

# Practical JRuby on Rails Web 2.0 Projects

Bringing Ruby on Rails to the  
Java™ Platform



Ola Bini

## **Practical JRuby on Rails Web 2.0 Projects: Bringing Ruby on Rails to the Java™ Platform**

**Copyright © 2007 by Ola Bini**

All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage or retrieval system, without the prior written permission of the copyright owner and the publisher.

ISBN-13 (pbk): 978-1-59059-881-8

ISBN-10 (pbk) 1-59059-881-4

Printed and bound in the United States of America 9 8 7 6 5 4 3 2 1

Trademarked names may appear in this book. Rather than use a trademark symbol with every occurrence of a trademarked name, we use the names only in an editorial fashion and to the benefit of the trademark owner, with no intention of infringement of the trademark.

Java™ and all Java-based marks are the trademarks or registered trademarks of Sun Microsystems, Inc., in the US and other countries. Apress, Inc., is not affiliated with Sun Microsystems, Inc., and this book was written without endorsement from Sun Microsystems, Inc.

Lead Editor: Steve Anglin

Technical Reviewer: Pat Eyer

Editorial Board: Steve Anglin, Ewan Buckingham, Gary Cornell, Jonathan Gennick, Jason Gilmore,

Jonathan Hassell, Matthew Moodie, Jeffrey Pepper, Ben Renow-Clarke, Dominic Shakeshaft,

Matt Wade, Tom Welsh

Project Manager: Sofia Marchant

Copy Editor: Susannah Pfalzer

Assistant Production Director: Kari Brooks-Copony

Production Editor: Laura Cheu

Compositor: Gina Rexrode

Proofreader: Lisa Hamilton

Indexer: Julie Grady

Cover Designer: Kurt Krames

Manufacturing Director: Tom Debolski

Distributed to the book trade worldwide by Springer-Verlag New York, Inc., 233 Spring Street, 6th Floor, New York, NY 10013. Phone 1-800-SPRINGER, fax 201-348-4505, e-mail [orders-ny@springer-sbm.com](mailto:orders-ny@springer-sbm.com), or visit <http://www.springeronline.com>.

For information on translations, please contact Apress directly at 2855 Telegraph Avenue, Suite 600, Berkeley, CA 94705. Phone 510-549-5930, fax 510-549-5939, e-mail [info@apress.com](mailto:info@apress.com), or visit <http://www.apress.com>.

The information in this book is distributed on an “as is” basis, without warranty. Although every precaution has been taken in the preparation of this work, neither the author(s) nor Apress shall have any liability to any person or entity with respect to any loss or damage caused or alleged to be caused directly or indirectly by the information contained in this work.

The source code for this book is available to readers at <http://www.apress.com> in the Source Code/Download section. You will need to answer questions pertaining to this book in order to successfully download the code.

*This book is dedicated to Hans Nordlöf for believing in me and always being my mentor.*

# Contents at a Glance

Foreword by Pat Eyler .....	xvii
Foreword by Martin Fowler .....	xix
About the Author .....	xxi
About the Technical Reviewer .....	xxiii
Acknowledgments .....	xxv

■ <b>CHAPTER 1</b>	Introduction .....	1
■ <b>CHAPTER 2</b>	Getting Started .....	9

## PROJECT 1 ■ ■ ■ The Store (Shoplet)

■ <b>CHAPTER 3</b>	Introduction to Rails .....	21
■ <b>CHAPTER 4</b>	Store Administration .....	37
■ <b>CHAPTER 5</b>	A Database-Driven Shop .....	75

## PROJECT 2 ■ ■ ■ A Content Management System (CoMpoSe)

■ <b>CHAPTER 6</b>	Java Integration .....	99
■ <b>CHAPTER 7</b>	A Rails CMS .....	117
■ <b>CHAPTER 8</b>	Content Rendering .....	143

