

SYRIS TCP/IP & Bluetooth HF RFID Reader

OPERATION MANUAL

V01.00

Model : RD400-H1

Features :

- Compatible to read multi-ISO format HF cards
- Multi communication interface
- Provide protocol to develop.



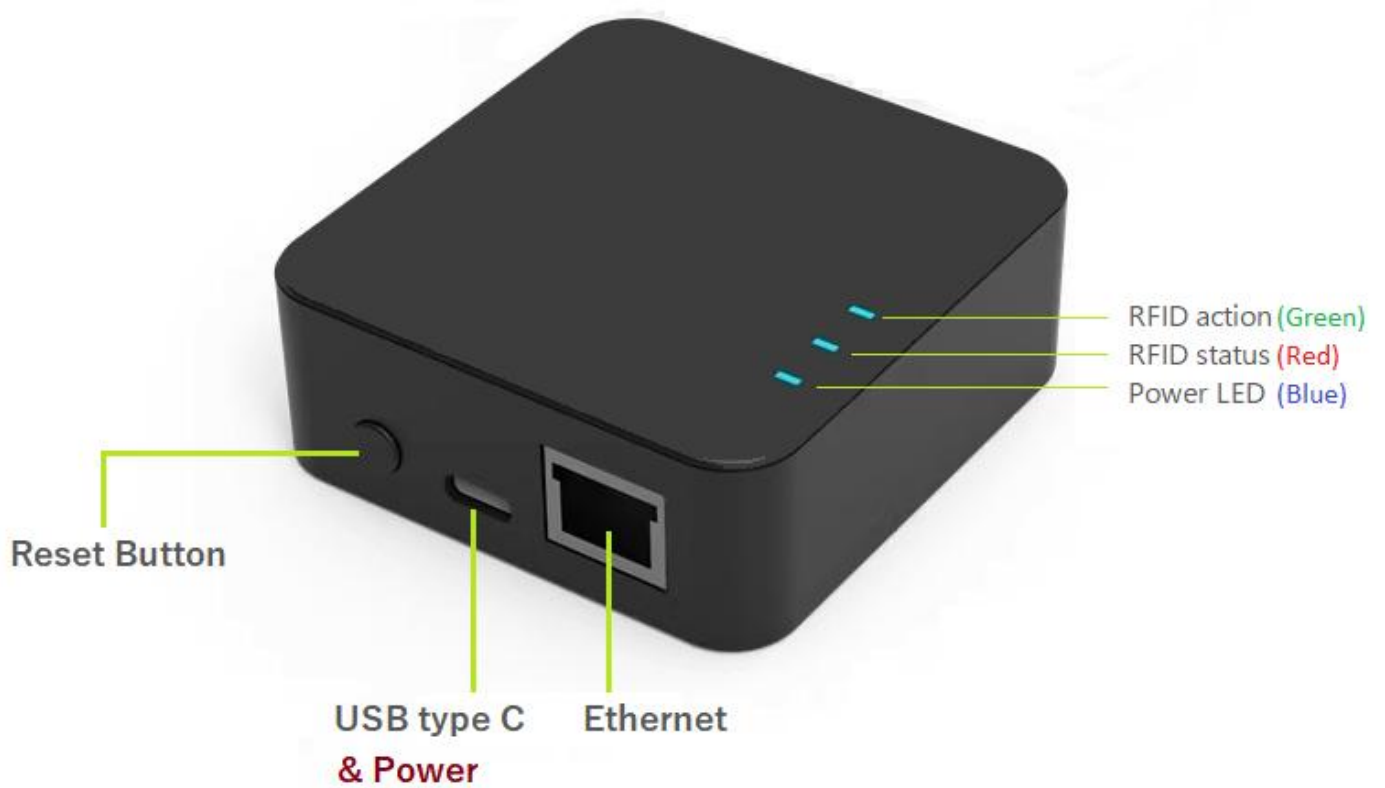
Specifications :

HF RFID Frequency	13.56 MHz (Multi-Format)
HF Read Range	1cm ~ 5cm
HF Card Types	ISO14443A/B, ISO15693, Mifare block, Desfire UID
Read Card Time	0.1 sec
Interface	Ethernet / Bluetooth / USB
Ethernet	10M/100M Ethernet Port
Bluetooth	Bluetooth 5.0 BLE / SPP
Bluetooth transmission range	up to 20m
Status Indicator	LED& Beeper
Operating Temperature	-10°C ~ 60°C
Power	5V DC
Size(mm)	73 (W) x 71 (H)x 27 (D)mm (No Wire Included)

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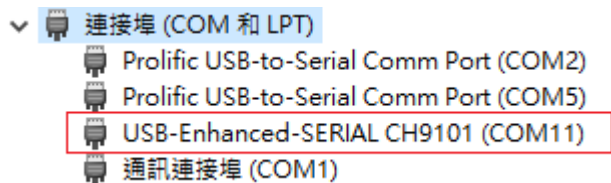
RD400 Hardware Connection



