# **RD200/300 TOOL OPERATION MANUAL**







# V02.50

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# **Model description**

Model	Picture	Difference description
RD200-M1	1	HF RFID Desktop Reader
		Frequency: 13.56 MHz
		Support tag: ISO-14443A / Mifare Ultralight / NTAG203
RD200-LF		LF RFID Desktop Reader
		Frequency: 125 KHz
		Support tag: EM4100 compatible class / SYRIS/ FDX-B(ISO11784)
RD200-U1	1	UHF RFID Desktop Reader
		Frequency: 860~960MHz
		Support tag: Compatible with EPC Class 1 Gen 2;ISO-18000-6C
RD300-H1		HF RFID Desktop Reader
		Frequency: 13.56 MHz
		Support tag: ISO15693 / ISO14443A(Mifare) / ISO14443B / DESFire
		/ NTAG203
RD300-FH1	$\frown$	HF RFID and Fingerprint Desktop Reader
		High accuracy and high recognition speed Optical Fingerprint Sensor
		Frequency: 13.56 MHz
		Support tag: ISO15693 / ISO14443A(Mifare) / ISO14443B / DESFire
		/ NTAG203
RD300-L1		LF RFID Desktop Reader
		Frequency: 125 KHz
		Support tag: EM4100 compatible class / SYRIS/ FDX-B(ISO11784)
RD300-FL1	$\frown$	LF RFID and Fingerprint Desktop Reader
	1	High accuracy and high recognition speed Optical Fingerprint Sensor
		Frequency: 125 KHz
		Support tag: EM4100 compatible class / SYRIS/ FDX-B(ISO11784)

RD300-DES1



DESFire Reader Frequency: 13.56 MHz Support tag: DESFire full function with tools

## Installation

The default setting of USB Mode is **USB Keyboard Emulation**. This Keyboard mode would send an "Enter" signal when read the card. If user let cursor focus on "Set" button and read the card that will press the "Set" button at the same time.

USB Mode	
USB Mode: USB Ke	eyboard Emulation
Set	Get

## **Driver installation** (For change to virtual COM port mode)

1. Follow firmware update procedure to change virtual COM port mode firmware.

(ex. RD200\_U1\_COM\_V0191\_20150316.SYB)

2. Update virtual COM port mode firmware with RD200/300 tools

(SYRIS\_RFID\_DVD\RD200\RD200\_RD300\_SDK\_V0192\UtilityTools\FirmwareFiles\)

RD100/RD200/RD300 Tools V0267 Eile Language <u>A</u> bout				<u>unij</u> i		×
Common Option EPC/eTag	Command Test Upd	late Firmware				
USB ID VID (Hex): 0E6A PID (Hex): 0317	Firmware file Code size (Hex): Code checksum (Hex):	238E B04A	Code type: Code version:	RD200-U 0233	J1	
Firmware file path:	:\產品程式\RD200\OLD\F	RD200_U1_COM_V	0233_201810	12.SYB		
	Select firmwa	are file				
Upgrade progress:						_
	Update Firm	ware				
>>						
Connect VID (Hex): 0E6A PID (Hex): 0317	USB Auto	[Connected] (RD2	00-U1 0265	) (SN:13	319002	2)
	Firmware file	oaded.				

3. Connect RD200/RD300, system will automatically pop-up the "Found New Hardware Wizard"

window for install the driver.



4. Allocate the driver folder, and then complete the installation.

(SYRIS\_RFID\_DVD\RD200\Driver)

Found New Hardware Wize	ard
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: USB Reader
	< Back Finish Cancel

#### 5. Connect reader with COM port mode.

RD100/RD200/RD300 Tools V0267 <u>File Language About</u>	- 🗆 X
Common       Option       Auto Read       NTAG/Ultralight         USB Mode       USB Serial Port Auto Send       •         Set       Get       •         USB Keypad Delay Time       Keyboard Layout         10       •       ms         Set       Get       •         Set       Get       •	NFC/NDEF MIFARE MIFARE key ISO1444:
Read Card Mode	Del char:     0     Set     Get       Send Add Char
System Command Reboot Reader Use Factory Settings	Read Card Time Postpone     Same Card Detection Time       5     •     x 10 ms       Set     Get     Set
Connect VID (Hex): 0E6A PID (Hex): 0317 COM6 Comman	[Connected] (RD200-M1 0225) (SN:15010086) nd Done.

