

# [MS-SAMLPR]: Security Assertion Markup Language (SAML) Proxy Request Signing Protocol Specification

---

## Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft's Open Specification Promise (available here: <http://www.microsoft.com/interop/osp>) or the Community Promise (available here: <http://www.microsoft.com/interop/cp/default.mspx>). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting [iplg@microsoft.com](mailto:iplg@microsoft.com).
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.
- **Fictitious Names.** The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

**Reservation of Rights.** All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

**Tools.** The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

## Revision Summary

| Date       | Revision History | Revision Class | Comments   |
|------------|------------------|----------------|--|
| 03/12/2010 | 1.0              | Major          | First Release.   |
| 04/23/2010 | 1.0.1            | Editorial      | Revised and edited the technical content.                                    |
| 06/04/2010 | 1.0.2            | Editorial      | Revised and edited the technical content.                                    |
| 07/16/2010 | 1.0.2            | No change      | No changes to the meaning, language, or formatting of the technical content. |
| 08/27/2010 | 1.0.2            | No change      | No changes to the meaning, language, or formatting of the technical content. |
| 10/08/2010 | 1.0.2            | No change      | No changes to the meaning, language, or formatting of the technical content. |
| 11/19/2010 | 1.0.2            | No change      | No changes to the meaning, language, or formatting of the technical content. |
| 01/07/2011 | 1.0.2            | No change      | No changes to the meaning, language, or formatting of the technical content. |
| 02/11/2011 | 1.0.2            | No change      | No changes to the meaning, language, or formatting of the technical content. |

# Contents

|  |           |
|--|-----------|
| <b>1 Introduction</b>                                | <b>6</b>  |
| 1.1 Glossary   | 6         |
| 1.2 References                                       | 7         |
| 1.2.1 Normative References                           | 7         |
| 1.2.2 Informative References                         | 8         |
| 1.3 Overview   | 8         |
| 1.4 Relationship to Other Protocols                  | 8         |
| 1.5 Prerequisites/Preconditions                      | 9         |
| 1.6 Applicability Statement                          | 9         |
| 1.7 Versioning and Capability Negotiation            | 9         |
| 1.8 Vendor-Extensible Fields                         | 9         |
| 1.9 Standards Assignments                            | 9         |
| <b>2 Messages</b>                                    | <b>10</b> |
| 2.1 Transport  | 10        |
| 2.2 Common Message Syntax                            | 10        |
| 2.2.1 Namespaces                                     | 10        |
| 2.2.2 Messages                                       | 10        |
| 2.2.2.1 SignMessageRequest                           | 11        |
| 2.2.2.2 SignMessageResponse                          | 12        |
| 2.2.2.3 VerifyMessageRequest                         | 12        |
| 2.2.2.4 VerifyMessageResponse                        | 13        |
| 2.2.2.5 IssueRequest                                 | 13        |
| 2.2.2.6 IssueResponse                                | 14        |
| 2.2.2.7 LogoutRequest                                | 15        |
| 2.2.2.8 LogoutResponse                               | 15        |
| 2.2.2.9 CreateErrorMessageRequest                    | 16        |
| 2.2.2.10 CreateErrorMessageResponse                  | 17        |
| 2.2.3 Elements                                       | 17        |
| 2.2.4 Complex Types                                  | 17        |
| 2.2.4.1 RequestType                                  | 18        |
| 2.2.4.2 ResponseType                                 | 18        |
| 2.2.4.3 PrincipalType                                | 18        |
| 2.2.4.4 SamlMessageType                              | 18        |
| 2.2.4.5 PostBindingType                              | 19        |
| 2.2.4.6 RedirectBindingType                          | 19        |
| 2.2.5 Simple Types                                   | 20        |
| 2.2.5.1 LogoutStatusType                             | 20        |
| 2.2.5.2 PrincipalTypes                               | 20        |
| 2.2.6 Attributes                                     | 21        |
| 2.2.7 Groups   | 21        |
| 2.2.8 Attribute Groups                               | 21        |
| <b>3 Protocol Details</b>                            | <b>22</b> |
| 3.1 Common Details                                   | 22        |
| 3.1.1 Abstract Data Model                            | 22        |
| 3.1.2 Timers   | 22        |
| 3.1.3 Initialization                                 | 22        |
| 3.1.4 Message Processing Events and Sequencing Rules | 22        |
| 3.1.4.1 SignMessage                                  | 23        |

|             |  |           |
|-------------|--|-----------|
| 3.1.4.1.1   | Messages .....                                       | 23        |
| 3.1.4.1.1.1 | SignMessageRequest .....                             | 23        |
| 3.1.4.1.1.2 | SignMessageResponse .....                            | 23        |
| 3.1.4.2     | VerifyMessage .....                                  | 23        |
| 3.1.4.2.1   | Messages .....                                       | 23        |
| 3.1.4.2.1.1 | VerifyMessageRequest .....                           | 24        |
| 3.1.4.2.1.2 | VerifyMessageResponse .....                          | 24        |
| 3.1.4.3     | Issue .....  | 24        |
| 3.1.4.3.1   | Messages .....                                       | 24        |
| 3.1.4.3.1.1 | IssueRequest .....                                   | 24        |
| 3.1.4.3.1.2 | IssueResponse .....                                  | 24        |
| 3.1.4.4     | Logout .....   | 24        |
| 3.1.4.4.1   | Messages .....                                       | 24        |
| 3.1.4.4.1.1 | LogoutRequest .....                                  | 24        |
| 3.1.4.4.1.2 | LogoutResponse .....                                 | 24        |
| 3.1.4.5     | CreateErrorMessage .....                             | 25        |
| 3.1.4.5.1   | Messages .....                                       | 25        |
| 3.1.4.5.1.1 | CreateErrorMessageRequest .....                      | 25        |
| 3.1.4.5.1.2 | CreateErrorMessageResponse .....                     | 25        |
| 3.1.4.6     | Types Common to Multiple Operations .....            | 25        |
| 3.1.4.6.1   | Complex Types .....                                  | 25        |
| 3.1.4.6.1.1 | PrincipalType .....                                  | 25        |
| 3.1.4.6.1.2 | SamlMessageType .....                                | 25        |
| 3.1.4.6.1.3 | PostBindingType .....                                | 26        |
| 3.1.4.6.1.4 | RedirectBindingType .....                            | 26        |
| 3.1.4.6.2   | Simple Types .....                                   | 26        |
| 3.1.4.6.2.1 | LogoutStatusType .....                               | 26        |
| 3.1.4.6.2.2 | PrincipalTypes .....                                 | 26        |
| 3.1.5       | Timer Events .....                                   | 26        |
| 3.1.6       | Other Local Events .....                             | 26        |
| 3.2         | Server Details .....                                 | 26        |
| 3.2.1       | Abstract Data Model .....                            | 26        |
| 3.2.2       | Timers .....   | 26        |
| 3.2.3       | Initialization .....                                 | 27        |
| 3.2.4       | Message Processing Events and Sequencing Rules ..... | 27        |
| 3.2.5       | Timer Events .....                                   | 27        |
| 3.2.6       | Other Local Events .....                             | 27        |
| 3.3         | Client Details .....                                 | 27        |
| 3.3.1       | Abstract Data Model .....                            | 27        |
| 3.3.2       | Timers .....   | 27        |
| 3.3.3       | Initialization .....                                 | 27        |
| 3.3.4       | Message Processing Events and Sequencing Rules ..... | 27        |
| 3.3.5       | Timer Events .....                                   | 27        |
| 3.3.6       | Other Local Events .....                             | 28        |
| <b>4</b>    | <b>Protocol Examples .....</b>                       | <b>29</b> |
| 4.1         | Issue Operation Examples .....                       | 29        |
| 4.1.1       | IssueRequest Example .....                           | 29        |
| 4.1.2       | IssueResponse Example .....                          | 30        |
| 4.1.3       | IssueResponse Example Using Artifact Binding .....   | 32        |
| 4.2         | CreateErrorMessage Operation Examples .....          | 32        |
| 4.2.1       | CreateErrorMessageRequest Example .....              | 32        |
| 4.2.2       | CreateErrorMessageResponse Example .....             | 33        |

