Android Developer Fundamentals

Hello World

Lesson 1

1.1 Create Your First Android App

Contents

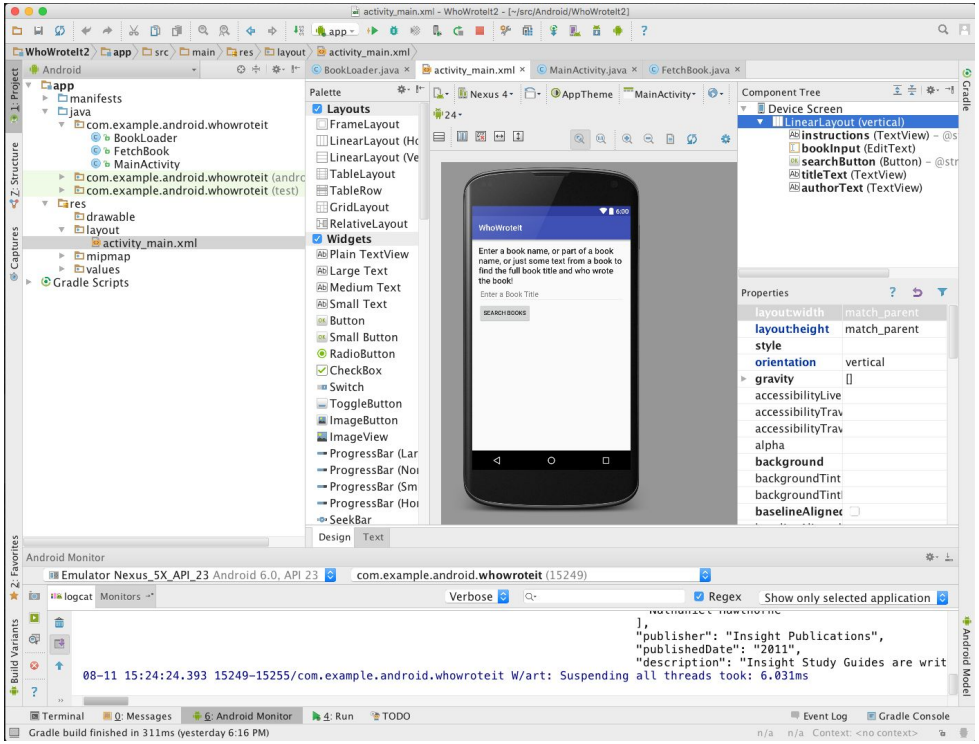
- Android Studio
- Creating "Hello World" app in Android Studio
- Basic app development workflow with Android Studio
- Running apps on virtual and physical devices

Prerequisites

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

Android Studio

What is Android Studio?



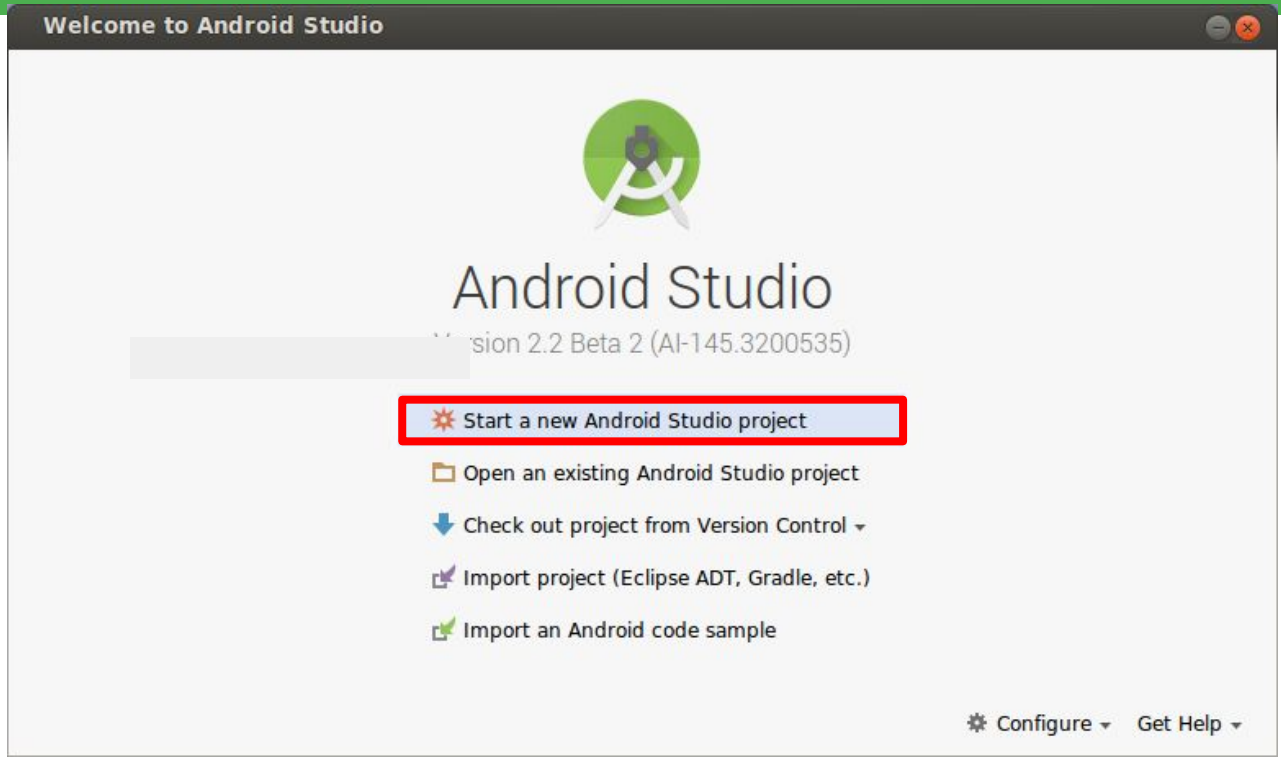
- Android IDE
- Project structure
- Templates
- Layout Editor
- Testing tools
- Gradle-based build
- Log Console
- Debugger
- Monitors
- Emulators

