

R502 Card Reader

USER'S MANUAL

One reader for all

A combination of contact and
contactless smart card reader



Made by: Feitian Technologies

Mar, 2016

Revision Sheet

Date	Revision	Description
Feb, 2013	V1.0	Release the first version
May, 2013	V1.1	Add description when insert card, the USB port need provided at least 120mA current
October 17, 2016	V1.2	Publish new R502(R502B), update user manual
Dec, 2016	V1.3	Using new template
Dec, 2017	V1.4	Update contents and integrated all tools in one manual

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USER'S MANUAL

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1.0 GENERAL INFORMATION

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1.1 Product Introduction

R502 is a dual-interface smart card reader developed by Feitian Technologies. It is based on CCID driver. It supports not only contact cards compliant with ISO 7816 but also contactless cards compliant with ISO 14443 and contactless cards following Mifare standard. It also provides SIM card slots for many kinds of smart card applications. Moreover R502 comes with the SAM slot suitable for GSM 11.11 cards.

R502 is a terminal interface device for smart card applications and system integrations. With support for smart cards using different interfaces, R502 can be widely used in industries or applications requiring electronic payment and authentication, especially suitable for the high security fields. It is an optimal solution for authentication, e-commerce, financial organizations, access control etc.

1.2 Acronyms and Abbreviations

USB – Universal Serial Bus

CCID – (Chip Card Interface Device) Integrated Circuit(s) Card Interface Devices Specification

PCSC – (Short for "Personal Computer/Smart Card") is a specification for smart-card integration into computing environments.

1.3 Keywords and Features

Keywords: Smart Card Reader, CCID, USB, ISO 7816, ISO 14443, Type A, Type B, Felica(need OEM), Mifare, NFC, T0, T1, Full speed USB device, R502

Features:

1. Support USB 2.0 interface
2. Power supply by USB, the usb interface must be provided 120mA current when insert card
3. The maximum current less than 100mA (no smartcard insert)
4. Accordance with CCID standard to do develop
5. Contact card:
 - a) Support 1x full size card
 - b) Support T0 and T1, in accordance with ISO 7816
 - c) The card clock frequency 4MHz - 12MHz
 - d) Support Class A, B, C, AB, BC, ABC
 - e) Smart card communication speed: 10753bps – 625kbps(when card supported)
 - f) Card slot: ISO/IEC standard using 8 contacts, 300,000 plug time
 - g) Support 2x GSM11.11 standard SIM card

6. Contactless card:
 - a) Build-in antenna
 - b) Accordance with ISO/IEC 14443 (A and B) standard
 - c) Support Mifare S50/S70/Ultralight C cards
 - d) Operating distance (0-30mm), Mifare card(0-45mm), it depends on cards
 - e) Card clock Frequency: 13.56MHz
 - f) Smart card communication speed: By default(106kbps,212kbps,424kbps) and 848kbps is optional, need OEM
7. Open UID(User ID) function
8. Support upgrade firmware (encrypted)
9. OS:
 - a) Windows 2000/XP/2003/Vista/2008/7/8
 - b) Linux Kernel 2.6+ (FC14 X64, ubuntu9.10, ubuntu10.04, ubuntu11.10, openSUSE11.3 X64)
 - c) Mac OS X
 - d) Android(OTG)

1.4 Applications

R502 is high speed smartcard reader product, it can using financial systems, e-commerce, e-government, e-banking, digital signatures, authentication, network access control, online games, recharge payment, ticketing system, parking and access control, public transportation system.

1.5 Security feature

- 1) firmware cannot be read out. Anti-reverse analysis
- 2) Short circuit protection and overcurrent protection
- 3) Do not contain any users' sensitive data in product, such as password.
- 4) PCB board has a 5mm distance with reader shell.

1.6 Extension and maintenance

- 1) Product can be extended and disassembled.
- 2) Firmware can be extended, customized and updated.

1.7 Reliability

- 1) 300,000 times plug/unplug. The period of hardware usable is at least 5 years.
- 2) Frequently read/write 200 times will not lead the system down or error.
- 3) Continuously using 48 hours will not lead error occurrence rate exceed 3‰

2.0 SPECIFICATION

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General Parameters:

- Contact card support:
 - ✓ ISO-7816 Class A, B, C (5V, 3V,1.8V) Standard
 - ✓ Smart Card Clock Frequency: 4MHz-12MHz
 - ✓ Smart Card Interface Speed: 10753~625kbps(when supported by card)
 - ✓ Support ISO 7816 standard, T0, T1, CLASSB, CLASSC, CLASSBC
 - ✓ ISO 7816-3 ID-1 (full-size) and GSM 11.11
- Contactless support:
 - ✓ Build-in antenna
 - ✓ Smart Card Clock Frequency: 13.56MHz
 - ✓ Smart Card Interface Speed : 106kbps,212kbps,424kbps, 848kbps(optional)
 - ✓ Support ISO 14443 Type A and Type B, Mifare© Protocol, Felica® protocol(Need do OEM)
- Communication interface:
 - ✓ Communication for PC: USB 1.1/2.0/3.0 full speed(12Mbps)
- Power supply mode:
 - ✓ USB DC 5V
- Physical Security
 - ✓ Short circuit and thermal protection/over-voltage protection
 - ✓ High security level chipset
 - ✓ Electrostatic prevention
- Firmware security
 - ✓ Firmware encryption mechanism
 - ✓ Firmware upgradability in encryption
 - ✓ Firmware cannot be read out. Anti-reverse analysis
- Open UID (User ID control) Function

