

NETRFID Network RFID Reader Manual



Introduction

NETRFID is a card reader that based on TCP/IP network. NETRFID can easily connect Ethernet network (LAN, WAN, MAN). Installation is very easy. It meets the needs of Internet of things.

NETRFID has 3 versions which support different RFID Card.

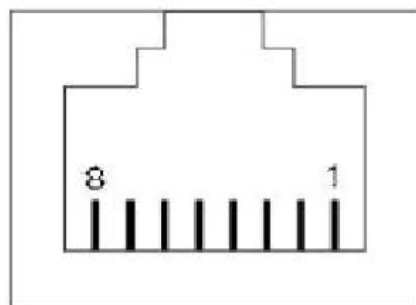
- NETRFID-V1: 125Khz ID card
- NETRFID-V2: 13.56Mhz IC card, such as Mifare S50, S70, etc.
- NETRFID-V3: PROX CARD II, PROXKEY II, PROXCARD PLUS

Features

- 10/100M Ethernet interface, Support automatic polarity conversion (MDI/MDIX)
- Support Network protocol such as TCP Server, TCP Client, UDP, DHCP etc.
- Support multi-to-one visit in LAN
- Support internet and transmission between different subnets.
- Support command to drive the on-board buzzer
- Fast response to HID card, Real-time transmission
- Fully support HID and its compatible card
- Effective distance is larger than 5cm
- 5 V DC power supply, low power consumption less than 300 MA
- Working temperature -15 ~75 °C, Storage temperature -25 ~85 °C

Description interface

RJ45 integrates internal network filter and two LED state indicators. RJ45 internal pins is as shown below.



Pin Number	Description
1	TX+
2	TX-
3	RX+
6	RX-

Command

There are two commands in all. The usage is pretty easy. All the data in the command are in Hex.

CMD0

Drive the buzzer (CMD0 Command has no responding data)

CMD0	A buzzer length voice	Reserved	Reserved
0x00	N	0xFF	0xFF

N: Specify the time length of the voice, with value between 0~255.

Example: send **00 01 FF FF** command, Drive a buzzer with a short sound.

CMD1

Issue connection and get the reader's ID numbers (Every card reader has an unique ID)

CMD1	Reserves	Reserves	Reserves
0x01	0xFF	0xFF	0xFF

This command will do the following things:

1. CMD1 can read the unique reader ID. For example, sending **01 FF FF FF** will get the unique ID in reply.
2. Change the client ID which will receive the card number. While the card reader works in multi-one mode (**UDP Server mode**) in LAN, in fact the command CMD1 sends localhost's ip and port to the card reader. So the card read now knows next time where it should send the data back. Once it gets cards' number, it will send the data to the client who sent CMD1 command most recently.

CMD1 Response

CMD1	The 2nd bytes	The 3rd bytes	The 4th bytes	The 5th bytes	The 6th bytes
0x01	ID0	ID1	ID2	ID3	ID4

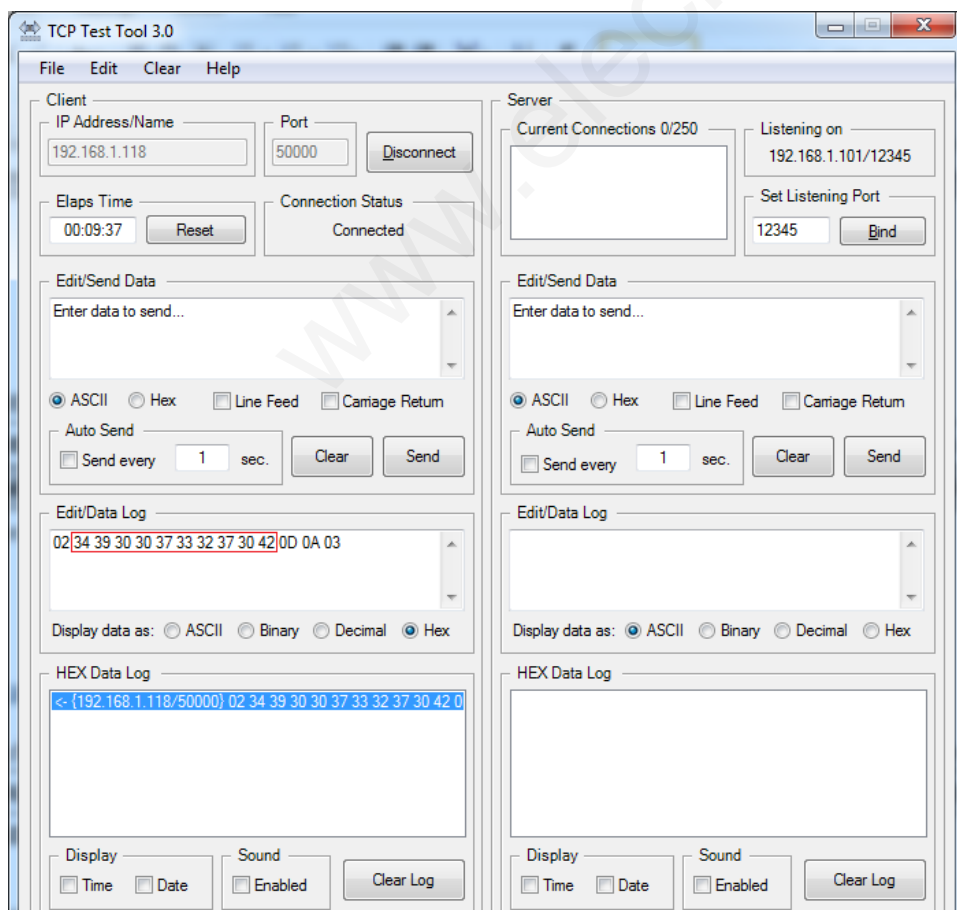
The 2nd byte to 6th bytes is a 5-bytes reader's ID in hex.

Data Format

Each time while you got the card number from the reader module, it is in the following format:

STX(0x02)	DATA(8 or 10HEX)	CR(0x0D)	LF(0x0A)	ETX(0x03)
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DATA field contains 8 or 10 valid HEX numbers. It is the card number.



