

Metadata Standards and Applications

5. Applying Metadata Standards: Application Profiles

Goals of Session

- ◆ Learn how metadata standards are applied, used and documented:
- ◆ Learn about the concept and use of application profiles
- ◆ Explore how different metadata standards may be used together in digital library applications

Why Application Profiles?

- ◆ Describes the set of metadata elements, policies, guidelines and vocabularies defined for a particular domain, implementation, or object type
 - Declares the metadata terms an organization, information resource, application, or community uses in its metadata
 - Documents metadata standards used in instance data, including schemas and vocabularies, policies, required elements, etc.
 - Called “application profile” or just “profile”

Benefits of Documenting Terms We Use

- ◆ To provide authoritative specification of term usage
- ◆ To facilitate interoperability by informing potential users of domain consensus
- ◆ To support evolution of vocabularies
- ◆ To encourage alignment of practice
- ◆ To enable interpretation of legacy metadata

Less Flexibility, More Predictability

- ◆ Many metadata standards are sufficiently flexible that they need a mechanism to impose some constraints
 - Profiles allow expression of the decisions made for a project in machine-readable form (XML or RDF)
- ◆ Refining
 - Allow a narrower interpretation of a standard to suit your project
- ◆ Combining
 - Enable mixing elements from various different standards (there are limits to this!)

Components of an AP

- ◆ Human readable documentation
 - Property descriptions and relationships
 - Domain or project specific instruction
 - Obligation and constraints
- ◆ Machine-readable versions may contain:
 - Specific encoding decisions and XML or RDF schemas
 - Models of data relationships specific to the AP represented in the schemas
 - Functional requirements and use cases supporting decisions

Using Properties from other Schemas

- ◆ DC APs set stringent requirements for determining reusability of terms:
 - Is the term a real “property” and defined as such within the source schema?
 - Is the term declared properly, with a URI and adequate documentation and support?
 - In general, properties whose meaning is partly or wholly determined by its place in a hierarchy are not appropriate for reuse in DC APs without reference to the hierarchy.
- ◆ Other styles of profiles have different requirements and strategies for developing machine-readability and validation

Documenting new properties

- ◆ Minimum: a web page, with the relevant information available to other implementations
- ◆ Better: a web page and an accessible schema using your terms as part of your application profile
- ◆ Best: all terms available on a distributed registry

Singapore Framework

- ◆ A Framework for designing metadata applications for maximum interoperability
 - Defines a set of descriptive components that are necessary for documenting an Application Profile
 - Forms a basis for reviewing Dublin Core application profiles
 - Relates APs to standard domain models and Semantic Web standards
 - <http://dublincore.org/documents/singaporeframework/>

An RDA Application Profile

- ◆ A DCMI/RDA Task Group has been defining RDA properties and value vocabularies as formal RDF vocabularies (with URIs)
 - IFLA has stated an intention to declare FRBR entities and attributes as well
 - Next step is a DC application profile of RDA according to the Singapore Framework
 - See <http://metadataregistry.org> for the provisionally registered properties/vocabularies

METS Profiles

- ◆ Description of a class of METS documents provides document authors and programmers guidance to create and process conformant METS documents
 - XML document using a schema
 - Expresses the requirements that a METS document must satisfy
- ◆ METS Profiles are output in human-readable prose and not intended to be “machine actionable” (but they use a standard XML schema)

Components of a METS Profile

- ◆ 1. Unique URI
- ◆ 2. Short Title
- ◆ 3. Abstract
- ◆ 4. Date and time of creation
- ◆ 5. Contact Information
- ◆ 6. Related profiles
- ◆ 7. Extension schemas
- ◆ 8. Rules of description
- ◆ 9. Controlled vocabularies
- ◆ 10. Structural requirements
- ◆ 11. Technical requirements
- ◆ 12. Tools and applications
- ◆ 13. Sample document

