

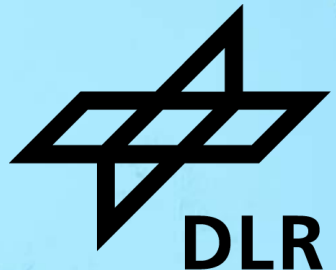
PRACTICAL SOFTWARE CITATION FOR RESEARCH SOFTWARE DEVELOPERS, MAINTAINERS AND USERS

Stephan Druskat

German Aerospace Center (DLR), Institute of Software Technology

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DOI **10.5281/zenodo.15583669**



About me



- M.A. *English Philology, Modern German Literature, General and German Linguistics* (Free University Berlin)
- ~13 years *RSE* in several linguistic research projects
- Fellow of the [Software Sustainability Institute](#)
- Lead [Citation File Format](#) project
- Since 2019: SE researcher at [DLR](#) (*Sustainable Software Engineering*)
- PI [HERMES](#) project (*automating software publication with rich metadata*)
- Chair ReSA Task Force "[Software Authorship & Contribution](#)"

Overview



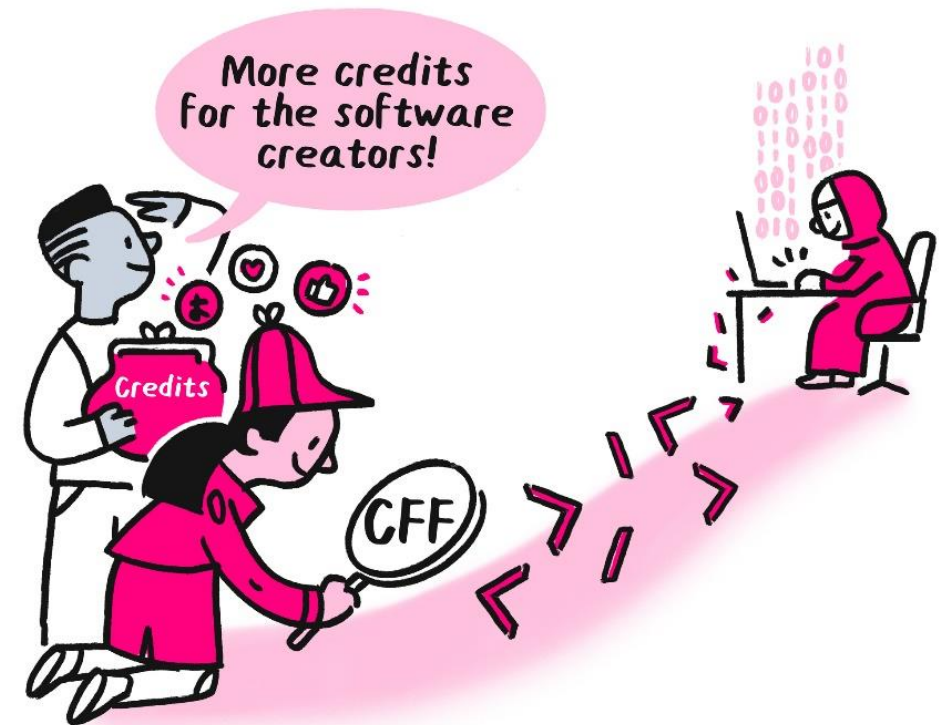
- Software citation
- Practical software citation for developers and maintainers
- Practical software citation for software users
- Wrap-up

SOFTWARE CITATION

Bildquelle hier angeben

Why software citation?

- Principles of research apply: disclosure of research process
- Accountability: taking credit
- **Formal citation** as established method:
 - **Importance** of software in research
 - Findability (**FAIR**)
 - **Reproducibility**
 - **Credit**
 - ...



More credits for the software creators. The Turing Way project illustration by Scriberia. Zenodo.
<https://doi.org/10.5281/zenodo.3332807>
License: CC BY-4.0

The principles of software citation



A. M. Smith, D. S. Katz, K. E. Niemeyer, and FORCE11 Software Citation Working Group, “**Software citation principles**,” *PeerJ Comput. Sci.*, vol. 2, no. e86, 2016, doi: [10.7717/peerj-cs.86](https://doi.org/10.7717/peerj-cs.86).

1. Importance

Software is cited like papers are cited.

2. Credit and attribution

3. Unique identification

4. Persistence

5. Accessibility

Citation allows access to software and metadata.

