

# **RFID Demo**

## **Operation Manual For C#**

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**V0.10.0.0**

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# 1 Demo Instruction

The Demo mainly carries out the functions of system control, parameter set and get, tag reading and writing, and data display, etc.

Before using the demo, please check whether the reader hardware connection is all done, and pay attention to the following aspects:

1. The network parameters are configured correctly (connect WIFI if necessary);
2. The antenna ports that need to be used are connected to antennas;
3. The reader is power-on( the buzzer is ringing).

## 2 Demo Applying Environment

### ◆ Software Environment

Windows Server 2003、Windows XP Service Pack 2、Windows 7、Windows10 operating systems.

### ◆ Hardware Environment

P4/1.7GHz PC with better configuration,512M or larger storage, 40G hard disk.

## 3 Demo Version

### ◆ V0.17.0.0

## 4 Demo Operation

### 4.1 Connect Reader

All functions can only be operated after a successful connection.

#### 4.1.1 RS232 Communication Connection

Double click “GReaderDemo.exe” to start the Demo. Grey icons on the main interface means the reader is not connected. Select communication mode “RS232 connection”, “connection parameters”, “COM”( the COM number of the PC chose) in Device Connection. Choose 115200(default) as Baud rate, then click “Confirm”, as figure 4.1.1.1 shows.

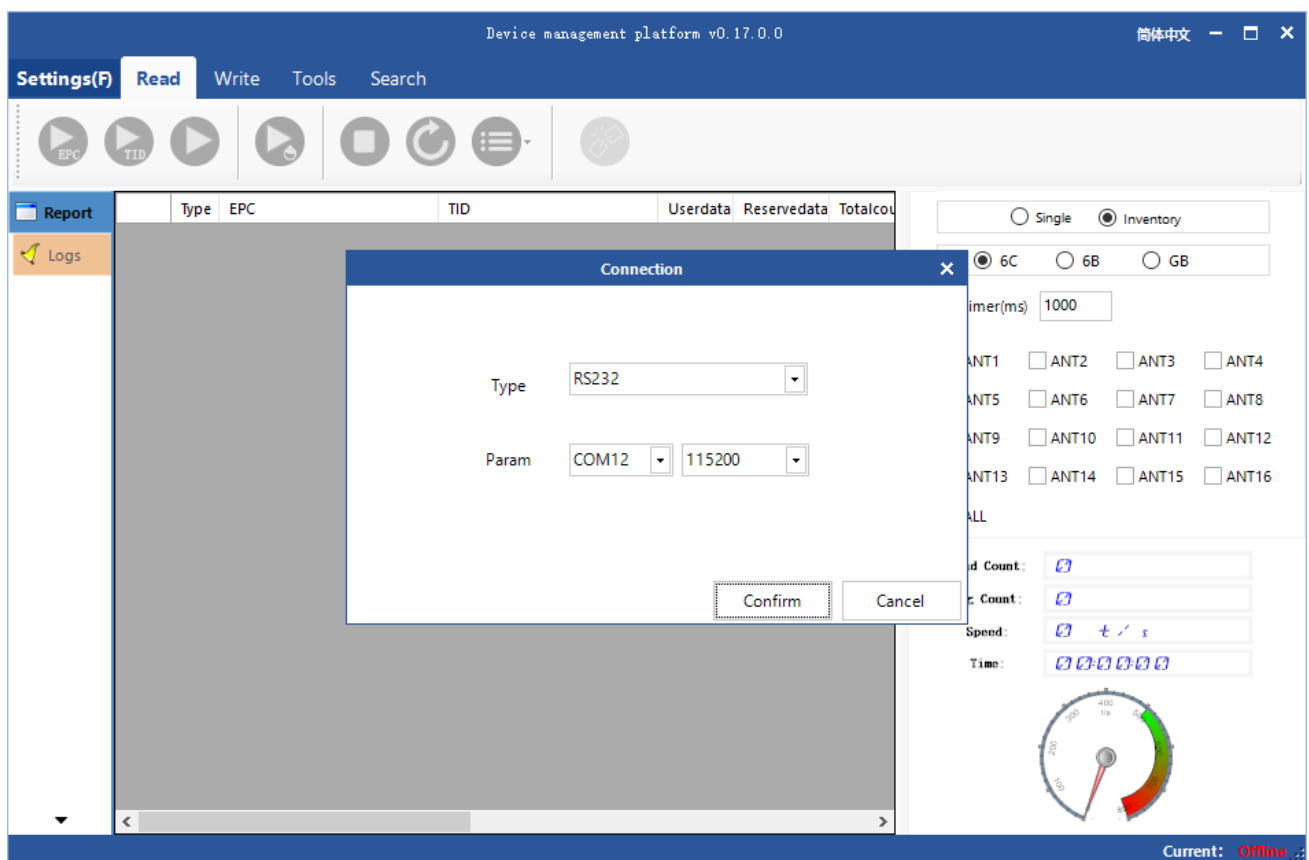


Figure 4.1.1.1 RS232 Connection

If the connection is successful, the icons in the tool bar will be colored as figure 4.1.1.2 shows. It means COM is connected.

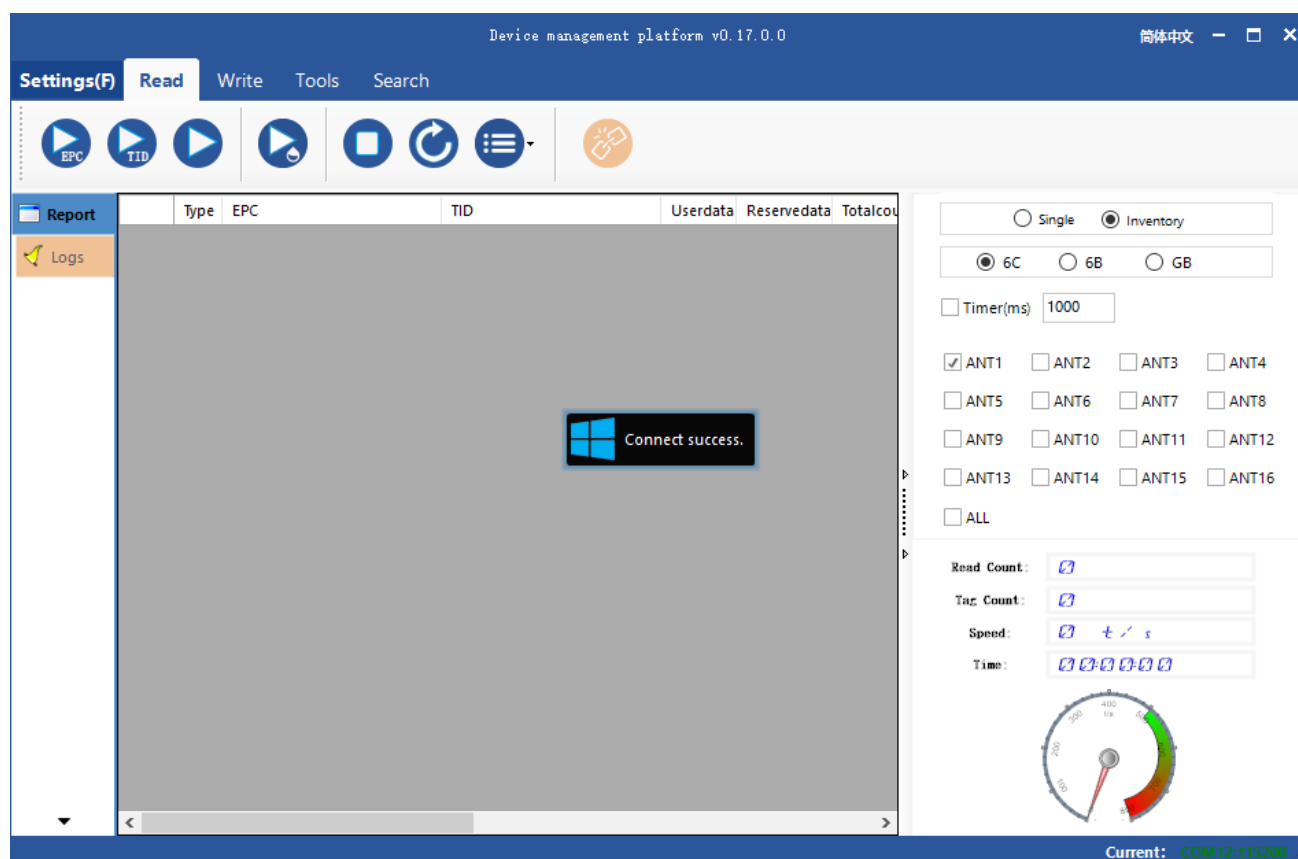


Figure 4.1.1.2 RS232 Connection success

## 4.1.2 RS485 Communication Connection

Select communication mode “RS485 connection” in Device Connection, fill in the parameters, and then click “Confirm” to connect the device, as Figure 4.1.2.1 shows. If the connection is successful, the icons will be colored as Figure 4.1.2.2 shows.

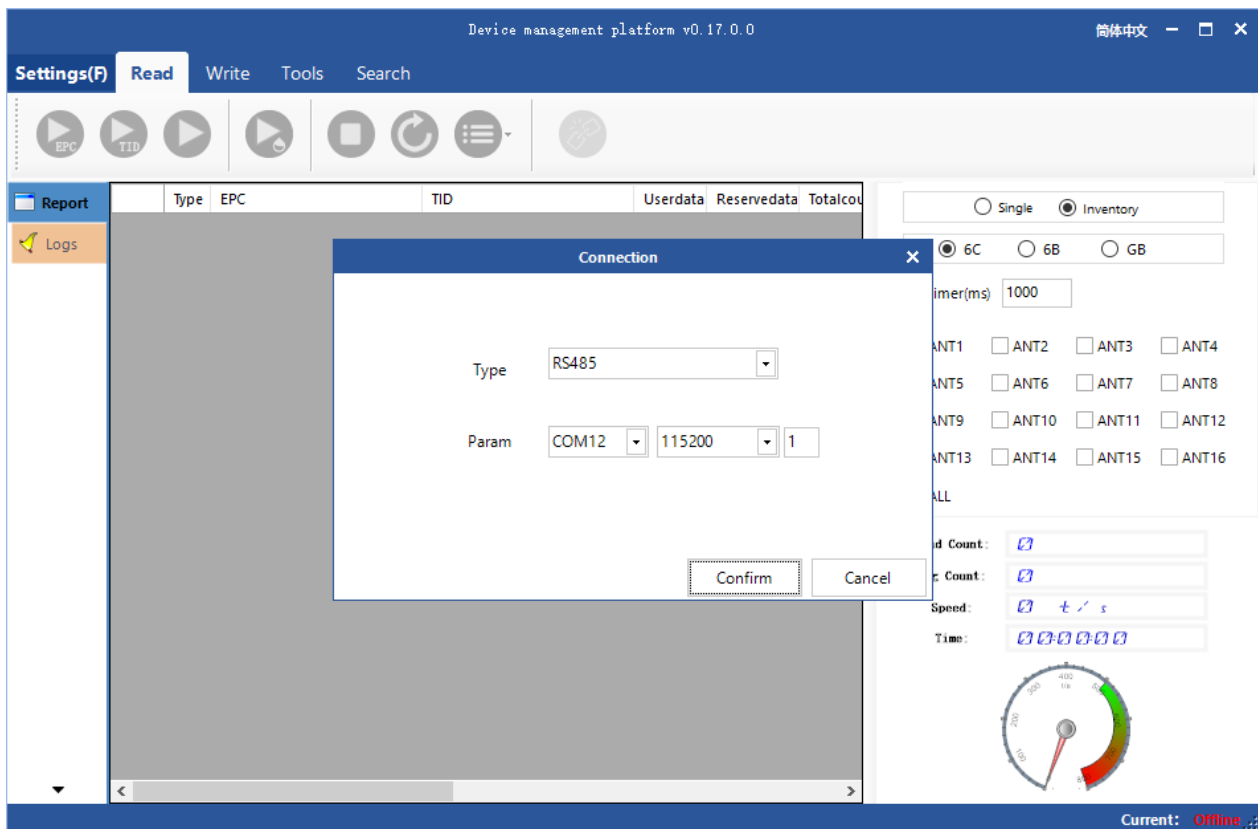


Figure 4.1.2.1 RS485 Connection

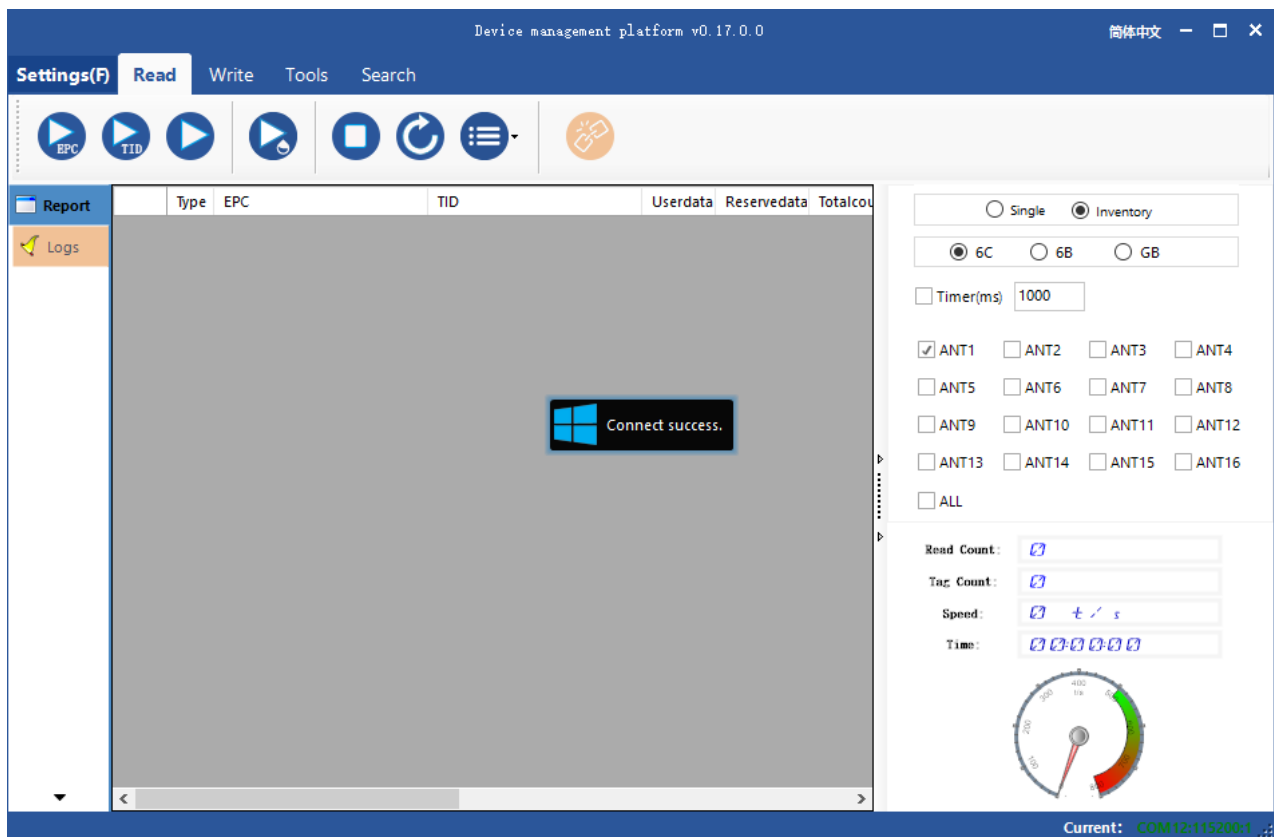


Figure 4.1.2.2 RS485 Connection success

### 4.1.3 TCP Client Communication Connection

Select communication mode” TCP client” in the “ connect reader”, “connection parameter”, and fill in” “192.168.1.168:8160 ” (192.168.1.168 is the default IP of the reader, 8160 is the port number). Click “Confirm”, as Figure 4.1.3.1 shows. If the connection is successful, the icons will be colored like Figure 4.1.3.2.

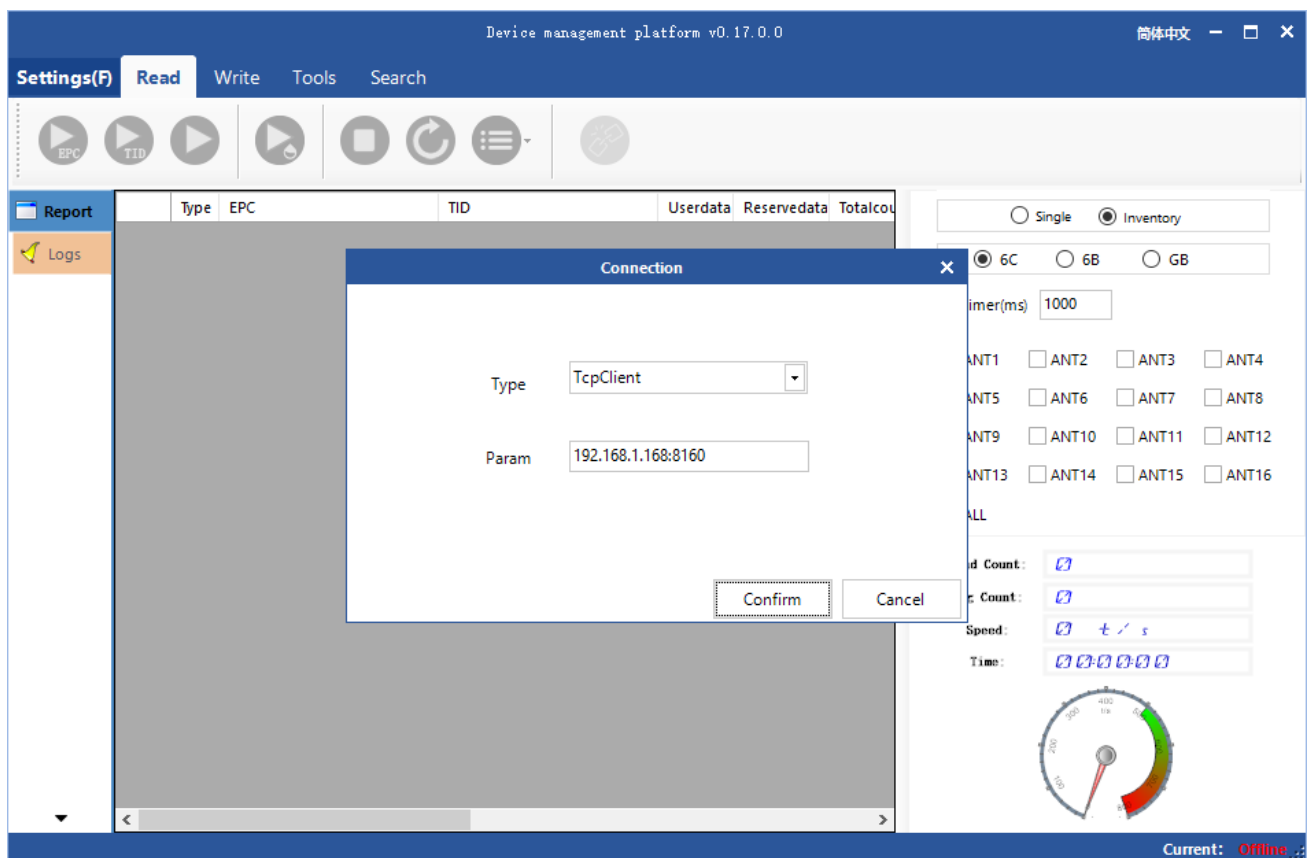


Figure 4.1.3.1 TCP Connection



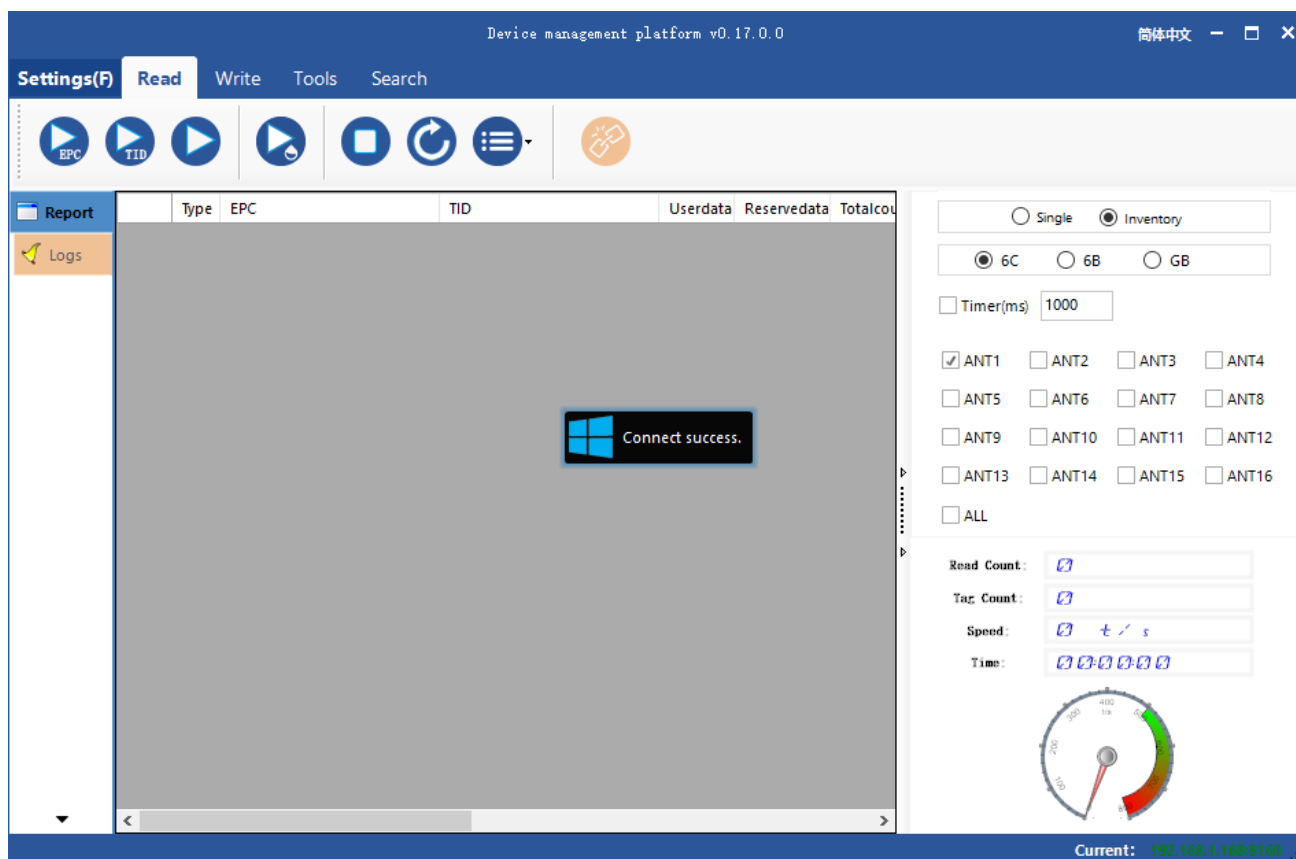



Figure 4.1.3.2 TCP Connection success

## 4.2 Data Displaying Area

Click , the data displaying area will be like Figure 4.2.1.

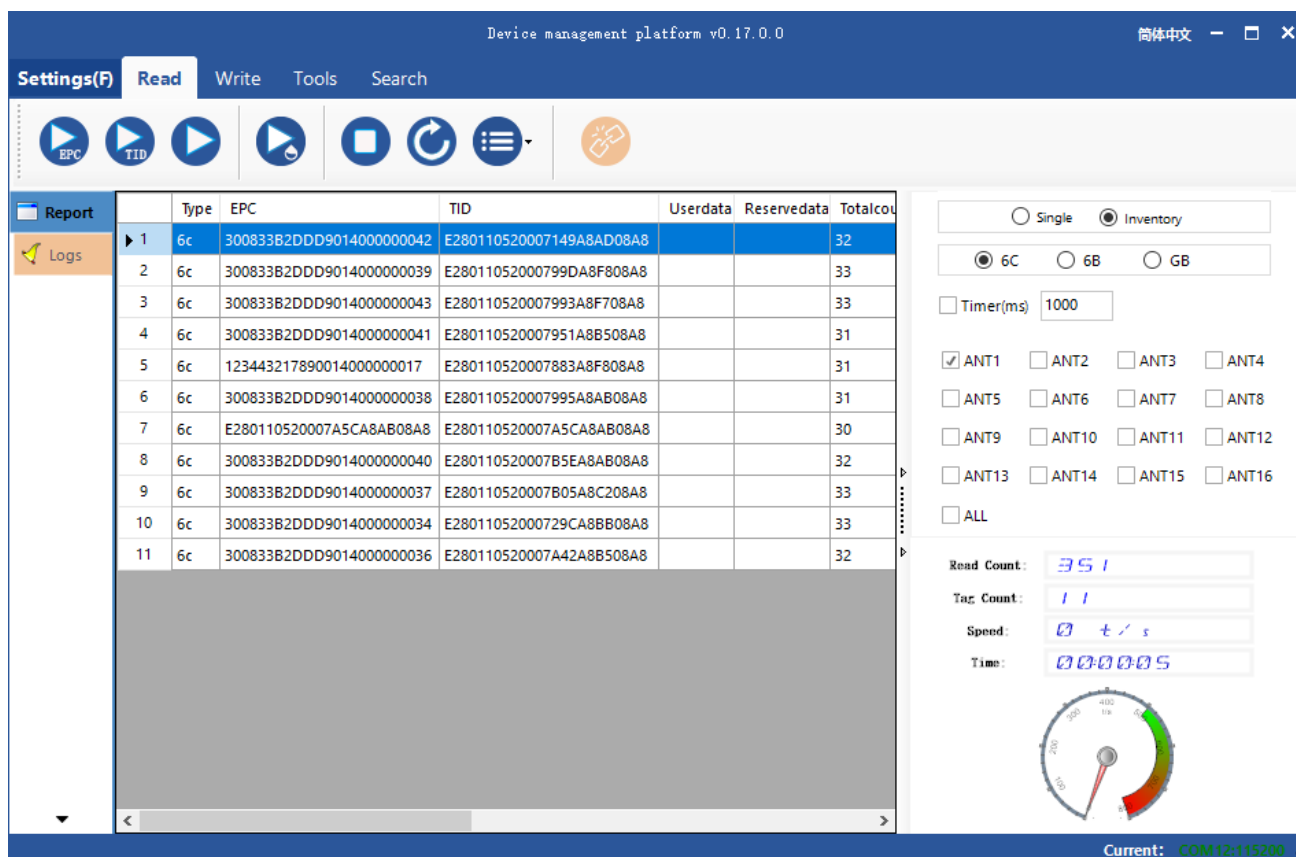


Figure 4.2.1 data displaying area parameter meaning

Type: type of tag:6C, 6B and GB ;

EPC: EPC data of the tag which is readable and writable ;

TID: TID data of the tag, which is a unique identification and readable only ;

Userdata: data of the user area, readable and writable ;

Reservedata: data of the reserved data, to store the tag password, etc. ;

Totalcount: total number of the times the tag read ;

ANT1: number of the times antenna 1 read ;

ANT2: number of the times antenna 2 read ;

ANT3: number of the times antenna 3 read ;

ANT4: number of the times antenna 4 read ;

ANT5: number of the times antenna 5 read ;

ANT6: number of the times antenna 6 read ;

ANT7: number of the times antenna 7 read ;

ANT8: number of the times antenna 8 read ;


RSSI: signal strength ;

Frequency: the frequency of the tag being read ;

Phase: phase value of the tag being read ;

ReadTime: reading time .


#### 4.2.1 Read EPC

Click , and the EPC being read will be displayed on the data displaying area. It can read the EPC data area of the ISO18000-6C tag and national standard tag.

EPC is displayed in hexadecimal strings, and the length is in words (1 word=2 bytes=4 hexadecimal character) .

To read the EPC data of custom length, please refer to Custom Reading for details.

#### 4.2.2 Read TID


Click , and the EPC and TID data being read will be displayed on the data displaying area. It can read the EPC and TID data area of ISO18000-6B, ISO18000-6C, and national standard tag.

TID is displayed in hexadecimal strings, and the length is in words (1 word=2 bytes=4 hexadecimal character) . The length of TID is defaulted to be 6 words.

To read the TID data of custom length, please refer to Custom Reading for details.

## 4.2.3 Custom Read

### 4.2.3.1 ISO18000-6C Tag

Select "6C" as tag type , click , and a dialog box will pop up, like Figure 4.2.3.1. Detail parameter instruction will be as follows:

Match parameter, which can be read by matching the known tag data, means that only this tag can be read.

Read TID: select read tag TID data. The reading mode is defaulted to be "self-adaptable" and the reading length is in words, as shown in Figure 4.2.3.1.

Read user data: choose to read the data of the tag user area. The starting address and reading length are in words, as shown in Figure 4.2.3.2.

Read reserved area: select the data of the tag reserve area. The starting address and reading length are in words, as shown in Figure 4.2.3.3.

Access password, the access password for tag checking, as shown in Figure 4.2.3.4.

ISO18000-6C custom read

Match parameter

No match  Start(bit)

EPC(Hex)

TID(Hex)

Userdata(Hex)

TID Userdata Reserved Password/Other

Mode  Length(word)

☒ Read TID

Figure 4.2.3.1 Custom Reading for EPC Tag (TID)

ISO18000-6C custom read

Match parameter

No match  Start(bit)

EPC(Hex)

TID(Hex)

Userdata(Hex)

TID Userdata Reserved Password/Other

Start(word)  Length(word)

☒ Read Userdata

Figure 4.2.3.2 Custom Reading for EPC Tag (Userdata)

ISO18000-6C custom read

Match parameter

No match  Start(bit)

EPC(Hex)

TID(Hex)

Userdata(Hex)

TID Userdata **Reserved** Password/Other

Start(word)  Length(word)

☒ Read reserved

Figure 4.2.3.3 Custom Reading for EPC Tag (reserved area)

ISO18000-6C custom read

Match parameter

No match  Start(bit)

EPC(Hex)

TID(Hex)

Userdata(Hex)


TID Userdata Reserved **Password/Other**

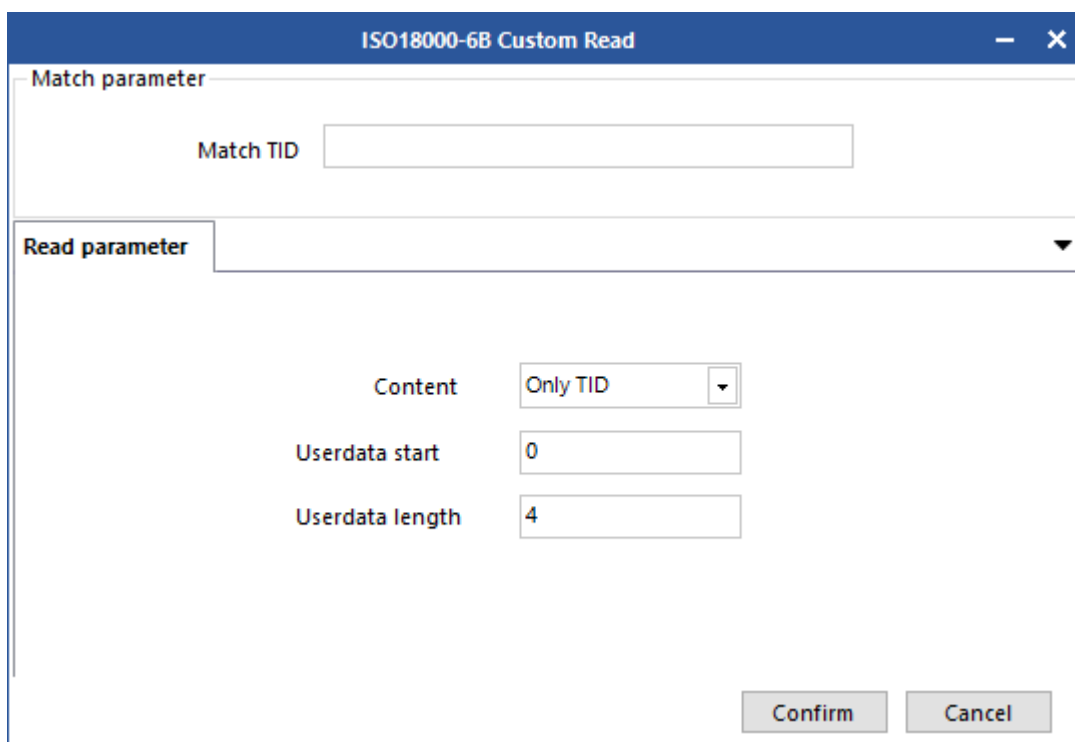
☐ Password

☐ Monza QT Peek ☐ Rfmicron ☐ EM Sensor data

Figure 4.2.3.4 Custom Reading for EPC Tag (Access Password/Other)

### 4.2.3.2 ISO18000-6B Tag


Select "6B" as tag type, click , and the dialog box will pop up. As shown in Figure 4.2.3.5. TID data or user data can be selected to read, and TID matching reading can be performed. Users unfamiliar with tag protocol please ignore this function. The starting address and reading length are in words.

