```
Title:         DCUBBERLIN - agenda
Identifier:    berlin:/.index.html
Created:       2008-08-28

-----------------------------------------------------------------------
berlin:     dublincore.org:8080/usageboard/meetings/2008/09/berlin
decisions:  dublincore.org/usage/decisions
meetings:   dublincore.org/usage/meetings

-----------------------------------------------------------------------
Expected: Tom Baker, Diane Hillmann, Julie Allison, Andrew Wilson,
          Stefanie Ruehle, Akira Miyazawa, Pete Johnston, Joe Tennis
Guests:   Stuart Sutton

=======================================================================
Saturday 20 September
09:00-12:00 Morning session

Review of properties proposed by the DCMI Libraries Community (Julie)
-- berlin:/terms-dclib/.index.html
   berlin:/terms-dclib/robina-request.pdf

-- "Captured"
   berlin:/terms-dclib/date-captured.pdf
   meetings:/2002/05/captured-date_prop.html - 2002 proposal
   decisions:/2002/2002-02.captured.shtml - 2002 decision

-- "Holding Location"
   berlin:/terms-dclib/holding-location.pdf
   meetings:/2002/05/holding-location_prop.html - 2002 proposal
   decisions:/2002/2002-02.holdingLocation.shtml - 2002 decision

-- "Version"
   berlin:/terms-dclib/version.pdf
   meetings:/2002/05/description-version_prop.html - 2002 proposal
   decisions:/2002/2002-02.version.shtml - 2002 decision
   berlin:/terms-dclib/MODS_terms_in_DC-Lib_Proposal.pdf

Review of properties proposed by the Accessibility (Andrew)
-- berlin:/terms-accessibility/.index.html
   berlin:/terms-accessibility/FrontPage.html
   berlin:/terms-accessibility/NewElementProposal.html
   berlin:/terms-accessibility/AccessForAllFramework.html

-----------------------------------------------------------------------
13:00-17:00 Afternoon session

Review of Scholarly Works Application Profile (SWAP)
-- berlin:/review-swap/.index.html
-- Profile review criteria
   berlin:/ProfileReviewCriteria-20080917.html
-- Objectives and Scope, Functional Requirements, Domain Model (Andrew and Akira)
   berlin:/review-swap/ObjectivesScope_SWAP.pdf
-- DSP templates and constraints (Tom, Pete, Joe)
   berlin:/review-swap/SwapConstraints.html
```

-- DSP metadata terms referenced (Diane and Julie)
   berlin:/review-swap/ReviewMetadataTermsReferenced.html
-- Eprints Description Set Profile
   berlin:/review-swap/EprintsApplicationProfile.html
   berlin:/review-swap/eprints.xml.pdf
-- Description Set Profiles: A constraint language for Dublin Core application profiles
   berlin:/review-swap/dc-dsp.pdf

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Sunday 21 September - morning session

Guidelines for Application Profiles (Tom)
-- berlin:/dcap-guidelines/.index.html
   berlin:/dcap-guidelines/

Vocabulary Encoding Schemes and Syntax Encoding Schemes (Andrew)
-- berlin:/etc-encodingschemes/.index.html
   berlin:/etc-encodingschemes/SES_VES.pdf

Profile Review Criteria (All)
-- berlin:/ProfileReviewCriteria-20080917.html

Range of dcterms:title (Tom) - formal vote to complete unfinished business
-- berlin:/terms-titlerange/.index.html

Other actions (Tom)
-- berlin:/etc-actions/.index.html

Potential profiles to review
-- berlin:/review-planning/.index.html

15:00-16:00 Joint meeting with members of KIM Working Group

Discussion on profile review criteria with members of the Working Group on Interoperable Metadata Profiles of the KIM Project (Competence Centre for Interoperable Metadata, www.kim-forum.org).

Title: Term proposals from DCMI Libraries Community
Identifier: berlin:/terms-dclib/.index.html
Source: berlin:/terms-dclib/index.txt
Directory: berlin:/terms-dclib/
Created: 2008-09-16

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Required reading

-- Proposal submitted from Robina Clayphan, July 2008
berlin:/terms-dclib/robina-request.pdf

-- Proposal for term "Date captured"
berlin:/terms-dclib/date-captured.pdf

-- Proposal for term "Holding location"
berlin:/terms-dclib/holding-location.pdf

-- Proposal for term "Version"
berlin:/terms-dclib/version.pdf

-- 2006 report from Robina: "Proposal to remove the three MODS elements from DC-Lib"
berlin:/terms-dclib/MODS_terms_in_DC-Lib_Proposal.pdf

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Background reading

Context:
-- Library Application Profile
http://dublincore.org/documents/2004/09/10/library-application-profile/

2002 proposals
-- "Date captured"
meetings:/2002/05/captured-date_prop.html - 2002 proposal
decisions:/2002/2002-02.captured.shtml - 2002 decision

-- "Version"
meetings:/2002/05/description-version_prop.html - 2002 proposal
decisions:/2002/2002-02.version.shtml - 2002 decision

-- "holdingLocation"
meetings:/2002/05/holding-location_prop.html - 2002 proposal
decisions:/2002/2002-02.holdingLocation.shtml - 2002 decision

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2005 draft XML schema
-- http://epub.mimas.ac.uk/DC/dc-lib/xsd/dclib.xsd

Request for Creating three terms in the DCMI namespace.

Robina Clayphan, July 2008

In May 2002 the Usage Board ruled on three requests from the DC Libraries Working Group for terms to be created in the DCMI namespace. They were envisaged as having particular value for the DC Libraries Application Profile and were also generally useful for other communities.

The Usage Board decided that the terms could all be found in the MODS namespace and should be re-used from there. These decisions were in line with the principles of interoperability and the re-use of metadata terms in the development of DC application profiles (DCAPs) at that time. Since 2002, however, the understanding of data models has matured considerably. The way relationships between resources and their properties are structured has raised significant questions about the feasibility of simply mixing and matching elements based on little more than semantic equivalence.

The difficulty with re-using the MODS terms in the recommended way did not become fully apparent until a draft XML schema for DC-Lib was produced in 2005. (http://epub.mimas.ac.uk/DC/dc-lib/xsd/dclib.xsd). My report on why re-use was problematic is contained in the document entitled "MODS Terms In DC-Lib Proposal" which can be found in the file area of the DC Libries list at http://www.jiscmail.ac.uk/cgi-bin/filearea.cgi?LMGT1=DC-IBRARIES&X=1FB172010721063BAD&Y=robinaclayphan%40googlemail.com

After some discussion it was informally agreed in September 2006 that the UB would allow the creation of the three terms in the DCMI namespace even though policy had now moved on with regard to where terms should be declared. There is an outstanding action on me to submit the original term proposals to the UB in order for them to move this forward. This paper represents a request for the UB to now approve and adopt these terms into the DCMI namespace.

DC-Lib can be seen at: http://dublincore.org/documents/library-application-profile/

Term: Captured

The term "captured" was proposed as a refinement of the DC element "date". The text of the proposal can be seen at http://dublincore.org/usage/meetings/2002/05/captured-date_prop.html

The UB decision can be seen at http://dublincore.org/usage/decisions/2002/2002-02.captured.shtml

Term: Version

The term "version" was proposed as a refinement of the DC element "description". The text of the proposal can be seen at http://dublincore.org/usage/meetings/2002/05/description-version_prop.html

The UB decision can be seen at
http://dublincore.org/usage/decisions/2002/2002-02.version.shtml

Term: Location

The term "holdingLocation" was proposed as a new DC element. The text of the proposal can be seen at
http://dublincore.org/usage/meetings/2002/05/holding-location_prop.html

The UB decision can be seen at
http://dublincore.org/usage/decisions/2002/2002-02.holdingLocation.shtml

Respectfully submitted,
Robina Clayphan
Co-Task Leader, DC-Lib

DC-Libraries Application Profle Task Group

Proposal for Captured property

15 September 2008

This proposal is for review by the Usage Board. It proposes a new term "Captured" that will refine the existing DC term "Date". The term will be incorporated in DC-Lib.

Proposal: Captured

Name	captured
Label	Captured
URI	*DCMI to assign*
Definition	Date that the content of the resource was captured.
Comment	Includes the date the resource was digitized or a snapshot was taken of the content in the case of dynamic resources such as web sites or databases. Recommended best practice is to use an encoding scheme, such as the W3CDTF profile of ISO 8601.
Examples	1999-09-02
Type of term	Property
Refines	Date
Has Range	http://www.w3.org/2000/01/rdf-schema#Literal
Rationale	It may be necessary to distinguish the date captured from the date created particularly in cases where intellectual content was created on a different date than that on which it was digitized or a subsequent snapshot was taken. It is particularly useful for dynamic resources such as web pages and databases due to their changeability. Another example has been raised in the cartographic domain where survey data may be

	captured an earlier date than the creation of the map. Capture of pre-existing content into a digital form is a distinct event that needs a term that can unambiguously be used to record the event.
Related DCMI terms	Created: many library applications consider date created that of the intellectual content (this interpretation is specified in the DC-Lib application profile). It is important to also include the date of capture and to distinguish it as such.
Related non-DCMI terms	
Impact on applications	Some applications may have used the term created for this because of the lack of another term. This element refinement has been requested on several occasions. There is a known application (Colorado Digitization Project) that has used Date.Digitized locally for this concept.
About the proposers	DC-Libraries Application Profile Task Group http://dublincore.org/librarieswiki/ The submission of this property to the Usage Board is a work plan item for this Task Group.

Julie Allinson and Robina Clayphan, 15th September 2008

DC-Libraries Working Group

Proposal: Captured qualifier for Date element

13 April 2002

This proposal is for review by Dublin Core community. It proposes a new element refinement Captured for the DC:Date element that is included in the proposed DC-Library Application Profile. This review period is 15 April-11 May 2002.

Proposal: Captured refinement (element Date)

Name	captured
Label	Captured
Definition	Date that the resource was captured.
Comment	Includes the date the resource was digitized or a subsequent snapshot was taken (particularly for dynamic resources) if different from Date.Created . Best practice is to use as a machine-processible date (ISO 8601 or W3CDTF).
Examples	1999
Type of term	Element refinement
Term qualified	Date
Why needed	It may be necessary to distinguish the date captured from date created, particularly in cases where the intellectual content was created on a different date than that in which it was digitized or a subsequent snapshot was taken (particularly for dynamic resources).
Proposed status	Domain-specific
Related DCMI terms	Date.Creation: many library applications consider date created that of the intellectual content (this interpretation is specified in the DC-Lib application profile). It is important to also include the date of capture and to distinguish it as such.
Related non-DCMI terms	
Impact on applications	Some applications may have used Date.Created for this because of the lack of a qualifier. This element refinement has been requested on several occasions. There is a known application (Colorado Digitization Project) that has used Date. Digitized locally for this concept.
About the proposers	DC-Libraries Working Group: Library application Profile: discussion on drafting committee list: http://www.jiscmail.ac.uk/cgi-bin/wa.exe?A2=ind0203&L=dc-libraries-ap&F=&S=&P=1951

Title: Decision on proposal for new term "captured"
Shepherd: Rebecca Guenther
Identifier: http://dublincore.org/usage/decisions/2002/2002-02.captured.shtml
Date: 2002-07-13
Description: The decision documented here refers to a proposal considered at the Usage Board meeting of May 2002 in Bath. This document is pointed to from the official list of Usage Board Decisions [1].

Text of proposal: http://dublincore.org/usage/meetings/2002/05/captured-date_prop.html

Decision: The Usage Board recommends using the element "dateCaptured" from the MODS namespace, http://www.loc.gov/mods/.

Reason: The term is already available in another namespace. Moreover, the term is not clearly relevant both for resource discovery and across domains. The element "dateCaptured" in MODS complies in a general way with Dublin Core principles and does not conflict with other DC terms. This decision is supported by the Usage Board decision tree condition #2 in Section 5.5 of the Usage Board Process (see http://www.dublincore.org/usage/documents/2002/03/20/process/).

[1] http://dublincore.org/usage/decisions/#Decision-2002-02

Metadata associated with this resource: http://dublincore.org/usage/decisions/2002/2002-02.captured.shtml.rdf

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DC-Libraries Application Profile Task Group

Proposal for Holding Location property

15 September 2008

This proposal is for review by the Usage Board. It proposes a new element "Holding Location" that will be included in the DC-Lib.

Proposal:Holding Location

Name	holdingLocation
Label	Holding Location
URI	*DCMI to assign*
Definition	The organisation that holds a resource and is responsible for providing access to it.
Type of Term	Property
Comment	The property should be used to indicate where responsibility for a resource lies. It may contain details of the name and address of the holding organization that has responsibility for the resource and for providing access to it either directly or indirectly. It is seen as being particularly valuable for implementations giving access to resources contributed from many sources. Also it may be used for identifying the location (rather than the identifier) of resources which are not available electronically or for resources where access restrictions mean that an application must be made to the holding repository. Value may be free text or use a value from a controlled list, such as the *MARC Code List for Organizations*, or provide a link to an authority record or other description.
Examples	Ann Arbor (MI,USA), University of Michigan Museum of Art; DLC (using encoding scheme *MARC Code List for Organizations*)
Rationale	A digital resource may be available from many services but still be the responsibility

	of an originating organisation. This property is intended to capture that element of responsibility, due to some degree of ownership of the resource (in the loosest possible sense), as opposed to the simple provision of access. The relationship of a holding institution to an information resource can be considered to be quite different conceptually from the relationships between other "agents" and the resource This term has recently been discussed as a desirable new property by the working group specifying a metadata set for Europeana www.**europeana**.eu/ .
Related non-DCMI terms	MARC Field 852 (Location); VRA element Location@type="Current Repository"; MODS Location http://www.loc.gov/standards/mods/mods-outline.html#location
About the proposers	DC-Libraries Application Profile Task Group http://dublincore.org/librarieswiki/ The submission of this property to the Usage Board is a work plan item for this Task Group. This has been given new impetus recently with other developers expressing a need for this term.

Application of this element:

Holding Location could be used with a value from an authority which would be registered as a DCMI encoding scheme or it can contain the name of the organization responsible for access. DC-Libraries TG should consider registering as an encoding scheme the *MARC Code List for Organizations*; also to be considered is the need for other encoding schemes, possibly a URI to an entry in an authority file.

Julie Allinson and Robina Clayphan, 15 September 2008

DC-Libraries Working Group

Proposal for Holding Location element

13 April 2002

This proposal is for review by Dublin Core community. It proposes a new element Holding Location that is included in the proposed DC-Library Application Profile. This review period is 15 April-11 May 2002.

Proposal: Holding Location

Name	holdingLocation
Label	Holding Location
Definition	Identifies ownership of and/or the organization responsible for access to the resource.
Comment	Use for a physical location that allows the user to retrieve the item when a URI is not appropriate (e.g. for physical items not available electronically). This also facilitates access if the URI doesn't retrieve anything or only a poor substitute. Value may be free text or use a value from a controlled list, such as the *MARC Code List for Organizations*. DC-Libraries Working Group will also evaluate the need for other encoding schemes, possibly a URI to an entry in an authority file.
Examples	Ann Arbor (MI,USA), University of Michigan Museum of Art; DLC (using encoding scheme *MARC Code List for Organizations*)
Type of term	Element
Term qualified	
Why needed	This element is needed for description of non-electronic resources that are not Web accessible and do not have URLS. Many of them also lack universal identifiers of any kind, even ISBNs. For physical resources, a user viewing the metadata must know at a minimum which institution to approach to gain access.
Proposed status	Domain-Specific
Related DCMI terms	Publisher; Identifier
Related non-DCMI terms	MARC Field 852 (Location); VRA element Location.Current Repository
Impact on applications	This element has not been used in DCMI applications and should have no impact.

About the proposers	DC-Libraries Application Profile drafting committee list: http://www.jiscmail.ac.uk/cgi-bin/wa.exe?A2=ind0110&L=dc-libraries-ap&F=&S=&P=60 Messages in support of inclusion: http://www.jiscmail.ac.uk/cgi-bin/wa.exe?A2=ind0108&L=dc-libraries&F=&S=&P=518 (Aug. 2001) http://www.jiscmail.ac.uk/cgi-bin/wa.exe?A2=ind0108&L=dc-libraries&P=R448 (Aug. 2001) http://www.jiscmail.ac.uk/cgi-bin/wa.exe?A2=ind0204&L=dc-libraries&F=&S=&P=2176 (Apr. 2002)

Related terms:

DC:Publisher. Other communities have needed to supply the holding location for physical objects described using Dublin Core. CIMI filled this need for museums by adopting the Publisher element. For museum materials, which are largely unpublished, this did not create an internal conflict. However, for libraries, where the majority of resources are published, it is crucial to distinguish between the actual publisher and the holding location. (A variation on the CIMI option is to use the Contributor or Publisher elements with an appropriate Role qualifier once the technique for expressing Role is finalized.) The drawback would be the inability, in any unqualified DC systems to distinguish, for example, works by Oxford University from those held at Oxford University, with predictably bad consequences for search precision. The relationship of a holding institution to an information resource can be considered to be quite different conceptually from the relationships between other "agents" and the resource.

DC:Identifier. The definition of DC:Identifier is "an unambiguous reference to the resource within a given context." DCMES considers recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system. In the case of Holding Location, applied to non-electronic resources, many lack identifiers from a formal identification system. Thus, any qualifier adopted for DC:Identifier would not refine but change the approved definition.

MARC Field 852. The proposed element is roughly equivalent to field 852 in the MARC 21 Bibliographic and Holdings Formats, which is defined as information that identifies the organization holding the item or from which it is available. It is not clear what it means to reference a MARC element in a DC profile (further discussion needed), so this approach has not been pursued.

VRA (Visual Resources Association) Core Version 3.0. The proposed element is equivalent to Location. Current Repository. Since that standard is limited to description of visual resources and the definitions convey that, it would not be appropriate to simply reference the element.

Application of this element:

Holding Location could be used with a value from an authority which would be registered as a DCMI encoding scheme or it can contain the name of the organization responsible for access. DC-Libraries WG intends to register as an encoding scheme the *MARC Code List for Organizations*; also to be considered is the need for other encoding schemes, possibly a URI to an entry in an authority file.

Issues with this element:

The element could be considered administrative metadata in nature (i.e. metadata used in managing and

administering information resources) rather than resource discovery metadata. However, one could argue that unless you can find something, you haven't discovered much. Where a physical resource can be found is certainly as critical to successful resource discovery as Rights, for example. Rights can tell you whether you may or may not use the item. If you are permitted to use it, you will need to know where it is. See further discussion as indicated above under "about the proposers".

Title: Decision on proposal for new term "holdingLocation"
Shepherd: Rebecca Guenther
Identifier: http://dublincore.org/usage/decisions/2002/2002-02.holdingLocation.shtml
Date: 2002-07-13
Description: The decision documented here refers to a proposal considered at the Usage Board meeting of May 2002 in Bath. This document is pointed to from the official list of Usage Board Decisions [1].

Text of proposal: http://dublincore.org/usage/meetings/2002/05/holding-location_prop.html

Decision: The Usage Board recommends using the element "location" from the MODS namespace, http://www.loc.gov/mods/.

Reason: The element is available in another namespace and is clearly relevant both across domains and to resource discovery. Since the element is defined in another namespace with the same semantics as proposed, this will satisfy the needs for DC-Libraries Application Profile. The element "location" in MODS complies in a general way with Dublin Core principles and does not conflict with other DC terms. This decision is supported by the decision tree condition #2 in Section 5.5 of the Usage Board Process (see http://www.dublincore.org/usage/documents/2002/03/20/process/).

Comments: The MODS term is equivalent to the MARC field 852 (Location) ($a,$b,$j,$e). A possible overlap of this element to an existing AGLS element ("Availability") was noted (See http://www.naa.gov.au/recordkeeping/gov_online/agls/user_manual/agls_metadata_elements.html#s4217). AGLS has not submitted a formal proposal to the Usage Board to define this element, and its relationship with "Availability" could be considered further at such time.

[1] http://dublincore.org/usage/decisions/#Decision-2002-02

Metadata associated with this resource: http://dublincore.org/usage/decisions/2002/2002-02.holdingLocation.shtml.rdf

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DC-Libraries Application Profile Task Group

Proposal: Version

4 September 2008

This proposal is for review by the Usage board. It proposes a new property "Version" that will be included in DC-Lib.

Proposal: Version

Name	version
Label	Version
URI	*DCMI to assign*
Definition	Information designating the version or edition of a work.
Comment	Includes statements designating an edition or version. This may describe the resource in terms of a number or statement that assists in distinguishing it from other expressions of similar content.
Examples	Second edition; Revised version; Version 2.0
Type of term	Property
Rationale	Being able to specify the version or edition of a given work is often critical to successful resource discovery and identification to determine whether a resource is the same as another one. This is particularly important for resources that change frequently and in services where resources or descriptions are aggregated from many sources. This term has recently been discussed as a desirable new property in the metadata developments for The European Library

	http://search.theeuropeanlibrary.org/
Related DCMI terms	Relation refinements isVersionof and hasVersion allow the inclusion of a pointer to some other resource but there is nowhere to state the version of the resource actually being described. There is also not necessarily any related item to link to.
Related non-DCMI terms	MARC Field 250 (Edition), eprint:version
Impact on applications	Other applications may have defined a local element or qualifier for this because of its general need; this has not been determined. (Earlier suggestions have been to use with DC:Title, but it is not clear if this has ever been used.)
About the proposers	DC-Libraries Application Profile Task Group http://dublincore.org/librarieswiki/ The submission of this property to the Usage Board is a work plan item for this Task Group. This has been given new impetus recently with other developers expressing a need for this term.

Julie Allinson and Robina Clayphan, 15 September 2008

DC-Libraries Working Group

Proposal: Version qualifier for Description element

13 April 2002

This proposal is for review by Dublin Core community. It proposes a new element refinement Version for the element DC:Description that is included in the proposed DC-Library Application Profile. This review period is 15 April-11 May 2002.

Proposal: Version (element Description)

Name	version
Label	Version
Definition	Information designating the version or edition of a work.
Comment	Includes statements designating an edition or version. This may describe the resource in terms of a number or statement that assists in distinguishing it from other expressions of similar content.
Examples	Second edition; Revised version; Version 2.0
Type of term	Element refinement
Term qualified	Description
Why needed	Being able to specify the version or edition of a given work is often critical to successful resource discovery and identification to determine whether a resource is the same as another one. This is particularly important for resources that change frequently.
Proposed status	Cross domain; this may be applicable for other applications
Related DCMI terms	Relation, except that relation is a pointer to some other resource and is not a descriptor of its version. There is also not necessarily any related item to link to.
Related non-DCMI terms	MARC Field 250 (Edition)
Impact on applications	Other applications may have defined a local element or qualifier for this because of its general need; this has not been determined. (Earlier suggestions have been to use with DC:Title, but it is not clear if this has ever been used.)
About the proposers	DC-Libraries Application Profile drafting committee discussion Sept. 2001: http://www.jiscmail.ac.uk/cgi-bin/wa.exe?A1=ind0109&L=dc-libraries-ap See Position paper by Robin Wendler

Best practice: This element refinement would not be repeated.

Issues: This could also be defined as a separate element rather than element refinement, but because of its importance in identification of the resource the benefits of retaining the information when DC-Lib descriptions are "dumbed-down" to simple DC argue for refining an element within the basic 15. Since it is a essentially a descriptor, Description is an appropriate element to refine.

```
Title:          Decision on proposal for new term "version"
Shepherd:       Rebecca Guenther
Identifier:     http://dublincore.org/usage/decisions/2002/2002-02.version.shtml
Date:           2002-07-13
Description:    The decision documented here refers to a proposal
                considered at the Usage Board meeting of May 2002
                in Bath.  This document is pointed to from
                the official list of Usage Board Decisions [1].

Text of proposal:
http://dublincore.org/usage/meetings/2002/05/description-version_prop.html

Decision: The Usage Board recommends using the element
"edition" from the MODS namespace, http://www.loc.gov/mods/.

Reason: Since the element is defined in another namespace
with the same semantics as proposed, this will satisfy the
needs for DC-Libraries Application Profile.  The element
"edition" in MODS complies in a general way with Dublin
Core principles and does not conflict with other DC terms.
This decision is supported by the decision tree condition
#2 in Section 5.5 of the Usage Board Process (see
http://www.dublincore.org/usage/documents/2002/03/20/process/).

[1] http://dublincore.org/usage/decisions/#Decision-2002-02
```

Metadata associated with this resource: http://dublincore.org/usage/decisions/2002/2002-02.version.shtml.rdf

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Proposal to remove the three MODS elements from DC-Lib
Robina Clayphan, 14 September 2006

The Usage Board (UB) of the Dublin Core Metadata Initiative (DCMI) will review DC application profiles (DCAPs) and register them if they conform to the DC Abstract Model (DCAM) and meet the other criteria set out in the UB Process document at http://dublincore.org/usage/documents/process/#section2-2. Such profiles are seen primarily "as a form of documentation, the purpose of which is to help implementer communities harmonize their metadata practice. In the longer term, machine-processable versions of such APs based on data models such as RDF will provide a basis for automating metadata interoperability functions such as semantic crosswalks and format conversions."

The DC Libraries application profile (DC-Lib) has been in existence for several years now but cannot progress through the review and registration processes due principally to the incorporation of three elements from the MODS namespace: dateCaptured, edition and location. The reasons for this are explained in the later sections of this paper.

Proposal
To move on from the current impasse it is proposed:

1. to remove the three problem elements immediately. This can be achieved fairly simply by a poll amongst the members of the DC Libraries working group. A discussion of this will be held during the annual meeting on 5 October 2006 in Colima, Mexico followed by a vote. The poll will then be extended to the wider DC Libraries list.

2. to start the process of finding replacement terms from other namespaces. There is already a candidate for "location" as a similar term has been established for the Collection Description application profile. A proposal to adopt this will be put to the WG meeting for voting and extended to the wider list. The WG will need to undertake the task of identifying alternatives for the other two terms - dateCaptured and edition.

3. if alternative terms cannot be found the WG will need to undertake the task of drawing up proposals to the Usage Board for the creation of new DCMI terms.

Background

The September 2002 version of the DC Libraries Application Profile (DC-Lib) was updated to incorporate three terms taken from the MODS namespace; dateCaptured, edition and location. The terms had originally been proposed to the Usage Board as new elements or element refinements for inclusion in the DCMI namespace. The 2002 version of DC-Lib can be seen at:
http://dublincore.org/documents/2002/09/24/library-application-profile/

1. The term “captured” was proposed as a refinement of the DC element “date”. The text of the proposal can be seen at http://dublincore.org/usage/meetings/2002/05/captured-date_prop.html

   The UB decision was that the element "dateCaptured" from the MODS namespace should be used instead, the main reason being that the term was already available in that namespace. The full decision can be seen at http://dublincore.org/usage/decisions/2002/2002-02.captured.shtml

2. The term “version” was proposed as a refinement of the DC element “description”. The text of the proposal can be seen at http://dublincore.org/usage/meetings/2002/05/description-version_prop.html

   The UB recommended using the element “edition” from the MODS namespace as the term was already defined there with the same semantics. The full decision can be seen at http://dublincore.org/usage/decisions/2002/2002-02.version.shtml

3. The term “holdingLocation” was proposed as a new DC element. The text of the proposal can be seen at http://dublincore.org/usage/meetings/2002/05/holding-location_prop.html

   The UB recommended using the element “location” (now physicalLocation) from the MODS namespace as the term was already defined there with the same semantics. The full decision can be seen at http://dublincore.org/usage/decisions/2002/2002-02.holdingLocation.shtml

These decisions were in line with the principles of interoperability and the re-use of metadata terms in the development of DC application profiles (DCAPs). It was felt that it was not an appropriate role for DCMI to be the guardian of an ever-expanding set of terms, especially as many terms were defined and maintained in other communities and could therefore be re-used in DCAPs. Since 2002, however, the understanding of data models has matured considerably. The way relationships between resources and their properties are structured has raised significant questions about the feasibility of simply mixing and matching elements based on little more than semantic equivalence.

