



Common Specifications

Version: .02
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Version History

Version No.	Date	Changed By	Changes Made
0.1	17 April 2014		Initial draft
0.2	17 July 2014	Valerie Smothers	Added NonNullLangageStringType

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1 Acknowledgements

These specifications are based on work submitted by Joel Farrell, Chair of the MedBiquitous Technical Steering Committee. MedBiquitous wishes to acknowledge the help of the of the MedBiquitous Technical Steering Committee.

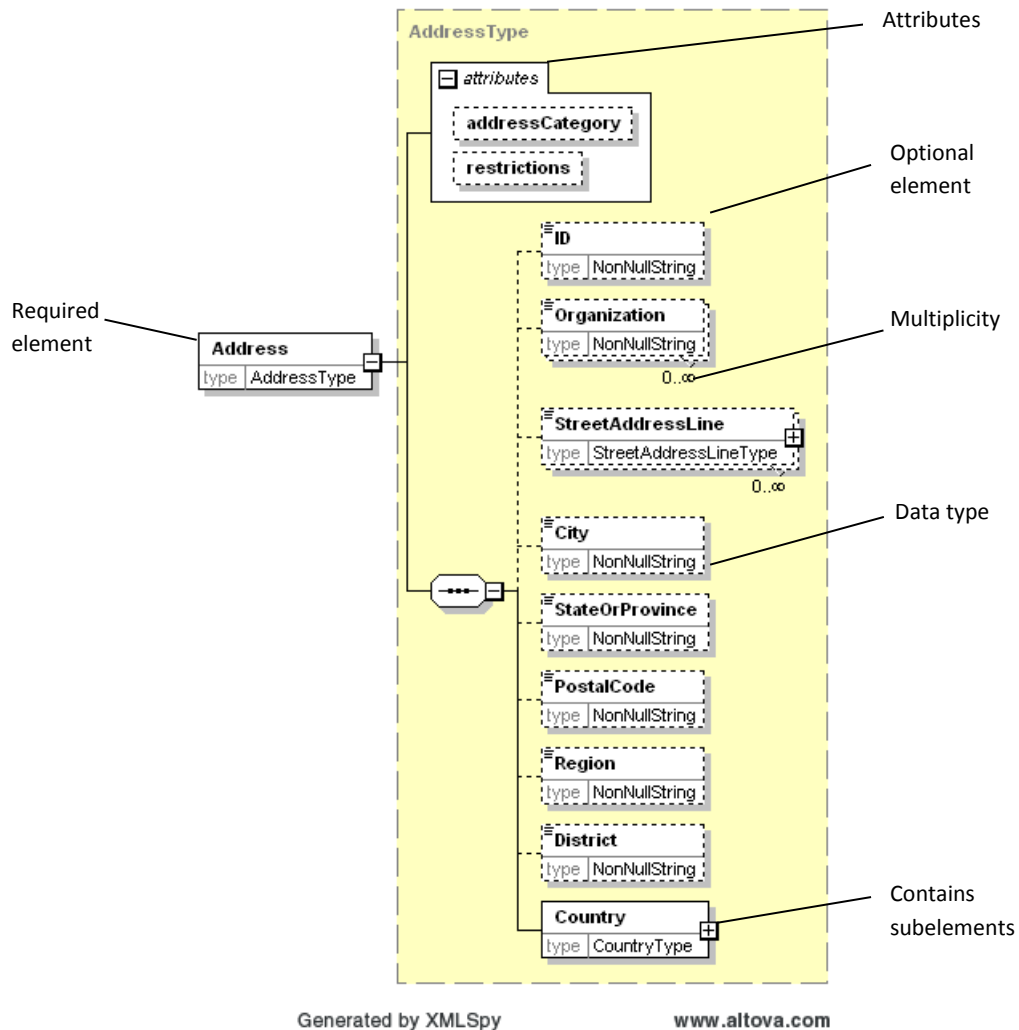
- Joel Farrell, Technical Steering Committee Chair
- James Fiore, American Board of Surgery
- Steve Kenney, American College of Surgeons
- Andy Rabin, CECity
- Dan Rehak
- Carl Singer
- Valerie Smothers

2 Documentation Conventions

This document uses the following conventions:

Convention	Description
Bold Text	When used with an XML element name, indicates that the element contains sub-elements.
<i>Italics</i>	When used in an XML element description, an attribute of the XML element.
Monospaced type	Sample XML tags, code, schema, or portion thereof.