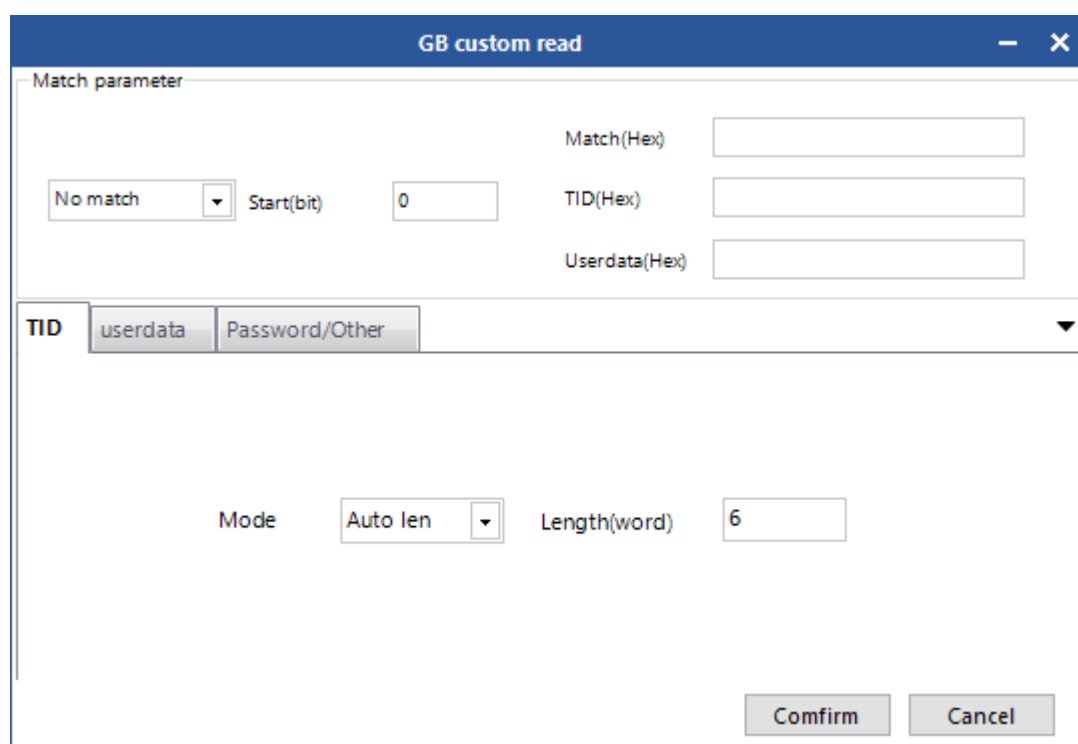


The dialog box is titled "ISO18000-6B Custom Read". It has a "Match parameter" section with a "Match TID" text box. Below this is a "Read parameter" section with a dropdown arrow. Inside the "Read parameter" section, there are three fields: "Content" with a dropdown menu showing "Only TID", "Userdata start" with a text box containing "0", and "Userdata length" with a text box containing "4". At the bottom right are "Confirm" and "Cancel" buttons.

Figure 4.2.3.5 Custom Reading for 6B tag

### 4.2.3.3 GB/T 29768—2013 Tag

Select "GB" as tag type, click , and the dialog box will pop up as shown in Figure 4.2.3.6. TID data or user data can be selected to read, and TID matching reading can be performed.



The dialog box is titled "GB custom read" and has a "Match parameter" section at the top. It includes a "No match" dropdown, a "Start(bit)" field set to "0", and three hex input fields for "Match(Hex)", "TID(Hex)", and "Userdata(Hex)". Below this is a tabbed interface with "TID", "userdata", and "Password/Other" tabs. The "TID" tab is active, showing a "Mode" dropdown set to "Auto len" and a "Length(word)" field set to "6". "Confirm" and "Cancel" buttons are at the bottom right.

GB custom read

Match parameter

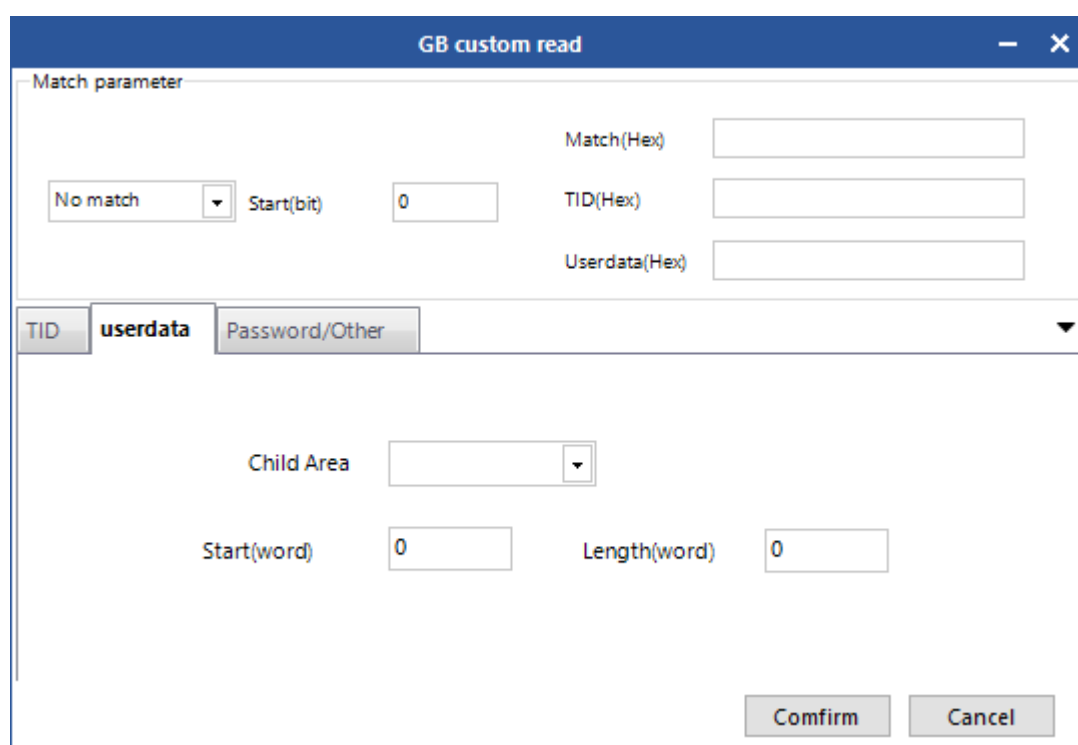
No match Start(bit) 0 Match(Hex) TID(Hex) Userdata(Hex)

TID userdata Password/Other

Mode Auto len Length(word) 6

Confirm Cancel

Figure 4.2.3.6 Custom Reading for GB-T 29768—2013 Tag (TID)



This dialog box is identical to the previous one but with the "userdata" tab selected. The "Match parameter" section remains the same. In the "userdata" tab, there is a "Child Area" dropdown, a "Start(word)" field set to "0", and a "Length(word)" field set to "0". "Confirm" and "Cancel" buttons are at the bottom right.

GB custom read

Match parameter

No match Start(bit) 0 Match(Hex) TID(Hex) Userdata(Hex)

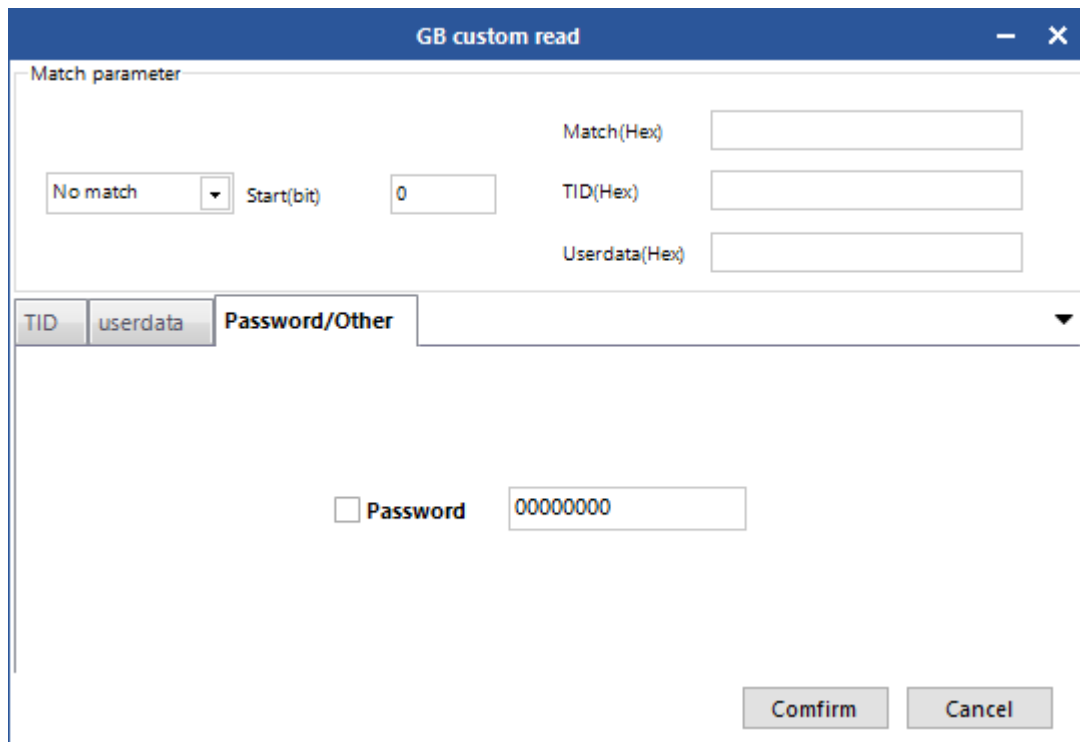
TID **userdata** Password/Other

Child Area Start(word) 0 Length(word) 0

Confirm Cancel

Figure 4.2.3.7 Custom Reading for GB-T 29768—2013 Tag (userdata)






The image shows a software window titled "GB custom read". It contains a "Match parameter" section with a dropdown menu set to "No match", a "Start(bit)" field with the value "0", and three empty text boxes for "Match(Hex)", "TID(Hex)", and "Userdata(Hex)". Below this is a tabbed interface with three tabs: "TID", "userdata", and "Password/Other", with the "Password/Other" tab selected. In the "Password/Other" tab, there is a checkbox labeled "Password" which is unchecked, and a text box containing the value "00000000". At the bottom right of the window are "Confirm" and "Cancel" buttons.


Figure 4.2.3.7 Custom Reading for GB-T 29768—2013 Tag (accesss password)

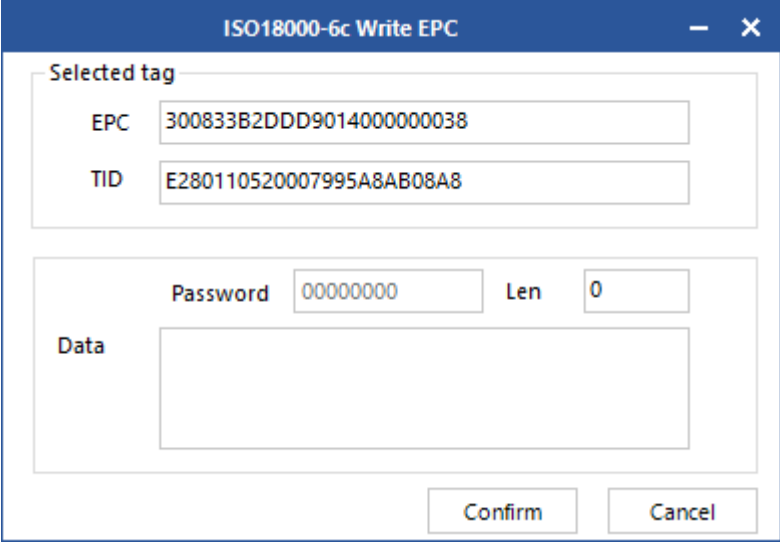
## 4.2.4 Stop

Click  to stop all RFID operations of the reader and put the reader into an idle state.

## 4.3 Write Data

### 4.3.1 Write EPC Data

Select Write on the main interface -> click , and the dialog box will pop up as shown in Figure 4.3.1 .



The dialog box titled "ISO18000-6c Write EPC" contains the following fields:

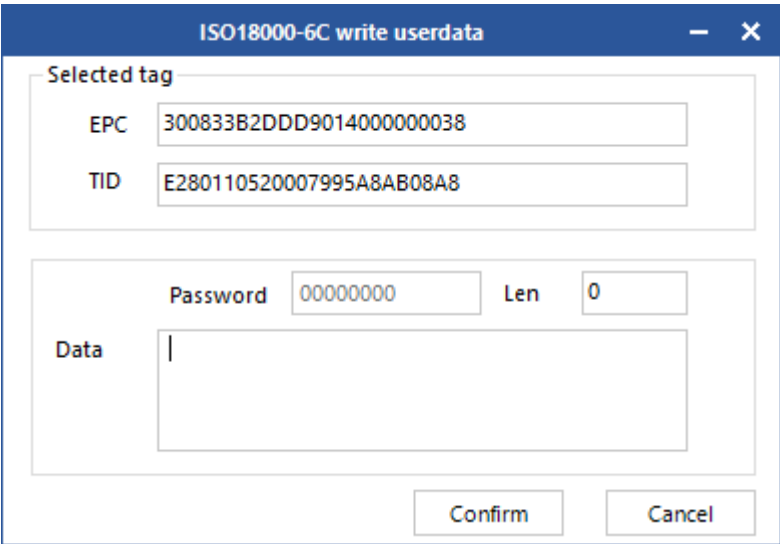
- Selected tag**
  - EPC:** 300833B2DDD9014000000038
  - TID:** E280110520007995A8AB08A8
- Password:** 00000000
- Len:** 0
- Data:** (Empty text area)
- Buttons:** Confirm, Cancel

Figure 4.3.1 Write EPC Data

Select data (with TID information) of a tag, fill in EPC data (hexadecimal character string), then click “Confirm”.

### 4.3.2 Write User Data

Select Write on the main interface -> click  and the dialog box will pop up, as shown in Figure 4.3.2.



The dialog box titled "ISO18000-6C write userdata" contains the following fields:

- Selected tag**
  - EPC:** 300833B2DDD9014000000038
  - TID:** E280110520007995A8AB08A8
- Password:** 00000000
- Len:** 0
- Data:** (Text area with a cursor)
- Buttons:** Confirm, Cancel


Figure 4.3.2 write user data

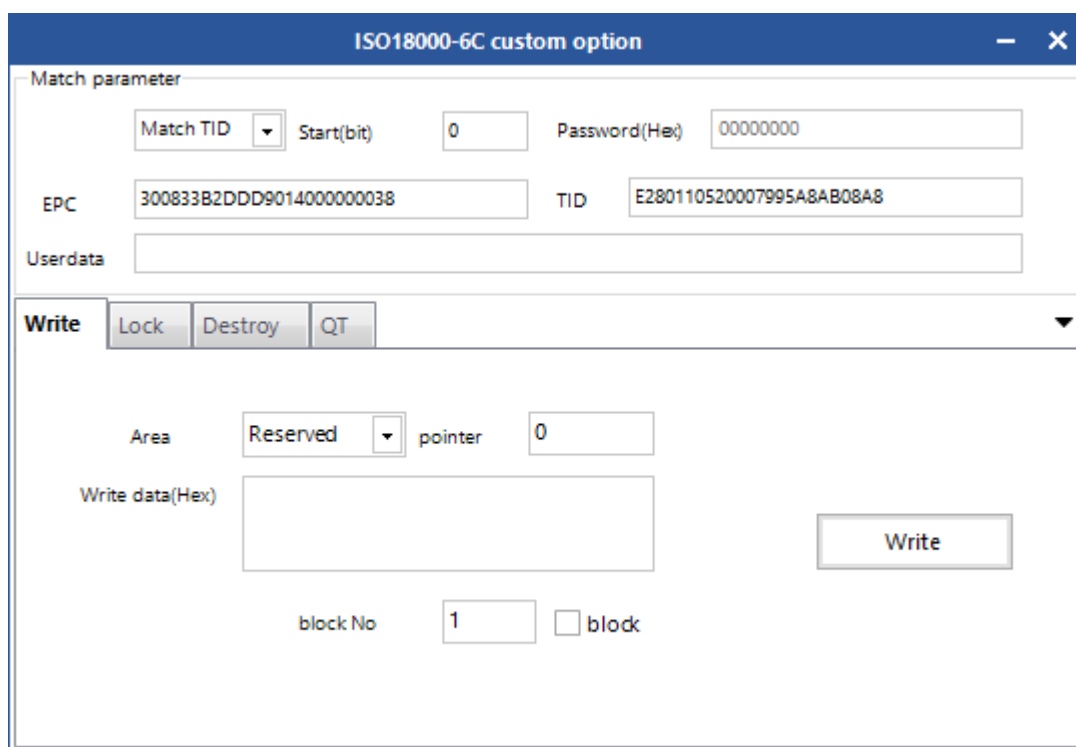
Select data (with TID information) of a read tag, fill in EPC data (hexadecimal character string), then click “Confirm”.

### 4.3.3 Custom Tag Operation

Select a tag data in the displaying data area before custom tag operation. Otherwise, the tag with the best signal will be the default one. Take care to follow the communication protocol about the writing/ reading/ locking/ destroying for the tag.

#### 4.3.3.1 ISO18000-6C Tag

Select 6C as tag type. Click , and the dialog box will pop up, as shown in Figure 4.3.3.1. Writing operation can change data of the specified area of the tag. Access password is needed if such area is locked.

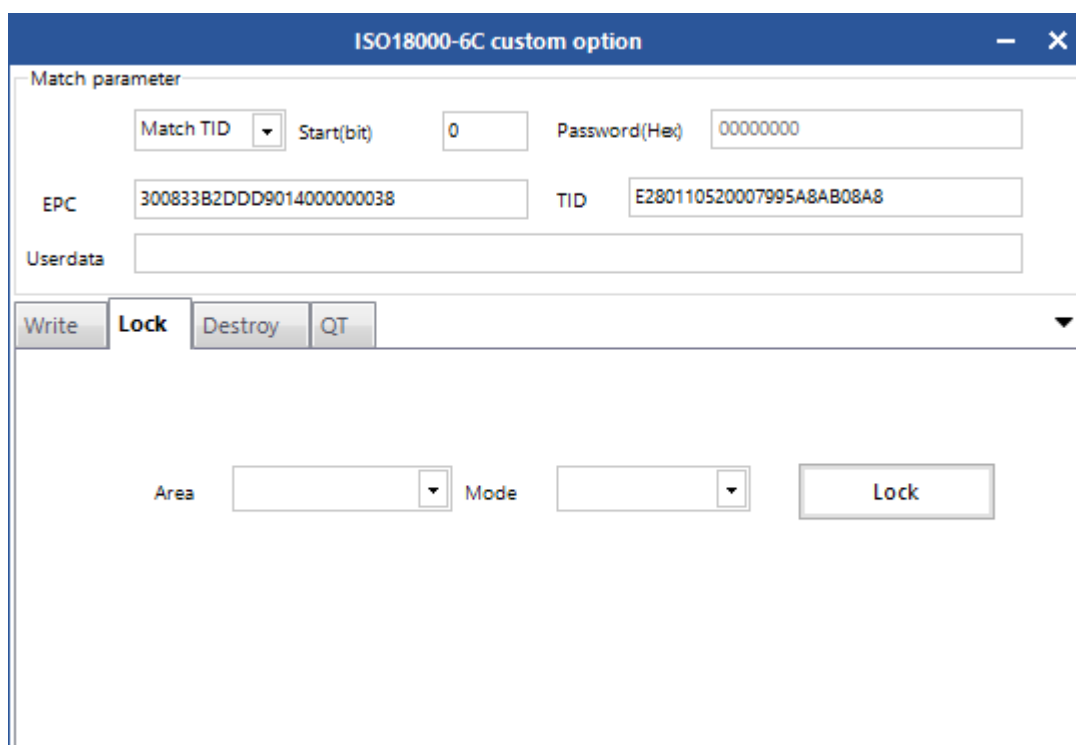


The dialog box titled "ISO18000-6C custom option" contains the following fields and controls:

- Match parameter** section:
  - Match TID**: dropdown menu.
  - Start(bit)**: text input field with value "0".
  - Password(Hex)**: text input field with value "00000000".
  - EPC**: text input field with value "300833B2DDD90140000000038".
  - TID**: text input field with value "E280110520007995A8AB08A8".
  - Userdata**: empty text input field.
- Write** section (indicated by a tab):
  - Area**: dropdown menu with "Reserved" selected.
  - pointer**: text input field with value "0".
  - Write data(Hex)**: large empty text input field.
  - Write**: button.
  - block No**: text input field with value "1".
  - block**: checkbox (unchecked).

Figure 4.3.3.1 6C Tag Custom Operation(Write)

Locking operation to 6C tag. The interface is 6C as shown in Figure 4.3.3.2. Select the area for operation and corresponding operation, fill in password then the operation can be done, or it will fail (it also fails for tag without any password).



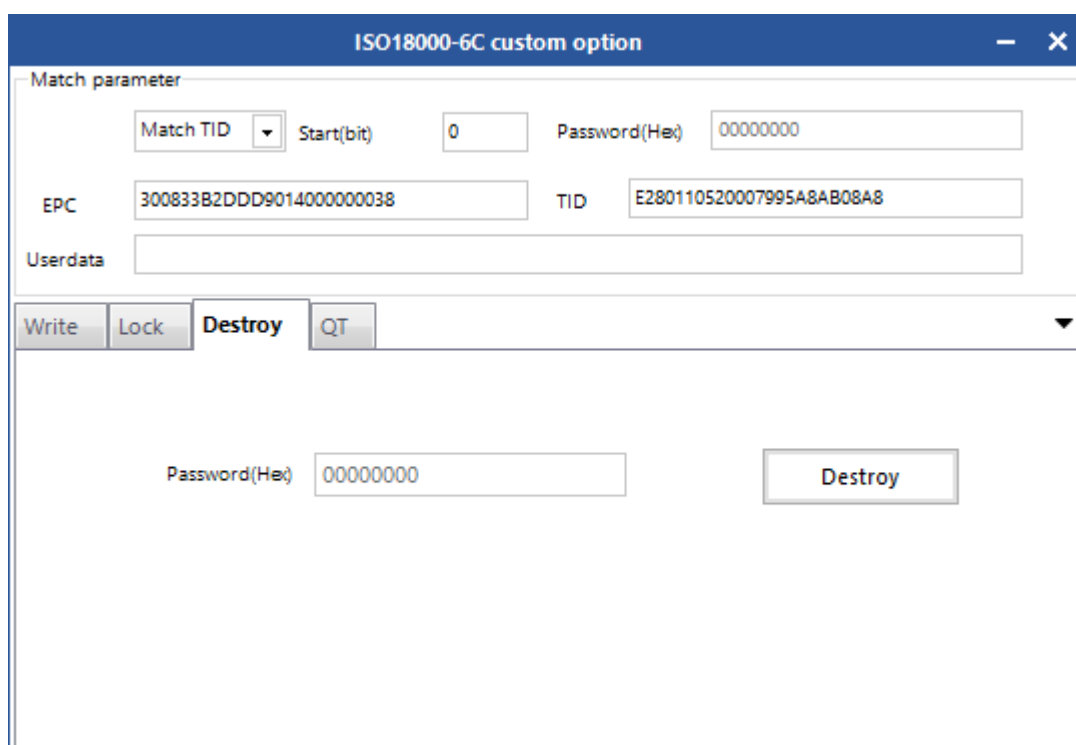
The dialog box is titled "ISO18000-6C custom option". It contains a "Match parameter" section with the following fields:

- Match TID**: A dropdown menu set to "Match TID".
- Start(bit)**: A text box containing "0".
- Password(Hex)**: A text box containing "00000000".
- EPC**: A text box containing "300833B2DDD9014000000038".
- TID**: A text box containing "E280110520007995A8AB08A8".
- Userdata**: An empty text box.

Below the match parameters, there are four buttons: **Write**, **Lock** (highlighted), **Destroy**, and **QT**. Below these buttons, there are two dropdown menus labeled **Area** and **Mode**, followed by a **Lock** button.

Figure 4.3.3.2 6C Tag Custom Operation( Lock)

Destroying operation to 6C tag is as shown in Figure 4.3.3.3. Click Destroy after filling in the password, then the tag will be destroyed. This operation is irrevocable and the tag destroyed will be invalid permanently.




The dialog box is titled "ISO18000-6C custom option". It contains a "Match parameter" section with the following fields:

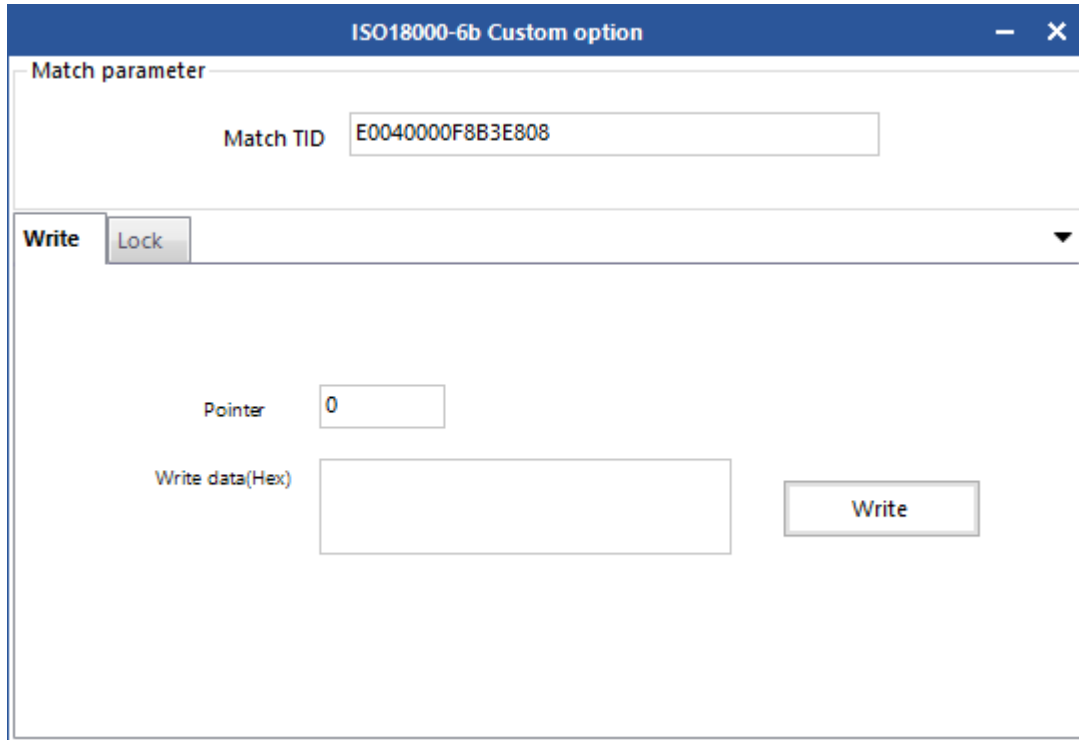
- Match TID**: A dropdown menu set to "Match TID".
- Start(bit)**: A text box containing "0".
- Password(Hex)**: A text box containing "00000000".
- EPC**: A text box containing "300833B2DDD9014000000038".
- TID**: A text box containing "E280110520007995A8AB08A8".
- Userdata**: An empty text box.

Below the match parameters, there are four buttons: **Write**, **Lock**, **Destroy** (highlighted), and **QT**. Below these buttons, there is a **Password(Hex)** text box containing "00000000" and a **Destroy** button.

Figure 4.3.3.3 6C Tag Custom Operation(Destroy)

### 4.3.3.2 ISO18000-6B Tag

Select 6B as tag type. Click , and the dialog box will pop up, as shown in Figure 4.3.3.4. Only user area is writable area for 6B tag. Click “Write” after filling in the start address and writing content.



The dialog box titled "ISO18000-6b Custom option" has a "Match parameter" section with a "Match TID" field containing "E0040000F8B3E808". Below this is a "Write" section with a "Lock" button. The "Write" section contains a "Pointer" field with the value "0", a "Write data(Hex)" field, and a "Write" button.

Figure 4.3.3.4 6B Tag Custom Operation(Write)

The locking operation for 6B tag includes locking and locking get. As shown in Figure 4.3.3.5, fill in operation address, and click “Lock” to lock this address. The locked address is irreversible. Click “Get” to check if the address is locked.

**Notes:** The locking for 6B tag is irrevocable and irreversible. And The lock operation defined by this command is a single operation.

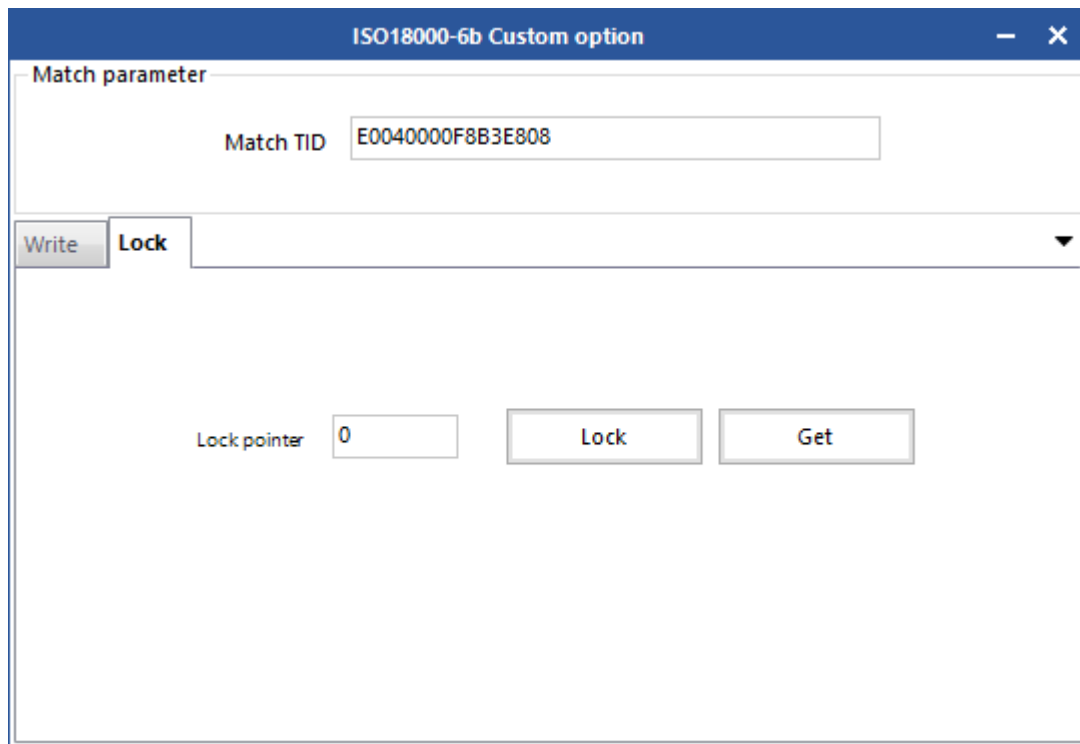



Figure 4.3.3.5 6B Tag Custom Operation(lock)

#### 4.3.3.3 GB/T 29768—2013 Tag

Select GB as tag type. Click , and the dialog box will pop up, as shown in Figure 4.3.3.6. Select the writing area, fill in the address and content, click “Write”, then the operation is done with the Write successfully Prompt. Read the data after writing to check if the data writing is correct if needed.

**GB custom option**

Match parameter

TID  Start(bit)  Password(Hex)

EPC  TID

Userdata

**Write**

Area

Data(Hex)

Figure 4.3.3.6 GB/T 29768—2013 Tag Custom Operation(Write)

The locking operation of national-standard tag is as shown in Figure 4.3.3.7. Select the area for operation and corresponding operation, fill in password then the operation can be done, or it will fail (it also fails for tag without any password).

**GB custom option**

Match parameter

TID  Start(bit)  Password(Hex)

EPC  TID

Userdata

**Lock**

Area

Figure 4.3.3.7 GB/T 29768—2013 Tag Custom Operation(Lock)

Destroying operation to national-standard tag is as shown in Figure 4.3.3.8. Click Destroy after filling in the password, then the tag will be destroyed. **This operation is irrevocable and the tag destroyed will be invalid permanently.**

The screenshot shows a software window titled "GB custom option" with a blue header bar. Inside, there is a "Match parameter" section with several input fields: a dropdown menu set to "TID", a "Start(bit)" field with the value "0", a "Password(Hex)" field with "00000000", an "EPC" field with "300833B2DDD90140000000037", and another "TID" field with "E280110520007B05A8C208A8". Below these is an empty "Userdata" field. A row of three buttons—"Write", "Lock", and "Destroy"—is positioned below the input fields. The "Destroy" button is highlighted. Below this row is a large, empty rectangular area. At the bottom of this area, there is a "Password(Hex)" field containing "00000000" and a "Destroy" button.

Figure 4.3.3.8 National-standard Tag Custom Operation(destroy)

## 4.4 Device Configuration

Select Device Control in the main interface of the Demo ->Device Configuration and then the dialog will pop up as shown in Figure 4.4 .



The screenshot shows a 'Device settings' window with a sidebar on the left containing 'Base', 'WIFI', 'GPIO', and 'Cus-1'. The 'Base' tab is selected. The main area is divided into several sections:

- RS232**: Baudrate is set to '115200 bps' (dropdown). There are 'Get' and 'Set' buttons.
- RS485**: Baudrate is set to '115200 bps' (dropdown) and a parity bit is set to '1'. There are 'Get' and 'Set' buttons.
- Ethernet**:
  - Radio buttons for '[Static IP]' (selected) and '[Auto IP]'.
  - IP: 192.168.1.168
  - Mask: 255.255.255.0
  - Gateway: 192.168.1.1
  - DNS1: 114.114.114.114
  - DNS2: 8.8.8.8
  - 'Get' and 'Set' buttons at the bottom.
- Time**: Displayed as '2019.08.28 10:35:02'. There are 'Get' and 'Set' buttons.
- MAC**: Displayed as 'A6-B0-09-BF-3B-F4'. There is a 'Get' button.
- Client/Server**:
  - Radio buttons for 'Server' (selected) and 'Client'.
  - Server port: 8160
  - Client IP: 192.168.11.236
  - Client port: 8160
  - 'Get' and 'Set' buttons.

Figure 4.4 Device Configuration

### 4.4.1 RS232 Parameter

The COM parameter is on the top left corner as shown in Figure 4.4.1. Click “Get” to acquire the communication baud rate parameter of the COM. Then click Setting to set the communication baud rate parameter of the COM. Baud rate includes 9600 bps, 19200 bps, 115200 bps, 230400 bps and 460800bps, and the others are unsupported. The default one is 115200 bps.

