

Modeling, Simulation, and Optimization (practical course, summer term 2019)

Revision control

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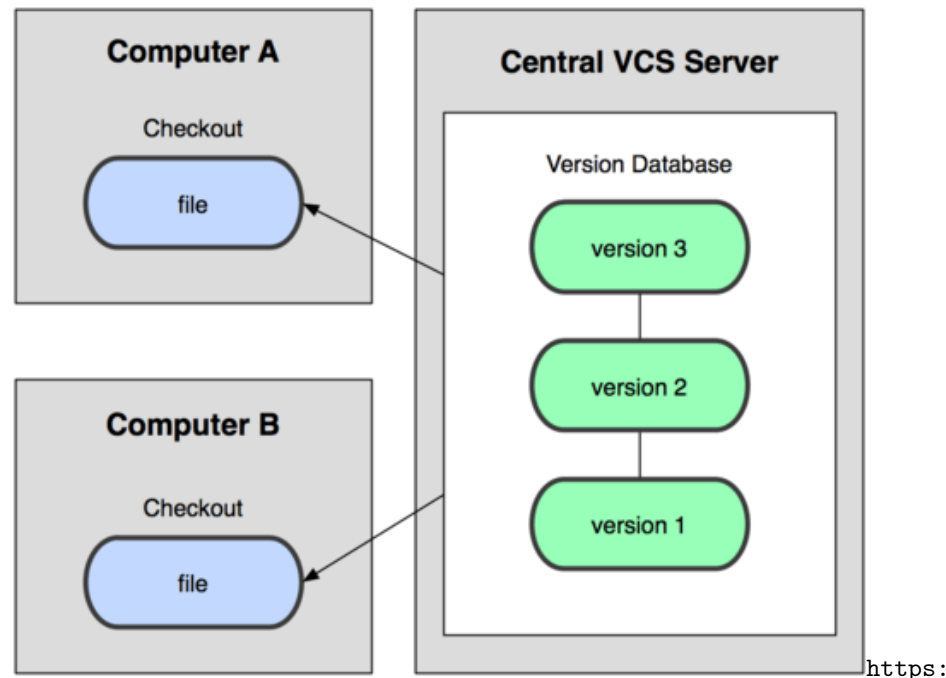
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Revision control system

A **revision control system** (also version or source control system) is a software that

- ▶ allows developers to **work simultaneously**,
- ▶ **prevents overwriting** of each other's changes,
- ▶ maintains the **history** of changes (files and log),
- ▶ enables **restoring** old **revisions**.



Frequently used revision control systems

Apache Subversion (SVN)

- ▶ **Centralized** revision control model.
- ▶ Recommended for single teams working on small projects.
- ▶ <https://riouxsvn.com/> (free hosting service)
- ▶ <http://www.cloudforge.com/> (commercial hosting service)
- ▶ <https://tortoisesvn.net/> (GUI for MS Windows)

Git

- ▶ **Decentralized** revision control model.
- ▶ Recommended for large projects on which multiple teams work simultaneously.
- ▶ <https://github.com/> (free/nonprivate hosting service)
- ▶ <http://www.cloudforge.com/> (commercial hosting service)

Overview of commands (1/2)

- ▶ `svn update`
Adopt recent changes to the repository to the working copy.
- ▶ `svn add TARGET`
Schedule the file or directory TARGET for adding to the repository (followed by `svn commit`).
- ▶ `svn remove TARGET`
Schedule the file or directory TARGET for deletion from the repository (followed by `svn commit`).
- ▶ `svn commit -m "MESSAGE" TARGETS`
Commit local changes in the working copy to the repository.

Overview of commands (2/2)

- ▶ `svn status`
Overview of local changes in the working directory.
- ▶ `svn diff TARGET`
Compare local version to the repository version (I recommend `meld` as a diff-tool).
- ▶ `svn revert TARGET`
Discard local changes, i. e., restore repository version.
- ▶ `svn log -lN TARGET`
Show the report of the last N versions of TARGET.
- ▶ `svn annotate TARGET`
Show the author of last change per line. Can be piped into a file FILE by
`svn annotate TARGET > FILE`.