Modeling and application profiles in the Art and Rare Materials BIBFRAME Ontology Extension

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DCMI 2018 (Porto, Portugal)
Linked Data for Production (LD4P)

Native RDF cataloging & ontology extensions

Collaborations with community partners

Community-developed extensions of BIBFRAME

Generously funded by the Andrew W. Mellon Foundation
Art & Rare Materials BIBFRAME
Ontology Extension
Art & Rare Materials BIBFRAME Ontology Extension

Collaboration between:

- LD4P's Partner Institutions: Cornell and Columbia
- RareMat: RBMS' Bibliographic Standards Committee
Art & Rare Materials BIBFRAME Ontology Extension

GitHub Repository: https://github.com/LD4P/arm

Wiki: https://wiki.duraspace.org/x/CpTBB
ARM Modeling Areas

Accession Numbers
Attributions
Awards
Bibliographic Citations
Bindings
Carriers and Bound-withs
Custodial History
Exhibitions
Fonts, Handwriting & Notations

Limitation Statements
Markings
Materials
Measurements
Notes in Art
Pagination and Foliation
Physical Condition
Signature Statements
Style and Period
Titles in Art

# Modularized Ontologies

<table>
<thead>
<tr>
<th>Category</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core (ARM)</td>
<td><a href="https://github.com/LD4P/arm/tree/master/core/ontology/0.1">https://github.com/LD4P/arm/tree/master/core/ontology/0.1</a></td>
</tr>
<tr>
<td>Awards</td>
<td><a href="https://github.com/LD4P/arm/tree/master/award/ontology/0.1">https://github.com/LD4P/arm/tree/master/award/ontology/0.1</a></td>
</tr>
<tr>
<td>Custodial History</td>
<td><a href="https://github.com/LD4P/arm/tree/master/custodial_history/ontology/0.1">https://github.com/LD4P/arm/tree/master/custodial_history/ontology/0.1</a></td>
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<tr>
<td>Measurements</td>
<td><a href="https://github.com/LD4P/arm/tree/master/measurement/ontology/0.1">https://github.com/LD4P/arm/tree/master/measurement/ontology/0.1</a></td>
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<tr>
<td>Activity</td>
<td><a href="https://github.com/LD4P/arm/tree/master/activity/ontology/0.1">https://github.com/LD4P/arm/tree/master/activity/ontology/0.1</a></td>
</tr>
</tbody>
</table>

Activity model under consideration for deprecation in favor of BF Contribution
Testing the Model

Workshops

Feedback:
- difficult to parse questions of ontology, application profile or editing environment
Application Profiles
ARM Application Profiles

Art Object
https://github.com/LD4P/arm/tree/master/application_profiles/art/shacl

Rare Monograph
https://github.com/LD4P/arm/tree/master/application_profiles/raremat_monograph/shacl
Shapes Constraint Language (SHACL)

w3c Recommendation

Existing Tooling

Shape types:
- Validating
- Non-Validating
Define data expectations through catalogers

Collaboration: catalogers, ontologists, and developers
- Introduction to modeling for developer
- Translating data expectations into the app
- Translating cataloger UI expectations into the app
Implementation in Editing Environment
VitroLib

RDF instance editor

Ontology-agnostic

LD4L-Labs* output

*LD4L-Labs (2016-2018) was funded by the Andrew W. Mellon Foundation
### SHACL to Vitro Configuration

<table>
<thead>
<tr>
<th>Information</th>
<th>SHACL representation</th>
<th>Vitro configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicate URI</td>
<td>path</td>
<td>configContextFor</td>
</tr>
<tr>
<td>Label for display</td>
<td>name</td>
<td>displayName</td>
</tr>
<tr>
<td>Acting Domain</td>
<td>target</td>
<td>qualifiedByDomain</td>
</tr>
<tr>
<td>Acting Range</td>
<td>class</td>
<td>qualifiedBy</td>
</tr>
<tr>
<td>Ordering</td>
<td>order</td>
<td>displayRankAnnot</td>
</tr>
<tr>
<td>In Property group</td>
<td>group</td>
<td>propertyGroup</td>
</tr>
</tbody>
</table>
Multiple possible interpretations in the interface for the same SHACL
- Same property has different possible ‘class’ values

Software configuration when automating mapping from SHACL
- Property definitions share property and class but relate to individuals from different vocabularies
Maintenance
Maintenance Questions - Ontology

Hosting

Partnership & Governance

Versioning & Use
Maintenance Questions - Style and consumability

SHACL styles:
- non-Modular: Mostly one file where each sh:NodeShape, not using sh:node
- Modular: Multiple files tying decisions from different sh:Nodes together using sh:node

More: https://github.com/LD4P/arm/blob/master/doc/shacl_maintenance.md
Maintenance Questions - Application Profile

Validation? (open vs. closed shapes, etc.)

- Easing SHACL creation
- Recording expected behavior - best practices
- Designating reusability of instances of entity types

More: https://github.com/LD4P/arm/blob/master/doc/shacl_maintenance.md
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Thank You!

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