MODS Profiles

- ◆ Some applications are establishing MODS profiles to document usage, required elements, controlled vocabularies used, etc.
- ◆ Some examples:
 - DLF Aquifer MODS profile: to establish implementation guidelines for rich shared metadata for cultural heritage materials
 - British Library electronic journal MODS profile

METS & MODS Together

- ◆ METS can be used to package together the metadata with the objects
 - METS allows for use of any XML metadata schema in its extensions
 - MODS can be associated with any level of the description
 - Technical metadata can be inserted and associated with specific files

Summary Thoughts on APs

- ◆ Many metadata standards are sufficiently flexible that profiling is necessary
 - Documenting what is used in an application will simplify and enhance data presentation, conversion from other sources, ability to provide different outputs
 - Constraining a metadata standard by specifying what is used and how facilitates data exchange and general interoperability
- ◆ Documentation is always a good value!

DC Application Profile Examples

- ◆ Collections AP
 - <http://www.dublincore.org/groups/collections/collection-application-profile/2007-03-09/>
- ◆ Scholarly Works Application Profile (SWAP)
 - [http://www.ukoln.ac.uk/repositories/digirep/index/Eprints Application Profile](http://www.ukoln.ac.uk/repositories/digirep/index/Eprints_Application_Profile)
- ◆ Both these have been reviewed by the DC Usage Board and are deemed compliant with the DC Abstract Model

METS/MODS AP Examples

- ◆ University of Maryland Descriptive Metadata
 - <http://www.lib.umd.edu/dcr/publications/taglibrary/umdm.html>
- ◆ UVa DescMeta
 - <http://lib.virginia.edu/digital/metadata/descriptive.html>
- ◆ Texas Digital Library profile for electronic theses and dissertations
 - <http://metallogger.files.wordpress.com/2007/06/tdl-etd-mods-profile.pdf>

Vocabulary Development in an AP: a Case Study of KMODDL

- ◆ <http://kmoddl.library.cornell.edu/aboutmeta2.php>
- ◆ Needed to describe all kinematic models, plus materials related to the models
- ◆ Developed several special vocabularies:
 - Voigt1 and Voigt2 (plus the IDs)
 - KMODDL Type (plus ID)
 - An AAT subset for *Medium*
- ◆ Adapted:
 - DLESE GradeRange for *Audience*
 - MARC Organization List for *MODS:physicalLocation*

Voigt1 and Voigt2

- ◆ Based on a 19th century treatise on the Reuleaux models, which classified them based on mechanical principles
(<http://kmoddl.library.cornell.edu/model.php>)
- ◆ Names of the mechanisms used as subject terms
- ◆ Classification numbers used as IDs to tie the related materials together

KMODDL Type Vocabulary

- ◆ <http://kmoddl.library.cornell.edu/aboutmeta3.php>
- ◆ Used to differentiate a complex array of versions and related materials from one another
- ◆ Allows distinctions between print and digital (of the same resources) and identifies granular levels within those resources
- ◆ Enables creation of organized web pages presenting the information to users

KMODDL Example

- ◆ <http://kmoddl.library.cornell.edu/model.php?m=244>
- ◆ Note:
 - Browse tree tab on left
 - Lists of linked References and Resources at the bottom of the page
 - Attributed description
 - Tabs for Image and Movie on the top right

Exercise

- ◆ Critique an Application Profile for a community or project, e.g., the Open Language Archives Community Metadata Set (OLAC-MS)
 - OLAC Metadata (DC-based)
<http://www.language-archives.org/OLAC/metadata.html>
 - University of Maryland Descriptive Metadata
<http://www.lib.umd.edu/dcr/publications/taglibrary/umdm.html>
 - UVa DescMeta
<http://lib.virginia.edu/digital/metadata/descriptive.html>

Exercise: Questions to address

- ◆ Does the profile define its user community and expected uses?
- ◆ How usable would the profile be for a potential implementer?
- ◆ How (well) does the profile specify term usage?
- ◆ How (well) does the profile define and manage vocabularies?
- ◆ Are there key anomalies, omissions, or implementation concerns?