|          |   |           |
|----------|---|-----------|
| 4.3      | SignMessage Operation Examples .....                                    | 34        |
| 4.3.1    | SignMessageRequest Example .....  | 34        |
| 4.3.2    | SignMessageResponse Example .....                                       | 34        |
| 4.4      | VerifyMessage Operation Examples .....                                  | 35        |
| 4.4.1    | VerifyMessageRequest Example .....                                      | 35        |
| 4.4.2    | VerifyMessageResponse Example .....                                     | 36        |
| 4.4.3    | VerifyMessageResponse Example Using Redirect Binding .....              | 37        |
| 4.5      | Logout Operations Examples .....  | 38        |
| 4.5.1    | LogoutRequest Example .....   | 38        |
| 4.5.2    | LogoutResponse Example .....  | 39        |
| 4.5.3    | LogoutRequest Example - Locally Initiated.....                          | 39        |
| 4.5.4    | LogoutResponse Example:Final Response to Locally Initiated Request..... | 40        |
| 4.5.5    | LogoutRequest Example with SAMLResponse and RelayState .....            | 40        |
| 4.5.6    | LogoutResponse Example with SAMLRequest and RelayState .....            | 42        |
| <b>5</b> | <b>Security.....</b>  | <b>43</b> |
| 5.1      | Security Considerations for Implementers.....                           | 43        |
| 5.2      | Index of Security Parameters .....                                      | 43        |
| <b>6</b> | <b>Appendix A: Full WSDL .....</b>                                      | <b>44</b> |
| <b>7</b> | <b>Appendix B: Product Behavior .....</b>                               | <b>45</b> |
| <b>8</b> | <b>Change Tracking.....</b>   | <b>46</b> |
| <b>9</b> | <b>Index .....</b>  | <b>47</b> |

# 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 server.

## 1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

- certificate**
- SHA-1 hash**
- SOAP**
- SOAP action**
- SOAP body**
- SOAP header**
- SOAP header block**
- SOAP message**
- SOAP mustUnderstand attribute**
- Uniform Resource Locator (URL)**
- Web Services Description Language (WSDL)**
- XML**
- XML namespace**
- XML schema**

The following terms are specific to this document:

**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 (SAMLPRSP).

**Active Directory Federation Services (AD FS) Security Token Service (STS) Server:** 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 (SAMLPRSP).

**SAML:** The OASIS Security Assertion Markup Language, as specified in [\[SAMLCore\]](#) and [\[SamlBind\]](#).

**SAML Message:** A **SAML** protocol message, as specified in [\[SAMLCore\]](#) and [\[SamlBind\]](#).

**SAML Identity Provider (IdP):** A provider of **SAML** assertions, as specified in [\[SAMLCore\]](#) section 2.

**SAML Service Provider (SP):** A consumer of **SAML** assertions, as specified in [\[SAMLCore\]](#) section 2.

**SAML Redirect Binding:** A method of transmitting **SAML messages** via HTTP redirects, as specified in [\[SamlBinding\]](#) section 3.4.

**SAML Post Binding:** A method of transmitting **SAML messages** via HTTP POST actions, as specified in [\[SamlBinding\]](#) section 3.5.

**SAML Artifact Binding:** A method of transmitting **SAML messages** via references in HTTP messages, as specified in [\[SamlBinding\]](#) section 3.6.

**Security Token Service (STS):** A Web service that can issue security tokens, as specified in [\[WS-Trust\]](#) section 1.5.

**MAY, SHOULD, MUST, SHOULD NOT, MUST NOT:** These terms (in all caps) are used as described in [\[RFC2119\]](#). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

## 1.2 References

### 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 [dochelp@microsoft.com](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.ietf.org/rfc/rfc2119.txt>

[RFC2396] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1998, <http://www.ietf.org/rfc/rfc2396.txt>

[RFC2616] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999, <http://www.ietf.org/rfc/rfc2616.txt>

[RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, <http://www.ietf.org/rfc/rfc2818.txt>

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

[SAMLCore] Maler, E., Mishra, P., Philpott, R., et al., "Assertions and Protocol for the OASIS Security Assertion Markup Language (SAML) V1.1", September 2003, <http://www.oasis-open.org/committees/download.php/3406/oasis-sstc-saml-core-1.1.pdf>

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., et al., "Simple Object Access Protocol (SOAP) 1.1", May 2000, <http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>

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

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

If you have any trouble finding [WSAddressing], please check [here](#).

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

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

[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, <http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd>

[XML10] World Wide Web Consortium, "Extensible Markup Language (XML) 1.0 (Third Edition)", February 2004, <http://www.w3.org/TR/REC-xml>

[XMLNS] World Wide Web Consortium, "Namespaces in XML 1.0 (Second Edition)", August 2006, <http://www.w3.org/TR/REC-xml-names/>

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

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

### 1.2.2 Informative References

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)", March 2007.

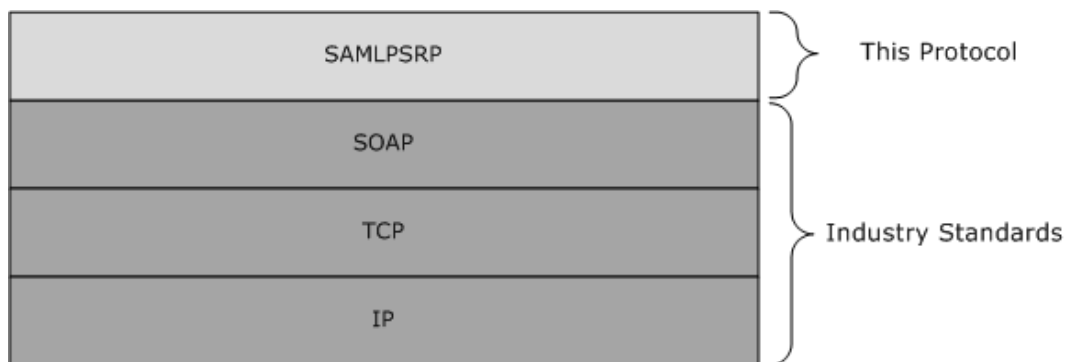
### 1.3 Overview

The Security Assertion Markup Language (SAML) Proxy Request Signing Protocol (SAMLPRSP) 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. In particular, proxy servers use the SAMLPRSP Protocol to have the STS server in an installation perform **SAML** (see [\[SAMLCore\]](#) and [\[SamlBind\]](#)) signature operations upon messages to be sent. Multiple proxy servers may 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

