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Android Studio 2.2 NDK CMake方式入门

CMake (/lib/tag/CMake)

Android Studio (/lib/tag/Android Studio)

2016-09-30 15:40:20 发布

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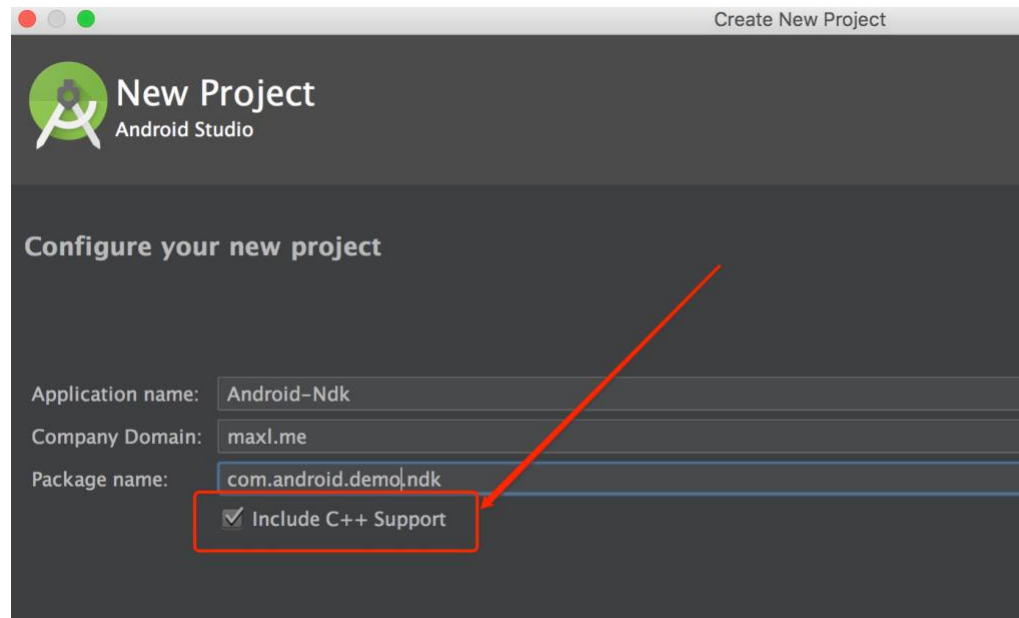
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简述

期待已久的android studio 2.2正式版本终于发布了，该版本开始开发 NDK 便简单了很多，比起使用 javac、javah 命令才能完成的方式简直是质的提升，就是本文所讲的 CMake 方式了，Android 对 CMake的说明请戳：CMake API
(<https://developer.android.com/ndk/guides/cmake.html#variables>)

本次关于 CMake 的内容不做讲解，各位看官可以自行学习，CMake官网
(<https://cmake.org/>)