Issues that have arisen

The difficulty with reusing the MODS terms in the recommended way did not become fully apparent until a draft XML schema for DC-Lib was produced in 2005. http://epub.mimas.ac.uk/DC/dc-lib/xsd/dclib.xsd

URIs and referencing the elements

In the MODS schema all three terms are sub-elements of a higher level container element: dateCaptured and edition are below originInfo, and physicalLocation (the name of the equivalent element in MODS) is below the container term Location. The immediate, and

more easily understood, problem with this situation is that the desired elements cannot be directly referenced, firstly because they are not at the top level and secondly because they do not each have a unique and persistent URI. Not being at the top level means creating such a URI would be problematic but not necessarily impossible. There is a school of thought that feels that whilst remaining within the MODS context the elements could be globalised and the necessary URIs could be created. This is as yet unproven and, even if it could be done the second and more profound issue outlined below would seem to make it a redundant exercise.

Underlying Models

The more intractable problem, is that MODS "elements" and DC "elements" are simply not the same kind of thing and cannot therefore be mixed and matched as if they were. It is true that those elements in question share the same semantics, but that is as far as the similarity goes. The main, and seemingly insuperable, problem is that the two set of terms do not share the same underlying conceptual model.

MODS elements are components in a hierarchical data structure and their interpretation is defined in terms of that structure. MODS elements are all containers of one sort or another in a tree data structure, some elements exist only to contain other elements, some are contained in those higher level elements (sub-elements); they can have attributes; at the end of a branch some elements can contain a piece of data about the resource being described. The interpretation of a MODS element depends on its position in the structure. An example is the "extent" element which appears twice in the MODS schema, once within the "physicalDescription" container element and once as a sub-element of the "part" container element – it follows that it makes no sense to talk about the meaning of the mods:extent element in isolation as its meaning can only be distinguished in the context of the structure of the MODS schema.

For the DC elements, more accurately called "properties", the DCAM specifies how to use them (and other types of term) to make statements about the relationship between resources. One of the resources will be the subject of a set of statements that constitute the description of that resource. A small example of this: the human resource "Robina Clayphan" is the "dc:creator" of the textual resource "this paper about MODS and DC" – there is a creator relationship between the first named resource and the second. This corresponds with the RDF model of a set of triples (resource, property, value). DCMI elements are not therefore containers in the MODS sense, they are properties that indicate the types of relationship that exist between two resources. This can be seen very clearly in the recently proposed XML binding for DC descriptions
(http://dublincore.org/documents/2006/05/29/dc-xml/)
where the URI for a particular resource is followed by a series URIs for the DC terms being used, each with an associated value string or URI for another resource.

Concepts like "sub-element" and "child element" make perfect sense in the MODS hierarchical model but are meaningless in the DCAM where all elements are equal; and conversely, notions such as element refinement which work in the DCAM and RDF models have no place in the MODS model.

To summarise: the MODS schema defines a structure of containers into which content (typically in the form of a text string) can be put, whereas the DC metadata set is a set of terms defining specific types of relationship between two resources. A DCAP has to be based on a single underlying model – by definition this must be the DCAM. It cannot be expressed in XML unless it is based on a single model. Any mixing and matching has to take place within the context of that model and the kind of hybridisation implied by including MODS elements cannot work.

The full discussion of the MODS and DC models and these other issues can be found in the February 2005 and April 2006 archives of the DC Libraries list.

URIs, Qnames etc.

A certain degree of confusion has been caused by the way elements and URIs etc. are commonly written down. We are all familiar with the shorthand way of referring to, for example mods:name or dc:date, but what these names conceal is what the element being referred to actually is. There is a discussion about URIs, namespaces, XML Qnames, XML elements etc in the April 2006 archive of the DC Libraries working group which is not reprised here due to the less than perfect understanding on the part of the author.

Acknowledgements

My grateful thanks to those who participated in the discussion of these issues and especially to Ann Apps and Pete Johnston for their knowledgeable and patient assistance.

```
Title:         Properties
Identifier:    berlin:/terms-accessibility/.index.html
Source:        berlin:/terms-accessibility/index.txt
Directory:     berlin:/terms-accessibility/
Created:       2008-09-17

Shepherd: Andrew

-----------------------------------------------------------------------
Required Usage Board reading
-- The wiki front page:
   http://dublincore.org/accessibilitywiki/
   archived as: berlin:/terms-accessibility/FrontPage.html

-- A proposal for a new element
   http://dublincore.org/accessibilitywiki/NewElementProposal
   archived as: berlin:/terms-accessibility/NewElementProposal.html

-- Context for the element proposal
   http://dublincore.org/accessibilitywiki/AccessForAllFramework
   archived as: berlin:/terms-accessibility/AccessForAllFramework.html


-----------------------------------------------------------------------
Background reading
-- An application profile providing context to the proposal
   http://dublincore.org/accessibilitywiki/ElementsVocabularies
   -- Liddy, August 2008: "this is irrelevant to the proposal now"

-- An abstract model for the application profile
   http://dublincore.org/accessibilitywiki/ApplicationProfileAbstractModel
   -- Liddy, August 2008: "an abstract model that relates to application
      profiles that might be considered elsewhere"

-- Various RDF schemas
   -- http://purl.org/afa/afa.xml redirects to
      http://www.ozewai.org/afa-namespaces/afa.xml which is archived as
      berlin:/terms-accessibility/afa.xml
   -- http://purl.org/afa/accessibility/accessibility.xml redirects to
      http://www.ozewai.org/afa-namespaces/accessibility/accessibility.xml which is
archived as
      berlin:/terms-accessibility/accessibility.xml
   -- Liddy, August 2008: "Long term, of course, I would not want
      to have those on my website but the purl can easily be changed. I
      trust they would point to DCMI in the end... or whatever is appropriate?"

-----------------------------------------------------------------------
2008-08-27 Liddy responses to questions by Tom

(passages in single quotes are paraphrased, in double quotes are quoted)

'We will find a (non-DCMI) way to declare accessMode,
flexibility, supportTool, role, and readingRate in an
AfA namespace.  We are asking the Usage Board to declare
accessibility in the dcterms: namespace.  Then we will register
```

an application profile and call it quits.'

[Is "accessibility" particularly salient, or is it more important than the others (is there a reason "accessibility" should be declared in a different namespace from the others)?]

"I expect that most people will do no more than give values to one element. We always thought that. Experts in the field, and those working on alternatives etc, will use the application profile. For a while we were convinced to call that main element 'adaptability' and then it became possible that the only way forward was to avoid using the main element, that we hoped would be a DC term, and use accessmode. This is, I hope, history."

[AccessForAllFramework [2] provides context, but the document cites itself (a page on accessibilitywiki) as the home of the Accessibility Framework. Where do you want to publish the overall framework itself?]

"I guess now I would go for a DC term published by DC and the rest just registered in the DC registry and finally close down leaving a page to provide guidance to DC users."

Last updated: 2008-09-17 18:40

DCMI Accessibility Wiki

(For information about Wikis and how to use this Wiki, please see the bottom of the page.)

Quick introduction

Dublin Core metadata is designed to be easy-to-use and ubiquitous. A single DC term should convey important information that can be complemented by other metadata where suitable. For people with disabilities who use assistive technologies, very detailed metadata about their needs and the characteristics of a resource may be necessary if they are to have good access to information.

The single term 'accessibility' has been designed to perform the duties of a DC term for access: it warns users with limitations on their access facilities of potential problems with a resource. AccessForAll descriptions (see below) make a much greater difference and are, of course, recommended. A resource may be inaccessible to a user as it is first published, but subsequently augmented by an accessible alternative, such as a description of an image. In this case, the use of the DC accessibility term supports the addition of another term, such as has-version or has-alternative, that points to the new resource that may be useful in the circumstances.

AccessForAll is a new strategy for matching resources to the needs and preferences of individual users, especially, but not exclusively, for those with permanent disabilities. AccessForAll is a general accessibility strategy and the task for the DC community is to develop application profiles so AccessForAll can be realised across all domains in an interoperable way. The original AccessForAll work is the work of the ATRC at the University of Toronto, who have given free access to their work, and is supported by work in other fora in collaboration with the ATRC. The first version was made by IMS GLC for education, and is currently being updated to match the ISO/IEC version.

ISO JTC1 has adopted AccessForAll and the first three parts of the standard are completed. These include an introductory Part 1; Part 2 that describes how to write descriptions of user need and preferences for digital resources and Part 3 describes how to write resource descriptions for matching them to the needs and preferences; currently Part 4 & 5 (non-digital resources), Parts 6 & 7 (events and places), and Part 8 (languages) are in preparation. The AccessForAll approach to accessibility has been implemented in several places, including at the University of Toronto (TILE - http://www.barrierfree.ca/tile/) and in the learning management product of Angel Learning (http://www.angellearning.com/products/lms/accessibility/default.html)

Potential use of DC AccessForAll metadata

- many DC creation tools are based on schema that can be augmented/replaced - the new schema will just 'slot in';
- DC-based metadata applications, in general, will be able to understand AfA DC modules because they are DC Abstract Model compliant;
- standard DC users and those with application profiles for communities such as governments, education and even public broadcasting will be able to work with the accessibility modules;
- website developers will use AfA modules to customise their sites to the needs of individual users, not just classses of users;
- website builders who have communities with special needs will use AfA modules to address their community's needs,
- etc.

Quick Links

- AccessForAllFramework: explanation of the AccessForAll approach to resource accessibility
- NewElementProposal: requirements table for the proposed DC.accessibility term
- ApplicationProfileAbstractModel (terms and values in UML diagram)
- ElementsVocabularies
- ImplementersNews - page for news and views
- EducationAndOutreach resources for AccessForAll metadata
- Draft UserGuidelines
- AccessForAllCitations meetings and other participatory events for wide consultation about the AccessForAll work
- DC Accessibility Community homepage
- Information about tools for creating and working with Dublin Core metadata
- DC 2008 Conference Accessibility Session See DraftSessionAgenda2008

Outstanding Tasks

Technical

1. finalise full AccessForAll terminology
2. register AccessForAll schema with vocabularies for terms
3. develop AccessForAll descriptions for user's needs and preferences
4. provide cross-walks?

Practical

1. provide guidelines for AccessForAll implementation
2. develop some 'very good' examples

Draft of terminology (in SKOS) as SkosTerminology

BetaVersion of AfA accessibility profile

Recommendation by DCMI Usage Board work (in progress)

- NewElementProposal: requirements table for the proposed DC.accessibility term
- draft of an ApplicationProfileAbstractModel (terms and values in UML diagram)
- AfA namespace
- ElementsVocabularies for terms as text
- ExamplesOfAccessForAll usage

Cancore work - developing guidelines for using Access For All (in IEEE LOM)

- Cancore AccessForAll Metadata Guidelines for IEEE LOM: now available at http://www.cancore.ca/guidelines/drd (These are also available in French: http://www.cancore.ca/lignes_directrices/drn).
- A list of authoring tools for making AccessForAll IEEE LOM metadata

WCAG 2.0 amendments for metadata - LN

WCAG-metadata-proposal-LN.html

Issues for Discussion on this Wiki

If you have looked at the DC Accessibility Community homepage http://dublincore.org/groups/access, you will have seen that there is a list of work items and some issues for discussion. This Wiki is here to solicit constructive comment on the issues.

If you are interested in tracking discussion on any issues, you need to register and then subscribe to the page. This means you will get notification of changes made to that page. Your name and address will not be given to anyone or used for any other purposes.

Archived pages

Discussion pages no longer active:

- EuAccessibilityQualityMark
- ExamplesOfAccessibilityTermUsage
- AdaptabilityOrAccessibility

- AccessibilityIssuesDiscussion
- ResponseToUsageBoard: WG response to UB decision of 2005-06-13
- CharterProposal: 2006 charter proposal for the DC-Accessibility working group
- DC Conference Sessions - SessionReport DC2005. Also see notes online at <http://www.w3.org/2005/09/14-dc2005-minutes.html> (thanks to Charles McCathieNevile and David Weinkauf).
- ISO CD1 EditingDiscussionItems
- DiscussionOfFcd
- CancoreAccessForAllMetadataGuidelines: CanCore Wiki discussion page
- W3C WAI proposal for RolesAndAdaptability discussion page
- discussion page for public comment on ISO FCD AccessForAllDrafts
- draft of a possible DC AccessForAllApplicationProfile (to be used only as a working document)
- a form that gives 'a sense of' the kind of questions that will be required for metadata creation - try http://www.ozewai.org/A4A/Draft-AP-6-3.html
- DC 2007 Conference Accessibility Session See DraftSessionAgenda2007

DC Accessibility Wiki

A WikiWikiWeb is a collaborative hypertext environment, with an emphasis on easy access to and modification of information. This wiki can also link to InterWiki space.

You can edit any page by pressing the link at the bottom of the page. Capitalized words joined together form a WikiName, which hyperlinks to another page. The highlighted title searches for all pages that link to the current page. Pages which do not yet exist are linked with a question mark: just follow the link and you can add a definition.

Rather than 'edit' text, please just add comments starting with your name so we know from whom they came, e.g. Liddy Nevile: Accessibility should be redefined as .....

To get an overview of this site and what it contains, see the SiteNavigation page.

To learn more about what a WikiWikiWeb is, read about WhyWikiWorks and the WikiNature. Also, consult the WikiWikiWebFaq.

Interesting starting points:

- RecentChanges: see where people are currently working
- HelpForBeginners: to get you going
- WikiSandPit: feel free to change this page and experiment with editing
- FindPage: search or browse the database in various ways
- SyntaxReference

CategoryHomepage CategoryHomepage

tags technorati : <a href="http://technorati.com/tag/accessibility" rel="tag">accessibility</a><a href="http://technorati.com/tag/metadata" rel="tag">metadata</a><a href="http://technorati.com/tag/AccessForAll" rel="tag">AccessForAll</a>

Contributions about this document are very welcome, however they should be discussed on the dc-accessibility mailing list. To join or leave the dc-accessibility mailing list, please visit http://www.jiscmail.ac.uk/lists/dc-accessibility.html.

Accessibility Term Proposal

Accessibility Requirements Table	
Name	http://purl.org/dc/terms/accessibility
Label	Accessibility
Definition	Characteristics of the resource that affect how it can be modified for users or agents.
Comment	An Accessibility statement might be used to match a (digital or physical) resource to a description of user or user agent needs and preferences.
Example 1	Accessibility ="auditoryOnly" That is, the resource contains some significant content available as sounds only, e.g. there is a significant content component with recorded speech with no alternative format.
Example 2	Accessibility ="allTextual" That is, the resource contains all significant content as transformable text, e.g. although there is visual content, it is also available as transformable text.
Example 3	Accessibility ="visualOnly" That is, the: resource contains some significant content available as images only, e.g. there is some significant content that is available as an image with no alternative format.
Type of Term	Element
Term qualified	None
Why needed	Resources that are made available electronically are often not in a suitable form for users. This may be because the users have particular needs resulting from their choice of devices, user agents, circumstances or perhaps a disability. While many of these problems can be adjusted automatically, there are some that can't. Importantly, resources should not be adjusted without input from the user about how they want these adjustments made. Currently, there is no way for a user to determine if a resource will satisfy their needs. There is no way a system can automatically match the characteristics of a resource to a user's specified needs, so all users can access content equally. Metadata descriptions of resources (and a user's needs) can be used to provide the necessary information and the term proposed aims to facilitate this. When a resource does not itself have the necessary accessibility characteristics or components, they may nevertheless be available and discovered as the result of a suitable search. In this case, they can be integrated into the original resource for the user. Use of the new term in combination with other descriptive information should enable the AccessForAll process described. Without the new term, there is information missing that is needed especially for people with severe disabilities, but which, like curb cuts, is likely to be of value to all mobile information users. Currently, there is no cross-domain metadata standard for such information although there is an equivalent ISO/IEC standard i(2008:24751) for use with educational material. That standard was developed in close collaboration with the development of this proposed DC term. In addition, as DC metadata is the base for many metadata systems, incorporation of this term into DC will encourage attention being paid to the needs of people with disabilities, among others, by a wide range of communities who provide valuable, described resources. As many significant resources are produced by content developers who are required to assess the accessibility characteristics of their resources, this term is designed to facilitate their re-use of this information as the value statement for the term. It should be noted that when a user needs content in a different language from that in which it is originally provided, for instance, the user needs a way to indicate this, but more importantly, to know if the content is in a suitable form for automatic or other translation. When a user wants content on a small screen that was first seen on a large screen, they need information about the

	content and its structure and presentation/display. Currently there is no DC term that would make available information about this characteristic of the resource.
Working Group support	In 2001, the DC Accessibility Special Interest Group first met. They determined that the DC metadata term set did not provide adequate information for the matching of resources to users' needs in cases where those users had disabilities. In the seven years since that first meeting, as the technology has matured, the range of reasons why users might not be able to access content has increased, as have the available solutions to the problem. The group started by considering available DC terms and finding that they were not sufficient, and anyway, in some cases, had to be used in relationship to each other, which was not considered appropriate. In those early days, a comprehensive, stand-alone new term was proposed and it was to be known as an accessibility term. In more recent work, especially as a result of the increased mobility of information, it has become apparent that a number of communities have an interest in how content can be adapted and transformed for individual users or circumstances. The proposed term is suitable for a wider context and so its name was changed to adaptability for a while but it has proven more appropriate to the accessibility community to call it accessibility. The term has been carefully re-modeled from the ISO/IEC version to be used in conjunction with existing DC terms. The approach to accessibility being supported by the proposed term is one that makes use of metadata. In other contexts, there are specifications and standards for the structuring, encoding and organisation of content that aim to improve the accessibility of that content. The AccessForAll approach is concerned only with description of the resource making explicit any accessibility characteristics, and the exploitation or re-use of metadata in both local and distributed environments. The aim is to provide a consistent way for content to be described so that such descriptions are interoperable and thus facilitate the greatest possible use of content suitable for people according to their needs and preferences. As some users have no flexibility with their needs while others may have choices but perhaps some preferences, the needs and preferences of users are expected to be matched using metadata including the proposed term. In the seven years of development of the proposed term, many communities have been involved and many presentations have been made in a wide range of contexts and communities. There has been a lot of feedback including in the context of DCMI conferences, workshops and email lists. The new term was made an open issue several years ago and there has not been any significant disagreement with it, so far as is known. It has been adopted in principle, awaiting DCMI recommendation, by the Australian Government as its standard, and has been recommended by the IMS Global Learning Consortium for IEEE/LOM metadata for learning resources. There has been discussion with W3C Working Groups and there is no known disagreement with the approach or term. For a complete list of public meetings, workshops, presentations and citations, please see AccessForAllCitations.
Proposed status	Recommended

Related DCMI terms	In developing the proposed term. the Working Group considered the DCMI Abstract Model in detail and shows how a potential application profile might make use of the proposed term. A UML diagram of such an ApplicationProfileAbstractModel is available. Some refinements of DC terms are expected to be used in association with the accessibility term in an application profile, possibly as follows: * has format/is format of - when a second resource presents the same content as in another resource in a different format (MIME-type etc), but usually in a different access mode * has part/is part of - when a resource has or is a component of another resource * conformsTo - when a resource conforms to the W3C/WAI guidelines, for example. Other terms are anticipated, e.g.: * has/is adaptation of - when one resource is suitable as a partial replacement/augmentation for another. It is expected that DC terms will be used in association with the accessibility term in the usual way, in particular including the following terms : * language * format * type * education level NOTE: It is the opinion of the Working Group, discussed on many occasions, that it would not be possible to simply elect to use the DC term conformsTo and avoid the need for the new term. There is no standard or set of specifications to which a resource might conform that would ensure that it would satisfy AccessForAll requirements.
Related non-DCMI terms	- IMS AccessForAll Metadata Specification (AccMD) Version 1.0: The requirements of the Adaptablity Statement term proposal, specifically its ability to match resources to the accessibility preferences of a user, are highly influenced by the IMS AccMD specification. The AccMD specification documents are located at the IMS Accessibility Web site. A brief technical explanation of the key concepts behind the AccMD can be found in the AccessForAllFramework. - ISO/IEC N:24751 AccessForAll Metadata Personal Needs and Preferences and Digital Resource Descriptions: Part 1: Framework and reference model, Part 2: “Access for all” personal needs and preferences for digital delivery, and Part 3: “Access for all” digital resource description.(In publication.)
Impact on applications	Minimal. Current DC-based applications provide no conflicting means of identifying accessibility characteristics of resources.
About the proposers	http://dublincore.org/groups/access/

The AccessForAll Framework is a general framework to be implemented in a number of communities and this representation of it aims to be the general representation for such communities. There is a discussion list for those interested in AfA metadata. Any interested party is welcome to join that mailing list. To join or leave the dc-accessibility mailing list, please visit http://www.jiscmail.ac.uk/lists/dc-accessibility.html.

AccessForAll (AfA): an Accessibility Framework

Introduction

This document explains the AccessForAll accessibility framework. The intended audience of this document is anyone interested in accessibility and standards, especially those from the metadata community. A small proficiency in software design is assumed from the reader (for this document uses UML in some of its explanations), however the hope is that the concepts are explained clearly enough to be understood by readers of any technical skill-level.

What is AccessForAll

AccessForAll is a framework designed to define and describe resource accessibility. Its goal is to provide a means whereby resources are matched to the individual accessibility needs and preferences of a particular person. The framework is divided into the following concepts, which, when used in conjunction, make possible the meeting of resources to needs and preferences and the description of resource accessibility:

- a statement of the needs and preferences of the individual user, at the time and in the context they are in (called the personal needs and preferences profile - PNP)
- a statement of the relevant characteristics of a resource to be matched to the PNP (called a digital resource description DRD)
- alternative resources that can be swapped into or appended to a given resource, when it is missing what the user needs

The main idea behind the AfA work is that while there are guidelines for making resources universally accessible, they are rarely used properly and they do not always solve all problems. AfA is about matching resources to an individual's requirements, even if it is not suitable for others. AfA anticipates the matching being done automatically but, if not, at least possible manually.

History

The concepts behind the AccessForAll framework were originally developed by the Adaptive Technology Resource Center at the University of Toronto. They were then worked on by the IMS Accessibility Working Group.[1] The working group defined two specifications: the IMS Accessibility for Learner Information Package (AccLIP) and the IMS AccessForAll Meta-data [sp] Specification (AccMD). Together they defined what is currently the AccessForAll framework in an applied, XML-specific way that is suitable for users of IEEE LOM metadata.

Accessibility Description Set

An Accessibility Description Set is a set of metadata (statements) that describe in a machine-readable way the characteristics (Digital Resource Description - DRD) of the resource that affect how it can be sensed, understood, or interacted with by users or agents. Both resources, and the needs and preferences of persons, can have Accessibility Description Sets.

Access mode

An access mode is the *human sense* or *medium* though which a person receives the output of a resource. The mode refers to either the perceptual system, or the cognitive faculty engaged by the person. An access mode is defined either as a sense, to reference a perceptual system, or as a medium to connect with a cognitive ability. Some examples will clarify:

Describing a resource's access mode as "visual" implies that a person will use their eyes (visual sense) to process it. Pictorial and video resources are examples of such resources.

Describing a resource's access mode as "textual" implies that a person will rely on their ability to read in order to understand the resource's content[2].

Alternative resource

A resource can be described as an alternative to another resource when the described resource is the same intellectual content of the referenced resource, but presented in another access mode.

AfA User Needs and Preferences Description Set

A person may at different times have different needs and preferences for resource accessibility. Their needs and preferences form a set of functional requirements that are expressed as accessibility description statements in a Personal Needs and Preferences (PNP) description set. DRD statements may contain access mode information about the relevant accessibility characteristics of the resources the person wishes to interact with.

Matching Resources to a User's Needs and Preferences

The main idea behind AfA is that if a user has a description of their accessibility needs and preferences, and is looking for resources that satisfy them, this can be done automatically by an application if those descriptions are expressed in a well-described metadata format. An example of how this might work is provided by The Inclusive Learning Exchange of the University of Toronto (http://www.barrierfree.ca/tile/).

Guidelines

See UserGuidelines

Relationship with Web Content Accessibility Guidelines (WCAG)

The Web Content Accessibility Guidelines (WCAG) are a set of principles and guidelines that define and explain the "requirements for making Web-based information and applications accessible to a wide range of people with disabilities."[3] The WCAG does not define new technologies, but rather techniques that can be applied to any type of content accessed through the Web. The AccessForAll framework defines a complementary approach to resource accessibility: The AccessForAll Framework *describes* (via metadata on resources) the accessibility properties that are *recommended* by the WCAG. This enables the AccessForAll Framework to provide a means whereby resources can be matched to the needs and preferences of persons.

Acknowledgements

The following people have contributed to the development of AfA in a significant way:

- Anastasia Cheetham, Adaptive Technology Resource Centre, University of Toronto, Canada
- Martyn Cooper, Accessibility in Educational Media Team, Institute of Educational Technology, Open Univerity, UK
- Andy Heath, Sheffield-Hallam University, UK
- Pete Johnson, UKOLN, UK
- Liddy Nevile, Computer Science Department, La Trobe University, Australia
- Andy Powell, DCMI Usage Board, UKOLN, UK
- Madeleine Rothberg, WGBH-National Center for Accessible Media, USA
- Joseph Scheuhammer, Adaptive Technology Resource Centre, University of Toronto, Canada
- Jutta Treviranus, Faculty of Information Sciences, University of Toronto, Canada
- David Weinkauf, Adaptive Technology Resource Centre, University of Toronto, Canada

tags technorati : <a href="http://technorati.com/tag/accessibility" rel="tag">accessibility</a> <a href="http://technorati.com/tag/metadata" rel="tag">metadata</a> <a href="http://technorati.com/tag/AccessForAll" rel="tag">AccessForAll</a>

- 1 The Website for the IMS Accessibility Working Group is located at http://www.imsglobal.org/accessibility.
- 2 Textual content may be rendered into speech or Braille by a processing system, however these would not be considered the resource's (original) access modes.
- 3 From the Web Content Accessibility Guidelines 2.0 (http://www.w3.org/TR/WCAG20/).

