

Step by Step

안드로이드 프로그래밍

안드로이드 스튜디오로 시작하는 앱 개발

전면개정판

| 장용식·성낙현 공저 |

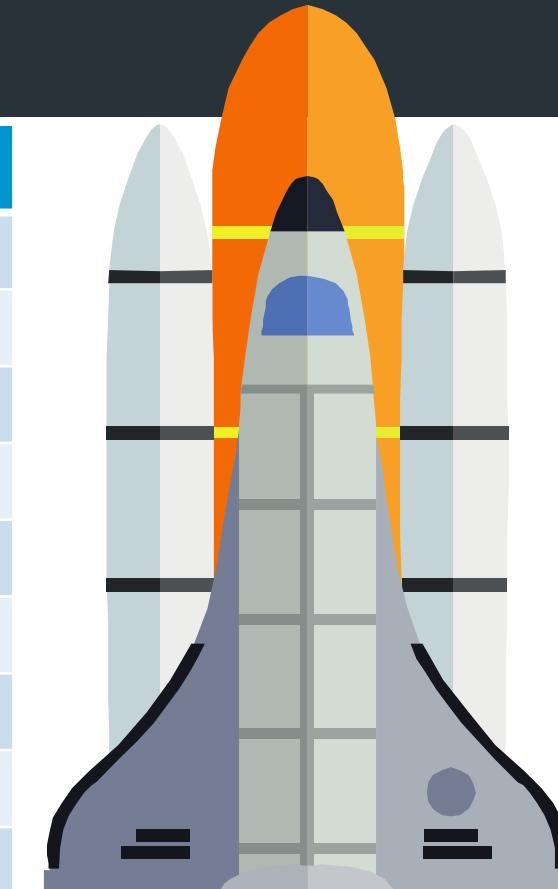


개발환경 구축과
맛보기 프로젝트

개발환경 구축 절차

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| 15 | 기말 고사 |



Lecture Notes: <https://goo.gl/vSdwLq>

The screenshot shows a web browser window displaying a GitHub repository page. The URL in the address bar is <https://github.com/hopypark/LectureNotes/tree/master/AndroidApp>. The repository name is **hopypark / LectureNotes**. The 'Code' tab is selected. The commit history shows the following activity:

- hopypark committed on GitHub Add lecture notes ... Latest commit f2c82ec a minute ago
- ..
- README.md Create readme.md 6 minutes ago
- Week02.Chap02.앱 개발환경 구축.pdf Add lecture notes a minute ago
- Week02.Chap03.앱 프로젝트 구조와 실행원리.pdf Add lecture notes a minute ago

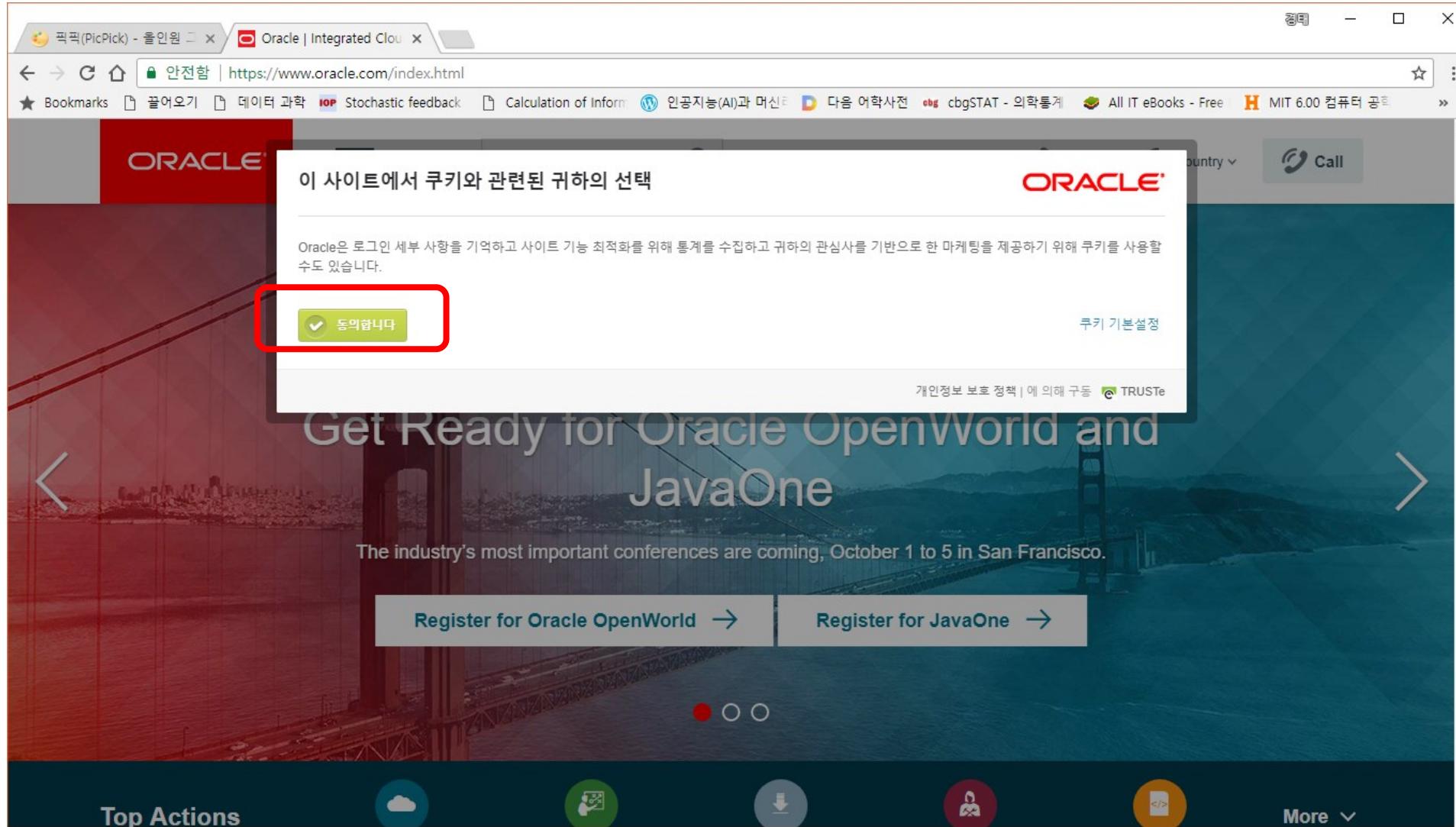
At the bottom of the page, there is a footer with links to GitHub's Terms, Privacy, Security, Status, Help, Contact GitHub, API, Training, Shop, Blog, and About.

- JDK 설치
- Android Studio 설치
- 앱 실행 환경 구축

개발환경 구축

Step 1. JDK 설치

- 다운로드: <https://www.oracle.com/>



Continued

The screenshot shows the Oracle website's main navigation bar and a dropdown menu for 'Trials and Downloads' under the 'Menu' icon.

Navigation Bar:

- Oracle | Integrated Cloud
- Sign In
- Country
- Call

Left Sidebar:

- Cloud
- Applications
- Database and Technologies
- IT Infrastructure
- Industry Solutions
- Small and Midsize Business
- Support and Services
- Training
- Partners
- Developers
- OTN
- Store
- Trials and Downloads** (highlighted)
- About Oracle
- Events

Trials and Downloads Menu:

- Java
- All Java Downloads → (highlighted with a blue box)
- Customer Downloads
- Developer Downloads
- Free Cloud Trials
- Database
- Developer Tools
- Enterprise Management
- Middleware
- Operating Systems
- Servers and Storage Systems

Bottom Navigation:

- www.oracle.com/technetwork/java/index.html
- More ▾

Oracle Technology Netw □ Oracle Technology Network > Java

www.oracle.com/technetwork/java/index.html

Bookmarks □ 끌어오기 □ 데이터 과학 Stochastic feedback Calculation of Inform □ 인공지능(AI)과 머신러닝 □ 다음 어학사전 cbgSTAT - 의학통계 All IT eBooks - Free MIT 6.00 컴퓨터 공학

ORACLE Menu Search Sign In Country Call

Oracle Technology Network > Java

SPECIAL OFFER:
CREATE YOUR FREE
ORACLE CLOUD
ACCOUNT TODAY

See what you can accomplish
with \$300 in free credits towards
Oracle Cloud services.

Software Downloads View All Downloads

Top Downloads

- Java SE
- Java EE and GlassFish
- JavaFX
- Java ME
- JDeveloper and ADF
- Enterprise Pack for Eclipse
- NetBeans IDE
- Pre-Built VM for Java Devs

New Downloads

- Java SE 8 Update 144
Released 2017/07/26
- Java SE Embedded 8 Update 144
Released 2017/07/26
- *Java CPU and PSU Releases Explained
- Oracle Java ME Embedded 8.2
Released 2015/09/17

Java Downloads

What's New Java in the Cloud: Rapidly develop and deploy Java business applications in the cloud. Start for free.

Essential Links

- About Us/Become a Member
- Java APIs
- Technical Articles
- New to Java
- Java Certification & Training
- Java Bug Database

Developer Spotlight

- Java EE—the Most Lightweight Enterprise Framework? - New!
- Modular and Reusable Java EE Architecture with Docker - New!
- Special Offer: Oracle Cloud for Java - New

Blogs

- 2017 Duke's Choice Award Nominations
Posted: Aug 23
- Java 9 Modules Live Demos
Posted: Aug 17
- Modular Development with JDK 9
Posted: Jul 28
- Previewing the "Core Java Platform"

Technologies

- Java SE
- Java SE Support
- Java SE Advanced & Suite
- Java Embedded
- Java EE
- Java ME
- JavaFX

www.oracle.com/technetwork/java/javase/overview/index.html

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The screenshot shows a web browser window displaying the Oracle Java SE Downloads page. The URL in the address bar is www.oracle.com/technetwork/java/javase/downloads/index.html. The page features a navigation menu on the left with links like Java SE, Java EE, Java ME, etc. The main content area is titled "Java SE Downloads" and includes sections for "Java Platform, Standard Edition" and "Java SE 8u144". A large orange box highlights the "Java Platform (JDK) 8u144" download button. To the right, there are sections for "Java SDKs and Tools" and "Java Resources". The bottom of the page shows a "JDK ReadMe" link.

Java SE Downloads

Java Platform (JDK) 8u144

Java Platform, Standard Edition

Java SE 8u144

Java Platform (JDK) 8u144

Java SE Products

Java ReadMe

Java APIs

Technical Articles

Demos and Videos

Forums

Java Magazine

Java.net

Developer Training

Tutorials

Java.com

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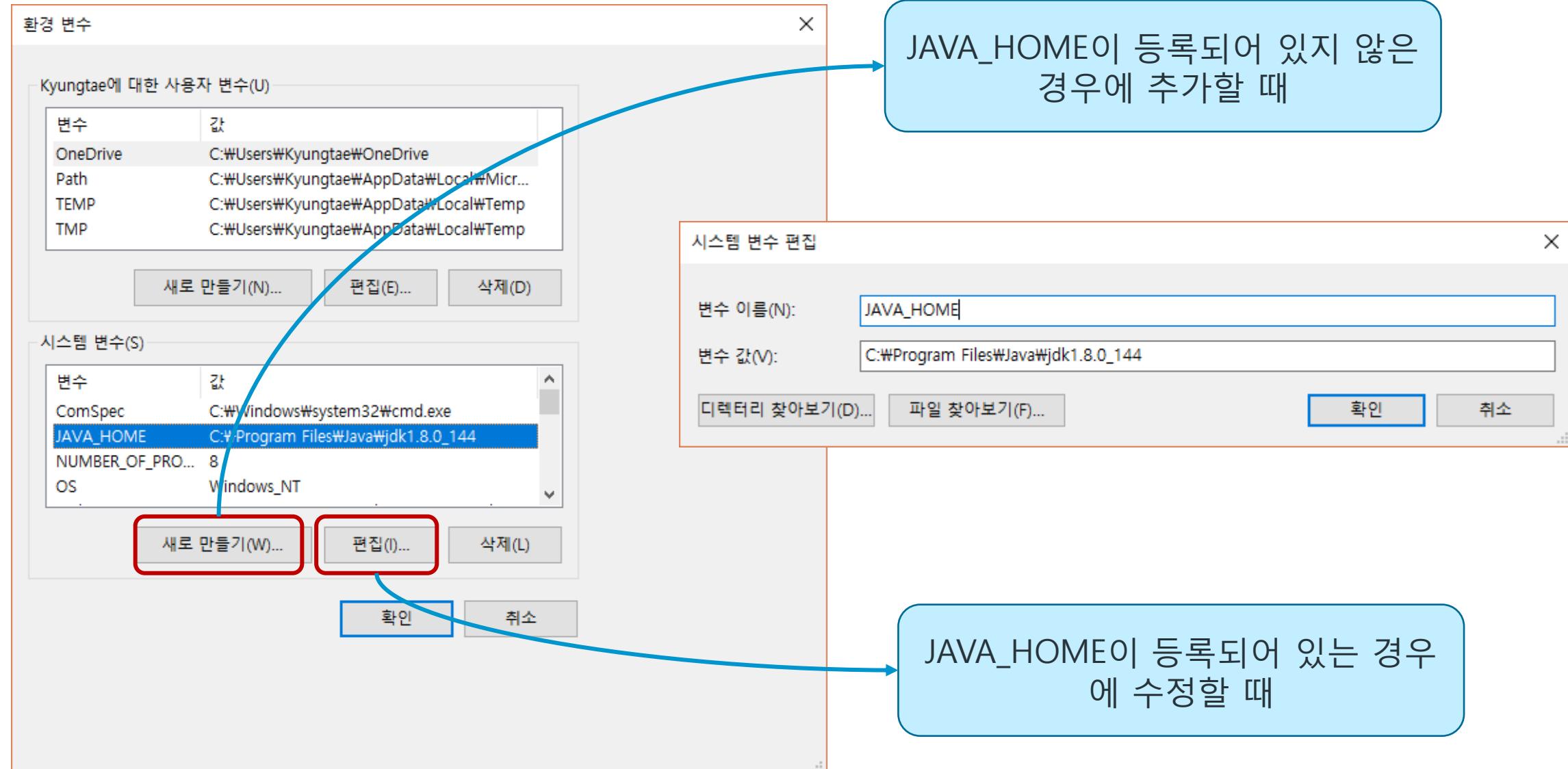
The screenshot shows a web browser window with the URL www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html. The page title is "Java SE Development Kit 8 Downloads". On the left, there's a sidebar with links like Java SE, Java EE, Java ME, etc. The main content area has tabs for Overview, Downloads (which is selected), Documentation, Community, Technologies, and Training. Below the tabs, there's a section for "Java SE Development Kit 8 Downloads" with a brief description. Under "See also:", there are links to Java Developer Newsletter, Java Developer Day, Java Magazine, and JDK 8u144 checksum. A large table lists Java SE Development Kit 8u144 downloads for various platforms. The Windows x64 row is highlighted with a green border and a red arrow points to the "jdk-8u144-windows-x64.exe" download link.

| Product / File Description | File Size | Download |
|-----------------------------|-----------|---|
| Linux ARM 32 Hard Float ABI | 77.89 MB | jdk-8u144-linux-arm32-vfp-hf1tar.gz |
| Linux ARM 64 Hard Float ABI | 74.83 MB | jdk-8u144-linux-arm64-vfp-hf1tar.gz |
| Linux x86 | 164.65 MB | jdk-8u144-linux-i586.rpm |
| Linux x86 | 179.44 MB | jdk-8u144-linux-i586.tar.gz |
| Linux x64 | 162.1 MB | jdk-8u144-linux-x64.rpm |
| Linux x64 | 176.92 MB | jdk-8u144-linux-x64.tar.gz |
| Mac OS X | 226.6 MB | jdk-8u144-macosx-x64.dmg |
| Windows x86 | 190.94 MB | jdk-8u144-windows-i586.exe |
| Windows x64 | 197.78 MB | jdk-8u144-windows-x64.exe |
| Windows x64 | 197.78 MB | jdk-8u144-windows-x64.exe |

Continued – 자바홈(JAVA_HOME) 환경설정

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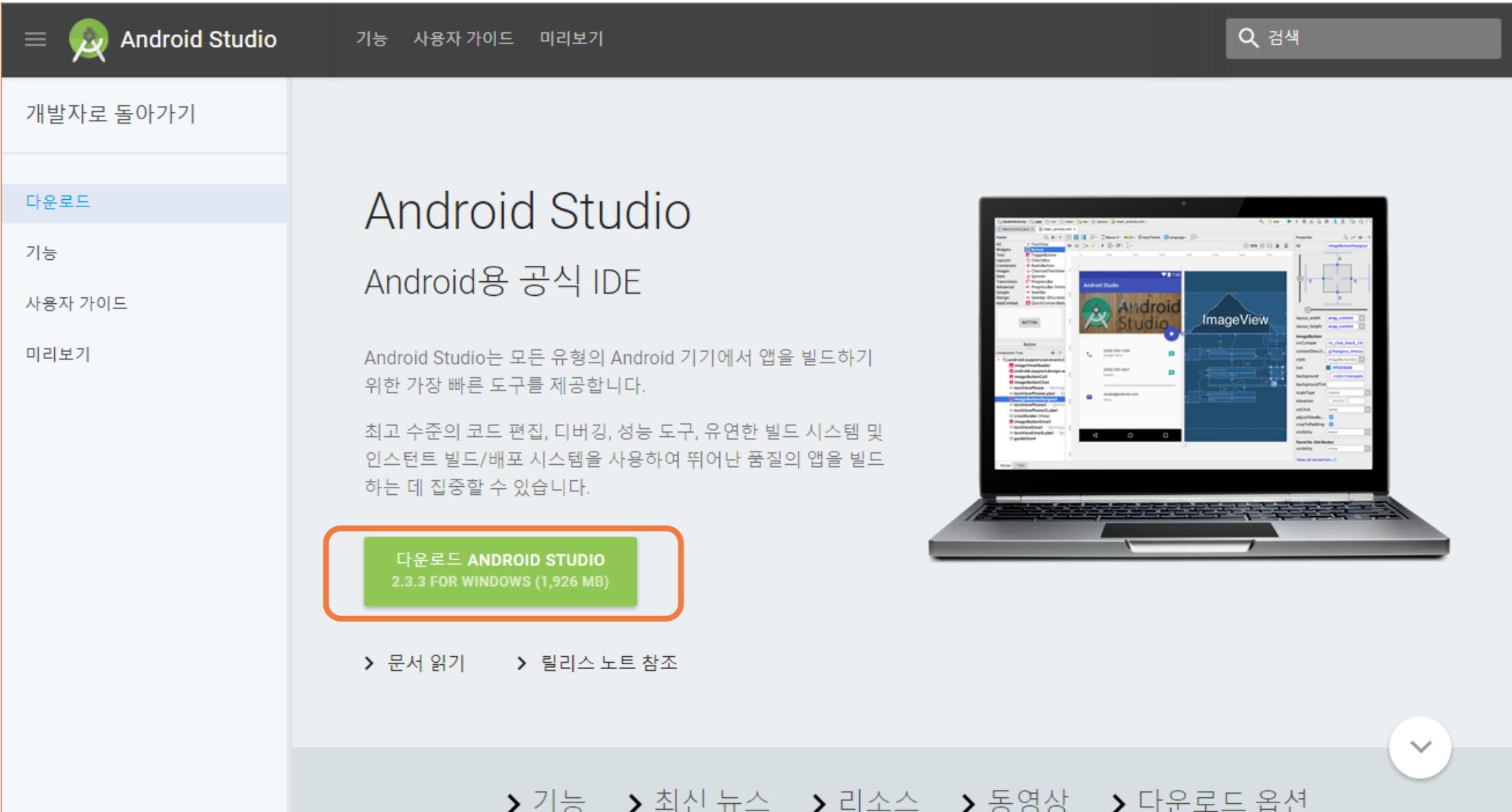
- 제어판>시스템>고급 시스템 설정>고급>환경변수