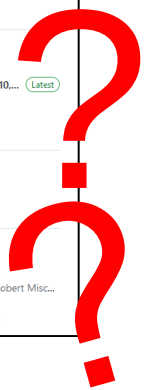
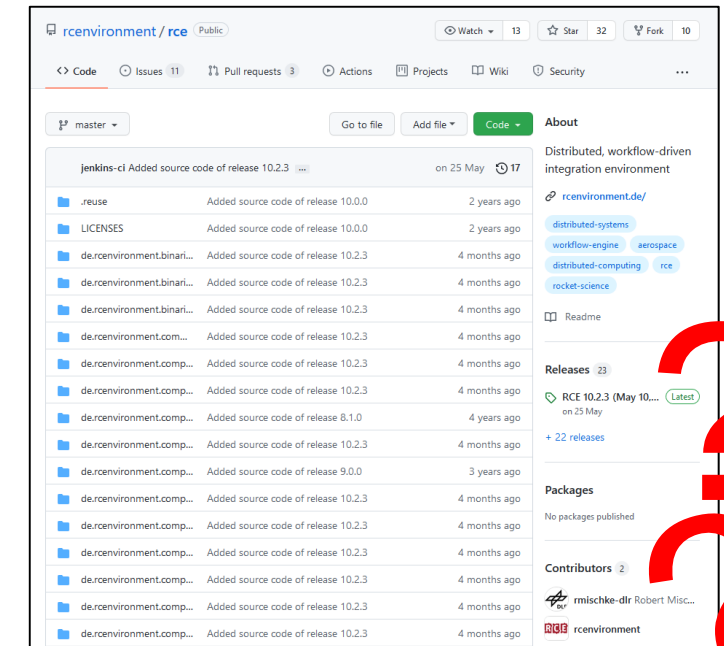
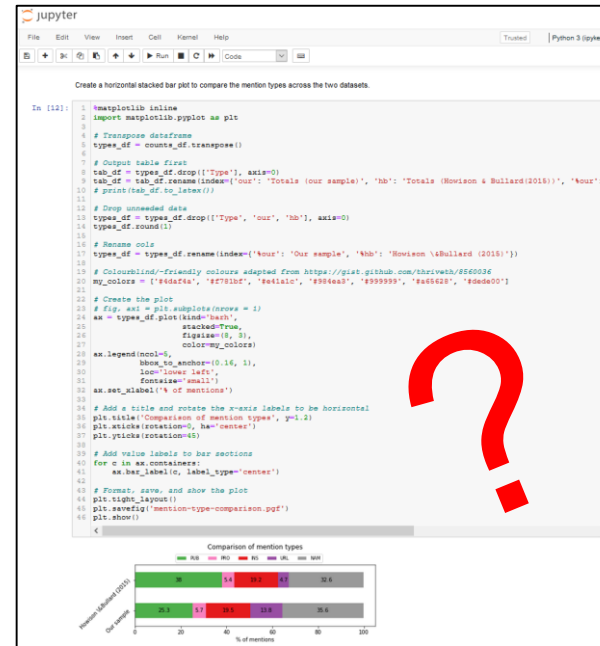
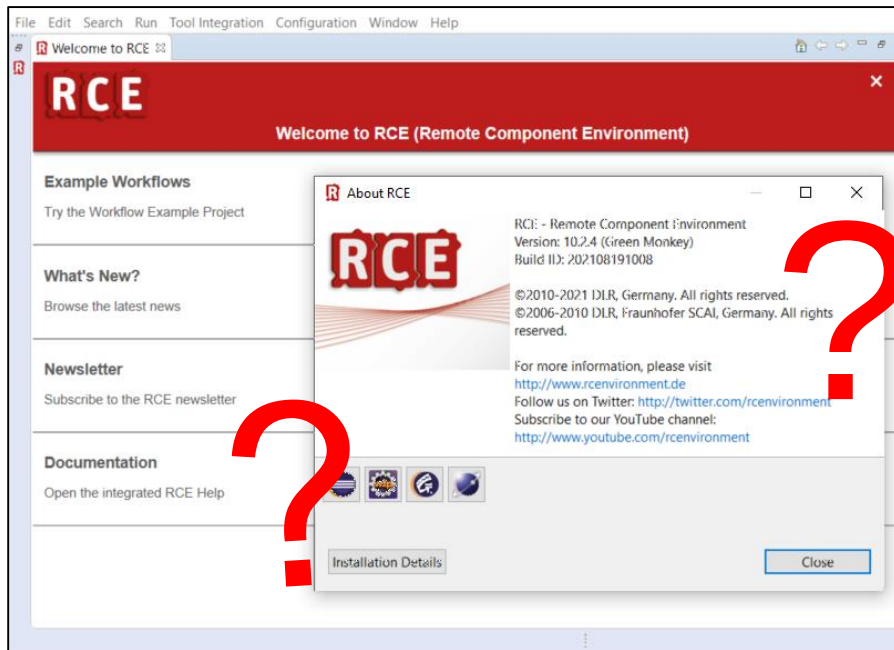
6. Specificity

Citation identifies the software version used in research.

Software citation metadata



- Software has **no formalized title page**
- Software name? Authors? Version? Publisher or source? Publication date?



SOFTWARE CITATION FOR DEVELOPERS AND MAINTAINERS

Making software citable



1. **Determine** complete and correct software citation **metadata**

- Authors, name, version, publication date, identifier/locator
- Who are the authors? Where to get a persistent identifier (PID)? Which version to tag?

2. **Provide metadata in a file** in the source code repository

- README, LICENSE, CONTRIBUTING, [CITATION](#)

3. **Publish** software with metadata

4. **Maintain citation metadata** with your software



Research *Software Alliance*

Task Force

[Software Authorship & Contribution](#)

S. Druskat, T. Krause, C. Lachenmaier, and B. Bunzeck, *Hexatomic (Version 1.4.2)*, Mar. 2023. Zenodo. DOI: [10.5281/zenodo.7778709](https://doi.org/10.5281/zenodo.7778709).

Creating a CITATION file:

CITATION.cff – Citation File Format (CFF)



```
cff-version: 1.2.0
message: If you use this software, please cite it using these metadata.
title: My Research Software
abstract: This is my awesome research software. It does many things.
authors:
  - family-names: Druskat
    given-names: Stephan
    orcid: "https://orcid.org/0000-0003-4925-7248"
version: 0.11.2
date-released: "2021-07-18"
identifiers:
  - description: This is the collection of archived snapshots of all versions of My Research Software
    type: doi
    value: "10.5281/zenodo.123456"
  - description: This is the archived snapshot of version 0.11.2 of My Research Software
    type: doi
    value: "10.5281/zenodo.123457"
license: Apache-2.0
repository-code: "https://github.com/citation-file-format/my-research-software"
```

citation-file-format.github.io

Creating a CITATION.cff file

Option 1: cffinit

citation-file-format.github.io/cffinit

CFF INIT

Generate your citation metadata files with ease

CITATION.cff files are plain text files with human- and machine-readable citation information for software and datasets.

Code developers can include such files in their source code repositories to let others know how to correctly cite their software.

You can read more about the Citation File Format in the [official CFF specification website](#).



Create your CITATION.cff now, or start from an existing file!

