        The Media Types application/mods+xml, application/mads+xml,
  application/mets+xml, application/marcxml+xml, and application/sru+xml

Abstract

   This document specifies media types for the following formats: MODS
   (Metadata Object Description Schema), MADS (Metadata Authority
   Description Schema), METS (Metadata Encoding and Transmission
   Standard), MARCXML (MARC21 XML Schema), and the SRU (Search/Retrieve
   via URL Response Format) protocol response XML schema. These are all
   XML schemas providing representations of various forms of information
   including metadata and search results.

Status of This Memo

   This document is not an Internet Standards Track specification; it is
   published for informational purposes.

   This document is a product of the Internet Engineering Task Force
   (IETF). It represents the consensus of the IETF community. It has
   received public review and has been approved for publication by the
   Internet Engineering Steering Group (IESG). Not all documents
   approved by the IESG are a candidate for any level of Internet
   Standard; see Section 2 of RFC 5741.

   Information about the current status of this document, any errata,
   and how to provide feedback on it may be obtained at
   http://www.rfc-editor.org/info/rfc6207.

Table of Contents

1. Introduction

   The Library of Congress, on behalf of and in collaboration with
   various components of the metadata and information retrieval
   community, has issued specifications that define formats for
   representation of various forms of information including metadata and
   search results. This memo provides information about the media types
   associated with several of these formats, all of which are XML
   schemas.

   MODS: Metadata Object Description Schema. An XML schema for a
      bibliographic element set that may be used for a variety of
      purposes, and particularly for library applications.

   MADS: Metadata Authority Description Schema. An XML schema for an
      authority element set used to provide metadata about agents
      (people, organizations), events, and terms (topics, geographics,
      genres, etc.). It is a companion to MODS.

   METS: Metadata Encoding and Transmission Standard. An XML schema for
      encoding descriptive, administrative, and structural metadata
      regarding objects within a digital library.

   MARCXML: MARC21 XML Schema. An XML schema for the direct XML
      representation of the MARC format (for which there already exists
      a media type, application/marc; see [RFC2220]). By "direct XML
      representation", we mean that it encodes the actual MARC data
      within XML. (This is in contrast to MODS: MARC uses codes for its
      element names; MODS represents the same information but uses
      semantically meaningful names while MARCXML uses the MARC codes.)

   SRU: Search/Retrieve via URL Response Format. An XML schema for the
      SRU response. SRU is a protocol, and the media type sru+xml
      pertains specifically to the default SRU response. The SRU
      response may be supplied in any of a number of suitable schemas,
      RSS, ATOM, for example, and the client identifies the desired
      format in the request, hence the need for a media type. This
      mechanism will be introduced in SRU 2.0; in previous versions
      (that is, all versions to date; 2.0 is in development), all
      responses are supplied in the existing default format, so no media
      type was necessary. SRU 2.0 is being developed within the
      Organization for the Advancement of Structured Information
      Standards (OASIS).

2. Registration for mods+xml

   MIME media type name: application

   MIME subtype name: mods+xml

   Required parameters: None

   Optional parameters: (charset) This parameter has semantics
      identical to the charset parameter of the "application/xml" media
      type as specified in [RFC3023].

   Encoding considerations: Identical to those of "application/xml" as
      described in [RFC3023].

   Security considerations: See Section 8 of RFC 6207.

   Interoperability considerations: There are no known interoperability
      issues.

   Published specification: [MODS-SCHEMA], [MODS].

   Applications which use this media type: Various MODS-conformant
      toolkits use this media type.

   Additional information:

   Magic number(s): None

   File extension(s): .mods

   Macintosh file type code(s): TEXT

   Person and email address to contact for further information:
      Ray Denenberg <rden@loc.gov>

   Intended usage: COMMON

   Restrictions on usage: None

   Author/Change controller: The MODS specification was developed by
      the Library of Congress and is maintained by the Library of
      Congress in conjunction with the MODS Editorial Committee, which
      has change control over the specification.

3. Registration for mads+xml

   MIME media type name: application

   MIME subtype name: mads+xml

   Required parameters: None

   Optional parameters: (charset) This parameter has semantics
      identical to the charset parameter of the "application/xml" media
      type as specified in [RFC3023].

