state of continuous card reading, you need to stop continuous card reading before you can perform other functions.

[Clear]: When the DEMO software is not in the card reading state, click this button to clear the data displayed in the demonstration area.

[Number of tags]: The total number of different ID numbers read by the device is the number of tags.

[Read times]: The total number of times all tag ID numbers are read, which will scroll and display when reading the card.

[Ascending] and [Descending]: Sort the found tag data from large to small or from small to large.

[Serial Number]: The software arranges the serial number of the tag data list read.

[Tag number (hexadecimal)]: Tag (card) data (EPC area, TID area, user area, reserved area), i.e. tag ID number.

[Label Area]: Read label (card) area data.

[Direction]: The port number of the currently triggered infrared or photoelectric switch. An external photoelectric switch or other device is required, and the channel door entry and exit direction must be checked in [Output Format].

[PC value]: label PC value.

[Number]: The total number of times a single tag (card) is recognized.

[Device Number]: The device number of the current entry tag (card) is identified. This option needs to be checked in [Card Search Data Output Format] to be displayed. Note: For details, see the device number entry below.

[Serial Port/IP]: The specific data output address of the device that identifies the current entry tag (card).

[Antenna Number]: Applicable to multi-channel reader devices, indicating which channel antenna this tag data is currently recognized by. This option needs to be checked in [Card Search Data Output Format] for it to be displayed.

[Signal Strength]: RSSI antenna detection value. This option will only be displayed if you check [Card Search Data Output Format].

[Alarm Status]: Tag power status alarm value.

[Private data]: Tag private data, used for tag positioning.

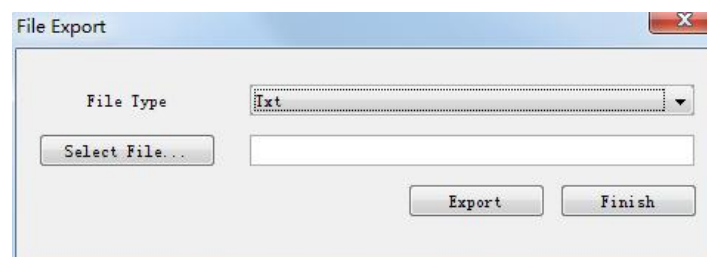
[Date and Time]: The local time when the current tag data is received by this machine.

[User-defined data]: User-defined data is written into the data value displayed on the label.

2. Data export (under development)

All data displayed in the data display column (i.e. all identified tag data) can be exported into three formats: text document (TXT), table (Excel), and Word file.

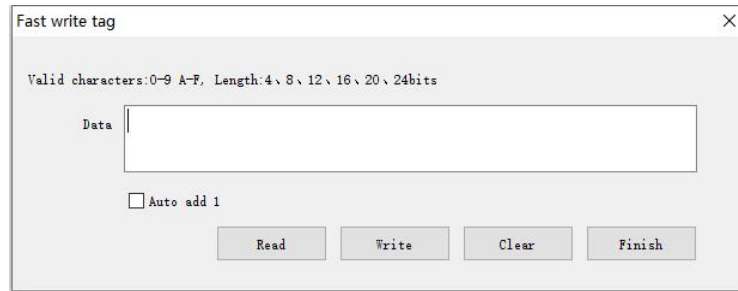
Export method: Select the menu bar - File - Export to enter the file export interface, select the file format to be exported (TXT, Excel, Word), and then select the specific file path to be exported. As shown in the figure below.



5. Tag Operations

1. Quick-write tag (device type: UHF)

Click Tag Operation in the menu bar - Quick Write Tag ; or click the [Quick Write Tag] button in the shortcut bar to enter the tag read/write interface.



When [Auto-increment by 1] is checked, the written data will automatically increase by 1 each time it is successfully written, and there is no need to fill it in again.

[Read]: Read the initial data of the tag to be written.

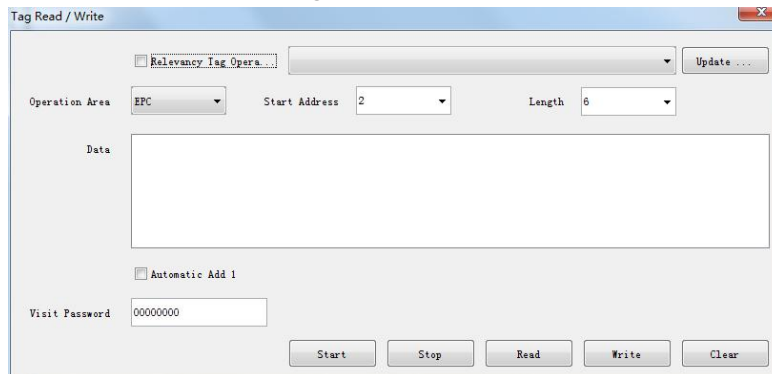
[Write]: Write the data in the [Data] text box into the label.

[Clear]: Clear the data in the text box.

[Finish]: Close the current window.

2. Read and write tag data (device type: UHF)

Click Tag Operation in the menu bar - Read/Write Tag Data; or click the [Tag Read/Write] button in the shortcut bar to enter the tag read/write interface.



The tag reading and writing functions mainly read or write the data in each area of the tag (the TID area can only be read but not written).

[Reserve (reserved area)]: Address: 0-3; Address: 0-1 stores the 32-bit kill password (kill password or destroy password), the default is: 00 00 00 00; 2-3 stores the 32-bit access password (Access), the default is: 00 00 00 00. When this area is not access encrypted or killed encrypted, the data in the area can be rewritten at will.

[EPC (EPC area)]: Address: 2-7; stores 96-bit ID number, which is the area where the data read by our device is stored by default. When this area is not encrypted or encryption is killed, the data in the area can be rewritten on demand.

[TID (TID area)]: Address: 0-5; stores a 96-bit globally unique and non-rewritable ID number.

[User (User Area)]: Address: 0-31; stores 512-bit data. The default address is: 00 00. When this area is not encrypted or encryption is killed, the data in the area can be rewritten at will.

The above regional descriptions are based on the commonly used Alien H3 tag chip as an example. Different chips may have different corresponding regional data and actual functions.

1. Place the tag directly above the antenna connected to the device, approximately 3-5cm away. (Make sure there are no other tags around the antenna)

2. Select the area to be read or written in the drop-down menu of the [Operation Area] button (taking the EPC area as an example)

Confirm that EPC is selected in the drop-down menu.

3. Select a suitable starting address in the start address, and set it to 2 (the default for EPC is 2, and the default for user area and reserved area is 0).

4. Select the length of data to be read or written in the length field. The initial setting is: 6 (the unit is "word", that is, the data length is 24 bits, a total of 96 bits.)

