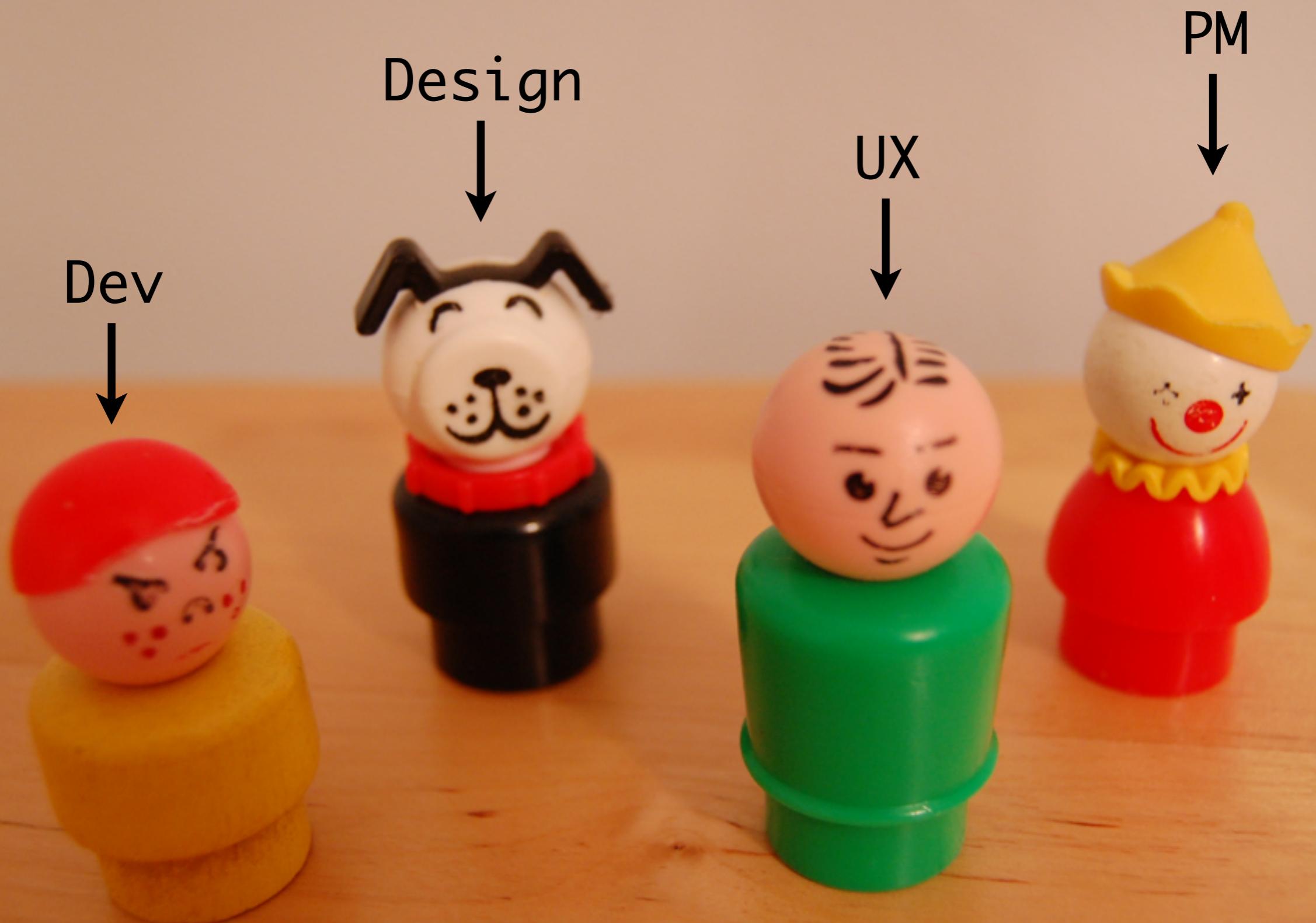


Make Everyone a Tester

Natural Language Acceptance Testing







why test?

ensure quality

communicate

goals

- developer & PM pairing
- tests written first
- drive a web browser

start with a story

Users can register for an account

Requires the following information:

- * Email
- * Password
- * Password Confirmation
- * Acceptance of terms / conditions

Acceptance Criteria

- * Try with a duplicate email address
- * Try with a password less than 6 characters



image: papazimouris @ flickr

discuss

Users can register for an account

Requires the following information:

- * Email
- * Password
- * Password Confirmation
- * Acceptance of terms / conditions

Acceptance Criteria

- * Try with a duplicate email address
- * Try with a password less than 6 characters

discuss

Users can register for an account

Requires the following information:

- * Email
- * Password
- * Password Confirmation
- * Acceptance of terms / conditions

form with data fields



Acceptance Criteria

- * Try with a duplicate email address
- * Try with a password less than 6 characters

discuss

Users can register for an account

Requires the following information:

- * Email
- * Password
- * Password Confirmation
- * Acceptance of terms / conditions

Acceptance Criteria

- * Try with a duplicate email address
- * Try with a password less than 6 characters

success state

form with data fields

discuss

Users can register for an account

Requires the following information:

- * Email
- * Password
- * Password Confirmation
- * Acceptance of terms / conditions

Acceptance Criteria

- * Try with a duplicate email address
- * Try with a password less than 6 characters

success state

form with data fields

error states

define behavior

- locations
- page state
- message content

State:

- * No users exist in the system

Steps:

1. Visit the registration page
2. Enter valid registration information
3. Submit the form

Expectation:

- * I should be redirected to the home page
- * I should see a success message displayed

where am I starting from?

State:

- * No users exist in the system

Steps:

1. Visit the registration page
2. Enter valid registration information
3. Submit the form

Expectation:

- * I should be redirected to the home page
- * I should see a success message displayed

what are the inputs?

State:

- * No users exist in the system

Steps:

1. Visit the registration page
2. Enter valid registration information
3. Submit the form

Expectation:

- * I should be redirected to the home page
- * I should see a success message displayed

what is the behavior?



Account Registration

Already have an account? [Log in to your account here.](#)

Email:

Password:

Confirm Password:

I agree to the [Terms & Conditions](#).

[Create Account](#)

[Terms & Conditions](#)

manual

problems

- time consuming
- prone to error
- no regressions

automate!



Note: To use the OpenQA [forums](#), [bug tracker](#), and [wiki](#) you need an [OpenQA account](#).

