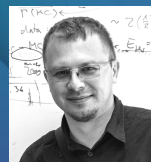


Templates Hub for research communities

IBERGRID Conference 2023 - *Better Software for Better Science*

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Motivation

Software Engineering Best practices [e.g. [1](#)-[2](#)]

1. Enhance Code Readability
2. Keep Code Efficiency
3. Test Your Code
4. Be Descriptive
5. Use Version Control
6. Refactor Your Code
7. Apply the KISS principle (Keep It Simple, Silly)
8. Apply the DRY (Don't Repeat Yourself) principle
9. ...

This is where ***software templates*** come very handy, e.g. to:

- set software project structure
- provide good code examples, including tests
- pre-set certain code functionalities

Tools to create templates



Allow to create template repositories



Pro: easy to do

Contra: the generated code is not very customisable,
basically a copy of the template repo

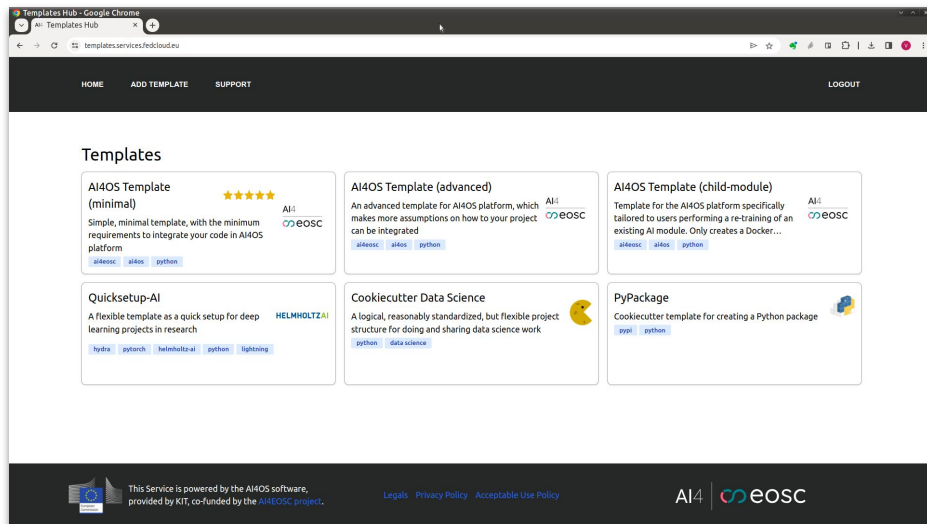


A command-line utility (python package) that creates projects from *cookiecutters* (project templates)

Pro: very customisable templates (Jinja-based)

Contra: one has to install the cookiecutter tool locally

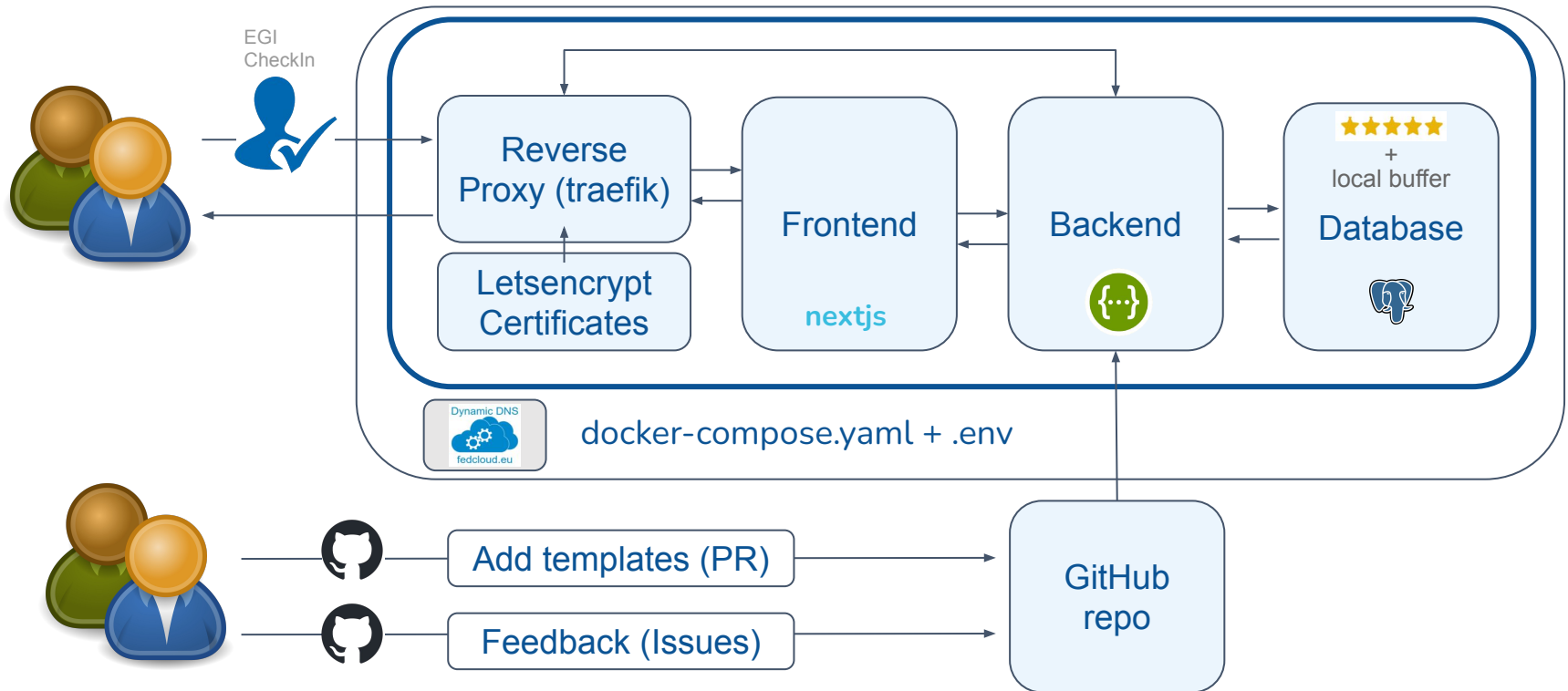
.. and in any case, it can be useful to collect interesting templates in one place ..



