What we will cover

- An introduction to Crossref - who we are and what we do
- The value and use of metadata for content discovery
- Our Global Equitable Membership (GEM) program
- Setting up independent membership
- Additional Crossref services for members
- Q&A
Our mission

Crossref makes research objects easy to find, cite, link, assess, and reuse.
We’re a not-for-profit membership organization that exists to make scholarly communications better.
Crossref in brief

- >19,000 organisational members from ~150 countries
- 34% are university/faculty or other research institution
- 151 million open metadata records with a DOI
- 1.1 billion DOI resolutions every month
- 1000s systems reusing metadata through search/API
- Technical solution but also a community convener
- POSI-compliant nonprofit open infrastructure
- 46 staff across 7 time zones and 9 countries
Why organizations join Crossref

- Connect content with a global network of online scholarly research
- Create a persistent identifier for each object
- Improve discoverability of publications through robust metadata
- Find out who is citing your content
- Participate in other collaborative services
A changing membership
The value and use of metadata
The ‘research nexus’

“A rich and reusable open network of relationships... a scholarly record that the global community can build on forever, for the benefit of society.”

**Metadata** is the thread that is woven to produce such a network
What is metadata?

“Metadata is communication.

It describes and identifies an item, it defines relationships, it sets parameters for the range of actions something can engage in.

As the things we read, write, create, use, move around, and engage with become more digital, metadata becomes more important, because without metadata, all that movement, interaction, and discovery, could not happen.”

- Juliane Schneider, Metadata 20/20 blog, 2017

https://metadata2020.org/blog/2017-09-14-metadata-and-communication
What kind of `<METADATA>`?

**Basic:** titles; dates; author names; abstracts; DOI; location URL

**Full-text URLs:** e.g. for text-mining and Similarity Check

**Crossmark:** updates, retractions, corrections

**Relationships:** versions; translations; data; references; citation

**Provenance:** publisher/funder/steward information

**Subject-specific:** e.g. clinical trial info

**Funding information:** Funder Registry ID; award numbers/Grant DOIs

**Contributor & Affiliations:** ORCID iDs and ROR IDs preferred
Crossref Metadata APIs

- Manuscript tracking
- Scholarly sharing networks
- Hosting content
- Bibliographic management
- Search & discover
- Measure, report & apply metrics
- Verify records are valid & accurate
- Fill metadata gaps
- Collect related research objects
- Match & link citations
- Aggregate & integrate content
- Author profiling
- Annotation
- Collaborative authoring and reading
- Library discovery
- Recommendations
- Metrics and analytics
- Specialist subject databases

Crossref
Metadata enables:

- Discoverability
- Reproducibility
- Research and editorial integrity
- Reporting and assessment
https://search.crossref.org/

Search the metadata of journal articles, books, standards, datasets & more

Title, author, DOI, ORCID iD, etc.
Climate change knowledge, attitude and perception of undergraduate students in Ghana

JOURNAL ARTICLE published 7 June 2023 in PLOS Climate

Authors: Benjamin Y. Ofori | Evans P. K. Ameade | Fidelia Ohemeng | Yahaya Musah | Jones K. Quartey | Erasmus H. Owusu

Editors: Shah Md Atiquel Haq

https://doi.org/10.1371/journal.pclm.0000215
We make this metadata open through our REST API

https://api.crossref.org/
Good to remember...

You have three access levels to the API metadata:

- **Public.** Free, fully anonymous.
- **Polite.** Free, you provide your email (recommended).¹
  - We only use this information to contact you in case of issues.
  - Include 'mailto' parameter in your API query.
- **Plus.** Premium service, you get:
  - A service level agreement guaranteeing you extra service and support, giving you a consistent and predictable experience.
  - Additional features such as snapshots and priority service/rate limits.

¹We get rid of your information after 90 days.
How to...?

https://api.crossref.org/v1/funders?query.affiliation=ghana&mailto=your.name@org.org

Protocol & Host  Endpoints  ?Parameters

Where is located the server? Digital locations where an API receives requests about specific resources They determine the type of action you want to take on the resource
<table>
<thead>
<tr>
<th><strong>Funders</strong></th>
<th>Endpoints that expose funder related data</th>
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<tbody>
<tr>
<td>GET /funders/{id}/works</td>
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<td>GET /funders/{id}</td>
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<td>GET /funders</td>
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<th><strong>Journals</strong></th>
<th>Endpoints that expose journal related data</th>
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<td>GET /journals</td>
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<td>GET /journals/{issn}</td>
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<td>GET /journals/{issn}/works</td>
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<th><strong>Works</strong></th>
<th>Endpoints that expose works related data</th>
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<td>GET /works/{doi}</td>
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<td>GET /works</td>
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<td>GET /works/{doi}/agency</td>
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<th><strong>Prefixes</strong></th>
<th>Endpoints that expose prefix related data</th>
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<tr>
<td>GET /prefixes/{prefix}/works</td>
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<td>GET /prefixes/{prefix}</td>
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<th><strong>Members</strong></th>
<th>Endpoints that expose member related data</th>
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<tr>
<td>GET /members/{id}/works</td>
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<td>GET /members/{id}</td>
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<td>GET /members</td>
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<tr>
<th><strong>Types</strong></th>
<th>Endpoints that expose type related data</th>
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<tr>
<td>GET /types/{id}</td>
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<td>GET /types</td>
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<tr>
<td>GET /types/{id}/works</td>
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</table>
Some examples
You try it

