# Oracle Banking Digital Experience

**Mobile Application Builder – Android**
**Release 17.2.0.0.0**

**Part No. E88573-01**

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ORACLE®

Mobile Application Builder – Android

July 2017

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# Table of Contents


**1. Preface ..... 4**

1.1 Intended Audience ..... 4

1.2 Documentation Accessibility ..... 4

1.3 Access to Oracle Support ..... 4

1.4 Structure ..... 4

1.5 Related Information Sources ..... 4

**2. OBDX Servicing Application ..... 5**

2.1 Prerequisites ..... 5

2.2 Create project ..... 7

2.3 Adding Custom Library: ..... 17

**3. OBDX Authenticator Application ..... 24**

3.1 Building Authenticator UI ..... 24

3.2 Authenticator Application Workspace Setup ..... 27

3.3 Building Authenticator Application ..... 35

# 1. Preface

## 1.1 Intended Audience

This document is intended for the following audience:

- Customers
- Partners

## 1.2 Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=accandid=docacc.

## 1.3 Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit

http://www.oracle.com/pls/topic/lookup?ctx=accandid=info or visit

http://www.oracle.com/pls/topic/lookup?ctx=accandid=trs if you are hearing impaired.

## 1.4 Structure

This manual is organized into the following categories:

*Preface* gives information on the intended audience. It also describes the overall structure of the User Manual.

The subsequent chapters describes following details:

- Prerequisites
- Configuration / Installation.

## 1.5 Related Information Sources

For more information on Oracle Banking Digital Experience Release 17.2.0.0.0, refer to the following documents:

- Oracle Banking Digital Experience Licensing Guide

# 2. OBDX Servicing Application

## 2.1 Prerequisites

**a. Download and Install node Js**

Install node js from https://nodejs.org

**b. Download and Install Android Studio**

Download and install Android Studio from https://developer.android.com/studio/index.html

**c. Download and Install Android platforms**

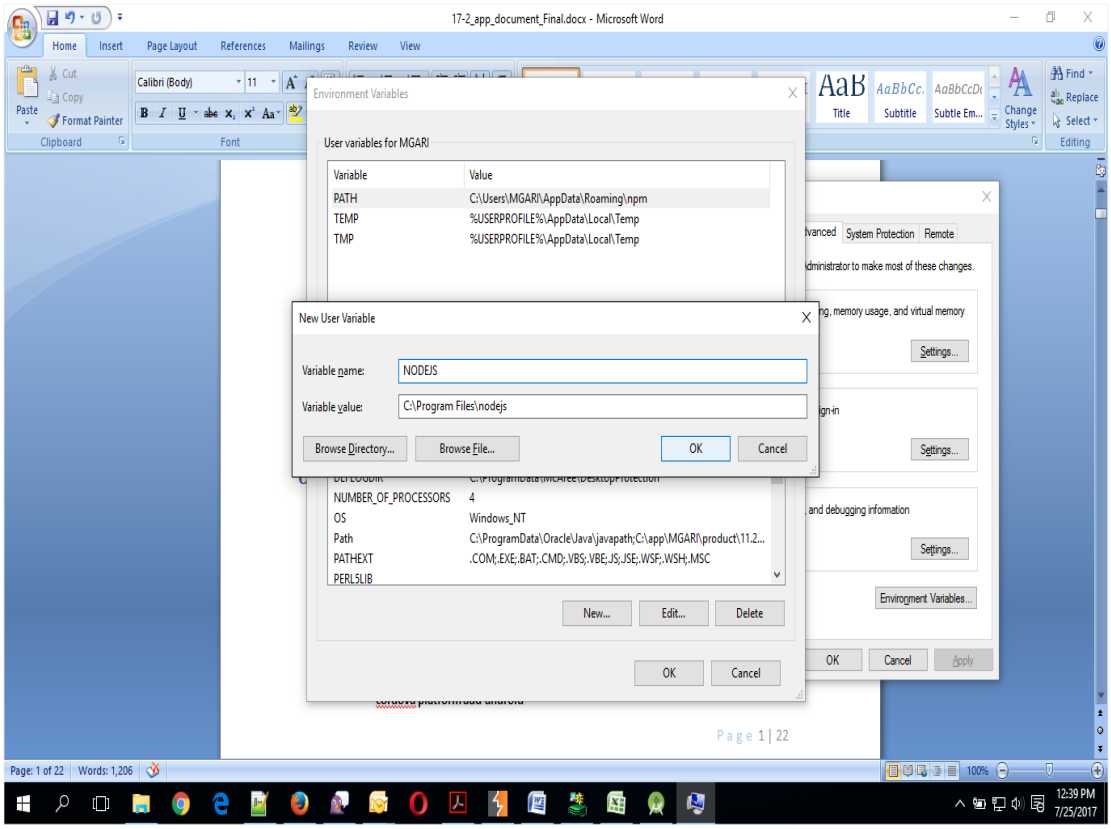
Update Android SDK to latest API Level.

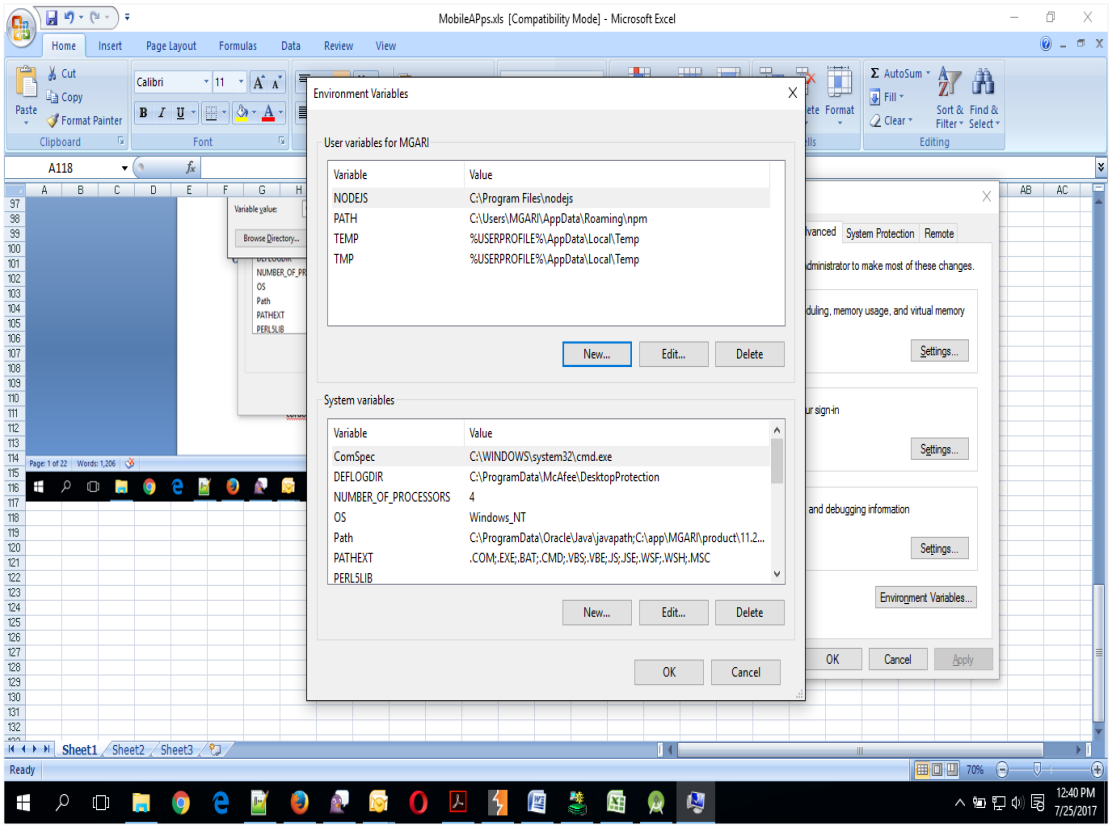
**d. Set Environment variables**

Set following system variables:

1. NODEJS <nodejs_path> Example: "*C:\Program Files\nodejs\".*

   Add the above variables in "*PATH*" system variable.




MobileAPps.xls [Compatibility Mode] - Microsoft Excel
Environment Variables
User variables for MGARI
Variable
Value
NODEJS
C:\Program Files\nodejs
PATH
C:\Users\MGARI\AppData\Roaming\npm
TEMP
%USERPROFILE%\AppData\Local\Temp
TMP
%USERPROFILE%\AppData\Local\Temp
New...
Edit...
Delete
System variables
Variable
Value
ComSpec
C:\WINDOWS\system32\cmd.exe
DEFLOGDIR
C:\ProgramData\McAfee\DesktopProtection
NUMBER_OF_PROCESSORS
4
OS
Windows_NT
Path
C:\ProgramData\Oracle\Java\javapath;C:\app\MGARI\product\11.2...
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC
PERL5LIB
New...
Edit...
Delete
OK
Cancel
Environment Variables...
OK
Cancel
Apply
Sheet1
Sheet2
Sheet3
Ready
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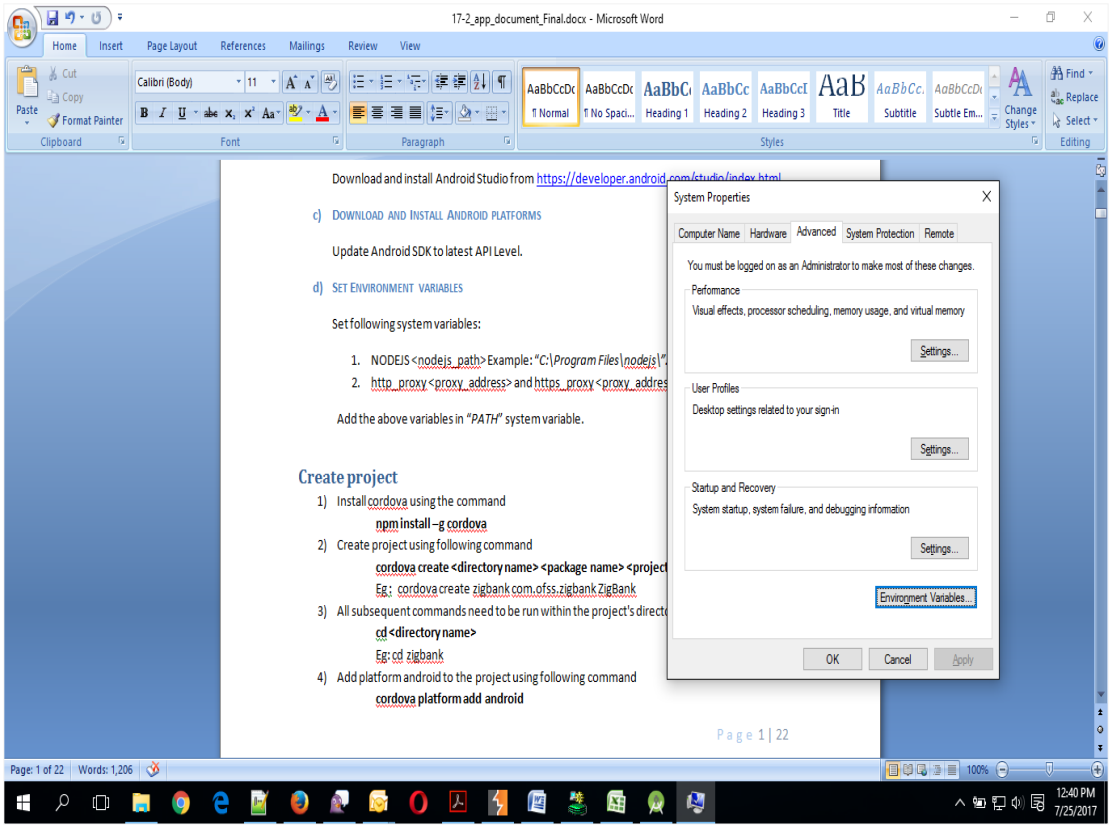
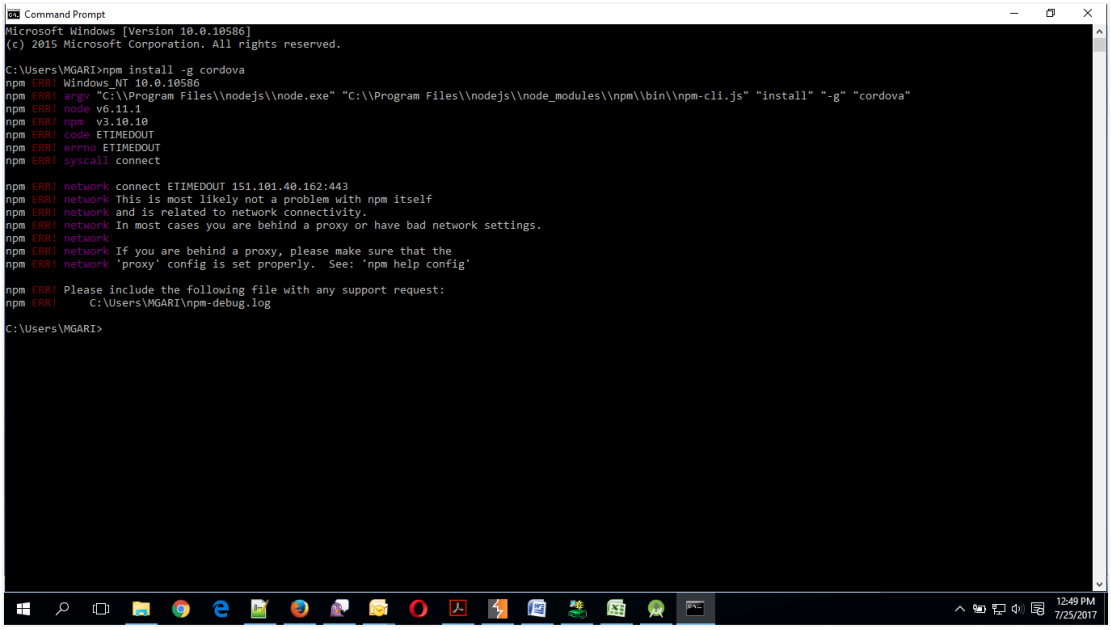



## 2.2 Create project

1. Install cordova using the command

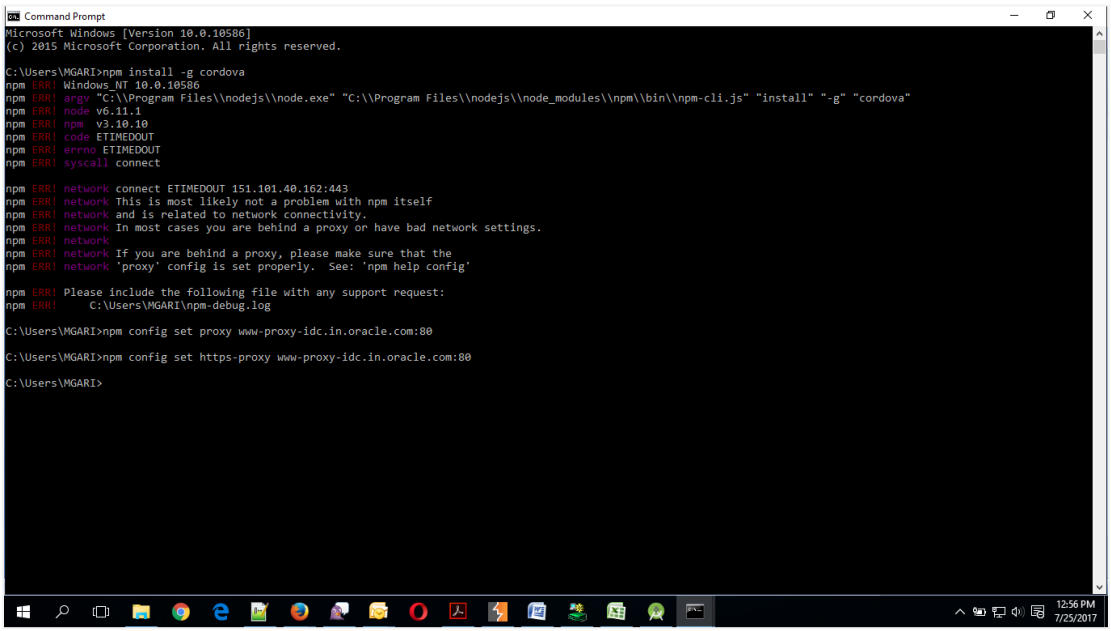
   **npm install –g cordova**

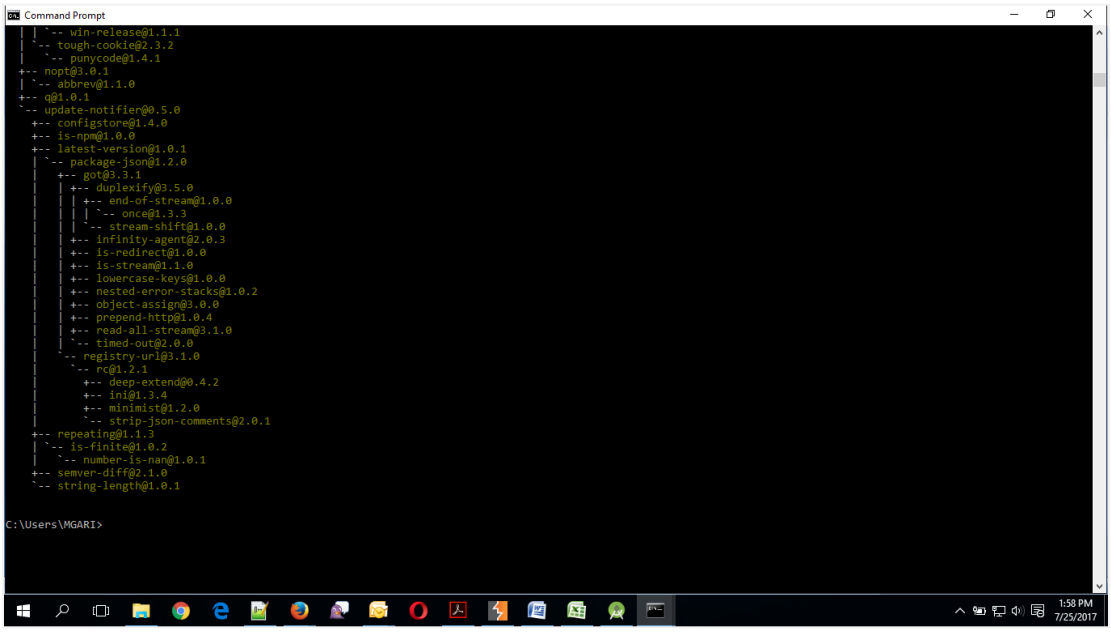


a. If you face above error then set proxy using following commands on command line.

