

Vguang QR code scanner communication protocol v3.0

This protocol support:

Ethernet TCP mode,
WIFI TCP mode,
485, 232, TTL mode

Can enter into different mode via the corresponding
option in configuration tool

Note:

All the configuration option will become invalid
after restart in this
protocol, please configure again via configuration
tool

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1 Data transmission protocol

1.1 Request data format

Command head + command word + length word + data field + check word

Command head: two bytes, Default is 0X55, 0XAA

Command word: one byte

Length word: two bytes, indicate this command start from length word to check words bytes (not include check word), low-order in front

Data field: this option can be 0

Check word: Byte-by-byte XOR value from the command head to the last byte of the data field

1.2 Reply data format

Command head + command word + identifier word + length word + data field + check word

Command head: two bytes, Default is 0x55, 0xAA

Command word: one byte

Identifier word: one byte, 0x00 means response successfully, others means defeated or error

Length word: two bytes, indicate this command start from length word to check words' bytes (not include check word), low-order in front

Data field: this option can be 0

Check word: Byte-by-byte XOR value from the command head to the last byte of the data field

Note: Command head can be altered via configuration tool

2 QR code scanner control request message

2.1 0x01 Device status enquiry

0x01					
Instruction: Identification word 00 Indicates the device is working; Not 0 Abnormal					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2 Byte	Default: 0x55 0xAA	Packet head	1 Byte	Default: 0x55 0xAA
Command word	1 Byte	0x01	Command word	1 Byte	0x01
Data field length	2 Byte	0x00 0x00	Identification word	1 Byte	0x00 : success
		No such item	Data field length	2 Byte	Not 0: fail
Data field	0 Byte		Data field	N Byte	Data N=0 No such item
Check word	1 Byte		Check word	1 Byte	

For example:

PC-->Reader :55 AA 01 00 00 FE

Reader-->PC :55 AA 01 00 02 00 55 AA 03

2.2 0x02 Get device ID

0x02					
Instruction: The ID needs to be configured with the configuration tool in advance, that is, the configuration item "equipment number" in the configuration tool.					
Note:The ID passed here is a number of unsigned int type, not ASCII code.					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x02	Command word	1Byte	0x02
Data field length	2Byte	0x00 0x00	Identification word	1Byte	0x00 : success
			Data field length	2Byte	Not0: fail
Data field	0Byte	No such item	Data field length	2Byte	N
			Data field	N Byte	N > 0 Device ID, low order first
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 02 00 00 FD

Reader-->PC :55 AA 02 00 04 00 80 00 00 00 79

The red part represents the device ID, the low order is in the front,80000000 represents that the device ID is 128.

2.3 0x03 Update or query the system time of the scanner

0x03

Instruction:

Update system time mode--

When the field value is 0x00,it means that the scanner will automatically synchronize the network time immediately (the equipment needs to support the network function, and the network is normal). When the field value is 0x01, it means that the scanner will synchronize the network time regularly, the synchronization frequency is 24 hours / time, and the synchronization time is 24:00 (the equipment needs to support the network function, and the network is normal). When the value of this field is 0x02, it means that the scanner time is updated by the upper computer, and the upper computer transmits the timestamp.

Note: When there is no data field in the request packet,the data length is 0, the device will return the device timestamp. The timestamp is the number of milliseconds from January 1, 1970 (00:00:00 GMT) to the present. The storage method is in the first place.

PC->Reader(Send)					Reader->PC(Receive)		
Item	byte	instruction			Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA			Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x03			Command word	1Byte	0x03
Data field length	2Byte	N			Identification word	1Byte	0x00 : success
							Not0: fail
Data field	0Byte	Update system time	1 Byte	0x00 Automatic update time			
				0x01 Scheduled update time	Data field length	2Byte	N
		Mode		0x02 Upper computer's setting time			
		Time stamp	Byte	When the mode is 2, the unit MS exists, and the low order is in the front			Data N=0 No such item
				When the mode is 2, the unit MS exists, and the low order is in the front.			
Check word	1Byte				Check word	1Byte	

For example:

PC-->Reader :55 AA 03 00 00 FC Get the time of scanning system

Reader-->PC :55 AA 03 00 08 00 **5D 7A 12 1F 74 01 00 00** AB The red part is the time stamp (the low order comes first):

Hexadecimal1741F127A5D==>Decimalism:1598249138781=020-08-24 14:05:38

2.4 0x04 LED light & beeper control

0x04						
Instruction: Confirm that the equipment has correspond lights.						
PC->Reader(Send)				Reader->PC(Receive)		
Item	byte	instruction		Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA		Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x04		Command word	1Byte	0x04
Data field length	2Byte	0x05 0x00		Identification word	1Byte	0x00 : success
						Not0: fail
Data field	5Byte	1 Byte	Switch: closed 0 , enable 1	Data field length	2Byte	N
			bit0: Keep			
			bit1: Red light control bit			
			bit2: Green light control bit			
			bit3: Buzzer control bit			
			bit4: Blue light control bit			
		1 Byte	Times	Data field	NByte	Data N=0 No such item
		1 Byte	Duration of each session(50MS)			
		1 Byte	Interval time(50MS)			
Data field	5Byte	1 Byte	Keep	Data field	NByte	
Check word	1Byte			Check word	1Byte	

For example: Each flash 0x50*50ms (decimal 80) interval 0x0A*50 ms (decimal80)10)

