

# Homework 1

1. Final project proposal (\*.ppt, \*.doc, \*.pdf, ...) (80%)
2. Design your UI in Unity for your final project on PC (10%)
3. Build Unity on the mobile device with your game UI design (10%)
  - Install Java Development Kit (JDK)
  - Install Android Software Development Kit (SDK)
  - Build a Unity program on your mobile device

Submit “Student ID.zip” to Moodle, the file only should include your proposal

Deadline: 11/24 20:00



# Unity Engine Course

Unity Building Guide for Android



# Install JDK

- <http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

Java SE  
Java EE  
Java ME  
Java SE Advanced & Suite  
Java Embedded  
Java DB  
Web Tier  
Java Card  
Java TV  
New to Java  
Community  
Java Magazine

Overview Downloads Documentation Community Technologies Training

## Java SE Development Kit 8 Downloads

Thank you for downloading this release of the Java™ Platform, Standard Edition Development Kit (JDK™). The JDK is a development environment for building applications, applets, and components using the Java programming language.

The JDK includes tools useful for developing and testing programs written in the Java programming language and running on the Java platform.

See also:

- [Java Developer Newsletter](#): From your Oracle account, select **Subscriptions**, expand **Technology**, and subscribe to **Java**.
- [Java Developer Day hands-on workshops \(free\) and other events](#)
- [Java Magazine](#)

JDK 8u151 [checksum](#)  
JDK 8u152 [checksum](#)

### Java SE Development Kit 8u151

You must accept the [Oracle Binary Code License Agreement for Java SE](#) to download this software.

☒ Accept License Agreement ☐ Decline License Agreement

| Product / File Description  | File Size | Download  |
|-----------------------------|-----------|---|
| Linux ARM 32 Hard Float ABI | 77.9 MB   | <a href="#">jdk-8u151-linux-arm32-vfp-hflt.tar.gz</a> |
| Linux ARM 64 Hard Float ABI | 74.85 MB  | <a href="#">jdk-8u151-linux-arm64-vfp-hflt.tar.gz</a> |
| Linux x86                   | 168.95 MB | <a href="#">jdk-8u151-linux-i586.rpm</a>              |
| Linux x86                   | 183.73 MB | <a href="#">jdk-8u151-linux-i586.tar.gz</a>           |
| Linux x64                   | 166.1 MB  | <a href="#">jdk-8u151-linux-x64.rpm</a>               |
| Linux x64                   | 180.95 MB | <a href="#">jdk-8u151-linux-x64.tar.gz</a>            |
| macOS                       | 247.06 MB | <a href="#">jdk-8u151-macosx-x64.dmg</a>              |
| Solaris SPARC 64-bit        | 140.06 MB | <a href="#">jdk-8u151-solaris-sparcv9.tar.Z</a>       |
| Solaris SPARC 64-bit        | 99.32 MB  | <a href="#">jdk-8u151-solaris-sparcv9.tar.gz</a>      |
| Solaris x64                 | 140.65 MB | <a href="#">jdk-8u151-solaris-x64.tar.Z</a>           |
| Solaris x64                 | 97 MB     | <a href="#">jdk-8u151-solaris-x64.tar.gz</a>          |
| Windows x86                 | 198.04 MB | <a href="#">jdk-8u151-windows-i586.exe</a>            |
| Windows x64                 | 205.95 MB | <a href="#">jdk-8u151-windows-x64.exe</a>             |

### Java SE Development Kit 8u152

You must accept the [Oracle Binary Code License Agreement for Java SE](#) to download this software.

Java SDKs and Tools

- [Java SE](#)
- [Java EE and Glassfish](#)
- [Java ME](#)
- [Java Card](#)
- [NetBeans IDE](#)
- [Java Mission Control](#)

Java Resources

- [Java APIs](#)
- [Technical Articles](#)
- [Demos and Videos](#)
- [Forums](#)
- [Java Magazine](#)
- [Developer Training](#)
- [Tutorials](#)
- [Java.com](#)

# Install JDK



# Install Android SDK

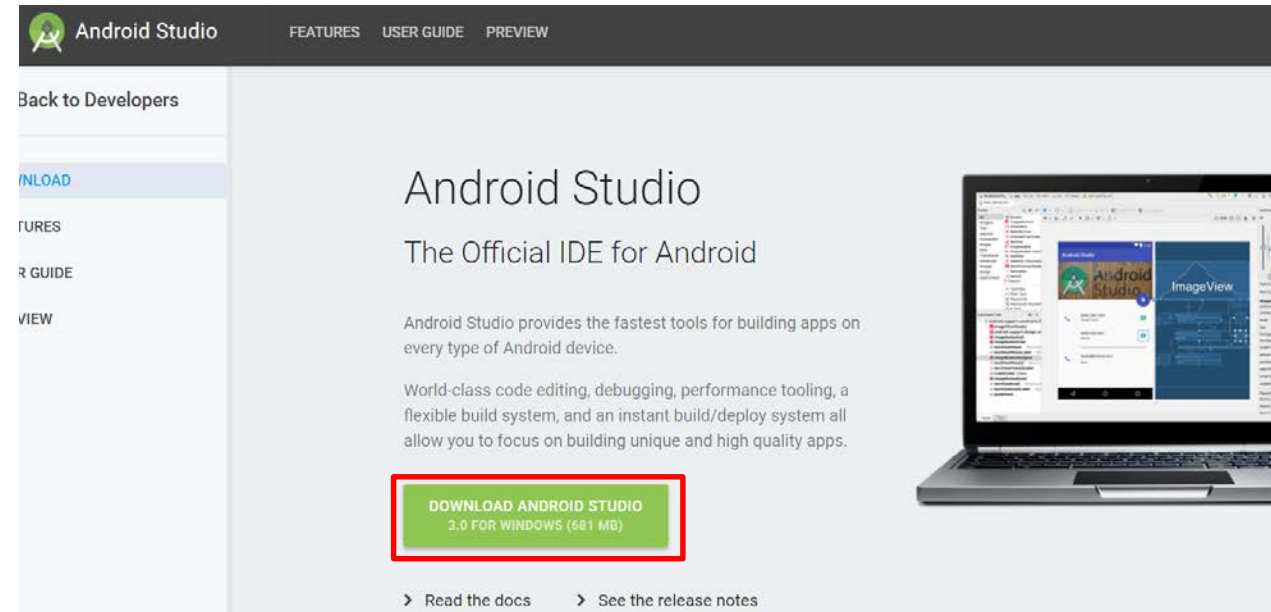
<Option1> Install android studio and use Android SDK manager GUI (p.5 ~ p.9)

