

# SmaFinger<sup>®</sup>

**SF510/SF610/SF601**



**Installation & Operations Manual**

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

All Giga-Tms products are with CE compliance

All Giga-Tms products are with RoHS/WEEE compliance.

Giga-Tms is registered to ISO 9001:2000.

**GIGA-TMS INC**

<http://www.gigatms.com.tw>

Mail to: [promag@gigatms.com.tw](mailto:promag@gigatms.com.tw)

Tel: + 886 -2 - 26954214

Fax: + 8862 -2 - 26954213

Office: 8F, No. 31, Lane 169, Kang Ning Street, Hsi-Chih, Taipei,  
Taiwan

# SmaFinger World

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*SmaFinger Systems identify people and enable access/entry/permission by verification of their fingerprints against a database. It can also perform the same functions without referring to database in C+F Mode. In the rare instance of a non registerable user's fingerprint an RFID card with random code is issued.*

*SmaFinger devices are developed with the contactless smart card 13.56 MHZ RFID technology and they can be networked to operate in short, medium and long distance installations through RS232/485 LAN network adaptors. The reader supports Mifare MAD1/MAD2 format enabling users to issue customized cards.*

## *Features:*

- 1. Supports MAD1/MAD2 standard, and supports customer MAD-AID setting.*
- 2. Supports used card with data offset and length.*
- 3. Supports Multi Sectors.*
- 4. Supports Mifare® Standard 4K or Mifare® Standard 1K card.*
- 5. Each Reader with Reader ID for multi-link application.*
- 6. Output interfaces: Wiegand (Default), ABA-TK2 and RS232.*
- 7. Wiegand output selectable from 26 bits to 128 bits.*
- 8. RS232 output packet can be set with Header, Reader ID and Trailer.*

## *Application:*

- 1. Access Control*
- 2. Time Attendance*
- 3. Guest Registration System*
- 4. Academic Services*
- 5. Info Services*

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## *Foreword*

Congratulations for selecting SmaFinger system and welcome to the fraternity of satisfied SmaFinger customers. This manual has been prepared for easy read and contains comprehensive information on the system. Should you have any further query please contact us.

The manual is divided into two main parts titled Installation and Operation followed by Appendix.

**Part**



# 1 Installation

This part contains instructions for connecting, powering up and configuration of SmaFinger 510/610/601 Start Kit/ Online System (Integrated System) and Offline System (Standalone System).

## 1.1 Package Contents

### Online System

Sl.No	Gadget	Description
1	SmaFinger Reader	SF510/SF610/SF601
2	SmaFinger Programmer	SF600P
3	SmaFinger Card Issuer	PCR310U
4	MF700 Kit	Optional
4	Kit CRD	Please see chapter 3.8 <a href="#">Order Information</a>
5	Power Supply Adaptor	12V/120V --- USA / 12V/230V ---- Europe /129V/100V ---- Japan / 12V/240V ---- Britain
6	CD Disk5288	Contains software programs, drivers and Installation and Operations Manual etc.
7	Blank Mifare cards	

### Offline System

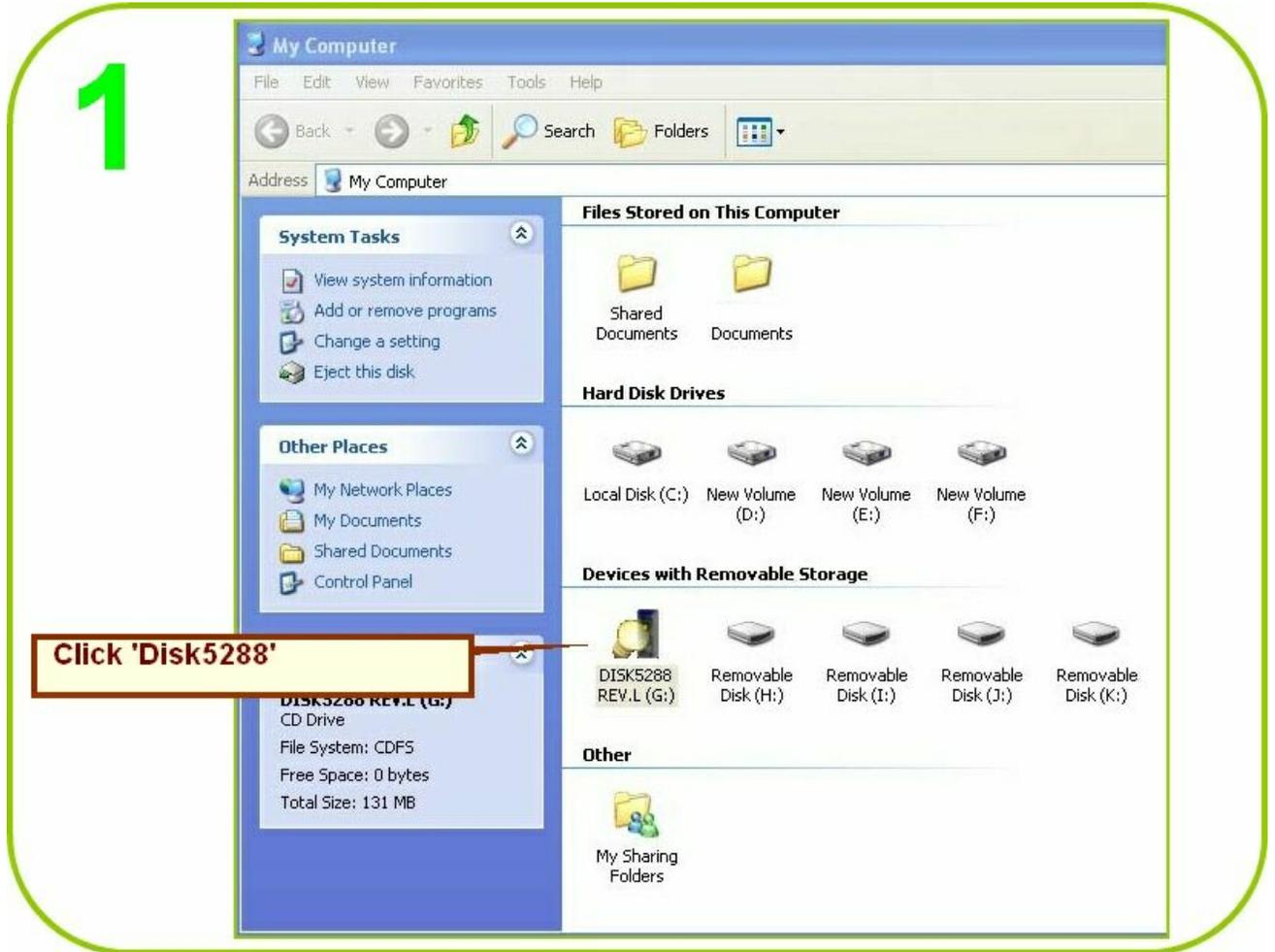
Sl.No	Gadget	Description
1	SmaFinger Reader	SF510/610/601
2	Kit CRD	Please see chapter 3.8 <a href="#">Order Information</a>
3	Power Supply Adaptor	12V/120V --- USA / 12V/230V ---- Europe /129V/100V ---- Japan / 12V/240V ---- Britain
4	CD	Contains software programs, drivers and Installation and Operations Manual etc.
5	Blank Mifare cards	

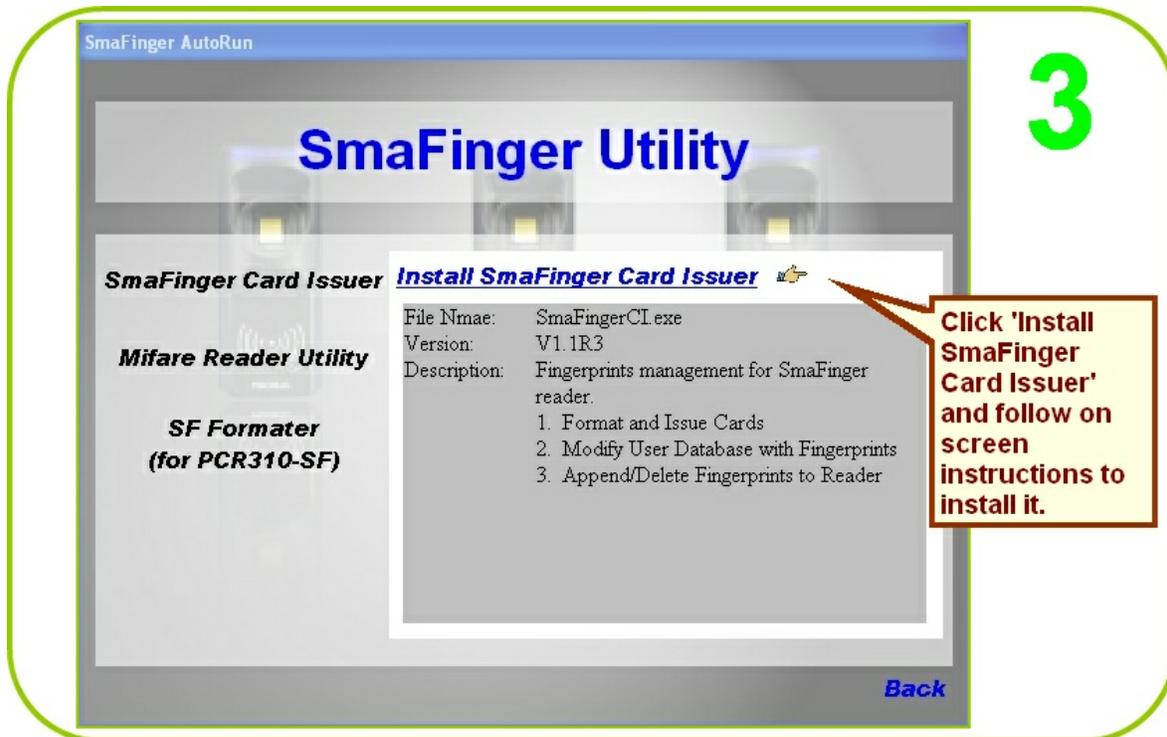
Note:

1. You will need a host PC with Operating System 98SE/ME/2K/XP/Vista.
2. **Offline system (Standalone System)** users may please proceed to chapter 2 [Operation](#)

## 1.2 Connection & Installation of Card Issuer

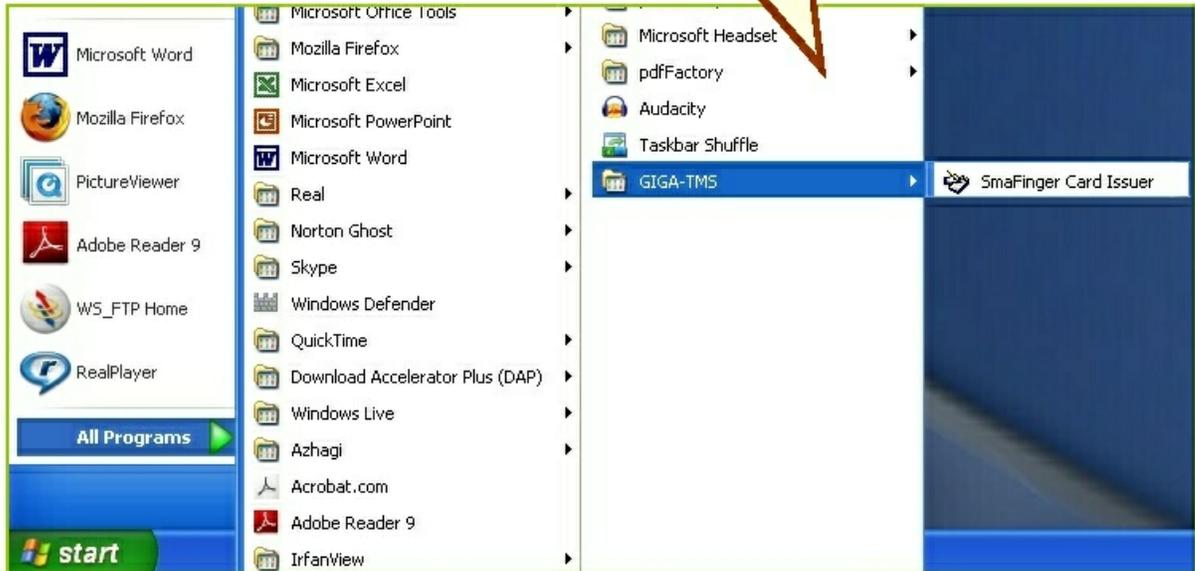
Insert Disk5288 supplied with Start Kit into the CD-ROM drive of host PC. CD explorer will automatically open as shown in step 2. If not, double click My Computer icon on the Desktop and then proceed from step1 below.





4

SmaFinger Card Issuer Program will open. If it hasn't, click Start/All Programs/GIGA-TMS/SmaFinger Card Issuer.



5

'SmaFinger Navigate' will open...



6



Click 'Driver' and follow on screen instructions to install it.

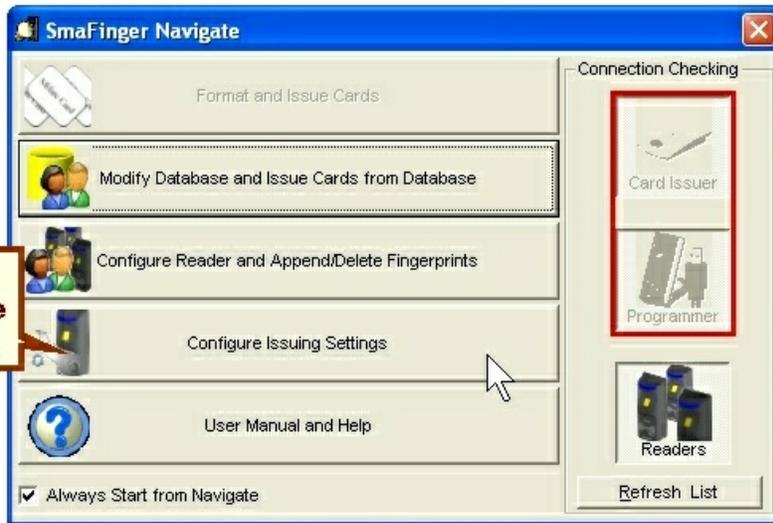
7

Connect Card Issuer PCR310U to PC, a green light will turn on.



8

Click 'Configure Settings'.

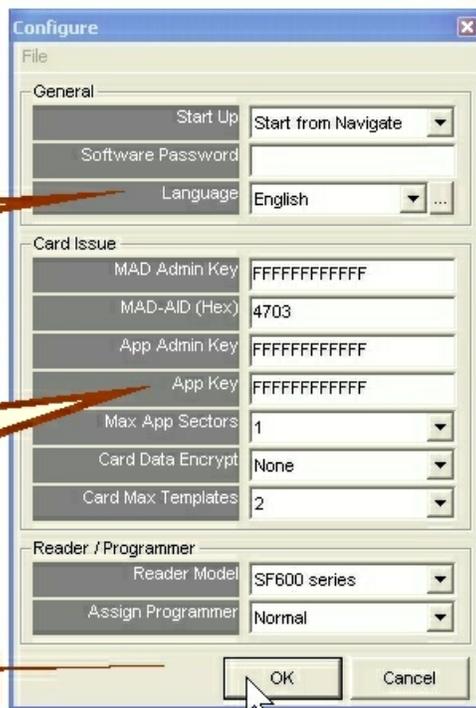


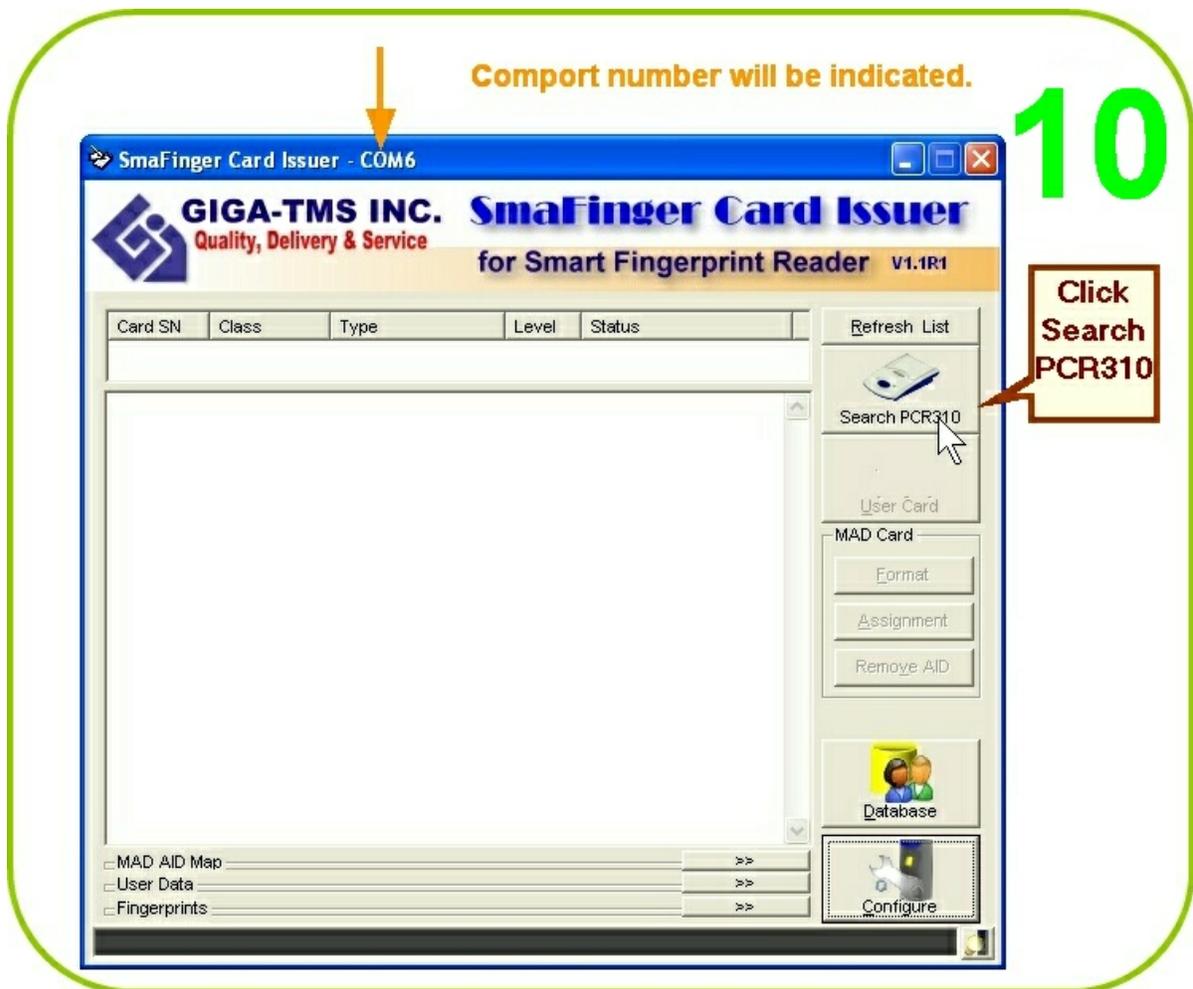
9

1. Select Language.

2. App Key should be same as in 'Mifare Reader Utility'.

3. Click 'OK'.





Note: 1. For Configure window details please see chapter 3.11.2 [Configure Window Details](#)

2 PCR310 is a Mifare Card Issuer developed by **Giga-Tms Inc.** More details can be found on the web link [PCR310](#)

## 1.3 Connection & Installation of Programmer

USB Cable Driver should have been installed as illustrated in chapter 1.2 step 6 [Connection & Installation of Card Issuer](#)



## 1.4 Connection and Installation of Reader

For mounting installation please see chapter 3.10.2 [Secure Mounting Installation](#)

This section covers installation of Mifare Reader Utility, connecting the Reader SF510/610/SF601 and MF700Kit.

The reader is usually despatched with the following default settings:

MAD-AID = 4703

App Key = FFFFFFFFFF

Encrypt = None

Reader Id = 0

Interface = ABA-TK2 10 digits / Wiegand 26 / RS232 with 9600 baudrate (change by wire)

Manager Card = Enabled

Read Mode= CSN or Card Data

If you want to change any of the above settings please go to chapter 3.10.3 [Reader Configuration](#) Otherwise, continue to next section.

## 1.4.1 RS232

### 1.4.1.1 RS232 Converter

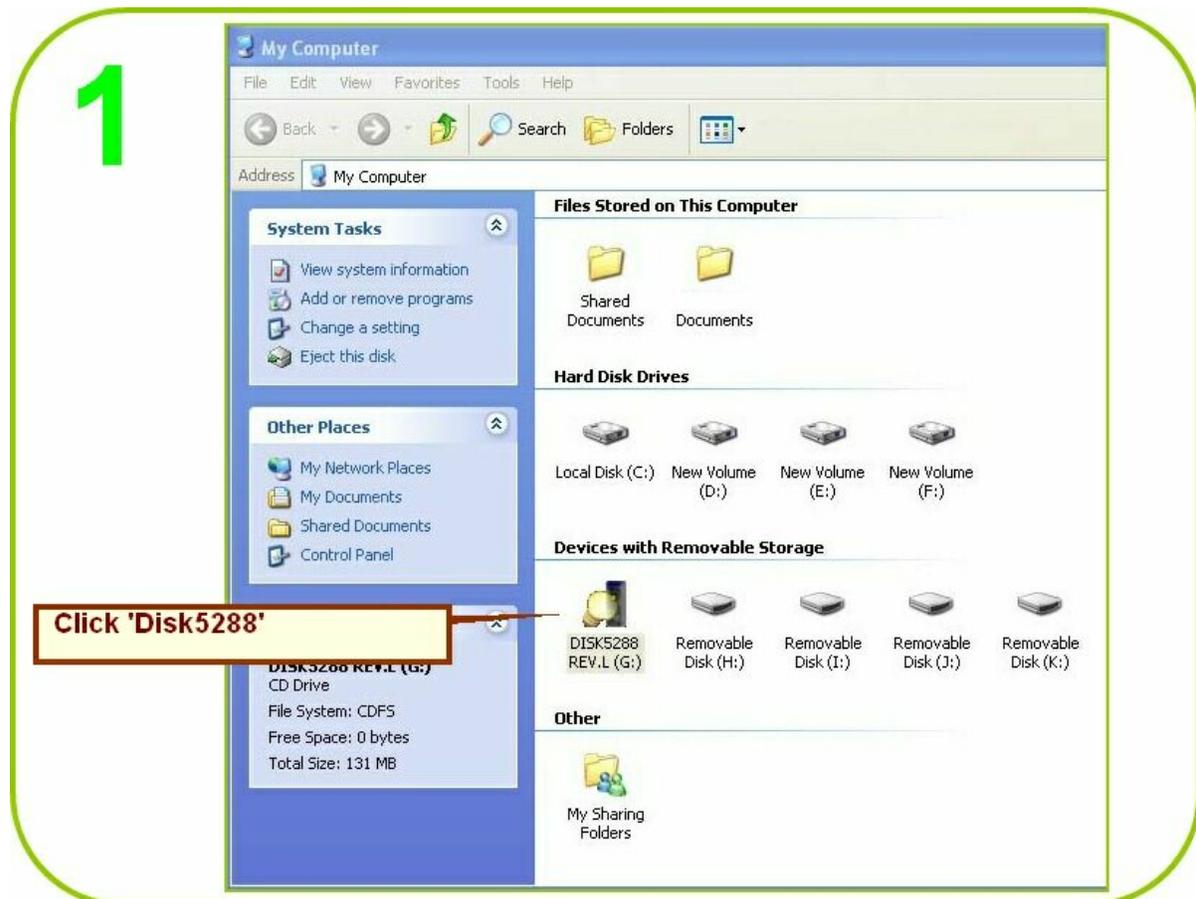
If your PC does not have an RS 232 port, use an RS 232-USB Converter.



More details at internet link [RS232-USB Converter](#)

### 1.4.1.2 Single Reader

Insert Disk5288 supplied with Start Kit into the CD-ROM drive of host PC. CD explorer will automatically open as shown in step 2. If not, double click My Computer icon on the Desktop and then proceed from step1 below.



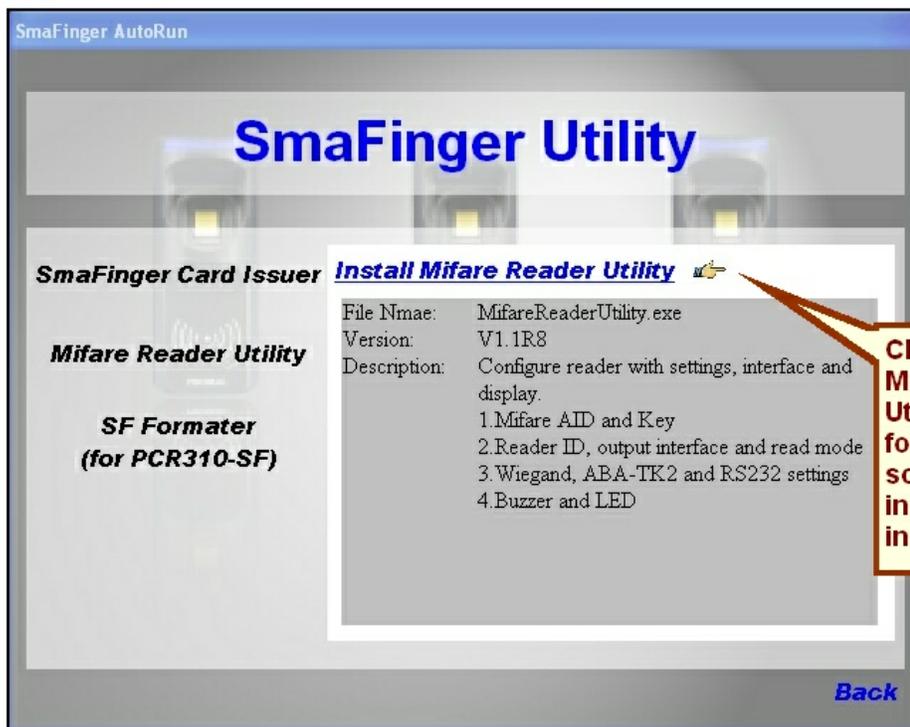
2

Click 'SmaFinger Utility'



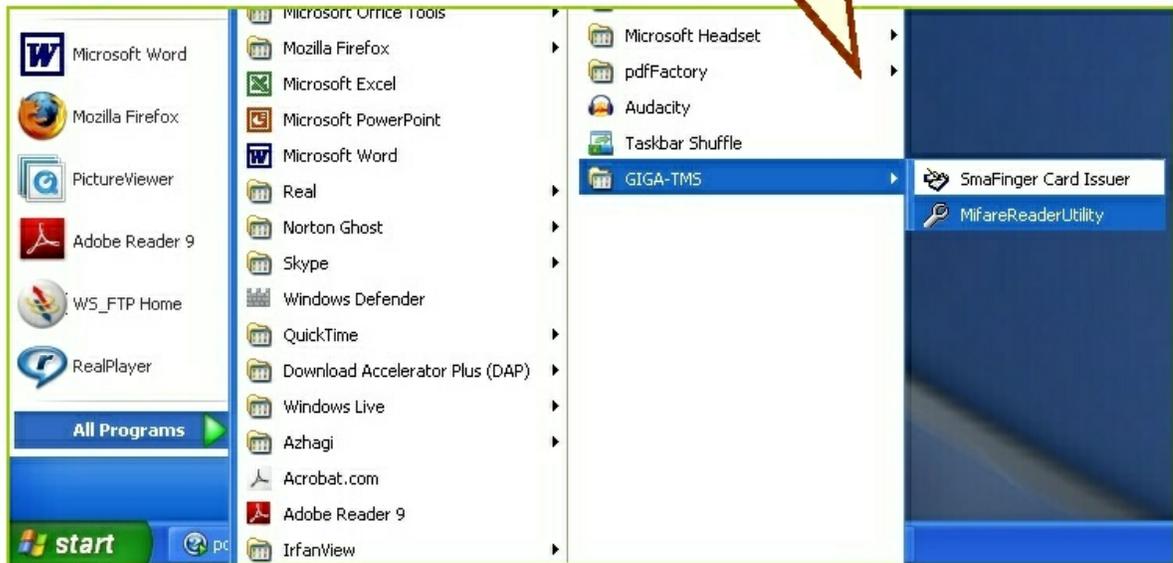
3

Click 'Install Mifare Reader Utility' and follow on screen instructions to install it.

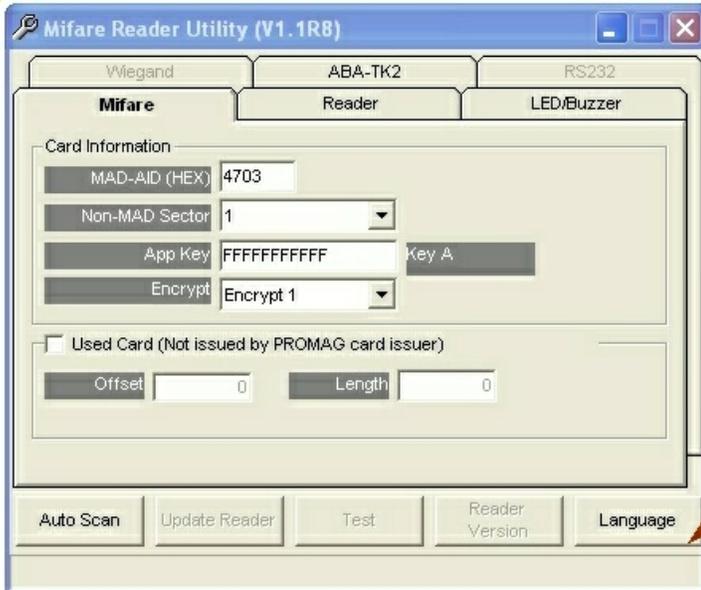


4

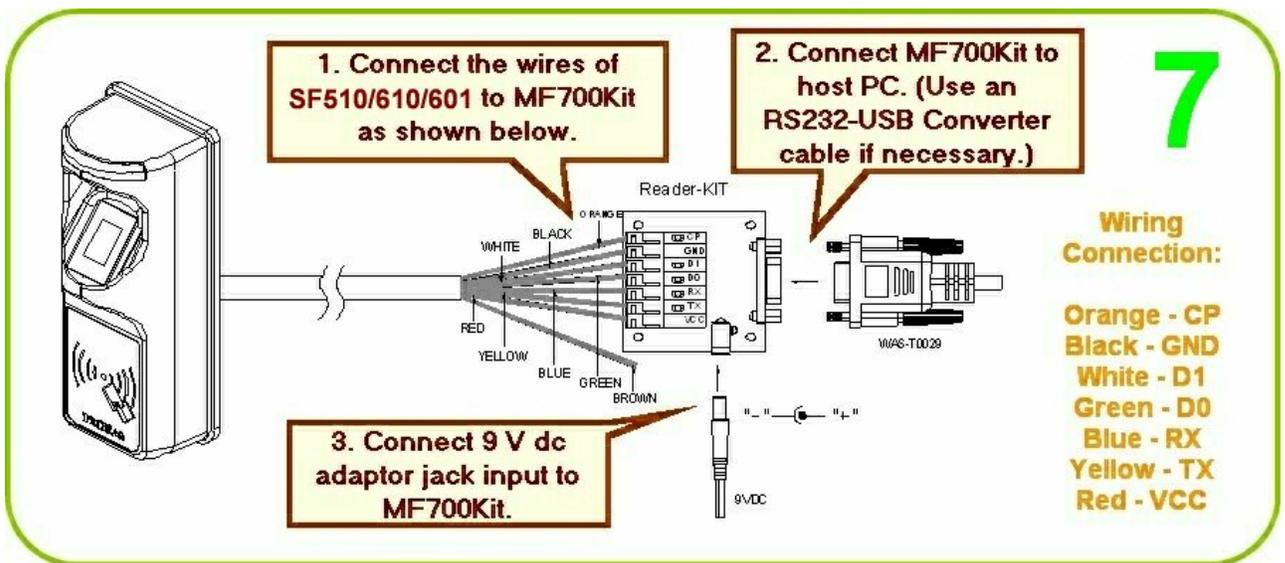
**Mifare Reader Utility will open. If it hasn't, click Start/All Programs/GIGA-TMS/MifareReaderUtility**



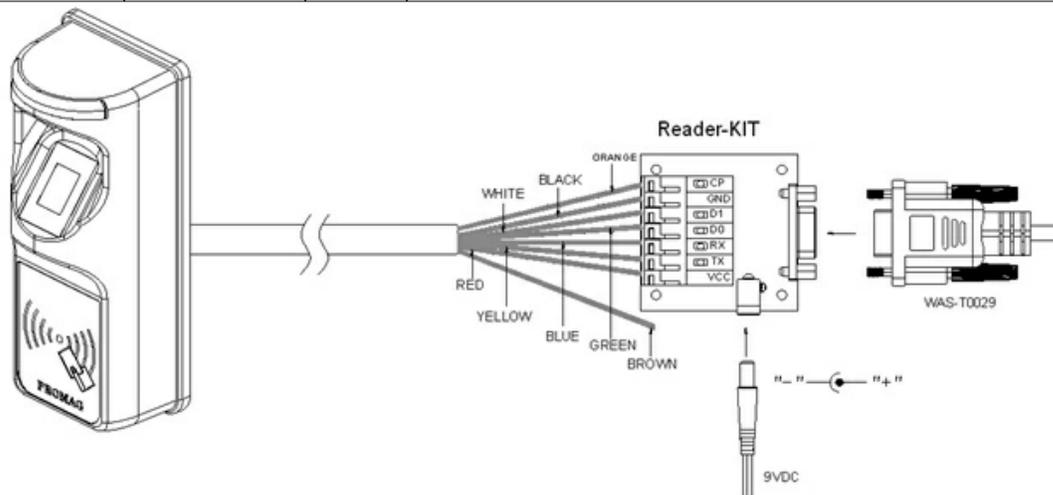
5



**Click 'Language and make your selection if you need to.**



Colour	Symbol	I/O	Description
Red	VCC	IN	Power Input : DC 7.5V~12V
Black	GND	IN	Power Ground
White	DATA 1	OUT	Wiegand Data 1 Signal / ABA TK2 Clock (Strobe)
Green	DATA 0	OUT	Wiegand Data 0 Signal / ABA TK2 Data
Yellow	TXD	OUT	RS232 TXD (To Host RXD)
Blue	RXD	IN	RS232 RXD (To Host TXD)
Orange	CP	OUT	ABA TK2 Card Present
Brown	LED/BUZZER	IN	External LED/BUZZER Control



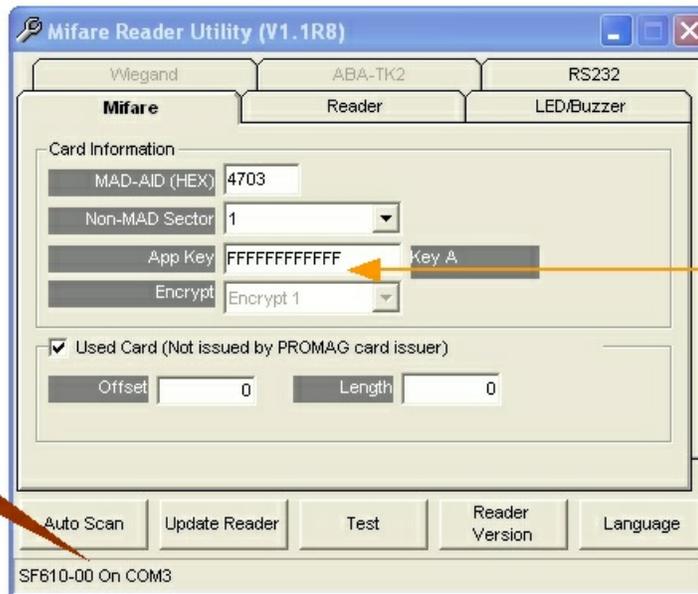
Note: MF700Kit is a test connection kit included in SmaFinger Start Kit for the purpose of configuring the reader.

The reader can also be connected directly as shown below.



8

Click 'Auto Scan'.  
Comport number will be displayed.



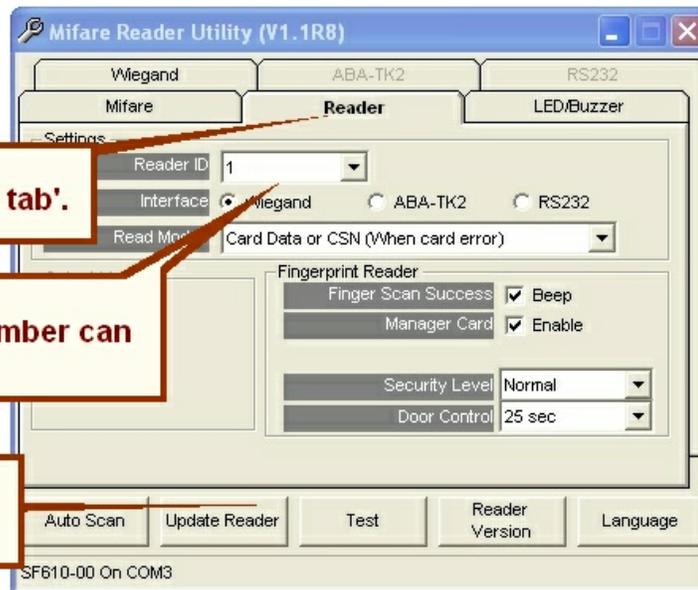
The App Key shall be same as in Navigate/Configure window of SmaFinger Card Issuer program.

9

1 Select 'Reader tab'.

2 A reader id number can be chosen.

3 Click 'Update Reader'.



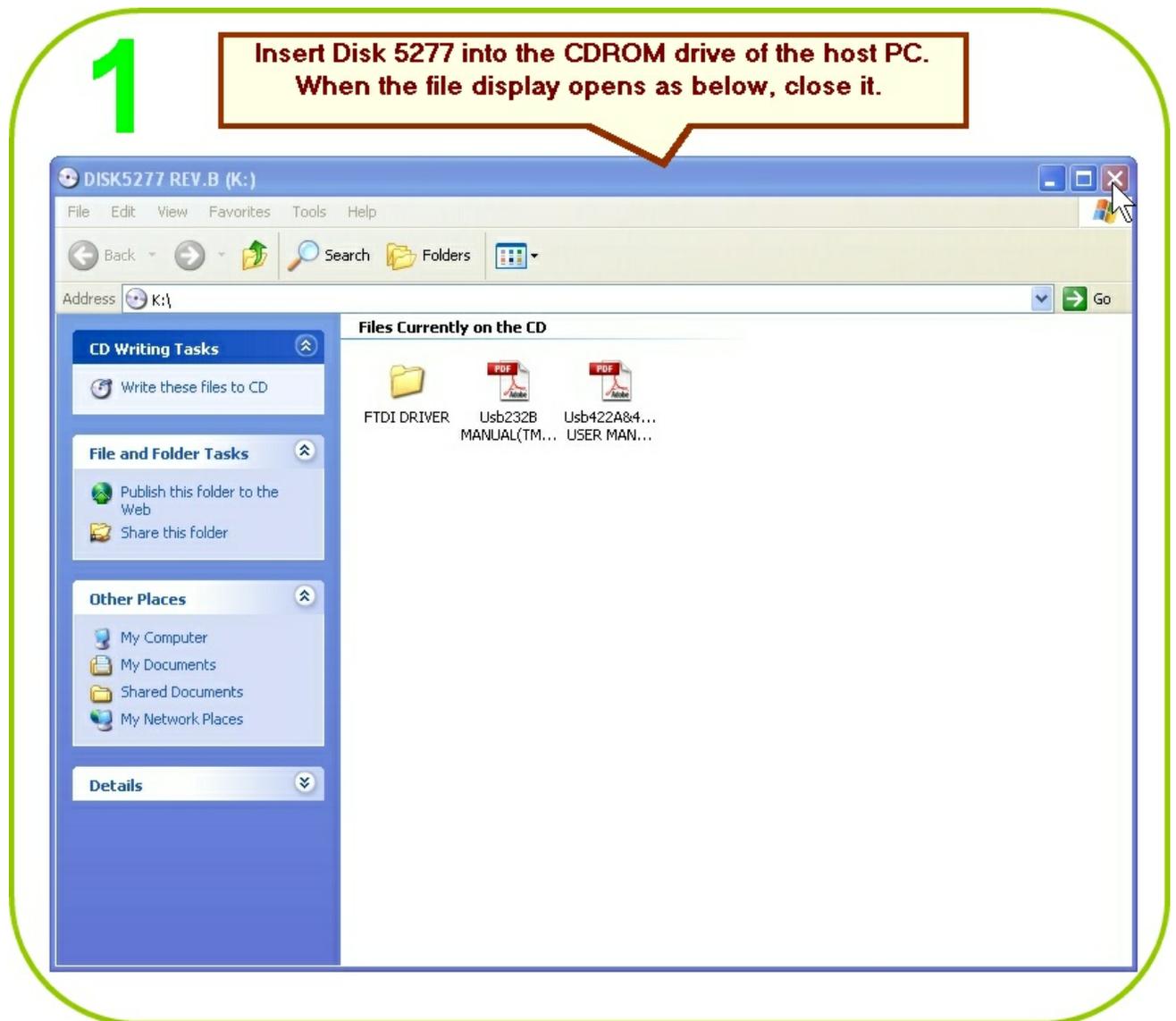
4. Reader's LED will blink with a beep indicating successful update.

