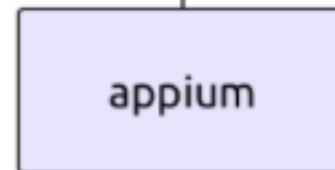


TEST AUTOMATION APPIUM

XINGCHEN KANG



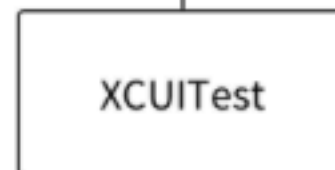
JSON Wire Protocol /
W3C WebDriver



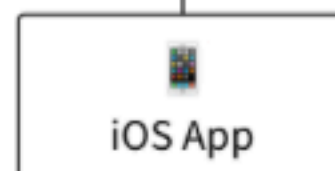
JSON Wire Protocol



Library Calls



(Apple proprietary)



Requirement

- IOS
 - Apple Developer ID
 - iPhone or iPad
 - Macbook with Xcode and Xcode Command Line Developer Tools
- Android
 - Java 7
 - Computer with Android SDK
 - Android device with development mode on or emulator



STEPS



- Set up Appium server.

- Prepare development environment.

- Write & run test script.

Appium Server

Appium

<http://appium.io>

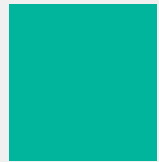
Appium Desktop

<https://github.com/appium/appium-desktop/releases/tag/v1.15.1>

Appium Document

<http://appium.io/docs/en/about-appium/getting-started/?lang=en>

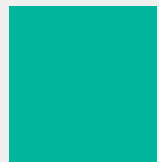
Development Environment



JAVA



ECLIPSE

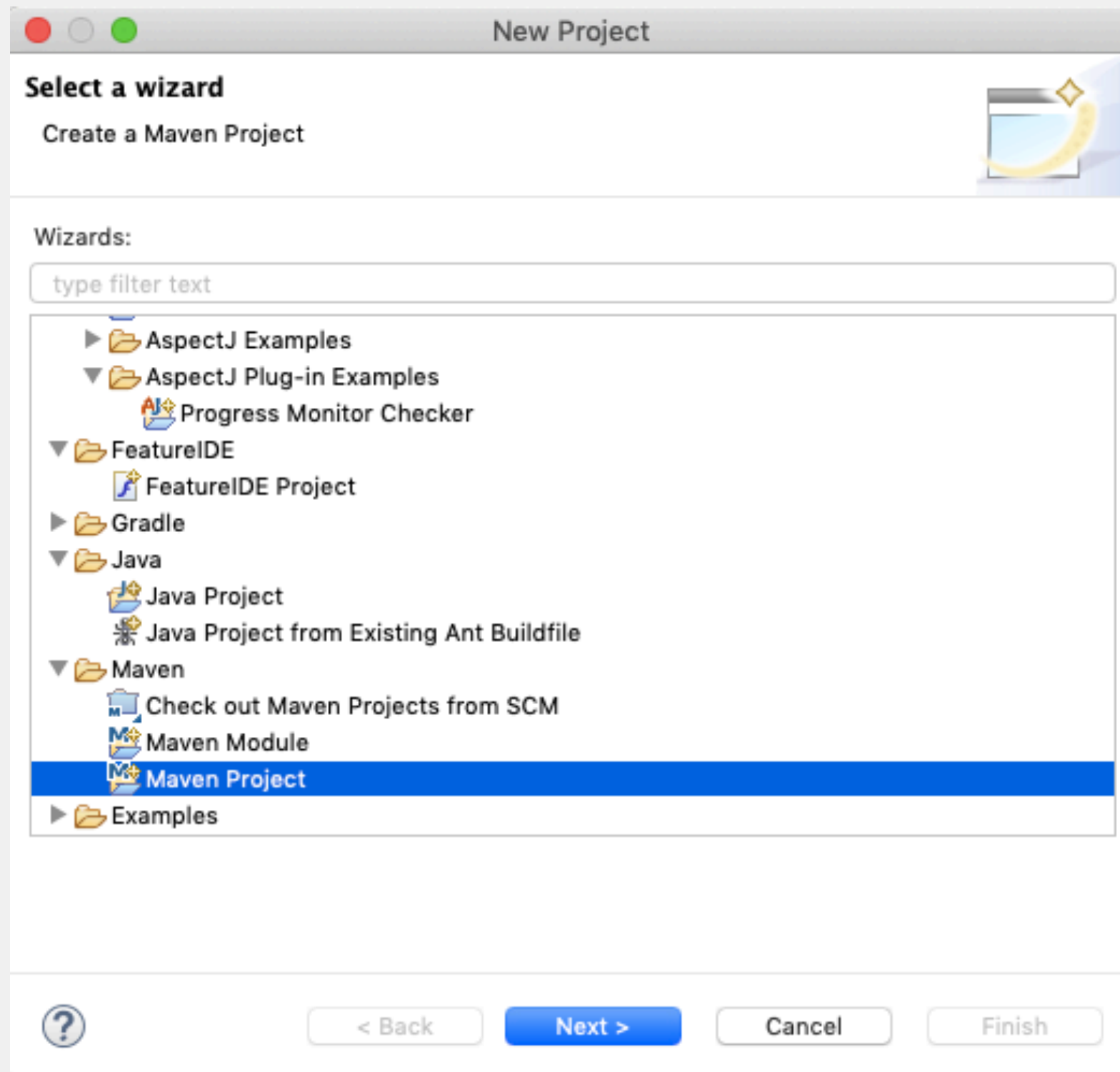


MAVEN



TESTNG

Create a Maven project





Create a Maven project

New Maven Project

New Maven project
Select project name and location

☐ Create a simple project (skip archetype selection)

☒ Use default Workspace location

Location: Browse...