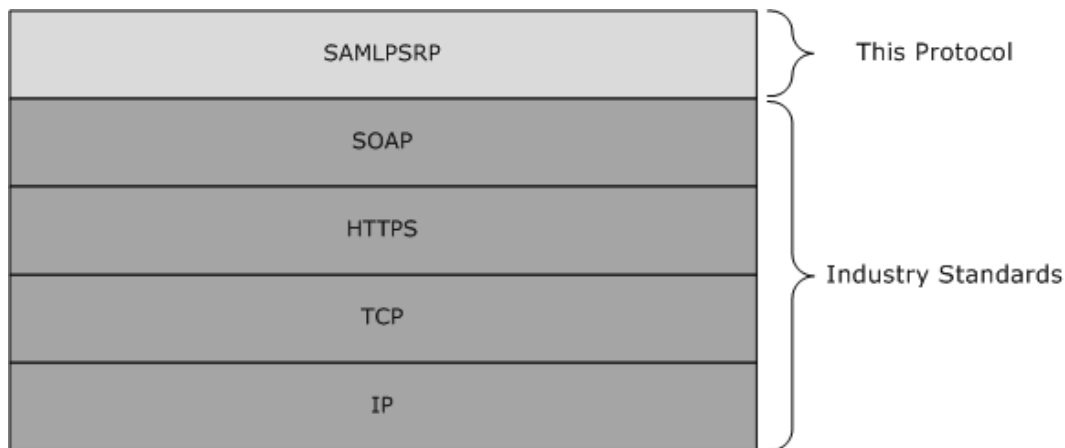
The Security Assertion Markup Language (SAML) Proxy Request Signing Protocol (SAMLPR) uses **SOAP** over TCP for local connections, as shown in the following layering diagram:



**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 SAMLPRSP 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      | <a href="http://www.w3.org/2003/05/soap-envelope">http://www.w3.org/2003/05/soap-envelope</a>   | <a href="#">[SOAP1.2-1/2003]</a>                                    |
| xs     | <a href="http://www.w3.org/2001/XMLSchema">http://www.w3.org/2001/XMLSchema</a>   | <a href="#">[XMLSCHEMA1]</a><br>and<br><a href="#">[XMLSCHEMA2]</a> |
| a      | <a href="http://schemas.xmlsoap.org/ws/2004/08/addressing">http://schemas.xmlsoap.org/ws/2004/08/addressing</a>   | <a href="#">[WSAddressing]</a><br>section 1.2                       |
| msis   | <a href="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol</a>                               | This document<br>([MS-SAMLPR])                                      |
| samlp  | <a href="urn:oasis:names:tc:SAML:2.0:protocol">urn:oasis:names:tc:SAML:2.0:protocol</a>   | <a href="#">[SAMLCore]</a>  |
| saml   | <a href="urn:oasis:names:tc:SAML:2.0:assertion">urn:oasis:names:tc:SAML:2.0:assertion</a>   | <a href="#">[SAMLCore]</a>  |
| wst    | <a href="http://docs.oasis-open.org/ws-sx/ws-trust/200512">http://docs.oasis-open.org/ws-sx/ws-trust/200512</a>   | <a href="#">[WSTrust]</a>   |
| wssc   | <a href="http://docs.oasis-open.org/ws-sx/ws-secureconversation/200512">http://docs.oasis-open.org/ws-sx/ws-secureconversation/200512</a>   | <a href="#">[WSSC1.3]</a>   |
| wssu   | <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> | <a href="#">[WSSU1.0]</a>   |

#### 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   |

| Message                    | Description  |
|----------------------------|--|
|                            | party.   |
| VerifyMessageResponse      | A reply message to the VerifyMessageRequest message, containing a Boolean result.  |
| IssueRequest               | A message requesting issuance of a SAML 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:

```
<complexType name="SignMessageRequestType">
  <complexContent>
    <extension base="msis:RequestType">
      <sequence>
        <element name="ActivityId" type="string"/>
        <element name="Message" type="msis:SamlMessageType"/>
        <element name="Principal" type="msis:PrincipalType"/>
        <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"
      />
      </sequence>
    </extension>
  </complexContent>
</complexType>
```

**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:

```
<complexType name="SignMessageResponseType">
  <complexContent>
    <extension base="msis:ResponseType">
      <sequence>
        <element name="Message" type="msis:SamlMessageType"/>
        <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"
      />
      </sequence>
    </extension>
  </complexContent>
</complexType>
```

**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:

```
<complexType name="VerifyMessageRequestType" >
  <complexContent>
    <extension base="msis:RequestType">
      <sequence>
        <element name="ActivityId" type="string"/>
        <element name="Message" type="msis:SamlMessageType"/>
        <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"
      />
      </sequence>
    </extension>
  </complexContent>
</complexType>
```

```

    </extension>
  </complexContent>
</complexType>

```

**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:

```

<complexType name="VerifyMessageResponseType" >
  <complexContent>
    <extension base="msis:ResponseType">
      <sequence>
        <element name="IsVerified" type="boolean"/>
        <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded" />
      </sequence>
    </extension>
  </complexContent>
</complexType>

```

**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:

```

<complexType name="IssueRequestType" >
  <complexContent>
    <extension base="msis:RequestType">
      <sequence>

```

```

        <element name="ActivityId" type="string"/>
        <element name="Message" type="msis:SamlMessageType"/>
        <element name="OnBehalfOf" type="wst:OnBehalfOfType"/>
        <element name="SessionState" type="string"/>
        <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"
/>
    </sequence>
</extension>
</complexContent>
</complexType>

```

**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:

```

<complexType name="IssueResponseType">
  <complexContent>
    <extension base="msis:ResponseType">
      <sequence>
        <element name="Message" minOccurs="0" type="msis:SamlMessageType"/>
        <element name="SessionState" type="string"/>
        <element name="AuthenticatingProvider" type="string"/>
        <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"
/>
      </sequence>
    </extension>
  </complexContent>
</complexType>

```

**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:

```
<complexType name="LogoutRequestType" >
  <complexContent>
    <extension base="msis:RequestType">

      <sequence>
        <element name="ActivityId" type="string"/>
        <element name="Message" minOccurs="0" type="msis:SamlMessageType"/>
        <element name="SessionState" type="string"/>
        <element name="LogoutState" type="string"/>
        <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"
      />
      </sequence>
    </extension>
  </complexContent>
</complexType>
```

**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:

```
<complexType name="LogoutResponseType">
  <complexContent>
    <extension base="msis:ResponseType">
```

```

    <sequence>
      <element name="LogoutStatus" type="msis:LogoutStatusType"/>
      <element name="Message" type="msis:SamlMessageType" minOccurs="0"/>
      <element name="SessionState" type="string"/>
      <element name="LogoutState" type="string"/>
      <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"
    />
  </sequence>
</extension>
</complexContent>
</complexType>

```

**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:

```

<complexType name="CreateErrorMessageRequestType">
  <complexContent>
    <extension base="msis:RequestType">
      <sequence>
        <element name="ActivityId" type="string"/>
        <element name="Message" type="msis:SamlMessageType"/>
        <element name="Principal" type="msis:PrincipalType"/>
        <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"
      />
    </sequence>
  </extension>
</complexContent>
</complexType>

```

**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:

```
<complexType name="CreateErrorMessageResponseType">
  <complexContent>
    <extension base="msis:ResponseType">
      <sequence>
        <element name="Message" type="msis:SamlMessageType"/>
        <any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"
      />
      </sequence>
    </extension>
  </complexContent>
</complexType>
```

**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 SAML 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:

```
<complexType name="SamlMessageType">
  <sequence>
    <element name="BaseUri" type="anyURI"/>
    <choice>
      <element name="SAMLart" type="string"/>
      <element name="SAMLRequest" type="string"/>
      <element name="SAMLResponse" type="string"/>
    </choice>
    <choice>
      <element name="PostBindingInformation" type="msis:PostBindingType"/>
      <element name="RedirectBindingInformation" type="msis:RedirectBindingType"/>
    </choice>
  </sequence>
</complexType>
```

**BaseUri:** The URL to post message to.

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

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

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

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

**RedirectBindingInformation:** Information about the SAML Message using the SAML redirect binding, as per [SamlBind] 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 [SamlBind] 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:

```
<complexType name="RedirectBindingType">
  <sequence>
    <element name="RelayState" minOccurs="0" type="string"/>
    <sequence minOccurs="0">
      <element name="Signature" type="string"/>
      <element name="SigAlg" type="string"/>
      <element name="QueryStringHash" minOccurs="0" type="string"/>
    </sequence>
  </sequence>
</complexType>
```

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

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

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

**QueryStringHash:** A base64-encoded **SHA-1 hash** of the redirect query string (if present), for integrity purposes, as per [SamlBind] 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 SAML 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 [\[SAMLCore\]](#) section 8.3.6.