Configuring the Reader

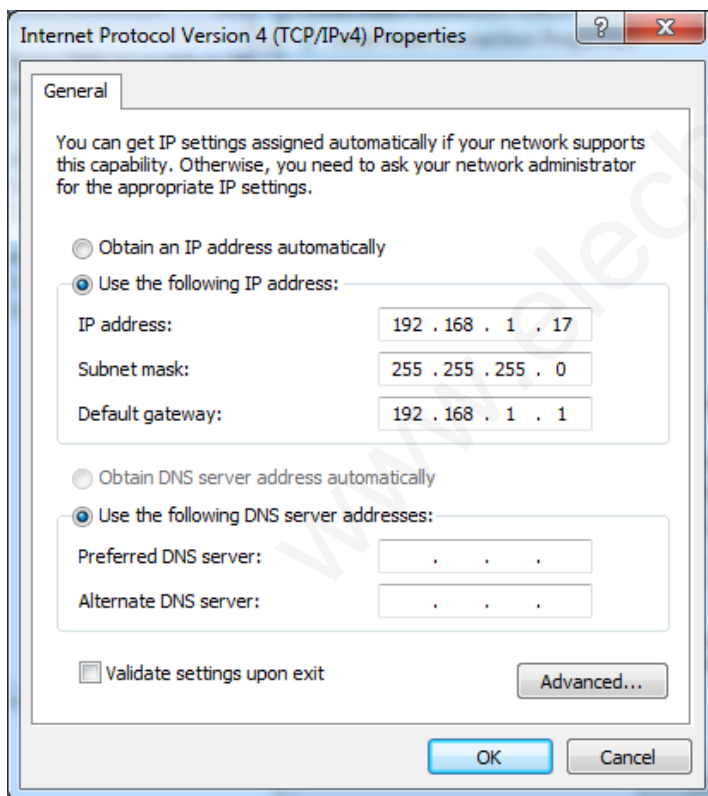
Default setting:

- IP Address: 192.168.1.18
- Gateways: 192.168.1.1
- Subnet mask: 255.255.255.0
- Work mode: TCP Server
- Port: 50000

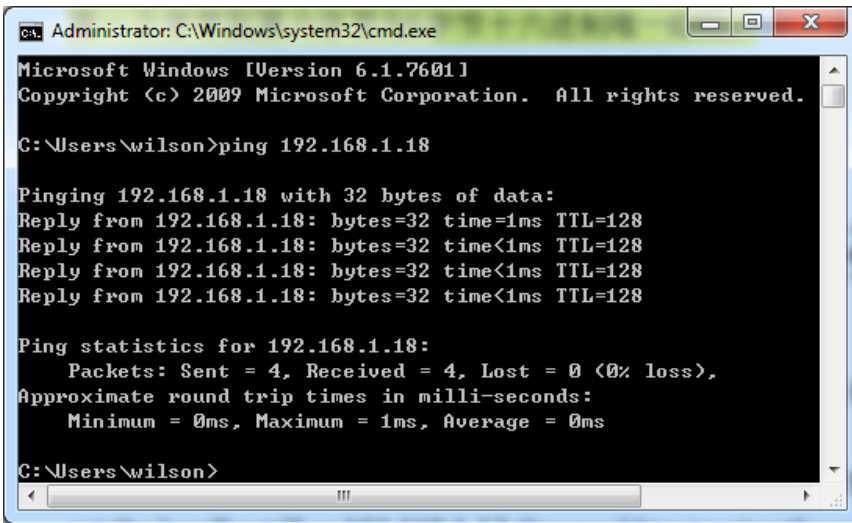
We need a tool to configure this reader. [You could download it here.](#)

Step 1

Power on the module and connect it with your PC or router with an RJ-45 network cable. You will hear a long buzzer. After that, the reader is ready. The device's default IP is 192.168.1.18. So if you connect it with router, make sure this IP address is valid in your LAN. In this example, you are supposed to connect it with your PC. On windows 7 OS, set the localhost IP as 192.168.1.17.

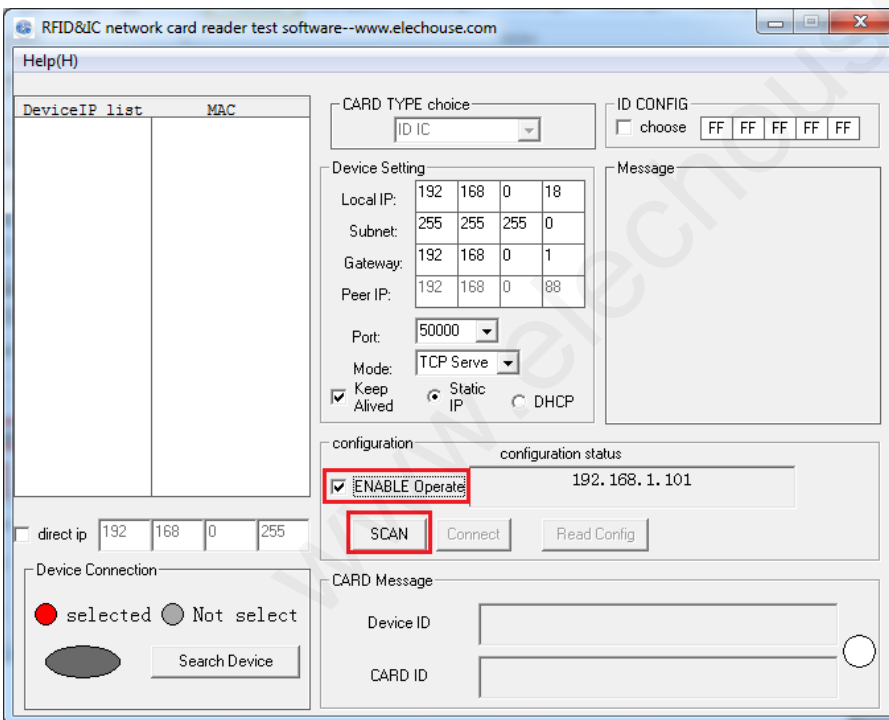


You could try to ping the reader's IP from your PC to check if the connection works.



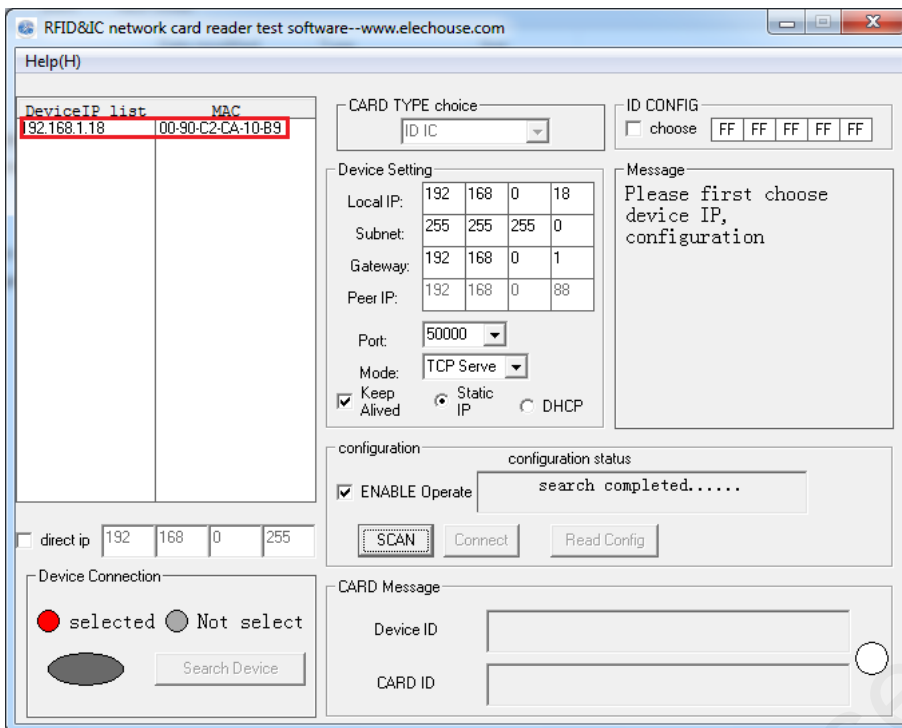
Step 2

Start the software and enable **ENABLE Operate**. Then click **SCAN** button.



