

Android Developer Fundamentals V2

Build your first app

Lesson 1



1.1 Your first Android app

Contents

- Android Studio
- Creating "Hello World" app in Android Studio
- Basic app development workflow with Android Studio
- Running apps on virtual and physical devices

Prerequisites

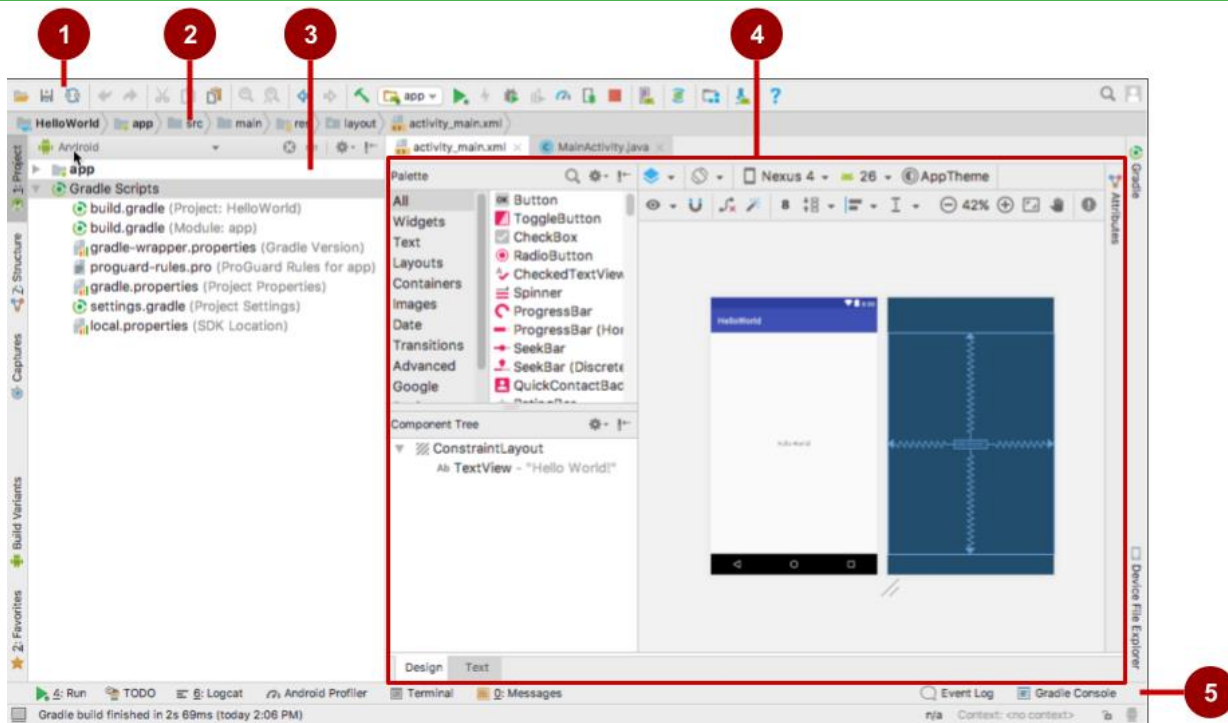
- Java Programming Language
- Object-oriented programming
- XML - properties / attributes
- Using an IDE for development and debugging

Android Studio

What is Android Studio?

- Android integrated development environment (IDE)
- Project and Activity templates
- Layout editor
- Testing tools
- Gradle-based build
- Log console and debugger
- Emulators

Android Studio interface



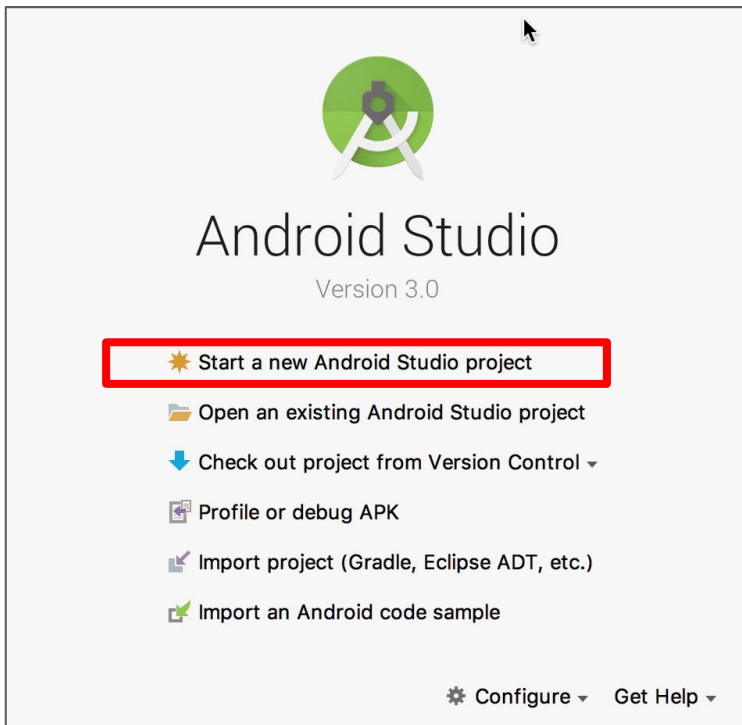
1. Toolbar
2. Navigation bar
3. Project pane
4. Editor
5. Tabs for other panes

