OSSR Implementation concept & status

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27/07/2020 – ESCAPE WOSSL workshop

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Outline

- Repository implementation Goals

- Development platform
  - GitLab in2p3 instance
- Long term repository
  - Zenodo
- Connection of services
  - Containerization
  - CI/CD pipeline between Dev platform and repository
  - Metadata

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OSSR Goals

- Converge to common Open Source and FAIR practices that adapt and evolve to the community

1. Provide an open-source **development platform** available for all partners and beyond;

2. A long-term **repository** insuring the implementation of the FAIR principles and the **connection** with **other** ESCAPE **services** (ESAP, EOSC portal/marketplace)

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Development Platform

- Environment where to:
  - Develop software.
  - Test, modify, debug, release... software

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GitLab in2p3 instance

- GitHub is not OS
  - Bought by Microsoft 2008
- GitLab is hosted within a ESCAPE institution
  - https://gitlab.in2p3.fr/escape2020
- No intention of forcing communities to change habits !
  - Make available an environment if anybody needs it !
  - Feel free to create new projects here !

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(Git)hub/Lab as a service/software

	+	-
Github or gitlab as a service	- Free for open source - No setup - Integration with lot of services - Huge community	- Data stored outside the E.U. - No control over the data & conditions of use - No control of accounts
Gitlab as a software	- Private projects - Control - Open source	- Setup, install, maintenance of the service - Costs - Less integration with other services

- Slide from T. Vuillaume (24/07)

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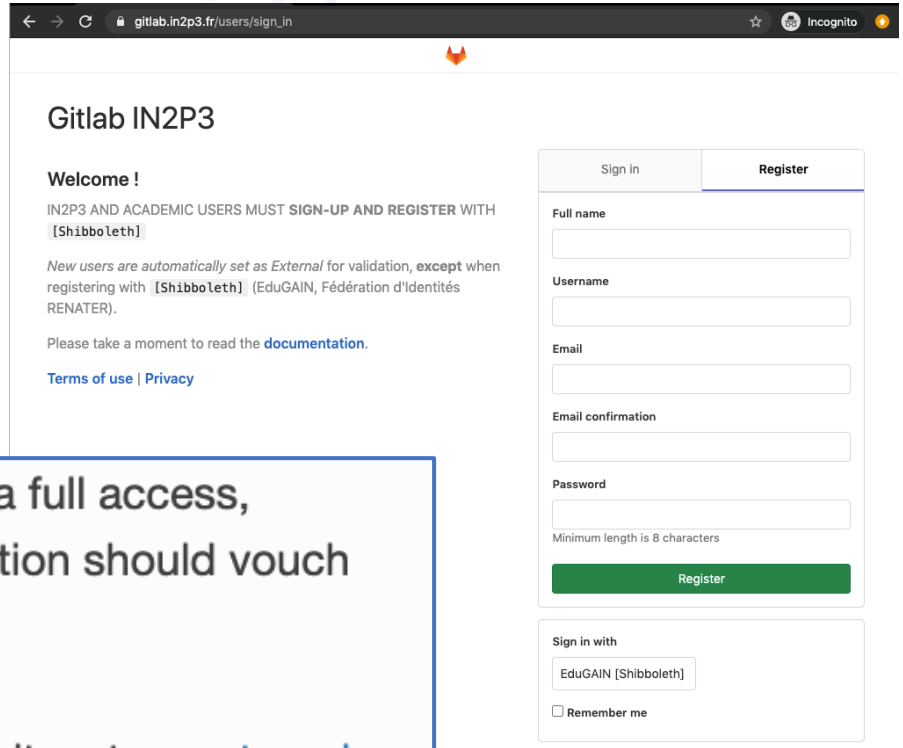
GitLab in2p3 instance - FAQs

- `I don’t have a EduGAIN/Shibboleth account’

  (thanks Jutta !)



For non-eduGAIN users who wish to get a full access, someone belonging to a partner organization should vouch for you to user support.

New non-eduGAIN users will be, by default, set as external. Validators will unlock the account after verification.

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Long term repository

- A environment where to store digital artefacts.