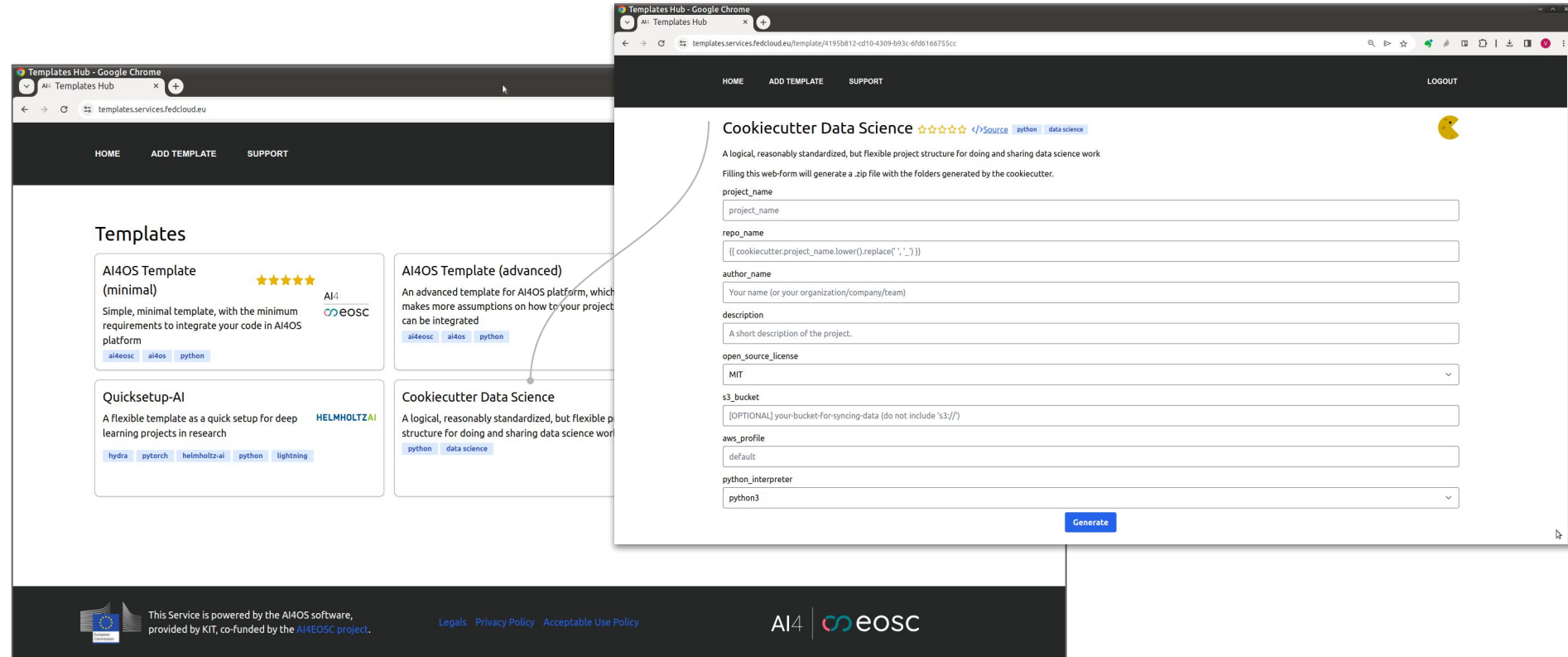
Templates Hub web service, running at <https://templates.services.fedcloud.eu>, is a *collection of software templates (cookiecutters)* where users can:

- **list** available templates
- **choose** a template of their interest
- **generate** software project based on the selected template:
 - simply fill out the corresponding web form and
 - receive zip file with the customized startup software project

Templates Hub: (current) Architecture



Templates Hub: Web GUI (frontend) (demo)



The image shows a web browser displaying the Templates Hub interface. The main view shows a grid of template cards. One card, 'Cookiecutter Data Science', is highlighted with a larger, detailed view overlaid on top.

