

Ruby on Rails

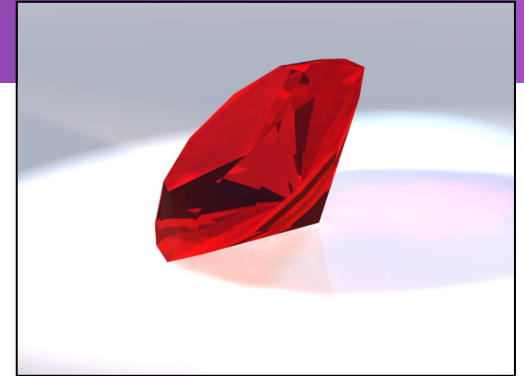
a high-productivity
web application framework

<http://blog.curthibbs.us/>

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Agenda



- ◆ What is Ruby?
- ◆ What is Rails?
- ◆ Live Demonstration (sort of...)
- ◆ Metrics for Production Rails Applications
- ◆ Resources for more information



What is Ruby?

- ◆ Short Answer:
 - Ruby is the successful combination of:
 - *Smalltalk's conceptual elegance,*
 - *Python's ease of use and learning, and*
 - *Perl's pragmatism.*
- ◆ Long Answer:
 - Well... see the following slides.



What is Ruby?

Ruby is...

Interpreted

Like Perl, Python

Object-Oriented

Like Smalltalk, Eiffel, Ada, Java

Rapidly Gaining Mindshare in US and Europe

Originated in Japan, very popular there



Why Ruby?

- ◆ Easy to learn
- ◆ Open source (very liberal license)
- ◆ Rich libraries
- ◆ Very easy to extend
- ◆ Truly Object-Oriented
 - Everything is an object (no primitives)
 - Single inheritance (mixins give you the power of multiple inheritance with the problems).
- ◆ Helpful community



Why Ruby?

- ◆ Dynamic Features
 - Duck Typing
(uses method signatures, not class inheritance)
 - Method calls are actually messages sent to an object instance
 - Open classes
 - Reflection
- ◆ Bottom Line: write more understandable code in fewer lines
 - Less code means fewer bugs



Why Not?

- ◆ Performance
 - although it rivals Perl and Python
- ◆ Threading model
 - Does not use native threads



Sample Ruby Code

```
# The Greeter class
class Greeter
  def initialize(name)
    @name = name.capitalize
  end

  def salute
    puts "Hello #{@name}!"
  end
end

# Create a new object
g = Greeter.new("world")

# Output "Hello world!"
g.salute
```



Code courtesy of John W. Long

What is Rails?

- ◆ Short Answer:
 - An *extremely* productive web-application framework that is written in Ruby by David Heinemeier Hansson.
- ◆ Long Answer:
 - Well... see the following slides.



What is Rails?

- ◆ Full Stack Framework
 - Includes everything needed to create a database-driven web application using the Model-View-Controller pattern.
 - Being a full-stack framework means that all layers are built to work seamlessly together.
 - That way you Don't Repeat Yourself (DRY).



What is Rails?

- ◆ Less Code
 - Requires fewer total lines of code than other frameworks spend setting up their XML configuration files.
- ◆ Convention over Configuration
 - Rails shuns configuration files in favor of conventions, reflection and dynamic run-time extensions.
- ◆ Configure your application by making it
 - Your code and database schema *are* the configuration!
 - No compilation phase
 - *Make a change, see it work.*



What is Rails?

Rails and MVC

- ◆ Model (ActiveRecord)
 - Maintains the relationship between Object and Database
 - Handles validation, association, transactions, and more...
 - Does not completely insulate the developer from SQL



What is Rails?

Rails and MVC

- ◆ View (ActionView)
 - Script-based templating system (like JSP, ASP, PHP, etc.)
 - Tight controller integration
 - Reusable components
 - Integrated, easy to use Ajax support.