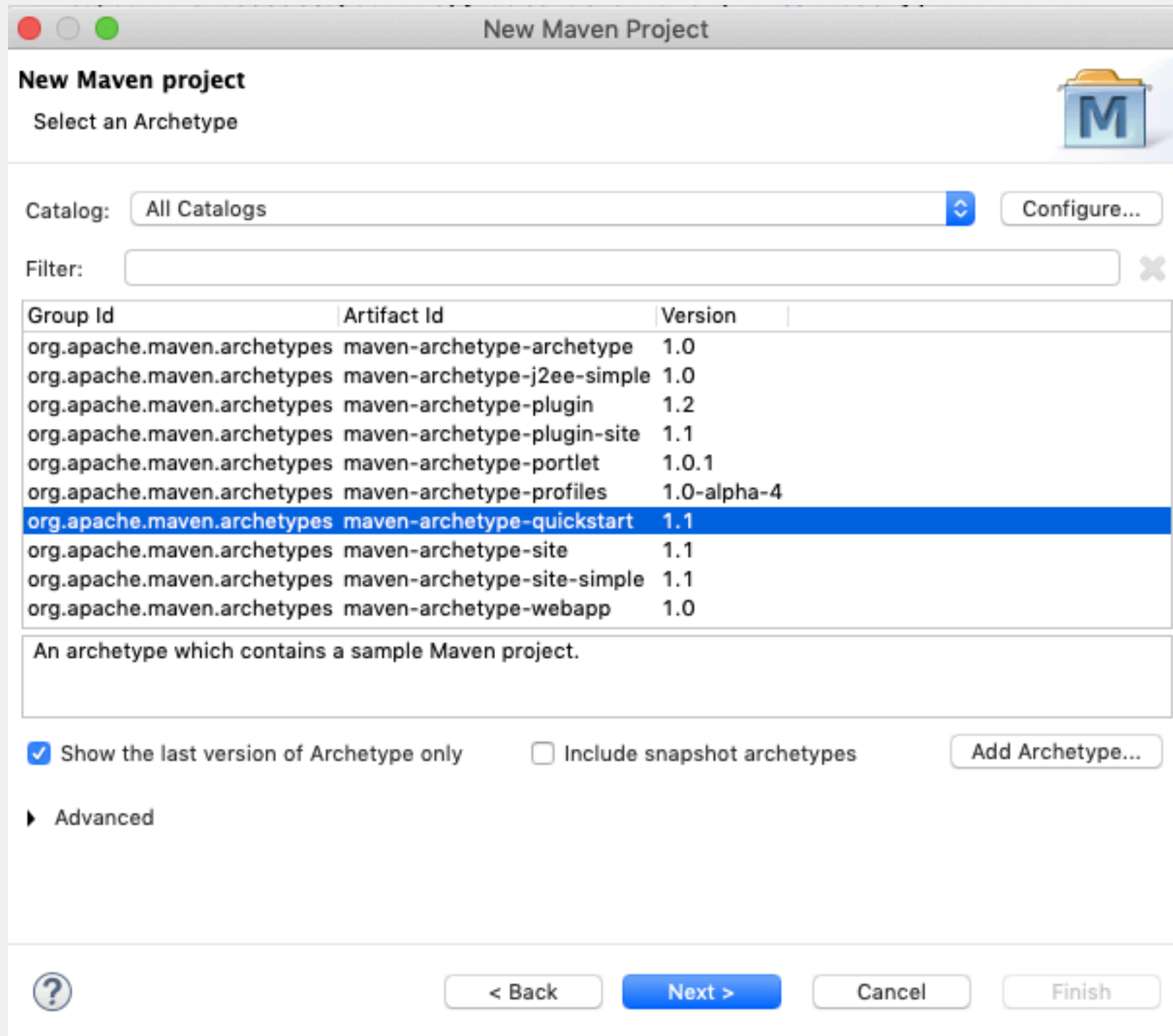
☐ Add project(s) to working set

Working set: More...


▶ **Advanced**


? < Back Next > Cancel Finish

Create a Maven project



New Maven project
Select an Archetype

Catalog: All Catalogs  [Configure...](#)


Filter: 

Group Id	Artifact Id	Version
org.apache.maven.archetypes	maven-archetype-archetype	1.0
org.apache.maven.archetypes	maven-archetype-j2ee-simple	1.0
org.apache.maven.archetypes	maven-archetype-plugin	1.2
org.apache.maven.archetypes	maven-archetype-plugin-site	1.1
org.apache.maven.archetypes	maven-archetype-portlet	1.0.1
org.apache.maven.archetypes	maven-archetype-profiles	1.0-alpha-4