## PROJECT 3 ■ ■ ■ An Administration System (Big Brother)

■ <b>CHAPTER 9</b>	A JRuby Enterprise Bean .....	167
■ <b>CHAPTER 10</b>	An EJB-Backed Rails Application .....	181
■ <b>CHAPTER 11</b>	Deployment .....	199

## PROJECT 4 ■ ■ ■ A Library System (LibLib)

■ CHAPTER 12	Web Services with JRuby .....	217
■ CHAPTER 13	JRuby and Message-Oriented Systems .....	229
■ CHAPTER 14	The LibLib Rails Application .....	253
■ CHAPTER 15	Coda: Next Steps .....	279
■ APPENDIX A	Ruby for Java Programmers .....	289
■ APPENDIX B	JRuby Reference .....	307
■ APPENDIX C	Resources .....	315
■ INDEX	.....	321



# Contents

Foreword by Pat Eyler .....	xvii
Foreword by Martin Fowler .....	xix
About the Author .....	xxi
About the Technical Reviewer .....	xxiii
Acknowledgments .....	xxv

<b>CHAPTER 1</b>	<b>Introduction .....</b>	<b>1</b>
	Background .....	2
	A Brief History of Ruby .....	3
	A Brief History of Rails .....	3
	A Brief History of JRuby .....	4
	Why JRuby on Rails? .....	5
	Overview of the Book .....	6
	Chapter 1: Introduction .....	6
	Chapter 2: Getting Started .....	6
	Project 1: The Store (Shoplet) .....	6
	Chapter 3: Introduction to Rails .....	6
	Chapter 4: Store Administration .....	6
	Chapter 5: A Database-Driven Shop .....	7
	Project 2: A Content Management System (CoMpoSe) .....	7
	Chapter 6: Java Integration .....	7
	Chapter 7: A Rails CMS .....	7
	Chapter 8: Content Rendering .....	7
	Project 3: An Administration System (BigBrother) .....	7
	Chapter 9: A JRuby Enterprise Bean .....	7
	Chapter 10: An EJB-Backed Rails Application .....	7
	Chapter 11: Deployment .....	7
	Project 4: A Library System (LibLib) .....	8
	Chapter 12: Web Services with JRuby .....	8
	Chapter 13: JRuby and Message-Oriented Systems .....	8
	Chapter 14: The LibLib Rails Application .....	8

Chapter 15: Coda: Next Steps .....	8
Appendix A: Ruby for Java Programmers .....	8
Appendix B: JRuby Syntax .....	8
Appendix C: Resources .....	8
Summary .....	8

<b>■ CHAPTER 2    Getting Started .....</b>	<b>9</b>
Installing JRuby .....	9
Java .....	9
Binary JRuby .....	10
JRuby from Source .....	10
Testing the Installation .....	11
RubyGems .....	13
Rake .....	14
Rails .....	14
ActiveRecord-JDBC .....	15
BlueCloth and RedCloth .....	15
Facets .....	15
Mongrel .....	16
Mongrel JCluster .....	16
Setting Up a Database .....	16
Summary .....	18

## PROJECT 1 ■ ■ ■ The Store (Shoplet)

<b>■ CHAPTER 3    Introduction to Rails .....</b>	<b>21</b>
The Structure of a Rails Application .....	21
Models .....	22
Controllers .....	24
Views .....	25
The Other Parts of Rails .....	28
ActiveSupport .....	28
ActionMailer .....	28
ActionWebService .....	29
ActiveResource .....	29



Rails Helper Scripts .....	29
about .....	29
breakpointer .....	29
console .....	30
destroy .....	30
generate .....	30
plugin .....	30
runner .....	31
server .....	31
Testing .....	33
Plug-Ins .....	35
Acts As Taggable .....	35
CAS Filter .....	35
Globalize Plug-In .....	35
Rails Engines .....	36
Summary .....	36