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Long term repository

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Software **Repos**itory != **Develop**ment Platform
Stable release != Minor changes in a project

- ESCAPE needs → General purpose;
  - Software
    - Software containers
  - Documents, presentations, multimedia…
  - Full projects
  - Data sets *

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Zenodo

- General purpose repository

- FAIR principles
  - Findable
    - Reference/Identification by DOIs + metadata
  - Accessible
    - Archival + Human/machine readable metadata
  - Interoperable
    - Accepts different metadata schemas
  - Reusable :
    - License and provenance

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Zenodo as a service/software

	+	-
Zenodo as a service	- Free - No setup - CERN support - Secure, **very** long time, archive - Always up to date - Integration with OpenAIRE	- Size limitation to 50GB per upload (an agreement is possible for bigger datasets) - No multiple ownership as of today - No multiple curators as of today - Limited customization
Zenodo as a software (later InvenioRDM)	- Better branding - Own the data - Custom front-end - Custom A&A	- Need time and money to dev/setup/install - Need computing infrastructure - Need maintenance - Future ?

- Slide from T. Vuillaume (24/07)

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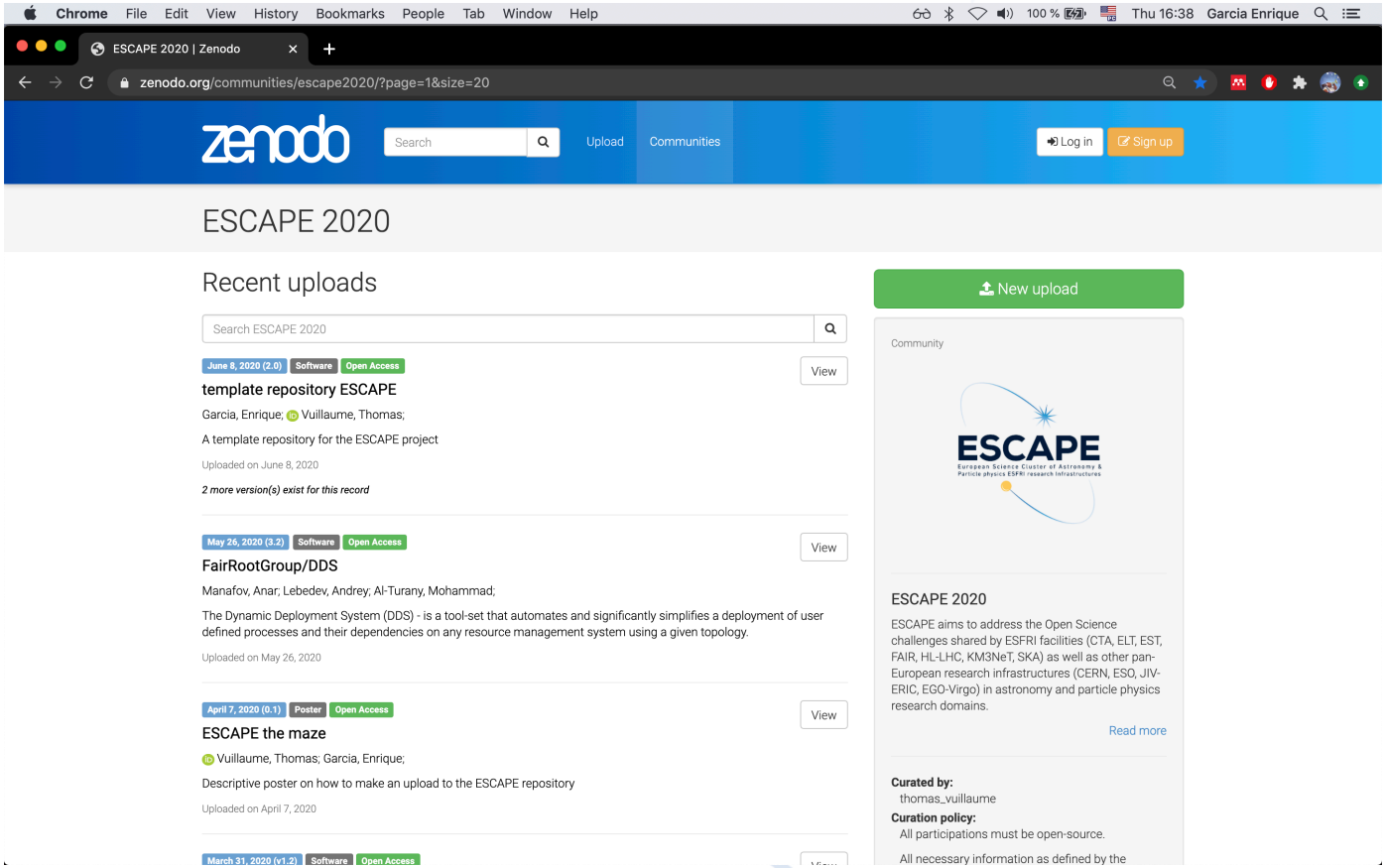
ESCAPE 2020 Community

