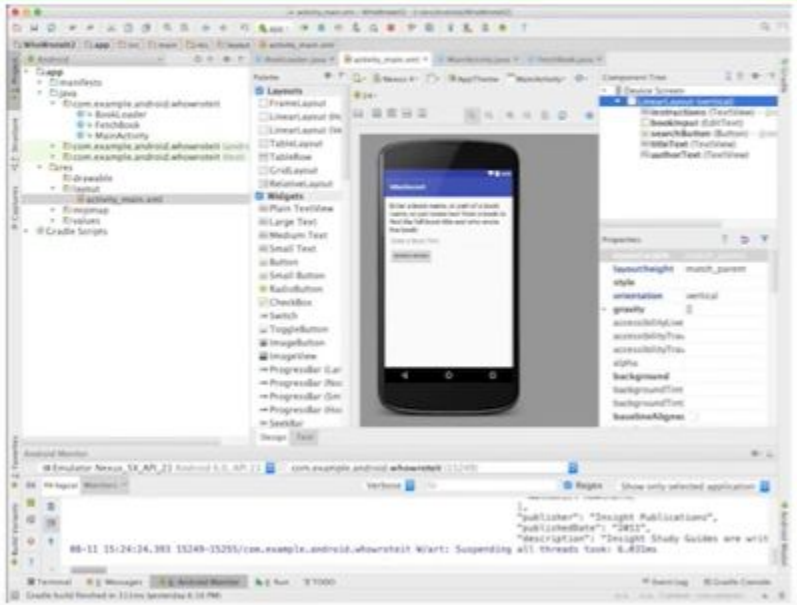
# Mobile Application Development

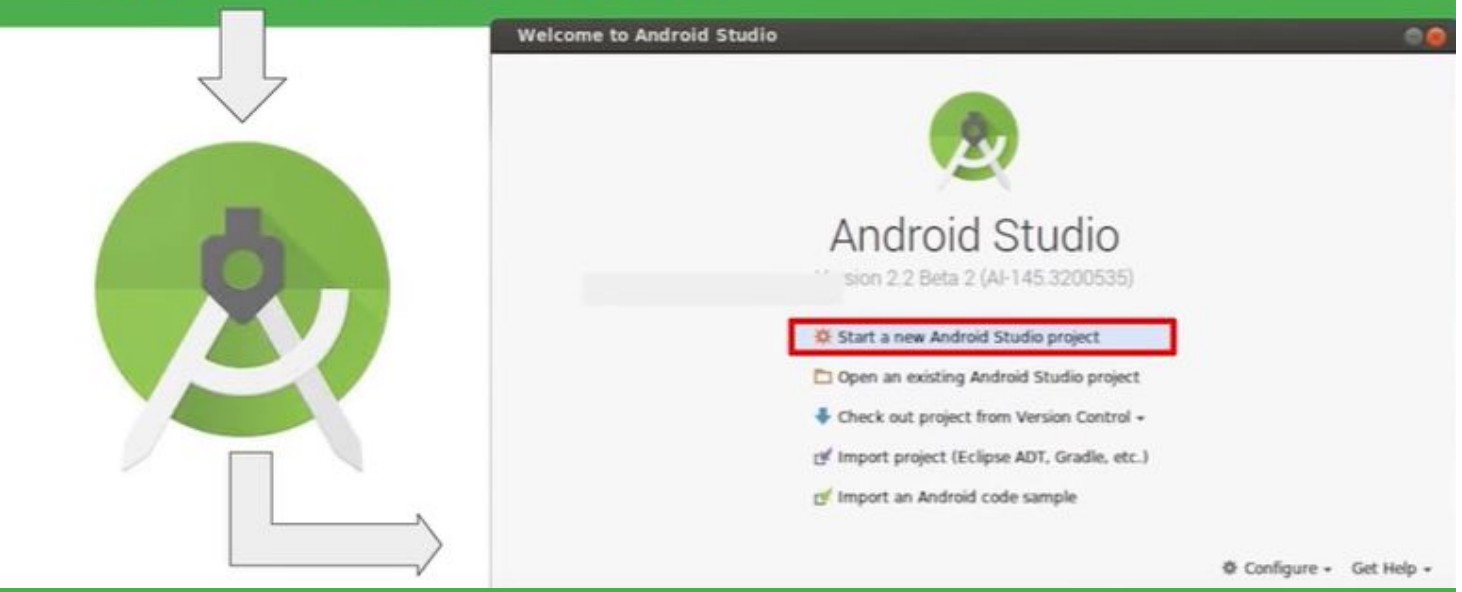
Create Your First Android App

# What is Android Studio?

