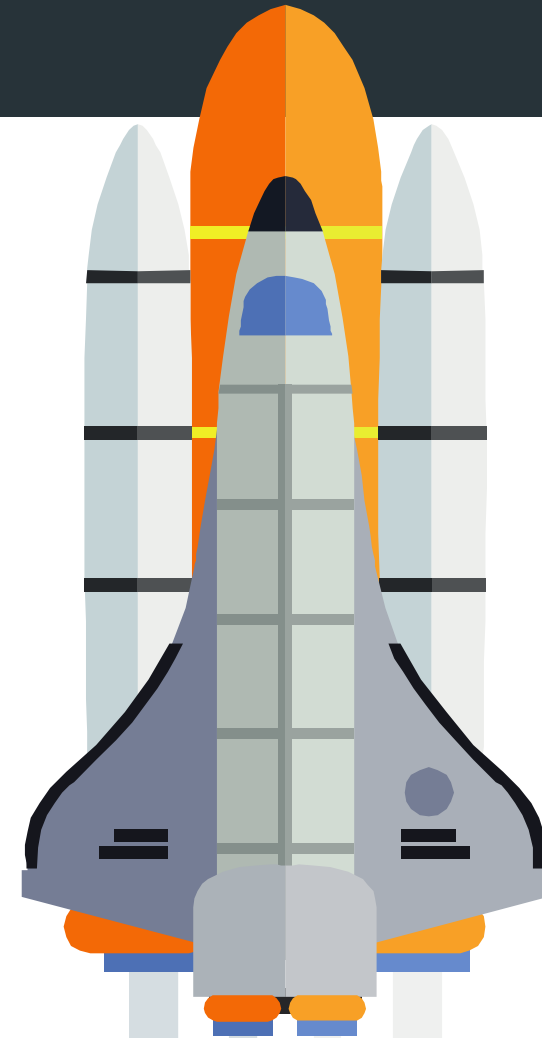


개발환경 구축과
맛보기 프로젝트

개발환경 구축 절차

주 차	수 업 내 용
1	수업 소개
2	개발 환경 구축과 맛보기 프로젝트
3	텍스트 출력과 레이아웃
4	이미지 출력
5	이벤트 처리와 액티비티 간 이동
6	오디오 재생
7	비디오 재생
8	중간고사
9	애니메이션
10	사물인터넷과 센서 - 터치 센서, 모션 센서
11	사물인터넷과 센서 - 위치 센서, 환경 센서
12	하이브리드 앱
13	구글 맵 사용하기
14	공공 DB 오픈 API 활용
15	기말 고사



강의자료 – <https://github.com/hopypark>

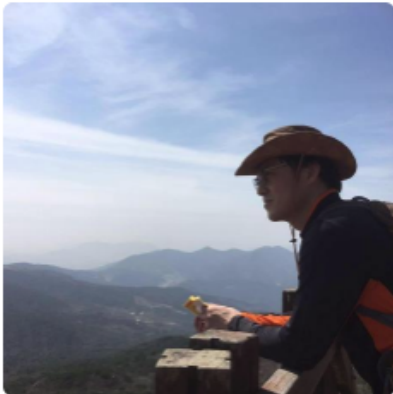
3

Handson-ML/ x 인제대학교 x 새 탭 x hopypark x

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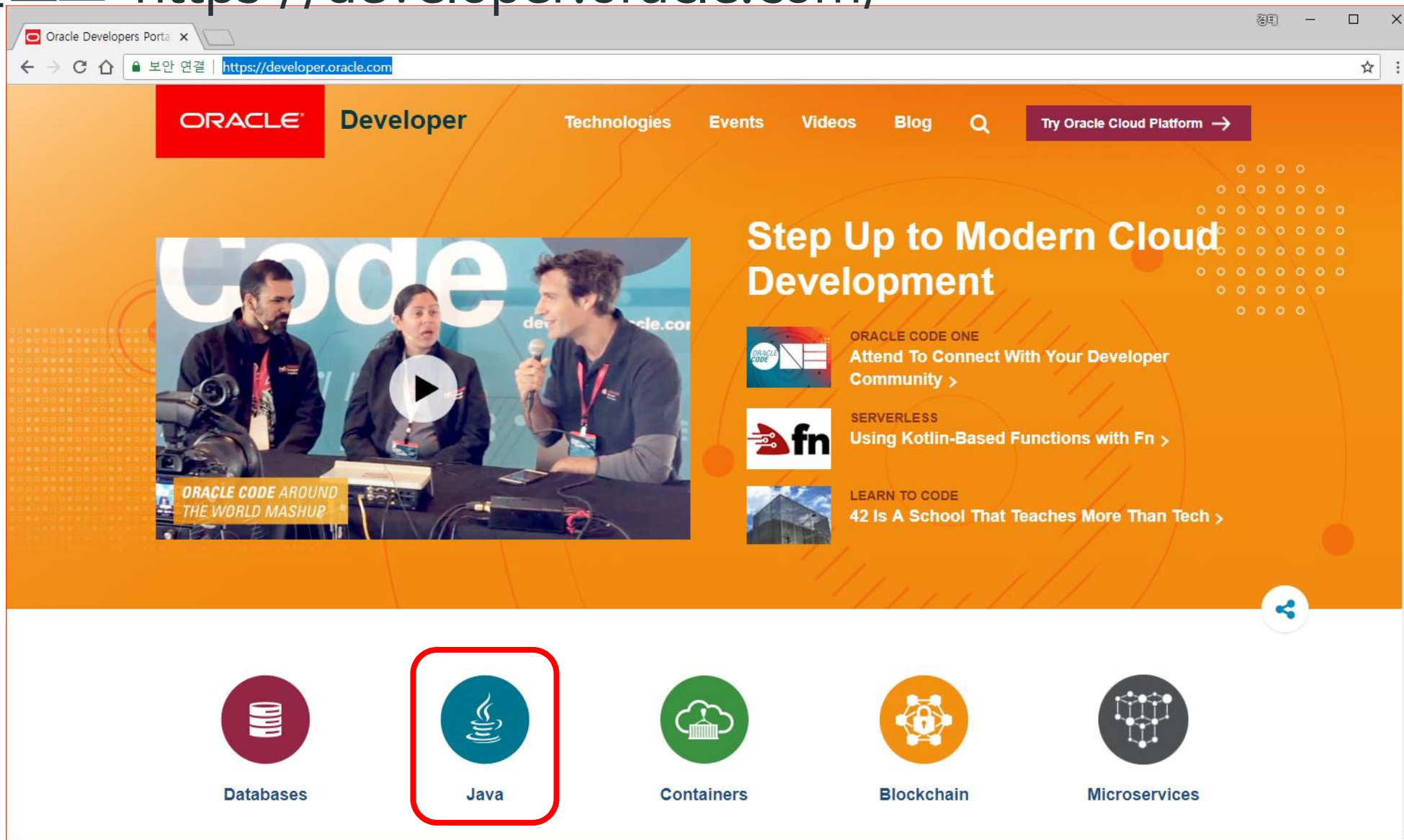
- 
- JDK 설치
 - Android Studio 설치
 - 앱 실행 환경 구축

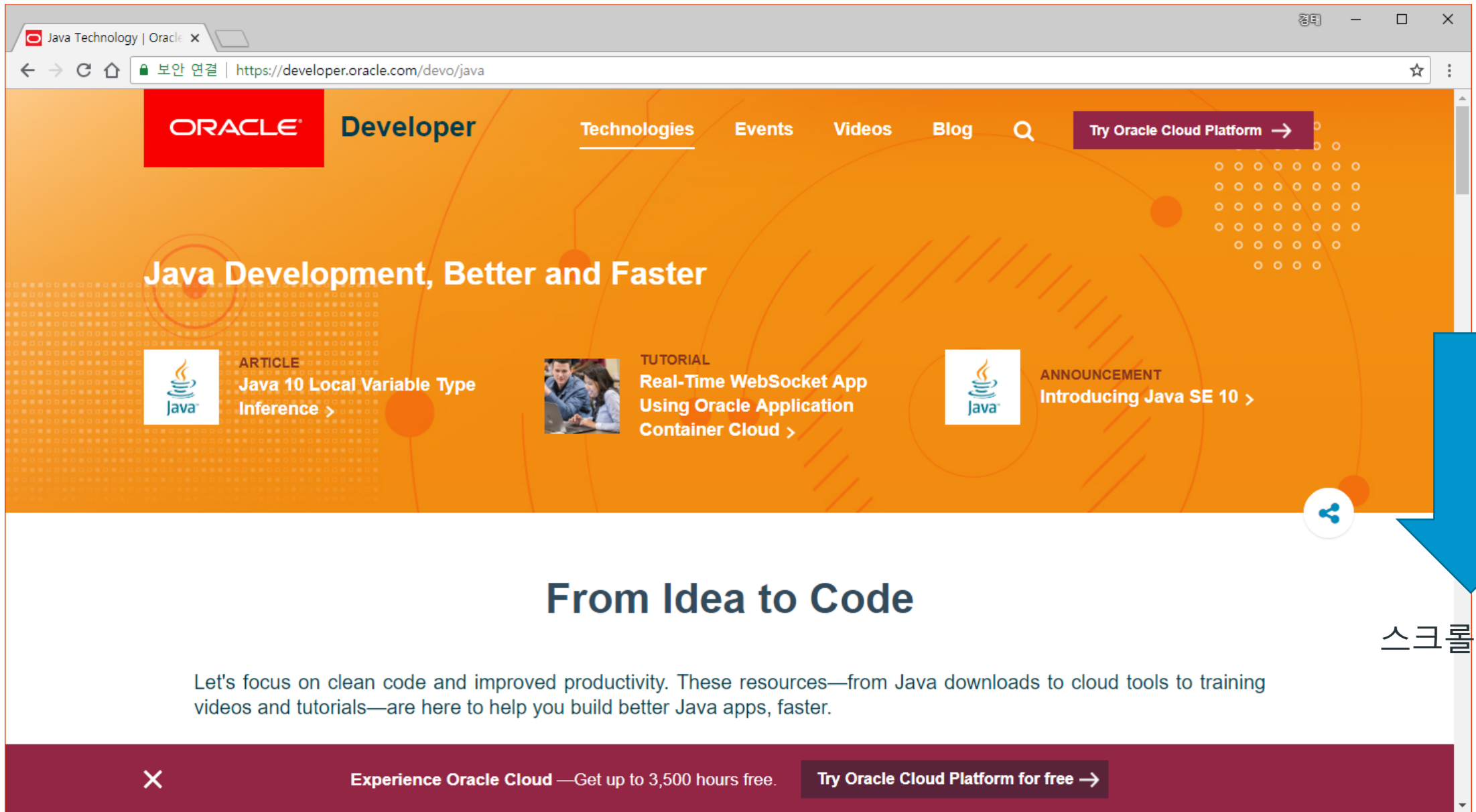
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Step 1. JDK 설치

6

- 다운로드: <https://developer.oracle.com/>






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JDK 10.0.2 checksum

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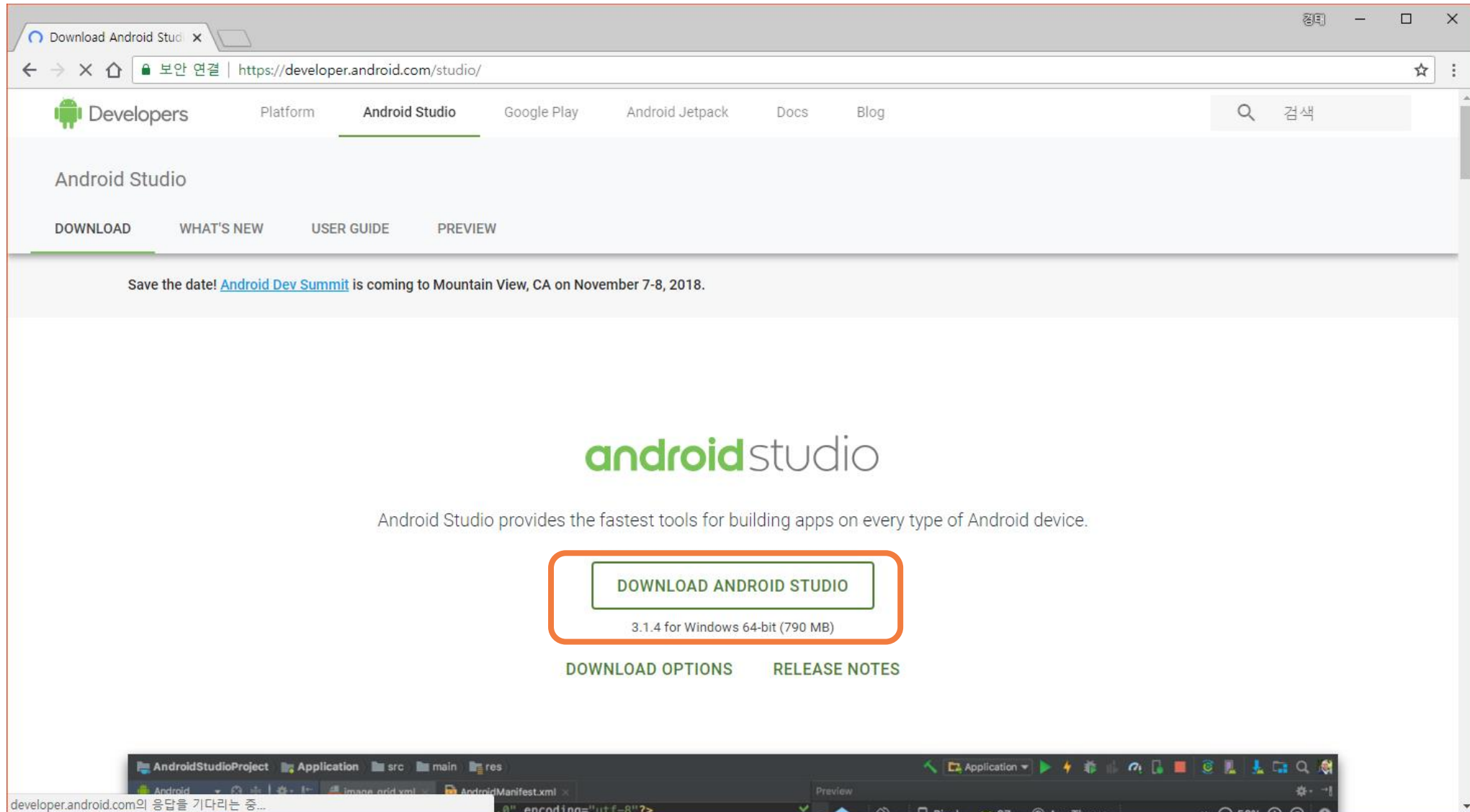
A background image showing the Earth's horizon from space, with a dark blue sky and a thin layer of clouds. Below the horizon is a horizontal bar composed of four colored segments: blue, grey, orange, and green.

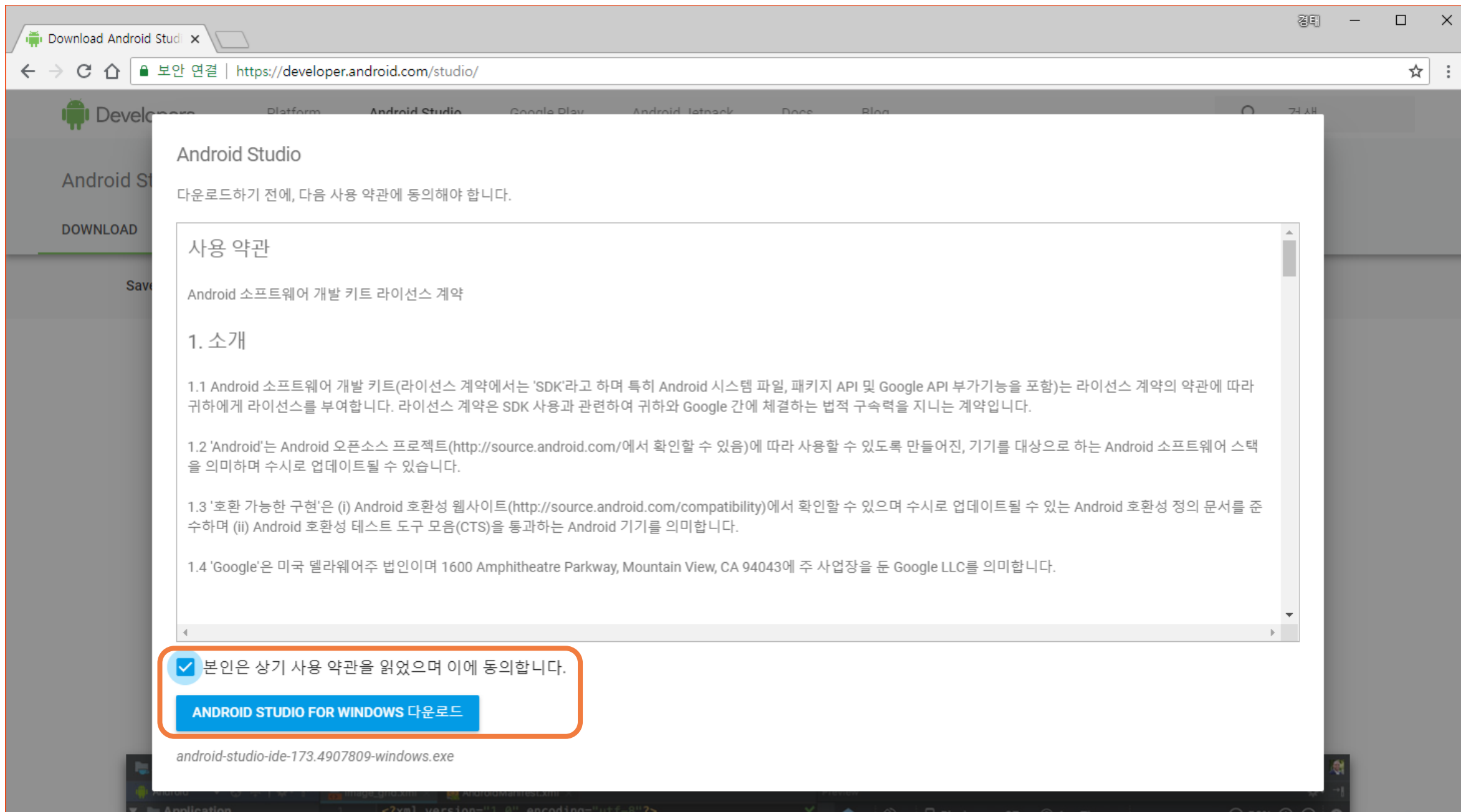
Step 2. Android Studio 설치

Download Android Studio

12

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





Android Studio

다운로드하기 전에, 다음 사용 약관에 동의해야 합니다.

사용 약관

Android 소프트웨어 개발 키트 라이선스 계약

1. 소개

1.1 Android 소프트웨어 개발 키트(라이선스 계약에서는 'SDK'라고 하며 특히 Android 시스템 파일, 패키지 API 및 Google API 부가기능을 포함)는 라이선스 계약의 약관에 따라 귀하에게 라이선스를 부여합니다. 라이선스 계약은 SDK 사용과 관련하여 귀하와 Google 간에 체결하는 법적 구속력을 지니는 계약입니다.

1.2 'Android'는 Android 오픈소스 프로젝트(<http://source.android.com/>에서 확인할 수 있음)에 따라 사용할 수 있도록 만들어진, 기기를 대상으로 하는 Android 소프트웨어 스택을 의미하며 수시로 업데이트될 수 있습니다.

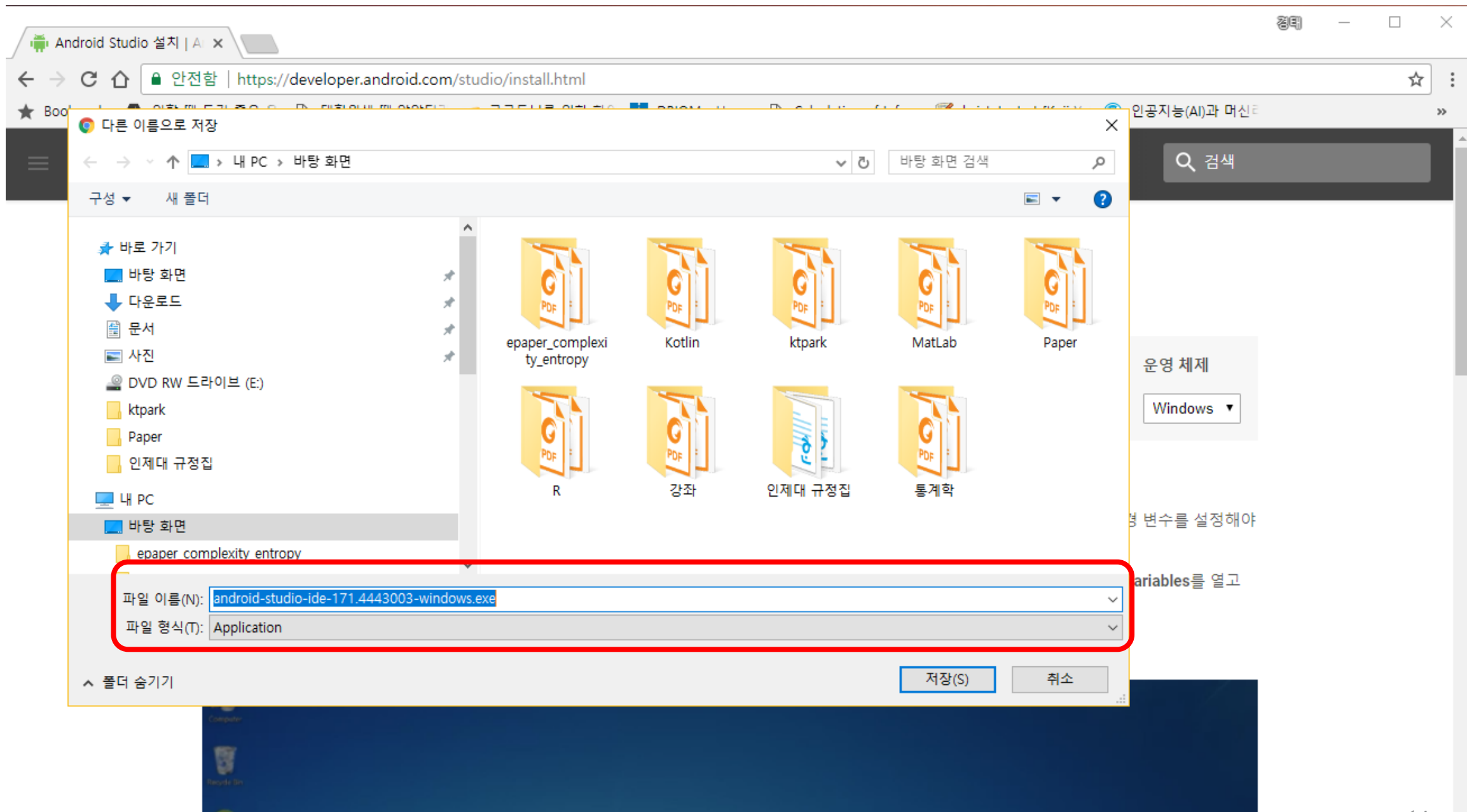
1.3 '호환 가능한 구현'은 (i) Android 호환성 웹사이트(<http://source.android.com/compatibility>)에서 확인할 수 있으며 수시로 업데이트될 수 있는 Android 호환성 정의 문서를 준수하며 (ii) Android 호환성 테스트 도구 모음(CTS)을 통과하는 Android 기기를 의미합니다.

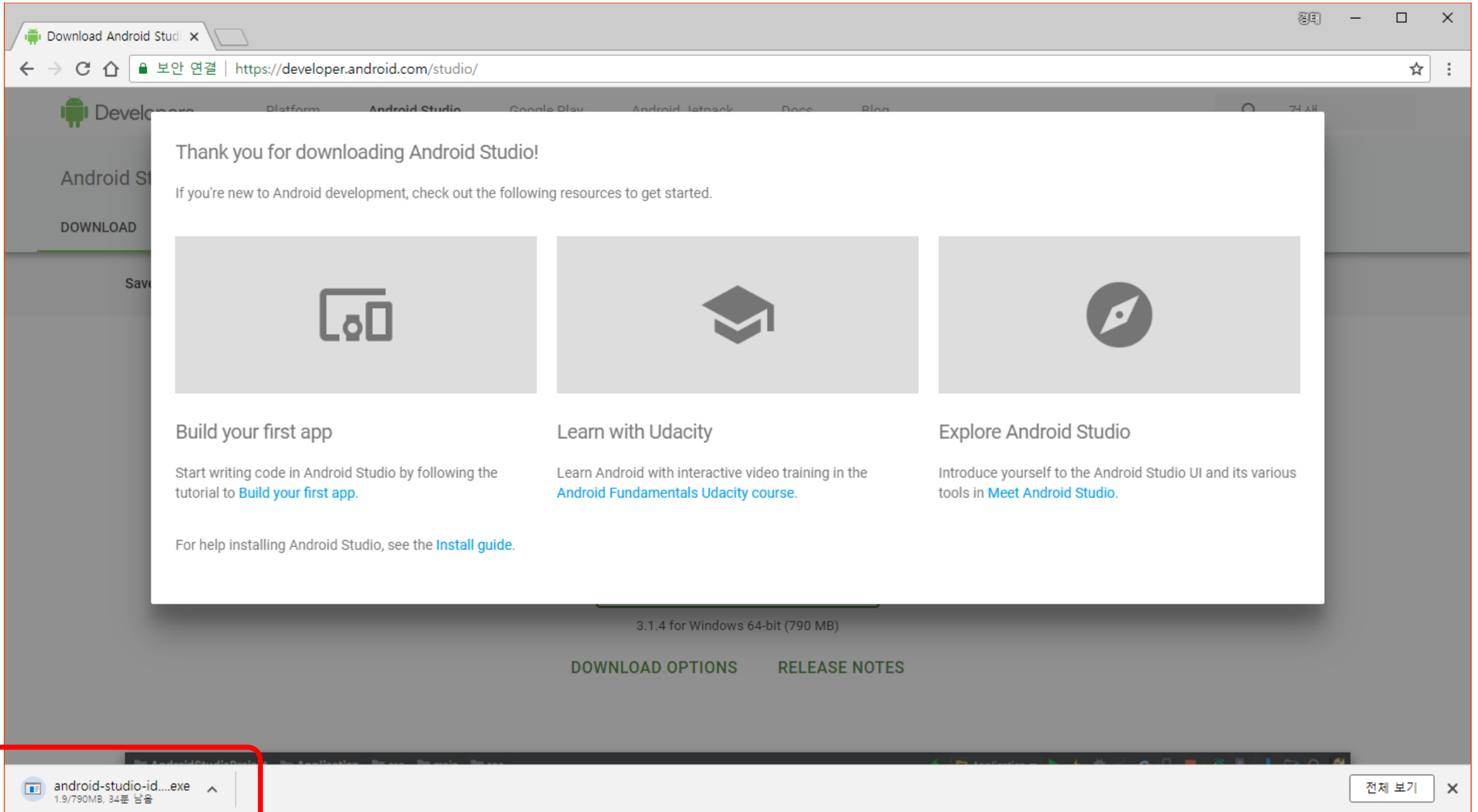
1.4 'Google'은 미국 델라웨어주 법인이며 1600 Amphitheatre Parkway, Mountain View, CA 94043에 주 사업장을 둔 Google LLC를 의미합니다.