<Option2> Download and extract the “\*.zip” file to a new created folder (p.10 ~ p.14)

# Install Android Studio

<Option1> Install android studio and use Android SDK manager GUI

<https://developer.android.com/studio/index.html>



The screenshot shows the official Android Studio website. The header includes the Android Studio logo and navigation links for FEATURES, USER GUIDE, and PREVIEW. A left sidebar contains links like 'Back to Developers', 'DOWNLOAD', 'FEATURES', 'USER GUIDE', and 'VIEW'. The main content area is titled 'Android Studio' and 'The Official IDE for Android'. It describes the IDE's capabilities for building apps on various Android devices and lists features like code editing, debugging, and performance tooling. A prominent green button with a red border is labeled 'DOWNLOAD ANDROID STUDIO 3.0 FOR WINDOWS (681 MB)'. Below this button are links to 'Read the docs' and 'See the release notes'. On the right side of the page, there is an image of a laptop displaying the Android Studio interface.

Android Studio

FEATURES USER GUIDE PREVIEW

Back to Developers

DOWNLOAD

FEATURES

USER GUIDE

VIEW

## Android Studio

### The Official IDE for Android

Android Studio provides the fastest tools for building apps on every type of Android device.

World-class code editing, debugging, performance tooling, a flexible build system, and an instant build/deploy system all allow you to focus on building unique and high quality apps.

**DOWNLOAD ANDROID STUDIO**  
3.0 FOR WINDOWS (681 MB)

> Read the docs > See the release notes

# Install Android Studio

## Start Installation

Android Studio Setup



### Welcome to Android Studio Setup

Setup will guide you through the installation of Android Studio.

It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.

Click Next to continue.

