

Git in 15 minutes

Dr. Maximilian Hindermann

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RISE and UB

Today's Goal

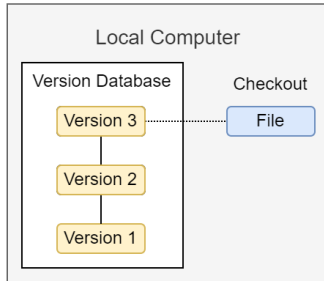


Get you in a position to decide if Git might be useful for your work.

What is Git?

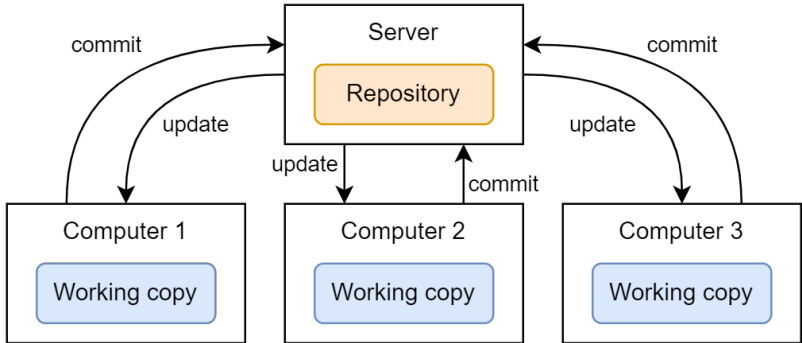
- Git is a distributed version control system (VCS).
- A VCS is “a system that records changes to a file or set of files over time so that specific versions can be recalled later” (Chacon & Straub 2014: 10).
- Git is very well suited for text-like data such as code, but of course also for text-like data such as:
 - an ALTO-XML file encoding the transcript of a medieval manuscript
 - a CSV file recording numerical weather data for Basel
 - a JSON-LD file containing a Tropy database
 - an SVG file of a research project's fancy new logo
 - a TXT file containing a novel from Project Gutenberg
- Git is less well suited for binary data such as audio data, images or video (changes in these files are opaque).

Local version control



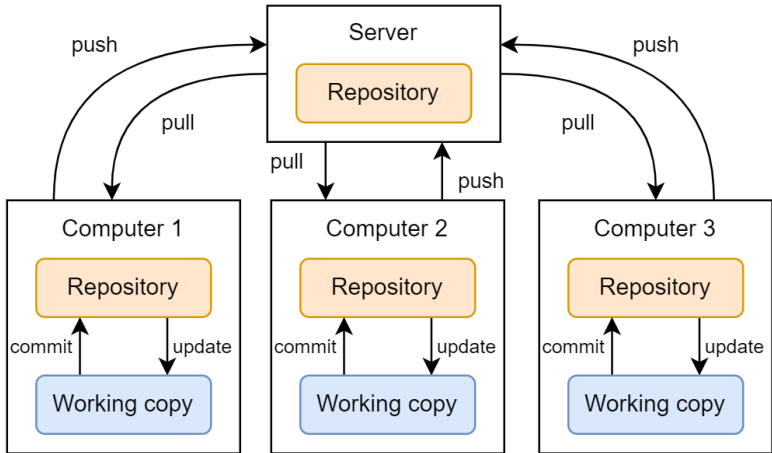
- Solves the problem of error-prone manual versioning of files.

Centralized version control



- Solves the problem of how to work on the same files together on different computers.

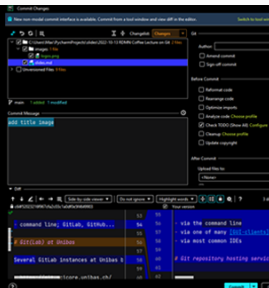
Distributed version control



- Solves the problem of being dependent on central server for work and backup.

Using Git

```
$ git init
Initialized empty Git repository in /tmp/tmp.IMBYSY7R8Y/.git/
$ cat > README << 'EOF'
> Git is a distributed revision control system.
> EOF
$ git add README
$ git commit
[master (root-commit) e4dcc69] You can edit locally and push
to any remote.
 1 file changed, 1 insertion(+)
 create mode 100644 README
$ git remote add origin git@github.com:cdown/thats.git
$ git push -u origin master
```



After installation on your computer, you can use Git:

- via the command line
- via one of many GUI-clients
- via most common IDEs

Git repository hosting services

But where do I host my Git repository? Do I have to configure a server myself?

- No. In practice, most users rely on a commercial Git repository hosting service such as GitHub, GitLab, Bitbucket, or others.



- Git repository hosting services do not replace but extend Git!

In contrast to GitHub, GitLab can be installed on your own infrastructure (e.g., required for sensitive data).

There are several GitLab instances at Unibas but none run as official university-wide service:

- <https://git.scicore.unibas.ch/>
- <https://gitlab.psychologie.unibas.ch/>
- <https://gitlab.switch.ch/ub-unibas/>
- <https://gitlab.its.unibas.ch/>

If there are instances missing please get in touch!

Looking at a sample GitHub repository



GitHub repo for these slides: github.com/MHindermann/slides

Image credits: Alex Eylar, "Inception", CC BY-NA-SA 2.0.

Further reading



Pro Git

By Scott Chacon and Ben Straub



Version Control with Git, 2nd ed.

By Jon Loeliger & Matthew
McCullough



Git in Practice

By Mike McQuaid



Mastering Git

By Jakub Narebski



Pragmatic Guide to Git

By Travis Swicegood



Git in the Trenches

By Peter Savage

- Tons of material online and in print
- Scott Chacon and Ben Straub (2014): Pro Git, Apress
- Bernd Öggl and Michael Kofler (2022): Git. Projektverwaltung für Entwickler und DevOps-Teams, Rheinwerk Computing

Contact



- Email: maximilian.hindermann@unibas.ch or rise@unibas.ch
- Github: <https://github.com/MHindermann> or <https://github.com/RISE-UNIBAS>