

# CUL Metadata Application Profiles

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This is an overview of metadata application profiles and related documentation used within the Cornell University Libraries, generated originally from a MWG Working Session in 2016/2017. The goal is to get a high-level overview of metadata profiles and needs at CUL, which we hope will lead us to see collaboration opportunities. We hope to have another session in the fall of 2017 to see where this overview stands and update/expand it.

## What are Metadata Application Profiles (MAPs)?

Wikipedia gives a decent stub on Metadata Application Profiles: [https://en.wikipedia.org/wiki/Application\\_profile](https://en.wikipedia.org/wiki/Application_profile) Metadata Application Profiles are metadata specifications attached (sometimes loosely, sometimes tightly) to a particular application or metadata service - whether it is a datastore, repository, management system, discovery indexing layer, or other. It helps communicate expectations of the metadata being ingested, processed, managed and exposed by that particular application or service. MAPs are the documentation that connect metadata implementations to shared community models and standards, as well as document where implementers need to diverge from community standards. This makes it easier for outsiders to understand and work with metadata from or headed to your application or system.

Metadata Application Profiles can touch on descriptive, technical, administrative, structural or other (or a mix of all of the above) metadata. They can rely heavily on community standards, but good MAPs don't just copy a community standard over. This is due to the fact that, in implementation, there are points your data needs to diverge or to further specify a datapoint's usage. These MAPs can also be made machine-actionable, with the enabled action being validation of your data against a profile, guiding the creation of data that follows your profile, transforming your data to/from another profile or standard. A popular metadata application profile example is the Digital Public Library of America Profile: <https://dp.la/info/wp-content/uploads/2015/03/MApV4.pdf> which has a machine-actionable representation here: [https://github.com/dpla/dpla\\_map](https://github.com/dpla/dpla_map).

What you'll most often see in cultural heritage institutions' metadata management are MAPs represented via spreadsheets or some kind of text documentation with tables. Depending on the data representation (RDF, XML, CSV, JSON, Arvo, (X)HTML, MARC, ...) you are ultimately working with, you might have some technology available for specifying machine-actionable MAPs. A common example is a XSD file which clarifies or validates that metadata is following the MAP specified for your namespace or XML dataset. Another example is the emergence of RDF shapes technologies (ShACL, ShEx, RML) or application-focused RDF-based object management libraries (ActiveTriples / ActiveFedora) for both checking the state of metadata against a specified MAP or converting to/from that MAP.

## CUL-Used or Important Community-Used MAPS

### CUL MAPs



FYI: These are provided not to guide policy or implementation decisions, but rather to share metadata efforts across CUL for the purpose of increasing the level of common understanding of metadata work and helping highlight collaboration, metadata infrastructure, or cross-pollination opportunities.

| Repository or Unit            | Data Representation                    | Resource Type(s) Described                                                  | Human-Readable MAP                                                                                                                                                                                                                                                                                                         | Machine-Actionable MAP |
|-------------------------------|----------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Digital Portal<br>Hydra PCDM  | RDF                                    | Collections, Cultural Heritage Objects, Digital Surrogates, Filesets, Files | (static version from last September that's easier to share than the version currently being used): <a href="https://docs.google.com/spreadsheets/d/1z-dddDvijPla84dml76YTEnSJ_gMnZZ0zR3JnHSZVPc/edit?usp=sharing">https://docs.google.com/spreadsheets/d/1z-dddDvijPla84dml76YTEnSJ_gMnZZ0zR3JnHSZVPc/edit?usp=sharing</a> | being built            |
| eCommons                      | XML, some CSV to XML                   | Scholarly Output Objects, Digital Surrogates, Collections                   | <a href="https://cornell.box.com/s/7eweceb0dxhbgq3ja5yko69ednbeefb4">https://cornell.box.com/s/7eweceb0dxhbgq3ja5yko69ednbeefb4</a>                                                                                                                                                                                        | being built            |
| SharedShelf                   | JSON                                   | Visual Resource Objects, Files, Collections, Agents, Events                 | <a href="https://github.com/cul-it/sharedshelf-metadata">https://github.com/cul-it/sharedshelf-metadata</a> (being built, probably not public)                                                                                                                                                                             | being built            |
| ETDs Uber Records             | MySQL Data, XML for one representation | ETDs, ETD Agents, ETD Subjects, ETD Binaries                                | MySQL: <a href="https://docs.google.com/spreadsheets/d/1L_06uqIDL5AeBSMm5aDC2BkA-GNABr2_E8iGCaiKyPY/edit#gid=0">https://docs.google.com/spreadsheets/d/1L_06uqIDL5AeBSMm5aDC2BkA-GNABr2_E8iGCaiKyPY/edit#gid=0</a><br><br>Example 1 one MAP fork: eCommons XML: <a href="#">ETD Metadata Profile</a>                       | being built            |
| Kheel (Bepress & SharedShelf) | CSV to XML                             | Cultural Heritage Objects, Digital Surrogates, Collections                  | <a href="https://docs.google.com/spreadsheets/d/1X50d8-pnOZ35mU-52mMTVWfWGAgCxoWBW4M4lh-dlho/edit?usp=sharing">https://docs.google.com/spreadsheets/d/1X50d8-pnOZ35mU-52mMTVWfWGAgCxoWBW4M4lh-dlho/edit?usp=sharing</a>                                                                                                    | n/a                    |

