

National Identity Exchange Federation

Attribute Encoding Rules

Version 1.0

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1. Target Audience and Purpose

This document specifies technical interoperability requirements for connection to operational endpoints in the National Identity Exchange Federation (NIEF). The target audience includes technical representatives of organizations that intend to participate in NIEF as Identity Provider Organizations (IDPOs), Service Provider Organizations (SPOs), Service Consumer Organizations (SCOs), Attribute Provider Organizations (APOs), or some combination of these roles.¹ It also includes vendors, contractors, and consultants who, as part of their project or product implementation, have a requirement to establish technical interoperability with NIEF endpoints.

This document focuses only on issues of technical interoperability. It does not cover governance, policy, or other nontechnical interoperability requirements. For more information about those topics, see [NIEF Bylaws] and [NIEF OPP].

2. NIEF Identity Trust Framework and Terminology

This document is one component of the NIEF Identity Trust Framework. See [NIEF OPP] for more information about the full NIEF Identity Trust Framework.

This document contains language that uses technical terms related to federations, identity management, Web services, and other related technologies. To minimize confusion for readers, it is important that each technical term have a precise definition. Accordingly, all technical terms in this document are to be interpreted as described in [NIEF Terms].

3. References

Table 1 contains references used within this document.

References	
Document ID	Document Name and URL if Applicable
NIEF Terms	NIEF Terminology Reference
NIEF Bylaws	NIEF Center Bylaws
NIEF OPP	NIEF Center Operational Policies and Procedures
NIEF Attrs	NIEF Attribute Registry
RFC 2119	Key words for use in RFCs to Indicate Requirement Levels

Table 1: References

4. Notation for Normative Content

This document contains both normative and non-normative content. Sections containing normative content are marked appropriately. In those sections, the key words “MUST,” “MUST NOT,” “REQUIRED,” “SHALL,” “SHALL NOT,” “SHOULD,”

¹ See [NIEF Terms] for terminology related to various organizational and technical roles in NIEF.

“SHOULD NOT,” “RECOMMENDED,” “MAY,” and “OPTIONAL” are to be interpreted as described in [RFC 2119].

5. NIEF Attribute Encoding Rules

The following rules apply when encoding any attribute from [NIEF Attrs] in a SAML assertion or in NIEF Cryptographic Trust Fabric.

1. A `<saml:Attribute>` element has an XML attribute called “**Name**” to denote the name of the attribute. This “**Name**” XML attribute **MUST** be present and **MUST** contain as its value the full formal name of the attribute to which this `<saml:Attribute>` element corresponds.
2. A `<saml:Attribute>` element has an XML attribute called “**NameFormat**” to denote the XML format of the attribute. This “**NameFormat**” attribute **MUST** be present and **MUST** have a value of “`urn:oasis:names:tc:SAML:2.0:attrname-format:uri`”.
3. Any attribute value provided **MUST** be encoded within the corresponding `<saml:AttributeValue>` element as an XML string.

6. NIEF Attribute Encoding Examples

The following examples illustrate how to encode user attributes and entity attributes as per the NIEF Attribute Encoding Rules specified in the preceding section.

```
<saml2:Attribute Name="gfipm:2.0:user:GivenName"
NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
<saml2:AttributeValue>Michael</saml2:AttributeValue>
</saml2:Attribute>
```

Figure 1: NIEF Attribute Encoding Example #1 – User Attribute

```
<saml:Attribute
Name="gfipm:2.0:entity:OwnerAgencyOrganizationGeneralCategoryCode"
NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
<saml:AttributeValue>Local Government</saml:AttributeValue>
<saml:AttributeValue>State Government</saml:AttributeValue>
</saml:Attribute>
```

Figure 2: NIEF Attribute Encoding Example #2 – Entity Attribute