Title: Review of SWAP
Identifier: berlin:/review-swap/.index.html
Source: berlin:/review-swap/index.txt
Directory: berlin:/review-swap/
Created: 2008-09-17

Reviews

-- Objectives and Scope, Functional Requirements, Domain Model (Andrew and Akira)
berlin:/review-swap/ObjectivesScope_SWAP.pdf
-- see also http://dublincore.org/usageboardwiki/ObjectivesScopeSWAP

-- DSP templates and constraints (Tom, Pete, Joe)
berlin:/review-swap/SwapConstraints.html
-- see also http://dublincore.org/usageboardwiki/SwapConstraints

-- DSP metadata terms referenced (Diane and Julie)
berlin:/review-swap/ReviewMetadataTermsReferenced.html
-- see also http://dublincore.org/usageboardwiki/ReviewMetadataTermsReferenced)

Parts of review not included in the packet
-- Syntax guidelines (Tom and Stefanie)
2008-07-30. After some discussion, it was decided these older guidelines would be out of scope for the Usage Board as they will shortly be superseded by DC-DS-XML.
berlin:/review-swap/ReviewSyntaxGuidelines.html
-- see http://dublincore.org/usageboardwiki/ReviewSyntaxGuidelines
Tom and Stefanie, draft review:
http://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind0807&L=dc-usage&P=907
But subsequent discussion:
http://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind0808&L=dc-usage&P=687
http://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind0808&L=dc-usage&P=796

Basis of review - things included in the meeting packet
-- Review criteria
berlin:/ProfileReviewCriteria-20080917.html
(see http://dublincore.org/usageboardwiki/ProfileReviewCriteria)

-- Eprints Description Set Profile
berlin:/review-swap/EprintsApplicationProfile.html
-- see also http://dublincore.org/architecturewiki/EprintsApplicationProfile
berlin:/review-swap/eprints.xml.pdf
-- see also http://dublincore.org/architecturewiki/EprintsApplicationProfile?action=DSP2XML

-- Description Set Profiles: A constraint language for Dublin Core application profiles
berlin:/review-swap/dc-dsp.pdf
(http://dublincore.org/documents/2008/03/31/dc-dsp/)

Basis of review - parts NOT included in meeting packet (for reason of space)

-- Context
http://www.ukoln.ac.uk/repositories/digirep/index/SWAP

-- Functional requirements
http://www.ukoln.ac.uk/repositories/digirep/index/Functional_Requirements

-- Model
http://www.ukoln.ac.uk/repositories/digirep/index/Model

-- Eprint Terms
http://purl.org/eprint/terms/

-- Eprint Type Vocabulary Encoding Scheme
http://purl.org/eprint/type/

-- Eprint Entity Type Vocabulary Encoding Scheme
http://purl.org/eprint/entitytype/

-- Eprint Status Vocabulary Encoding Scheme
http://purl.org/eprint/status/

-- Eprint Access Rights Vocabulary Encoding Scheme
http://purl.org/eprint/accessrights/

Other SWAP links out of scope for review

http://www.ukoln.ac.uk/repositories/digirep/index/Eprints_DC_XML - XML format
http://www.ukoln.ac.uk/repositories/digirep/index/SWAP#Description_Set_profile
http://www.ukoln.ac.uk/repositories/digirep/index/Scholarly_Works_Application_Profile
See also superseded version on knowware Web site:
http://knowware.nada.kth.se/DCWiki/EprintsApplicationProfile
http://knowware.nada.kth.se/DCWiki/EprintsApplicationProfile?action=DSP2XML

Outstanding editorial work/issues (as of March 2008)

-- Movement wholesale to DC Scholar wiki -
http://dublincore.org/scholarwiki - to be proposed at DC Berlin as a task group

-- Changing from legacy 'ePrints' to SWAP terminology - some changes to be made which shouldn't affect underlying content (declared terms and vocabularies would stay as 'eprint')

-- Bringing into line with current DCAM, e.g. checking terminology (ResourceRef and ResourceId)

-- Bringing into line with current DCTERMS,
e.g. changing use of http://purl.org/dc/elements/1.1/ to
http://purl.org/dc/terms/

-- Recommending use of Dublin Core XML format (once this becomes a recommendation) rather than Eprints DC XML format

Profile Review Criteria

The following guidelines articulate the criteria by which the DCMI Usage Board reviews an Application Profile. As of March 2008, the main points of reference for these review criteria are the Singapore Framework [SINGAPORE-FRAMEWORK], DCMI Abstract Model [DC-AM], and a draft Description Set Profile specification [DC-DSP]. Best-practice examples of application profiles include Dublin Core Collections Application Profile [DC-CAP], which was reviewed by the Usage Board [DC-CAP-REVIEW] and Eprints Application Profile [EPRINTS].

Object of evaluation

An application profile is a document (or package of documents) which describes a metadata application in order to facilitate broader reuse of its metadata. A good profile provides enough detail and context to be of use to

- information providers who may need to integrate metadata from multiple sources, and
- developers who may want to build applications using the same (or similar) metadata.

An application profile documents the following:

- objectives and scope of the application,
- functional requirements of the application,
- data model of the entities described by the application, and
- a description set profile detailing the classes and properties used in an application, together with constraints on their usage.

Some of these components are considered to be "required", while others are simply "recommended". There is an overriding requirement for documentation to be semantically clear and internally consistent.

Areas of evaluation

Objectives and scope of the application

The objectives and scope of an application MUST be described. The documentation MUST provide answers to the following:

- Is there a description of the context in which the application profile is used (or can be used)?

The documentation SHOULD provide answers to the following:

- Is the target user group for the application profile identified and described?
- Are the organizations and individuals who participated in the development of a profile identified and described?
- Are any arrangements, guidelines, or intentions regarding the future development and maintenance of the profile

described?

Functional requirements of the application

The documentation MUST describe the functions of an application with regard to user needs. These functional requirements should be defined as general functions such as "find", "identify", or "select" but may be more specific.

Following questions are required aspects:

- Are the functional requirements defined?

Domain model

An application profile MUST provide a data model, if only a simple one, which describes the entities and relationships among the entities. The data model can be depicted in graphic form (e. g., as an UML class diagram) or in text. An application profile can be based on an externally defined data model. With regard to the data model the following questions have to be answered:

- Does the model depict the set of entities to be described and the relationships among those entities?
- If an application profile uses an externally defined data model:
    - Is the externally data model identified?
    - Are deviations from the externally defined data model documented?

Description set profile

A description set profile specifies a metadata record in terms of "templates" and "constraints" [DC-DSP]:

- A Description Template is a container for constraints on the described resource and for all of the statements made in a Description. (In the DCMI Abstract Model, a Description applies to about one, and only one, resource).
- A Statement Template is a container for all of the constraints that apply in a particular Statement. (In the DCMI Abstract Model, a Statement is comprised of a Property URI and a Value Surrogate.)

Description Templates for the entities of the Domain Model

If the Domain Model has only one type of resource (e.g., "book"), then all of the statements in the DSP document can be taken to be about that resource. In formal terms, the Description Template is implied and need not be explicitly labeled as such.

If the Domain Model has more than one described entity (e.g., "author" and "book"), the metadata needs to have separate Descriptions for each of those entities. Accordingly, the description set profile should provide separate, clearly delimited sections (Description Templates).

The header or introduction of a Description Template should provide the following information:

- [MANDATORY] The class (or classes) of which resources described in this description may be an instance (e.g., foaf:Person, or http://xmlns.com/foaf/0.1/Person) (*Resource Class Membership Constraint*).

- [OPTIONAL] A string used to identify the description in a metadata record.
- [OPTIONAL] An indication of whether descriptions based on the template are allowed to stand alone (e.g., "an author may not be described in the absence of a described book").
- [OPTIONAL] Minimum and maximum numbers of times this kind of description may appear in a metadata record.

Statement Templates within a Description Template

Statement Templates are typically presented as small tables for each of the "terms used" in the metadata, together with information on how those terms are used (with what cardinality, encoding schemes, and the like), along with "cataloguing rules" or usage guidelines.

These tables may include the following information:

- [OPTIONAL] Minimum and maximum numbers of times this kind of Statement may appear in the enclosing Description.
- [MANDATORY] The type of value surrogate (literal/non-literal) that is allowed in the statement. This distinction must be clear but may be inferred as follows.
- Property constraints
    - [MANDATORY] Property List Constraint: The property used in the statement (to be given as a URI or abbreviated URI, e.g., `dcterms:creator` or `http://purl.org/dc/terms/creator`).
    - [OPTIONAL] Sub-Property Constraint: A set of allowable properties or a super-property of which any sub-property may be used; this constraint is rare.

Statement Templates defining Literal Value Constraints: If only strings (i.e., literals) are allowable as values, then the Statement may be defined as referring to a Literal Value, which is represented by a Literal Value Surrogate. Allowable constraints (on a *Literal Value Surrogate*) include:

- [OPTIONAL] A list of literals, such as "animal, vegetable, mineral..." (*Literal List Constraint*).
- [OPTIONAL] An indication whether language indicators for the literal are "mandatory", "optional", or "disallowed".
- [OPTIONAL] An indication of which languages are allowed for literals.
- [OPTIONAL] An indication whether Syntax Encoding Schemes for the literal are "mandatory", "optional", or "disallowed".
- [OPTIONAL] Syntax Encoding Scheme List Constraint: A list of allowed Syntax Encoding Schemes, identified by URI.

Statement Templates defining Non-Literal Value Constraints: Allowable constraints (on a *Non-Literal Value Surrogate*) include:

- [OPTIONAL] The identifier of a Description Template that may be used to describe the value (*Description Template Reference*).
- [OPTIONAL] Class membership constraint: A list of classes (identified by URI) of which the value may be an instance.
- [OPTIONAL] Constraints on value URIs: whether a value URI is "disallowed", "optional", or "mandatory".
- [OPTIONAL] Value URI List Constraint: a list of URIs that are allowed as value URIs.
- [OPTIONAL] Vocabulary encoding scheme occurrence constraint: whether a vocabulary encoding scheme is "disallowed", "optional", or "mandatory".
- [OPTIONAL] Vocabulary encoding scheme list constraint: a list of URIs that are allowed as Vocabulary Encoding Schemes.
- Value String Constraints
    - [OPTIONAL] Minimum occurrence constraints: the minimum number of times this kind of value string must appear in the enclosing Statement.
    - [OPTIONAL] Maximum occurrence constraints: the maximum number of times this kind of value string is allowed to appear in the enclosing Statement.

Templates and Constraints as a whole

About the templates and constraints (or their functional equivalents) as a whole, the reviewer should ask:

- Do the constraints presented in the Description Templates and Statement Templates reflect the content of the domain model?
- Are the constraints presented in the Statement Templates consistent with the definition of the property provided by its owner?
    - The reviewer should verify whether the property declared in a Property Constraint has been declared with a literal or non-literal range and flag any contradictions to usage in the DSP.

Not all of the information included in a Description Set Profile will fall into the typology delineated above. Any such information may be considered "annotations" -- user guidance falling outside the Description Set Profile in a formal sense. For these types of information, the reviewer should ask the following:

- Is the recommended use of the term consistent with the definition provided by the term owner?
- Is the usage of these terms in the description set profile consistent with their declared semantics?

Description set profile: metadata terms referenced

The task of the reviewer is to identify the "terms used" in a description set profile and test whether the terms are suitable for use in metadata based on the DCMI Abstract Model. To be suitable, terms MUST be one of the four types of "metadata terms" with

a defined role in the DCMI Abstract Model: Properties (also known as Elements), Classes, Vocabulary Encoding Schemes (VES), and Syntax Encoding Schemes (SES). The following questions test whether a given term fits this known typology:

1. The DCMI Abstract Model requires that instances of Property, Class, SES, and VES be identified with Uniform Resource Identifiers (URIs). Has the term been assigned a "proper" URI (see discussion below)? If not, the term is not citable in RDF statements and is therefore not usable in metadata based on the DCMI Abstract Model.

2. Has the term been explicitly declared, in an RDF schema or other forms of documentation, to be one of the following:

    1. an RDF Property, also known (in Dublin Core usage) as an Element (`http://www.w3.org/1999/02/22-rdf-syntax-ns#Property` or a subclass thereof). Used in: Property List Constraints, Sub-Property Constraints.

    2. a Class (`http://www.w3.org/2000/01/rdf-schema#Class` or a subclass thereof). Used in: Resource Class Membership Constraints, Class Membership Constraints.

    3. an RDF Datatype or (in Dublin Core usage) Syntax Encoding Scheme (`http://www.w3.org/2000/01/rdf-schema#Datatype` or a subclass thereof). Used in: Syntax Encoding Scheme List Constraints.

    4. a Vocabulary Encoding Scheme (`http://purl.org/dc/dcam/VocabularyEncodingScheme` or a subclass thereof). Used in: Vocabulary Encoding Scheme List Constraints.

If the term in question is not clearly defined as one of these four types, it has no recognized function in metadata based on the DCMI Abstract Model.

Discussion

Declaration in an RDF schema. RDF schemas state how a given terms fit into typologies defined by standard specifications such as "RDF Vocabulary Description Language 1.0: RDF Schema" [RDFS] and DCMI Abstract Model [DC-AM]. Example schemas include those of DCMI Metadata Terms [DCMI-TERMS], the SKOS vocabulary [SKOS-VOCABULARY], and the RDF Vocabulary Description Language (RDF Schema) itself [RDFS-VOCABULARY]. For example, the term "Publisher" is declared to be an "RDF property" in the RDF schema for DCMI Metadata Terms as follows:

```
<rdf:Description rdf:about="http://purl.org/dc/terms/publisher">
<rdfs:label xml:lang="en-US">Publisher</rdfs:label>
<rdfs:comment xml:lang="en-US">An entity responsible for making the
resource available.</rdfs:comment>
<rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
...
</rdf:Description>
```

Best-practice RDF schemas. Best practice examples of well-declared terms are DCMI Metadata terms [DCMI-TERMS], Dublin Core Collection Description Terms [DC-CDT], and Eprints Terms [EPRINTS-TERMS]. Terms must also be declared in RDF schemas (e. g. for DCMI metadata terms [DCMI-TERMS-RDF] and Dublin Core Collection Description Terms [DC-CDT-RDF].

Making RDF schemas available. The W3C note "Best Practice Recipes for Publishing RDF Vocabularies" [RECIPES] describes how HTTP redirects should be used to redirect from term URIs to the RDF schemas used to describe those terms. As described in the note, RDF schemas should ideally be made available on servers configured to provide HTML Web page or RDF schema representations of term declarations via content negotiation on the basis of browser preferences (`text/html` or `application/rdf+xml`).

"Proper" URIs. By convention, new terms coined during the creation of an application profile are often assigned temporary URIs using the domain name `http://example.org`. As `http://example.org` URIs cannot be made to resolve to term declarations, such provisional URIs should be replaced by proper URIs on which metadata can be based. "Proper" URIs are URIs under a domain in which the authors of the terms are authorized to coin such URIs.

Types of terms and subclasses thereof. Types of terms defined as subclasses of the classes listed above can be used in DC-AM-based metadata -- e.g., from the Web Ontology language [OWL]: `http://www.w3.org/2002/07/owl#Class` is a subclass of `http://www.w3.org/2000/01/rdf-schema#Class` and `http://www.w3.org/2002/07/owl#ObjectProperty` is a subproperty of `http://www.w3.org/1999/02/22-rdf-syntax-ns#Property`.

Syntax Guidelines

Guidelines on syntax options and data formats may optionally be provided in an application profile. If such materials are provided, the reviewer should ascertain whether the syntax (or syntaxes) chosen support the constraints expressed in the Description Set Profile. For example, if a given encoding syntax does not support the DC-AM construct Vocabulary Encoding Scheme URIs, and constraints on Vocabulary Encoding Scheme URIs are defined in the Description Set Profile, then the reviewer should flag this inconsistency. Reviewers should consider the possibility that a Description Set Profile is not expressed in a data format directly, but by way of a transformation (e.g., GRDDL).

The reviewer should ask the following:

- Does the application profile provide guidance on syntax (whether in the form of schemas or of human-readable user guidelines)?
    - If yes, does the syntax clearly support the DC-AM entities used in the application profile?

References

[DC-CAP]	http://dublincore.org/groups/collections/collection-application-profile/2007-03-09/
[DC-CAP-REVIEW]	http:///usage/reviews/2007/collections-ap/
[DC-CDT]	http://dublincore.org/groups/collections/collection-terms/2007-03-09/
[DC-CDT-RDF]	http://dublincore.org/groups/collections/collection-terms/2007-03-09/cldterms.rdf
[DC-DSP]	http://dublincore.org/documents/2008/03/31/dc-dsp/
[DC-AM]	http://dublincore.org/documents/2007/06/04/abstract-model/
[DCMI-TERMS-RDF]	http://dublincore.org/2008/01/14/dcterms.rdf
[DCMI-TERMS]	http://dublincore.org/documents/dcmi-terms/
[DCTERMS-RDF]	http://dublincore.org/2008/01/14/dcterms.rdf
[EPRINTS-TERMS]	http://www.ukoln.ac.uk/repositories/digirep/index/Eprints_Terms
[EPRINTS]	http://www.ukoln.ac.uk/repositories/digirep/index/EPrints_Application_Profile
[OWL]	http://www.w3.org/TR/2003/WD-owl-ref-20030221/
[RDFS-VOCABULARY]	http://www.w3.org/2000/01/rdf-schema
[RDFS]	http://www.w3.org/TR/2004/REC-rdf-schema-20040210/
[RECIPES]	http://www.w3.org/TR/swbp-vocab-pub/
[SINGAPORE-FRAMEWORK]	http://dublincore.org/documents/2008/01/14/singapore-framework/

[SKOS-VOCABULARY] http://www.w3.org/2004/02/skos/core

Review of the Scholarly Works Application Profile
Part 1: Objectives and Scope, Functional Requirements, Domain Model.

Objectives and Scope

The Scholarly Works Application Profile (SWAP) [1] was developed in order to provide a method for describing eprints, alternatively referred to as scholarly works, research papers or scholarly research texts. A 'Scholarly Work' is a distinct intellectual or artistic scholarly creation. SWAP defines an eprint to be a *scientific or scholarly research text* , for example a peer-reviewed journal article, a preprint, a working paper, a thesis, a book chapter, a report, etc.

The purpose of the SWAP was to offer a solution to metadata issues identified in Eprints UK, a JISC funded research project, and to provide a richer metadata profile for the Intute repository search service [2] to use to aggregate content from digital repositories. [3]

The audience for the profile is described in the background statement [9] as the JISC repositories search service and other parts of the JISC repositories programme; and the eprints repositories community in the UK, especially those running live eprints repositories, and those about to establish such repositories. The target user group for SWAP is defined as: Implementers of UK Institutional Repositories search service; Managers and administrators of UK eprint repositories; Implementers of the Prospero interim repository. [4]

Use cases for the SWAP are set out in the description of each of the functional requirements for the profile – they are too long to list here individually. [5]

Functional Requirements

The descriptions provided for in SWAP allow the description of the range of eprints/scholarly works typically produced by academics and researchers. While, the SWAP describes a large number of functional requirements, descriptions made using the profile are principally designed to [9]:

- Provide richer, more consistent metadata descriptions of eprints;
- Facilitate search, browse or filter by a range of elements, including journal, conference or publication title, peer-review status and resource type;
- Enable identification of the latest, or most appropriate, version and facilitate navigation between different versions of eprints;
- Support added-value services, particularly those based on the use of OpenURL ContextObjects;
- Implement an unambiguous method of identifying the full text(s) of eprints;
- Enable identification of the research funder and project code;
- Facilitate identification of open access materials.

Domain Model

The domain model used by SWAP is based on the Functional Requirements for Bibliographic Records (FRBR) model, issued by the International Federation of Library Associations (IFLA) in 1998 [6]. FRBR models the bibliographic world using 4 key entities - 'Work', 'Expression', 'Manifestation' and 'Item' – which are the subject of bibliographic descriptions. The SWAP model includes a fifth entity, 'agent', which embodies the FRBR supporting entities of 'person' and 'corporate body'.

The SWAP documentation includes both a diagrammatic description of the domain model and a natural language expression of the diagram [7]:

> "A ScholarlyWork may be expressed as one or more Expressions. Each Expression may be manifested as one or more Manifestations. Each Manifestation may be made available as one or more Copies. Each ScholarlyWork may have one or more creators, funders and supervisors. Each Expression may be have one or more editors. Each Manifestation may have one or more publishers."

Andrew & Akira
20 August 2008

[1] http://knowware.nada.kth.se/DCWiki/EprintsApplicationProfile

[2] http://www.intute.ac.uk/

[3] None of the SWAP documentation describes the objectives of SWAP itself, although the statement about the background to the development of the profile provided on the SWAP wiki [8] gives what are essentially the objectives of the profile [9]. The description above also uses information from an article in *Ariadne* [10], and a 2006 presentation by J. Allinson and A. Powell [11].

[4] http://www.ukoln.ac.uk/repositories/digirep/index/Functional_Requirements#Stakeholders_and_designated_community

[5] http://www.ukoln.ac.uk/repositories/digirep/index/Functional_Requirements#Functional_Requirements_Specification

[6] http://www.ifla.org/VII/s13/frbr/frbr.htm

[7] http://www.ukoln.ac.uk/repositories/digirep/index/Model

[8] http://www.ukoln.ac.uk/repositories/digirep/index/SWAP

[9] http://www.ukoln.ac.uk/repositories/digirep/index/SWAP#Background

[10] http://www.ariadne.ac.uk/issue50/allinson-et-al/

[11] http://www.ukoln.ac.uk/ukoln/staff/j.allinson/eprints-ap-openscholarship.pdf

Questions asked of the SWAP for this part of the review.

1. Is there a description of the context in which the application profile is used (or can be used)?
   Yes.

2. Is the target user group for the application profile identified and described?
   Yes.

3. Are the organizations and individuals who participated in the development of a profile identified and described?
   Yes.

4. Are any arrangements, guidelines, or intentions regarding the future development and maintenance of the profile described?
   Yes.

5. Are the functional requirements defined?
   Yes.

6. Does the model depict the set of entities to be described and the relationships among those entities?
   Yes

7. If an application profile uses an externally defined data model:
   FRBR is used as the basis

8. Is the externally data model identified?
   Yes.

9. Are deviations from the externally defined data model documented?
   Yes.

Review of the SWAP Description Set Profile

Description Templates for the entities of the Domain Model

In draft DC-DSP spec	Caption in SWAP
5.5. Resource Class Membership Constraint	See explanation below
5.1. Identifier	Description

According to the review criteria, "the header or introduction of a Description Template" should provide one piece of mandatory information: "the class (or classes) of which resources described in this description may be an instance".

In the Scholarly Works Application Profile, the description templates are clearly marked with section headings such as "Description of the eprint as a Scholarly Work". As explained in the section "Entity typing" (near the end of the document), the Descriptions are explicitly "typed" using dc:type statements with one of the value URIs taken from the Eprints Entity Type Vocabulary Encoding Scheme:

- http://purl.org/eprint/entityType/Expression/
- http://purl.org/eprint/entityType/Manifestation/
- http://purl.org/eprint/entityType/Copy/
- http://purl.org/dc/terms/DigitalResource
- http://purl.org/eprint/entityType/Person/
- http://purl.org/eprint/entityType/Organization/

This constraint corresponds to "5.5. Resource Class Membership Constraint" in the draft "Description Set Profiles" specification. In the XML expression of SWAP, the constraint is expressed with the XML element "ResourceClass".

The constraint "5.1. Identifier" -- "A string that can be used in a Value Constraint to reference a description template that applies to the value resource." -- is used in several statement templates. For example, in the description template for the property dc:creator, the Identifier constraint is labelled "Description: agent". The nature and function of this constraint is not clear unless one consults the XML expression of SWAP), where the "Description" constraint is expressed with the XML element "descriptionTemplateID", which is itself not explicitly defined in the draft DSP specification.

Statement Templates within a Description Template

In draft DC-DSP spec	Caption in SWAP
6.1. Minimum occurrence constraint	Min occurrence

6.2. Maximum occurrence constraint	Max occurrence
6.3. Type constraint	Literal?
6.4.1. Property List Constraint	Property

The two mandatory constraints (6.3. Type Constraint and 6.4.1. Property List Constraint) are provided in all cases. In some cases, maximum and minimum times that the given kind of Statement may appear in the enclosing Description are also provided.

The following property constraints are given

- In the section "Description of the eprint as a Scholarly Work"

http://purl.org/dc/elements/1.1/type

http://purl.org/dc/elements/1.1/title

http://purl.org/dc/elements/1.1/subject

http://purl.org/dc/terms/abstract

http://purl.org/dc/elements/1.1/identifier

http://purl.org/dc/elements/1.1/creator

http://www.loc.gov/loc.terms/relators/FND

http://purl.org/eprint/terms/grantNumber

http://www.loc.gov/loc.terms/relators/THS

http://purl.org/eprint/terms/affiliatedInstitution

http://purl.org/eprint/terms/hasAdaptation

http://purl.org/eprint/terms/isExpressedAs

- In the section "Description of an Expression of the eprint"

http://purl.org/dc/elements/1.1/type

http://purl.org/dc/elements/1.1/title

http://purl.org/dc/elements/1.1/description

http://purl.org/dc/elements/1.1/identifier

http://purl.org/dc/terms/available

http://purl.org/eprint/terms/status

http://purl.org/eprint/terms/version

http://purl.org/dc/elements/1.1/language

http://purl.org/dc/elements/1.1/type

http://purl.org/eprint/terms/copyrightHolder

http://purl.org/dc/terms/hasVersion

http://purl.org/eprint/terms/hasTranslation

http://purl.org/dc/terms/bibliographicCitation

http://purl.org/dc/terms/references

http://www.loc.gov/loc.terms/relators/EDT

http://purl.org/eprint/terms/isManifestedAs

- In the section "Description of a Manifestation of an Expression of the eprint"

http://purl.org/dc/elements/1.1/type

http://purl.org/dc/elements/1.1/format

http://purl.org/dc/terms/modified

http://purl.org/dc/elements/1.1/publisher

http://purl.org/eprint/terms/isAvailableAs

- In the section "Description of a Copy of a Manifestation of the eprint"

http://purl.org/dc/elements/1.1/type

http://purl.org/dc/terms/accessRights

http://purl.org/dc/terms/license

http://purl.org/dc/terms/available

http://purl.org/dc/terms/isPartOf

- In the section "Description of a Copy of an Agent"

http://purl.org/dc/elements/1.1/type

http://xmlns.com/foaf/0.1/name

http://xmlns.com/foaf/0.1/family_name

http://xmlns.com/foaf/0.1/givenname

http://xmlns.com/foaf/0.1/workplaceHomepage

http://xmlns.com/foaf/0.1/mbox

http://xmlns.com/foaf/0.1/homepage

Statement Templates defining Literal Value Constraints

In draft DC-DSP spec	Caption in SWAP
6.5.2. Literal language constraint	Language constraint - Occurrence
6.5.4. SES constraint	SES constraint - Occurrence
6.5.5. SES list constraint	SES constraint - Choose from

Three of the five optional constraints defined for Literal Value Surrogates are used -- correctly and consistently, as far as the reviewer can see.

Statement Templates defining Non-Literal Value Constraints

In draft DC-DSP spec	Caption in SWAP
6.3.1. Value URI constraint	Value URI constraint - Occurrence
6.6.3.2. Value URI List Constraint	Value URI constraint - Choose from
6.6.4.1. VES list constraint	VES constraint - Choose from
6.6.4.1. VES occurrence constraint	VES constraint - Occurrence
6.6.5.2. Maximum occurrence constraint	Value string constraint - Max occur

Five of the possible constraints defined for Non-Literal Value Surrogates are used -- correctly and consistently, as far as the reviewer can see.

Comments

- Is it redundant to have a Value VES constraint in addition to a Value URI constraint... or good practice? (for discussion). Example: "Entity Type" under "Scholarly Work"; "Status".
- The reviewer notes that "Subject" is intended to be used with a maximum of one value string.
- There are a few systematic typos in the text:
  - s/with the description set/within the description set/
  - s/Syntax Encoding Syntax Constraint/Syntax Encoding Scheme Constraint/
- The properties "Funder", "Supervisor", "Copyright Holder", "Editor", and "Publisher" have VES occurrence constraints defined as "optional". Perhaps the intention is to make Value URIs optional?
- The property templates for "Is Expressed As", "Has Version", "Have Translation", "References", "Is Manifested As", and "Is Available As" have VES occurrence constraints of "disallowed", which makes more sense but seems unnecessary.
- The property template for "Language" (under "Expression") disallows Value URIs and VESes, but provides Value URI List Constraints and VES List Constraints with null contents. Is this redundant? The reviewer notes that this is not done for "Format".
- The property templates for "Type" (under "Expression") and "Licence" say that "recommended best practice is to provide a value URI for a class from the Eprints Type Vocabulary Encoding Scheme. However, the formal Value URI constraints force the user to choose one of the defined types, and Value Strings are disallowed. In this case, the formal constraints are stronger than the constraints expressed in natural language.

```
-----------------------------------------------------------------------
2008-09-11 Pete comments

> I have written up my review results on a new wiki page [1].
> Please note in particular the comments at the end.  Please
> feel free to fold your points directly into this wiki page.

On description templates,
```

===
The constraint [WWW]"5.1. Identifier" -- "A string that can be used in a Value Constraint to reference a description template that applies to the value resource." -- is used in several statement templates.
===

I think this needs to be a bit clearer.