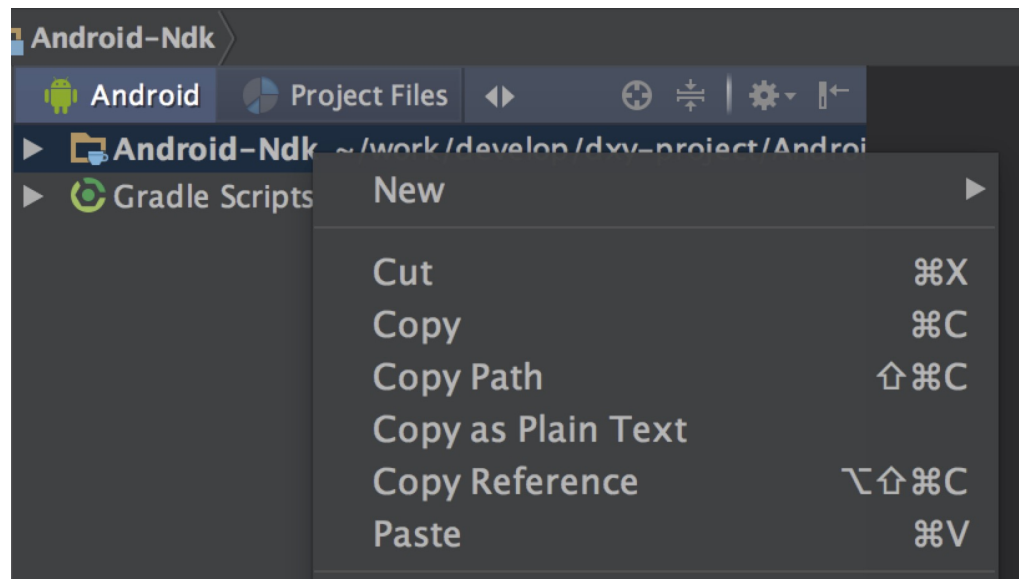
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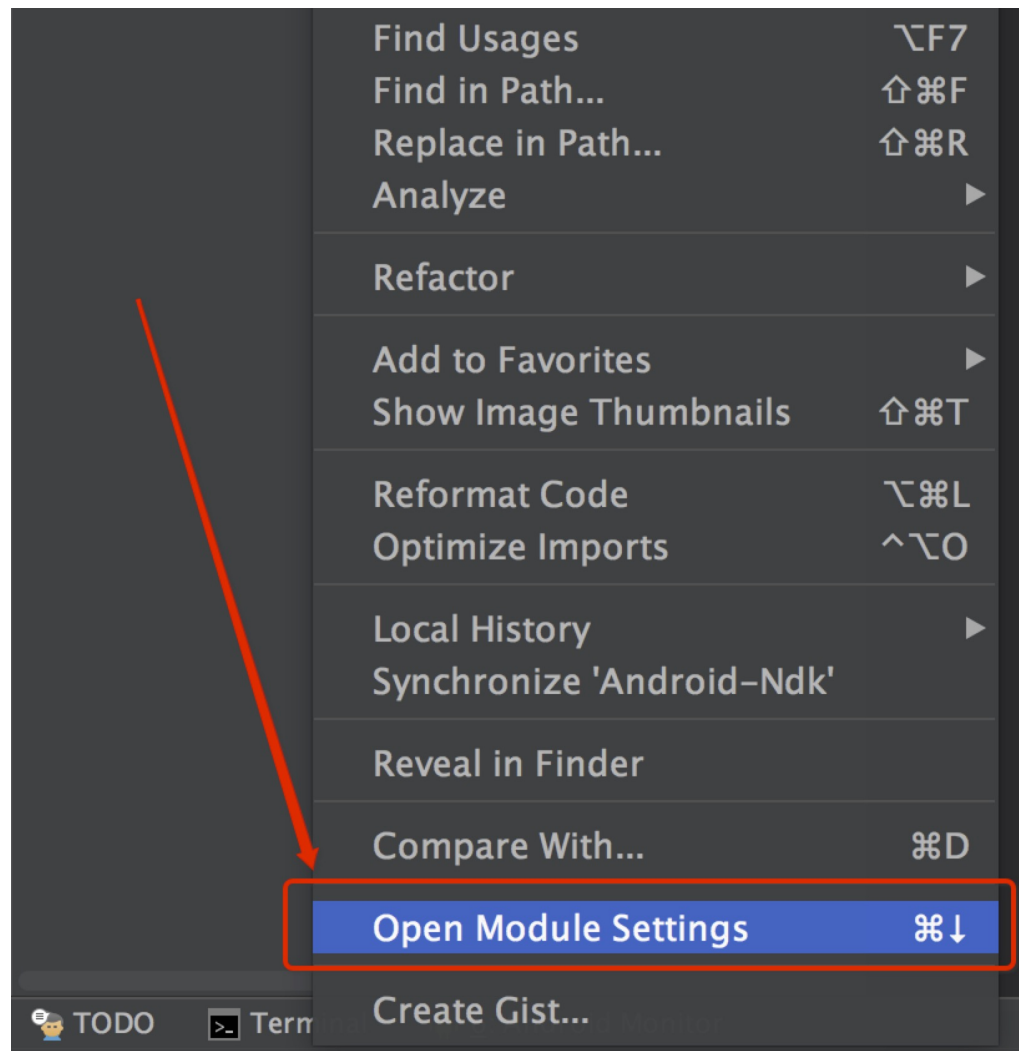


