

Addison-Wesley Professional Ruby Series



THE RAILS WAY

OBIE FERNANDEZ

Foreword by David A. Black

“I can positively say that it’s the single best Rails book ever published to date. By a long shot.”

—Antonio Cangiano, *Software Engineer and Technical Evangelist at IBM*

This book is a great crash course in Ruby on Rails! It doesn’t just document the features of Rails, it filters everything through the lens of an experienced Rails developer—so you come out a Pro on the other side.

—Dirk Elmendorf, *co-founder of Rackspace & Rails developer since 2005*

“The key to *The Rails Way* is in the title. It literally covers the “way” to do almost everything with Rails. Writing a truly exhaustive reference to the most popular Web application framework used by thousands of developers is no mean feat. A thankful community of developers that has struggled to rely on scant documentation will embrace *The Rails Way* with open arms. A tour de force!”

—Peter Cooper, *Editor, Ruby Inside*

“In the past year, dozens of Rails books have been rushed to publication. A handful are good. Most regurgitate rudimentary information easily found on the Web. Only this book provides both the broad and deep technicalities of Rails. Nascent and expert developers, I recommend you follow *The Rails Way*.”

—Martin Streicher, *Chief Technology Officer, McClatchy Interactive, former Editor-in-Chief of Linux Magazine*

“Hal Fulton’s *The Ruby Way* has always been by my side as a reference while programming Ruby. Many times I had wished there was a book that had the same depth and attention to detail, only focused on the Rails framework. That book is now here and hasn’t left my desk for the past month.”

—Nate Klaiber, *Ruby Programmer*

“As noted in my contribution to the Afterword: “What Is the Rails Way (To You)?,” I knew soon after becoming involved with Rails that I had found something great. Now, with Obie’s book, I have been able to step into Ruby on Rails development coming from .NET and be productive right away. The applications I have created I believe to be a much better quality due to the techniques I learned using Obie’s knowledge.”

—Robert Bazinet, *InfoQ.com, .NET and Ruby community Editor, and founding member of the Hartford, CT Ruby Brigade*

“Extremely well written; it’s a resource that every Rails programmer should have. Yes, it’s that good.”

—Reuven Lerner, *Linux Journal columnist*

Rails Way, The

Table of Contents

Contents

Chapter 1 Rails Environments and Configuration

Startup

- Default Environment Settings
- Bootstrapping
- RubyGems
- Initializer
- Default Load Paths
- Rails, Modules, and Auto-Loading Code
- Builtin Rails Info
- Configuration
- Additional Configuration

Development Mode

- Automatic Class Reloading
- The Rails Class Loader

Test Mode

Production Mode

Logging

- Rails Log Files
- Log File Analysis
- Syslog

Conclusion

References

Chapter 2 Working with Controllers

Table of Contents

The Dispatcher: Where It All Begins

Request Handling

Getting Intimate with the Dispatcher

Render unto View...

When in Doubt, Render

Explicit Rendering

Rendering Another Action's Template

Rendering a Different Template Altogether

Rendering a Partial Template

Rendering Inline Template Code

Rendering Text

Rendering Other Types of Structured Data

Rendering Nothing

Rendering Options

Redirecting

Controller/View Communication

Filters

Filter Inheritance

Filter Types

Filter Chain Ordering

Around Filters

Filter Chain Skipping

Filter Conditions

Filter Chain Halting

Streaming

`send_data(data, options = {})`

`send_file(path, options = {})`

Letting the Web Server Send Files

Conclusion

Table of Contents

References

Chapter 3 Routing

The Two Purposes of Routing

Bound Parameters

Wildcard Components ("Receptors")

Static Strings

The routes.rb File

 The Default Route

 Spotlight on the :id Field

 Default Route Generation

 Modifying the Default Route

The Ante-Default Route and respond_to

 respond_to and the HTTP-Accept Header

The Empty Route

Writing Custom Routes

Using Static Strings

Using Your Own "Receptors"

A Note on Route Order

Using Regular Expressions in Routes

Default Parameters and the url_for Method

 What Happened to :id?

Using Literal URLs

Route Globbing

Globbering Key-Value Pairs

Named Routes

 Creating a Named Route

 The Question of Using name_path Versus name_url

Table of Contents

Considerations

What to Name Your Routes

Argument Sugar

A Little More Sugar with Your Sugar?