Installation Overview

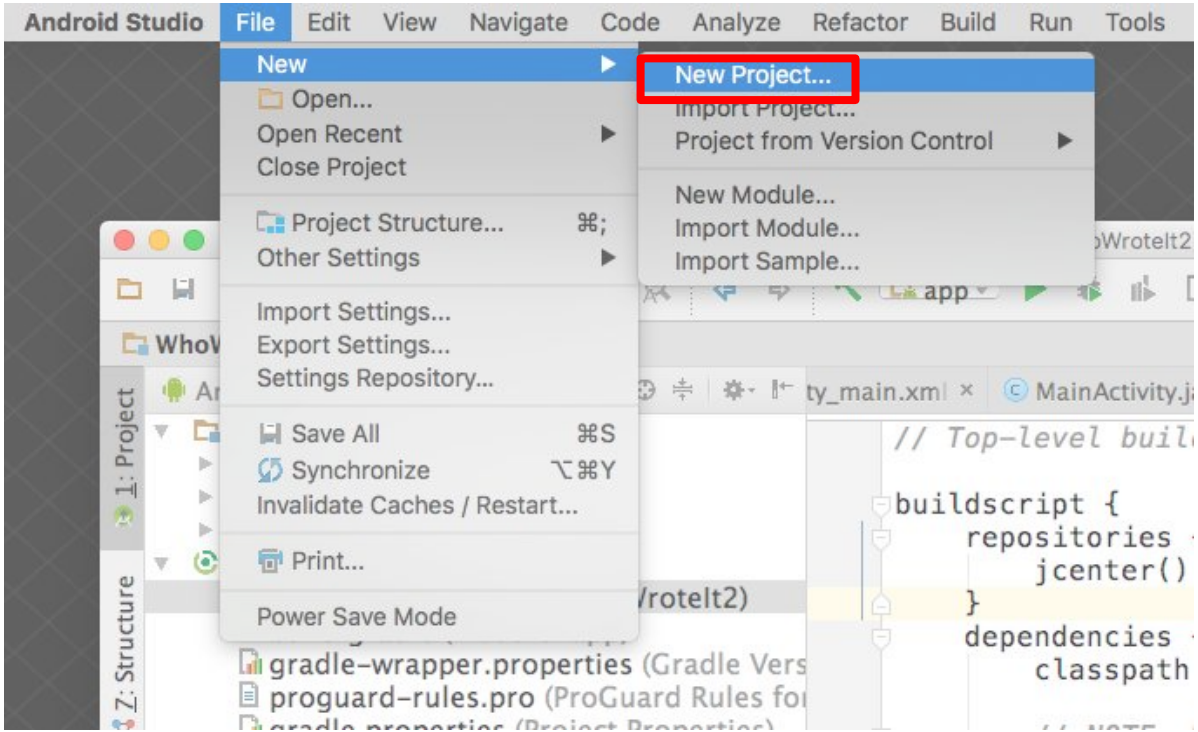
- Mac, Windows, or Linux
- Requires Java Development Kit (JDK) 1.7 or better from Oracle Java SE downloads page
- Set JAVA_HOME to JDK installation location
- Download and install Android Studio from http://developer.android.com/sdk/index.html
- See 1.1 P Install Android Studio for details