   Encoding considerations: Identical to those of "application/xml" as
      described in [RFC3023].

   Security considerations: See Section 8 of RFC 6207.

   Interoperability considerations: There are no known interoperability
      issues.

   Published specification: [MADS-SCHEMA], [MADS].

   Applications which use this media type: Various MADS conformant
      toolkits use this media type.

   Additional information:

   Magic number(s): None

   File extension(s): .mads

   Macintosh file type code(s): TEXT

   Person and email address to contact for further information:
      Ray Denenberg <rden@loc.gov>

   Intended usage: COMMON

   Restrictions on usage: None

   Author/Change controller: The MADS specification was developed by
      the Library of Congress and is maintained by the Library of
      Congress in conjunction with the MODS Editorial Committee, which
      has change control over the specification.

4. Registration for mets+xml

   MIME media type name: application

   MIME subtype name: mets+xml

   Required parameters: None

   Optional parameters: (charset) This parameter has semantics
      identical to the charset parameter of the "application/xml" media
      type as specified in [RFC3023].

   Encoding considerations: Identical to those of "application/xml" as
      described in [RFC3023].

   Security considerations: See Section 8 of RFC 6207.

   Interoperability considerations: There are no known interoperability
      issues.

   Published specification: [METS-SCHEMA], [METS].

   Applications which use this media type: Various METS conformant
      toolkits use this media type.

   Additional information:

   Magic number(s): None

   File extension(s): .mets

   Macintosh file type code(s): TEXT

   Person and email address to contact for further information:
      Ray Denenberg <rden@loc.gov>

   Intended usage: COMMON

   Restrictions on usage: None

   Author/Change controller: The METS specification was developed by
      the Library of Congress and is maintained by the Library of
      Congress in conjunction with the METS Editorial Board as an
      initiative of the Digital Library Federation.

5. Registration for marcxml+xml

   MIME media type name: application

   MIME subtype name: marcxml+xml

   Required parameters: None

   Optional parameters: (charset) This parameter has semantics
      identical to the charset parameter of the "application/xml" media
      type as specified in [RFC3023].

   Encoding considerations: Identical to those of "application/xml" as
      described in [RFC3023].

   Security considerations: See Section 8 of RFC 6207.

   Interoperability considerations: There are no known interoperability
      issues.

   Published specification: [MARCXML-SCHEMA], [MARCXML].

   Applications which use this media type: Various MARCXML conformant
      toolkits use this media type.

   Additional information:

   Magic number(s): None

   File extension(s): .mrcx

   Macintosh file type code(s): TEXT

   Person and email address to contact for further information:
      Ray Denenberg <rden@loc.gov>

   Intended usage: COMMON

   Restrictions on usage: None

   Author/Change controller: The MARCXML standard is driven by the MARC
      standards, maintained at the Library of Congress.

6. Registration for sru+xml

   MIME media type name: application

   MIME subtype name: sru+xml

   Required parameters: None

   Optional parameters: (charset) This parameter has semantics
      identical to the charset parameter of the "application/xml" media
      type as specified in [RFC3023].

   Encoding considerations: Identical to those of "application/xml" as
      described in [RFC3023].

   Security considerations: See Section 8 of RFC 6207.

   Interoperability considerations: There are no known interoperability
      issues.

   Published specification: [SRU-SCHEMA], [SRU].

   Applications which use this media type: Various SRU conformant
      toolkits use this media type.

   Additional information:

   Magic number(s): None

   File extension(s): .sru

   Macintosh file type code(s): TEXT

   Person and email address to contact for further information:
      Ray Denenberg <rden@loc.gov>

   Intended usage: COMMON

   Restrictions on usage: None

   Author/Change controller: The SRU specification for versions earlier
      than 2.0 is maintained at the Library of Congress, in conjunction
      with the SRU Editorial Board. Version 2.0 (for which the sru+xml
      media type pertains) is being developed within OASIS.

7. IANA Considerations

   IANA has registered the five media types described in Sections 2, 3,
   4, 5, and 6 in the MIME media type registry (in the Standards Tree).