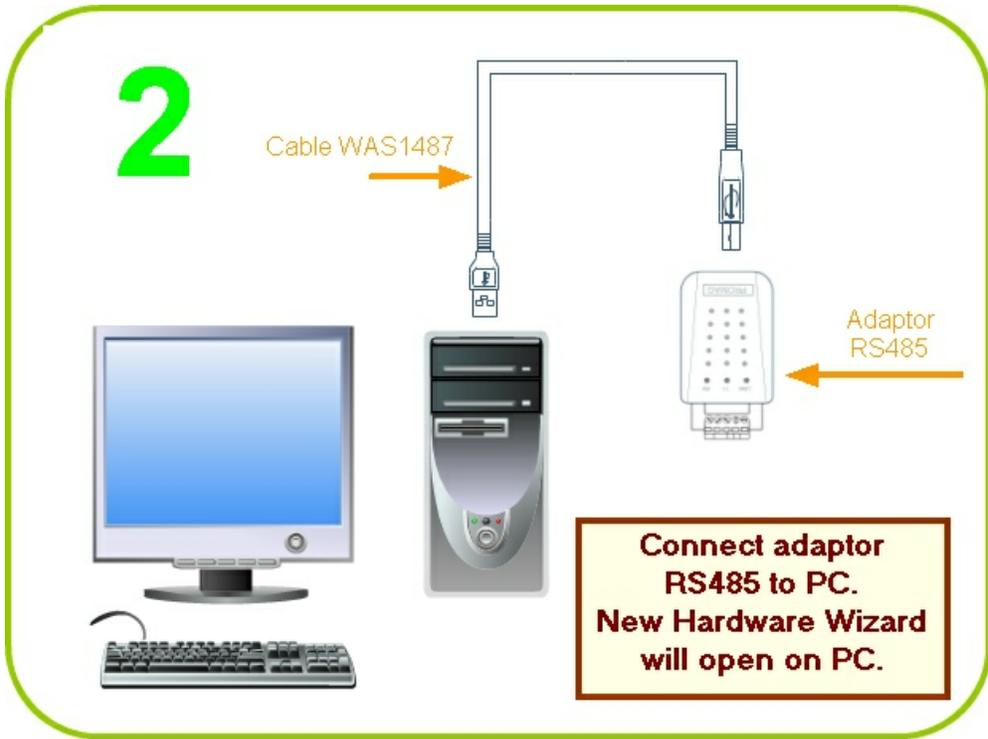
## 1.4.2 RS485

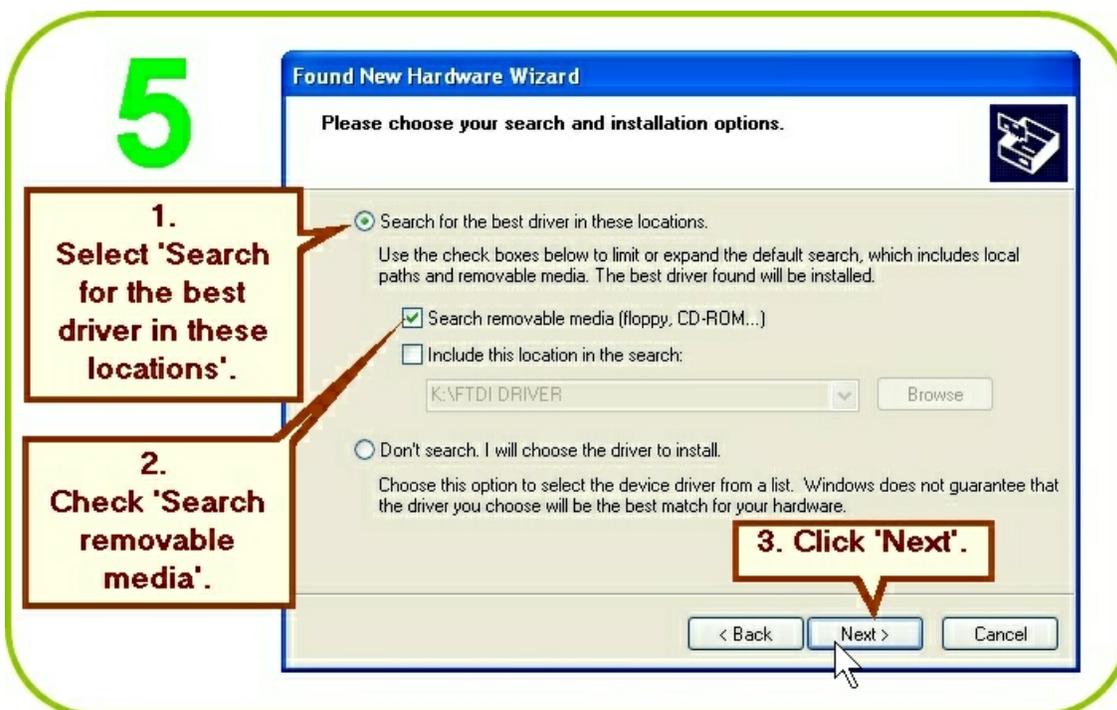
SmaFinger readers SF510/SF610/SF601 are especially designed for networking at longer distances through RS485 Converter.

### 1.4.2.1 RS485 Converter

As RS485 has two output ports, it will be installed twice during the installation process.





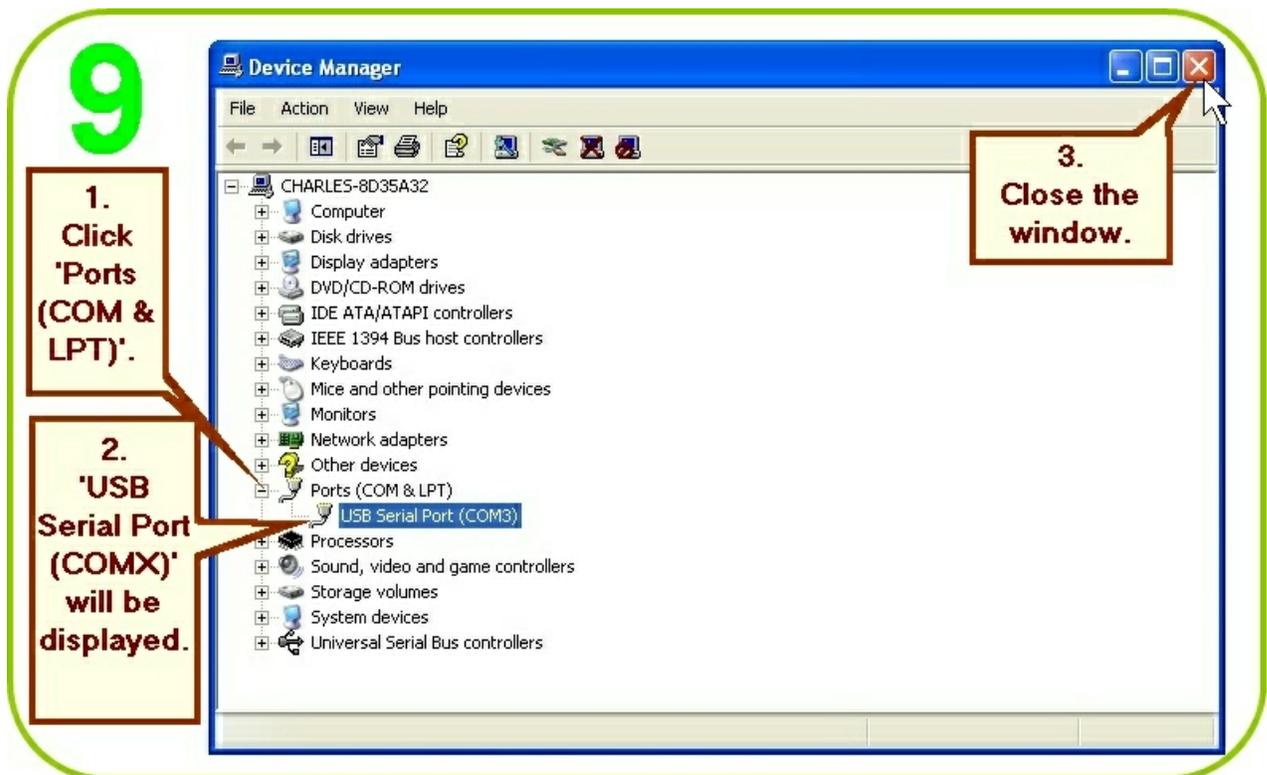




Next repeat steps 4, 5 and then proceed to 8.



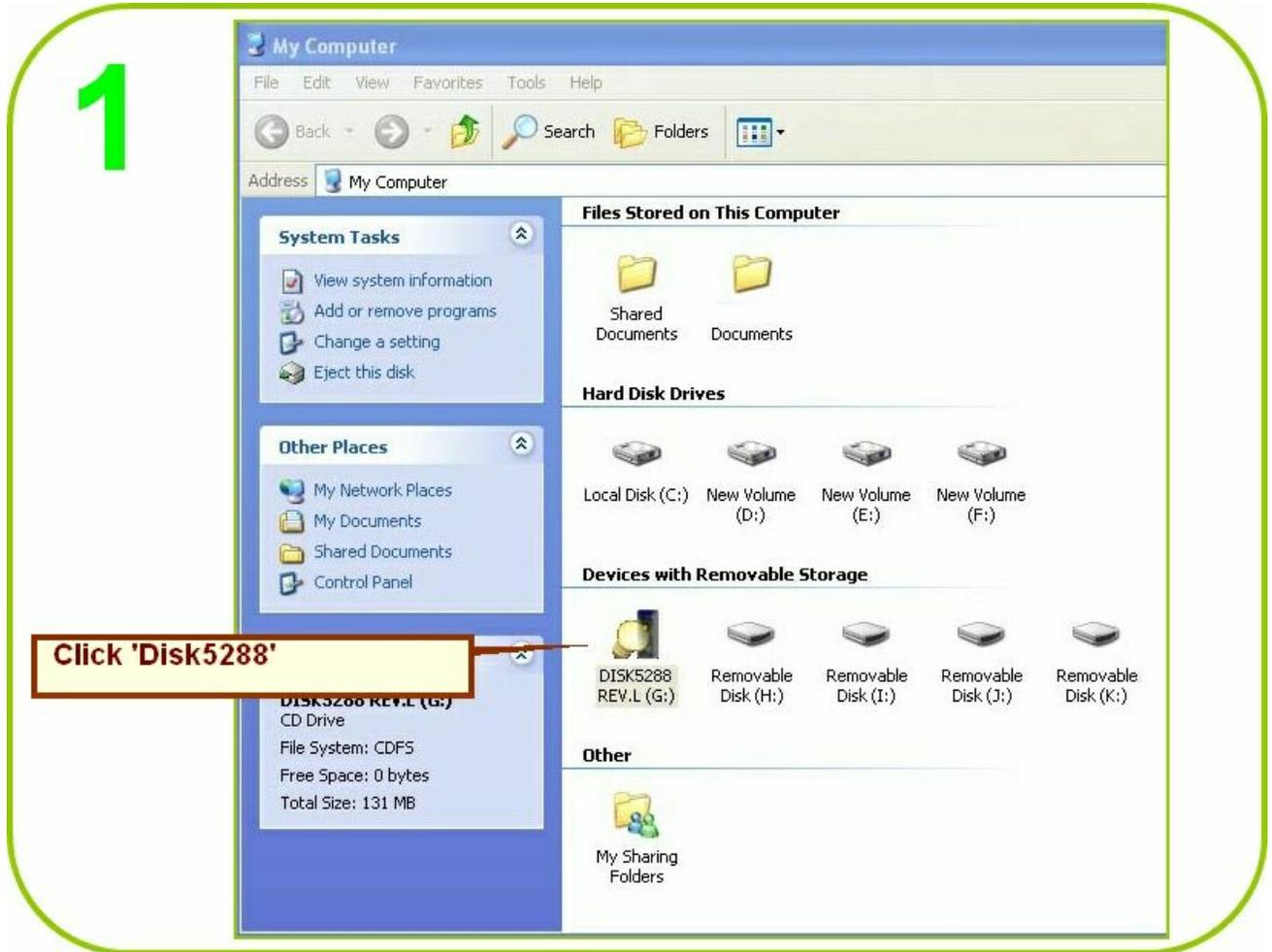
Next, right click Computer/Properties/Device Manager/Hardware on the Desktop.

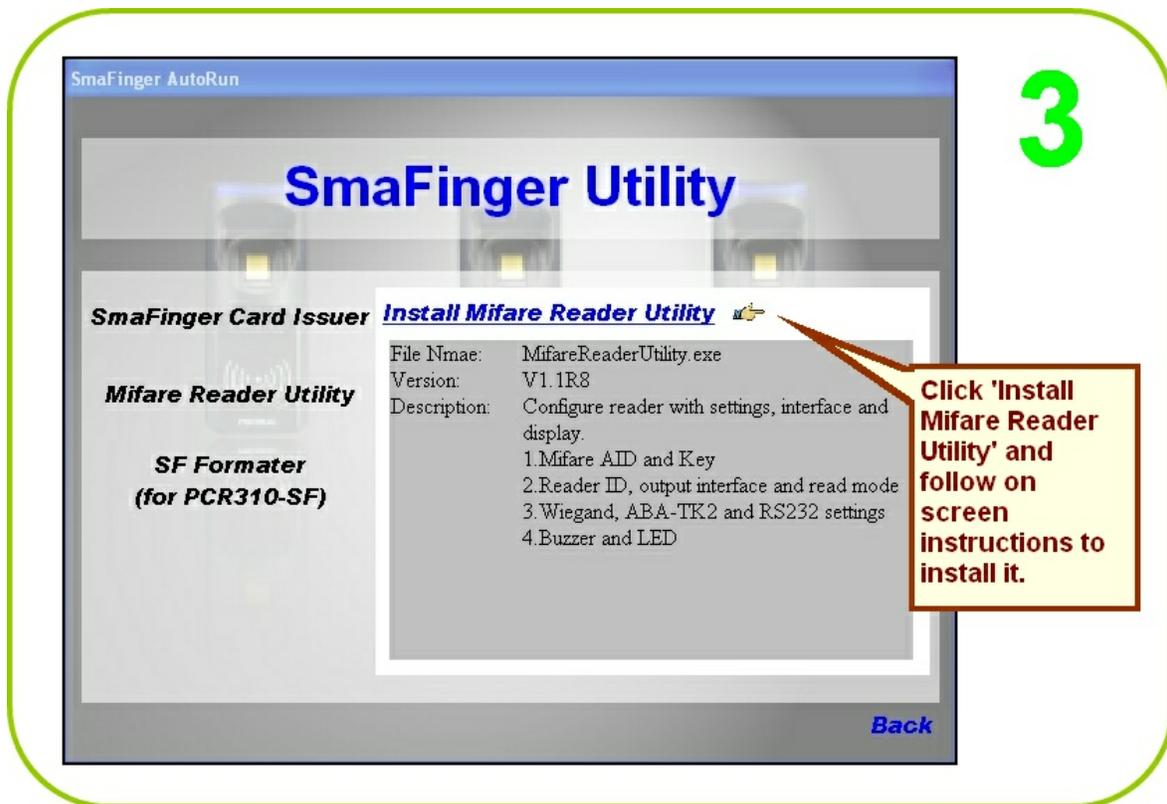


RS485 Adaptor has been installed and is ready for use. Remove Disk5277.

### 1.4.2.2 Single Reader

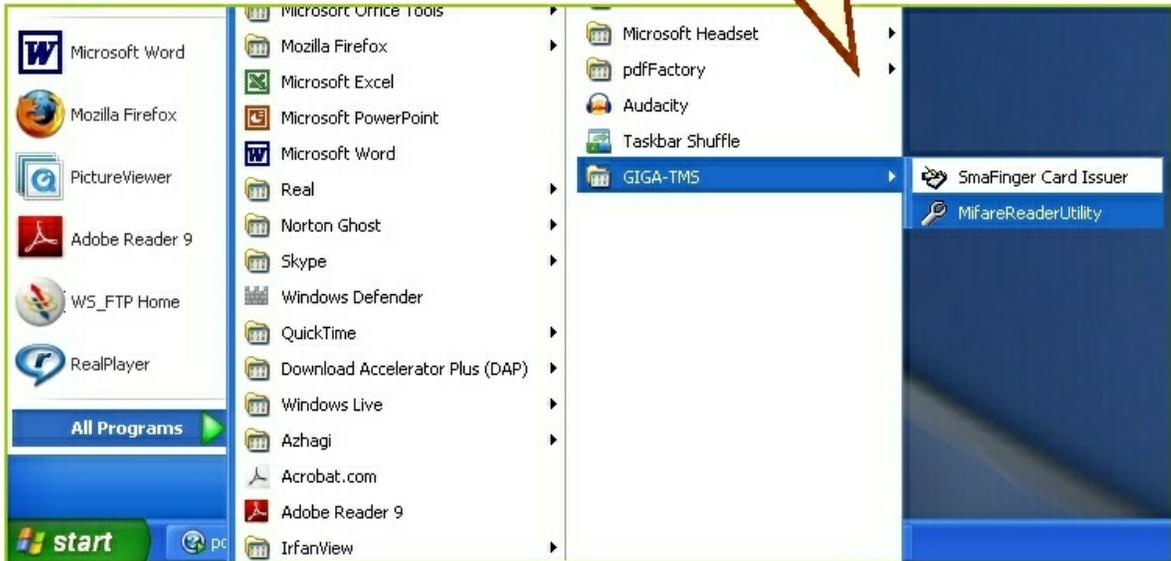
Insert Disk5288 supplied with Start Kit into the CD-ROM drive of host PC. CD explorer will automatically open as shown in step 2. If not, double click My Computer icon on the Desktop and then proceed from step1 below.



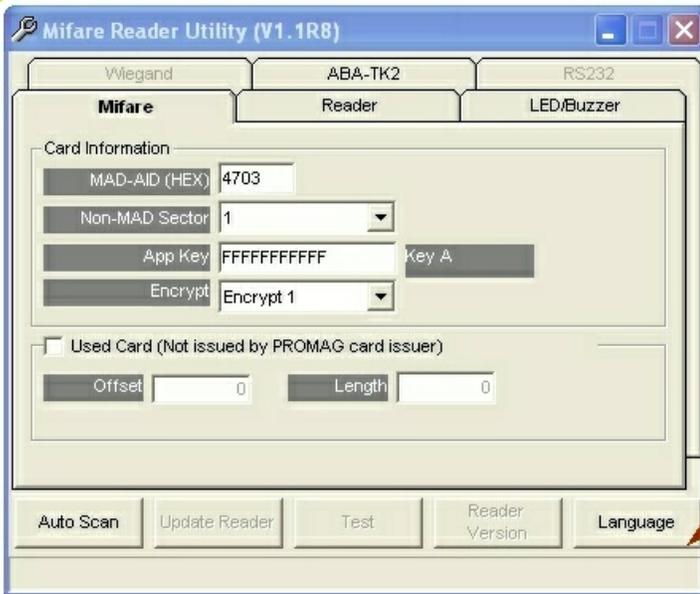


4

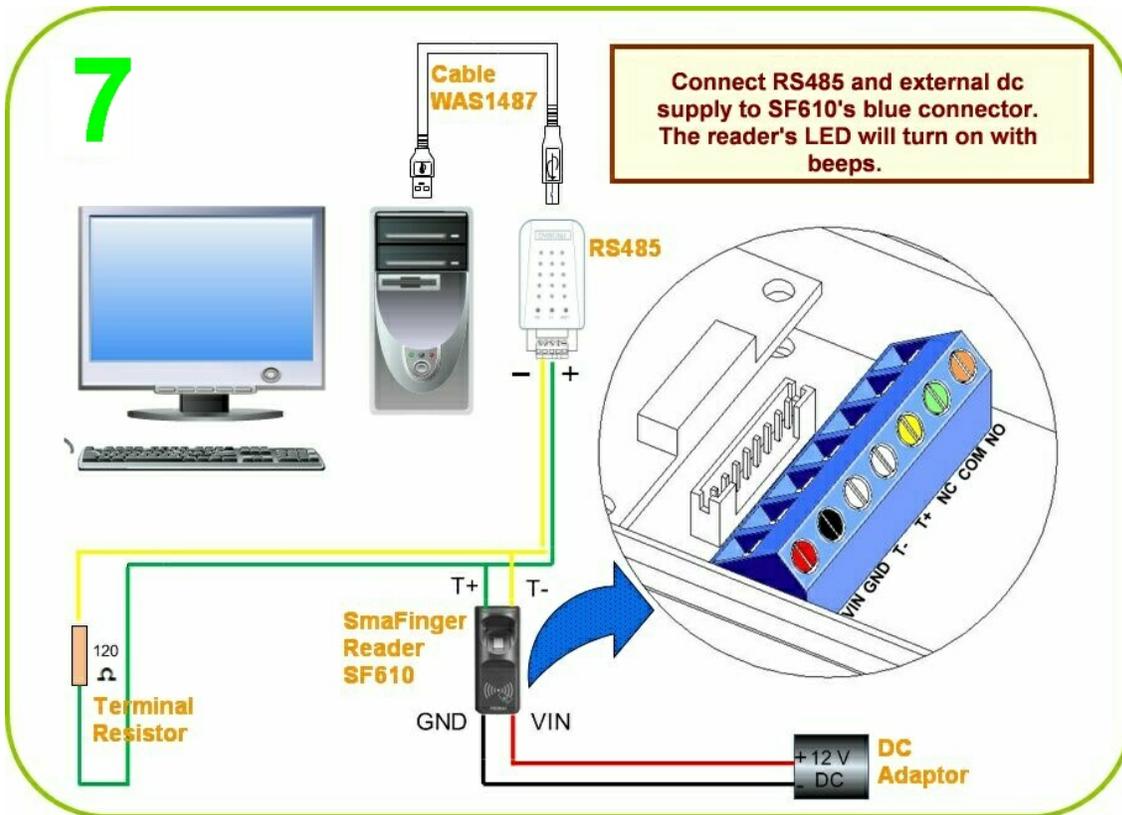
Mifare Reader Utility will open. If it hasn't, click Start/All Programs/GIGA-TMS/MifareReaderUtility



5

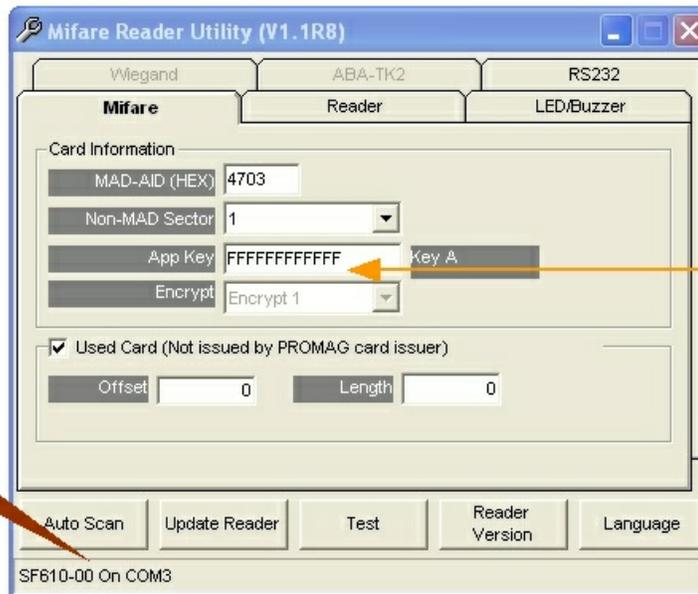


Click 'Language' and make your selection if you need to.



8

Click 'Auto Scan'.  
Comport number will be displayed.



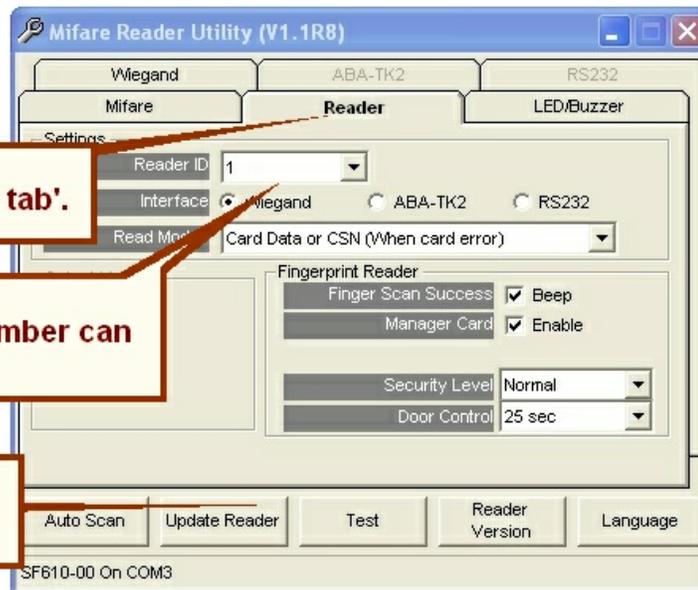
The App Key shall be same as in Navigate/Configure window of SmaFinger Card Issuer program.

9

1 Select 'Reader tab'.

2 A reader id number can be chosen.

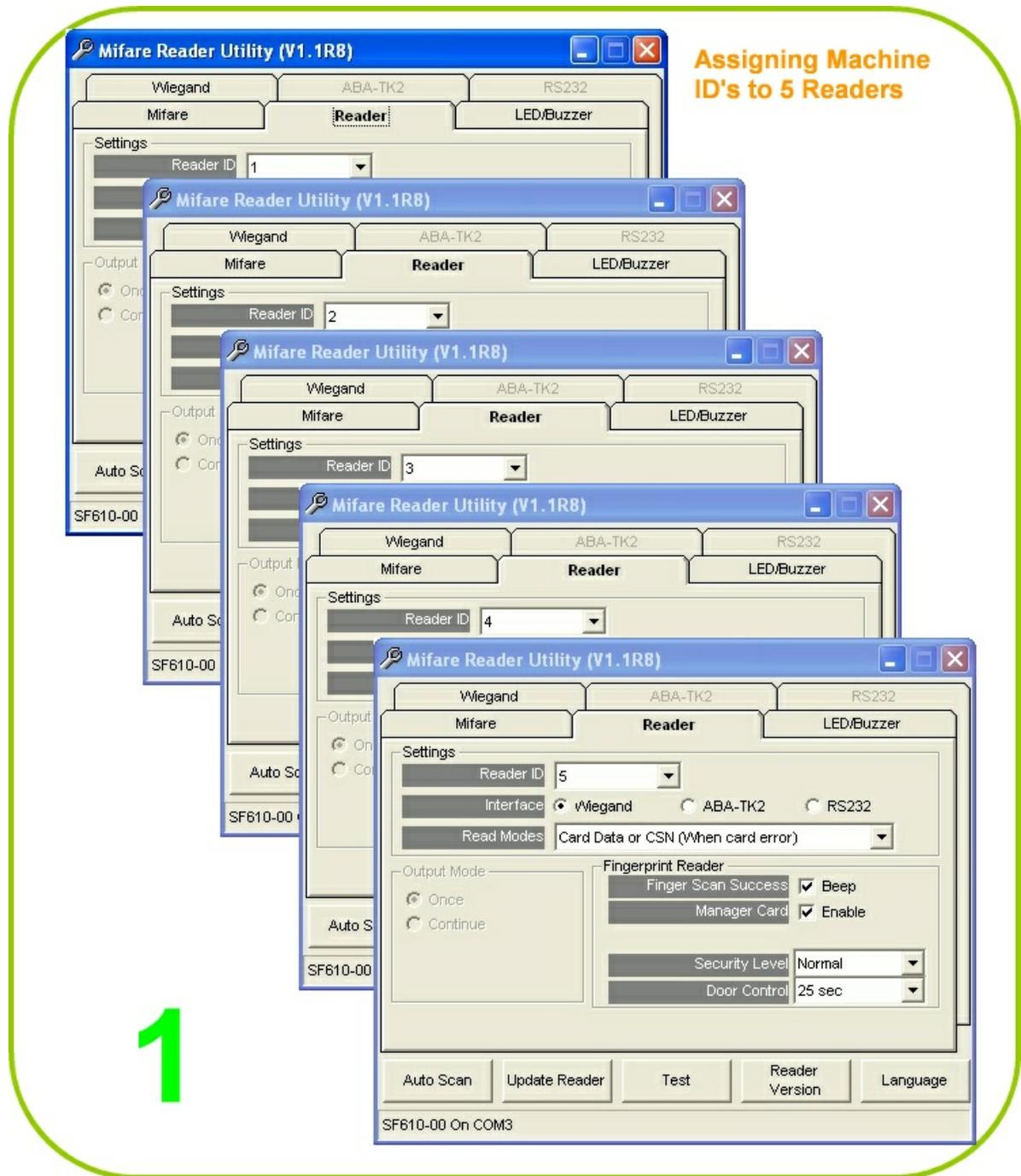
3 Click 'Update Reader'.



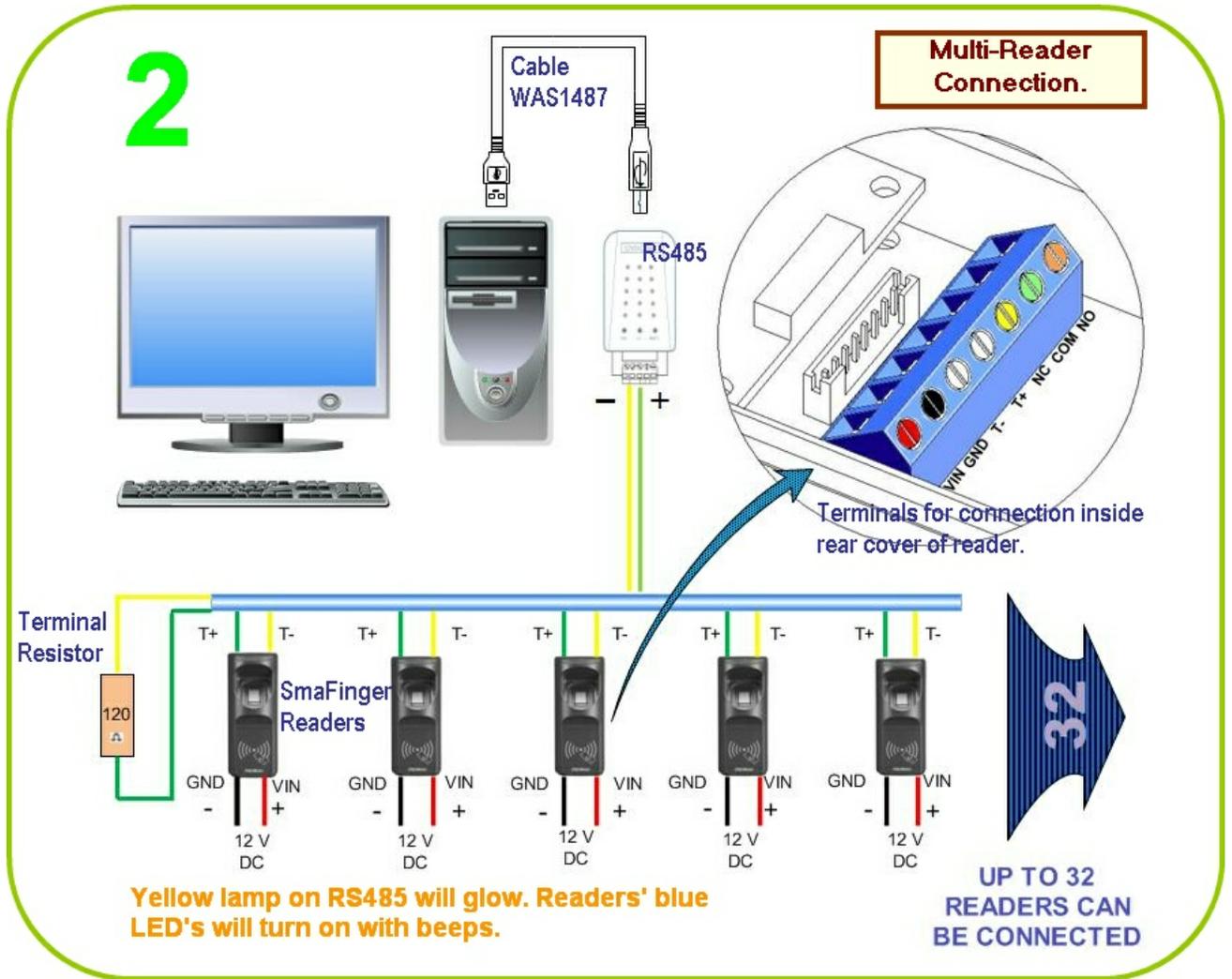
4. Reader's LED will blink with a beep indicating successful update.

### 1.4.2.3 Multi-Readers

Follow instructions for single reader illustrated above from steps 1 to 5. Then carry out steps 6, 7 and 8 for every reader to assign different ID's for all. Five readers assigned with ID's are shown below:



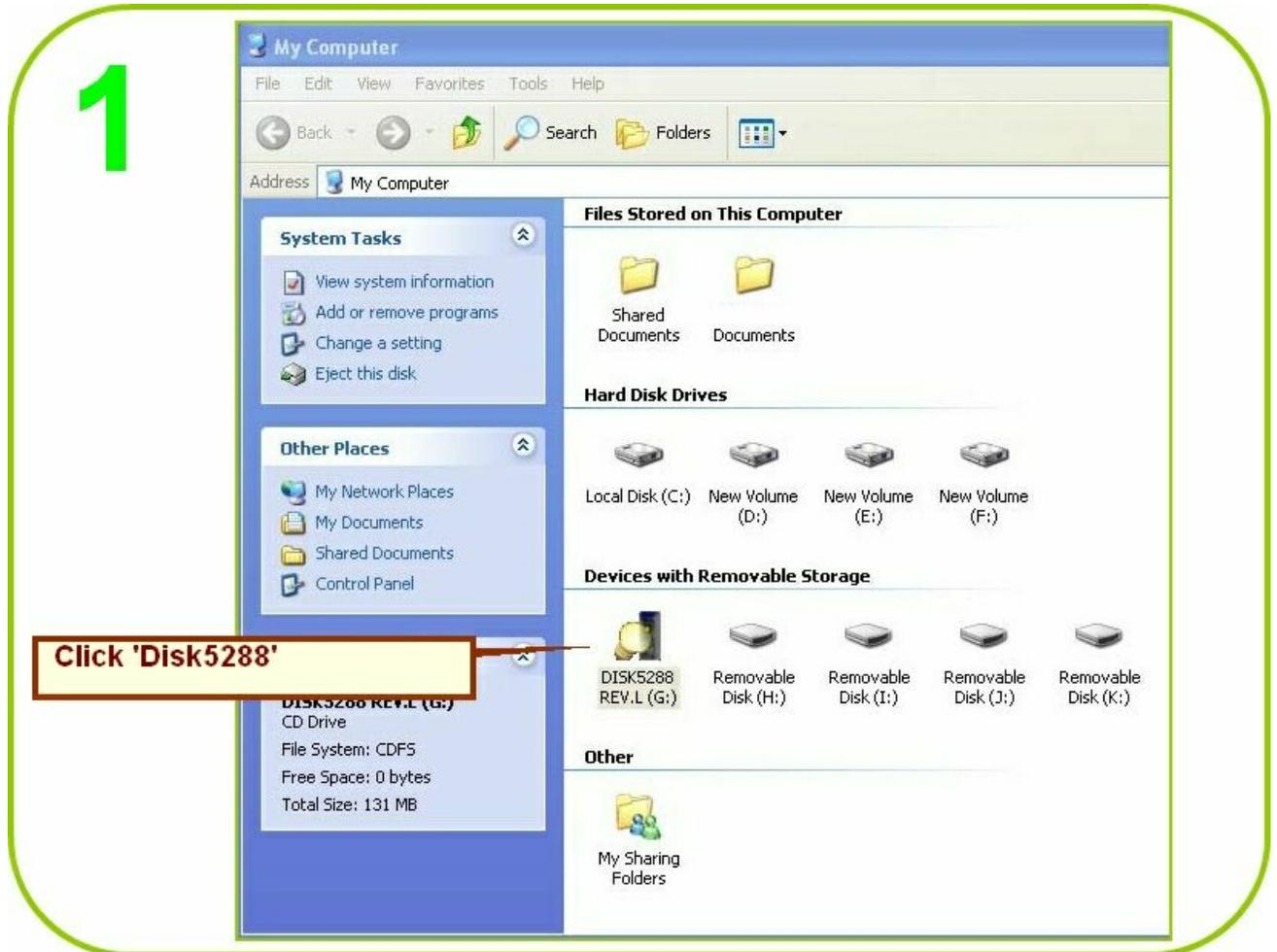
After assigning reader ID's, connect all readers to server through RS485 as shown in the schematic below.



Note: For more details see chapter 3.10.6 [Multi-Reader Connection](#)

## 1.5 Installation of SF Formater

Insert Disk5288 supplied with Start Kit into the CD-ROM drive of host PC. CD explorer will automatically open as shown in step 2. If not, double click My Computer icon on the Desktop and then proceed from step1 below.



2

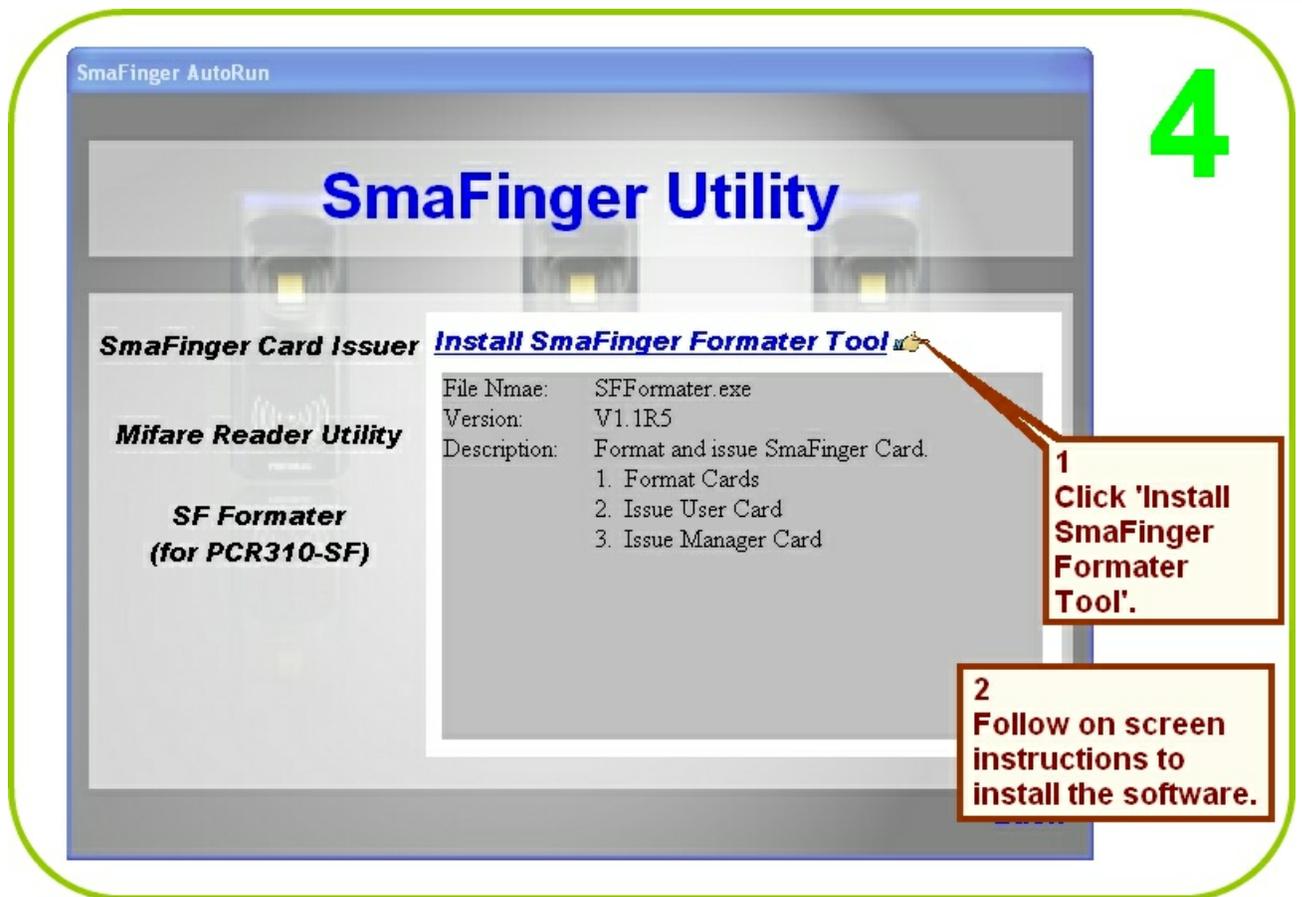
Click 'SmaFinger Utility'



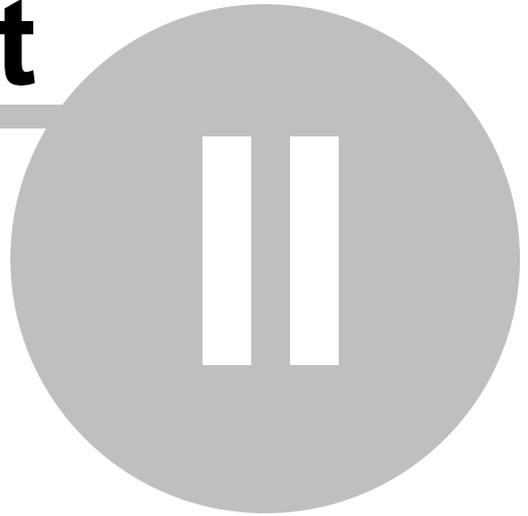
3

Click SF Formater.





**Part**



## 2 Operation

The operations are classified as follows:

1. **Operation with Database (Online/Offline):** Fingerprint data are stored in reader database for verification.

For Operation with Database (Online) continue to next section chapter 2.1 [Operation with Database](#)

For Operations with Database (Offline), please go to chapter 2.1.2 [Offline System](#)

2. **Operations without Database (Online/Offline):** Fingerprint data are not stored in a reader database but on user card for verification.

For Operations without Database (Online), please go to chapter 2.2 [Operation without Database](#)

For Operations without Database (Offline), please go to chapter 2.2.2 [Offline System](#)

For an overview of all operating modes please see chapter 3.3 [Overview of SmaFinger System Operating Modes](#)

### 2.1 Operation with Database

There are two operating systems under this mode:

1. **Online System** Fingerprint data of users are stored in host PC and then saved to readers directly online or transferred through system generated Enroll Cards.

