



DIFFY

The Kung Fu Review Cuckoo

Community Experience Distilled

Learning Gerrit Code Review

Leverage the power of Gerrit Code Review to make software development more cooperative and social

Luca Milanesio

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PUBLISHING community experience distilled

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BIRMINGHAM - MUMBAI

Learning Gerrit Code Review

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Luca Milanesio is the author of *Git Patterns and Anti-Patterns*, an essential guide for scaling Git to the enterprise with 16 patterns and anti-patterns, including Hybrid SCM, Git champions, blessed repository, per-feature topic branches, and ALM integration.

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I would like to thank the Gerrit community for all the fantastic collaboration. Each day it's exciting to work on this project!

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Table of Contents

Preface	1
Chapter 1: Introducing Code Review	7
Benefits of Code Review	7
Build stability	8
Knowledge sharing	9
External early feedback	10
Shared code style	11
Team engagement	11
Qualitative code selection	12
Code Review roles	13
Contributor	13
Reviewer	13
Committer	14
Maintainer	14
Review labels and roles customization	15
Review terms and workflow	15
Project	15
Change	16
Label Code Review	17
Submit change	17
Merge change	18
Abandon change	18
Summary	19
Chapter 2: Setting Up and Quick-start	21
Pre-requisites	21
Gerrit download	22

Running Gerrit initial setup	22
Installation completed	26
Log in and create user profile	26
Generate HTTP password for Git	28
Create and clone your first project	30
Summary	32
Chapter 3: User Authentication	33
How Gerrit user authentication works	33
Git versus Gerrit UI authentication	34
Gerrit internal accounts	35
Authenticating over the Internet through OpenID	36
OpenID SSO	39
Using in-house private Gerrit authentication (LDAP)	41
LDAP configuration steps	41
Read-only LDAP user profile	44
Active Directory	44
Third-party authentication options	45
Example – Apache HTTP frontend	46
Setting up Gerrit behind a reverse proxy	46
Enabling Gerrit HTTP authentication	47
User profile lookup	47
Summary	48
Chapter 4: SSH and HTTPS Access	49
Enabling strong security on Gerrit	49
Installing Bouncy Castle Security	50
Using SSH with Gerrit	51
Git/SSH Client keys	51
Adding SSH keys to a Gerrit user profile	52
Cloning a repo over Git/SSH	53
Enabling HTTPS	55
HTTP/S reverse-proxy to Gerrit	55
HTTP/S Support in Gerrit	57
Summary	58
Chapter 5: Editing Your Project Permissions	59
Understanding the Gerrit permission scheme	59
Configuring project permissions	60
All-Projects permissions	61
Git and Gerrit references	62
Git permissions	62
Code Review permissions	63

Managing groups	64
Custom internal groups	65
External groups (group backends)	66
Using group hierarchy effectively	67
Organizing project security templates	68
Summary	70
Chapter 6: Changes and Code Review Workflow	71
Gerrit Code Review roles and workflow	71
Review workflow step-by-step	72
Roles overview	72
Workflow in ten steps	73
Gerrit branch namespace for code review	74
Setting topics	76
Adding reviewers	76
Review labels	77
Review	78
Commenting and scoring changes	78
Review etiquette	79
Publish review and scoring	80
Amending code under review	81
Summary	83
Chapter 7: Submit Types and Concurrency	85
Submit types	85
Fast forward only	86
Rebase if necessary	86
Merge if necessary / always merge	87
Cherry pick	88
Concurrent code reviews	89
Changes dependency tracking	89
Real-life change dependencies with Gerrit	90
Navigating through the Gerrit change dependency graph	92
Managing change graph updates	93
Summary	94
Appendix A: Using Gerrit with GitHub	95
GitHub workflow	95
GitHub controversy	96
GitHub authentication	96
Building the GitHub plugin	97
Installing GitHub OAuth library	98
Installing GitHub plugin	98

Register Gerrit as a GitHub OAuth application	98
Running Gerrit init to configure GitHub OAuth	99
Using GitHub login for Gerrit	100
Replication to GitHub	101
Configure Gerrit replication plugin	101
Authorizing Gerrit to push to GitHub	102
Start working with Gerrit replication	102
Reviewing and merging to GitHub branches	103
Using Gerrit and GitHub on http://gerrithub.io	104
Summary	105
Appendix B: Automation with Jenkins	107
Gerrit review workflow with Jenkins	107
Setting up the Jenkins Gerrit plugin	108
Installing Jenkins plugins	108
Setting up the Gerrit trigger plugin	109
Getting Gerrit ready for Jenkins	109
Gerrit trigger plugin configuration	110
Triggering a build from Gerrit	110
Configuring the Gerrit trigger	110
Configuring the Git plugin	111
Automated code validation	111
Summary	112
Appendix C: Git Basics	113
Peer-to-peer distributed version-control system	113
Git installation	113
Creating the first hello world repository	115
Hello world file archived in Git	115
Displaying repository history	116
Editing and archiving a new file change	116
Git basic concepts	117
Working with Git branches	117
Fast forward, merge, rebase, and cherry pick	119
Working with remote Git repositories	120
Pushing branches to the remote repository	121
Fetching from remote repositories	122
Summary	123
Index	125

Preface

Today, developing software is more than a globally distributed activity: agile methodologies that worked well enough with co-located teams, need to be empowered with additional tools, in order to allow the developers to share, discuss, and cooperate more socially.