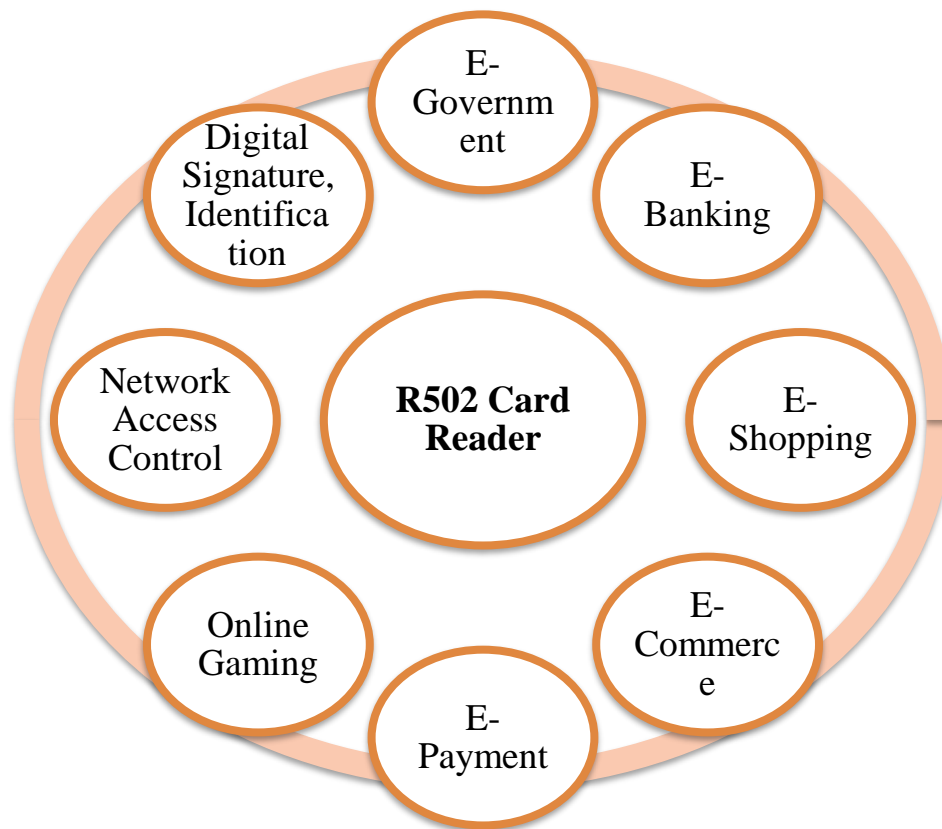
- Support firmware upgrade in encryption
- The unique device ID
- Based on CCID standard, PC/SC compatible reader
- Driverless – Plug in and Play
- Support Android device, need OTG cable
- Card slot apply landing contact technology
- Warranty
 - ✓ Meantime Between Failure(MTBF): 500,000 hours
 - ✓ Two year manufacturer's warranty

2.1 Technical Parameter Table

Technical Specification		
Basic Parameter	Product Name	R502(B version)
	Casing Number	C9(dual interface)C10(Contactless only)
	Host Interface	USB 2.0 CCID
	Transmission Speed	12Mbps(USB 2.0 Full Speed)
	Power to Smart Card	60mA
	Reader Current	USB connection without any card: 170mA
		USB connection with contact card: 200mA
		USB connection with contactless + contact card: 230mA
	Contact	Supported Card Types: 1.8V, 3V and 5V
		N/A
		Smart Card Clock Frequency: 4MHz-12MHz
		N/A
		Smart Card Interface Speed: 10753~625kbps(when supported by card)
		N/A
	Contactless	ISO/IEC7816, T=0 and T=1 protocol, Class A, B, C cards
		N/A
		ISO 7816-3 ID-1 (full-size) and GSM 11.11
		N/A
	Custom Items	Build-in antenna
		Smart Card Clock Frequency: 13.56MHz
		Smart Card Interface Speed : 106kbps,212kbps,424kbps, 848kbps(optional)
		Support ISO 14443 Type A and Type B, Mifare© Protocol, Felica® protocol(Need do OEM)
Physical Parameter	Support OS	Win2000+/Linux/Mac OS X/UNIX/Android(OTG)
	Certificate	CE/FCC/RoHS/EMV Level 1/LTIC/BSMI/UL(unfinished)/RED(unfinished)
	Material	ABS+PC
	Weight	128g80g
	Status Indicator	Blue and Red
	Connector Cable	1.5m
	Contact principle	Landing contact technologyN/A
	Durability	300,000 insertionsN/A
	Color	Black