News

June 3, 2008

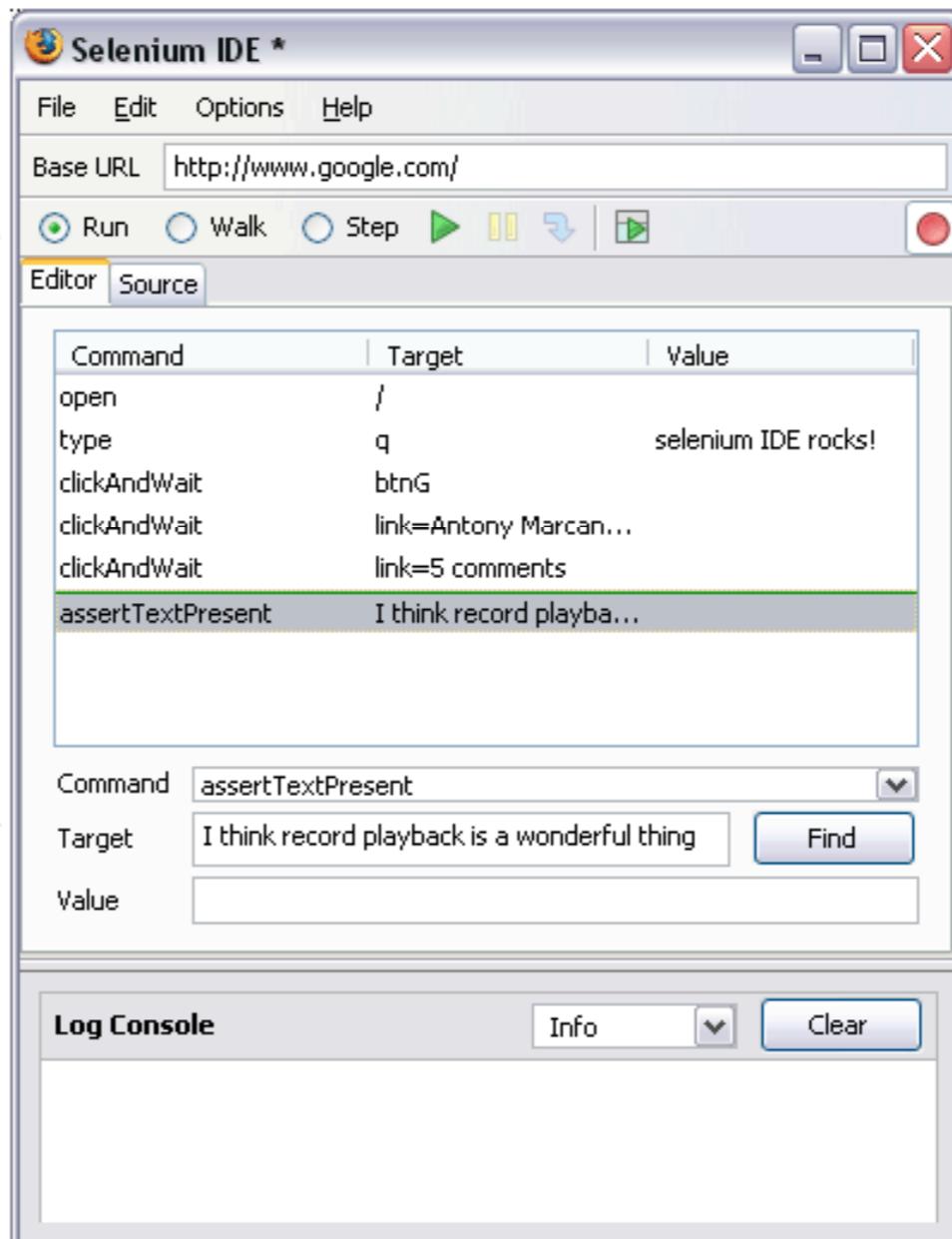
Selenium IDE 1.0 Beta 2 is available - [download now](#)

Selenium IDE is an integrated development environment for Selenium tests. It is implemented as a Firefox extension, and allows you to record, edit, and debug tests. Selenium IDE includes the entire Selenium Core, allowing you to easily and quickly record and play back tests in the actual environment that they will run.

Selenium IDE is not only recording tool: **it is a complete IDE**. You can choose to use its recording capability, or you may edit your scripts by hand. With autocomplete support and the ability to move commands around quickly, Selenium IDE is the ideal environment for creating Selenium tests no matter what style of tests you prefer.

Features:

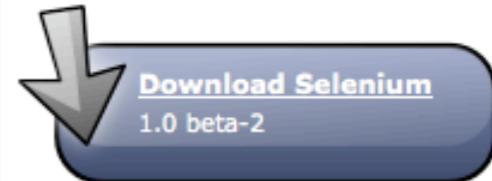
- Easy record and playback
- Intelligent field selection will use IDs, names, or XPath as needed
- Autocomplete for all common Selenium commands
- Walk through tests
- Debug and set breakpoints
- Save tests as HTML, Ruby scripts, or any other format
- Support for Selenium *user-extensions.js* file
- Option to automatically assert the title of every page



Selenium is a suite of tools to automate web app testing across many platforms.

Selenium...

- runs in [many browsers](#) and [operating systems](#)
- can be controlled by many [programming languages](#) and [testing frameworks](#).



[Download Selenium](#)

1.0 beta-2

Ads by Google

A V

[Selenium training](#)

Learn the basics of this open source functional testing tool.
[www.rtsweb.com](#)

[Top 5 QA Testing Tools](#)

2009 Top 5 QA Testing Tools Vendor Rankings.
Get Free Report
[Business-Software.com/QATesting](#)



Welcome to Spasibo. A winner is you!

Welcome to Spasibo!

This is a site where you can create an account. What can you do after you've created an account? Is that all? Nope! You can edit that account, so that next time you log in, yo

Want to edit your account? Do it!



The screenshot shows the Selenium IDE interface with the title "spasibo-test.html – Selenium IDE". The "Base URL" is set to "http://spasibo.com/". The toolbar includes speed controls (Fast, Slow), execution buttons (Run, Stop, Break, Refresh, Save, Open), and a color palette. Below the toolbar are two tabs: "Table" (selected) and "Source". The main area displays a table of recorded commands:

Command	Target	Value
type	user_password	password
type	user_password_conf...	password
click	user_terms	
clickAndWait	user_submit	
waitForPageToLoad	5000	
verifyTextPresent	Welcome to Spasibo. ...	
verifyLocation	http://spasibo.com/	

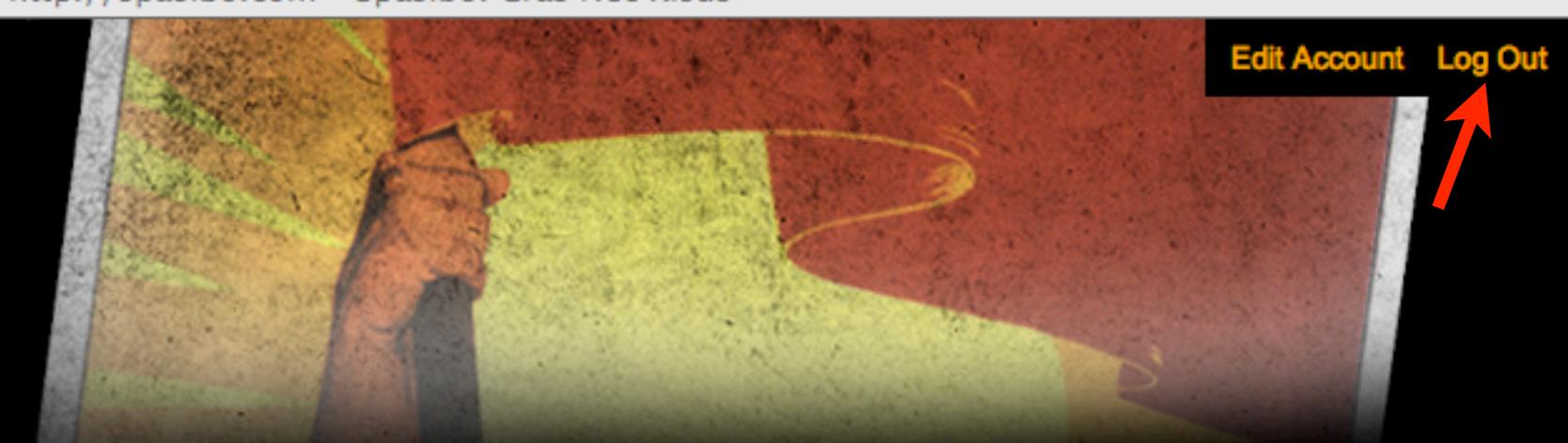
Command	verifyLocation	▼
Target	<input type="text" value="http://spasibo.com/"/> <button>Find</button>	
Value	<input type="text"/>	

Log	Reference	UI-Element	Rollup	Info	Clear
[info]	Executing:	clickAndWait user_submit			
[info]	Executing:	waitForPageToLoad 5000			
[info]	Executing:	verifyTextPresent Welcome to Spasibo. A winner is you!			
[info]	Executing:	verifyLocation http://spasibo.com/			

done.

but...

