CrossRef DOI
Reference Linking

What DOIs are, How to work with them
This session covers ...

• The problem of broken links and how CrossRef DOIs work
• Registering and displaying your DOIs
• Maintaining your DOIs
  – Updating your metadata
  – Multiple resolution, multiple languages
  – Conflicts and multiple DOIs
• Adding DOI links to your references
THE PROBLEM ...
Broken links are the problem
Why we need links

References


Researchers want easy links to other content – so we need to include them
One solution

References


And content moves all the time …

• You update your website
• You move your online publication from the university website to its own site
• You start co-publishing with a large publisher – your publication moves to their site
• You move your publication from one publisher to another
THE CROSSREF SOLUTION
A CrossRef DOI that uniquely identifies content
What is a DOI?

• = Digital Object Identifier
• Unique
• Actionable
• Digital identifier for content
• Trademark of the International DOI Foundation (IDF)
• ANSI/NISO Standard Z39.84-2005 (R2010)
• ISO Standard 26324:2012
The organization of DOI registration

International DOI Foundation (IDF): oversees the central DOI system, promotes the DOI as a standard, and provides an organizational infrastructure that ensures persistence and interoperability.

Corporation for National Research Initiatives (CNRI): they (among other things) are responsible for the Handle system, which is the technology that causes DOIs to resolve to the registered URL

Registration Agencies (RAs): Register DOIs on behalf of other organizations. CrossRef is a RA.
Registration Agencies

- Airiti
- CrossRef
- China National Knowledge Infrastructure (CNKI)
- DataCite
- Entertainment Identifier Registry (EIDR)
- The Institute of Scientific and Technical Information of China (ISTIC)
- Japan Link Center (JaLC)
- Multilingual European DOI Registration Agency (mEDRA)
- Publications Office of the European Union (OP)

Different registration agencies provide different services. They all provide the basic DOI linkage service.
DOI syntax

http://dx.doi.org/ 10.1006/ jmbi.1995.0238
DOI Directory Prefix Suffix

• Makes the DOI actionable on the web
• Assigned by CrossRef
• Assigned by the publisher

Total DOI = Routes through the DOI resolver to point to the registered URL
What is behind the CrossRef DOI?

• Metadata
  – Bibliographic details, for example for journals
    • Article and journal name
    • Author name(s)
    • Volume
    • Issue
    • Publication date, etc.
  – URL
    • The web page on which the publication can be found
Why do I keep saying “CrossRef DOI” instead of just “DOI”?

Because it’s all about the services, not just the DOIs
HOW CROSSREF DOIs WORK
Become a member of CrossRef, obtain a prefix

Assign every article (or e-book chapter) a unique suffix to create the CrossRef DOI
For every article, you submit the metadata, the DOI, and the URL to CrossRef.
Then the CrossRef DOI can be used to cite your article and produce a link.
Quantitative analysis of mercury burden in the wastewater released from dental clinics in the United Arab Emirates

References

But the link interrogates the DOI resolver and redirects the reader to your page.

Quantitative analysis of mercury burden in the wastewater released from dental clinics in the United Arab Emirates

References

So … if your article moves to another site

The CrossRef DOI automatically redirects
Why is this better than a URL ...
Why is this better than a URL ... when you move content ...
Why is this better than a URL ... DOIs automatically redirect

(you don’t have to tell all the other publishers)
How does the CrossRef DOI know where to redirect?

• You need to re-deposit metadata when it changes
  – Updating the URL
  – To be discussed later ...

  – Do NOT change the CrossRef DOI !!
REGISTERING YOUR ARTICLE DOIS OR “DEPOSITING”
CrossRef is an association of scholarly publishers that develops shared infrastructure to support more effective scholarly communications. Our citation-linking network today covers over 67 million journal articles and other content items (books chapters, data, theses, technical reports) from thousands of scholarly and professional publishers around the globe.
Use CrossRef Help

http://help.crossref.org/#home

Welcome to CrossRef Help

Browse the table of contents to the left for an overview of CrossRef functions, or search our help documentation using the box above.