org.apache.maven.archetypes	maven-archetype-quickstart	1.1
org.apache.maven.archetypes	maven-archetype-site	1.1
org.apache.maven.archetypes	maven-archetype-site-simple	1.1
org.apache.maven.archetypes	maven-archetype-webapp	1.0

An archetype which contains a sample Maven project.

☒ Show the last version of Archetype only ☐ Include snapshot archetypes [Add Archetype...](#)

► Advanced

 [< Back](#) [Next >](#) [Cancel](#) [Finish](#)

Create a Maven project

New Maven project

Enter an artifact id.

Group Id:

Artifact Id:

Version:

Package:

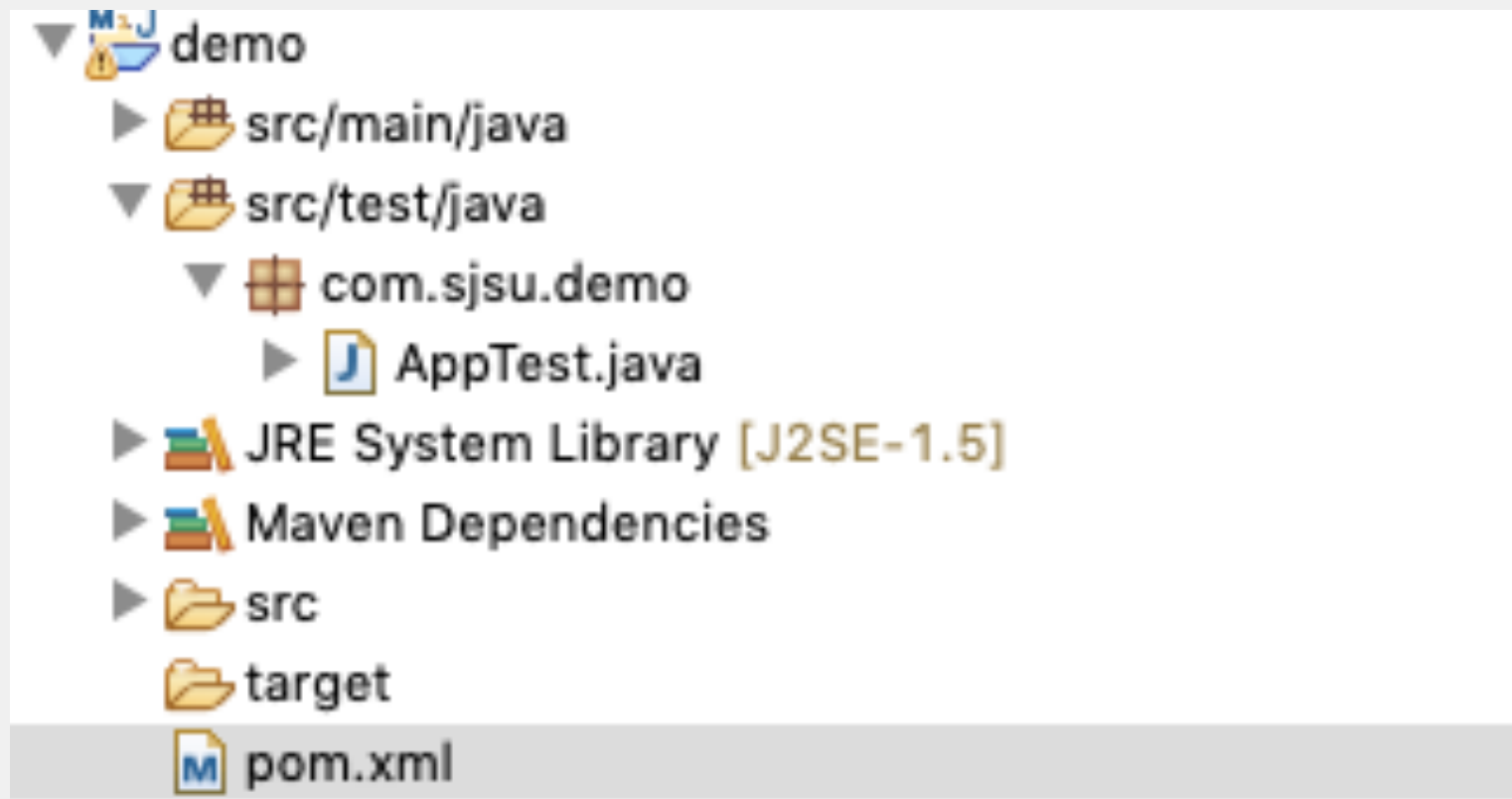
Properties available from archetype:

Name	Value

Advanced

Buttons: ? < Back Next > Cancel Finish

Create a Maven project



■ Editing pom.xml

```
<repositories>
  <repository>
    <id>jcenter</id>
    <name>bintray</name>
    <url>http://jcenter.bintray.com</url>
  </repository>
  <repository>
    <id>jitpack.io</id>
    <url>https://jitpack.io</url>
  </repository>
</repositories>
<dependencies>
  <dependency>
    <groupId>com.github.appium</groupId>
    <artifactId>java-client</artifactId>
    <version>7.2.0</version>
  </dependency>
  <dependency>
    <groupId>org.testng</groupId>
    <artifactId>testng</artifactId>
    <version>6.10</version>
    <scope>test</scope>
  </dependency>
</dependencies>
```

Writing Script

```
package com.sjsu.automation;

+import org.testng.annotations.BeforeSuite;

public class DogScannerTest {

    private IOSDriver<MobileElement> driver;

+    public void setUp() throws Exception {
+
+    public void test() throws IOException, InterruptedException {
+
+    public void tearDown() {
}
```



```

@BeforeSuite
public void setUp() throws Exception {
    DesiredCapabilities capabilities = new DesiredCapabilities();
    capabilities.setCapability("deviceName", "iPhone X");
    capabilities.setCapability("platformName", "iOS");
    capabilities.setCapability("platformVersion", "13.0");
    capabilities.setCapability("automationName", "XCUITest");
    capabilities.setCapability("bundleId", "com.sivalusoftware.dogscanner");
    capabilities.setCapability("udid", "auto");
    capabilities.setCapability("updatedWDABundleId", "com.sjsu.WebDriverAgentRunner");
    capabilities.setCapability("xcodeOrgId", "FDDAGV287J");
    capabilities.setCapability("xcodeSigningId", "iPhone Developer");

    driver = new IOSDriver<MobileElement>(new URL("http://0.0.0.0:4723/wd/hub"), capabilities);
}

```

Bundle ID

<https://support.microsoft.com/en-us/help/4294074/how-to-find-the-bundle-id-for-an-ios-app>

IOS Real Device Setup

<http://appium.io/docs/en/drivers/ios-xcuitest-real-devices/#full-manual-configuration>

