

# FAIR\_bioinfo for bioinformaticians

## Introduction to the tools of reproducibility in bioinformatics

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Sept. 2020



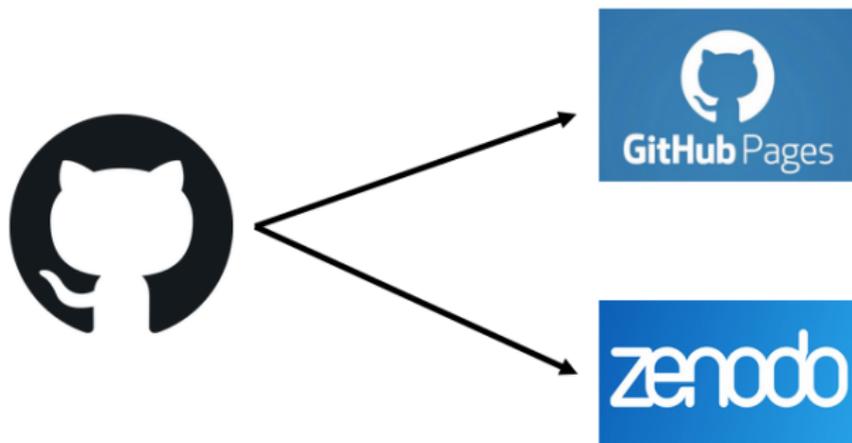
# Sharing and disseminating your project



# Sharing and disseminating

Goals of this session:

- Showcase your work
- Add a licence
- Create a release
- Obtain a DOI for the project



# Showcase your work

# Showcase your work



# Showcase your work



Why ?

- Your project is simpler to share and find

Advantages

- Free hosting of static websites
- Able to convert Markdown into a website

Documentation : <https://pages.github.com/>

# Showcase your work

In practice

From the main page of your repository, go to :

- "Settings" tab
- → "Options" (left hand side menu)
- → navigate to the "GitHub Pages" paragraph.

## GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

### Source

GitHub Pages is currently disabled. Select a source below to enable GitHub Pages for this repository. [Learn more.](#)

None ▾

### Theme Chooser

Select a theme to publish your site with a Jekyll theme using the master branch. [Learn more.](#)

Choose a theme



# Showcase your work

In practice

From the main page of your repository, go to "Settings" → "Options" → "GitHub Pages".

1 Choose the source

## GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

Source

GitHub Pages is currently disabled. Select a source below to enable GitHub Pages for this repository. [Learn more.](#)

None ▾

Save

Select branch

×

Select branch

main

✓ None

Danger Zone

# Showcase your work

## In practice

From the main page of your repository, go to "Settings" → "Options" → "GitHub Pages".

- 1 Choose the source

### GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository. [Learn more.](#)

#### Source

GitHub Pages is currently disabled. Select a source below to enable GitHub Pages for this repository. [Learn more.](#)

Branch: main ▾

#### Theme Chooser

Select a theme to publish

Choose a theme

/ (root) ▾

Save

Select folder

×

✓ / (root)

/docs

branch. [Learn more.](#)

# Showcase your work

## In practice

From the main page of your repository, go to "Settings" → "Options" → "GitHub Pages".

### 1 Choose the source

#### GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

##### Source

GitHub Pages is currently disabled. Select a [source](#) below to enable GitHub Pages for this repository. [Learn more.](#)

Branch: main ▾

/ (root) ▾

Save

##### Theme Chooser

Select a theme to publish your site with a Jekyll theme using the `main` branch. [Learn more.](#)

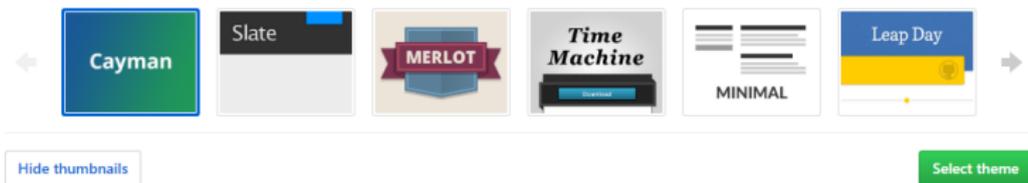
Choose a theme

# Showcase your work

In practice

From the main page of your repository, go to "Settings" → "Options"  
→ "GitHub Pages".