5. Now the data with the starting position of 2 and length of 6 in the EPC area is read or written. If you just want to read, just press [Read]. When the reading is successful, the corresponding data will appear in the data display column. And in the [Information prompt column], it will show: Read successfully.

On the contrary, if the reading fails, the data frame will not display any data, and the [Information prompt bar] will display "Read failed"

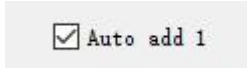
At this point, you should check again the quality of the tag, its placement, and whether the connection between the device, antenna, and data cable is intact.

If you need to write data with the starting position of the EPC area being 2 and the length being 6, you need to fill in the data column with data of the same length as the length setting.

When writing is successful, the [Information Prompt Bar] displays "Writing Successfully". To ensure that the required data has been written successfully, you can click [Clear] and then click [Read]. After reading successfully, verify whether the data displayed in the data box is the data that needs to be written. After verification, it proves that the writing is successful. On the contrary, if the writing fails, the [Information Prompt Bar] displays "Writing Failed".

When the data to be written is incremented by 1 in sequence and is a hexadecimal number,

you can check it before clicking the [Write] button.



When the quick writing

is successful, the data in the box will automatically increase by 1.

[Continuous Read]: The reader will repeatedly send the designated area tag reading command to the reader. When the tag data is read, the serial number will be marked in the data box and displayed. There will be no prompt if it fails.

[Access Password]: When the reserved area password is changed, the access password needs to be changed to the user-specified password to write data normally. Default: 00 00 00 00

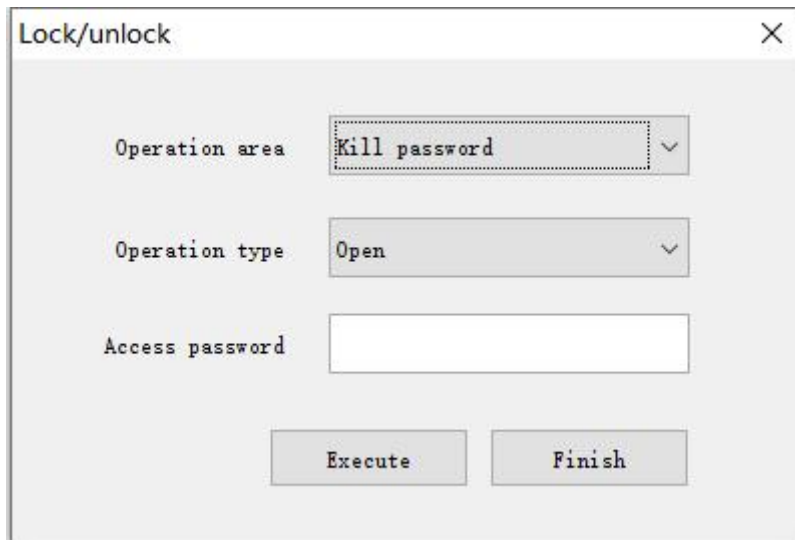
Note 1: When the area that needs to be operated is encrypted, you need to enter the access password to write when writing; when the area that needs to be operated is killed and encrypted, you cannot write.

When writing cards, there should be no other tags around the reader.

Note 3: When writing non-standard 12-byte data, please pay attention to modify the PC code. For details, please refer to the ISO18000-6C protocol. (Or consult our business manager or technical support engineer)

3. Lock or unlock tag (device type: UHF)

Click the label operation in the menu bar - lock or unlock the label; or click the [Lock/Unlock] button in the shortcut bar to enter the label lock and unlock interface.



Tag lock and unlock: Locking is to write encryption to the EPC area and User area; write and read encryption to the Reserve area and kill area. The password is stored in the Access area of Reserve, address 2-3, and the default is generally: 00 00 00 00.

Here is an example of how to lock:

1. Place the tag directly above the antenna connected to the device, approximately 3-5cm away. (Make sure there are no other tags around the antenna)
2. Select the specific area in the [Operation Area] drop-down box. The initial setting is: ECP area

3. Select the specific operation to be performed in the [Operation Type] drop-down box. The initial setting is: Unlock.

[Operation type] includes:

[Unlock] unlock the tag read-write area that has been securely locked;

[Permanently writable]The tag cannot be locked and can be written repeatedly;

[Security Lock] Lock the designated area of the tag, and no card writing operation can be performed without the access password;

[Never write] locks the specified area of the tag, making it impossible to write again and the data is fixed.

4. Enter the password in [Access Password]. The password is stored in the Access area at address 2-3 in the Reserve. If it is not rewritten, the default is generally: 00 00 00 00.

5. Finally, click [Execute]. After the card is locked successfully, the [Information Prompt Bar] will display "Tag locked successfully".

To verify that the lock has been successfully completed, you can verify in the [Tag Read and Write] area. The steps are as follows:

1. Place the tag directly above the antenna connected to the device, approximately 3-5cm away. (Make sure there are no other tags around the antenna)

2. As shown in the figure below, select the number operation area and set the starting position and length.

3. Click [Read]. After the data is successfully read, the data will be displayed in the data box. Then slightly modify the data, initially set to: E2 00 55 66, and then click [Write]. You can try to click it multiple times. The [Information Prompt Bar] will only display: "Tag writing failed".

4. When you need to write other data to the EPC area, you need to unlock the EPC area first.

Note: After the EPC area and User area are locked, they cannot be written when unlocked, but can be read;

After the Reserve (reserved area) {kill area + Access area} is locked, it cannot be read or written without entering the access password.

4. Destroy tags (device type: UHF)

Click the tag operation in the menu bar - Destroy tag; or click the [Destroy] button in the shortcut bar to enter the destroy tag interface.



[Destroy Tag]: The destruction password is in the Reserve (reserved area), address: Kill area 0-1, the default is: 00 00 00 00. Fill in the corresponding password data in the text box after [Destroy Password], and click the [Destroy Tag] button to destroy the tag.

Note:

1. The [Destroy Tag] action is irreversible, please operate with caution!
2. When [Destroy Tags], refer to the [Read/Write Tags] content for the placement and position of the tags.

5. Initialize tag (device type: UHF)

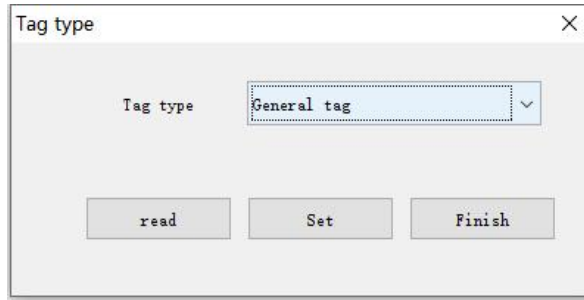
Click Tag Operation in the menu bar - Initialize Tag ; or click the [Initialize Tag] button in the shortcut bar to enter the Destroy Tag interface.