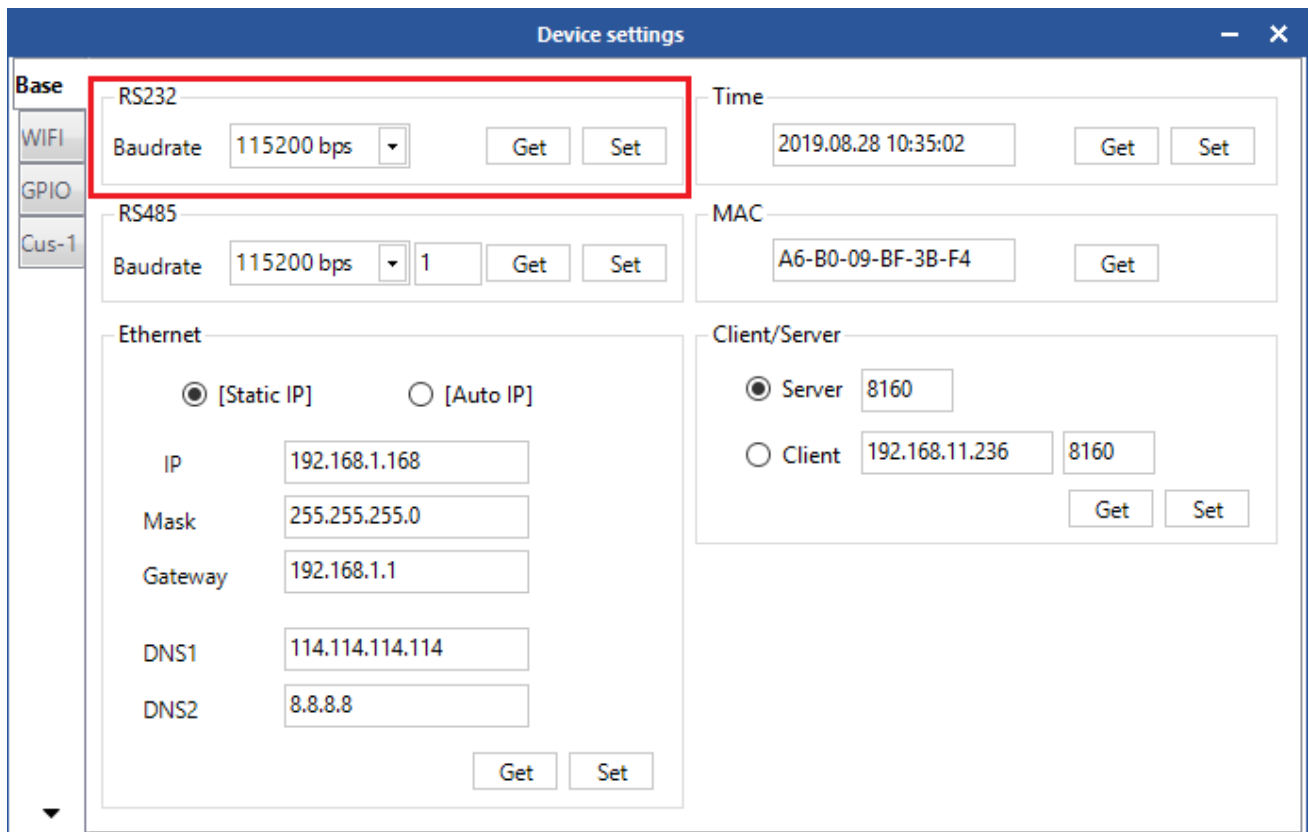


Figure 4.4.1 COM Parameter

## 4.4.2 RS485 Parameter

The RS485 parameter is on the top left corner as shown in Figure 4.4.2. Click “Get” to acquire the communication baud rate parameter of the RS485. Then click Setting to set the communication baud rate parameter of the COM. Baud rate includes 9600 bps, 19200 bps, 115200 bps, 230400 bps and 460800bps. The default one is 115200 bps. The RS485 BUS address(0~255) is on the text box on the right.

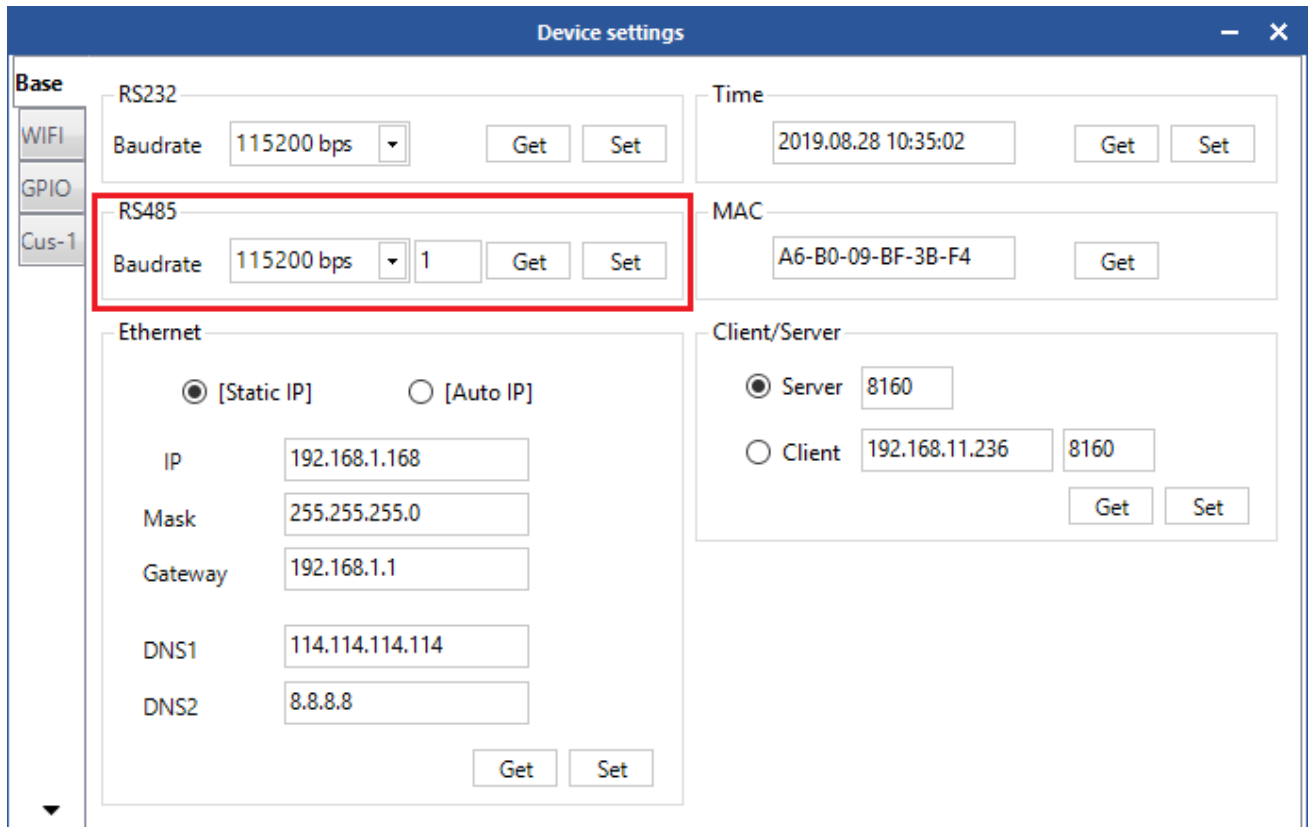


Figure 4.4.2 RS485 parameter

### 4.4.3 Ethernet Parameter

The Ethernet parameter is on the lower left corner as shown in Figure 4.4.3.1. Click “Get” to check the Ethernet parameter of the reader, then click Setting to set the Ethernet parameter.

Click “Get” to check the Ethernet parameter after configuration(as shown in Figure 4.4.3.2) if Acquire IP Automatically is being used as shown in Figure 4.4.3.3. Connect the reader with TCP as shown in Figure 4.4.3.4,fill in IP address, click “Set”, then the prompt will pop up as shown in Figure 4.4.3.5. Acquire IP Automatically normally works with a router.

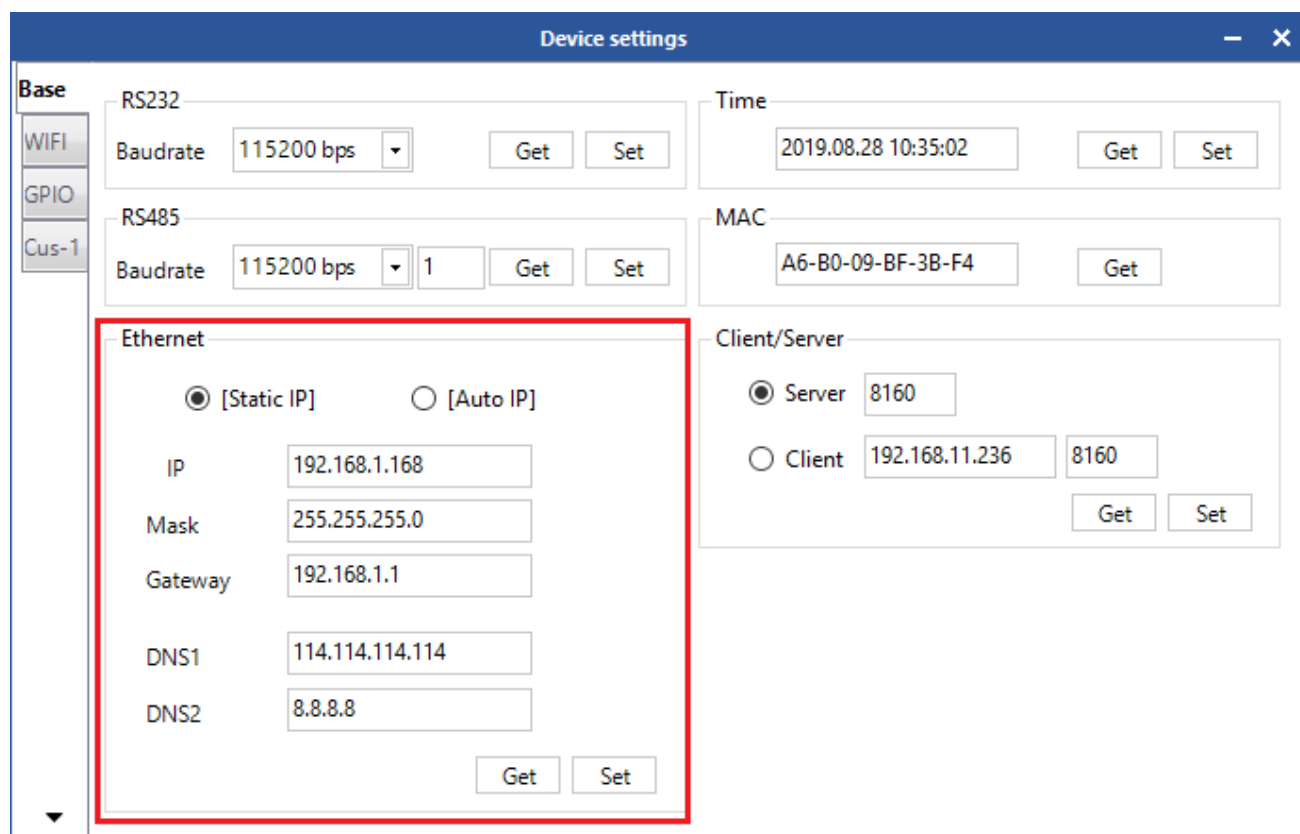


Figure 4.4.3.1 Ethernet parameter

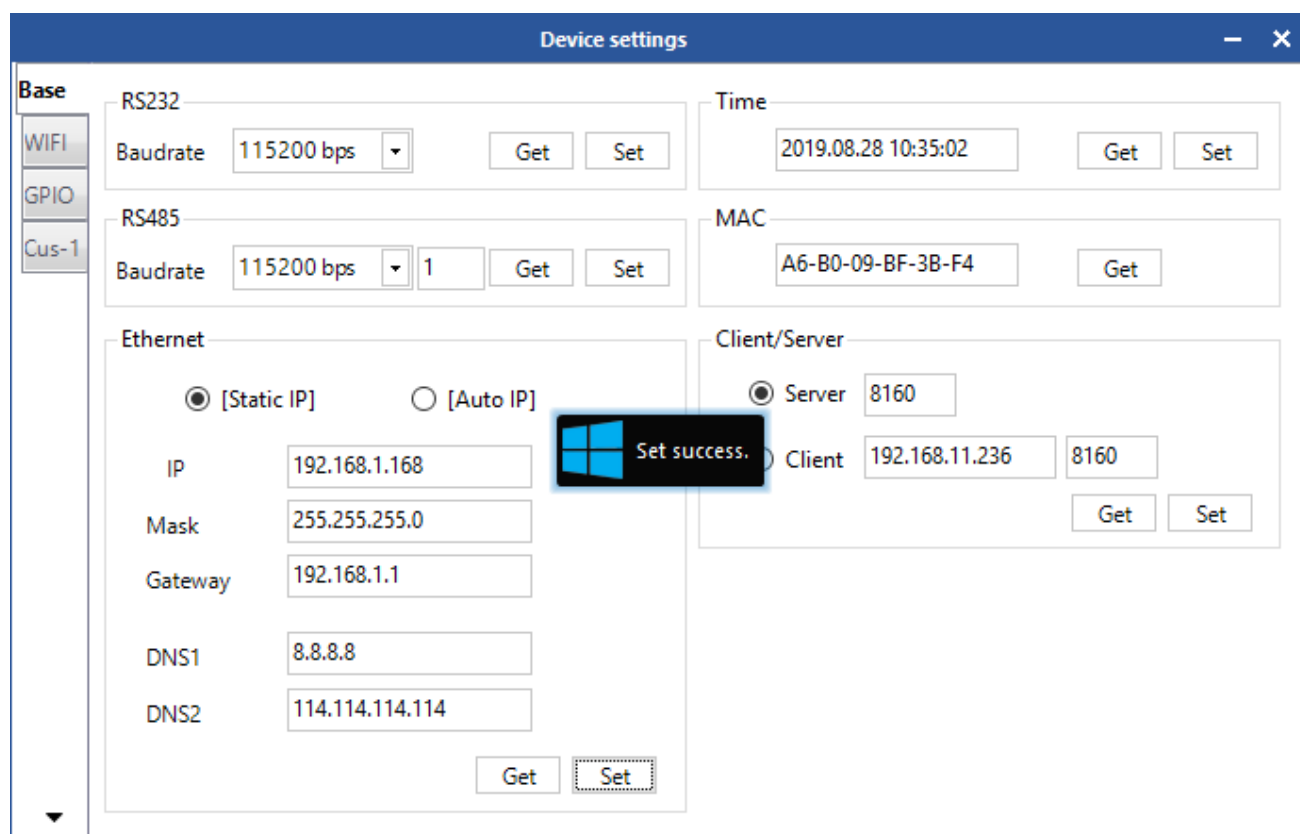


Figure 4.4.3.2 Acquire IP Automatically

Base

WIFI

GPIO

Cus-1

RS232

Baudrate 115200 bps

Get Set

Time

2019.08.28 10:35:02

Get Set

RS485

Baudrate 115200 bps 1

Get Set

MAC

A6-B0-09-BF-3B-F4

Get

Ethernet

☒ [Static IP]
☐ [Auto IP]

IP 192.168.1.168

Mask 255.255.255.0

Gateway 192.168.1.1

DNS1 8.8.8.8

DNS2 114.114.114.114

Get Set

Client/Server

☒ Server 8160
☐ Client 192.168.11.236 8160

Get Set

Figure 4.4.3.3 IP Parameter

Device management platform v0.17.0.0

简体中文

Settings(F)

Read

Write

Tools

Search

Report

Logs

Type EPC

TID

Userdata

Reservedata

Totalcou

Single

Inventory

6C

6B

GB

Timer(ms) 1000

ANT1

ANT2

ANT3

ANT4

ANT5

ANT6

ANT7

ANT8

ANT9

ANT10

ANT11

ANT12

ANT13

ANT14

ANT15

ANT16

ALL

Count:

Count:

Speed:

Time:

Current: Offline

Connection

Type TcpClient

Param 192.168.1.168:8160

Confirm

Cancel

Figure 4.4.3.4 TCP Connection

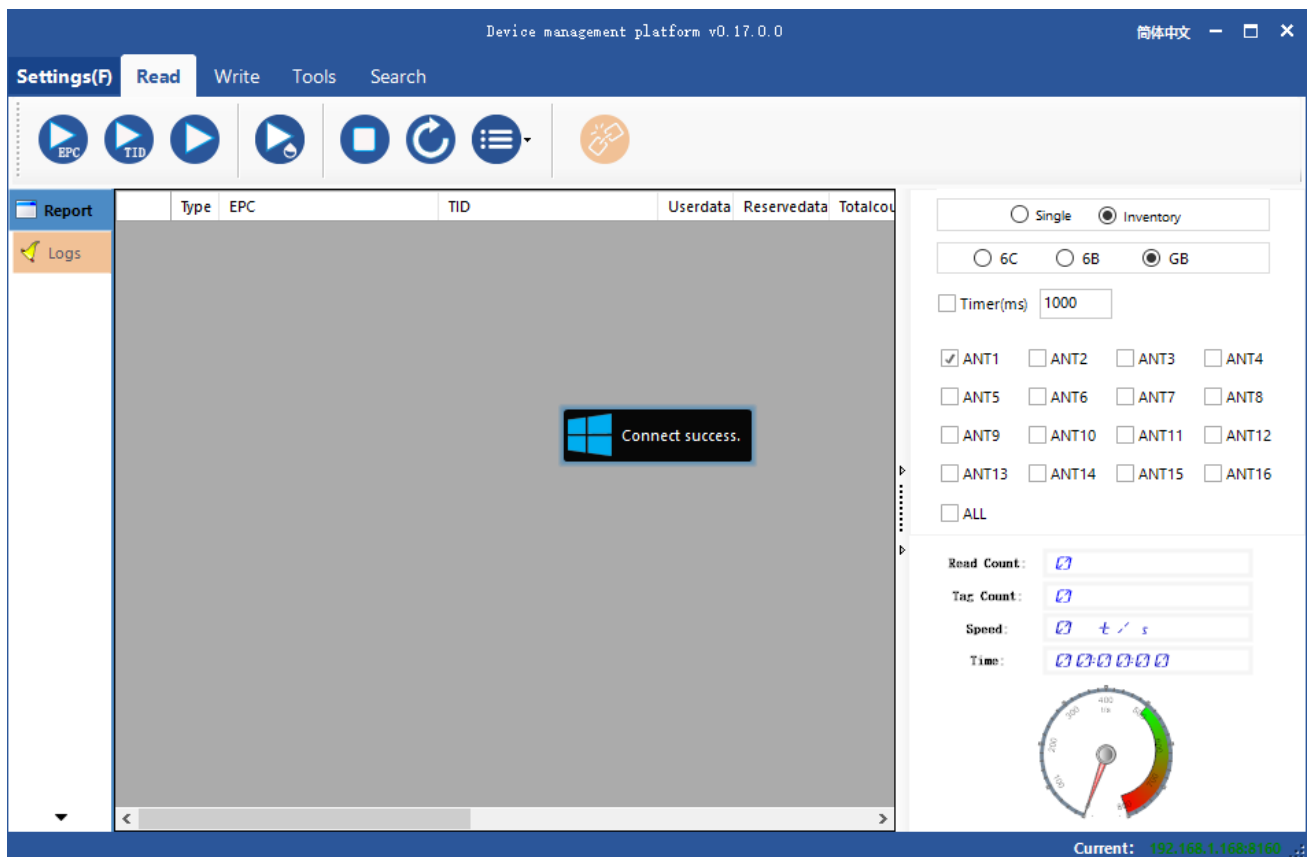


Figure 4.4.3.5 TCP Connect Success

#### 4.4.4 Reader Time

The reader time is on the top right of the reader as shown in Figure 4.4.4.1. Click “Get” to acquire the time of the reader. The time is based on UTC and displayed according to the current time zone. Double click the text box to fill in the current system time automatically. Click setting to set the reader time as shown in Figure 4.4.4.2 .

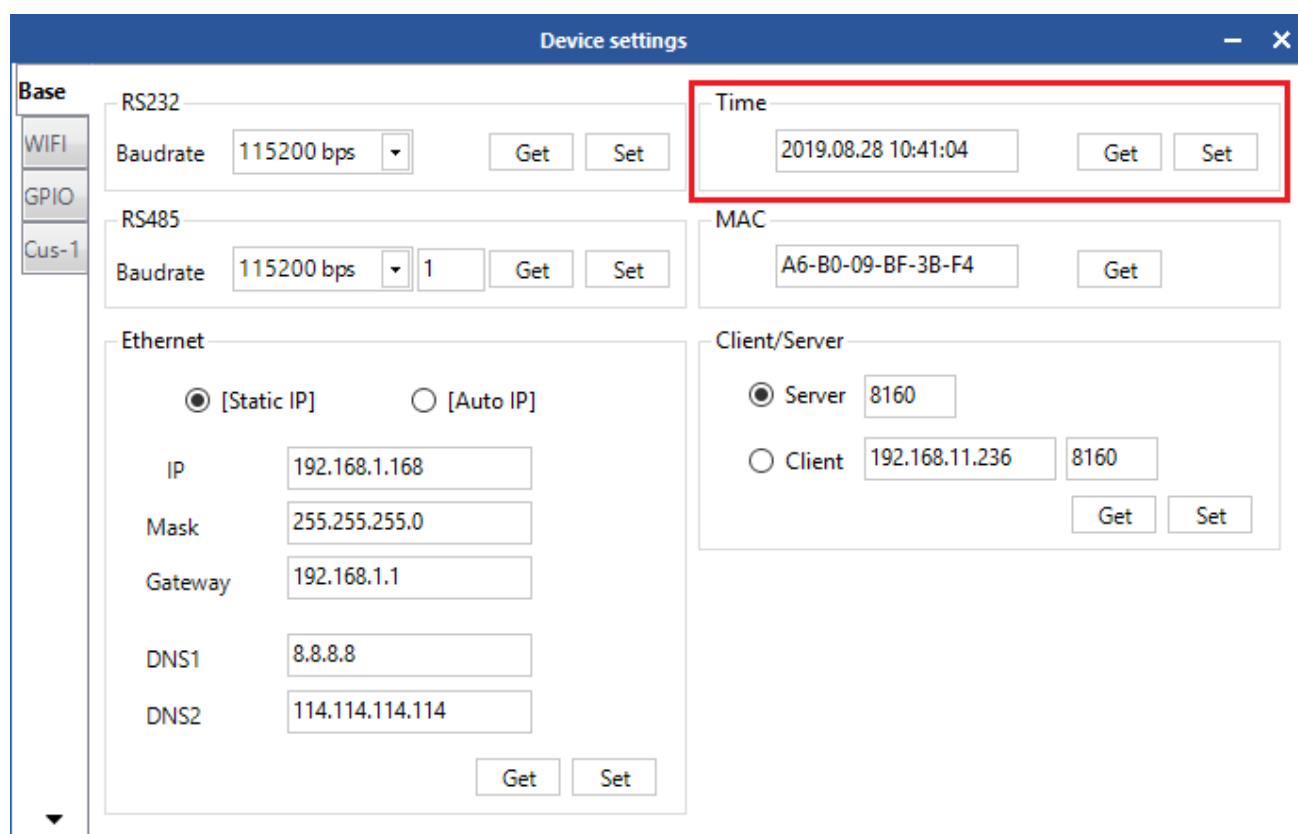


Figure 4.4.4.1 Get the Reader Time

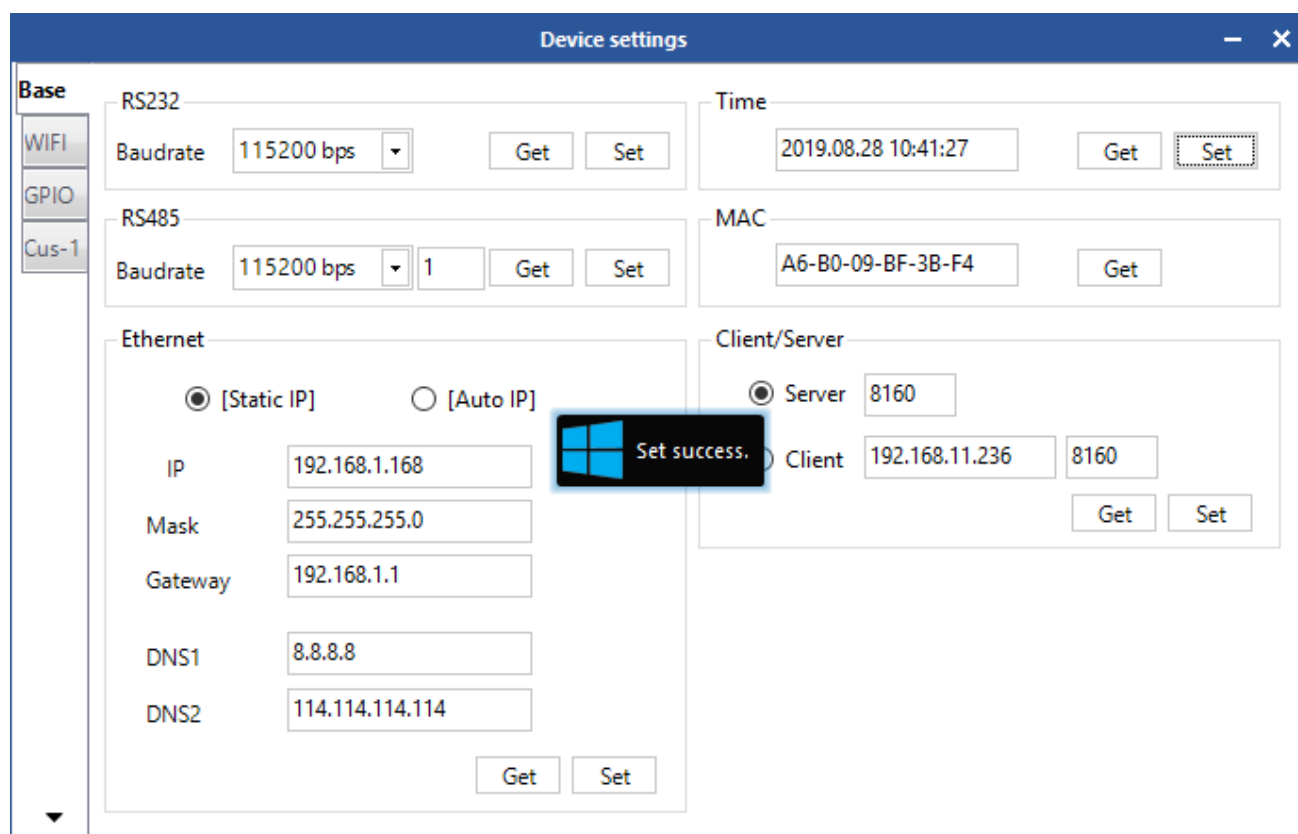


Figure 4.4.4.2 Reader Time Setting

### 4.4.5 Reader MAC

The MAC parameter is on the top right of the popup as shown in Figure 4.4.5.

Click “Get” to acquire the MAC parameter of the reader.

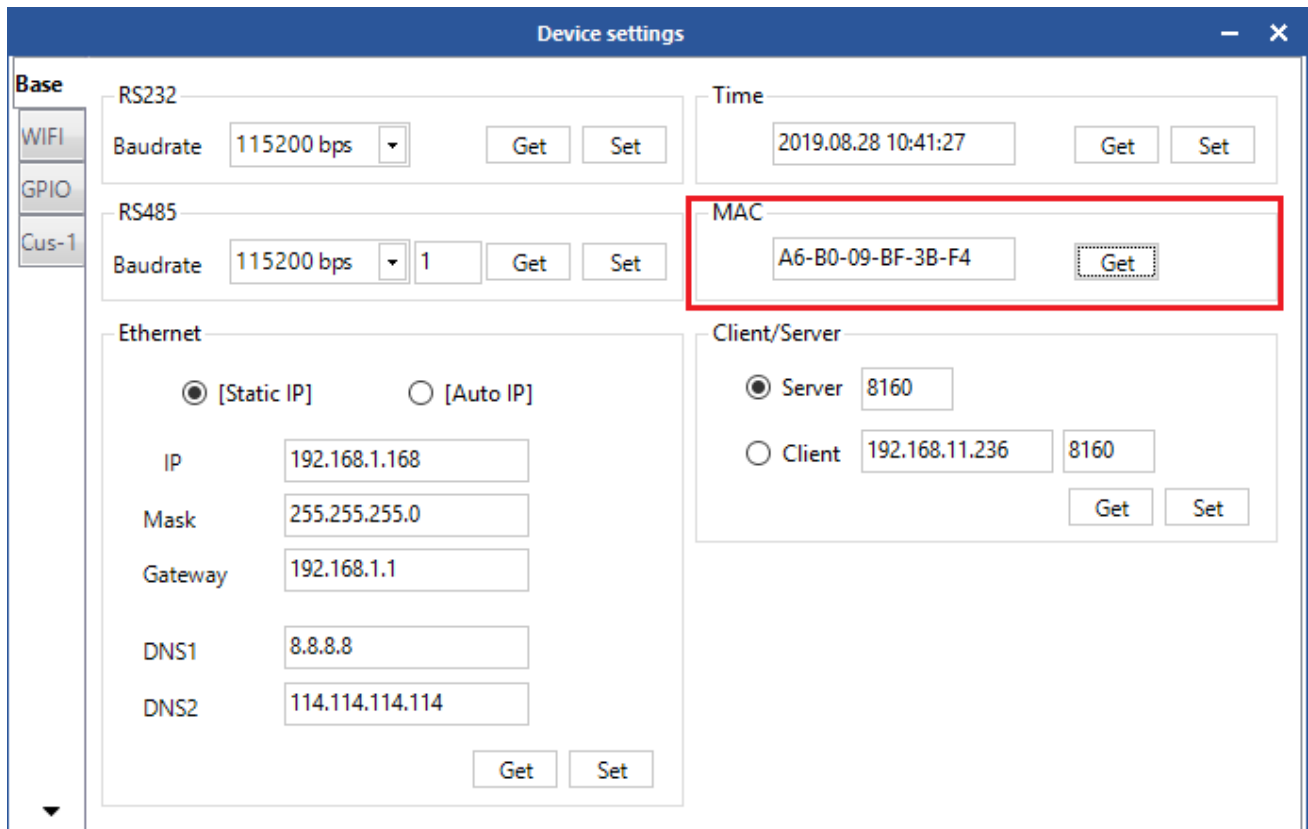


Figure 4.4.5 Reader MAC

### 4.4.6 TCP Server/Client Mode

The TCP server/client mode parameter is on the lower right of the popup as shown in Figure 4.4.6.1. Click “Get” to acquire the TCP server/client mode parameter of the reader. If it is configured to be client mode, this IP should be fill in the IP of the user’s computer, then click Setting as shown in Figure 4.4.6.2. The default port is 8160.

Disconnect and go back to the main interface after setting, select Connect Device



->Tcp Server,then the tcp server interface will pop up as shown in Figure 4.4.6.3. Click Start Monitoring as shown in Figure 4.4.6.4, there will be prompt saying the connection is successful after a few seconds. Then click Stop Monitoring or close the popup directly.

The screenshot shows the 'Device settings' window with a sidebar on the left containing 'Base', 'WIFI', 'GPIO', and 'Cus-1'. The 'Base' tab is selected. The main area is divided into several sections: 'RS232' with a Baudrate of 115200 bps; 'RS485' with a Baudrate of 115200 bps and a value of 1; 'Ethernet' with radio buttons for '[Static IP]' (selected) and '[Auto IP]', and fields for IP (192.168.1.168), Mask (255.255.255.0), Gateway (192.168.1.1), DNS1 (8.8.8.8), and DNS2 (114.114.114.114); 'Time' with a date/time field (2019.08.28 10:41:27); 'MAC' with a field (A6-B0-09-BF-3B-F4); and 'Client/Server' which is highlighted with a red border. The 'Client/Server' section has radio buttons for 'Server' (selected) and 'Client'. The 'Server' option has a port field set to 8160. The 'Client' option has IP (192.168.1.120) and port (8160) fields. 'Get' and 'Set' buttons are present for several fields.