	Dimension	100*65*10.5(mm)	120*80*25.6(mm)
Work Environment	Power supply	USB port 5V DC	
	Working current	< 50mA without card plugged	
	Working Temperature	0℃ ~ 60℃	
	Storage Temperature	~20℃ ~ 85℃	
	Humidity	≤90%(non-condensed)	
Standard	Card Reader Standard	ISO-7816 Class A, B, C (5V, 3V,1.8V) Standard	
		ISO 14443 Standard, Felica Standard, Mifare © Standard	
		EMV Level 1 Standard	
		PC/SC Standard	
		USB 2.0 Standard	
		CCID Standard	
	API Standard	PC/SC Lite/WINSCARD API	
Features	Plug and Play		
	Readily Compliant		
	Suits Any Application		
	Open UID(user ID) function		
	300,000 times plug/unplug of card slot		
	Meantime Between Failure (MTBF) - 500,000 hours		
Security	Physical Security	Short circuit and thermal protection/over-voltage protection	
		High security level chipset	
		electrostatic prevention	
	Firmware Security	Firmware encryption mechanism	
		Firmware upgradability in encryption	
		Firmware cannot be read out. Anti-reverse analysis	
Warranty	Meantime Between Failure(MTBF)	500,000 hours	
	Warranty	Two year manufacturer’s warranty.	

2.2 Key Application



2.2 Product photo

R501 reader is a kind of high-speed dual interface smart card reader, which is used for PC environment or relevant smart card environment. Product shell is using C9 by default, which is dual interface, if you want contactless only, you can choose C10. Or if you have idea and want make your own casing, Feitian also provide mold service for customer. To suit some other requirements, like ATM machine or other industry which already had mold, we also offer hardware module for embedded.

C9, ID-1 Size contact card with contactless card support, plus 2xSIM:



C10 contactless only:



3.0 HARDWARE CONFIGURATION

3.0 HARDWARE CONFIGURATION

3.1 Operating Environment

R502 can be using in various operating environments, including hardware and software operating environments, thus expanding the scope of use of reader R502 Card Reader.

3.2 Hardware Operating Environment

R502 Card Reader providing user with USB, it helps to make connection between PC, Android device and other equipment more convenient. The card can be operate by local PC or Android device via R502 Card Reader.

Using it for android, customer will need to buy OTG cable (USB Type A Female to MicroUSB (OTG))

3.3 Software Environment

R502 Card Reader has rich software environment. It supports Android (Has not be tasted on all Android versions or smartphones), Windows 2003Server, Windows XP (SP2, SP3), Windows 2008Server, Windows Vista, Windows 7, Windows CE, Linux, Mac OS X 10.6 (X64)/Mac OS X 10.6 (X32)/Mac OS X 10.5 (X32) (These systems need to install the driver first), etc.

If you are using Embedded Linux system, you will need cross-build CCID, libusb, pcsclite into your target platform. Go to SDK and check Cross_build_Driver_To_Embedded_Linux.txt, any questions, you can contact world.support@ftsafe.com to ask help.

```
$R502_SDK_Latest\Driver\Cross_build_Driver_To_Embedded_Linux.txt
```

3.4 Hardware Configuration

In order to help user to understand interaction between reader, device and card, the R502 Card Reader hardware has various status of prompt information. Three LED status indicator lights is provided for the user: red, blue, green, each of them representing work and charging indicator light, card detection indicator light and data communication indicator. For details, please refer to the following table

We provided three indicators (Red/Blue/Green) to inform the status of reader. It included below status of Reader (USB data transfer/contact card/contactless card working status)

2xSAM:

The SAM card does not support hot-plug, so you will need to insert SIM card first before do operation.

1xIC:

Standard ID-1 size chip card

1xContactless:

Standard contactless antenna, support 13.56MHz contactless card

*The R502 does not support using contactless and contact at same time, since dual interface card (contact and contactless) will had issue. The design is when insert contact card, then the contactless will block. So if your request is to support both, please contact world.support@ftsafes.com to ask OEM firmware.

Name of indicator light	Color	Prompt state	
USB work indicator	Red	Flashing	USB Enumeration process
		Turn on	USB is established
		Irregular flashing	USB exchange data
Contact card data communication indicator	Blue	Turn off	No card
		Turn on	Card insert
		Flashing	Exchange data between Card and reader
Contactless card data communication indicator	Green	Turn off	No card
		Turn on	Card insert
		Flashing	Exchange data between Card and reader

Note: When the program upgraded, the indicator light (except for the charge) is flashing.

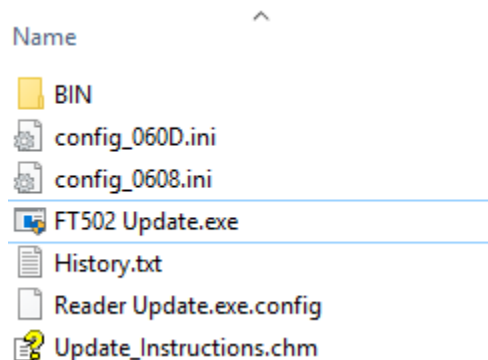
4.0 R502 CARD READER RELATED TOOL

4.0 R502 CARD READER FIRMWARE UPDATE TOOL

4.1 Introduction of Update tool

Firmware update tool using to upgrade R502 Card Reader firmware, it is for maintain in future. R502 Card Reader apply dual encrypted mechanism. The firmware will have encrypted by UID (User ID), only the right UID firmware can be update by right reader. We will explain UID function later. To using update tool, please check R502 Card Reader SDK.

