Software Ontologies and Metadata Schemes

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Software Heritage

THE GREAT LIBRARY OF SOURCE CODE

Preliminary questions

“Ontologies are agreements, made in a social context,
to accomplish some objectives.
It’s important to understand those objectives, and be guided by them."

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Software Ontology

- What is software ?
- With what terms should we describe a *software artifact*?
- What about *software source code* ?

Metadata about Software Source Code

Software metadata objectives

manage, share, discover, archive *software source code*

Use cases

- semantic search: find software by author, version, keywords
- browse *source code* with context information
- cite and be cited

LOV- Linked open vocabularies

"Vocabularies provide the semantic glue enabling data to become meaningful data. "

Where is the metadata available ?

catalogs and registries

- libraries.io
- OpenHub
- OntoSoft

Publisher's repositories

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- Bitbucket
- SourceForge

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advantages and drawbacks

	registries	repositories
accuracy	- not created by author	+ added by authors/maintainers
completeness	+ very detailed	- not a priority
longevity	- depends on registry	- depends on publisher

Where is the metadata available ?

in the *software source code* itself

- package management file
- CITATION file
- .About file
- codemeta.json file

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Bottomline: to insure the archival of metadata, keep it in the data

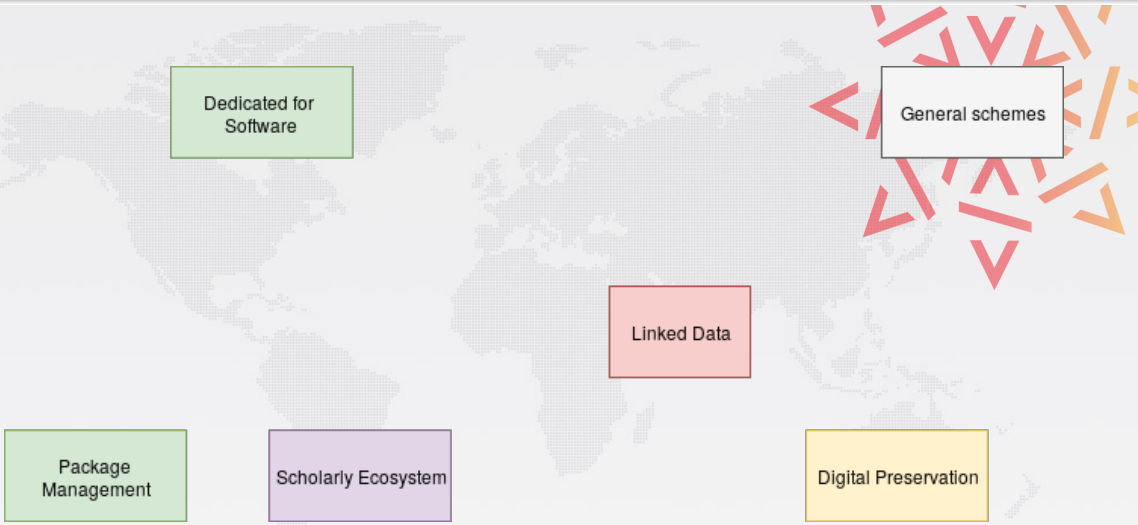
This is not *software source code*

Ceci n'est pas une pipe.

Software Citation Principles (FORCE11's 2015 conference and WG)

- Importance : first class citizen in the scholarly ecosystem
- Credit and attribution : authors, maintainer
- Unique identification: points to a unique, specific software version (DOI, Git SHA1 hash, etc..)
- Persistence : identification beyond the lifespan of the software (swh-id)
- Accessibility: url, publisher
- Specificity : version, environment

Landscape of Software Ontologies



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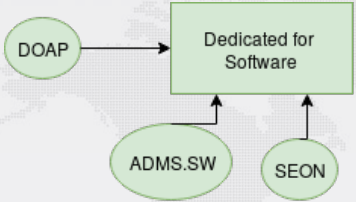