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<head profile="http://selenium-ide.openqa.org/profiles/test-case">
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link rel="selenium.base" href="http://spasibo.com/" />
<title>spasibo-test</title>
</head>
<body>
<table cellpadding="1" cellspacing="1" border="1">
<thead>
<tr><td rowspan="3" colspan="3">spasibo-test</td></tr>
</thead><tbody>
<tr>
<td>open</td>
<td>/</td>
<td></td>
</tr>
<tr>
<td>clickAndWait</td>
<td>link=Register</td>
<td></td>
</tr>
<tr>
<td>type</td>
<td>user_email</td>
<td>user@host.com</td>
</tr>
<tr>
<td>type</td>
<td>user_password</td>
<td>password</td>
</tr>
<tr>
```



Welcome to Spasibo!

This is a site where you can create an account. What can you do after you've created account! Is that all? Nope! You can edit that account, so that next time you log in, yo

Want to edit your account? Do it!



"Comrade Zangief, you have made your country proud and show that our country's spirit can overcome all obstacles."

spasibo-test.html - Selenium IDE

Base URL <http://spasibo.com/>

Fast Slow Table Source

Command	Target	Value
open	/	
clickAndWait	link=Register	
type	user_email	user@host.com
type	user_password	password
type	user_password_conf...	password
click	user_terms	
clickAndWait	user_submit	
...	...	

Command verifyLocation

Target <http://spasibo.com/> Find

Value

Log Reference UI-Element Rollup Info Clear