2. **Offline System (Standalone)** Fingerprint data of users are stored in readers using Manager Enroll Cards supplied by **Giga-Tms**.

#### 2.1.1 Online System

There are two operating modes under this system:

1. Access by Fingerprint.
2. Access by Card.

##### 2.1.1.1 Access by Fingerprint

Access is given by verifying user's fingerprint with that already stored in the host PC and saved to the reader's database. In rare instances when none of the fingerprints of a person can be registered a card with random RFID code is issued to him/her.

This section illustrates how to

1. register fingerprints of present and new users and save them to readers and
2. delete fingerprints of departed users from the readers.

### 2.1.1.1.1 How to Register Users' Fingerprints?

At the time of installation of a SmaFinger Online System, all present users' fingerprints can be registered by the programmer and saved to the reader. This is done with the card issuer, programmer and reader connected to the host PC. After thus updating, the reader can be installed at the access point/terminal.

Programmer SF600P should have been installed as illustrated in chapter 1.3 [Connection & Installation of Programmer](#).



Note: If the SmaFinger Users Database opens with the message 'Port is closed please press Key Search' and on moving the cursor over the right side menu of the window the message 'Can't Find PCR310U' appears, close the window and click '**Search PCR310U**' on the SmaFinger Card Issuer window. If you get the message: 'Can't Find PCR310U' again remove and reconnect PCR310U or change the USB port to which it is connected.

**3**

Click 'Add New User'

**4**

1. Select 'Wiegand'.

2. Select 0 for System Code, 8 for Site Code, 16 for Serial Number.

3. Enter Site Code and Serial Number.

4. Enter Name and Gender

5. Click 'Add'

**5**

Given Name	Surname	Sex	Wiegand	Fingerprints
Alan	Gerard	Masculine	22336	

Click 'Fingerprint'.

**6**

Click on figuration corresponding to the finger to be scanned.

Please Select Finger First!

**7**

Click 'Register'

Right Forefinger is selected

**8**

**'Put your finger' message appears...**

**Instruct card holder to place his/her finger on the scanner of SF600 P.**

**First a 'Verify Finger' prompt will appear, followed by message 'Scanned good image'.**

Note: If due to some reason a user's fingerprint is not registered then a card without fingerprint can be issued. Failing to enroll or verify after repeated attempts means the fingerprint has not registered. Please refer chapter 2.1.1.2 [Access by Card](#) for the procedure.

**9**

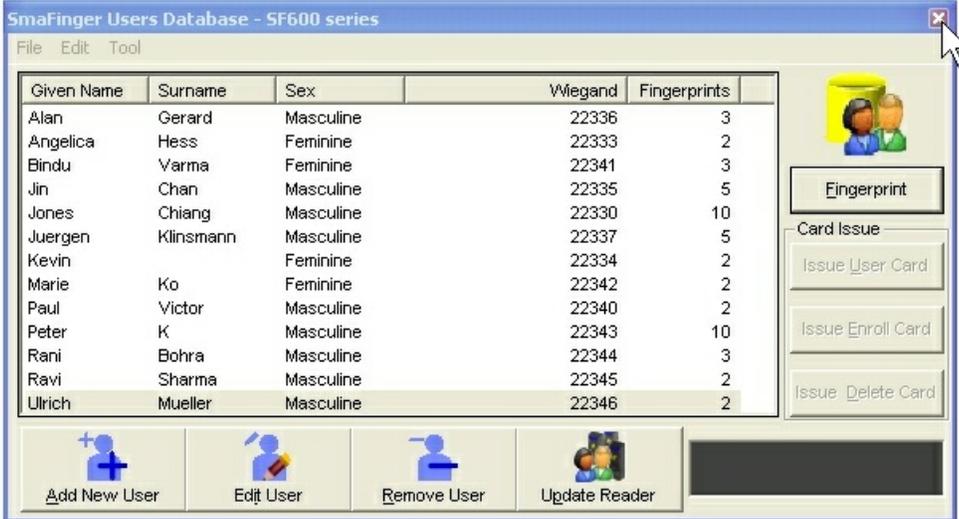
**Selected figurations will turn green.**

**1. To Register other fingers repeat steps 4 to 8. You can register upto 10 fingerprints for each person.**

**2. Click 'OK'. The fingerprints will be saved.**

# 10

1. Repeat steps 3 to 9 to register fingerprints of others.
2. Close the Database Window.



Given Name	Surname	Sex	Wiegand	Fingerprints
Alan	Gerard	Masculine	22336	3
Angelica	Hess	Feminine	22333	2
Bindu	Varma	Feminine	22341	3
Jin	Chan	Masculine	22335	5
Jones	Chiang	Masculine	22330	10
Juergen	Klinsmann	Masculine	22337	5
Kevin		Feminine	22334	2
Marie	Ko	Feminine	22342	2
Paul	Victor	Masculine	22340	2
Peter	K	Masculine	22343	10
Rani	Bohra	Masculine	22344	3
Ravi	Sharma	Masculine	22345	2
Ulrich	Mueller	Masculine	22346	2

Additional reading at chapter 3.11.5 [Managing User Database](#)

### 2.1.1.1.2 How to Save to/Delete from Reader the Users' Fingerprints/Data? (Online Enrollment)

Installation and configuration of the reader should have been completed and powered on as illustrated in chapter 1.4 [Connection and Installation of Reader](#).

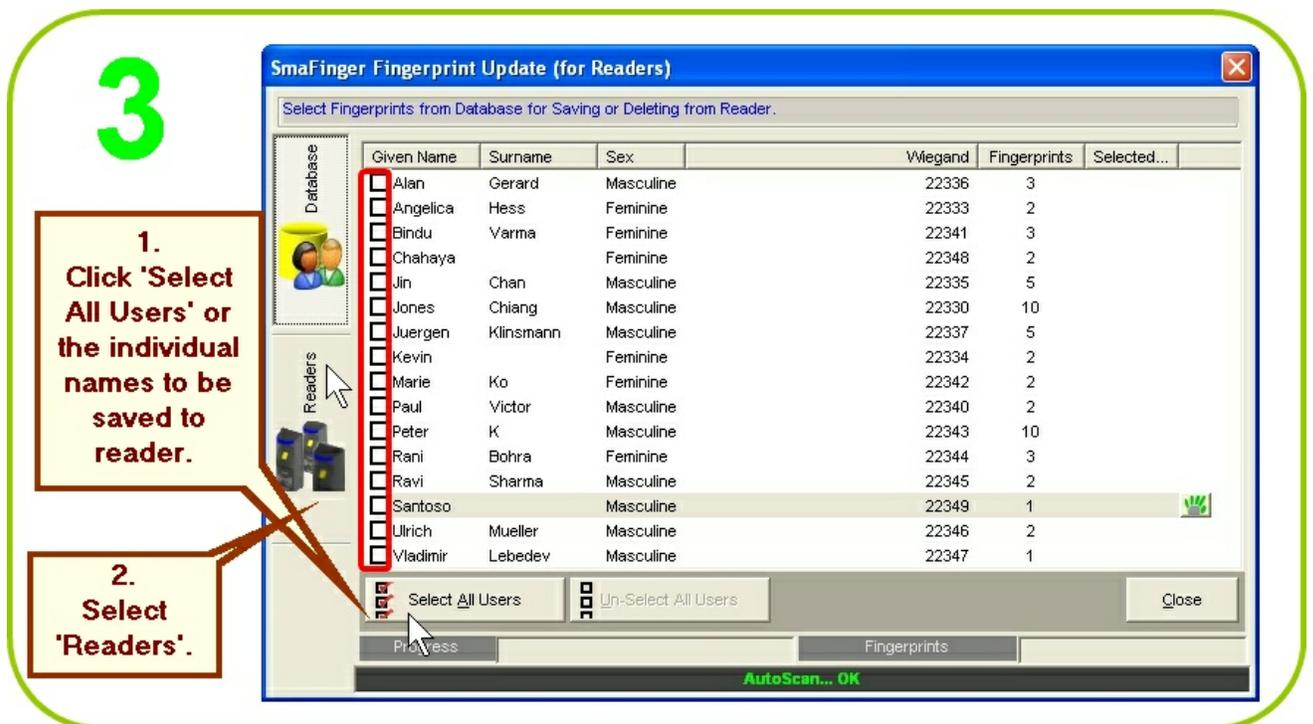
Mifare Reader Utility should show reader and port numbers. Fingerprints of users should have been already registered as illustrated in chapter 2.1.1.1.1 [How to Register Users' Fingerprints?](#)

The image shows two software windows side-by-side. The left window is titled 'Mifare Reader Utility (V1.1R8)' and has tabs for 'Wiegand', 'ABA-TK2', and 'RS232'. The 'Mifare' tab is active, showing 'Card Information' with fields for 'MAD-AID (HEX)' (4703), 'Non-MAD Sector' (1), 'App Key' (FFFFFFFF), and 'Encrypt' (Encrypt 1). There are also 'Offset' and 'Length' fields set to 0. The right window is titled 'Configure' and has sections for 'General', 'Card Issue', and 'Reader / Programmer'. The 'Card Issue' section has 'MAD Admin Key', 'MAD-AID (Hex)', 'App Admin Key', and 'App Key' all set to FFFFFFFFFF. The 'Reader / Programmer' section has 'Reader Model' set to 'SF600 series' and 'Assign Programmer' set to 'Normal'. A status bar at the bottom of the Mifare window says 'SF610-00 On COM3'. Three numbered callout boxes provide instructions: 1. 'Open 'Mifare Reader Utility' and 'Configure' windows. Ensure App Keys are same in both.' with an arrow pointing to the App Key fields in both windows. 2. 'Click 'Update Reader' and close the window.' with an arrow pointing to the 'Update Reader' button. 3. 'Click 'OK' and then close CI window.' with an arrow pointing to the 'OK' button in the Configure window.

**1** Open 'Mifare Reader Utility' and 'Configure' windows. Ensure App Keys are same in both.

**2** Click 'Update Reader' and close the window.

**3** Click 'OK' and then close CI window.

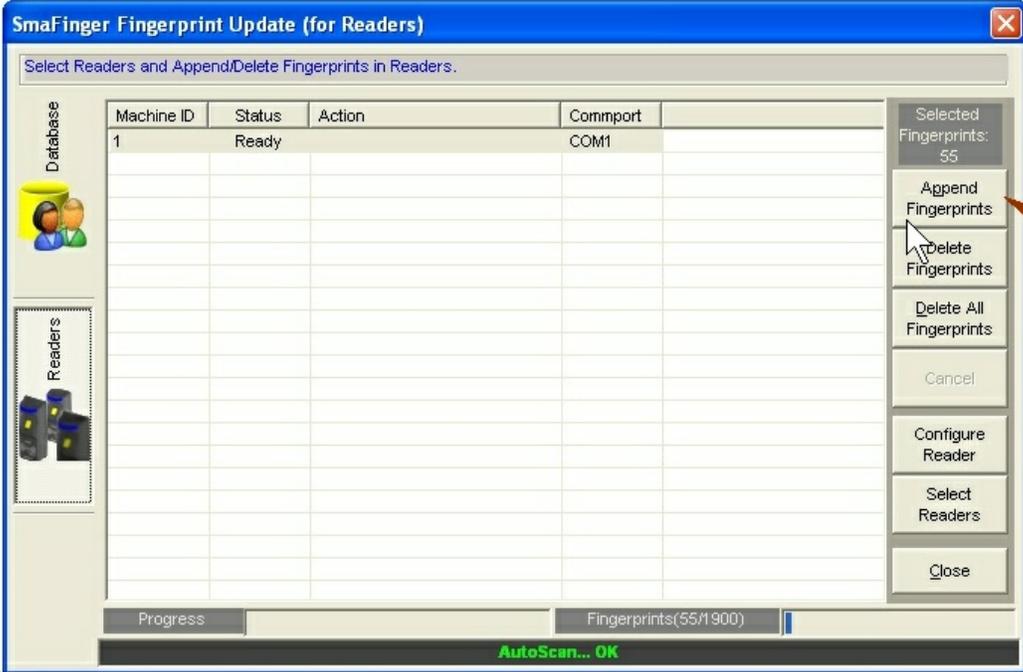


If instead of 'Auto Scan...OK' or 'OK' message, 'AutoScan...NG' is displayed on the status bar at the bottom of the window shown above, do the following:

- Ensure Reader SF6000 is connected to PC and powered up. Open Mifare Reader Utility window from **Start** menu. Click **Auto Scan** and see that port number is indicated on the blue top bar of the window. If 'No Match Reader...' is displayed, disconnect and reconnect or change the reader to a different port. Click **Update Reader**. Then close the Mifare Reader Utility window.
- Close the **SmaFinger Fingerprint Update (for Readers)** containing the error message. Reopen from the SmaFinger Navigate, by clicking **Configure Reader and Append/Delete Fingerprints**. Now the 'OK' message

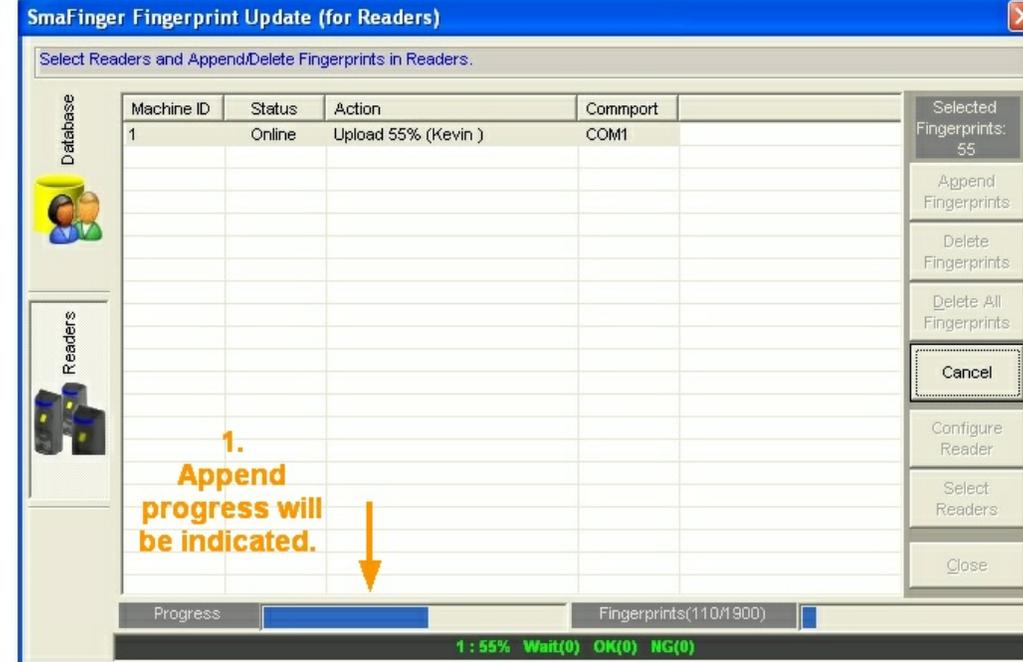
will be displayed. Then proceed to actions at step 3.

4



Click 'Append Fingerprints'.

5



1. Append progress will be indicated.

2. On completion the window will close automatically.

6

Select Fingerprints from Database for Saving or Deleting from Reader.

Given Name	Surname	Sex	Wiegand	Fingerprints	Selected...	
<input checked="" type="checkbox"/>	Alan	Gerard	Masculine	22336	3	3
<input checked="" type="checkbox"/>	Angelica	Hess	Feminine	22333	2	2
<input checked="" type="checkbox"/>	Bindu	Varma	Feminine	22341	3	3
<input checked="" type="checkbox"/>	Chahaya		Feminine	22348	2	2
<input checked="" type="checkbox"/>	Jin	Chan	Masculine	22335	5	5
<input checked="" type="checkbox"/>	Jones	Chiang	Masculine	22330	10	10
<input checked="" type="checkbox"/>	Juergen	Klinsmann	Masculine	22337	5	5
<input checked="" type="checkbox"/>	Kevin		Feminine	22334	2	2
<input checked="" type="checkbox"/>	Marie	Ko	Feminine	22342	2	2
<input checked="" type="checkbox"/>	Paul	Victor	Masculine	22340	2	2
<input checked="" type="checkbox"/>	Peter	K	Masculine	22343	10	10
<input checked="" type="checkbox"/>	Rani	Bohra	Feminine	22344	3	3
<input checked="" type="checkbox"/>	Ravi	Sharma	Masculine	22345	2	2
<input checked="" type="checkbox"/>	Santoso		Masculine	22349	1	1
<input checked="" type="checkbox"/>	Ulrich	Mueller	Masculine	22346	2	2
<input checked="" type="checkbox"/>	Vladimir	Lebedev	Masculine	22347	1	1

Buttons: Select All Users, Un-Select All Users, Close

Progress: Fingerprint(55/1900) OK

Annotations:

- Appended fingerprints will be indicated.
- 'OK' message will appear on the status bar.
- Click 'Close'.

7

Select Fingerprints from Database for Saving or Deleting from Reader.

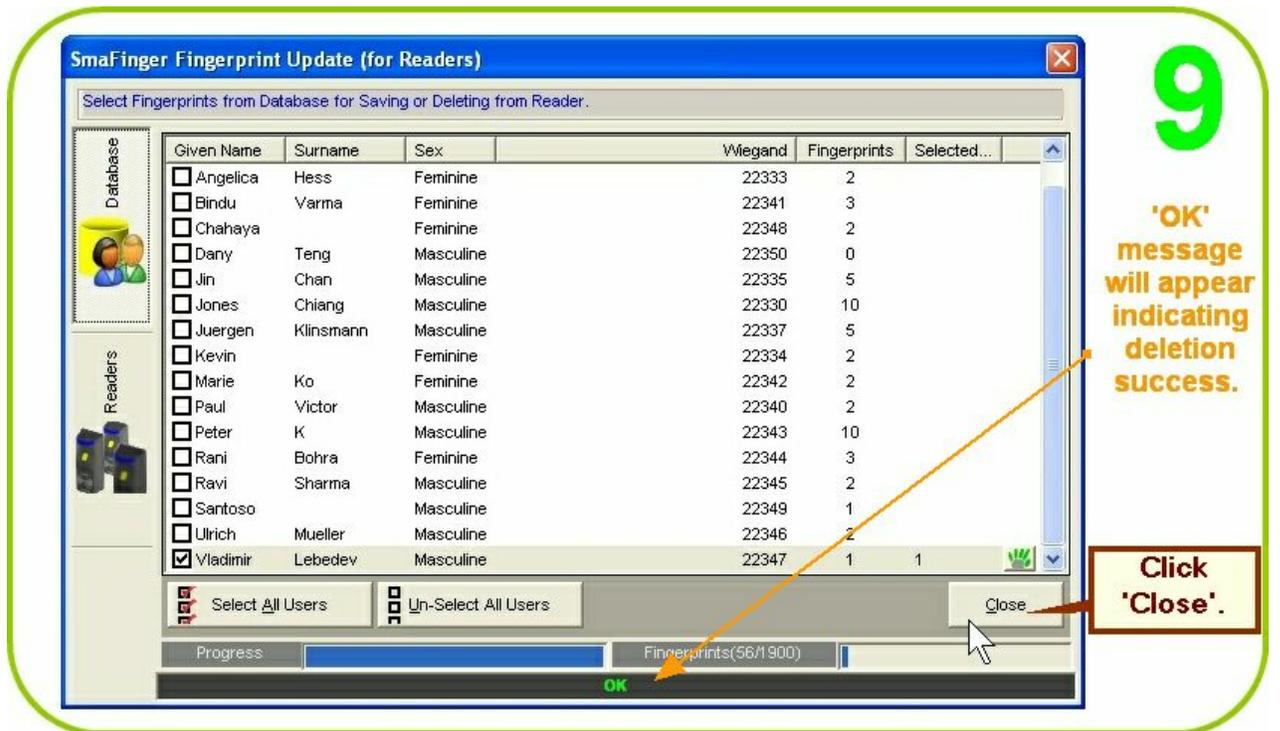
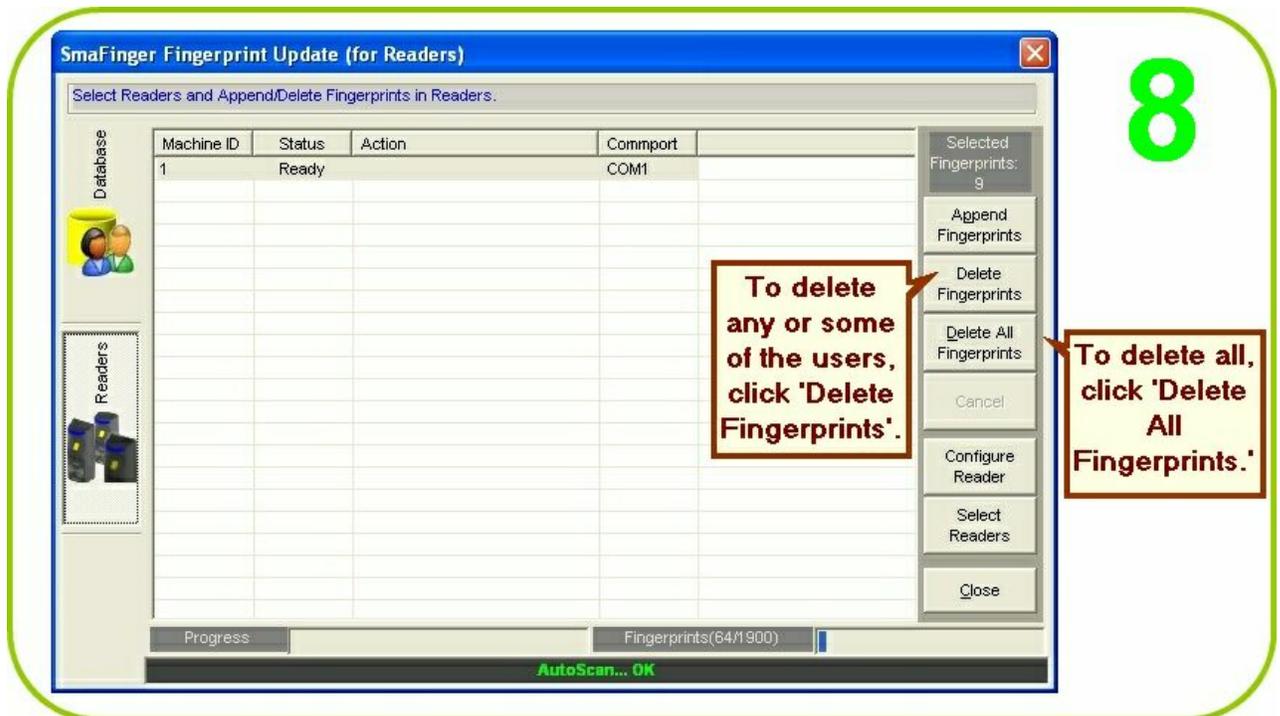
Given Name	Surname	Sex	Wiegand	Fingerprints	Selected...
<input checked="" type="checkbox"/>	Alan	Gerard	Masculine	22336	3
<input type="checkbox"/>	Angelica	Hess	Feminine	22333	2
<input type="checkbox"/>	Bindu	Varma	Feminine	22341	3
<input type="checkbox"/>	Chahaya		Feminine	22348	2
<input type="checkbox"/>	Jin	Chan	Masculine	22335	5
<input type="checkbox"/>	Jones	Chiang	Masculine	22330	10
<input type="checkbox"/>	Juergen	Klinsmann	Masculine	22337	5
<input type="checkbox"/>	Kevin		Feminine	22334	2
<input type="checkbox"/>	Marie	Ko	Feminine	22342	2
<input type="checkbox"/>	Paul	Victor	Masculine	22340	2
<input type="checkbox"/>	Peter	K	Masculine	22343	10
<input type="checkbox"/>	Rani	Bohra	Feminine	22344	3
<input type="checkbox"/>	Ravi	Sharma	Masculine	22345	2
<input type="checkbox"/>	Santoso		Masculine	22349	1
<input type="checkbox"/>	Ulrich	Mueller	Masculine	22346	2
<input type="checkbox"/>	Vladimir	Lebedev	Masculine	22347	1

Buttons: Select All Users, Un-Select All Users, Close

Progress: AutoScan... OK

Annotations:

- Check boxes next to the names to be deleted.
- Click 'Readers'.



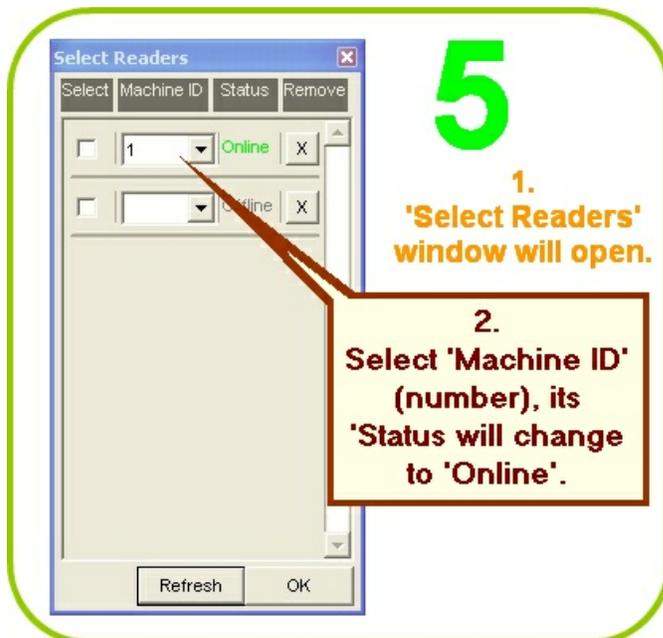
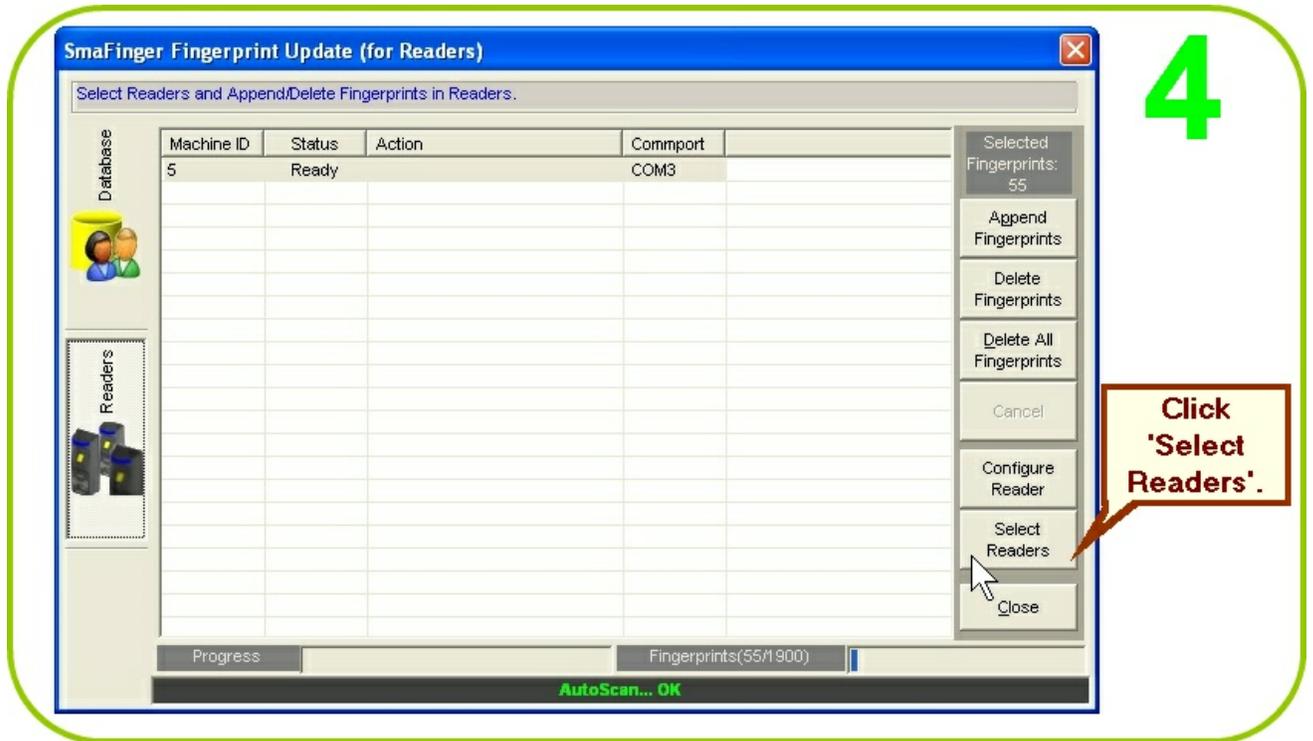
For test verification please see procedure in chapter 2.1.3 [SmaFinger on Service](#)

For connecting to controller go to chapter 2.3 [Connecting to Controller](#)

Additional reading at chapters 3.11.3 [SmaFinger Fingerprint Update Window Details](#) & 3.11.6 [Updating Database of Multiple Reader Devices](#)

### 2.1.1.1.3 Save: Multi-Readers

Follow instructions up to step 3 in the previous section chapter 2.1.1.1.2 [How to Save to/Delete from Reader the Users' Fingerprints/Data? \(Online Enrollment\)](#) . Next follow as follows:



**6**

1. Check box under 'Select'.
2. Repeat steps 5.2 and 6.1 for other readers.
3. Click 'OK'.

Select	Machine ID	Status	Remove
<input checked="" type="checkbox"/>	1	Online	X
<input checked="" type="checkbox"/>	2	Online	X
<input checked="" type="checkbox"/>	3	Online	X
<input checked="" type="checkbox"/>	4	Online	X
<input checked="" type="checkbox"/>	5	Online	X
<input type="checkbox"/>		Offline	X

**7**

Click 'Append Fingerprints.'

Machine ID	Status	Action	Commport
1	Ready		COM3
2	Ready		COM3
3	Ready		COM3
4	Ready		COM3
5	Ready		COM3

8

Append Fingerprint progress...

SmaFinger Fingerprint Update (for Readers)

Select Readers and Append/Delete Fingerprints in Readers.

Machine ID	Status	Action	Commport
1	Online	Upload 18% (Jin Chan)	COM3
2	Wait...		COM3
3	Wait...		COM3
4	Wait...		COM3
5	Wait...		COM3

Selected Fingerprints: 55

Append Fingerprints

Delete Fingerprints

Delete All Fingerprints

Cancel

Configure Reader

Select Readers

Close

Progress: [ ] Fingerprints(55/1900)

1: 16% Wait(4) OK(0) NG(0)

9

Appended fingerprints will be listed.

Click 'Close'.

SmaFinger Fingerprint Update (for Readers)

Select Fingerprints from Database for Saving or Deleting from Reader.

Given Name	Surname	Sex	Wiegand	Fingerprints	Selected...	
<input checked="" type="checkbox"/>	Alan	Gerard	Masculine	22336	3	3
<input checked="" type="checkbox"/>	Angelica	Hess	Feminine	22333	2	2
<input checked="" type="checkbox"/>	Bindu	Varma	Feminine	22341	3	3
<input checked="" type="checkbox"/>	Chahaya		Feminine	22348	2	2
<input checked="" type="checkbox"/>	Jin	Chan	Masculine	22335	5	5
<input checked="" type="checkbox"/>	Jones	Chiang	Masculine	22330	10	10
<input checked="" type="checkbox"/>	Juergen	Klinsmann	Masculine	22337	5	5
<input checked="" type="checkbox"/>	Kevin		Feminine	22334	2	2
<input checked="" type="checkbox"/>	Marie	Ko	Feminine	22342	2	2
<input checked="" type="checkbox"/>	Paul	Victor	Masculine	22340	2	2
<input checked="" type="checkbox"/>	Peter	K	Masculine	22343	10	10
<input checked="" type="checkbox"/>	Rani	Bohra	Feminine	22344	3	3
<input checked="" type="checkbox"/>	Ravi	Sharma	Masculine	22345	2	2
<input checked="" type="checkbox"/>	Santoso		Masculine	22349	1	1
<input checked="" type="checkbox"/>	Ulrich	Mueller	Masculine	22346	2	2
<input checked="" type="checkbox"/>	Vladimir	Lebedev	Masculine	22347	1	1

Select All Users

Un-Select All Users

Close

Progress: [ ] Fingerprints(55/1900)

OK

### 2.1.1.1.4 Delete: Multi-Readers

Follow instructions up to step 2 in chapter 2.1.1.1.2 [How to Save to/Delete from Reader the Users' Fingerprints/Data? \(Online Enrollment\)](#)

**3**

**1. Check boxes next to the names to be deleted.**

**2. Click 'Readers'.**

Given Name	Surname	Sex	Wiegand	Fingerprints	Selected...
<input type="checkbox"/>	Alan	Gerard	Masculine	22336	3
<input type="checkbox"/>	Angelica	Hess	Feminine	22333	2
<input type="checkbox"/>	Bindu	Varma	Feminine	22341	3
<input type="checkbox"/>	Chahaya		Feminine	22348	2
<input type="checkbox"/>	Jin	Chan	Masculine	22335	5
<input type="checkbox"/>	Jones	Chiang	Masculine	22330	10
<input type="checkbox"/>	Juergen	Klinsmann	Masculine	22337	5
<input type="checkbox"/>	Kevin		Feminine	22334	2
<input type="checkbox"/>	Marie	Ko	Feminine	22342	2
<input type="checkbox"/>	Paul	Victor	Masculine	22340	2
<input type="checkbox"/>	Peter	K	Masculine	22343	10
<input type="checkbox"/>	Rani	Bohra	Feminine	22344	3
<input type="checkbox"/>	Ravi	Sharma	Masculine	22345	2
<input type="checkbox"/>	Santoso		Masculine	22349	1
<input type="checkbox"/>	Ulrich	Mueller	Masculine	22346	2
<input type="checkbox"/>	Vladimir	Lebedev	Masculine	22347	1

Buttons: Select All Users, Un-Select All Users, Close

Progress: Progress | Fingerprints

AutoScan... OK

**4**

**Click 'Select Readers'.**

Machine ID	Status	Action	Comport
2	Ready		COM3

Buttons: Append Fingerprints, Delete Fingerprints, Delete All Fingerprints, Cancel, Configure Reader, Select Readers, Close

Progress: Progress | Fingerprints(56/1900)

AutoScan... OK

5

Select	Machine ID	Status	Remove
<input checked="" type="checkbox"/>	2	Offline	X
<input type="checkbox"/>	1	Offline	X
<input type="checkbox"/>	4	Offline	X
<input type="checkbox"/>	3	Offline	X
<input type="checkbox"/>	5	Offline	X
<input type="checkbox"/>		Offline	X

1.  
To delete from a particular reader select 'Machine ID', the 'Status' will become 'Online'. Check 'Select' box next to it.

2.  
Repeat the previous action in the rows below for other readers.

3. Click 'OK'.

6

Select	Machine ID	Status	Remove
<input checked="" type="checkbox"/>	2	Online	X
<input checked="" type="checkbox"/>	1	Online	X
<input checked="" type="checkbox"/>	4	Online	X
<input checked="" type="checkbox"/>	3	Online	X
<input checked="" type="checkbox"/>	5	Online	X
<input type="checkbox"/>		Offline	X

1.  
To delete from all readers click 'Refresh'. The 'Status' will turn to 'Online'.

2.  
Click 'OK'.

7

**SmaFinger Fingerprint Update (for Readers)**

Select Readers and Append/Delete Fingerprints in Readers.

Machine ID	Status	Action	Commport
1	Ready		COM3
2	Ready		COM3
4	Ready		COM3
3	Ready		COM3
5	Ready		COM3

Selected Fingerprints: 55

Buttons: Append Fingerprints, Delete Fingerprints, Delete All Fingerprints, Cancel, Configure Reader, Select Readers, Close

Progress: Fingerprint(110/1900)

AutoScan - Found on COM3

**1.**  
To delete any or some of the users click 'Delete Fingerprints'.

**2.**  
To delete all click 'Delete All Fingerprints'.

8

Deletion progress

**SmaFinger Fingerprint Update (for Readers)**

Select Readers and Append/Delete Fingerprints in Readers.

Machine ID	Status	Action	Commport
2	Online	Delete OK	COM3
1	Online		COM3
4	Online	Delete OK	COM3
3	Online	Delete OK	COM3
5	Online	Delete OK	COM3

Selected Fingerprints: 1

Buttons: Append Fingerprints, Delete Fingerprints, Delete All Fingerprints, Cancel, Configure Reader, Select Readers, Close

Progress: Fingerprint(56/1900)

1 : 0% Wait(0) OK(4) NG(0)

9

'OK' message will appear indicating deletion success.

**SmaFinger Fingerprint Update (for Readers)**

Select Fingerprints from Database for Saving or Deleting from Reader.

Given Name	Surname	Sex	Wiegand	Fingerprints	Selected...
<input type="checkbox"/>	Angelica	Hess	Feminine	22333	2
<input type="checkbox"/>	Bindu	Varma	Feminine	22341	3
<input type="checkbox"/>	Chahaya		Feminine	22348	2
<input type="checkbox"/>	Dany	Teng	Masculine	22350	0
<input type="checkbox"/>	Jin	Chan	Masculine	22335	5
<input type="checkbox"/>	Jones	Chiang	Masculine	22330	10
<input type="checkbox"/>	Juergen	Klinsmann	Masculine	22337	5
<input type="checkbox"/>	Kevin		Feminine	22334	2
<input type="checkbox"/>	Marie	Ko	Feminine	22342	2
<input type="checkbox"/>	Paul	Victor	Masculine	22340	2
<input type="checkbox"/>	Peter	K	Masculine	22343	10
<input type="checkbox"/>	Rani	Bohra	Feminine	22344	3
<input type="checkbox"/>	Ravi	Sharma	Masculine	22345	2
<input type="checkbox"/>	Santoso		Masculine	22349	1
<input type="checkbox"/>	Ulrich	Mueller	Masculine	22346	2
<input checked="" type="checkbox"/>	Vladimir	Lebedev	Masculine	22347	1 1

Buttons: Select All Users, Un-Select All Users, Close

Progress: Fingerprints(56/1900)

OK

Click 'Close'.

10

Delete All progress

**SmaFinger Fingerprint Update (for Readers)**

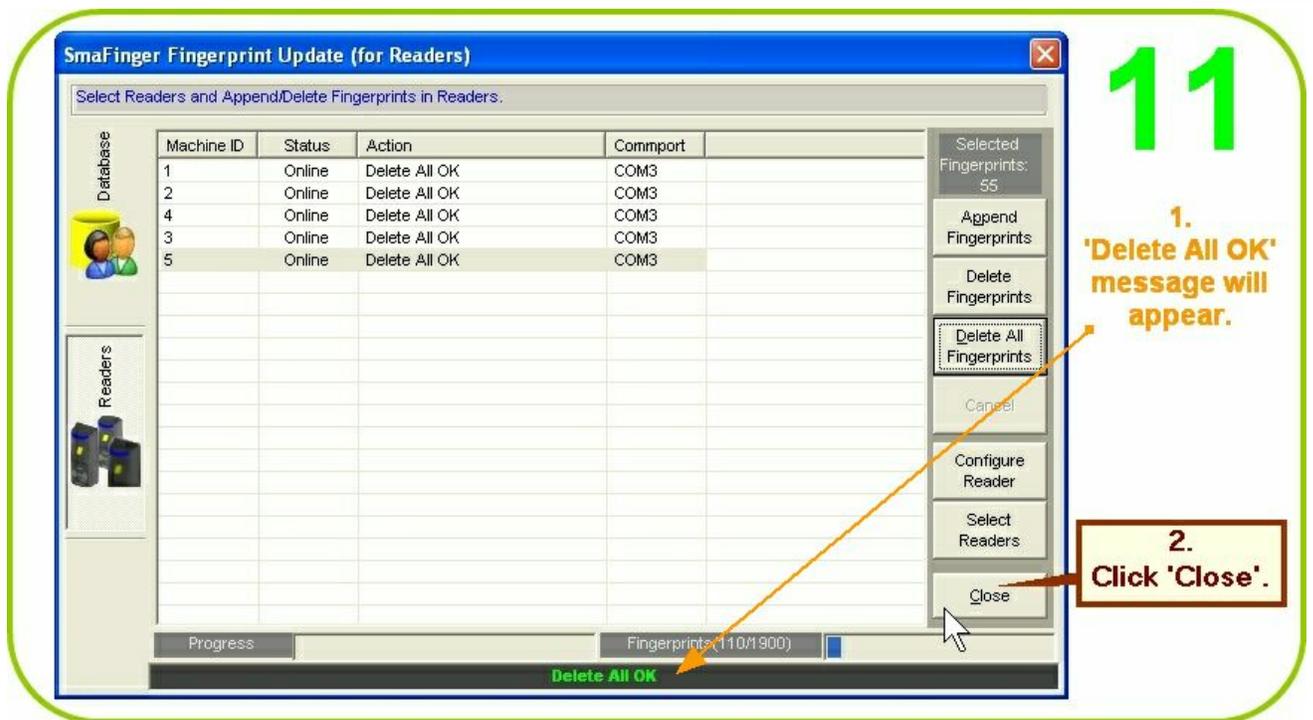
Select Readers and Append/Delete Fingerprints in Readers.

Machine ID	Status	Action	Comport
1	Online	Delete All OK	COM3
2	Online	Delete All OK	COM3
4	Online	Delete All OK	COM3
3	Online	Delete All OK	COM3
5	Online	Delete All...	COM3

Buttons: Append Fingerprints, Delete Fingerprints, Delete All Fingerprints, Cancel, Configure Reader, Select Readers, Close

Progress: Fingerprints(110/1900)

Delete All...