- https://zenodo.org/communities/escape2020/



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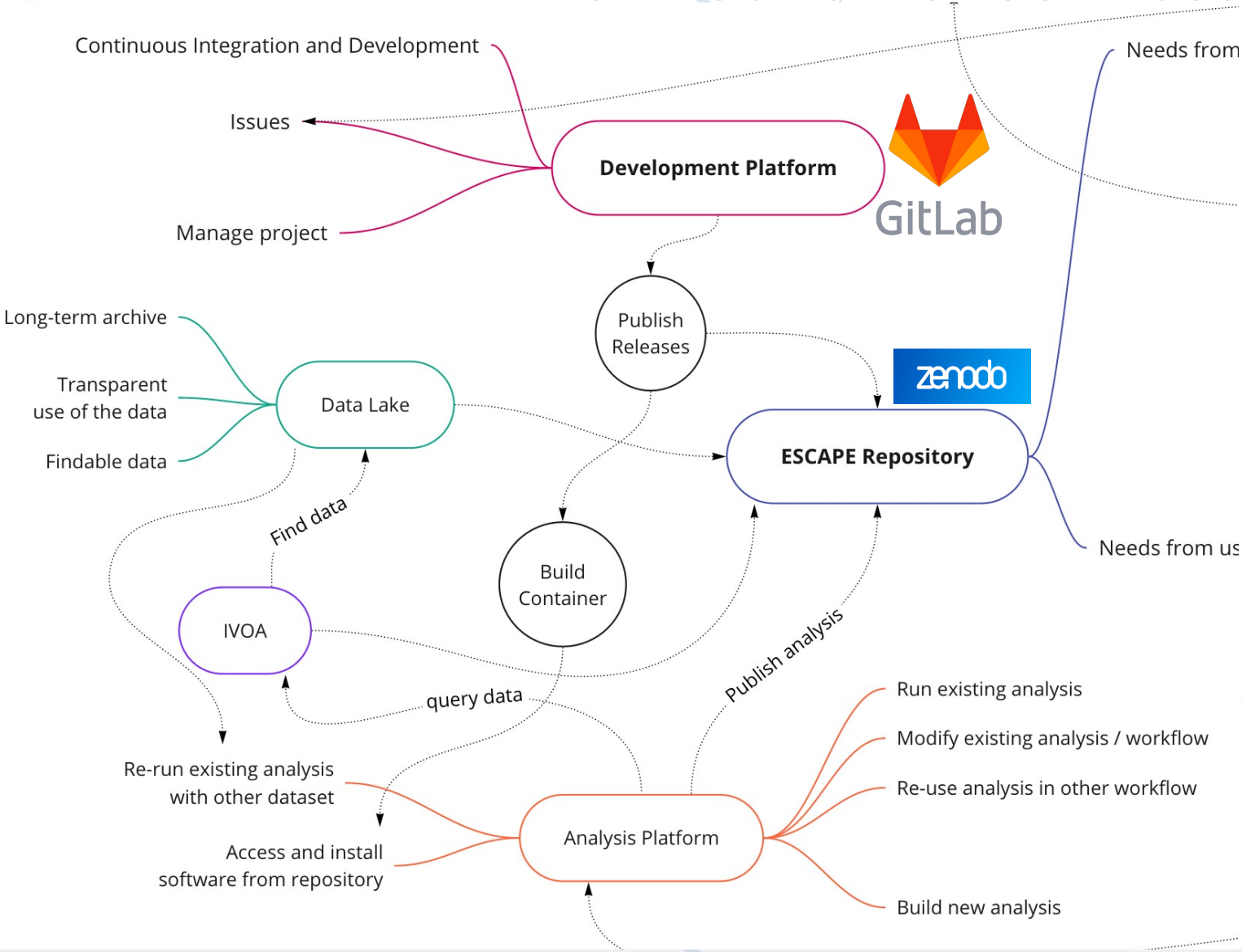
Connection of services



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Connection of services. Containers

- Satisfy all the FAIR principles.
- Allow an easy and fast reproducibility of very complex environments.
- The expected/proposed way of reproducing studies in the analysis platform.