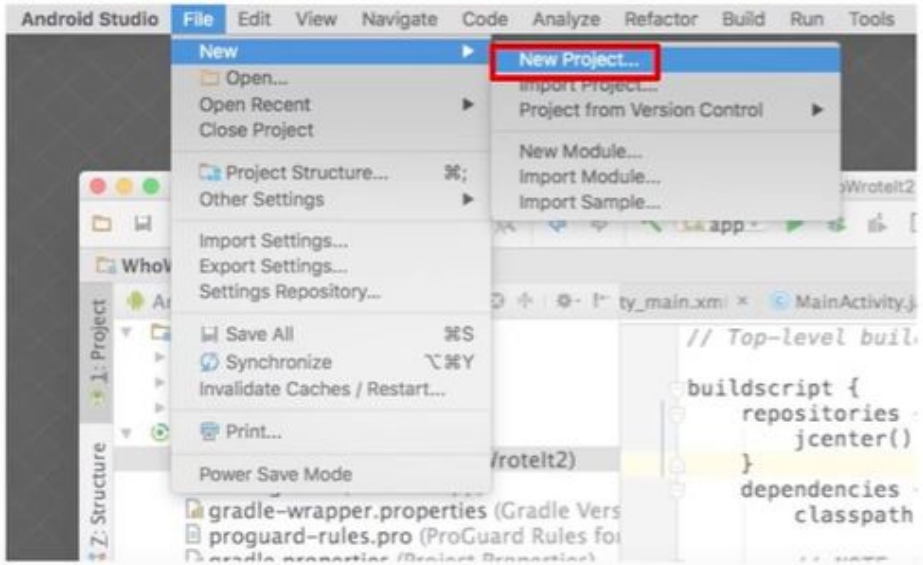


- Android IDE
- Project structure
- Templates
- Layout Editor
- Testing tools
- Gradle-based build
- Log Console
- Debugger
- Monitors
- Emulators

