

## Using Dublin Core for DISCOVER: a New Zealand visual art and music resource for schools

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### Abstract

*Discover is a web resource supporting the visual arts and music curriculum in New Zealand schools. It contains 2500 multimedia items from the collections of the Alexander Turnbull Library, which holds the national cultural heritage collections, and 300 resources from other sources. The product uses a metadata scheme that combines simple (unqualified) DC and qualified DC, EAD and local extensions expressed in XML and uses the RDF framework proposed by DCMI for expressing qualified DC in RDF/XML. This metadata schema will continue to evolve to support interchange of the NLNZ's digital resources within the library, archival and education communities.*

**Keywords:** *Discover, interoperability, Dublin Core, XML, RDF, Curriculum, Schools, Arts, Music*

### Introduction

The Discover Project supports the music and visual arts curriculum in New Zealand. It began as a pilot project for the Digital Library Programme in 2000. The objective was to select and digitise items to support the Visual Arts and Music disciplines of the Arts curriculum. The National Library of New Zealand plans to digitise resources for other curriculum areas and present them on Discover. This paper covers the:

- context for the development of Discover
- the standards used
- the items being described
- the metadata schema for the items
- syntax for the metadata: XML / RDF
- the application
- an overview of Discover

### 1. Context for the development of Discover

Discover was created as the pilot site for the National Library of New Zealand's digital collection.

The primary goal for this collection is to ensure interoperability and interconnection through the application of standards to enable:

- sustainability over time
- access for those with disabilities
- the ability to retain rights holdings and permissions
- create data that would be exchangeable across platforms
- an authenticated reproduction of original
- and create standards based metadata that would support administration, resource discovery and presentation activities.

### 2. The Standards used

To enable interoperability the National Library of New Zealand's Discover Project put into practice its Metadata Standards Framework [7], which was published in 2000. This Framework includes standards ratified by national and international standards organizations, such as NISO and ISO e.g. Dublin Core and ISO23950; those ratified by the World Wide Web Consortium (W3) e.g. XML and RDF; and other widely used de facto standards such as jpeg and mpeg formats.

The Discover Project used many well-known standards as well as some of the new and emerging standards. Best practice and recommendations were also used especially for mapping and syntax. The DCMES is primarily used at the resource discovery level.

### 3. The documents described

2,500 multimedia items were selected from the Alexander Turnbull Library, which holds New Zealand's documentary research and heritage collections. These collections contain original material such as photographs, drawings and prints, oral histories, manuscripts and archives, and printed material

including books, newspapers, maps, magazines, and ephemera relating to New Zealand and the Pacific. The documents selected for Discover include paintings, photographs, posters, video clips, music, essays and bibliographies, created by New Zealanders and many reflect our Maori heritage. The original items were manipulated for web presentation and in many cases included an extract or a portion from the original item, e.g. a portion of a sound clip. Most of the items were single files (e.g. .jpeg, .tiff, .ra, .mp3, and .mpeg) rather than parts of a collection.

#### 4. The Metadata Schema for Discover

Much of the metadata for the items in Discover was sourced from two existing National Library catalogues including, TAPUHI, a proprietary based database containing unpublished items, and the MARC based National Library catalogue. The metadata was exported from these catalogues and mapped to DC [8] and qualified DC [2]. All items needed additional metadata.

Discover required that the metadata support:

- resource discovery: DC (unqualified)
- resource description: DC; qualified DC; EAD; local elements
- and preservation, technical and administrative needs.

The metadata scheme selected for resource discovery is primarily DC (unqualified). For resource description qualified DC, an EAD element and some local extensions were used. The DC and qualified DC data was implemented strictly conforming to the DCMI recommendations, the non-DC extensions were added in a new namespace “nlzdl” (“http://www.natlib.govt.nz/dl#”). The RDF schema provides a full description of the National Library's application profile [1]. Extensions to DCMES including their use are summarised in Table 1.

The EAD[3] Element, Digital Archival Object Location < DAOLOC > was chosen as an alternative to dc:relation because of the additional information needed for each of the surrogate files in order to present it intelligently. A DAOLOG tag can specify the URL, its role, its behaviour and a title. For each record there is a thumbnail view, a preview view, the online reference version of the object and the original object.

Metadata for the long-term management of the digital object itself, which includes information such as the digitisation process used, the size of the file and modification to the original is currently stored in a separate system.

