



How to Test and Debug Your Mobile Apps in the Cloud

In a heavily fragmented mobile environment, developing applications, which are compatible with multiple platforms and meet increased user expectations, represents a big challenge. Good user experience is expressed through ratings and rankings in the app stores, which directly influences the lifecycle of any app and determines its failure or success rate. In order to provide the digital confidence that your products will work flawlessly across any platform or device, you must properly test your mobile apps.

This white paper explains why organizations should not overlook manual mobile testing and how it plays an important role in delivering a great user experience. It offers some guidance on how to perform manual tests effectively and reviews the benefits of moving to a cloud-based mobile testing platform.

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MANUAL TESTING ON MOBILE DEVICES

In the DevOps age and a world of 'automate everything', manual testing may often be overlooked. But manual tests still have an important role to play, even for organizations that successfully automate most of their tasks.

Nowhere is the importance of manual testing clearer than in the context of writing software for mobile devices. Below, we'll discuss the importance of manual tests for mobile, and how to perform them.

WHY DO MANUAL TESTS ON MOBILE?

While automated tests can streamline most of the testing required to release software, manual testing is used by QA teams to fill in the gaps and ensure that the final product really works as intended by seeing how end users actually use an application. Automation typically focuses on a single path, whereas with manual testing you can explore the application beyond the typical happy path in a way a customer naturally would interact.

In the context of mobile, manual tests often answer questions like:

- Are all elements of the design arranged in a comfortable way?
- Is it easy to get to elements with one finger?
- Is it still easy if the user is using only one hand?

By performing manual tests with real users, you can measure their reactions as they test the functions of the app. You will also be able to take note of any challenges in performing tasks on the device.

HOW TO PERFORM MANUAL MOBILE TESTS EFFECTIVELY

To perform manual tests, you have to organize and standardize the tests. By taking these steps, you can repeat them on any device without any changes in the flow. And you will be able to reproduce an error again if it is necessary.

Without organizing, you are just going around in circles and hoping to find something wrong. Organizing tests will save time, and it will be easier to reproduce errors. There are a few steps to follow to create manual tests.

1. Plan the test

Most things start with a good plan, and testing is no exception. Your first step when preparing a test is to plan out the steps that will comprise the test, and your route for executing them.

2. Run the test

With the test planned, run it. Test everything you have planned, note the route you used and how each point was addressed to avoid confusion when the test is run again.

When an error appears, try to reproduce all the steps the same way you did the first time. Determine what caused the error. (Was it just human error?)

3. Note the errors

Registering errors is necessary to make them easier to reproduce again. Show your test to the developers to help find out what is causing the errors. After solving each of the problems, perform all tests again to verify that nothing was broken in the process. Use an appropriate tool (ie: Jira) to share your test results with QA and the development team, and keep a history of your tests and issues.

4. Repeat

We have to repeat all the steps again after performing any kind of code change, reproducing the tests exactly as from the start, and remembering to note any changes, thus reducing the test error rate of our manual tests.

5. Select devices

Select different devices to perform tests. Start with the most common devices used by your customers either based on usage data, Google Analytics, or popularity by region. Try distinct device brands, platforms, and operating systems. Differentiate whenever possible the hardware and software, check the version of auxiliary software, and take note if there are differences between updates. And because there are often differences between screens and resolution, checking if the app is responsive is mandatory. (Sometimes, we only can see this with manual testing.)

REAL DEVICES IN A CLOUD ENVIRONMENT

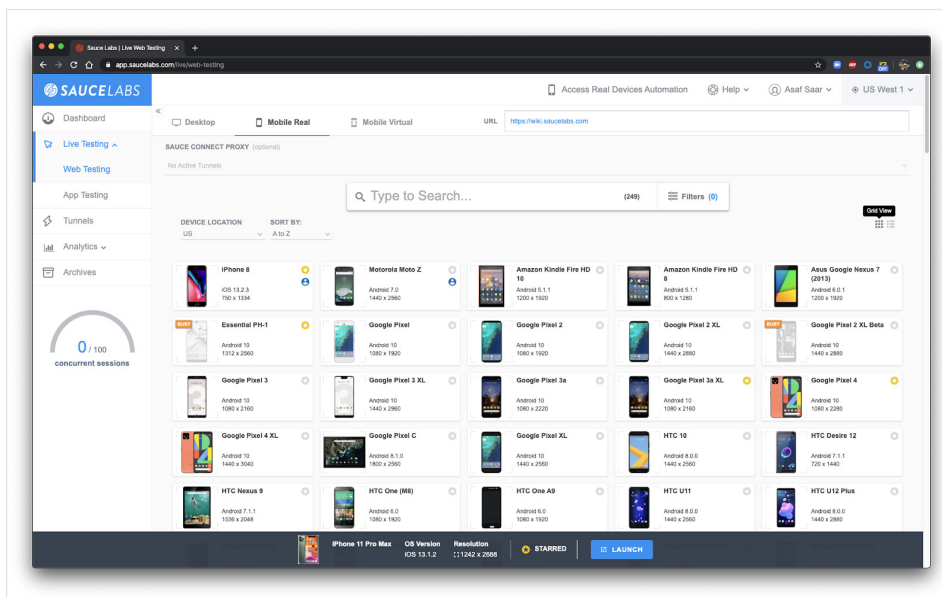
One of the big downsides of real device testing is the expense and labor associated with procuring and maintaining a lab bench or cart of devices available for testing, especially with any kind of uptime assurance. Real devices run out of power, wind up in odd states, lock their screens, and in general are far less uniform than virtual devices. New devices come on the market and the set of devices required for testing changes. Old devices need

to be repurposed or recycled, and new devices procured (sometimes with great difficulty if the device is popular), or someone will update a particular device to the latest OS when another tester needs to use an older OS on that device. It is a serious investment of time, money, and expertise to maintain an in-house real device grid. For this reason alone, many companies choose to satisfy their real device requirement by moving to the cloud.

