

Guide to Citation File Format schema version 1.2.0

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General structure of a CITATION.cff file

Valid Citation File Format files

1. must be named `CITATION.cff` (note the capitalization);
2. are valid YAML 1.2 (specification, validator);
3. are valid according to the Citation File Format schema version 1.2.0 outlined in `schema.json`.

Minimal example

A minimal example of a valid `CITATION.cff` file, that contains only the required keys, could look like this:

```
authors:  
  - family-names: Druskat  
    given-names: Stephan  
cff-version: 1.2.0  
message: If you use this software, please cite it using these metadata.  
title: My Research Software
```

Typical example

For most software however, it is relatively easy to expand the minimal case with important information like the version, the date when it was last published, some keywords, etc.:

```
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"  
cff-version: 1.2.0
```

```

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
keywords:
  - "awesome software"
  - research
license: Apache-2.0
message: If you use this software, please cite it using these metadata.
repository-code: "https://github.com/citation-file-format/my-research-software"
title: My Research Software
version: 0.11.2

```

Referencing other work

When your software or data builds on what others have already done, it is good practice to add a `references` section to your `CITATION.cff` file. This way, you give credit to the authors of works that your own work builds on.

The `references` section works like a reference list in a paper, but can also contain references to other software (such as the dependencies of your software), other datasets, and other (research) outputs.

```

authors:
  - family-names: Druskat
    given-names: Stephan
cff-version: 1.2.0
message: If you use this software, please cite it using these metadata.
title: My Research Software
references:
  - authors:
    - family-names: Spaaks
      given-names: Jurriaan H.
    title: The foundation of Research Software
    type: software
  - authors:
    - family-names: Haines
      given-names: Robert
    title: Ruby CFF Library
    type: software
    version: 1.0

```

Credit redirection

Sometimes you want to redirect any credit your work may receive towards a second work (typically one of your own). A common example is, that when you write software and then write a paper about it, you may want to be credited for the paper instead of for the software itself. For this case, your `CITATION.cff` should contain metadata about the software at the root of the `CITATION.cff` file, but additionally, you can add a `preferred-citation` key with the metadata of the paper (or other work) you want people to cite. Usually, the `message` also reflects the authors' wishes on how they want to be credited.

```
authors:
  - family-names: Druskat
    given-names: Stephan
cff-version: 1.2.0
message: If you use this software, please cite both the article from preferred-citation and
title: My Research Software
preferred-citation:
  authors:
    - family-names: Druskat
      given-names: Stephan
  title: Software paper about My Research Software
  type: article
```

The next sections explain each key in more detail.

Valid keys

This section describes the valid keys in a `CITATION.cff` file.

Index

- `abstract`
- `authors` (array of objects)
- `cff-version`
- `commit`
- `contact` (object)
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- `doi`
- `identifiers` (array of objects)
- `keywords`
- `license`
- `license-url`
- `message`
- `preferred-citation` (object)
- `references` (array of objects)
- `repository`

- repository-artifact
- repository-code
- title
- type
- url
- version

abstract

- **type:** Nonempty string
- **required:** false
- **description:** A description of the software or dataset.
- **usage:** `yaml abstract: This software implements methods to do things.`

authors

- **type:** Array of `definitions.person` and/or `definitions.entity` objects.
- **required:** true
- **description:** The authors of a software or dataset. (See also How to deal with unknown individual authors?)
- **usage:** `yaml authors: - given-names: Stephan family-names: Druskat`
`yaml authors: - name: "The Research Software project"`
`yaml authors: - given-names: Stephan family-names: Druskat - name: "The Research Software project"`

cff-version

- **type:** Nonempty string
- **required:** true
- **description:** The Citation File Format schema version that the `CITATION.cff` file adheres to for providing the citation metadata.
- **usage:** `yaml cff-version: 1.2.0` `yaml cff-version: "1.2.0"`

commit

- **type:** Nonempty string
- **required:** false
- **description:** The commit hash or revision number of the software version.
- **usage:** `yaml commit: 1ff847d81f29c45a3a1a5ce73d38e45c2f319bba`
`yaml commit: "Revision: 8612"`

contact

- **type:** Array of `definitions.person` and/or `definitions.entity` objects.

- **required:** false
- **description:** The contact person, group, company, etc. for the software or dataset.
- **usage:**

```

yaml  contact:      - affiliation: "German Aerospace
Center (DLR)"      email: "mail@research-project.org"
family-names: Druskat      given-names: Stephan
yaml  contact:      - email: "mail@research-project.org"
name: "The Research
Software project"
yaml  contact:      - email: "mail@research-project.org"
given-names: Stephan      family-names: Druskat
email: "mail@research-project.org"      name: "The Research
Software project"

```

date-released

- **type:** definitions.date
- **required:** false
- **description:** The date the software or data set has been released. Format is 4-digit year, 2-digit month, 2-digit day of month, separated by dashes.
- **usage:**

```

yaml  date-released: 2020-01-31

```

doi

- **type:** definitions.doi
- **required:** false
- **description:** The DOI of the software or dataset. This notation is most useful when there is just one DOI you want to include. In that case, doi can be used as shorthand for something like:

```

yaml  identifiers:  - type: doi      value:
10.5281/zenodo.1003149      description: The concept DOI of
the work.
yaml  identifiers:  - type: doi      value:
10.5281/zenodo.4813122      description: The versioned DOI
of the work.

```
- **usage:**

```

yaml  doi: 10.5281/zenodo.1003149
yaml  doi: 10.5281/zenodo.4813122

```

identifiers

- **type:** Array of definitions.identifier objects.
- **required:** false
- **description:** The identifiers of the software or dataset.
- **usage:**

```

yaml  identifiers:  - type: doi      value:
10.5281/zenodo.1003149      description: The concept DOI of
the work.

```

```

identifiers:
  - type: doi

```

```

    value: 10.5281/zenodo.4813122
    description: The versioned DOI for version 1.1.0 of the work.
  identifiers:
    - type: doi
      value: 10.5281/zenodo.1003149
      description: The concept DOI of the work.
    - type: doi
      value: 10.5281/zenodo.4813122
      description: The versioned DOI for version 1.1.0 of the work.
  identifiers:
    - type: doi
      value: 10.5281/zenodo.1003149
      description: The concept DOI of the work.
    - type: doi
      value: 10.5281/zenodo.4813122
      description: The versioned DOI for version 1.1.0 of the work.
    - type: swh
      value: "swh:1:dir:bc286860f423ea7ced246ba7458eef4b4541cf2d"
      description: The Software Heritage identifier for version 1.1.0 of the work.
    - type: url
      value: "https://github.com/citation-file-format/citation-file-format/releases/tag/1.1.0"
      description: The GitHub release URL of tag 1.1.0.
    - type: url
      value: "https://github.com/citation-file-format/citation-file-format/tree/16192bf05"
      description: The GitHub release URL of the commit tagged with 1.1.0.

```

keywords

- **type:** Array of nonempty string
- **required:** false
- **description:** Keywords that describe the work.
- **usage:** `yaml keywords: - thefirstkeyword - thesecondkeyword - "a third keyword"`

license

- **type:** (Array of) `definitions.license-enum`.
- **required:** false
- **description:** The SPDX license identifier(s) for the license(s) under which the work is made available. When there are multiple licenses, it is assumed their relationship is OR, not AND.
- **usage:** `yaml license: Apache-2.0 yaml license: - Apache-2.0 - MIT yaml license: - GPL-3.0 - GPL-3.0-or-later`

license-url

- **type:** definitions.url
- **required:** false
- **description:** The URL of the license text under which the software or dataset is licensed (only for non-standard licenses not included in the SPDX License List).
- **usage:** yaml license-url: "https://obscure-licenses.com?id=1234"

message

- **type:** Nonempty string
- **required:** true
- **default:** If you use this software, please cite it using the metadata from this file.
- **description:** A message to the human reader of the CITATION.cff file to let them know what to do with the citation metadata.
- **usage:** yaml message: If you use this software, please cite it using the metadata from this file. yaml message: Please cite this software using these metadata. yaml message: Please cite this software using the metadata from 'preferred-citation'. yaml message: If you use this dataset, please cite it using the metadata from this file. yaml message: Please cite this dataset using these metadata. yaml message: Please cite this dataset using the metadata from 'preferred-citation'.

preferred-citation

- **type:** A definitions.reference object.
- **required:** false
- **description:** A reference to another work that should be cited instead of the software or dataset itself. Note that the principles of software citation and data citation require that software should be cited on the same basis as any other research product such as a paper or a book. Adding a different preferred citation may result in a violation of the respective primary principle, “Importance”, when others cite this work.
- **usage:** yaml preferred-citation: authors: -
family-names: Famnames given-names: Given Nam E.
title: Title of the work. type: generic year: 2021

references

- **type:** Array of definitions.reference objects.
- **required:** false
- **description:** Reference(s) to other creative works. Similar to a list of references in a paper, references of the software or dataset may include

other software (dependencies), or other research products that the software or dataset builds on, but not work describing the software or dataset.