A multi-step process is used to convert the metadata - firstly to DC in XML, then to DC in RDF/XML, and then the local extensions are added to the RDF (see figure 1). This allows delivery of extracted meta-

Table 1.

| Element Name       | Attributes                                      | Use   |
|--------------------|---|---|
| ead:daoloc         | ead:role; ead:behavior; ead:locator; ead:title; | Digital Archival Object Location - the location of a remote Digital Archive Object.   |
| Element Refinement | Name  | Use   |
| dc:subject         | nlzdl:category                                  | For subject browsing.   |
| dc:identifier      | nlzdl:pid                                       | Persistent identifier – a permanent name for a resource. The NLNZ uses the Handle System for its PIDs – naming authority 1727.  |
|                    | nlzdl:object                                    | Location of a digital object.<br>Duplicate of the Persistent Identifier in a commonly accessible format e.g. http rather than hdl. This is an interim solution until Web browsers can natively present handles with multiple locations. |
|                    | nlzdl:local                                     | An identifier used locally by an application, which may not be unique globally.   |
| Encoding Schemes   | Name  | Use   |
| dc:subject         | nlzdl:NZCT                                      | Curriculum topics list for Discover.  |
| dc:type            | nlzdl:LCTGM2                                    | Library of Congress Thesaurus for Graphic Materials II: Genre and Physical Characteristic Terms Headings.   |
|                    | nlzdl:LCSHFormOfComposition                     | Library of Congress Form of Composition   |
| dc:identifier      | nlzdl:ATLNo                                     | A local number used as the Alexander Turnbull Library Archival Collections Reference Number.  |
|                    | nlzdl:CAC                                       | National NLNZ Corporate Art Collection Reference Number Scheme.   |

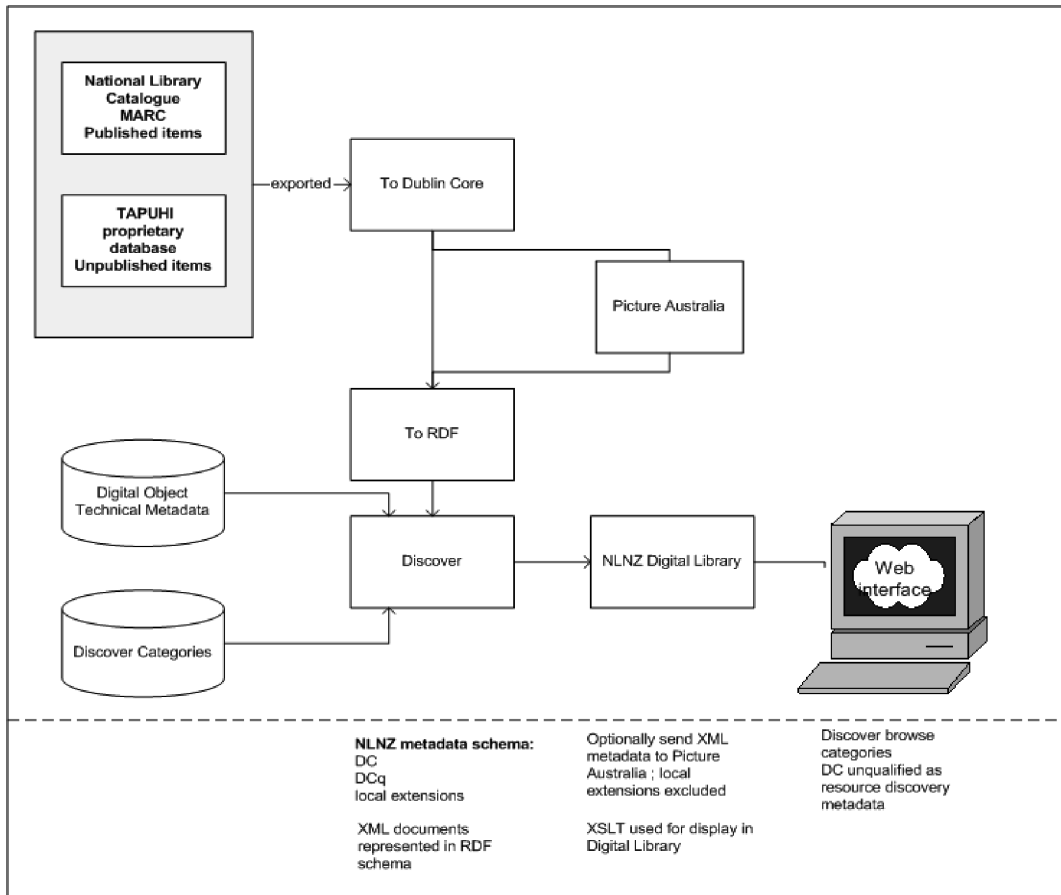


Figure 1. Discover overview



Figure 2. Discover homepage

data in different syntaxes depending on the destination's requirements. For example, the data sent to the NLA for inclusion in Picture Australia [10] is the result from the first conversion to DC in XML.

## 5. Syntax for the metadata: XML /RDF

The metadata for Discover is expressed in XML and the different schemas are combined using the Resource Description Framework (RDF). The NLNZ declaration [1] has been modelled on the DCMI proposal [5].

