

Citing Scientific Software Using Digital Object Identifiers (DOIs)

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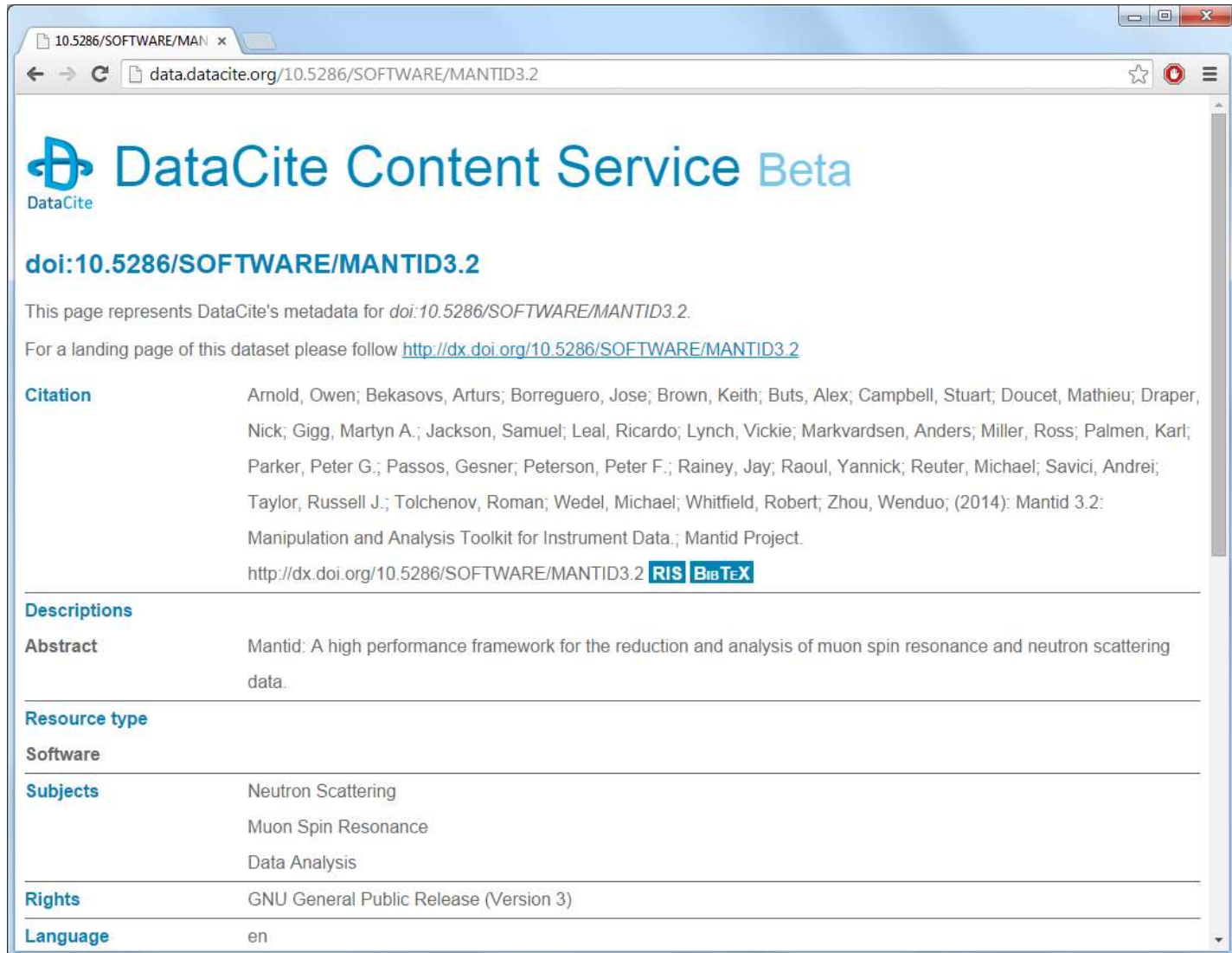
Overview

- The Problem
- What is a DOI?
- Why Use DOIs?
- How are DOIs Used?
- How / When are DOIs Generated?
 - ISIS / Mantid
 - Elsewhere
- Conclusion

Problem: Software Citation

- Significant issues facing scientific software developers:
 - Getting recognition for their work
 - Measuring the impact of their work
- Publishing a paper has been the traditional way of doing this
- Not necessary suited to long-term projects where both the list of contributors as well as the project itself change over time
- Solution: DOIs – a more dynamic approach

What is a DOI?