Creating Your First Android App

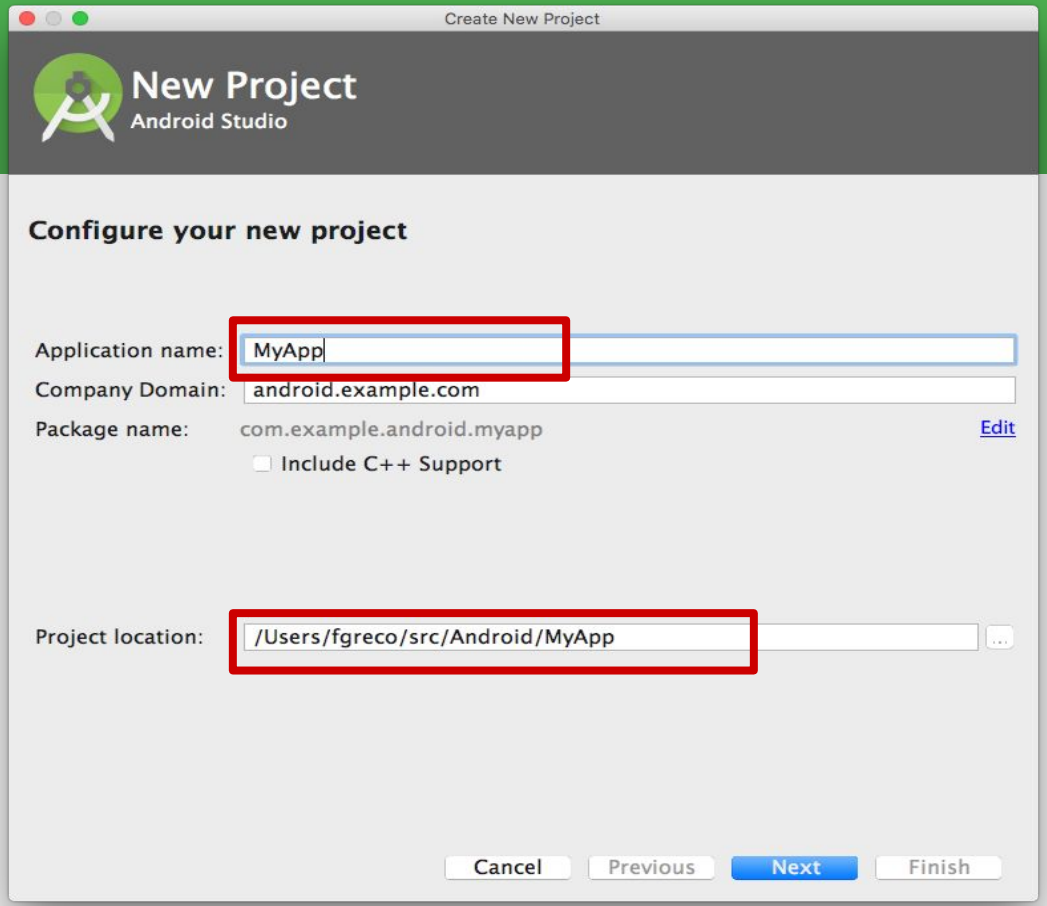
Start Android Studio



Create a project inside Android Studio



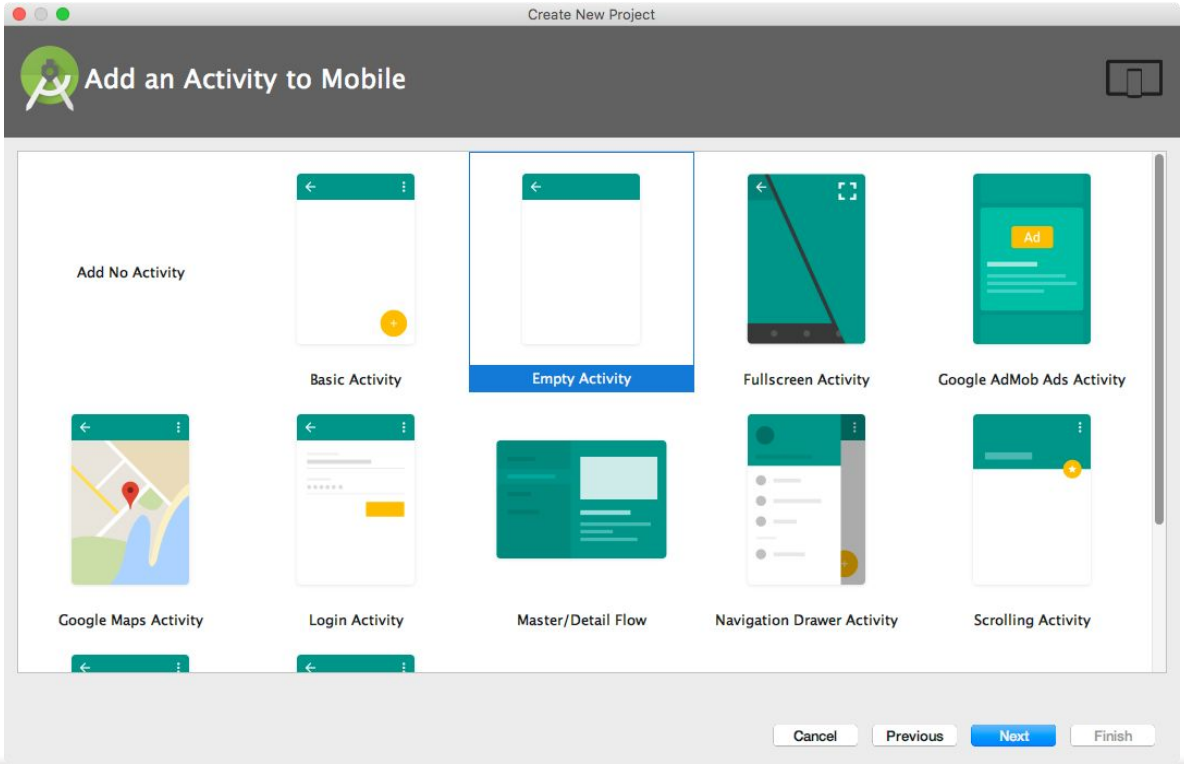
