

MR30

2.4G Reader

User Manual

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Chapter1 Short Introduction

1.1 The appearance



1.2 Introduction

MR30 is a 2.4GHz bi-directional antenna reader, it can write data to tag and meanwhile receive the data from tag. Both of the antenna are omni-directional, one is for RX and the other is for TX, so it can receive the signal from every direction. It supports TCP/IP and RS232 connection and very convenience for users to use. Mainly used in personal management or register system, etc. It can be matched with 2.4GHz tag that we supply to use.

1.3 The application

MR30 reader always applies in the omni-directional identify system which need a wide passing channel, long range reading, fast identify, multi-tag identify, person's tracking and location field.

- Access management: open door control access management system, such as smart living district, car parking system, freeway ETC system, sea port and customs safety-inspection system.
- Personnel management: attendance administration management, conference signature system, student safety SMS system and even security patrol system.
- Goods management: warehouse goods management, data connection, moving goods monitor system, sea port goods automatically identify, registration management .etc
- prevent accident system: coal mine personnel management, manage the works and to avoid the big accident, anti-stolen management system.
- public traffic system: city traffic smart platform and car monitor
- Manufacture management: product workshop procedure management, monitor the production procedure
- Transportation management: road, railway management and the transportation flow, monitor and tracking of Container.

1.4 MR30 reader main function

- Write data to tag and receive data from tag, so called read & write reader.
- The communication between reader and tag is one-to-one, one tag marks one person or goods, tag ID is unique.
- Matched with MR3820A tag (read & write) to use, this reader can wake up MR3820A tag, after woken up, tag will send its ID to reader and then reader will transfer the tag ID to PC for users to observe. Reader will know a general position of the tag.
- Location: the reader can identify the tag within a circle (minimum radius is 3m and max is 80m), and the signal sent from reader is omni-directional.

1.5 Specification

Model No.	MR30
Frequency	RX frequency: 2.44GHz TX frequency: 2.48GHz (sending and receiving independent)
Communication mode	Dynamic encrypt mode
communication speed	9600Bps-115200Bps
Signal modulation mode	GFSK
Working mode	Read, Write tag
Error correction	CRC8
Receiving sensitivity	-90dbm
Identify mode	Omni-directional, read with a radius 80m maximum circle, (custom to connect with directional antenna)
Identify distance	Maximum 80m (adjustable)
Identify speed	80km /h
Anti-collision	Identify more than 100 cards at the same time
Error rate	1:10000000
Voice indication	Buzzer built-in
Developing port	Supply all usable developing function
Data interface	Standard: RS232, and RJ45 Customized: WIFI or other
Power supply	DC+9V~+12V
Work Temperature.	-40°C~+85°C
Size	160mm*120mm*35mm

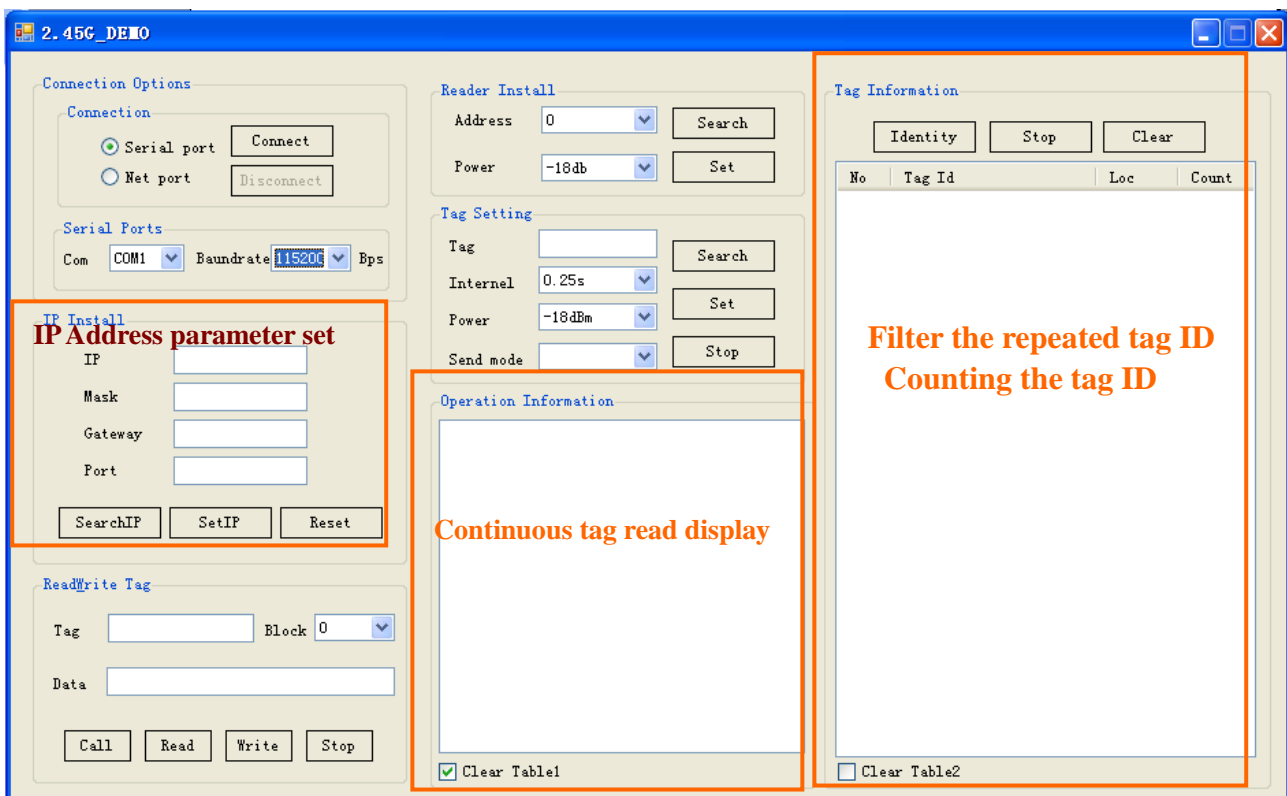
Chapter2 MR30 reader full function demo

We supply 2.45GDemo.exe program to show the readers function;

Open this software, this software support Chinese and English access, here we choose English to enter the software.



