

Upgration Pilot - UNSW

Project Overview

- [Project Overview](#)
- [Collection Description](#)
 - [UNSWorks](#)
 - [ResData](#)
 - [Other UNSW disciplinary repositories](#)
- [Fedora 3 Details](#)
 - [Object Models](#)
 - [UNSWorks](#)
 - [ResData](#)
 - [Functionality](#)
 - [Storage: Legacy storage \(or Akubra\)](#)
 - [XML metadata : datastreams](#)
 - [XML metadata : inline](#)
 - [Content models](#)
 - [Datastream types \(inline, managed, redirect, and external\)](#)
 - [Identifiers](#)
 - [Indexing strategies \(GSearch, RI-Search vs. F4 approaches\)](#)
 - [Replication/Journaling](#)
 - [Security policies: XACML](#)
 - [OAI-PMH](#)
 - [Versions](#)
 - [Disseminators](#)
 - [Audit history](#)
 - [API](#)
 - [API_A](#)
 - [API_M](#)
- [Fedora 4 Details](#)
 - [Fedora 3 to 4 data model mapping](#)
 - [Object and Datastream properties](#)
 - [Mapping Fedora 3 Object Properties to Fedora 4](#)
 - [Mapping Fedora 3 Datastream Properties to Fedora 4](#)
 - [Objects and Datastreams Namespaces](#)
 - [ResData Dataset Data Model](#)
 - [Classes](#)
 - [Descriptive and Administrative Metadata](#)
 - [Namespaces](#)
 - [UNSWorks Data Model](#)
 - [Classes](#)
 - [Descriptive and Administrative Metadata](#)
 - [Namespace](#)
 - [Sample URL structure on Fedora 4](#)
 - [Functionality](#)
 - [Storage: Legacy storage \(or Akubra\)](#)
 - [XML metadata : datastreams](#)
 - [XML metadata : inline](#)
 - [Content models](#)
 - [Datastream types \(inline, managed, redirect, and external\)](#)
 - [Identifiers](#)
 - [Indexing strategies \(GSearch, RI-Search vs. F4 approaches\)](#)
 - [Replication/Journaling](#)
 - [Security policies: XACML](#)
 - [OAI-PMH](#)
 - [Versions](#)
 - [Disseminators](#)
 - [Audit history](#)
 - [API](#)
- [APPENDIX](#)
 - [Fedora 4 ResData Dataset N3:](#)
 - [Fedora 4 ResData Party N3:](#)
 - [Fedora 4 ResData Activity N3:](#)
 - [Fedora 3 ResData RELS-EXT Example for Dataset:](#)
 - [Fedora 3 ResData RELS-INT Example for Dataset:](#)
 - [Fedora 3 ResData RELS-EXT Example for Plan:](#)
 - [Fedora 3 UNSWorks RELS-EXT Example:](#)
 - [Fedora 3 UNSWorks RELS-INT Example:](#)
 - [UNSWorks Data Model Example:](#)

Collection Description

UNSWorks

- The institutional repository – UNSWorks – contains more than 12,000 objects. These include research publications such as digital theses and conference papers. The UNSWorks Live Fedora includes some metadata-only records as well as objects with file attachments. There is also an Interim Fedora that is used to house publications and metadata (including information about grants) requiring review or processing prior to ingestion to the UNSWorks Live Fedora. The publication metadata is sourced from the Research Outputs System (ROS) and details about UNSW people and grants is obtained from other UNSW enterprise systems via the data warehouse. The Interim Fedora currently contains about 500,000 records.

ResData

- A research data management system containing over 250 records. The records describe datasets and research data management plans plus related parties (i.e. people) and activities (i.e. grants and projects). Information about people, grants and projects is sourced from other institutional databases via the data warehouse.

Other UNSW disciplinary repositories

- Approximately 25,000 records are stored across 5 other specialist disciplinary repositories. While most are metadata-only records, there is also some managed content such as video files.

Fedora 3 Details

Object Models

UNSWorks

Resource

- DC
 - Type: Inline XML
 - Mime Type: text/xml
 - Versionable
- MODS = descriptive metadata
 - Type: Inline XML
 - Mime Type: text/xml
 - Versionable
- RELS-EXT
 - Type: Inline XML
 - Mime Type: application/rdf+xml
 - Versionable
 - Contains additional information of the object such as persistent identifier (handle)
- RELS-INT
 - Type: Inline XML
 - Mime Type: application/rdf+xml
 - Versionable
 - Contains additional information about the datastreams, such as type of resource and relation.
- DP-EVENT = PREMIS preservation metadata
 - Type: Inline XML
 - Mime Type: application/rdf+xml
 - Versionable
- SOURCE
 - Type: Managed
 - Mime Type: any
 - Versionable
- PM = preservation metadata about individual datastream (eg: SOURCE01 would have PM-SOURCE01)
 - Type: Inline XML
 - Mime Type: application/rdf+xml
 - Versionable

ResData

Dataset, Activity (grants/projects), and Party (people) object

- DC
 - Type: Inline XML
 - Mime Type: text/xml
 - Versionable
- RELS-EXT
 - Type: Inline XML
 - Mime Type: application/rdf+xml
 - Versionable
 - Contains additional information of the object such as persistent identifier (handle/doi) and resource type
- RELS-INT
 - Type: Inline XML
 - Mime Type: application/rdf+xml
 - Versionable
 - Contains additional information about the datastreams, such as type of resource, relation, version, and publishing status
- RDF = descriptive metadata plus links to related parties and activities for published object
 - Type: Inline XML
 - Mime Type: text/xml
 - Versionable
- RDFNP = descriptive metadata plus links to related parties and activities for unpublished object
 - Type: Inline XML
 - Mime Type: text/xml
 - Not Versionable

Research Data Management Plan object

- DC
 - Type: Inline XML
 - Mime Type: text/xml
 - Versionable
- RELS-EXT
 - Type: Inline XML
 - Mime Type: application/rdf+xml
 - Versionable
 - Contains additional information of the object such as persistent identifier (handle/doi) and resource type
- RDFNP = descriptive metadata plus links to related parties and activities for unpublished object
 - Type: Inline XML
 - Mime Type: text/xml
 - Not Versionable

Notes: Record status includes draft, pending, published. Only dataset, activity and party objects can be published (not research data management plans). Published records are versionable = True. Different pid format based on object type (e.g. sample activity object pid = resdataaa:2222; sample dataset object pid = resdataac:3333).

Functionality

Storage: Legacy storage (or Akubra)

UNSWWorks uses Legacy storage and ResData uses Akubra.

XML metadata : datastreams

See object models above.

XML metadata : inline

See object models above.

Content models

Default Fedora Content Model.

Datastream types (inline, managed, redirect, and external)

Non metadata datastream is a managed datastream.

Identifiers

UNSW uses custom namespaces for PIDs. Some repositories use multiple PID prefixes. All UNSW repositories use [handles](#) as persistent identifiers for objects. The ResData repository also uses [DOIs](#) for some objects.

Indexing strategies (GSearch, RI-Search vs. F4 approaches)

UNSW uses the Generic Search Service (GSearch) and Resource Index (RISearch) Search.

Replication/Journaling

UNSW does not use replication or journaling.

Security policies: XACML

Default XACML with minor modification for accessing rights metadata on UNSWorks.

OAI-PMH

UNSW does not use the Fedora OAI-PMH module. UNSW uses the Fedora 3 API to export XML metadata and [jOAI](#) as the OAI-PMH data provider.

Versions

All datastreams are mostly versionable.

Disseminators

UNSW does not use disseminators.

Audit history

UNSW uses audit history for statistic, preservation, and versioning.