*The related files of update application



- ➔ BIN include update firmware BIN file
- ➔ config_060D.ini and config_0608.ini is dependence file by “FT502 Update.exe”
- ➔ FT502 Update.exe is executable file for update, need using administrator to run, the file will need modify your register to open escape command which has mentioned in CCID standard
- ➔ README explain history of the tool
- ➔ Update_Instructions.chm is manual for update tool

4.2 The operation of Update tool

The update tool is easy, convenient and safe too. We will introduce how to using this tool to update your reader.

Update application software used to update old program through a new edition of program. The software includes the following items: Select Device, Update File, Update Firmware, and Output Message.

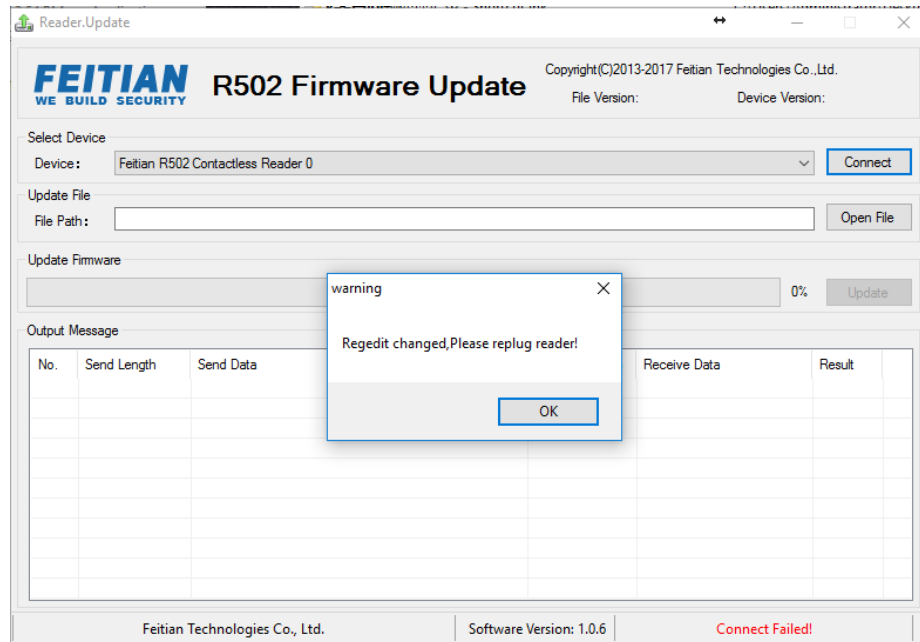
Note: Until now, Feitian release two R502 version, the latest version call R502B, since they are using different chipset, the firmware is different, you cannot update R502 (old hardware) to new firmware.

R502: latest version is 1.67

R502B: Latest version is 3.51 (the new version will based on 3.51 do increase)

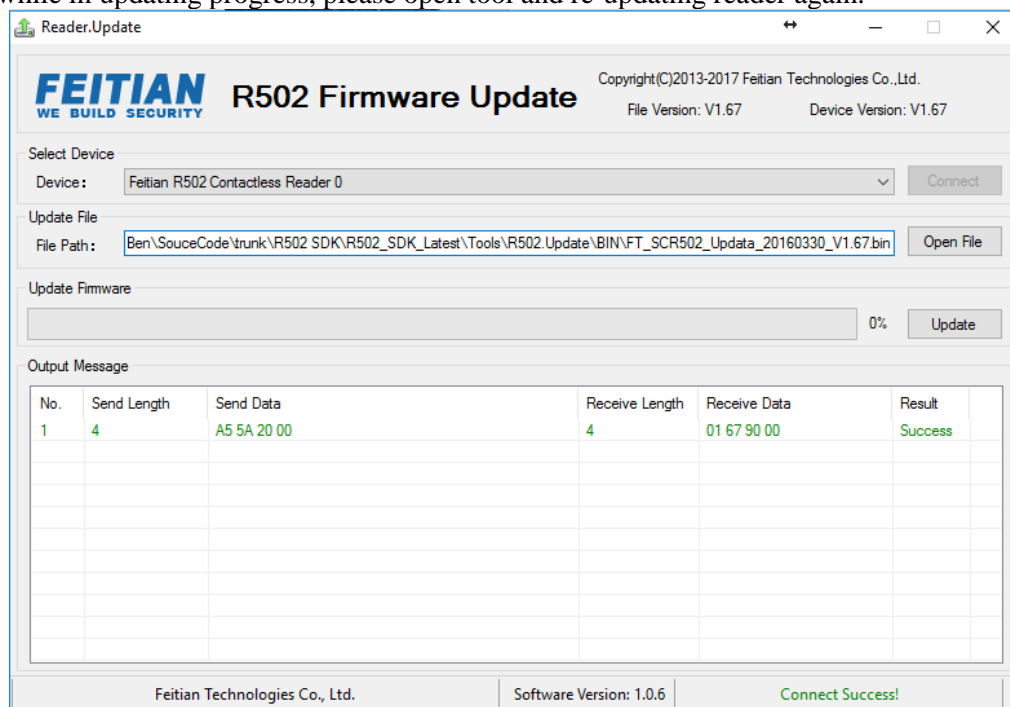
Step #1: Insert reader to PC and double click “FT502 Update.exe” by **administrator**. If you are first running this tool, the tool will inform to re-plug reader.

