



JATS4R Funding

*A Recommended Practice of the
National Information Standards Organization*

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Funding

Status: *PUBLISHED*

Version: 1.1

Provenance:

Version 1.1 was updated as a result of feedback from Alf Eaton. See the change history below.

JATS4R sub-group. Members: Jeff Beck (NCBI), Mark Doyle (American Physical Society), Patricia Feeney (Crossref), Melissa Harrison (Chair; eLife), Chuck Koscher (Crossref), Kirsty Meddings (Crossref), Evan Owens (independent consultant), Alexander Schwarzman (The Optical Society).

Crossref XML Funding working group. Members: Kirsty Meddings (Chair), Mark Doyle, Melissa Harrison, Chuck Koscher, Daniel S. O'Brien, Alexander Schwarzman.

Change history:

10.13039/open_funder_registry is a URI for the funder registry that resolves to an RDF XML file. The original JATS4R recommendation converted these underscores to hyphens. They are corrected in this version.

Version 1.0 can be found [here](#).

History:

COMMITTEE REVIEW: 22 September 2019

PUBLISHED: 5 October 2020

Description

Crossref convened a working group to produce a recommendation for best practice of funding tagging, which resulted in some change requests to the JATS DTD. These have now been made, so JATS4R created a subgroup to create a JATS4R recommendation.

Traditionally, funding information has been held within the acknowledgments section of an article in an unstructured format. As machine readability and re-use of this information have become more critical, publishers and funders require a way to structure this information for mining and re-use, and for this information to be sent to Crossref. It is recommended that publishers use the following recommendation to produce structured funding metadata. The focus of this recommendation is to ensure that a strict tagging model for funding information within the metadata of the article (or a sub-article) is provided in the XML for machine-readable reuse, although this doesn't preclude also using a looser, mixed content tagging model within descriptive text that might appear in, for example, an acknowledgment section of an article.

There are many combinations of funders, awards, and people associated with a research item. For example, we encountered samples with:

- One funder and multiple awards
- Multiple funders and one award
- One funder, multiple awards, and multiple people
- Multiple funders, one award, and multiple people

Non-monetary support is outside the scope of this recommendation.

The recommendation allows content to be repeated in the metadata markup, but best supports the four use-cases we found and was considered to be a favourable solution to prevent ambiguity.

This recommendation is for JATS 1.1 and later. We've not written it for JATS 1.0 because some elements and attributes have been added in 1.1 that support the information that needs to be collected.

Additional reading

<https://support.crossref.org/hc/en-us/articles/214360746>

<https://www.crossref.org/blog/global-persistent-identifiers-for-grants-awards-and-facilities/>

https://groups.niso.org/apps/group_public/view_comment.php?comment_id=948

https://groups.niso.org/apps/group_public/view_comment.php?comment_id=950

Context

<article-meta>, <front-stub>, <support-group>, <funding-group>, <award-group>, <funding-source>, <award-id>, <institution-wrap>, <institution>, <institution-id>, <principal-award-recipient>, @country, @institution-id-type, @vocab, @vocab-identifier, @id, <contrib-id>, @contrib-id-type

JATS 1.3 requested additions: new elements <award-name> and <award-description>.

JATS 1.3 additions: new attribute @award-id-type attribute on <award-id> was added in the Committee Draft 1.3d1.

Recommendations

DTD versions: *JATS 1.1 and 1.2*

1) **<funding-group>**. All funding data should be contained in a single <funding-group> located either in <article-meta> or inside <support-group> (introduced in JATS 1.2) within <article-meta>.

Exception: Should the article contain a <sub-article> and the funding of this is distinct from and does not inherit that of the main article, an additional <funding-group> should be contained within either <front-stub> or <support-group> (introduced in JATS 1.2) within <front-stub>.

[[Validator tool result: More than one <funding-group> found within <article-meta> ERROR]]

[[Validator tool result: More than one <funding-group> found within a single <front-stub> ERROR]]

2) Multiple **<award-group>**s are allowed within **<funding-group>**. Each **<award-group>** must contain one **<funding-source>**; **<funding-source>** can have zero or multiple **<award-id>**s (if more than one, must be from the same funder).

[[Validator tool result: More than one **<funding-source>** found within **<award-group>** ERROR]]
 [[Validator tool result: No **<funding-source>** or **<support-source>** found within **<award-group>** ERROR]]

3) **<award-id>**. If an award is a joint award from multiple funders, each using the same **<award-id>**, then each funder should appear in its own **<award-group>** and the **<award-id>** should be repeated in each.

4) When available, **<award-id>** should be used to record the grant or award provided by the funder.

5) **@award-id-type**. Crossref has introduced Grant Identifiers (DOIs assigned to individual grants by participating funders) and an application to the JATS Standing Committee has been [submitted](#) and accepted to add an **@award-id-type** attribute to the content model for **<award-id>**. This attribute has been included in the Committee Draft 1.3d1, but it is not yet in the official standard. The final tagging will be:

```
<award-id award-id-type="doi">10.13039/501100001824</award-id>
```

[[Validator tool result: value of **@award-id-type="doi"** starts with something other than "10." ERROR]]

6) **<funding-source>** should only contain one **<institution-wrap>**. **<institution-wrap>** is a wrapper element to hold both the name of an institution (**<institution>**) and any identifiers for that institution (**<institution-id>**).