Step 2. Android Studio 설치

Download Android Studio

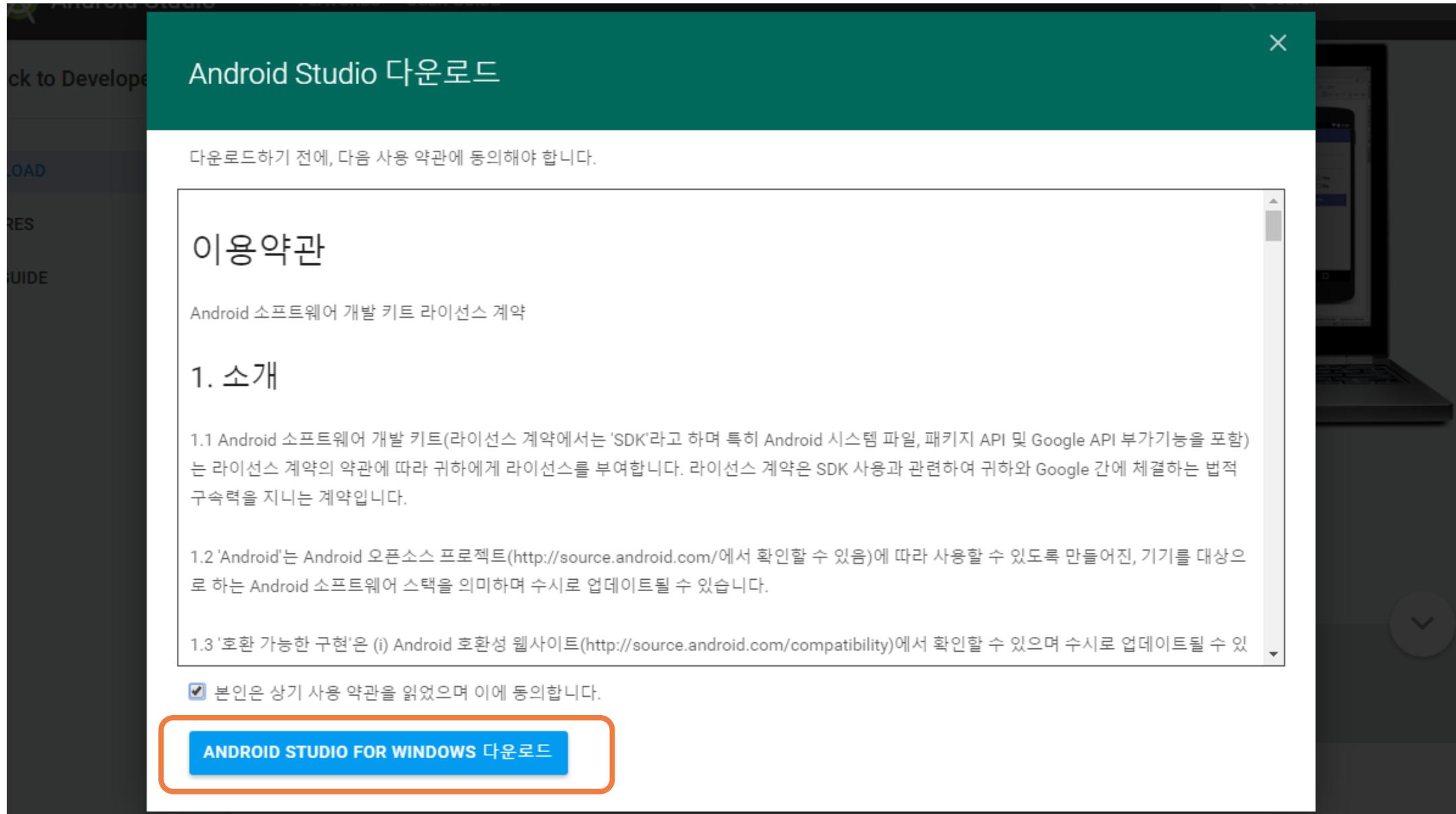
- <https://developer.android.com/studio/index.html>



The screenshot shows the official Android Studio download page. At the top, there's a navigation bar with the Android Studio logo, links for '기능' (Features), '사용자 가이드' (User Guide), and '미리보기' (Preview). A search bar is also present. On the left, a sidebar has '개발자로 돌아가기' (Go back to developer) at the top, followed by sections for '다운로드' (Download), '기능' (Features), '사용자 가이드' (User Guide), and '미리보기' (Preview). The main content area features the title 'Android Studio' and subtitle 'Android용 공식 IDE'. It describes Android Studio as a tool for building apps for all types of Android devices. Below this, a green button labeled '다운로드 ANDROID STUDIO 2.3.3 FOR WINDOWS (1,926 MB)' is highlighted with an orange border. At the bottom, there are links for '문서 읽기' (Read document) and '릴리스 노트 참조' (Refer to release notes). The footer contains links for '기능' (Features), '최신 뉴스' (Latest news), '리소스' (Resources), '동영상' (Videos), and '다운로드 옵션' (Download options). To the right of the main content, there's a large image of a laptop displaying the Android Studio interface, showing the layout editor with a preview of an app screen.

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Android Studio

FEATURES USER GUIDE

Search

User Guide

Meet Android Studio

Workflow Basics

Manage Your Project

Write Your App

Build and Run Your App

Configure Your Build

Debug Your App

Test Your App

Profile Your App

Publish Your App

Command Line Tools

Release Notes

Troubleshoot

android-studio-bu...e... 0.1/1.8GB, 4분 남음

전체 보기 X

Android Studio 설치

Android Studio 설치는 몇 번의 클릭만으로 가능합니다. (이미 [Android Studio를 다운로드](#)했어야 합니다.)

운영 체제
Windows ▾

Android Studio를 Windows에 설치하려면 다음 단계를 진행하세요.

- 다운로드한 [.exe](#) 파일을 실행합니다.
- 설치 마법사의 안내에 따라 Android Studio와 필요한 SDK 도구를 설치합니다.

일부 Windows 시스템에서는 JDK가 설치된 위치를 런처 스크립트가 찾지 못합니다. 이 문제가 발생하면 올바른 위치를 나타내는 환경 변수를 설정해야 합니다.

Start 메뉴 > Computer > System Properties > Advanced System Properties를 선택합니다. 그런 다음 Advanced 탭 > Environment Variables를 열고 JDK 폴더(예: C:\Program Files\Java\jdk1.8.0_77)를 가리키는 새 시스템 변수 JAVA_HOME을 추가합니다.

다 되었습니다! 다음 동영상은 권장 설치 절차의 각 단계를 보여줍니다.



Continued[설치 동영상]

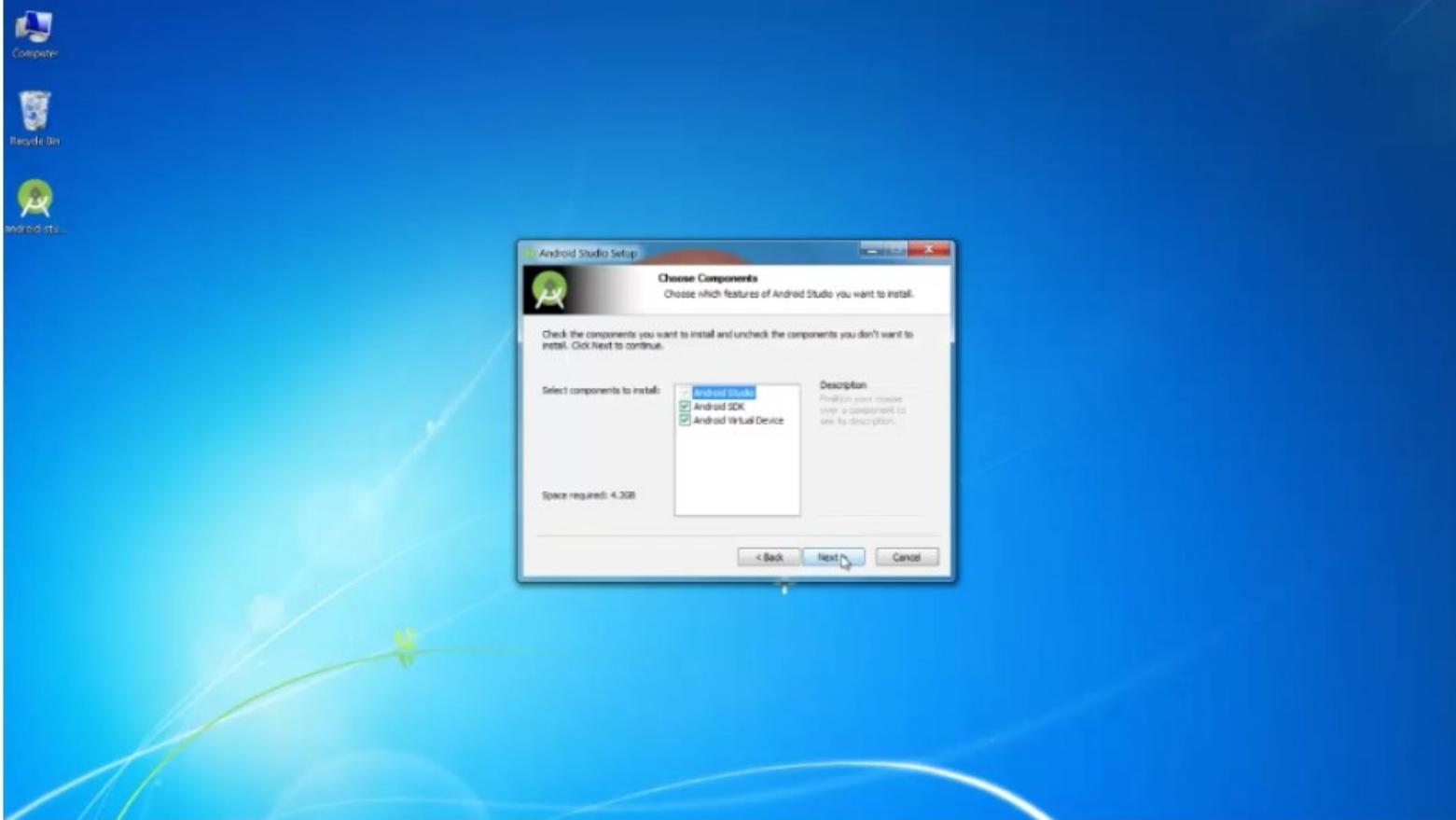
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Android Studio FEATURES USER GUIDE Search

Start > Computer > System Properties > Advanced System Properties을 선택합니다. 그런 다음 Advanced 탭 > Environment Variables을 클릭합니다.

JDK 폴더(예: C:\Program Files\Java\jdk1.8.0_77)를 가리키는 새 시스템 변수 JAVA_HOME을 추가합니다.

다 되었습니다! 다음 동영상은 권장 설치 절차의 각 단계를 보여줍니다.



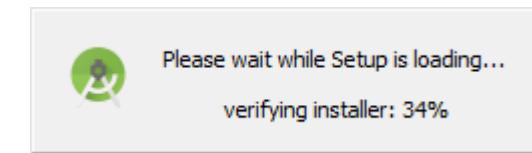
The screenshot shows a Windows desktop background with several icons: Computer, Recycle Bin, and the Android Studio icon. A 'Choose Components' window is open in the foreground, titled 'Android Studio Setup'. It displays a list of components to install, with 'Android Studio' checked. Other options include 'Android SDK' and 'Android Virtual Device'. A 'Description' section provides a brief overview of the selected component. At the bottom of the window are buttons for '< Back', 'Next >', and 'Cancel'.

새로운 도구와 기타 API가 나오게 되면, Android Studio가 팝업으로 알려줍니다. 또는 Help > Check for Update를 클릭하여 업데이트를 확인할 수 있습니다.

Install Android Studio on windows

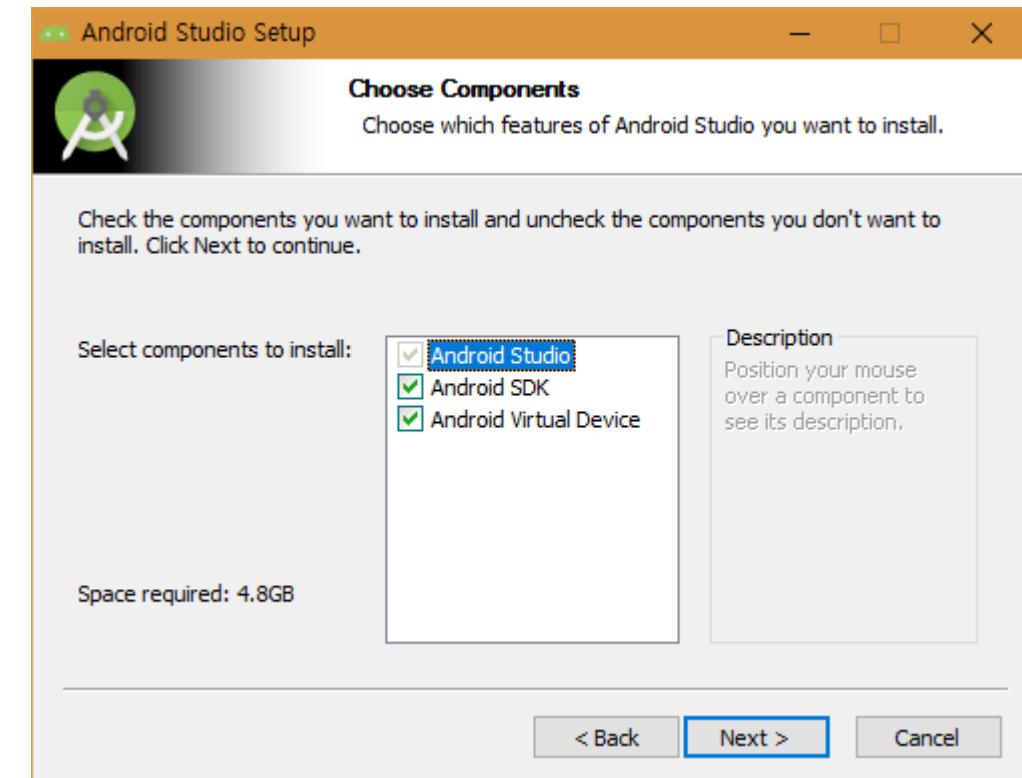
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- 다운 받은 Android Studio 설치 파일을 클릭하여 ‘실행’ 버튼을 클릭한다.



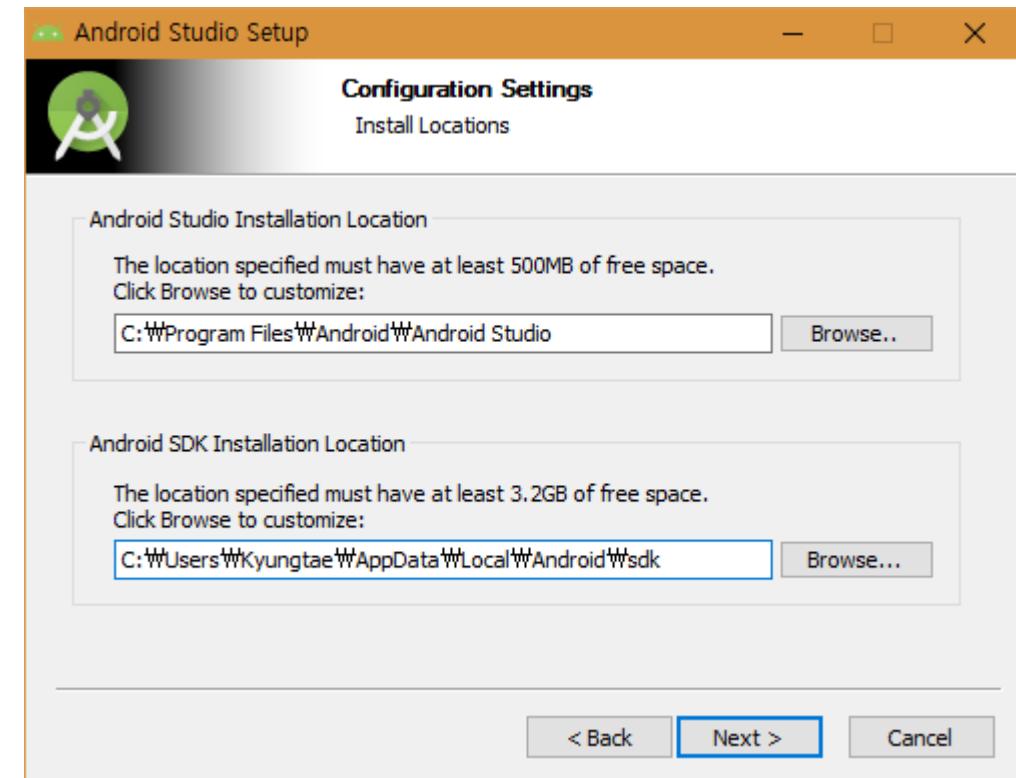
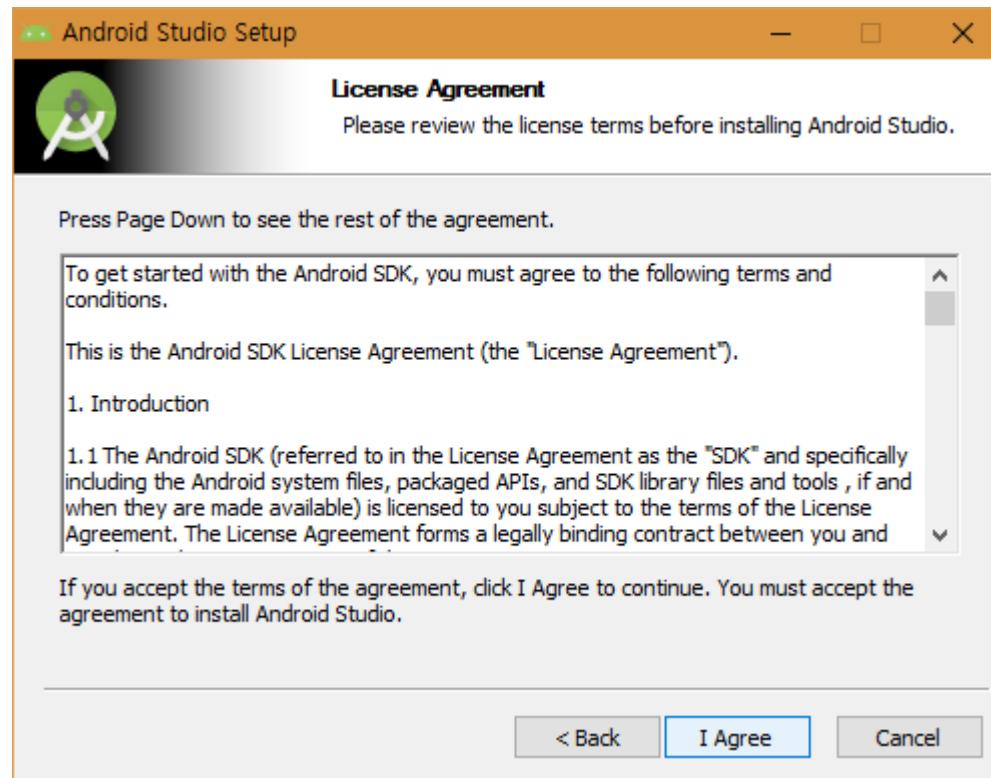
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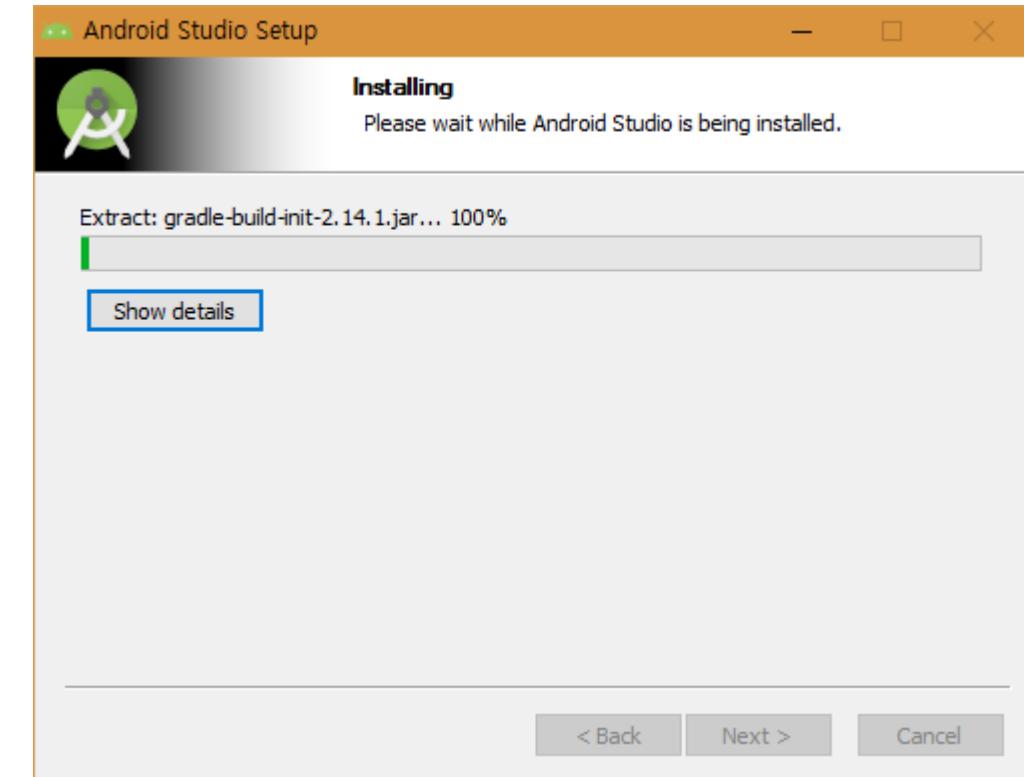
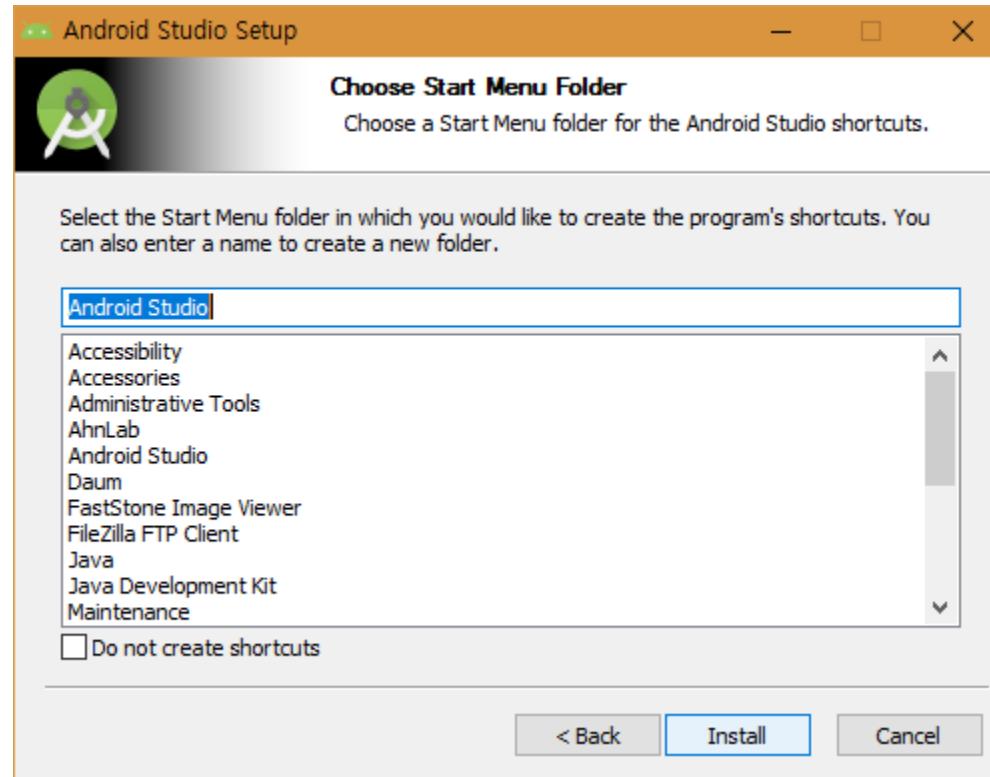