5.1 applies to Description Templates - and isn't itself really a constraint, I don't think: providing a DT identifier in a DSP doesn't in itself provde any sort of constraint on a description set; it's the subsequent reference to this identifier in a constraint within a Statement Template which creates the constraint.

In the Statement Template, the constraint being used is 6.6.1 Description template reference (and this is a constraint). So I think this text needs to be clearer what is being referred to, and if it's the latter, then it belongs in the discussion of Statement Templates.

===
For example, in the description template for the property dc:creator, the Identifier constraint is labelled "Description: agent".
===

This is definitely 6.6.1 Description template reference

===
The nature and function of this constraint is not clear unless one consults the [WWW]XML expression of SWAP), where the "Description" constraint is expressed with the XML element "descriptionTemplateID", which is itself not explicitly defined in the draft [WWW]DSP specification.
===

OK, I know we can only review what is in front of us, but to be fair on the authors, this XML error is an error in the Wiki macro/plugin thing (which generates the XML).

It's also the result of the Wiki macro/plugin behaviour that - AFAICT - none of the Description Template data is made visible in the human-readable text

I think we kinda need to find some way of acknowledging that in this case some of the presentation of the document is out of the control of the author and is determined by the Wiki plugin.

And the Wiki plugin might be improved to e.g. HTML hyperlink a 6.6.1 Description template reference to the referenced DT

On statement templates....

As I think I mentioned on the telecon, I think the current UB criterion that a "6.4.1. Property List Constraint" is mandatory is too strong. A DSP can provide a "6.4.2. Sub-property constraint" (and I'm probably going to do that in one I'm working on now).

My main point is on

===
The property templates for "Type" (under "Expression") and "Licence" say

that "recommended best practice is to provide a value URI for a class from the Eprints Type Vocabulary Encoding Scheme. However, the formal Value URI constraints force the user to choose one of the defined types, and Value Strings are disallowed. In this case, the formal constraints are stronger than the constraints expressed in natural language.
===

I think there is a more fundamental problem with the STs which reference the dc:type property in the Expression DT. There are two STs (Expression/Entity Type and Expression/Type) with the same property list constraint (list of one member, dc:type).

The first ST (Expression/Entity Type) says a statement must use a value URI and that URI must be http://purl.org/eprint/entityType/Expression/ (which actually shouldn't have a terminal slash, but that isn't the point I'm making!).

The second ST (Expression/Type) says a statement must use a value URI and that URI must be one of a list (not including the URI above)

But this creates a problem for the matching algorithm. I'm fairly sure the intent is that after matching up the description template, then it uses the property constraint to select a statement template. And there must be a match on exactly one statement template i.e. the DSP draft says

===
Binding of statements to statement templates
    For each description, each statement is bound to a Statement Template in the corresponding Description Template by evaluating the Property Constraint. Each statement must be bound to exactly one
===

But here, within one DT, there are two different STs using the _same_ property list constraint (list of one member, dc:type). So in a description of an Expression, any statement using dc:type is going to match up on two STs, which I don't think is permitted.

To be sure, we proably need to check again with Mikael how the matching algorithm is supposed to work, but I think I'm right in saying there's an issue here, because we discussed it for the case of "how do we allow dc:subject with a literal "tag" value and with a specified VES?")

(The solution is to use two different properties e.g. dc:type in one case and rdf:type in the other, or coin a new subproperty)

And there prob needs to be another point in the criteria to say "Are the STs and DTs defined so as to be matchable?" (in a better form of words than that!)

2008-09-11 Joe comments

Do the constraints presented in the Description Templates and Statement Templates reflect the content of the domain model?

Is Creator an agent? In other words how does it relate to agent in the model?

Is an Editor a type of Creator? Is Editor an agent?

Status says that when used a Value is mandatory. Why is it "recommended best practice" if it is required?

Are the constraints presented in the Statement Templates consistent with the definition of property provided by its owner?

In the "Eprint-specific recommendation" for Creator you state that implementers are to provide name or URI and/or a link to a related description - is this consistent with the definition? Is a related description the Creator? Should it be "and if available a link to a related description about the author"

Property constraint declared with a literal or non-literal range? Did not check

For "annotations": Is the recommended use of the term consistent with the definition provided by the term owner? See question about Creator.

For "annotations": Is the usage of these terms in the description set profile consistent with the declared semantics? See comment on related description

---

2008-09-15 Pete

I'm looking at SWAP for other reasons, and just noticed one thing which I think is an error...

In the Expression DT, there's an ST for bibliographic citation, which is specified to take literal values, which is consistent with the range of the property.

But the DC-Text example provided has a single statement with a literal value surrogate with two value strings, one plain text, one an XML literal. Which you can't do with a literal value surrogate. It should use repeated statements each with a single value string.

I think this is a result of SWAP being designed on the basis of old DCAM and then partly updated to new DCAM and various things being missed.

SWAP review : metadata terms referenced

Author: JulieAllinson

Guidelines: http://colab.mpdl.mpg.de/mediawiki/ApplicationProfiles/ProfileReviewCriteriaDe#Description_set_profile:_metadata_terms_referenced

Dublin Core Metadata Element Set, Version 1.1

RDF schema: http://dublincore.org/2008/01/14/dcelements.rdf Documentation: http://dublincore.org/documents/dces/

Terms used as Metadata Properties:

- http://purl.org/dc/elements/1.1/type
- http://purl.org/dc/elements/1.1/title
- http://purl.org/dc/elements/1.1/subject
- http://purl.org/dc/elements/1.1/identifier
- http://purl.org/dc/elements/1.1/creator
- http://purl.org/dc/elements/1.1/description
- http://purl.org/dc/elements/1.1/format
- http://purl.org/dc/elements/1.1/identifier
- http://purl.org/dc/elements/1.1/language
- http://purl.org/dc/elements/1.1/publisher
- http://purl.org/dc/elements/1.1/title
- http://purl.org/dc/elements/1.1/type

Dublin Core Metadata Terms

RDF schema: http://dublincore.org/2008/01/14/dcterms.rdf Documentation: http://dublincore.org/documents/dcmi-terms/

Terms used as Metadata Properties:

- http://purl.org/dc/terms/abstract
- http://purl.org/dc/terms/accessRights
- http://purl.org/dc/terms/available
- http://purl.org/dc/terms/available
- http://purl.org/dc/terms/bibliographicCitation
- http://purl.org/dc/terms/hasVersion
- http://purl.org/dc/terms/isPartOf
- http://purl.org/dc/terms/license
- http://purl.org/dc/terms/modified
- http://purl.org/dc/terms/references

Terms used as Vocabulary Encoding Schemes:

- http://purl.org/dc/terms/RFC3066

Terms used as Syntax Encoding Schemes:

- http://purl.org/dc/terms/URI
- http://purl.org/dc/terms/W3CDTF

Eprints Terms

Documentation: http://www.ukoln.ac.uk/repositories/digirep/index/Eprints_Terms

Terms used as Metadata Properties:

- http://purl.org/eprint/terms/affiliatedInstitution
- http://purl.org/eprint/terms/copyrightHolder
- http://purl.org/eprint/terms/grantNumber
- http://purl.org/eprint/terms/hasAdaptation

- http://purl.org/eprint/terms/hasTranslation
- http://purl.org/eprint/terms/isAvailableAs
- http://purl.org/eprint/terms/isExpressedAs
- http://purl.org/eprint/terms/isManifestedAs
- http://purl.org/eprint/terms/status
- http://purl.org/eprint/terms/version

Terms used as Vocabulary Encoding Schemes:

- http://purl.org/eprint/terms/AccessRights
- http://purl.org/eprint/terms/Status
- http://purl.org/eprint/terms/Type
- http://purl.org/eprint/terms/EntityType

MARC relator terms

RDF Schema: http://lcweb2.loc.gov/cocoon/loc.terms/relators/dc-relators.xml Documentation: http://www.loc.gov/loc.terms/relators/dc-relators.html

Terms used as Metadata Properties:

- http://www.loc.gov/loc.terms/relators/EDT
- http://www.loc.gov/loc.terms/relators/FND
- http://www.loc.gov/loc.terms/relators/THS

FOAF Vocabulary Specification 0.91

Documentation: http://xmlns.com/foaf/spec/ RDF Schema: http://xmlns.com/foaf/spec/index.rdf

Terms used as Metadata Properties:

- http://xmlns.com/foaf/spec/#term_family_name
- http://xmlns.com/foaf/spec/#term_givenname

- http://xmlns.com/foaf/spec/#term_homepage
- http://xmlns.com/foaf/spec/#term_mbox
- http://xmlns.com/foaf/spec/#term_name
- http://xmlns.com/foaf/spec/#term_workplaceHomepage

The OpenURL Framework

Documentation: http://www.openurl.info/registry/docs/mtx/info:ofi/fmt:kev:mtx:ctx

Terms used as Syntax Encoding Schemes:

- info:ofi/fmt:kev:mtx:

Summary

- All terms used are identified with a URI.
- All terms are declared.
- Eprints terms do not have an accompanying RDF Schema, but they are documented appropriately.
- The kev:ctx format has not been formally declared, as far as the review can identify although its use does adhere to the guidelines outlined in Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata (http://dublincore.org/documents/dc-citation-guidelines/)

Introduction

This document describes a DC Application Profile for describing an eprint, or scholarly work. The application profile is based on the SWAP Model, which is in turn based on FRBR. The model comprises 5 entities - ScholarlyWork, Expression, Manifestation, Copy and Agent. This application profile provides a way of describing these entities as part of a *description set* (a set of related DC *descriptions*).

The notion of a *description set* is part of the DCMI Abstract Model. Readers that are not familiar with the DCMI Abstract Model should read A note about the DCMI Abstract Model before proceeding.

All the examples in this document are formatted according to the DC-Text notation. Readers who are not familiar with DC-Text should read A note about DC-Text before proceeding.

In the context of this work an eprint is defined to be a *scientific or scholarly research text* (as defined by the Budapest Open Access Initiative), for example a peer-reviewed journal article, a preprint, a working paper, a thesis, a book chapter, a report, etc.

Scholarly Works Application Profile

Each *description set* that complies with the Scholarly Works Application Profile is made up of a set of related *descriptions* about the entities listed above. Therefore, a typical *description set* (using the DC-Text notation) has the following structure:

```
Description Set (
	Description (
		# description of the eprint as a ScholarlyWork
		...
	)
	Description (
		# description of an Expression of the eprint
		...
	)
	Description (
		# description of a Manifestation of an Expression of the eprint
		...
	)
	Description (
		# description of a Copy of a Manifestation of an Expression of the eprint
		...
	)
	Description (
		# description of an author, funder, supervisor of the eprint or an affiliated institution
		...
	)
	Description (
		# description of an editor of an Expression of the eprint
		...
	)
	Description (
		# description of the publisher of a Manifestation of an Expression of the eprint
		...
	)
	...
)
```

Each *description set* describes only one eprint (i.e. one ScholarlyWork entity). However, multiple *descriptions* may be used to describe multiple Expression, Manifestation and Agent entities as necessary.

The metadata terms that may be used to describe each entity are described below. Note that all *properties* may be repeated if necessary. Unless otherwise noted, multiple *value strings* should be provided using separate *statements*. Where appropriate, each *value string* may have an associated *language tag*.

A minimal *description set* that conforms to this application profile must include either:

- a single ScholarlyWork *description* with at least one dc:title *statement* and one dc:type *statement* indicating that this is an entity of type http://purl.org/eprint/entityType/ScholarlyWork, or
- a single ScholarlyWork *description* with one one dc:type *statement* indicating that this is an entity of type http://purl.org/eprint/entityType/ScholarlyWork and one eprints:isExpressedAs *statement* linking to a single Expression *description* with at least one dc:title *statement* and one dc:type *statement* indicating that this is an entity of type http://purl.org/eprint/entityType/Expression.

All other aspects of the application profile are optional. #!DSP

Description of the eprint as a ScholarlyWork

Entity type

Property	http://purl.org/dc/elements/1.1/type
Min occurrence	1
Max occurrence	1
Literal?	No
Definition	The type nature or genre of the content of the resource.
Eprint-specific recommendation	Each of the entity *descriptions* in the *description sets* conforming with this application profile will need to be explicitly typed. This is done using a dc:type *statement* with one of the following *value URIs* taken from the Eprints EntityType Vocabulary Encoding Scheme corresponding to the entity being described.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/ScholarlyWork/	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/	\n \n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
      Property URI ( dc:type )
      Vocabulary Encoding Scheme URI ( eprint:EntityType )
      Value URI ( <http://purl.org/eprint/entityType/ScholarlyWork> )
)
```

Title

Property	http://purl.org/dc/elements/1.1/title
Min occurrence	1
Literal?	Yes
Definition	A name given to the resource.
Eprint-specific recommendation	The title of the eprint. Preserve the original wording, order and spelling of the eprint title. In general, only capitalize proper nouns, though there may be exceptions to this rule particularly regarding Internet-related terms. Punctuation need not reflect the usage of the original. Subtitles should be separated from the title by 'space-colon-space'.

For example:

```
Statement (
      Property URI ( dc:title )
      Literal Value String ( "Initial sequencing and analysis of the human genome" )
)
```

```
Statement (

      Property URI ( dc:title )
      Literal Value String ( "New nationalism and the old history : perspectives on the West German Historikerstreit" )
)
```

Subject

Property	http://purl.org/dc/elements/1.1/subject
Literal?	No
Definition	The topic of the content of the resource.
Eprint-specific recommendation	The topic of the eprint. In general, choose the most significant and unique words for keywords, avoiding those too general to describe a particular eprint. For free-text keywords use multiple *statements*, one for each term. There are no requirements regarding the capitalization of keywords though internal (within archive) consistency is recommended. Where terms are taken from a standard classification scheme encode each term in a separate *statement*. Use a *vocabulary encoding scheme URI* to indicate the classification scheme in use. Encode the complete subject descriptor according to the relevant scheme. Use the capitalisation and punctuation used in the original scheme. Where subject terms are taken from LCSH, the subfields of the subject heading should be separated by double dash (--) and spaces should be omitted. If the subject of the eprint is a person or an organization, provide their name as

a *value string* according to A note about the form of personal and organisational names used in value strings.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	optional	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	optional	\n \n	**Value String Constraint:**	\n	Max occurrence	1	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	disallowed	\n	*Language Constraint*:	\n	**Occurrence**	optional	\n\n)]]

For example:

```
Statement (
      Property URI ( dc:subject )
      Value String ( "polar oceanography" )
)
Statement (
      Property URI ( dc:subject )
      Value String ( "boundary current" )
)
```

Using LCSH subjects:

```
Statement (
      Property URI ( dc:subject )
      Vocabulary Encoding Scheme URI ( dcterms:LCSH )
      Value String ( "World War, 1939-1945--Germany" )
)

Statement (

      Property URI ( dc:subject )
      Vocabulary Encoding Scheme URI ( dcterms:LCSH )
      Value String ( "Germany--History--1933-1945" )
)
```

Name as subject:

```
Statement (
      Property URI ( dc:subject )
      Value String ( "Hitler, Adolf, 1889-1945" )
)
```

Abstract

Property	http://purl.org/dc/terms/abstract
Literal?	Yes
Definition	A summary of the content of the resource.
Eprint-specific recommendation	A summary of the important points of the eprint.

Identifier

Property	http://purl.org/dc/elements/1.1/identifier
Min occurrence	1
Literal?	Yes
Definition	An unambiguous reference to the resource within a given context.

Eprint-specific recommendation	A URI for the eprint.									
Value (Literal)	[[MiniPage(	**Syntax Encoding Scheme:**	\n	**Occurrence**	mandatory	\n	**Choose from**	http://purl.org/dc/terms/URI	\n \n)]]	

For example:

```
Statement (
        Property URI ( dc:identifier )
        Literal Value String ( "http://eprints.bath.ac.uk/archive/00000003/"
                Syntax Encoding Scheme URI ( dcterms:URI )
        )
)
```

Note that one of the URIs for the eprint should be encoded as the *resource URI* in the *description* of the eprint. If a Handle has been assigned to the eprint then this should be used as the *resource URI*, encoded using the http://hdl.handle.net/4263537/4069 form. Additional URIs should be provided using a dc:identifier *statement*. (See the A note about using identifiers below.)

```
Description Set (
        Description ( # description of the eprint as a ScholarlyWork
                Resource URI ( <http://hdl.handle.net/4263537/4069> )
                Statement (
                        Property URI ( dc:identifier )
                        Literal Value String ( "http://eprints.bath.ac.uk/archive/00000003/"
                                Syntax Encoding Scheme URI ( dcterms:URI )
                        )
                )
        )
        ...
)
```

Creator

Property	http://purl.org/dc/elements/1.1/creator																					
Literal?	No																					
Definition	An entity primarily responsible for making the content of the resource.																					
Eprint-specific recommendation	An author of the eprint. Use this *property* to provide the author's name and/or the URI of the author and/or to link to a *related description* (with the *description set*) about the author. Where a name is provided, see A note about the form of personal and organisational names used in value strings.																					
Value (Non-Literal)	[[MiniPage(**Description**: agent\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	optional	\n\n	**Value String Constraint:**	\n	Max occurrence	**1**	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	disallowed	\n	*Language Constraint*:	\n	**Occurrence**	optional	\n\n)]]

For example:

```
Statement (
        Property URI ( dc:creator )
        Value String ( "Heery, Rachel" )
        ResourceRef ( rachelheery )
)
```

Funder

Property	http://www.loc.gov/loc.terms/relators/FND
Literal?	No
Definition	A person or organization that furnished financial support for the production of the work.
Eprint-specific recommendation	Use this *property* to provide the funder's name and/or the URI of the funder and/or to link to a *related description* (within the *description set*) about the funder. Where a name is provided, see A note about the form of personal and organisational names used in value strings.

Value (Non-Literal)	[[MiniPage(**Description**: agent\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	optional	\n\n	**Value String Constraint:**	\n	Max occurrence	**1**	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	disallowed	\n	*Language Constraint*:	\n	**Occurrence**	optional	\n\n)]]

For example:

```
Statement (
      Property URI ( marcrel:FND )
      Value String ( "The Mellon Foundation" )
      ResourceRef ( organization5 )
)
```

Grant Number

Property	http://purl.org/eprint/terms/grantNumber
Literal?	Yes
Definition	An alpha-numeric string identifying the funding grant under which the eprint was written.
Eprint-specific recommendation	Use a *value string* to provide the grant number.

For example:

```
Statement (
      Property URI ( eprint:grantNumber )
      Literal Value String ( "A456X" )
)
```

Supervisor

Property	http://www.loc.gov/loc.terms/relators/THS
Literal?	No
Definition	A person under whose supervision a degree candidate develops and presents a thesis, mémoire, or text of a dissertation.

Eprint-specific recommendation	Use this *property* to provide the supervisor's name and/or the URI of the supervisor and/or to link to a *related description* (within the *description set*) about the supervisor. Where a name is provided, see A note about the form of personal and organisational names used in value strings.

Value (Non-Literal)	[[MiniPage(**Description**: agent\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	optional	\n\n	**Value String Constraint:**	\n	Max occurrence	1	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	disallowed	\n	*Language Constraint*:	\n	**Occurrence**	optional	\n\n)]]

For example:

```
Statement (
      Property URI ( marcrel:THS )
      Value String ( "Bloggs, Fred" )
      ResourceRef ( person15 )
)
```

Affiliated Institution

Property	http://purl.org/eprint/terms/affiliatedInstitution
Literal?	No
Definition	An organisation to which a creator of the eprint is affiliated.
Eprint-specific recommendation	Use this *property* to provide the affiliated organisation's name and/or the URI of the affiliated institution and/or to link to a *related description* (with the *description set*) about the affiliated institution. Where a name of the affiliated organisation is provided, see A note about the form of personal and organisational names used in value strings.

Value (Non-Literal)	[[MiniPage(**Description**: agent\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	optional	\n\n	**Value String Constraint:**	\n	Max occurrence	1	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	disallowed	\n	*Language Constraint*:	\n	**Occurrence**	optional	\n\n)]]

For example:

```
Statement (
      Property URI ( eprint:affiliatedInstitution )
      Value String ( "University of Bristol" )
      ResourceRef ( bristoluni )
)
```

Has Adaptation

Property	http://purl.org/eprint/terms/hasAdaptation
Literal?	No
Definition	A scholarly work that results from the described eprint being recast in a new form.

Eprint-specific recommendation	Use this *property* to provide a value URI of an adaptation of the eprint. In the context of this application profile, an example of an adaptation is the powerpoint slides (the adaptation) used to present a conference paper (the eprint) at a conference.															
Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n\n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
      Property URI ( eprint:hasAdaptation )
      Value URI ( <http://www.example.com/mypaper.ppt> )
)
```

Is Expressed As

Property	http://purl.org/eprint/terms/isExpressedAs													
Literal?	No													
Definition	A version of the described eprint.													
Eprint-specific recommendation	An expression of the described eprint. In FRBR terms, an eprint is a Work. Use this *property* to provide the URI of an expression of the eprint and/or to link to a *related description* (with the *description set*) about the expression.													
Value (Non-Literal)	[[MiniPage(**Description**: expression\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n\n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]			

For example:

```
Statement (
      Property URI ( eprint:isExpressedAs )
      ResourceRef ( expression1 )
)
```

Description of an Expression of the eprint

Entity type

Property	http://purl.org/dc/elements/1.1/type
Min occurrence	1
Max occurrence	1
Literal?	No
Definition	The type nature or genre of the content of the resource.

Eprint-specific recommendation	Each of the entity *descriptions* in the *description sets* conforming with this application profile will need to be explicitly typed. This is done using a dc:type *statement* with one of the following *value URIs* taken from the Eprints EntityType Vocabulary Encoding Scheme corresponding to the entity being described.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/Expression/	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/	\n \n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
      Property URI ( dc:type )
      Vocabulary Encoding Scheme URI ( eprint:EntityType )
      Value URI ( <http://purl.org/eprint/entityType/Expression> )
)
```

Title

Property	http://purl.org/dc/elements/1.1/title
Literal?	Yes
Definition	A name given to the resource.
Eprint-specific recommendation	A title for the expression of the eprint. Only use this property in cases where the expression title is different from the title of the eprint at the scholarly work level. For example, use this property to capture the title of a translation of the eprint. Preserve the original wording, order and spelling of the eprint title. In general, only capitalize proper nouns, though there may be exceptions to this rule particularly regarding Internet-related terms. Punctuation need not reflect the usage of the original. Subtitles should be separated from the title by 'space-colon-space'.

For example:

```
Statement (
      Property URI ( dc:title )
      Literal Value String ( "Initial sequencing and analysis of the human genome" )
)

Statement (

      Property URI ( dc:title )
      Literal Value String ( "The new nationalism and the old history : perspectives on the West German Historikerstreit" )
)
```

Description

Property	http://purl.org/dc/elements/1.1/description
Literal?	Yes
Definition	An account of the content of the resource.
Eprint-specific recommendation	A description of the expression of the eprint. Use this property to describe how the expression relates to the eprint as a scholarly work and/or other expressions.

For example:

```
Statement (
	Property URI ( dc:description )
	Literal Value String ( "Translated into French for publication in Journal des Anthropologues." )
)
```

Identifier

Property	http://purl.org/dc/elements/1.1/identifier
Min occurrence	1
Literal?	Yes
Definition	An unambiguous reference to the resource within a given context.
Eprint-specific recommendation	A URI for the described expression of the eprint.

Value (Literal)	[[MiniPage(	**Syntax Encoding Scheme:**	\n	**Occurrence**	mandatory	\n	**Choose from**	http://purl.org/dc/terms/URI	\n \n)]]

For example:

```
Statement (
	Property URI ( dc:identifier )
	Literal Value String ( "http://eprints.bath.ac.uk/archive/12345678/"
		Syntax Encoding Scheme URI ( dcterms:URI )
	)
)
```

Note that one of the URIs for the described expression of the eprint should be encoded as the *resource URI* in the *description* of the expression. If a DOI or Handle has been assigned to the expression of the eprint then this should be used as the *resource URI*, encoded using the http://dx.doi.org/10.1000/152 or http://hdl.handle.net/4263537/4069 form. Additional URIs should be provided using a dc:identifier *statement*. (See the A note about using identifiers below.)

```
Description Set (
	Description ( # description of the eprint as an Expression
		Resource URI ( <http://dx.doi.org/10.1000/152> )
		Statement (
			Property URI ( dc:identifier )
			Literal Value String ( "http://eprints.bath.ac.uk/archive/00000003/"
				Syntax Encoding Scheme URI ( dcterms:URI )
			)
		)
	)
	...
)
```

Date Available

Property	http://purl.org/dc/terms/available
Max occurrence	1
Literal?	Yes
Definition	Date (often a range) that the resource will become or did become available.
Eprint-specific recommendation	The date that the described expression of the eprint was first made public. Use a *value string* to provide the date, formatted according to the W3C Date Time Format (W3CDTF) specification.

Value (Literal)	[[MiniPage(	**Syntax Encoding Scheme:**	\n	**Occurrence**	mandatory	\n	**Choose from**	http://purl.org/dc/terms/W3CDTF	\n \n)]]

For example:

```
Statement (
```

```
        Property URI ( dcterms:available )
        Literal Value String ( "2004-09-23"
              Syntax Encoding Scheme URI ( dcterms:W3CDTF )
        )
)
```

Status

Property	http://purl.org/eprint/terms/status
Literal?	No
Definition	The status of the resource.
Eprint-specific recommendation	The status of the described expression of the eprint. Recommended best practice is to provide a *value URI* taken from the Eprints Status Vocabulary Encoding Scheme: http://purl.org/eprint/status/PeerReviewed or http://purl.org/eprint/status/NonPeerReviewed.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n	**Choose from**:	http://purl.org/eprint/status/PeerReviewed http://purl.org/eprint/status/NonPeerReviewed	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	mandatory	\n	**Choose from**:	http://purl.org/eprint/status/	\n \n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
        Property URI ( eprint:status )
        Vocabulary Encoding Scheme URI ( eprint:Status )
        Value URI ( <http://purl.org/eprint/status/PeerReviewed> )
)
```

Version Number or String

Property	http://purl.org/eprint/terms/version
Literal?	Yes
Definition	A version number or version string associated with the resource.
Eprint-specific recommendation	A version number or version string associated with the described expression of the eprint.