Name your app



Pick activity template

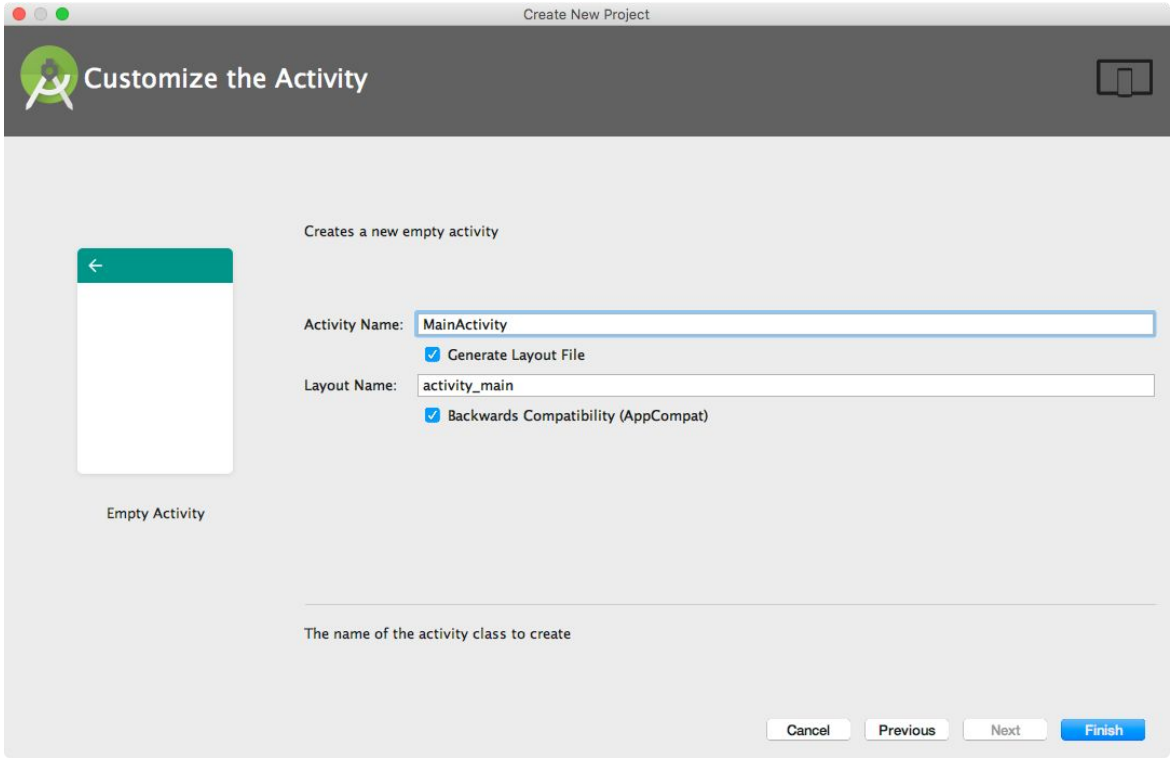
Choose templates for common activities, such as maps or navigation drawers.

