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application/rdf+xml Media Type Registration

Status of this Memo

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Abstract

This document describes a media type (application/rdf+xml) for use with the Extensible Markup Language (XML) serialization of the Resource Description Framework (RDF). RDF is a language designed to support the Semantic Web, by facilitating resource description and data exchange on the Web. RDF provides common structures that can be used for interoperable data exchange and follows the World Wide Web Consortium (W3C) design principles of interoperability, evolution, and decentralization.

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1. Introduction

RDF is a language designed to support the Semantic Web, by facilitating resource description and data exchange on the Web. RDF provides common structures that can be used for interoperable data exchange and follows the W3C design principles of interoperability, evolution, and decentralization.

While the RDF data model [2] can be serialized in many ways, the W3C has defined the RDF/XML syntax [1] to allow RDF to be serialized in an XML format. The application/rdf+xml media type allows RDF consumers to identify RDF/XML documents so that they can be processed properly.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14, RFC 2119 [6].

2. application/rdf+xml Registration

This is a media type registration as defined in RFC 2048, "Multipurpose Internet Mail Extensions (MIME) Part Four: Registration Procedures" [5].

MIME media type name: application

MIME subtype name: rdf+xml

Required parameters: none

Optional parameters: charset

Same as charset parameter of application/xml, defined in RFC 3023 [4].

Encoding considerations:

Same as charset parameter of application/xml, defined in RFC 3023 [4].

Security considerations:

See "Security Considerations" (Section 6).

Interoperability considerations:

It is RECOMMENDED that RDF documents follow the newer RDF/XML Syntax Grammar [1] as opposed to the older RDF Model and Syntax specification [7].

RDF is intended to allow common information to be exchanged between disparate applications. A basis for building common understanding is provided by a formal semantics [3], and applications that use RDF should do so in ways that are consistent with this.

Published specification:

see RDF/XML Syntax Grammar [1] and RDF: Concepts and Abstract Syntax [2] and the older RDF Model and Syntax [7]

Applications which use this media type:

RDF is device-, platform-, and vendor-neutral and is supported by a range of Web user agents and authoring tools.

Additional information:

Magic number(s): none

Although no byte sequences can be counted on to consistently identify RDF, RDF documents will have the sequence "http://www.w3.org/1999/02/22-rdf-syntax-ns#" to identify the RDF namespace. This will usually be towards the top of the document.

File extension(s): .rdf

Macintosh File Type Code(s): "rdf "

For further information:

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RDF Interest Group <www-rdf-interest@w3.org>

More information may be found on the RDF website:

<http://www.w3.org/RDF/>

Intended usage: COMMON

Author/Change controller:

> The RDF specification is a work product of the World Wide Web Consortium. The W3C and the W3C RDF Core Working Group have change control over the specification.

3. Fragment Identifiers

The rdf:ID and rdf:about attributes can be used to define fragments in an RDF document.

Section 4.1 of the URI specification [8] notes that the semantics of a fragment identifier (part of a URI after a "#") is a property of the data resulting from a retrieval action, and that the format and interpretation of fragment identifiers is dependent on the media type of the retrieval result.

In RDF, the thing identified by a URI with fragment identifier does not necessarily bear any particular relationship to the thing identified by the URI alone. This differs from some readings of the URI specification [8], so attention is recommended when creating new RDF terms which use fragment identifiers.

More details on RDF's treatment of fragment identifiers can be found in the section "Fragment Identifiers" of the RDF Concepts document [2].

4. Historical Considerations

This media type was reserved in RFC 3023 [4], saying:

> RDF documents identified using this MIME type are XML documents whose content describes metadata, as defined by [7]. As a format based on XML, RDF documents SHOULD use the '+xml' suffix convention in their MIME content-type identifier. However, no content type has yet been registered for RDF and so this media type should not be used until such registration has been completed.

5. IANA Considerations

This document calls for registration of a new MIME media type, according to the registration in Section 2.

6. Security Considerations

RDF is a generic format for exchanging application information, but application designers must not assume that it provides generic protection against security threats. RFC 3023 [4], section 10, discusses security concerns for generic XML, which are also applicable to RDF.

RDF data can be secured for integrity, authenticity and confidentiality using any of the mechanisms available for MIME and XML data, including XML signature, XML encryption, S/MIME, OpenPGP or transport or session level security (e.g., see [9], especially sections 3.4, 3.5, 3.10, [10], [11], [12]).

RDF is intended to be used in documents that may make assertions about anything, and to this end includes a specification of formal semantics [3]. The semantics provide a basis for combining information from a variety of sources, which may lead to RDF assertions of facts (either by direct assertion, or via logical deduction) that are false, or whose veracity is unclear. RDF application designers should not omit consideration of the reliability of processed information. The formal semantics of RDF can help to enhance reliability, since RDF assertions may be linked to a formal description of their derivation. There is ongoing exploration of mechanisms to record and handle provenance of RDF information. As far as general techniques are concerned, these are still areas of ongoing research, and application designers must be aware, as always, of "Garbage-in, Garbage-out".

7. Acknowledgements

Thanks to Dan Connolly for writing the first version of this document [13], to Andy Powell for <http://www.w3.org/2000/03/rdf-tracking/#mime-types-for-rdf-docs>, to Marshall Rose for his <http://xml.resource.org/> converter, and to Graham Klyne, Jan Grant, and Dave Beckett for their helpful comments on early versions of this document.

8. References

8.1. Normative References

[1] Beckett, D., "RDF/XML Syntax Specification (Revised)", W3C rdf-syntax-grammar, February 2004, <http://www.w3.org/TR/2004/REC-rdf-syntax-grammar-20040210/>.

[2] Klyne, G. and J. Carroll, "Resource Description Framework (RDF): Concepts and Abstract Syntax", W3C rdf-concepts, February 2004, <http://www.w3.org/TR/2004/REC-rdf-concepts-20040210/>.

[3] Hayes, P., "RDF Model Theory", W3C rdf-mt, February 2004, <http://www.w3.org/TR/2004/REC-rdf-mt-20040210/>.

[4] Murata, M., St.Laurent, S. and D. Kohn, "XML Media Types", RFC 3023, January 2001.

[5] Freed, N., Klensin, J. and J. Postel, "Multipurpose Internet Mail Extensions (MIME) Part Four: Registration Procedures", BCP 13, RFC 2048, November 1996.

[6] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

8.2. Informative References

[7] Lassila, O. and R. Swick, "Resource Description Framework (RDF) Model and Syntax Specification", W3C REC-rdf-syntax, February 1999, <http://www.w3.org/TR/REC-rdf-syntax>.

[8] Berners-Lee, T., Fielding, R. and L. Masinter, "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1998.

[9] Bellovin, S., Schiller, J. and C. Kaufman, Eds., "Security Mechanisms for the Internet", RFC 3631, December 2003.

[10] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000.

[11] Eastlake, D., Reagle, J. and D. Solo, "(Extensible Markup Language) XML-Signature Syntax and Processing", RFC 3275, March 2002.

[12] Eastlake, D. and J. Reagle, "XML Encryption Syntax and Processing", W3C xmlenc-core, December 2002, <http://www.w3.org/TR/2002/REC-xmlenc-core-20021210/>

[13] Connolly, D., "A media type for Resource Description Framework (RDF)", March 2001, <http://www.w3.org/2001/03mr/rdf_mt>.

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