

# Appium Testing – Knowledge Sharing Document

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## Introduction

Appium is an open-source automation tool for mobile application testing. It supports automation of:

- Native apps (built using Android/iOS SDK)
- Web apps (mobile browser-based)
- Hybrid apps (combination of web and native views)

### Key Features:

- Cross-platform support: Android, iOS, Windows
- Language support: Java, Python, C#, JavaScript, Ruby, PHP, Robot Framework

## Appium Architecture

Appium follows a client-server architecture:

WebDriver Script (Desired Capabilities)

↓ (JSON Wire Protocol / HTTP REST)

Appium Client (various languages)



Appium Server (Node.js)



Vendor-specific Mobile Drivers

- The client sends commands in JSON format.
- Appium server translates and forwards them to the respective platform's automation tools.

## Desired Capabilities

These are key-value pairs that define the testing environment and app settings. They're required for Appium to launch a session.

### Examples include:

- platformName: Android / iOS
- deviceName: Emulator / real device
- appPackage, appActivity: For Android apps
- automationName: UiAutomator2 / XCUITest

## Appium Installation

Option 1:

Using Node.js

1. Install Node.js & npm (<https://nodejs.org>)

2. Verify installation:

`node --version`

`npm --version`

where node

where npm

3. Install Appium:

`npm install -g appium`

`appium --version`

where appium

4. Start Appium Server:

`appium`

5. Install Appium Doctor:

`npm install -g appium-doctor`

`appium-doctor -h`

`appium-doctor --android`

Option 2:

Using Appium Desktop Client

1. Download from <https://appium.io>

2. Install and launch GUI-based server

## Prerequisites

- Install Java JDK (recommended JDK 11)
- Set JAVA\_HOME in environment variables
- Verify: `java -version`
- Android device or emulator
- USB cable for real device
- Free disk space (200MB – 1GB)

## Android SDK Setup

1. Download from <https://developer.android.com/studio>
2. Extract & set environment variables:
  - ANDROID\_HOME = path to SDK
  - Add platform-tools to system PATH

3. Enable Developer Options on device (USB Debugging: ON)
4. Verify device connection:  
adb devices

### **Appium Test Project: Open Calculator App**

Steps:

1. Install Eclipse IDE
2. Create Maven Java Project
3. Add Dependencies: Selenium Java, Appium Java Client
4. Connect device & run adb devices
5. Start Appium server
6. Set Desired Capabilities
7. Write automation code
8. Run & validate

### **Common Errors & Fixes**

Issue	Fix
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Java not recognized	Ensure JDK version and JAVA_HOME is set
Appium not detecting device	Check adb devices output
Capability errors	Verify desired capabilities
Env variable issues	Check JAVA_HOME and ANDROID_HOME