

MOBILE TEST AUTOMATION

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ArcGIS Native Apps

ABSTRACT

The ArcGIS_Collector automation projects is designed and developed to automate the Sanity Test run for ArcGIS Collector Daily build. It's a Maven Project using TestNG and Jenkins CI. A test framework can be set using details given in this document.

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Mobile Test Automation using Appium

ArcGIS_Collector_Automation_Project:

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What is Appium?

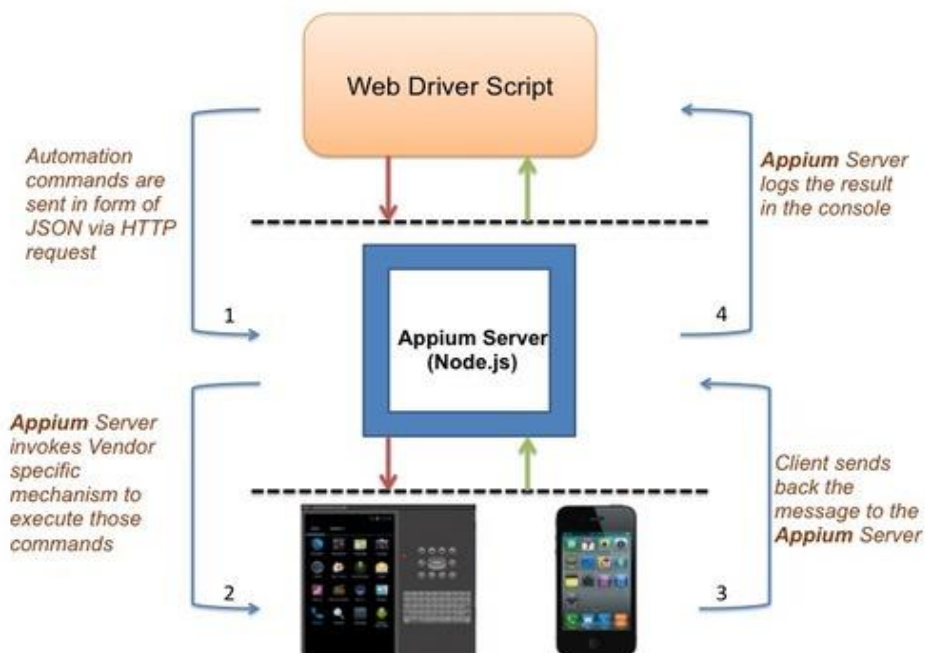
Appium is an open source test automation tool for mobile applications. It allows you to test all the three types of mobile applications: native, hybrid and mobile web. It also allows you to run the automated tests on actual devices, emulators and simulators.

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Why Appium?

- ✓ You shouldn't have to recompile your app or modify it in any way in order to automate it.
- ✓ You shouldn't be locked into a specific language or framework to write and run your tests.
- ✓ A mobile automation framework shouldn't reinvent the wheel when it comes to automation APIs.
- ✓ A mobile automation framework should be open source, in spirit and practice as well as in name!

Appium Architect:



Automation Environment Setup

Using Ruby:

<https://devtopia.esri.com/apps/qa-common/wiki/Appium-Setup>

Using Java:

Software/Setups needed	Link to Software/Setups
Java	http://www.oracle.com/technetwork/java/javase/downloads/index.html
Eclipse	https://eclipse.org/downloads/
Selenium Jars	http://www.seleniumhq.org/download/
Java clients jar	https://mvnrepository.com/artifact/io.appium/java-client/2.1.0
ssAppium Server	http://appium.io/
node JS	https://nodejs.org/en/download/
Android SDK	https://developer.android.com/studio/index.html
Device(phone/tablet)	Your Device
APK file	.apk File

Other important concepts used for automation framework set up:

TestNG: TestNG is a testing framework inspired from JUnit and NUnit but introducing some new functionalities that make it more powerful and easier to use. TestNG is designed to cover all categories of tests: unit, functional, end-to-end, integration, etc.