SAUCE LABS REAL DEVICE CLOUD

At Sauce Labs, we offer a cloud-based mobile testing platform. Our Real Device Cloud enables your team to test from virtually anywhere, anytime, on any device. Instead of being limited to where your physical devices are located, or procuring new devices, your team can keep focused on improving app quality and accelerating release times with comprehensive mobile testing coverage in the cloud.

Our Real Device Cloud gives testers access to a wide variety of Android and iOS devices to run their manual or automated tests. This frees up your QA team from the hassle of device maintenance, and gives them the confidence of having the latest devices available for testing immediately.



(Image: Sauce Labs Mobile Device Selection for Live Testing)

Live testing

With Sauce Labs live testing capabilities you can manually test and debug faster on a variety of real devices.

Broaden test coverage

Test against a wide variety of iOS and Android phones and tablets on a public or private cloud.

Quality through coverage

Make sure your apps & websites work flawlessly across the browsers, operating systems, & resolutions that matter to your users.

Collaboration made easy

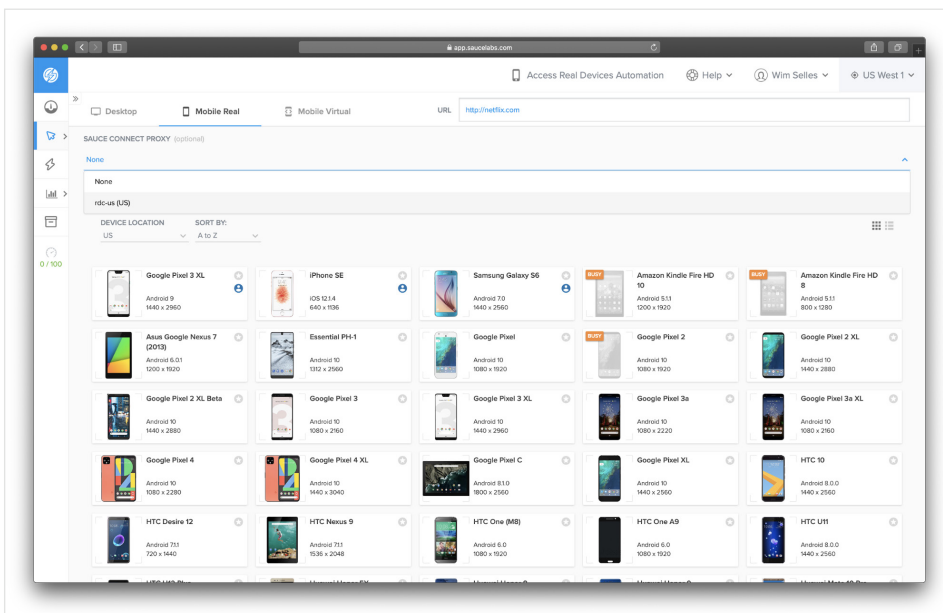
Invite others to view your live session and share via Slack or other communication channels.

Test native device features

- **GPS testing** - Simulate the location of the device to a specific location in order to test the location based scenarios of your app.
- **Biometric authentication** - Use [Face ID/Touch ID](#) to test authentication for your iOS apps.
- **Natural gestures and interactions** - Interact with your mobile app on the remote device, just as you would with a real device in hand. With [multi-touch support](#) you can tap, scroll, zoom, swipe and more.

TESTING PRE-PRODUCTION APPS IN THE CLOUD

If your app or website is behind a corporate firewall, on a private network, or not publicly accessible you can use [Sauce Connect](#) to set up a secure connection for testing between a Sauce Labs real device and your website or mobile app.



REMOTE DEBUGGING FOR DEVELOPERS

A key feature of the Sauce Labs Real Device Cloud is virtual USB. [Virtual USB](#) (vUSB) offers remote debugging capabilities for developers. Instead of having a USB cable connected to a device that is sitting on the developer's desk it is connected to a cloud device. A secure session from your computer to the Sauce Labs Real Device Cloud enables the rest of your toolchain to interact with any cloud device, just as if it is connected via a really long USB cable.

note: Virtual USB is an enterprise feature and is available with private cloud devices only.

CONCLUSION

While mobile device testing is often automated, it's always wise to use manual testing to fully cover all test cases and ensure higher quality apps. Even if we can perform most tests in an automated way, we still lack the technology to fully automate some types of tests, such as those for accessibility and usability.

With automated and manual testing options, Sauce Labs can provide you the digital confidence that your products will work flawlessly in production every time. If your company is looking to shift from testing on an internal device grid, our Real Device Cloud provides flexible options to get you access to the mobile devices you need, anytime, anywhere. To get started with testing and debugging your mobile apps on our Real Device Cloud, sign up for a free trial account today at www.saucelabs.com/sign-up.



ABOUT SAUCE LABS

Sauce Labs is the leading provider of continuous testing solutions that deliver digital confidence. The Sauce Labs Continuous Testing Cloud delivers a 360-degree view of a customer's application experience, ensuring that web and mobile applications look, function, and perform exactly as they should on every browser, OS, and device, every single time. Sauce Labs is a privately held company funded by Toba Capital, Salesforce Ventures, Centerview Capital Technology, IVP, Adams Street Partners and Riverwood Capital. For more information, please visit saucelabs.com.



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