**npm config set proxy <provide your proxy value here>**

**npm config set https-proxy <provide your proxy value here>**

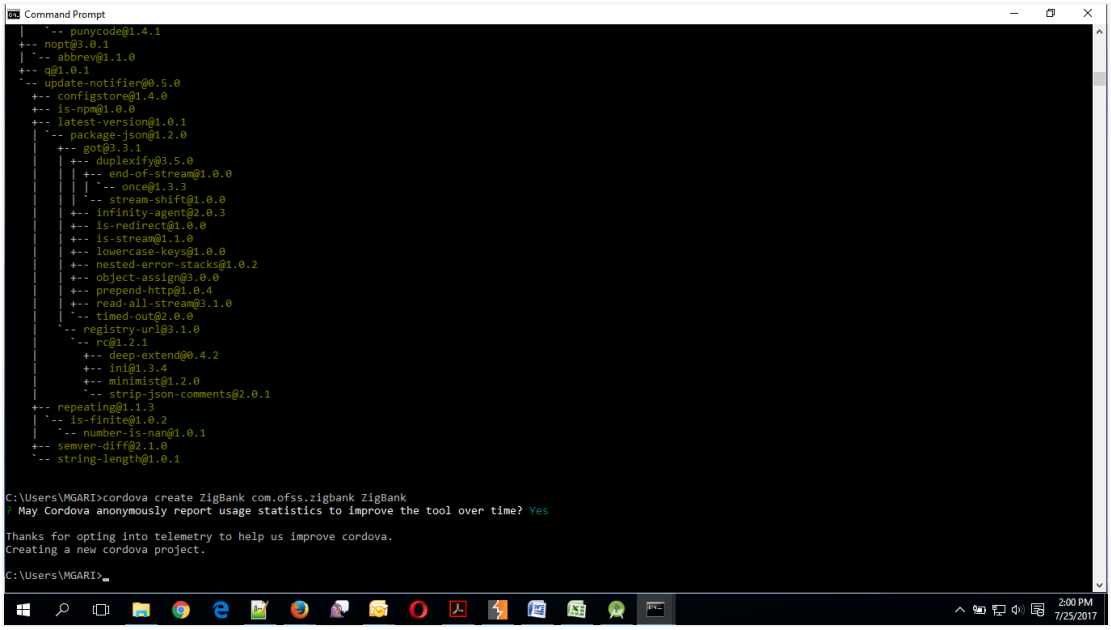



2. Create project using following command

**cordova create <directory name> <package name> <project name>**

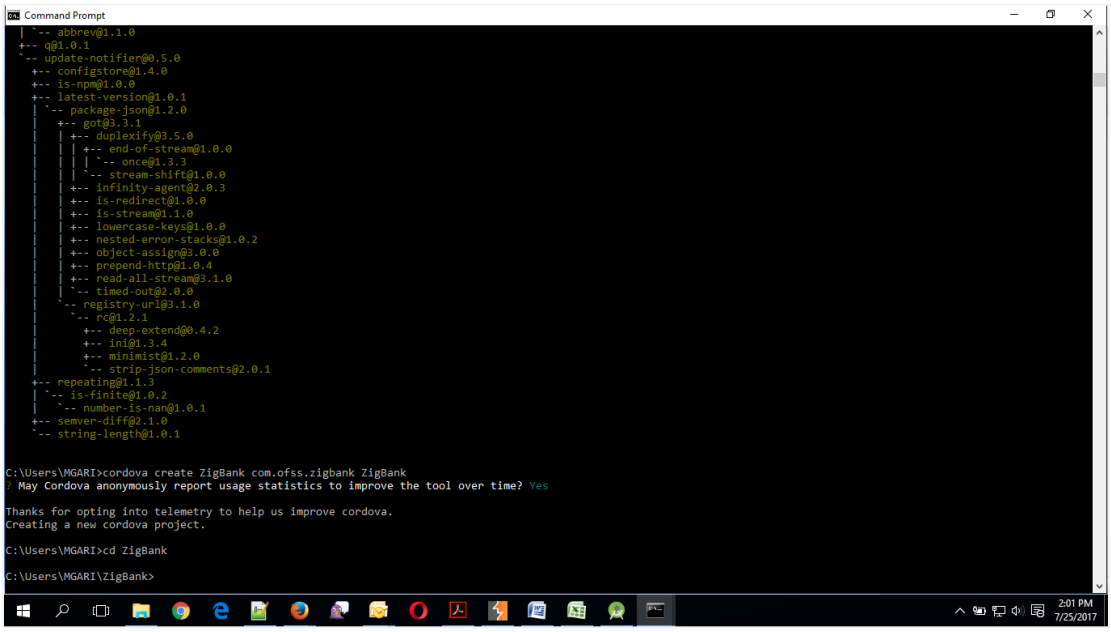
Eg : cordova create zigbank com.ofss.zigbank ZigBank




3. All subsequent commands need to be run within the project's directory

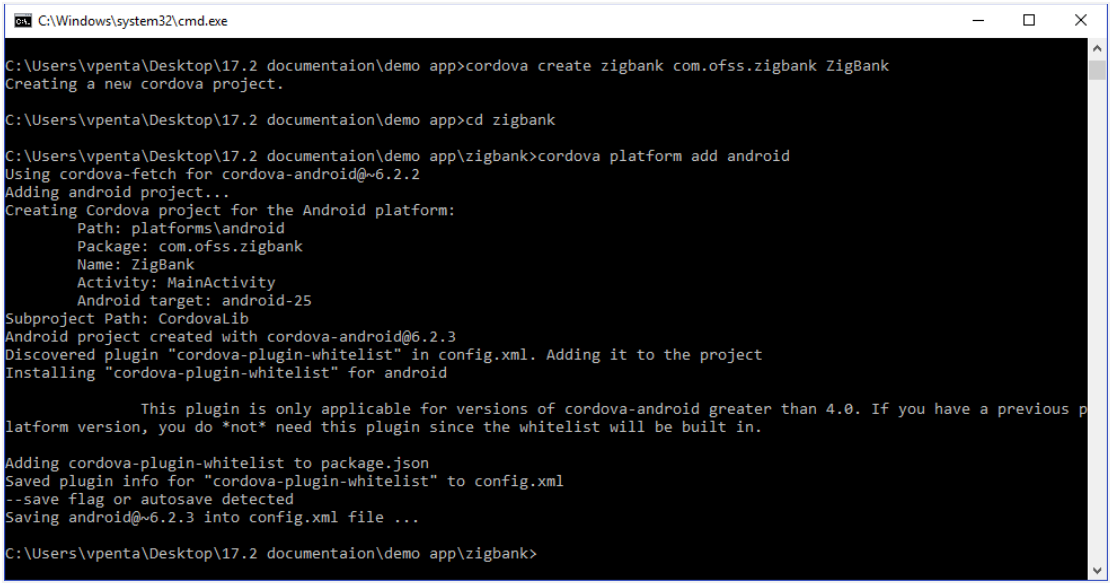
   **cd <directory name>**

   Eg: cd zigbank




4. Add platform android to the project using following command

   **cordova platform add android**

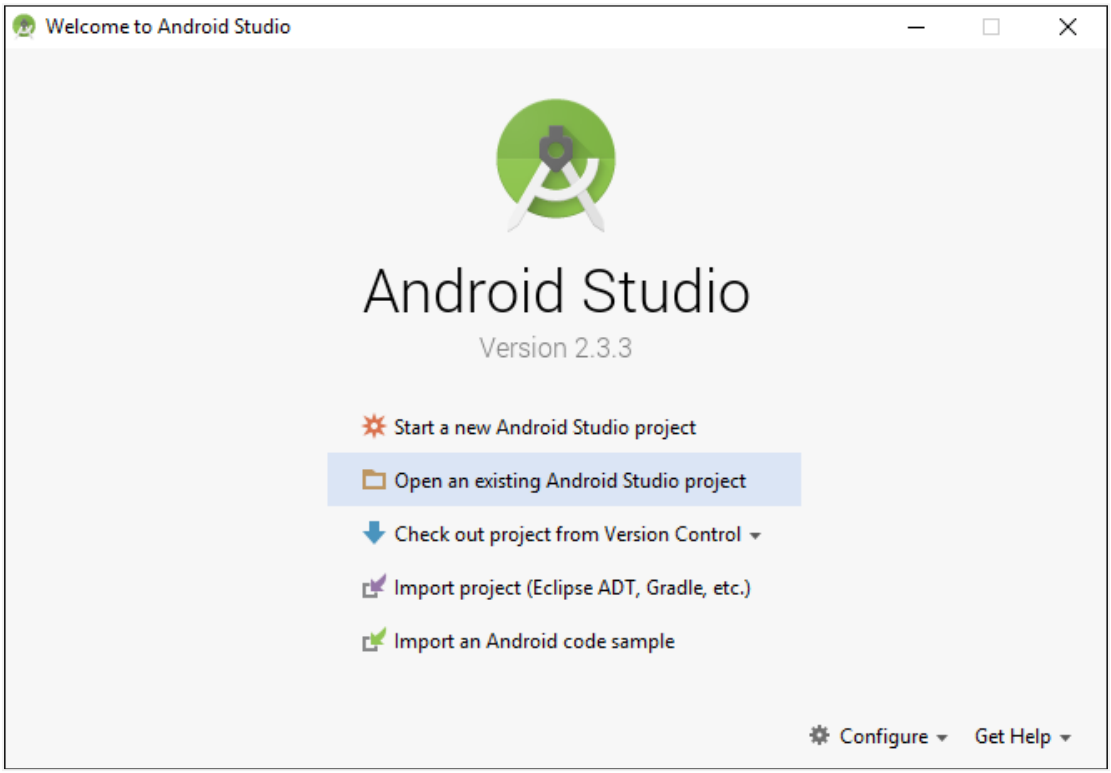


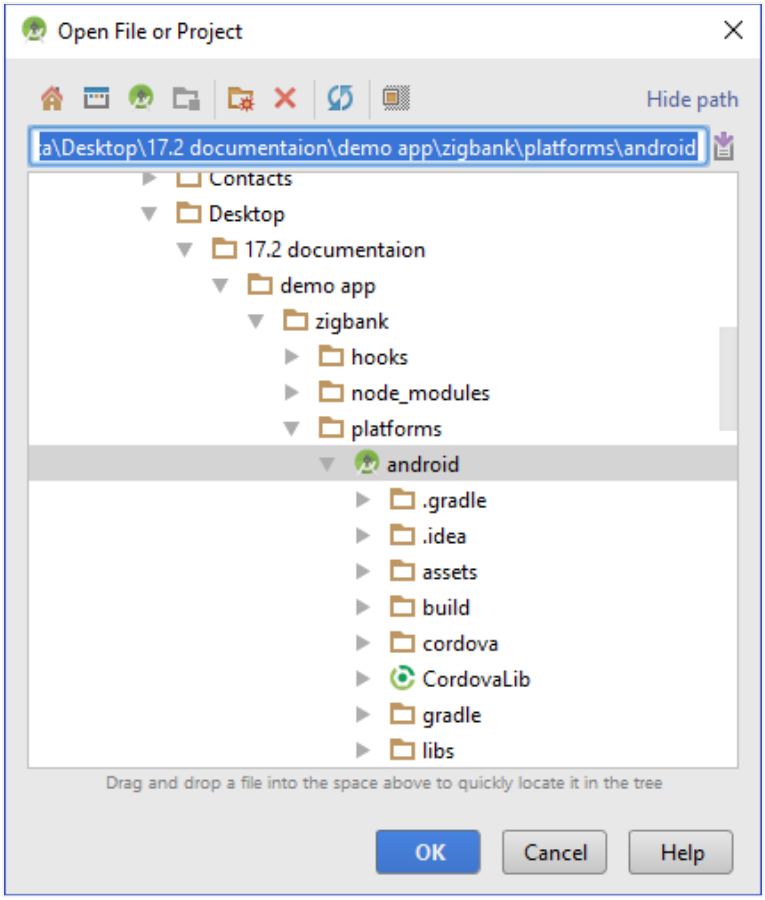

**5.** Extract OBDX_Installer.zip and perform the following steps

a. Copy and replace **res** directory from **OBDX_Installer/installables/mobile/service/android** into **zigbank\platforms\android**

b. Copy **assets** directory from **OBDX_Installer/installables/mobile/service/android** and paste it into **zigbank\platforms\android**

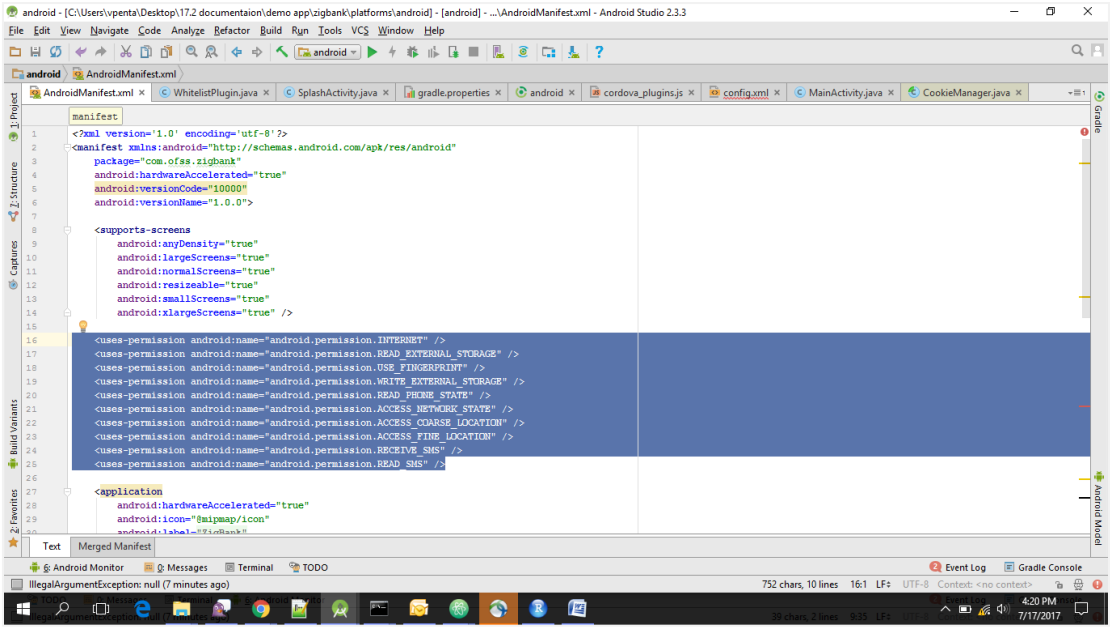
6. Import zigbank\platforms\android in android studio by clicking on Open an Existing Project.






7. Open AndroidManifest.xml and make following changes
   a. Change **android:minSdkVersion** to "**21**" and remove **android:targetSdkVersion="25"**
   b. Add following permissions

```
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.USE_FINGERPRINT" />
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.READ_PHONE_STATE" />
<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
<uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION" />
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
<uses-permission android:name="android.permission.RECEIVE_SMS" />
<uses-permission android:name="android.permission.READ_SMS" />
```

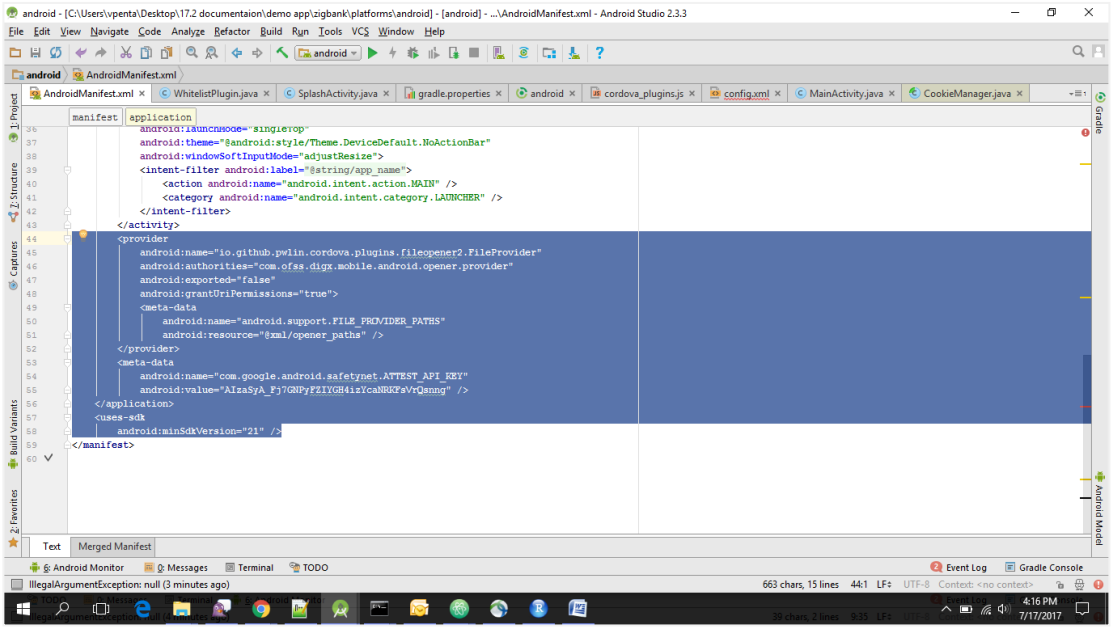



c. Add following provider inside <application> tag, Just before </application>

```
<provider android:authorities="com.ofss.digx.mobile.android.opener.provider"
android:exported="false" android:grantUriPermissions="true"
android:name="io.github.pwlin.cordova.plugins.fileopener2.FileProvider">
    <meta-data android:name="android.support.FILE_PROVIDER_PATHS"
android:resource="@xml/opener_paths" />
</provider>
```

d. Go to https://developer.android.com/training/safetynet/attestation.html#add-api-key and follow the steps to generate the api key. Once the key is ready, add the following to AndroidManifest.xml inside <application> tag. Refer below screen shot.