With the rise of the adoption of Git, a version control system designed by *Linus Torvalds* in 2005 for the Linux open source project, major steps have been made to get developers to work and share code in a more open way. GitHub and Gerrit Code Review are the cornerstones of the social coding revolution, having driven respectively the success of the most popular open source code repository and the development of Android, the most successful mobile OS open source project.

This book looks at the Code Review workflow's benefits in an agile development team, and provides simple steps for leveraging them. It guides through the installation steps of Gerrit by showing the most typical setup and configuration schemes used in private networks and over the Internet. It includes a simple set of recipes and samples on how to configure and use it in conjunction with your existing authentication and continuous integration systems. By following this book's instruction, you will be able to install a fully configured Gerrit server ready to be used for your development team.

You will also learn how to effectively use Gerrit with GitHub, in order to have a more consistent Code Review, in addition to the social collaboration tools provided by the GitHub platform. Using the two tools together, you will be able to reuse your existing accounts and integrate your GitHub community into the development lifecycle, keeping in touch with external contributors.

Learning Gerrit Code Review will teach you everything you need to know to install, configure, and to start using Gerrit Code Review in your daily development. It will introduce the concept and the spirit of collaboration and collective code ownership with co-located and remote collaborators.

What this book covers

Chapter 1, Introducing Code Review, introduces the basic concepts and terminology of Gerrit Code Review, along with its benefits, roles, and responsibilities of the development team.

Chapter 2, Setting Up and Quick-start, explains in detail the Gerrit setup and configuration of an initial sandbox environment. We will take our first steps with Gerrit by creating an initial administrator account, one repository, and we will also start pushing our first change for review.

Chapter 3, User Authentication, explains how Gerrit integrates with existing user registries for performing authentication and user's profile registration. We will understand how the authentication process works, and what are the possibilities for configuring it to connect to LDAP, OpenID, or any other third party authentication system.

Chapter 4, SSH and HTTPS Access, explains how to enforce the security of our Gerrit installation using stronger security protocols, such as SSH and HTTPS to control the Code Review actions from a Git client.

Chapter 5, Editing Your Project Permissions, explains us how to effectively use project templates and groups, in order to organize role-based access for our repositories. In order to start organizing the projects and teams for a Code Review, we will need to explore the Gerrit permissions scheme and the association of ACLs (Access Control Lists) to Git ref-specs.

Chapter 6, Changes and Code Review Workflow, provides an overview of how Code Review workflow works with Gerrit by going step-by-step through an initial change review. We will explain the jargon used by reviewers and how to interact with the reviewers and contributors.

Chapter 7, Merge Strategies and Concurrency, analyzes the different situations of concurrent dependent changes under review, and how Gerrit helps you to manage them with the project merge strategies.

Appendix A, Using Gerrit with GitHub, provides a step-by-step example of how to connect Gerrit to an external GitHub server, and provides guidance on how to use the Gerrit Code Review workflow and GitHub side by side.

Appendix B, Automation with Jenkins, takes us through the steps needed to configure Jenkins for fetching code directly from Gerrit changes during the review phase, enabling the automation of a series of validations against the code.

Appendix C, Git basics, provides the reader with a basic knowledge of the concepts and common terms of the Git version control system, which allows beginners to quickly get set up and use Git.

What you need for this book

This book is a guide to set up and use Gerrit Code Review and assumes that you have already installed a server with the following characteristics:

- Linux server (recommended) or Windows server with Cygwin extensions
- Oracle Java JDK 6 or later
- Git version 1.6 or later
- Apache HTTP server 2.2 or later (optional)
- Jenkins 1.424 or later (optional)

Alternatively, the book can be used as a reference on how to use a Gerrit instance of an open source project available on the Internet, for example, <https://gerrit-review.googlesource.com>, or available for private and public projects on the cloud, for example, <http://gerrithub.io>.

Who this book is for

This book is for team leaders, developers, or SCM managers who are willing to improve collaboration by introducing Gerrit Code Review.

A basic knowledge of the Git version control and its commands is required. Appendix C provides the reader with the basic Git concepts and commands, while the book provides a rich set of Gerrit Code Review examples and configuration recipes ready to be used for getting started quickly and effectively.

Conventions


In this book, you will find a number of styles of text that distinguish between different kinds of information. Here are some examples of these styles, and an explanation of their meaning.


Code words in text are shown as follows: "We can create then our first change on the `hello-project` we cloned in our initial sandbox."

Any command-line input or output is written as follows:

```
$ echo "Change C" > change-c.txt
$ git add change-c.txt
$ git commit -m "Change C"
[...]
$ git push origin HEAD:refs/for/master
[...]
remote: New Changes:
remote:  https://myhost.mydomain.com:8443/10
remote:
To ssh://jdoe@myhost.mydomain.com:29418/hello-project
* [new branch]      HEAD -> refs/for/master
```

New terms and **important words** are shown in bold. Words that you see on the screen, in menus or dialog boxes for example, appear in the text like this: "clicking the **Next** button moves you to the next screen."

[ Warnings or important notes appear in a box like this.]

[ Tips and tricks appear like this.]

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