55 AA 04 05 00 02 03 50 0A 00 A5 Control the red light to flash three times in 4 seconds, the interval is 0.5 seconds

55 AA 04 05 00 08 03 50 0A 00 AF The buzzer rings three times in 4 seconds, the interval is 0.5 seconds

55 AA 04 05 00 04 03 50 0A 00 A3 Control the green light to flash three times in 4 seconds, the interval is 0.5 seconds

55 AA 04 05 00 0A 03 50 0A 00 AD Red light and buzzer three times in 4 seconds, interval 0.5s

55 AA 04 05 00 0C 03 50 0A 00 AB Green light and buzzer three times in 4 seconds, interval 0.5s

55 AA 04 05 00 06 03 50 0A 00 A1 Red and green light flash three times in 4 seconds, interval 0.5s

55 AA 04 05 00 0E 03 50 0A 00 A9 Red and green light flash and buzzer three times in 4 seconds, interval 0.5s

55 AA 04 05 00 18 03 50 0A 00 BF Blue light and buzzer three times in 4 seconds, interval 0.5

2.5 0x05 Turn on/off scan code function

0x05					
Instruction: Used to turn on or turn off the scan function					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x05	Command word	1Byte	0x05
Data field length	2Byte	0x01 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	1Byte	1 turn off, 0 turn on	Data field length	2 Byte	N
			Data field	N Byte	Data N=0 No such item
Check word	1Byte		Check word	1 Byte	

For example:

PC-->Reader :55 AA 05 01 00 01 FA turn off the scan function

PC-->Reader :55 AA 05 01 00 00 FB turn on the scan function

Reader-->PC :55 AA 05 00 00 00 FA

2.6 0x06 Switch key number update

0x06					
Instruction: Apply to DW100					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x06	Command word	1Byte	0x06
Data field length	2Byte	0x01 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	1 Byte	0 turn off, 1 turn on	Data field length	2Byte	N
			Data field	N Byte	Data N=0 No such item
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 06 01 00 01 F9 Open button report

PC-->Reader :55 AA 06 01 00 00 F8 Close button report

Reader-->PC :55 AA 06 03 00 00 FA

2. 7 0x21 QR, Barcode, NFC setting

0x21								
Instruction: When the bar code is enabled, the control word is two bytes. The second byte is optional. Corresponding to position 1, the function is enabled successfully								
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Control word 1	CODE39	ISBN13	EAN13	EAN8	NFC	Bar code is enabled	DM	QR
Control word 2	UPCE	ISBN10	ITF	PDF417	BAR_EXP	DATABAR	CODE128	CODE93
Note: 1.The part marked in red indicates that the function is not enabled or not supported. If the command is sent, the device replies to execute SUCCESS to enable other code systems, the first control word BIT2 position 1 and the Data length is 2 bytes, that is, Data field is 0x02 0x00 2.About the first control word bit2 bits: A. When the bit2 position is 1 and only the control word 1 exists in the command, the bit2 indicates that all bar codes are enabled B. When the bit2 position is 1 and the command contains two control words, the bit2 bits at this time indicate that the corresponding bar code can be independently controlled								
PC->Reader(Send)				Reader->PC(Receive)				
Item	byte	instruction		Item	byte	instruction		
Packet head	2Byte	Default: 0x55 0xAA		Packet head	1Byte	Default: 0x55 0xAA		
Command word	1Byte	0x21		Command word	1Byte	0x21		
Data field length	2Byte	0x01 0x00 or 0x02 0x00		Identification word	1Byte	0x00 : success		
						Not0: fail		
Data field	N Byte	The first control word	1 Byte	Data field length	2Byte	N		
		The second control word (optional)	1 Byte	Data field	N Byte	Data N=0 No such item		
Check word	1Byte			Check word	1Byte			

For example:

PC-->Reader :55 AA 21 01 00 00 DF Empty the code value

PC-->Reader :55 AA 21 01 00 01 DE QR

PC-->Reader :55 AA 21 01 00 02 DD DM Does not support temporary

PC-->Reader :55 AA 21 01 00 04 DB Barcode

PC-->Reader :55 AA 21 02 00 14 00 C8 EAN8

PC-->Reader :55 AA 21 02 00 24 00 F8 EAN13

PC-->Reader :55 AA 21 02 00 84 00 58 CODE39

PC-->Reader :55 AA 21 02 00 04 01 D9 CODE93

PC-->Reader :55 AA 21 02 00 04 02 DA CODE128

PC-->Reader :55 AA 21 02 00 04 10 C8 PDF417

PC-->Reader :55 AA 21 02 00 04 20 F8 ITF

PC-->Reader :55 AA 21 01 00 08 D7 NFC

Reader-->PC :55 AA 21 00 00 00 DE

2.8 0x22 Scan code work mode setting

0x22									
Instruction:									
Common mode:Output all scan content									
Single mode:The same code is output only once (in the continuous scan code)									
Interval mode:The same code is printed only once at a certain time interval									
PC->Reader(Send)						Reader->PC(Receive)			
Item	byte	instruction				Item	byte	instruction	
Packet head	2Byte	Default: 0x55 0xAA				Packet head	1Byte	Default: 0x55 0xAA	
Command word	1Byte	0x22				Command word	1Byte	0x22	
Data field length	2Byte	0x01 0x00 或 0x03 0x00				Identification word	1Byte	0x00 : success	
								Not0: fail	
		Mode	1 Byte	0x01	Common mode	Data field length	2Byte	N	
				0x02	Single mode				
				0x03	Interval mode				
		Data field	N Byte	Interval(s)	2 Byte	Low before (optional, sub-item can only be set in interval mode)		Data field	N Byte
Check word	1Byte					Check word	1Byte		

For example:

PC-->Reader :55 AA 22 01 00 01 DD Common mode

PC-->Reader :55 AA 22 01 00 02 DE Single mode

PC-->Reader :55 AA 22 03 00 03 02 00 DF Interval mode(2s)