If your content contains a compound funder name and every part has its own open funder registry DOI, it is recommended that you tag the most specific funding source within **<institution>** and apply the funding registry ID (see below). One can always traverse the registry starting from a specific child to find any ancestors, but not vice versa.

[[Validator tool result: More than one **<institution-wrap>** within **<funding-source>** ERROR]]

7) **<institution>**. If the funder is not listed in any funding registry (or you do not know what it is) please include the name of the funder in **<institution>**, but if the funder registry details are included, please use the following tagging:

a) JATS 1.2 Use the vocab attributes on **<institution-id>** to identify a funding registry. For example, if you are using the Open Funder Registry and the **<funding-source>** is an institution contained within the registry an **<institution-id>** is required, with the following attributes:

- i) **@institution-id-type="doi"**
- ii) **@vocab="open_funder_registry"**
- iii) **@vocab-identifier="10.13039/open_funder_registry"**

[[Validator tool result: if JATS 1.2 or later If **@vocab="open_funder_registry"** present then **@vocab-identifier="10.13039/open_funder_registry"** and **@institution-id-type="doi"** must be present ERROR]]

[[Validator tool result: if JATS 1.2 or later if **@vocab="open_funder_registry"** present then value of the element must start with "10.13039/" ERROR]]

- b) JATS 1.1 @vocab attributes are not available, so if you are using the Open Funder Registry and the <funding-source> is an institution contained within the Open Funder registry, an <institution-id> is required, with the following attribute:

i) @institution-id-type="doi"

[[Validator tool result: @institution-id-type="doi" must contain value which starts with "10."
ERROR]]

8) **<institution-id>**. If you are using the Open Funder Registry, the value provided in <institution-id> should be the DOI (e.g. 10.13039/100000002) but while the content of the institution-id tag contains the DOI of the specific funder, it is not expected that the Funder DOI will be displayed (and so it does not affect the Crossref DOI display guidelines).

9) **<institution>**. If using a registry, the text within <institution> should contain one of the name labels available from the registry. For example, if using the Open Funder Registry, use the preferred or alternative label.

[[Validator tool result: institution name n/a in registry]]

10) An application to the JATS Standing Committee has been [submitted](#) to add new tags in JATS 1.3: <award-name> and <award-description> in <award-group> for tagged additional funding such as <award-description>Stanley Cohen Innovation Fund</award-description> or <award-name>Graduate Fellowship program</award-name>. In the meantime, we suggest this content remains outside of the <funding-group>. A looser, mixed content tagging model can be used within descriptive text that might appear in, for example, an acknowledgment section of an article.

11) **<principal-award-recipient>**. If a publisher provides named people/institutions associated with funding, only 1 person or organisation per <principal-award-recipient> is allowed, but <principal-award-recipient> may repeat in an award group.

12) **<contrib-id>** within **<principal-award-recipient>** or **<contrib>**. Use this element to contain a person's ORCID ID, or alternative identifier, if provided, with @contrib-id-type set to the ID-assigning authority; e.g., contrib-type="orcid".

Note: If the ORCID has been collected using a validation process, add @authenticated with a value of "true". If it has not been, use @authenticated with a value of "false".

13) **<funding-statement>**. If a narrative funding statement exists, it should be included in <funding-statement>.

Examples

JATS 1.2

```
<funding-group>
  <award-group id="ag1">
    <funding-source>
      <institution-wrap>
        <institution-id institution-id-type="doi" vocab="open_funder_registry"
          vocab-identifier="10.13039/open_funder_registry">
          10.13039/100006538</institution-id>
        <institution>School of Medicine, Vanderbilt University</institution>
```

```

    </institution-wrap>
  </funding-source>
  <award-id>DP-0123456</award-id>
  <principal-award-recipient>
    <name>
      <surname>Carberry</surname>
      <given-names>Josiah Stinkney</given-names>
    </name>
    <contrib-id contrib-id-type="orcid" authenticated="true">
      https://orcid.org/0000-0002-1825-0097</contrib-id>
  </principal-award-recipient>
</award-group>
<award-group id="ag2">
  <funding-source country="US">
    <institution-wrap>
      <institution>Brown University</institution>
      <institution-id institution-id-type="doi" vocab="open_funder_registry"
        vocab-identifier="10.13039/open_funder_registry">
        10.13039/100006418</institution-id>
    </institution-wrap>
  </funding-source>
  <award-id>9924356</award-id>
  <principal-award-recipient>
    <contrib-id contrib-id-type="orcid" authenticated="true">
      https://orcid.org/0000-0002-1825-0097</contrib-id>
    <string-name>
      <given-names>Josiah Stinkney</given-names>
      <surname>Carberry</surname>
    </string-name>
  </principal-award-recipient>
</award-group>
<award-group id="ag3">
  <funding-source>
    <institution>Basic Research Program of Shenzhen</institution>
  </funding-source>
</award-group>
<funding-statement>The funders had no role in study design; collection, analysis,
  and interpretation of data; writing the article; and or the decision to submit
  to the journal.</funding-statement>
</funding-group>