The document uses graphics generated by Altova XML Spy® software, which uses the following graphical conventions.



3 Introduction

The MedBiquitous Common Datatypes Specification defines datatypes commonly used across MedBiquitous specifications. The use of common datatypes promotes consistency across our standards architecture. The datatypes are defined within the common.xsd file, which is found at:

<http://ns.medbiq.org/common/v2/common.xsd>

These specifications are complimented by the MedBiquitous Guidelines for Transmitting Binary Attachments version 1.0, available at:

http://www.medbiq.org/sites/default/files/files/Attachment_guidelines_v1.pdf

4 Other Standards, Specifications, or Schemas Referenced

This standard references the following standards, specifications, or schemas. The informative references here, which describe how these references are used, link to formal references appearing later in this document.

- DCMI Terms, October 11, 2010. [[DCMITerms](#)]
The Reference datatype includes the Dublin Core format element from DCMI Terms.
- Message Transmission Optimization Mechanism [[MTOM](#)]
MTOM allows for the transmission of binary attachments using web services standards.
- Resource Description Framework [[RDF](#)]
RDF is used to link to external documents as necessary. RDF is the technology used to establish semantic web relationships.
- XML-binary Optimized Packaging [[XOP](#)]
XOP provides a means of more efficiently serializing XML Infosets that have certain types of content.

5 Common Schema Datatypes and Attributes

The following sections explain the Common Schema DataTypes. Values in **bold** under XML Tags column indicate that the datatype has sub-elements.

All the elements having sub-elements will be defined in separate sections. All elements without sub-elements will be defined within the appropriate element sections that use them.

5.1 CommonAttributes

MedBiquitous has defined a group of common attributes that may be applied broadly in those specifications where they are implemented. They are designed to facilitate the transition to data compilation and linked data approaches to data use.

Attribute	Description	Multiplicity	Datatype
id	A unique identifier for this piece of data. The identifier must be unique within the scope of the XML document.	0 or 1	ID
validityDate	The date this piece of data was deemed valid. For example, the date of entry.	0 or 1	date
restrictions	Indicates whether this piece of information is to be unrestricted, restricted, or confidential when sharing information with partner organizations or the general public. Valid values are: Unrestricted, Restricted, Confidential. Unrestricted indicates that a piece of data may be shared or published. Restricted indicates that a piece of data may be shared in some instances, but not published. Policies must be defined surrounding the use of restricted data.	0 or 1	Restricted

	Confidential indicates that a piece of data may not be shared or published.		
source	The source of this piece of data.	0 or 1	string

5.2 Simple DataTypes

The following simple datatypes may be used across MedBiquitous specifications:

NonNullStringType

NonNullStringType is a datatype derived from the XML string datatype which imposes a minimum length of one character on a string and ensures that required elements are complete.

RestrictionsType

RestrictionsType provides a list of possible values that indicates whether a piece of information is to be unrestricted, restricted, or confidential when sharing information with partner organizations or the general public. Valid values are: Unrestricted, Restricted, Confidential.

Unrestricted indicates that a piece of data may be shared or published.

Restricted indicates that a piece of data may be shared in some instances, but not published. Policies must be defined surrounding the use of restricted data.

Confidential indicates that a piece of data may not be shared or published.

5.3 NonNullLanguageStringType

NonNullLanguageStringType extends the NonNullStringType, adding the xml:lang attribute.