☒ 본인은 상기 사용 약관을 읽었으며 이에 동의합니다.

ANDROID STUDIO FOR WINDOWS 다운로드

android-studio-ide-173.4907809-windows.exe

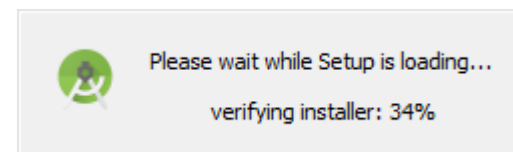
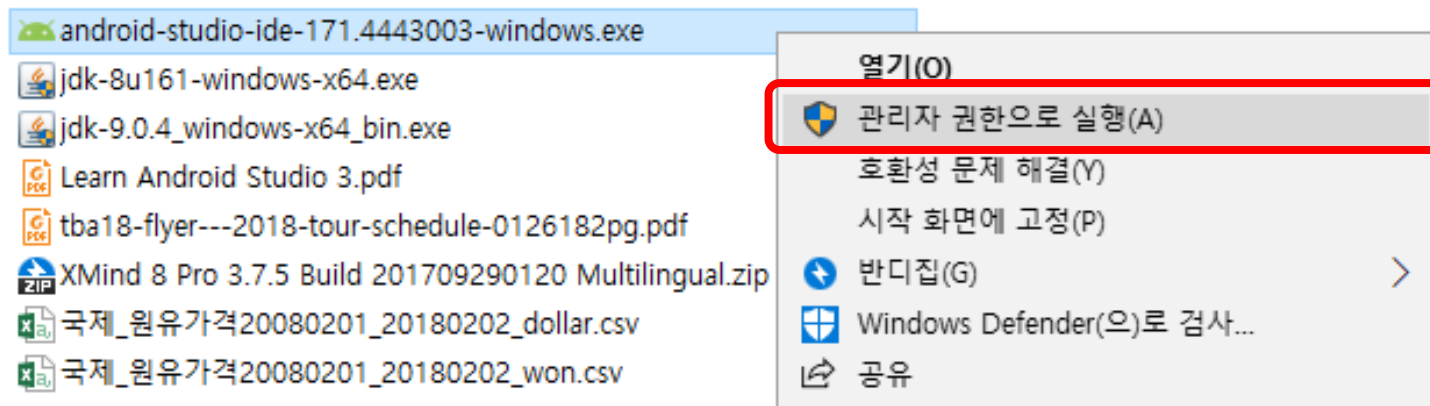


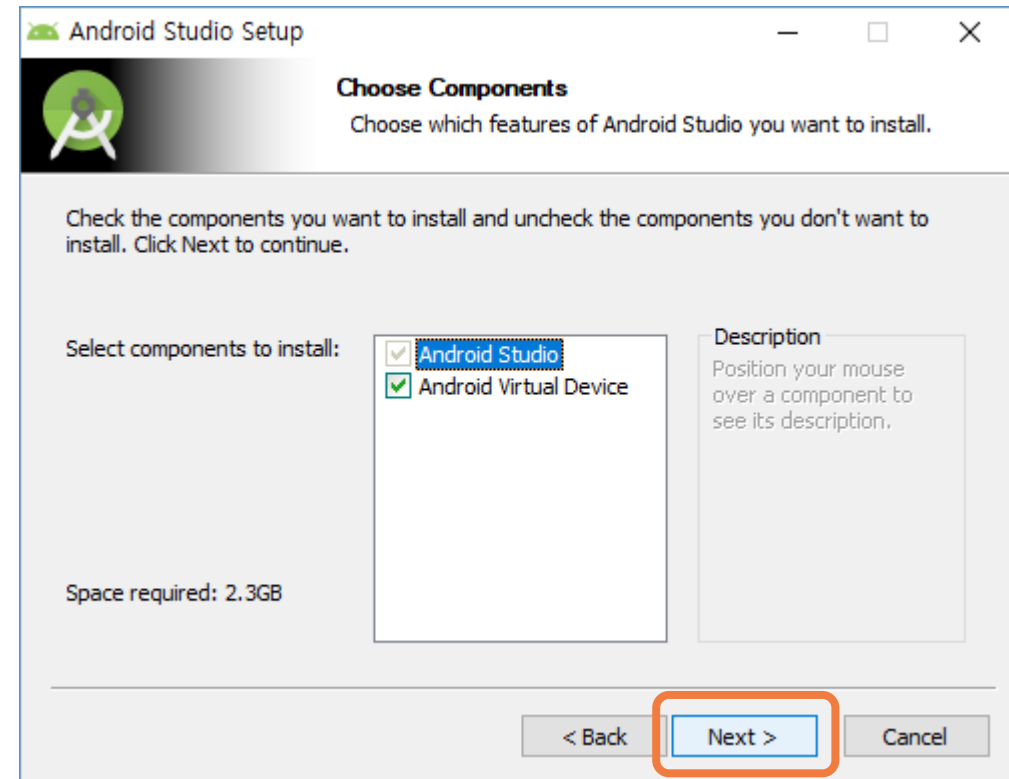
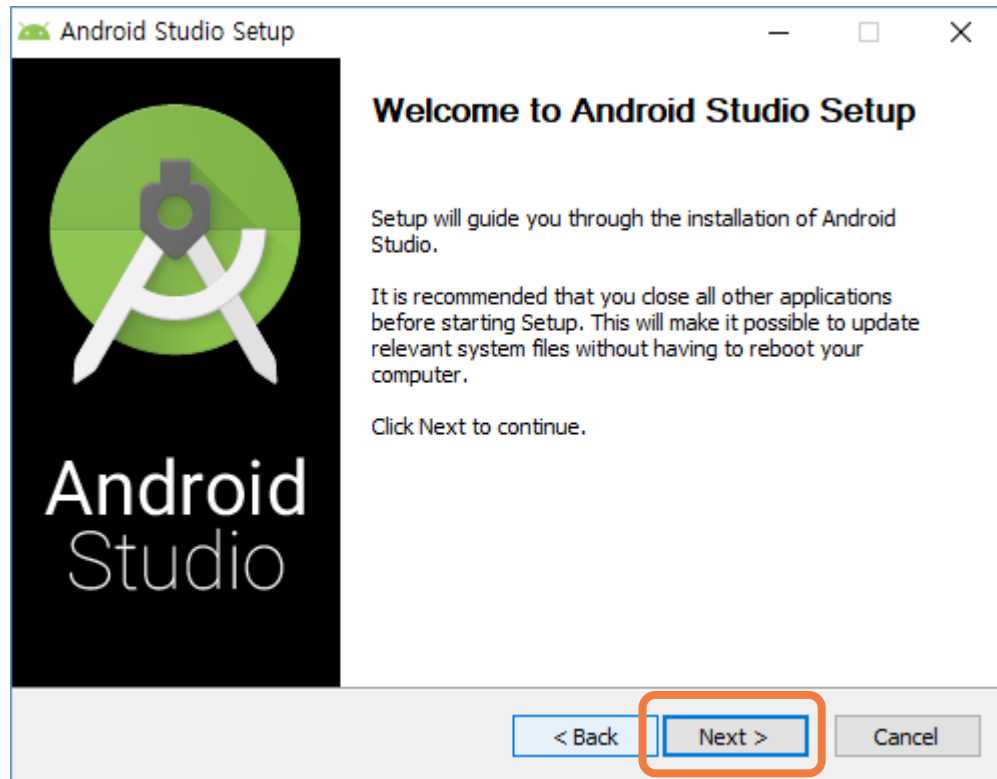


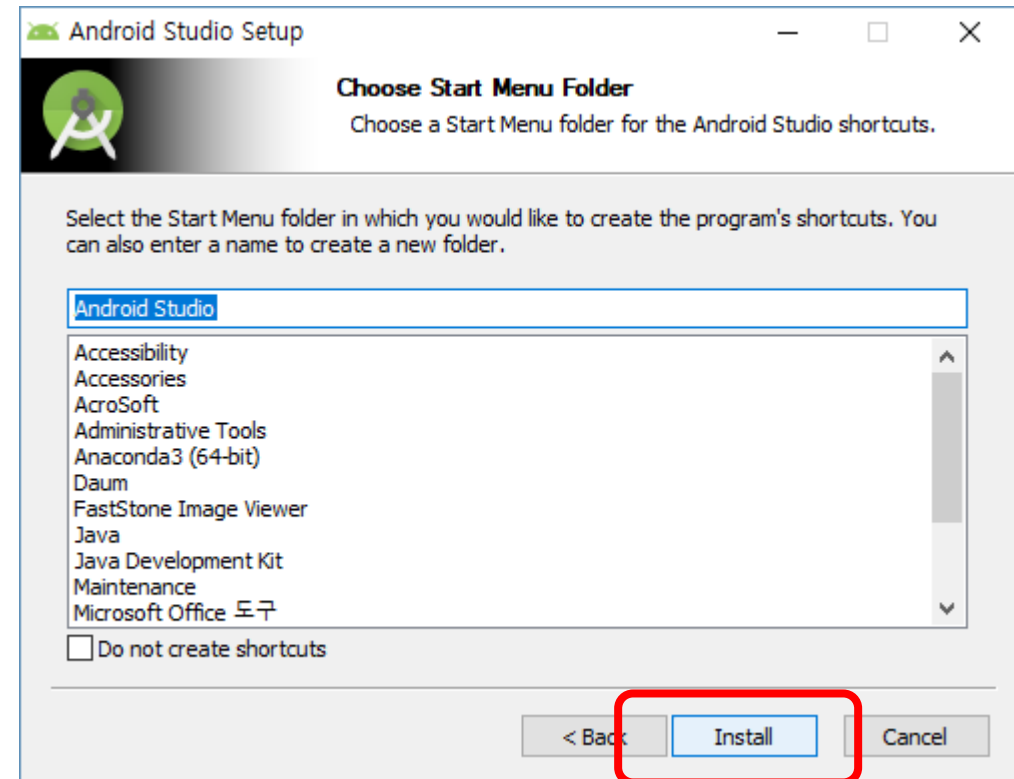
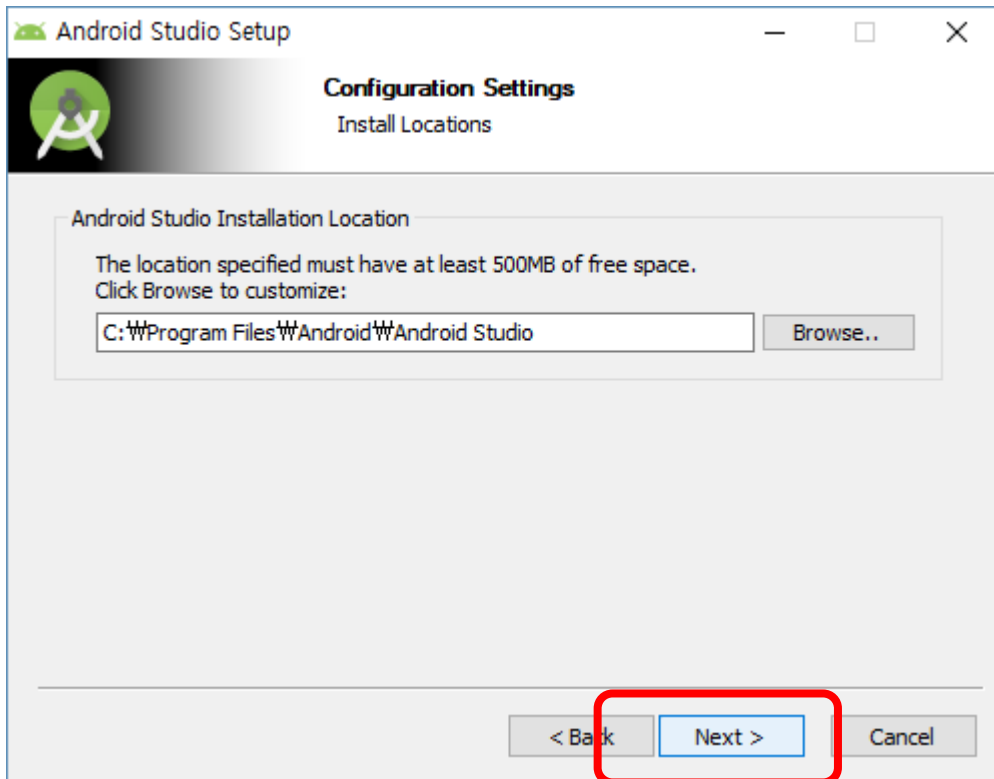
Install Android Studio on windows

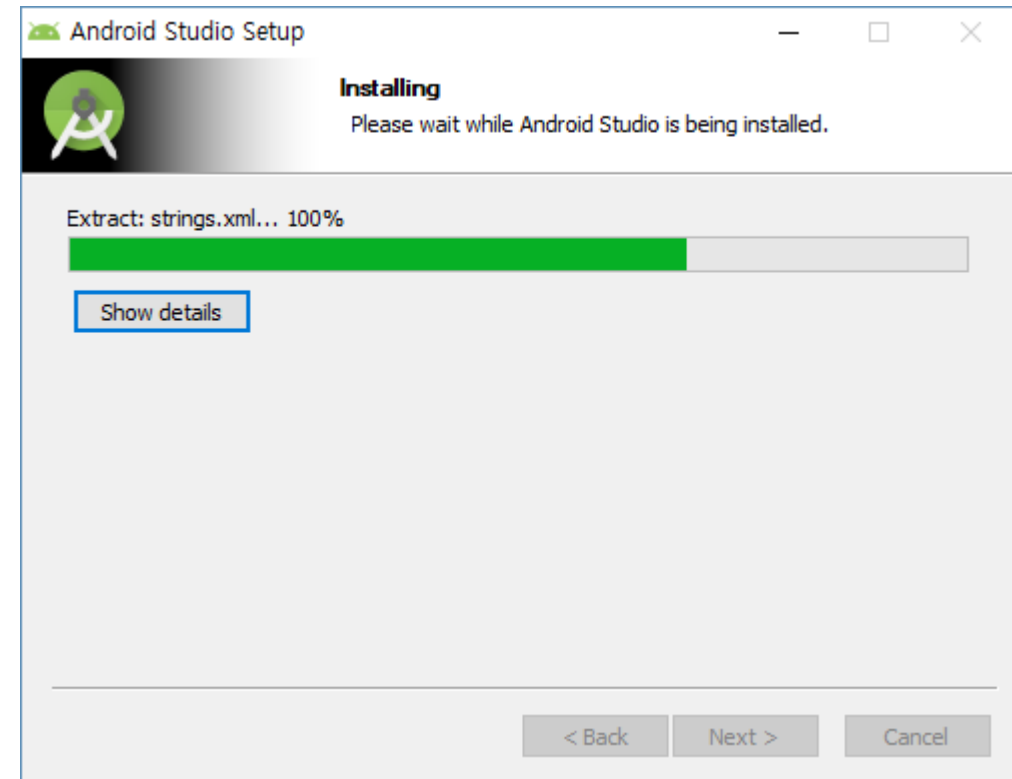
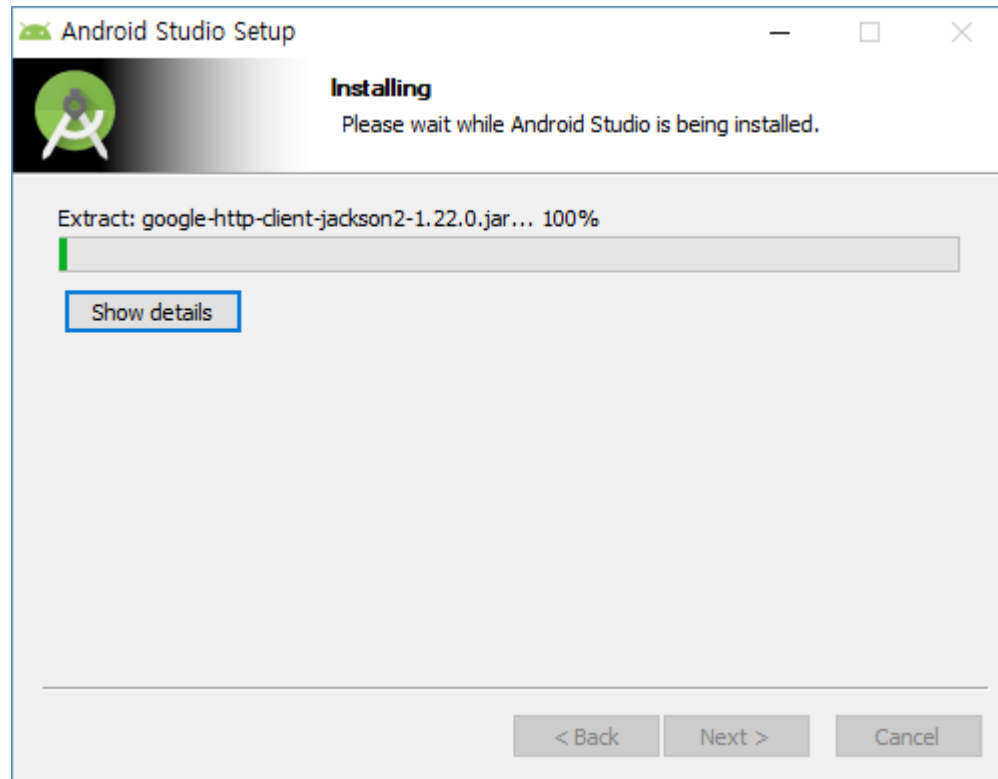
17

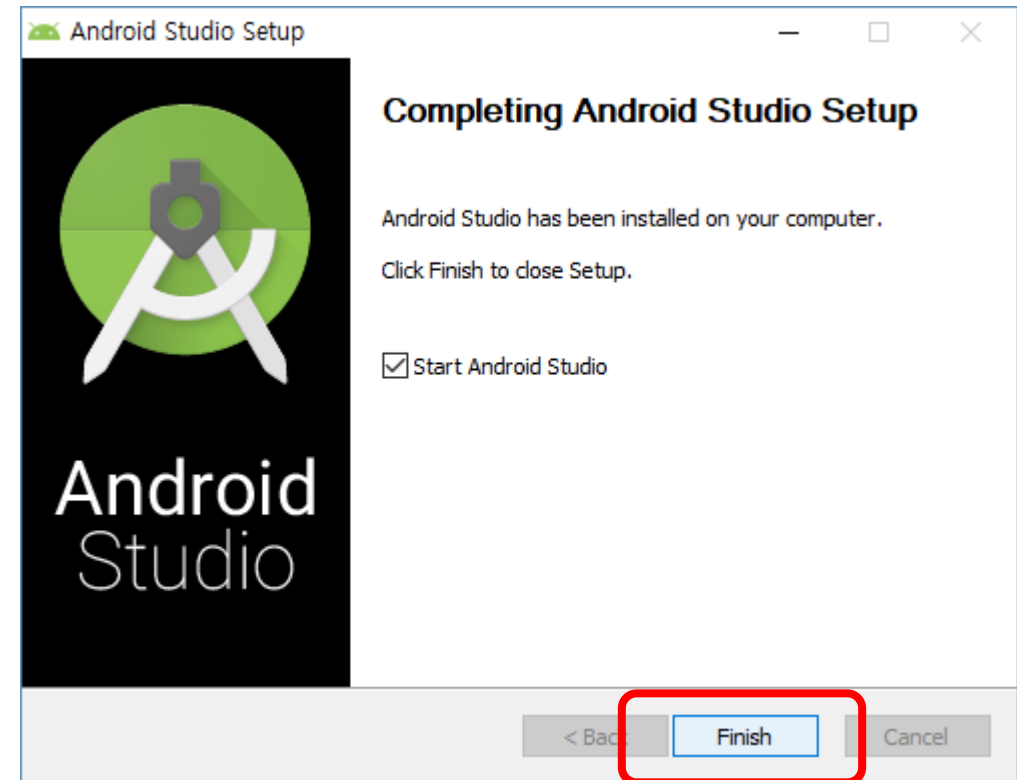
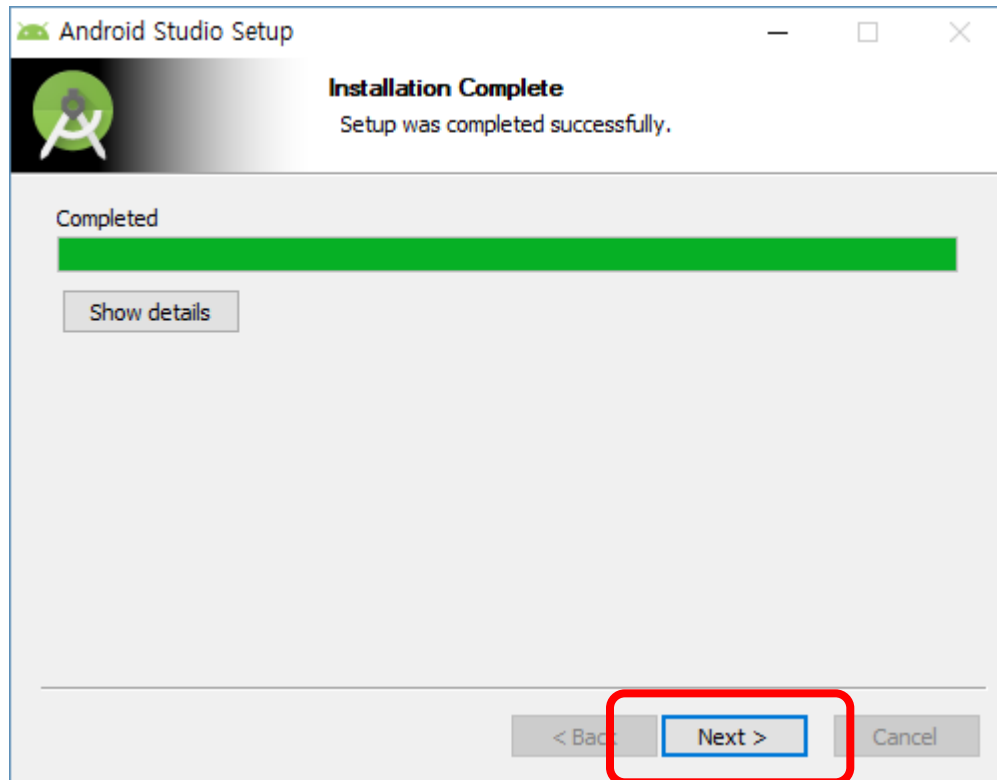
- 다운 받은 Android Studio 설치 파일을 클릭하여 '관리자 권한으로 실행' 버튼을 클릭한다.