```

A winner is your ||| [info] Executing: |verifyLocation | http://spasibo.com/ |||
[info] Executing: |open | / | |
[info] Executing: |clickAndWait | link=Register | |
[error] Element link=Register not found

```



NYET! A FAIL IS YOU

Email has already been taken

Account Registration

Already have an account? [Log in to your account here.](#)

Email:

Password:

Confirm Password:

I agree to the [Terms & Conditions](#).

[Create Account](#)

spasibo-test.html - Selenium IDE

Base URL: http://spasibo.com/

Fast Slow

Command	Target	Value
type	user_password	password
type	user_password_conf...	password
click	user_terms	
clickAndWait	user_submit	
waitForPageToLoad	5000	
verifyTextPresent	Welcome to Spasibo. ...	
verifyLocation	http://spasibo.com/	

Command: verifyLocation

Target: http://spasibo.com/

Value:

Log	Reference	UI-Element	Rollup	Info	Clear
A winner is you!					
[error] false					
[info] Executing: verifyLocation http://spasibo.com/					
[error] Actual value 'http://spasibo.com/register' did not match 'http://spasibo.com/'					

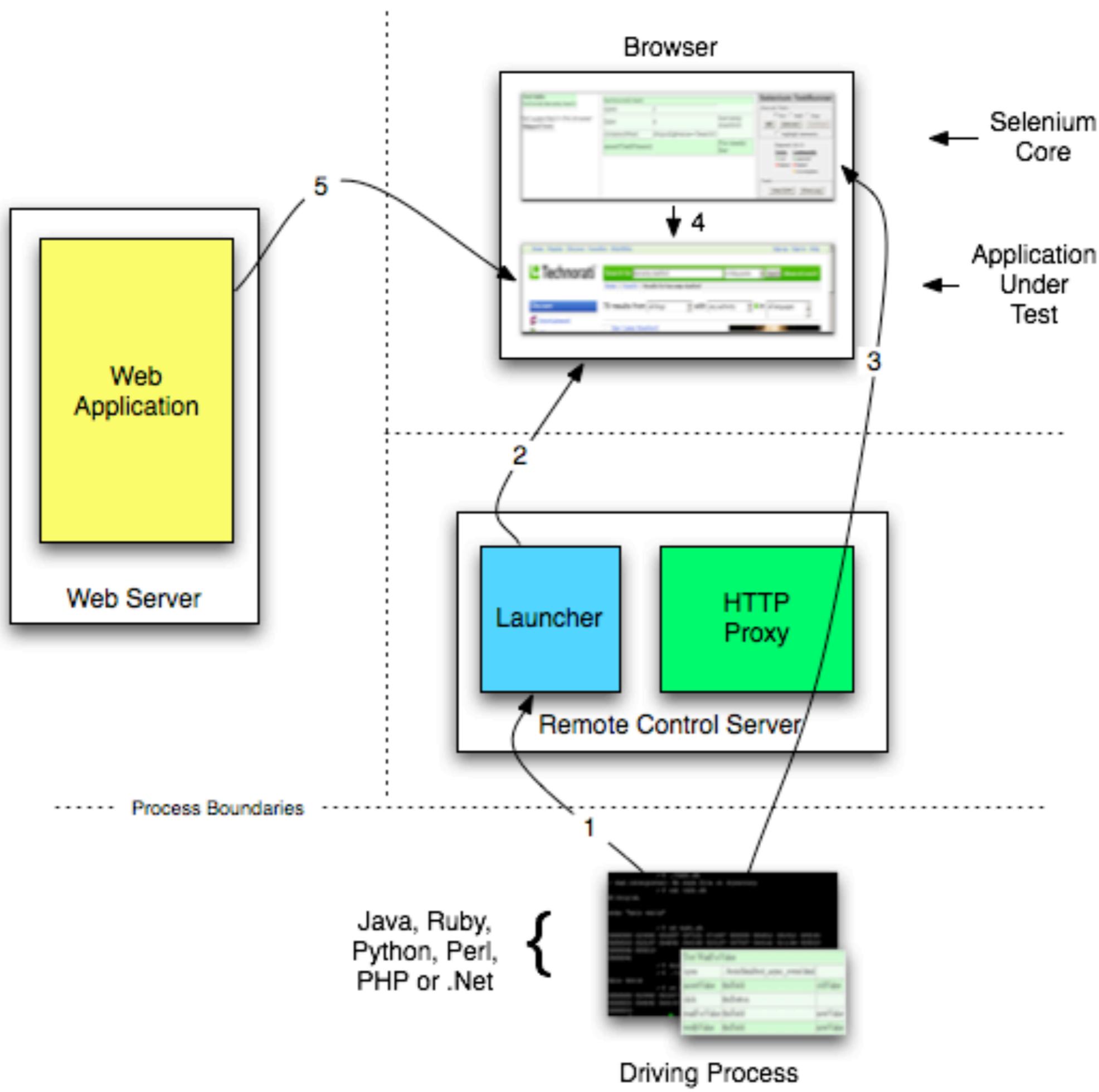
problems

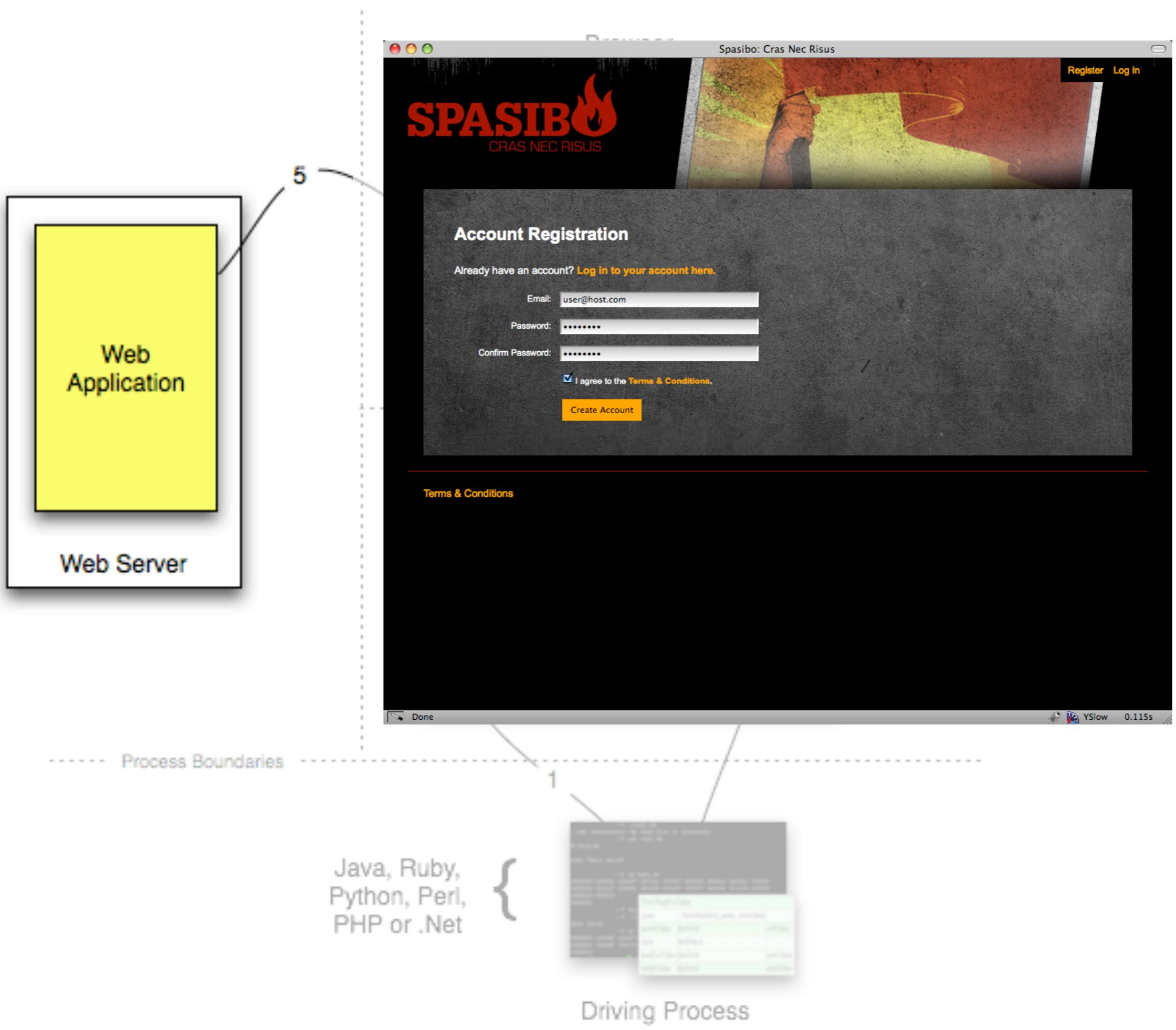
- not maintainable
- not reusable
- not understandable



Selenium Remote Control

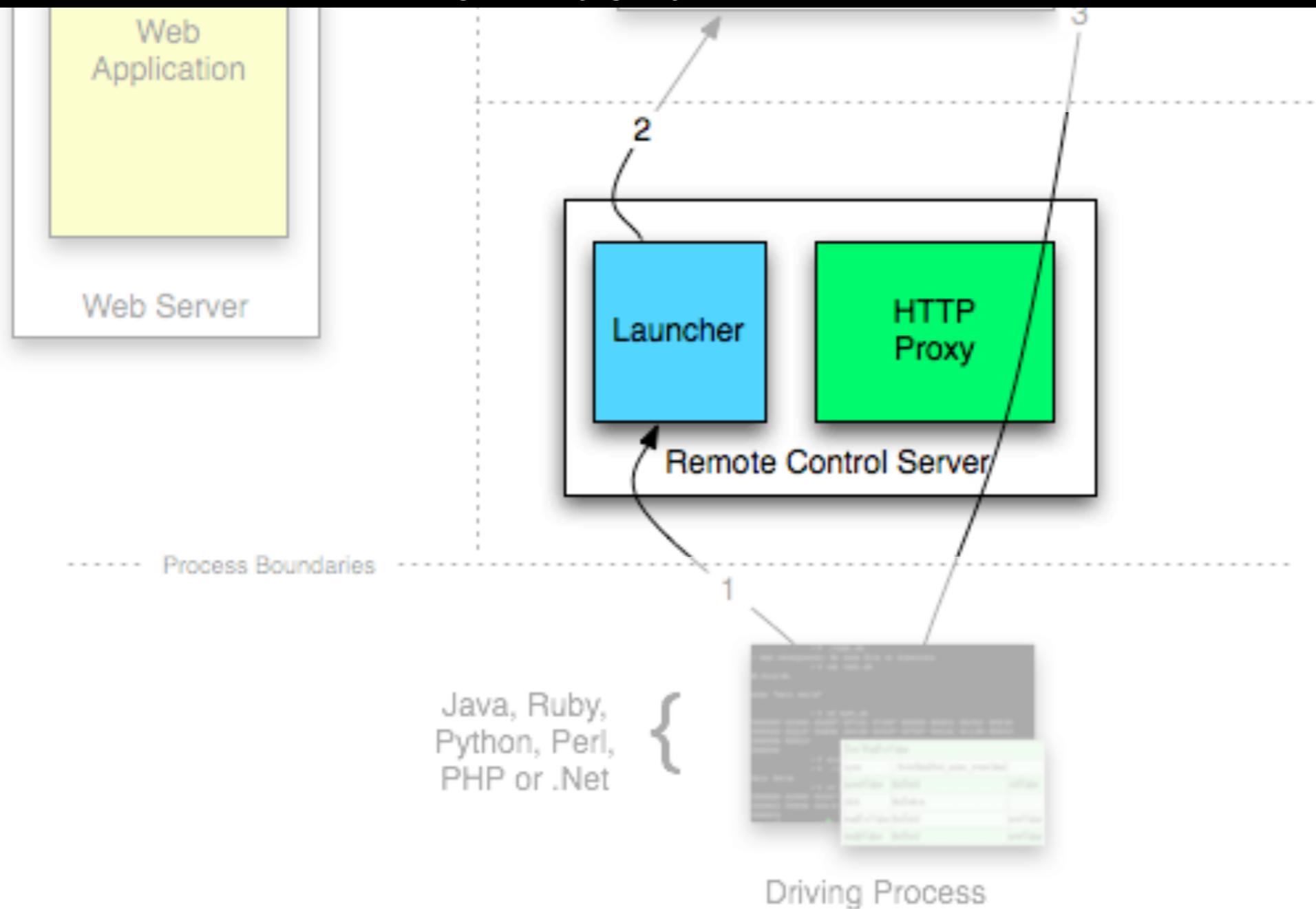
write automated web
application tests in a familiar
language and have them run in
the browser





Browser