10.5286/SOFTWARE/MAN x

data.datacite.org/10.5286/SOFTWARE/MANTID3.2

DataCite Content Service Beta

doi:10.5286/SOFTWARE/MANTID3.2

This page represents DataCite's metadata for doi:10.5286/SOFTWARE/MANTID3.2.

For a landing page of this dataset please follow <http://dx.doi.org/10.5286/SOFTWARE/MANTID3.2>

Citation Arnold, Owen; Bekasovs, Arturs; Borreguero, Jose; Brown, Keith; Buts, Alex; Campbell, Stuart; Doucet, Mathieu; Draper, Nick; Gigg, Martyn A.; Jackson, Samuel; Leal, Ricardo; Lynch, Vickie; Markvardsen, Anders; Miller, Ross; Palmén, Karl; Parker, Peter G.; Passos, Gesner; Peterson, Peter F.; Rainey, Jay; Raoul, Yannick; Reuter, Michael; Savici, Andrei; Taylor, Russell J.; Tolchenov, Roman; Wedel, Michael; Whitfield, Robert; Zhou, Wenduo; (2014): Mantid 3.2: Manipulation and Analysis Toolkit for Instrument Data.; Mantid Project.
<http://dx.doi.org/10.5286/SOFTWARE/MANTID3.2> [RIS](#) [BibTeX](#)

Descriptions

Abstract Mantid: A high performance framework for the reduction and analysis of muon spin resonance and neutron scattering data.

Resource type

Software

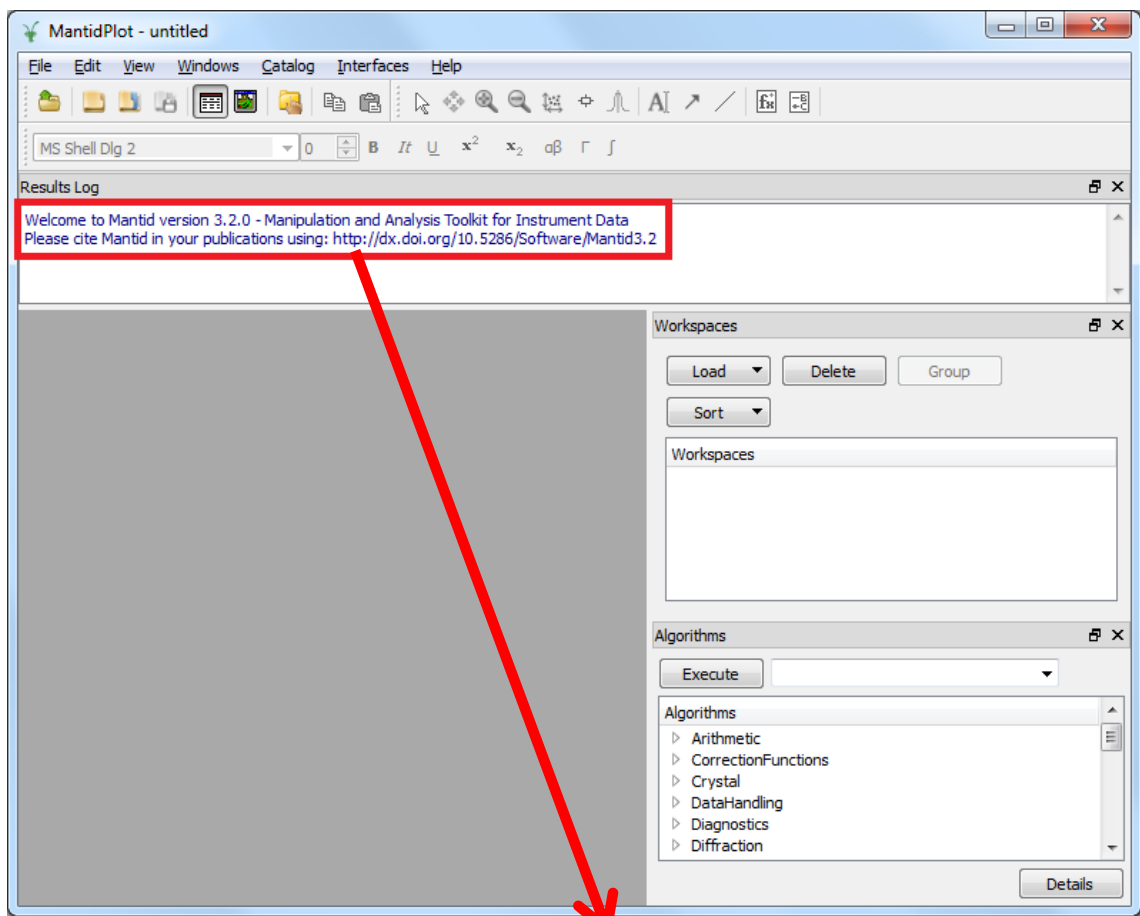
Subjects Neutron Scattering
Muon Spin Resonance
Data Analysis

