# [MS-SAMLPR]:

# Security Assertion Markup Language (SAML) Proxy Request Signing Protocol

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#### 1 Introduction

This document specifies the Security Assertion Markup Language (SAML) Proxy Request Signing Protocol, which allows proxy servers to perform operations that require knowledge of configured keys and other state information about federated sites known by the **Security Token Service (STS)** server.

Sections 1.5, 1.8, 1.9, 2, and 3 of this specification are normative. All other sections and examples in this specification are informative.

## 1.1 Glossary

This document uses the following terms:

- **Active Directory Federation Services (AD FS) Proxy Server**: An AD FS 2.0 service that processes SAML Federation Protocol messages. **AD FS proxy servers** are clients for the Security Assertion Markup Language (SAML) Proxy Request Signing Protocol (SAMLPR).
- **Active Directory Federation Services (AD FS) Security Token Service (STS)**: An AD FS 2.0 service that holds configuration information about federated sites. **AD FS STS** servers are servers for the Security Assertion Markup Language (SAML) Proxy Request Signing Protocol (SAMLPR).
- **certificate**: A certificate is a collection of attributes and extensions that can be stored persistently. The set of attributes in a certificate can vary depending on the intended usage of the certificate. A certificate securely binds a public key to the entity that holds the corresponding private key. A certificate is commonly used for authentication and secure exchange of information on open networks, such as the Internet, extranets, and intranets. Certificates are digitally signed by the issuing certification authority (CA) and can be issued for a user, a computer, or a service. The most widely accepted format for certificates is defined by the ITU-T X.509 version 3 international standards. For more information about attributes and extensions, see <a href="[RFC3280]">[RFC3280]</a> and <a href="[X509]">[X509]</a> sections 7 and 8.
- **SAML Artifact Binding**: A method of transmitting **SAML messages** via references in HTTP messages, as specified in <a href="SamlBinding">[SamlBinding]</a> section 3.6.
- **SAML Identity Provider (IdP)**: A provider of **SAML** assertions, as specified in [SAMLCore2] section 2.
- **SAML Message:** A **SAML** protocol message, as specified in [SAMLCore2] and [SamlBinding].
- **SAML Post Binding**: A method of transmitting **SAML messages** via HTTP POST actions, as specified in [SamlBinding] section 3.5.
- **SAML Redirect Binding**: A method of transmitting **SAML messages** via HTTP redirects, as specified in [SamlBinding] section 3.4.
- **SAML Service Provider (SP)**: A consumer of **SAML** assertions, as specified in [SAMLCore2] section 2.
- **Security Assertion Markup Language (SAML)**: The set of specifications that describe security assertions encoded in XML, profiles for attaching assertions to protocols and frameworks, request/response protocols used to obtain assertions, and the protocol bindings to transfer protocols, such as **SOAP** and HTTP.
- **security token service (STS)**: A web service that issues security tokens. That is, it makes assertions based on evidence that it trusts; these assertions are for consumption by whoever trusts it.

- **SHA-1 hash**: A hashing algorithm as specified in <a href="[FIPS180-2">[FIPS180-2]</a> that was developed by the National Institute of Standards and Technology (NIST) and the National Security Agency (NSA).
- **SOAP**: A lightweight protocol for exchanging structured information in a decentralized, distributed environment. **SOAP** uses XML technologies to define an extensible messaging framework, which provides a message construct that can be exchanged over a variety of underlying protocols. The framework has been designed to be independent of any particular programming model and other implementation-specific semantics. SOAP 1.2 supersedes SOAP 1.1. See [SOAP1.2-1/2003].
- **SOAP body**: A container for the payload data being delivered by a **SOAP message** to its recipient. See [SOAP1.2-1/2007] section 5.3 for more information.
- **SOAP message**: An XML document consisting of a mandatory SOAP envelope, an optional SOAP header, and a mandatory **SOAP body**. See [SOAP1.2-1/2007] section 5 for more information.
- **Uniform Resource Locator (URL)**: A string of characters in a standardized format that identifies a document or resource on the World Wide Web. The format is as specified in [RFC1738].
- **Web Services Description Language (WSDL)**: An XML format for describing network services as a set of endpoints that operate on messages that contain either document-oriented or procedure-oriented information. The operations and messages are described abstractly and are bound to a concrete network protocol and message format in order to define an endpoint. Related concrete endpoints are combined into abstract endpoints, which describe a network service. WSDL is extensible, which allows the description of endpoints and their messages regardless of the message formats or network protocols that are used.
- **XML namespace**: A collection of names that is used to identify elements, types, and attributes in XML documents identified in a URI reference [RFC3986]. A combination of XML namespace and local name allows XML documents to use elements, types, and attributes that have the same names but come from different sources. For more information, see [XMLNS-2ED].
- **XML Schema (XSD)**: A language that defines the elements, attributes, namespaces, and data types for XML documents as defined by <a href="[XMLSCHEMA1/2]">[XMLSCHEMA2/2]</a> standards. An XML schema uses XML syntax for its language.
- MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as defined in [RFC2119]. All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

#### 1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the <a href="Errata"><u>Errata</u></a>.

#### 1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact <a href="mailto:dochelp@microsoft.com">dochelp@microsoft.com</a>. We will assist you in finding the relevant information.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <a href="https://www.rfc-editor.org/rfc/rfc2119.html">https://www.rfc-editor.org/rfc/rfc2119.html</a>

[SamlBinding] Cantor, S., Hirsch, F., Kemp, J., et al., "Bindings for the OASIS Security Assertion Markup Language (SAML) V2.0", March 2005, <a href="http://docs.oasis-open.org/security/saml/v2.0/saml-bindings-2.0-os.pdf">http://docs.oasis-open.org/security/saml/v2.0/saml-bindings-2.0-os.pdf</a>

[SAMLCore2] Cantor, S., Kemp, J., Philpott, R., and Maler, E., Eds., "Assertions and Protocol for the OASIS Security Assertion Markup Language (SAML) V2.0", March 2005, <a href="http://docs.oasis-open.org/security/saml/v2.0/saml-core-2.0-os.pdf">http://docs.oasis-open.org/security/saml/v2.0/saml-core-2.0-os.pdf</a>

[SOAP1.2-1/2003] Gudgin, M., Hadley, M., Mendelsohn, N., et al., "SOAP Version 1.2 Part 1: Messaging Framework", W3C Recommendation, June 2003, <a href="http://www.w3.org/TR/2003/REC-soap12-part1-20030624">http://www.w3.org/TR/2003/REC-soap12-part1-20030624</a>

[WSAddressing] Box, D., et al., "Web Services Addressing (WS-Addressing)", August 2004, <a href="http://www.w3.org/Submission/ws-addressing/">http://www.w3.org/Submission/ws-addressing/</a>

[WSDL] Christensen, E., Curbera, F., Meredith, G., and Weerawarana, S., "Web Services Description Language (WSDL) 1.1", W3C Note, March 2001, <a href="https://www.w3.org/TR/2001/NOTE-wsdl-20010315">https://www.w3.org/TR/2001/NOTE-wsdl-20010315</a>

[WSSC1.3] Lawrence, K., Kaler, C., Nadalin, A., et al., "WS-SecureConversation 1.3", March 2007, http://docs.oasis-open.org/ws-sx/ws-secureconversation/200512/ws-secureconversation-1.3-os.html

[WSSU1.0] OASIS Standard, "WS Security Utility 1.0", 2004, <a href="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd</a>

[WSTrust] IBM, Microsoft, Nortel, VeriSign, "WS-Trust V1.0", February 2005, http://specs.xmlsoap.org/ws/2005/02/trust/WS-Trust.pdf

[XMLNS] Bray, T., Hollander, D., Layman, A., et al., Eds., "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation, December 2009, <a href="https://www.w3.org/TR/2009/REC-xml-names-20091208/">https://www.w3.org/TR/2009/REC-xml-names-20091208/</a>

[XMLSCHEMA1] Thompson, H., Beech, D., Maloney, M., and Mendelsohn, N., Eds., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, <a href="https://www.w3.org/TR/2001/REC-xmlschema-1-20010502/">https://www.w3.org/TR/2001/REC-xmlschema-1-20010502/</a>

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, <a href="https://www.w3.org/TR/2001/REC-xmlschema-2-20010502/">https://www.w3.org/TR/2001/REC-xmlschema-2-20010502/</a>

#### 1.2.2 Informative References

[WS-Trust1.3] Nadalin, A., Goodner, M., Gudgin, M., Barbir, A., Granqvist, H., "WS-Trust 1.3", OASIS Standard 19 March 2007, <a href="http://docs.oasis-open.org/ws-sx/ws-trust/200512/ws-trust-1.3-os.html">http://docs.oasis-open.org/ws-sx/ws-trust/200512/ws-trust-1.3-os.html</a>

#### 1.3 Overview

The Security Assertion Markup Language (SAML) Proxy Request Signing Protocol (SAMLPR) provides the capability for **AD FS proxy servers** to have the **AD FS STS** server for an installation perform operations that require knowledge of the configured keys and other state information about federated sites known by the **Security Token Service (STS)** server. For more information, see [WS-Trust1.3]. In particular, proxy servers use the SAMLPR Protocol to have the STS server in an installation perform **SAML** (see [SAMLCore2] and [SamlBinding]) signature operations upon messages to be sent. Multiple proxy servers can use a single STS server.

The protocol is stateless, with the parameters of each message being fully self-contained.

## 1.4 Relationship to Other Protocols

The Security Assertion Markup Language (SAML) Proxy Request Signing Protocol (SAMLPR) uses **SOAP** over TCP for local connections, as shown in the following layering diagram:

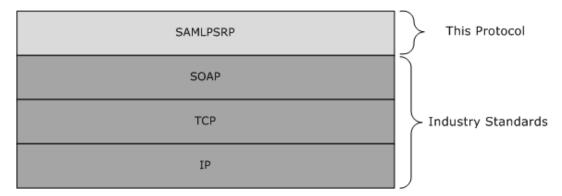


Figure 1: SAMLPR SOAP over TCP layer diagram

The Security Assertion Markup Language (SAML) Proxy Request Signing Protocol (SAMLPR) uses SOAP over HTTPS for remote connections, as shown in the following layering diagram:

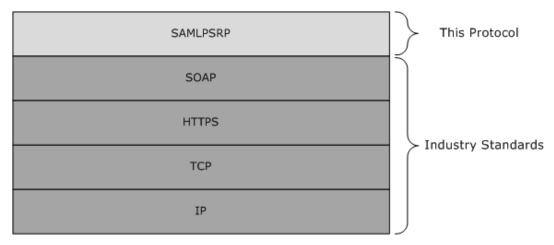


Figure 2: SAMLPR SOAP over HTTPS layer diagram

## 1.5 Prerequisites/Preconditions

The client is configured with the **Uniform Resource Locator (URL)** of the server's **SOAP** service in order to call the service.

#### 1.6 Applicability Statement

The SAMLPR Protocol is used by services that perform **SAML** signature operations for proxy servers by **STS** servers in a manner that is compatible with AD FS 2.0.

## 1.7 Versioning and Capability Negotiation

This protocol uses the versioning mechanisms defined in the following specification:

• **SOAP** 1.2, as specified in [SOAP1.2-1/2003].

This protocol does not perform any capability negotiation.

## 1.8 Vendor-Extensible Fields

The schema for this protocol provides for extensibility points for additional elements to be added to each **SOAP message** body. Elements within these extensibility points that are not understood are ignored.

## 1.9 Standards Assignments

There are no standards assignments for this protocol beyond those defined in the following specification:

• **SOAP** 1.2, as specified in [SOAP1.2-1/2003].

## 2 Messages

## 2.1 Transport

The Security Assertion Markup Language (SAML) Proxy Request Signing Protocol uses **SOAP**, as specified in [SOAP1.2-1/2003], over TCP locally or HTTPS remotely, for communication.

## 2.2 Common Message Syntax

This section contains no common definitions used by this protocol.

## 2.2.1 Namespaces

This specification defines and references various **XML namespaces** using the mechanisms specified in [XMLNS]. Although this specification associates a specific XML namespace prefix for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and not significant for interoperability.