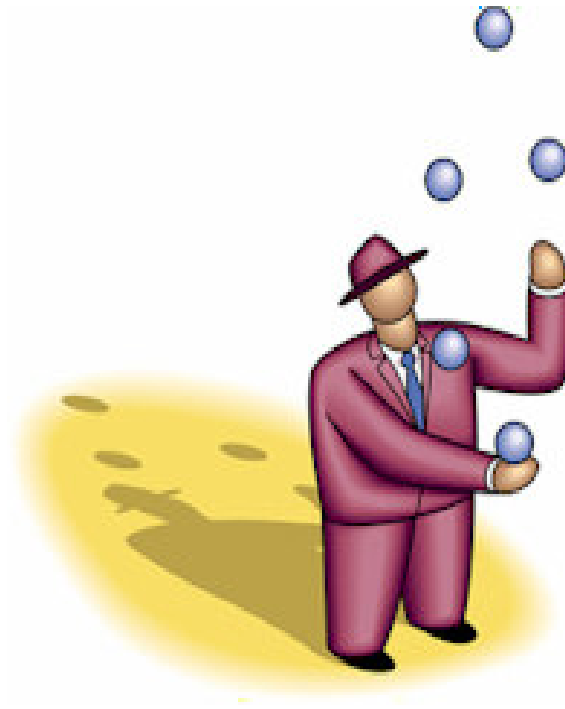
What is Rails?

Rails and MVC

- ◆ Controller (ActionController)
 - Reflection ties actions to methods
 - Tight view integration
 - Filters, layouts, caching, sessions, etc.



Rails Demonstration



Play *cookbook-video.exe*, a video showing development of cookbook web application from ONLamp.com article *Rolling with Ruby on Rails*:

<http://www.onlamp.com/pub/a/onlamp/2005/01/20/rails.html>



Database Support

◆ Supported Databases

- MySQL
- PostgreSQL
- SQLite
- SQL Server

◆ Coming Soon

- Oracle
- DB2
- Firebird
- more...



Model Objects

- ◆ ActiveRecord
 - Uses reflection extensively
 - Automated mapping between
 - *classes and tables*
 - *Attributes and columns*
 - Dynamically generates accessors, finders, and validators.
 - Best with new DB schemas



Controllers

- ◆ ActionController
 - Rails URLs are typically of the form “/controller/action”
 - A controller is implemented by a class.
 - Actions map to methods in the controller
 - Implicit action-to-view mapping



Views

◆ ActionView

- Named (by default) after the action that renders them.
- Embeds Ruby code in the template (similar to JSP, ASP, PHP, etc.)
- Have access to (some) of the controller's state



Server Configurations

- **WEBrick**
 - *Built-in to Rails*
 - *Good development environment*
- **Apache/CGI**
 - *Easy to set up, but slow*
- **Apache/mod_ruby**
 - *Ruby interpreter per Apache process*
- **Apache/mod_fastcgi**
 - *Pool of Ruby processes*
- **Lighttpd**
 - *Built-in fastcgi support*
 - *Small footprint, high performance*



But Does it Scale?

