

# **SMAATSDK**

**NFC MODULE ON ANDROID  
REQUIREMENTS AND DOCUMENTATION  
RELEASE v1.0**

**Serimag**

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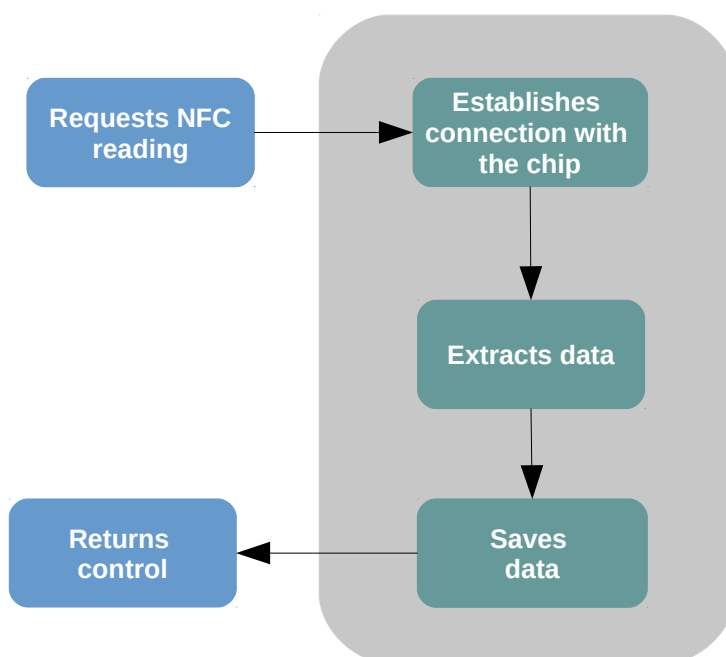
## Scope




This document contains a detailed explanation of the functionalities and requirements of the NFC module. First, a general operating diagram is shown. Then, all the functions provided and their parameters are explained. Finally, a usage example is given.

## Purpose

The purpose of this document is to explain the operation and requirements of the NFC Module in detail, and to facilitate its integration into new or already existing projects.

## General operating diagram



-  Application blocks
-  Blocks encapsulated by the SDK
-  NFC engine blocks

## Functions provided and parameters to use them

### Functions necessary for data extraction

<b>Functions for data extraction</b> These functions are necessary for the module to function	
<b>NfcInterface nfcInterface = new NfcInterface()</b>	Create a new NfcInterface object.
*Add optional functions	
<b>void nfcInterface.runId_NFC(Activity activity, int requestCode, String documentId, String birthDate, String expiryDate)</b>	Starts the ID data extraction using NFC. **
<b>void nfcInterface.runPassport_NFC(Activity activity, int requestCode, String documentId, String birthDate, String expiryDate)</b>	Starts passport data extraction using NFC. **
<b>void nfcInterface.runBankCard_NFC(Activity activity, int requestCode)</b>	Starts bank card data extraction using NFC. **
<b>** Activity resultCode</b>	0 → Incorrect NFC access "keys" 1 → NFC data correct extraction 2 → Activity skipped

## Functions necessary for reading the extracted data

<b>Functions for reading the extracted data</b> These functions are necessary for reading the extracted data	
<b>JSONObject nfcInterface.getIdData()</b>	Returns data extracted from the ID. Within the set of data, a distinction is made between: <ul style="list-style-type: none"><li>• "name"</li><li>• "surname"</li><li>• "birthDate"</li><li>• "gender"</li><li>• "nationality"</li><li>• "documentNumber"</li><li>• "nationalID"</li><li>• "expiryDate"</li><li>• "birthPlace"</li><li>• "address"</li></ul> Exceptions: <ul style="list-style-type: none"><li>• JSONException</li></ul>
<b>JSONObject nfcInterface.getPassportData()</b>	Returns data extracted from the passport. Within the set of data, a distinction is made between: <ul style="list-style-type: none"><li>• "name"</li><li>• "surname"</li><li>• "birthDate"</li><li>• "gender"</li><li>• "nationality"</li><li>• "documentNumber"</li><li>• "nationalID"</li><li>• "expiryDate"</li></ul> Exceptions: <ul style="list-style-type: none"><li>• JSONException</li></ul>
<b>JSONObject nfcInterface.getBankCardData()</b>	Returns data extracted from the bank card. Within the set of data, a distinction is made between: <ul style="list-style-type: none"><li>• "PAN" (Permanent Account Number)</li><li>• "expiryDate"</li><li>• "cardType"</li></ul>
<b>Bitmap nfcInterface.getPhoto()</b>	Returns a bitmap with the photo. Exceptions: <ul style="list-style-type: none"><li>• Exception</li></ul>

