

Mobile Application Development

Android Development Environment

What You Need?

- Java Development Kit (JDK)
- Android Studio (IDE + SDK)



Java Development Kit (JDK)

- Before you can setup Android development environment, you need to install **Java Development Kit** on your machine.
- Java Development Kit (JDK)
 - **Download:**
<http://www.oracle.com/technetwork/java/javase/downloads/>
 - **Setting up PATH and CLASSPATH**
<http://docs.oracle.com/javase/tutorial/essential/environment/paths.html>

Android Studio

- Android Studio is the official IDE for Android application development, based on IntelliJ IDEA.
- Android SDK comes with Android Studio, so you don't need to install it separately.
- Android Studio
 - **Download:**
<http://developer.android.com/sdk/index.html>



Download Android Studio

The screenshot shows the official Android Developers website. At the top, there's a navigation bar with tabs for 'Developers' (selected), 'Design', 'Develop', 'Distribute', and search/filter icons. Below the navigation is a secondary horizontal menu with 'Training', 'API Guides', 'Reference', 'Tools' (selected), 'Google Services', and 'Samples'. On the left, a sidebar titled 'Download' lists categories like 'Installing the SDK', 'Adding SDK Packages', 'Android Studio' (which is expanded to show 'Workflow', 'Tools Help', 'Build System', 'Support Library', 'Revisions', 'NDK', and 'ADK'), and 'System Requirements'. The main content area features the 'Android Studio' logo and a list of included components: 'Android Studio IDE', 'Android SDK tools', 'Android 5.0 (Lollipop) Platform', and 'Android 5.0 emulator system image with Google APIs'. A large green button labeled 'Download Android Studio for Windows' is highlighted with a red oval. To the right, there's a preview of the Android Studio interface showing code editor, file browser, and a connected smartphone.

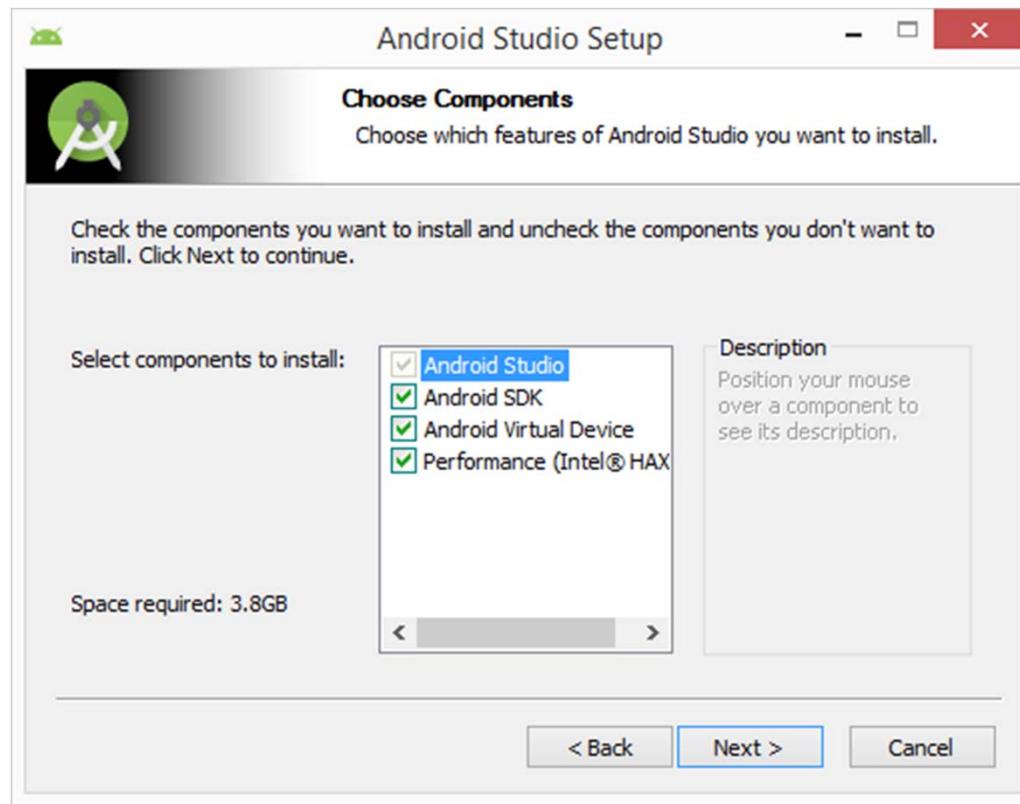
Installation

- Double click the downloaded file (Over 800 MBs) and follow instructions.