Reader-->PC :55 AA 22 00 00 00 DD

2.9 0x23 Set the interval of scan time in interval mode

0x23					
Instruction: The interval for scanning takes effect only when the interval mode is set					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction		Item	byte
Packet head	2Byte	Default: 0x55 0xAA		Packet head	1Byte
Command word	1Byte	0x23		Command word	1Byte
Data field length	2Byte	0x02 0x00		Identification word	1Byte
Data field	2 Byte	Millisecond interval code (unit, the range of 0 ~ 60000), low in the front		Data field length	2Byte
Check word	1Byte			Check word	1 Byte

For example:

PC-->Reader :55 AA 23 02 00 F4 01 2B Interval 500ms
PC-->Reader :55 AA 23 02 00 E8 03 35 Interval 1000ms
PC-->Reader :55 AA 23 02 00 D0 07 09 Interval 2000ms
Reader-->PC :55 AA 23 00 00 00 DC

2.10 0x24 LED backlight control

0x24					
Instruction: Ensure that the device has a corresponding color indicator. For position 1, enable led of corresponding color					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x24	Command word	1Byte	0x24
Data field length	2Byte	0x01 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	1 Byte	bit0: White light control position	Data field length	2Byte	N
		bit1: Red light control position			Data N=0 No such item
		bit2: Green light control position			
		bit3: Blue light control position			
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 24 01 00 00 DA Turn off
PC-->Reader :55 AA 24 01 00 01 DB Turn on the white light
PC-->Reader :55 AA 24 01 00 02 D8 Turn on the red light
PC-->Reader :55 AA 24 01 00 04 DE Turn on the green light
PC-->Reader :55 AA 24 01 00 08 D2 Turn on the blue light
Reader-->PC :55 AA 24 00 00 00 DB

2.11 0x25 Buzzer response configuration

0x25					
Instruction: Used to configure the buzzer action after code scanning or card scanning					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x25	Command word	1Byte	0x25
Data field length	2Byte	0x01 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	1 Byte	0: The buzzer is off	Data field length	2Byte	N
		1: The buzzer is on			Data N=0 No such item
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 25 01 00 01 DA The buzzer works after scanning.
PC-->Reader :55 AA 25 01 00 00 DB The buzzer does not work after scanning.
Reader-->PC :55 AA 25 00 00 00 DA

2.12 0x26 GPIO_0 Control

0x26					
Instruction: Verify that the device supports this pin. By default, only (MX86) devices are supported.					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x26	Command word	1Byte	0x26
Data field length	2Byte	0x01 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	1 Byte	0: Output low level	Data field length	2Byte	N
		1: Output high level	Data field	N Byte	Data N=0 No such item
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 26 01 00 01 D9 Output high level

PC-->Reader :55 AA 26 01 00 00 D8 Output low level

2.13 0x27 GPIO_1 Control

0x27					
Instruction: Verify that the device supports this pin. By default, only (MX86) devices are supported.					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x27	Command word	1Byte	0x27
Data field length	2Byte	0x01 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	1 Byte	0: Output low level	Data field length	2Byte	N
		1: Output high level	Data field	N Byte	Data N=0 No such item
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 27 01 00 01 D8 Output high level

PC-->Reader :55 AA 27 01 00 00 D9 Output low level

2.14 0x28 GPIO_0 and GPIO_1 Output high level voltage control

0x28					
Instruction: Verify that the device supports this pin. By default, only (MX86) devices are supported.					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x28	Command word	1Byte	0x28
Data field length	2Byte	0x01 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	1 Byte	0: The output high level is 4.3V	Data field length	2Byte	N
		1: The output high level is 3.3V	Data field	N Byte	Data N=0 No such item
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 28 01 00 01 D7 The output high level is 3.3V

PC-->Reader :55 AA 28 01 00 00 D9 The output high level is 4.3V

2.15.Voice control command

0x29					
Instruction: This directive only applies to devices that support audio					
Audio file formats: single channel 16bit wav format: 8Khz -192Khz					
Audio file name: 0.wav 1.wav ...6 audio files in total					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x29	Command word	1Byte	0x29
Data field length	2Byte	0x01 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	1 Byte	Numeric value represents the name of the audio file (without extension)	Data field length	2 Byte	N
			Data field	N Byte	Data N=0 No such item
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 29 01 00 00 D7 0.wav Welcome to use Vguang scanning equipment

PC-->Reader :55 AA 29 01 00 01 D6 1.wav Welcome to Ali pay

PC-->Reader :55 AA 29 01 00 02 D5 2.wav Welcome to Wechat Pay

PC-->Reader :55 AA 29 01 00 03 D4 3.wavWelcome to Wechat Pay

PC-->Reader :55 AA 29 01 00 04 D3 4.wav No voice

PC-->Reader :55 AA 29 01 00 05 D2 5.wav No voice

2.16 0x2A Relay control

0x2A			
Instruction: Verify that the device supports relays.			
When the relay is turned on without a transmission duration field, the relay does not close itself.			
PC->Reader(Send)		Reader->PC(Receive)	
Item	byte	instruction	
Packet head	2Byte	Default: 0x55 0xAA	
Command word	1Byte	0x2A	
Data field length	2Byte	0x02 0x00	
		0x01: open	
		0x00: close	
		When the relay is on, this byte represents the duration (in 50MS) 0x00: Use the default time	
Data field	2 Byte	1 Byte or byte	
Check word	1Byte		

For example:

PC-->Reader :55 AA 2A02 00 0102 D4 Relay open 100ms
PC-->Reader :55 AA 2A02 00 010A DC Relay open 500ms
PC-->Reader :55 AA 2A01 00 01 D5 Open the relay
PC-->Reader :55 AA 2A01 00 00 D4 Close the relay

3. QR code scanner scanning feedback message command

There are two ways for the upper computer to obtain data results:

- 1、The upper machine polling sends instructions to get results from the scanner, that is, the scanner works in command mode.
- 2、The scanner actively sends the results to the top computer, that is, the scanner works in active reporting mode.

Note: By default, the scanner works in active reporting mode, using 0x30 to report data results.

