

L02 Source Code Management

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Local

- 1 Local
- 2 Decentralized
- 3 Reviews
- 4 Meeting
 - Recapitulation
 - Assignments
 - Preview

Learning Outcomes

After successful completion of L02
students will be able to

- use source code management in FLOSS context
- review source code in FLOSS context

Git

- initiated by Linus Torvalds
- content-addressable filesystem or object store
- low-level tools allow to build object graph
- porcelain commands for source code management on top

“Smart data structures and dumb code works a lot better than the other way around.”

– Eric S. Raymond

Elektra has KeySet as datastructure.

Tool Suite Git

- common functionality, e.g., `--help` opens man pages
- `git` is a wrapper calling other subcommands
- e.g., `/usr/lib/git-core/git-bisect` is a shellscript

As in Elektra's `kdb` tool suite.

Rebase vs. Merge

- rebase rewrites commits
- rebase to be avoided if others already pulled
- merge creates merge commit
- merge is more often conflict-free

Daily Work

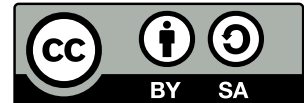
- stash
- write your own git subcommands
- aliases via config
- ssh keys

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Decentralized

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Workflows

- patches by email
- create your fork and do pull requests via web

Finding

Decide for one standard workflow for your FLOSS initiative.

Issue Tracker Integration

- @mention
- closes/fixes #issue

Finding

Prefer having all information directly in source code or git history.

Before Pull Requests

- Rebase to current master.
- If preferred by you: Squash unnecessary commits.
- Write a line in release notes
- Look through commit message.
- Look at what your Pull Request would change

Finding

Prefer having all information directly in source code or git history.

Signing

GPG-sign vs. signoff:

- Commits
- Tags

Finding

sign commits or tags of releases

Best Practices

- always work on branches in your own fork
- separate different things in different commits
- always pull before working
- avoid `--force push`, never `--force push` on master
- `--rebase --autostash`
- `rebase+squash` only before pushing

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Reviews

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Introduction

“Given a large enough beta-tester and co-developer base, almost every problem will be characterized quickly and the fix obvious to someone.”

– Eric S. Raymond

Linus's law:

“given enough eyeballs, all bugs are shallow”

Who?

- experienced programmers
- maintainers
- “extern programmers”
- everyone who has time and concentration

How?

- reading the code
- as little review criteria as possible
- standard criteria in `.github/PULL_REQUEST_TEMPLATE.md`
- only important comments (avoid nitpicking)
- if automated, check if the check was running

Goals

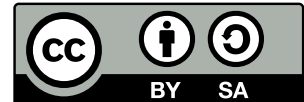
- Testing with source-code awareness.
- Review everything.
- Have enough “core developers” and reviewers.
- Netiquette same as in issue tracker.

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Meeting

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Recapitulation.



Feedback

- Feedback Talk



L03 Build Tools

- [1] Markus Raab and Gergő Barany. Introducing context awareness in unmodified, context-unaware software. In *Proceedings of the 12th International Conference on Evaluation of Novel Approaches to Software Engineering - Volume 1: ENASE*,, pages 218–225. INSTICC, ScitePress, 2017. ISBN 978-989-758-250-9. doi: 10.5220/0006326602180225.