Figure 4.4.6.1 TCP Server/Client Mode Parameter

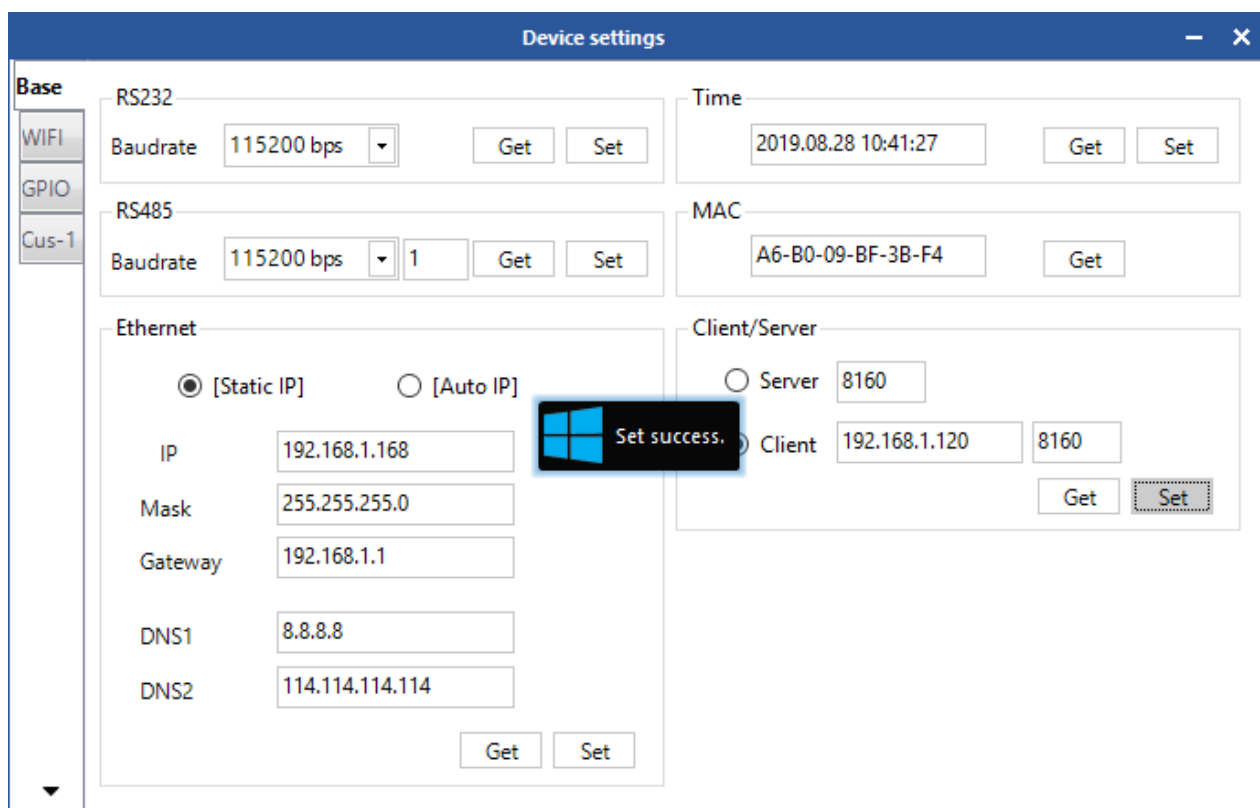


Figure 4.4.6.2 Set TCP Server/Client Mode Parameter

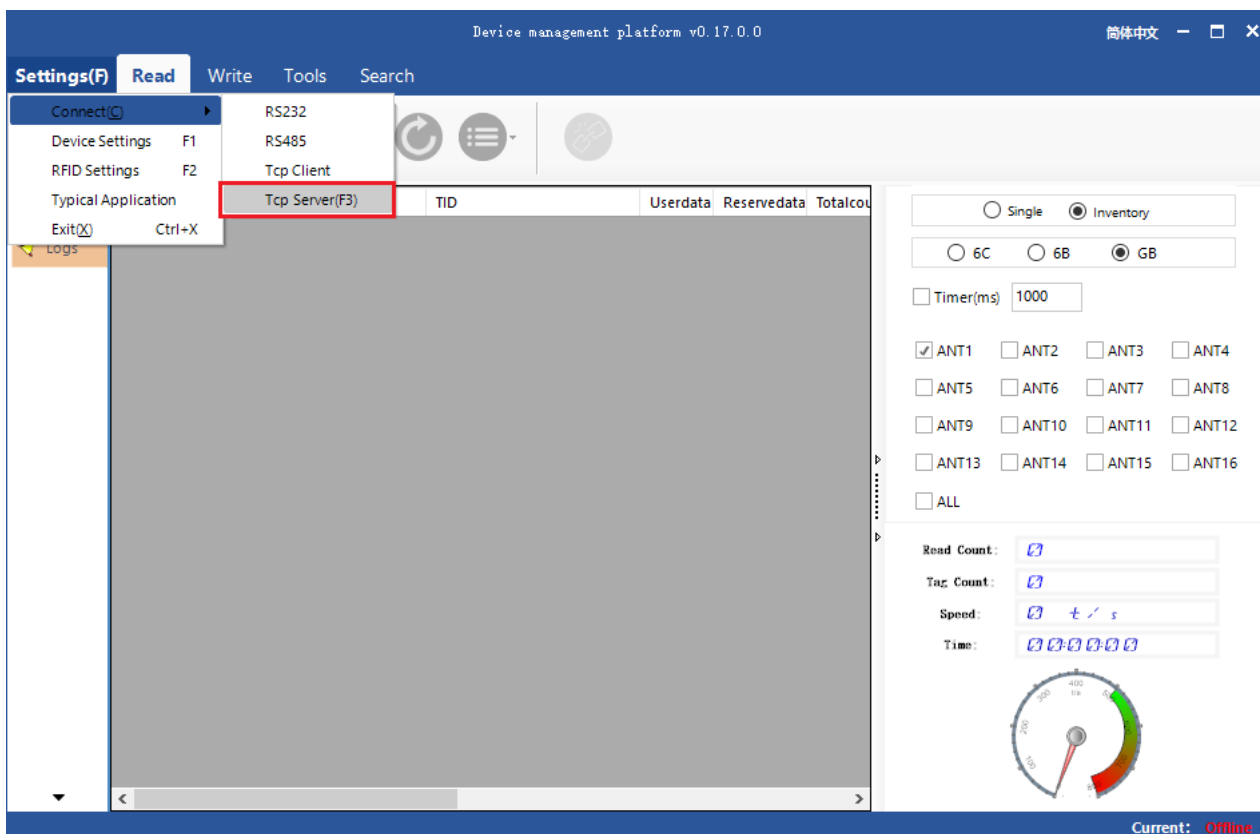


Figure 4.4.6.3 TCP Client Mode

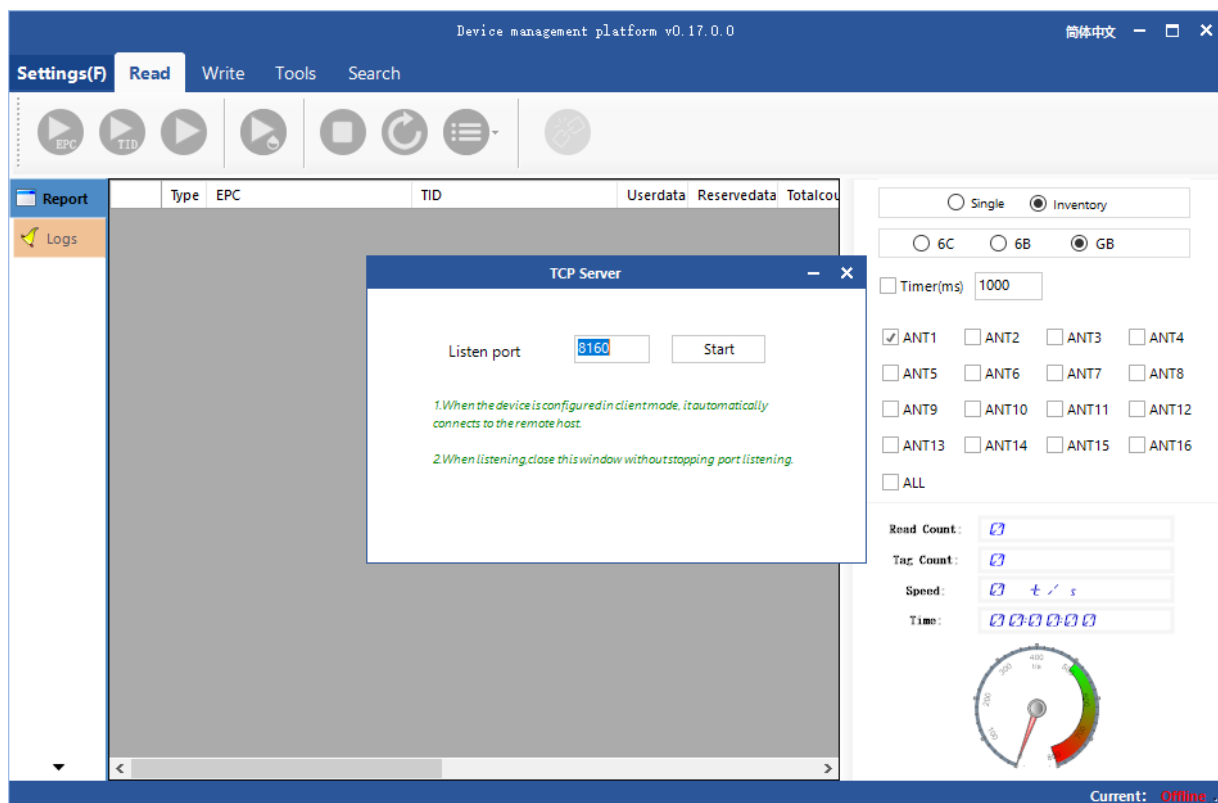


Figure 4.4.6.4 Monitoring Port

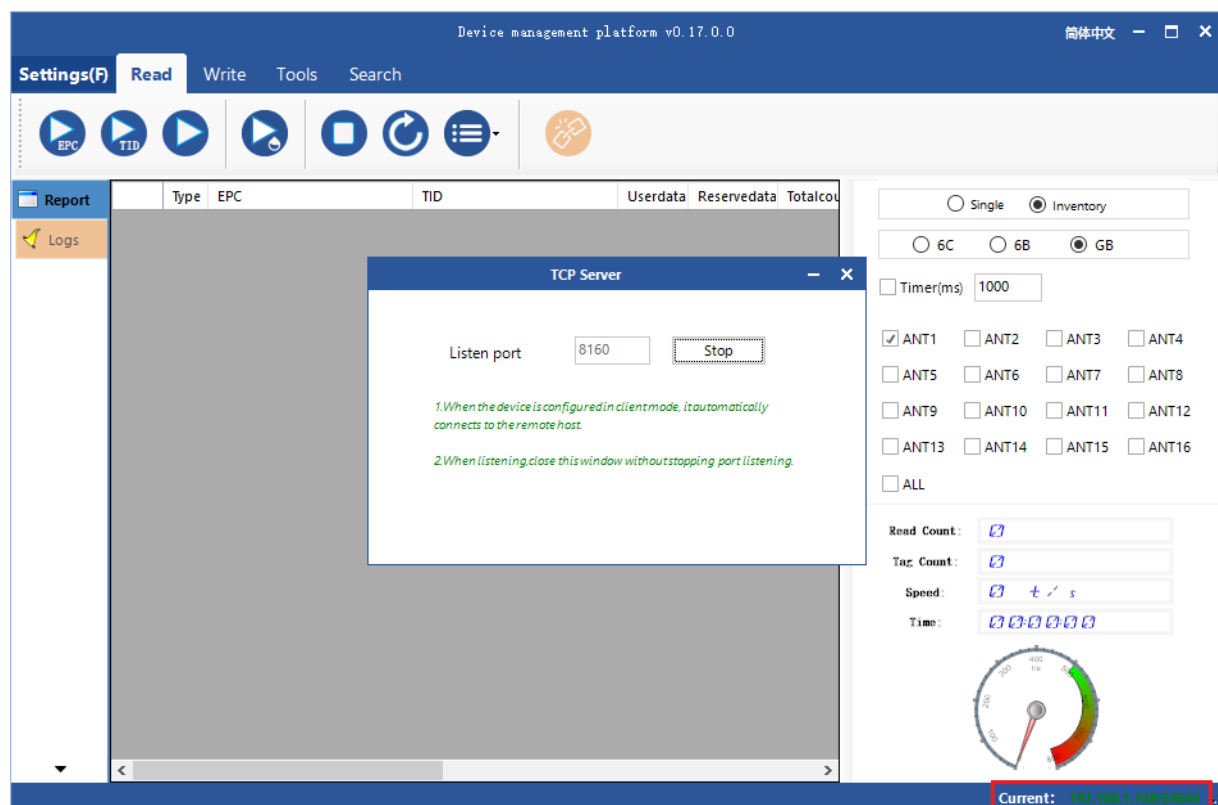


Figure 4.4.6.5 Connection success

## 4.5 WIFI Configuration

Select Device Control in the main interface of the Demo ->Device Configuration and the dialog box will pop up. Select WIFI on the left of the popup and enter WIFI controlling interface as shown in Figure 4.5 .

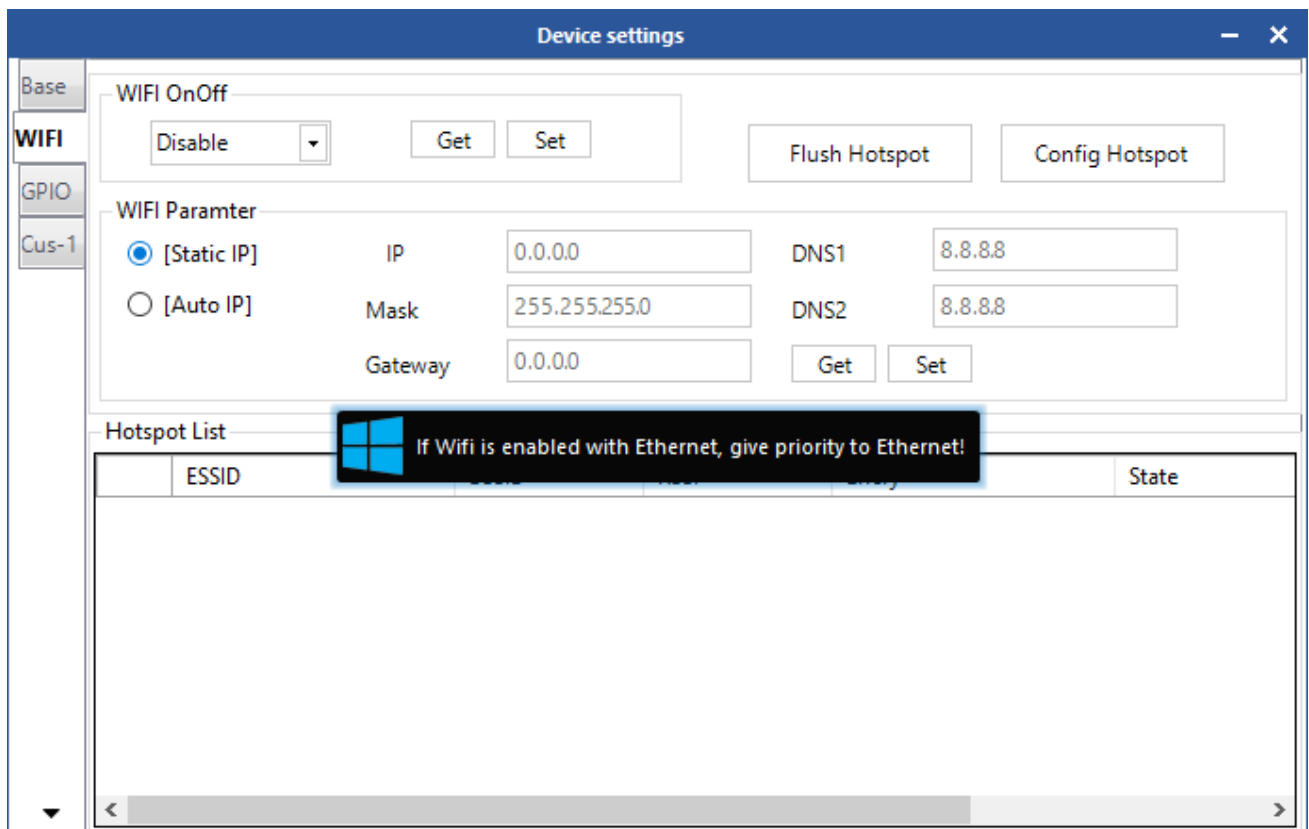


Figure 4.5 WIFI Configuration

### 4.5.1 WIFI Switch Configuration

The WIFI switch configuration on the top left, through which the WIFI switch can be configured as shown in Figure 4.5.1.1. The current device WIFI is disabled. Select WIFI Enabled, click “Set” to switch on the WIFI as shown in Figure 4.5.1.2. It would be better to get the WIFI for double checking after setting .

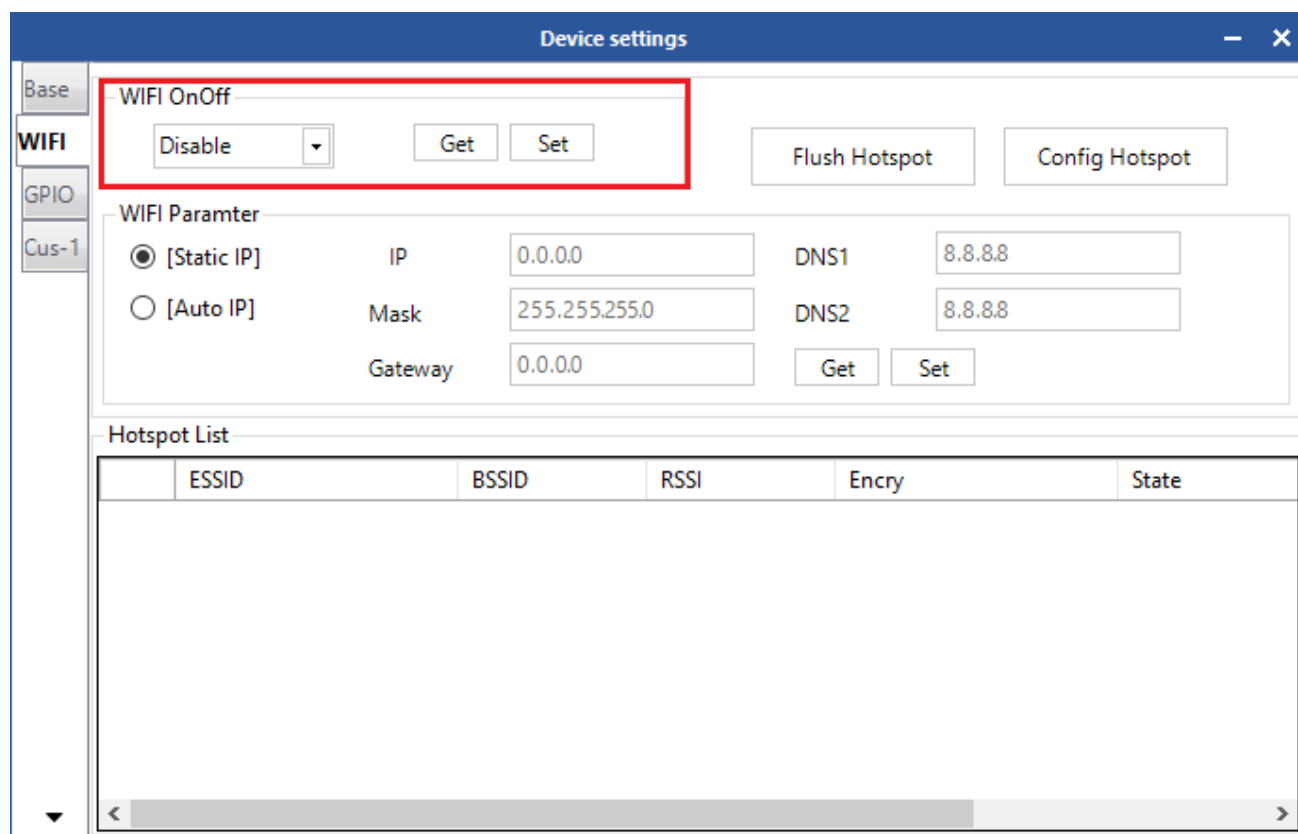


Figure 4.5.1.1 WIFI switch

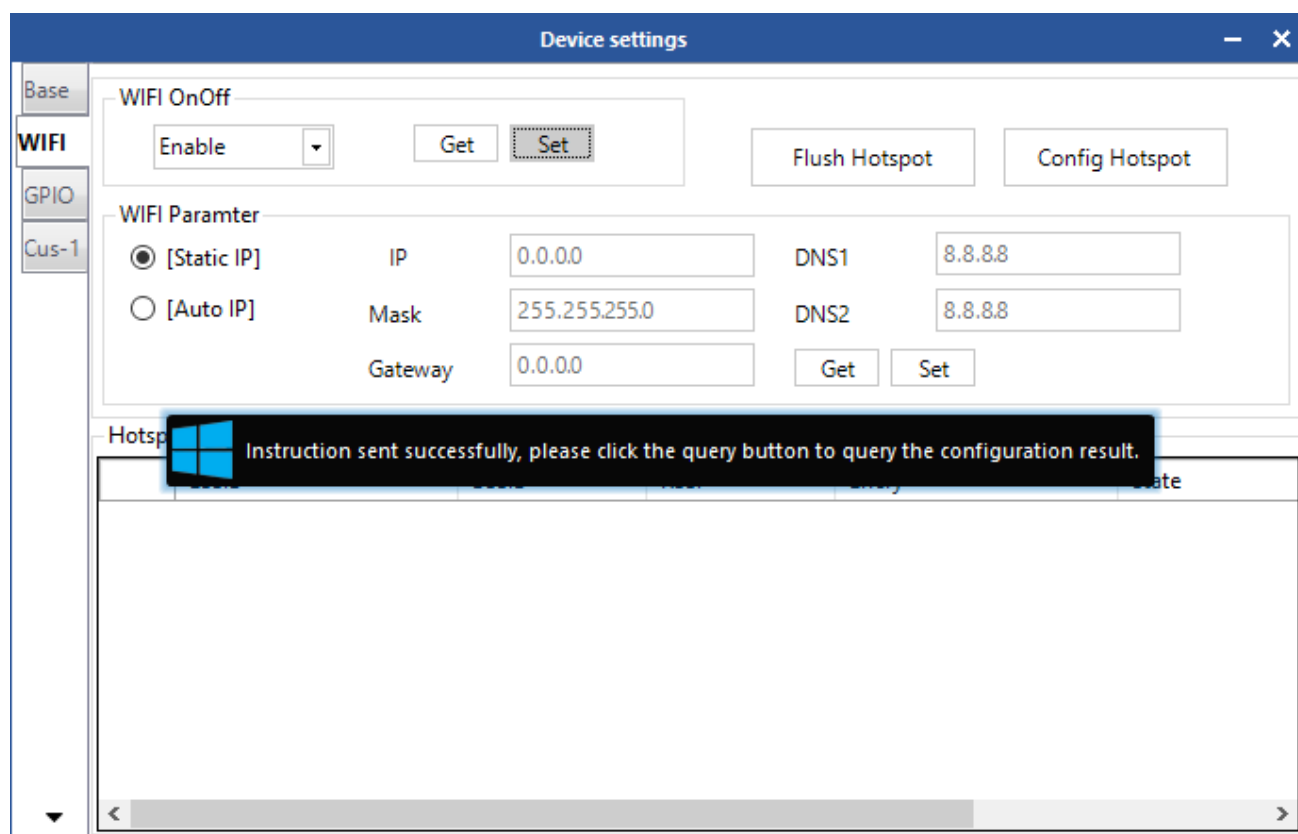


Figure 4.5.1.2 WIFI switch configuration

## 4.5.2 WIFI Hotspot Configuration

The hotspot configuration is on the top right of the interface(as shown in Figure 4.5.2.1). When the WIFI is on, click Reload Hotspot , then the current WIFI hotspot will be in the hotspot list( as shown in Figure 4.5.2.2). Select one hotspot of them, click Hotspot Configuration and a WIFI hotspot Connection interface will pop up.

Click “Confirm” after filling in the password, then the Configured Successfully prompt will come out (as shown in Figure 4.5.2.3). Reload the hotspot list, and check if the status of the hotspot is current after putting in the password. If yes, then WIFI is connected.

The screenshot shows the 'Device settings' window with the 'WIFI' tab selected. The 'WIFI OnOff' section has a dropdown menu set to 'Enable' and buttons for 'Get' and 'Set'. To the right of this section, the 'Flush Hotspot' and 'Config Hotspot' buttons are highlighted with a red box. The 'WIFI Paramter' section includes radio buttons for '[Static IP]' (selected) and '[Auto IP]', with input fields for IP (0.0.0.0), Mask (255.255.255.0), Gateway (0.0.0.0), DNS1 (8.8.8.8), and DNS2 (8.8.8.8). Below this is a 'Hotspot List' table with columns: ESSID, BSSID, RSSI, Encry, and State. The table is currently empty.

Figure 4.5.2.1 WIFI Hotspot Configuration

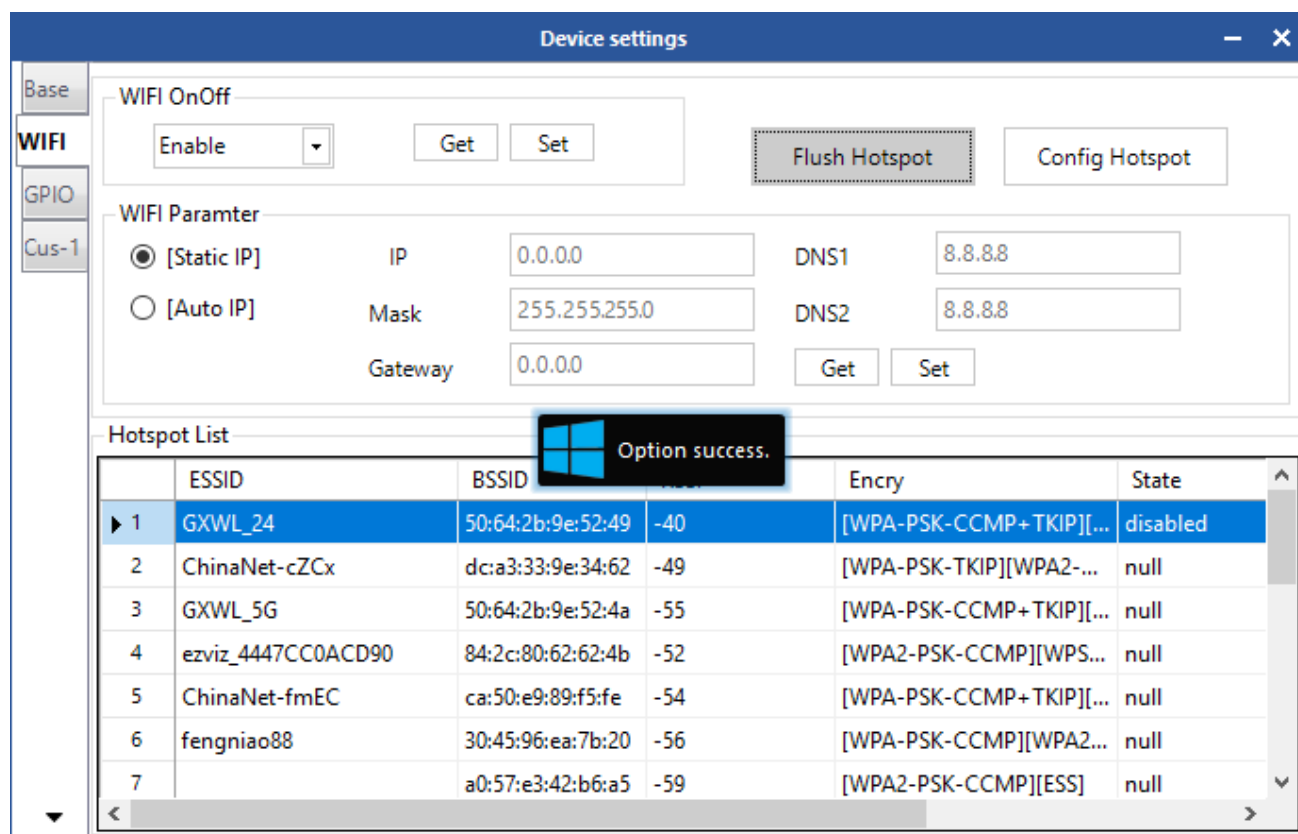


Figure 4.5.2.2 Hotspot List

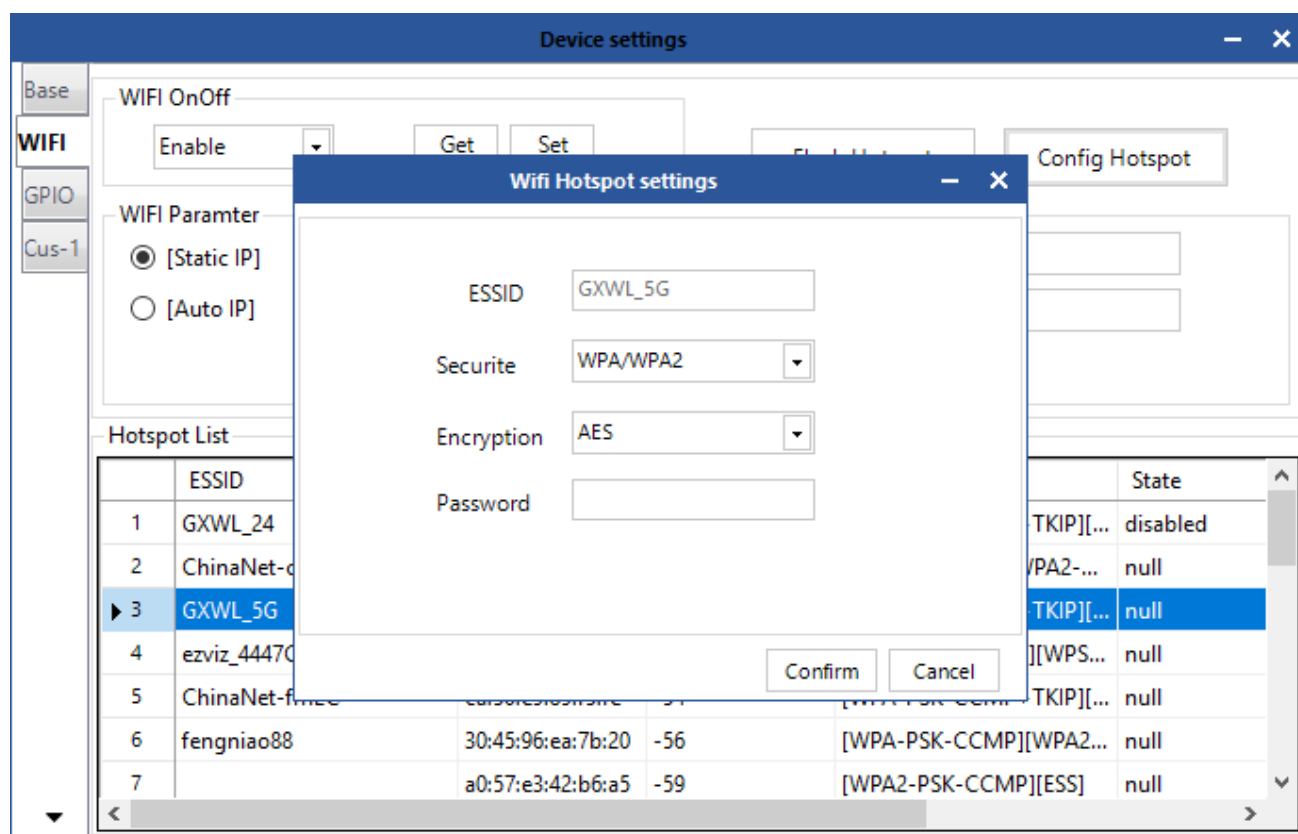


Figure 4.5.2.3 WIFI Hotspot Connection

### 4.5.3 WIFI Parameter Configuration

The WIFI parameter is in the middle of the interface of the Demo (as shown in Figure 4.5.3.1). Choose a WIFI hotspot whose status is current to configure the WIFI parameter. And click “Get” to check the parameter of the current hotspot. as shown in Figure 4.5.3.2. Click Setting after filling in related parameter, then there will be configured successfully prompt as shown in Figure 4.5.3.3. The parameter can be double checked by clicking “Get” if needed.

Device settings

Base  
**WIFI**  
GPIO  
Cus-1

WIFI OnOff  
Enable [v] [Get] [Set] [Flush Hotspot] [Config Hotspot]

WIFI Paramter

☒ [Static IP] IP: 0.0.0.0 DNS1: 8.8.8.8  
☐ [Auto IP] Mask: 255.255.255.0 DNS2: 8.8.8.8  
Gateway: 0.0.0.0 [Get] [Set]

Hotspot List

	ESSID	BSSID	RSSI	Encry	State
1	GXWL_24	50:64:2b:9e:52:49	-40	[WPA-PSK-CCMP+TKIP][...]	null
2	ChinaNet-cZCx	dc:a3:33:9e:34:62	-54	[WPA-PSK-TKIP][WPA2-...]	null
▶ 3	GXWL_5G	50:64:2b:9e:52:4a	-55	[WPA-PSK-CCMP+TKIP][...]	current
4	ezviz_4447CC0ACD90	84:2c:80:62:62:4b	-48	[WPA2-PSK-CCMP][WPS...]	null
5	ChinaNet-fmEC	ca:50:e9:89:f5:fe	-47	[WPA-PSK-CCMP+TKIP][...]	null
6		a0:57:e3:42:b6:a5	-59	[WPA2-PSK-CCMP][ESS]	null
7	ChinaNet-vC0t	ca:50:e9:47:fb:a0	-62	[WPA-PSK-CCMP+TKIP][...]	null

Figure 4.5.3.1 WIFI Hotspot Parameter



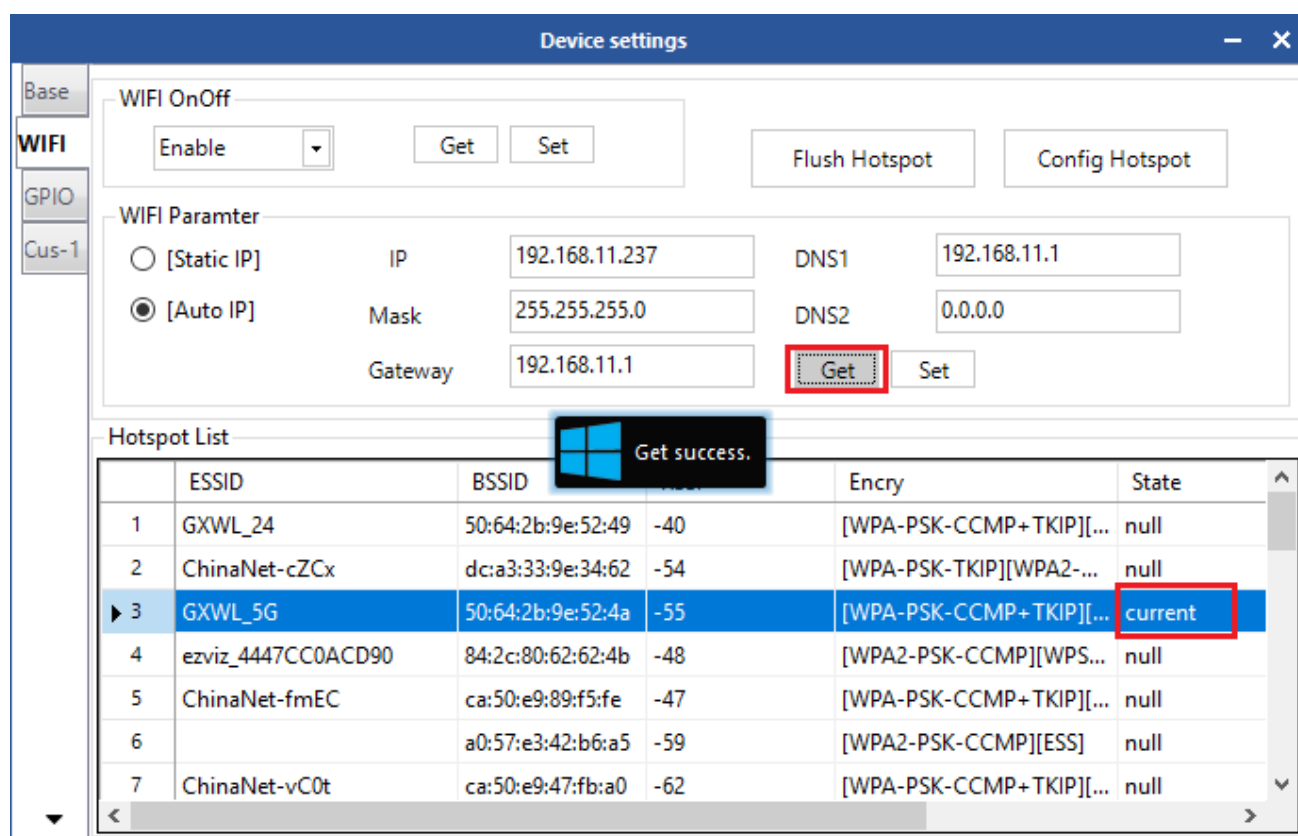


Figure 4.5.3.2 WIFI Hotspot Parameter Get

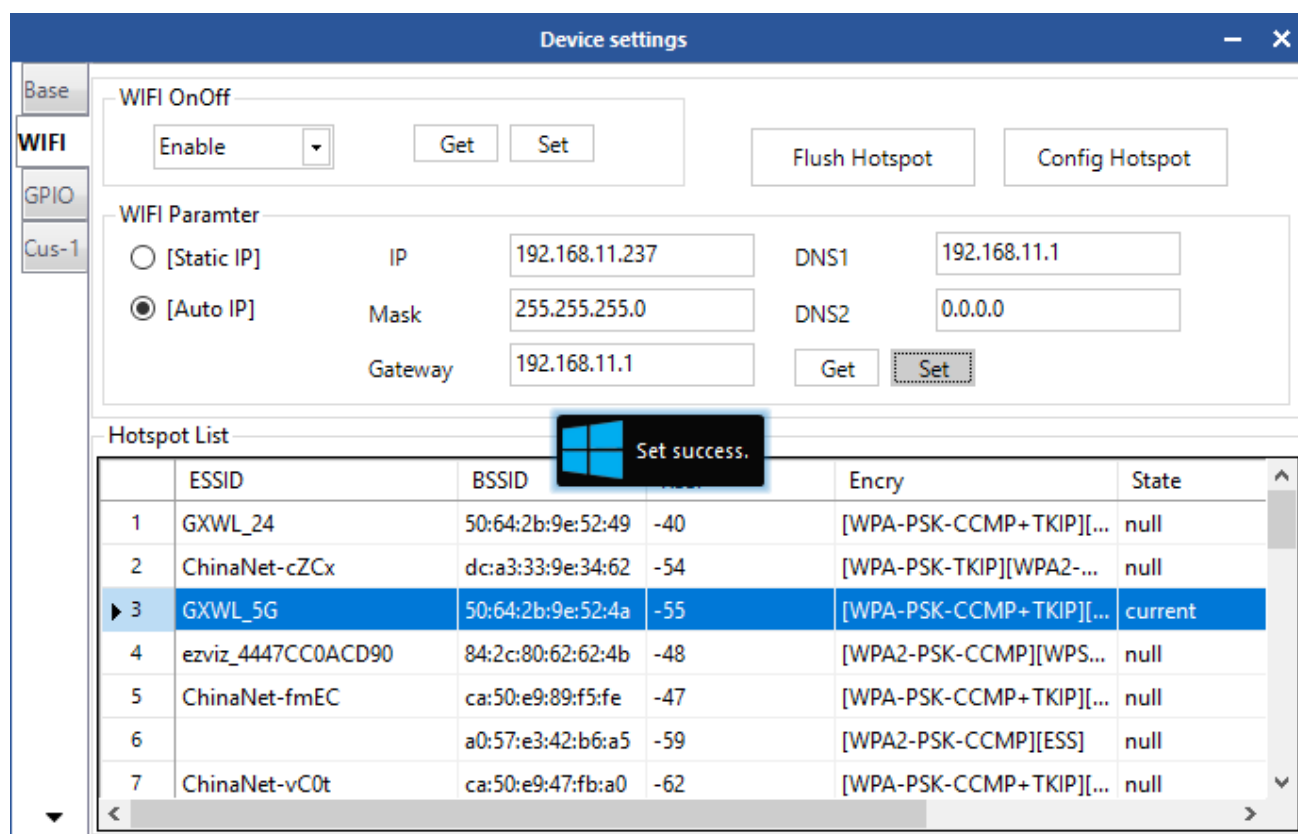


Figure 4.5.3.3 WIFI Hotspot Parameter Configuration

## 4.6 GPI/O Configuration

Select Device Control in the main interface of the Demo->Device Configuration, and the dialog box will pop up. Select GPIO on the left of the popup and enter the GPIO controlling interface as shown in Figure 4.6 .

