# IFCViewerAndroid – C++/OpenGL

## New Project

*Android Studio => New Project => Import an Android code sample => NDK => Hello GL2*

## IFC Engine Shared Lib

Add IFC Engine .h files and Shared Lib-s for Android in:

*./*

*/distribution*

*/ifcengine*

*/include*

*engdef.h*

*… (all files from the latest build, i.e. ifcengine-YYMMDD\include)*

*/lib*

*arm64-v8a*

*… (all folders/files from the latest build, i.e. ifcengine-YYMMDD\Android)*

## CMake

Edit *\app\src\main\cpp\CMakeList.txt* as shown below:

// BEGIN IFC ENGINE SUPPORT

set(**distribution\_DIR ${CMAKE\_CURRENT\_SOURCE\_DIR}/../../../../distribution**)

add\_library(**lib\_ifcengine SHARED IMPORTED**)  
set\_target\_properties(**lib\_ifcengine PROPERTIES IMPORTED\_LOCATION  
 ${distribution\_DIR}/ifcengine/lib/${ANDROID\_ABI}/libifcengine.so**)

// END IFC ENGINE SUPPORT  
  
add\_library(**gl2jni SHARED  
 gl\_code.cpp**)

// BEGIN IFC ENGINE SUPPORT  
target\_include\_directories(**gl2jni PRIVATE  
 ${distribution\_DIR}/ifcengine/include**)

// END IFC ENGINE SUPPORT

## Gradle

Edit *\app\build.gradle* as shown below:

…

externalNativeBuild {  
 cmake {  
 version **'3.10.2'** path **'src/main/cpp/CMakeLists.txt'** }  
}

// BEGIN IFC ENGINE SUPPORT

sourceSets {

main {

jniLibs.srcDirs = ['../distribution/ifcengine/lib']

}

}

// END IFC ENGINE SUPPORT

## Read/Write Permissions

Edit *\app\src\main\AndroidManifest.xml* as shown below:

*<?***xml version="1.0" encoding="utf-8"***?>*<**manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.android.gl2jni"**>

// BEGIN IFC ENGINE SUPPORT  
 <**uses-permission android:name="android.permission.WRITE\_EXTERNAL\_STORAGE"**/>  
 <**uses-permission android:name="android.permission.READ\_EXTERNAL\_STORAGE"**/>

// END IFC ENGINE SUPPORT  
 <**uses-feature android:glEsVersion="0x00020000"**/>

…

## Request Read/Write Permissions

See *GL2JNIActivity.java* =>

@Override **protected void** onCreate(Bundle icicle) {

…

**if** (Build.VERSION.***SDK\_INT*** >= Build.VERSION\_CODES.***M***) {  
 requestPermissions(**new** String[]{android.Manifest.permission.***WRITE\_EXTERNAL\_STORAGE***}, ***REQUEST\_WRITE\_PERMISSION***);  
} **else** {

…

## Load IFC Model

See *gl\_code.cpp* and *IFCmodel.h/cpp*