- For Running many test cases at one Trigger
- Execution can be performed on class level as well as on Package level
- Regular expression

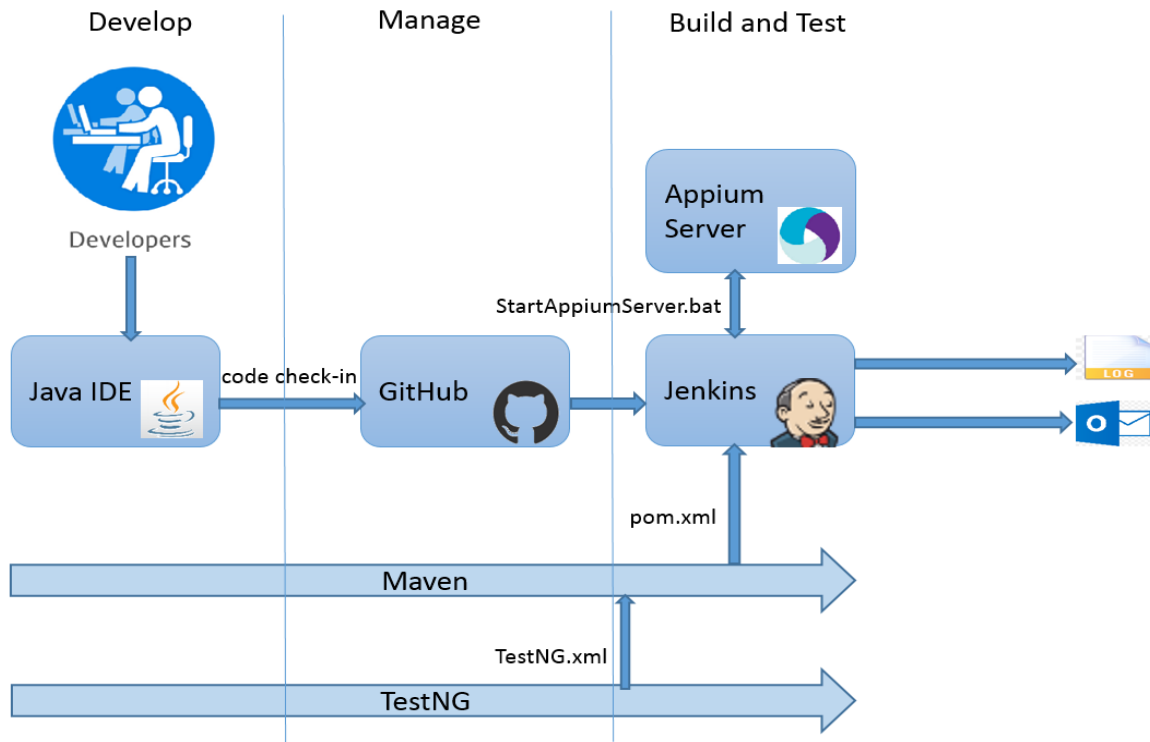
Maven: It is a build automation tool used primarily for [Java](#) projects

- Build Management tool
- For Creating Project Hierarchy or a Framework
- It takes care of required jar files

Jenkins CI tool: Jenkins is a Continuous Integration server. Basically Continuous Integration is the practice of running tests on a non-developer machine automatically every time someone pushes new code into the source repository. This has the tremendous advantage of always knowing if all tests work and getting fast feedback.

- For Build Scheduling
- Logs
- reporting

Workflow of Appium automation using Java(Maven Framework)



Automation Source Code Path:

<\\devinfo\WRMResources\TestDocumentation\Mobile\Collector\Appium Automation>



ArcGIS_Collector_A
utomation.zip

.bat script for starting the Appium Server:

<\\devinfo\WRMResources\TestDocumentation\Mobile\Collector\Appium Automation\AppiumStartScript>



StartAppiumServer.
bat

Link to Collector Test Case Repository: <https://devtopia.esri.com/apps/collector-test-catalog>

Collector_Cert_Checklist_V1.0 Template

<\\devinfo\WRMResources\TestDocumentation\Mobile\Collector\TestingChecklist>

Code description:

Class Name	Test case implemented	Comment
startAppium.java	Starts the Appium server before every test case	BeforeTest annotation used
freshInstall.java	Install the current Build on the device	
	Start the application after installing is over	
	Check Learn More page	
	Capturing the snapshot of "Learn more Screen"	
	Check Try Collector	
	Opening the map under "All maps"	
	Installing/Launching the application	
loginTest.java	Installing/Launching the application	
	Continue sign in to http://www.argis.com with incorrect credentials	
	Try login in with incorrect Credentials	
	Capture Screenshot of Login failed screen	
	Sign in with correct credentials	
switch Account.java	installing/Launching the application	
	Sign in with correct credentials	
	Check/Capture the snapshot of About page	
	Switch the account	
	going back to previous screen	Android key events used
portalLogin.java	installing/Launching the application	
	Checking Portal (10.4/10.4.1/10.5) connectivity with IWA authentication	
	Capturing all logged in account in a snapshot	
mobilefeature.java	installing/Launching the application	
	Sign in with correct credentials	
	swipe the group list to see if all groups loaded	

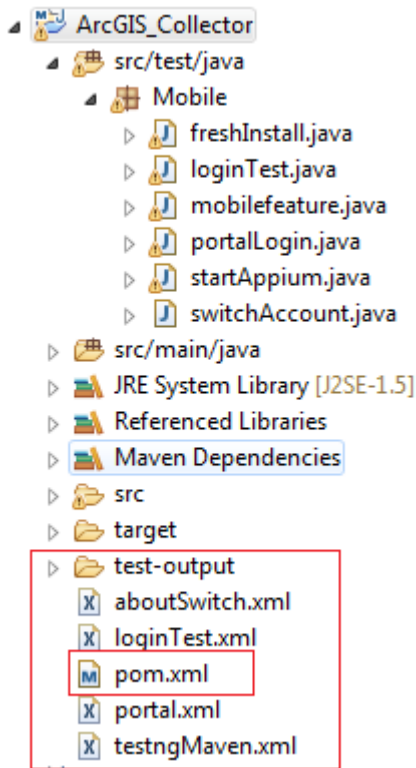
Important piece of code:

The Capabilities are defined and passed to Appium using below piece of code:

Appium server is triggered using a **StartAppiumServer.bat** script:

```
/*  
  
@BeforeTest  
    public void Appiumstart() throws IOException, InterruptedException  
    {  
        Runtime.getRuntime().exec("cmd /c start C:/Appium/StartAppiumServer.bat");  
        Thread.sleep(10000);  
        System.out.println("Appium started");  
    }  
  
@Test  
    public void test() throws InterruptedException, IOException {  
        //below are the capabilities passed at the start of execution only  
        File AppDir = new File("src");  
        //place the .apk file in src folder  
        File app = new File(AppDir, "ArcGISCollector-release.apk");  
        DesiredCapabilities cap=new DesiredCapabilities();  
        // either provide ANDROID or iOS as mobile platform  
        cap.setCapability(MobileCapabilityType.PLATFORM_NAME, MobilePlatform.ANDROID);  
        // Device name could be Emulator or the android device(in case of physical device)  
        cap.setCapability(MobileCapabilityType.DEVICE_NAME, "Android Device");  
        cap.setCapability(MobileCapabilityType.APP, app.getAbsolutePath());  
  
        //This will avoid the timeout error for launch of start activity  
  
        cap.setCapability(MobileCapabilityType.APP_WAIT_ACTIVITY,"com.esri.arcgis.app.views.accounts.StartScreenActivity");  
  
        //cap.setCapability(MobileCapabilityType.APP_WAIT_ACTIVITY,"com.esri.arcgis.collector/com.esri.arcgis.app.framework.FirstActivity");  
  
        //This will avoid the timeout error if the page takes longer time to load  
        cap.setCapability(MobileCapabilityType.NEW_COMMAND_TIMEOUT, "1000");  
    }  
*/
```

Important configuration file:



Collector Sanity Test cases covered So far:

1. Install the current Build on the device
2. Start the application after installing is over
3. Check Learn More page
4. Check Try Collector
5. Continue sign in to <http://www.argis.com> with incorrect credentials
6. Sign in with correct credentials check error message
7. go to right side Browse panel and select Switch Account--> check messages/prompts
8. Shutdown the app while signed in and check that credentials are remembered on next launch
9. Check the count of Maps in 'All Maps' tab
10. Open Maps from 'All Maps'
11. Check if all groups have loaded in browse panel list.
12. Check the map count in my maps & other groups to verify if we are pulling the correct maps count or not
13. Open the contents from my maps & other groups
14. Check About Page (Build#, Version, Links)
15. Login in to portals using IWA authentication