**Authority:** Indicates that the principal is a SAML Identity Provider, identified by an Entity Identifier, as per [\[SAMLCore\]](#) 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 may be 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 `https://contoso.com/adfs/services/trust/samlprotocol/proxycertificatetransport`, where `contoso.com` represents the server domain name. Other port addresses **MAY** be used by implementations. [<1>](#)

#### 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 SAML Message 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 SAML 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  |

| Operation | Description   |
|-----------|---|
|           | 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 SAML federation, including its role.  |
| SamlMessageType     | Representation of a SAML Protocol message and the binding used to send it.  |
| PostBindingType     | Information about a SAML post binding, which consists of its RelayState, if present.  |
| RedirectBindingType | Information about a SAML redirect binding, 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 SAML 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.

### 3.1.5 Timer Events

This protocol does not require timers beyond those that may be 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:ReplyTo>
    <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:ActivityId>00000000-0000-0000-0000-000000000000</msis:ActivityId>
      <msis:Message>
        <msis:BaseUri>http://localhost</msis:BaseUri>

<msis:SAMLRequest>PD94bWwgdmVyc2lvcj0iMS4wIiBlbmNvZGluc2VudD0idXRmLTE2Ij8+PHNhbnVzOkF1dGhuUmVxdWV
zdCBJRd0iX2QzYWNjZWl3LWV1ZjctNDI5Ny1mTgyLWEONmYxYzQ3NWJjMSIgcVpvc2lvcj0iMi4wIiBjc3N1ZUluc3Rh
bnQ9IjIwMDktMTItMThUMDE6MzE6MDYyNDM0WiIgcQ29uc2VudD0idXJuOm9hc2lzM5hbWVzOnRjOlNBTVUw6Mi4wOmNvb
nNlbnQ6dW5zcGVjaWZpZWQiIHhtbG5zOnNhbnVzPSJlcm46b2FzaXM6b2FzaXM6dGM6U0FNTDoyLjA6CHJvdG9jb2wiPj
xJc3N1ZXIgeG1sbnM9InVybjpvYXNpczpuYW1lc2p0YzptQU1MOjIuMDphc3N1cnRpb24iPmh0dHA6Ly9leHRlcm5hbHJ
wL3Njb3BlPC9Jc3N1ZXI+PC9zYW1scDpBdXRoblJlcXVlc3Q+</msis:SAMLRequest>
        <msis:PostBindingInformation></msis:PostBindingInformation>
      </msis:Message>
      <msis:OnBehalfOf>
        <wssc:SecurityContextToken wssu:Id="_7b5d980c-9309-474e-ace8-23a99bbe261d-
6C82EA4288DB37210E653FCF8E064B57" xmlns:wssc="http://docs.oasis-open.org/ws-sx/ws-
secureconversation/200512" xmlns:wssu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-
wss-wssecurity-utility-1.0.xsd">
          <wssc:Identifier>urn:uuid:24e876b6-1b0e-43e4-95da-7de16ec31f76</wssc:Identifier>
          <wssc:Instance>urn:uuid:a27fafd2-7e20-47c5-a004-3d83bed8e8f4</wssc:Instance>
          <mss:Cookie
xmlns:mss="http://schemas.microsoft.com/ws/2006/05/security">WFUABeuNCOWL9thXJ601uZ9/RNRXopMT
MYRhy/PRX3SAAAABK91yIGLJLwXwgu5vEdh3wsm4zf7cBxsK5Waaam5TqQjGD1J7qhgjnPNBwz9J7r/8fqJLdscGZvU7E
ifqkkoXX0IkDf+fUXxR0oBE/dY4BKGrK1SQ7VgOULAR4Xr39+X8Jp/eeMncIaJuZ01DSB4MwLulVpZKhC3grjfpfA0g
1wBwAAmoP1Iv2HElhlpYbFBmaYmYzpqCOa/Ptr08YCN8YweH1FzEm929H5oEG87TMEjYnuAelBAMGo8BhqBtVS+o16jd
XCSeL3FJ/vabemgbxIfJnqh4x5xuYldIRo9FJH78syGjOtGFAVI3KRnpIvnrPfg3YKRW0sknIH2LDDzjaFGPZW/w1B0Yen
bWFH+sRkfd+jOqhTVk+3++oeYcZWWSiAZhWDMZKA/kqv3RhO5Drr0v6JbzS3H+PJxzXL1NeEvd8Nhxh+0tINy+I3PWIHX
C7WFgYeS8T1TpaXBq+zh5DDEQ1v4haozU+411T7pBcY9Nd1jLedSK/Eo5/Fyvsm8g2HKL0jgKbr6jB3XYRfFDjAlTIWZ
jq7IzQqqAnaa9xZpcVKx24sHySUo1GK6uFYWpdZYUe5sTmW4bdYVJw6bNS0KEzhelLrocIe8c9Ldv61idHQJuvG0qt6xU
pCkD6KeUrV6ZQxRoKs5fyemG8sRw7R+p9tLpbPjqnpj4SbAjXwOQJA0ksZ0KCDn+VBQIq/YIc+fWd0Jv6/S+rZLDi1UXg
MYPmdGcfIMFZEMicjknZ8IdcVGIXAuKC9AfffJpfgA+vQOwgqxop6Abi//pKNrDa+ChNOQIKSFQoz5btiOpd63j5dKu/Y5
CqR+tHD7eYsrTf1zdhwi0xYFAn0beoETCRSGsmCgo2iBvWWTxzle1rKwPfn5wB0dnznh5ruPAOSQ9alt08k2dqbyavuPri
3MqehLnsBxR9Lh5j45gs19+Injbjv/SelXsbh5BkbTzP9pghkG4ALivz1aRbcQdUDXe85Tb1hcJyDlAVs1PudCMHD1N8p
DDPAkgAzcIhTiBnElfljHL7uCeC+UKfEu6Hv8N134yw5vRPErgq8VaRBoUBXVsq9/p4Adv/HGTJbLU2hL1/r9DqOru3h
Hlp0R18aLddHt/n004awqaIconXGILFqlwMRJXP3J8JL9CNCpBp/eszX83o1GILPR+dnSRnAjHQbcGwKSM/5VmtHRVie
g1mXQVcJ90gltdmPictX8luaxruGJezeIzkSwjtXHSg5HPEWg91mtx9Snro4BD9XVeIMHkInBvYczKVlglR+AxopfNCgg
sKyA+EyGVOcsDnqLmnRl2gsvnYlJZBz2uBfgqCq6BLgI0QYnSKDyyEPTfcIn6aupftsh5zmnnd/1vXY6b0TCXQ+iNuLm
```

