

Version Control Systems

September 29, 2022

Version control

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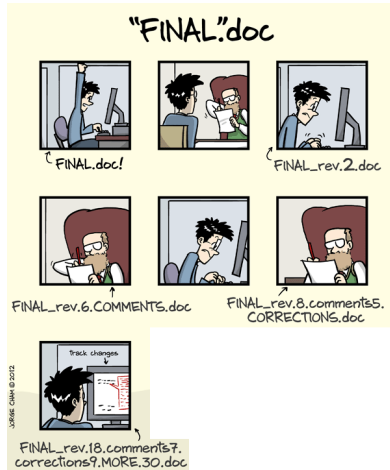
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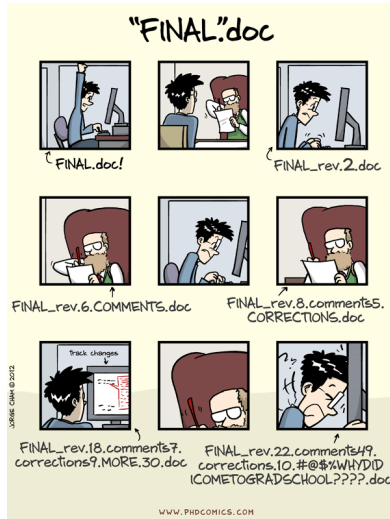
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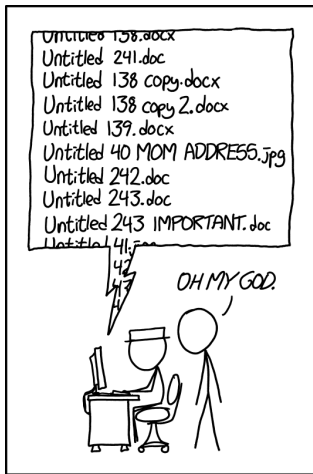
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"C:\Users\Mom\Documents"



PROTIP: NEVER LOOK IN SOMEONE ELSE'S DOCUMENTS FOLDER.

Image credits by XKCD - Randall Munroe

Keeping track of changes

- Complex projects/documents, built up over time
- Multiple collaborators
- Multiple (parallel) versions (e.g., testing a new algorithm while the main branch of development is focused on other things)
- Reproducibility (e.g., bug hunting, etc.)

A VCS provides:

- **Consistent labeling of revisions**
- Track changes/differences
- Metadata (date, authors, etc.)
- Consistent **point-in-time revisions**
- Multiple developers, one code-base
- Branches, merges

A local version control system

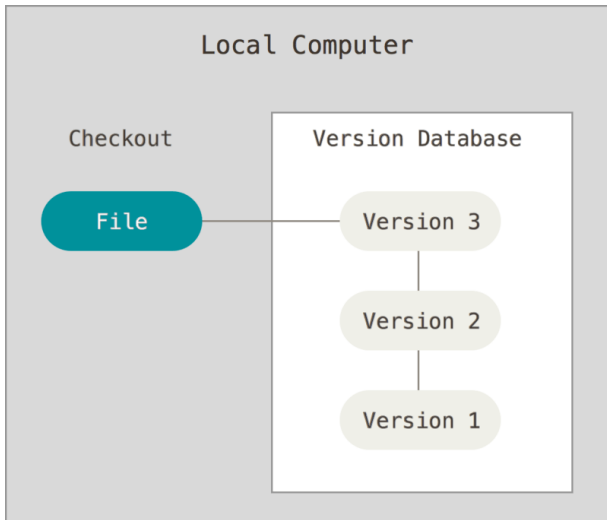


Image credits by Pro Git book contributors

Centralized version control system

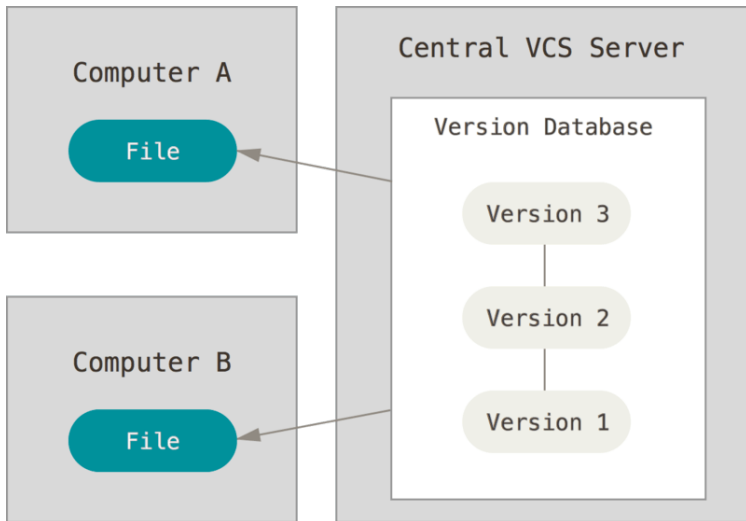


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Distributed version control system

