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## Create software deposit in HAL

Morane Gruenpeter, Jozefina Sadowska, Estelle Nivault, Alain Monteil

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**<https://inria.hal.science/hal-01872189v2>**

Submitted on 13 Apr 2022

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# Create software deposit in HAL

## User guide and best practices

Version 2.0 (March 2022)

Authors :

- Morane Gruenpeter  
[morane@softwareheritage.org](mailto:morane@softwareheritage.org)
- Jozefina Sadowska  
[jozefina.sadowska@inria.fr](mailto:jozefina.sadowska@inria.fr)
- Estelle Nivault  
[estelle.nivault@inria.fr](mailto:estelle.nivault@inria.fr)
- Alain Monteil  
[alain.monteil@inria.fr](mailto:alain.monteil@inria.fr)



**HAL**  
open science

**CCSD** ●●●

*Inria*



Software Heritage

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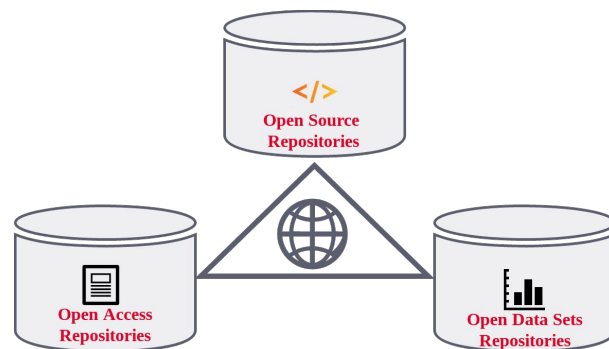
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# Introduction: why deposit on HAL?

- ★ **Archive** software in HAL and in SWH
  - Better **visibility** for software in open science context
  - **Long term preservation** HAL and SWH have a long term preservation service
- ★ **Identify**
  - the software artifacts with a **SWHID** (SoftWare Heritage Identifier)
  - the metadata record and citation with the **HAL-ID**
- ★ **Describe** source code with verified metadata
  - **Moderation** and control of the metadata by librarians and/or curators
- ★ **Cite** the software deposit with a complete citation
  - Several **exports format** make it easier for citation



*The three pillars of Open Science, Software Heritage CC-BY 4.0 2019*

# Introduction: What software object to deposit in HAL?

- ★ The **source code** of the software (not compatible for executables)
- ★ Software that was developed in **academia** for research purposes
- ★ Only the software **creators/authors** of the software or their representatives can deposit software in HAL

## Use cases

I **develop** my software **locally**  
And I share my code on my personnel website or my institution's website

**Local method:** deposit **.zip / .tar.gz**

I **develop** my software on a **collaborative platforme** using a **version control system** (on GitHub, GitLab, Bitbucket...)

**SWHID method:** deposit **SWHID with metadata**

# Introduction: The deposit steps

- Deposit on HAL
  - ◆ Local method or the SWHID method
- Validation of the form by the contributor
- Deposit in progress waiting for **verification**
  - ◆ **Dialogue** between contributor and moderator
- **Validation** of the deposit by the moderator
- Deposit **published on HAL** and **transfer to SWH**
- Export formats
  - ◆ Citation
  - ◆ BibTeX
  - ◆ codemeta.json
  - ◆ TEI

# Checklist depending on use case

**Local method:** deposit .zip / .tar.gz

1. **Prepare your source code (locally)**
  - AUTHORS, LICENSE & README files
  - Compress documents into .zip / .tar.gz
2. **Deposit compressed archive**
3. **Complete metadata**
  - Choose deposit type
  - Add generic metadata
  - Add software specific metadata
  - Add authors
  - Validate deposit

**SWHID method:** deposit SWHID with metadata

1. **Prepare your source code (in code repository)**
  - AUTHORS, LICENSE & README files
  - Codemeta.json file
  - [Save code now](#) on Software Heritage
  - Choose SoftWare Heritage IDentifier (SWHID)
2. **Deposit SWHID in HAL interface**
3. **Complete metadata**
  - Add domain
  - Control entries from codemeta
  - Add authors
  - Validate deposit

# **Chapter 1:**

## **Prepare the source code for archival**



# 1.1 Prepare your code

## 1.1.1 Add the following files :

these *elements*  
are *verified* by  
the *moderators*

- ☐ README
- ☐ AUTHORS
- ☐ LICENSE (Choose with the right holders of the software - [Here you can find the SPDX reference list of licenses](#))



talon  
Dossier - 472 Ko

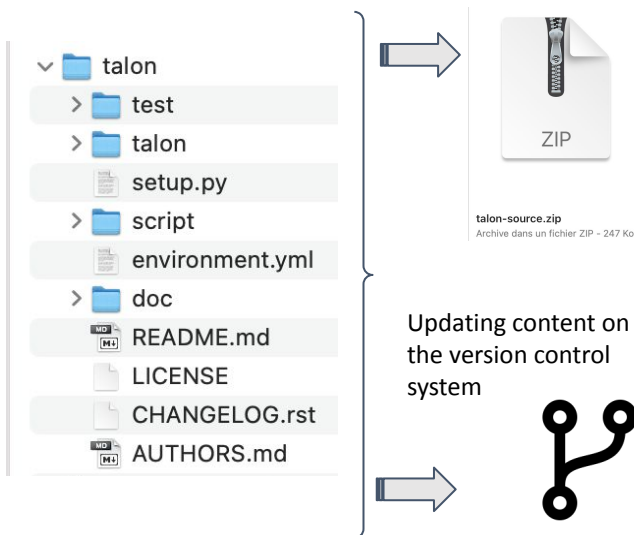
## 1.1.2 Local method: create a compressed archive

.zip ou .tar.gz

*It is preferable to name the compressed file with the software name and version number*

