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Compatibility Program Overview

The Android compatibility program makes it easy for mobile device manufacturers to develop compatible Android devices.

Program goals

The Android compatibility program works for the benefit of the entire Android community, including users, developers, and device manufacturers.

Each group depends on the others. Users want a wide selection of devices and great apps; great apps come from developers motivated by a large market for their apps with many devices in users' hands; device manufacturers rely on a wide variety of great apps to increase their products' value for consumers.

Our goals were designed to benefit each of these groups:

- *Provide a consistent application and hardware environment to application developers.* Without a strong compatibility standard, devices can vary so greatly that developers must design different versions of their applications for different devices. The compatibility program provides a precise definition of what developers can expect from a compatible device in terms of APIs and capabilities. Developers can use this information to make good design decisions, and be confident that their apps will run well on any compatible device.
- *Enable a consistent application experience for consumers.* If an application runs well on one compatible Android device, it should run well on any other device that is compatible with the same Android platform version. Android devices will differ in hardware and software capabilities, so the compatibility program also provides the tools needed for distribution systems such as Android Market to implement appropriate filtering. This means that users can only see applications which they can actually run.
- *Enable device manufacturers to differentiate while being compatible.* The Android compatibility program focuses on the aspects of Android relevant to running third-party applications, which allows device manufacturers the flexibility to create unique devices that are nonetheless compatible.
- *Minimize costs and overhead associated with compatibility.* Ensuring compatibility should be easy and inexpensive to device manufacturers. The testing tool (CTS) is free, open source, and available for [download](#). CTS is designed to be used for continuous self-testing during the device development process to eliminate the cost of changing your workflow or sending your device to a third party for testing. Meanwhile, there are no required certifications, and thus no corresponding costs and fees.

The Android compatibility program consists of three key components:

- The source code to the Android software stack
- The Compatibility Definition Document, representing the "policy" aspect of compatibility
- The Compatibility Test Suite, representing the "mechanism" of compatibility

<http://source.android.com/compatibility/overview.html>

Oracle America, Inc. v. Google Inc.
3:10-cv-03561-WHA

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

TRIAL EXHIBIT 3341

CASE NO. 10-03561 WHA
DATE ENTERED _____
BY _____
DEPUTY CLERK

GOOGLE-00-00000530

Just as each version of the Android platform exists in a separate branch in the source code tree, there is a separate CTS and CDD for each version as well. The CDD, CTS, and source code are – along with your hardware and your software customizations – everything you need to create a compatible device.

Compatibility Definition Document (CDD)

For each release of the Android platform, a detailed Compatibility Definition Document (CDD) will be provided. The CDD represents the "policy" aspect of Android compatibility.

No test suite, including CTS, can truly be comprehensive. For instance, the CTS includes a test that checks for the presence and correct behavior of OpenGL graphics APIs, but no software test can verify that the graphics actually appear correctly on the screen. More generally, it's impossible to test the presence of hardware features such as keyboards, display density, WiFi, and Bluetooth.

The CDD's role is to codify and clarify specific requirements, and eliminate ambiguity. The CDD does not attempt to be comprehensive. Since Android is a single corpus of open-source code, the code itself is the comprehensive "specification" of the platform and its APIs. The CDD acts as a "hub", referencing other content (such as SDK API documentation) that provides a framework in which the Android source code may be used so that the end result is a compatible system.

If you want to build a device compatible with a given Android version, start by checking out the source code for that version, and then read the corresponding CDD and stay within its guidelines. For additional details, simply examine [the latest CDD](#).

Compatibility Test Suite (CTS)

The CTS is a free, commercial-grade test suite, available for [download](#). The CTS represents the "mechanism" of compatibility.

The CTS runs on a desktop machine and executes test cases directly on attached devices or an emulator. The CTS is a set of unit tests designed to be integrated into the daily workflow (such as via a continuous build system) of the engineers building a device. Its intent is to reveal incompatibilities early on, and ensure that the software remains compatible throughout the development process.

For details on the CTS, consult the [CTS introduction](#).

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