## **Common Setting**

Common Option Auto R	ead NTAG/Ultralight	NFC/NDEF	MIFARE	MIFARE key	ISO14443 ()
USB Mode USB Mode: USB Ker Set USB Keypad Delay Time 10 • • ms Set Get Dead Card Made	vboard Emulation Get Keyboard Layout ENGLISH Set Get	Send ID F ID Rev DEC Ze Add Co Add Sp Add Ta Add Do Add Ct Add Ct	iormat ID For erse Bit ero Remove omma(,) ace ab own Arrow rl+Enter(LF) char: 0	mat: 8H ID Rev Revers Add Qu Add Br Add Up Add Er Add Es Add HI Set	<pre>/erse Byte ie Digit uotation('') ackets([]) o Arrow iter(CR) kit ESC EX ":" Get</pre>
Image: Auto     Image: Beep     Image: Beep       Image: Same Card Detection     Image: Beep       Image: Same Card D	LED □ eTag     Energy Saving Mode     STX DEC Format     Get	Send Add	Char TX) TX) TX) TX) Char		Set Get
System Command Reboot Reader	Use Factory Settings	Set	→ x 10 Get	ms 15 ·	x 100 ms
Connect VID (Hex): 0	USB Auto	[Connect	ted] (RD200	)-M1-V2 0283)	(SN:23240700)
PiD (Hex).jo	Comma	and Done.			

#### 1. USB Mode

There are three selections of USB modes in "USB auto" connection, after selected the mode then click Set to finish the setting procedure, or click Get Current Setting to read current setting from the reader.

USB Mode			
USB Mode: USB Ke	eyboard Emulation	-	USB Keyboard Emulation
Cot	Cot		USB Keyboard Emulation
			USB HID-Compliant Device Auto

#### **USB Keyboard Emulation :**

The device can emulate keyboard to send character or string to host terminal.

#### 2. USB HID-Compliant Device :

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

#### **USB HID-Compliant Device Auto Send :**

The device sends UID to host terminal after read card.

#### 3. Virtual COM Port mode (Need update firmware)

There are two selections of USB modes in "COM x" connection.

USB Mode	
USB Mode:	USB Serial Port Auto Send 🔹 💌
	USB Serial Port Auto Send
Set	USB Serial Port

#### USB Serial Port Auto Send :

The device sends UID to host terminal after read card.

#### USB Serial Port :

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

#### 4. USB Keypad Delay Time and Keyboard layout

USB Keypad Delay	USB Keypad Delay Time Keyboard Layout			ENGLISH -
10 •	• ms	ENGLISH	-	ENGLISH
				CZECH
Set	Get	Set	Get	FRENCH
·				SPAIN

USB Keypad Delay Time: Set keypad delay timing to reduce the keyboard code sending speed

when read tag.

Keyboard layout: Support multiple languages keyboard layout.

#### 5. 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.

Read Card Mode				
🖾 Auto 🖉 Beep	🗹 LED 🗖 eTag			
☑ Same Card Detection	Energy Saving Mode			
STX ASCII Format	STX DEC Format			
Set	Get			

Options	Descriptions
Auto	Automatically read card
Веер	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)
еТад	Read Taiwan ETC eTag format.
STX ASCII format	Send ID format with ASCII.
STX DEC format	Send ID format with decimal.

#### 6. 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.

System Command	
Reboot Reader	Use Factory Settings

#### 7. Send ID Format

Send ID Format	
ID Format:	8H 🔽
ID Reverse Bit	ID Reverse Byte
DEC Zero Remove	🗆 Reverse Digit
Add Comma(,)	Add Quotation(' ')
Add Space	Add Brackets([ ])
Add Tab	Add Up Arrow
Add Down Arrow	Add Enter(CR)
Add Ctrl+Enter(LF)	Add Exit ESC
	□ Add HEX ":"
Del char: 0	Set Get

This tool provide many ID format to choose, such as 4~16 numbers of hexadecimal and 4~13 numbers of decimal. Also can put comma, space...etc. into the ID format, after ticked the items then click Set to finish the setting procedure, or click Get Current Setting to read current setting from the reader.

