



SCARDTK

Mifare Classic personalization

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1. INTRODUCTION

This document aims to help you personalize your Mifare Classic cards using the SCardTK application. In this document, we will assume that the card is in "out of factory" state.

This document requires that you read carefully the documentation of the Mifare Classic card.

This demonstration has been done using an out of factory Mifare Classic 1K and a Prox'N'Roll PC/SC. You can view details about this reader here: <http://www.springcard.com/products/proxnroll-pcsc.html>

SCardTK is a PC/SC software compliant with all our PC/SC products. This includes:

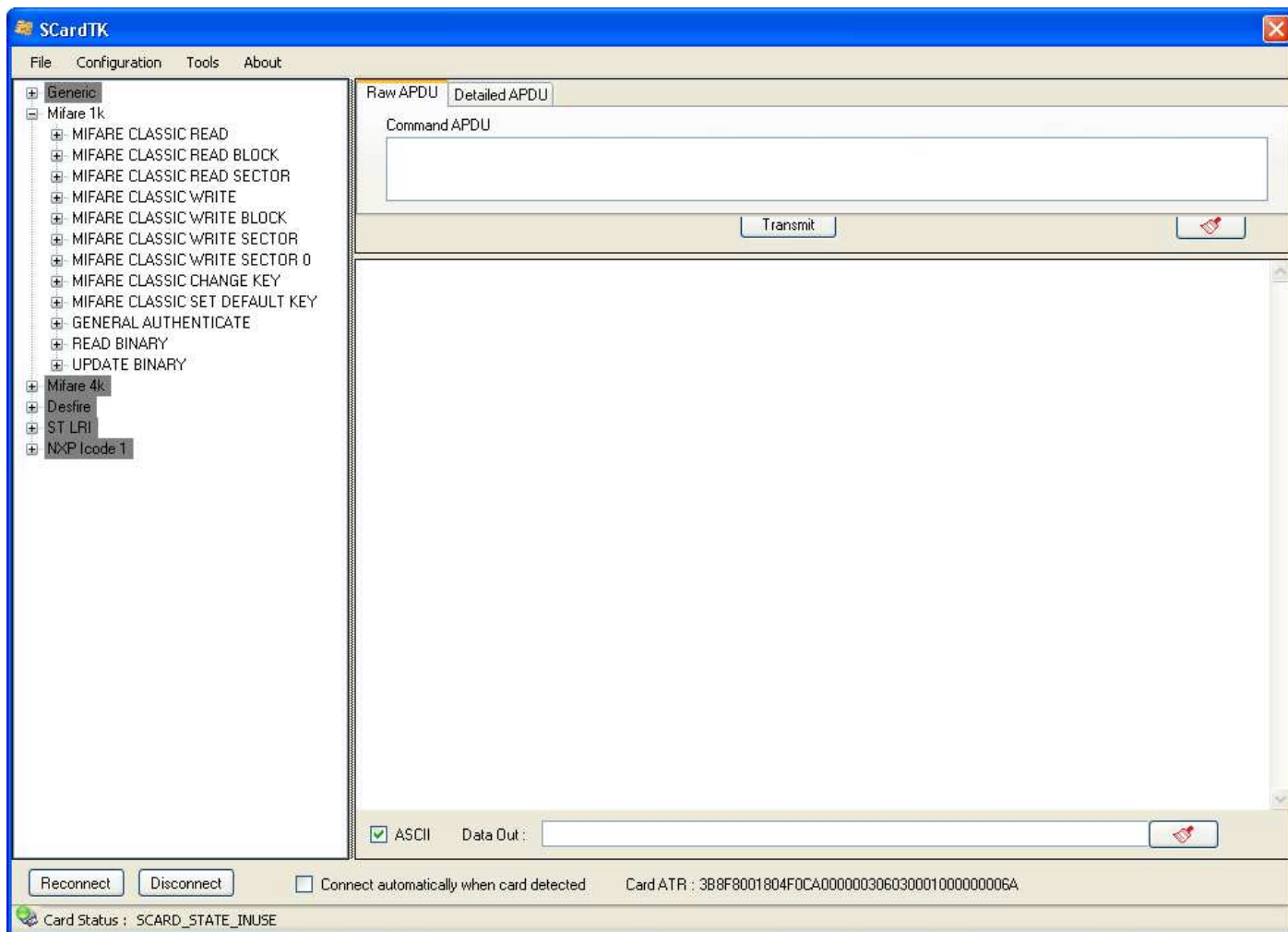
- Prox'N'Roll : <http://www.springcard.com/products/proxnroll-pcsc.html>
- CSB6 : <http://www.springcard.com/products/csb6.html>
- CrazyWriter : <http://www.springcard.com/products/crazywriter.html>
- EasyFinger : <http://www.springcard.com/products/easyfinger.html>

