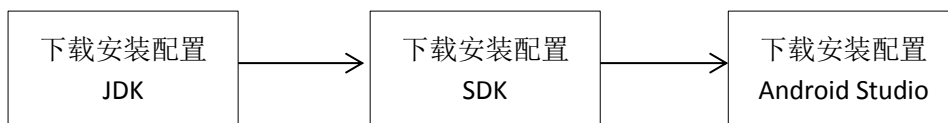


一、搭建 Android Studio 环境



(一) 下载安装配置 JDK

具体下载安装配置方法请参考：

<http://blog.csdn.net/siwuxie095/article/details/53386227>

(二) 下载安装 SDK（参考

http://blog.csdn.net/dr_neo/article/details/49870587）

①到 <http://www.androiddevtools.cn/> 下载 SDK，选择 Windows 环境下的.zip 安装包

Andro*d*De*T*ools

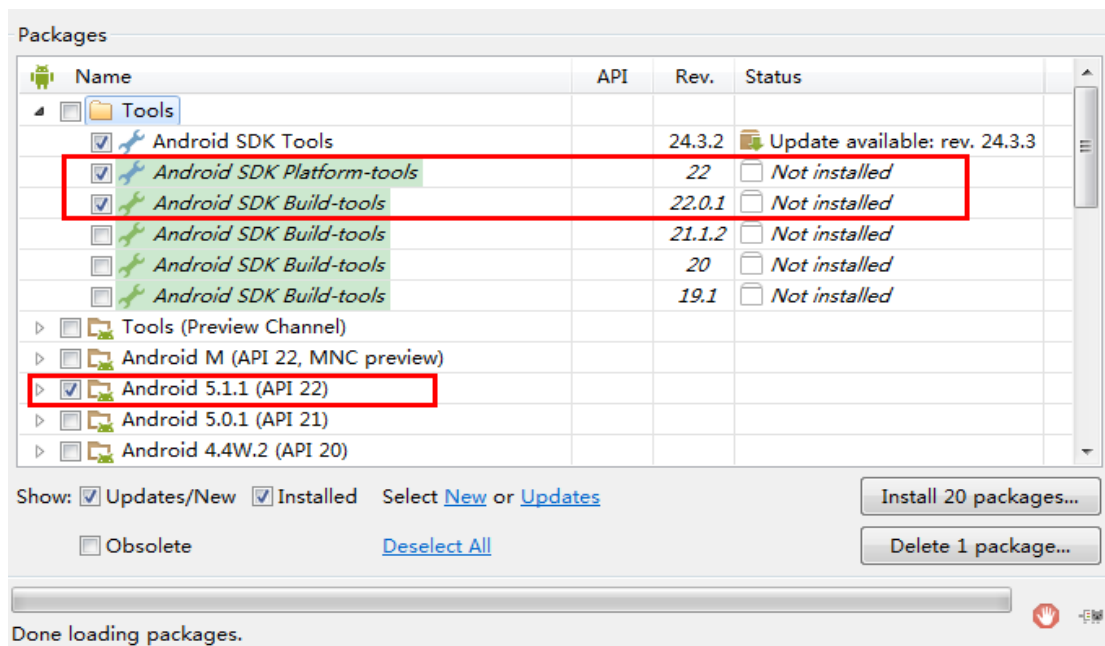
Android SDK 工具 Android 开发工具 指南 教程 设计工具 好基友们 捐赠

	Mac OS X	mac.dmg	425.15 MB	f8a4147f4111a9aba059c7b85a3f0aba6abc950552a270042daa488922db377
	Linux	android-studio-ide-162.3871768-linux.zip	429.52 MB	36520f21678f80298b5df5fe5956db17a5984576f895fdcaa36ab0dbfb408433