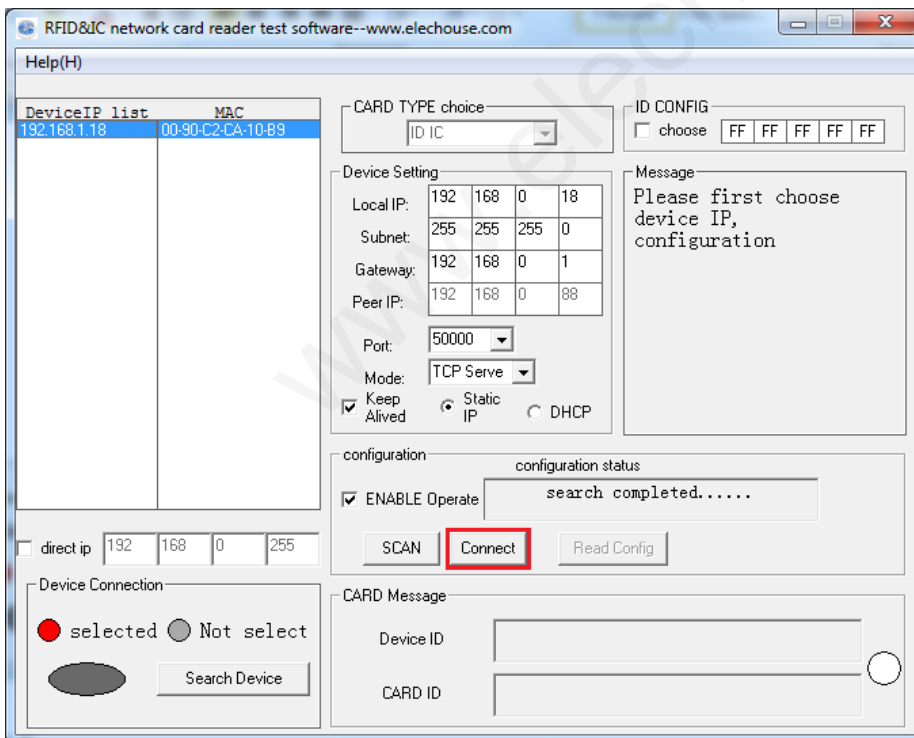
Step 3

Click the area where shows the IP and MAC address



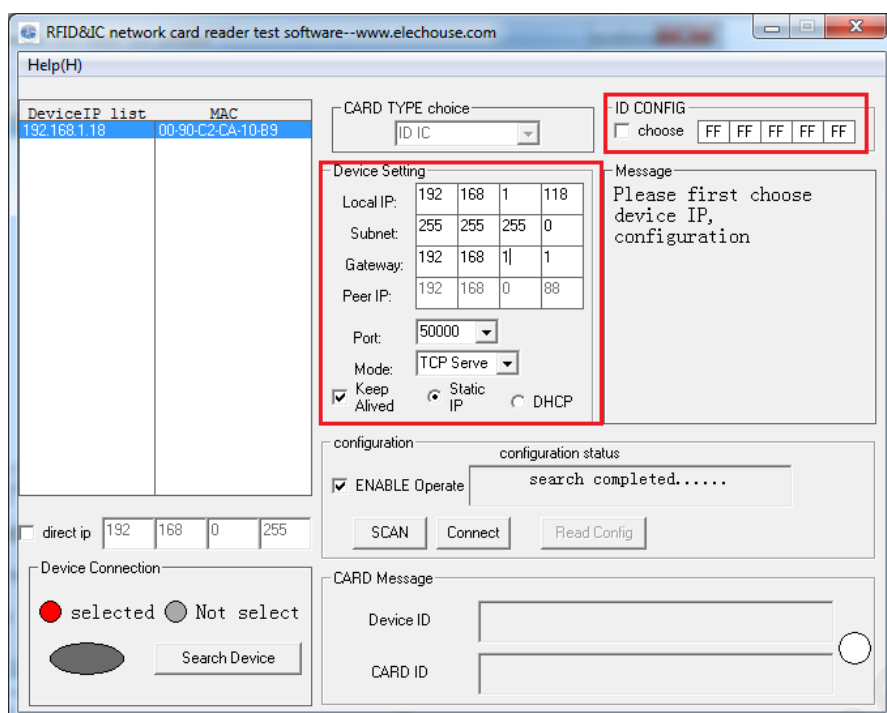
Step 4

Click the **Connect** button.



Step 5

Now we connect to the reader successfully. Change the IP, Gateway address, Port number and Working mode.

**Parameter Name****Description****Local IP**

The reader module's IP address

Subnet

Must be the same with your PC's

Gateway

Must be the same with your PC's

Peer IP

While **Mode** is set as **TCP Client** or **UDP Client**, you can change this parameter. It is the remote server's IP address.

Mode

There are 4 kinds of working mode: **TCP Server**, **TCP Client**, **UDP Server** and **UDP Client**.

- **TCP Server**: in this mode, TCP clients to visit it for data.
- **TCP Client**: in this mode, we could configure remote server IP and port to make connection with remote server.
- **UDP Server**: in this mode, the card reader could respond to many clients. A client sends CMD1 command to the card reader. And the reader will record the IP and Port of the latest CMD1 sender. While it gets card number, it always sends the number to that IP and Port number.
- **UDP Client**: this mode is kinda like the TCP client. We could configure remote server IP and port to make connection with remote server.

Keep Alive

TCP heartbeat. We suggest that enable the **Keep Alive** choice. This will make sure that the link will

be re-connected if illegal disconnect took place.