|                                             |                                           |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CULAR (F3)                                  | XML largely?                              | Preservation Collections, Binaries                                                                                                                                                                                                                                                                                              | Data Model (not really a profile): <a href="#">CULAR Data Model</a><br><br>Some parts are here: <a href="https://github.com/cmh2166/CULAR">https://github.com/cmh2166/CULAR</a>                                                                                                                                                                                                                                                                                                                                 | n/a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Embedded Digitization Lab Binaries Metadata | Embedded data in header of digital assets | Primarily technical metadata about the Digital Asset/Binary, as well as administrative metadata for the original analog resource or collection.                                                                                                                                                                                 | <a href="https://gist.github.com/cmh2166/84e30b81227e2e5b47f0f51d71e8d9db">https://gist.github.com/cmh2166/84e30b81227e2e5b47f0f51d71e8d9db</a> (in process)                                                                                                                                                                                                                                                                                                                                                    | n/a (would be profiles loaded into the various tools used for digitization and binary management)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Vitro Authorities Pilot                     | RDF                                       | Agents, Topics, Places, Events, Authorities                                                                                                                                                                                                                                                                                     | <a href="https://github.com/cul-it/its-vitro-pilot/wiki">https://github.com/cul-it/its-vitro-pilot/wiki</a> (on hold)                                                                                                                                                                                                                                                                                                                                                                                           | n/a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| LD4* Ontology (BF2)                         | RDF                                       | Bibliographic Resources (Work, Instance, Items), Agents, Subjects, Contributions, ...                                                                                                                                                                                                                                           | <a href="https://docs.google.com/spreadsheets/d/14ccalbnpr8qhh0O7M43n6vv3xbyE1ydJdJnQaVDht4/edit?usp=sharing">https://docs.google.com/spreadsheets/d/14ccalbnpr8qhh0O7M43n6vv3xbyE1ydJdJnQaVDht4/edit?usp=sharing</a> (largely unstated)<br><br><a href="http://bibframe.org/bibliomata/profile-edit/#/profile/list">http://bibframe.org/bibliomata/profile-edit/#/profile/list</a> (LC's BF Profiles can be seen in their Profile Editor)<br><br>TODO: add link to Sinopia Profile Editor when it is available | <a href="https://github.com/cnetdev/verso/tree/5a444f7cdd203bf25563098e18f84302bdd2e6a/data/profiles">https://github.com/cnetdev/verso/tree/5a444f7cdd203bf25563098e18f84302bdd2e6a/data/profiles</a> (LC's BF Editor profiles in json config files)<br><br><a href="https://github.com/LD4P/HipHop/tree/master/application-profiles">https://github.com/LD4P/HipHop/tree/master/application-profiles</a> (Cornell Hip Hop LPs application profile in SHACL)<br><br><a href="https://github.com/LD4P/arm/tree/master/application_profiles/raremat_monograph/shacl">https://github.com/LD4P/arm/tree/master/application_profiles/raremat_monograph/shacl</a> (ARM extension application profile in SHACL) |
| KMODDL                                      |                                           | 1) three-dimensional models designed for demonstration and/or teaching purposes; 2) stereolithography files for creating 3-D replicas of the models; 3) still, moving, and interactive images of the models; 4) tutorials aiding in the use of KMODDL materials; and 5) related textual resources including books and articles. | <a href="http://wayback.archive-it.org/2566/20180418122322/http://kmoddl.library.cornell.edu/aboutmeta2.php">http://wayback.archive-it.org/2566/20180418122322/http://kmoddl.library.cornell.edu/aboutmeta2.php</a>                                                                                                                                                                                                                                                                                             | no                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| ... (add yours here)                        |                                           |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## Community MAPs