Popular Help & FAQs

New Topics
- funding and license CSV upload
- Depositing non-CrossRef DOIs
- MathML
- JATS abstracts

Getting Started
- How CrossRef works
- How depositing works
- How querying works
- Publishers
- Libraries

Popular Topics
- OpenURL
- Using HTTP to POST
- Using HTTP to Query
- Transferring DOI ownership
- DOI display guidelines

Can't find an answer?
For technical support, email support@crossref.org or open a support ticket.

Contact info@crossref.org for general inquiries and membership questions.
Depositing CrossRef DOIs and metadata

• Basic process for depositing:
  1. Decide which suffixes and URLs will be used for each document
  2. Create XML using the CrossRef deposit schema
     • (non-technical users may use the Web Deposit form)
  3. Verify your XML
  4. Upload your XML (via a web interface or programatically) and submit your deposit

• This adds the DOIs and metadata to the CrossRef system
• CrossRef then automatically registers DOIs with the Handle System DOI resolver
  – http://help.crossref.org/#deposit_basics
The DOI prefix in more detail

http://dx.doi.org/ 10.1006/ jmbi.1995.0238

Prefix:  
- Assigned to members by CrossRef  
- Format is 10.XXXX (or 10.XXXXX)  
- Identifies who initially created the DOI  
- Prefix does not identify the current owner of the DOI  
- Publishers can choose to have multiple prefixes
The DOI suffix in more detail

http://dx.doi.org/ DOI Directory 10.1006/ Prefix jmbi.1995.0238 Suffix

**Suffix:**
- Assigned by the CrossRef member
- Unique within prefix
- Consistent and Logical
- Easily documented
- Readily implemented
- Case insensitive
Deciding on a suffix scheme

- Keep suffixes simple and short:
  - 10.5664/sleep.1000
  - 10.3183/NPPRJ-1986-01-03-p004-013
  - 10.3103/S0005105507050032
  - 10.4260/BJFT20094508
  - 10.1632/074069503X85526

- Note - They do not need to be human-intuitive

- Allowed characters:
  - "a-z", "A-Z", "0-9" and "+-__:()"
Deposit DOIs and metadata

- Basic citation metadata:
  - author(s)
  - journal title
  - article title
  - volume
  - Issue
  - page numbers
  - publication date
  - book title
  - chapter title

- Optional metadata, e.g.
  - references
  - FundRef funder information
  - ORCID
  - CrossMark publication record metadata
  - Abstracts
  - (more about this later)
Creating your XML for Deposits

```xml
<?xml version="1.0" encoding="UTF-8"?>
...
<timestamp>200706181120</timestamp>
...
<journal>
  <journal_metadata>
    <full_title>American Journal of Meetings</full_title>
    <abbrev_title>Am J Meet</abbrev_title>
    <issn media_type='print'>4445-6767</issn>
  </journal_metadata>
  <journal_issue>
    <publication_date media_type='print'>
      <month>5</month>
      <day>5</day>
      <year>2001</year>
    </publication_date>
    <journal_volume>
      <volume>33</volume>
    </journal_volume>
    <issue>1</issue>
  </journal_issue>
</journal>
```
Upload your submission file to CrossRef

Submission report
Review your submission report

• <xml version="1.0" encoding="UTF-8">
  • <doi_batch_diagnostic status="completed" sp="cr6.crossref.org">
  •   <submission_id>426240380</submission_id>
  •   <batch_id>12009_DOIs_unreg_2007-09-21</batch_id>
  •   <record_diagnostic status="Success">
  •     <doi>10.1385/AO:38:1:8</doi>
  •     <msg>Success</msg>
  •   </record_diagnostic>
  •   <record_diagnostic status="Failure" msg_id="22">
  •     <doi>all doi's of the current journal element</doi>
  •     <msg>ISSN "15304086" has already been assigned to a different title/publisher/genre</msg>
  •   </record_diagnostic>
  •   <record_diagnostic status="Warning">
  •     <doi>10.3386/w11255</doi>
  •     <msg>Added with conflict</msg>
  •     <conflict_id>354709</conflict_id>
  •     <dois_in_conflict>
  •       <doi>10.1596/1813-9450-3622</doi>
  •     </dois_in_conflict>
  •   </record_diagnostic>
  • </doi_batch_diagnostic>

• <batch_data>
  •   <record_count>3</record_count>
  •   <success_count>1</success_count>
  •   <warning_count>1</warning_count>
  •   <failure_count>1</failure_count>
• </batch_data>

More info: Interpreting submission logs
For small publishers ...

