Mobile Center with Appium Extension

Extend and scale your open source testing framework

Cross-Platform Mobile Testing
Micro Focus® Mobile Center is a single mobility gateway that helps you test, monitor, and optimize your applications for an enhanced user experience across digital touchpoints. It enables you to manage real devices, emulators, and apps as you develop and test mobile applications. Mobile Center works with different testing frameworks like Micro Focus UFT, Micro Focus TruClient, Micro Focus UFT Pro, Selenium and Appium to deliver test automation for mobile native, hybrid, and web across multiple platforms (iOS, Android and Windows).

For many reasons, Appium is the leading open source mobile app testing framework. It is a cross-platform framework tested on emulators, simulators and real devices. Developers use their preferred integrated development environment (IDE) to develop and run the test and choose their programming language. Better still, Appium is open source and free.

But while Appium is a good automated mobile testing framework, it doesn’t provide everything needed for companies that deal with large projects and frequent releases of applications that must be proven to perform well on any device, any network, and in any user context. These companies have additional enterprise requirements, such as multiple executions, scalable and simplified architecture, proliferation of devices used, low maintenance costs, and server authentication with roles and permissions.

Mobile Center extends Appium with defects fixing and optimizations for specific Appium flows’ performance, for example—finding elements and objects. In some cases, we maintain backward compatibility for APIs which were deprecated so you can maintain your scripts cross Appium versions.

Together, Mobile Center and Appium create a unique combination to empower end to end mobile application lifecycle development & testing on any combination of real devices, emulators, IDE and scripting languages of your choice.

Why Choose Appium with Mobile Center Versus Other Solutions?
Mobile Center with Appium offers a superior choice for four key reasons:

• Parallel execution with simplified architecture
• iOS automation without a Mac
• Smart Lab Management capabilities that allow a user to choose a device by any criteria or capabilities, such as a combination of iPhone and iOS versions, automatically locate an available device, reserve and execute the script on it, and see who uses the device
• Ability to use Mobile Center integration with Network Virtualization (NV) to execute tests over real-world network conditions, observe the actual end user experience for mobile users with different networks connections (such as 3G, 4G and more), and use NV Insights report to analyze performance results and view recommendations for improving application performance

Out-of-the-box support for Appium is one many new features and enhancements in Mobile Center. Check out What's New in Mobile Center.
Unique Combination Delivers Superior Testing Platform

You can meet these enterprise requirements by relying on Mobile Center’s out-of-the-box support for Appium. With Mobile Center, your mobile development teams can continue to use their preferred testing framework and development language while taking advantage of enterprise-grade capabilities powered by Mobile Center. These capabilities help your organization easily scale mobile application performance testing projects, achieve aggressive testing goals, run tests on multiple devices under different network conditions in parallel, and rapidly release superior applications to the market.

The combination of Mobile Center and Appium delivers these key advantages:

- **Simple maintenance**—Simplify the parallel executions process and achieve iOS test automation using Appium without a Mac.
- **Device management**—Rely on capabilities for scheduling device reservations, and controlling devices remotely.
- **App management**—Upload app to Mobile Center, automatically install app on the device, and gain a central view of all app versions.
- **Less tests**—Test multiple apps, including systems apps, in a single run.
- **User management**—Manage roles and permissions and device pools access.
- **Device flexibility**—Select test device by specifying its capabilities in a very flexible manner; you don’t have to specify the device UDID or exact version number.
- **End-to-end mobile security**—Assess the security of source code, binaries, and the mobile app to underscore vulnerabilities across the client side.

How You Can Improve Mobile Testing

Here are a few of the ways you can significantly improve mobile testing with Mobile Center and Appium:

- **Remote Viewer**—Access a live remote demo while tests are running.
- **Network Virtualization**—Emulate real-world network conditions to observe the network impact on end user experience and use NV Insights report to analyze performance results and view recommendations for improving application performance.

Using Appium with Mobile Center: 4 Simple Steps

It’s easy to work with Mobile Center and Appium. Just follow these four simple steps:

1. Plug any Android or iOS device into Mobile Center, locally or remotely.
2. Let Mobile Center automatically discover the connected devices.

3. Upload your apps to Mobile Center via API (link) or via the UI.

4. Execute your Appium mobile application test against any device locally or from your Continuous Integration framework.

Figure 2. Your development team can now run Appium scripts with Mobile Center.

How It Works
Here is sample code used to get Mobile Center and Appium to work together.