[Initialize label] : Initialize label and restore label factory default data. Click "Execute" in the text box after [Initialize label] to restore label default data.

6. Tag Type (Device Type: UHF)

Click Tag Operation - Tag Type in the menu bar ; or click the [Tag Type] button in the shortcut bar to enter the tag type interface.



[Tag Type] : Select the type of tag you want to read in the tag type drop-down box. The default is regular tag.

[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

7. Tag reading area (device type: UHF)

Click Tag Operation - Read Tag Area in the menu bar ; or click the [Read Tag Area] button in the shortcut bar to enter the tag type interface.



[Operation Area]: Select the tag area data that the card reader needs to read. The default is EPC area data.

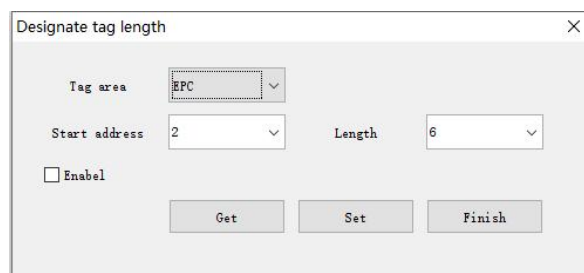
[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

8. Specify label length (device type: UHF)

Click Label Operation in the menu bar - Specify Label Length ; or click the [Specify Label Length] button in the shortcut bar to enter the label type interface.



[Label Area]: Use the drop-down box to select the area where the card reader wants to read the label.

[Actual Address]: Use the drop-down box to select the starting address of the tag that the card reader wants to read. The starting address 0 of the EPC area data is the CRC value,

the address value 1 is its PC value, and the address value 2 is followed by the EPC data, which is the data read by the card reader.

[Length]: A length is 2 bytes. The default tag is usually 12 bytes, which is 6 bytes.

[Enable]: Check this box to enable this function.

[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

9. Tag type (device type: 2.4G)

Click Tag Operation - Tag Type in the menu bar ; or click the [Tag Type] button in the shortcut bar to enter the tag type interface.



[Tag Type]: Use the drop-down box to select the tag protocol read by the card reader.

[Default]: Reset the frequency to our company's default standard configuration. You need to click [Set] to write data into the reader.

[Read]: Read the configuration information of the connected card reader.

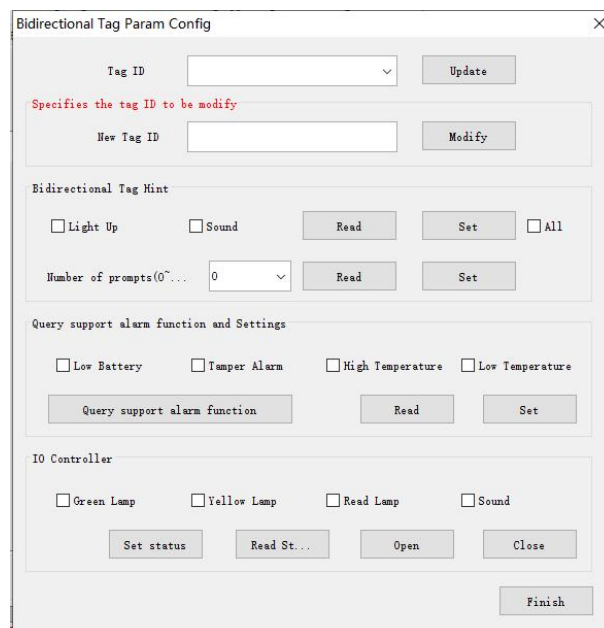
[Set]: Write the current parameters to the card reader device.

[Finish]: Close the window.

10. Tag control (device type: 2.4G)

Click Tag Operation - Tag Control in the menu bar ; or click the [Tag Control] button in the shortcut bar to enter the two-way tag parameter configuration interface.

Note: This interface setting is only suitable for bidirectional labels.



You need to read the tag information on the card reading interface, click [Update], and the tag information read on the interface will be updated to the [Tag Number] drop-down box. At this time, you can select the corresponding tag to perform corresponding operations.

[Modify tag ID]: Select the corresponding tag ID in [Tag Number], enter the new tag ID in [New Tag Number], and click [Modify]. If the message prompts that the modification is successful, it means that the ID has been modified, otherwise it means that the modification has not been successful.

[Two-way tag prompt]: Set here to make the card reader operate the tag to respond accordingly, such as lighting up or making a sound.

Check the corresponding operations [Light up], [Sound], click [Set], and the message prompt will be set successfully, that is, the two-way tag will make a sound and light up. Check the corresponding operation and the tag will respond accordingly if the sending is successful.

[Query supported alarm functions and settings]: This function is adapted to bidirectional tags with special functions. No relevant instructions are given here. For details, please consult our technical staff.

[IO Control]: For two-way tags with three-color lights and sounds, you can control the tag light on and off through the card reader by checking the corresponding light color and clicking [On]/[Off].

11. Specify the read tag (device type: 2.4G)

Click Tag Operation - Specify Read Tag in the menu bar ; or click [Specify Read Tag] button in the shortcut bar to enter the card reading configuration interface for specifying the tag number .

Specifies the label number read card configuration

Note: Reset the following parameters to take effect

Tag Count: 0

Clear Read Set

list of tag Numbers

1.		2.		3.		4.	
5.		6.		7.		8.	
9.		10.		11.		12.	
13.		14.		15.		16.	
17.		18.		19.		20.	
21.		22.		23.		24.	
25.		26.		27.		28.	
29.		30.		31.		32.	

Finish

[Number of tags]: Set the number of whitelist tags (0-32).

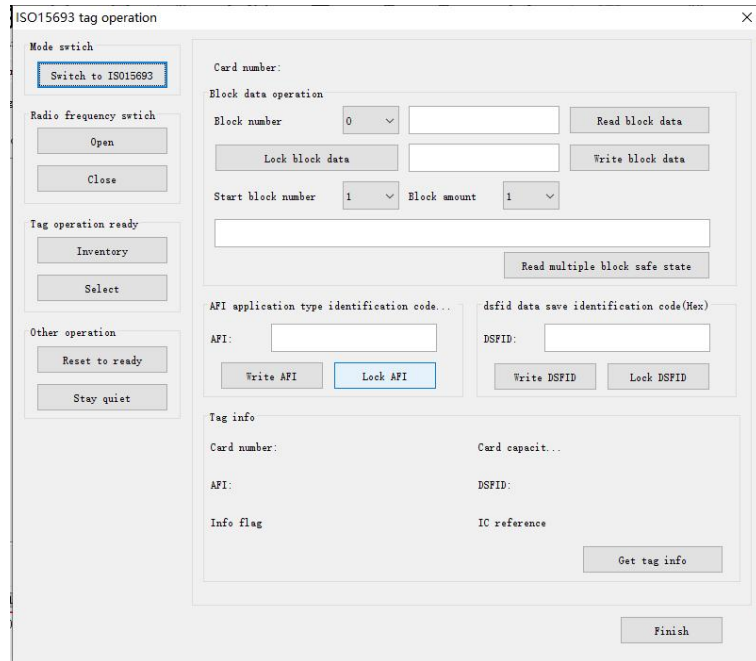
[Tag Number List]: Enter the tag number corresponding to the whitelist. The card reader will only read the tag data information in the list and send its data.

