Metadata for SAML 1.0 Web Browser Profiles

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Abstract:
The SAML 1.0 web browser profiles require agreement between a source and destination site about metadata in the form of URLs, authentication modes, certificate authorities etc. This document describes the required metadata together with appropriate XML schema.

Status:
Interim draft. Send comments to the editor.

Committee members should send comments on this specification to the security-services@lists.oasis-open.org list. Others should subscribe to and send comments to the security-services-comment@lists.oasis-open.org list. To subscribe, send an email message to security-services-comment-request@lists.oasis-open.org with the word "subscribe" as the body of the message.

For information on whether any patents have been disclosed that may be essential to implementing this specification, and any offers of patent licensing terms, please refer to the Intellectual Property Rights section of the Security Services TC web page (http://www.oasis-open.org/committees/security/).

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Introduction

The SAML 1.0 web browser profiles require agreement between a source and destination site about metadata in the form of URLs, authentication modes, certificate authorities etc. This document describes the required metadata together with appropriate XML schema.

1.1 Notation

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this specification are to be interpreted as described in IETF RFC 2119 **[RFC2119]**.

```
Listings of productions or other normative code appear like this.
```

```
Example code listings appear like this.
```

Note: Non-normative notes and explanations appear like this.

Conventional XML namespace prefixes are used throughout this specification to stand for their respective namespaces as follows, whether or not a namespace declaration is present in the example:
The prefix `saml:` stands for the SAML assertion namespace **[SAMLCore]**.
The prefix `samlp:` stands for the SAML request-response protocol namespace **[SAMLCore]**.
The prefix `ds:` stands for the W3C XML Signature namespace, `http://www.w3.org/2000/09/xmldsig#` **[XMLSig]**.
The prefix `SOAP-ENV:` stands for the SOAP 1.1 namespace, `http://schemas.xmlsoap.org/soap/envelope` **Error! Reference source not found.**.
The prefix `wsse:` stands for the WS-Security 1.0 namespace `http://schemas.xmlsoap.org/ws/2002/04/secext` **Error! Reference source not found.**.

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1.2 Schema Organization and Namespaces

The SAML metadata structures are defined in a schema [SAMLMETA-XSD] associated with the following namespace:

```
urn:oasis:names:tc:SAML:1.1:metadata
```


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2 Metadata for SAML 1.0 Web Browser Profiles

For source and destination sites to communicate with each other, they must a priori have obtained metadata regarding each other. These provider metadata include items such as X.509 certificates and service endpoints. This specification defines metadata schemas for source and destination sites that may be used for metadata exchange. However, protocols for metadata exchange are outside the scope of this specification.

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2.1 Element <SourceSiteList>

The `<SourceSiteList>` element is a container for one or more <SourceSiteDescriptor> elements.

```
<complexType name="SourceSiteListType">
<sequence>
<element ref="SourceSiteDescriptor" maxOccurs="unbounded" />
</sequence>
</complexType>
<element name="SourceSiteList" type="samlmeta:SourceSiteListType" />
```

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2.1.1 Element <SourceSiteDescriptor>

```
<element name="SourceSiteDescriptor"
type="samlmeta:SourceSiteDescriptorType"/>
<complexType name="SourceSiteDescriptorType">
<sequence>
<element name="SourceSiteName" type="string" />
<element name="ProfileID" type="anyURI" />
<element name="Issuer" type="string" />
<element name="InterSiteTransferURL" type="anyURI" />
<element name="NameIdentifierFormat" type="anyURI" maxOccurs="0" />
<element ref="saml:AttributeDesignator" minOccurs="0"
maxOccurs="unbounded" />
<element ref="samlp:RespondWith" maxOccurs="unbounded" />
<element ref="saml:SubjectLocality" maxOccurs="0" />
<choice>
<element ref="ArtifactMetaData" />
<element ref="FORMPostMetaData" />
</choice>
</sequence>
</complexType>
```

The complex type **SourceSiteDescriptorType** contains the following elements:

`SourceSiteName` [Required]

Descriptive name of the source site.

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`ProfileID` [Required]

The identification URI of the profile which MUST be one of the URIs given in Section 4.1.1.1 or 4.1.2.1 of [SAMLbind].

Issuer [Required]

String used as the issuer attribute of SAML assertions originating from the source site.

`InterSiteTransferURL` [Required]

The inter-site transfer URL at the source site.

`NameIdentifierFormat` [Optional]

The syntax used to describe the name of the subject. Its value MUST be one of the URI references defined on lines 602-615 of [SAMLCore].