Installation Overview

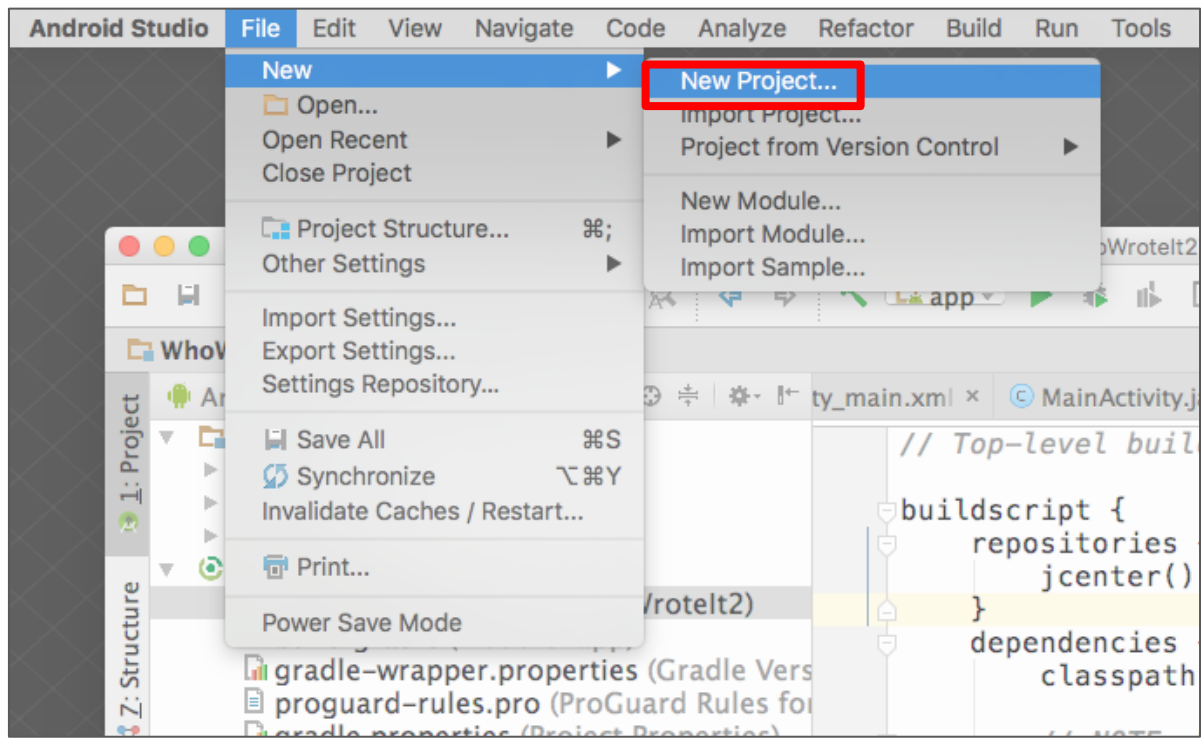
- Mac, Windows, or Linux
- Download and install Android Studio from <https://developer.android.com/studio/>
- See [1.1 P: Android Studio and Hello World](#)