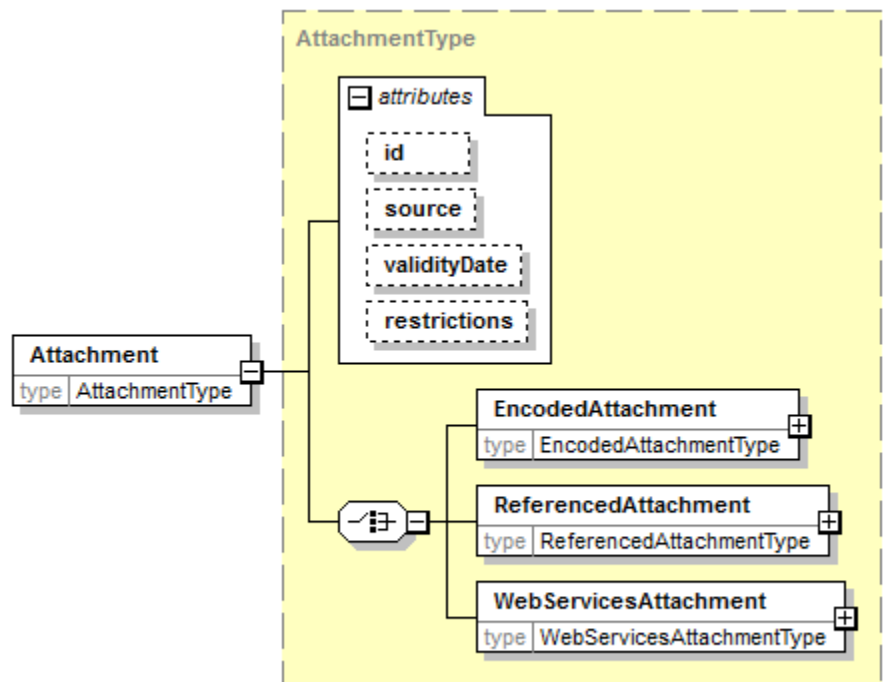
xml:lang indicates the natural language of a data element. For example:

```
<Description xml:lang="en">Transitions patients effectively</Description>
<Title xml:lang="fr">Transitions efficaciment les patients</Title>
```

The value of the xml:lang attribute is an IETF language tag as defined by the BCP 47 document series [\[BCP 47\]](#).

5.4 AttachmentType

The subelements of the AttachmentType reference or include an attachment supporting the accompanying data. The common.xsd file defines an Attachment element that uses the AttachmentType. See the MedBiquitous Guidelines for Transmitting Binary Attachments version 1.0 for more detailed information about including attachments.



Generated by XMLSpy

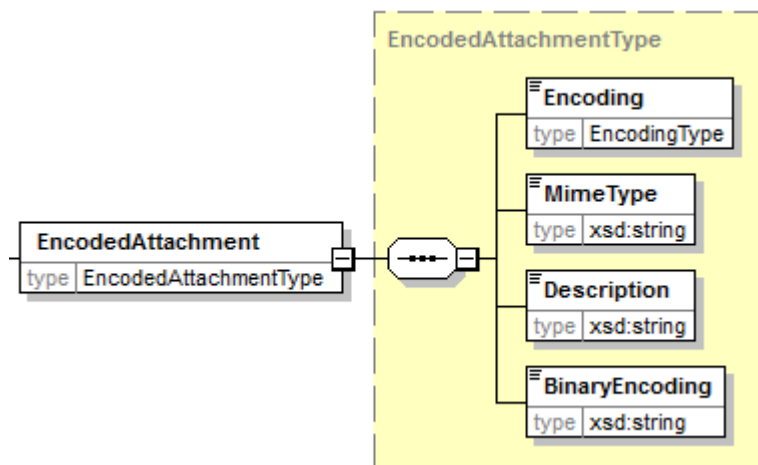
www.altova.com

AttachmentType Information

Element	Description	Required	Multiplicity	Datatype
Attachment	<p>The subelements of attachment reference or include an attachment supporting the accompanying data.</p> <p>Attachment uses the CommonAttributes attributes group. See section CommonAttributes for more information.</p>	Depends on the context in which Attachment or AttachmentType is referenced	Depends on the context in which Attachment or AttachmentType is referenced	Container
EncodedAttachment	The subelements of EncodedAttachment provide encoded data and descriptive information regarding an encoded binary attachment.	Either EncodedAttachment ReferencedAttachment or WebServicesAttachment must be present.	0 or 1	Container
ReferencedAttachment	The subelements of ReferencedAttachment provide a URI reference to a binary attachment and descriptive information regarding that attachment.	Either EncodedAttachment or ReferencedAttachment or WebServicesAttachment must be present.	0 or 1	Container
WebServicesAttachment	The subelements of WebServices Attachment provide a reference to a part of a multipart message and a description.	Either EncodedAttachment or ReferencedAttachment or WebServicesAttachment must be present.	0 or 1	Container

5.4.1 EncodedAttachmentType

The subelements of EncodedAttachment provide encoded data and descriptive information regarding an encoded binary attachment.