Select the name of the smart card reader, and then connect the reader. Before Update the reader, you must connect the smart card reader.



Step #2: After re-plug reader, open update tool application again, choose your firmware file and then starts updating.

The whole progress will cost around 30s. **Please not remove reader while in updating.** If something happens while in updating progress, please open tool and re-updating reader again.



4.3 Errors and solutions

1. If the update tool happens “open register” error, please do re-plug reader and using your administrator to run again, if it still happen, you can try using pstool.exe <https://docs.microsoft.com/en-us/sysinternals/downloads/psexec> Using administrator to open CMD.exe, switch to psexec directory, run below command to open registry, like below:

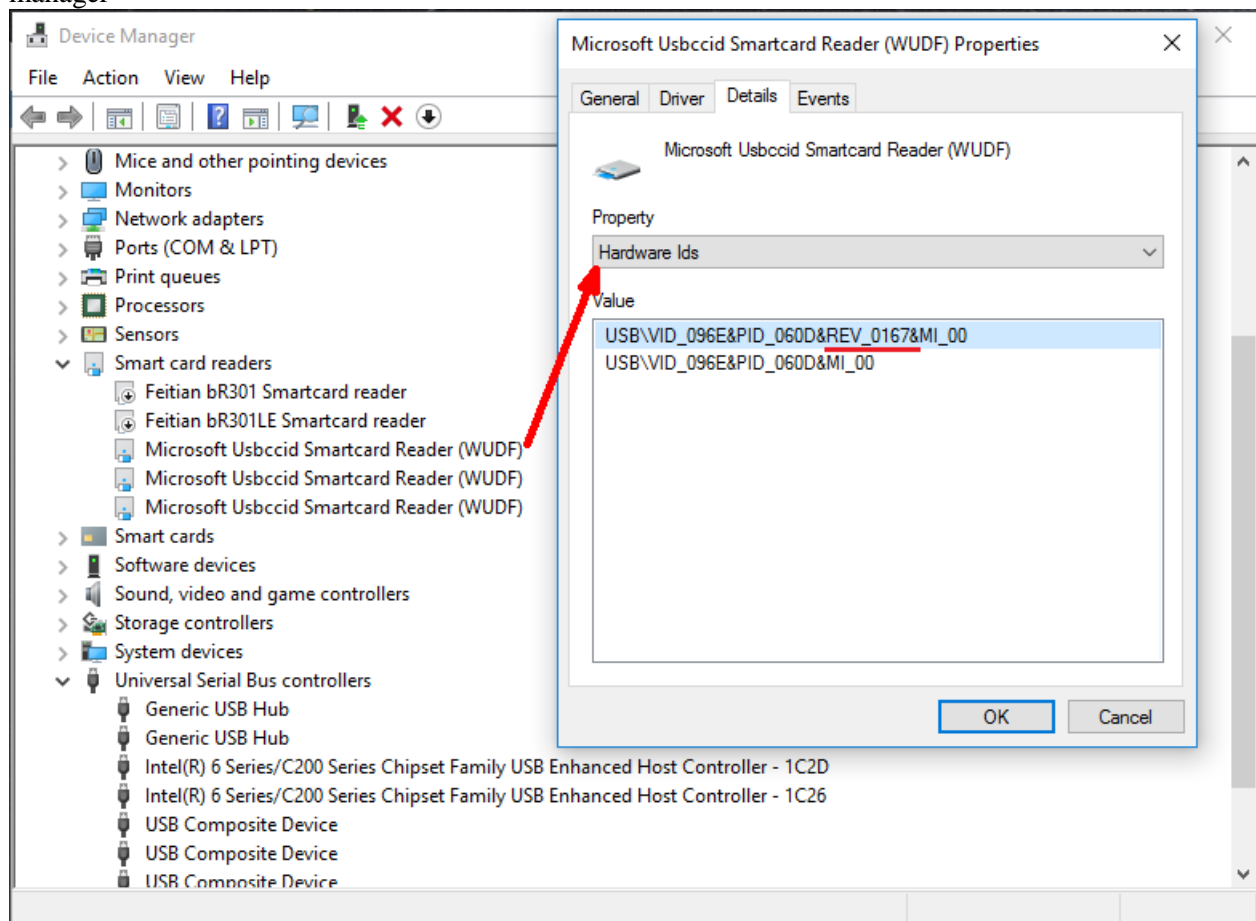
\$psexec.exe -i -d -s regedit.exe

Follow below path and delete below keys, then re-plug your reader and try again.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Enum\USB\VID_096E&PID_0608