Creating your first Android app

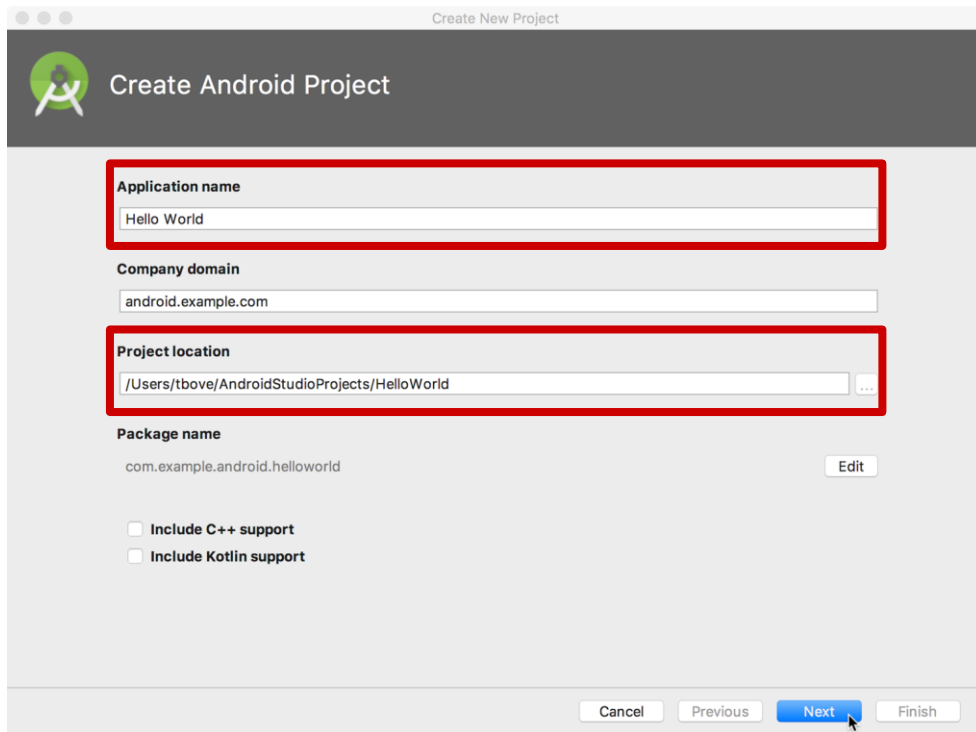
Start Android Studio



Create a project inside Android Studio



Name your app



Create New Project

Create Android Project

Application name
Hello World

Company domain
android.example.com

Project location
/Users/tbove/AndroidStudioProjects/HelloWorld

Package name
com.example.android.helloworld Edit

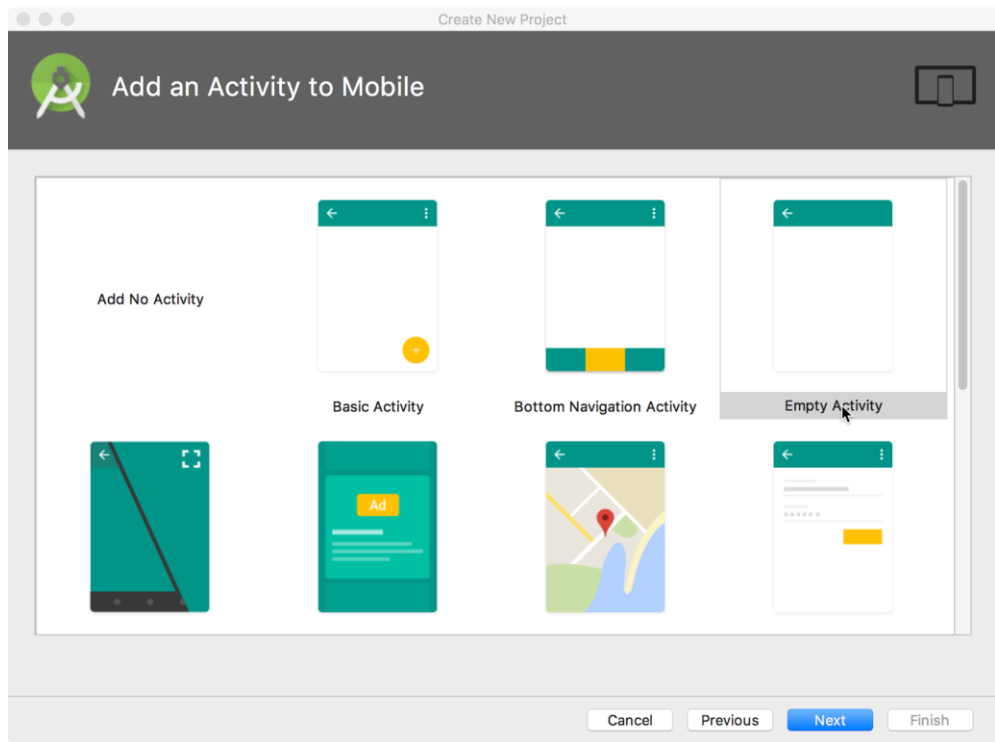
☐ Include C++ support
☐ Include Kotlin support