+ Create

✎ Update

CFF INIT [REPORT AN ISSUE](#) [DOCUMENTATION](#)

✓ Basic Information required

🔍 Authors required

Identifiers optional

Related Resources optional

Abstract optional

Keywords optional

License optional

Version Specific optional

Extra Cff Fields optional

Finish

Authors

Add all authors of the work. At least one must be provided. ⓘ

Person

Author's name, split into four parts

Given names
Stephan

Name particle

Family names
Druskat

Name suffix

E-mail
stephan.druskat@dlr.de ⓘ

Affiliation
German Aerospac ⓘ

ORCID
https://orcid.org/c ⓘ

Remove Done

Add person

Add entity

Previous

Finish

Next

CITATION.cff preview

This CITATION.cff file was generated with cffinit.
Visit <https://bit.ly/cffinit> to generate yours today!

cff-version: 1.2.0
title: compressoft
message: >-
If you use this software, please cite it using the metadata from this file.
type: software
authors:
- given-names: Stephan
family-names: Druskat
email: stephan.druskat@dlr.de
affiliation: German Aerospace Center (DLR)
orcid: 'https://orcid.org/0000-0003-4925-7248'

✓ Your CITATION.cff is valid

Download

netherlands Science center Version 2.3.1

Creating a CITATION.cff file

Option 2: IDE integration (JSON schema , schemastore.org)



The screenshot illustrates the process of creating a CITATION.cff file within an IDE, utilizing JSON schema integration from schemastore.org.

Top Panel (CITATION.cff 3): Shows the initial state of the file. The editor displays the following content:

```
! CITATION.cff 3
! CITATION.cff > cff-version
Citation File Format - A file with citation metadata for software or datasets.
1 authors:
2   -
3 cff-version: "1.2.0"
4 message:
5
```

A dropdown menu titled "Select JSON schema" is open, listing various schemas. The "Citation File Format" schema is selected, indicated by a checkmark.

Bottom Panel (CITATION.cff 1): Shows the file after the schema is applied. The editor displays the following content:

```
! CITATION.cff 1
! CITATION.cff > [ ] license > 1
Citation File Format - A file with citation metadata for software or datasets. (schema.json)
1 authors:
2   - family-names: Druskat
3     given-names: Stephan
4     orcid: https://orcid.org/0000-1234-5678-9012
5 cff-version: "1.2.0"
6 message: If you use this software, please cite it using the met
7 title: "Some software"
8 license:
9   - GPL-3.0
10  - App
```

A dropdown menu titled "Select JSON schema" is open, listing various schemas. The "Citation File Format" schema is selected, indicated by a checkmark.

Right Panel (CITATION.cff > ...): Shows the JSON schema for the CITATION.cff file. The editor displays the following content:

```
! CITATION.cff > ...
Citation File Format - A file with citation metadata for software or datasets. (schema.json)
1 authors:
2   - family-names: Druskat
3     given-names: Stephan
4     orcid: https://orcid.org/0000-1234-5678-9012
5 cff-version: "1.2.0"
6 message: If you use this software, please cite it using the metadata from this file.
7 title: "Some software"
8
```

A dropdown menu titled "Select JSON schema" is open, listing various schemas. The "Citation File Format" schema is selected, indicated by a checkmark.

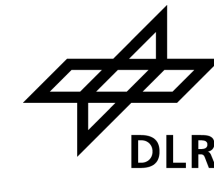
Bottom Right Panel (CITATION.cff > ...): Shows the JSON schema for the CITATION.cff file. The editor displays the following content:

```
! CITATION.cff > ...
Citation File Format - A file with citation metadata for software or datasets. (schema.json)
1 authors:
2   - family-names: Druskat
3     given-names: Stephan
4     orcid: https://orcid.org/0000-1234-5678-9012
5 cff-version: "1.2.0"
6 message: If you use this software, please cite it using the metadata from this file.
7 title: "Some software"
8
```

A dropdown menu titled "Select JSON schema" is open, listing various schemas. The "Citation File Format" schema is selected, indicated by a checkmark.

Creating a CITATION.cff file

Option 3: Copy, paste & adapt



citation-file-format.github.io

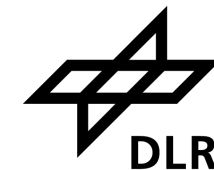
- Example snippet
- Tutorials
- [Schema guide](#):
 - Full reference
 - Snippet for typical file
 - Snippet for file with reference
 - Snippet for file with preferred citation

```
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/1234-5678-9101-1121
title: "My Research Software"
version: 2.0.4
identifiers:
  - type: doi
    value: 10.5281/zenodo.1234
date-released: 2021-08-11
```



Creating a CITATION.cff file

Option 4: Download from Zenodo publication



zenodo Search records... Communities My dashboard Log in Sign up

Published October 21, 2024 | Version v1.4.5 Software Open

Hexatomic

Druskat, Stephan¹ ; Krause, Thomas² ; Lachenmaier, Clara ; Bunzeck, Bastian

Show affiliations

Hexatomic is an extensible, OS-independent platform for deep multi-layer linguistic annotation of corpora. It is being developed for sustainability, in order to support research software re-use rather than new development of software with each new research project. Using Hexatomic, linguistic research projects can implement what they need on top of an existing platform. To safeguard compatibility, Hexatomic works on instances of Salt projects. Salt is a generic metamodel for linguistic data.

Notes

If you use this software, please cite it as below.

