Loading an applet on SMAOT100NFC card using SIMAlliance Loader v2

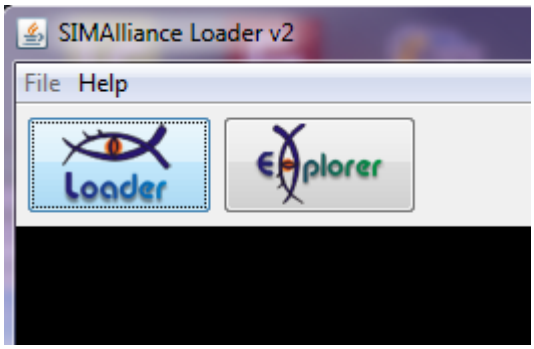
This is a step-by-step guide on how to use SIMAlliance Loader v2, a free tool from SIMAlliance, to load and install an applet on one of our USIM cards.

We will use the OTASession to this and for that we'll need to configure the 03.48 settings (KiC,KiD, SPI, algorithm etc).

So, the things we need for this guide / lesson are:

1. APC and a standard smart card reader (link)
2. SIM card: SMAOT100NFC
3. the app (*.cap) we want to put on the card
4. SIMAlliance Loader v2 (link)

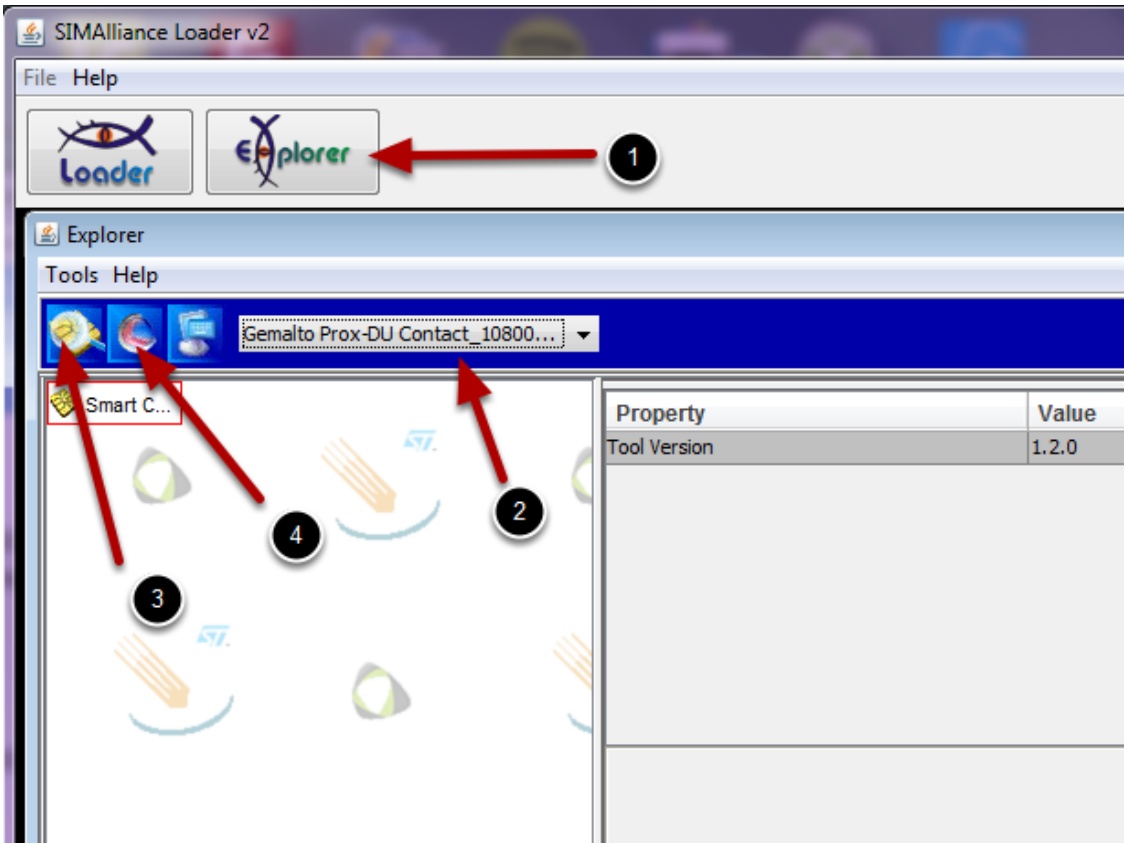
Start



Start the program (with Administrator rights or you may have communication error with the smart card reader)

Insert the SIM card in the smart card reader

Explore with Explorer



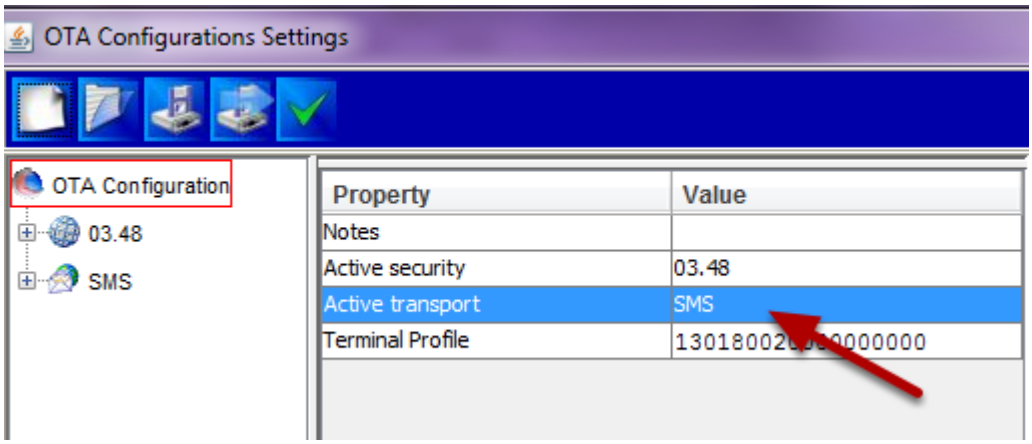
1. Click on Explorer button
2. Select your smart card reader (***contact mode*** if you have a dual interface reader)
3. Click on "Scan" button

You should get an error: "POR error: Insufficient security level"

This is because we have not yet made the necessary configurations...