Select a device by capabilities
//Capabilities:
DesiredCapabilities capabilities = new DesiredCapabilities();

//Device capabilities—use one or more capabilities
capabilities.setCapability("platformName","Android");
//use any android device
capabilities.setCapability("platformVersion",">5.0.1");
//use version 5.0.1 or above
capabilities.setCapability("deviceName","LG");

//in Appium only you must supply the UDID
//capabilities.setCapability("udid","ENU7N15B30002039");

Modify your Appium code to point to the Mobile Center server. In the code that starts the session, replace the Appium server URL and port with the URL and port of Mobile Center using the following format (see below for Java examples):

Start Android Session with Mobile Center
driver = new AndroidDriver(new URL("http://<myMCServer>:<port>/wd/hub"), capabilities);

Start IOS Session with Mobile Center
driver = new IOSDriver(new URL("http://<myMCServer>:<port>/wd/hub"), capabilities)

Set Authentication to Mobile Center Server (Optional)
capabilities.setCapability("userName","appium@company.com");
capabilities.setCapability("password","password");

Running Selenium Scripts with Mobile Center
Here are some sample codes used to run Selenium mobile app testing on real devices using Mobile Center:

// Use chrome browser
DesiredCapabilities capabilities = DesiredCapabilities.chrome();

// User and Password in Mobile Center
capabilities.setCapability("userName", "admin@default.com");
capabilities.setCapability("password", "Password1");
// Use Android device
capabilities.setCapability("platformName", "Android");

// Endpoint for MobileCenter Server http://<ServerAddress:port>/wd/hub
RemoteWebDriver wd = new RemoteWebDriver(new URL("http://X.X.X.X:8080/wd/hub"), capabilities);

try {
    wd.manage().timeouts().implicitlyWait(60, TimeUnit.SECONDS);
    wd.get("http://www.google.com");
    WebElement element = wd.findElement(By.name("q"));
    element.sendKeys("Cheese!");
    element.submit();
} finally {
    wd.quit();
}

public void test() throws MalformedURLException {
    DesiredCapabilities capabilities = DesiredCapabilities.chrome();
    capabilities.setCapability("userName", "admin@default.com");
    capabilities.setCapability("password", "Password1");
    RemoteWebDriver wd = new RemoteWebDriver(new URL("http://X.X.X.X:8080/wd/hub"), capabilities);
}

Full examples for Selenium WebDriver for Android and iOS
public void test() throws MalformedURLException {
    DesiredCapabilities capabilities = DesiredCapabilities.chrome();
    capabilities.setCapability("userName", "admin@default.com");
    capabilities.setCapability("password", "Password1");
    RemoteWebDriver wd = new RemoteWebDriver(new URL("http://X.X.X.X:8080/wd/hub"), capabilities);
}

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try {
    wd.manage().timeouts().implicitlyWait(60, TimeUnit.SECONDS);
    wd.get("http://www.google.com");
    WebElement element = wd.findElement(By.name("q"));
    element.sendKeys("Cheese!");
    element.submit();
} finally {
    wd.quit();
}

Parallel Execution of Tests
Here is a look at the steps for parallel execution of Appium tests with Mobile Center.
1. Create Jenkins job for parallel mobile application test execution or alternatively create multiple jobs.
2. Specify the path for the Appium test.
3. Use parameterization in Jenkins to specify apps and the device capabilities.
4. Execute the job.
Mobile center will take the following actions during test initialization:
- Discover the available devices per the requested capabilities and allocate them for the tests.
- If the app is not installed already, Mobile Center will automatically install it on the designated devices.
- Execute the mobile application test simultaneously on multiple devices.

For a more detailed technical view of automated mobile performance testing with the Mobile Center-Appium combination, explore our Working with Appium site.

Get the Best of Both Worlds
You can now easily run Appium and Selenium scripts with Mobile Center to empower your mobile performance testing processes. This combination gives you the best of both worlds: a great open-source tool to develop test automated mobile testing for mobile native, hybrid, and web apps coupled with an integrated software development testing suite that helps you rapidly build, test, monitor, and deliver high-quality mobile applications.

For a Deeper Dive
- Take advantage of a Free Trial on Amazon Marketplace or download directly from Mobile Center.
- Download the Mobile testing checklist for more on key criteria and considerations.
- Get your custom and free NV Insights report now.
- Explore Mobile Center Help Center for more in-depth tutorials and documentation.
- If you still have questions or would like to request a demo, please contact developer@hpe.com.

Learn More At microfocus.com/mobiletesting