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

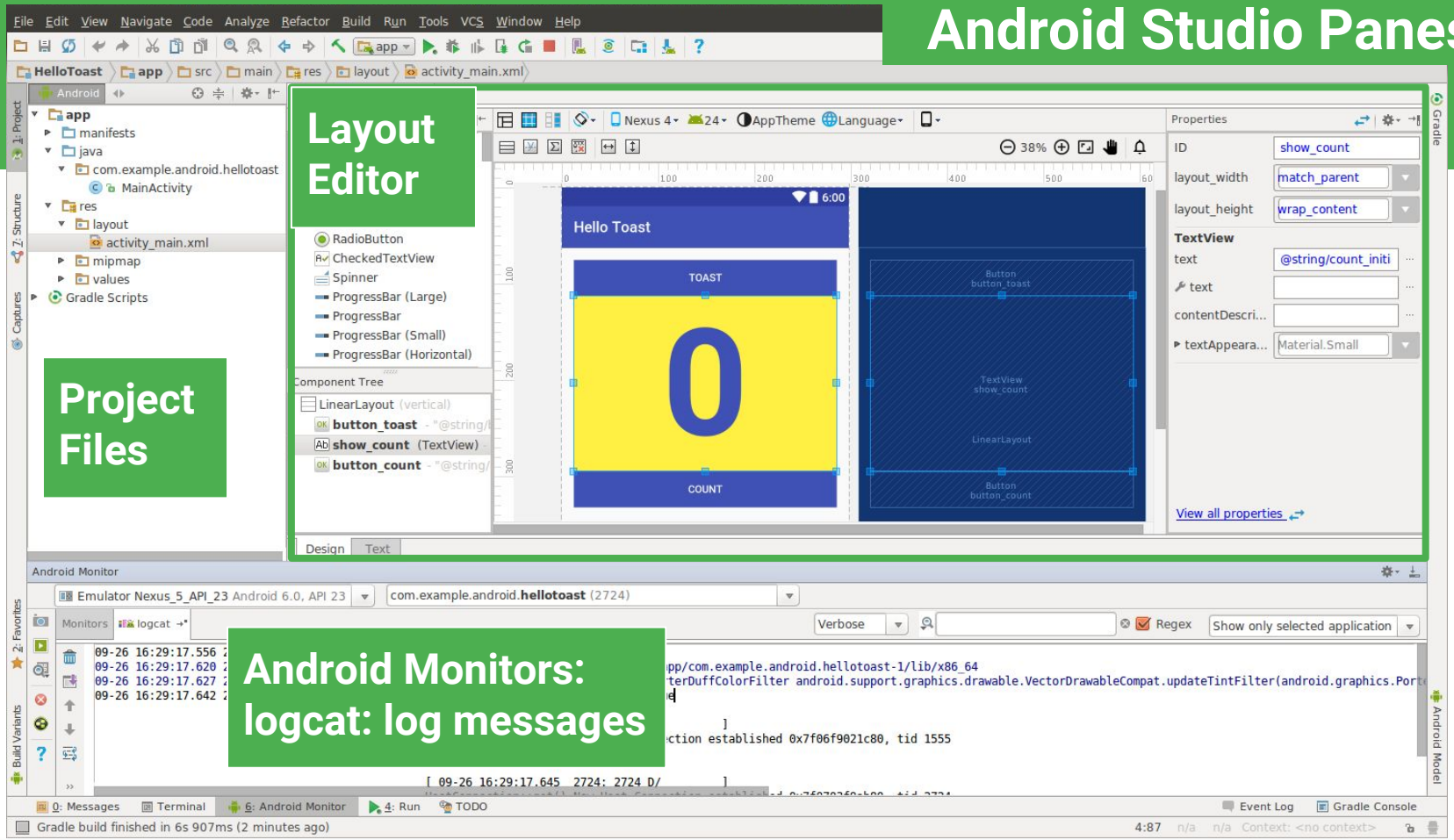


Name your activity

- Good practice to name main activity MainActivity and activity_main layout
- Use AppCompat
- Generating layout file is convenient