- **usage:** yaml **references:** - **type:** software **authors:**
- **name:** "The Dependency Project" **title:** "Dependency"
date-released: 2021-07-26 **doi:** 10.5281/zenodo.x1234567
version: 0.13.4 **repository-code:** "https://github.com/dependency-project/dependen
- **type:** article **scope:** Cite this paper if you want to
reference the general concepts of the software. **authors:**
- **family-names:** Bielefeld **name-particle:** von
given-names: Arthur **title:** "Towards a 100% accuracy
syntax parser for all languages" **year:** 2099 **journal:**
Journal of Hard Science Fiction **volume:** 42 **issue:**
13 **doi:** 10.9999/hardscifi-lang.42132

repository

- **type:** definitions.url
- **required:** false
- **description:** The URL of the software or dataset in a repository/archive (when the repository is neither a source code repository nor a build artifact repository).
- **usage:** yaml **repository:** "https://ascl.net/2105.013"

repository-artifact

- **type:** definitions.url
- **required:** false
- **description:** The URL of the work in a build artifact/binary repository (when the work is software).
- **usage:** yaml **repository-artifact:** "https://search.maven.org/artifact/org.corpus-tools/"

repository-code

- **type:** definitions.url
- **required:** false
- **description:** The URL of the work in a source code repository.
- **usage:** yaml **repository-code:** "https://github.com/citation-file-format/cff-converter-p"

title

- **type:** Nonempty string
- **required:** true
- **description:** The name of the software or dataset.
- **usage:** yaml **title:** "cffconvert"

type

- **type:** enum (software or dataset)
- **default:** software
- **required:** false
- **description:** The type of the work that is being described by this CITATION.cff file.
- **usage:** `yaml type: software` `yaml type: dataset`

url

- **type:** `definitions.url`
- **required:** false
- **description:** The URL of a landing page/website for the software or dataset.
- **usage:** `yaml url: "https://citation-file-format.github.io/"`

version

- **type:** `definitions.version`
- **required:** false
- **description:** The version of the software or dataset.
- **usage:** `yaml version: "1.2.0"` `yaml version: 1.2` `yaml version: "21.10 (Impish Indri)"`

Definitions

Some values in CFF files are valid in different keys. For example, `repository-code`, `url` and `license-url` all take URLs as values.

The schema therefore has *definitions* of smaller subschemas, that can be reused in the schema from the respective key, instead of having to duplicate them. For example, there is one definition for a valid URL value (`definitions.url`), that is being referenced from `repository-code`, `url` and `license-url`.

Note: `definitions` and its subkeys like `definitions.alias` or `definitions.entity.alias` should not be used as keys in CITATION.cff files:

```
# incorrect
authors:
  - definitions.alias: sdruskat

# incorrect
authors:
  - definitions:
      alias: sdruskat

# correct
authors:
```

- alias: sdruskat

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definitions.address

- **type:** Nonempty string
- **required:** N/A
- **description:** An address.
- **usage:**

```
yaml authors: - name: "The Research Software Project" address: "742 Evergreen Terrace"
```

definitions.alias

- **type:** Nonempty string
- **required:** N/A
- **description:** An alias.
- **usage:**

```
yaml authors: - name: "The Research Software Project" alias: "RSP"
```

definitions.city

- **type:** Nonempty string

- **required:** N/A
- **description:** A city.
- **usage:** `yaml authors: - name: "The Research Software Project" city: "Berlin"`

`definitions.commit`

- **type:** Nonempty string
- **required:** N/A
- **description:** The (e.g., Git) commit hash or (e.g., Subversion) revision number of the work.
- **usage:** `yaml commit: "1ff847d81f29c45a3a1a5ce73d38e45c2f319bba"`
`yaml commit: "Revision: 8612"`

`definitions.country`

- **type:** enum with values
 - AD
 - AE
 - AF
 - AG
 - AI
 - AL
 - AM
 - AO
 - AQ
 - AR
 - AS
 - AT
 - AU
 - AW
 - AX
 - AZ
 - BA
 - BB
 - BD
 - BE
 - BF
 - BG
 - BH
 - BI
 - BJ
 - BL
 - BM
 - BN
 - BO

- BQ
- BR
- BS
- BT
- BV
- BW
- BY
- BZ
- CA
- CC
- CD
- CF
- CG
- CH
- CI
- CK
- CL
- CM
- CN
- CO
- CR
- CU
- CV
- CW
- CX
- CY
- CZ
- DE
- DJ
- DK
- DM
- DO
- DZ
- EC
- EE
- EG
- EH
- ER
- ES
- ET
- FI
- FJ
- FK
- FM
- FO
- FR

- GA
- GB
- GD
- GE
- GF
- GG
- GH
- GI
- GL
- GM
- GN
- GP
- GQ
- GR
- GS
- GT
- GU
- GW
- GY
- HK
- HM
- HN
- HR
- HT
- HU
- ID
- IE
- IL
- IM
- IN
- IO
- IQ
- IR
- IS
- IT
- JE
- JM
- JO
- JP
- KE
- KG
- KH
- KI
- KM
- KN
- KP

- KR
- KW
- KY
- KZ
- LA
- LB
- LC
- LI
- LK
- LR
- LS
- LT
- LU
- LV
- LY
- MA
- MC
- MD
- ME
- MF
- MG
- MH
- MK
- ML
- MM
- MN
- MO
- MP
- MQ
- MR
- MS
- MT
- MU
- MV
- MW
- MX
- MY
- MZ
- NA
- NC
- NE
- NF
- NG
- NI
- NL
- NO

- NP
- NR
- NU
- NZ
- OM
- PA
- PE
- PF
- PG
- PH
- PK
- PL
- PM
- PN
- PR
- PS
- PT
- PW
- PY
- QA
- RE
- RO
- RS
- RU
- RW
- SA
- SB
- SC
- SD
- SE
- SG
- SH
- SI
- SJ
- SK
- SL
- SM
- SN
- SO
- SR
- SS
- ST
- SV
- SX
- SY
- SZ

- TC
- TD
- TF
- TG
- TH
- TJ
- TK
- TL
- TM
- TN
- TO
- TR
- TT
- TV
- TW
- TZ
- UA
- UG
- UM
- US
- UY
- UZ
- VA
- VC
- VE
- VG
- VI
- VN
- VU
- WF
- WS
- YE
- YT
- ZA
- ZM
- ZW

- **required:** N/A
- **description:** The ISO 3166-1 alpha-2 country code for a country.
- **usage:** yaml authors: - name: The Authors Team country:
NLyaml references: - type: conference conference:
country: DE

definitions.date

- **type:** Nonempty string
- **required:** N/A

- **description:** A date. Format is 4-digit year, followed by 2-digit month, followed by 2-digit day of month, and separated by dashes. Note to tool implementers: it is necessary to cast YAML `date` objects to `string` objects when validating against the schema.
- **usage:** `yaml date-released: "2020-01-31" yaml references:`
 - `date-accessed: "2020-01-31" type: generic yaml`
 - `references: - date-downloaded: "2020-01-31" type:`
 - `generic yaml references: - date-published: "2020-01-31"`
 - `type: generic yaml references: - date-released: "2020-01-31"`
 - `type: generic yaml references: - conference: date-end:`
 - `"2020-02-02" date-start: "2020-01-31" type:`
 - `conference`

definitions.doi

- **type:** Nonempty string
- **required:** N/A
- **description:** The DOI of the work (i.e., 10.5281/zenodo.1003150, not the resolver URL <http://doi.org/10.5281/zenodo.1003150>).
- **usage:** `yaml doi: 10.5281/zenodo.1003150`

definitions.email

- **type:** Nonempty string
- **required:** N/A
- **description:** An email address.
- **usage:** `yaml authors: - email: "mail@research-project.org"`
`name: "The Research Software project"`

definitions.entity

- **type:** object with the following keys:
 - address
 - alias
 - city
 - country
 - date-end
 - date-start
 - email
 - fax
 - location
 - name
 - orcid
 - post-code
 - region
 - tel
 - website

- **required:** N/A
- **description:** An entity. Entities are used in keys that can also take definitions.person objects. An entity can represent different types of entities, such as a team, an institution, a company, a conference, etc.
- **usage:**

```

yaml authors: - name: "The Research Software
Project" address: "742 Evergreen Terrace" alias:
"RSP" city: "Berlin" country: "DE" date-end:
2018-07-27 date-start: 2021-07-27 email: "team@research-project.org"
fax: +12-3456-7890 location: "Lovelace Building, room
0.42" orcid: "https://orcid.org/0000-0003-4925-7248"
post-code: 90210 region: Renfrewshire tel:
+12-345-6789098 website: "https://research-software-project.org"
yaml contact: - name: "The Research Software Project
team" yaml references: - type: generic title: "A
reference showing different keys that take entity objects"
authors: - name: "The Research Software Project
team" conference: name: "RC21 - Research
Conference 2021" contact: - name: "Customer
Support" database-provider: name: "Database
Provider" editors: - name: "The Publication
Editing Team" editors-series: - name: "The
Publication Series Editing Team" institution: name:
"Department of Research, Random University" location:
name: "Museum of Postmodern Art" publisher: name:
"Open Access Publishing House" recipients: -
name: "The recipient institution of a personal communication"
senders: - name: "The team sending a personal communication"
translators: - name: "Research Translators, Ltd."