Full manual configuration

```

private AndroidDriver<MobileElement> driver;

@BeforeTest
public void setup() throws MalformedURLException {
    Path currentRelativePath = Paths.get("asset/app/TapTapSee.apk");
    String appPath = currentRelativePath.toAbsolutePath().toString();
    DesiredCapabilities capabilities = new DesiredCapabilities();
    capabilities.setCapability(MobileCapabilityType.PLATFORM_NAME, "ANDROID");
    capabilities.setCapability(MobileCapabilityType.PLATFORM_VERSION, "7.0");
    capabilities.setCapability(MobileCapabilityType.DEVICE_NAME, "Android Emulator");
    capabilities.setCapability(MobileCapabilityType.AUTOMATION_NAME, "UiAutomator2");
    capabilities.setCapability(MobileCapabilityType.APP, appPath);
    capabilities.setCapability(MobileCapabilityType.NEW_COMMAND_TIMEOUT, 2000);
    capabilities.setCapability("appPackage", "com.msearcher.taptapsee.android");
    capabilities.setCapability("appActivity", "com.msearcher.taptapsee.activity.SplashActivity");
    capabilities.setCapability("autoGrantPermissions", true);
    driver = new AndroidDriver<>(new URL("http://0.0.0.0:4723/wd/hub"), capabilities);
}

```

Android Setup

<http://appium.io/docs/en/drivers/android-uiautomator2/>

Desired Capabilities

<http://appium.io/docs/en/writing-running-appium/caps/index.html>

```
@AfterTest  
public void teardown() {  
    if (driver != null) {  
        driver.quit();  
    }  
}
```

```

@Test
public void test() throws IOException, InterruptedException {
    driver.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);
    driver.findElement(MobileBy.name("open image from gallery instead")).click();
    driver.findElement(MobileBy.AccessibilityId("Recents")).click();
    driver.findElement(MobileBy.AccessibilityId("Automation")).click();
    driver.executeScript("mobile:swipe", ImmutableMap.of("direction", "up"));
    driver.findElement(MobileBy.AccessibilityId("//XCUIElementTypeCollectionView/XCUIElementTypeCe
    driver.findElement(MobileBy.AccessibilityId("Done")).click();
    Thread.sleep(5000);
    driver.findElement(MobileBy.AccessibilityId("tap here")).click();
    MobileElement ele = driver.findElement(MobileBy.xpath("//XCUIElementTypeNavigationBar"));
    System.out.println(ele.getText());
}

```

Finding and interacting with elements

<http://appium.io/docs/en/writing-running-appium/finding-elements/#using-appium-desktop-to-locate-elements>