The Special Scope Method with `_options`

Conclusion

References

Chapter 4 REST, Resources, and Rails

REST in a Rather Small Nutshell

REST in Rails

Routing and CRUD

Resources and Representations

REST Resources and Rails

From Named Routes to REST Support

Reenter the HTTP Verb

The Standard RESTful Controller Actions

The PUT and DELETE Cheat

Singular and Plural RESTful Routes

The Special Pairs: new/create and edit/update

Singular Resource Routes

Nested Resources

Setting `:path_prefix` Explicitly

Setting `:name_prefix` Explicitly

Specifying RESTful Controllers Explicitly

All Together Now

Considerations

Deep Nesting?

RESTful Route Customizations

Table of Contents

Extra Member Routes

Extra Collection Routes

Considerations

Controller-Only Resources

Different Representations of Resources

The respond_to Method

Formatted Named Routes

The RESTful Rails Action Set

Index

Show

Destroy

New and Create

Edit and Update

Conclusion

Reference

Chapter 5 Reflecting on Rails Routing

Examining Routes in the Application Console

Dumping Routes

Anatomy of a Route Object

Recognition and Generation in the Console

Named Routes in the Console

Testing Routes

The Routing Navigator Plugin

Conclusion

References

Chapter 6 Working with ActiveRecord

The Basics

Table of Contents

Migrations

- Creating Migrations

- Migration API

- Defining Columns

Macro-Style Methods

- Relationship Declarations

- Convention over Configuration

- Pluralization

- Setting Names Manually

- Legacy Naming Schemes

Defining Attributes

- Default Attribute Values

- Serialized Attributes

CRUD: Creating, Reading, Updating, Deleting

- Creating New ActiveRecord Instances

- Reading ActiveRecord Objects

- Reading and Writing Attributes

- Accessing and Manipulating Attributes Before They Are Typecast

- Reloading

- Dynamic Attribute-Based Finders

- Custom SQL Queries

- The Query Cache

- Updating

- Updating by Condition

- Updating a Particular Instance

- Updating Specific Attributes

- Convenience Updaters

- Controlling Access to Attributes

- Deleting and Destroying

Table of Contents

Database Locking

- Optimistic Locking

- Pessimistic Locking

- Considerations

Advanced Finding

- Conditions

- Ordering of Find Results

- Limit and Offset

- Select Option

- From Option

- Group By Option

- Locking Option

- Joining and Including Associations

- Read Only

Connections to Multiple Databases in Different Models

Using the Database Connection Directly

- The DatabaseStatements Module

- Other Connection Methods

Other Configuration Options

Conclusion

References

Chapter 7 ActiveRecord Associations

The Association Hierarchy

One-to-Many Relationships

- Adding Associated Objects to a Collection

- AssociationCollection Methods

The belongs_to Association

- Reloading the Association

Table of Contents

Building and Creating Related Objects via the Association
belongs_to Options

The has_many Association

has_many Options
Proxy Methods

Many-to-Many Relationships

has_and_belongs_to_many
has_many :through
has_many :through Options

One-to-One Relationships

has_one
has_one Options

Unsaved Objects and Associations

One-to-One Associations
Collections

Association Extensions

The AssociationProxy Class

Conclusion

References

Chapter 8 ActiveRecord Validations

Finding Errors

The Simple Declarative Validations

validates_acceptance_of
validates_associated
validates_confirmation_of
validates_each
validates_inclusion_of and validates_exclusion_of
validates_existence_of

Table of Contents

- validates_format_of
- validates_length_of
- validates_numericality_of
- validates_presence_of
- validates_uniqueness_of
- RecordInvalid

Common Validation Options

- :allow_nil
- :if
- :message
- :on

Conditional Validation

- Usage and Considerations

Working with the Errors Object

- Manipulating the Errors Collection
- Checking for Errors

Custom Validation

Skipping Validations

Conclusion

Reference

Chapter 9 Advanced ActiveRecord

Callbacks

- Callback Registration
- Matched before/after Callbacks
- Halting Execution
- Callback Usages
- Special Callbacks: after_initialize and after_find
- Callback Classes

Table of Contents

Observers

- Naming Conventions

- Registration of Observers

- Timing

Single-Table Inheritance (STI)

- Mapping Inheritance to the Database

- STI Considerations

- STI and Associations

Abstract Base Model Classes

Polymorphic has_many Relationships

- In the Case of Models with Comments

- Considerations about has_many

Modules for Reusing Common Behavior

- A Review of Class Scope and Contexts

- The included Callback

Modifying ActiveRecord Classes at Runtime

- Considerations

- Ruby and Domain-Specific Languages

Conclusion

References

Chapter 10 ActionView

ERb Basics

- ERb Practice

- Tightening Up ERb Output

- Commenting Out ERb Delimiters

- Conditional Output

- RHTML? RXML? RJS?

