

## Relevance and Importance of splitting META-DATA from DATA

**Erik Schultes, PhD**

International Science Coordinator  
GO FAIR Foundation  
Leiden Center for Data Science



*[erik.schultes@go-fair.org](mailto:erik.schultes@go-fair.org)*

*<https://www.go-fair.org>*

*<http://orcid.org/0000-0001-8888-635X>*

# FAIRification STEP 2 – FAIR principle F3

📅 Wednesday 3 Feb 2021, 10:00 → 12:10 Europe/Copenhagen

- |              |         |                                                                                                                                                      |       |
|--------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <b>10:00</b> | → 10:10 | <b>Welcome and Introduction</b><br>Speaker: Mr Bert Meerman (GFF)                                                                                    | 🕒 10m |
| <b>10:10</b> | → 10:25 | <b>FAIR assessment results</b><br>Speaker: Dr Andreas Jaunsen (NelC)                                                                                 | 🕒 15m |
| <b>10:25</b> | → 10:55 | <b>Relevance and Importance of splitting META-DATA from DATA</b><br>Speaker: Dr Erik Schultes (GO-FAIR)                                              | 🕒 30m |
| <b>10:55</b> | → 11:05 | <b>BREAK</b>                                                                                                                                         | 🕒 10m |
| <b>11:05</b> | → 11:20 | <b>Some recommendations for the practical, machine-friendly implementation of the FAIR F3 principle</b><br>Speaker: Dr Robert Huber (Univ of Bremen) | 🕒 15m |
| <b>11:20</b> | → 11:35 | <b>File level identification support in Dataverse/DataverseNO</b><br>Speaker: Mr Philipp Konzett (UiT / The Arctic University of Norway)             | 🕒 15m |
| <b>11:35</b> | → 11:55 | <b>Q &amp; A</b><br>Speaker: Mrs Josefine Nordling (CSC)                                                                                             | 🕒 20m |
| <b>11:55</b> | → 12:00 | <b>Call to Action and Close</b><br>Speaker: Mr Bert Meerman (GFF)                                                                                    | 🕒 5m  |

## Acknowledgments



**Nikola Vasilijevic**  
**Technical University of Denmark**



**Mark Wilkinson**  
**Universidad Politécnica de Madrid**

# 2016

nature > scientific data > comment > article



## SCIENTIFIC DATA

Comment | **OPEN** | Published: 15 March 2016

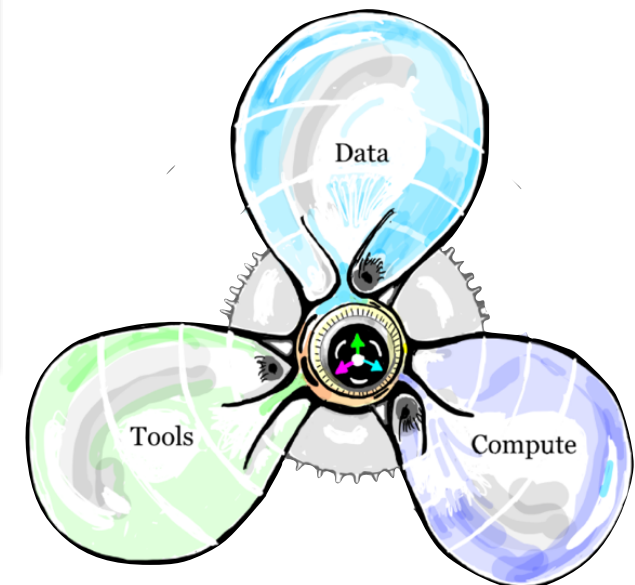
# The FAIR Guiding Principles for scientific data management and stewardship

Mark D. Wilkinson, Michel Dumontier, IJsbrand Jan Aalbersberg, Gabrielle Appleton, Myles Axton, Arie Baak, Niklas Blomberg, Jan-Willem Boiten, Luiz Bonino da Silva Santos, Philip E. Bourne, Jildau Bouwman, Anthony J. Brookes, Tim Clark, Mercè Crosas, Ingrid Dillo, Olivier Dumon, Scott Edmunds, Chris T. Evelo, Richard Finkers, Alejandra Gonzalez-Beltran, Alasdair J.G. Gray, Paul Groth, Carole Goble, Jeffrey S. Grethe, Jaap Heringa, Peter A.C 't Hoen, Rob Hooft, Tobias Kuhn, Ruben Kok, Joost Kok, Scott J. Lusher, Maryann E. Martone, Albert Mons, Abel L. Packer, Bengt Persson, Philippe Rocca-Serra, Marco Roos, Rene van Schaik, Susanna-Assunta Sansone, Erik Schultes, Thierry Sengstag, Ted Slater, George Strawn, Morris A. Swertz, Mark Thompson, Johan van der Lei, Erik van Mulligen, Jan Velterop, Andra Waagmeester, Peter Wittenburg, Katherine Wolstencroft, Jun Zhao & Barend Mons - Show fewer authors

Scientific Data 3, Article number: 160018 (2016) | [Download Citation](#) ↓

<https://www.nature.com/articles/sdata201618>

Data and services that are **findable**, **accessible**, **interoperable**, **re-usable** both for **machines** and for people.