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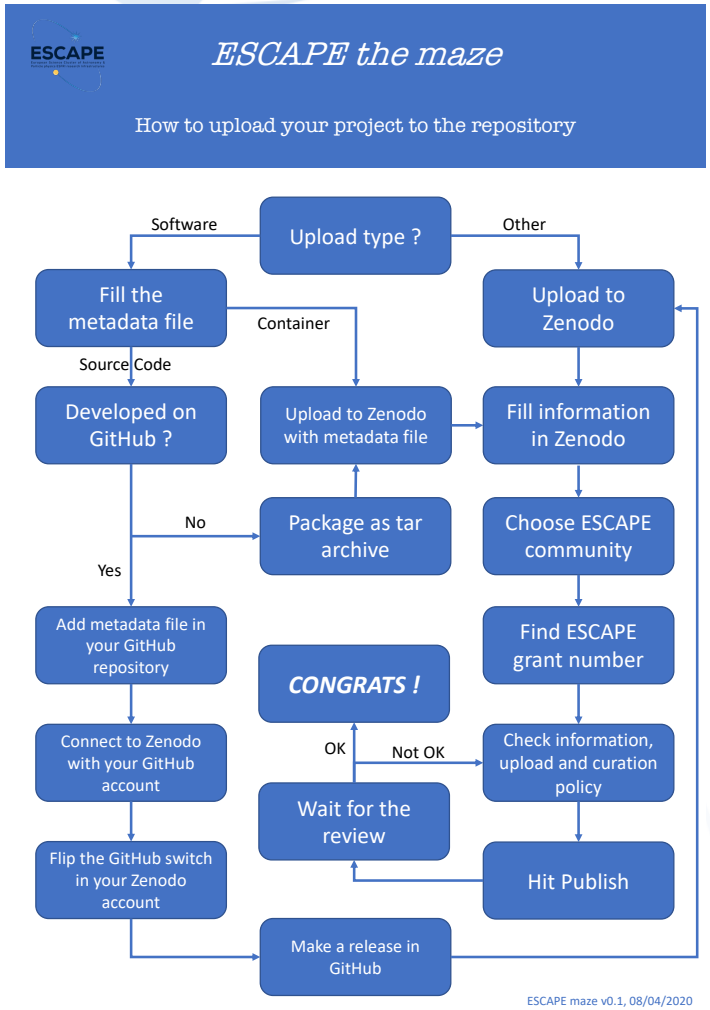
Connection dev platform - repository

- Upload a project to Zenodo:
  - *ESCAPE* the maze
  - zenodo.org/record/3885172



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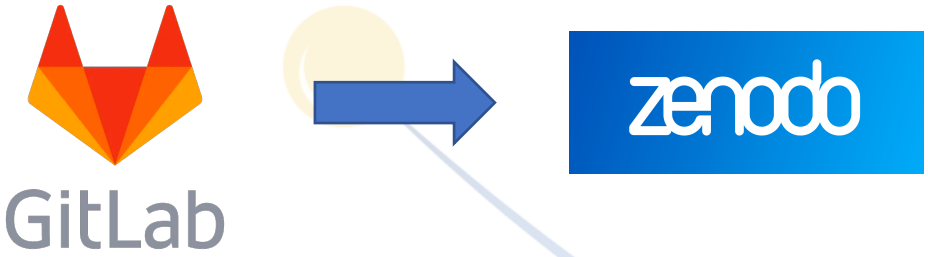
Automatic connection GitLab-Zenodo

- Development platforms provide very useful tools for continuous integration and continuous delivery/deployment (CI/CD).

https://gitlab.in2p3.fr/escape2020/escape/template_project_escape

- Use the development platform to develop, build and test,
- and deploy a container/project to the repository (or endpoint).