```
$ java -jar selenium-server.jar
12:51:31.262 INFO - Java: Apple Inc. 1.5.0_16-133
12:51:31.263 INFO - OS: Mac OS X 10.5.6 i386
12:51:31.270 INFO - v1.0-beta-2 [2571], with Core v1.0-beta-2 [2330]
12:51:31.394 INFO - Version Jetty/5.1.x
12:51:31.395 INFO - Started HttpContext[/,/]
12:51:31.396 INFO - Started HttpContext[/selenium-server,/selenium-server]
12:51:31.397 INFO - Started HttpContext[/selenium-server/driver,/selenium-server/driver]
12:51:31.408 INFO - Started SocketListener on 0.0.0.0:4444
12:51:31.408 INFO - Started org.mortbay.jetty.Server@bc887b
```



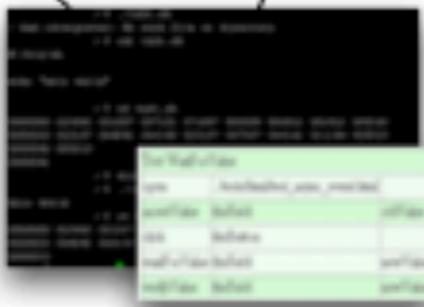
Browser

```
class NewTest < Test::Unit::TestCase  
  ...  
  def test_new  
    @selenium.open "/"  
    @selenium.click "link=Register"  
    @selenium.wait_for_page_to_load "30000"  
    @selenium.type "user_email", "user@host.com"  
    @selenium.type "user_password", "password"  
    @selenium.type "user_password_confirmation", "password"  
    @selenium.click "user_terms"  
    @selenium.click "user_submit"  
    @selenium.wait_for_page_to_load "30000"  
    @selenium.wait_for_page_to_load "5000"  
    begin  
      assert @selenium.is_text_present("Welcome to Spasibo. A winner is you!")  
    rescue Test::Unit::AssertionFailedError  
      @verification_errors << $!  
    end  
    begin  
      assert_equal "http://spasibo.com/", @selenium.get_location  
    rescue Test::Unit::AssertionFailedError  
      @verification_errors << $!  
    end  
  end  
end
```

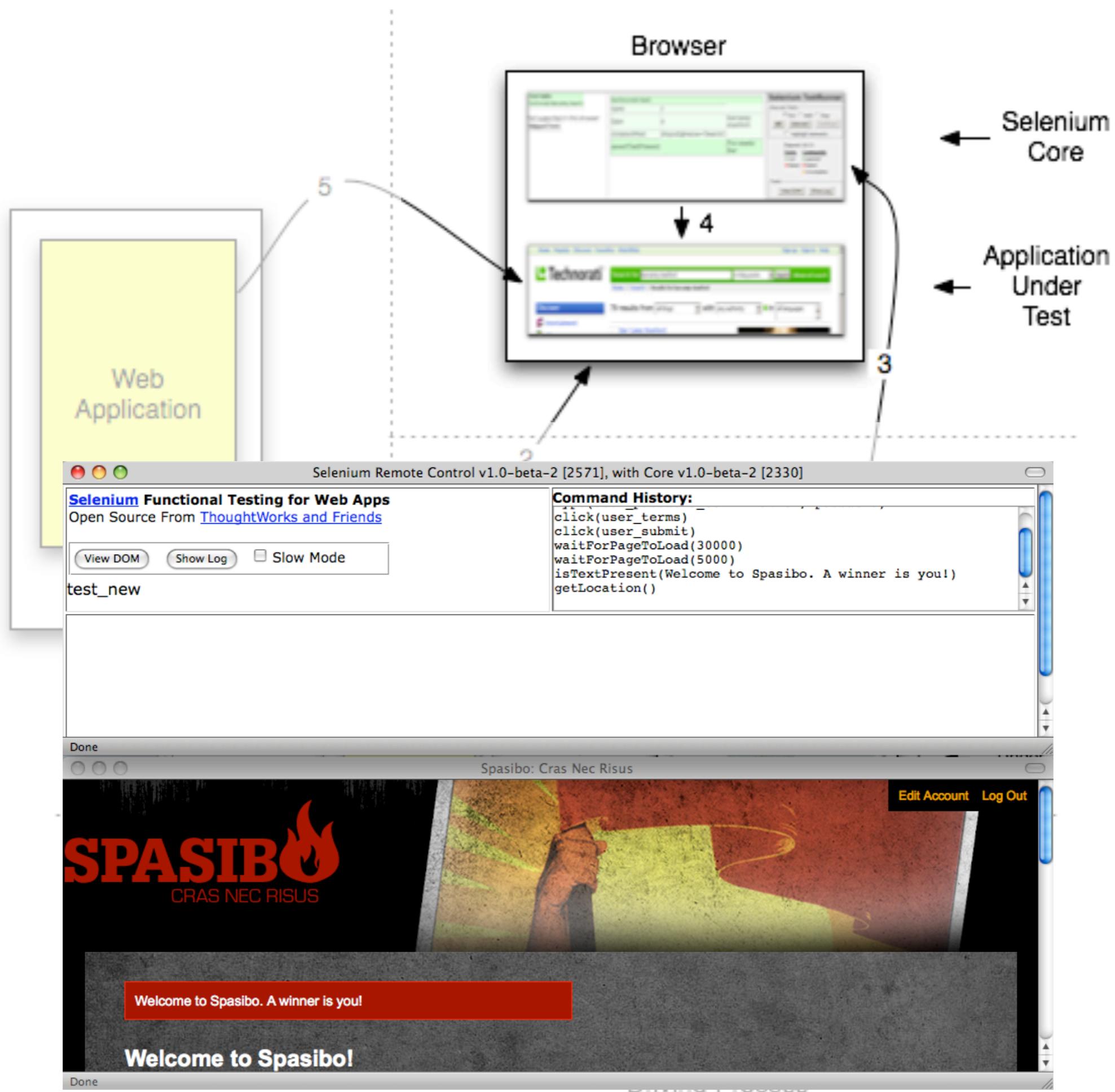
----- Process Boundaries -----

Java, Ruby,
Python, Perl,
PHP or .Net

{



Driving Process



```
$ gem install Selenium
```

export the test

```
require "selenium"
require "test/unit"
require "open-uri"

class NewTest < Test::Unit::TestCase
  def setup
    base_url = "http://spasibo.com/"
    open("#{base_url}setup/clean_slate")

    @verification_errors = []
    if $selenium
      @selenium = $selenium
    else
      @selenium = Selenium::SeleniumDriver.new("localhost", 4444, "*chrome", base_url, 10000);
      @selenium.start
    end
    @selenium.set_context("test_new")
  end

  def teardown
    @selenium.stop unless $selenium
    assert_equal [], @verification_errors
  end

  def test_new
    @selenium.open "/"
    @selenium.click "link=Register"
    @selenium.wait_for_page_to_load "30000"
    @selenium.type "user_email", "user@host.com"
    @selenium.type "user_password", "password"
    @selenium.type "user_password_confirmation", "password"
    @selenium.click "user_terms"
    @selenium.click "user_submit"
    @selenium.wait_for_page_to_load "30000"
    @selenium.wait_for_page_to_load "5000"
    begin
      assert @selenium.is_text_present("Welcome to Spasibo. A winner is you!")
    rescue Test::Unit::AssertionFailedError
      @verification_errors << $!
    end
    begin
      assert_equal "http://spasibo.com/", @selenium.get_location
    rescue Test::Unit::AssertionFailedError
      @verification_errors << $!
    end
  end
end
```

```
def setup  
...  
@selenium = Selenium::SeleniumDriver.new("localhost", 4444, "*chrome", base_url, 10000);  
@selenium.start  
...  
end
```

port start URL
↓ ↓
4444 base_url
↑ ↑
host browser timeout
↑ ↑ ↑

setup

```
def setup
  base_url = "http://spasibo.com/"
  open("#{base_url}setup/clean_slate")

...
end
```

no users exist in the system

don't do this in production

```
def setup
  base_url = "http://spasibo.com/"
  open("#{base_url}setup/clean_slate")
...
end
```

no users exist in the system

```
def test_new
  @selenium.open "/"
  @selenium.click "link=Register"
  @selenium.wait_for_page_to_load "30000"
  @selenium.type "user_email", "user@host.com"
  @selenium.type "user_password", "password"
  @selenium.type "user_password_confirmation", "password"
  @selenium.click "user_terms"
  @selenium.click "user_submit"
  @selenium.wait_for_page_to_load "30000"
  @selenium.wait_for_page_to_load "5000"

  ...
end
```

I. visit the registration page

```
def test_new
  @selenium.open "/"
  @selenium.click "link=Register"
  @selenium.wait_for_page_to_load "30000"
  @selenium.type "user_email", "user@host.com"
  @selenium.type "user_password", "password"
  @selenium.type "user_password_confirmation", "password"
  @selenium.click "user_terms"
  @selenium.click "user_submit"
  @selenium.wait_for_page_to_load "30000"
  @selenium.wait_for_page_to_load "5000"

  ...
end
```

2. enter valid information

```
def test_new
  @selenium.open "/"
  @selenium.click "link=Register"
  @selenium.wait_for_page_to_load "30000"
  @selenium.type "user_email", "user@host.com"
  @selenium.type "user_password", "password"
  @selenium.type "user_password_confirmation", "password"
  @selenium.click "user_terms"
  @selenium.click "user_submit"
  @selenium.wait_for_page_to_load "30000"
  @selenium.wait_for_page_to_load "5000"
  ...
end
```

3. submit the form

```
def test_new
  ...
begin
  assert @selenium.is_text_present("Welcome to Spasibo. A winner is you!")
rescue Test::Unit::AssertionFailedError
  @verification_errors << $!
end
begin
  assert_equal "http://spasibo.com/", @selenium.get_location
rescue Test::Unit::AssertionFailedError
  @verification_errors << $!
end
end
```

success message displayed

```
def test_new
  ...
begin
  assert @selenium.is_text_present("Welcome to Spasibo. A winner is you!")
rescue Test::Unit::AssertionFailedError
  @verification_errors << $!
end
begin
  assert_equal "http://spasibo.com/", @selenium.get_location
rescue Test::Unit::AssertionFailedError
  @verification_errors << $!
end
end
```

user is redirected

```
$ ruby -rubygems spasibo_test.rb
Loaded suite spasibo_test
Started
.
Finished in 10.559078 seconds.

