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# Git and Gitlab

Collaborative Work, Issue and Feature Tracking

# Table of contents

# Today

- Learn a bit about version control and Git (if you haven't already)
- Install Gitlab CE
- Test some of Gitlab's collaborative tools and a bit of Git
- Plenary conclusion

# Outline

# Version control for system administrators

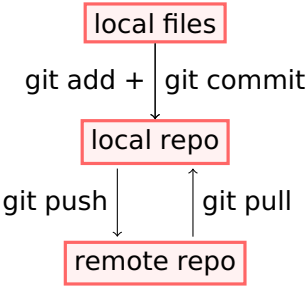
“Framework that allows for keeping track of changes made to files”

- Normally used for code, but relevant for sys. admins: configuration files, documentation, many libraries and services available as repositories
- Versioning
- "Backuping"
- History of changes and reasoning behind them -> Sneaky documentation
- Branching: Work on new features without overwriting base configuration
- Transferability to other systems (e.g. from dev to live system)
- Collaborative and simultaneous work with other admins

# Features of Git

- "Distributed": no unique central repository for files, many local and remote repositories possible with more or less equal rank
- "Non-locking": multiple people can work on the same file (have to deal with it afterward)
- Many other frameworks (mercurial, subversion, etc.) with different philosophies Figure of commit, pull, push
- Many possibilities for remote repository. Here: Gitlab

# Git scheme (reminder)




Reality can be much more complicated, see for example
https://blog.osteele.com/2008/05/my-git-workflow/

# Good practices when working with Git

- Changes to files are stored as diffs, so don't commit binaries, images, PDF's/MS Office formats, etc. -> Store the scripts that generate those when possible
- Don't commit huge files
- Small changes with continuous commits that fix one issue
- Commit functional configurations and code
- Use branches for testing and development
- Mistakes are fixable but sometimes disentangling a repository is hard

# Good practices when working with Git

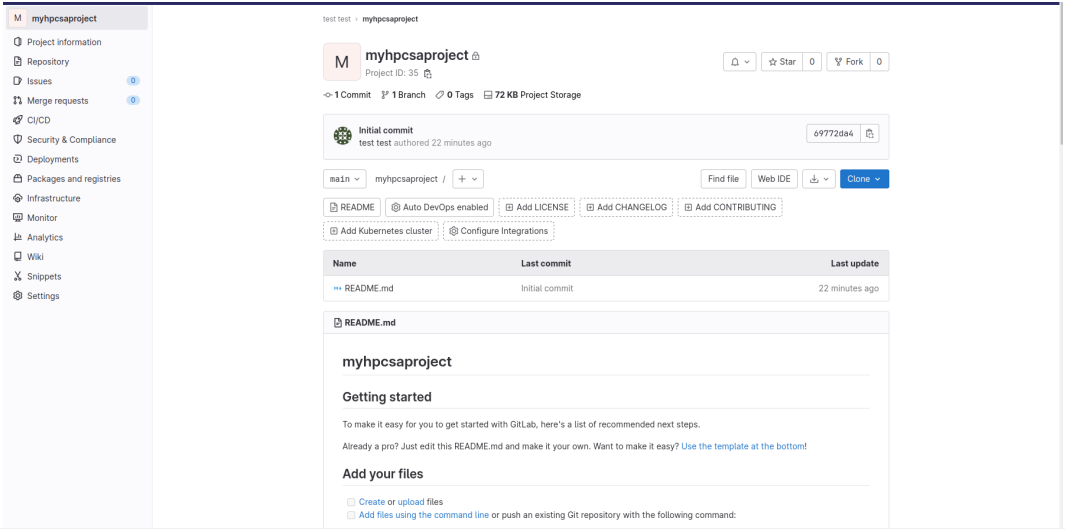
- Once something enters a repository, it can be very hard to get rid of it: Careful with passwords, API tokens, etc.!