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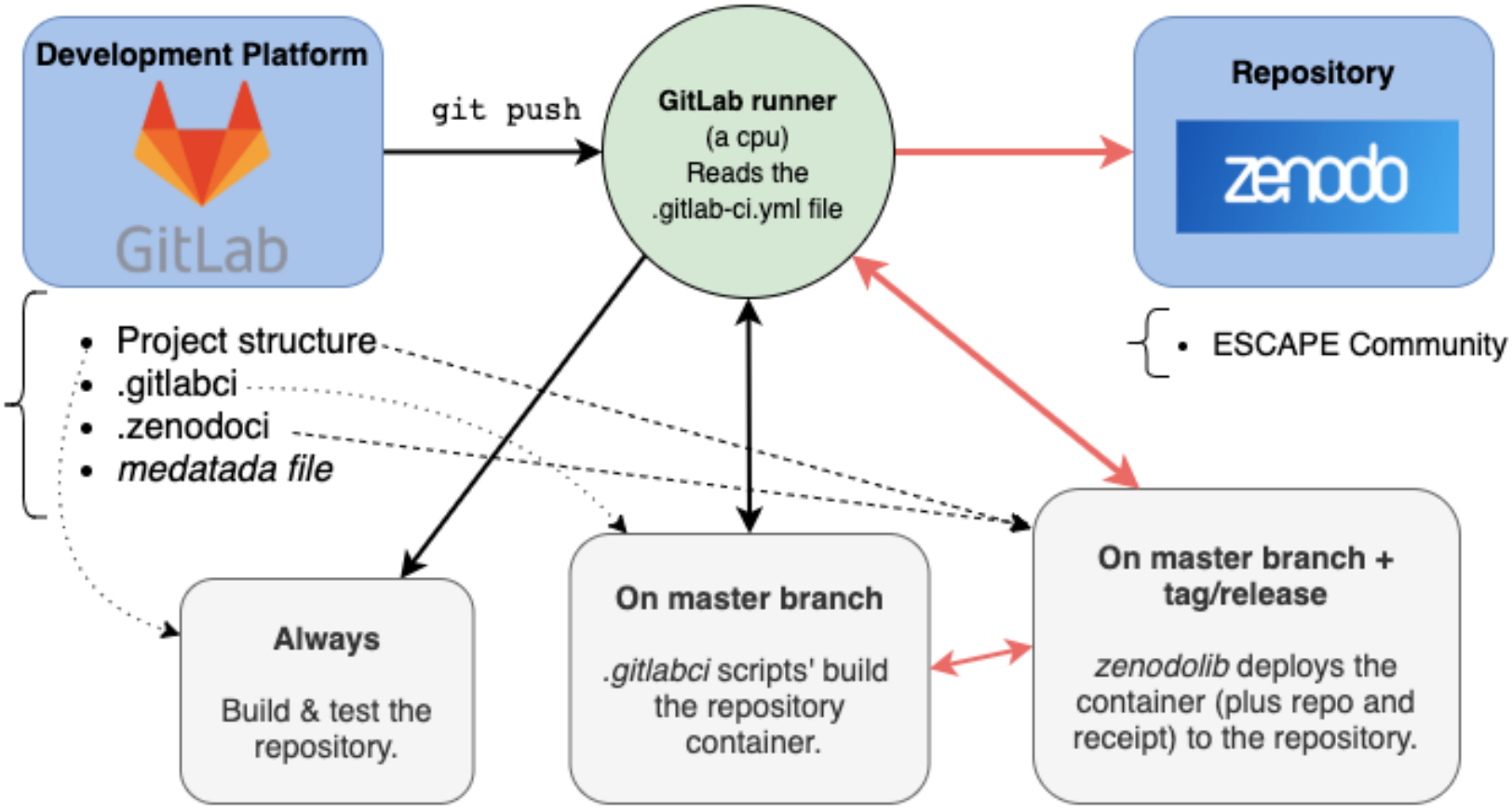
Automatic connection GitLab-Zenodo



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Automatic connection GitLab-Zenodo (I)

- Following FAIR principles:
  - Singularity-CI builders

1. Invokes DockerHub
2. Creates a Singularity container
3. Uploads the container to an endpoint (+ dev plat)

- https://github.com/singularityhub/singularity-ci
- Tutorial : https://vsoch.github.io/2018/gitlab-singularity-ci/

Singularity-CI Builders

This is an entrypoint to show you how you can build Singularity containers on different Continuous Integration Services. The templates provided are served by Gitlab or Github, depending on where the CI services are commonly used.