Static IP/DHCP

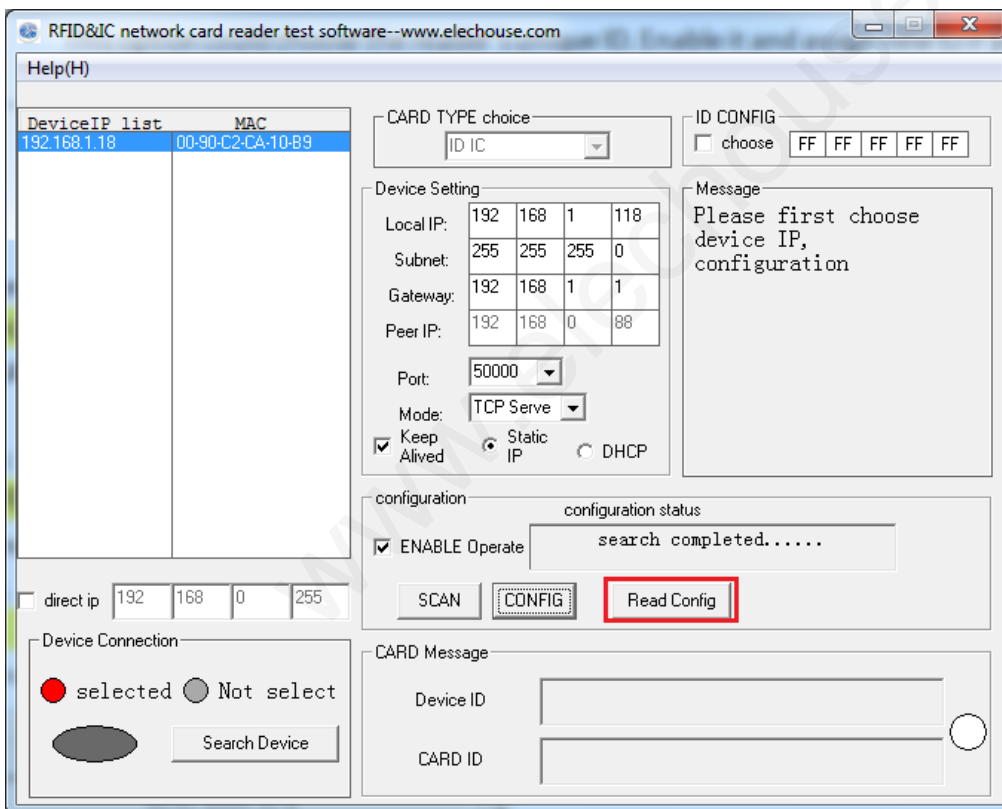
- *Static IP: the network parameters such as IP, subnet and Gateway address, are assigned by hand. The setting above is valid while we choose this option.*
- *DHCP: the network parameters such as IP, subnet and Gateway address, are assigned by DHCP server, for example, a router. Usually router supports DHCP. While you connect it with routers, you could choose this option.*

ID CONFIG

This option could choose the reader's unique ID. Enable it and assign new ID if you want to change it.

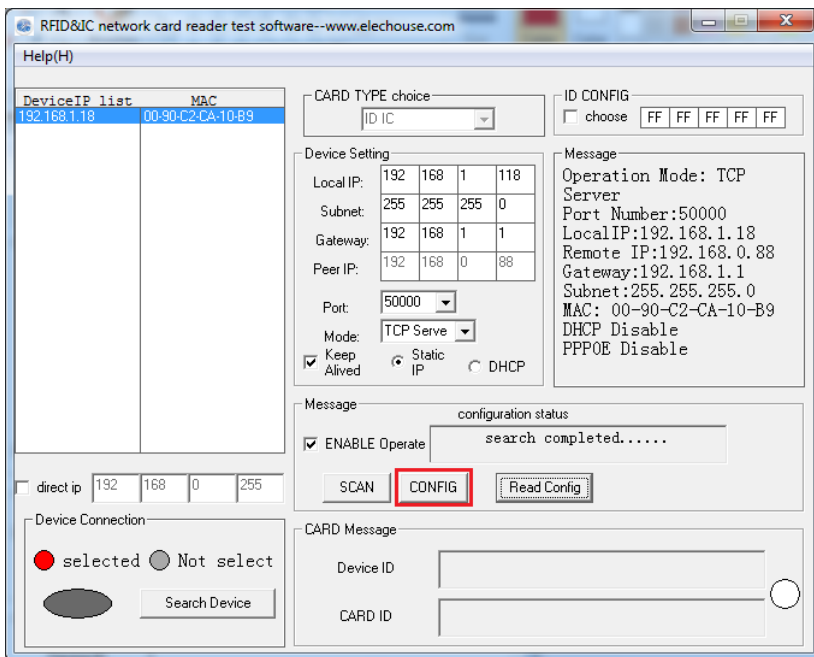
Step 6

Click **Read Config**



Step 7

Click **CONFIG**



Configuration is done. This card reader has FLASH to save configuration. So even powered off, the setting will not be lost.

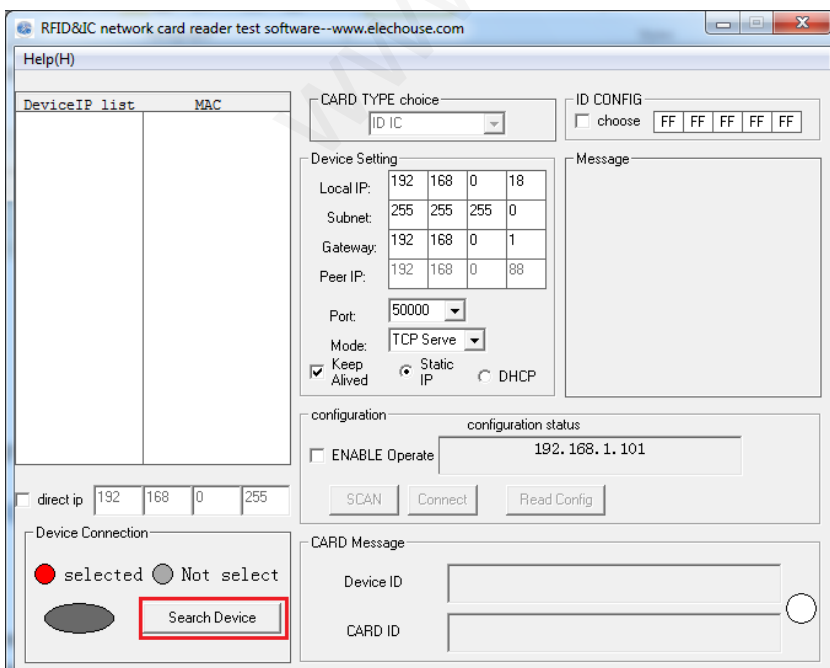
Test

We will show examples of testing with 2 software tools: ELECHOUSE RFID Testing Tool and TCP Test Tool.

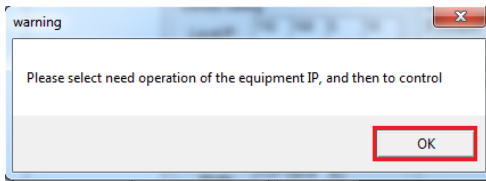
ELECHOUSE RFID Testing Tool

Step 1

Restart the tool, and click **Search Device** button.