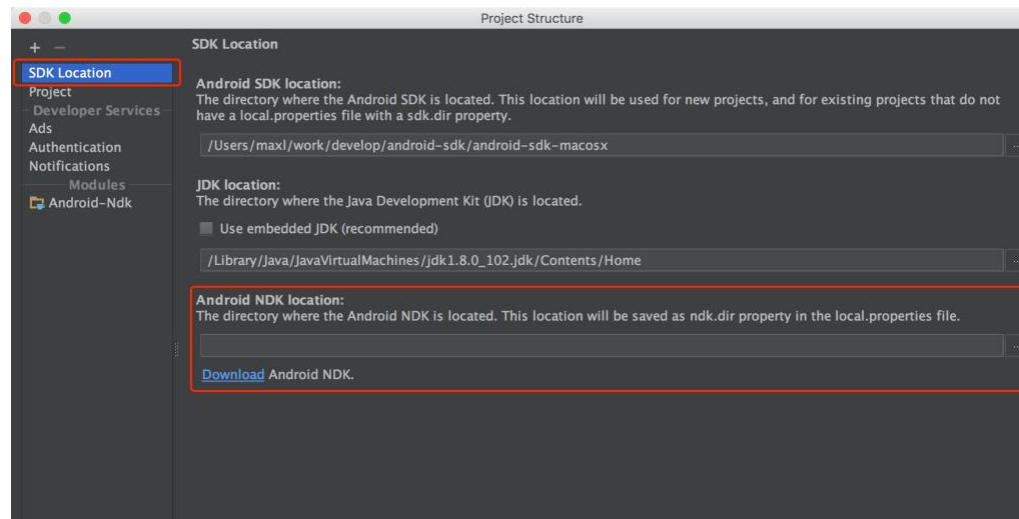
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Tips: 新建一个支持 "Include C++ Support" 的项目，把 Include C++ Support 前面的选项打上勾，然后一路 Next，直到 Finish 为止。