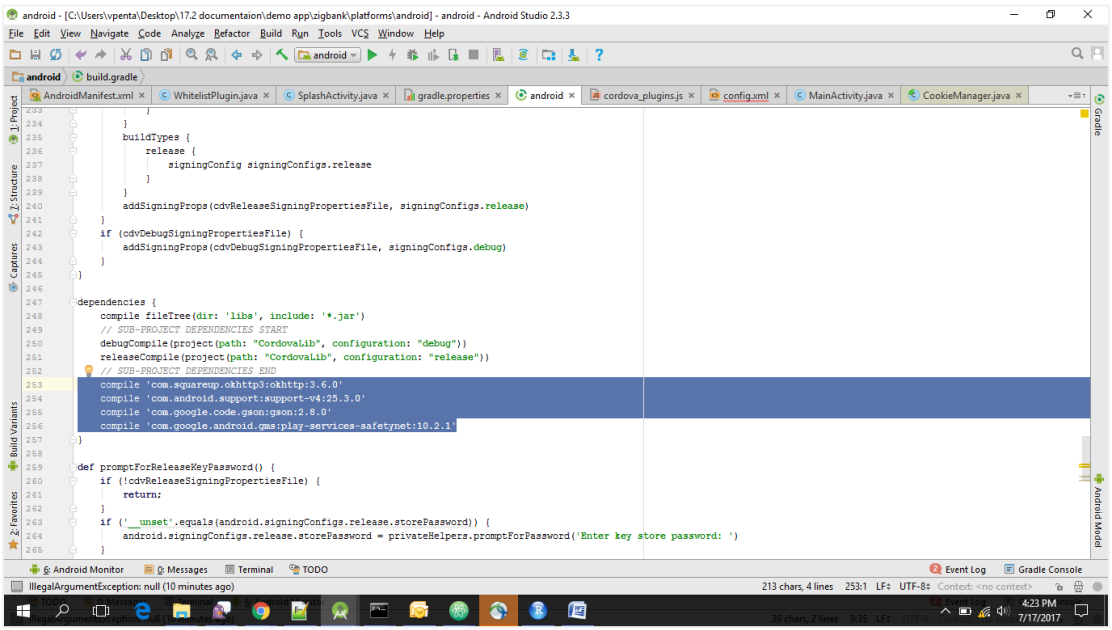
```
<meta-data android:name="com.google.android.safetynet.ATTEST_API_KEY"
    android:value="ENTER_YOUR_API_KEY"/>
```



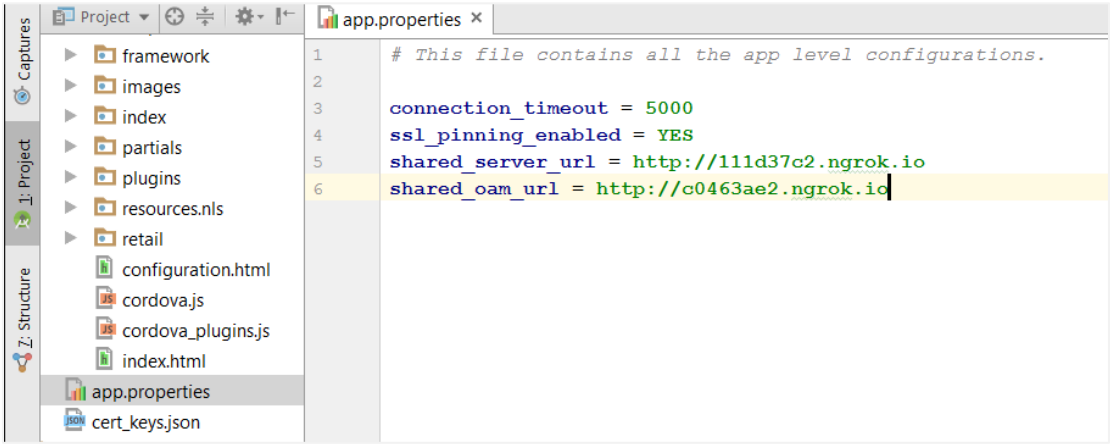
e. Delete index.html, css, js and img folders from zigbank\platforms\android\assets\www

f. Go to build.gradle file for android project(Not for CordovaLib) and add the following to dependencies. Refer below screen shot.

```
compile 'com.squareup.okhttp3:okhttp:3.6.0'
compile 'com.android.support:support-v4:25.3.0'
compile 'com.google.code.gson:gson:2.8.0'
compile 'com.google.android.gms:play-services-safetynet:10.2.1'
```

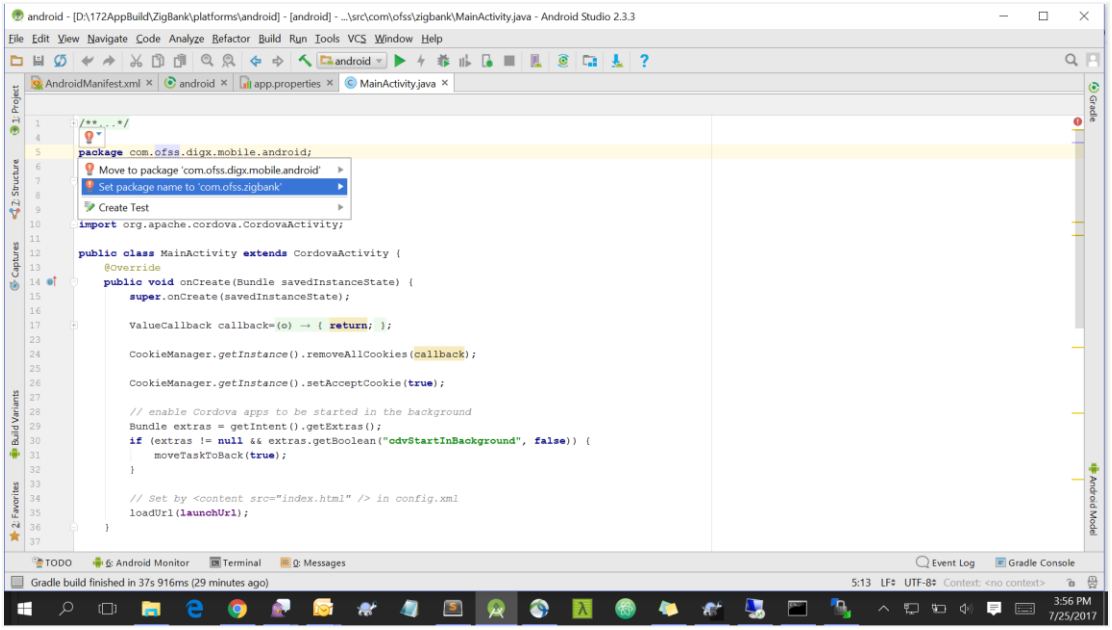


g. Update application urls at location "*android/assets/app.properties*" file



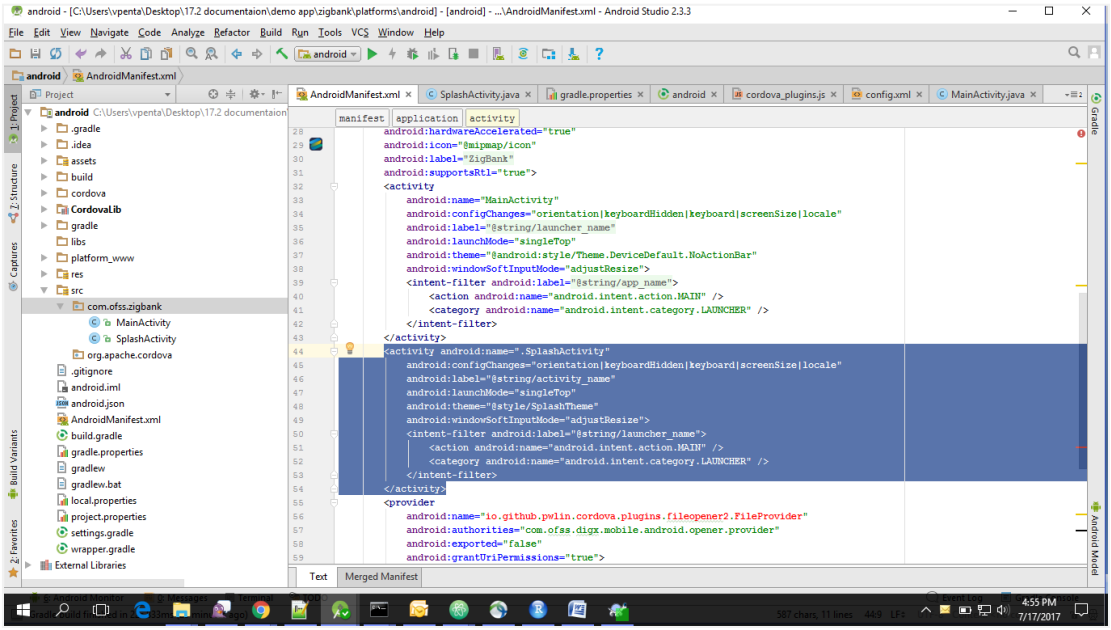

h. Copy & replace MainActivity.java and SplashActivity.java from OBDX_Installer/installables/mobile/service/android and paste it into zigbank\platforms\android\src\<your_package_name>

i. Fix package name errors by changing it your package name. and making any imports if necessary in MainActivity.java and SplashActivity.java



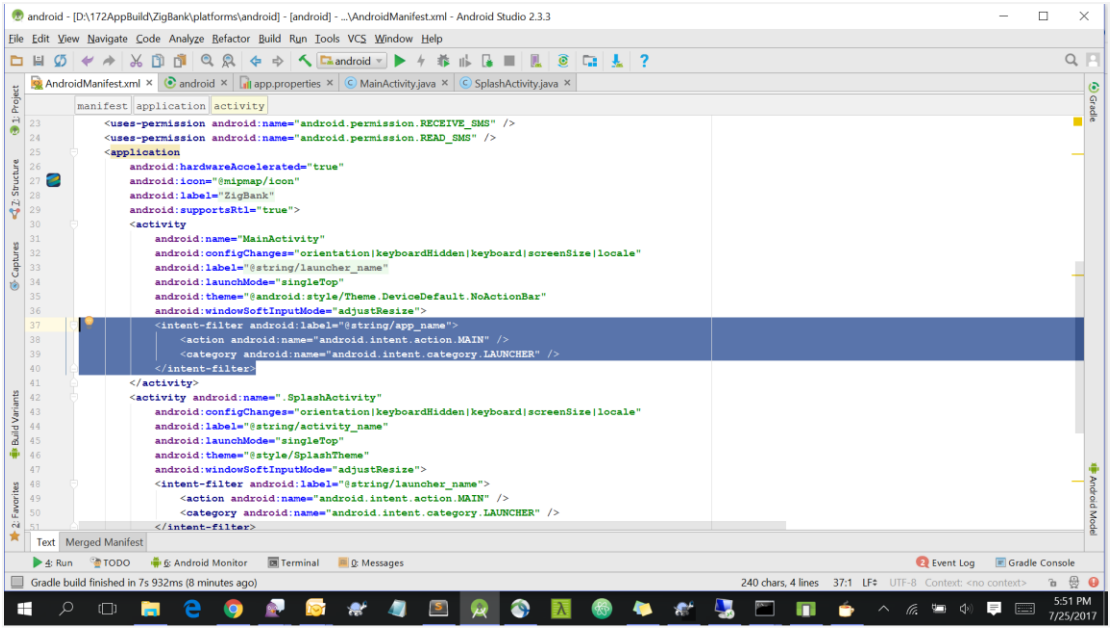

j. Add the following to the AndroidManifest.xml after </activity> of MainActivity

```
<activity android:name=".SplashActivity"

android:configChanges="orientation|keyboardHidden|keyboard|screenSize|locale"
    android:label="@string/activity_name"
    android:launchMode="singleTop"
    android:theme="@style/SplashTheme"
    android:windowSoftInputMode="adjustResize">
    <intent-filter android:label="@string/launcher_name">
        <action android:name="android.intent.action.MAIN" />
        <category android:name="android.intent.category.LAUNCHER" />
    </intent-filter>
</activity>
```

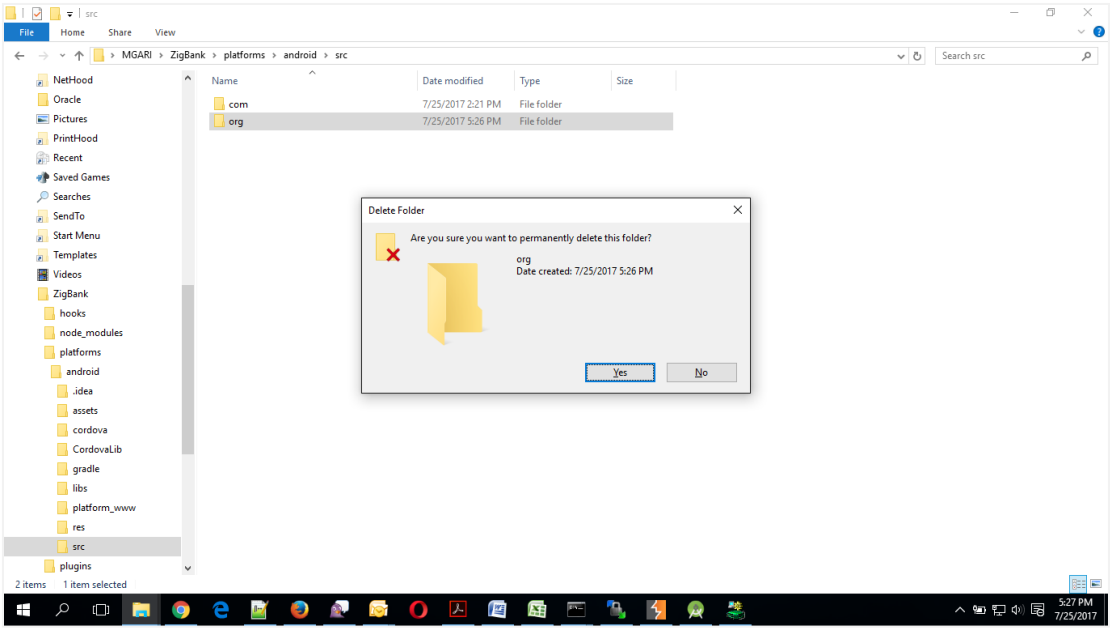



k. In Android studio open AndroidManifest.xml and remove from <activity> tag of MainActivity as shown in the screen shot.

```
<intent-filter android:label="@string/launcher_name">
    <action android:name="android.intent.action.MAIN" />
    <category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
```