1 tests, 3 assertions, 0
failures, 0 errors
```

problems

- dependent on a developer
- still not understandable

State:

- * No users exist in the system

Steps:

1. Visit the registration page
2. Enter valid registration information
3. Submit the form

Expectation:

- * I should be redirected to the home page
- * I should see a success message displayed

can I make that
executable?

Cucumber



Behavior-Driven Development
tool that speaks to domain
experts first and code second

```
$ gem install cucumber
```

tweak the language

State:

- * No users exist in the system

Steps:

1. Visit the registration page
2. Enter valid registration information
3. Submit the form

Expectation:

- * I should be redirected to the home page
- * I should see a success message displayed

State:

- * Given no users exist in the system

Steps:

1. Visit the registration page
2. Enter valid registration information
3. Submit the form

Expectation:

- * I should be redirected to the home page
- * I should see a success message displayed

State:

- * Given no users exist in the system

Steps:

1. When I visit the registration page
2. And I enter valid registration information
3. And I submit the form

Expectation:

- * I should be redirected to the home page
- * I should see a success message displayed

State:

- * Given no users exist in the system

Steps:

1. When I visit the registration page
2. And I enter valid registration information
3. And I submit the form

Expectation:

- * Then I should be redirected to the home page
- * And I should see a success message displayed

State:

- * Given no users exist in the system

Steps:

1. When I visit the registration page
2. And I enter valid registration information
3. And I submit the form

Expectation:

- * Then I should be redirected to the home page
- * And I should see a success message displayed

create a feature

```
# features/registration.feature
```

Feature: User Registration

In order to identify users in the system
Users must be able to log in

Scenario: Successful Registration

Given no users exist in the system
When I visit the registration page
And I enter valid registration information
And I submit the form
Then I should be redirected to the home page
And I should see a success message displayed

```
$ cucumber registration.feature
```

You can implement step definitions for undefined steps with these snippets:

```
Given /^no users exist in the system$/ do
  pending
end
```

```
When /^I visit the registration page$/ do
  pending
end
```

```
When /^I enter valid registration information$/ do
  pending
end
```

```
When /^I submit the form$/ do
  pending
end
```

```
Then /^I should be redirected to the home page$/ do
  pending
end
```

```
Then /^I should see a success message displayed$/ do
  pending
end
```

```
# steps/registration_steps.rb

Given /^no users exist in the system$/ do
  pending
end

When /^I visit the registration page$/ do
  pending
end

When /^I enter valid registration information$/ do
  pending
end

When /^I submit the form$/ do
  pending
end

Then /^I should be redirected to the home page$/ do
  pending
end

Then /^I should see a success message displayed$/ do
  pending
end
```

definitions

```
# steps/registration_steps.rb

Given /^no users exist in the system$/ do
  open "#{BASE_URL}/setup/clean_slate"
end

When /^I visit the registration page$/ do
  pending
end

When /^I enter valid registration information$/ do
  pending
end

When /^I submit the form$/ do
  pending
end

Then /^I should be redirected to the home page$/ do
  pending
end

Then /^I should see a success message displayed$/ do
  pending
end
```

state

```
# steps/registration_steps.rb

Given /^no users exist in the system$/ do
  open "#{BASE_URL}/setup/clean_slate"
end

When /^I visit the registration page$/ do
  @browser.open "/register"
end

When /^I enter valid registration information$/ do
  @browser.type "user_email", "user@host.com"
  @browser.type "user_password", "password"
  @browser.type "user_password_confirmation", "password"
  @browser.click "user_terms"
end

When /^I submit the form$/ do
  @browser.click "user_submit"
  @browser.wait_for_page_to_load
end

Then /^I should be redirected to the home page$/ do
  pending
end

Then /^I should see a success message displayed$/ do
  pending
end
```

steps

```
# steps/registration_steps.rb

Given /^no users exist in the system$/ do
  open "#{BASE_URL}/setup/clean_slate"
end

When /^I visit the registration page$/ do
  @browser.open "/register"
end

When /^I enter valid registration information$/ do
  @browser.type "user_email", "user@host.com"
  @browser.type "user_password", "password"
  @browser.type "user_password_confirmation", "password"
  @browser.click "user_terms"
end

When /^I submit the form$/ do
  @browser.click "user_submit"
  @browser.wait_for_page_to_load
end

Then /^I should be redirected to the home page$/ do
  assert_equal "#{BASE_URL}/", @browser.get_location
end

Then /^I should see a success message displayed$/ do
  assert @browser.is_text_present("Welcome to Spasibo. A winner is you!")
end
```

expectation

```
$ cucumber registration.feature
```

```
Feature: User Registration
```

```
  In order to identify users in the system
```

```
  Users must be able to log in
```

```
Scenario: Successful registration
```

```
  Given no users exist in the system
```

```
  When I visit the registration page
```

```
  And I enter valid registration information
```

```
  And I submit the form
```

```
  Then I should be redirected to the home page
```

```
  And I should see a success message displayed
```

```
# registration.feature:5
```

```
# steps/registration_steps.rb:1
```

```
# steps/registration_steps.rb:5
```

```
# steps/registration_steps.rb:9
```

```
# steps/registration_steps.rb:16
```

```
# steps/registration_steps.rb:21
```

```
# steps/registration_steps.rb:25
```

```
1 scenario (1 passed)
```

```
6 steps (6 passed)
```

problems

- dependent on a developer
- no control over input data

```
# registration.feature
```

Feature: User Registration

In order to identify users in the system
Users must be able to log in

Scenario: Successful registration

Given no users exist in the system

When I visit "/register"

And I enter "user@host.com" for "user_email"

And I enter "password" for "user_password"

And I enter "password" for "user_password_confirmation"

And I check the "user_terms" box

And I click the "user_submit" button

Then I should be redirected to "/"

And I should see the message "Welcome to Spasibo. A winner is you!"

You can implement step definitions for undefined steps with these snippets:

```
Given /no users exist in the system$/ do
  pending
end
```

```
When /^I visit "([^\"]*)"$/ do |arg1|
  pending
end
```

```
When /^I enter "([^\"]*)" for "([^\"]*)"$/ do |arg1, arg2|
  pending
end
```

```
When /^I check the "([^\"]*)" box$/ do |arg1|
  pending
end
```

```
When /^I click the "([^\"]*)" button$/ do |arg1|
  pending
end
```

```
Then /^I should be redirected to "([^\"]*)"$/ do |arg1|
  pending
end
```

```
Then /^I should see the message "([^\"]*)"$/ do |arg1|
  pending
end
```

```
# steps/registration_steps.rb

Given /^no users exist in the system$/ do
  pending
end

When /^I visit "([^\"]*)"$/ do |arg1|
  pending
end

When /^I enter "([^\"]*)" for "([^\"]*)"$/ do |arg1, arg2|
  pending
end

When /^I check the "([^\"]*)" box$/ do |arg1|
  pending
end

When /^I click the "([^\"]*)" button$/ do |arg1|
  pending
end

Then /^I should be redirected to "([^\"]*)"$/ do |arg1|
  pending
end

Then /^I should see the message "([^\"]*)"$/ do |arg1|
  pending
end
```

definitions