[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

12. ISO15693 (Device Type: High Frequency)

Click Label Operation - ISO15693 in the menu bar ; or click the [ISO15693] button in the shortcut bar to enter the ISO15693 label operation configuration interface.



[Switch to ISO15693]: Switch to ISO15693 tag mode.

[On]: Turn on the antenna.

[Off]: Turn off the antenna.

[Inventory]: Request VICC and obtain the DSFID and UID of VICC .

[Select]: Use the given UID to select VICC . If the given UID is consistent with the UID of VICC , VICC will enter the selection state; otherwise, VICC will return to the ready state .

[Read block data]: Select the corresponding block number in the drop-down box and click it to read the data information of the block number.

[Lock block data]: Select the corresponding block number in the drop-down box and click it to lock the data of that block number. Once locked, it cannot be changed permanently.

[Write data to the specified block]: Select the corresponding block number in the drop-down box, enter the corresponding format information in the text box, and click to modify the data information written to the block number.

[Read multiple block security status]: Select [Starting block number] and [Number of blocks], and click to display the security status information of the selected block.

[Reset to Ready]: Reset the VICC card in silent state to Ready state.

[Keep Silent]: After VICC is in silent state, it needs to be put back into the energy field (take it away from the antenna and put it back into the antenna) or send a reset to ready command before it can be requested again.

[Write AFI]: Modify the AFI (Application Family Identifier) of the currently selected VICC card .

[Lock AFI]: Permanently lock its AFI .

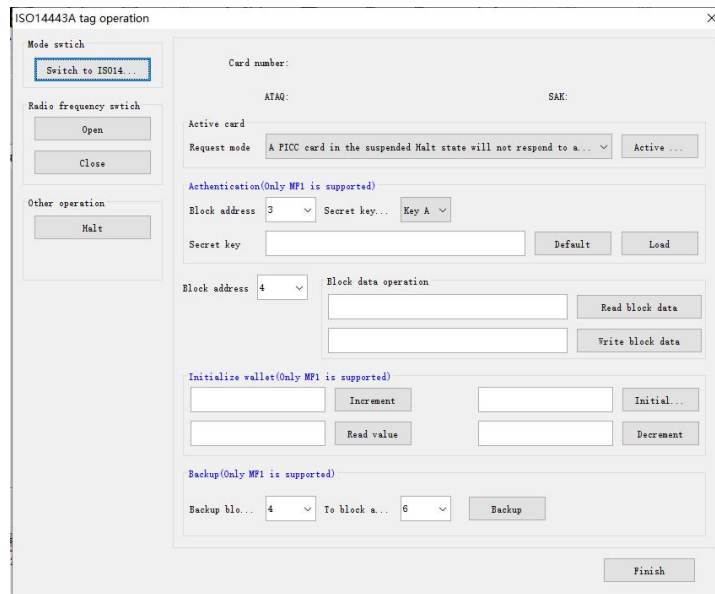
VICC card currently in the selected state , write the DSFID (Data Storage Format Identifier) data storage format identifier.

Permanently lock the DSFID of the VICC card currently in the selected state . After that, the DSFID of the VICC card cannot be written or locked again.

[Get tag information]: The VICC card needs to be in the selected state in advance. Get the VICC card system information, mainly UID , DSFID , AFI and memory capacity information.

13. ISO14443A (Device Type: High Frequency)

Click Label Operation - ISO14443A in the menu bar ; or click the [ISO14443A] button in the shortcut bar to enter the ISO14443A label operation configuration interface.



[Switch to ISO14443A]: Switch to ISO14443A label mode.

[On]: Turn on the antenna.

[Off]: Turn off the antenna.

[Suspend]: Used to put the PICC card in the suspended state. After the user has completed accessing the card (PICC) , the card should be put in the suspended state. The PICC card in the suspended state needs to use the activation card command to be activated again.

[Activate Card]: Used to activate a card in the antenna. After receiving this command, the card reader completes the card request, multi-level anti-collision, and card selection operations. The command needs to provide the request mode parameter, and the device returns the ATQA value, SAK value, and complete UID . Before using the command, you should ensure that the antenna is turned on and the ISO protocol selects ISO14443A . After the card is successfully activated, you can read and write the card. For the MF1 series, you can also perform key authentication, recharge, deduction and other operations.

Certification (supports MF1 only)

[Default]: Automatically fill in the default value.

[Authentication]: Select the absolute address of the data block and the key type in the drop-down box, and enter the corresponding key in the text box to authenticate the specified data block.

Block data operations

[Read block data]: Select the corresponding block number in the drop-down box and click to read the corresponding block data.

[Write data to specified block]: Select the corresponding block number from the drop-down box and click to write the data in the text box to the corresponding block.

Initialize wallet (only supports MF1)

Used to format a data block into a wallet value block. After successful formatting, you can perform wallet operations (recharge, deduction, balance reading, backup) on the value block .

Before initializing the wallet, the user should first authenticate the sector where the data block is located. Only after the authentication is passed, the

In addition, the access control method of the sector will affect whether the instruction is executed successfully.

[Recharge]: Recharge the specified value block.

[Initialize wallet]: used to format the data block into a wallet value block. After successful formatting, you can perform wallet operations (recharge, deduction, balance reading, backup) on the value block .

[Read Balance]: Read the balance of the value block.

[Deduction]: Deduct the specified value block.

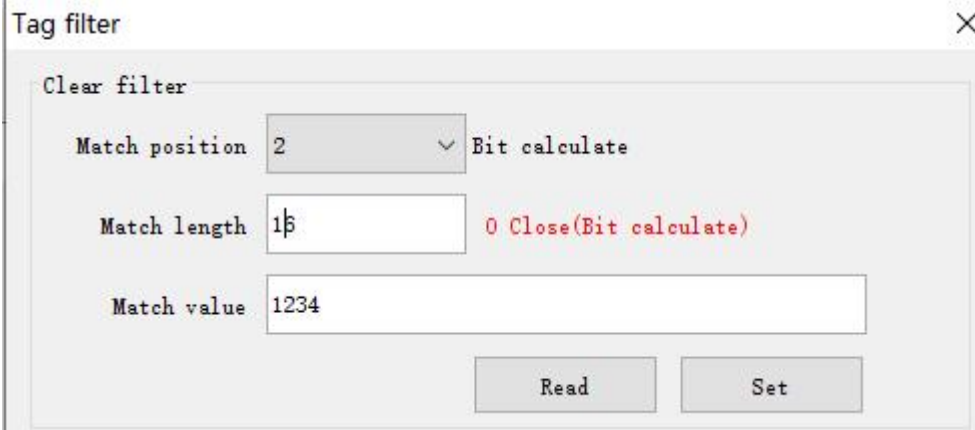
Backup (supports MF1 only)

Back up the contents of a value block to another value block.