The ID format example as below:

ID Format	Example Result
4H	58E8
6H	D558E8
8H	00D558E8
10H	1800D558E8
16H	000001800D558E8
32H	00000000000000000000000000000000000000
5D	47295
8D	01226943
10D	0001226943
13D	0098785474751
4D	6493
FDX (LF only)	00000001226943
16H + Card ID	
Reverse	E828D26619666666
16H + Comma	000001800D558E8,
16H + Brackets	[000001800D558E8]
4D + Space	1928 1928
16H + Quotation	'000001800D558E8'

#### 8. Read Card Time Postponement / Same Card Detection Time

**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.

Read Card Time Postpone	ment	
5 •	▶ × 10 ms	
Set	Get Current Setting	
Same Card Detection Time	•	
15 •	▶ × 100 ms	
Set	Get Current Setting	

## Auto Read (RD200-M1, RD300-H series supported)

- 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.

	-	MIFARE Key	DESFire	15014443B	Comma 4
vailable Card Type					
7 ISO14443A (4 Byte)	D 14443B	🗖 ISO 15693		Set	t
7 ISO14443A (7 Byte) C+	IINA GUID PAS			Get Curren	it Setting
IIFARE NTAG/UltraLight ISO15	593				
ID Block/Byte (MIFARE Classic) Enabled Auto Read Block Sector: 0 • Block: 0 • Start: 0 • Byte: 4 • Key Error MSG: LED Set Auto Read MIFARE Cla	<ul> <li>Key A</li> <li>Key B</li> <li>Key B</li> <li>Get</li> </ul>	Write Key T Sector: Key:	• EEPROM	(MIFARE Class	sic) ⓒ Key A ⓒ Key B
Connect VID (Hex): 0E6A PID (Hex): 0317	USB Auto	[Connected	] (RD200-M	1 0191) (SN	l:12110283)
Connect VID (Hex): 0E6A PID (Hex): 0317	USB Auto	[Connected	] (RD200-M	1 0191) (SN	<mark>l:1211028</mark>

• Write Key to EEPROM: Save Mifare key to reader.

## NTAG/Ultralight (RD200-M1, RD300-H series supported)

- 1. Read Card Data: Select correct block to read NFC tag's data.
- 2. Write Card Data: Select correct block to write NFC tag's data.

(Recommend select HEX code to write.)

- 3. UID : Read tag's UID
- 4. Read Card All Data: Input max block number in "NO" and start to read all data.
- 5. URL address: This is a simple demo to read/write URL to tag.

Common Auto Read NFC NTAG203/Ultralight N	1IFARE MIFARE key Command Test Up	pdat ┥ 🕨	
Card Data Read/Write Test	Read Card All Data		
Block: 7 •	00:049CB6A69A402B8071480000E1101	.200	
Read Card Data:	08:2E636F6D2E74772F6368696E65736	579 52F	
HEX:	12:30325F626C6F672F30305F6F76657	276	
ASCII:			
Read Card Data	」 「堆?@+□qH └? D└0?,U iley.com.tw/chinese/02_blog/00_ov	verv	
Write Card Data:		NO:	
C HEX FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	Read Card All Data	16	
ASCII syris.com/			
	E11012000103A010440312D1010E5501 (Block 3-6)		
Write Card Data	iley.com.tw/chin	<<	
	696C65792E636F6D2E74772F6368696E	lock 7-10)	
UID: 049CB69A402B8000	Read Write		

For example.

Write a TEXT "123456789012" to NTAG with NDEF format.

Convert "123456789012" from asci to hex : 31 32 33 34 35 36 37 38 39 30 31





You need write multi-blocks with RD200 tool as blow.

Block 04~07 : 0316D101 12540265 6E313233 34353637

Block 08~11 : 38393031 32333435 FE000000 00000000

Write a URL "www.google.com" to NTAG with NDEF format.