### 2.1.1.1.5 How to Register and Save to Reader New Users' Fingerprints?

Fingerprints of new users can be saved in the following ways:

1. Using Enroll Card (Offline Enrollment).
2. Online Enrollment.

#### 2.1.1.1.5.1 Using Enroll Card

When a new user is to be registered, first his/her fingerprints have to be registered using the Programmer SF600P connected with the host PC as illustrated in chapter 2.1.1.1.1 [How to Register Users' Fingerprints?](#) If the reader is already installed at entry point/terminal, instead of disconnecting the reader from there and reconnecting it with host PC to transfer the fingerprint data online, an Enroll Card bearing the fingerprint data of the user can be issued. Reading the Enroll Card at each installed reader will transfer the fingerprint data of the new user to the reader's database. This is referred as Offline Enrollment, the procedure for which is as follows:

The SmaFinger Card Issuer program should have been installed and opened on the host PC. The Card Issuer PCR310U should have been connected to the host PC and detected by CI program. (Please refer chapter 1.2 [Connection & Installation of Card Issuer](#) .)

**1**

Open 'SmaFinger Navigate' and click 'Modify Database and Issue Cards from Database'.

SmaFinger Navigate

Format and Issue Cards

Modify Database and Issue Cards from Database

Configure Reader and Append/Delete Fingerprints

Configure Issuing Settings

User Manual and Help

Always Start from Navigate

Connection Checking

Card Issuer

Programmer

Readers

Refresh List

**2**

'SmaFinger Users Database' will open with the message 'No Card'.

SmaFinger Users Database - SF600 series

File Edit Tool

Given Name	Surname	Sex	Wiegand	Fingerprints
Alan	Gerard	Masculine	22336	3
Angelica	Hess	Feminine	22333	2
Bindu	Varma	Feminine	22341	3
Chahaya		Feminine	22348	2
Jin	Chan	Masculine	22335	5
Jones	Chiang	Masculine	22330	10
Juergen	Klinsmann	Masculine	22337	5
Kevin		Feminine	22334	2
Marie	Ko	Feminine	22342	2
Paul	Victor	Masculine	22340	2
Peter	K	Masculine	22343	10
Rani	Bohra	Feminine	22344	3
Ravi	Sharma	Masculine	22345	2

Add New User Edit User Remove User Update Reader

Fingerprint

Card Issue

Issue User Card

Issue Enroll Card

Issue Delete Card

No Card

3

1. Insert a Mifare card in the cradle of Card Issuer PCR310U. Its second green lamp will glow and a message box will appear.

2. Click 'Yes'



SmaFinger Users Database - SF600 series - 1B828D7C

File Edit Tool

Given Name	Surname	Sex	Wiegand	Fingerprints
Alan	Gerard	Masculine	22336	3
Angelica	Hess	Feminine	22333	2
Bindu	Varma	Feminine	22341	3
Chahaya		Feminine	22348	2
Jin	Chan	Masculine	22335	5
Jones	Chiang	Masculine	22330	10
Juergen	Klinsmann	Masculine	22337	5
Kevin		Feminine	22334	2
Marie	Ko	Feminine	22342	2
Paul	Victor	Masculine	22340	2
Peter	K	Masculine	22343	10
Rani	Bohra	Feminine	22344	3
Ravi	Sharma	Masculine	22345	2

Buttons: Add New User, Edit User, Remove User, Update Reader

Card Issue options: Issue User Card, Issue Enroll Card, Issue Delete Card

**Card present**

4

Card Present message will appear.

5

'Read OK' message will appear.



6

1. Select name.

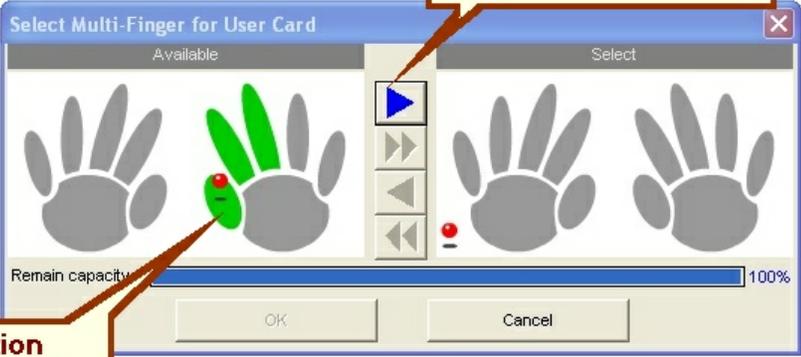
2. Click 'Issue Enroll Card'.

**7**

The available fingerprints will be displayed on the left window...

1. Click a figuration corresponding to the user's fingerprint to be selected.

2. Select it by clicking here.

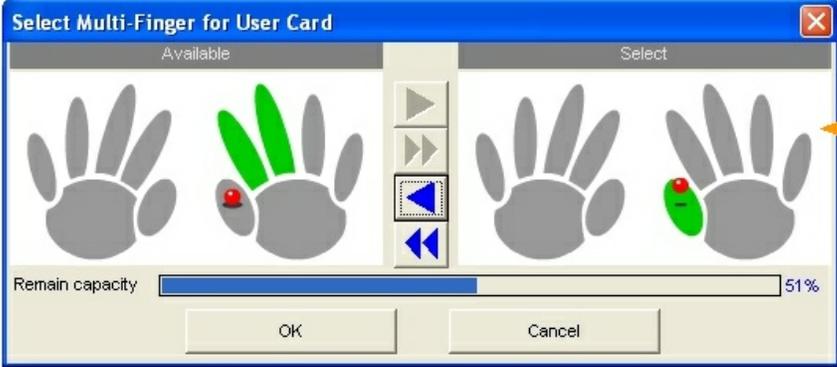


**8**

Fingerprint is transferred to 'Select' window.

1. Transfer more fingerprints if required.

2. Click OK.



Note: 1K Mifare Card can take prints of up to two fingers and 4k can take that of up to four fingers.

**SmaFinger Users Database - SF600 series - 1B828D7C**

Given Name	Surname	Sex	Wiegand	Fingerprints
Alan	Gerard	Masculine	22336	3
Angelica	Hess	Feminine	22333	2
Bindu	Varma	Feminine	22341	3
Chahaya		Feminine	22348	2
Jin	Chan	Masculine	22335	5
Jones	Chiang	Masculine	22330	10
Juergen	Klinsmann	Masculine	22337	5
Kevin		Feminine	22334	2
Marie	Ko	Feminine	22342	2
Paul	Victor	Masculine	22340	2
Peter	K	Masculine	22343	10
Rani	Bohra	Feminine	22344	3
Ravi	Sharma	Masculine	22345	2

9

Issue Enroll Card message will appear.

Remove card from PCR310U.  
Repeat steps 3 to 9 to issue 'Enroll Cards' for other new users.

10

1.  
Take 'Enroll Cards' of new users to reader located at entry point/terminal.

→→

To read card
About 2 seconds
Success

2.  
Scan each card at the reader till the green LED on the reader glows with a beep.

3.  
Repeat points 1 and 2 for readers at other entry point/terminals.

For test verification please see procedure in chapter 2.1.3 [SmaFinger on Service](#)

Additional reading at chapter 3.11.7 [Creating and Managing MAD card](#)

### 2.1.1.1.5.2 Online Enrollment

Reader can be disconnected from the controller at the entry point/terminal at a convenient time of the day and brought to the host PC and then the fingerprint data of the new user can be transferred online from the host PC as described in chapter 2.1.1.1.1 [How to register Users' Fingerprints?](#) . After the update the readers can be reconnected to the controllers at the entry points/terminals.

For test verification please see procedure in chapter 2.1.3 [SmaFinger on Service](#)

Please also refer chapter 3.11.3 [SmaFinger Fingerprint Update Window Details](#)

### 2.1.1.1.6 How to Delete Records of Departed Users?

When any user is to be denied access permission due to his/her resignation, dismissal etc. the fingerprint data of the user is deleted from the reader. The data of departed users can be deleted in the following ways:

1. Using Delete Card (Offline Deletion)
2. Online Deletion

#### 2.1.1.1.6.1 Using Delete Card

If the reader is already installed at entry point/terminal, instead of disconnecting the reader from there and reconnecting it with host PC to delete fingerprint data online, a Delete Card can be issued. Reading the Delete Card at each installed reader will delete the fingerprint data of the departed user from reader's database and the user cannot gain access anymore. This is referred as Offline Deletion.

The SmaFinger Card Issuer program should have been installed in the host PC. The Card Issuer PCR310U should have been connected to the host PC and detected by the program. (Please refer for details in chapter 1.2 [Connection & Installation of Card Issuer](#) .)



**SmaFinger Users Database - SF600 series**

Given Name	Surname	Sex	Wiegand	Fingerprints
Alan	Gerard	Masculine	22336	3
Angelica	Hess	Feminine	22333	2
Bindu	Varma	Feminine	22341	3
Chahaya		Feminine	22348	2
Jin	Chan	Masculine	22335	5
Jones	Chiang	Masculine	22330	10
Juergen	Klinsmann	Masculine	22337	5
Kevin		Feminine	22334	2
Marie	Ko	Feminine	22342	2
Paul	Victor	Masculine	22340	2
Peter	K	Masculine	22343	10
Rani	Bohra	Feminine	22344	3
Ravi	Sharma	Masculine	22345	2

2

'SmaFinger Users Database' will open with the message 'No Card'.

Add New User

Edit User

Remove User

Update Reader

No Card

3

1.

Insert a Mifare card in the cradle of Card Issuer PCR310U. Its second green lamp will glow and a message box will appear.

2.

Click 'Yes'

SmaFinger

You don't have MAD format!  
Do you want to format?



6

**1. Select a name.**

**2. Click 'Issue Delete Card'.**

Given Name	Surname	Sex	Wiegand	Fingerprints
Alan	Gerard	Masculine	22336	3
Angelica	Hess	Feminine	22333	2
Bindu	Varma	Feminine	22341	3
Chahaya		Feminine	22348	2
Jin	Chan	Masculine	22335	5
Jones	Chiang	Masculine	22330	10
Juergen	Klinsmann	Masculine	22337	5
Kevin		Feminine	22334	2
Marie	Ko	Feminine	22342	2
Paul	Victor	Masculine	22340	2
Peter	K	Masculine	22343	10
Rani	Bohra	Feminine	22344	3
Ravi	Sharma	Masculine	22345	2

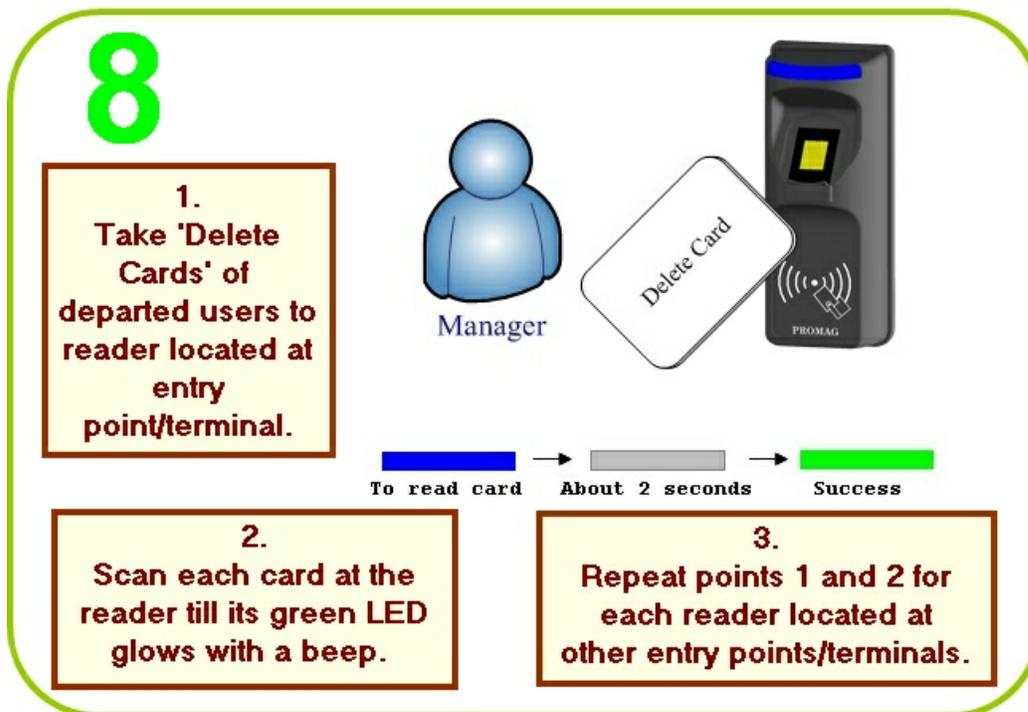
7

**1. After OK message shown above remove the card from PCR310U.**

**2. Repeat the procedure from steps 2 to 7 for other departed users.**

**'Issue Delete Card OK' message will appear.**

Given Name	Surname	Sex	Wiegand	Fingerprints
Alan	Gerard	Masculine	22336	3
Angelica	Hess	Feminine	22333	2
Bindu	Varma	Feminine	22341	3
Chahaya		Feminine	22348	2
Jin	Chan	Masculine	22335	5
Jones	Chiang	Masculine	22330	10
Juergen	Klinsmann	Masculine	22337	5
Kevin		Feminine	22334	2
Marie	Ko	Feminine	22342	2
Paul	Victor	Masculine	22340	2
Peter	K	Masculine	22343	10
Rani	Bohra	Feminine	22344	3
Ravi	Sharma	Masculine	22345	2



For test verification please see procedure in chapter 2.1.3 [SmaFinger on Service](#)

#### 2.1.1.1.6.2 Online Deletion

The reader can be disconnected from the controller at the entry point/terminal at a convenient time of the day and brought to the host PC and the fingerprint data of departed users can be deleted online using SmaFinger Card Issuer program in the host PC. Later the reader can be reconnected at its entry point/terminal. This is referred as Offline Deletion.

Installation and configuration of the reader should have been completed as illustrated in chapter 1.4 [Connection and Installation of Reader](#). Fingerprints should have been registered as given in chapter 2.1.1.1.1. [How to Register Users' Fingerprints?](#) Mifare Reader Utility should display reader and port numbers.

**1** Open 'Mifare Reader Utility' and 'Configure' windows. Ensure App Keys are same in both.

**2** Click 'Update Reader' and close the window.

**3** Click 'OK' and then close CI window.

Note: Close the Mifare Reader Utility Window.

**2**

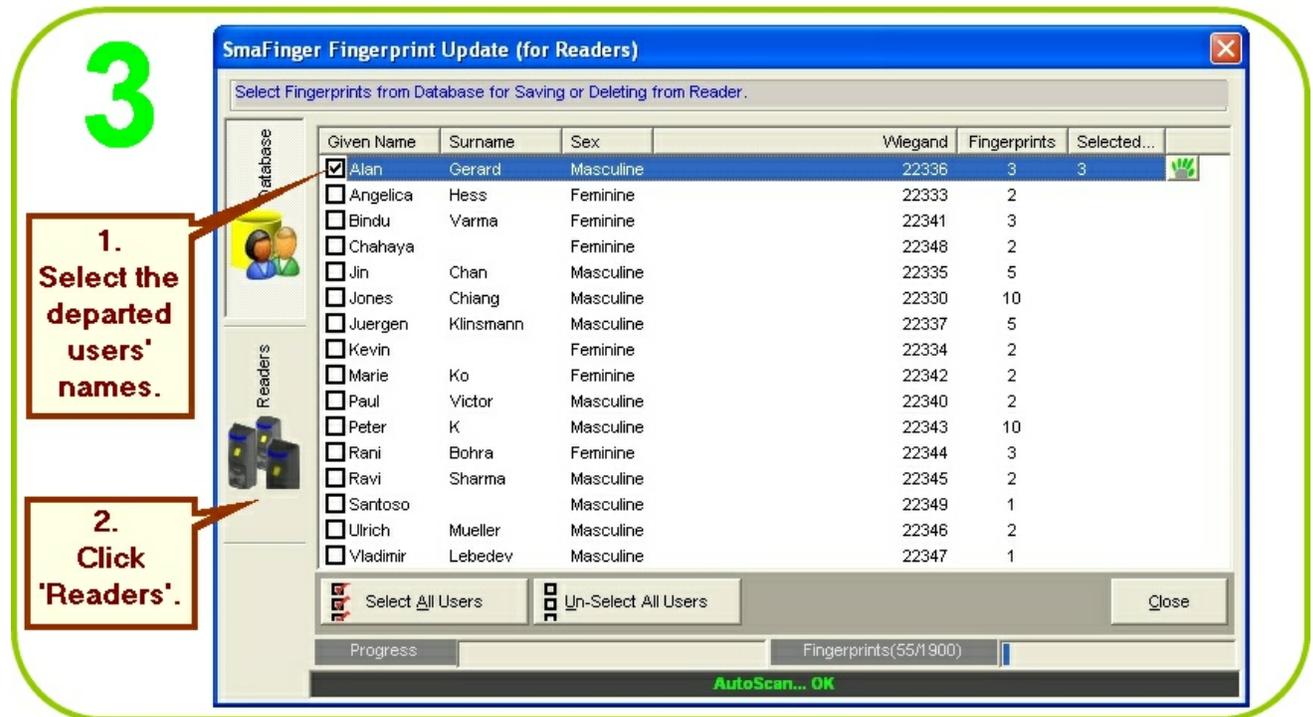
**1.** Open 'SmaFinger Navigate'.

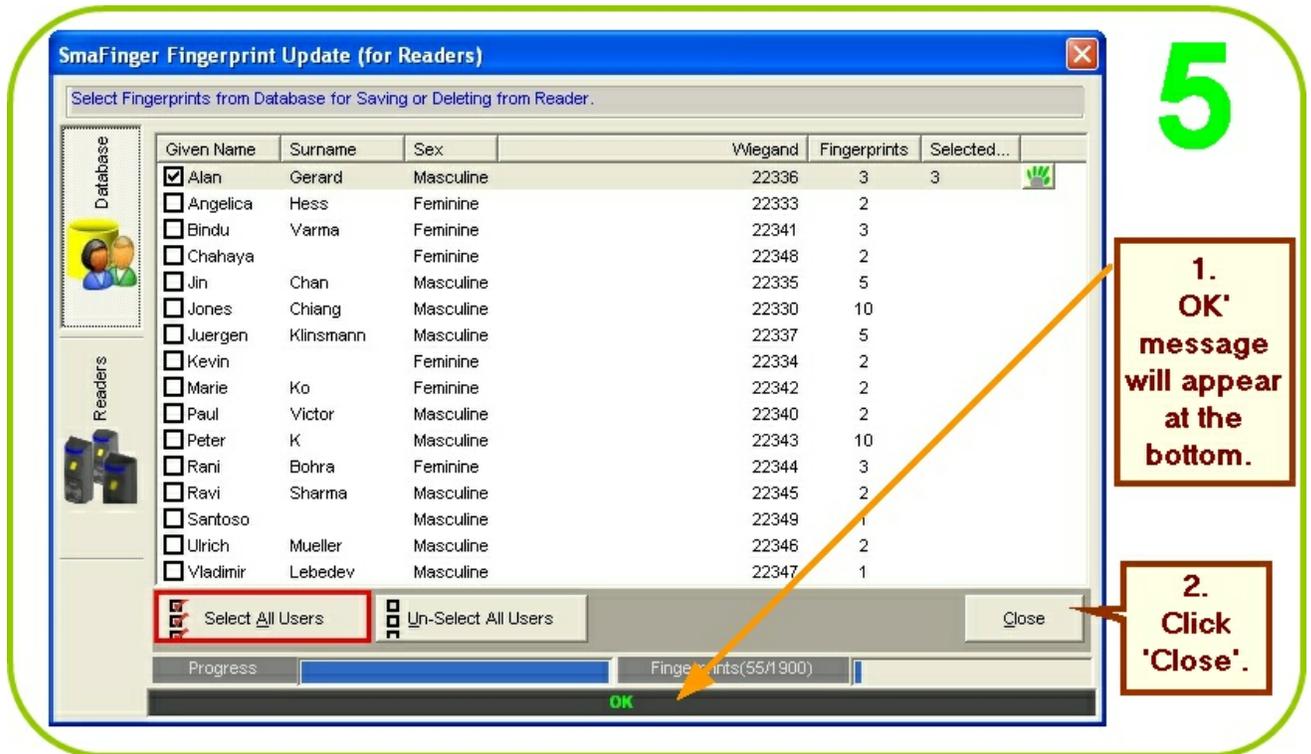
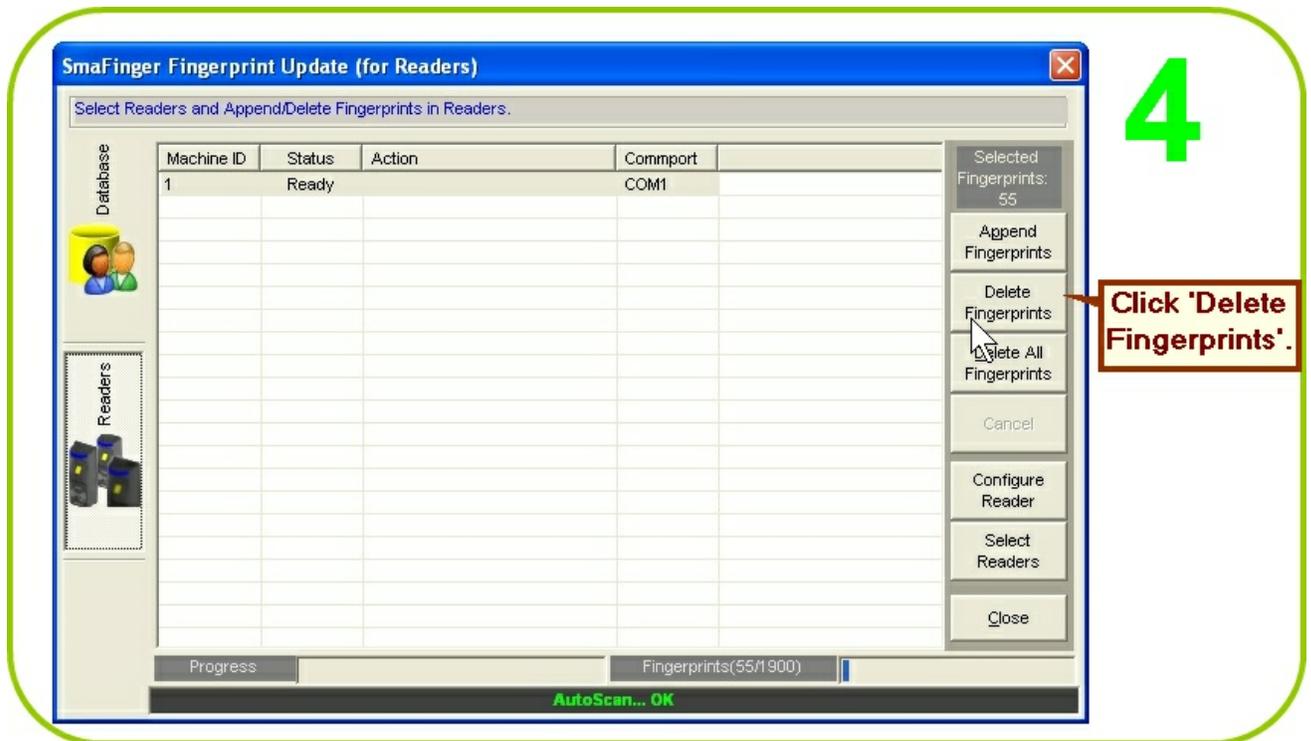
**2.** Click 'Configure Reader and Append/Delete Fingerprints'.

If instead of 'AutoScan...OK' or 'OK' message, 'AutoScan...NG' is displayed on the status bar at the bottom of

the window shown above, do the following:

- a. Ensure Reader SF6000 is connected to PC and powered up. Open Mifare Reader Utility window from **Start** menu. Click **Auto Scan** and see that port number is indicated on the blue top bar of the window. If '**No Match Reader...**' is displayed, disconnect and reconnect or change the reader to a different port. Click **Update Reader** . Then close the Mifare Reader Utility window.
- b. Close the **SmaFinger Fingerprint Update (for Readers)** containing the error message. Reopen from the SmaFinger Navigate, by clicking **Configure Reader and Append/Delete Fingerprints**. Now the '**OK**' message will be displayed. Then proceed to actions at step 3.





For test verification please see procedure in chapter 2.1.3 [SmaFinger on Service](#)

For window details please see chapter 3.10.3 [SmaFinger Fingerprint Update Window Details](#)

### 2.1.1.2 Access by Card

While registering fingerprints of users, on rare occasions, a user's fingerprint/s may not be registered. Some of the reasons for this are given in the following text:

"Fingerprints are unique to each finger of each individual and the ridge arrangement remains permanent during one's lifetime but an individual's age and occupation may cause some sensors difficulty in capturing a complete and accurate fingerprint image. There are some instances when an individual may not have characteristics that are of sufficient quality to enable enrollment in a biometric system. There are some instances when an individual may not be able to provide an image of sufficient quality to the biometric system. For instance, a fingerprint may not be rolled correctly or there may be dirt on the sensor. Individual disabilities may exist, such as lacking a finger. The probability of such instances is small in most application environments, although it is important to have a contingency plan when such failures to enroll occur."

Reproduced from: <http://www.biometriccatalog.org/NSTCSubcommittee>.

Installation and configuration of the reader should have been completed as illustrated in chapter 1.4 [Connection and Installation of Reader](#). Fingerprints should have been registered as given in chapter 2.1.1.1.1. Mifare Reader Utility should display reader and port numbers.

**1**

**A user's (Dany Teng) fingerprint has failed to register. So an identity card without fingerprint is to be issued.**

Given Name	Surname	Sex	Wiegand	Fingerprints
Alan	Gerard	Masculine	22336	3
Angelica	Hess	Feminine	22333	2
Bindu	Varma	Feminine	22341	3
Chahaya		Feminine	22348	2
Dany	Teng	Masculine	22350	0
Jin	Chan	Masculine	22335	5
Jones	Chiang	Masculine	22330	10
Juergen			22337	5
Kevin			22334	2
Marie			22342	2
Paul			22340	2
Peter			22343	10
Rani			22344	3

**Register Finger**

No fingerprint in this user

**Feedback**

**PUT your finger**

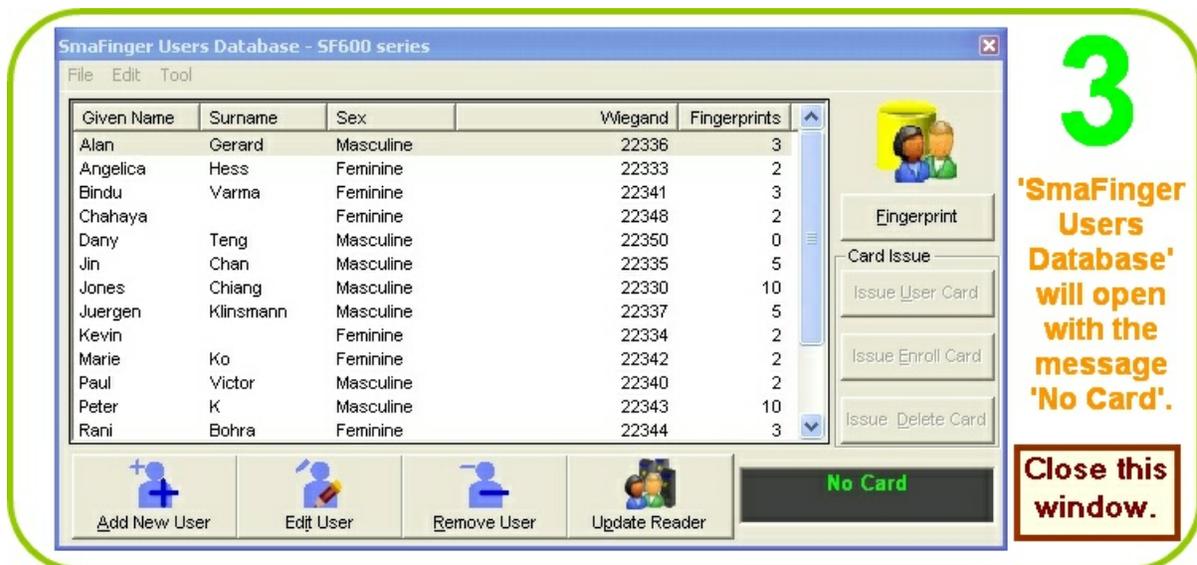
Enroll Finger  
Put finger

Cancel

**If these window are open, close them.**



Note: If the SmaFinger Users Database opens with the message 'Port is closed please press Key Search' and on moving the cursor over the right side menu of the window you see the message 'Can't Find PCR310U', close the window and click 'Search PCR310U' on the SmaFinger Card Issuer window. If you again get the message: 'Can't Find PCR310U' remove and reconnect PCR310U or change the USB port to which it is connected and search again. The port number of Card Issuer PCR310 should be indicated. Next click **Database**.



Note: 'No Card Message' can be seen by moving the cursor over the right side menu of the window.

4

**1.**  
Insert a Mifare Card in the cradle of Card Issuer PCR310U. Its second green lamp will glow.

**2.**  
Card sector blocks will appear on the window.

**3.**  
Click 'User Card.'

5

**Click 'Yes'.**

**6**

**1. Select 'Wiegand' (for example)**

**2. Select 0 for system code, 8 for site code and 16 for serial number.**

**3. Enter site code and serial number.**

**4. Enter name and gender.**

**5. Select 'Card Only'**

**6. Click 'Write Card'.**

**7**

**'Write OK' message will appear.**

**Close the window and remove the card from Card Issuer PCR310U**

For test verification please see procedure in chapter 2.1.3 [SmaFinger on Service](#)

For connecting the reader to controller please go to 2.4 [Connecting to Controller](#)

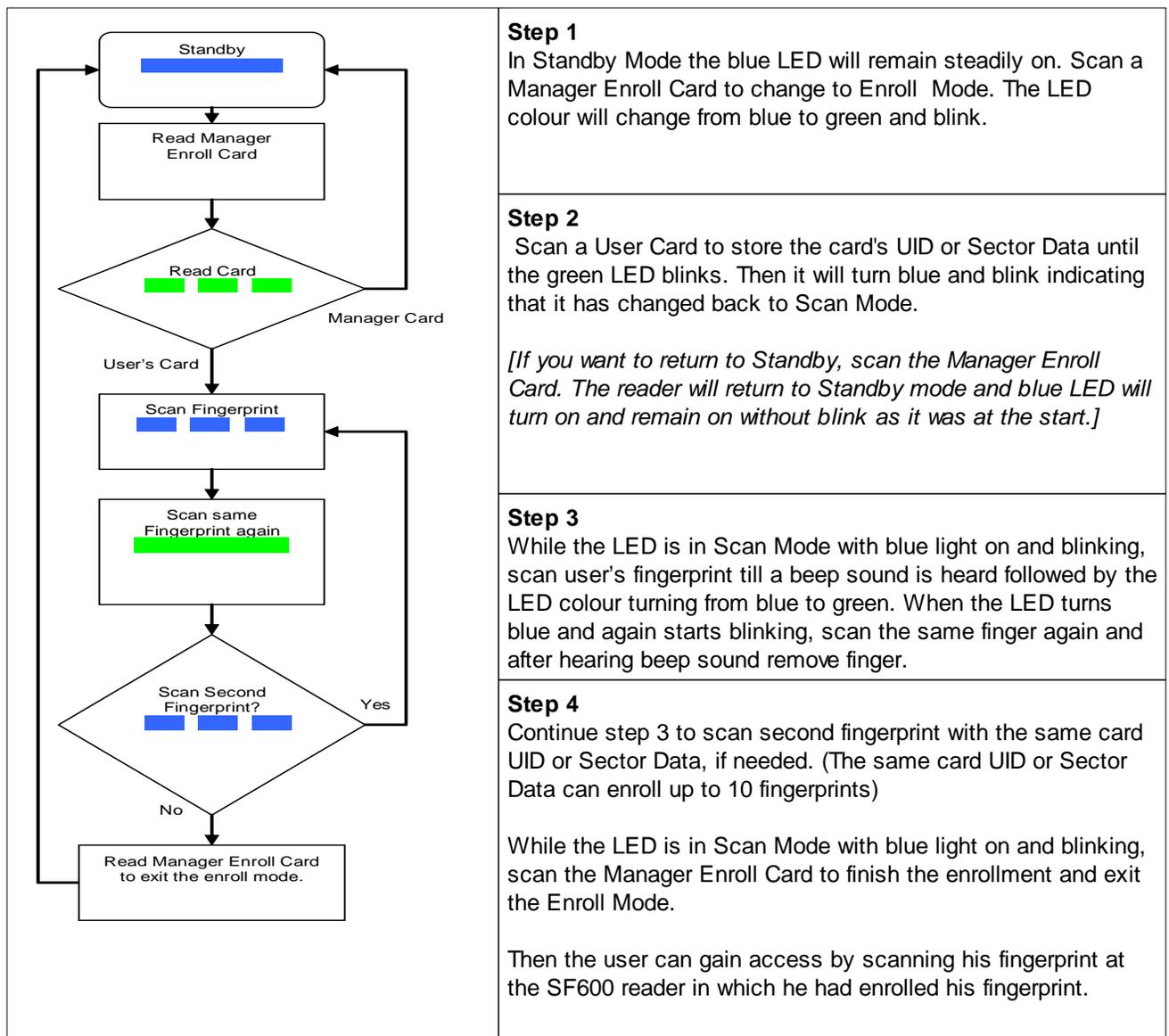
## 2.1.2 Offline System

Only the reader is necessary in this system. Manager Enroll Card and Manager Delete Card supplied by **Giga-Tms** along with User Cards are required. Once registered user can gain access by scanning their fingerprint or card. On the rare occasions when the reader fails to capture a user's fingerprint, a card with randomly generated RFID code can be issued.

The reader should have been mounted and connected as per the connection details in chapter 3.10.2 [Secure Mounting Installation](#) and chapter 2.4 [Connecting to Controller](#)

### 2.1.2.1 Access by Fingerprint

User's fingerprints are stored in the reader and each user can register up to 10 fingerprints. Once registered, the user can gain access by scanning any of the fingers that were registered.



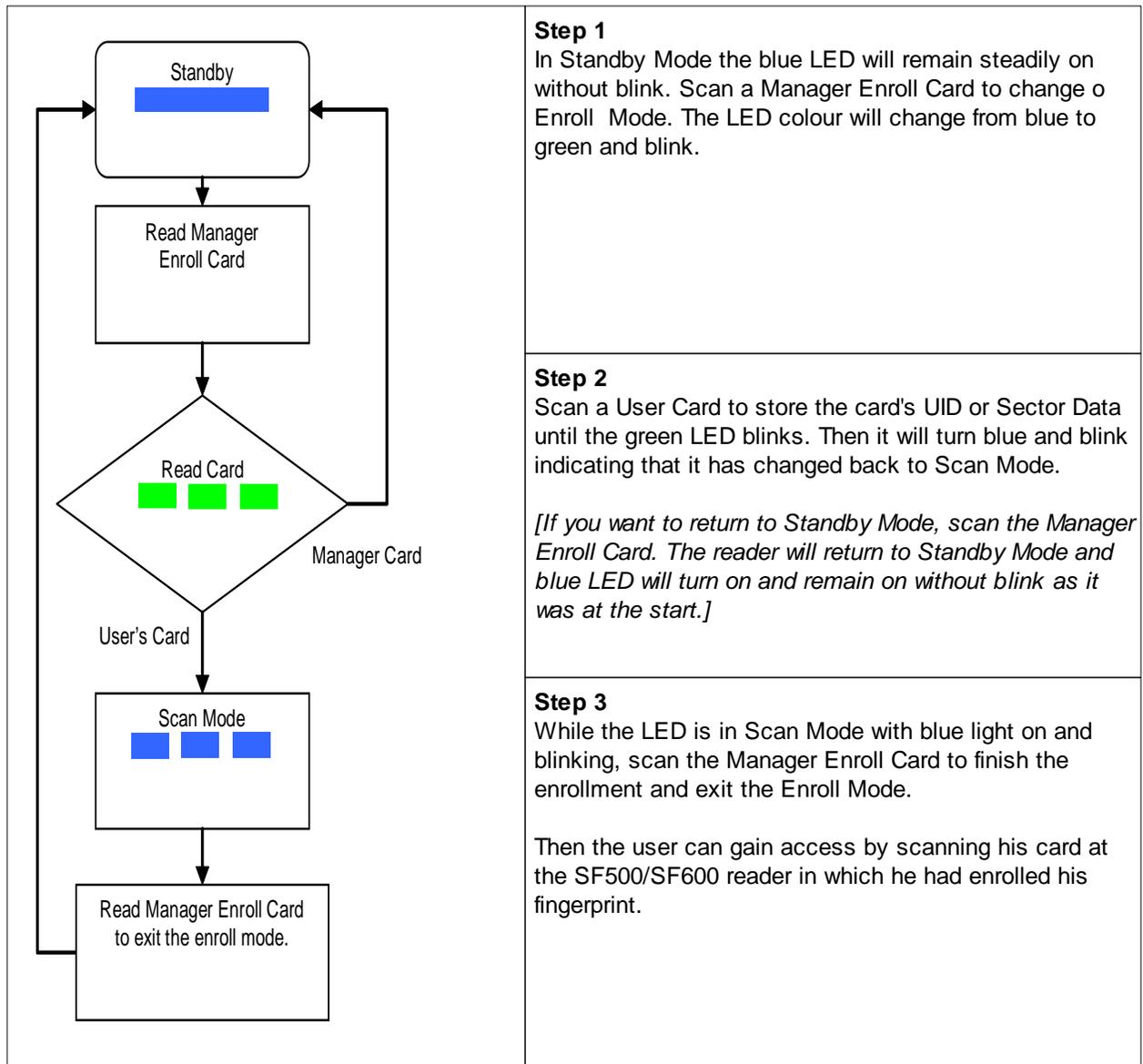
**Note:**

1. Warning: Keep the User Card and do not lose it as otherwise you cannot delete user from the reader.
2. For multi-user, please use the Multi-User Card to create serial number automatically.

For test verification please see procedure in chapter 2.1.3 [SmaFinger on Service](#)

## 2.1.2.2 Access by Card

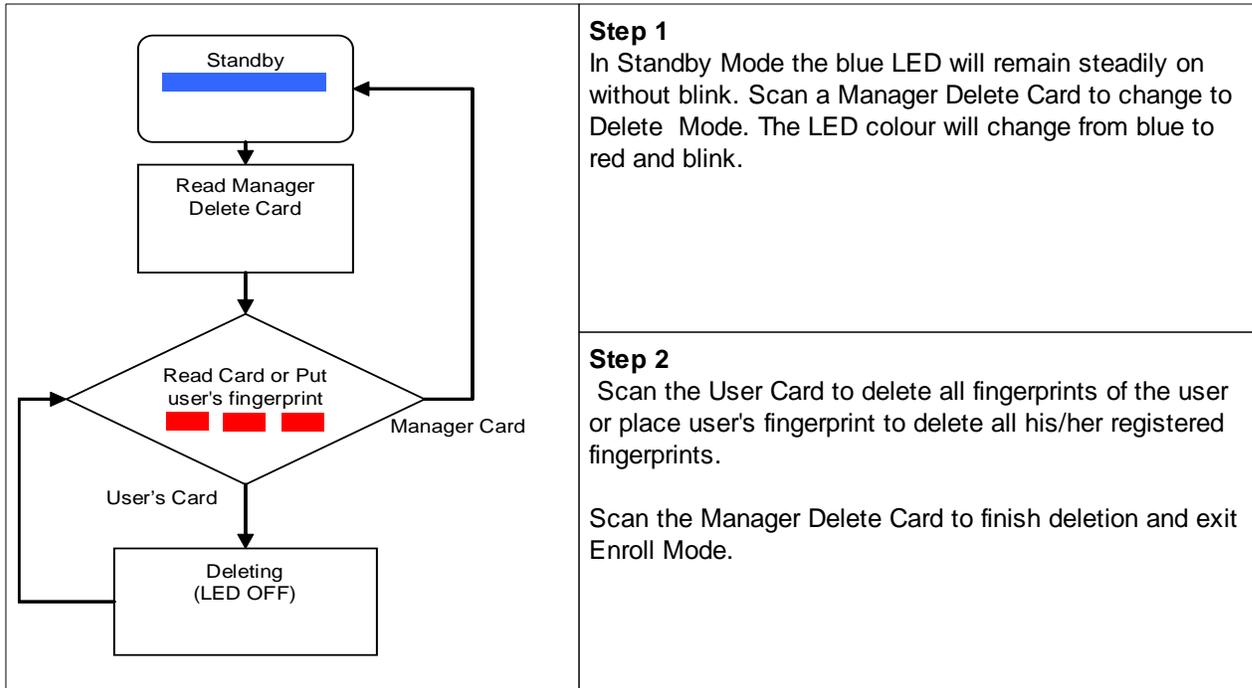
Card data is stored in the reader. Access is gained by cards only.



For test verification please see procedure in chapter 2.1.3 [SmaFinger on Service](#)

### 2.1.2.3 Deletion

Fingerprint and card data can be deleted from the reader in this mode.



For test verification please see procedure in chapter 2.1.3 [SmaFinger on Service](#)

For connecting to controller please go to chapter 2.4 [Connecting to Controller](#)

### 2.1.3 SmaFinger on Service

After registering and saving a fingerprint or issuing a card a test verification can be done by scanning the fingerprint or card at the reader. (Controller's action can be seen only when the reader is connected to controller.)

- If the fingerprint of user does not match with that in the database of the reader, its blue LED will go off with beeps and then come back to steady blue indicating standby mode. The reader will not pass access signal to the controller.
- When the fingerprint of the user matches with the reader database, blue LED will turn off and green LED will turn on. Access signal will be passed to controller.
- If a card is presented by a user the reader will scan the card data and compare it with its database. Same as above, access signal will be passed if it finds match with its database, otherwise not.