3.1. Scanning result upload mode setting

0x31 Set the protocol working mode (restart invalid)

Instruction: Set the working mode of the scanner, which instruction to obtain or report data, and set the data validity time.

Mode field instruction: The gray bits are reserved bits --

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0		Mode field value
0	0	0	0	0	0	0	0	Command mode, the upper computer sends 0x30 instruction to obtain data. No data distinction marks.	0x00
0	0	0	0	0	0	0	1	In active reporting mode, the scanner uses 0x30 instruction to actively send data to the upper computer. No data distinction marks.	0x01
1	0	0	0	0	0	0	0	Command mode, the upper computer sends 0x33 instruction to obtain data. With data distinction marks.	0x80
1	0	0	0	0	0	0	1	In active reporting mode, the scanner uses 0x33 instruction to actively send data to the upper computer. With data distinction marks.	0x81

Data validity time (the default validity time of the scanner data is 2000ms)

When the scanner works in command mode, this setting is enabled. When the scanner gets the data, the data fails. If the scanner receives the result instruction from the upper computer during this period, the scanner can send the result to the upper computer. Otherwise, the scanner considers the data as invalid and will not send the data to the top computer. In other words, the instruction polling interval of the upper computer should not be lower than the data effective time, otherwise the upper computer may not be able to get the results in time.

With data distinction marks--

The data sources of scanner include: scan code data, scan card (card number) data, Bluetooth data, key data. The data distinction flag can be used to distinguish which type of data it is. See instruction 0x33

PC->Reader(Send)					Reader->PC(Receive)		
Item	byte	instruction			Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA			Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x31			Command word	1Byte	0x31
Data field length	2Byte	0x01 0x00 or 0x02 0x00			Identification word	1Byte	0x00 : success
							Not0: fail
Data field	N Byte	Mode field	1 Byte	See instruction 's red part	Data field length	2Byte	N
		Data validity time (optional)	1 Byte	(Unit: 50MS)			Data N=0 No such item
				0x00 -> 50 Ms			
				Not 0 -> N*50 Ms			
Check word	1Byte				Check word	1Byte	

For example

PC-->Reader :55 AA 31 01 00 01 CE Set the scanner to work in the reporting mode and use 0x30 instruction to actively report data

PC-->Reader :55 AA 31 01 00 00 CF Set the scanner to work in command mode, and the upper computer polls 0x30 to obtain scanner data

PC-->Reader :55 AA 31 01 00 81 4E Set the scanner to work in the reporting mode and use 0x33 instruction to actively report data

PC-->Reader :55 AA 31 01 00 80 4F Set the scanner to work in command mode, and the upper computer polls 0x33 to obtain scanner data

PC-->Reader :55 AA 31 02 00 00 14 D8 Set the scanner to work in command mode, the data valid time is 1000ms, and the upper computer obtains scanner data by polling 0x30

PC-->Reader :55 AA 31 02 00 80 14 58 Set the scanner to work in command mode, the data valid time is 1000ms, and the upper computer obtains scanner data by polling 0x33

Reader-->PC :55 AA 31 00 00 00 CE

3.2. Getting results does not distinguish data sources

0x30	This command is used when the host actively polls or the device actively reports results				
Instruction:The data returned by this command does not distinguish data sources, that is, the upper computer cannot determine whether the data is code scanning data, card scanning (card number) data or Bluetooth data after obtaining the data.					
Note: This directive does not return key value data.					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x30	Command word	1Byte	0x30
Data field length	2Byte	0x00 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	0 Byte	No such item	Data field length	2Byte	N
			Data field	N Byte	Data N=0 No such item
Check word	1Byte		Check word	1Byte	

For example:

In command mode, the upper machine polling sends this command to obtain data.

PC-->Reader :55 AA 30 00 00 CF

Reader-->PC :55 AA 30 00 00 00 CF No data

Reader-->PC :55 AA 30 00 08 00 37 36 64 30 33 34 39 31 9D Feedback data

3.3. Getting results to differentiate data sources

0x33			This command is used when the host actively polls or the device actively reports results				
Instruction: The data returned by this command can distinguish data sources, that is, the upper computer can distinguish the obtained data through the data discrimination mark, which is the data of scanning code, swiping card (card number), Bluetooth data or key value data.							
PC->Reader(Send)			Reader->PC(Receive)				
Item	byte	instruction	Item	byte	instruction		
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA		
Command word	1Byte	0x33	Command word	1Byte	0x33		
Data field length	2Byte	0x00 0x00	Identification word	1Byte	0x00 : success		
					Not 0: fail		
Data field	0 Byte	No such item	Data field length	2 Byte	Data N=0 No such item		
				N Byte	Data distinguish ing mark	1 Byte	0x10: Scan code data
							0x40: NFC card
							0x80: Bluetooth data
							0xA0: The key
			Data field	0 Byte	No such item	Data field	(Data N=0 No such item)
Check word	1Byte		Check word	1Byte			

For example:

In command mode, the upper machine polling sends this command to obtain data (Blue -- data type, red -- data)

PC-->Reader :55 AA 33 00 00 CC

Reader-->PC :55 AA 33 00 00 00 CC No data

Reader-->PC :55 AA 33 00 07 00 10 31 32 33 34 35 36 DC scan code data

Reader-->PC :55 AA 33 00 09 00 40 37 64 39 30 64 61 36 31 DD scan card data

3.4 0x32 Key value reporting

0x32			Report key value				
Instruction:							
1、When the device is in active reporting mode and a key value is triggered, the device will actively report the key value (0x32 in the Command word field).							
2、When the device is in command mode, the upper computer can poll this command to obtain data (this command is only applicable to DW100 device)							
PC->Reader(Send)			Reader->PC(Receive)				
Item	byte	instruction	Item	byte	instruction		
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA		
Command word	1Byte	0x32	Command word	1Byte	0x32		
Data field length	2Byte	0x00 0x00	Identification word	1Byte	0x00		
Data field	0 Byte	No such item	Data field length	2Byte	N		
			Data field	N Byte	Key value	1 Byte	N>0 Must exist
					Attachment data	N Byte	N>1 exist
							N=1
							nonexistence
Check word	1Byte		Check word	1Byte			

For example:

PC-->Reader :55 AA 32 00 00 CD

4 White list admin command

To enable the whitelist setting function, you need to change the initial password using the 0x40 command or the Vguang Whitelist Configuration Management Tool on the PC. The initial password cannot be used to enable the scanning and editing whitelist function.