Files

hexatomic/hexatomic-v1.4.5.zip

hexatomic/hexatomic-v1.4.5.zip

The preview is not showing all the files

529 VIEWS 94 DOWNLOADS

Show more details

Versions

Version v1.4.5	Oct 21, 2024
10.5281/zenodo.13959844	
Version v1.4.4	Sep 11, 2023
10.5281/zenodo.8335596	
Version v1.4.3	Sep 11, 2023
10.5281/zenodo.8335355	
Version v1.4.2	Mar 28, 2023
10.5281/zenodo.7778709	
Version v1.4.1	Mar 27, 2023
10.5281/zenodo.7775244	

View all 16 versions

Rights

License

Apache License 2.0

Citation

Druskat, S., Krause, T., Lachenmaier, C., & Bunzeck, B. (2024). Hexatomic (v1.4.5). Zenodo. <https://doi.org/10.5281/zenodo.13959844>

Style APA

Export

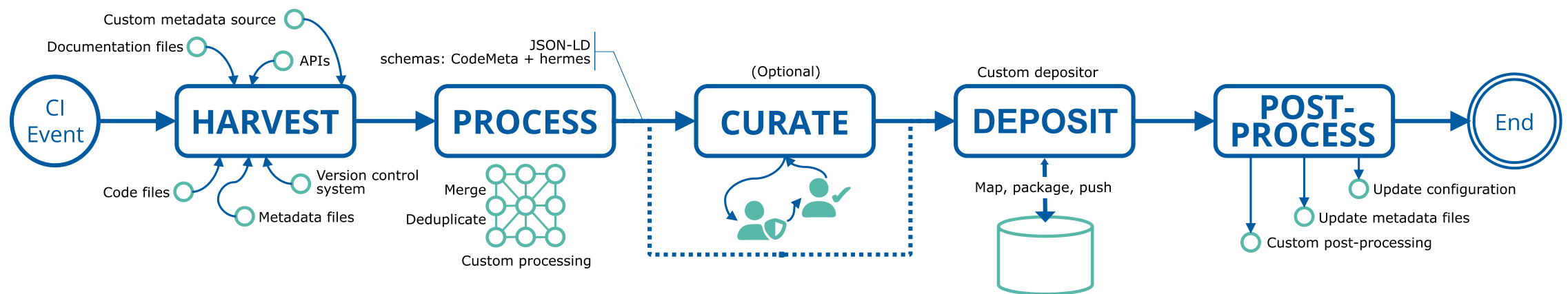
Citation File Format

Export

Maintaining a CITATION file

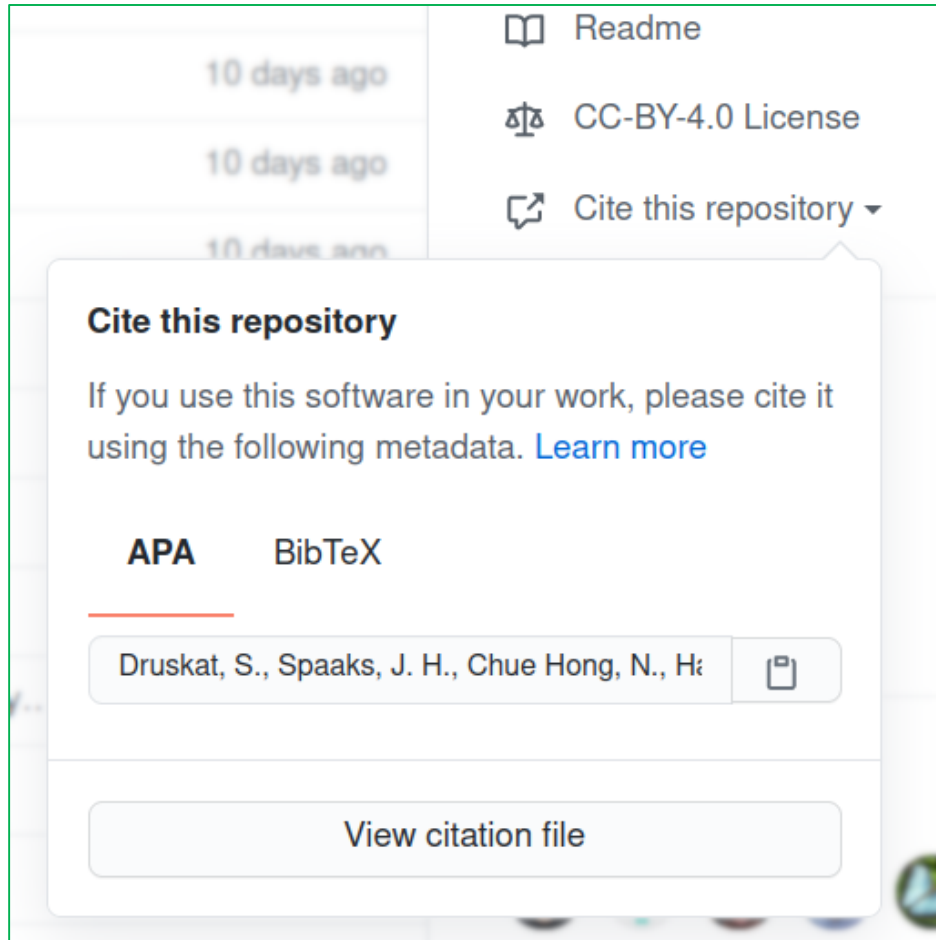
Develop citation metadata together with your software

- Validation/conversion with [cffconvert](#) (CLI or [GitHub Action](#))
- [Tooling available](#) for different languages:
 - Java, JavaScript/Typescript, Julia, Python, R, Ruby, Rust, Go, Haskell, PHP, ...
- [HERMES](#) develops update automation as part of publication automation