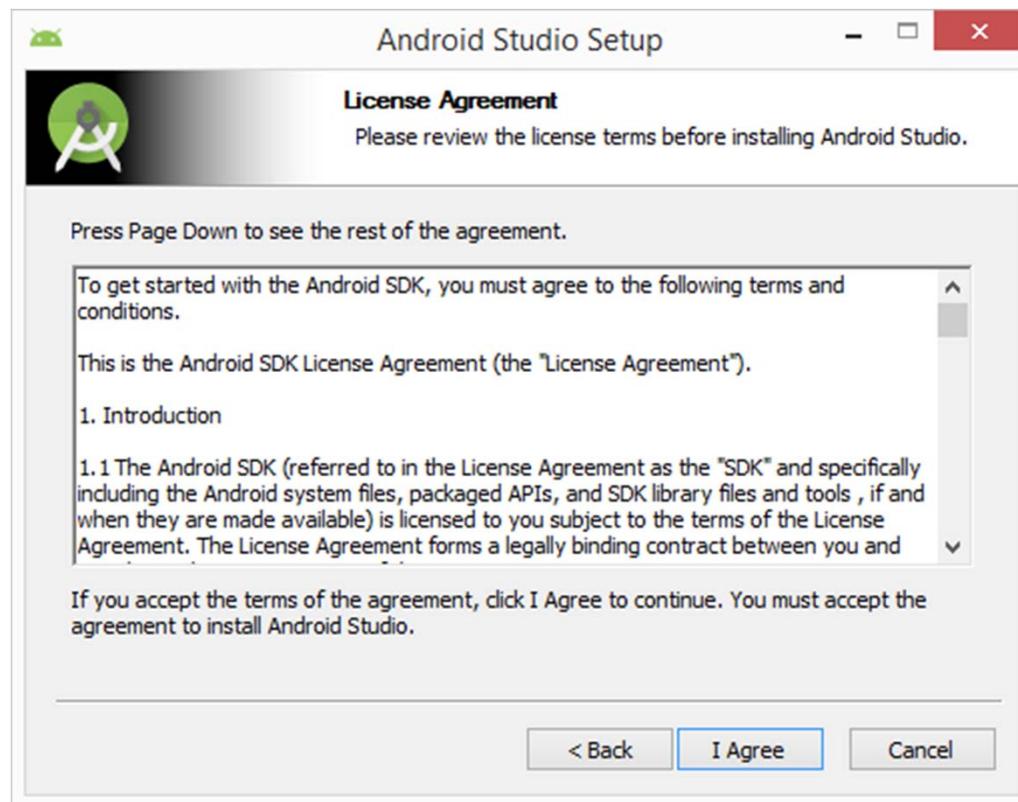
Installation



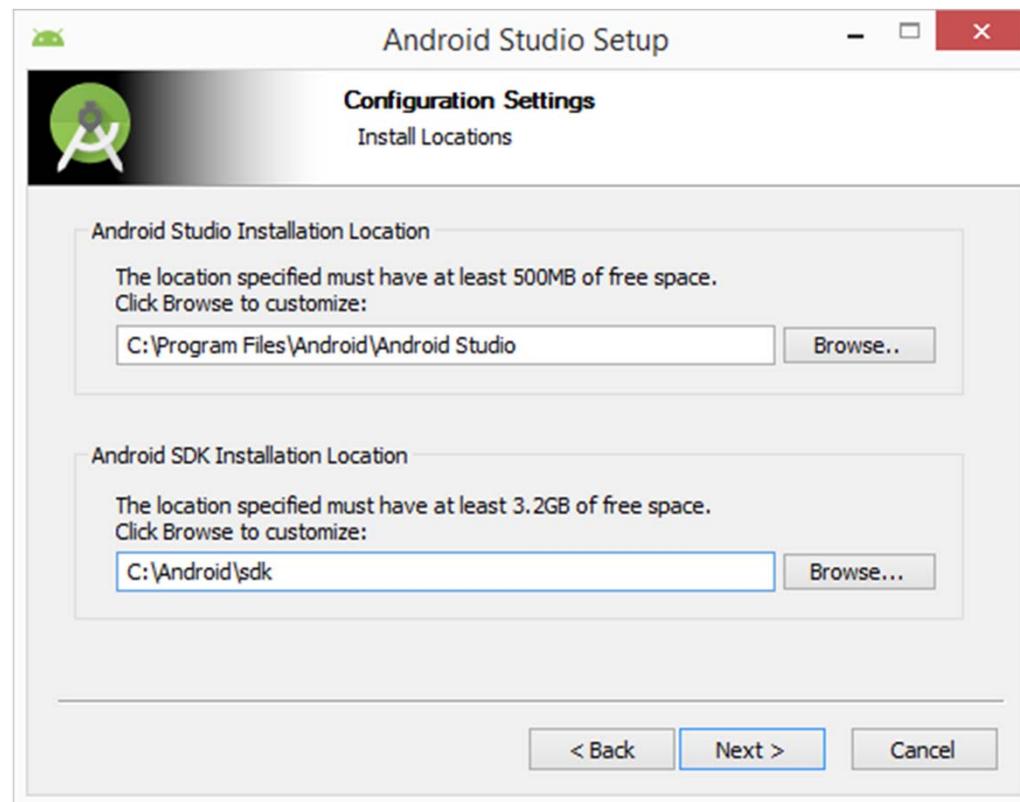
Installation



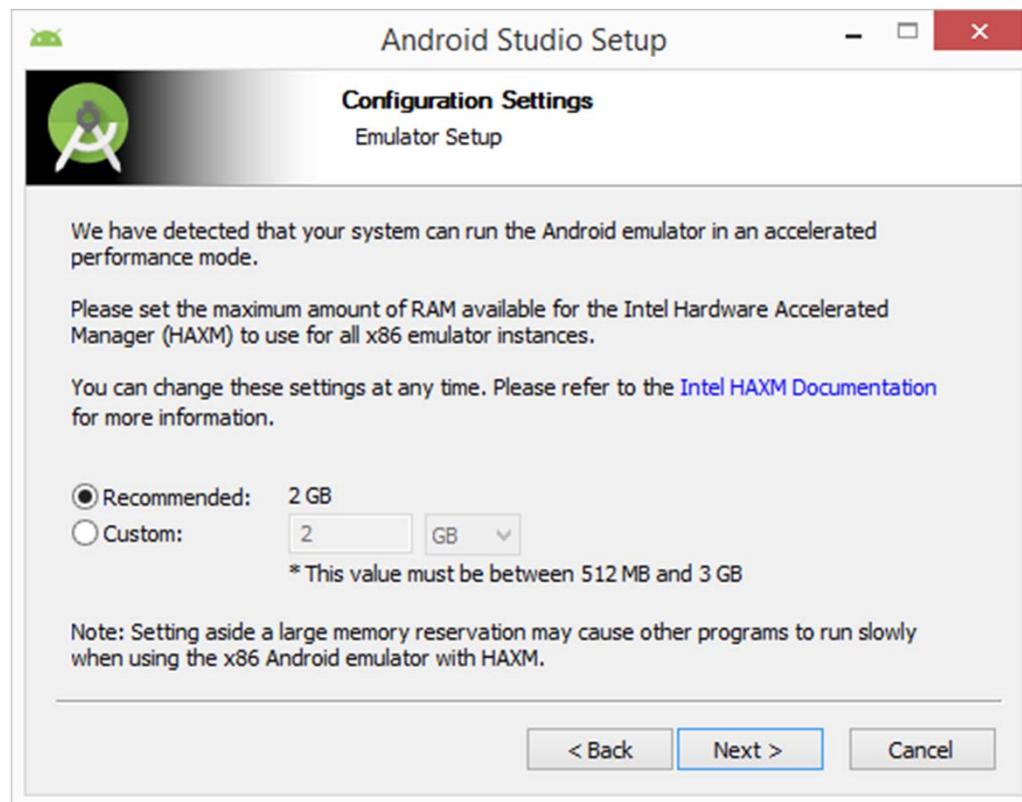
Installation



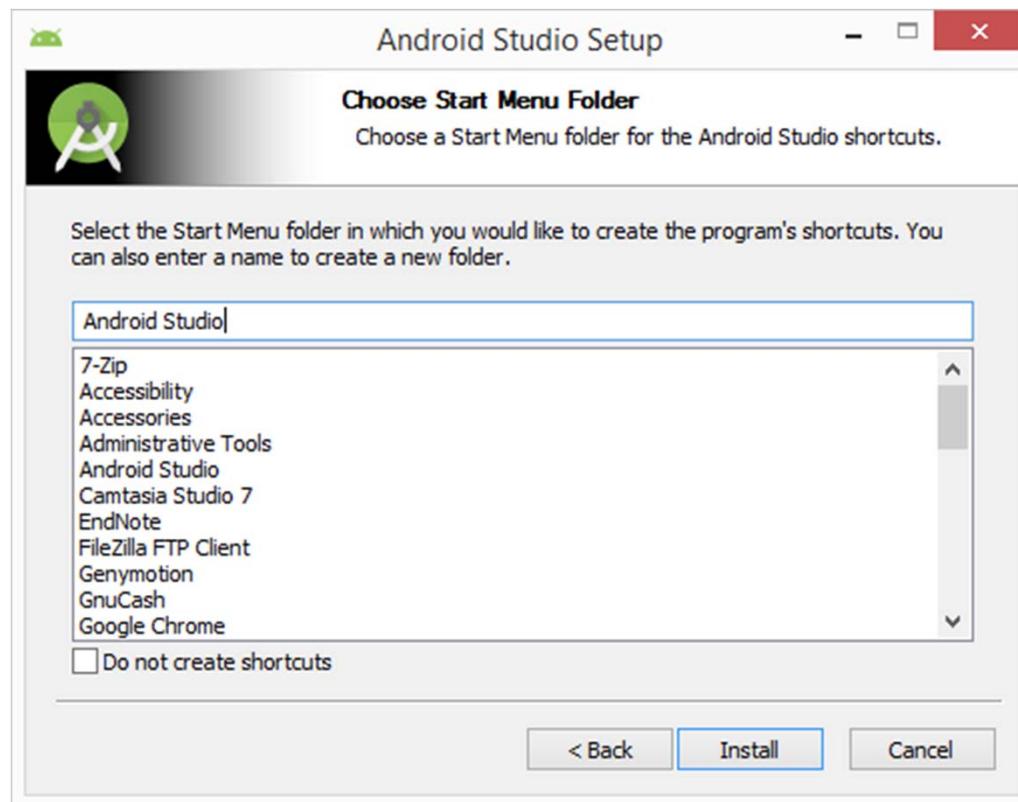
Installation



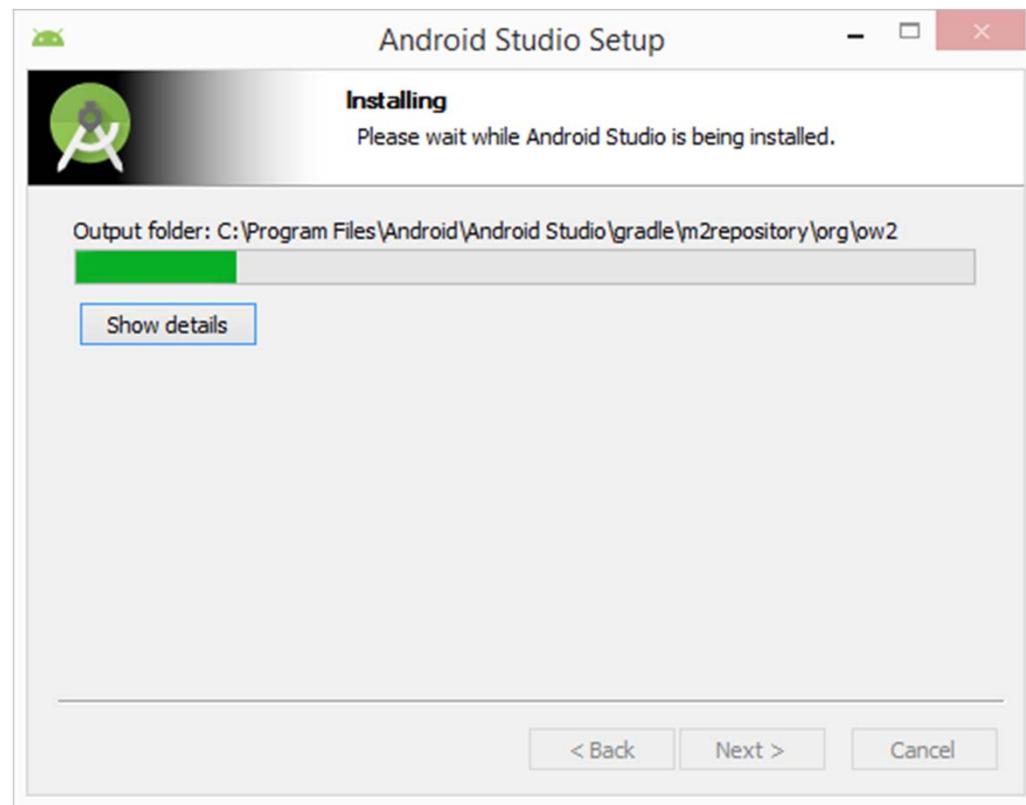
Installation



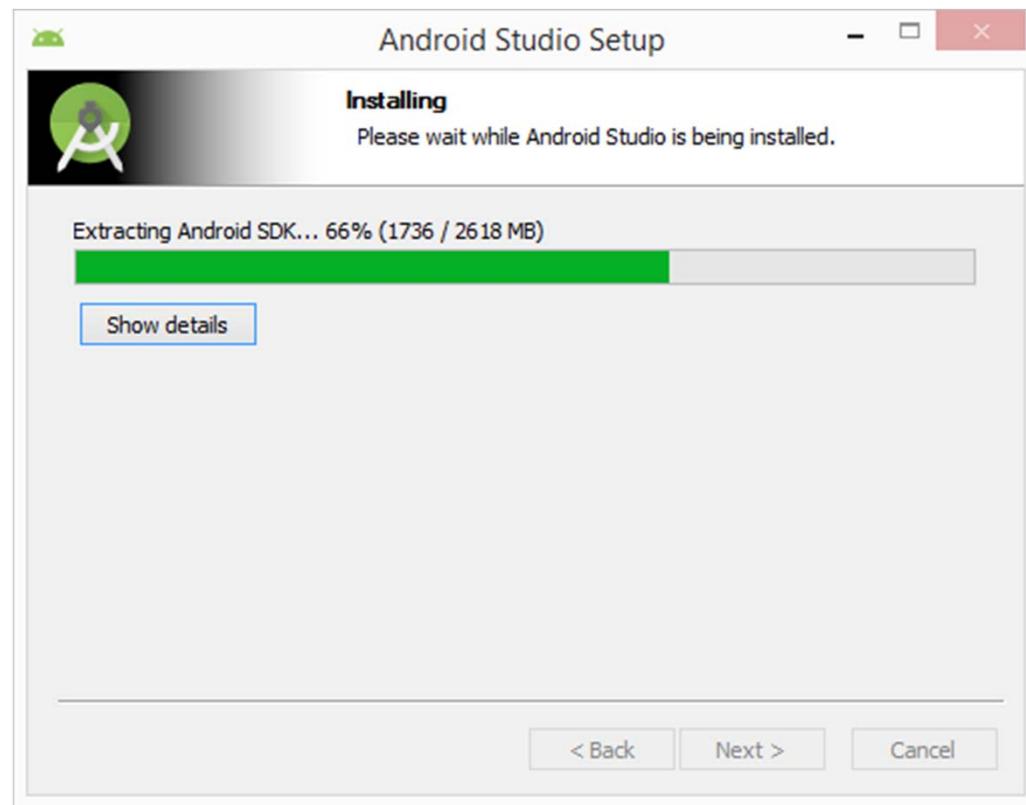
Installation



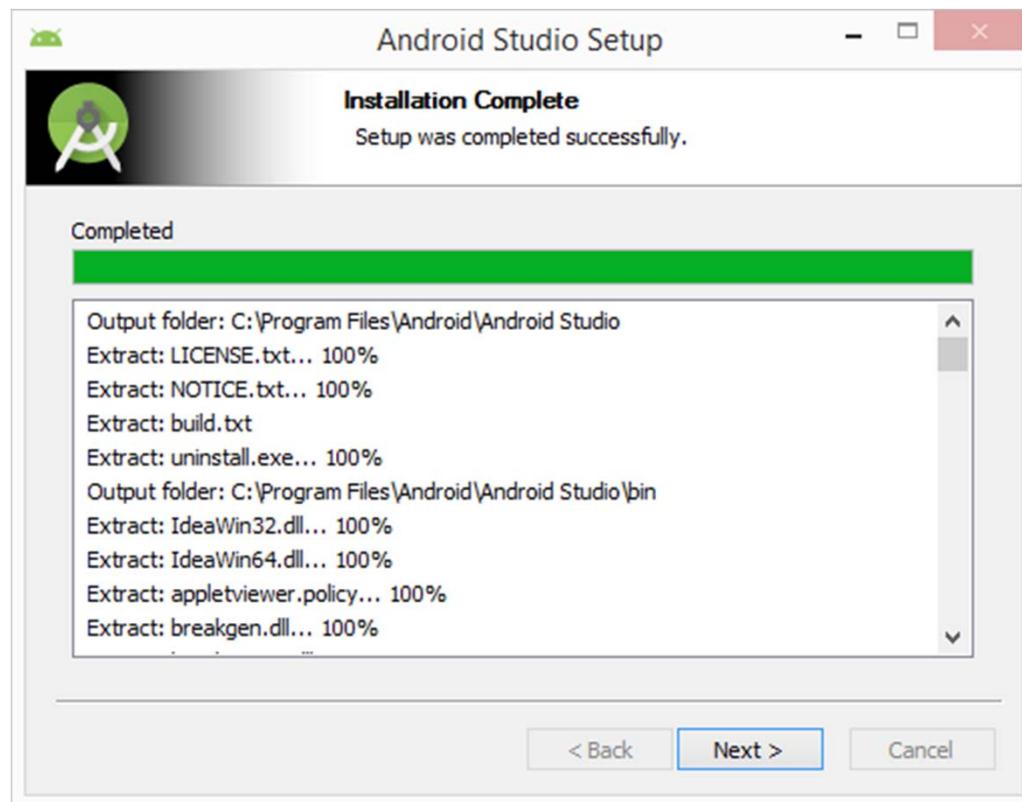
Installation



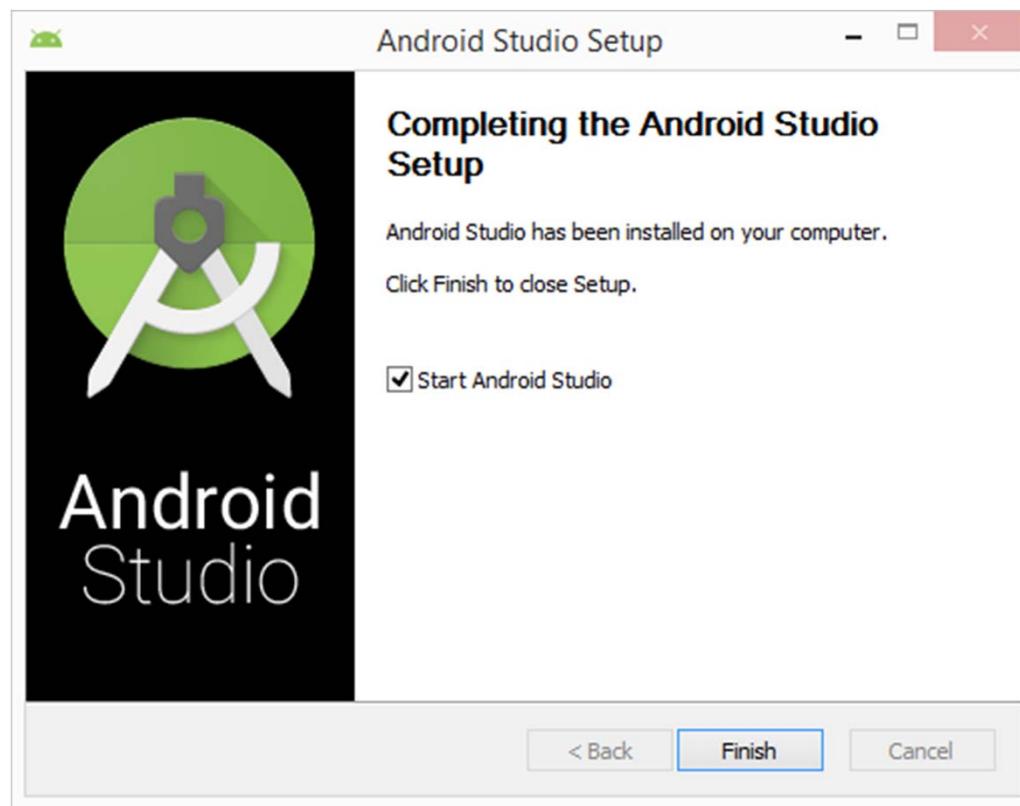
Installation



Installation