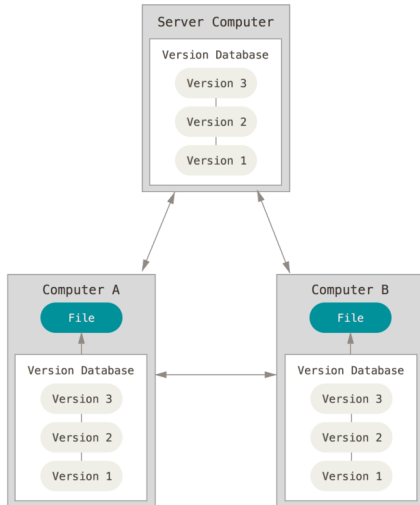


Image credits by Pro Git book contributors

What about... **Dropbox/Google Drive/OneDrive??**

- No concept of "consistent point in time"
- Track changes is difficult/impossible
- No branching/merging capabilities
- Few metadata

They are similar, but they solve a different problem:
synchronization!

Let's forget about them, and concentrate on version control.


Basic VCS terms

Working copy

All project files (on your PC) tracked by the VCS.

Commit

A "snapshot" of the repository at a specific moment.









Commit 6dca5afc authored 8 months ago by  Enrico Bassetti

Add Linux desktop support and Applmage build scripts

parent bfe945a5 [add-desktop-support](#)

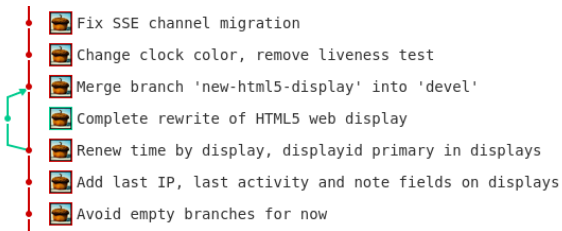
Branch

A line of development. It's an ordered set of commits.

-  Add unmanage seat constant
-  Fixture update
-  Add DICEA map
-  Kubernetes deployment config, fixtures
-  Adapt the project to the new skeleton
-  Remove ipfilter externa library - close #3
-  Build for internal registry, k8s deploy config
-  Rotate Boaga map

Merge

The action of fusing two or more branches.



Tag

A custom label attached to a commit.

v1.14.0

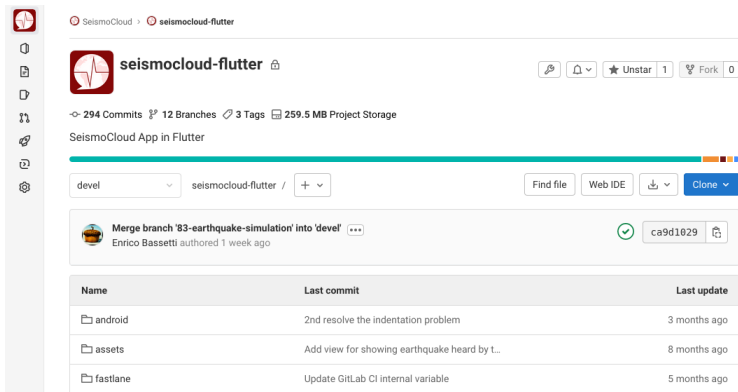
 amacneil released this Feb 04, 2022 · [14 commits](#) to main since this release  v1.14.0  519f186

Changed

- Make status command read only ([#242](#))

Repository

A set of commits, branches, and tags (usually for the same project).



The screenshot shows the GitHub interface for the repository 'seismocloud-flutter' under the organization 'SeismoCloud'. The repository name is displayed with a lock icon, indicating it is private. Below the name, there are buttons for cloning (GitHub logo, download), starring (1), and forking (0). The repository statistics show 294 commits, 12 branches, 3 tags, and 259.5 MB of project storage. The description is 'SeismoCloud App in Flutter'. The current branch is 'devel'. There are buttons for 'Find file', 'Web IDE', and 'Clone'. A recent commit is shown: 'Merge branch '83-earthquake-simulation' into 'devel'' by Enrico Bassetti, authored 1 week ago, with commit hash ca9d1029. Below the commit list is a table of repository contents.



Name	Last commit	Last update
android	2nd resolve the indentation problem	3 months ago
assets	Add view for showing earthquake heard by t...	8 months ago
fastlane	Update GitLab CI internal variable	5 months ago

Fork

A new repository that is a copy of an existing one.

Pull/Merge request

A request to merge code from a fork or branch back to the parent repository/branch.

 Open  requested to merge `88-update-sensor-library` into `devel` 2 days ago

Overview **0** Commits **1** Pipelines **1** **Changes 1**

Compare `devel` and `latest version` 1 file +1 -1

`android/app/build.gradle` +1 -1 Viewed

	↑		@@ -84,5 +84,5 @@ flutter {
84	84		
85	85		dependencies {
86	86		implementation "org.jetbrains.kotlin:kotlin-stdlib-jdk7:\$kotlin_version"
87	-		implementation "it.sapienzaapps.seismocloud:androidsensorcore:1.2.7"
	87	+	implementation "it.sapienzaapps.seismocloud:androidsensorcore:1.2.8"
88	88		}

Resources

- https://en.wikipedia.org/wiki/Version_control
- <https://www.atlassian.com/git/tutorials/what-is-version-control>
- <https://about.gitlab.com/topics/version-control/>