```

definitions.entity.address

- **type:** definitions.address.
- **required:** false
- **description:** The entity's address.
- **usage:**

```

yaml authors: - name: The Research Software
Project address: "742 Evergreen Terrace"

```

definitions.entity.alias

- **type:** definitions.alias.
- **required:** false
- **description:** The entity's alias.
- **usage:**

```

yaml authors: - name: National Aeronautics and
Space Administration alias: "NASA"

```

definitions.entity.city

- **type:** definitions.city.
- **required:** false
- **description:** The entity's city.
- **usage:** yaml authors: - name: The Research Software Project city: "Berlin"

definitions.entity.country

- **type:** definitions.country.
- **required:** false
- **description:** The entity's country.
- **usage:** yaml authors: - name: The Research Software Project country: "DE"

definitions.entity.date-end

- **type:** definitions.date.
- **required:** false
- **description:** The entity's ending date, e.g. when the entity is a conference.
- **usage:** yaml references: - type: conference-paper title: "Conference Paper" authors: - name: The Research Software Project conference: name: "Research Conference 2021" date-end: 2021-07-27

definitions.entity.date-start

- **type:** definitions.date.
- **required:** false
- **description:** The entity's starting date, e.g. when the entity is a conference.
- **usage:** yaml references: - type: conference-paper title: "Conference Paper" authors: - name: The Research Software Project conference: name: "Research Conference 2021" date-start: 2021-07-27

definitions.entity.email

- **type:** definitions.email.
- **required:** false
- **description:** The entity's email address.
- **usage:** yaml authors: - name: The Research Software Project email: "team@research-project.org"

definitions.entity.fax

- **type:** definitions.fax.

- **required:** false
- **description:** The entity's fax number.
- **usage:** `yaml` `authors:` - `name:` The Research Software Project `fax:` +12-3456-7890

definitions.entity.location

- **type:** Nonempty string
- **required:** false
- **description:** The entity's location.
- **usage:** `yaml` `authors:` - `name:` The Research Software Project `location:` "Lovelace Building, room 0.42"

definitions.entity.name

- **type:** Nonempty string
- **required:** true
- **description:** The entity's name.
- **usage:** `yaml` `authors:` - `name:` The Research Software Project

definitions.entity.orcid

- **type:** definitions.orcid.
- **required:** false
- **description:** The entity's ORCID identifier.
- **usage:** `yaml` `authors:` - `name:` The Research Software Project `orcid:` "https://orcid.org/0000-0003-4925-7248"

definitions.entity.post-code

- **type:** definitions.post-code.
 - **required:** false
 - **description:** The entity's post code.
 - **usage:** `yaml` `authors:` - `name:` The Research Software Project `post-code:` 90210
- ```
authors:
 - name: The Research Software Project
 post-code: "90210"
```

#### definitions.entity.region

- **type:** definitions.region.
- **required:** false
- **description:** The entity's region.

- **usage:** yml authors: - name: The Research Software Project region: Renfrewshire

#### definitions.entity.tel

- **type:** definitions.tel.
- **required:** false
- **description:** The entity's telephone number.
- **usage:** yml authors: - name: The Research Software Project tel: +12-345-6789098

#### definitions.entity.website

- **type:** definitions.url.
- **required:** false
- **description:** The entity's website.
- **usage:** yml authors: - name: The Research Software Project website: "https://research-software-project.org"

#### definitions.fax

- **type:** Nonempty string
- **required:** N/A
- **description:** A fax number.
- **usage:** yml authors: - name: The Research Software Project fax: +12-3456-7890 yml authors: - family-names: Druskat fax: +12-3456-7890 given-names: Stephan

#### definitions.identifier

- **type:** One of the following object types (click to expand/collapse):
  1. DOI
    - type:
    - type: enum with singular value doi
    - required: true
    - description: The type of identifier.
    - value:
    - type: definitions.doi
    - required: true
    - description: The value of the DOI, e.g. 10.5281/zenodo.1003149
    - description:
    - type: definitions.identifier-description
    - required: false
    - description: The description of the DOI, e.g. This is the DOI for version 0.11.4.

2. URL

type:  
type: enum with singular value url  
required: true  
description: The type of identifier.  
value:  
type: definitions.url  
required: true  
description: The value of the URL, e.g. <https://github.com/citation-file-format/citation-file-format>.  
description:  
type: definitions.identifier-description  
required: false  
description: The description of the URL, e.g. The homepage for the project.

3. Software Heritage identifier

type:  
type: enum with singular value swh  
required: true  
description: The type of identifier.  
value:  
type: definitions.swh-identifier  
required: true  
description: The value of the Software Heritage identifier, e.g. `swh:1:dir:bc286860f423ea7ced246ba7458eef4b4541cf2d`.  
description:  
type: definitions.identifier-description  
required: false  
description: The description of the Software Heritage identifier, e.g. The directory object of the repository as stored on Software Heritage..

4. Other

type:  
type: enum with singular value other  
required: true  
description: The type of identifier.  
value:  
type: Nonempty string.  
required: true  
description: The value of the identifier, e.g. `arXiv:2103.06681`.  
description:  
type: definitions.identifier-description  
required: false  
description: The description of the identifier, e.g. The ArXiv preprint of the paper..

- **required:** N/A

- **description:** An identifier.
- **usage:**

```

yaml identifiers: - type: doi value:
10.5281/zenodo.1003149 description: The concept DOI of
the work.
yaml identifiers: - type: doi value:
10.5281/zenodo.4813122 description: The versioned DOI
for version 1.1.0 of the work.
yaml identifiers: -
type: doi value: 10.5281/zenodo.1003149 description:
The concept DOI of the work.
- type: doi value:
10.5281/zenodo.4813122 description: The versioned DOI
for version 1.1.0 of the work.
yaml identifiers: -
type: doi value: 10.5281/zenodo.1003149 description:
The concept DOI of the work.
- type: doi value:
10.5281/zenodo.4813122 description: The versioned DOI
for version 1.1.0 of the work.
- type: swh value:
"swh:1:dir:bc286860f423ea7ced246ba7458eef4b4541cf2d" description:
The Software Heritage identifier for version 1.1.0 of the
work.
- type: url value: "https://github.com/citation-file-format/citation-fi
description: The GitHub release URL of tag 1.1.0.
-
type: url value: "https://github.com/citation-file-format/citation-file-format/tr
description: The GitHub release URL of the commit tagged
with 1.1.0.
yaml preferred-citation: identifiers:
- type: other value: "arXiv:2103.06681" description:
The ArXiv preprint of the paper

```

#### definitions.identifier-description

- **type:** Nonempty string
- **required:** N/A
- **description:** A description for a specific identifier value.
- **usage:** “‘yaml doi: 10.5281/zenodo.4813121 identifiers: - type: doi value: 10.5281/zenodo.4813122 description: “The version DOI for this version, which has a relation childOf with the concept DOI specified in the doi key in the root of this file.” - type: other value: “ar:1234/5678.ABCD” description: “The identifier provided by Archival Repository, which points to this version of the software.”

““

#### definitions.license

- **type:** (Array of) definitions.license-enum objects.
- **required:** N/A
- **description:** The SPDX license identifier(s) for the license(s) under which a work is made available. When there are multiple licenses, it is assumed their relationship is OR, not AND.

- `usage:` yamll license: Apache-2.0 yamll license: -  
Apache-2.0 - MIT

#### `definitions.license-enum`

- `type:` enum with values:
  - OBSL
  - AAL
  - Abstyles
  - Adobe-2006
  - Adobe-Glyph
  - ADSL
  - AFL-1.1
  - AFL-1.2
  - AFL-2.0
  - AFL-2.1
  - AFL-3.0
  - Afmparse
  - AGPL-1.0
  - AGPL-1.0-only
  - AGPL-1.0-or-later
  - AGPL-3.0
  - AGPL-3.0-only
  - AGPL-3.0-or-later
  - Aladdin
  - AMDPLPA
  - AML
  - AMPAS
  - ANTLR-PD
  - ANTLR-PD-fallback
  - Apache-1.0
  - Apache-1.1
  - Apache-2.0
  - APAFML
  - APL-1.0
  - APSL-1.0
  - APSL-1.1
  - APSL-1.2
  - APSL-2.0
  - Artistic-1.0
  - Artistic-1.0-cl8
  - Artistic-1.0-Perl
  - Artistic-2.0
  - Bahyph
  - Barr
  - Beerware



- BitTorrent-1.0
- BitTorrent-1.1
- blessing
- BlueOak-1.0.0
- Borceux
- BSD-1-Clause
- BSD-2-Clause
- BSD-2-Clause-FreeBSD
- BSD-2-Clause-NetBSD
- BSD-2-Clause-Patent
- BSD-2-Clause-Views
- BSD-3-Clause
- BSD-3-Clause-Attribution
- BSD-3-Clause-Clear
- BSD-3-Clause-LBNL
- BSD-3-Clause-Modification
- BSD-3-Clause-No-Nuclear-License
- BSD-3-Clause-No-Nuclear-License-2014
- BSD-3-Clause-No-Nuclear-Warranty
- BSD-3-Clause-Open-MPI
- BSD-4-Clause
- BSD-4-Clause-Shortened
- BSD-4-Clause-UC
- BSD-Protection
- BSD-Source-Code
- BSL-1.0
- BUSL-1.1
- bzip2-1.0.5
- bzip2-1.0.6
- C-UDA-1.0
- CAL-1.0
- CAL-1.0-Combined-Work-Exception
- Caldera
- CATOSL-1.1
- CC-BY-1.0
- CC-BY-2.0
- CC-BY-2.5
- CC-BY-3.0
- CC-BY-3.0-AT
- CC-BY-3.0-US
- CC-BY-4.0
- CC-BY-NC-1.0
- CC-BY-NC-2.0
- CC-BY-NC-2.5
- CC-BY-NC-3.0
- CC-BY-NC-4.0