[Backup]: Select the target block address and source address in the drop-down box to back up the content of the source address value block to another value block.

14. Tag match (new feature)

You can access the tag matching configuration interface by clicking the tag matching button in the menu bar or the tag matching button in the shortcut bar.



[Match Position]: The location in the tag's EPC area where data needs to be filtered.

[Match Length]: The length of the data to be filtered, calculated bit by bit. For example, filtering AABB is 16 bits in hexadecimal.

[Match Value]: The filtered data for the selected tag.

[Read]: Reads the configuration information of the connected rfid reader. (Currently not supported. 2024/05/30)

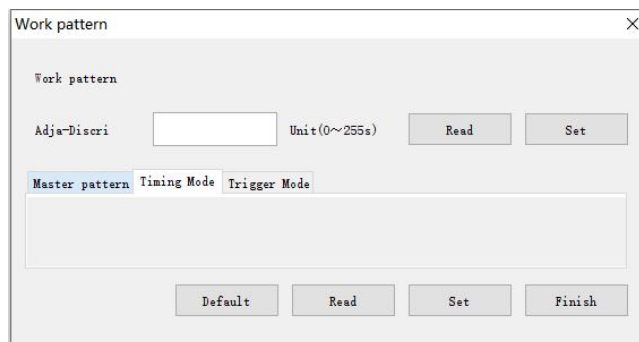
[Settings]: Writes the current parameters to the card reader device.

6. Reader parameter settings

All parameter settings made by the user for the reader device are written into the mainboard flash, and the parameters will not be refreshed when the power is off and restarted.

1. Work pattern

Menu bar reader parameter settings - working mode; or click the [Working Mode] button in the shortcut bar to enter the working mode interface.



All our reader devices have the following three working modes: master-slave mode, timing mode, and trigger mode. The default factory settings are generally: [Timing Mode], and [Timing Mode Data Output Interface] is set by default according to the device model. As shown in the figure.

[Master-Slave Mode]: In this working mode, the reader works under the control of the host computer (computer) or other controller. The reader and the controller can communicate through one of the RS232, RS485 or Ethernet interfaces. This working mode supports all the functions provided by the secondary development package.

[Timing Mode]: The reader automatically reads the card at a certain period (configurable), and the read data is output through the specified communication port. When the required parameters are set, click [Set]. After the setting is successful, there will be a prompt message. To verify the successful setting, you can select another working mode and then click [Read] to see if it is displayed as the working mode you want to set. If not, set it again.

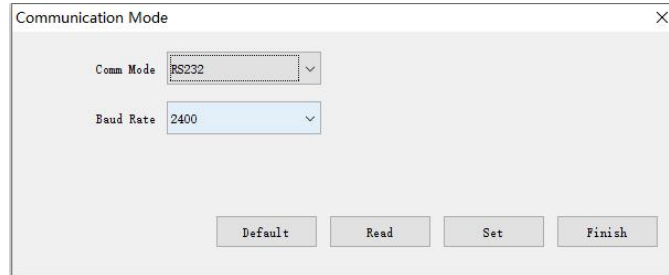
[Trigger Mode]: This mode requires an external infrared, photoelectric gate or similar on-off switch peripheral. When a high level is input to the trigger input port, the reader starts to read the card periodically and automatically turns off after a period of time. In [Trigger Delay], enter the delay time; in [Trigger Mode Alarm Time], set the automatic closing time of the relay after the trigger. When the required parameters are set, click [Set]. After the setting is successful, it will be displayed: The working mode parameters are set successfully. To verify the successful setting, you can select another working mode and then click [Read] to see if it is displayed as the working mode you want to set. If not, set it again.

[Adjacent Discrimination]: After setting the adjacent discrimination time (1-255, unit: seconds), within this time, the same tag number will only be uploaded to the computer (host computer) once no matter how many times it is read.

Note: For specific terminal wiring sequence or pin definition, please refer to the corresponding reader specification manual.

2. Communication mode

Menu bar reader parameter settings - communication mode ; or click the [Communication Mode] button in the shortcut bar to enter the working mode interface.



[Communication mode] : You can choose the method by which the data information read by the card reader is transmitted to the host computer (computer). Generally, the default is the channel corresponding to the device model, including [RJ45 network port], [serial port], [RS485], [WiFi], [2.4G], etc. This method is read-only for the tag. When the required parameters are set, click [Set]. After the setting is successful, there will be a prompt message. To verify the successful setting, you can select another working mode and then click [Read] to see if it is displayed as the working mode you want to set. If not, set it again.

[Baud Rate]: Select the baud rate for this communication method.

[Default]: This interface setting is adjusted to the default value.

[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

3. Device number setting

[Device Number]: Each reader has a corresponding device number, which is generally set to 0 by default. Set different device numbers to distinguish data uploaded from different devices. The device number is a decimal number between 0000 and 9999 .



[Read]: Read the configuration information of the connected card reader.

[Set]: Write the current parameters to the card reader device.

[Finish]: Close the window.

4. Antenna parameter settings

Menu bar reader parameter settings - antenna configuration , or click the shortcut bar [antenna configuration] button to enter the antenna setting interface.

The reader device currently has 1 channel, 2 channels, 4 channels, 8 channels, and 16 channels. Select the corresponding channel and set the relevant parameters of the antenna at the corresponding antenna. The antenna number of channel 1 is 1, the antenna number of channel 2 is 1-2, the antenna number of channel 4 is 1-4, the antenna number of channel 8 is 1-8, and the antenna number of channel 16 is 1-16.

The multi-channel antenna works in polling mode. Only one antenna is working at the same time. When selecting the antenna channel, it needs to be configured according to the actual wiring.

[Working time]: The duration of a single antenna searching for a card, in milliseconds (ms). For example, if the working time is set to 500ms and 4 antennas are configured, the duration of a polling search for a card is 2 seconds (s). If there are 8 channels, it is 4 seconds (s).

[Power]: Parameters for adjusting the transmission power strength of the device. The device power parameter is adjustable from 13 to 30 in 1 step. The factory default parameter is 30. It is recommended to set the power to 30 unless there are special circumstances .