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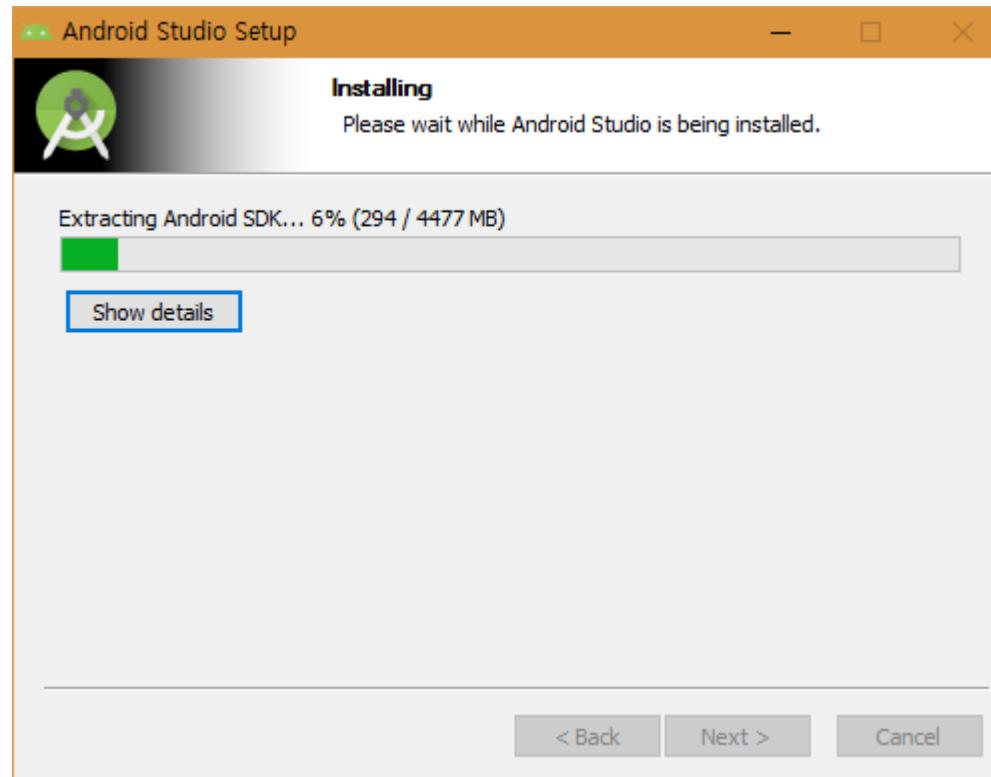


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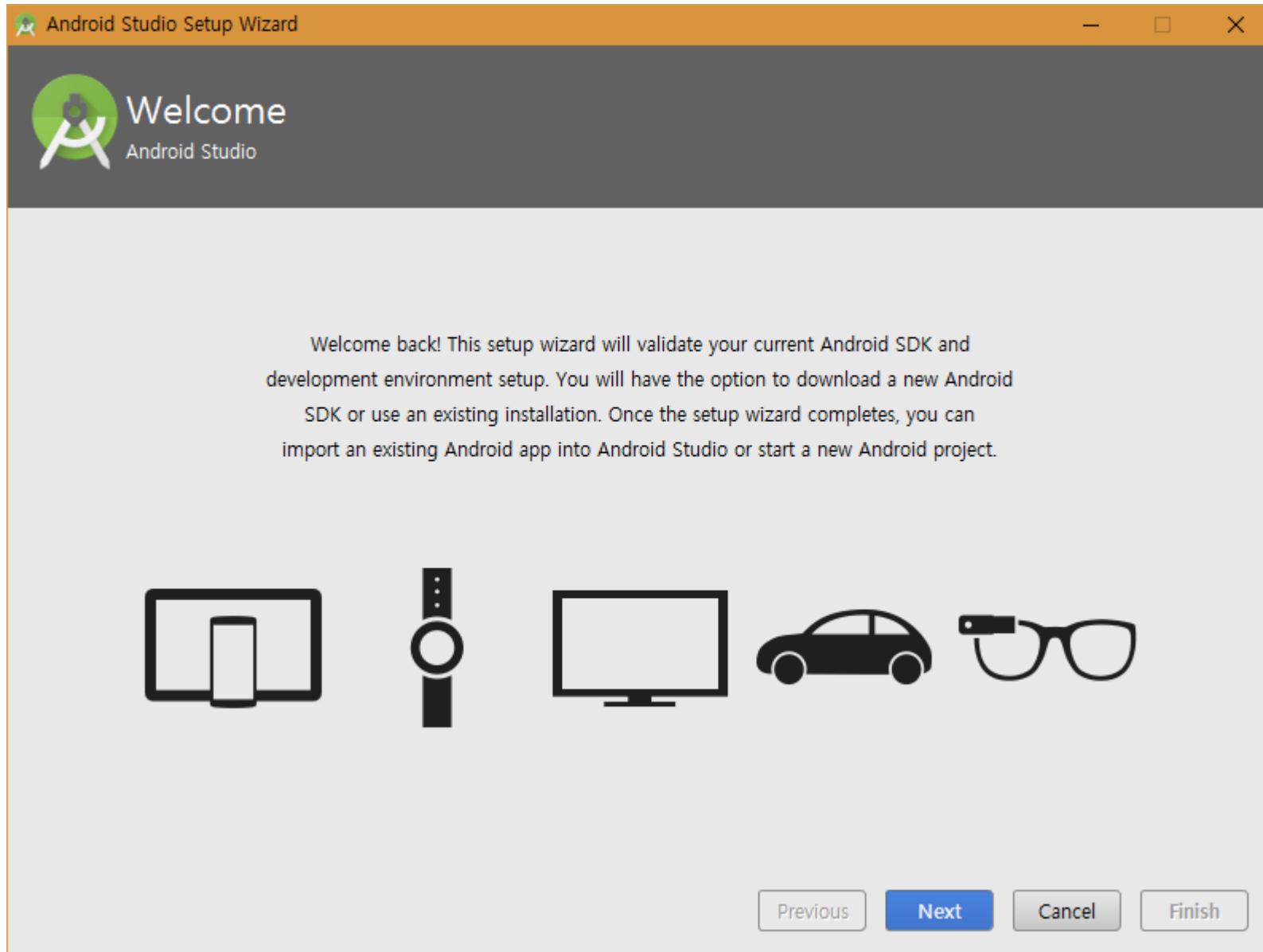


Continued ... Complete installation



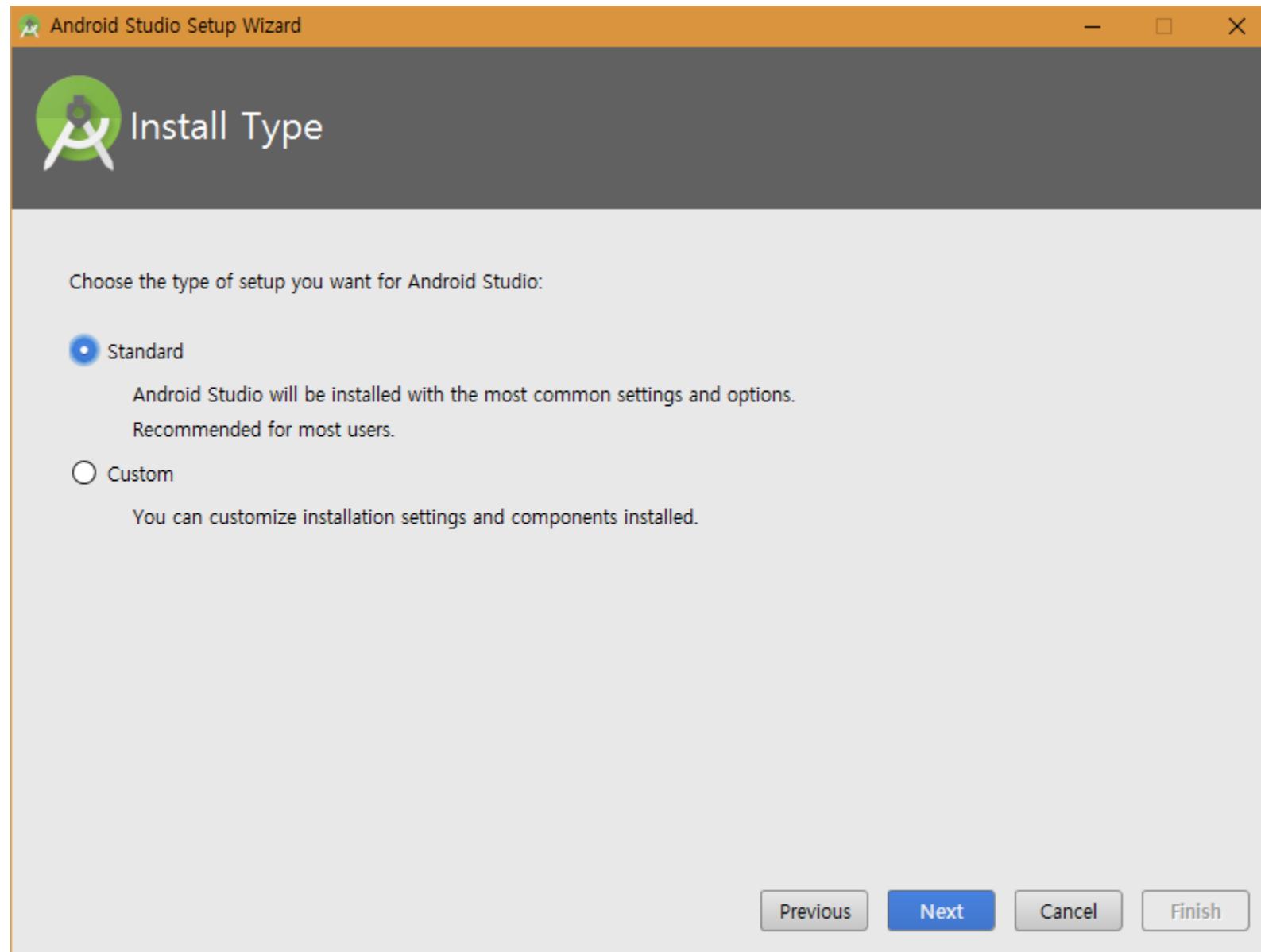
Android Studio Setup Wizard

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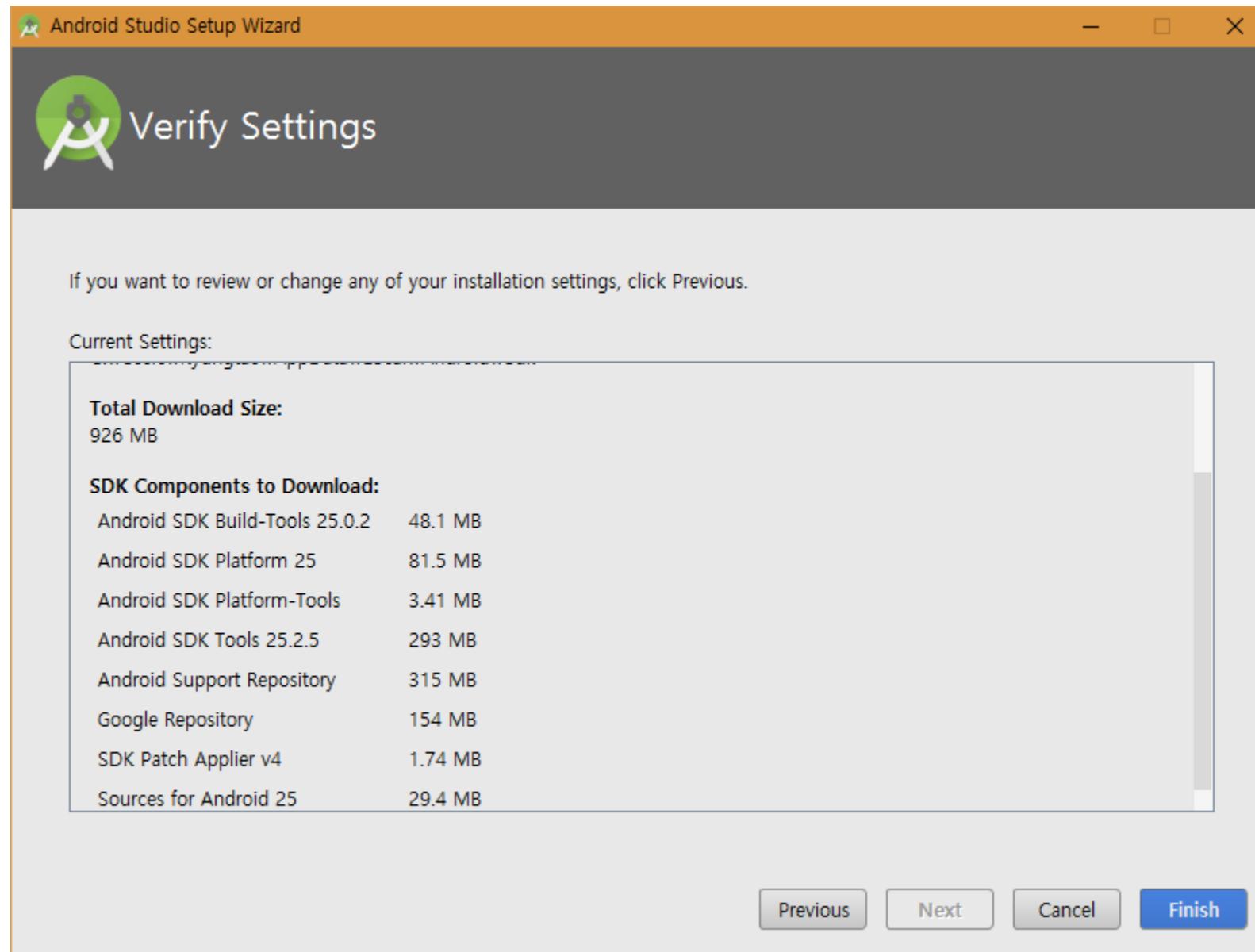
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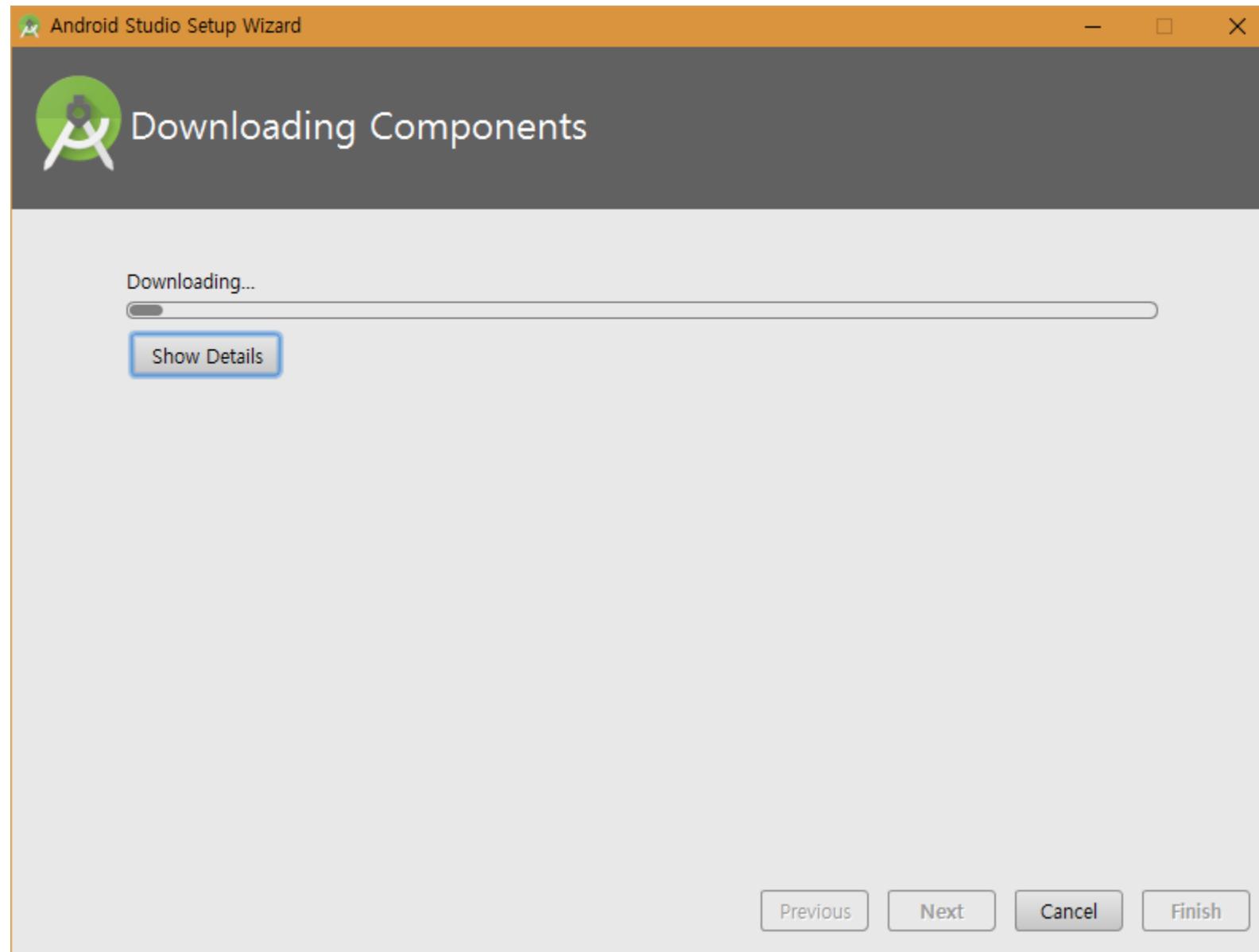
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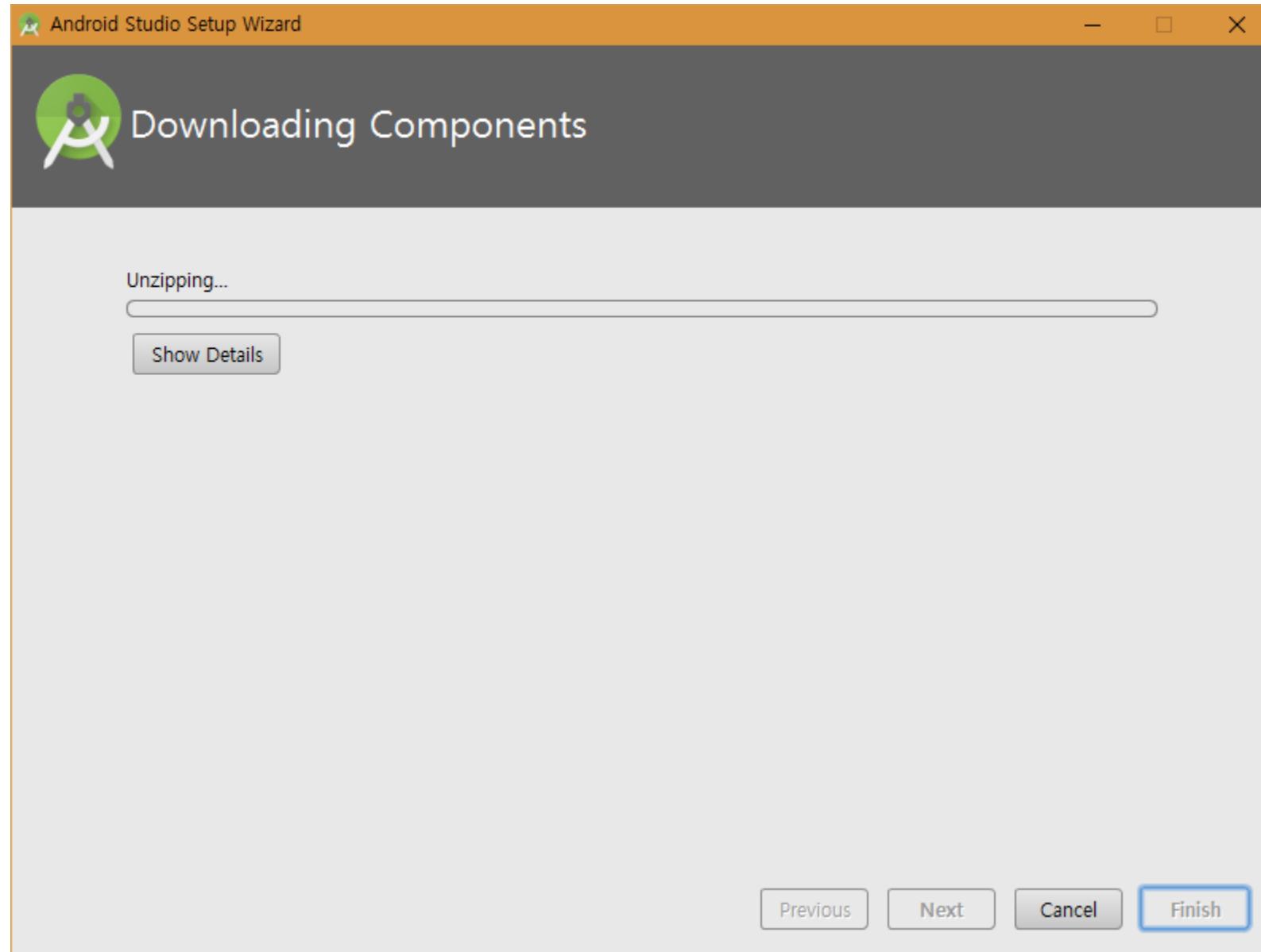
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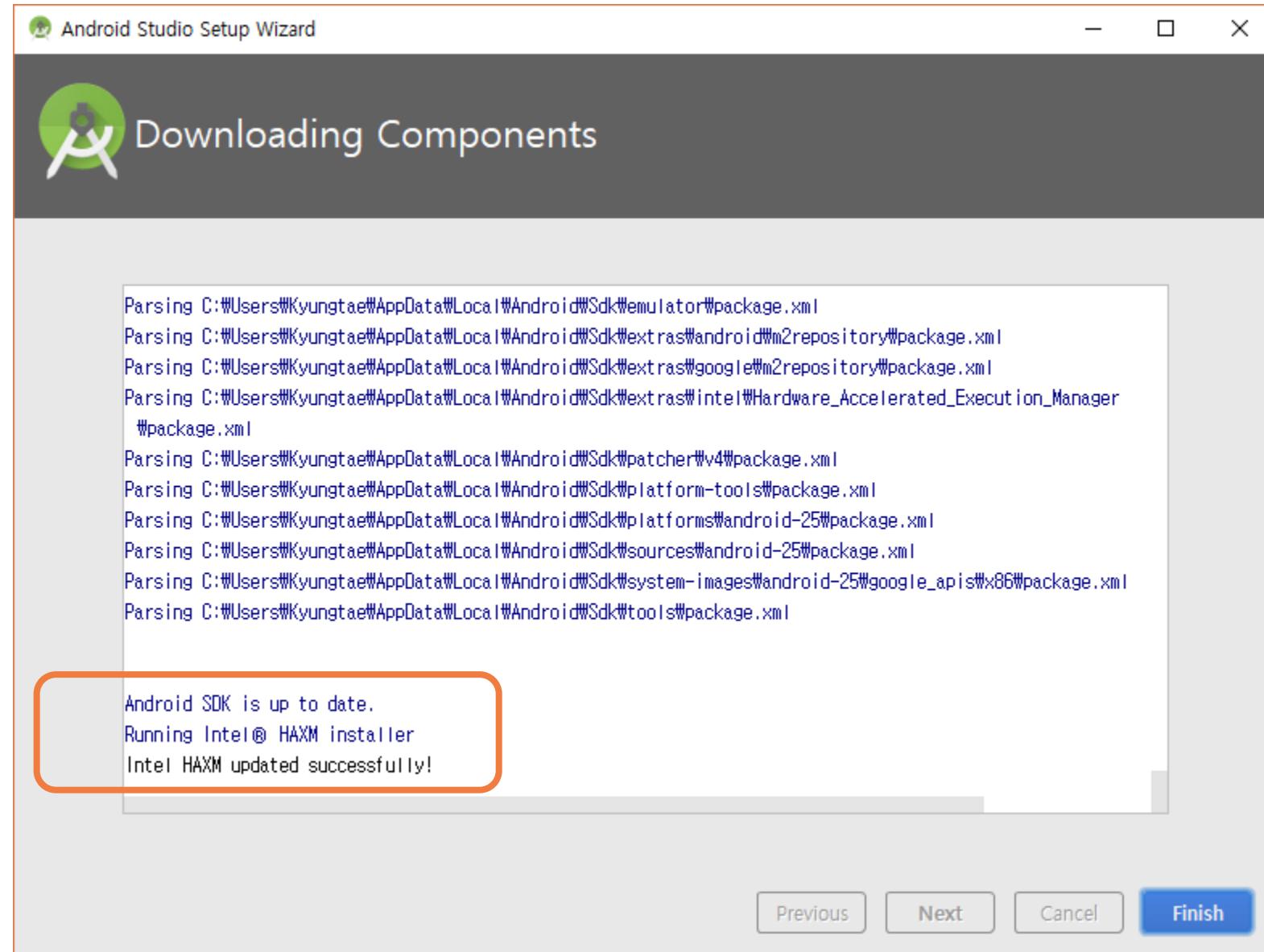
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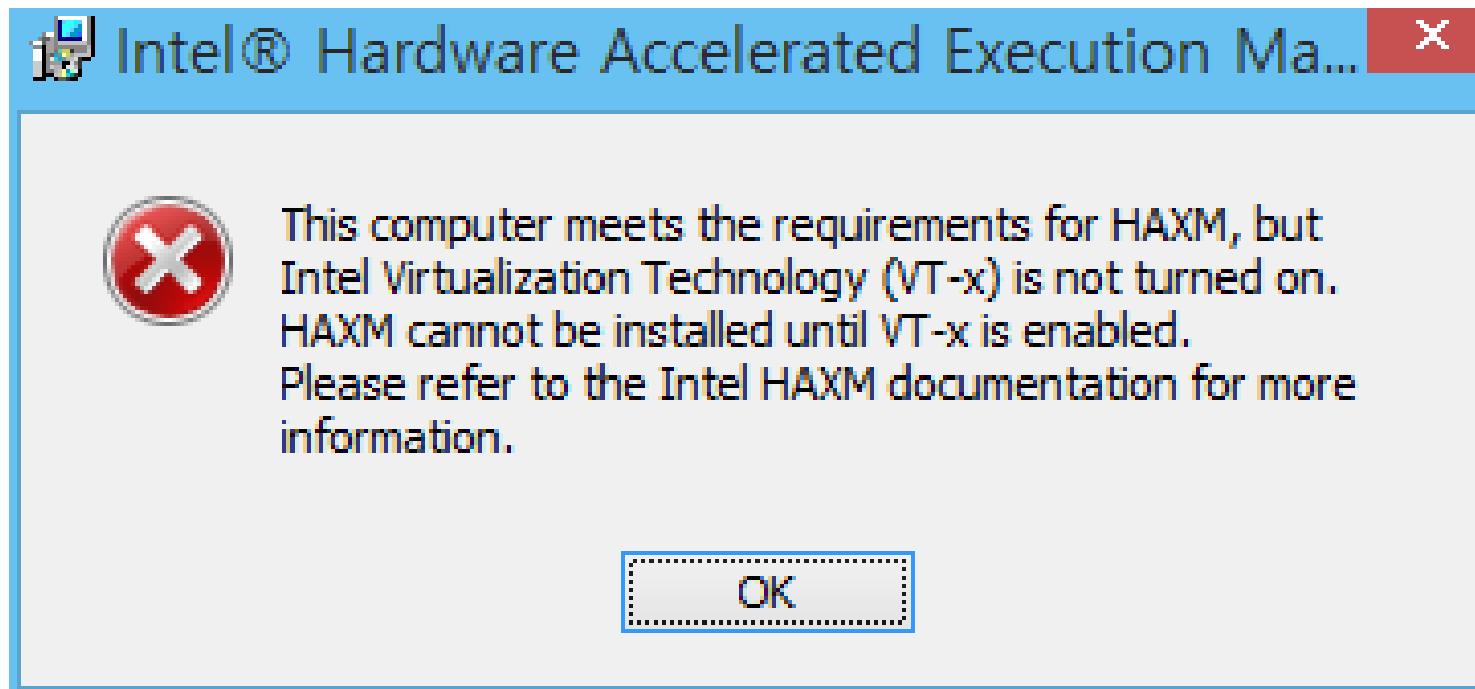
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Continued