## 2.2 Operation without Database

This facility is provided for countries where maintaining fingerprint database by private organizations may have been disallowed. The fingerprints are not stored in host PC or reader's database but on a User Card and the same is issued to the user. The user gains access by scanning the card in his possession along with his/her fingerprint. The reader enables access if the user's fingerprint matches with that on the user's card.

This is available under the following two systems:

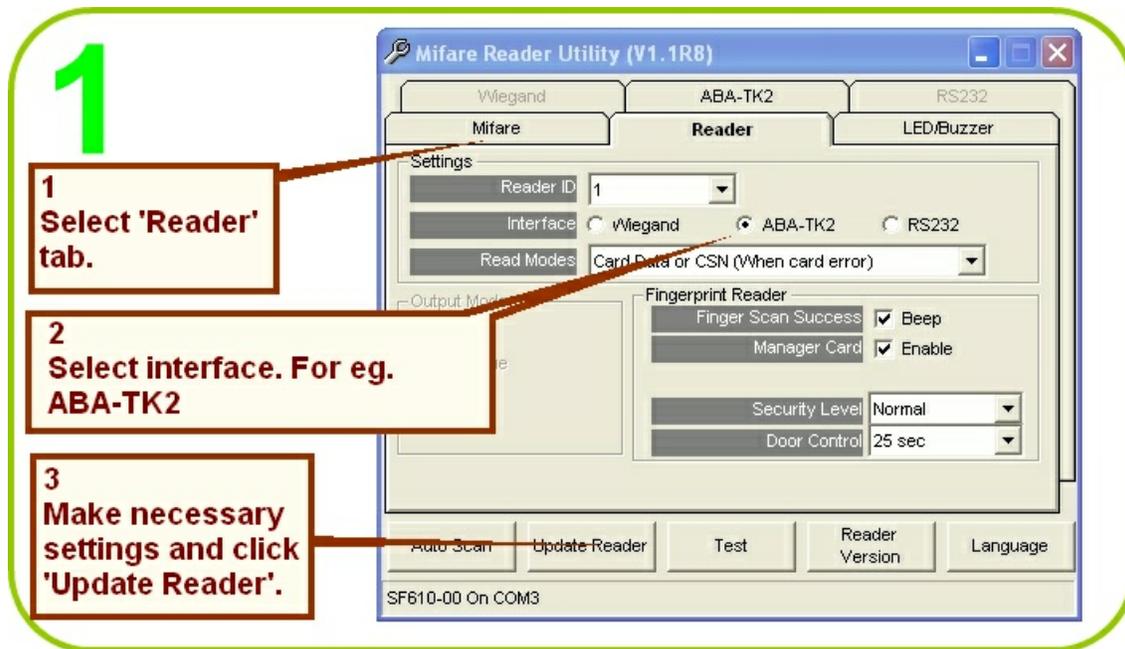
1. Online System
2. Offline System

### 2.2.1 Online System

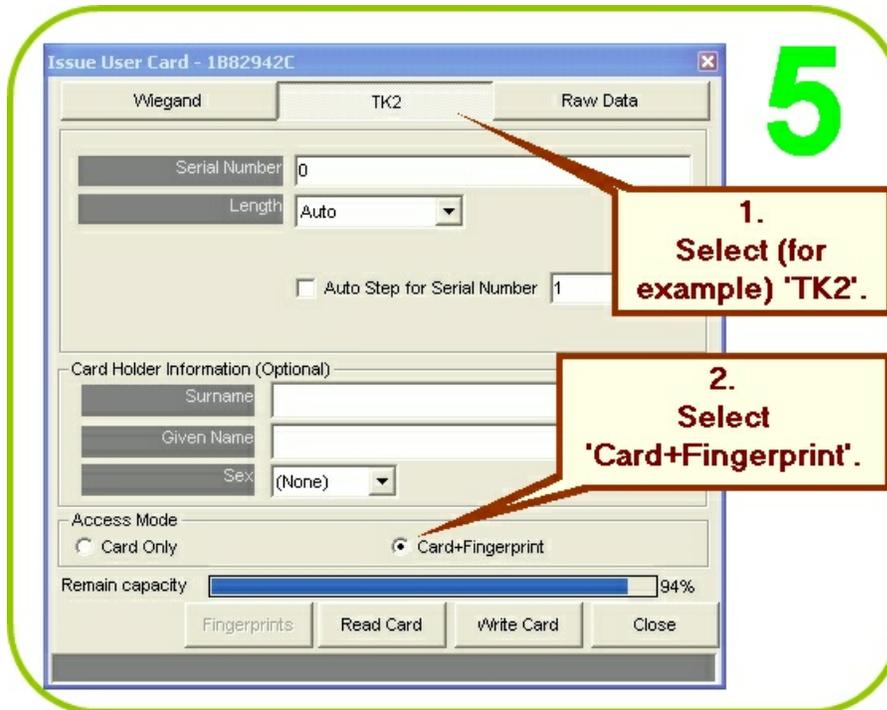
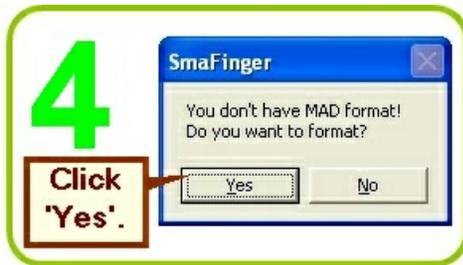
This integrated system consists of devices Card Issuer PCR310U, Programmer SF600P and Reader SF500/600. An Enroll Card bearing the fingerprint data of user is generated to transfer the data to the reader located at entry point/terminal.

#### 2.2.1.1 Access by Card + Fingerprint

Proceed as follows after installation of Card Issuer PCR310U, Programmer SF600P and Reader SF500/600 as illustrated under chapter 1 [Installation](#)

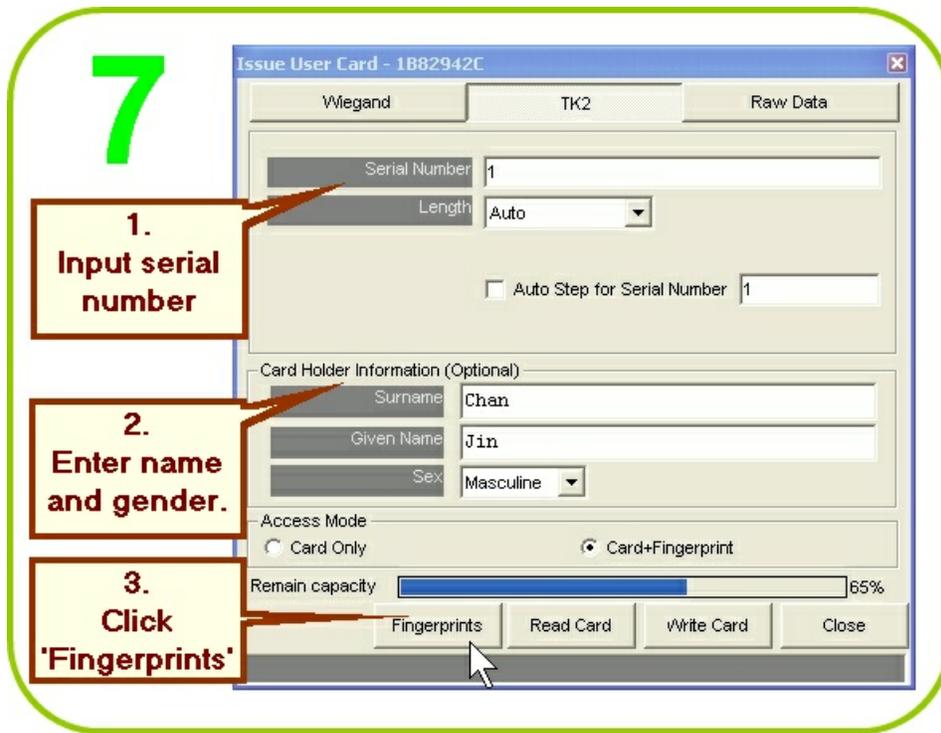




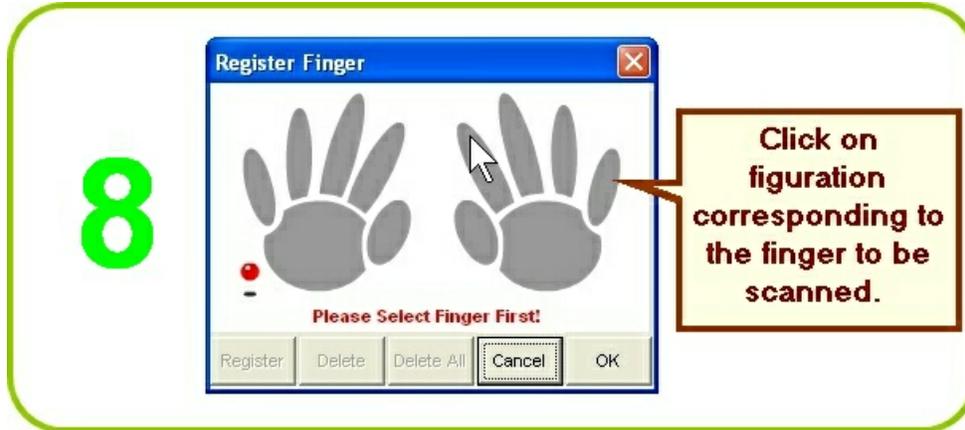


Additional information on interfaces at chapter 3.11.4 [Card Issuer Interface Window Details](#)





Note: 1K Mifare Card can take prints of up to two fingers and 4k can take that of up to four fingers.



**10**

**'Put your finger' message appears...**

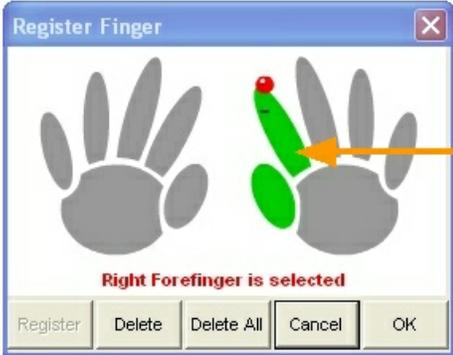
**Instruct card holder to place his/her finger on the scanner of SF600 P.**

**First a 'Verify Finger' prompt will appear, followed by message 'Scanned good image'.**



**11**

**Registered figurations will turn green.**



**1.**  
To register other fingerprints repeat steps 8 to 11. You can register up to 2 fingerprints in Mifare 1K card and 4 fingerprints in Mifare 4K card.

**2.**  
Then click 'OK'.

If due to some reason fingerprint is not registered then a card without fingerprint can be issued. Please refer chapter 2.1.1.2 [Access by Card](#)

**12**

1. 'Write with Fingerprint!' message will appear.

2. Click 'Write Card'.

**13**

'Write OK' message will appear.

Click 'Close' and remove the card from PCR310U. To issue cards to others repeat steps 3 to 13.

For test verification please see procedure in chapter 2.3 [SmaFinger on Service](#)

For connecting to controller please go to chapter 2.4 [Connecting to Controller](#)

## 2.2.1.2 Deletion of Card + Fingerprint Card

In Card + Fingerprint Mode the fingerprint of the user is stored on the card and handed over to the user. Therefore unlike in Finger Only Mode Offline/Online systems, in C+F Online/Offline systems the user's records are not there in the reader to be deleted. So, to delete the C+F card it is necessary to collect back the issued card and delete its data when the user is not authorised to use it anymore such as in the eventuality of an employee's dismissal or resignation or expiry of validity. The deletion of data stored on a C+F card can be done by using the reformatting facility of either of the following two programs:

1. SmaFinger Card Issuer Program
2. SF Formater

### 2.2.1.2.1 C+F Card Deletion by CI Program

The Card Issuer PCR310U should have been connected and installed as illustrated in chapter 1.2 [Connection & Installation of Card Issuer](#)

The screenshot shows the SmaFinger Card Issuer software interface. A large green number '1' is positioned to the left of the window. Three callout boxes with red borders and white text provide instructions:

- 1** Insert the C+F card to be deleted into the cradle of PCR310U.
- 2** Card details will be displayed.
- 3** Click Format.

The software window displays the following information:

Card SN	Class	Type	Level	Status
2A92A30A	MIFARE 1K	MAD1 Admin	R/W	App Sector Pass

Sector #1

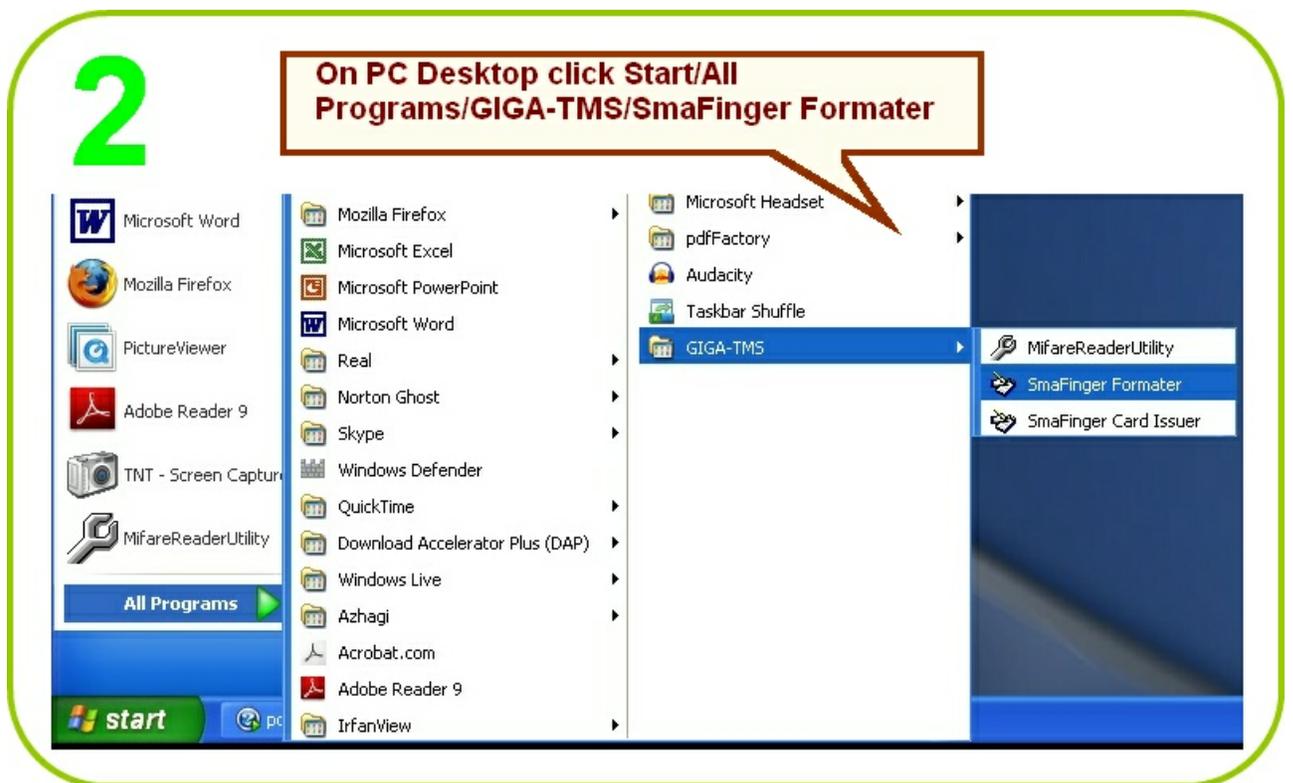
Block0	C20100054368616E00444A696E00826D	....Chan.DJin...m
Block1	00000000000000000000000000000000	.....
Block2	00000000000000000000000000000000	.....

Buttons on the right side of the interface include: Refresh List, Search PCR310, User Card, MAD Card, Format, Assignment, Remove AID, Database, and Configure. A 'Read OK!' status bar is visible at the bottom of the window.



### 2.2.1.2.2 C+F Card Deletion by SF Formater

SF Formater software should have been installed as illustrated in chapter 1.5 [Installation of SF Formater Software](#)



**1**  
SmaFinger Card Formater will open.

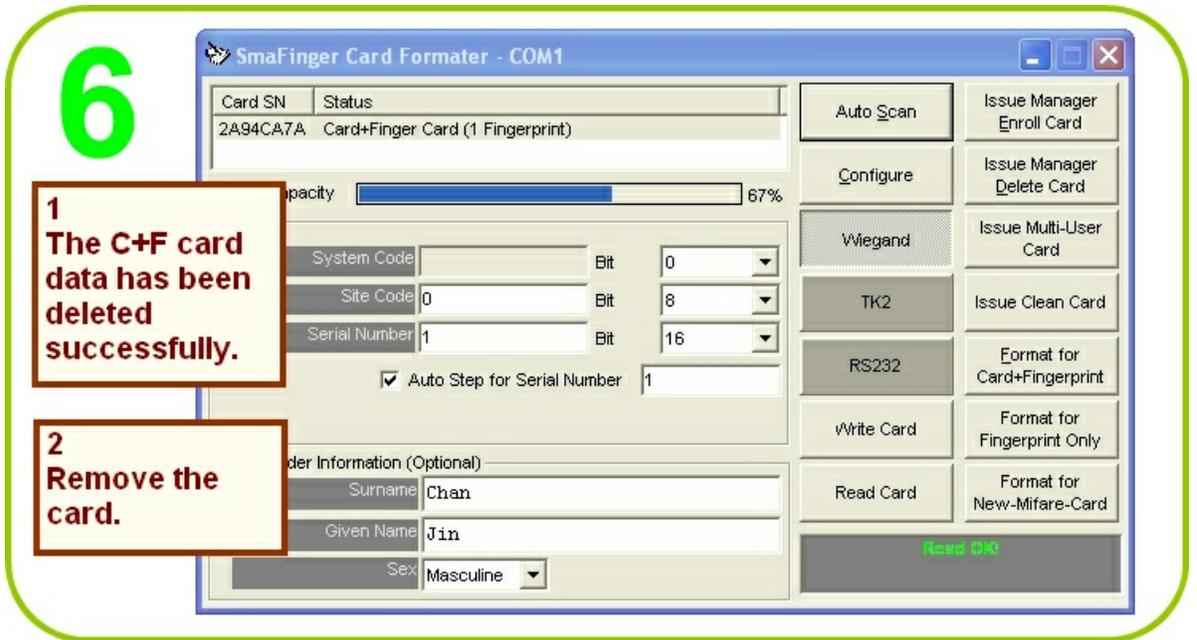
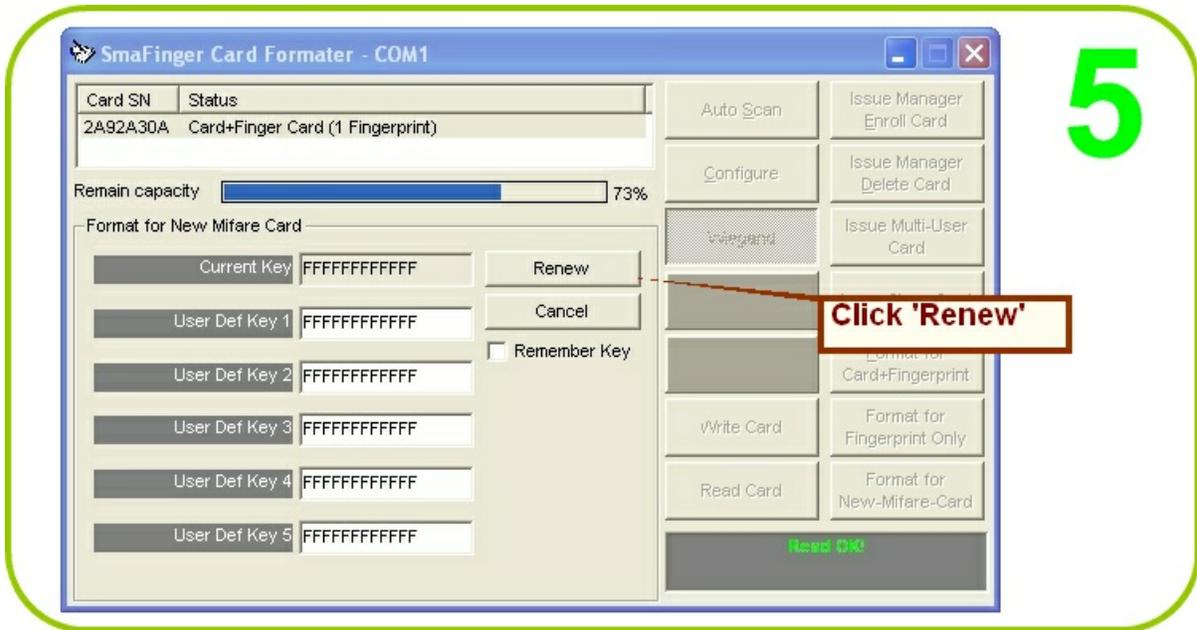
**2**  
Click 'Auto Scan'

**3**  
Comport number should be displayed.

**3**

**4**  
Click 'Format for Fingerprint Only'.

**4**



## 2.2.2 Offline System

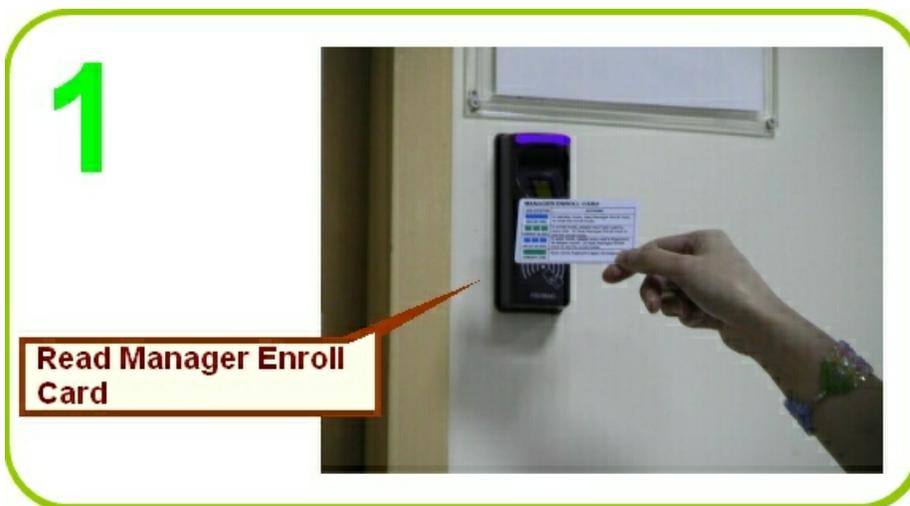
Only the reader is necessary in this system. Manager Enroll Card, Manager Delete Card and User Card-B supplied by **Giga Tms** are required.

User gains access by scanning both his card and fingerprint. The user's fingerprint is verified against that stored on the card and access is enabled if they match. If they don't match access will not be enabled. On the rare occasions when the reader fails to capture a user's fingerprint scan, a card with randomly generated code is issued to the user.

If cards not bearing SmaFinger data format are used only fingerprint is enrolled and verified.

### 2.2.2.1 Access by Card + Fingerprint Card

The reader should have been mounted and connected as illustrated in chapter 3.10.2 [Secure Mounting Installation](#) and chapter 2.3 [Connecting to Controller](#)



3

Reader's light will go off for a few seconds and then turn to blinking blue.



4

Scan finger till beep.



5

Scan finger again till the reader's light turn to green with a beep.



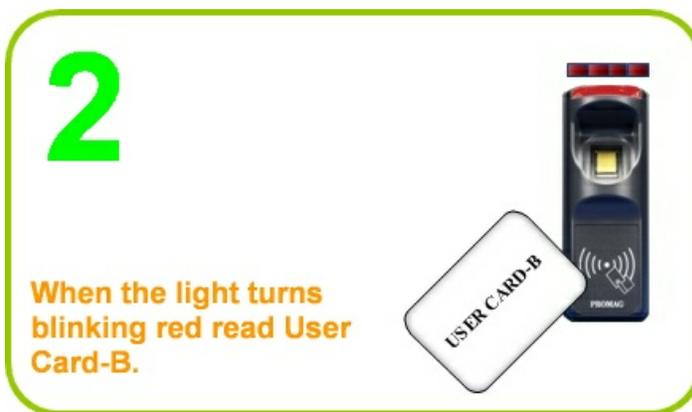


For test verification please see procedure in chapter 2.3 [SmaFinger on Service](#)

### 2.2.2.2 Deletion of Card + Fingerprint Card

In Card + Fingerprint Mode the fingerprint of the user is stored on the card that is handed over to the user. Therefore unlike in Finger Only Mode Offline/Online systems, in C+F Online/Offline systems the user's records are not there in the reader to be deleted. So, to delete the C+F card it is necessary to collect back the issued C+F card and delete its data when the user is not authorised to use it anymore such as in the eventuality of an employee's dismissal or resignation or expiry of validity. The deletion procedure is as follows:

The reader should have been mounted and connected as illustrated in chapter 3.10.2 [Secure Mounting Installation](#) and chapter 2.4 [Connecting to Controller](#)



# 3

The light will turn from blinking red to blinking green. Read the same card again while the green light is still blinking.



# 4

With a beep the light will turn to steady green indicating successful deletion of the user's records from the card.



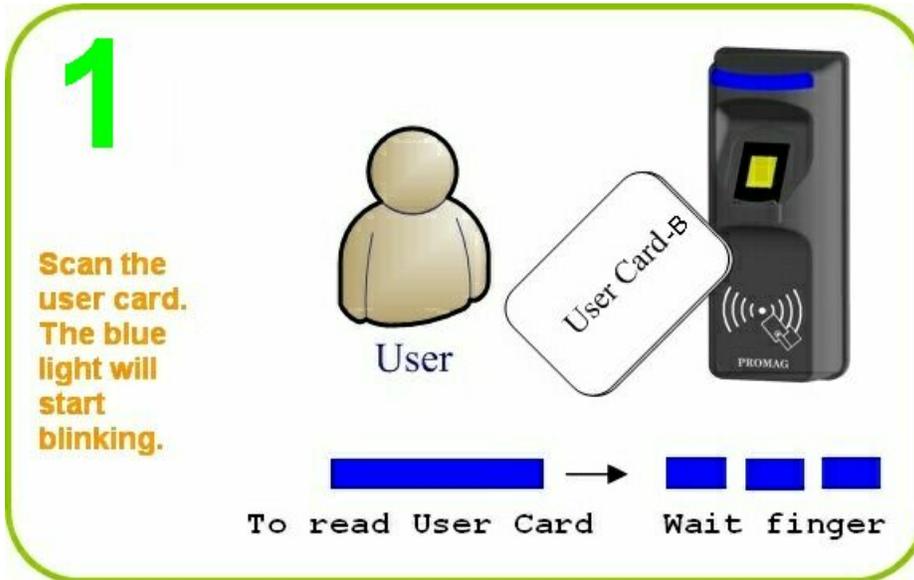
# 5

The light will return to steady blue indicating standby mode and readiness for next user's card reading or deletion.



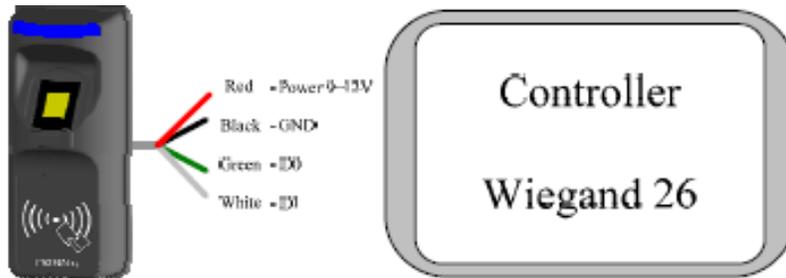
For test verification please see procedure in chapter 2.3 [SmaFinger on Service](#)

## 2.3 SmaFinger on Service



## 2.4 Connecting to Controller

Connect the Reader SF501/601/610 to Controller according to the following chart.



	Red	Yellow	Blue	Green	White	Black	Orange	Brown
Wiegand	Vcc	X	X	D0	D1	GND	GND	X
ABA/TK2	Vcc	X	X	Clock	Data	GND	CP	X
RS232	Vcc	Rx	Tx	X	X	GND	GND	X

**Part**



## 3 Appendix

This part contains chronicles of revisions, card issue and reader flow charts, order details, instructions for Reader Configuration and additional information on reader, programmer and card issuer displays and operations.

### 3.1 How to... (Linking Index)

	<ul style="list-style-type: none"> <li>• Standalone (for SF500/SF600 series) <ul style="list-style-type: none"> <li>○ <a href="#">How to store fingerprints into reader</a></li> <li>○ <a href="#">How to remove fingerprints from reader</a></li> <li>○ <a href="#">How to store fingerprints into card</a></li> <li>○ <a href="#">How to connect to door lock</a></li> <li>○ <a href="#">How to replace Manager Enroll/Delete Cards</a></li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• Reader Connection <ul style="list-style-type: none"> <li>○ <a href="#">How to connect to controller</a></li> <li>○ <a href="#">How to connect to door lock</a></li> <li>○ <a href="#">How to connect RS485 to multi-readers</a></li> <li>○ <a href="#">How to connect to PC with MF700KIT</a></li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• Manage the Fingerprints <ul style="list-style-type: none"> <li>○ <a href="#">How to register Fingerprints into PC(Database)</a></li> <li>○ <a href="#">How to create User Data (for Card, for Database)</a></li> <li>○ <a href="#">How to assign reader as programmer</a></li> <li>○ <a href="#">How to replace Manage Enroll/ Delete Cards</a></li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• Update Reader <ul style="list-style-type: none"> <li>○ <a href="#">How to save fingerprints into reader/multi-reader</a></li> <li>○ <a href="#">How to delete fingerprints from reader/multi-reader</a></li> <li>○ <a href="#">How to save fingerprints into card</a></li> <li>○ <a href="#">How to upgrade firmware of reader</a></li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• Configure Reader <ul style="list-style-type: none"> <li>○ <a href="#">How to connect to PC with MF700KIT</a></li> <li>○ <a href="#">How to configure reader settings</a> (ID, Interface, Mode, etc.)</li> <li>○ <a href="#">How to configure Mifare settings</a> (AID, Keys, Encrypt, etc.)</li> <li>○ <a href="#">How to configure LED and Buzzer</a> (Control, Indicator, etc.)</li> <li>○ <a href="#">How to configure Interface Settings</a> (<a href="#">Wiegand</a>, <a href="#">ABA-TK2</a>, <a href="#">RS232</a>)</li> </ul> </li> </ul>

## 3.2 Reader Chronicle

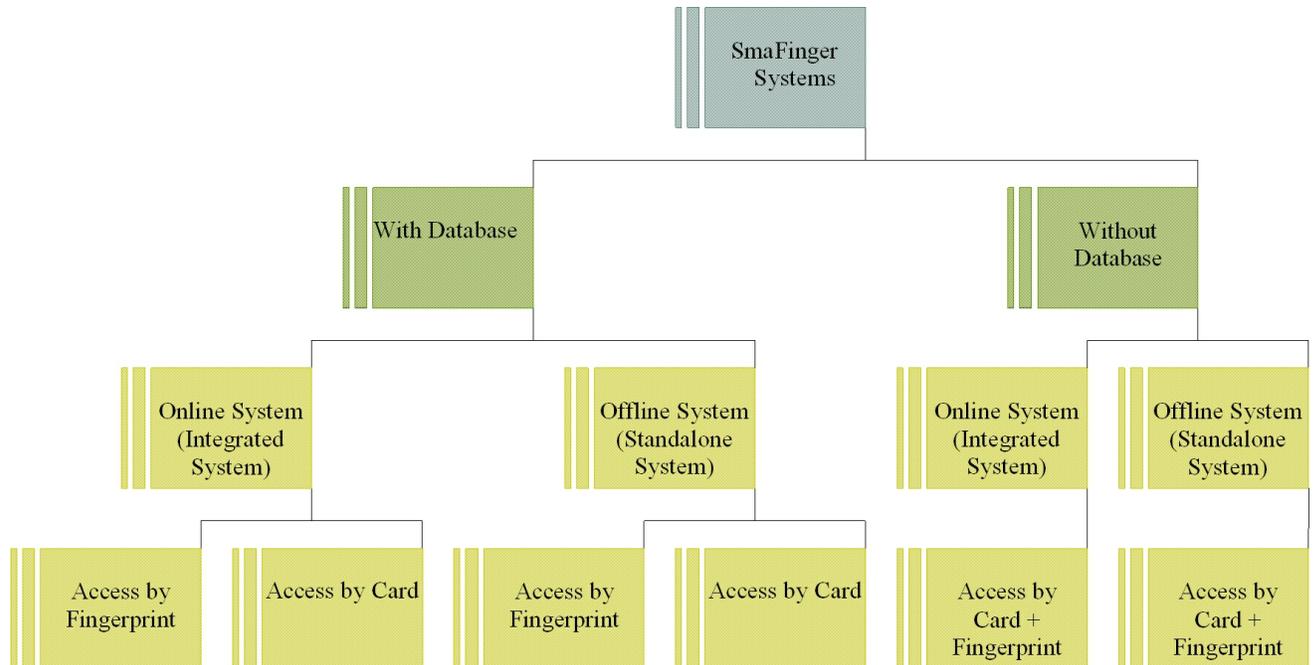
Revision	Date of Revision	Details of Revision
A	27 November 2006	Initial SmaFinger Configurable Sector Reader
B	1 February 2007	RS232 Command Set Control Enabled: (For 38400,n,8,1 Only). Fix baud rate from 19200 to 38400. Security Level added for SF600, Blue LED Configurable
C	13 February 2007	Dimension Update
D	11 May 2007	Offline Func Added ABA-TK2 "Data Conversion"-"Byte to DEC" added RS232 Default settings Change Read Modes-"Card Data or CSN", "CSN Only" added
E	25 July 2007	Door Control for SF610,SF601
F	28 January 2008	TK2 code length up to 48

## 3.3 Card Issuer Chronicle

Revision	Date of Revision	Details of Revision
A	12 October 2006	Initial SmaFinger Card Issuer
B	5 February 2007	Support 4 fingerprint templates in 4k Card
C	23 April 2007	Two Process Samples for Quick Start
D	26 July 2007	Multi Device Update
F	2 October 2007	Add 'Append Finger' and 'Delete Finger'.
G	28 January 2008	TK2 code length up to 48
H	21 May 2008	Modify User Interface for User Friendliness.

## 3.4 Overview of SmaFinger System Operating Modes

### *SmaFinger System Modes*



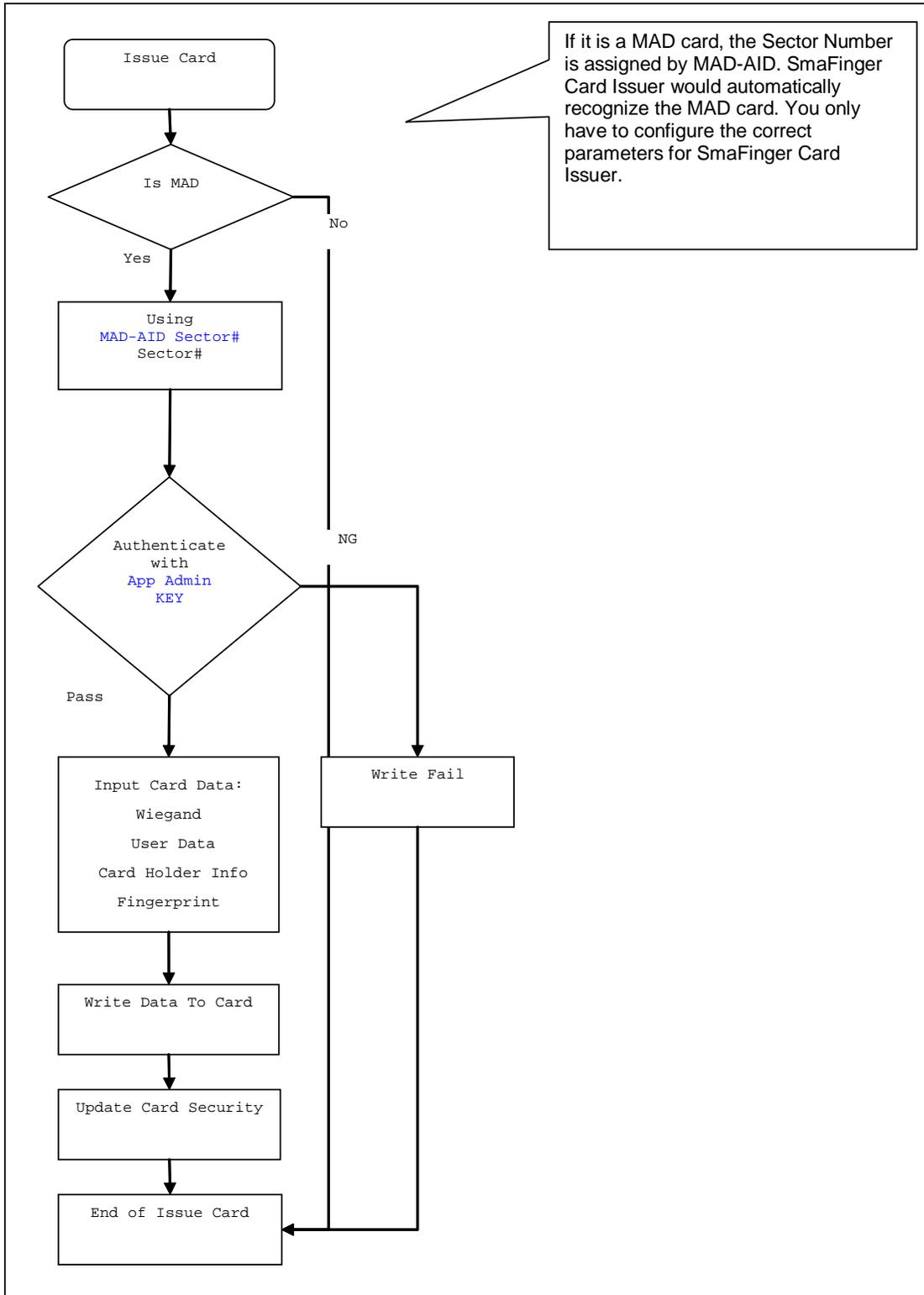
Mode	Description
With Database	Fingerprint data are stored in reader database for verification.
Without Database	Users' fingerprint are not stored in PC or reader but on User Card for verification.
Integrated System	Card issuer, programmer and reader are used with PC. Data transfer to reader can be done online and also offline through a card generated by the system.
Standalone System	Only the reader is necessary. Manager Enroll Card and Manager Delete Card supplied by <b>Giga-Tms</b> along with User Cards are required.
Access by Fingerprint	User gains access by scanning fingers at the reader.
Access by Card	User gains access by scanning card at the reader.
Access by Fingerprint + Card	User gains access by scanning both card and finger.

## 3.5 Features of SmaFinger Series

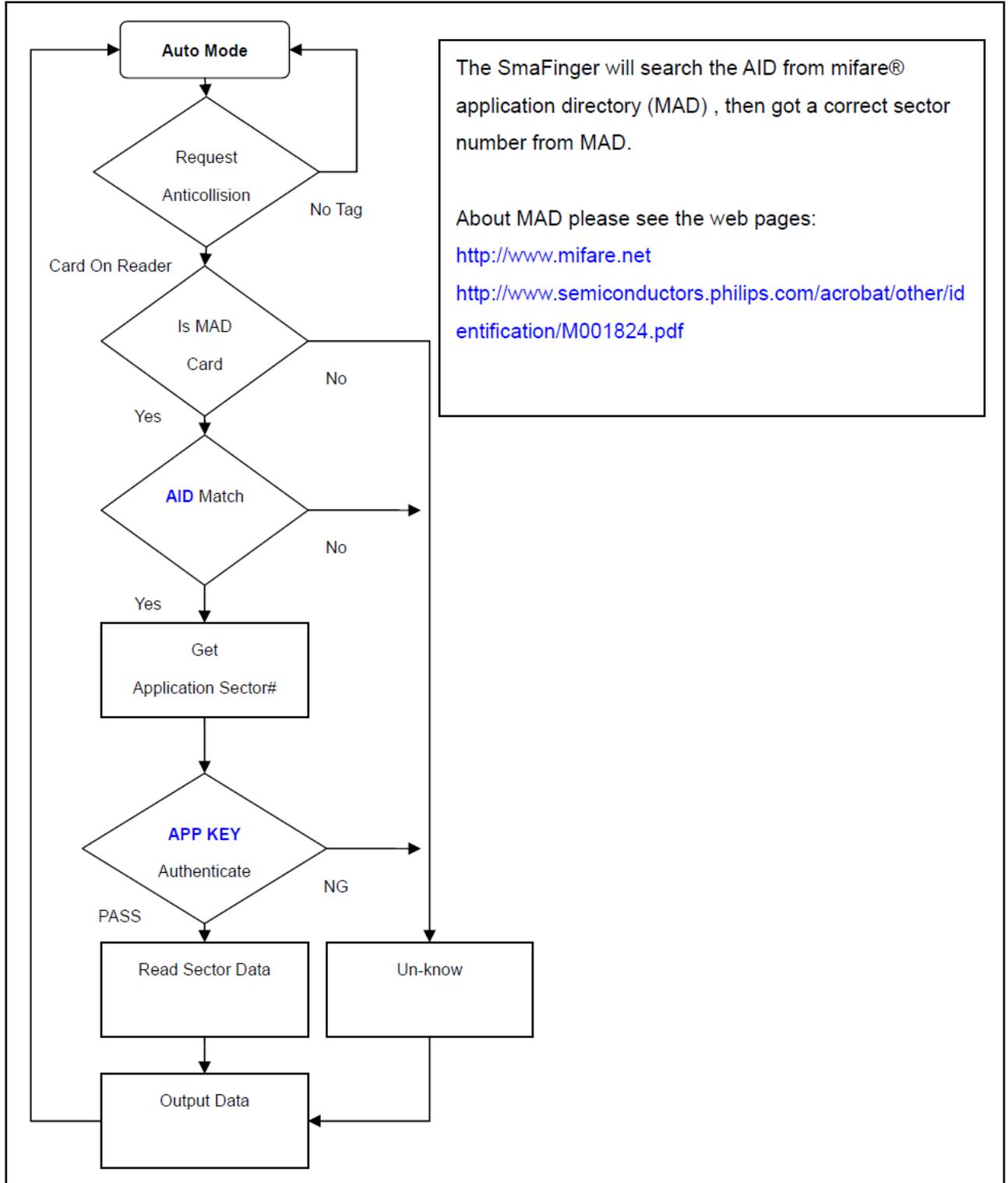
Product	Description	Card + Fingerprint (for 1:1)	Modulation
SF500-00	Online mode enrollment	Support & Unlimited	Mifare
SF500-10	Offline C+F Card issuing by Kit CRD 500		Mifare
SF500SK	Start Kit		Mifare
SF510	Offline C+F Card issuing by Kit CRD 500	Support & Unlimited	Mifare
SF600	13.56MHz		Mifare
SF600-00	Online mode enrollment	Support & Unlimited	Mifare
SF600-10	Offline C+F Card issuing by Kit CRD 500		Mifare
SF600SK	Start Kit		Mifare
SF610	Offline C+F Card issuing by Kit CRD 500	Support & Unlimited	Mifare
SF601EM-00	Online/Offline mode enrollment		EM
SF601-HID	Online/Offline mode enrollment		HID
SF601-MF	Online/Offline mode enrollment		Mifare/Felica

Note: Online programming is by Start Kit. For more details refer 'SmaFinger Buyer Guidance', **Giga-Tms**.