API

Most use Fedora 3 API (REST and SOAP):

API_A

- findObjects
- getDatastreamDissemination
- listDatastreams

API_M

- Datastream Management
 - addDatastream
 - getDatastreams
 - getDatastreamHistory
 - getDatastream
 - modifyDatastreamByValue
 - modifyDatastreamByReference
 - setDatastreamState
 - setDatastreamVersionable
 - purgeDatastream
- Object Management
 - modifyObject
 - purgeObject
 - getNextPID
 - ingest

Fedora 4 Details

Fedora 3 to 4 data model mapping

This section outlines how the Fedora 3 objects associated with the UNSW repositories are conceptually mapped to Fedora 4 nodes.

Object and Datastream properties

Mapping Fedora 3 Object Properties to Fedora 4

	Fedora 3	Fedora 4	Example	Note
PID	PID	dc:identifier	resdatac:1	Legacy Fedora 3 identifier
State	state	access:objState	Active	Unable to locate Jira server for this macro. It may be due to Application Link configuration.
Label	label	dc:title	Record title	
Creation Date	CREATED	premis:hasDateCreatedByApplication	2014-01-20T04:34:26.331Z	premis:hasDateCreatedByApplication is used because fedora:created is not user-modifiable.
Last Modified Date	lastModifiedDate	fedora:lastModified	2014-01-20T05:39:08.601Z	Date of migration is to be treated as a "modification".
Owner Identifier	ownerId	ms21:owner	z2212222	The creator of the object

Mapping Fedora 3 Datastream Properties to Fedora 4

	Fedora 3	Fedora 4	Example	Note
DSID	ID	identifier or dc:identifier	MODS	This is the legacy Fedora 3 datastream identifier
State	state	access:objState	Active	Unable to locate Jira server for this macro. It may be due to Application Link configuration.
Control Group	CONTROL_GROUP	N/A	X	Migration is deemed unnecessary.
Versionable	VERSIONABLE	fedora:hasVersions	true	The "VERSIONABLE" property of Fedora 3 is not semantically equivalent to Fedora 4's hasVersions data property. The mapping proposed is intended to enable migration of Fedora 3 data but will not be used after migration.
Label	LABEL	dc:title	MODS Metadata	
Creation Date	CREATED	premis:hasDateCreatedByApplication	2014-01-20T04:34:26.331Z	Intended to enable migration of Fedora 3 creation dates. premis:hasDateCreatedByApplication is used because fedora:created is not user-modifiable.
Last Modified Date	N/A	fedora:lastModified	2014-01-20T05:39:08.601Z	Fedora 3 uses "Creation date" for last modified date for datastream.
Mime Type	MIMETYPE	fedora:mimeType	text/xml	
Size	SIZE	premis:hasSize	50000	Automatically handled by Fedora 4
Alternate ID	AltIds	premis:hasOriginalName	sample_file.pdf	Automatically handled by Fedora 4
Checksum Type	checksumType	MD5	SHA1	Fedora 4 combines checksum type and checksum in one field on fedora:digest property
Checksum	checksum	fedora:digest	Fedora 3 example: b4df41775c142aa18518d6586a8193c8e0b7dc96 Fedora 4 example: urn:sha1: b4df41775c142aa18518d6586a8193c8e0b7dc96	Automatically added by Fedora 4

Format URI	formatURI	N/A	N/A	This field is not used
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Note: all data and object properties under the official Fedora 4 namespace cannot be modified via Fedora 4 REST API.

Objects and Datastreams Namespaces

Namespace	URL
fedora	http://fedora.info/definitions/v4/repository#
dc	http://purl.org/dc/elements/1.1/
access	http://fedora.info/definitions/1/0/access/
premis	http://www.loc.gov/premis/rdf/v1#

ResData Dataset Data Model

Figure 1 below presents a top level view of the Fedora 4 data model for ResData Dataset

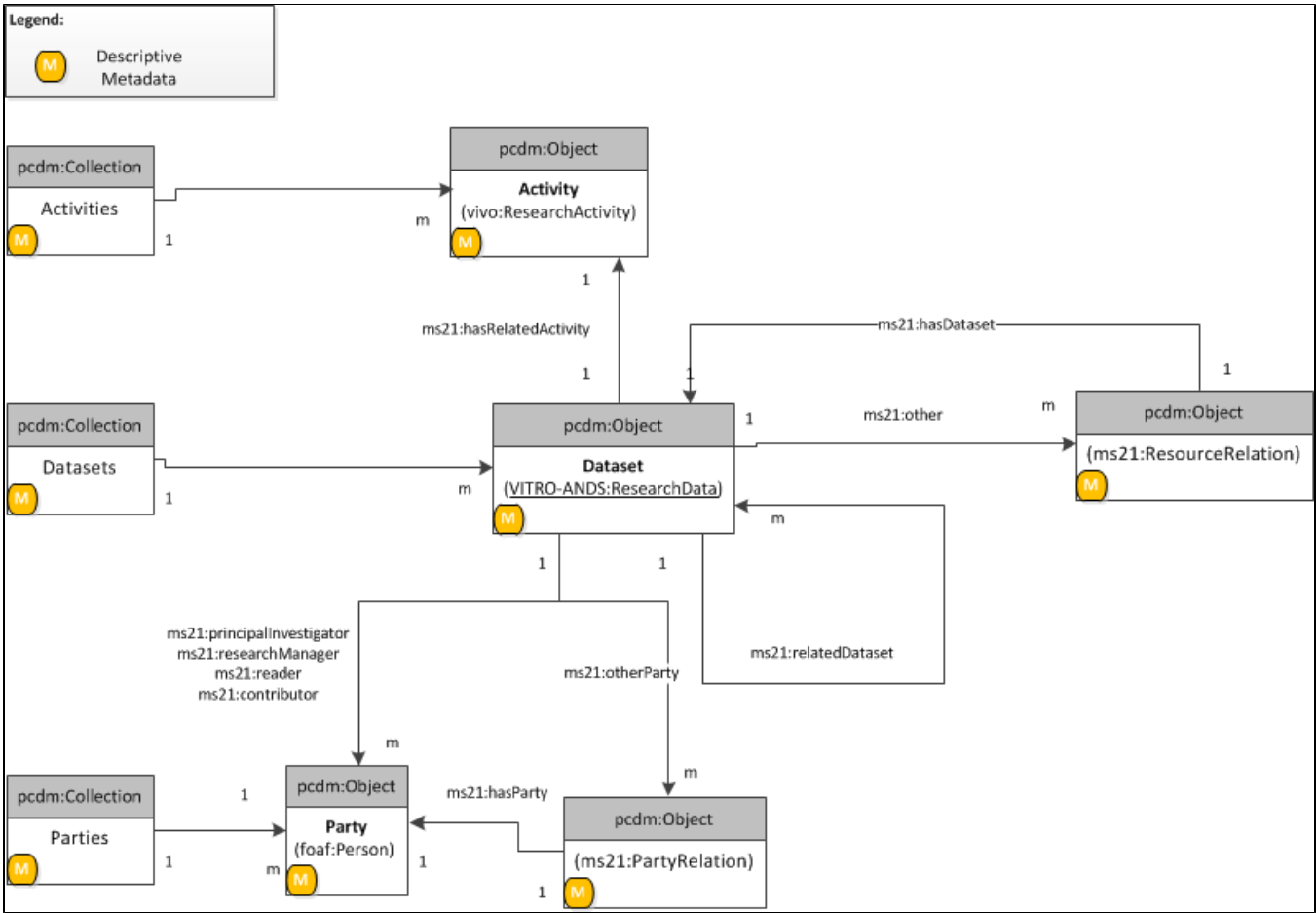


Figure 1: Fedora 4 data model for ResData

Classes

The ResData Fedora 4 data model is an adaptation of the [PCDM](#) model, integrated with a customised version of [ANDS VITRO](#) ontology. The resultant ontology consists mainly of the following classes:

Activities, Datasets, Parties (pcdm:Collection)

Activities, Datasets, and Parties are Fedora 4 container nodes of `pcdm:Collection` type, mainly intended to enable grouping of the three main ResData resource types, i.e. Activity, Dataset and Party. Fedora 4 URI structures for these `pcdm:Collection` containers are listed below:

Container name	URL
Activities	/rest/activities
Datasets	/rest/datasets
Parties	/rest/parties

Dataset (VITRO-ANDS:ResearchData, `pcdm:Object`)

The ResearchData class from the ANDS VITRO ontology is used to define the Dataset resource type in ResData. In the Fedora 4 model for ResData, all instances of the ResearchData class are also defined as nodes of `pcdm:Object` type with a number of data properties containing descriptive metadata, and object properties containing reference to other related ResData resources, such as Activity (`vivo:ResearchActivity`), Party (`foaf:Person`) and other Dataset resources. Figure 2 below illustrates the combined use of `pcdm:Object` and VITRO-ANDS:ResearchData classes to represent various ResData resource types.

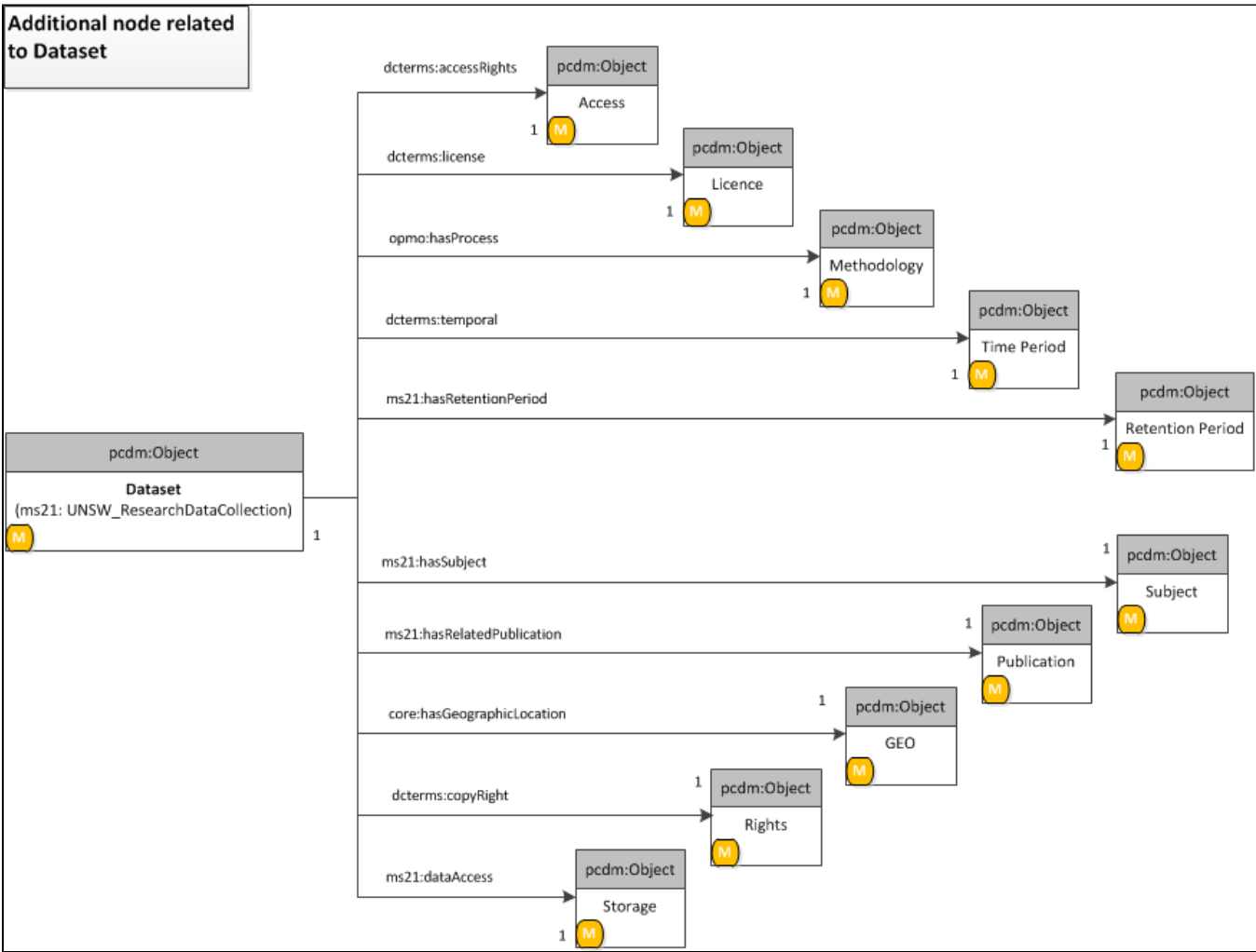


Figure 2: ResData Dataset resource defined as `pcdm:Object`

Fedora 4 URI structures for ResData Dataset-related nodes are as below:

Description	URL
Dataset	/rest/datasets/[dataset pairtree id]

Access	/rest/datasets/[dataset pairtree id]/access
Licence	/rest/datasets/[dataset pairtree id]/licence
Methodology	/rest/datasets/[dataset pairtree id]/methodology
Time Period	/rest/datasets/[dataset pairtree id]/timePeriod
Retention Period	/rest/datasets/[dataset pairtree id]/retentionPeriod
Subject	/rest/datasets/[dataset pairtree id]/subject
Publication	/rest/datasets/[dataset pairtree id]/publication
GEO	/rest/datasets/[dataset pairtree id]/geo
Rights	/rest/datasets/[dataset pairtree id]/rights
Storage	/rest/datasets/[dataset pairtree id]/storage

ms21:PartyRelation

PartyRelation is a custom class for describing a user-specified relation between a Party and a Dataset. Instances of PartyRelation in the ResData Fedora 4 model are also defined as pcdm:Object type nodes.

Fedora 4 URI structures for the PartyRelation nodes are:

Description	URL
Dataset	/rest/datasets/[dataset pairtree id]
PartyRelation	/rest/datasets/[dataset pairtree id]/[partyRelation id1] /rest/datasets/[dataset pairtree id]/[partyRelation id2] /rest/datasets/[dataset pairtree id]/[partyRelation id3]

ms21:ResourceRelation

ResourceRelation is a custom class for describing user-defined relationships between Dataset resources. Instances of ResourceRelation in the ResData Fedora 4 model are also defined as pcdm:Object type nodes.

Fedora 4 URI structures for the ResourceRelation nodes are:

Description	URL
Dataset	/rest/datasets/[dataset pairtree id]
ResourceRelation	/rest/datasets/[dataset pairtree id]/[resourceRelation id1] /rest/datasets/[dataset pairtree id]/[resourceRelation id2] /rest/datasets/[dataset pairtree id]/[resourceRelation id3]

Activity (vivo:ResearchActivity, pcdm:Object)

The ResearchActivity class from the VIVO ontology is used to define Activity type resources in ResData. In the Fedora 4 model for ResData, all instances of the ResearchActivity class are also defined as nodes of pcdm:Object type with a number of data properties containing descriptive metadata and object properties containing reference to additional information about a research project, including funding body and affiliation. Figure 3 below illustrates how pcdm:Object and vivo:ResearchActivity classes are combined to represent Activity-type resources in ResData Fedora 4 model.