Show the main operation interface:



2.1 Connect reader

First make sure to connect the TX and RX antennas.

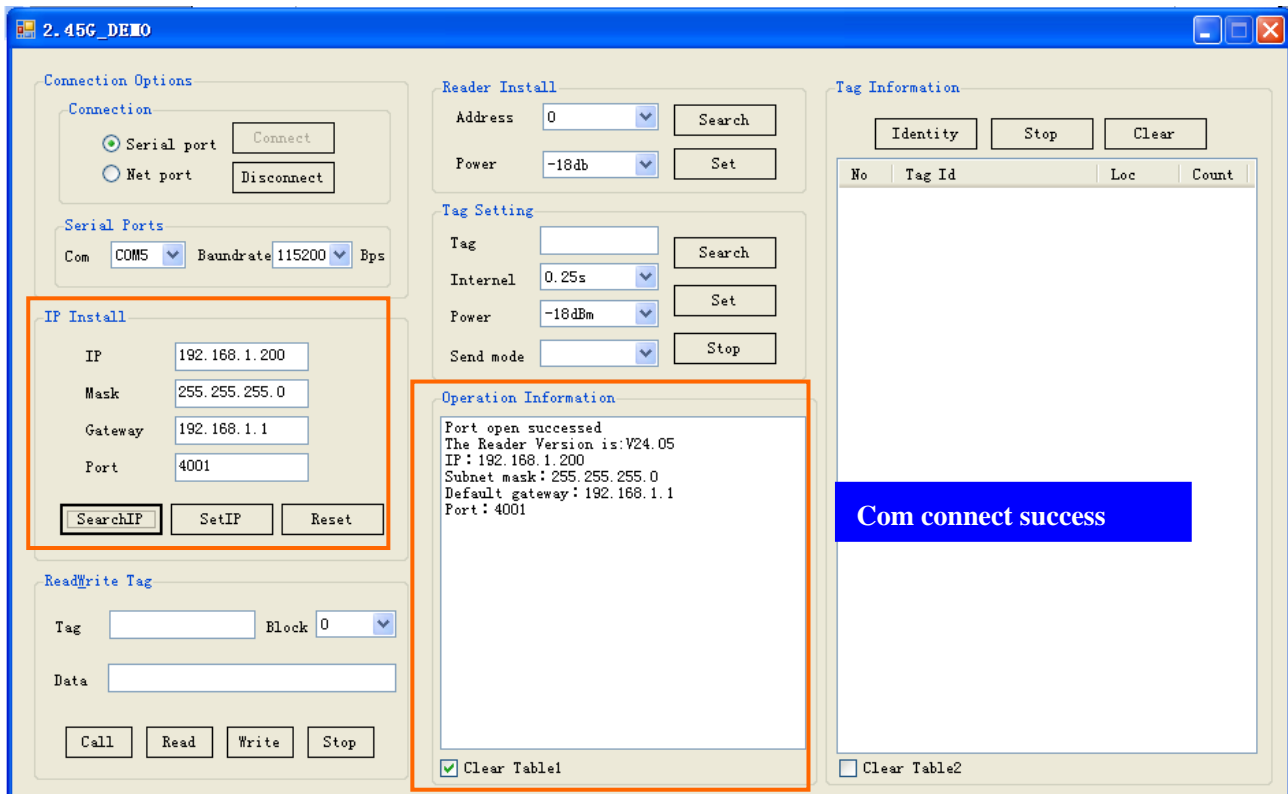
This reader supply Ethernet port and serial port for communication and transferring the data, we supply demo software to show the reader's full function.

Com connection: If you use com port to connect the reader with PC, select the right com port and a proper communication baudrate (from 9600bps to 115200bps supportable), then click connect.

Ethernet connection: If you use RJ45 to establish the connection, fill the reader's IP address and port No in the software, then click connect. Here you can connect it to PC via a switch. Pay attention to the reader's IP address and the PC 's IP should be stayed in the same network segment.

Via the demo software you can query the reader's IP and the set a new IP for reader.