## 3.6 Card Issue Flow Chart



## 3.7 Reader Flow Chart



## 3.8 Order Information

### ORDER INFORMATION FOR SF510

Part Number	Item	Quantity	Description
SF510-00	SF510 Reader	1	SmaFinger Mifare Sector Reader
	KIT-CRD-500	1	Offline Programming Kit
KIT-CRD-500	Manager Enroll Card	1	Mifare <sup>®</sup> 1K Card
	Manager Delete Card	1	Mifare <sup>®</sup> 1K Card
	User Card	3	Mifare <sup>®</sup> 1K Card

### ORDER INFORMATION FOR SF610

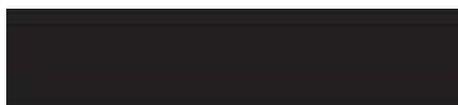
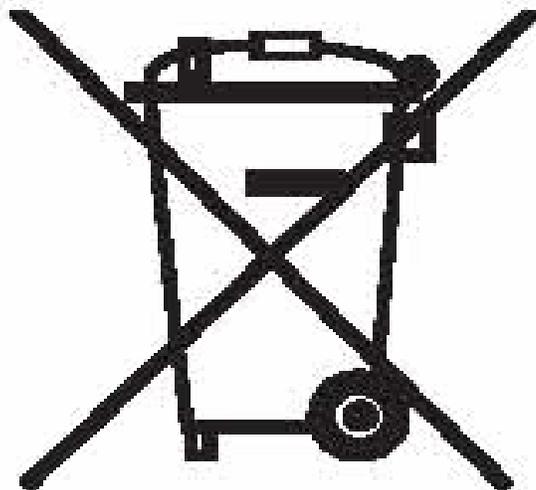
Part Number	Item	Quantity	Description
SF610-00	SF610 Reader	1	SmaFinger Mifare Sector Reader
	KIT-CRD-600	1	Offline Programming Kit
KIT-CRD-600	Manager Enroll Card	1	Mifare <sup>©</sup> 1K Card
	Manager Delete Card	1	Mifare <sup>©</sup> 1K Card
	User Card - A	1	Mifare <sup>©</sup> 1K Card
	User Card - B	1	Mifare <sup>©</sup> 1K Card

Part Number	Item	Quantity	Description
	User Card - C	1	Mifare <sup>®</sup> 1K Card

### **ORDER INFORMATION FOR SF601**

Part Number	Item	Quantity	Description
SF601EM-00	SF601 Reader	1	SmaFinger 125KHz UID Reader
	KIT-CRD-601-EM 1	1	Offline Programming Kit
KIT-CRD-601-EM	Manager Enroll Card	1	EM 125KHz Card
	Manager Delete Card	1	EM 125KHz Card
	User Card - A	1	EM 125KHz Card
	User Card - B	1	EM 125KHz Card

## 3.9 Caution



The crossed out wheeled bin label that can be found on your product indicates that this product should not be disposed of via the normal household waste stream.

To prevent possible harm to the environment or human health please separate this product from other waste streams to ensure that it can be recycled in an environmentally sound manner. For more details on available collection facilities please contact your local government office or the retailer where you purchased this product.

This information only applies to customers in the European Union. For other countries, please contact your local government to investigate the possibility of recycling your product.

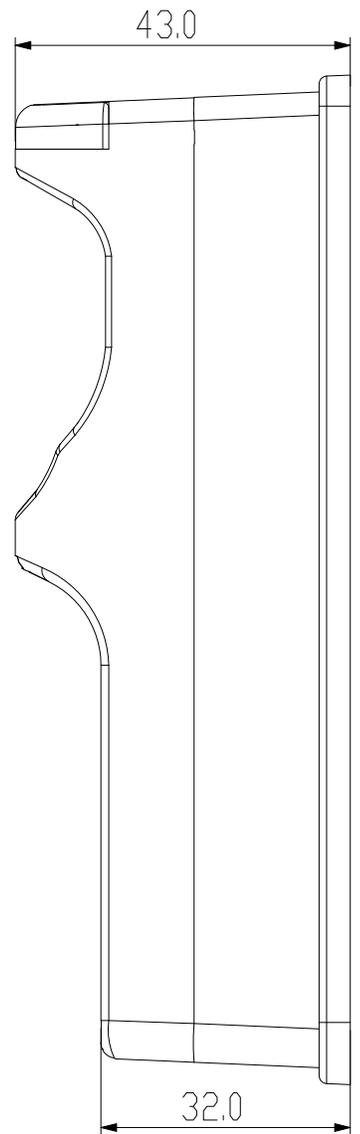
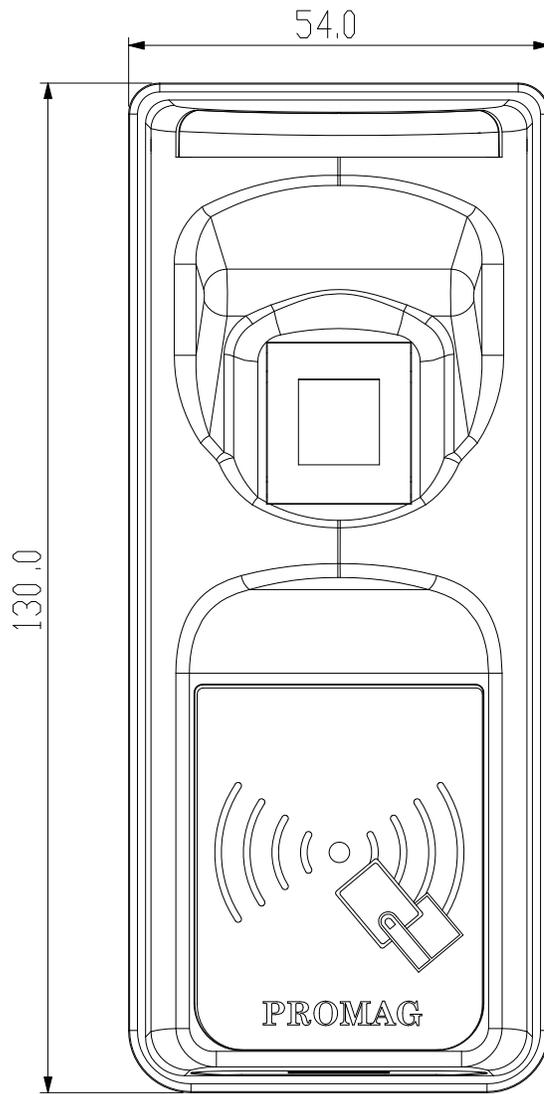
## 3.10 Reader

This contains specifications, mounting instructions and configuration settings of Reader SF600 and Mifare Reader Utility settings.

### 3.10.1 Hardware Specification

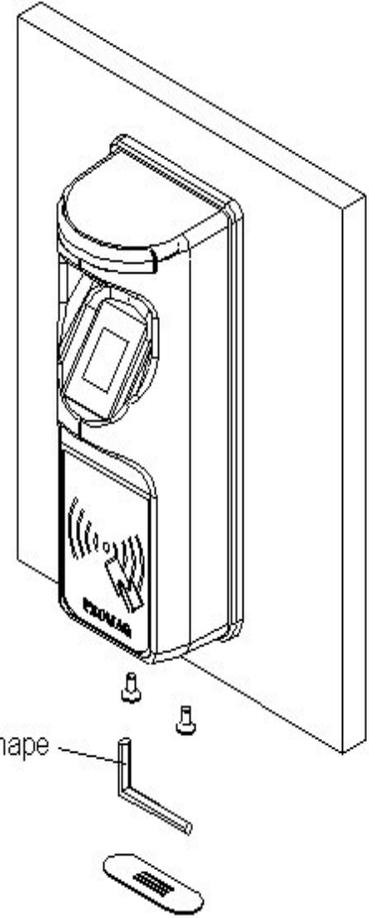
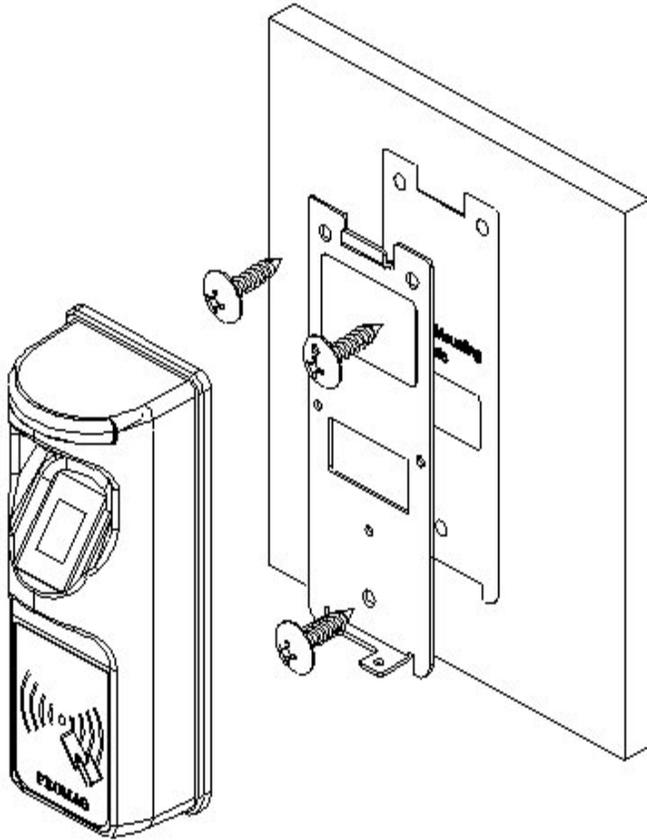
#### SF600/610/601 Specifications:

Application		Offline Fingerprint Reader
Fingerprint Only	Enroll Mode	RS232 or Enroll Card
	Fingerprint Capacity	1900
	Fingerprint Validation	1:N
	Performance	Friendly
Identification speed		<1 sec (1:1) <2 sec (1:N)
Interface		RS232 : 9600bps Wiegand: 26 bits ABA-TK2: 10 Digital Codes
Power Consumption		Max. 200mA @ DC12V
<b>Special instruction:</b> Available only for 100 user cards enrollment in "Card Only" mode		



### 3.10.2 Secure Mounting Installation

Attach the bottom plate label on the target position. Drill the holes to match the bottom plate then fix the SmaFinger reader.



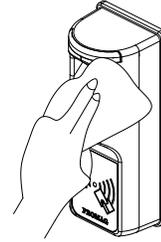
After fixing the SmaFinger reader with attached screws (using the L-shape spanner), apply the buzzer hole plate for completion.

**Caution:**

SmaFinger is not designed for outdoor usage. Avoid exposing to sunshine or rains.



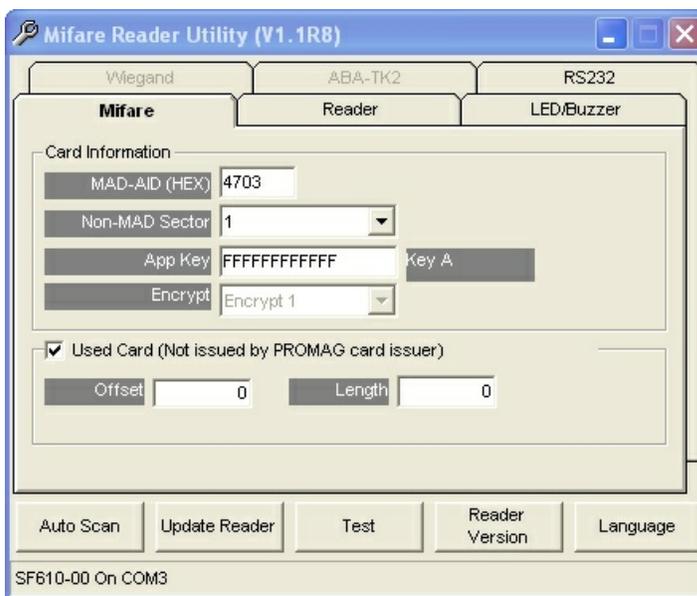
To keep SmaFinger in good working condition, it is recommended to have regular maintenance and physical cleaning of the reader.



### 3.10.3 Reader Configuration

Configuration settings of reader and interface are illustrated in this section. Multi-reader and door lock connections are also illustrated.

#### 3.10.3.1 Mifare Reader Utility Settings



#### **MAD - AID (Default 4703)**

MAD Application Identifier number is authorized and assigned by Mifare.net upon the customer's request for registered Application Identifier in a Mifare [registered trademark] application open system (AID: 000h~FFFFh).

Or it is also possible for the user to define the AID himself for the application in user defined closed system without registering into MAD group. According to the AID, SmaFinger can find and read the corresponding sector on the MAD card.

#### **App Key (KEY\_A): (Default=FFFFFFFFFFFF)**

SmaFinger and the card should have the same App Key (KEY\_A). If not, SmaFinger cannot read the sector data on the card.

**Encrypt: (Default=None)**

By default there is no encryption. But to protect your card you can select one of the five encrypts i.e. Encrypt 1, Encrypt 2, Encrypt 3, Encrypt 4, Encrypt 5 from the list.

The Mifare Card Issuer program also should have the same encrypt selection.

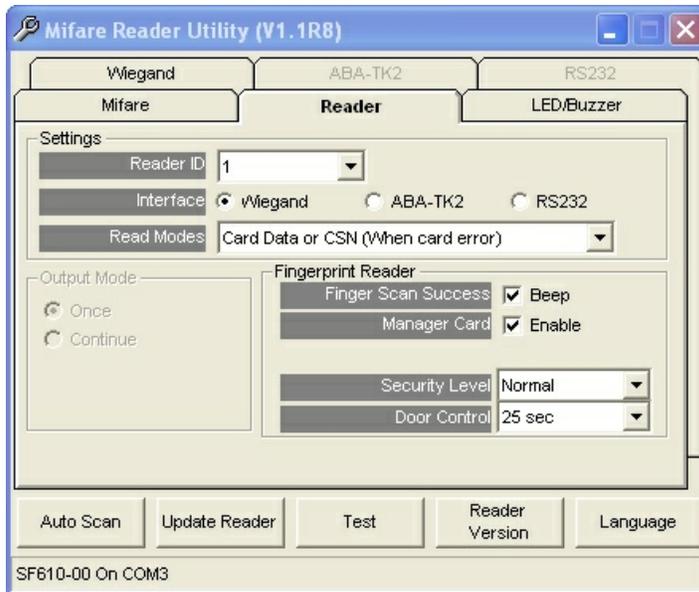
**Used Card (Not issued by "Mifare Card Issuer")**

You have to indicate the data position on the card when the card is not issued by "Mifare Card Issuer" software. And you must set the "Offset" (Max 255, and base from zero) from the beginning of sector and set your data "Length" (Max 128).

Example:

If your card data in the grey grid of sector, you have to set the "Offset" = 17, and set the "Length"= 20.

	AID Sector (or Non-MAD Sector)															
Block 0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Block 1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Block 2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47

**3.10.3.2 Reader Settings**

**Reader ID:** (Default=0)

SmaFinger reader device ID's (for multi link application) 0 to 99

**Interface:** (Default=Wiegand)

Output interface options are Wiegand, RS232 or ABA-TK2

Read Modes:

**Card Data Only** Reads card sector data only: If any error (eg. Mifare key error), reader will show "Card Invalid"

**Card Data or CSN** Read card sector data; When any error (eg. Mifare key error), reader will show "CSN".

**CSN Only:** Read card CSN only.

**Output Mode:** (Default=Once) Once: Send data to host once.

### Fingerprint Reader

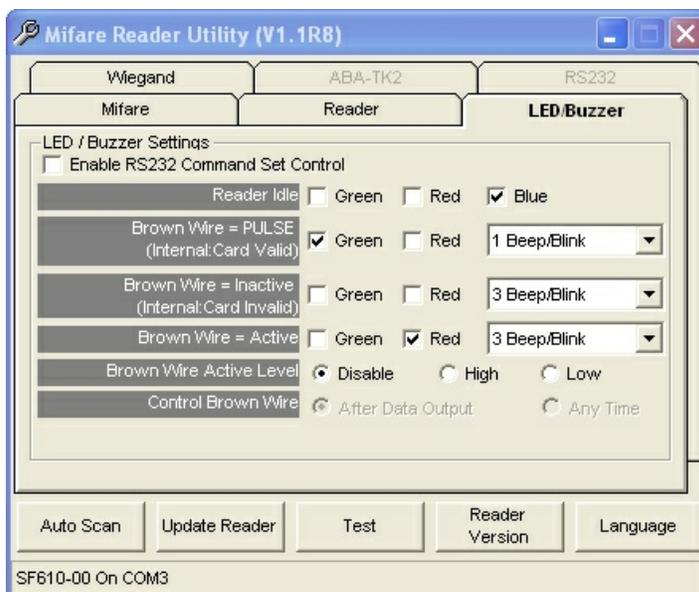
**Finger Scan Success:** To beep on successful finger scan check the box.

**Manager Card:** Enable/Disable this Offline function.

### SF600 Fingerprint Security Level for FAR (False Acceptance Ratio) **New!!**

Level	Verification (1:1)	Identification (1:N)			
		1~9	10~99	100~999	>=1000
Normal (Default)	1/10,000	1/10,000	1/100,000	1/1,000,000	1/10,000,000
Secure	1/100,000	1/100,000	1/1,000,000	1/10,000,000	1/100,000,000
More Secure	1/1,000,000	1/1,000,000	1/10,000,000	1/100,000,000	1/100,000,000

### 3.10.3.3 LED/Buzzer Settings



New SmaFinger supports LED/Alarm Configuration.

Enable RS232 Command Set Control: (For Baudrates 38400,n,8,1)

Note: If you Enable the RS232 Command Set Control (for LED/Buzzer), the external LED/Buzzer control with high/low level control will be disabled.

Set LED/Buzzer command frame as below:

STX	J	NUMBER (0~9)	CR
02h	4Ah	30h~39h	0Dh

Command Table:

NUMBER	Descriptions
0 (30h)	All LED Off, Buzzer Off
1 (31h)	Green LED ON
2 (32h)	Green LED OFF
3 (33h)	Red LED ON
4 (34h)	Red LED OFF
5 (35h)	Buzzer Beep 1 Time
6 (36h)	Buzzer Beep 3 Time
7 (37h)	Green LED ON with Beep 1 Time
8 (38h)	Red LED ON with Beep 3 Time
9 (39h)	All LED ON (Orange)
A (41h)	Blue LED ON <span style="color: red;">New!!</span>
B (42h)	Blue LED OFF <span style="color: red;">New!!</span>

Note: If RS232 Command set control is enabled, the external LED control with high/low level control will be disabled.

**Read Idle:** Show LED color after power on or idle state.

**Brown wire = PULSE (or Card is valid):** Show LED color and beeps to indicate the end-user when brown wire = PULSE, or card was passed by SmaFinger reader.

**Brown wire = Inactive ( or Card Is invalid):** Show LED color and beeps to indicate the end-user when brown wire = Inactive, or card was failed by SmaFinger .

**Brown wire = Active:** Show LED color and beeps to indicate the end-user that brown wire = Active signal from Host.

**Brown wire Active level:** Set Brown wire Active level condition with Host status.

Disable: Always disable the Brown wire. (Default), LED/Buzzer control by reader self.

High: Active High / Normal keep in Low.

Low: Active Low / Normal keep in High.

Note: If set Active Low, you may have to connect brown wire to a pull-up resistor (1K~10K) with 5VDC).

**Control Brown wire:**

After Data Output: The brown wire will be enabling after finished output the card data or CSN. (Default)

Any Time: The brown wire enabled in any time.

The LED/Buzzer also can be controlled externally with High/Low

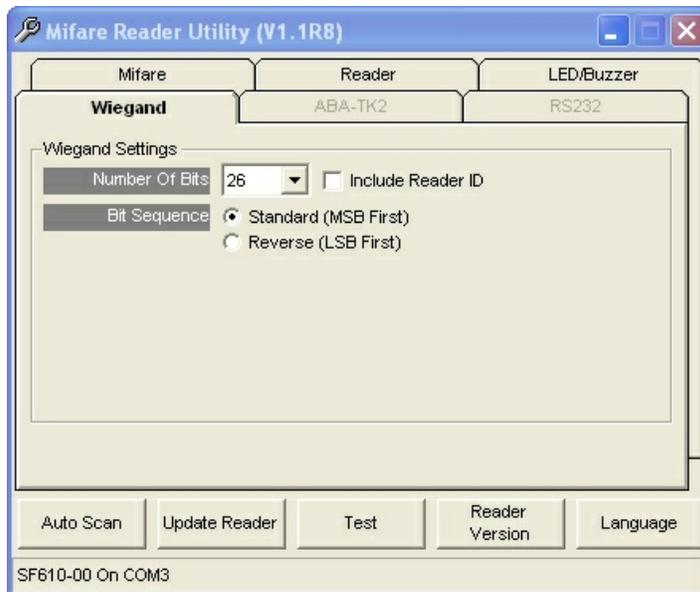
level control. Additional information at chapter 3.10.5 [External LED/Buzzer Control](#)

### 3.10.3.4 Interface Settings

Choose the required Interface [Wiegand / ABA-TK2 / RS 232] from Mifare Reader Utility tab 'Reader'. Settings for each interface are given in the following three sections.

#### 3.10.3.4.1 Wiegand

On Mifare Reader Utility select tab **Wiegand**. The window will appear as shown below:



**Number of Bits** Set according to your Host or Terminal type. It can be set from 26 to 128 (Default=26).

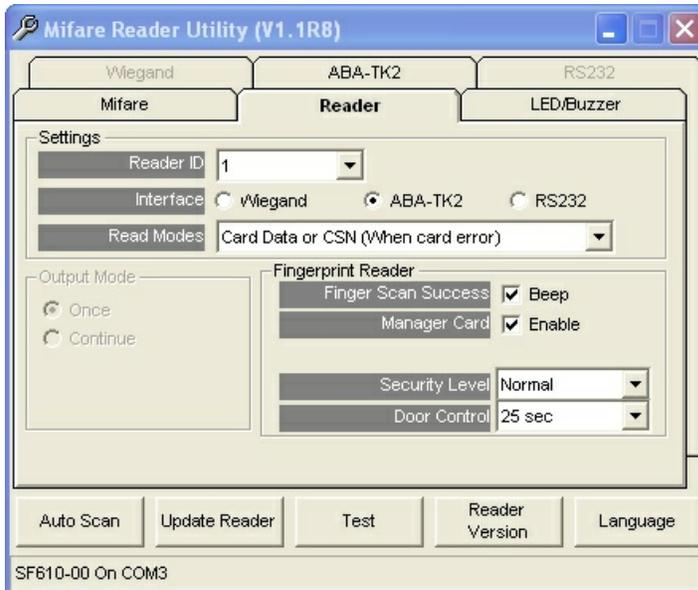
**Include Reader ID** Includes Reader ID along with Wiegand output data. (Default=Disable).

**Bit Sequence** is to set the Wiegand output data sequence. It can be standard data sequence (MSB first) or Reverse data sequence (LSB first). (Default=Standard).

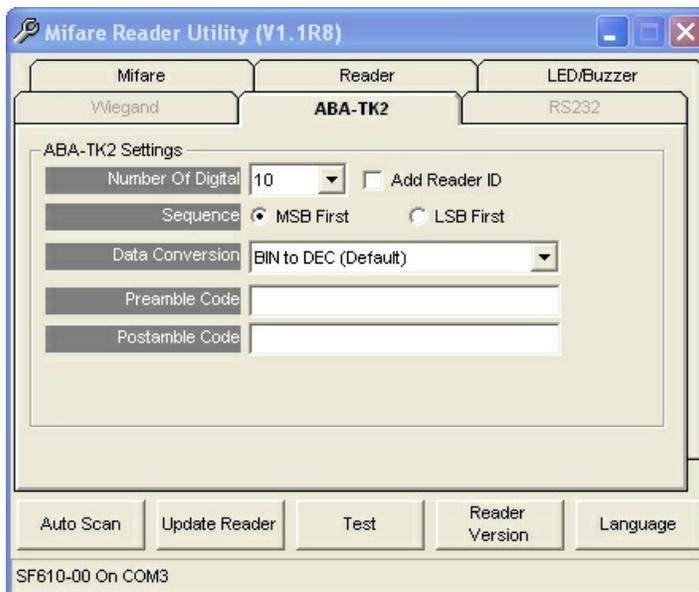
Additional information at chapter 3.10.4 [Wiegand, ABA-TK2 & RS232 Pulse Diagrams and Interface Connections](#)

### 3.10.3.4.2 ABA-TK2

Open **Reader** tab and select option **ABA-TK2**.



Click tab **ABA-TK2**. The window will appear as shown below:



**Number Of Digital:** Set number of digital codes for TK2 output. (Default=10)

**Add Reader ID:** Add reader ID into TK2 data. (Default=Disable)

**Sequence:** Set the TK2 data sequence. (Default=MSB First)

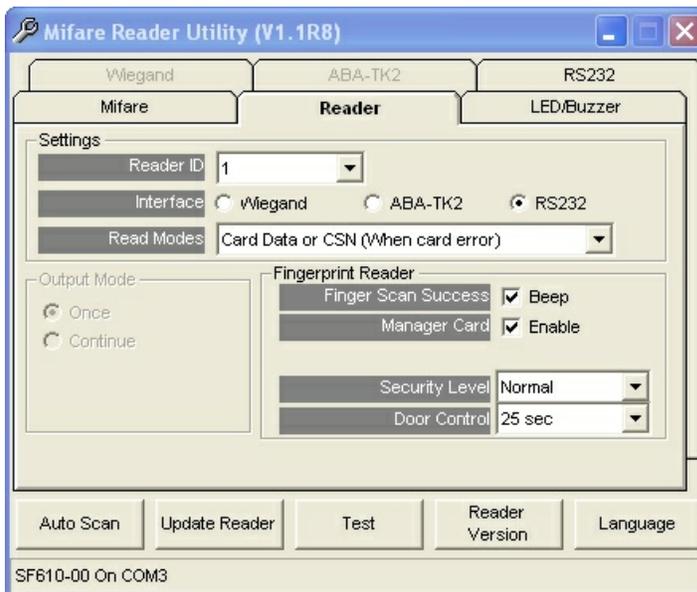
**Data Conversion:** Select card data format to convert  
 a. BIN to DEC (Default, card issued by Mifare Card Issuer)

- b. Decimal String (eg. "123456")
- c. BCD (Standard)
- d. Direct (Memory Map)
- e. Bytes to DEC

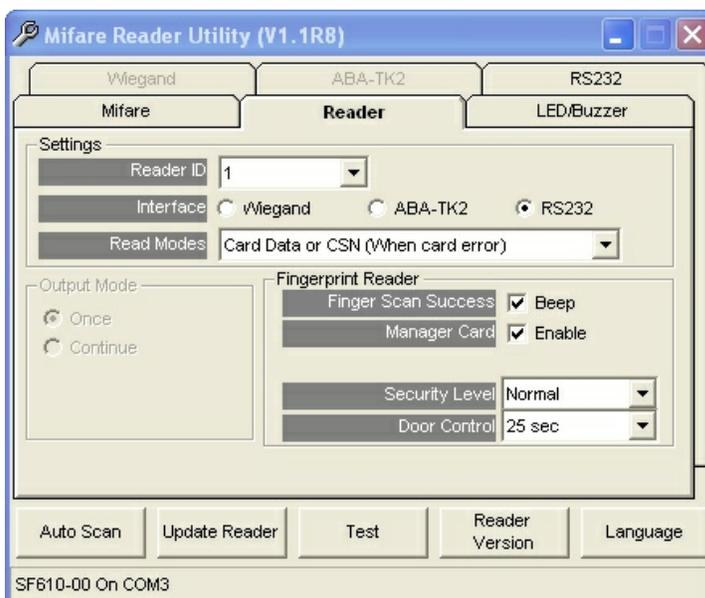
Additional information at chapter 3.10.4 [Wiegand, ABA-TK2 & RS232 Pulse Diagrams and Interface Connections](#)

### 3.10.3.4.3 RS232

Open **Reader** tab and select interface option **RS232**.



Next select tab **RS232**



**Baudrate** can be set 2400bps~57600bps (Default=9600bps)

**Data Sequence** can be set "LSB" first and "MSB" first (Default).

**Package<sub>2</sub>** is to set the output data packet to include Header, Reader ID, Data Length, CR, LF and Trailer.  
(Header:00h~FFh, Trailer : 00h~FFh). (Default = Header(02h)+CR+LF+Trailer(03h))

**Output Format** can be "Binary" or "Hex String"(Default) for output format.

Note:

(1).Wiegand output data packet with reader ID:

Standard	Parity( <b>Even</b> )	Reader ID	(MSB) Data Bits (LSB)	Parity( <b>Odd</b> )
Reverse	Parity( <b>Odd</b> )	Reader ID	(LSB) Data Bits (MSB)	Parity( <b>Even</b> )

(2).RS232 output data packet with Header, Reader ID and Trailer:

Header	Reader ID	(MSB) Data Bytes (LSB)	Trailer
--------	-----------	------------------------	---------

(3)ABA-TK2 with Reader ID:

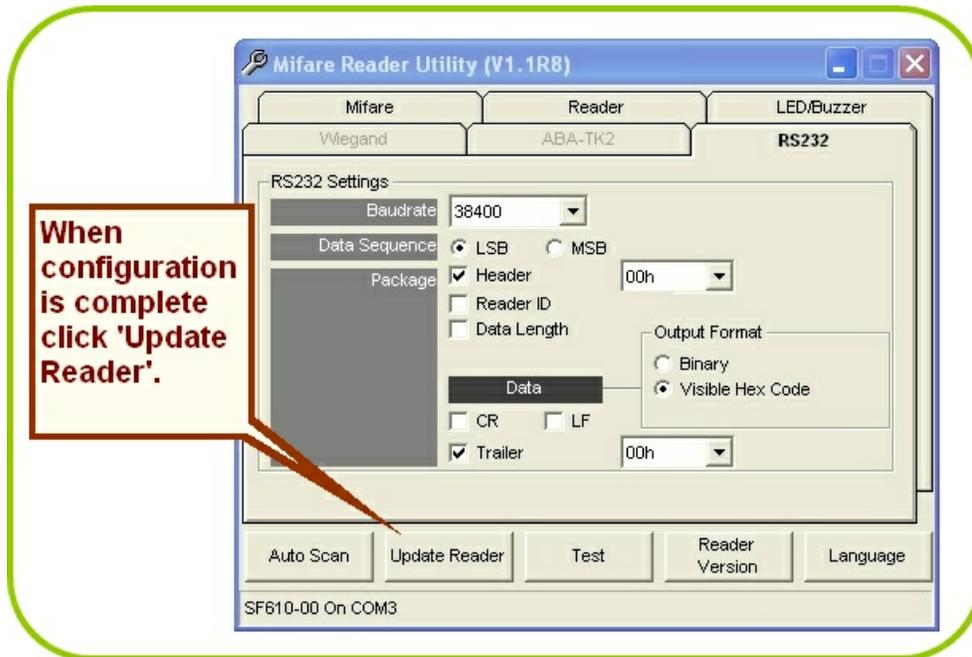
MSB First	SS	Reader ID	(MSB) Digital Code (LSB)	ES	LRC
LSB First	SS	Reader ID	(LSB) Digital Code (MSB)	ES	LRC

Note:

Once configured any of the features set in the SmaFinger Reader cannot be read by other device. This will also protect your APP KEY.

Additional Information at chapter 3.10.4 [Wiegand, ABA-TK2 & RS232 Pulse Diagrams and Interface Connections](#)

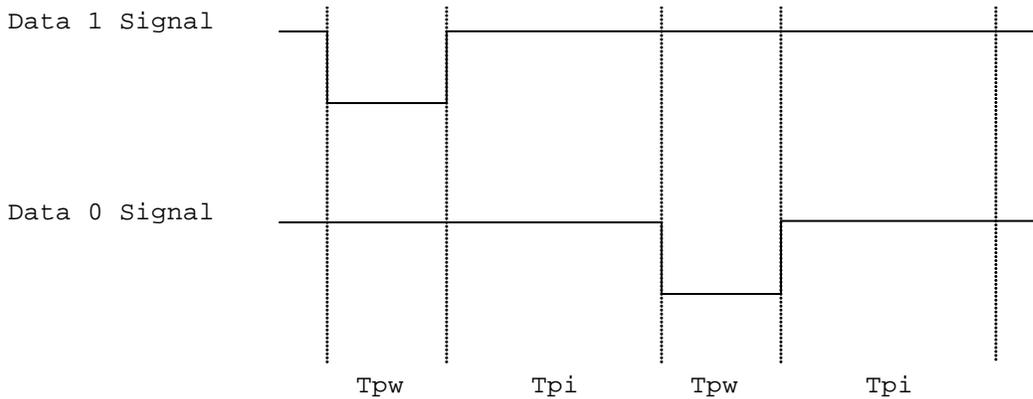
### 3.10.3.5 Save Settings



### 3.10.4 Wiegand, ABA-TK2 & RS232 Pulse Diagrams and Interface Connections

#### WIEGAND INTERFACE

The Data 1 and Data 0 signals are held at a logic high level until the reader is ready to send a data stream. The reader places data as asynchronous low-going pulses on the Data 1 or Data 0 lines to transmit the data stream to Host. The Data 1 and Data 0 pulses will allow pulse width times and pulse interval times for the SmaFinger reader.



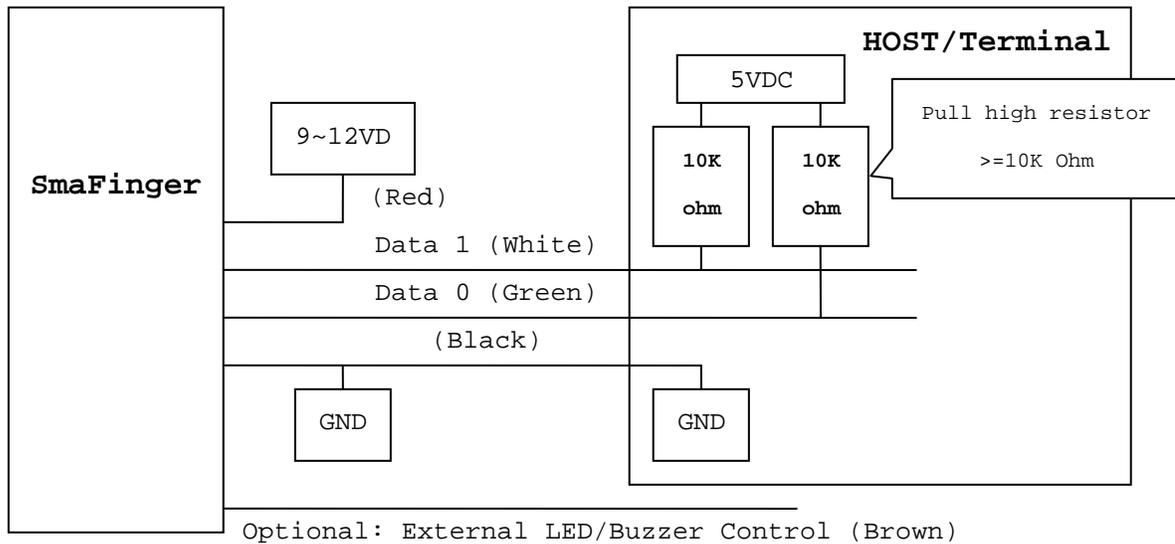
Pulse Times

Symbol	Description	Typical Time
Tpw	Pulse Width Time	100us +/- 3%
Tpi	Pulse Interval Time	1.9ms +/- 3%

#### **Wiegand Packet (Without Reader ID)**

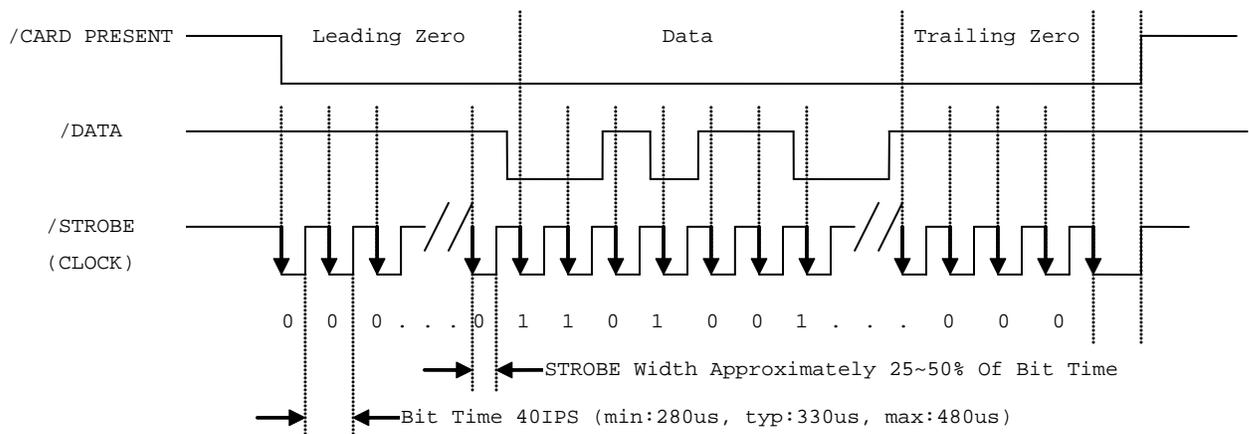
Standard (Default)	Parity(Even)	(MSB) Data Bits (LSB)	Parity(Odd)
Reverse (Option)	Parity(Odd)	(LSB) Data Bits (MSB)	Parity(Even)

Connect the Wiegand wires, example as below: (The pull high resistor must  $\geq$  10K Ohm)



## ABA-TK2

The timing for Card Present, Clock (Strobe) and Data , example as below:



### DATA

The data signal is valid while the clock is low. If the Data signal is high, the bit is a zero. If the Data signal is low, the bit is a one.

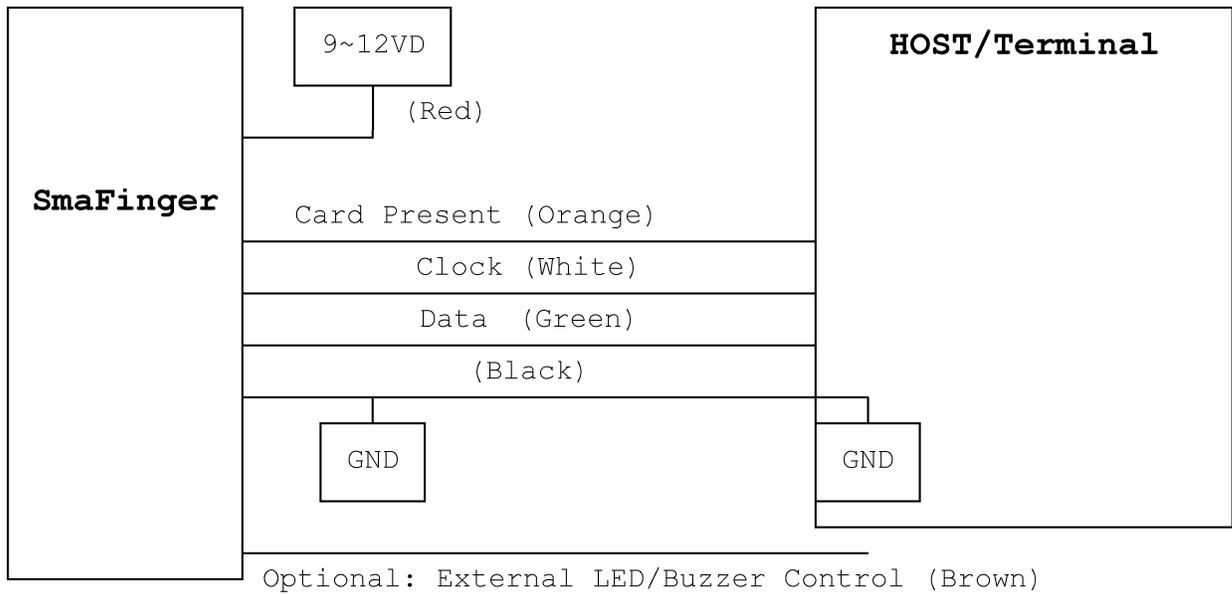
### CLOCK (STROBE)

The Clock signal indicates when Data is valid. It is recommended that Data be loaded by the user with the leading edge (negative) of the Strobe.