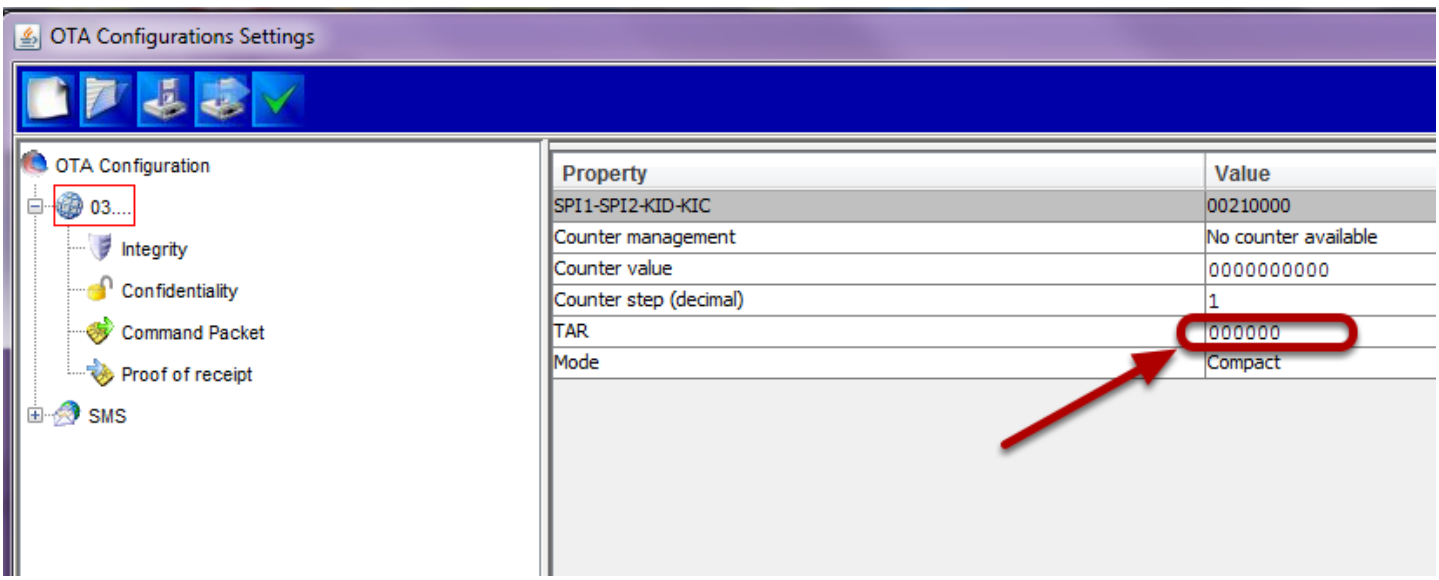
4. Click on "OTAconfiguration" button

OTA configuration



Select SMS as the transport mechanism

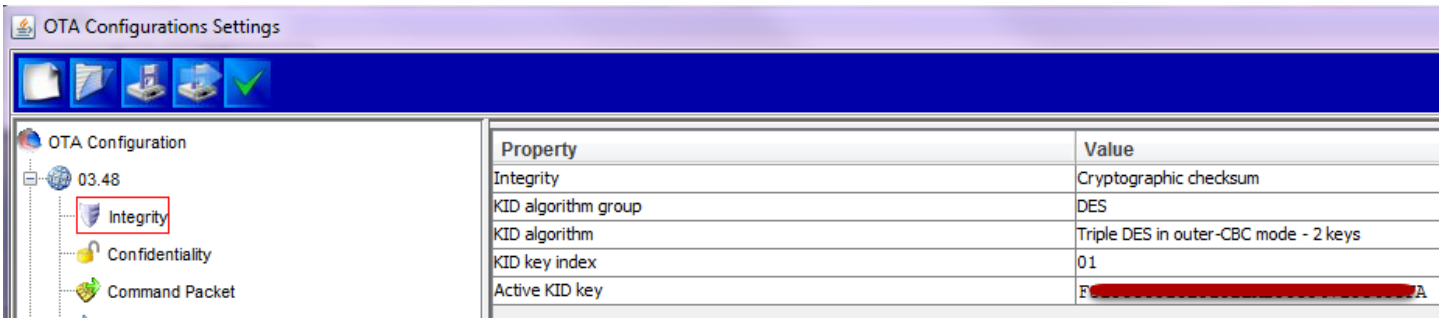
OTA configuration - 03.48



We will now set some parameters starting with some general 03.48 settings.

From your supplier you should have received some documentation on your card regarding codes, keys and other settings. Here you'll need the TAR value.