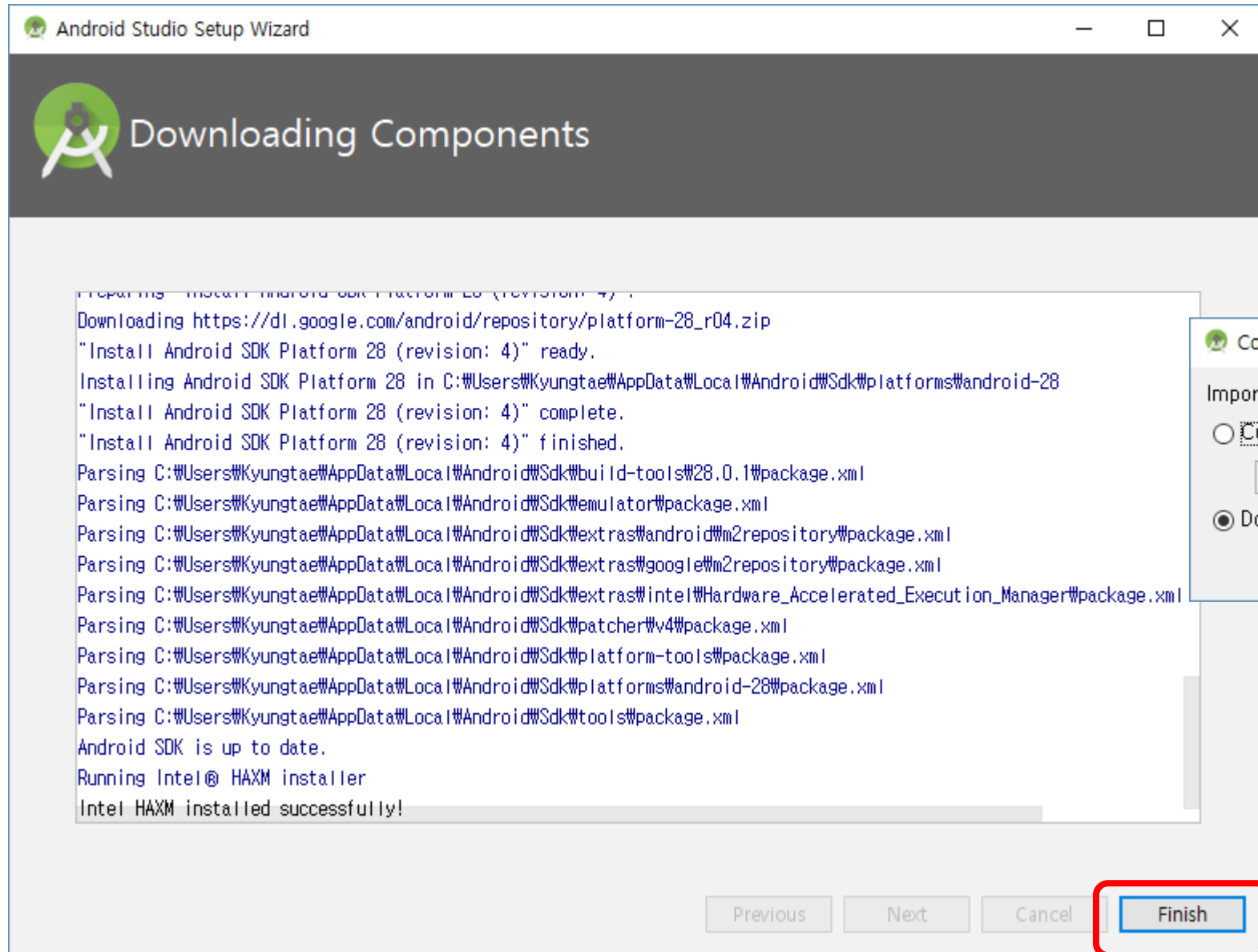




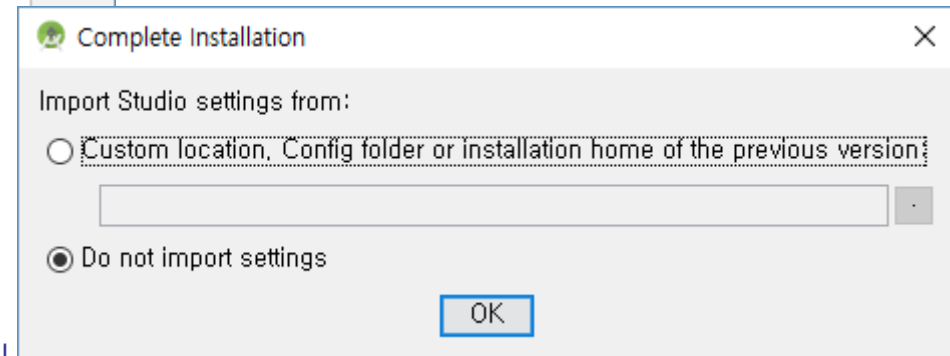




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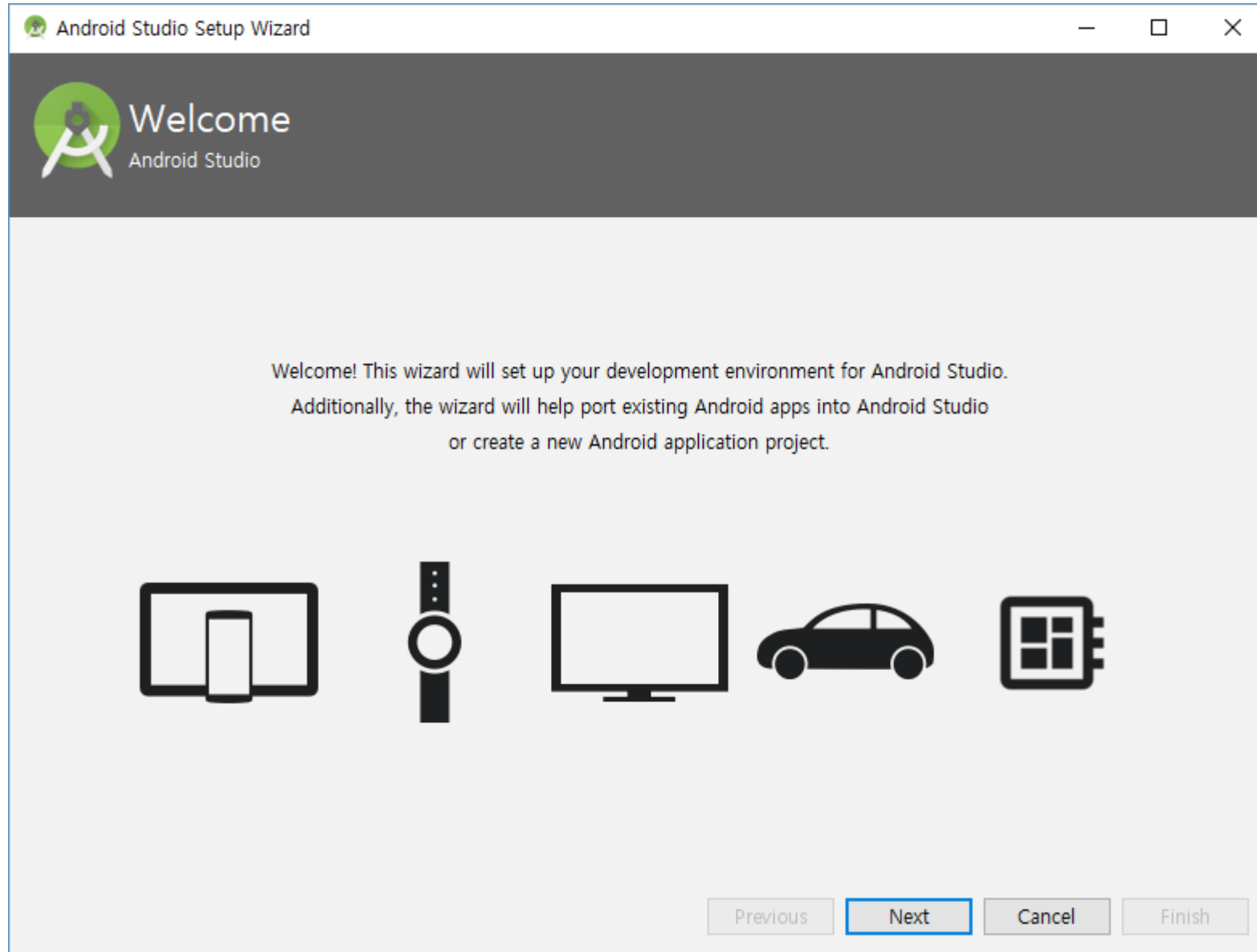


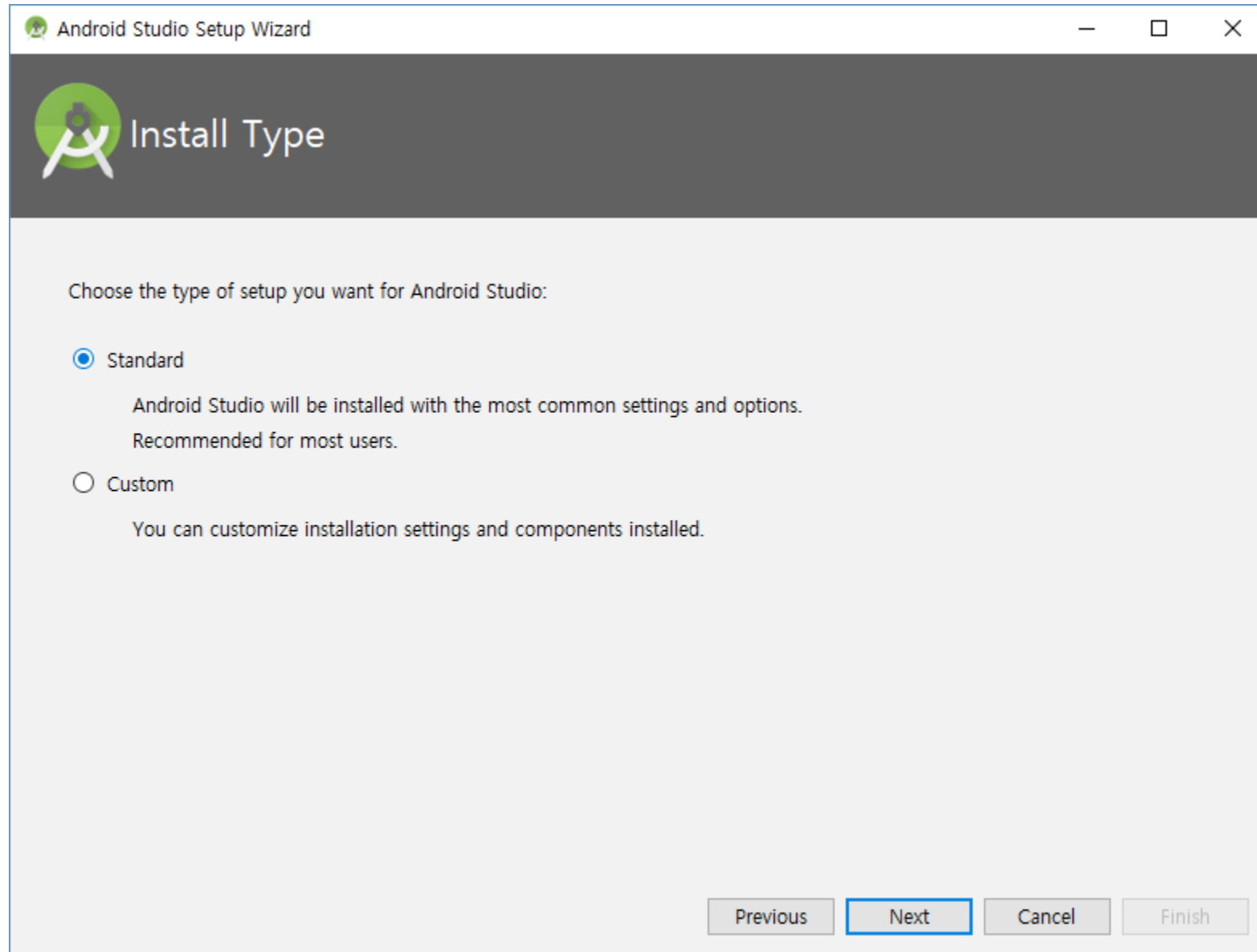
Complete Installation

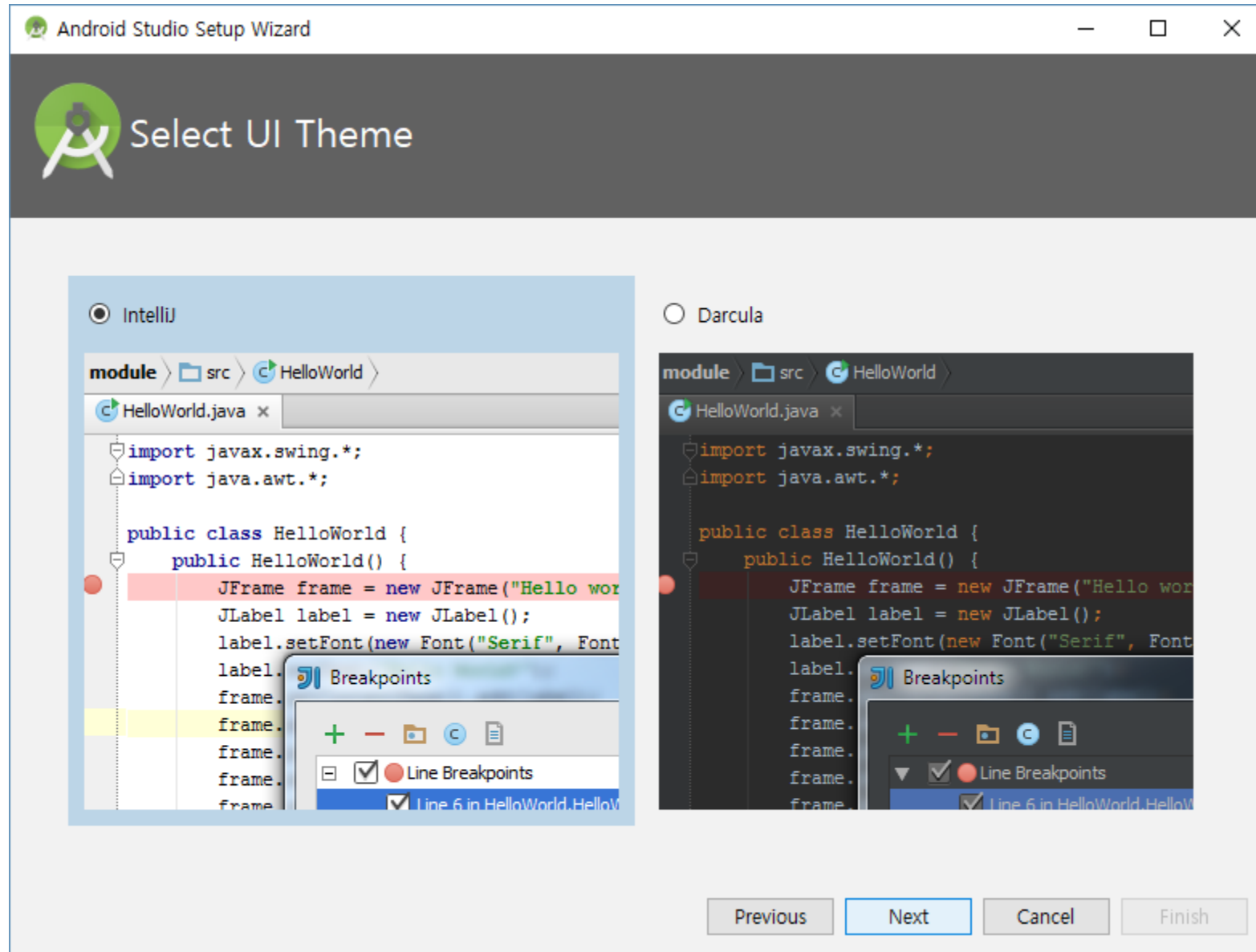


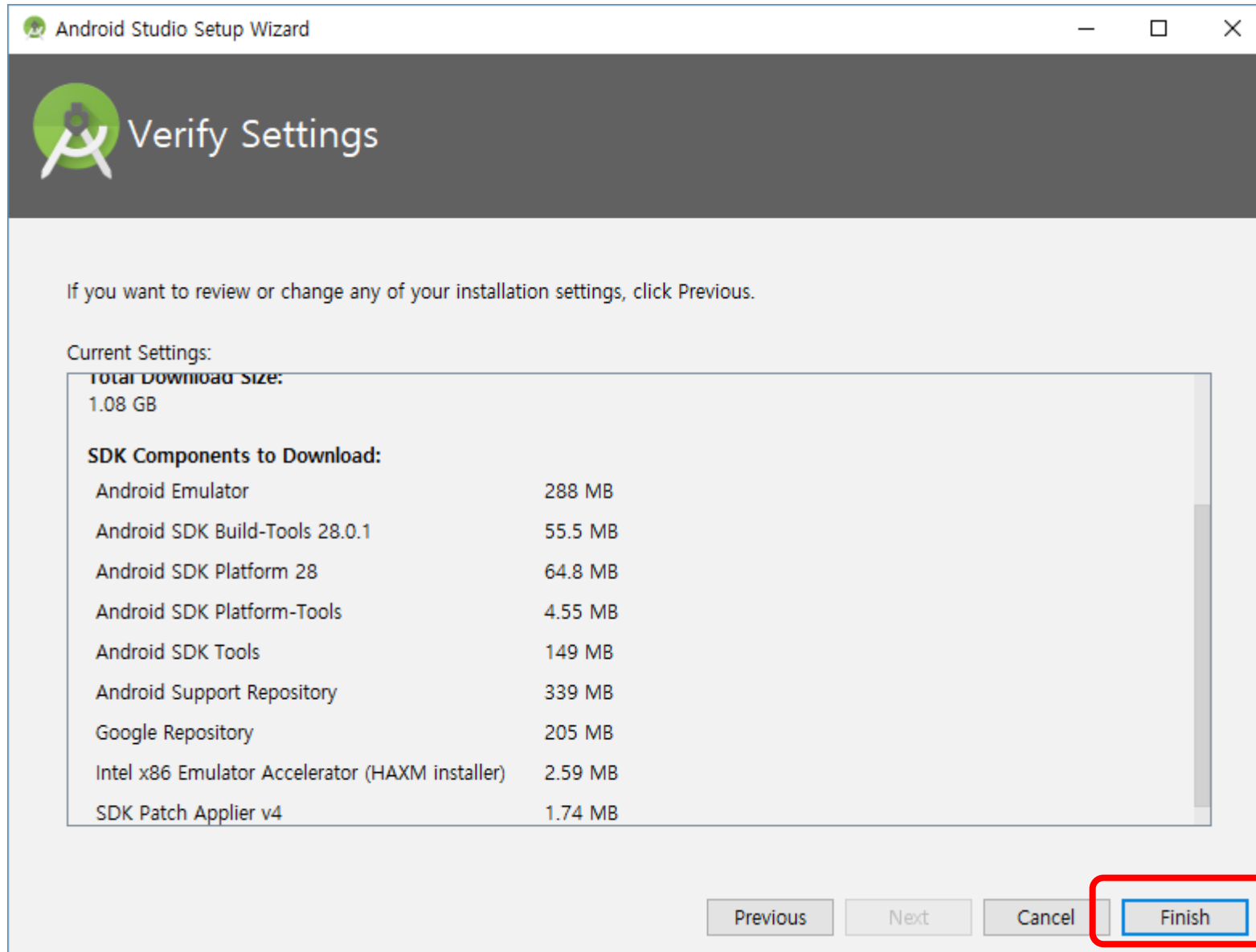
Android Studio Setup Wizard

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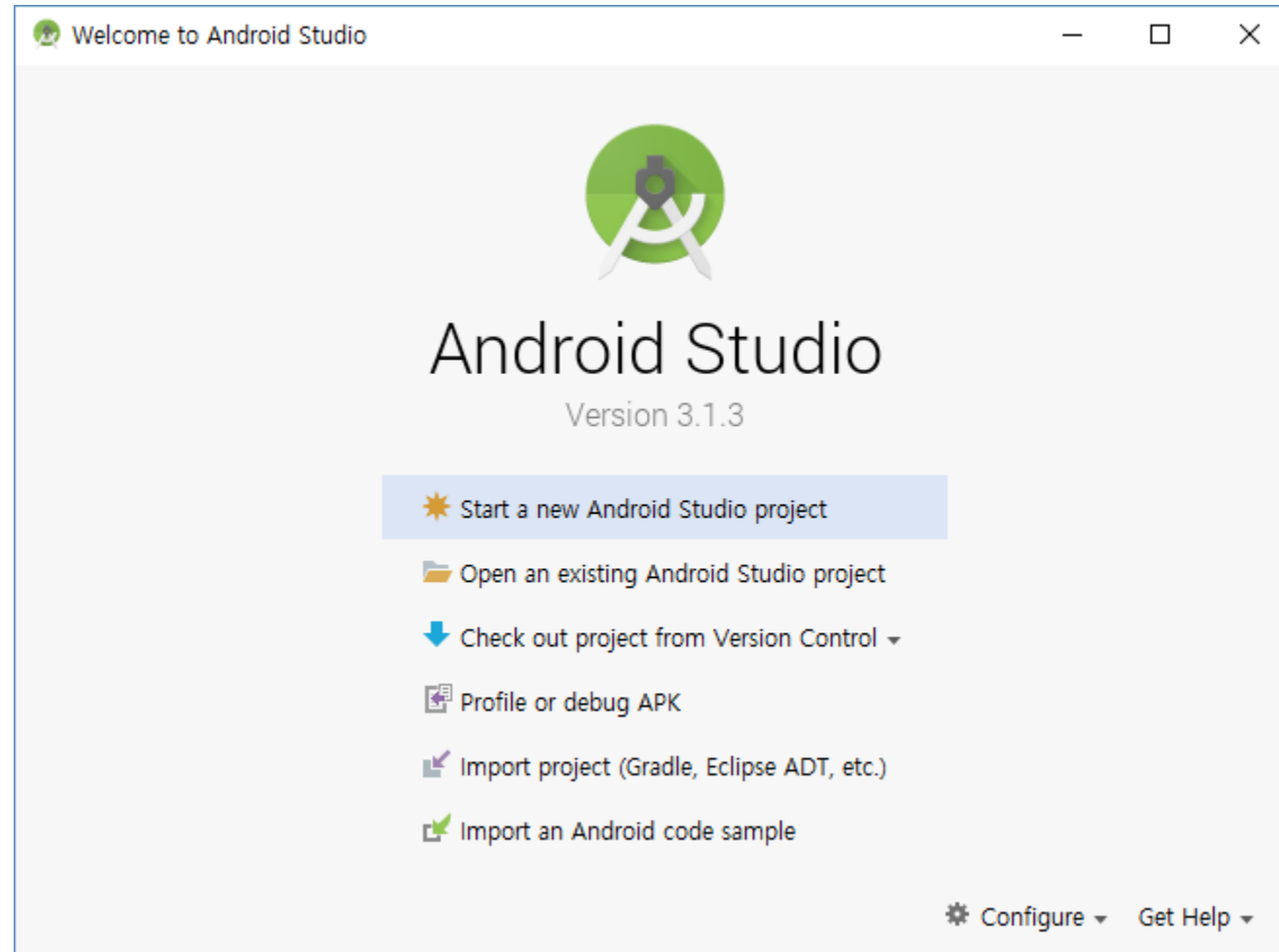




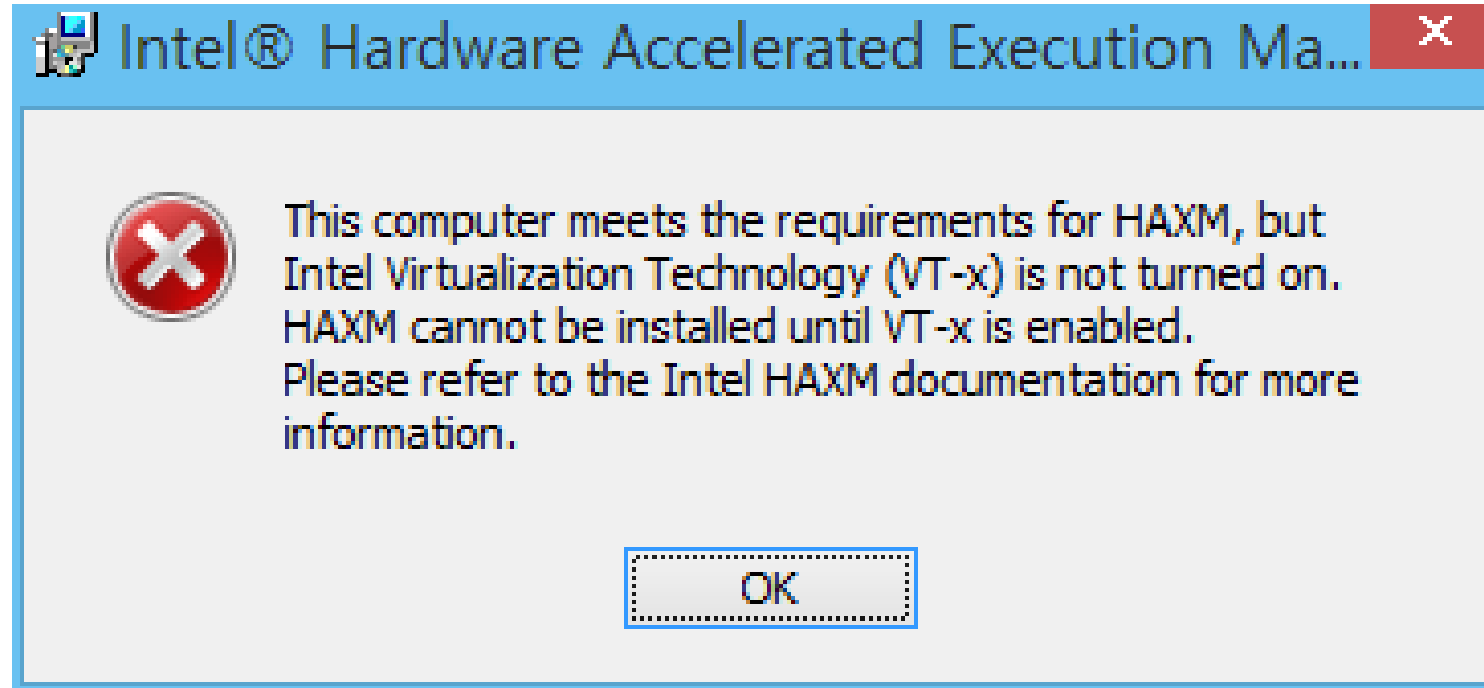


Android Studio 시작화면

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- Troubleshoot-Intel HAXM(Hardware Accelerated Execution Manager)

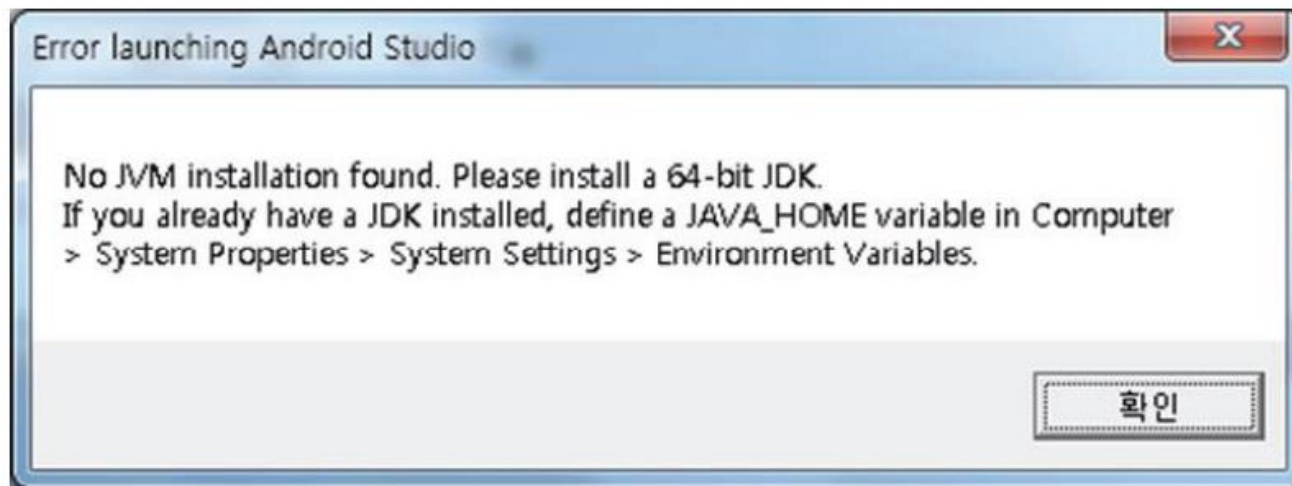


- 메인보드에서 CPU VT-x(가상화기술)을 허용하지 않음 상태이므로 BIOS 설정을 통해서 VT-x 활성화하는 게 필요.

