

Building Your Android Toolbox



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Overview

Android Developer Tools

- What programming languages will you write?
- What IDE will you use to write code?
- Which dependencies will you need to install?
- How can you setup a virtual test device?

Android Programming Languages



C++

Reuse C or C++
libraries and write
highly performant code



Java

Default language for
Android for many
years



Kotlin

Recommended
language for modern
Android development



Kotlin

Kotlin is 100% interoperable with Java, and is now the recommended language for Android development.

Integrated Development Environments



IntelliJ IDEA

**Android development support
through available plugins**



Android Studio

**Official, Google-supported, IDE
for Android development**



Android Studio

Android Studio is the default IDE for Android development. It is based on IntelliJ, built by Google, and includes tools and integrations for working with the latest Android features.

Demo

Installing Android Studio

- Where to download?
- How to complete a basic installation?

Framework Dependencies

Framework Dependencies

JDK

**Supported Java
Development Kit**

(Required)

Android SDK

**Current Android
SDK**

(Required)

Android NDK

**Android Native
Development Kit**

(Optional)



JDK

A supported version of the Java Development Kit is needed to compile an Android app. Android Studio installations come bundled with a current version of OpenJDK.



Android SDK

The Android SDK is critical for building Android applications. The SDK includes api sources, build tools, a virtual device manager, debugging utilities, and more.



Android OS Updates

- Include SDK updates
- OS versions map to SDK api versions

Android SDK Platform Versions

Android 10

Api 29

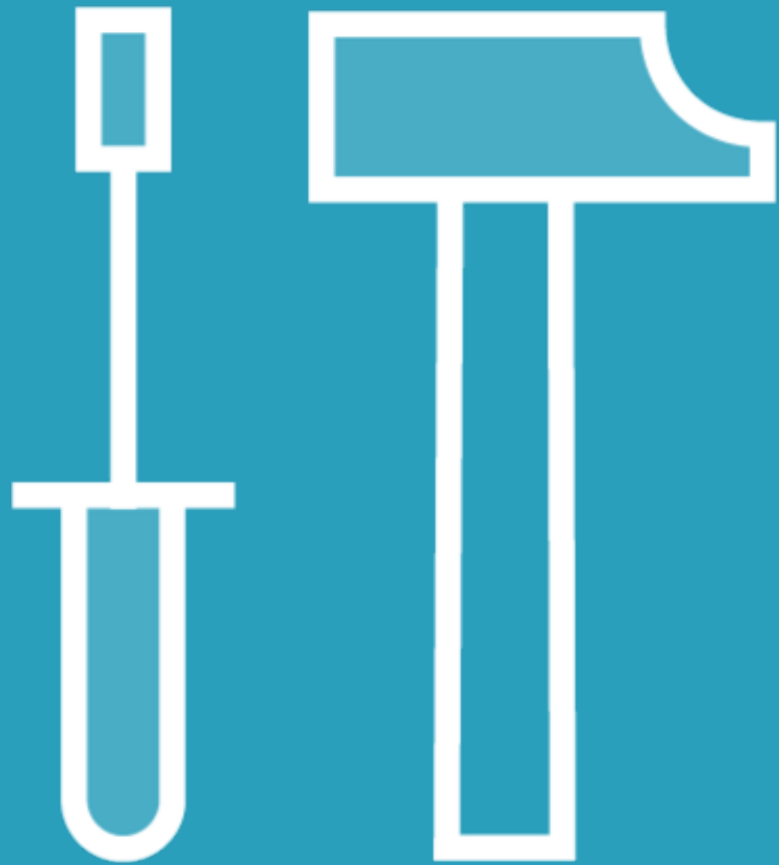
Android 9

Api 28

Android 8

Api 27 (8.1)

Api 26 (8.0)



Android NDK

The Android Native Development Kit is only needed if you are including native C and C++ code in your application. Includes the tooling needed to compile, integrate, and debug native code.

Library Dependencies



Android Jetpack

Android Jetpack is a set of libraries and tools designed to be the building blocks for Android development best practices

Android Jetpack

AppCompat

Room

WorkManager

Permissions

Navigation

Android Jetpack

AppCompat

Room

WorkManager

Permissions

Navigation

androidx.*

Android Jetpack



androidx.*

Consistent package structure

Unbundled from framework

- Offers backwards compatibility
- More frequent updates

Third-party Dependencies

Retrofit

**HTTP Client for
Android**

Firebase

**Integrate Firebase
Services**

Many more...

**Android embraces
open source**

Demo

Installing framework dependencies

Android SDK Manager

- Install SDK platform versions
- Install and update tooling
- Update emulator versions and tools

Android Virtual Devices

Android Virtual Devices



Test Your App From Your Computer

Android Virtual Device Manager

- Create new virtual devices
- Install system images
- Configure hardware and api levels
- Launch virtual devices for testing

Demo

Creating a virtual device

Android Virtual Device Manager

- Download system image
- Create virtual device
- Deploy virtual device