<b>CHAPTER 4   Store Administration</b> .....	<b>37</b>
Creating a New Rails Application .....	37
Running with Mongrel .....	40
A First Model .....	41
Product Type .....	41
Product .....	43
Product Categories .....	44
Running the Migrations .....	46
Validations .....	47
Unit Testing Products .....	48
Creating a Scaffold for Products .....	51
Ajax .....	55
Adding Some Good Looks .....	58
More Models .....	61
User Administration .....	63
Order Handling .....	64
Adding Some Authentication .....	67
Functional Tests .....	70
Summary .....	73

<b>CHAPTER 5</b>	<b>A Database-Driven Shop</b>	75
	Browsing Products	75
	Adding a Shopping Cart	79
	Viewing the Cart	81
	Checking Out	82
	Validation and Testing	85
	ActiveRecord and JDBC	89
	Supported Databases	90
	How to Support a New Database	94
	Summary	95

## PROJECT 2 ■■■ A Content Management System (CoMpoSe)

<b>CHAPTER 6</b>	<b>Java Integration</b>	99
	Using Java Resources	99
	Classes	101
	Primitives	103
	Arrays	104
	Extending Java	105
	Interfaces	105
	Classes	108
	Java Collections	108
	Gotchas	110
	Using Ruby from Java	111
	The JRuby Runtime	111
	Bean Scripting Framework	113
	JSR223—Java Scripting	114
	Summary	115
<b>CHAPTER 7</b>	<b>A Rails CMS</b>	117
	The Database	118
	The Model	121
	Some Layout	123

Administration Interface .....	126
Users .....	126
Paths .....	127
Styles .....	130
Layouts .....	132
Articles .....	136
Some Security .....	139
Summary .....	141

## ■ CHAPTER 8    **Content Rendering** ..... 143

Content Rendering with XML .....	143
Ruby XML .....	145
Java DOM Parsing .....	146
Java SAX Parsing .....	148
Java DOM and XSLT .....	149
Other Java APIs .....	151
Other Ways to Render Content .....	151
RedCloth (Textile) .....	151
BlueCloth (Markdown) .....	152
ERb .....	153
YAML .....	154
Other Solutions .....	156
Finishing CoMpoSe .....	156
Rendering Engine .....	156
Content .....	161
Previews .....	162
Summary .....	163

# PROJECT 3 ■ ■ ■ **An Administration System (Big Brother)**

## ■ CHAPTER 9    **A JRuby Enterprise Bean** ..... 167

The Sequence Database .....	169
A JRuby Sequence Engine .....	170
A JRuby Bean Wrapper .....	175
Summary .....	180

<b>■ CHAPTER 10</b>	<b>An EJB-Backed Rails Application</b>	181
	The EJB Client Revisited	182
	Creating the Application	183
	Creating a Small Sequence Library	187
	Sequence Controller and Views	189
	JMX for the Server	192
	Simple JMX Access to Rails	194
	Summary	197
 <b>■ CHAPTER 11</b>	 <b>Deployment</b>	 199
	Deploying Ruby on Rails	200
	WEBrick	200
	CGI	200
	FastCGI	200
	Mongrel	201
	Pack of Mongrels	201
	Deploying JRuby on Rails	202
	WEBrick	202
	CGI	202
	Mongrel	202
	GoldSpike (Rails Integration)	203
	Grizzly	203
	Rails-asyncweb	203
	Retty	204
	Best Practice JRuby on Rails Deployment	204
	A Pack of JVM Mongrels	204
	Make WAR with Java	207
	Summary	213

## PROJECT 4 ■ ■ ■ A Library System (LibLib)

<b>■ CHAPTER 12</b>	<b>Web Services with JRuby</b>	217
	The LibLib System	217
	Amazon Web Services	219
	SOAP4R	219
	Dynamic Generation	220
	Using Stubs	221