# Relevance and Importance of splitting META-DATA from DATA

## Box 2 | The FAIR Guiding Principles

<https://www.nature.com/articles/sdata201618>

### To be Findable:

- F1. (meta)data are assigned a globally unique and persistent identifier
- F2. data are described with rich metadata (defined by R1 below)
- F3. metadata clearly and explicitly include the identifier of the data it describes
- F4. (meta)data are registered or indexed in a searchable resource

### To be Accessible:

- A1. (meta)data are retrievable by their identifier using a standardized communications protocol
  - A1.1 the protocol is open, free, and universally implementable
  - A1.2 the protocol allows for an authentication and authorization procedure, where necessary
- A2. metadata are accessible, even when the data are no longer available

### To be Interoperable:

- I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
- I2. (meta)data use vocabularies that follow FAIR principles
- I3. (meta)data include qualified references to other (meta)data

### To be Reusable:

- R1. meta(data) are richly described with a plurality of accurate and relevant attributes
  - R1.1. (meta)data are released with a clear and accessible data usage license
  - R1.2. (meta)data are associated with detailed provenance
  - R1.3. (meta)data meet domain-relevant community standards

# Relevance and Importance of splitting META-DATA from DATA

## Box 2 | The FAIR Guiding Principles

<https://www.nature.com/articles/sdata201618>

### To be Findable:

- F1. (meta)data are assigned a globally unique and persistent identifier
- F2. data are described with rich metadata (defined by R1 below)
- F3. metadata clearly and explicitly include the identifier of the data it describes
- F4. (meta)data are registered or indexed in a searchable resource

### To be Accessible:

- A1. (meta)data are retrievable by their identifier using a standardized communications protocol
  - A1.1 the protocol is open, free, and universally implementable
  - A1.2 the protocol allows for an authentication and authorization procedure, where necessary
- A2. metadata are accessible, even when the data are no longer available

### To be Interoperable:

- I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
- I2. (meta)data use vocabularies that follow FAIR principles
- I3. (meta)data include qualified references to other (meta)data

### To be Reusable:

- R1. meta(data) are richly described with a plurality of accurate and relevant attributes
  - R1.1. (meta)data are released with a clear and accessible data usage license
  - R1.2. (meta)data are associated with detailed provenance
  - R1.3. (meta)data meet domain-relevant community standards

# self-documenting data

[https://www.unidata.ucar.edu/software/netcdf/documentation/NUG/\\_best\\_practices.html](https://www.unidata.ucar.edu/software/netcdf/documentation/NUG/_best_practices.html)

## NetCDF files, example:



**long-range-WindScanner-measurements.nc**

21 MB Binary

- 1 hour of 5 Hz measurements
- 1.5 millions of samples per variable

# The embedded metadata...

```
<xarray.Dataset>
Dimensions:                (los_no: 180, range: 91, time: 14317)
Coordinates:
  * range                  (range) int32 50 55 60 65 70 ... 485 490 495 500
  * time                   (time) datetime64[ns] 2018-08-13T12:00:01.005000114 ... 2018-08-13T13:00:59.855000019
  * los_no                 (los_no) int32 1 2 3 4 5 ... 176 177 178 179 180
  mask                    (range, time) int64 1 1 1 1 1 1 ... 1 0 0 1 1 1
Data variables:
  radial_velocity         (range, time) float32 ...
  CNR                    (range, time) float32 -17.398 ... -23.877
  spectral_broadening    (range, time) float32 ...
  los_number              (time) int32 142 143 144 145 146 ... 55 56 57 58
  azimuth_angle           (time) float32 117.541 121.105 ... 121.13 117.57
  elevation_angle         (time) float32 26.86 26.548 ... 10.418 10.557
  azimuth_angle_calculated (los_no) float64 160.0 158.6 ... 115.8 112.1
  elevation_angle_calculated (los_no) float64 2.047 2.113 ... 29.82 30.01
Attributes:
  title:                  Long-range WindScanner multi-rotor wake measurements
  authors:                Nikola Vasiljević
  summary:                Data set containing 5 Hz radial velocity measuremen...
  data_owner:            DTU Wind Energy
  DOI:                   10.11583/DTU.9896459
  licence:                CC BY 4.0
  logbook:
  averaging_period:      200 ms
  temporal_resolution:   200 ms
  site:                  Risoe campus
  instrument:            Long-range WindScanner system
  instrument_id:         https://doi.org/10.3390/rs8110896
  latitude:              55.686014
  longitude:             12.097596
  height:                0
```