## 1.1.3 SWHID method: use your version control system

**local method: deposit .zip /.tar.gz**



**SWHID method: deposit SWHID with metadata**

# 1.1.1 README file

- ★ **Mandatory:**
  - Software / project name
  - Description of the software
- ★ **Recommended:**
  - Website
  - Link to the documentation
  - Contact & support
  - List of functionalities
  - Development environment
    - build, installation, requirements
    - How to execute the code
- ★ **Possible:**
  - Usage - How to use the code
  - News about the project
  - Visuals

```
This is Python version 3.8.0 alpha 0
-----
.. image:: https://travis-ci.org/python/cpython.svg?branch=master
:alt: CPython build status on Travis CI
:target: https://travis-ci.org/python/cpython

.. image:: https://ci.appveyor.com/api/projects/status/4mew1a93dkbf5ua/branch/master?svg=true
:alt: CPython build status on Appveyor
:target: https://ci.appveyor.com/project/python/cpython/branch/master

.. image:: https://dev.azure.com/python/cpython/_apis/build/status/Azure%20Pipelines%20CI?branchName=master
:alt: CPython build status on Azure DevOps
:target: https://dev.azure.com/python/cpython/_build/latest?definitionId=4&branchName=master

.. image:: https://codecov.io/gh/python/cpython/branch/master/graph/badge.svg
:alt: CPython code coverage on Codecov
:target: https://codecov.io/gh/python/cpython

.. image:: https://img.shields.io/badge/zulip-join_chat-brightgreen.svg
:alt: Python Zulip chat
:target: https://python.zulipchat.com

Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011,
2012, 2013, 2014, 2015, 2016, 2017, 2018 Python Software Foundation. All rights
reserved.

See the end of this file for further copyright and license information.

.. contents::

General Information
-----

- Website: https://www.python.org
- Source code: https://github.com/python/cpython
- Issue tracker: https://bugs.python.org
- Documentation: https://docs.python.org
- Developer's Guide: https://devguide.python.org/

Contributing to CPython
-----

For more complete instructions on contributing to CPython development,
see the `Developer Guide`_.

.. _Developer Guide: https://devguide.python.org/

Using Python
-----

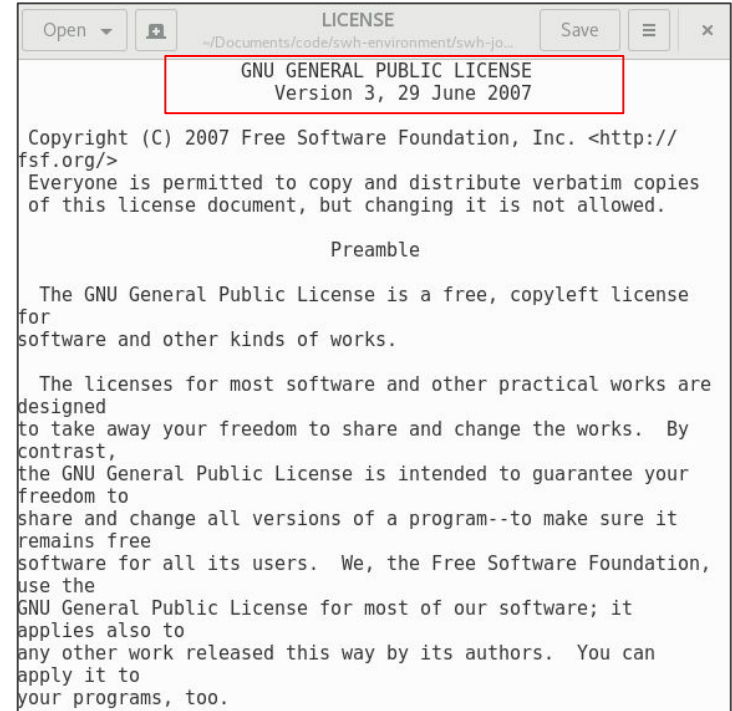
Installable Python kits, and information about using Python, are available at
`python.org`_.
```

Readme from the CPython project archived on SWH :  
[swh:1:cnt:970f62e6938908a9caaaa0a07fe425bd3976c101:origin=https://github.com/python/cpython/](https://github.com/python/cpython/) 9



## 1.1.3 Fichier LICENSE

- ★ Before depositing the source code, you must choose a license with the appropriate rights owner
  - at INRIA, the CPPI is the best service to discuss the license question
  - Consult the appropriate service in your institution
- ★ If you have more than one license create a `LICENSES/` directory with all licenses
- ★ Note the same license/s in the HAL form's metadata
  - The compatibility between the license in the form and in the code is verified by the moderators
  - The **contributor is responsible** of the compatibility between licenses (between code and dependencies)



```
Open [icon] LICENSE [Save] [Menu] [Close]
~/Documents/code/sw-h-environment/sw-h-jo...

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://
fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

                                Preamble

The GNU General Public License is a free, copyleft license
for
software and other kinds of works.

The licenses for most software and other practical works are
designed
to take away your freedom to share and change the works. By
contrast,
the GNU General Public License is intended to guarantee your
freedom to
share and change all versions of a program--to make sure it
remains free
software for all its users. We, the Free Software Foundation,
use the
GNU General Public License for most of our software; it
applies also to
any other work released this way by its authors. You can
apply it to
your programs, too.
```

Resources to help review different licenses & practices:

- <https://choosealicense.com/>
- <https://reuse.software/>

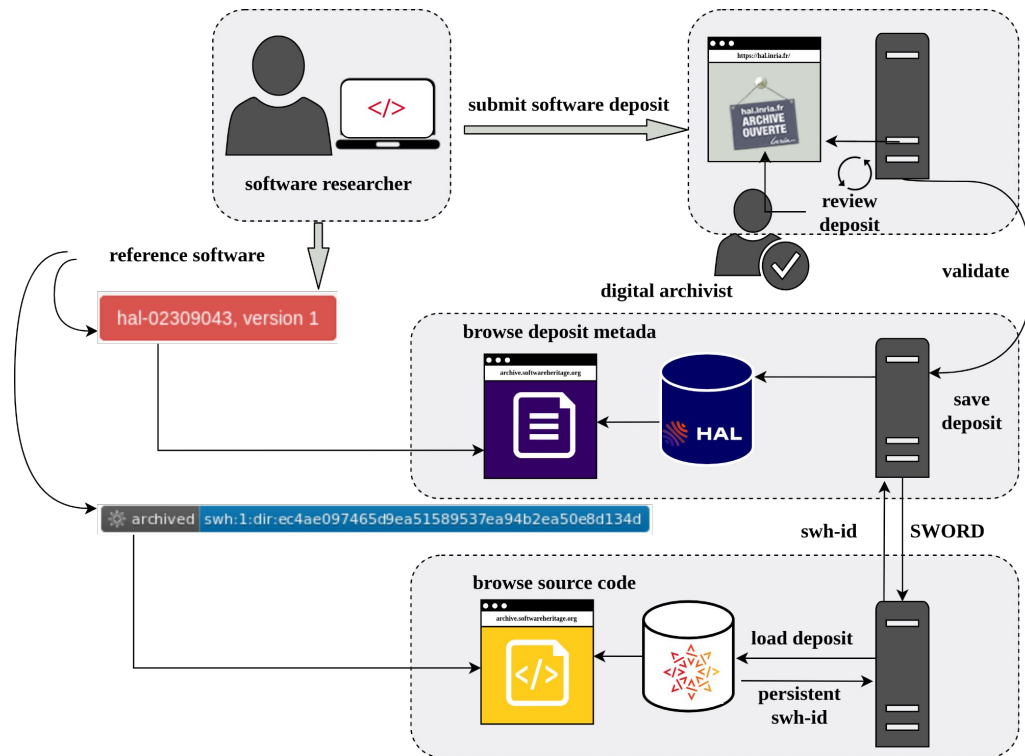
# Chapter 2:

## Deposit local source code

**local method:** `deposit .zip /.tar.gz`

# The local method deposit

- One compressed **archive** containing source code (mostly text files)
- A collection of **metadata**
  - ◆ Generic metadata
  - ◆ Software specific metadata



## 2.1: Deposit the files

After logging in into HAL, use the “submit” tab , Drag and drop or click to upload compressed file.