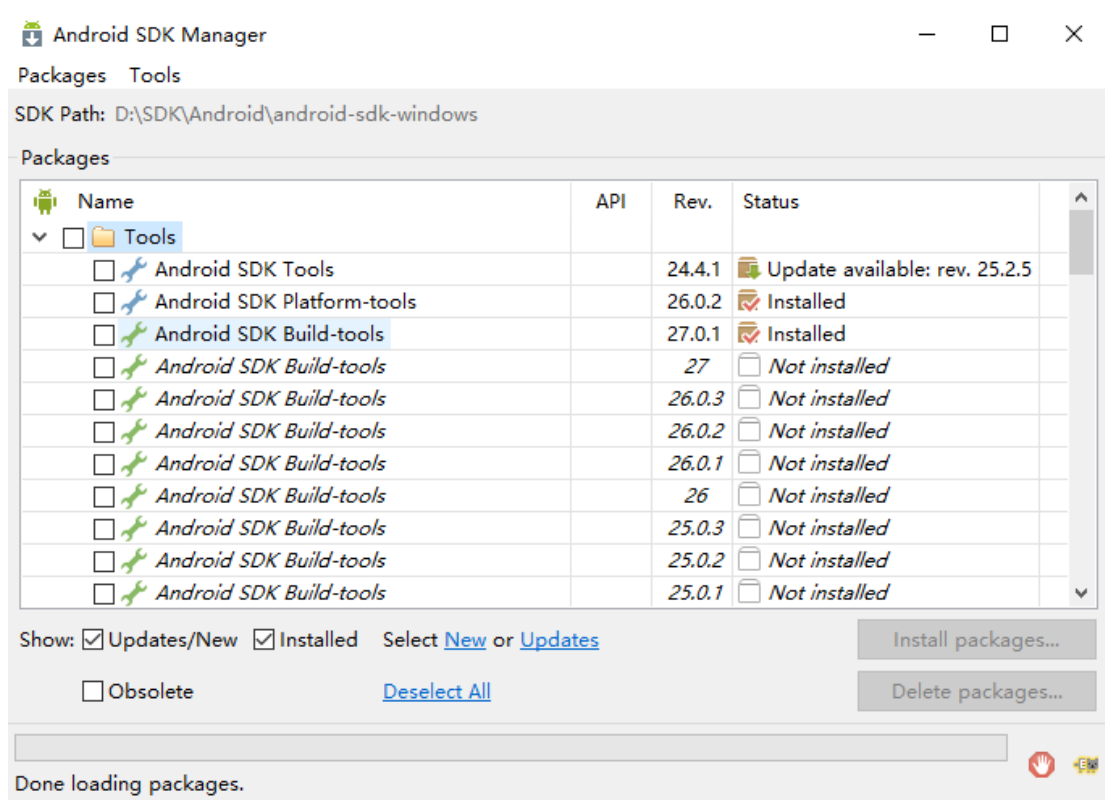
SDK Tools

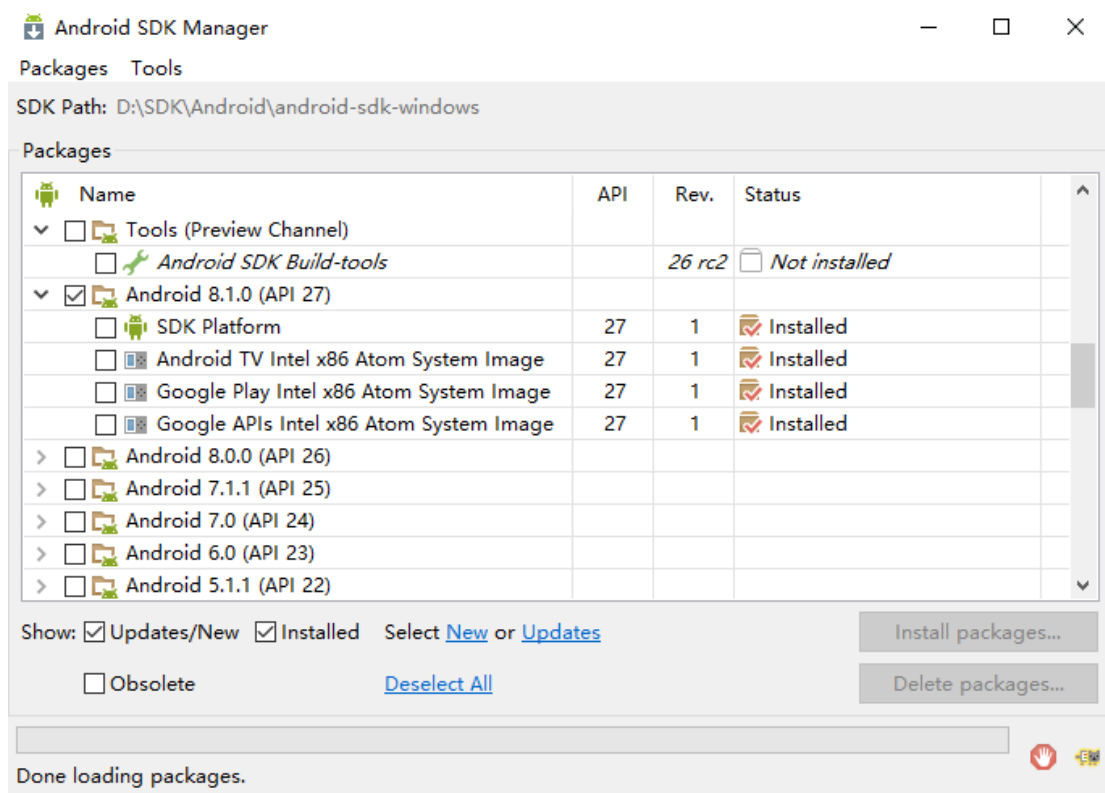
版本	平台	下载	大小	SHA-1校验码	官方SHA-1校验码截图
24.4.1	Windows	installer_r24.4.1-windows.exe	144 MB	f9b59d72413649d31e633207e31f456443e7ea0b	查看
		android-sdk_r24.4.1-windows.zip	190 MB	66b6a6433053c152b22bf8cab19c0f3fef4eba49	
	Mac OS X	android-sdk_r24.4.macosx.zip	98 MB	85a9cccb0b1f9e6f1f616335c5f07107553840cd	
	Linux	androiddk_r24.4.1-linux.tgz	311 MB	725bb360f07d04eacff5a2d57abdd49061326d	

②将其解压缩至 D:\SDK 目录下，然后就双击“SDK Manager.exe”，启动 SDK Manager，效果如下图，然后选择 install 20 packages，进行安装：



③安装好的效果图如下：





- ④接下来进行环境变量配置。首先，新建一个系统环境变量，变量名为 ANDROID_SDK_HOME，变量值为你的 SDK 安装路径；然后就是在系统的 Path 变量后，追加;% ANDROID_SDK_HOME%\platform-tools 和 % ANDROID_SDK_HOME%\tools
- ⑤最后，进行测试。在命令行窗口中输入“adb”，若出现下图所示内容，则说明安装配置成功。

```
命令提示符
Microsoft Windows [版本 10.0.10586]
(c) 2015 Microsoft Corporation。保留所有权利。

C:\Users\Duleilei>adb
Android Debug Bridge version 1.0.39
Revision 3db08f2c6889-android
Installed as D:\SDK\Android\android-sdk-windows\platform-tools\adb.exe

global options:
-a          listen on all network interfaces, not just localhost
-d          use USB device (error if multiple devices connected)
-e          use TCP/IP device (error if multiple TCP/IP devices available)
-s SERIAL   use device with given serial number (overrides $ANDROID_SERIAL)
-p PRODUCT  name or path ('angler'/'out/target/product/angler');
            default $ANDROID_PRODUCT_OUT
-H          name of adb server host [default=localhost]
-P          port of adb server [default=5037]
-L SOCKET   listen on given socket for adb server [default=tcp:localhost:5037]

general commands:
devices [-l]      list connected devices (-l for long output)
help             show this help message
version          show version num

networking:
connect HOST[:PORT] connect to a device via TCP/IP [default port=5555]
disconnect [HOST[:PORT]] disconnect from given TCP/IP device [default port=5555], or all
```