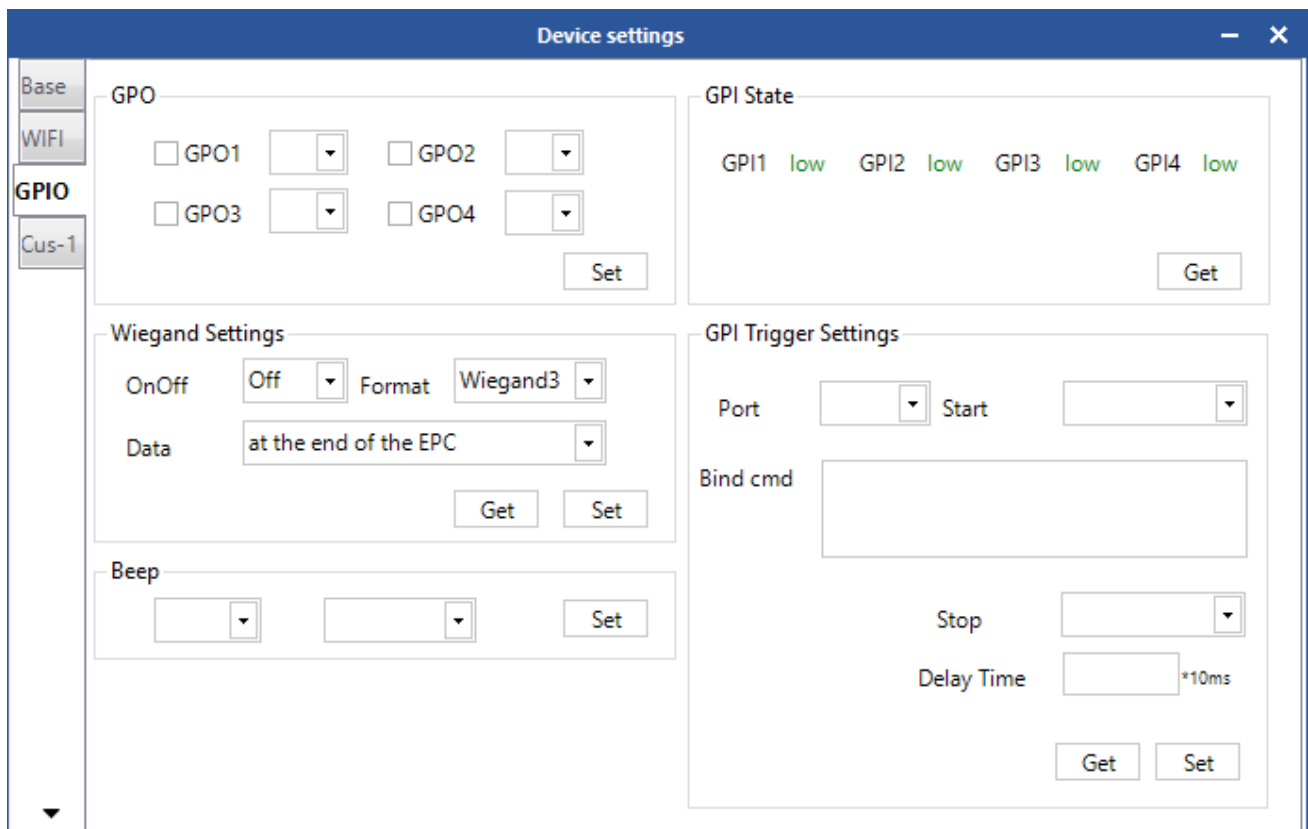


Figure 4.6 GPIO Configuration

### 4.6.1 GPO Configuration

GPO configuration is on the top left of the interface, through which the electrical level of the GPO can be configured as shown in Figure 4.6.1. The low electrical level will be on and high electrical level will be off, if it is connected with a relay. If it is connected with a optocoupler, the electrical levels remain unchanged.

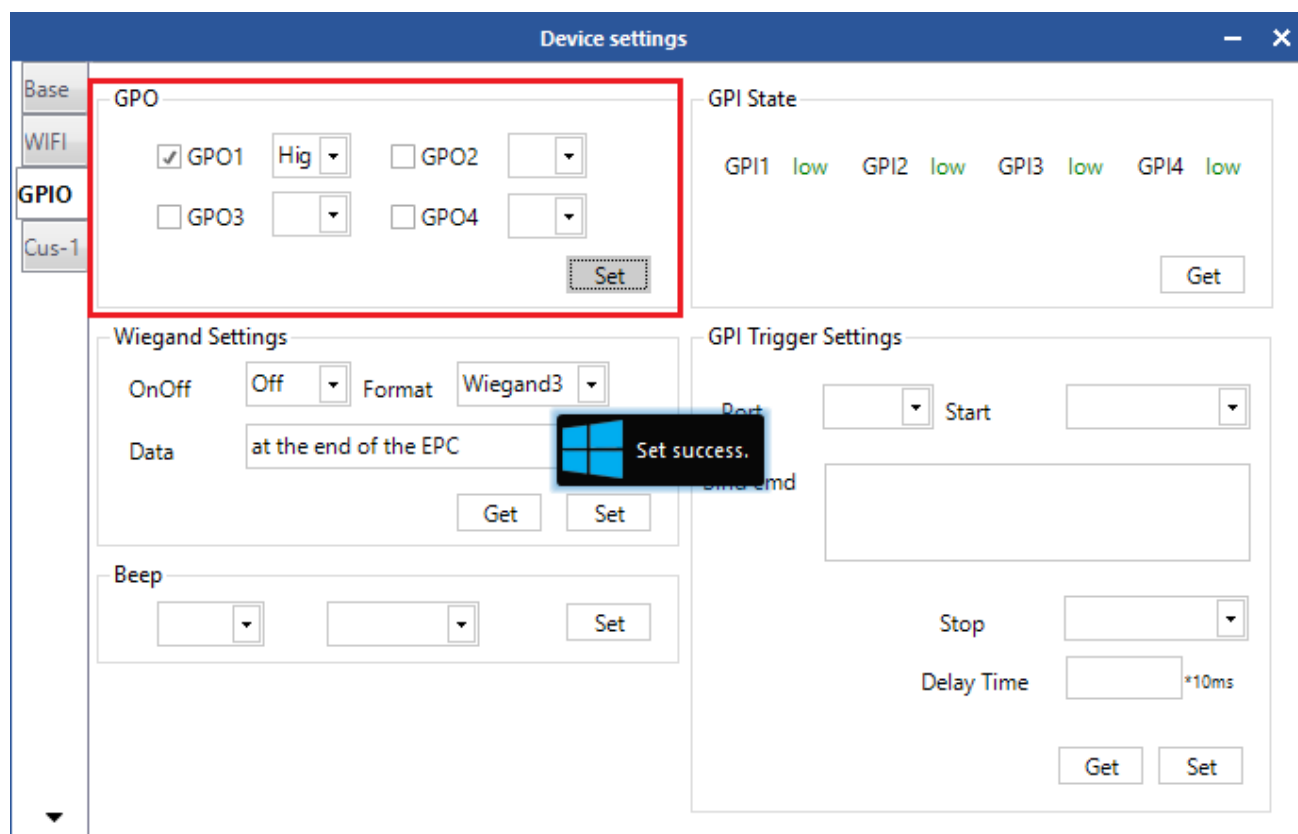


Figure 4.6.1 GPO Configuration

## 4.6.2 GPI State Get

The GPI state is on the top right of the interface. Through which the GPI state can be queried as shown in Figure 4.6.2.

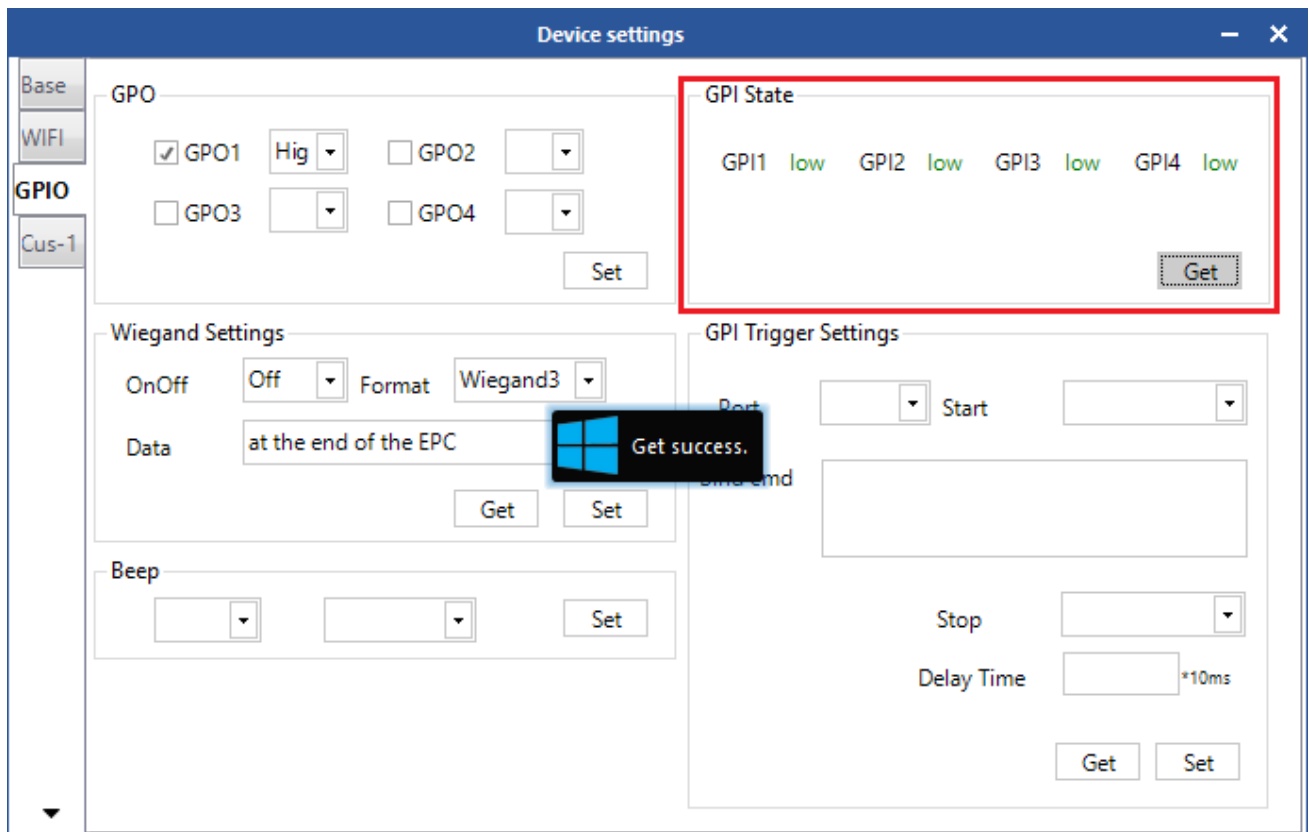
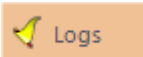


Figure 4.6.2 GPI State Get

### 4.6.3 GPI Operation Configuration

The GPI operation is on the lower right of the interface. Select a GPI port number, and click “Get” to check the related configuration of the port as shown in Figure 4.6.3.1. There are multiple conditions optional for trigger condition and Stop condition. Trigger instructions can be written according to communication protocols or extract directly from logs with the following methods:

1. Suppose that a port (GPI1) need to be configured to read the TID of the 6C tag after triggering. Operations are detailed in Read TID, as shown in Figure 4.6.3.2 and Figure 4.6.3.3 ;

2. Click  on the left to switch and an interface as shown in Figure 4.6.3.4 will be seen ;

3. Find data with “send-[MsgBaseInventoryEpc]-[5A00010210000800000000101020006ED08]” in the log interface and extract” 5A00010210000800000000101020006ED08” from it ;

4. Remove the 2-digit frame header and 4-digit check code in the end. 00010210000800000000101020006 is the TID command for tag reading. Other command can be also acquired with the same operation ;

5. Open GPIO interface, select GPI 1 get as shown in Figure 4.6.3.1. Select trigger condition and stop condition, fill the command from step 4 in the trigger command, then click Configure as shown in Figure 4.6.3.4. When the configuration is successful, the reader reads the TID operation of 6C tag when the electrical level of GPI1 port is high and stop reading when the electrical level is low .

When the stop condition is "delay stop", the specific delay time can be filled in at delay time area (0 means infinite delay time). And the unit is 10ms. The reader will stop after corresponding period when the stop condition is triggered if the configuration is done.

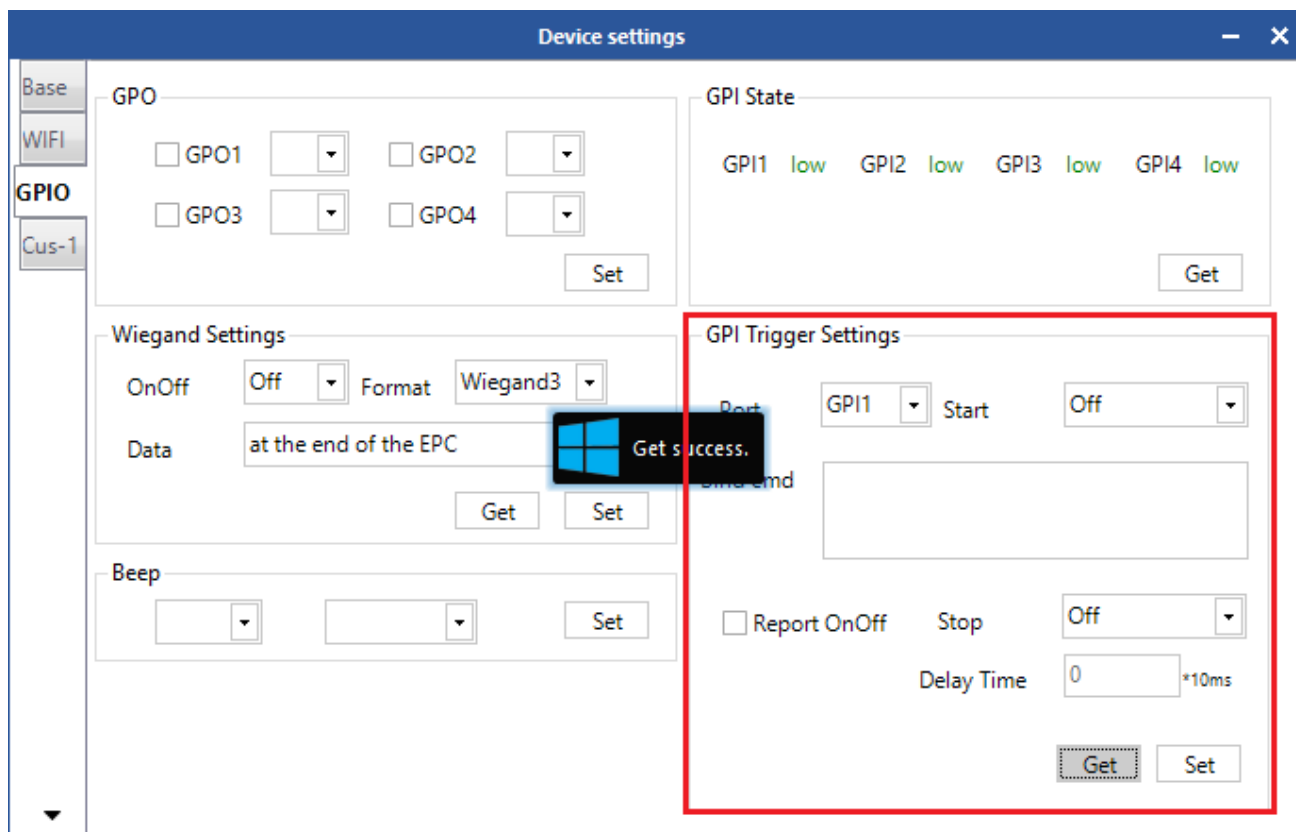


Figure 4.6.3.1 GPI Operation Get

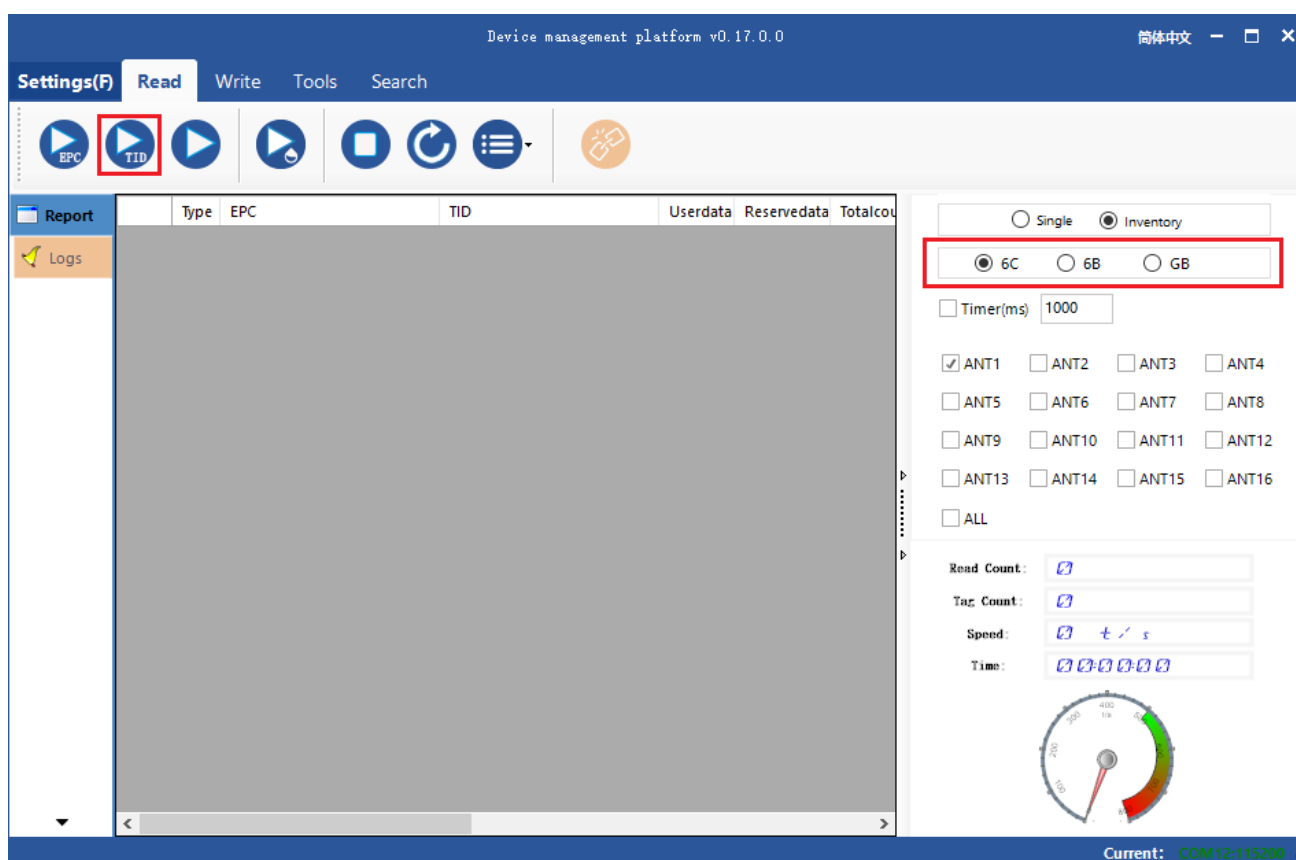


Figure 4.6.3.2 Main Interface

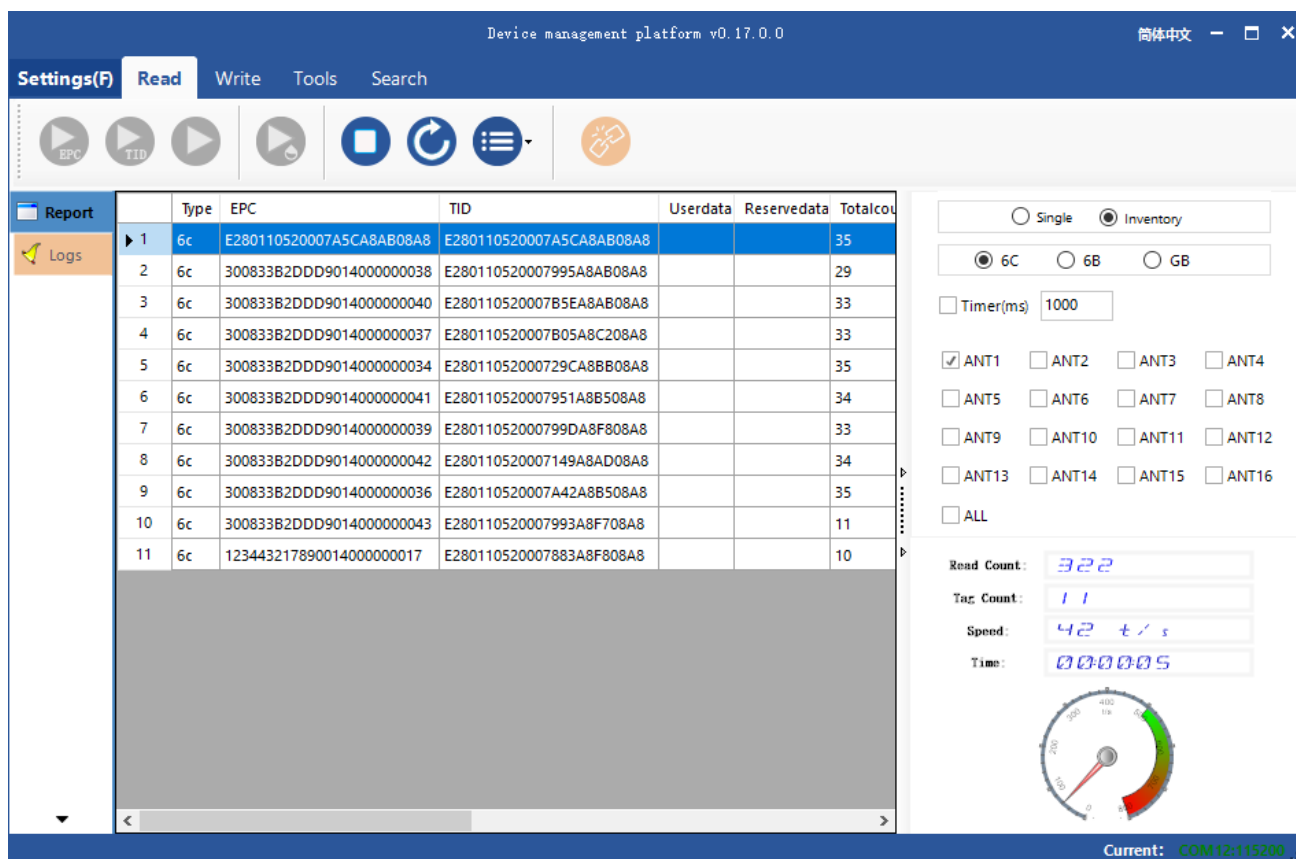


Figure 4.6.3.3 Read TID of 6C tag

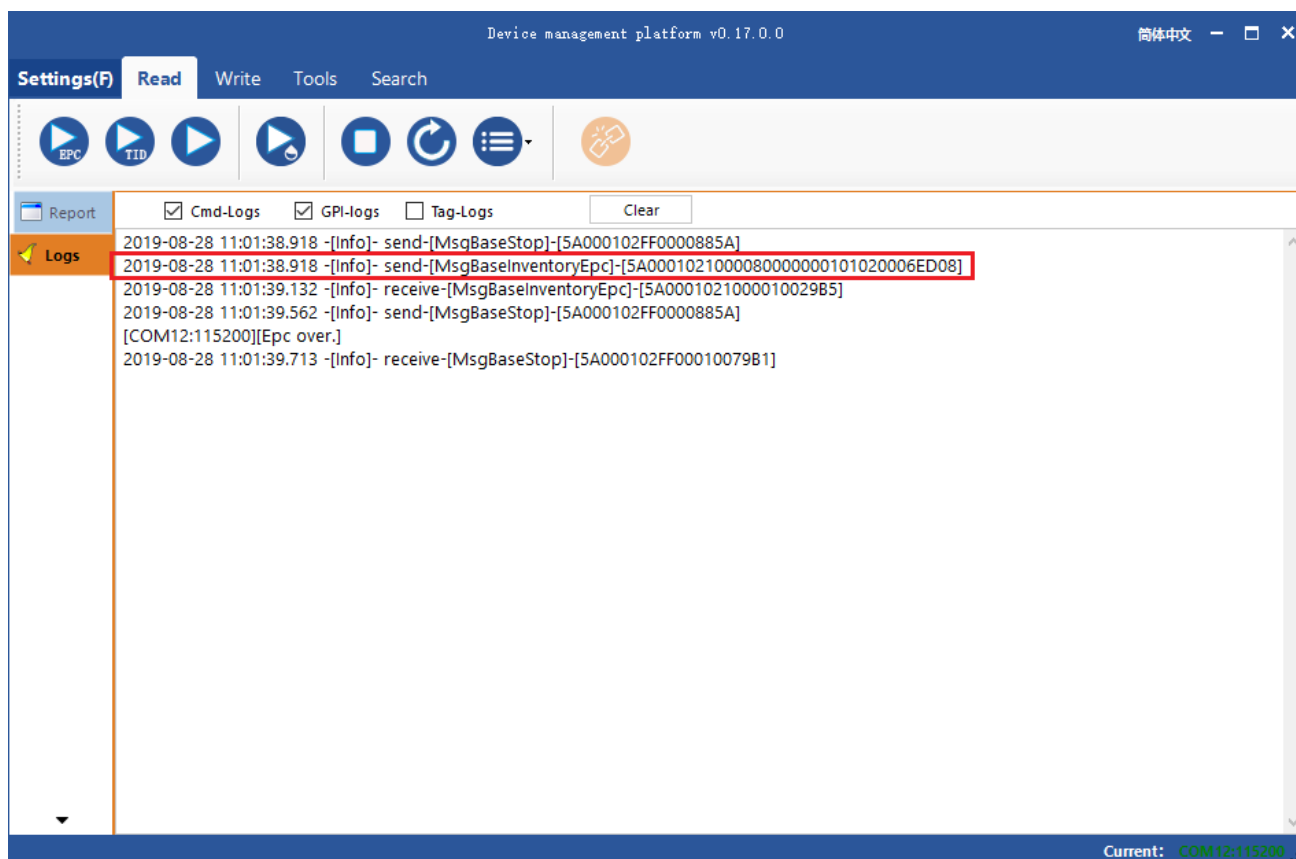


Figure 4.6.3.3 Log

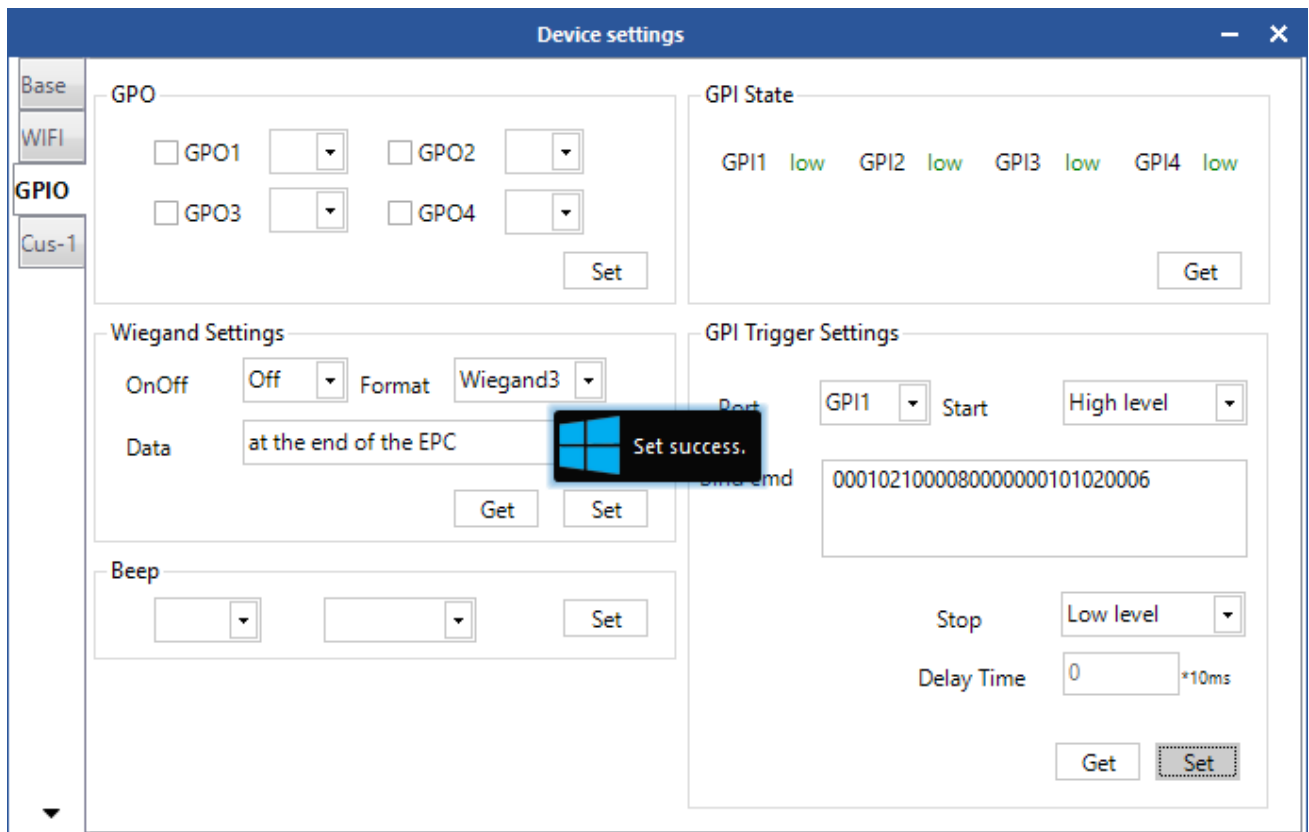


Figure 4.6.3.4 GPI Operation Configuration

## 4.7 RFID Configuration

Select Device Control in the main interface of the Demo-> RFID Configuration and the dialog will pop up as shown in Figure 4.7 .