```

bx1Ezh2znAL3UNqt4hDIQGEfwqR6TPKlp0dpfd4T5yGtEcq0pfl2nwbCICsRLl1SnP4pBRuULw7cnlx4IzJcU+vp1mGs
GpdtSUpJyxu+8XSAAh13wBxv8g+X3sZKNxKDAUncwHiq7QHHzPaRRat2S9i87+GJg6CfrfIbh32exctEY4c5eR/yXi8y2s
RTLqmF4X2s3+108sDMwCpunHh/ygRwK9NWq8BvuAcPmK5norSia+9//wyeeei9e3Ez3i/iMAWAyVoVYTluom5jkwHEDR
FlZ0t5lRteJClkPqFBAGdruJ+T402E3qUHeGaRili7XRSoY0EQocvo7UGVOJ++YGtXb//SRdIFStO+MiOHv5AOIzDlab+
qKSRrhPswmXK18x4Rja+5qBDE2+gPfjOlP42YC9ZsvxrhHu/yHW/ZdNaaf106WAiaehYjIirfMiTx6yIXL0f6reF9FxpY
JzOfWEYKLBqFa2wZumaJ67Mo453IwWaJpPz+JcExHeghuJ9CMgsUxyqVbb2HEjVU3VfGOZVShAQX+HT/W8z9365vHlgXn
9X4Yg+Af3lvGgiAwznYENKtm5iWJtGInMDMxSt3dkEWZ3mMo7L21FRJLbc2vemz5hkdujTzFFfymC2Rp53S700/g61+b2t
5Nviz1ADXwrjZfpdG3c+BUgaq1idl62qi6oqKepeo9rwcJwYxnXDZ8060zmSm0N48HbzS6uBETZ7JMKAW/ajaembKaKT4
mQAeV5DBtwhcjXn4sQ9XHQQSxjKn5MzvDdXB6YzoGq3aGY9IuWYAFAaegDgEYr2aPmlVwJPVCPPhJ9SYAq6Ug1Su6F5Qy
EHM5vz6kC6CMVlryqjyCpsrhRW7ferQLDcZQDfWcBZUnLoxrbiCn8yF7qv6nL26800R2Mjmybfb0WKagu/AlBq36uxnaS1
ds1zcIdeyriqQenStNPT4YACHUQifl5Wv8Vnf37LiJYDo1qhc5zWTq5ahHImDezmLeNoM4H9eHY1X3+6jDQAQ3YQk6uLz
wOr6LdyCNns7m0IEOr3dWPqLJMiuNtow5LeN77vVVLraw14ajdQOxloh19kmkumtjYwXI1GuPbCRfLLuEu6VVVoYHDxkS
Fvx1ndWHHVi1338ALnKu7500DtH5bg1IZE1UuLSPDR/B6zhS7QRS4o5j3kwrq845ro+MLLJzmrKQKaF5sZHivqjIiJmQ
j5Meq8CGF0HdH27zKA02mYzmPPJ3FjQ6HG+ZM+3DtSdyjIj2oPFmK1yhzet45wlpZorNns+EVVquh+MLEE5PqgtUS3WN
rUREQM4tvGC5Ni5kApHDj1+LeQHAE1z0mM=</ms:Cookie>
</wssc:SecurityContextToken>
</msis:OnBehalfOf>
<msis:SessionState></msis:SessionState>
</msis:IssueRequest>
</s:Body>
</s:Envelope>

```

#### 4.1.2 IssueResponse Example

This is an example of a reply to a request to issue a SAML token, which contains the resulting SAML response 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/ProcessRequestResponse</a:Action>
    <a:RelatesTo>urn:uuid:86127da1-0660-4001-9c1f-d79bf1aae52a</a:RelatesTo>
    <a:To s:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</a:To>
  </s:Header>
  <s:Body>
    <msis:IssueResponse
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
      <msis:Message>
        <msis:BaseUri>https://externalrp/rp1</msis:BaseUri>

<msis:SAMLResponse>PHNhbWxwOlJlc3BvbmlIElEPSJfMGMQ2MjE0MWMtYTAzZC00MGE1LWJmZmQtYjJmZDY2NjI5MD
kxIiBwZXJzaW9uPSIyLjAiIElzc3VlSW5zdGFudD0iMjAwOS0xMi0xOFQwMT0zMToxNy41MTJhIiBEZiBzX0aW5hdGlvbj0
iaHR0cHM6Ly9leHRlcm5hbHJwL3JwMSIgQ29uc2VudD0idXJuOm9hc2lzM05hbWVzOnRjOlNBTUw6Mi4wOmNvbmlbnQ6
dW5zCGVjaWZpZwQiIEUuUmVzCG9uc2VUubz0iX2QwZDE1NDE1LT50GmTNDk2OS1iM2E5LWRjZmNjMjEzYzE5ZS1IgeG1sb
nM6c2FtbHA9InVybWpYXNpczpuYWllc2p0YzpqTU1MOjIuMDpwcmluY2NvbCI+PElzc3VlcjB4bWxuc20idXJuOm9hc2
lzOm5hbWVzOnRjOlNBTUw6Mi4wOmFzc2VydGlvb1I+ahR0cDovL2xvY2FsaG9zdC88L0lzc3Vlcj48c2FtbHA6U3RhdHV
zPjxzYW1scDpTdGF0dXNDb2RlIFZhbHVLPSJlcm46b2FzaXN0bWVzZm9udD0idXJuOm9hc2lzM05hbWVzOnRjOlNBTUw6M
i4wOmFzc2VydGlvb1I+PHh1bW6Rw5jcnlwdGVkRGF0YSBUEXB1PSJodHRwOi8vd3d3LnczLm9yZy8yMDAwLzA0L3htbG
VuYyNFbGVzZW50IiB4bWxuc2p4ZW5jPSJodHRwOi8vd3d3LnczLm9yZy8yMDAwLzA0L3htbGVuYyMiPjxzZW5jOkVvYyJ3
5cHRpb25NZXRob2QgQWwxb3JpdGhtPSJodHRwOi8vd3d3LnczLm9yZy8yMDAwLzA0L3htbGVuYyNhZXMxNTYtY2JjIiAv
PjxLZX1JbmZvIHhtbG5zPSJodHRwOi8vd3d3LnczLm9yZy8yMDAwLzA5L3htbGRzaWc1Ij48ZTpFbmluYyB0ZWRLZXkge
G1sbmM6ZT0iaHR0cDovL3d3dy53My5vcmevMjAwMS8wNC94bWxlbmMjIj48ZTpFbmluYyB0aW9uTWV0aG9kIEF5Z29yaX
RobT0iaHR0cDovL3d3dy53My5vcmevMjAwMS8wNC94bWxlbmMjIj48ZTpFbmluYyB0aW9uTWV0aG9kIEF5Z29yaX
nb3JpdGhtPSJodHRwOi8vd3d3LnczLm9yZy8yMDAwLzA5L3htbGRzaWc1Ij48ZTpFbmluYyB0aW9uTWV0aG9kIEF5Z29yaX
ZD48S2V5SW5mbz48ZHM6WDUwOURhdGEgeG1sbmM6ZHM9Imh0dHA6Ly93d3cudzMu3JnLzIwMDAvMDkveG1sZHNpZyMiP
jxkc2pYNTA5SXNzdWVvY2VyaWFSZjxkc2pYNTA5SXNzdWVvY2V5ZmFtZT5DTj1sb2NhbGhvc3Q8L2RzOlglMD1Jc3N1ZXJOYW
1lPjxkc2pYNTA5U2VyaWFSZmVvY2VyaWFSZmFtZT5DTj1sb2NhbGhvc3Q8L2RzOlglMD1Jc3N1ZXJOYW1lPjxkc2pYNTA