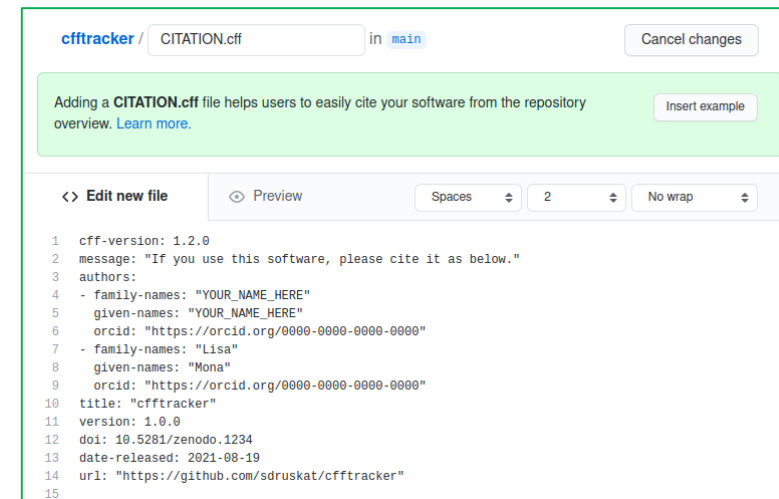


S. Kernchen, M. Meinel, S. Druskat, et al., "Extending and applying automated HERMES software publication workflows," doi: [10.14279/ECEASST.V83.2624](https://doi.org/10.14279/ECEASST.V83.2624).

Citation File Format integrations: GitHub*



- Detects `CITATION.cff` files
- Renders citation metadata (APA, BibTeX)
- Points to `CITATION.cff` instance
- [Documents](#) and supports creation



* [GitLab integration](#) under development

Citation File Format integrations:

GitHub Zenodo integration – better metadata



- GitHub-Zenodo bridge reads metadata from `CITATION.cff`
- *Previously:* via API ([GitHub release](#), [Zenodo Sandbox deposit](#))
- *Now:* author-supplied metadata ([GitHub release](#), [Zenodo Sandbox deposit](#))

```
4 + cff-version: 1.2.0
5 + title: pseudoSoftware
6 + message: >-
7 +   If you use this software, please cite it using the
8 +   metadata from this file.
9 + type: software
10 + authors:
11 +   - given-names: Stephan
12 +     family-names: Druskat
13 +     email: stephan.druskat@dlr.de
14 +     affiliation: German Aerospace Center (DLR)
15 +     orcid: 'https://orcid.org/0000-0003-4925-7248'
16 + repository-code: 'https://github.com/citable-s0ftware/cff-github-zenodo'
17 + url: 'https://citation-file-format.github.io'
18 + abstract: >-
19 +   This "software" is a demonstration-only repository with
20 +   two releases.
21 +
22 +   For both releases, the Zenodo-GitHub integration
```

Published March 18, 2024 | [Version with-CITATION.cff](#) Software Open

pseudoSoftware

Druskat, Stephan¹ 

[Hide affiliations](#)

¹ German Aerospace Center (DLR)

This "software" is a demonstration-only repository with two releases. For both releases, the Zenodo GitHub integration (<https://help.zenodo.org/faq/>) automatically publishes artifacts and metadata with a DOI (on the Zenodo Sandbox). 1. The first release contains no CITATION.cff file. Hence, the Zenodo Sandbox record is populated with metadata retrieved from the GitHub API. 2. The second release contains a CITATION.cff file. Hence, the Zenodo Sandbox record is populated with metadata retrieved from the CITATION.cff file.

Notes

If you use this software, please cite it using the metadata from this file.

Citation File Format integrations:

Software Heritage Archive



≡

Browse the archive

Enter a SWHID to resolve or keyword(s) to search

Features

Search

Downloads

Save code now

Add forge now

Help

https://github.com/hexatomic/hexatomic

07 March 2025, 00:54:28 UTC

<> Code

Branches (150)

Releases (42)

Visits

Release: v1.4.4

Release v1.4.4 created by Thomas Krause

Tag hotfix

-----BEGIN PGP SIGNATURE-----

iQEzBAABCAAdFiEEuBZPdCP0izku9ag9/...

-----END PGP SIGNATURE-----

Target: 500862a1cc377088248bce18ca30d...

Directory: e838fdd6cc340d1e74e47e9316c...

Permalinks

Citations

This interface enables to generate software citations, provided that the root directory of browsed objects contains a citation file.

Select below a type of object currently browsed in order to generate citations for them.

release

revision

directory

snapshot

Format

BibTeX

Generate software citation in BibTeX format (requires biblatex-software package)

@softwareversion{swh-rel-240831b,

author = "Druskat, Stephan and Krause, Thomas and Lachenmaier, Clara and Bunzeck, Bastian",

organization = "German Aerospace Center (DLR), Friedrich Schiller University Jena and Humboldt-Universität zu Berlin",

license = "Apache-2.0",

abstract = "Hexatomic is an extensible, OS-independent platform for deep multi-layer linguistic analysis of text data.",

It is being developed for sustainability, in order to support research software re-use rather than each new research project.

Using Hexatomic, linguistic research projects can implement what they need on top of an existing project.

To safeguard compatibility, Hexatomic works on instances of Salt projects. Salt is a generic meta-framework for linguistic research.

date = "2023-09-11",

year = "2023",

month = sep,

doi = "https://doi.org/10.5281/zenodo.6900689",

repository = "https://github.com/hexatomic/hexatomic",

18

S. Druskat, "Practical Software Citation", IDEAS PRODUCTIVITY HPC Best Practices Webinar, 2025-06-04

Citation File Format integrations: Reference managers



Import in [Zotero](#) from GitHub via browser plugin

InfoNotesTagsRelated

Citation Key: druskatHexatomic2021

Item Type Software

Title Hexatomic

Programmer Druskat, Stephan

Programmer Krause, Thomas

(...) Abstract Hexatomic is an extensible software for deep multi-layer annotation of linguistic corpora

Series Title

Version 0.6.0-SNAPSHOT

Date 2021-03

System

Place

Company

Prog. Language Java

ISBN

Short Title

URL https://github.com/hexatomic/hexatomic

Rights Apache-2.0

Archive

Loc. in Archive

Library Catalog GitHub

Import in [JabRef](#) from CITATION.cff file

untitled* - JabRef

FileEditLibraryQualityLookupToolsViewOptionsHelp

Search...