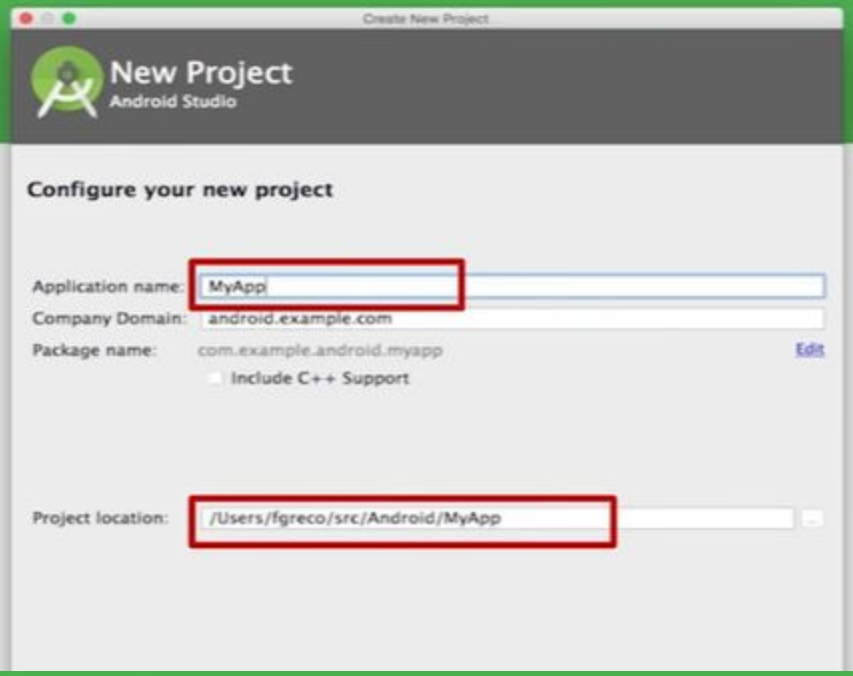
# Start Android Studio




# Create a project inside Android Studio



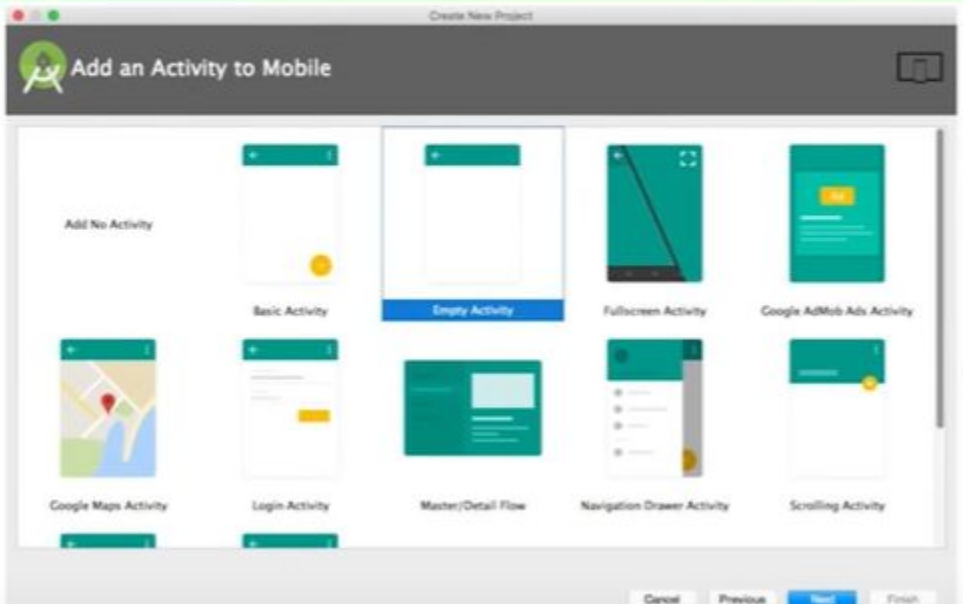
# Name your app




# Pick activity template

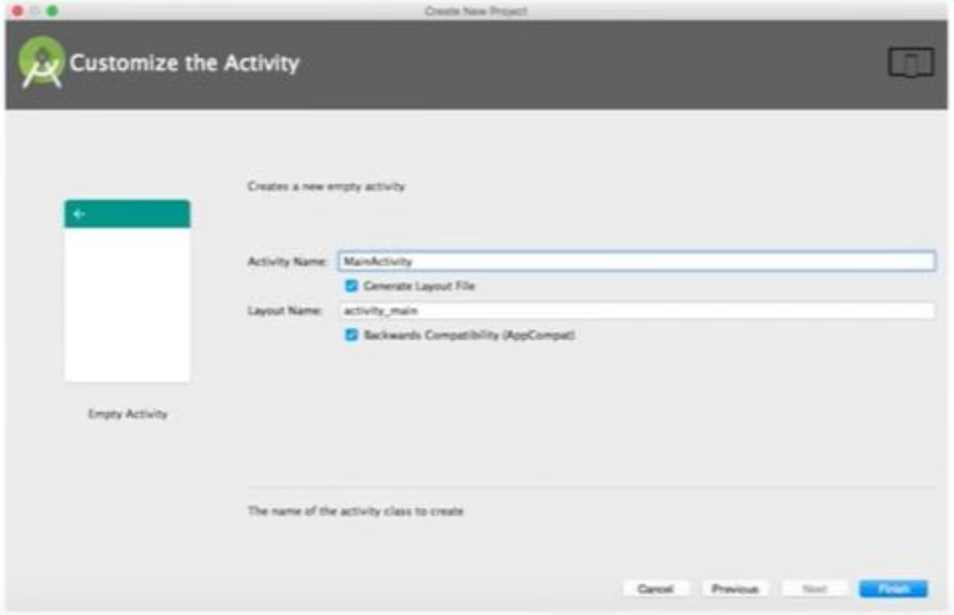
Choose templates for common activities, such as maps or navigation drawers.

