



File URI Conventions

Within a package, references to bytestream/files within the container formats (e.g., bags, TAR, ZIP, etc) should be specified with a "file:" scheme URL, as follows:

- Production rule: file-url = "file:/// " container-name-or-id "/" path-to-file-within-container

- No host should be specified in the URL and the path will begin with the name of the top-level directory of the container, followed by a forward slash, followed by the container-relative path to the file

-- For example, in a container with top-level directory named "ELOKA002.bag", an aggregated resource might be specified as such:

```
<ore:aggregates rdf:resource="file:///ELOKA002.bag/data/ELOKA/ELOKA002/Johnassie_Ippak/Ippak_Interview/Ippak1.mp4"/>
```

- If a package consists of more than one container, each container should have a different name or id

-- For example, if an aggregation in the first bag of a 10-bag package aggregates a resource in the third, it might look like this:

```
<ore:aggregates rdf:resource="file:///bag-03-of-10/data/ELOKA/ELOKA002/Johnassie_Ippak/Ippak_Interview/Ippak1.mp4"/>
```

Concepts from OAI ORE Specification - Abstract Data Model[1]

[1] <http://www.openarchives.org/ore/1.0/datamodel>

Namespaces

Prefix	Namespace URI	Description
datacons	http://dataconservancy.org/ns/types/	Data Conservancy terms
dc	http://purl.org/dc/elements/1.1/	Dublin Core elements
dcmitype	http://purl.org/dc/terms/dcmitype/	Dublin Core types
dcterms	http://purl.org/dc/terms/	Dublin Core terms
foaf	http://xmlns.com/foaf/0.1/	Friend of a Friend
ore	http://www.openarchives.org/ore/terms/	ORE vocabulary terms
owl	http://www.w3.org/2002/07/owl#	OWL vocabulary terms

rdf	http://www.w3.org/1999/02/22-rdf-syntax-ns#	RDF vocabulary terms
rdfs	http://www.w3.org/2000/01/rdf-schema#	RDF Schema
eprint	http://purl.org/eprint/type/	Eprints types vocab
repo	http://purl.org/info:eu-repo/semantics/	DRIVER/SURF object type vocabulary
fedora-rels-ext	http://www.fedora.info/definitions/1/0/fedora-rels-ext-ontology.rdfs#	http://www.fedora.info/definitions/1/0/fedora-rels-ext-ontology.rdfs

Terms

ReM-Pkg	Resource Map for a Package aggregation
A-Pkg	A Package aggregation
ReM-Proj	Resource Map for a Project aggregation
A-Proj	A Project aggregation
ReM-C	Resource Map for a Collection aggregation
A-C	A Collection aggregation
ReM-DI	Resource Map for a Data Item aggregation
A-DI	Data Item Aggregation
AR-BS	An aggregated Bytestream (File) Resource
P-BS	Proxy for Bytestream (File) Resource
URI-Subject	URI of a Resource
URI-Property	URI of a type of Relationship
URI-Object	URI of a Resource
URI-Project	URI of a Project
URI-Collection	URI of an existing Collection
URI-DataItem	URI of an existing Data Item
DateTime	ISO 8601 date/time literal string with W3C constraints and UTC ('Z') times. Preferred format is Complete date plus hours, minutes and seconds (YYYY-MM-DDThh:mm:ssZ). http://www.w3.org/TR/NOTE-datetime

ORE Resource Maps

Every ORE aggregation must be described by a Resource Map, per the ORE spec.

<i>Subject</i>	<i>Predicate</i>	<i>Object</i>	<i>Cardinality</i>	<i>Note</i>
ReM	ore:describes	Aggregation	(1, 1)	Relationship between ReM and Aggregation
ReM	rdf:type	http://www.openarchives.org/ore/terms/ResourceMap	(0, 1)	This is an ORE Resource Map
ReM	dcterms:creator	Agent	(1, *)	Creator of this Resource Map
ReM	dcterms:created	DateTime	(1, 1)	Creation time of this Resource Map
ReM	dcterms:modified	DateTime	(1, 1)	Last modification time of this Resource Map
ReM	URI-Property	literal or URI-Object	(0, *)	Other properties of this Resource Map

Package

Each package should include a single package aggregation. Every resource that is described in the package must be referenced in this aggregation or one of its descendents. Each package aggregation must specify that it is an aggregation and that it is a package. A package may aggregate projects, collections, data items (data objects), and bytestreams containing package metadata.