General Templates

The following are general builders that you can customize to build on Travis, CircleCI, GitHub, or GitLab.

Service	Status	Template	
GitLab		singularityhub/gitlab-ci	
TravisCI	build passing	singularityhub/travis-ci	
CircleCI	PASSED	singularityhub/circle-ci	
GitHub		singularityhub/github-ci	

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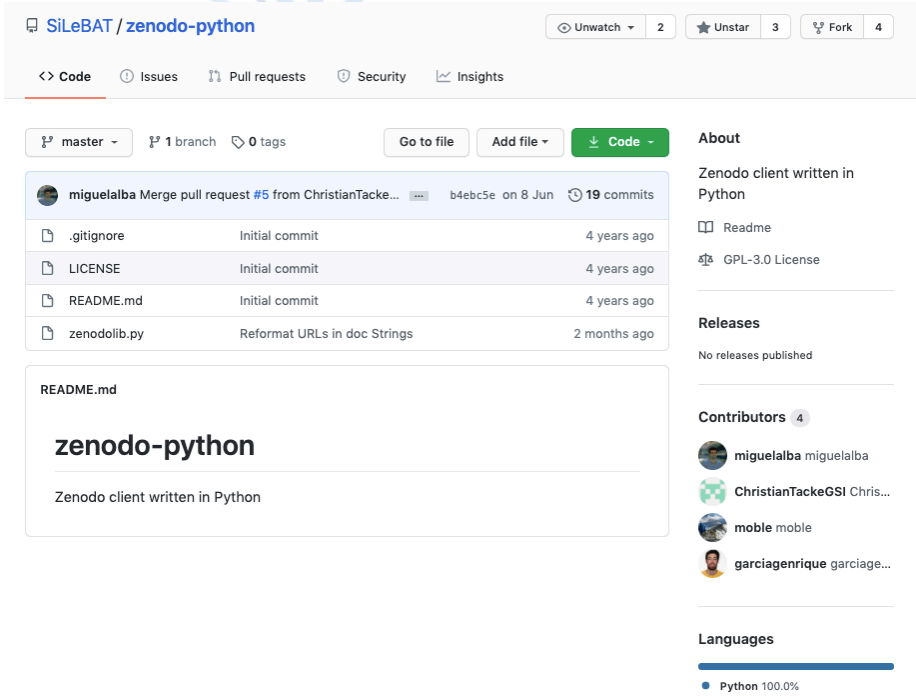
Automatic connection GitLab-Zenodo (II)

- Following FAIR principles:
  - *zenodo-python* repository
    - Provides the *zenodolib* library
    - Manages upload to Zenodo through their API
    - Please use Zenodo sandbox for tests ! https://sandbox.zenodo.org/deposit



- https://github.com/SiLeBAT/zenodo-python/
- REST API tutorial: https://developers.zenodo.org

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Automatic con. GitLab-Zenodo (wrap up)

1. Clone/Fork the template repository
   https://gitlab.in2p3.fr/escape2020/escape/template_project_escape
2. Create an access token to communicate with the Zenodo API
3. Configure the .gitlab-ci.yml file
4. Configure of the GitLab CI/CD environment variables
5. Adapt/update the uploading/new version scripts
6. Create a release

Follow the **OSSR on-boarding demonstrator** at 13h15 (27/07/2020)