Convert "google.com" from asci to hex : 67 6f 6f 67 6c 65 2e 63 6f 6d

URI Records is "U" (0x55) (Well-known NDEF Record Types)

URI is "http://" (URI Identifier Code =03(Hex))



You need write multi-blocks with RD200 tool as blow.

Block 04~07 : 030FD1010B550167 6F6F676C652E636F

Block 08~11 : 6DFE0000000000 00000000000000

## MIFARE (RD200-M1, RD300-H series supported)

#### **\***Please set the MIFARE Key before you change the Key in EEPROM.

The following sections will describe the different functions as below.

Common Auto Read NFC NTAG203/Ultralight	1IFARE MIFARE key Command Test Updat ◀ ▶
Card Data Read/Write Test	Read Card All Data
Sector: 1	
Read Card Data:	
Aberi.	
UID Read Card Data	
Write Card Data:	
C ASCII	No No
1	Keau caru Ali Data
Write Card Data	Read Write Card Loop

#### 1. Card Data Read/Write Test

When user intend to read/write the card data that could tick the "EEPROM" to use the "Key" in the EEPROM (the prerequisite is the "Key" must has been stored in EEPROM already) or manually input the Key value for verifying.

Then select correct block and fill out the Read or Write Card Data field and click UID 💉 Read

Card Data or Write Card Data to finish the read/write action.

#### 2. Read Card All Data

Click Read Card All Data or Read Card All Data Loop to read card data.

## **MIFARE Key**

Common Auto Read NFC NTAG203/Ultr	alight MIFARE MIFARE key Comma	nd Test 🛛 Updat 🔳 🕨
Write Key To Card	Access bits (key)	
Sector: 1	Block 0	Key A
Old key:		never     A     C     B
Key: FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	C never C never C never	C never
New key:	Block 1	Access bits
Key A: FFFFFFFFFFF		
Access bits: FF078069	C never C never C never	C A/B C never
Key B: FFFFFFFFFF	Block 2	Key B
	Read Write INC DEC	Read Write
Issue MIFARE Card	C B C never C never C never C never	C never

#### 1. Write KEY to Card

User can write key value to card, the steps as below:

- 1. Allocate a Sector
- 2. Input Old key value and select Key A or B
- 3. Input New Key A or Key B value
- 4. Click Issue MIFARE Card to update the Key value.

Note 1: "Access bits" value will auto-compute by the

program.

Note 2: The Old key must be correct otherwise the program will shows up an error message.

**Note 4:** The access bits control the rights of memory access using the secret keys A and B.

**Note 5:** Please use Key A to change Key B at first time.

-Write Key To Card
Sector: 1
Old key:
Key: FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
New key:
Key A: FFFFFFFFFFF
Access bits: FF078069
Key B: FFFFFFFFFFFF
Issue MIFARE Card

#### 2. Access bits (KEY)

User can set the verifying conditions for read/write or other actions.

Read: Read block.

Write: Write block.

**INC:** Add transfer restore.

**DEC:** Subtract transfer restore.

A/B: Verify Key A or Key B

A: Only verify Key A

B: Only verify Key B

never: will not verify any Key

Please refer to MIFARE specification for more detail.

Access bits (key)	
Block O Read © A/B © B © B © never © Never	Key A Read © never © A © B © never
Block 1 Read $\bigcirc A/B$ $\bigcirc B$ $\bigcirc B$ $\bigcirc never$ $\bigcirc nev$	Access bits Read • A • A • A • B • A/B • never
Block 2 Read Write NC DEC DEC A/B C A/B C B C never C never C never C never	Key B Read A A B C never C never

## LF Card (RD200-LF and RD300-L series 125KHz supported)

This function can let user to set all available 125kHz card types, after ticked the items then click Set to finish the setting procedure, or click Get Current Setting to read current setting from the reader.