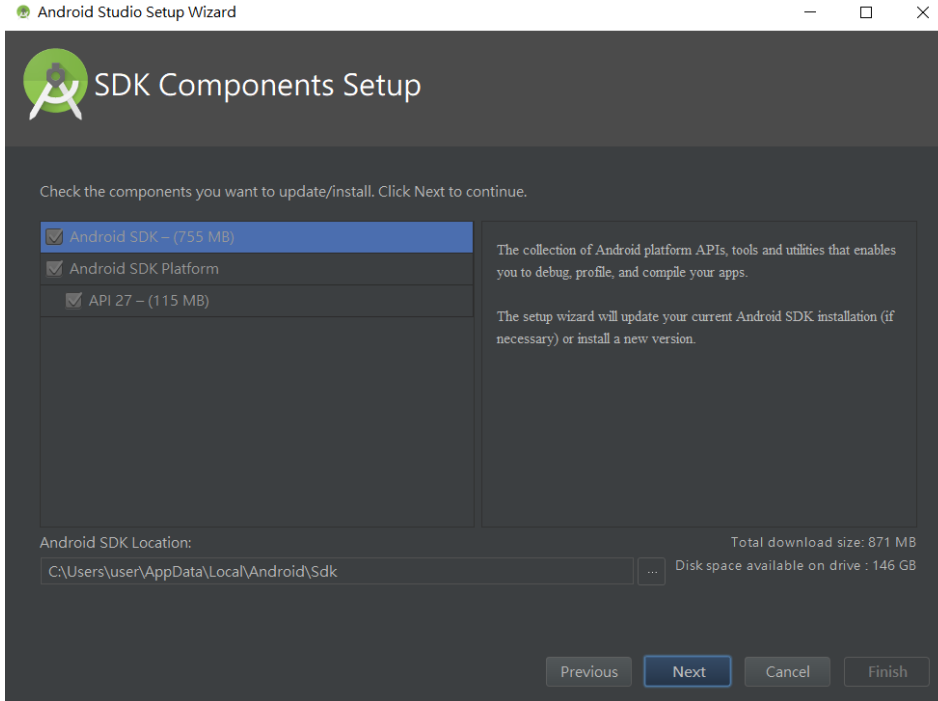
< Back

Next >

Cancel

# Install Android Studio

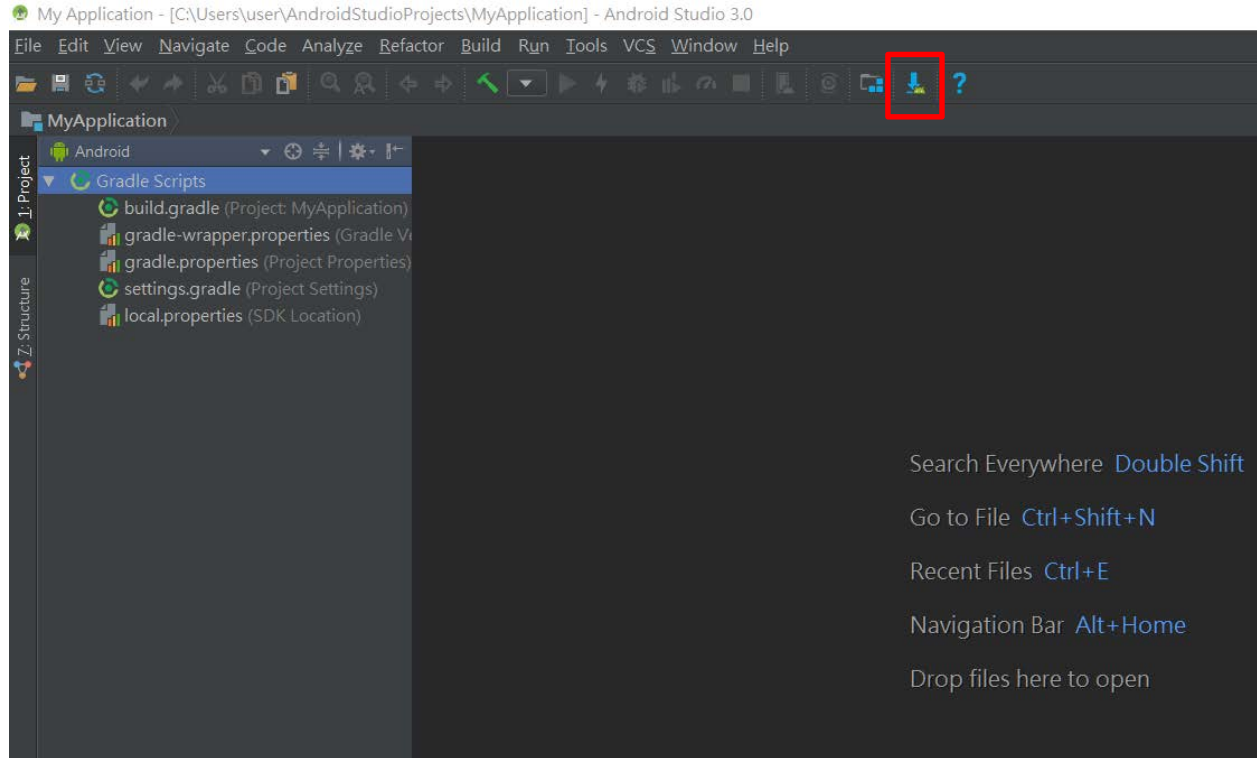
## Run Android studio and install Android SDK





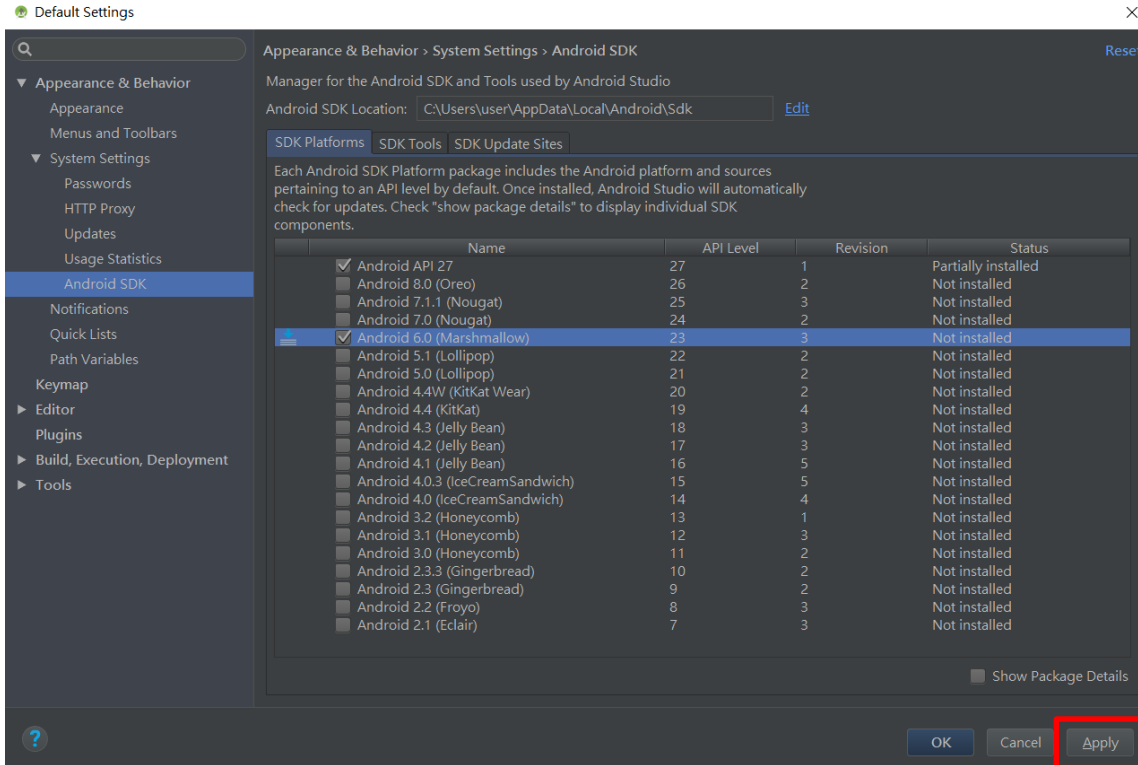
# Install Android Studio

Create a new project and open the SDK manager



# Install Android Studio

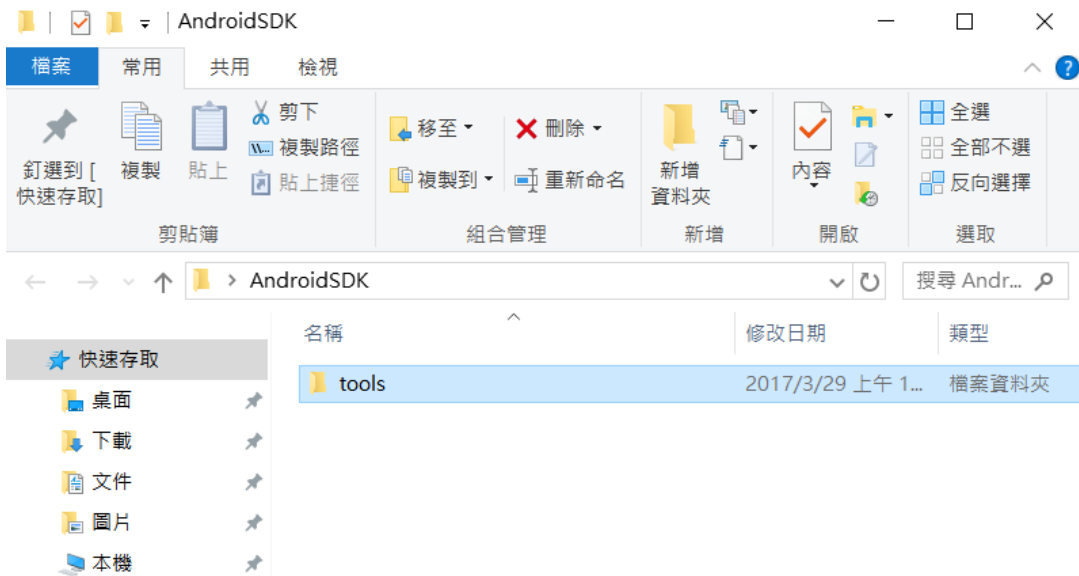
Select SDK to be installed: (according to your API level)