Commercial Rails Applications

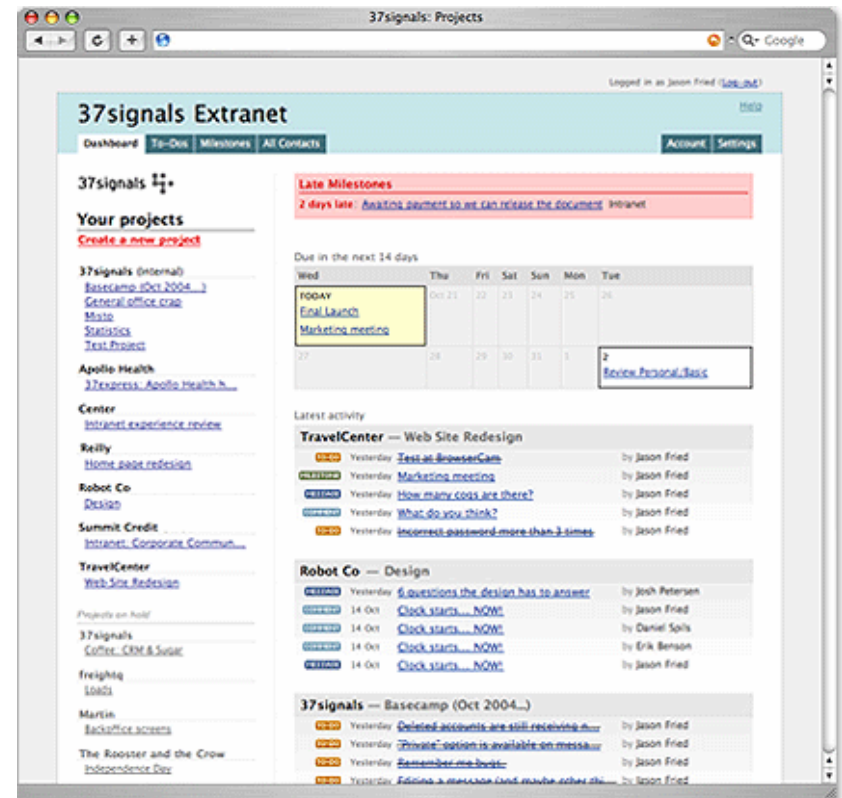
- Basecamp
 - <http://www.basecamphq.com>
- 43 Things
 - <http://43things.com>
- Ta-Da Lists
 - <http://tadalists.com>
- Snowdevil
 - <http://www.snowdevil.ca>
- Bellybutton
 - <http://www.bellybutton.de>
- Backpack
 - <http://www.backpackit.com/>



Development Metrics

Basecamp

- Launched in early 2004
 - “Tens of thousands of users across 50 countries”
 - 2 man-months of programming by a single developer (the Rails author).
 - 4,000 Lines of Code.
- Server details
 - One dual 2.2GHz Xeon, 2G RAM.

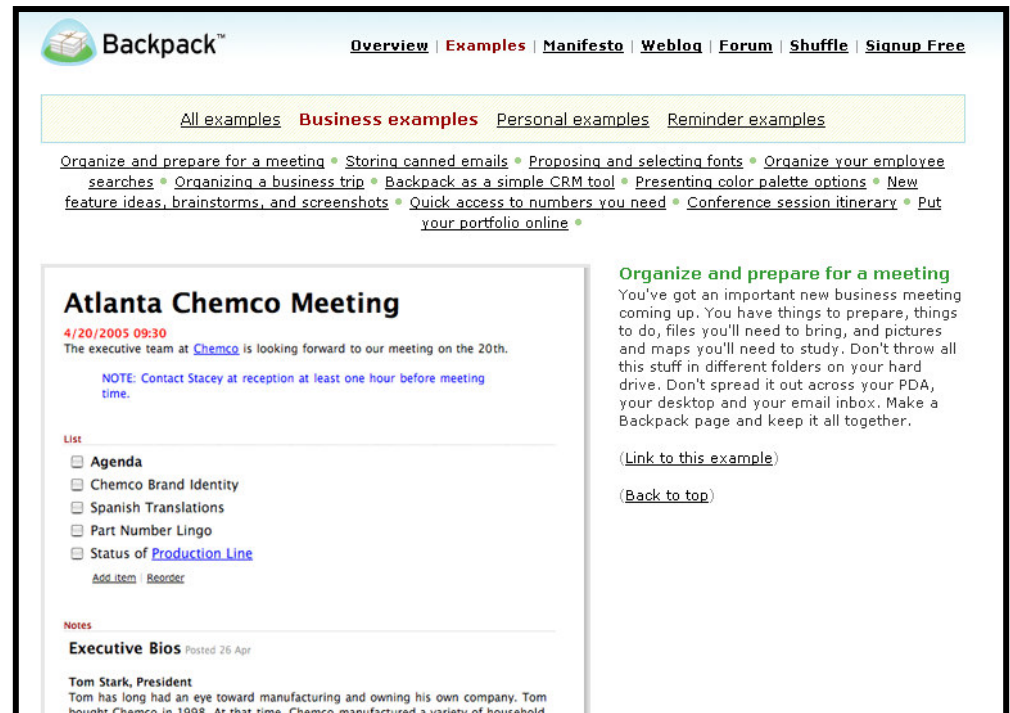


Development Metrics

Backpack

- Launched in May 2005

- <http://www.backpackit.com>
- *Makes very heavy use of Rails' built-in Ajax support for an extremely responsive user interface.*