---

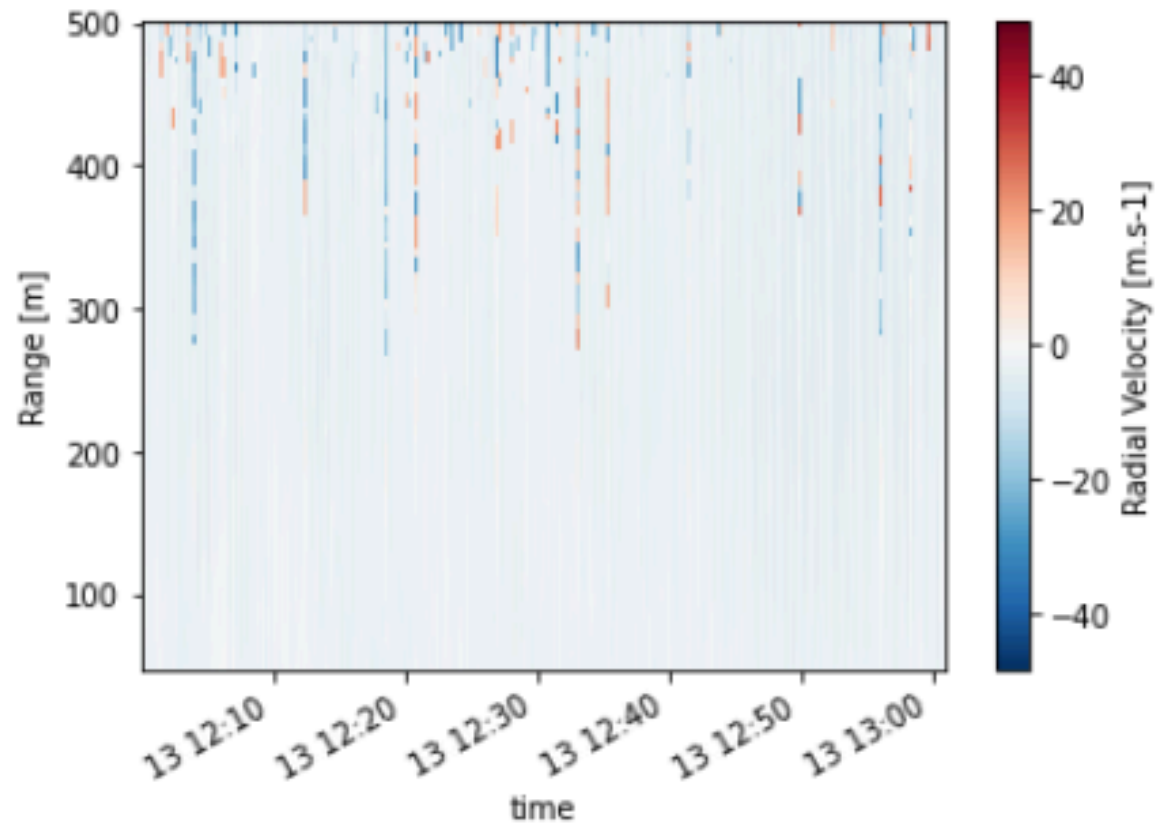
```
<xarray.DataArray 'radial_velocity' (range: 91, time: 14317)>
[1302847 values with dtype=float32]
Coordinates:
  * range      (range) int32 50 55 60 65 70 75 80 ... 470 475 480 485 490 495 500
  * time       (time) datetime64[ns] 2018-08-13T12:00:01.005000114 ... 2018-08-13T13:00:59.855000019
  mask        (range, time) int64 1 1 1 1 1 1 1 1 1 1 1 ... 1 1 1 1 1 1 0 0 1 1 1
Attributes:
  standard_name: radial_velocity_of_scatterers_toward_instrument
  concept_id:    http://data.windenergy.dtu.dk/controlled-terminology/wind...
  short_name:    Vrad
  long_name:     Radial Velocity
  units:         m.s-1
```



# ... makes for easy processing

```
In [73]: 1 one_hour_data.radial_velocity.plot()
```

```
Out[73]: <matplotlib.collections.QuadMesh at 0x12a01ba60>
```



# Why decouple data from metadata?

- Metadata can often be lightweight compared to data  
*Kb instead of Gb or Tb*
- Cost of maintaining metadata lower than data  
*Metadata can be more persistent than data* **A2**
- Convergence on FAIR Implementations

Can use same tech stack for building/serving metadata

Higher chance of converging to a fewer metadata standards (templates) vs jungle of “standards”

We can use the same metadata format **I1**

*RDF is a way to go in any of its serializations, such as JSON-LD, TTL, etc.*

Leads to machine-actionability even though data will always be depended on the underlying data standards (not all data is SPARQL friendly)

- Separation of concerns and division of responsibilities  
*Often researchers can only publish metadata (data access remains restricted).*

**The metadata of most repositories clearly and explicitly include the identifier of the data they describe, but still fail Principle F3.**

**DTU Data**  
- a service from DTU Library

[https://data.dtu.dk/articles/online\\_resource/Perdig\\_o-2017\\_multi-lidar\\_flow\\_mapping\\_over\\_the\\_complex\\_terrain\\_site/7228544](https://data.dtu.dk/articles/online_resource/Perdig_o-2017_multi-lidar_flow_mapping_over_the_complex_terrain_site/7228544)

# The metadata of most repositories clearly and explicitly include the identifier of the data they describe, but still fail Principle F3.