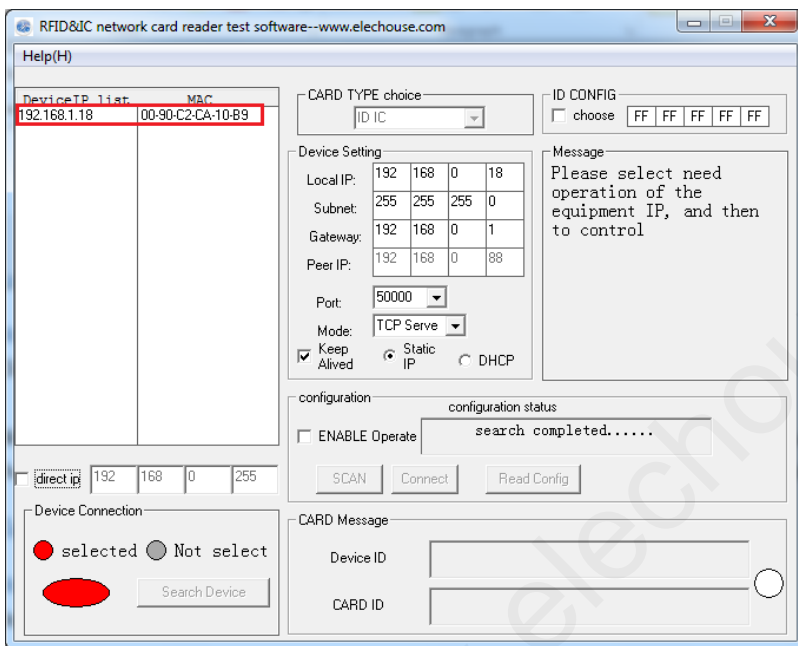


You will get the warning prompt. Just click **OK**.

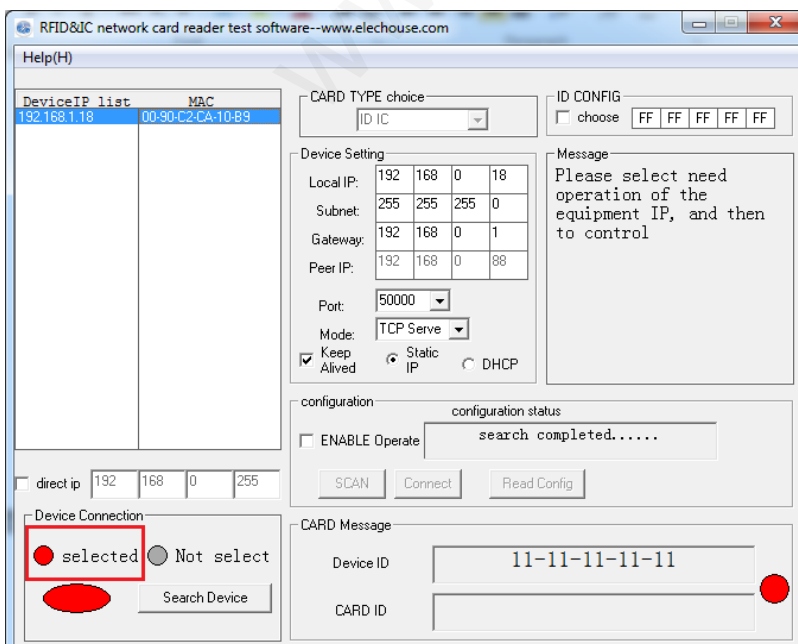


Step 2

Click the area where the IP and Mac address is displayed.

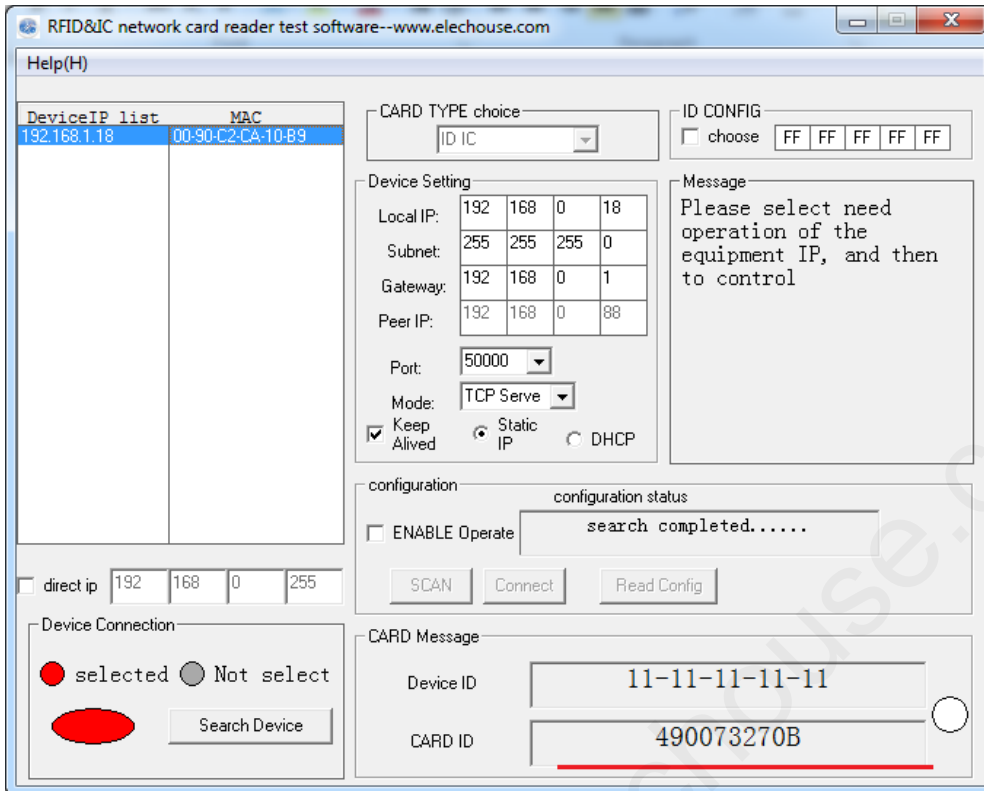


Then you will connect the device successfully.



Step 3

Put an RFID card on the reader. You will hear the buzzer and get the card number.



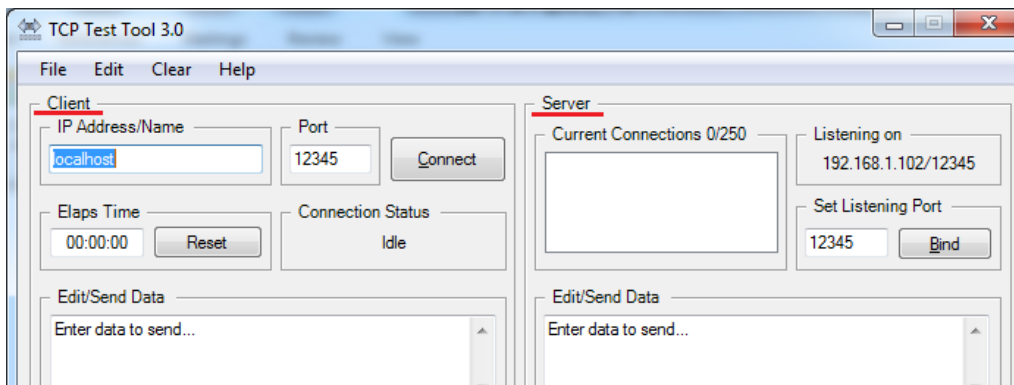
TCP Test Tool

We use [TCP Test Tool](#) to test the **TCP Server** mode and **TCP Client** mode. You could also use [UDP Test Tool](#) to test the **UDP Server** mode and **UDP Client** mode. Since the test is similar, here we only show how to test with TCP Test Tool.