OTA Integrity setting (KiD)



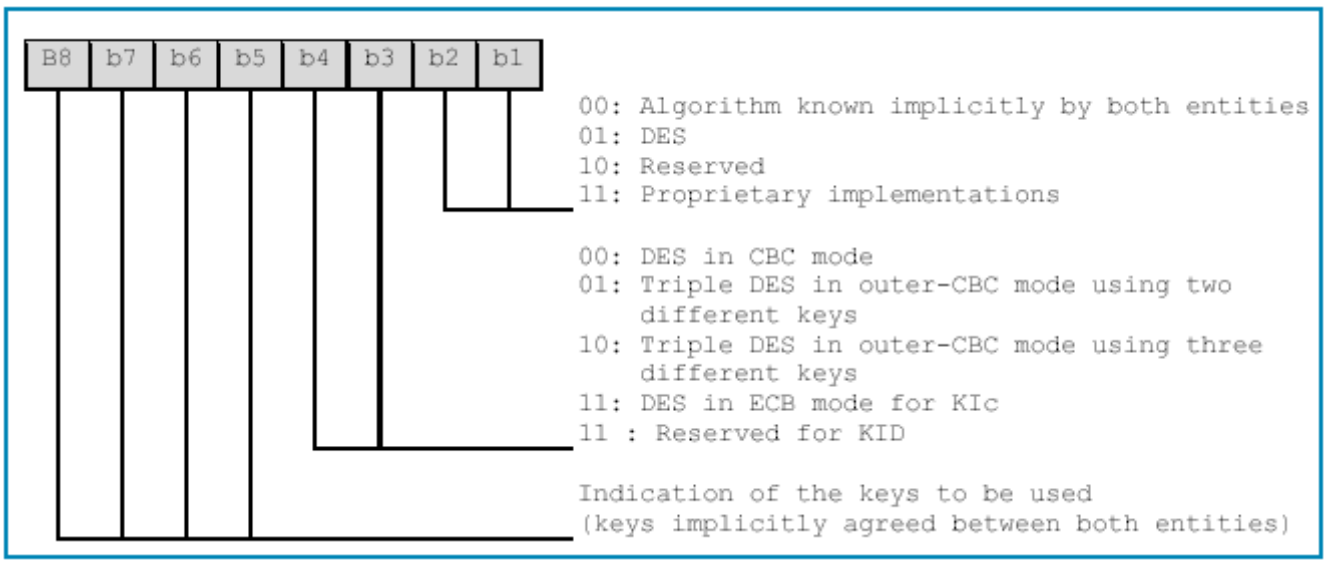
Enter or select the values according to the screenshot above.

For the SMAOT100NFC card the KiD = 15. In binary value, transformed from Hex, it's 00010101. And this shows us the properties to be set for Integrity.

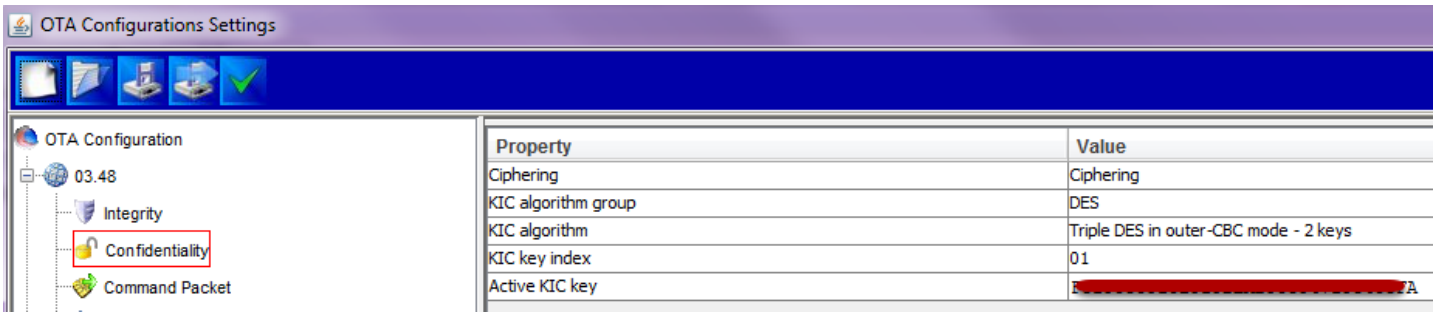
0001 : key index
01 : Triple DES in outer -CBC mode using 2 keys
01 : DES

See next figure

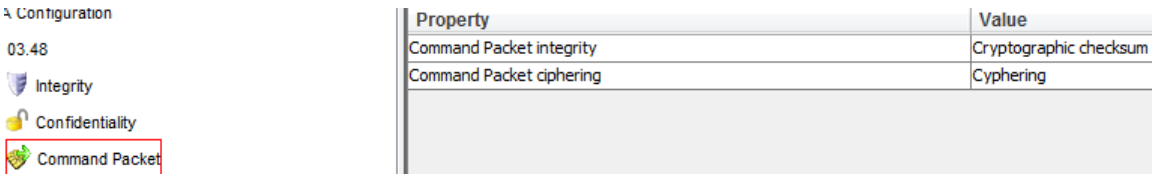
The coding for KiC and KiD is shown below:



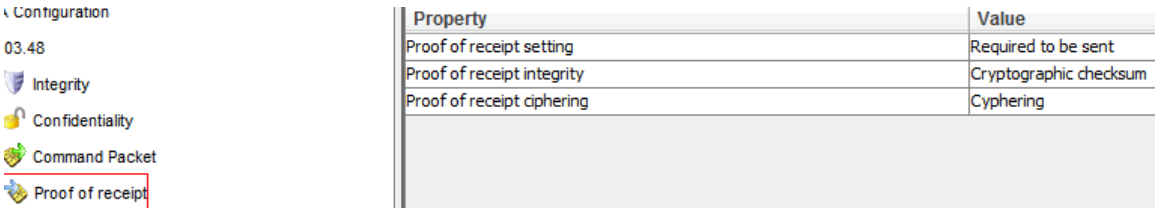
OTA confidentiality setting (KiC)