## Perdigão-2017: multi-lidar flow mapping over the complex terrain site

Cite Share + Collect

1507 views | 11 downloads | 5 citations

Version 2 ▼ Online Resource posted on 11.10.2019, 11:05 by Robert Menke, Jakob Mann, Nikola Vasiljevic

This dataset has been recorded by eight long-range WindScanners that were deployed during the Perdigão 2017 campaign. For the campaign which took place in central Portugal near the village of Perdigão eight scanners were located on two mountain ridges that run in parallel for about 2 km. The scanners carried out three synchronized scanning scenarios: transect scans at three positions perpendicular to the ridge with two scanners at two transects and one transect with four scanners; a scan following transects 80m above the ridges; and virtual mast scans at four locations.

This is an original dataset. It represents Level 2.3 data product in the FAIR lidar data schematics, that is geo-located radial velocities stored in NetCDF files with dimensions of time, range and line-of-sight number.

Consult a list of references for more details about :

- (1) WindScanner (<https://doi.org/10.3390/rs8110896>)
- (2) Perdigão site and prequel experiment from 2015 (<https://doi.org/10.5194/amt-10-3463-2017>)
- (3) FAIR lidar data standard (<http://e-windlidar.windenergy.dtu.dk/documents/report.pdf>)
- (4) Perdigão data repository (<https://perdigao.fe.up.pt/> )

Consult link in Related publications which holds information on the paper that presents a part of the Perdigão-2017 dataset.

The data can be downloaded from the webpage:

<https://bit.ly/2APFISJ>

DTU Data  
- a service from DTU Library

### CATEGORIES

- Atmospheric Sciences
- Meteorology
- Renewable Power and Energy Systems Engineering (excl. Solar Cells)

### KEYWORDS

scanning lidar wind lidar  
multi-lidars WindScanner  
long-range WindScanner  
recirculation zone

### LICENCE

 CC BY 4.0

### EXPORTS

Select an option ▼

Search equipment and people.

## Datasets

Filter files or folders

/ Perdigão Catalog / Upper Air / Lidar / DTU Scanning Lidar Data / netcdf / ridge / W5

Name
20170327165000.nc
20170327172000.nc
20170327175000.nc
20170327182000.nc
20170327185000.nc
20170327192000.nc
20170327195000.nc
20170327202000.nc
20170327205000.nc
20170327212000.nc

2,863 total

1 2 3 4 5

### Description

The datasets were produced, from 1st June to 15th June, by the following institution DLR, DTU, ENERCON, INEGI, UGAR (AI UC, EOL, IPMA, ISFS, NCAS, ND, OU), WindsforS

Institution: U.PORTO Data Catalog for Perdigão

### Details

Size: 1.538 Mbytes  
Created at: 2019-07-26 10:08

### Access

HTTP  
OPENDAP  
NCML

# The metadata of most repositories clearly and explicitly include the identifier of the data they describe, but still fail Principle F3.