[Interval]: The interval time for the antenna to poll the next antenna.

[Query channel status]: Click to send antenna detection instructions to the reader, and the reader will poll the antenna to detect and determine which channels have antennas.

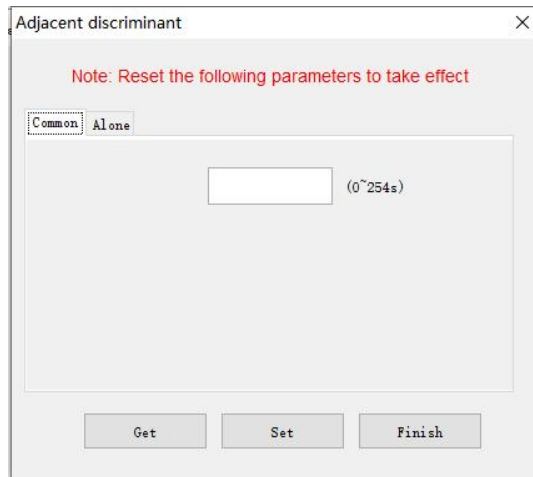
[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

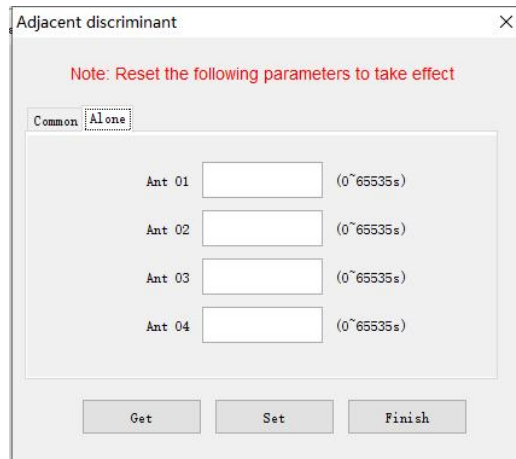
[Finish]: Close the window.

5. Adjacent discrimination

Shared:



Enter the adjacent discrimination time (in seconds, 0-254 seconds range), click [Set] and restart. The card reader will only read the same tag once within the set time. It is mostly used for deduplication, filtering large amounts of identical data, and resource optimization.
alone:



Set the adjacent discrimination time for each antenna, and enter the time (in seconds, ranging from 0 to 35535 seconds) for the corresponding antenna, that is, the corresponding antenna will only read the same tag once within the set time.

[Read]: Read the configuration information of the connected card reader.

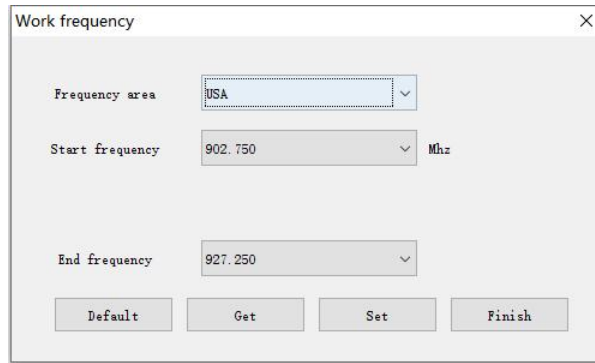
[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

Note: The following parameter settings will take effect immediately after reset.

6. Working frequency

Menu bar reader parameter settings - working frequency , or click the shortcut bar [working frequency] button to enter the working frequency interface.



[Frequency Area]: Select the frequency standard. The parameters are generally set to the American standard by default and cannot be modified without permission. Select the frequency area to be set in the drop-down box, such as the national standard-2, American standard, national standard-1, etc.

When you select Custom Frequency in [Frequency Area], you need to set the following:

[Starting Frequency]: Select the starting frequency of the card reader from the drop-down box, and the corresponding ending frequency. The card reader will cycle at this frequency range;

[End Frequency]: Select the end frequency of the card reader in the drop-down box, corresponding to the starting frequency. The card reader will cycle at this frequency range;

[Default]: Reset the frequency to our company's default standard configuration. You need to click [Set] to write data into the reader.

[Read]: Read the configuration information of the connected card reader.

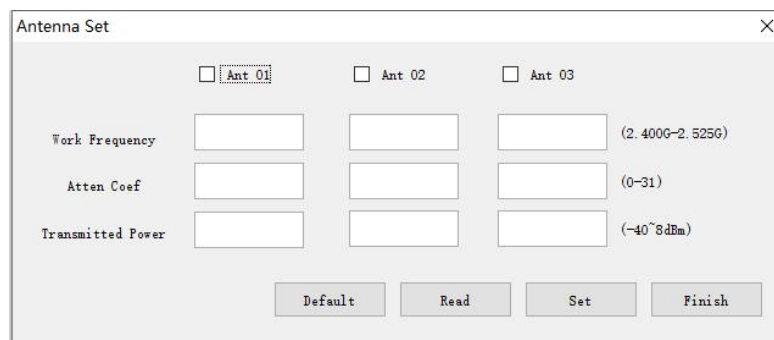
[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

Note: It is not recommended to change the frequency configuration without guidance, which may easily cause unsatisfactory card reading results.

7. Antenna settings (device type: 2.4G)

Click the tab Operation - Antenna Configuration in the menu bar ; or click the [Antenna Configuration] button in the shortcut bar to enter the antenna configuration interface.



At present, our company's equipment only needs to check antenna 1 and the following related settings, and antennas 2 and 3 do not need to be set.

[Working frequency band]: The working frequency band of the 2.4G device antenna, generally the default frequency band is 51. Changing other frequency bands may cause the tag to fail to be read, so please operate with caution.

[Attenuation coefficient]: Adjust the device transmission power attenuation, the range is 0-31.

0 means no attenuation, at which time the device has the maximum reading distance.

31 means the attenuation is maximum, and the device reading distance is minimum.

[Transmit Power]: The default setting is 7. No modification is required. It is generally used for debugging. Changes may result in the inability to read tags. Please operate with caution.

[Default]: Reset the frequency to our company's default standard configuration. You need to click [Set] to write data into the reader.

[Read]: Read the configuration information of the connected card reader.

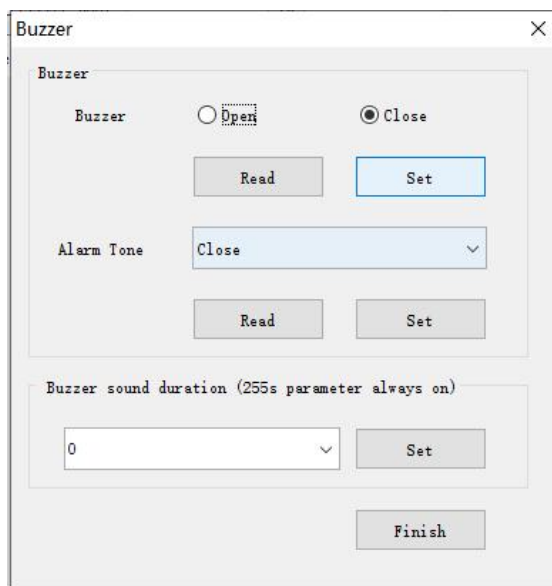
[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

7. Other operations

1. Buzzer setting

Click the tab operation - Buzzer in the menu bar ; or click the [Buzzer] button in the shortcut bar to enter the buzzer configuration interface.