Prefix	Namespace URI	Reference
S	http://www.w3.org/2003/05/soap-envelope	[SOAP1.2-1/2003]
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1] and [XMLSCHEMA2]
а	http://schemas.xmlsoap.org/ws/2004/08/addressing	[WSAddressing] section 1.2
msis	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol	This document ([MS-SAMLPR])
samlp	urn:oasis:names:tc:SAML:2.0:protocol	[SAMLCore2]
saml	urn:oasis:names:tc:SAML:2.0:assertion	[SAMLCore2]
wst	http://docs.oasis-open.org/ws-sx/ws-trust/200512	[WSTrust]
WSSC	http://docs.oasis-open.org/ws-sx/ws-secureconversation/200512	[WSSC1.3]
wssu	http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd	[WSSU1.0]

#### 2.2.2 Messages

Message	Description
SignMessageRequest	A message that requests that a <b>SAML Message</b> signature be applied to a SAML Message, if the configuration for the requested principal specifies that messages are to be signed.
SignMessageResponse	A reply message to SignMessageRequest, containing the resulting SAML Message, which is signed, if the configuration for the requested principal specifies that messages are to be signed.
VerifyMessageRequest	A message that requests verification that a SAML Message is from a known party and signed according to the metadata directives for that party.

Message	Description
VerifyMessageResponse	A reply message to the VerifyMessageRequest message, containing a Boolean result.
IssueRequest	A message requesting issuance of a <b>SAML</b> token.
IssueResponse	A reply message to the IssueRequest message containing a SAML response message.
LogoutRequest	A message requesting that a SAML logout be performed.
LogoutResponse	A reply message to the LogoutRequest message containing updated SessionState and LogoutState values.
CreateErrorMessageRequest	A message that requests creation of a SAML error message, which will be signed, if the configuration for the requested principal specifies that messages are to be signed.
CreateErrorMessageResponse	A reply message to the CreateErrorMessageRequest message containing the created SAML error message.

## 2.2.2.1 SignMessageRequest

The SignMessageRequest message requests that a **SAML Message** signature be applied to a SAML Message, if the configuration for the requested principal specifies that messages are to be signed. It is used by the following message:

Message type	Action URI
Request	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequest

**body**: The **SOAP body** MUST contain a single msis:SignMessageRequest element with the following type:

**ActivityId**: An opaque string supplied by the caller to track the activity to which this message pertains.

**Message**: A complex type representing a **SAML** Protocol message.

**Principal**: A complex type representing a SAML EntityId for a **SAML Identity Provider (IdP)**, a **SAML Service Provider (SP)**, or this **STS** server.

## 2.2.2.2 SignMessageResponse

A SignMessageResponse message is a reply message to SignMessageRequest, containing the resulting **SAML Message**, which is signed, if the configuration for the requested principal specifies that messages are to be signed. It is used by the following message:

Message type	Action URI
Response	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequestResponse

**body**: The **SOAP body** MUST contain a single msis:SignMessageResponse element with the following type:

**Message**: A complex type representing a **SAML** Protocol message.

## 2.2.2.3 VerifyMessageRequest

The VerifyMessageRequest message requests verification that a **SAML Message** is from a known party and signed according to the metadata directives for that party. It is used by the following message:

Message type	Action URI
Request	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequest

**body**: The **SOAP body** MUST contain a single msis: VerifyMessageRequest element with the following type:

**ActivityId**: An opaque string supplied by the caller to track the activity to which this message pertains.

Message: A complex type representing a SAML Protocol message.

## 2.2.2.4 VerifyMessageResponse

The VerifyMessageResponse message is a reply to VerifyMessageRequest, containing a Boolean result. It is used by the following message:

Message type	Action URI
Response	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequestResponse

**body**: The **SOAP body** MUST contain a single msis:VerifyMessageResponse element with the following type:

**IsVerified**: A Boolean result indicating whether a **SAML Message** is from a known party and signed according to the metadata directives for that party.

## 2.2.2.5 IssueRequest

The IssueRequest message requests the issuance of a **SAML** token. It is used by the following message:

Message type	Action URI
Request	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequest

body: The SOAP body MUST contain a single msis: IssueRequest element with the following type:

**ActivityId**: An opaque string supplied by the caller to track the activity to which this message pertains.

**Message**: A complex type representing a SAML Protocol message.

**OnBehalfOf**: A complex type representing the party to issue the token for.

SessionState: A structured string representing the information required to log out from this session.

#### 2.2.2.6 IssueResponse

The IssueResponse message is a reply to IssueRequest, containing a **SAML** response message. It is used by the following message:

Message type	Action URI
Response	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequestResponse

**body**: The **SOAP body** MUST contain a single msis:IssueResponse element with the following type:

Message: A complex type representing a SAML Protocol message.

**SessionState**: A structured string representing the information required to log out from this session.

**AuthenticatingProvider**: The URI of a claims provider or a local **STS** identifier, depending upon where the user authenticated.

#### 2.2.2.7 LogoutRequest

The LogoutRequest message requests that a **SAML** logout be performed. It is used by the following message:

Message type	Action URI
Request	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequest

body: The SOAP body MUST contain a single msis:LogoutRequest element with the following type:

ActivityId: An opaque string supplied by the caller to track the activity that this message pertains to.

Message: A complex type representing a SAML protocol message.

SessionState: A structured string representing the information required to log out from this session.

**LogoutState**: A structured string representing additional information required to log out from this session.

#### 2.2.2.8 LogoutResponse

The LogoutResponse message is a reply to LogoutRequest, containing updated SessionState and LogoutState values. It is used by the following message:

Message type	Action URI
Response	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequestResponse

body: The SOAP body MUST contain a single msis:LogoutResponse element with the following type:

**LogoutStatus**: A complex type representing the status of the logout process.

**Message**: A complex type representing a **SAML** Protocol message.

**SessionState**: A structured string representing the information required to log out from this session.

**LogoutState**: A structured string representing additional information required to log out from this session.

## 2.2.2.9 CreateErrorMessageRequest

The CreateErrorMessageRequest message requests the creation of a **SAML** error message, which will be signed, if the configuration for the requested principal specifies that messages are to be signed. It is used by the following message:

Message type	Action URI
Request	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequest

**body**: The **SOAP body** MUST contain a single msis:CreateErrorMessageRequest element with the following type:

**ActivityId**: An opaque string supplied by the caller to track the activity to which this message pertains.

**Message**: A complex type representing a SAML Protocol message.

**Principal**: A complex type representing a SAML EntityId for a **SAML IdP**, a **SAML SP**, or this **STS** server.

## 2.2.2.10 CreateErrorMessageResponse

The CreateErrorMessageResponse message is a reply to CreateErrorMessageRequest, containing the created **SAML** error message. It is used by the following messages:

Message type	Action URI
Response	http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequestResponse

**body**: The **SOAP body** MUST contain a single msis:CreateErrorMessageResponse element with the following type:

**Message**: A complex type representing a SAML Protocol message.

#### 2.2.3 Elements

This specification does not define any common XML Schema element definitions.

## 2.2.4 Complex Types

The following table summarizes the set of common XML schema complex type definitions defined by this specification. XML schema complex type definitions that are specific to a particular operation are described with the operation.

Complex type	Description
RequestType	An abstract type containing protocol request message parameters.
ResponseType	An abstract type containing protocol response messages parameters.
PrincipalType	A structure containing a PrincipalTypes value and an identifier for the principal.
SamlMessageType	A structure containing a representation of a <b>SAML</b> Protocol message.
PostBindingType	A structure containing SAML binding information for a <b>SAML post binding</b> .
RedirectBindingType	A structure containing SAML binding information for a <b>SAML redirect binding</b> .

## 2.2.4.1 RequestType

This abstract type contains request message parameters for messages using this protocol. The schema for this type MUST be as follows:

```
<complexType name="RequestType" abstract="true"/>
```

## 2.2.4.2 ResponseType

This abstract type contains response message parameters for messages using this protocol. The schema for this type MUST be as follows:

```
<complexType name="ResponseType" abstract="true"/>
```

## 2.2.4.3 PrincipalType

This structure contains a PrincipalTypes value and an identifier for the principal. The schema for this type MUST be as follows:

```
<complexType name="PrincipalType">
  <sequence>
```

```
<element name="Type" type="msis:PrincipalTypes"/>
   <element name="Identifier" type="string"/>
   </sequence>
</complexType>
```

**Type**: A PrincipalTypes enumeration value identifying the type of the **SAML** principal.

**Identifier**: An identifier for the SAML principal. This is a SAML EntityId.

## 2.2.4.4 SamlMessageType

This structure contains a representation of a **SAML** Protocol message. The schema for this type MUST be as follows:

BaseUri: The URL to post message to.

**SAML**art: A SAML artifact identifier, base64-encoded as per [SamlBinding] section 3.6.

**SAMLRequest**: A SAML request message, base64-encoded as per [SamlBinding] sections 3.4 and 3.5.

**SAMLResponse**: A SAML response message, base64-encoded as per [SamlBinding] sections 3.4 and 3.5.

**PostBindingInformation**: Information about the **SAML Message** using the **SAML post binding**, as per [SamlBinding] section 3.5.

**RedirectBindingInformation**: Information about the SAML Message using the **SAML redirect binding**, as per [SamlBinding] section 3.4.

## 2.2.4.5 PostBindingType

This structure contains **SAML** binding information for a **SAML post binding**. The schema for this type MUST be as follows:

```
<complexType name="PostBindingType">
    <sequence>
        <element name="RelayState" minOccurs="0" type="string"/>
        </sequence>
        </complexType>
```

**RelayState**: An opaque BLOB that, if present in the request, MUST be returned in the response, as per [Sam|Binding] section 3.5.3.

## 2.2.4.6 RedirectBindingType

This structure contains **SAML** binding information for a **SAML redirect binding**. The schema for this type MUST be as follows:

**RelayState**: An opaque BLOB that, if present in the request, MUST be returned in the response, as per [SamlBinding] section 3.4.3.

**Signature**: The message signature (if present), encoded as per [SamlBinding] section 3.4.4.1.

SigAlg: The message signature algorithm (if present), as per [SamlBinding] section 3.4.4.1.

**QueryStringHash**: A base64-encoded **SHA-1 hash** of the redirect query string (if present), for integrity purposes, as per [SamlBinding] section 3.6.4.

## 2.2.5 Simple Types

The following table summarizes the set of common XML schema simple type definitions defined by this specification. XML schema simple type definitions that are specific to a particular operation are described with the operation.

Simple type	Description
LogoutStatusType	An enumeration of status values for logout operations.
PrincipalTypes	An enumeration of the types of <b>SAML</b> principals.

#### 2.2.5.1 LogoutStatusType

This type enumerates the set of status values for logout operations. The schema for this type MUST be as follows:

```
<simpleType name="LogoutStatusType">
    <restriction base="string">
        <enumeration value="InProgress" />
        <enumeration value="LogoutPartial" />
        <enumeration value="LogoutSuccess" />
        </restriction>
</simpleType>
```

**InProgress**: Indicates that more logout work is required to be performed.

**LogoutPartial:** Indicates that the logout process is complete, but all session participants might not have been logged out.

**LogoutSuccess:** Indicates the logout process is complete, with all session participants logged out.

## 2.2.5.2 PrincipalTypes

This type enumerates the set of types of **SAML** principals. The schema for this type MUST be as follows:

```
<simpleType name="PrincipalTypes">
    <restriction base="string">
        <enumeration value="Self" />
        <enumeration value="Scope" />
        <enumeration value="Authority" />
        </restriction>
</simpleType>
```

**Self**: Indicates that the principal is this **STS** server.

**Scope**: Indicates that the principal is a **SAML Service Provider**, identified by an Entity Identifier, as per [SAMLCore2] section 8.3.6.

**Authority**: Indicates that the principal is a **SAML Identity Provider**, identified by an Entity Identifier, as per [SAMLCore2] section 8.3.6.

#### 2.2.6 Attributes

This specification does not define any common XML schema attribute definitions.

## **2.2.7 Groups**

This specification does not define any common XML schema group definitions.

#### 2.2.8 Attribute Groups

This specification does not define any common XML schema attribute group definitions.

#### 3 Protocol Details

#### 3.1 Common Details

This section describes protocol details that are common among multiple port types.