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Enum\USB\VID_096E&PID_060D

2. If occurs error while in updating, and stop at 30%, then please wait, because at this stage, the tool will hot-plug reader in application, may take 10-15 seconds. If it give error, then please re-plug reader and running application do updating again
3. If the tool has not list any reader name, then please check your USB connection is correctly. (Or check your reader hasn't connect to VMware). The error means have not found your reader. If still empty and confirm the reader connect to PC correctly, please send mail to world.support@ftsafes.com, some OEM reader cannot detect by standard tool, and we will need check your information before provide resource to you.
4. Check reader firmware version, you can follow below step to check firmware version in device manager



5.0 R502 CARD READER UID TOOL

5.1 Introduction of UID Tool

UID(User) Tool is security mechanism for distributor or people who want the reader only can be distinguish by their application, The UID is generate by seed code, user can input their privacy seed code, using UID Tool write code into reader, reader generate 8bytes ID, called user ID. And FEITIAN provide API to read this UID from different platform. Then user only need keep their seed won't be stolen, and do bind their application with this UID, to keep their customer only can be using specified reader.

UID application software used to generate the ID of User (UID). Only the User holding the legal UID can update the smart card reader. The software includes the following items: Seed File, Generate UID, Read UID, and Erase UID.

The operation API include in R301 Card Reader SDK, also we provide windows tool for customer do operation on Windows. For mobile platform, also have such API for call (check developer guide).

*The related files of update application

Name



R502.UID.exe



R502.UID.ini

➔ R502.UID.exe is execute file

➔ R502.UID.ini is config file

Note: before using the tool, please make sure your reader model, if your reader is contactless interface reader only, you will need modify the reader name to "Feitian R502 0"

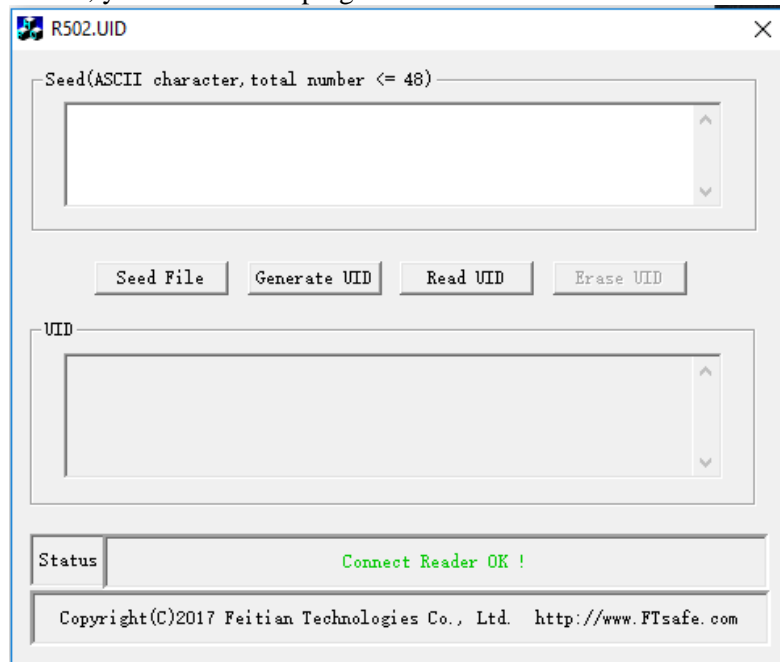
As we motioned before, the UID function using to manager customer brand and encrypted firmware. If you don't want your reader using by others, you can write your private seed and get UID, bind your UID with your application to make the application only detect this UID after then can using reader, if the UID is not your specific UID, then refuse it.

This tool show user read/write/erase UID, the UID generated by private algorithm through the seed. the default UID is 16xFF, before input your seed, please don't forget it. If you forgot the seed or lost the seed, without exist seed, you cannot change others and erase it.

On other hand, we provide read/write/erase APDU and sample code allow using to do bind in mobile and PC platform. For such document, please contact Feitian and sign NDA to get it.

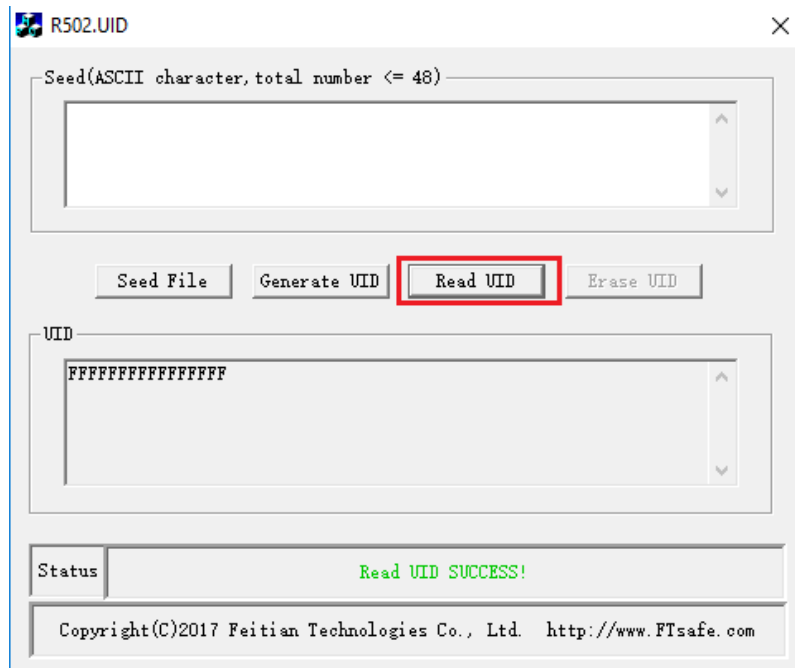
5.2 The operation of UID tool

Step #1: Please keep the related file in same directory, and using administrator to running R502.UID.exe, if you are first using this tool, you will need re-plug reader. See below:



Step #2: re-plug reader and using administrator to run the tool again. And start to do operation. The tool provide three function, we will do introduction later.