In Fedora 4, the RELS-INT and RELS-EXT information associated with the ResData resources will be migrated as data properties of the corresponding Fedora 4 resource nodes.

Below is the RELS-INT and RELS-EXT information that will be migrated to Fedora 4 as data properties of Dataset, Party, and Activity resources in ResData:

Property	Note
VITRO-ANDS: dateOfPublication	
ms21:status	
bibo:doi	only for Dataset
ms21:handle	only for Dataset

Namespaces

Namespace	URL
bibo	http://purl.org/ontology/bibo/
owl	http://www.w3.org/2002/07/owl#
ms21	http://www.unsw.edu.au/lrs/ms21/ontology/
VITRO-ANDS	http://www.andis.org.au/ontologies/ns/0.1/VITRO-ANDS.owl#
core	http://vivoweb.org/ontology/core#
foaf	http://xmlns.com/foaf/0.1/
pcdm	http://pcdm.org/models#

UNSWorks Data Model

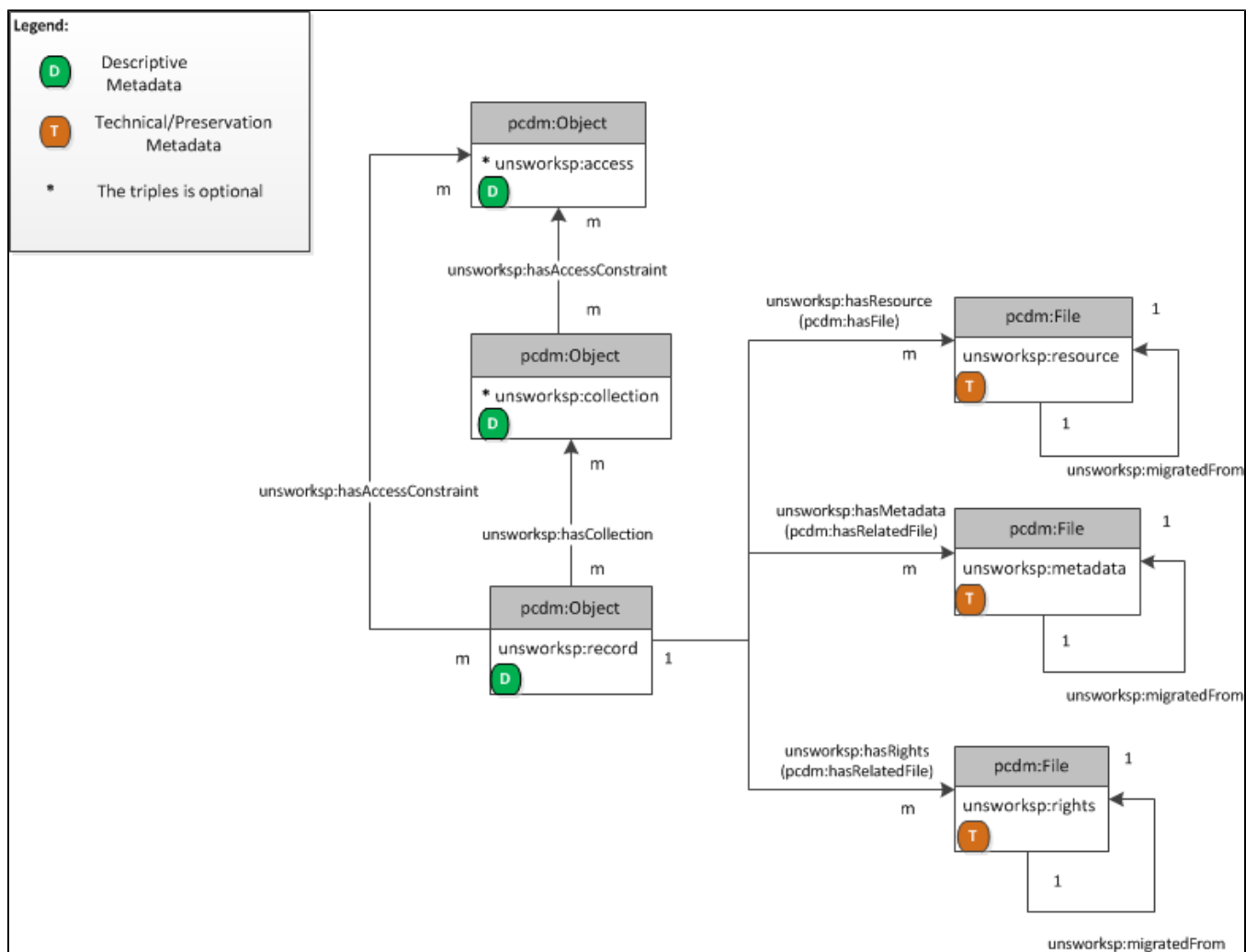


Figure 5: UNSWorks Data Model

Note: All classes are derived from existing UNSWorks objects including the RELS-INT and RELS-EXT information in Fedora 3.

Classes

unsworksp:access (pcdm:Object)

Access is a class describing a set of authorised users and/or groups. It is used to detail the access constraints placed on a record or collection. All of access classes are also defined pcdm:Object type node in the Fedora 4 UNSWorks model.

unsworksp:collection (pcdm:Object)

Collection is a class describing a group of records. Collection includes descriptive metadata with a link to access information. Similar to access class, instances of collections in the UNSWorks Fedora 4 model are also defined as pcdm:Object type node.

Property	Note
unsworksp:hasAccessConstraint	

unsworksp:record

A record class represents a container for an intellectual entity such as a thesis, a book, moving image, etc. it has descriptive metadata about the record and can contain other metadata and/or binary files and rights associated with the record as described on the next classes. Similar to collection and access classes, all instances of UNSWorks records are also defined as pcdm:Object type node.

Property	Note
unworksp:hasMetadata	
unworksp:hasRights	
unworksp:hasResource	
unworksp:hasCollection	
unworksp:hasAccessConstraint	

unworksp:resource (pcdm:File)

A resource class individual represents a electronic resource of the record such as a PDF file of a thesis and it is stored as binary data. Additionally this class is used to represent a converted file for preservation purpose. For example, a thesis in MS Word document format will have a preservation copy in PDF format. The relationship between these files will be represented by the unworksp:migratedFrom property. All resources are also defined as a pcdm:File type node.

Property	Note
unworksp:migratedFrom	

unworksp:metadata (pcdm:File)

The metadata class is used to represent additional descriptive metadata of a record that cannot be added as properties in record class, for example: MODS and MARCXML descriptive metadata. These type of metadata will be stored as binary file (pcdm:File). Similar to the resource class, it may have a converted version for preservation purpose.

Property	Note
unworksp:migratedFrom	

unworksp:rights (pcdm:File)

The rights class is used to represent a licence or agreements signed by the person submitting the resource. Similar to resource and metadata, it has a link to its converted version for preservation purpose and it is also defined as a pcdm:File type node.

Property	Note
unworksp:migratedFrom	

Descriptive and Administrative Metadata

In Fedora 4, the RELS-INT and RELS-EXT for UNSWorks are mapped as data properties of the resource node.

Below is the RELS-INT and RELS-EXT information that will be ported to Fedora 4:

Property	Note
unworksp:resourceType	
unworksp:dunworkspid	
unworks:embargodate	
unworks:embargoRemoved	
owl:SameAs	Alternate URL

For descriptive metadata, the format for each of Fedora 4 resource is a Dublin Core metadata format.