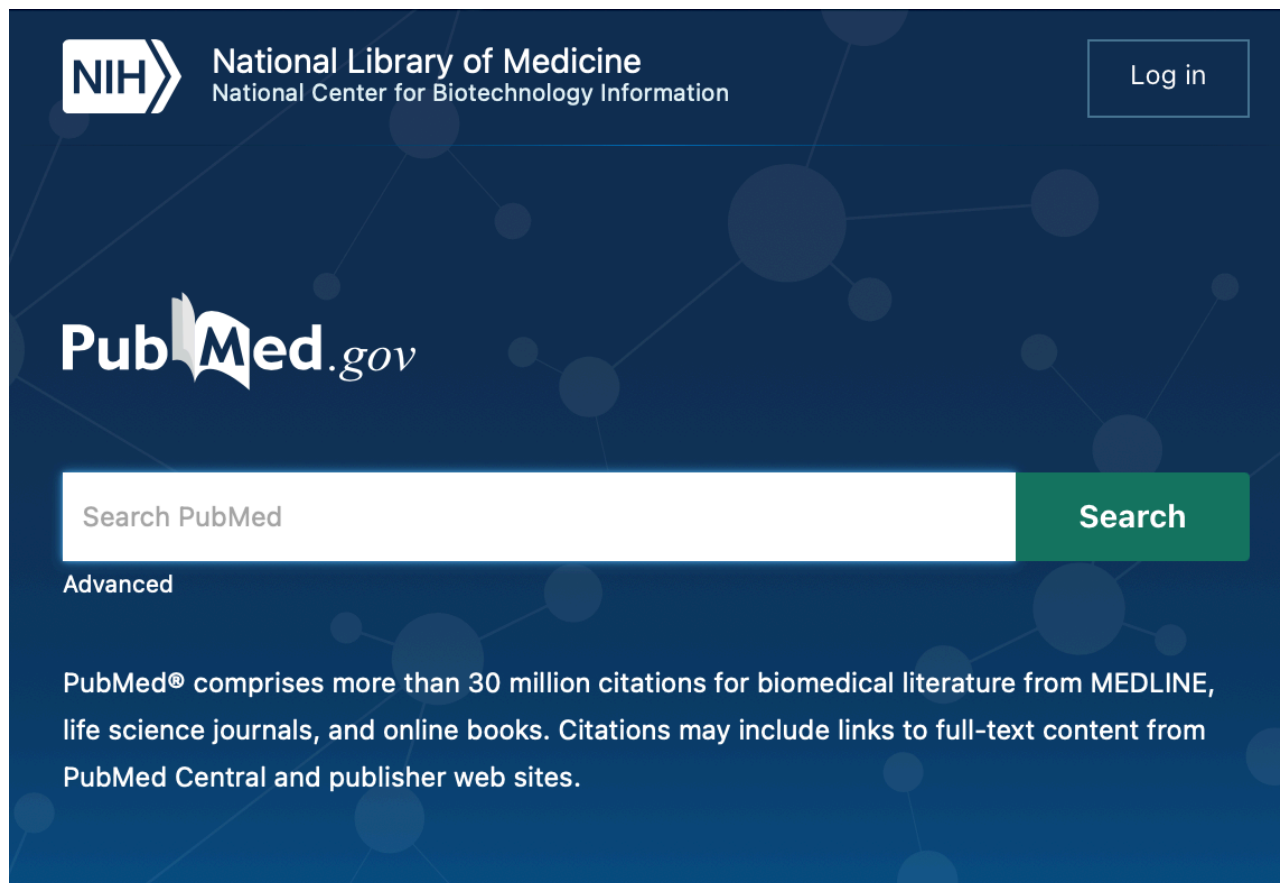
```
<resource xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://datacite.org/schema/kernel-4" xsi:schemaLocation="http://datacite.org/schema/kernel-4 http://schema.datacite.org/meta/kernel-4.3/metadata.xsd">
  <identifier identifierType="DOI">10.11583/DTU.7228544.v2</identifier>
  <creators>
    <creator>
      <creatorName nameType="Personal">Robert Menke</creatorName>
      <givenName>Robert</givenName>
      <familyName>Menke</familyName>
    </creator>
    <creator>
      <creatorName nameType="Personal">Jakob Mann</creatorName>
      <givenName>Jakob</givenName>
      <familyName>Mann</familyName>
    </creator>
    <creator>
      <creatorName nameType="Personal">Nikola Vasiljevic</creatorName>
      <givenName>Nikola</givenName>
      <familyName>Vasiljevic</familyName>
    </creator>
  </creators>
  <titles><title>Perdigão-2017: multi-lidar flow mapping over the complex terrain site</title></titles>
  <publisher>Technical University of Denmark</publisher>
  <publicationYear>2019</publicationYear>
  <subjects>
    <subject>scanning lidar</subject>
    <subject>wind lidar</subject>
    <subject>multi-lidars</subject>
    <subject>WindScanner</subject>
    <subject>long-range WindScanner</subject>
```

# The metadata of most repositories clearly and explicitly include the identifier of the data they describe, but still fail Principle F3.

F1

DOI: [10.1038/sdata.2016.18](https://doi.org/10.1038/sdata.2016.18)

F4



# The metadata of most repositories clearly and explicitly include the identifier of the data they describe, but still fail Principle F3.

**PubMed.gov**

10.1038/sdata.2016.18

[Advanced](#) [Create alert](#) [Create RSS](#) [User Guide](#)

Found 1 result for *10.1038/sdata.2016.18*

> [Sci Data](#). 2016 Mar 15;3:160018. doi: 10.1038/sdata.2016.18.



## The FAIR Guiding Principles for scientific data management and stewardship

Mark D Wilkinson<sup>1</sup>, Michel Dumontier<sup>2</sup>, IJsbrand Jan Aalbersberg, Gabrielle Appleton, Myles Axton<sup>3</sup>, Arie Baak<sup>4</sup>, Niklas Blomberg<sup>5</sup>, Jan-Willem Boiten<sup>6</sup>, Luiz Bonino da Silva Santos<sup>7</sup>, Philip E Bourne<sup>8</sup>, Jildau Bouwman<sup>9</sup>, Anthony J Brookes<sup>10</sup>, Tim Clark<sup>11</sup>, Mercè Crosas<sup>12</sup>, Ingrid Dillo<sup>13</sup>, Olivier Dumon, Scott Edmunds<sup>14</sup>, Chris T Evelo<sup>15</sup>, Richard Finkers<sup>16</sup>, Alejandra Gonzalez-Beltran<sup>17</sup>, Alasdair J G Gray<sup>18</sup>, Paul Groth, Carole Goble<sup>19</sup>, Jeffrey S Grethe<sup>20</sup>, Jaap Heringa<sup>21</sup>, Peter A C 't Hoen<sup>22</sup>, Rob Hooft<sup>23</sup>, Tobias Kuhn<sup>24</sup>, Ruben Kok<sup>21</sup>, Joost Kok<sup>25</sup>, Scott J Lusher<sup>26</sup>, Maryann E Martone<sup>27</sup>, Albert Mons<sup>28</sup>, Abel L Packer<sup>29</sup>, Bengt Persson<sup>30</sup>, Philippe Rocca-Serra<sup>17</sup>, Marco Roos<sup>31</sup>, Rene van Schaik<sup>32</sup>, Susanna-Assunta Sansone<sup>17</sup>, Erik Schultes<sup>33</sup>, Thierry Sengstag<sup>34</sup>, Ted Slater<sup>35</sup>, George Strawn, Morris A Swertz<sup>36</sup>, Mark Thompson<sup>31</sup>, Johan van der Lei<sup>37</sup>, Erik van Mulligen<sup>37</sup>, Jan Velterop<sup>38</sup>, Andra Waagmeester<sup>39</sup>, Peter Wittenburg<sup>40</sup>, Katherine Wolstencroft<sup>41</sup>, Jun Zhao<sup>42</sup>, Barend Mons<sup>43</sup> <sup>26</sup> <sup>37</sup>