### CARD PRESENT

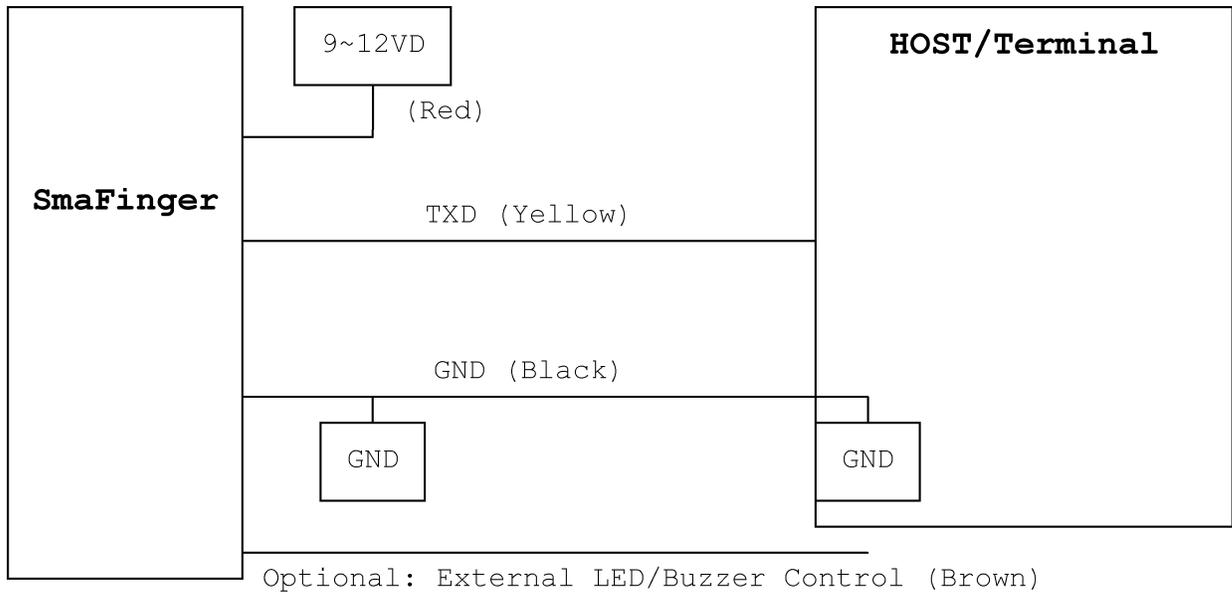
Card Present will go low after flux reversals from the Reader. Card Present will return high after the last flux reversal.

**Connect the ABA TK2 wires, example as below:**



## RS232

Connect the RS232 wires, example as below:



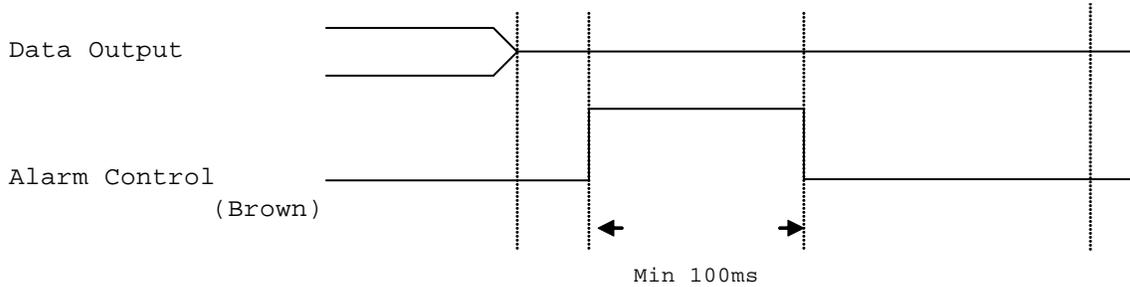
### 3.10.5 External LED/Buzzer Control

#### External LED/Buzzer Control

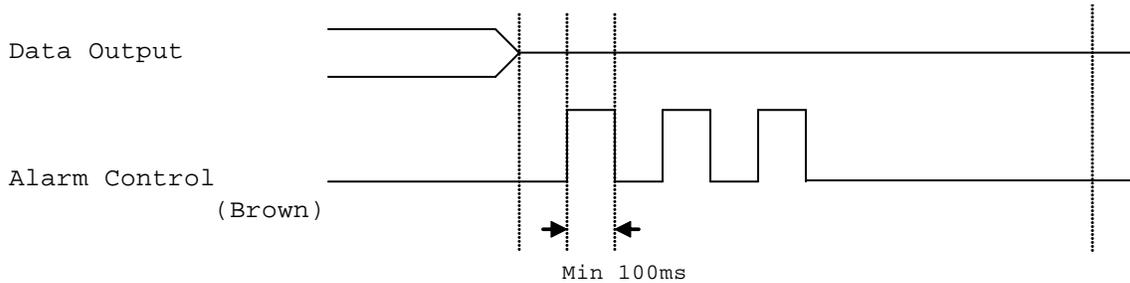
SmaFinger supports the external LED/Buzzer control for Terminal (or Host) to indicate to end-user that his/her card is invalid or valid. Brown wire is meant for this purpose.

Examples as below: (Active High)

(1) Show External Invalid Status



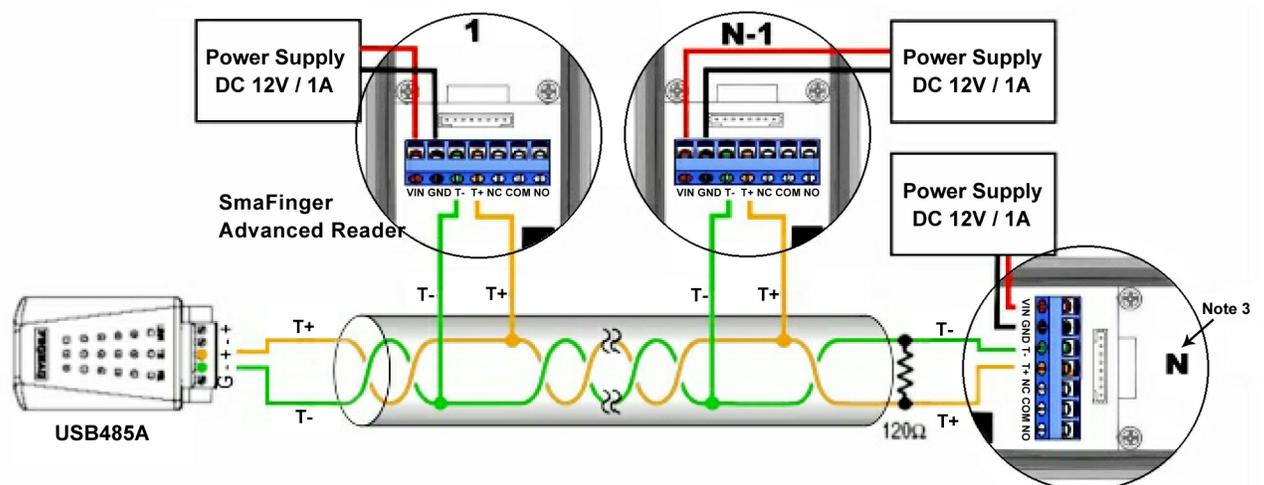
(2) Show Card Valid Status



Note:

1. Send one pulse to show the "External Invalid" LED/Buzzer Status.
2. Send three or more pulses to show the "Card Valid" LED/Buzzer status.
3. You can configure the LED/Buzzer status by Mifare Reader utility.

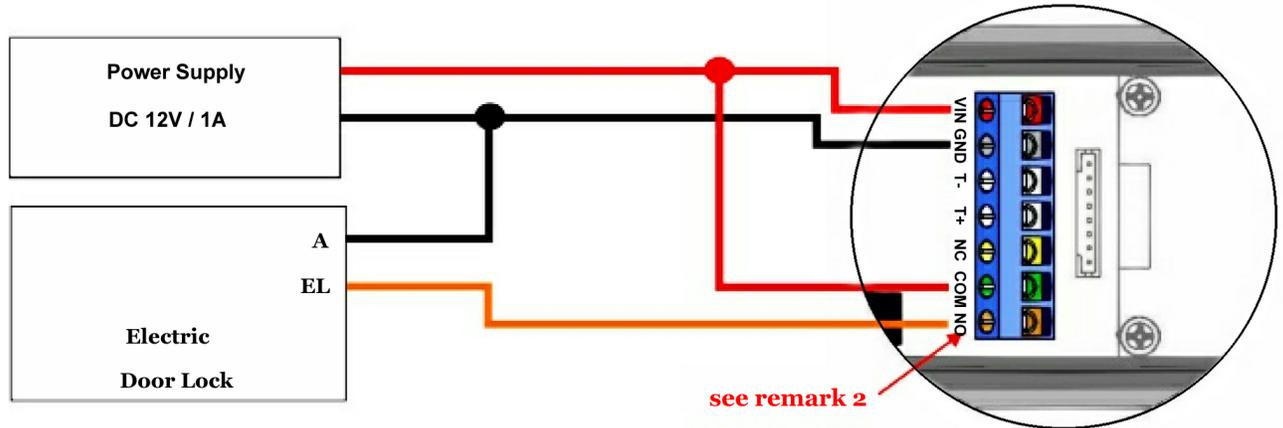
### 3.10.6 Multi-Reader Connection



Note

1. Use RS 485 Converter for RS485 Network.
2. Connect 120 Ohm terminal resistor at the wire ends.
3. Reader ID's up to 32.
4. Read procedure before installation.

### 3.10.7 Door Lock Connection



#### Remarks

1. Do Not connect the 8 pin connector (as it includes power supply) if you have already connected power supply at VIN terminal of 7 pin connector (blue terminal block).
2. If the lock requires power to lock (eg. EM lock), connect this point to NC.  
If the lock requires power to unlock (eg. Electric strike), connect this point to NO.

### 3.10.8 Web ISP

SmaFinger also supports the ISP (In-System Program) function to upgrade devices' firmware.

1. Insert DISK5288 into CD/DVD ROM drive of your PC.  
Click open the disk from desktop/My Computer. On the SmaFinger AutoRun that opens, select **Other Tools**.

You may also download the same software from (<ftp://vip:26954214@ftp.gigatms.com.tw/public/utility/WebISP/WebISP.zip>)



2. On the **Other Tools** window click **Install WebISP for Firmware Upgrade** and follow on screen instructions to install the software.

3. Connect the reader/programmer to PC and make sure it is powered-on.



4. Open the ISP software from Start/All Programs/GIGA-TMS/WebISP.

5. Input the following

FTP path : [ftp.gigatms.com.tw](ftp://ftp.gigatms.com.tw)

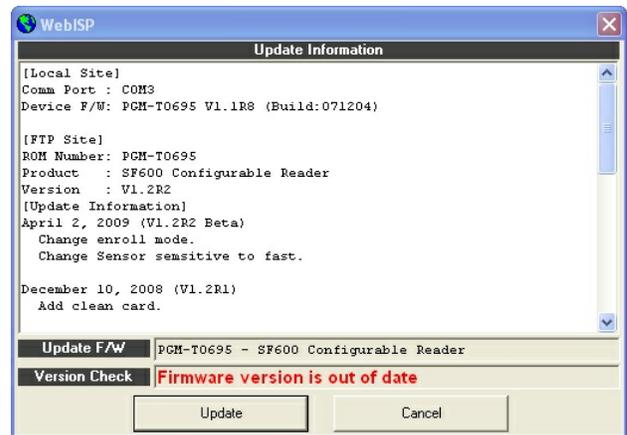
User Name : isp

Password : 26954214

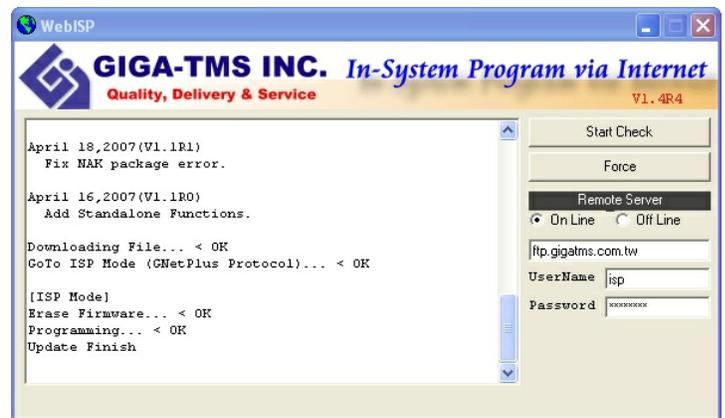
6. Click **Start Check**



7. If the version is out of date the message **Firmware version is out of date** will appear. Click Update.



8. Firmware will be updated and **Update Finish** message will appear. Close the software window.

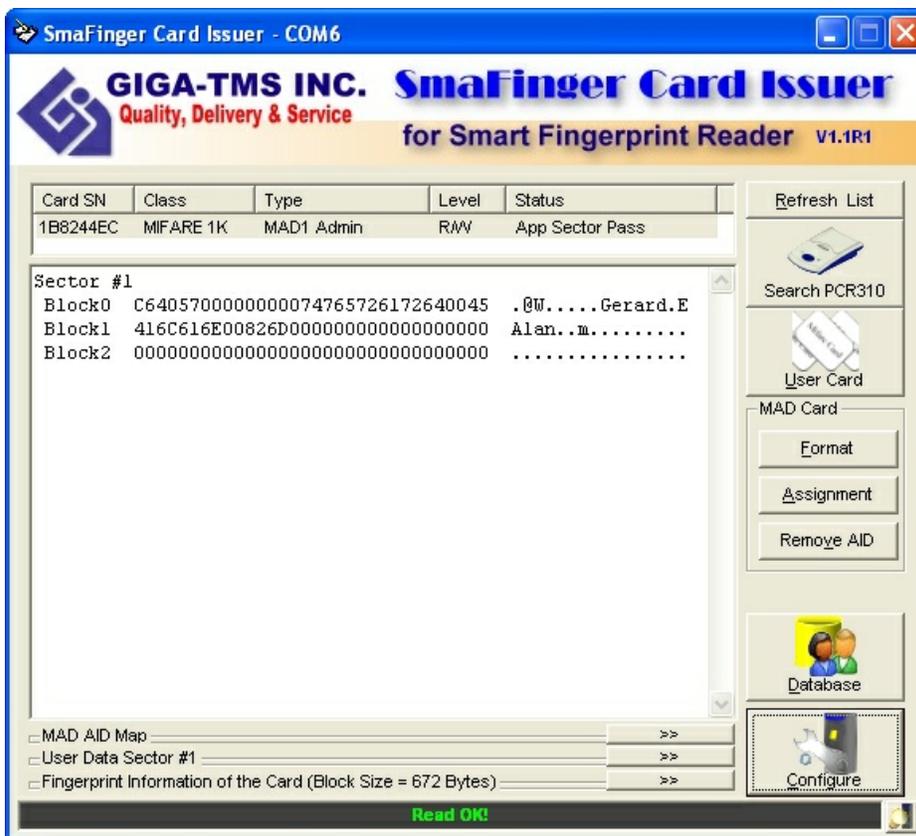


## 3.11 Programmer and Card Issuer

This section contains further readings and additional information on Programmer SF600P and Card Issuer PCR310U.

### 3.11.1 SmaFinger Card Issuer Program Main Window Details

#### a) SmaFinger Card Issuer Program Main Window



**Refresh List:** to reload the card information from PCR310.

**Search PCR310:** to find and connect the PCR310

**User Card:** to issue SmaFinger Cards including the 'Card Only' and 'Card+Fingerprint' cards.

**Format:** to create MAD card and include SmaFinger AID.

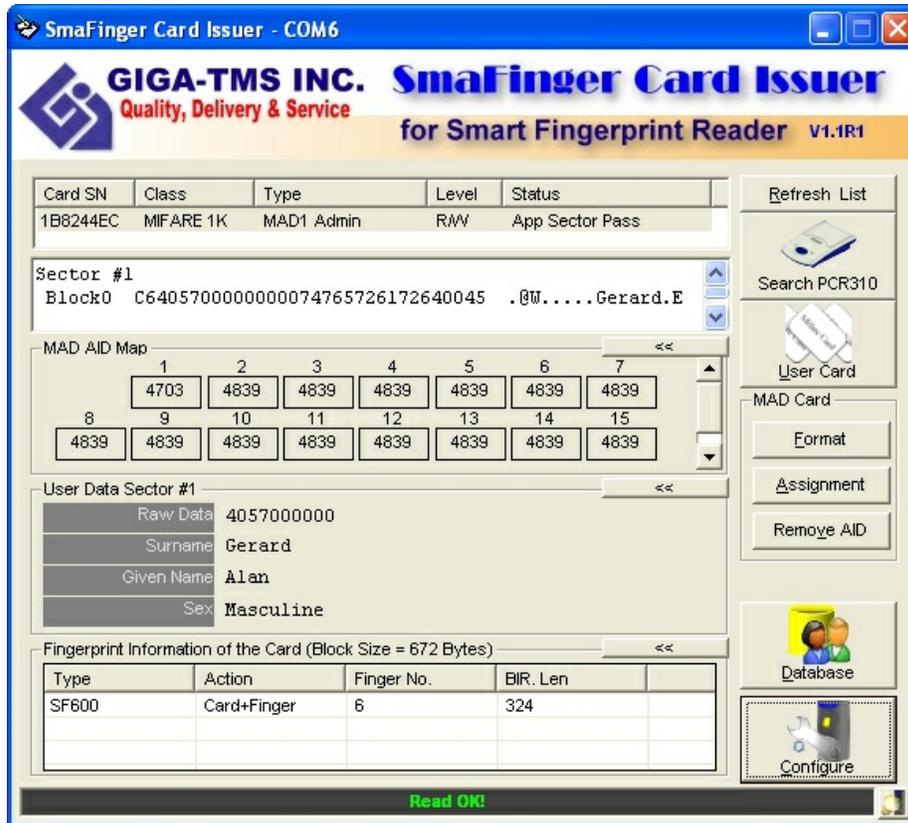
**Assignment:** to assign customer AID into MAD card.

**Remove AID:** to remove customer AID from MAD card.

**Database:** to manage multi-users data.

**Configure:** to configure the parameters of SmaFinger Card Issue.

## b) SmaFinger Card Issuer Program Main Window with Inner Window Details



**Fingerprint Information of the Card:** Type of reader, card etc

**Card List:** to show card list (Max 2 cards)

**MAD AID Map:** to show AID map from MAD sector.

**App. Sector Data:** to show Application Sector Data in Hex Code and ASCII Code.

**Status Bar:** to show Message about result of action.

## 3.11.2 Configure Window Details

According to MAD application, you have to set the card issuer parameters before issuing the card.

Click **Configure Issue Settings** on SmaFinger Navigate to begin settings the parameters: (Example as below)

General	
Start Up	Start from Navigate
Software Password	
Language	English

Card Issue	
MAD Admin Key	FFFFFFFFFFFF
MAD-AID (Hex)	4703
App Admin Key	FFFFFFFFFFFF
App Key	FFFFFFFFFFFF2
Max App Sectors	1
Card Data Encrypt	None
Card Max Templates	2

Reader / Programmer	
Reader Model	SF600 series
Assign Programmer	Normal

1. **MAD Admin Key** (Default=FFFFFFFFFFFF):

The key works for the Administrator to plan the MAD application and it can assign the AID and it's mating sector number.

2. **MAD-AID** (Hex, Default=4703):

If you have already applied for an AID from Mifare MAD group, you may set this AID number into MAD-AID to become the identifier of your application. (Or you may assign AID number by yourself for your application if you did not apply an AID from Mifare MAD Group.). **The default 4703 is the AID for Access Control & Security applied by GIGA-TMS INC from Mifare MAD Group.**

3. **App Admin Key** (Default=FFFFFFFFFFFF):

The key is used for managing the data in the Application Sector. It can be used for Reading and Writing the data.

4. **App Key** (Default=FFFFFFFFFFFF)

The key can only read the data. SmaFinger Reader is using the App Key to authenticate with the card.

5. **Max App Sectors** (Default=1) for multi sectors in use.

6. **Password** (Default=Blank)

The SmaFinger Card Issuer software is designed for a logon password protection. If you set up a password, you have to enter the password every time you open the SmaFinger Card Issuer program.

7. **Encrypt (Default=None)**

Fraud prevention. Select Encrypt Mode (None, Encrypt 1, Encrypt 2, Encrypt 3, Encrypt 4, and

Encrypt 5) to protect your card data. (Note: Encrypt mode must to work together with the same encrypt mode of SmaFinger configure utility.)

#### 8. Card Max Templates(Default=2)

Set the max fingerprint templates for User Card and Enroll Card.

#### 9. Save & Load

You can save all configurations as a file. You also can load all configurations by the configuration file.

Note. When you exit the SmaFinger Navigate, it would automatically store all these keys and parameters you have set. You should as well as save all these files to avoid any problems.

#### 10. Start Up (Default=Start from Navigate)

You can start this program from Navigate or the main window.

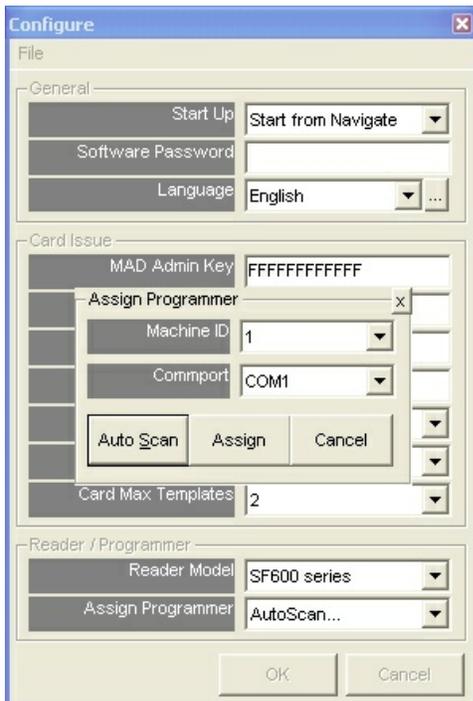
#### 11. Language (Default=Local Language)

It auto detects you language.

#### 12. Reader Modes (Default=SF600 Series)

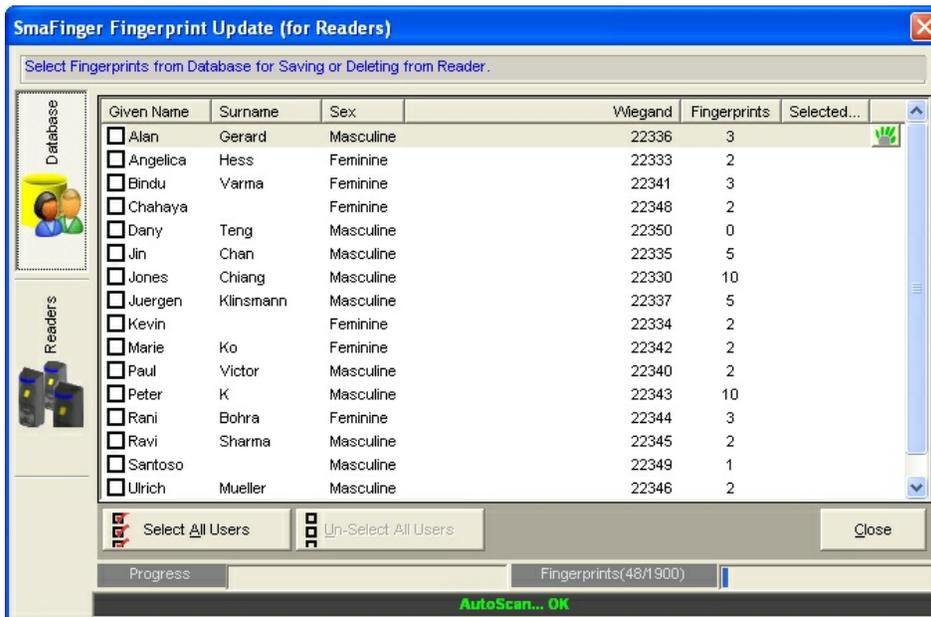
Choose the product kind (SF500 series or SF600 series).

#### 13. Assign Programmer (Default=Normal)



In normal mode, you connect the programmer (SF600P/SF500P) and auto scan it to enroll fingerprints. In assign mode, you select "**Auto Scan...**" and choose the comport and reader ID to assign the reader to be programmer. You also can click "**Auto Scan**" to detect the reader. Click "**Assign**" and finish assigning the programmer.

### 3.11.3 SmaFinger Fingerprint Update Window Details

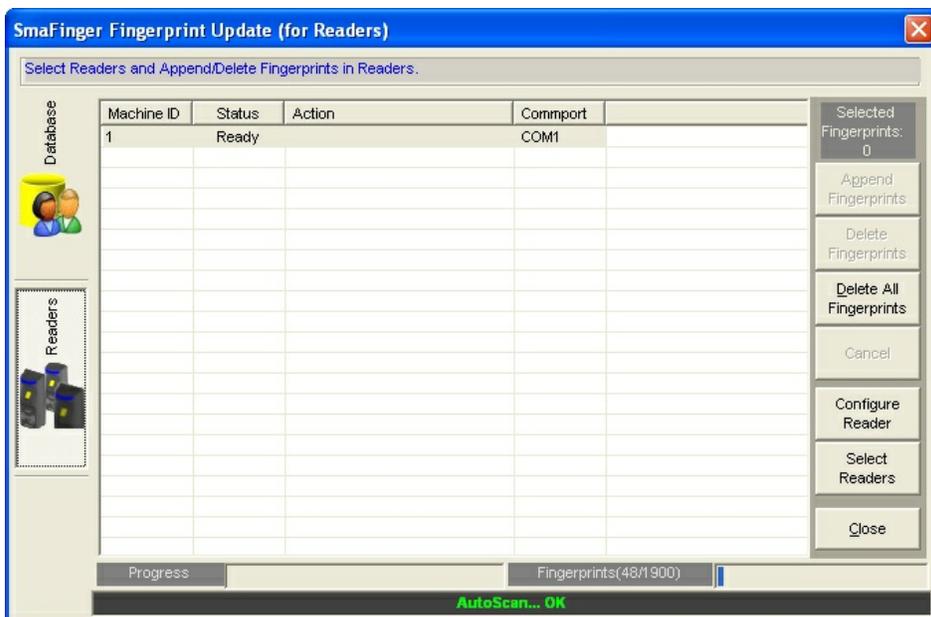


**Database** Click to go back to SmaFinger Database

**Reader** Click to open the next window to append to/delete from readers the fingerprints.

**Select All Users** Click to select all users in the database.

**Unselect Users** Click to cancel selection of all users in the database.



**Selected Fingerprints:** Indicates the number of fingerprints selected.

**Append Fingerprints:** Click to append fingerprints to reader.

**Delete Fingerprint:** Click to delete selected fingerprints.

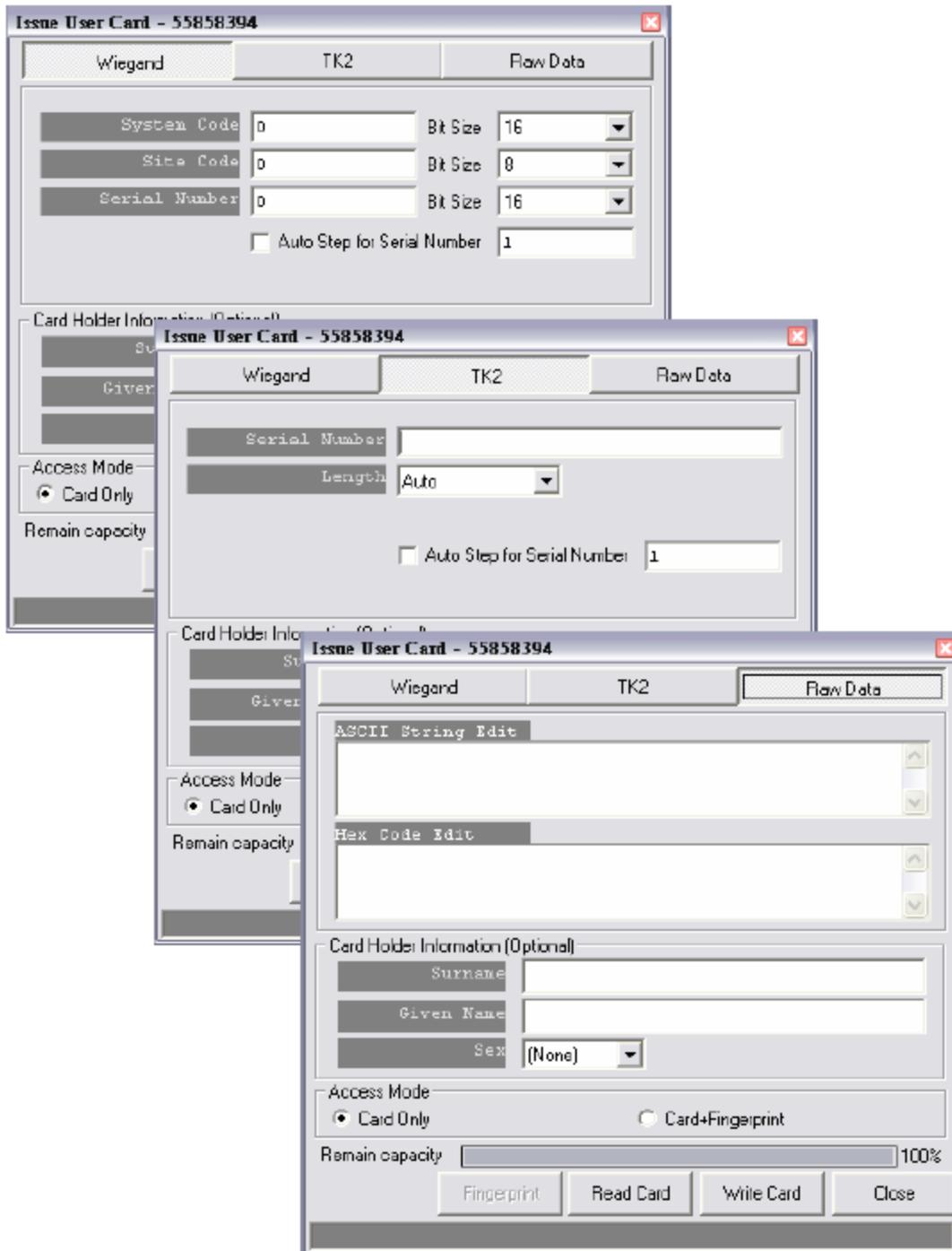
**Delete All Fingerprints:** Click to delete all fingerprints from the reader.

**Configure Reader:** Click to open Mifare Utility Reader and configure.

**Select Reader:** Click to select readers - in case of multiple readers.

### 3.11.4 Card Issuer Interface Window Details

#### Issue SmaFinger Card



**Wiegand:** "System Code", "Site Code" and "Serial Number"

- 1. Auto Step:** Automatically step the numbers. If this function is enabled, it will step the number with the

set step value for the sequential number. This function is only good for the "Serial Number" field.

Fields	Bit Size	Memory Order
System Code	8~42	3 (MSB)
Site Code	8~42	2
Serial Number	8~42	1 (LSB)

**2. Format as below:** (Max 16 bytes for Wiegand Format)

**Remark:** The SmaFinger reader will read number of data size by "Number Of Bits" set.

Example for Wiegand 44bits (Standard Bits Sequence and "Serial Number" bit size=18):

Parity Bit	System Code	Site Code	Serial Number	Parity Bit	
Even	b16 b1	b8 b1	b18 b1	Odd	
b44	(Even)	b23	b22	(Odd)	b1

### **TK2:**

- 1. Auto Step:** Automatically step the numbers. If this function is enabled, it will step the number with the set step value for the sequential number. This function is only good for the "Serial Number" field.
- 2. Format as below:**

Fields	Length	Memo
Serial Number	2~24	You can set Auto

**Raw Data:** Input Hex Code in "Hex Code Edit" or Input ASCII string in "ASCII String Edit".

**Card Holder Information:** to input Surname, Given Name, Sex and User Data

**Access Mode:** to choose issue "card only" or "card+ fingerprint"

**Fingerprint:** to enroll user's fingerprint into database. (See Enroll Fingerprint)

**Read Card:** to read user's data from card.

**Write Card:** to write the changes in to card.

**Available Capacity:** indication of the card remaining capacity.

**Close:** to close the window.

### 3.11.5 Managing User Database

SmaFinger Users Database contains all registered users' fingerprint and card data. You can "Add New", "Edit Data", "Remove Data", "Create Black List", "Enroll to Machine", and "Issue User Card from database".



**Data list:** to list users in database

**Add New User:** to insert a new user. (See [Add/Edit User](#) )

**Edit User:** to modify user's data. (See [Add/Edit User](#) )

**Remove User:** to delete user from database

**Update Reader:** to enroll user's fingerprints from database to SmaFinger Reader.  
(See [Update SmaFinger Reader](#))

**Fingerprint:** to enroll user's fingerprint into database. (See [Enroll Fingerprints](#) )

**Issue Enroll Card:** to issue Enroll Card that can enroll user data from Card to SmaFinger Reader.  
(See [Issue Card from Database](#) )

**Issue User Card:** to issue User data from database to Card. (See [Issue Card from Database](#) )

**Issue Delete Card:** to issue Delete Cards to delete users that enrolled in SmaFinger Reader.

**SmaFinger Programmer Type:** Auto display SmaFinger Programmer Type. (See [Detect Programmer Type](#) )

### 3.11.5.1 Add/Edit User

#### Wiegand:

1 Select [Wiegand]

2 Input System Code, Site Code and Serial Number in the Wiegand Fields.

3 Click [Add] or [Update] to save all Wiegand Fields into database.

#### TK2:

1 Select [TK2]

2 Input Serial Number in the TK2 Fields.

3 Click [Add] or [Update] to save all TK2 Fields into database.

#### Raw-Data :

1 Select [Raw Data]

2 Input Hex Code in "Hex Code Edit" or Input ASCII string in "ASCII String Edit".

3 Click [Add] or [Update] to save data into database.

**Card Holder Info :**

1 Input Surname, Given Name, Sex and User Data

2 Click [Add] or [Update] to save all Card Holder Info into database.

**Edit User Data**

Wiegand TK2 Raw Data

System Code [ ] Bit Size 0

Site Code 91 Bit Size 8

Serial Number 52502 Bit Size 16

Card Holder Information (Optional)

Surname Demo

Given Name Member

Sex Masculine

Remain capacity 54%

Update Cancel

**Add User Data**

Wiegand TK2 Raw Data

System Code [ ] Bit Size 0

Site Code 91 Bit Size 8

Serial Number 52503 Bit Size 16

Card Holder Information (Optional)

Surname [ ]

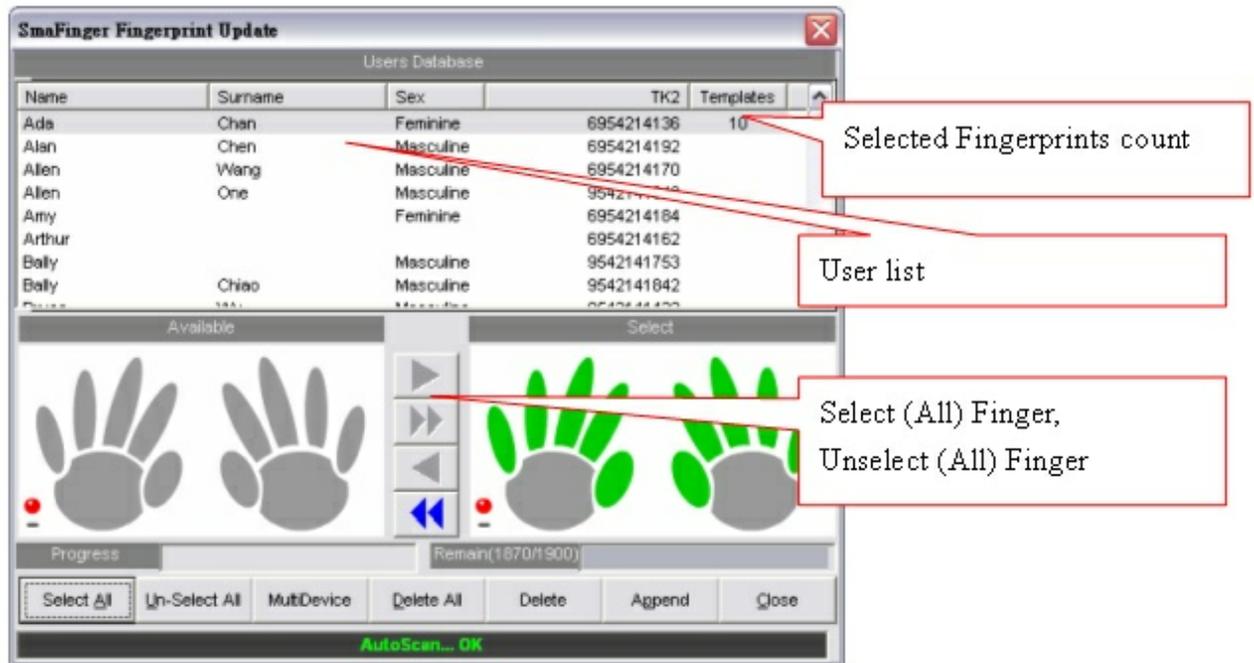
Given Name [ ]

Sex Masculine

Remain capacity 83%

Add Cancel

### 3.11.5.2 Update SmaFinger Reader



**User list:** to select one or more users to enroll fingerprints.

**Select All:** to select all user's fingerprints.

**Un-Select All:** to cancel all user's selected fingerprints.

**MultiDevice:** to set more readers to update, (refer to Update Multi-Reader)

**Delete All:** to delete all fingerprints in SmaFinger Reader.

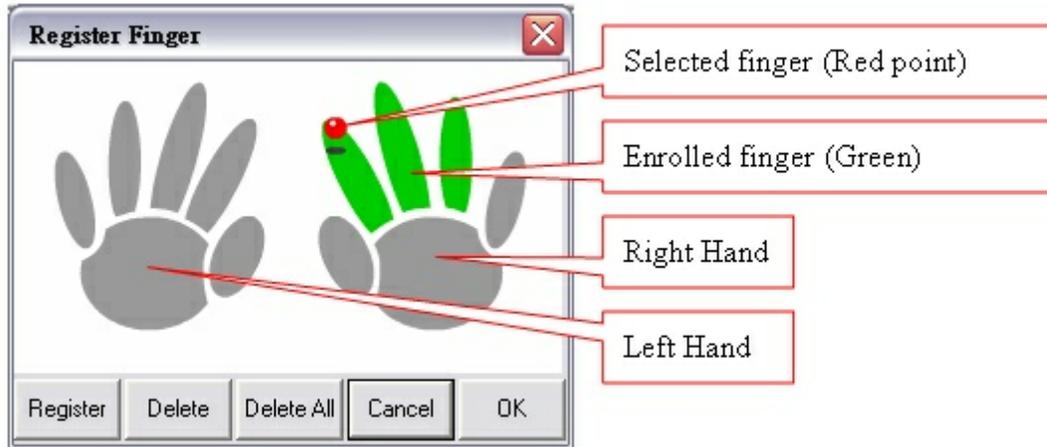
**Delete:** to delete selected fingerprints in SmaFinger Reader.

**Append:** to append selected fingerprints from database to SmaFinger Reader.

**Close:** to close this window.

### 3.11.5.3 Enroll Fingerprints

**Enroll Fingerprint:**



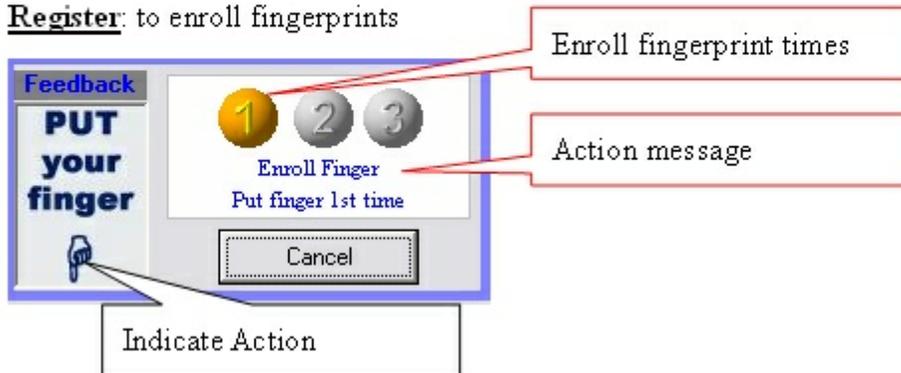
**Delete:** to delete selected finger's fingerprint.

**Delete All:** to delete all fingerprints.

**Cancel:** to cancel all changes and close this window.

**OK:** to save all changes and close this window.

**Register:** to enroll fingerprints



**Step1:**  
No.1 light is on;  
please put one of your  
fingers on SmaFinger  
Programmer's sensor.



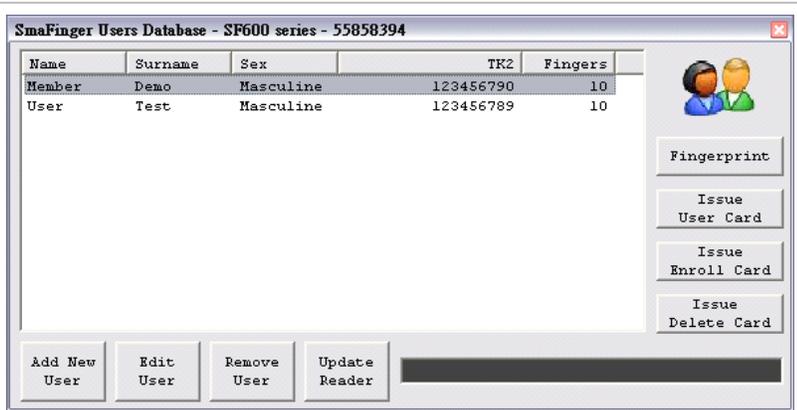
<p><b>Step 2:</b> When you hear a beep, or see message "remove finger" remove your finger from SmaFinger Programmer.</p> <p>*SF600 series users ignore Step3-4</p>	
<p><b>Step 3:</b> When No2 light is on, Please put the same finger again on SmaFinger Programmer's sensor.</p> <p>*Only works for SF500 series</p>	
<p><b>Step 4:</b> Repeat the Step 2 and Step 3 for the 3<sup>rd</sup> time enrollment.</p> <p>*Only works for SF500 series</p>	
<p><b>Step 5:</b> Put your finger on SmaFinger Programmer's sensor to verify fingerprint.</p>	
<p><b>Step 6:</b> This window will close when verification is successful. Otherwise, please repeat step 1 to step 5.</p>	

### 3.11.5.4 Issue Card from Database

The procedure to issue the Enroll Card and the User Card is the same. The Enroll Card will enroll the user data and fingerprint from database to card and then to SmaFinger Reader. And the User Card is for access by verification of user's fingerprint in Card Only mode.