<i>Subject</i>	<i>Predicate</i>	<i>Object</i>	<i>Cardinality</i>	<i>Note</i>
A-Pkg	rdf:type	http://dataconservancy.org/ns/types/Package	(1, 1)	This is a Data Conservancy Package
A-Pkg	rdf:type	http://www.openarchives.org/ore/terms/Aggregation	(0, 1)	This is an ORE Aggregation

Project

Each project directly aggregated by a package is represented by a project aggregation. Each project aggregation must specify that it is an aggregation and that it is a project. Additionally, a project aggregation representing a new project may aggregate one or more bytestreams that describing its properties and additionally indicate that the bytestreams describe it. A project may aggregate collections, data items (data objects), and bytestreams containing project properties

An existing project may be referenced by a URI outside of a project aggregation. This supports the case of a collection intended for deposit and inclusion in the referenced project. In this case, the properties of the project are already established and, thus, do not need to be articulated.

<i>Subject</i>	<i>Predicate</i>	<i>Object</i>	<i>Cardinality</i>	<i>Note</i>
A-Proj	rdf:type	http://dataconservancy.org/ns/types/Project	(1, 1)	This is a Data Conservancy Project
A-Proj	rdf:type	http://www.openarchives.org/ore/terms/Aggregation	(0, 1)	This is an ORE Aggregation
A-Proj	dcterms:description	AR-BS	(0, *)	Relationship between Project and a bytestream containing its properties
A-Proj	ore:aggregates	AR-BS	(0, *)	Relationship between the Project Aggregation and an aggregated bytestream

Collection

Each collection directly aggregated by a package, a project, or another collection is represented by a collection aggregation. Each collection aggregation must specify that it is an aggregation and that it is a collection. A collection may aggregate collections, data items (data objects). It may also aggregate one or more bytestreams containing collection properties. Specifically, a collection represented as an aggregation in a package may aggregate one or more bytestreams describing its properties and additionally indicating that the bytestreams describe it.

An existing collection may be referenced by a URI outside of a collection aggregation. This supports the case of a subcollection or data item intended for inclusion or membership in the referenced collection.

<i>Subject</i>	<i>Predicate</i>	<i>Object</i>	<i>Cardinality</i>	<i>Note</i>
A-C	rdf:type	http://purl.org/dc/terms/dcmitype/Collection	(1, 1)	This is a Collection
A-C	rdf:type	http://www.openarchives.org/ore/terms/Aggregation	(0, 1)	This is an ORE Aggregation
A-C	dcterms:description	AR-BS	(0, *)	Relationship between Collection and a bytestream containing its properties
A-C	ore:aggregates	AR-BS	(0, *)	Relationship between the Collection aggregation and an aggregated bytestream
A-C	dcterms:isPartOf	URI-Collection URI-Project	(0, 1)	A Collection that is directly aggregated by the package (a top-level collection in the package) may assert membership in an existing collection or project, which may or may not be aggregated in current package. Mechanism by which a Collection may assert its membership in a single Project. A collection should assert this membership in only a single project.
A-C	ore:isAggregatedBy	A-Proj	(0, 1)	[A possible approach for the future would be to allow a collection to assert membership in more than one project. In this case, the receiving system might treat the collection as being "owned" by the first collection to which it was linked. Needs more consideration.]

Data Item

Each data item directly aggregated by a package or a collection is represented by a data item aggregation. Each data item aggregation must specify that it is an aggregation and that it is a data item. It may aggregate one or more bytestreams containing the content of the data item (its parts) or properties of it (its description). Additionally, it may aggregate another data item that represents descriptive information.

An existing data item may be referenced by a URI outside of a data item aggregation. This supports the case of a subcollection or data item intended for inclusion or membership in the referenced collection. This supports the case of a data item representing descriptive information for a project, collection, or other data item. It may also be sufficient to describe some lineage relationships between data items.