Rights GNU General Public Release (Version 3)

Language en

How are DOIs Used?

- Citations:
 - “**Mantid** (2013): Manipulation and Analysis Toolkit for Instrument Data.; Mantid Project.
<http://dx.doi.org/10.5286/SOFTWARE/MANTID>”
- Searches:
 - <https://search.datacite.org/ui>
- Resolvable hyperlinks:
 - <http://dx.doi.org/>
 - <http://dx.doi.org/10.5286/SOFTWARE/MANTID>



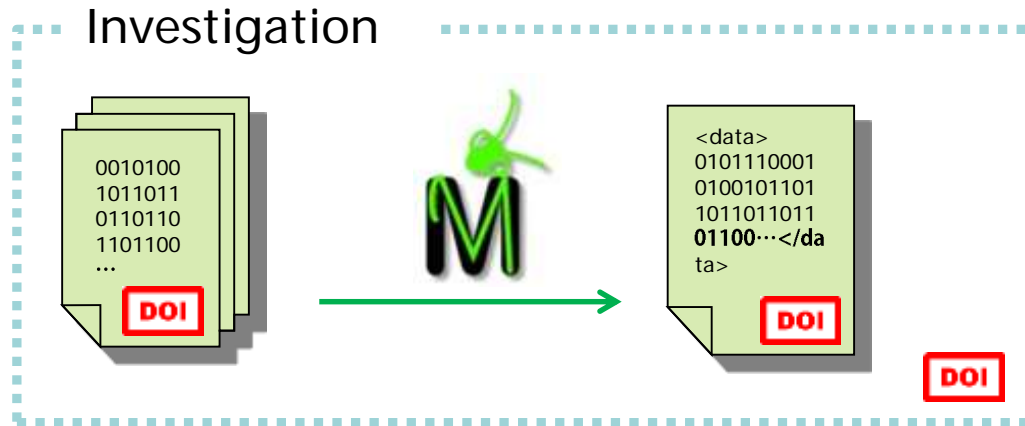
Welcome to Mantid version 3.2.0 - Manipulation and Analysis Toolkit for Instrument Data
Please cite Mantid in your publications using: <http://dx.doi.org/10.5286/Software/Mantid3.2>

Why Use DOIs?

- A more stable placeholder than just a URL
 - The metadata or resource itself may change, but never its name
- Metadata
 - Stored in a searchable, public database
- Widespread usage in academic publishing
 - 100 million DOIs registered through 12,500 organisations
 - Many publishing houses generate a DOI for every paper
 - An ISO standard

DOIs for Data at ISIS

- We had already been generating DOIs for data:

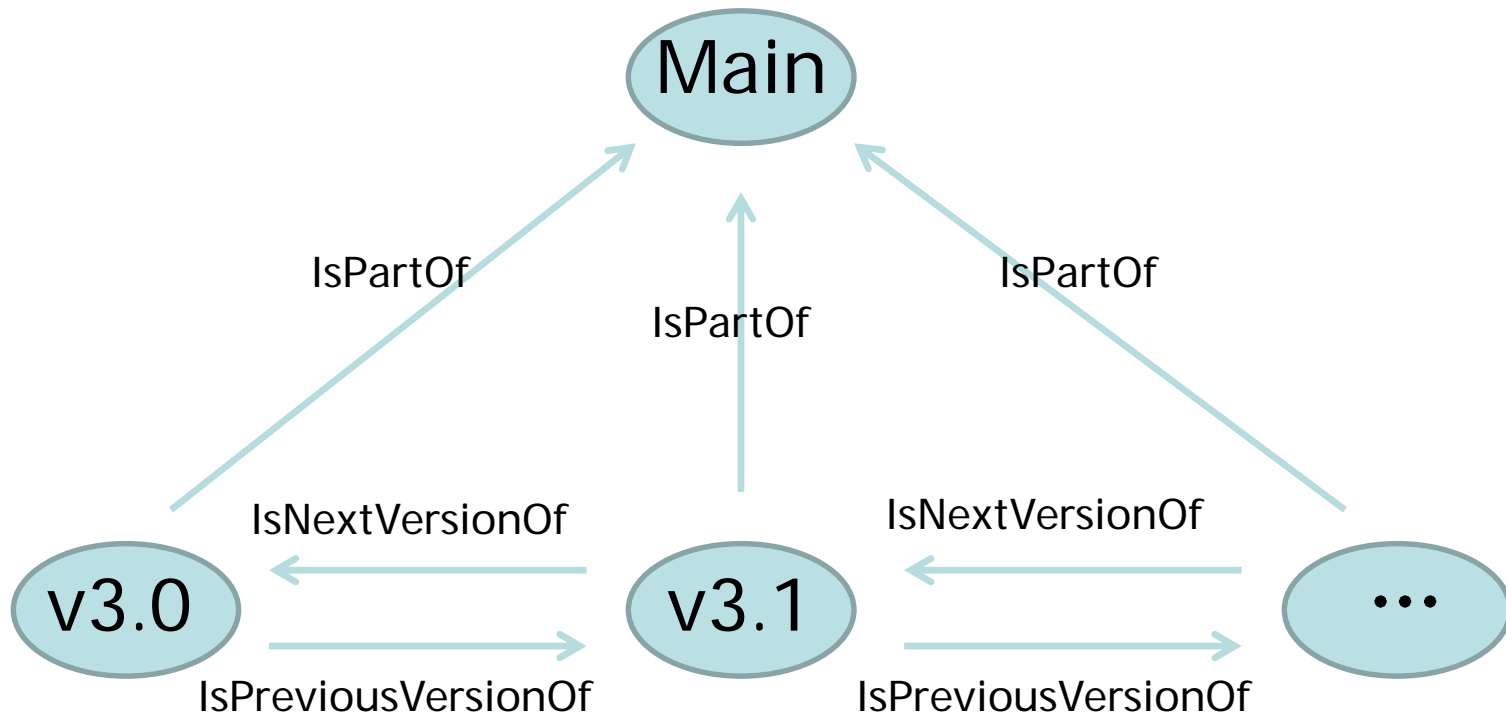


- ISIS users are encouraged to cite their DOIs in any publications relating to ISIS experiments

DOIs for Software on the Mantid Project

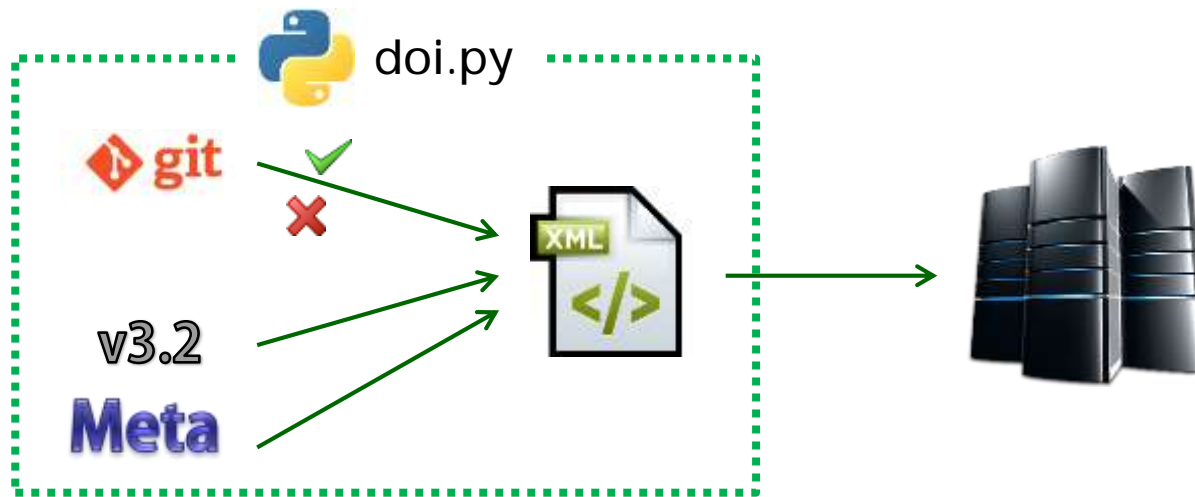
- **Multiple “Release” DOIs**
 - Used for specific versions (major/minor/patch)
 - Points to the release notes for that specific version
 - Only contributors to that release are included
- **Single “Main” DOI**
 - **Used for Mantid as a whole, or for nightly builds that don’t have their own DOI**
 - Points to the Mantid Wiki home page
 - Contributors up to 3.0, plus sponsors