untitled* X

Filter groups

All entries

Entry...Author/EditorTitleYearJournal/Booktitle

SoftwareDruskat et al.Citation File Format2021

Required fieldsOptional fieldsDeprecated fieldsOther fieldsAllgemeinZusammenfassungKommentareRelated articlesbiblatex sourceLi

Software (Druskat2021)

AuthorStephan Druskat and Jurriaan H. Spaaks and Neil Chue Hong and Robert Baker, James / Bliven, Spencer / Willighagen, Egon / Pérez-Suárez, David / Kononov, Alexander

Editor

TitleCitation File Format

Date2021-08-09

CitationkeyDruskat2021

Generate

Abstract: CITATION.cff files are plain text files with human- and machine-readable citation information for software. Code developers can include them in their repositories to let others know how to correctly cite their software. This is the specification for the Citation File Format.

Comment: If you use CFF in your research, please cite it using these metadata.

Software publication with a PID

- ① Institutional / discipline-specific / general purpose **repositories** (DOIs)
- ① Archiving in the [Software Heritage Archive](#) (SWHIDs, ISO 18670)
- ② Software journals ([JOSS](#)): DOI, peer review, archiving (for *one* version)

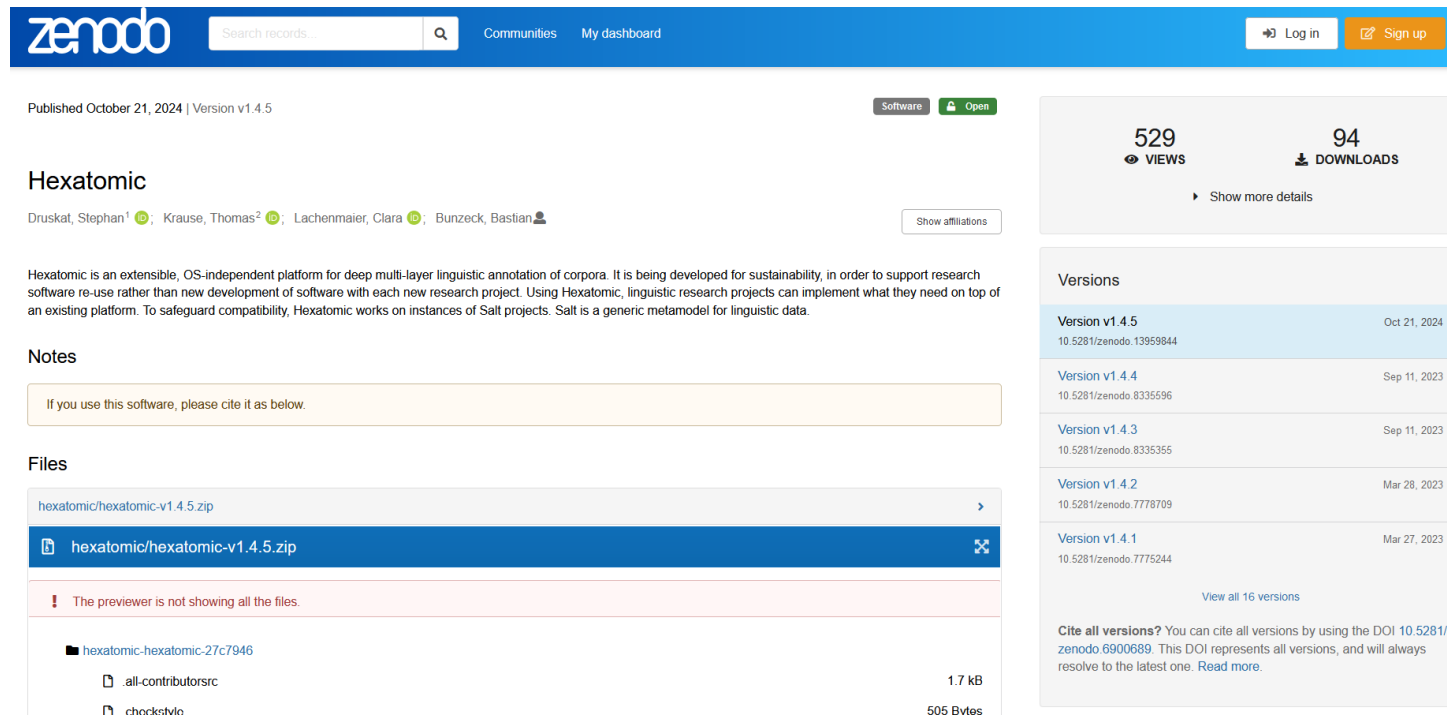
NOT software publication

- + Making a package version publicly available in a package repository
- ⊖ GitHub/GitLab releases, or public repositories

Publishing / archiving software versions: Zenodo / InvenioRDM



- Software type, concept/collection & version DOIs
- Manual upload, automated upload (API), DOI prerereservation



The screenshot shows the Zenodo page for the software 'Hexatomic'. The page header includes the Zenodo logo, a search bar, and links for 'Communities', 'My dashboard', 'Log in', and 'Sign up'. The main content area displays the software title 'Hexatomic', its authors (Druskat, Stephan; Krause, Thomas; Lachenmaier, Clara; Bunzeck, Bastian), and a description of the software. A 'Software' button and an 'Open' button are visible. The page also shows the number of views (529) and downloads (94). A 'Versions' section lists the software versions (v1.4.5, v1.4.4, v1.4.3, v1.4.2, v1.4.1) with their respective dates and DOIs. A 'Files' section shows the software files (hexatomic/hexatomic-v1.4.5.zip) and a list of files (hexatomic-hexatomic-27c7946, all-contributorsrc, checkstyle) with their sizes (1.7 kB, 505 Bytes).

zenodo Search records Communities My dashboard Log in Sign up

Published October 21, 2024 | Version v1.4.5 Software Open

Hexatomic

Druskat, Stephan¹; Krause, Thomas²; Lachenmaier, Clara; Bunzeck, Bastian

Show affiliations

Hexatomic is an extensible, OS-independent platform for deep multi-layer linguistic annotation of corpora. It is being developed for sustainability, in order to support research software re-use rather than new development of software with each new research project. Using Hexatomic, linguistic research projects can implement what they need on top of an existing platform. To safeguard compatibility, Hexatomic works on instances of Salt projects. Salt is a generic metamodel for linguistic data.

