ADS DEVELOPMENT GUIDE

ADS-SMART-TEAM

Revision1.0

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Content

Revision History

Date	Version	Description	Author
2018-7-10	V1.00	1.　First Draft	Brad Hong
2019-01-03	V1.01	Change Import NEXGO SDK	Hassan

Scope

The purpose of this document is to provide a quick start for Android developers to build the Application Development Environment (ADE) and run an application on the POS terminal with XGD-ADS (*Application Development Suit of NEXGO*).

The XGD-ADS (*Application Development Suit of NEXGO*) includes the following resource, all available on the FTP server ftp://123.58.32.120:8490, or ftp://207.226.217.203:8490

- API Reference / Documents (*Obtained from "…/SDK_vx_xx/docs/ "*)

- Packages of SDK library (*Java Archive, Native Library …*)

- Sample Code (NEXGO-SDK-based)

Guide Conventions

Various conventions are used to help you quickly identify special formatting. Table 1 describes these conventions and provides examples of their usage.

Convention	Meaning	Example
Blue	Text in blue indicates terms that are cross referenced, or to provide an URL.	See Guide Conventions. http://www.nexgo.cn
Bold	Bold typeface indicates books, folders, functions, parameters or emphasis.	**《ADS DEVELOPMENT GUIDE》** **manage.so**
Courier	Courier typeface indicates console commands, or contents of source code.	[root@localhost~]$ ./MakeCore -h
NOTE	The pencil icon is used to highlight important information.	
Attention:	The attention symbol is used as a warning when wrong operation might occur.	

Table 1

Getting Started

> **NOTE**
>
> Before starting a project based on NEXGO SDK, make sure you are using the DEBUG mode device to develop.

For the sake of security, the APKs are not allowed to be installed and run on the POS terminal with RELEASE mode before being signed correctly. Generally, if a project is at development period, we suggest you ask NEXGO for a DEBUG mode device, which will help you to simplify the development.

Difference between DEBUG and RELEASE

The DEBUG mode device will accept any APK without signature. That is, the DEBUG mode device allows developers to do anything like other Android devices. Meanwhile, it cannot be used in production because of its insecurity.

The RELEASE mode device will only accept the APKs which are signed correctly. The signature certificate is authorized by NEXGO, for more details, referring to Chapter **4. APK Signature**, Chapter **5. Certificate Installation** and Chapter **6. APK installation**. Only RELEASE mode devices can be used in production.
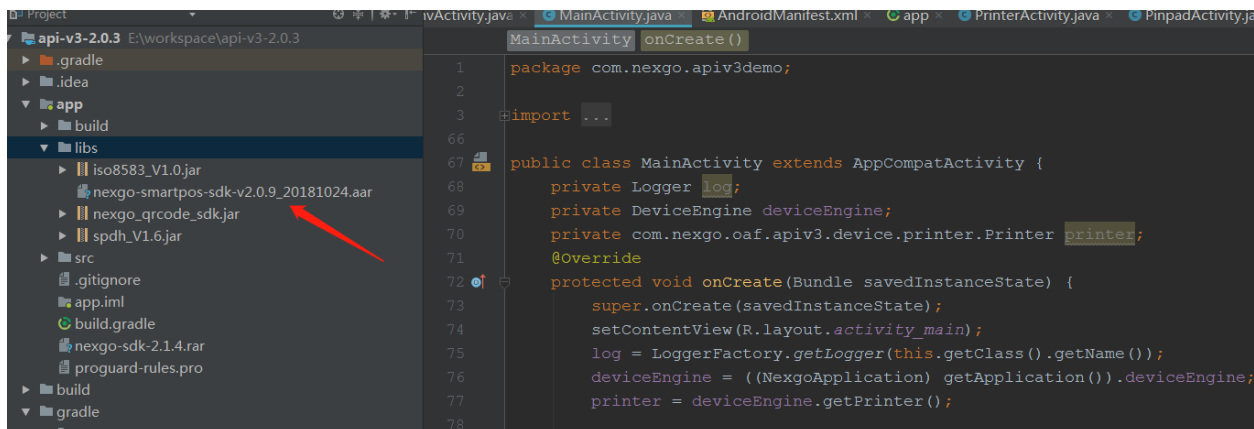
1 Environment

1.1 IDE

It is strongly recommended to use Android Studio with the version bigger than 2.2.0. By checking here to download the latest Android Studio.

