

Definition of X.500 Attribute Types and an Object Class to Hold
Uniform Resource Identifiers (URIs)

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Abstract

Uniform Resource Locators (URLs) are being widely used to specify the location of Internet resources. There is an urgent need to be able to include URLs in the X.500 directory, and a desire to include other types of Uniform Resource Identifiers (URIs) as they are defined. A number of independent groups are already experimenting with the inclusion of URLs in the X.500 directory. This document builds on the experimentation to date and defines two new attribute types and an auxiliary object class to allow URIs, including URLs, to be stored in directory entries in a standard way.

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Background and Intended Usage

Uniform Resource Locators (URLs) as defined by [1] are the first of several types of Uniform Resource Identifiers (URIs) being defined by the IETF. This document defines two X.500 [2,3] attribute types (labeledURI and labeledURL) and an auxiliary object class (labeledURIObject) to hold all types of URIs, including URLs. It is assumed that as other kinds of URIs are defined, additional attribute types may be created to support storing them in directory entries.

The rationale for adding separate attribute types for the different kinds of URIs is to support efficient programmatic access to specific types of URIs. For example, if an indexing service is only interested in URLs, having them available in their own attribute makes pulling them out of a directory entry straightforward and efficient.

It is intended that the schema elements defined in this document will be progressed according to the process defined by the Internet X.500 Schema Working Group [4].

Schema Definition of the labeledURL Attribute Type

Name:	labeledURL
ShortName:	None
Description:	Uniform Resource Locator with optional label
OID:	umichAttributeType.41 (1.3.6.1.4.1.250.1.41)
Syntax:	caseExactString
SizeRestriction:	None
SingleValued:	False

Discussion of the labeledURL Attribute Type

The labeledURL attribute type has the caseExactString syntax (since URLs are case-sensitive) and it is multivalued. Values placed in the attribute should consist of a URL as defined in [1] optionally followed by one or more space characters and a label. Since space characters are not allowed to appear un-encoded in URLs, there is no ambiguity about where the label begins. Multiple labeledURL values will generally indicate different resources that are all related to the X.500 object, but may indicate different locations for the same

resource.

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The label is used to describe the resource to which the URL points, and is intended as a friendly name fit for human consumption. This document does not propose any specific syntax for the label part. Note that in some cases it may be helpful to include in the label some indication of the kind and/or size of the resource referenced by the URL.

Note that the label may include any characters allowed by the caseExactString syntax, but that the use of non-IA5 (non-ASCII) characters is discouraged as not all directory clients may handle them in the same manner.

Some examples of valid labeledURL values (the first does not have a label):

<ftp://ds.internic.net/rfc/rfc822.txt>

<http://www.umich.edu/> University of Michigan Home Page

<http://champagne.inria.fr/Unites/rennes.gif> Rennes [photo]

Schema Definition of the labeledURI Attribute Type

Name:	labeledURI
ShortName:	None
Description:	Uniform Resource Identifier with optional label
OID:	umichAttributeType.57 (1.3.6.1.4.1.250.1.57)
Syntax:	caseExactString
SizeRestriction:	None
SingleValued:	False

Discussion of the labeledURI Attribute Type

The labeledURI attribute type has the caseExactString syntax (since

URIs are case-sensitive) and it is multivalued. Values placed in the attribute should consist of a URI (at the present time, a URL) optionally followed by one or more space characters and a label. Since space characters are not allowed to appear un-encoded in URIs, there is no ambiguity about where the label begins. At the present time, the URI portion must comply with the URL specification [1]. Multiple labeledURI values will generally indicate different resources that are all related to the X.500 object, but may indicate different locations for the same resource.

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The label is used to describe the resource to which the URI points, and is intended as a friendly name fit for human consumption. This document does not propose any specific syntax for the label part. Note that in some cases it may be helpful to include in the label some indication of the kind and/or size of the resource referenced by the URI.

Note that the label may include any characters allowed by the caseExactString syntax, but that the use of non-IA5 (non-ASCII) characters is discouraged as not all directory clients may handle them in the same manner.

Schema Definition of the labeledURIObject Object Class

Name:	labeledURIObject
Description:	object that contains the URI attribute types
OID:	umichObjectClass.15 (1.3.6.1.4.1.250.3.15)
SubclassOf:	top
MustContain:	
MayContain:	labeledURI, labeledURL

Discussion of the labeledURIObject Object Class

The labeledURIObject class is a subclass of top and may contain the labeledURI and labeledURL attributes. The intent is that this object class can be added to existing directory objects to allow for inclusion of URI values. This approach does not preclude including

the labeledURI and labeledURL attribute types directly in other object classes as appropriate.

References

- [1] Berners-Lee, T., Masinter, L., and McCahill, M., "Uniform Resource Locators (URL)", [RFC 1738](http://www.cern.ch/URL/), CERN, Xerox Corporation, University of Minnesota, December 1994, <URL:ftp://ds.internic.net/rfc/rfc1738.txt>
- [2] The Directory: Overview of Concepts, Models and Service. CCITT Recommendation X.500, 1988.
- [3] Information Processing Systems -- Open Systems Interconnection -- The Directory: Overview of Concepts, Models and Service. ISO/IEC JTC 1/SC21; International Standard 9594-1, 1988.

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- [4] Howes, T., Rossen, K., Sataluri, S., and Wright, R., "Procedures for Formalizing, Evolving, and Maintaining the Internet X.500 Directory Schema", Internet Draft (Work In Progress) of the Schema Working Group, <URL:ftp://ds.internic.net/internet-drafts/[draft-howes-x500-schema-03.txt](http://ds.internic.net/internet-drafts/draft-howes-x500-schema-03.txt)>

Security Considerations

Security considerations are not discussed in this memo.

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Author's Address

Mark Smith
University of Michigan
Information Technology Division
535 W. William St.
Ann Arbor, MI 48103-4943, USA
Phone: +1 313 764-2277
Fax: +1 313 765-5140
EMail: mcs@umich.edu

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