OTA Command Packet

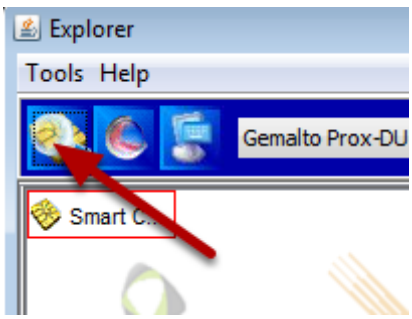


OTA Proof of receipt



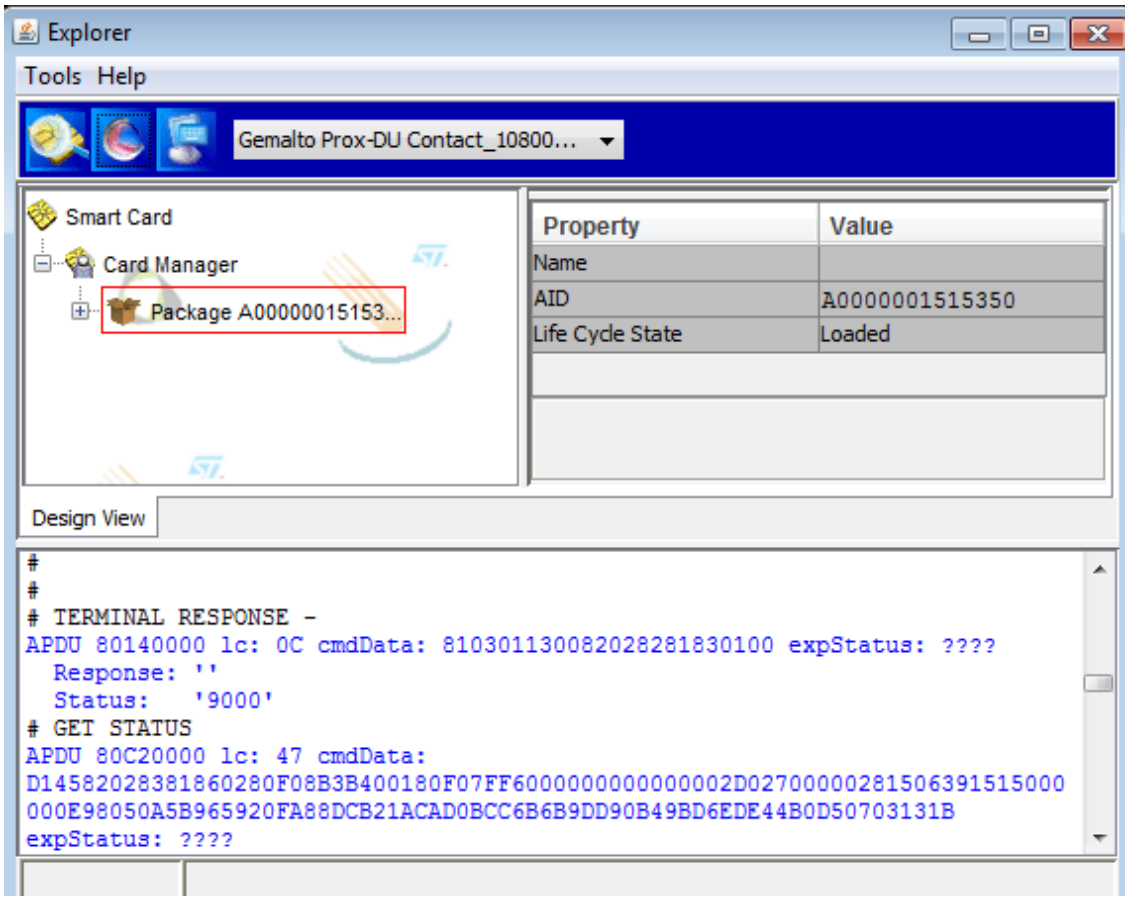
After this step, click "OK" and work with Explorer tool again, and we will try to scan the card again.

Scan with Explorer



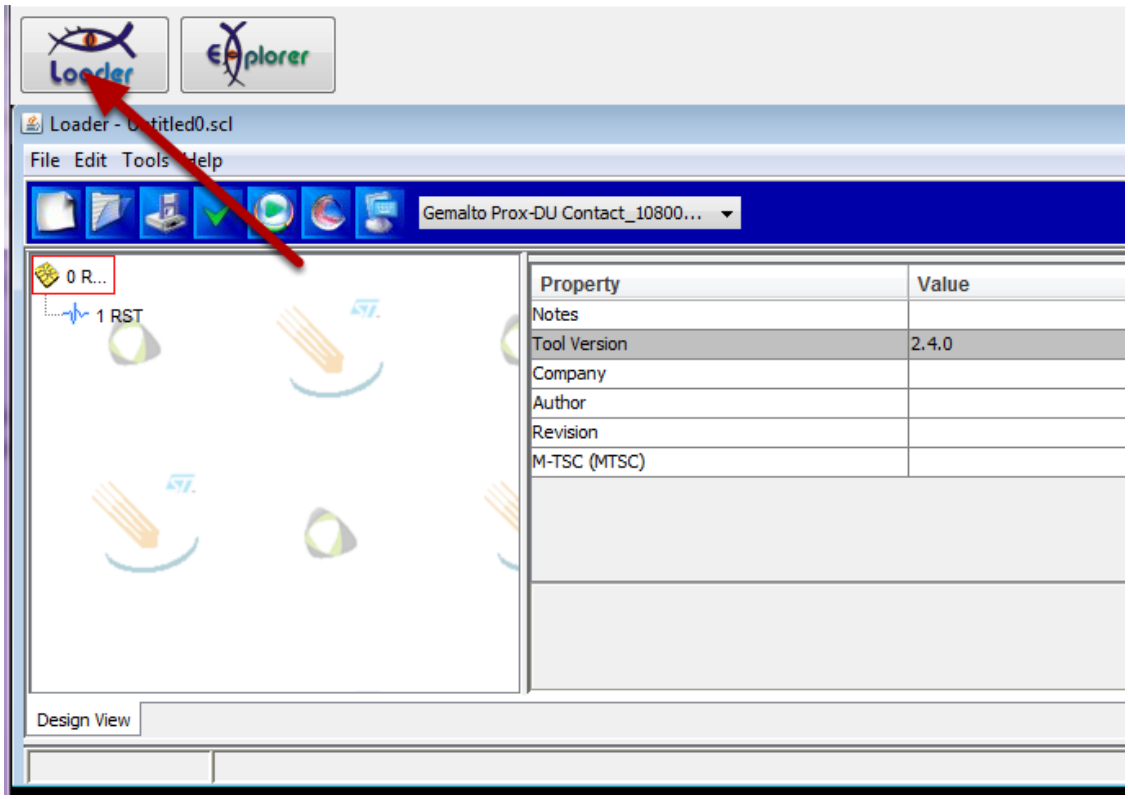
Click the "Scan" button, and...