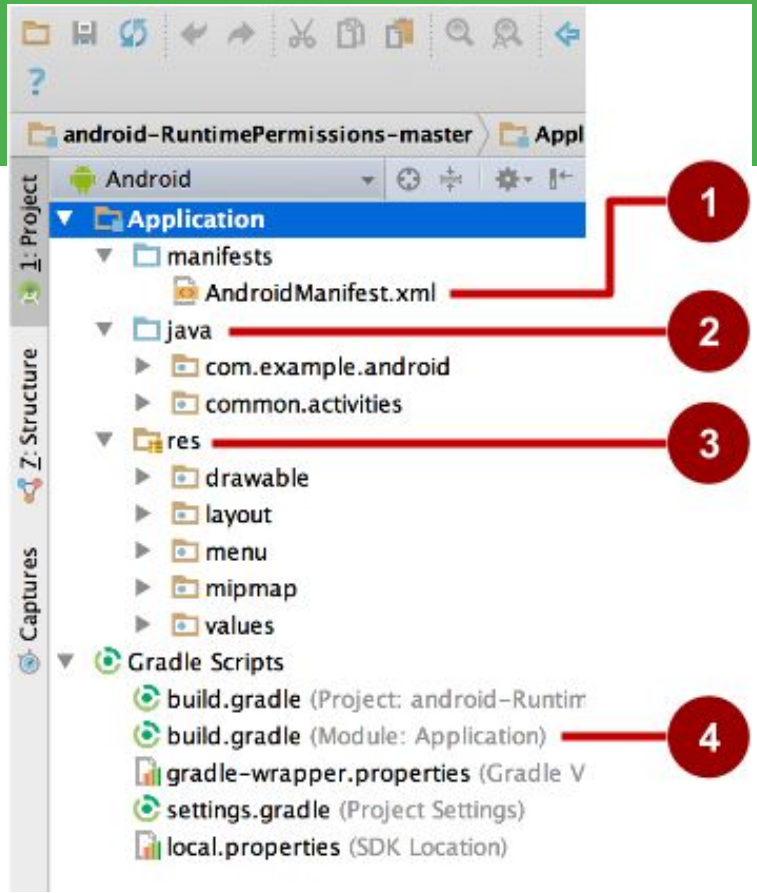


Android Studio Panes



Project folders

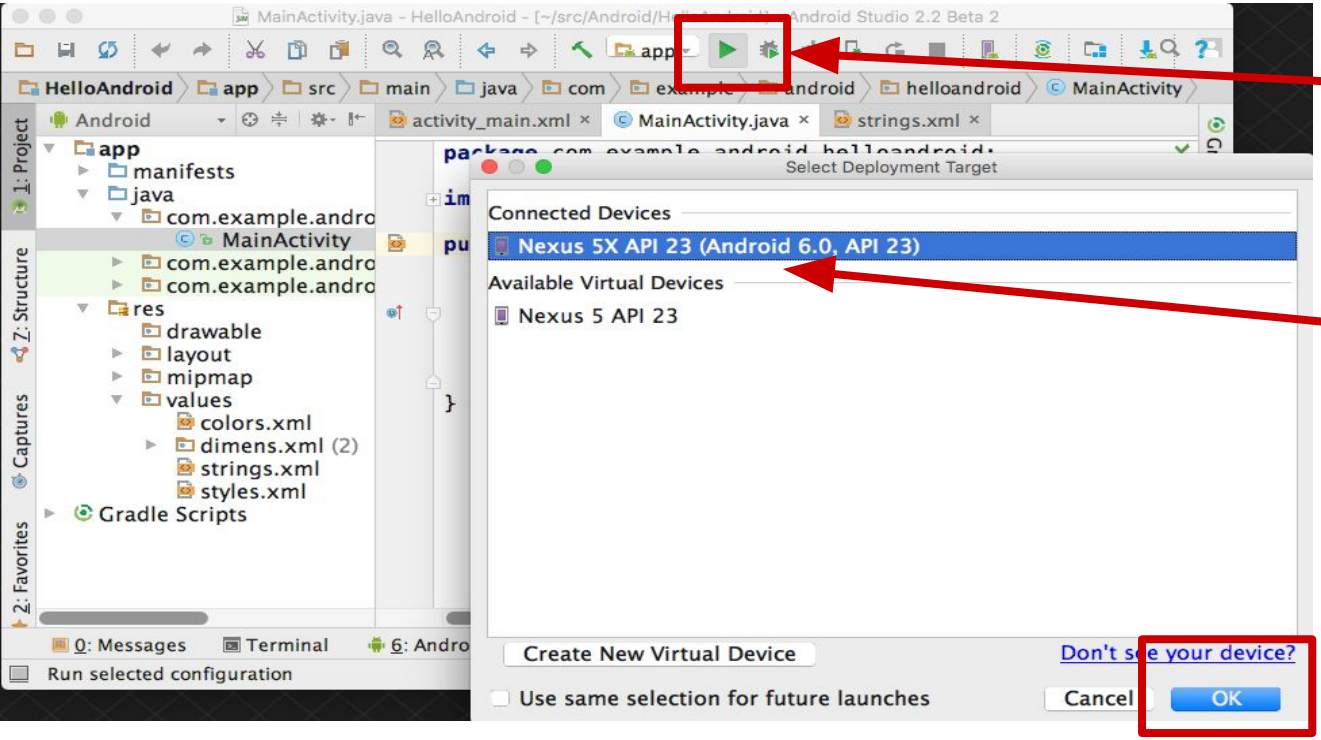
1. **manifests**—Android Manifest file - description of app read by the Android runtime
2. **java**—Java source code packages
3. **res**—Resources (XML) - layout, strings, images, dimensions, colors...
4. **build.gradle**—Gradle build files



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

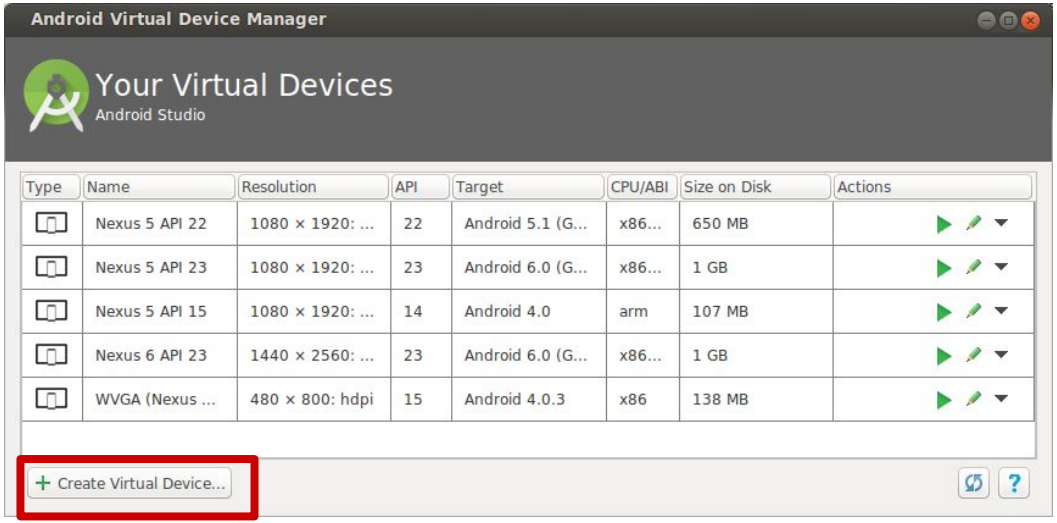


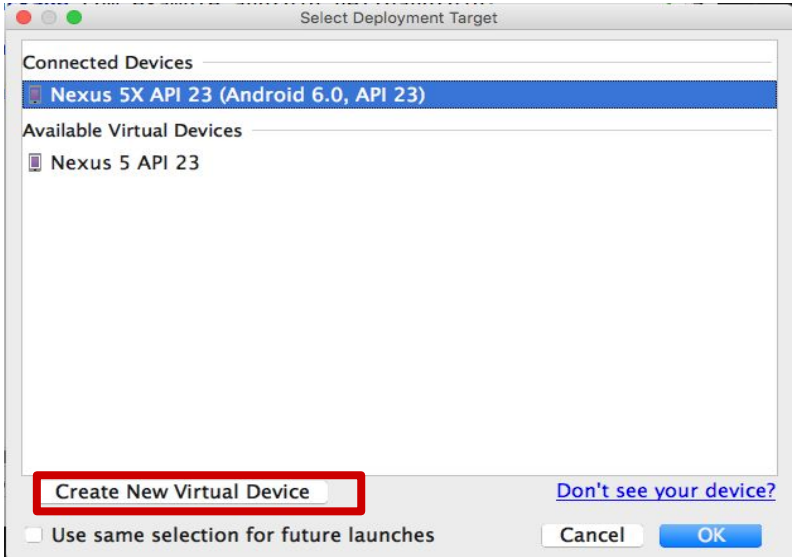
1. Run
2. Select virtual or physical device
3. OK