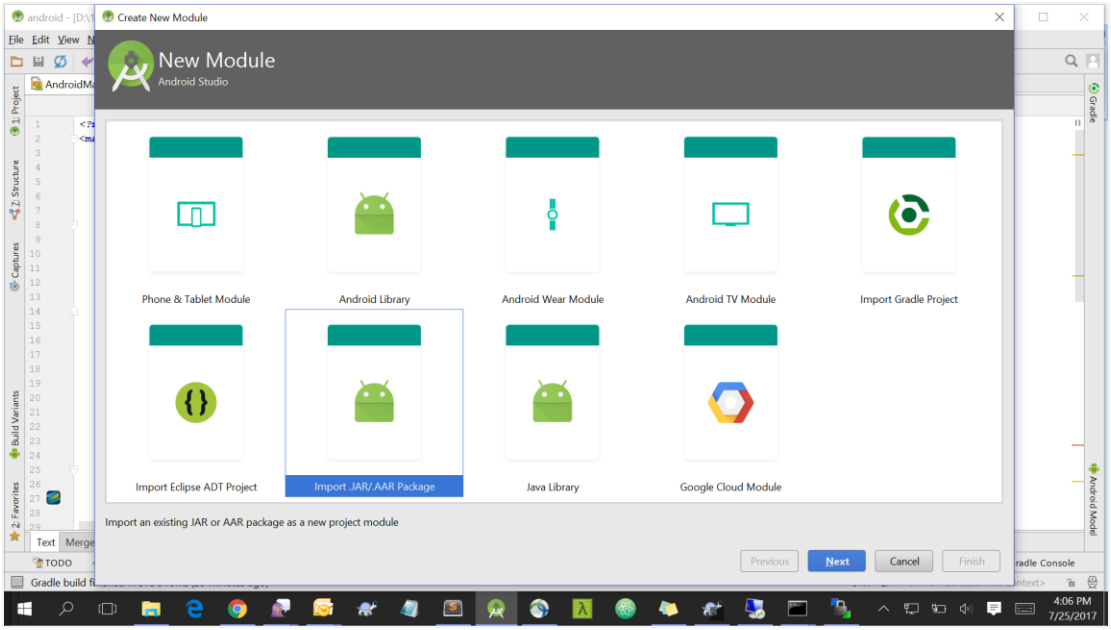



I. Delete org folder from Zigbank/platforms/android/src

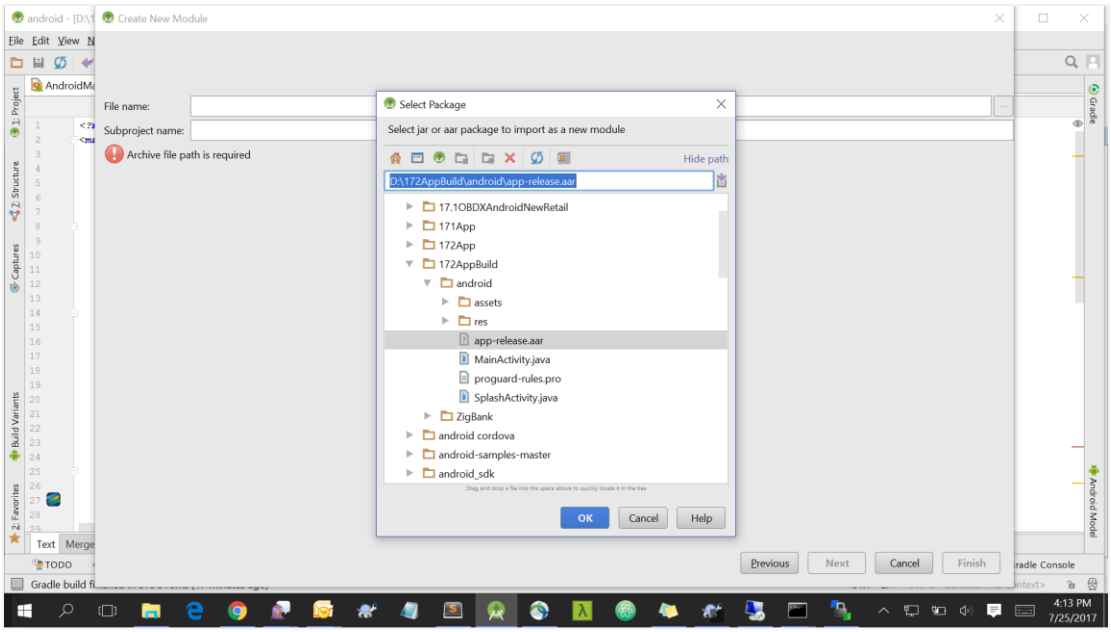


## 2.3 Adding Custom Library:

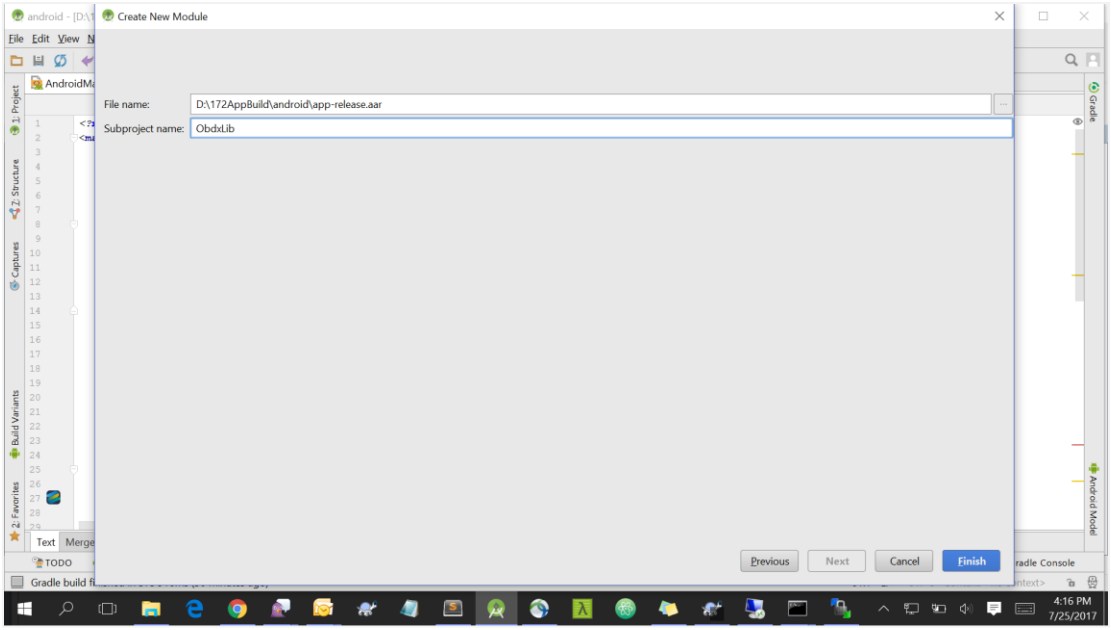
1. Go File -> New -> New Module -> Import .JAR/.AAR package and click **Next**.



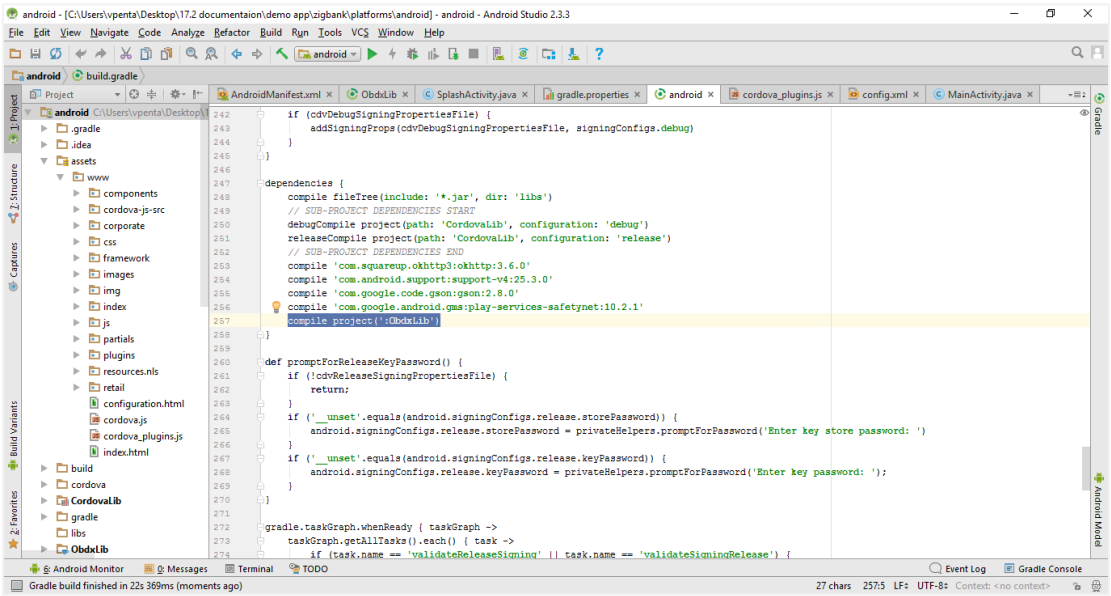

2. In file name text box, navigate to **OBDX_Installer/installables/mobile/service/android** and select app-release.aar




3. Enter Sub project name as “**ObdxLib**”

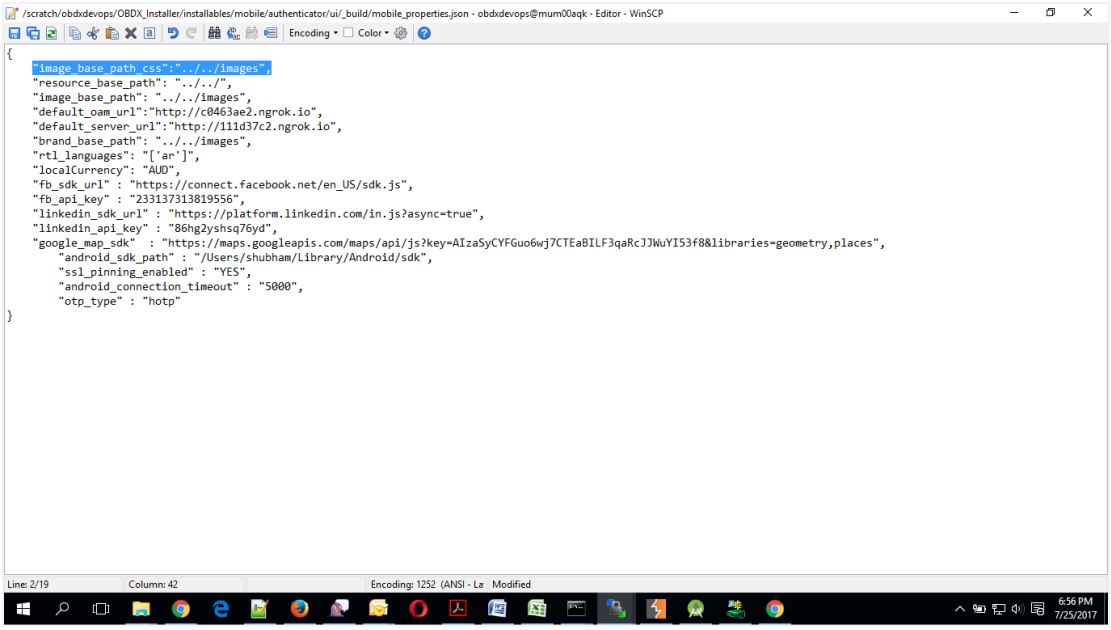



4. Click Finish
5. Go to build.gradle of android project -> search for dependencies -> add **compile project(":ObdxLib")** -→ Refer Screenshot.




6. Build the UI from channel by running following commands on command line/terminal
   a. Add "**image_base_path_css":"../../images"**, to **OBDX_Installer/installables/ui/channel/_build/ mobile_properties.json**

**Note:** Please notice the comma at the end.



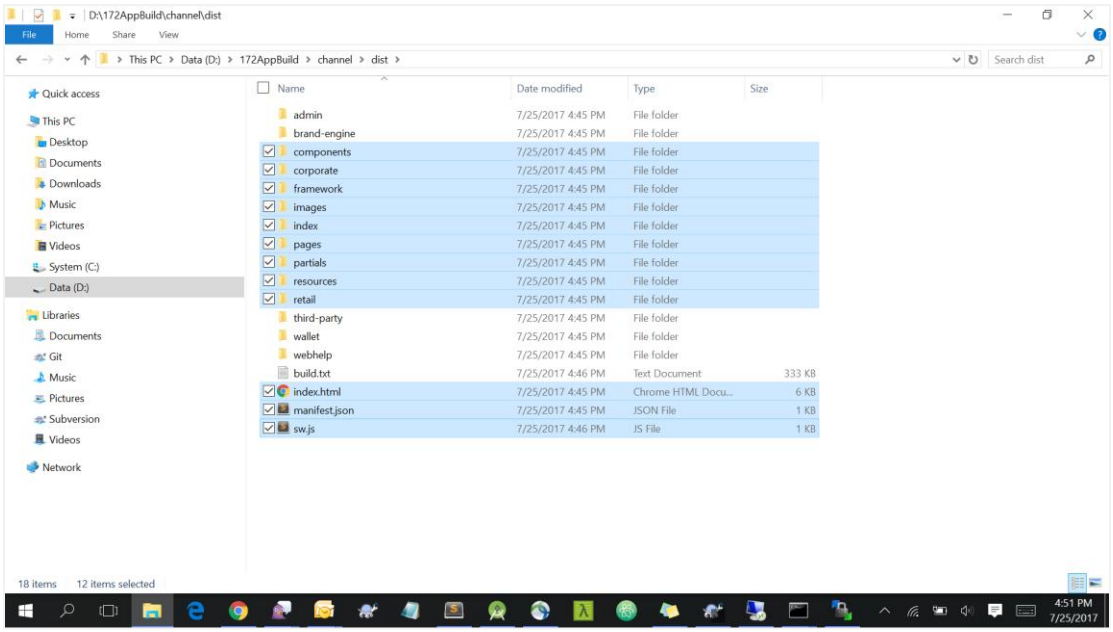

b. For OAM based Authentication

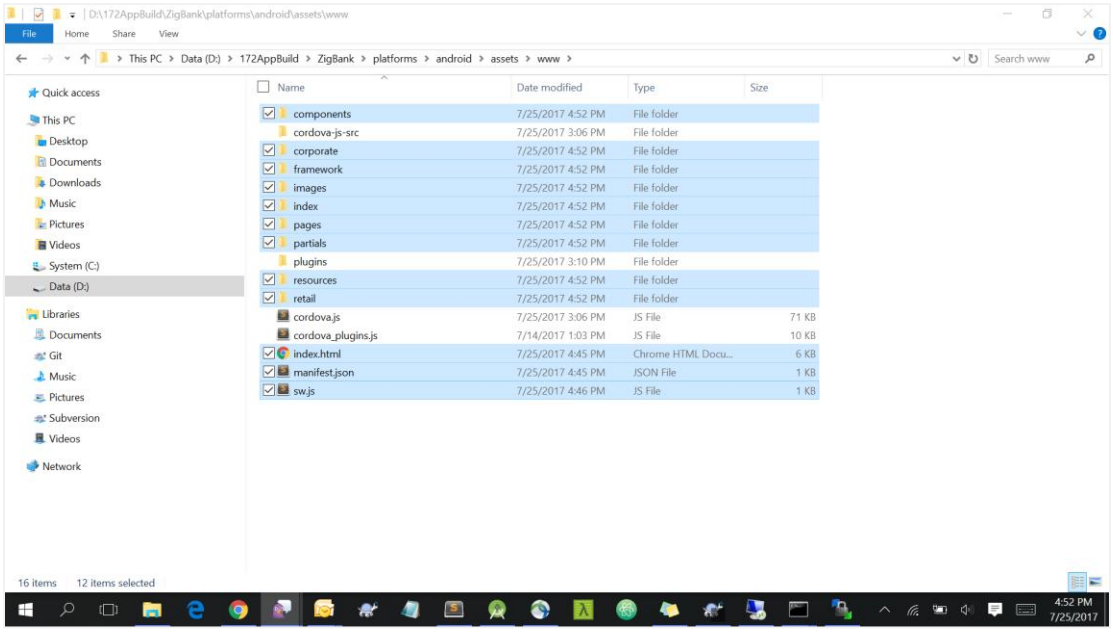
```
npm install -g grunt-cli
npm install
node render-requirejs/render-requirejs.js
grunt androidbuild
```

For Non-OAM based Authentication

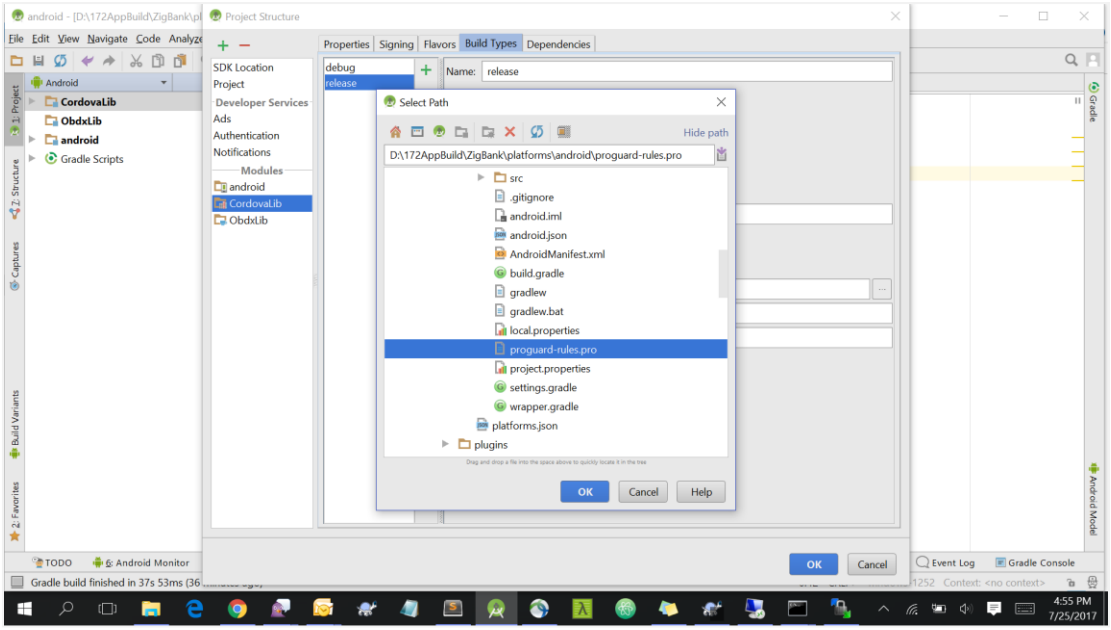
```
npm install -g grunt-cli
npm install
node render-requirejs/render-requirejs.js
grunt androidbuild-nonoam
```

7. Copy the ui generated in dist folder (components, corporate, framework, images, index, pages, partials, resources, retail, index.html, manifest.jason, sw.js) inside channel to **zigbank\platforms\android\assets\www**