(三) 下载安装配置 Android Studio

①到 <http://www.android-studio.org/> 下载 Android Studio

① www.android-studio.org

立即开始使用 Android Studio

Android Studio 包含用于构建 Android 应用所需的所有工具。

下载 ANDROID STUDIO
3.0 FOR WINDOWS (681 MB)

* 版本 : 3.0.0.18

* 发布日期 : OCTOBER 25, 2017

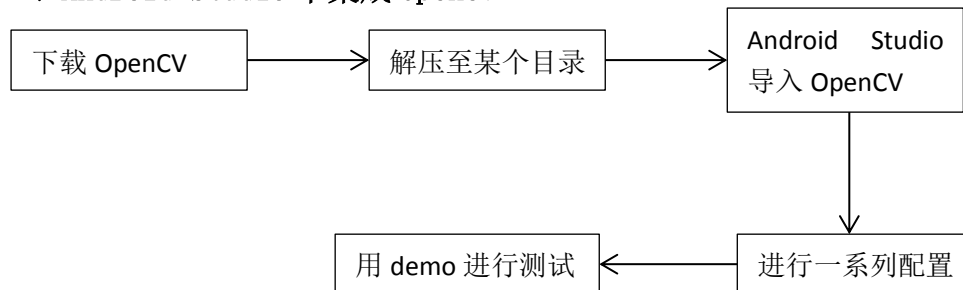
选择其他平台

平台	Android Studio 软件包	大小	SHA-256 校验和
Windows (64 位)	android-studio-ide-171.4408382-windows.exe 无 Android SDK	681 MB (714,340,664 bytes)	627d7f346bf4825a405a9b99123e7e92d0988dc6f4912552511e3685764a0044
	android-studio-ide-171.4408382-windows.zip 无 Android SDK, 无安装程序	737 MB (772,863,352 bytes)	7a9ef037e34add6df84bde4b25dc22845b804e1f91b88d86f3e77dd1ce1fa0

②下载完成后，开始安装，具体安装步骤请参考

<http://blog.csdn.net/siwuxie095/article/details/53431818>

二、Android Studio 中集成 OpenCV




①到

<https://sourceforge.net/projects/opencvlibrary/files/?source=navbar>

下载 OpenCV3. 3. 1

home / browse / science & engineering / robotics / opencv / files



OpenCV

Open Source Computer Vision Library

Brought to you by: [akamaev](#), [alalek](#), [ashishkov](#), [asmorkalov](#), and 7 others

Summary | **Files** | Reviews | Support | Wiki | Donate

Looking for the latest version? [Download opencv-3.3.1-vc14.exe \(148.9 MB\)](#)

Home / opencv-win

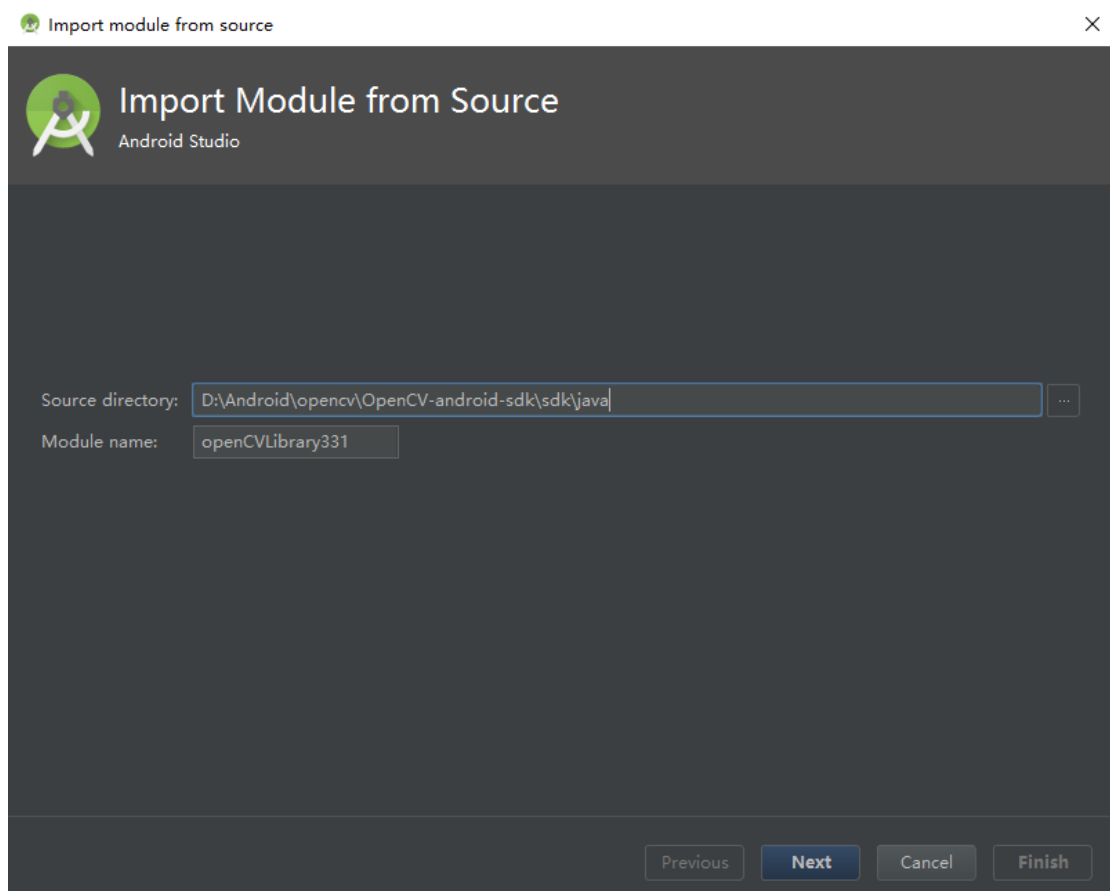
Name	Modified	Size	Downloads / Week
↑ Parent folder			
2.4.13	2017-10-24		3,729
3.3.1	2017-10-24		17,089
3.3.0	2017-08-04		4,445
3.2.0	2016-12-23		1,853
2.4.12	2016-03-01		222