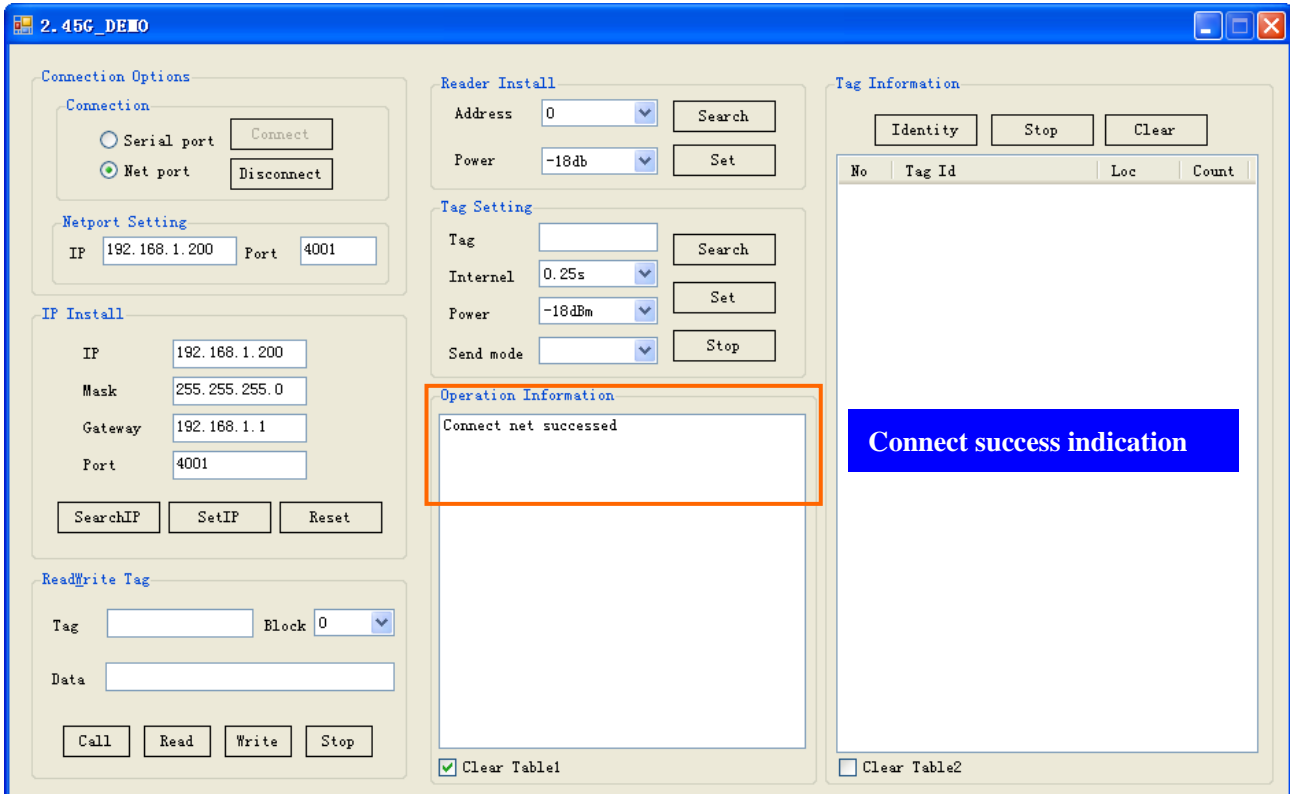
Click "Search IP" to query the pre-configured IP address, see following:



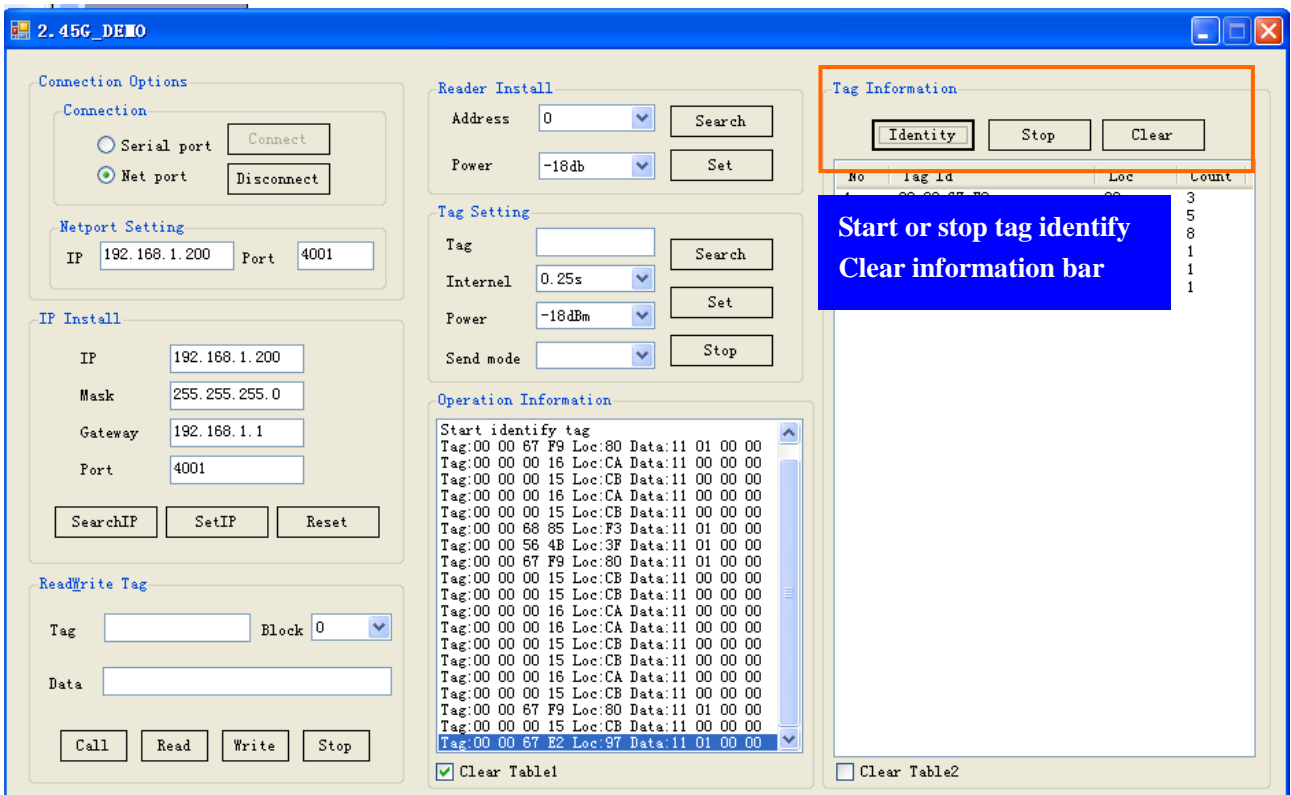
This reader support com port configure the IP address, after configure success, you should reset the reader, then the IP address can be valid to use.