Card content



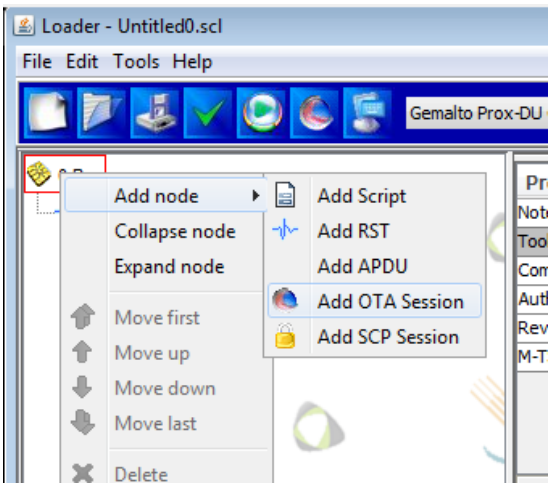
So, you should have no errors, and you should have one package under the Card Manager.

Loader



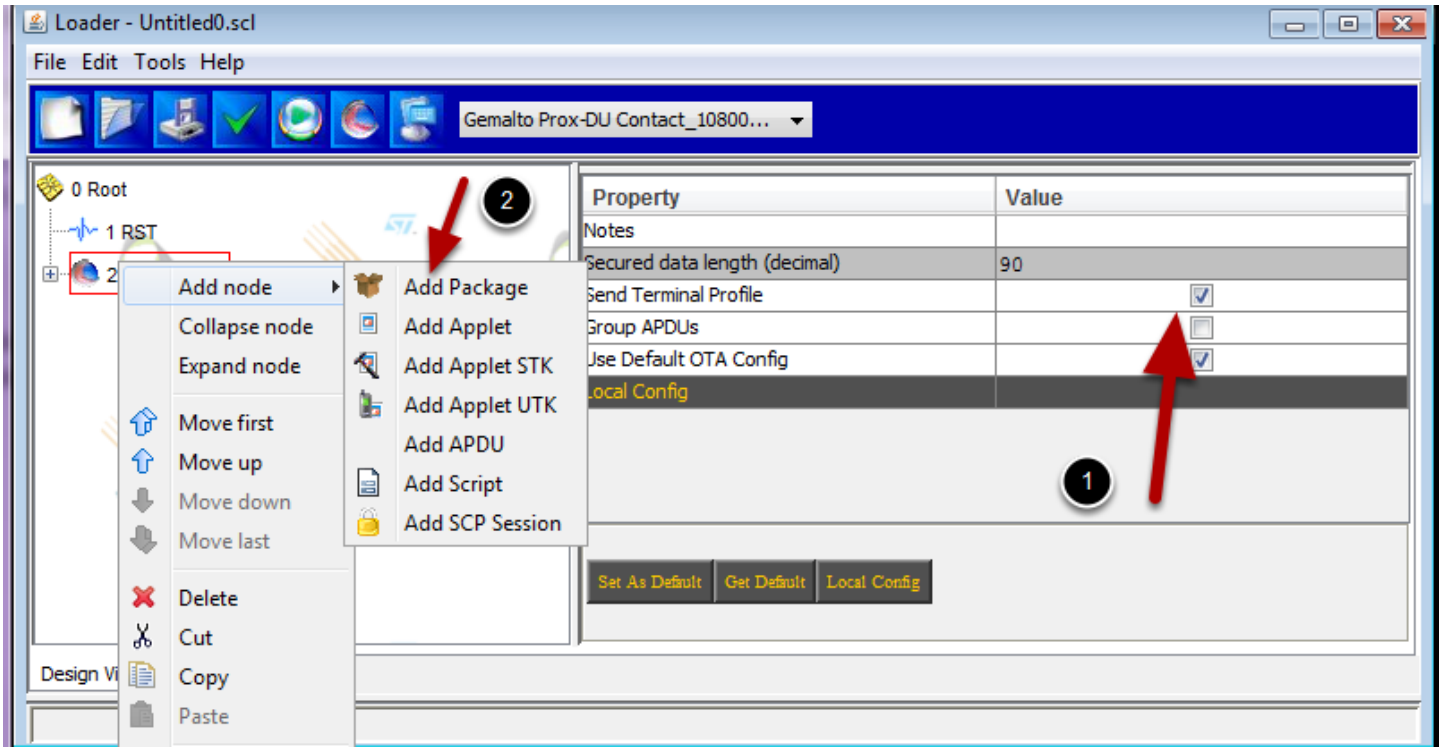
Now it's time to start playing with the "loader" tool. Click on the "loader" button and a new window appears.

Add OTA session



We are going to use OTAto install an app on the card. So right-click on the chip icon and select "Add node / Add OTAsession".