Affiliations [+](#) expand




PMID: 26978244 PMCID: [PMC4792175](#) DOI: [10.1038/sdata.2016.18](#)

FULL TEXT LINKS

ACTIONS

SHARE

PAGE NAVIGATION

[← Title & authors](#)

# DataCite Metadata Schema

The DataCite Metadata Schema is a list of core metadata properties chosen for an accurate and consistent identification of a resource for citation and retrieval purposes, along with recommended use instructions.

## Metadata Schema 4.3

Released 16 Aug 2019. Changes in this version include:

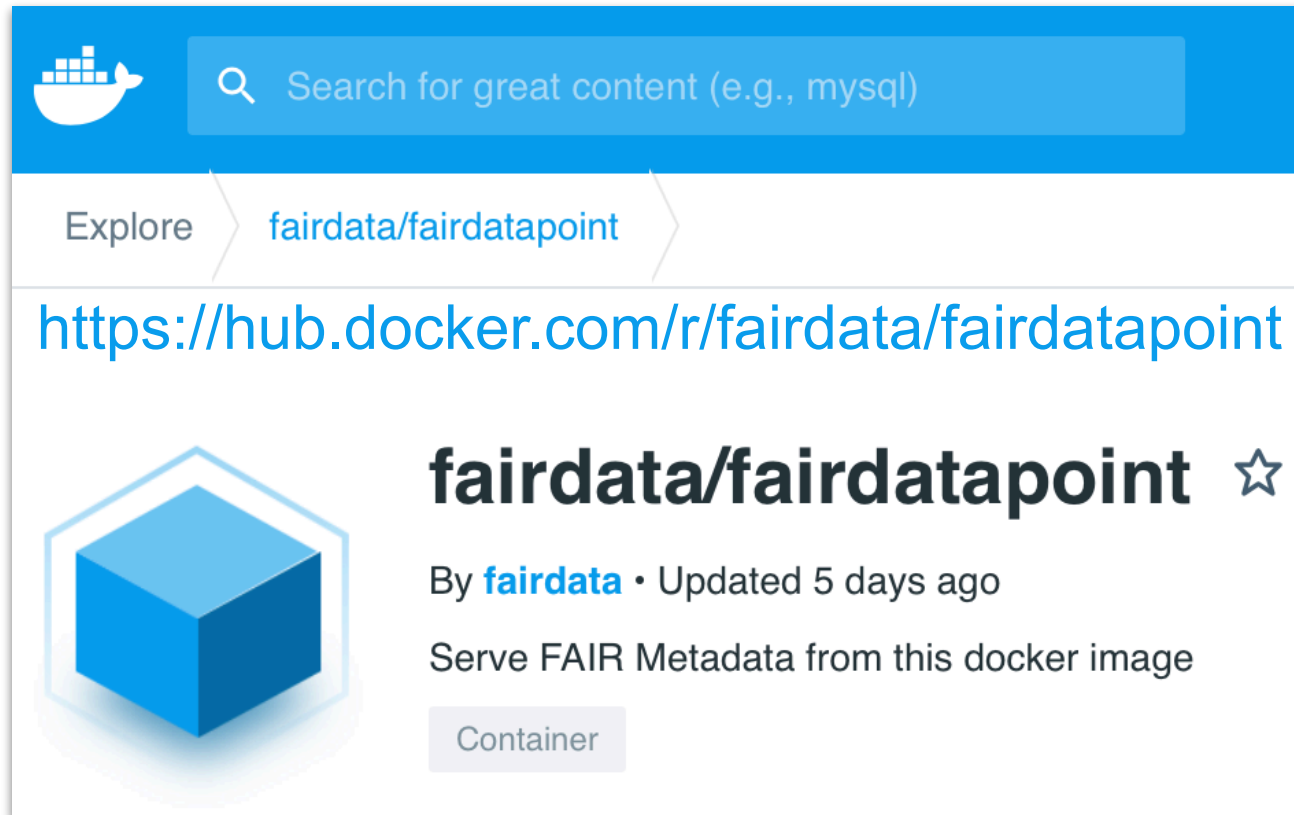
- Addition of optional "affiliationIdentifier", "affiliationIdentifierScheme", and "schemeURI" for affiliation
- Addition of optional "schemeURI" for funderIdentifier
- Addition of "ROR" to allowed values for funderIdentifierType

Yes please feel free to share our plans. [F3] will be implemented through our metadata working group who are currently getting our schema 4.4 released and then they will move onto these discussions.

