

Version Control Systems

September 29, 2022

Version control

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“FINAL”.doc



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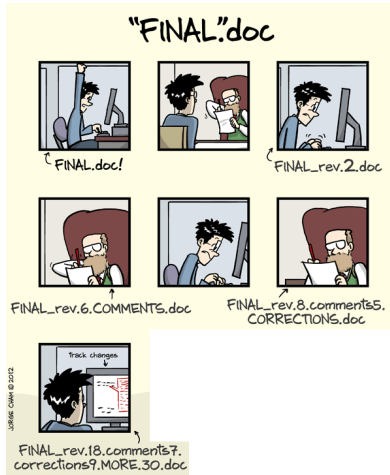
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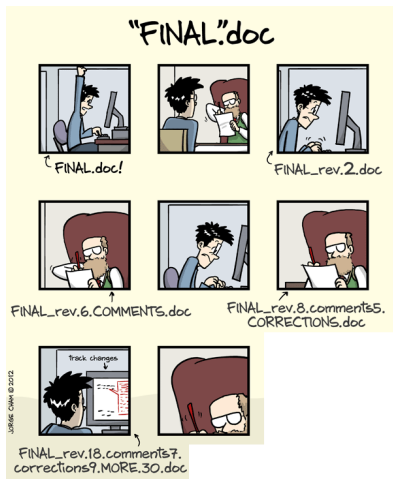
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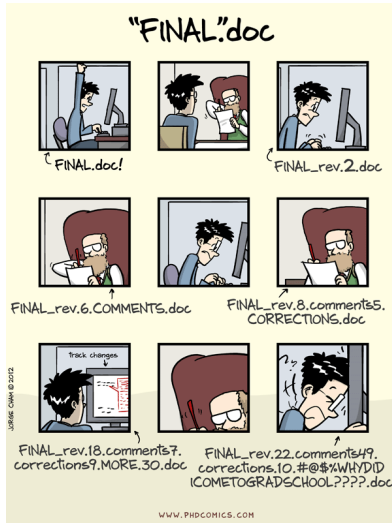
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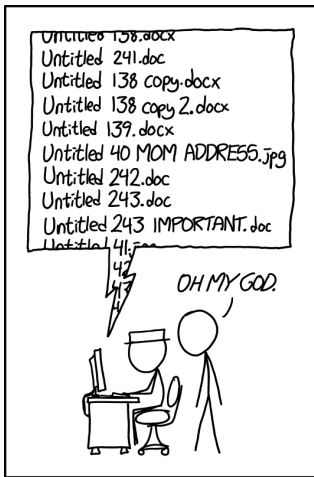


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PROTIP: NEVER LOOK IN SOMEONE ELSE'S DOCUMENTS FOLDER.