- Don’t worry if you are uncomfortable with XML
- Web deposit form makes deposit easy
Web Deposit Form

- [http://www.crossref.org/webDeposit/](http://www.crossref.org/webDeposit/)
- Enter data into form
- Form generates XML and sends it to the system
- DOI is deposited
  - (Be sure to check your submission log!)
webDeposit

These forms allow you to enter metadata and register DOIs. Review the help documentation for details.

Note: Your Crossref username and password will be required at the end of this process to submit data to the system. Please ensure your browser allows JavaScript so that the data validation will function.

Step 1: Select Data Type

Data Type Selection
Select Data Type: ○ Journal ○ Book ○ Conference Proceedings ○ Report ○ Dissertation ○ NLM File BETA ○ Supplemental-Metadata Upload BETA

Step 2: Identify the Journal

Journal information

Title*
Abbr.*
Journal DOI*
URL*
Print ISSN*  Elect ISSN* one ISSN required (either one)
Volume Issue
Issue DOI*
URL*

Publication dates
note: use numerical values (YYYY, MM, DD)

Type: print
*Year Month: Day:

Type: online
*Year Month: Day:

* a minimum of one publication year is required

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Cut-andpaste into the web form
HOW TO DISPLAY CROSSREF ARTICLE DOIs
Publishing and displaying CrossRef DOIs

Do not publicize CrossRef DOIs until links are live

Include CrossRef DOIs on response pages (required), TOCs, abstracts, PDFs, citation downloads, metadata feeds, social network links

Display CrossRef DOIs as a URLs
Response page must display (at least)

Bibliographic information about the item

A way to access full text

The DOI

Time response of Cd_{0.9}Zn_{0.1}Te crystals under transient and pulsed irradiation

X. C. Zhao¹, X. P. Ouyang¹,², a) Y. D. Xu², H. T. Han³, Z. C. Zhang¹, T. Wang², G. Q. Zha³ and X. Ouyang¹

ABSTRACT

A CdZnTe detector based on high-quality Cd_{0.9}Zn_{0.1}Te crystals was developed and tested as a monitor in high-intensity radiation fields. The current–voltage measurements were performed using thermally evaporated Au contacts deposited on the crystals, which revealed resistivity of 10¹⁰ Ω cm. Typical leakage current for the planar devices was ~3 nA for a field strength of 1000 V cm⁻¹. The test results show that the CdZnTe detector has a fast time response, with a rise time of approximately 2 ns, when exposed to transient and pulsed irradiation of X-rays or electron beams. The decay of current curves is observed and discussed according to charge carrier trapping effects and space-charge accumulation mechanisms. It is suggested that the current decreases quickly with strengthening of the electric field, possibly because of charge de-trapping.
Response page must display (at least)

* bibliographic information about the item
* a way to access full text – even if there is a charge, or the user must register or be a member or subscriber
Maintaining your DOIs

UPDATING YOUR METADATA
What if something changes?

• Change/correction to the metadata
  – E.g. author’s name entered incorrectly

• Change to the URL
  – E.g. your publication moves to another website

There is no charge for updating CrossRef DOIs
Update them early and often!
How to update your metadata

• Re-submit the metadata
  – Anything with the same DOI will replace the existing record = updating the details
  – Resubmit your entire deposit
    • http://help.crossref.org/#ID5857
Update URLs

You can send URL-only changes by email using simple syntax:

H:email=pfeeney@crossref.org;fromPrefix=10.5555;toPrefix=10.5555
10.5555/doi1 http://www.yoururl.com/journal/art1
10.5555/doi2 http://www.yoururl.com/journal/art2
10.5555/doi2 http://www.yoururl.com/journal/art12
Use CrossRef support
http://help.crossref.org/#updating_dois_and_metadata

Updating DOIs and metadata

Once an article's metadata has been deposited with CrossRef, you may update it as often as you want at no additional fee. When making an update you must supply all the metadata for the article, not just the fields that need to be changed. During the update process the CrossRef system completely overwrites the existing metadata with the information you submit, including inserting null values for any fields not supplied in the update.