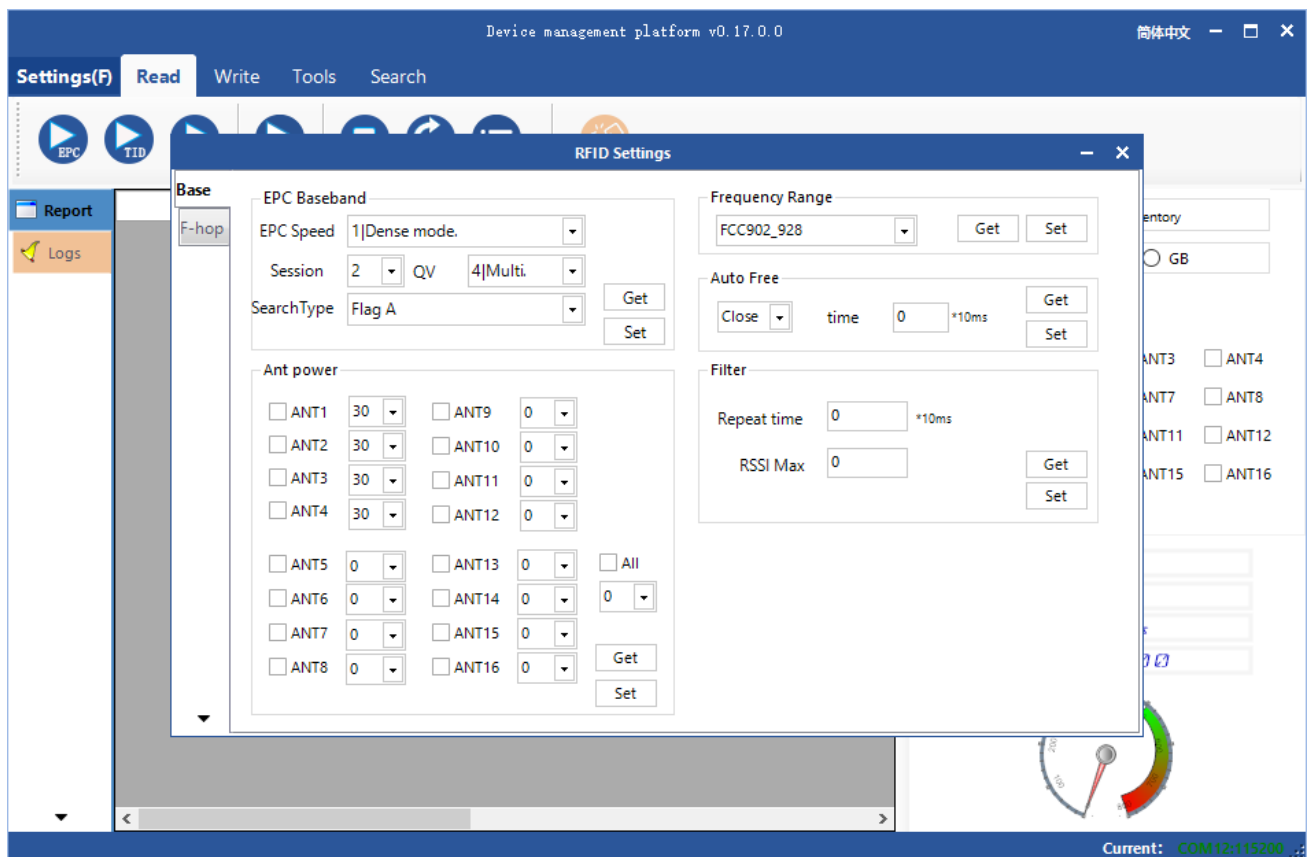


Figure 4.7 RFID Configuration

### 4.7.1 EPC Baseband Parameter

The EPC baseband parameter is on the top left as shown in Figure 4.7.1. Click “Get” to acquire the EPC baseband parameter. And click Setting to set the EPC baseband parameter.

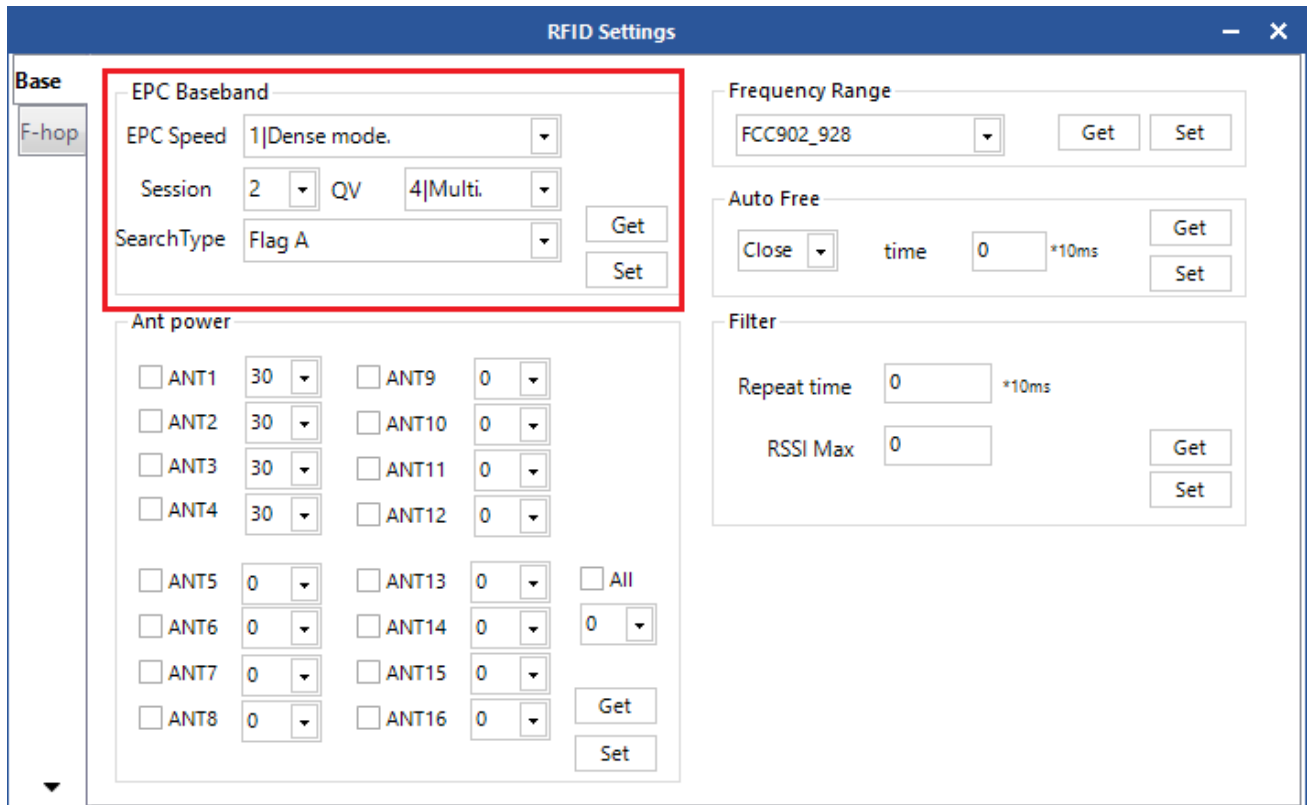


Figure 4.7.1 Baseband Parameter Configuration

R/W effect changes with the changing of the baseband parameter configuration (the configuration can be customized according to the real application, but under the guidance of our engineer).

There are 6 choices for EPC baseband rate: Tair=25us, FM0, LHF=40KHz; dense reading mode; Tair=25us, Miller4, LHF=300KHz; fast reading mode; Tari=25us, Miller4, LHF=320KHz; 255/AUTO .

4 choices for Session:0 ; 1 ; 2 ; 3 .

16 choices for Q value:0/single tag; 1; 2; 3; 4/multiple tag; 5; 6; 7; 8; 9; 10; 11; 12; 13; 14; 15 .

3 choices for tag searching: A side inventory-taking; B side inventory-taking; A|B double sides inventory-taking .

## 4.7.2 Power Configuration for Antenna Port

The antenna port is on the lower left as shown in Figure 4.7.2. Click “Get” to acquire the antenna power. And click Setting to set the antenna power.

The image shows a software window titled "RFID Settings" with a sidebar on the left containing "Base" and "F-hop" buttons. The main area is divided into several sections:

- EPC Baseband:** Includes "EPC Speed" (set to "1|Dense mode."), "Session" (set to "2"), "QV" (set to "4|Multi."), and "SearchType" (set to "Flag A"). There are "Get" and "Set" buttons.
- Frequency Range:** Includes a dropdown menu set to "FCC902\_928" and "Get" and "Set" buttons.
- Auto Free:** Includes a "Close" dropdown, a "time" input set to "0" with a "\*10ms" multiplier, and "Get" and "Set" buttons.
- Filter:** Includes a "Repeat time" input set to "0" with a "\*10ms" multiplier, an "RSSI Max" input set to "0", and "Get" and "Set" buttons.
- Ant power (highlighted with a red box):** A grid of 16 checkboxes labeled ANT1 through ANT16. Each checkbox is followed by a dropdown menu. ANT1-4 are set to "30", while ANT5-16 are set to "0". There is also an "All" checkbox and a dropdown set to "0". "Get" and "Set" buttons are at the bottom of this section.

Figure 4.7.2 Power Configuration for Antenna Port

Select the corresponding antenna port (connected with antenna), and select corresponding power value from the power list. Then click Set, and the Configured Successfully prompt will pop up.

## 4.7.3 Auto-idleness Configuration

Automatic idle mode means: when in constantly reading, the reader will enter idle state automatically for power saving for a period if no tag is read for 3 round constantly. When the idle state is over time, the reader will start reading again as

shown in Figure 4.7.3.

The image shows a software window titled "RFID Settings" with a sidebar on the left containing "Base" and "F-hop" buttons. The main area is divided into several sections:

- EPC Baseband:** Includes "EPC Speed" (set to 1|Dense mode.), "Session" (set to 2), "QV" (set to 4|Multi.), and "SearchType" (set to Flag A). There are "Get" and "Set" buttons.
- Frequency Range:** Includes a dropdown set to "FCC902\_928" and "Get" and "Set" buttons.
- Auto Free (highlighted with a red box):** Includes a "Close" dropdown, a "time" input set to 0 with a "\*10ms" multiplier, and "Get" and "Set" buttons.
- Filter:** Includes "Repeat time" (input 0, "\*10ms") and "RSSI Max" (input 0), with "Get" and "Set" buttons.
- Ant power:** A grid of checkboxes and dropdowns for antennas ANT1 through ANT16. ANT1-4 are checked and set to 30. ANT5-16 are unchecked and set to 0. There is also an "All" checkbox and a dropdown set to 0. "Get" and "Set" buttons are at the bottom.

Figure 4.7.3 Automatic Idleness Configuration

## 4.7.4 Tag Filtering

The antenna power is on the lower left as shown in Figure 4.7.4. Click "Get" to acquire the tag uploading parameter. And click Setting to set the tag uploading parameter.

Filtering Time: means during a reading instruction execution period, the same tag content can only be uploaded once in repeated tag filtering time, 0~65535, the time unit is 10ms.

RSSI threshold value: give up uploading and discard when the RSSI value of the tag is lower than the threshold value.

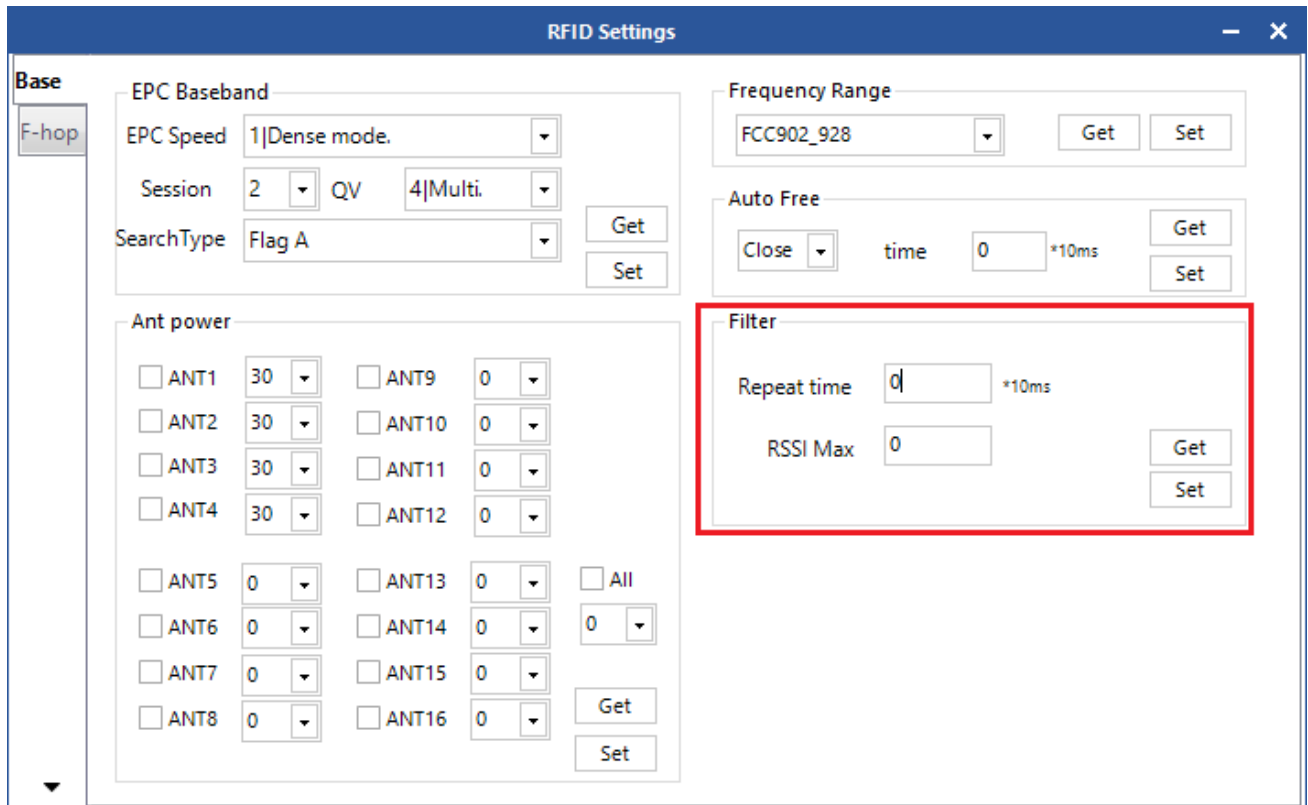

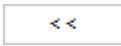


Figure 4.7.4 Tag Filtering

## 4.7.5 Hopping Frequency Management

Select hopping frequency in the menu bar on the left as shown in Figure 4.7.5.1. Select FCC902~928MHz in the Working frequency range spinner (as shown in Figure 4.7.5.2). Click Set Frequency Range, then select single frequency(as shown in Figure 4.7.5.4) in the frequency list on the left. Click ". All frequency is in the list box on the right. All frequency in the list box on the right will be removed if  is clicked.

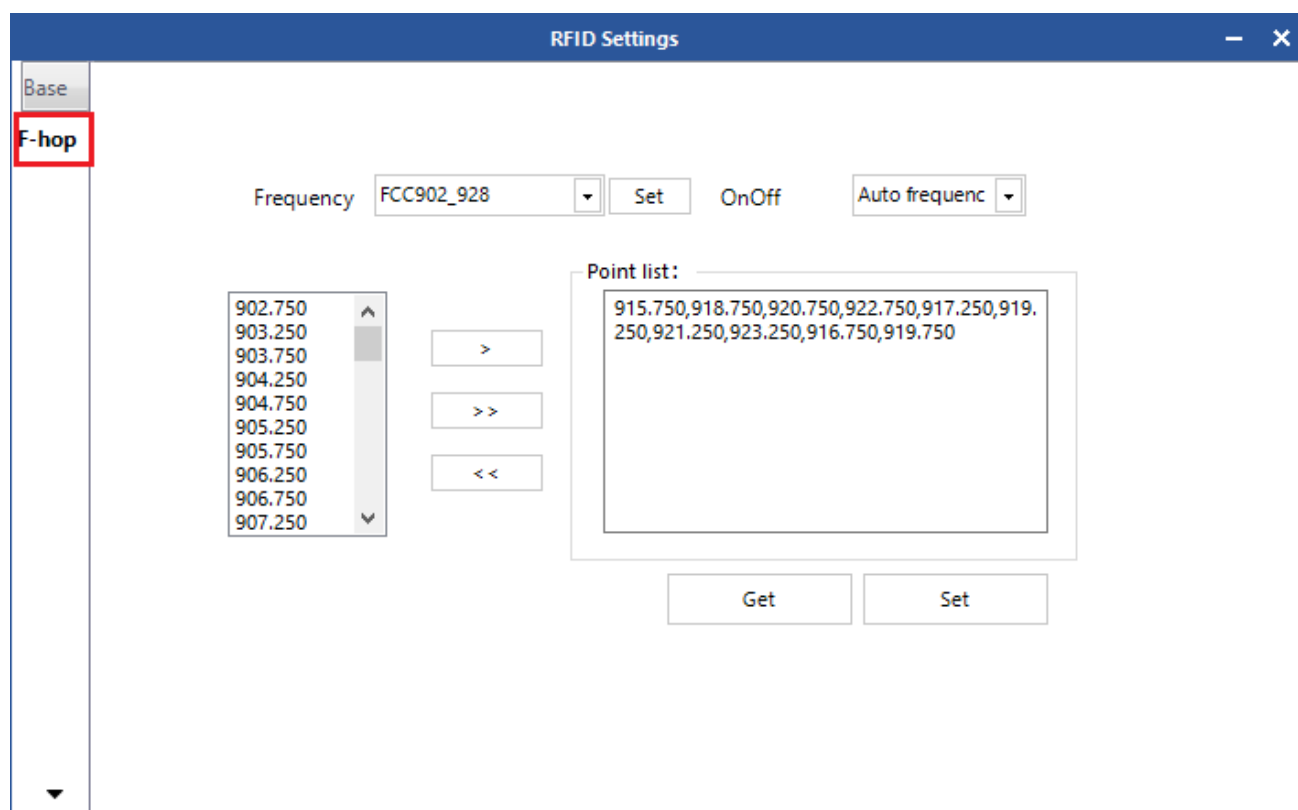


Figure 4.7.5.1 Hopping Frequency Management

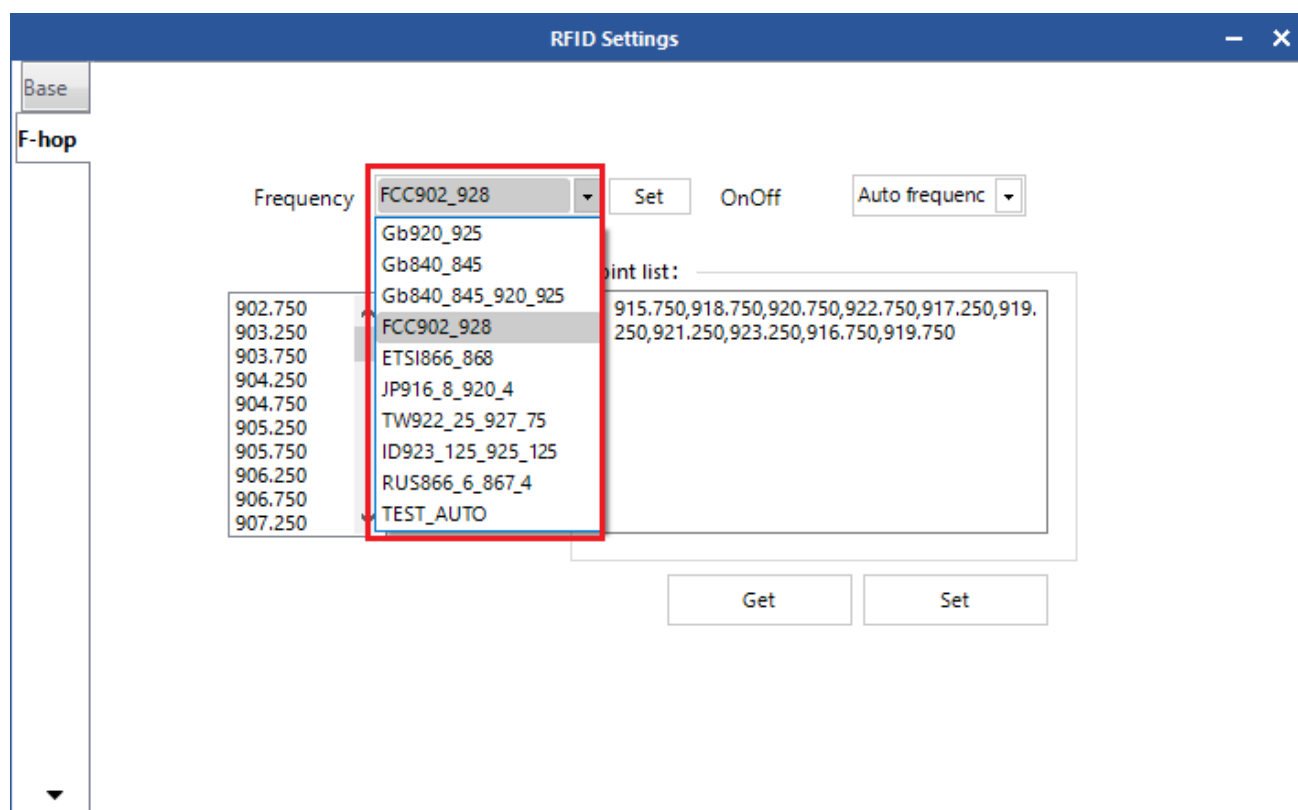


Figure 4.7.5.2 Working Frequency Range Selection

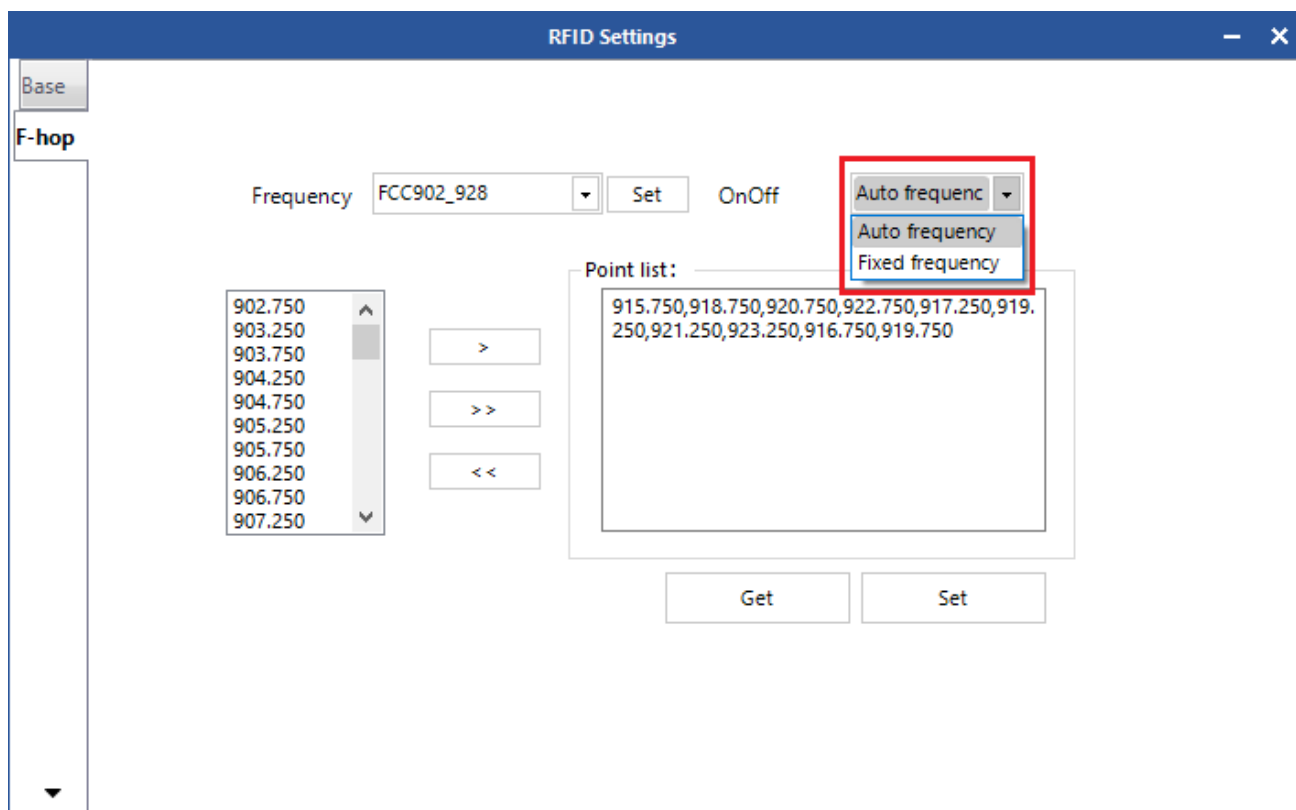


Figure 4.7.5.3 Hopping Frequency Switch Selection

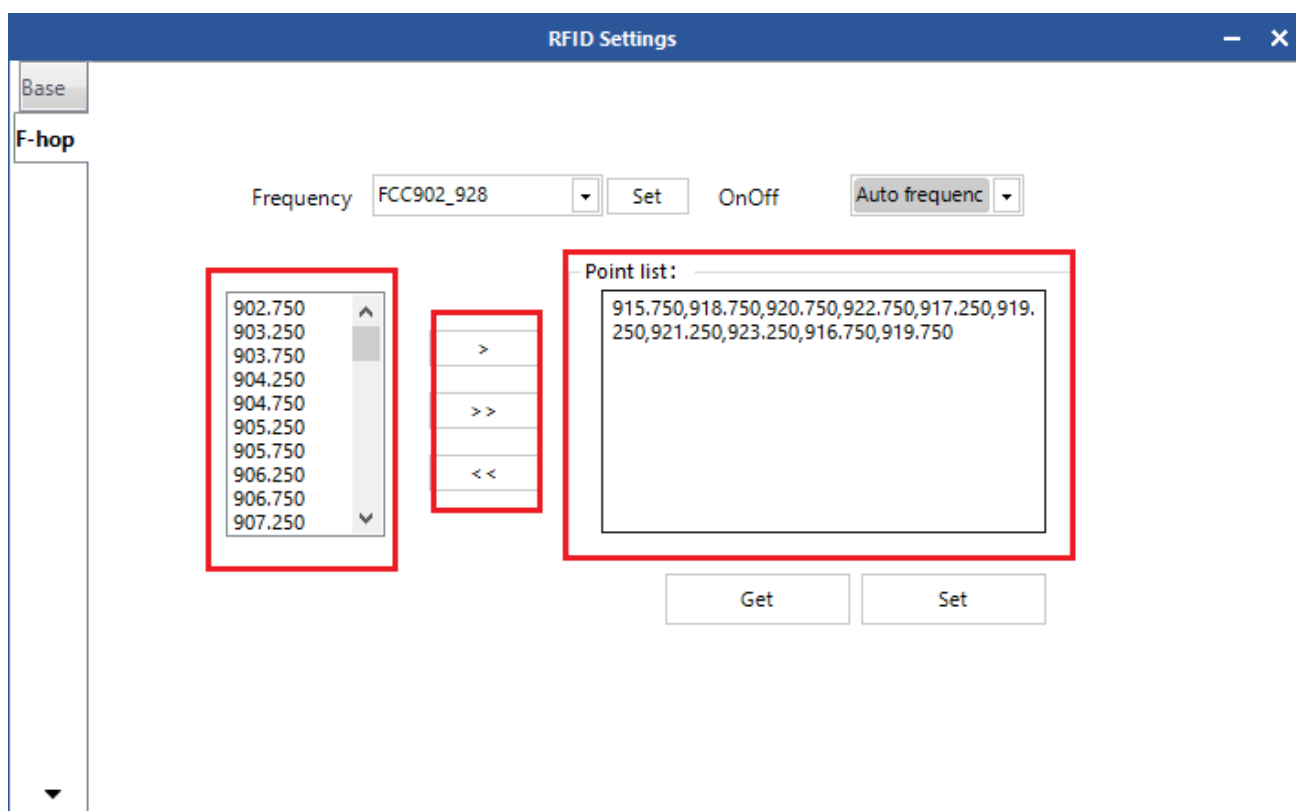


Figure 4.7.5.4 Frequency Selection

**Notes:** When doing this setting, the purpose of the automatic operations is to avoid the external signal interference. Normally it is defaulted to be automatically(as shown in the spinner of Figure 4.7.5.3).

## **4.8 Other Configurations**

### **4.8.1 Wiegand Communication Parameter Configuration**

Select Device Control in the main interface of the Demo->Device Configuration, and the dialog box will pop up. Select GPIO on the left popup. The Wiegand Configuration is at the lower left. Click “Get” to check the Wiegand communication parameter of the current device as shown in Figure 4.8.1.1.

There are 3 types of Wiegand communication: Wiegand 26, Wiegand 34 and Wiegand 66. Reader extracts the end data of EPC code or TID code according to Wiegand communication format and outputs it through Wiegand signal. It extracts 3 bytes at the end for Wiegand 26 , 4 bytes for Wiegand 34 format and 8 bytes for Wiegand 66 format. There are 2 types for data transfer: Transfer EPC end data and transfer TID end data. Click Set after selecting corresponding parameters as shown in Figure 4.8.1.2.



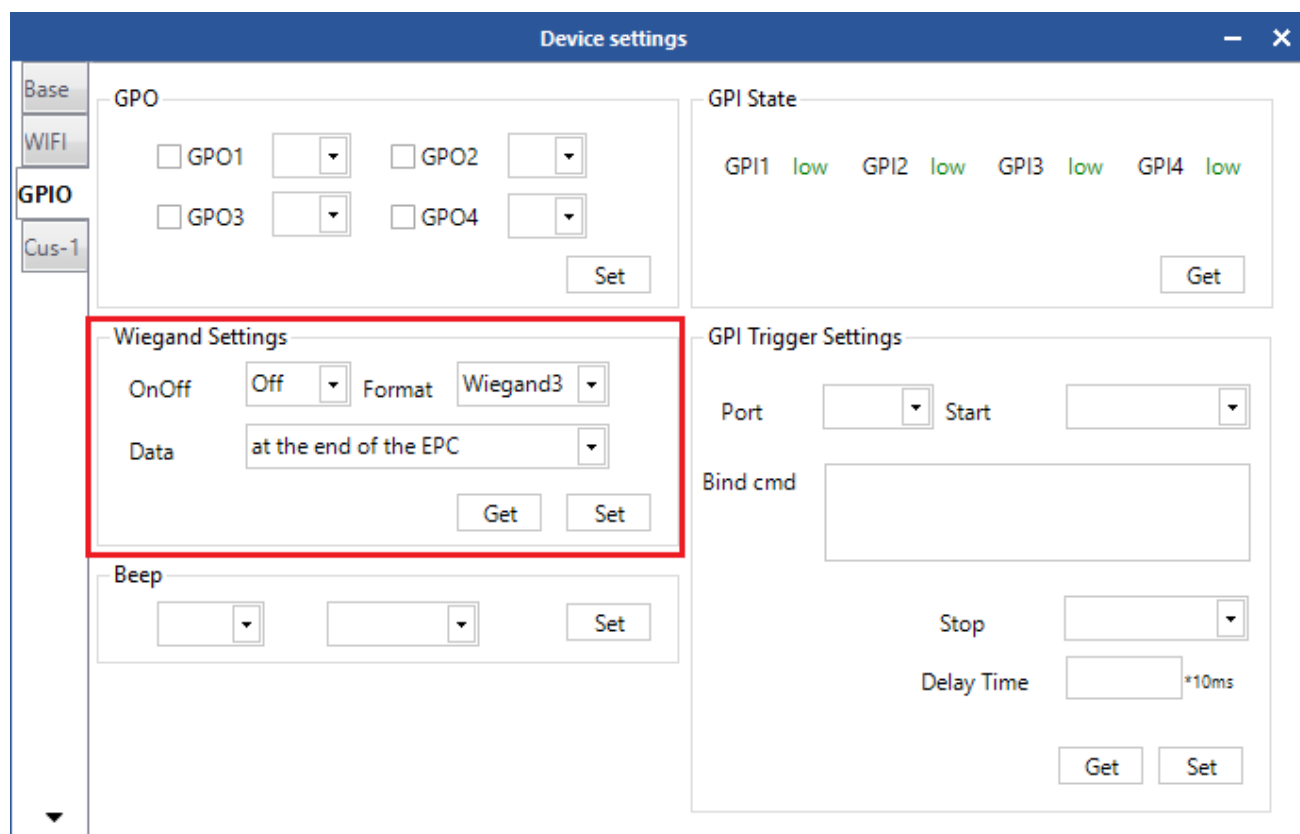


Figure 4.8.1.1 Wiegand Communication Parameter Get

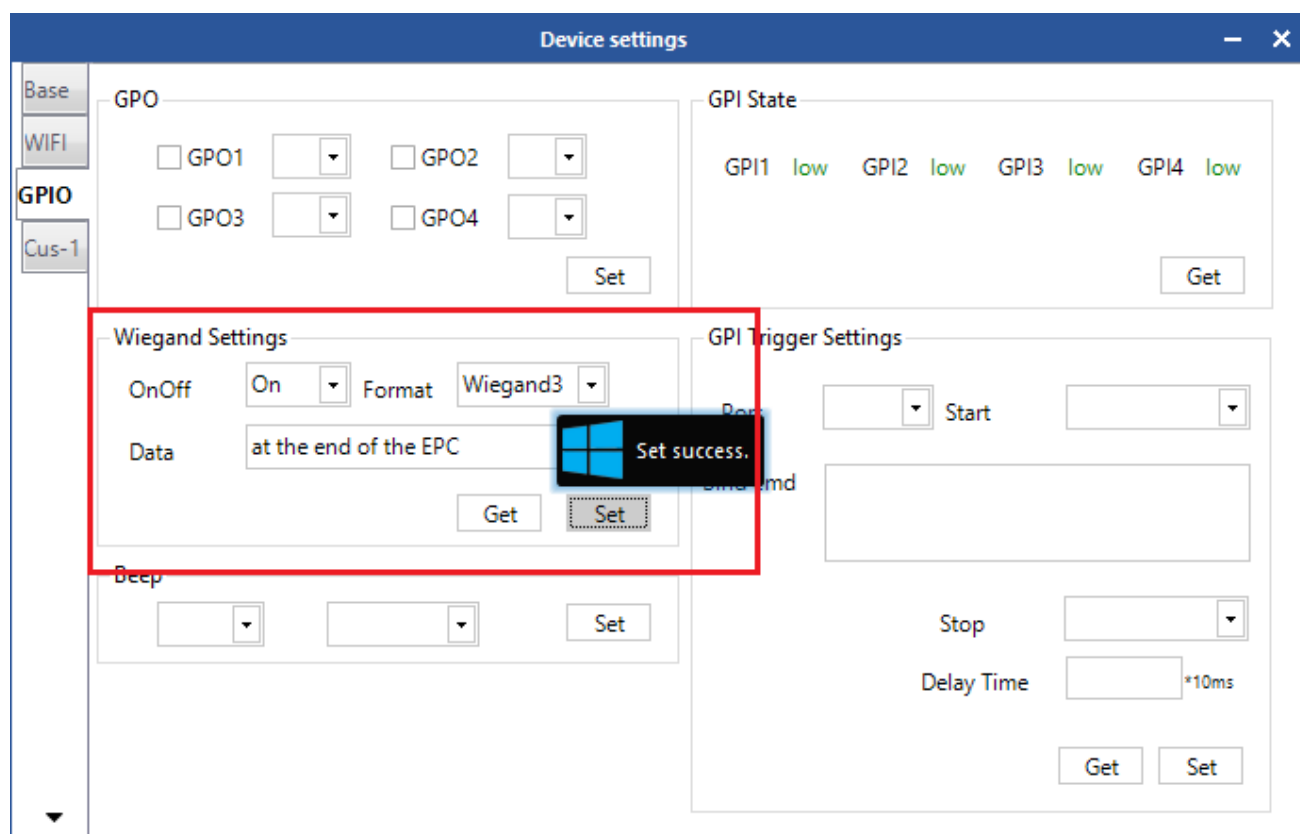


Figure 4.8.1.2 Wiegand Communication Parameter Configuration

## 4.8.2 Buzzer Control

Select Device Control in the main interface of the Demo->Device Configuration, and the dialog box will pop up. Select GPIO in the popup on the left. The Buzzer Control is on the lower left. Click Set to set the state of the buzzer as shown in Figure 4.8.2.

