Automated QA Testing

with the Robot Framework
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Why automate QA tests?

- QA testers can focus on the 'real' testing and not spend time 'smoke' testing each build.
- Developers can run smoke tests before check-in and fix issues before they get to QA.
- Projects can test more functionality in a shorter amount of time.
- Issues are found sooner which leads to faster feedback and higher quality.
Agenda

● Overview of Robot Framework and Selenium

● Robot and Selenium Demo and Results

● Automated QA Best Practices and Lessons Learned
Robot Framework

- Generic test automation framework
- 'keyword' driven tests
- Implemented in Python
- Sponsored by Nokia Siemens
- Apache 2.0 License
Selenium

- Popular framework for browser based testing
- Integrates with Robot via the RobotSelenium2 Library
- Supports all major browsers (sort of)
- Selenium Grid for scaling up systems under test
Robot Requirements

- Python 2.7.3
  http://www.python.org/
- Robot Framework 2.7.5
  http://code.google.com/p/robotframework/
- RobotSelenium2 1.1.0
  https://github.com/rtomac/robotframework-selenium2library
Robot Keyword Examples

Built-in Keywords

- Sleep 2s (sleep for 2 seconds)
- Log I am here (log 'I am here' to the output)

Custom Keywords

- User logs into system
- User creates new account
Robot Selenium Keyword Examples

- Open Browser  http://www.google.com
- Click Element  id=createAccount
  - css=img[title='Example Account']
  - link=Create Account
  - xpath=//table/[@name="my_table"]
- Input Text  accountName  Example Account
- Wait Until Page Contains  All Accounts
Rule administrator removes a rule set from rule

[Teardown] Remove ruleset from rule teardown

Given User creates ruleset 'RULESET1' 'RULESET1'
and Rule set 'RULESET1' 'RULESET1' should exist
and User creates rule with ruleset 'Rule 1' 'RULE1'
   'RULESET1'
and User removes ruleset 'RULESET1' from rule 'Rule 1'
Then Rule 'Rule 1' 'RULE1' should exist
and User is on the ruleset list page
and Rule set 'RULESET1' should not contain any rules
User creates ruleset with rule '${rs_name}' '${rs_code}' '${rule_name}'

User is on the create new rule set dialog

Input Text name  ${rs_name}

Input Text internal  ${rs_code}

Click Element css=li[title="${rule_name}"]>a

Click Button Create Rule Set
Execute Javascript keyword

- Try to use built-in keywords first
- But when that fails, then call in the A-team...

Execute Javascript  $('selectlist').change();

Execute Javascript  $('codewidget').text('def a = "a";');;
IE Java Webdriver

http://code.google.com/p/java-ie-webdriver/

Robot

RemoteWebDriver

JavaIEWebDriver

Internet Explorer

COM/Win32

Com4j/JNA
Demo Time!
Browser tests are no substitute for unit tests
Continuous Deployment

Subversion → Jenkins → Maven Repo

Jenkins AutoQA → MultiJetty

Robot → Web Browser
Making More Testable Software

- Zero Configuration (from code to testable system)
- Adding id's and title's to html
- Create application 'test' functionality (preload test data, import/export)
- Mock services (SMTP, SSO)
- Functionality that can't be automated with robot should be unit tested
Robot Best Practices

● Each test should have its own setup/teardown
● Suite setup and teardown only for setup and teardown needed for all tests
● Clean-up after each test
● Extract common variables into an arguments file
● Use Wait for Keywords instead of Sleep
Test Organization

- Organize tests based on functional area
- Separate tests into definition and implementation
- Only 5-10 tests per file
- External resources (e.g. xlsx, txt, zip) should go into a resources directory
The End!