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- TroubleShoot-Intel HAEM(Hardware Accelerated Execution Manager)



- 메인보드에서 CPU VT-x(가상화기술)을 허용하지 않음 상태이므로 BIOS 설정을 통해서 VT-x 활성화하는 게 필요.

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- 설치 중에 “JAVA_HOME” 경로 설정이 안 된 경우

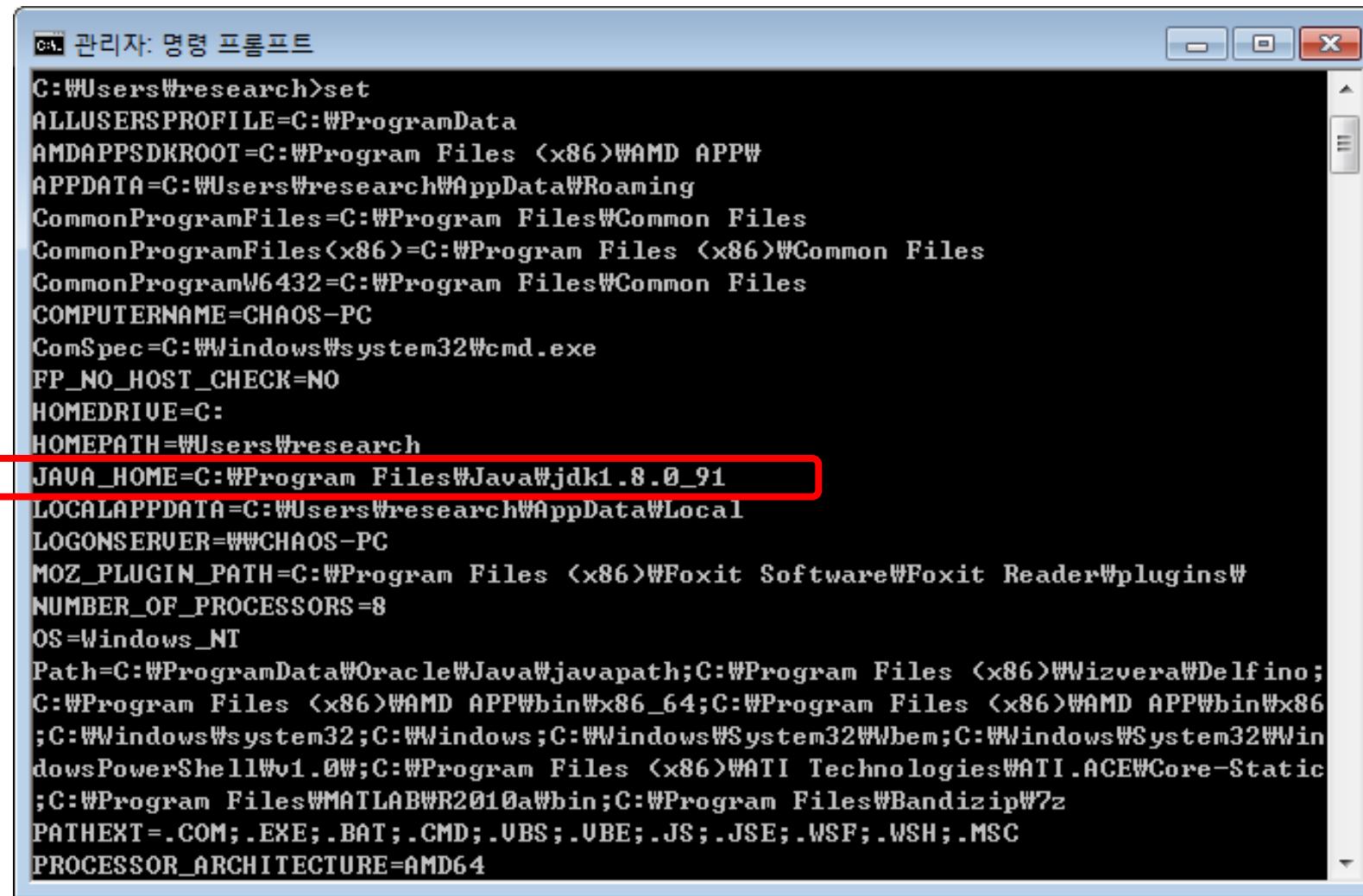
주의 JAVA_HOME 경로 설정이 안된 경우

JAVA_HOME 경로 설정이 되어 있지 않을 때 다음과 같은 경고창이 나타난다. 경로 설정 후에 Android Studio를 다시 설치하면 된다.



Continued

- JAVA_HOME 확인 방법: 명령프롬프트에서 “set” 명령어 실행

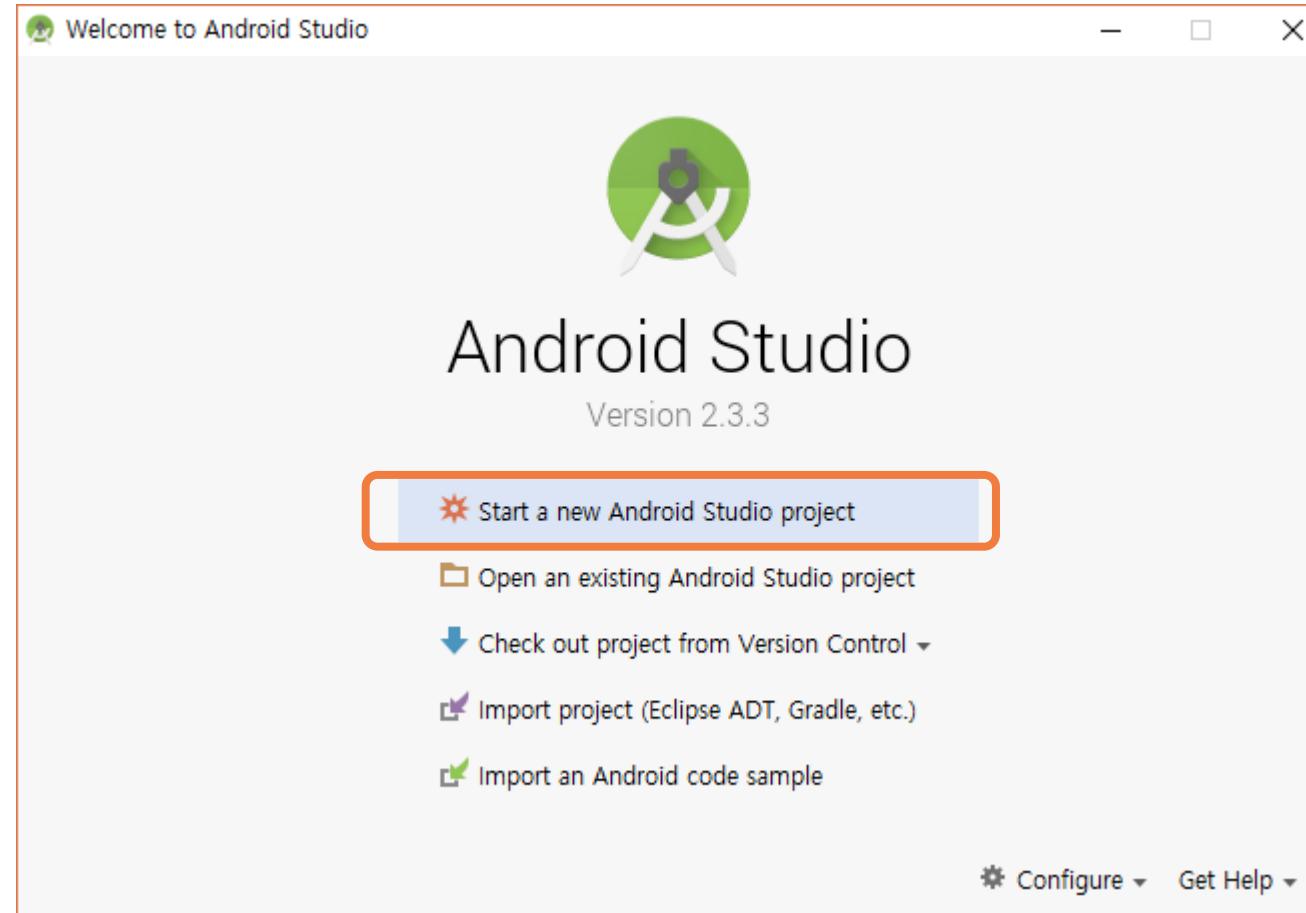


```
C:\ 관리자: 명령 프롬프트
C:\Users\research>set
ALLUSERSPROFILE=C:\ProgramData
AMDAAPPSDKROOT=C:\Program Files (x86)\AMD APP
APPDATA=C:\Users\research\AppData\Roaming
CommonProgramFiles=C:\Program Files\Common Files
CommonProgramFiles(x86)=C:\Program Files (x86)\Common Files
CommonProgramW6432=C:\Program Files\Common Files
COMPUTERNAME=CHAOS-PC
ComSpec=C:\Windows\system32\cmd.exe
FP_NO_HOST_CHECK=NO
HOMEDRIVE=C:
HOMEPATH=\Users\research
JAVA_HOME=C:\Program Files\Java\jdk1.8.0_91
LOCALAPPDATA=C:\Users\research\AppData\Local
LOGONSERVER=\CHAO
MOZ_PLUGIN_PATH=C:\Program Files (x86)\Foxit Software\Foxit Reader\plugins\
NUMBER_OF_PROCESSORS=8
OS=Windows_NT
Path=C:\ProgramData\Oracle\Java\javapath;C:\Program Files (x86)\Wizvera\DeLfin
C:\Program Files (x86)\AMD APP\bin\x64;C:\Program Files (x86)\AMD APP\bin\x86
;C:\Windows\system32;C:\Windows;C:\Windows\System32\WBem;C:\Windows\System32\Win
dowsPowerShell\v1.0\;C:\Program Files (x86)\ATI Technologies\ATI.AC
;C:\Program Files\MATLAB\R2010a\bin;C:\Program Files\Bandizip\7z
PATHEXT=.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC
PROCESSOR_ARCHITECTURE=AMD64
```

Create New Project

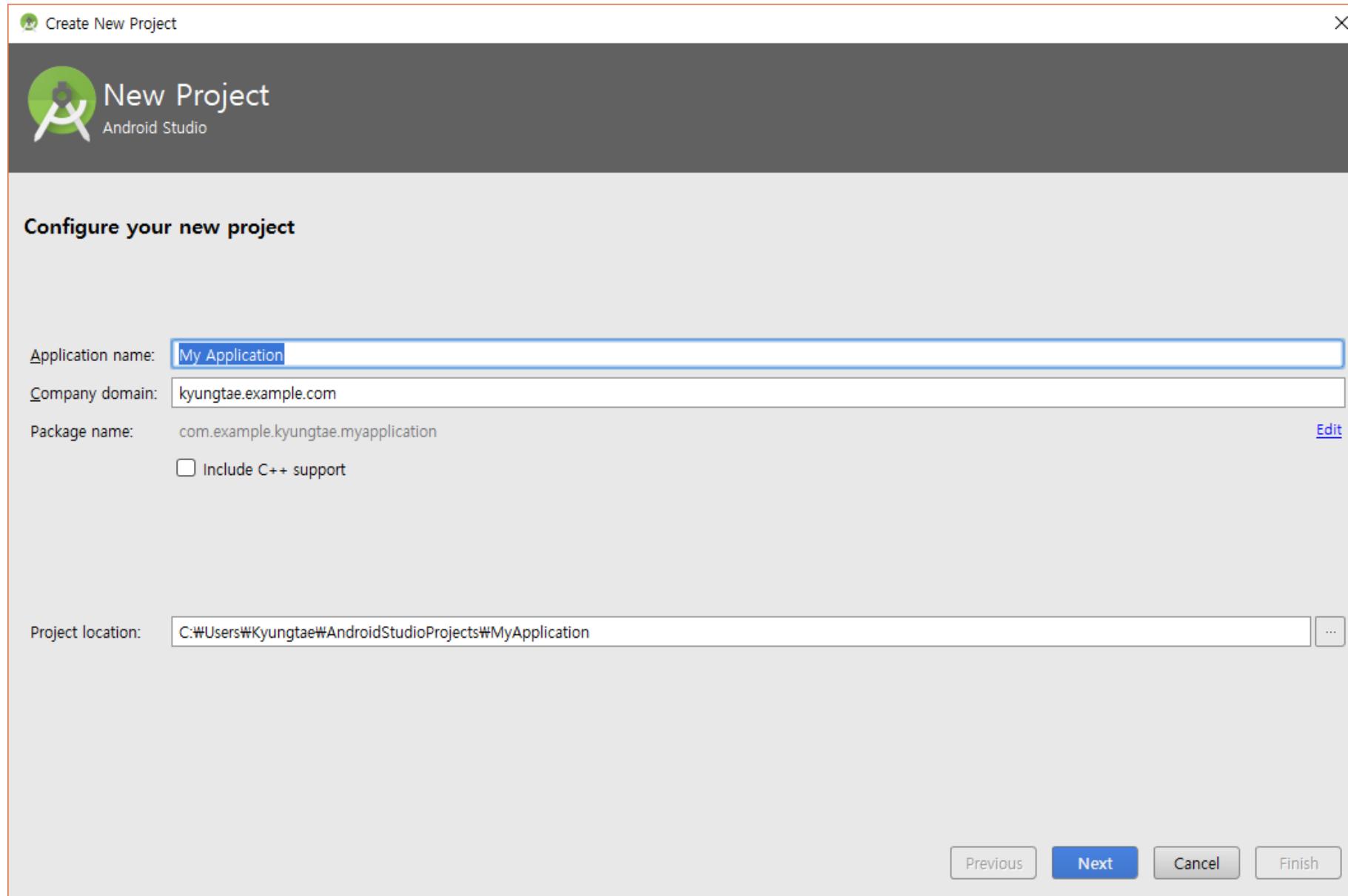
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- Start a new Android Studio project 메뉴 클릭