The screenshot displays the Backpack application interface. At the top, there is a navigation bar with the Backpack logo and links for Overview, Examples, Manifesto, Weblog, Forum, Shuffle, and Signup Free. Below this, there is a secondary navigation bar with links for All examples, Business examples, Personal examples, and Reminder examples. The main content area features a list of links for various tasks, such as 'Organize and prepare for a meeting', 'Storing canned emails', and 'Proposing and selecting fonts'. A specific example is highlighted: 'Atlanta Chemco Meeting' on 4/20/2005 at 09:30. The meeting details include a note to contact Stacey at reception one hour before the meeting and a list of agenda items: Chemco Brand Identity, Spanish Translations, Part Number Lingo, and Status of Production Line. There are also links for 'Add item' and 'Reorder'. A 'Notes' section follows, with a note titled 'Executive Bios' posted on 26 Apr, mentioning Tom Stark, President of Chemco.

Development Metrics

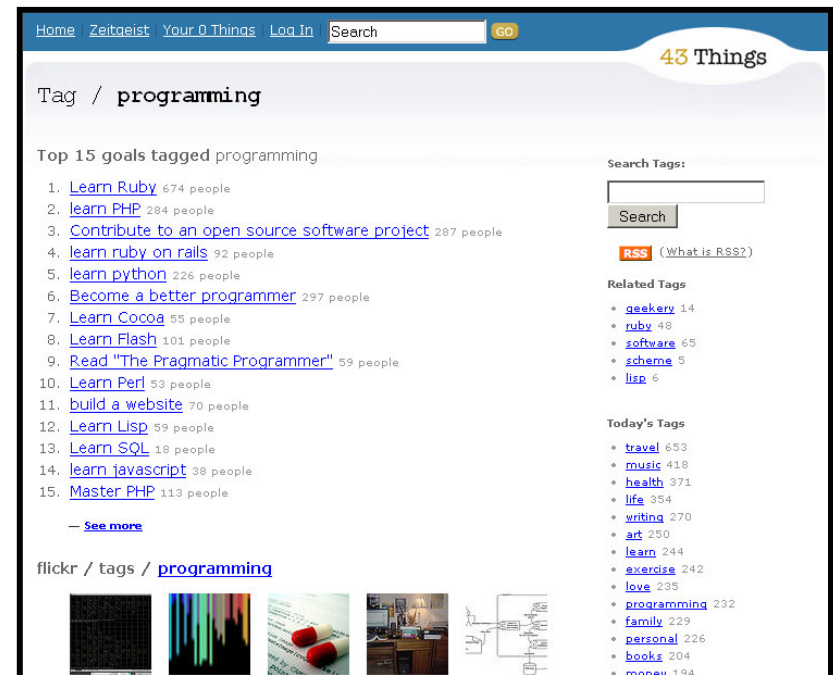
43 Things

*“With Ruby and Rails we went **from nothing to a live site** in about **3 months**. Only one person in the company had any prior Ruby experience (me) and he spent half his time playing sysadmin.*

*“In the **2.5 months since launch** we’ve done **major rewrites** of two of our core codepaths, **added 3 large** features and have done **exploratory programming** in two other directions with **only 5 developers**.*

*“Our codebase is hanging in at just under **7,000 lines** of production Ruby...”*

- ◆ *As of February, 2005:*
 - **9,000 registered users**
 - **200,000 hits per day**