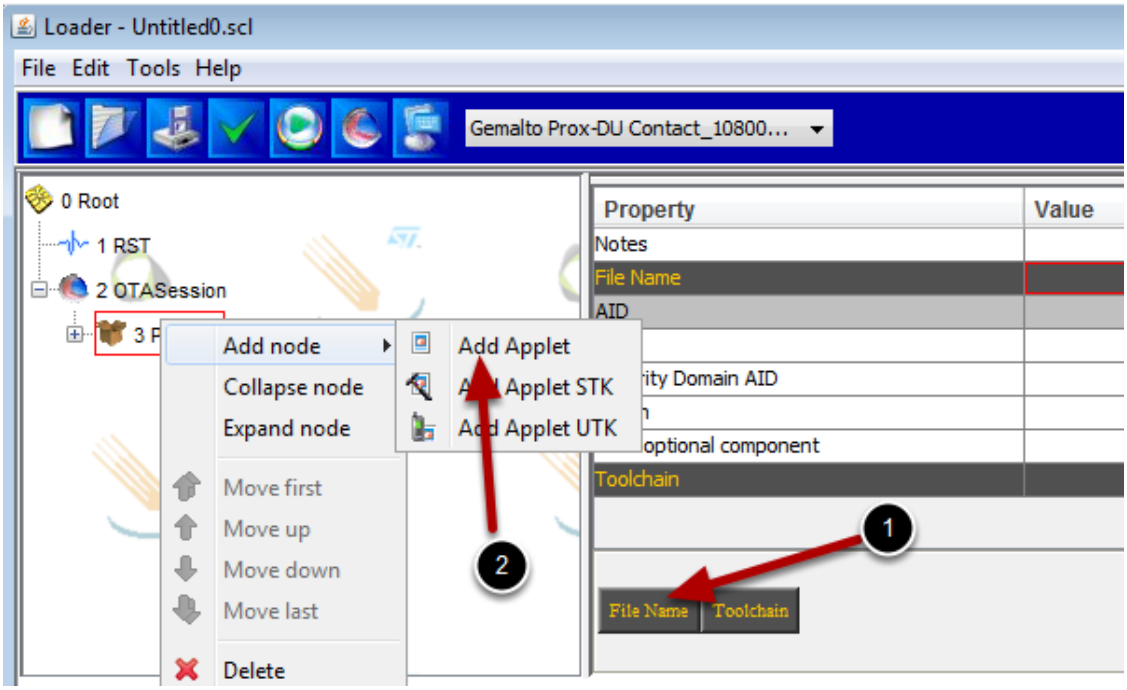
OTA Session & Add applet



1. Check the "Send Terminal Profile" checkbox

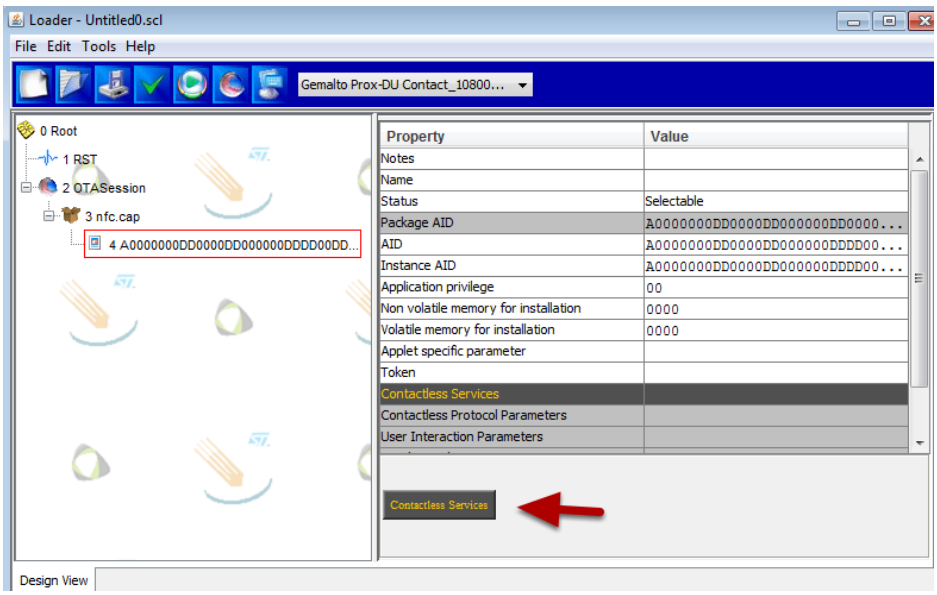
2. Right-click "OTASession" icon and select "Add node / Add Package"