- ➔ Seed File (can choose your seed code from a file)
- ➔ Generate UID
- ➔ Read UID



6.0 R502 CARD READER DEMO TOOL

6.1 Introduction of Demo Tool

The Demo Application provides users a graphic interface to manipulate smart cards and readers. User can send APDU to specific smart card and reader and then observe the output information from smart card or smart card reader. It is easy to operate the smart card or smart card reader, which is extremely useful in practice. Before applying this demo to the smart card reader, please make sure the smart card reader is properly installed at first or the application will not work well.

The Demo dialogue mainly includes the following controls: Select Device, Connect, Beep Option, Basic Operation of Mifare one and Output (as shown in the following picture).

The screenshot shows the 'R502_Demo' application window. It features several sections for user interaction:

- R502 Device:** A dropdown menu for 'Select Device' (currently showing 'Feitian R502 Contact Reader 0') and a 'Refresh' button.
- Connect:** Three buttons: 'Card Connect', 'Card Disconnect', and 'Transmit'.
- Command:** A large text input field for entering commands.
- Beep Option:** 'Open Beep' and 'Close Beep' buttons, a 'times(*1ms)' input field, and a 'Beep' button.
- Basic Operation of MIFARE:**
 - Load Authentication Keys to Device:** Fields for 'Key Store' and 'Key Value' (a 6-digit hex display), and a 'Load Keys' button.
 - Authentication:** Fields for 'Block number' and 'Key Store', radio buttons for 'Key Type' (Key A selected, Key B), and an 'Authenticate' button.
 - Binary Block Function:** Fields for 'Block number' and 'Length', a 'Data(text)' input area, and 'Read Block' and 'Write Block' buttons.
 - Value Block Function:** Fields for 'Value Amount', 'Block number', 'Source Block', and 'Target Block', and buttons for 'Initial value', 'Increment', 'Decrement', 'Read Value', and 'Restore Value'.
- Output:** A large text area for displaying results, with 'Clear' and 'Quit' buttons at the bottom right.

6.2 Select Device

In order to meet the different requirements of users and markets, this demo software will provide three options for users: Feitian R502 Contact Reader 0, Feitian R502 Contactless Reader 0 and Feitian R502 SAM1 Reader 0. Before selecting this option, please make certain that the smart card reader and PC are under the status of connection. Then please open the demo application software, click “refresh” button and select the reader’s name in the drop-down menu.

6.3 Connect

a) Card Connect

You need to select the reader’s name and specific card before connecting the smart card reader. If there is no smart card (contact or contactless) in the reader, the reader will fail to connect the smart card. When a smart card is connected successfully, the “ATR” of the smart card will be displayed in the output field.

b) Card Disconnect

This command will terminate an open connection by sending the SCardDisconnect.

c) Command

This field can be used to specify application commands, which will be sent to a connected smart card. It will be executed by clicking the transmission button, once the command has been specified.

d) Transmit

This command uses the service SCardTransmit to send a command to the smart card, which has been specified, in the command field. Please input the APDU in the command field and click on the button of Transmit. As a result, the APDU of the response will be displayed in the Output field.

6.4 Beep Option

3. Beep Option

This software, which can provide users with secondary development, does not support this function at present. You can achieve the following operations if this option is developed.

a) Open Beep

When clicking the button, the reader’s buzzer does not stop sounding until you click “Close Beep”.

b) Close Beep

This command terminates an open buzzer service. If you do not want the reader buzzer sound frequently, please click this button.

c) Beep

This command can set the buzzer according to the custom time of its user. Please input the time in the textbox. If the time textbox is empty, the output dialog will appear “Please input Beep time!”

Note: The R502B disable Beep feature, if you need, please contact world.support@ftsafe.com to have support.

6.5 Basic Operation of MIFARE

a) Load Keys

Load keys command loads a Mifare one card key and stores it in the reader's memory, thus preparing the reader for subsequent card authentication. Mifare one smart card reader can only store one key at a time.

b) Authentication

The Authenticate command authenticates the card of the selected page by the reader system. For the authentication of Mifare one, this command requires previous Load Keys.

c) Read Block

The Read command can read a specific block. For the Mifare one card, only sixteen bytes can read at a time.

d) Write Block

Input the block number and the specific data you want and then click the button. For the Mifare one card, only sixteen bytes can be write at a time.

e) Initial value

If you want some data to be increase or decrease or restored, you have to initialize the data block.

f) Increment

This command can add a data value to a block. User should input the block number and data value in the textbox or output dialog will appear "Input Block number, Please!" or "Input data Value, Please!".

g) Decrement

This command can decrease the data value of a block. Users should input block number and data value in the textbox or output dialog will appear "Input Block number, Please!" or "Input data Value, Please!".

h) Read Value

The read value command reads one memory value. Please input the block number or output dialog will appear "Input Block number, Please!"

i) Restore value

The restore value command can transfer the contents of a data block into the data register.