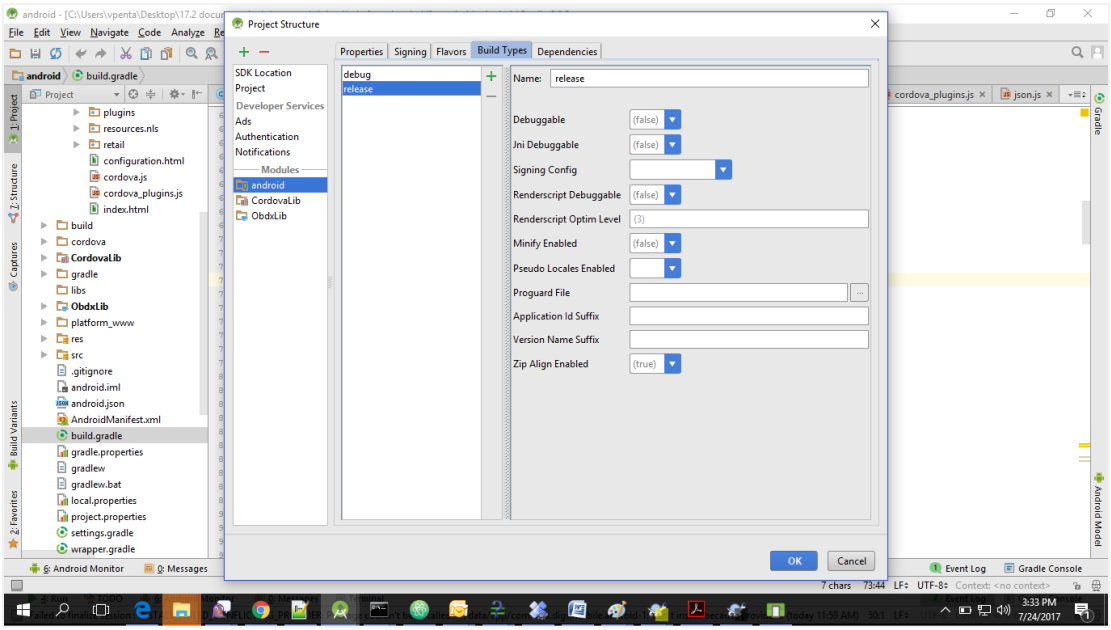


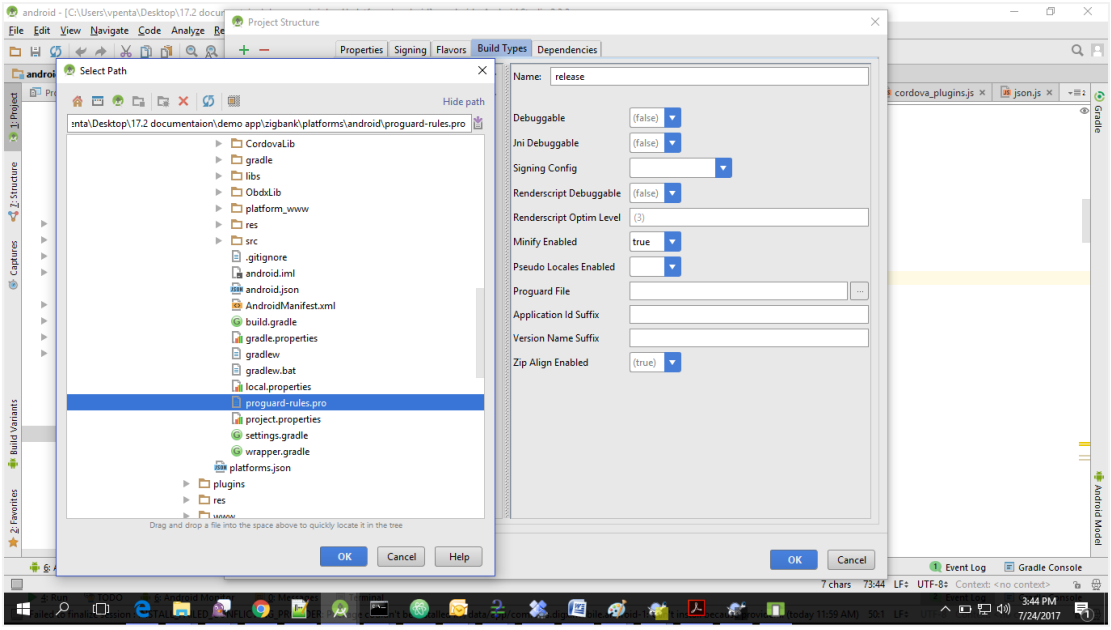

8. Copy and paste **proguard-rules.pro** from **OBDX_Installer/installables/mobile/service/android into zigbank\platforms\android** using explorer.




9. In Android Studio, on the menu bar Click on **Build -> Edit Build Types ->** select **release**




10. Set **Minify Enabled -> True** & click on **Proguard File selection -> Navigate** to **proguard-rules.pro** file copied and pasted in step 8

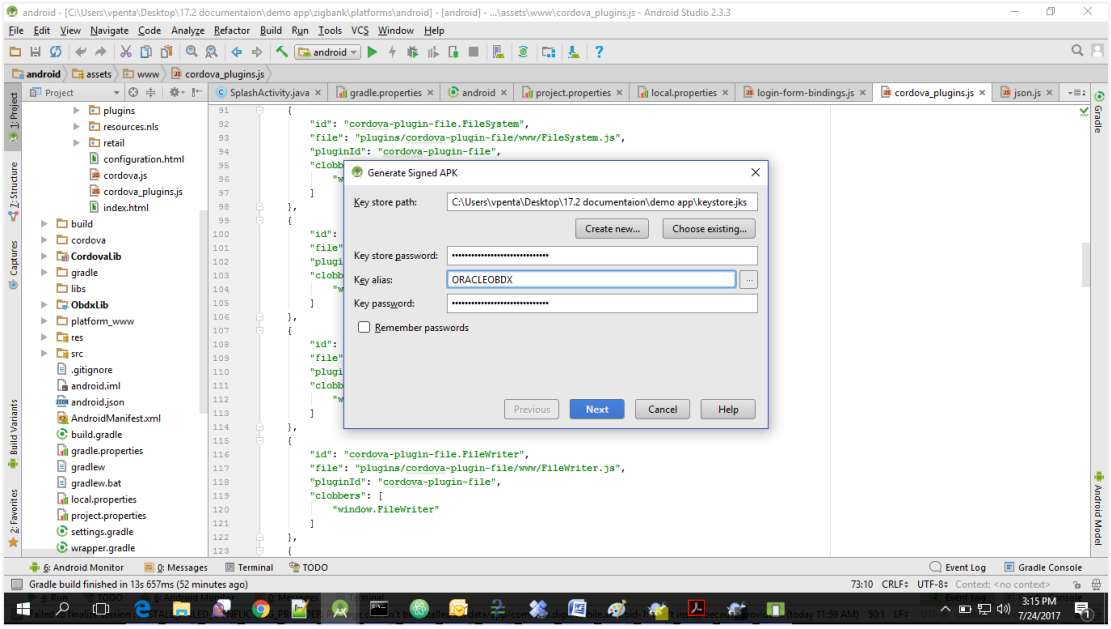



Click on OK -> again click on OK

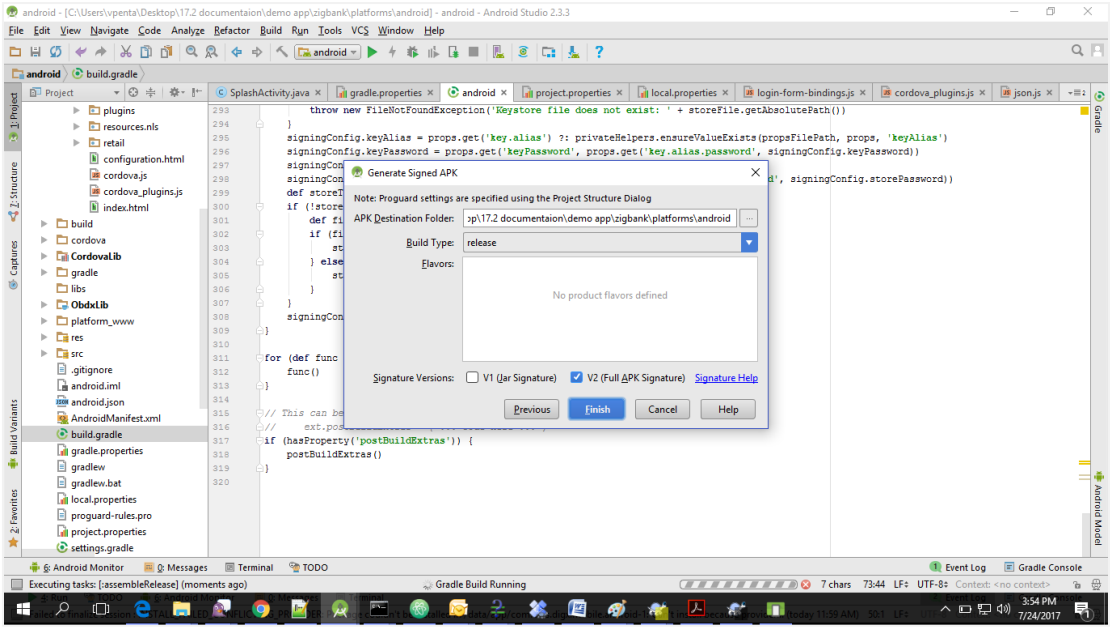
11. **For Generating Signed Apk:** To Generate release-signed apk as follows:

    a. On menu bar click on **Build -> Generate Signed Apk**

    b. If you have an existing keystore.jks file then select choose **Existing** else click on **Create New**




    c. Select **Build Type** as **Release**, **Signature Version as V2(Full APK Signature)** and Change APK Destination folder if you want and click on Finish



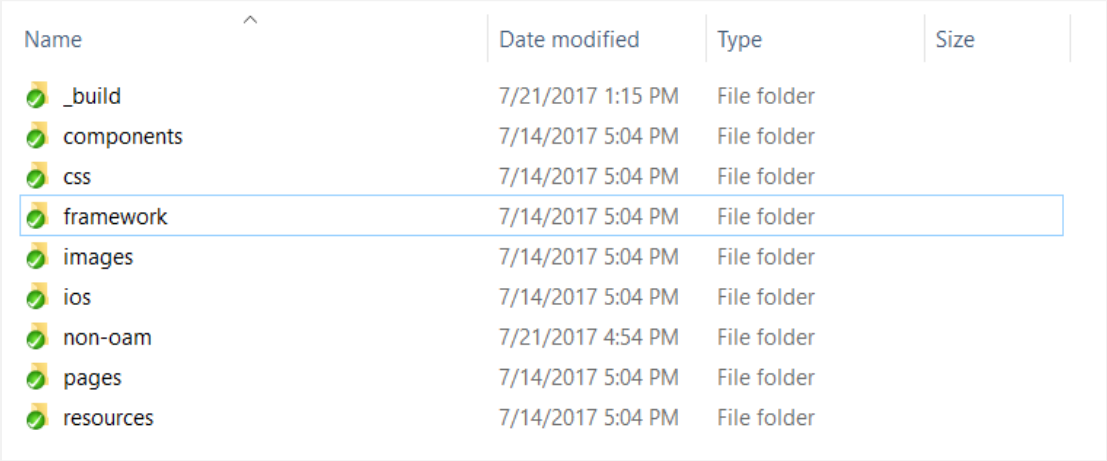

12. This will generate **release-signed.apk** in the Given APK Destination folder. Default APK Destination folder is

    **zigbank\platforms\android\ build\outputs\apk**

# 3. OBDX Authenticator Application

## 3.1 Building Authenticator UI

1. Extract OBDX_Installer.zip and go to **OBDX_Installer/installables/mobile/authenticator/ui**. The folder structure is as shown:



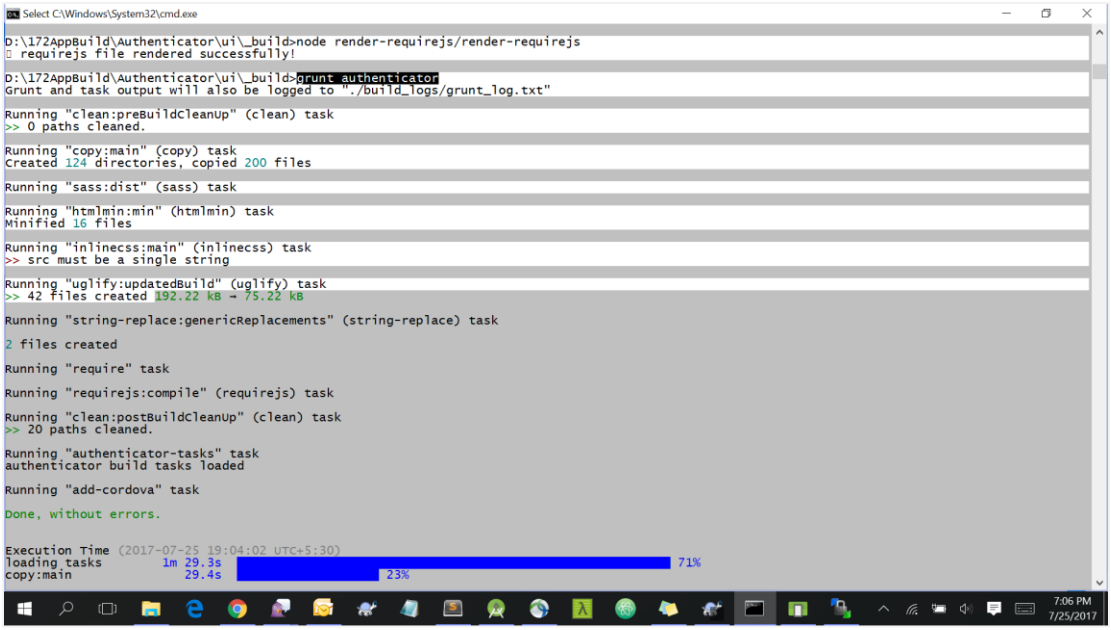

2. Build UI based on selected Authentication mechanism.

### a. OAM based Authentication

1. Open command prompt at *"*OBDX_Installer/installables/mobile/authenticator/ui/_build*"* level.
2. Run following command :

```
npm install -g grunt-cli

npm install

node render-requirejs/render-requirejs.js

grunt authenticator --verbose
```

3. After running above commands and getting result as "Done, without errors." a new folder will be created in "ui" with name as "dist".

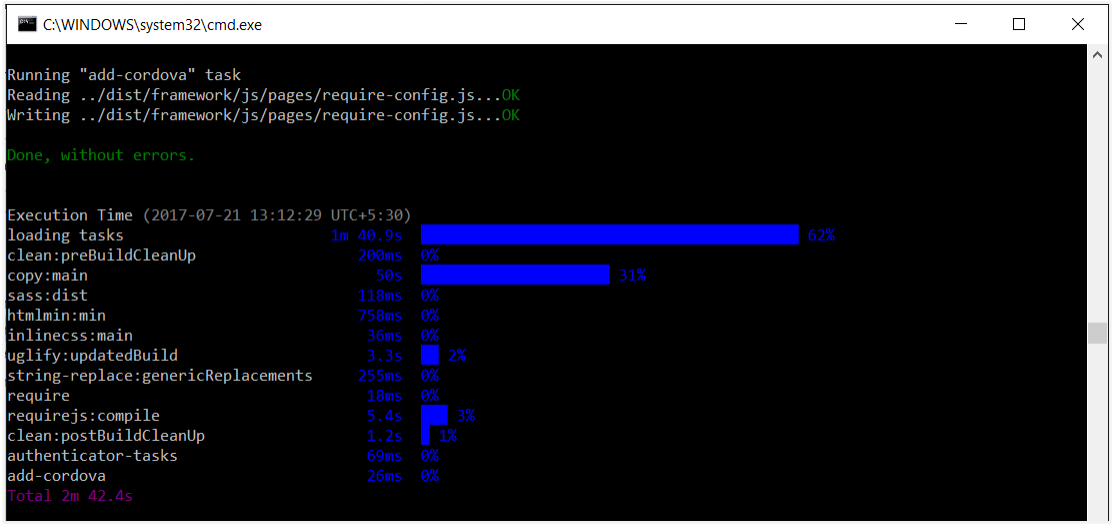


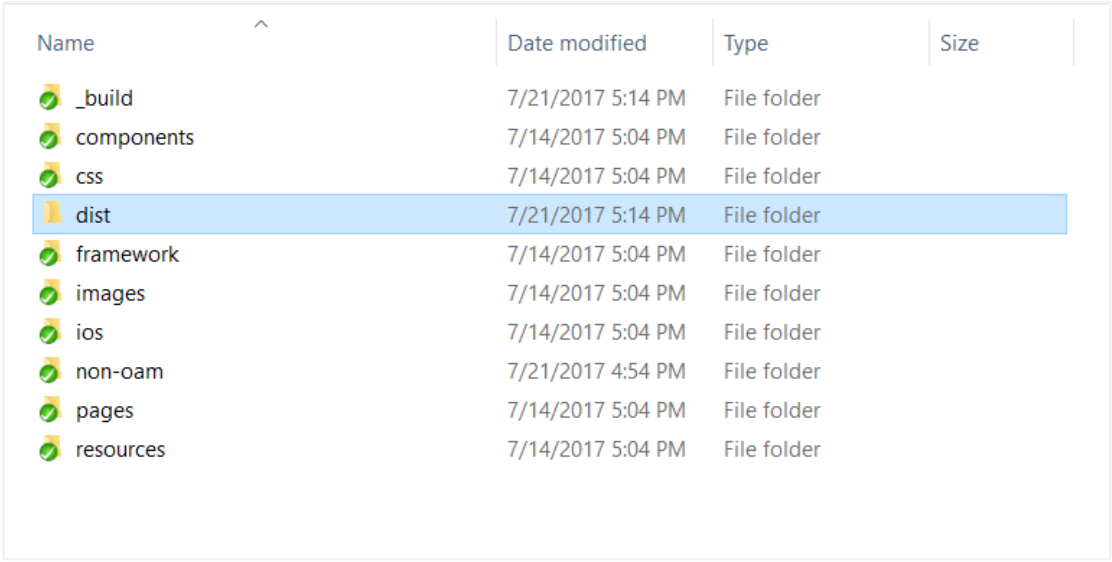

### b. NON-OAM Based Authentication

1. Copy “non-oam/android/login” folder and paste it at location “components/modules” location. This will replace existing “login” folder.
2. Open command prompt at “_build” level.
3. Run following command :

```
npm install -g grunt-cli

npm install

node render-requirejs/render-requirejs.js

grunt authenticator --verbose
```

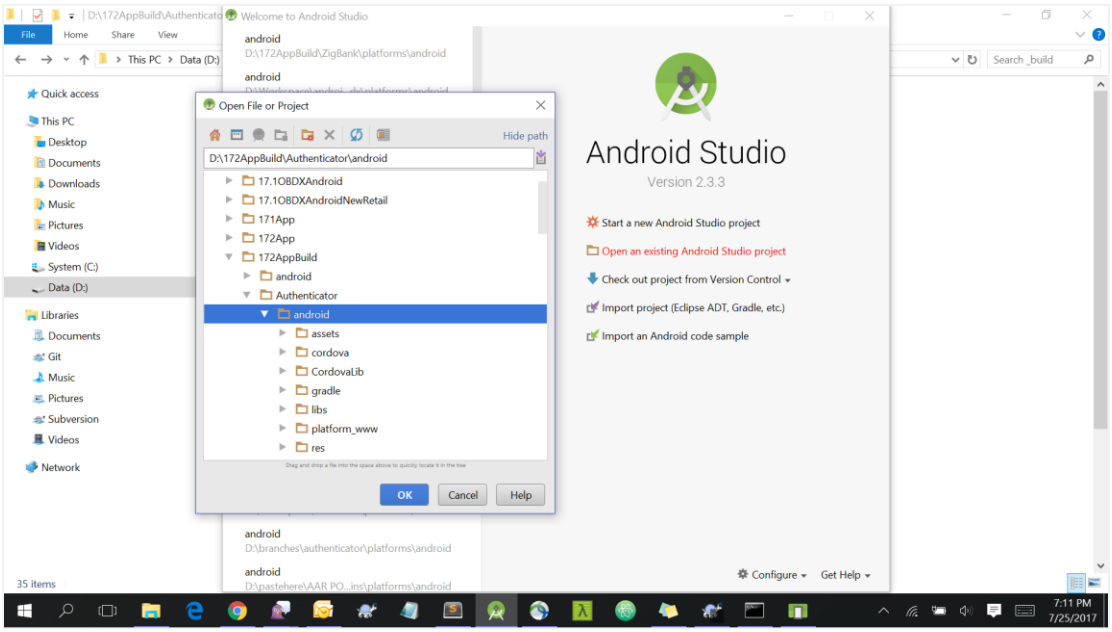
4. After running above commands and getting result as “Done, without errors.” a new folder will be created in “ui” folder with name as “dist”.