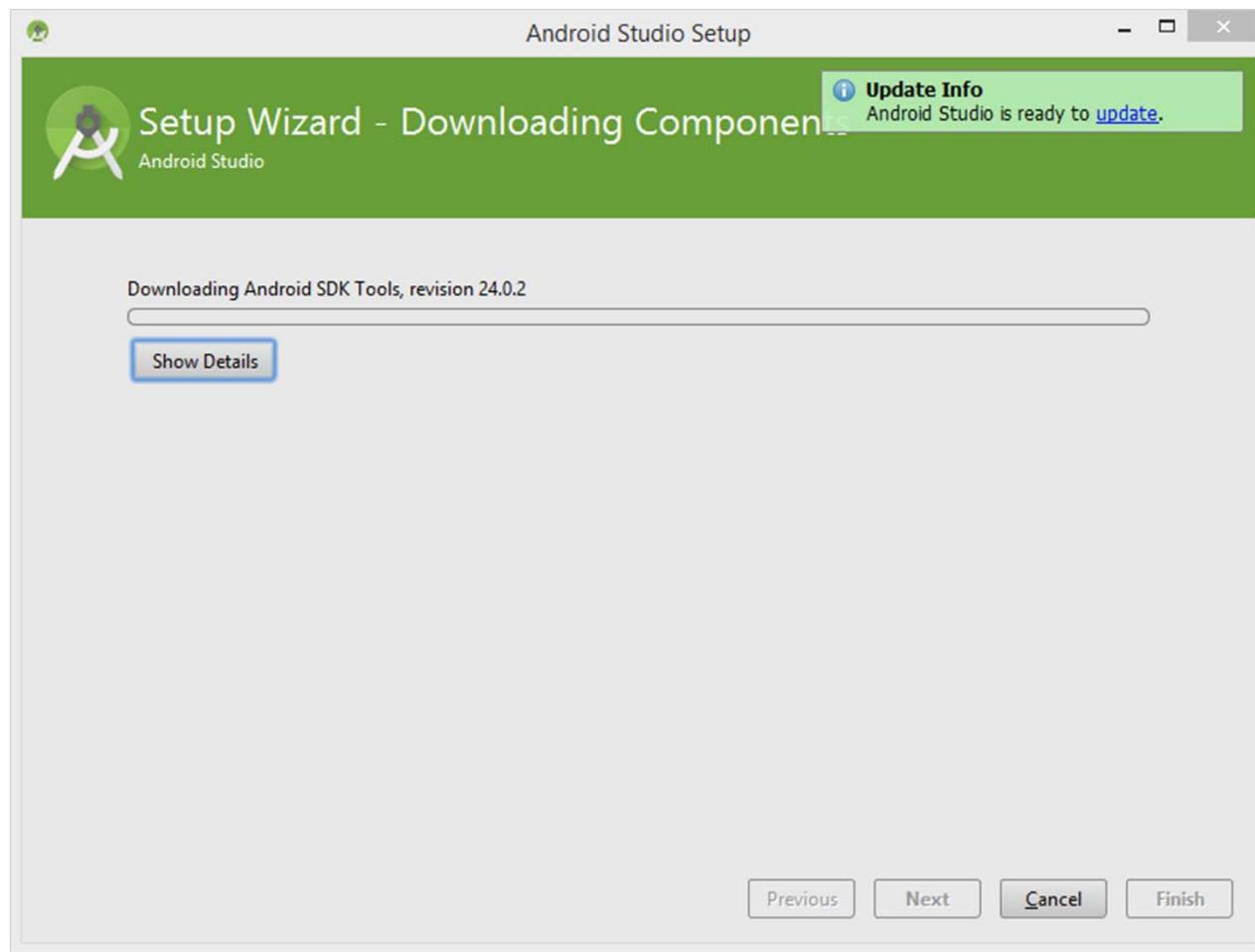
Installation



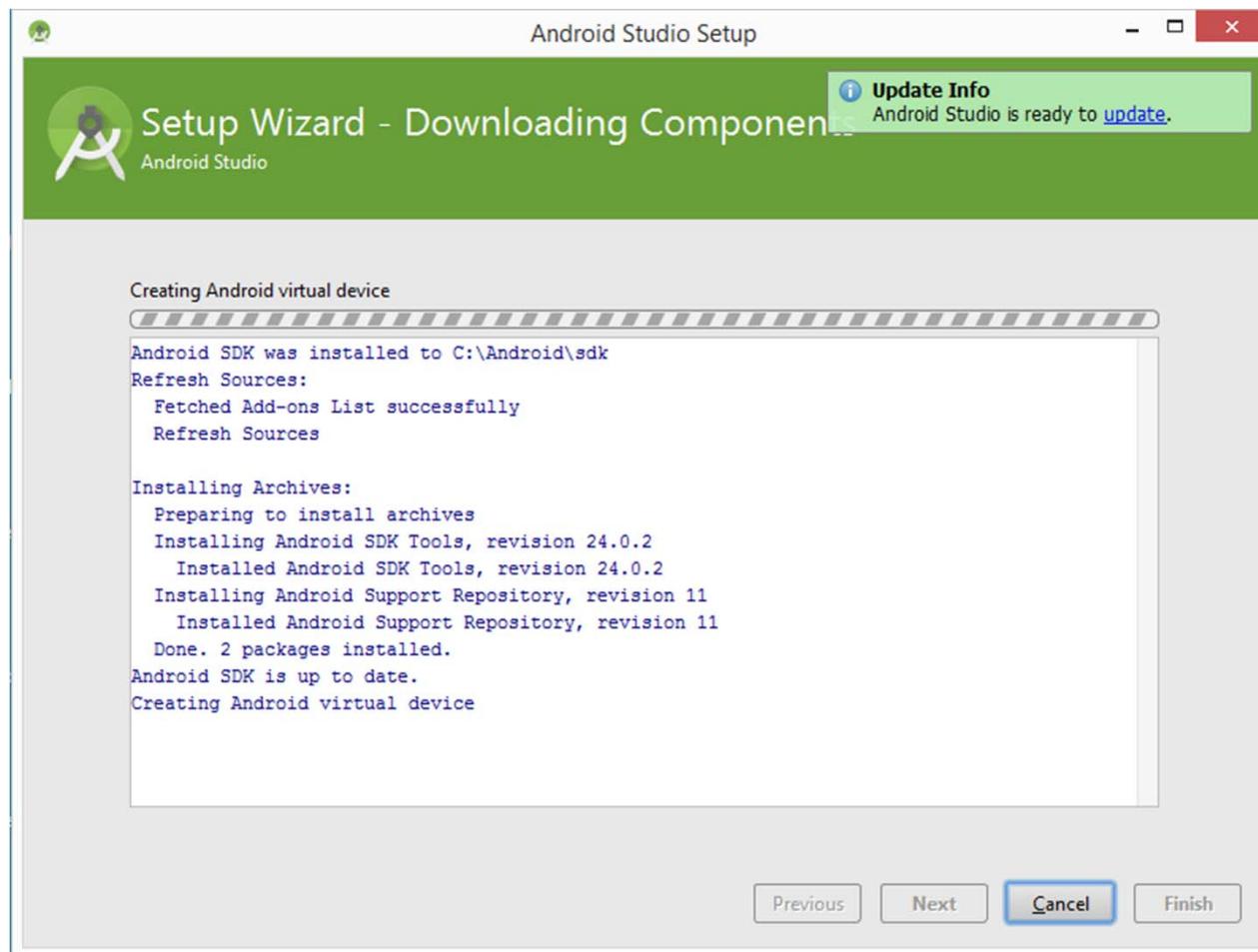
Installation



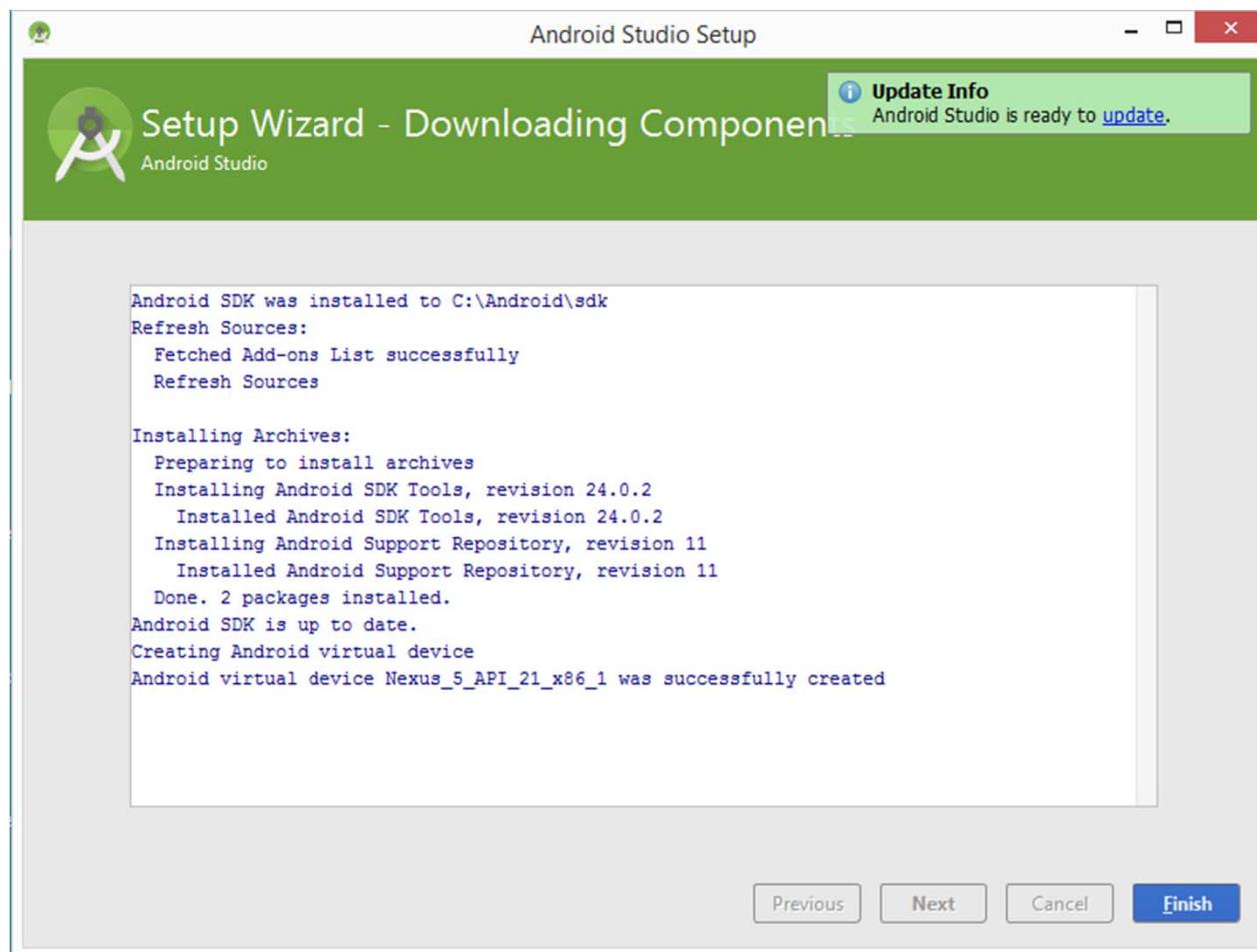
Installation



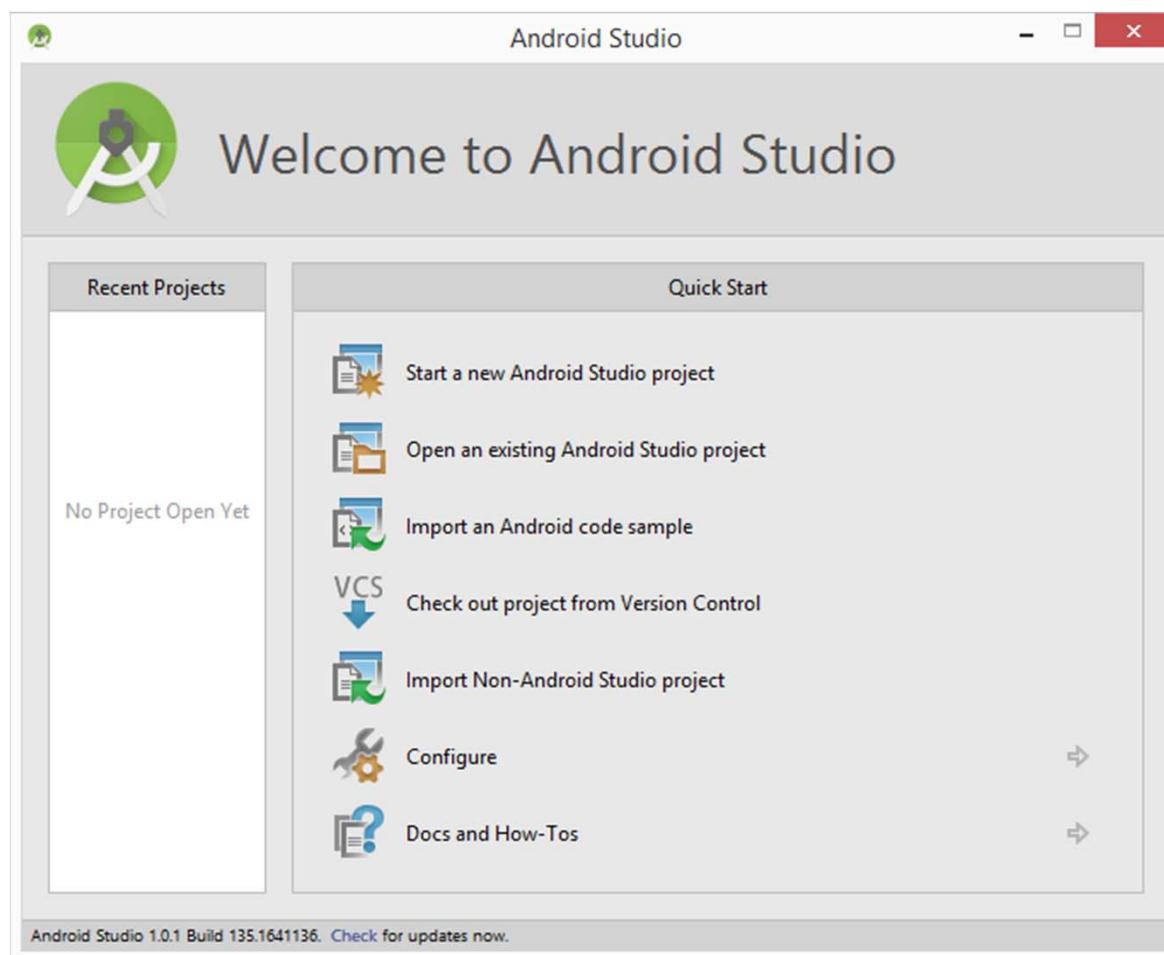
Installation



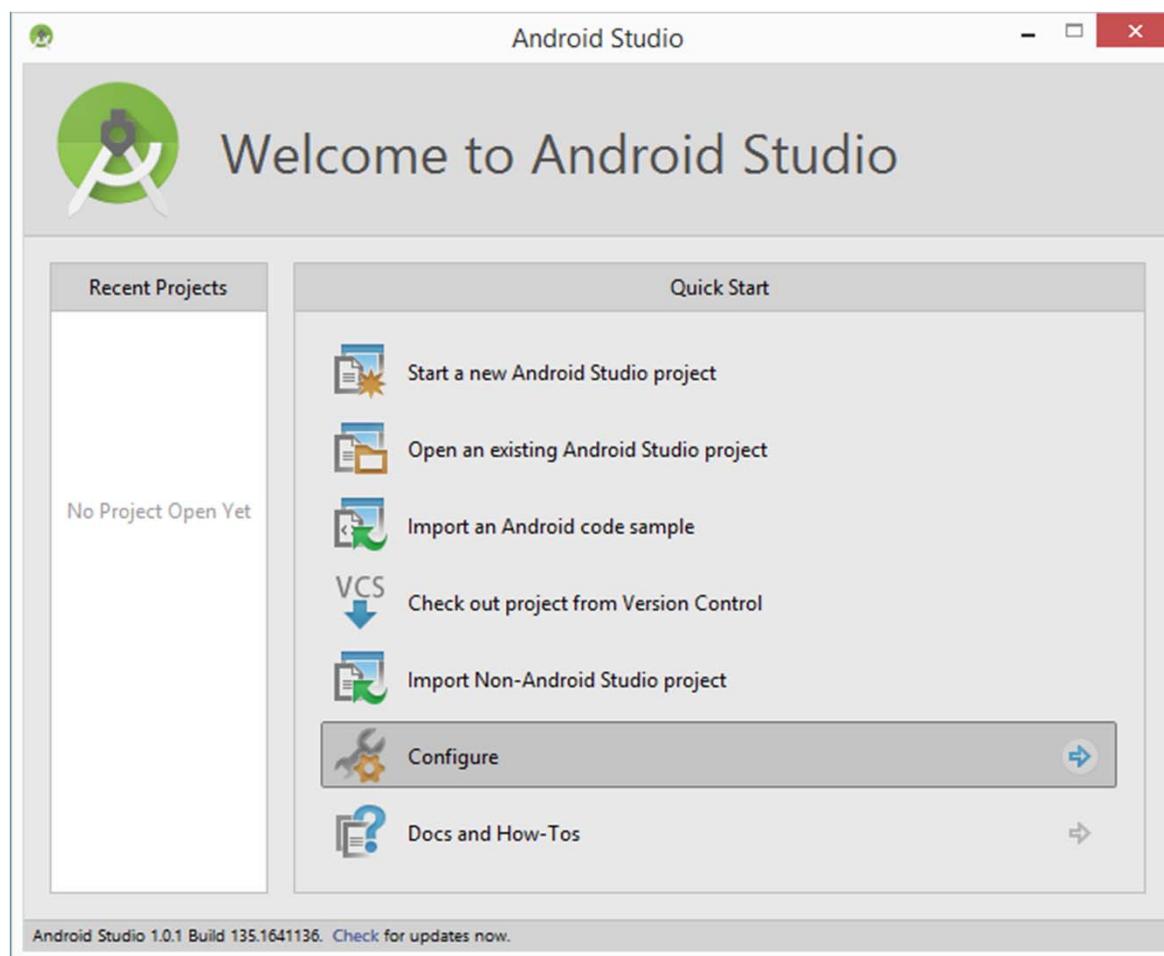
Installation



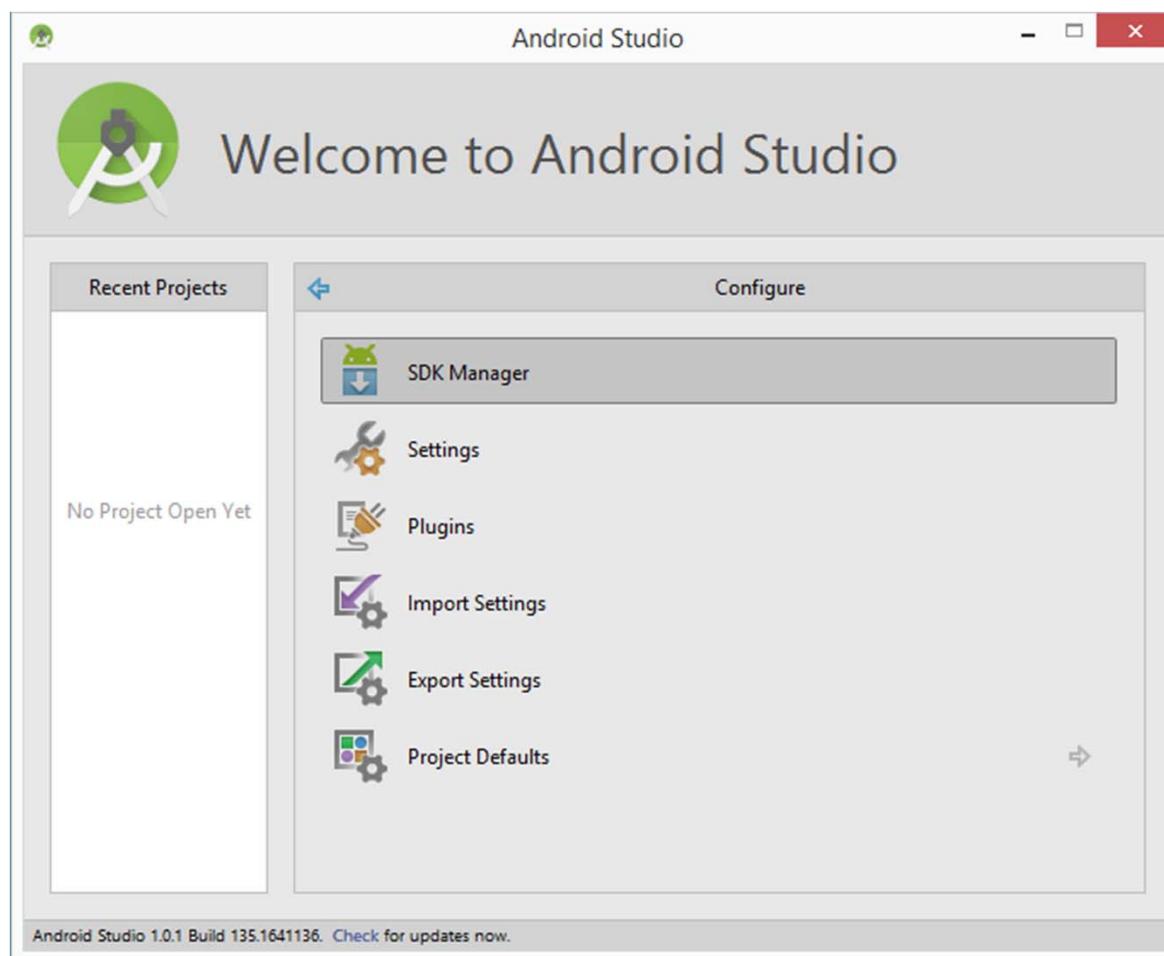
Installation



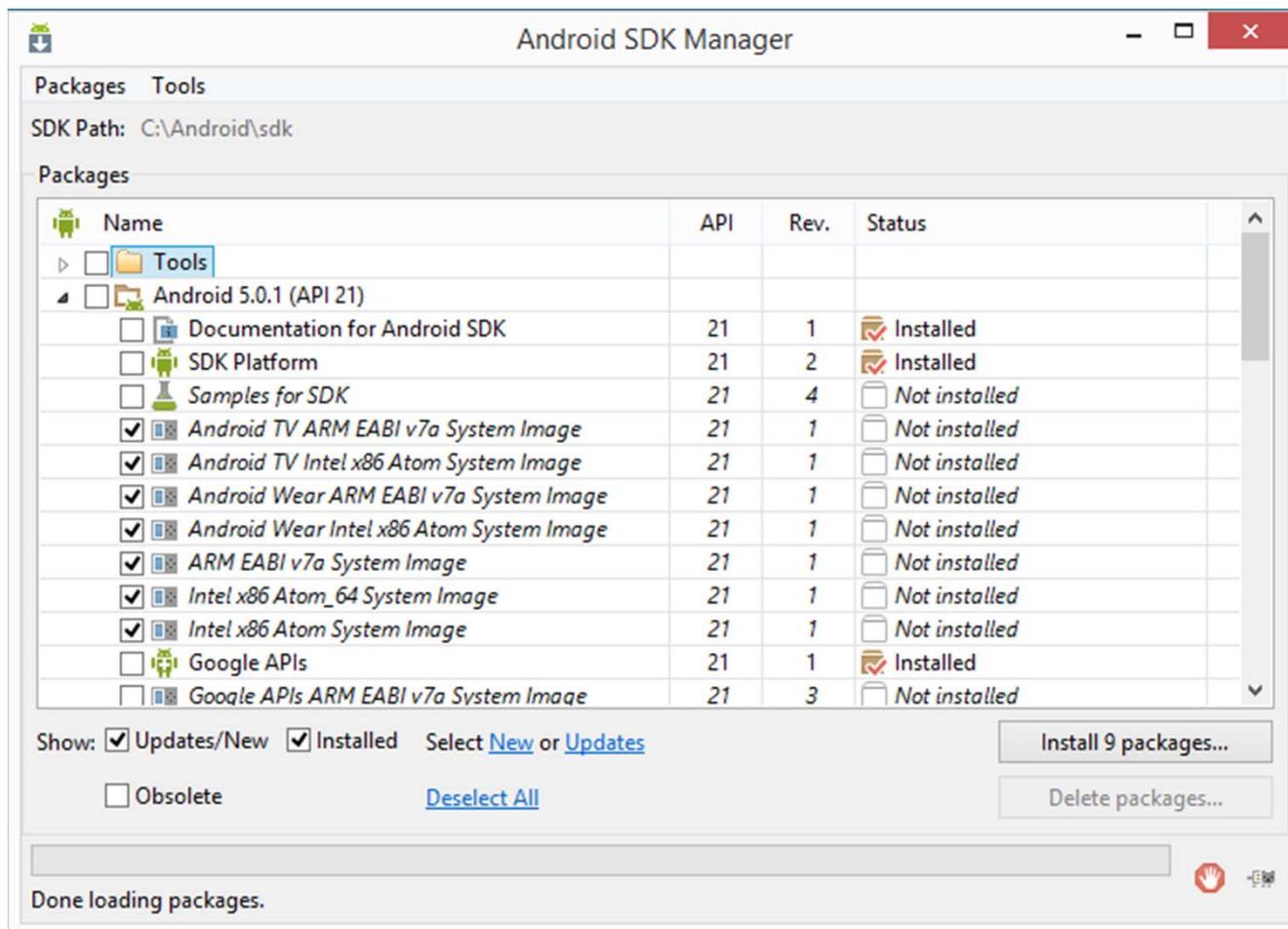
Installation



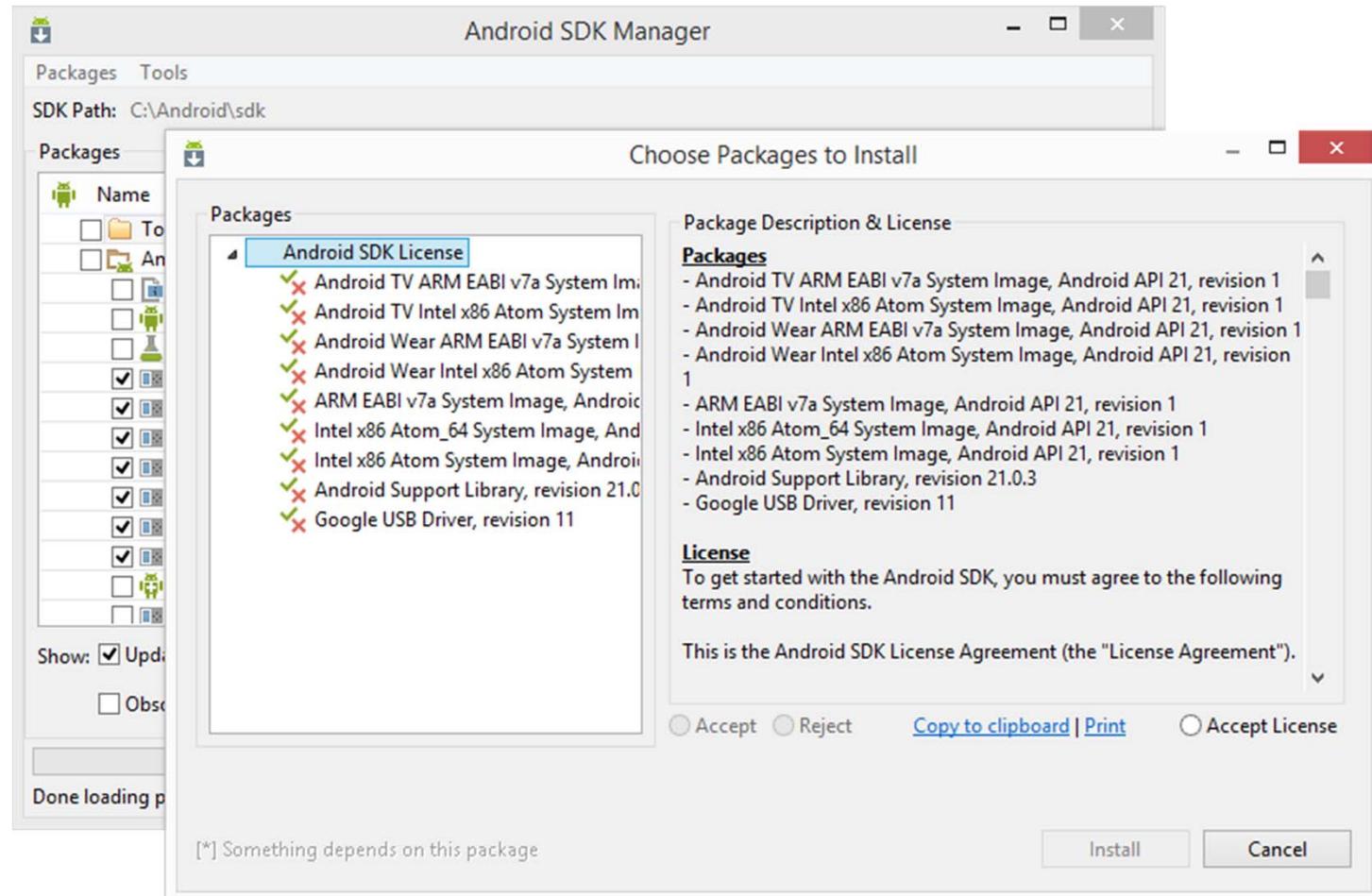
Installation



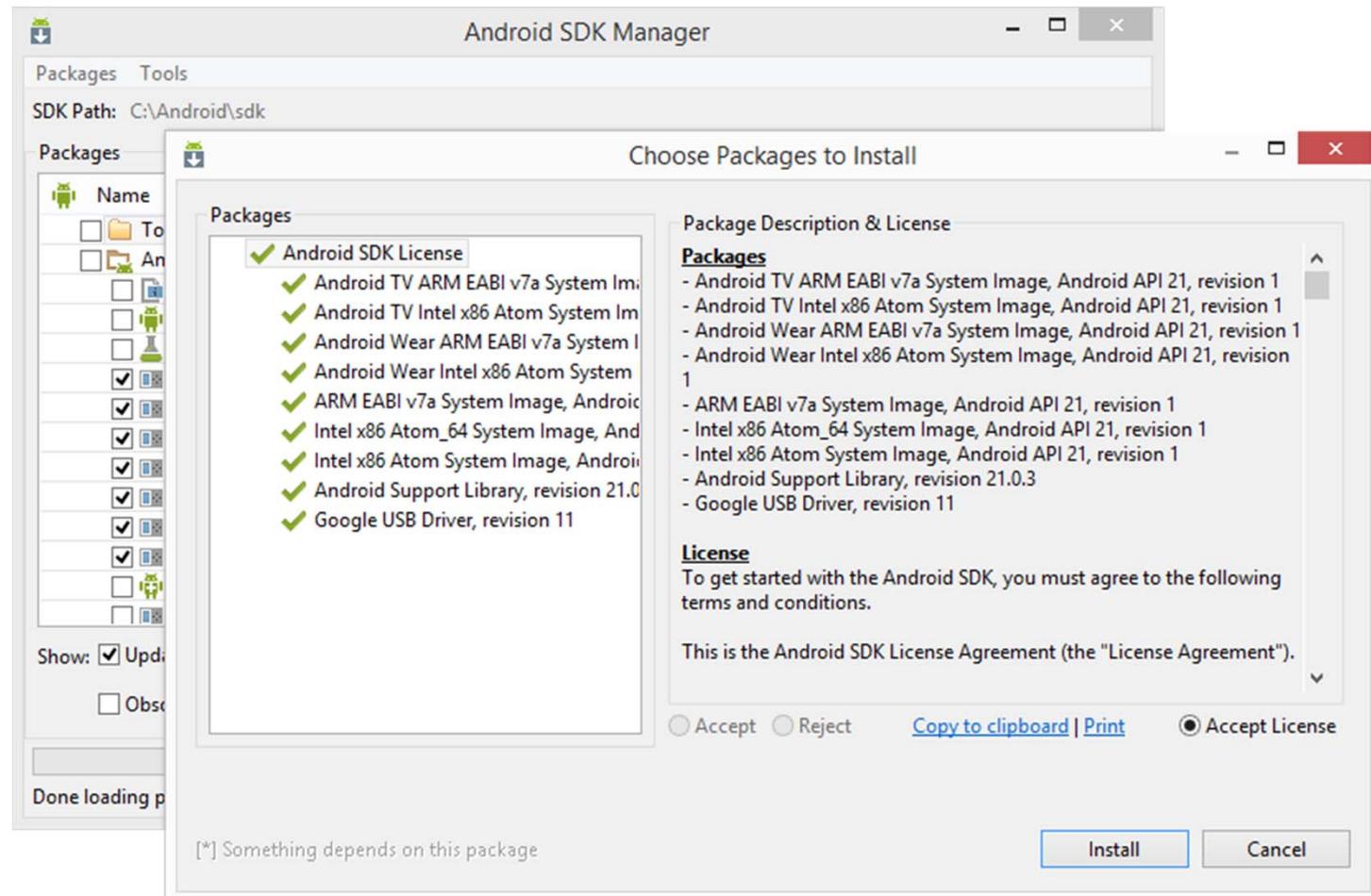
Installation