Common Auto Read NFC	NTAG203/Ultralight MIFARE	MIFARE key LF Card EPC/eTag	
Available Card Type			
🔽 EM/TEMIC - 125 kHz	🔲 SYRIS - 125 kHz	🗐 SECURITY - 125 kHz	
FDX-B (ISO11784) - 134.2 kHz			
Set		Get Current Setting	

## **EPC/eTag** (RD200-U1 UHF reader supported)

USB Reader Tools V0280	- D ×
<u>File Language About</u>	
Common     Option     EPC/eTag     Command Test     U       Auto EPC Data Read       Bank       © EPC O TID     USER     EPC1     Shift one byte       Address	Jpdate Firmware EPC Data Read/Write Bank © EPC O TID O USER Address
2  •  6  •    Set Auto Read EPC  Get Current Setting	2
eTag Data Read/Write	Read EPC Data
Read eTag Data	
Write eTag Data	Read EPC Data
00000000000000000000000000000000000000	
Auto INC     Auto Read	Write EPC Data
Reader Power Frequency Range	000000000000000000000000000000000000000
18 ▼ (-2~18dBm) 05: EU 865~868 ▼	Write EPC Data
Set Get Set Get	W1,2,4,
Connect VID (Hex): 0E6A USB Auto  VID (Hex): 0317	[Connected] (RD200-U1 0269) (SN:13319002)
Comman	d Done.

1. Auto EPC Data Read : Select correct bank(EPC, TID or USER), address and length to setup RD200-U1 auto read data.

Shift one byte: auto read data will shift a byte.

ex. Unselect shift one byte : 012DF30008DD97B5230F02BD Select shift one byte : 00012DF30008DD97B5230F02

- 2. eTag Data Read/Write: Read/Write test function for Taiwan freeway eTag.
- 3. Reader power: -2~18 dbm. Default is max power 18.

### 4. Frequency Range:

No.	Location	Frequency Range (MHz)
01	U.S.A	902~928
02	Taiwan	922~928
03	China	920~925
04	China 2	840~845
05	Europe	865~868
06	Japan	916~921
07	Korea	917~921
08	Vietnam	918~923
09	Europe 2	916~920
0A	India	865~867
0B	Brazil	902~907.5 / 915~928

5. EPC Data Read/Write: Test read/write EPC tag data in this area.

# ISO14443A (RD200-M1, RD300-H series supported)

Provide to test ISO14443A command.

🖨 RD200/RD300 Tools V0206 File Language <u>A</u> bout			
MIFARE MIFARE key DESFire ISO14443B DESFire Command Test	Command Test Update Firmware		
ISO14443A Config	Auto Read Card Disable 10 Sec		
DESFire Select+RSTS+PPS			
Send APDU (First)	90 60 00 00 00		
Send APDU (Second)	90 AF 00 00 00		
Send APDU (Third)	90 AF 00 00 00		
Transparent With CRC	OA 00 90 60 00 00 00		
Transparent Without CRC	26		
Connect VID (Hex): 0E6A PID (Hex): 0317 USB Auto	[Connected] (RD200-M1 0191) (SN:12110283)		
Comm	and Error!		
TX : 02 01 30	RX :		

# ISO 14443B (RD200-M1, RD300-H series supported)

Provide to test ISO 14443B command.

RD200/RD300 Tools V0206 <u>File Language About</u>	X
MIFARE MIFARE key DESFire ISO14443B Command Test	Command Test Update Firmware
ISO14443B Config	Auto Read Card Disable 10 Sec
Request	
Transparent #1	05 00 00
Transparent #2	1D 00 00 00 00 00 00 00
Transparent #3	0D 00 00 00 00
Get China Card GUID	
Get CEPAS Card CID	
Connect VID (Hex): 0E6A USB Auto VID (Hex): 0317	[Connected] (RD200-M1 0191) (SN:12110283)
Comm	and Error!
TX : 02 01 30	RX :

# ISO 15693 (RD300-H series supported)

Provide to test ISO 15693 command.