[Buzzer]: You can choose to turn it on or off. After selecting, click [Set].

[Alarm Sound]: You can choose to set the buzzer alarm type, select and click [Set].

[Buzzer sound duration]: Select the duration in the drop-down box and click [Set].

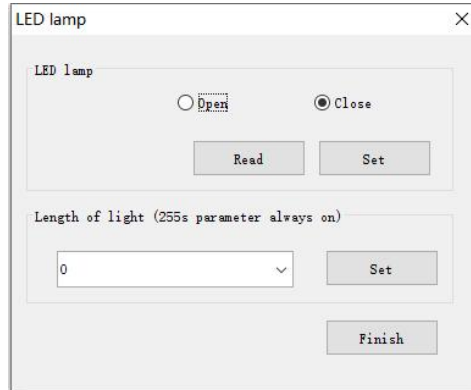
[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

2. LED Light Settings

Click the label operation - LED light in the menu bar ; or click the [LED light] button in the shortcut bar to enter the LED light configuration interface.



Check the LED status (on/off) and click [Set] .

Select the light on time in the drop-down box (can also be entered manually), the range value is 0-255, click [Set].

[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

3. Relay settings (customized)

You can enter the I/O operation interface by clicking "Other Operations in Menu Bar - Relay Control" or the [Relay] button in the shortcut bar. When the device has relay signal output and is not controlled by the internal software of the card reader, the relay status can be controlled.



Figure 7-3

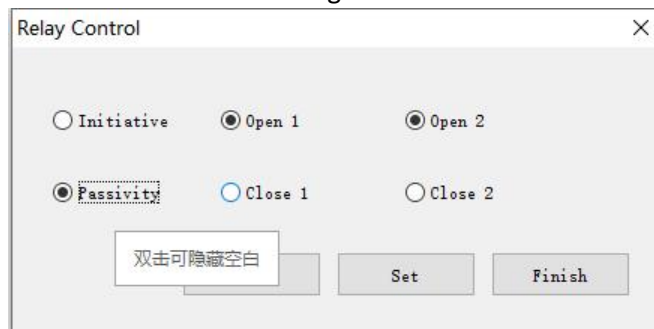


Figure 7-4

[Active]: After checking [Active], as shown in Figure 7-3 above, select the corresponding relay closing time in the drop-down box and click Set.

[Passive]: After checking [Passive], as shown in Figure 7-4 above, check the corresponding [Open] or [Close] again to turn the corresponding relay on/off.

[Read]: Read the configuration information of the connected card reader.

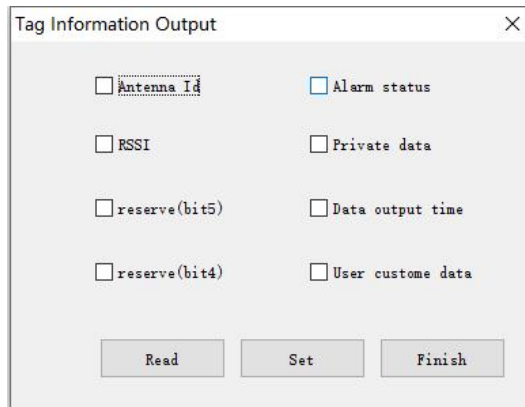
[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

Note: For specific device line sequence and pin definition, please refer to our device specification.

4. Output Format

"Menu bar other operations - output format " or shortcut bar [output format] button can enter the tag information output setting interface. The output format is mainly to set the data format returned by the card reader after reading the tag, as shown in the figure. The relevant information in the figure can be selected whether it is within the returned data format. If it is checked, the relevant data will be sent, and if it is not checked, no relevant data will be sent.



[Read]: Read the card reader mode setting data of the current device and display it in the card reader mode interface. The successful reading information prompt bar will show that the card reader mode is successfully read.

[Settings]: Write current parameters to the card reader device.

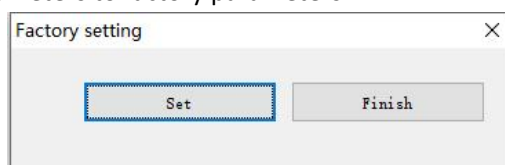
[Finish]: Close the window.

Note: For data format analysis, please refer to the document - "Uniform Protocol Label Data Format"

5. Factory settings

"Menu bar other operations - restore factory settings" or shortcut bar [factory settings] button can enter the factory settings restore interface. If you set it when you are not familiar

with the operation, and there is a card reading or other abnormalities, you can use this function to restore the reader parameters to factory parameters.



[Settings]: Click [Settings] to restore the card reader to factory default parameters.

[Finish]: Close the window.

Note: After restoring to factory settings, the device will automatically restart. You may need to disconnect and reconnect related connections.

6. Device reset

You can enter the device reset settings interface by clicking "Other operations in the menu bar - Device reset " or the shortcut bar [Device reset] button .



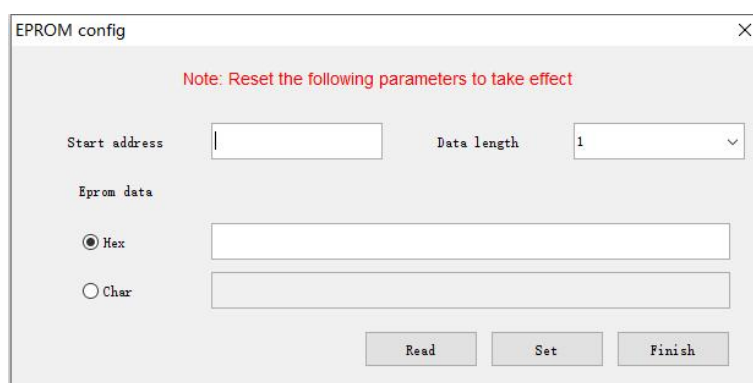
[Set]: Click [Set] to restart the card reader.

[Finish]: Close the window.

Note: After the device is reset, it will automatically restart. You may need to disconnect and reconnect related connections.

7. EPROM Configuration (Debug)

You can enter the EPROM configuration setting interface by clicking "Other operations in the menu bar - EPROM configuration " or the shortcut bar [EPROM configuration] button .