# Install Android SDK

<Option2> Download and extract the “\*.zip” file to a new created folder

[http://dl-ssl.google.com/android/repository/tools\\_r25.2.5-windows.zip](http://dl-ssl.google.com/android/repository/tools_r25.2.5-windows.zip)



# Install Android SDK

- Go to “./tools/bin/”
- `sdkmanager.bat --list`

```
C:\Users\user\Desktop\Android-SDK\tools\bin>sdkmanager.bat --list
Warning: File C:\Users\user\.android\repositories.cfg could not be loaded.
```

```
Installed packages:
```

| Path  | Version | Description              | Location |
|-------|---------|--------------------------|----------|
| ----- | -----   | -----                    | -----    |
| tools | 25.2.5  | Android SDK Tools 25.2.5 | tools\   |

```
Available Packages:
```

| Path                              | Version | Description                   |
|-----------------------------------|---------|-------------------------------|
| -----                             | -----   | -----                         |
| add-ons;addon-g..._apis-google-15 | 3       | Google APIs                   |
| add-ons;addon-g..._apis-google-16 | 4       | Google APIs                   |
| add-ons;addon-g..._apis-google-17 | 4       | Google APIs                   |
| add-ons;addon-g..._apis-google-18 | 4       | Google APIs                   |
| add-ons;addon-g..._apis-google-19 | 20      | Google APIs                   |
| add-ons;addon-g..._apis-google-21 | 1       | Google APIs                   |
| add-ons;addon-g..._apis-google-22 | 1       | Google APIs                   |
| add-ons;addon-g..._apis-google-23 | 1       | Google APIs                   |
| add-ons;addon-g..._apis-google-24 | 1       | Google APIs                   |
| add-ons;addon-g...e_gdk-google-19 | 11      | Glass Development Kit Preview |
| build-tools;19.1.0                | 19.1.0  | Android SDK Build-Tools 19.1  |

# Install Android SDK

Install SDK: (according to your API level)

- sdkmanager.bat “build-tools;23.0.1” “platform-tools” “platforms;android-23”

```
C:\Users\user\Desktop\Android-SDK\tools\bin>sdkmanager.bat "build-tools;23.0.1" "platform-tools" "platforms;android-23"
Warning: File C:\Users\user\.android\repositories.cfg could not be loaded.
License android-sdk-license:
-----
Terms and Conditions

This is the Android Software Development Kit License Agreement

1. Introduction

1.1 The Android Software Development Kit (referred to in the License Agreement as the "SDK" and specifically including the Android system files, packaged APIs, and Google APIs add-ons) is licensed to you subject to the terms of the License Agreement. The License Agreement forms a legally binding contract between you and Google in relation to your use of the SDK.

1.2 "Android" means the Android software stack for devices, as made available under the Android Open Source Project, which is located at the following URL: http://source.android.com/, as updated from time to time.

1.3 A "compatible implementation" means any Android device that (i) complies with the Android Compatibility Definition document, which can be found at the Android compatibility website (http://source.android.com/compatibility) and which may be updated from time to time; and (ii) successfully passes the Android Compatibility Test Suite (CTS).

1.4 "Google" means Google Inc., a Delaware corporation with principal place of business at 1600 Amphitheatre Parkway, Mountain View, CA 94043, United States.
```

# Install Android SDK

- Type “y”

14.3 If any court of law, having the jurisdiction to decide on this matter, rules that any provision of the License Agreement is invalid, then that provision will be removed from the License Agreement without affecting the rest of the License Agreement. The remaining provisions of the License Agreement will continue to be valid and enforceable.

14.4 You acknowledge and agree that each member of the group of companies of which Google is the parent shall be third party beneficiaries to the License Agreement and that such other companies shall be entitled to directly enforce, and rely upon, any provision of the License Agreement that confers a benefit on (or rights in favor of) them. Other than this, no other person or company shall be third party beneficiaries to the License Agreement.

14.5 EXPORT RESTRICTIONS. THE SDK IS SUBJECT TO UNITED STATES EXPORT LAWS AND REGULATIONS. YOU MUST COMPLY WITH ALL DOMESTIC AND INTERNATIONAL EXPORT LAWS AND REGULATIONS THAT APPLY TO THE SDK. THESE LAWS INCLUDE RESTRICTIONS ON DESTINATIONS, END USERS AND END USE.

14.6 The rights granted in the License Agreement may not be assigned or transferred by either you or Google without the prior written approval of the other party. Neither you nor Google shall be permitted to delegate their responsibilities or obligations under the License Agreement without the prior written approval of the other party.

14.7 The License Agreement, and your relationship with Google under the License Agreement, shall be governed by the laws of the State of California without regard to its conflict of laws provisions. You and Google agree to submit to the exclusive jurisdiction of the courts located within the county of Santa Clara, California to resolve any legal matter arising from the License Agreement. Notwithstanding this, you agree that Google shall still be allowed to apply for injunctive remedies (or an equivalent type of urgent legal relief) in any jurisdiction.