- CC-BY-NC-ND-1.0
- CC-BY-NC-ND-2.0
- CC-BY-NC-ND-2.5
- CC-BY-NC-ND-3.0
- CC-BY-NC-ND-3.0-IGO
- CC-BY-NC-ND-4.0
- CC-BY-NC-SA-1.0
- CC-BY-NC-SA-2.0
- CC-BY-NC-SA-2.5
- CC-BY-NC-SA-3.0
- CC-BY-NC-SA-4.0
- CC-BY-ND-1.0
- CC-BY-ND-2.0
- CC-BY-ND-2.5
- CC-BY-ND-3.0
- CC-BY-ND-4.0
- CC-BY-SA-1.0
- CC-BY-SA-2.0
- CC-BY-SA-2.0-UK
- CC-BY-SA-2.1-JP
- CC-BY-SA-2.5
- CC-BY-SA-3.0
- CC-BY-SA-3.0-AT
- CC-BY-SA-4.0
- CC-PDDC
- CC0-1.0
- CDDL-1.0
- CDDL-1.1
- CDL-1.0
- CDLA-Permissive-1.0
- CDLA-Sharing-1.0
- CECILL-1.0
- CECILL-1.1
- CECILL-2.0
- CECILL-2.1
- CECILL-B
- CECILL-C
- CERN-OHL-1.1
- CERN-OHL-1.2
- CERN-OHL-P-2.0
- CERN-OHL-S-2.0
- CERN-OHL-W-2.0
- ClArtistic
- CNRI-Jython
- CNRI-Python
- CNRI-Python-GPL-Compatible

- Condor-1.1
- copyleft-next-0.3.0
- copyleft-next-0.3.1
- CPAL-1.0
- CPL-1.0
- CPOL-1.02
- Crossword
- CrystalStacker
- CUA-OPL-1.0
- Cube
- curl
- D-FSL-1.0
- diffmark
- DOC
- Dotseqn
- DRL-1.0
- DSDP
- dvipdfm
- ECL-1.0
- ECL-2.0
- eCos-2.0
- EFL-1.0
- EFL-2.0
- eGenix
- Entessa
- EPICS
- EPL-1.0
- EPL-2.0
- ErlPL-1.1
- etalab-2.0
- EUDatagrid
- EUPL-1.0
- EUPL-1.1
- EUPL-1.2
- Eurosym
- Fair
- Frameworx-1.0
- FreeBSD-DOC
- FreeImage
- FSFAP
- FSFUL
- FSFULLR
- FTL
- GD
- GFDL-1.1
- GFDL-1.1-invariants-only

- GFDL-1.1-invariants-or-later
- GFDL-1.1-no-invariants-only
- GFDL-1.1-no-invariants-or-later
- GFDL-1.1-only
- GFDL-1.1-or-later
- GFDL-1.2
- GFDL-1.2-invariants-only
- GFDL-1.2-invariants-or-later
- GFDL-1.2-no-invariants-only
- GFDL-1.2-no-invariants-or-later
- GFDL-1.2-only
- GFDL-1.2-or-later
- GFDL-1.3
- GFDL-1.3-invariants-only
- GFDL-1.3-invariants-or-later
- GFDL-1.3-no-invariants-only
- GFDL-1.3-no-invariants-or-later
- GFDL-1.3-only
- GFDL-1.3-or-later
- Giftware
- GL2PS
- Glide
- Glulxe
- GLWTPL
- gnuplot
- GPL-1.0
- GPL-1.0-only
- GPL-1.0-or-later
- GPL-1.0+
- GPL-2.0
- GPL-2.0-only
- GPL-2.0-or-later
- GPL-2.0-with-autoconf-exception
- GPL-2.0-with-bison-exception
- GPL-2.0-with-classpath-exception
- GPL-2.0-with-font-exception
- GPL-2.0-with-GCC-exception
- GPL-2.0+
- GPL-3.0
- GPL-3.0-only
- GPL-3.0-or-later
- GPL-3.0-with-autoconf-exception
- GPL-3.0-with-GCC-exception
- GPL-3.0+
- gSOAP-1.3b
- HaskellReport

- Hippocratic-2.1
- HPND
- HPND-sell-variant
- HTMLTIDY
- IBM-pibs
- ICU
- IJG
- ImageMagick
- iMatix
- Imlib2
- Info-ZIP
- Intel
- Intel-ACPI
- Interbase-1.0
- IPA
- IPL-1.0
- ISC
- JasPer-2.0
- JPNIC
- JSON
- LAL-1.2
- LAL-1.3
- Latex2e
- Leptonica
- LGPL-2.0
- LGPL-2.0-only
- LGPL-2.0-or-later
- LGPL-2.0+
- LGPL-2.1
- LGPL-2.1-only
- LGPL-2.1-or-later
- LGPL-2.1+
- LGPL-3.0
- LGPL-3.0-only
- LGPL-3.0-or-later
- LGPL-3.0+
- LGPLLR
- Libpng
- libpng-2.0
- libselinux-1.0
- libtiff
- LiLiQ-P-1.1
- LiLiQ-R-1.1
- LiLiQ-Rplus-1.1
- Linux-OpenIB
- LPL-1.0

- LPL-1.02
- LPPL-1.0
- LPPL-1.1
- LPPL-1.2
- LPPL-1.3a
- LPPL-1.3c
- MakeIndex
- MirOS
- MIT
- MIT-0
- MIT-advertising
- MIT-CMU
- MIT-enna
- MIT-feh
- MIT-Modern-Variant
- MIT-open-group
- MITNFA
- Motosoto
- mpich2
- MPL-1.0
- MPL-1.1
- MPL-2.0
- MPL-2.0-no-copyleft-exception
- MS-PL
- MS-RL
- MTL
- MulanPSL-1.0
- MulanPSL-2.0
- Multics
- Mup
- NAIST-2003
- NASA-1.3
- Naumen
- NBPL-1.0
- NCGL-UK-2.0
- NCSA
- Net-SNMP
- NetCDF
- Newsletr
- NGPL
- NIST-PD
- NIST-PD-fallback
- NLOD-1.0
- NLPL
- Nokia
- NOSL

- Noweb
- NPL-1.0
- NPL-1.1
- NPOSL-3.0
- NRL
- NTP
- NTP-0
- Nunit
- O-UDA-1.0
- OCCT-PL
- OCLC-2.0
- ODbL-1.0
- ODC-By-1.0
- OFL-1.0
- OFL-1.0-no-RFN
- OFL-1.0-RFN
- OFL-1.1
- OFL-1.1-no-RFN
- OFL-1.1-RFN
- OGC-1.0
- OGDL-Taiwan-1.0
- OGL-Canada-2.0
- OGL-UK-1.0
- OGL-UK-2.0
- OGL-UK-3.0
- OGTSL
- OLDAP-1.1
- OLDAP-1.2
- OLDAP-1.3
- OLDAP-1.4
- OLDAP-2.0
- OLDAP-2.0.1
- OLDAP-2.1
- OLDAP-2.2
- OLDAP-2.2.1
- OLDAP-2.2.2
- OLDAP-2.3
- OLDAP-2.4
- OLDAP-2.5
- OLDAP-2.6
- OLDAP-2.7
- OLDAP-2.8
- OML
- OpenSSL
- OPL-1.0
- OSET-PL-2.1

- OSL-1.0
- OSL-1.1
- OSL-2.0
- OSL-2.1
- OSL-3.0
- Parity-6.0.0
- Parity-7.0.0
- PDDL-1.0
- PHP-3.0
- PHP-3.01
- Plexus
- PolyForm-Noncommercial-1.0.0
- PolyForm-Small-Business-1.0.0
- PostgreSQL
- PSF-2.0
- psfrag
- psutils
- Python-2.0
- Qhull
- QPL-1.0
- Rdisc
- RHeCos-1.1
- RPL-1.1
- RPL-1.5
- RPSL-1.0
- RSA-MD
- RSCPL
- Ruby
- SAX-PD
- Saxpath
- SCEA
- Sendmail
- Sendmail-8.23
- SGI-B-1.0
- SGI-B-1.1
- SGI-B-2.0
- SHL-0.5
- SHL-0.51
- SimPL-2.0
- SISSL
- SISSL-1.2
- Sleepycat
- SMLNJ
- SMPPL
- SNIA
- Spencer-86



- Spencer-94
- Spencer-99
- SPL-1.0
- SSH-OpenSSH
- SSH-short
- SSPL-1.0
- StandardML-NJ
- SugarCRM-1.1.3
- SWL
- TAPR-OHL-1.0
- TCL
- TCP-wrappers
- TMate
- TORQUE-1.1
- TOSL
- TU-Berlin-1.0
- TU-Berlin-2.0
- UCL-1.0
- Unicode-DFS-2015
- Unicode-DFS-2016
- Unicode-TOU
- Unlicense
- UPL-1.0
- Vim
- VOSTROM
- VSL-1.0
- W3C
- W3C-19980720
- W3C-20150513
- Watcom-1.0
- Wsuipa
- WTFPL
- wxWindows
- X11
- Xerox
- XFree86-1.1
- xinetd
- Xnet
- xpp
- XSkat
- YPL-1.0
- YPL-1.1
- Zed
- Zend-2.0
- Zimbra-1.3
- Zimbra-1.4

- Zlib
- zlib-acknowledgement
- ZPL-1.1
- ZPL-2.0
- ZPL-2.1
- **required:** N/A
- **description:** SPDX identifier for the license under which a work is made available. The list of identifiers originates from <https://github.com/spdx/license-list-data/blob/bd8e963a41b13524b2ccb67f9335d2dd397c378e/json/licenses>
- **usage:**

```

yml license: Apache-2.0 yml license:
Apache-2.0 - MIT

```

#### definitions.orcid

- **type:** uri with pattern `https://orcid\.org/[0-9]{4}-[0-9]{4}-[0-9]{4}-[0-9]{3}[0-9X]{1}`
- **required:** N/A
- **description:** An ORCID identifier.
- **usage:**

```

yml authors: - family-names: Druskat given-names:
Stephan orcid: "https://orcid.org/0000-0003-4925-7248"

```

#### definitions.person

- **type:** object with the following keys:
  - address
  - affiliation
  - alias
  - city
  - country
  - email
  - family-names
  - fax
  - given-names
  - name-particle
  - name-suffix
  - orcid
  - post-code
  - region
  - tel
  - website
- **required:** N/A
- **description:** A person. The Citation File Format aims to implement a culturally neutral model for personal names, according to the suggestions on splitting personal names by the W3C and the implementation of personal name splitting in BibTeX (Hufflen, 2006). To this end, the Citation File Format provides four generic keys to specify personal names:

1. Values for `family-names` specify family names, including combinations of given and patronymic forms, such as *Guðmundsdóttir* or *bin Osman*; double names with or without hyphen, such as *Leutheusser-Schnarrenberger* or *Sánchez Vicario*. It can potentially also specify names that include prepositions or (nobiliary) particles, especially if they occur in between family names such as in Spanish- or Portuguese-origin names, such as *Fernández de Córdoba*.
2. Values for `given-names` specify given and any other names.
3. Values for `name-particle` specify nobiliary particles and prepositions, such as in Ludwig *van* Beethoven or Rafael *van der* Vaart.
4. Values for `name-suffix` specify suffixes such as *Jr.* or *III* (as in Frank Edwin Wright *III*).

Note that these keys may still not be optimal for, e.g., Icelandic names which do not have the concept of family names, or Chinese generation names, but represent a best effort. - **usage:** `yaml` `authors:` - `family-names:`

```

Druskat given-names: Stephan name-particle:
von name-suffix: III address: "742 Evergreen
Terrace" affiliation: "German Aerospace Center (DLR)"
alias: "sdruskat" city: "Berlin" country: "DE"
email: "sdruskat@research-project.org" fax: +12-3456-7890
orcid: "https://orcid.org/0000-0003-4925-7248" post-code:
90210 region: Renfrewshire tel: +12-345-6789098
website: "https://research-project.org"

```

#### `definitions.person.address`

- **type:** `definitions.address`
- **required:** `false`
- **description:** The person's address.
- **usage:** `yaml` `authors:` - `family-names:` `Druskat` `given-names:`  
`Stephan` `address:` `"742 Evergreen Terrace"`

#### `definitions.person.affiliation`

- **type:** `Nonempty string`
- **required:** `false`
- **description:** The person's affiliation.
- **usage:** `yaml` `authors:` - `family-names:` `Druskat` `given-names:`  
`Stephan` `affiliation:` `"German Aerospace Center (DLR)"`

#### `definitions.person.alias`

- **type:** `definitions.alias`
- **required:** `false`
- **description:** The person's alias.

- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan alias: sdruskat

#### definitions.person.city

- **type:** definitions.city
- **required:** false
- **description:** The person's city.
- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan city: "Berlin"

#### definitions.person.country

- **type:** definitions.country
- **required:** false
- **description:** The person's country.
- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan country: "DE"

#### definitions.person.email

- **type:** definitions.email
- **required:** false
- **description:** The person's email address.
- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan email: "mail@research-project.org"

#### definitions.person.family-names

- **type:** Nonempty string
- **required:** false
- **description:** The person's family names.
- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan

#### definitions.person.fax

- **type:** definitions.fax
- **required:** false
- **description:** The person's fax number.
- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan fax: +12-3456-7890

#### definitions.person.given-names

- **type:** Nonempty string
- **required:** false

- **description:** The person's given names.
- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan

#### definitions.person.name-particle

- **type:** Nonempty string
- **required:** false
- **description:** The person's name particle, e.g., a nobiliary particle or a [preposition] meaning 'of' or 'from' (for example 'von' in 'Alexander von Humboldt').
- **usage:** yaml authors: - family-names: Humboldt given-names:  
Alexander name-particle: von

#### definitions.person.name-suffix

- **type:** Nonempty string
- **required:** false
- **description:** The person's name suffix, e.g. 'Jr.' for Sammy Davis Jr. or 'III' for Frank Edwin Wright III.
- **usage:** yaml authors: - family-names: Davis given-names:  
Sammy name-suffix: Jr.

#### definitions.person.orcid

- **type:** definitions.orcid
- **required:** false
- **description:** The person's ORCID identifier.
- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan orcid: "https://orcid.org/0000-0003-4925-7248"

#### definitions.person.post-code

- **type:** definitions.post-code
- **required:** false
- **description:** The person's post code.
- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan post-code: 90210 yaml authors: - family-names:  
Druskat given-names: Stephan post-code: "90210"

#### definitions.person.region

- **type:** definitions.region
- **required:** false
- **description:** The person's region.
- **usage:** yaml authors: - family-names: Druskat given-names:  
Stephan region: Renfrewshire

#### definitions.person.tel

- **type:** definitions.tel
- **required:** false
- **description:** The person's telephone number.
- **usage:** yml authors: - family-names: Druskat given-names:  
Stephan tel: +12-345-6789098

#### definitions.person.website

- **type:** definitions.url
- **required:** false
- **description:** The person's website.
- **usage:** yml authors: - family-names: Druskat given-names:  
Stephan website: "https://research-project.org"

#### definitions.post-code

- **type:** string or number
- **required:** N/A
- **description:** A post code.
- **usage:** yml authors: - name: "The Research Software  
Project" post-code: "G42 2PN" yml authors: -  
name: "The Research Software Project" post-code: 12053

#### definitions.reference

- **type:** object with the following keys:
  - abbreviation
  - abstract
  - authors
  - collection-doi
  - collection-title
  - collection-type
  - commit
  - conference
  - contact
  - copyright
  - data-type
  - database-provider
  - database
  - date-accessed
  - date-downloaded
  - date-published
  - date-released
  - department
  - doi

- edition
- editors
- editors-series
- end
- entry
- filename
- format
- identifiers
- institution
- isbn
- issn
- issue
- issue-date
- issue-title
- journal
- keywords
- languages
- license
- license-url
- loc-end
- loc-start
- location
- medium
- month
- nihmsid
- notes
- number
- number-volumes
- pages
- patent-states
- pmcid
- publisher
- recipients
- repository
- repository-artifact
- repository-code
- scope
- section
- senders
- status
- term
- thesis-type
- title
- translators
- type
- url

- version
- volume
- volume-title
- year
- year-original
- **required:** N/A
- **description:** A reference.
- **usage:** yaml
  - references:
    - authors:
      - Smith given-names: A. M. - family-names:
      - Katz given-names: D. S. - family-names:
      - Niemeyer given-names: K. E. - name: "FORCE11
    - family-names: "Software Citation Working Group" doi: "10.7717/peerj-cs.86"
    - journal: "PeerJ Computer Science" month: 9 start: e86
    - title: "Software citation principles" type: article
    - volume: 2 year: 2016 yml references:
      - abbreviation: "NP" abstract: "This is a non-sensical example reference to show how the many different keys in a reference object can be used." authors:
        - name: "The Research Software Project" collection-doi: 10.5281/zenodo.1003149
        - collection-title: "Proceedings of the Research Conference 2021" collection-type: "proceedings" commit: "16192bf05e99bcb35d5c3e085047807b5720fafc"
        - conference: name: "Research Conference 2021" contact:
          - name: "The RC21 Organizing Committee" copyright: "© 2021 The Research Software Project team" data-type: "YAML" database-provider: name: "Research Databases Ltd." database: "Research Database" date-accessed: "2021-07-27" date-downloaded: "2021-07-27" date-published: "2021-07-26" date-released: "2021-07-26" department: "Department of Hard Science Fiction" doi: 10.5281/zenodo.4813122
          - edition: "2nd abridged edition" editors:
            - family-names: Inchief given-names: Editor - name: "The RCProc Editorial Team" editors-series:
              - family-names: Editor given-names: Series - name: "The Series Editors" end: 42 entry: "Citation <n. 1>" filename: "CITATION.cff" format: "Citation File Format" identifiers:
                - type: doi value: 10.5281/zenodo.1003149 description: "The concept DOI of the work." - type: doi value: 10.5281/zenodo.4813122
                - description: "The versioned DOI for version 1.1.0 of the work." - type: swb value: "swb:1:dir:bc286860f423ea7ced246ba7458eef4b4"
                - description: "The Software Heritage identifier for version 1.1.0 of the work." - type: url value: "https://github.com/citation-file-format/citation-file-format/releases/tag/1.1.0"
                - description: "The GitHub release URL of tag 1.1.0." institution: name: "University of Arcadia" isbn: "9781603095075"



```

issn: "2475-9066" issue: 42 issue-date: "November/December
2021" issue-title: "Special Issue: Software Citation"
journal: "Journal of Open Source Software" keywords:
- software citation - "citation file format" -
research languages: - "en" - "haw"
license: Apache-2.0 license-url: "https://obscure-licenses.com?id=1234"
loc-end: 42 loc-start: 21 location: name:
"Library of the Unseen University" medium: "5¼-inch
floppy disk" month: 7 nihmsid: "NIHMS236863"
notes: "Excellent reference! TODO Read for thesis." number:
12053 number-volumes: 7 pages: 78 patent-states:
- "Canada" pmcid: "PMC3134971" publisher: name:
"Open Access Publishing House" recipients: -
name: "Recipient entity of personal communication" -
family-names: Recipient given-names: Communication
repository: "https://ascl.net/2105.013" repository-artifact:
"https://search.maven.org/artifact/org.corpus-tools/cff-maven-plugin/0.4.0/maven-plugin"
repository-code: "https://github.com/citation-file-format/my-research-software"
scope: "Supplement 2: Additional material" section:
7 senders: - name: "Sender entity of personal
communication" - family-names: Sender given-names:
Communication start: 17 status: "submitted"
term: "Citation" thesis-type: "PhD thesis" title:
"Towards better software citation" translators: -
name: "Research Translators Ltd." - family-names:
Lator given-names: Trans type: "conference-paper"
url: "https://citation-file-format.github.io/" version:
"0.3.12" volume: 2 volume-title: "Volume II: How
it went on" year: 2021 year-original: 1978

```

#### definitions.reference.abbreviation

- **type:** Nonempty string
- **required:** false
- **description:** The abbreviation of a work.
- **usage:**

```

yml preferred-citation: abbreviation: ABC
type: generic yml references: - abbreviation: DEF
type: generic

```

#### definitions.reference.abstract

- **type:** Nonempty string
- **required:** false
- **description:** The abstract of the work.
  - If the work is a journal paper or other academic work: The abstract of the work.