#### 3.1.1 Abstract Data Model

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this protocol. The described organization is provided to facilitate the explanation of how the protocol behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

The SAMLPR Protocol enables proxy servers to have **STS** servers perform operations requiring state held at the STS server. Other than standard **SOAP** request/response protocol state that is not specific to this protocol, no state about the protocol is maintained at either the protocol client or server.

#### **3.1.2 Timers**

There are no protocol-specific timer events that MUST be serviced by an implementation. This protocol does not require timers beyond those that are used by the underlying transport to transmit and receive **SOAP messages**. The protocol does not include provisions for time-based retry for sending protocol messages.

#### 3.1.3 Initialization

No protocol-specific initialization is required to use this protocol. Standard **SOAP** bindings MUST be established between the client and server before initiating communication.

For clients running on the local machine, the standard **STS** server SOAP endpoint address is net.tcp://localhost/samlprotocol. For clients running on remote machines connecting to a server, the standard STS server SOAP endpoint address is

## 3.1.4 Message Processing Events and Sequencing Rules

The following table summarizes the list of operations as defined by this specification:

Operation	Description
SignMessage	This operation causes a <b>SAML Message</b> signature be applied to the supplied SAML Message when the configuration requires signing, with the resulting message being returned as a result.
VerifyMessage	This operation verifies whether a SAML Message is from a known party and signed according to metadata directives for that party, returning the result as a Boolean.
Issue	This operation causes issuance of a <b>SAML</b> token.
Logout	This operation causes a SAML session to be logged out.
CreateErrorMessage	This operation creates a SAML error message, applying a signature, if the configuration for the requested principal specifies that messages are to be signed.

For each operation there is a request and reply message. In all cases, the sequence of operation is that the client sends the request message to the server, which responds with the corresponding reply message. The server MUST accept the request messages and the client MUST accept the corresponding reply messages, when sent in response to a request message. The behavior of any other uses of these messages is undefined.

## 3.1.4.1 SignMessage

This operation causes a **SAML Message** signature be applied to the supplied SAML Message when the configuration requires signing, with the resulting message being returned as a result. This operation consists of the client sending a SignMessageRequest message to the server, which replies with a SignMessageResponse message.

## 3.1.4.1.1 Messages

The following table summarizes the set of message definitions that are specific to this operation.

Message	Description
SignMessageRequest	Conveys request parameters for SignMessage operation.
SignMessageResponse	Conveys response parameters for SignMessage operation.

## 3.1.4.1.1.1 SignMessageRequest

This message conveys request parameters for the SignMessage operation.

## 3.1.4.1.1.2 SignMessageResponse

This message conveys response parameters for the SignMessage operation.

#### 3.1.4.2 VerifyMessage

This operation verifies whether a **SAML Message** is from a known party and signed according to metadata directives for that party, returning the result as a Boolean. This operation consists of the client sending a VerifyMessageRequest message to the server, which replies with a VerifyMessageResponse message.

#### 3.1.4.2.1 Messages

The following table summarizes the set of message definitions that are specific to this operation.

Message	Description
VerifyMessageRequest	Conveys request parameters for the VerifyMessage operation.
VerifyMessageResponse	Conveys response parameters for the VerifyMessage operation.

## 3.1.4.2.1.1 VerifyMessageRequest

This message conveys request parameters for the VerifyMessage operation.

#### 3.1.4.2.1.2 VerifyMessageResponse

This message conveys response parameters for the VerifyMessage operation.

#### 3.1.4.3 Issue

This operation causes the issuance of a **SAML** token. This operation consists of the client sending an IssueRequest message to the server, which replies with an IssueResponse message.

## 3.1.4.3.1 Messages

The following table summarizes the set of message definitions that are specific to this operation.

Message	Description
IssueRequest	Conveys request parameters for the Issue operation.
IssueResponse	Conveys response parameters for the Issue operation.

## **3.1.4.3.1.1** IssueRequest

This message conveys request parameters for the Issue operation.

## 3.1.4.3.1.2 IssueResponse

This message conveys response parameters for the Issue operation.

#### 3.1.4.4 Logout

This operation causes a **SAML** session to be logged out. This operation consists of the client sending a LogoutRequest message to the server, which replies with a LogoutResponse message.

#### 3.1.4.4.1 Messages

The following table summarizes the set of message definitions that are specific to this operation.

Message	Description	
LogoutRequest	Conveys request parameters for the Logout operation.	
LogoutResponse	Conveys response parameters for the Logout operation.	

#### 3.1.4.4.1.1 LogoutRequest

This message conveys request parameters for the Logout operation.

## 3.1.4.4.1.2 LogoutResponse

This message conveys response parameters for Logout operation.

#### 3.1.4.5 CreateErrorMessage

This operation creates a **SAML** error message, applying a signature, if the configuration for the requested principal specifies that messages are to be signed. This operation consists of the client

sending a CreateErrorMessageRequest message to the server, which replies with a CreateErrorMessageResponse message.

## 3.1.4.5.1 Messages

The following table summarizes the set of message definitions that are specific to this operation.

Message	Description
CreateErrorMessageRequest	Conveys request parameters for the CreateErrorMessage operation.
CreateErrorMessageResponse	Conveys response parameters for the CreateErrorMessage operation.

## 3.1.4.5.1.1 CreateErrorMessageRequest

This message conveys request parameters for the CreateErrorMessage operation.

## 3.1.4.5.1.2 CreateErrorMessageResponse

This message conveys response parameters for the CreateErrorMessage operation.

#### 3.1.4.6 Types Common to Multiple Operations

This section describes types that are common to multiple operations.

## **3.1.4.6.1 Complex Types**

The following table summarizes the XML schema complex type definitions that are common to multiple operations, the schemas for which are defined in section 2.2.4.

Complex type	Description
PrincipalType	Identifies participant in a <b>SAML</b> federation, including its role.
SamlMessageType	Representation of a SAML Protocol message and the binding used to send it.
PostBindingType	Information about a <b>SAML post binding</b> , which consists of its RelayState, if present.
RedirectBindingType	Information about a <b>SAML redirect binding</b> , which consists of its RelayState, if present, and signature information, if present.

#### 3.1.4.6.1.1 PrincipalType

This complex type identifies participant in a **SAML** federation, including its role.

## 3.1.4.6.1.2 SamlMessageType

This complex type specifies the representation of a **SAML** Protocol message and the binding used to send it.

#### 3.1.4.6.1.3 PostBindingType

This complex type specifies information about a **SAML post binding**, which consists of its RelayState, if present.

## 3.1.4.6.1.4 RedirectBindingType

This complex type specifies information about a **SAML redirect binding**, which consists of its RelayState, if present, and signature information, if present.

## **3.1.4.6.2 Simple Types**

The following table summarizes the XML schema simple definitions that are common to multiple operations, the schemas for which are defined in section 2.2.5.

Simple type	Description
LogoutStatusType	Indicates whether logout operation has completed or not, and if completed, whether all session participants were logged out.
PrincipalTypes	Identifies role of participant in <b>SAML</b> federation.

## 3.1.4.6.2.1 LogoutStatusType

This simple type indicates whether logout operation has completed or not, and if completed, whether all session participants were logged out.

## 3.1.4.6.2.2 PrincipalTypes

This simple type identifies the role of the participant in a **SAML** federation.

#### 3.1.4.7 Status Codes for Operations

This section describes both the <Status> element and the different status codes as specified in [SAMLCore2], section 3.2.2.

#### 3.1.4.7.1 Element < Status>

The <Status> element contains the following three elements:

Element	Required/Optional	Description
<statuscode></statuscode>	Required	This element MUST contain a code that represents the status of a request that has been received by the server.
<statusmessage></statusmessage>	Optional	This element MAY contain a message that is to be returned to the operator.
<statusdetail></statusdetail>	Optional	This element MAY contain additional information concerning an error condition.

The following schema fragment defines both the <Status> element and its corresponding **StatusType** complex type:

## 3.1.4.7.2 Element <StatusCode>

The <StatusCode> element contains a code or a set of nested codes that represent the status of the request. Every <StatusCode> element has the following attribute:

Attribute	Required/Optional	Description
Value	Required	The status code value. This value MUST contain a URI reference. The Value attribute of the top-level <statuscode> element MUST be one of the top-level status codes given in this section. Subordinate <statuscode> elements MAY use second-level status code values given in this section.</statuscode></statuscode>

The <StatusCode> element MAY contain subordinate second-level <StatusCode> elements that provide additional information on the error condition.

The permissible top-level status codes are:

Status code	Description
urn:oasis:names:tc:SAML:2.0:status:Success	The request succeeded.
urn:oasis:names:tc:SAML:2.0:status:Requester	The request could not be performed due to an error on the part of the requester.
urn:oasis:names:tc:SAML:2.0:status:Responder	The request could not be performed due to an error on the part of the <b>SAML</b> responder or SAML authority.
urn:oasis:names:tc:SAML:2.0:status:VersionMismatch	The SAML responder could not process the request because the version of the request message was incorrect.

The second-level status codes are:

Status code	Description
urn:oasis:names:tc:SAML:2.0:status:AuthnFailed	The responding provider was unable to successfully authenticate the principal.
urn:oasis:names:tc:SAML:2.0:status:InvalidAttrNameOrValue	Unexpected or invalid content was encountered within a <saml:attribute> or <saml:attributevalue> element.</saml:attributevalue></saml:attribute>
urn:oasis:names:tc:SAML:2.0:status:InvalidNameIDPolicy	The responding provider cannot or will not support the requested name identifier policy.
urn:oasis:names:tc:SAML:2.0:status:NoAuthnContext	The specified authentication context requirements cannot be met by the responder.
urn:oasis:names:tc:SAML:2.0:status:NoAvailableIDP	Used by an intermediary to indicate that none of the supported identity provider <loc> elements in an <idplist> can be resolved or that none of the supported identity providers are available.</idplist></loc>
urn:oasis:names:tc:SAML:2.0:status:NoPassive	Indicates that the responding provider cannot authenticate the principal passively, as has been requested.

Status code	Description
urn:oasis:names:tc:SAML:2.0:status:NoSupportedIDP	Used by an intermediary to indicate that none of the identity providers in an <idplist> are supported by the intermediary.</idplist>
urn:oasis:names:tc:SAML:2.0:status:PartialLogout	Used by a session authority to indicate to a session participant that it was not able to propagate the logout request to all other session participants.
urn:oasis:names:tc:SAML:2.0:status:ProxyCountExceeded	Indicates that a responding provider cannot authenticate the principal directly and is not permitted to proxy the request further.
urn:oasis:names:tc:SAML:2.0:status:RequestDenied	The SAML responder or SAML authority is able to process the request but has chosen not to respond. This status code MAY be used when there is concern about the security context of the request message or the sequence of request messages received from a particular requester.
urn:oasis:names:tc:SAML:2.0:status:RequestUnsupported	The SAML responder or SAML authority does not support the request.
urn:oasis:names:tc:SAML:2.0:status:RequestVersionDeprecated	The SAML responder cannot process any requests with the protocol version specified in the request.
urn:oasis:names:tc:SAML:2.0:status:RequestVersionTooHigh	The SAML responder cannot process the request because the protocol version specified in the request message is a major upgrade from the highest protocol version supported by the responder.
urn:oasis:names:tc:SAML:2.0:status:RequestVersionTooLow	The SAML responder cannot process the request because the protocol version specified in the request message is too low.
urn:oasis:names:tc:SAML:2.0:status:ResourceNotRecognized	The resource value provided in the request message is invalid or unrecognized.
urn:oasis:names:tc:SAML:2.0:status:TooManyResponses	The response message would contain more elements than the SAML responder is able to return.
urn:oasis:names:tc:SAML:2.0:status:UnknownAttrProfile	An entity that has no knowledge of a particular attribute profile has been presented with an attribute drawn from that profile.
urn:oasis:names:tc:SAML:2.0:status:UnknownPrincipal	The responding provider does not recognize the principal specified or implied by the request.
urn:oasis:names:tc:SAML:2.0:status:UnsupportedBinding	The SAML responder cannot properly fulfill the request using the protocol binding specified in the request.