Docker config file

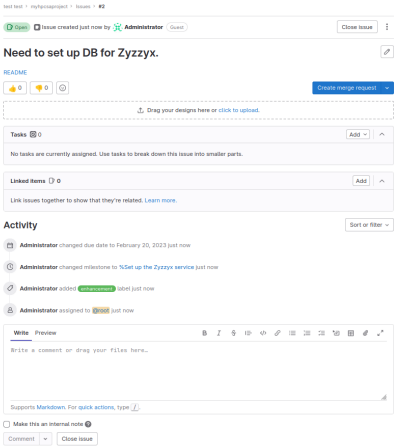
```yaml
version: "3.7"
services:
  omeroserver:
    image: "omero-server-with-figure:5.6.5"
    user: 'omero-server'
    environment:
      CONFIG_omero_db_host: database
      CONFIG_omero_db_user: omero
      CONFIG_omero_db_pass: omero
      CONFIG_omero_db_name: omero
      ROOTPASS: 0oPsPl41n73x7p4s5w0rd
```

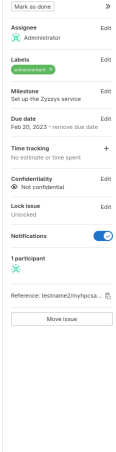
# Outline

# Collaborative Work: Gitlab



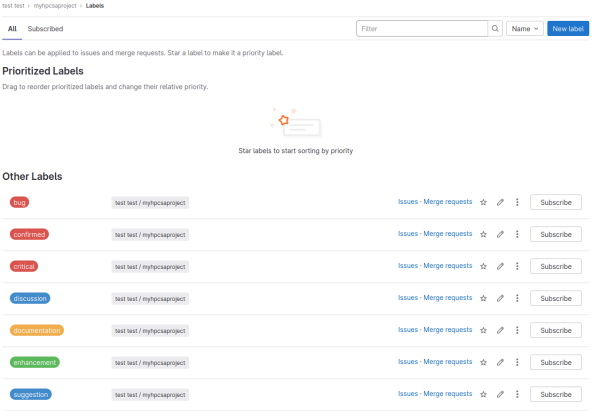
# Collaborative Work: Issues



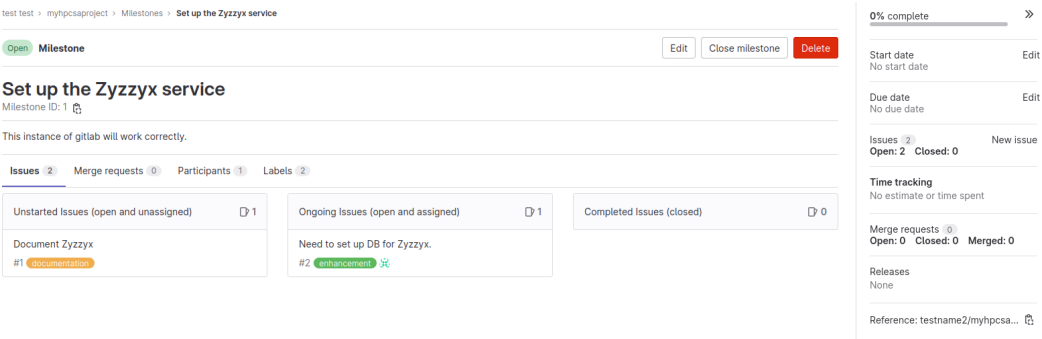

- An issue can be a problem with one of your services
- An issue can also be a task that you need to achieve, such as a new service or feature for an existing service
- This could be used to track and have a record of your own tasks and work

# Collaborative Work: Labels



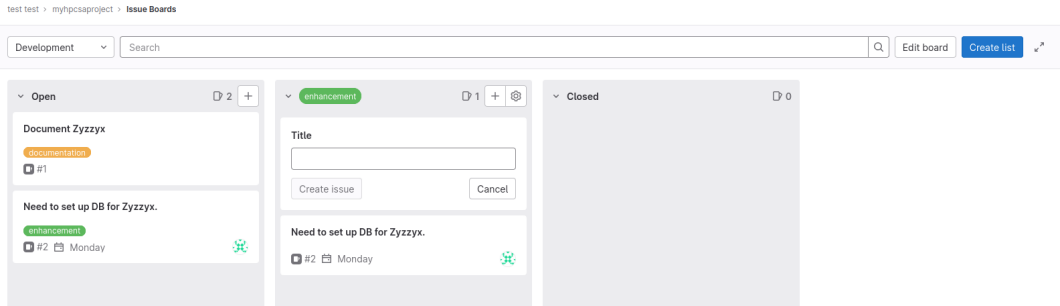

- Labels help you categorize issues
- You can subscribe to labels and get notifications, or use them to create boards

# Collaborative Work: Milestones




- Collect tasks to achieve a specific goal
- Track progress of your goals

# Collaborative Work: Boards




- Visualize issues at a glance

# Plenary Discussion

- Have you used version control before?
- Have you used feature and issue tracking?
- Would you use Gitlab's tools? Any other feature you would need?
- Any other tools that you use for this sort of work?
- Look-back at previous "best practices" presentation