- 설치 중에 "JAVA_HOME" 경로 설정이 안 된 경우

주의 JAVA_HOME 경로 설정이 안된 경우

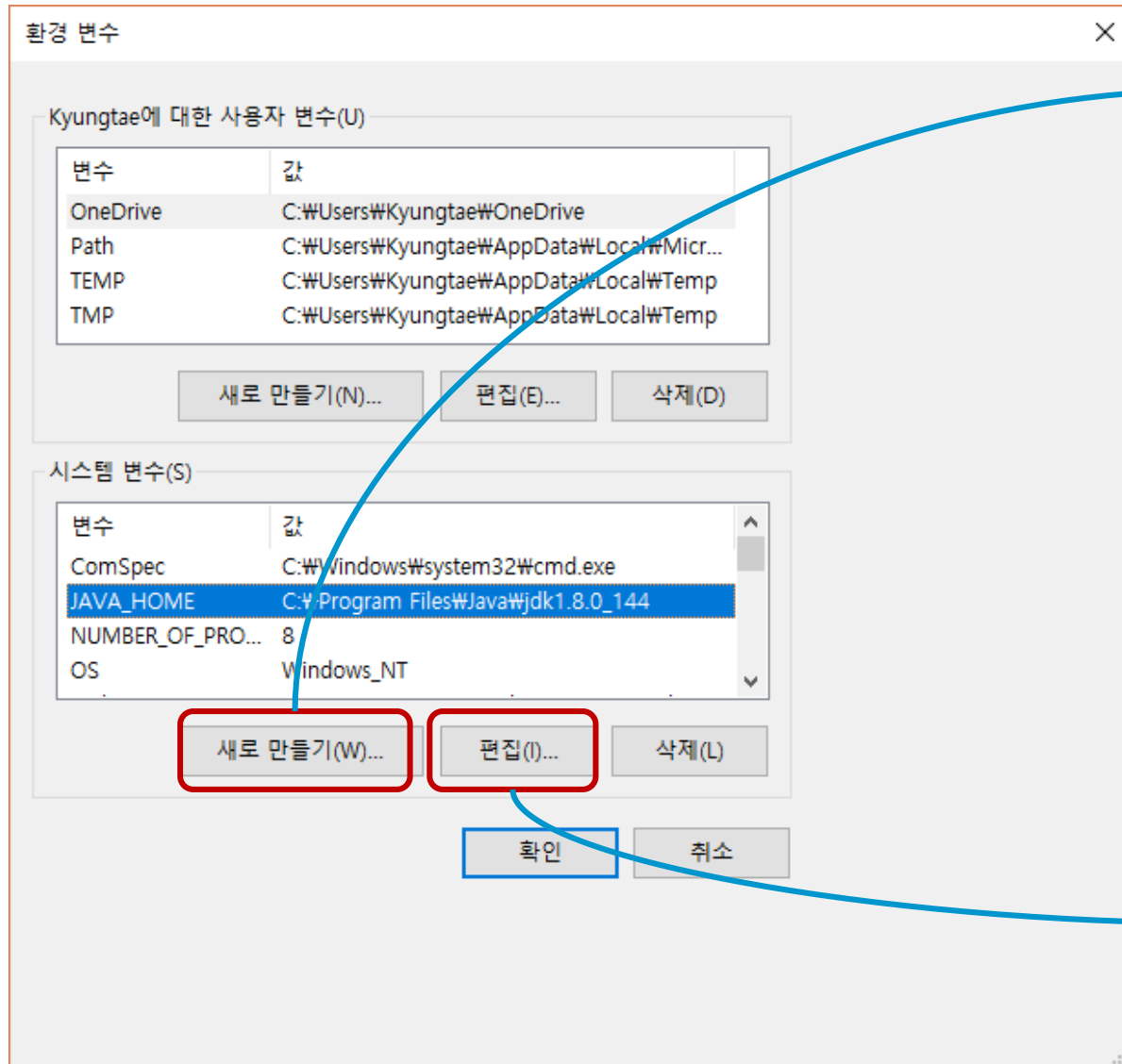
JAVA_HOME 경로 설정이 되어 있지 않을 때 다음과 같은 경고창이 나타난다. 경로 설정 후에 Android Studio를 다시 설치하면 된다.



Continued – 자바홈(JAVA_HOME) 환경설정

30

- 제어판 > 시스템 > 고급 시스템 설정 > 고급 > 환경변수

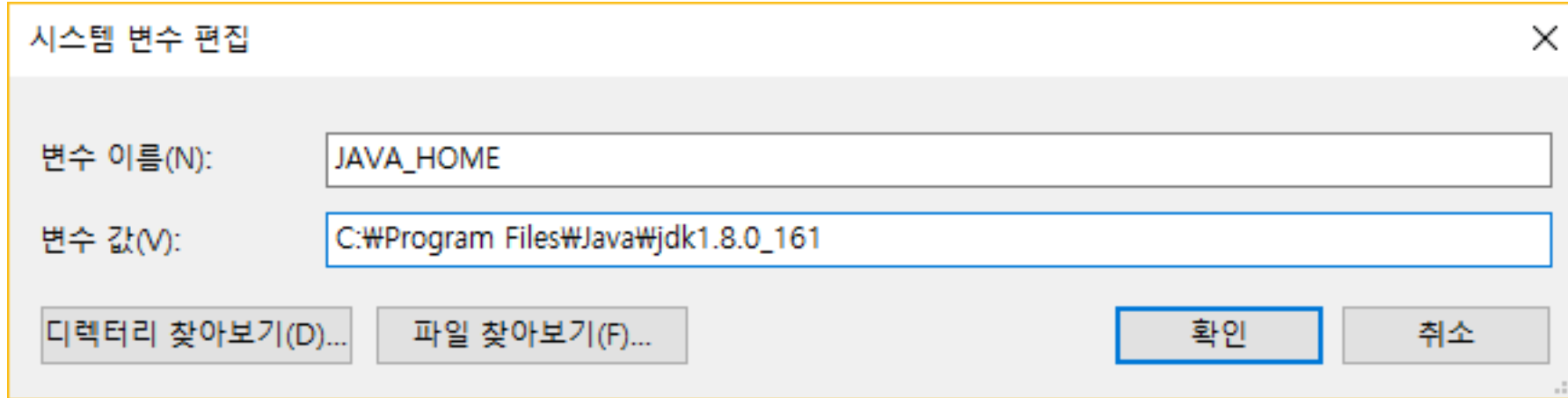


JAVA_HOME이 등록되어 있지 않은
경우에 추가할 때(다음 페이지)

JAVA_HOME이 등록되어 있는 경우
에 수정할 때

JAVA_HOME 이 없는 경우- 새 시스템 변수 추가

31



The screenshot shows a Windows dialog box titled "시스템 변수 편집" (Edit System Variables). It has a close button (X) in the top right corner. The dialog contains two text input fields: "변수 이름(N):" (Variable name) with the text "JAVA_HOME" and "변수 값(V):" (Variable value) with the text "C:\Program Files\Java\jdk1.8.0_161". Below these fields are four buttons: "디렉터리 찾아보기(D)..." (Browse for directory...), "파일 찾아보기(F)..." (Browse for file...), "확인" (OK), and "취소" (Cancel). The "확인" button is highlighted with a blue border.

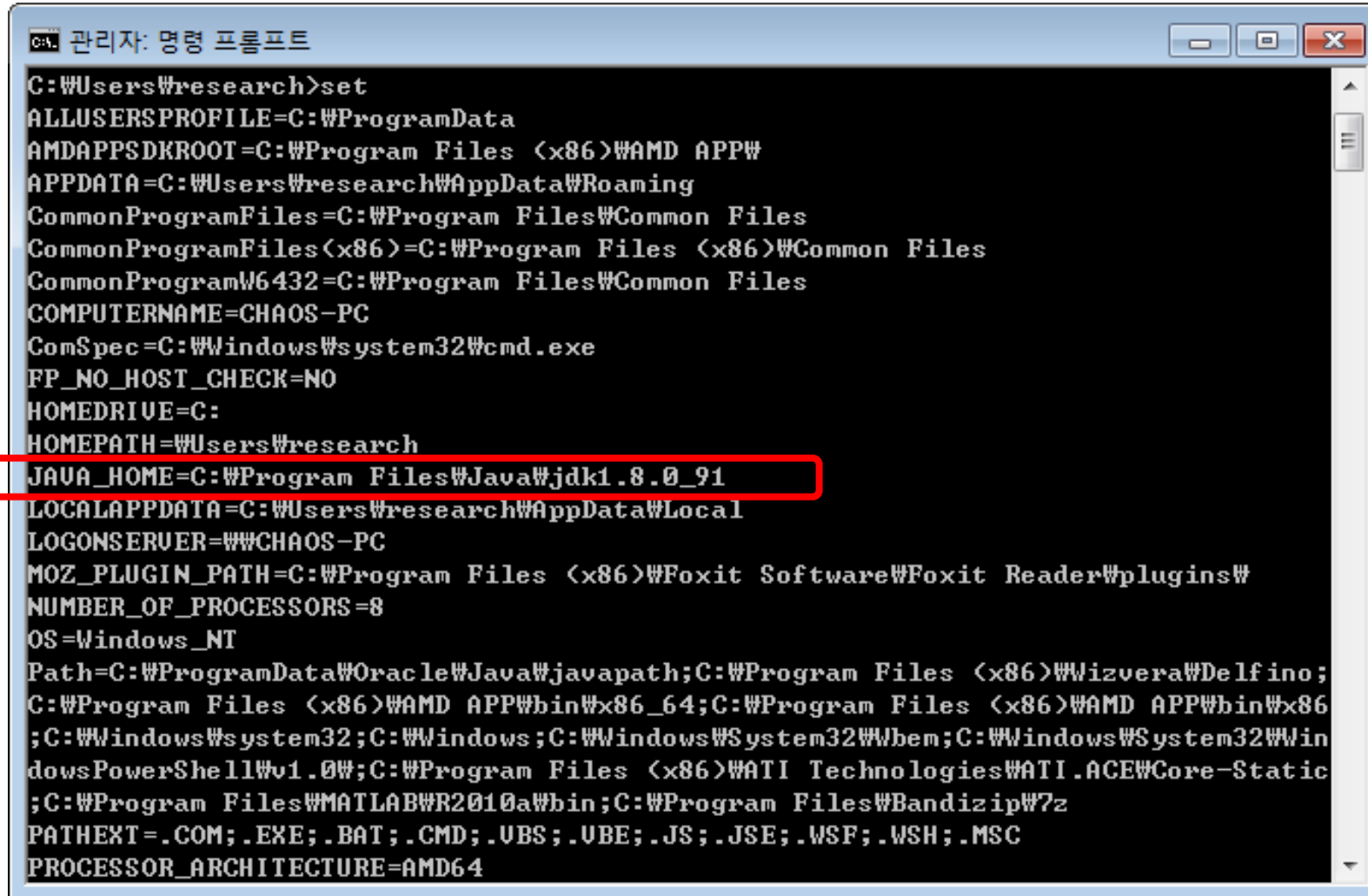
변수 이름: JAVA_HOME

변수 값 : C:\Program Files\Java\jdk1.8.0-161

Continued-Java Home 확인 방법

32

- JAVA_HOME 확인 방법: 명령프롬프트에서 “set” 명령어 실행



```
C:\Users\research>set
ALLUSERSPROFILE=C:\ProgramData
AMDAPPSDKROOT=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=\\CHAOS-PC
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\Delfino;
C:\Program Files (x86)\AMD APP\bin\x86_64;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.ACE\Core-Static
;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
```



Android Studio 시작

: 첫 프로젝트 만들기

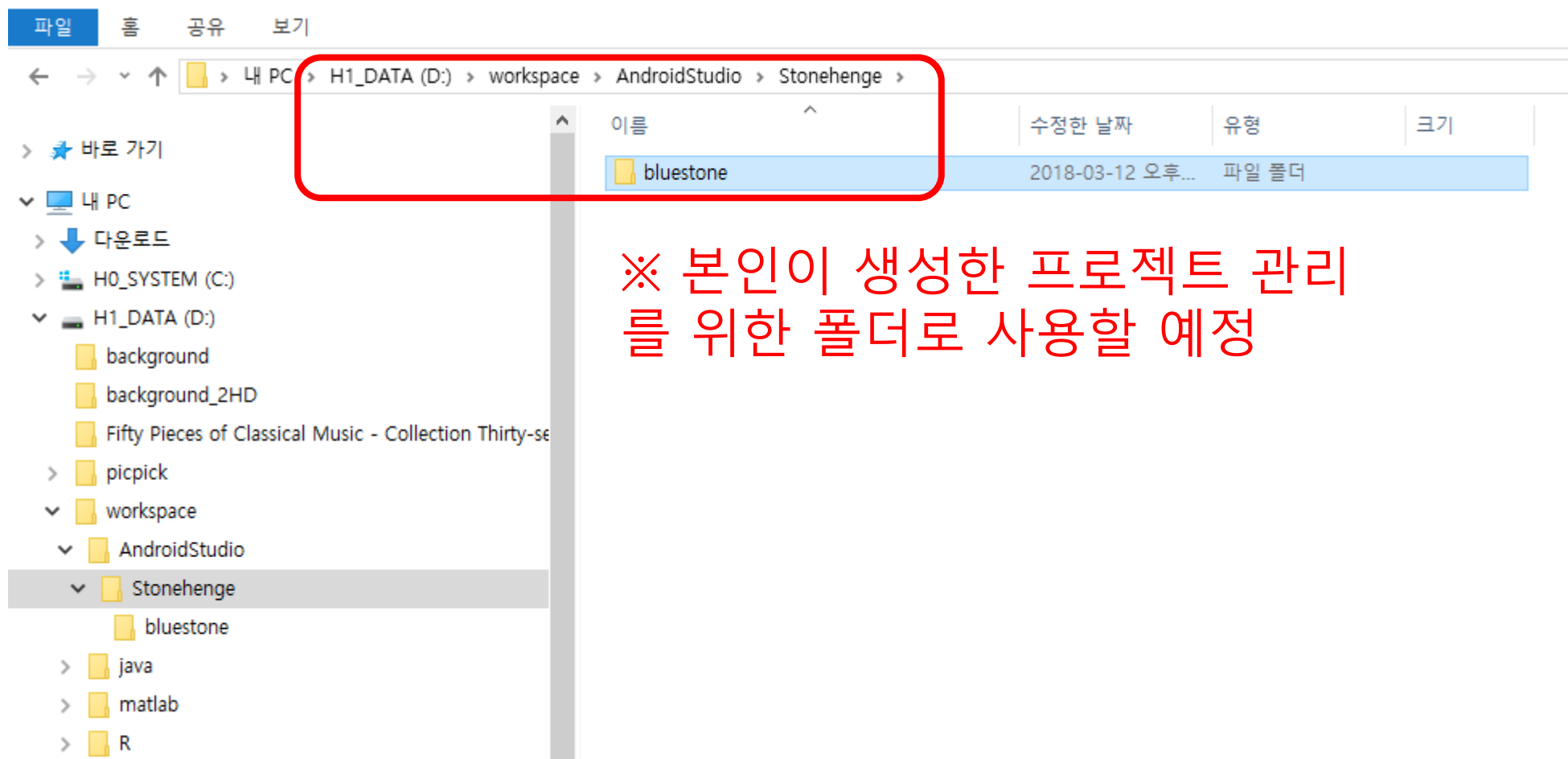


첫 프로젝트 만들기

나만의 작업공간(workspace) 만들기

42

- 개인별 폴더 만들기
- D 드라이브에 workspace 생성 후 자기만의 고유 이름을 가지는 폴더 생성

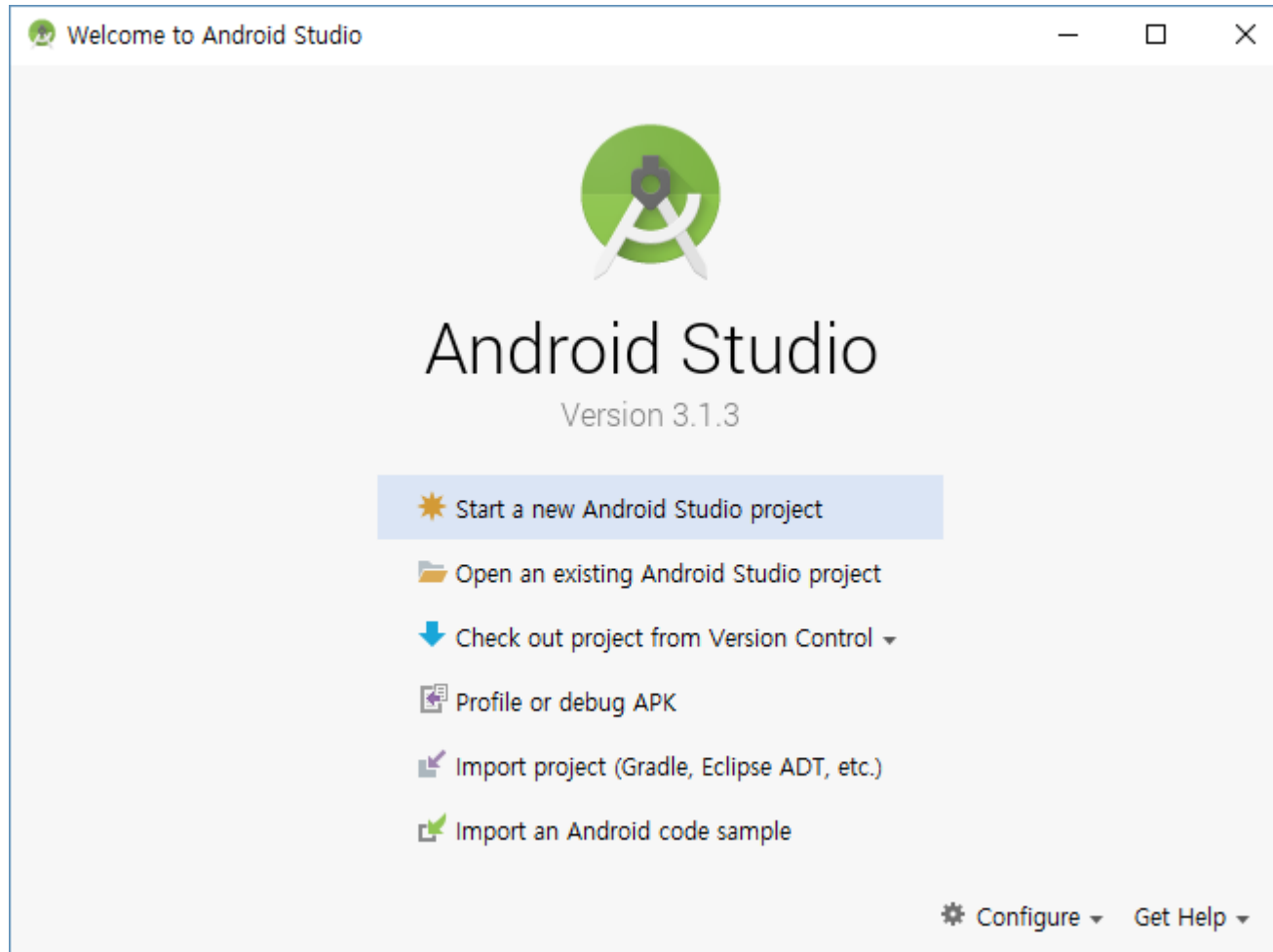


※ 본인이 생성한 프로젝트 관리를 위한 폴더로 사용할 예정

첫 프로젝트 만들기

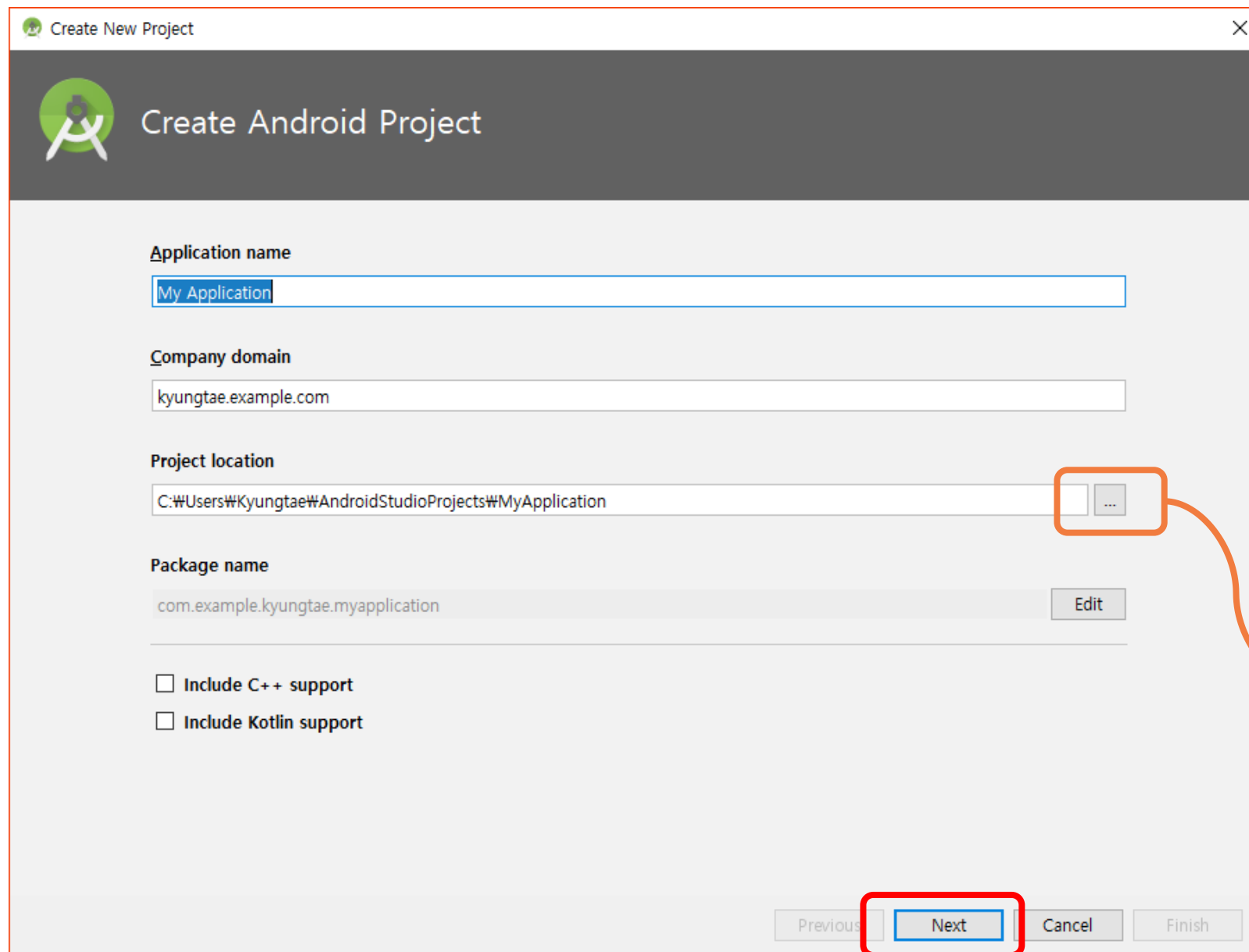
43

- 'Start a new Android Studio project' 클릭



New Project – My Project location 설정하기

44



Create New Project

Create Android Project

Application name
My Application

Company domain
kyungtae.example.com

Project location
C:\Users\Kyungtae\AndroidStudioProjects\MyApplication

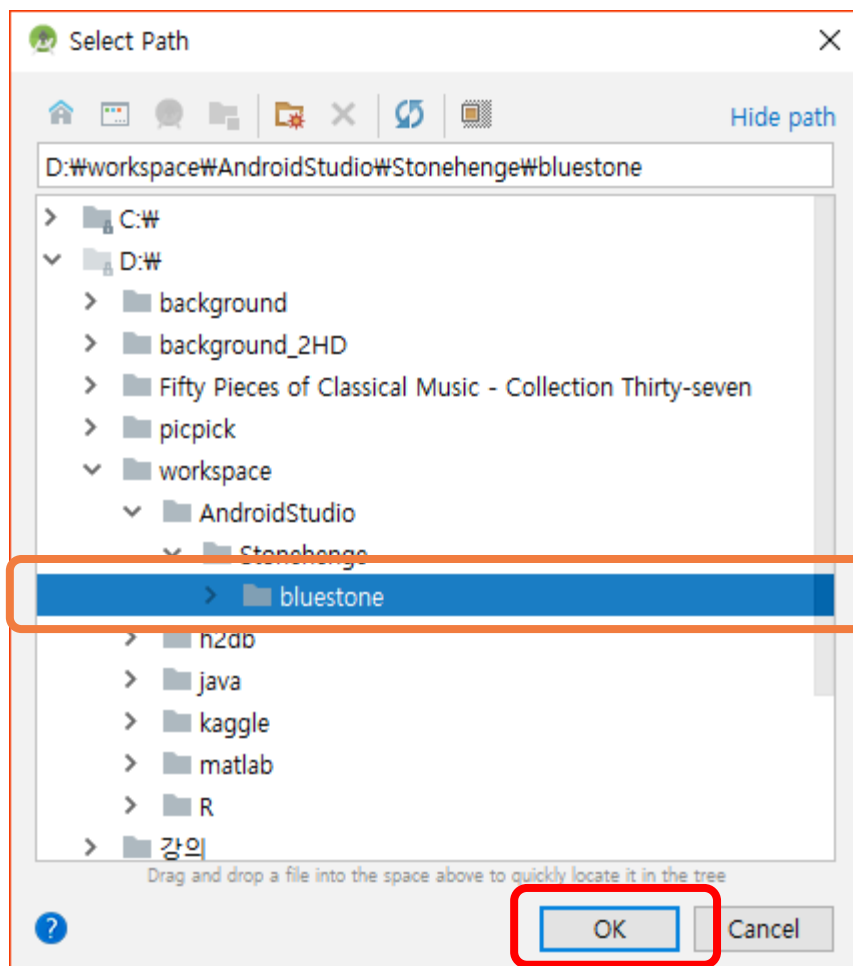
Package name
com.example.kyungtae.myapplication Edit

☐ Include C++ support
☐ Include Kotlin support

Previous **Next** Cancel Finish

탐색창을 통해 설정

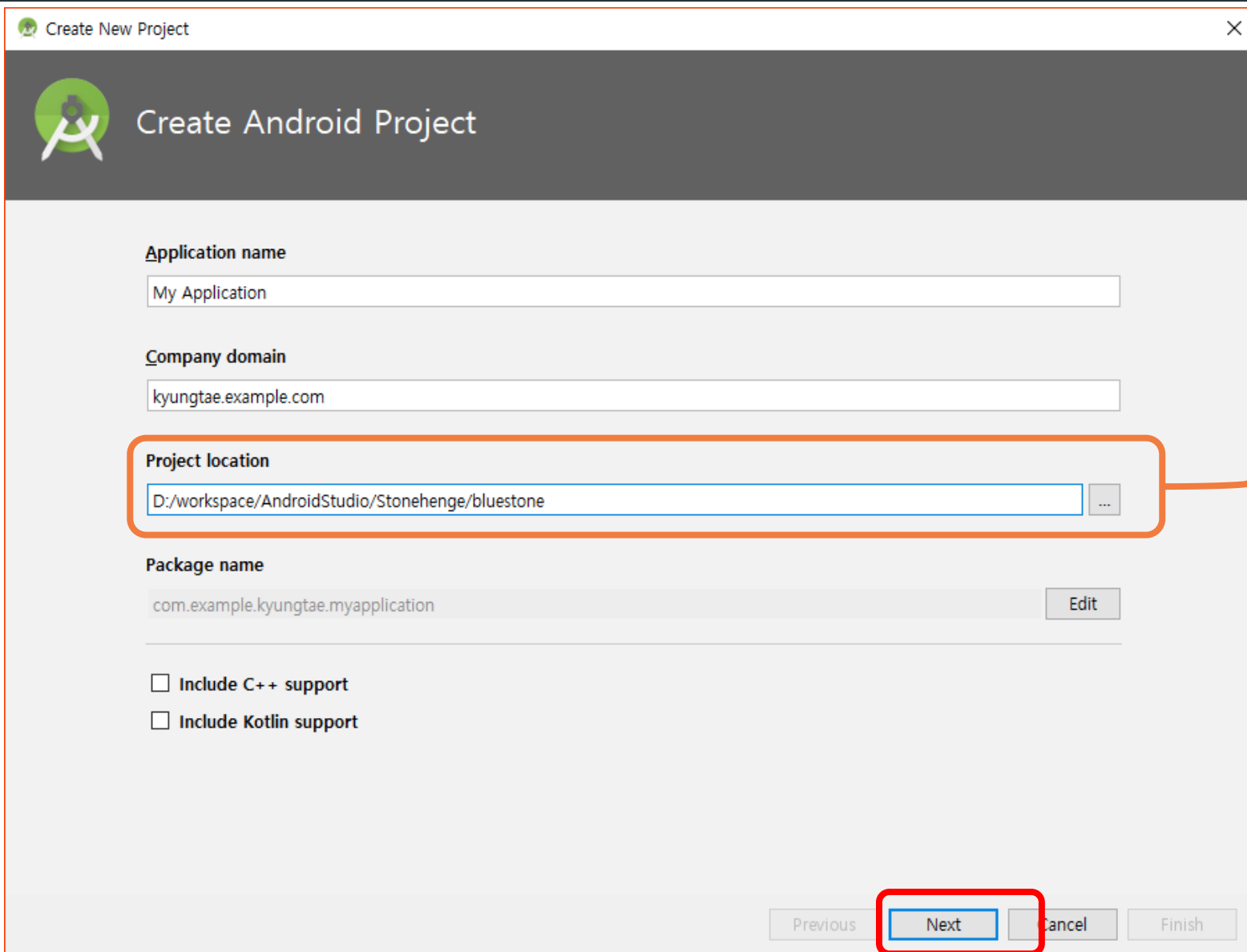
Select project path (개인별 폴더 설정)



탐색창을 통해 원하는 폴더를 설정
(개인별 폴더를 생성하여 설정)

New Project – Select project path

46



Create New Project

Create Android Project

Application name
My Application

Company domain
kyungtae.example.com

Project location
D:/workspace/AndroidStudio/Stonehenge/bluestone ...