November 20, 2015

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Accept? (y/N): y

# Install Android SDK

Check the installed packages:

- `sdkmanager.bat --list`

```
C:\Users\user\Desktop\Android-SDK\tools\bin>sdkmanager.bat --list
Warning: File C:\Users\user\.android\repositories.cfg could not be loaded.
Installed packages:
```

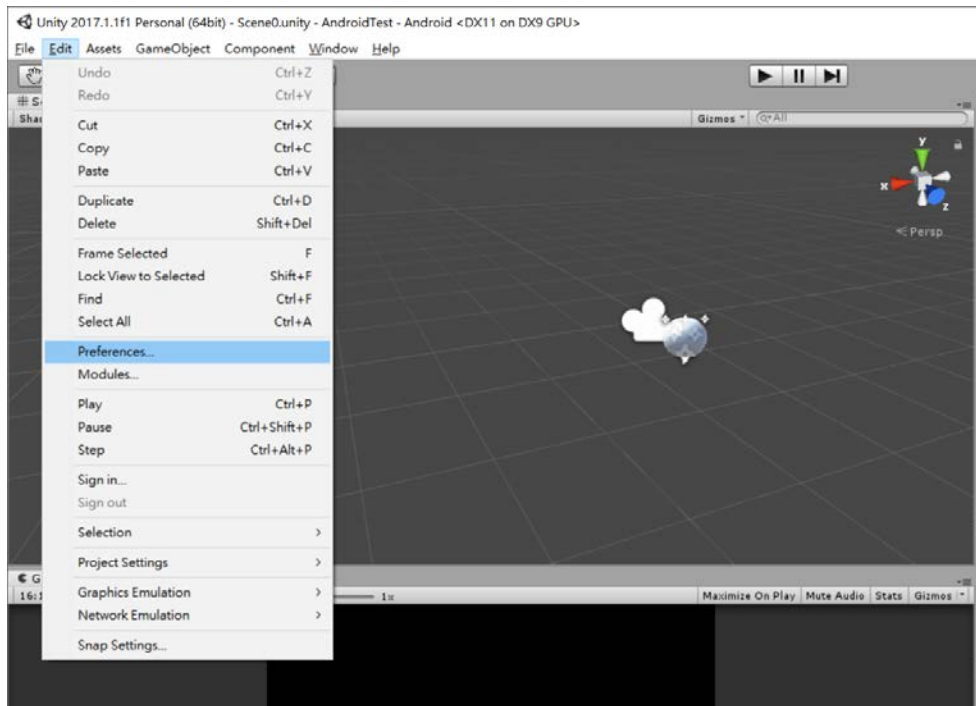
| Path                 | Version | Description                    | Location              |
|----------------------|---------|--------------------------------|-----------------------|
| build-tools;23.0.1   | 23.0.1  | Android SDK Build-Tools 23.0.1 | build-tools\23.0.1\   |
| platform-tools       | 26.0.2  | Android SDK Platform-Tools     | platform-tools\       |
| platforms;android-23 | 3       | Android SDK Platform 23        | platforms\android-23\ |
| tools                | 25.2.5  | Android SDK Tools 25.2.5       | tools\                |

```
Available Packages:
```

| Path                              | Version | Description                    |
|-----------------------------------|---------|--------------------------------|
| add-ons;addon-g..._apis-google-15 | 3       | Google APIs                    |
| add-ons;addon-g..._apis-google-16 | 4       | Google APIs                    |
| add-ons;addon-g..._apis-google-17 | 4       | Google APIs                    |
| add-ons;addon-g..._apis-google-18 | 4       | Google APIs                    |
| add-ons;addon-g..._apis-google-19 | 20      | Google APIs                    |
| add-ons;addon-g..._apis-google-21 | 1       | Google APIs                    |
| add-ons;addon-g..._apis-google-22 | 1       | Google APIs                    |
| add-ons;addon-g..._apis-google-23 | 1       | Google APIs                    |
| add-ons;addon-g..._apis-google-24 | 1       | Google APIs                    |
| add-ons;addon-g...e_gdk-google-19 | 11      | Glass Development Kit Preview  |
| build-tools;19.1.0                | 19.1.0  | Android SDK Build-Tools 19.1   |
| build-tools;20.0.0                | 20.0.0  | Android SDK Build-Tools 20     |
| build-tools;21.1.2                | 21.1.2  | Android SDK Build-Tools 21.1.2 |
| build-tools;22.0.1                | 22.0.1  | Android SDK Build-Tools 22.0.1 |