To update DOIs and metadata, deposit the updated information in the same way that you would deposit any other DOI or metadata. Be sure to supply the correct DOI name in your submission to ensure that the CrossRef system updates the appropriate content item.

Note: When updating a deposit, be sure to increment the timestamp value to avoid deposit errors.

Was this information helpful?

Yes  No
Maintaining journal titles

• Publisher determines title and ISSN combinations
• Valid ISSN required for all journal titles
• Title/ISSN combination in deposit must match
  Title/ISSN combination at CrossRef
• If a title changes, it needs a new ISSN
• Deposit journals under original title
  Title list: http://www.crossref.org/titleList/
  Title transfer policies:  http://help.crossref.org/#ID5855
Maintaining your DOIs

TRANSFERING CONTENT: WHEN PUBLICATIONS MOVE TO A NEW PUBLISHER
The publication transfer problem

• When a journal moves to a new publisher ...

• Existing CrossRef DOIs point to the “old” URLs
• Somebody needs to keep CrossRef metadata up to date
• CrossRef notifications go to “old” publisher
The solution

• Do not change the DOIs already assigned
  – Only update the metadata (URL)

• The new publisher takes responsibility for
  – Updating the metadata of existing DOIs
  – Depositing new article/content DOIs
  – Receiving and reviewing reports and notifications from CrossRef
Transferring publications

• Notify CrossRef of the transfer
  – Provide evidence “old” publisher agrees to transfer
  – New publisher must be a member

• A note about the Prefix
  – A DOI prefix tells you who assigned the DOI originally, not who owns it now

• When a publication transfers,
  – the old content will have the old prefix
  – the new content will have the new prefix
Transferring DOI ownership

Once a DOI is assigned to a content item it should remain unchanged. When ownership of a publication is transferred from one publisher to another, the DOIs associated with the publication must also be transferred to the new owner.

Here are the basic steps involved in transferring ownership:

1. The acquiring publisher contacts CrossRef to initiate an ownership transfer. When requesting a DOI name ownership transfer, the acquiring publisher must provide CrossRef with confirmation that the disposing publisher is aware of and agrees with the ownership transfer.

   Notes Title transfers that have been posted to the Transfer notification list will be accepted. Otherwise, the confirmation may be an email from the disposing publisher to the acquiring publisher that is forwarded to CrossRef.

2. The acquiring publisher sends CrossRef a tab-separated list of the DOIs to be transferred and the new URLs to be associated with the DOIs:

<table>
<thead>
<tr>
<th>OldDOI</th>
<th>NewDOI</th>
</tr>
</thead>
</table>

   The publisher should obtain the DOI names from the disposing publisher. If necessary, CrossRef can supply a list of all the DOI names associated with the publication.

3. The acquiring publisher supplies CrossRef with the file and its DOI name prefix. Note that only the ownership of the DOI names changes, not the prefix. If you supply new URLs, they are updated at the same time that ownership is transferred.

   Notes For more detailed information, see Title and DOI name ownership/control policies and transfer procedures (pdf).
Whose responsibility is this?

- New owner/publisher must update CrossRef metadata
- Consult Project TRANSFER Code of Practice
  - [http://www.uksg.org/Transfer/Code](http://www.uksg.org/Transfer/Code)
What if the content is duplicated...

- If the old publisher keeps the journal articles on the old site
- AND the new publisher puts the journal articles on the new site

- CrossRef Multiple Resolution copes with this
  - To be covered later today
Maintaining your DOIs

TRANSLATED JOURNALS
One DOI or many?

• Each article must only have one DOI
• If an article appears in multiple languages
  – Each language article is considered a new article
  – Each language article should have its own DOI
  – The translations/versions of a single article can be linked in the metadata
  – See the CrossRef help pages
Maintaining your DOIs

CONFLICTS
Resolve all conflicts

• Conflicts occur when two (or more) DOIs share the same metadata
  – suggesting two DOIs are assigned to a single item
Why are conflicts bad?