1. Visit https://api.crossref.org/
2. Scroll down to and click GET
3. Scroll down to the parameter fields
4. Add your email to the mailto field
5. Add a funder organization to the query field
14,208
619/14,208 = 0.04

Only 4% don’t have a full-text available
Some examples

You try it

1. Visit https://api.crossref.org/
2. Scroll down to and click GET
3. Scroll down to the parameter fields
4. Add your email to the mailto field
5. Add a funder organization to the query field

- type:book
- type:posted-content
- type:grant
- https://api.crossref.org/types for other types of content
Global Equitable Membership (GEM) Program
Global Equitable Membership (GEM) program

From Afghanistan to Zambia...

Announcing the new GEM Program, so that publishers in 59 countries have one less thing to worry about.

GEM eligible countries in Africa

Benin (1)
Burkina Faso (2)
Burundi (1)
Central African Republic (1)
Chad
Comoros
Cote d'Ivoire
Democratic Republic of the Congo (6)
Djibouti

Eritrea
Ethiopia (7)
Gambia
Ghana (32)
Guinea
Guinea-Bissau
Mali (2)
Mauritania (1)
Mozambique
Niger
Rwanda (4)

Sao Tome and Principe
Senegal (3)
Sierra Leone
Somalia (4)
South Sudan
Sudan (11)
Tanzania (11)
Togo
Uganda (7)
Zambia (5)
What does GEM cover?

Yes
- Annual member fee
- Content registration fees

No
- Similarity Check fees
- Metadata plus fee
https://www.crossref.org/membership/
First Steps

We send you:

- Your unique prefix
- Login and instructions to set your password
- Review of the different methods for registering your content
What can I register at Crossref?

- Journals & articles
- Books
- Book chapters
- Conference proceedings
- Datasets
- Dissertations
- Reports
- Standards
- Posted content (preprints)
- Peer reviews
- Grants
- Relationships
How to register content

- OJS Crossref plugin
  (https://docs.pkp.sfu.ca/crossref-ojs-manual/en/config)

- Manual web deposit form
  (https://apps.crossref.org/webdeposit)

- Upload XML file
  (https://doi.crossref.org)
Using OJS

- Enable DOI plugin
  
  Settings > Website > Plugins  
  Under Installed Plugins > Public Identifier Plugins

- Enable Crossref plugin
  
  Tools > Import/Export > Crossref XML Export Plugin

https://docs.pkp.sfu.ca/crossref-ojs-manual/en/config
Crossref for Editors
Crossref services for editors

- Editorial decisions influence what research is communicated and how.

- Crossref tools help you assess a paper’s originality, and properly label and connect updates, corrections, and retractions
Editors would like to ensure the quality and integrity of what they publish.

Metadata helps with research integrity:
- Grant records connect full funding info, including funder, amounts, and funding type, to works.
- Metadata records identify the member responsible for the record, where the content lives (URL), who contributed and what their affiliations are.
Metadata and research integrity: Similarity Check

- verify that an item was checked for originality via Similarity Check
- Similarity Check offers publishers with a way to actively engage in efforts to prevent plagiarism, using a service provided by Crossref and powered by iThenticate

https://www.crossref.org/services/similarity-check/
Metadata and research integrity: Crossmark

- Changes may happen to a work after publication: corrections, retractions, addition of supplementary information
- Crossmark provides a cross-platform way for readers to quickly discover the status of a research output along with additional metadata related to the editorial process

https://www.crossref.org/services/crossmark/
Metadata and discoverability: Reference Linking

Using Crossref services maximizes the discoverability of the content you publish

- **Reference linking** enables researchers to follow a link from the reference list to other full-text documents, helping them to make connections and discover new things.
- Collecting information on who funded the research, ORCID iDs of authors
- **Abstracts and references** make content more discoverable
- Deposit the information you collect with Crossref so that it can be used!

https://www.crossref.org/services/reference-linking/
Metadata and reproducibility

- Use relationships to connect outputs to data, software, protocols, and other materials used to generate research
Metadata and assessment

- use affiliation metadata (including ROR IDs) to identify what institutions are aligned with what research
- identify who funded what, and what the connected outputs are (preprints, data, conference papers)
- identify reviews and comments via relationships
Cited-by

Cited-by provides an overview of the publications that have cited a piece of content helping to build a picture of how research has been received by the community.

https://www.crossref.org/services/cited-by/
In conclusion
Resources and support

Technical documentation: https://www.crossref.org/documentation/

GEM program: https://www.crossref.org/gem/

Email us: support@crossref.org and member@crossref.org


Have questions? Try our community forum: https://community.crossref.org/