- 1 Choose the source
- 2 Choose the theme



# Showcase your work

## Convert Markdown into HTML !

```
# Welcome !

**Bienvenue à FAIR_bioinfo**

Vous trouverez ici des communications réali

**You will find here some communications mad

**Informations pratiques**
- Quand ? : le dernier vendredi après midi
- Durée ? : 1h30 (questions incluses)
- Lieu ? : Salle de conférence A.Kalogeropo

**Objectifs**

L'objectif est de proposer et d'utiliser un
FAIR correspond à l'acronyme anglais "Finda
Le projet support est une étude "d'expressi

**Pré-requis**
```



### Welcome !

#### Bienvenue à FAIR\_bioinfo

Vous trouverez ici des communications réalisables lors des sessions FAIR\_bioinfo. Les communications sont en français. Tout le contenu présenté existe déjà en anglais sur internet. Nous proposons donc ici des ressources pour les francophones.

You will find here some communications made during the IBF Bioinformatics Club. Communications will be mainly in French. All the content presented also exists in English on the Internet. Therefore, we propose here resources for Francophones.

#### Informations pratiques

- Quand ? : le dernier vendredi après midi de chaque mois (sauf juillet à différé), rdv 12h30
- Durée ? : 1h30 (questions incluses)
- Lieu ? : Salle de conférence A.Kalogeropoulos, b. 400, campus Orsay

#### Objectifs

L'objectif est de proposer et d'utiliser un panel d'outils permettant la réalisation d'un projet complet de bio-informaticien en partant de rien et aboutissant à la création d'un conteneur (technologie Docker). Le partage, la validation et l'analyse dynamique des données seront inclus dans le panel. FAIR correspond à l'acronyme anglais "Findable, Accessible, Interoperable, Reusable", initialement défini pour les données mais que nous étendons ici pour leurs processus d'analyse. Le projet support est une étude "d'expression différentielle de gènes" à partir de données RNAseq d'Osau.

#### Pré-requis

Questionner ... Savoir taper sur un clavier ?

#### Contact

- Thomas DENECKER (thomas.denecker@gmail.com)
- Claire Toffano-Nioche (claire.toffano-nioche@u-psud.fr)

#### Communications orales

[https://thomasdenecker.github.io/FAIR\\_Bioinfo](https://thomasdenecker.github.io/FAIR_Bioinfo)



# Showcase your work

Also works directly from HTML

- 1 Create a folder named "docs"
  - ▶ main file must be named index.html
- 2 "Settings" → "Options" → "GitHub Pages"

GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

✓ Your site is published at <https://thomasdenecker.github.io/bPeaks-application/>

**Source**  
Your GitHub Pages site is currently being built from the `docs` folder in the `master` branch. [Learn more.](#)

master branch /docs folder ▾

**Theme Chooser**  
Select a theme to publish your site with a Jekyll theme. [Learn more.](#)

Choose a theme

**Custom domain**  
Custom domains allow you to serve your site from a domain other than `thomasdenecker.github.io`. [Learn more.](#)

Save

**Enforce HTTPS**  
— Required for your site because you are using the default domain (`thomasdenecker.github.io`)

HTTPS provides a layer of encryption that prevents others from snooping on or tampering with traffic to your site. When HTTPS is enforced, your site will only be served over HTTPS. [Learn more.](#)

<https://thomasdenecker.github.io/bPeaks-application/>



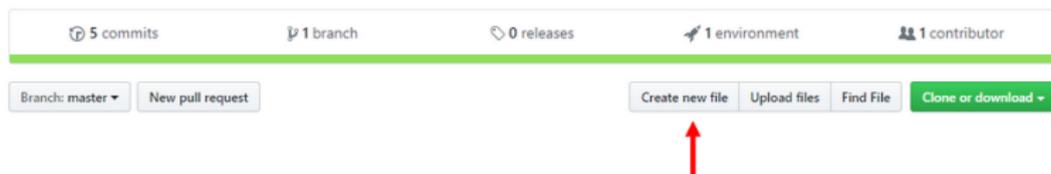
# Showcase your work

Remember to choose a licence !