Select the application and add applet



1. Click on "File Name" and select your app

2. Right-click on the package icon and select "Add node / Add Applet"



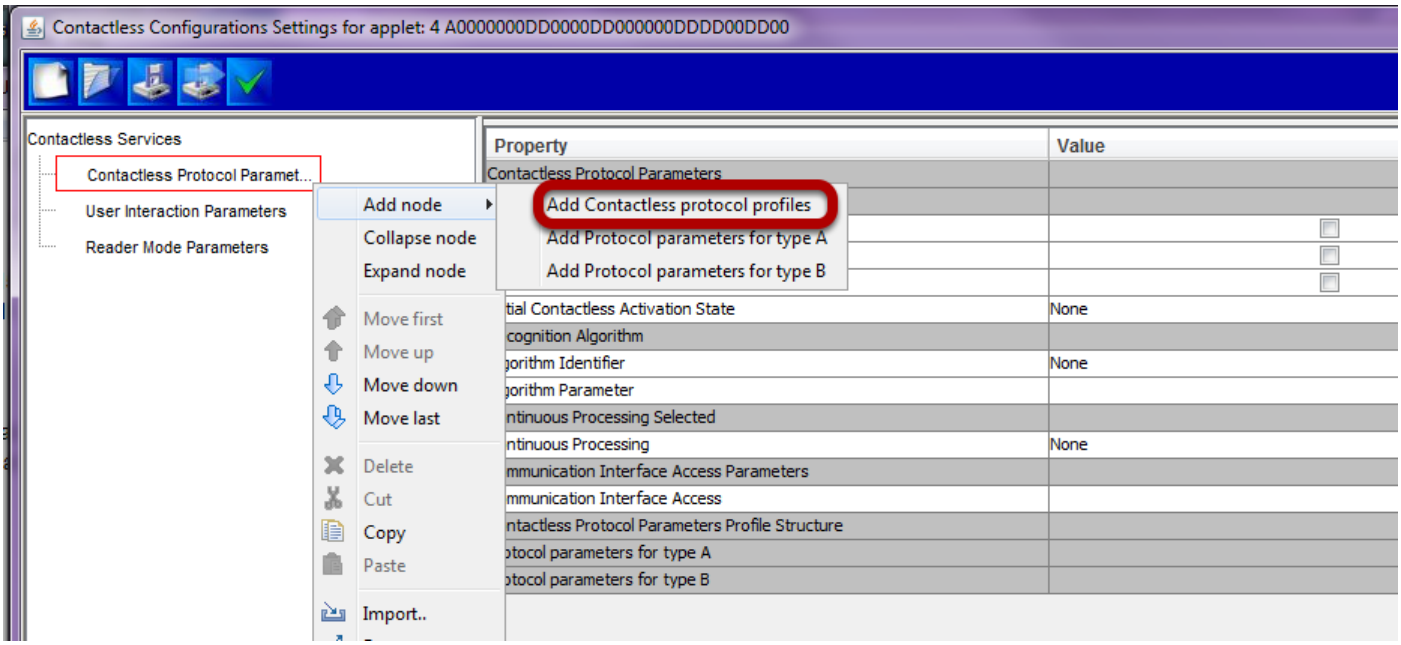
You should now have a screen looking like this.

As we in this guide have chosen an NFC app, we also have to make some Contactless

Services configurations... so that's the next step.

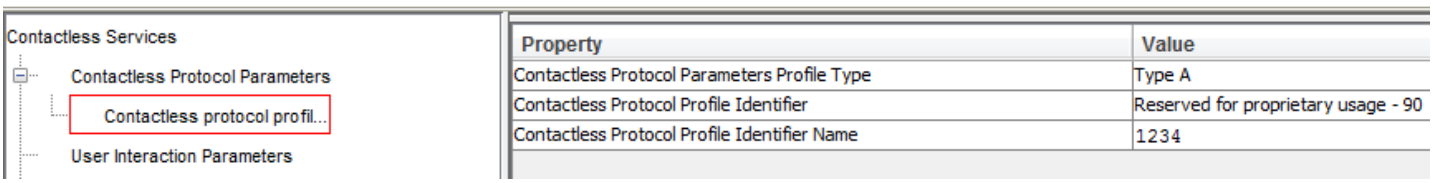
Click on "Contactless Services" button and a new window will pop-up.

Add contactless protocol profiles



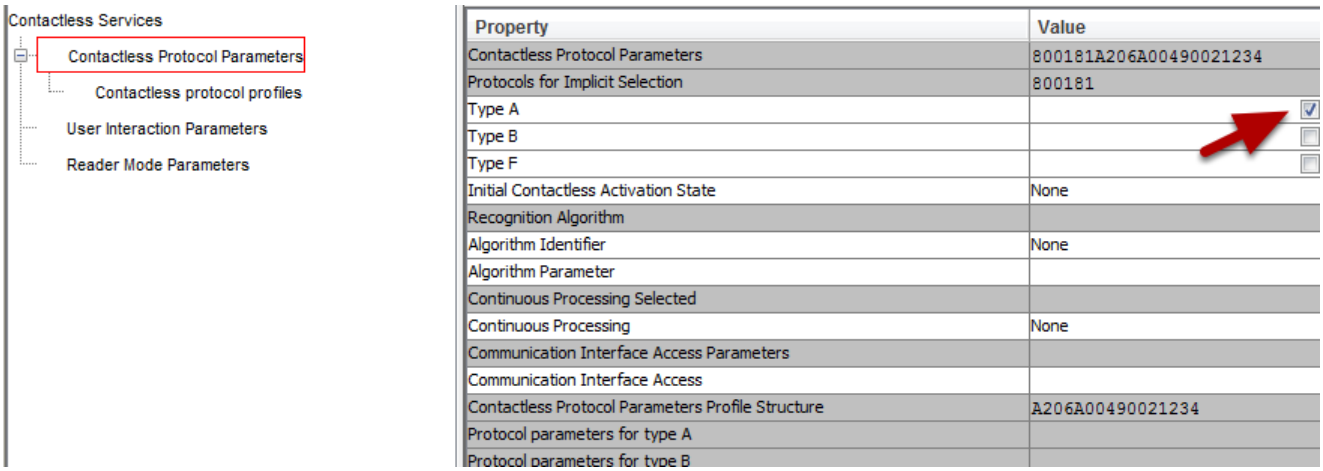
Right-click on "Contactless Protocol Parameters" and select "Add node / Add Contactless protocol profiles"