The whitelist function works in three modes:

- 1、Normal working mode -- Filter function (can be set with 0x41 directive)
- 2、Add the card number to the whitelist automatically by scanning the card (enable or disable by configuration code)
- 3、Scan the card to automatically remove the card from the whitelist (enable or disable by configuration code)

Vguang Communication protocol can be used to 0 x41 instructions on normal working mode, the other two models need to use PC tools to set, specific can see the Vguang Internet whitelisting configuration management tools. The instructions 0x42 and 0x43 take effect in any working mode.

Note: The whitelist stores physical card numbers in positive order without prefix or suffix

4.1 0x40 Set admin password

0x40							
Instruction: The password is ASCII							
PC->Reader(Send)				Reader->PC(Receive)			
Item	byte	instruction		Item	byte	instruction	
Packet head	2Byte	Default: 0x55 0xAA		Packet head	1Byte	Default: 0x55 0xAA	
Command word	1Byte	0x40		Command word	1Byte	0x40	
Data field length	2Byte	0x20 0x00		Identification word	1Byte	0x00 : success	
						Not0: fail	
		Original password	16 Byte	Original password: 1234567887654321	Data field length	2Byte	N
		New password	16 Byte				
Data field	32 Byte			Data field	N Byte	N=0 No such item	
Check word	1Byte			Check word	1Byte		

For example:

Set the management password 1996049520111111 (Blue----the original password. Red----the password to be set)

PC-->Reader :55 AA 40 20 00 31 32 33 34 35 36 37 38 38 37 36 35 34 33 32 31 31 39 39 36 30 34 39 35 32 30 31 31 31 31 31 31 a2

4.2 0x41 Whitelist filtering function

0x41					
Instruction: Use or forbidden white list query function					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x41	Command word	1Byte	0x41
Data field length	2Byte	0x01 0x00	Identification word	1Byte	0x00 : success
		0: Close the white list filtering capabilities(default)			Not0: fail
		Data field	1 Byte	1: Open the white list filtering capabilities	Data field
Check word	1Bvte		Check word	1Byte	

For example:

PC-->Reader :55 AA 41 01 00 00 BF Close the white list filtering capabilities

PC-->Reader :55 AA 41 01 00 01 BE Open the white list filtering capabilities

4.3 0x42 Add white list card number

0x42					
Instruction:					
The card number is in positive order without prefix or suffix, with the highest order in the first place.					
If the card number contains less than 8 bytes, add 0 after the card number.					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x42	Command word	1Byte	0x42
Data field length	2Byte	0x08 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	8 Byte	unsigned long long data (card number)	Data field length	2Byte	N
			Data field	N Byte	N = 0 No such item
Check word	1Byte		Check word	1Byte	

For example

PC-->Reader :55 AA 42 08 00 FF 81 4C 00 00 00 00 00 87 The card number 5014015 is whitelisted

4.4 0x43 Delete white list card number

0x43					
Instruction: The card number is in positive order without prefix or suffix, with the highest order in the first place					
If the card number contains less than 8 bytes, add 0 after the card number					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x43	Command word	1Byte	0x43
Data field length	2Byte	0x08 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	8 Byte	unsigned long long data (card number)	Data field length	2Byte	N
			Data field	N Byte	N = 0 No such item
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 43 08 00 FF 81 4C 00 00 00 00 00 86 Delete the card 5014015 from the whitelist

4.5 0x44 Delete all white list

0x44					
Instruction: Delete all card numbers from the whitelist					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x44	Command word	1Byte	0x44
Data field length	2Byte	0x00 0x00	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	0 Byte	No such item	Data field length	2Byte	N
			Data field	N Byte	N = 0 No such item
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 44 00 00 BB Delete all card numbers from the whitelist

4.6 0x45 Configure white list successfully

0x45								
Instruction: When the card is in the whitelist, it indicates that the card is swiped successfully. At this time, the scanner will give feedback prompt according to the set action.								
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Action	Audio	Relay	GPIO Pin	Blue light	Green light	Red light	Back light	Buzzer
	Bit15	Bit14	Bit13	Bit12	Bit11	Bit10	Bit9	Bit8
Action	Bit8 - Bit15 RFU							
PC->Reader(Send)				Reader->PC(Receive)				
Item	byte	instruction		Item	byte	instruction		
Packet head	2Byte	Default: 0x55 0xAA		Packet head	1Byte	Default: 0x55 0xAA		
Command word	1Byte	0x45		Command word	1Byte	0x45		
Data field length	2Byte	0x02 0x00		Identification word	1Byte	0x00 : success		
						Not 0: fail		
Data field	2 Byte	Set the successful behavior of the scanner		Data field length	2Byte	N		
				Data field	N Byte	N = 0 No such item		
Check word	1Byte			Check word	1Byte			

For example:

PC-->Reader :55 AA 45 02 00 01 00 B9 Buzzer when successful

5 NFC module operation

NFC module can support Mifare One card read and write, CPU card to send APDU instructions, see the specific instructions.