Templates Hub - Google Chrome

Navigation: HOME ADD TEMPLATE SUPPORT LOGOUT

Templates

- AI4OS Template (minimal)** ★★★★★ AI4 eosc
 - Simple, minimal template, with the minimum requirements to integrate your code in AI4OS platform
 - ai4eosc ai4os python
- AI4OS Template (advanced)**
 - An advanced template for AI4OS platform, which makes more assumptions on how to your project can be integrated
 - ai4eosc ai4os python
- Quicksetup-AI** HELMHOLTZ AI
 - A flexible template as a quick setup for deep learning projects in research
 - hydra pytorch helmholtz-ai python lightning
- Cookiecutter Data Science**
 - A logical, reasonably standardized, but flexible project structure for doing and sharing data science work
 - python data science

Cookiecutter Data Science ★★★★★ </>Source python data science

A logical, reasonably standardized, but flexible project structure for doing and sharing data science work

Filling this web-form will generate a .zip file with the folders generated by the cookiecutter.

project_name

repo_name

author_name

description

open_source_license

s3_bucket

aws_profile

python_interpreter

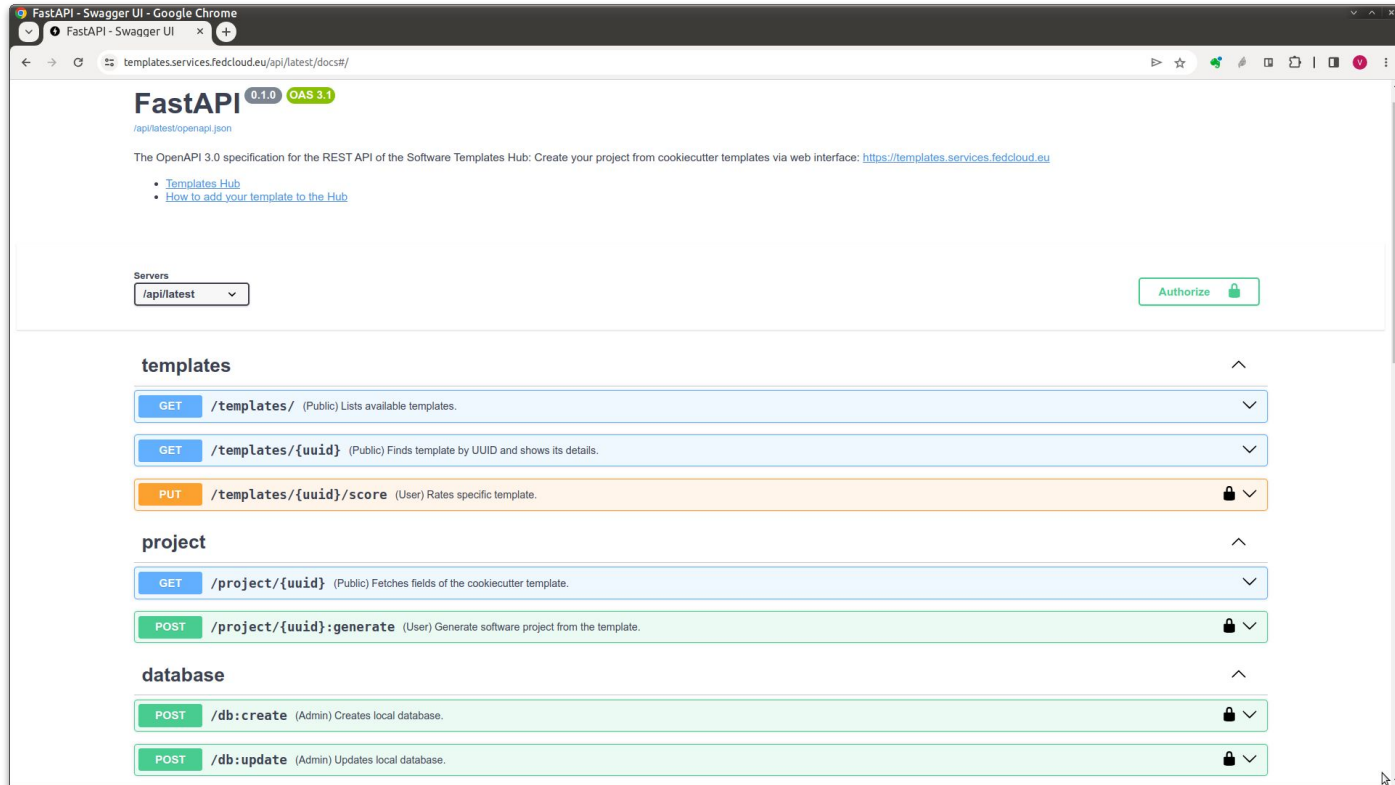
Generate

This Service is powered by the AI4OS software, provided by KIT, co-funded by the AI4EOSC project.