For example:

```
Statement (
        Property URI ( eprint:version )
        Literal Value String ( "2.0" )
)
```

Language

Property	http://purl.org/dc/elements/1.1/language

Literal?	No
Definition	A language of the intellectual content of the resource.
Eprint-specific recommendation	A language in which the described expression of the eprint is written. Use multiple *statements* if the described expression of the eprint is written in multiple languages. Provide a *value string* containing a language tag, formatted according to RFC-3066.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	disallowed	\n	**Choose from**:		\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n	**Choose from**:		\n \n	**Value String Constraint:**	\n	Max occurrence	1	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	mandatory	\n	**Option**:	http://purl.org/dc/terms/RFC3066	\n	*Language Constraint*:	\n	**Occurrence**	disallowed	\n \n)]]			

For example:

```
Statement (
        Property URI ( dc:language )
        Vocabulary Encoding Scheme URI ( dcterms:RFC3066 )
        Value String ( "fr" )
)
```

Type

Property	http://purl.org/dc/elements/1.1/type
Literal?	No
Definition	The nature or genre of the content of the resource.
Eprint-specific recommendation	The type of the described expression of the eprint. Recommended best practice is to provide a value URI for a class from the [V] Eprints Type Vocabulary Encoding Scheme.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n	**Choose from**:	http://purl.org/eprint/type/ScholarlyText http://purl.org/eprint/type/Book http://purl.org/eprint/type/BookItem http://purl.org/eprint/type/BookReview http://purl.org/eprint/type/ConferenceItem http://purl.org/eprint/type/ConferencePaper http://purl.org/eprint/type/ConferencePoster http://purl.org/eprint/type/JournalItem http://purl.org/eprint/type/JournalArticle http://purl.org/eprint/type/NewsItem http://purl.org/eprint/type/Patent http://purl.org/eprint/type/Report http://purl.org/eprint/type/SubmittedJournalArticle http://purl.org/eprint/type/Thesis http://purl.org/eprint/type/WorkingPaper	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	mandatory	\n	**Choose from**:	http://purl.org/eprint/type/	\n \n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
      Property URI ( dc:type )
      Vocabulary Encoding Scheme URI ( eprint:Type )
      Value URI ( <http://purl.org/eprint/type/JournalArticle> )
)
```

Copyright Holder

Property	http://purl.org/eprint/terms/copyrightHolder
Literal?	No
Definition	A person or organization owning copyright in the resource. A person or organization owning copyright in the eprint.
Eprint-specific recommendation	Use this *property* to provide the copyright holder's name and/or the URI of the copyright holder and/or to link to a *related description* (with the *description set*) about the copyright holder. Where a name is provided, see A note about the form of personal and organisational names used in value strings.

Value (Non-Literal)	[[MiniPage(**Description**: agent\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	optional	\n\n	**Value String Constraint:**	\n	Max occurrence	1	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	disallowed	\n	*Language Constraint*:	\n	**Occurrence**	optional	\n\n)]]

For example:

```
Statement (
      Property URI ( eprint:copyrightHolder )
      Value String ( "University of Leeds" )
      ResourceRef ( leedsuni )
)
```

Has Version

Property	http://purl.org/dc/terms/hasVersion											
Literal?	No											
Definition	The described resource has a version, edition, or adaptation, namely, the referenced resource.											
Eprint-specific recommendation	Use this *property* to provide the URI of an alternative expression of the eprint and/or to link to a *related description* (with the *description set*) about the alternative expression.											
Value (Non-Literal)	[[MiniPage(**Description**: expression\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n\n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]	

For example:

```
Statement (
      Property URI ( dcterms:hasVersion )
      ResourceRef ( version-2.1 )
)
```

Has Translation

Property	http://purl.org/eprint/terms/hasTranslation											
Literal?	No											
Definition	A translation of the described resource.											
Eprint-specific recommendation	Use this *property* to provide the URI of an expression that is a translation of the described expression of the eprint and/or to link to a *related description* (with the *description set*) about the translated expression.											
Value (Non-Literal)	[[MiniPage(**Description**: expression\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n\n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]	

For example:

```
Statement (
      Property URI ( eprint:hasTranslation )
      ResourceRef ( version-en )
)
```

Bibliographic Citation

Property	http://purl.org/dc/terms/bibliographicCitation									
Literal?	Yes									
Definition	A bibliographic reference for the resource.									
Eprint-specific recommendation	Use this *property* to provide the text citation that should be used to cite the described expression of the eprint and/or to provide an OpenURL ContextObject for the described expression of the eprint following the guidelines in the [V] Guidelines for Encoding Bibliographic Citation Information in Dublin Core Metadata DCMI Recommendation. In general, both a human-readable citation and a machine-readable OpenURL ContextObject should be provided.									
Value (Literal)	[[MiniPage(	**Syntax Encoding Scheme:**	\n	**Occurrence**	optional	\n	**Choose from**	info:ofi/fmt:kev:mtx:	\n \n)]]	

For example:

```
Statement (
      Property URI ( dcterms:bibliographicCitation )
      Literal Value String ( "Library and Information Science Research 22(3), 311-338" )
      Literal Value String ( "&ctx_ver=Z39.88-2004&rft_val_fmt=info%3Aofi%2Ffmt%3Akev%3Amtx%3Ajournal
            &rft.jtitle=Library+and+Information+Science+Research&rft.stitle=LISR
            &rft.volume=22&rft.issue=3&rft.spage=311
            &rfr_id=info%3Asid%2Fmimas.ac.uk%3Azetoc"
            Syntax Encoding Scheme URI ( kev:ctx )
      )
)
```

Note that the lines above have been wrapped for readability.

References

Property	http://purl.org/dc/terms/references
Literal?	No
Definition	The described resource references, cites, or otherwise points to the referenced resource.
Eprint-specific recommendation	Use this *property* to provide the URI of an expression of a different eprint, a textual citation for the expression and/or an OpenURL ContextObject. In general, where a human-readable citation is provided a machine-readable OpenURL ContextObject should also be provided.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	optional	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n \n	**Value String Constraint:**	\n	Max occurrence	2	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	optional	\n	**Option**:	info: ofi/ fmt: kev: mtx:	\n	*Language Constraint*:	\n	**Occurrence**	disallowed	\n \n)]]

For example:

```
Statement (
        Property URI ( dcterms:references )
        Value String ( "Heery, R. (2000). \"Information gateways: collaboration on content.\"
                Online Information Review, 24 (1), 40-45." )
        Value String ( "&ctx_ver=Z39.88-2004&rft_val_fmt=info%3Aofi%2Ffmt%3Akev%3Amtx%3Ajournal
                &rft.jtitle=Online+Information+Review&rft.volume=24&rft.issue=1&rft.spage=40
                &rft.epage=45&rft.aufirst=Rachel&rft.aulast=Heery&rft.date=2000
                &rfr_id=info%3Asid%2Fmimas.ac.uk%3Azetoc"
                Syntax Encoding Scheme URI ( kev:ctx )
        )
)
```

Editor

Property	http://www.loc.gov/loc.terms/relators/EDT
Literal?	No
Definition	A person or organization who prepares for publication a work not primarily his/her own, such as by elucidating text, adding introductory or other critical matter, or technically directing an editorial staff.

Eprint-specific recommendation	A person or organisation that prepares the described expression of the eprint for publication. Use this *property* to provide the editor's name and/or the URI of the editor and/or to link to a *related description* (with the *description set*) about the editor. Where a name is provided, see A note about the form of personal and organisational names used in value strings.

Value (Non-Literal)	[[MiniPage(**Description**: agent\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	optional	\n\n	**Value String Constraint:**	\n	Max occurrence	**1**	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	disallowed	\n	*Language Constraint*:	\n	**Occurrence**	optional	\n\n)]]

For example:

```
Statement (
      Property URI ( marcrel:EDT )
      Value String ( "Day, Michael" )
      ResourceRef ( person2 )
)
```

Is Manifested As

Property	http://purl.org/eprint/terms/isManifestedAs
Literal?	No
Definition	A manifestation of the described version of the eprint.
Eprint-specific recommendation	A manifestation of the described expression of the eprint. In FRBR terms, an eprint is a Work. Use this *property* to provide the URI of a manifestation of the expression of the eprint and/or to link to a *related description* (with the *description set*) about the manifestation.

Value (Non-Literal)	[[MiniPage(**Description**: manifestation\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n\n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
      Property URI ( eprint:isManifestedAs )
      ResourceRef ( pdfformat1 )
)
```

Description of a Manifestation of an Expression of the eprint

Entity type

Property	http://purl.org/dc/elements/1.1/type
Min occurrence	1
Max occurrence	1
Literal?	No
Definition	The type nature or genre of the content of the resource.

Eprint-specific recommendation	Each of the entity *descriptions* in the *description sets* conforming with this application profile will need to be explicitly typed. This is done using a dc:type *statement* with one of the following *value URIs* taken from the IV Eprints EntityType Vocabulary Encoding Scheme corresponding to the entity being described.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/Manifestation/	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/	\n \n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
        Property URI ( dc:type )
        Vocabulary Encoding Scheme URI ( eprint:EntityType )
        Value URI ( <http://purl.org/eprint/entityType/Manifestation> )
)
```

Format

Property	http://purl.org/dc/elements/1.1/format
Literal?	No
Definition	The physical or digital manifestation of the resource. The media-type of the described manifestation of an expression of the eprint.
Eprint-specific recommendation	Recommended best practice is to select a *value string* from the IANA registered list of Internet Media Types (MIME types).

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	disallowed	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n \n	**Value String Constraint:**	\n	Max occurrence	1	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	mandatory	\n	**Option**:	http://purl.org/dc/terms/IMT	\n	*Language Constraint*:	\n	**Occurrence**	disallowed	\n \n)]]

For example:

```
Statement (
        Property URI ( dc:format )
        Vocabulary Encoding Scheme URI ( dcterms:IMT )
        Value String ("application/pdf" )
)
```

Date Modified

Property	http://purl.org/dc/terms/modified
Literal?	Yes
Definition	Date on which the resource was changed.
Eprint-specific recommendation	The last modified date of the described manifestation of an expression of the eprint. Use a *value string* to provide the date, formatted according to the W3C Date Time Format (W3CDTF) specification.
Value (Literal)	[[MiniPage(**Syntax Encoding Scheme:** \n **Occurrence** mandatory \n **Choose from** http://purl.org/dc/terms/W3CDTF \n \n)]]

For example:

```
Statement (
      Property URI ( dcterms:modified )
      Literal Value String ( "2005-02-14"
            Syntax Encoding Scheme URI ( dcterms:W3CDTF )
      )
)
```

Publisher

Property	http://purl.org/dc/elements/1.1/publisher
Literal?	No
Definition	An entity responsible for making the resource available.
Eprint-specific recommendation	The publisher of the described manifestation of an expression of the eprint, typically either the author's institution or a commercial publisher. Use this *property* to provide the publisher's name and/or the URI of the publisher and/or to link to a *related description* (with the *description set*) about the publisher.
Value (Non-Literal)	[[MiniPage(**Description**: agent\n **Vocabulary Encoding Scheme Constraint** \n **Occurrence**: optional \n\n **Value String Constraint:** \n Max occurrence 1 \n *Syntax Encoding Syntax Constraint*: \n **Occurrence**: disallowed \n *Language Constraint*: \n **Occurrence** optional \n\n)]]

For example:

```
Statement (
      Property URI ( dc:publisher )
      Value String ( "Springer" )
      ResourceRef ( organisation1 )
)
```

Is Available As

Property	http://purl.org/eprint/terms/isAvailableAs
Literal?	No
Definition	A resource that is an exemplar of the described manifestation of an expression of the eprint.

Eprint-specific recommendation	A copy of the described manifestation of an expression of the eprint. In FRBR terms, an eprint is a Work and a copy is an Item. Use this *property* to provide the URI of a copy of a manifestation of an expression of the eprint.																				
Value (Non-Literal)	[[MiniPage(**Description**: copy\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n\n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]										

For example:

```
Statement (
      Property URI ( eprint:isAvailableAs )
      Value URI ( http://www.example.com/work/version/copy.pdf )
)
```

Description of a Copy of a Manifestation of an Expression of the eprint

Entity type

Property	http://purl.org/dc/elements/1.1/type																				
Min occurrence	1																				
Max occurrence	1																				
Literal?	No																				
Definition	The type nature or genre of the content of the resource.																				
Eprint-specific recommendation	Each of the entity *descriptions* in the *description sets* conforming with this application profile will need to be explicitly typed. This is done using a dc:type *statement* with one of the following *value URIs* taken from the [V] Eprints EntityType Vocabulary Encoding Scheme corresponding to the entity being described.																				
Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/Copy/	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/	\n \n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
      Property URI ( dc:type )
      Vocabulary Encoding Scheme URI ( eprint:EntityType )
      Value URI ( <http://purl.org/eprint/entityType/Copy> )
)
```

Access Rights

Property	http://purl.org/dc/terms/accessRights
Literal?	No

Definition	Information about who can access the resource or an indication of its security status.
Eprint-specific recommendation	Information about who can access the described copy of a manifestation of an expression of the eprint. In FRBR terms, an eprint is a Work and a copy is an Item. Recommended best practice is to provide a value URI for a class from the Eprints AccessRights Vocabulary Encoding Scheme.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n	**Choose from**:	http://purl.org/eprint/accessRights/OpenAccess http://purl.org/eprint/accessRights/RestrictedAccess http://purl.org/eprint/accessRights/ClosedAccess	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	mandatory	\n	**Choose from**:	http://purl.org/eprint/accessRights/	\n \n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
      Property URI ( dcterms:accessRights )
      Vocabulary Encoding Scheme URI ( eprint:accessRights )
      Value URI ( <http://purl.org/eprint/accessRights/OpenAccess> )
)
```

Licence

Property	http://purl.org/dc/terms/license
Literal?	No
Definition	A legal document giving official permission to do something with the resource.
Eprint-specific recommendation	The terms under which the described copy of a manifestation of an expression of the eprint is made available. Typically, the URI of a licence statement should be provided as a *value URI*.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n\n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
      Property URI ( dcterms:license )
      Value URI ( http://creativecommons.org/licenses/by/2.0/ )
)
```

Date Available

Property	http://purl.org/dc/terms/available
Max occurrence	1
Literal?	Yes
Definition	Date (often a range) that the resource will become or did become available.

Eprint-specific recommendation	The date that the described copy of a manifestation of an expression of the eprint will become or did become public. Use a *value string* to provide the date, formatted according to the W3C Date Time Format (W3CDTF) specification.

Value (Literal)	[[MiniPage(	**Syntax Encoding Scheme:**	\n	**Occurrence**	mandatory	\n	**Choose from**	http://purl.org/dc/terms/W3CDTF	\n \n)]]	

For example:

```
Statement (
        Property URI ( dcterms:available )
        Literal Value String ( "2004-09-23"
                Syntax Encoding Scheme URI ( dcterms:W3CDTF )
        )
)
```

Is Part Of

Property	http://purl.org/dc/terms/isPartOf
Literal?	No
Definition	The described resource is a physical or logical part of the referenced resource.
Eprint-specific recommendation	A collection, typically a bibliographic collection, of which the described copy is a member. Use both a *value URI* and a *value string* to indicate the collection.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n \n	**Value String Constraint:**	\n	Max occurrence	1	\n	*Syntax Encoding Syntax Constraint*:	\n	**Occurrence**:	optional	\n	*Language Constraint*:	\n	**Occurrence**	optional	\n\n)]]

For example:

```
Statement (
        Property URI ( dcterms:isPartOf )
        Value URI ( <http://purl.org/poi/iesr.ac.uk/1084445801-13323> )
        Value String ( "JSTOR" )
)
```

Description of an Agent

Entity type

Property	http://purl.org/dc/elements/1.1/type
Min occurrence	1
Max occurrence	1
Literal?	No

Definition	The type nature or genre of the content of the resource.
Eprint-specific recommendation	Each of the entity *descriptions* in the *description sets* conforming with this application profile will need to be explicitly typed. This is done using a dc:type *statement* with one of the following *value URIs* taken from the Eprints EntityType Vocabulary Encoding Scheme corresponding to the entity being described.

Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/Person/ http://purl.org/eprint/entityType/Organization/	\n \n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	mandatory	\n	**Choose from**:	http://purl.org/eprint/entityType/	\n \n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]

For example:

```
Statement (
      Property URI ( dc:type )
      Vocabulary Encoding Scheme URI ( eprint:EntityType )
      Value URI ( <http://purl.org/eprint/entityType/Person> )
)

Statement (

      Property URI ( dc:type )
      Vocabulary Encoding Scheme URI ( eprint:EntityType )
      Value URI ( <http://purl.org/eprint/entityType/Organization> )
)
```

Name

Property	http://xmlns.com/foaf/0.1/name
Literal?	Yes
Definition	A name for some thing. A name for the agent (person or organisation).
Eprint-specific recommendation	In general, use foaf:family_name and foaf:givenname for describing persons and foaf:name for describing organisations. Where a name is provided, see A note about the form of personal and organisational names used in value strings.

For example:

```
Statement (
      Property URI ( foaf:name )
      Literal Value String ( "University of York" )
)
```

Family Name

Property	http://xmlns.com/foaf/0.1/family_name
Literal?	Yes
Definition	The family name of some person. The family name of a person.
Eprint-specific recommendation	In general, use foaf:family_name and foaf:givenname for describing persons and foaf:name for describing organisations.

For example:

```
Statement (
      Property URI ( foaf:family_name )
      Literal Value String ( "Powell" )
)
```

Given Name

Property	http://xmlns.com/foaf/0.1/givenname
Literal?	Yes
Definition	The given name of some person. The given name of a person.
Eprint-specific recommendation	In general, use foaf:family_name and foaf:givenname for describing persons and foaf:name for describing organisations.

For example:

```
Statement (
      Property URI ( foaf:givenname )
      Literal Value String ( "Andy" )
)
```

Workplace Homepage

Property	http://xmlns.com/foaf/0.1/workplaceHomepage																
Literal?	No																
Definition	A workplace homepage of some person; the homepage of an organization they work for.																
Eprint-specific recommendation	The homepage of the organisation for which the author of the eprint works. Use this *property* to provide the URI of the organisational homepage as a *value URI*.																
Value (Non-Literal)	[[MiniPage(	**Value URI Constraint**:	\n	**Occurrence**	mandatory	\n\n	**Vocabulary Encoding Scheme Constraint**	\n	**Occurrence**:	disallowed	\n\n	**Value String Constraint:**	\n	Max occurrence	0	\n\n)]]	

For example:

```
Statement (
      Property URI ( foaf:workplaceHomepage )
      Value URI ( <http://www.bristol.ac.uk/> )
)
```

Mailbox

Property	http://xmlns.com/foaf/0.1/mbox

Literal?	No
Definition	A personal mailbox, ie. an Internet mailbox associated with exactly one owner, the first owner of this mailbox. This is a 'static inverse functional property', in that there is (across time and change) at most one individual that ever has any particular value for foaf:mbox.
Eprint-specific recommendation	A mailbox associated with a person, formatted as a 'mailto' URI.
Value (Non-Literal)	[[MiniPage(**Value URI Constraint**: \n **Occurrence** mandatory \n\n **Vocabulary Encoding Scheme Constraint** \n **Occurrence**: disallowed \n\n **Value String Constraint:** \n Max occurrence 0 \n\n)]]

For example:

```
Statement (
      Property URI ( foaf:mbox )
      Value URI ( "mailto:fred@example.com" )
)
```

Homepage

Property	http://xmlns.com/foaf/0.1/homepage
Literal?	No
Definition	A homepage for some thing.
Eprint-specific recommendation	Provide the URI of the agent's Web homepage as a *value URI*.
Value (Non-Literal)	[[MiniPage(**Value URI Constraint**: \n **Occurrence** mandatory \n\n **Vocabulary Encoding Scheme Constraint** \n **Occurrence**: disallowed \n\n **Value String Constraint:** \n Max occurrence 0 \n\n)]]

For example:

```
Statement (
      Property URI ( foaf:homepage )
      Value URI ( "http://www.bham.ac.uk/" )
)
```

Entity typing

Each of the entity *descriptions* in the *description sets* conforming with this application profile will need to be explicitly typed. This is done using a dc:type *statement* with one of the following *value URIs* taken from the Eprints EntityType Vocabulary Encoding Scheme:

- http://purl.org/eprint/entityType/ScholarlyWork
- http://purl.org/eprint/entityType/Expression
- http://purl.org/eprint/entityType/Manifestation
- http://purl.org/eprint/entityType/Copy
- http://purl.org/eprint/entityType/Person
- http://purl.org/eprint/entityType/Organization

For example:

```
Statement (
      Property URI ( dc:type )
      Vocabulary Encoding Scheme URI ( eprint:EntityType )
      Value URI ( <http://purl.org/eprint/entityType/Copy> )
)
```

A note about the form of personal and organisational names used in value strings

Where personal or organisational names are provided as *value strings*, the following guidelines should be followed.

Personal names should be listed surname or family name first, followed by comma-space, then the "usual" or preferred form of forenames and/or initials followed by a full stop. If necessary, this may be followed by the full set of spelled-out forenames in round brackets. Use the same form of name for all eprints, irrespective of the form used on the item itself. ||

For example:

```
Statement (
      Property URI ( marcrel:EDT )
      Value String ( "Bloggs, Fred" )
)

Statement (

      Property URI ( marcrel:EDT )
      Value String ( "Sulston, John E." )
)

Statement (

      Property URI ( marcrel:FND )
      Value String ( "Walker, J. J. (John Joseph)" )
)
```

In the case of organizations where there is clearly a hierarchy present, list the parts of the hierarchy from largest to smallest, separated by full stops. If it is not clear whether there is a hierarchy present, or unclear which is the larger or smaller portion of the body, give the name as it appears in the eprint. ||

For example:

```
Statement (
      Property URI ( marcrel:THS )
      Value String ( "Loughborough University. Department of Computer Science" )
)

Statement (

      Property URI ( dc:creator )
      Value String ( "University of Reading. Rural History Centre" )
)

Statement (

      Property URI ( dc:publisher )
      Value String ( "John Wiley &amp; Sons, Inc. (US)" )
)
```

The inclusion of personal and corporate name headings from authority lists constructed according to AACR2, e.g. the Library of Congress Name Authority File (LCNA), is also acceptable.

A note about using identifiers

Each of the entities in the model may be assigned a URI, encoded as the *resource URI* in the description of that entity.

It should be noted, however, that assigning and encoding a URI is not mandatory for any of the entities. Although the lack of a URI for any entity means that the entity can not be referenced from within metadata records in other eprint systems, the assignment of URIs to entities should be performed with care (and, where possible, after first checking whether a URI has already been assigned to the entity elsewhere). Multiple URIs for a single entity are likely to cause problems for downstream eprint systems, since it may be difficult for them to determine algorithmically whether any two URIs identify the same entity.

Where the ScholarlyWork and Expression entities in a *description set* have additional URIs, these should be encoded in one or more dc:identifier *statements*. As noted in the relevant sections above, in cases where there are multiple URIs for any entity, one of the URIs should be used as the *resource*

URI. Recommended best practice is to use a DOI or Handle as the *resource URI*, where these exist.

The URIs assigned to each of the entities should uniquely identify a single entity. There may be more than one URI per entity, but each URI should only identify one entity.

It is an implementation issue whether the URIs assigned to the ScholarlyWork and Expression entities dereference to a representation of that entity. However, it is anticipated that eprint systems are likely to be configured such that the URI for ScholarlyWork and/or Expression entities dereference to a 'jump-off page' for the eprint, as served by the archive.

In all cases where a dc:identifier *statement* is provided, use a *syntax encoding scheme URI* to indicate that a URI is being provided. ||

For example:

```
Statement (
      Property URI ( dc:identifier )
      Value String ( "http://eprints.bath.ac.uk/archive/00000003/"
            Syntax Encoding Scheme URI ( dcterms:URI )
      )
)
```

It is not yet clear whether current practice is to assign DOIs at the level of the Work or at the level of the Expression (as those terms are used in FRBR) or in a more fine-grained way. The current Crossref documentation indicates that DOIs should be assigned to the 'work', however it is not clear that this usage of the word 'work' corresponds with its usage in FRBR - in fact, it is rather more likely that it corresponds with the use of the term Expression in FRBR.

There is also other evidence that publishers typically assign DOIs at the level of the FRBR Expression. For example, the DOI Handbook discussion about 'granularity' concludes that in practice it is safer to assign separate DOIs to each language translation of a given article, i.e. to assign DOIs at the level of the Expression.

As a result, it is suggested that the following guidelines are followed when making use of DOIs in the context of this application profile:

- If the DOI has been assigned to all possible expressions and manifestations of the eprint (e.g. it is intended to resolve to both the HTML format of the preprint and the PDF format of the formally published article), use the DOI as the *resource URI* for the ScholarlyWork entity (and also encode it as the *value string* of a dc:identifier *statement* for that entity).
- If the DOI has been assigned to all manifestations of a particular expression of the eprint (e.g. it is intended to resolve to all the formats of the Spanish language version of the formally published article), use the DOI as the *resource URI* for the Expression entity.
- If the DOI has been assigned to a particular manifestation of an expression of the eprint (e.g. it is intended to resolve only to the PDF format of the French-language translation of the formally published article), use the DOI as the *resource URI* for the Manifestation entity.
- If the DOI has been assigned to a particular copy of a manifestation of an expression of the eprint (e.g. it is only intended to resolve to the particular copy of an article as served by a particular Web server), use the DOI as the *resource URI* for the Copy entity.

In all cases, the 'http://dx.doi.org/10.100/12345' form of URI encoding should be used.

Note that publisher-assigned DOIs are highly likely to fall into cases 1 or 2.

A note about mapping the Scholarly Works Application Profile to Simple DC

http://www.ukoln.ac.uk/repositories/digirep/index/Mapping_the_Scholarly_Works_Application_Profile_to_Simple_DC Mapping the Scholarly Works Application Profile to Simple DC] is available as a separate document.

The mapping enables software to 'dumb-down' (i.e. transform) a *description set* that conforms with this application profile to a *description set* that conforms with simple DC. In this context, 'simple DC' means a *description set* that comprises a single *description* that only uses the 15 *properties* in the Dublin Core Metadata Element Set.

It is worth noting that by using this mapping, a *description set* that complies with this application profile will be dumbed-down to form a *description* that complies with the Using simple DC to describe eprints document produced by the ePrints UK project.

It is also worth noting that the resulting simple DC *description* is about the eprint as a ScholarlyWork. While this is not the only approach to mapping this application profile to simple DC (for example, it would also be possible to map this application profile to a set of simple DC *descriptions* about each of the Copy entities) it fits well with the intended usage of this application profile in the OAI Protocol for Metadata Harvesting. In this case, each OAI item will have associated records that correspond to both the oai_dc format and an XML format based on this application profile.

The particular mapping discussed here and in the separate document does not preclude alternative mappings being generated in the future.