- If the work is a film, broadcast or similar: The synopsis of the work.
- **usage:** `yaml` **preferred-citation:** `abstract: "This work describes the software or dataset that should be actually cited. etc."` **type:** `generic` **yaml references:** - `abstract: "This work implements an algorithm that we use in our software. etc."` **type:** `generic`

#### `definitions.reference.authors`

- **type:** Array of `definitions.person` and/or `definitions.entity` objects.
- **required:** `true`
- **description:** The authors of the work.
- **usage:** `yaml` **preferred-citation:** `authors: - name: The Research Software Project team - family-names: Druskat given-names: Stephan type: generic` **yaml references:** - `authors: - name: The Research Software Project team - family-names: Druskat given-names: Stephan type: generic`

#### How to deal with unknown individual authors?

To enable credit for the individuals that have created a work, it is good practice to cite the respective individuals as authors. Sometimes you may not be able to determine the person names of the relevant individuals to create `definitions.person` objects for them, for example when a software you cite does not provide a `CITATION.cff` file. Then, the next best thing is to refer to those that you could not determine person names for collectively as a “team” or “project” using the title of the work in a `definitions.entity` object:

```
authors:
 - name: "The Research Software project"
```

```
authors:
 - family-names: Spaaks
 given-names: Jurriaan H.
 - family-names: Druskat
 given-names: Stephan
 - name: "The Research Software team"
```

This still represents the maximum knowledge you have about the authors. It’s also a good starting point to enable users of the citation metadata to determine the correct names themselves in the future, especially if you also provide a source of information such as a `repository-code` or a `url`.

If the authors of a work are truly anonymous, you can represent this in the same way:

authors:

- name: anonymous

definitions.reference.collection-doi

- type: definitions.doi
- required: false
- description: The DOI of a collection containing the work.
- usage: yaml preferred-citation: collection-doi: 10.5281/zenodo.1003149  
type: generic yaml references: - collection-doi:  
10.5281/zenodo.1003149 type: generic

definitions.reference.collection-title

- type: Nonempty string
- required: false
- description: The title of a collection or proceedings.
- usage: yaml preferred-citation: collection-title:  
"Proceedings of the Research Conference 2021" type:  
generic yaml references: - collection-title: "Proceedings  
of the Research Conference 2021" type: generic

definitions.reference.collection-type

- type: Nonempty string
- required: false
- description: The type of a collection.
- usage: yaml preferred-citation: collection-type:  
"proceedings" type: generic yaml references: -  
collection-type: "proceedings" type: generic

definitions.reference.commit

- type: definitions.commit
- required: false
- description: The (e.g., Git) commit hash or (e.g., Subversion) revision number of the work.
- usage: yaml preferred-citation: commit: "16192bf05e99bcb35d5c3e085047807b5720fafc  
type: generic yaml references: - commit: "16192bf05e99bcb35d5c3e085047807b5720fafc  
type: generic

definitions.reference.conference

- type: definitions.entity
- required: false
- description: The conference where the work was presented.

- **usage:** `yaml` **preferred-citation:** `conference:` `name:`  
`"Research Conference 2021"` **type:** `genericyaml` **references:**  
`- conference:` `name:` `"Research Conference 2021"`  
**type:** `generic`

#### `definitions.reference.contact`

- **type:** Array of `definitions.person` and/or `definitions.entity` objects.
- **required:** `false`
- **description:** The contact person, group, company, etc. for a work.
- **usage:** `yaml` **references:** `- contact:` `- name:` `"The RC21 Organizing Committee"` `- family-names:` `Druskat`  
`given-names:` `Stephan` **type:** `genericyaml` **preferred-citation:**  
`contact:` `- name:` `"The RC21 Organizing Committee"`  
`- family-names:` `Druskat` `given-names:` `Stephan` **type:**  
`generic`

#### `definitions.reference.copyright`

- **type:** Nonempty string
- **required:** `false`
- **description:** The copyright information pertaining to the work.
- **usage:** `yaml` **preferred-citation:** `copyright:` `"© 2021 The Research Software Project team"` **type:** `generic` `yaml`  
**references:** `- copyright:` `"© 2021 The Research Software Project team"` **type:** `generic`

#### `definitions.reference.data-type`

- **type:** Nonempty string
- **required:** `false`
- **description:** The data type of a data set.
- **usage:** `yaml` **preferred-citation:** `data-type:` `"YAML"`  
**type:** `generic` `yaml` **references:** `- data-type:` `"YAML"`  
**type:** `generic`

#### `definitions.reference.database-provider`

- **type:** `definitions.entity`
- **required:** `false`
- **description:** The provider of the database where a work was accessed/is stored.
- **usage:** `yaml` **preferred-citation:** `database-provider:`  
`name:` `"Research Databases Ltd."` **type:** `generic` `yaml`  
**references:** `- database-provider:` `name:` `"Research Databases Ltd."` **type:** `generic`

#### definitions.reference.database

- **type:** Nonempty string
- **required:** false
- **description:** The name of the database where a work was accessed/is stored.
- **usage:** yml preferred-citation: database: "Research Database" type: generic yml references: - database: "Research Database" type: generic

#### definitions.reference.date-accessed

- **type:** definitions.date
- **required:** false
- **description:** The date the work was accessed.
- **usage:** yml preferred-citation: date-accessed: "2021-07-27" type: generic yml references: - date-accessed: "2021-07-27" type: generic

#### definitions.reference.date-downloaded

- **type:** definitions.date
- **required:** false
- **description:** The date the work has been downloaded.
- **usage:** yml preferred-citation: date-downloaded: "2021-07-27" type: generic yml references: - date-downloaded: "2021-07-27" type: generic

#### definitions.reference.date-published

- **type:** definitions.date
- **required:** false
- **description:** The date the work has been published.
- **usage:** yml references: - date-published: "2021-07-27" type: generic yml preferred-citation: date-published: "2021-07-27" type: generic

#### definitions.reference.date-released

- **type:** definitions.date
- **required:** false
- **description:** The date the work has been released.
- **usage:** yml preferred-citation: date-released: "2021-07-27" type: generic yml references: - date-released: "2021-07-27" type: generic

#### definitions.reference.department

- **type:** Nonempty string
- **required:** false
- **description:** The department where a work has been produced.
- **usage:** `yaml preferred-citation: department: "Department of Hard Science Fiction" type: generic yaml references: - department: "Department of Hard Science Fiction" type: generic`

#### definitions.reference.doi

- **type:** definitions.doi
- **required:** false
- **description:** The DOI of the work.
- **usage:** `yaml preferred-citation: doi: 10.5281/zenodo.4813122 type: generic yaml references: - doi: 10.5281/zenodo.4813122 type: generic`

#### definitions.reference.edition

- **type:** Nonempty string
- **required:** false
- **description:** The edition of the work.
- **usage:** `yaml preferred-citation: edition: "2nd abridged edition" type: generic yaml references: - edition: "2nd abridged edition" type: generic`

#### definitions.reference.editors

- **type:** Array of definitions.person and/or definitions.entity objects.
- **required:** false
- **description:** The editor(s) of a work.
- **usage:** `yaml preferred-citation: editors: - family-names: Inchief given-names: Editor - name: The RCProc Editorial Team type: generic yaml references: - editors: - family-names: Inchief given-names: Editor - name: The RCProc Editorial Team type: generic`

#### definitions.reference.editors-series

- **type:** Array of definitions.person and/or definitions.entity objects.
- **required:** false
- **description:** The editor(s) of a series in which a work has been published.