Create a virtual device

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

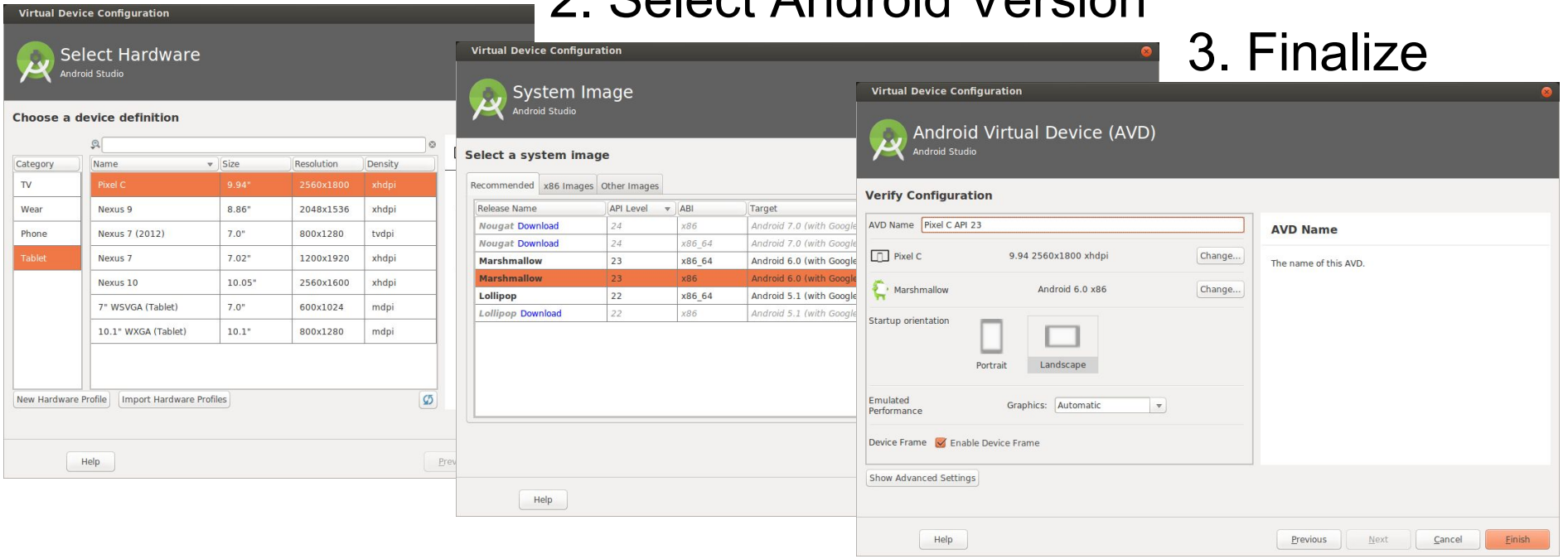
Tools > Android > AVD Manager or:



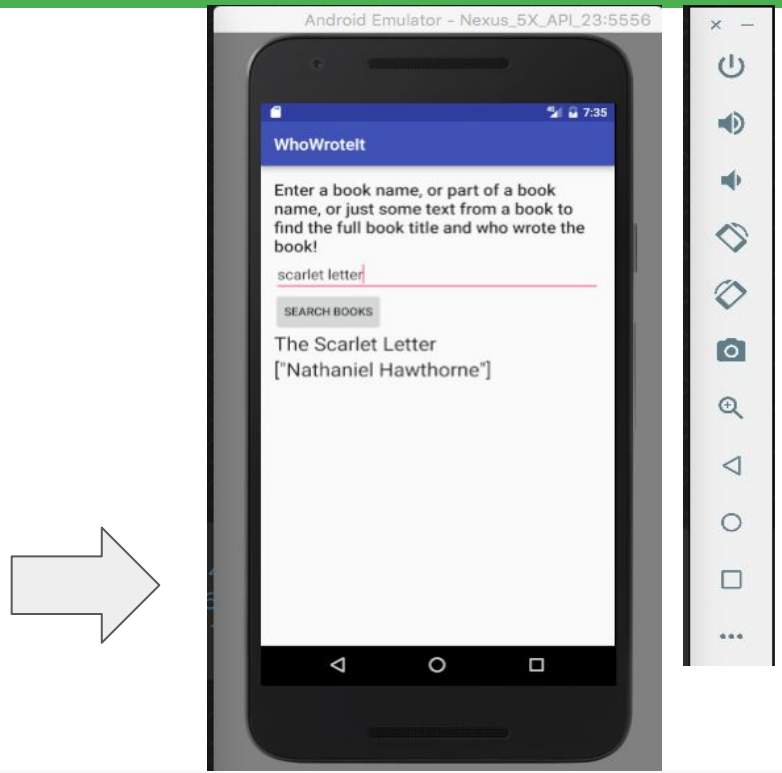


Configure virtual device

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



Run on a virtual device



Run on a physical device

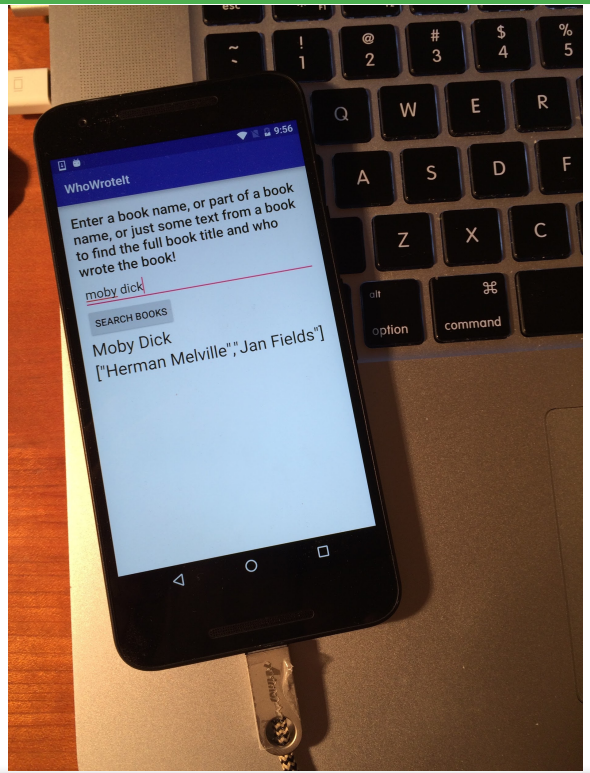
1. Turn on Developer Options:
   a. **Settings > About phone**
   b. Tap **Build number** seven times
2. Turn on USB Debugging
   a. **Settings > Developer Options > USB Debugging**
3. Connect phone to computer with cable

Windows/Linux additional setup:

- Using Hardware Devices

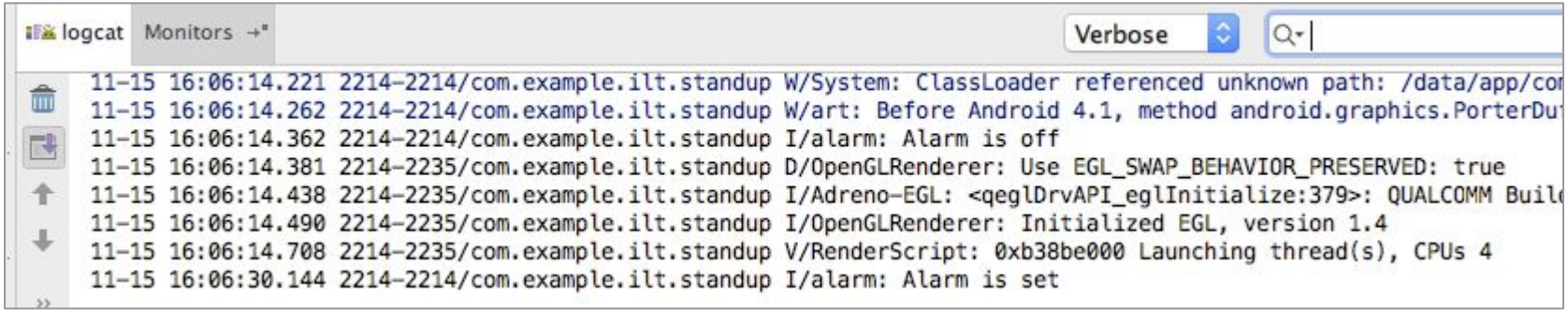
Windows drivers:

- OEM USB Drivers



Get feedback as your app runs

- As the app runs, Android Monitor logcat shows information
- You can add logging statements to your app that will show up in logcat.



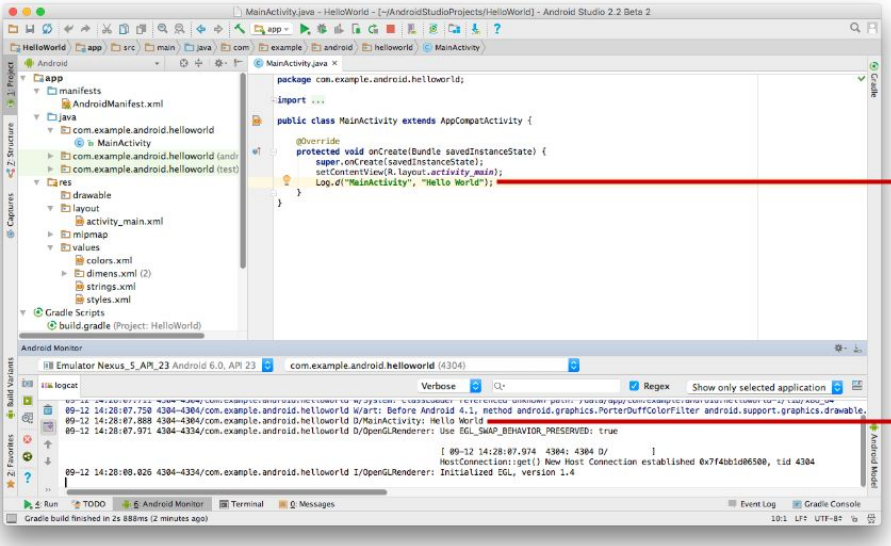
Logging

```
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…”);
```

Android Monitor > logcat pane



1. Log statements in code.
2. logcat pane shows system and logging messages

- Set filters to see what's important to you
- Search using tags

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 C Create Your First Android App
- Practical: 1.1 P Install Android Studio and Run Hello World

END