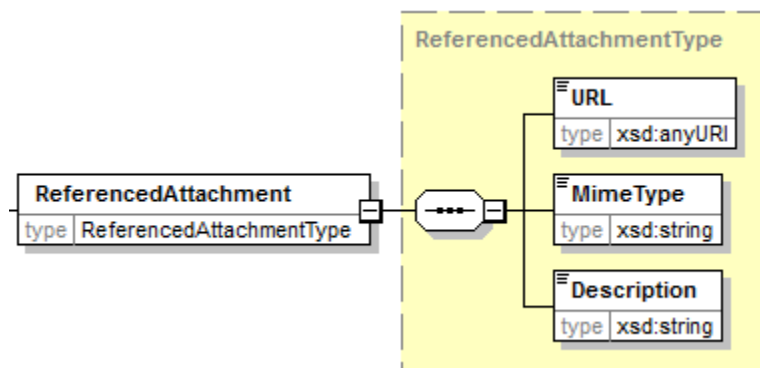
EncodedAttachmentType Information

Element	Description	Required	Multiplicity	Datatype
EncodedAttachment	The subelements of EncodedAttachment provide encoded data and descriptive information regarding an encoded binary attachment.	Either EncodedAttachment ReferencedAttachment or WebServicesAttachment must be present.	0 or 1	Container
Encoding	The type of encoding used. Valid values are Base64 and Uuencoding.	Required	1	Restricted

Element	Description	Required	Multiplicity	Datatype
MimeType	The MIME Media type and optionally subtype of the attachment. For example, image/jpeg. See IANA for more details: http://www.iana.org/assignments/media-types/	Required	1	String
Description	A description of the attachment that clarifies its relation to the data with which it is associated.	Required	1	String
BinaryEncoding	The encoded data.	Required	1	String

5.4.2 ReferencedAttachmentType

The subelements of ReferencedAttachment provide a URI reference to a binary attachment and descriptive information regarding that attachment.

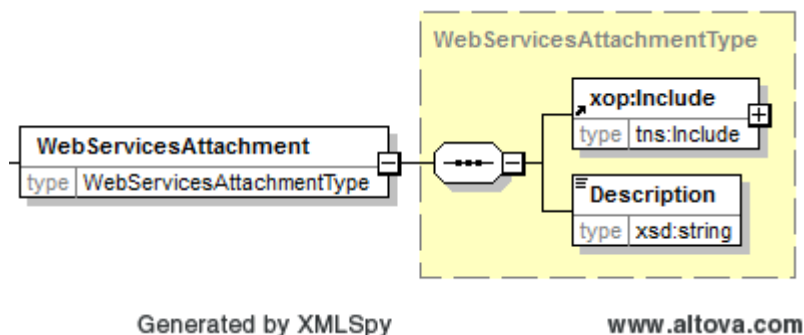


ReferencedAttachmentType Information

Element	Description	Required	Multiplicity	Datatype
ReferencedAttachment	The subelements of ReferencedAttachment provide a URI reference to a binary attachment and descriptive information regarding that attachment.	Either EncodedAttachment ReferencedAttachment or WebServicesAttachment must be present.	0 or 1	Container
URL	The URL of the attachment.	Required	1	Restricted
MimeType	The MIME Media type and optionally subtype of the attachment. For example, image/jpeg. See IANA for more details: http://www.iana.org/assignments/media-types/	Required	1	String
Description	A description of the attachment that clarifies its relation to the data with which it is associated.	Required	1	String

5.4.3 WebServicesAttachmentType

The subelements of WebServices Attachment provide a reference to a part of a multipart message and a description.

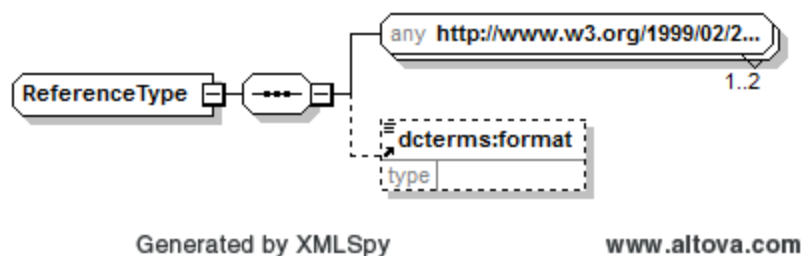


WebServicesAttachmentType Information

Element	Description	Required	Multiplicity	Datatype
WebServicesAttachment	The subelements of WebServices Attachment provide a reference to a part of a multipart message and a description.	Either EncodedAttachment ReferencedAttachment or WebServicesAttachment must be present.	0 or 1	Container
Xop:Include	The URN of a part in a multipart message.	Required	1	See [XOP]
Description	A description of the attachment that clarifies its relation to the data with which it is associated.	Required	1	String