- **usage:** yml preferred-citation: editors-series: -  
family-names: Editor given-names: Series -  
name: The Series Editors type: generic yml references:  
- editors-series: - family-names: Editor given-names:  
Series - name: The Series Editors type: generic

#### definitions.reference.end

- **type:** Nonempty string or integer
- **required:** false
- **description:** The end page of the work.
- **usage:** yml preferred-citation: end: "42" type:  
generic yml preferred-citation: end: 42 type:  
generic yml references: - end: "42" type:  
generic yml references: - end: 42 type: generic

#### definitions.reference.entry

- **type:** Nonempty string
- **required:** false
- **description:** An entry in the collection that constitutes the work.
- **usage:** yml preferred-citation: entry: "Citation  
<n. 1>" type: generic yml references: - entry:  
"Citation <n. 1>" type: generic

#### definitions.reference.filename

- **type:** Nonempty string
- **required:** false
- **description:** The name of the electronic file containing the work.
- **usage:** yml preferred-citation: filename: "CITATION.cff"  
type: generic yml references: - filename: "CITATION.cff"  
type: generic

#### definitions.reference.format

- **type:** Nonempty string
- **required:** false
- **description:** The format in which a work is represented.
- **usage:** yml preferred-citation: format: "Citation File  
Format" type: generic yml references: - format:  
"Citation File Format" type: generic

#### definitions.reference.identifiers

- **type:** Array of definitions.identifier objects.
- **required:** false

- **description:** The identifier(s) of the work.
- **usage:**

```

yaml preferred-citation: identifiers: -
type: doi value: 10.5281/zenodo.1003149 description:
The concept DOI of the work. - type: doi value:
10.5281/zenodo.4813122 description: The versioned
DOI for version 1.1.0 of the work. - type: swh value:
"swh:1:dir:bc286860f423ea7ced246ba7458eef4b4541cf2d" description:
The Software Heritage identifier for version 1.1.0 of the
work. - type: url value: "https://github.com/citation-file-format/citatio
description: The GitHub release URL of tag 1.1.0. type:
generic yaml references: - identifiers: - type:
doi value: 10.5281/zenodo.1003149 description:
The concept DOI of the work. - type: doi value:
10.5281/zenodo.4813122 description: The versioned
DOI for version 1.1.0 of the work. - type: swh value:
"swh:1:dir:bc286860f423ea7ced246ba7458eef4b4541cf2d" description:
The Software Heritage identifier for version 1.1.0 of the
work. - type: url value: "https://github.com/citation-file-format/citatio
description: The GitHub release URL of tag 1.1.0. type:
generic

```

#### definitions.reference.institution

- **type:** definitions.entity
- **required:** false
- **description:** The institution where a work has been produced or published.
- **usage:**

```

yaml preferred-citation: institution: name:
"University of Arcadia" type: generic yaml references:
- institution: name: "University of Arcadia" type:
generic

```

#### definitions.reference.isbn

- **type:** string with pattern `^[0-9\-\ ]{10,17}X?$`
- **required:** false
- **description:** The ISBN of the work.
- **usage:**

```

yaml preferred-citation: isbn: "9781603095075"
type: generic yaml references: - isbn: "9781603095075"
type: generic

```

#### definitions.reference.issn

- **type:** string with pattern `^\d{4}-\d{3}[\dX]$`
- **required:** false
- **description:** The ISSN of the work.



- **usage:** yml preferred-citation: issn: "2475-9066"  
type: generic yml references: - issn: "2475-9066"  
type: generic

#### definitions.reference.issue

- **type:** Nonempty string or number
- **required:** false
- **description:** The issue of a periodical in which a work appeared.
- **usage:** yml preferred-citation: issue: "42" type:  
generic yml references: - issue: "42" type:  
generic yml preferred-citation: issue: 42 type:  
generic yml references: - issue: 42 type:  
generic

#### definitions.reference.issue-date

- **type:** Nonempty string
- **required:** false
- **description:** The publication date of the issue of a periodical in which a work appeared.
- **usage:** yml preferred-citation: issue-date: "November/December  
2021" type: generic yml references: - issue-date:  
"November/December 2021" type: generic yml preferred-citation:  
issue-date: "2021-12-31" type: generic yml references:  
- issue-date: "2021-12-31" type: generic

#### definitions.reference.issue-title

- **type:** Nonempty string
- **required:** false
- **description:** The name of the issue of a periodical in which the work appeared.
- **usage:** yml preferred-citation: issue-title: "Special  
Issue: Software Citation" type: generic yml references:  
- issue-title: "Special Issue: Software Citation" type:  
generic

#### definitions.reference.journal

- **type:** Nonempty string
- **required:** false
- **description:** The name of the journal/magazine/newspaper/periodical where the work was published.
- **usage:** yml preferred-citation: journal: "Journal of  
Open Source Software" type: generic yml references:

```
- journal: "Journal of Open Source Software" type:
generic
```

#### definitions.reference.keywords

- **type:** Array of nonempty string
- **required:** false
- **description:** Keywords pertaining to the work.
- **usage:**

```
yaml preferred-citation: keywords: -
software citation - "citation file format" -
research type: generic yaml references: - keywords:
- software citation - "citation file format" -
research type: generic
```

#### definitions.reference.languages

- **type:** Array of ISO 639 string with 2 or 3 characters and pattern `^[a-z]{2,3}$`
- **required:** false
- **description:** The language identifier(s) of the work according to ISO 639 language strings.
- **usage:**

```
yaml preferred-citation: languages: - "en"
- "haw" type: generic yaml references: - languages:
- "en" - "haw" type: generic
```

#### definitions.reference.license

- **type:** (Array of) `definitions.license-enum`.
- **required:** false
- **description:** The SPDX license identifier(s) for the license(s) under which the work is made available. When there are multiple licenses, it is assumed their relationship is OR, not AND.
- **usage:**

```
yaml preferred-citation: license: Apache-2.0
type: generic yaml references: - license: Apache-2.0
type: generic yaml preferred-citation: license: -
Apache-2.0 - MIT type: generic yaml references:
- license: - Apache-2.0 - MIT type:
generic
```

#### definitions.reference.license-url

- **type:** `definitions.url`
- **required:** false
- **description:** The URL of the license text under which the work is licensed (only for non-standard licenses not included in the SPDX License List).
- **usage:**

```
yaml preferred-citation: license-url: "https://obscurer-licenses.com?id=123"
type: generic yaml references: - license-url: "https://obscurer-licenses.com?id=123"
```

type: generic

#### definitions.reference.loc-end

- **type:** Nonempty string or integer
- **required:** false
- **description:** The line of code in the file where the work ends.
- **usage:** yml preferred-citation: loc-end: "42" type:  
generic yml preferred-citation: loc-end: 42 type:  
generic yml references: - loc-end: "42" type:  
generic yml references: - loc-end: 42 type:  
generic

#### definitions.reference.loc-start

- **type:** Nonempty string or integer
- **required:** false
- **description:** The line of code in the file where the work starts.
- **usage:** yml preferred-citation: loc-start: "21" type:  
generic yml preferred-citation: loc-start: 21 type:  
generic yml references: - loc-start: "21" type:  
generic yml references: - loc-start: 21 type:  
generic

#### definitions.reference.location

- **type:** definitions.entity
- **required:** false
- **description:** The location of the work.
- **usage:** yml preferred-citation: location: name:  
"Library of the Unseen University" type: generic yml  
references: - location: name: "Library of the  
Unseen University" type: generic

#### definitions.reference.medium

- **type:** Nonempty string
- **required:** false
- **description:** The medium of the work.
- **usage:** yml preferred-citation: medium: "5¼-inch floppy  
disk" type: generic yml references: - medium:  
"5¼-inch floppy disk" type: generic

#### definitions.reference.month

- **type:** integer in range 1-12 or enum with values:  
- 1

- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- **required:** false
- **description:** The month in which a work has been published.
- **usage:**

```

yaml preferred-citation: month: 7 type:
generic yaml preferred-citation: month: "7" type:
generic yaml references: - month: 7 type: generic
yaml references: - month: "7" type: generic

```

#### definitions.reference.nihmsid

- **type:** Nonempty string
- **required:** false
- **description:** The NIHMSID of a work.
- **usage:**

```

yaml preferred-citation: nihmsid: "NIHMS236863"
type: generic yaml references: - nihmsid: "NIHMS236863"
type: generic

```

#### definitions.reference.notes

- **type:** Nonempty string
- **required:** false
- **description:** Notes pertaining to the work. Note that this key should contain notes that may be picked up by some downstream tooling (e.g., reference managers), but not others (e.g., a software index).
- **usage:**

```

yaml preferred-citation: notes: "Excellent
reference! TODO Read for thesis." type: generic yaml
references: - notes: "Excellent reference! TODO Read for
thesis." type: generic

```

#### definitions.reference.number

- **type:** string or number
- **required:** false
- **description:** The (library) accession number for a work.
- **usage:**

```

yaml preferred-citation: number: "005.1-ABC"
type: generic yaml references: - number: "005.1-ABC"
type: generic yaml preferred-citation: number: 1234567

```

```

type: generic yaml references: - number: 1234567
type: generic yaml preferred-citation: number: 1.4
type: generic yaml references: - number: 1.4 type:
generic

```

#### definitions.reference.number-volumes

- **type:** Nonempty string or integer
- **required:** false
- **description:** The number of volumes making up the collection in which the work has been published.
- **usage:**

```

yaml preferred-citation: number-volumes: "4"
type: generic yaml preferred-citation: number-volumes:
4 type: generic yaml references: - number-volumes:
"4" type: generic yaml references: - number-volumes:
4 type: generic

```

#### definitions.reference.pages

- **type:** Nonempty string or integer
- **required:** false
- **description:** The number of pages of the work.
- **usage:**

```

yaml preferred-citation: pages: "123" type:
generic yaml preferred-citation: pages: 123 type:
generic yaml references: - pages: "123" type:
generic yaml references: - pages: 123 type:
generic

```

#### definitions.reference.patent-states

- **type:** Array of nonempty string
- **required:** false
- **description:** The states for which a patent is granted.
- **usage:**

```

yaml preferred-citation: patent-states: -
"Canada" - "IL" type: generic yaml references:
- patent-states: - "Canada" - "IL" type:
generic

```

#### definitions.reference.pmcid

- **type:** string with pattern `^PMC[0-9]{7}$`
- **required:** false
- **description:** The PMCID of a work.
- **usage:**

```

yaml preferred-citation: pmcid: "PMC3134971"
type: generic yaml references: - pmcid: "PMC3134971"
type: generic