General schemes

Linked Data

Package Management

Scholarly Ecosystem

Digital Preservation

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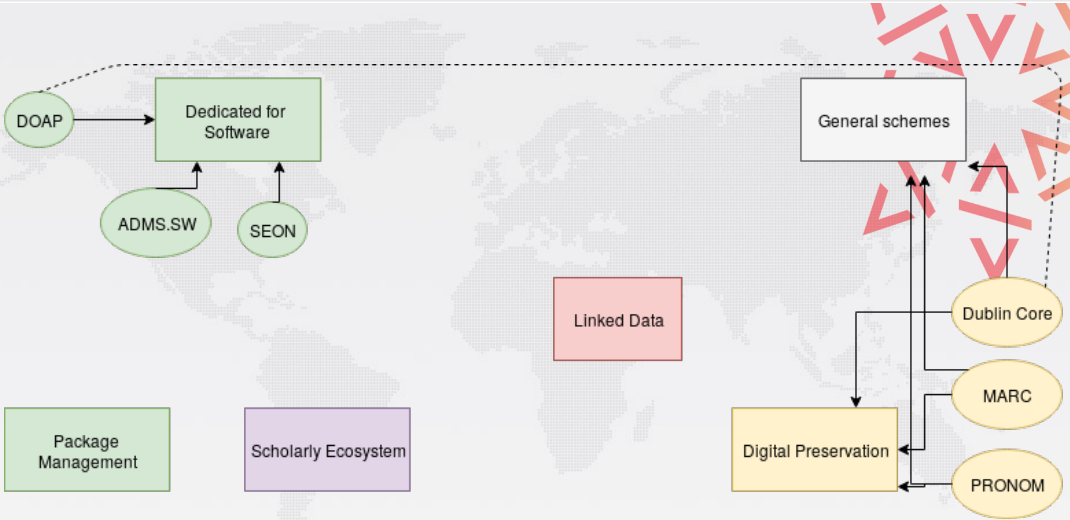

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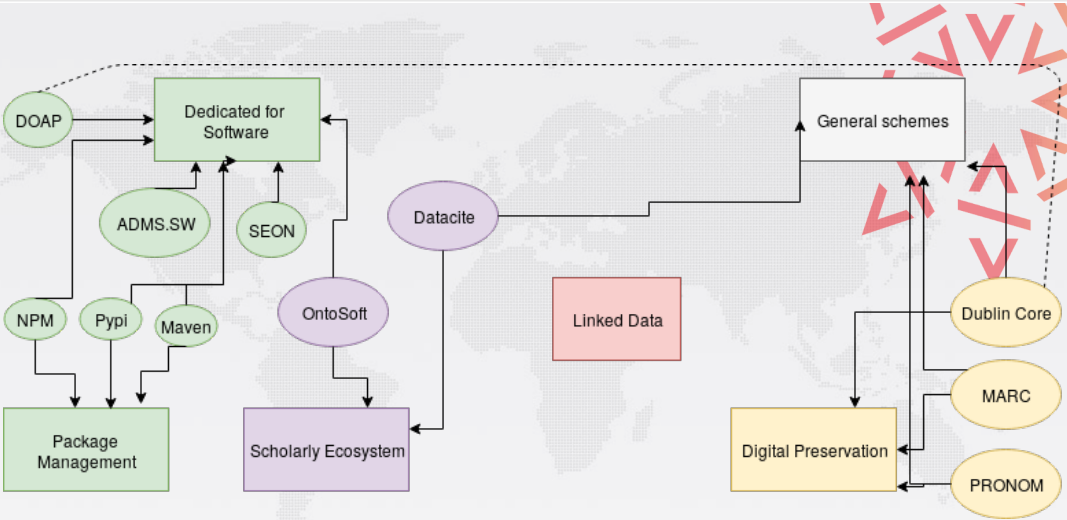