Noun explanation:

Task start flag bit--This flag bit is used to tell the scanner when to start the operation of the card and when to end the operation of the card, or to tell the scanner that the instruction of the operation of the card is independent without inter-instruction dependence.

This flag bit is used to set the operating environment of the card. There are three flag bit values:

0x00->AUTO Indicates to the scanner that the instruction can be executed independently without dependency between instructions.

0x01->START Indicates to the scanner that the card operation has started or has not finished and that there may be dependencies between instructions.

0x02->FINISH Inform the scanner that this instruction is the last instruction to operate the card and restore the card operating environment to silent state. If the instructions to operate the card are independent, such as reading and writing a piece of M1 card data, the flag bit can be set to AUTO or FINISH.

Note:

The old version 《Vguang Communication protocol v2.10》 does not have this flag bit, old users can read and write the M1 card by using 0x51 and 0x52.

1.If START is used to start the card operation, FINISH must be used to finish the card operation. Otherwise, the NFC module cannot work properly. You must restart the NFC module before using it again.

2. If multiple card operation instructions are involved in the card operation, the task START flag bit of the instruction is START and the last instruction is FINISH.

5.1 0x53 Card number reporting switch

0x53

Instruction: When the value of the data field is set to 0x01 or 0x00 (that is, entering or exiting command mode), the operation is null and the scanner responds to SUCCESS.

Objective To be compatible with V2.10 Vguang communication protocol

Note: The card number reporting function is enabled by default. If the card number reporting function is disabled, the protocol does not obtain the card number in any mode. At this point, the scanner is used to directly read and write M1 cards or operate CPU cards, without getting the card number.

PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x53	Command word	1Byte	0x53
Data field length	2 Byte	0x01 0x00	Identification word	1Byte	0x00 : success
		0x01: The module enters the command mode			Not0: fail
Data field	1 Byte	0x00: The module exits the command mode	Data field length	2 Byte	N
		0x02: Scan card report			
		0x03: Close the report			
Check word	1 Byte		Check word	1 Byte	

For example:

PC-->Reader :55 AA 53 01 00 02 AF Report the card number

PC-->Reader :55 AA 53 01 00 03 AE Close the report card number

Reader-->PC :55 AA 53 00 00 00 AC

5.2 M1 Card operation

5.2.1 0x51 Read a block data of M1 card

0x51			Read a block data of M1 card				
Instruction:The task start flag field is optional. If the command does not contain the flag bit, the command is executed by default							
PC->Reader(Send)				Reader->PC(Receive)			
Item	byte	instruction		Item	byte	instruction	
Packet head	2Byte	Default: 0x55 0xAA		Packet head	1Byte	Default: 0x55 0xAA	
Command word	1Byte	0x51		Command word	1Byte	0x51	
Data field length	2 Byte	N		Identification word	1Byte	0x00 : success	
						Not0: fail	
Data field	N Byte	Key type	1Byte	0x60-> KEY A	Data field length	2 Byte	N
				0x61-> KEY B			
		block number	1 Byte	0 ~ 0xFF			
		Secret key	6 Byte				
		Task start		0x00-> AUTO			
		Flag Bit (optional)	1 Byte	0x01 -> START			
Data field	N Byte			0x02-> FINISH	Data field	N Byte	N=0 No such item
Check word	1 Byte			Check word	1Byte		

For example:

Use A (0x60) key for authentication, read the second block (the absolute block number is 0x19) in sector 6. The authentication key is FF FF FF FF FF FF FF, and the flag bit is optional.

PC-->Reader :55 AA 51 09 00 60 19 FF FF FF FF FF FF 00 DE Contain flag bit

PC-->Reader :55 AA 51 08 00 60 19 FF FF FF FF FF FF DF No flag bit

Reader-->PC :55 AA 51 00 10 00 12 34 56 78 90 12 34 56 78 90 12 34 56 78 90 12 34 Read the card successfully

Reader-->PC :55 AA 51 FF 00 00 51 Fail or no card

5.2.2 0x52 Write data to a certain block of M1 card

0x52			Write data to a certain block of M1 card				
Instruction: The task start flag field is optional. If the command does not contain the flag bit, the command is executed by default							
PC->Reader(Send)				Reader->PC(Receive)			
Item	byte	instruction		Item	byte	instruction	
Packet head	2 Byte	Default: 0x55 0xAA		Packet head	1Byte	Default: 0x55 0xAA	
Command word	1 Byte	0x52		Command word	1Byte	0x52	
Data field length	2 Byte	N		Identification word	1Byte	0x00 : success	
						Not0: fail	
		Key type	1 Byte	0x60 -> KEY A	Data field length	2Byte	N
				0x61 -> KEY B			
		block number	1 Byte	0 ~ 0xFF			
		secret key	6 Byte				
		Data	16 Byte				
		Task flag bit (optional)	1 Byte	0x00 -> AUTO			
0x01 -> START							
0X02 -> FINISH							
Data field	N Byte			Data field	N Byte	N=0 No such item	
Check word	1 Byte			Check word	1Byte		

For example:

Write data to block 2 in sector 6 (the absolute block number is 0x19) using key B (0x61) for authentication. The authentication key is FF FF FF FF FF FF FF, and the flag bit is optional.