```

#### definitions.reference.publisher

- **type:** definitions.entity
- **required:** false
- **description:** The publisher who has published the work.
- **usage:** yml preferred-citation: publisher: name:  
"Open Access Publishing House" type: generic yml references:  
- publisher: name: "Open Access Publishing House"  
type: generic

#### definitions.reference.recipients

- **type:** Array of definitions.person and/or definitions.entity objects.
- **required:** false
- **description:** The recipient(s) of a personal communication.
- **usage:** yml preferred-citation: recipients: -  
name: "Recipient entity of personal communication" -  
family-names: Recipient given-names: Communication  
type: generic yml references: - recipients: -  
name: "Recipient entity of personal communication" -  
family-names: Recipient given-names: Communication  
type: generic

#### definitions.reference.repository

- **type:** definitions.url
- **required:** false
- **description:** The URL of the work in a repository/archive (when the repository is neither a source code repository nor a build artifact repository).
- **usage:** yml preferred-citation: repository: "https://ascl.net/2105.013"  
type: generic yml references: - repository: "https://ascl.net/2105.013"  
type: generic

#### definitions.reference.repository-artifact

- **type:** definitions.url
- **required:** false
- **description:** The URL of the work in a build artifact/binary repository.
- **usage:** yml preferred-citation: repository-artifact:  
"https://search.maven.org/artifact/org.corpus-tools/cff-maven-plugin/0.4.0/maven-plugin"  
type: generic yml references: - repository-artifact:  
"https://search.maven.org/artifact/org.corpus-tools/cff-maven-plugin/0.4.0/maven-plugin"  
type: generic

#### definitions.reference.repository-code

- **type:** definitions.url
- **required:** false
- **description:** The URL of the work in a source code repository.
- **usage:** yml preferred-citation: repository-code:  
"https://github.com/citation-file-format/my-research-software"  
type: generic yml references: - repository-code:  
"https://github.com/citation-file-format/my-research-software"  
type: generic

#### definitions.reference.scope

- **type:** Nonempty string
- **required:** false
- **description:** The scope of the reference, e.g., the section of the work it adheres to.
- **usage:** yml preferred-citation: scope: "Supplement 2:  
Additional material" type: generic yml references:  
- scope: "Supplement 2: Additional material" type:  
generic

#### definitions.reference.section

- **type:** string or number
- **required:** false
- **description:** The section of a work that is referenced.
- **usage:** yml preferred-citation: section: "Section 7:  
Software citation" type: generic yml references: -  
section: "Section 7: Software citation" type: generic  
yml preferred-citation: section: 7 type: generic  
yml references: - section: 7 type: generic yml  
preferred-citation: section: 7.1 type: generic yml  
references: - section: 7.1 type: generic

#### definitions.reference.senders

- **type:** Array of definitions.person and/or definitions.entity objects.
- **required:** false
- **description:** The sender(s) of a personal communication.
- **usage:** yml preferred-citation: senders: -  
name: "Sender entity of personal communication" -  
family-names: Sender given-names: Communication  
type: generic yml references: - senders: -  
name: "Sender entity of personal communication" -

family-names: Sender                      given-names: Communication  
type: generic

#### definitions.reference.start

- **type:** Nonempty string or integer
- **required:** false
- **description:** The start page of the work.
- **usage:**  
yml preferred-citation: start: "42" type:  
generic yml preferred-citation: start: 42 type:  
generic yml references: - start: "42" type:  
generic yml references: - start: 42 type:  
generic

#### definitions.reference.status

- **type:** enum with values:
  - abstract
  - advance-online
  - in-preparation
  - in-press
  - preprint
  - submitted
- **required:** false
- **description:** The publication status of the work.
- **usage:**  
yml preferred-citation: status: "submitted"  
type: generic yml references: - status: "submitted"  
type: generic

#### definitions.reference.term

- **type:** Nonempty string
- **required:** false
- **description:** The term being referenced if the work is a dictionary or encyclopedia.
- **usage:**  
yml preferred-citation: term: "Citation"  
type: generic yml references: - term: "Citation"  
type: generic

#### definitions.reference.thesis-type

- **type:** Nonempty string
- **required:** false
- **description:** The type of the thesis that is the work.
- **usage:**  
yml preferred-citation: thesis-type: "PhD  
thesis" type: generic yml references: - thesis-type:  
"PhD thesis" type: generic



#### definitions.reference.title

- **type:** Nonempty string
- **required:** true
- **description:** The title of the work.
- **usage:**

```
yaml preferred-citation: title: "Towards better
software citation" type: generic yaml references:
- title: "Towards better software citation" type:
generic
```

#### definitions.reference.translators

- **type:** Array of definitions.person and/or definitions.entity objects.
- **required:** false
- **description:** The translator(s) of a work.
- **usage:**

```
yaml preferred-citation: translators: -
name: "Research Translators Ltd." - family-names:
Lator given-names: Trans type: generic yaml
references: - translators: - name: "Research
Translators Ltd." - family-names: Lator given-names:
Trans type: generic
```

#### definitions.reference.type

- **type:** enum with values:
  - art
  - article
  - audiovisual
  - bill
  - blog
  - book
  - catalogue
  - conference-paper
  - conference
  - data
  - database
  - dictionary
  - edited-work
  - encyclopedia
  - film-broadcast
  - generic
  - government-document
  - grant
  - hearing
  - historical-work
  - legal-case

- legal-rule
- magazine-article
- manual
- map
- multimedia
- music
- newspaper-article
- pamphlet
- patent
- personal-communication
- proceedings
- report
- serial
- slides
- software-code
- software-container
- software-executable
- software-virtual-machine
- software
- sound-recording
- standard
- statute
- thesis
- unpublished
- video
- website
- **required:** true
- **description:** The type of the work.
- **usage:** yml preferred-citation: type: generic yml
- references:** - type: generic

**definitions.reference.url**

- **type:** definitions.url
- **required:** false
- **description:** The URL of the work.
- **usage:** yml preferred-citation: type: generic url:  
"https://citation-file-format.github.io/" yml references:  
- type: generic url: "https://citation-file-format.github.io/"

**definitions.reference.version**

- **type:** definitions.version
- **required:** false
- **description:** The version of the work.
- **usage:** yml preferred-citation: type: generic version:

```
"0.3.12" yaml references: - type: generic version:
"0.3.12"
```

#### definitions.reference.volume

- **type:** Nonempty string or integer
- **required:** false
- **description:** The volume of the periodical in which a work appeared.
- **usage:** yaml preferred-citation: type: generic volume:  
"5" yaml preferred-citation: type: generic volume:  
5 yaml references: - type: generic volume: "5"  
yaml references: - type: generic volume: 5

#### definitions.reference.volume-title

- **type:** Nonempty string
- **required:** false
- **description:** The title of the volume in which the work appeared.
- **usage:** yaml preferred-citation: type: generic volume-title:  
"Volume II: How it went on" yaml references: - type:  
generic volume-title: "Volume II: How it went on"

#### definitions.reference.year

- **type:** Nonempty string or integer
- **required:** false
- **description:** The year in which a work has been published.
- **usage:** yaml preferred-citation: type: generic year:  
"2021" yaml preferred-citation: type: generic year:  
2021 yaml references: - type: generic year:  
"2021" yaml references: - type: generic year:  
2021

#### definitions.reference.year-original

- **type:** Nonempty string or integer
- **required:** false
- **description:** The year of the original publication.
- **usage:** yaml preferred-citation: type: generic year-original:  
"1978" yaml preferred-citation: type: generic year-original:  
1978 yaml references: - type: generic year-original:  
"1978" yaml references: - type: generic year-original:  
1978

#### definitions.region

- **type:** Nonempty string

- **required:** N/A
- **description:** A region.
- **usage:** `yaml` `authors:` - `name:` The Research Software Project `region:` Renfrewshire

#### definitions.swh-identifier

- **type:** string with pattern `^swh:1:(snp|rel|rev|dir|cnt):[0-9a-fA-F]{40}$`
- **required:** N/A
- **description:** The Software Heritage identifier (without further qualifiers such as origin, visit, anchor, path). Note: Software Heritage identifiers are documented here: <https://docs.softwareheritage.org/dev/swh-model/persistent-identifiers.html>.
- **usage:** `yaml` `identifiers:` - `type:` swh `value:` "swh:1:rev:309cf2674ee7a0749978cf8265ab91a60aea0f7d"

#### definitions.tel

- **type:** Nonempty string
- **required:** N/A
- **description:** A telephone number.
- **usage:** `yaml` `authors:` - `family-names:` Druskat `given-names:` Stephan `tel:` +12-345-6789098 `yaml` `authors:` - `name:` The Research Software Project `tel:` +12-345-6789098

#### definitions.url

- **type:** Nonempty string
- **required:** N/A
- **description:** A URL. Supported URLs start with one of:
  - `https://`
  - `http://`
  - `ftp://`
  - `sftp://`
- **usage** `yaml` `url:` "https://citation-file-format.github.io/" `yaml` `authors:` - `name:` The Research Software Project `website:` "https://research-software-project.org" `yaml` `references:` - `type:` generic `url:` "sftp://files.research-software-project.org"

#### definitions.version

- **type:** Nonempty string or number
- **required:** N/A
- **description:** The version of a work.
- **usage:** `yaml` `version:` "1.2.0" `yaml` `version:` 1.2 `yaml` `version:` "21.10 (Impish Indri)"