Ethernet connection

Ethernet connection success, see following:

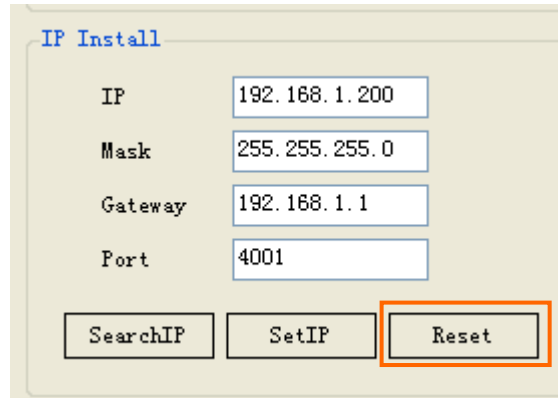


Identify tags via Ethernet port



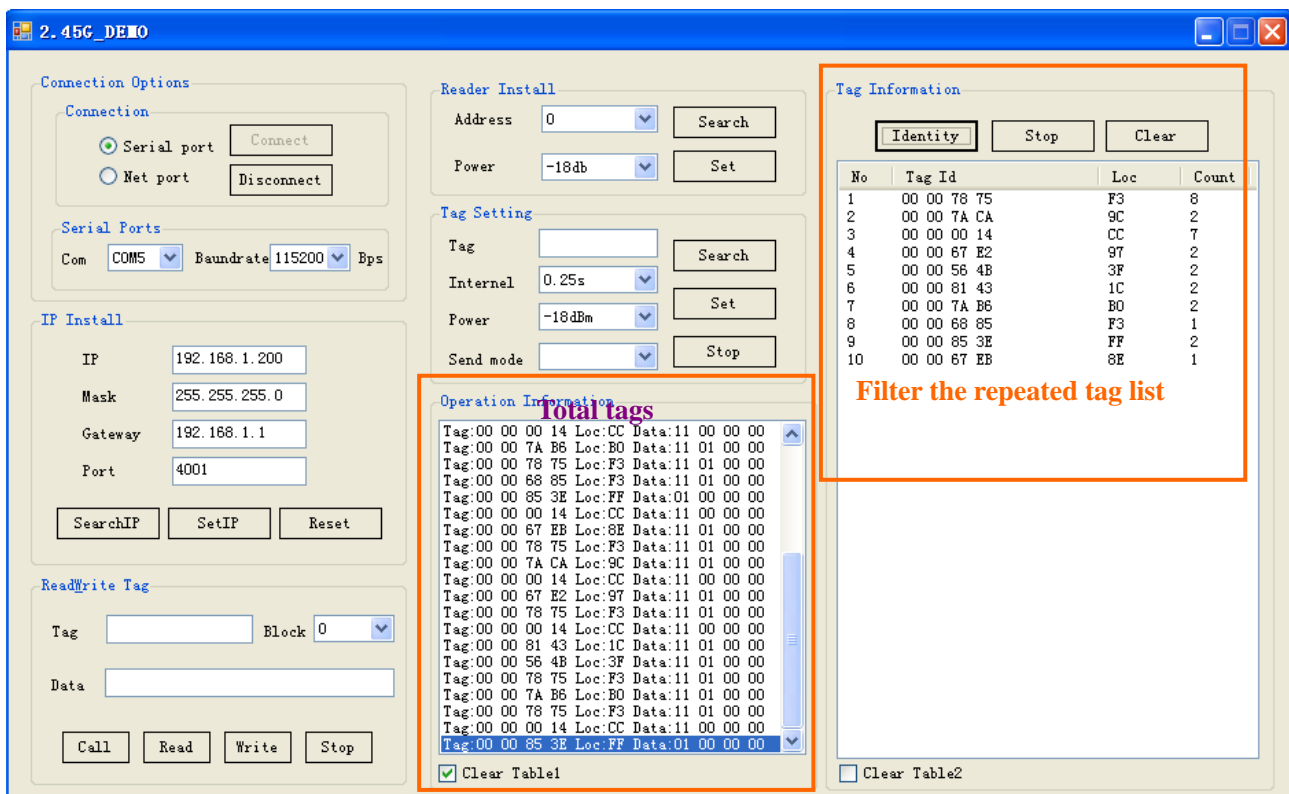
2.2 Reset reader

If an abnormal operation to reader, you can reset reader by click the “Reset ” button



2.3 Multi-tag Identify

Click “Identify ”button will start the reader to read tags:



2.4 Configure the tag's sending time interval and sending power

Configure tag parameter is only valid to Read&Write tags(passive), Readonly(Active) tag can not be configured

