



# CAMUG

November 1, 2005



# Using Ruby and Watir to Automate Web Testing

Paul Rogers - [paul.rogers@shaw.ca](mailto:paul.rogers@shaw.ca)  
Peter Chau - [peter.chau@shaw.ca](mailto:peter.chau@shaw.ca)

# Outline



1. Introduction To Ruby
2. Watir and its World
3. Demo
4. Why use Ruby/Watir
5. Other tools
6. More Info
7. Questions



# Outline



1. Introduction To Ruby
2. Watir and its World
3. Demo
4. Why use Ruby/Watir
5. Other Tools
6. More Info
7. Questions



# What is Ruby?



- Full featured Object Oriented scripting language
- Interpreted rather than compiled
  - Perl, VBScript
- **Written by Matz, (Yukihiro Matsumoto)**
  - Started in 1994
- **Written in C**
  - will work on any platform that has a C compiler:
    - Windows
    - Linux
    - MS-DOS
    - Play Station ?

# Ruby Programming



- Ruby programs are text files
  - Use tools like cvs, grep
- Use any text editor
  - Windows installer includes SciTE editor
  - Notepad
  - Eclipse ( RDT Plugin)
  - Emacs
- Ruby Interactive Shell (irb) allows commands to be typed in directly
  - Like Python, TCL, and Groovy

# Ruby Libraries



## Existing libraries include:

- Network access, ftp, http, SMTP, POP
- Rdoc ( equivalent to javadoc )
- Test::Unit ( equivalent to junit )
- database connectivity
- Graphics FOX, TK
- XML, ZIP, Gmail

RAA (Ruby Application Archive) lists 1289 projects

# Outline



1. Introduction To Ruby
2. Watir and its World
3. Demo
4. Why use Ruby/Watir
5. Other Tools
6. More Info
7. Questions



# What Does WATIR mean?



- Web
- Application
- Testing
- In
- Ruby

# What Is WATIR?



- A library for testing web applications
- BSD Open Source License
- Written by Bret Pettichord and Paul Rogers, and a long list of contributors

# What WATIR is Not



- **Watir is not a record/playback tool**
  - Although a recorder is currently under development (WatirMaker)
- **Watir is not a link checker**
  - But you could easily write one
- **Watir is not a test case management tool**
  - But you could use ruby to write one
- **Cant be used for testing Flash, Applets**

# How Does Watir Work



- Uses the COM interface of Internet Explorer (IE)
  - also known as ActiveX or OLE
- Allows an external program to control IE
  - Similar interfaces exist for Word, Excel, PowerPoint and Outlook
- Full access to the contents of an HTML page
- Provides different ways to access objects

# The DOM



- DOM - Document Object Model
- Interface for programmatically accessing and manipulating the dynamic content contents of a web page
- Methods exist to allow
  - Retrieval
  - Setting
  - Adding, and
  - Removal of objects
- Allows interaction with events
  - capture and respond to user or browser actions.



# Accessing an HTML Button

## HTML

```
<input type = button name = 'button1'  
  id='b_1' value = 'Click Me' >
```

## Watir would access this button using

- `ie.button(:id , 'b_1' )`
- `ie.button(:name , 'button1')`
- `ie.button(:value , 'Click Me')`
- `ie.button(:index , 1)`

# We have the Button - Now What?



- **Click It**

```
ie.button(:id, 'b_1').click
```

- **See if it exists**

```
ie.button(:id, 'b_1').exists?
```

- **Is it Enabled**

```
ie.button(:id, 'b_1').enabled?
```

- **Give it focus**

```
ie.button(:id, 'b_1').focus
```

# Watir Supported Elements



- Button
- Radio
- CheckBox
- TextField
  - TextArea and password
- Hidden
- SelectList
- FileFields
- Forms
- Label
- Span
- Div
- P
- Link
- Table - TR TD TH
- Image
- Frames
  - includes Iframes
- Javascript popups
  - in various ways
- New Window popups

# Typical Methods



These methods can be used on most elements:

- name
- id
- to\_s
- class\_name
- enabled?
- disabled?
- click
- flash
- exists?
- focus
- html

# Element Specific Methods



- **Select List**
  - select( regexp|string )
  - select\_value( value )
- **Radio Buttons**
  - checked?
- **Images**
  - src
  - width
  - height
- **Links**
  - src ( if the link is composed of an image)
  - href
  - text

# Outline



1. Introduction To Ruby
2. Watir and its World
- 3. Demos**
4. Why use Ruby/Watir
5. Other Tools
6. More Info
7. Questions



# Demo 1



Login test

(unit test framework)

# Demo 2



## Dynamic HTML

# Demo 3 - AJAX



- Asynchronous java-script + XML.
- Collection of standard web technologies
- Provide a more seamless experience for web application users when combined
- Mechanism for the client (through java-script)
  - to send information to the server
  - to receive a response as XML.
- **Response XML**
  - Can be processed in the background
  - Can be used to dynamically update elements without a page refresh
- Information flows, and screens are updated
- Looks more like in desktop applications than old-fashioned web applications.