This will determine whether anyone can use, modify, and distribute your code / tool / software...

<https://help.github.com/en/articles/licensing-a-repository>

- 1 Create a file named "LICENCE"
- 2 GitHub will suggest templates



# Showcase your work

Remember to choose a licence !

This will determine whether anyone can use, modify, and distribute your code / tool / software...

`https://help.github.com/en/articles/licensing-a-repository`

- 1 Create a file named "LICENCE"
- 2 GitHub will suggest templates

Fair\_Projet / LICENCE Cancel



The CeCILL licence is recommended by the CEA, CNRS and INRIA ("CEA CNRS INRIA Logiciel Libre"). Copy it directly.

# Showcase your work

GitHub takes care of displaying the information on your repository.

The screenshot shows the GitHub interface for adding a license to a repository named 'Fair\_Projet' by user 'thomasdencker'. The repository has 0 watches, 0 stars, and 0 forks. The 'Add a license to your project' section is active, displaying a list of license options on the left and a detailed view of the 'BSD 3-Clause "New" or "Revised" License' on the right.

**Available Licenses:**

- Apache License 2.0
- GNU General Public License v3.0
- MIT License
- BSD 2-Clause "Simplified" License
- BSD 3-Clause "New" or "Revised" License**
- Edgex Public License 2.0
- GNU Affero General Public License v3.0
- GNU General Public License v2.0
- GNU Lesser General Public License v2.1
- GNU Lesser General Public License v3.0
- Mozilla Public License 2.0
- The Unlicense

**BSD 3-Clause "New" or "Revised" License Details:**

A permissive license similar to the BSD 2-Clause License, but with a 3rd clause that prohibits others from using the name of the project or its contributors to promote derived products without explicit consent.

Permissions	Limitations	Conditions
<input checked="" type="checkbox"/> Commercial use	<input checked="" type="checkbox"/> Liability	<input checked="" type="checkbox"/> License and copyright notice
<input checked="" type="checkbox"/> Modification	<input checked="" type="checkbox"/> Warranty	
<input checked="" type="checkbox"/> Distribution		
<input checked="" type="checkbox"/> Private use		

This is not legal advice. [Learn more about repository licenses.](#)

**BSD 3-Clause License**

Copyright (c) 2016, [thomasdencker](#). All rights reserved.

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- Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

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**Form Fields:**

- Year: 2019
- Full name: thomasdencker
- Review and submit button

# Showcase your work

## Validate and merge with the main branch

 thomasdenecker/Fair_Projet is licensed under the <b>BSD 3-Clause "New" or "Revised" License</b> <p>A permissive license similar to the BSD 2-Clause License, but with a 3rd clause that prohibits others from using the name of the project or its contributors to promote derived products without written consent.</p>	<b>Permissions</b> <ul style="list-style-type: none"><li>✓ Commercial use</li><li>✓ Modification</li><li>✓ Distribution</li><li>✓ Private use</li></ul>	<b>Limitations</b> <ul style="list-style-type: none"><li>✗ Liability</li><li>✗ Warranty</li></ul>	<b>Conditions</b> <ul style="list-style-type: none"><li>ⓘ License and copyright notice</li></ul>
<p>This is not legal advice. <a href="#">Learn more about repository licenses.</a></p>			

# Showcase your work

## Kind reminder: consequence of not choosing a licence.

### No License

When you make a creative work (which includes code), the work is under exclusive copyright by default. Unless you include a license that specifies otherwise, nobody else can copy, distribute, or modify your work without being at risk of take-downs, shake-downs, or litigation. Once the work has other contributors (each a copyright holder), "nobody" starts including you.