Package name
com.example.kyungtae.myapplication Edit

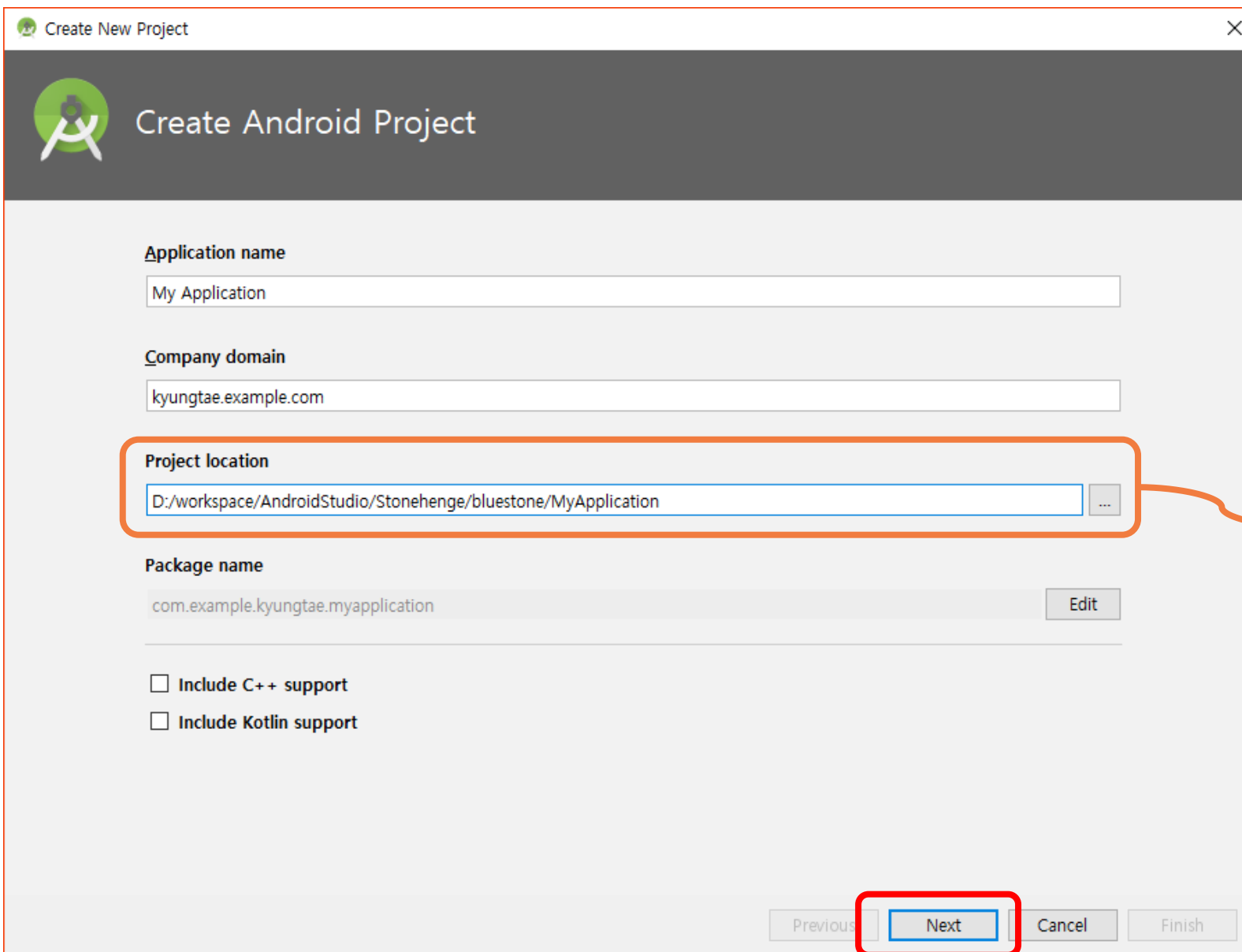
☐ Include C++ support
☐ Include Kotlin support

Previous **Next** Cancel Finish

탐색창을 통해 원하는 폴더를 설정

New Project – Add a new project

47



Create New Project

Create Android Project

Application name
My Application

Company domain
kyungtae.example.com

Project location
D:/workspace/AndroidStudio/Stonehenge/bluestone/MyApplication

Package name
com.example.kyungtae.myapplication

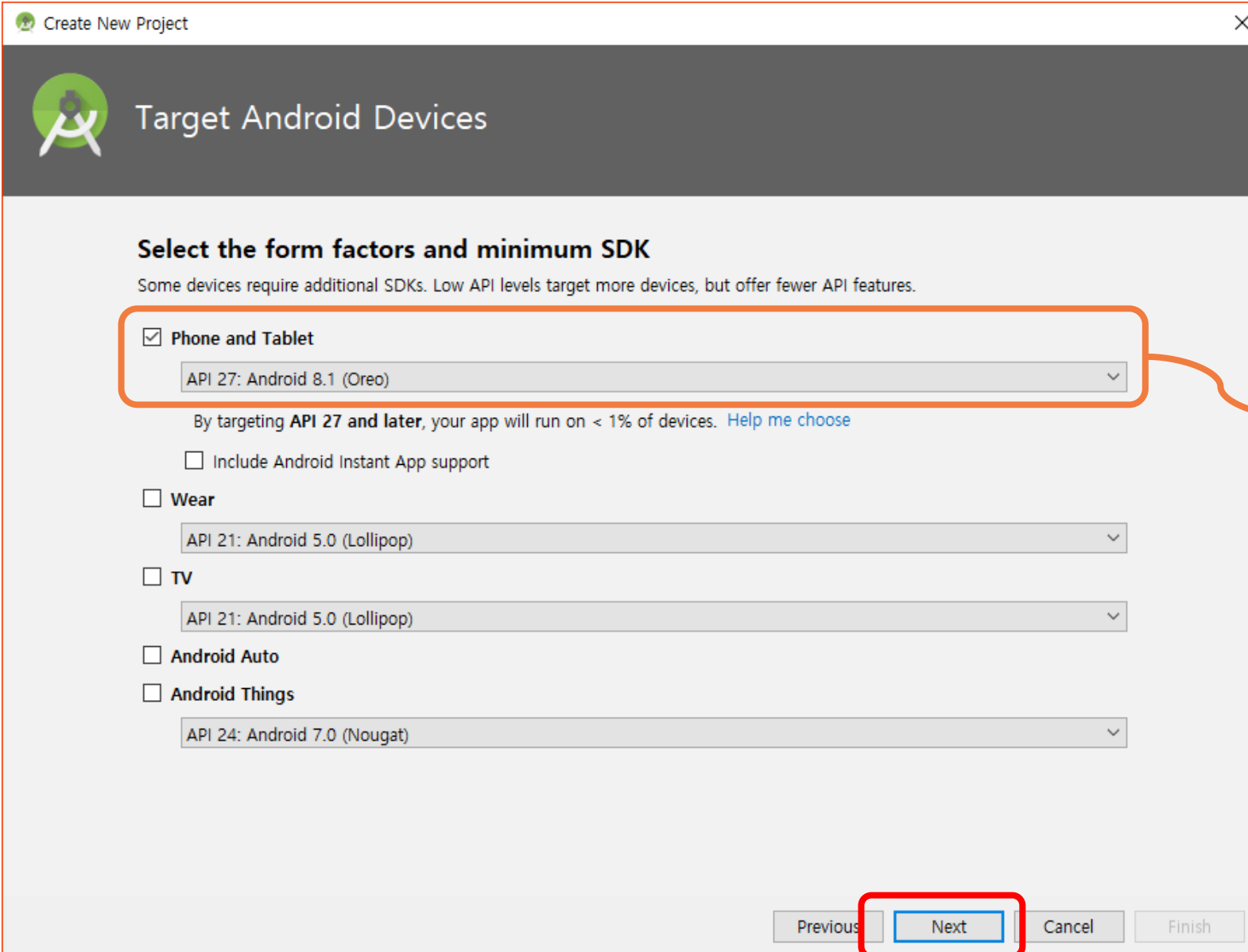
☐ Include C++ support
☐ Include Kotlin support

Previous Next Cancel Finish


프로젝트 이름 폴더 추가
(MyApplication) – 위의 어
플리케이션 네임을 사용
(공백을 제거한 후)

New Project – Target android devices

48



Create New Project

 Target Android Devices

Select the form factors and minimum SDK

Some devices require additional SDKs. Low API levels target more devices, but offer fewer API features.

☒ **Phone and Tablet**

API 27: Android 8.1 (Oreo)

By targeting **API 27 and later**, your app will run on < 1% of devices. [Help me choose](#)

☐ Include Android Instant App support

☐ **Wear**

API 21: Android 5.0 (Lollipop)

☐ **TV**

API 21: Android 5.0 (Lollipop)

☐ **Android Auto**

☐ **Android Things**

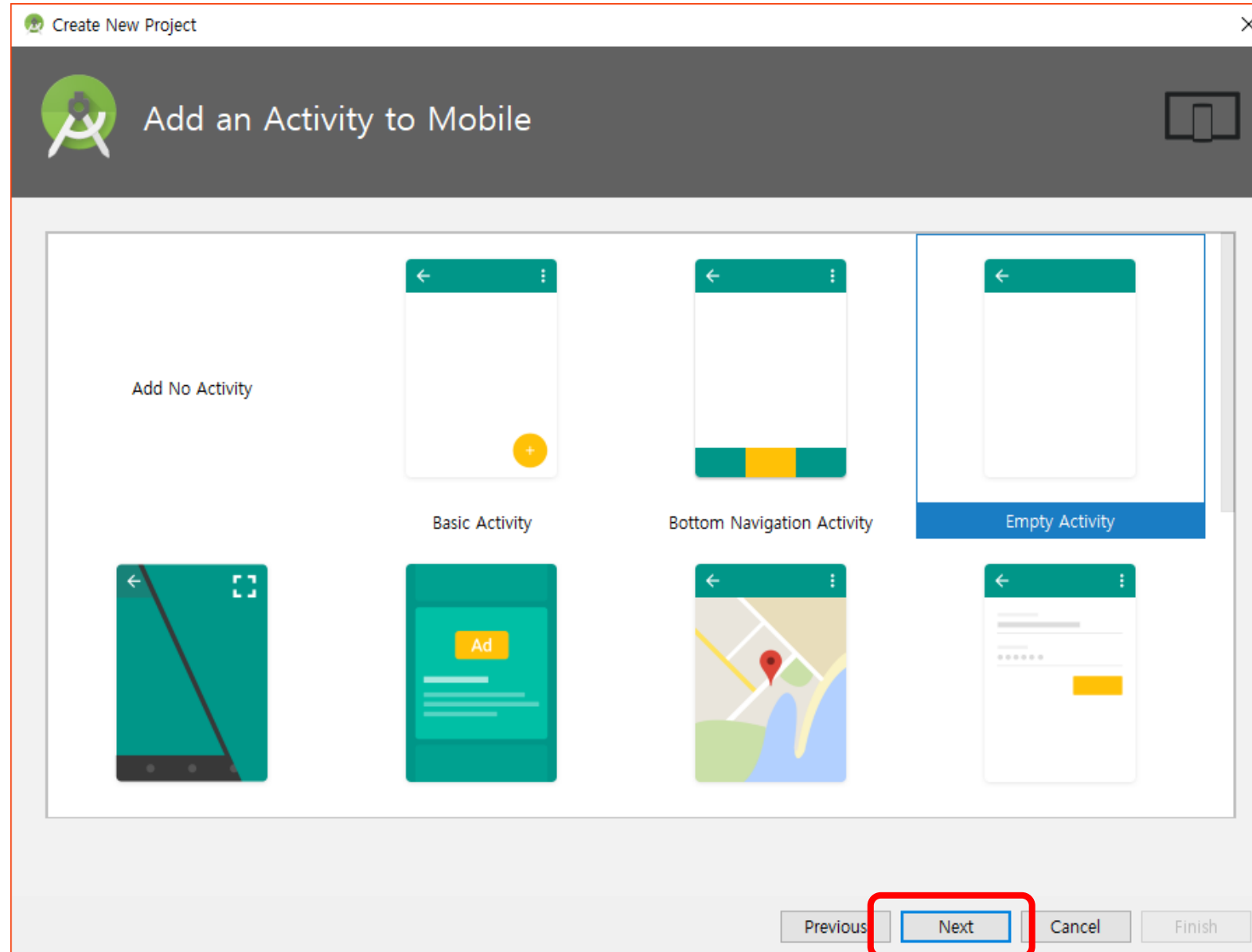
API 24: Android 7.0 (Nougat)

Previous Next Cancel Finish

Android 8.1 (Oreo)

New Project – Target android devices



49

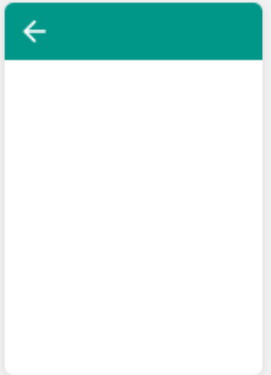


New Project – Configure Activity

50

Create New Project

 Configure Activity



Creates a new empty activity

Activity Name:

☒ Generate Layout File

Layout Name:

☒ Backwards Compatibility (AppCompat)