The screenshot shows the 43 Things website interface. At the top, there is a navigation bar with links for Home, Zeitgeist, Your 0 Things, Log In, and a search box. The main content area is titled "Tag / programming" and lists the "Top 15 goals tagged programming". The list includes:

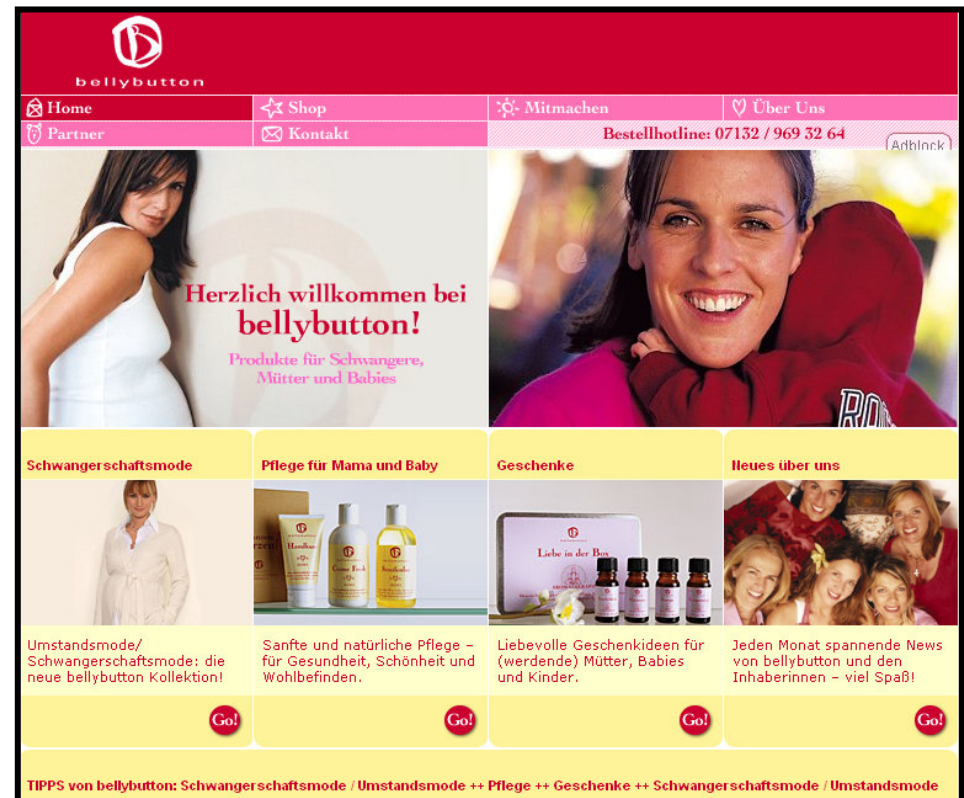
1. [Learn Ruby](#) 674 people
2. [learn PHP](#) 284 people
3. [Contribute to an open source software project](#) 287 people
4. [learn ruby on rails](#) 92 people
5. [learn python](#) 226 people
6. [Become a better programmer](#) 297 people
7. [Learn Cocoa](#) 55 people
8. [Learn Flash](#) 101 people
9. [Read "The Pragmatic Programmer"](#) 59 people
10. [Learn Perl](#) 53 people
11. [build a website](#) 70 people
12. [Learn Lisp](#) 59 people
13. [Learn SQL](#) 18 people
14. [learn javascript](#) 38 people
15. [Master PHP](#) 113 people

Below the list is a "See more" link. To the right of the list, there is a "Search Tags" section with a search box and a "Search" button. Below that is an "RSS" link with the text "(What is RSS?)". Further down, there are "Related Tags" and "Today's Tags" sections, each with a list of tags and their respective counts. The "Related Tags" include: geekery (14), ruby (48), software (65), scheme (5), and lisp (6). The "Today's Tags" include: travel (653), music (418), health (371), life (354), writing (270), art (250), learn (244), exercise (242), love (235), programming (232), family (229), personal (226), books (204), and money (134). At the bottom of the page, there is a "flickr / tags / programming" section with a row of five small image thumbnails.

