Resource Directory Description Language (RDDL)

This Version: February 18, 2002

Latest Version: http://www.rddl.org/2

Previous Version: March 5, 2001

Editors:

- Jonathan Borden, The Open Healthcare Group
- Tim Bray, Antarcti.ca Systems

Table of contents

1. Introduction

This document describes the Resource Directory Description Language (RDDL). A RDDL document, called a Resource Directory, provides a package of information about some target, including:

- Human-readable descriptive material about the target.
- A directory of individual resources related to the target, each directory entry containing descriptive material and linked to the resource in question.

The targets which RDDL was designed to describe are XML Namespaces. Examples of

"individual related resources" include schemas, stylesheets, and executable code designed to process markup from some namespace. A Resource Directory is designed to be suitable for service as the body of an entity returned by dereferencing a URI serving as an XML Namespace name.

The Resource Directory Description Language is an extension of XHTML Basic 1.0 with an added element named `resource`. This element serves as an XLink to the referenced resource, and contains a human-readable description of the resource and machine readable links which describe the purpose of the link and the nature of the resource being linked to. The nature of the resource being linked to is indicated by the `xlink:role` attribute and the purpose of the link is indicated by the `xlink:arcrole` attribute.

A DTD for RDDL has been defined using Modularization for XHTML.

This document describes the syntax and semantics of the Resource Directory Description Language 1.0, and also serves as a Resource Directory Description for the namespace `http://www.rddl.org/`. This specification is subject to change without notice. However, each version is associated with a version specific URI. Version specific RDDL namespace URIs are named as: "http://www.rddl.org/" + YYYYMMDD. Backwards incompatible changes will be publicly announced and associated with a new namespace URI.

2. Background

The Resource Directory Description Language was initially proposed and specified after discussion on the xml-dev mailing list. Descriptions of the origins and historical context of RDDL may be found at the XML Cover Pages, <?xmlhack?>, and xml.com. Extending HTML with a `resource` element was proposed in 1996 by Tim Berners-Lee and Dave Raggett. RDDL reflects contributions from many participants in the xml-dev mailing list

This document has no official standing and has not been considered nor approved by any organization.

3. Nature and Purpose

3.1 The Nature of a Related Resource

Related resources have a **nature**, a machine-readable label provided by the value of the `xlink:role` attribute. For example, the nature of an XML Schema designed for use with a namespace would be given as `xlink:role="http://www.w3.org/2001/XMLSchema"`.

In cases where there is only one resource with a particular nature, the purpose of the linked resource may be inferred from this nature. For example, if there is only one related resource for a particular namespace whose nature indicates that it is a schema, processing software might infer that its purpose is to validate elements in that namespace.

3.2 The Purpose of a Related Resource

Related resources may have a **purpose**, a machine-readable label provided by the value

of the `xlink:arcrole` attribute. The purpose is designed to convey the intended usage of the related resource. For example, two related resources might have natures that indicate they are both schemas, but the purposes might indicate that one is designed to validate the "strict" version of the language, the other the "forgiving" form.

4. The `rddl:resource` Element

The `resource` element is in a namespace whose name is `http://www.rddl.org/`. In this discussion, we assume the use of the namespace prefix `rddl`, and refer to this element as `rddl:resource`. The `rddl:resource` element represents a simple xlink, using the attributes defined in the XLink namespace.

The `rddl:resource` must occur in the content of the HTML `body` element. In the RDDL DTD, the XHTML %Flow.mix entity has been redefined to contain `rddl:resource` so it roughly may be placed anywhere a `p` element may be placed. The `rddl:resource` element itself uses the %Flow.mix content model, and should have human-readable content which describes the associated resource.

Here is a DTD fragment declaring the `rddl:resource` element, edited for clarity.

```
<!ELEMENT rddl:resource (#PCDATA | %Flow.mix;)*>
<!ATTLIST rddl:resource
  id            ID       #IMPLIED
  xml:lang      NMTOKEN  #IMPLIED
  xml:base      CDATA    #IMPLIED
  xmlns:rddl    CDATA    #FIXED   "http://www.rddl.org/"
  xlink:type    (simple) #FIXED   "simple"
  xlink:arcrole CDATA    #IMPLIED
  xlink:role    CDATA             "http://www.rddl.org/#resource"
  xlink:href    CDATA    #IMPLIED
  xlink:title   CDATA    #IMPLIED
  xlink:embed   CDATA    #FIXED   "none"
  xlink:actuate CDATA    #FIXED   "none"
  >
```

4.1 `id`

The `id` attribute value may be used to give the resource description a unique identifier.

