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## Representing the Dublin Core within X.500, LDAP and CLDAP

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### Abstract

The Dublin Core is a simple resource description format which arose out of a loose grouping of "librarians, archivists, humanities scholars and geographers, as well as standards makers in the Internet, Z39.50 and Standard Generalized Markup Language (SGML) communities" [1].

This document describes a mapping from the abstract model of the Dublin Core to the X.500 [2], LDAP [3], and CLDAP [4] directory service protocols.

**1. The Dublin Core in X.500, LDAP and CLDAP**

We propose that each of the fifteen elements of the Dublin Core be made into an X.500/[C]LDAP attribute, and that these attributes be gathered together in an object class:

```

Name:          dcObject
Description:   object containing the Dublin Core attributes
OID:          lutObjectClass.1 (1.3.6.1.4.1.1828.2.1)
SubclassOf:   top
MustContain:
MayContain:   dcTitle, dcCreator, dcSubject, dcDescription,
              dcPublisher, dcContributors, dcDate,
              dcType, dcFormat, dcIdentifier, dcSource,
              dcLanguage, dcRelation, dcCoverage, dcRights

```

Attribute definitions for the individual Dublin Core elements:

```

Name:          dcTitle
Description:   The name of the resource
OID:          lutAttributeType.1 (1.3.6.1.4.1.1828.1.1)
Syntax:       DirectoryString
SizeRestriction: None
SingleValued: False

```

```

Name:          dcCreator
Description:   The person(s) primarily responsible for the
              intellectual content of the resource
OID:          lutAttributeType.2 (1.3.6.1.4.1.1828.1.2)
Syntax:       DirectoryString
SizeRestriction: None
SingleValued: False

```

```

Name:          dcSubject
Description:   The topic addressed by the resource, or a
              set of appropriate keywords
OID:          lutAttributeType.3 (1.3.6.1.4.1.1828.1.3)
Syntax:       DirectoryString
SizeRestriction: None
SingleValued: False

```

```

Name:          dcDescription
Description:   A plain text description or abstract about
              the resource.
OID:          lutAttributeType.4 (1.3.6.1.4.1.1828.1.4)
Syntax:       DirectoryString
SizeRestriction: None
SingleValued: False

```



Name: dcPublisher  
Description: The agent or agency responsible for making the resource available  
OID: lutAttributeType.5 (1.3.6.1.4.1.1828.1.5)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

Name: dcContributors  
Description: The person(s), such as editors and transcribers, who have made other significant intellectual contributions to the work  
OID: lutAttributeType.6 (1.3.6.1.4.1.1828.1.6)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

Name: dcDate  
Description: The date of publication  
OID: lutAttributeType.7 (1.3.6.1.4.1.1828.1.7)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

Name: dcType  
Description: The genre of the resource, such as novel, poem, or dictionary  
OID: lutAttributeType.8 (1.3.6.1.4.1.1828.1.8)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

Name: dcFormat  
Description: The physical manifestation of the resource, such as Postscript file or Windows executable file  
OID: lutAttributeType.9 (1.3.6.1.4.1.1828.1.9)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

Name: dcIdentifier  
Description: String or number used to uniquely identify the resource  
OID: lutAttributeType.10 (1.3.6.1.4.1.1828.1.10)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False



Name: dcSource  
Description: Resources, either print or electronic, from which  
this resource is derived, if applicable  
OID: lutAttributeType.11 (1.3.6.1.4.1.1828.1.11)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

Name: dcLanguage  
Description: Language of the intellectual content  
OID: lutAttributeType.12 (1.3.6.1.4.1.1828.1.12)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

Name: dcRelation  
Description: Relationship to other resources  
OID: lutAttributeType.13 (1.3.6.1.4.1.1828.1.13)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

Name: dcCoverage  
Description: The spatial locations and temporal durations  
characteristic of the resource  
OID: lutAttributeType.14 (1.3.6.1.4.1.1828.1.14)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

Name: dcRights  
Description: Information concerning the intellectual property  
rights that are being exercised over the  
resource (including access terms)  
OID: lutAttributeType.15 (1.3.6.1.4.1.1828.1.15)  
Syntax: DirectoryString  
SizeRestriction: None  
SingleValued: False

## **2. Examples and implementation considerations**

For example, using Quipu [5] EDB notation, a Dublin Core "Title" element which had the value "Cities of The Red Night" would be represented as the attribute/value pair:

```
dcTitle= Cities of The Red Night
```

One aspect of the Dublin Core does not translate directly to X.500



and LDAP - each element may have additional qualifying information attached to it. This gives the creator of the record a way of indicating additional semantics, e.g. the classification scheme being used in the "Subject" element.

Since X.500 and LDAP are, like most Internet based search and retrieval protocols, attribute/value oriented, it is necessary to find a place to put this extra information. We propose that, given the difficulty of incorporating this model within the X.500/LDAP paradigm, a simple but sub-optimal approach be taken - with any qualifying information being placed at the beginning of the value part of the attribute/value pair, delimited using round brackets, and with any additional qualifiers following using comma separation.

For example, if the subject classification for the above book were 813 in the Dewey Decimal system, the resulting Dublin Core record expressed as an X.500 EDB entry would look like this:

```
dcSubject= (scheme=DDC) 813
```

### **3. Extensibility**

It is important to note that the Dublin Core element set is intended for use in describing document-like objects, and not as a means of describing arbitrary objects. Furthermore, the number of elements is strictly limited in the interests of interoperability.

Work is ongoing on the Warwick Framework [6], which attempts to provide a mechanism for packaging together collections of descriptive information. It is envisaged that this would be used in cases where the Dublin Core element set did not provide enough descriptive capability. This is a subject for further study.

### **4. Security considerations**

This proposal does not introduce any new security related issues.

One of the main uses to which the Dublin Core is expected to be put is in the generation of author supplied cataloguing information for on-line resources. Implementations which manipulate externally produced data should treat it with caution - for example, to avoid buffer overrun problems and unexpected evaluation of metacharacters.

### **5. Conclusions**

This document has shown how the X.500 protocol, and the related LDAP and CLDAP protocols, may be used as carriers for the abstract resource descriptions of the Dublin Core proposal.





It should be apparent that a little care is necessary when delivering this information via these protocols, but that this does not imply any great additional implementation complexity.

## 6. Acknowledgements

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