6.6 Output Field

As the various responses to the different commands, the response messages brought by the reader and the smart card will be show here.

a) Output Field-Clearing: This command clear out the whole information appeared in the output field.

b) Quit: This command ends the demo application program.

7.0 DRIVER

The R301 is CCID standard reader, after windows XP, Microsoft has integrated CCID driver in system by default, if your system is Windows 2000 or Windows XP, please download driver from:

http://download.ftsafe.com/files/reader/CCID_driver_on_Windows2000+.zip

For Linux:

* Please refer to <http://pcslite.alioth.debian.org/ccid/shouldwork.html>

Install CCID driver on your Linux, follow <http://pcslite.alioth.debian.org/ccid.html#download>

For Mac OS X 10.5 - 10.10:

* The Mac OS X already integrated FEITIAN R301 support, you just plug-in and using. Also you can build CCID driver by yourself on MAC OS X, check

<http://pcslite.alioth.debian.org/ccid.html#MacOSX>

Buy samples, please access <https://ftsafe.com/onlinestore/index>

8.0 OEM ITEMS

1. Case Customization

Feitian can provide AI file of the casing, and customer can based on our AI put their logo on casing or provide logo with AI file, Feitian help do it.

Customization options: silk-printing

2. Packaging Customization

A: using Feitian packaging directly

B: Customer give idea, Feitian charging OEM fee to do OEM packaging for customer

3. Firmware Customization Information

PC/Android smart card reader:

Manufacturer name: XXXX

Reader name: XXXX

Firmware version: XXXX

UID (User ID): FFFFFFFFFFFFFFFF (The default UID is all FF, user can do OEM, the UID function introduction: <http://javacardos.com/javacardforum/viewtopic.php?f=19&t=811>)

9.0 FAQ

9.0 FAQ

Q: How to develop application based on R301/R502/IR301/BR301 reader on PC?

A: The SDK based on PCSC API implement, we provide demo source code to reference and guidance customer how to call our APIs.

Also possible check: <https://ludovicrousseau.blogspot.jp/2010/04/pcsc-sample-in-different-languages.html>

Q: Why there is no “found new hardware” popup window when I attach a R301 reader?

Symptom: After attached R301 reader, there is no “found new hardware” popup window.

A: Right click “My Computer” -> “Device Manager” -> “Smart card readers”, right click “update driver”, need open your system update.

Q: Red light is off

Symptom: The device light is off. The device may not be correctly connected.

A: Re-attach the device, check the USB connection or using bus hound to capture data for us to do check.
<http://perisoft.net/bushound/>

Q: Red light is flashing when no card is in card reader

Symptom: The device is broken.

A: Return this device to manufacturer for repairing.

Q: Blue light is flashing when a card is inserted in the card reader

Symptom: Blue light is flashing when a card is inserted in the card reader. The card is unusable.

A: Insert the card again with another side;

The card is not compatible with the ISO-7816 (e.g., timeout, byte intervals);

The card is not compatible with the power supply.

The output current of the card is too weak to be recognized by the card reader.

The card is damaged.

The device is damaged and need to be return to manufacturer.

Q: How to check SN from usb description?

A: You can using USBViewer to do check, the code also opened by Microsoft, check from below:

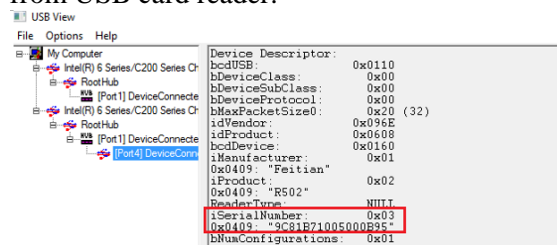
When you run USBViewer, the tool will need authorize to change register in register.

So when you run USBViewer at first time, you need plug-in two times.

The tool can run on Windows system, the source code can found from

<https://github.com/Microsoft/Windows-driver-samples/tree/master/usb/usbview>

Below just show you the SN from USB card reader:



We also made a demo app for read SN, check

<https://github.com/FeitianSmartcardReader/R301/tree/master/Sample%20Code/GetR301E2SN>

10.0 APPENDIX ABBREVIATION

CE Attestation of Conformity



The equipment complies with the principal protection requirement of the EMC Directive (Directive 89/336/EEC relating to electromagnetic compatibility) based on a voluntary test.

This attestation applies only to the particular sample of the product and its technical documentation provided for testing and certification.

After preparation of the necessary technical documentation as well as the conformity declaration the CE marking as shown below can be affixed on the equipment as stipulated in Article 10.1 of the Directive. Other relevant Directives have to be observed.

FCC certificate of approval



This Device is conformance with Part 15 of the FCC Rules and Regulations for Information Technology Equipment.

WEEE



Dispose in separate collection.

RoHS