Notes

If you use this software, please cite it as below.

Files

hexatomic/hexatomic-v1.4.5.zip

hexatomic/hexatomic-v1.4.5.zip

The previewer is not showing all the files.

hexatomic-hexatomic-27c7946

all-contributorsrc 1.7 kB

checkstyle 505 Bytes

529 VIEWS 94 DOWNLOADS Show more details

Versions

Version	Date
Version v1.4.5 10.5281/zenodo.13959844	Oct 21, 2024
Version v1.4.4 10.5281/zenodo.8335596	Sep 11, 2023
Version v1.4.3 10.5281/zenodo.8335355	Sep 11, 2023
Version v1.4.2 10.5281/zenodo.7778709	Mar 28, 2023
Version v1.4.1 10.5281/zenodo.7775244	Mar 27, 2023

View all 16 versions

Cite all versions? You can cite all versions by using the DOI 10.5281/zenodo.6900689. This DOI represents all versions, and will always resolve to the latest one. Read more.

Publishing / archiving software versions: Software Heritage Archive's [Save Code Now](#)



- [Identifiers](#) for revisions, releases, snapshots, directories, content

≡ [Save code now](#)

You can contribute to extend the content of the Software Heritage archive by submitting an origin save request. To do so, fill the required info in the form below:

Origin type

git

Origin url

Submit

Help

[Browse save requests](#)

A "Save code now" request takes the following parameters:

- **Origin type:** the type of software origin. Currently, the supported types are:
 - **git**, for origins using Git
 - **hg**, for origins using Mercurial
 - **svn**, for origins using Subversion
 - **cv**s, for origins using CVS
 - **bzr**, for origins using Bazaar
 - **tarball**, for tarball origins (supported formats: `.jar`, `.tar`, `.tar.bz2`, `.tar.gz`, `.tar.lz`, `.tar.xz`, `.tar.zst`, `.zip`)

```
36     setting_types = {}
37
38     for command in (
39         HermesHelpCommand(parser),
40         HermesVersionCommand(parser),
41         HermesInitCommand(parser),
42         HermesCleanCommand(parser),
43         HermesHarvestCommand(parser),
44         HermesProcessCommand(parser),
45         HermesCurateCommand(parser),
46         HermesDepositCommand(parser),
```

Permalinks

Citations

To reference or cite the objects present in the Software Heritage archive, permalinks based on SoftWare Hash Identifiers (SWHIDs) must be used.

Select below a type of object currently browsed in order to display its associated SWHID and permalink.

content

directory

revision

snapshot

archived

repository

archived

swh:1:cnt:06a18ca7815ff62ddacaed804ea22bebd07f6ccf

Iframe embedding

```
swh:1:cnt:06a18ca7815ff62ddacaed804ea22bebd07f6ccf;
origin=https://github.com/softwarepub/hermes;
visit=swh:1:snp:4864d0544a564267aa78882f02a44802b1fd61a3;
anchor=swh:1:rev:fbc9aa4000eb01e09f05c58cecf83f379918ffb;
path=/src/hermes/commands/cli.py;
lines=38-47
```

☒ Add contextual information

[Copy identifier](#)

[Copy permalink](#)

A large satellite with two long solar panel arrays is shown in orbit above the Earth. The satellite's body is gold-colored with various instruments and antennas. The solar panels are white with a grid pattern. The Earth below shows green landmasses, blue oceans, and white clouds. The curvature of the planet is visible at the top of the frame.

SOFTWARE CITATION FOR SOFTWARE USERS

Bildquelle hier angeben

Citing software: Ideal and best effort cases



S. Druskat, T. Krause, C. Lachenmaier, and B. Bunzeck, *Hexatomic (Version 1.4.2)*, Mar. 2023. Zenodo. DOI: .

The hexatomic authors, *hexatomic (Version a0c59ed)*, Mar. 2023. Software Heritage Archive. SWHID: <https://archive.softwareheritage.org/swh:1:dir:b9d71b12a1fcb5e7b064c27f5edecb4bcf264a2e;anchor=swh:1:rev:a0c59edf8be8c1d7c045745e4bd043f7369c7d1b>.

Citing software: When to cite software, and at which level?



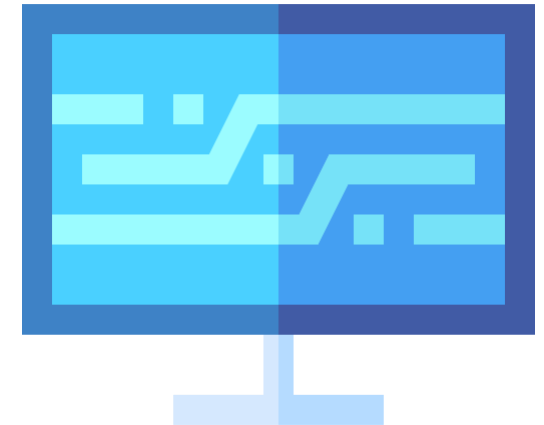
Cite software whenever it represents relevant previous work

- Cite software **versions**
 - When you have used them to yield research results
 - When you discuss or compare their features or properties
 - When you use them in your own software
- Cite software **projects**
 - When you discuss properties of the project
 - When you list them as examples, e.g., for a software type

Citing software: Which software to cite?

