open source project

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Getting Started
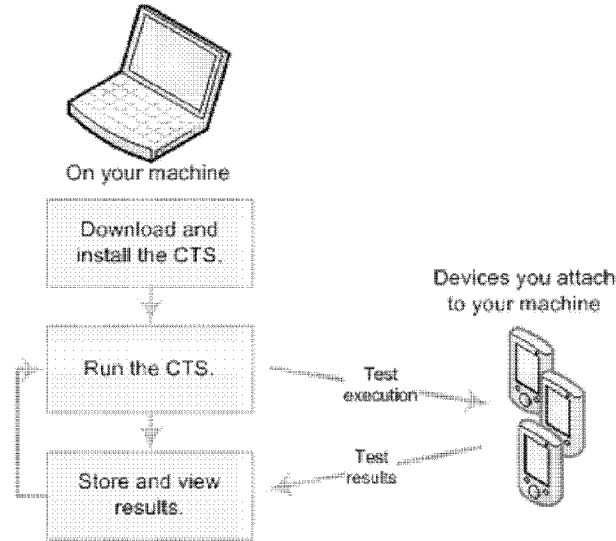Compatibility Overview
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The CTS is an automated testing harness
that includes two major software
components:

- The CTS test harness runs on your
  desktop machine and manages test
  execution.

- Individual test cases are executed on
  attached mobile devices or on an
  emulator. The test cases are written in
  Java as JUnit tests and packaged as
  Android .apk files to run on the actual
  device target.

Compatibility Test Suite
How does the CTS work?

On your machine

Download and install the CTS.

Run the CTS.

Store and view results.

Devices you attach to your machine

Test execution

Test results

Workflow

1. Download the CTS.

2. Attach at least one device (or emulator) to your machine.

3. For CTS 2.1 R2 and beyond, setup your device (or emulator) to run the accessibility tests:

    1. adb install -r android-cts/repository/testcases/CtsDelegatingAccessibilityService.apk

    2. On the device, enable Settings > Accessibility > Accessibility > Delegating Accessibility Service

4. For CTS 2.3 R4 and beyond, setup your device to run the device administration tests:

    1. adb install -r android-cts/repository/testcases/CtsDeviceAdmin.apk

    2. On the device, enable all the android.deviceadmin.cts.* device administrators under Settings >
       Location & security > Select device administrators

5. Launch the CTS. The CTS test harness loads the test plan onto the attached devices. For each test in the
   test harness:

    o The test harness pushes a .apk file to each device, executes the test through instrumentation, and

records test results.

  o The test harness removes the .apk file from each device.

6. Once all the tests are executed, you can view the test results in your browser and use the results to adjust your design. You can continue to run the CTS throughout your development process.

When you are ready, you can submit the report generated by the CTS to cts@android.com. The report is a .zip archived file that contains XML results and supplemental information such as screen captures.

Types of test cases

The CTS includes the following types of test cases:

- *Unit tests* test atomic units of code within the Android platform; e.g. a single class, such as java.util.HashMap.

- *Functional tests* test a combination of APIs together in a higher-level use-case.

- *Reference application tests* instrument a complete sample application to exercise a full set of APIs and Android runtime services

Future versions of the CTS will include the following types of test cases:

- *Robustness tests* test the durability of the system under stress.

- *Performance tests* test the performance of the system against defined benchmarks, for example rendering frames per second.

Areas Covered

The unit test cases cover the following areas to ensure compatibility:

Area	Description
Signature tests	For each Android release, there are XML files describing the signatures of all public APIs contained in the release. The CTS contains a utility to check those API signatures against the APIs available on the device. The results from signature checking are recorded in the test result XML file.
Platform API Tests	Test the platform (core libraries and Android Application Framework) APIs as documented in the SDK Class Index to ensure API correctness, including correct class, attribute and method signatures, correct method behavior, and negative tests to ensure expected behavior for incorrect parameter handling.
Dalvik VM Tests	The tests focus on testing the Dalvik VM
Platform Data Model	The CTS tests the core platform data model as exposed to application developers through content providers, as documented in the SDK android.provider package: contacts, browser, settings, etc.
Platform Intents	The CTS tests the core platform intents, as documented in the SDK Available Intents.
Platform Permissions	The CTS tests the core platform permissions, as documented in the SDK Available Permissions.

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Platform Resources	The CTS tests for correct handling of the core platform resource types, as documented in the SDK Available Resource Types. This includes tests for: simple values, drawables, nine-patch, animations, layouts, styles and themes, and loading alternate resources.

http://source.android.com/compatibility/cts-intro.html

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