🖨 RD200/RD300 Tools V0205 File Language About					
NTAG/Ultralight MIFARE MIFARE key DESFire	ISO14443B ISO15693 Command Test U				
ISO15693 Command	Card Data Read/Write Test				
Inventory	Block: 0 •				
	Blocks: 4 ·				
J	Read Block Data:				
Information					
	Read Block Data				
ISO15693 Transparent	Write Block Data:				
TCOTCOL Confe	FFFFFFFFFFFFFFFFFFFFFF				
15015693 Config					
Auto Read Card Disable 10 Sec	Write Block Data				
Transparent					
24 01 00					
Connect PID (Hex): 0317 USB Auto	[Connected] (RD300-FH1 0206) (SN:15149002)				
Comma	nd Error!				
TX : 02 01 21	RX : 02 02 21 01				

## **DESFire** (RD300-DES1 supported)

😂 RD100/RD200/RD300 Tools V0271 - 🗆 🗙					
<u>File L</u> anguage <u>A</u> bout					
Common Option DESFire Command Test Update Firmware					
Read / Write File Data         ID:       001001         File ID:       01       Offset:       00       KeyNo:       1       Image: Comparison of the second comparison of the s	Auto read file/block (DESFire)         Enabled       App ID:       001001         File ID:       01       Offset:       00       KeyNo:       1 •         E       Start:       0 •       •       •       •         Byte:       4 •       •       •       •         Key Error Message:       LED       •       Get				
	Card AUID UID HEX:				
<u>W</u> rite block	Format card / Chenge key				
Write key to EEPROM Show add app	Bd Key:         000000000000000000000000000000000000				
Connect VID (Hex): 0E6A PID (Hex): 0317 USB Auto	[Connected] (RD300-DES1 0271) (SN:20340005)				
Command Done.					

The Desfire tab can be divided into 5 functional areas.

- A. Read the UID of the card
- **B.** Format the card or change the file key.
- C. Read/ write card's file data.
- D. Save the file key to RD300-DES1 & create customize application.
- E. Auto read the file data of Desfire card and output as keyboard emulation.
- A. Read the UID of the card : Support read Mifare and Desfire card's UID.

Card		
<u>U</u> ID	UID HEX:	0433745ABA2480

#### B. Format the card or change the file key. (3DES encryption)

Format card / Chenge key 🗌 🖂 App ID							
Old Key: 000000000	000000000000000000000000000000000000000						
New Key: ABC11111111112222222223456789F							
Format card	Change key 1 🔹						

**Format card** : Input correct Desfire's application key and new key to format card to clear all data and change application key. (\*Default key is "all 0" or "all F".)

Root	Application ID=0x001001		Key File Store 14 keys	
	File 1 File ID = 0x01		File 2 File ID = 0x02	
		128 bytes		128 bytes
	File 3 File ID = 0x03		File 4 File ID = 0x04	
		128 bytes		128 bytes

When the format card is successful, all file keys will be initialized to "all 0"

**Change Key** : Select Key No. and input correct key then click "Change key" to change Desfire card's file key. (\*Default App ID is "001001", default key is "all 0".)

Key No.	Define	Function	
0	Application key	Format card	
1	File Key	File ID 1 read key	
2	File Key	File ID 1 read/write key	
3	File Key	File ID 2 read key	
4	File Key	File ID 2 read/write key	
5	File Key	File ID 3 read key	
6	File Key	File ID 3 read/write key	
7	File Key	File ID 4 read key	
8	File Key	File ID 4 read/write key	

#### C. Read/ write card's file data.

Read / Write File Data					
App ID: 001001 KeyNo: DES/3DES -					
File ID: 01 Offset: 00 KeyNo: 1					
Key: 000000000000000000000000000000000000					
Read Block Data :					
Read block					
Write Block Data:					
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF					
Write block					

App ID : Default App ID is "001001".

Key No: Default format is 3DES encryption, Select 3DES or AES key to decrypt Desfire card.

File ID : Input correct file ID to read/wrte data.RD300-DES1 default file ID are 01~04.

Offset : Each File ID have 128 bytes data with standard format.

Set up offset to read different parts of data.

RD300-DES1 can read/write 32 bytes of data with one command.

Key No: Select correct key to unlock file data

ex. Read data from "file ID 02" need select key 3 or key 4.

Write data to "file ID 01" need select key 2.

Key: file key.

