



LEIDEN UNIVERSITY MEDICAL CENTER

Introduction to Version Control

Jeroen F. J. Laros

Leiden Genome Technology Center

Department of Human Genetics

Center for Human and Clinical Genetics



Version control.

The management of changes to documents, computer programs, large web sites, and other collections of information. — Wikipedia.

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General features:

- Keeping track of your files in an orderly manner.
 - Hiding old versions.
 - Recording who made changes and when.
- Enables collaboration.

Why should I use it?

For a single user:

- Revert files to a previous state.
- Revert the entire project back to a previous state.
- Review changes made over time.
- Backup.
- ...

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For multiple users:

- A reliable way to share files between people/computers.
- Allow multiple people working on the same project at the same time.
- Conflict resolution.
- See who made which changes at which time.
- ...

Why should I not use it?

A list of common excuses:

- It is too much work.
- I have my own system.
- I am the only one working on this project.
- This code will not be used by anyone else.
- The bugs can be tracked forever.
- ...

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Eventually leading to:

- I'm too busy rewriting the code I accidentally deleted.

Local repository.

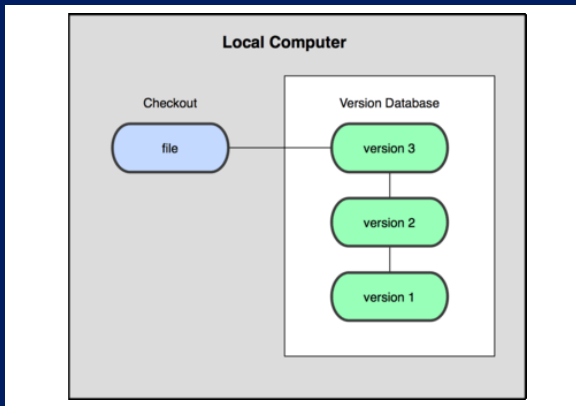


Figure 1 : Local version control diagram.

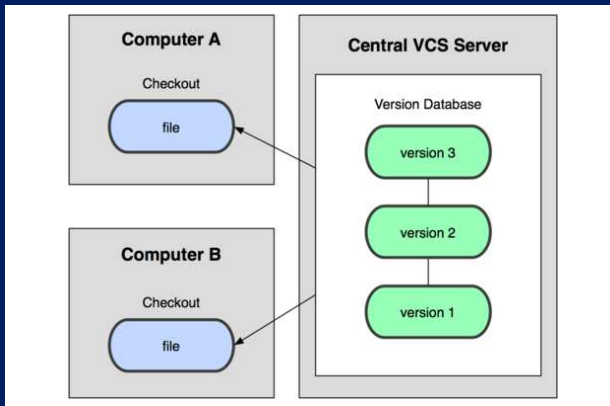
Central repository.

Figure 2 : Centralised version control diagram.

Distributed repositories.

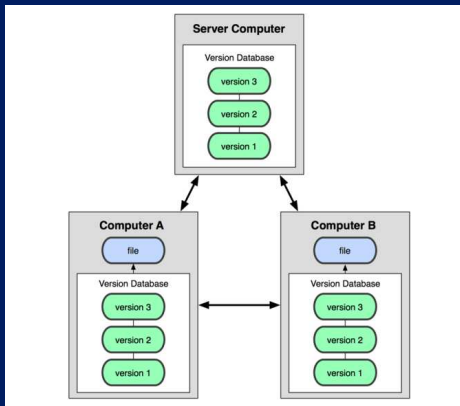


Figure 3 : Distributed version control diagram.

The name.

Git (n): A person who is deemed to be despicable or contemptible. — WordNet.

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I'm an egotistical bastard, and I name all my projects after myself. First "Linux", now "git". — Linus Torvalds.

History.

Designed to replace the commercial package *BitKeeper*.

- Speed.
- Simple design.
- Strong support for non-linear development (thousands of parallel branches).
- Fully distributed.
- Able to handle large projects like the Linux kernel efficiently (speed and data size).

A lot of choices.

GitHub.

- Only free for open source projects.

SourceForge, BitBucket, Gitorious, ...

GitLab.

- Issue tracking.
- Wiki.
- “Project wall”.
- Snippet.
- User profiles.

<https://github.com/>

Outline.

We are going to:

- Create and configure a user account on the GitLab server.
- Upload an **ssh-key** to work with Git.

<https://git.lumc.nl/>



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<https://humgenprojects.lumc.nl/trac/humgenprojects/wiki/git>