Development Metrics

BellyButton.de

- **Launched in February 2005**
 - *An ecommerce site marketing pregnancy related products.*
 - *2 developers and one graphic designer.*
 - *2,400 Lines of Code.*
 - *5 man-months of development time.*



Development Metrics

SnowDevil.ca

- **Launched in February 2005**
 - *An ecommerce site marketing snowboards and related gear.*
 - *2 developers.*
 - *6,000 lines of code.*
 - *4 months of development time.*

The screenshot shows the SnowDevil.ca website homepage. At the top, there is a navigation bar with links for "About the Store", "Contact the Store", "Shipping & Handling", "Store Privacy Policy", and "Shopping Cart" with a shopping cart icon. Below the navigation bar is the SnowDevil logo and a banner image of a snowy mountain range with a red maple leaf in the corner. The main content area is divided into two columns. The left column contains a sidebar with categories: "Snowboards" (Arbor, NS, Technine...), "Bindings" (Technine, Nidecker...), "Eyewear" (Adidas), and "Blowout Deals" (Technine Comic Art \$299 CAD, Adidas: Robin \$60 CAD, Adidas EC 800 \$140 CAD). The right column features an article titled "Andrew Robinson Brings Snowdevil to Europe!" with a sub-header "The END is NEAR!". The article text describes a customer from Germany who purchased a snowboard and is now snowboarding at 3000m in Austria. The article concludes with a thank you message to customers.

[About the Store](#) [Contact the Store](#) [Shipping & Handling](#) [Store Privacy Policy](#) [Shopping Cart](#)

SnowDevil

Snowdevil home

Snowboards
Arbor, NS, Technine...

Bindings
Technine, Nidecker...

Eyewear
Adidas

Blowout Deals

Technine Comic Art
\$299 CAD

Adidas: Robin
\$60 CAD

Adidas EC 800
\$140 CAD

Andrew Robinson Brings Snowdevil to Europe!

Earlier this year Tobi and I were wondering where our furthest customer would come from. Since Snowdevil was only set up for North American purchases, we were pleasantly surprised when Andrew Robinson emailed us asking if we ship to Germany! Andrew ended up buying a Never Summer Legacy 166 and recently sent us some pictures of himself and his NS Legacy boarding at 3000m on the Hintertux glacier in Austria!!! That's a long way from Ottawa.

The END is NEAR!

We are now in the final final days of the snowboard season and if you are browsing around Snowdevil you'll notice that we have sold out of almost all our stock.

This has been a great season for Snowdevil and we would like to thank everyone who bought something from us. This was our first year and I can proudly say that this whole experience was a huge success!

Development Metrics

RubyFAQ

- User contributed and commented FAQs (a production web-app) by David Black
- <http://www.rubygarden.org/faq/main/index>
- 573 Lines of code
- 5 hours of development time.

The screenshot shows the Ruby FAQ website with a red header and several sections. The 'FAQ sections' section lists 12 topics. The 'Ask a new question!' section includes a form and instructions. The 'Search the FAQ' section has a search box and a 'Search' button. The 'Large type version' section provides a link to a larger version of the FAQ. The 'Contacts and credits' section mentions the site is hosted on rubygarden.org and is based on the work of several people. The 'Most recently updated questions' section lists several questions with their respective IDs.

THE RUBY FAQ

FAQ sections

You can also view [all the Ruby FAQ questions listed on one page](#)

1. [General questions](#)
2. [How Does Ruby Stack Up Against...?](#)
3. [Installing Ruby](#)
4. [Variables, constants, and arguments](#)
5. [Iterators](#)
6. [Syntax](#)
7. [Methods](#)
8. [Classes and modules](#)
9. [Built-in libraries](#)
10. [Input and Output](#)
11. [Extensions](#)
12. [Other Features](#)

Ask a new question!

You can [propose a new question to be added to the FAQ](#).