<i>Subject</i>	<i>Predicate</i>	<i>Object</i>	<i>Cardinality</i>	<i>Note</i>
A-DI	rdf:type	http://dataconservancy.org/ns/types/DataItem	(0, 1)	This is a Data Conservancy Data Item
A-DI	rdf:type	http://www.openarchives.org/ore/terms/Aggregation	(0, 1)	This is an ORE Aggregation
A-DI	dcterms:description	AR-BS	(0, *)	Relationship between Data Item and a bytestream containing its properties
A-DI	ore:aggregates	AR-BS	(0, *)	Relationship between the Data Item aggregation and an aggregated bytestream
A-DI	dcterms:isPartOf	URI-Collection	(0, 1)	A Data Item that is directly aggregated by the package (a top-level data item in the package) may assert membership in an existing collection, which may or may not be aggregated in current package.
A-DI	dcterms:isVersionOf	URI-DataItem	(0, 1)	The Data Item related by lineage to another Data Item. [This is probably not sufficient and will need a more sophisticated approach (ore:Proxy?) to express this properly.]

Agent

Agents represent a human, computer, or machine that has some relationship to other entities in the model, generally through some manner of event.

Subject	Predicate	Object	Cardinality	Note
Agent	rdf:type	http://purl.org/dc/terms/Agent	(0, 1)	dcterms:Agent
Agent	foaf:name	literal	(0, 1)	Name of the creator of the resource
Agent	foaf:mbox	URI-Object	(0, *)	mailto:<email-address>
Agent	foaf:phone	URI-Object	(0, *)	callto:<phone number>

* In the future, the creator might be expressed as an ORCID (e.g., <http://orcid.org/0000-0002-9997-3464>) or other similar identifier.

Bytestream / File

Bytestreams are sequences of bytes or copies of those same sequences.

Subject	Predicate	Object	Cardinality	Note
AR-BS	rdf:type	http://purl.org/dc/terms/dcmitype/Event	(0, 1)	Specify if this resource is event metadata.
AR-BS	rdf:type	http://dataconservancy.org/ns/types/Project	(0, 1)	Specify if this resource contains Project properties.
AR-BS	fedora-rels-ext:isMetadataFor	URI-Collection or URI-DataItem	(0, 1)	Resource may assert that it isMetadataFor an existing object.

ORE Proxy

Proxies are out of scope for our current work, but we expect that they will be useful for capturing lineage and sequence, among other things. This section is a placeholder for now.

Subject	Predicate	Object	Cardinality	Note
P-BS	rdf:type	http://www.openarchives.org/ore/terms/Proxy	(1, 1)	This is a proxy (one per AR-BS).
P-BS	ore:proxyIn	Aggregation	(1, 1)	Proxy in context of this aggregation (one per AR-BS).
P-BS	ore:proxyFor	AR-BS	(1, 1)	Proxy for bytestream (file) AR-BS (one per AR-BS).
P-BS	<hasRole>	<role term>	(0, *)	Role(s) of given AR-BS in context of aggregation.
P-BS	URI-Property	literal or URI-Object	(0, *)	Other properties for a given AR-BS in the context of this aggregation.

General Patterns

The following patterns may be applied in one or more of the more specific cases listed above. They are articulated here with a list of subjects (on the right) for which they are appropriate.

The cardinalities are confusing here, so they have been omitted.

Subject	Predicate	Object	Cardinality	Note	Package Aggregation A-Pkg	Project Aggregation A-Proj	Collection Aggregation A-C	Data Item Aggregation A-DI	AR-BS
Aggregation	rdf:type	http://www.openarchives.org/ore/terms/Aggregation		This is an ORE Aggregation	X	X	X	X	
Aggregation	ore:aggregates	A-Proj		Relationship between subject Aggregation and an aggregated Project	X				
Aggregation	ore:aggregates	A-C		Relationship between subject Aggregation and an aggregated Collection	X	X	X		
Aggregation	ore:aggregates	A-DI		Relationship between subject Aggregation and an aggregated Data Item	X		X		
Aggregation	ore:aggregates	AR-BS		Relationship between subject Aggregation and an aggregated bytestream		X	X	X	
Aggregation	ore:isDescribedBy	ReM		Relationship between subject nested aggregation and its ReM (one for each nested aggregation).		X	X	X	
	dcterms:identifier	literal or URI-Object		Existing identifier for subject resource (prefer URI-Object, but may be reasons not to restrict)	X	X	X	X	X
	dcterms:title	literal		Title of subject resource, with optional language attribute	X	X	X	X	X
	dcterms:creator	Agent*		Creator of subject resource	X	X	X	X	X
	dcterms:created	DateTime		Ceation time of subject resource	X	X	X	X	X
	dcterms:modified	DateTime		Last modification time of subject resource	X	X	X	X	X
	URI-Property	literal or URI-Object		Other properties of this resource	X	X	X	X	X