The name of the activity class to create

Previous

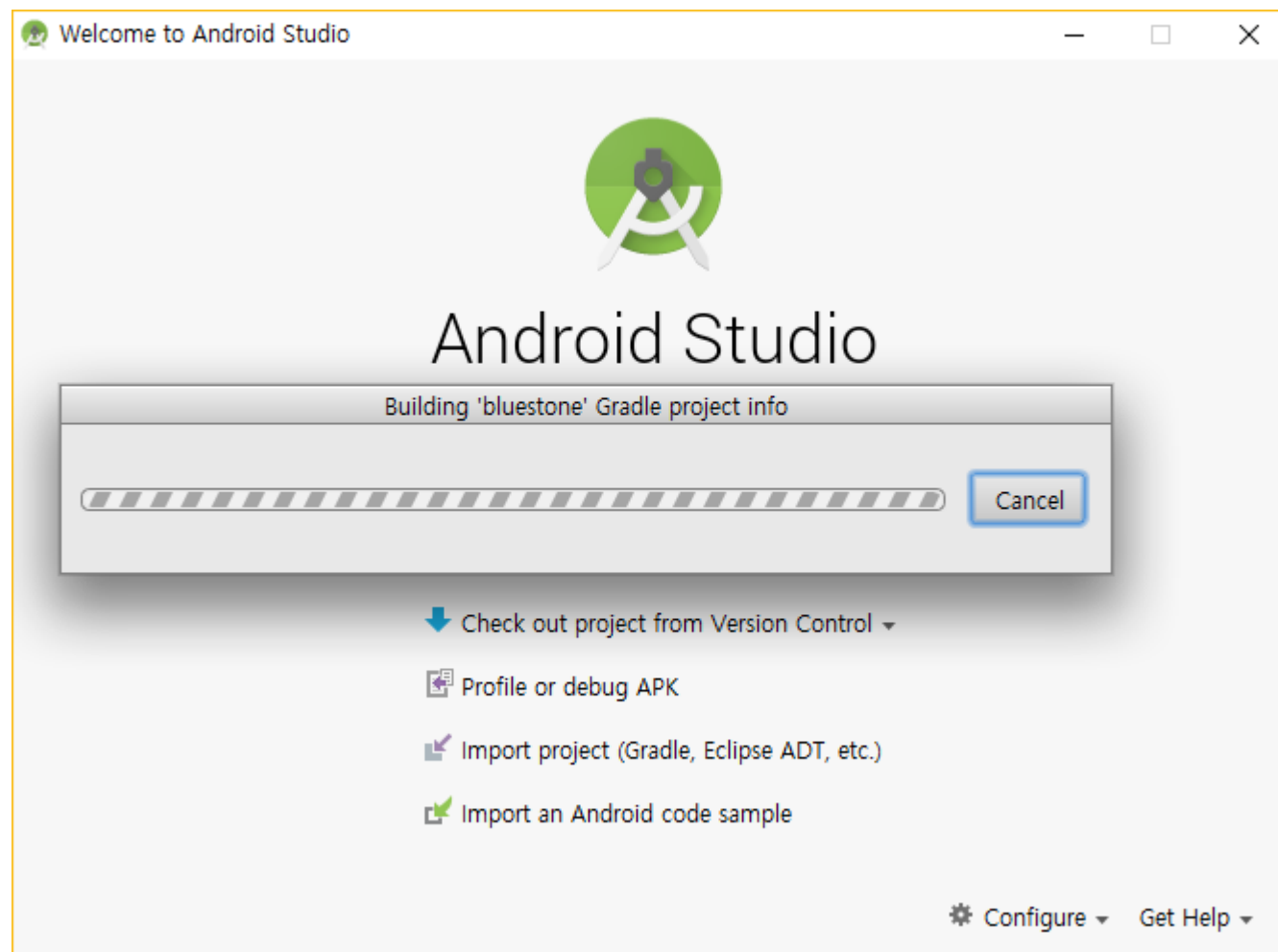
Next

Cancel

Finish

Continued...Gradle 설정

51



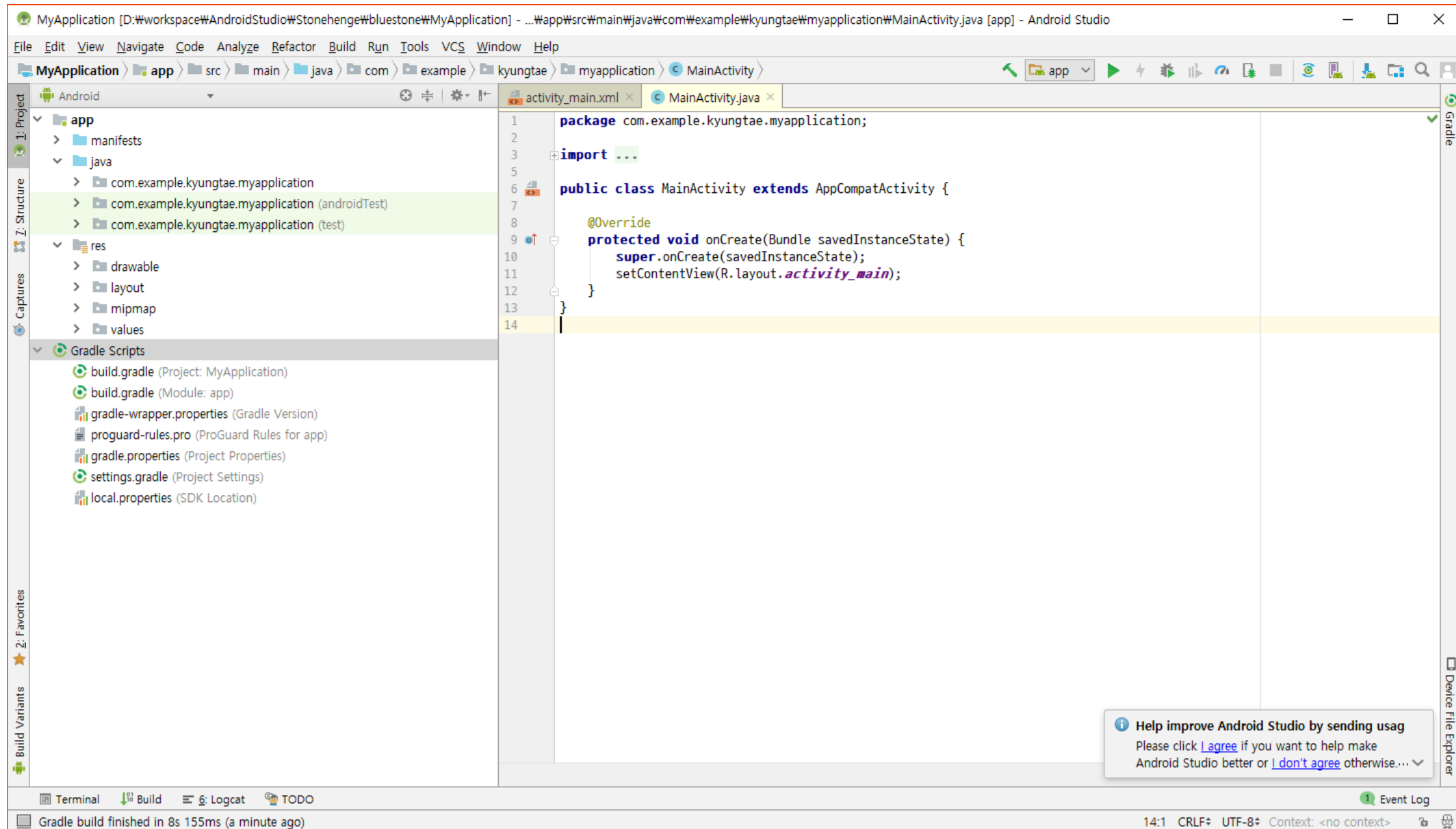
Windows Defender 방화벽 설정

52



New Project – 초기 완성 화면

53





Android Virtual Device(AVD) 추가

Continued...AVD

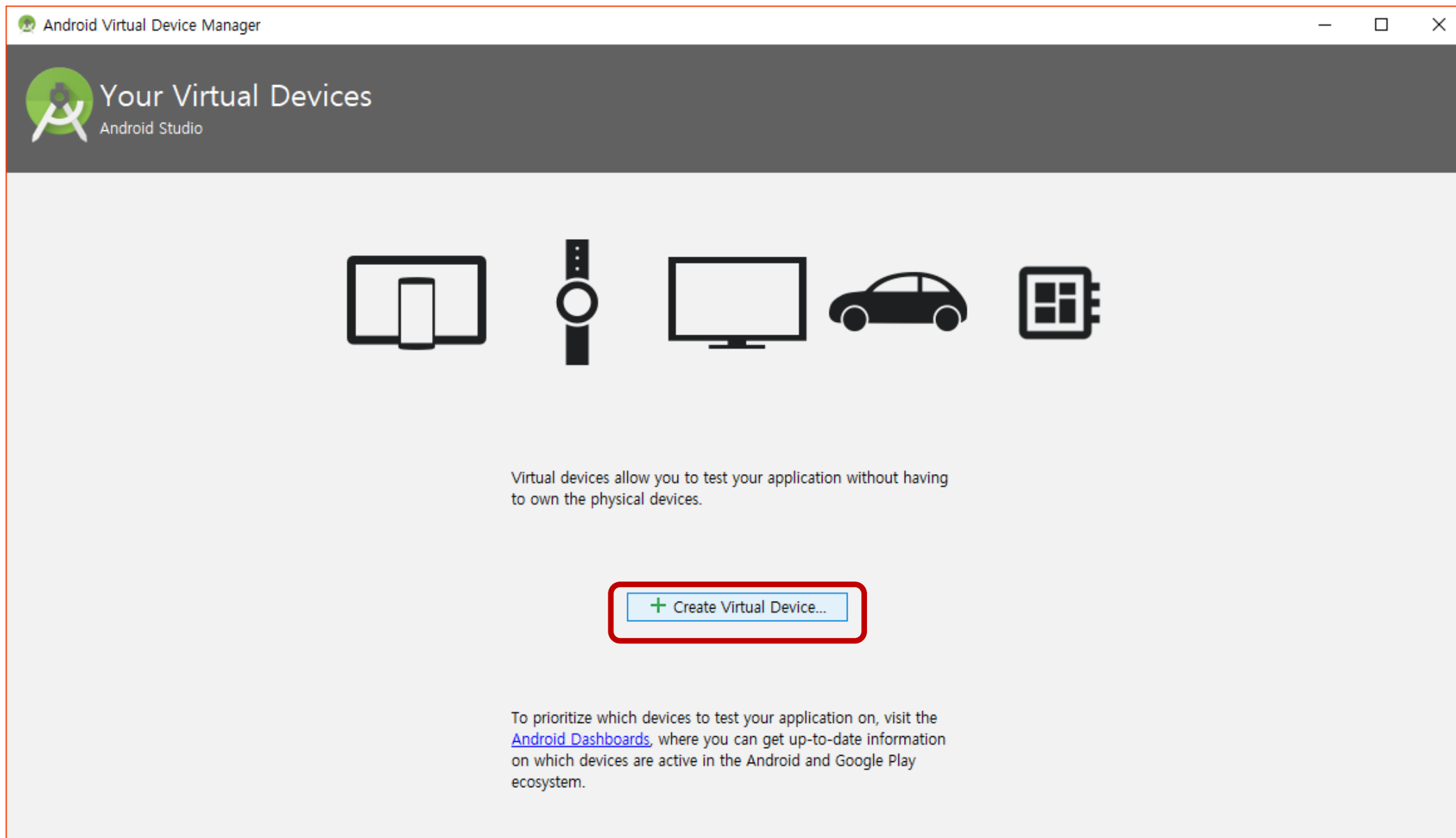
59

- Android Studio 실행 후 오른쪽 툴바의 AVD Manager 실행



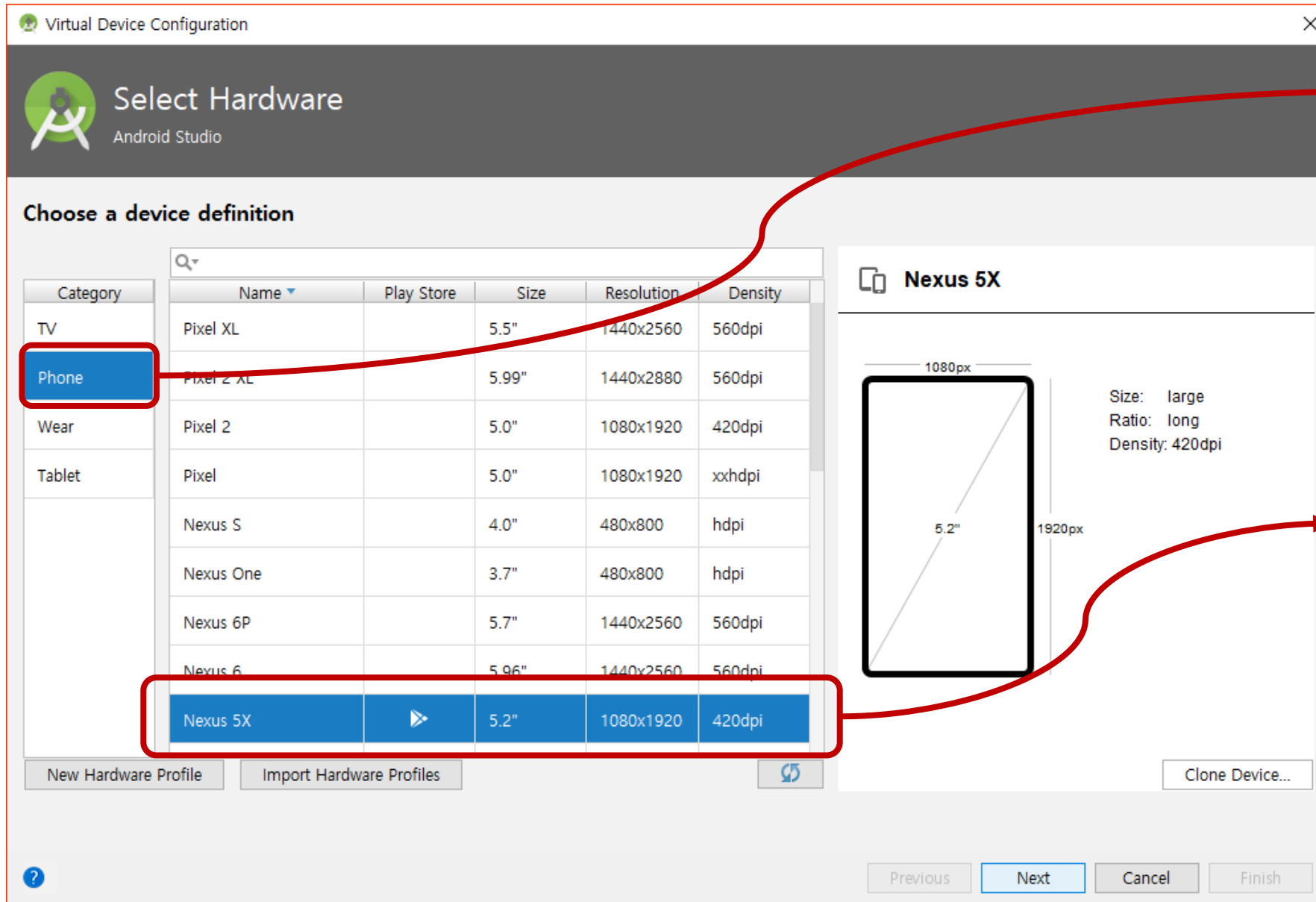
Continued...AVD 추가

60



...Continued: 장비 선택

61



Category – Phone

Device – Nexus 5X

...Continued – System Image(OS) 선택

62

Virtual Device Configuration


System Image
Android Studio

Select a system image

Recommended x86 Images Other Images

Release Name	API Level	ABI	Target
API 28 Download	28	x86	Android API 28 (Google Play)
Oreo Download	27	x86	Android 8.1 (Google Play)
Oreo Download	26	x86	Android 8.0 (Google Play)
Nougat Download	25	x86	Android 7.1.1 (Google Play)
Nougat Download	24	x86	Android 7.0 (Google Play)

Oreo

 API Level
27

Android
8.1

Google Inc.

System Image
x86

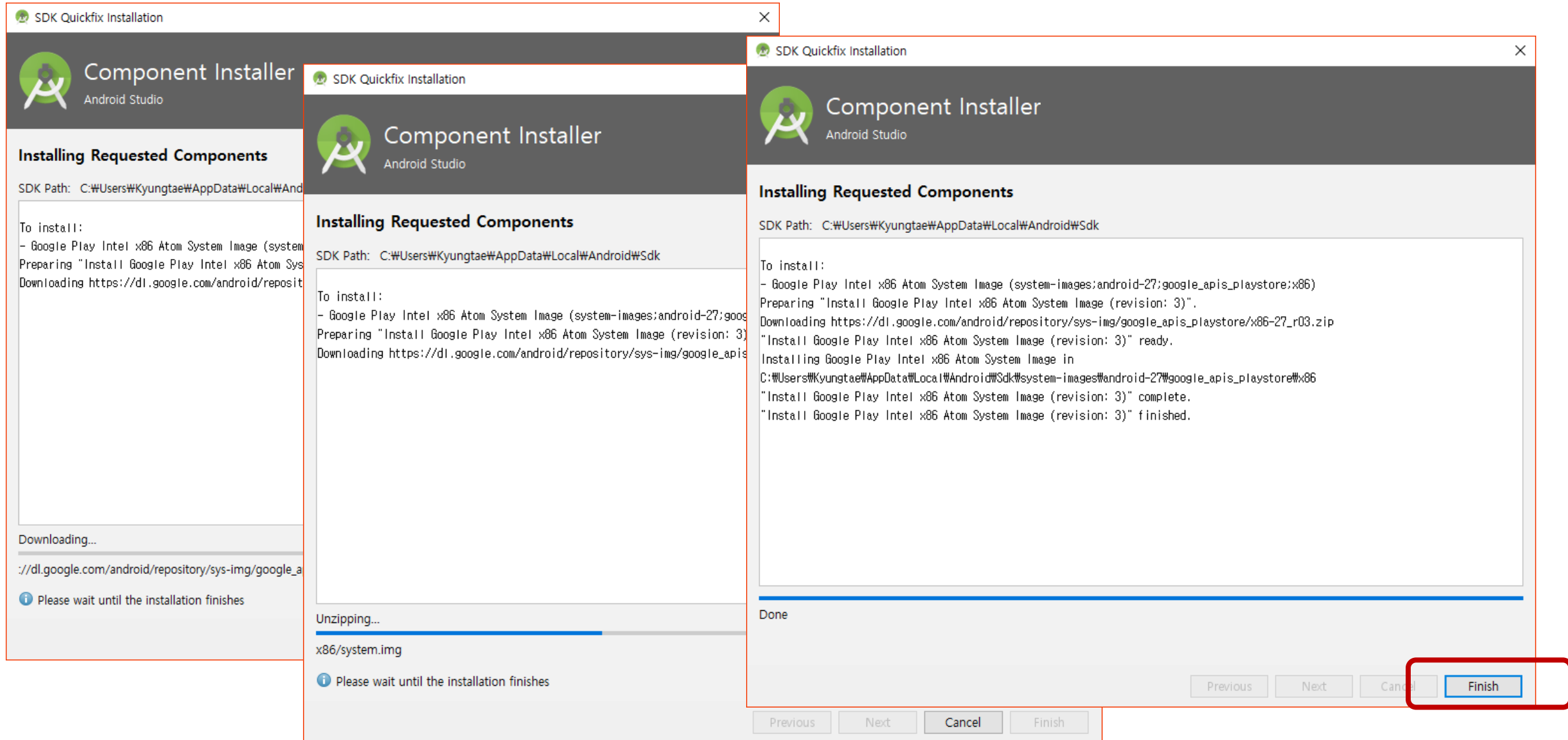
We recommend these Google Play images because this device is compatible with Google Play.

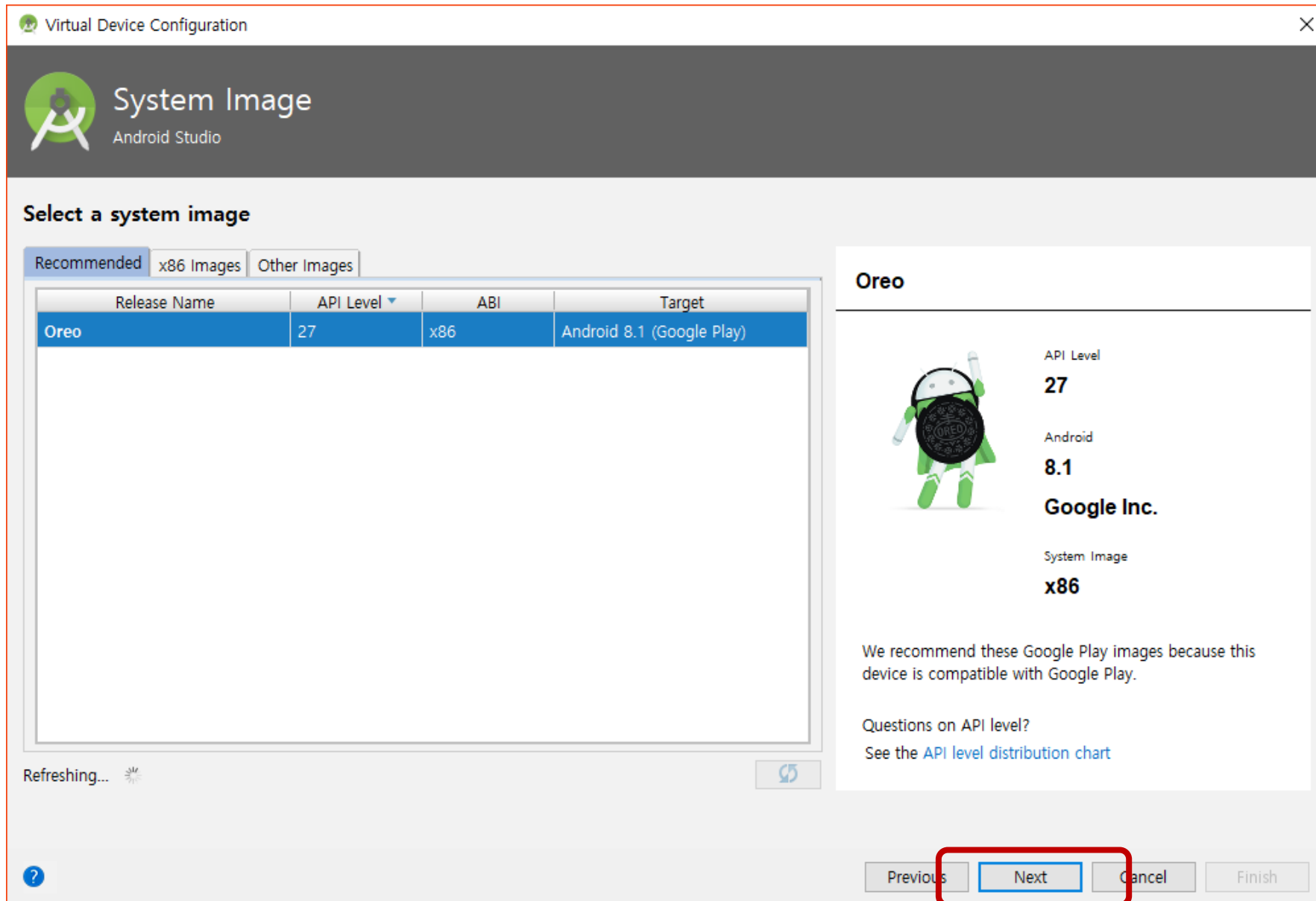
Questions on API level?
See the [API level distribution chart](#)

! A system image must be selected to continue.

Previous Next Cancel Finish

Oreo Download
(API Level 27 선택)






...Continued: AVD 설정 확인

65

Virtual Device Configuration




Android Virtual Device (AVD)
Android Studio

Verify Configuration


AVD Name

Nexus 5X API 27

Nexus 5X

5.2 1080x1920 xxhdpi


Change...


Oreo

Android 8.1 x86

Change...

Startup orientation

Portrait

Landscape

Emulated Performance

Graphics: Automatic

Device Frame

☒ Enable Device Frame

Show Advanced Settings

AVD Name

The name of this AVD.

Previous

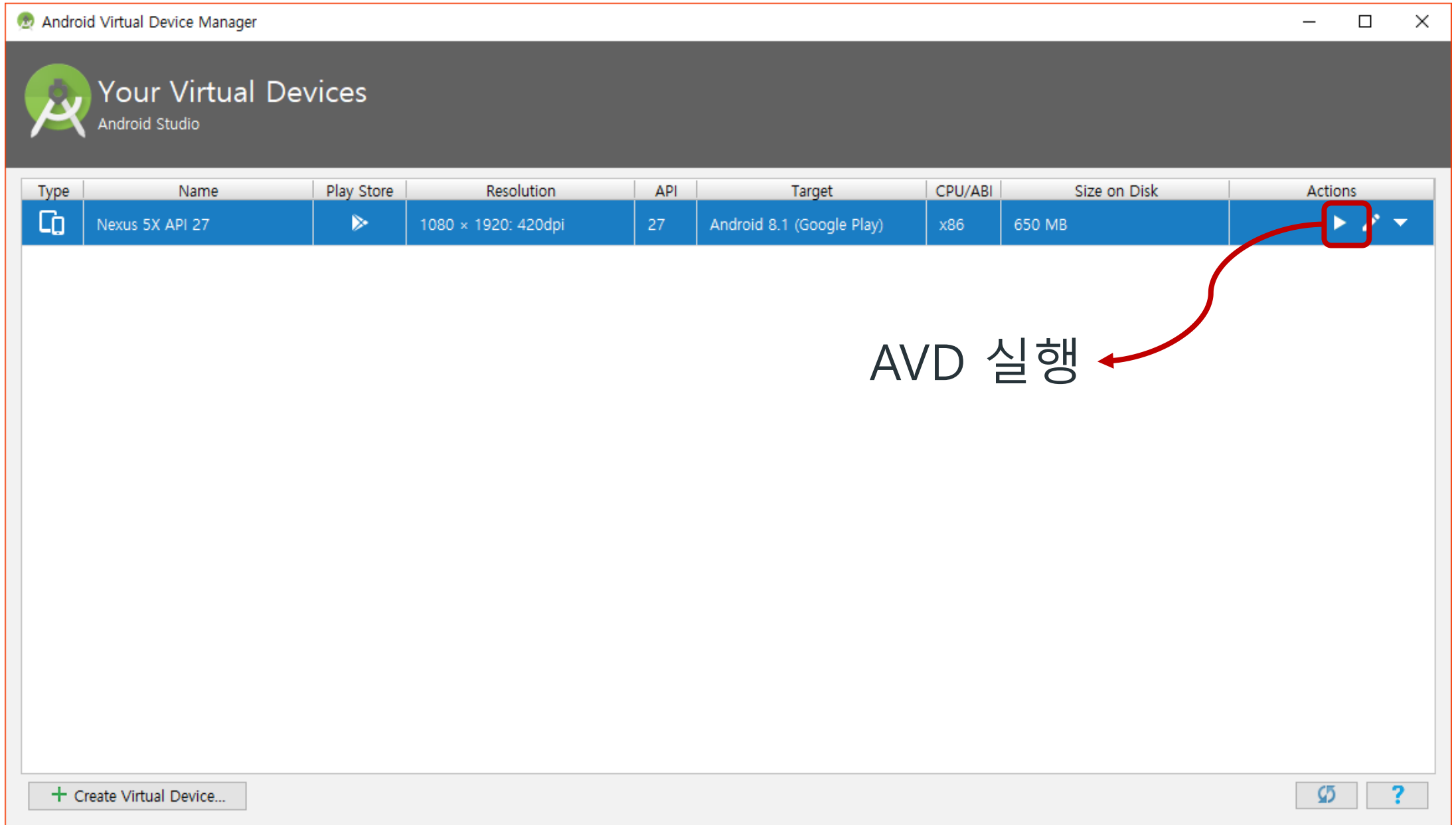
Next

Cancel

Finish






...Continued: AVD Manger에서 가상 장비 실행

66





Android Virtual Device Manager

Your Virtual Devices
Android Studio

Type	Name	Play Store	Resolution	API	Target	CPU/ABI	Size on Disk	Actions
	Nexus 5X API 27		1080 x 1920: 420dpi	27	Android 8.1 (Google Play)	x86	650 MB	  

AVD 실행

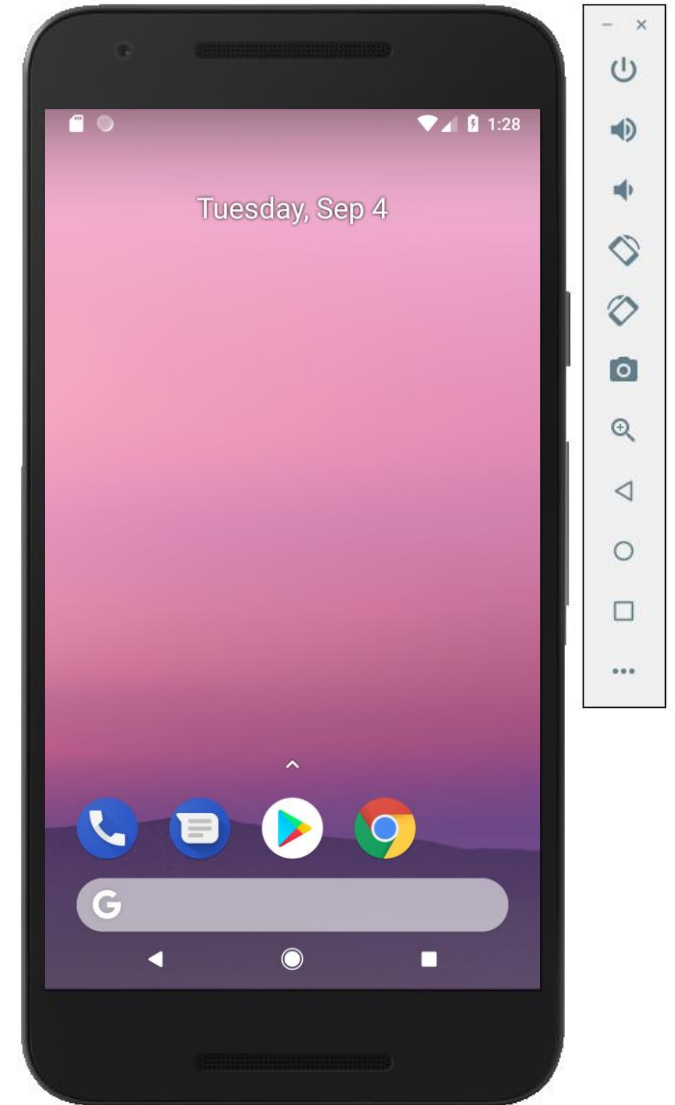
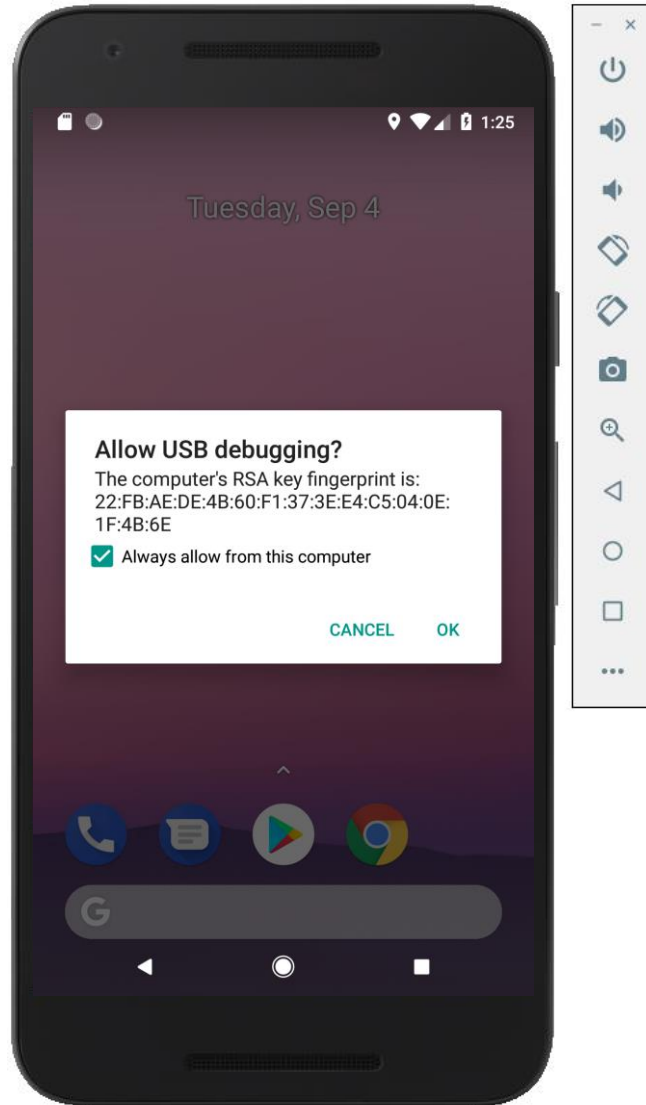
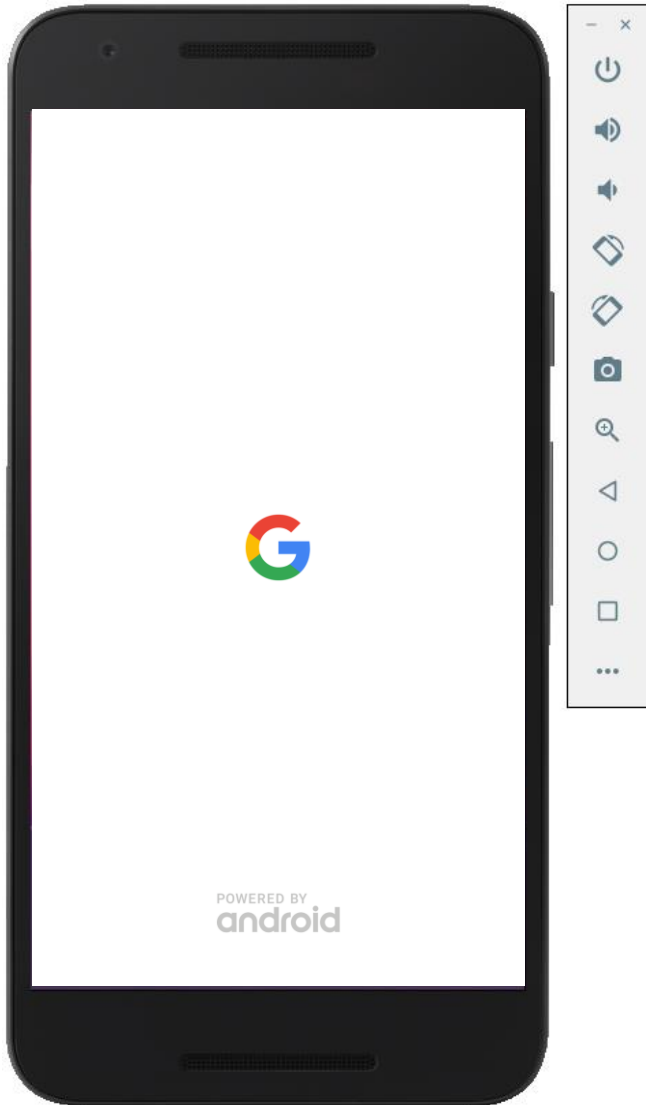
+ Create Virtual Device...