- Matt Buys, Executive Director of Datacite, February 2 2021



# What does F3 look like?




The screenshot shows the Docker Hub interface for the `fairdata/fairdatapoint` container. At the top, there is a search bar with the text "Search for great content (e.g., mysql)". Below the search bar, the breadcrumb "Explore > fairdata/fairdatapoint" is visible. The main content area displays the URL <https://hub.docker.com/r/fairdata/fairdatapoint>. The container name **fairdata/fairdatapoint** is prominently displayed with a star icon. Below the name, it says "By [fairdata](#) • Updated 5 days ago". A description reads "Serve FAIR Metadata from this docker image". A grey button labeled "Container" is positioned at the bottom right of the container information.

Search for great content (e.g., mysql)

Explore > fairdata/fairdatapoint

<https://hub.docker.com/r/fairdata/fairdatapoint>

 **fairdata/fairdatapoint** ☆

By [fairdata](#) • Updated 5 days ago

Serve FAIR Metadata from this docker image

Container

# FDP:

- Metadata publication platform
- LOD
- Follows DCAT
- Adheres to F3
- Adheres to I3 (qualified links)

	Repository	Catalog	Data	Distribution
rdf:type	X	X	X	X
dct:title	X	X	X	X
dct:hasVersion		X	X	X
dct:description	X	X	X	X
dct:publisher	X	X	X	
dct:language	X	X	X	
dct:license	X	X	X	X
dct:issued		X	X	X
dct:modified		X	X	X
dct:conformsTo	X	X	X	X
dct:rights	X	X	X	X
dct:accessRights	X	X	X	X
dct:hasPart		X		
dct:isPartOf		X	X	X
dcat:themeTaxonomy		X		
dcat:contactPoint	X			
dcat:keyword	X			
dcat:theme	X			
dcat:endPointURL	X			
dcat:endPointDescription	X			
fdp:metadataIdentifier	X	X	X	X
fdp:metadataIssued	X	X		
fdp:metadataModified	X	X	X	
fdp-o:startDate	X			
fdp-o:endDate	X			
fdp-o:repositoryLanguage	X			
fdp-o:hasSoftwareVersion	X			
fdp-o:conformsToFdpSpec	X			
ldp:DirectContainer	X			
foaf:homepage		X		
rdfs:label			X	
dcat:distribution			X	
dcat:theme			X	
dcat:contactPoint			X	
dcat:keyword			X	
dcat:landingPage			X	
dcat:accessURL				X
dcat:downloadURL				X
dcat:mediaType				X
dcat:format				X
dcat:byteSize				X



## KIU FAIR Data Point

This FAIR Data Point contains the metadata of datasets and other artefacts related to the COVID-19 pandemic and other health data in Kampala International University and the rest of Uganda.

### Catalogs

#### **Covid-19 Case Report Form**

Covid-19 case report forms following WHO standard

**Issued** 13-07-2020 **Modified** 13-07-2020

#### **Migrant Media Reports**

These are national and international media reports published during the covid-19 crisis.

**Issued** 13-07-2020 **Modified** 13-07-2020

Metadata Issued  
**01-07-2020**

Metadata Modified  
**13-07-2020**

Version  
**1.0**

Language  
**en**

License  
**cc-by-nc-nd3.0**

Institution  
**kiu.ac.ug**

Start date  
**03-06-2020**

Last update  
**13-07-2020**

Institution country  
**Q1036**



## KIU FAIR Data Point

This FAIR Data Point contains the metadata of datasets and other artefacts related to the COVID-19 pandemic and other health data in Kampala International University and the rest of Uganda.



### Catalogs

#### Covid-19 Case Report Form

Covid-19 case report forms following WHO standard

Issued 13-07-2020 Modified 13-07-2020

#### Migrant Media Reports

These are national and international media reports published during the covid-19 crisis.

Issued 13-07-2020 Modified 13-07-2020

Metadata Issued  
**01-07-2020**

Metadata Modified  
**13-07-2020**

Version  
**1.0**

Language  
**en**

License  
**cc-by-nc-nd3.0**

Institution  
**kiu.ac.ug**

Start date  
**03-06-2020**

Last update  
**13-07-2020**

Institution country  
**Q1036**

**Catalog**

KIU FAIR Data Point / Migrant Media Reports

## Migrant Media Reports

These are national and international media reports published during the covid-19 crisis.

### Datasets

#### Media Report Dataset

These datasets are media reports concerning events related to the impact of covid-19 crisis on immigrants in Tunisia.

[Q38926](#)

[Q57979909](#)

Issued 13-07-2020 Modified 13-07-2020

Metadata Issued

13-07-2020

Metadata Modified

13-07-2020

Version

1.0

Language

**en**

License

Issued

13-07-2020

Modified

13-07-2020

Theme taxonomy

- [Q38926](#)
- [Q57979909](#)

# Dataset



[KIU FAIR Data Point](#) / [Migrant Media Reports](#) / [Media Report Dataset](#)

## Media Report Dataset

These datasets are media reports concerning events related to the impact of covid-19 crisis on immigrants in Tunisia.