`<saml:AttributeDesignator> [Optional]`

One or more <saml:AttributeDesignator> elements describe attribute names and attribute namespaces found in assertions transferred from source to destination sites.

`<samlp:RespondWith> [Required]`

One or more instances of the `<samlp:RespondWith>` element describe the types of statements found in assertions transferred from source to destination sites.

`<saml:SubjectLocality>` [Optional]

The `<saml:SubjectLocality>` element indicates whether this element is included in the authentication statement found in the SSO assertion. If attributes `IPAddress` or `DNSAddress` together with their values are also included, then those attributes and values will also be found in the SSO assertion.

`ArtifactMetaData` [Optional]

An instance of **ArtifactMetaDataType** with metadata relevant to the source site in the Browser/Artifact profile.

`FORMPostMetaData` [Optional]

An instance of **FORMPostMetaDataType** with metadata relevant to the source site in the Browser/POST profile.

2.1.2 Element <ArtifactMetadata>

```
<element name="ArtifactMetadata" type="samlmeta:ArtifactMetadataType"/>
<complexType name="ArtifactMetadataType">
<sequence>
<element name="SourceID" type="hexBinary"/>
<element name="SAMLProtocolBindingID" type="anyURI" />
<element name="SOAPProtocolBindingMetadata"
type="samlmeta:SOAPProtocolBindingMetadataType" minOccurs="0" />
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```
</sequence>
</complexType>
```

The complex type **ArtifactMetaDataType** contains the following elements:

SourceID [Required]

This MUST be the 20 byte Source ID value used by the source site. As it includes arbitrary binary data it is represented by XML schema type **hexbinary.** A 20 byte sequence is always encoded as a sequence of 40 hecadecimal digits.

SAMLProtocolBindingID [Required]

The identification URI of the SAML protocol binding supported by the source site. The SAML protocol binding is used by the destination site to map artifacts to assertions.

SOAPProtocolBindingMetaData [Optional]

An instance of **SOAPProtocolBindingMetaDataType** with metadata required when the selected protocol binding is the SAML 1.0 SOAP binding.

2.1.2.1 Element <SOAPProtocolBindingMetadata>

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The complex type **SOAPProtocolBindingMetaDataType** contains the following elements:

`SOAPResponderURL` [Required]

URL for the SAML SOAP responder at the source site.

TrustModel [Required]

An instance of **TrustModelType** with metadata describing the trust relationship between the source and destination sites.

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2.1.2.1.1 Element <TrustModelType>

```
<simpleType name="TrustRelationshipType">
   <restriction base="string">
   <enumeration value="NoAuth"/>
   <enumeration value="BasicAuth"/>
   <enumeration value="ServerSideSSL"/>
       <enumeration value="BasicOverSSL"/>
       <enumeration value="ClientSideCertificate"/>
   </restriction>
</simpleType>

<complexType name="NameAndPasswordType">
          <attribute name="Name" type="string"/>
          <attribute name="Password" type="hexBinary"/>
</complexType>
<complexType name="TrustModelType">
   <sequence>
   <element name="TrustRelationship"
type="samlmeta:TrustRelationshipType" />
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```
   <element name="NameAndPassword" type="samlmeta:NameAndPasswordType"
minOccurs="0" />
   <element ref= "ds:X509Certificate" minOccurs="0"/>
   </sequence>
</complexType>
```

The complex type **TrustModelType** contains the following elements:

TrustRelationship [Required]

An instance of **TrustRelationshipType** which describes the trust relationship between the source and destination sites:

1. NoAuth : Neither source nor destination site authenticate to each other.
2. BasicAuth: Destination site authenticates to source site using Basic authentication.
3. ServerSideSSL: Source site authenticates to the destination site using TLS/SSL with a server-side X509 certificate. Destination site does not authenticate to the source site.
4. BasicOverSSL: Source site authenticates to the destination site using TLS/SSL with a server-side X509 certificate. Destination site authenticates to source site using Basic authentication.
5. ClientSideCertificate: Source site authenticates to the destination site using TLS/SSL with a server-side X509 certificate. Destination site authenticates to source site using a client-side X509 certificate.

NameAndPassword [Optional]

Name and SHA-1 hash [SHA] of the password to be used by destination site should it authenticate using Basic authentication.

<ds:X509Certificate> [Optional]

X509 certificate used by source site for server-side SSL.

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2.1.3 Element <FORMPost Metadata>

The complex type **FORMPostMetadataType** contains the following element:

KeyInfo [Required]

X509 certificate or public key associated with the source site signature on the <saml:Response> element transmitted to the destination site.

