

AOSP Folders Walkthrough

The Android Open Source Project (AOSP) is a collection of various folders and files that constitute the open-source Android operating system. Here's a brief explanation of some key folders:

art : ART(Android Runtime) operating environment. All the ART-related modules can be found here including dex compilers, JVM, dalvik VM, etc.

bionic : Android's custom C library. Bionic is Android's C library, math library, and dynamic linker.

bootable : Boot-related code. Contains Bootloader, OTA, recovery mechanism.

build: Build System. You can find envsetup.sh, common shell scripts and make, soong folders here.

compatibility : CDD(Compatibility Definition Document) documentation.

cts : Android Compatibility Test Suite Standard.

dalvik : Dalvik Virtual Machine-related code. Even though ART was introduced, android still uses the dex code. In this folder, there are modules supporting dex code generator and Dalvik exchange.

developers : Developer Directory. Contains Demo and Sample Android Projects.

development : Application development related. Here you can find the development IDE like clion, eclipse, IntelliJ under the ide folder. Lots of Sample implementation under samples folder. And many other folders to support app development like Python, vndk, etc

device : Device-specific files and components. Here you can find the supporting configuration and driver files required for Development Boards like linaro hikey, ti, amlogic, etc

external : External Open Source projects imported into the AOSP. This folder contains a lot of dependent projects used by AOSP like Dagger2, exoplayer, flatbuffers, icu, jackson, rust and many many more. There are around 347 dependent modules in it as in AOSP 12.

frameworks : Application framework, the core part of the Android system, written in Java and C++. Here you can find all the system service and core implementations of Android.

As such it's where most APIs are defined:

frameworks/base/core/java/android/app/
frameworks/base/core/java/android/content/

frameworks/base/services/core/java contains most system services, and these directories typically have more granularity than core/java, since they can be refactored without top layer API changes.

hardware : Mainly the code of the hardware abstraction layer and hardware support modules. Consists of the hal for audio, video, usb, tv, camera etc

kernel : Includes the Linux kernel source code customized for Android devices. This folder is crucial for hardware interaction and device drivers.

libcore : Consists of many core libraries related json, xml parser, apache harmony etc.

libnativehelper : Dynamic library, the basis of the JNI library. It consists of helper functions to use with JNI.

ndk : NDK(Native Development Kit) related code to help developers embed C/C++ code in the application.

out : After the Build is complete, the code output is in this directory. You can find the generated images for the build here.

packages : Holds the code for various pre-installed Android apps, such as the default launcher, browser, contacts, etc.

prebuilts : Consists of Prebuilt binaries. Includes toolchains like asuite, android emulator, Bazel etc.

sdk : Many SDK Tools sources can be found here. Instructions to build sk for a specific build can be found here under docs.

system : Contains essential system-level components and services like the Android Runtime (ART), System UI, and the core system libraries.

test : Contains the test suites like suite, catbox, vts (vendor test suite), mts(mainline test suite) etc.

toolchain : Toolchain files related to benchmark and pgoprofiles.

tools : Holds various development tools and utilities used during the Android development process, such as adb (Android Debug Bridge) and emulator.

vendor : Contains proprietary files and binaries specific to each device manufacturer. These files are necessary for hardware components like cameras, sensors, and radios.