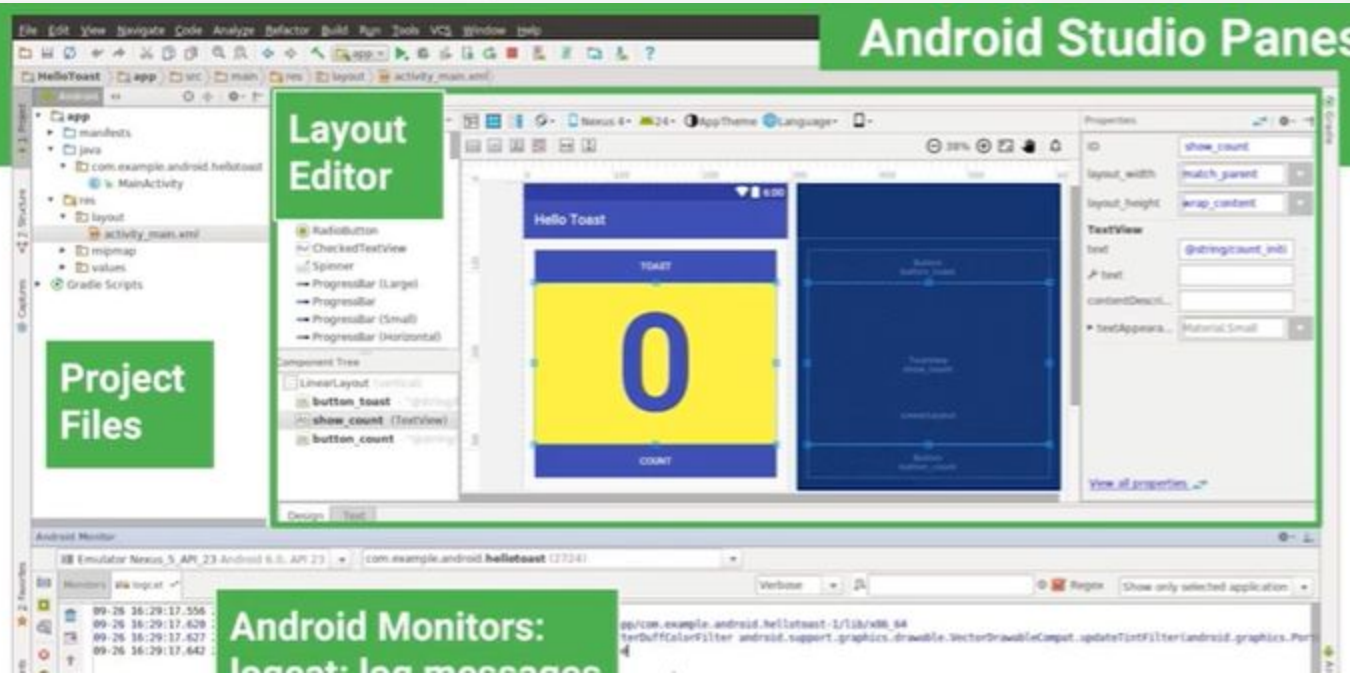
Pick Empty Activity or Basic Activity for simple and custom activities.



# Name your activity

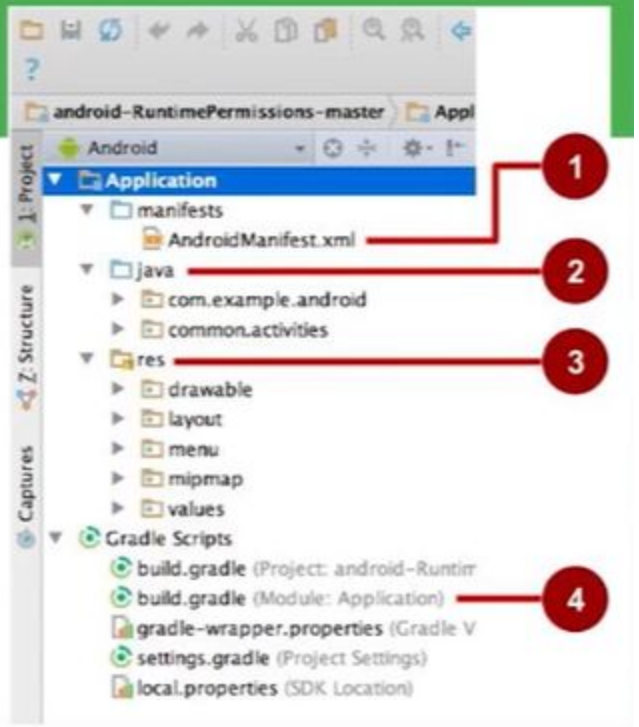
- Good practice to name main activity MainActivity and activity_main layout
- Use AppCompat
- Generating layout file is convenient