2.2 Element <DestinationSiteList>

The `<DestinationSiteList>` element is a container for one or more <DestinationSiteDescriptor> elements.

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```
<element name="DestinationSiteList"
type="samlmeta:DestinationSiteListType" />
<complexType name="DestinationSiteListType">
<sequence>
<element ref="samlmeta:DestinationSiteDescriptor" maxOccurs="unbounded"
/>
</sequence>
</complexType>
```

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2.2.1 Element <DestinationSiteDescriptor>

```
<element name="DestinationSiteDescriptor"
type="samlmeta:DestinationSiteDescriptorType" />
<complexType name="DestinationSiteDescriptorType">
   <sequence>
   <element name="DestinationSiteName" type="string" />
   <element name="ArtifactReceiverURL" type="anyURI" minOccurs="0" />
   <element name="AssertionConsumerURL" type="anyURI" minOccurs="0" />
   <element ref="ds:X509Certificate" minOccurs="0" />
   </sequence>
</complexType>
```

The complex type **DestinationSiteDescriptorType** contains the following elements:

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`DestinationSiteName` [Required]

Descriptive name of the source site.

ArtifactReceiverURL [Optional]

Required for Browser/Artifact Profile: URL corresponding to the artifact receiver host name and path (Section 4.1.1.5 of [SAMLbind]).

AssertionConsumerServiceURL [Optional]

Required for Browser/POST profile: URL corresponding the assertion consumer host name and path (Section 4.1.2.4 of [SAMLbind]).

<ds:X509Certificate> [Optional]

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May be required for Browser/Artifact Profile: X509 certificate used by destination site, when authenticating to source site with client-side certificates over S

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```
Example<SourceSiteList>
<SourceSiteDescriptor>
   <SourceSiteName>example.com</SourceSiteName>

<ProfileID>urn:oasis:names:tc:SAML:1.0:profiles:artifact_01</Pro
fileID>
  <Issuer>www.baltimore.com</Issuer>

<InterSiteTransferURL>https://samltest.baltimore.com:9985/saml_i
n/</InterSiteTransferURL>
  <ArtifactMetaData>

<SourceID>1ea6b9afbc7e9fa72b95f73362624fe13da6be65</SourceID>

<SAMLProtocolBindingID>urn:oasis:names:tc:SAML:1.0:bindings:SOAP
binding</SAMLProtocolBindingID>
    <SOAPProtocolBindingMetaData>

<SOAPResponderURL>https://samltest.baltimore.com:9984/saml_respo
nder/
              </SOAPResponderURL>
         <TrustModel>

<TrustRelationship>ClientSideCertificate</TrustRelationship>
               <X509Certificate>
                 . . .
               </X509Certificate>
         </TrustModel>
    </SOAPProtocolBindingMetaData>
  </ArtifactMetaData>
</SourceSiteDescriptor>
<SourceSiteList>
```

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References

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[SAMLBind] P. Mishra (Editor), Bindings and Profiles for the OASIS *Security Assertion Markup Language (SAML)*, Committee Specification 01, available from http://www.oasis-open.org/committees/security, OASIS, May 2002.

[SAMLCore] P. Hallam-Baker, P., and E. Maler, (Editors), *Assertions and Protocol for the OASIS Security Assertion Markup Language (SAML)*, Committee Specification 01, available from http://www.oasis-open.org/committees/security, OASIS, May 2002.

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[SAMLSecure] Security and Privacy Cpnsiderations for the OASIS Security Assertion Markup Language (SAML), http://www.oasis-open.org/committees/security/docs/cs-sstc-sec-consider-01.doc.

[XMLSig] D. Eastlake et al., *XML-Signature Syntax and Processing*, http://www.w3.org/TR/xmldsig-core/, World Wide Web Consortium.

[LAProtSchema] John D. Beatty, John Kemp, Liberty Protocols and Schemas Specification, Draft Version 1.1-05, November 2002.

[SAMLInterOp] Prateek Mishra, Proposed InterOp Scenario for SAML at Catalyst 2002, April 26, 2002, available at http://lists.oasis-open.org/archives/saml-dev/200206/msg00209.html

[SAMLMETA-XSD] draft-sstc-schema-meta-data-01.xsd

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Appendix A. Revision History

Rev	Date	By Whom	What
wd-00	2002-06-16	Prateek Mishra	First draft based on discussion with Jeff Hodges
01	2003-02-01	Prateek Mishra	Review from TC

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Appendix B. Notices

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