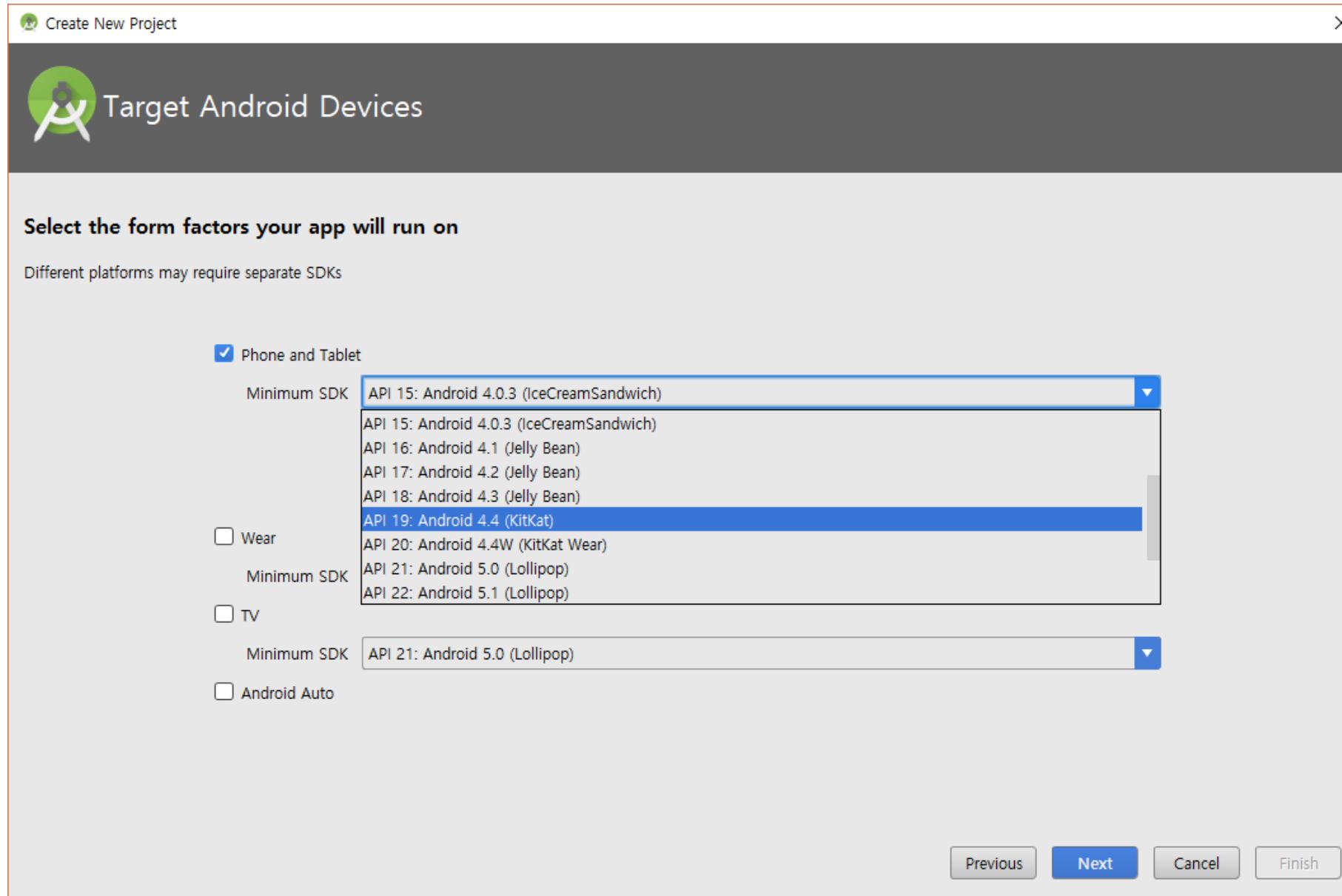
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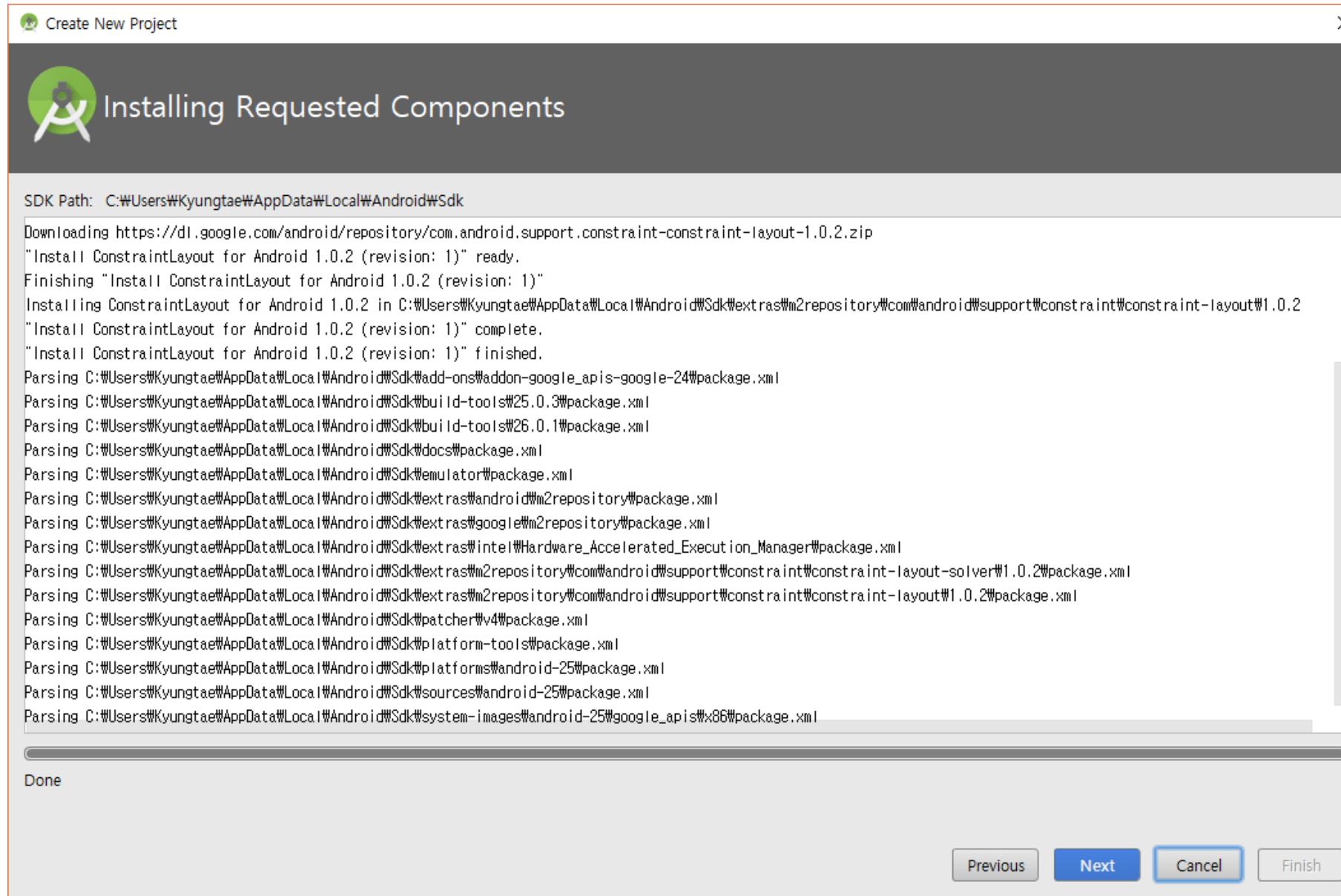
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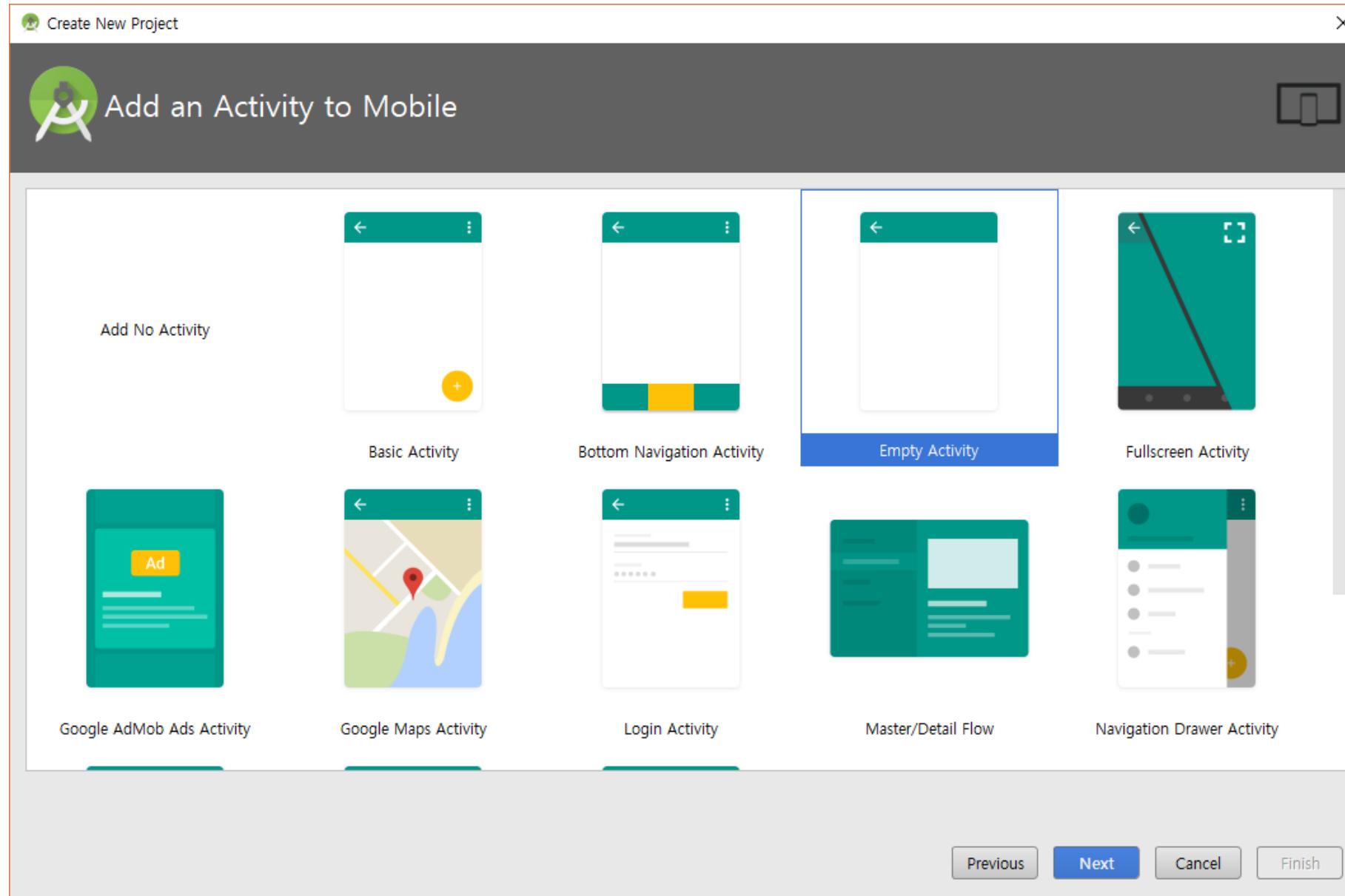


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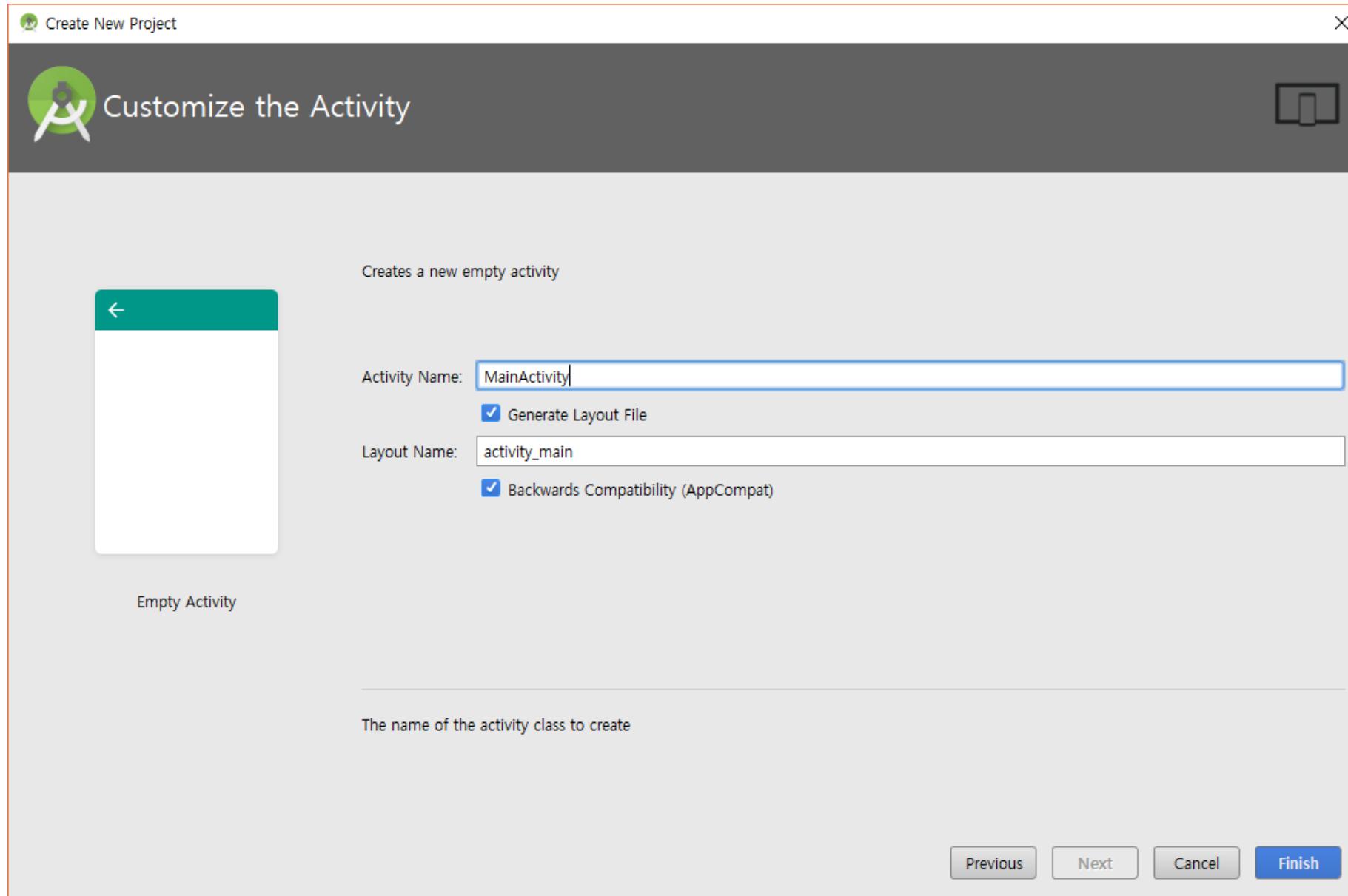


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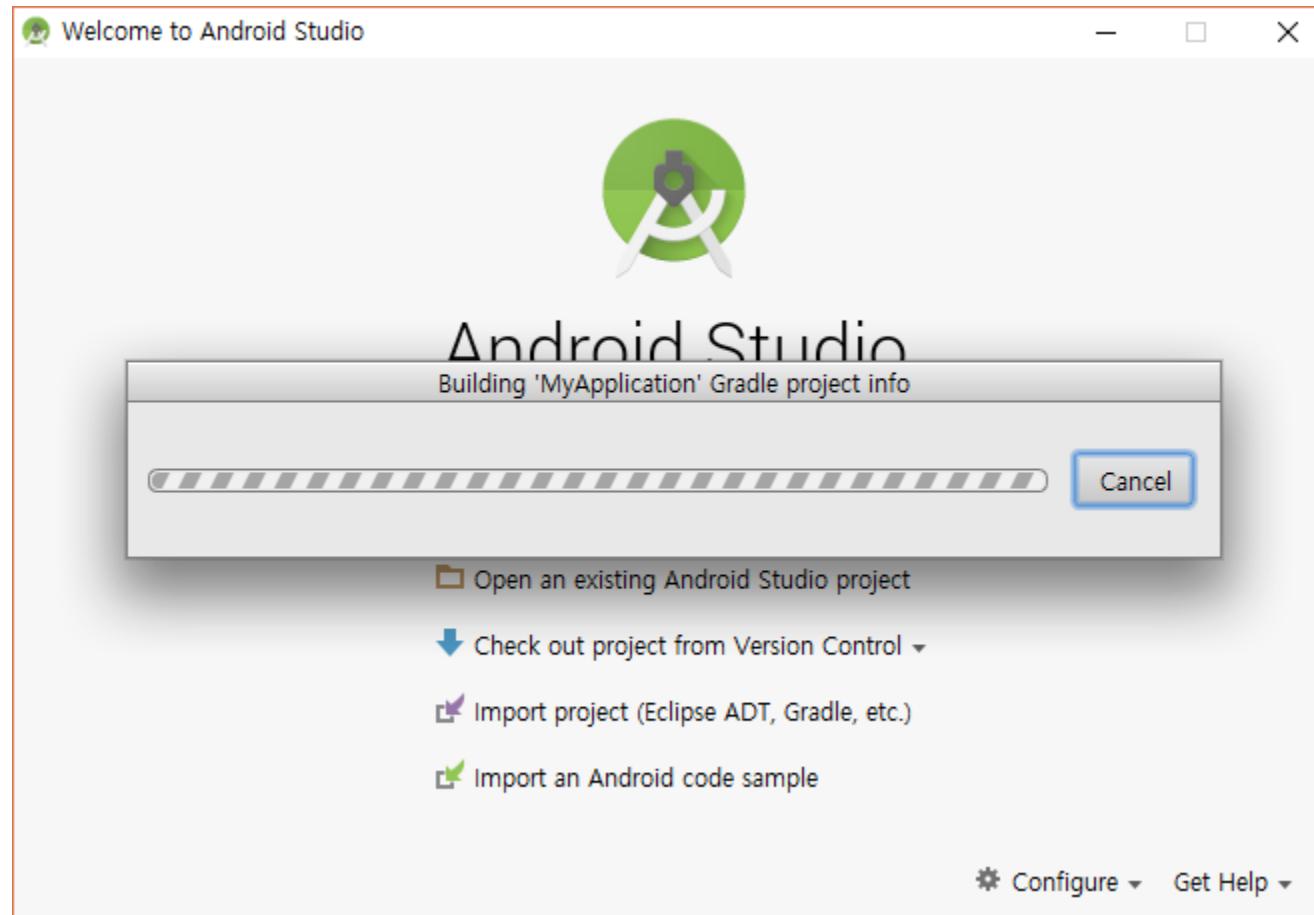


