A Comparative study of various desktop application automation tool

1. Winium
2. Oracle Application Testing Suite
3. WinAppDriver

**WINIUM:**

Desktop is a Selenium Remote WebDriver implementation for the automated testing of Windows applications based on WinFroms and WPF platforms.

Benefits:

1. It is an Open-source library using Selenium remote webdriver.
2. You can write tests using any WebDriver-compatible language.

* Java
* Python

1. You can use any testing framework like Junit, TestNG.
2. Any windows desktop application that is developed on WPF or on Winforms can be automated.
3. Execute test cases on any remote machine through VPN by installing the Winium desktop driver alone, complete framework installation is not required

Cons:

1. **Winium is deprecated. Though it is deprecated, we could use it for our solution. But future enhancements in AUT might not be supported by Winium.**
2. Inability to run more than one session per machine as Winium uses the system mouse and keyboard events

**Oracle Application Testing Suite [OATS]:**

Oracle Application Testing Suite is used for large scale Oracle databases supporting the main functions of the organization. It is used in multiple capacities, both as an upgrade testing and validation tool and as an ongoing performance analysis tool for daily monitoring of baseline response times. Independent departments also use the tool when building and testing department specific data warehouses.

[**Pros**:](https://www.trustradius.com/products/oracle-application-testing-suite/reviews?qs=pros-and-cons)

1. Provides support for functional automated testing for web based applications, Oracle EBS Forms, JD Edwards, Siebel, PeopleSoft, Salesforce, Cloud Applications. In addition provides support for automation of APIs, Web Services etc.
2. Flexible configuration for monitoring utilities
3. Historical tracking for baseline performance before and after upgrades

**Cons**:

1. **Its proprietary tool of ORACLE and we need to purchase the license.**
2. Security rights can be complicated if multiple types of users are required at enterprise level
3. Depending on the size and upgrade requirements, additional custom scripting may be needed
4. For daily monitoring a custom database may need to be built for reporting needs

**WinAppDriver:**

Windows Application Driver (WinAppDriver) is a service to support Selenium-like UI Test Automation on Windows Applications

**Pros:**

1. WinAppDriver is a free tool (currently the WinAppDriver code is not open source.)
2. WinAppDriver provides compact solution since it is built based on Appium and Selenium.
3. Scalable with CI/CD Tool: WinAppDriver could be integrated with CI/CD Tools such as [Jenkins](https://www.jenkins.io/), [GitLab](https://about.gitlab.com/) and [Azure Pipeline.](https://azure.microsoft.com/en-in/services/devops/pipelines/)
4. WinAppDriver is developed and backed by Microsoft and there is active community support available in Github.
5. There are multiple element locating tools are available.
6. WinAppDriver supports [Java](https://www.java.com/en/), [Python](https://www.python.org/)
7. It supports the following application types:
   1. Universal Windows Platform
   2. Windows Forms
   3. Windows Presentation Foundation
   4. Classic Windows applications

**Cons**:

1. **Cannot automate apps** **written by other tech stacks like Java, SAPGUI and Oracle Forms,** etc.
2. Only runs on Windows 10, not macOS or Linux

[**Jubula**](https://www.eclipse.org/jubula/)**:**

Jubula is an open source tool for automating UI tests designed specifically for Java applications. It provides automated functional GUI testing for various types of applications.