Note that it is not possible for the software deposit to submit more than one compressed file.

The archive (.zip, .tar.gz) MUST contain all files and shouldn't be decompressed before validation.

The archive (.zip, .tar.gz) shouldn't contain another archive (.zip, .tar.gz).



The screenshot shows the HAL website interface. At the top, there is a dark blue header with the HAL logo and the text "science ouverte". To the right, it says "La connaissance libre et partagée". Below the header, there is a navigation menu with links: Accueil | Dépôt | Consultation - | Recherche | Documentation | Mon espace -.

The main content area is titled "Déposer le(s) fichier(s)". It contains a large dashed box for file upload with a cloud icon and a document icon. The text inside the box says ".zip / .tar.gz" and "Glissez-déposez ou cliquez pour choisir vos fichiers". Below this, it says "Taille maximale du fichier : 200M".

To the right of the upload box, there is a section titled "Chargez les métadonnées à partir d'un identifiant". It contains a text input field with the value "swih:1.dir:79b8c8755dbed3401a6a7184ffc196f3c58cb5d.origi" and a button labeled "Récupérer les métadonnées".

At the bottom of the page, there is a small note: "Si vous souhaitez ajouter un embargo, récupérer des fichiers de votre espace FTP ou toute autre action avancée, veuillez afficher la vue détaillée."

## 2.2: Complete the metadata

→ 2.2.1 Choose the document type\* :

Software

To see the full list of properties check the checkbox on the top right

Mandatory properties are identified with a star (\*)

→ 2.2.2 Add the general properties :







- Title\*
- Domain\*
- Description (Il est recommandé d'avoir une description cohérente avec le contenu du fichier README)
- Keywords
- Identifiers
- Related data
- Associated publications
- Production date
- Publisher
- Institution

A screenshot of a web form for submitting software metadata. At the top right, there is a checkbox labeled "Afficher la liste complète des métadonnées" which is checked. Below this, an orange banner contains the text: "Avant tout dépôt de code source, vous devez réfléchir à la licence que vous souhaitez pour votre code. Chez INRIA, votre CPPI est votre interlocuteur pour discuter de ces questions." The form is divided into several sections: "Type de document\*" with a dropdown menu set to "Logiciel"; "Nom\*" with a text input field containing "TALON: Tractograms As Linear Operators in Neuroimaging" and a language selector set to "anglais"; "Domaine\*" with a list of domain tags including "Imagerie médicale" and "Traitement du signal et de l'image [eess.SP]", and an "Ajouter un domaine" button; and "Description" with a text area containing the text: "TALON is a pure Python package that implements Tractograms As Linear Operators in Neuroimaging. The software provides the TALON Python module, which includes all the functions and tools that are necessary for filtering a tractogram. In particular, specific functions are devoted to: - Transforming a tractogram into a linear operator. - Solving the inverse problem associated to the filtering of a tractogram." The description section also has a language selector set to "anglais".



## → 2.2.3 Add **software specific metadata** :

- Licenses\* (based on the SPDX reference list, it is also possible to enter a license that is not in this list)
- Programming language
- Code repository
- Platform/OS - environment
- Version
- Development status
- Runtime Platform

<b>Licenses *</b>	<i>La ou les licences sous lesquelles est publié ce logiciel (vous pouvez utiliser l'autocomplétion)</i>
	<input type="text" value="MIT License"/> 
	<input type="text"/> 
<b>Langage de programmation</b>	<input type="text" value="Python"/> 
	<input type="text"/> 
<b>Code Repository</b>	<i>Lien où se trouve le développement du code (SVN, github, gitlab, CodePlex).</i>
	<input type="text" value="https://gitlab.inria.fr/cobcom/talon"/>
<b>Platform/OS</b>	<i>Le système d'exploitation compatible avec le logiciel</i>
	<input type="text"/> 
<b>Version</b>	<i>la version du logiciel (peut être différente de la version publiée sur HAL)</i>
	<input type="text" value="0.3.0"/>
<b>Etat du développement</b>	<i>L'état du développement du logiciel au moment du dépôt (Concept, WIP, Suspendu, Actif, Inactif)</i>
	<input type="text" value="active"/>
<b>Outils de développement</b>	<i>Les outils de développement associés au logiciel (Framework, middleware, plateforme logicielle)</i>
	<input type="text"/> 

## 2.3 Complete information about author(s)

- Add the author(s)
- Add affiliation for each author (*at least one author must be affiliated*)

- It is possible to add different authors and add a role (development, maintenance, design, architecture, debugging, documentation, test, support, management).

- It is necessary to add all authors from the AUTHORS file.

- You may add a CONTRIBUTORS file for people who participated in the creation of the software but are not considered authors.

The screenshot displays a web interface for managing author information. At the top, a status bar indicates 'Compléter les données auteur(s)' with a green checkmark. Below this, a list of authors is shown, each with a plus icon and a minus icon. The first author, Matteo Frigo, is highlighted. A dropdown menu is open for Matteo Frigo, showing a list of roles: Développement (checked), Maintenance, Design, Architecture, Débogage, Documentation, Test, Support, and Management. The 'Choisir la fonction' option is highlighted with a red box. To the right of the author list, there are buttons for 'Afficher toutes les options', 'Pour cet auteur', and 'Pour cette structure'.

Compléter les données auteur(s) ✓

Afficher toutes les options ✓

Matteo Frigo **IdHAL: matteofrigo** Auteur

- ATHENA - Computational Imaging of the Central Nervous System
- UCA - Université Côte d'Azur
- Ajouter une affiliation

Matteo Frigo

Fonction

- ✓ Développement
- Maintenance
- Design
- Architecture
- Débogage
- Documentation
- Test
- Support
- Management

Modifier

Supprimer

Choisir la fonction

Pour cet auteur ▼

Pour cette structure ▼

Pour cette structure ▼

Mauro Zucchelli **IdHAL: mauro-zucchelli** Aute

- ATHENA - Computational Imaging of the C
- UCA - Université Côte d'Azur
- Ajouter une affiliation

Rachid Deriche **Auteur**

- ATHENA - Computational Imaging of the Central Nervous Sy
- UCA - Université Côte d'Azur
- Ajouter une affiliation

Samuel Deslauriers-Gauthier **Auteur**

- ATHENA - Computational Imaging of the Central Nervous System
- UCA - Université Côte d'Azur

Pour cet auteur ▼

Pour cette structure ▼


Pour cette structure ▼

## 2.4 Submit the deposit

- Accept transfer to Software Heritage and contribute to the largest software source code archive in the world.
- Accept HAL's conditions
- Click on “Upload” to submit

☰ Valider le dépôt ✓

**Logiciel**  
Matteo Frigo, Mauro Zucchelli, Rachid Deriche, Samuel Deslauriers-Gauthier. TALON: Tractograms As Linear Operators in Neuroimaging. 2021

 Software Heritage [Voir les conditions pour le transfert](#)

Software Heritage a pour objectif de collecter, préserver, et rendre accessible, à tous, le code source de tous les logiciels disponibles.