PC-->Reader :55 AA 52 19 00 61 19 FF FF FF FF FF FF 11 11 11 11 11 11 22 22 22 22 22 22 00 CC
Contain flag bit

PC-->Reader :55 AA 52 18 00 61 19 FF FF FF FF FF FF 12 34 56 78 90 12 34 56 12 34 56 78 90 12 34 56 CD
No flag bit

Reader-->PC :55 AA 52 00 00 00 AD Read the card successfully

Reader-->PC :55 AA 52 FF 00 00 52 Fail or no card

5.2.4 0xA1 Write M1 multiple blocks

0xA1				Write M1 multiple blocks						
Instruction: Can read S50 / S70 card, sector Numbers, offset, value of blocks according to the card type.										
Offset - Calculates the base address of the block to be written with the selected sector block 0 as the starting address.										
Number of blocks - The number of blocks to which data is continuously written, starting with the selected base address block.										
Command parse: Write data to sectors 2 of a card, block 1 and block 2										
55 AA A1 2B 00 00 60 02 01 02 FF FF FF FF FF FF 36										
55 AA	A1	2B 00	00	60	02	01	02	FF ~FF		36
							Write blocks in succession from the base address			
Command header	Instruction	Data length	AUTO	Key type	Sector number	Base address of block		Secret key	Data to be written	Check word
Note: The number of blocks to be written cannot be 0, otherwise, it is regarded as invalid instruction. Data cannot be written across sectors in an instruction.										
PC->Reader(Send)						Reader->PC(Receive)				
Item	byte	instruction				Item	byte	instruction		
Packet head	2 Byte	Default: 0x55 0xAA				Packet head	1 Byte	Default: 0x55 0xAA		
Command word	1 Byte	0xA1				Command word	1 Byte	0xA1		
Data field length	2 Byte	N				Identification word	1 Byte	0x00 : success Not0: fail		
Data field	N Byte	Task flag bit	1 Byte	0x00 -> AUTO		Data field length	2 Byte	N		
				0x01 -> START						
				0X02 -> FINISH						
		Key type	1 Byte	0x60 -> KEY A						
				0x61 -> KEY B						
		Sector number	1 Byte	S50 -> 0x00~0x0F						
				S70 -> 0x00~0x27						
		Offset	1 Byte	S50 -> 0x00~0x03						
				S70 -> 0x00~0x03 or 0x00~0x0F						
		blocks	1Byte	S50 -> 0x01~0x04						
				S70 -> 0x01~0x04 or 0x01~0x10						
Secret key	6 Byte									
Data field	N Byte	Data	N Byte	N=16*块数		Data field	0 Byte	N=0 No such item		
Check word	1 Byte					Check word	1 Byte			

For example:

Using A (0x60) key for authentication, data is written to block 1 and block 2 in sector 2, that is, two blocks are written consecutively with block 1 as the base address. The authentication key is FF FF FF FF FF FF FF and the flag bit is AUTO.

PC-->Reader :55 AA A1 2B 00 00 60 02 01 02 FF FF FF FF FF FF 11 11 11 11 11 11 11 11 00 00 00 00 00 00 00 00 00 00 00 00 33 33 33 33 33 33 33 33 36

Reader-->PC : 55 AA A1 00 00 00 5E Write the data successfully

Reader-->PC :55 AA A1 FF 00 00 A1 Fail or no card

5.3 ISO14443-4

5.3.1 0xA6 Send APDU directives

0xA6							
Instruction: Used for communication between the CPU card, APDU commands can see "FMCOS2.0 user manual"							
PC->Reader(Send)					Reader->PC(Receive)		
Item	byte	instruction			Item	byte	instruction
Packet head	2 Byte	Default: 0x55 0xAA			Packet head	1 Byte	Default: 0x55 0xAA
Command word	1 Byte	0xA6			Command word	1 Byte	0xA6
Data field length	2 Byte	N			Identification word	1 Byte	0x00 : success
							Not0: fail
Data field	N Byte		1 Byte	0x01 -> START	Data field length	2 Byte	N
		Task flag bit		0X02 -> FINISH			
		APDU DATA	N Byte	Data structure that complies with ISO7816-4			
Check word	1 Byte				Check word	1 Byte	

For example: The part in red is the APDU instruction

Select the application directory:

PC-->Reader :55 AA A6 08 00 01 00 A4 00 00 02 3F 01 C8

Reader-->PC : 55 AA A6 00 11 00 6F 0D 84 05 41 44 46 30 31 A5 04 9F 08 01 02 90 00 4C

Get 4 random digits:

Reader-->PC : 55 AA A6 06 00 01 00 84 00 00 04 DE

Reader-->PC :55 AA A6 00 06 00 7C C9 56 38 90 00 14

External authentication: four random digits used for external authentication, authentication mode is DES single length, default key (1122334455667788)

PC-->Reader :55 AA A6 0E 00 01 00 82 00 00 08 71 7E B1 7D 4C F6 81 17 33

Reader-->PC : 55 AA A6 00 02 00 90 00 CB

Select the binary file:

PC-->Reader :55 AA A6 06 00 02 00 B0 83 00 00 6E

Reader-->PC : 55 AA A6 00 12 00 11 22 33 44 55 66 77 88 00 00 00 00 00 00 90 00 53

6 UI Interface operation instructions

6.1 0x61 Response of code, card, bluetooth data

0x61					
Instruction: The instruction data part is a STRING utF-8 in JSON format: {"ack": "xxxx", (Reply messages, such as "success" and "fail", cannot exceed 128 BYTES in length)"msg": "xxxx" (A brief instruction of "ack")}					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x61	Command word	1Byte	0x61
Data field length	2Byte		Identification word	1Byte	0x00 : success
					Not0: fail
Data field	N Byte	JSON data	Data field length	2Byte	N
			Data field	N Byte	N = 0 No such item
Check word	1Byte		Check word	1Byte	

6.2 0x62 Display custom data

0x62					
Instruction: 1. The data portion of this directive is a JSON string utF-8: {"page_data": "xxxx", (page content) "key_left": "The first page", (Displayed in the lower left corner of the screen) "key_mid": "page 5", (Display in the middle at the bottom of the screen) "key_right": "the next page" (Displayed in the lower right corner of the screen)} 2. This directive only works on the home screen and custom data screen					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x62	Command word	1Byte	0x62
Data field length	2Byte	N	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	N Byte	JSON data	Data field length	2Byte	N
			Data field	N Byte	N = 0 No such item
Check word	1Byte		Check word	1Byte	