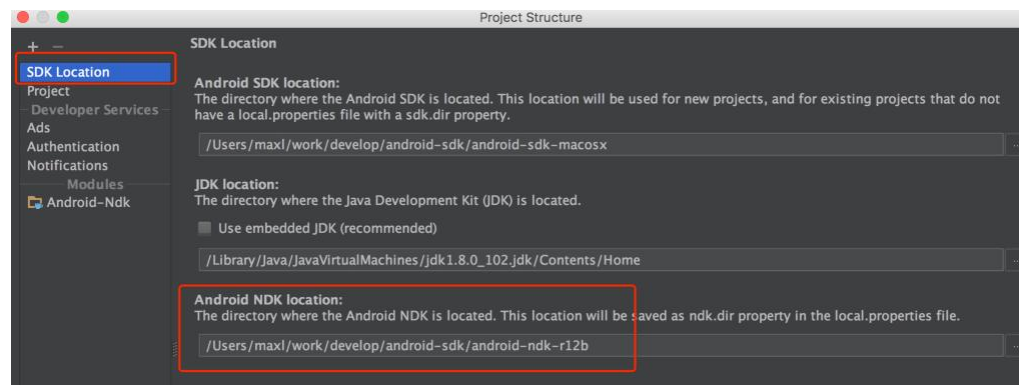
2、配置 NDK 的支持







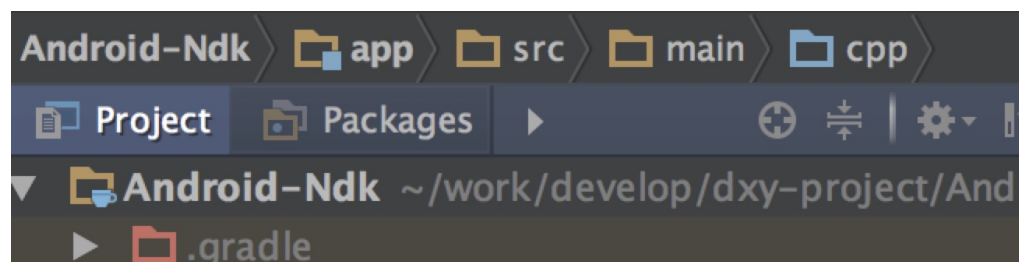
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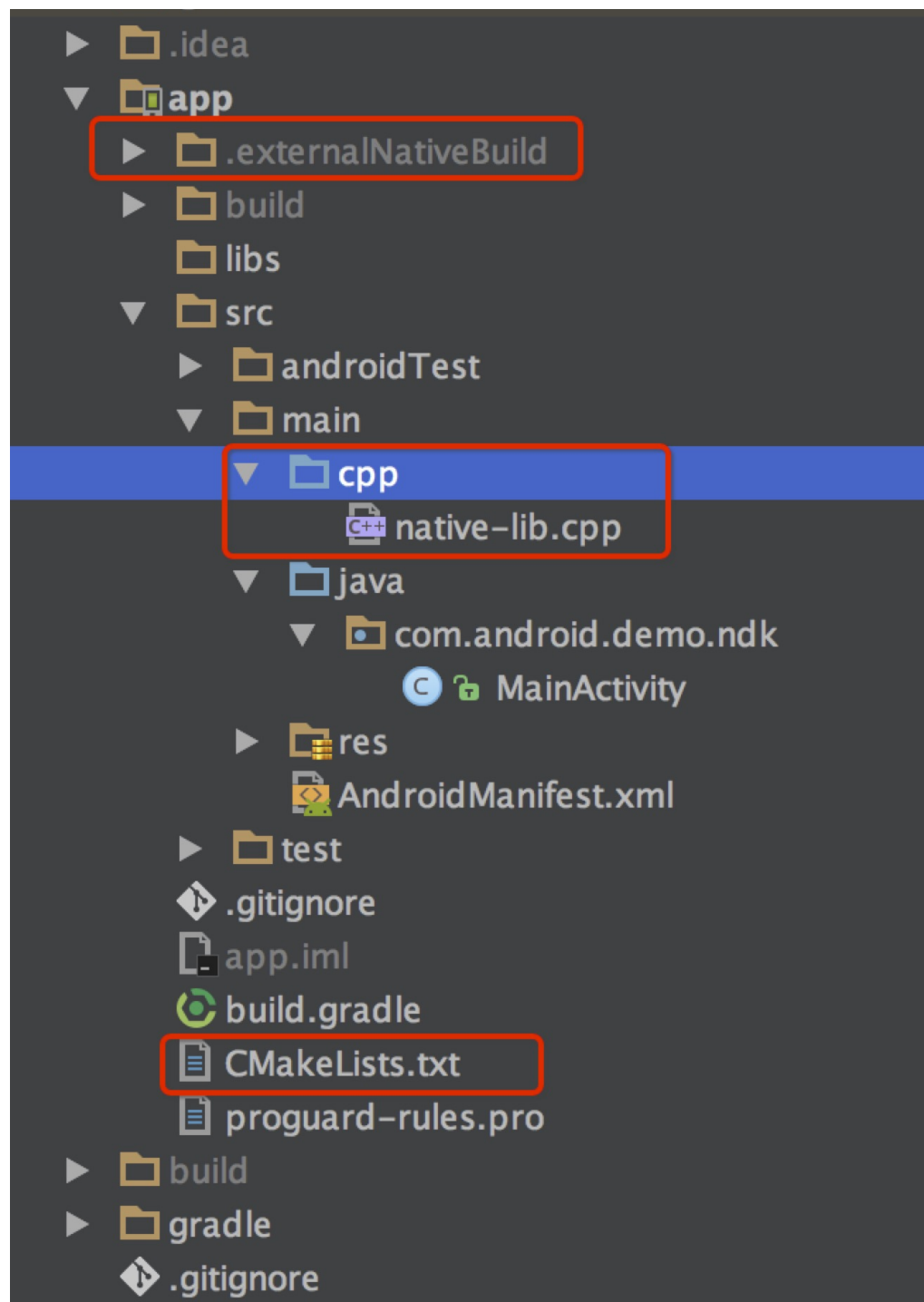