The following schema fragment defines the <StatusCode> element and its corresponding **StatusCodeType** complex type:

<element name="StatusCode" type="samlp:StatusCodeType"/>
<complexType name="StatusCodeType">

## 3.1.4.7.3 Element <StatusMessage>

The <StatusMessage> element specifies a message that MAY be returned to an operator. The following schema fragment defines the <StatusMessage> element:

```
<element name="StatusMessage" type="string"/>
```

## 3.1.4.7.4 Element <StatusDetail>

The <StatusDetail> element MAY be used to specify additional information concerning the status of the request. The additional information consists of zero or more elements from any namespace, with no requirement for a schema to be present or for schema validation of the <StatusDetail> contents.

The following schema fragment defines the <StatusDetail> element and its corresponding **StatusDetailType** complex type:

#### 3.1.5 Timer Events

This protocol does not require timers beyond those that are used by the underlying transport to transmit and receive **SOAP messages**. The protocol does not include provisions for time-based retry for sending protocol messages.

#### 3.1.6 Other Local Events

This protocol does not have dependencies on any transport protocols other than HTTP 1.1 and TCP. This protocol relies on these transport mechanisms for the correct and timely delivery of protocol messages. The protocol does not take action in response to any changes or failure in machine state or network communications.

#### 3.2 Server Details

#### 3.2.1 Abstract Data Model

This port type utilizes the common abstract data model described in section 3.1.1.

#### **3.2.2 Timers**

This port type utilizes the common timers design described in section 3.1.2.

#### 3.2.3 Initialization

This port type utilizes the common initialization design described in section 3.1.3. In addition, an implementation SHOULD publish a **SOAP** endpoint at the port net.tcp://localhost/samlprotocol to be connected to by local clients. Also, an implementation SHOULD publish a SOAP endpoint at the port https://contoso.com/adfs/services/trust/samlprotocol/proxycertificatetransport, where contoso.com represents the server domain name, to be connected to by remote clients. Other port addresses MAY be used by implementations.<2>

#### 3.2.4 Message Processing Events and Sequencing Rules

This port type utilizes the common message processing events and sequencing rules described in section 3.1.4.

#### 3.2.5 Timer Events

This port type utilizes the common timer events design described in section 3.1.5.

#### 3.2.6 Other Local Events

This port type utilizes the common other local events design described in section 3.1.6.

#### 3.3 Client Details

The client side of this protocol is simply a pass-through. That is, no additional timers or other state is required on the client side of this protocol. Calls made by the higher-layer protocol or implementation are passed directly to the transport, and the results returned by the transport are passed directly back to the higher-layer protocol or application.

#### 3.3.1 Abstract Data Model

This port type utilizes the common abstract data model described in section 3.1.1.

#### **3.3.2 Timers**

This port type utilizes the common timers design described in section 3.1.2.

#### 3.3.3 Initialization

This port type utilizes the common initialization design described in section 3.1.3. In addition, an implementation SHOULD connect to a **SOAP** endpoint at the port net.tcp://localhost/samlprotocol for a local connection to the **STS** or it SHOULD connect to a SOAP endpoint at the port https://contoso.com/adfs/services/trust/samlprotocol/proxycertificatetransport, where contoso.com represents the STS domain name for a remote connection. Other port addresses MAY be used by implementations.<3>

## 3.3.4 Message Processing Events and Sequencing Rules

This port type utilizes the common message processing events and sequencing rules described in section 3.1.4.

#### 3.3.5 Timer Events

This port type utilizes the common timer events design described in section 3.1.5.

## 3.3.6 Other Local Events

This port type utilizes the common other local events design described in section 3.1.6.

## 4 Protocol Examples

#### 4.1 Issue Operation Examples

## 4.1.1 IssueRequest Example

This is an example of a message requesting issuance of a **SAML** token.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
     <s:Header>
         <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Proc
essRequest</a:Action>
         <a:MessageID>urn:uuid:cc11441e-1d06-45b5-b0b5-ef73eee87659</a:MessageID>
         <a:ReplyTo>
            <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
         </a:ReplvTo>
         <a:To s:mustUnderstand="1">net.tcp://localhost/samlprotocol</a:To>
      </s:Header>
      <s:Body>
         <msis:IssueRequest
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
            <msis:Message>
               <msis:BaseUri>http://localhost</msis:BaseUri>
<msis:SAMLRequest>PD94bWwqdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0idXRmLTE2Ij8+PHNhbWxwOkF1dGhuUmVxdWV
zdCBJRD0iX2QzYWNjZWI3LWVlZjctNDI5Ny1iMTgyLWE0NmYxYzQ3NWJjMSIgVmVyc2lvbj0iMi4wIiBJc3N1ZUluc3Rh
bnQ9IjIwMDktMTItMThUMDE6MzE6MDYuNDM0WiIqQ29uc2VudD0idXJuOm9hc2lzOm5hbWVzOnRjOlNBTUw6Mi4wOmNvb
nNlbnQ6dW5zcGVjaWZpZWQiIHhtbG5zOnNhbWxwPSJ1cm46b2FzaXM6bmFtZXM6dGM6U0FNTDoyLjA6cHJvdG9jb2wiPj
xJc3N1ZXIgeG1sbnM9InVybjpvYXNpczpuYW1lczp0YzpTQU1MOjIuMDphc3NlcnRpb24iPmh0dHA6Ly9leHRlcm5hbHJ
wL3Njb3BlPC9Jc3N1ZXI+PC9zYW1scDpBdXRoblJlcXVlc3Q+</msis:SAMLRequest>
               <msis:PostBindingInformation></msis:PostBindingInformation>
            </msis:Message>
            <msis:OnBehalfOf>
               <wssc:SecurityContextToken wssu:Id=" 7b5d980c-9309-474e-ace8-23a99bbe261d-</pre>
6C82EA4288DB37210E653FCF8E064B57" xmlns:wssc="http://docs.oasis-open.org/ws-sx/ws-
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```

#### 4.1.2 IssueResponse Example

</s:Envelope>

This is an example of a reply to a request to issue a **SAML** token, which contains the resulting SAML response message.

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RckFKbHBrNnIza0V3RU0xUitlMk12RlZ4NEFTdldlWHRsRlNUdW1UWk1udzRmajhXUFlRdFk1SFZhVXd2dW1DTmRRL2la WmVldux4ajFBcFVMZUswK0lYcTNhUmlTYTJSYzBYQ2IxY3pLeVpXVE5FVmpORytLL2dxWEpSbHlWM1Zpd0JMK0Z5T09Lc 3hwT2JkamhHTHNYaTZqR2RWTytMbTRKS0R2eTQreVRwa3F0K3JwTGd5M1VSSFJ3SERUWVNQc2NraG04TVAvbmswT1ZLK2  $\verb|omnfozXJ1LzNEZ|| \texttt|MyU1A3OV1UblpDdTZ1WkU5RVVRMFR|| \texttt|UG1PdTBDVHo4cVM0VUpCL0tqQWV6Q3ZJQ012dnlOVndSOWh6|| \texttt|omnfoZXJ1LzNEZ|| \texttt|MyU1A3OV1UblpDdTZ1WkU5RVVRMFR|| \texttt|uG1PdTBDVHo4cVM0VUpCL0tqQWV6Q3ZJQ012dnlOVndSOWh6|| \texttt|omnfoZXJ1LzNEZ|| \texttt|omnfoZXZ|| \texttt|o$  $\verb|nAyQ3NpVDgyQnhFTnRyMXA3L1BtNndCQ1FBbWs5RUs0aTdDcFNzdHRu0WpzajJGWmNkd0o1REZIRGQzRWZveGRLMkw0Wkspreadfloors and the statement of the stateme$ 5kdE9pSUpaeEQ5bHVlQytSNHczT2V3b3pQWEVNdlNJenBiRXQyUHNpdnR6VzFFVEYwZU5xcEtlR2FsSEhoUkRML0x6UGp KYzd1S1BmUXZ5bHpOTkszTEt1bm9rMkFTUUZYcVhCUGpWWDNDandOemdOWFdadi9xUC9ue11UakpuUUdJVFdBMitqNG1R VWpCSFAxVFZzK3EvVDUwcCtsQ215Qys4RmllT3Y2R0JNTG1Xd1d3QVFMNHFrV1VuRHU2bnUxSEx1MXZqdXZJcDJwTEtYS VvNnE0dTIzNnBGbE5tN0hzRjB3UHFwL0xtQVNZR1RNUDBkQitYMG1FTytLcWqxQzhqbkxkWWFVMjJrdCtGcStCbFhhSG1 TWpha2kzZkpxUXkxbkVxejBLdHBUWFRaWURjK3I3U1M2TE02K1dXZitpTTR2Qkx1Ly9tejN0SDlhaFpob0s1c0NEdC9uZ GJHSUk4emtYbngvai9aUXdtek9vMndwSFJmbXNYS25UMmNRNHp4dU5lTzVUVVZTTmN1cko5dmhidTR3OTc2b2R4K0JJK2  $1 \\ \\ QZWtzL0hxTmxibXhYYmx2czllcTVXWXVmUmhIVjFpd3NITWNKYThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbEpSemFEYTdlVZWThnZGdjY11WN0NsaGRxUitPeVZsVWFtbPVZsVWTtbPVZsVWFtbPVZsVWFtbPVZsVWFtbPVZsVWWTtbPVZsVWFtbPVZsVWFtbPVZsVWFtbPVZsVWFtbPVZ$ SWX1TbU1wbzZaT3BUeTdhQWVNaWhnNit4VFhMRVBDZHZCQjczeDUrUmJIRUpQbmJocEpXUFFkc21uWk1jYkZjREF5aFhu  $1 \\ E1 \\ eEFsQ1 \\ pCSFJSLytNMWtvNzNNUnExSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZzhrR0k1N3gyQWczZ1hQSzJvRHVVTkdwVEc5c2JZRmV5VGxCTVBuRmtaTGSU8yZrhVBuRmtaTGSU8yZrhVThQTATGSU8yZrhV$  $\tt dLT1BhczZLZGEyUmNWZW02Q0tGeCt3bGU1T1Q5TTQ1d1ZGbzBLVEV3UF16QmdTa24zS2NqN0t5NmRUVGx1aUtjU0QxaCtIndexConstruction and the second contraction of the$  $\verb|Oulze| khhl1YrOVdFMnRVZklqQlJNRy8venV2WT08L3hlbmM6Q2lwaGVyVmFsdWU+PC94ZW5jOkNpcGhlckRhdGE+PC94ZW5jOkNpcGhlchANDAW5jOkNpcGhlchANDAW5jOkNpcGhlchANDAW5jOkNpcGhlchANDAW5jOkNpcGhlchANDAW5jOkNpcGhlchANDAW5jOkNpcGhlchANDAW5jOkNpcGhlchANDAW5jOkNpcGhl$ W5jOkVuY3J5cHR1ZERhdGE+PC9FbmNyeXB0ZWRBc3N1cnRpb24+PC9zYW1scDpSZXNwb25zZT4=</msis:SAMLRespons <msis:PostBindingInformation></msis:PostBindingInformation> </msis:Message> <msis:SessionState></msis:SessionState>

## 4.1.3 IssueResponse Example Using Artifact Binding

This is an example of a reply to a request to issue a **SAML** token, which contains the resulting SAML response message. In this example, the **SAML Artifact Binding** was employed.