Even in the absence of a license file, you may grant some rights in cases where you publish your source code to a site that requires accepting terms of service. For example, if you publish your source code in a public repository on GitHub, you have accepted the [Terms of Service](#), by which you allow others to view and fork your repository. Others may not need your permission if [limitations and exceptions to copyright](#) apply to their particular situation. Neither site terms nor jurisdiction-specific copyright limitations are sufficient for the kinds of collaboration that people usually seek on a public code host, such as experimentation, modification, and sharing as fostered by an open source license.

You don't have to do anything to not offer a license. You may however wish to add a copyright notice and statement that you are not offering any license in a prominent place (e.g., your project's README) so that [users](#) don't assume you made an oversight. If you're going to accept others' contributions to your non-licensed project, you may wish to explore with your lawyer adding a contributor agreement to your project so that you maintain copyright permission from contributors, even though you're not granting the same.

Disallowing use of your code might not be what you intend by "no license." An [open-source license](#) allows reuse of your code while retaining copyright. If your goal is to completely opt-out of copyright restrictions, try a [public domain dedication](#).

### For users

If you find software that doesn't have a license, that generally means you have no permission from the creators of the software to use, modify, or share the software. Although a code host such as GitHub may allow you to view and fork the code, this does not imply that you are permitted to use, modify, or share the software for any purpose.

Your options:

- **Ask the maintainers nicely to add a license.** Unless the software includes strong indications to the contrary, lack of a license is probably an oversight. If the software is hosted on a site like GitHub, open an issue requesting a license and include a link to this site. If you're bold and it's fairly obvious what license is most appropriate, open a pull request to add a license – see "suggest this license" in the sidebar of the page for each license on this site (e.g., [MIT](#)).
- **Don't use the software.** Find or create an alternative that is under an open source license.
- **Negotiate a private license.** Bring your lawyer.

# Release

# Release

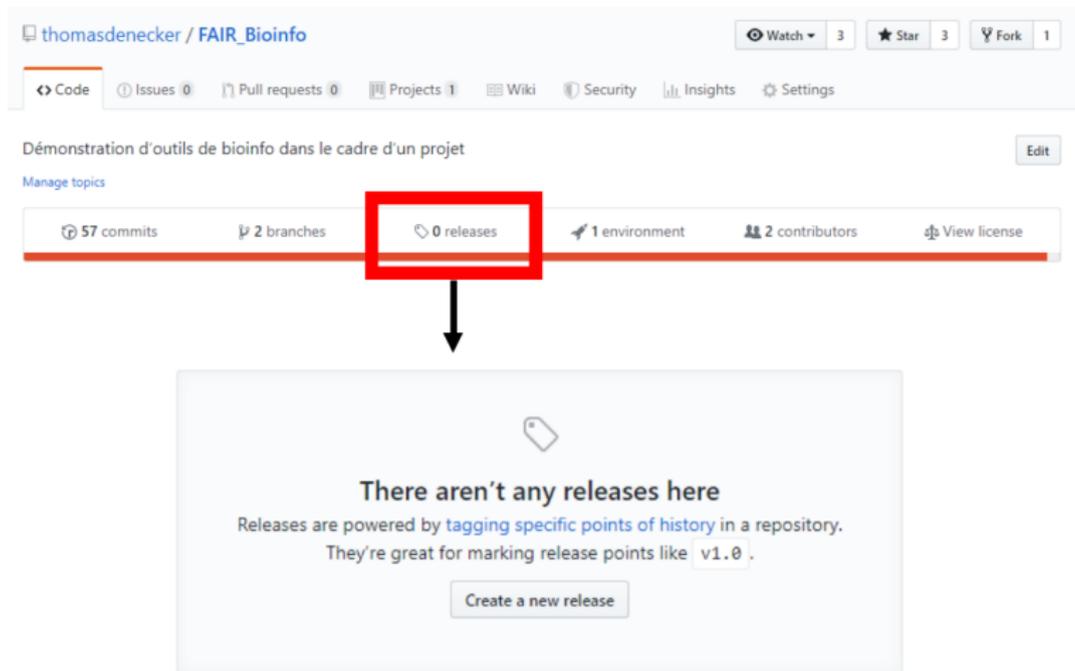
Goal : provide users with a version of your code that has been fixed in time and labelled.