C:\WINDOWS\system32\cmd.exe
Running "add-cordova" task
Reading ../dist/framework/js/pages/require-config.js...OK
Writing ../dist/framework/js/pages/require-config.js...OK
Done, without errors.
Execution Time (2017-07-21 13:12:29 UTC+5:30)
loading tasks 1m 40.9s 62%
clean:preBuildCleanUp 200ms 0%
copy:main 50s 31%
sass:dist 118ms 0%
htmlmin:min 758ms 0%
inlinecss:main 36ms 0%
uglify:updatedBuild 3.3s 2%
string-replace:genericReplacements 255ms 0%
require 18ms 0%
requirejs:compile 5.4s 3%
clean:postBuildCleanUp 1.2s 1%
authenticator-tasks 69ms 0%
add-cordova 26ms 0%
Total 2m 42.4s

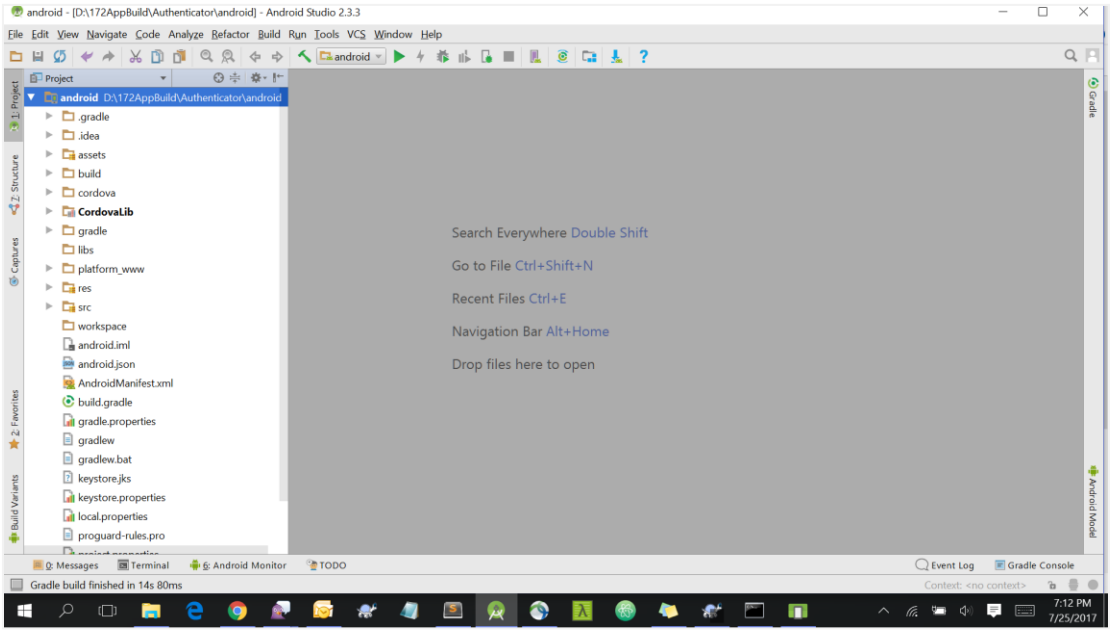

Name
Date modified
Type
Size
_build 7/21/2017 5:14 PM File folder
components 7/14/2017 5:04 PM File folder
css 7/14/2017 5:04 PM File folder
dist 7/21/2017 5:14 PM File folder
framework 7/14/2017 5:04 PM File folder
images 7/14/2017 5:04 PM File folder
ios 7/14/2017 5:04 PM File folder
non-oam 7/21/2017 4:54 PM File folder
pages 7/14/2017 5:04 PM File folder
resources 7/14/2017 5:04 PM File folder

## 3.2 Authenticator Application Workspace Setup

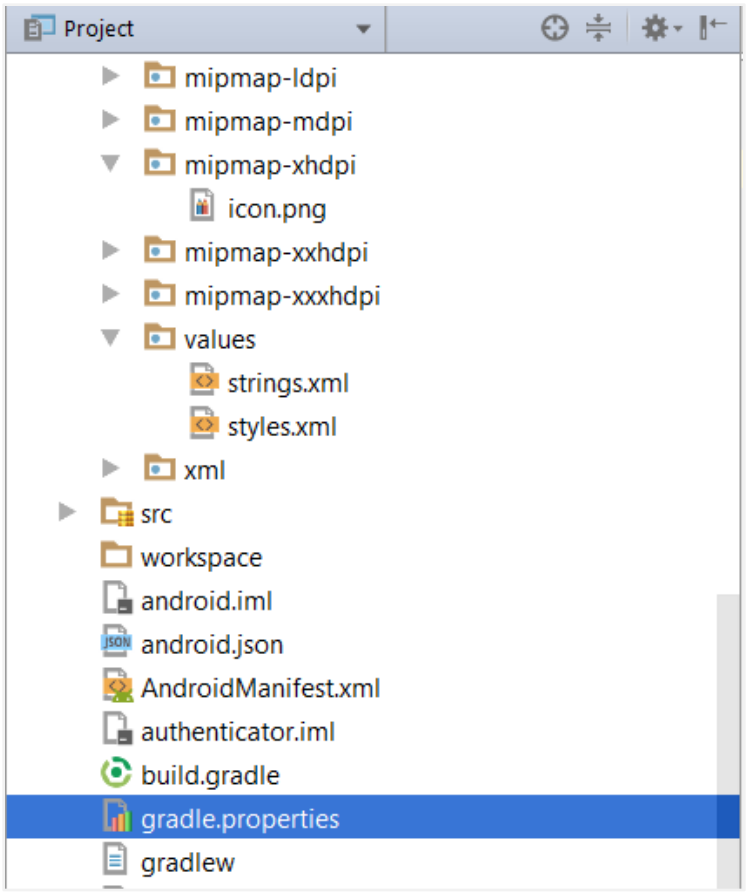
1. Extract OBDX_Installer.zip. It contains "**OBDX_Installer/installables/mobile/authenticator**" folder.




2. Open **OBDX_Installer/installables/mobile/authenticator/android** folder in Android Studio.

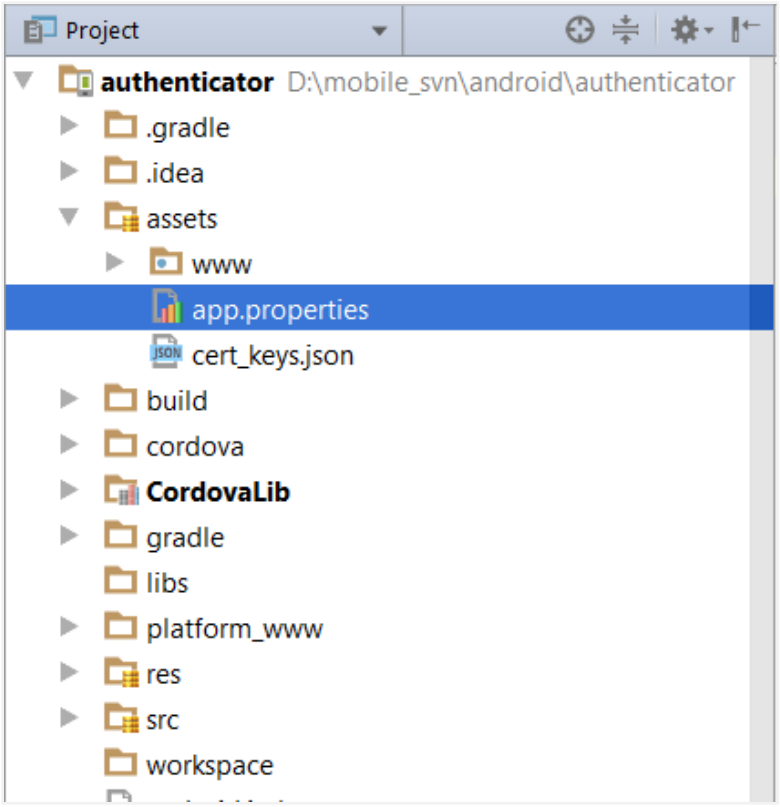



3. Open gradle.properties file and update following properties with relevant proxy address

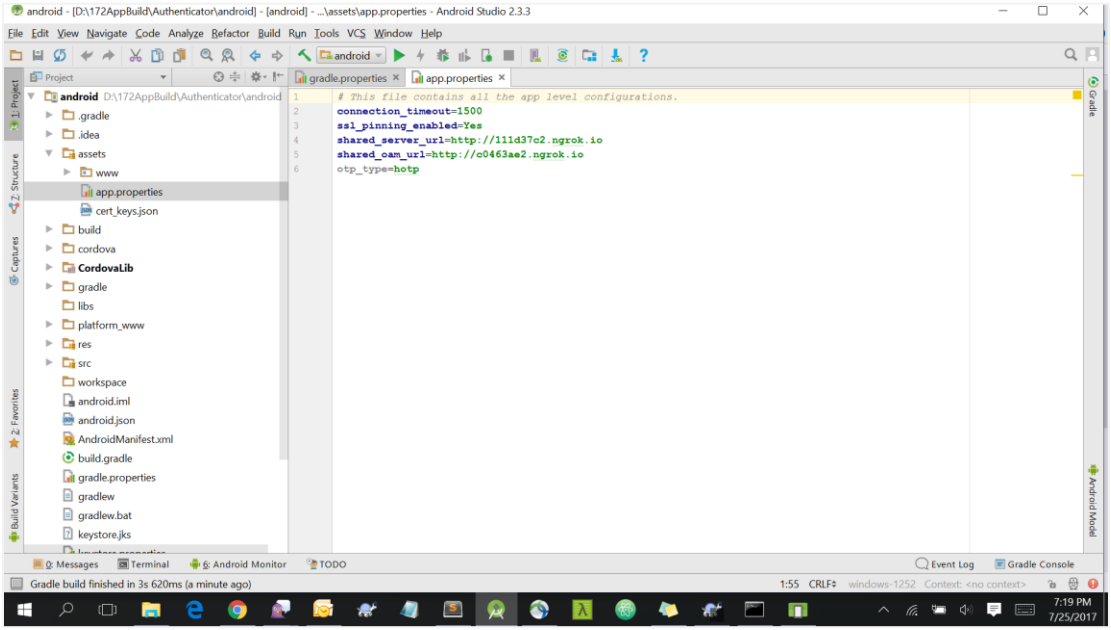



```
systemProp.http.proxyHost = <proxy_address>
systemProp.https.proxyPort = <port_number>
systemProp.https.proxyHost = <proxy_address>
systemProp.http.proxyPort = <port_number>
```

4. Open "*assets\app.properties*" file and update following properties as per requirement

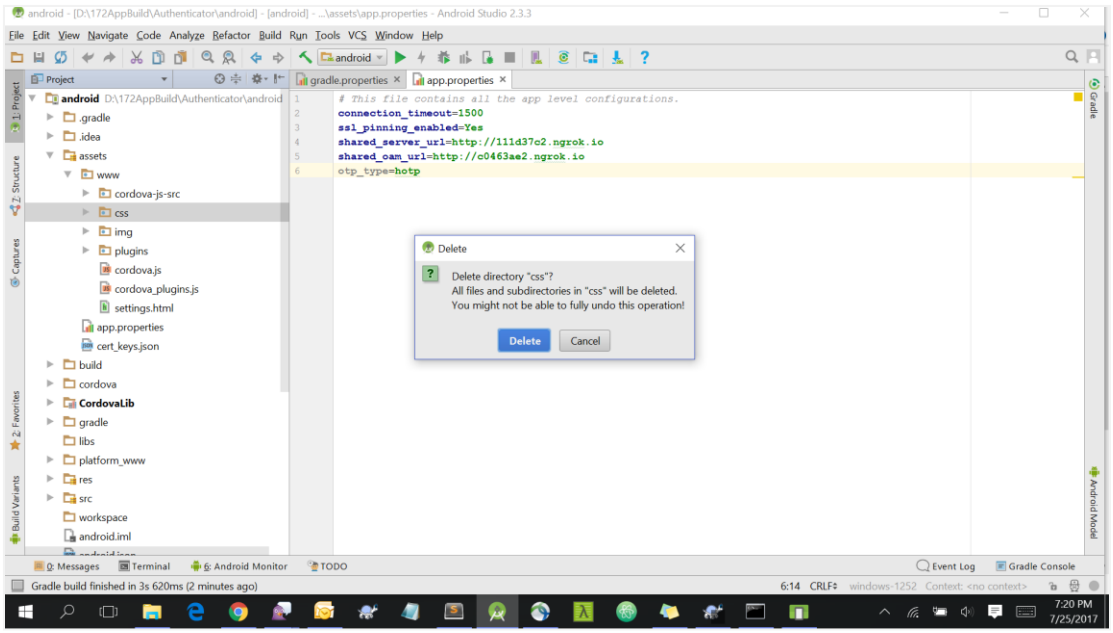



```
connection_timeout = <timeout_in_milliseconds>
ssl_pinning_enabled = <YES or NO>
shared_server_url = <server_url>
shared_oam_url = <oam_url>
otp_type = <hotp or totp>
```