### Distributions



#### Media Reports listed in a google document

These are internet links to media reports listed in a google document.

**Issued** 13-07-2020 **Modified** 13-07-2020 **Media Type** <https://w3id.org/mediatype/text/html>

Metadata Issued  
**13-07-2020**

Metadata Modified  
**13-07-2020**

Version  
**1.0**

Language  
**en**

License

Issued  
**13-07-2020**

Modified  
**13-07-2020**

Theme

- **Q38926**
- **Q57979909**

**Access  
to the  
data**

## Media Reports listed in a google document

These are internet links to media reports listed in a google document.

 Access online

Metadata Issued  
**13-07-2020**

Metadata Modified  
**13-07-2020**

Version  
**1.0**

Language  
**en**

License

Issued  
**13-07-2020**

Modified  
**13-07-2020**

Media type  
**https://w3id.org/mediatype/text/html**



## Tunisie

- **Facts**

Reportages sur la situation des migrants

<https://www.theguardian.com/global-development/2020/apr/16/we-have-nothing-as-lockdown-bites-migrants-in-tunisia-feel-the-pinch>

Yossra Kallali: Réflexion sur l'impact de Covid-19 sur les migrants, et la migration

<https://www.leaders.com.tn/article/30036-yossra-kallali-reflexion-sur-l-impact-de-covid-19-sur-les-migrants-et-la-migration>

<https://nawaat.org/portail/2020/04/23/confinement-la-detresse-des-migrants-subsahariens-en-tunisie/>

Les étudiants Tchadiens quittent le pays

<https://www.afrikyes.com/actualite/vie-associative/depart-des-etudiants-tchadiens-de-la-tunisie/>

Les subsahariens prient pour la Tunisie

<https://www.youtube.com/watch?v=Pu3V-gZ0Cy8&feature=youtu.be>

En Tunisie, les migrants subsahariens démunis face à la pandémie de coronavirus

<https://www.jeuneafrique.com/915161/societe/en-tunisie-les-migrants-subsahariens-demunis-face-a-la-pandemie-de-coronavirus/>



Filter:

All 56

Active 15

Inactive 3

Unreachable 32

Invalid 6

Unknown 0

Endpoint ▲ ▼	Registration ▲ ▼	Modification ▲ ▼	Status
<a href="https://fdp.uc.rnu.tn">https://fdp.uc.rnu.tn</a>	27/07/2020, 12:29:33	07/10/2020, 08:35:47	Active
<a href="https://fdp.lumc.nl">https://fdp.lumc.nl</a>	26/08/2020, 14:58:14	07/10/2020, 07:53:49	Active
<a href="https://staging.fairdatapoint.org">https://staging.fairdatapoint.org</a>	29/04/2020, 15:23:20	06/10/2020, 17:50:17	Active
<a href="https://fdp.aau.edu.et">https://fdp.aau.edu.et</a>	09/08/2020, 20:06:46	06/10/2020, 11:31:39	Active
<a href="https://fdp.vodan.fairdatapoint.org">https://fdp.vodan.fairdatapoint.org</a>	12/06/2020, 13:06:57	06/10/2020, 10:12:20	Active
<a href="http://ejprd.fair-dtls.surf-hosted.nl:8082">http://ejprd.fair-dtls.surf-hosted.nl:8082</a>	19/08/2020, 11:57:17	05/10/2020, 10:21:51	Active
<a href="http://lumc-beat-covid.fair-dtls.surf-hosted.nl">http://lumc-beat-covid.fair-dtls.surf-hosted.nl</a>	03/06/2020, 16:33:03	05/10/2020, 09:36:56	Active
<a href="https://fdp.tangaza.ac.ke">https://fdp.tangaza.ac.ke</a>	03/09/2020, 11:16:08	03/10/2020, 16:16:48	Active
<a href="http://ejprd.fair-dtls.surf-hosted.nl:8084">http://ejprd.fair-dtls.surf-hosted.nl:8084</a>	11/09/2020, 14:03:18	02/10/2020, 23:38:40	Active
<a href="https://fdp.ibbu.edu.ng">https://fdp.ibbu.edu.ng</a>	11/08/2020, 14:24:33	02/10/2020, 00:21:12	Active
<a href="https://fdp.sdsc.edu">https://fdp.sdsc.edu</a>	01/05/2020, 23:44:58	01/10/2020, 22:42:27	Active
<a href="https://fdp.test.fairdatapoint.org">https://fdp.test.fairdatapoint.org</a>	16/07/2020, 13:47:48	01/10/2020, 16:43:50	Active
<a href="https://fairsfair.fair-dtls.surf-hosted.nl">https://fairsfair.fair-dtls.surf-hosted.nl</a>	29/07/2020, 14:35:30	01/10/2020, 09:46:53	Active
<a href="https://fdps.kiu.ac.ug">https://fdps.kiu.ac.ug</a>	22/07/2020, 13:52:08	30/09/2020, 16:05:55	Active
<a href="https://app.fairdatapoint.org">https://app.fairdatapoint.org</a>	29/04/2020, 16:37:21	30/09/2020, 14:37:06	Active

**Thank you  
&  
Questions?**