```



### 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.

```
<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/ProcessRequestResponse</a:Action>
    <a:RelatesTo>urn:uuid:0ac7deb2-4d52-4a77-8071-d4bb099e6db9</a:RelatesTo>
    <a:To s:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</a:To>
  </s:Header>
  <s:Body>
    <msis:IssueResponse
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
      <msis:Message>
        <msis:BaseUri>https://externalrp</msis:BaseUri>

<msis:SAMLart>AAQAApBjz+58LcIVeEcgtU2/CTgpb07ZhNzAgEANlB90ECfpNEVLg=</msis:SAMLart>
        <msis:RedirectBindingInformation></msis:RedirectBindingInformation>
      </msis:Message>
      <msis:SessionState></msis:SessionState>
      <msis:AuthenticatingProvider></msis:AuthenticatingProvider>
    </msis:IssueResponse>
  </s:Body>
</s:Envelope>
```

## 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"
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/ProcessRequest</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>
  <s:Body>
    <msis:CreateErrorMessageRequest
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://localhost</msis:BaseUri>

<msis:SAMLRequest>PD94bWwgdmVyc2lvcj0iMS4wIiBlbmNvZGUzZ0idXRmLTE2Ij8+PHNhbWxwOkF1dGhuUmVxdWV
zdCBJRd0iXzIwNjU2YThLTA1YTgtNGMzOS1iMTE0LTgyYzcsZTk1Y2NmOCgVmVyc2lvcj0iMi4wIiBJc3N1ZU1uc3Rh
```



```

bnQ9IjIwMDktMtItMThUMDE6MzE6MTEuODYzWiIgc29uc2VudD0idXJuOm9hc2lzOm5hbWVzOnRjOlNBTUw6Mi4wOmNvb
nNlbnQ6dW5zcGVjaWZpZWQ6IiFByb3RvY29sQmluZGluZz0idXJuOm9hc2lzOm5hbWVzOnRjOlNBTUw6Mi4wOmJpbmRpbm
dzOkhUVFAtUmVkaXJlY3QiIHhtbG5zOnNhbwXwPSJlcm46b2FzaXM6bmFtZXM6dGM6U0FNTDoyLjA6cHJvdG9jb2wiPjx
Jc3NlZXIgeGlsbnM9InVybjpvYXNpczpuYW1lc2p0YzpqTQU1MOjIuMDphc3NlcnRpb24iPmh0dHA6Ly9leHRlcm5hbHJw
L3Njb3BlPC9Jc3NlZXI+PC9zYW1scDpBdXRob1JlcXVlc3Q+</msis:SAMLRequest>
  <msis:PostBindingInformation></msis:PostBindingInformation>
</msis:Message>
</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/ProcessRequestResponse</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
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
      <msis:Message>
        <msis:BaseUri>https://externalrp</msis:BaseUri>
        <msis:SAMLResponse>7b0HYBxJliUmL23Ke39K9UrX4HShcIBgEyTYkEAQ7MGIZEaS7B1pRyMpqyqBymVWZV1mFkDM7Z
28995777333nvvffe60510J/ff/z9cZmQBbPbOStrJniGAqsgfP358Hz8iHjfZolw9epU3q2rz50nZ088++v2zLL+/vzO
5tz3Zy/e29/PJ/e1sZ7q7ne8/yPbuP9g9mB3MPkp/Mq+bolp+9tHeeOej9Kxp1vnZsmmzZU5f7ew83N7d2949eLOz++je
7qPd3fHDvb2f+ih9mjdtsxafnPetqvm0d27+bs2r5dZWa/ufpSeABEAwdfLR1XWFM2jZbbIm0ft9Nhr4y+eP6L+Hk210
aP1sln10+K8yAmjs6UZx5uKhrG38yD/NHQuQbe/czw6296f3Hm5Pdnf3tw/2pg8e5g/vT6fnBx+17xblsnnEZnJc5aqu2m
palR8dPebBlvLq5peypslrDPajIwyWxlpW06ycV0179/FdgXOkk/C6zdp1E/51Us3y9Cezcplv7qfhljqPs7z+6IPAVKi
O1+18STPR0tr81N49eny3C67zKf3TMMHR/wM=</msis:SAMLResponse>
        <msis:RedirectBindingInformation>
        <msis:Signature>R1FtupsaiITbNa5wL4+mOnuFpRByS5kq/ni5ycqNprqpol0c5+RUOA5/8RkMY787oB8l7FfFJOYw
3FkIhWayaPqclb1HFp7AcuJFPmWVT2bGXbdRV6sCFV0g5X01PsYG+a/9EZdiYUaMCRUvOds0s5SdtmL95FCQP LxkG5PEk
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.

```
<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/ProcessRequest</a:Action>
    <a:MessageID>urn:uuid:5654c3f9-691f-4f9e-aa51-d5d37060dc88</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>
  <s:Body>
    <msis:SignMessageRequest
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>PHNhbWxwOkF1dGhuUmVxdWVzdCBJRd0iXzA4MTZjZjJiLTg2YzUtNDU2Ny04MGVlLTFlkZjVmYjV
jZmYzYiIjYmVyc2lvdj0iMi4wIiBjc3N1ZU1uc3RhbnQ9IjIwMDktMTItMTUUMDE6MzE6MTUuNTBzWiIjYmVyc2lvdjYXRp
b249Imh0dHBzOi8vbG9jYXob3N00jQzNDMvbnVuaXQvRmVhZG91b3R3ZjZhdGlvb1Bhc3NpdmUvIiBDb255ZW50PSJlcm46b2Fza
XM6bmFtZXM6dGM6U0FNTDoyLjA6Y29uc2VudDplbnNwZWNPZml1ZCIgeG1sbnM6c2FtbHA9InVyb3pvczpuYW1lcz
p0YzptQU1MOjIuMDpwcm90b2NvbCIgZ4=</msis:SAMLRequest>
        <msis:PostBindingInformation></msis:PostBindingInformation>
      </msis:Message>
      <msis:Principal>
        <msis:Type>Scope</msis:Type>
        <msis:Identifier>http://externalrp/rp1</msis:Identifier>
      </msis:Principal>
    </msis:SignMessageRequest>
  </s:Body>
</s:Envelope>
```

### 4.3.2 SignMessageResponse Example

This is an example of a reply to a request to create a signed SAML Message, which contains the resulting SAML 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/ProcessRequestResponse</a:Action>
    <a:RelatesTo>urn:uuid:5654c3f9-691f-4f9e-aa51-d5d37060dc88</a:RelatesTo>
    <a:To s:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</a:To>
  </s:Header>
  <s:Body>
```





```

    <s:Body>
      <msis:VerifyMessageResponse
xmlns:s="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">
    <s:Header>
      <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequest</a:Action>
      <a:MessageID>urn:uuid:9525a87c-7b8b-474b-9840-eb3f202ab467</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>
    <s:Body>
      <msis:VerifyMessageRequest
xmlns:s="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>7b0HYBxJliUmL23Ke39K9UrX4HShCIBgEyTYkEAQ7MGIzeaS7B1pRyMpqqyqBymVWZV1mFkDM7Z2
8995777333nvvvfe60510J/ff/z9cZmQBbPb0StrJniGAqsgfP358Hz8iHjfZolw901638+Wr/Bet86ZNz55+9tHvv30w
++n0fG+yffDp9P72/v1PH2wf7OT59u7s/P755P70/Pze5KP0J/O6KarlZx/tjXc+Ss+aZp2fLZs2W7b00c70w+3dve3dg
zc7u4/u7T7avTd+sLv7Ux+lT6mXYpm1/Oa8bVfNo7t3y2qalfOqar/t39u/d3e5Xhbt3Wf5LK+54cusaYrL/O5H6Um1bH
J0sK6Xj6qsKZpHy2yRN4/a6aPXX188f0S4PJPko0frZbPKp8V5kc8+St8tymXziEe8+elVXbXVtCo/OnrMY6r11c0vEYJ
5DVQ/OsKY/CHdfXxX4Bw9vtsn+NH/Aw==</msis:SAMLRequest>
          <msis:RedirectBindingInformation>