## 4.2 CreateErrorMessage Operation Examples

#### 4.2.1 CreateErrorMessageRequest Example

This is an example of a message that requests creation of a **SAML** error message.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"</pre>
xmlns:a="http://www.w3.org/2005/08/addressing">
        <s:Header>
             <a:Action
\verb|s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Processing to the control of the 
essRequest</a:Action>
            <a:MessageID>urn:uuid:678452fe-e24d-439e-8543-e2e72f936930</a:MessageID>
            <a:ReplyTo>
                <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
            </a:ReplyTo>
            <a:To s:mustUnderstand="1">net.tcp://localhost/samlprotocol</a:To>
        </s:Header>
            <msis:CreateErrorMessageRequest</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
                <msis:Message>
                     <msis:BaseUri>http://localhost</msis:BaseUri>
<msis:SAMLRequest>PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0idXRmLTE2Ij8+PHNhbWxwOkF1dGhuUmVxdWV
zdCBJRD0iXzIwN2U2YTdhLTA1YTqtNGMzOS1iMTE0LTqyYzc5ZTk1Y2NmOCIqVmVyc2lvbj0iMi4wIiBJc3N1ZUluc3Rh
nNlbnQ6dW5zcGVjaWZpZWQiIFByb3RvY29sQmluZGluZz0idXJuOm9hc2lzOm5hbWVzOnRjOlNBTUw6Mi4wOmJpbmRpbm
dzOkhUVFAtUmVkaXJlY3QiIHhtbG5zOnNhbWxwPSJ1cm46b2FzaXM6bmFtZXM6dGM6U0FNTDoyLjA6cHJvdG9jb2wiPjx
Jc3N1ZXIgeG1sbnM9InVybjpvYXNpczpuYW11czp0YzpTQU1M0jIuMDphc3NlcnRpb24iPmh0dHA6Ly9leHRlcm5hbHJw
L3Njb3BlPC9Jc3N1ZXI+PC9zYW1scDpBdXRoblJlcXVlc3Q+</msis:SAMLRequest>
                     <msis:PostBindingInformation></msis:PostBindingInformation>
                </msis:Message>
                <samlp:Status xmlns:samlp="urn:oasis:names:tc:SAML:2.0:protocol">
                    <samlp:StatusCode Value="urn:oasis:names:tc:SAML:2.0:status:Responder">
                        <samlp:StatusCode</pre>
Value="urn:oasis:names:tc:SAML:2.0:status:NoAuthnContext"></samlp:StatusCode>
                    </samlp:StatusCode>
                </samlp:Status>
            </msis:CreateErrorMessageRequest>
        </s:Body>
    </s:Envelope>
```

#### 4.2.2 CreateErrorMessageResponse Example

This is an example of a reply to a message requesting creation of a **SAML** error message, which contains the created SAML error message.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
         <s:Header>
             <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Proc
essRequestResponse</a:Action>
              <a:RelatesTo>urn:uuid:678452fe-e24d-439e-8543-e2e72f936930</a:RelatesTo>
              <a:To s:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</a:To>
         </s:Header>
         <s:Body>
             <msis:CreateErrorMessageResponse</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
                 <msis:Message>
                      <msis:BaseUri>https://externalrp/</msis:BaseUri>
<msis:SAMLResponse>7b0HYBxJliUmL23Ke39K9UrX4HShCIBqEyTYkEAQ7MGIzeaS7B1pRyMpqyqBymVWZV1mFkDM7Z
28995777333 nvvv fe 60510 J/ff/z 9c ZmQBbPbOStrJniGAqqqfP358 Hz8iHjfZolw9epU3q2rZ5OnZ088 ++ v2zLL +/ vzOlymbol vz fermion for the contraction of the contraction of
5tz3Zy/e29/PJ/e1sZ7q7ne8/yPbuP9q9mB3MPkp/Mq+bolp+9tHeeOej9Kxp1vnZsmmzZUsf7ew83N7d2949eLOz++je
7qPd3fHDvb2f+ih9mjdtscxafnPetqvm0d27+bs2r5dZWa/ufpSeABEAWdfLR1XWFM2jZbbIm0ft9NHr4y+eP6L+Hk210
aP1slnl0+K8yAmjs6UZx5uKhrG38yD/NHuQbe/czw6296f3Hm5Pdnf3tw/2pg8e5g/vT6fnBx+17xblsnnEZNjc5aqu2m
palR8dPebB1vLq5peypslrDPajIwyWxlpW06ycV0179/FdgX0kk/C6zdp1E/51Us3y9Cezcp1v7qfh1jqPs7z+6IPAvKi
O1+18STPROtR8lN49eny3C67zkf3TTMHR/wM=</msis:SAMLResponse>
                      <msis:RedirectBindingInformation>
<msis:Signature>R1FtupsaiITbNa5wL4+mOnuFpRBYs5kq/ni5ycqNprqpol0c5+RUOA5/8RKmRY787oB817FfFJOYw
3FkI1hWaYPqc1b1HFp7AcuJFPmWVT2bGXbdRV6sCFV0g5X01PsYG+a/9EZdiYUaMCRUvOds0s5SdtmL95FCQpLxkG5PEk
w=</msis:Signature>
                          <msis:SigAlg>http://www.w3.org/2001/04/xmldsig-more#rsa-sha256</msis:SigAlg>
                      </msis:RedirectBindingInformation>
                 </msis:Message>
             </msis:CreateErrorMessageResponse>
         </s:Body>
    </s:Envelope>
```

#### 4.3 SignMessage Operation Examples

#### 4.3.1 SignMessageRequest Example

This is an example of a message that requests that a **SAML Message** signature be applied to a SAML Message.

## 4.3.2 SignMessageResponse Example

</s:Body> </s:Envelope>

This is an example of a reply to a request to create a signed **SAML Message**, which contains the resulting SAML Message.

<msis:SAMLRequest>PHNhbWxwOkF1dGhuUmVxdWVzdCBJRD0iXzA4MTZjZjJiLTq2YzUtNDU2Ny04MGVlLTFkZjVmYjV jZmYzYiIgVmVyc2lvbj0iMi4wIiBJc3N1ZUluc3RhbnQ9IjIwMDktMTItMThUMDE6MzE6MTMuNTcyWiIgRGVzdGluYXRp b249Imh0dHBzOi8vbG9jYWxob3N0OjQzNDMvbnVuaXQvRmVkZXJhdGlvblBhc3NpdmUvIiBDb25zZW50PSJ1cm46b2Fza XM6bmFtZXM6dGM6U0FNTDoyLjA6Y29uc2VudDp1bnNwZWNpZml1ZCIgeG1sbnM6c2FtbHA9InVybjpvYXNpczpuYW11cz p0YzpTQU1MOjIuMDpwcm90b2NvbCI+PElzc3VlciB4bWxucz0idXJucm9hc2lzOm5hbWVzOnRjOlNBTUw6Mi4wOmFzc2V y d GlvbiI+a HR0c DovL2xvY2Fs a G9zdC88L01zc3Vlcj48ZHM6U2lnbmF0dXJlIHhtbG5zOmRzPSJodHRw0i8vd3d3LnczAlgerian Structure and StruLm9yZy8yMDAwLzA5L3htbGRzaWcjIj48ZHM6U2lnbmVkSW5mbz48ZHM6Q2Fub25pY2FsaXphdGlvbk1ldGhvZCBBbGdvc ml0aG09Tmh0dHA6Ly93d3cudzMub3JnLzIwMDEvMTAveG1sLWV4Yy1jMTRuIyIgLz48ZHM6U2lnbmF0dXJlTWV0aG9kIE FsZ29yaXRobT0iaHR0cDovL3d3dy53My5vcmcvMjAwMS8wNC94bWxkc2lnLW1vcmUjcnNhLXNoYTI1NiIgLz48ZHM6UmV  $\verb|mZXJ| bmN1 IFVSST0iI18 wODE2Y2YyYi04NmM1 LTQ1NjctODB1ZS0xZGY1ZmI1Y2ZmM2IiPjxkczpUcmFuc2Zvcm1zPjxk|$ czpUcmFuc2Zvcm0gQWxnb3JpdGhtPSJodHRwOi8vd3d3LnczLm9yZy8yMDAwLzA5L3htbGRzaWcjZW52ZWxvcGVkLXNpZ 25hdHVvZSIgLz48ZHM6VHJhbnNmb3JtIEFsZ29vaXRobT0iaHR0cDovL3d3dv53Mv5vcmcvMjAwMS8xMC94bWwtZXhjLW MxNG4jIiAvPjwvZHM6VHJhbnNmb3Jtcz48ZHM6RGlnZXN0TWV0aG9kIEFsZ29yaXRobT0iaHR0cDovL3d3dy53My5vcmc vMjAwMS8wNC94bWx1bmMjc2hhMjU2IiAvPjxkczpEaWdlc3RWYWx1ZT5FMUtyd25Ia0NYV2dKY1ZmTDEwM2JaUk5jWDlG WduYXR1cmVWYWx1ZT5Kb2wvUDh4b1ZjZTZNdm1QbDVzTEg0TmZuZU5nNENwZHZWM1RMdGpTQXVqUW9PRzFPVU5KYnEvK3 oVHpaaGFENjJGVVRvUzFZSVNlM3ZwSEZmWUpLamZuYzZyUmp5Ti9tZklNRmc9PC9kczpTaWduYXR1cmVWYWx1ZT48S2V5 2 VydGlmaWNhdGU+TUlJQjlqQ0NBVitnQXdJQkFnSVFSSktCZkloeFNhaENCQkJXaGwvQTBEQU5CZ2txaGtpRzl3MEJBUV ${\tt R0JBTGpJUnpQV0hSVWlvSTVqZ3F2QlBuWnRDeW5ERFA10WxtY2k5bzdDeCsraVRZcTBPOE1CVzRmNWNLdFIvZ2hXYmVabulkfivZhXYmVabul$ 1VVRG5yV1JZeFpRTWdyZmJzbmw2c3Zqd0pCQjBRUzVjU0VvSzdPVWo3eGlGcnZEU1ZEe1lyeEJ3ZVR6N1JHU01mWEIzcF Nna0JIcUp0K1BuMGF3UHBENU11RXNMU1JuclpVWHIyUm16QWdNQkFBR2pTVEJITUVVR0ExVWRBUVErTUR5QUVLa216aHQ 4TEY2TG1ta3dld31Xd1RxaEZgOVVNUkl3RUFZRFZRUURFd2xzYiJOaGJHaHZiM1NDRUVTU2dYekliVW1yUWdRUVZvWmZ3  $\label{thm:continuity:continuit$   $\label{local_equal_equal} E42Z2t6Ti94VU9weFVlRjV5cXRPOU91dFZFdUV3ZnNqV3hweXFlVUJPT114VUZ0MFFKWW9Wc3J4MDgyV0ROS2luSGJVeV \\ h2RUovOURvYit0K2lTUGp1N2VtUkphVEtubnZtaEdQeXRadTVzazlyVDdPMTBISlNCQkZISTJGZmRBPTwvZHM6WDUw0UN \\ lcnRpZmljYXRlPjwvZHM6WDUw0URhdGE+PC9LZXlJbmZvPjwvZHM6U2lnbmF0dXJlPjwvc2FtbHA6QXV0aG5SZXF1ZXN0 \\ Pg==</msis:SAMLRequest>$ 