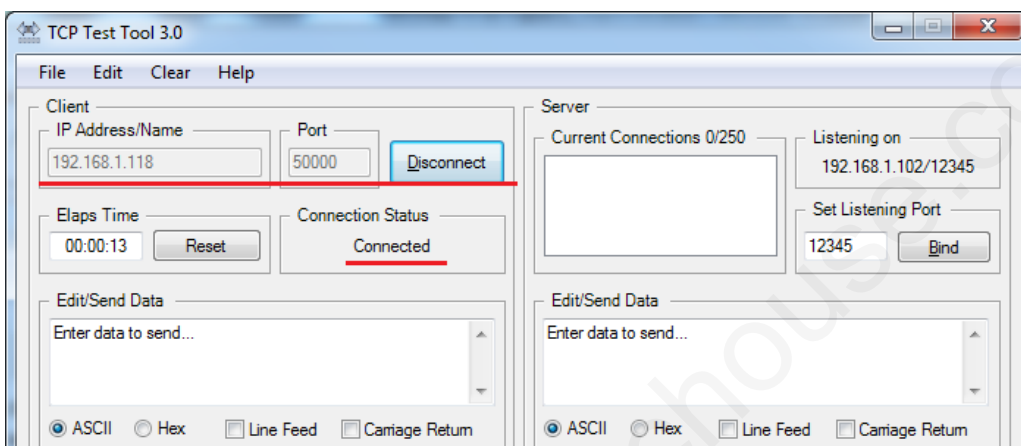
Test TCP Server

Step 1

Download [TCP Test Tool](#) and install it. Then open it.



Here, the **Client** and **Server** (underlined by red line) mean you PC role. Here we test the card reader's **TCP Server** mode first.



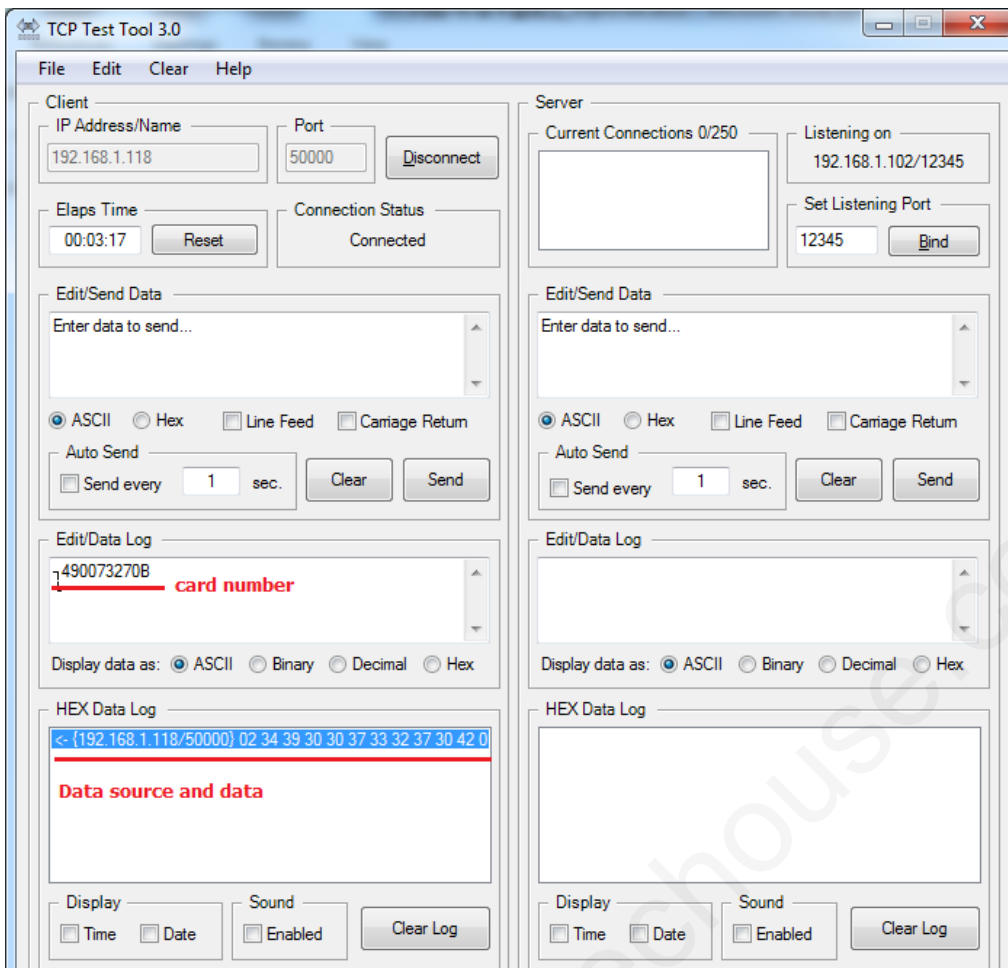
Step 2

Configure your card reader in TCP Server mode as description above. Enter the reader's IP and Port number, and lick **Connect**.

Here my card reader's IP is 192.168.1.118, Port number is 50000. So I fill it in the following way:

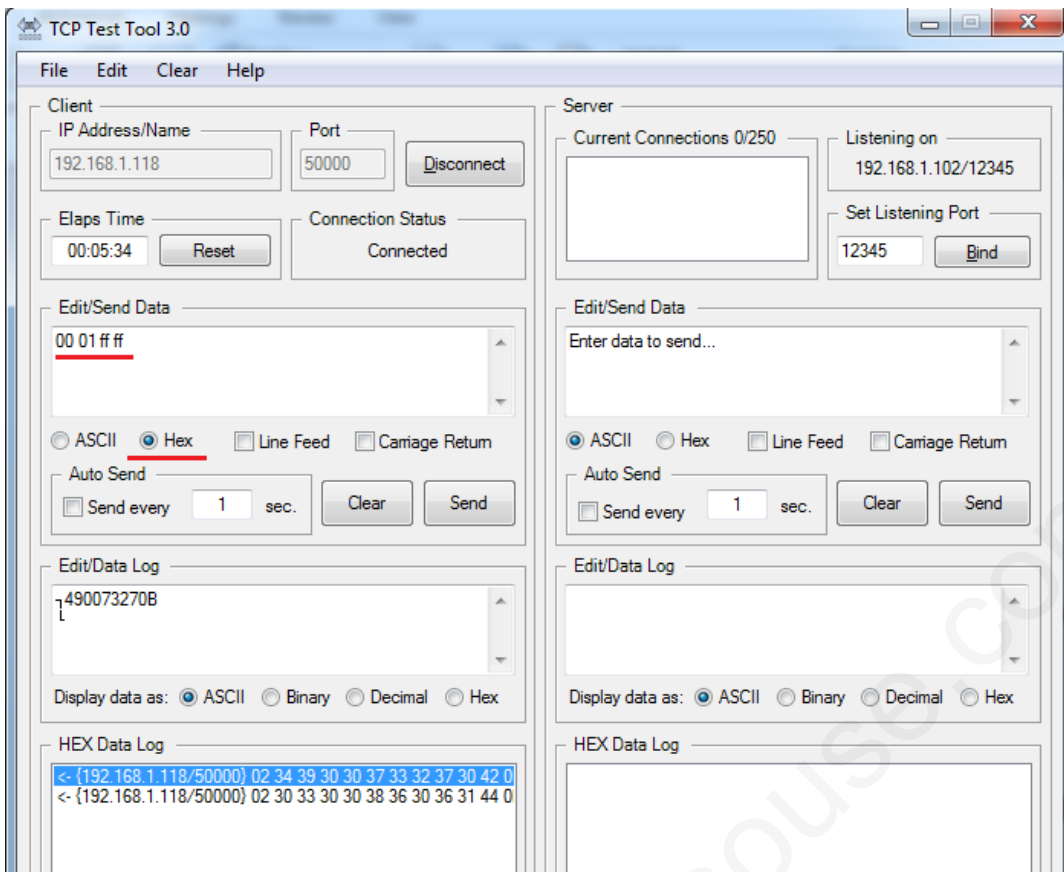
Step 3

Put the card on the reader. Then you will get the card number in the software.



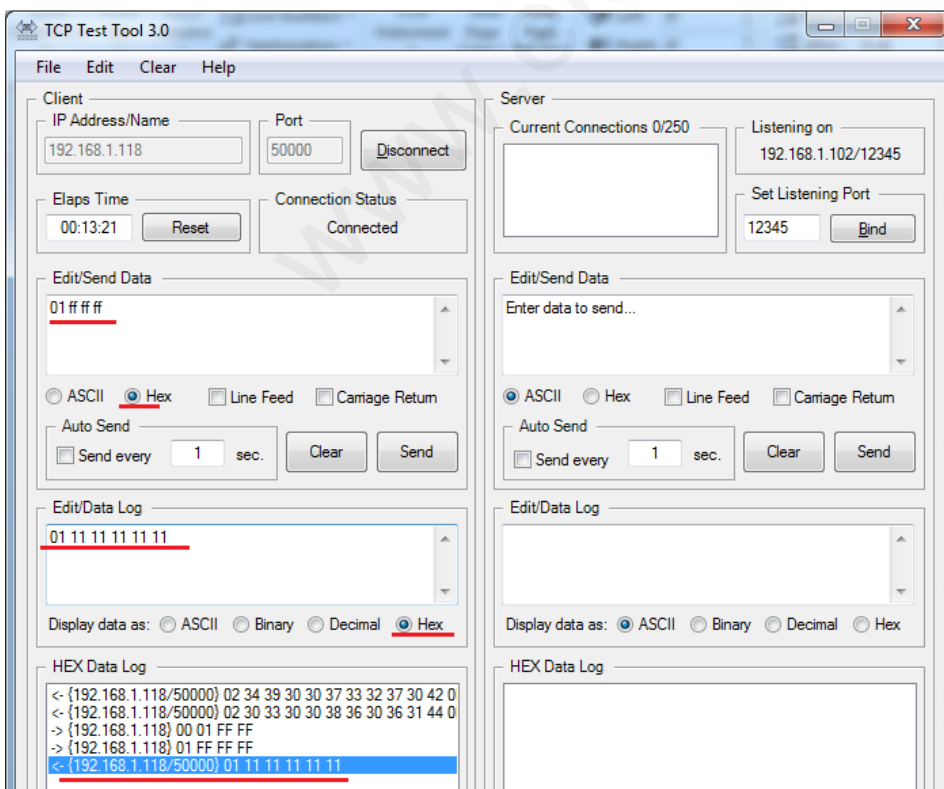
Step 4

Send CMD0 to drive the buzzer in the reader module. Click **Hex** and enter **00 01 ff ff**, click **Send**, and then the buzzer will sound once.



Step 5

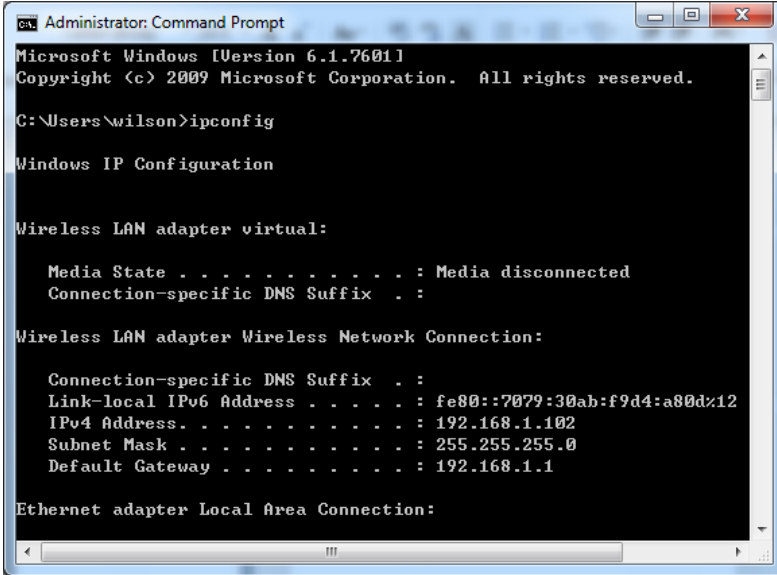
Send CMD1 to get the reader's unique ID. Click **Hex** and enter **01 ff ff ff**, click **Send**, and then you will receive the ID.