All the steps are detailed here:

- <https://help.github.com/en/articles/creating-releases>

# Release

## Make a release



thomasdenecker / FAIR\_Bioinfo

Watch 3 Star 3 Fork 1

Code Issues 0 Pull requests 0 Projects 1 Wiki Security Insights Settings

Démonstration d'outils de bioinfo dans le cadre d'un projet Edit

Manage topics

57 commits 2 branches **0 releases** 1 environment 2 contributors View license

**There aren't any releases here**

Releases are powered by [tagging specific points of history](#) in a repository.  
They're great for marking release points like `v1.0`.

[Create a new release](#)

# Release

## Make a release

thomasdenecker / FAIR\_Bioinfo

Watch 3 Star 3 Fork 1

Code Issues 0 Pull requests 0 Projects 1 Wiki Security Insights Settings

Releases Tags

Tag version @ Target: master

Choose an existing tag, or create a new tag on publish

Release title

Write Preview

Describe this release

Attach files by dragging & dropping, selecting or pasting them.

Attach binaries by dropping them here or selecting them.

This is a pre-release  
We'll point out that this release is identified as non-production ready.

Publish release Save draft

### Tagging suggestions

It's common practice to prefix your version names with the letter v. Some good tag names might be v1.0 or v2.3.4.

If the tag isn't meant for production use, add a pre-release version after the version name. Some good pre-release versions might be v0.2-a1pha or v5.9-beta.3.

### Semantic versioning

If you're new to releasing software, we highly recommend reading about [semantic versioning](#).



# Release

Semantic of a release number

1.0.0  
MAJOR.MINOR.PATCH

- MAJOR : changes not backwards-compatible
- MINOR : new/modified functionalities, backwards-compatible
- PATCH : bug fixes, backwards-compatible

More details : <https://semver.org/>

# Release

## First release for FAIR\_Bioinfo

Releases Tags Edit release Delete

Latest release

1.0.0  
1e307ed

 **thomasdenecker** released this just now

1.0.0

Update Readme

**Assets** 2

[Source code \(zip\)](#)

[Source code \(tar.gz\)](#)

# Obtain a DOI

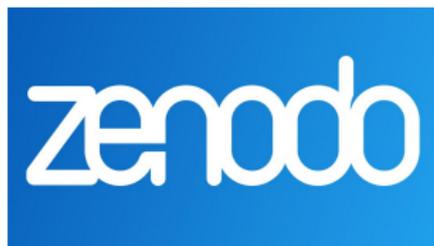
## Obtain a DOI



# Obtain a DOI

Digital Object Identifier

Reference system to cite an object (A GitHub project in our case)



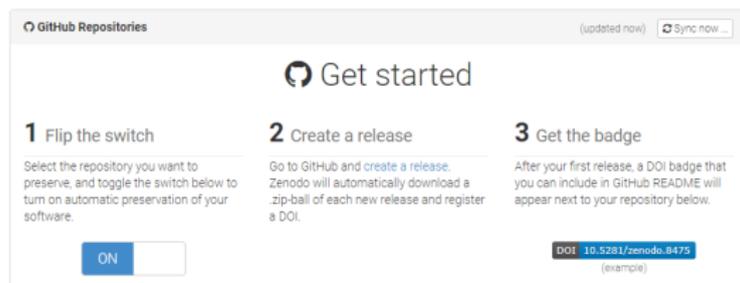
<https://guides.github.com/activities/citable-code/>

# Obtain a DOI

## 1/ Sign in to Zenodo

- With your GitHub account
- With your ORCID account (add a "Linked account" to GitHub afterwards)