#### 4.4 VerifyMessage Operation Examples

## 4.4.1 VerifyMessageRequest Example

This is an example of a message that requests verification that a **SAML Message** is from a known party and signed according to the configuration for that party.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
    <s:Header>
      <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Proc
essRequest</a:Action>
      <a:MessageID>urn:uuid:05fbb0db-e105-448b-b127-1bf689738d75</a:MessageID>
      <a:ReplyTo>
        <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
      </a:ReplvTo>
      <a:To s:mustUnderstand="1">net.tcp://localhost/samlprotocol</a:To>
    </s:Header>
    <s:Body>
      <msis:VerifyMessageRequest</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
        <msis:ActivityId>00000000-0000-0000-0000-000000000000/msis:ActivityId>
        <msis:Message>
          <msis:BaseUri>http://contoso.com/</msis:BaseUri>
```

<msis:SAMLRequest>PHNhbWxwOkFldGhuUmVxdWVzdCBJRD0iXzA4MTZjZjJiLTg2YzUtNDU2Ny04MGVlLTFkZjVmYjV jZmYzYiIgVmVyc2lvbj0iMi4wIiBJc3N1ZUluc3RhbnQ9IjIwMDktMTItMThUMDE6MzE6MTMuNTcyWiIgRGVzdGluYXRp b249Imh0dHBzOi8vbG9jYWxob3N0OjQzNDMvbnVuaXQvRmVkZXJhdGlvblBhc3NpdmUvIiBDb25zZW50PSJ1cm46b2Fza XM6bmFtZXM6dGM6U0FNTDoyLjA6Y29uc2VudDp1bnNwZWNpZml1ZCIqeG1sbnM6c2FtbHA9InVybjpvYXNpczpuYW11cz p0YzpTQU1MOjIuMDpwcm90b2NvbCI+PElzc3VlciB4bWxucz0idXJuOm9hc2lzOm5hbWVzOnRjOlNBTUw6Mi4wOmFzc2V ydGlvbiI+aHR0cDovL2xvY2FsaG9zdC88L0lzc3Vlcj48ZHM6U2lnbmF0dXJ1IHhtbG5zOmRzPSJodHRw0i8vd3d3Lncz Lm9yZy8yMDAwLzA5L3htbGRzaWcjIj48ZHM6U21nbmVkSW5mbz48ZHM6Q2Fub25pY2FsaXphdGlvbk1ldGhvZCBBbGdvcBruckSW5mbz48ZHM6Q2Fub25pY2FsaXphdGlvbk1ldGhvZCBBbddvcBruckSW5mbz48ZHM6Q2Fub25pY2FsaXphdGlvbk1ldGhvZCBBbddvcBruckSW5mbz48ZHM6Q2Fub25pY2FsaXphdGlvbk1ldGhvZCBBbddvcBruckSW5mbz48ZHM6Q2Fub25pY2FsaXphdGlvbk1ldGhvCBruckSW5mbz48ZHM6Q2Fub25pY2FsaXphdGlvbk1ldGhvCBruckSW5mbz48ZHM6Q2Fbub25pY2FsaXphdGlvbk1ldGhvCBruckSW5mbz48ZHM6Q2Fbub25pY2FsaXphdGlvbk1ldGhvCBruckSW5mbz48ZHM6Q2Fbub25pY2FsaXphdGlvbk1ldGhvcBruckSW5mbz48ZHM6Q2Fbub25pY2FsaXphdGlvbbhbqbby8ABbdby8ABbdby8ABbdby8ABbdby8ABbdby8ABbdby8ABbdy8ABml0aG09Imh0dHA6Ly93d3cudzMub3JnLzIwMDEvMTAveG1sLWV4Yy1jMTRuIyIgLz48ZHM6U2lnbmF0dXJlTWV0aG9kIE FsZ29yaXRobT0iaHR0cDovL3d3dy53My5vcmcvMjAwMS8wNC94bWxkc21nLW1vcmUjcnNhLXNoYTI1NiIqLz48ZHM6UmV mZXJlbmNlIFVSST0iI18wODE2Y2YyYi04NmM1LTQ1NjctODB1ZS0xZGY1ZmI1Y2ZmM2IiPjxkczpUcmFuc2Zvcm1zPjxk czpUcmFuc2Zvcm0qQWxnb3JpdGhtPSJodHRwOi8vd3d3LnczLm9yZy8yMDAwLzA5L3htbGRzaWcjZW52ZWxvcGVkLXNpZ MxNG4jIiAvPjwvZHM6VHJhbnNmb3Jtcz48ZHM6RGlnZXN0TWV0aG9kIEFsZ29yaXRobT0iaHR0cDovL3d3dy53My5vcmc vMjAwMS8wNC94bWxlbmMjc2hhMjU2IiAvPjxkczpEaWdlc3RWYWx1ZT5FMUtyd25Ia0NYV2dKY1ZmTDEwM2JaUk5jWDlG WduYXR1cmVWYWx1ZT5Kb2wvUDh4b1ZjZTZNdm1QbDVzTEq0TmZuZU5nNENwZHZWM1RMdGpTQXVqUW9PRzFPVU5KYnEvK3 F1bWFpSUp4Q1VLSGEvK0xqWXRVUF1JRnYyc3RRQnVlVnlMbjF1Q1FQSW54S2JYZH1scndLZ0tFZDF2VnNLT3pHa1JNYW5 oVHpaaGFENjJGVVRvUzFZSVNlM3ZwSEZmWUpLamZuYzZyUmp5Ti9tZklNRmc9PC9kczpTaWduYXR1cmVWYWx1ZT48S2V5 SW5mbyB4bWxucz0iaHR0cDovL3d3dy53My5vcmcvMjAwMC8wOS94bWxkc2lnIyI+PGRzOlq1MDlEYXRhPjxkczpYNTA5Q 2VydGlmaWNhdGU+TUlJQjlqQ0NBVitnQXdJQkFnSVFSSktCZkloeFNhaENCQkJXaGwvQTBEQU5CZ2txaGtpRzl3MEJBUV  ${\tt PVFU1V2pBVU1SSXdFQV1EV1FRREV3bHNiMk5oYkdodmMzUXdnWjh3RFFZSktvWklodmNOQVFFQkJRQURnWTBBTU1HSkFv}$  ${\tt ROJBTGpJUnpQV0hSVWlvSTVqZ3F2Q1BuWnRDeW5ERFA10WxtY2k5bzdDeCsraVRZcTBP0E1CVzRmNWNLdFIvZ2hXYmVabsumberverselbergerbergerselbergerselbergerselbergerselbergerselbergerselberg$ Nna0JIcUp0K1BuMGF3UHBENU11RXNMU1JuclpVWHIyUm16QWdNQkFBR2pTVEJITUVVR0ExVWRBUVErTUR5QUVLa216aHQ  $4\texttt{TEY2TG1} \\ \texttt{ta3d1d31} \\ \texttt{Xd1RxaEZqQVVNUk13RUFZRFZRUURFd2xzYjJOaGJHaHZjM1NDRUVTU2dYekljVW1vUWdRUVZvWmZ3} \\ \texttt{Yd1} \\ \texttt{Yd2} \\ \texttt{Yd3} \\ \texttt{Yd3}$ TkF3RFFZSktvWklodmNOQVFFRUJRQURnWUVBUFQ1eEE0dzhQdE51bC9ma2qvWDNWT3dGVk1ZQVBiSk1WZ0NsNX1MZ1exT  ${\tt E42Z2t6Ti94VU9weFV1RjV5cXRPOU91dFZFdUV3ZnNqV3hweXF1VUJPT114VUZ0MFFKWW9Wc3J4MDgyV0ROS2luSGJVeVARDQV0ROS2huSQV0ROS2huSQV0RO$ h2RUovOURvYit0K2lTUGp1N2VtUkphVEtubnZtaEdQeXRadTVzazlyVDdPMTBISlNCQkZISTJGZmRBPTwvZHM6WDUwOUN

#### 4.4.2 VerifyMessageResponse Example

This is an example of a reply to a request to verify that a **SAML Message** is from a known party and signed according to the configuration for that party, containing the verification response.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
    <s:Header>
      <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Proc
essRequestResponse</a:Action>
      <a:RelatesTo>urn:uuid:05fbb0db-e105-448b-b127-1bf689738d75</a:RelatesTo>
      <a:To s:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</a:To>
    </s:Header>
    <s:Body>
     <msis:VerifyMessageResponse</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
        <msis:IsVerified>true</msis:IsVerified>
      </msis:VerifyMessageResponse>
    </s:Body>
  </s:Envelope>
```

## 4.4.3 VerifyMessageResponse Example Using Redirect Binding

This is an example of a reply to a request to verify that a **SAML Message** is from a known party and signed according to the configuration for that party, containing the verification response. In this example, the **SAML redirect binding** was employed.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
     <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Proc
essRequest</a:Action>
     <a:MessageID>urn:uuid:9525a87c-7b8b-474b-9840-eb3f202ab467</a:MessageID>
     <a:ReplvTo>
       <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
     </a:ReplvTo>
     <a:To s:mustUnderstand="1">net.tcp://localhost/samlprotocol</a:To>
   </s:Header>
   <s:Bodv>
     <msis:VerifyMessageRequest</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
       <msis:BaseUri>http://contoso.com/</msis:BaseUri>
<msis:SAMLRequest>7b0HYBxJliUmL23Ke39K9UrX4HShCIBqEyTYkEAQ7MGIzeaS7B1pRyMpqyqBymVWZV1mFkDM7Z2
8995777333nvvvfe60510J/ff/z9cZmQBbPbOStrJniGAqsgfP358Hz8iHjfZolw901638+Wr/Bet86ZNz55+9tHvv3Ow
++n0fG+yffDp9P72/v1PH2wf7OT59u7s/P755P70/Pze5KP0J/O6KarlZx/tjXc+Ss+aZp2fLZs2W7b00c7Ow+3dve3dq
J0sK6Xj6qsKZpHy2yRN4/a6aPXx188f0S4PJpKo0frZbPKp8V5kc8+St8tymXziEe8+e1VXbXVtCo/OnrMY6rl1c0vEYJ
5DVQ/OsKY/CHdfXxX4Bw9vtsn+NH/Aw==</msis:SAMLRequest>
```

#### 4.5 Logout Operations Examples

## 4.5.1 LogoutRequest Example

This is an example of a message requesting that a **SAML** logout be performed.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
    <s:Header>
     <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Proc
essRequest</a:Action>
     <a:MessageID>urn:uuid:17817720-c31e-48e8-8904-067aac199c8d</a:MessageID>
       <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
     </a:ReplvTo>
     <a:To s:mustUnderstand="1">net.tcp://localhost/samlprotocol</a:To>
    </s:Header>
    <s:Body>
     <msis:LogoutRequest</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
       <msis:Message>
         <msis:BaseUri>https://localhost:4343/nunit/FederationPassive</msis:BaseUri>
```

