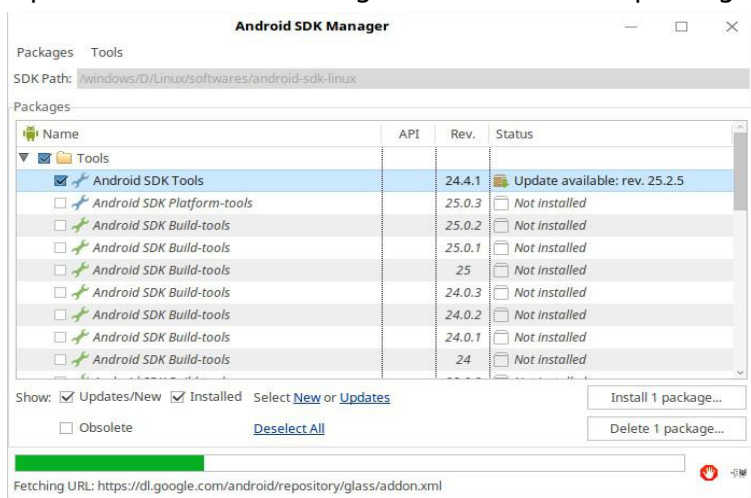


# Android GPU Programming using OpenCL

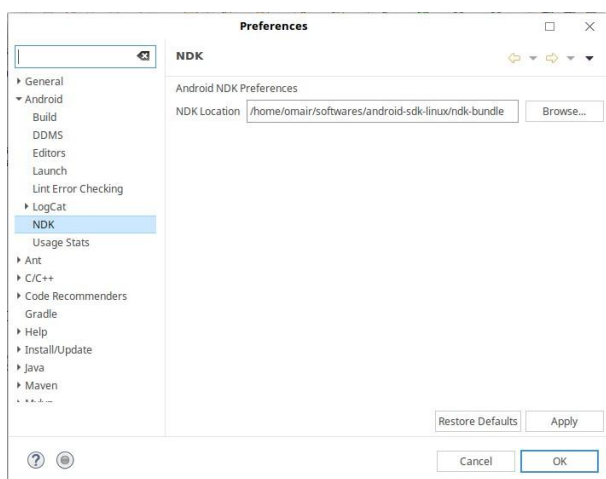
This is a simple tutorial to configure OpenCL with Android. You can find all the files used in this tutorial at

<https://github.com/omair18/Android-Getting-Started-with-OpenCL>

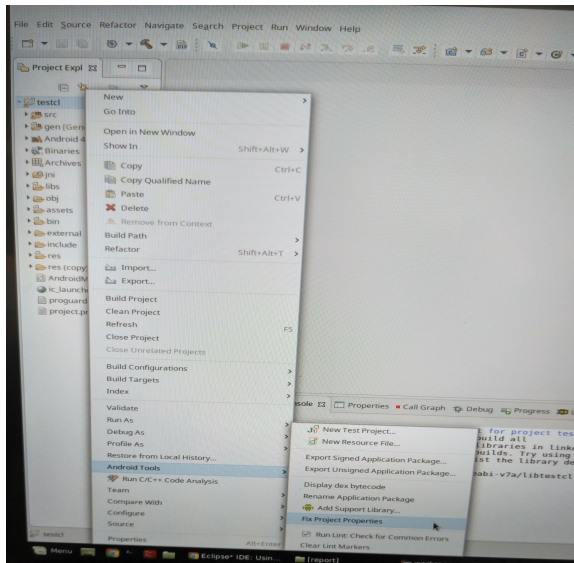
1. Open Android SDK manager and install NDK package.



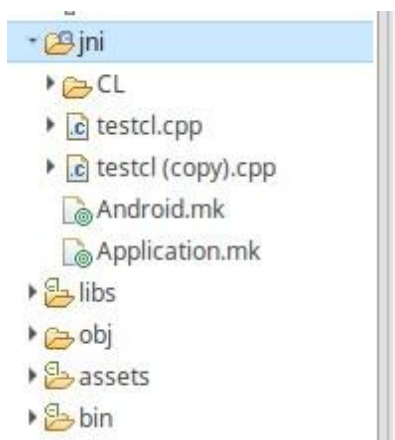
2. Make sure that the NDK path is set in Eclipse.  
Go to *Window -> Preferences -> Android -> NDK*