Image credits by XKCD - Randall Munroe

- 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

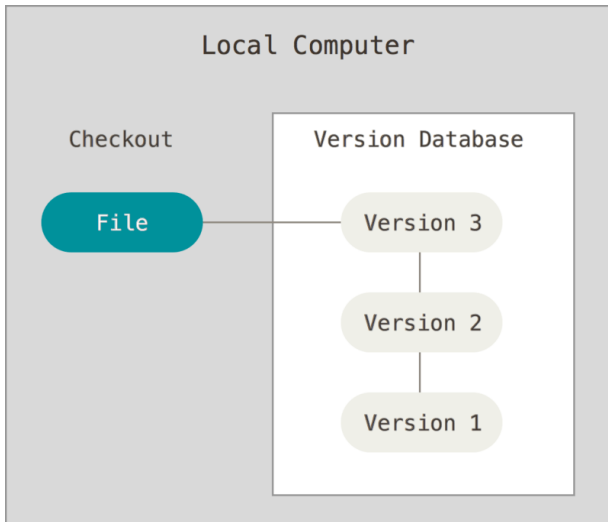


Image credits by Pro Git book contributors

Centralized version control system

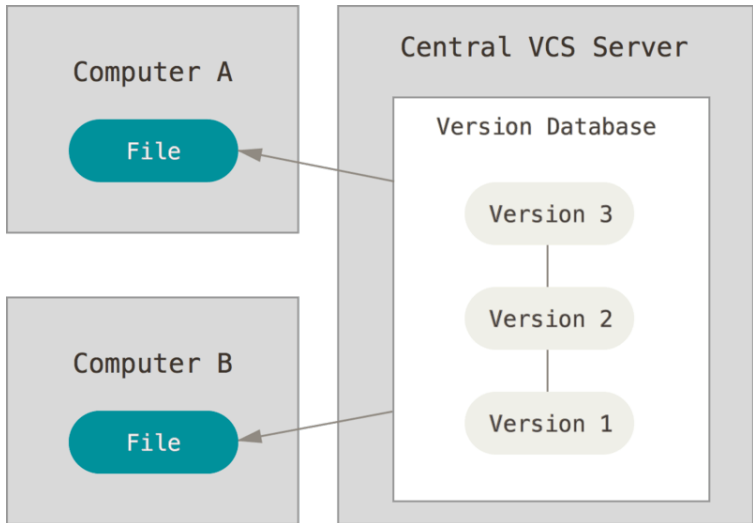


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Distributed version control system

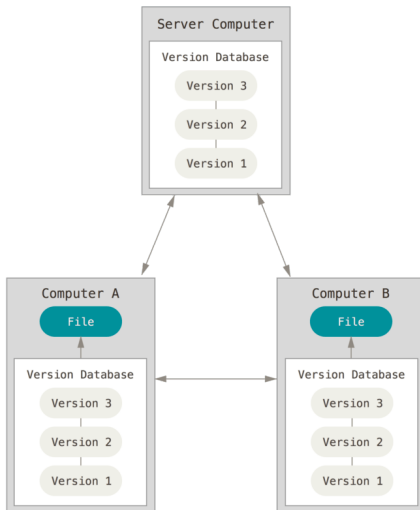


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What about... **Dropbox/Google Drive/OneDrive??**

- 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 Appliance build scripts

parent `bfe945a5`  `add-desktop-support`

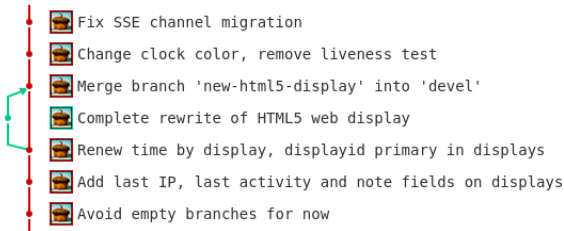
Branch

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



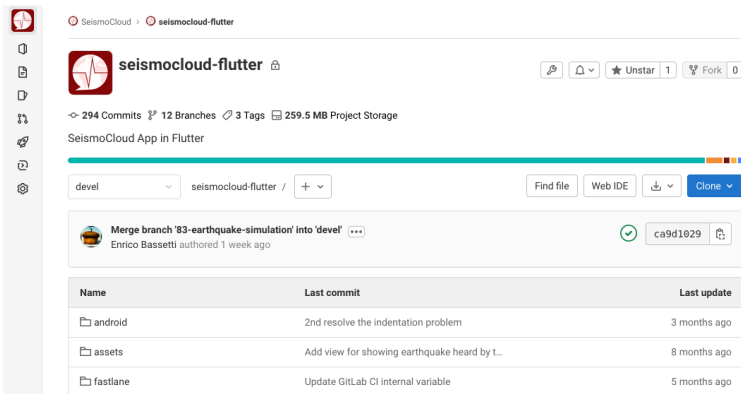
519f186

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 statistics: 294 Commits, 12 Branches, 3 Tags, and 259.5 MB Project Storage. The repository description is 'SeismoCloud App in Flutter'. A progress bar is visible below the description. The current branch is 'devel', and the repository path is 'seismocloud-flutter'. 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 a commit hash of 'ca9d1029'. Below the commit list is a table of folders and their last commit details.



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/>