Read block : Click read block to read current configured block data.(32 bytes)

Write block : Click write block to write current configured block data.(32 bytes)

#### D. Save the file key to RD300-DES1 & create customize application.

**Save the file key to RD300-DES1 :** Input and save key to RD300-DES1 (No.1~8) for auto read use.



**Create customize application :** RD300-DES1 support create customize application ID to read/write data.

Write key to EEPROM	Show add app		Add App			Hide add app
No: 1 - 0000000000000000000000000000000000			Key: 000000000000000000000000000000000000			000000000000000000000000000000000000000
Write			App ID:	AACC	Size: 0200	Add

Key : Input correct Desfire's application key to create customize application ID.

App ID : Customize application ID. (ex. ADF1 will create 0x00ADF1 application and file ID 01.) Size : 0400 (hex) means 1024 bytes, 0200 means 512 bytes

ex. Create an application named "00AACC" and read/write to this application.

Add App			Hide add app
Key:	000000000000000000000000000000000000000	000000000000000000000000000000000000000	
App ID:	AACC Size:	0200	Add

Read / Write File Data						
App ID: 00AACC						
File ID: 01 Offset: 00 KeyNo: 2 -						
Key: 000000000000000000000000000000000000						
Read Block Data :						
111111111111111111111111111111111111111						
Read block						
Write Block Data:						
111111111111111111111111111111111111111						
<u>W</u> rite block						

E. Auto read the file data of Desfire card and output as keyboard emulation.

Auto read file/blo	ock (DESFire)	-
Disable 💌	App ID: 001001	
File ID: 01	Offset: 00	KeyNo: 1 💌
Start: 0	•	Þ
Byte: 4	•	•
Key Error	Message: LED	•
	Set	Get

a. Select correct encryption of Desfire card and configure App ID, File ID and offset to read correct data.

- b. Select correct key No.(EEPROM KEY)
- c. Enable "Auto" in common tab.



d. Setup keyboard emulation output format.

Send ID Format	
ID Format:	32H 🔹
ID Reverse Bit	ID Reverse Byte
DEC Zero Remove	Reverse Digit
Add Comma(,)	Add Quotation(' ')
Add Space	Add Brackets([ ])
🗆 Add Tab	Add Up Arrow
Add Down Arrow	Add Enter(CR)
Add Ctrl+Enter(LF)	Add Exit ESC
Del char: 0	Set Get

e. Open notepad and punch Desfire card to read data.

## Fingerprint (RD300-FH1 only)

#### A. Basic

RD200/RD30	0 Tools V0205 <u>A</u> bout						
Common Basic Fing	Auto Read	Fingerprint	NTAG/Ultralight	MIFARE	MIFARE key	DESFire	ISO1444
Open Close			Ok.				
Finger	r NO: 1	•					·
C	Delete Delete All		elete All	Template			
Che	Check Free Get Enroll Count		Enroll Count				
	Auto Enroll						<b>*</b>
	Identify:			Get Te	mplate	Set Te	mplate
Set Au	to Identify	AUTO	▼ Green 5	Min: UID	Add: 0000000	000000000	Get
Connect	VID (Hex): PID (Hex):	0E6A US	B Auto 💌	[Connect	ed] (RD300-FH1	. 0206) (S	N:15149002)
			Command	Done.			
X:02 01 65	5			RX : 02 0E 6	55 00 01 05 00	00 00 00 00	0 00 00 00 00 0

- 1. **Open / Close** : Setup fingerprint sensor enable/ disable.
- 2. **Finger No**: RD300-FH1 support 2000 fingerprints. Select from 0 to 1999 to configure fingerprint.
- 3. **Delete**: Delete selected fingerprint number (Finger No).
- 4. **Delete all**: Delete all fingerprints.
- 5. **Check Free**: Check selected fingerprint number is in use or free.
- 6. **Get Enroll Count**: Check how many fingerprint numbers was used.
- 7. Auto Enroll: Select fingerprint number and click auto Enroll to save fingerprint to reader.
- 8. **Template**: Fingerprint's template. Every fingerprint have unique template.
- 9. **Identify**: Identification of the capture fingerprint with database number.
- 10. Set Auto Identify: Default is auto, set to off will disable fingerprint recognition.
- 11. Green: Setup fingerprint sensor auto sleep timing. Default is 5 minutes.
- 12. **UID Add**: Change prefix to fingerprint numbers.