Layouts and Templates

Table of Contents

Yielding Content

Template Variables

Protecting the Integrity of Your View from User-Submitted Content

Partials

Simple Use Cases

Reuse of Partials

Shared Partials

Passing Variables to Partials

Render Collections

Logging

Caching

Caching in Development Mode?

Page Caching

Action Caching

Fragment Caching

Expiration of Cached Content

Automatic Cache Expiry with Sweepers

Cache Logging

Action Cache Plugin

Cache Storage

Conclusion

References

Chapter 11 All About Helpers

ActiveRecordHelper

Reporting Validation Errors

Automatic Form Creation

Customizing the Way Validation Errors Are Highlighted

AssetTagHelper

Table of Contents

Head Helpers

For Plugins Only, Add Default JavaScript Includes

BenchmarkHelper

CacheHelper

CaptureHelper

DateHelper

The Date and Time Selection Helpers

The Individual Date and Time Select Helpers

Common Options for Date Selection Helpers

distance_in_time Methods with Complex Descriptive Names

DebugHelper

FormHelper

Creating Forms for ActiveRecord Models

How Form Helpers Get Their Values

FormOptionsHelper

Select Helpers

Option Helpers

FormTagHelper

JavaScriptHelper

NumberHelper

PaginationHelper

will_paginate

paginator

Paginating Find

RecordIdentificationHelper

RecordTagHelper

TagHelper

TextHelper

Table of Contents

UrlHelper

Writing Your Own Helpers

Small Optimizations: The Title Helper

Encapsulating View Logic: The photo_for Helper

Smart View: The breadcrumbs Helper

Wrapping and Generalizing Partial

A tiles Helper

Generalizing Partial

Conclusion

References

Chapter 12 Ajax on Rails

Prototype

FireBug

The Prototype API

Top-Level Functions

Class

Extensions to JavaScript's Object Class

Extensions to JavaScript's Array Class

Extensions to the document Object

Extensions to the Event Class

Extensions to JavaScript's Function Class

Extensions to JavaScript's Number Class

Extensions to JavaScript's String class

The Ajax Object

Ajax.Responders

Enumerable

Hash

ObjectRange

Table of Contents

The Prototype Object

The PrototypeHelper Module

link_to_remote

remote_form_for

periodically_call_remote

observe_field

observe_form

RJSWriting Javascript in Ruby

RJS Templates

<<(javascript)

[](id)

alert(message)

call(function, *arguments, &block)

delay(seconds = 1) { ... }

draggable(id, options = {})

drop_receiving(id, options = {})

hide(*ids)

insert_html(position, id, *options_for_render)

literal(code)

redirect_to(location)

remove(*ids)

replace(id, *options_for_render)

replace_html(id, *options_for_render)

select(pattern)

show(*ids)

sortable(id, options = {})

toggle(*ids)

visual_effect(name, id = nil, options = {})

JSON

Table of Contents

Drag and Drop

Sortable

Autocompleter

In-Place Editors

Conclusion

References

Chapter 13 Session Management

What to Store in the Session

The Current User

Session Use Guidelines

Session Options

Disabling Sessions for Robots

Selectively Enabling Sessions

Secure Sessions

Storage Mechanisms

ActiveRecord SessionStore

PStore (File-Based)

DRb Session Storage

memcache Session Storage

The Controversial CookieStore

Timing Out and Session Life Cycle

Session Timeout Plugin for Rails

Tracking Active Sessions

Enhanced Session Security

Cleaning Up Old Sessions

Cookies

Reading and Writing Cookies

Conclusion

Table of Contents

References

Chapter 14 Login and Authentication

Acts as Authenticated

Installation and Setup

The User Model

The Account Controller

Login from Cookie

The Current User

Logging In During Testing

Conclusion

References

Chapter 15 XML and ActiveRecord

The to_xml Method

Customizing to_xml Output

Associations and to_xml

Advanced to_xml

Dynamic Runtime Attributes

Overriding to_xml

Learning from Array's to_xml Method

The XML Builder

Parsing XML

Turning XML into Hashes

XmlSimple

Typecasting

ActiveResource

Find

Create

Update

Table of Contents

Delete

Headers

Customizing

Hash Forms

Conclusion

Chapter 16 ActionMailer

Setup

Mailer Models

Preparing Outbound Email Messages

HTML Email Messages

Multipart Messages

File Attachments

Actually Sending an Email

Receiving E-Mails

TMail::Mail API Reference

Handling Attachments

Configuration

Conclusion

References

Chapter 17 Testing

Rails Testing Terminology

So Much for Isolation...