Pour pouvoir transférer votre logiciel dans la plus grande archive de code source, votre dépôt doit satisfaire les conditions suivantes :

- Les fichiers déposés doivent être sous une licence libre.
- Les fichiers ne peuvent pas être sous embargo.

L'accès à votre dépôt sur Software Heritage sera disponible dans un délais de 7-30 jours (le temps de traitement de votre dépôt)

**Conditions**

En déposant ce document, le contributeur (je) accorde la licence suivante à HAL :

- J'autorise HAL à mettre en ligne et à distribuer cet article ;
- Je reconnais avoir pris connaissance que les dépôts ne peuvent pas être supprimés, une fois acceptés ;
- Je comprends que HAL se réserve le droit de reclasser ou de rejeter tout dépôt.

J'accepte ces conditions

Vider Annuler **↓ Déposer**

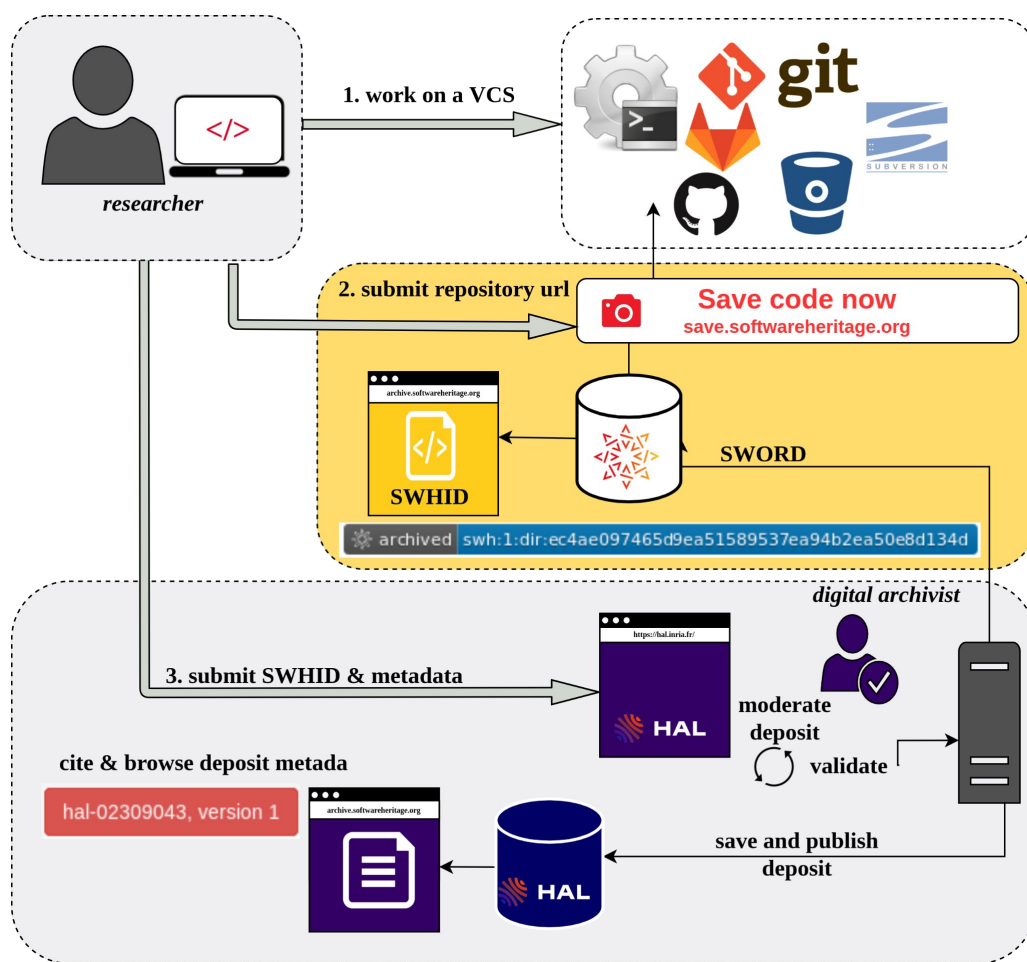
# Chapter 3: Deposit SoftWare Heritage ID (SWHID) with metadata

**SWHID method:** deposit SWHID with metadata

## SWHID method: deposit SWHID with metadata

# The SWHID deposit

- The SWHID deposit is composed by:
- A SoftWare Heritage identifier (**SWHID**) that can be found on the Software Heritage archive or calculated locally. The SWHID references the source code.
- A metadata collection
  - ◆ the metadata can be **pulled** into the form using the **SWHID**. The properties available on **codemeta.json** file in the root directory of your code can be extracted automatically on HAL's form.
  - ◆ **filling** the form with metadata properties to complete the form



\*VCS = Version Control System

## 3.1 Prepare the source code

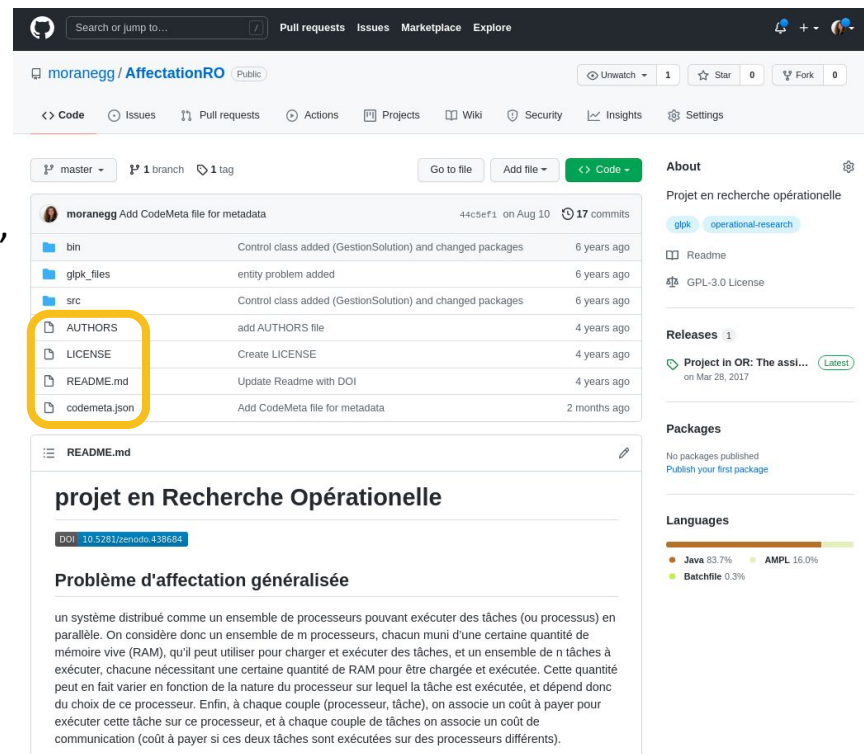
Before depositing on HAL you must prepare your source code on the collaborative development platform (GitHub, Gitlab, etc.).

