Web Application Testing With Selenium IDE

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Overview

- When do automate testing and when is manual testing sufficient?
- Using an automated testing tool, how can one ensure sustainability?
- What features would make Selenium more usable? What are some setbacks?
- Why is Selenium suitable for testing an application like the vEOC?

Automated vs. Manual Tests

- Automation ensures that the software is being testing thoroughly and often.
- Manual testing is tedious and inefficient.
- When modifications are made, Automation ensures that the same checks are being made each time.
- Scripting conveniences, such as loops and data storage, come in handy.

A Brief History

- Before Selenium, there was no way to write automated tests for web sites that used JavaScript heavily.
- Old technique: write server-side code in place of JavaScript, test using jWebUnit (which was inefficient)
- There were JavaScript unit test libraries, but no functional/UI testing tools
- No tool that could drive multiple browsers
- Selenium is got a lot of attention with the rise of Ajax, Rails, and Web 2.0

Selenese

- Selenese is the set of commands to test your web software in the following ways:

  – support testing of window size, mouse position, alerts, Ajax functionality, pop up windows, event handling, and other web-application features
- Pros and Cons: Data Storage --> one variable
- Dynamic Pages require user extension (goto if)

Actions, Accessors, and Assertions

- Actions manipulate the state of the application
  - (i.e. “click this link,” “select that option”)
- Accessors examine the state of the application and store the results in variables
- Assertions verify that the state of the application conforms to what is expected.
- All Selenese commands are based on these three things

Predicting Commands (Pros and Cons)

- Right clicking anywhere on the page will prompt a verification of a command for that content
- Selenium-IDE will attempt to predict what command, along with the parameters, you will need for a selected UI element on the current web-page.
- Not all elements are viewable, like window ID's or the XPath of an element in a drop down menu
- DOM inspector makes this job much easier, this interface viewing tool could easily be added to Selenium

Advantages/Disadvantages of Capture/Replay Tool

- Capturing actions is not perfect
- Selenium makes it easy to edit parts of the script that are incorrect
- To edit, you need to have an understanding of the DOM
- Capturing is done after the program is written
- However, Selenium tests can also be written before and imported

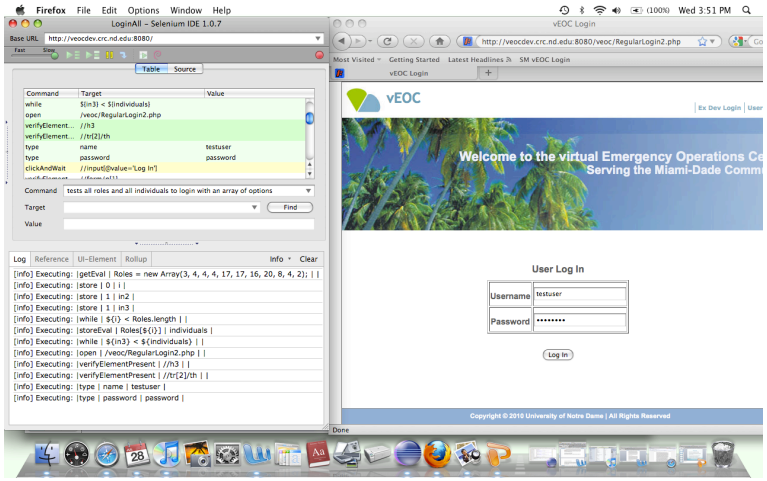
Why is Selenium Perfect for Ajax?

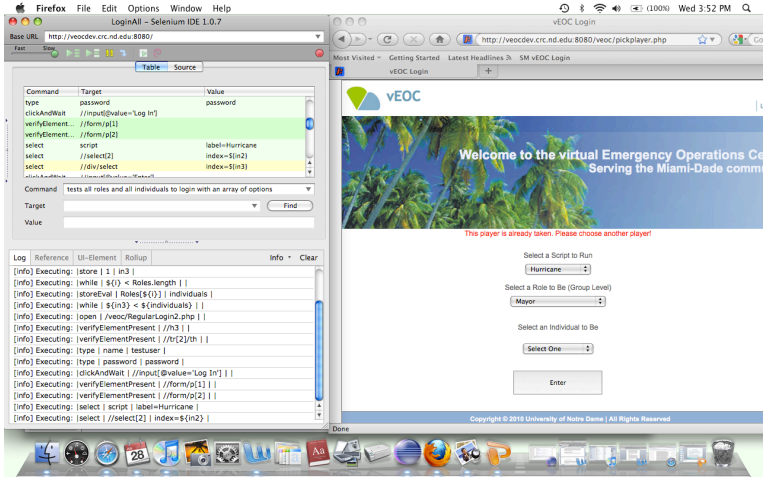
- “waitFor” commands are a type of assertion that waits for some condition to become true (which can be very useful for testing Ajax applications).
- Clicking a link in an Ajax app. does not signal the entire page to reload
- Because of this, it is often necessary to wait for certain elements
- One slow response or even an error will not get in the way of other tests being run

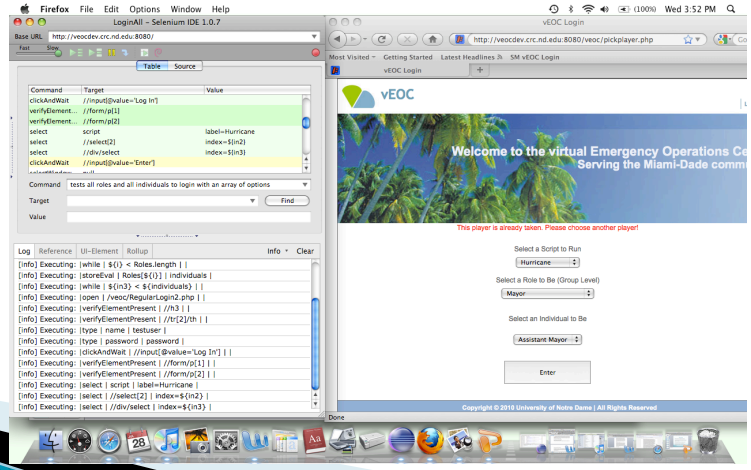
Sustainable Tests

- It is ideal to create tests that are specific to a small part of the program
- They are easily modifiable and re-usable
- Tests in Selenium cannot be embedded in one another, only executed sequentially
- Because of this it is sometimes hard to create and save specific test cases
- Choosing locators based on their ID's make tests very adaptable

An Example Test







Limitations

- Browser
  – Selenium IDE (by itself) can only be used in Firefox.
- Language
  – Selenium can only execute scripts created in Selenese
- It is difficult to use Selenium for checking complex test cases involving dynamic components (without a user extension)
- The important part of testing is the results, however, Selenium's log is not exportable!

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