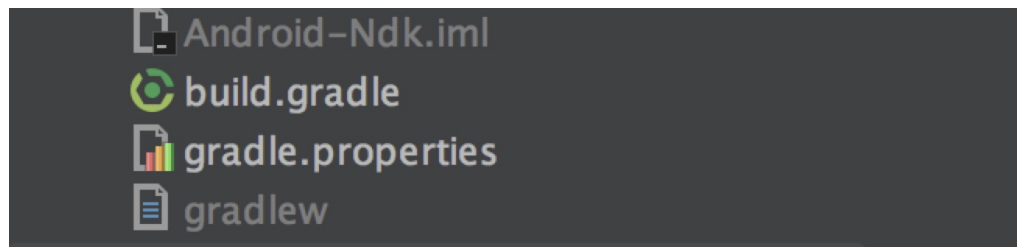
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Tips: 需要下载好 NDK，然后配置 NDK 所在的路径

3、编译好的项目一览







05

Tips: 图中红色方框选中的区域为 NDK 的东东

- (a). externalNativeBuild ---> cmake 编译好的文件, 显示支持的各种硬件等信息
- (b). cpp ---> C 语言程序的逻辑部分, native-lib.cpp 文件名可自行修改
- (c). CMakeLists.txt ---> CMake 脚本配置的文件, 具体可查阅 CMake官网的资料

4、Gradle 文件配置 CMake

```
apply plugin: 'com.android.application'

android {
    compileSdkVersion 24
    buildToolsVersion "24.0.2"
    defaultConfig {
        applicationId "com.android.demo.ndk"
        minSdkVersion 14
        targetSdkVersion 24
        versionCode 1
        versionName "1.0"
        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
        externalNativeBuild {
            cmake {
                cppFlags ""
            }
        }
    }
    buildTypes {
        release {
            minifyEnabled false
            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
        }
    }
    externalNativeBuild {
        cmake {
            path "CMakeLists.txt"
        }
    }
}
```

06

Tips: 只需要配置这两块即可，是不是特简单呢。当然这里还支持配置更多指令 (非常强大)，具体可查阅 CMake 官网

5、MainActivity 部分

```
package com.android.demo.ndk;

import ...

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Example of a call to a native method
        TextView tv = (TextView) findViewById(R.id.sample_text);
        tv.setText(stringFromJNI());
    }

    /**
     * A native method that is implemented by the 'native-lib' native library,
     * which is packaged with this application.
     */
    public native String stringFromJNI();

    // Used to load the 'native-lib' library on application startup.
    static {
        System.loadLibrary("native-lib");
    }
}
```

07

Tips: 红色方框中三块即可实现调用 NDK 来实现功能

- (a). 使用 native 来定义 NDK 的方法：public native ***
- (b). 使用 static 语块来引入 so 文件
- (c). 调用时，只需要调用定义的 native 的方法即可

6、C/C++ 语法部分

```
#include <jni.h>
#include <string>

extern "C"
jstring
Java_com_android_demo_ndk_MainActivity_stringFromJNI(
    JNIEnv *env,
    jobject /* this */) {

    std::string hello = "Hello from C++";
    return env->NewStringUTF(hello.c_str());
}
```