```
# steps/registration_steps.rb

Given /^no users exist in the system$/ do
  open "#{BASE_URL}/setup/clean_slate"
end

When /^I visit "([^\"]*)"$/ do |arg1|
  pending
end

When /^I enter "([^\"]*)" for "([^\"]*)"$/ do |arg1, arg2|
  pending
end

When /^I check the "([^\"]*)" box$/ do |arg1|
  pending
end

When /^I click the "([^\"]*)" button$/ do |arg1|
  pending
end

Then /^I should be redirected to "([^\"]*)"$/ do |arg1|
  pending
end

Then /^I should see the message "([^\"]*)"$/ do |arg1|
  pending
end
```

state

```
# steps/registration_steps.rb

Given /^no users exist in the system$/ do
  open "#{BASE_URL}/setup/clean_slate"
end

When /^I visit "([^\"]*)"$/ do |path|
  @browser.open path
end

When /^I enter "([^\"]*)" for "([^\"]*)"$/ do |value, text_field_id|
  @browser.type text_field_id, value
end

When /^I check the "([^\"]*)" box$/ do |checkbox_id|
  @browser.check checkbox_id
end

When /^I click the "([^\"]*)" button$/ do |submit_button_id|
  @browser.click submit_button_id
  @browser.wait_for_page_to_load
end

Then /^I should be redirected to "([^\"]*)"$/ do |arg1|
  pending
end

Then /^I should see the message "([^\"]*)"$/ do |arg1|
  pending
end
```

steps

```
# steps/registration_steps.rb

Given /^no users exist in the system$/ do
  open "#{BASE_URL}/setup/clean_slate"
end

When /^I visit "([^\"]*)"$/ do |path|
  @browser.open path
end

When /^I enter "([^\"]*)" for "([^\"]*)"$/ do |value, text_field_id|
  @browser.type text_field_id, value
end

When /^I check the "([^\"]*)" box$/ do |checkbox_id|
  @browser.check checkbox_id
end

When /^I click the "([^\"]*)" button$/ do |submit_button_id|
  @browser.click submit_button_id
  @browser.wait_for_page_to_load
end

Then /^I should be redirected to "([^\"]*)"$/ do |path|
  assert_equal "#{BASE_URL}#{path}", @browser.get_location
end

Then /^I should see the message "([^\"]*)"$/ do |message|
  assert @browser.is_text_present(message)
end
```

expectation

```
$ cucumber registration.feature
Feature: User Registration
  In order to identify users in the system
  Users must be able to log in

Scenario: Successful registration
  Given no users exist in the system
  When I visit "/register"
  And I enter "user@host.com" for "user_email"
  And I enter "password" for "user_password"
  And I enter "password" for "user_password_confirmation"
  And I check the "user_terms" box
  And I click the "user_submit" button
  Then I should be redirected to "/"
  And I should see the message "Welcome to Spasibo. A winner is you!" # steps/registration_steps.rb:26

# registration.feature:7
# steps/registration_steps.rb:1
# steps/registration_steps.rb:5
# steps/registration_steps.rb:9
# steps/registration_steps.rb:9
# steps/registration_steps.rb:9
# steps/registration_steps.rb:13
# steps/registration_steps.rb:17
# steps/registration_steps.rb:22
# steps/registration_steps.rb:26
```

```
1 scenario (1 passed)
9 steps (9 passed)
```

extend

Scenario: No data supplied

Given no users exist in the system

When I visit "/register"

And I click the "user_submit" button

Then I should be redirected to "/register"

And I should see the message "NYET! A FAIL IS YOU"

And I should see the message "Email can't be blank"

And I should see the message "Terms must be accepted"

Scenario: Password not confirmed

Given no users exist in the system

When I visit "/register"

And I enter "user@host.com" for "user_email"

And I enter "password" for "user_password"

And I enter "drowssap" for "user_password_confirmation"

And I check the "user_terms" box

And I click the "user_submit" button

Then I should be redirected to "/register"

And I should see the message "NYET! A FAIL IS YOU"

And I should see the message "Password doesn't match confirmation"

Scenario: Successful registration with alternate data

Given no users exist in the system

When I visit "/register"

And I enter "patrick@viget.com" for "user_email"

And I enter "password123" for "user_password"

And I enter "password123" for "user_password_confirmation"

And I check the "user_terms" box

And I click the "user_submit" button

Then I should be redirected to "/"

And I should see the message "Welcome to Spasibo. A winner is you!"



remove duplication

image: haakseth @ flickr

Scenario: Successful registration

Given no users exist in the system

When I visit "/register"

And I enter "user@host.com" for "user_email"

And I enter "password" for "user_password"

And I enter "password" for "user_password_confirmation"

And I check the "user_terms" box

And I click the "user_submit" button

Then I should be redirected to "/"

And I should see the message "Welcome to Spasibo. A winner is you!"

Scenario Outline: Successful registration

Given no users exist in the system

When I visit "/register"

And I enter "user@host.com" for "user_email"

And I enter "password" for "user_password"

And I enter "password" for "user_password_confirmation"

And I check the "user_terms" box

And I click the "user_submit" button

Then I should be redirected to "/"

And I should see the message "Welcome to Spasibo. A winner is you!"

Scenario Outline: Successful registration

Given no users exist in the system

When I visit "/register"

And I enter "<email>" for "user_email"

And I enter "<password>" for "user_password"

And I enter "<password_confirmation>" for "user_password_confirmation"

And I check the "user_terms" box

And I click the "user_submit" button

Then I should be redirected to "/"

And I should see the message "Welcome to Spasibo. A winner is you!"

Scenario Outline: Successful registration

Given no users exist in the system

When I visit "/register"

And I enter "<email>" for "user_email"

And I enter "<password>" for "user_password"

And I enter "<password_confirmation>" for "user_password_confirmation"

And I check the "user_terms" box

And I click the "user_submit" button

Then I should be redirected to "/"

And I should see the message "Welcome to Spasibo. A winner is you!"

Examples:

email	password	password_confirmation
user@host.com	password	password
patrick@viget.com	password123	password123

```
$ cucumber registration.feature
```

```
Feature: User registration
```

```
  In order to identify users in the system
```

```
  Users must be able to log in
```

```
Scenario Outline: Successful Registration
```

```
  Given no users exist in the system
```

```
  When I visit "/register"
```

```
  And I enter "<email>" for "user_email"
```

```
  And I enter "<password>" for "user_password"
```

```
  And I enter "<password_confirmation>" for "user_password_confirmation"
```

```
  And I check the "user_terms" box
```

```
  And I click the "user_submit" button
```

```
  Then I should be redirected to "/"
```

```
  And I should see the message "Welcome to Spasibo. A winner is you!"
```

```
# registration.feature:7
```

```
# steps/registration_steps.rb:1
```

```
# steps/registration_steps.rb:5
```

```
# steps/registration_steps.rb:9
```

```
# steps/registration_steps.rb:9
```

```
# steps/registration_steps.rb:9
```

```
# steps/registration_steps.rb:13
```

```
# steps/registration_steps.rb:17
```

```
# steps/registration_steps.rb:22
```

```
# steps/registration_steps.rb:26
```

```
Examples:
```

email	password	password_confirmation
user@host.com	password	password
patrick@viget.com	password123	password123

```
2 scenarios (2 passed)
```

```
18 steps (18 passed)
```



image: mediageek @ flickr

future

Scenario: Duplicate email address

Given a user exists in the system with the email "user@host.com"

When I visit "/register"

And I enter valid registration information

And I enter "user@host.com" for "user_email"

And I click the "user_submit" button

Then I should be redirected to "/register"

And I should see the message "Email has already been taken"

refactor

Scenario: Duplicate email address

- Given a user exists in the system with the email "user@host.com"
- When I visit "/register"
- And I enter valid registration information
- And I enter "user@host.com" for "user_email"
- And I click the "user_submit" button
- Then I should be redirected to "/register"
- And I should see the message "Email has already been taken"

refactor