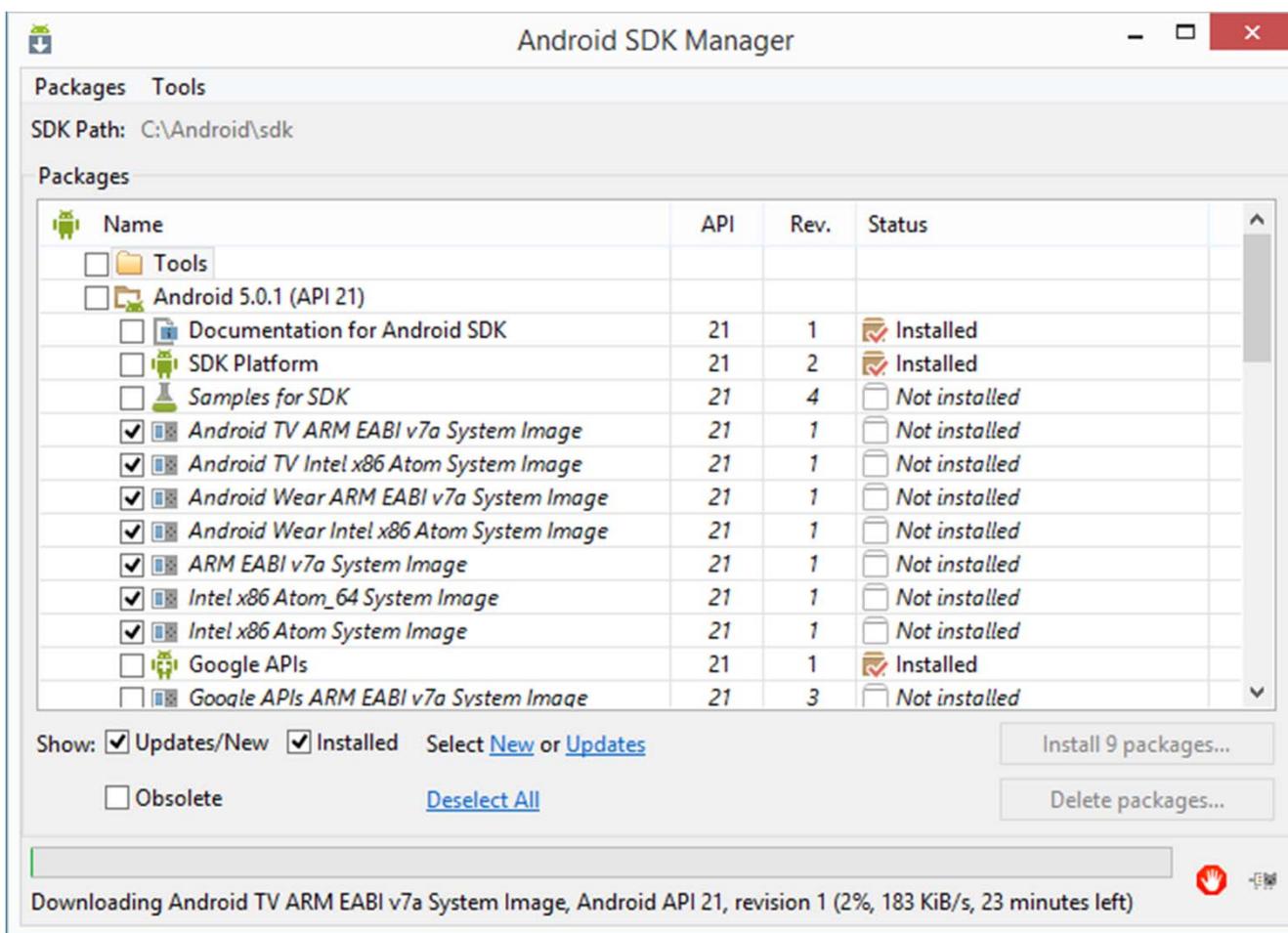
Installation



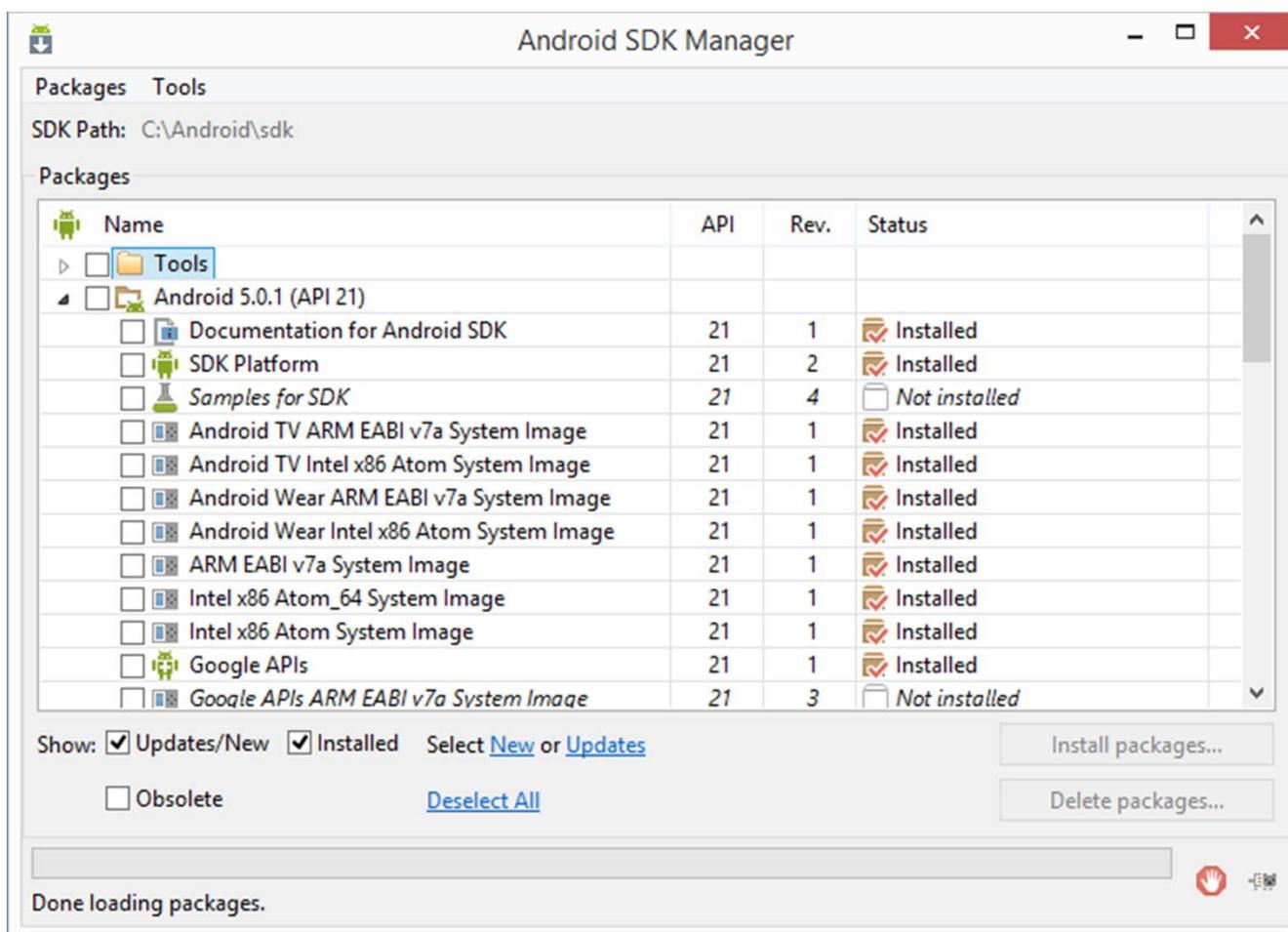
Installation



Installation

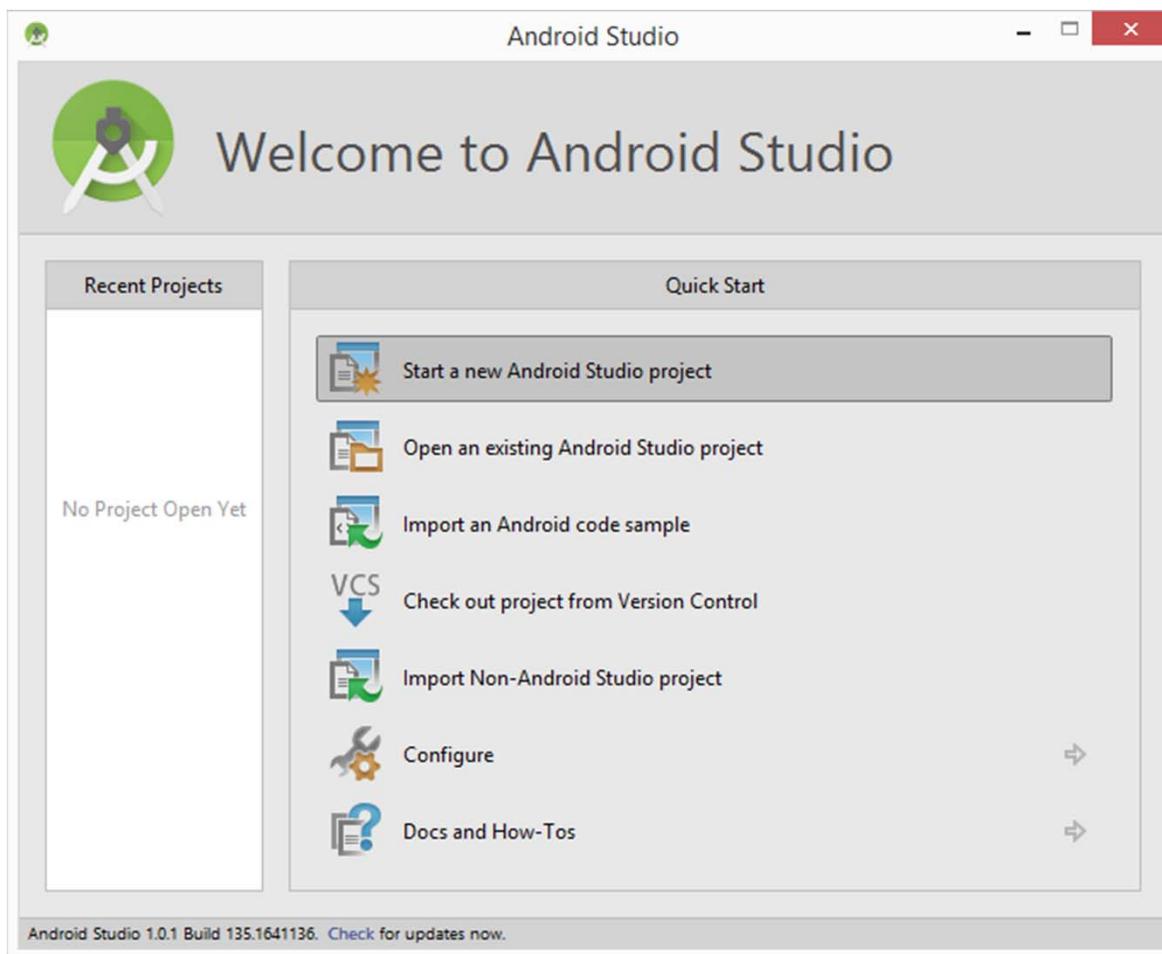


Installation

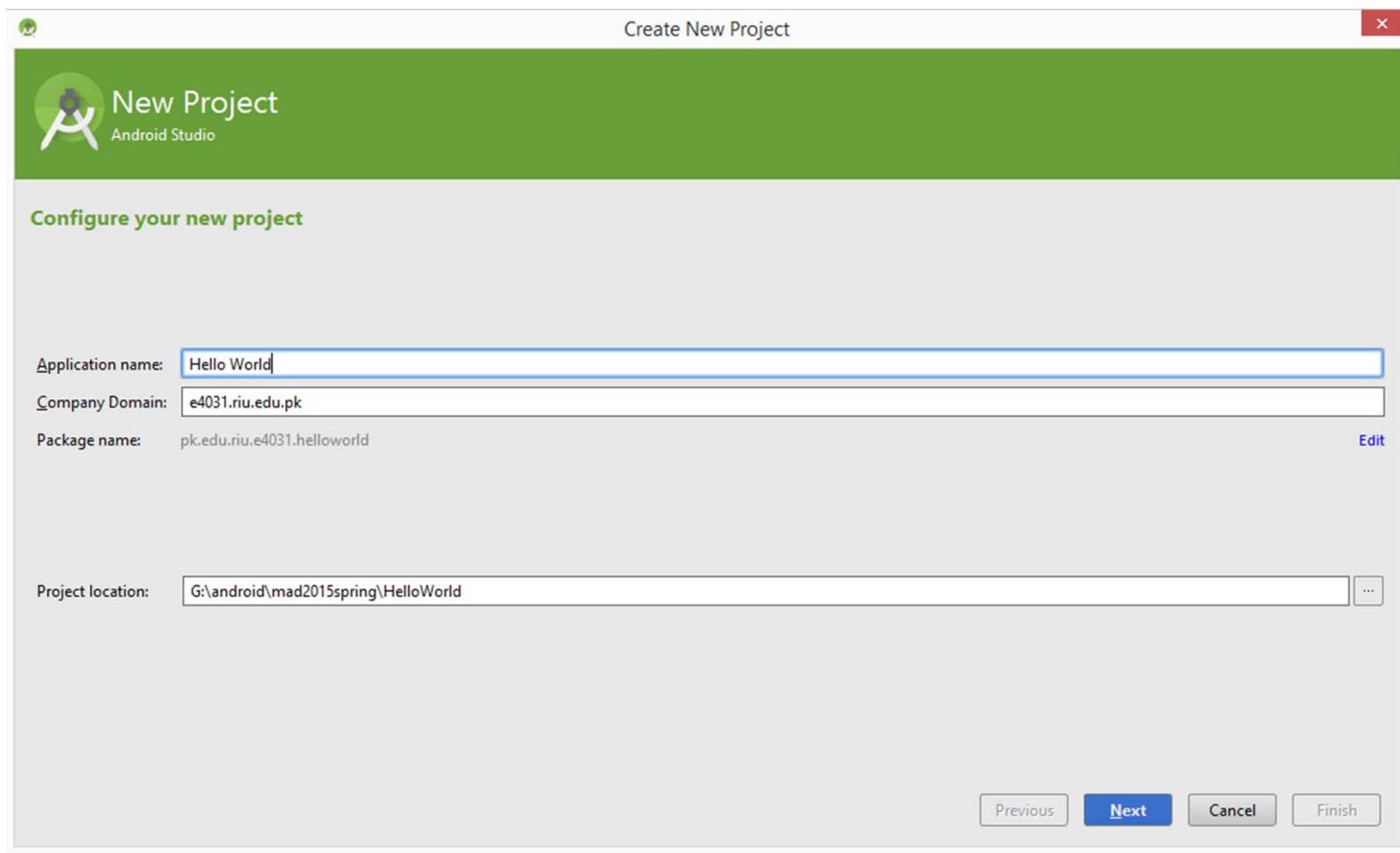


STARTING & RUNNING NEW ANDROID PROJECT

New Project



New Project



New Project

Create New Project

New Project
Android Studio

Select the form factors your app will run on

Different platforms require separate SDKs