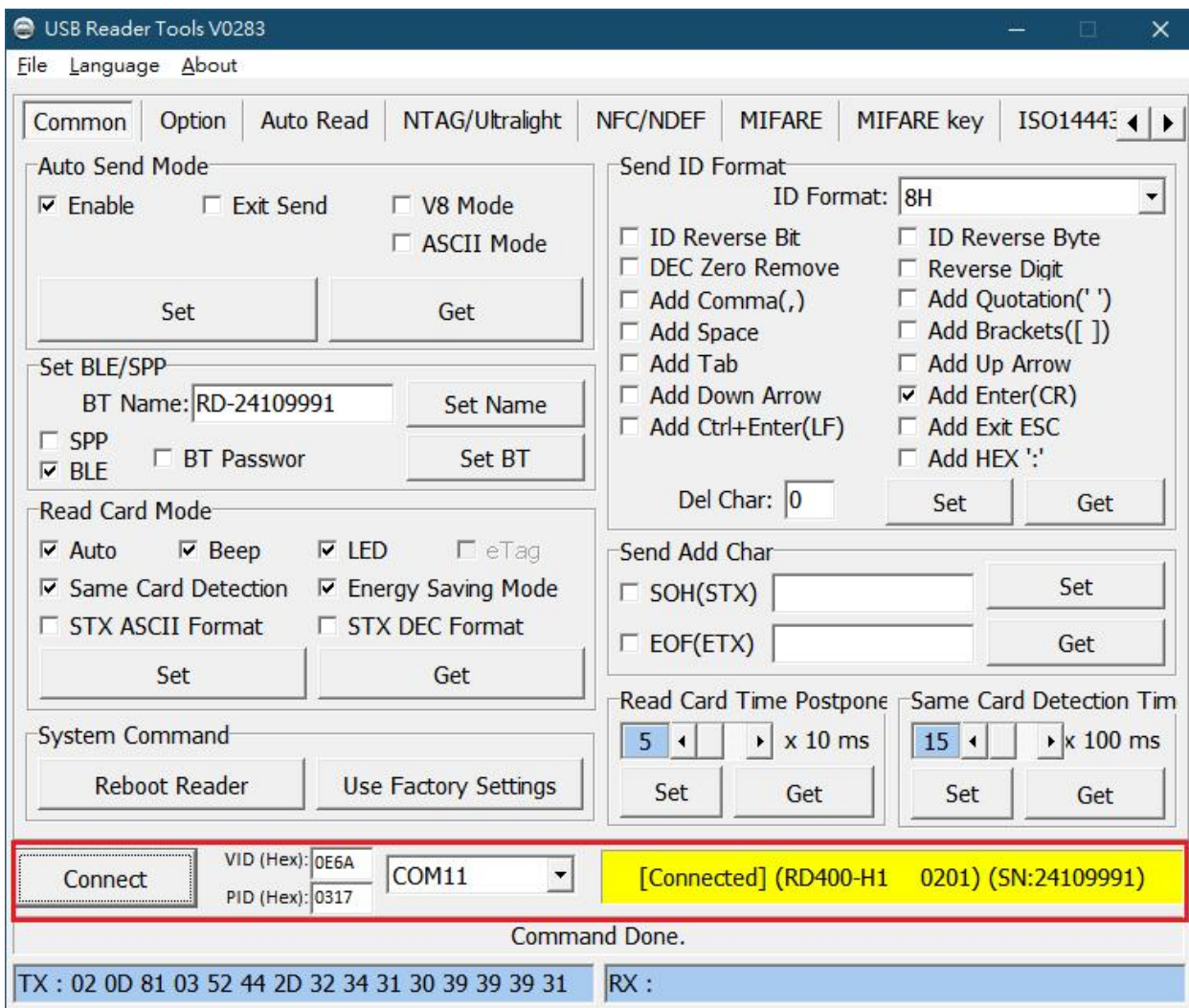
1. Reset Button :
 - Click to reboot reader.
 - Press for 1 second to setup reader's parameters to factory settings.
 - Press for 6 seconds to setup the network to factory settings.
2. USB type C : 5V USB power input and USB virtual COM port
3. Ethernet : TCP server, TCP client, UDP server and UDP client