<msis:SAMLRequest>PHNhbWxwOkxvZ291dFJlcXVlc3QqSUQ9Il84N2YyMmUyNi1mMTcwLTQ4ZDQtODEwMS11N2RhODY xNWJlOWUiIFZlcnNpb249IjIuMCIgSXNzdWVJbnN0YW50PSIyMDA5LTEyLTE4VDAxOjMxOjIyLjc0NVoiIERlc3RpbmF0 aW9uPSJodHRwczovL2xvY2FsaG9zdDo0MzQzL251bml0L0Z1ZGVyYXRpb25QYXNzaXZ1IiBDb25zZW50PSJ1cm46b2Fza XM6bmFtZXM6dGM6U0FNTDoyLjA6Y29uc2VudDp1bnNwZWNpZml1ZCIqTm90T25PckFmdGVyPSIyMDA5LTEyLTE4VDAxOj M2OjIyLjc0NVoiIHhtbG5zOnNhbWxwPSJ1cm46b2FzaXM6bmFtZXM6dGM6U0FNTDoyLjA6cHJvdG9jb2wiPjxJc3N1ZXI qeG1sbnM9InVybjpvYXNpczpuYW1lczp0YzpTQU1M0jIuMDphc3NlcnRpb24iPmh0dHA6Ly9sb2NhbGhvc3QvPC9Jc3N1 ZXI+PGRzOlNpZ25hdHVyZSB4bWxuczpkcz0iaHR0cDovL3d3dy53My5vcmcvMjAwMC8wOS94bWxkc2lnIyI+PGRzOlNpZ 251ZEluZm8+PGRzOkNhbm9uaWNhbG16YXRpb25NZXRob2QqQWxnb3JpdGhtPSJodHRwOi8vd3d3LnczLm9yZy8yMDAxLz EwL3htbC1leGMtYzE0biMiIC8+PGRzOlNpZ25hdHVyZU1ldGhvZCBBbGdvcml0aG09Imh0dHA6Ly93d3cudzMub3JnLzI wMDEvMDQveG1sZHNpZy1tb3JlI3JzYS1zaGEyNTYiIC8+PGRzOlJlZmVyZW5jZSBVUkk9IiNfODdmMjJlMjYtZjE3MC00 OGQOLTgxMDEtZTdkYTg2MTViZTllIj48ZHM6VHJhbnNmb3Jtcz48ZHM6VHJhbnNmb3JttEFsZ29yaXRobT0iaHR0cDoVL 3d3dy53My5vcmcvMjAwMC8wOS94bWxkc2lnI2VudmVsb3BlZC1zaWduYXR1cmUiIC8+PGRzOlRyYW5zZm9ybSBBbGdvcm  $10 \\ a \\ G09 \\ Imh0 \\ dHA6 \\ Ly93 \\ d3 \\ cudz \\ Mub3 \\ Jn \\ Lz \\ IwM \\ DEvMTA \\ veG1 \\ sLWV4 \\ Yy1 \\ jMTRuIyIg \\ Lz48 \\ L2Rz \\ o1RyYW5 \\ zZm9ybXM \\ +PGRz \\ OkRyMS \\ variable \\ variable$ pZ2VzdE1ldGhvZCBBbGdvcml0aG09Imh0dHA6Ly93d3cudzMub3JnLzIwMDEvMDQveG1sZW5jI3NoYTI1NiIgLz48ZHM6 RGlnZXNOVmFsdWU+R1pzcGVKUkVnV2c2Q09PdG4rZnR4S1RPejqzTy9HUTB0VC9jYkJ2cmNWND08L2RzOkRpZ2VzdFZhb  $\label{lower} {\tt HV1PjwvZHM6UmVmZXJlbmN1PjwvZHM6U21nbmVkSW5mbz48ZHM6U21nbmF0dXJ1VmFsdWU+bEt5ME9QKzc0KzE1bG1RdE}$ VBOSsxUzRSMjJ3dG9HYW5wN1q4bGhDQUlxeStUbTZoREIrdC9pQUlmdi9hM3c2dUR3eXVYV1liemV0TW5qUmJFQVdZemF  ${\tt GZXRwZ3NwSFBYaktFWVUxbDJia01WekZiVEVVQjEwRmFNTkdTVjdqRGtsZWtLb21ReGR5Q3FuSFMxcG8rcjEye1RDV3hM}$  ${\tt T0NJK3pZbk1pMUp6WXk0PTwvZHM6U21nbmF0dXJ1VmFsdWU+PEtleUluZm8geG1sbnM9Imh0dHA6Ly93d3cudzMub3JnLabeledericht$ zIwMDAvMDkveG1sZHNpZyMiPjxkczpYNTA5RGF0YT48ZHM6WDUwOUNlcnRpZmljYXR1Pk1JSUI5akNDQVYrZ0F3SUJBZ0  $1 \\ RUkpLQmZNaHhTYWhDQkJCV2hsL0EwREFOQmdrcWhraUc5dzBCQVFRRkFEQVVNUkl3RUFZRFZRUURFd2xzYjJ0aGJHaHZUrfd2xzYjJ0aGZUrfd2xzYj0aGZUrfd2xzYj0aGZUrfd2xzYj0aGZUrfd2xzYj0aGZUrfd2xzYj0aGZUrfd2xzYy0AZUrfd2xzYy0AZUrfd2xzYy0AZUrfd2xzYy0AZUrfd2xzYy0AZU$ jM1F3SGhjTk1EWXdNVEExTWpJME5ERTBXaGNOTXpreE1qTXhNak0xT1RVNVdqQVVNUk13RUFZRFZRUURFd2xzYjJOaGJH aHZjM1F3Z1o4d0RRWUpLb1pJaHZjTkFRRUJCUUFEZ1kwQU1JR0pBb0dCQUxqSVJ6UFdIU1Vpb0k1amdxdkJQb1p0Q31uRERQNT1sbWNpOW83Q3qrK21UWXEwTzhNQ1c0ZjVjS3RSL2doV2JlWm9VVURuc1ZSWXhaUU1ncmZic25sNnN2andKQkIwUV M1Y1NFb0s3T1VqN3hpRnJ2RFNWRHpZcnhCd2VUejZSR1NNZlhCM3BTZ2tCSHFKdCtQbjBhd1BwRDVNdUVzTFJSbnJaVVh  $\label{thm:control} y MlJpekfntuJBQUdqU1RCSE1FVUdBMVVkQVFRK01EeUFFS2tpemh00ExGNkxtbWt3ZXd5V3dUcWhGakFVTVJJd0VBWURW UVFERXdsc2IyTmhiR2h2YzNtQ0VFU1NnWHpJY1Vtb1FnUVFWb1pmd05Bd0RRWUpLb1pJaHZjTkFRRUVCUUFEZ11FQVBUN XhBNHc4UHROSGwvZmtoL1gzVk93R1ZNWUFQYkpNVmdDbDV5TGZRMUxONmdrek4veFVPcHhVZUY1eXF0Tz1PdXRWRXVFd2 Zzald4cHlxZVVCT09ZeFVGdDBRS11vVnNyeDA4MldETktpbkhiVX1YdkVKLz1Eb2IrdCtpU1BqdTdlbVJKYVRLbm52bWh HUH10WnU1c2s5c1Q3TzEwSEpTQkJGSEkyRmZkQT08L2Rz0lg1MDlDZXJ0aWZpY2F0ZT48L2Rz0lg1MDlEYXRhPjwvS2V5 SW5mbz48L2Rz01NpZ25hdHVyZT48TmFtZU1EIHhtbG5zPSJ1cm46b2FzaXM6bmFtZXM6dGM6U0FNTDoyLjA6YXNzZXJ0a W9uIj5iYXI8L05hbWVJRD48c2FtbHA6U2Vzc2lvbkluZGV4PjAwMDwvc2FtbHA6U2Vzc2lvbkluZGV4Pjwvc2FtbHA6TG 9nb3V0UmVxdWVzdD4=$ 

#### 4.5.2 LogoutResponse Example

This is an example of a reply to a request that a **SAML** logout be performed, which contains the updated SessionState and LogoutState values.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
    <s:Header>
      <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Proc
essRequestResponse</a:Action>
      <a:RelatesTo>urn:uuid:17817720-c31e-48e8-8904-067aac199c8d</a:RelatesTo>
      <a:To s:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</a:To>
    </s:Header>
    <s:Body>
      <msis:LogoutResponse</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
        <msis:LogoutStatus>InProgress</msis:LogoutStatus>
        <msis:Message>
         <msis:BaseUri>https://localhost:4343/SLO/RedirectResponse</msis:BaseUri>
<msis:SAMLResponse>7b0HYBxJliUmL23Ke39K9UrX4HShCIBgEyTYkEAQ7MGIzeaS7BlpRyMpqyqBymVWZV1mFkDM7Z
28995777333nvvvfe60510J/ff/z9cZmQBbPbOStrJniGAqsqfP358Hz8iHjfZolw9el5dVOv2Vd6sqmWTp2dPP/vo958
9zD69n+/vbM8e7j3Y3t+/v7N9cJDvbO/s3N+f3D+/n+2cTz5KfzKvm6JafvbR3njno/Ssadb52bJps2VLH+3sPNze3dve
PXizs/vo3u6jvb3xg4cPfuqj9GnetMUya/nNeduumkd375bVNCvnVdM+2r+3f+/u6+df3n2Vz4o6n1rMPkpP8APA1/XyU
ZU1RfNomS3y51E7ffT6+IvnjwiPR1Np9Gi9bFb5tDqv8hnhtjRQ3lQ0vIMH53t7+d6n2+e7D3a29w9m+9sHuzu72/mDWX
bw6e79Sf6Qunu3KJfNIybS5i5XddVW06r86OgxE6GWVze/lDVNXoMIHx2BCD4N7j6+K3COdIpet1m7bsK/TqpZnv5kVq7
zzf003PrRq/wXrYnwef1Revfo8d0Qrv4ZcsLR/wM=</msis:SAMLResponse>
          <msis:RedirectBindingInformation>
<msis:Signature>AIN+zc9ODY7YZ65zRXz0ob4RMuE1AGEPuok37NCdWvubEJ4E3awvi8Ieu+v+LsDhBd+zXZmjb7NDU
XUcoTzqloFNoWhlbq34OrMitR4FbGDQMpwBy1Vlmy2MXN7nZvAD+2en+Pd+bkk4P0KMH7PPCQsboj63CyzRfGnV+R81Mf
Y=</msis:Signature>
            <msis:SigAlg>http://www.w3.org/2001/04/xmldsig-more#rsa-sha256</msis:SigAlg>
          </msis:RedirectBindingInformation>
        </msis:Message>
        <msis:SessionState>http%3a%2f%2flocalhost%2f&True&aaa&&&&&&111</msis:SessionState>
<msis:LogoutState>http%3a%2f%2fexternalrp%2fscope? ID??http%3a%2f%2fexternalrp%2fscope&False&
foo&&&@?ID?</msis:LogoutState>
     </msis:LogoutResponse>
    </s:Body>
  </s:Envelope>
```

#### 4.5.3 LogoutRequest Example - Locally Initiated

This is an example of a message requesting that a **SAML** logout be performed. In this example, the request is being sent to the endpoint on the local host.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
   <s:Header>
     <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Proc
essRequest</a:Action>
     <a:MessageID>urn:uuid:1fec3465-1008-490d-aeb2-da9b4df4a3d2</a:MessageID>
     <a:ReplyTo>
       <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
     <a:To s:mustUnderstand="1">net.tcp://localhost/samlprotocol</a:To>
    </s:Header>
    <s:Body>
     <msis:LogoutRequest</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
       <msis:SessionState></msis:SessionState>
       <msis:LogoutState></msis:LogoutState>
     </msis:LogoutRequest>
   </s:Body>
  </s:Envelope>
```

#### 4.5.4 LogoutResponse Example: Final Response to Locally Initiated Request

This is an example of a reply to a request that a **SAML** logout be performed, which contains the updated SessionState and LogoutState values. In this example, the final response to a locally initiated logout request is shown.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
                      <a:Action
s: \verb|mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlp
essRequestResponse</a:Action>
                        <a:RelatesTo>urn:uuid:1fec3465-1008-490d-aeb2-da9b4df4a3d2</a:RelatesTo>
                       <a:To s:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</a:To>
                </s:Header>
                <s:Bodv>
                      <msis:LogoutResponse
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
                               <msis:LogoutStatus>LogoutSuccess/msis:LogoutStatus>
                               <msis:SessionState></msis:SessionState>
                               <msis:LogoutState></msis:LogoutState>
                      </msis:LogoutResponse>
                </s:Body>
        </s:Envelope>
```

#### 4.5.5 LogoutRequest Example with SAMLResponse and RelayState

This is an example of a message requesting that a **SAML** logout be performed. In this example, the request contains both a SAMLResponse and RelayState.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
```

```
<s:Header>
                        <a:Action
\verb|s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlprotocol/Procom/samlpr
essRequest</a:Action>
                        <a:MessageID>urn:uuid:9aaa9e19-93b7-46e5-afb8-24804341d435</a:MessageID>
                        <a:ReplvTo>
                               <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
                       </a:ReplyTo>
                        <a:To s:mustUnderstand="1">net.tcp://localhost/samlprotocol</a:To>
                </s:Header>
               <s:Body>
                        <msis:LogoutReguest</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
                               <msis:Message>
                                       <msis:BaseUri>https://localhost:4343/nunit/FederationPassive</msis:BaseUri>
```