```
Given /^a user exists in the system with the email "\(\[^\"\]\*\)"\$/ do |email|
  Given 'no users exist in the system'
  When 'I visit "/register"'
  When 'I enter valid registration information'
  When 'I enter "' + email + '"' for "user_email"
  When 'I click the "user_submit" button'
end

When /^I enter valid registration information\$/ do
  When 'I enter "user@host.com" for "user_email"'
  When 'I enter "password" for "user_password"'
  When 'I enter "password" for "user_password_confirmation"'
  When 'I check the "user_terms" box'
end
```

refactor

Scenario: Duplicate email address

```
Given a user exists in the system with the email "user@host.com"
When I visit "/register"
And I enter valid registration information
And I enter "user@host.com" for "user_email"
And I click the "user_submit" button
Then I should be redirected to "/register"
And I should see the message "Email has already been taken"
```

```
# registration.feature:51
# steps/registration_steps.rb:30
# steps/registration_steps.rb:5
# steps/registration_steps.rb:38
# steps/registration_steps.rb:9
# steps/registration_steps.rb:17
# steps/registration_steps.rb:22
# steps/registration_steps.rb:26
```

```
$ cucumber registration.feature --name "Success"
Feature: User Registration
  In order to identify users in the system
  Users must be able to log in

  Scenario: Successful registration
    Given no users exist in the system
    When I visit "/register"
    And I enter "user@host.com" for "user_email"
    And I enter "password" for "user_password"
    And I enter "password" for "user_password_confirmation"
    And I check the "user_terms" box
    And I click the "user_submit" button
    Then I should be redirected to "/"
    And I should see the message "Welcome to Spasibo. A winner is you!" # steps/registration_steps.rb:26

  Scenario: Successful registration with alternate data
    Given no users exist in the system
    When I visit "/register"
    And I enter "patrick@viget.com" for "user_email"
    And I enter "password123" for "user_password"
    And I enter "password123" for "user_password_confirmation"
    And I check the "user_terms" box
    And I click the "user_submit" button
    Then I should be redirected to "/"
    And I should see the message "Welcome to Spasibo. A winner is you!" # steps/registration_steps.rb:26

2 scenarios (2 passed)
18 steps (18 passed)
```

run by name

@slow

Scenario: Duplicate email address

Given a user exists in the system with the email "user@host.com"

When I visit "/register"

And I enter valid registration information

And I enter "user@host.com" for "user_email"

And I click the "user_submit" button

Then I should be redirected to "/register"

And I should see the message "Email has already been taken"

tagging

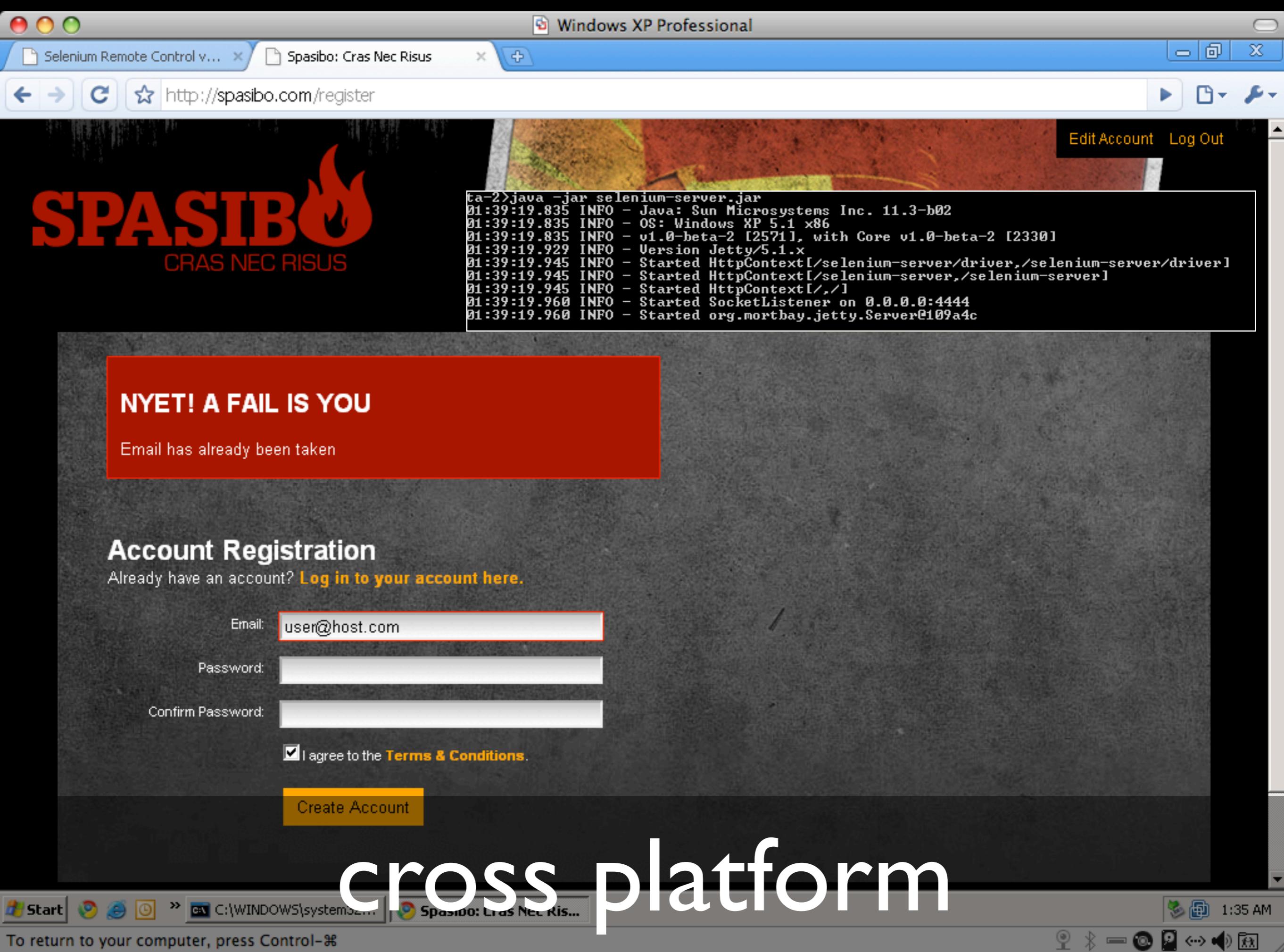
```
$ cucumber registration.feature --tags @slow
Feature: User Registration
  In order to identify users in the system
  Users must be able to log in

  @slow
  Scenario: Duplicate email address
    Given a user exists in the system with the email "user@host.com"          # registration.feature:51
    When I visit "/register"                                                 # steps/registration_steps.rb:30
    And I enter valid registration information                                # steps/registration_steps.rb:5
    And I enter "user@host.com" for "user_email"                               # steps/registration_steps.rb:38
    And I click the "user_submit" button                                       # steps/registration_steps.rb:9
    Then I should be redirected to "/register"                                 # steps/registration_steps.rb:17
    And I should see the message "Email has already been taken"             # steps/registration_steps.rb:22
                                                                           # steps/registration_steps.rb:26

1 scenario (1 passed)
7 steps (7 passed)
```

run by tag

```
$ cucumber registration.feature --tags ~@slow
```



continuous integration



continuous integration

integration?



Resources

- Selenium: <http://seleniumhq.org/>
- Cucumber: <http://cukes.info/>
- Slides / Code: <http://github.com/reagent/nlt>

Contact

- patrick.reagan@viget.com
- <http://twitter.com/reagent>



image: nomeacuerdo @ flickr