Namespace

Namespace	URL
unsworks	http://www.unsworks.unsw.edu.au/vocab/
unworksp	http://www.unsworks.unsw.edu.au/ontology/preservation-metadata/
owl	http://www.w3.org/2002/07/owl#

Sample URL structure on Fedora 4

Based on the model above, each resource can be added on the root using Fedora 4 default ingest using PairTree. The binary file of that particular resource will be added with the resource node as the parent using PairTree. Below are Fedora 4 URI patterns for UNSWorks nodes. Collections, records and accesses are pcdm:object act as acontainer for collection, record, and access.

Description	URL
Collection	/rest/collections/[collection pairtree id]
Record	/rest/records/[record pairtree id]
Resource	/rest/records/[record pairtree id]/[resource id1] /rest/records/[record pairtree id]/[resource id2] /rest/records/[record pairtree id]/[resource id3]
Metadata	/rest/records/record/[record pairtree id]/[metadata id1] /rest/records/record/[record pairtree id]/[metadata id2] /rest/records/record/[record pairtree id]/[metadata id3]
Rights	/rest/records/record/[record pairtree id]/[rights id1] /rest/records/record/[record pairtree id]/[rights id2] /rest/records/record/[record pairtree id]/[rights id3]
Access	/rest/access/[access pairtree id]

Functionality

Storage: Legacy storage (or Akubra)

Fedora 4 REST API will be used to Fedora 3 to Fedora 4. There are no issues related to the storage type for migration. The only difference is that container node is stored in database. On Fedora 3, object and datastream are stored in file structure.

XML metadata : datastreams

Where possible, metadata will be stored as properties of the relevant node. Metadata in other formats such as XML (e.g. MODS), will be stored as a binary file (pcdm:File).

XML metadata : inline

The inline XML metadata is a descriptive metadata of the resource. It is mapped as property of Fedora 4 container node (pcdm:Object).

See [Data Model](#) above for more information.

Content models

The default Fedora content models have not been modified.

Datastream types (inline, managed, redirect, and external)

In Fedora 3, the UNSWorks and ResData repositories only uses inline and managed datastreams. Inline datastreams is used for descriptive metadata such as DC, RDF, MODS, and MARCXML . DC and RDF metadata can be mapped to properties of Fedora 4 container node, others will be stored as binary file as Fedora 4 binary node. Similarly for managed datastreams, all will be stored as Fedora binary node (pdc:File). See the UNSWorks and ResData Data Models for more information.

Identifiers

The PairTree algorithm is the default method for generating identifiers in Fedora 4. This method will be used for the migration and for new object to address the performance issue about limiting the number of children under a single resource ([Performance](#)). As for the legacy PID, it will be stored as a property of the node as mentioned above. Refer to the URL structures on Data Model section for example.

Indexing strategies (GSearch, RI-Search vs. F4 approaches)

Integrate Fedora 4 with external triple store using JMS Message Consumer to accommodate search with SPARQL.

For installation, refer to:

<https://wiki.duraspace.org/display/FEDORA41/External+Triplestore>

Replication/Journaling

N/A

Security policies: XACML

Security policies will be initially handled by the client applications. WebACL and the Fedora 4 Access Roles module will be explored further in future.

OAI-PMH

Fedora 4 OAI-PMH Provider will be used. Refer to the information on this link for installation:

<https://wiki.duraspace.org/display/FEDORA41/Setup+OAI-PMH+Provider>

Further testing will be done to test for OAI-PMH status.

Versions

Fedora 4 versioning will be used to store Fedora 3 versions. This will be included on the migration script later.

Disseminators

N/A

Audit history

For migration purposes, the legacy Fedora 3 FOXML will be stored as fedora:Binary (pdc:File) in Fedora 4. The Fedora 4 Audit module will be used to manage the audit history after further testing.

API

Fedora 4 REST API will be used to replace Fedora 3 SOAP and REST API

APPENDIX

Fedora 4 ResData Dataset N3:

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@prefix nt: <<http://www.jcp.org/jcr/nt/1.0>> .
 @prefix pcdm: <<http://pcdm.org/models#>> .
 @prefix ms21: <<http://www.unsw.edu.au/lrs/ms21/ontology/>> .
 @prefix test: <info:fedora/test/> .
 @prefix indexing: <<http://fedora.info/definitions/v4/indexing#>> .
 @prefix xs: <<http://www.w3.org/2001/XMLSchema>> .
 @prefix opmo: <<http://openprovenance.org/model/opmo#>> .
 @prefix dcterms: <<http://purl.org/dc/terms/>> .
 @prefix mode: <<http://www.modeshape.org/1.0>> .
 @prefix rdfs: <<http://www.w3.org/2000/01/rdf-schema#>> .
 @prefix oai: <<http://www.openarchives.org/OAI/2.0/>> .
 @prefix rdf: <<http://www.w3.org/1999/02/22-rdf-syntax-ns#>> .
 @prefix sv: <<http://www.jcp.org/jcr/sv/1.0>> .
 @prefix dc: <<http://purl.org/dc/elements/1.1/>> .
 @prefix VITRO-ANDS: <<http://www.ands.org.au/ontologies/ns/0.1/VITRO-ANDS.owl#>> .
 @prefix foaf: <<http://xmlns.com/foaf/0.1/>> .
 @prefix fedoraconfig: <<http://fedora.info/definitions/v4/config#>> .
 @prefix image: <<http://www.modeshape.org/images/1.0>> .
 @prefix xml: <<http://www.w3.org/XML/1998/namespace>> .

@prefix access: <<http://fedora.info/definitions/1/0/access/>> .
 @prefix mix: <<http://www.jcp.org/jcr/mix/1.0>> .
 @prefix premis: <<http://www.loc.gov/premis/rdf/v1#>> .
 @prefix bibo: <<http://purl.org/ontology/bibo/>> .
 @prefix owl: <<http://www.w3.org/2002/07/owl#>> .
 @prefix core: <<http://vivoweb.org/ontology/core#>> .
 @prefix xsi: <<http://www.w3.org/2001/XMLSchema-instance>> .
 @prefix fedora: <<http://fedora.info/definitions/v4/repository#>> .
 @prefix ldp: <<http://www.w3.org/ns/ldp#>> .
 @prefix indexing: <<http://fedora.info/definitions/v4/indexing#>> .