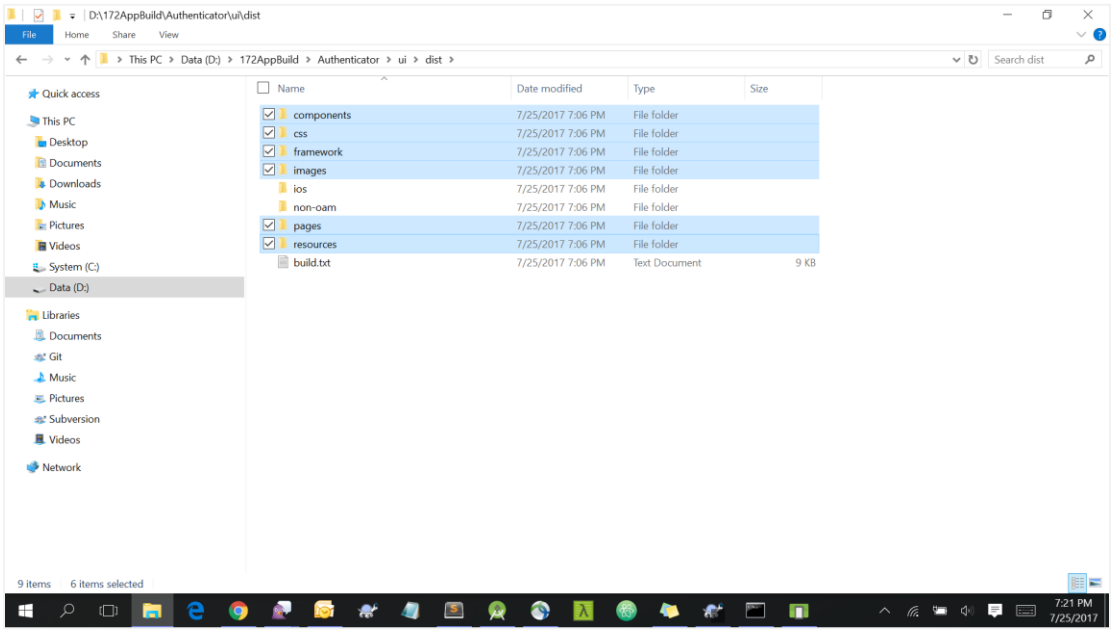


**Note**: If selected authentication mechanism is not OAM based then remove "*shared_oam_url*" property.

5. Delete "***assets/www/css***" folder.



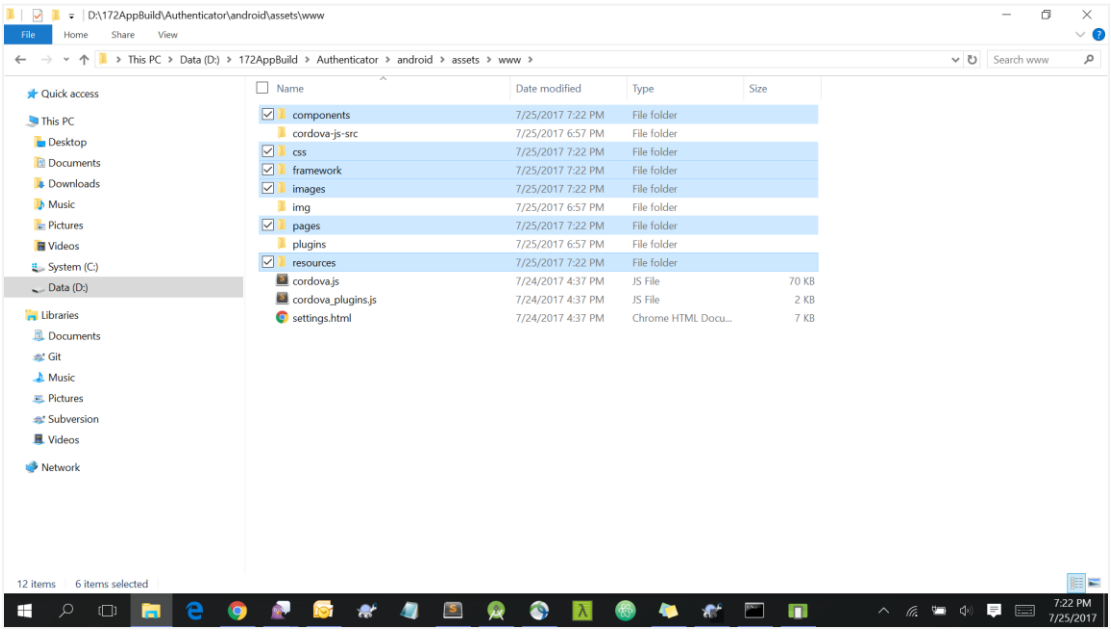

6. Copy generated UI files from "**OBDX_Installer/installables/mobile/authenticator/ui/dist**" folder.



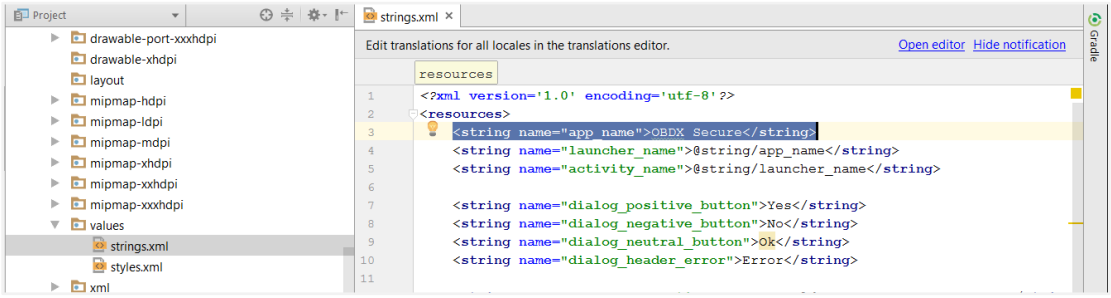
7. Copy following folders:

- components
- css
- framework
- images
- pages
- resources

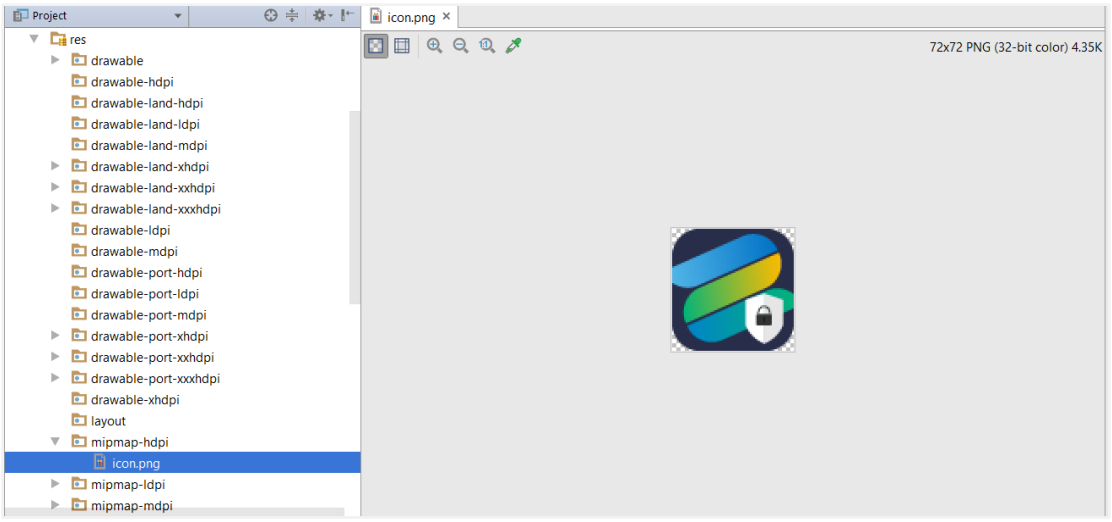
8. Paste copied folders at location “OBDX_Installer/installables/mobile/authenticator /android/assets/www”



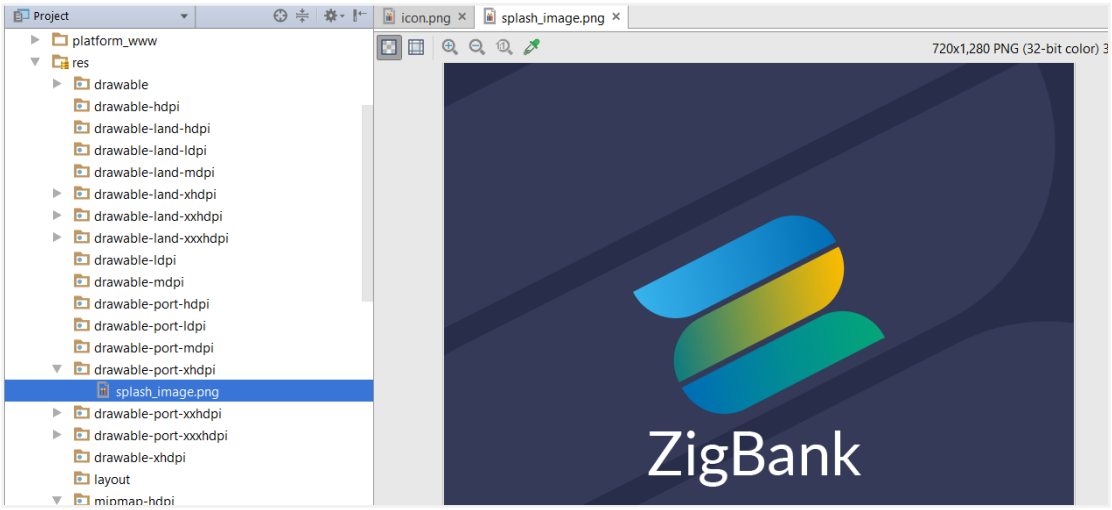

9. To update Application name change string “app_name” value located in “OBDX_Installer/installables/mobile/authenticator/res/values/strings.xml” file in Andriod Studio.



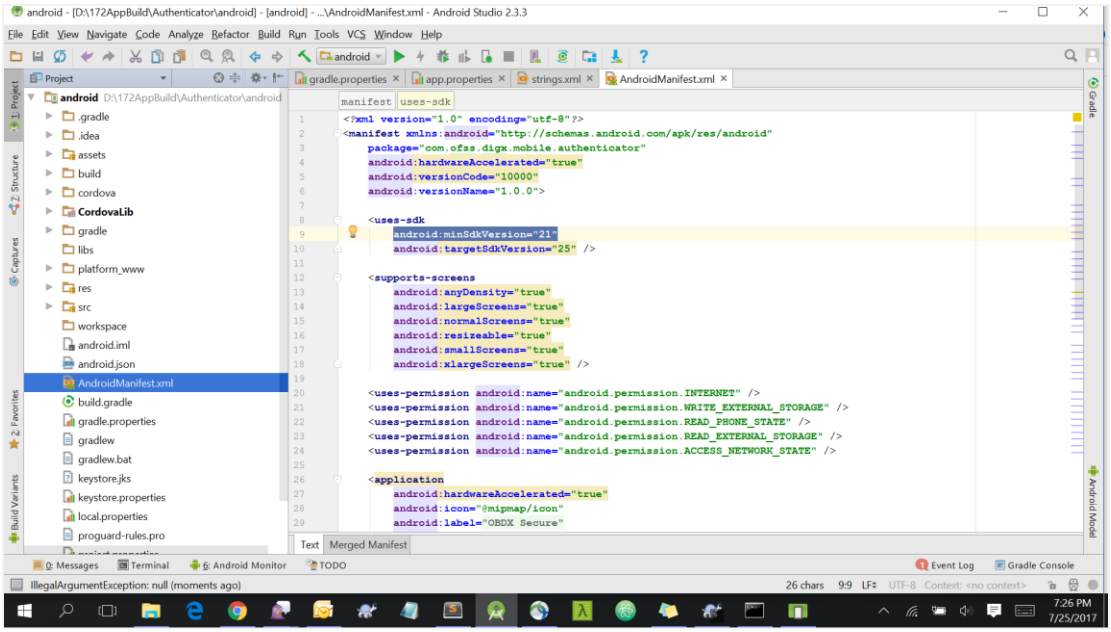

10. To update Application icon update icons in respective “mipmap” folders in Android Studio.



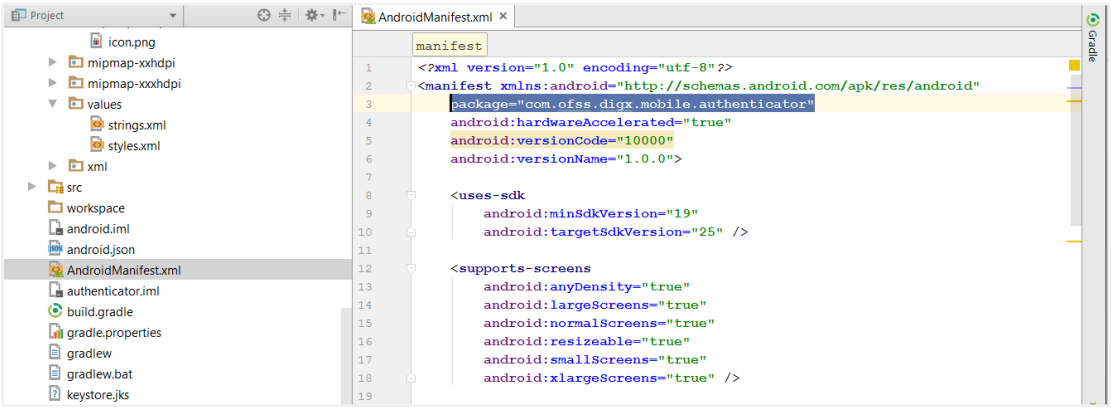

11. To change splash screen image update “splash_image.png” file in respective “drawable” folders.




12. Change **android:minSdk**Version to "**21**"

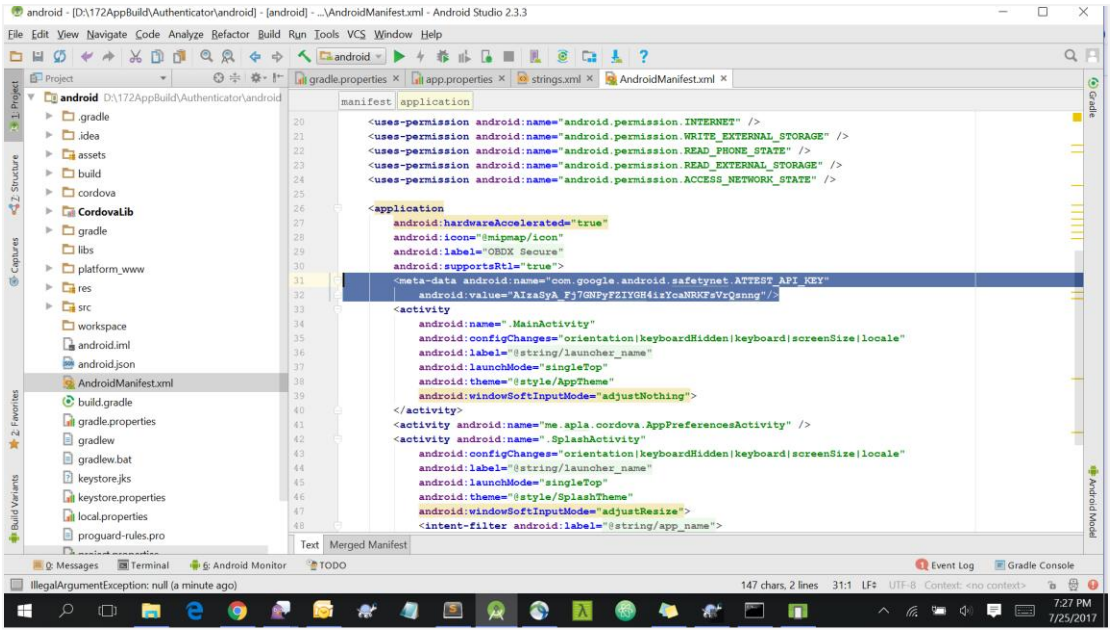



13. To change application package name, update package name in AndroidManifest.xml file.




14. Go to https://developer.android.com/training/safetynet/attestation.html#add-api-key and follow the steps to generate the api key. Once the key is ready, add the following to AndroidManifest.xml inside <application> tag

```
<meta-data android:name="com.google.android.safetynet.ATTEST_API_KEY"
    android:value="ENTER_YOUR_API_KEY"/>
```

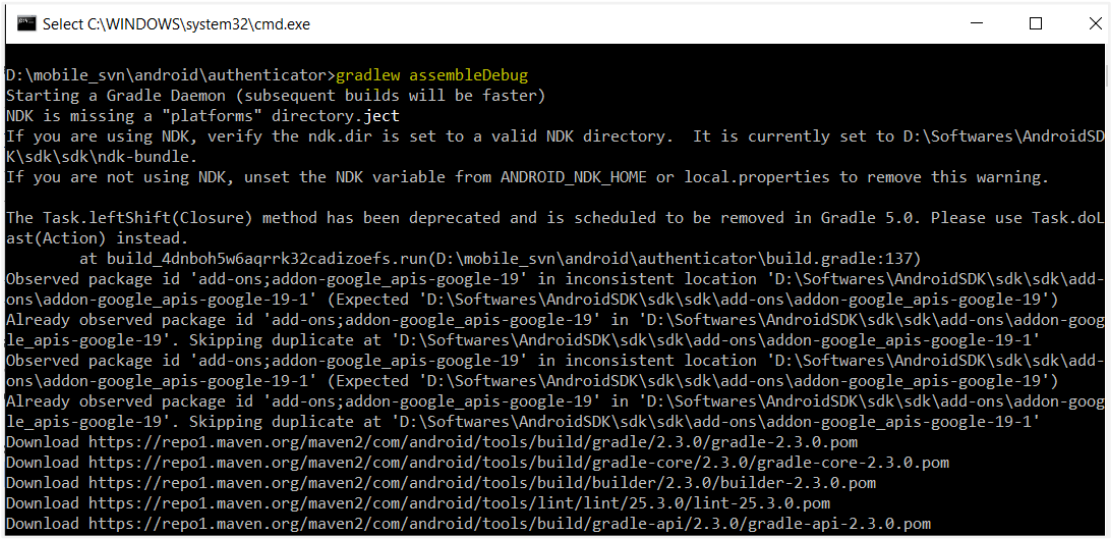

android - [D:\172AppBuild\Authenticator\android] - [android] - ...\AndroidManifest.xml - Android Studio 2.3.3
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
gradle.properties
app.properties
strings.xml
AndroidManifest.xml
manifest
application
<uses-permission android:name="android.permission.INTERNET" />
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.READ_PHONE_STATE" />
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
<application
android:hardwareAccelerated="true"
android:icon="@mipmap/icon"
android:label="OBDX Secure"
android:supportsRtl="true">
<meta-data android:name="com.google.android.safetynet.ATTEST_API_KEY"
android:value="AIzaSyA_Fj7GNPyFZIYGH4izYcaNRKFsVrQsnng"/>
<activity
android:name=".MainActivity"
android:configChanges="orientation|keyboardHidden|keyboard|screenSize|locale"
android:label="@string/launcher_name"
android:launchMode="singleTop"
android:theme="@style/AppTheme"
android:windowSoftInputMode="adjustNothing">
</activity>
<activity android:name="me.apla.cordova.AppPreferencesActivity" />
<activity android:name=".SplashActivity"
android:configChanges="orientation|keyboardHidden|keyboard|screenSize|locale"
android:label="@string/launcher_name"
android:launchMode="singleTop"
android:theme="@style/SplashTheme"
android:windowSoftInputMode="adjustResize">
<intent-filter android:label="@string/app_name">
Text
Merged Manifest
Event Log
Gradle Console
IllegalArgumentException: null (a minute ago)
147 chars, 2 lines
31:1
7:27 PM
7/25/2017

## 3.3 Building Authenticator Application

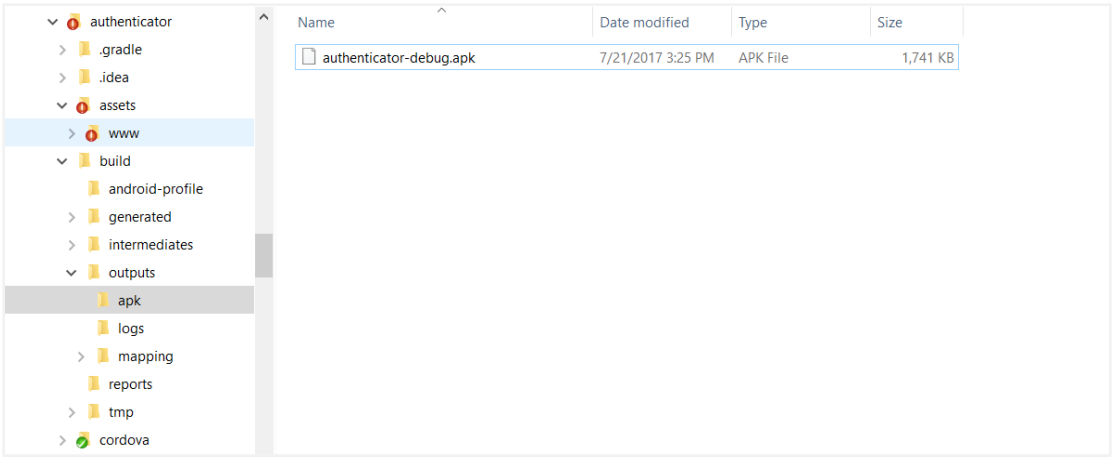
### a. Debug build – To debug Issues

1. Delete existing "OBDX_Installer/installables/mobile/authenticator/android/res/xml/config.xml" file.
2. Rename "OBDX_Installer/installables/mobile/authenticator/android/res/xml/config_debug.xml" file as "config.xml"
3. Delete "OBDX_Installer/installables/mobile/authenticator/android/build" folder if it already exists.
4. Open command prompt at "authenticator" folder level.
5. Run following command

```
gradlew assembleDebug
```




6. After getting message "BUILD SUCCESSFUL" debug apk is generated at path "OBDX_Installer/installables/mobile/authenticator/android/build\outputs\apk\authenticator-debug.apk".