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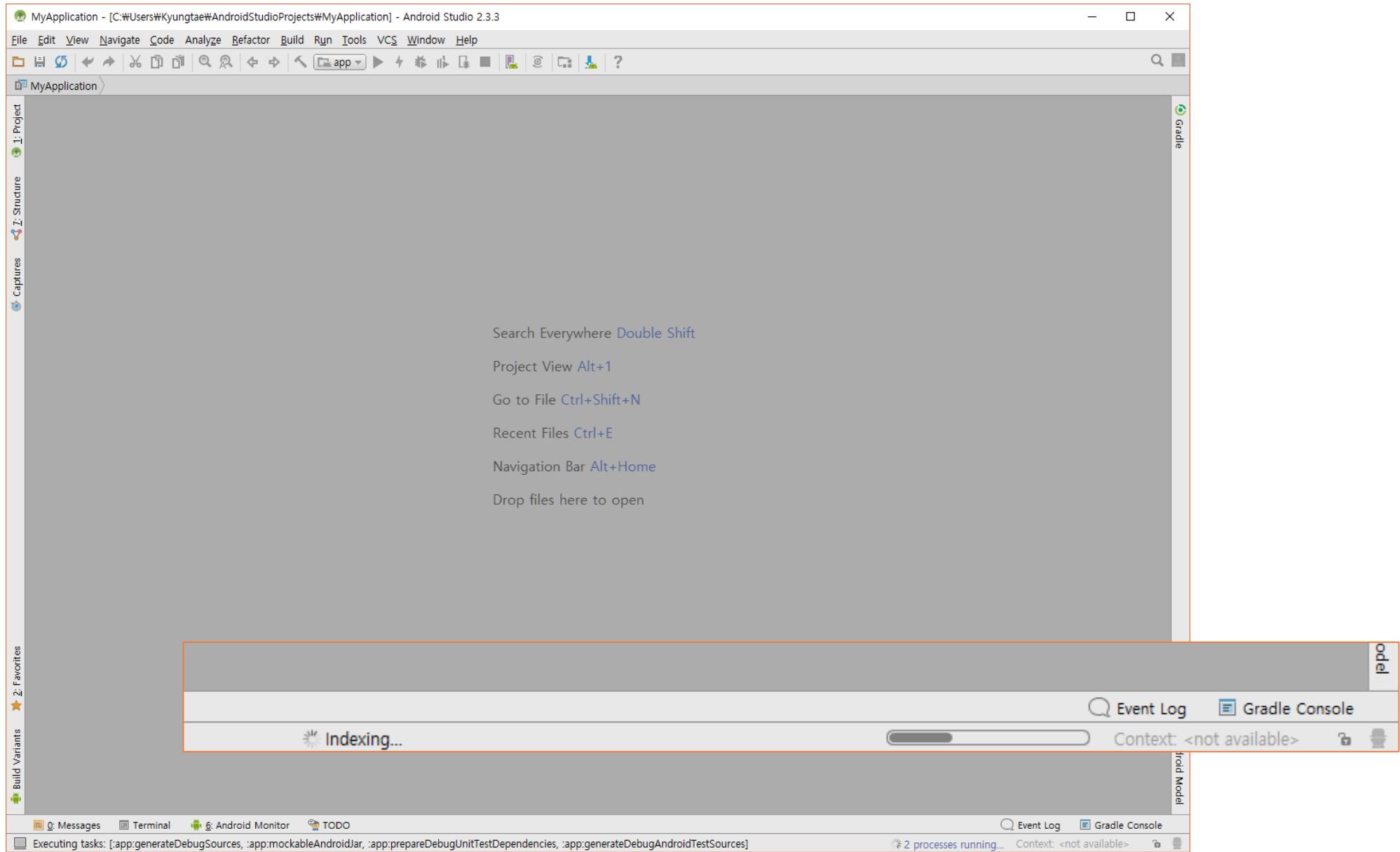
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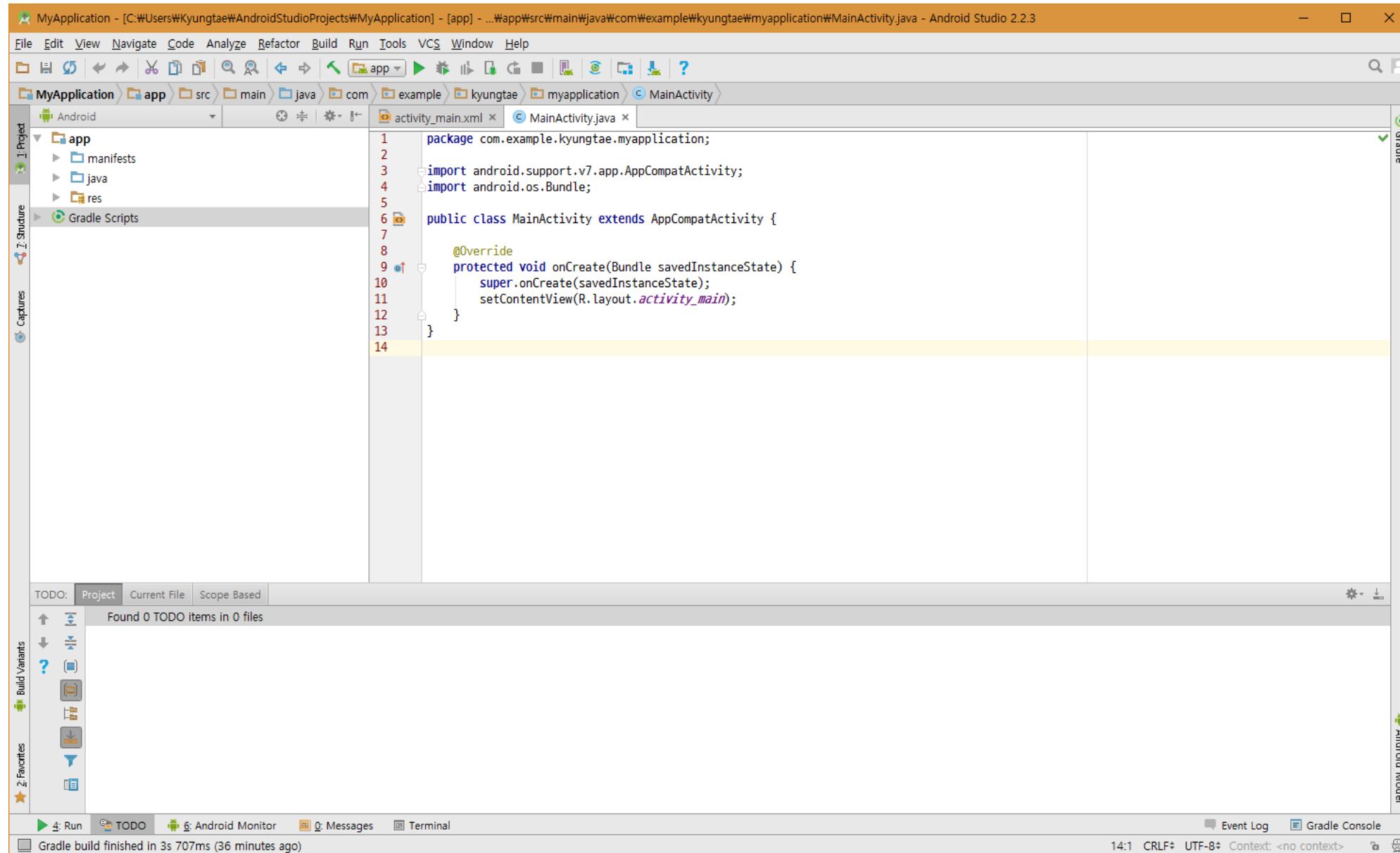


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Completion – Android Studio 개발환경

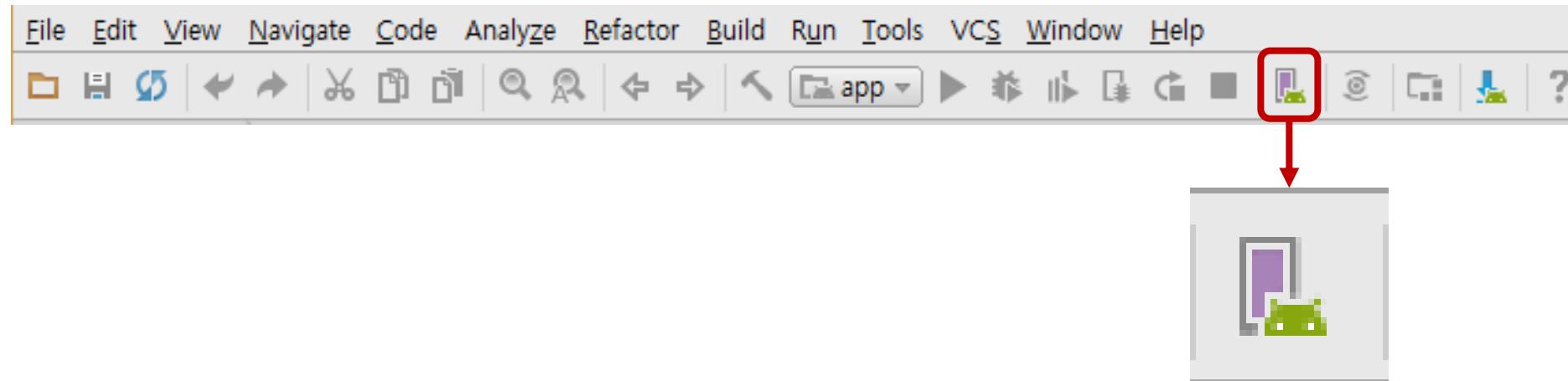
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Continued···AVD

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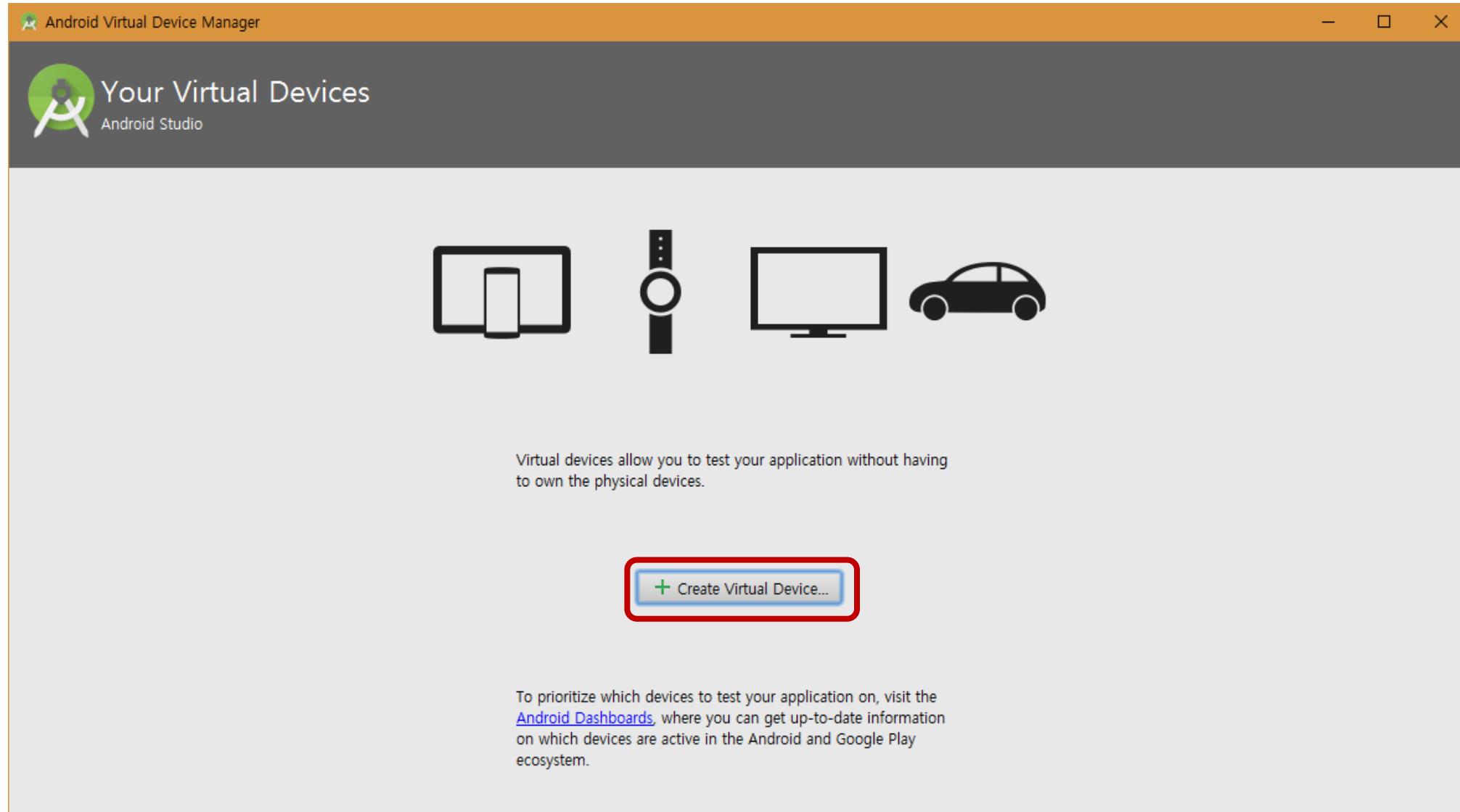
- Android Studio 실행 후 AVD Manager 실행



Continued···AVD

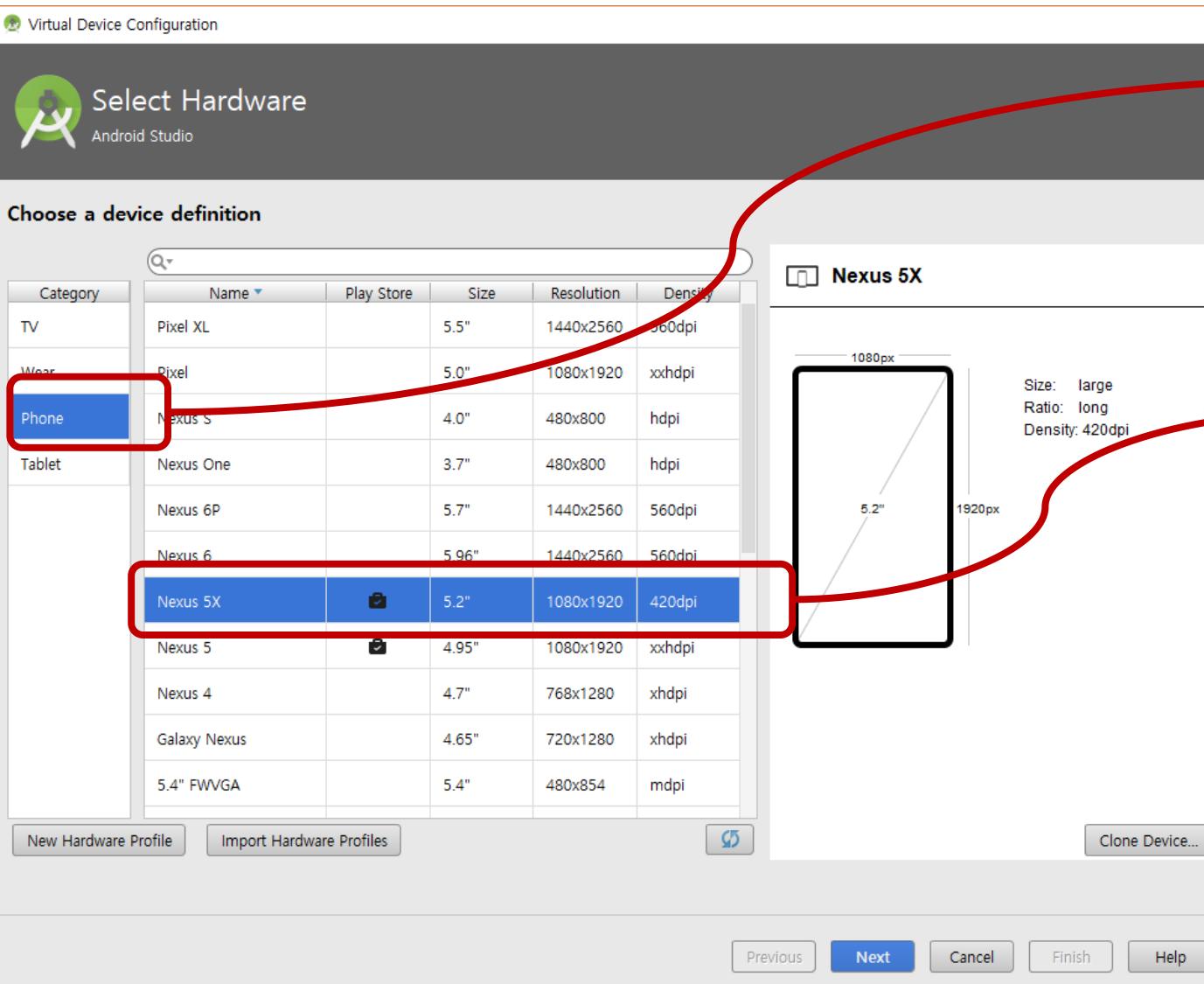
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- AVD 추가하기



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- 장비 추가하기



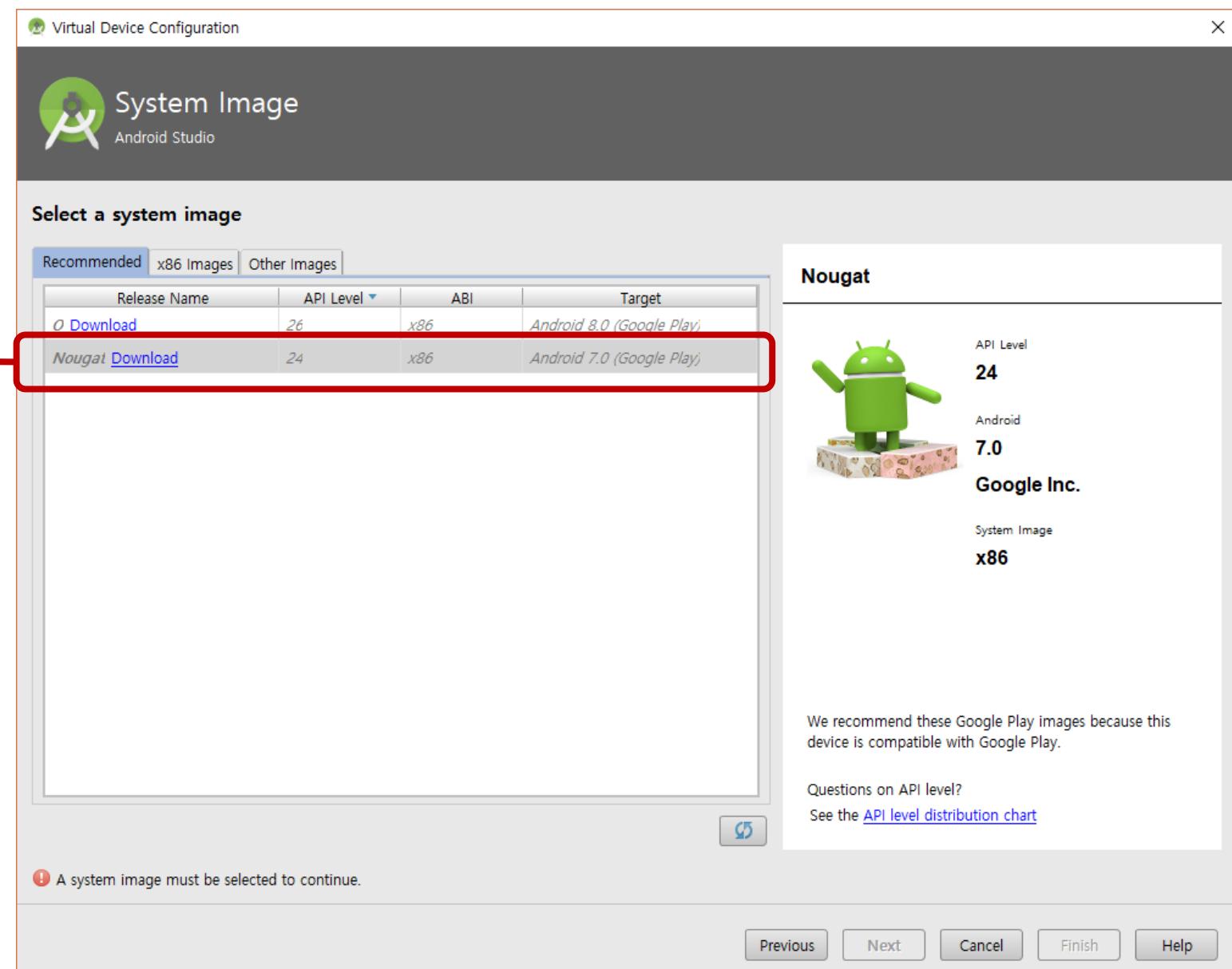
Category – Phone

Device – Nexus 5X

Continued

- System 선택

개발 시스템이 설치가 되어 있지
않다면 '[Download](#)' 눌러 설치



Continued

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The image consists of three vertically stacked screenshots of the Android Studio SDK Component Installer.

Screenshot 1: License Agreement
Shows the "License Agreement" screen with the title "Android Studio". It displays the "Licenses" section, which includes the "android-sdk-license" item under "Licenses". The "Google APIs Intel x86 Atom Sy" item is selected, indicated by a green checkmark icon.

