

Software citation

As a scientific product, research software is created by investing considerable time, effort, and often financial support. It could be a simulation or an analysis code or an extensive pipeline that includes the whole data retrieval, analysis, data generation and visualization processes. Nevertheless, regardless of its type, it is not always easy to cite research software. Unlike a paper it is less obvious to find relevant information to cite research software.

There is not always an associated paper for a research software, or software developed to perform analysis that is used to publish research results. New versions are released or the associated project might be completed and its outputs are inaccessible. As a result, research software often does not receive the desired recognition nor maintains its relevance and loses the opportunity of reusability and reproducibility.

By including a CITATION.cff file into your code repository you can solve this problem. The CITATION.cff file will guide others about how to correctly cite your software and will increase its findability since it contains all the necessary metadata for your research software. It is easy to create and include into your code repository and databases such as [Zenodo](#).

What is a CITATION.cff file?

A CITATION.cff file is a plain text file with human and machine-readable citation information for software and datasets. CFF stands for [Citation File Format](#) which is a community project. It has a YAML syntax that can be easily converted to JSON or XML formats. Below is an example of a CITATION.cff.

```
cff-version: 1.2.0
message: "If you use this software, please cite it as below."
authors:
  - family-names: Druskat
    given-names: Stephan
    orcid: https://orcid.org/0000-0003-4925-7248
title: "My Research Software"
version: 2.0.4
doi: 10.5281/zenodo.1234
date-released: 2021-08-11
```

In this example, the citation file contains the keywords `cff-version`, a message from the author, developer's (author) name and their ORCID, title of the research software, its version and release date and finally the DOI number. You can make your citation file content as extensive as you want by adding more [valid keywords](#). These are:

`abstract`, `authors`, `cff-version`, `commit`, `contact`, `date-released`, `doi identifiers`, `keywords`, `license`, `license-url`, `message`, `preferred-citation`, `references`, `repository`, `repository-artifact`, `repository-code`, `title`, `type`, `url`, `version`.

You can find the correct way of using these keywords with examples in the citation file format schema guide [GitHub repository](#).

How to create a CITATION.cff file?

In order to create a CITATION.cff file you can either use the [cffinit](#) web application or a code editor of your choice. Nevertheless the easiest way to create a CITATION.cff file is to use the [cffinit](#) web application which automatically creates a correct CITATION.cff format that you can download.

In case you choose to use a code editor you need to verify that its syntax matches to the cff format.

Advantages of CITATION.cff file

- When you include a CITATION.cff file in your project's GitHub repository, it is automatically linked from the repository landing page. The citation information is rendered on the repository page, and also provided as BibTeX snippet that others easily copy or download.
- You can easily publish your project's GitHub repository in Zenodo via Zenodo-GitHub integration. If your repository includes a CITATION.cff file then Zenodo will use the citation information provided in the citation file to populate the publication entry. That way you would publish your research software with complete and correct metadata.

References:

<https://the-turing-way.netlify.app>

<https://citation-file-format.github.io/>

<https://citation-file-format.github.io/>