Phone and Tablet Minimum SDK: API 15: Android 4.0.3 (IceCreamSandwich) Lower API levels target more devices, but have fewer features available. By targeting API 15 and later, your app will run on approximately 87.9% of the devices that are active on the Google Play Store. [Help me choose.](#)

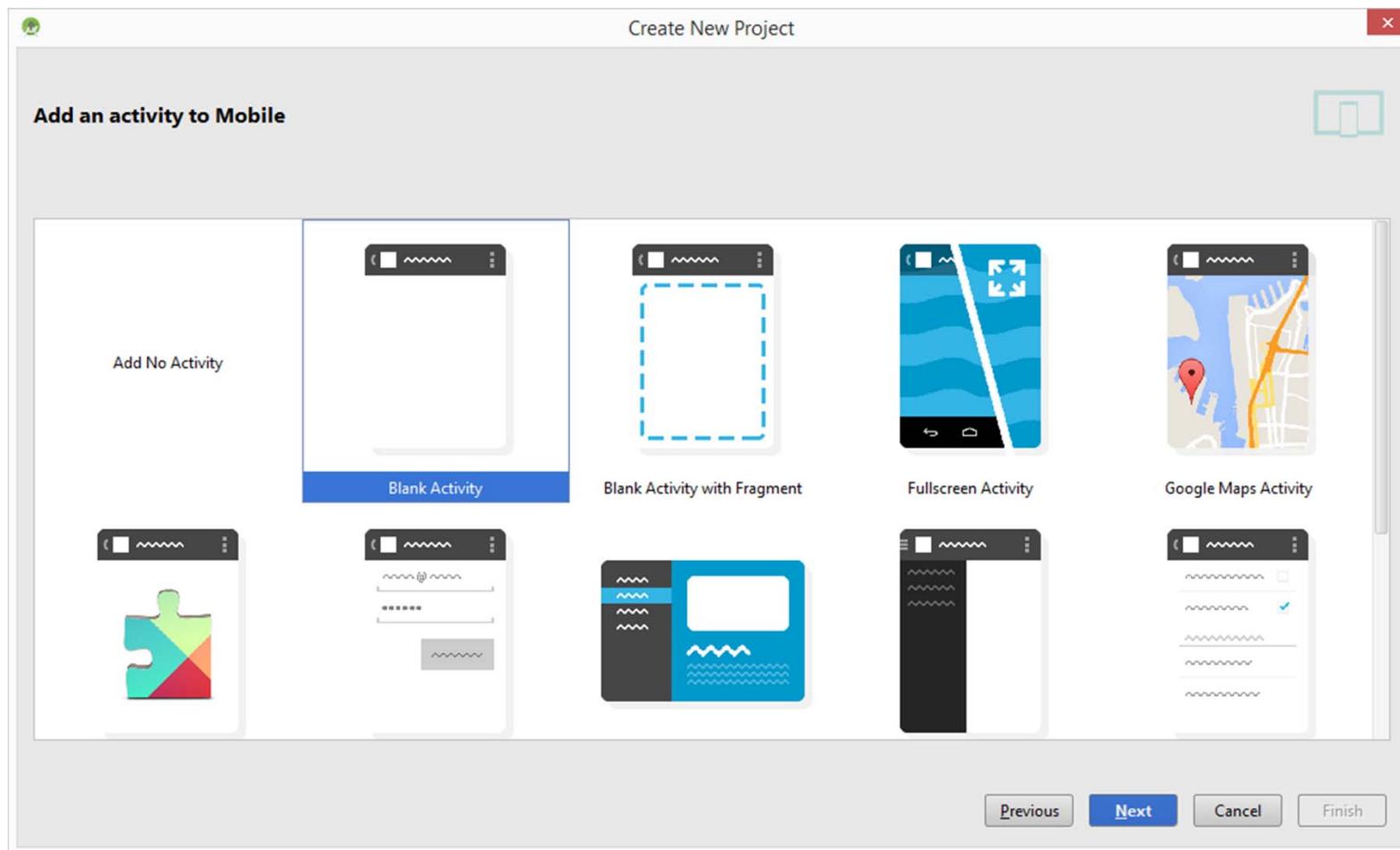
TV Minimum SDK: API 21: Android 5.0 (Lollipop)

Wear Minimum SDK: API 21: Android 5.0 (Lollipop)

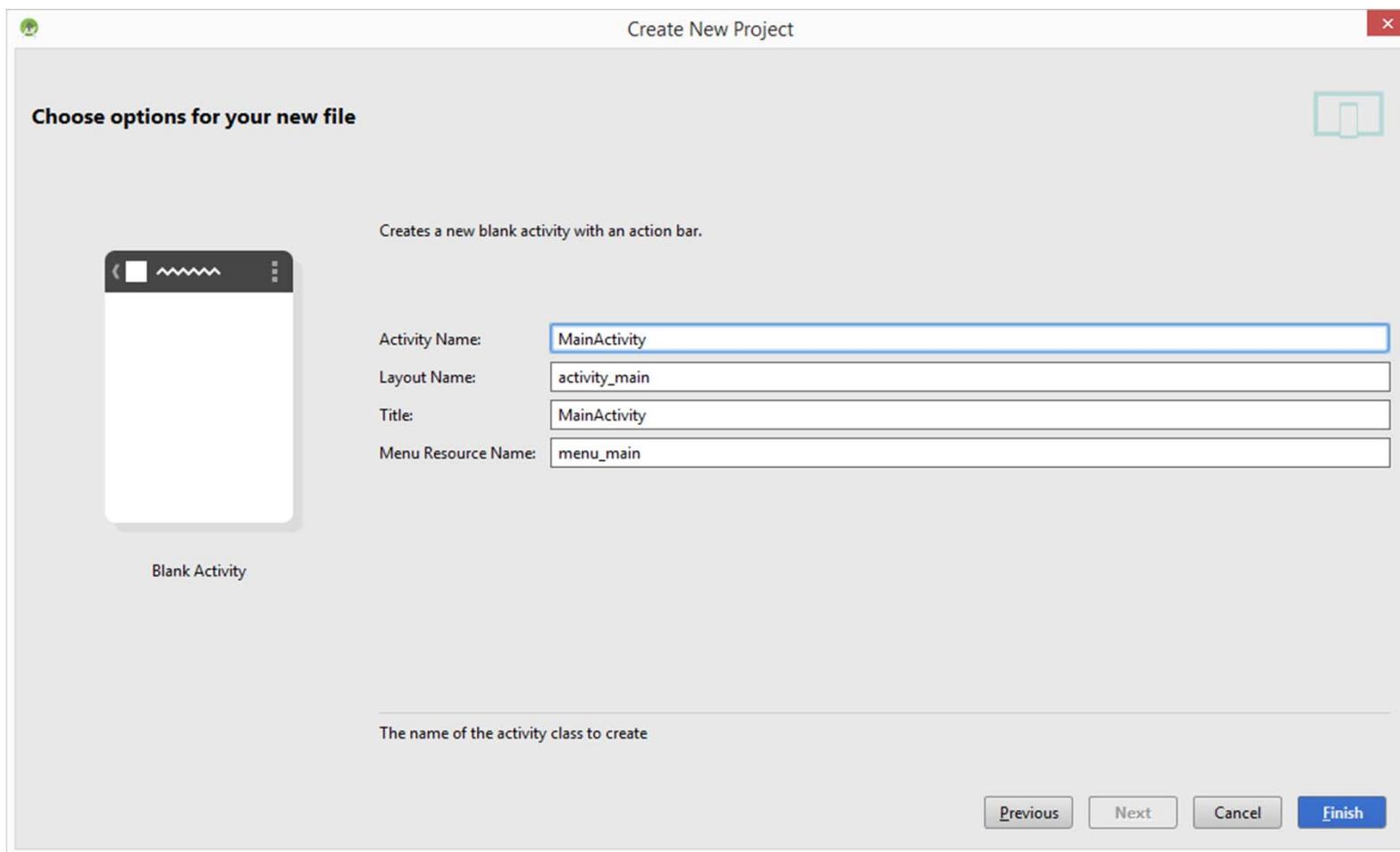
Glass (Not Installed) Minimum SDK: [empty dropdown]