Examples

Example 1

```
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix dcterms: <http://purl.org/dc/terms/> .
@prefix eprint: <http://purl.org/eprint/terms/> .

DescriptionSet (
	Description (
		Resource URI ( <http://eprints.gla.ac.uk/503/> )
		Statement (
			Property URI ( dc:type )
			Value URI ( <http://purl.org/eprint/entityType/ScholarlyWork> )
		)
		Statement (
			Property URI ( dc:title )
			Literal Value String ( "Attempts to detect retrotransposition and de novo deletion of Alus and other dispersed
				repeats at specific loci in the human genome" )
		)
		Statement (
			Property URI ( dcterms:abstract )
			Value String ( "Dispersed repeat elements contribute to genome instability by de novo insertion and unequal
				recombination between repeats. To study the dynamics of these processes, we have developed
				single DNA molecule approaches to detect de novo insertions at a single locus and Alu-mediated
				deletions at two different loci in human genomic DNA. Validation experiments showed these
				approaches could detect insertions and deletions at frequencies below 10(-6) per cell. However,
				bulk analysis of germline (sperm) and somatic DNA showed no evidence for genuine mutant molecules,
				placing an upper limit of insertion and deletion rates of 2 x 10(-7) and 3 x 10(-7), respectively,
				in the individuals tested. Such re-arrangements at these loci therefore occur at a rate lower
				than that detectable by the most sensitive methods currently available." )
		)
		# keywords to be added
		# Alu; deletion; dispersed repeats; insertion; recombination; retroposition
		Statement (
			Property URI (dc:creator )
			Value String ( "Hollies, C.R." )
		)
		Statement (
			Property URI (dc:creator )
			Value String ( "Monckton, D.G." )
		)
		Statement (
			Property URI (dc:creator )
			Value String ( "Jeffreys, A.J." )
		)
		Statement (
			Property URI ( dc:identifier )
			Literal Value String ( "http://eprints.gla.ac.uk/503/"
				Syntax Encoding Scheme URI ( dcterms:URI )
			)
		)
		Statement  (
			Property URI ( eprint:isExpressedAs )
			ResourceRef ( expression1 )
		)
	)

	Description (
		ResourceId ( expression1 )
		Statement (
			Property URI ( dc:type )
			Value URI ( <http://purl.org/eprint/entityType/Expression> )
		)
		Statement (
			Property URI ( dc:language )
			Vocabulary Encoding Scheme URI ( dcterms:RFC3066 )
			Value String ( "en" )
		)
		Statement (
			PropertyURI ( dc:type )
			Vocabulary Encoding Scheme URI ( eprint:Type )
```

```
                Value URI ( <http://purl.org/eprint/type/JournalArticle> )
        )
        Statement (
                Property URI ( dcterms:available )
                Literal Value String ( "2001-02"
                        Syntax Encoding Scheme URI ( dcterms:W3CDTF )
                )
        )
        Statement (
                Property URI ( eprint:status )
                Vocabulary Encoding Scheme URI ( eprint:Status )
                Value URI ( < http://purl.org/eprint/status/PeerReviewed> )
        )
        Statement (
                Property URI ( eprint:copyrightHolder )
                Value String ( "Nature Publishing Group" )
        )
        # Citation and OpenURL context object to be added
        Statement (
                Property URI ( eprint:isManifestedAs )
                ResourceRef ( pdfmanifestation )
        )
    )

    Description (
        ResourceId ( pdfmanifestation )
        Statement (
                Property URI ( dc:type )
                Value URI ( <http://purl.org/eprint/entityType/Manifestation> )
        )
        Statement (
                Property URI ( dc:format )
                Vocabulary Encoding Scheme URI ( dcterms:IMT )
                Value String ( "application/pdf" )
        )
        Statement (
                Property URI ( eprint:isAvailableAs )
                Value URI ( <http://eprints.gla.ac.uk/503/01/Eu_J._Hum_Gen.9(2)143_.pdf> )
        )
        Statement (
                Property URI ( eprint:isAvailableAs )
                Value URI ( <http://www.nature.com/ejhg/journal/v9/n2/pdf/5200590a.pdf> )
        )
    )

    Description (
        Resource URI ( <http://eprints.gla.ac.uk/503/01/Eu_J._Hum_Gen.9(2)143_.pdf> )
        Statement (
                Property URI ( dc:type )
                Value URI ( <http://purl.org/eprint/entityType/Copy> )
        )
        Statement (
                Property URI ( dcterms:accessRights )
                Value URI ( <http://purl.org/eprint/accessRights/OpenAccess> )
        )
    )

    Description (
        Resource URI ( <http://www.nature.com/ejhg/journal/v9/n2/pdf/5200590a.pdf> )
        Statement (
                Property URI ( dc:type )
                Value URI ( <http://purl.org/eprint/entityType/Copy> )
        )
        Statement (
                Property URI ( dcterms:accessRights )
                Value URI ( <http://npg.nature.com/npg/servlet/Content?data=xml/08_home.xml&style=xml/08_home.xsl> )
        )
    )
)
```

Example 2

```
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix dcterms: <http://purl.org/dc/terms/> .
@prefix eprint: <http://purl.org/eprint/terms/> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .

DescriptionSet (
       Description (
              Resource URI ( <http://eprints.soton.ac.uk/22934/> )
              Statement (
                     Property URI ( dc:type )
                     ValueURI ( <http://purl.org/eprint/entityType/ScholarlyWork> )
              )
              Statement (
                     Property URI ( dc:identifier )
                     Literal Value String ( "http://eprints.soton.ac.uk/22934/"
                            Syntax Encoding Scheme URI ( dcterms:URI )
                     )
              )
              Statement (
                     Property URI ( dc:title )
                     Literal Value String ( "Structurally integrated brushless PM motor for miniature propeller thrusters" )
              )
              Statement (
                     Property URI ( dc:creator )
                     Value String ( "Abu Sharkh, S.M.A. (Suleiman)" )
                     ResourceRef ( AbuSharkhSM )
              )
              Statement (
                     Property URI ( dc:creator )
                     Value String ( "Lai, S.H." )
              )
              Statement (
                     Property URI ( dc:creator )
                     Value String ( "Turnock, S.R." )
              )
              Statement (
                     Property URI ( dcterms:abstract )
                     Value String ( "The design, analysis and performance of a brushless PM motor that is integrated
                            in the structure of a  miniature 50 mm diameter propeller thruster is considered;
                            the stator is fitted in the faired thin duct that surrounds the propeller to improve
                            its efficiency and protect it from damage, and the rotor is fitted to the rim of the
                            propeller. Such a thruster is intended for use on small autonomous underwater vehicles
                            that are being developed for defence, scientific and industry applications. Fitting a
                            relatively large airgap motor with protective coating within the volume of a thin
                            propeller duct (<10 mm thick) imposes extreme constraints on the dimensions of the
                            machine, including a very thin rotor and stator radial thickness and relatively short
                            axial length in addition to the relatively large airgap, which raises theoretical and
                            practical issues that have not been considered in the literature. The design of such
                            a machine is discussed, a demonstrator device is described and FEA and experimental
                            results are reported." )
              )
              Statement (
                     Property URI ( dc:subject )
                     Vocabulary Encoding Scheme URI ( dcterms:LCSH )
                     Value String ( "T Technology--TC Hydraulic engineering. Ocean engineering" )
              )
              Statement (
                     Property URI ( dc:subject )
                     Vocabulary Encoding Scheme URI ( dcterms:LCSH )
                     Value String ( "T Technology--TK Electrical engineering. Electronics Nuclear engineering" )
              )
              Statement (
                     Property URI ( dc:subject )
                     Vocabulary Encoding Scheme URI ( dcterms:LCSH )
                     Value String ( "T Technology--TL Motor vehicles. Aeronautics. Astronautics" )
              )
              Statement (
                     Property URI ( eprint:affiliatedInstitution )
                     Value String ( "University of Southampton" )
                     ResourceRef ( sotonuni )
              )
```

```
        Statement (
                Property URI ( eprint:isExpressedAs )
                Value URI ( <http://dx.doi.org/10.1049/ip-epa:20040736> )
        )
)

Description (
        Resource URI ( <http://dx.doi.org/10.1049/ip-epa:20040736> )
        Statement (
                Property URI ( dc:type )
                ValueURI ( <http://purl.org/eprint/entityType/Expression> )
        )
        Statement (
                Property URI ( dc:language )
                Value String ( "en" )
        )
        Statement (
                Property URI ( dc:type )
                Value URI ( <http://purl.org/eprint/type/JournalArticle> )
        )
        Statement (
                Property URI ( dc:identifier )
                Literal Value String ( "http://dx.doi.org/doi:10.1049/ip-epa:20040736"
                        Syntax Encoding Scheme URI ( dcterms:URI )
                )
        )
        Statement (
                Property URI ( dcterms:available )
                Literal Value String ( "2004"
                        Syntax Encoding Scheme URI (dcterms:W3CDTF )
                )
        )
        Statement (
                Property URI ( eprint:status )
                Vocabulary Encoding Scheme ( eprint:status )
                ValueURI ( <http://purl.org/eprint/status/PeerReviewed> )
        )
        Statement (
                Property URI ( dcterms:copyrightHolder )
                Value String ( "Institution of Engineering and Technology" )
        )
        Statement (
                Property URI ( dcterms:bibliographicCitation )
                Literal Value String ( "IEE Proceedings - Electric Power Applications, 151, (5), 513-519 (2004)" )
                Literal Value String ( "&ctx_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&rft.genre=article
                        &rft.atitle=Structurally+integrated+brushless+PM+motor+for+miniature+propeller+thrusters
                        &rft.jtitle=IEE+Proceedings+-+Electric+Power+Applications&rft.volume=151&rft.issue=5
                        &rft.spage=513&rft.date=2004&rft.issn=1350-2352
                        &rft.aulast=Sharkh&rft.auinit=S+M+A
                        &rfr_id=info:sid/eprints.soton.ac.uk"
                        Syntax Encoding Scheme URI ( <info:ofi/fmt:kev:mtx:ctx> )
                )
        )
        Statement (
                Property URI ( eprint:isManifestedAs )
                ResourceRef ( manifestation1 )
        )
)

Description (
        ResourceId ( manifestation1 )
        Statement (
                Property URI ( dc:type )
                ValueURI ( <http://purl.org/eprint/entityType/Manifestation> )
        )
        Statement (
                Property URI ( dc:format )
                Vocabulary Encoding Scheme URI ( dcterms:IMT )
                Value String ( "application/pdf" )
        )
        Statement (
                Property URI ( dc:publisher )
```

```
                Value String ( "Institution of Engineering and Technology" )
        )
        Statement (
                Property URI ( eprint:isAvailableAs )
                Value URI ( <http://scitation.aip.org/getpdf/servlet/GetPDFServlet?filetype=pdf&id=IEPAER000151000005000513000001&idtype=cvips&prog=normal> )
        )
)

Description (
        Resource URI ( <http://scitation.aip.org/getpdf/servlet/GetPDFServlet?filetype=pdf&id=IEPAER000151000005000513000001&idtype=cvips&prog=normal> )
        Statement (
                Property URI ( dc:type )
                Value URI ( <http://purl.org/eprint/entityType/Copy> )
        )
        Statement (
                Property URI ( dcterms:licence )
                Value URI ( <http://www.ietdl.org/journals/doc/IEEDRL-home/info/subscriptions/terms.jsp> )
        )
        Statement (
                Property URI ( dcterms:accessRights )
                Value URI ( <http://purl.org/eprint/accessRights/RestrictedAccess> )
        )
        Statement (
                Property URI ( dcterms:isPartOf )
                Value URI ( <http://www.theiet.org/> )
                Value String ( "Institution of Engineering and Technology" )
        )
        Statement (
                Property URI ( dcterms:isPartOf )
                Value URI ( <http://www.ietdl.org/> )
                Value String ( "IET Digital Library" )
        )
)

Description (
        ResourceId ( sotonuni )
        Statement (
                Property URI ( dc:type )
                Value URI ( <http://purl.org/eprint/entityType/Organization> )
        )
        Statement (
                Property URI ( foaf:name )
                Literal Value String ( "University of Southampton" )
        )
        Statement (
                Property URI ( foaf:homepage )
                Value URI ( "http://www.soton.ac.uk/" )
        )
)

Description (
        ResourceId ( AbuSharkhSM )
        Statement (
                Property URI ( dc:type )
                Value URI ( <http://purl.org/eprint/entityType/Person> )
        )
        Statement (
                Property URI ( foaf:givenname )
                Literal Value String ( "Suleiman" )
        )
        Statement (
                Property URI ( foaf:familyname )
                Literal Value String ( "Abu Sharkh" )
        )
        Statement (
                Property URI ( foaf:homepage )
                Value URI ( <http://www.soton.ac.uk/ses/people/AbuSharkhSM.html> )
        )
        Statement (
                Property URI ( foaf:workplaceHomepage )
                Value URI ( <http://www.soton.ac.uk/> )
        )
```

```
        )
    )
```

```
<?xml version="1.0"?>
<DescriptionSetTemplate xmlns="http://dublincore.org/xml/dc-dsp/2008/01/14"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://dublincore.org/xml/dc-
dsp/2008/01/14 http://dublincore.org/architecturewiki/DescriptionSetProfile?
action=AttachFile&amp;do=get&amp;target=dcmi-dsp.xsd ">
<DescriptionTemplate ID="ScholarlyWork" maxOccurs="1" minOccurs="1" standalone="yes">
<ResourceClass>http://purl.org/eprint/entityType/ScholarlyWork/</ResourceClass>
<StatementTemplate minOccurs="1" maxOccurs="1" type="nonliteral">
<Property>http://purl.org/dc/elements/1.1/type</Property>
<NonLiteralConstraint>
<ValueURIOccurrence>mandatory</ValueURIOccurrence>
<ValueURI>http://purl.org/eprint/entityType/ScholarlyWork/</ValueURI>
<VocabularyEncodingSchemeOccurrence>mandatory</VocabularyEncodingSchemeOccurrence>
<VocabularyEncodingSchemeURI>http://purl.org/eprint/entityType/</VocabularyEncodingSchemeURI><ValueString
Constraint maxOccurs="0"></ValueStringConstraint></NonLiteralConstraint></StatementTemplate>
<StatementTemplate minOccurs="1" type="literal">
<Property>http://purl.org/dc/elements/1.1/title</Property>
</StatementTemplate>
<StatementTemplate type="nonliteral">
<Property>http://purl.org/dc/elements/1.1/subject</Property>
<NonLiteralConstraint>
<ValueURIOccurrence>optional</ValueURIOccurrence>
<VocabularyEncodingSchemeOccurrence>optional</VocabularyEncodingSchemeOccurrence>
<ValueStringConstraint maxOccurs="1"><LanguageOccurrence>optional</LanguageOccurrence>
<SyntaxEncodingSchemeOccurrence>disallowed</SyntaxEncodingSchemeOccurrence>
</ValueStringConstraint></NonLiteralConstraint></StatementTemplate>
<StatementTemplate type="literal">
<Property>http://purl.org/dc/terms/abstract</Property>
</StatementTemplate>
<StatementTemplate minOccurs="1" type="literal">
<Property>http://purl.org/dc/elements/1.1/identifier</Property>
<LiteralConstraint><SyntaxEncodingSchemeOccurrence>mandatory</SyntaxEncodingSchemeOccurrence>
<SyntaxEncodingScheme>http://purl.org/dc/terms/URI</SyntaxEncodingScheme>
</LiteralConstraint>
</StatementTemplate>
<StatementTemplate type="nonliteral">
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```

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<NonLiteralConstraint>
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</StatementTemplate>
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</StatementTemplate>
<StatementTemplate type="literal">
<Property>http://xmlns.com/foaf/0.1/givenname</Property>
</StatementTemplate>
<StatementTemplate type="nonliteral">
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<VocabularyEncodingSchemeOccurrence>disallowed</VocabularyEncodingSchemeOccurrence>
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Dublin Core Metadata Initiative
Making it easier to find information

Description Set Profiles: A constraint language for Dublin Core Application Profiles

Creator: Mikael Nilsson
KMR Group, NADA, KTH (Royal Institute of Technology), Sweden

Date Issued: 2008-03-31

Identifier: http://dublincore.org/documents/2008/03/31/dc-dsp/

Replaces: Not Applicable

Latest Version: http://dublincore.org/documents/dc-dsp/

Status of Document: This is a DCMI Working Draft.

Description of Document: This specification describes an information model and XML expression of a "Description Set Profile" (DSP). A DSP describes structural constraints on a description set, allowing for formal expression of the constraints of a Dublin Core Application Profile.

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1. Introduction

The DCMI Description Set Profile specification describes an information model and XML expression of a "Description Set Profile" (DSP). The term *description set* and the associated concepts used in this specification are defined as in the DCMI Abstract model [DCAM].

A DSP is a way of describing structural constraints on a description set. It constrains the resources that may be described by descriptions in the description set, the properties that may be used, and the ways a value surrogate may be given.

A DSP can be used for many different purposes, for example:

- as a formal representation of the constraints of a Dublin Core Application Profile
- as configuration for databases
- as configuration for metadata editing tools

A DSP does *not* address the following:

- Human-readable documentation.

- Definition of vocabularies.
- Version control.

A DSP contains the formal syntactic constraints only, and will need to be combined with human-readable information, usage guidelines, version management, etc. in order to be used as an application profile. However, the design of the DSP information model is intended to facilitate the merging of DSP information and external information of the above kinds, for example by tools generating human-readable documentation for a Dublin Core Application Profile.

A Dublin Core Application Profile is a document, or set of documents, that puts a Description Set Profile into a broader context of Functional Requirements, Domain Models, guidelines on syntax and usage, and possibly data formats. See the Singapore Framework for Dublin Core Application Profiles for the broader picture.

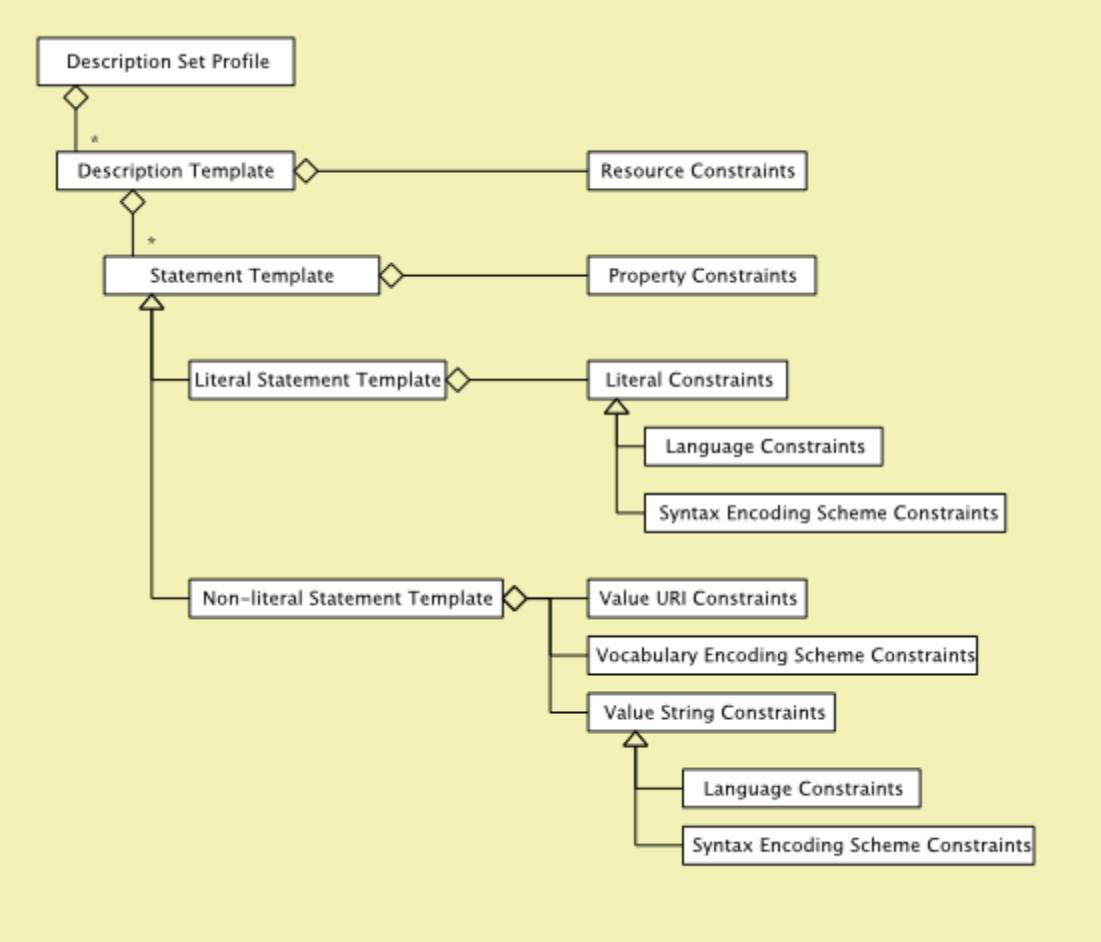
2. Basic structure

A DSP describes the structure of a Description Set by using the notions of "templates" and "constraints". A template describes the possible metadata structures in a conforming record.

There are two levels of templates in a Description Set Profile:

- **Description templates**, which contain the statement templates that apply to a single kind of description as well as constraints on the described resource.
- **Statement templates**, which contain all the constraints on the property, value strings, vocabulary encoding schemes, etc. that apply to a single kind of statement.

While templates are used to express structures, constraints are used to limit those structures. The following figure depicts the basic elements of the structure.



3. Basic semantics

The fundamental usage model for a DSP is to examine whether a metadata record *matches* the

DSP.

Matching of a description set is defined as follows:

Binding of descriptions to description templates
: Each description is bound to a Description Template by evaluating the *Resource Constraint* of each Description Template against the described resource. Each description must be bound to exactly one Description Template.

Binding of statements to statement templates
: For each description, each statement is bound to a Statement Template in the corresponding Description Template by evaluating the *Property Constraint*. Each statement must be bound to exactly one Statement Template.

Evaluating constraints
: Now that all metadata in the description set has been bound to a template, all constraints can be verified.

4. Usage examples

4.1. Example 1: Constraining the resource

The following DSP matches descriptions with a single resource. The resource must be an instance of `foaf:Person`.

```
<?xml version="1.0" ?>

<DescriptionSetTemplate xmlns="http://dublincore.org/xml/dc-dsp/2008/03/31" >

  <DescriptionTemplate ID="person" minOccurs="1" maxOccurs="1" standalone="yes">

    <ResourceClass>http://xmlns.com/foaf/0.1/Person</ResourceClass>

  </DescriptionTemplate>

</DescriptionSetTemplate>
```

As it stands, this DSP does not allow for the description of that resource to contain any statements, so it is not very useful.

4.2. Example 2: Constraining a property

The following DSP adds a mandatory foaf:name property with a literal value to the previous example.

```
<?xml version="1.0" ?>

<DescriptionSetTemplate xmlns="http://dublincore.org/xml/dc-dsp/2008/03/31">

  <DescriptionTemplate ID="person" minOccurs="1" maxOccurs="1" standalone="yes">

   <ResourceClass>http://xmlns.com/foaf/0.1/Person</ResourceClass>

    <StatementTemplate minOccurs="1" maxOccurs="1" type="literal">

      <Property>http://xmlns.com/foaf/0.1/name</Property>

    </StatementTemplate>

  </DescriptionTemplate>

</DescriptionSetTemplate>
```

4.3. Example 3: Constraining the value

The following DSP constrains the value to be a literal without a language.

```
<?xml version="1.0" ?>

<DescriptionSetTemplate xmlns="http://dublincore.org/xml/dc-dsp/2008/03/31">

  <DescriptionTemplate ID="person" minOccurs="1" maxOccurs="1" standalone="yes">

    <ResourceClass>http://xmlns.com/foaf/0.1/Person</ResourceClass>

    <StatementTemplate minOccurs="1" maxOccurs="1" type="literal">

      <Property>http://xmlns.com/foaf/0.1/name</Property>

      <LiteralConstraint>
        <LanguageOccurrence>disallowed</LanguageOccurrence>

      </LiteralConstraint>

    </StatementTemplate>

  </DescriptionTemplate>

</DescriptionSetTemplate>
```

4.4. Example 4: Two resources

The following DSP allows for two kinds of resources: a single "document", and multiple "authors". The Person resources may only occur as values of the `dcterms:creator` property, not stand-alone. The value may only be described in a separate description with a mandatory `foaf:name` property.

```
<?xml version="1.0" ?>

<DescriptionSetTemplate xmlns="http://dublincore.org/xml/dc-dsp/2008/03/31">

  <DescriptionTemplate ID="document" minOccurs="1" maxOccurs="1" standalone="yes">

    <ResourceClass>http://purl.org/dc/terms/Text</ResourceClass>

    <StatementTemplate minOccurs="1" type="nonliteral">

      <Property>http://purl.org/dc/terms/creator</Property>

      <NonLiteralConstraint descriptionTemplateID="person">
        <ValueURIOccurrence>disallowed</ValueURIOccurrence>
        <VocabularyEncodingSchemeOccurrence>disallowed</VocabularyEncodingSchemeOccurrence>
        <ValueStringConstraint maxOccur="0"/>

      </NonLiteralConstraint>

    </StatementTemplate>

  </DescriptionTemplate>

  <DescriptionTemplate ID="person" standalone="no">

    <ResourceClass>http://xmlns.com/foaf/0.1/Person</ResourceClass>

    <StatementTemplate minOccurs="1" maxOccurs="1" type="literal">

      <Property>http://xmlns.com/foaf/0.1/name</Property>

      <LiteralConstraint>
        <LanguageOccurrence>disallowed</LanguageOccurrence>

      </LiteralConstraint>
```

```
    </StatementTemplate>

  </DescriptionTemplate>

</DescriptionSetTemplate>
```

5. Description Templates

A description Template has the following attributes.

XML Element Name
DescriptionTemplate

5.1. Identifier

Summary
A string that can be used in a Value Constraint to reference a description template that applies to the value resource.
Allowed values
A valid XML ID string.
Default
N/A
XML Attribute Name
ID

5.2. Standalone

Summary
Whether descriptions matching this template are allowed to occur standalone, i.e. without being the value of a property.
Allowed values
"yes" / "no" / "both"
Default
"both"
Conditions
If standalone is "yes", a matching description may not be a description of value occurring elsewhere in the DSP.
If standalone is "no", a matching description *must* be a description of value occurring elsewhere in the DSP.
If standalone is "both", both are allowed.
If this description template is referred to in a Value Constraint, standalone cannot be "yes".
XML Attribute Name
standalone

5.3. Minimum occurrence constraint

Summary
The minimum number of times this kind of description must appear in the Description Set.
Allowed values
non-negative integer
Default
0
Conditions
must be equal or less than the Maximum occurrence
XML Attribute Name
minOccurs

5.4. Maximum occurrence constraint

Summary
The maximum number of times this kind of description is allowed to appear in the Description Set.
Allowed values
non-negative integer or "infinity"
Default
"infinity"
Conditions
must be equal or greater than the Minimum occurrence
XML Attribute Name
maxOccurs

5.5. Resource Class Membership Constraint

Summary
Classes that the resource may be an instance of
Allowed values
a list of class URIs
Default
no constraint
Conditions
if given, the resource must be an instance of one of the given classes.
XML Element Name
ResourceClass

6. Statement templates

A statement template has the following possible constraints.

XML Element Name
StatementTemplate

6.1. Minimum occurrence constraint

Summary
The minimum number of times this kind of statement must appear in the enclosing Description.
Allowed values
non-negative integer
Default
0
Conditions
must be equal or less than the Maximum occurrence
XML Attribute Name
minOccurs

6.2. Maximum occurrence constraint

Summary
The maximum number of times this kind of statement is allowed to appear in the enclosing Description.
Allowed values
non-negative integer or "infinity"
Default
"infinity"
Conditions
must be equal or greater than the Minimum occurrence
XML Attribute Name
maxOccurs

6.3. Type constraint

Summary
The type of value surrogate (literal/non-literal) that is allowed in this Statement.
Allowed values
"literal" / "nonliteral"
Default
both allowed
Conditions
If no value is given, no further constraining on the value surrogate can be made.
XML Attribute Name
type

Note: that the type constraint should follow any range given for the used properties.

6.4. Property constraints

There are two ways of constraining the property in a statement:

- By giving an explicit list of allowed properties
- By requiring the property to be a sub-property of a given property.

Exactly one of the above methods must be used in a single statement template.

6.4.1. Property list constraint

Summary
A set of properties that are allowed in this statement template.
Allowed values
a list of property URIs
Default
N/A
Conditions
cannot occur together with a sub-property constraint
XML Element Name
Property

6.4.2. Sub-property constraint

Summary
Only sub-properties of the given property are allowed in this statement template. Note that the given property is included in this list (all properties are sub-properties of themselves).
Allowed values
a property URI
Default
N/A
Conditions
cannot occur together with a property list constraint
XML Element Name
SubPropertyOf

6.5. Literal value constraints

Constrains a literal value surrogate in a statement. Only allowed in the case that the type constraint has the value "literal".

XML Element Name
LiteralConstraint

6.5.1. Literal list constraint

Summary
Literals that are allowed as values.
Allowed values
a list of literals, i.e. (string, language tag) or (string, syntax encoding scheme URI) pairs.
Default
no constraint
Conditions
if given, no other literal constraint may be given
XML Element Name
LiteralOption

6.5.2. Literal language constraint

Summary
Whether languages are allowed for the literal
Allowed values
"mandatory" / "optional" / "disallowed"
Default
"optional"
Conditions
if "mandatory", Syntax encoding schemes are automatically disallowed.
XML Element Name
LanguageOccurrence

6.5.3. Literal language list constraint

Summary
Languages allowed for the literal
Allowed values
a list consisting of language tags
Default
no constraint
XML Element Name
Language

6.5.4. Syntax Encoding Scheme constraint

Summary
Whether Syntax Encoding Scheme are allowed for the literal
Allowed values
"mandatory" / "optional" / "disallowed"
Default
"optional"
Conditions
if "mandatory", language tags are automatically disallowed.
XML Element Name
SyntaxEncodingSchemeOccurrence

6.5.5. Syntax Encoding Scheme list constraint

Summary
Syntax encoding schemes allowed for the literal

Allowed values
a list consisting of syntax encoding scheme URIs
Default
no constraint
XML Element Name
SyntaxEncodingScheme

6.6. Non-literal value constraints

Constrains the value surrogate in a statement. Only allowed in the case that the type constraint has the value "nonliteral".

XML Element Name
NonLiteralConstraint

6.6.1. Description template reference

Summary
A reference to a description template that may be used to describe the value
Allowed values
an identifier defined in a Description Template
Default
Related description not allowed
Conditions
if given, any related description of the value within the record must match the referenced Description Template. If the referenced Description Template contains mandatory Statement templates, such a description of the value must exist.
XML Attribute Name
descriptionTemplateRef

6.6.2. Class membership constraint

Summary
Classes that the value may be an instance of
Allowed values
a list of class URIs
Default
no constraint
Conditions
if given, the value must be an instance of one of the given classes.
XML Element Name
ValueClass

Note: this is not a syntactic constraint, and as such might not be evaluated by all processors. If a type statement is desired, an explicit Statement template in a Description Template for the value resource should be created.

6.6.3. Value URI constraint

6.6.3.1. Value URI occurrence constraint

Summary
Whether a value URI must be given
Allowed values
"disallowed" / "optional" / "mandatory"
Default
"optional"
Conditions

XML Element Name
ValueURIOccurrence

6.6.3.2. Value URI list constraint

Summary
URIs that are allowed as value URIs.
Allowed values
a list of URIs
Default
no constraint
Conditions
If a value URI is given, it must be taken from this list. Cannot be specified if value occurrence is "disallowed"
XML Element Name
ValueURI

6.6.4. Vocabulary encoding scheme constraint

6.6.4.1. Vocabulary encoding scheme occurrence constraint

Summary
Whether a vocabulary encoding scheme must be given
Allowed values
"disallowed" / "optional" / "mandatory"
Default
"optional"
Conditions
XML Element Name
VocabularyEncodingSchemeOccurrence

6.6.4.2. Vocabulary encoding scheme list constraint

Summary
URIs that are allowed as Vocabulary Encoding schemes.
Allowed values
a list of URIs
Default
no constraint
Conditions
If a vocabulary encoding scheme is given, it must be taken from this list. Cannot be specified if vocabulary encoding scheme occurrence is "disallowed"
XML Element Name
VocabularyEncodingScheme

6.6.5. Value String Constraints

If at least one value string constraint is given, any value string must match at least one of the constraints. If no value string constraint is given, any value string is allowed.

For each value string constraint, the following may be specified.

XML Element Name
ValueStringConstraint

6.6.5.1. Minimum occurrence constraint

Summary
The minimum number of times this kind of value string must appear in the

enclosing Statement.

Allowed values

non-negative integer

Default

0

Conditions

must be equal or less than the Maximum occurrence

XML Attribute Name

minOccurs

6.6.5.2. Maximum occurrence constraint

Summary

The maximum number of times this kind of value string is allowed to appear in the enclosing Statement.

Allowed values

non-negative integer or "infinity"

Default

"infinity"

Conditions

must be equal or greater than the Minimum occurrence

XML Attribute Name

maxOccurs

6.6.5.3. Other constraints

All Literal value constraints (section 6.5) can be used for value strings as well.

7. XML structure

