

## Test Automation for Mobile Devices

HP QuickTest Professional software and Jamo Solutions

### Testing requirements for mobile applications

Mobile devices are everywhere. They are in the hospitals, at warehouses, on delivery trucks and in classrooms. PDAs, smartphones, and handhelds are in cars, airports, remote offices—always turned on, helping mobile workers stay connected and productive even when they are away from their computers.

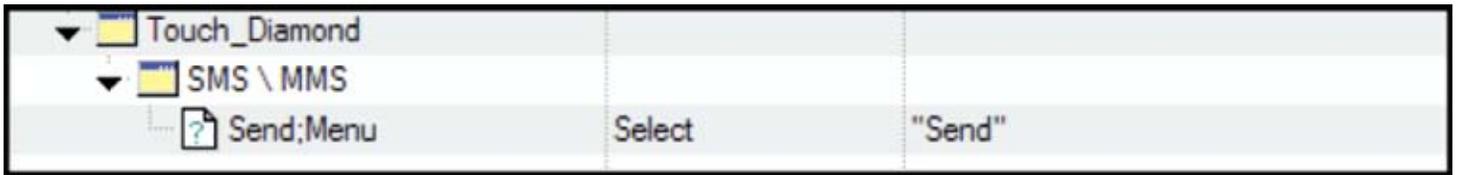
But mobile devices do not simply mimic desktop environments. They have unique uses and specialized applications that need to be purpose-built, ported to a variety of devices, and tested on all possible configurations to verify that they function correctly and remain reliable.

With so many smartphones, mobile phones, PDAs, and other devices currently on the market, how do you enable your applications to work as expected? How can you test them on all popular mobile operating systems and keep current with the new OS versions as

they become available? Can you create a test set that would run through all common business transactions on a mobile device with hundreds of different sets of data to check for errors? Can you look inside the smartphone and see what the application is doing to its memory, power consumption, or response speed?

The answer to these questions lies in mobile device test automation. Only by investing in a test automation strategy and solutions can you create a comprehensive approach to mobile application quality and reliability. By implementing device-agnostic end-to-end testing solutions, you can say with confidence that your mobile applications can work on any device, with any language, any configuration, and on all popular OS. Build your test sets once and run them on every new version of the application. By creating scripts that are easy to maintain and reuse, you can safeguard your mobile applications against failures that can cause costly business interruptions and have a negative impact on customer experience.

Figure 1: Scripts are based on user actions and are easy to read, maintain, and reuse



## Mobile applications test automation solution from HP and Jamo

HP Software provides one of the most advanced automated functional and regression testing solutions that support all major software applications and environments. Through partnership with cutting-edge, innovative companies such as Jamo Solutions, HP is extending its industry-leading functional testing capabilities to mobile applications. Jamo testing solutions use the HP QuickTest Professional (QTP) software platform and QTP's best practices and advanced features to bring automation into the world of mobile application testing. The solution allows for end-to-end test automation: from the originating mobile device, through the delivery infrastructure to the receiving device. It covers the entire business process from both the IT perspective (monitoring servers, routers, and other infrastructure components) and the mobile devices where messages are being sent and received.

## Building test scripts for mobile applications

The Jamo mobile applications testing solution recognizes objects on a screen just like a user would see them. It captures these GUI objects into a QTP test script, making the scripts easy to navigate, enhance, and maintain. All user interactions with the device—such as sending a multimedia message or pressing the Send button—are captured and can be viewed in QTP in either a keyword or expert view.

Using GUI-object recognition makes the script completely independent from the phone's hardware configurations, processor power, screen resolution, background color, or available buttons. It makes the scripts extremely versatile and reusable, and helps achieve more comprehensive testing of your mobile applications. The ability to regression-test applications without having to recreate the test scripts for every patch or new version creates, perhaps, one of the most notable ROI from automated testing. Manual testing procedures can seldom cover the breadth of data combinations, business process scenarios, and test runs that can be achieved through automation.

## Replaying the test scripts

Another tremendous advantage of automation over manual testing is its ability to collect device and connection information during the test run. This data can help you understand the underlying processes behind specific transactions, which can help diagnose and resolve problems faster.

With Jamo Solutions, testers can not only check if an e-mail or an SMS message was successfully transmitted by one phone and received by another but can also go deep into the process information and analyze data such as the number of processes running or the DLLs used for each process. Testers can also access configuration details of each device and view screen resolution, battery usage, memory usage, and other related parameters. If the problem lies in the connection, Jamo Solutions allows testers to look into the connectivity details, such as which mobile operator was used for the transmission. All this information helps testers gather additional data during the test replay, analyze application performance, identify problem areas, and find solutions faster.

Testers can also recreate scenarios that may cause applications to fail. For example, Jamo Solutions software can help testers fill the memory of the device to 80 percent or 90 percent to see how the applications perform under those conditions.

Jamo's ability to access the mobile application functions on the API level makes it extremely useful when validating application performance. For instance, by capturing the outgoing message through the internal API, rather than the UI, testers can measure the exact time it took for the message to be delivered from one phone to the other, even if the clocks on both devices are not synchronized.

Together, HP and Jamo Solutions enable testers to extend automation best practices from the desktop world to the new, emerging world of mobile applications. In addition, through seamless integration with HP Quality Center—one of the leading test management software—test engineers can build a central repository of mobile test scripts. This allows every member of the QA team to reuse test scripts, removes duplication of work, and simplifies test maintenance significantly. You can manage all your testing assets from a global, Web-based central location to promote collaboration between workgroups, reuse tests between builds and applications, and perform advanced change and impact analysis.

As on-the-go applications continue to become more popular, more and more companies are expected to invest in mobile test automation to provide quality, reliability, and performance of their solutions.

**Supported mobile OS:**

- Windows Mobile 6.x Professional Edition
- Windows Mobile 6.x Classic Edition
- Windows Mobile 5.0 Pocket PC edition

**Supported GUI objects:**

- Microsoft Foundation Classes for Windows Mobile.
- Microsoft Compact Framework GUI objects
- HTML WebClasses (through Web add-on)

**Supported version QuickTest Professional:**

- Versions 9.2; 9.5; 10.00

**Extended support CF .Net GUI objects:**

- Access from the script to .Net source code class attributes and methods
- Identification by internal .Net name

**Pocket Internet Explorer support:**

- Supports automation of Web/WAP access
- Supports HTML objects

Jamo Solutions is constantly updating and expanding the list of supported environments and platforms. For the most up-to-date information, please visit: <http://www.jamosolutions.com>

## About Jamo Solutions

Jamo Solutions aims to promote testability in the area of test automation and application monitoring. The company mission is to work together with the market players to increase the completeness of the management of the end-user experience. Jamo Solutions develops, markets, and sells tools and consultancy that extend the capabilities of best-of-breed testing and monitoring solutions for end-user experience measurement and management.

## For more information:

For an overview of HP Quality Center, visit: [www.hp.com/go/qualitycenter](http://www.hp.com/go/qualitycenter)

For detailed information on HP QuickTest Professional software, visit: [www.hp.com/go/functionaltesting](http://www.hp.com/go/functionaltesting)

For information on Jamo Solutions, visit: <http://www.jamosolutions.com>

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