

# VERSION CONTROL WITH GIT

## Reference

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## A Better Kind of Backup

- Use `git config` to configure a user name, email address, editor, and other preferences once per machine.
- `git init` initializes a repository.
- `git status` shows the status of a repository.
- Files can be stored in a project's working directory (which users see), the staging area (where the next commit is being built up) and the local repository (where revisions are permanently recorded).
- `git add` puts files in the staging area.
- `git commit` saves the revisions in the staging area to the local repository.
- Always write a log message when committing changes.
- `git diff` displays differences between revisions.
- `git checkout` recovers old versions of files.
- The `.gitignore` file tells Git what files to ignore.

Notes:

## Collaborating

- A local Git repository can be connected to one or more remote repositories.
- Use the HTTPS protocol to connect to remote repositories until you have learned how to set up SSH.
- `git push` copies changes from a local repository to a remote repository.
- `git pull` copies changes from a remote repository to a local repository.
- `git clone` copies a remote repository to create a local repository with a remote called `origin` automatically set up.

**Notes:**

## Conflicts

- Conflicts occur when two or more people change the same file(s) at the same time.
- The version control system does not allow people to blindly overwrite each other's changes. Instead, it highlights conflicts so that they can be resolved.

Notes:

## Open Science

- Open scientific work is more useful and more highly cited than closed.
- People who incorporate GPL'd software into theirs must make theirs open; most other open licenses do not require this.
- The Creative Commons family of licenses allow people to mix and match requirements and restrictions on attribution, creation of derivative works, further sharing, and commercialization.
- People who are not lawyers should not try to write licenses from scratch.
- Projects can be hosted on university servers, on personal domains, or on public forges.
- Rules regarding intellectual property and storage of sensitive information apply no matter where code and data are hosted.

**Notes:**