USB virtual COM port

1. Connect USB Type C to computer and windows device manager will create a COM port number.



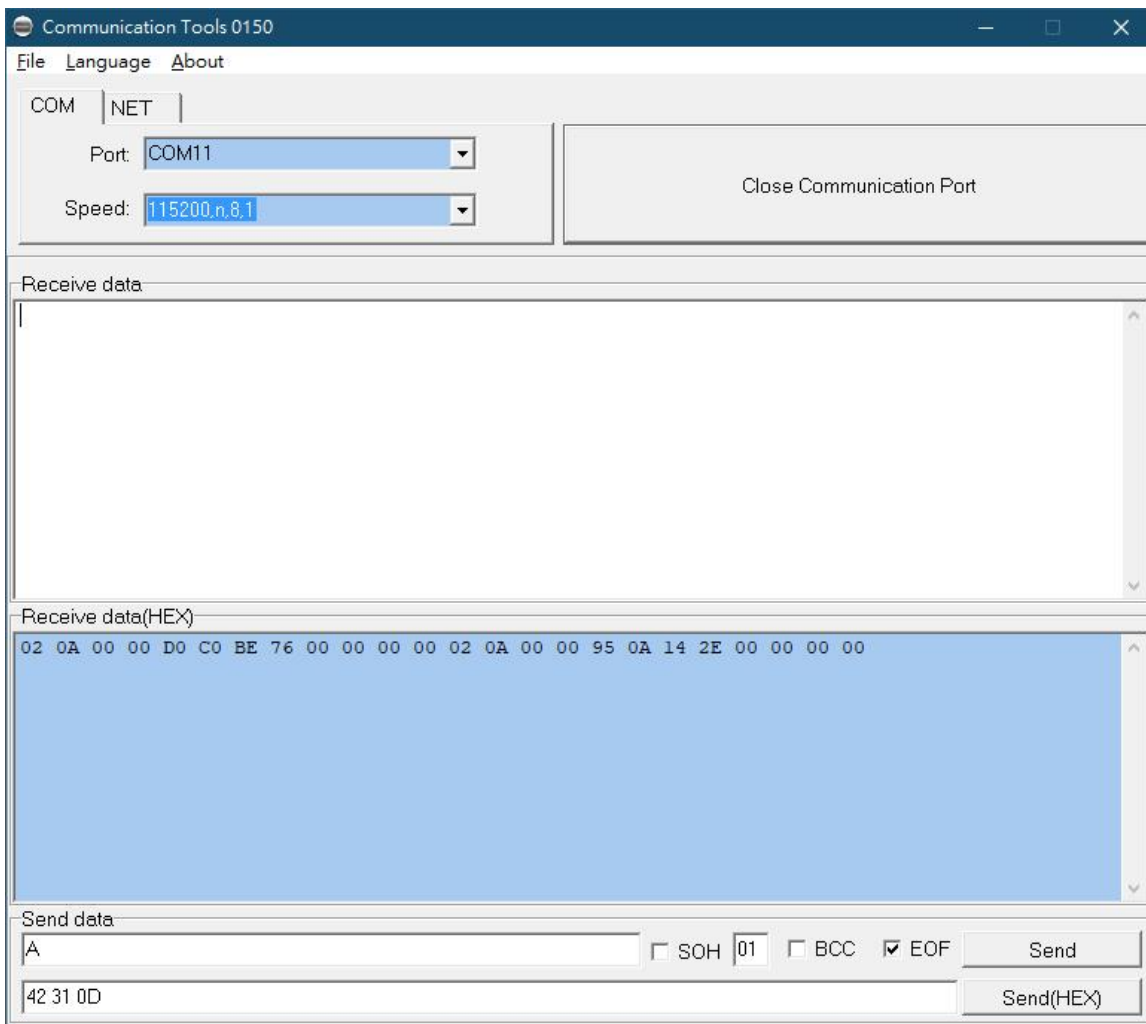
2. Connect reader tool with virtual COM port to setup parameters.



3. Read RFID tag with virtual COM port.

Disconnect Reader tools and execute "CommunicationTools_V0150.exe"

Device response data when received protocol command, and the data will be queued in device buffer.