          <msis:Signature>GdlKRh71Ko9hiCiS2UoDJ4fSCp1eCB0Zu5GGDYlie1lmaMc3zX/EwaIHd+fOZ+NchzJn5rhrEjznI
5KmV3jdtBDgocf2z3C/U/3HeKVde5eqC7NPchGOHhmodt1Ik2KzxmGwO9st8m4fpLqqrX39oVInL9rIfMs3x9IFg3CoC
k=</msis:Signature>
          <msis:SigAlg>http://www.w3.org/2001/04/xmldsig-more#rsa-sha256</msis:SigAlg>

          <msis:QueryStringHash>ci5RuRIGSZR2Tz4smxkIL1TU1zqAZYP4Pz798X2Z0cc=</msis:QueryStringHash>
        </msis:RedirectBindingInformation>
      </msis:Message>
    </msis:VerifyMessageRequest>
  </s:Body>
</s:Envelope>

```



```

<msis:LogoutState>http%3a%2f%2fexternalrp%2fscope?_ID??http%3a%2f%2fexternalrp%2fscope&False&
foo&&&?ID?</msis:LogoutState>
  </msis:LogoutRequest>
</s:Body>
</s:Envelope>

```

## 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/ProcessRequestResponse</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
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>7b0HYBxJliUmL23Ke39K9UrX4HShCIBgEyTYkEAQ7MGIzeaS7B1pRyMpqqqBymVWZV1mFkDM7Z
28995777333nvvvfe6O510J/ff/z9cZmQBbPbOStrJniGAqsgfP358Hz8iHj fZolw9el5dV0v2Vd6sqmWtp2dPP/vo958
9zD69n+/vbM8e7j3Y3t+/v7N9cJDvbO/s3N+f3D+/n+2cTz5KfzKvm6JafvbR3njno/Ssadb52bJps2VLH+3sPNze3dve
PXizs/vo3u6jvb3xg4cPfuqj9GnetMUya/nNeduumkd375bVNCvnVdM+2r+3f+/u6+df3n2Vz4o6n1rMPkpP8APA1/XyU
ZU1RfNomS3y51E7ffT6+IvnjwiPR1Np9Gi9bFb5tDgv8hnhhtjRQ31Q0vIMH53t7+d6n2+e7D3a29w9m+9sHuzu72/mDWX
bw6e79Sf6Qunu3KJfNIybS5i5XddVW06r86OgxEGWVze/1DVNXoMIHx2BCD4N7j6+K3C0dIpet1m7bsK/TqpZnv5kVq7
zzf003PrRq/wXrYnweFlRevfo8d0Qrv4ZcsLR/wM=</msis:SAMLResponse>
      <msis:RedirectBindingInformation>

<msis:Signature>AIN+zc9QDY7YZ65zRXz0ob4RMuElAGEPuok37NCdWvubEJ4E3awvi8Ieu+v+LsDhBd+zXZmjb7NDU
XUcoTzql0FNoWhlbq34OrMitR4FbGDQMpwBy1Vlmy2MXN7nZvAD+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/ProcessRequest</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:ReplyTo>
    <a:To s:mustUnderstand="1">net.tcp://localhost/samlprotocol</a:To>
  </s:Header>
  <s:Body>
    <msis:LogoutRequest
xmlns:msis="http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/">
      <msis:ActivityId>00000000-0000-0000-0000-000000000000</msis:ActivityId>
      <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">
  <s:Header>
    <a:Action
s:mustUnderstand="1">http://schemas.microsoft.com/ws/2009/12/identityserver/samlprotocol/ProcessRequestResponse</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:Body>
    <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>
```

#### 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/ProcessRequestResponse</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
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>7b0HYBxJliUmL23Ke39K9UrX4HShCIBgEyTYkEAQ7MGIzeaS7B1pRyMpqqyqBymVWZV1mFkDM7Z2
8995777333nvvvfe60510J/ff/z9cZmQBbPbOStrJniGAqsgfP358Hz8iHjfZolw9e15dVOv2Vf6L1nnTpmdPP/vo988f
5vd39/J8e+fBwWx7//7+dPvhvXyyPdmdZg/vH0weTrL7H6U/mddNUS0/+2hvvPNRetY06/xs2bTZsqWPdnYebu/ube8ev
NnZfXRv99HevfG9vYOf+ih9Sr0Uy6z1N+dtu2oe3b2bv2vzepamV9erR/r39e3dfP//y7qt8VtT51GD2UXpSLZscwNf18l
GVNUXzaJkt8uZR0330+viL548Ij0dTafRovWxW+bQ4L/LZR+mLqv1y+WV9fE699HD710H2b1Eum0dMls29rOqqraZV+dH
RYx53La9ufilrmrzGuD86wrhp2GU1zcp51bR3H98VOEePX9B7Z0/fE955VT2+K28e6bS+zhvMztlylr872tnZeXw38rn5
MOCBo/8H</msis:SAMLRequest>
      <msis:RedirectBindingInformation>
        <msis:RelayState>RelayState</msis:RelayState>

<msis:Signature>TgTFsKkfCEEt6iu18kZzRzx00qCxAqelkobQaaS6vV8iXeqmIAdYBvZeTykQaif3KYp5herI6evS
MXAlP7KwX/GG/8o5e6QbNiBZTn48Cti+YJF7yqCZ5HPX/gRg9e9CL8LvMvy8hBa8rDnDOH3eRZFwQNSzJzdVVSqs+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 must 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 must 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 full **Web Services Description Language (WSDL)** is provided below:

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:wsa10="http://www.w3.org/2005/08/addressing"
xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/" xmlns:wsu="http://docs.oasis-
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:misc="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/wsdl" 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 released service packs:

- Windows Server® 2003 R2 operating system
- Windows Server® 2008 operating system
- Windows Server® 2008 R2 operating system
- Active Directory Federation Services (ADFS) 2.0

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product 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.

## 9 Index

### A

Abstract data model  
  client ([section 3.1.1](#) 22, [section 3.3.1](#) 27)  
  server ([section 3.1.1](#) 22, [section 3.2.1](#) 26)  
[Applicability](#) 9  
[Attribute groups](#) 21  
[Attributes](#) 21

### C

[Capability negotiation](#) 9  
[Change tracking](#) 46  
Client  
  abstract data model ([section 3.1.1](#) 22, [section 3.3.1](#) 27)  
  [CreateErrorMessage operation](#) 25  
  initialization ([section 3.1.3](#) 22, [section 3.3.3](#) 27)  
  [Issue operation](#) 24  
  local events ([section 3.1.6](#) 26, [section 3.3.6](#) 28)  
  [Logout operation](#) 24  
  message processing ([section 3.1.4](#) 22, [section 3.3.4](#) 27)  
  [multiple operations](#) 25  
  overview ([section 3.1](#) 22, [section 3.3](#) 27)  
  sequencing rules ([section 3.1.4](#) 22, [section 3.3.4](#) 27)  
  [SignInMessage operation](#) 23  
  timer events ([section 3.1.5](#) 26, [section 3.3.5](#) 27)  
  timers ([section 3.1.2](#) 22, [section 3.3.2](#) 27)  
  [VerifyMessage operation](#) 23

### Complex types

[overview](#) 17  
[PostBindingType](#) 19  
[PrincipalType](#) 18  
[RedirectBindingType](#) 19  
[RequestType](#) 18  
[ResponseType](#) 18  
[SamlMessageType](#) 18  
[CreateErrorMessage operation](#) 25  
[CreateErrorMessageRequest example](#) 32  
[CreateErrorMessageRequest message](#) 16  
[CreateErrorMessageResponse example](#) 33  
[CreateErrorMessageResponse message](#) 17