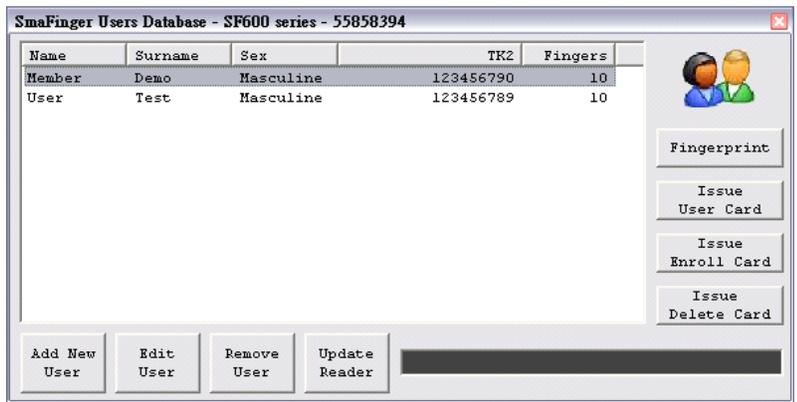
**Step 1:**

Select one of the users from the user list.



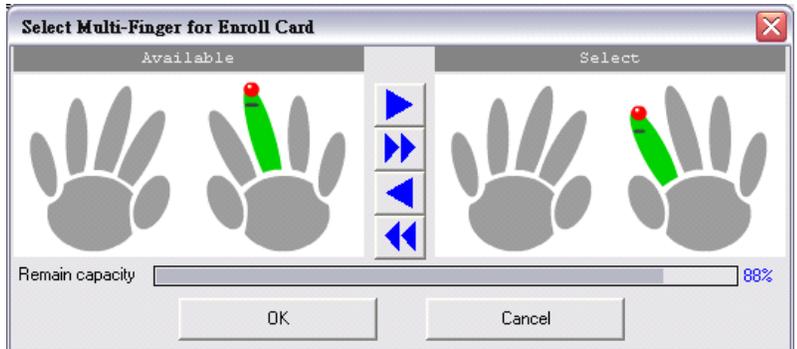
**Step 2:**

Click "Issue Enroll Card" to issue Enroll Card. Click "Issue User Card" to issue User Card. \*It will issue a card immediately when the user has enrolled even one fingerprint.



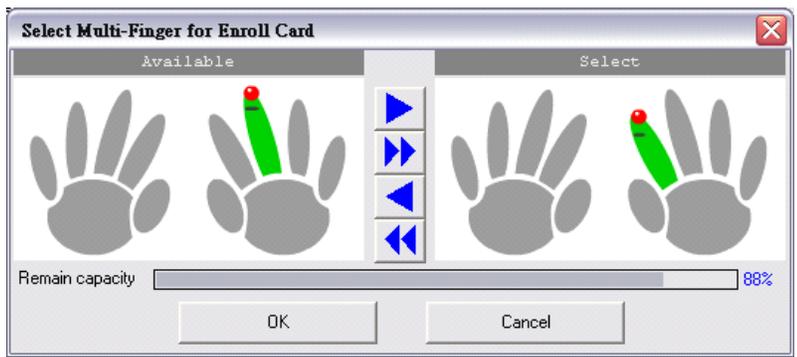
**Step 3:**

Select fingers that you want to issue. \*The max count of fingers you can select is defined by SmaFinger Reader and limited by card capacity.



**Step 4:**

Click "OK" to issue card. Click "Cancel" will close this window without issue.



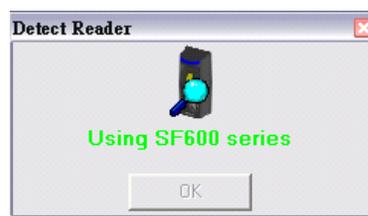
### 3.11.5.5 Detect Programmer Type

There are three statuses in programmer detection.

Status 1: First time (Never recorded any user's fingerprint.).



Status 2: Auto detect SmaFinger Programmer type.



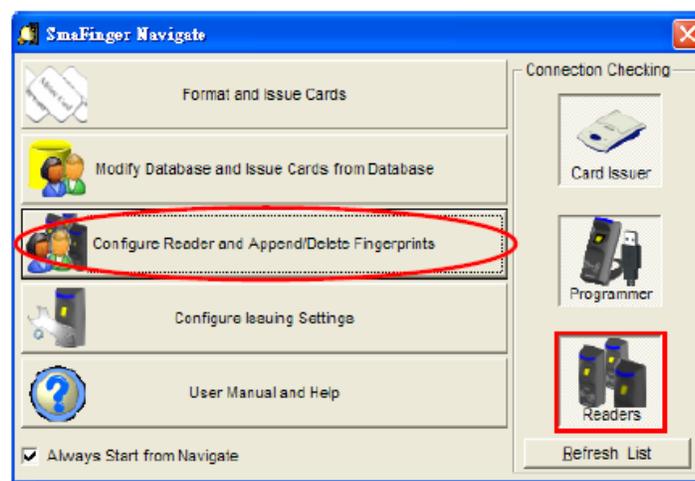
Status 3: No connected programmer (You have recorded more than one type of fingerprint.).



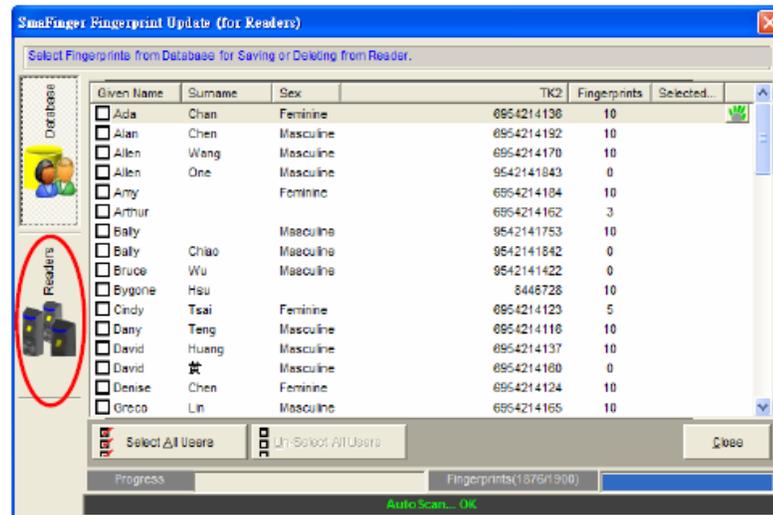
### 3.11.6 Updating Database of Multi-Readers

Run the software  
"SmaFinger Card  
Issuer"

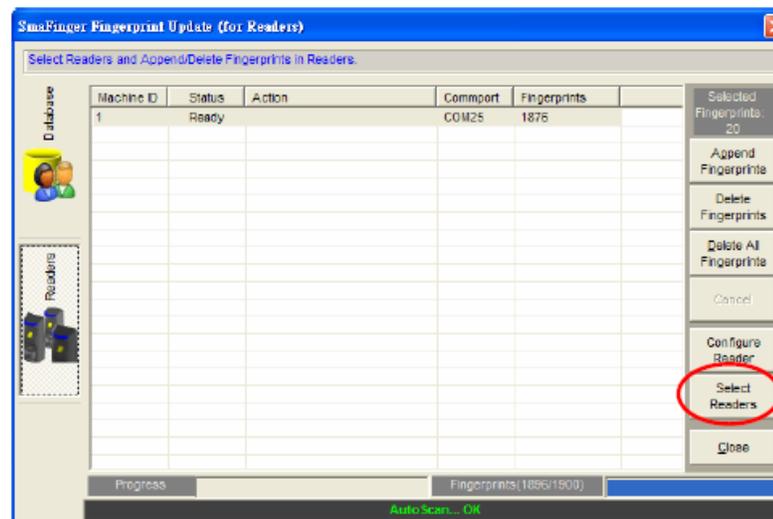
Click "Configure  
Reader and  
Append/Delete  
Fingerprints"

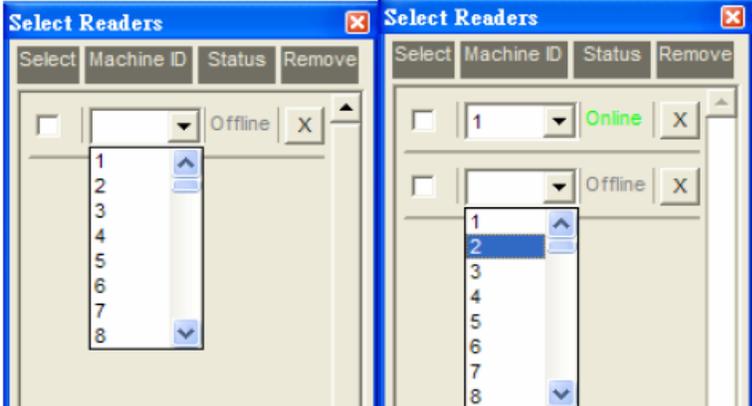
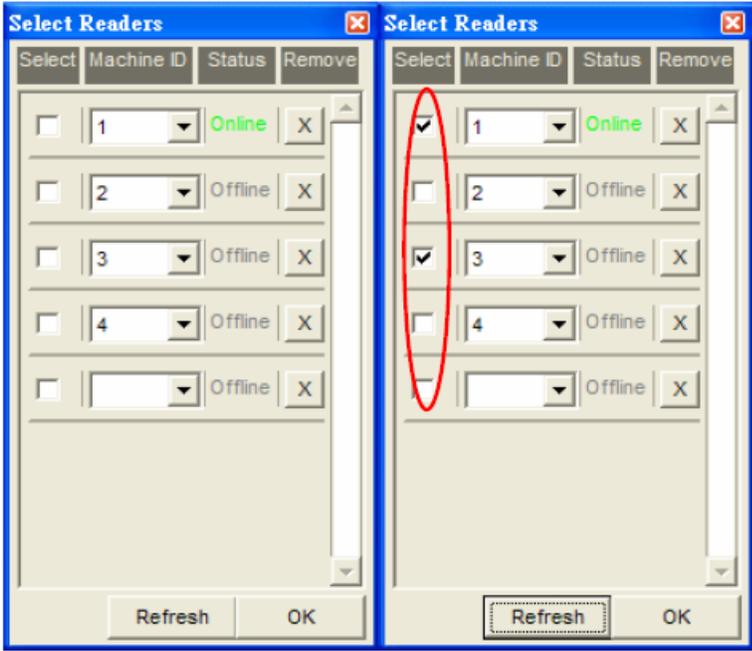
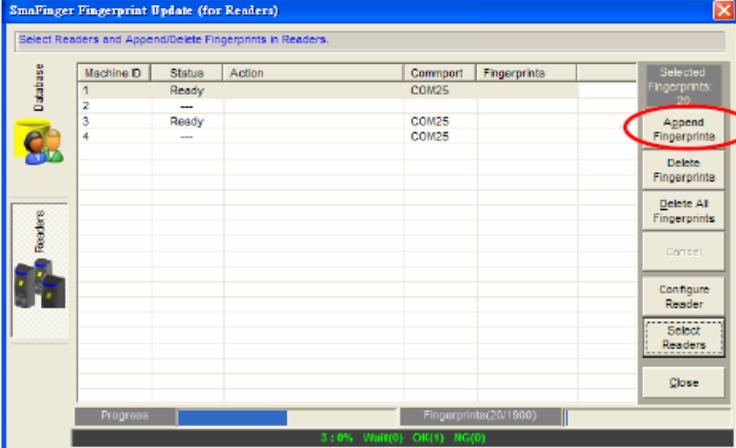


Click "Readers"



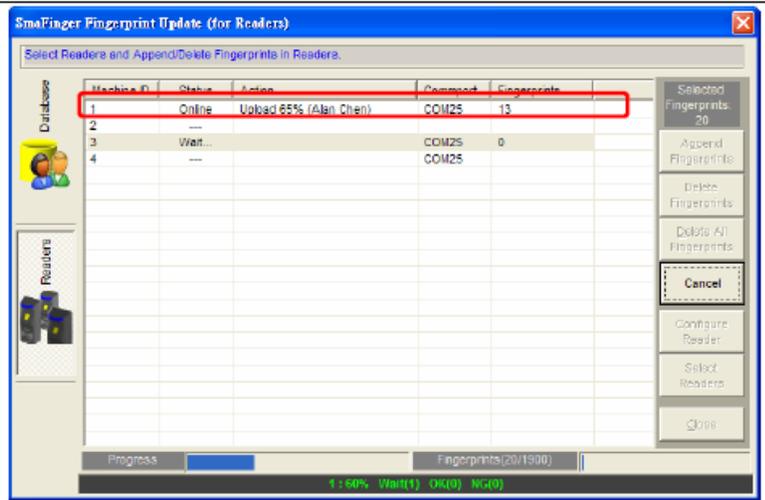
Click "Select Readers"



<p>Select Machine ID</p>																										
<p>Mark on the Machine ID</p> <p>If Machine ID is existent, it will show "Online"</p> <p>Click "OK" to close the window</p>																										
<p>Save fingerprints to Readers</p> <p>Auto update all of the reader you enabled</p>	 <table border="1" data-bbox="667 1423 1230 1766"> <thead> <tr> <th>Machine ID</th> <th>Status</th> <th>Action</th> <th>Comport</th> <th>Fingerprints</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Ready</td> <td></td> <td>COM25</td> <td></td> </tr> <tr> <td>2</td> <td>---</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Ready</td> <td></td> <td>COM25</td> <td></td> </tr> <tr> <td>4</td> <td>---</td> <td></td> <td>COM25</td> <td></td> </tr> </tbody> </table>	Machine ID	Status	Action	Comport	Fingerprints	1	Ready		COM25		2	---				3	Ready		COM25		4	---		COM25	
Machine ID	Status	Action	Comport	Fingerprints																						
1	Ready		COM25																							
2	---																									
3	Ready		COM25																							
4	---		COM25																							

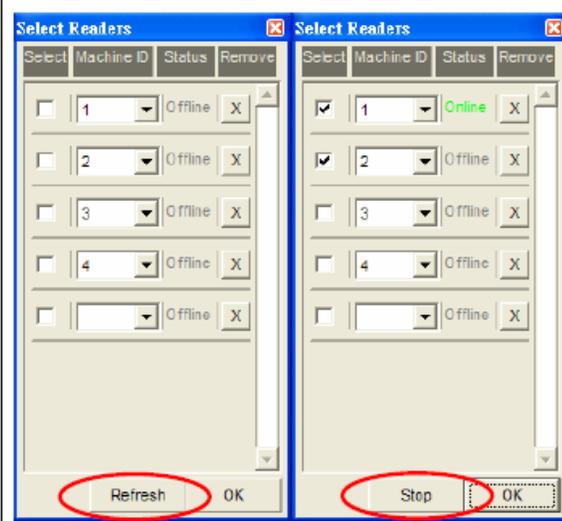
If Reader ID is not connect,it display "Offline".

If Reader ID is not enabled,it display "---"



Auto Mark On

- 1.Select Reader ID
  - 2.Click "Refresh"
  - 3.Mark on the Existent Reader ID
- Click "Stop" to stop scan



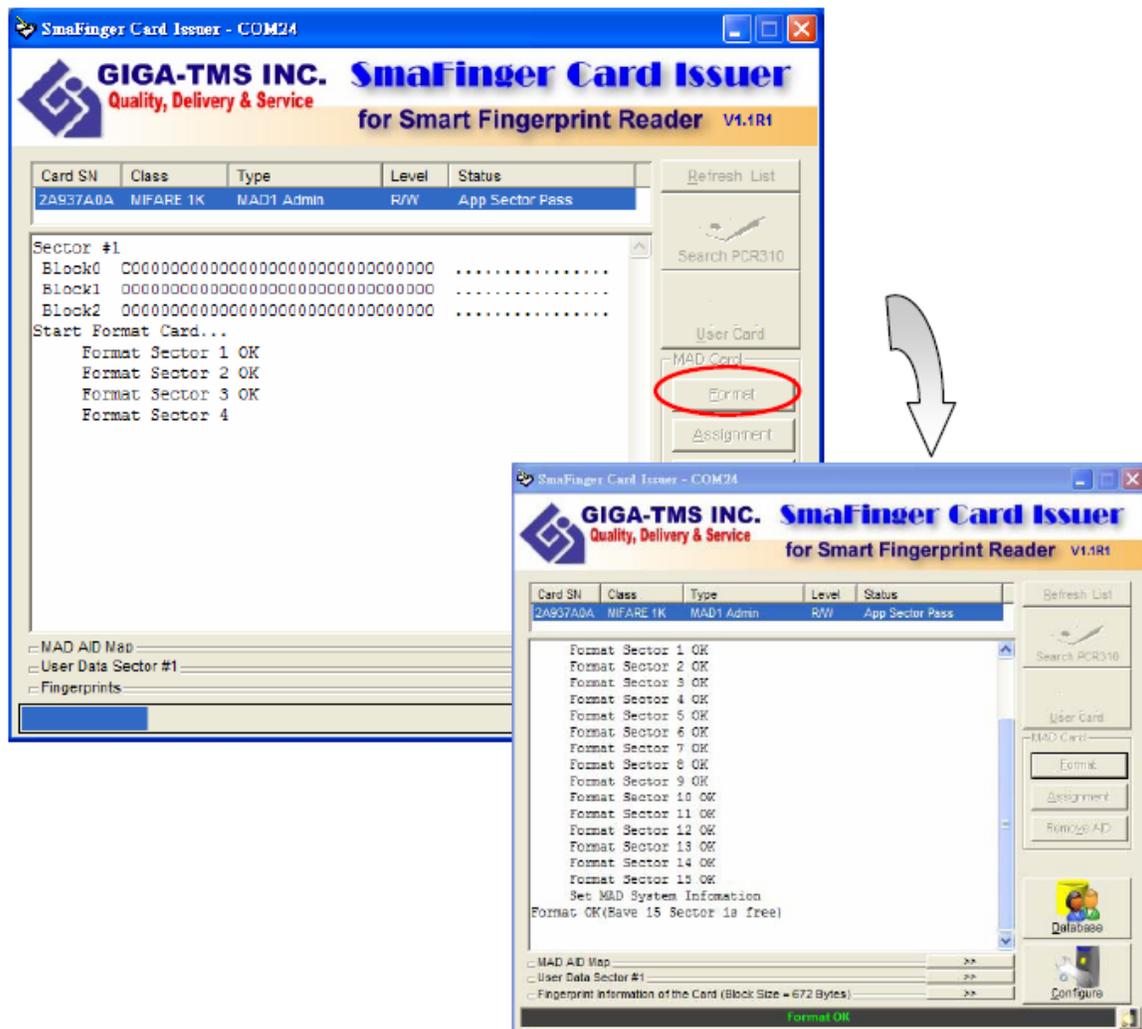
### 3.11.7 Creating and Managing MAD card

If you are issuing MAD card, you may use "Format", "k" and "Remove AID" to create and manage your MAD card.

1. Click **Format** to create your MAD cards and include your AID.  
You may format all new cards with MAD format first. After formatting, all the sectors on the card will be protected with MAD Admin KEY (KEY\_B). If you have set AID when you configure to set the SmaFinger Card Issuer parameters, it will write AID into MAD Sector when you format the cards, and it will automatically mate AID to Sector #1 and the Sector #1 will be protected with App Key (KEY\_A : Read Only) and App Admin Key (KEY\_B: Read/Write).

Note: If Sector#1 has been used by other application, it will mate AID to Sector#2 or other free sector when the card is formatted.

To format a Non-MAD card to a MAD format card, for example as below (AID=4703):

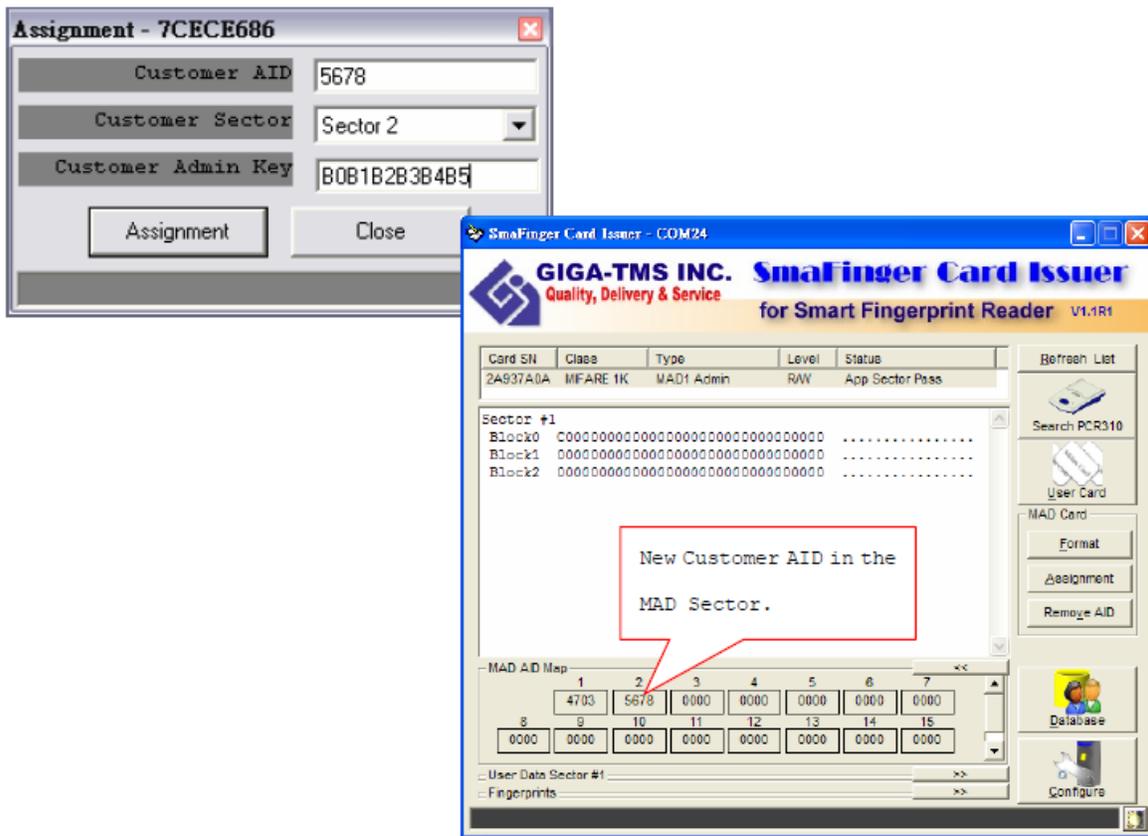


Note: All fingerprint modes need to use the card in MAD format.

2. Use **Assignment** to assign your customer AID into your MAD card.

You may also put the Customer AID into your MAD card and you may assign the Customer AID to use the Customer Sector#. And let the Customer Sector# be protected with Customer Admin Key (KEY\_B: Read / Write, Default=FFFFFFFFF2).

For example, to assign the AID=5678 to Sector 2 with KEY=B0B1B2B3B4B5 (KEY\_B) proceed as below:



3. Click **Remove AID** to remove AID from your MAD card. You may also to remove the issued AID from your MAD card. The AID pointer sector will be free and protected with MAD Admin Key after the AID be removed. For Example, to remove the AID=5687 from your MAD card.



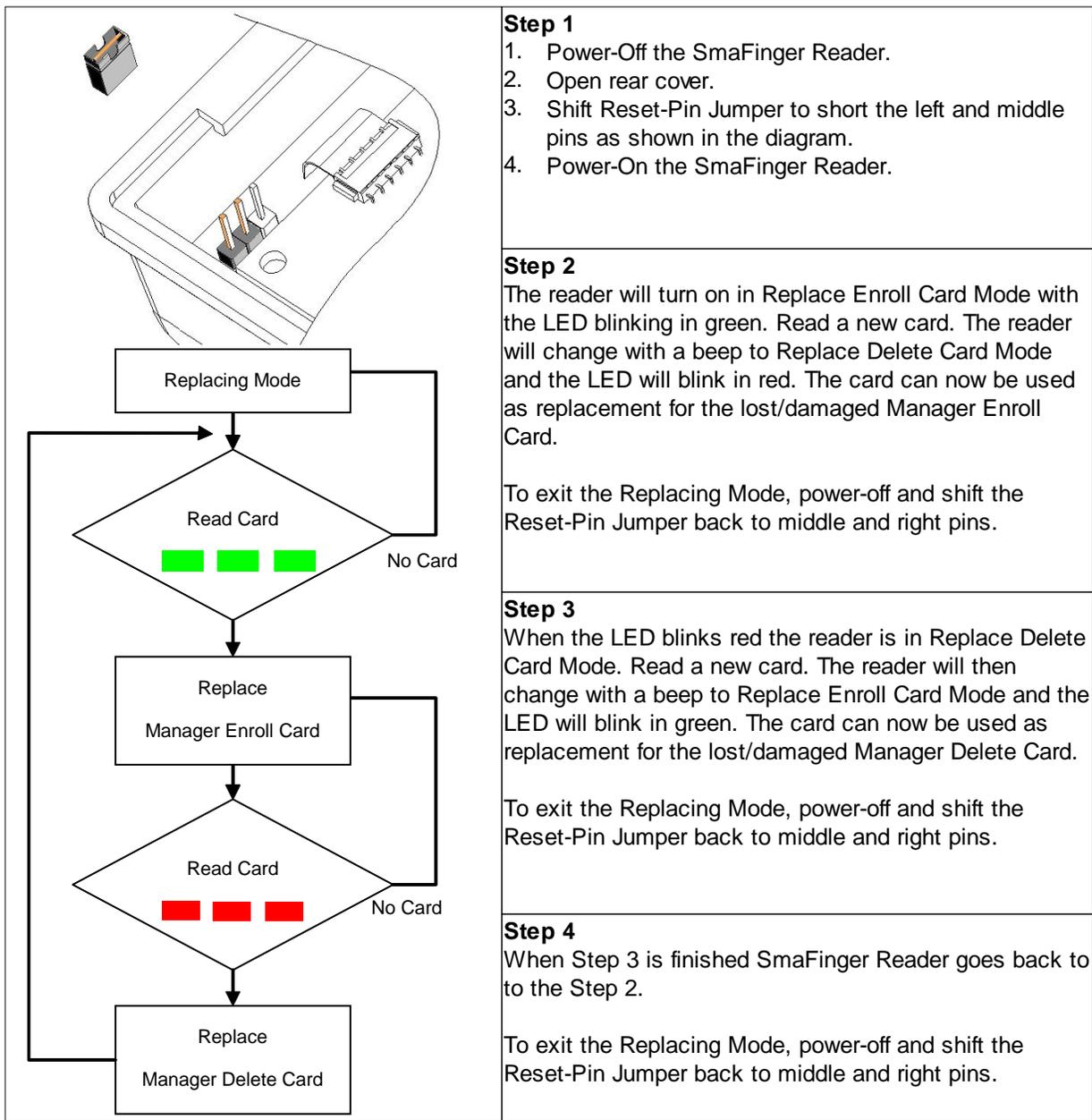
Note: The customer Admin Key must be set in "Customer Admin Key" field, to free the AID pointer sector.

### 3.11.8 Replacing Manager Enroll/Delete Cards (SF601/610)

When your Manager Enroll/Delete Card is lost/damaged you can create a new card for replacement as follows:

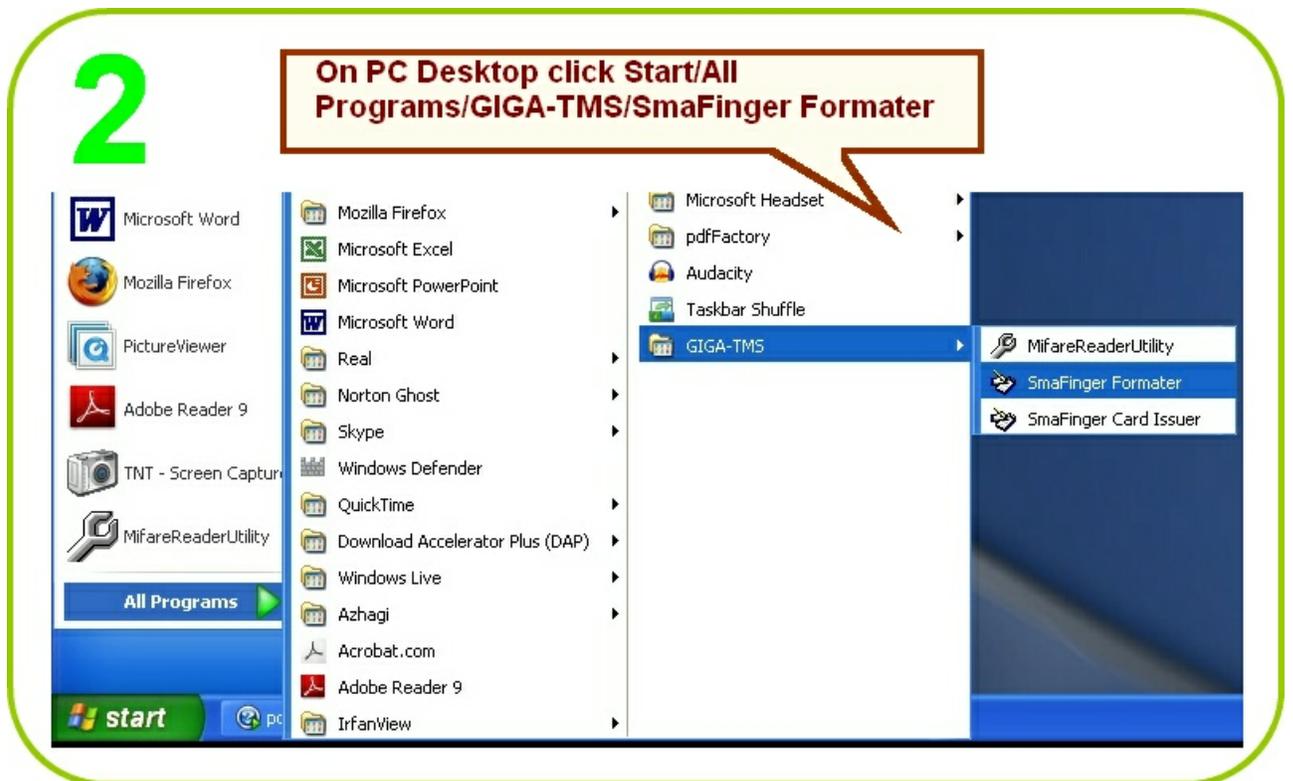
1. By Reset-Pin Jumper
2. By SF Formater

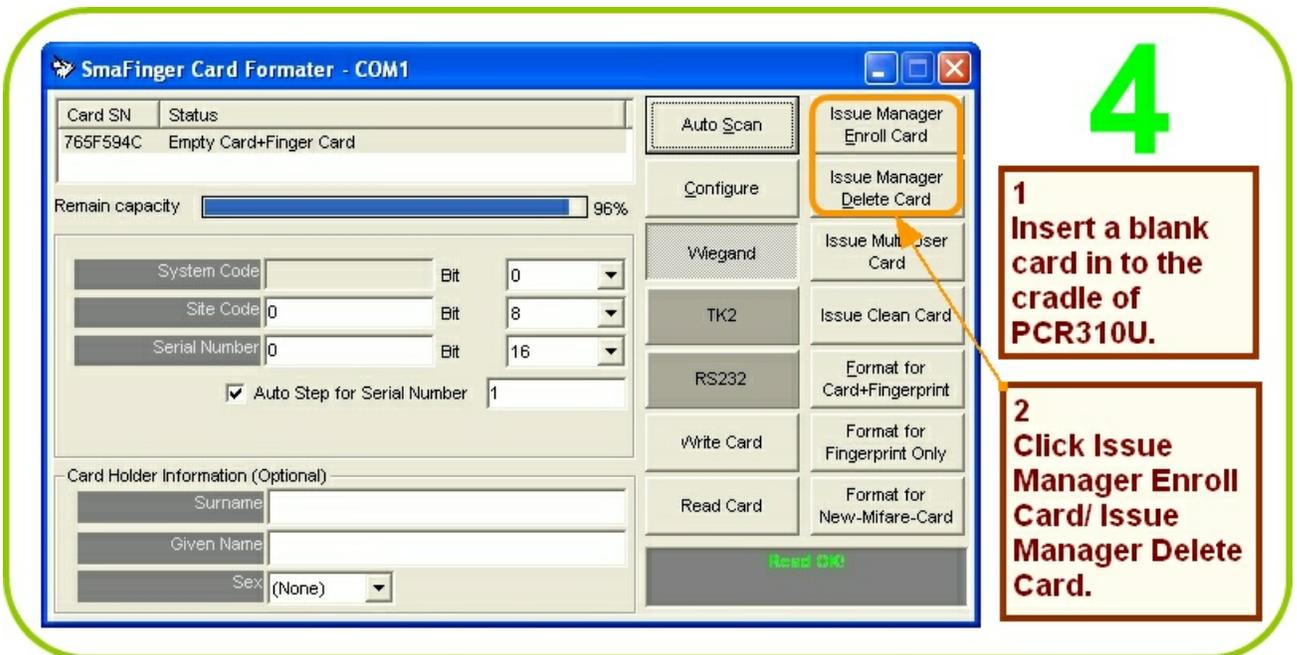
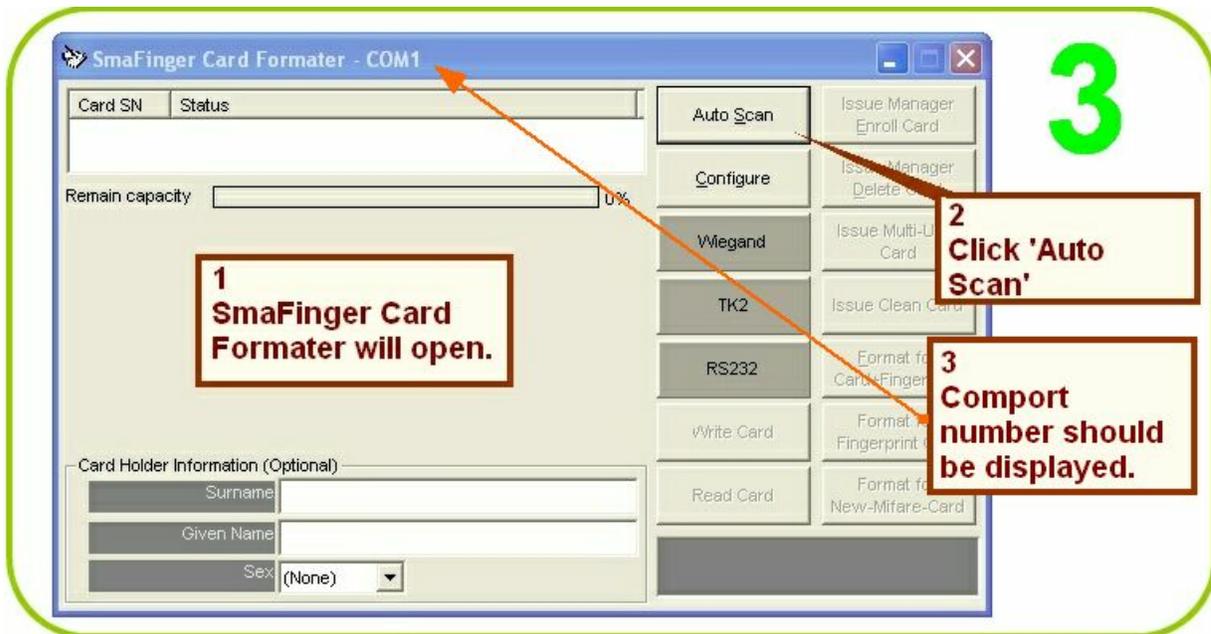
#### 3.11.8.1 By Reset-Pin Jumper



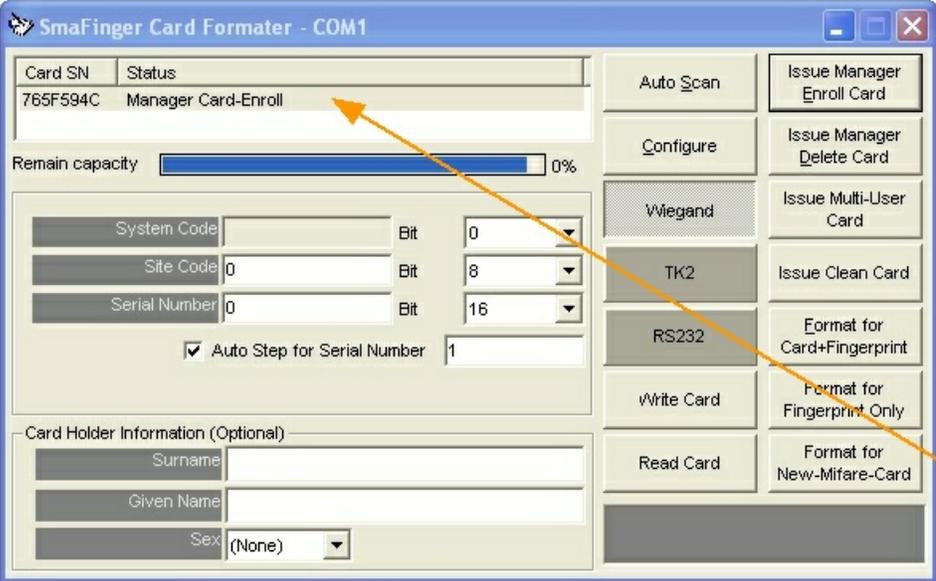
### 3.11.8.2 By SF Formater

SF Formater should have been installed as illustrated in chapter 1.5 [Installation of SF Formater](#)





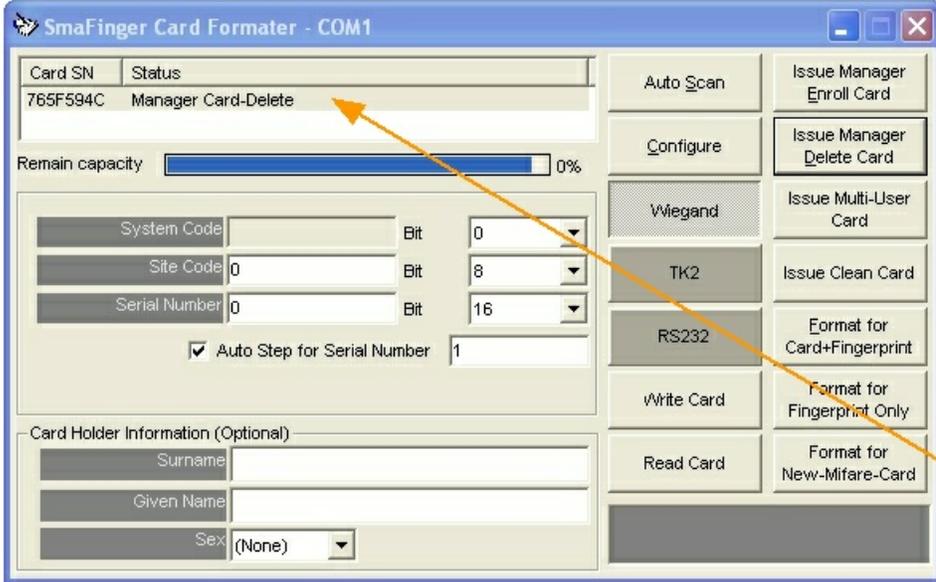
5



**Manager Enroll Card is ready. Remove card.**

The screenshot shows the 'SmaFinger Card Formatter - COM1' window. The 'Card SN' is 765F594C and the 'Status' is 'Manager Card-Enroll'. The 'Remain capacity' is 0%. The 'System Code' is 0, 'Site Code' is 0, and 'Serial Number' is 0. The 'Auto Step for Serial Number' checkbox is checked. The 'Card Holder Information' section is empty. The right-hand side contains a vertical stack of buttons: Auto Scan, Issue Manager Enroll Card, Configure, Issue Manager Delete Card, Wiegand, Issue Multi-User Card, TK2, Issue Clean Card, RS232, Format for Card+Fingerprint, Write Card, Format for Fingerprint Only, Read Card, and Format for New-Mifare-Card. An orange arrow points from the 'Manager Card-Enroll' status text to a callout box on the right.

6



**Manager Delete Card is ready. Remove card.**

The screenshot shows the 'SmaFinger Card Formatter - COM1' window. The 'Card SN' is 765F594C and the 'Status' is 'Manager Card-Delete'. The 'Remain capacity' is 0%. The 'System Code' is 0, 'Site Code' is 0, and 'Serial Number' is 0. The 'Auto Step for Serial Number' checkbox is checked. The 'Card Holder Information' section is empty. The right-hand side contains a vertical stack of buttons: Auto Scan, Issue Manager Enroll Card, Configure, Issue Manager Delete Card, Wiegand, Issue Multi-User Card, TK2, Issue Clean Card, RS232, Format for Card+Fingerprint, Write Card, Format for Fingerprint Only, Read Card, and Format for New-Mifare-Card. An orange arrow points from the 'Manager Card-Delete' status text to a callout box on the right.

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