# Build Unity APK

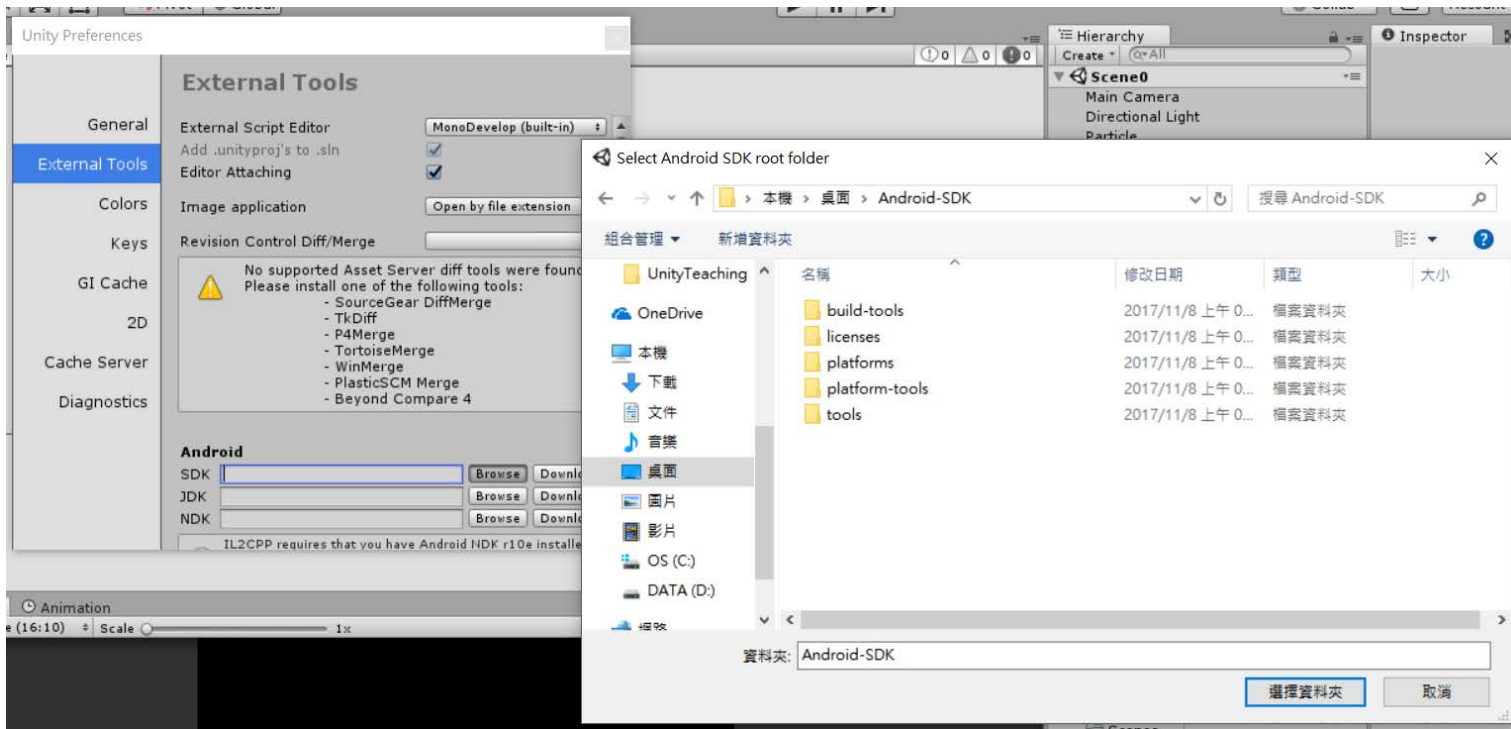
Edit > Preferences > External Tools





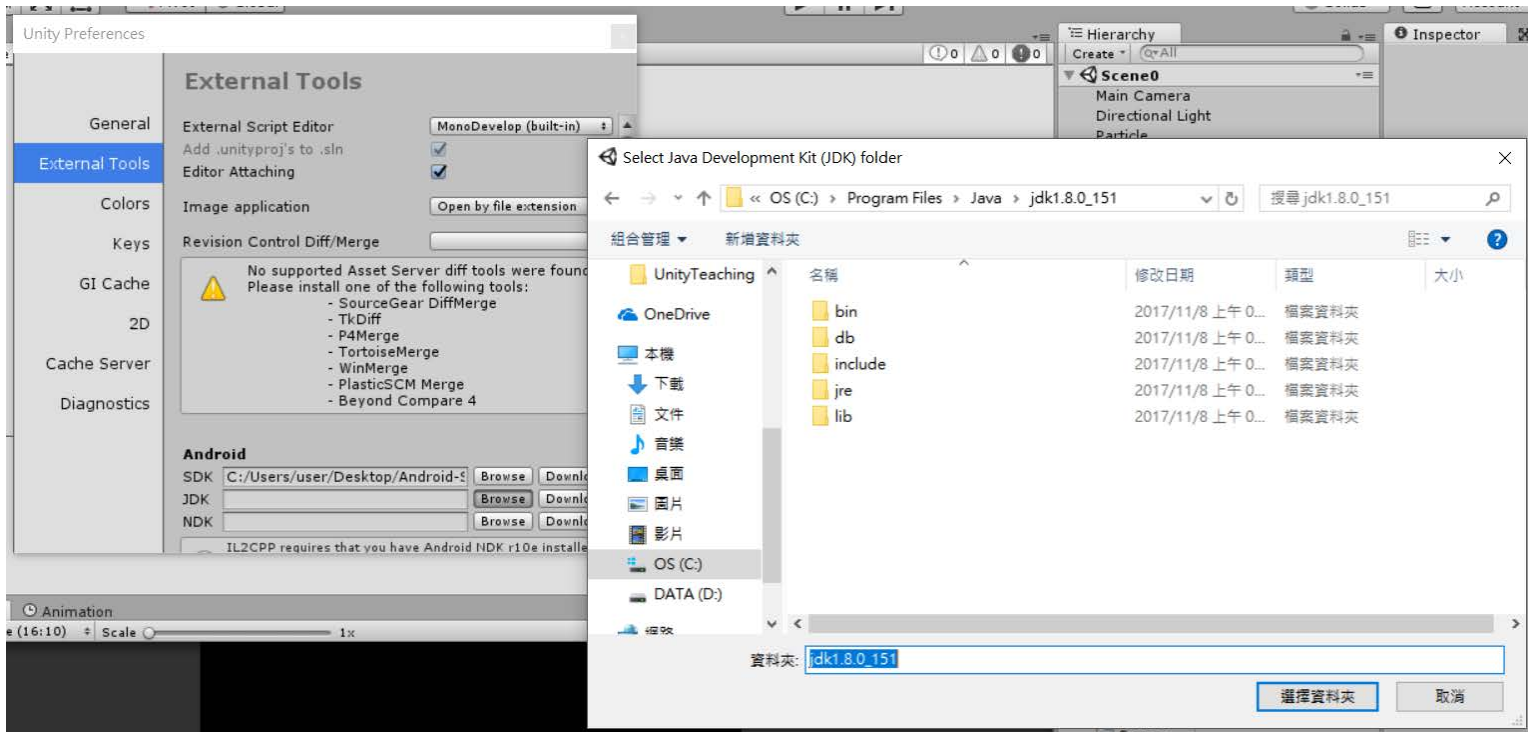
# Build Unity APK

Select the folder where the Android SDK is installed



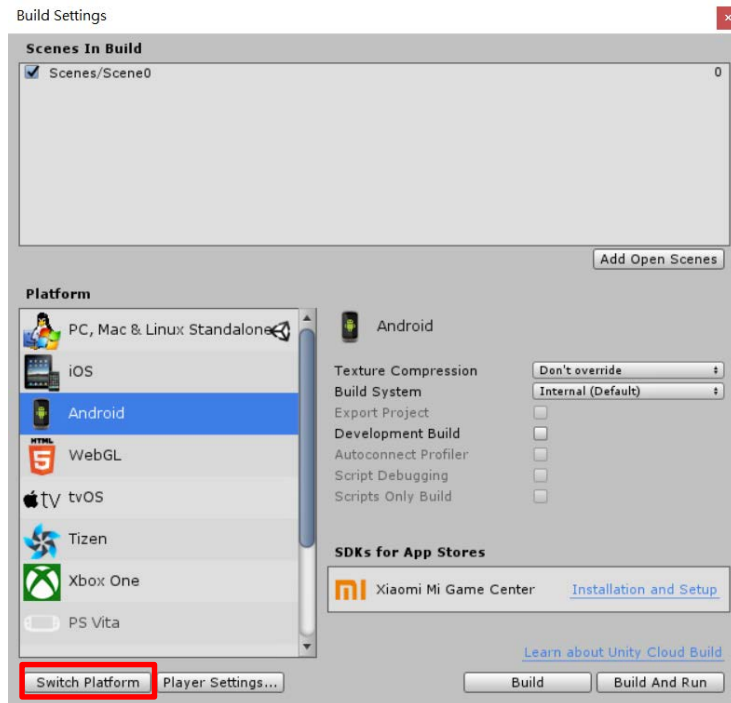
# Build Unity APK

Select the folder where the JDK is installed



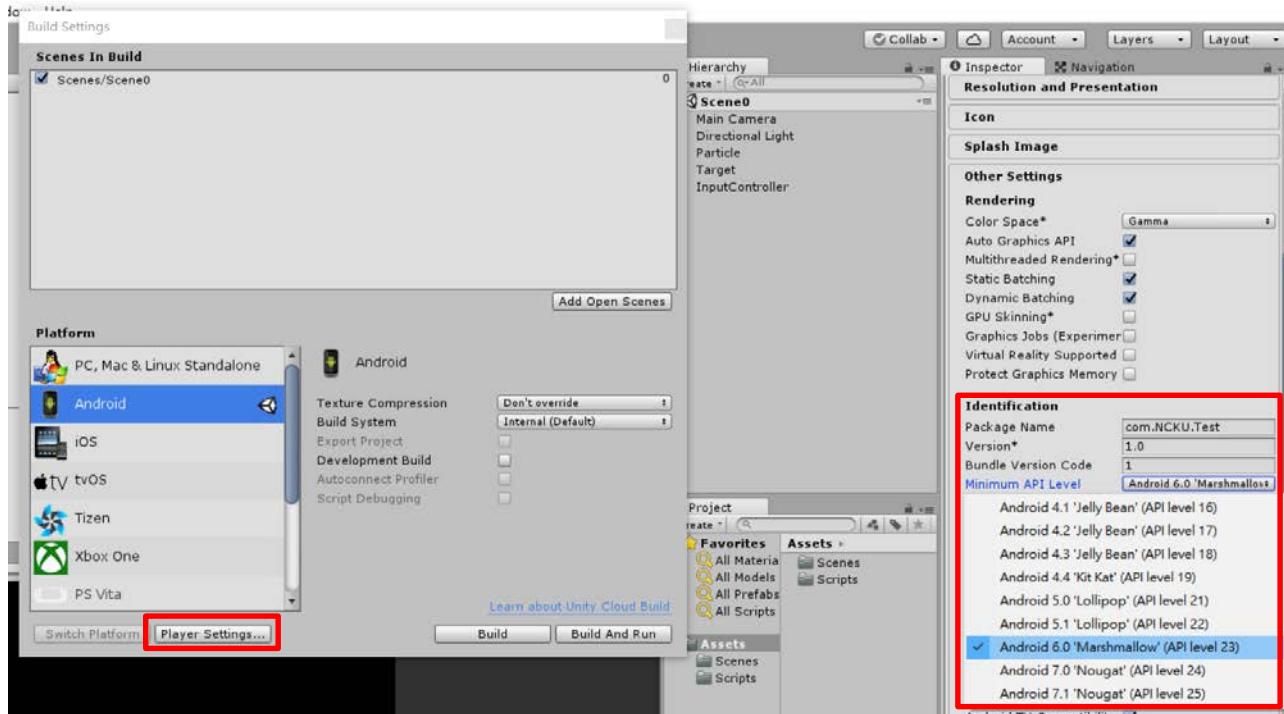
# Build Unity APK

File > Build Settings > Android > Switch Platform



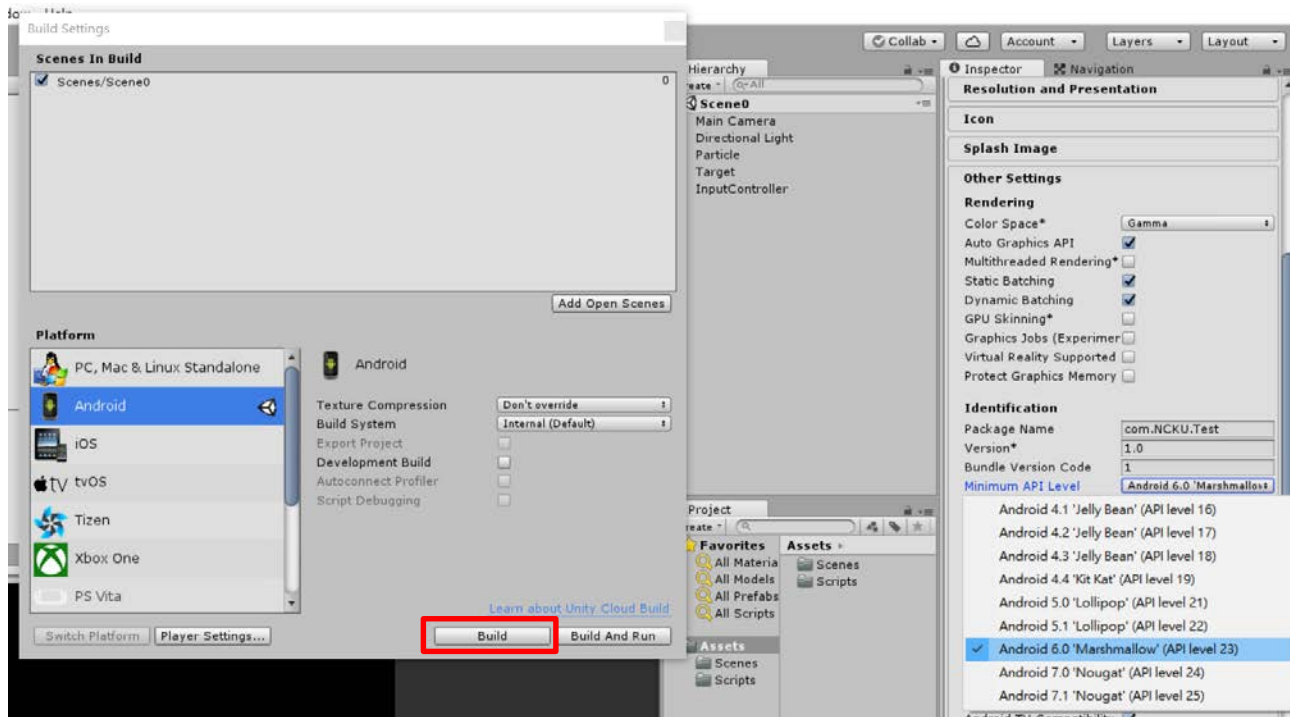
# Build Unity AKP

File > Build Settings > Android > Player Settings > Other Settings > Identification  
Change your Package Name and select your Android API Level



# Build Unity APK

File > Build Settings > Android > Build



