SELENIUM + AT-SPI

The most important project in KDE

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Doing KDE things since forever

Working for Blue Systems

From Austria living in Austria

Not KDE e.V. President (yet)
A world in which every application has GUI tests and enjoys quality.
GUI testing is often a drag. It needs to be made easy to write and easy to run.

**Easy**

**Reproducible**

Must be somewhat reproducible locally so it is easy to debug and fix.
The Problem
Nothing Ever Happened
for our Software
Research
Pays off

During unrelated research of technology stacks to use for WS-Discovery in our KIO SMB worker I’ve stumbled upon WinAppDriver.

Surprisingly enough just what we need, albeit for the wrong platform. But, what if...
Selenium

Popular web-oriented UI automation & testing system.
Server-client architecture.
Client libraries for all the languages.

Appium

UI automation & testing for native/mobile applications.
Built on top of Selenium.
WebDriver

Server component of Selenium and Appium. Specified by a W3C standard.

AT-SPI

De-facto standard accessibility framework on Linux. Provides a toolkit-independent way of inspecting and controlling UIs.
Wait, Wait...
Accessibility?
Putting all the Trees Together to Form a Forest

You can see the forest on the right ->

Client Libraries
Appium & Selenium
App-centric and supporting a multitude of languages.

HTTP/JSON
WebDriver
The client libraries talk over a HTTP REST protocol with the WebDriver.

AT-SPI
Application
The WebDriver talks over AT-SPI with the application to actually conduct the automation.
Bridging the Gap

https://invent.kde.org/sdk/selenium-webdriver-at-spi
Our WebDriver is a Bunch of Things

Framework
Simple wrapper tech to facilitate test running

Driver
Written in Python with some assistance from C++

Wayland
Tests are run in a nested Wayland session

Screen Recorder
The Wayland session is screen recorded
The AT-SPI Ecosystem

AT-SPI
The Protocol

Accerciser
A inspector tool for AT-SPI

Application
Needs to implement AT-SPI. Effectively all do through toolkits
I Need Your Help!

https://invent.kde.org/sdk/selenium-webdriver-at-spi/-/wikis/writing-tests

https://apachelog.wordpress.com/2022/12/14/selenium-at-spi-gui-testing/
The End!

Thanks for paying attention. If you haven’t paid attention thanks for enjoying the AC.

It’s a cruel joke that this slide contains a lake with what appears to be nippy fogy weather while we are suffering in this heat!