Simple

Advanced

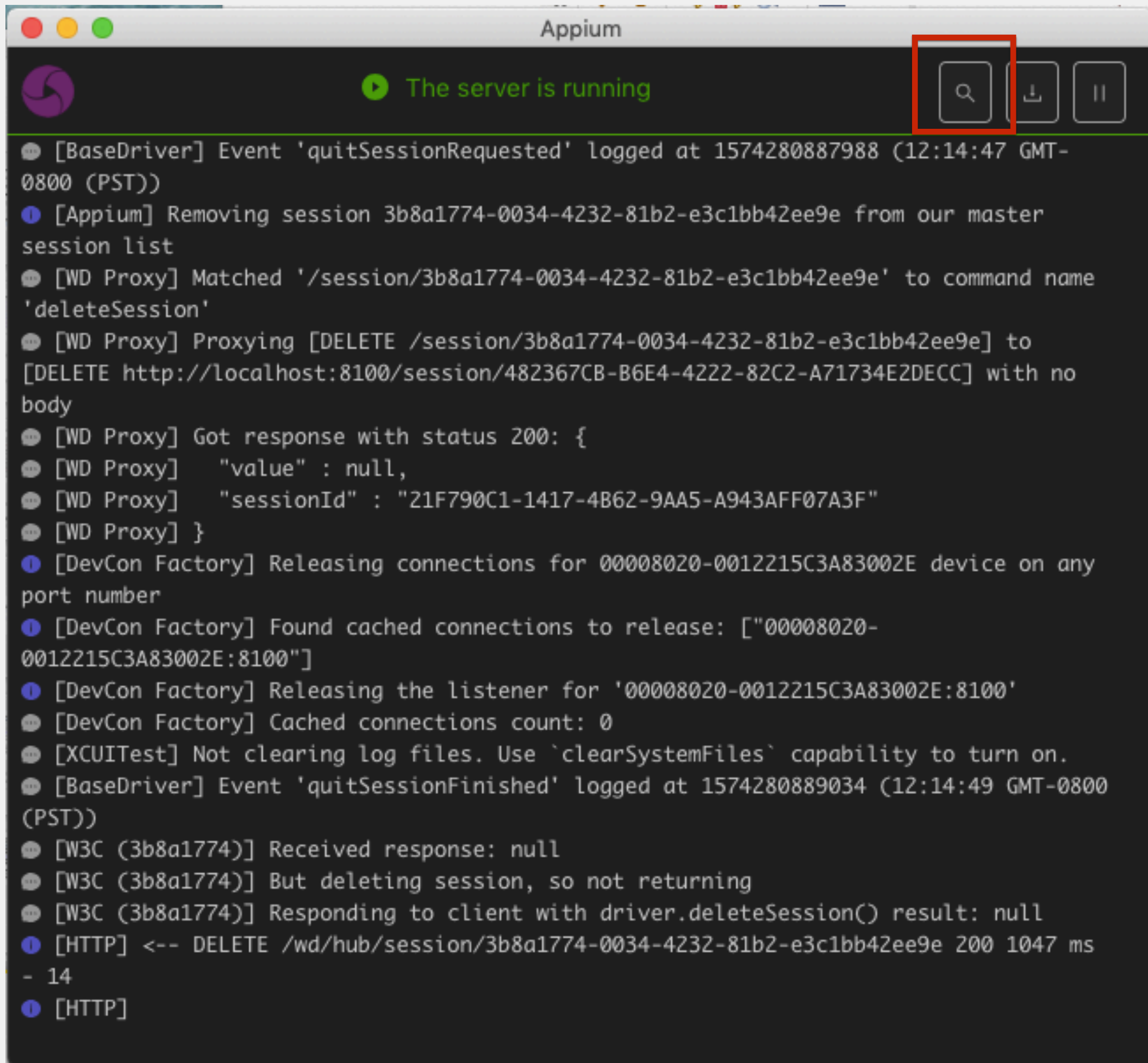
Presets

Host 0.0.0.0

Port 4723

Start Server v1.15.1

Edit Configurations ⚙



Automatic Server

Custom Server

Select Cloud Providers

Remote Host

127.0.0.1

Remote Port

4723

Remote Path

/wd/hub







☐ SSL

> Advanced Settings

Desired Capabilities

Saved Capability Sets 3

Attach to Session...

iphonex	2019-09-20	 
android	2019-10-09	 
dog identifier	2019-11-18	 

```
{
  "deviceName": "iPhone X",
  "platformName": "iOS",
  "platformVersion": "13.1",
  "automationName": "XCUITest",
  "bundleId": "com.siwalusoftware.dogscanner",
  "udid": "auto",
  "updatedWDABundleId": "com.sjsu.WebDriverAgentRunner",
  "xcodeOrgId": "FDDAGV287J",
  "xcodeSigningId": "iPhone Developer"
}
```

[Desired Capabilities Documentation](#)

SaveSave As...Start Session

@Test

```
public void test() throws IOException, InterruptedException {  
    driver.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);  
    driver.findElement(MobileBy.name("open image from gallery instead")).click();  
}
```

The image shows a screenshot of an Android application interface on the left and its source code in an IDE on the right.

App Interface (Left):

- Top status bar: 12:23, signal, Wi-Fi, battery.
- Header: "Catch the Dog" in a teal bar.
- Navigation bar: "open image from gallery instead" in a blue bar.
- Main content: A large image of a dog's head.
- Bottom bar: "Got it!" in a teal bar.
- Footer: "theGrad" logo, "San Jose, CA", "LEARN MORE" button, and a close button.
- Bottom navigation: Scanner, History, All Breeds, Achievements, more.

IDE (Right):

- Source tab selected.
- App Source: XML code for the button.
- Selected Element: "open image from gallery instead".
- Warning: "Using XPath locators is not recommended and can lead to fragile tests. Ask your development team to provide unique accessibility locators instead!"
- Attributes table:

Attribute	Value
elementId	8B000000-0000-0000-5901-000000000000
type	XCUIElementTypeButton
name	open image from gallery instead
label	open image from gallery instead
enabled	true
visible	true
x	0
y	88
width	414
height	48

}



Finding Elements

<https://appiumpro.com/editions/20>

Thank you.