A DTD defining the Resource Description Framework XML for Discover metadata was also created because it is required by the NLNZ Digital Library application.

## 6. The NLNZ Digital Library and Discover

The NLNZ Digital Library application is capable of storing and both the import and export of data in eXtensible Markup Language (XML). It uses XSLT style sheets to interrogate the XML for display via the Web.

Discover is arranged into 13 topic areas to support the Visual Arts and Music Disciplines of the Arts/Nga Toi curriculum.

Retrieval is based almost entirely on DC (unqualified) although advantage is taken of some qualifiers to avoid confusion, for instance the kind of date being searched.

Figure 1 provides an overview of the processes used to generate the Discover metadata and is followed by an illustration of a Discover Web page presenting a stored digital object.

## References

[1] Campbell, Douglas. National Library of New Zealand Digital Library Dublin Core Enhancements

RDF Schema. <http://ead.natlib.govt.nz/meta/nlnzdlRDFschema.html>

[2] Dublin Core Qualifiers. 2000. DCMI. <http://dublin-core.org/documents/2000/07/11/dcmes-qualifiers/>

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[8] National Information Standards Organization (U.S.). The Dublin Core Metadata Element Set : an American national standard / developed by the National Information Standards Organization. Bethesda, MD NISO Press 2001. ANSI/NISO Z39.85-2001. 6 p.

[9] National Library of New Zealand. 2002. New Zealand Register of Digitisation Initiatives. <http://www.natlib.govt.nz/rodi/rodi.html>

[10] Picture Australia. National Library of Australia. <http://www.pictureaustralia.org/nolan.html>

## Appendix. Sample Discover metadata

```

<?xml version="1.0" encoding="UTF-8" ?>
- <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcq="http://purl.org/dc/terms/"
xmlns:ead="http://www.natlib.govt.nz/dl#" xmlns:nlnzdl="http://www.natlib.govt.nz/dl#">
- <rdf:Description rdf:about="hdl:1727.11/00002195">
  <dc:title>Blue wattled crow (Kokako).</dc:title>
  <dc:subject>Kokako</dc:subject>
  <dc:subject>Birdsongs</dc:subject>
- <nlnzdl:category>
- <nlnzdl:NZCT>
  <rdf:value>A-M-04-04</rdf:value>
  <rdfs:label>Music and Bird Song Clips</rdfs:label>
  </nlnzdl:NZCT>
  </nlnzdl:category>
  <dc:description>Excerpt from track 2 of compact disc Bird calls of New Zealand. Paraparaumu, N.Z. : Viking Sevenses NZ,
[1980]. Field recording by John Kendrick; narration by Robert Taylor; produced for the Department of Conservation and
Radio New Zealand.</dc:description>
  <dc:contributor>Kendrick, John L., recording engineer</dc:contributor>
  <dc:contributor>New Zealand Department of Conservation</dc:contributor>
  <dc:contributor>Radio New Zealand</dc:contributor>
  <dcq:issued>[1980]</dcq:issued>
- <dc:type>
- <dcq:DCMIType>
  <rdf:value>Sound</rdf:value>
  </dcq:DCMIType>
  </dc:type>
  <dc:format>Digital stereo sound recording, 59 seconds.</dc:format>
  <nlnzdl:pid rdf:resource="hdl:1727.11/00002195" />
  <nlnzdl:object rdf:resource="http://hdl.handle.net/1727.11/00002195" />
- <dc:language>
+ <dcq:ISO639-2>
  </dc:language>
  <dcq:hasFormat>Also available as an electronic resource.</dcq:hasFormat>
  <dcq:temporal>1980</dcq:temporal>
  <dc:rights>Item provided by the Alexander Turnbull Library, National Library of New Zealand, Te Puna Matauranga o
Aotearoa. Reproduction rights do not belong to the Alexander Turnbull Library. It must not be reproduced in any way without
the prior permission of the copyright owner and the Library.</dc:rights>
  <ead:daoloc ead:role="source" ead:href="http://digital.natlib.govt.nz/source/20020605/cd40track01_00002195_ds.wav"
ead:behavior="audio/x-wav" />
  <ead:daoloc ead:role="reference" ead:href="http://digital.natlib.govt.nz/20020604/cd40track01_00002195_df.mp3"
ead:title="Digital audio extract from Blue wattled crow (Kokako). (754KB)" ead:behavior="audio/mpeg" />
  <ead:daoloc ead:role="display" ead:href="http://digital.natlib.govt.nz/20020604/audioicon_pv.jpg" ead:behavior="image/jpeg"/>
  <ead:daoloc ead:role="thumbnail" ead:href="http://digital.natlib.govt.nz/20020604/audioicon_tn.jpg"
ead:behavior="image/jpeg" />
  </rdf:Description>
</rdf:RDF>

```