5.5 ReferenceType

ReferenceType contains subelements that describe a reference to an external resource. MedBiquitous uses Resource Description Framework [RDF] elements and a Dublin Core metadata initiative [DCMI] element to establish links to external documents, including competency objects, competency frameworks, and performance frameworks.



Reference Element Information

Element	Description	Required	Multiplicity	Datatype
Reference	A reference to an external resource. MedBiquitous uses RDF to specify details about references.	Determined by the datatype using Reference	Determined by the datatype using dcterms:references.	Container
Elements from the RDF namespace	The following RDF elements appear within Reference: <u>rdf:Description</u> The resource being referenced. MedBiquitous uses the following attribute with <code>rdf:Description</code> : <i>rdf:about</i> The URI for the resource being referenced. For example, http://www.example.org/milesto	Required	1-2	Any
		<code>rdf:Description</code> is required for all instances of the Reference element.		
		<code>rdf:type</code> is required for references to competency		

	<p>ne/SBP4.xml.</p> <p>rdf:type The type of resource being referenced.</p> <p>MedBiquitous uses the following attribute with rdf:type:</p> <p><i>rdf:resource</i> The URI of the namespace of the resource referenced. For example, when referencing an XML competency object, use: http://ns.medbiq.org/competency/object/v1/</p> <p>When referencing an XML competency framework, use: http://ns.medbiq.org/competency/framework/v1/</p>	objects and competency frameworks.		
dcterms:format	The media type of the resource being referenced. If the resource referenced is an XML document, use application/xml.	Optional	0 or 1	Media types as specified by IANA. See http://www.iana.org/assignments/media-types/

Example:

```
<Reference>
  <rdf:description about="http://www.example.org/milestone/SBP4.xml"/>
  <rdf:type rdf:resource="http://ns.medbiq.org/competencyobject/v1"/>
  <dcterms:format>application/xml</dcterms:format>
</Reference>
<Reference>
  <rdf:description about="http://www.example.org/im_milestones.xml"/>
  <rdf:type rdf:resource="http://ns.medbiq.org/competencyframework/v1"/>
  <dcterms:format>application/xml</dcterms:format>
</Reference>
```

6 Sample XML Document

```
<?xml version="1.0" encoding="UTF-8"?>
<CompetencyFramework xmlns="http://ns.medbiq.org/competencyframework/v1/"
xmlns:lom="http://ltsc.ieee.org/xsd/LOM"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://ns.medbiq.org/competencyframework/v1/
file:///I:/Valerie&apos;s%20stuff/Xml/competency_framework/competencyframe
work.xsd">
  <lom:lom/>
  <Relation>
    <CompetencyReference1>
      <Catalog>URI</Catalog>
      <Entry>http://www.example.org/12345</Entry>
    </CompetencyReference1>
    <Relationship>broader than</Relationship>
    <CompetencyReference2>
      <Catalog>URI</Catalog>
      <Entry>http://www.example.org/23456</Entry>
    </CompetencyReference2>
  </Relation>
</CompetencyFramework>
```

7 References

BCP 47

Tags for identifying Languages, September 2009. IETF Best Current Practices. IETF website. <http://tools.ietf.org/html/bcp47> . Accessed July 17, 2014.

DCMI Terms

DCMI Metadata Terms, October 11, 2010. Dublin Core Metadata Initiative Website. <http://dublincore.org/documents/2010/10/11/dcmi-terms/>. Accessed October 17, 2011.

MTOM

Message Transmission Optimization Mechanism, <http://www.w3.org/TR/soap12-mtom/> . Accessed April 17, 2014

RDF

RDF Vocabulary Description Language 1.0: RDF Schema. W3C Recommendation 10 February 2004. W3C website. <http://www.w3.org/TR/rdf-schema/> . Accessed May 9, 2013.

XOP

XML-binary Optimized Packaging, January 25, 2005. <http://www.w3.org/TR/xop10/> Accessed April 17, 2014.