### D

Data model - abstract  
  client ([section 3.1.1](#) 22, [section 3.3.1](#) 27)  
  server ([section 3.1.1](#) 22, [section 3.2.1](#) 26)

### E

Events  
  local  
    client ([section 3.1.6](#) 26, [section 3.3.6](#) 28)  
    server ([section 3.1.6](#) 26, [section 3.2.6](#) 27)  
  timer  
    client ([section 3.1.5](#) 26, [section 3.3.5](#) 27)

  server ([section 3.1.5](#) 26, [section 3.2.5](#) 27)

### Examples

[CreateErrorMessageRequest](#) 32  
[CreateErrorMessageResponse](#) 33  
[IssueRequest](#) 29  
[IssueResponse](#) 30  
[IssueResponse example using artifact binding](#) 32  
[LogoutRequest](#) 38  
[LogoutRequest example - locally initiated](#) 39  
[LogoutRequest example with SAMLResponse and RelayState](#) 40  
[LogoutResponse](#) 39  
[LogoutResponse example - final response to locally initiated request](#) 40  
[LogoutResponse example with SAMLRequest and RelayState](#) 42  
[SignInMessageRequest](#) 34  
[SignInMessageResponse](#) 34  
[VerifyMessageRequest](#) 35  
[VerifyMessageResponse](#) 36  
[VerifyMessageResponse example using redirect binding](#) 37

### F

[Fields - vendor-extensible](#) 9  
[Full WSDL](#) 44

### G

[Glossary](#) 6  
[Groups](#) 21

### I

[Implementer - security considerations](#) 43  
[Index of security parameters](#) 43  
[Informative references](#) 8  
Initialization  
  client ([section 3.1.3](#) 22, [section 3.3.3](#) 27)  
  server ([section 3.1.3](#) 22, [section 3.2.3](#) 27)  
[Introduction](#) 6  
[Issue operation](#) 24  
[IssueRequest example](#) 29  
[IssueRequest message](#) 13  
[IssueResponse example](#) 30  
[IssueResponse example using artifact binding](#) 32  
[IssueResponse message](#) 14

### L

Local events  
  client ([section 3.1.6](#) 26, [section 3.3.6](#) 28)  
  server ([section 3.1.6](#) 26, [section 3.2.6](#) 27)  
[Logout operation](#) 24  
[LogoutRequest example](#) 38  
[LogoutRequest example - locally initiated](#) 39  
[LogoutRequest example with SAMLResponse and RelayState](#) 40

[LogoutRequest message](#) 15  
[LogoutResponse example](#) 39  
[LogoutResponse example - final response to locally initiated request](#) 40  
[LogoutResponse example with SAMLRequest and RelayState](#) 42  
[LogoutResponse message](#) 15  
[LogoutStatusType simple type](#) 20

## M

Message processing  
  client ([section 3.1.4](#) 22, [section 3.3.4](#) 27)  
  server ([section 3.1.4](#) 22, [section 3.2.4](#) 27)

Messages  
  [attribute groups](#) 21  
  [attributes](#) 21  
  [complex types](#) 17  
  [CreateErrorMessageRequest message](#) 16  
  [CreateErrorMessageResponse message](#) 17  
  [elements](#) 17  
  [enumerated](#) 10  
  [groups](#) 21  
  [IssueRequest message](#) 13  
  [IssueResponse message](#) 14  
  [LogoutRequest message](#) 15  
  [LogoutResponse message](#) 15  
  [LogoutStatusType simple type](#) 20  
  [namespaces](#) 10  
  [PostBindingType complex type](#) 19  
  [PrincipalType complex type](#) 18  
  [PrincipalTypes simple type](#) 20  
  [RedirectBindingType complex type](#) 19  
  [RequestType complex type](#) 18  
  [ResponseType complex type](#) 18  
  [SamlMessageType complex type](#) 18  
  [SignMessageRequest message](#) 11  
  [SignMessageResponse message](#) 12  
  [simple types](#) 20  
  [syntax](#) 10  
  [transport](#) 10  
  [VerifyMessageRequest message](#) 12  
  [VerifyMessageResponse message](#) 13  
[Multiple operations](#) 25

## N

[Namespaces](#) 10  
[Normative references](#) 7

## O

Operations  
  [CreateErrorMessage](#) 25  
  [Issue](#) 24  
  [Logout](#) 24  
  [multiple operations](#) 25  
  [SignMessage](#) 23  
  [VerifyMessage](#) 23  
[Overview \(synopsis\)](#) 8

## P

[Parameters - security index](#) 43  
[PostBindingType complex type](#) 19  
[Preconditions](#) 9  
[Prerequisites](#) 9  
[PrincipalType complex type](#) 18  
[PrincipalTypes simple type](#) 20  
[Product behavior](#) 45

## R

[RedirectBindingType complex type](#) 19  
References  
  [informative](#) 8  
  [normative](#) 7  
[Relationship to other protocols](#) 8  
[RequestType complex type](#) 18  
[ResponseType complex type](#) 18

## S

[SamlMessageType complex type](#) 18  
Security  
  [implementer considerations](#) 43  
  [parameter index](#) 43  
Sequencing rules  
  client ([section 3.1.4](#) 22, [section 3.3.4](#) 27)  
  server ([section 3.1.4](#) 22, [section 3.2.4](#) 27)

Server  
  abstract data model ([section 3.1.1](#) 22, [section 3.2.1](#) 26)  
  [CreateErrorMessage operation](#) 25  
  initialization ([section 3.1.3](#) 22, [section 3.2.3](#) 27)  
  [Issue operation](#) 24  
  local events ([section 3.1.6](#) 26, [section 3.2.6](#) 27)  
  [Logout operation](#) 24  
  message processing ([section 3.1.4](#) 22, [section 3.2.4](#) 27)  
  [multiple operations](#) 25  
  [overview](#) 22  
  sequencing rules ([section 3.1.4](#) 22, [section 3.2.4](#) 27)  
  [SignMessage operation](#) 23  
  timer events ([section 3.1.5](#) 26, [section 3.2.5](#) 27)  
  timers ([section 3.1.2](#) 22, [section 3.2.2](#) 26)  
  [VerifyMessage operation](#) 23  
[SignMessage operation](#) 23  
[SignMessageRequest example](#) 34  
[SignMessageRequest message](#) 11  
[SignMessageResponse example](#) 34  
[SignMessageResponse message](#) 12  
Simple types  
  [LogoutStatusType](#) 20  
  [overview](#) 20  
  [PrincipalTypes](#) 20  
[Standards assignments](#) 9  
[Syntax - messages - overview](#) 10

## T

Timer events  
  client ([section 3.1.5](#) 26, [section 3.3.5](#) 27)  
  server ([section 3.1.5](#) 26, [section 3.2.5](#) 27)



Timers  
  client ([section 3.1.2](#) 22, [section 3.3.2](#) 27)  
  server ([section 3.1.2](#) 22, [section 3.2.2](#) 26)  
[Tracking changes](#) 46  
[Transport](#) 10  
Types  
  [complex](#) 17  
  [simple](#) 20

## **V**

[Vendor-extensible fields](#) 9  
[VerifyMessage operation](#) 23  
[VerifyMessageRequest example](#) 35  
[VerifyMessageRequest message](#) 12  
[VerifyMessageResponse example](#) 36  
[VerifyMessageResponse example using redirect binding](#) 37  
[VerifyMessageResponse message](#) 13  
[Versioning](#) 9

## **W**

[WSDL](#) 44