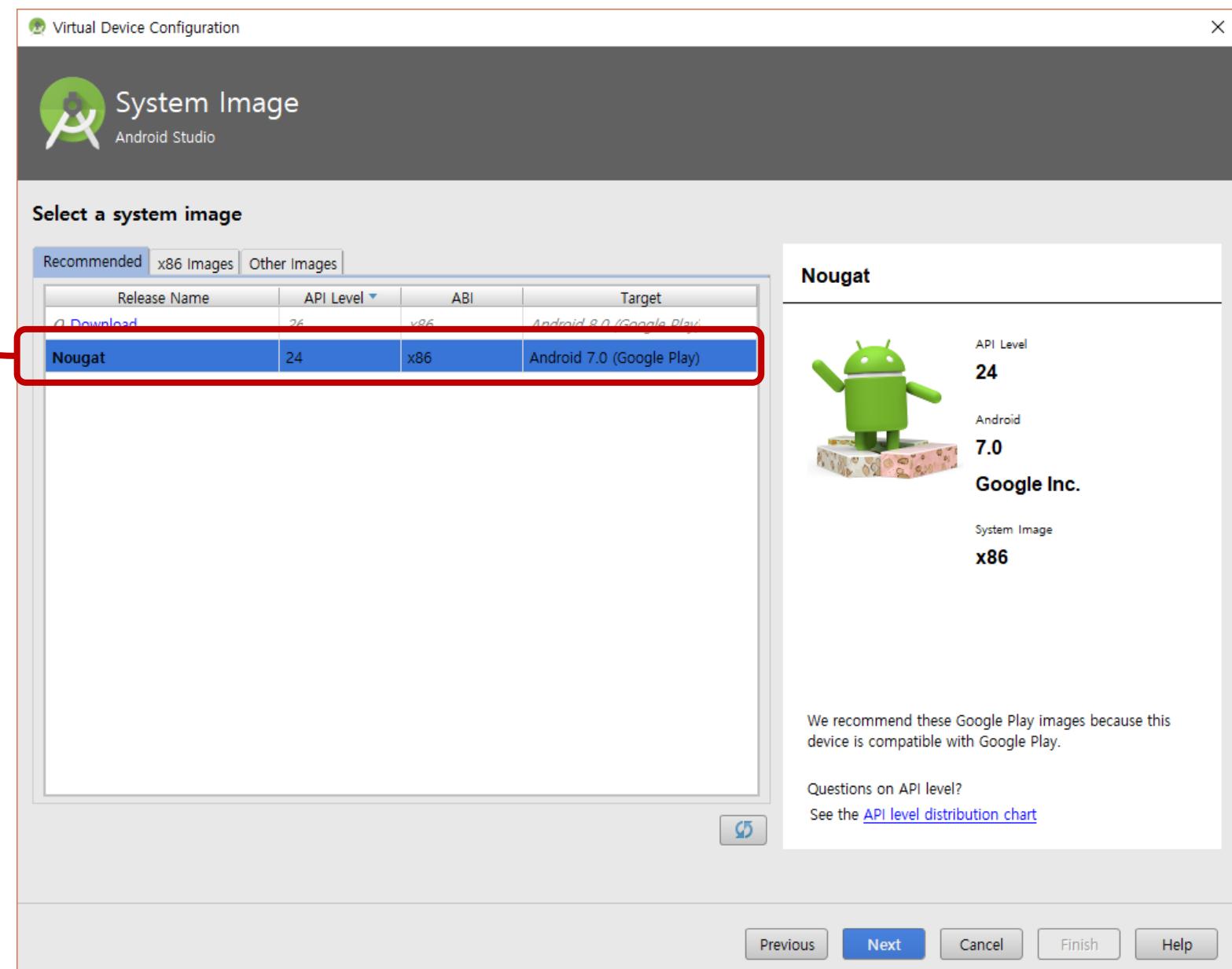
Screenshot 2: Component Selection
Shows the "Component Installer" screen with the title "Android Studio". It displays the "Installing Requested Components" section. The "SDK Path" is listed as "C:\Users\Kyungtae\AppData\Local\Android\Sdk". The "To install:" section lists "Google APIs Intel x86 Atom System Image (system-images;android-23;google_apis;x86)". Below this, a progress bar shows "Downloading..." from the URL "https://dl.google.com/android/repository/sys-img/google_apis/x86-23_r20.zip". A note at the bottom says "Please wait until the installation finishes to continue".

Screenshot 3: Installation Progress
Shows the "Component Installer" screen with the title "Android Studio". It displays the "Installing Requested Components" section. The "SDK Path" is listed as "C:\Users\Kyungtae\AppData\Local\Android\Sdk". The "To install:" section lists "Google APIs Intel x86 Atom System Image (system-images;android-23;google_apis;x86)". The progress bar shows the download is complete. The status message indicates the file is ready, being downloaded, installed, and finished. The path is "C:\Users\Kyungtae\AppData\Local\Android\Sdk\system-images\android-23\google_apis\x86". The message concludes with "Install Google APIs Intel x86 Atom System Image" complete. At the bottom, there are buttons for "Previous", "Next", "Cancel", and "Finish".

Continued

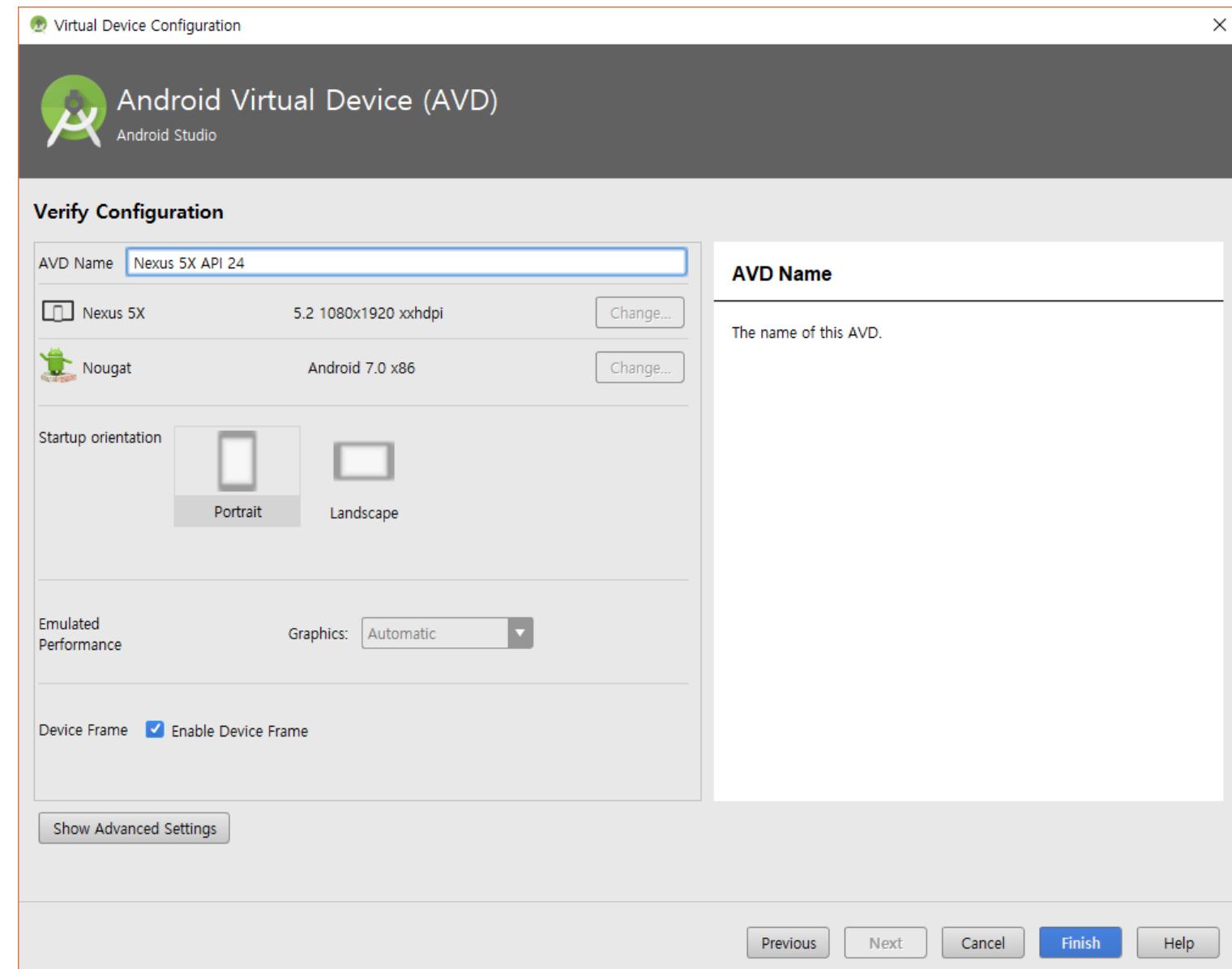
- 시스템 선택

선택



Continued

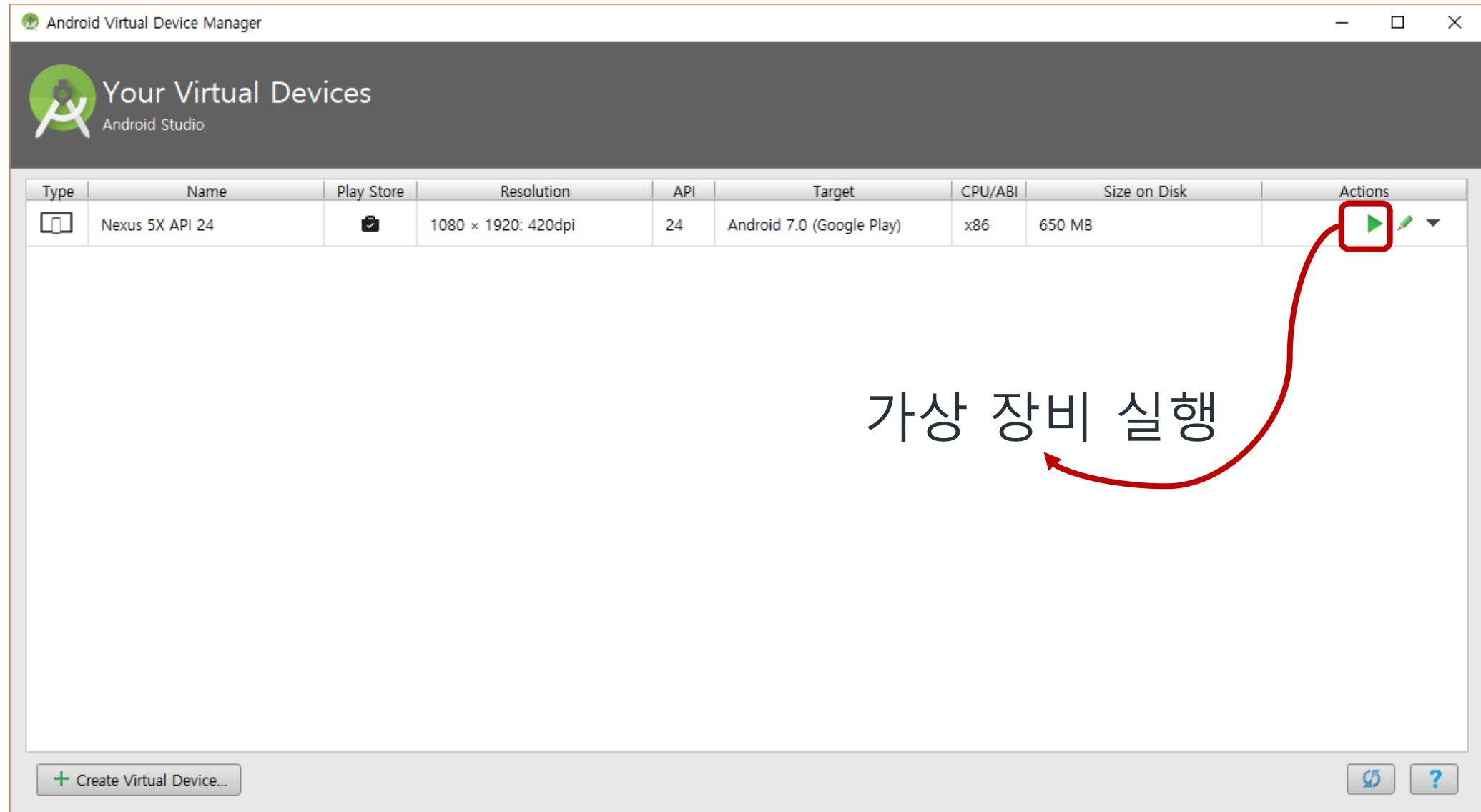
- AVD 검증



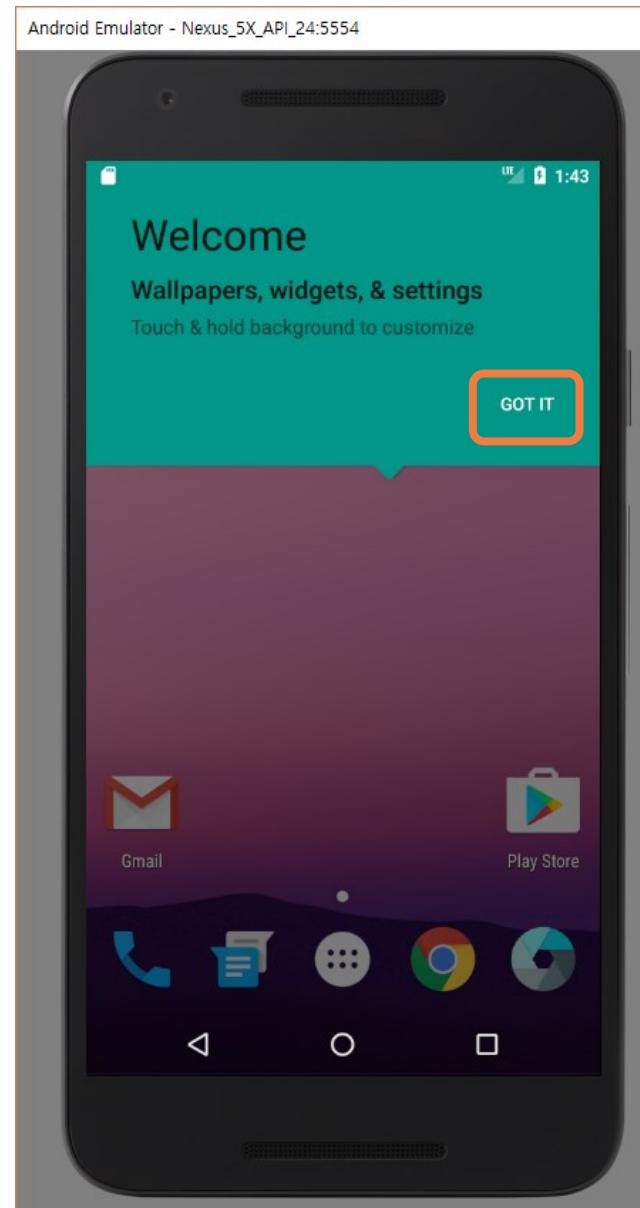
Continued

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- 완료된 가상 장비(에뮬레이터)

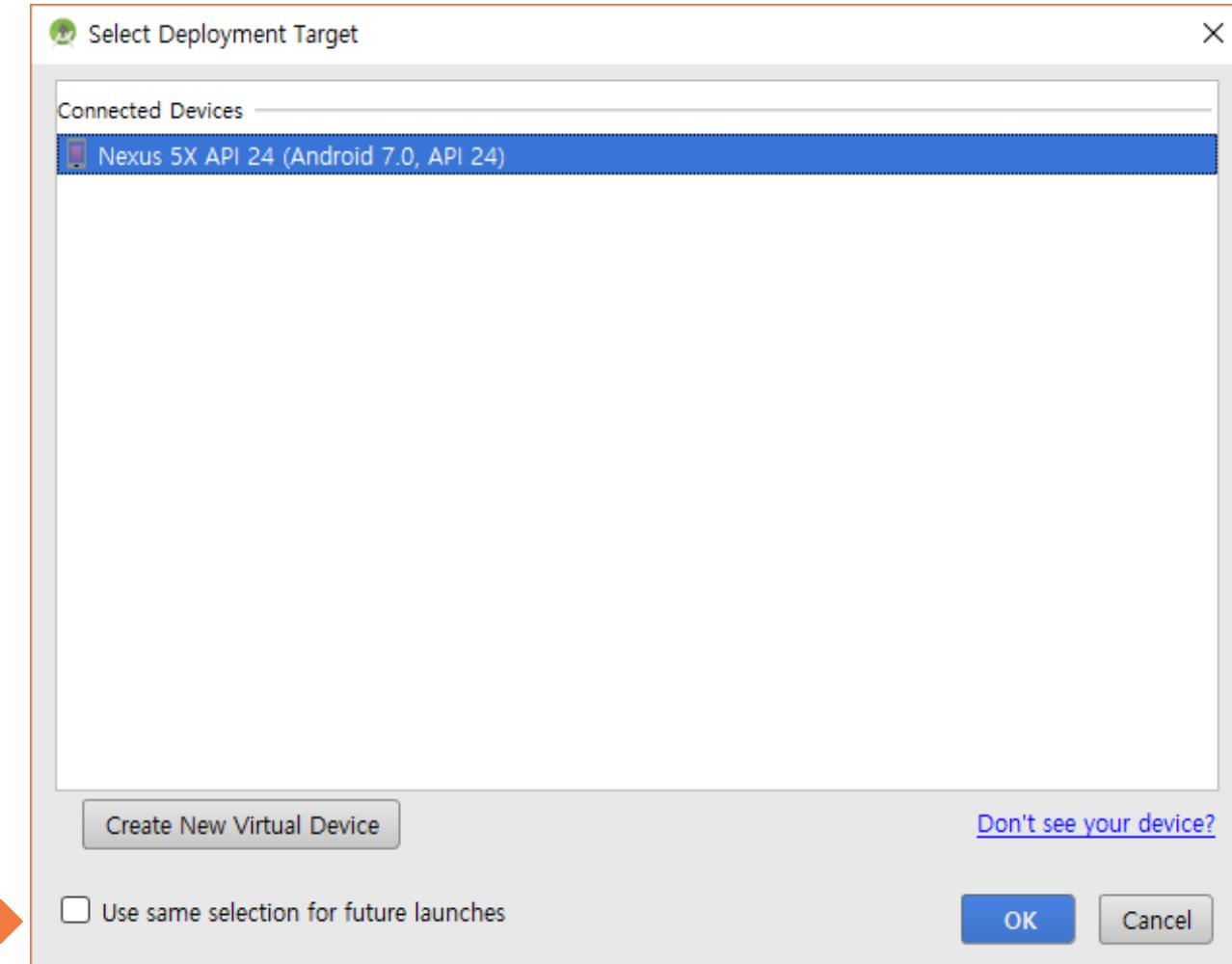
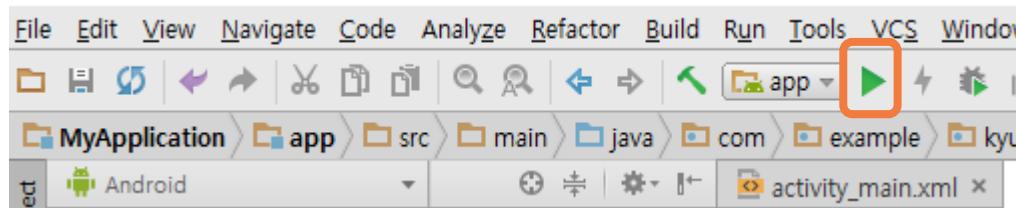