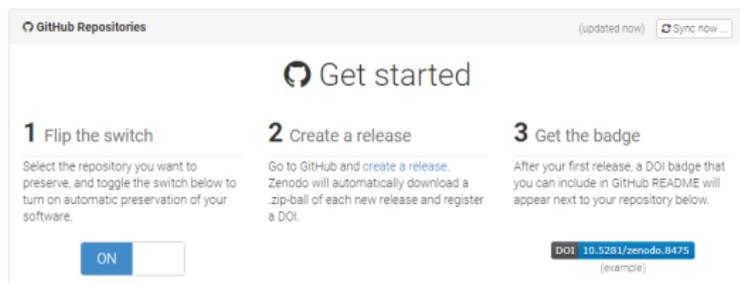
## 2/ Go to the Settings page → GitHub tab



The screenshot shows the 'GitHub Repositories' settings page in Zenodo. At the top, it says '(updated now)' and has a 'Sync now...' button. The main heading is 'Get started' with a circular arrow icon. Below this, there are three numbered steps:

- 1 Flip the switch**  
Select the repository you want to preserve, and toggle the switch below to turn on automatic preservation of your software.  
There is a blue 'ON' button and a white switch.
- 2 Create a release**  
Go to GitHub and [create a release](#). Zenodo will automatically download a .zip-ball of each new release and register a DOI.
- 3 Get the badge**  
After your first release, a DOI badge that you can include in GitHub README will appear next to your repository below.  
An example badge is shown: `DOI 10.5281/zenodo.8475` (example)

# Obtain a DOI



**GitHub Repositories** (updated now) [Sync now ...](#)

## Get started

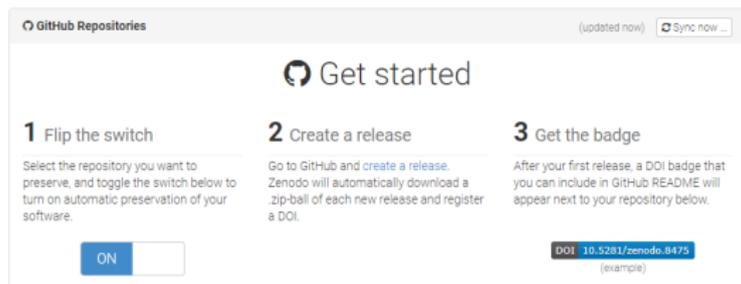
- 1 Flip the switch**  
Select the repository you want to preserve, and toggle the switch below to turn on automatic preservation of your software.
- 2 Create a release**  
Go to GitHub and [create a release](#). Zenodo will automatically download a .zip-ball of each new release and register a DOI.
- 3 Get the badge**  
After your first release, a DOI badge that you can include in GitHub README will appear next to your repository below.  


3/ In the list below, find the project you want to link to Zenodo. Flip the switch.

 [thomasdenecker/FAIR\\_Bioinfo](#)



# Obtain a DOI



**GitHub Repositories** (updated now) Sync now ...

## Get started

- 1 Flip the switch**  
Select the repository you want to preserve, and toggle the switch below to turn on automatic preservation of your software.
- 2 Create a release**  
Go to GitHub and [create a release](#). Zenodo will automatically download a .zip-ball of each new release and register a DOI.
- 3 Get the badge**  
After your first release, a DOI badge that you can include in GitHub README will appear next to your repository below.  


4/ On GitHub, in Settings → Webhooks, a new line has been created: Zenodo will be notified of any new release created in this project.

## Webhooks

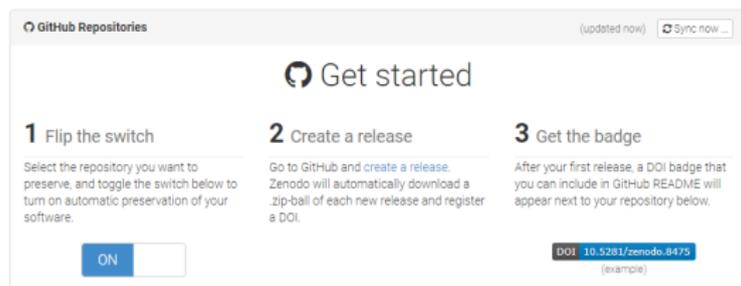
Add webhook

Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our [Webhooks Guide](#).