The following elements are verified by a moderator

3.1.1 Add the following files to your source code and push to your `code repository`:

- ❑ **README** (see section [1.1.1 README file](#))
- ❑ **AUTHORS** (see section [1.1.2 AUTHORS files](#))
- ❑ **LICENSE** (see section [1.1.3 Fichier LICENSE](#))

- ❑ **codemeta.json** - isn't mandatory but useful to complete the form especially when using the SWHID method.



The screenshot shows a GitHub repository page for 'moranegg/AffectationRO'. The commit history table is as follows:

Commit	Message	Time
44c5ef1	Add CodeMeta file for metadata	on Aug 10 17 commits
6 years ago	Control class added (GestionSolution) and changed packages	6 years ago
6 years ago	entity problem added	6 years ago
6 years ago	Control class added (GestionSolution) and changed packages	6 years ago
4 years ago	add AUTHORS file	4 years ago
4 years ago	Create LICENSE	4 years ago
4 years ago	Update Readme with DOI	4 years ago
2 months ago	Add CodeMeta file for metadata	2 months ago

The README preview shows the following content:

### projet en Recherche Opérationnelle

DOI: [10.5281/zenodo.438684](https://doi.org/10.5281/zenodo.438684)

#### Problème d'affectation généralisée

un système distribué comme un ensemble de processeurs pouvant exécuter des tâches (ou processus) en parallèle. On considère donc un ensemble de m processeurs, chacun muni d'une certaine quantité de mémoire vive (RAM), qu'il peut utiliser pour charger et exécuter des tâches, et un ensemble de n tâches à exécuter, chacune nécessitant une certaine quantité de RAM pour être chargée et exécutée. Cette quantité peut en fait varier en fonction de la nature du processeur sur lequel la tâche est exécutée, et dépend donc du choix de ce processeur. Enfin, à chaque couple (processeur, tâche), on associe un coût à payer pour exécuter cette tâche sur ce processeur, et à chaque couple de tâches on associe un coût de communication (coût à payer si ces deux tâches sont exécutées sur des processeurs différents).

## 3.1.2 Why CodeMeta ?

- A vocabulary extending [schema.org](https://schema.org)
  - <https://codemeta.github.io/terms/>
- An [academic community](#)
- A [crosswalk table](#) enabling translations between different ontologies/vocabularies to CodeMeta

Tool to create a codemeta.json file

# CodeMeta generator

Most fields are optional. Mandatory fields will be highlighted when generating Codemeta.

The software itself

Name

My Software

the software title

Description

My Software computes ephemerides and orbit propagation. It has been developed from early '80.

Creation date

YYYY-MM-DD

First release date

YYYY-MM-DD

To create easily a codemeta.json file use the [online tool](#)

➤ [You can contribute here](#)

## 3.1.3 CodeMeta file: an example

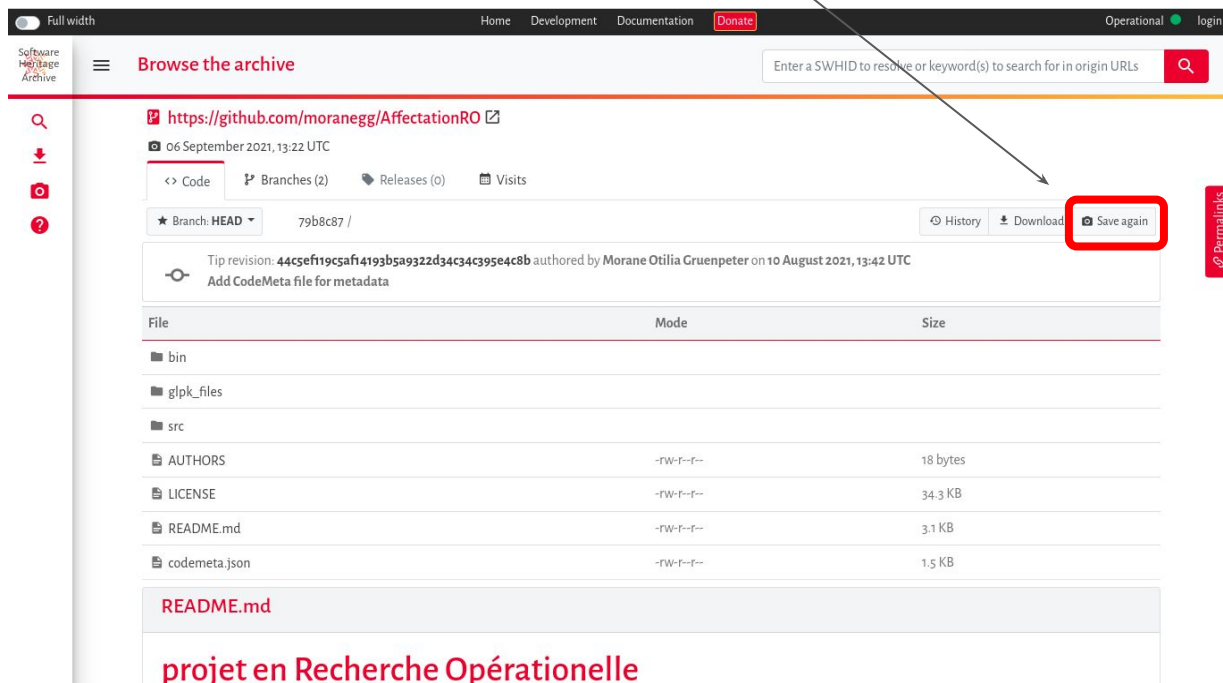
```
{
  "@context": "https://doi.org/10.5063/schema/codemeta-2.0",
  "@type": "SoftwareSourceCode",
  "license": "https://spdx.org/licenses/AGPL-3.0",
  "codeRepository": "https://github.com/moranegg/AffectationRO",
  "dateCreated": "2014-01-01",
  "dateModified": "2019-06-26",
  "name": "AffectationRO- The assignment problem",
  "version": "1.0.0",
  "description": "A java implementation for The Assignment Problem a distributed system as a set of processors that can perform tasks (or processes) in parallel. We therefore consider a set of m processors, each equipped with a certain amount of random access memory (RAM).\r\n\r\n We associate a cost to pay to perform this task on this processor, and each pair of tasks is associated with a communication cost. The Assignment problem works on minimizing the cost and maximizing the tasks performed.",
  "applicationCategory": "info",
  "releaseNotes": "First release with GLPK, in Beta testing",
  "developmentStatus": "concept",
  "keywords": [
    "distributed systems",
    "glpk",
    "optimisation",
    "OR"
  ],
  "programmingLanguage": [
    "Java"
  ],
  "author": [
    {
      "@type": "Person",
      "@id": "https://orcid.org/0000-0002-9777-5560",
      "givenName": "Morane",
      "familyName": "Gruenpeter",
      "email": "morane.gg@gmail.com",
      "affiliation": {
        "@type": "Organization",
        "name": "Software Heritage"
      }
    }
  ]
}
```