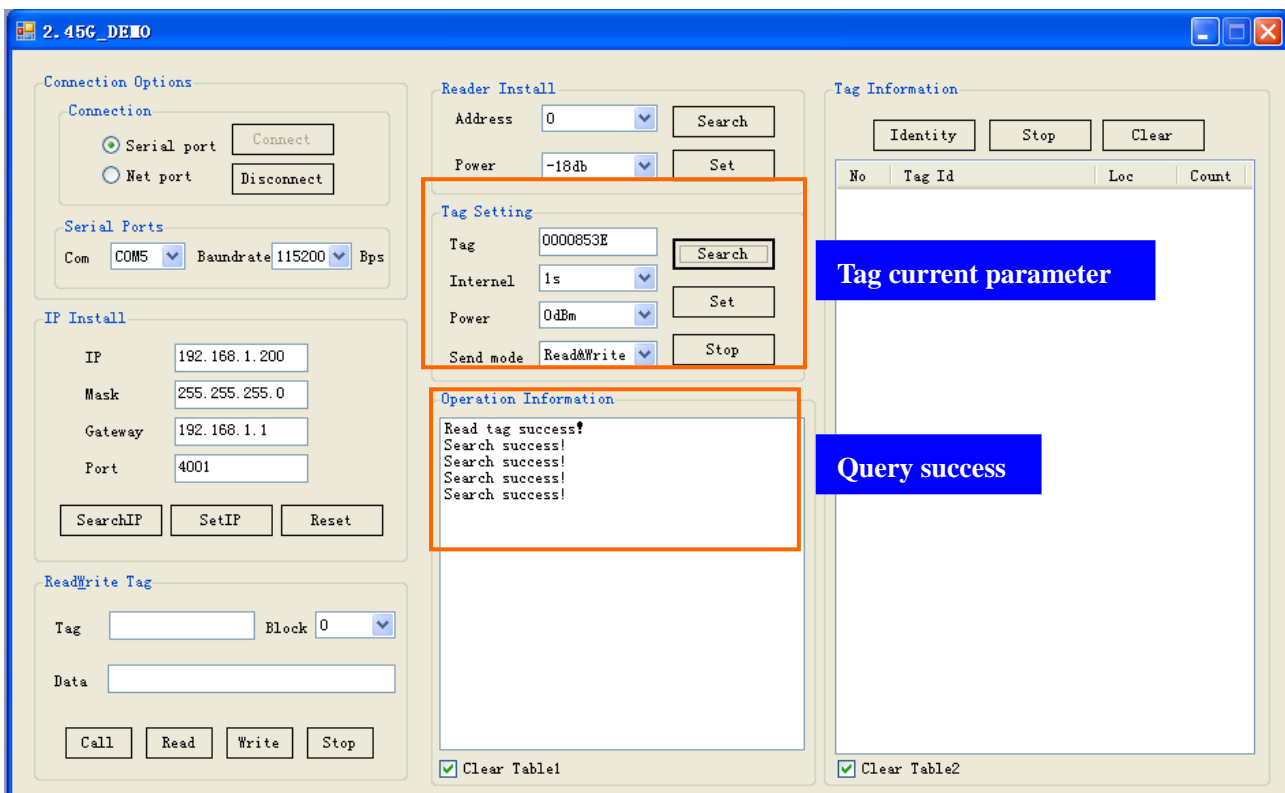
“Tag” bar: fill the original tag ID, Click “Search” will show the current parameters

Setting Tag's sending time interval: Select a proper time you need

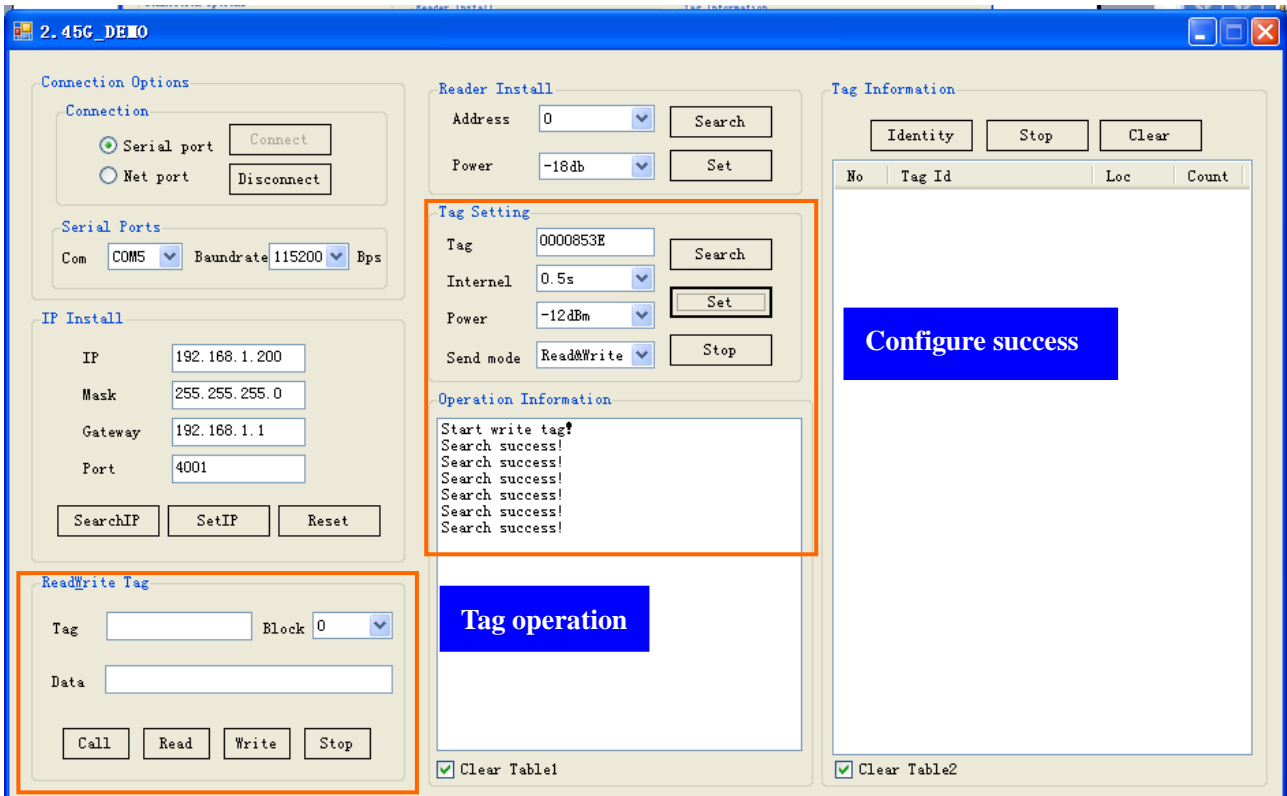
Setting tag's sending power: Select a proper power

