



Australian Research Data Commons

Unpacking interoperability

Implementing FAIR data practices

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15 April 2019

FAIR principles: Interoperability

Data need to be integrated with other data. In addition, the data need to interoperate with applications or workflows for analysis, storage, and processing. Interoperability typically means that each computer system at least has knowledge of the other system's data exchange formats.

1. (Meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.

(1) commonly used controlled vocabularies, ontologies, thesauri and
(2) a good data model (a well-defined framework to describe and structure (meta)data).

2. (Meta)data use vocabularies that follow FAIR principles

Controlled vocabularies need to be documented and resolvable using globally unique and persistent identifiers. This documentation needs to be easily findable and accessible by anyone who uses the dataset.

3. (Meta)data include qualified references to other (meta)data

For example, *X is a part of Y* explains the relationship between X and Y; whereas *X is associated with Y* merely states that there is a relationship, but doesn't qualify what kind of relationship.

FAIR resources

The screenshot shows the FAIRsharing.org website interface. At the top, there is a search bar and navigation tabs for Standards, Databases, Policies, Collections, Add/Claim Content, Stats, and Log In or Register. Below the search bar, there is a section for Standards with a description: "The standards in FAIRsharing are manually curated from a variety of sources, including BioPortal, MIBBI and the Equator Network." There are also buttons for "Contribute by adding a standard" and "Any problems? Please tell us!".

Below this, there is a search bar for standards with a "Search" button and a "Reset" button. The search results are displayed in a table format, showing records 1 to 50 of 1295. The table has columns for Registry, Name, Abbreviation, Type, Subject, Domain, Taxonomy, Related Database, Related Standard, Related Policy, In Collection/Recommendation, and Status.

Registry	Name	Abbreviation	Type	Subject	Domain	Taxonomy	Related Database	Related Standard	Related Policy	In Collection/Recommendation	Status
ABA	ABA Adult Mouse Brain	ABA	Standard	None	None	None	None	None	None	None	R
ABCD	Access to Biological Collection Data	ABCD	Standard	None	None	None	None	None	None	None	R

On the left side of the search results, there are filters for "Recommended Records", "Associated Publication?", "Claimed?", and "Record Status".

The screenshot shows the Research Vocabularies Australia website. At the top, there is a navigation bar with "About", "Widget Explorer", "Get Involved", and "My Vocab Login". Below the navigation bar, there is a search bar with the text "Search for a vocabulary or a concept" and a "Search" button. There is also a link to "Browse all vocabularies".

Below the search bar, there is a section titled "Get Involved" with four options:

- Publish a vocabulary**: Upload, describe and publish your vocabularies to Research Vocabularies Australia.
- Use a vocabulary**: Understand how you can utilise Research Vocabularies Australia vocabularies.
- Explore widgetable vocabularies**: Discover vocabularies that can be readily used in your system using our vocabulary widget.
- Provide feedback**: Help Research Vocabularies Australia to grow into a comprehensive vocabulary portal.



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