Rails Mocks?

Real Mocks and Stubs

Integration Tests

Dealing with the Confusion

Test::Unit

Running Tests

Table of Contents

Fixtures

- CSV Fixtures
- Accessing Fixture Records from Tests
- Dynamic Fixture Data
- Using Fixture Data in Development Mode
- Generating Fixtures from Development Data
- Fixtures Options
- Everybody Hates Fixtures
- Fixtures Really Aren't That Bad

Assertions

- Basic Assertions
- Rails Assertions
- One Assertion per Test Method

Testing Models with Unit Tests

- Model Testing Basics
- Deciding What to Test

Testing Controllers with Functional Tests

- Structure and Setup
- Functional Test Methods
- Common Assertions

Testing Views with Functional Tests

- Testing RJS Behavior
- Other Selection Methods
- Testing Routing Rules

Rails Integration Tests

- Basics
- The Integration Test API
- Working with Sessions

Rake Tasks Related to Testing

Table of Contents

Acceptance Tests

- Acceptance Test First?

Selenium

- Basics

- Getting Started

- RSelenese

Conclusion

References

Chapter 18 RSpec on Rails

Introduction to RSpec

- Should and Expectations

- Predicates

- Custom Expectation Matchers

- Multiple Examples per Behavior

- Shared Behaviors

- RSpec's Mocks and Stubs

- Running Specs

- Installing RSpec and the RSpec on Rails Plugin

The RSpec on Rails Plugin

- Generators

- Model Specs

- Controller Specs

- View Specs

- Helper Specs

- Scaffolding

RSpec Tools

- Autotest

- RCov

Table of Contents

Conclusion

References

Chapter 19 Extending Rails with Plugins

Managing Plugins

Reusing Code

The Plugin Script

Subversion and script/plugin

Using Piston

Installation

Importing a Vendor Library

Converting Existing Vendor Libraries

Updating

Locking and Unlocking Revisions

Piston Properties

Writing Your Own Plugins

The init.rb Hook

The lib Directory

Extending Rails Classes

The README and MIT-LICENSE File

The install.rb and uninstall.rb Files

Custom Rake Tasks

The Plugin's Rakefile

Testing Plugins

Conclusion

References

Chapter 20 Rails Production Configurations

A Brief History of Rails In Production

Some Basic Prerequisites

Table of Contents

The Stack Checklist

Server and Network Environment

Web Tier

Application Tier

Database Tier

Monitoring

Version Control

Installations

Ruby

RubyGems

Rails

Mongrel

Mongrel Cluster

Nginx

Subversion

MySQL

Monit

Capistrano

Configurations

Configuring Mongrel Cluster

Configuring Nginx

Configuring Monit

Configuring Capistrano

Configuring init Scripts

Nginx init Script

Mongrel init Script

Monit Configuration

Deployment and Launch

Other Production Stack Considerations

Table of Contents

Redundancy and Failover

Caching

Performance and Scalability

Security

Maintainability

Conclusion

References

Chapter 21 Capistrano

Overview of Capistrano

Terminology

The Basics

What Has Capistrano Done and What Hasn't It?

Getting Started

Installation

"Capify" Your Rails Application

Configuring the Deployment

A Little Spin, Please

Set Up the Deployment Machine

Deploy!

Overriding Capistrano Assumptions

Using a Remote User Account

Customizing the SCM System Used by Capistrano

Working without SCM Access from the Deployment Machine

What If I Don't Store database.yml in My SCM Repository?

What If My Migrations Won't Run from 0 to 100?

Useful Capistrano Recipes

Variables and Their Scope

Exercise #1: Staging

Table of Contents

Exercise #2: Managing Other Services

Multiserver Deployments

Transactions

Proxied Access to Deployment Machines

Conclusion

References

Chapter 22 Background Processing

script/runner

Getting Started

Usage Notes

script/runner Considerations

DRb

A Simple DRb Server

Using DRb from Rails

DRb Considerations

Resources

BackgroundDRb

Getting Started

Configuration

Understanding BackgroundDRb

Using the MiddleMan

Caveats

BackGroundDRb Considerations

Daemons

Usage

Introducing Threads

Daemon Considerations

Conclusion

Table of Contents

References

Appendix A: ActiveSupport API Reference

Appendix B: Rails Essentials

Afterword: What Is the Rails Way (To You)?

Index