1.2   Import NEXGO SDK

a)   Copy the SDK libraries(*.../SDK_vx_xx/Library/*) to your project ...*/app/libs/*
     For example:

b)   Set **minSdkVersion** in your app projects **build.gradle** file

```
defaultConfig {
    applicationId "com.nexgo.apiv3demo"
    minSdkVersion 21    //Android 5.0
    targetSdkVersion 26
    versionCode 1
    versionName "1.0"
}
```

c)   Add NEXGO Library to your app projects **build.gradle** file

     dependencies{

     complie(name: 'nexgo-smartpos-sdk-vx.x.x', ext: 'aar')

     }

d)   Set directory of JniLibs in your app projects **build.gradle** file

```
sourceSets.main {
    jniLibs.srcDir 'libs'
    jni.srcDirs = [] //disable automatic ndk-build call
}
```

e) Synchronize projects with **Gradle** files.

NOTE

It is recommended to set the **minSdkVersion** bigger than 21 to get a better performance as the Android version of NEXGO smart POS is Android 5.1.
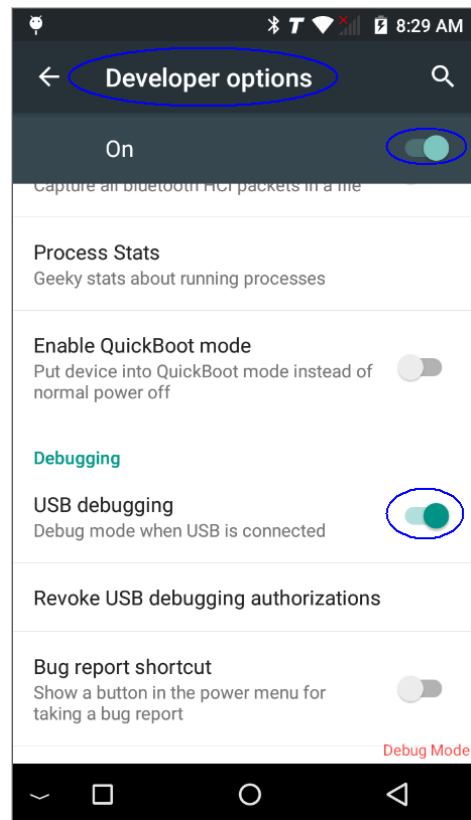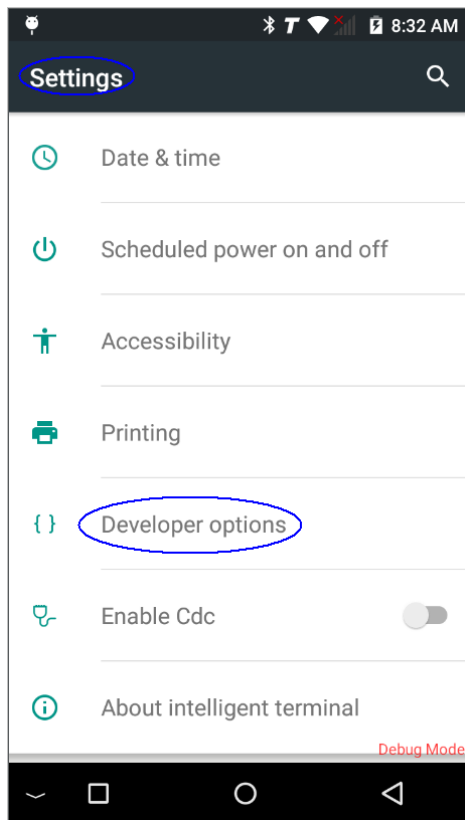
2 Debugging

NEXGO smart POS uses the standard USB cable to connect PC, which is same as most of Android phones.

2.1 Enable USB Debugging

Following the steps to enable USB Debugging:

a) Go to **Settings** from launcher.

b) Find **Developer options** in the column of **System**.

c) Turn on the switch of **Developer Settings**.

d) Turn on the switch of **USB Debugging** in the column of **Debugging**.

