XACML Profile of SAML V2.0 Attributes

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Abstract:
This document provides a profile for creating SAML Attribute Assertions that can be mapped automatically to XACML Attributes.

Status:
Committee members should send comments on this specification to the security-services@lists.oasis-open.org list. Others should use the comment form at http://www.oasis-open.org/committees/comments/form.php?wg_abbrev=security

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1 Introduction

{Non-normative}

SAML Attribute Assertions may be used as input to authorization decisions made according to the OASIS eXtensible Access Control Markup Language (XACML) standard specification [XACML]. Since the SAML Attribute format differs from the XACML Attribute format, there is a mapping that must be performed. The OASIS XACML TC has defined a Profile for doing this mapping [XACML-Profile], but that Profile imposes constraints on the meta-data provided with the SAML Attribute. This Profile describes those meta-data constraints. SAML Attribute Assertions generated in conformance with this Profile can be mapped automatically to XACML Attributes and used as input to XACML authorization decisions.

1.1 Terminology

{Non-normative}

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 IETF RFC 2119 [RFC2119].

The following additional terms are used with particular semantics in this Profile. When used in this way, the terms are specified in bold, italicized font.

Attribute – when capitalized, the term Attribute refers to an instance of the SAML schema Attribute element or to an instance of the XACML schema Attribute element.

attribute – when not capitalized, the term attribute refers to an XML element attribute.

Context Handler – an entity in the XACML operational model that uses an authorization decision request and possibly other information to create the context for an XACML PDP policy evaluation. The Context Handler is responsible for converting Attributes to the XACML Attribute format if necessary.

Policy Decision Point or PDP – an entity in the XACML operational model that evaluates an authorization decision request against an authorization policy and returns an authorization decision.

Policy Enforcement Point or PEP – an entity in the XACML operational model that protects access to a resource. When access to a resource is attempted, the PEP sends an authorization decision request to a Policy Decision Point and carries out the authorization decision returned by the PDP.

XACML processor – in this Profile, the term XACML processor is used for any entity that is constrained to use XACML Attributes. Typically, such an entity will be an XACML Context Handler or a Policy Enforcement Point that will be sending authorization decision requests to an XACML Policy Decision Point.
2 Data Type

{Normative}

XACML requires each Attribute to have an explicit data type. To supply this data type value, a SAML Attribute to be used as input to an XACML processor SHALL have the following metadata provided.

```
<xs:attribute name="DataType" type="xs:anyURI" use="optional"
  default="http://www.w3.org/2001/XMLSchema#string"/>
```

The standard values for the DataType attribute are specified in Appendix A of the XACML 2.0 Specification [XACML].

If non-standard values are used for the DataType attribute, each XACML PDP that will be consuming Attributes with these new DataType values must be extended to support the new data types.
3 Attribute Identifiers

{Normative}

XACML requires each *Attribute* to have a single identifier that is sufficient to distinguish instances of the *Attribute* from instances of other *Attributes* that have different semantics. In SAML 2.0, two standard identifiers – *Name* and *NameFormat* - are required to distinguish two *Attributes* that may have different semantics. SAML 2.0 also allows the use of arbitrary additional identifiers. In order to map a SAML *Attribute* to an XACML *Attribute*, there must be a canonical way to generate a single XACML *Attribute* identifier from the set of SAML *attributes* that are sufficient to distinguish instances of the SAML *Attribute* that have different semantics.

In order to satisfy this requirement, a SAML *Attribute* that is to be used as input to an XACML processor SHALL have a *NameFormat* value of "urn:oasis:names:tc:SAML:2.0:attname-format:uri". The value of the SAML *Attribute’s* *Name* *attribute* SHALL be a URI or URI reference that is sufficient to distinguish instances of this *Attribute* from instances of other SAML or XACML *Attributes* that have different semantics. Additional attributes not necessary for distinguishing the SAML *Attribute* semantics MAY be used in the SAML metadata, but will not be used in the corresponding XACML *Attribute*. 
4 References

{Normative}


### A. Revision History

<table>
<thead>
<tr>
<th>Rev</th>
<th>Date</th>
<th>By Whom</th>
<th>What</th>
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<tbody>
<tr>
<td>01</td>
<td>13 May 2004</td>
<td>Anne Anderson</td>
<td>Initial draft.</td>
</tr>
<tr>
<td>02</td>
<td>14 May 2004</td>
<td>Anne Anderson</td>
<td>Require NameFormat to be &quot;...:uri&quot; and Name to be a semantically distinguishing URI.</td>
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<tr>
<td>03</td>
<td>25 May 2004</td>
<td>Anne Anderson</td>
<td>Clarify value and format of Attribute Name</td>
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