| Institution                       | Data Representation | Resource Type(s)                                                                                            | Human-Readable MAP                                                                                                                                                                                                                                  | Machine-Actionable MAP                                                                                                                                                                                      |
|-----------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Digital Public Library of America | RDF                 | Cultural Heritage Objects, Digital Representations, Aggregations                                            | <a href="https://pro.dp.la/hubs/metadata-application-profile">https://pro.dp.la/hubs/metadata-application-profile</a>                                                                                                                               | <a href="https://github.com/dpla/dpla_map">https://github.com/dpla/dpla_map</a> (ActiveTriples representation of the MAP, which can guide Ruby applications in creating resources that follow the DPLA MAP. |
| Europeana                         | RDF                 | Cultural Heritage Objects, Digital Representations, Aggregations... and more (works based off of CIDOC-CRM) | More generic metadata documentation: <a href="http://pro.europeana.eu/page/edm-documentation">http://pro.europeana.eu/page/edm-documentation</a>                                                                                                    | ?                                                                                                                                                                                                           |
| Sufia / Scholarsphere             | RDF, Ruby Objects   |                                                                                                             | See here for a static copy: <a href="https://docs.google.com/spreadsheets/d/1FL15HSy0d_Mb6i3r7vjH8yEMkkRCJJkiqOt42KhI8ss/edit?usp=sharing">https://docs.google.com/spreadsheets/d/1FL15HSy0d_Mb6i3r7vjH8yEMkkRCJJkiqOt42KhI8ss/edit?usp=sharing</a> |                                                                                                                                                                                                             |
| NYPL Digital Collections          | RDF                 |                                                                                                             | See here for a static copy: <a href="https://docs.google.com/spreadsheets/d/1FL15HSy0d_Mb6i3r7vjH8yEMkkRCJJkiqOt42KhI8ss/edit?usp=sharing">https://docs.google.com/spreadsheets/d/1FL15HSy0d_Mb6i3r7vjH8yEMkkRCJJkiqOt42KhI8ss/edit?usp=sharing</a> |                                                                                                                                                                                                             |
|                                   |                     |                                                                                                             |                                                                                                                                                                                                                                                     |                                                                                                                                                                                                             |

## Creating a MAP - Guidelines and a Generic Template

### First Steps

A MAP should document and specify the expectations of metadata in an application, service, system, or other. This means the first step to creating a MAP is to understand what it is your metadata is attempting to describe or capture at a conceptually level. Here are some questions to help guide creating your MAP:

1. **What are you describing with this metadata?** To what level of conceptual difference do you need to go for your MAP to be accurate and complete? An example: eCommons is an Institutional Repository, which means it tends to manage scholarly output objects. Capturing what type of scholarly output is a required metadata field, but doesn't change (at the moment) the system's management of a scholarly output object's metadata record (i.e., a Presentation eCommons metadata record will not diverge in structure or requirements from an Article eCommons record - the same fields are in play, albeit some will make more sense for different objects). Once you decide this diverges **enough**, you can create forked (but related) MAPs, with a view for system interoperability. This is more determined by needs than any hard and fast rules - i.e., its an art, not a science.
2. **What do you intend to do with this metadata?**

- ## Generic Template

[illegible]