

WebDriverIO Key Concepts Matrix Table

Main Idea	Explanation	Example	Key Terms
Appium	Open-source tool for mobile automation	Used for automating iOS and Android apps	Cross-platform, WebDriver
Desired Capabilities	Key-value pairs defining test setup	{ "platformName": "Android", "deviceName": "Pixel" }	Capabilities, Setup
Appium Server	Acts as a bridge between client and mobile device	Started via 'appium' command	Node.js, WebDriver
Locator Strategies	Techniques to find UI elements	XPath, ID, Class Name, Accessibility ID	FindElement, MobileSelector
Mobile Gestures	Actions like swipe, tap, and scroll	driver.swipe(x1, y1, x2, y2)	Touch Actions, W3C Actions
Context Switching	Switch between native and web views	driver.context('WEBVIEW_1')	Hybrid Apps, Chromedriver
Appium Inspector	Tool for inspecting mobile app UI	Used to get element locators	Element Hierarchy, UIAutomator
UIAutomator2	Automation engine for Android	Used to interact with Android elements	Android, Default Automation
XCUITest	Automation engine for iOS	Used for testing iOS apps	iOS, XCTest
Parallel Execution	Running multiple tests simultaneously	Handled via Appium Grid	Scalability, Performance
Handling Alerts	Interacting with pop-ups	driver.switchTo().alert().accept();	Native Alerts, iOS, Android
Handling Permissions	Granting/rejecting app permissions	adb shell pm grant <package> <permission>	Security, Android
ADB Commands	Commands to interact with Android devices	adb devices, adb shell	Android Debug Bridge
iOS Simulator	Simulating iOS devices for testing	Used for testing iOS apps	Xcode, Simulator
Mobile Web Automation	Automating web applications on mobile	driver.get('https://example.com')	WebView, ChromeDriver
Touch Actions	Advanced gesture interactions	new TouchAction(driver).press().moveTo().release().perform()	Gestures, Tap, Swipe
Wait Strategies	Handling dynamic elements	Explicit, Implicit, Fluent Waits	Synchronization, WebDriverWait
File Upload	Uploading files in mobile apps	driver.setValue('/path/to/file')	Mobile Filesystem, Native Interaction
App Installation	Installing and launching apps	driver.installApp('/path/to/app.apk')	Setup, Device Management
App Reset	Reset app state between tests	driver.resetApp();	Session Management, Cleanup
Performance Testing	Monitoring app performance	driver.getPerformanceData()	CPU, Memory, Battery Usage
Cloud Testing	Running tests on cloud devices	Sauce Labs, BrowserStack	Remote Execution, Scalability
Session Handling	Managing test sessions	driver.quit();	Cleanup, Test Isolation
Accessibility Testing	Ensuring app is accessible	driver.getAttribute('content-desc')	A11y, WCAG

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Deep Linking	Navigating directly to a specific app screen	driver.get('myapp://home')	URI Schemes, Navigation
Hybrid Apps	Apps with both native and web components	WebView-based apps	Cross-platform, WebView
Page Object Model	Design pattern for structuring tests	Separate page classes	Maintainability, Reusability
TestNG & JUnit	Test frameworks for Appium	Used for structuring test cases	Assertions, Test Execution
Data-Driven Testing	Using external data sources for tests	Excel, JSON, CSV for test data	Scalability, Reusability
Logging & Reporting	Capturing execution details	ExtentReports, Log4j	Test Debugging, CI/CD
CI/CD Integration	Running tests in a pipeline	Jenkins, GitHub Actions	Automation, Deployment