# Outline



1. Introduction To Ruby
2. Watir and its World
3. Demo
- 4. Why use Ruby/Watir**
5. Other Tools
6. More Info
7. Questions



# Why Use Ruby / Watir?



- It is “free”
- Tests with a ‘real’ browser
- Numerous ways to access elements
- Ruby is a nice language to use
  - Perl is very cryptic
  - Java needs to be compiled
  - Vbscript – difficult to do includes
- More than functional testing (tool creation)
- Very active community behind Watir

# Companies Using Watir



<http://wtr.rubyforge.org/wiki/wiki.pl?WatirUsers>

<b>Company</b>	<b>Location</b>
Presslogic Inc.	Calgary, AB
Honeywell	Bangalore, India
Bell Canada	Canada
Google Maps	Bay Area
Atomic Object	Grand Rapids, Michigan
Lockheed Martin Information Technology	Richland, WA

# What People Say about Watir



- <http://wtr.rubyforge.org/wiki/wiki.pl?WatirTestimonials>
- “Watir is the most compelling alternative for filling the automated acceptance testing need.” – Ward Cunningham
- Already WATIR outperforms QuickTest in many areas.
- In my opinion, WATIR has no peer as a framework to drive functional test automation in Internet Explorer – Chris McMahon

# What People Say about Watir



- "I wanted to run around my office dancing and celebrating."  
Beth Ferguson
- However, **watir BLEW MY FREAKIN MIND. ....**  
...I can't overstate how much this application is going to change my life... ,  
Unknown, 11 May 2005

# Compare to Commercial Tools



- Cost – It is free
- Uses a real programming language
  - not proprietary vendor script
- Developers are able to write code for you
- Developers are more likely to want to help
- Integration with unit tests and other developer tools
- Mailing list provides support
- Features can be added easily
- We encourage contributions from the community

# Outline



1. Introduction To Ruby
2. Watir and its World
3. Demo
4. Why use Ruby/Watir
- 5. Other Tools**
6. More Info
7. Questions



# Other Tools



- The tools we will talk about access IE in the same way as WATIR
- Many Other tools, such as httpUnit, that 'act' as a browser also exist
  - HttpUnit
  - jWebUnit
  - HtmlUnit
  - WWW:Mechanize ( both Perl and ruby )

# Other Tools



- Perl
  - Samie
    - <http://samie.sourceforge.net/>
  - Win32::IE::Mechanize
    - <http://search.cpan.org/~abeltje/Win32-IE-Mechanize/>
- Java
  - Jiffie
    - <http://jiffie.sourceforge.net/>
  - Avignon
    - <http://www.nolacom.com/avignon/index.asp>
- Python
  - Pamie
    - <http://pamie.sourceforge.net/>
- .net
  - InSite
    - Still Under development

# Other Tools



- These don't apply to a particular language:
- **leUnit**
  - Also A Browser Driver
  - written by James Li in Calgary
  - <http://ieunit.sourceforge.net/>
- **Selenium**
  - A browser driver that works with IE, Mozilla, Safari
  - support for many languages:
    - .net
    - ruby
    - python
    - java
  - <http://selenium.thoughtworks.com/index.html>
  - Future integration with watir a possibility

# Outline



1. Introduction To Ruby
2. Watir and its World
3. Demo
4. Why use Ruby/Watir
5. Other Tools
- 6. More Info**
7. Questions



# More Info



- **StarWest, Nov14, Anaheim, CA**
  - “Scripting For Testers”, Bret Pettichord
  - <http://www.sqe.com/starwest/>
- **Previously taught at:**
  - Agile2004, Calgary
  - StarWest, 2004, Anaheim
  - StarEast, 2005, Orlando
  - Agile2005, Denver

# More Info



- The WATIR home page and mailing list  
<http://www.watir.com>
- Email Peter: [peter.chau@shaw.ca](mailto:peter.chau@shaw.ca)
- Email Paul: [paul.rogers@shaw.ca](mailto:paul.rogers@shaw.ca)
- Paul's web site: <http://www.paulrogers.ca>
- Better Software, April 2005,
  - “Watir Works” by Jonathan Kohl and Paul Rogers
- Ruby Home Page:
  - <http://www.ruby-lang.org>
- [comp.lang.ruby newsgroup](http://comp.lang.ruby.newsgroup)

# Books on Ruby



- **Programming Ruby**
  - Dave Thomas
- **Ruby In a Nutshell**
  - Yukihiro Matsumoto
- **The Ruby Way**
  - Hal Fulton
- **Ruby Developers Guide**
  - Michael Neumann
- **Sams Teach Yourself Ruby in 21 Days**
  - Mark Slagell
- **Agile Web Development with Rails**
  - Dave Thomas et al

# Questions???



- Is it Only Internet Explorer that's Supported?
  - Right now, yes!
- What about Firefox, Mozilla, Opera, Safari?
  - 3 ways to get Mozilla support
    - Selenium
    - JSSH
    - Gtk::MozEmbed
- Other Questions?



# CAMUG

November 1, 2005

# Three Tier Framework



Automation scripts



Page Accessors



Ruby / Watir