SOAP with Java .....	222
Dynamic Generation .....	223
Using Stubs .....	224
Creating a Small Book Library .....	225
Summary .....	228
 <b>CHAPTER 13 JRuby and Message-Oriented Systems .....</b>	<b>229</b>
What Is MOM? .....	230
The Legacy System .....	231
Add Library .....	232
Remove Library .....	232
Get Library Name .....	232
Add Book Description .....	233
Remove Book Description .....	233
Get Book Description .....	233
Add Book Instance .....	233
Remove Book Instance .....	234
Lend Book Instance .....	234
Return Book Instance .....	234
Search .....	234
ActiveMessaging .....	235
JRuby and Message-Driven Beans .....	236
A Library for Legacy Interaction .....	237
Inter-Rails Communication .....	248
Summary .....	252
 <b>CHAPTER 14 The LibLib Rails Application .....</b>	<b>253</b>
The Database .....	254
Deploying More Than One Rails Instance .....	256
Creating the Model .....	257
Views and Controllers .....	258
Layout .....	259
Searching and Looking at Books .....	262
Authentication .....	267
Borrowers and Librarians .....	271
Importing from Amazon.com .....	276
Summary .....	278

<b>CHAPTER 15</b>	<b>Coda: Next Steps</b>	279
	JRuby-extras	279
	Contributing	279
	Current Projects	280
	Contributing to JRuby	282
	Home Projects	283
	Database Indexing with Lucene	283
	Replacing ActiveRecord with Hibernate	284
	Creating a New ActiveRecord-JDBC Adapter	284
	Summary	287
<b>APPENDIX A</b>	<b>Ruby for Java Programmers</b>	289
	Core Ruby	289
	Naming	289
	Core Types	291
	Classes and Modules	296
	Defining Methods	296
	Including and Extending	298
	The Singleton Class	298
	Blocks	299
	Metaprogramming	301
	Introspection	301
	send	302
	method_missing, const_missing	302
	define_method	303
	Class.new and Module.new	304
	eval and Friends	304
	The Symbol to_proc Trick	305
<b>APPENDIX B</b>	<b>JRuby Reference</b>	307
	Classes and Interfaces	307
	Referencing a Java Class or Java Interface	307
	Using Classes	308
	Extension and Implementation	309

Primitive Arrays .....	309
Extensions to Java Classes .....	310
java.lang.Runnable .....	310
java.util.Map .....	311
java.lang.Comparable .....	311
java.util.Collection .....	311
java.util.List .....	311
The JRuby Module .....	312
runtime .....	312
parse .....	312
compile .....	312
reference .....	313
require .....	313

## ■ APPENDIX C Resources .....

Ruby and Rails .....	315
The Ruby Programming Language .....	315
Ruby-talk Mailing List .....	315
Ruby-core Mailing List .....	315
Ruby on Rails .....	316
Rails-talk Mailing List .....	316
Rails-core Mailing List .....	316
Matz Blog .....	316
O'Reilly Ruby .....	316
RubyInside .....	316
On Ruby .....	316
Loud Thinking .....	317
Riding Rails .....	317
Eigenclass .....	317
Polishing Ruby .....	317
Programming Ruby, Second Edition .....	317
The Ruby Way, Second Edition .....	317
Agile Web Development with Rails, Second Edition .....	317

- JRuby. . . . . 318
  - The JRuby Home Page . . . . . 318
  - The JRuby Dev Mailing List . . . . . 318
  - The JRuby User Mailing List . . . . . 318
  - The #jruby IRC Channel . . . . . 318
  - The JRuby-extras Project. . . . . 318
  - JRuby JIRA . . . . . 318
  - JRubyInside . . . . . 319
  - Headius . . . . . 319
  - Tom's Ruminations . . . . . 319
  - Ola Bini . . . . . 319
  - Nick Sieger . . . . . 319
- Other . . . . . 319
  - MySQL . . . . . 319
  - ActiveMessaging . . . . . 320
  - Hitta . . . . . 320
  - Ferret . . . . . 320
  - GlassFish . . . . . 320

■ INDEX . . . . . 321