• Only one DOI should be assigned per item
• Queries will return multiple DOIs, causing confusion
• Some queries (OpenURL) may not return a DOI if multiple results are present
• Conflicts between two DOIs often result in one of the DOIs being neglected
Conflict report (in Members Area)
Examining the conflict report

http://help.crossref.org/examining_the_conflict_report
Outbound linking

LINKING YOUR REFERENCES
A really important point

- Members MUST add outbound CrossRef DOI links to their references
  - This is part of the membership rules
How to add CrossRef DOI links to references

• Ask the authors in author guidelines
• Add at copyediting stage
  – Use a search engine for individual articles (slow)
  – Query CrossRef with XML (efficient, requires skill)
  – Use CrossRef lookup tools (simple)
  – Use third-party tools
    • Inera xStyles
    • Aries Editorial Manager
• Hire a CrossRef Service Provider
How you, authors, and providers can find DOIs

• Human search:
  – CrossRef metadata search
    • search.crossref.org
  – SimpleText Query
    • Crossref.org

• Machine search:
  – CrossRef REST API
    • api.crossref.org

• http://help.crossref.org/how_querying_works
How to query: human searches

• CrossRef Metadata Search (Google-like interface)
  – Useful if you only have partial information

• Simple Text Query (formatted, untagged references)
  – Good for full reference lists

• (Tell your authors about these tools!)

http://help.crossref.org/#user-query-interfaces
CrossRef Metadata Search
http://search.crossref.org

• You can search on the following terms:
  • author names or ORCID(s)
  • ORCID: unique author ID, http://orcid.org
  • Article or journal titles
  • CrossRef DOIs
  • ISSN(s)
  • ShortDOI(s) (see http://shortdoi.org/)
CrossRef Metadata Search

• You can limit the search results to
  • particular publishers
  • funders
  • work types
  • years of publication

• You can also
  • create citations for results
  • to import results into ORCID profiles
Using CrossRef Simple Text Query
Step 1: registration

• [http://www.crossref.org](http://www.crossref.org)

• Select Simple Text Query from the menu:
Simple Text Query Form

This form allows individuals to retrieve CrossRef Digital Object Identifiers (DOIs) for non-commercial use. Please contact us (info@crossref.org) if you represent an organization that is interested in purchasing CrossRef DOIs in quantity.

Important Notice: Simple Text Query users are required to use a verified email address starting on May 5, 2010. You may sign up for a free account here.

We are taking this action because a number of individuals have been accessing the Simple Text Query service in very high volumes. The Simple Text Query is not an appropriate tool for high volume operations and monthly usage limits of 1000 references will be put into effect (intended to be a limit on an individual or the organization represented by an individual). Please contact CrossRef (info@crossref.org) to inquire about options appropriate for volumes of use above these limits.

How to use this form

This form allows you to retrieve Digital Object Identifiers (DOIs) for journal articles, books, and chapters by simply cutting and pasting the reference list into the box below. You may use the form with any reference style, although the tool works most reliably if references are formatted in a standard style such as shown in this example:


To test the interface, simply cut & paste this reference!

Please separate individual references by a blank line. For best results, there should be no line breaks within an individual reference. When submitting multiple references they must be in alphabetical order or presented as a numbered list. For editorial purposes, to check the accuracy of a reference click on the DOI link that is returned with the reference.

Enter the email address you registered for use of Crossref services. If you need to update your email address, click here.

Registered email:  

Enter text in the box below:
The registration process

CrossRef Query Services Account Request Form

CrossRef provides various web interfaces for key query services. Registered CrossRef Members, Libraries and Affiliates may use the web interfaces with their previously supplied system account credentials. The CrossRef Query Services interfaces are:

- SimpleText Query
- OpenURL
- HTTP

If you are not a CrossRef member with account credentials, you may register for an account here. This account registration (please see the detailed terms and conditions below).

The purpose of requiring an account for using CrossRef Query Services is simply to monitor usage to balance system demand and to identify problems.

If you have any questions please email support@crossref.org

To create an account, you will need to provide your email address. You will receive an email for verification to activate your account.