Search the FAQ

Terms are AND'ed together. You can use quotation marks for multi-word terms. For example:

"instance variables" initialize

Search terms:

Large type version

A [large type version of the FAQ](#) is also available. Please contact the maintainers if you have accessibility issues of any kind with this site.

Contacts and credits

The Ruby FAQ is hosted on rubygarden.org, and is based on the work of [several people](#).

If you have questions or problems to report about this site, please contact [David Black](#) or [Chad Fowler](#).

Most recently updated questions

- 12.7. [best use of require](#)
- 1.19. [Who can answer the pending questions on this site?](#)
- 1.18. [What does RubyGarden Wiki use as a backend?](#)
- 3.1. [What operating systems support Ruby?](#)
- 11.11. [Is there a Ruby library for wxWindows?](#)

Development Metrics

StoryCards

- Web app to support XP-style development by Jim Weirich
- <http://onestepback.org:3030/>
- 1,250 Lines of code
- 8 hours of development time

Story Cards V0.0.1 { | one, step, back | } [LOGIN]

Project *RubyGems* Project<RubyGems>

Name:	RubyGems
Summary:	Ruby Packaging System
Home page:	http://rubygems.rubyforge.org/wiki/wiki.pl
Hidden:	No
Default iteration days:	14
Description:	

Current Iterations

Name	Start Date	Stories (completed)	Points (completed)	Actions
REL 0.9.0	2004-09-16	11 (0)	31 (0)	[EDIT DELETE]
Pending	2999-12-30	0 (0)	0 (0)	[EDIT DELETE]
Rejected	2999-12-31	0 (0)	0 (0)	[EDIT DELETE]

Past Iterations

Name	Start Date	Stories (completed)	Points (completed)	Actions
REL 0.8.0	2004-09-03	0 (0)	0 (0)	[EDIT DELETE]

Navigation
[PROJECTS]
[DEVELOPERS]

Context
[>> PROJECT]

Commands
[EDIT PROJECT]
[ADD ITERATION]

Special Iterations
[ADD PENDING]
[ADD REJECTED]

Maintenance
[DUMP AS YAML]

Powered by: *Ruby on Rails*

Rails Testimonials

“I'm absolutely floored by how fast I'm developing with Rails. Stuff that would have taken me over a week in Java + Web Work2 + Velocity + Hibernate has taken me a little over a day with Rails. I'm not even going to try to compare it to my current client's project which requires Struts.”

- Anoop Ranganath



Rails Testimonials

“Rails is the most well thought-out web development framework I've ever used. And that's in a decade of doing web applications for a living. I've built my own frameworks, helped develop the Servlet API, and have created more than a few web servers from scratch. Nobody has done it like this before. That's not to say they got it all right. It's by no means "perfect". I've got more than a few nits and picks about how things are put together. But "perfect" isn't the point. The point is that it gets you up and going fast and has plenty of depth to keep you going. And Rails does that very well.”

- James Duncan Davidson

was the creator of Apache Tomcat and Apache Ant and was instrumental in their donation to the Apache Software Foundation by Sun Microsystems . While working at Sun, he authored two versions of the Java Servlet API specification as well as the Java API for XML Processing.



Resources for more information

◆ Ruby

- **Main Ruby Site**
 - <http://www.ruby-lang.org/en/>
- **One-Click Ruby Installer for Windows**
 - <http://rubyinstaller.rubyforge.org/>
- **RubyForge – open source project repository**
 - <http://rubyforge.org/>

◆ Rails

- **Main Rails Site**
 - <http://www.rubyonrails.org/>
- **Rails Tutorial (2 part series)**
 - <http://www.onlamp.com/pub/a/onlamp/2005/01/20/rails.html>
 - <http://www.onlamp.com/pub/a/onlamp/2005/03/03/rails.html>
- **Agile Web Development with Rails (first Rails book)**
 - <http://www.pragmaticprogrammer.com/titles/rails/>
- **Ajax on Rails**
 - <http://www.onlamp.com/>