8. Security Considerations

   An XML resource does not in itself compromise data security.
   Applications that retrieve XML files over a network by means of
   dereferencing a Uniform Resource Identifier [RFC3986] are advised to
   properly interpret the data so as to prevent unintended access.
   Hence, the security issues described in Section 7 of [RFC3986] apply.

   Because the media types described in this document use the "+xml"
   convention, they share the security considerations described in
   Section 10 of [RFC3023].

   In general, security issues related to the use of XML in IETF
   protocols are discussed in Section 7 of [RFC3470] also apply. In the
   following sections, we review some aspects that are important for
   document-centric XML as applied to text encoding.

8.1. Harmful Content

   Any application that retrieves the XML media types described in this
   specification needs to be aware of risks connected with injection of
   harmful scripts and executable XML (i.e., "active content" as
   described in [RFC4288]). Although XML inclusion mechanisms and the
   use of external entities can introduce vulnerabilities to various
   forms of spoofing and also reveal aspects of a service in a way that
   may compromise its security, such vulnerabilities are application
   specific. In any case, MODS documents do not contain "active
   content".

8.2. Authenticity and Confidentiality

   Historical and bibliographical information can often be encoded in
   MODS documents, and such information might even have legal force in
   some jurisdictions. Digitization and encoding of such information
   might require technologies for assuring authenticity, such as
   cryptographic check sums and electronic signatures. Similarly,
   historical documents might in part or in their entirety be
   confidential. Such confidentiality might be required by law or by
   the terms and conditions such as in the case of donated or deposited
   text from private sources. A text archive might need content
   filtering or cryptographic technologies to meet such requirements.

9. References

9.1. Normative References

   [RFC3023]   Murata, M., St. Laurent, S., and D. Kohn, "XML
                       Media Types", RFC 3023, January 2001.

   [RFC3470]   Hollenbeck, S., Rose, M., and L. Masinter,
                       "Guidelines for the Use of Extensible Markup
                       Language (XML) within IETF Protocols", BCP 70,
                       RFC 3470, January 2003.

   [RFC3986]   Berners-Lee, T., Fielding, R., and L. Masinter,
                       "Uniform Resource Identifier (URI): Generic
                       Syntax", STD 66, RFC 3986, January 2005.

   [MADS-SCHEMA]   Denenberg, R., "MADS Schema",
                       <http://www.loc.gov/standards/mads/mads.xsd>.

   [MADS]   Denenberg, R., "Metadata Authority Description
                       Schema", <http://www.loc.gov/standards/mads/>.

   [MARCXML-SCHEMA]   Trail, N., "MARCXML Schema", <http://www.loc.gov/
                       standards/marcxml/schema/MARC21slim.xsd>.

   [MARCXML]   Trail, N., "MARCXML MARC21 XML Schema",
                       <http://www.loc.gov/standards/marcxml/>.

   [METS-SCHEMA]   Redding, C., "METS Schema",
                       <http://www.loc.gov/standards/mets/mets.xsd>.

   [METS]   Redding, C., "Metadata Encoding and Transmission
                       Standard", <http://www.loc.gov/standards/mets/>.

   [MODS-SCHEMA]   Denenberg, R., "MODS Schema",
                       <http://www.loc.gov/standards/mods/mods.xsd>.

   [MODS]   Denenberg, R., "Metadata Object Description
                       Schema", <http://www.loc.gov/standards/mods/>.

   [SRU-SCHEMA]   Denenberg, R., "SRU Schema", <http://www.loc.gov/
                       standards/sru/oasis/schemas/sruResponse.xsd>.

   [SRU]   Denenberg, R., "Search/Retrieve via URL Response
                       Format", <http://www.loc.gov/standards/sru/>.

9.2. Informative References

   [RFC2220]   Guenther, R., "The Application/MARC Content-type",
                      RFC 2220, October 1997.

   [RFC4288]   Freed, N. and J. Klensin, "Media Type
                      Specifications and Registration Procedures",
                      BCP 13, RFC 4288, December 2005.

Author's Address

   Ray Denenberg (editor)
   Library of Congress
   101 Independence Ave, SE
   Washington, DC 20540
   USA

   Phone: (202) 707-5795
   EMail: rden@loc.gov