5. The `xml:base` and `xml:lang` Attributes

5.1 Base URI

The base URI of a RDDL document may be specified according to the W3C XML Base recommendation. The `xml:base` attribute may be specified on the root `html` element or on a `rddl:resource` element.

Future versions of XHTML may allow the use of `xml:base` on some or all XHTML elements, and its semantics should apply even when on another XHTML element, for example the `body`, or `div` element, that contains a `rddl:resource` element.

5.2 Language

The language of the text contained by an element is specified by the xml:lang attribute. This attribute can be specified on XHTML elements and on the `rddl:resource` element. An `html` element in an XHTML document may specify both `lang` and `xml:lang` attributes, but the `lang` attribute is not used by RDDL processors.

6. Attributes of `rddl:resource`

In the following discussion, several attributes appear which are defined by XLink. For purposes of this discussion, we assume that the XLink namespace, `http://www.w3.org/1999/xlink` is bound to the prefix `xlink`.

6.1 `xlink:role`

The value of this attribute must be a URI reference. A URI reference may contain a URI part and a fragment identifier. Per XLink, when present the URI part must be an absolute URI. It provides a machine-readable identifier for the nature of the related resource. Software may dispatch on this value.

When the related resource is an XML language for which a namespace name has been defined, and for which the namespace name adequately distinguishes the nature of the resource, the namespace name should be used as its nature.

When the related resource is not an XML document but is adequately distinguished by a MIME type, the value of the `xlink:role` attribute may reflect this MIME type with values formed by the concatenation of the prefix `http://www.isi.edu/in-notes/iana/assignments/media-types/` with a MIME type e.g. `http://www.isi.edu/in-notes/iana/assignments/media-types/text/css`.

> It is anticipated that many related-resource natures will be well known. A list of well-known natures may be found in the RDDL directory http://www.rddl.org/natures.

If no nature is provided for a related resource, the default value is `http://www.rddl.org/#resource`.

6.2 `xlink:arcrole`

The value of this attribute must be a URI reference. A URI reference may contain a URI part and a fragment identifier. Per XLink, when present the URI part must be an absolute URI. It provides a machine-readable identifier for the purpose of the link to the related resource. Software may dispatch on this value.

It is anticipated that the purposes of many related resources will be well known. A list of well-known purposes may be found in the RDDL directory http://www.rddl.org/purposes.

6.3 `xlink:href`

This XLink locator attribute's value is a URI reference to the target related resource.

6.4 `xlink:title`

A human readable short descriptive title. This should be specified but not be seen as a replacement for descriptive content.

6.5 `xlink:type`

The `xlink:type` is always "simple" in this version of the specification.

6.6 `xlink:show` and `xlink:actuate`

Not used. The only legal value is "none".

7. Related Resources for RDDL

7.1 Well-Known Related-Resource Natures

A list of well-known related-resource natures, with descriptions.

7.2 Well-Known Related-Resource Purposes

A list of well-known related-resource purposes, with descriptions.

7.3 CSS Stylesheet

A CSS stylesheet used to provide the "look-and-feel" of this document, suitable in general for RDDL documents.

7.4 Document Type Definition

A DTD rddl-xhtml.dtd for RDDL, defined as an extension of XHTML Basic 1.0 using Modularization for XHTML

The DTD includes a number of modules:

- rddl-qname-1.mod
- rddl-resource-1.mod
- xhtml-arch-1.mod
- xhtml-attribs-1.mod
- xhtml-base-1.mod
- xhtml-basic-form-1.mod
- xhtml-basic-table-1.mod
- xhtml-blkphras-1.mod
- xhtml-blkstruct-1.mod
- xhtml-charent-1.mod
- xhtml-datatypes-1.mod
- xhtml-framework-1.mod
- xhtml-hypertext-1.mod
- xhtml-image-1.mod
- xhtml-inlphras-1.mod
- xhtml-inlstruct-1.mod
- xhtml-lat1.ent
- xhtml-link-1.mod
- xhtml-meta-1.mod
- xhtml-notations-1.mod
- xhtml-object-1.mod
- xhtml-param-1.mod
- xhtml-qname-1.mod
- xhtml-rddl-model-1.mod
- xhtml-special.ent
- xhtml-struct-1.mod
- xhtml-symbol.ent
- xhtml-text-1.mod
- xlink-module-1.mod

7.5 RDF Schema

An RDF Schema for RDDL. This code is shown as an example and is not normative.