This interface configuration is mainly used for debugging equipment related parameter settings. Non-professional technicians are not allowed to set or modify it without authorization. No explanation is given here. For details, please consult our relevant technicians.

8. Configuration Information

You can enter the device configuration information setting interface by clicking "Other Operations in Menu Bar - Configuration Information " or the shortcut bar [Configuration Information] button .

The screenshot shows a window titled "Device Config Info" with a close button (X) in the top right corner. The window is divided into several sections:

- Device info**:
 - Version Info**: Hardware version and Firmware version (both fields are grayed out).
 - Antenna Id**: Antenna 1, Antenna 2, and Antenna 3 (all fields are grayed out).
- Communication Type**: Ethernet port, USB, RS232, RS485, Wiegand, WIFI, 2G/4G, Bluetooth, and GPS (all fields are grayed out). A "Read" button is located at the bottom right of this section.
- Mac address**: Ethernet Port, WIFI, and 4G (all fields are grayed out). A "Read" button is located at the bottom right of this section.
- Device unique number**: A text input field is grayed out. A "read" button is located at the bottom right of this section.
- Production serial number**: A text input field contains "202406130001". To its right are "Default", "Read", and "Set" buttons. A "Finish" button is located at the bottom right of the entire window.

This function is mainly used to read the relevant information parameters of the device, such as the device software version, hardware version, communication type, unique number, and production serial number, etc. The relevant parameter items that cannot be read are gray.

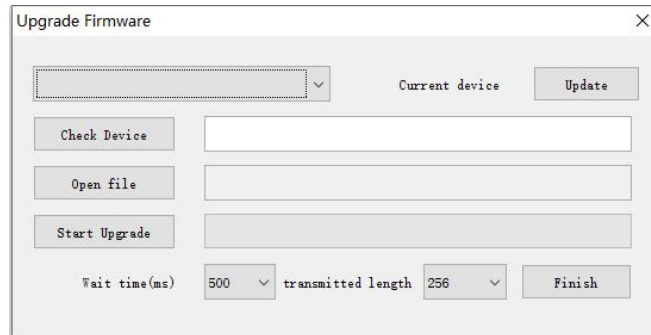
[Read]: Read the configuration information of the connected card reader.

[Settings]: Write current parameters to the card reader device.

[Finish]: Close the window.

9. Firmware Upgrade

"Menu bar other operations - firmware upgrade " or shortcut bar [firmware upgrade] button can enter the device configuration information setting interface.



This function is used to upgrade the firmware of the device.

[Update]: Update the IP address of the currently connected device in real time.

[Test device]: Test whether the relevant firmware information and upgrade procedures of the current device are normal.

[Open File]: Select the corresponding firmware upgrade file.

[Wait time]: Use the drop-down box to select the wait time in milliseconds.

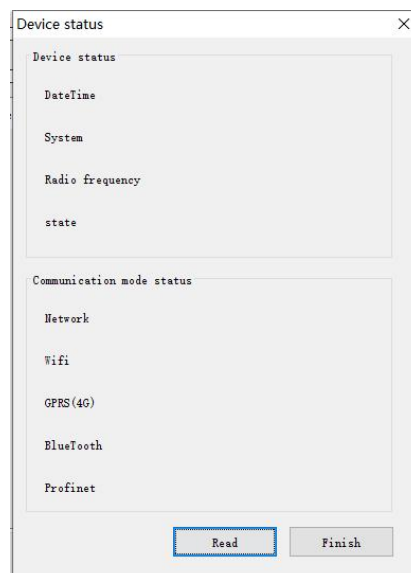
[Data transmission length]: Upgrade is the length of data transmission, which can be selected in the drop-down box. (It affects the speed of the upgrade, and the default is 256)

[Start firmware upgrade]: Click to start upgrading the firmware.

[Finish]: Close the window.

10. Status information

You can enter the device status reading interface by clicking "Other Operations in Menu Bar - Status Information " or the shortcut bar [Status Information] button .



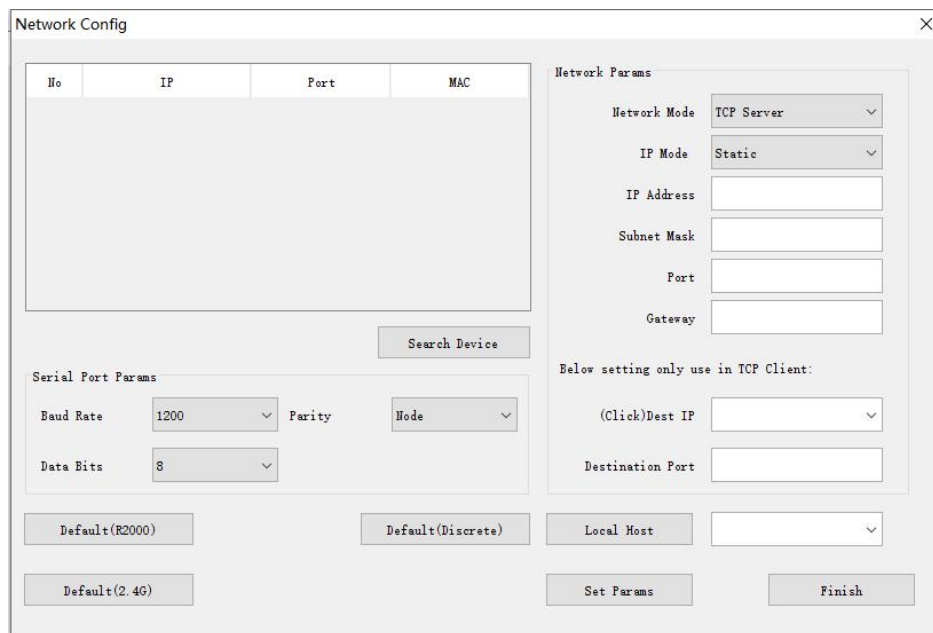
Click [Read] to obtain device-related status information, device status, and what types of communication methods are supported.

the status information of the connected card reader .

[Finish]: Close the window.

8. Communication parameter settings

You can enter the network parameter setting interface by clicking "Menu bar communication parameter setting - network parameter setting" or the shortcut bar [Network Parameters] button.



For details, refer to [Article 3 - the second network port for software connection](#).

9. Custom

This function belongs to the relevant configuration interface of customized products and is not explained here. For details, please consult our relevant technical personnel.

10. Language setting

Select Language Settings in the menu bar to switch between the Chinese and English versions of the software. At the same time, in the Demo folder of the development package, use a text document (TXT) to open the Config.ini file. Change the parameter tagType = 0 to tagType = 1 to change the software language.



Note: After switching, the [Information Prompt Bar] will display " Setting success, Please close reopen". At this time, please close the Demo software and restart it. The software will enter the English interface.