# Project folders

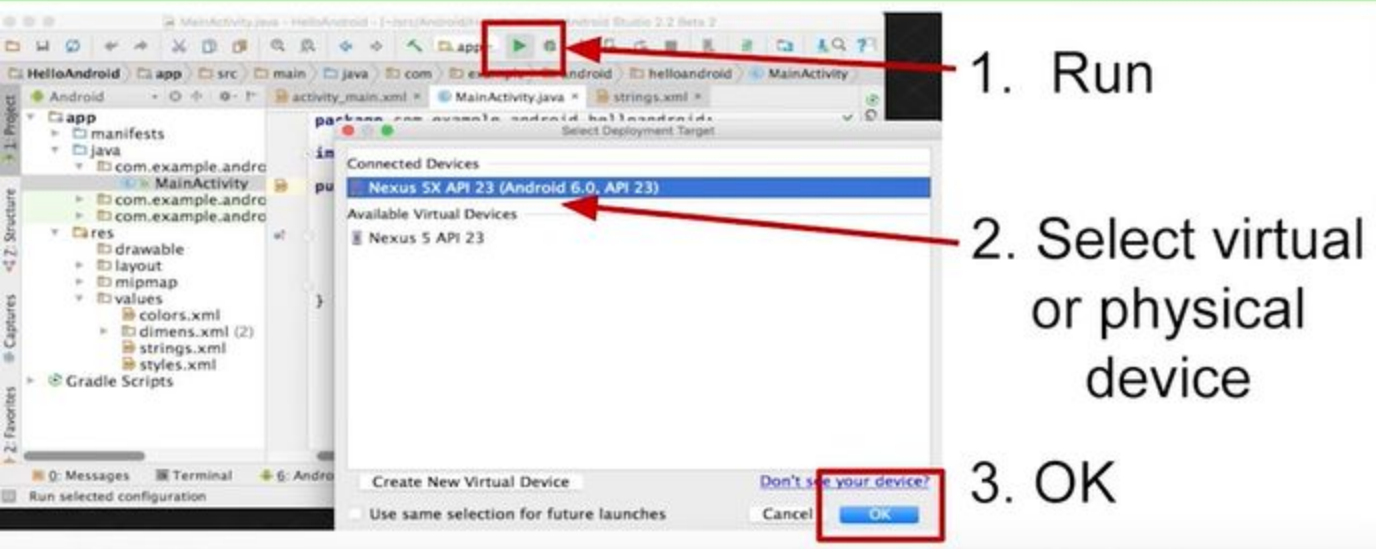
1. **manifests**—Android Manifest file - description of app read by the Android runtime
2. **java**—Java source code packages
3. **res**—Resources (XML) - layout, strings, images, dimensions, colors...
4. **build.gradle**—Gradle build files




# Gradle build system

- Modern build subsystem in Android Studio
- Three build.gradle:
  - project
  - module
  - settings
- Typically not necessary to know low-level Gradle details