7.6 RELAX

A RELAX Namespace Grammar for RDDL. This grammar, contributed by Murata

Makoto, defines RDDL as a hedge grammar.

Included modules:

- rddl-1.rxm
- xhtml-attribs-1.rxm
- xhtml-base-1.rxm
- xhtml-basic-form-1.rxm
- xhtml-basic-table-1.rxm
- xhtml-basic10-model-1.rxm
- xhtml-basic10.rxm
- xhtml-blkphras-1.rxm
- xhtml-blkstruct-1.rxm
- xhtml-for-rddl.rxm
- xhtml-framework-1.rxm
- xhtml-hypertext-1.rxm
- xhtml-image-1.rxm
- xhtml-inlphras-1.rxm
- xhtml-inlstruct-1.rxm
- xhtml-link-1.rxm
- xhtml-list-1.rxm
- xhtml-meta-1.rxm
- xhtml-object-1.rxm
- xhtml-param-1.rxm
- xhtml-text-1.rxm

7.51 RELAXNG

A RELAXNG Schema xhtml-rddl.rng for RDDL

The RELAXNG Schema includes a number of modules:

- attribs.rng
- base.rng
- basic-form.rng
- applet.rng
- datatypes.rng
- struct.rng
- text.rng
- hypertext.rng
- list.rng
- image.rng
- param.rng
- object.rng
- meta.rng
- link.rng
- xlink.rng
- resource.rng

7.7 Schematron

A Schematron Schema for RDDL.

7.8 Schematron XSLT implementation

A Schematron Schema for RDDL 'compiled' into XSLT is here.

7.9 OASIS Open Catalog

The OASIS Open Catalog Format catalog for RDDL. This catalog defines PUBLIC and SYSTEM identifiers related to the RDDL DTD.

7.10 TREX

A TREX Schema xhtml-rddl.trex for RDDL

The TREX Schema includes a number of modules:

- attribs.trex
- base.trex
- basic-form.trex
- applet.trex
- datatypes.trex
- struct.trex
- text.trex
- hypertext.trex
- list.trex
- image.trex
- param.trex
- object.trex
- meta.trex
- link.trex
- xlink.trex
- resource.trex

7.11 ZIP

The RDDL spec, DTDs and other contents of the directory, zipped for download.

7.12 Java API

An example of a Java API for RDDL. A RDDL description of the object model is here

Code to implement it based on SAX is here here. This code is shown as an example and is not normative.

7.13 JAR

The above code packaged as a java archive.

An example of how it might be used in the case where an XML Schema for the namespace is desired:

```
RDDLURL rurl = new RDDLURL(
                      "http://www.rddl.org/",
                      "http://www.w3.org/2001/XMLSchema",
                      "http://www.rddl.org/purposes#schema-validation",
                      ); // a namespace URI, the root namespace
```

```
InputStream is = rurl.getInputStream(); // and you get the XSD
...
```

7.14 XSLT Stylesheet

An example of an XSLT stylesheet for RDDL, which accepts the params **`role`** and **`arcrole`**. The transform inserts the document referenced by xlink:href in the output. This code is shown as an example and is not normative.

7.15 RDDL Table View

An example of an XSLT stylesheet which extracts RDDL resource elements into an HTML table. This code is shown as an example and is not normative.

7.17 RDDL to RDF converter

This is an XSLT transform which converts a RDDL document into RDF. This code is shown as an example and is not normative.

7.18 RDDL to RSS 1.0 converter

This is an XSLT transform which converts a RDDL document into RSS. This code is shown as an example and is not normative.

7.19 C# API

Jason Diamond's C# API for the RDDL on the Microsoft .NET platform. A ZIP file. This is referenced as an example and is not normative.

7.20 IE5 Behavior

An IE5 Behavior that uses the xlink:href as a link. If you are using IE5 then you are viewing this behavior.

7.21 Home RDDL Directory

This resource references a RDDL document containing a collection of resources referencing other RDDL documents.

8. Normative References

1. W3C XML Names
2. IETF RFC 2396
3. W3C XLink
4. W3C XHTML Basic 1.0
5. W3C XML Base
6. W3C XPointer
7. W3C XML Infoset

9. Informative References

1. W3C XHTML 1.0
2. W3C Note Harvesting RDF Statements from XLinks
3. W3C Modularization of XHTML