2.2 Using ADB Debugging

NEXGO smart POS supports ADB debugging, which is same as universal Android devices. Install universal ADB driver by checking here.

2.3 Debugging in App

Use the debugging program from Android Studio. By checking the official web site of Android Studio to start debugging.

3 Running Sample Application

Running sample application is same as running the project downloaded from GitHub by using Android Studio.

Following the steps to run sample application:

Step 1   Open Android Studio**.**

Step 2   Open the project named as **SampleCode-x.x.x** downloaded from FTP.

Step 3   Run App(Shift + F10).

By reading the source code of project **SampleCode-x.x.x** to understand how to use NEXGO SDK API to develop.

4 APK Signature

An online system named as Security system is used by NEXGO to sign APKs for the smart POS using the NEXGO's signature strategy.

Attention: All the description about signature mentioned in this document is NOT the standard APK signature which is carried out by Google. A separate signature strategy is used by NEXGO to prevent installing other APKs which are not signed correctly. NEXGO's signature strategy is totally separate from the standard APK signature. That is, if you are trying to install an APK on NEXGO's RELEASE mode device, make sure it should have both standard signature and NEXGO's signature.

The APK signature mentioned in this document is NEXGO's signature.

NOTE

If you are using RELEASE mode device, the signature is mandatory, otherwise the APK installation will be rejected. On the other hand, if you are using DEBUG mode device, just ignore the Chapter 4, Chapter 5, and Chapter 6.

4.1 Apply for Security System Account and Certificate

Security system is used to managing the important private operations such as signature, switching device mode. All the operations will be safe by using this system.

Security system account allows users to log in the NEXGO system. In general, the administrator will only authorize the permission for the users to sign APK by using the corresponding certificate.

The certificate provided by NEXGO is customized for different customers, and it should be installed to the terminal, which will verify the legality of the APK's signature. That is, only the signed APK by the corresponding certificate can be installed to the RELEASE mode devices. To understand how to install certificate, refer to the **Chapter 5. Certificate Installation**.

To apply for the Security system account and certificate, some information is required to help us customizing for users.

- The complete name of your company.
- The abbreviated name of your company.
- Your name and E-mail address.

For example:

Shenzhen Xinguodu Technology Co., Ltd.

NEXGO

Brad Hong, xxxxxxxxx@xgd.com

Send the information as the example above to the business man by e-mail and we will feed back the Security system account and certificate.

4.2 Sign APK on Security System

Please follow "Nexgo Security System.pdf" to sign APK.

4.3 APK Signature Failed?

- Check if the filename ends with *.apk.*
- Try to simplify the filename, for example: ***app.apk***.

    Generally, the filename should not be greater than 16 characters and should not use the special character such as '.', '/', '(', '_' .etc.

- If it's still working, check the signature result and contact us for support.

5 Certificate Installation

Follow the steps to install certificate:

Step 1. Connect PC and POS terminal by the USB cable. The PC will recognize it and could have access to the internal storage of POS terminal.

**Step 2.** Copy the certificate file(***xgd_cert.zip***) to the internal storage of POS terminal.

Step 3. Find the certificate file (***xgd_cert.zip***) on POS terminal by the following steps**:**
Setting---Security---SmartPOS Trusted credentials---ADD CERTIFICATE---sdcard

Step 4. *Click the ce*rtificate file (***xgd_cert.zip***) to load and check the certificate information.

Step 5. Check the loaded certificate information by the following steps
Setting---Security---SmartPOS Trusted credentials