②安装解压到 D:\Android\opencv 目录下（也可以根据个人喜好选择其他安装目录）

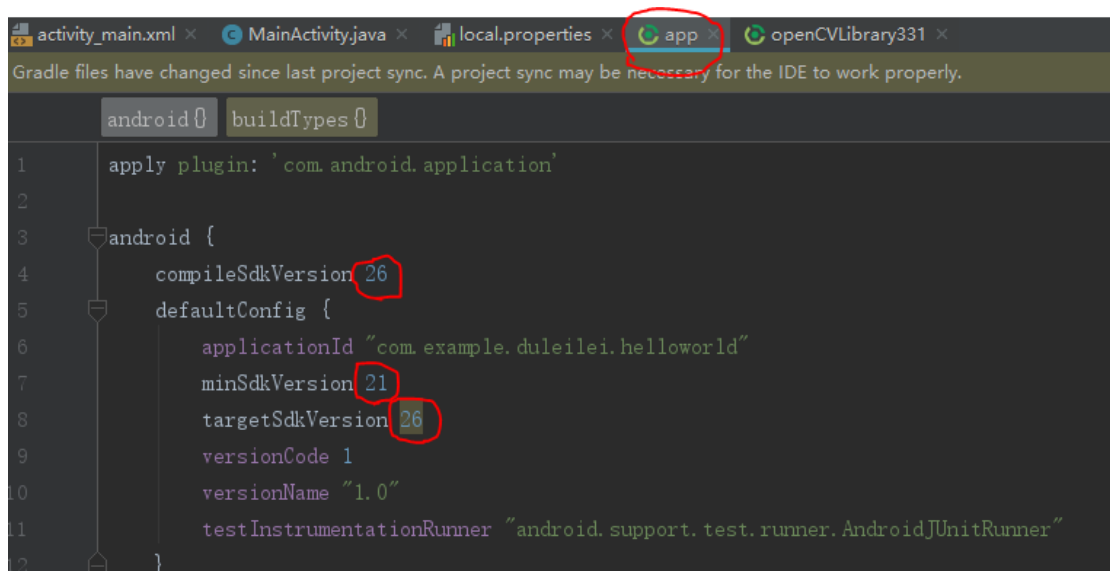
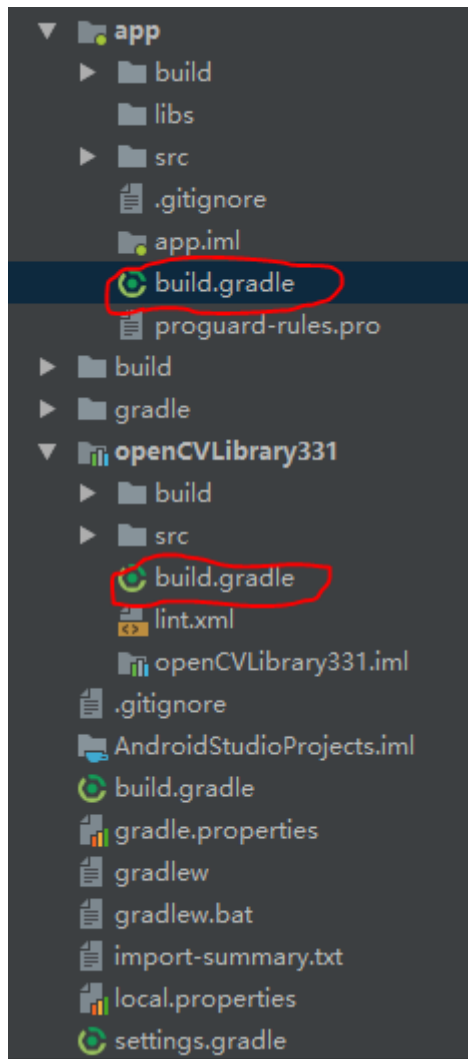
(D:) > Android > opencv > OpenCV-android-sdk

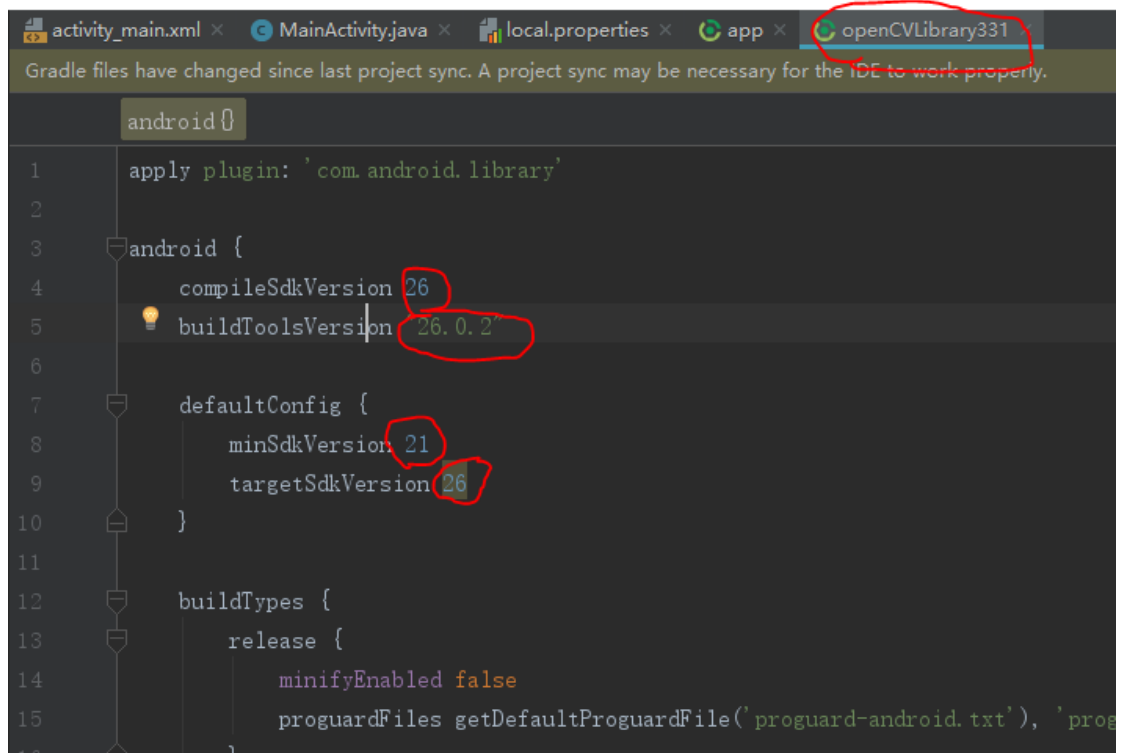
名称	修改日期	类型	大小
apk	2017/10/24 22:06	文件夹	
samples	2017/10/24 22:06	文件夹	
sdk	2017/10/24 21:59	文件夹	
LICENSE	2017/8/3 7:11	文件	3 KB
README.android	2017/8/3 7:11	ANDROID 文件	1 KB

③将 OpenCV 引入 Android Studio，即在 Android Studio 中选择 File->Import Module，找到 OpenCV 解压的路径，选择 sdk/java 文件夹。

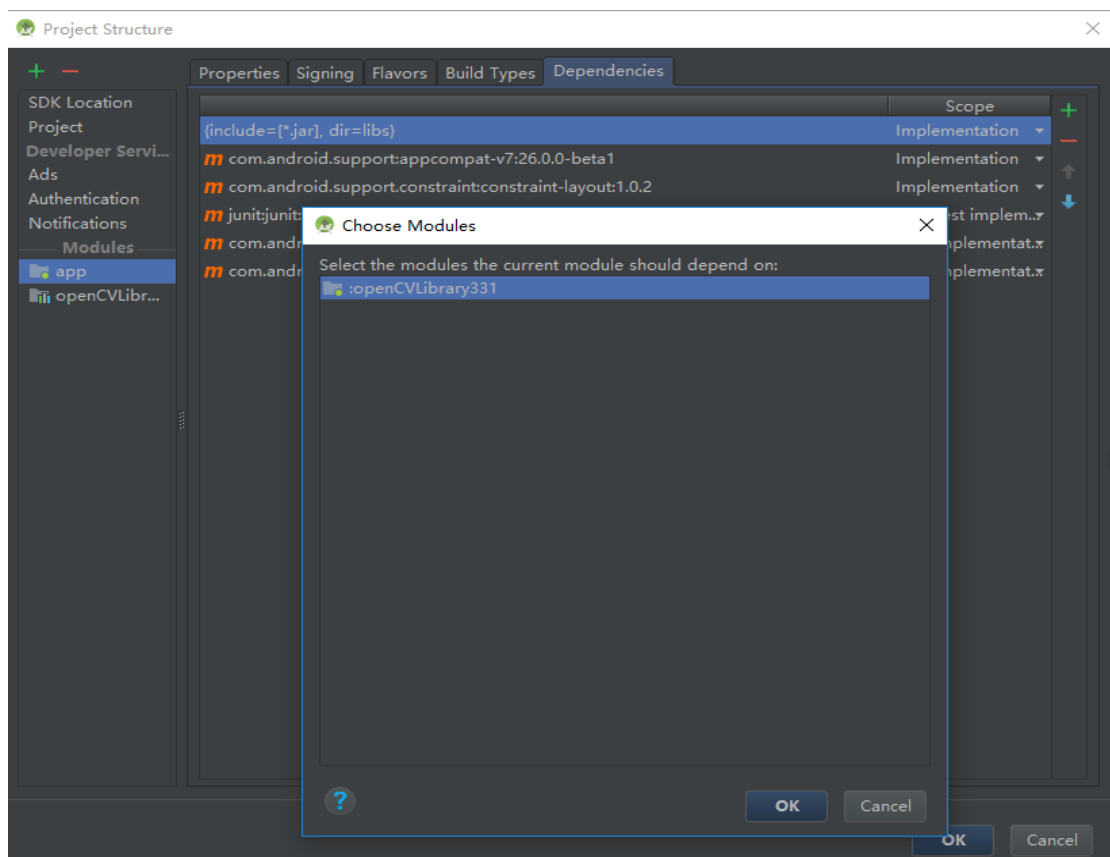


④在 Android Studio 中的左上角选择 Project 视图，在 oepnCVLibrary2411 文件夹里，打开 build.gradle，修改文件中的 compileSdkVersion、buildToolsVersion、minSdkVersion、targetSdkVersion，将其内容与 app 文件夹下的 build.gradle 中信息相一致。点击上方提示的黄色提示框内的 Try Again 进行更新。

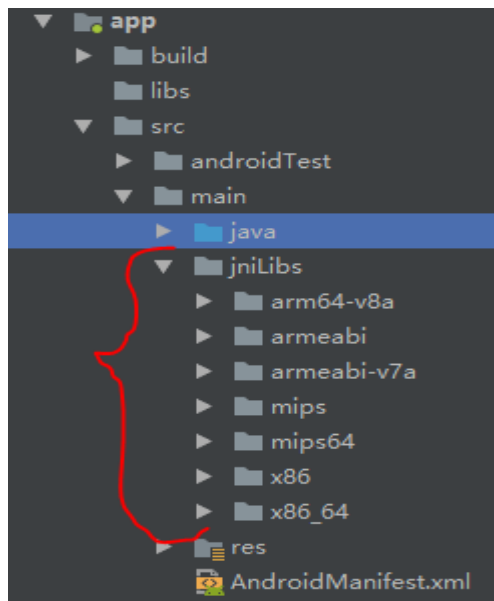
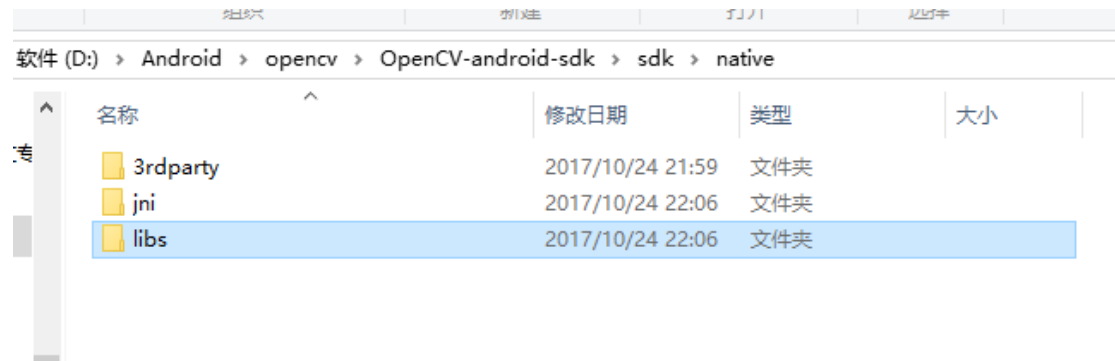




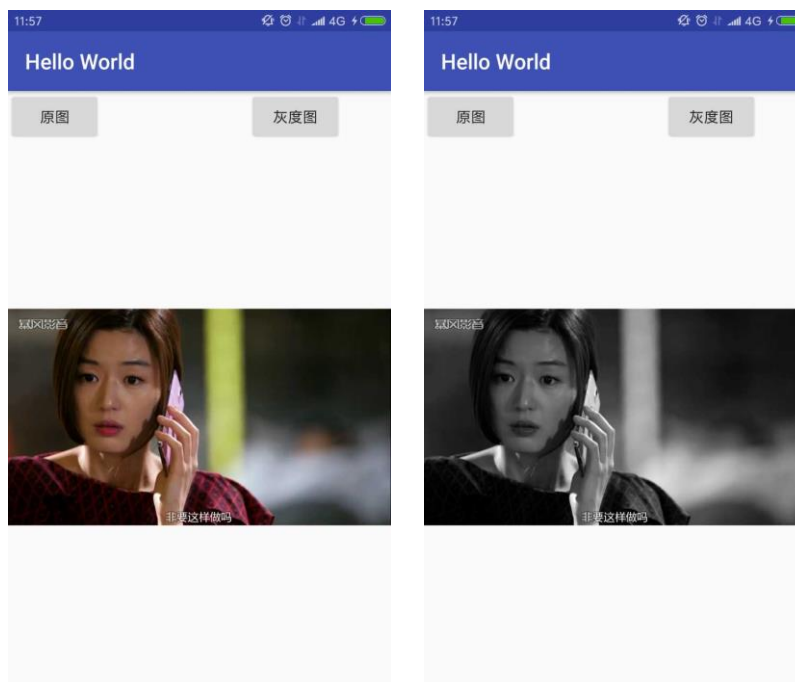
⑤添加 Module Dependency, 右键 app 文件夹, 选择 Open Module Settings, 在 app module 的 Dependencies 一栏中, 点击右上角的绿色加号, 将 openCVLibrary331 添加进去, 点击确定。



⑥在 OpenCV 的解压包中，将 sdk-->native-->libs 文件夹复制，粘贴在 Project 视图下 app-->src-->main 目录下，并将其重命名为 jniLibs。



⑦至此，OpenCV 集成到 Android Studio 中的配置工作已全部完成，现在开始进行 demo 测试，测试成功！说明 OpenCV 已成功集成到 Android Studio



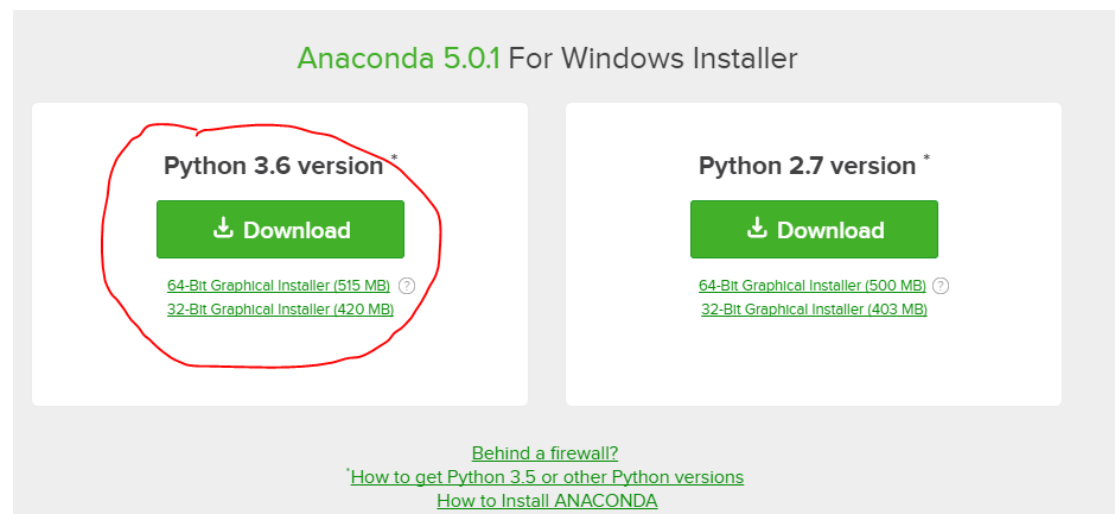
三、Android Studio 运行 tensorflow 的 demo

(参考 <http://www.cnblogs.com/afangxin/p/6992050.html> 和 <http://m.blog.csdn.net/Ouyangjianxiu/article/details/78143700>)



① 下载安装 anaconda

下载地址 <https://www.continuum.io/downloads/>



② 安装 TensorFlow

打开 Anaconda Prompt，输入操作指令

```
管理员: Anaconda Prompt

(E:\Anaconda) C:\Windows\system32>conda config --add channels https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free/
Warning: 'https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free/' already in 'channels' list, moving to the top

(E:\Anaconda) C:\Windows\system32>conda config --set show_channel_urls yes

(E:\Anaconda) C:\Windows\system32>conda create -n tensorflow python=3.6
Fetching package metadata .....
Solving package specifications: .

Package plan for installation in environment E:\Anaconda\envs\tensorflow:

The following NEW packages will be INSTALLED:

certifi: 2016.2.28-py36_0 https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free
pip: 9.0.1-py36_1 https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free
python: 3.6.2-0 https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free
setuptools: 36.4.0-py36_1 https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free
vc: 14-0 https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free
vs2015_runtime: 14.0.25420-0 https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free
wheel: 0.29.0-py36_0 https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free
wincertstore: 0.2-py36_0 https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free

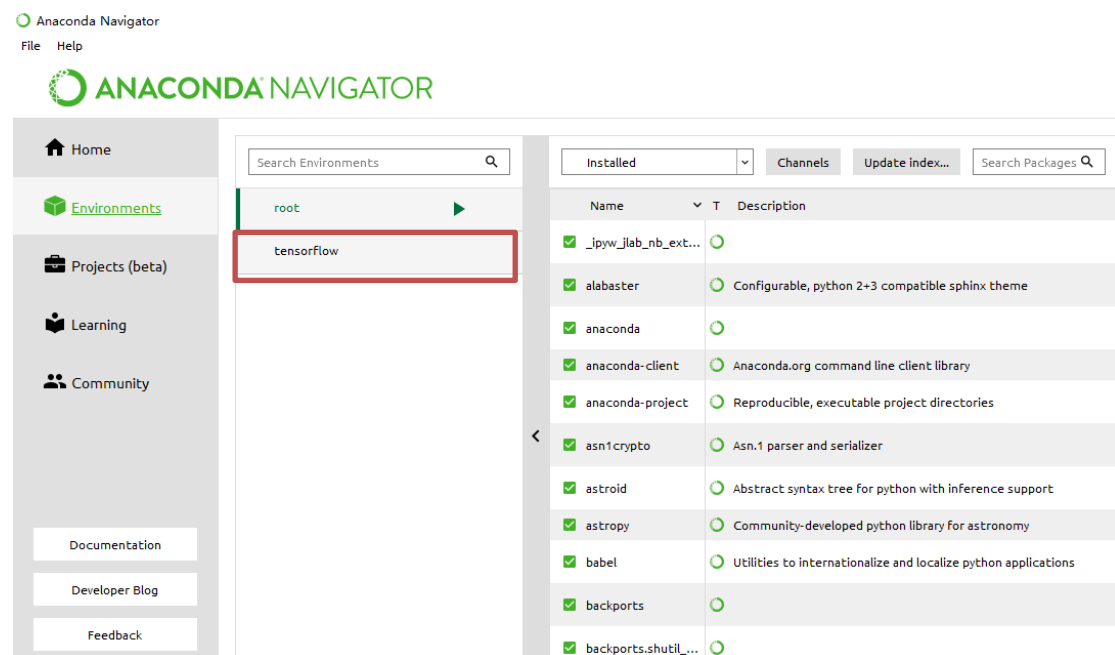
Proceed ([y]/n)? y

vs2015_runtime 100% |#####| Time: 0:00:02 857.58 kB/s
vc-14-0.tar.bz 100% |#####| Time: 0:00:00 100.38 kB/s
python-3.6.2-0 100% |#####| Time: 0:01:32 358.40 kB/s
certifi-2016.2 100% |#####| Time: 0:00:00 250.71 kB/s
wheel-0.29.0-p 100% |#####| Time: 0:00:00 353.24 kB/s
wincertstore-0 100% |#####| Time: 0:00:00 1.20 MB/s
setuptools-36. 100% |#####| Time: 0:00:01 440.36 kB/s
pip-9.0.1-py36 100% |#####| Time: 0:00:07 242.37 kB/s
#
# To activate this environment, use:
# > activate tensorflow
#
# To deactivate an active environment, use:
# > deactivate
```

```
#
# To activate this environment, use:
# > activate tensorflow
#
# To deactivate an active environment, use:
# > deactivate
#
# * for power-users using bash, you must source
#

(E:\Anaconda) C:\Windows\system32>conda create -n tensorflow python=3.6
```