6.3 0x63 Display picture

0x63					
Instruction: For details on how to import pictures to the device, see section 7 Audio or Picture update instructions					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x63	Command word	1Byte	0x63
Data field length	2Byte	N	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	1Byte	Number of the image to be displayed	Data field length	2Byte	N
			Data field	N Byte	N = 0 No such item
Check word	1Byte		Check word	1Byte	

6.4 0x64 Enter a specific window

0x64					
Instruction: For details on how to import pictures to the device, see section 7 Audio or Picture update instructions.					
PC->Reader(Send)			Reader->PC(Receive)		
Item	byte	instruction	Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA	Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x64	Command word	1Byte	0x64
Data field length	2Byte	N	Identification word	1Byte	0x00 : success
					Not0: fail
Data field	N Byte	0x01: main window	Data field length	2Byte	N
		0x02: Device Information window	Data field	N Byte	N = 0 No such item
Check word	1Byte		Check word	1Byte	

For example:

PC-->Reader :55 AA 64 02 00 01 00 98

PC-->Reader :55 AA 64 02 00 02 00 9B

7 Update Audio or Picture

The audio file is transmitted as a compressed package. The name of the audio file must be [0-6]. Wav or F.wav, S.wav. The image file must be: 0.png, 1.png 2.png... Or logo PNG, bk. PNG. After decompression, there can only be a level 1 directory.

7.1 0x81 Preparation

0x81										
Instruction: The subcontract rules										
When the data amount is more than 1024: the data is sent in 1024 bytes.										
When the amount of data is less than 1024: send directly.										
PC->Reader(Send)				Reader->PC(Receive)						
Item	byte	instruction		Item	byte	instruction				
Packet head	2Byte	Default: 0x55 0xAA		Packet head	1Byte	Default: 0x55 0xAA				
Command word	1Byte	0x81		Command word	1Byte	0x81				
Data field length	2Byte	N		Identification word	1Byte	0x00 : success				
						Not0: fail				
Data field	1 Byte	Compression type	1 Byte	0x01: xz Compressed package	Data field length	2Byte	N			
			Total number					2 Byte	0x02: zip Compressed package	
		File size		4 Byte				Compression size (low first)		Data field
Check word	1Byte			Check word	1Byte					

7.2 0x82 The subcontract transmission

0x82							
Instruction: The subcontract rules							
When the data amount is more than 1024: the data is sent in 1024 bytes							
When the amount of data is less than 1024: send directly							
PC->Reader(Send)					Reader->PC(Receive)		
Item	byte	instruction			Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA			Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x82			Command word	1Byte	0x82
Data field length	2Byte	N			Identification word	1Byte	0x00 : success
							Not0: fail
Data field	1 Byte	Serial number	2 Byte	This package serial number (serial number increasing starting from 0, has been to: the total number of packages - 1), low in the former	Data field length	2Byte	N
		Data	N Byte				
Check word	1Byte				Check word	1Byte	

7.3 0x83 End Instruction

0x83							
Instruction:							
PC->Reader(Send)					Reader->PC(Receive)		
Item	byte	instruction			Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA			Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x83			Command word	1Byte	0x83
Data field length	2Byte	N			Identification word	1Byte	0x00 : success
							Not0: fail
Data field	1 Byte	RFU	2 Byte	Md5 value of the compressed package	Data field length	2Byte	N
		MD 5	16 Byte		Data field	N Byte	N = 0 No such item
Check word	1Byte				Check word	1Byte	

7.4 0x8A Delete audio files or pictures

0x8A							
Instruction: This directive supports deleting 0.wav1.wav ...0.png 1.png ...documents etc.							
PC->Reader(Send)					Reader->PC(Receive)		
Item	byte	instruction			Item	byte	instruction
Packet head	2Byte	Default: 0x55 0xAA			Packet head	1Byte	Default: 0x55 0xAA
Command word	1Byte	0x8A			Command word	1Byte	0x8A
Data field length	2Byte	N			Identification word	1Byte	0x00 : success
							Not0: fail
Data field	1 Byte	Type	1 Byte	01: Image files	Data field length	2Byte	N
				02: Audio files			
		File label	16 Byte	Range of audio file labels: [0-5]	Data field	N Byte	N=0 No such item
				Range of image file labels: [0-255]			
Check word	1Byte				Check word	1Byte	

Appendix 1:

Id number	Instruction
0x00	Success
0x10	Success, the result is not null
0x90	Fail
0x01	Verification fail
0x02	The data length is out of bounds
0x03	This directive does not support
0x04	Json parse fail
0x05	Out of memory
0x06	Password length error
0x07	Password verification error
0x08	Function is not open
0x09	The card number is out of bounds
0x0A	Upgrade timeout fail
0x0B	Write flash fail
0x0C	Package serial number error
0x0D	Unsupported compression mode
0x0E	Parameter error

Modification record sheet

Version number	Modification reason	Modification Type	Summary of modified content	Modifier	Modification date	Execution date	Note
2.6			Add the 0x53 command		2018-04-18		
2.7			Add the 0x29 command		2018-05-30		
2.8			Add the 0x04 command		2018-06-28		
2.9			Add the NFC working mode configuration code		2018-10-25		
2.10			Modified 2.1 code setting instruction		2018-11-02		
			Add the 0x05 command				
3.0			1、Add the Switch key number update 0x06 command		2020-08-24		
			2、Add UI operation instructions				
			3、Add the key to report the 0x32 instruction				
			4、Add audio and picture file replacement commands				
			5、Add the function of task start flag to the NFC module				
			6、Add 0xA0, 0xA1, and 0xA6 card operation instructions				
			7、Add the 0x45 command				
			8、Add using instruction, update document format				
			9、Add Appendix 1-Identification number Instruction				