Cancel Previous Next Finish

Pick activity template

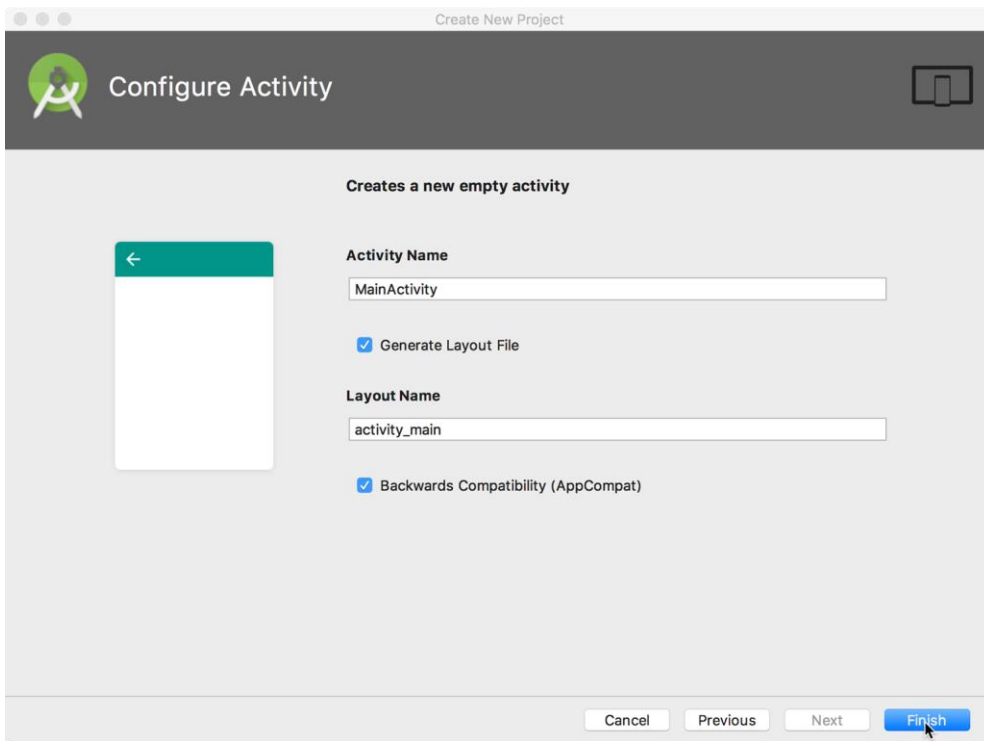
Choose templates for common activities, such as maps or navigation drawers.

Pick Empty Activity or Basic Activity for simple and custom activities.



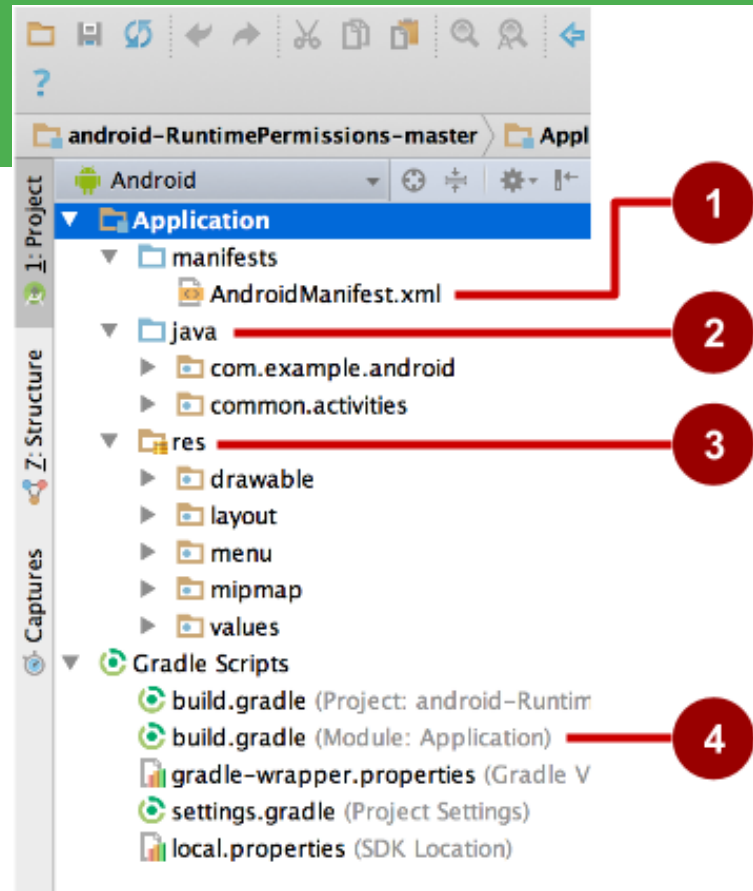
Name your activity

- Good practice:
 - Name main activity
MainActivity
 - Name layout
activity_main
- Use AppCompatActivity
- Generating layout file is convenient