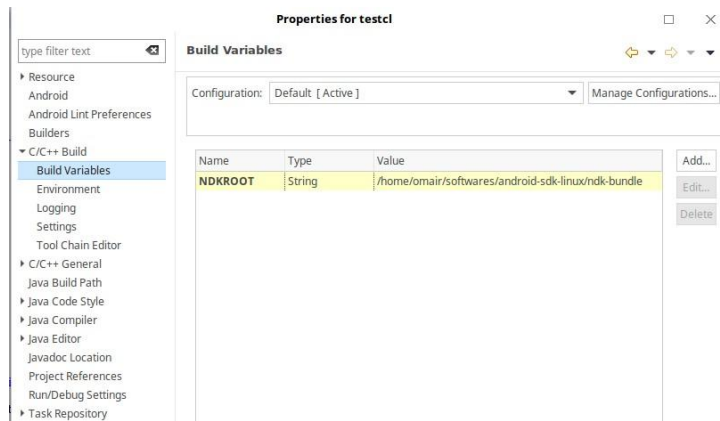
3. Add native support to your project.



4. Now you should see a folder named "jni" in your project explorer containing a \*.cpp file and a make file "Android.mk"



5. Now go to *project -> properties -> C/C++ build -> build variables -> add*  
**Name:** NDKROOT  
**Value:** your android-ndk-r9c folder you also added to NDK in step 1  
Click Ok



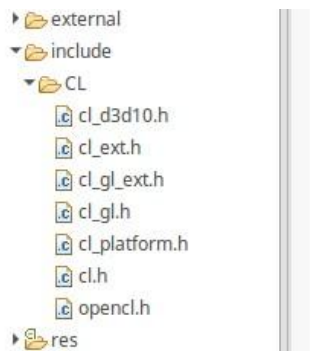
6. In the JNI folder, create an *Application.mk* file. This is the make file. And add the following text to it:

```
Application.mk
1 APP_STL := stlport_static
2 APP_CPPFLAGS := -fexceptions
3 APP_OPTIM := debug
4 APP_ABI := armeabi-v7a
5 APP_PLATFORM := android-14
```

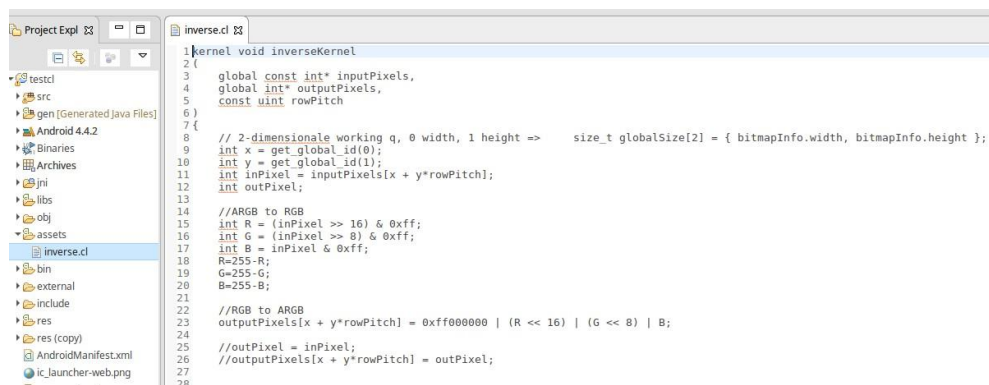
7. Now copy OpenCL library from your phone and paste it in “external” folder. You can find this library named “*libOpenCL.so*” in your phone */system/vendor/lib/libOpenCL.so*
8. Change *Android.mk* file as shown in this snapshot.

```
Android.mk
1 LOCAL_PATH := $(call my-dir)
2
3 include $(CLEAR_VARS)
4
5 LOCAL_MODULE := testcl
6 LOCAL_SRC_FILES := testcl.cpp
7
8 LOCAL_LDLIBS += $(LOCAL_PATH)/../external/libGLES_mali.so
9 LOCAL_LDLIBS := -llog -ljnigraphics
10 LOCAL_LDLIBS += $(LOCAL_PATH)/../external/libOpenCL.so
11 LOCAL_ARM_MODE := arm
12
13 include $(BUILD_SHARED_LIBRARY)
```

9. To make use of the opengl functions you need the opengl headers. Copy all the header files in “include/CL” folder of your project.



10. Create a file in “assets” folder named “name.cl”. This file will contain the kernel function which is to be run on GPU( host).



11. Now edit “MainActivity.java” file as shown below. You can find all files from github link ( attached at the end of document).



12. The cpp file located in "jni" folder connects the Java code with C++ code that's to be run on GPU.