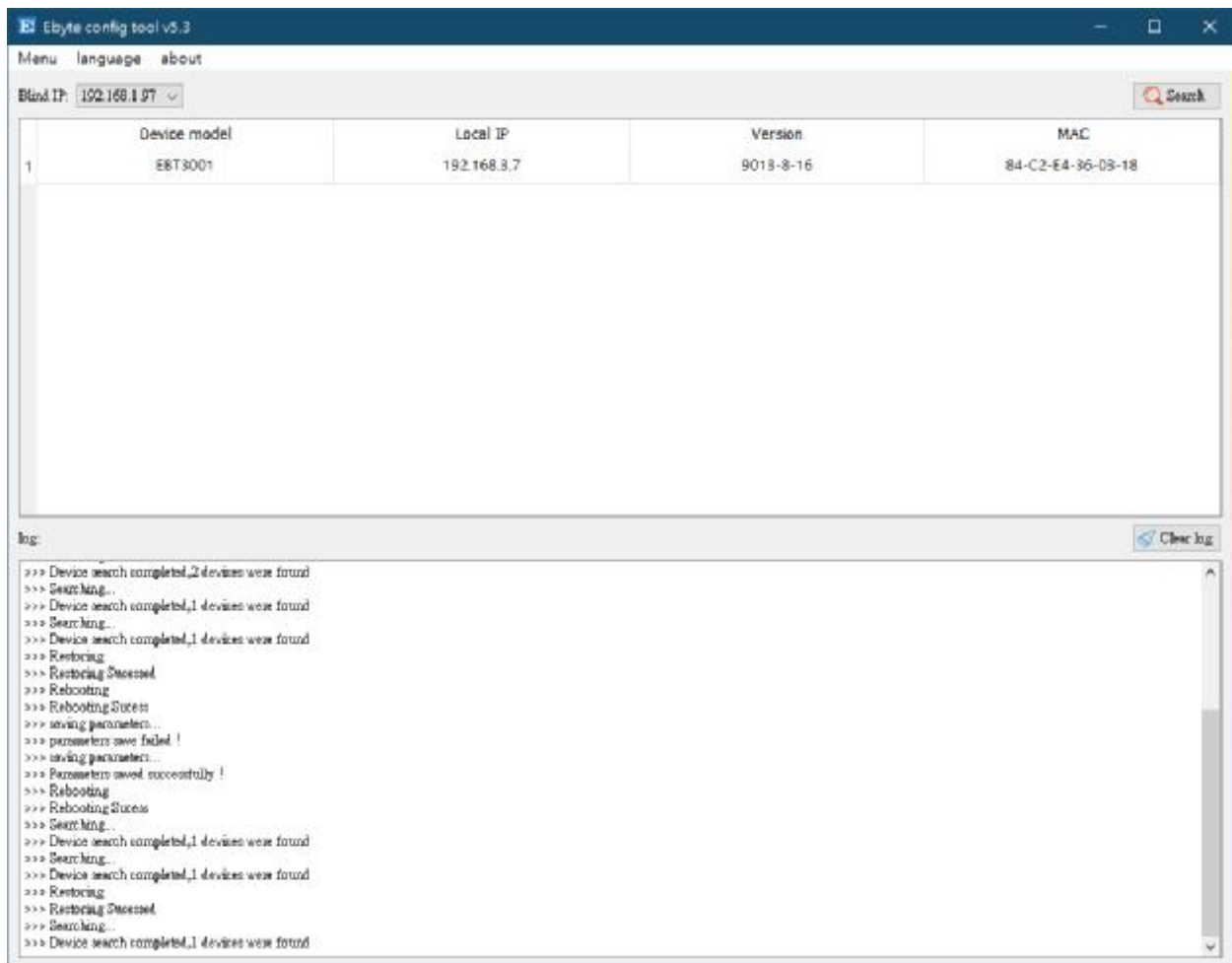
For example. (STD mode)

Read tag (D0 C0 BE 76) will receive : 02 0A 00 00 D0 C0 BE 76 00 00 00 00

Read tag (95 0A 14 2E) will receive : 02 0A 00 00 95 0A 14 2E 00 00 00 00

Ethernet network connection

1. Execute "NET_config_tool_v5.3.exe" and press "Search" to search reader in LAN.



2. Factory default IP is "192.168.3.7". User can check the MAC address from product sticker with IP to confirm the device.

3. Click IP address to Setup IP address.

Network parameter
Serial parameter
Advanced
Modbus mode

1 Basic parameters

DHCP	Disable	Serial Number	Sxxxxxxxx
Username	admin	Web server port	80
UserPassword	●●●●●		
Gateway	192.168.1.254	DNS	8.8.8.8
Local IP	192.168.1.197	Local port	8887
Network mode	TCP server	Mask	255.255.255.0
Remote IP	192.168.3.3	Remote port	8888

MQTT client parameters

MQTT server	typical MQTT 3.1.1	Keepalive cycle	120sec
ClientID	test-iot		
UserName	1234/all		
Password	123456789		
	123456		
Subscribe topic	all/000000090000000094411/sub	Qos	0
Publish topic	all/000000090000000094411/sub	Qos	0