Project folders

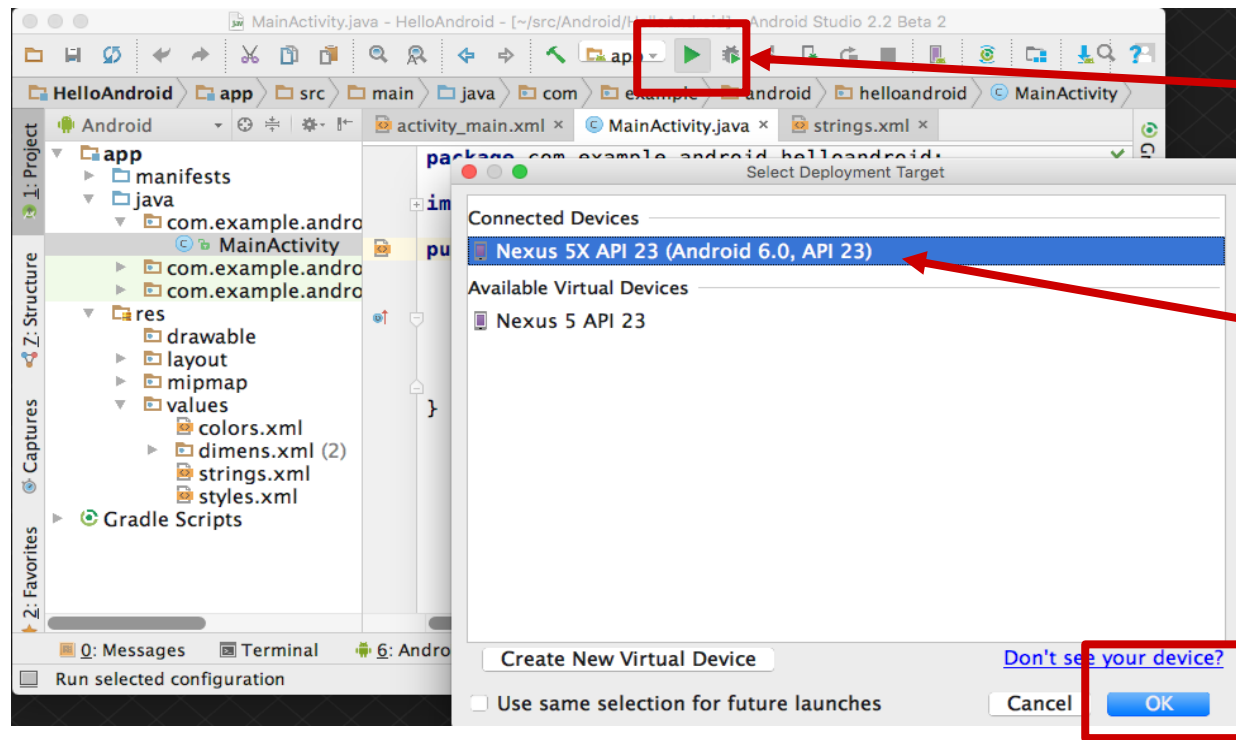
1. **manifests**—Android Manifest file - description of app read by the Android runtime
2. **java**—Java source code packages
3. **res**—Resources (XML) - layout, strings, images, dimensions, colors...
4. **build.gradle**—Gradle build files



Gradle build system

- Modern build subsystem in Android Studio
- Three build.gradle:
 - project
 - module
 - settings
- Typically not necessary to know low-level Gradle details
- Learn more about gradle at <https://gradle.org/>

Run your app



1. Run

2. Select virtual
or physical
device

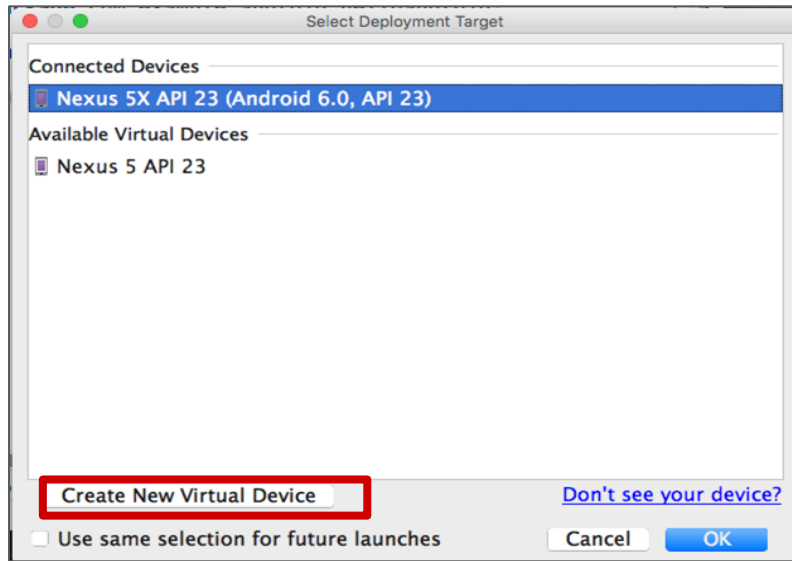
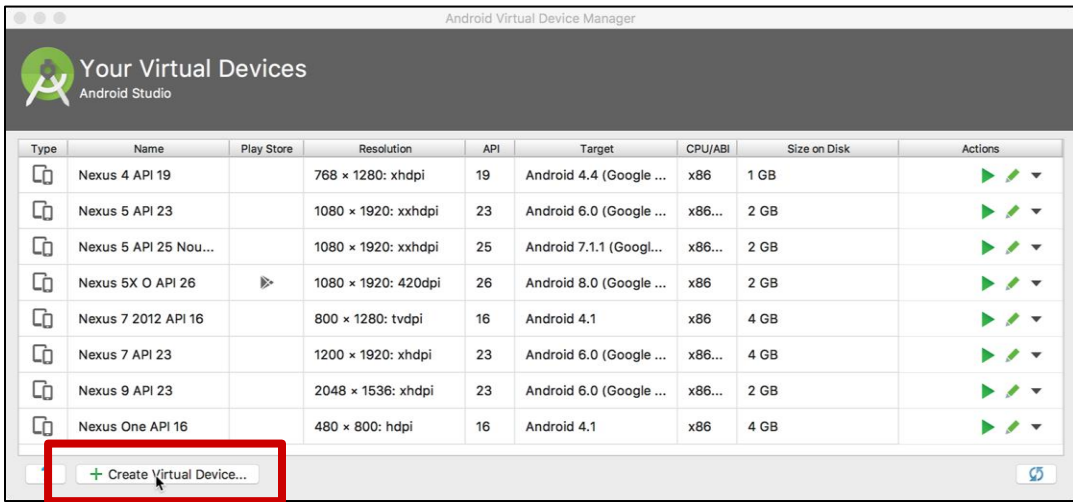
3. OK