Send mode: Readonly or Read&Write

Note:Here you should pay attention to it ,if the tag is changed to be a Readonly tag, means it will be change to an active tag, then you can not configure the parameters any more



Fill the original ID in the “Tag” bar, then select a time interval and a sending power, **time interval** means every 1s or 2s the tag send a signal to reader, **Power** means the tags antenna's sending power, it can adjust the tags and reader's identify range, then Click “**Set**”, if success it will return a success information.



2.5 Tag operation

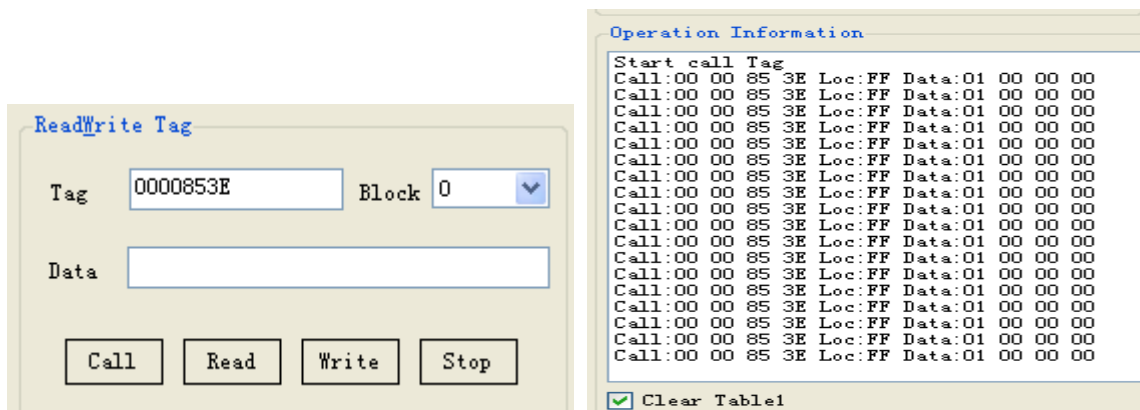
This function can modify the tag ID, and configure the tag's parameters, read and write tag memory, and even Call tags

Operation interface as below:

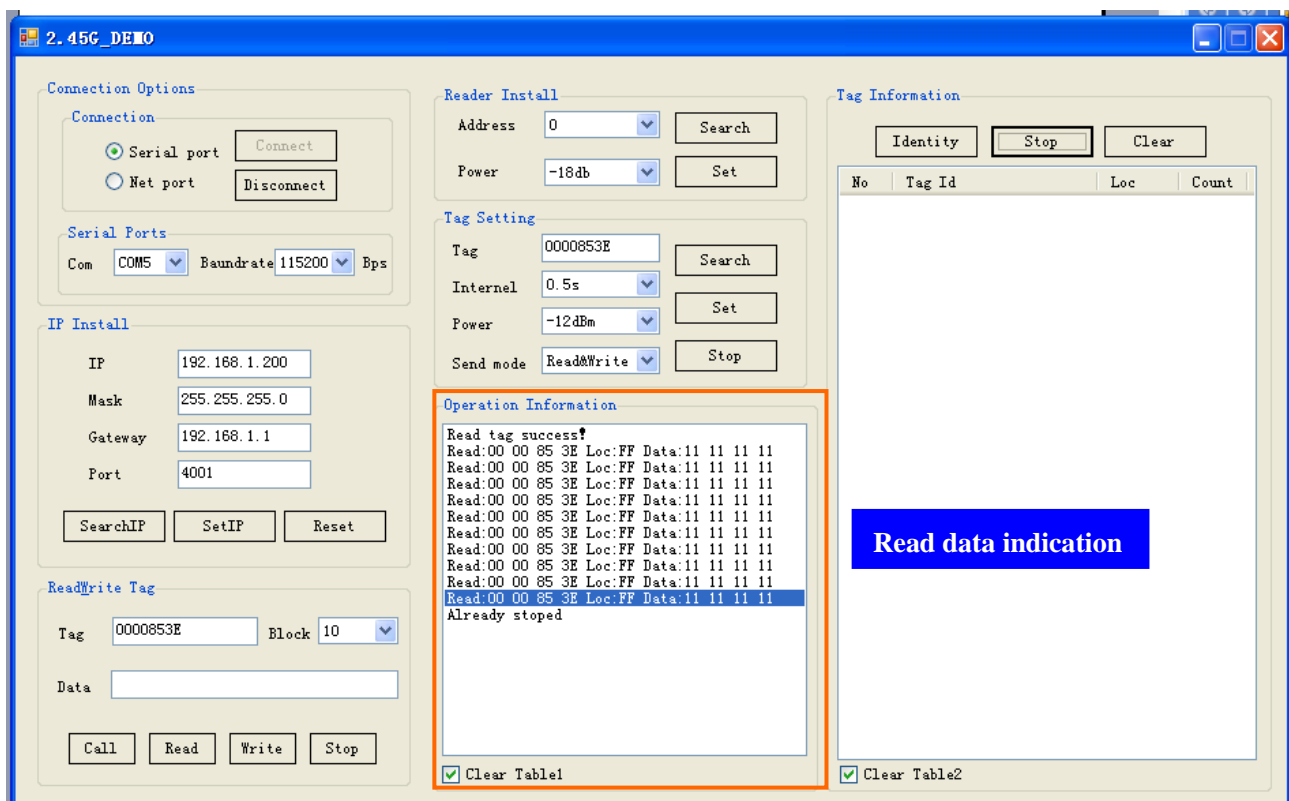


Specify: before run READ,WRITE,CALL function, must input this tag ID number in "Select TAG" bar, then start operating the tag.

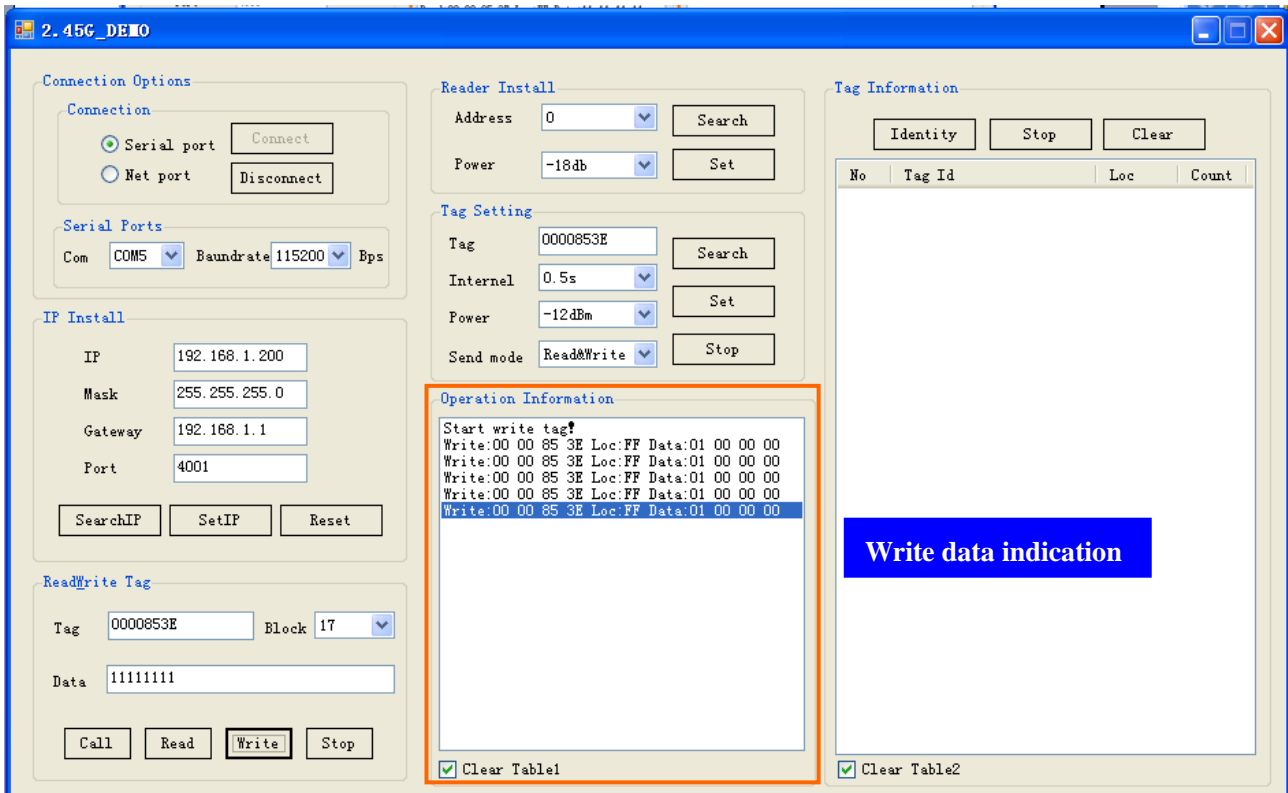
Call: In "Tag" bar input this tag ID number, then click "Call" button, reader get to call mode, when tag receive this call signal, tag LED start to flash until stop call;



Read Data: single tag read specified data (also name specify tag read), in “Tag” bar input this tag ID number, in Block bar select the read start address, then click “Read” button, reader start this tag data, default read data is 4 byte;



Write data: in “Tag” bar input this Tag ID number, in Block bar select the write data address, in Data bar input the data that going to write, data is 4 byte, then click“Write”button, at this moment the tag must be in common receiving status; After write success the information will be show in the information bar