[Previous](#) [Next](#) [Cancel](#) [Finish](#)

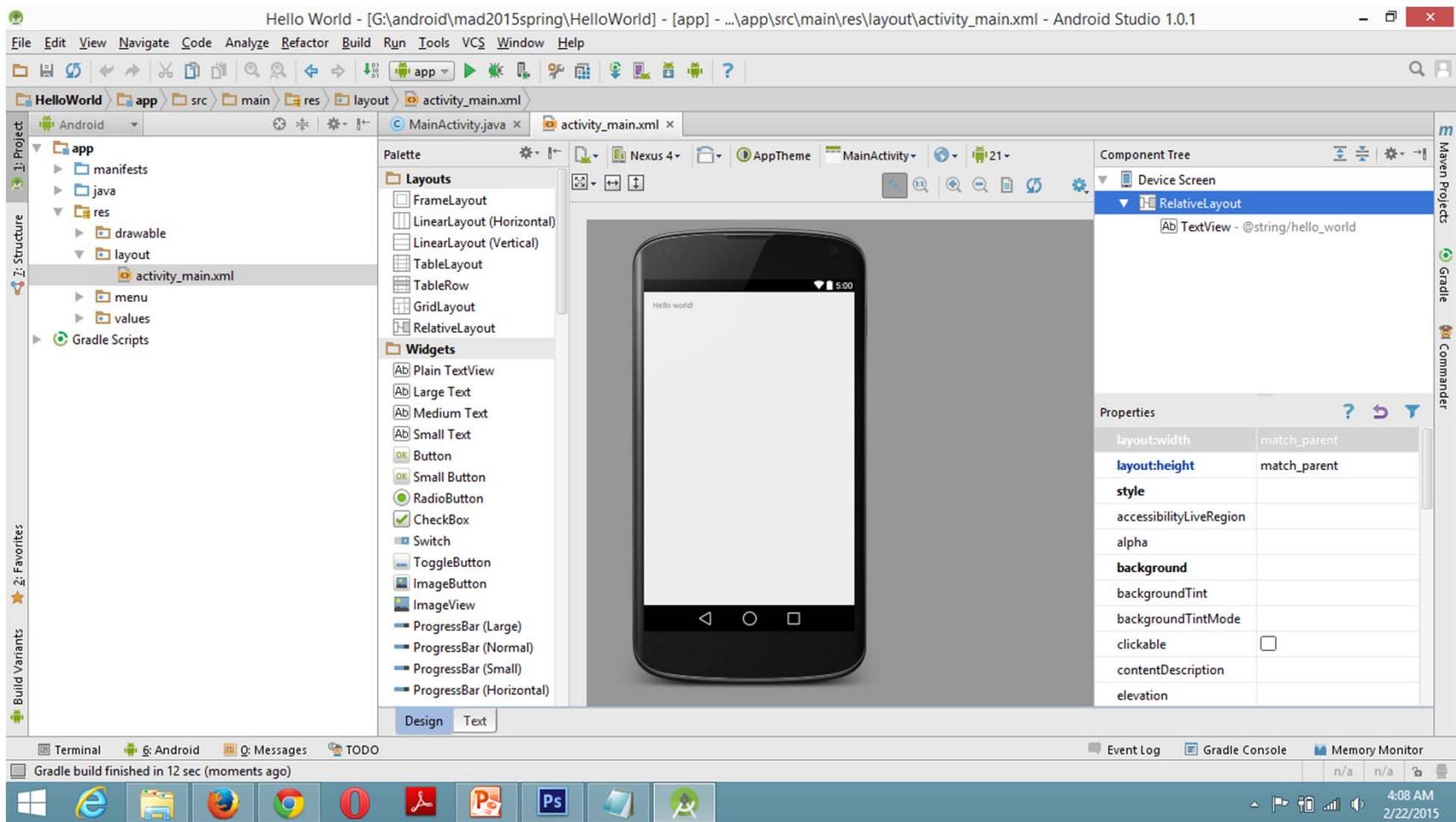
New Project



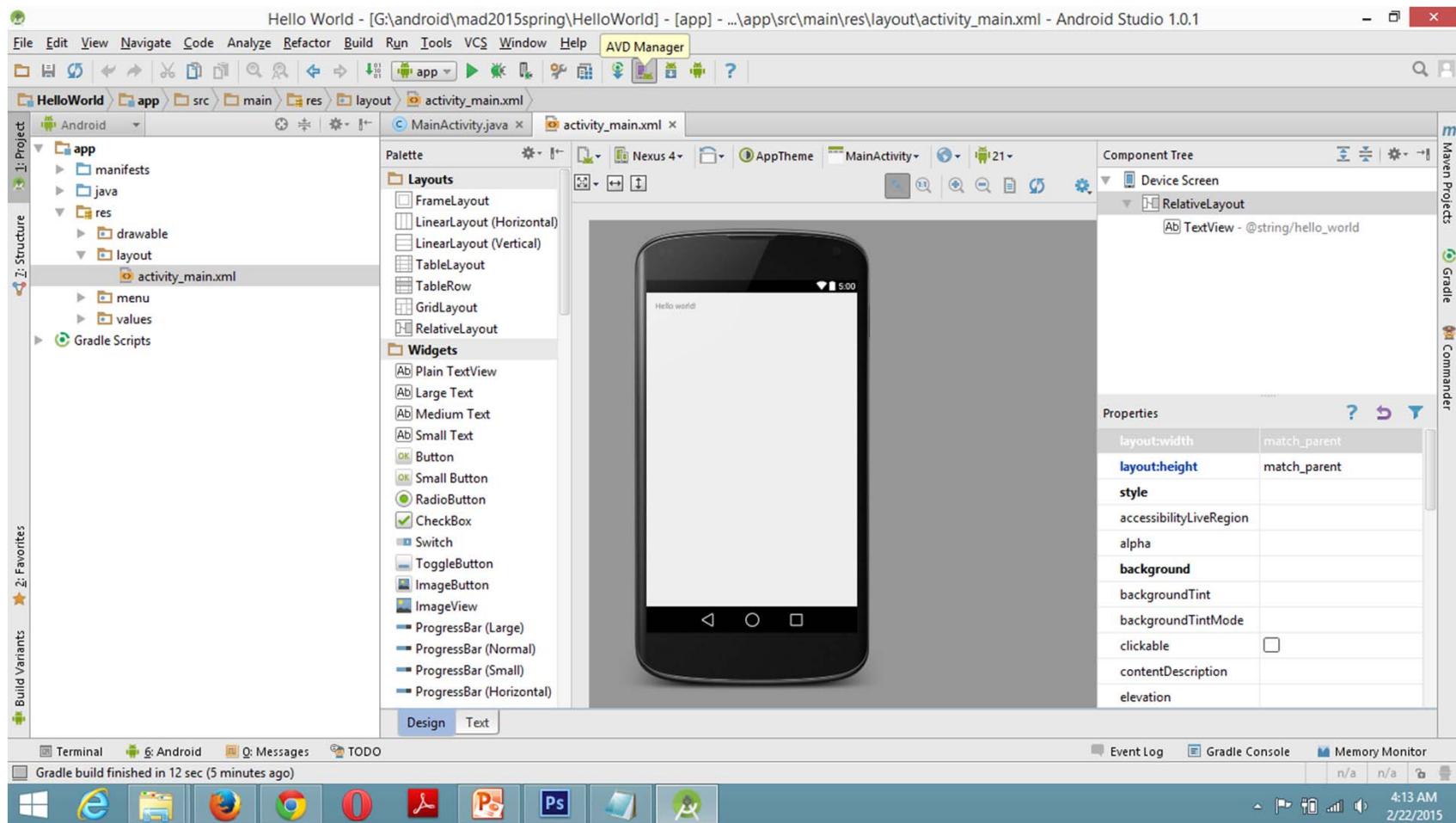
New Project



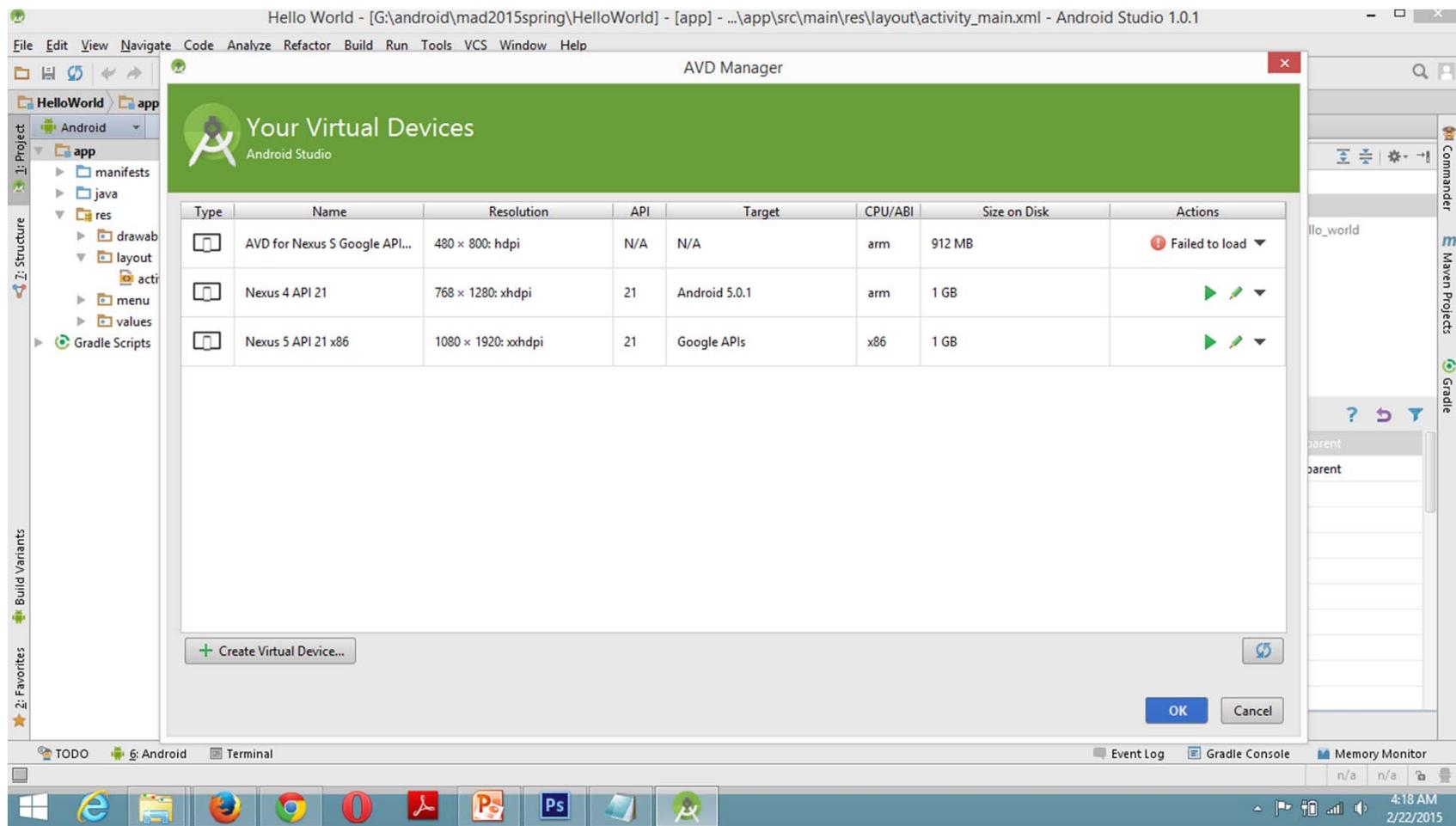
New Project



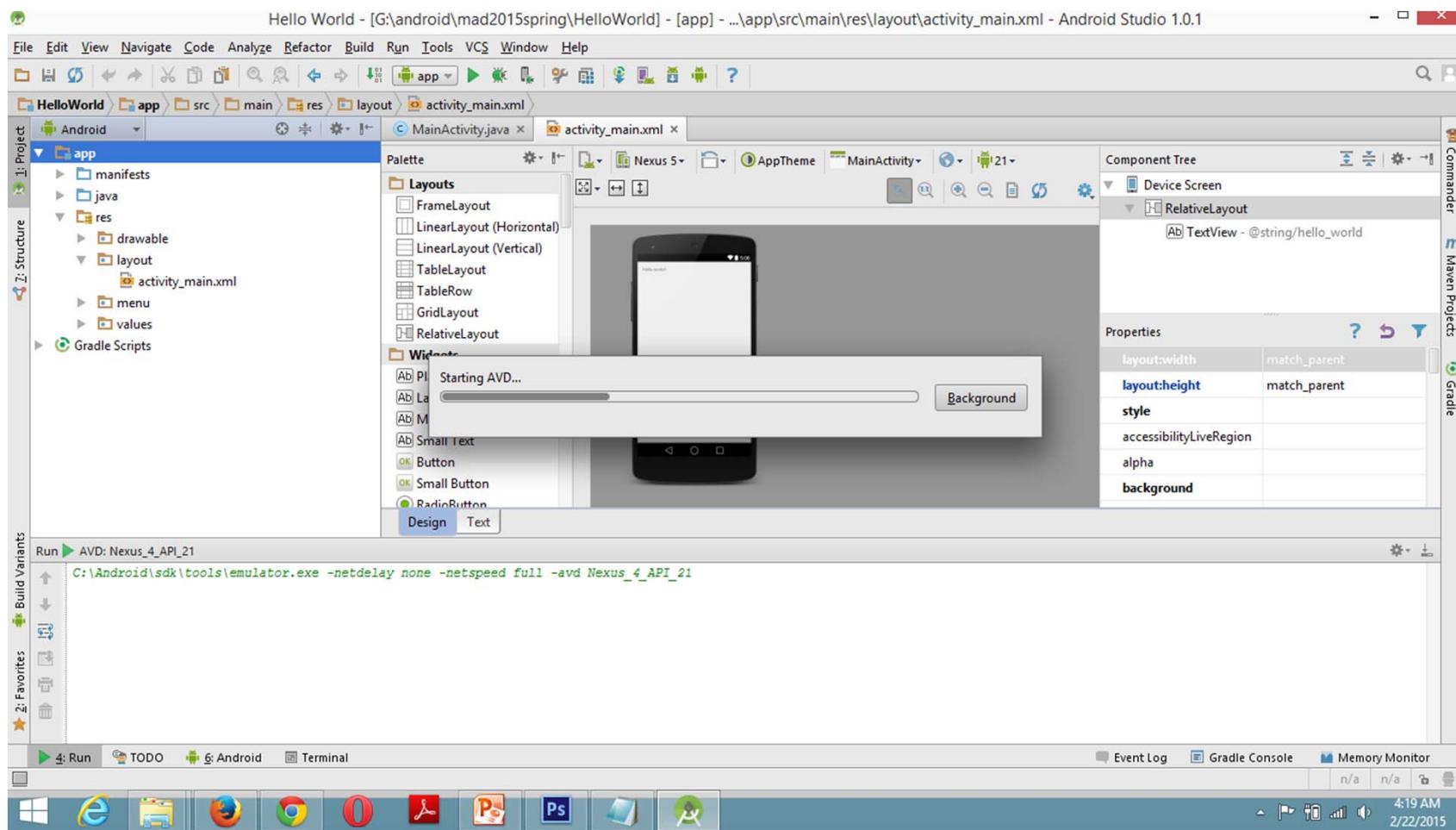
Android Virtual Device



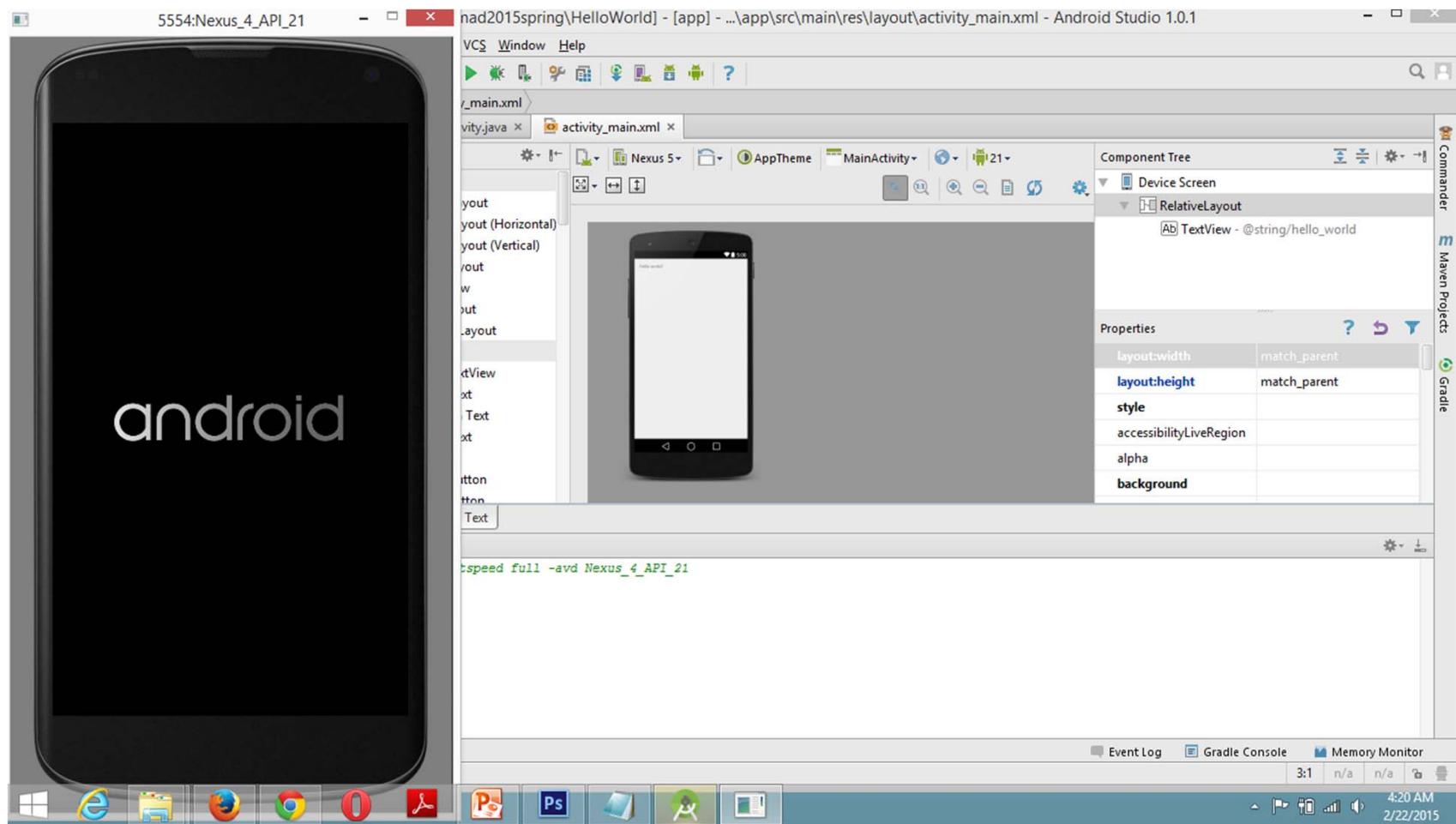
Android Virtual Device



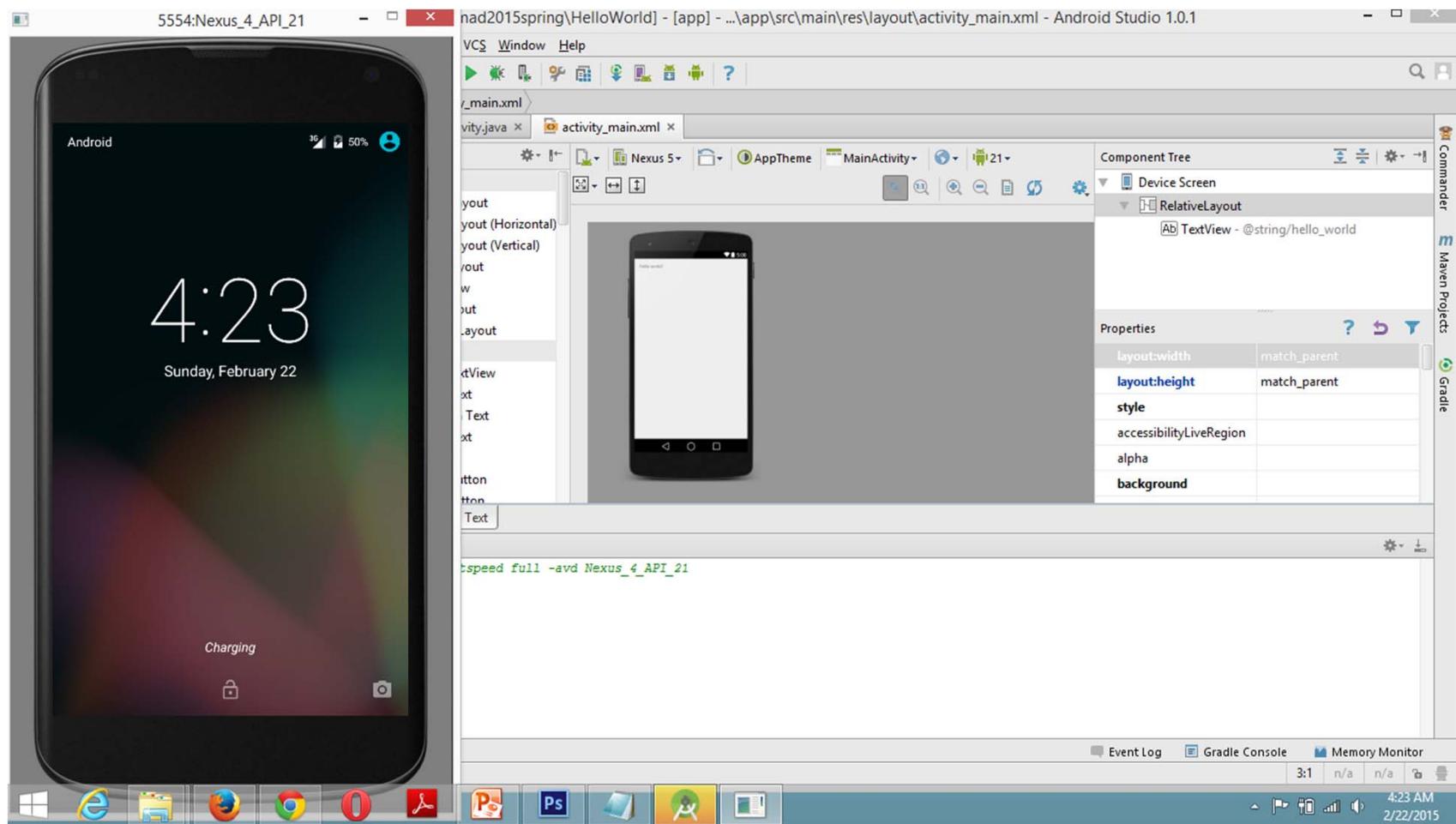
Android Virtual Device



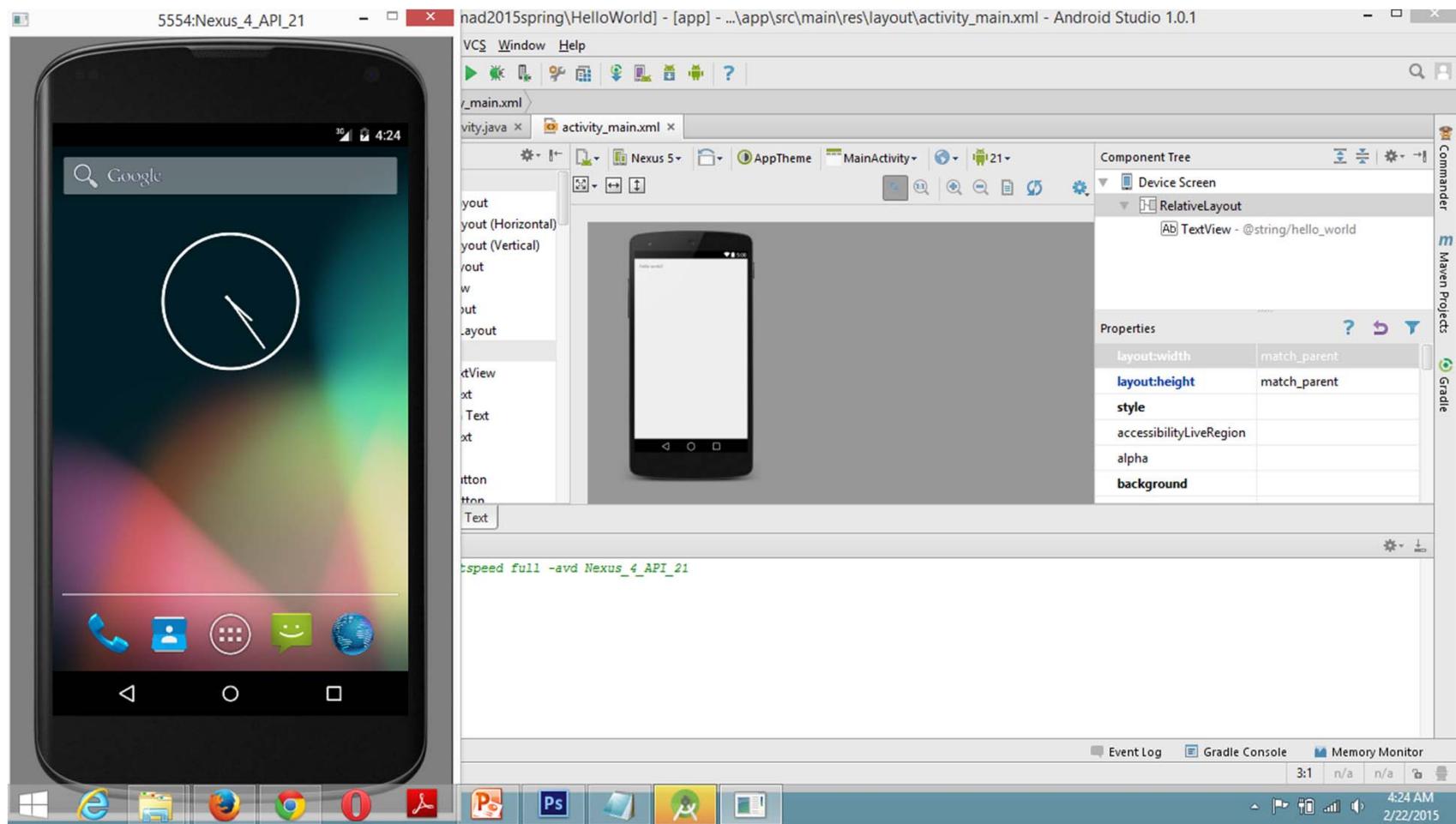
Android Virtual Device



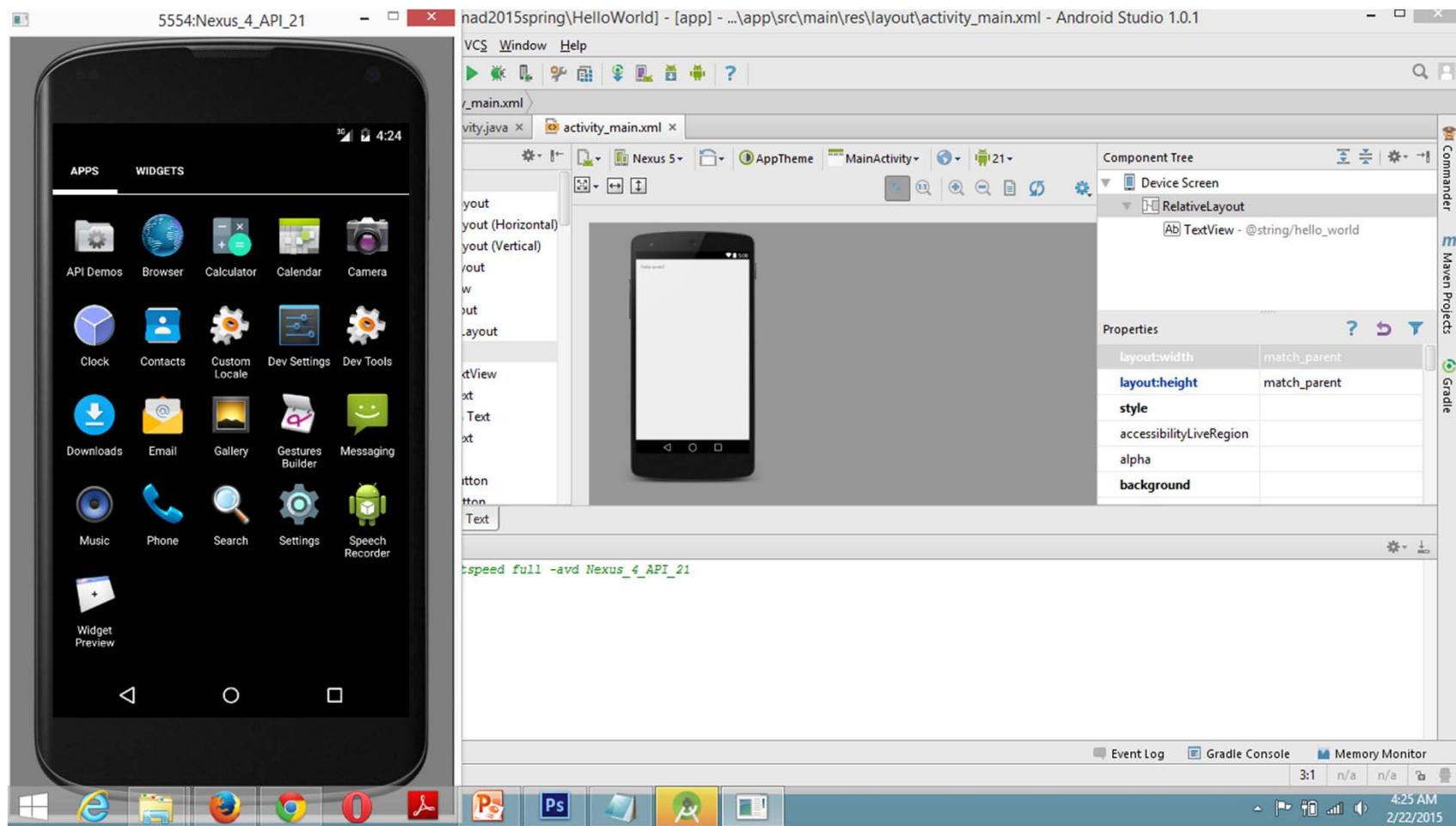
Android Virtual Device



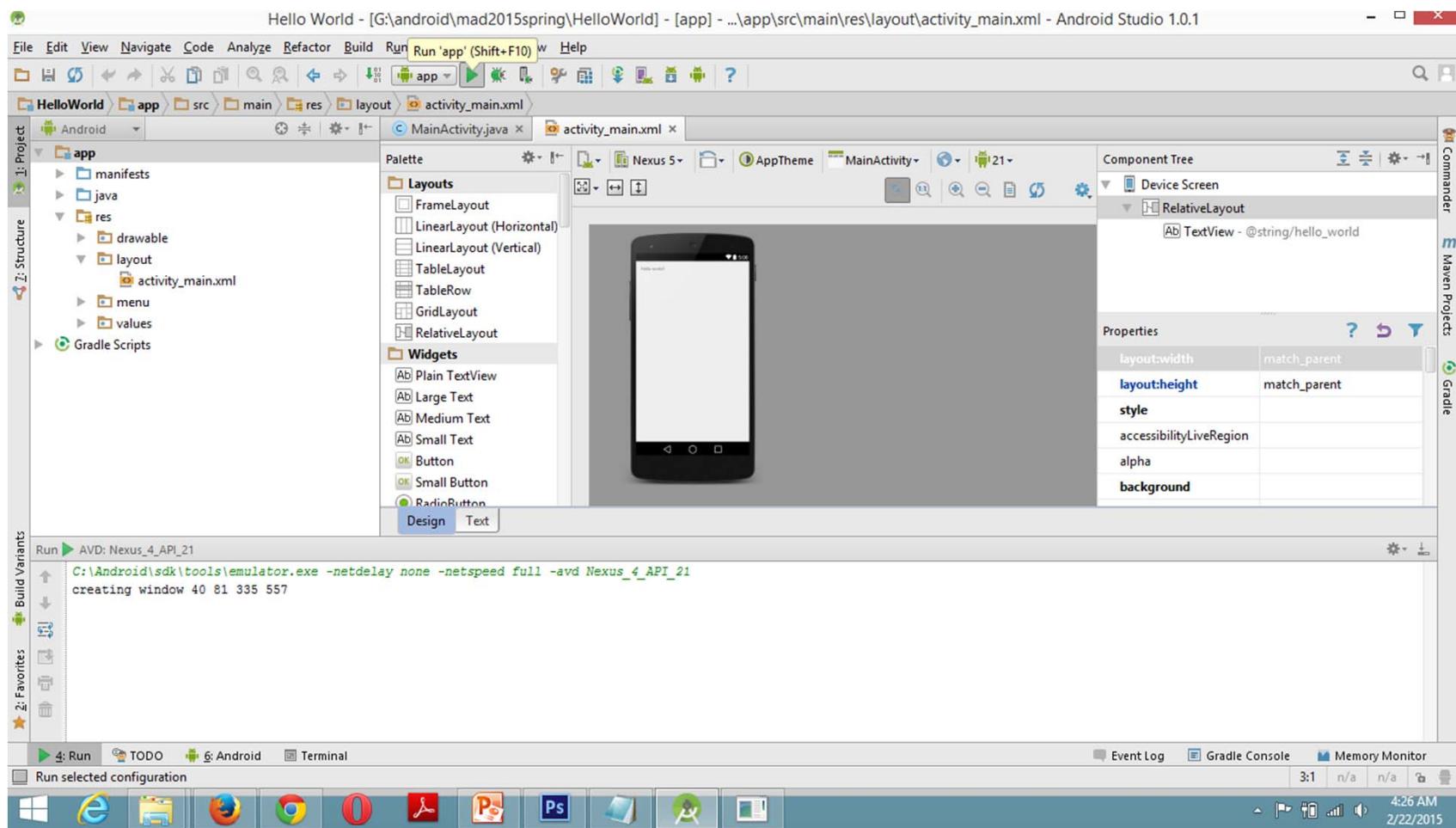
Android Virtual Device



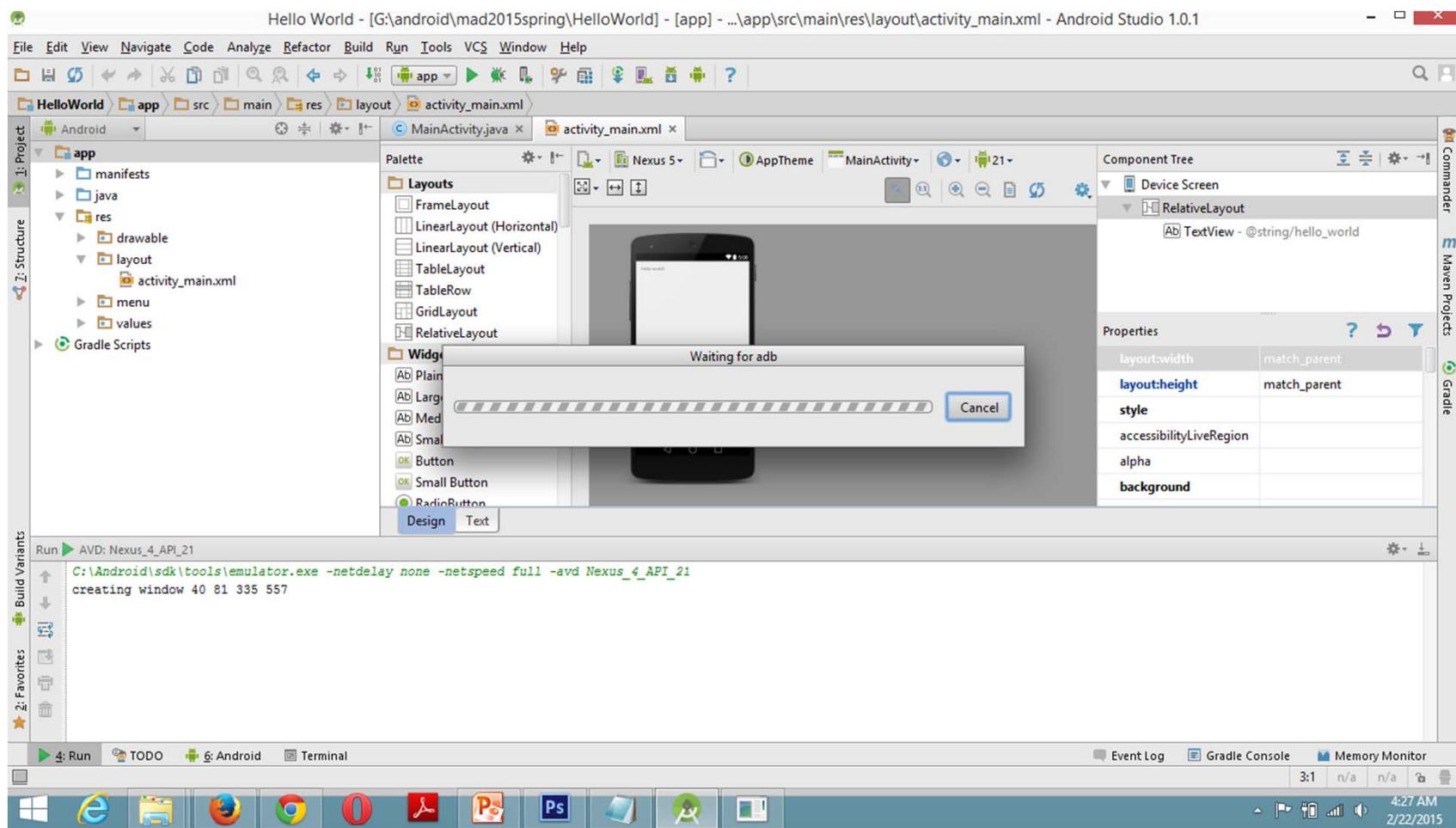
Android Virtual Device



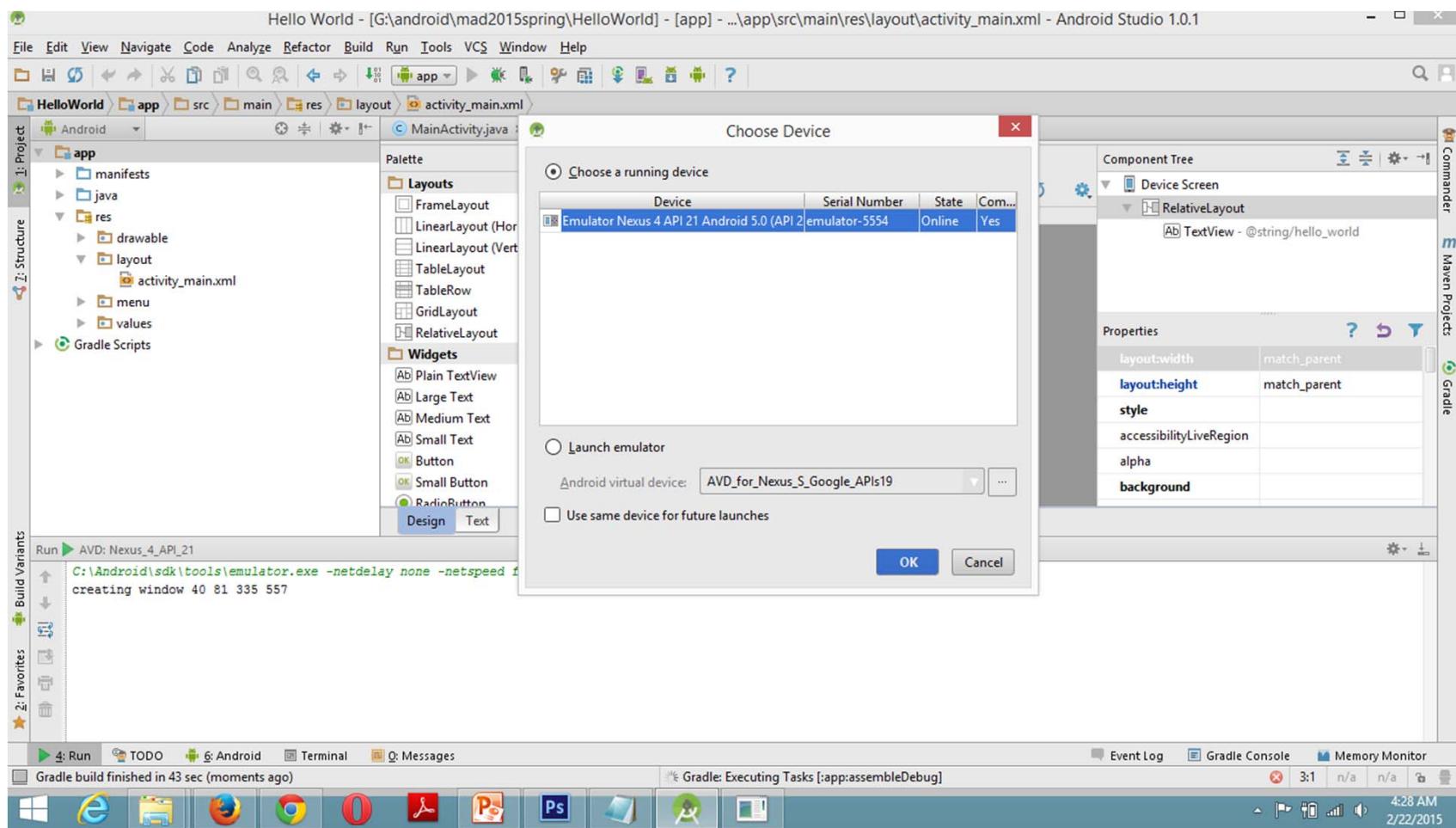
Running The Application



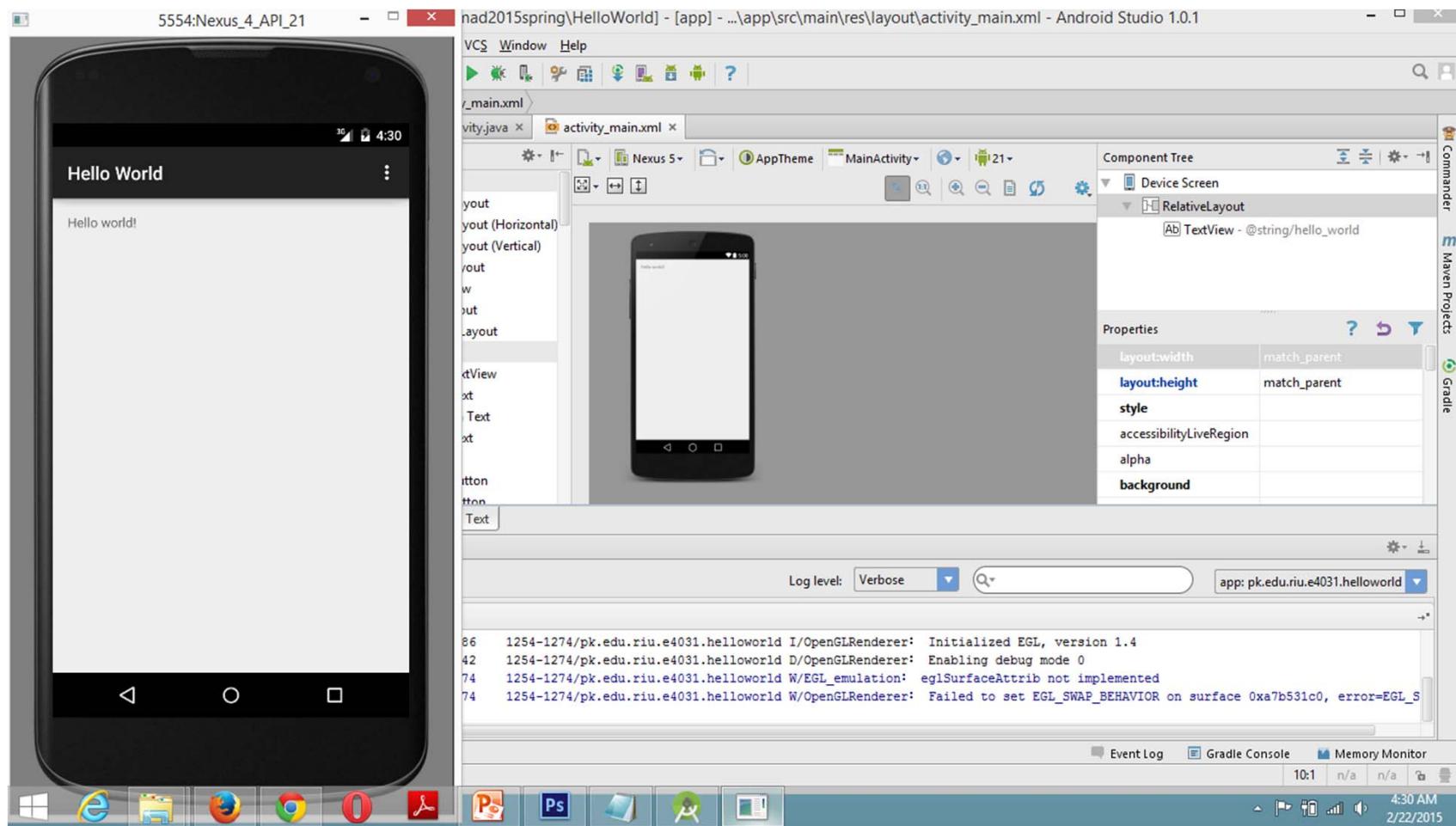
Running The Application



Running The Application



Running The Application



Caution