Linking DOIs Together



Generating Mantid DOIs

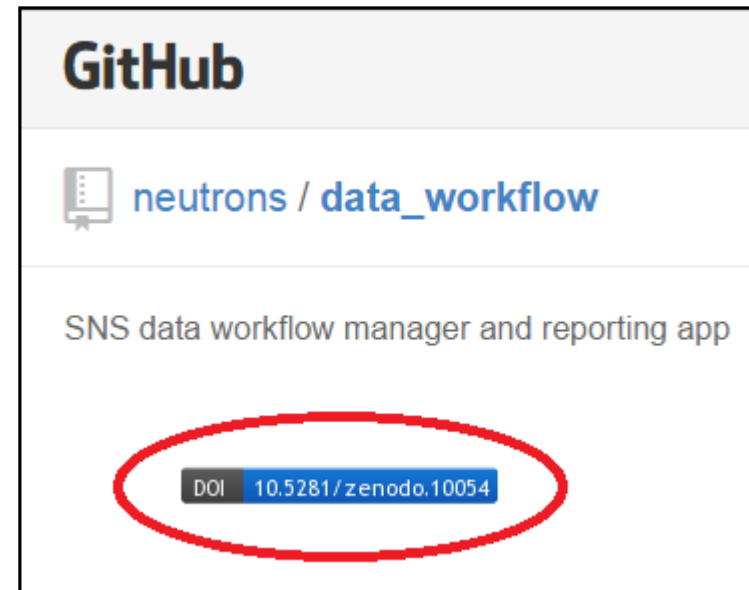
- Automated process done via a single call to a Python script:



- Full code can be found at:
 - <https://github.com/mantidproject/mantid/tree/master/Code/Tools/DOI>

DOIs Elsewhere (I)

- GitHub **integration via the “Zenodo” tool**
 - Convenient DOI generation for source code repositories that have been shared publically
 - Very easy to generate a DOI:
 - Select your repository on GitHub
 - Login to Zenodo
 - **Create a new “release” on GitHub**
 - Enter metadata
 - Submit!
 - Drawback
 - GitHub only



DOIs Elsewhere (II)

- ORCID (Open Researcher and Contributor ID)
- A unique identifier (similar to DOIs), but for people!
 - Solves naming problems
 - Clashes
 - Surname changes when marrying
 - Middle initials
 - Can be used to link with DOIs
- Registration is free, but subscribers get extra benefits

Conclusion

- Receiving recognition and measuring impact is a problem for scientific software developers
- **DOIs are a nice “dynamic” solution:**
 - Easy to create and use
 - Multiple tools available
 - Widespread usage

Thanks



Science & Technology Facilities Council
ISIS

Extra I

- DataCite members by country:
 - <http://www.datacite.org/members>

Members

While datasets are shared and accessed globally, researchers work within national funding and organisational frameworks. DataCite therefore operates globally, with national representation. Organisations interested in a [membership](#) are always welcome to apply.



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Australia

- [Australian National Data Service](#) (Member)

Canada

...

Extra II

- Mantid DOI resolution stats:
 - http://stats.datacite.org/?fq=prefix%3A%2210.5286%22&fq=datacentre_facet%3A%22BL.STFC+-+Science+and+Technology+Facilities+Council%22&fq=allocator_facet%3A%22BL+-+The+British+Library%22&#tab-resolution-report
 - E.g. 393 successful resolutions in July