DOIs and Other Persistent Identifiers in Research Data

Eugene Barsky
eugene.barsky@ubc.ca
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To cover:

- Overview of Persistent Identifiers (DOIs, Handles, ARKs, PURLs)
- Focus on DOIs
- UBC approach to DOIs

Image - https://www.flickr.com/photos/cayusa/
What are Persistent Identifiers?

- A persistent identifier is a long-lasting reference to a digital resource
- Usually has two parts:
  - A unique identifier (ensures the provenance of a digital resource)
  - Location for the resource over time (ensures that the identifier resolves to the correct location)

Share link (DOI): https://dx.doi.org/10.14288/1.0056616
Why use Persistent Identifiers?

- Persistent identifiers solve the problem of the persistence of cited resource, particularly in the scholarly literature.

- Persistent identifiers can also be used 'behind-the-scenes' to manage cataloguing and describing, or providing intellectual control and access to born-digital materials (e.g. private DOIs in Dataverse).

- Some persistent identifiers (e.g. DOIs), have an added value in discoverability, making digital items findable and reusable in multiple scholarly resources.

Image - https://www.flickr.com/photos/mortendk/
Handles

- **Handles** are unique and persistent identifiers for Web resources, with a central registry to resolve URLs to a location. Each Handle identifies a single resource, and the organisation which minted them maintains the resource.

- The Handle system also underpins the technical infrastructure of DOIs.

- UBC Library use of Handles - cIRcle (DSpace) and Abacus Dataverse

**URI**

http://hdl.handle.net/2429/58265

Image - [https://www.flickr.com/photos/jurvetson/](https://www.flickr.com/photos/jurvetson/)
Archival Resource Key (ARK)

- ARK is an identifier scheme by California Digital Library (CDL), aiming to identify objects in a persistent way.

- With ARK, hosting arrangement does not affect identity.
  --- http://gallica.bnf.fr/ark:/12148/bpt6k5834013m
  --- http://bnf.example.org/ark:/12148/bpt6k5834013m

- Can be used via CDL`s EZID - http://ezid.cdlib.org/
- Used heavily in Bibliothèque nationale de France (BnF) and other heritage institutions...
Persistent Uniform Resource Locator (PURL)

- PURL is a permanent web address which redirects to the location of the requested web resource using standard HTTP

- Used a lot in online Course Reserves (such as UBC LOCR)

- Difference between PURLs and Handles - read more here - https://www.doi.org/factsheets/DOI_PURL.html
Digital Object Identifiers (DOIs)

- DOIs are digital identifiers of a digital or physical object
  - Persistent URL
  - Metadata package (Datacite metadata)

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<thead>
<tr>
<th>ID</th>
<th>Property</th>
<th>Obligation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identifier (with type sub-property)</td>
<td>M</td>
</tr>
<tr>
<td>2</td>
<td>Creator (with name identifier and affiliation sub-properties)</td>
<td>M</td>
</tr>
<tr>
<td>3</td>
<td>Title (with optional type sub-properties)</td>
<td>M</td>
</tr>
<tr>
<td>4</td>
<td>Publisher</td>
<td>M</td>
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<tr>
<td>5</td>
<td>PublicationYear</td>
<td>M</td>
</tr>
</tbody>
</table>

Image - https://www.flickr.com/photos/wakingtiger/
What is a DOI?

- ISO standard
- Overseen by the International DOI Foundation (IDF)
- Datacite Canada is Canadian Registration Agent (RA)

ISO 26324:2012
Information and documentation -- Digital object identifier system

Abstract
ISO 26324:2012 specifies the syntax, description and resolution functional components of the digital object identifier system, and the general principles for the creation, registration and administration of DOI names (where DOI is an acronym for "digital object identifier").

Image - https://www.flickr.com/photos/pamilne/
What is a DOI?

- Could be issued for:
  - Articles
  - Books
  - Book chapters
  - Datasets
  - Images
  - Code
  - Almost anything on the Web

Image - https://www.flickr.com/photos/georgmayer/
Why useful?

- Persistent URL
- Your links don’t break!
- For that... you actually need a resolver (e.g. handle, PURL, etc)... talk to your library!

Image - https://www.flickr.com/photos/ursonate/
Why useful?

- Discoverability!

- DOIs are lingua franca - metadata speaks to Google, Crossref, VIVO, ORCID, Datacite, DataOne, and many more…
Here @ UBC

- We issue DOIs for Library digital assets in Open Collections -
  https://open.library.ubc.ca/

Open Collections

Explore 197,611 unique digital objects.

DOI

10.14288/1.0304648
Here @ UBC

- We also developed a GUI to mint DOIs as a Library service

- More info here - http://researchdata.library.ubc.ca/plan/get-dois

Image - https://www.flickr.com/photos/lestropie/
UBC DOIs GUI

@ https://doi.library.ubc.ca/

<table>
<thead>
<tr>
<th>XML Workflow</th>
<th>~1 - 10 Items</th>
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</thead>
<tbody>
<tr>
<td>Prepare Metadata Online</td>
<td>Use our Online XML Editor</td>
</tr>
<tr>
<td>launch editor</td>
<td></td>
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<table>
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<tr>
<th>CSV Workflow</th>
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<tr>
<td>Download a CSV Template</td>
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<table>
<thead>
<tr>
<th>Template</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory Fields</td>
<td>No option to set language attribute, system defaults all instances to 'en' or 'en-us'. Reduces data entry.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Metadata Guide(s)</th>
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</thead>
<tbody>
<tr>
<td>UBC Library: 'DOI in 5'</td>
</tr>
<tr>
<td>A short guide on the mandatory fields needed to get your DOI, using this tool, in less than 5 minutes :)</td>
</tr>
<tr>
<td>DataCite: Metadata v3.1</td>
</tr>
<tr>
<td>A Comprehensive guide on the structure, along with examples and lists of controlled vocabularies for fields can be referenced from the</td>
</tr>
</tbody>
</table>
Here @ UBC

- We sign the license with Datacite Canada (NRC/CISTI)

- Flexible DOIs -- One-offs vs. CSV vs. programmatically

- Happy to collaborate with others on campus and beyond...

Image - https://www.flickr.com/photos/stevendepolo/
Questions?