08

Tips: 方法名的命名根之前方法一样，java_包名_类名_方法名

7、CMakeLists.txt 部分


```
# or SHARED, and provides the relative paths to its source code.
# You can define multiple libraries, and CMake builds it for you.
# Gradle automatically packages shared libraries with your APK.

add_library( # Sets the name of the library.
             native-lib

             # Sets the library as a shared library.
             SHARED

             # Provides a relative path to your source file(s).
             # Associated headers in the same location as their source
             # file are automatically included.
             src/main/cpp/native-lib.cpp )

# Searches for a specified prebuilt library and stores the path as a
# variable. Because system libraries are included in the search path by
# default, you only need to specify the name of the public NDK library
# you want to add. CMake verifies that the library exists before
# completing its build.

find_library( # Sets the name of the path variable.
              log-lib

              # Specifies the name of the NDK library that
              # you want CMake to locate.
              log )

# Specifies libraries CMake should link to your target library. You
# can link multiple libraries, such as libraries you define in the
# build script, prebuilt third-party libraries, or system libraries.

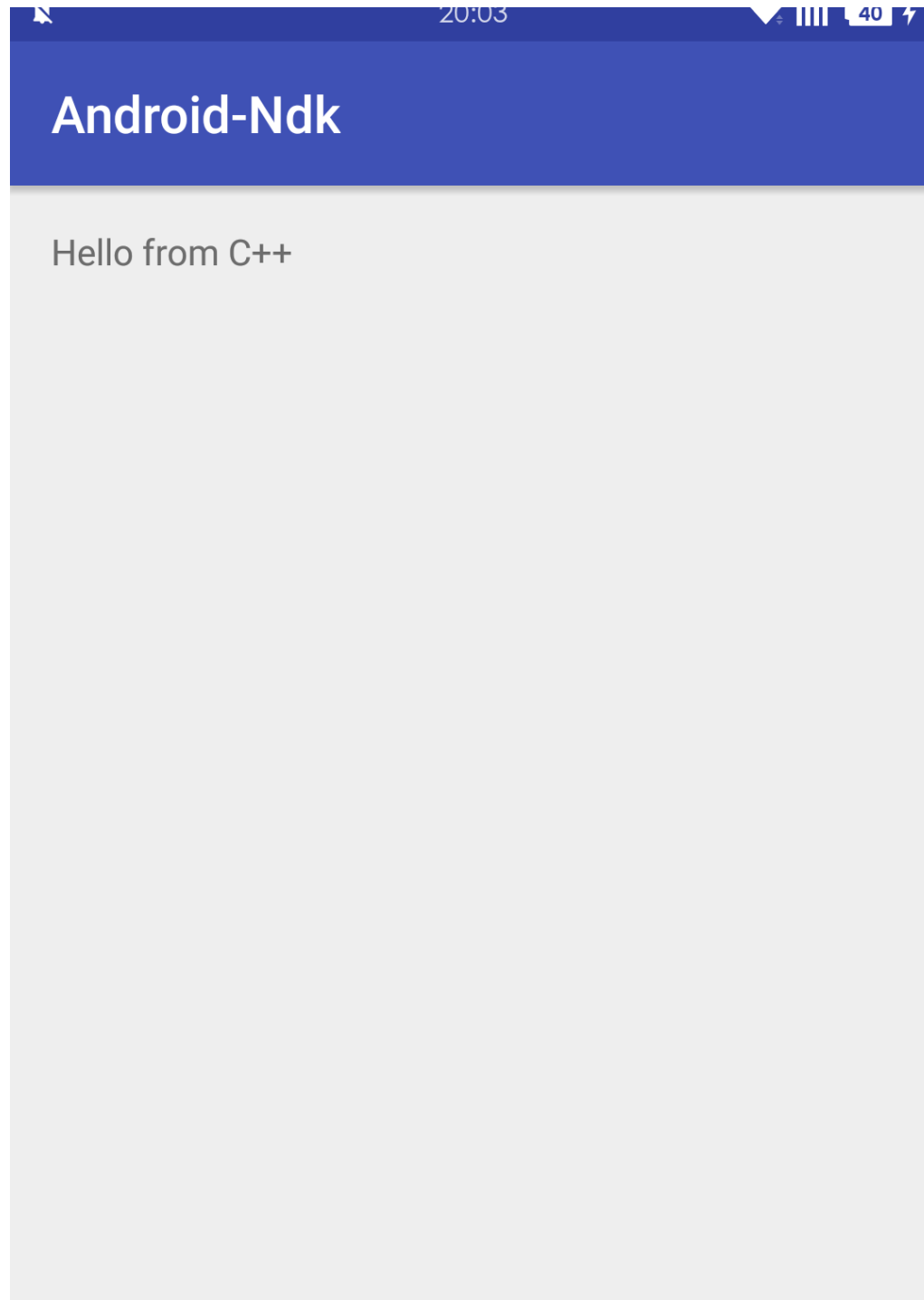
target_link_libraries( # Specifies the target library.
                       native-lib

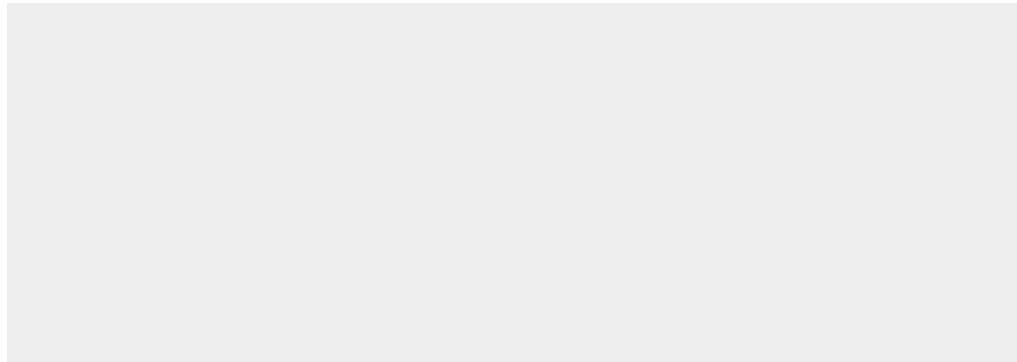
                       # Links the target library to the log library
                       # included in the NDK.
                       ${log-lib} )
```