# Build Unity APK

You will see the \*.apk file and install it on your mobile device

|  |                   |                       |           |
|--|-------------------|-----------------------|-----------|
|  Assets                 | 2017/11/2 下午 0... | 檔案資料夾                 |           |
|  Library                | 2017/11/8 上午 0... | 檔案資料夾                 |           |
|  obj                    | 2017/11/2 下午 0... | 檔案資料夾                 |           |
|  Packages               | 2017/11/2 下午 0... | 檔案資料夾                 |           |
|  ProjectSettings        | 2017/11/8 上午 0... | 檔案資料夾                 |           |
|  Temp                   | 2017/11/8 上午 0... | 檔案資料夾                 |           |
|  AndroidTest.sln        | 2017/11/2 下午 0... | Microsoft Visual ...  | 3 KB      |
|  AndroidTest.userprefs  | 2017/11/8 下午 0... | USERPREFS 檔案          | 1 KB      |
|  Assembly-CSharp.csproj | 2017/11/8 上午 0... | Visual C# Project ... | 6 KB      |
|  Test.apk               | 2017/11/8 上午 0... | APK 檔案                | 21,172 KB |



# Unity Engine Course

Unity Remote Tutorial



# Unity Remote

Unity Remote is an app for Android remote debugging

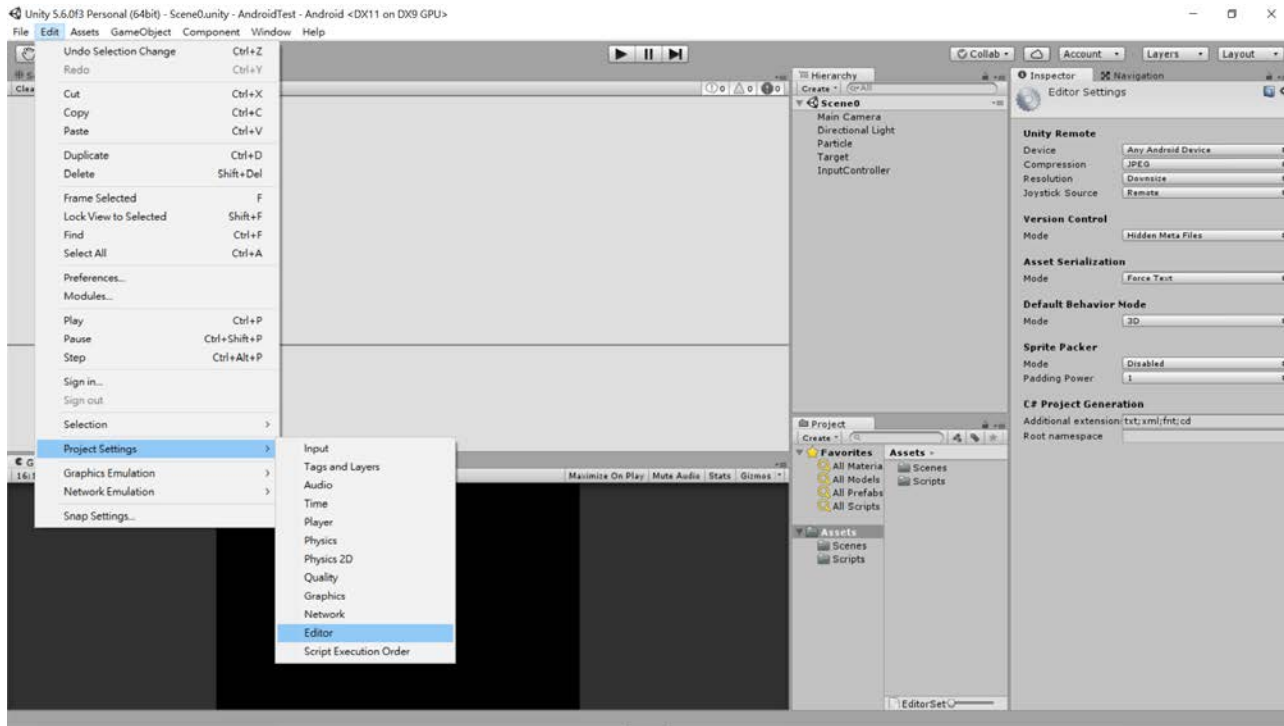
- You can download “Unity Remote” from Google Play





# Unity Remote

- Eidt > Project Setting > Editor



# Unity Remote

- Set the device to “Any Android Device”
- Connect your mobile device to your PC with USB
- Press start button for remote debugging