Continued

67

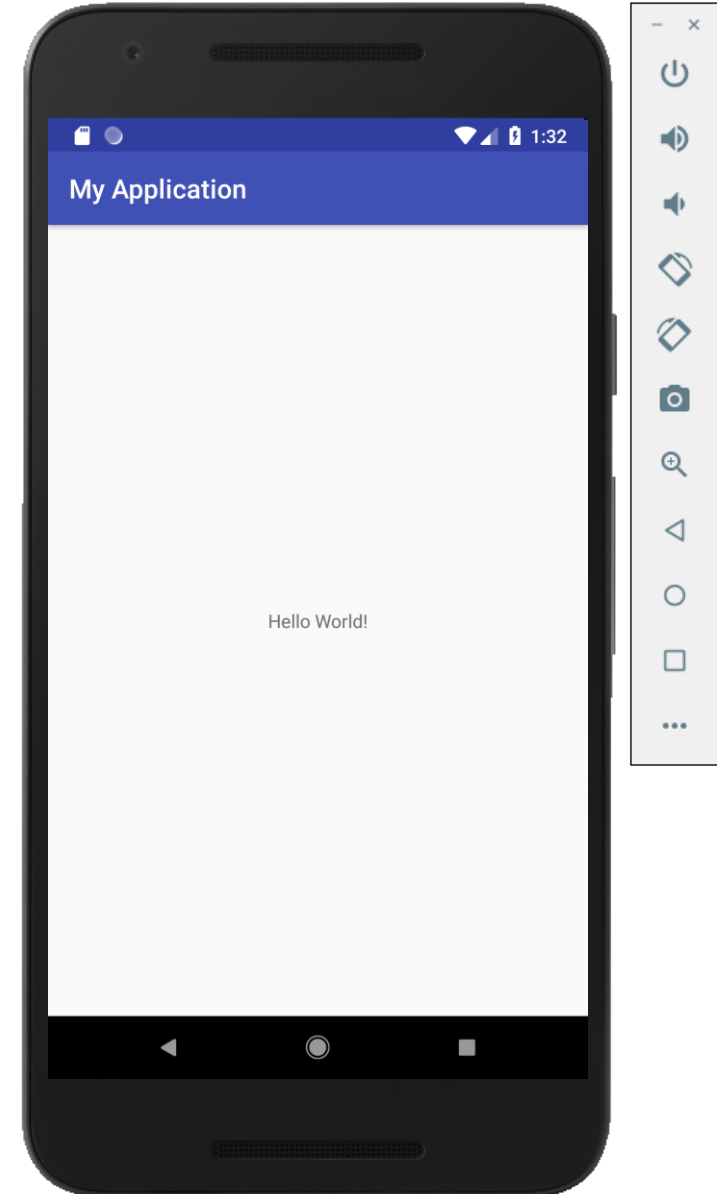
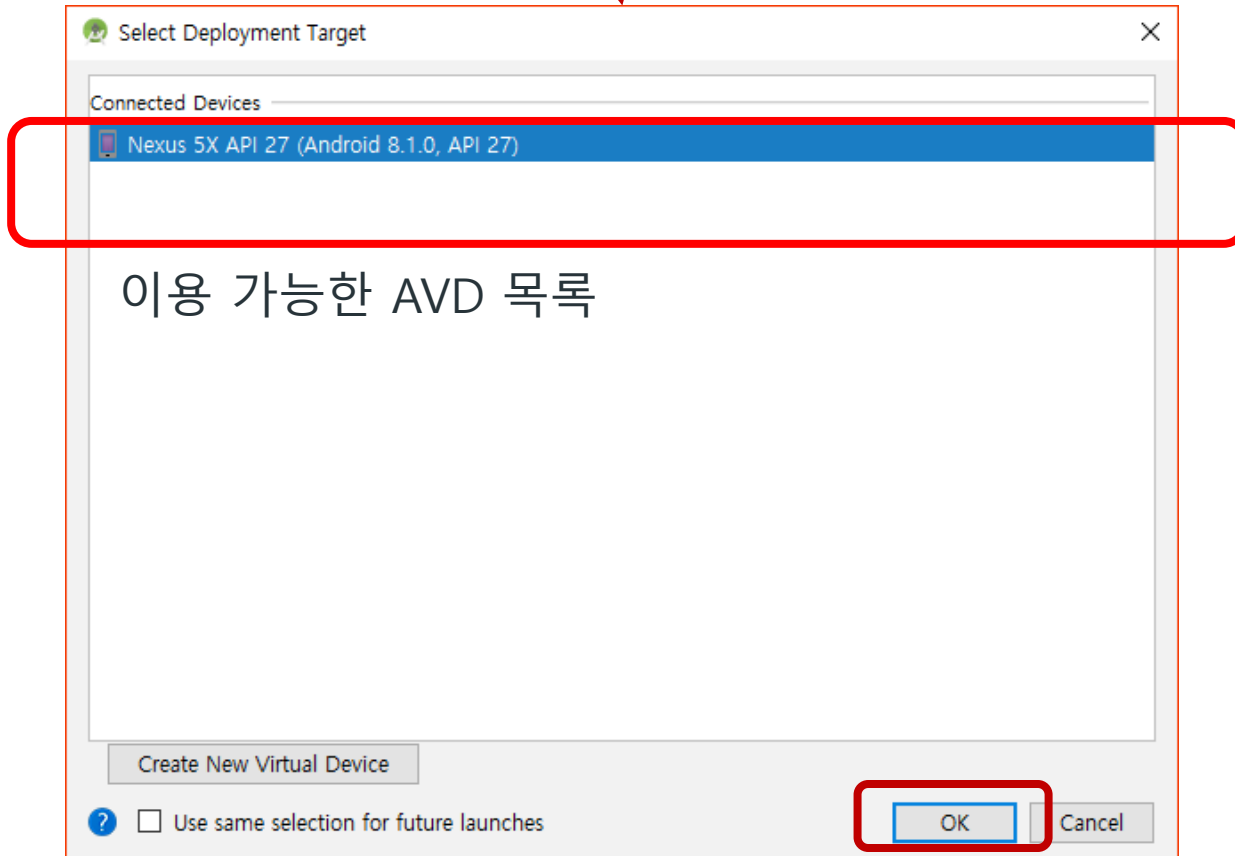
- Nexus 5X Oreo의 가상 머신 실행



스마트폰(AVD)으로 앱 실행하기

68

스마트폰 앱을 AVD를 통해 실행



Continued

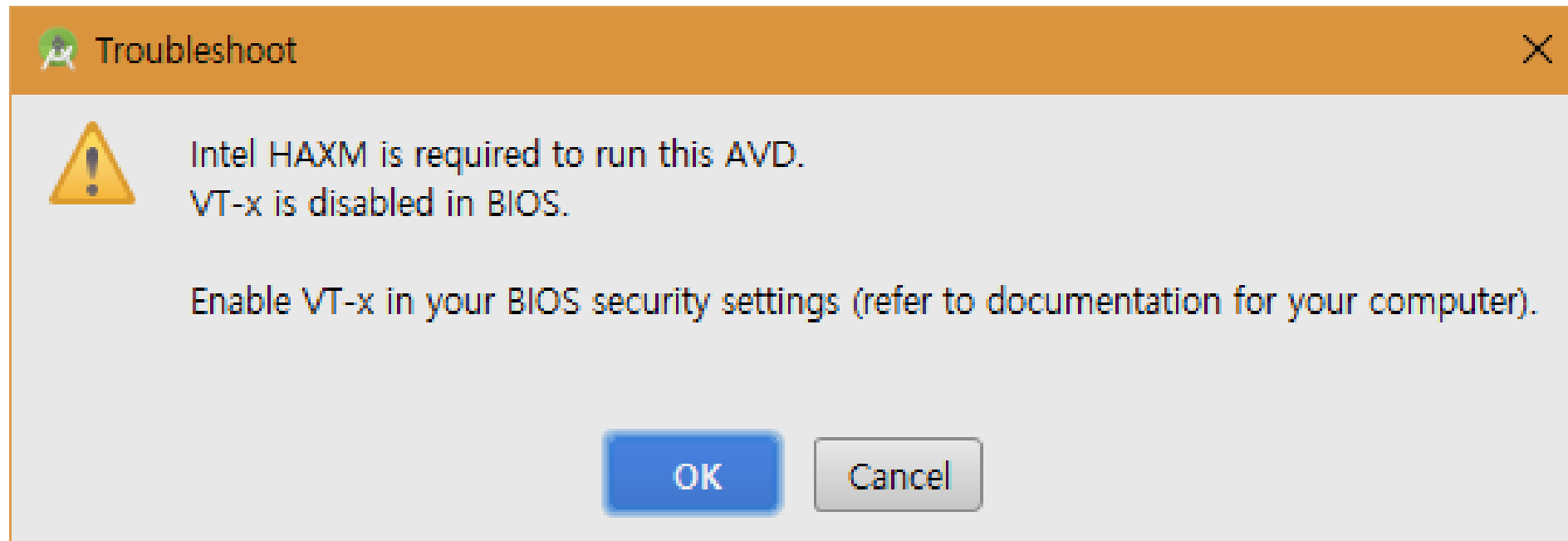
- AVD는 어플리케이션 개발 시에 지정한 **최소 SDK 버전 이상**만 되면 실행 가능하다.



Intel HAXM...AVD를 실행하기 위해 필요

70

- BIOS에서 VT-x 옵션 설정 필요





Step 3. 앱 실행 환경 구축 (실제 디바이스 연결)

Step 3. 앱 실행 환경 구축

72

- 삼성 스마트폰(<https://www.samsungsvc.co.kr/online/downloadMain.do?isDownload=T>)

The screenshot shows the Samsung Service Center website's download page. The browser address bar displays the URL: <https://www.samsungsvc.co.kr/online/downloadMain.do?isDownload=T>. The page features a navigation bar with links like '빠른 해결지원' (Quick Support), '서비스 신청/안내' (Service Request/Guide), and '고객의 소리' (Customer Voice). The main content area is titled '다운로드' (Download) and includes a search bar for '모델명 검색' (Model Name Search). Below the search bar, there's a section for '유용한 소프트웨어' (Useful Software) with categories like '휴대폰/기어' (Mobile/Gear), 'PC/프린터' (PC/Printer), and '기타' (Other). The '휴대폰/기어' category is selected, showing various software options. The '통합 USB 드라이버' (Integrated USB Driver) is highlighted with a red box. On the right side, there's a '센터 찾기' (Find Center) section and a '다운로드' (Download) section with a search bar for '모델명 입력' (Model Name Input).

빠른 해결지원 서비스 신청/안내 고객의 소리 **SAMSUNG 삼성전자서비스** 회사소개 공지사항 부품&소모품 구매

다운로드 이용방법 안내

홈 > 빠른 해결지원 > 다운로드

모델명 검색

제품에서 확인된 모델명을 입력하시면 보다 쉽게 찾을 수 있습니다. 예) NT900X5L-K716, NT900X5L, SM-N920S, SM-N920

유용한 소프트웨어

휴대폰/기어 PC/프린터 기타

스마트 스위치 (Smartswitch) 키스 (Kies) 사이드싱크 (SideSync) 통합 USB 드라이버 액션디렉터 (ActionDirector) 기어 아이콘X (Gear IconX) 기어 아이콘X 바로가기

센터 찾기
가까운 센터의 위치를 안내해 드립니다.
센터명/주변 명칭 입력
시/도 시/군/구 검색

다운로드
제품에서 확인된 모델명을 입력해 주세요.
모델명 입력
예) NT940X5M-X78, NT940X5M, SM-G955XN, SM-G955

많이하는 질문 5

- 1 스마트폰 잠금 해제(비밀...
- 2 에어컨, 스마트하게 사용...
- 3 웹사이트에서 글자가 입...
- 4 스마트폰 데이터 이동 완...
- 5 휴대폰 침수 시 응급 조...

오늘 본 콘텐츠 보유제품 현황

- 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.

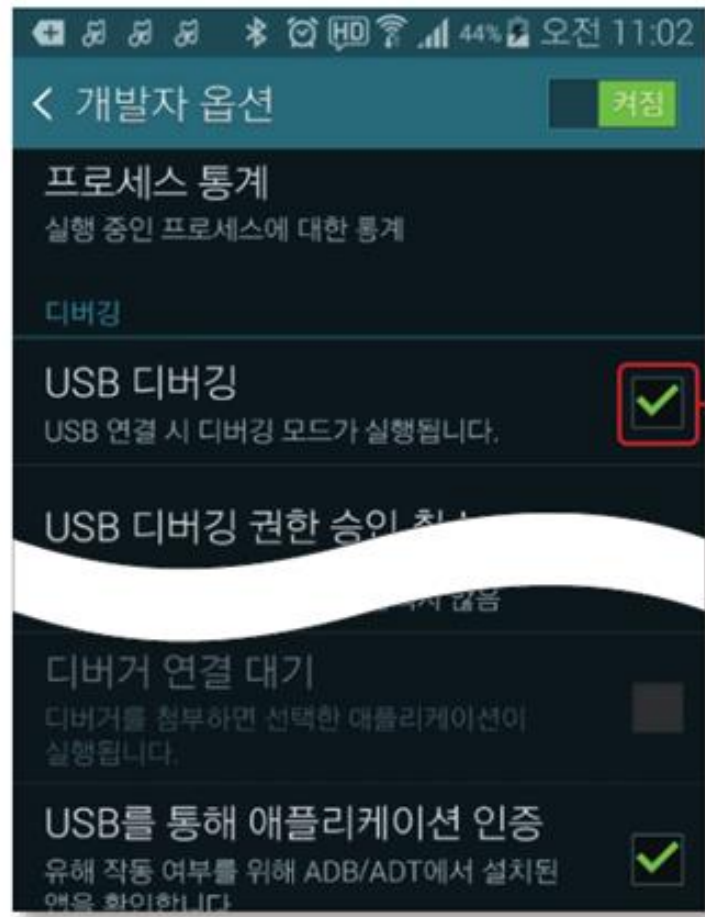
다운로드

상세보기

Continued...스마트폰의 환경 설정

74

- 설정 > 개발자 옵션에서 'USB 디버깅'을 실행 가능하도록 체크

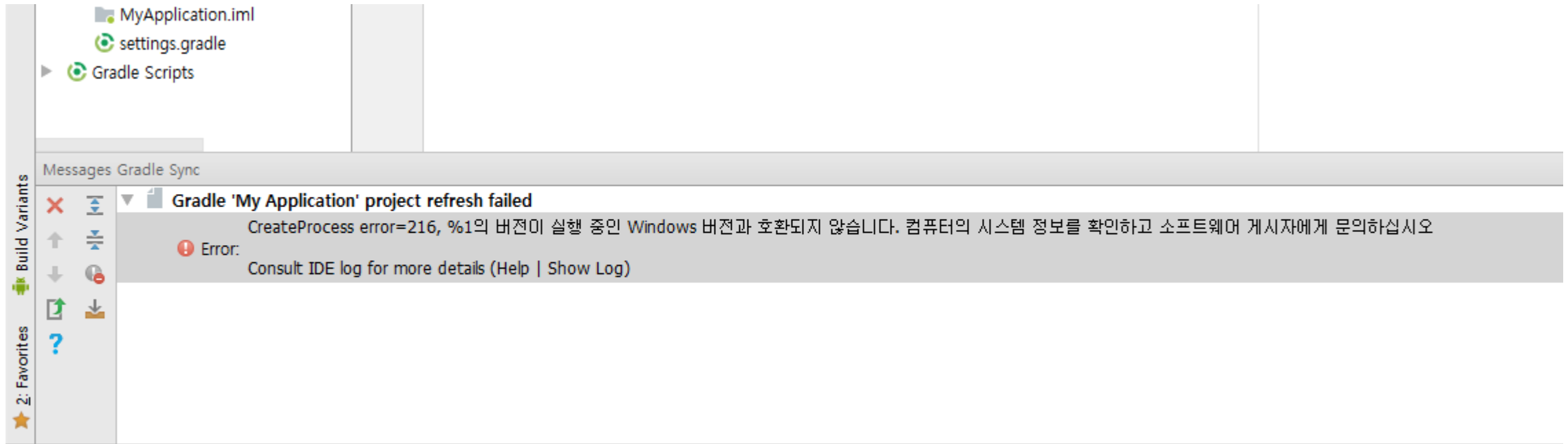




기타...문제 해결하기

Gradle 'My Application' project refresh failed

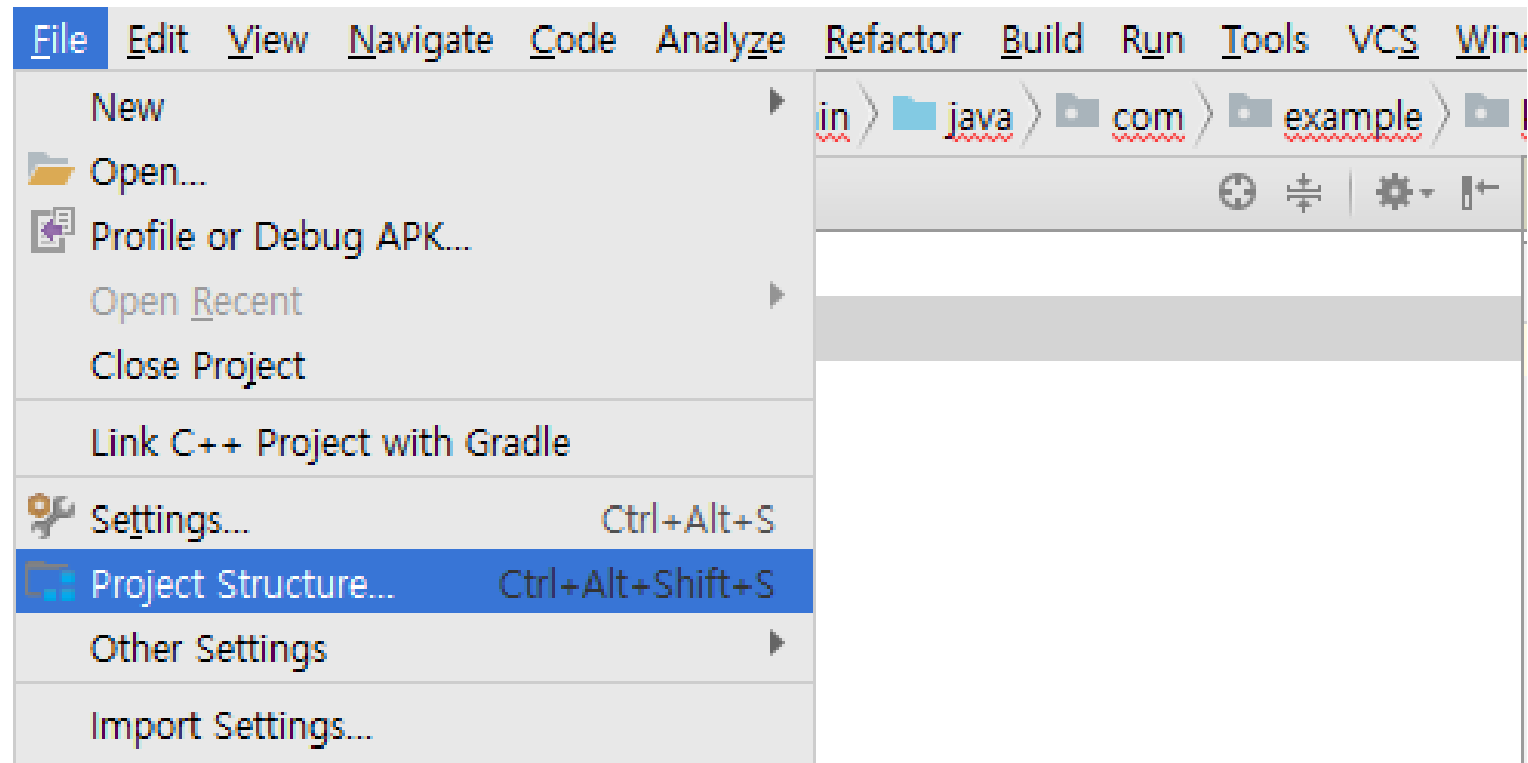
76



➔ JDK Location(자바의 설치 경로를 변경 설정이 필요)

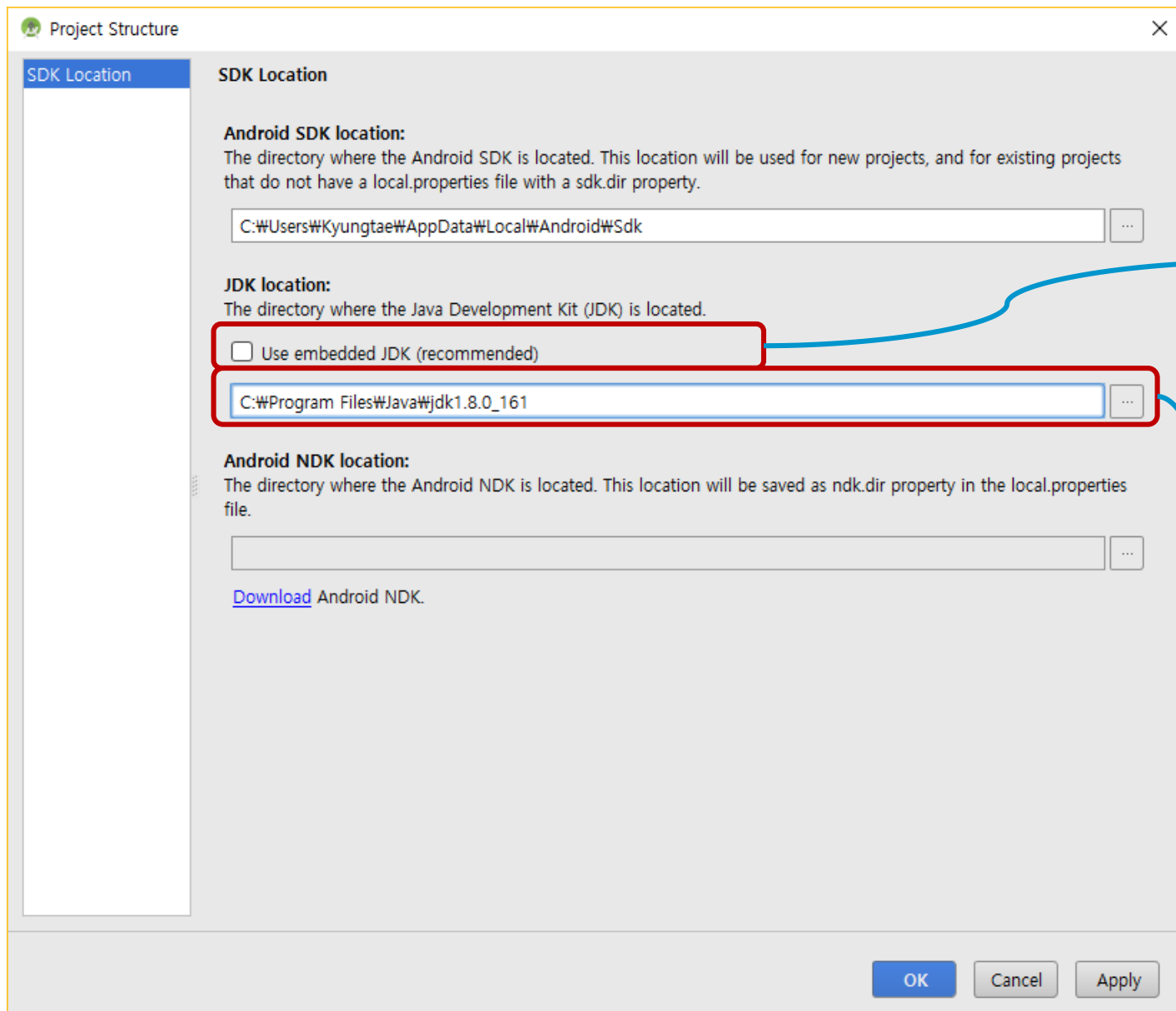
Project Structure... 수정

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JDK Location(자바의 설치 경로를 변경 설정)

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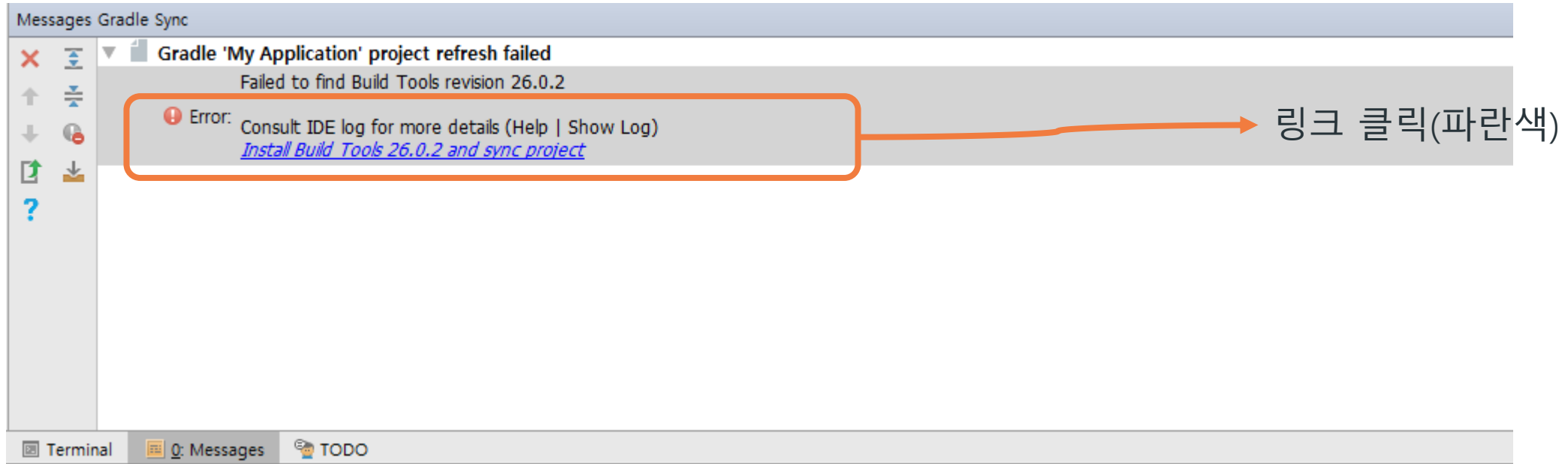