2
save parameters

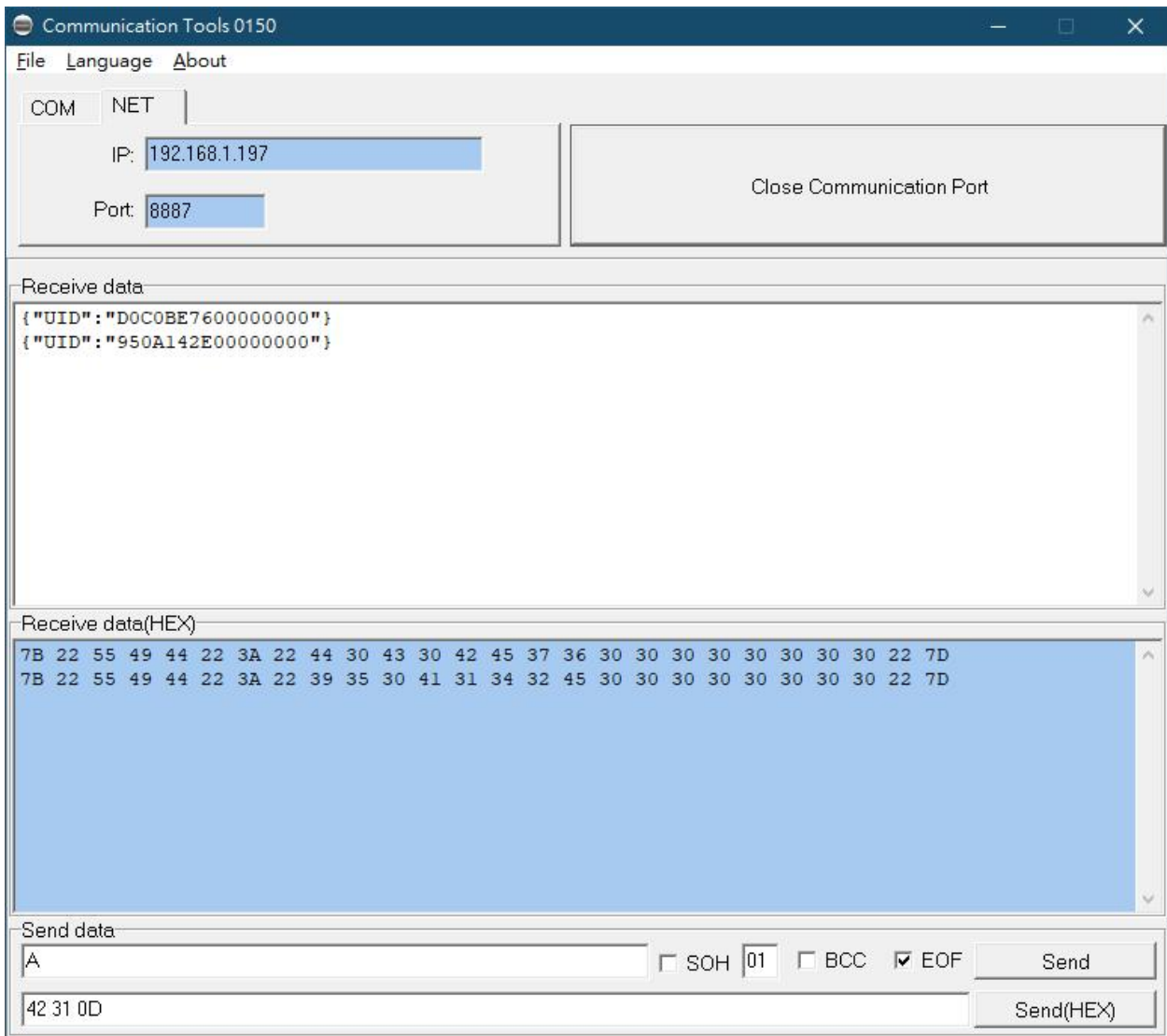
3
Reboot device

Restore

Export

Import

4. Read RFID tag with TCP connection.



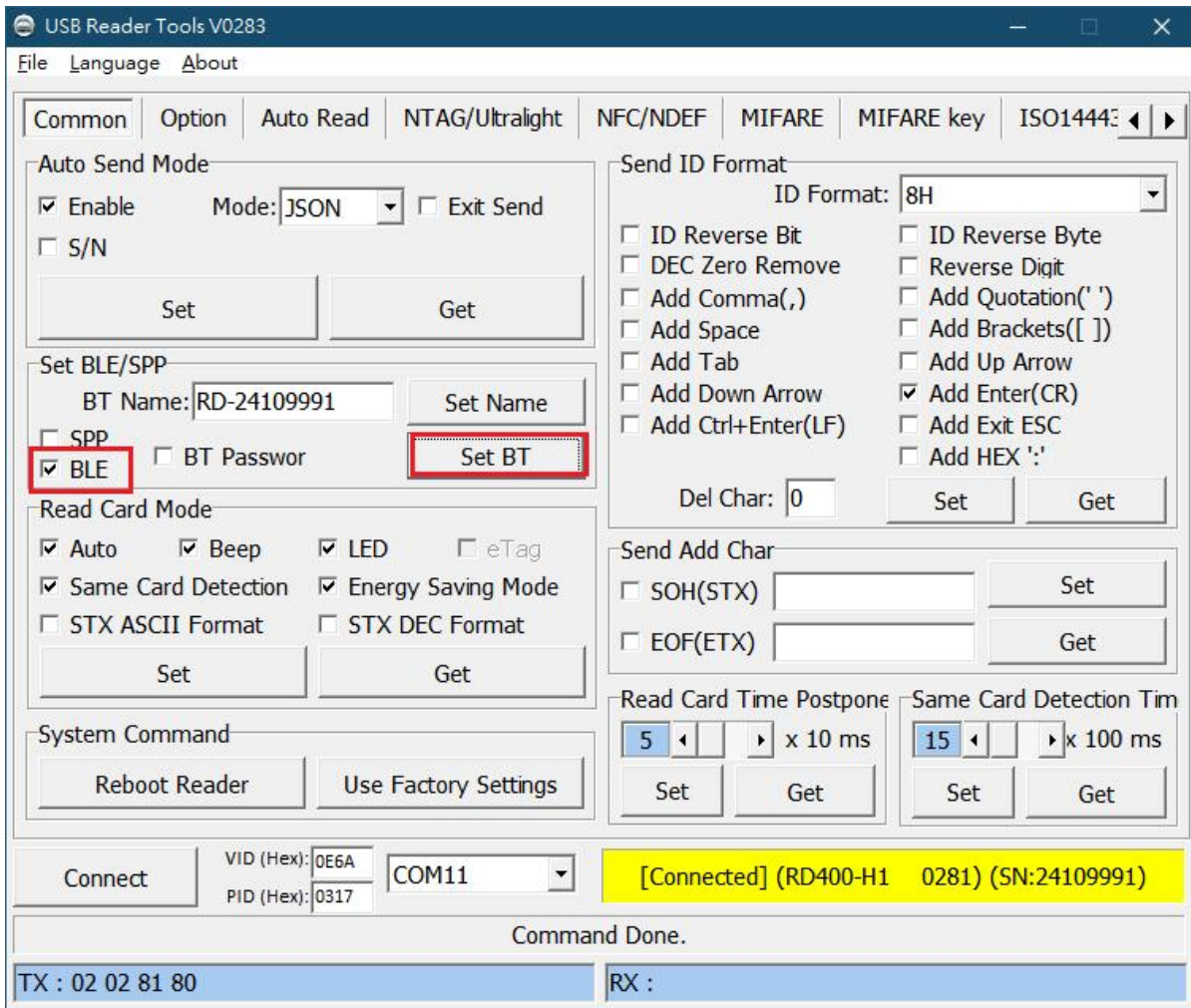
For example. (JSON mode)

Read tag (D0 C0 BE 76) will receive : {"UID":"D0C0BE7600000000"}