The screenshots of the operations on POS terminal are shown as below:
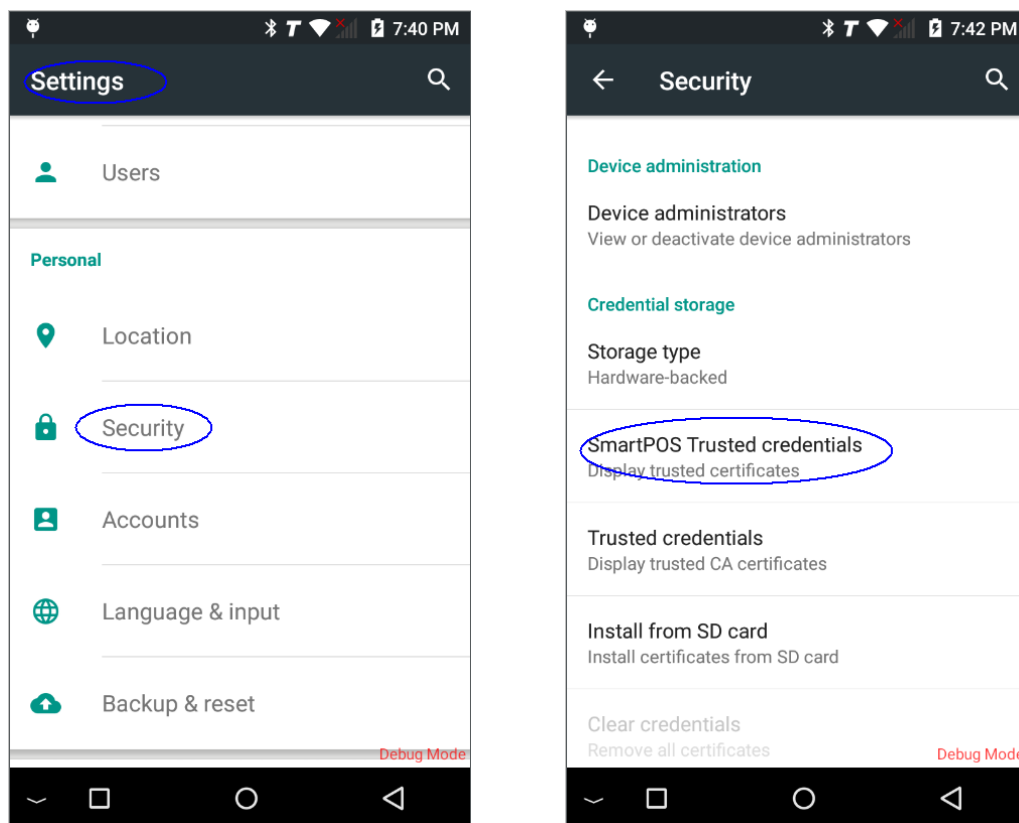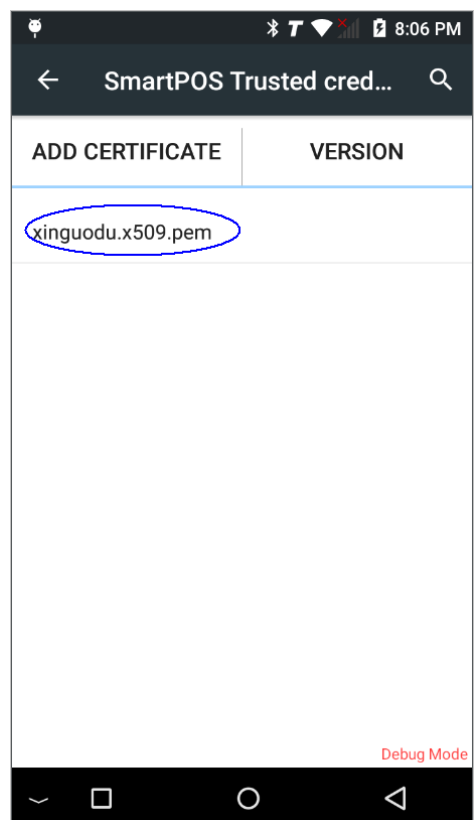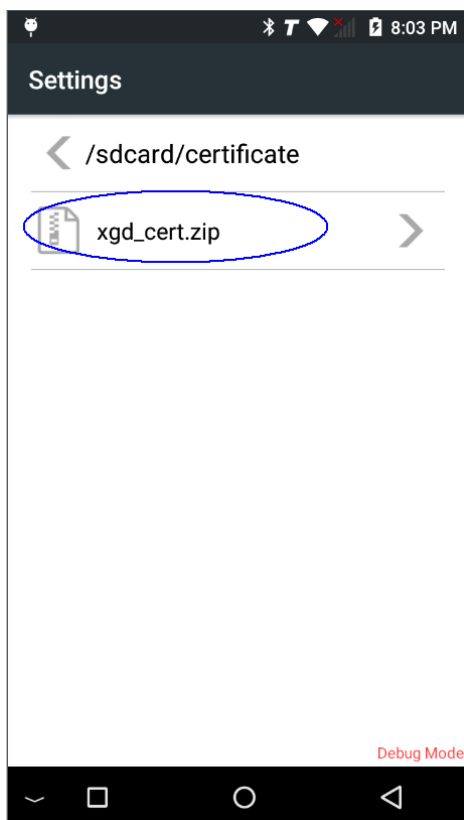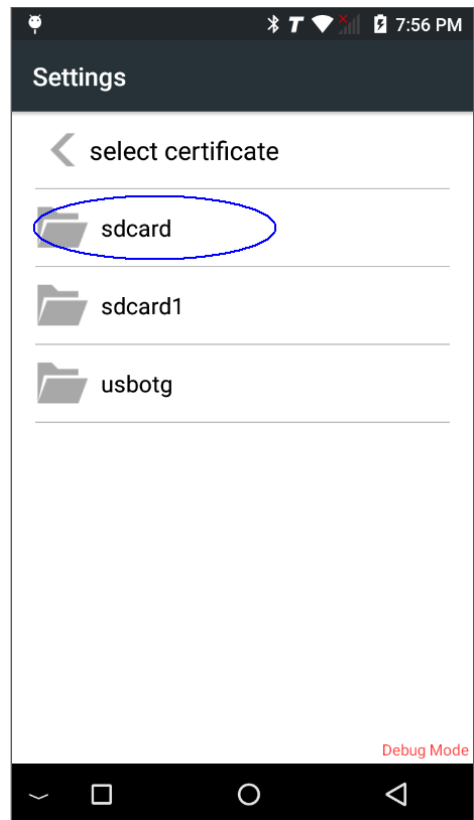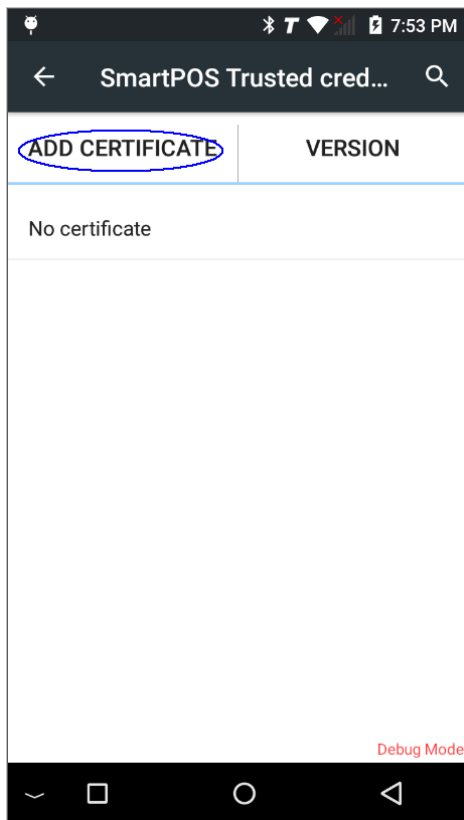
6 APK Installation

6.1 Install APK on DEBUG device

NOTE

The APKs without signature are allowed to be installed on DEBUG mode devices.

Install APK locally

Step 1. Connect PC and POS terminal by the USB cable. The PC will recognize it and could have access to the internal storage of POS terminal.

Step 2. Copy the APK to the internal storage of POS terminal.

Step 3. Select **File Manager** on POS terminal, and find the APK file, then click it to install.

Install APK through Android Studio

Step 1. Connect PC and POS terminal by the USB cable.

Step 2. Using Android Studio to install APK directly, which is same as standard Android development.

6.2 Install APK on RELEASE device

Attention: The APKs without signature are NOT allowed to be installed on RELEASE mode devices. It is also not supported to install APK directly through Android Studio because of the signature verification.

Install APK locally

Step 1. Connect PC and POS terminal by the USB cable. The PC will recognize it and could have access to the internal storage of POS terminal.

Step 2. Copy the APK to the internal storage of POS terminal.

Step 3. Select **File Manager** on POS terminal, and find the APK file, then click it to install.