<msis:SAMLResponse>PHNhbWxwOkxvZ291dFJlc3BvbnNlIElEPSJfNTNiMzFkNzEtODUxNS00NjZmLThlZTAtMTY1NT llYjBjMjllIiBWZXJzaW9uPSIyLjAiIElzc3VlSW5zdGFudD0iMjAwOS0xMi0xOFQwMTozMToyMy4yNzZaIiBEZXN0aW5 hdGlvbj0iaHR0cHM6Ly9sb2NhbGhvc3Q6NDM0My9udW5pdC9GZWRlcmF0aW9uUGFzc212ZSIgQ29uc2VudD0idXJu0m9h WxuczpzYW1scD0idXJuOm9hc21zOm5hbWVzOnRjOlNBTUw6Mi4wOnByb3RvY29sIj48SXNzdWVyIHhtbG5zPSJ1cm46b2 FzaXM6bmFtZXM6dGM6U0FNTDoyLjA6YXNzZXJ0aW9uIj5odHRwOi8vbG9jYWxob3N0LzwvSXNzdWVyPjxkczpTaWduYXR 1cmUgeG1sbnM6ZHM9Imh0dHA6Ly93d3cudzMub3JnLzIwMDAvMDkveG1sZHNpZyMiPjxkczpTaWduZWRJbmZvPjxkczpD YW5vbmljYWxpemF0aW9uTWV0aG9kIEFsZ29yaXRobT0iaHR0cDovL3d3dy53My5vcmcvMjAwMS8xMC94bWwtZXhjLWMxN G4jIiAvPjxkczpTaWduYXR1cmVNZXRob2QgQWxnb3JpdGhtPSJodHRw0i8vd3d3LnczLm9yZy8yMDAxLzA0L3htbGRzaWctbW9yZSNyc2Etc2hhMjU2IiAvPjxkczpSZWZlcmVuY2UgVVJJPSIjXzUzYjMxZDcxLTg1MTUtNDY2Zi04ZWUwLTE2NTU 5ZWIwYzI5ZSI+PGRzOlRyYW5zZm9ybXM+PGRzOlRyYW5zZm9ybSBBbGdvcml0aG09Imh0dHA6Ly93d3cudzMub3JnLzIw MDAvMDkveG1sZHNpZyNlbnZlbG9wZWQtc2lnbmF0dXJlIiAvPjxkczpUcmFuc2Zvcm0gQWxnb3JpdGhtPSJodHRwOi8vd 3d3LnczLm9yZy8yMDAxLzEwL3htbC11eGMtYzE0biMiIC8+PC9kczpUcmFuc2Zvcm1zPjxkczpEaWdlc3RNZXRob2QqQW xnb3JpdGhtPSJodHRwOi8vd3d3LnczLm9yZy8yMDAxLzA0L3htbGVuYyNzaGEyNTYiIC8+PGRzOkRpZ2VzdFZhbHV1PkN WQ0doaktMajdYaUoxdzBzYThHT1ZDemlEVWo0MFBYb2R3ajVRRnYrOUU9PC9kczpEaWdlc3RWYWx1ZT48L2RzO1J1ZmVy ZW5jZT48L2RzO1NpZ251ZEluZm8+PGRzO1NpZ25hdHVyZVZhbHV1PktFQmZDdWh5YWxDQ3cyVVdCRzFmdUdIWlErYlp4T llHSTRiaFYwb3lWMXlCY3FZVUdrek5Ja0lpV3JjanJ6bDVZNHhyVndYSkRsY01Ka2hHTENzcllCTDR0U2o1ZHBBMU9hd2 VRMSs5QnMxSm9lbHAyc2dhL1ozRzFYRz1BN0V5d2JGSSswRnZzWUNqUGxIWWFRdUNIeitRUjB0RWppSGJwYldFY2dvbkp SND08L2Rz01NpZ25hdHVyZVZhbHV1PjxLZX1JbmZvIHhtbG5zPSJodHRwOi8vd3d3LnczLm9yZy8yMDAwLzA5L3htbGRz  $\verb|awcjij48ZHM6WDUwOURhdGE+PGRzOlg1MDlDZXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0aWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0AWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0AWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0AWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0AWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0AWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0AWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0AWZpY2F0ZT5NSUlCOWpDQ0FWK2dBd0lCQWdJUVJKS0JmTWh4U2FoQIDDLDXJ0AWZpY2F0ZT5NSUlCOWpDQ0FWKAMZpY2F0ZT5NSUlCOWpDQ0FWKAMZpY2F0ZT5NSUlCOWpDQ0FWKAMZpY2F0ZT5NSUlCOWpDQ0FWKAMZpY2F0ZT5NSUlCOWpDQ0FWFWTAMZpY2F0ZT5NSUlCOWpDQ0FWFWTAMZpY2F0ZT5NSUlCOWpDQ0FWFWTAMZpy2F0ZT5NSUlCOWPTFWTAMZpyYF0ZT5NSUlCOWP$  ${\tt OJCQldobC9BMERBTkJna3Foa2lHOXcwQkFRUUZBREFVTVJJd0VBWURWUVFERXdsc2IyTmhiR2h2YzNRd0hoY05NRF13TV} \\$ RBMU1qSTBOREUwV2hjTk16a3hNak14TWpNMU9UVTVXakFVTVJJd0VBWURWUVFERXdsc2IyTmhiR2h2YzNRd2daOHdEUV1 KS29aSWh2Y05BUUVCQ1FBRGdZMEFNSUdKQW9HQkFMak1Se1BXSFJVaW9JNWpncXZCUG5adEN5bkREUDU5bG1jaTlvN0N4 KytpVF1xME84TUJXNGY1Y0t0Ui9naFdiZVpvVVVEbnJWUl14WlFNZ3JmYnNubDZzdmp3SkJCMFFTNWNTRW9LN09Vajd4a  ${\tt NUQkhNRVVHQTFVZEFRUStNRHlBRUtraXpodDhMRjZMbW1rd2V3eVd3VHFoRmpBVU1SSXdFQVlEV1FRREV3bHNiMk5oYkd}$  $\verb|odmMzU0NFRVNTz| 1 h6SWNVbW9RZ1FRVm9aZndOQXdEUV1KS29aSWh2Y05BUUVFQ1FBRGdZRUFQVDV4QTR3OFB0TkhsL2Zr| 1 for the substrate of the substrate of$  $\verb|aC9YM1ZPd0ZWTV| BUGJKTVZnQ2w1eUxmUTFMT| Zna3poL3hVT3B4VWVGNXlxdE85T3V0VkV1RXdmc2pXeHB5cWVVQk9PW| Avgrave a constraint of the constrain$ XhVRnQwUUpZb1ZzcngwODJXRE5LaW5IYlV5WHZFSi85RG9iK3QraVNQanU3ZW1SSmFUS25udm1oR1B5dFp1NXNrOXJUN0 8xMEhKU0JCRkhJMkZmZEE9PC9kczpYNTA5Q2VydGlmaWNhdGU+PC9kczpYNTA5RGF0YT48L0tleUluZm8+PC9kczpTaWd uYXR1cmU+PHNhbWxw01N0YXR1cz48c2FtbHA6U3RhdHVz029kZSBWYWx1ZT0idXJu0m9hc21z0m5hbWVz0nRj01NBTUw6 Mi4wOnN0YXR1czpTdWNjZXNzIiAvPjwvc2FtbHA6U3RhdHVzPjwvc2FtbHA6TG9nb3V0UmVzcG9uc2U+</msis:SAMLRe sponse>

</s:Body>
</s:Envelope>

#### 4.5.6 LogoutResponse Example with SAMLRequest and RelayState

This is an example of a reply to a request that a **SAML** logout be performed, which contains the updated SessionState and LogoutState values. In this example, the response is to a request where the request contains both a SAMLResponse and RelayState.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
        <s:Header>
            <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/Proc
essRequestResponse</a:Action>
            <a:RelatesTo>urn:uuid:9aaa9e19-93b7-46e5-afb8-24804341d435</a:RelatesTo>
            <a:To s:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</a:To>
        </s:Header>
        <s:Body>
            <msis:LogoutResponse</pre>
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
                <msis:LogoutStatus>InProgress</msis:LogoutStatus>
                <msis:Message>
                    <msis:BaseUri>https://externalrp:4343/SLO/RedirectRequest</msis:BaseUri>
<msis:SAMLRequest>7b0HYBxJliUmL23Ke39K9UrX4HShCIBqEyTYkEAQ7MGIzeaS7B1pRyMpqyqBymVWZV1mFkDM7Z2
8995777333nvvvfe60510J/ff/z9cZmQBbPbOStrJniGAqsgfP358Hz8iHjfZolw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6L1nnTpmdPP/vo988ff20lw9e15dVOv2Vf6Ulw9e15dVOv2Vf6Ulw9e15dVOv2Vf6Ulw9e15dVOv2Vf6Ulw9e15dVOv2Vf6Ulw9e15dVOv2Vf6Ulw9e15dVOv2Vf6Ulw9e15d
5vd39/J8e+fBwWx7//7+dPvhvXyyPdmdZg/vH0weTrL7H6U/mddNUS0/+2hvvPNRetY06/xs2bTZsqWPdnYebu/ube8ev
NnZfXRv99HevfG9vYOf+ih9Sr0Uy6zlN+dtu2oe3b2bv2vzepmV9erR/r39e3dfP//y7qt8VtT51GD2UXpSLZscwNf181
GVNUXzaJkt8uZRO330+viL548Ij0dTafRovWxW+bQ4L/LZR+mLqv1y+WV9fE699HD710H2b1Eum0dMls29rOqqraZV+dH
RYx53La9ufilrmrzGuD86wrhp2GU1zcp51bR3H98VOEePX9B7Z0/fE955VT2+K28e6bS+zhvMztlylr872tnZeXw38rn5
MOCBo/8H</msis:SAMLRequest>
                    <msis:RedirectBindingInformation>
                        <msis:RelayState>RelayState</msis:RelayState>
<msis:Signature>TgTFsKkfCEEtm6iu18kZzRzxOOqCxAqelkobQaaS6vV8iXeqmIAdYBvZeTykQaif3KYp5herI6evS
MXA1P7KwX/GG/805e6QbNiBZTn48Cti+YJF7yqCZ5HPX/qRq9e9CL8LvMvy8hBa8rDnDOH3eRZFwQNSzJzdVSqs+TNAx+
4=</msis:Signature>
                        <msis:SigAlg>http://www.w3.org/2001/04/xmldsig-more#rsa-sha256</msis:SigAlg>
                    </msis:RedirectBindingInformation>
                </msis:Message>
                <msis:SessionState></msis:SessionState>
<msis:LogoutState>http%3a%2f%2fexternalrp%2fscope?ID??http%3a%2f%2fexternalrp%2fscope&False&f
oo&&&&&000? e9e512ee-078d-454c-93eb-
b1ca958b9ba5?urn%3aoasis%3anames%3atc%3aSAML%3a2.0%3astatus%3aSuccess</msis:LogoutState>
            </msis:LogoutResponse>
        </s:Body>
    </s:Envelope>
```

# **5** Security

# **5.1 Security Considerations for Implementers**

Implementers have to ensure that SSL is used to authenticate between clients and servers on different machines, and that the server is the intended server referred to by the server endpoint. Implementers also have to ensure that the remote client role authenticates to the server role such that the server can trust the client to perform SSL client **certificate** authentication where appropriate. Otherwise there are no specific security considerations beyond those specified in normative references.

## **5.2 Index of Security Parameters**

None.

# 6 Appendix A: Full WSDL

For ease of implementation, the following example provides the full **Web Services Description Language (WSDL)** ([WSDL]).

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:wsa10="http://www.w3.org/2005/08/addressing"</pre>
xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex"
\verb|xmlns:soap12| "http://schemas.xmlsoap.org/wsdl/soap12/" | xmlns:wsu="http://docs.oasis-property of the context of the cont
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
xmlns:wsap="http://schemas.xmlsoap.org/ws/2004/08/addressing/policy"
xmlns:msc="http://schemas.microsoft.com/ws/2005/12/wsdl/contract"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsd1" xmlns:tns="http://tempuri.org/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
targetNamespace="http://tempuri.org/" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
     <wsdl:types />
     <wsdl:portType name="ISamlProtocolContract" />
     <wsdl:portType name="IAnyActionContract" />
     <wsdl:binding name="DefaultBinding_ISamlProtocolContract" type="tns:ISamlProtocolContract">
          <soap:binding transport="http://schemas.xmlsoap.org/soap/http" />
     </wsdl:binding>
     <wsdl:binding name="DefaultBinding IAnyActionContract" type="tns:IAnyActionContract">
          <soap:binding transport="http://schemas.xmlsoap.org/soap/http" />
     </wsdl:binding>
</wsdl:definitions>
```

# 7 Appendix B: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include updates to those products.

- Windows Server 2003 R2 operating system
- Windows Server 2008 operating system
- Windows Server 2008 R2 operating system
- Active Directory Federation Services (AD FS) 2.0
- Windows Server 2012 operating system

Exceptions, if any, are noted in this section. If an update version, service pack or Knowledge Base (KB) number appears with a product name, the behavior changed in that update. The new behavior also applies to subsequent updates unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms "SHOULD" or "SHOULD NOT" implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term "MAY" implies that the product does not follow the prescription.

<1> Section 3.1.3: AD FS 2.0 does use the SOAP endpoint address net.tcp://localhost/samlprotocol to establish local connections and the SOAP endpoint address

https://contoso.com/adfs/services/trust/samlprotocol/proxycertificatetransport, where contoso.com represents the **STS** server domain name, to establish remote connections.

<2> Section 3.2.3: AD FS 2.0 does use the SOAP endpoint address net.tcp://localhost/samlprotocol to establish local connections and the SOAP endpoint address

https://contoso.com/adfs/services/trust/samlprotocol/proxycertificatetransport, where contoso.com represents the STS server domain name, to establish remote connections.

<3> Section 3.3.3: AD FS 2.0 does use the SOAP endpoint address net.tcp://localhost/samlprotocol to establish local connections and the SOAP endpoint address

https://contoso.com/adfs/services/trust/samlprotocol/proxycertificatetransport, where contoso.com represents the STS server domain name, to establish remote connections.

# 8 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

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