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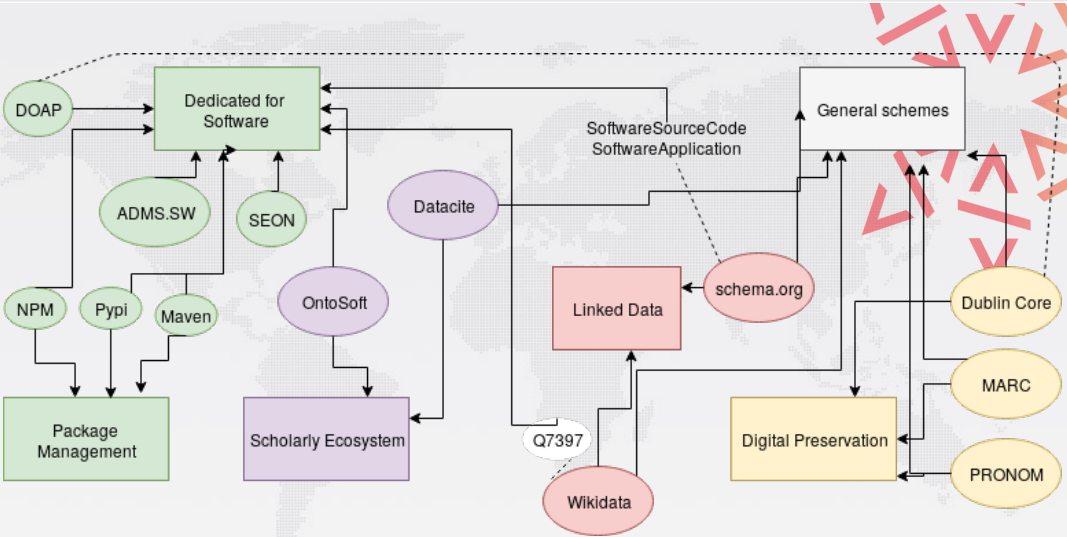

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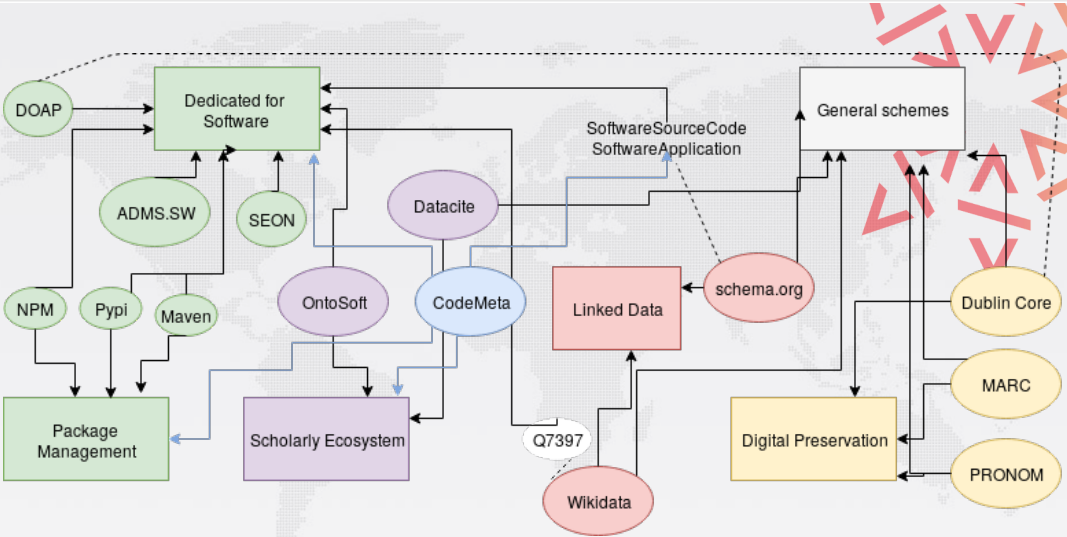

The CodeMeta Initiative

A Rosetta Stone for Metadata in Scientific Software

CodeMeta aims to create a framework {schema, crosswalk, guidlines}
that can be used to standarize the exchange of software metadata

Advantages

- the crosswalk table
- built on schema.org *SoftwareSourceCode*
- an active community

Discussion

CodeMeta -where are the gaps ?

- missing properties
- missing ontologies
- semantic misconceptions

Software Source Code metadata recommendations

- use cases
- best practices / guidlines

Reminder

RDA page

https://www.rd-alliance.org/ig-software-source-code-rda-10th-plenary-meeting

Working document used during the session

http://bit.ly/2wggInQ