③给 TensorFlow 单独创建一个环境



④测试安装结果

```
C:\Users\Duleilei>python -m pip install -U pip
Collecting pip
  Downloading pip-9.0.1-py2.py3-none-any.whl (1.3MB)
    100% |#####| 1.3MB 135kB/s
Installing collected packages: pip
  Found existing installation: pip 7.1.2
    Uninstalling pip-7.1.2:
      Successfully uninstalled pip-7.1.2
Successfully installed pip-9.0.1

C:\Users\Duleilei>
```

```
(E:\Anaconda) C:\Windows\system32>activate tensorflow

(tensorflow) C:\Windows\system32>pip install --upgrade --ignore-installed tensorflow
Collecting tensorflow
  Downloading tensorflow-1.4.0-cp36-cp36m-win_amd64.whl (28.3MB)
    100% |#####| 28.3MB 16kB/s
Collecting enum34>=1.1.6 (from tensorflow)
  Downloading enum34-1.1.6-py3-none-any.whl
Collecting six>=1.10.0 (from tensorflow)
  Downloading six-1.11.0-py2.py3-none-any.whl
Collecting tensorflow-tensorboard<0.5.0,>=0.4.0rc1 (from tensorflow)
  Downloading tensorflow_tensorboard-0.4.0rc3-py3-none-any.whl (1.7MB)
    100% |#####| 1.7MB 108kB/s
Collecting wheel>=0.26 (from tensorflow)
  Downloading wheel-0.30.0-py2.py3-none-any.whl (49kB)
    100% |#####| 51kB 127kB/s
Collecting numpy>=1.12.1 (from tensorflow)
  Downloading numpy-1.13.3-cp36-none-win_amd64.whl (13.1MB)
    100% |#####| 13.1MB 44kB/s
Collecting protobuf>=3.3.0 (from tensorflow)
  Downloading protobuf-3.5.0.post1-py2.py3-none-any.whl (389kB)
    100% |#####| 389kB 187kB/s
Collecting html5lib==0.999999 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading html5lib-0.999999.tar.gz (889kB)
    100% |#####| 890kB 220kB/s
Collecting Werkzeug>=0.11.10 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading Werkzeug-0.12.2-py2.py3-none-any.whl (312kB)
    100% |#####| 317kB 199kB/s
Collecting markdown>=2.6.8 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading Markdown-2.6.9.tar.gz (271kB)
    100% |#####| 276kB 170kB/s
Collecting bleach==1.5.0 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading bleach-1.5.0-py2.py3-none-any.whl
Collecting setuptools (from protobuf>=3.3.0->tensorflow)
  Downloading setuptools-37.0.0-py2.py3-none-any.whl (481kB)
    100% |#####| 491kB 107kB/s
```

```
Collecting markdown>=2.6.8 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading Markdown-2.6.9.tar.gz (271kB)
    100% |#####| 276kB 170kB/s
Collecting bleach==1.5.0 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading bleach-1.5.0-py2.py3-none-any.whl
Collecting setuptools (from protobuf>=3.3.0->tensorflow)
  Downloading setuptools-37.0.0-py2.py3-none-any.whl (481kB)
    100% |#####| 491kB 107kB/s
Building wheels for collected packages: html5lib, markdown
  Running setup.py bdist_wheel for html5lib ... done
  Stored in directory: C:\Users\Duleilei\AppData\Local\pip\Cache\wheels\6f\85\6c\56b3e1292c6214c4eb73b9dda50f53e9e977bf65989373c962
  Running setup.py bdist_wheel for markdown ... done
  Stored in directory: C:\Users\Duleilei\AppData\Local\pip\Cache\wheels\bf\46\10\c93e17ae86ae3b3a919c7b39dad3b5ccf09aeb066419e5c1e5
Successfully built html5lib markdown
Installing collected packages: enum34, six, html5lib, Werkzeug, numpy, markdown, wheel, bleach, setuptools, protobuf, tensorflow-tensorboard, tensorflow
Successfully installed bleach-1.5.0 enum34-1.1.6 html5lib-0.999999 markdown-2.6.9 numpy-1.13.3 protobuf-3.5.0.post1 setuptools-37.0.0 six-1.11.0 tensorflow-1.4.0 tensorflow-tensorboard-0.4.0rc3 Werkzeug-0.12.2 wheel-0.30.0
```

```
Anaconda Prompt - python

(E:\Anaconda) C:\Users\Duleilei>activate tensorflow

(tensorflow) C:\Users\Duleilei>python
Python 3.6.2 |Continuum Analytics, Inc.| (default, Jul 20 2017, 12:30:02) [MSC v.1900 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import tensorflow as tf
>>> hello=tf.constant("Hello.TensorFlow!")
>>> sess=tf.Session()
2017-11-24 13:42:53.742403: I C:\tf_jenkins\home\workspace\rel-win\M\windows\PY\36\tensorflow\core\platform\cpu_feature_guard.cc:137] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX
>>> print(sess.run(hello))
b'Hello.TensorFlow!'
>>>
```

```
(tensorflow) C:\Windows\system32>activate tensorflow

(tensorflow) C:\Windows\system32>ipython
Python 3.6.2 |Continuum Analytics, Inc.| (default, Jul 20 2017, 12:30:02) [MSC v.1900 64 bit (AMD64)]
Type 'copyright', 'credits' or 'license' for more information
IPython 6.1.0 -- An enhanced Interactive Python. Type '?' for help.

In [1]: import tensorflow as tf

In [2]:
```

⑤在 AndroidStudio 下测试 TensorFlow 的测试用例

(参考 http://blog.sina.com.cn/s/blog_6204ca300102x2w2.html,
<http://blog.csdn.net/offbye/article/details/78369711>)

最后，手机上成功安装.apk 程序