## 3.2 Save your code on Software Heritage

<https://archive.softwareheritage.org/>

3.2.1 Verify if your **code repository** and the **specific version** you want to submit are already in **Software Heritage**



Full width Home Development Documentation Donate Operational login

Software Heritage Archive

Browse the archive

Enter a SWHID to resolve or keyword(s) to search for in origin URLs

<https://github.com/moranegg/AffectationRO>

06 September 2021, 13:22 UTC

<> Code Branches (2) Releases (0) Visits

★ Branch: HEAD 79b8c87 / History Download Save again

Tip revision: [44c5ef19c5af14193b5a9322d34c34c395e4c8b](#) authored by Morane Otília Gruenpeter on 10 August 2021, 13:42 UTC  
Add CodeMeta file for metadata

File	Mode	Size
bin		
glpk_files		
src		
AUTHORS	-rw-r--r--	18 bytes
LICENSE	-rw-r--r--	34.3 KB
README.md	-rw-r--r--	3.1 KB
codemeta.json	-rw-r--r--	1.5 KB

README.md

projet en Recherche Opérationnelle

Permalinks

### 3.2.2 If your code isn't in Software Heritage- **Submit** the code repository url on the **Save Code Now**:

<https://save.softwareheritage.org/>

The screenshot shows the 'Save code now' page on the Software Heritage website. The page has a sidebar on the left with a 'Features' section containing 'Search', 'Downloads', 'Save code now' (highlighted), and 'Help'. The main content area has a search bar at the top right with the placeholder text 'Enter a SWHID to resolve or keyword(s) to search for in origin URLs'. Below the search bar, there is a form with two columns: 'Origin type' and 'Origin url'. The 'Origin type' column has a dropdown menu with 'git' selected, marked with a purple circle '1'. The 'Origin url' column has an empty text input field, marked with a purple circle '2'. To the right of the input field is a 'Submit' button, marked with a purple circle '3'. Three callout boxes with black borders and white text provide instructions: '1. Choose the VCS type' points to the dropdown, '2. Add url' points to the input field, and '3. Submit' points to the button. The text 'You can contribute to extend the content of the Software Heritage archive by submitting code repositories. To do so, fill the required info in the form below:' is visible above the form.

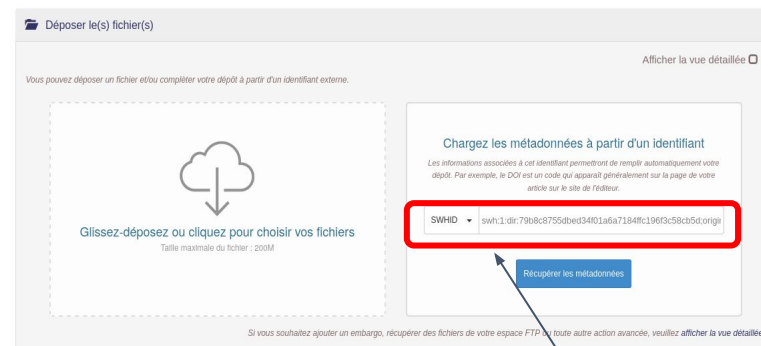
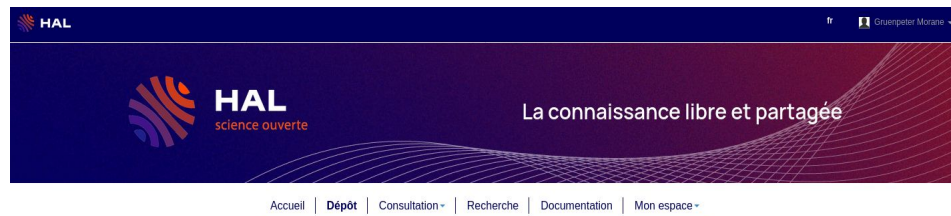
## 3.3 Choose a SWHID on the Software Heritage archive

The screenshot shows the Software Heritage archive interface. The main content area displays a repository page for `https://github.com/moranegg/AffectionationR0`. The interface includes a search bar at the top, a navigation menu on the left, and a main content area with a file tree on the left and a main content area on the right. The file tree shows a directory structure with folders like `bin`, `glpk_files`, `src`, `AUTHORS`, `LICENSE`, `README.md`, and `codemeta.json`. The main content area shows a file named `directory` selected, with a red box around it. Below the file name, there are options for `revision` and `snapshot`. A callout box points to the `Permalinks` tab in the navigation menu. Another callout box points to the `directory` file in the file tree. A third callout box points to the `Add contextual information` button. A fourth callout box points to the `Copy identifier` button. The main content area also displays a SWHID: `swh:1:dir:79b8c8755dbed34f01a6a7184ffc196f3c58cb5d` and a HAL form with fields for `origin`, `visit`, and `anchor`.

1. Click on `Permalinks` tab
2. Choose the object type - `directory`
3. Add the contextual information
4. Copy identifier on the HAL form

## 3.4 Deposit SWHID - the reference to the content

- Put the **SWHID** on the HAL form
  - ◆ Prefer a SWHID with contextual information (to keep the link with the contextual information)
  - ◆ If a codemeta.json is present in the root directory of the deposited SWHID - the HAL platform will pull the metadata automatically
- Verify and complete metadata
  - ◆ Verify inserted metadata
  - ◆ Complete missing metadata
  - ◆ Choose domain
  - ◆ Verify authors and add affiliations
- Validate deposit