```
<?xml version="1.0" ?>

<DescriptionSetTemplate>

  <DescriptionTemplate standalone="" ID="" minOccurs="" maxOccurs="">

    <ResourceClass></ResourceClass>

    <ResourceClass></ResourceClass>

    <StatementTemplate ID="" minOccurs="" maxOccurs="" type="">

      <Property></Property>
      <Property></Property>

      <SubPropertyOf></SubPropertyOf>

      <NonliteralConstraint descriptionTemplateRef="">

        <ValueClass></ValueClass>
        <ValueClass></ValueClass>

        <ValueURIOccurrence></ValueURIOccurrence>

        <ValueURI></ValueURI>
        <ValueURI></ValueURI>

        <VocabularyEncodingSchemeOccurrence></VocabularyEncodingSchemeOccurrence>

        <VocabularyEncodingScheme></VocabularyEncodingScheme>
        <VocabularyEncodingScheme></VocabularyEncodingScheme>

        <ValueStringConstraint  minOccurs="" maxOccurs="">
          <LiteralOption lang="" SES=""></LiteralOption>
```

```
          <LiteralOption lang="" SES=""></LiteralOption>

          <LanguageOccurrence></LanguageOccurrence>

          <Language></Language>
          <Language></Language>

          <SyntaxEncodingSchemeOccurrence></SyntaxEncodingSchemeOccurrence>

          <SyntaxEncodingScheme></SyntaxEncodingScheme>
          <SyntaxEncodingScheme></SyntaxEncodingScheme>

        </ValueStringConstraint>

      </NonLiteralConstraint>

      <LiteralConstraint>
          <LiteralOption lang="" SES=""></LiteralOption>
          <LiteralOption lang="" SES=""></LiteralOption>

          <LanguageOccurrence></LanguageOccurrence>

          <Language></Language>
          <Language></Language>

          <SyntaxEncodingSchemeOccurrence></SyntaxEncodingSchemeOccurrence>

          <SyntaxEncodingScheme></SyntaxEncodingScheme>

          <SyntaxEncodingScheme></SyntaxEncodingScheme>

      </LiteralConstraint>

    </StatementTemplate>

  </DescriptionTemplate>

</DescriptonSetTemplate>
```

8. RDF variant

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
         xmlns:dsp="http://purl.org/dc/dsp/">

  <dsp:DescriptionTemplate rdf:about="#d1">
    <dsp:standalone rdf:datatype="xsd:boolean">true</dsp:standalone>

    <dsp:minOccur rdf:datatype="xsd:nonNegativeInteger">0</dsp:minOccur>
    <dsp:maxOccur rdf:datatype="xsd:nonNegativeInteger">0</dsp:maxOccur>

    <dsp:resourceClass rdf:resource=""/>
    <dsp:resourceClass rdf:resource=""/>

    <dsp:statementTemplate>
      <dsp:LiteralStatementTemplate>
        <dsp:minOccur rdf:datatype="xsd:nonNegativeInteger">0</dsp:minOccur>
        <dsp:maxOccur rdf:datatype="xsd:nonNegativeInteger">0</dsp:maxOccur>

        <dsp:property rdf:resource=""/>
        <dsp:property rdf:resource=""/>

        <dsp:subPropertyOf rdf:resource=""/>

        <dsp:literalConstraint>
          <dsp:LiteralConstraint>

            <dsp:literal xml:lang="" rdf:datatype=""></dsp:literal>
            <dsp:literal xml:lang="" rdf:datatype=""></dsp:literal>
```

```
            <dsp:languageOccurrence rdf:datatype="dsp:occurrence"></dsp:languageOccurrence>

            <dsp:language rdf:datatype="xsd:language"></dsp:language>

            <dsp:language rdf:datatype="xsd:language"></dsp:language>

            <dsp:syntaxEncodingSchemeOccurrence rdf:datatype="dsp:occurrence"></dsp:syntaxEn

            <dsp:syntaxEncodingScheme rdf:resource=""/>
            <dsp:syntaxEncodingScheme rdf:resource=""/>

          </dsp:LiteralConstraint>
        </dsp:literalConstraint>
      </dsp:LiteralStatementTemplate>
    </dsp:statementTemplate>

    <dsp:statementTemplate>
      <dsp:NonLiteralStatementTemplate>

        <dsp:nonLiteralConstraint>
         <dsp:NonLiteralConstraint>

            <dsp:descriptionTemplate rdf:resource=""/>

            <dsp:valueClass rdf:resource=""/>
            <dsp:valueClass rdf:resource=""/>

            <dsp:valueURIOccurrence rdf:datatype="dsp:occurrence"></dsp:valueURIOccurrence>

            <dsp:valueURI rdf:datatype="xsd:URI"></dsp:valueURI>
            <dsp:valueURI rdf:datatype="xsd:URI"></dsp:valueURI>

            <dsp:vocabularyEncodingSchemeOccurrence rdf:datatype="dsp:occurrence"></dsp:voca

            <dsp:vocabularyEncodingScheme rdf:resource=""/>
            <dsp:vocabularyEncodingScheme rdf:resource=""/>

            <dsp:valueStringConstraint>
              <dsp:ValueStringConstraint>

                <dsp:minOccur rdf:datatype="xsd:nonNegativeInteger">0</dsp:minOccur>

                <dsp:maxOccur rdf:datatype="xsd:nonNegativeInteger">0</dsp:maxOccur>

                <dsp:literal xml:lang="" rdf:datatype=""></dsp:literal>
                <dsp:literal xml:lang="" rdf:datatype=""></dsp:literal>

                <dsp:languageOccurrence rdf:datatype="dsp:occurrence"></dsp:languageOccurren

                <dsp:language rdf:datatype="xsd:language"></dsp:language>
                <dsp:language rdf:datatype="xsd:language"></dsp:language>

                <dsp:syntaxEncodingSchemeOccurrence rdf:datatype="dsp:occurrence"></dsp:synt

                <dsp:syntaxEncodingScheme rdf:resource=""/>

                <dsp:syntaxEncodingScheme rdf:resource=""/>

              </dsp:ValueStringConstraint>
            </dsp:valueStringConstraint>
          </dsp:NonLiteralConstraint>
        </dsp:nonLiteralConstraint>
      </dsp:NonLiteralStatementTemplate>

    </dsp:statementTemplate>
  </dsp:DescriptionTemplate>
</rdf:RDF>
```

9. Examples

9.1 "Simple" Dublin Core

```
<?xml version="1.0" ?>

<DescriptionSetTemplate  xmlns="http://dublincore.org/xml/dc-dsp/2008/03/31">

  <DescriptionTemplate>

    <StatementTemplate>
      <Property>http://purl.org/dc/terms/title</Property>
    </StatementTemplate>

    <StatementTemplate>
      <Property>http://purl.org/dc/terms/creator</Property>
    </StatementTemplate>

   <!-- etc -->

  </DescriptionTemplate>

</DescriptionSetTemplate>
```

9.2 Simple FOAF

```
<?xml version="1.0" ?>

<DescriptionSetTemplate  xmlns="http://dublincore.org/xml/dc-dsp/2008/03/31" >

  <DescriptionTemplate ID="person" minOccur="1" maxOccur="1">

    <ResourceClass>http://xmlns.com/foaf/0.1/Person</ResourceClass>

    <StatementTemplate minOccurs="1" maxOccurs="1" type="literal">
      <Property>http://xmlns.com/foaf/0.1/name</Property>

    </StatementTemplate>

    <StatementTemplate type="nonliteral">
      <Property>http://xmlns.com/foaf/0.1/knows</Property>
      <NonLiteralConstraint descriptionTemplateRef="person">

        <ValueClass>http://xmlns.com/foaf/0.1/Person</ValueClass>


      </NonLiteralConstraint>
    </StatementTemplate>

   <!-- etc -->

  </DescriptionTemplate>

</DescriptionSetTemplate>
```

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Title: Guidelines for Application Profiles
Identifier: berlin:/dcap-guidelines/.index.html
Source: berlin:/dcap-guidelines/index.txt
Directory: berlin:/dcap-guidelines/
Created: 2008-09-17

Shepherd: Tom

Required Usage Board reading (in packet)
berlin:/dcap-guidelines/.index.html

UB members please review the sample application profile (MyBookcase) with the same criteria as we use for other

---

Background reading
-- http://dublincore.org/documents/2008/03/31/dc-dsp/ - Description Set Profiles
http://dublincore.org/documents/abstract-model/ - DCAM
http://kcoyle.blogspot.com/2008/09/semantic-dementia.html - Karen's blog
http://dublincore.org/usageboardwiki/ProfileReviewCriteria - Profile review criteria

---

Background - http://dublincore.org/news/2008/

Guidelines for Application Profiles under development

2008-03-31, The DCMI Directorate has awarded a contract to Karen Coyle to write user-oriented "Guidelines for Dublin Core Application Profiles". The guidelines will provide an overview of recent work on a formal Description Set Profile specification in the context of the Singapore Framework for Dublin Core Application Profiles together with good-practice examples.

UB members please review the sample application profile (MyBookcase) with the same criteria as we use for other profiles with particular attention to the explanation of "literal" versus "non-literal values".

Guidelines for Dublin Core Application Profiles (Working Draft)

Creator:	Karen Coyle Consultant
Creator:	Thomas Baker DCMI

Date Issued:	2008-xx-xx
Identifier:	http://dublincore.org/documents/2008/xx/xx/dcap-guidelines/
Replaces:	Not applicable
Is Replaced By:	Not applicable
Latest Version:	http://dublincore.org/documents/dcap-guidelines/

Description of Document:	This document provides guidelines for the creation of Dublin Core Application Profiles. The document explains the key components of a Dublin Core Application Profile and walks through the process of developing a profile. The document is aimed at designers of application profiles -- people who will bring together metadata terms for use within a specific context. It does not address the creation of machine-readable implementations of an application profile nor the design of metadata applications in an broader sense. For additional technical detail the reader is pointed to further sources. This document represents work in progress.

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---

1. Introduction

When it comes to metadata, one size does not fit all. In fact, one size often does not even fit many. The metadata needs of particular communities and applications are very diverse. The result is a great proliferation of metadata formats, even across applications that have metadata needs in common. The Dublin Core Metadata Initiative has addressed this by providing a framework for designing a Dublin Core Application Profile (DCAP) that meets specific application needs while providing semantic interoperability with other applications on the basis of globally defined vocabularies and models.

Note that a DCAP is a generic construct that does not require DCMI metadata terms [DCMI-MT]. While the approach originally developed as a means of specifying customized applications based on the fifteen elements of the Dublin Core Element Set (e.g., Title, Date, Subject), a DCAP can use *any* terms that are defined in accordance with the RDF Vocabulary Description Language [RDFS], combining terms from different namespaces as needed.

Although the creation of an application profile requires effort, the return is better quality in the form of better guidance for metadata creators and improved consistency for application developers. By clearly specifying what is intended and expected in using the data, an application profile improves the opportunity to share data between communities.

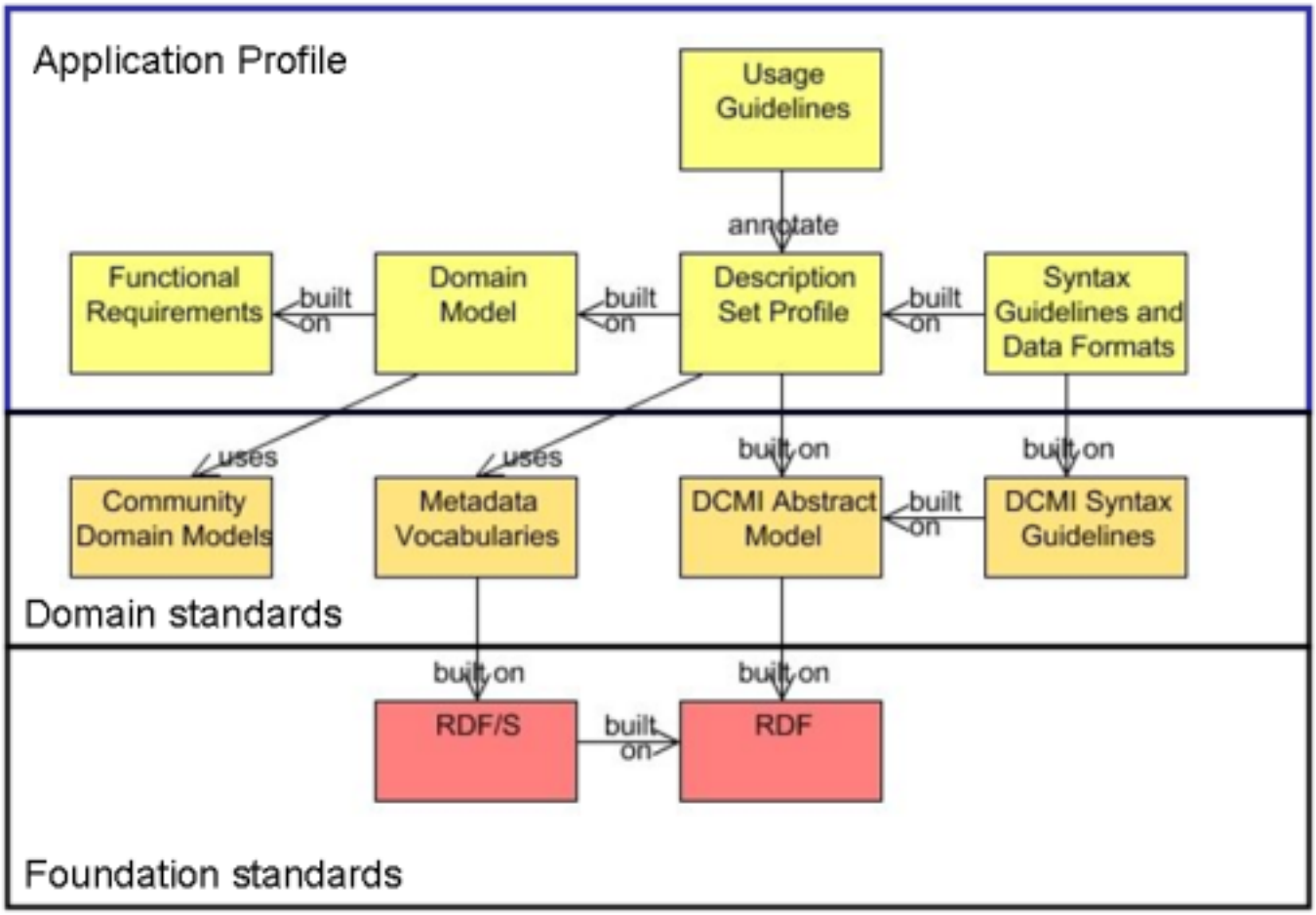
2. Framework for Dublin Core Application Profiles

A DCAP is a document (or set of documents) that specifies and describes the metadata used in a particular application. To accomplish this, a profile:

- describes what a community wants to accomplish with its application (Functional Requirements);
- characterizes the types of things described by the metadata and their relationships (Domain Model);
- enumerates the metadata terms to be used and the rules for their use (Description Set Profile and Usage Guidelines); and
- defines the machine syntax that will be used to encode the data (Syntax Guidelines and Data Formats).

The interoperability of these components in a broader Web environment derives from their basis in more widely used "domain" standards: Community Domain Models, Metadata Vocabularies (from which the terms in the DCAP are chosen), the Dublin Core Abstract Model (a generic syntax for metadata records), and the DCMI Syntax Guidelines (for concrete application encodings). The foundation standard on which these domain standards rest is the Resource Description Framework (RDF) [RDF] of the World Wide Web Consortium.

The DCAP framework is illustrated in the Singapore Framework for Dublin Core Application Profiles, a framework for designing metadata applications for maximum interoperability and reusability. [DCMI-SF]



Singapore Framework

The sections that follow describe the creation of a DCAP, presented in the upper section of the above diagram, in some detail. To illustrate the creation of a DCAP we will use an example of a simple application profile that describes a book and its author or authors. We'll call this example **MyBookCase**.

3. Defining Functional requirements

The purpose of any metadata is to support an activity. The development of clear goals for the application used in that activity is an essential first step.

Functional requirements guide the development of the application profile by providing goals and boundaries and are an essential component of a successful application profile development process. This development is often a broad community task and may involve managers of services, experts in the materials being used, technical application developers, and potential end-users of the services.

There are many methodologies to help in the creation of functional requirements, such as business process modeling, and methods for visualizing requirements, such as the Unified Modeling Language [UML]. Many find that the definition of use cases and scenarios for a particular application helps elicit functional requirements that might otherwise be overlooked.

Functional requirements answer questions such as:

- What do you want to accomplish with your application?
- What are the limits of your application? What will it *not* attempt to do?
- How do you want the application you create to serve your users?
- Will your application need to perform specific actions, such as sorting alphabetically or downloading data in particular formats?
- What are the key characteristics of your resources, and how does this affect your selection of data elements? For example, do you need to handle a variety of character sets?
- What are the key characteristics of your users? Are they associated with a particular institution or are you serving a general public? Do they all speak the same language? How expert are they in relation to the data your application will manage?
- Are there existing community standards that need to be considered?

Functional requirements can include general goals as well as specific tasks that you need to address. Ideally, functional requirements should address the needs of metadata creators, resource users, and application developers so that the resulting application fully supports the needs of the community.

These are some sample requirements from the Scholarly Works Application Profile (SWAP) [SWAP]:

> Facilitate identification of open access materials.
> Enable identification of the research funder and project code.

A set of functional requirements may include user tasks that must be supported such as the following from the Functional Requirements for Bibliographic Records (FRBR) [FRBR]:

> Use the data to find materials that correspond to the user's stated search criteria.
> Use the data retrieved to identify an entity.

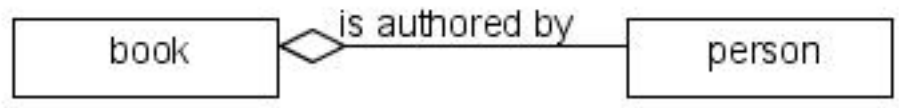
For the MyBookCase DCAP our functional requirements are:

Use the data to retrieve books with a **title** search.
Limit a search to a particular **language**.
Sort retrieved items by **publication date**.
Find items about a given **subject**.
Describe the **author** as a **person** with a **name** and **email address**.

4. Selecting or Developing a Domain model

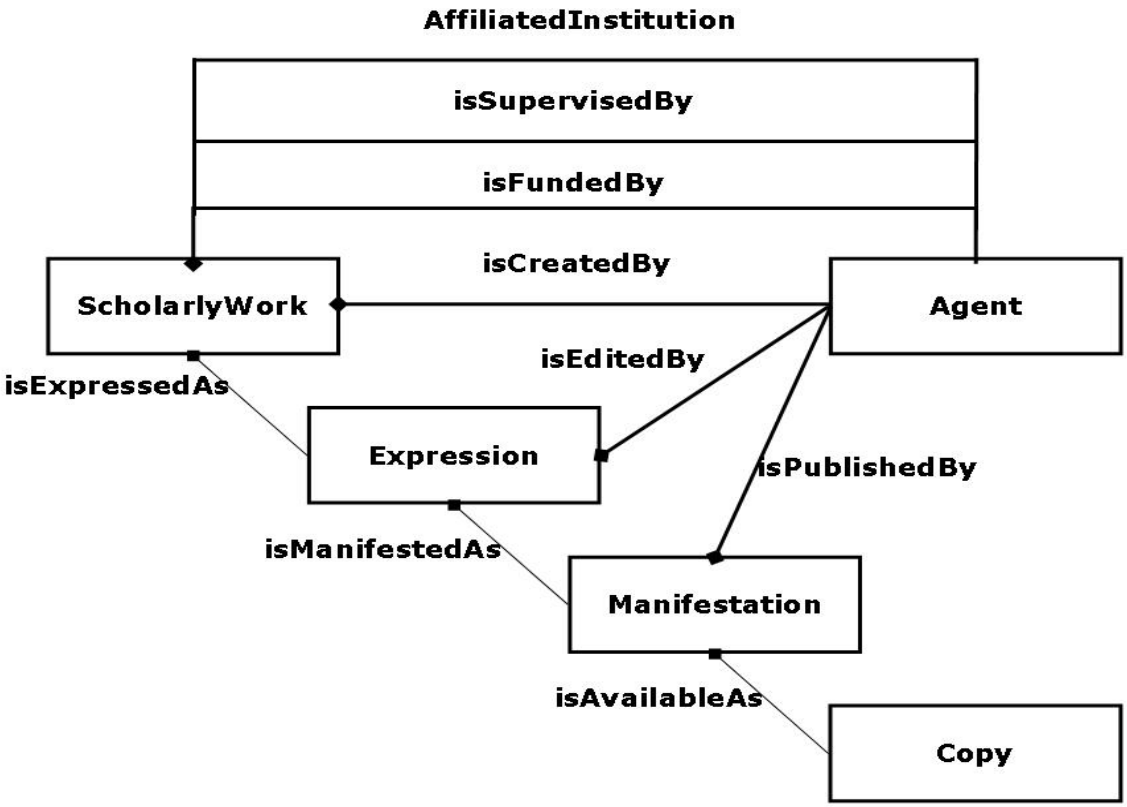
After defining functional requirements, the next step is to select or develop a domain model. A domain model is a description of what *things* (here: *resources*) your metadata will describe, the relationships between those things. The domain model is the basic blueprint for the construction of the application profile.

In the MyBookCase DCAP, our things are Books and Persons (i.e., authors of the books). We will see below how to describe the book (e.g., title and language) and the person (name and email address). For now, the domain model for our MyBookCase is simply:



Models can be even simpler than this (e.g., just a Book!), or they can be more complex The domain model for the Scholarly Works Dublin Core Application Profile, for example, is based on the library-community domain model Functional Requirements for Bibliographic Records (FRBR) [FRBR]:

SWAP defines "Scholarly Work" in place of FRBR's more general entity "Work", and introduces new "Agent" relationships beyond those in the FRBR, such as "isFundedBy" and "isSupervisedBy." In this way, SWAP makes use of FRBR but customizes the FRBR model to meet its specific needs:



5. Selecting or Defining Metadata Terms

As explained above, the entities in the domain model -- whether a Book and Author, Manifestation and Copy, or just a generic Resource -- are classes of things to be described in our metadata. The next step is to choose properties for describing them. For example, a Book has a **title** and an **author**; a Person has a **name**.

The best (and easiest) option is to use properties from existing vocabularies, such as DCMI Metadata Terms [DCMI-MT] or the "Friend of a Friend" vocabulary [FOAF].

If the properties one needs are not already available, it is possible to declare one's own. Guidance for doing this can be found in "Cool URIs for the Semantic Web" [COOLURIS], the RDF Primer [RDF-PRIMER], and "Best Practice Recipes for Publishing RDF Vocabularies" [RECIPES]. Best-practice examples include DCMI Metadata Terms [DCMI-MT], Dublin Core Collection Description Terms [CTERMS], and Eprints Terms [ETERMS], It is good practice for terms also to be published in RDF schemas (see the schemas associated with DCMI Metadata Terms [DCMI-MT] and Dublin Core Collection Description Terms [CTERMS]).

When evaluating properties from an existing RDF vocabulary for use in your profile, take note of the following:

- In order to have a defined role in metadata based on the DCMI Abstract Model, terms must be formally identified as being "properties", "classes", or "datatypes" (Syntax Encoding Schemes) in the sense defined by the Resource Description Framework.
- In an RDF vocabulary, each property is identified with a Uniform Resource Identifier (URI). RDF properties are referenceable in a global context and are meant to be interpreted and processed the same way independently of the contexts in which they appear. This is indeed the reason why Dublin Core application profiles, by definition, do not themselves coin new properties, but only uses properties that have been defined outside of the profile and are, in principle, re-usable in other contexts.
- RDF vocabularies are usually provided with natural-language definitions. Designers of application profiles should take care to re-use terms from these vocabularies in ways that are compatible with these definitions. Application

profiles may duplicate definitions, add technical constraints on use (such as repeatability), or provide more narrow interpretations of definitions for particular purposes, but they should not contradict their intended meaning.

- Emerging good practice for RDF vocabularies currently requires that properties be defined with a formal "domain" (a class of things that can be described by the property) and a "range" (a class of things that can be values). For example, the term `foaf:img` ("Image") has a domain of `foaf:Person` (so that one can infer that the thing being described with this property is a person) and a range of `foaf:Image` (so that one can infer that the value referred to by the property is an image). Formal domains and ranges improve the utility of RDF properties by enabling inferences about the things they are used to describe. For the purposes of re-using properties in application profiles, it is important to check whether or not a property has a range of `rdfs:Literal`:
    - Properties with a "literal" range, such as `dcterms:date` and `dcterms:bibliographicCitation`, are used with a value that is limited to just one value string, which may optionally be augmented with a language tag (in a "plain value string") or a datatype identifier (in a "typed value string"). The advantage of properties with a "literal" range is simplicity. The metadata carries -- and metadata-consuming applications expect -- just one plain or typed value string, making the metadata simple to encode and simple to process. In comparison with properties having a "non-literal" range, however, this simplicity comes at the price of flexibility and extensibility. When a property has a "literal" range, the metadata will be able to say the author is Mary Jones (using the value string "Mary Jones") but will have no way of carrying further information about Mary Jones, e.g. that she is a Person and has an email address or institutional affiliation. As literals cannot be the subject of any further statements, a literal value constitutes a final destination or "stopping point" in descriptive metadata.
    - In almost all cases, properties with ranges other than `rdfs:Literal` refer to "things" other than "strings". Examples of properties with a "non-literal" range include `dcterms:license`, with the range `dcterms:LicenseDocument`, and `foaf:holdsAccount`, with the range `foaf:OnlineAccount`. If a property has a "non-literal" range, the value can be represented by more than just one plain or typed value string. Potentially, the value can be represented by any combination of the following:
        - Plain or typed value strings - not just one, but potentially several in parallel (e.g. a title rendered in English, French, and Japanese).
        - A URI identifying the value resource (Value URI).
        - A URI identifying an enumerated set (or controlled vocabulary) of which the value is a member.

End-users of metadata need not notice or care whether a property has a literal or non-literal range -- in an application interface, the string data presented to them may look the same regardless whether it is a "literal value" or a value string associated with a "non-literal value". However, this distinction has important consequences for the extensibility of metadata and for the form in which metadata is exchanged. Metadata-consuming applications like to know whether to expect value strings or URIs. For the price of some computational overhead for processing the "hook" on which the value strings and URIs are hung, the "non-literal value" offers better descriptive expressivity. In order to achieve the ideal of "linked metadata" -- descriptions that are cross-referenced using globally valid identifiers -- "non-literal" values are crucial because they support the use of URIs. "Non-literal" values can be the subjects of related descriptions. A Book was created by a Person, and that Person has a name and email address.

Now we are ready to select the properties for the MyBookCase application profile. We stated in our functional requirements that a Book will have a title, date, language, subject, and author:

- The **title** will be transcribed from the book itself. For this we can use the Dublin Core property `dcterms:title`, which has a "literal" range.
- We want to use the **date** property in various ways in our application, such as sorting a set of retrieved bibliographic records, so we want to be sure that dates are presented in a uniform way. We select the Dublin Core property `dcterms:date`, which has a "literal" range. Value strings will be formatted according to the W3C Date and Time Formats Specification, so we will use the Syntax Encoding Scheme URI `http://purl.org/dc/terms/W3CDTF` as a datatype.
- We want to indicate the **language** of the book so that users can limit their searches by language. The DCMI term `dcterms:language` suits this purpose well.
- It is important that languages be presented in a uniform manner. We achieve this by using value strings from the set of three-letter codes listed in the international standard ISO 639-3 for the representation of names of languages (such as "eng" for "English") together with the Syntax Encoding Scheme `http://purl.org/dc/terms/ISO639-3` as a datatype.
- We want to record the **subject**. Typically, we would indicate the subject with a value string, such as "Islam and

Science", together a Vocabulary Encoding Scheme URI such as `http://purl.org/dc/terms/LCSH`, which identifies the heading "Islam and Science" as a member of the Library of Congress Subject Headings. However, we note that subject heading schemes are increasingly becoming available with their terms identified using citable URIs; the URI for "Islam and Science" in the prototype RDF vocabulary is `http://lcsh.info/sh85068424#concept`. The DCMI property `dcterms:subject` has a "non-literal" range, so flexibly supports the use of value strings, value URIs, and Vocabulary Encoding Scheme URIs as needed.

- We know that our **author** is going to be described in separate description within the metadata record. The author property will need to have a "non-literal" range so that it can be linked to the separate Person description. As mentioned above, the Dublin Core property `dcterms:creator` is defined as with a non-literal range, so we will use this in MyBookCase.

Property	Range	Value String	SES URI	Value URI	VES URI	Related description
dcterms:title	literal	YES	no	*not with a literal range*	*not with a literal range*	*not with a literal range*
dcterms:created	literal	YES	YES [1]	*not with a literal range*	*not with a literal range*	*not with a literal range*
dcterms: language	non-literal	YES	YES [2]	no	no	no
dcterms:subject	non-literal	YES	no	YES	YES [3]	no
dcterms:creator	non-literal	YES	no	no	no	YES

```
[1] http://purl.org/dc/terms/W3CDTF
[2] http://purl.org/dc/terms/ISO639-2
[3] http://purl.org/dc/terms/LCSH
```

The selection of properties for describing the Person follows the same model:

- The Person has a **name**, but we want to record the forename and family name separately rather than as a single string. DCMI Metadata Terms has no such properties, so we will take from the Friend of a Friend vocabulary [FOAF] the properties `foaf:firstName` and `foaf:family_name`.
- In order to record an email address as contact information for the Person, we will use the property `foaf:mbox`, which has a non-literal range, and use "mailto:" URIs as values.

Property	Range	Value String	SES URI	Value URI	VES URI	Related description
foaf:firstName	literal	YES	no	*not with a literal range*	*not with a literal range*	*not with a literal range*
foaf:family_name	literal	YES	no	*not with a literal range*	*not with a literal range*	*not with a literal range*
foaf:mbox	non-literal	no	no	YES [3]	no	no

```
[1] using mailto: URIs
```

Now we are ready to describe our metadata record.

6. Designing the Metadata Record with a Description Set Profile

Now we can describe the metadata record in detail. The DCMI Working Draft "Description Set Profiles: A constraint language for Dublin Core Application Profiles" [DSP] provides a method for specifying structural constraints on the descriptions and statements held in a metadata record. Such constraints specify, for example, whether a statement with a given property is repeatable or non-repeatable, optional or required. Description set profiles are based on the Description Set Model, part of the DCMI Abstract Model [DCAM], which is reproduced below in Appendix A. This section presents a simple Description Set Profile for MyBookCase.

A Description Set Profile (DSP) contains one *description template* for each *thing* in the domain model. The DSP for MyBookCase has two description templates -- one for Book and one for Person. Each description templates has *statement templates* for the properties used to describe the Book or Person.

If each metadata record is to represent exactly one book, a book description template will occur once in each description set:

```
DescriptionSet: MyBookCase
   Description template: Book
   minimum = 1; maximum = 1
```

Let us say that each book must have one (and only one) *title*, which is identified with the property URI *http://purl.org/dc/terms/title*. Note that *title* is used in statements with literal values. Statement templates are created for each of the other properties used to describe a Book (with occurrence options and other constraints as needed):

```
DescriptionSet: MyBookCase
   Description template: Book
   minimum = 1; maximum = 1
       Statement template: title
       minimum = 1; maximum = 1
         Property: http://purl.org/dc/terms/title
         Type of Value Surrogate = "literal"
       Statement template: dateCreated
       minimum = 0; maximum = 1
         Property: http://purl.org/dc/terms/created
         Type of Value Surrogate = "literal"
         Syntax Encoding Scheme URI = http://purl.org/dc/terms/W3CDTF
       Statement template: language
       minimum = 0; maximum = 3
         Property: http://purl.org/dc/terms/language
         Type of Value Surrogate = "non-literal"
         takes list = yes
         Syntax Encoding Scheme URI = http://purl.org/dc/terms/ISO639-2
       Statement template: author
       minimum = 0; maximum = 5
         Property: http://purl.org/dc/terms/creator
         Type of Value Surrogate = "non-literal"
         defined as = person
```

Notice that some of the properties have a minimum occurrence of 0 (zero). This is another way of saying that these properties are optional in our record, or that you can create a valid record even if these properties are not present. Some of them are repeatable, such as the language, which can occur as many as three times, and the author, which can occur as many as five times. We've defined the author as having the value of Person, which is described in its own description template.

```
Description template: Person id=person
```

```
minimum = 0; maximum = unlimited
Statement template: givenName
  Property: http://xmlns.com/foaf/0.1/givenname
  minimum = 0; maximum = 1
  Type of Value Surrogate = "literal"
Statement template: familyName
  Property: http://xmlns.com/foaf/0.1/family_name
  minimum = 0; maximum = 1
  Type of Value Surrogate = "literal"
Statement template: email
  Property: http://xmlns.com/foaf/0.1/mbox
  minimum = 0; maximum = unlimited
  Type of Value Surrogate = "non-literal"
  value URI = mandatory
```

A given Person can have one optional given name and one optional family name, each of which are literal strings. A Person can also have an email address which must be represented by a URI of the form "mailto:". Because many of us have more than one email address, we allow this statement to repeat as often as necessary.

We allow our Person to be used any number of times in the metadata record. This may seem to conflict with the fact that Person can only represent an author up to five times in the Book description, but we anticipate other possible uses for Persopn in our record, such as subjects of the Book, so we have chosen not to limit its number in the record in general.

Note that each Person description contains data elements for only one Person. This also means that an *author* statement will have only one Person value. If there are two authors, then two *author* statements will be needed in the metadata record, each representing one Person. Note that one might allow a single Person to have more than one name, such as real names and pseudonyms; however, the metadata would clearly distinguish the case of multiple authors (multiple description templates) from that of a single author with multiple names (multiple statement templates).

If you wish to include an affiliated insitution for the *author*, you may want to create an institution description that contains the name and location of that institution, which will then link to the *author* description. You may also have other uses for corporate names and locations such as for recording information about the publisher of the book. As additional descriptions are created to hold the additional information, description sets can potentially become quite complex.

This completes the simple Description Set Profile for MyBookCase; see Appendix B for a version of this DSP encoded in XML.

7. Usage Guidelines

A Description Set Profile defines the "what" of the application profile; usage guidelines provide the "how" and "why". Usage guidelines offer instructions to the people who will create the metadata records, so ideally they should explain each property and anticipate the decisions that must be made in the course of creating a metadata record. Documentation for metadata creators presents some of the same information that is included in the DSP, but in a more human-understandable form. Those inputting metadata will need to know: is this required? is it repeatable? am I limited in the values that I can input in this statement? Oftentimes a user interface can answer these questions, for example by presenting the metadata creator with a list of valid values to choose from.

Some examples of the kinds of rules that might appear in usage guidelines are:

- For works of multiple authorship, the order of authors and how many to include (e.g. first 3, or no more than 20)
- How to determine document type using the prescribed document type vocabulary
- Definitions of minimum data entry
- Character sets, punctuation, and abbreviations to be used in strings

In some cases where usage guidelines are relatively simple, they may be included in the DSP document with the description of the property. The SWAP is an example where the guidance instructions are included in the same document that contains the Description Set Profile definition.

Other communities may have highly complex rules that are best presented as separate documents due to their length and complexity. For example, the Anglo-American Cataloguing Rules used as guidelines by some libraries are recorded in a 600-page book.[AACR2] Instructions relating to titles appear in numerous of the book's chapters and cover many pages of text. Guidelines of this length may not integrate well with the Description Set Profile definition.

8. Syntax Guidelines

The technologies described in this document are syntax neutral; that is, they do not require any particular machine-readable encoding syntax as long as the syntax employed can fully express the values and relationships defined in the DCAP.

To help developers turn their application profiles into functioning applications, DCMI has developed various encoding guidelines [DCMI-ENCODINGS]. Description Set Profiles can be deployed using any concrete implementation syntax for which a mapping to the abstract model has been specified. DCMI has developed or is developing guidelines for encoding DCAM-based metadata in HTML/XHTML, XML, and RDF/XML; others could be added in the future. There is no restriction on use of other types of syntax as long as the resulting data format is compatible with the foundation standards and with the Dublin Core Abstract Model.

References

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<http://xmlns.com/foaf/spec/>

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Manola, Frank, Eric Miller. RDF Primer. W3C Recommendation 10 February 2004.
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RFC3066

Alvestrand, H. Tags for the Identification of Languages. January, 2001.
<http://www.ietf.org/rfc/rfc3066.txt>

SWAP

Scholarly Works Application Profile.
<http://www.ukoln.ac.uk/repositories/digirep/index/Eprints_Application_Profile>

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Appendix A: Description Set Model (from DCMI Abstract Model)

According to the "Description Set Model" of the DCMI Abstract Model [DCAM <#DCAM>], a Dublin Core *description set* has the following structure:

- a *description set* is made up of one or more *descriptions*
- a *description* is made up of
  - zero or one *described resource URI* and
  - one or more *statements*
- a *statement* is made up of
  - exactly one *property URI* and
  - exactly one *value surrogate*
- a *value surrogate* is either a *literal value surrogate* or a *non-literal value surrogate*
  - a *literal value surrogate* is made up of
    - exactly one *value string*
  - a *non-literal value surrogate* is made up of
    - zero or one *value URIs*
    - zero or one *vocabulary encoding scheme URIs*
    - zero or more *value strings*
- a *value string* is either a *plain value string* or a *typed value string*
  - a *plain value string* may be associated with a *value string language*
  - a *typed value string* is associated with a *syntax encoding scheme URI*
- a *non-literal value* may be described by another *description*.

Appendix B: MyBookCase Description Set Profile

```
<?xml version="1.0" encoding="UTF-8"?>
<DescriptionSetTemplate xmlns="http://dublincore.org/xml/dc-dsp/2008/01/14"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://dublincore.org/xml/dc-dsp/2008/01/14">
        <DescriptionTemplate ID="Book" minOccurs="1" maxOccurs="1" standalone="yes">
                <StatementTemplate ID="title" minOccurs="1" maxOccurs="1"
type="literal">
                        <Property>http://purl.org/dc/terms/title</Property>
                </StatementTemplate>
                <StatementTemplate ID="dateCreated" minOccurs="0" maxOccurs="1"
type="literal">
                        <Property>http://purl.org/dc/terms/created</Property>
                        <LiteralConstraint>
                                <SyntaxEncodingScheme>http://purl.org/dc/terms/
W3CDTF</SyntaxEncodingScheme>
                        </LiteralConstraint>
                </StatementTemplate>
                <StatementTemplate ID="language" minOccurs="0" maxOccurs="3"
type="nonliteral">
                        <Property>http://purl.org/dc/terms/language</Property>
                        <NonLiteralConstraint>
                                <VocabularyEncodingSchemeURI>http://purl.org/dc/
terms/ISO639-2</VocabularyEncodingSchemeURI>
                                <ValueStringConstraint minOccurs="1" maxOccurs="1"/>
                        </NonLiteralConstraint>
                </StatementTemplate>
                <StatementTemplate ID="author" minOccurs="0" maxOccurs="5"
type="nonliteral">
                        <Property>http://purl.org/dc/terms/creator</Property>
                        <NonLiteralConstraint descriptionTemplateRef="person"/>
                </StatementTemplate>
        </DescriptionTemplate>
        <DescriptionTemplate ID="person" minOccurs="0"  standalone="no">
                <StatementTemplate ID="givenName" minOccurs="0" maxOccurs="1"
type="literal">
                        <Property>http://xmlns.com/foaf/0.1/givenname</Property>
                </StatementTemplate>
                <StatementTemplate ID="familyName" minOccurs="0" maxOccurs="1"
type="literal">
                        <Property>http://xmlns.com/foaf/0.1/family_name</Property>
                </StatementTemplate>
                <StatementTemplate ID="email" minOccurs="0"  type="nonliteral">
                        <Property>http://xmlns.com/foaf/0.1/mbox</Property>
                        <NonLiteralConstraint>
                                <ValueURIOccurrence>mandatory</ValueURIOccurrence>
                        </NonLiteralConstraint>
                </StatementTemplate>
        </DescriptionTemplate>
</DescriptionSetTemplate>
```

Title: Vocabulary Encoding Schemes and Syntax Encoding Schemes
Identifier: berlin:/etc-encodingschemes/.index.html
Source: berlin:/etc-encodingschemes/index.txt
Directory: berlin:/etc-encodingschemes/
Created: 2008-09-17

Vocabulary Encoding Schemes and Syntax Encoding Schemes (Andrew)

Required reading:
-- berlin:/etc-encodingschemes/SES_VES.pdf

VES & SES
How to differentiate?

Issue: We need a deeper level of description and differentiation between VES and SES, including definitions. If you have a something already, how do you tell if it is VES or SES?

The Abstract Model gives the following definitions:
VES: An enumerated set of resources.
SES: A set of strings and an associated set of rules that describe a mapping between that set of strings and a set of resources. The mapping rules may define how the string is structured (for example DCMI Box) or they may simply enumerate all the strings and the corresponding resources (for example ISO 3166).
The AM also adds that a SES is a "class (of literals):

Discussion:
Is the problem one of things vs strings? One early statement of the difference is that the values for a VES are strings; those for a SES are URIs. However, this does not solve the problem that both a string and a URI are a representation of a thing and therefore are not necessarily enough to differentiate between VES and SES. There is also the issue of what is a controlled vocabulary? My view is that this is not actually a problem. The ISO definition is "a list of terms that have been enumerated explicitly". At this level a controlled vocabulary is simply a VES. The ISo definition requires more but for DC purposes isn't this sufficient?

In Manzanillo we made the following categorisation of the schemes in DC:

Vocabulary encoding schemes

- http://purl.org/dc/terms/DCMIType
- http://purl.org/dc/terms/DDC
- http://purl.org/dc/terms/IMT
- http://purl.org/dc/terms/LCC
- http://purl.org/dc/terms/LCSH
- http://purl.org/dc/terms/MESH
- http://purl.org/dc/terms/NLM
- http://purl.org/dc/terms/TGN
- http://purl.org/dc/terms/UDC

Syntax encoding schemes

- http://purl.org/dc/terms/Box
- http://purl.org/dc/terms/Period
- http://purl.org/dc/terms/Point
- http://purl.org/dc/terms/ISO3166
- http://purl.org/dc/terms/ISO639-2
- http://purl.org/dc/terms/RFC1766
- http://purl.org/dc/terms/RFC3066
- http://purl.org/dc/terms/URI
- http://purl.org/dc/terms/W3CDTF

On this basis the difference between a VES and a SES is that the SES tells you how to encode/create/structure a value but doesn't enumerate all possible values, the VES gives you the enumerated list of approved/acceptable/conforming values (which isn't to say that the list can't change). Do we still hold to this categorisation?

Joe and Stuart wrote that “If an Encoding Scheme tells you what a value string is it's a SES. If an Encoding Scheme defines a class of values, then it is a VES (e.g., concepts). For example, if you develop a list of educational levels, and if you define a list of strings, then you're defining an SES. If you define a set of concepts and assign URIs to them (as best practice), then you're defining a VES. Best practice in this scenario is to define a set of concepts with URIs rather than a set of strings…SES is a datatype in RDF. VES is like conceptScheme in SKOS, only not limited to concepts. For discussion: VES is a set of concepts that, once in metadata, allows editors to handle assertion by adding things to it. SES is a set of strings.”

Is the implicit suggestion here that in a VES the values can be defined with URIs, not strings, ie the values in a VES are non-literals. Conversely, in a SES, values are only strings, ie. literals.

```
Title:         Range of dcterms:title
Identifier:    berlin:/terms-titlerange/.index.html
Source:        berlin:/terms-titlerange/index.txt
Directory:     berlin:/terms-titlerange/
Created:       2008-09-17

Shepherd: Tom

A bit of unfinished business.  I would like to have a brief
discussion about what should go into the decision document,
then take a formal decision.

ACTION 2008-05-28: Tom to propose literal range for
dcterms:title for finalization on the list.

---------------------------------------------------------------------
2008-05-28 Range of dcterms:title and new term proposal (dcterms:titleAsText)

Proposal for new term dcterms:titleAsText (Akira)
-- http://dublincore.org/usageboardwiki/TitleProposal
   http://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind0805&L=dc-usage&P=1467

Options discussed:

1) dc:title remains without range.
   dcterms:title remains without range.
   No new parallel property.
   Pro: Same property for both literal and "sequence of words".
   Con: Providers must choose between literal value and
        non-literal value. Complex for consumers, OWL-DL problems.

2) dc:title remains without range.
   dcterms:title gets literal range.
   dcterms:titleAsSequenceOfWords gets range dcterms:SequenceOfWords (two new terms)
   Pro: Clear (one property per pattern, with dc:title ambiguous).
        No complexity-of-processing or OWL-DL problems.
   Con: Providers must choose.

3) dc:title remains without range.
   dcterms:title gets literal range.
   No new parallel property.
   Pro: Simple for consumers and providers, no OWL-DL problems
   Con: Transliteration case must be handled with dc:title or with
        a newly coined, non-DCMI property.

4) dc:title remains without range.
   dcterms:title gets range dcterms:SequenceOfWords (one new term)
   Pro: Straightforward, no OWL-DL problems.
   Con: Makes use of dcterms:title with literal value invalid.

Resolved: to postpone consideration of the proposed new term and
to de-couple the creation of a new parallel property from the issue
of a literal range for dcterms:title.

ACTION 2008-05-28: Tom to propose literal range for
dcterms:title for finalization on the list.
```

Discussion:

-- The proposal would actually require the creation of two new terms (an additional proposal for the range class dcterms:SequenceOfWords).

-- The proposed approach would not cover the case of a single title with translations. The more general requirement seems to be that of treating the title as a resource. But we have already seen that this requirement can come up not just for titles, but for just about any property with a literal range - at any rate, for those properties that are typically used with sequences of words. This seems like a general issue requiring a general solution.

-- The explanatory overhead would be particularly high for this proposal, in part simply because it is a parallel property (which needs to be explained) and in part because the approach is more specific than simply treating title as resource (which would accommodate the case of a title with multiple translations or a title that needs to be annotated in other ways).

In the meantime, the requirement of multiple lexical forms for transliterations can currently be handled using dc:title, with its unspecified range. It is true that this is a complex range, but it is no worse in this respect than the cases of the SKOS "note" properties or dcterms:description, which also currently have no assigned ranges.

Relevant discussion on lists

http://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind0803&L=dc-usage&P=1204
http://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind0712&L=dc-architecture&P=3679
http://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind0702&L=DC-ARCHITECTURE&P=R4809

Title: Other actions
Identifier: berlin:/etc-actions/.index.html
Source: berlin:/etc-actions/index.txt
Directory: berlin:/etc-actions/
Created: 2008-09-17

ACTION 2007-11-23: Joe and Andrew to edit a discussion of issues with the element Coverage http://dublincore.org/usageboardwiki/IssuesWithCoverage for discussion on a future telecon. (Note: 'spatial' and 'temporal' are "correct" but 'coverage' is too broad -- it allows for topic and this is in conflict with 'subject' [TK] -- this is an Application Profile issue [TB].) (This issue is on the back burner for now.)

ACTION 2007-08-26: Tom and Mikael to create a draft "Simple Dublin Core" AP using the 1.1 namespace and which models everything as literals. Document the legacy functional requirements and the organizational context for this AP. See discussion at [http://dublincore.org/usageboardwiki/SimpleDcDiscussion SimpleDcDiscussion].

ACTION 2007-08-26: Andrew, Tom, and Dan B, in context of Agents TG, to finish the assessment of FOAF against the functional requirements. Include context describing kinds of places where FOAF would be useful and where it wouldn't be useful. Following this assessment, the TG to propose/recommend a course of action to DCMI Directorate. See http://dublincore.org/agentswiki/FoafReview. Update 2007-12-12: Andrew to progress in January.

ACTION 2007-03-17: Joe to draft a document discussing issues related to principles and purpose of UB decision-making. (The context was the decision to define ISO639-2 as a set of codes.) Update 2008-01-23: will flow out of profile review criteria.

2007-12-22 (Tom). There were several cases in which we could have given classes names that differed from property names only in terms of case (e.g., given dcterms:accrualMethod: dcterms:AccrualMethod instead of dcterms:MethodOfAccrual; given dcterms:extent: dcterms:Extent instead of dcterms:SizeOrDuration). (The other cases were dcterms:instructionalMethod, dcterms:language, dcterms:license, dcterms:Period.) Should the naming policy specifically address this issue?

2007-12-22 (Pete and Tom). The [WWW]Naming Policy says that "applications are well advised to normalize case when parsing terms for identity comparisons. Prudence mitigates against the use of case to distinguish between alternative identities of related terms in any namespace, and it is DCMI policy that such distinctions not be made within its own namespaces, so it is unlikely that errors would be introduced by normalizing case." This is at odds with how DCMI currently treats "names" and URIs: While we can say that _DCMI_ won't assign two term URIs that differ only in case, we can't say that other term creators won't do that (and they are perfectly within their rights to do so.) Moreover, we should be encouraging people building applications which create or consume DC metadata to take care to _respect_ case in URIs, _not_ to ignore it.

2007-12-11 (Tom). The meeting notes are currently available only on stage - see [WWW]Usage Board meetings and telecons.

2008-01-15 (Tom). Drop "name" from /dcmi-terms/ and related documentation? This would make the document shorter, hence that much more readable. Note that "Name" is currently defined as "A token assigned to the term, unique within the term's DCMI namespace". (The glossary of DCMI Namespace Policy should perhaps be updated with this definition.)

ACTION 2008-03-26: Andrew to edit Term Decision Tree - http://colab.mpdl.mpg.de/mediawiki/ApplicationProfiles/TermDecisionTree, proposing a more appropriate title.

Pete points out that XML datatypes are identified with URI but not documented in an RDF schema. General consensus that we should relax the requirement for a schema - enough to assert that something is (for example) an RDF property.

Noted Mikael's objection that TermDecisionTree does not provide guidance on how to declare a new term so it becomes DCAM-compatible. Tom differentiates between a DCAM compliance test and a full vocabulary review.

Do we really need ection differentiate VES/SES here? Consensus that we need an explanation, but not clear whether this belongs in TermDecisionTree.

Andrew should write up criteria for differentiating SES/VES, though they do not necessarily belong in TermDecisionTree. Will first write, then we can decide where to put it.

Title: Potential profiles to review
Identifier: berlin:/review-planning/.index.html
Source: berlin:/review-planning/index.txt
Directory: berlin:/review-planning/
Created: 2008-09-17

Kernel Application Profile (latest version linked to wiki dates from February 2008)
-- http://dublincore.org/kernelwiki
http://dublincore.org/kernelwiki/FrontPage?
action=AttachFile&do=get&target=KernelMetadataERCApplicationProfiles1_4a.htm

UKOLN Geospatial application profile
-- http://www.ukoln.ac.uk/repositories/digirep/images/e/ef/
Geospatial_Application_Profile.doc

Collections Application profile
-- http://dublincore.org/usage/reviews/2007/collections-ap/

Library Application profile
-- http://dublincore.org/documents/2004/09/10/library-application-profile/

Images Application Profile
-- http://www.ukoln.ac.uk/repositories/digirep/index/Images_Application_Profile

OLAC (Gary Simons)
-- http://www.language-archives.org/OLAC/metadata.html
http://olac.wiki.sourceforge.net/
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