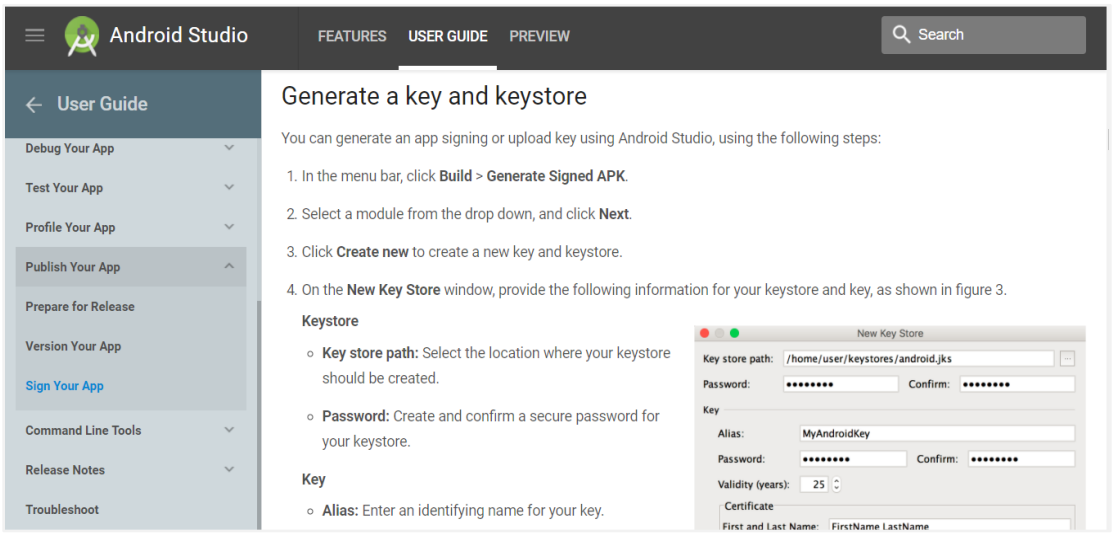



### b. RELEASE build – For Release

1. Delete existing “OBDX_Installer/installables/mobile/authenticator/android/res/xml/config.xml” file.
2. Rename “OBDX_Installer/installables/mobile/authenticator/android/res/xml/config_release.xml” file as “config.xml”
3. Replace “OBDX_Installer/installables/mobile/authenticator/android/keystore.jks” with your own keystore.

To generate key and keystore refer android developer site at location:

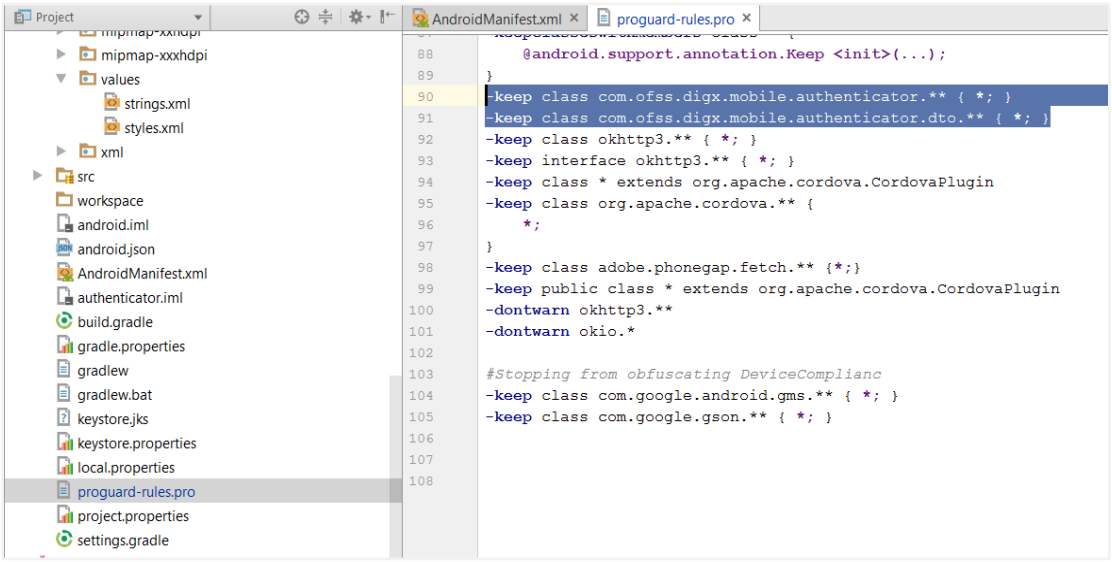
https://developer.android.com/studio/publish/app-signing.html#generate-key



4. Open “authenticator/keystore.properties file and update following properties

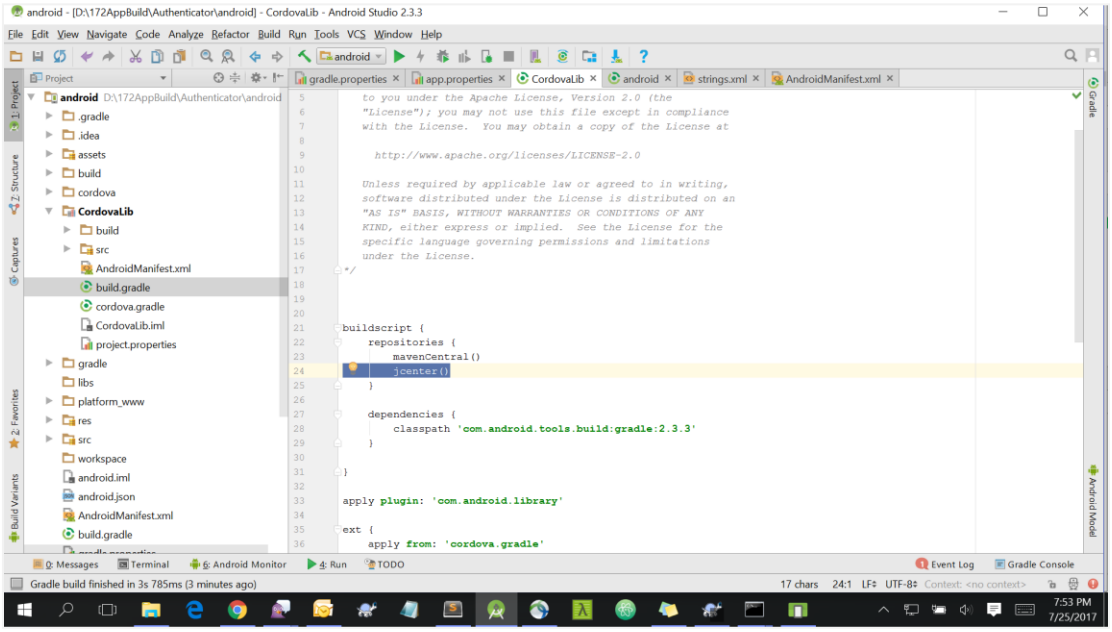
```
storePassword=<keystore_password>
keyPassword=<key_password>
keyAlias=<alias_for_key>
storeFile=<keystore_file_name>
```

5. Update proguard rules file located at “authenticator/proguard-rules.pro” to change package name with one provided in AndroidManifest.xml file.



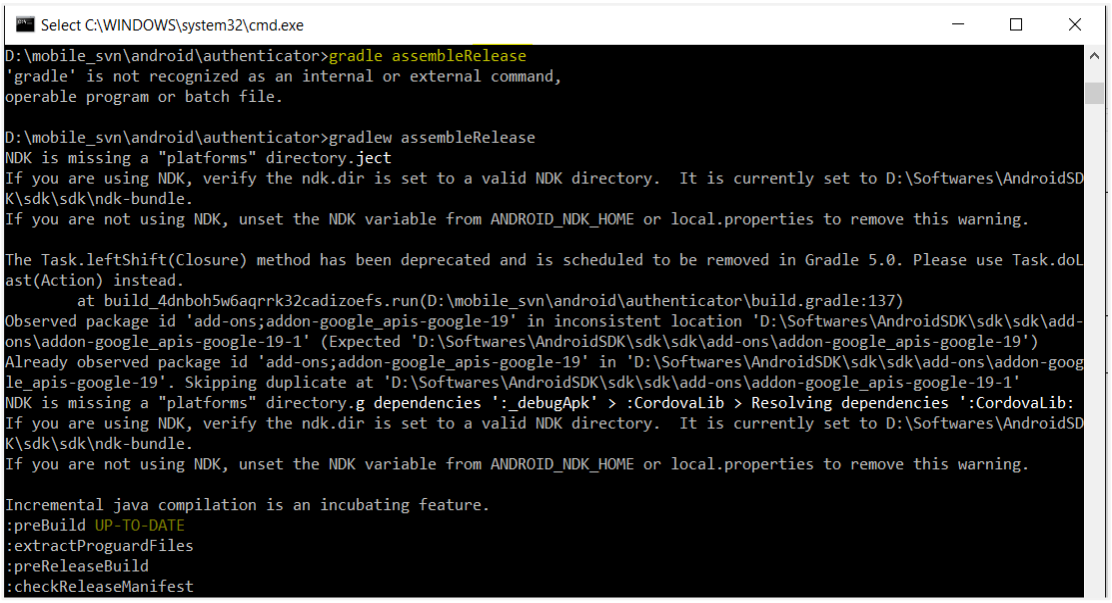

6. Open command prompt at “OBDX_Installer/installables/mobile/authenticator/android/” folder level.

7. Open build.gradle of Cordova Lib and add jcenter() to repositories as shown in the screen shot.

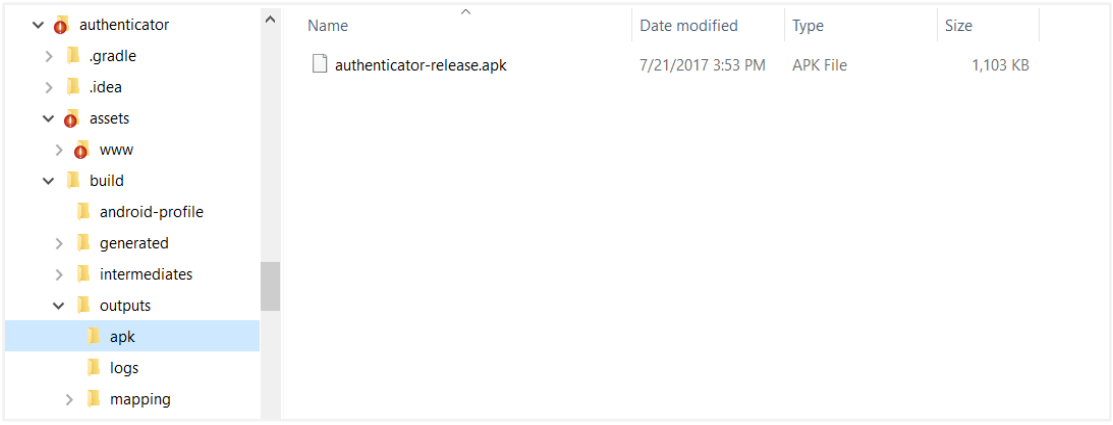


8. Run following command

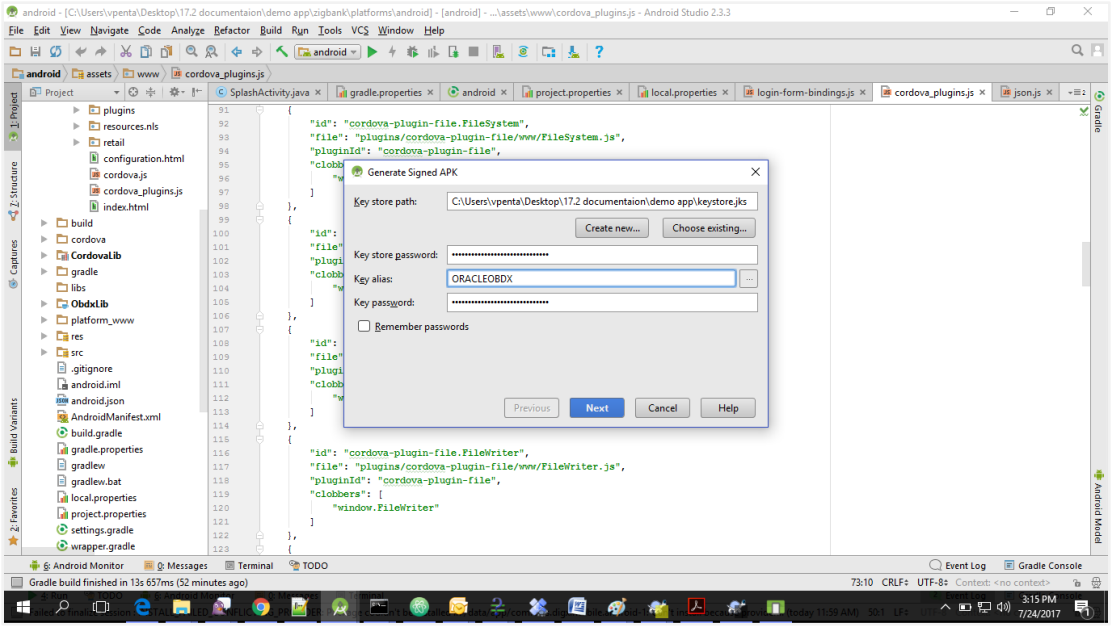
```
gradlew assembleRelease
```



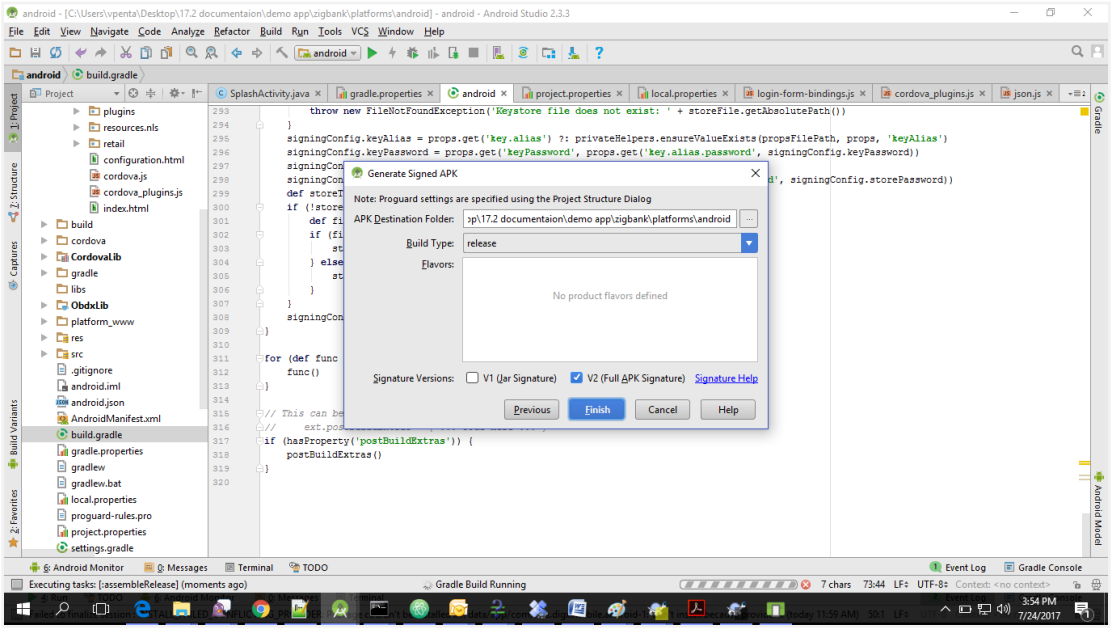

9. After getting message “BUILD SUCCESSFUL” release apk is generated at path “OBDX_Installer/installables/mobile/authenticator/android/build\outputs\apk\authenticator-release.apk”.




10. To generate release signed apk :
    i. On menu bar click on Build -> Generate Signed Apk
    ii. If you have an existing keystore.jks file then select choose Existing else click on **Create New**




iii. Select **Build Type** as **Release**, **Signature Version as V2(Full APK Signature)** and Change APK Destination folder if you want and click on Finish.




This will generate release-signed.apk in the Given APK Destination folder. Default APK Destination folder is OBDX_Installer/installables/mobile/authenticator/android\platforms\android\build\outputs\apk