Legals Privacy Policy Acceptable Use Policy

AI4 | eosc

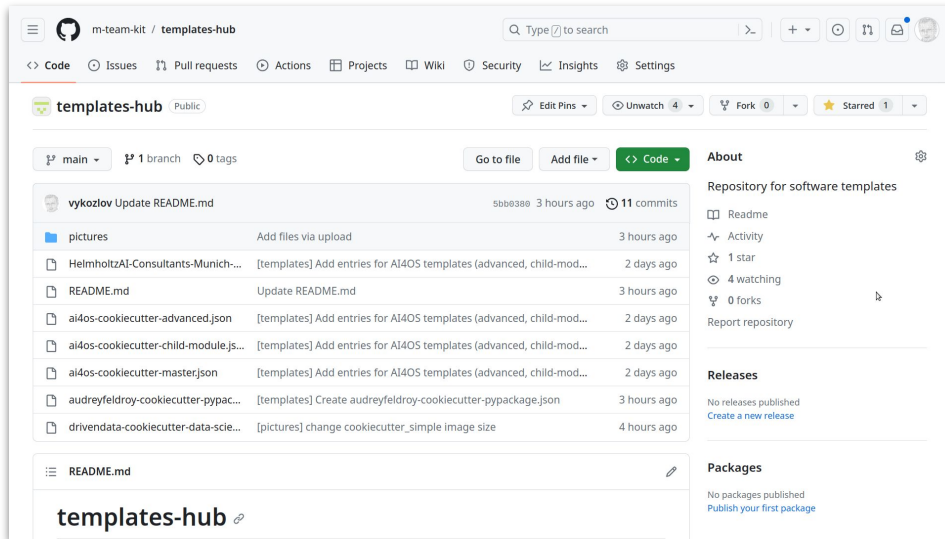
Templates Hub: REST API (backend) (demo)



The screenshot shows the Swagger UI for the FastAPI REST API. The browser address bar displays `templates.services.fedcloud.eu/api/latest/docs/#/`. The page title is "FastAPI 0.1.0 OAS 3.1". Below the title, there is a link to the OpenAPI 3.0 specification and a list of links: "Templates Hub" and "How to add your template to the Hub". A "Servers" dropdown menu is set to `/api/latest`, and an "Authorize" button is visible. The API endpoints are organized into three sections: "templates", "project", and "database".

Method	Endpoint	Description	Auth
GET	<code>/templates/</code>	(Public) Lists available templates.	None
GET	<code>/templates/{uuid}</code>	(Public) Finds template by UUID and shows its details.	None
PUT	<code>/templates/{uuid}/score</code>	(User) Rates specific template.	Required
GET	<code>/project/{uuid}</code>	(Public) Fetches fields of the cookiecutter template.	None
POST	<code>/project/{uuid}:generate</code>	(User) Generate software project from the template.	Required
POST	<code>/db:create</code>	(Admin) Creates local database.	Required
POST	<code>/db:update</code>	(Admin) Updates local database.	Required

Templates Hub: adding new template entry



1. Fork this repository
2. (optional) Add a logo for your template, i.e. an image file in the `pictures/` directory or use one of the available
3. Create a new JSON file keeping convention `githubuser-cookiecutter_repository.json`
4. Fill the content following the example below
5. Commit your changes
6. Create [Pull Request](#) to add your new file in our repository

```
{
  "title": "Template name",
  "summary": "Short summary",
  "tags": [],
  "picture": "",
  "gitLink": "https://github.com/user/repository",
  "gitCheckout": "branch"
}
```

NB: Github repo is also Helpdesk through Issues

Summary and Outlook

Templates Hub service is a *collection of software templates*, which can be used to *generate* new software projects through the *web interface*

As next steps:

- Collect (user) feedback :-)
- Add filtering by tags in the frontend
- Review JSON key-value pairs
- Add more software templates (cookiecutters)
- Improve GitHub Issues
- Service monitoring, backup, CI/CD ...

Service: <https://templates.services.fedcloud.eu>

GitHub repo to add templates: <https://github.com/m-team-kit/templates-hub>

GitHub issues: <https://github.com/m-team-kit/templates-hub/issues>