The Step by Step personalization presented here consists of:

- Reading the first two sectors
- Changing the access keys of the second sector
- Writing data in the second sector
- Reading the second sector to check if data has been written

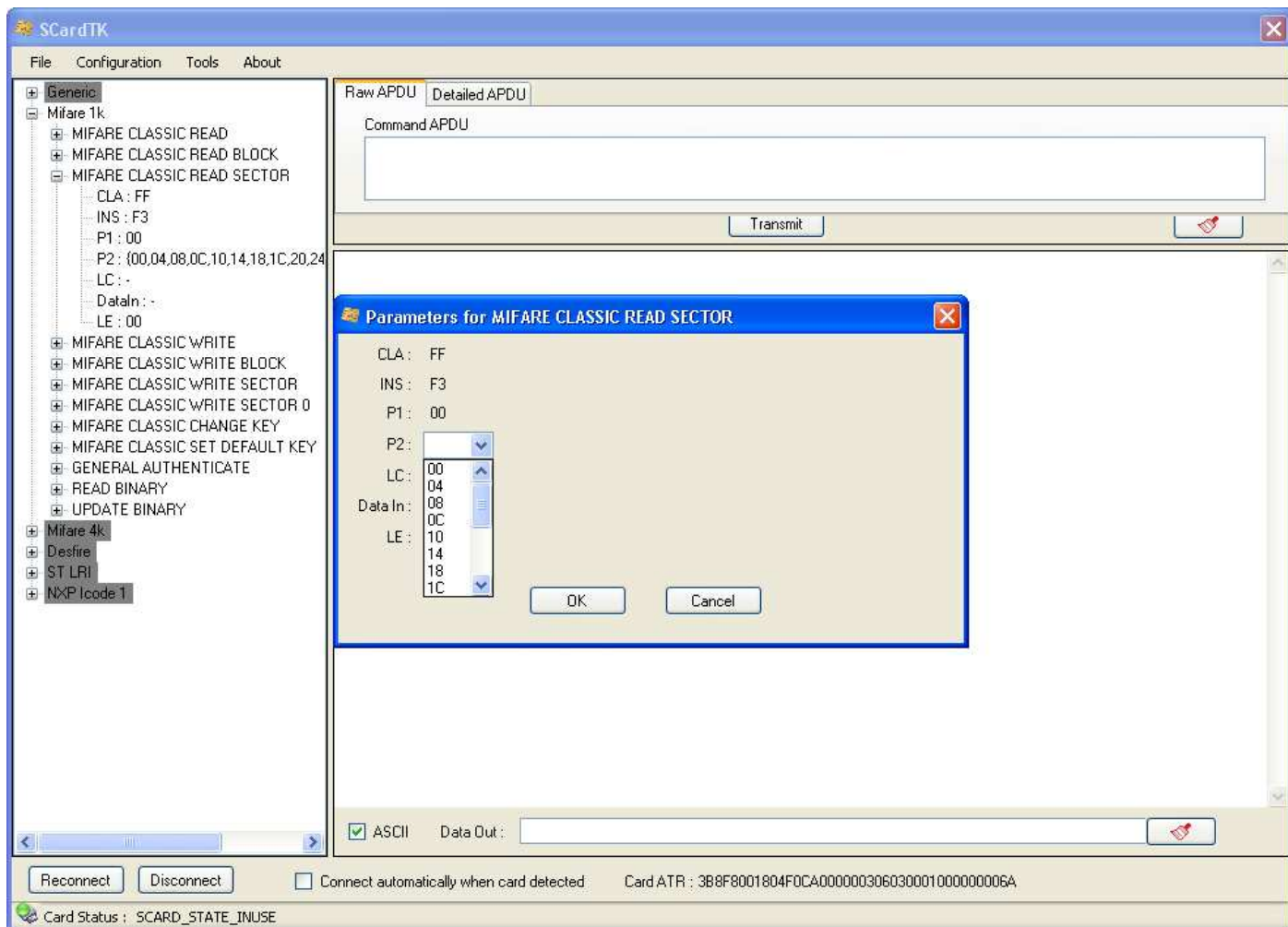
2. STEP BY STEP PERSONALIZATION

Once SCardTK is launched, put your card on the reader and click connect:



The section corresponding to the Mifare 1K card is expanded automatically.

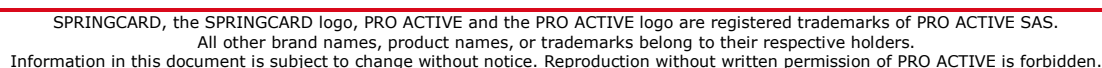
First, we read the sectors 0 and 1. Double Click on the "MIFARE CLASSIC READ SECTOR" section, a pop up will appear.



The only parameter you need to choose is the number of the first block of the sector: for sector 0, it will be block 0; for sector 1 block 4; etc...

Once this parameter is set click ok. The APDU generated will appear on the "Command APDU" section. Click on the "Transmit" button to send the APDU to the card.

In that case, we can see the content of the first two sectors. We notice that these sectors are empty (except for the “Manufacturer Block” corresponding to block 0).



Then we set the access keys for sector 1 to default keys:

- Read key to A0 A1 A2 A3 A4 A5
- Write key to B0 B1 B2 B3 B4 B5

Double click on the section "MIFARE CLASSIC SET DEFAULT KEY".

You only need to choose the block corresponding to the Sector Trailer of the sector. In that case, it would be block 1.