fill in properties



Fill in / Select the values as above

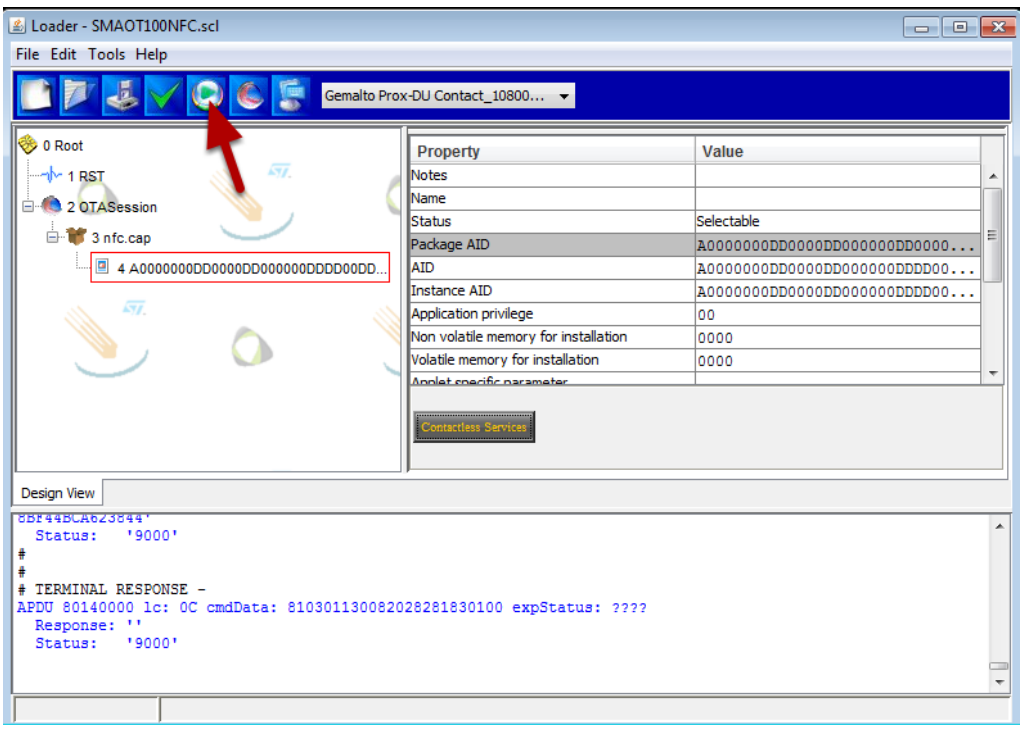
Select Type A



Check the box "Type A"

Done!

Installing applet on card



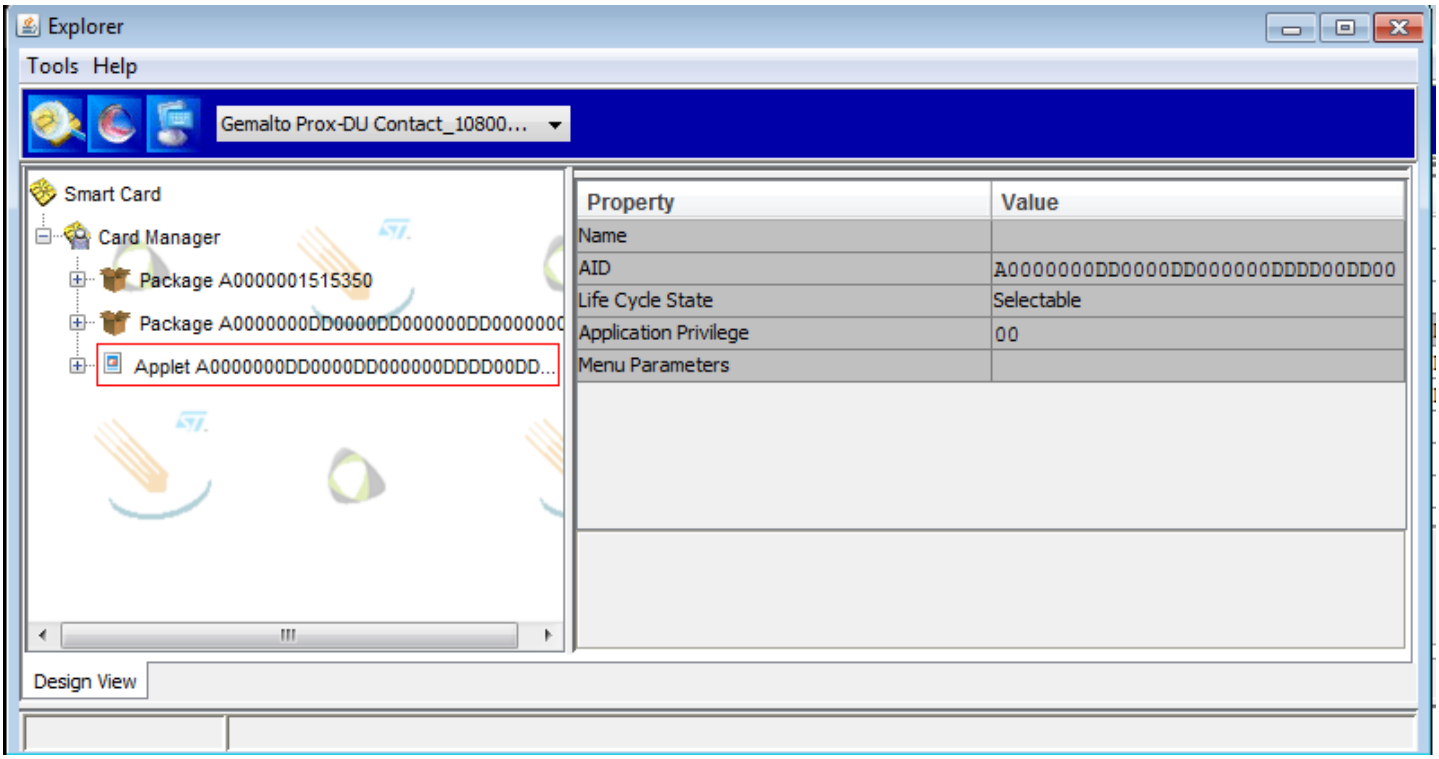
Now everything is prepared in order to install the nfc application on the card.

Just click on the "RUN" icon and APDU commands will be sent to the card, and you can see

them in the terminal window.

You should only have blue and black text. Red text indicates some kind of error.

Exploring the card again



Using "Explorer" tool again and scanning the card, shows us the package and the applet now on the card!