09

Tips: 红色方框部分的名称可以同时更改, 注意两者需要一致, 更改名称后 会在 .externalNativeBuild 目录下生成相应的 so 的名称, Android 部分调用时 static 语块中 引入的 so 文件名也要保持一致

8、手机运行效果





10

以上只是简单的演示了 <如何创建 CMake 方式实现 Android Studio 2.2 版本 的NDK> 的教程，希望本文可以帮到一些人。

Tips: JNI 类可以单独一个类，不是必须在 MainActivity 类中

来自：<http://www.jianshu.com/p/18724f29d30e>

扩展阅读

Android Studio 新手完全指引 (</lib/view/open1434029865551.html>)

C/C++ 在 Java 项目、Android 和 Objective-C 三大平台下实现混合编程
(</lib/view/open1470385741118.html>)

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Android应用开发编译框架流程与IDE及Gradle概要 (</lib/view/open1453260927167.html>)

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更多

CMake (<https://www.baidu.com/s?wd=site:open-open.com CMake>)

Android Studio (<https://www.baidu.com/s?wd=site:open-open.com Android Studio>)

Android开发 (<https://www.baidu.com/s?wd=site:open-open.com Android开发>)

同类热门新闻

1. Android开发技术周报 Issue#39 (<http://www.open-open.com/news/view/b3be35>)
2. Android开发技术周报 Issue#18 (<http://www.open-open.com/news/view/1ec3ca9>)
3. Android开发周报：Android M名称揭晓、Android性能优化解析 (<http://www.open-open.com/news/view/588bbb>)
4. Intel® INDE for Google Android Studio (<http://www.open-open.com/news/view/190735>)
5. Android开发技术周报 Issue#44 (<http://www.open-open.com/news/view/ea7c88>)
6. Cocos2d-JS 3.2 发布，开源 2D 游戏框架 (<http://www.open-open.com/news/view/af7456>)

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1. 上百个Android开源项目分享 (/lib/view/open1328063267889.html)
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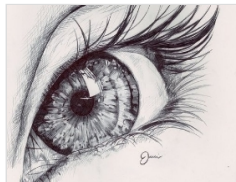
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- 1、新建 Ndk Project
- 2、配置 NDK 的支持
- 3、编译好的项目一览
- 4、Gradle 文件配置 CMake
- 5、MainActivity 部分
- 6、C/C++ 语法部分
- 7、CMakeLists.txt 部分
- 8、手机运行效果

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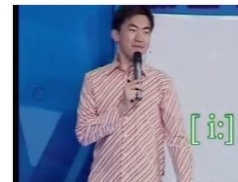
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- Android studio快捷键 (<http://www.open-open.com/solution/view/1409715785963>)
- Android Studio常用快捷键 (<http://www.open-open.com/solution/view/1434186708442>)

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