- Do not move any of the files or directories <sdk> directory. If you move the sdk directory, Programs like Android Studio will not be able to locate the SDK.

Tips

- You can start a virtual device even before you run an application.
- You can keep emulator running, so that you don't have to wait for it to load every time you want to run your app.

Using Hardware Devices

- Before we can run the application on a physical device, we need to make a configuration change on the phone and [install some drivers](#) for the phone on our development machine.

Using Hardware Devices

Enable USB debugging on your device.

- On most devices running [Android 3.2 or older](#), you can find the option under [Settings > Applications > Development](#).
- On [Android 4.0 and newer](#), it's [in Settings > Developer options](#).
- On [Android 4.2 and newer](#), Developer options is hidden by default. To make it available, go to [Settings > About phone](#) and [tap Build number seven times](#). Return to the previous screen to find Developer options.

Using Hardware Devices

Set up your system to detect your device.

- If you're developing on Windows, you need to [install a USB driver for adb \(Android Debug Bridge\)](#).
- For an installation guide and links to OEM drivers, see the OEM USB Drivers document:
 - <http://developer.android.com/tools/extras/oem-usb.html>

Running on Hardware Device



WRAP-UP

Summary

- Installation
- Use SDK Manager
- Starting New Project
- Android Virtual Device
- Running Android Application
- Using Hardware Device

Next Lecture

- **Exercise:** Setup “Android Development Environment” before next class.
- **For Practice & Evaluation:** Bring your own Laptop
- **Quiz 01:** Expect a quiz before next lecture.



Q & A