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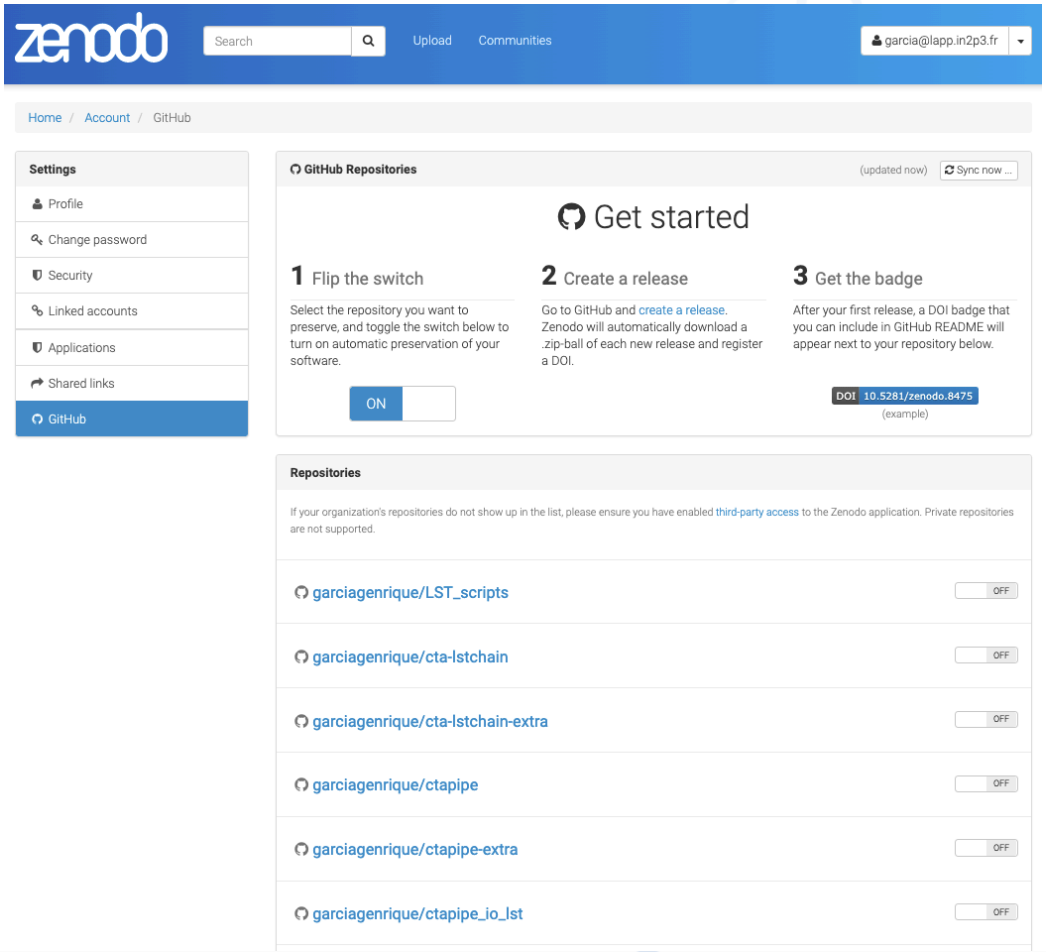
Automatic connection GitHub-Zenodo

- Zenodo → Account → Settings



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Connection of services. Metadata (I)

- Allows fulfilling all the FAIR principles in a single standard
  - Findable
  - Accessible
  - Interoperable
    - **Will allow the connection with other services ! (ESAP, Portal)**
  - Reusable :
    - License and provenance

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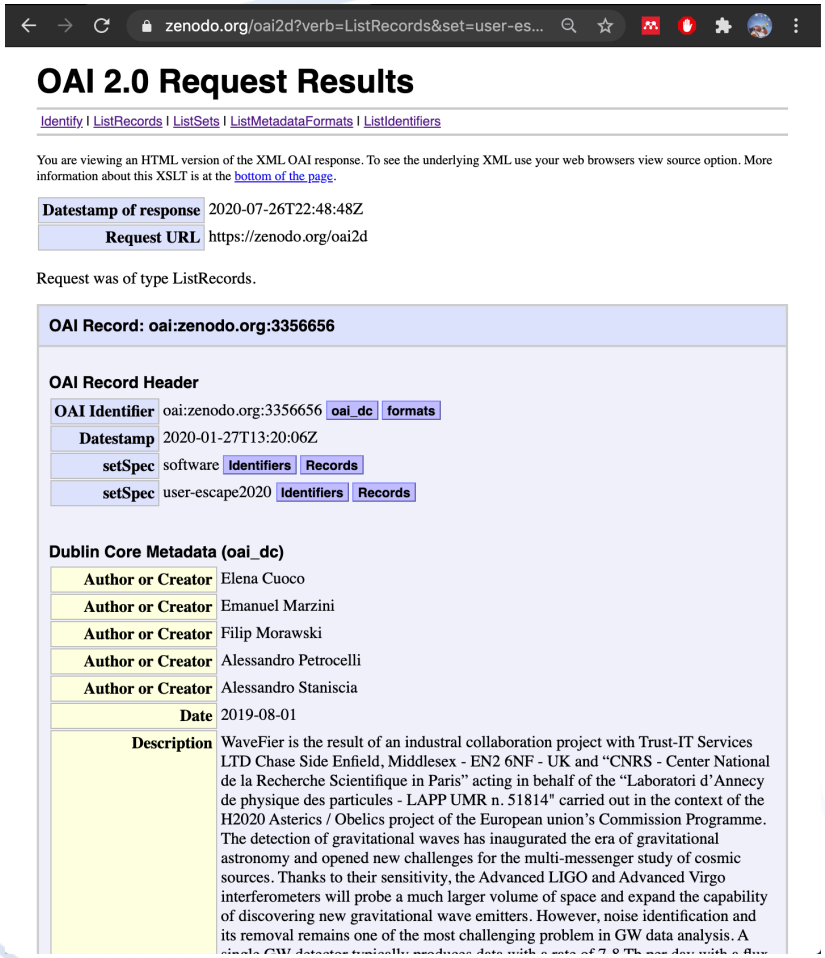
Connection of services. Metadata (II)