Email: tony.sibthorp@gmail.com
Organization: parklane

You must agree the terms

This agreement (the "Agreement") contains the terms and conditions applicable to the use of CrossRef Query Services, offered by CrossRef to the public at no charge through the CrossRef website (www.crossref.org) (collectively, the "CrossRef Free Services").

1. OWNERSHIP. CrossRef asserts no claims of ownership to individual items of bibliographic metadata and associated Digital Object Identifiers (DOIs) acquired through the use of the CrossRef Free Services. Individual items of bibliographic metadata and associated DOIs are the property of their respective owners.

You must enter the number/letters in this photograph (CAPTCHA code)
Registering with CrossRef

• Next
  – You will receive an email with a validation link
  – Click on the validation link in the email
    • This will open a webpage
    • You will be asked to type in a CAPTCHA code again
  – You will then be forwarded to a page that verifies your registration
CrossRef provides various web interfaces to query services. Registered CrossRef Members, Libraries and Affiliates may use the web interfaces with their previously supplied system account credentials. The CrossRef Query Services interfaces are:

- SimpleText Query
- OpenURL
- HTTP

If you are not a CrossRef member with account credentials, you may register for an account here. This account registration service is available at no charge to certain entities (please see the detailed terms and conditions below).

The purpose of requiring an account for using CrossRef Query Services is simply to monitor usage to balance system demand and to identify problems.

If you have any questions please email support@crossref.org

To create an account, you will need to provide your email address to receive your account.

**DO NOT** click here (or it will ask you to register again !!)
Using Simple Text Query

1. Fill in your registered email
2. Enter text in the box below:
3. Check this box if you want PubMed IDs
4. Paste in your references
5. Finally, click the Submit box
The results

- CrossRef DOIs appear in references on the web page

http://dx.doi.org/10.3998/3336451.0003.307


Marie E. McVeigh, "Open Access Journals in the ISI Citation Databases: Analysis of Impact Factors and Citation Patterns: A Citation Study from Thomson Scientific" (October 2004),

http://dx.doi.org/10.1073/pnas.0507655102


Nisa Bakkalbasi, Kathleen Bauer, Janis Glover, and Lei Wang, "Three Options for Citation Tracking: Google Scholar, Scopus and Web of Science," Biomedical Digital Libraries 3, no. 7 (2006)

- Copy and paste into your text file
How to query: the advanced way

• You can query using the XML query schema

• Use the CrossRef Application Programming Interface (API)
Note ... missing DOIs

• If no DOI is given in the results:
  – Check that the reference is accurate and complete
  – Not all article/publications have CrossRef DOIs
    • The publisher may not assign DOIs
    • A particular DOI may not have been registered with CrossRef yet
    • Not all DOIs are CrossRef DOIs; a search with CrossRef tools may not find those register with other registration agencies
  – You can create a stored query for this result


The quiescent, discrete, elongated aurora discovered by Kubota et al.\(^1\), however, fit the bill. Their near co-rotation with the Earth also supports McIlwain's model, which Kubota et al. seem to have independently resurrected. If these findings and associations are confirmed, they could help to explain the unexpectedly strong connection between the solar wind, the aurora and the composition and electron density of Earth's upper atmosphere, even at latitudes that are nominally below the auroral oval.

References


Important point!

• You do not need to be a member to add CrossRef DOIs to your article reference
  – We would like everyone to use CrossRef DOIs in their references!

• Many CrossRef tools are free to the public – e.g.
  – Simple Text Query
  – Metadata search
Hope for smaller publishers

• Coming soon, small publishers tools will allow publishers to
  – Extract references from PDFs
  – Look up DOIs for references
  – Use a widget to display the linked references on your response (landing pages)
  – Deposit references for Cited-by Linking
SUMMARY
Why are we doing this again?
Broken links are a problem
Where to find help

– Help documentation:
  [http://help.crossref.org](http://help.crossref.org)

– CrossRef support:
  • Email: [support@crossref.org](mailto:support@crossref.org)
  • Web: [http://support.crossref.org](http://support.crossref.org)

– Webinars:
  [http://www.crossref.org/01company/webinars.html](http://www.crossref.org/01company/webinars.html)
Use CrossRef Support

http://help.crossref.org/#updating_dois_and_metadata