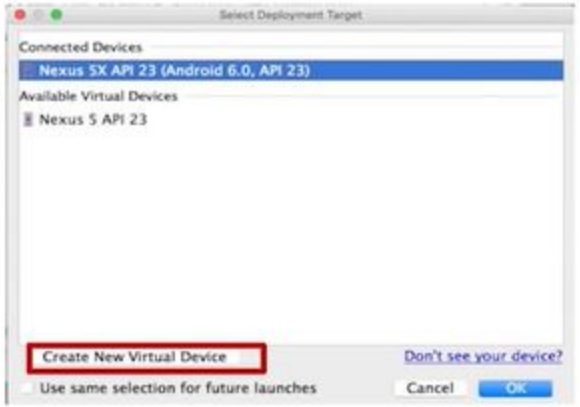
# Run your app




# Create a virtual device

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

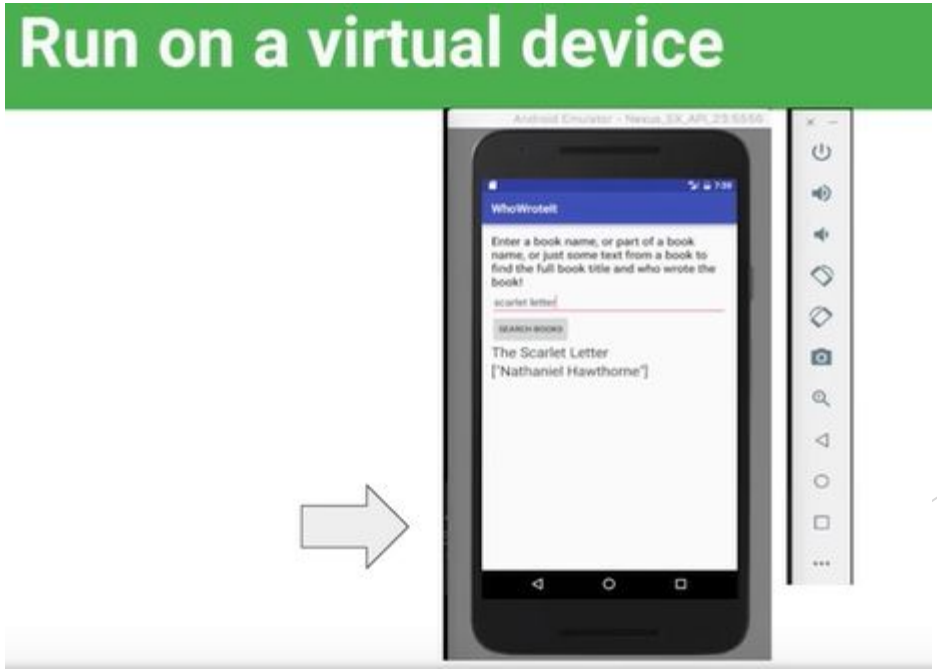
**Tools > Android > AVD Manager** or:

# Configure virtual device


Your Android Emulator Looks like

# 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:

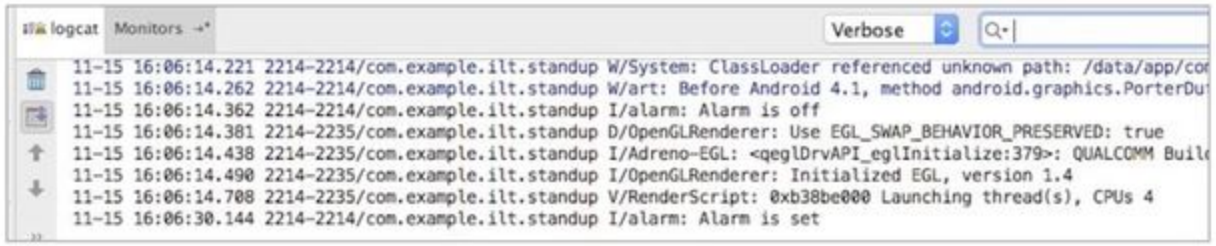
- Using Hardware Devices

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.



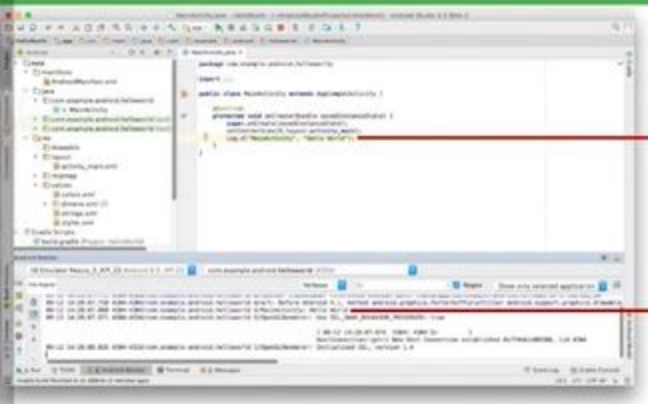
# Logging

```
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