✓ <https://zenodo.org/api/hooks/receivers/github/events/> (release)

Edit Delete

# Obtain a DOI



**GitHub Repositories** (updated now)

## Get started

- 1 Flip the switch**

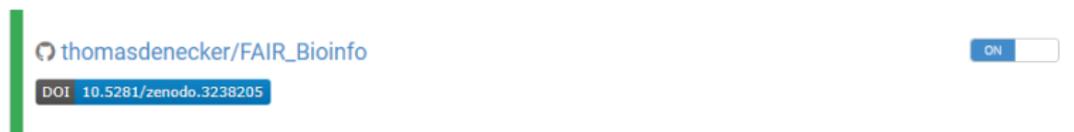
Select the repository you want to preserve, and toggle the switch below to turn on automatic preservation of your software.
- 2 Create a release**

Go to GitHub and [create a release](#). Zenodo will automatically download a .zip-ball of each new release and register a DOI.
- 3 Get the badge**

After your first release, a DOI badge that you can include in GitHub README will appear next to your repository below.

**DOI 10.5281/zenodo.8475**  
(example)

5/ Back to Zenodo. After a release, a badge will be available below the project's name, in the category Enabled repositories.



**thomasdenecker/FAIR\_Bioinfo**

**DOI 10.5281/zenodo.3238205**

# Obtain a DOI

## DOI Badge

This badge points to the latest released version of your repository. If you want a DOI badge for a specific release, please follow the DOI link for one of the specific releases and grab badge from the archived record.

### Markdown

```
[![DOI](https://zenodo.org/badge/164655551.svg)](https://zenodo.org/badge/late
```

### reStructuredText

```
.. image:: https://zenodo.org/badge/164655551.svg  
   :target: https://zenodo.org/badge/latestdoi/164655551
```

### HTML

```
<a href="https://zenodo.org/badge/latestdoi/164655551"><img src="https://zenod
```

### Image URL

```
https://zenodo.org/badge/164655551.svg
```

### Target URL

```
https://zenodo.org/badge/latestdoi/164655551
```

# Obtain a DOI

GitHub Repositories (updated now) Sync now ...

## Get started

- 1 Flip the switch**

Select the repository you want to preserve, and toggle the switch below to turn on automatic preservation of your software.

ON
- 2 Create a release**

Go to GitHub and [create a release](#). Zenodo will automatically download a .zip-ball of each new release and register a DOI.
- 3 Get the badge**

After your first release, a DOI badge that you can include in GitHub README will appear next to your repository below.

## 6/ Add the code for the badge to the README.

### Welcome !

DOI

#### Bienvenue à FAIR\_bioinfo

Vous trouverez ici des communications réalisées lors des sessions FAIR\_bioinfo. Les communications sont en français. Tout le contenu présenté existe déjà en anglais sur internet. Nous proposons donc ici des ressources pour les francophones.

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- Durée ? : 1h30 (questions incluses)
- Lieu ? : Salle de conférence A.Kalogeropoulos, b. 400, campus Orsay

# GitHub Package Registry

The screenshot shows the GitHub Package Registry interface for the package 'Codertocat / hello-world-npm'. The page includes navigation tabs for Code, Issues, Pull requests, Projects, Wiki, Insights, and Settings. The 'Packages' tab is active, showing the package name 'hello-world-npm 1.0.1' with a 'Latest version' badge. Below this, there are instructions on how to install the package from the command line, via package.json, or by configuring npm. The 'Package details' section on the right lists the package name, repository ID (x961376), version (1.0.1), and release date (May 10, 2019). It also shows the assets (hello-world-npm-1.0.1-npm.tgz, 816 bytes) and download activity (1 download today, 1 this week, 1 this month, 1 this year). The 'Recent versions' section lists version 1.0.1 (2 minutes ago) and 1.0.0 (41 minutes ago). The 'Installation' section provides a code snippet for installing the package and configuring it in package.json. The 'Usage' section shows a code snippet for using the package in a Node.js application.

Packages directly available on GitHub.

`https://help.github.com/en/articles/about-github-package-registry`  
`https://github.com/features/package-registry`