#### **B.** Fingerprint UID Manager

mma	on Auto Read F	ingerprint	NTAG/Ultralight	MIFARE	MIFARE key	DESFire	ISO1444
asic	Fingerprint UID Ma	nager					
NO	UID	Note	Templat	NO: 1	TO 12	_ Tem	plate
0001	000000000000000000000000000000000000000						
0002	000000000000000000000000000000000000000			Read Data Write Data		te Data	
0004	000000000000000000004				@Lood	Form File	
0005	000000000000000000000000000000000000000	8					
0006	0000000000000000000			- D Cause To Els			
0007	000000000000000000000000000000000000000				Jav Sqr	etorie	
0000	000000000000000000000000000000000000000						
0010	0000000000000000000	21		Random All UID Initial All U			
0011	000000000000000000B		0422500	NO: 000	01 UID:	000000000	0000000
0012	0000000000000000000			Note	»·	10-	
				-	··· ]		
				I emplate	e:		
•			F	ł	Add	U	pdate
	VID (Hex):						
Con	nect PID (Hex):	0317 US	B Auto	[Connected	[] (RD300-FH	1 0206) (S	N:15149002)

- 1. Read Data: Select number range to read fingerprint database in reader.
- 2. Write Data: Select number range to write fingerprint database in reader.
- 3. Load Form File: Load "uid.txt" file.
- 4. Save to File: Save current data to txt file.(uid.txt)
- 5. Random All UID: Set fingerprint's UID to random value.
- 6. Initial All UID: Set fingerprint's UID to default value.
- Add / Update: Add / modify specific fingerprint's UID, note and template. (Only add / modify to screen, please don't forget save to file.)

## **Command Test**

This page provides several command examples, user can choose the example from the Request

Sample List, or directly input the CMD and {DATA} to test

the command.

- Select Request Sample List

   [01] Read Card UID
   ^

   [02][02] Run Action Command
   ^

   [03][01] Get USB Mode
   ^

   [0C] Read User Data
   \_

   [0C] Write User Data
   \_

   [0D] Get S/N
   \_

   [0E] Get Model, Version
   \_

   [0F][01] Set Reboot
   ~
- Click Send Request to send command to reader, Click Read Card to read card data.
- 2. The response data of the request command are all display on Response Data fields.
- 3. The bottom of screen function is a utility to convert ASCII characters to Hexadecimal.

🖨 RD200/RD300 Tools V0206	×				
Eile Language About					
MIFARE MIFARE key DESFire ISO14443B Command Test Update Firmware					
Request Data         [0D] Get S/N           STX         LEN         CMD         { DATA }           02         01         0D         (Hex)           Request(Hex)         02         01         0D					
Send Request Read Card					
STX         LEN         CMD         STA         { DATA }         12110283         (Ascii)           02         0A         0D         00         31 32 31 31 30 32 38 33         (Hex)           Response(Hex):         02 0A 0D 00 31 32 31 31 30 32 38 33					
ASCII To Hex (Ascii) (Hex)					
VID (Hex): 0E6A         USB Auto         [Connected] (RD200-M1 0191) (SN:12110283)					
Command Done.					
TX : 02 01 0D RX : 02 0A 0D 00 31 32 31 31 30 32 38 33					

## **Firmware Update**

Before update the firmware, system will pop up a warning message window.

Note !	
Note: Update firmware may cause the device crash! If not necessary, Pl	ease do NOT update firmware.
(OK)	

The firmware update steps as below:

- Step 1. Click Select firmware file
- **Step 2.** Choose a firmware file (\*.SYB)
- Step 3. Click Update Firmware to finish the firmware update

MIFARE MIFARE key LF Card	d EPC/eTag Command Test	Update Firmware	• •				
USB ID VID (Hex): 0E6A PID (Hex): 0317	Firmware file Code size (Hex): 0000 Code checksum (Hex): 0000	Code type: Code version:					
Firmware file path:							
Select firmware file							
Upgrade progress:							
Update Firmware							

# FCC INFORMATION

The Federal Communication Commission Radio Frequency Interference Statement includes the following paragraph:

The 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 instruction, may cause harmful interference to radio communication. However, there is no grantee that interference will not occur in a particular installation. If this equipment dose 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.