## Optional functions

Optional functions	
<b>void nfcInterface.setParameters(boolean photo)</b>	If you wish to extract the photo from the ID or passport, you must enable <b>setParameters()</b> before <b>runId_NFC()</b> or <b>runPassport_NFC()</b> .
<b>void nfcInterface.setWarningTimer(int timerWarning)</b>	Enables a warning message if the connection could not be established between the device and the document chip. Allows timeout parametrisation that enables the message.
<b>void nfcInterface.setSkipTimer(int timerSkipNFC)</b>	Enables a warning message that a connection could not be established between the device and the document chip. The reading will not be carried out, and application control is returned. Allows timeout that omits the reading.

## Parameters to use

Parameters to use	
Parameters to use in the above functions	
<b>int requestCode</b>	It is the <b>requestCode</b> for getting the result of the <a href="#">startActivityForResult()</a> .
<b>String documentId</b>	This parameter contains the document number and is used to establish the connection with the chip.
<b>String birthDate</b>	This parameter contains the date of birth in "yymmdd" format, and is used to establish the connection with the chip.
<b>String expiryDate</b>	This parameter contains the expiry date of the document and is used in "yymmdd" format. The <b>documentId</b> and <b>birthDate</b> parameters together form the access key to the chip.
<b>boolean photo</b>	Enables the extraction of the photo from the ID.

Access Keys to the JSON	
"name"	Allows the extraction of the <b>FIRST NAME</b> from the JSONObject that the <b>getIdData()</b> and <b>getPassportData()</b> functions return.
"surname"	Allows the extraction of the <b>SURNAMES</b> from the JSONObject that the <b>getIdData()</b> and <b>getPassportData()</b> functions return.
"birthDate"	Allows the extraction of the <b>DATE OF BIRTH</b> from the JSONObject that the <b>getIdData()</b> and <b>getPassportData()</b> functions return.
"gender"	Allows the extraction of the <b>SEX</b> from the JSONObject that the <b>getIdData()</b> and <b>getPassportData()</b> functions return.
"nationality"	Permite la extracción de la <b>NACIONALIDAD</b> del JSONObject que retornan las funciones <b>getIdData()</b> y <b>getPassportData()</b> .Allows the extraction of the <b>NATIONALITY</b> from the JSONObject that the <b>getIdData()</b> and <b>getPassportData()</b> functions return.
"documentNumber"	Allows the extraction of the <b>DOCUMENT NUMBER</b> from the JSONObject that the <b>getIdData()</b> and <b>getPassportData()</b> functions return.
"nationalID"	Allows the extraction of the <b>National Identification Number</b> , if there is one, from the JSONObject that the <b>getIdData()</b> and <b>getPassportData()</b> functions return.
"expiryDate"	Allows the extraction of the <b>EXPIRY DATE</b> from the JSONObject that the <b>getIdData()</b> , <b>getPassportData()</b> and <b>getBankCardData()</b> functions return.
"birthPlace"	Allows the extraction of the <b>PLACE OF BIRTH</b> from the JSONObject that the <b>getIdData()</b> function returns.
"address"	Allows the extraction of the <b>Address</b> from the JSONObject that the <b>getIdData()</b> function returns.
"PAN"	Allows the extraction of the <b>Permanent Account Number (PAN)</b> from the JSONObject that the <b>getIdData()</b> function returns.