Test Client Server

Step 1

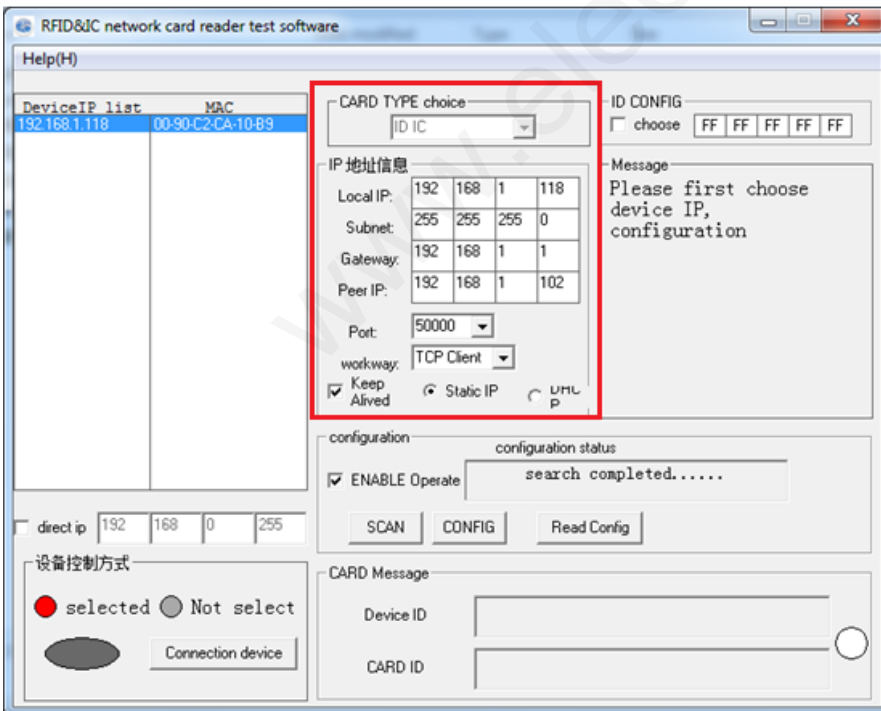
Here use your PC as TCP server. In Command Prompt, enter command **ipconfig** to find your PC IP.



My PC IP is 192.168.1.102.

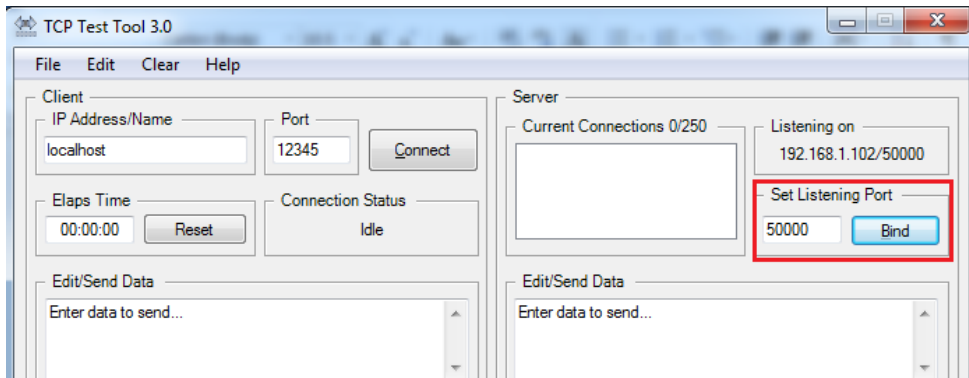
Step 2

Configure the reader to **Client Server** mode.

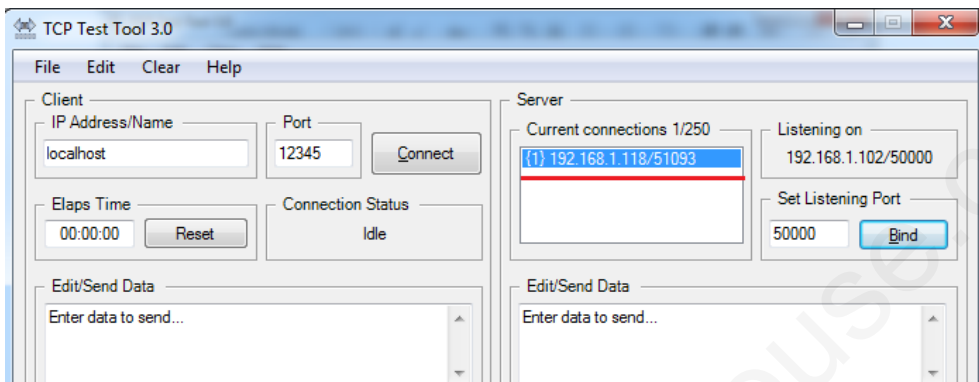


Step 3

Start TCP Test Tool and configure it. Set the Port number to 50000, and the click Bind.

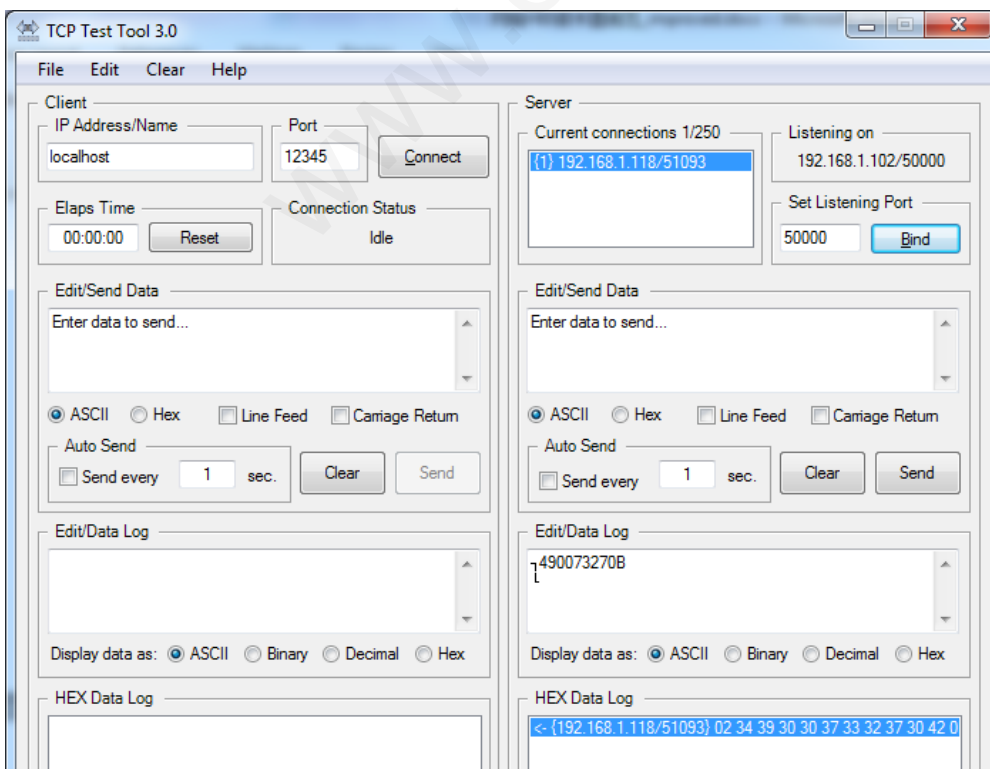


Soon you could find a connection from the reader.



Step 4

Put the card on the reader module and you will get the card ID in TCP Test Tool.



Disclaimer and Revisions

The information in this document may change without notice. If you have any problem about it, please visit www.elehouse.com or email to service@elehouse.com.

Revision History

Rev.	Date	Author	Description
A	Jun. 10 th , 2012	Wilson	Initial version

www.elehouse.com