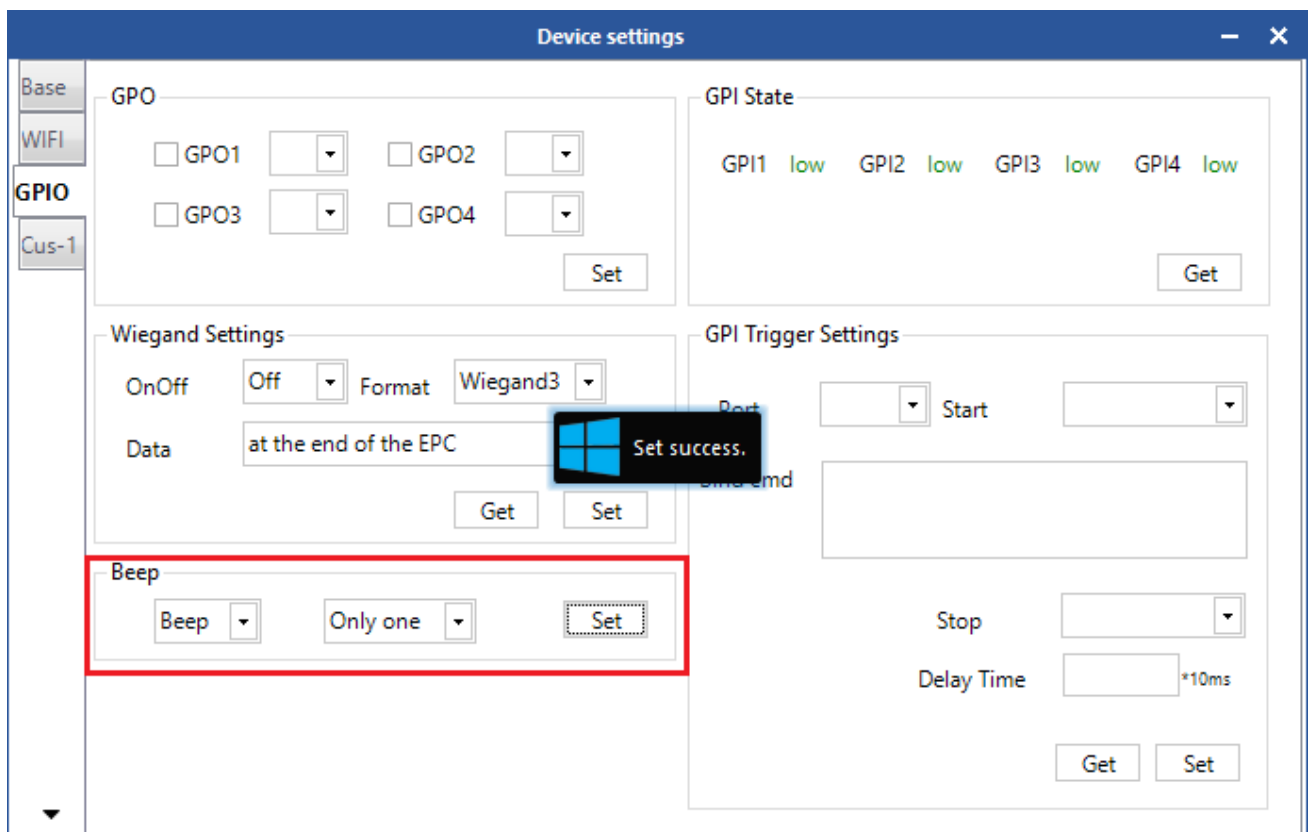


Figure 4.8.2 Buzzer Control

## 4.8.3 EAS Alarm

Select Device Control in the main interface of the Demo -> Device Configuration, and the dialog box will pop up. Select Custom-1 in the popup on the left as shown in Figure 4.8.3. This operation is used for configuration for matching alarm parameters. “matching succeeded operation” will be performed when the tags meet the matching

condition is read. And “match failed operation” will be performed when the tags fail to meet the matching condition is read. The matching rules are as below:

The calculated result of the mask Bitwise AND and zone data to be matched in the tag is A. And the result of the mask Bitwise AND and zone data matched is B. If A is equal to B, then the matching is successfully, and then the EAS match-successfully operation shall be performed. Conversely, the EAS match-failed operation shall be performed.

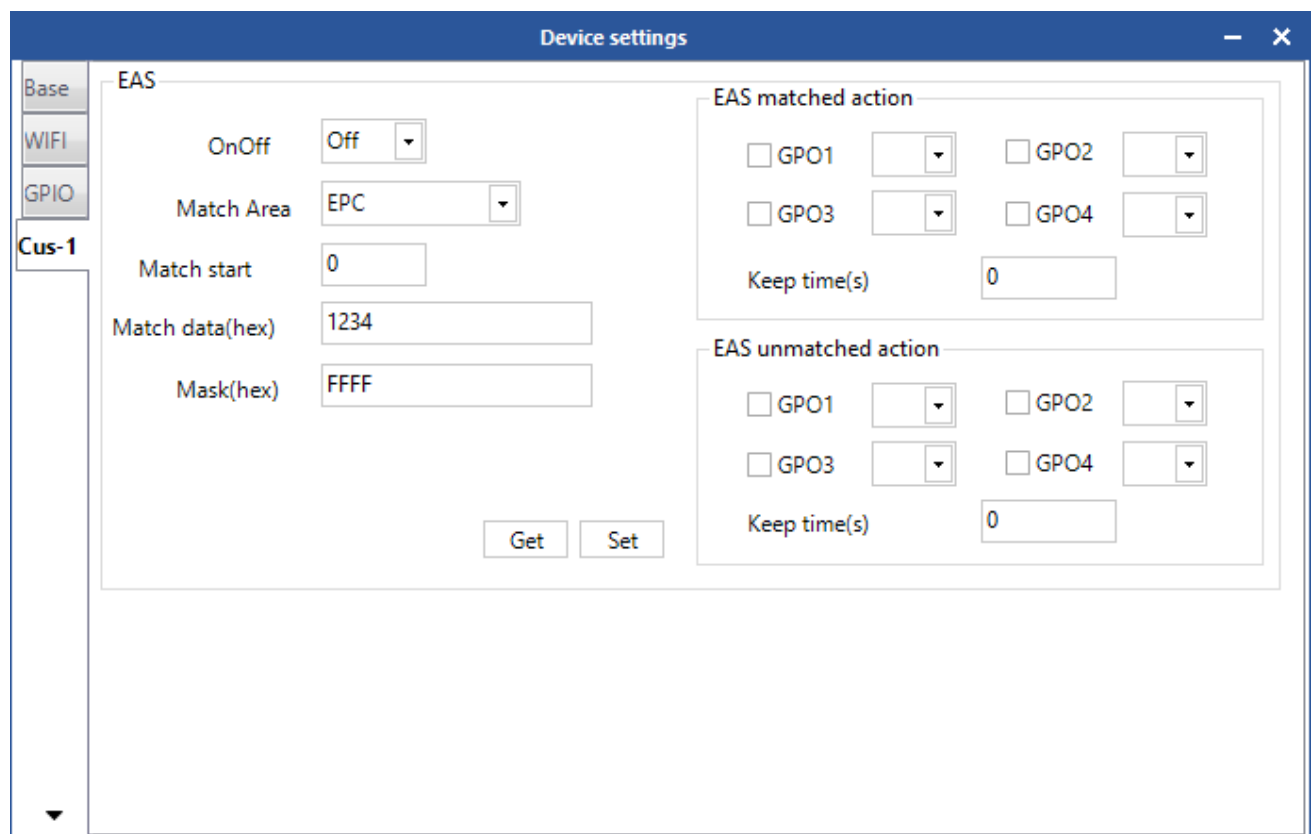


Figure 4.8.3 EAS Alarm

## 4.9 Tools

### 4.9.1 Restart

Select Tools -> “” Restart as shown in Figure 4.9.1.1. Click the icon, and the

Command Sent Successfully prompt will pop up as shown in Figure 4.9.1.2.

The reader will restart when it receives this message. And the restart is finished when the beep from the buzzer is heard.

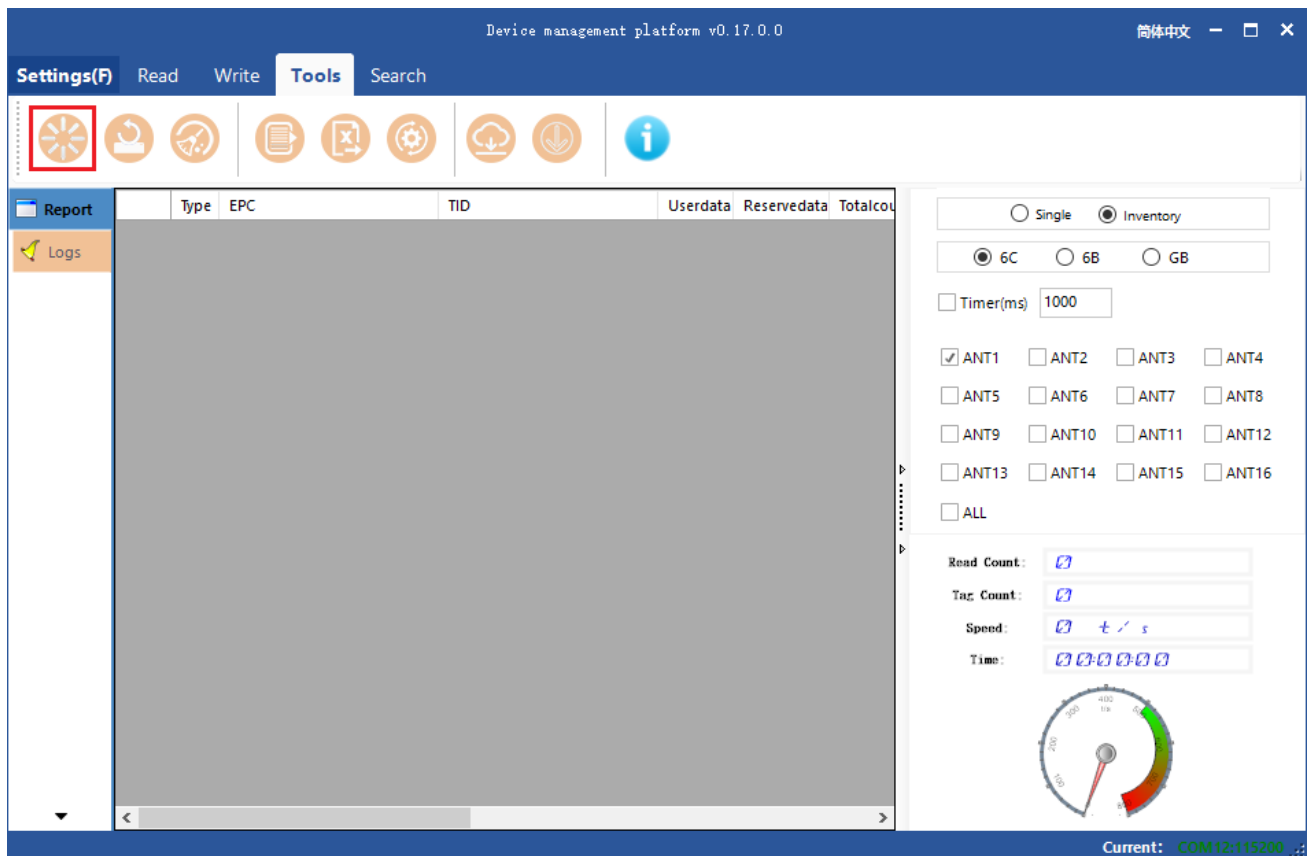


Figure 4.9.1.1 Restart

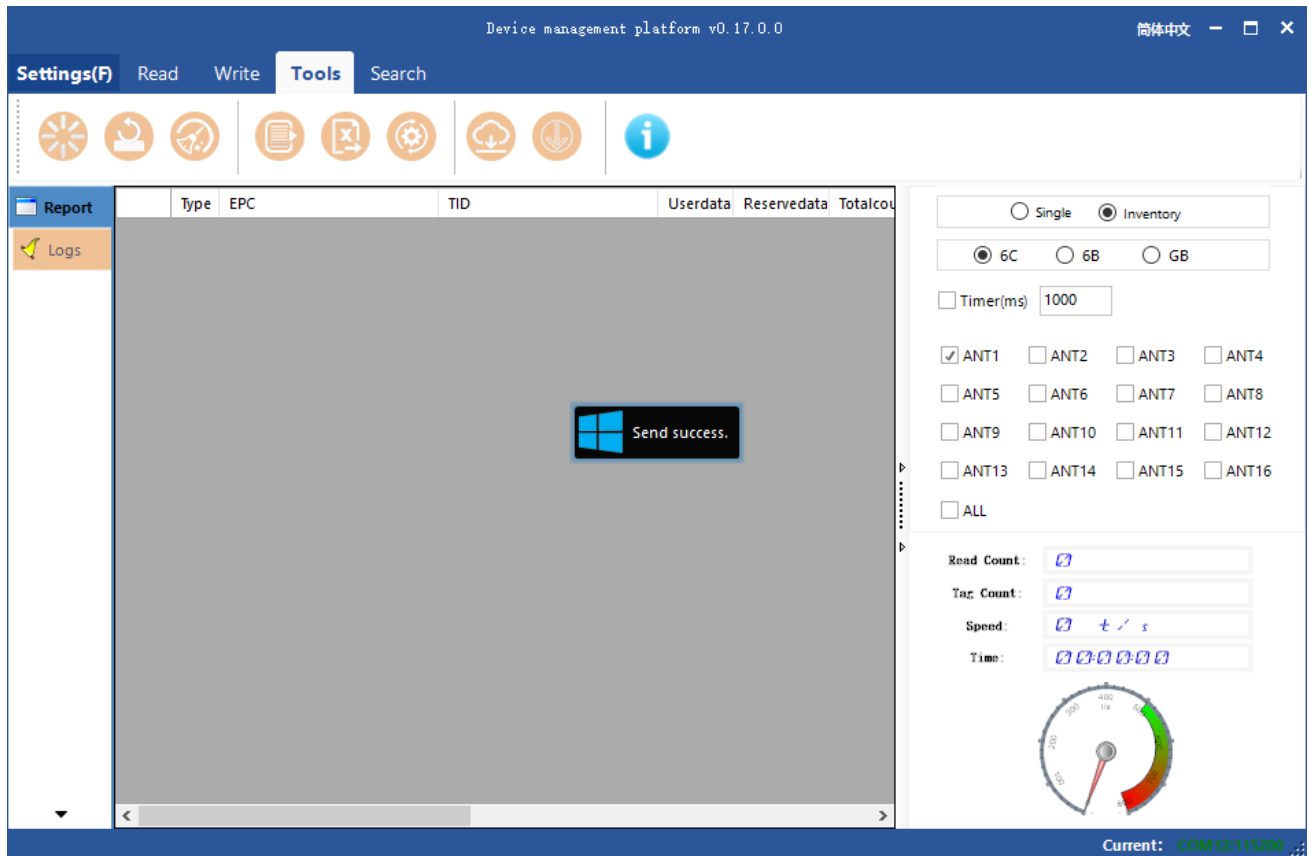



Figure 4.9.1.2 Command Sent Successfully

## 4.9.2 Restore Factory Setting

Select Tools in the main interface -> “” Factory Reset as shown in Figure 4.9.2.1. Click the icon, and the prompt “Factory Reset?” will pop up as shown in Figure 4.9.2.2. This operation will restore all parameters, including RFID configuration parameters, to factory setting except for system time and MAC address.

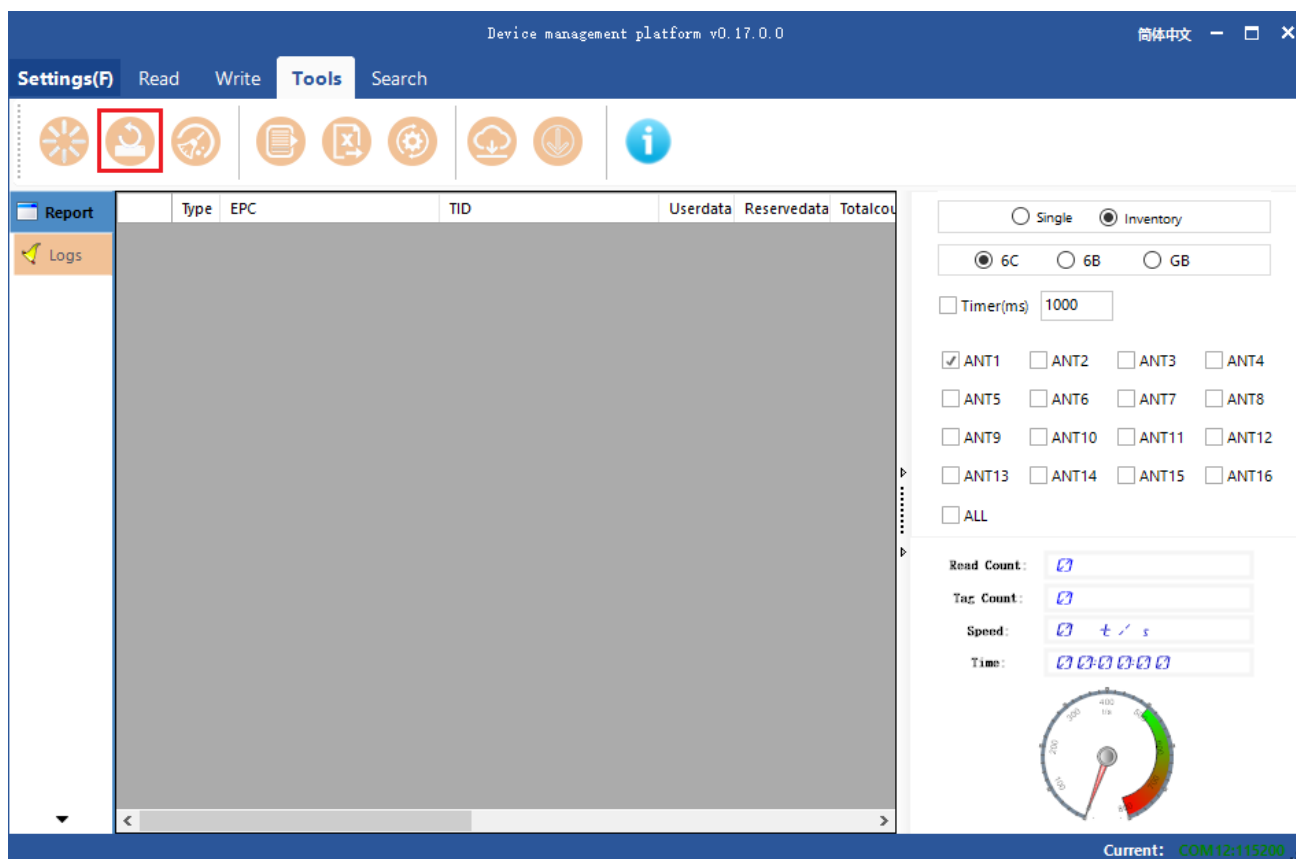


Figure 4.9.2.1 Factory Reset

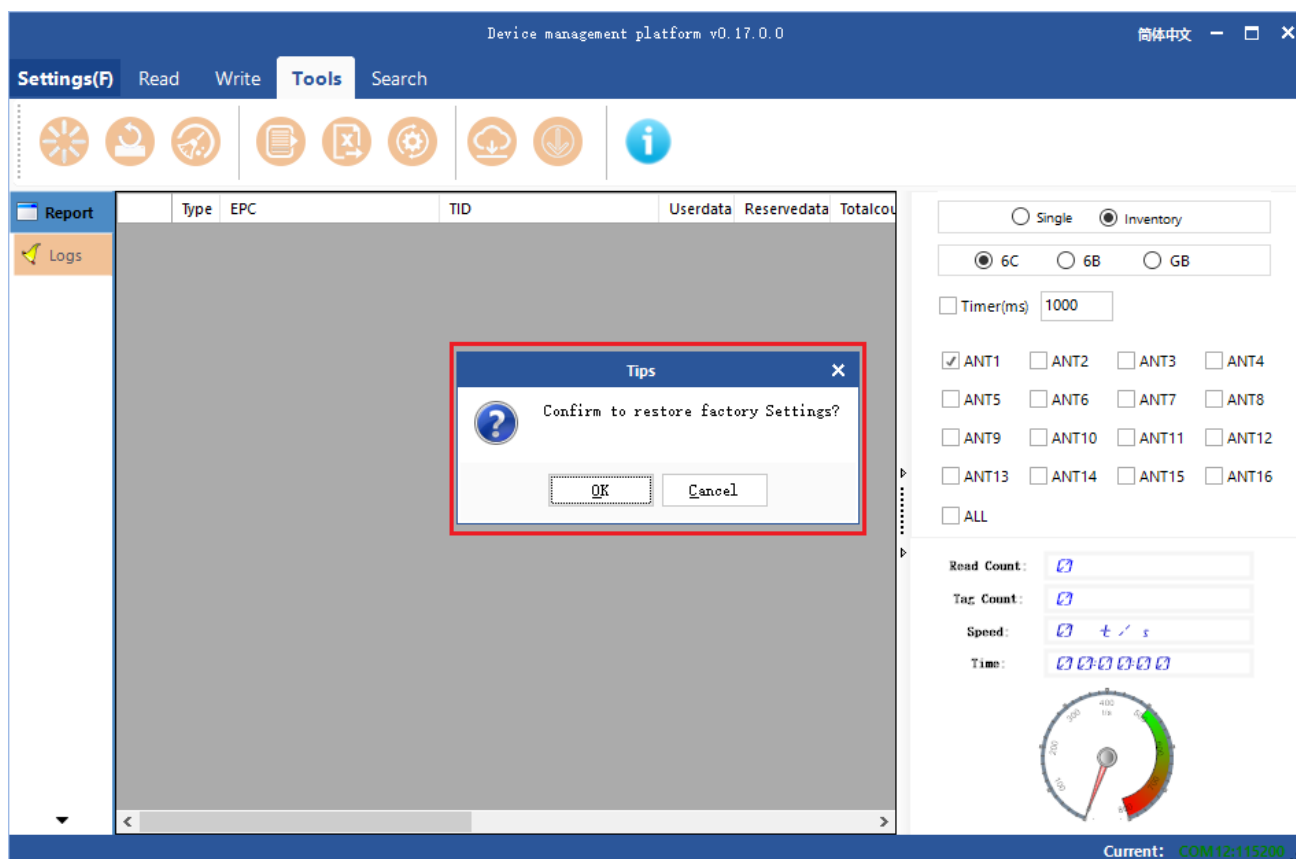




Figure 4.9.2.2 Prompt

### 4.9.3 Data Export

Select Tools -> “” export the text( or “”export the spreadsheet), and a dialog will pop up as shown in Figure 4.9.3. Then choose the path for the files to be saved.

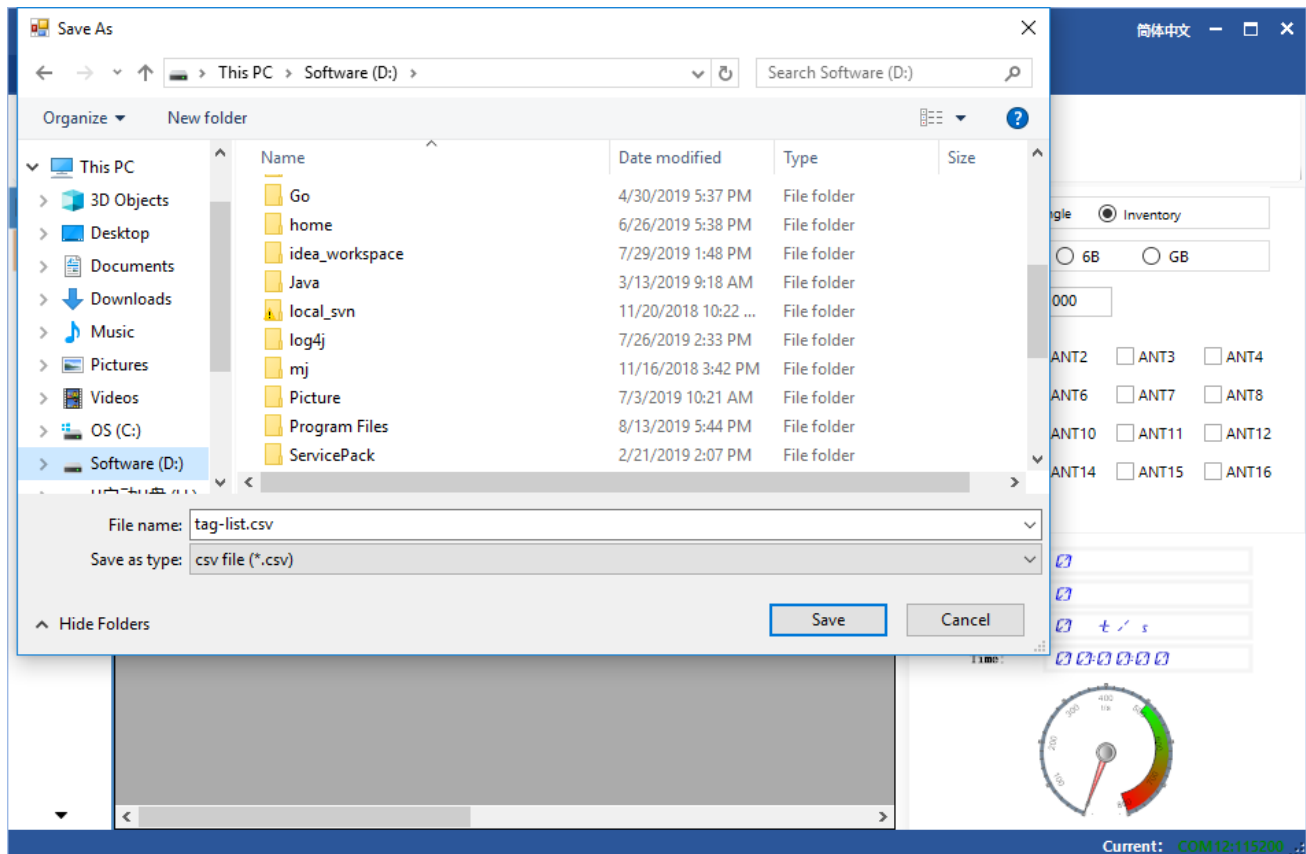


Figure 4.9.3 Data Export

The tag data supports data export and the exporting format can be .csv and .xls(Excel datasheet).

### 4.9.4 Upgrade



It supports baseband software (underlying software) upgrading and application software (system application software) upgrading. Select Tools -> “” upgrade baseband (or “” upgrade application). And the dialog box will pop up as shown in

Figure 4.9.4.

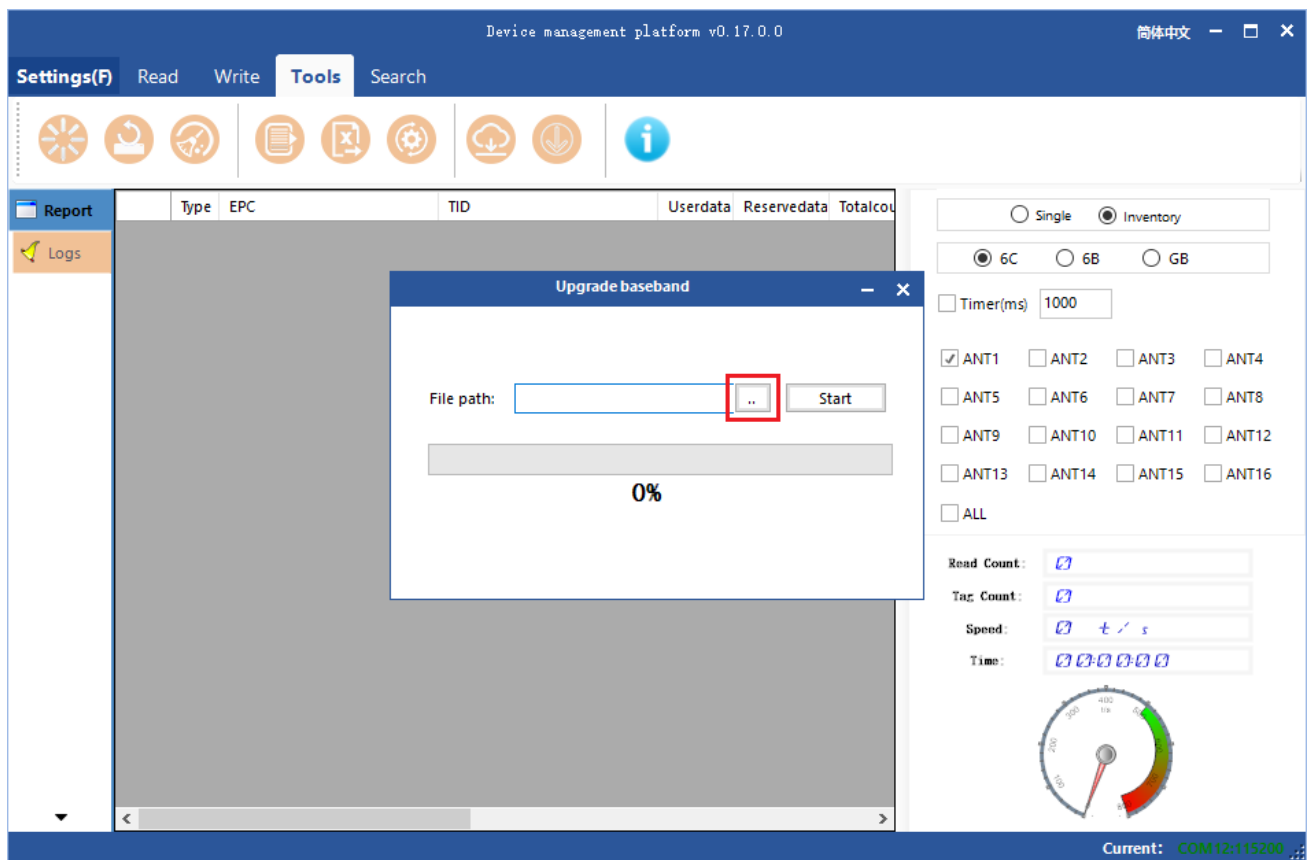


Figure 4.9.4.1 upgrade baseband



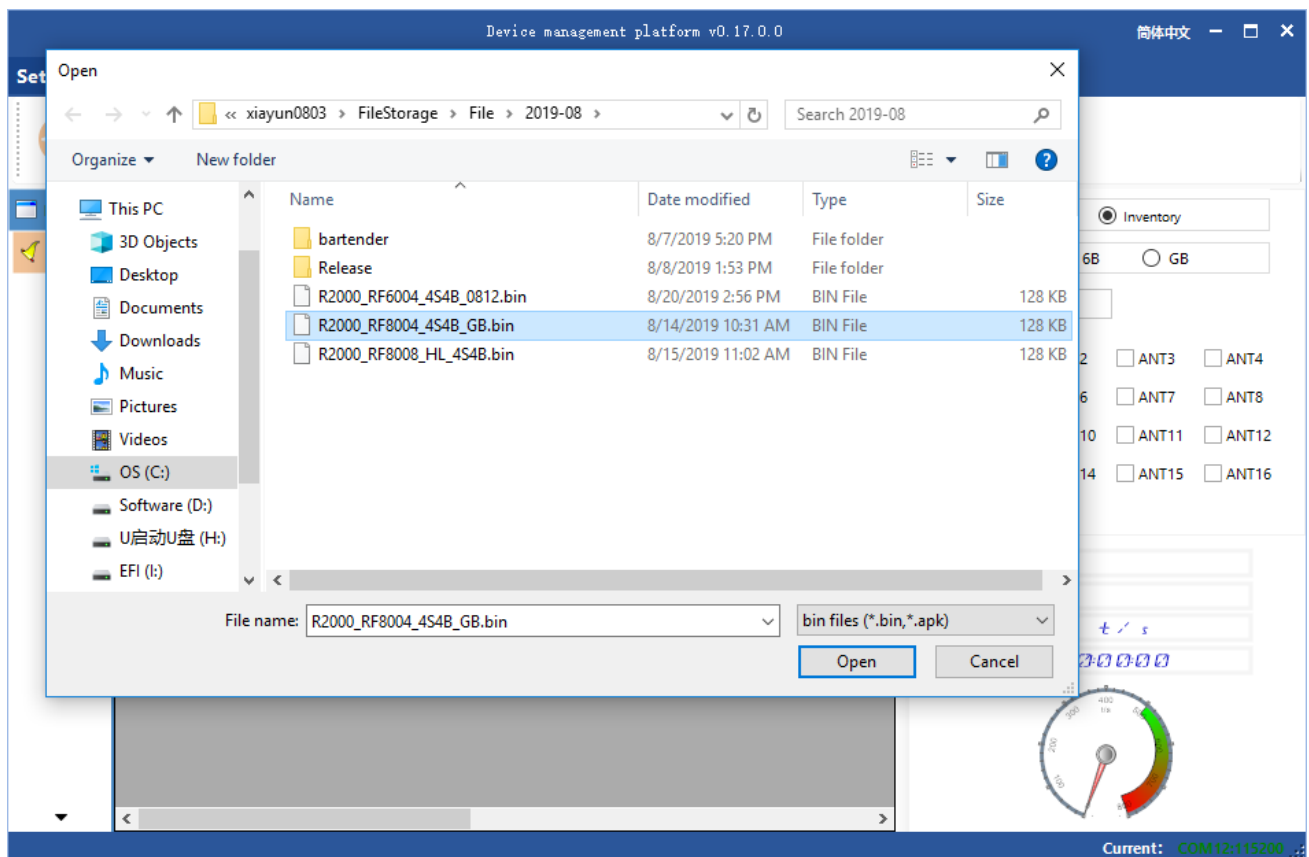


Figure 4.9.4.2 Select Upgrade Files

Find the path to the required. bin(.apk) upgrading file in the Upgrade File list as shown in Figure 4.9.4.3, click **Start**. The baseband is upgraded when the upgrading progress bar shows 100%. And then the Upgraded Successfully prompt will pop up. Then click “OK” to restart as shown in Figure 4.9.4.4 .