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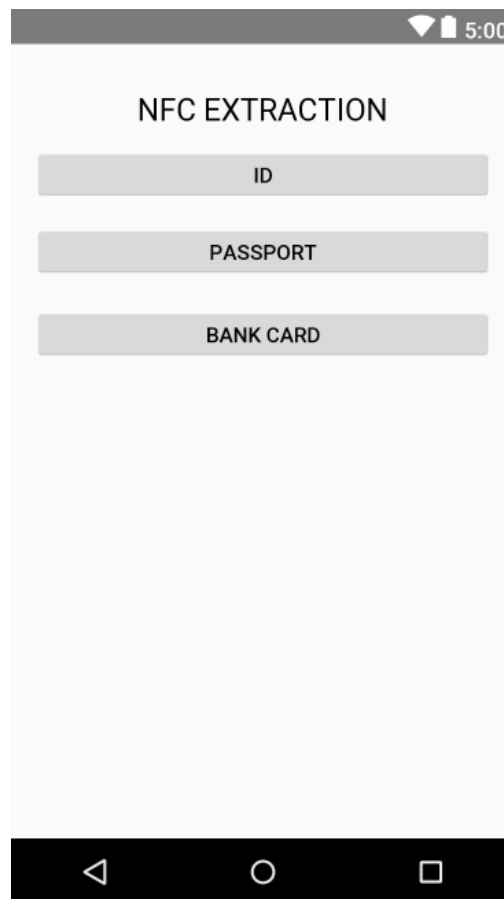
<b>“cardType”</b>	Allows the extraction of the <b>TYPE</b> of bank card from the <b>JSONObject</b> that the <b>getIdData()</b> function returns.
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## Usage example

Once “nfclibrary.aar” AAR is installed, you can start to use the NFC module.

Suppose that you want to create an application that extracts the data and the photo from the ID 3.0 and from the passport, in addition to the bank card data by using NFC. The following screen could be the main screen:



In this example application there are three buttons, one for each document type. Once the data is extracted, the **onActivityResult()** function is used to display the results. In the case of the ID and the passport, the data will be displayed in a different activity, which is called **DataResult in this case**. For bank cards, due to the small amount of information that is extracted, it will be displayed in a text view in the same activity, **Main**, or in this case **StartMenu**. The code for this basic application example is shown below:

```
01: package serimagmedia.capturaautomatica;
02:
03: import android.content.Intent;
04: import android.os.Bundle;
05: import android.support.v7.app.AppCompatActivity;
06: import android.util.Log;
07: import android.view.View;
08: import android.widget.TextView;
09:
10: import org.json.JSONException;
11: import org.json.JSONObject;
12:
13: import serimagmedia.nfclibrary.NfcInterface;
14:
15:
16:
17: public class StartMenu extends AppCompatActivity {
18:
19:     NfcInterface nfcInterface = new NfcInterface();
20:     TextView textView;
21:     private String docType = "";
22:
23:     @Override
24:     protected void onCreate(Bundle savedInstanceState) {
25:         super.onCreate(savedInstanceState);
26:         setContentView(R.layout.activity_start_menu);
27:
28:         textView = (TextView) findViewById(R.id.idTextView1);
29:
30:     }
31:
32:     private void print(String text) {
33:         Log.d("MAIN", text);
34:     }
35:
36:     public void onClickId(View v){
37:         nfcInterface.setWarningTimer(20);
38:         nfcInterface.setSkipTimer(40);
39:         nfcInterface.setParameters(true);
40:         docType = "ID";
41:         nfcInterface.runId_NFC(this, 7001, "XXXXXXXXX", "YYMMDD",
42: "YYMMDD");
43:     }
```

```
45:     public void onClickPassport(View v){
46:         nfcInterface.setWarningTimer(20);
47:         nfcInterface.setSkipTimer(40);
48:         nfcInterface.setParameters(true);
49:         docType = "PASSPORT";
50:         nfcInterface.runPassport_NFC(this, 7003, "XXXXXXXX",
51:             "YYMMDD", "YYMMDD");
52:
53:     }
54:
55:     public void onClickBankCard(View v){
56:         nfcInterface.setWarningTimer(20);
57:         nfcInterface.setSkipTimer(40);
58:         nfcInterface.runBankCard_NFC(this, 7002);
59:     }
60:
61:     protected void onActivityResult(int requestCode, int
62:         resultCode, Intent intentData){
63:
64:         if(requestCode == 7001){
65:             if( nfcInterface.getBackButtonPressed() == false){
66:
67:                 if(resultCode == 1){
68:                     Intent intent = new Intent(this,
69:                         DataResult.class);
70:                     intent.putExtra("DOCTYPE", docType);
71:                     startActivityForResult(intent, 1);
72:                 }else if(resultCode == 0){
73:                     print("KEYS INCORECTAS");
74:                 }else if(resultCode == 2){
75:                     print("SKIP ACTIVITY");
76:                 }
77:
78:             }
79:         }
80:     }
```

```
81:         else if(requestCode == 7003) {
82:
83:             if( nfcInterface.getBackButtonPressed() == false){
84:
85:                 if(resultCode == 1){
86:                     Intent intent = new Intent(this,
87:                         DataResult.class);
88:                     intent.putExtra("DOCTYPE", docType);
89:                     startActivityForResult(intent, 1);
90:                 }else if(resultCode == 0){
91:                     print("KEYS INCORECTAS");
92:                 }else if(resultCode == 2){
93:                     print("SKIP ACTIVITY");
94:                 }
95:             }
96:         }
97:     else if(requestCode == 7002){
98:         if(nfcInterface.getBackButtonPressed() == false){
99:             if(resultCode == 1){
100:                 JSONObject data =
101:                     nfcInterface.getBankCardData();
102:
103:                 if(data != null){
104:                     try {
105:
106: textView.setText("PAN: " + data.getString("PAN") + "\n" +
107:                 "Caducidad: " + data.getString("expiryDate") + "\n" +
108:                 "Tipo de tarjeta: " + data.getString("cardType"));
109:
110:                     } catch (JSONException e) {
111:                         e.printStackTrace();
112:                     }
113:
114:                 }
115:             }else if(resultCode == 2){
116:                 print("SKIP ACTIVITY");
117:             }
118:         }
119:     }
120: }
121:
122: }
123: }
```

```
01: package serimagmedia.capturaautomatica;
02:
03: import android.support.v7.app.AppCompatActivity;
04: import android.os.Bundle;
05: import android.view.WindowManager;
06: import android.widget.ImageView;
07: import android.widget.TextView;
08: import org.json.JSONException;
09: import org.json.JSONObject;
10:
11: import serimagmedia.nfclibrary.NfcInterface;
12:
13: public class DataResult extends AppCompatActivity {
14:
15:     NfcInterface nfcInterface = new NfcInterface();
16:     private TextView textView;
17:     private ImageView imageView;
18:     private String doc = "";
19:
20:     @Override
21:     protected void onCreate(Bundle savedInstanceState) {
22:         super.onCreate(savedInstanceState);
23:         setContentView(R.layout.activity_data_result);
24:
25:         //Remove notification bar
26:
27:         this.getWindow().setFlags(WindowManager.LayoutParams.
28: FLAG_FULLSCREEN, WindowManager.LayoutParams.FLAG_FULLSCREEN);
29:
30:         textView = (TextView)findViewById(R.id.passData);
31:         imageView = (ImageView)findViewById(R.id.passportPhoto);
32:
33:         doc = getIntent().getExtras().getString("DOCTYPE");
```

```
34:  if(doc.equals("PASSPORT")){
35:      JSONObject passportData = nfcInterface.getPassportData();
36:      if(passportData != null) {
37:          try {
38:              textView.setText("Name: " + passportData.get("name") + "\n" +
39:                  "Surname: " + passportData.get("surname") + "\n" +
40:                  "Birth Date: " + passportData.get("birthDate") + "\n" +
41:                  "Gender: " + passportData.get("gender") + "\n" +
42:                  "Nationality: " + passportData.get("nationality") + "\n" +
43:                  "Document Number: " + passportData.get("documentNumber") + "\n" +
44:                  "ID Number: " + passportData.get("nationalId") + "\n" +
45:                  "Expiry Date: " + passportData.get("expiryDate") + "\n");
46:          } catch (JSONException e) {
47:              e.printStackTrace();
48:          }
49:      }
50:  }else if(doc.equals("ID")){
51:      JSONObject idData = nfcInterface.getIdData();
52:      if(idData != null) {
53:          try {
54:              textView.setText("Name: " + idData.get("name") + "\n" +
55:                  "Surname: " + idData.get("surname") + "\n" +
56:                  "Birth Date: " + idData.get("birthDate") + "\n" +
57:                  "Gender: " + idData.get("gender") + "\n" +
58:                  "Nationality: " + idData.get("nationality") + "\n" +
59:                  "Document Number: " + idData.get("documentNumber") + "\n" +
60:                  "ID Number: " + idData.get("nationalId") + "\n" +
61:                  "Expiry Date: " + idData.get("expiryDate") + "\n" +
62:
63:                  "Birth Place: " + idData.getString("birthPlace") + "\n"+
64:                  "Address: " + idData.getString("address"));
65:          } catch (JSONException e) {
66:              e.printStackTrace();
67:          }
68:      }
69:  }
70:  if(nfcInterface.getPhoto() != null){
71:      imageView.setImageBitmap(nfcInterface.getPhoto());
72:  }
73:  }
74: }
```