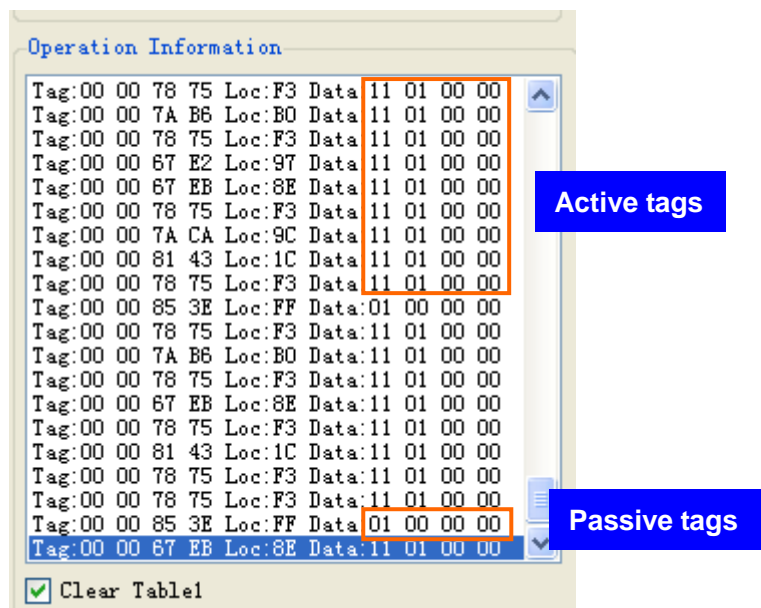


2.6 Tag working mode instruction

Passive tag-----It can be read and written, even configure the tags parameters as well.

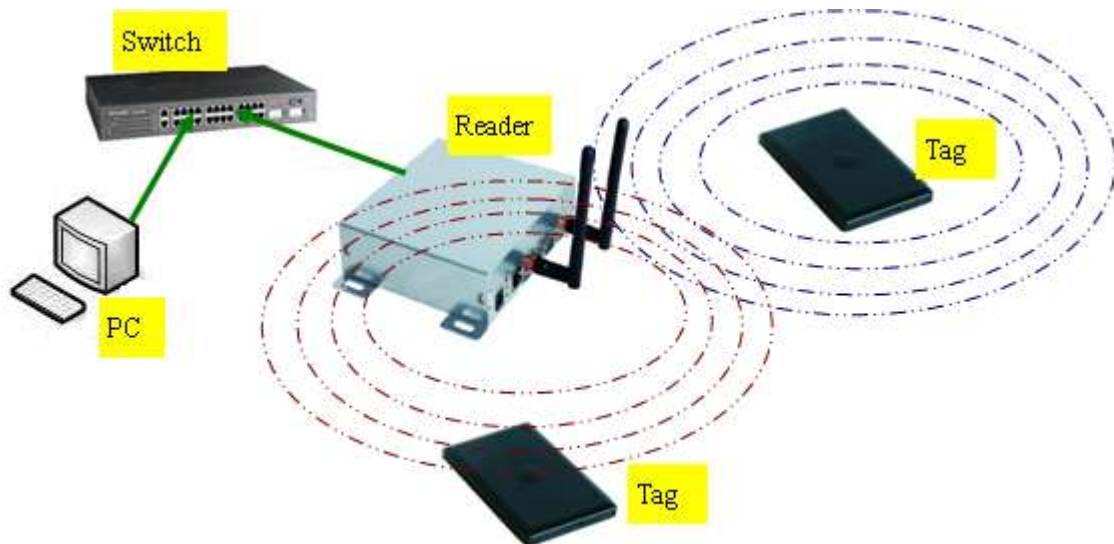
Active tag-----It can not be read and written data, and can not be configured.

The identify result will distinguish the active and passive tag, see following, if Data begin with 11 01 , it is an active tag, meanwhile the beginning tag is 01 00, it is a passive tag.



Chapter 3 MR30 reader application system

3.1 System structure



RX: Receive the data from tag

TX: Wake up the passive tag

Include: passive tag, MR30 reader, PC, switch

3.2 Working process instruction

Here we use MR30 reader and MR3820A tags in this system. At normal status, the Tag is in sleep mode, after the reader works, the TX antenna will send a signal to wake up the passive tag, the waken up tag will send its ID to reader automatically, reader will process the data and via Ethernet or Serial port transfer it to PC, if many readers are using in this system, user can use a switch to establish a VLAN so that it can transfer the information, at PC side we supply a demo software to observe the tag data.

Reader will identify the tags within the reader's antenna range, so in this way, tag can locate a person or goods. And also it can be used to register persons.

See the following information: No is the total number of the tags, Loc is the reader's address, Count is the times of the tag being identified.

Tag Information

Identity Stop Clear

No	Tag Id	Loc	Count
1	00 00 81 43	1C	11
2	00 00 78 75	F3	41
3	00 00 85 3E	FF	15
4	00 00 67 EB	8E	12
5	00 00 7A B6	B	10
6	00 00 7A 4D	F	4
7	00 00 68 85	F	2
8	00 00 68 22	F	5
9	00 00 67 E2	9	3
10	00 00 7A CA	9	1

Accumulate

Reader Address

Count

Clear Table2

Chapter 4 Second development

Users can develop the software according to read demands, we supply communication protocol, Demo software, source code and SDK function. It support C++ and C#.net development environment.

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION:

To assure continued FCC compliance:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.