Cite the software that you have used, or discuss, directly

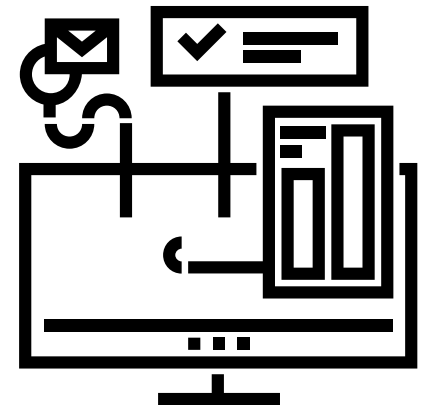
- Cite software that you have **run to process* data**
 - Models, simulations, digital twins
 - Command line tools, graphical applications, services
 - Computational notebooks, scripts
 - ...
- Where relevant, cite **direct** dependencies, or **crucial** packages
- Cite software you mention or discuss



Citing software: Cite only the software?



- Have you used the software to yield **research results**?
 - Provide **usage metadata/information** to enable reproducibility ([ROCrate](#), computational workflows, containerization)
- Have the authors asked specifically to **cite a paper or other work**?
 - Cite the paper, but also **cite the software itself**



Citing software:

Where to get citation metadata from?

- Software distribution or documentation
- User interface (`--help`, `Help > About`)
- **Open source software**
 - *Source code repository*
 - DOI or link to published version 
 - Citation metadata file (CITATION.cff, codemeta.json) 
 - Link to releases in package repository (PyPI, CRAN, ...)?
 - *Software Heritage Archive* 

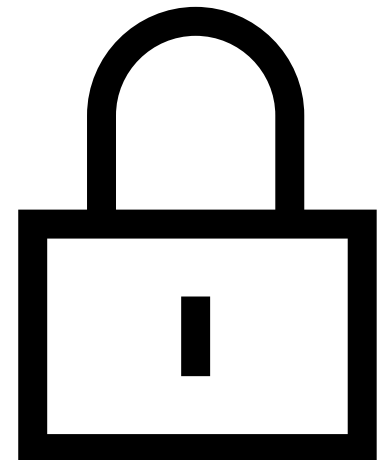


Citing software:

Where to get citation metadata from?



- Software distribution or documentation
- **Closed source software**
 - User interface (`--help`, `Help > About`)



Citing software: Which software citation metadata to trust?



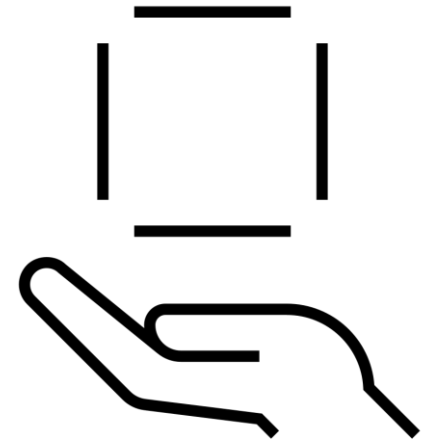
Generally, DOIs and authors are the most trustworthy metadata sources

Potential pitfalls

- Publication automation (software name, authors)
- Unmaintained metadata files (authors, versions, PIDs)

Do not use!

- Version control / package repository metadata for authorship



Compile metadata carefully and do cross-checks. Don't guess metadata!

Citing software: How to deal with missing metadata?

- **Authors' names:** Use a group author (*The <name> authors*)
- **Software name:** Use something that makes sense
- **Version identifier:** Use a tag/commit/revision identifier; use an MD5 checksum
- **Publication date:** Use the tag/commit/revision date
- **Platform & PID:** If possible, archive on SWH and use SWHID: <identifier>



Citing software: How to format the software reference?



- Hack the style to include all relevant metadata
- If you use LaTeX, consider using BibLaTeX and [bibtex-software](#)

- [2] [Software] A. Pontzen, R. Roškar, G. Stinson, and R. Woods, *pynbody: N-Body/SPH analysis for python* (Coordinated by Astrophysics Source Code Library), May 2013. ASCL: `<ascl:1305.002>`,
- [12] [Software Release] The CGAL Project, *The Computational Geometry Algorithms Library* version 5.0.2 (Coordinated by CGAL Editorial Board), 2020. SWHID: `<swh:1:rel:636541bbf6c77863908eae744610a3d91fa58855;origin=https://github.com/CGAL/cgal/>`.

WRAP-UP

- Software citation **acknowledges the importance of software** in research, **improves the reproducibility** of research and **provides credit**
- Software citation relies on **correct and complete metadata**
- Software developers/maintainers should **provide software citation metadata**, e.g., in a `CITATION.cff` file
 - Tooling can help create and maintain citation metadata
- Software users should cite **software (versions) whenever they use them**
- Software developers should **cite the direct dependencies** of their software
- **Making software citation an established practice** requires further culture change and better tooling

Thank you!



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Resources:  citation-file-format.github.io

 researchsoft.org/tf-authorship-contribution

References: A. M. Smith, D. S. Katz, K. E. Niemeyer, and FORCE11 Software Citation Working Group, "**Software citation principles**," *PeerJ Comput. Sci.*, vol. 2, no. e86, 2016, doi: [10.7717/peerj-cs.86](https://doi.org/10.7717/peerj-cs.86).

S. Kernchen, M. Meinel, S. Druskat, et al., "**Extending and applying automated HERMES software publication workflows**," *Electronic Communications of the EASST*, vol. 83, 2025, doi: [10.14279/ECEASST.V83.2624](https://doi.org/10.14279/ECEASST.V83.2624).

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Slides: doi: [10.5281/zenodo.15583669](https://doi.org/10.5281/zenodo.15583669) 