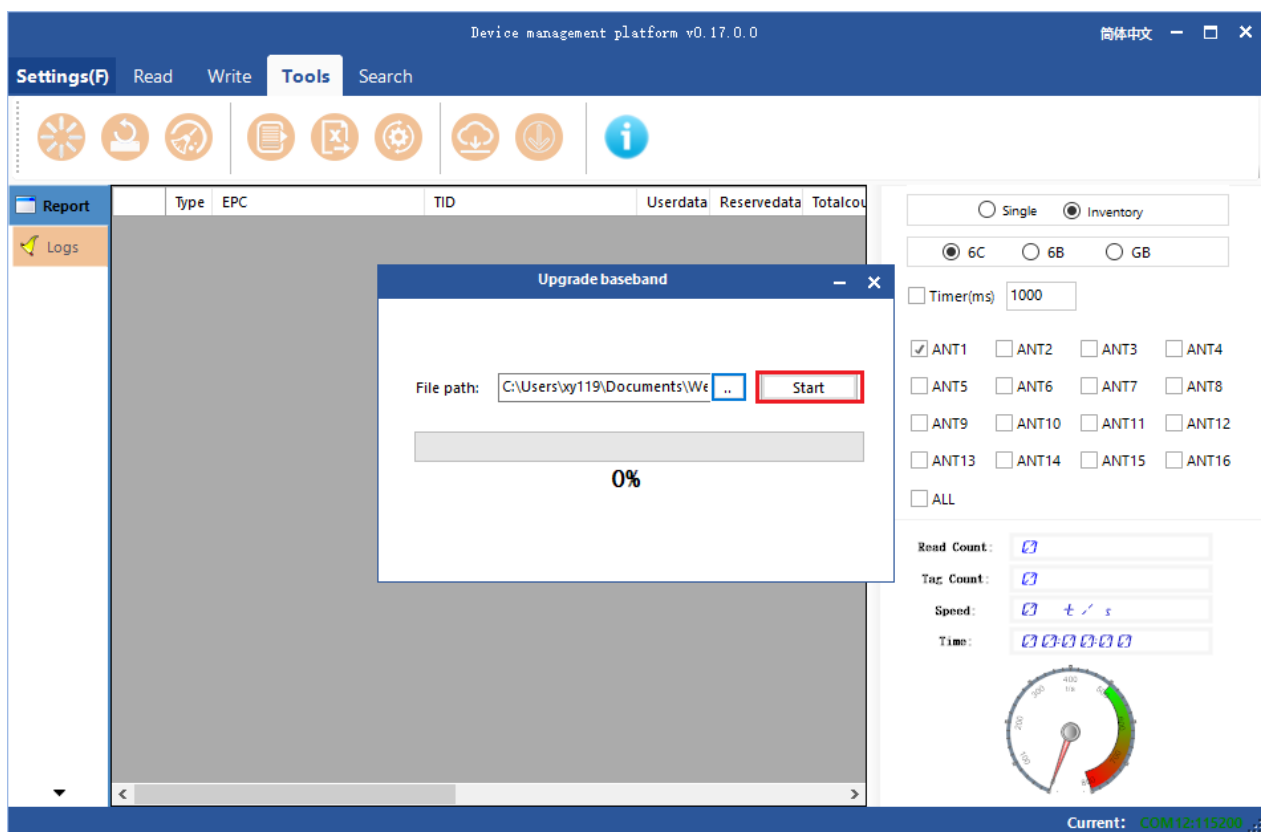


Figure 4.9.4.3 Upgrading baseband

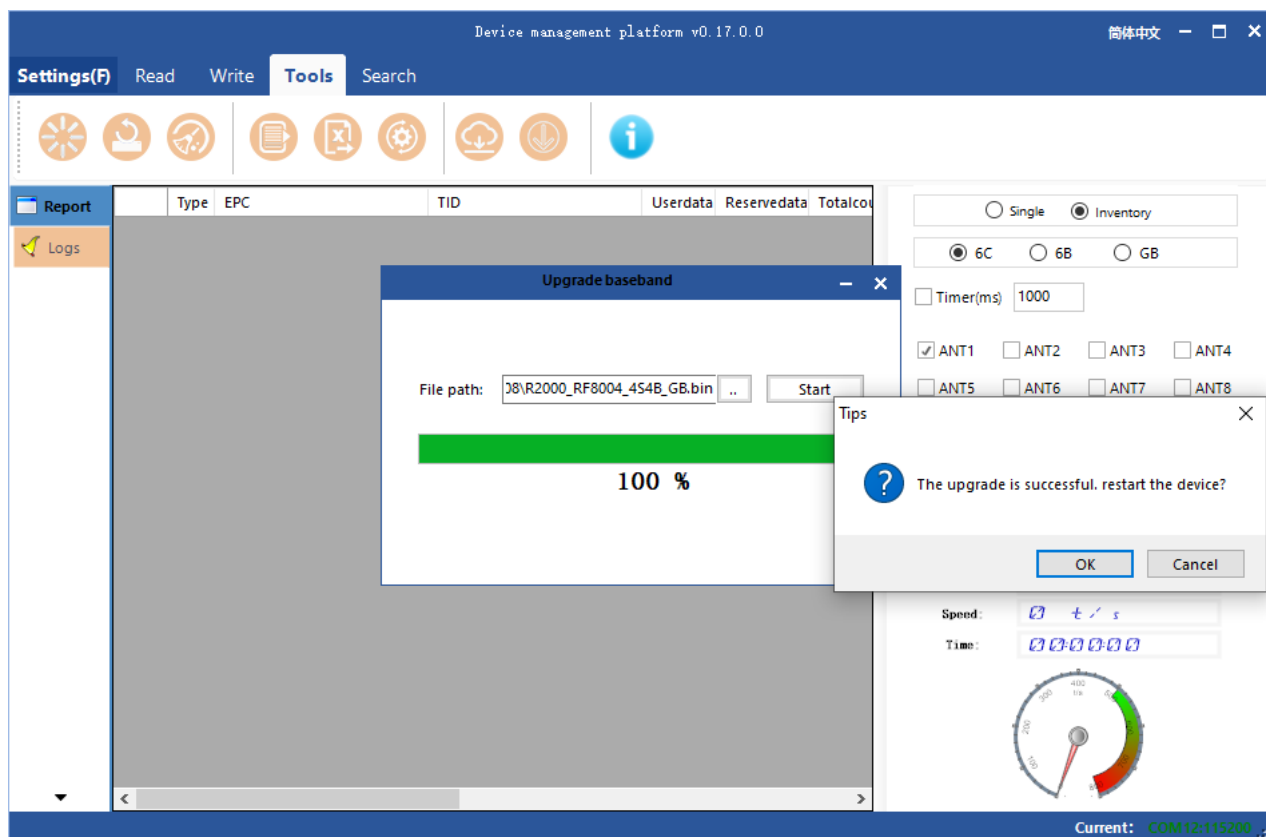



Figure 4.9.4.4 Restart Confirm

The upgrading process of baseband software is the same as the application software. And the detail operation is the same also.

### 4.9.5 Custom Command

Select Tools -> “” Custom Command as shown in Figure 4.9.5.1. Click the icon, and a custom command sending popup will come out as shown in Figure 4.9.5.2.

Head: data frame header, defaulted to be 5A

Command: can be written according to the communication protocol of the reader, or extract by double clicking lines of the log window (detailed in GPI Operation Configuration)

CRC: check code(automatically generated by filling in command and head and clicking the CRC text box).

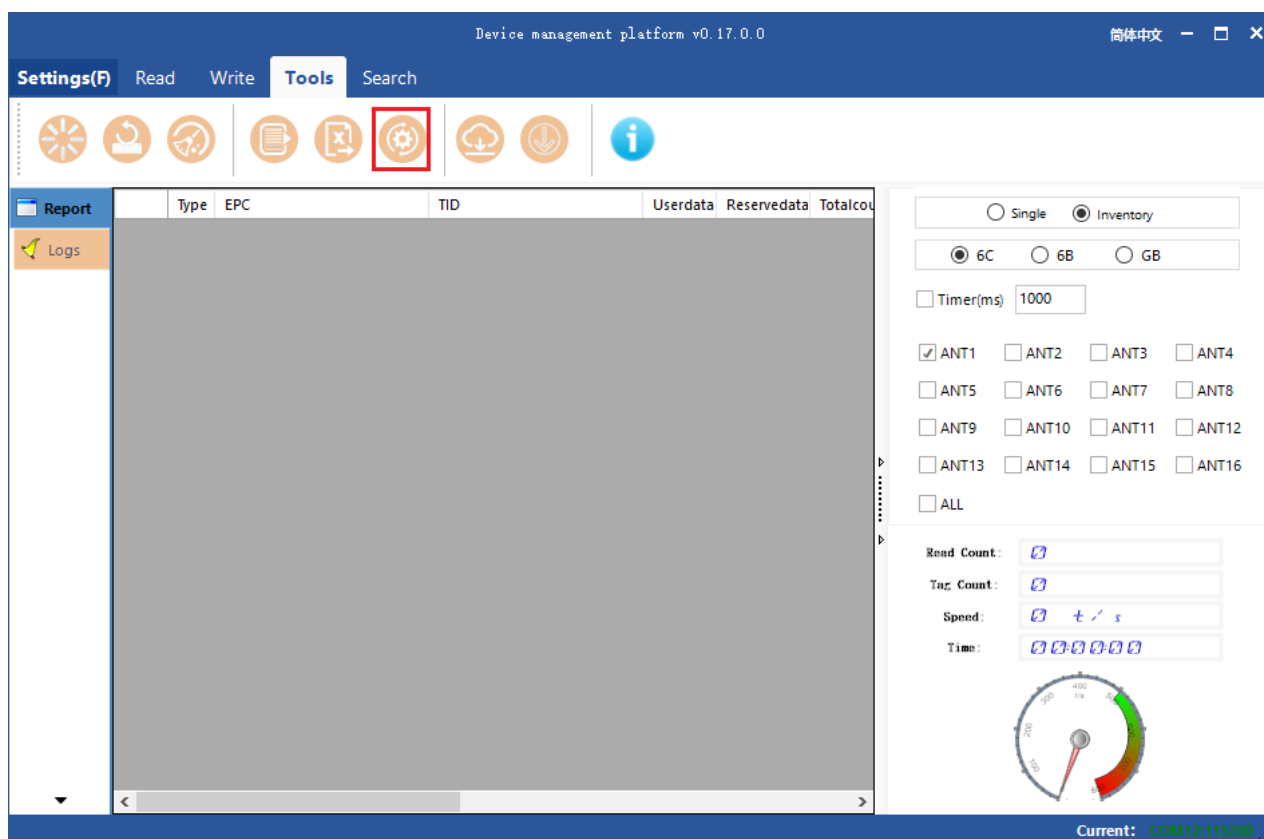


Figure 4.9.5.1 Custom Command

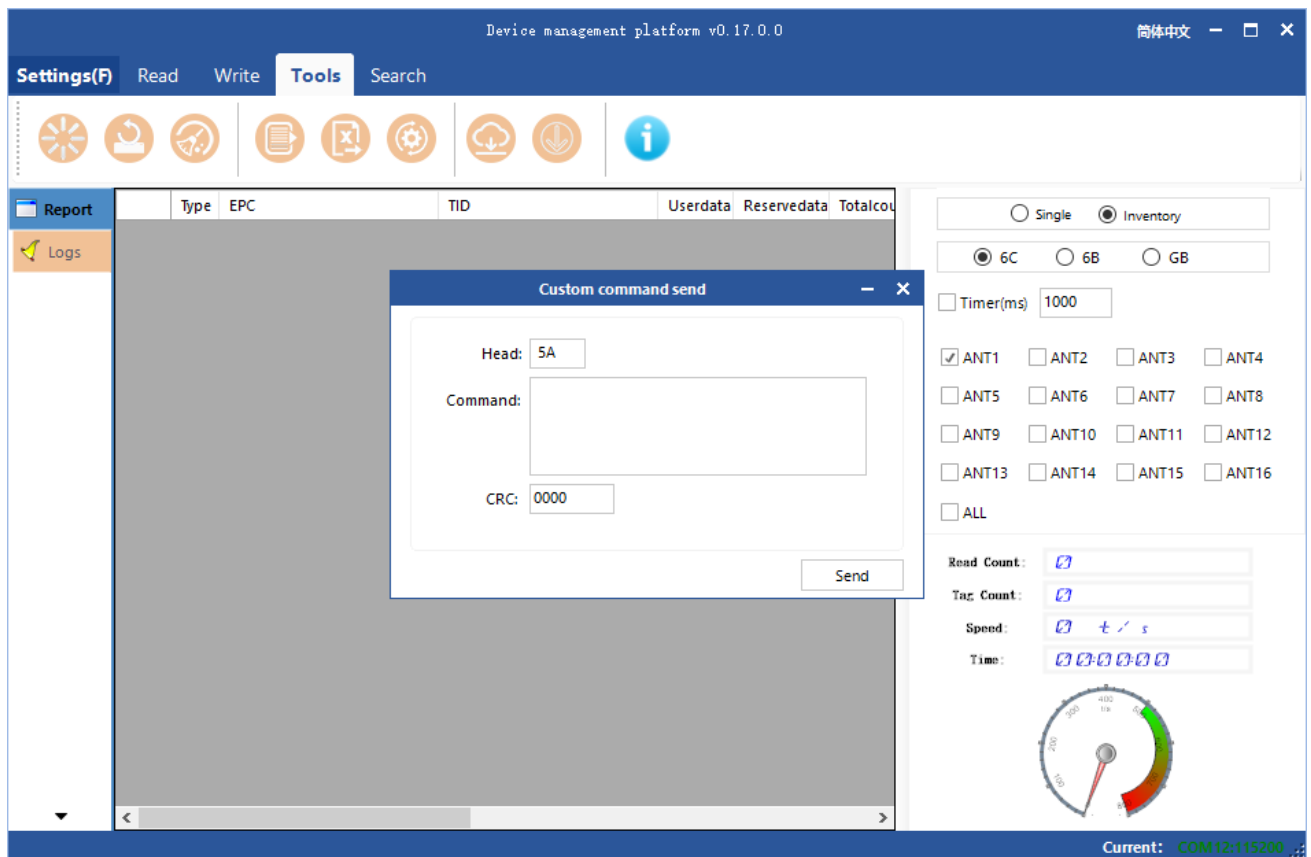


Figure 4.9.5.2 Custom Command Sending

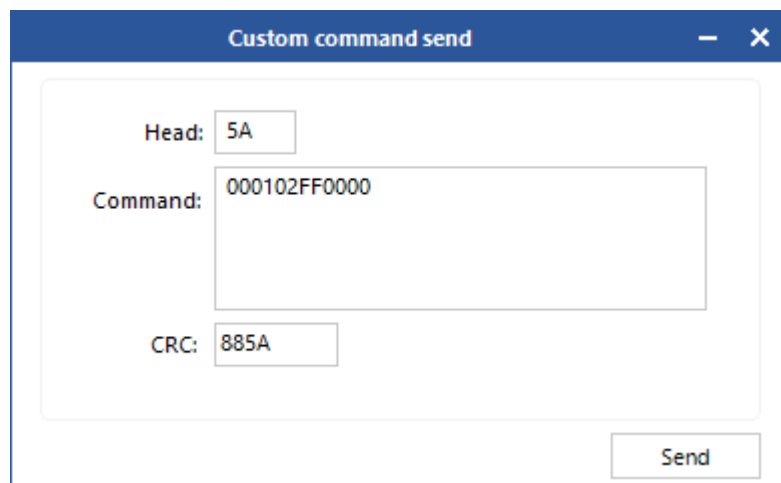



Figure 4.9.5.3 Send Custom Command

## 4.9.6 Device Info

Select Tools -> “” Device Info as shown in Figure 4.9.6.1. Click the icon and a Device Info window will pop up as shown in Figure 4.9.6.2.

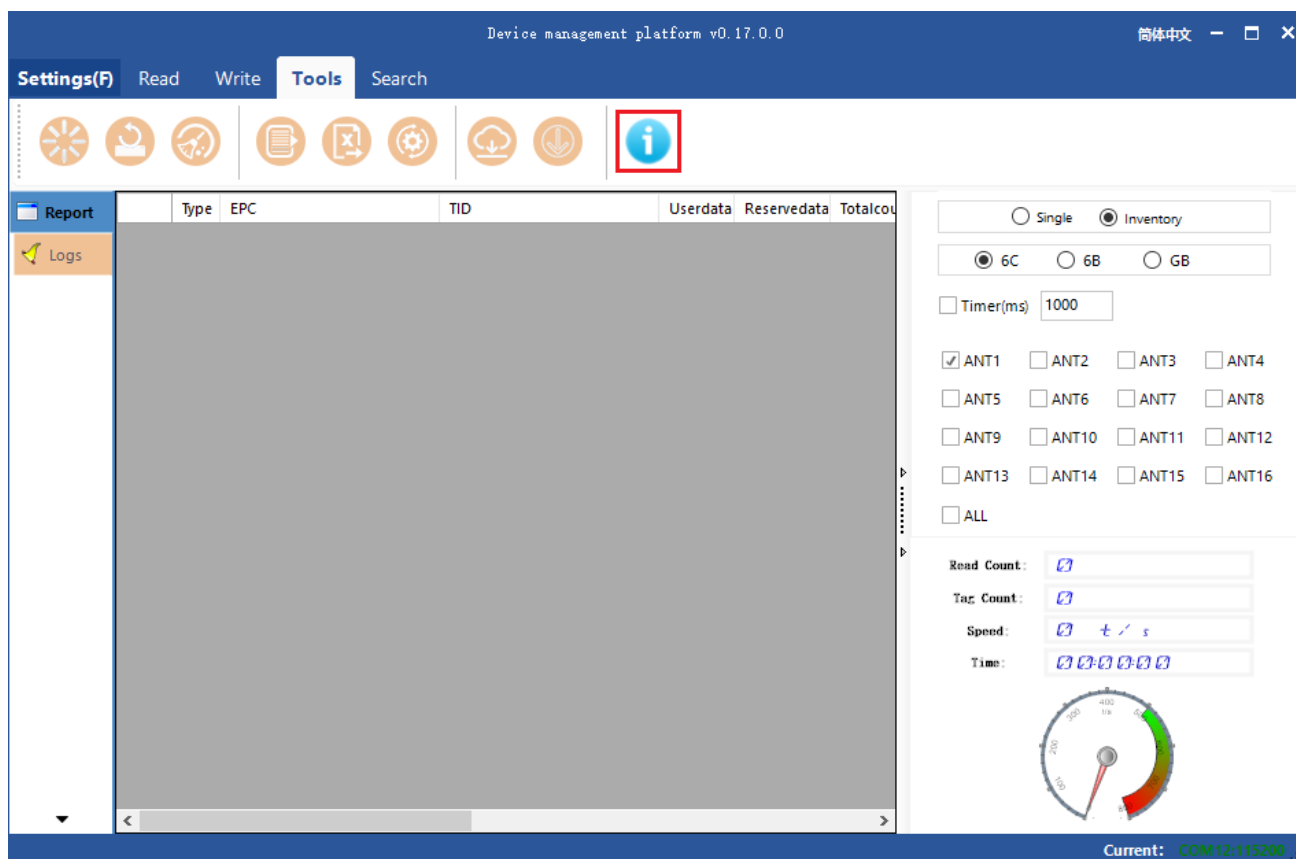


Figure 4.9.6.1 Device Info

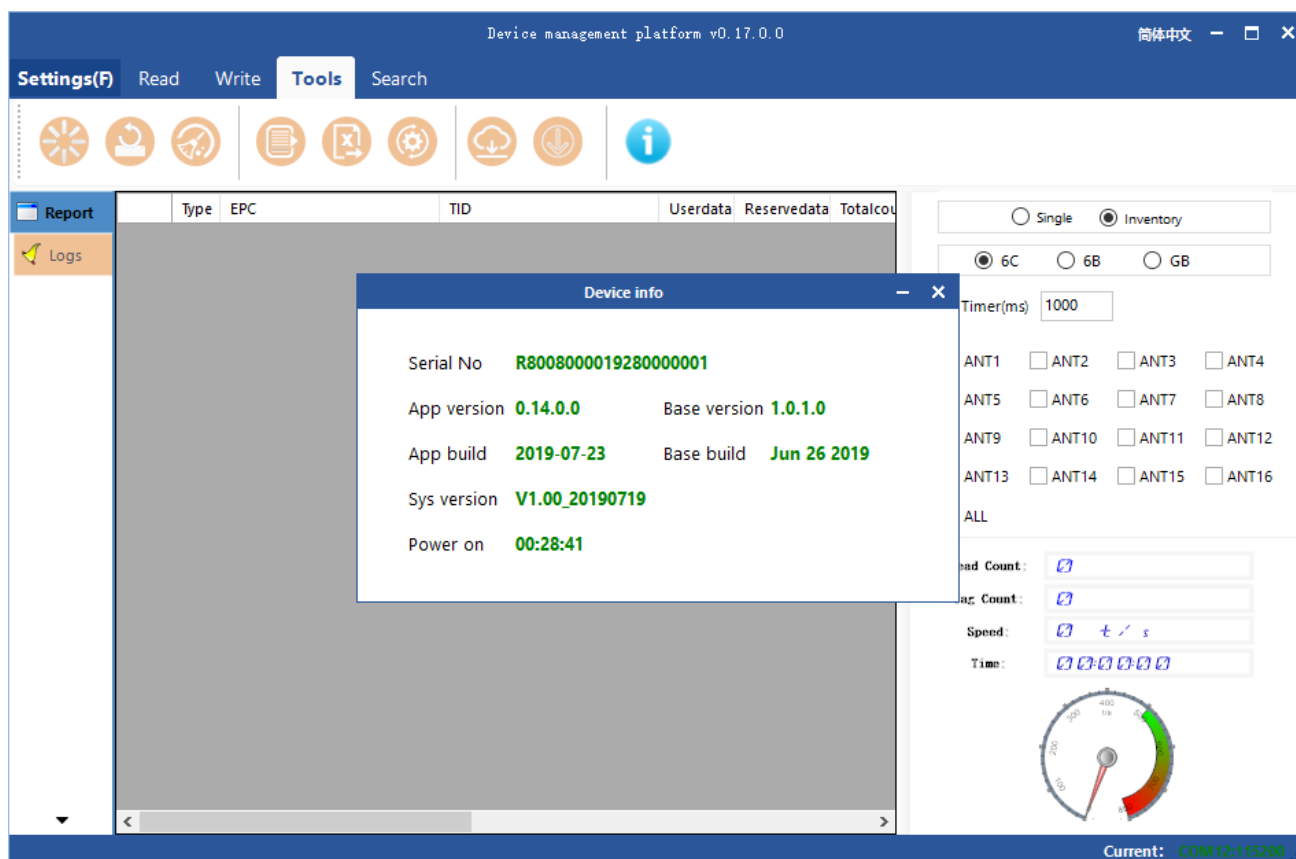



Figure 4.9.6.2 Device Info Popup

## 4.9.7 Devices Search

Select Device searching in the main interface of the Demo ->  Device Search (as shown in Figure 4.9.7.1) and then a dialog box will pop up as shown in Figure 4.9.7.2. Open the popup, and the reader will start searching the devices with the same network segment as the computer. And the devices will be in the list as shown in Figure 4.9.7.3.

**Notes:** This function is also workable when the demo is not connected with any device.

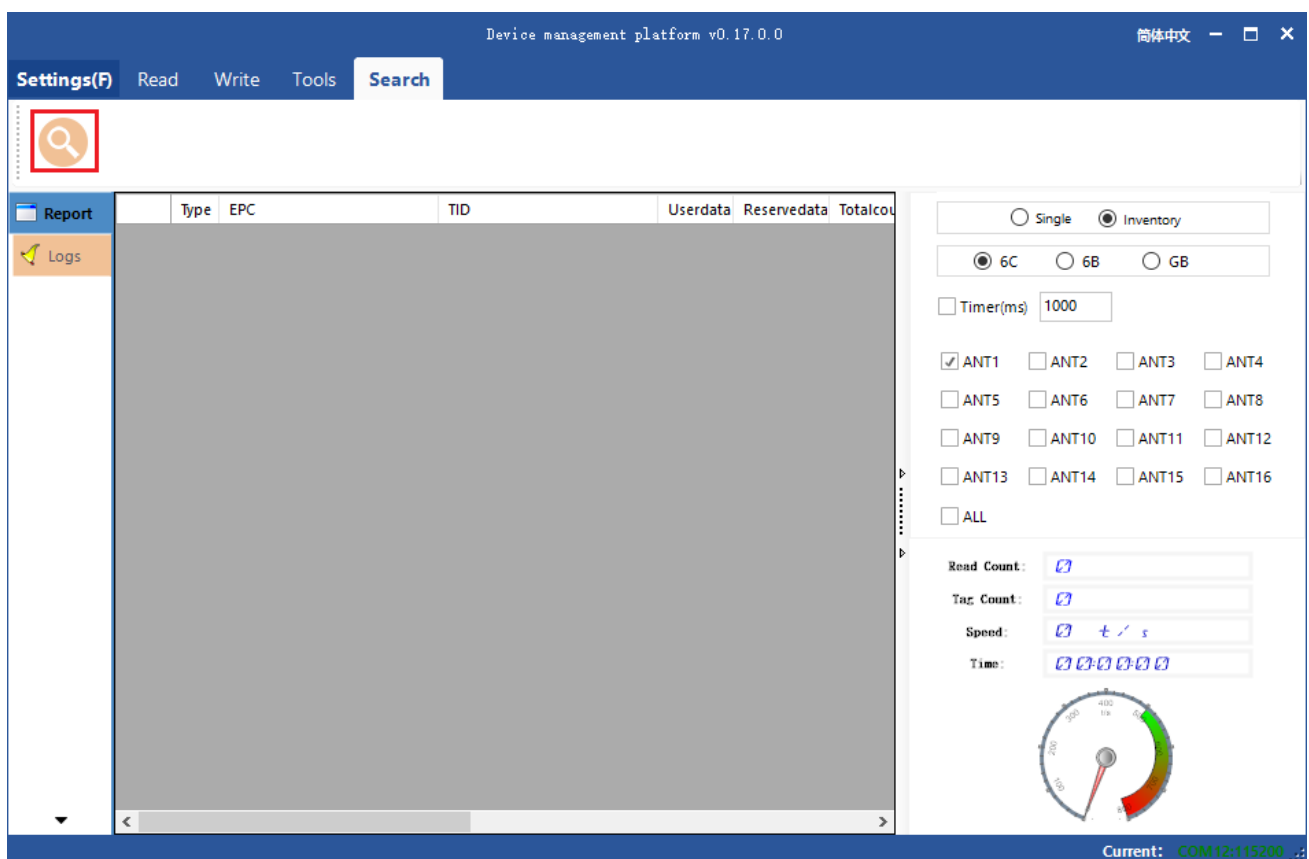


Figure 4.9.7.1 Network Devices Searching

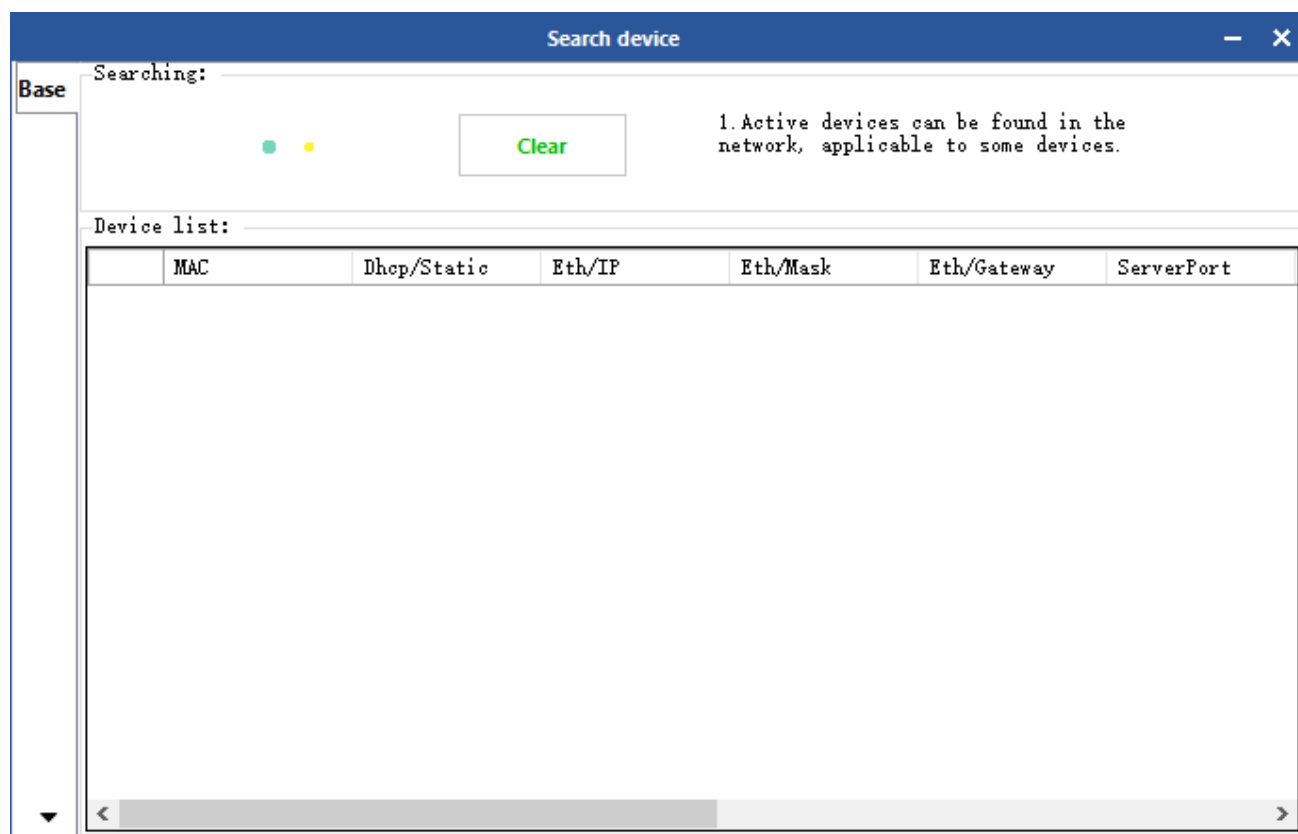


Figure 4.9.7.2 Searching Devices

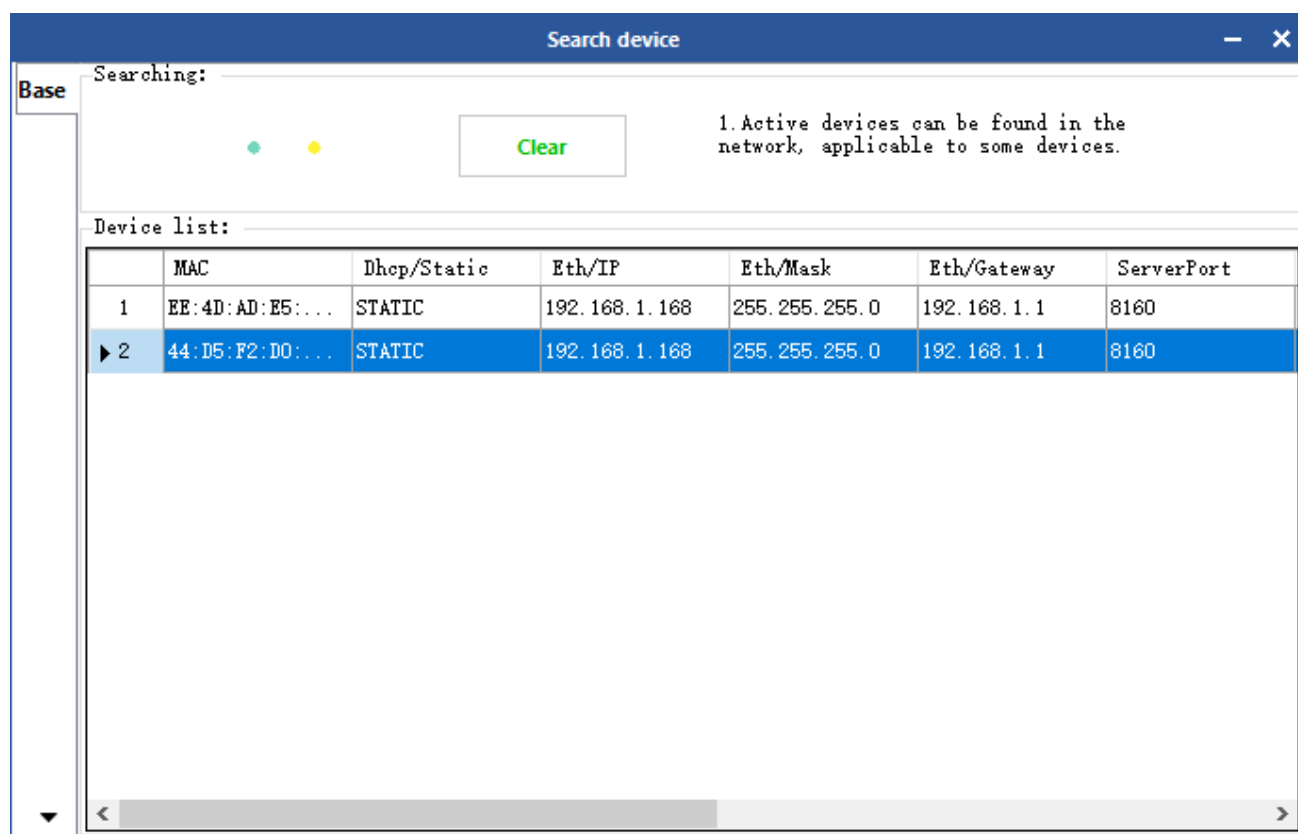


Figure 4.9.7.3 Searching Devices Successfully