Zenodo:

- harvest metadata using the OAI-PMH
  - Open Archive Initiative – Protocol of Metadata Harvesting
- accepts and export different metadata formats:
  - oai_datacite(3, 4,…)
  - marcxml
  - oai_dc
  - dcat
  - marc21



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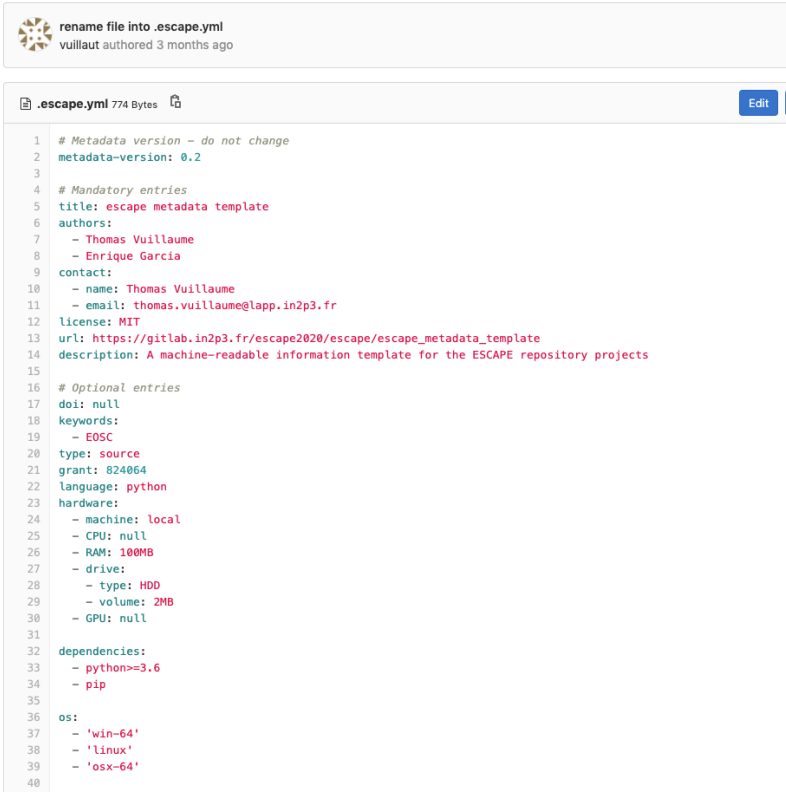
Connection of services. Metadata (III)

- Started discussion (Mark Kettenis' talk – 24/07)
  - Metadata + I/o info + computing resources + media types
- ESCAPE metadata template **basic proposal**

  https://gitlab.in2p3.fr/escape2020/escape/escape_metadata_template
  - Gathers all the mentioned info
- Need to converge to a
  - Personalised schema ?
  - DataCite/CodeMeta – based ?



Repository License

- FAIR principles might lead to confusing situations
  - BSD 3-Clause → Singularity-CI builders
  - GPLv3 → zenodo-python repository
- Both licenses are compatible*, however GPLv3 is copyleft
- *It can be combined code released under the other license with code released under the GNU GPL

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OSSR ToDo list

- Improve OSSR onboarding / uploads
  - More exhaustive documentation
- Implement ESCAPE ecosystem-like metadata schema
- Aim for an integrated virtual environment

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