**SWHID**

## **Chapitre 4:**

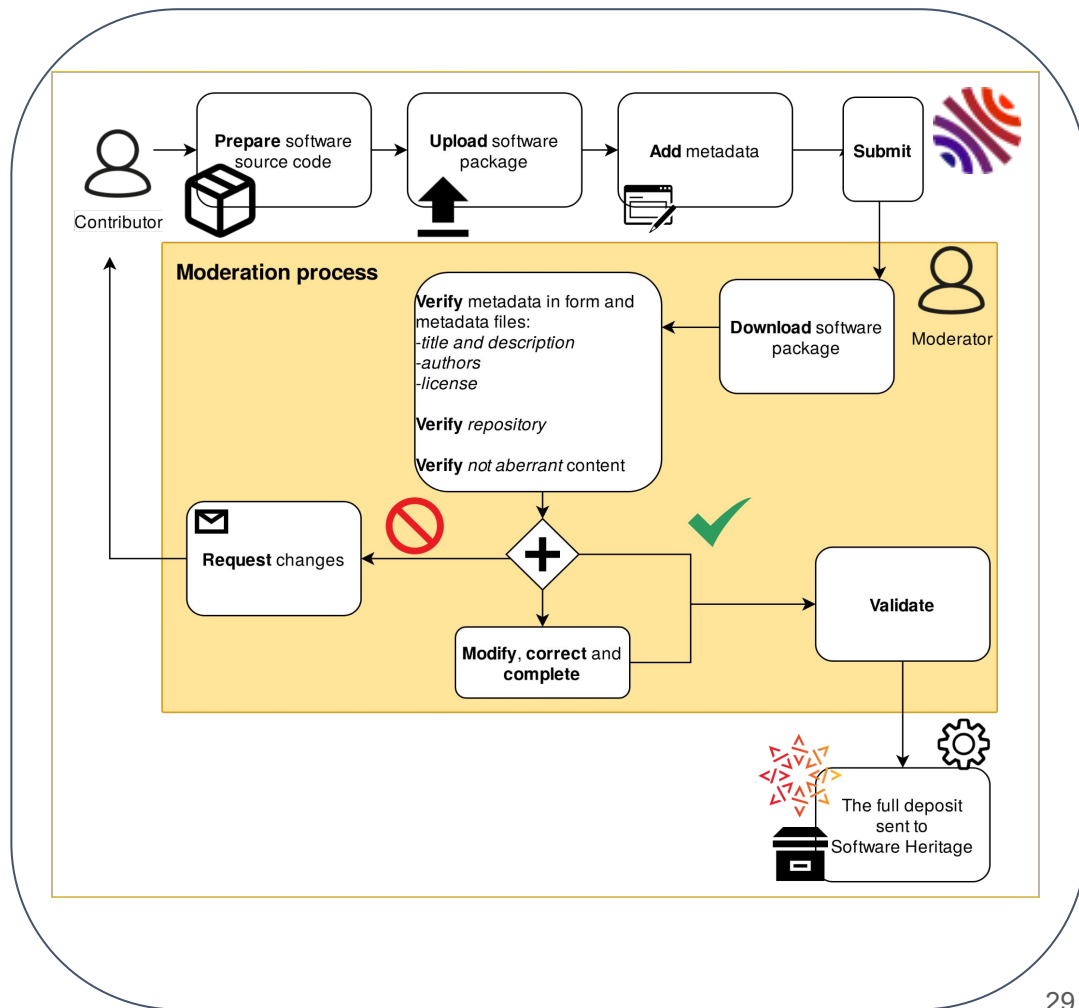
# **Behind the scenes- the moderation process**

# The moderation process

- Deposit in **moderation**
- **Dialogue** between contributor and moderator
- Deposit **validation** in moderation

## Moderation guide :

Morane Gruenpeter, Jozefina Sadowska. La modération d'un dépôt logiciel : Bonnes pratiques et guide pour le modérateur. [Rapport Technique] Inria; CCSD; Software Heritage. 2018. [hal-01876705](https://hal.archives-ouvertes.fr/hal-01876705)



# **Chapitre 5:**

## **The deposit publication and exports**

# 5.1 The deposit is transferred to SWH

→ The local method deposit is transferred to SWH with:

- ◆ Content
- ◆ Metadata

→ The SWHID method deposit is transferred to SWH with:

- ◆ Metadata

**When the local method deposit is transferred to SWH it will be visible on HAL without the link to SWH. When it is ingested by SWH, the link will appear on the deposit**

The screenshot shows a HAL deposit page for 'TALON: Tractograms As Linear Operators in Neuroimaging'. The page includes a red header with the HAL ID 'hal-02522751, version 1'. The title is 'TALON: Tractograms As Linear Operators in Neuroimaging'. Below the title, the authors are listed: Matteo Frigo<sup>1,2</sup>, Mauro Zucchelli<sup>1,2</sup>, Rachid Deriche<sup>1,2</sup>, and Samuel Deslauriers-Gauthier<sup>1,2</sup>. The affiliations are: 1 ATHENA - Computational Imaging of the Central Nervous System (CRISAM - Inria Sophia Antipolis - Méditerranée) and 2 UCA - Université Côte d'Azur. An abstract follows, describing TALON as a pure Python package for tractogram filtering. The document type is 'Logiciel' and the domain is 'Informatique [cs] / Imagerie médicale'. A 'TÉLÉCHARGER' button is highlighted with a red box, with a file named 'talon-source.zip' and a 'Télécharger' button. The 'MÉTADONNÉES' sidebar on the right lists keywords (Diffusion MRI, dMRI, tractography, python, optimization), version (0.3.0), license (MIT License), programming language (Python), code repository (https://gitlab.inria.fr/cobcom/talon), and development tools (Active). A 'CITATION' box is also highlighted with a red box, containing the citation text: 'Matteo Frigo, Mauro Zucchelli, Rachid Deriche, Samuel Deslauriers-Gauthier. TALON: Tractograms As Linear Operators in Neuroimaging. 2021. (hal-02522751)'. Other sections include 'EXPORTER' (CodeMeta, BibTeX, TEI, DC, DCterms, EndNote) and 'PARTAGER' (social media icons).



## 5.2 The final deposit

hal-02522751, version 1

### TALON: Tractograms As Linear Operators in Neuroimaging

Matteo Frigo<sup>1,2</sup>, Mauro Zucchelli<sup>1,2</sup>, Rachid Deriche<sup>1,2</sup>, Samuel Deslauriers-Gauthier<sup>1,2</sup> [Détails](#)

1 ATHENA - Computational Imaging of the Central Nervous System

CRISAM - Inria Sophia Antipolis - Méditerranée

2 UCA - Université Côte d'Azur

**Abstract** : TALON is a pure Python package that implements Tractograms As Linear Operators in Neuroimaging. The software provides the TALON Python module, which includes all the functions and tools that are necessary for filtering a tractogram. In particular, specific functions are devoted to: - Transforming a tractogram into a linear operator. - Solving the inverse problem associated to the filtering of a tractogram.

Type de document : [Logiciel](#)

Domaine : [Informatique \[cs\]](#) / [Imagerie médicale](#)  
Informatique [cs] / Traitement du signal et de l'image [eess.SP]

Liste complète des métadonnées [Voir](#)

#### CONSULTER



Software Heritage

swh:1:dir:f25157ad1b13cb20ac3457d4f6756b49ac63d079;origin=https://inria.halpreprod.archives-ouvertes.fr/hal-02522751;visit=swh:1:snp:8a2cb6ecd1478c63550e524a5723e06597259a07;anchor=swh:1:rev:5c9642f43d76c71c22e1bb641561e210eb52a94;path=/

[Consulter](#)

<https://hal.halpreprod.archives-ouvertes.fr/hal-02522751>

Contributeur : Estelle Nivault Connectez-vous pour contacter le contributeur

Soumis le : vendredi 28 mai 2021 - 16:02:01

Dernière modification le : mercredi 2 juin 2021 - 13:59:59

#### MÉTADONNÉES

Keywords : [Diffusion MRI](#) [dMRI](#) [tractography](#) [python optimization](#)

version

[0.3.0](#)

Licences

[MIT License](#)

Langage de programmation

[Python](#)