Read tag (95 0A 14 2E) will receive : {"UID":"950A142E00000000"}

Bluetooth BLE connection

1. Enable Bluetooth BLE with USB Reader tools.



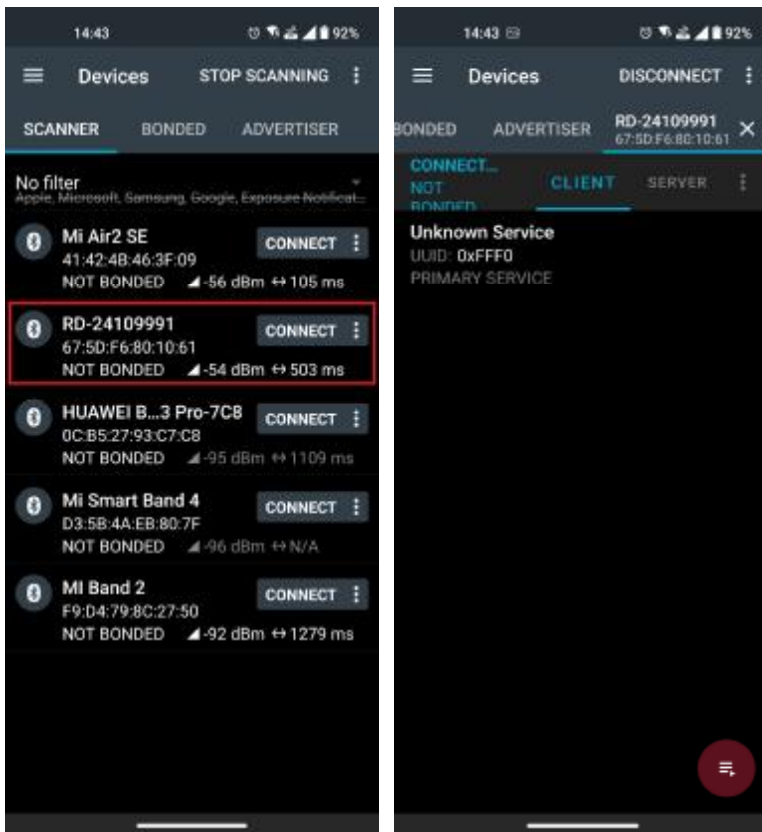
2. Execute Bluetooth BLE APP

ex.