체크 해제

자신PC에 설치된 JDK 폴더 선택
C:\Program Files\Java\jdk1.8.0_161

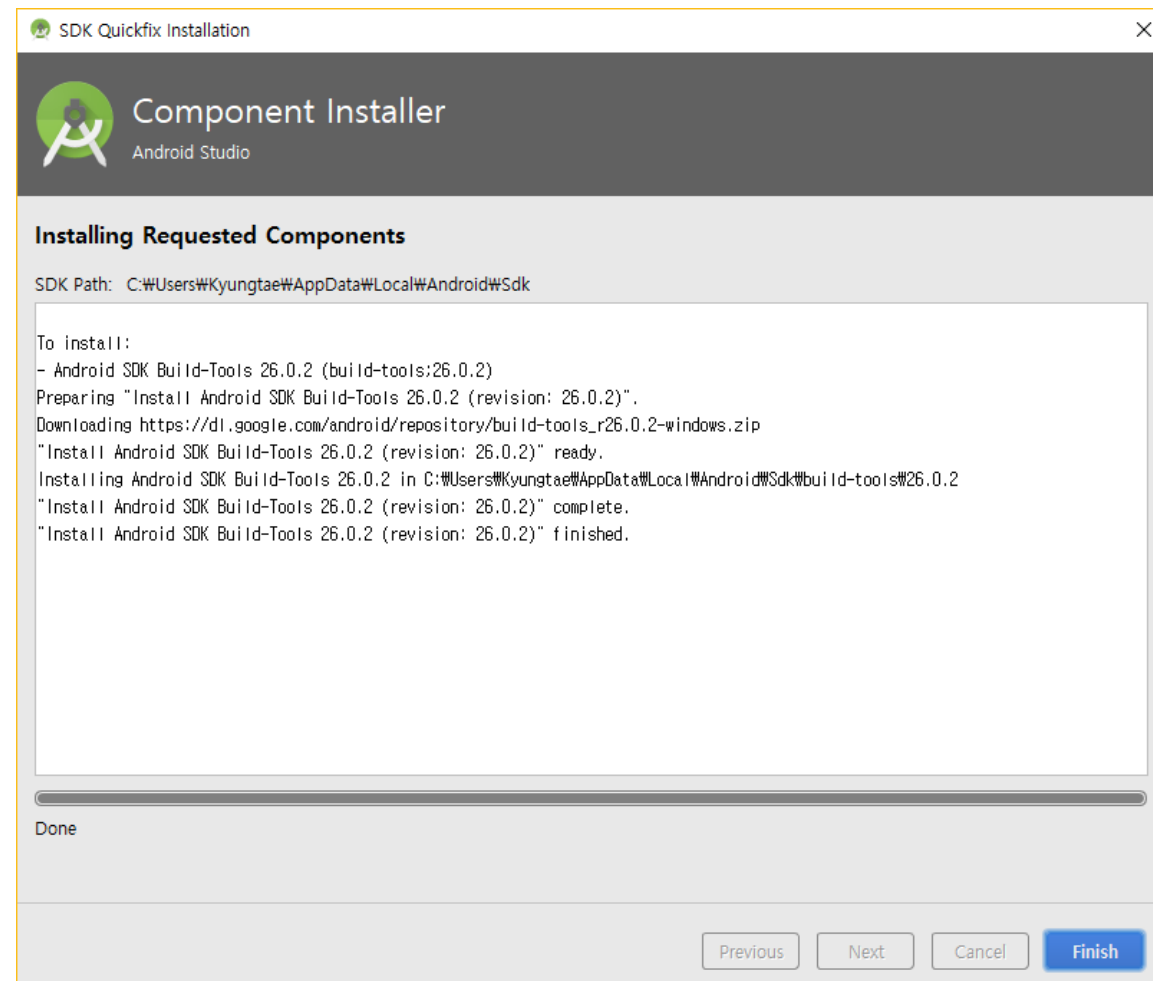
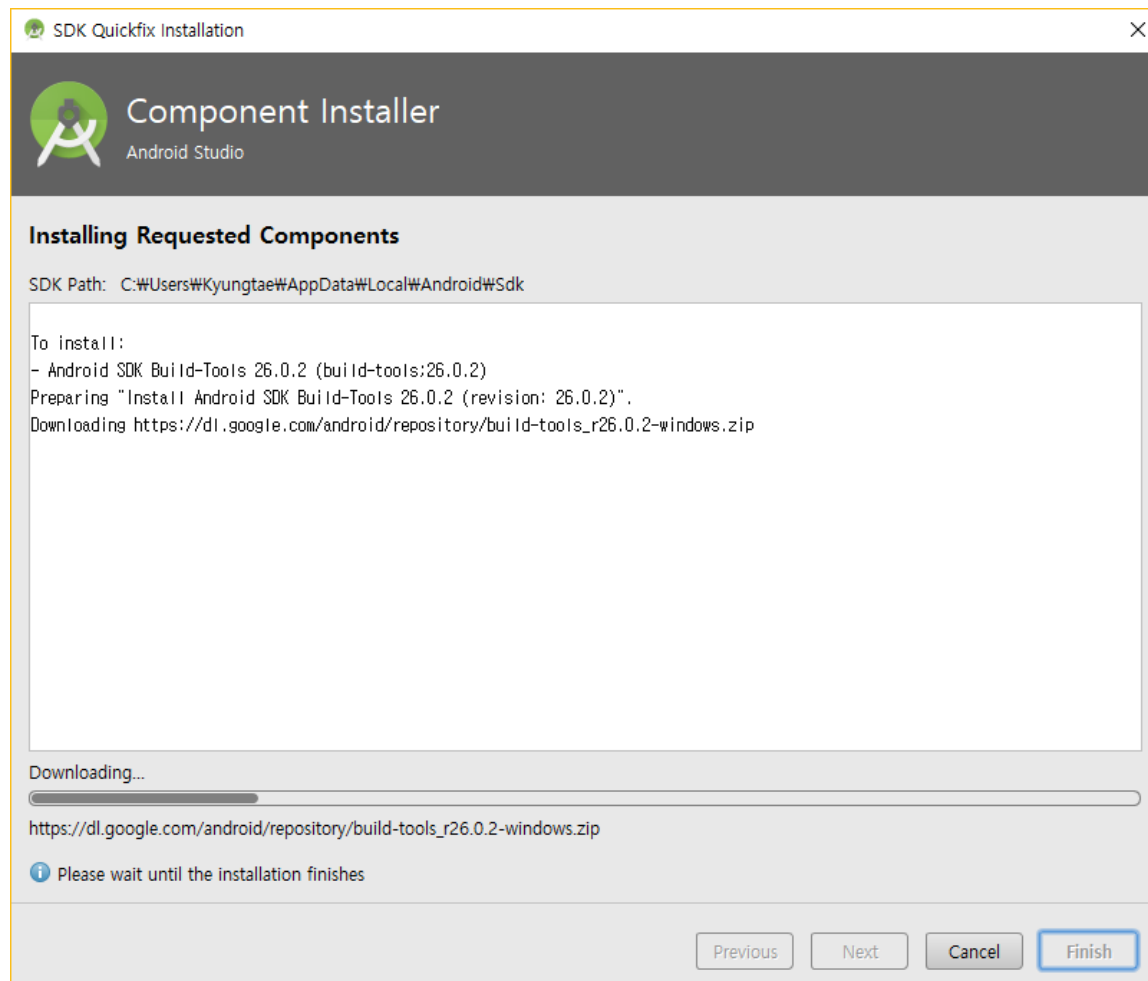
Gradle project refresh Error!!!

79



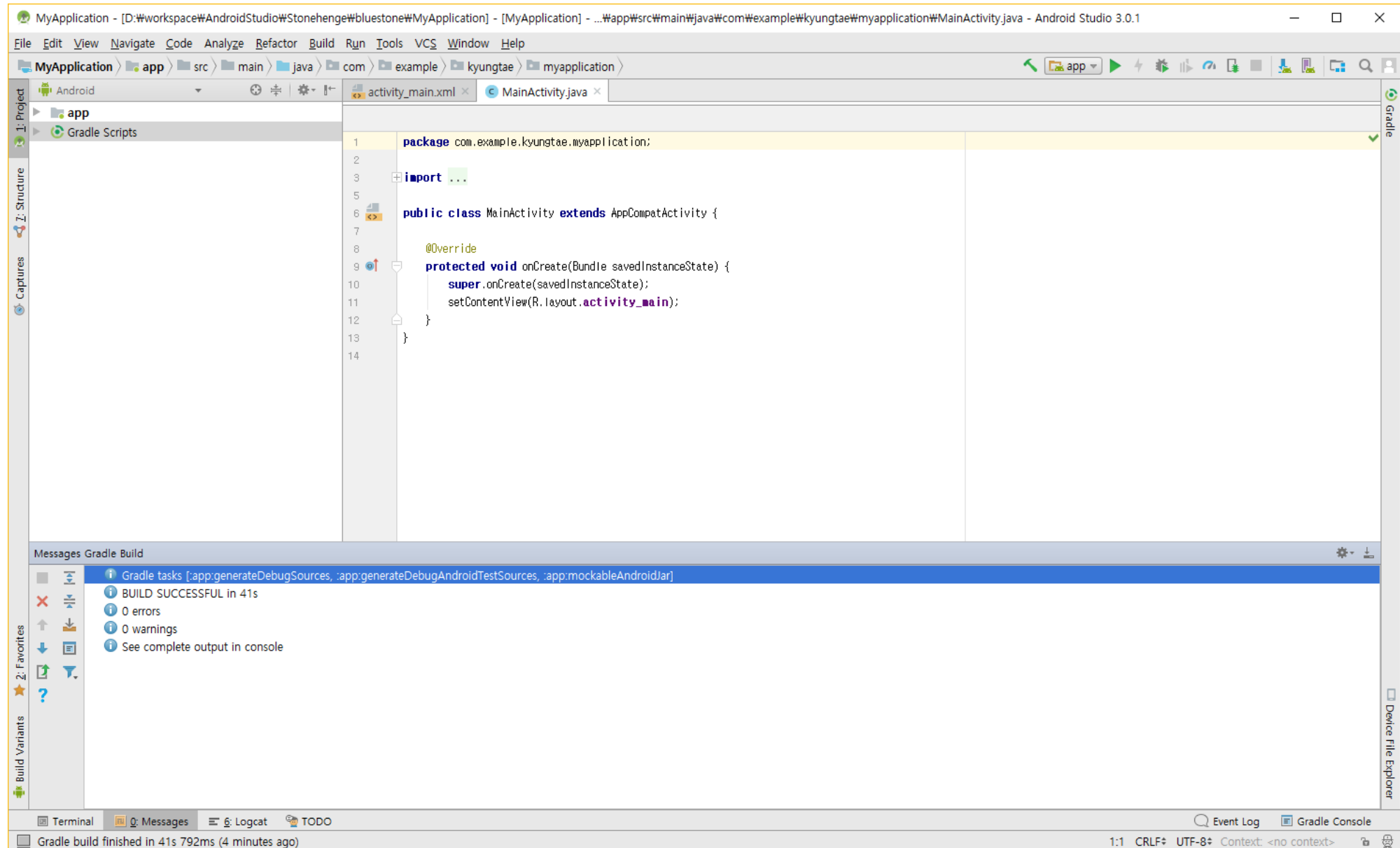
Continued...Android Studio 개발환경

80



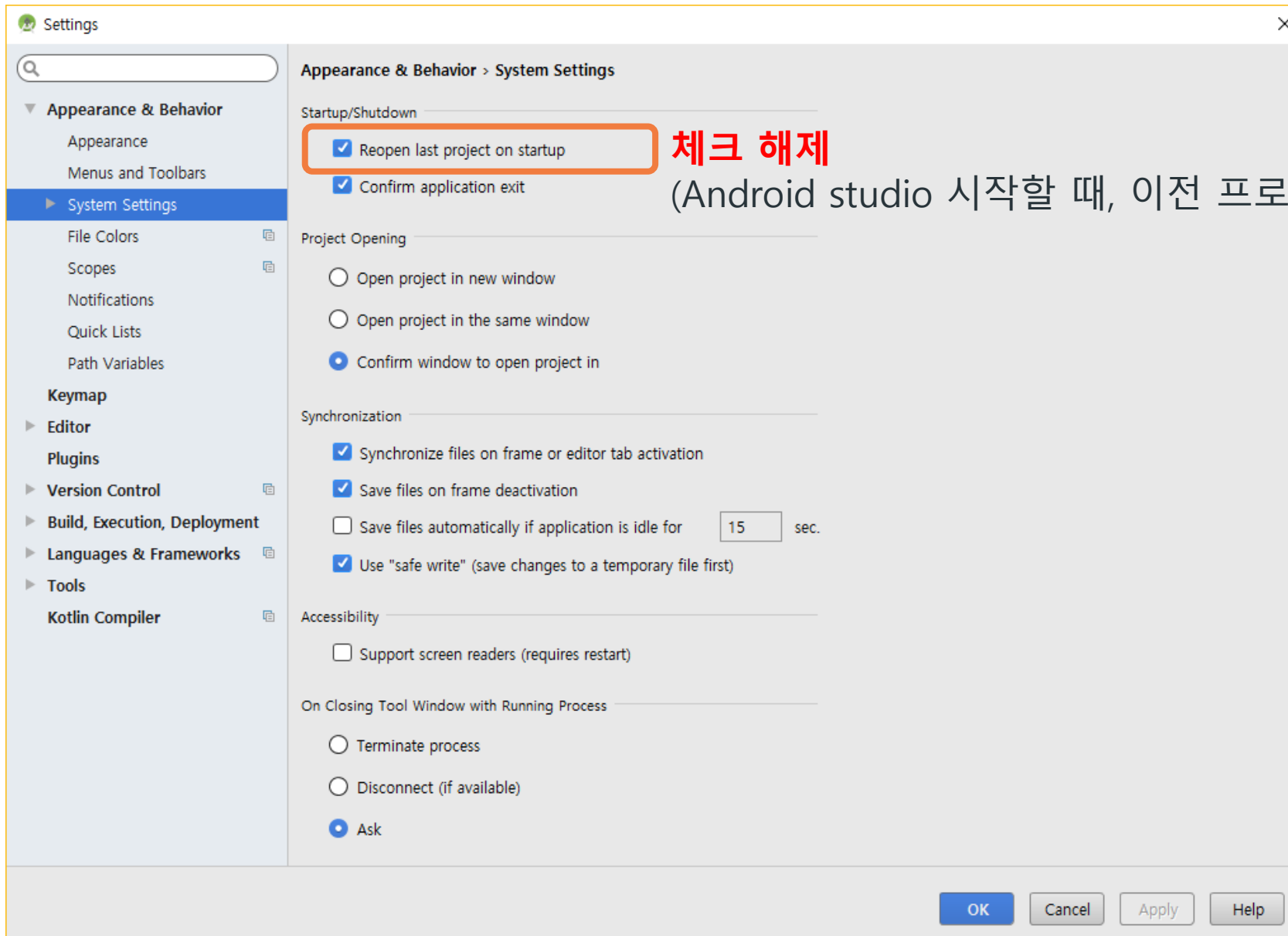
New Project...완성(Gradle Synchronizing...Complete)

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Android Studio Settings

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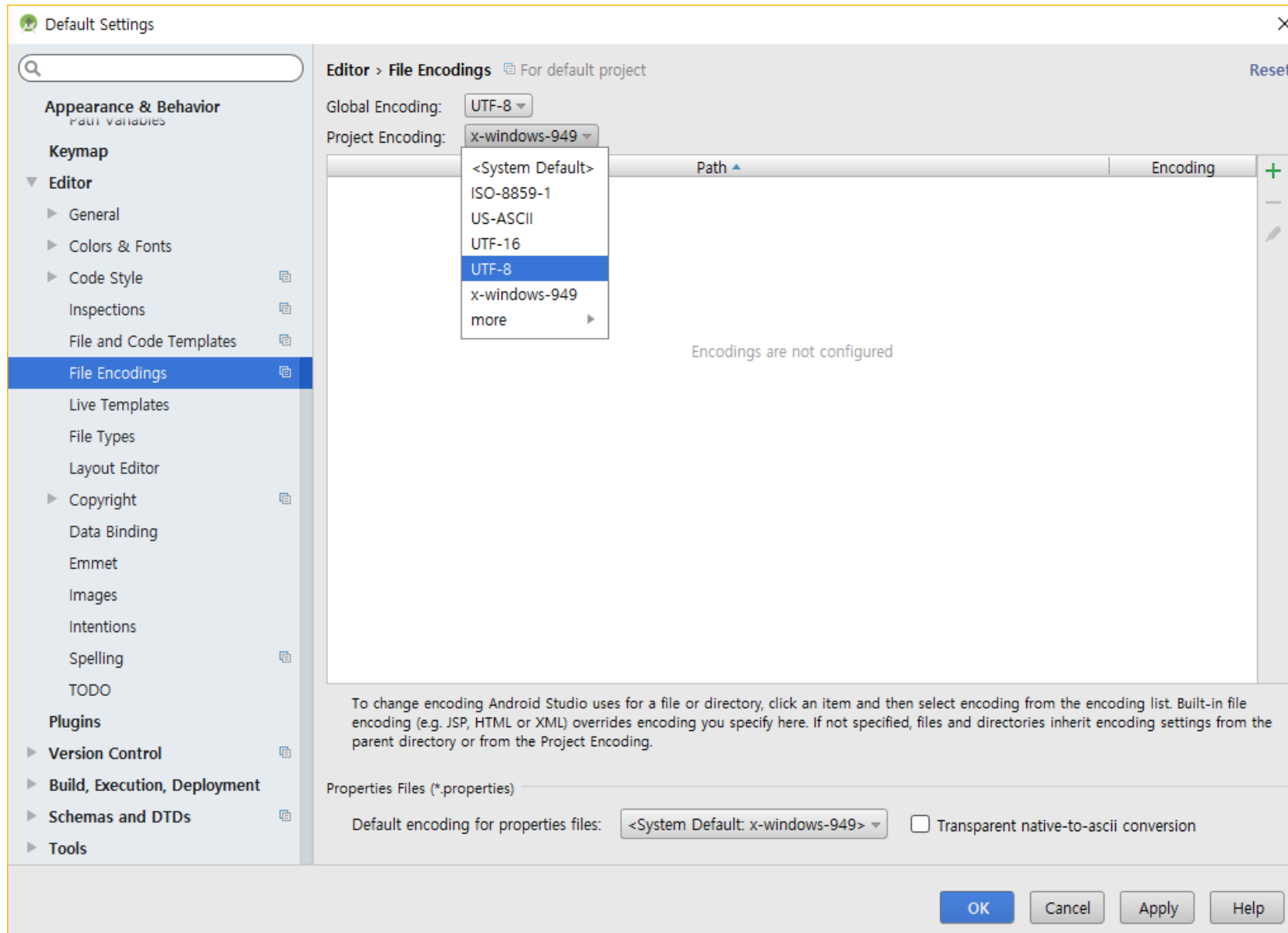


체크 해제

(Android studio 시작할 때, 이전 프로젝트 열기 옵션)

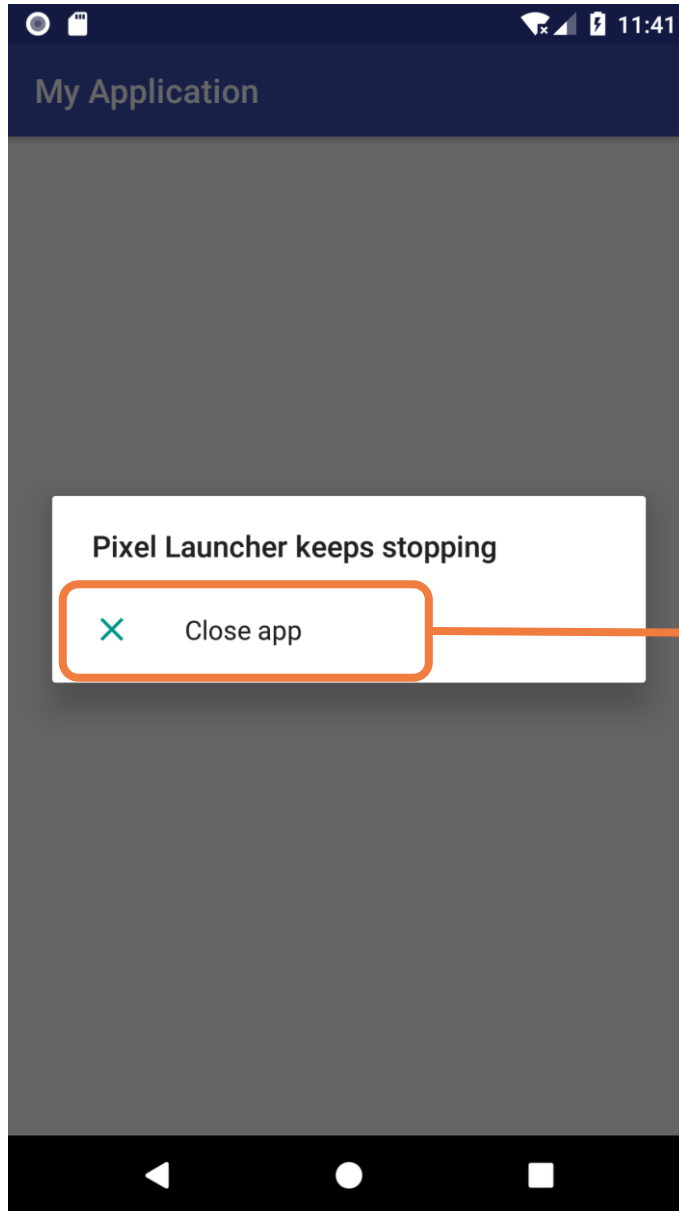
Android Studio Settings – File Encodings(UTF-8)

83



컴퓨터의 낮은 성능의 그래픽 카드

84

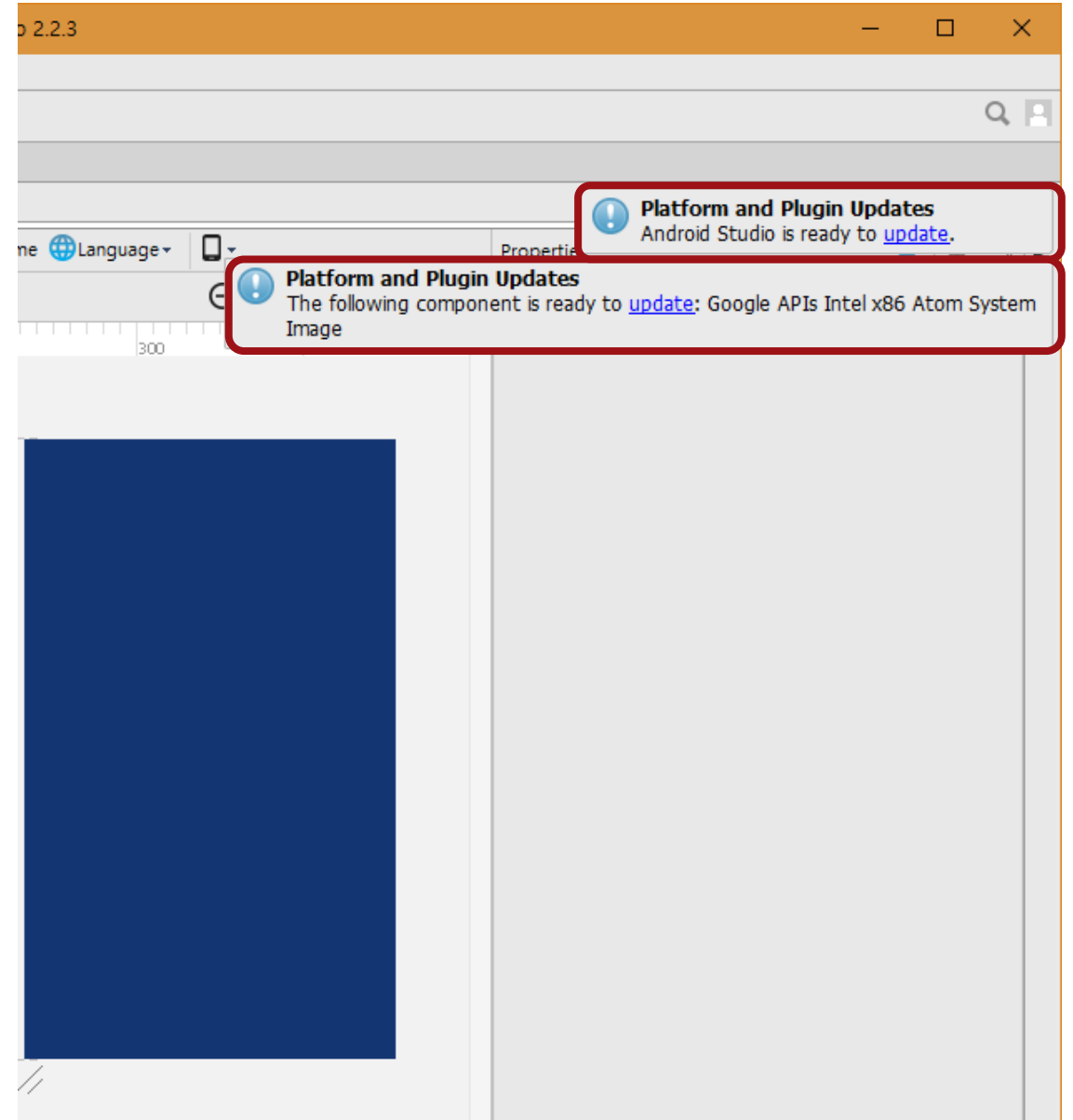


Close app 클릭

Android Studio updates...

85

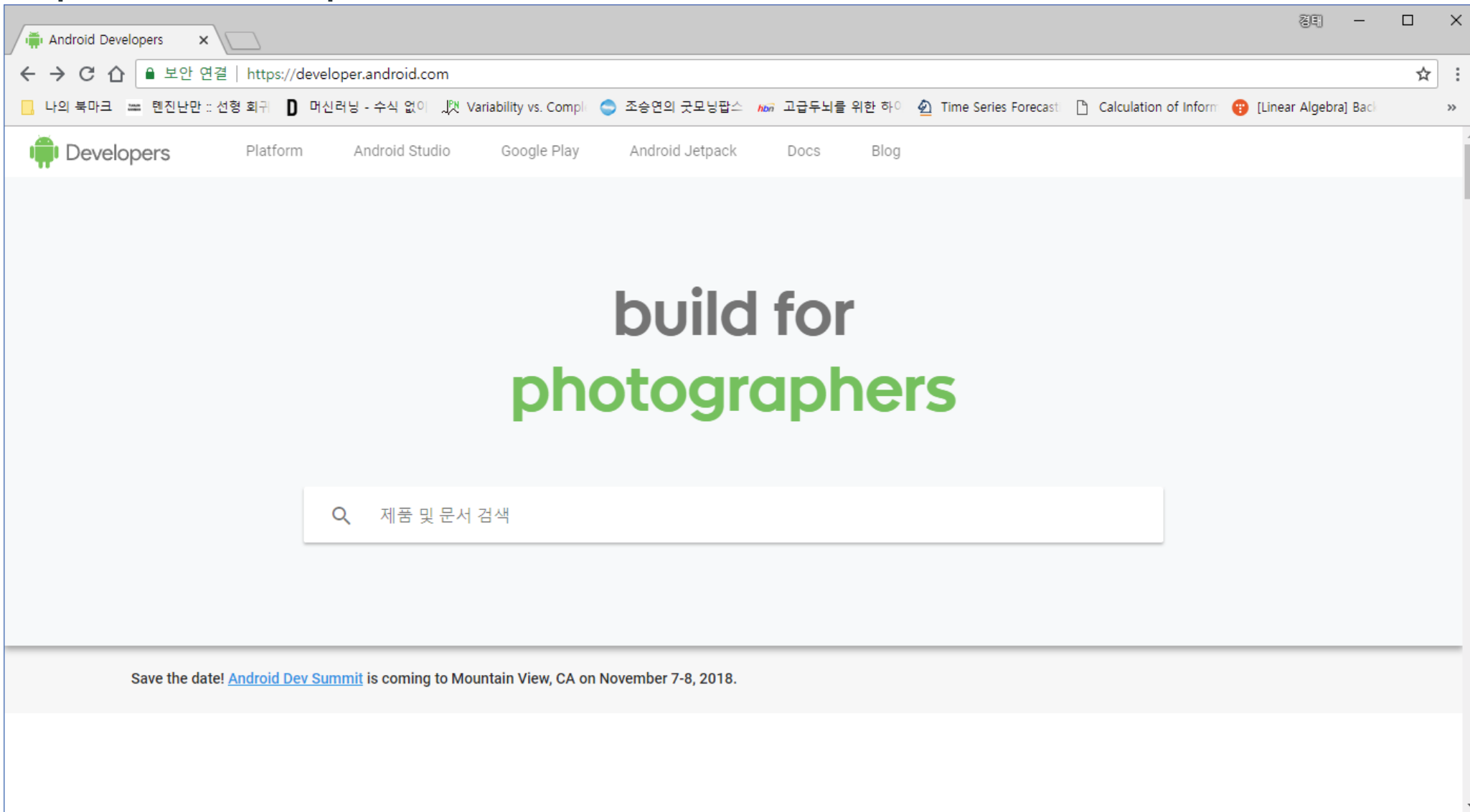
- Update 수행하지 말 것
(무시하세요)



Android Developers Homepage

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



Android Developers Homepage

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