Create a virtual device

Use emulators to test app on different versions of Android and form factors.

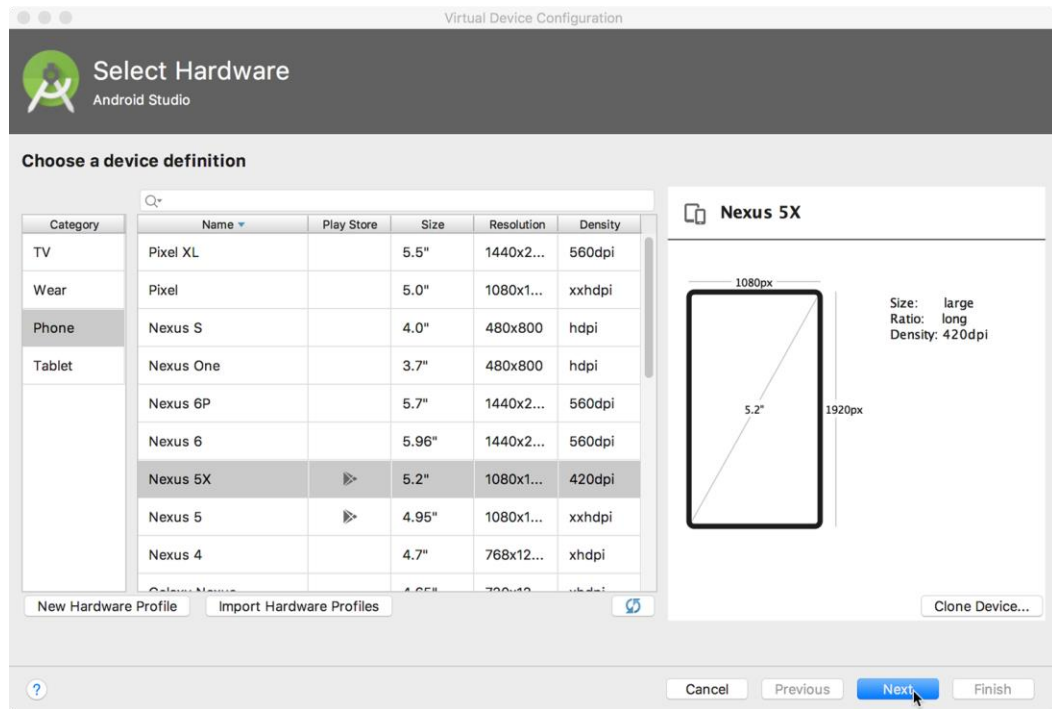
Tools > Android > AVD Manager

or:

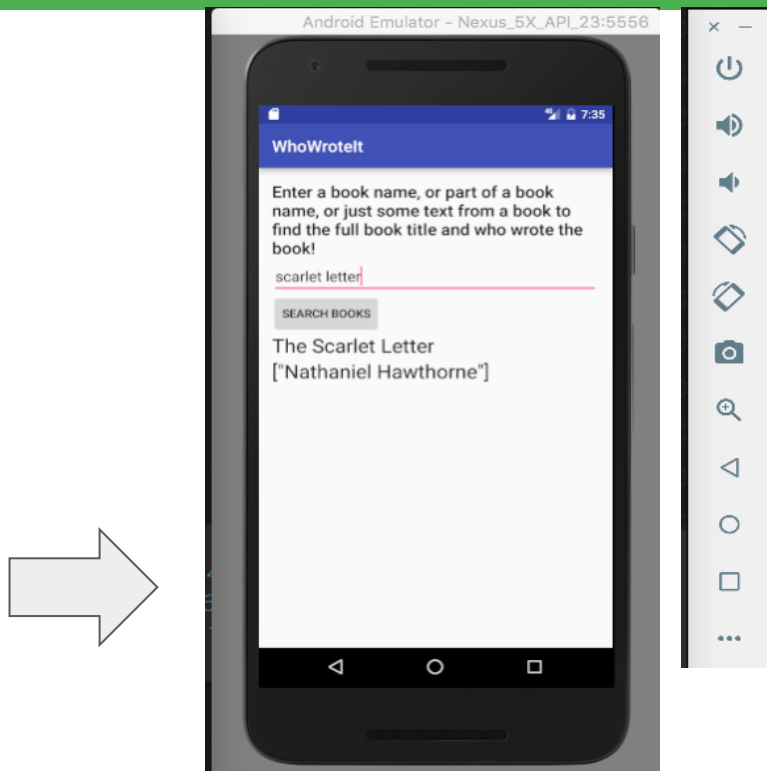


Configure virtual device

1. Choose hardware
2. Select Android version
3. Finalize



Run on a virtual device



Run on a physical device

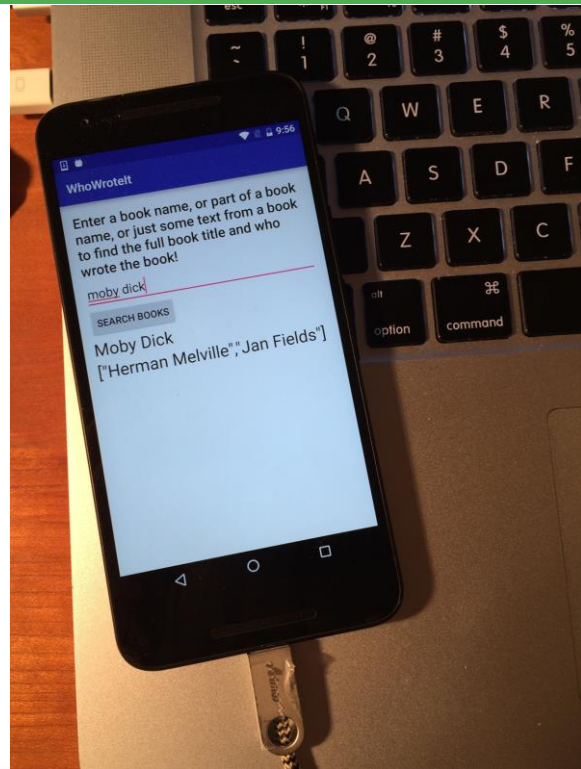
1. Turn on Developer Options:
 - a. **Settings > About phone**
 - b. Tap **Build number** seven times
2. Turn on USB Debugging
 - a. **Settings > Developer Options > USB Debugging**
3. Connect phone to computer with cable

Windows/Linux additional setup:

- [Using Hardware Devices](#)

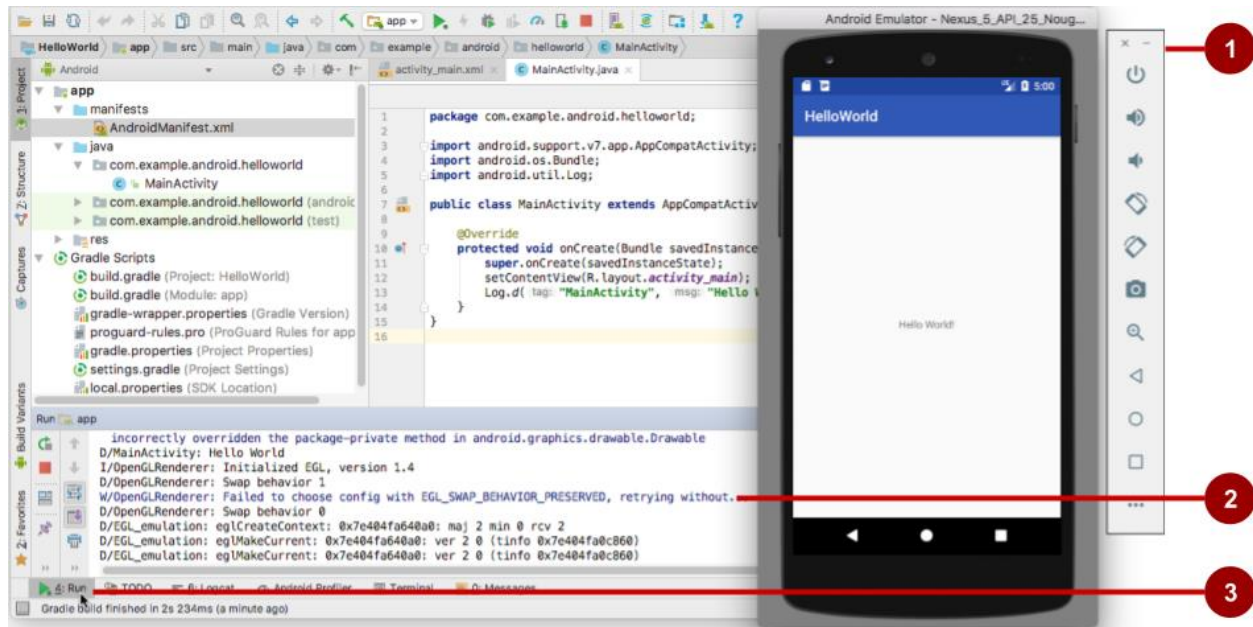
Windows drivers:

- [OEM USB Drivers](#)



Get feedback as your app runs

1. Emulator running the app
2. Run pane
3. **Run** tab to open or close the Run pane

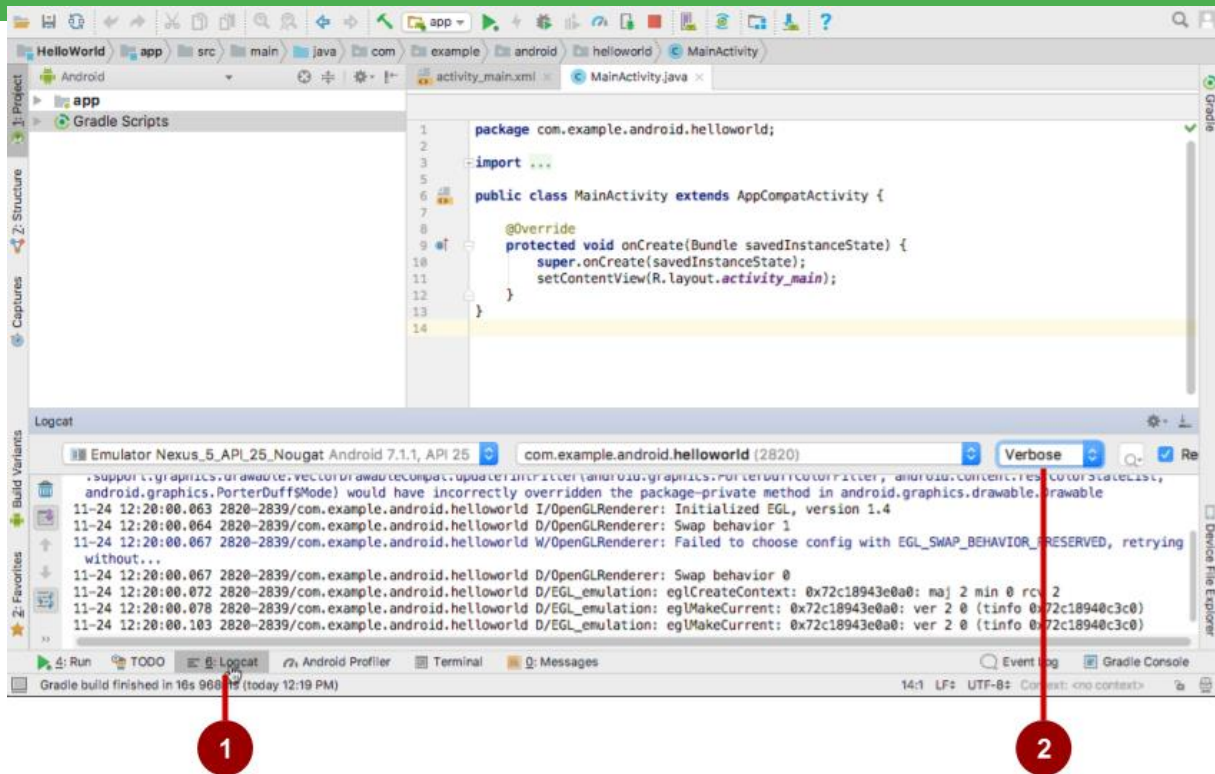


Adding logging to your app

- As the app runs, the **Logcat** pane shows information
- Add logging statements to your app that will show up in the Logcat pane
- Set filters in **Logcat** pane to see what's important to you
- Search using tags

The Logcat pane

1. Logcat tab to show Logcat pane
2. Log level menu



Logging statement

```
import android.util.Log;

// Use class name as tag
private static final String TAG =
    MainActivity.class.getSimpleName();

// Show message in Android Monitor, logcat pane
// Log.<log-level>(TAG, "Message");
Log.d(TAG, "Creating the URI...");
```

Learn more

- [Meet Android Studio](#)
- Official Android documentation at developer.android.com
- [Create and Manage Virtual Devices](#)
- [Supporting Different Platform Versions](#)
- [Supporting Multiple Screens](#)

Learn even more

- [Gradle Wikipedia page](#)
- [Google Java Programming Language style guide](#)
- Find answers at [Stackoverflow.com](#)

What's Next?

- Concept Chapter: [1.1 Your first Android app](#)
- Practical: [1.1 Android Studio and Hello World](#)

END