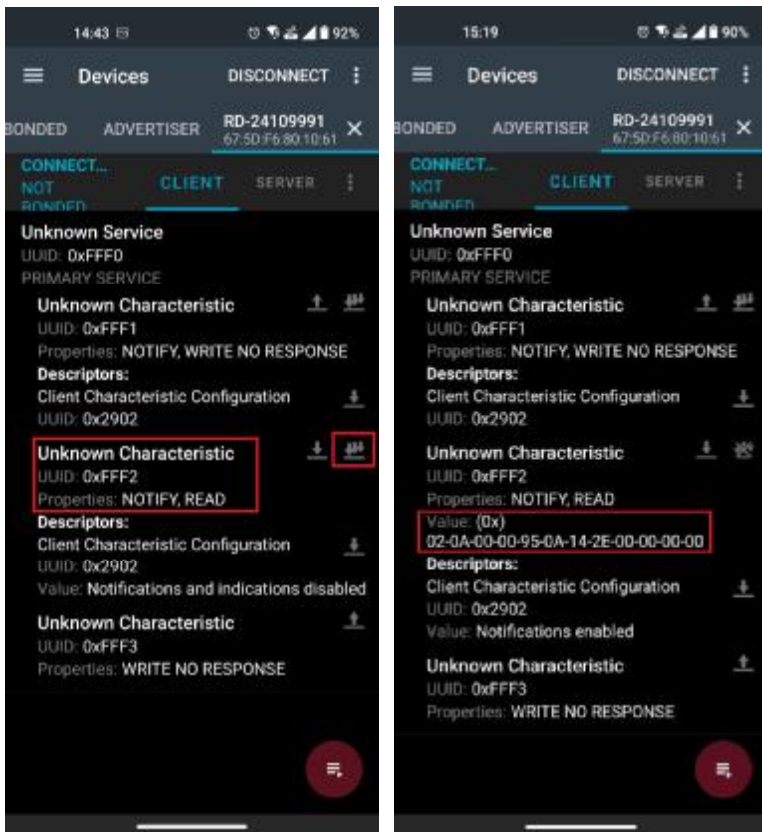
iOS : <https://apps.apple.com/us/app/bluetoothassistant/id1536579599>

Android : <https://play.google.com/store/apps/details?id=no.nordicsemi.android.mcp>

3. Scanning Bluetooth with APP.



4. Read tag with Bluetooth BLE connection.



For example. (STD mode)

Read tag (95 0A 14 2E) will receive : 02 0A 00 00 95 0A 14 2E 00 00 00 00

Common Setting

The screenshot shows the 'Common' tab of the USB Reader Tools V0283 software. The interface is organized into several sections:

- Auto Send Mode:** Includes checkboxes for 'Enable' (checked), 'S/N', and 'Exit Send'. A 'Mode' dropdown is set to 'STD'. 'Set' and 'Get' buttons are present.
- Set BLE/SPP:** Features a 'BT Name' field with 'RD-24109991', 'Set Name', 'SPP', 'BLE', and 'BT Passwor' checkboxes, and 'Set BT' button.
- Read Card Mode:** Contains checkboxes for 'Auto', 'Beep', 'LED', 'eTag', 'Same Card Detection', 'Energy Saving Mode', 'STX ASCII Format', and 'STX DEC Format'. 'Set' and 'Get' buttons are included.
- System Command:** Has 'Reboot Reader' and 'Use Factory Settings' buttons.
- Send ID Format:** Includes an 'ID Format' dropdown set to '8H', a list of checkboxes for various formatting options (e.g., 'ID Reverse Bit', 'DEC Zero Remove', 'Add Comma(,)', 'Add Space', 'Add Tab', 'Add Down Arrow', 'Add Ctrl+Enter(LF)', 'ID Reverse Byte', 'Reverse Digit', 'Add Quotation(' ')', 'Add Brackets([])', 'Add Up Arrow', 'Add Enter(CR)', 'Add Exit ESC', 'Add HEX ':''), and a 'Del Char' field set to '0'. 'Set' and 'Get' buttons are provided.
- Send Add Char:** Features input fields for 'SOH(STX)' and 'EOF(ETX)' with corresponding 'Set' and 'Get' buttons.
- Read Card Time Postpone:** A spinner set to '5' x 10 ms with 'Set' and 'Get' buttons.
- Same Card Detection Time:** A spinner set to '15' x 100 ms with 'Set' and 'Get' buttons.
- Connect Section:** Shows 'VID (Hex): 0E6A', 'PID (Hex): 0317', and a 'COM11' dropdown. A yellow status bar displays '[Connected] (RD400-H1 0281) (SN:24109991)'.
- Command Done:** A status bar showing 'Command Done.'
- TX/RX:** Two blue status bars at the bottom showing 'TX : 02 02 03 01' and 'RX : 02 04 03 00 01 01'.