Continued



Continued

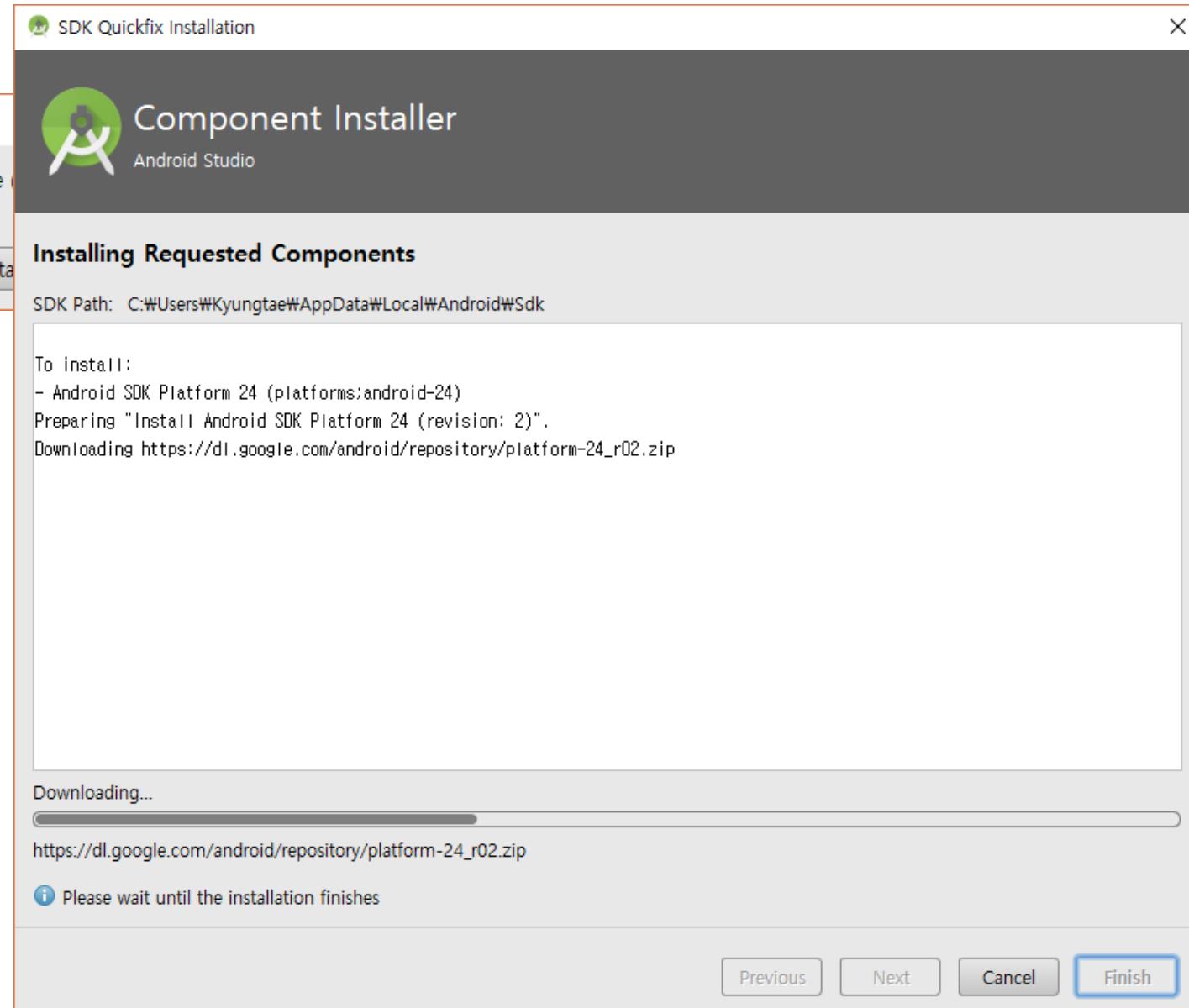
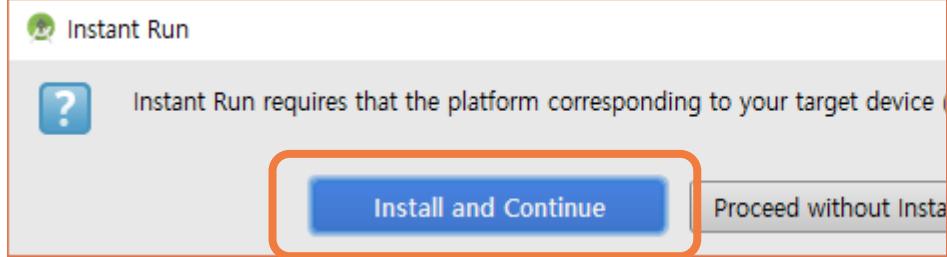
- Nexus 5X의 가상 머신 실행



Target Device 선택 →

Continued

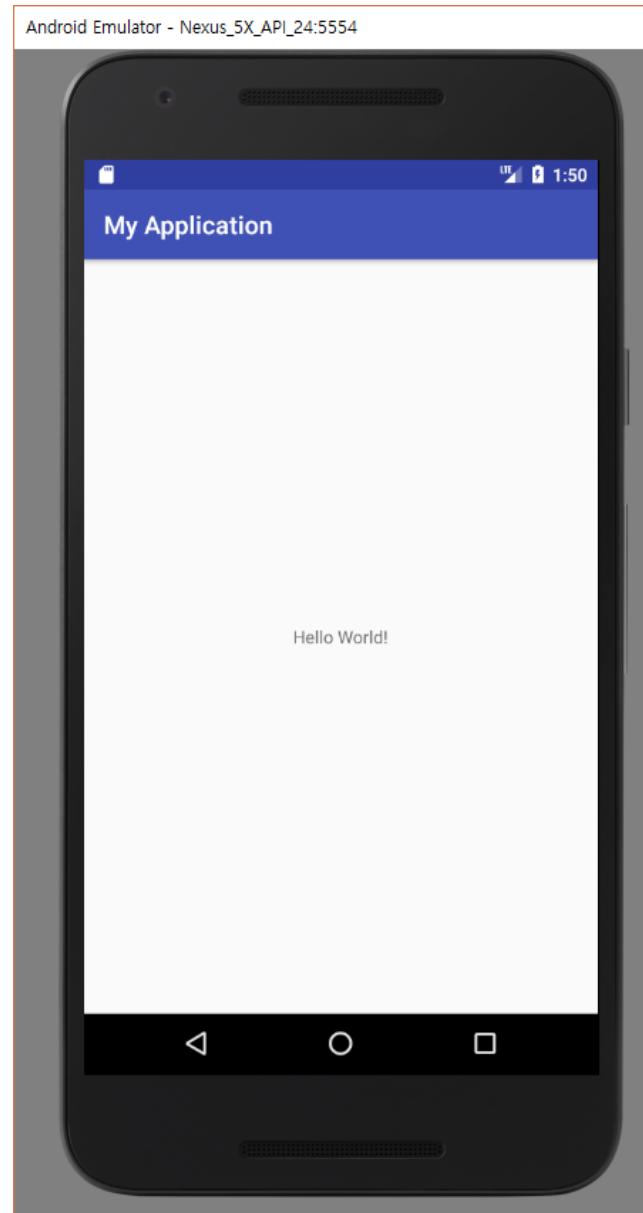
- Instant Run



Target Device 선택 ➔

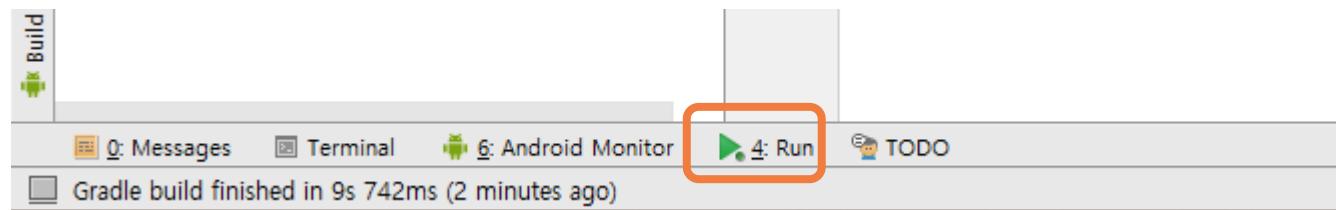
실행 결과

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Continued

- Nexus 5X의 가상 머신의 실행 상태 보기



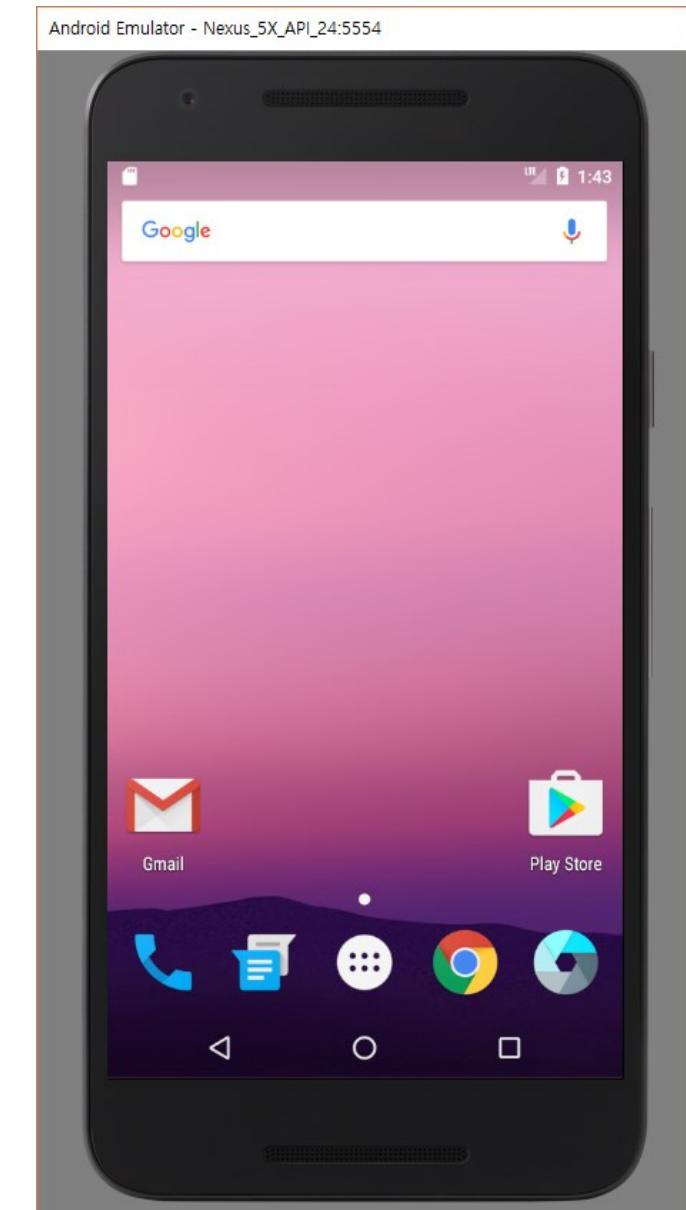
AVD 실행 과정을 log로 부여 준다.

A screenshot of the Android Studio Logcat tab. The log output shows the following:

```
08/30 22:50:31: Launching app
$ adb install-multiple -r C:\Users\Kyungtae\AndroidStudioProjects\MyApplication\app\build\intermediates\split\apks\...
Split APKs installed
$ adb shell am start -n "com.example.kyungtae.myapplication/com.example.kyungtae.myapplication.MainActivity"
Client not ready yet. Waiting for process to come online
Connected to process 4464 on device Nexus_5X_API_24 [emulator-5554]
```

A red box highlights the line 'Connected to process 4464 on device Nexus_5X_API_24 [emulator-5554]'. A red arrow points from this line to the text '현재 실행 중인 AVD를 볼 수 있다.' (You can see the currently running AVD) located below the log.

Gradle build finished in 9s 742ms (3 minutes ago)



Continued

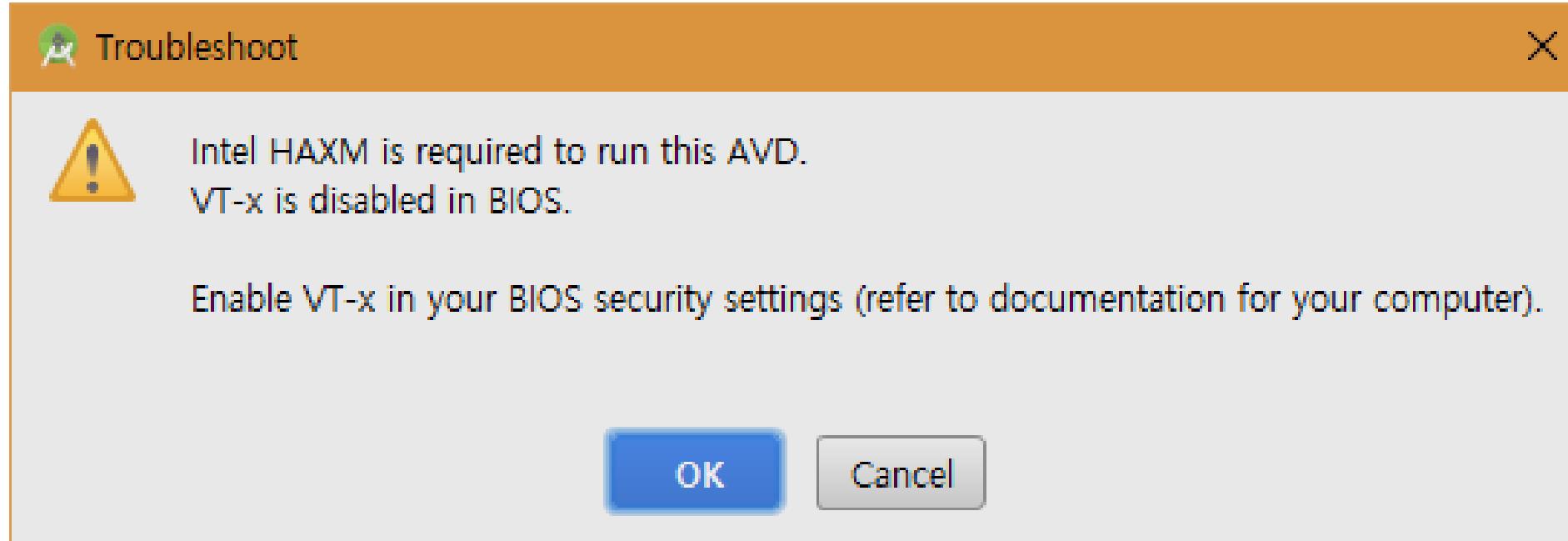
- AVD는 어플리케이션 개발 시에 지정한 **최소 SDK 버전 이상**만 되면 실행 가능하다.



Intel HAXM…AVD를 실행하기 위해 필요

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- BIOS에서 VT-x 옵션 설정 필요



Step 3. 앱 실행 환경 구축

Step 3. 앱 실행 환경 구축

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- 삼성 스마트폰(http://local.sec.samsung.com/comLocal/support/down/kies_main.do?kind=usb)

모바일 TV/AV 가전 IT 스토어



고객지원 비즈니스 ▾ 로그인

Home / 고객지원 / 통합USB

통합 USB 드라이버

통합 USB 드라이버

휴대폰관련 문의

NPS, Kies 설치시 기본적으로 함께 제공되며, 이에 따로 설치하실 필요는 없습니다.
별도 설치가 필요한 경우에만 이용하시기 바랍니다.

통합 USB 드라이버 ▶



통합 USB 드라이버 설치방법

! 자세한 내용은 통합 USB 드라이버 가이드를 클릭하여 확인 하실 수 있습니다.

- 파일을 다운로드 하여 PC의 임의의 폴더에 저장합니다.
- 휴대폰과 USB케이블이 분리된 상태에서 설치를 시작합니다.
- 다운로드 받은 USB 드라이버 설치 프로그램 실행

Continued

- LG 스마트폰 (<http://www.lge.co.kr/lgekor/download-center/downloadCenterList.do>)

○ 소프트웨어 다운로드



LG Bridge (LG 360 캠 포함)
스마트폰, 태블릿과 연동하여 멀티미디어 콘텐츠 및 애플리케이션을 손쉽게 관리해 보세요.

[Windows용 다운로드](#) [Mac용 다운로드](#) [상세보기](#)



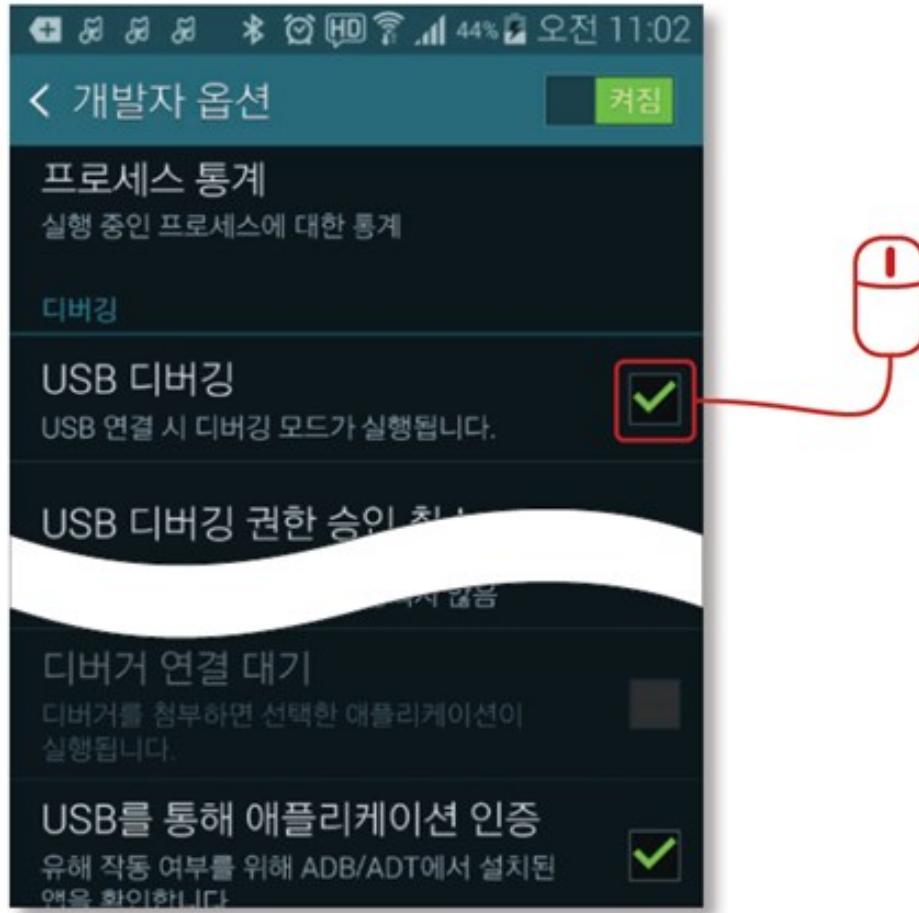
LG United Mobile Driver(LG 360 캠 포함)
LG United Mobile Driver는 사용자의 안드로이드 휴대폰을 최신 버전의 휴대폰 소프트웨어로 업그레이드 할 때 필요한 프로그램입니다.

[다운로드](#) [상세보기](#)

Continued…스마트폰의 환경 설정

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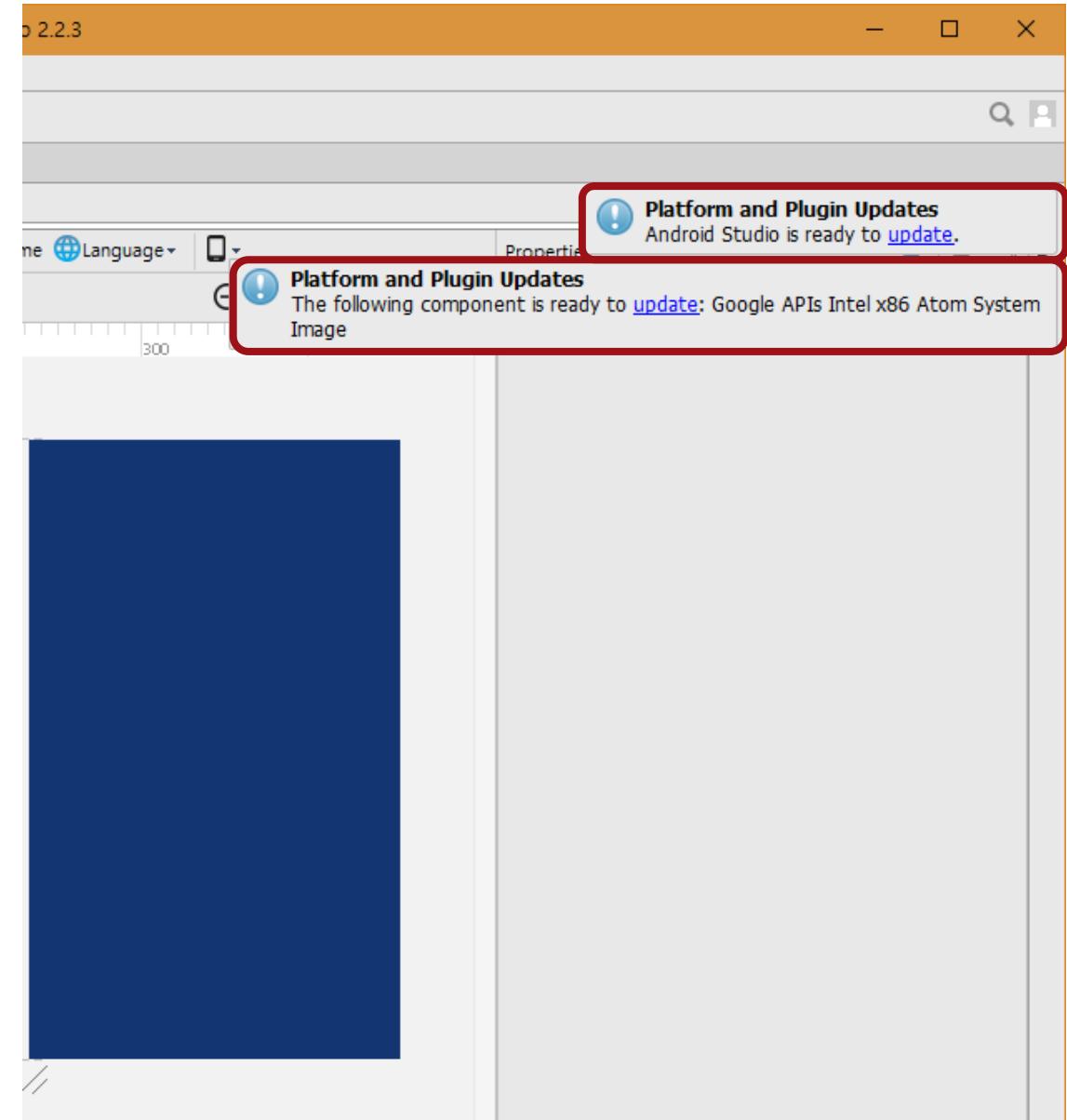
- 설정 > 개발자 옵션에서 ‘USB 디버깅’을 실행 가능하도록 체크



기타...

Android Studio updates...

- Update 수행하지 말 것
(무시하세요)



Android Developers Homepage

- <https://developer.android.com/>