Note that you can also set your own keys using MIFARE CLASSIC CHANGE KEY: the access conditions are already written in the "Data In" Section, just put your read key before that and your write key after that. Remember to load those keys onto your reader using the LOAD KEY command.



The dialog box has a blue title bar with a yellow icon and a red close button. The main area is light beige. It contains the following fields:

- CLA : FF
- INS : F4
- P1 : 00
- P2 : 07 (with a dropdown arrow)
- LC : 10
- Data In : A0A1A2A3A4A578778800B0B1B2B3B4B5
- LE : -

At the bottom are two buttons: "OK" and "Cancel".

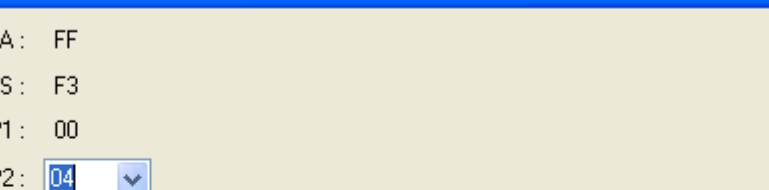
Next, write your data on your card using MIFARE CLASSIC WRITE BLOCK or MIFARE CLASSIC WRITE SECTOR:



The dialog box has a blue title bar with a yellow icon and a red close button. The main area is light beige. It contains the following fields:

- CLA : FF
- INS : F4
- P1 : 00
- P2 : 04 (with a dropdown arrow)
- LC : 10
- Data In : 537072696E6743617264
- LE : -

At the bottom are two buttons: "OK" and "Cancel".



Parameters for MIFARE CLASSIC READ SECTOR

CLA: FF

INS: F3

P1: 00

P2: 04

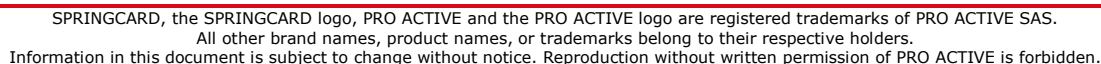
LC: -

Data In: -

LE: 00

OK Cancel

You can see the data written on the Result Section, and a log of all the APDUs you have sent with the corresponding responses from the card. We can see that we have successfully written "SpringCard" in the sector 1:



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