Code Repository

<https://gitlab.inria.fr/cobcom/talon>

Outils de développement

[Active](#)

#### CITATION

Matteo Frigo, Mauro Zucchelli, Rachid Deriche, Samuel Deslauriers-Gauthier. TALON: Tractograms As Linear Operators in Neuroimaging. 2021. (swh:1:dir:f25157ad1b13cb20ac3457d4f6756b49ac63d079;origin=https://inria.halpreprod.archives-ouvertes.fr/hal-02522751;visit=swh:1:snp:8a2cb6ecd1478c63550e524a5723e06597259a07;anchor=swh:1:rev:5c9642f43d76c71c22e1bb641561e210eb52a94;path=/). (hal-02522751)

#### EXPORTER

[CodeMeta](#) [BibTeX](#) [TEI](#) [DC](#) [DCterms](#)

[EndNote](#)

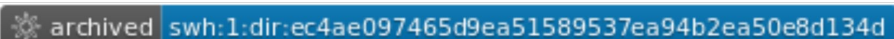
To consult the content on SWH

Citation and exports

## 5.3 The identifiers of the software deposit

### 5.3.1 Reference with the SWHID

(SoftWare Heritage Identifiers)



archived swh:1:dir:ec4ae097465d9ea51589537ea94b2ea50e8d134d

- ★ Identification of the software source code artifact
- ★ A digital fingerprint specific source code content

Needed to :

- **Identify - reproduce**
- **Archive**

### 5.3.2 Cite with the HAL-ID



hal-02309043, version 1

- ★ Identification of the software record
- ★ Metadata of the deposit
- ★ Authors and contributors are verified in the moderation process

Needed to :

- **Give credit to the authors**
- **Index**

## 5.4 The citation and the BibTeX export

- The citation is accessible on the HAL record
- Export BibTeX using the format [BibLaTeX](#) @software or @softwareversion (if a version property was submitted)
- Export used in activity reports for scientific outputs at Inria since 2020.

### Softwares

[38] [SW] M. Frigo, M. Zucchelli, R. Deriche and S. Deslauriers-Gauthier, *TALON: Tractograms As Linear Operators in Neuroimaging* version 0.3.0, 19th Jan. 2021. HAL: [\(hal-03116143\)](#), URL: <https://hal.archives-ouvertes.fr/hal-03116143>, VCS: <https://gitlab.inria.fr/cobcom/talon>, SWHID: [swh:1:dir:f25157ad1b13cb20ac3457d4f6756b49ac63d079;origin=https://hal.archives-ouvertes.fr/hal-03116143;visit=swh:1:snp:465d89956196578717f4cb515e456c279aa6a22;anchor=swh:1:rev:10247a14640a280b9140a27ce003d382d70cccac;path=/](https://hal.archives-ouvertes.fr/hal-03116143;visit=swh:1:snp:465d89956196578717f4cb515e456c279aa6a22;anchor=swh:1:rev:10247a14640a280b9140a27ce003d382d70cccac;path=/).

## HAL's citation format

Matteo Frigo, Mauro Zucchelli, Rachid Deriche, Samuel Deslauriers-Gauthier. TALON: Tractograms As Linear Operators in Neuroimaging. 2021.

[/swh:1:dir:f25157ad1b13cb20ac3457d4f6756b49ac63d079;origin=https://hal.archives-ouvertes.fr/hal-03116143;visit=swh:1:snp:465d89956196578717f4cb515e456c279aa6a22;anchor=swh:1:rev:10247a14640a280b9140a27ce003d382d70cccac;path=/](https://hal.archives-ouvertes.fr/hal-03116143;visit=swh:1:snp:465d89956196578717f4cb515e456c279aa6a22;anchor=swh:1:rev:10247a14640a280b9140a27ce003d382d70cccac;path=/).  
[\(hal-03116143\)](#)

```
@softwareversion{frigo:hal-03116143v1,
  TITLE = {{TALON: Tractograms As Linear Operators in
Neuroimaging}},
  AUTHOR = {Frigo, Matteo and Zucchelli, Mauro and
Deriche, Rachid and Deslauriers-Gauthier, Samuel},
  URL = {https://hal.archives-ouvertes.fr/hal-03116143},
  NOTE = {},
  YEAR = {2021},
  MONTH = Jan,
  SWHID =
{swh:1:dir:f25157ad1b13cb20ac3457d4f6756b49ac63d079;origin
=https://hal.archives-ouvertes.fr/hal-03116143;visit=swh:1
:465d89956196578717f4cb515e456c279aa6a22;anchor=swh:1
:rev:10247a14640a280b9140a27ce003d382d70cccac;path=/},
  VERSION = {0.3.0},
  REPOSITORY = {https://gitlab.inria.fr/cobcom/talon},
  LICENSE = {MIT License},
  KEYWORDS = {diffusion MRI ; dMRI ; tractography ; python
; optimization},
  FILE =
{https://hal.archives-ouvertes.fr/hal-03116143/file/talon-
source.zip},
  HAL_ID = {hal-03116143},
  HAL_VERSION = {v1},
}
```

# References

- ❖ Y. Barborini, R. Di Cosmo, Antoine R. Dumont, M. Gruenpeter, B. Marmol, A. Monteil, J. Sadowska.. La création du nouveau type de dépôt scientifique - Le logiciel. *JSO 2018 - 7es journées Science Ouverte Couperin : 100 % open access : initiatives pour une transition réussie*, Jan 2018, Paris, France. 2018. [⟨hal-01688726⟩](#)
- ❖ R. Di Cosmo, M. Gruenpeter, B. Marmol, A. Monteil, L. Romary, J. Sadowska. *Curated Archiving of Research Software Artifacts: lessons learned from the French open archive*. IJDC. 2020 ([10.2218/ijdc.v15i1.698](#)). ([hal-02475835](#))
- ❖ R. Di Cosmo, M. Gruenpeter, S. Zacchiroli *Referencing Source Code Artifacts: a Separate Concern in Software Citation*, CiSE, IEEE, pp.1-9. 2020. ([10.1109/MCSE.2019.2963148](#)) ([hal-02446202](#))
- ❖ P. Alliez, R. Di Cosmo, B. Guedj, A. Girault, M.-S. Hacid, et al.. *Attributing and Referencing (Research) Software: Best Practices and Outlook from Inria*. Computing in Science and Engineering, Institute of Electrical and Electronics Engineers, 2019, pp.1-14. [⟨10.1109/MCSE.2019.2949413⟩](#). ([hal-02135891](#))
- ❖ A. Monteil, M. Gruenpeter, J. Sadowska, E. Nivault. *Garantir la cohérence des données constitue le cœur de notre activité: entretien autour des enjeux descriptifs du code source*. *Bulletin des bibliothèques de France*, Ecole Nationale Supérieure des Sciences de l'Information et des Bibliothèques (ENSSIB), 2021, Dossier BBF 2021-1 • Code source : libérer le patrimoine !. [⟨hal-03239502⟩](#)