1. **Auto send mode :**

Enable: The device will send UID to host terminal after read card.

Mode : UID output format.

Mode	Example output
STD	02 0A 00 00 D0 C0 BE 76 00 00 00 00
V8	06 00 1A 04 01 01 00 24 10 99 91 02 01 00 00 00 00 00 00 D0 C0 BE 76 00 00 00 00 1C 1C
ASCII	D0C0BE7600000000
JSON (default)	{"UID": "D0C0BE7600000000"}

Exit send: Remove reading card will send "0".

Ex. {"UID": "D0C0BE7600000000"} {"UID": "0000000000000000"}

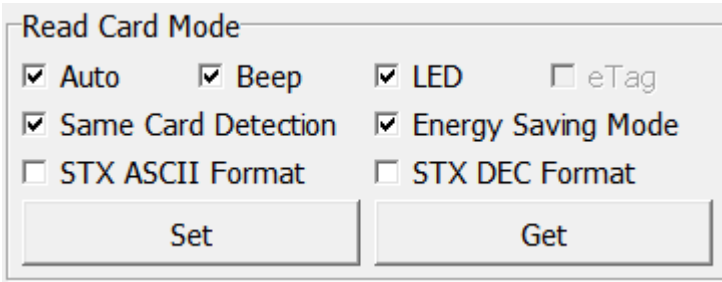
S/N: The device will send reader's serial number + tag's UID.

Ex. {"SN": 24109991, "UID": "D0C0BE7600000000"}

2. **Bluetooth connection** (default is disable.)

RD400 support Bluetooth BLE and Bluetooth SPP connection, select SPP or BLE to enable.

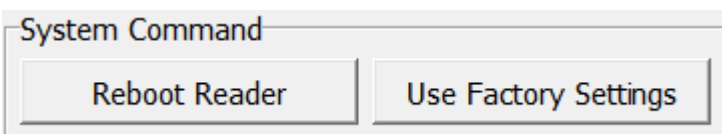
3. Read Card Mode



In this mode, program provided different options for user to choose, after ticked the options, just click **Set** to finish the setting procedure, or click **Get Current Setting** to read current setting from the reader.

Options	Descriptions
Auto	Automatically read card
Beep	Prompt the beep sound or not.
LED	Flash the LED when read the card.
Same Card Detection	If continuously read the same card, user has to wait around 1.5 sec then could read again.
Energy Saving Mode	Provide more energy saving method. (It is not recommend to use in writing card blocks or several cards)
STX ASCII format	Send ID format with ASCII.
STX DEC format	Send ID format with decimal.

4. System Command



This tool provides two system commands; user can use **Reboot Reader** to reboot the RD200 reader. The other command is **Use Factory Default Settings** which can restore the reader settings to initial settings.

5. Send ID Format (Only for RD200/300 keyboard emulation mode)

6. Read Card Time Postponement / Same Card Detection Time

Read Card Time Postpone	Same Card Detection Tim
5 x 10 ms	15 x 100 ms
Set	Get
Set	Get

Read Card Time Postponement: The intermission time of card reading.

Same Card Detection Time: The intermission time of same card detection.

After adjusted the time then click **Set** to finish the setting procedure, or click **Get Current**

Setting to read current setting from the reader.

Auto Read

The screenshot shows a software interface with several tabs: Common, Option, Auto Read (selected), EPC/eTag, NTAG/Ultralight, NFC/NDEF, MIFARE, and MIFARE key. The 'Auto Read' tab is active, displaying 'Available Card Type' with checkboxes for ISO14443A (4 Byte), ISO14443A (7 Byte), ISO 14443B, CHINA GUID, ISO 15693, CPU(CUID), and CEPAS. Below this are buttons for 'Set' and 'Get Current Setting'. The 'MIFARE' section is selected, showing 'ID Block/Byte (MIFARE Classic)' with fields for Sector (0), Block (0), Start (0), and Byte (4), and radio buttons for Key A and Key B. A 'Key Error MSG' dropdown is set to 'LED'. A 'Write Key To EEPROM (MIFARE Classic)' section has a Sector field (1), a Key field (FFFFFFFFFFFF), and radio buttons for Key A and Key B, with a 'Write' button below. Buttons for 'Set Auto Read MIFARE Classic' and 'Get' are also present.

- Available card type: Setup read card type.
- Set auto read Mifare block in this tab to read specific block automatically.
 1. Enable and select correct block.
 2. Click set auto read.
 3. Reader will always read selected block automatically.
- Write Key to EEPROM: Save Mifare block key to reader.