```

JATS 1.1

```

<funding-group>
  <award-group id="ag1">
    <funding-source country="US">
      <institution-wrap>
        <institution>Brown University</institution>
        <institution-id institution-id-type="doi">
          10.13039/100006418</institution-id>
      </institution-wrap>
    </funding-source>
    <award-id>9924356</award-id>
    <principal-award-recipient>

```

```

    <name>
      <surname>Carberry</surname>
      <given-names>Josiah Stinkney</given-names>
    </name>
    <contrib-id contrib-id-type="orcid" authenticated="true">
      https://orcid.org/0000-0002-1825-0097</contrib-id>
  </principal-award-recipient>
</principal-award-recipient>
  <name>
    <surname>Bloggs</surname>
    <given-names>John</given-names>
  </name>
</principal-award-recipient>
</award-group>
<award-group id="ag2">
  <funding-source>
    <institution-wrap>
      <institution>U.S. Department of Energy</institution>
      <institution-id institution-id-type="doi">
        10.13039/100000015</institution-id>
    </institution-wrap>
  </funding-source>
  <award-id>DP-0123456</award-id>
  <principal-award-recipient>
    <name>
      <surname>Carberry</surname>
      <given-names>Josiah Stinkney</given-names>
    </name>
    <contrib-id contrib-id-type="orcid" authenticated="true">
      https://orcid.org/0000-0002-1825-0097</contrib-id>
  </principal-award-recipient>
</award-group>
<award-group id="ag3">
  <funding-source>
    <institution>Basic Research Program of Shenzhen</institution>
  </funding-source>
</award-group>
<funding-statement>The funders had no role in study design; collection, analysis,
  and interpretation of data; writing the article; and or the decision to submit
  to the journal.
</funding-statement>
</funding-group>

```

JATS 1.2: Multiple awards from the same funder

```

<funding-group>
  <award-group id="ag1">
    <funding-source country="CN">
      <institution-wrap>
        <institution-id institution-id-type="doi" vocab="open_funder_registry"
          vocab-identifier="10.13039/open_funder_registry">
          10.13039/501100001809</institution-id>
        <institution>National Natural Science Foundation of China</institution>
      </institution-wrap>
    </funding-source>
  </award-group>

```

```

</funding-source>
<award-id>61505139</award-id>
<award-id>61675152</award-id>
</award-group>
</funding-group>

```

JATS 1.1: Multiple awards from the same funder

```

<funding-group>
  <award-group id="ag1">
    <funding-source>
      <institution-wrap>
        <institution>National Natural Science Foundation of China</institution>
        <institution-id institution-id-type="doi">
          10.13039/501100001809</institution-id>
        </institution-wrap>
      </funding-source>
      <award-id>61505139</award-id>
      <award-id>61675152</award-id>
    </award-group>
  </funding-group>

```

JATS 1.2: Joint award from multiple funders

```

<funding-group>
  <award-group id="ag1">
    <funding-source country="EU">
      <institution-wrap>
        <institution-id institution-id-type="doi" vocab="open_funder_registry"
          vocab-identifier="10.13039/open_funder_registry">
          10.13039/501100004895</institution-id>
        <institution>European Social Fund</institution>
      </institution-wrap>
    </funding-source>
    <award-id>2016 FGR 0031</award-id>
  </award-group>
  <award-group id="ag2">
    <funding-source country="DE">
      <institution-wrap>
        <institution>Thüringer Ministerium für Wirtschaft, Wissenschaft und
          Digitale Gesellschaft</institution>
        <institution-id institution-id-type="doi" vocab="open_funder_registry"
          vocab-identifier="10.13039/open_funder_registry">
          10.13039/501100010959</institution-id>
      </institution-wrap>
    </funding-source>
    <award-id>2016 FGR 0031</award-id>
  </award-group>
</funding-group>

```

JATS 1.1: Joint award from multiple funders

```
<funding-group>
  <award-group id="ag1">
    <funding-source>
      <institution-wrap>
        <institution>European Social Fund</institution>
        <institution-id institution-id-type="doi">
          10.13039/501100004895</institution-id>
      </institution-wrap>
    </funding-source>
    <award-id>2016 FGR 0031</award-id>
  </award-group>
  <award-group id="ag2">
    <funding-source>
      <institution-wrap>
        <institution>Thüringer Ministerium für Wirtschaft, Wissenschaft und
          Digitale Gesellschaft</institution>
        <institution-id institution-id-type="doi">
          10.13039/501100010959</institution-id>
      </institution-wrap>
    </funding-source>
    <award-id>2016 FGR 0031</award-id>
  </award-group>
</funding-group>
```