Research Data Collections WG
Current status

Background

Several communities have expressed interest in leveraging **aggregations of objects** with particular focus on building such aggregations through **PIDs** and possibly providing identifiers for aggregation objects. There is however no unified cross-community approach to building and managing such collections and no common model for understanding them. Building collections within diverse domains and then sharing or expanding them across disciplines should enable common tools for end-users and e-infrastructure providers. Individual disciplinary communities can directly benefit if such tools are made widely available, and cross-community data sharing can benefit from increased unification between collection models and implementations. PID providers may benefit from marketing additional services on collections. The WG is working in close collaboration with scientific communities to come to a pragmatic and usable solution.

Definition

A **collection** is a digital object which is identified by a PID and consists of a set of PIDs/Ids, a set of additional pointers/links and metadata together with each PID/Id. The interaction options and expected behavior of a collection are defined by capabilities, which are part of a collection's metadata. A collection can be given explicitly by naming all PIDs/Ids directly or implicitly by a generation rule. A collection is called finite if the set of PIDs/Ids, generated by iteratively resolving its "sub-collections", is finite.

Source: http://smw-rda.esc.rzg.mpg.de/index.php/Collection

Current status and recent activities

Since the last plenary in Denver, the group has finished the conceptual model of a collection API. Based on the data structure below, REST-Style functions were discussed and defined. Members of the WG are working on concrete implementations of the definitions to prove their feasibility. The group is making steady progress through regular twice-monthly virtual working meetings, which are open for all.

Major discussion questions currently open:

- Are the definitions of the conceptual model finally consistent and understandable?
- Does the revised conceptual model now adequately cover different collection approaches from user communities?
- Do the API methods match user needs, are they complete and can they be implemented also with legacy collection solutions in place?

Envisioned next steps of the WG work:

- Finalize the conceptual model and align it with the API specification
- Fine-tune the API methods, also in view of existing collection implementations
- Finalize default set of collection properties and models
- Improve communication channels with user communities and potential early adopters

Links

1. The WG homepage:

https://rd-alliance.org/groups/pid-collections-wg.html

2. The collection of WG documents is hosted at:

https://datashare.rzg.mpg.de/index.php/s/W878ggdygLmxzXD

3. The WG GoTo Meeting (occurs the second and last Tuesday of every month at 13:00 GMT (9:00 Eastern, 15:00 Central European):

https://global.gotomeeting.com/join/997874677

4. A model of the API can be found under:

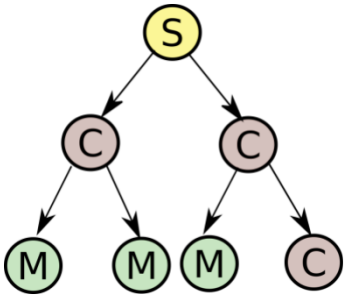
http://rdacollectionswg.github.io/apidocs/#/

5. **Discover demo implementations of the API:**
    - *http://dft-rda.esc.rzg.mpg.de/reptor*

Come and join us!

The group welcomes any input from user communities, particularly on the API and the concrete implementations.

Basic Data Model for Collections API



The underlying data model of the collections API can be defined by three submodels:

Service: defines the basic functionality an instance of the collections API provides. An instance can host (locally or virtually) an arbitrary number of collections

Collection: properties of a specific collection at the current instance. A collection can have an arbitrary number of members, including (sub-) collections

Member: properties of a specific member of a collection

Service (S)		
providesCollectionPids	true|**false**	PID minting during collection creation
collectionPidProviderType	string (uri)	External service for PID minting
enforcesAccess	true|**false**	Enforcing access control on collections/members
supportsPagination	true|**false**	Support paging through result sets
asynchronousActions	true|**false**	Indicates if actions such as update, delete occur synchronously or may be queued for later action
ruleBasedGeneration	true|**false**	Indicates if the service allows rule-based generation of new collections
maxExpansionDepth	int (0)	Maximum recursion depth supported by service
providesVersioning	true|**false**	Service provides versioned backend
supportedCollectionOperations	[string]	List of supported /ops endpoints
supportedModelTypes	[string (uri)]	List of supported collection models

Collection (C)		
id	string (ideally pid)	
Capabilities		
isOrdered	**true**|false	Members in collection are indexed
appendsToEnd	**true**|false	Appends or prepends newly added members
supportsRoles	true|**false**	Collection members have roles
membershipIsMutable	**true**|false	Members can be added, updated or removed
metadataIsMutable	**true**|false	Collection objects can be edited
restrictedToType	string	Constraints members to datatypes
maxLength	int (-1 = unlimited)	Limit collections size
Properties		
ownership	string (ideally pid)	Entity that holds rights to collection
license	string (uri)	License model
modelType	string (uri)	Collection model. Expected to use a controlled vocabulary, or PID of registered data type
hasAccessRestrictions	true|**false**	Access to collection members is restricted
memberOf	[]	Memberships in other collections
descriptionOntology	string (namespace)	Ontology used for descriptive metadata. URI of a controlled vocabulary
description	{string: string}	Clear text description of collection

Member (M)		
id	string (ideally pid)	Preferably a PID
location	string (url)	Link to data object
datatype	string (uri)	Preferably defined in Data Type Registry
ontology	string (uri)	URI of an ontology model class that applies to this item
mappings	string (uri)	As defined in collection capabilities
role	string	Role in the collection. Controlled Vocabulary term expected
index	int	Position in ordered collection
dateAdded	ISO datetime	Time that item has been added to collection

WG Status: Recognised & Endorsed
Chair(s): Bridget Almas, Frederik Baumgardt, Tobias Weigel, Tom Zastrow
Secretariat Liaison: Kathy Fontaine • TAB Liaison: Carole Palmer and Peter Fox