<<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22>> a ldp:RDFSResource ,
 ldp:Container ,
 <<http://www.jcp.org/jcr/nt/1.0/folder>> ,
 <<http://www.jcp.org/jcr/nt/1.0/hierarchyNode>> ,
 <<http://www.jcp.org/jcr/nt/1.0/base>> ,
 <<http://www.jcp.org/jcr/mix/1.0/created>> ,
 pcdm:Object ,
 fedora:Container ,
 VITRO-ANDS:ResearchData ,
 fedora:Resource ,
 fedora:Resource ,
 indexing:Indexable ,
 <<http://www.jcp.org/jcr/mix/1.0/created>> ,
 <<http://www.jcp.org/jcr/mix/1.0/lastModified>> ,
 <<http://www.jcp.org/jcr/mix/1.0/referenceable>> ;
 ms21:hasSubject <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/subject>>;
 ms21:otherParty <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/partyRelation1>> ,
 <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/partyRelation2>> ;
 fedora:primaryType "nt:folder"^^<<http://www.w3.org/2001/XMLSchema#string>> ;
 premis:hasDateCreatedByApplication "2015-04-30T01:36:19.586Z"^^<<http://www.w3.org/2001/XMLSchema#dateTime>> ;
 dc:identifier "Dataset identifiers1"^^<<http://www.w3.org/2001/XMLSchema#string>> ,
 "Dataset identifiers2"^^<<http://www.w3.org/2001/XMLSchema#string>> ;
 dcterms:accessRights <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/access>> ;
 dcterms:copyRight <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/rights>> ;
 opmo:hasProcess <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/methodology>> ;
 dc:source "http://resdata.unsw.edu.au/"^^<<http://www.w3.org/2001/XMLSchema#string>> ;
 ms21:isPartOf <http://resdata.unsw.edu.au/resource/dataset/resdatac_49/1> ;
 ms21:other <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/relation/dataset/1>> ;
 owl:sameAs <http://resdata.unsw.edu.au/resource/dataset/resdatac_56034/1> ;
 dc:title "TEST FOR F4"^^<<http://www.w3.org/2001/XMLSchema#string>> ;
 ms21:owner "z1234566"^^<<http://www.w3.org/2001/XMLSchema#string>> ;
 ms21:hasRelatedPublication <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/publication/1>> ,
 <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/publication/2>> ,
 <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/publication/3>> ,
 <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/publication/4>> ,
 <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/publication/5>> ,
 <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/publication/6>> ;
 fedora:created "2015-04-30T04:20:20.805Z"^^<<http://www.w3.org/2001/XMLSchema#dateTime>> ;
 dc:description "TEST FOR F4 MIGRATION DESCRIPTION"^^<<http://www.w3.org/2001/XMLSchema#string>> ;
 ms21:hasAward <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/activities/b6/b6/5e/fd/b6b65efd-b72a-4f7b-b25c-ddde2628125e>> ;
 fedora:lastModified "2015-04-30T08:02:52.146Z"^^<<http://www.w3.org/2001/XMLSchema#dateTime>> ;
 access:objState access:active ;
 ms21:contributor <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/parties/4e/50/cc/be/4e50ccbe-a02c-40bd-8560-06ade471bde6>> ;
 dcterms:temporal <<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/timePeriod>> ;
 ms21:describes <http://resdata.unsw.edu.au/resource/dataset/resdatac_48/1> ;
 fedora:mixinTypes "pcdm:Object"^^<<http://www.w3.org/2001/XMLSchema#string>> ,
 "fedora:Container"^^<<http://www.w3.org/2001/XMLSchema#string>> ,
 "VITRO-ANDS:ResearchData"^^<<http://www.w3.org/2001/XMLSchema#string>> ,
 "indexing:Indexable"^^<<http://www.w3.org/2001/XMLSchema#string>> ,

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"fedora:Resource"^^<http://www.w3.org/2001/XMLSchema#string> ;
bibo:uri "http://dataset_identifier1.com"^^<http://www.w3.org/2001/XMLSchema#string> ;
ms21:hasRetentionPeriod <http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/retentionPeriod> ;
dcterms:license <http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/licence> ;
fedora:lastModifiedBy "bypassAdmin"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:uuid "bd115b36-b8e9-48a1-b82c-0d7f43a35771"^^<http://www.w3.org/2001/XMLSchema#string> ;
ms21:keyword "keyword1"^^<http://www.w3.org/2001/XMLSchema#string> ,
"keyword2"^^<http://www.w3.org/2001/XMLSchema#string> ,
"keyword3"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:createdBy "bypassAdmin"^^<http://www.w3.org/2001/XMLSchema#string> ;
core:hasGeographicLocation <http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/geo> ;
ms21:dataAccess <http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/storage> ;
ms21:principalInvestigator <http://localhost:8080/fcrepo-webapp-4.1.1/rest/parties/fa/48/65/9c/fa48659c-4680-4c49-aa8a-4db665d66312> ;
pcdm:hasMember <http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/access> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/licence> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/methodology> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/timePeriod> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/retentionPeriod> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/geo> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/publication> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/placeOfDataStorage> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/rights> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/partyRelation> ;
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/resourceRelation> ;
premis:hasDateCreatedByApplication "2015-01-01T00:00:00.000Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
ms21:owner "z2222222"^^<http://www.w3.org/2001/XMLSchema#string> ;
VITRO-ANDS: dateOfPublication "2015-02-01T00:00:00.000Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
ms21:status "published"^^<http://www.w3.org/2001/XMLSchema#string> ;
ms21:handle "http://handle.unsw.edu.au/1984.4/12432324324"^^<http://www.w3.org/2001/XMLSchema#string> ;
bibo:doi "doi:121344.12A"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:writable "true"^^<http://www.w3.org/2001/XMLSchema#boolean> ;
fedora:hasParent <http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets> ;
ldp:contains <http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/geo> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/access> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/rights> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/licence> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/methodology> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/publication> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/placeOfDataStorage> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/partyRelation> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/resourceRelation> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/timePeriod> ,
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/retentionPeriod> .
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/fcr:export?format=jcr/xml> dc:format <http://fedora.info/definitions/v4/repository#jcr/xml> .
<http://fedora.info/definitions/v4/repository#jcr/xml> rdfs:label "jcr/xml"^^<http://www.w3.org/2001/XMLSchema#string> .
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22> fedora:exportsAs <http://localhost:8080/fcrepo-webapp-4.1.1/rest/datasets/4d/59/65/90/4d596590-4a69-4c46-b902-45c4dd91ec22/fcr:export?format=jcr/xml> .

```

Fedora 4 ResData Party N3:


```

@prefix nt: <http://www.jcp.org/jcr/nt/1.0> .
@prefix pcdm: <http://pcdm.org/models#> .
@prefix ms21: <http://www.unsw.edu.au/lrs/ms21/ontology/> .
@prefix test: <info.fedora/test/> .
@prefix indexing: <http://fedora.info/definitions/v4/indexing#> .
@prefix xs: <http://www.w3.org/2001/XMLSchema> .
@prefix opmo: <http://openprovenance.org/model/opmo#> .
@prefix dcterms: <http://purl.org/dc/terms/> .
@prefix mode: <http://www.modeshape.org/1.0> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix oai: <http://www.openarchives.org/OAI/2.0/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix sv: <http://www.jcp.org/jcr/sv/1.0> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix VITRO-ANDS: <http://www.ands.org.au/ontologies/ns/0.1/VITRO-ANDS.owl#> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix fedoraconfig: <http://fedora.info/definitions/v4/config#> .
@prefix image: <http://www.modeshape.org/images/1.0> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix access: <http://fedora.info/definitions/1/0/access/> .
@prefix mix: <http://www.jcp.org/jcr/mix/1.0> .
@prefix premis: <http://www.loc.gov/premis/rdf/v1#> .
@prefix bibo: <http://purl.org/ontology/bibo/> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix core: <http://vivoweb.org/ontology/core#> .
@prefix xsi: <http://www.w3.org/2001/XMLSchema-instance> .
@prefix fedora: <http://fedora.info/definitions/v4/repository#> .
@prefix ldp: <http://www.w3.org/ns/ldp#> .
@prefix indexing: <http://fedora.info/definitions/v4/indexing#> .
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/parties/7f10/61/c9/7f1061c9-9743-459f-919b-cfd5541ffcac> a ldp:RDFSSource ,
ldp:Container ,
<http://www.jcp.org/jcr/nt/1.0/folder> ,
<http://www.jcp.org/jcr/nt/1.0/hierarchyNode> ,
<http://www.jcp.org/jcr/nt/1.0/base> ,
<http://www.jcp.org/jcr/mix/1.0/created> ,
pcdm:Object ,
fedora:Container ,
foaf:Person ,
fedora:Resource ,
fedora:Resource ,
indexing:Indexable ,
<http://www.jcp.org/jcr/mix/1.0/created> ,
<http://www.jcp.org/jcr/mix/1.0/lastModified> ,
<http://www.jcp.org/jcr/mix/1.0/referenceable> ;
fedora:primaryType "nt:folder"^^<http://www.w3.org/2001/XMLSchema#string> ;
dc:source "http://resdata.unsw.edu.au/"^^<http://www.w3.org/2001/XMLSchema#string> ;
core:affiliatedOrganization <http://localhost:8080/fcrepo-webapp-4.1.1/rest/parties/7f10/61/c9/7f1061c9-9743-459f-919b-cfd5541ffcac/organisation> ;
owl:sameAs <http://resdata.unsw.edu.au/resource/party/resdatap_17004/1> ;
ms21:phoneNumber ""^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:created "2015-04-30T07:38:41.33Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
ms21:email "z3436344@unsw.edu.au"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:lastModified "2015-04-30T08:31:32.751Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
fedora:mixinTypes "pcdm:Object"^^<http://www.w3.org/2001/XMLSchema#string> ,
"fedora:Container"^^<http://www.w3.org/2001/XMLSchema#string> ,
"foaf:Person"^^<http://www.w3.org/2001/XMLSchema#string> ,
"indexing:Indexable"^^<http://www.w3.org/2001/XMLSchema#string> ,
"fedora:Resource"^^<http://www.w3.org/2001/XMLSchema#string> ;
foaf:lastName "Doe"^^<http://www.w3.org/2001/XMLSchema#string> ;
foaf:title "Dr"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:lastModifiedBy "bypassAdmin"^^<http://www.w3.org/2001/XMLSchema#string> ;
access:objState access:active ;
fedora:uuid "b3c0a19c-d332-4640-a14a-5db3d78f32df"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:createdBy "bypassAdmin"^^<http://www.w3.org/2001/XMLSchema#string> ;
foaf:firstName "Jane"^^<http://www.w3.org/2001/XMLSchema#string> ;
premis:hasDateCreatedByApplication "2015-01-01T00:00:00.000Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
ms21:owner "z2222222"^^<http://www.w3.org/2001/XMLSchema#string> ;
VITRO-ANDS: dateOfPublication "2015-02-01T00:00:00.000Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
ms21:status "published"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:writable "true"^^<http://www.w3.org/2001/XMLSchema#boolean> ;
fedora:hasParent <http://localhost:8080/fcrepo-webapp-4.1.1/rest/parties> .
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/parties/7f10/61/c9/7f1061c9-9743-459f-919b-cfd5541ffcac/fcr:export?format=jcr/xml> dc:format <http://fedora.info/definitions/v4/repository#jcr/xml> .
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/parties/7f10/61/c9/7f1061c9-9743-459f-919b-cfd5541ffcac> fedora:exportsAs <http://localhost:8080/fcrepo-webapp-4.1.1/rest/parties/7f10/61/c9/7f1061c9-9743-459f-919b-cfd5541ffcac/fcr:export?format=jcr/xml> .
<http://fedora.info/definitions/v4/repository#jcr/xml> rdfs:label "jcr/xml"^^<http://www.w3.org/2001/XMLSchema#string> .

```

Fedora 4 ResData Activity N3:

```
@prefix nt: <http://www.jcp.org/jcr/nt/1.0> .
@prefix pcdm: <http://pcdm.org/models#> .
@prefix ms21: <http://www.unsw.edu.au/lrs/ms21/ontology/> .
@prefix test: <info.fedora/test/> .
@prefix indexing: <http://fedora.info/definitions/v4/indexing#> .
@prefix xs: <http://www.w3.org/2001/XMLSchema> .
@prefix opmo: <http://openprovenance.org/model/opmo#> .
@prefix dcterms: <http://purl.org/dc/terms/> .
@prefix mode: <http://www.modeshape.org/1.0> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix oai: <http://www.openarchives.org/OAI/2.0/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix sv: <http://www.jcp.org/jcr/sv/1.0> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix VITRO-ANDS: <http://www.ands.org.au/ontologies/ns/0.1/VITRO-ANDS.owl#> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix fedoraconfig: <http://fedora.info/definitions/v4/config#> .
@prefix image: <http://www.modeshape.org/images/1.0> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix access: <http://fedora.info/definitions/1/0/access/> .
@prefix mix: <http://www.jcp.org/jcr/mix/1.0> .
@prefix premis: <http://www.loc.gov/premis/rdf/v1#> .
@prefix bibo: <http://purl.org/ontology/bibo/> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix core: <http://vivoweb.org/ontology/core#> .
@prefix xsi: <http://www.w3.org/2001/XMLSchema-instance> .
@prefix fedora: <http://fedora.info/definitions/v4/repository#> .
@prefix ldp: <http://www.w3.org/ns/ldp#> .
@prefix indexing: <http://fedora.info/definitions/v4/indexing#> .
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/activities/b6/b6/5e/fd/b6b65efd-b72a-4f7b-b25c-ddde2628125e> a ldp:RDFSSource ,
ldp:Container ,
<http://www.jcp.org/jcr/nt/1.0/folder> ,
<http://www.jcp.org/jcr/nt/1.0/hierarchyNode> ,
<http://www.jcp.org/jcr/nt/1.0/base> ,
<http://www.jcp.org/jcr/mix/1.0/created> ,
pcdm:Object ,
fedora:Container ,
core:ResearchActivity ,
fedora:Resource ,
fedora:Resource ,
indexing:Indexable ,
<http://www.jcp.org/jcr/mix/1.0/created> ,
<http://www.jcp.org/jcr/mix/1.0/lastModified> ,
<http://www.jcp.org/jcr/mix/1.0/referenceable> ;
ms21:hasAward <http://localhost:8080/fcrepo-webapp-4.1.1/rest/activities/b6/b6/5e/fd/b6b65efd-b72a-4f7b-b25c-ddde2628125e/funding> ;
fedora:primaryType "nt:folder"^^<http://www.w3.org/2001/XMLSchema#string> ;
dc:source "http://resdata.unsw.edu.au/"^^<http://www.w3.org/2001/XMLSchema#string> ;
core:affiliatedOrganization <http://localhost:8080/fcrepo-webapp-4.1.1/rest/activities/b6/b6/5e/fd/b6b65efd-b72a-4f7b-b25c-ddde2628125e/organisation>
;
owl:sameAs <http://resdata.unsw.edu.au/resource/activity/resdataaa_35003/1> ;
dc:title "FEDORA 4 test 1"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:created "2015-04-30T07:01:53.951Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
dc:description "TEST DESCRIPTION"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:lastModified "2015-04-30T08:02:52.146Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
access:objState access:active ;
core:endDate "11-03-2014"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:mixinTypes "pcdm:Object"^^<http://www.w3.org/2001/XMLSchema#string> ,
"fedora:Container"^^<http://www.w3.org/2001/XMLSchema#string> ,
"fedora:Resource"^^<http://www.w3.org/2001/XMLSchema#string> ,
"indexing:Indexable"^^<http://www.w3.org/2001/XMLSchema#string> ,
"core:ResearchActivity"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:lastModifiedBy "bypassAdmin"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:uuid "a1c7d8cc-6c2a-41e1-b890-849e4500f48b"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:createdBy "bypassAdmin"^^<http://www.w3.org/2001/XMLSchema#string> ;
core:startDate "01-03-2014"^^<http://www.w3.org/2001/XMLSchema#string> ;
premis:hasDateCreatedByApplication "2015-01-01T00:00:00.000Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
ms21:owner "z2222222"^^<http://www.w3.org/2001/XMLSchema#string> ;
VITRO-ANDS: dateOfPublication "2015-02-01T00:00:00.000Z"^^<http://www.w3.org/2001/XMLSchema#dateTime> ;
ms21:status "published"^^<http://www.w3.org/2001/XMLSchema#string> ;
fedora:writable "true"^^<http://www.w3.org/2001/XMLSchema#boolean> ;
fedora:hasParent <http://localhost:8080/fcrepo-webapp-4.1.1/rest/activities> .
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/activities/b6/b6/5e/fd/b6b65efd-b72a-4f7b-b25c-ddde2628125e/fcr:export?format=jcr/xml> dc:format <ht
p://fedora.info/definitions/v4/repository#jcr/xml> .
<http://fedora.info/definitions/v4/repository#jcr/xml> rdfs:label "jcr/xml"^^<http://www.w3.org/2001/XMLSchema#string> .
<http://localhost:8080/fcrepo-webapp-4.1.1/rest/activities/b6/b6/5e/fd/b6b65efd-b72a-4f7b-b25c-ddde2628125e> fedora:exportsAs <http://localhost:8080
/fcrepo-webapp-4.1.1/rest/activities/b6/b6/5e/fd/b6b65efd-b72a-4f7b-b25c-ddde2628125e/fcr:export?format=jcr/xml> .
```

Fedora 3 ResData RELS-EXT Example for Dataset:

```
<rdf:RDF xmlns:fedora="info:fedora/fedora-system:def/relations-external#"
xmlns:myns="http://www.nsd.org/ontologies/relationships#"
xmlns:myns="http://www.nsd.org/ontologies/relationships#"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
xmlns:ms21="http://www.unsw.edu.au/lrs/ms21/ontology/"
xmlns:bibo="http://purl.org/ontology/bibo/"
xmlns:owl="http://www.w3.org/2002/07/owl#"
>
<rdf:Description rdf:about="info:fedora/resdatac:103">
<bibo:doi>http://google.com/doi/123456</bibo:doi>
<ms21:handle>http://handle.unsw.edu.au/0.1954/123456</ms21:handle>
<owl:sameAs rdf:resource="http://resdata.unsw.edu.au/resource/dataset/resdatac:71"></owl:sameAs>
</rdf:Description>
</rdf:RDF>
```

Fedora 3 ResData RELS-INT Example for Dataset:

```
<rdf:RDF xmlns:fedora="info:fedora/fedora-system:def/relations-external#"
xmlns:ms21="http://www.unsw.edu.au/lrs/ms21/ontology/"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#">
<rdf:Description rdf:about="info:fedora/resdatac:103/RDF">
<ms21:hasVersion rdf:resource="info:fedora/resdatac:103/RDF.1"></ms21:hasVersion>
<ms21:hasVersion rdf:resource="info:fedora/resdatac:103/RDF.2"></ms21:hasVersion>
<ms21:hasVersion rdf:resource="info:fedora/resdatac:103/RDF.3"></ms21:hasVersion>
</rdf:Description>

<rdf:Description rdf:about="info:fedora/resdatac:103/RDF.1">
<ms21:datePublished>1-06-2013</ms21:datePublished>
<ms21:status>published</ms21:status>
<ms21:hasChiefInvestigator>z3458489</ms21:hasChiefInvestigator>
<ms21:owner>id2222222</ms21:owner>
</rdf:Description>

<rdf:Description rdf:about="info:fedora/resdatac:103/RDF.2">
<ms21:datePublished>11-06-2013</ms21:datePublished>
<ms21:status>published</ms21:status>
<ms21:hasChiefInvestigator>z3458489</ms21:hasChiefInvestigator>
<ms21:owner>id2222222</ms21:owner>
</rdf:Description>

<rdf:Description rdf:about="info:fedora/resdatac:103/RDF.3">
<ms21:datePublished>21-06-2013</ms21:datePublished>
<ms21:status>published</ms21:status>
<ms21:hasChiefInvestigator>z3458489</ms21:hasChiefInvestigator>
<ms21:owner>id2222222</ms21:owner>
</rdf:Description>
</rdf:RDF>
```

Fedora 3 ResData RELS-EXT Example for Plan:

```

<rdf:RDF xmlns:fedora="info:fedora/fedora-system:def/relations-external#"
xmlns:myns="http://www.nsd.org/ontologies/relationships#"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
xmlns:ms21="http://www.unsw.edu.au/lrs/ms21/ontology/"
xmlns:bibo="http://purl.org/ontology/bibo/"
>
<rdf:Description rdf:about="info:fedora/rdmp:1">
<ms21:storageNamespace>pending</ms21:storageNamespace>
<ms21:storageStatus>pending</ms21:storageStatus>
<ms21:status>draft</ms21:status>
<ms21:type>research data management plan</ms21:type>
<ms21:principalInvestigator>id3456789</ms21:principalInvestigator>
<ms21:researchPlanManager>id3456710</ms21:researchPlanManager>
<ms21:contributor>id3458499</ms21:contributor>
<ms21:reader>id3458488</ms21:reader>
</rdf:Description>
</rdf:RDF>

```

Fedora 3 UNSWorks RELS-EXT Example:

```

<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:dc="http://purl.org/dc/elements/1.1/"
xmlns:dcterms="http://purl.org/dc/terms/"
xmlns:fedora="info:fedora/fedora-system:def/relations-external#"
xmlns:unswworks="http://www.unswworks.unsw.edu.au/vocab/"
xmlns:unswworksp="http://www.unswworks.unsw.edu.au/ontology/preservation-metadata/"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
>
<rdf:Description rdf:about="info:fedora/unswworks:1000">
<unswworksp:hasMetadata rdf:resource="info:fedora/unswworks:1000/MARCXML"/>
<unswworksp:hasRights rdf:resource="info:fedora/unswworks:1000/RIGHTS"/>
<unswworksp:hasResource rdf:resource="info:fedora/unswworks:1000/SOURCE02"/>
<unswworksp:dunswworkspid>unswworks:1000</unswworksp:dunswworkspid>
<unswworks:embargodate rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTime">2015-12-31T23:59:00.000Z</unswworks:embargodate>
</rdf:Description>
</rdf:RDF>

```

Fedora 3 UNSWorks RELS-INT Example:

```

<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:dc="http://purl.org/dc/elements/1.1/"
xmlns:dcterms="http://purl.org/dc/terms/"
xmlns:fedora="info:fedora/fedora-system:def/relations-external#"
xmlns:unswworks="http://www.unswworks.unsw.edu.au/vocab/"
xmlns:unswworksp="http://www.unswworks.unsw.edu.au/ontology/preservation-metadata/"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
>
<rdf:Description rdf:about="info:fedora/unswworks:1000/SOURCE01">
<unswworksp:resourceType>resource</unswworksp:resourceType>
<unswworksp:preservationMetadata rdf:resource="info:fedora/unswworks:1000/PM-SOURCE02"/>
<unswworksp:renderingSoftware rdf:resource="http://www.unswworks.unsw.edu.au/software/software:1"/>
</rdf:Description>
<rdf:Description rdf:about="info:fedora/unswworks:1000/MARCXML">
<unswworksp:resourceType>metadara</unswworksp:resourceType>
<unswworksp:preservationMetadata rdf:resource="info:fedora/unswworks:1000/PM-MARCXML"/>
</rdf:Description>
<rdf:Description rdf:about="info:fedora/unswworks:1000/RIGHTS">
<unswworksp:resourceType>rights</unswworksp:resourceType>
<unswworksp:preservationMetadata rdf:resource="info:fedora/unswworks:1000/PM-RIGHTS"/>
</rdf:Description>
</rdf:RDF>

```

UNSWWorks Data Model Example:

