

# Reliable Secure Profile Version 1.0

## Committee Specification 01

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#### Related work:

This specification is related to:

- WS-I Reliable Secure Profile 1.0 Final Material 2010-11-09. <http://www.ws-i.org/Profiles/ReliableSecureProfile-1.0-2010-11-09.html>.

#### Abstract:

This document defines the WS-I Reliable Secure Profile Version 1.0 consisting of a set of clarifications, refinements, interpretations and amplifications to a combination of non-proprietary Web services specifications in order to promote interoperability. In particular it profiles the use of WS-SecureConversation, WS-ReliableMessaging and WS-MakeConnection. This profile extends either one of the Basic Profiles BP1.2 or BP2.0.

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This document was last revised or approved by the OASIS Web Services Basic Reliable and Secure Profiles (WS-BRSP) TC on the above date. The level of approval is also listed above. Check the “Latest version” location noted above for possible later revisions of this document.

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# Table of Contents

1	Introduction .....	7
1.1	Relationships to Other Profiles .....	7
1.2	Guiding Principles .....	8
1.3	Test Assertions .....	9
1.4	Notational Conventions .....	9
1.5	Terminology .....	10
1.6	Profile Identification and Versioning .....	10
1.7	Normative References .....	10
1.8	Non-Normative References .....	12
2	Conformance .....	13
2.1	Requirements Semantics .....	13
2.2	Conformance Targets .....	14
2.3	Conformance Scope .....	14
2.4	Conformance Clauses .....	15
2.4.1	Core Conformance based on BP1.2 .....	15
2.4.2	HTTP-transport Conformance based on BP1.2 .....	15
2.4.3	Core Conformance based on BP2.0 .....	16
2.4.4	HTTP-transport Conformance based on BP2.0 .....	16
2.5	Claiming Conformance .....	16
2.5.1	Claiming Conformance using Conformance Claim Attachment Mechanisms .....	16
2.5.2	Claiming Conformance using WS-Policy and WS-PolicyAttachment .....	17
3	Reliable Messaging .....	19
3.1	WS-ReliableMessaging Support .....	20
3.1.1	Requiring WS-ReliableMessaging .....	20
3.2	Use of Extension Elements and Attributes in Messages .....	20
3.2.1	Ignore Unknown Extension Elements .....	20
3.3	SOAP Version Considerations .....	20
3.3.1	SOAP Version Selection for Sequence Lifecycle Messages .....	21
3.4	Targeting Sequence Lifecycle Messages .....	21
3.4.1	CreateSequence Target .....	21
3.4.2	Use of the Offer Element .....	22
3.5	Sequence Identifiers .....	22
3.5.1	Duplicate Identifier in CreateSequenceResponse .....	22
3.6	Sequence Termination .....	23
3.6.1	Sequence Termination from the Destination .....	23
3.6.2	Last Message Number .....	23
3.6.3	Sequence Lifecycle Independence .....	23
3.7	Sequence Faults .....	23
3.7.1	WS-ReliableMessaging Faults .....	24
3.8	Sequence Assignment .....	24
3.8.1	Reliable Response Messages .....	24
3.8.2	Scope of an RM Node .....	24
3.9	Retransmission of Messages .....	25

3.9.1 Retransmission of Unacknowledged Messages .....	25
3.9.2 Retransmission of Sequence Lifecycle Messages.....	25
3.9.3 Message Identity .....	25
3.10 Piggybacking .....	26
3.10.1 Endpoint Comparison for Piggybacked SequenceAcknowledgment Headers .....	26
3.10.2 Treatment of ReferenceParameters in AcksTo EPRs .....	26
3.10.3 Preventing Piggybacked Acknowledgements .....	27
3.10.4 Conflicting Requirements for wsa:Action .....	27
3.10.5 Use of the mustUnderstand Attribute .....	28
4 Secure Conversation.....	29
4.1 WS-SecureConversation Support .....	29
4.1.1 Requiring WS-SecureConversation .....	29
4.2 Optionality of Operations .....	29
4.2.1 Support for Amending Contexts .....	30
4.2.2 Support for Renewing Contexts .....	30
4.2.3 Support for Canceling Contexts .....	30
4.3 Unsupported Context Tokens.....	31
4.3.1 Unrecognized Extensions in a Security Context Token .....	31
4.4 Demonstrating Proof of Possession .....	31
4.4.1 Amending Contexts .....	31
4.4.2 Renewing Contexts .....	31
4.4.3 Cancelling Contexts .....	32
4.5 Claims Re-Authentication .....	32
4.5.1 Re-Authenticating Claims.....	32
4.6 Referencing Security Context Tokens .....	32
4.6.1 Associating a Security Context.....	32
4.6.2 Derived Token References to Security Contexts .....	32
4.7 Addressing Headers .....	33
4.7.1 Protecting Addressing Headers.....	33
5 Make Connection.....	34
5.1 WS-MakeConnection Support .....	34
5.1.1 Requiring WS-MakeConnection .....	34
5.1.2 Honoring EPRs with the MakeConnection Anonymous URI.....	34
5.2 Guidance On the Use of MakeConnection .....	35
5.2.1 Action Values.....	35
5.2.2 Binding to HTTP .....	35
5.2.3 Transmission of MakeConnection Faults .....	37
5.3 MakeConnection Addressing.....	37
5.3.1 Addressing Variants .....	38
5.3.2 MakeConnection Anonymous URI .....	38
5.4 MakeConnection Fault Behavior .....	39
5.4.1 [Detail] Property Mapping.....	39
6 Secure Reliable Messaging.....	40
6.1 Initiating a Secure Sequence.....	40
6.1.1 Secure Context Identification .....	40

6.1.2 Security Token References .....	40
6.2 Signature Coverage .....	40
6.2.1 Single Signature for Sequence Header and SOAP Body .....	41
6.2.2 Signed Elements .....	41
6.2.3 Single Signature for SOAP 1.1 Fault and SequenceFault Header .....	42
6.3 Secure Use of MakeConnection .....	42
6.3.1 Security Context for MakeConnection .....	42
6.3.2 Signing the MessagePending header .....	42
6.4 Replay Detection .....	43
6.4.1 Unique Timestamp Values .....	43
Appendix A. Extensibility Points .....	44
Appendix B. Schemas .....	46
Appendix C. Testing .....	47
C.1 Testability of Requirements .....	47
C.2 Structure of Test Assertions .....	47
C.3 Test Log Conventions .....	50
Appendix D. Test Assertions .....	51
Appendix E. Acknowledgments .....	87
Appendix F. Revision History .....	88

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# 1 Introduction

This document defines the WS-I Reliable Secure Profile 1.0 (hereafter, "Profile"), consisting of a set of non-proprietary Web services specifications, along with clarifications, refinements, interpretations and amplifications of those specifications which promote interoperability.

Section 1 introduces the Profile, and explains its relationships to other profiles.

Section 2, "Profile Conformance," explains what it means to be conformant to the Profile.

Each subsequent section addresses a component of the Profile, and consists of two parts; an overview detailing the component specifications and their extensibility points, followed by subsections that address individual parts of the component specifications. Note that there is no relationship between the section numbers in this document and those in the referenced specifications.

## 1.1 Relationships to Other Profiles

This Profile is intended to be composed with the WS-I Basic Profile 1.2 **[BP1.2]**, WS-I Basic Profile 2.0 **[BP2.0]**, WS-I Basic Security Profile 1.0 **[BSP1.0]** and WS-I Basic Security Profile 1.1 **[BSP1.1]**.

Composability of RSP with the previously mentioned profiles offers the following guarantee to users: conformance of an artifact to RSP does not prevent conformance of this artifact to these other profiles, and vice-versa.

Because the conformance targets defined for RSP may not match exactly the conformance targets for another profile, the following more precise definition of composability is assumed in this profile:

*A profile P2 is said to be composable with a profile P1 if, for any respective pair of conformance targets (T2, T1) where T1 depends on T2 (see definition below), conformance of an instance of T2 to P2 does not prevent conformance of the related T1 instance(s) to P1, and vice-versa in case T2 depends on T1.*

A target T1 is said to depend on a target T2 if either:

- T2 and T1 are just different names for the same type of artifact (e.g. ENVELOPE in RSP and SOAP\_ENVELOPE in BSP)
- or T2 is a specialization (or particular instance) of T1 (e.g. SECURE\_ENVELOPE in BSP is a specialization of ENVELOPE in RSP)
- T2 is contained in T1 (e.g. SECURITY\_HEADER in BSP is contained in ENVELOPE in RSP)
- more generally, an instance of T2 will restrict in some way the possible values - or behaviors - of T1 instances associated with it.

In order to conform to this profile (RSP):

- If SOAP 1.1 is being used, all requirements defined in BP 1.2 must be complied with.
- If SOAP 1.2 is being used, all requirements defined in BP 2.0 must be complied with.
- Implementations must conform to the WS-Addressing 1.0 - Core and SOAP Binding specifications, and if WSDL is used, the WS-Addressing 1.0 - Metadata specification.

## 1.2 Guiding Principles

The Profile was developed according to a set of principles that, together, form the philosophy of the Profile, as it relates to bringing about interoperability. This section documents these guidelines.

### *No guarantee of interoperability*

It is impossible to completely guarantee the interoperability of a particular service. However, the Profile does address the most common problems that implementation experience has revealed to date.

### *Application semantics*

Although communication of application semantics can be facilitated by the technologies that comprise the Profile, assuring the common understanding of those semantics is not addressed by it.

### *Testability*

When possible, the Profile makes statements that are testable. However, such testability is not required. Preferably, testing is achieved in a non-intrusive manner (e.g., examining artifacts "on the wire").

### *Strength of requirements*

The Profile makes strong requirements (e.g., MUST, MUST NOT) wherever feasible; if there are legitimate cases where such a requirement cannot be met, conditional requirements (e.g., SHOULD, SHOULD NOT) are used. Optional and conditional requirements introduce ambiguity and mismatches between implementations.

### *Restriction vs. relaxation*

When amplifying the requirements of referenced specifications, the Profile may restrict them, but does not relax them (e.g., change a MUST to a MAY).

### *Multiple mechanisms*

If a referenced specification allows multiple mechanisms to be used interchangeably, the Profile selects those that are well-understood, widely implemented and useful. Extraneous or underspecified mechanisms and extensions introduce complexity and therefore reduce interoperability.

### *Future compatibility*

When possible, the Profile aligns its requirements with in-progress revisions to the specifications it references. This aids implementers by enabling a graceful transition, and assures that WS-I does not 'fork' from these efforts. When the Profile cannot address an issue in a specification it references, this information is communicated to the appropriate body to assure its consideration.

### *Compatibility with deployed services*

Backwards compatibility with deployed Web services is not a goal for the Profile, but due consideration is given to it; the Profile does not introduce a change to the requirements of a referenced specification unless doing so addresses specific interoperability issues.

### *Focus on interoperability*

Although there are potentially a number of inconsistencies and design flaws in the referenced specifications, the Profile only addresses those that affect interoperability.

### *Conformance targets*

Where possible, the Profile places requirements on artifacts (e.g., WSDL descriptions, SOAP messages) rather than the producing or consuming software's behaviors or roles. Artifacts are concrete, making them easier to verify and therefore making conformance easier to understand and less error-prone.

### *Lower-layer interoperability*

The Profile speaks to interoperability at the application layer; it assumes that interoperability of lower-layer protocols (e.g., TCP, IP, Ethernet) is adequate and well-understood. Similarly, statements about application-layer substrate protocols (e.g., SSL/TLS, HTTP) are only made when there is an issue affecting Web services specifically; WS-I does not attempt to assure the interoperability of these protocols as a whole. This assures that WS-I's expertise in and focus on Web services standards is used effectively.



## 1.3 Test Assertions

This profile document is complemented by Appendix D Test Assertions (TA) that contains scripted (XPath 2.0) test assertions for assessing conformance of an endpoint to the RSP 1.0 profile.

Test assertions are not guaranteed to exhaustively cover every case where a profile requirement applies. In several instances, more than one test assertion is needed to address the various situations where a profile requirement applies

Each profile requirement is tagged with:

- The level of conformance this requirement belongs to (either CORE, or HTTP-TRANSPORT). See the Conformance section.
- A testability assessment (TESTABLE, TESTABLE\_SCENARIO\_DEPENDENT, NOT\_TESTED, NOT\_TESTABLE)
- Optionally, one or more test assertion identifiers (e.g. BP1905)

The structure of test assertions and the meaning of the testability assessment are described in Appendix C. Testing

## 1.4 Notational Conventions

The key words MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL in this document are to be interpreted as described in [RFC2119].

Normative statements in the Profile (i.e., those impacting conformance, as outlined in Section 2) are called "Requirements" and presented in the following manner:

**Rnnnn** *Statement text here.*

where "nnnn" is replaced by a number that is unique among the Requirements in the Profile, thereby forming a unique Requirement identifier.

Extensibility points in underlying specifications (see Section 2.3 "Conformance Scope") are presented in a similar manner:

**Ennnn** *Extensibility Point Name - Description*

where "nnnn" is replaced by a number that is unique among the extensibility points in the Profile. As with requirement statements, extensibility statements can be considered namespace-qualified.

This specification uses a number of namespace prefixes throughout; their associated URIs are listed below. Note that the choice of any namespace prefix is arbitrary and not semantically significant.

- **soap11** - "http://schemas.xmlsoap.org/soap/envelope/"
- **soap12** - "http://www.w3.org/2003/05/soap-envelope"
- **wsdl** - "http://schemas.xmlsoap.org/wsdl/"
- **wsa** - "http://www.w3.org/2005/08/addressing"
- **wsrm** - "http://docs.oasis-open.org/ws-rx/wsrm/200702"
- **wsmc** - "http://docs.oasis-open.org/ws-rx/wsmc/200702"
- **wssc** - "http://docs.oasis-open.org/ws-sx/ws-secureconversation/200512"
- **wst** - "http://docs.oasis-open.org/ws-sx/ws-trust/200512"

- **wsse** - "http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
- **wsu** - "http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"

## 1.5 Terminology

The following list of terms have specific definitions that are authoritative for this profile:

**non-addressable client** - a client deployed on a host that cannot accept incoming connections from the services to which it transmits requests. Examples include clients that are deployed on hosts behind a firewall or network address translation (NAT).

**addressable client** - a client deployed on a host that is capable of accepting incoming connections from the services to which it transmits requests.

## 1.6 Profile Identification and Versioning

This document is identified by a name (in this case, Reliable Secure Profile) and a version number (here, 1.0). Together, they identify a *profile* (here, Reliable Secure Profile 1.0).

Version numbers are composed of a major and minor portion, in the form "major.minor". They can be used to determine the precedence of a profile instance; a higher version number (considering both the major and minor components) indicates that an instance is more recent, and therefore supersedes earlier instances.

Instances of profiles with the same name (e.g., "Example Profile 1.1" and "Example Profile 5.0") address interoperability problems in the same general scope (although some developments may require the exact scope of a profile to change between instances).

One can also use this information to determine whether two instances of a profile are backwards-compatible; that is, whether one can assume that conformance to an earlier profile instance implies conformance to a later one. Profile instances with the same name and major version number (e.g., "Example Profile 1.0" and "Example Profile 1.1") may be considered compatible. Note that this does not imply anything about compatibility in the other direction; that is, one cannot assume that conformance with a later profile instance implies conformance to an earlier one.

## 1.7 Normative References

- [BP1.2] *Basic Profile Version 1.2*. Edited by Tom Rutt, Micah Hainline, Ram Jeyaraman, and Jacques Durand. 16 June 2014. OASIS Committee Specification 01.  
<http://docs.oasis-open.org/ws-brsp/BasicProfile/v1.2/cs01/BasicProfile-v1.2-cs01.html>. Latest version: <http://docs.oasis-open.org/ws-brsp/BasicProfile/v1.2/BasicProfile-v1.2.html>.

- [BP2.0]** *Basic Profile Version 2.0*. Edited by Tom Rutt, Micah Hainline, Ram Jeyaraman, and Jacques Durand. 16 June 2014. OASIS Committee Specification 01. <http://docs.oasis-open.org/ws-brsp/BasicProfile/v2.0/cs01/BasicProfile-v2.0-cs01.html>. Latest version: <http://docs.oasis-open.org/ws-brsp/BasicProfile/v2.0/BasicProfile-v2.0.html>.
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- [BSP1.1]** *Basic Security Profile 1.1* , OASIS Committee Specification Draft, May 2013. (TBD)
- [claimAttachment]** M. Nottingham et al , "WS-I Conformance Claim Attachment Mechanisms Version 1.0", November 2004. <http://www.ws-i.org/Profiles/ConformanceClaims-1.0-2004-11-15.html>
- [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>.
- [RFC3987]** Duerst, M. and M. Sugnard, "Internationalized Resource Identifiers (IRIs)", RFC 3987, January 2005,. <http://www.ietf.org/rfc/rfc3987.txt>
- [SOAP1.2-2]** "SOAP Version 1.2 Part 2: Adjuncts (Second Edition)", M. Gudgin, M. Hadley, N. Mendelsohn, J. Moreau, H. Frystyk Nielsen,, A. Karmarkar, Y. Lafon, Editors, W3C Recommendation, 27 April 2007, <http://www.w3.org/TR/2007/REC-soap12-part2-20070427/> (Section 6.2 SOAP Request-Response Message Exchange Pattern)
- [WSAddrCore]** "WS-Addressing 1.0 - Core , M. Gudgin, M. Hadley, T. Rogers, Editors, W3C Recommendation, 9 May 2006,<http://www.w3.org/TR/2006/REC-ws-addr-core-20060509/>
- [WSAddrSoap]** "WS-Addressing 1.0 – SOAP Binding", M. Gudgin, M. Hadley, T. Rogers, Editors, W3C Recommendation, 9 May 2006,.<http://www.w3.org/TR/2006/REC-ws-addr-soap-20060509/>
- [WSDL1.1]** "Web Services Description Language (WSDL) 1.1", W3C Note, 15 March 2001. <http://www.w3.org/TR/2001/NOTE-wsdl-20010315> (Section 2.4 Port Types)
- [WSMC1.1]** "Web Services Make Connection (WS-MakeConnection) Version 1.1", OASIS Standard, 2 February 2009,. <http://docs.oasis-open.org/ws-rx/wsmc/200702/wsmc-1.1-spec-os.html>
- [WSRM1.2]** "Web Services Reliable Messaging (WS-ReliableMessaging) Version 1.2", OASIS Standard, 2 February 2009,. <http://docs.oasis-open.org/ws-rx/wsrn/200702/wsrn-1.2-spec-os.html>
- [WSSecCon1.4]** "WS-SecureConversation 1.4", OASIS Standard, 2 February 2009,. <http://docs.oasis-open.org/ws-sx/ws-secureconversation/v1.4/os/ws-secureconversation-1.4-spec-os.html>
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- [xmlNames]** T "Namespaces in XML 1.0" (Second Edition),T. Bray, D. Hollander, A. Layman, R. Tobin, Editors, W3C Recommendation, August 2006.  
<http://www.w3.org/TR/2006/REC-xml-names-20060816/>

## 1.8 Non-Normative References

- [SOAP1.1]** "Simple Object Access Protocol (SOAP) 1.1", W3C Note, 08 May 2000,  
<http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>

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## 2 Conformance

Conformance to the Profile is defined by adherence to the set of identified *Requirements* defined for a specific *target*, within the *scope* of the Profile. This section explains these terms and describes how conformance is defined and used.

### 2.1 Requirements Semantics

The Profile is defined using a set of Requirements (see section 1.4 for the general format of a Requirement, including its identification). Each Requirement is an atomic normative statement targeting a particular artifact subject to conformance assessment. In other words, Requirements state the criteria for conformance to the Profile. They typically refer to an existing specification and embody refinements, amplifications, interpretations and clarifications to it in order to improve interoperability. All Requirements in the Profile are normative, and those in the specifications it references that are in-scope (see "Conformance Scope") should likewise be considered normative. When Requirements in the Profile and its referenced specifications contradict each other, the Profile's Requirements take precedence for purposes of Profile conformance.

Requirement levels, using [RFC2119] language (e.g., MUST, MAY, SHOULD) indicate the nature of the requirement and its impact on conformance. Each Requirement is individually identified (e.g., R9999) for convenience.

For example;

**R9999** Any **WIDGET** *SHOULD* be round in shape.

This Requirement is identified by "R9999", applies to the target WIDGET (see below), and places a conditional requirement upon widgets.

Each Requirement statement contains exactly one Requirement level keyword (e.g., "MUST") and one conformance target keyword (e.g., "MESSAGE"). The conformance target keyword appears in bold text (e.g. "**MESSAGE**"). Other conformance targets appearing in non-bold text are being used strictly for their definition and NOT as a conformance target. Additional text may be included to illuminate a Requirement or group of Requirements (e.g., rationale and examples); however, prose surrounding Requirement statements must not be considered in determining conformance.

Definitions of terms in the Profile are considered authoritative for the purposes of determining conformance.

No other content is normative in this document outside the numbered Requirements and the conformance claim mechanisms (section 2.5). In particular:

- Examples material is not normative and only intended as illustrative.
- Appendix material is not normative.
- Test Assertions associated with this profile specification are not normative.
- Explanatory text introducing Requirements is not normative.
- Notes are not normative.
- Schemas are not normative.

## 2.2 Conformance Targets

Conformance targets identify what artifacts (e.g., SOAP message, WSDL description, UDDI registry data) or parties (e.g., SOAP processor, end user) requirements apply to.

This allows for the definition of conformance in different contexts, to assure unambiguous interpretation of the applicability of requirements, and to allow conformance testing of artifacts (e.g., SOAP messages and WSDL descriptions) and the behavior of various parties to a Web service (e.g., clients and service instances).

Requirements' conformance targets are physical artifacts wherever possible, to simplify testing and avoid ambiguity.

The following conformance targets are used in the Profile:

- **MESSAGE** - protocol elements that transport the ENVELOPE (e.g., SOAP/HTTP messages) (from Basic Profile 1.1 [BP1.1])
- **ENVELOPE** - the serialization of the soap:Envelope element and its content (from Basic Profile 1.1 [BP1.1])
- **INSTANCE** - software that implements a wsdl:port or a uddi:bindingTemplate (from Basic Profile 1.1 [BP1.1])
- **CONSUMER** - software that invokes an INSTANCE (from Basic Profile 1.1 [BP1.1])
- **SENDER** - software that generates a message according to the protocol(s) associated with it (from Basic Profile 1.1 [BP1.1])
- **RECEIVER** - software that consumes a message according to the protocol(s) associated with it (e.g., SOAP processors) (from Basic Profile 1.1 [BP1.1])
- **MC-SENDER** - software that generates a message containing an EPR that uses the wsmc:MakeConnection Anonymous URI, and generates a MakeConnection message as defined by WS-MakeConnection 1.1 (from WS-MakeConnection 1.1 [WSMC1.1])
- **MC-RECEIVER** - software that consumes a MakeConnection message as defined by WS-MakeConnection 1.1 (from WS-MakeConnection 1.1 [WSMC1.1])
- **RMS** - RM Source as defined by WS-ReliableMessaging 1.2 (from WS-ReliableMessaging 1.1 [WSRM1.2])
- **RMD** - RM Destination as defined by WS-ReliableMessaging 1.2 (from WS-ReliableMessaging 1.1 [WSRM1.2])
- **RM-NODE** - an instance of either an RM Source or an RM Destination (as defined above)

## 2.3 Conformance Scope

The Profile's functional includes the set of specifications referenced by it. However the conformance requirements that are proper to each one of these underlying specifications (e.g. defining conformance to SOAP 1.1) are not part of the Profile. Only the requirements and restrictions put on the usage of these specifications are part of the Profile. In other words, claiming conformance to this Profile does not imply conformance to SOAP1.1, but it implies a particular way to use SOAP1.1.

The Profile's scope is further limited by extensibility points. Referenced specifications often provide extension mechanisms and unspecified or open-ended configuration parameters; when identified in the Profile as an extensibility point, such a mechanism or parameter is outside the scope of the Profile, and its use or non-use is not relevant to conformance. These extensibility points are however listed here to point at possible risks of interoperability loss that are not addressed by the Profile. Because the use of extensibility points may impair interoperability, their use should be negotiated or documented in some fashion by the parties to a Web service; for example, this could take the form of an out-of-band agreement.

However the Profile may still express constraints on the use of an extensibility point. Also, specific uses of extensibility points may be further restricted by other profiles, to improve interoperability when used in conjunction with the Profile.

The Profile's scope is defined by the referenced specifications in clause 1.7, as limited by the extensibility points in Appendix A.

## 2.4 Conformance Clauses

This Profile concerns several conformance targets. Conformance targets are identified in requirements as described in Section 2.2.

This Profile is an extension of the Basic Profile (1.2 or 2.0) and therefore conformance to this profile should always be mentioned or claimed in conjunction with a mention or claim about which one of the basic profile (V1.2 or V2.0) is used as foundation, as well as which level of conformance is used for the Basic Profile (Core or HTTP-Transport).

In addition, to claim conformance to this Profile, a deployed INSTANCE target must support one or more of the WS-ReliableMessaging (WS-RM), WS-SecureConversation (WS-SC), or WS-MakeConnection (WS-MC) protocols, either individually or in some combination thereof, in a manner that conforms to the requirements set forth in this profile.

The four conformance clauses for RSP1.0 reflect the various ways this profile can use the underlying Basic Profile.

### 2.4.1 Core Conformance based on BP1.2

A conformance target (as defined in Section 2.2) is said to be conforming to this profile over BP1.2 at the core conformance level if both conditions below are satisfied:

- (a) this target is conforming with BP1.2 at Core level,
- (b) this target fulfills all the mandatory RSP1.0 requirements that identify this target type and also relevant to the combination of WS specifications claimed to be supported among WS-ReliableMessaging (WS-RM), WS-SecureConversation (WS-SC), and WS-MakeConnection, except for those requirements that only apply in the context of using HTTP (in 5.2.2 "Binding to HTTP" ).

Therefore, claims for Core conformance based on BP1.2 should also mention the subset of WS specifications supported by the INSTANCE involved.

### 2.4.2 HTTP-transport Conformance based on BP1.2

A conformance target (as defined in Section **Error! Reference source not found.**) is said to be conforming to this profile over BP1.2 at the HTTP-transport conformance level if both conditions below are satisfied:

- (a) this target is conforming with BP1.2 at HTTP-transport level,
- (b) this target fulfills all the mandatory RSP1.0 Requirements that identify this target type and also relevant to the combination of WS specifications claimed to be supported among WS-ReliableMessaging (WS-RM), WS-SecureConversation (WS-SC), and WS-MakeConnection

Therefore, claims for HTTP-transport conformance based on BP1.2 should also mention the subset of WS specifications supported by the INSTANCE involved.



### 2.4.3 Core Conformance based on BP2.0

A conformance target (as defined in Section 2.2) is said to be conforming to this profile over BP2.0 at the core conformance level if both conditions below are satisfied:

- (a) this target is conforming with BP2.0 at Core level,
- (b) this target fulfills all the mandatory RSP1.0 Requirements that identify this target type and also relevant to the combination of WS specifications claimed to be supported among WS-ReliableMessaging (WS-RM), WS-SecureConversation (WS-SC), and WS-MakeConnection except for those requirements that only apply in the context of using HTTP (in 5.2.2 Binding to HTTP ).

Therefore, claims for Core conformance based on BP2.0 should also mention the subset of WS specifications supported by the INSTANCE involved.

### 2.4.4 HTTP-transport Conformance based on BP2.0

A conformance target (as defined in Section 2.2) is said to be conforming to this profile over BP2.0 at the HTTP-transport conformance level if both conditions below are satisfied:

- (a) this target is conforming with BP2.0 at HTTP-transport level,
- (b) this target fulfills all the mandatory RSP1.0 requirements that identify this target type and also relevant to the combination of WS specifications claimed to be supported (among WS-ReliableMessaging (WS-RM), WS-SecureConversation (WS-SC), and WS-MakeConnection)

Therefore, claims for HTTP-transport conformance based on BP2.0 should also mention the subset of WS specifications supported by the INSTANCE involved.

## 2.5 Claiming Conformance

Deployed instances MAY advertise their conformance to this Profile either through the use of mechanisms as described in Conformance Claim Attachment Mechanisms [claimAttachment] (see section 2.5.1) or through the use of mechanisms as described in Web Services Policy - Framework [WS-Policy 1.5] and Web Services Policy – Attachment [[WSPolicyAtt1.5] specifications (see section 2.5.2).

In a similar way as for extensibility points, the choice of a conformance claim mechanism is not part of the Profile definition: should the interacting parties decide to use one of them to advertise support for the Profile, a prior agreement must be established that is beyond the scope of this Profile. Whether these conformance claim mechanisms are supported or not does not affect conformance to the Profile..

In consequence, although the use of these conformance claim mechanisms is optional, they are described in a normative way to help partners define such agreements unambiguously.

### 2.5.1 Claiming Conformance using Conformance Claim Attachment Mechanisms

Mechanisms described in Conformance Claim Attachment Mechanisms [claimAttachment] MAY be used to advertise conformance to this profile. Such claims concern specific groups of conformance targets as follows::



- **WSDL 1.1 Claim Attachment Mechanism for Web Services Instances** - MESSAGE, INSTANCE, RECEIVER, RMS, RMD

The conformance claim URIs are:

- To claim conformance to the requirements pertaining to WS-ReliableMessaging (Section 3 "Reliable Messaging") defined by this Profile, and to require the use of WS-ReliableMessaging when using the claiming endpoint:  
"http://ws-i.org/profiles/rsp/1.0/ws-rm/"
- To claim conformance to the requirements pertaining to WS-SecureConversation (Section 4 "Secure Conversation") defined by this Profile, and to require the use of WS-SecureConversation when using the claiming endpoint:  
"http://ws-i.org/profiles/rsp/1.0/ws-sc/"
- To claim conformance to the requirements pertaining to WS-MakeConnection (Section 5 "Make Connection") defined by this Profile, and to require the use of WS-MakeConnection when using the claiming endpoint:  
"http://ws-i.org/profiles/rsp/1.0/ws-mc/"

Use of more than one or a combination of the above conformance claim URIs is allowed. When the claim URI "http://ws-i.org/profiles/rsp/1.0/ws-sc/" is combined with either "http://ws-i.org/profiles/rsp/1.0/ws-rm/" or "http://ws-i.org/profiles/rsp/1.0/ws-mc/", the requirements pertaining to such a combination as detailed in Section 6 "Secure Reliable Messaging" are also claimed to be conformed with.

The conformance claim URI to claim conformance to all requirements defined by this Profile is

"http://ws-i.org/profiles/rsp/1.0/"

NOTE: Because there is no requirement targeting WSDL constructs in RSP, a conformance claim attached to a wsdl:port only indicates conformance of the service instance to this Profile.

## 2.5.2 Claiming Conformance using WS-Policy and WS-PolicyAttachment

Mechanisms described in Web Services Policy - Framework [WSPolicy1.5] and Web Services Policy - Attachment [WSPolicyAtt1.5] specifications MAY be used to advertise conformance to this profile.

The Profile defines the following policy assertion for this purpose:

```
<rsp:Conformant xmlns:rsp="http://ws-i.org/profiles/rsp/1.0/" />
```

The presence of this assertion indicates that policy subject supports one or more of the WS-RM, WS-SC, or WS-MC protocols in a manner that conforms to RSP 1.0. This assertion only has meaning when used in a policy alternative that also contains at least one of wsrmp:RMAssertion, wsmc:MCSupported, or wsp:SecureConversationToken. The semantics of this assertion apply only to those protocols (WS-RM, WS-SC, or WS-MC) whose use is indicated by a policy assertion within the same policy alternative as this assertion. This assertion also requires that clients MUST use the effected protocols in a way that conforms to RSP 1.0. The absence of this assertion says nothing about RSP 1.0 conformance; it simply indicates the lack of an affirmative declaration of and requirement for RSP 1.0 conformance.

The `rsp:Conformant` policy assertion applies to the endpoint policy subject. For WSDL 1.1, this assertion can be attached to a `wsdl11:port` or `wsdl11:binding`. A policy expression containing the `rsp:Conformant` policy assertion MUST NOT be attached to a `wsdl:portType`.

Use of this policy assertion to claim conformance is highly encouraged.

This following example shows a policy expression that indicates/requires support for RSP 1.0 conformant WS-RM.

For example,

**CORRECT:**

```
<wsp:Policy xmlns:wsp="http://www.w3.org/ns/ws-policy"
  xmlns:wsrmp="http://docs.oasis-open.org/ws-rx/wsrmp/200702"
  xmlns:rsp="http://ws-i.org/profiles/rsp/1.0/">
```

```
<wsrmp:RMAssertion>
  <wsp:Policy/>
</wsrmp:RMAssertion>
<rsp:Conformant/>
</wsp:Policy>
```

In the following example, the use of WS-RM is advertised as supporting/requiring conformance with RSP 1.0, but it is indeterminate whether or not the implementation of WS-MC supports or requires RSP 1.0 conformance.

For example,

**CORRECT:**

```
<wsp:Policy xmlns:wsp="http://www.w3.org/ns/ws-policy"
            xmlns:wsrmp="http://docs.oasis-open.org/ws-rx/wsrmp/200702"
            xmlns:rsp="http://ws-i.org/profiles/rsp/1.0/">
  <wsp:ExactlyOne>
    <wsp:All>
      <wsrmp:RMAssertion>
        <wsp:Policy/>
      </wsrmp:RMAssertion>
      <rsp:Conformant/>
    </wsp:All>
    <wsp:All>
      <wsmc:MCSupported/>
    </wsp:All>
  </wsp:ExactlyOne>
</wsp:Policy>
```

---

## 3 Reliable Messaging

This section of the Profile incorporates the following specifications by reference, and defines extensibility points within them:

- Web Services Reliable Messaging 1.2 [WSRM1.2]  
Extensibility points:
  - **E0001** - CreateSequence element and attribute extensions - Extending CreateSequence, via additional elements or attributes, is the primary mechanism for negotiating supplemental semantics to be applied to the requested and/or offered Sequence. Note this extensibility point does not cover the pre-defined use of the /wsrm:CreateSequence/wsse:SecurityTokenReference element.
  - **E0002** - CreateSequenceResponse element and attribute extensions - Extending CreateSequenceResponse, via additional elements or attributes, may be used to signal the acceptance of the supplemental semantics requested by the use of E0001 or it may be used in its own right to request or signal additional semantics to be applied to either requested and/or offered Sequence.
  - **E0003** - CloseSequence element and attribute extensions - The CloseSequence element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options in the closure of the Sequence.
  - **E0004** - CloseSequenceResponse element and attribute extensions - The CloseSequenceResponse element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options in the closure of the Sequence.
  - **E0005** - TerminateSequence element and attribute extensions - The TerminateSequence element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options in the termination of the Sequence.
  - **E0006** - TerminateSequenceResponse element and attribute extensions - The TerminateSequenceResponse element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options in the termination of the Sequence.
  - **E0007** - Sequence element and attribute extensions - The Sequence header element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the Sequence identified by the header.
  - **E0008** - AckRequested element and attribute extensions - The AckRequest header element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the request.
  - **E0009** - SequenceAcknowledgment element and attribute extensions - The SequenceAcknowledgment header element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the acknowledgment.
  - **E0010** - SequenceFault element and attribute extensions - The SequenceFault element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the fault.
- Internationalized Resource Identifiers (IRIs) [RFC3987]
- Web Services Addressing 1.0 - SOAP Binding [WSAddrSoap]

These extensibility points are listed, along with any extensibility points from other sections of this Profile, in Appendix A

## 3.1 WS-ReliableMessaging Support

### 3.1.1 Requiring WS-ReliableMessaging

As noted in Section 0, support for WS-ReliableMessaging by a specific service is optional. However, a service may require the use of WS-ReliableMessaging, in which case, for successful interaction with that service, a client will need to support it.

**R0002** *If an endpoint requires the use of WS-ReliableMessaging, any **ENVELOPE** sent to that endpoint **MUST** conform to Section 3 of this Profile.* **TESTABLE** RSP0002a RSP0002b

**R0003** *If an endpoint requires or supports the use of WS-ReliableMessaging, the corresponding **INSTANCE** **MUST** behave in accordance with Section 3 of this Profile.* **TESTABLE** RSP0003

Note that two RSP compliant web services implementations might both support the use of WS-ReliableMessaging yet fail to agree on a common set of features necessary to interact with one another. For example, a client might require the use of the "InOrder" Delivery Assurance, yet the service might not support this Delivery Assurance.

## 3.2 Use of Extension Elements and Attributes in Messages

The protocol elements defined by WS-ReliableMessaging contain extension points wherein implementations **MAY** add child elements and/or attributes.

### 3.2.1 Ignore Unknown Extension Elements

To ensure the ability to safely extend the protocol, it is necessary that adding an extension does not create the risk of impacting interoperability with non-extended implementations.

**R0001** *A **RECEIVER** **MUST NOT** generate a fault as a consequence of receiving a message (e.g. `wsm:CreateSequence`) that contains extension elements and/or attributes that it does not recognize, unless that extension is a SOAP Header with a `mustUnderstand="1"` attribute. Any exceptions to this rule are clearly identified in requirements below or the specifications underlying the profile.* **TESTABLE\_SCENARIO\_DEPENDENT** RSP0001

While the extensibility points of the profiled specifications can be used, per R0001 they **MUST** be ignored if they are not understood. However if a **SENDER** wishes to ensure that the **RECEIVER** understands and will comply with any such extensions, they need to include a SOAP header, marked with `mustUnderstand="1"`, in the request message that requires adherence to the semantics of those extensions.

## 3.3 SOAP Version Considerations

In general, it is not expected that the service descriptions for applications that use WS-ReliableMessaging will include bindings of the WS-RM protocol itself. This being the case, there is some uncertainty about which version of SOAP should be used to carry Sequence Lifecycle Messages.

### 3.3.1 SOAP Version Selection for Sequence Lifecycle Messages

For messages that flow from the RMS to the RMD, the version(s) of SOAP used for Sequence Lifecycle Messages are constrained to the version(s) of SOAP that are supported by the target endpoint (i.e. the endpoint to which the client is attempting to reliably communicate). For example, if a client is attempting to communicate reliably to an endpoint whose service description indicates that it only supports SOAP 1.1 [SOAP1.1], the RMS should only send Sequence Lifecycle Messages using SOAP 1.1. Sequence Lifecycle Response Messages (CreateSequenceResponse, TerminateSequenceResponse, and CloseSequenceResponse) should use the version of SOAP used by their corresponding request message (CreateSequence, TerminateSequence, and CloseSequence respectively); this applies to WS-RM fault messages as well. For messages that flow from the RMD to the RMS (SequenceAck messages with an empty body, unsolicited CloseSequence messages, and unsolicited TerminateSequence messages) this profile adheres to and expands upon WS-RM's statement that "The SOAP version used for the CreateSequence message SHOULD be used for all subsequent messages in or for that Sequence, sent by either the RM Source or the RM Destination".

**R0900** *Unless otherwise specified (e.g. through some WSDL or WS-Policy designator), the **RMD** MUST send Sequence Lifecycle Messages destined to the CreateSequence/AcksTo EPR with the same SOAP version that was used in the CreateSequence message.* TESTABLE RSP0900

**R0901** *Unless otherwise specified (e.g. through some WSDL or WS-Policy designator), the **RMS** of an Offered Sequence MUST send Sequence Lifecycle Messages destined to the CreateSequence/Offer/Endpoint EPR with the same SOAP version that was used in the CreateSequence message.* TESTABLE RSP0901

## 3.4 Targeting Sequence Lifecycle Messages

WS-ReliableMessaging is silent on where certain Sequence Lifecycle Messages (such as CreateSequence) should be sent.

### 3.4.1 CreateSequence Target

The WS-RM specification is silent on exactly where an RMS should send a CreateSequence message to establish a Sequence. This is true for the case of a client-side RMS creating a Sequence to carry request messages as well as the case of a server-side RMS creating a Sequence to carry response messages. This is an interoperability issue because, unless the respective RMS and RMD implementations agree on the expected target for CreateSequence messages, the intended recipient may not configure the necessary infrastructure (WS-RM message handlers, etc.) and the CreateSequence message may either cause a fault or be ignored.

**R0800** *Baring some out of band agreement, an **ENVELOPE** carrying a CreateSequence message MUST be addressed to the same destination as one of the Sequence Traffic Message for that Sequence.* TESTABLE RSP0800

This requirement applies equally to cases in which the first Sequence Traffic Message is addressed to a URI (as may happen when the target endpoint is retrieved from a WSDL document) or to an EPR (as may happen when the target endpoint is the wsa:ReplyTo address of the corresponding request message).

### 3.4.2 Use of the Offer Element

The use of the Offer element within a CreateSequence message is an optional feature of WS-ReliableMessaging. Using Offer avoids the exchange of CreateSequence and CreateSequenceResponse messages to establish a new sequence for response messages. However, WS-RM does not define a mechanism by which an RMS can determine if an Offer is desired by the RMD. This creates a potential interoperability issue in cases where an RMS that either doesn't wish to use or cannot support the use of Offer attempts to create a Sequence with an RMD that requires the use of Offer. To ensure interoperability, the Offer feature must be optional for both the initiator of the Sequence (the RMS) as well as the RMD.

Conversely, when an RMS includes an Offer within a CreateSequence and the RMD rejects that Offer (e.g. if it only has input-only operations and concludes it has no need for the offered Sequence), if the RMD indicates this choice by faulting the CreateSequence the RMS has no programmatic means of determining that the fault was due to the presence of an Offer. To ensure interoperability in these cases, the RMD, rather than faulting the CreateSequence, must instead simply not accept the offered Sequence by not including an Accept element in the CreateSequenceResponse.

**R0010** *An RMD MUST NOT fault a CreateSequence due to the absence of the Offer element.* TESTABLE RSP0010

**R0011** *An RMD MUST NOT fault a CreateSequence due to the presence of the Offer element.* TESTABLE RSP0011

## 3.5 Sequence Identifiers

Under certain conditions it is possible for the CreateSequence or CreateSequenceResponse messages to be lost or delayed. Depending upon the timing of the attempts to resend such messages, it is possible to receive duplicate CreateSequence or CreateSequenceResponse messages (in fact, it is possible to receive duplicate messages even without retries). This creates the potential for CreateSequence and CreateSequenceResponse messages that contain duplicate Sequence Identifiers. Furthermore there are situations in which one party (RMS or RMD) may erroneously send a CreateSequence or CreateSequenceResponse message with a duplicate Sequence Identifier. Due to the crucial role of Sequence Identifiers in the WS-RM protocol, the handling of duplicate Sequence Identifiers needs to be further refined to prevent interoperability problems.

### 3.5.1 Duplicate Identifier in CreateSequenceResponse

Regardless of the causative circumstances, the existence of two, non-terminated Sequences with the same Identifier makes it difficult for the RMS to correctly function, therefore the RMS should take steps to prevent this condition.

**R0700** *The RMS MUST generate a fault when it receives a CreateSequenceResponse that contains a Sequence Identifier that is the same as the Identifier of a non-terminated Sequence.* NOT\_TESTABLE COM0700

Note that this requirement does not differentiate between duplicate Identifiers created by "the same" RMD or "different" RMDs; the simple fact that the RMS already has an active Sequence with the same Identifier is enough to trigger this requirement.

## 3.6 Sequence Termination

Termination of sequences must be done in a way to ensure that both the RMS and RMD share a common understanding of the final status of the sequence. The Profile places the following requirements on termination procedures:

### 3.6.1 Sequence Termination from the Destination

An RMS may need to get a final sequence acknowledgment, for supporting a particular delivery assurance. This is only possible after the sequence is closed and before it is terminated. When the termination is decided by the RMD, the RMS must also be made aware of this closure so that it can request a final acknowledgement.

**R0200** *In the case where an **RMD** decides to discontinue a sequence, it **MUST** close the Sequence and **MUST** attempt to send a `wsm:CloseSequence` message to the `AcksTo` `EPR`.* **NOT\_TESTABLE** **COM0200**

### 3.6.2 Last Message Number

Among other benefits, the use of Sequence Message Numbers makes an RMD aware of gaps - messages it has not received - in a sequence. For this awareness to apply to messages missing from the end of a sequence the RMD must be aware of the highest message number sent.

**R0210** *Any **ENVELOPE** from an RMS containing either a `wsm:CloseSequence` or a `wsm:TerminateSequence` element **MUST** also contain a `wsm:LastMsgNumber` element if the Sequence in question contains at least one Sequence Traffic Message.* **TESTABLE** **RSP0210**

There is a corner case for sequences in which no messages have been sent (i.e. empty sequences). In these cases it is permissible to omit `wsm:LastMsgNumber` since there is no valid value for this element.

### 3.6.3 Sequence Lifecycle Independence

WS-ReliableMessaging is unclear about the relationship, if any, between the lifecycles of a Sequence and its corresponding Offered Sequence. Considering that such a relationship is not necessary for the proper functioning of the WS-RM protocol and that the existence of a such a relationship would create unnecessary and undesirable interdependencies between the RMS and the RMD, this profile makes the clarifying requirement that no such relationship exists.

**R0220** *An **RM-NODE** (RMD or RMS) **MUST NOT** assume that the termination (or closure) of a Sequence implicitly terminates (or closes) any other Sequence.* **NOT\_TESTED**

## 3.7 Sequence Faults

This Profile adds the following requirement to the handling of faults that are generated as the result of processing WS-RM Sequence Lifecycle messages.



### 3.7.1 WS-ReliableMessaging Faults

The use of WS-ReliableMessaging for faults that are themselves related to the WS-RM protocol is undefined and unlikely to be interoperable. Accordingly this profile prohibits the assignment of WS-RM fault messages to a WS-RM Sequence.

**R0620** *An ENVELOPE that has wsrn:SequenceTerminated, wsrn:UnknownSequence, wsrn:InvalidAcknowledgement, wsrn:MessageNumberRollover, wsrn:CreateSequenceRefused, wsrn:SequenceClosed, or wsrn:WSRMRequired as the value of either the SOAP 1.2 /S:Fault/S:Code/S:Subcode/S:Value element or the /wsrm:SequenceFault/wsrn:FaultCode element MUST NOT contain a wsrn:Sequence header block.* TESTABLE RSP0620a  
RSP0620b

## 3.8 Sequence Assignment

WS-ReliableMessaging is silent on the mechanism for assigning messages (either request messages or response messages) to a particular Sequence. While this flexibility is beneficial from a general web services specification perspective, it creates some interoperability issues.

### 3.8.1 Reliable Response Messages

Given a scenario in which a consumer and a provider engage in a series of reliable request/response exchanges, it is important for the consumer and provider to have a consistent use of reliable messaging for response messages. From a reliable messaging perspective, all responses messages (both faults or non-faulting replies) are to be treated the same - meaning, either reliable messaging is engaged for both types of responses or it is turned off for both types of responses.

**R0600** *An INSTANCE MUST NOT differentiate between faulting responses and non-faulting responses when determining whether to use WS-ReliableMessaging for a response message.* NOT\_TESTED

### 3.8.2 Scope of an RM Node

WS-ReliableMessaging does not define the scope of an RM node other than to say that the scope is not restricted. For example, with respect to R0600 above, an Offered Sequence should be used to carry the response to any message sent over the Sequence corresponding to the CreateSequence request that included the Offer. However, it should not be assumed that the Sequence Traffic Messages carried over the Offered Sequence must be addressed to a particular response endpoint.

**R0610** *The scope of an RM Node is an implementation choice that MUST NOT be constrained by the remote RM-NODE. The RMD MUST NOT constrain the values used by the RMS in the wsa:ReplyTo EPRs used by the RMS to be the same for all request messages (Sequence and Lifecycle messages).* TESTABLE RSP0610

Within this context the phrase "scope of an RM node" is defined as "the set of all EPRs that address a given RM node".



## 3.9 Retransmission of Messages

WS-ReliableMessaging protocol requires retransmission of messages. The Profile places the following restrictions and refinements on such retransmissions:

### 3.9.1 Retransmission of Unacknowledged Messages

To ensure reliable delivery of messages within a Sequence, it is necessary for the RMS to retransmit unacknowledged messages and for the RMD to accept them.

**R0101** *An RMS MUST continue to retransmit unacknowledged messages until the Sequence is closed or terminated.* TESTABLE  
RSP0101

**R0102** *An RMD MUST accept unacknowledged messages until the Sequence is closed or terminated.* TESTABLE RSP0102

Note: there are cases where it may be obvious that retransmitting a message is unlikely to result in an outcome that is any different from the previous, failed transmission(s). For example, in the case of HTTP, a 401 status code may indicate that access to an endpoint has been refused for the credentials that accompanied the request. Unless some action is taken to grant access to those credentials, retransmitting the request is likely to result in the same error and may cause negative side-effects such as the locking of an account due to "excessive failed login attempts".

### 3.9.2 Retransmission of Sequence Lifecycle Messages

WS-ReliableMessaging [WSRM1.2] Section 2.1 defines the messages that affect the created/closing/closed/terminating state of a Sequence as "Sequence Lifecycle Messages". WS-RM is silent on what a SENDER (RMS or RMD) is expected to do when it either fails to send one of the messages or does not receive the corresponding response message (e.g. an RMS sends a CreateSequence message but does not receive a CreateSequenceResponse message).

**R0110** *When a SENDER fails to successfully send a Sequence Lifecycle Message or it does not receive the corresponding response message (if one exists), it is RECOMMENDED that the SENDER attempt to resend the message. The frequency and number of these retries are implementation dependent.* NOT\_TESTED

### 3.9.3 Message Identity

In cases where `wsa:MessageID` is being used, retransmission must not alter its value, because other headers (possibly occurring in other messages - such as `wsa:RelatesTo`) may rely on it for message correlation.

**R0120** *For any two ENVELOPES that contain WS-RM Sequence headers in which the value of their `wsm:Identifier` and `wsm:MessageNumber` elements are equal, it MUST be true that neither of the envelopes contains a `wsa:MessageID` or that both messages contain a `wsa:MessageID` and the value of the `wsa:MessageID` elements are equal.* TESTABLE RSP0120

## 3.10 Piggybacking

WS-ReliableMessaging allows for the addition of some WS-RM-defined headers to messages that are targeted to the same endpoint to which those headers are to be sent; a concept it refers to as "piggybacking". There are a number of interoperability issues with the practice of piggybacking.

### 3.10.1 Endpoint Comparison for Piggybacked SequenceAcknowledgment Headers

Because there is no standard mechanism for comparing EPRs, it is possible for different implementations to have dissimilar assumptions about which messages are and are not valid carriers for piggybacked SequenceAcknowledgment headers. For example, an implementation of the RMS may assume that the ReferenceParameters (if any) of the EPRs will be compared as part of the determination of whether a message is targeted to "the same" endpoint as the AcksTo endpoint. Meanwhile an implementation of the RMD may assume that a simple comparison of the Address IRIs is sufficient for making this determination. This creates the possibility for misdirected, dropped, and otherwise lost acknowledgements to the detriment and possible malfunctioning of the WS-RM protocol.

**R0500** *An RMD MUST NOT piggyback a wsm:SequenceAcknowledgement Header onto another message in cases where the destination property of the carrier message contains a wsa:Address IRI that differs (based on a simple string comparison) from the wsa:Address IRI of the wsm:AcksTo EPR corresponding to the wsm:SequenceAcknowledgement.* **TESTABLE** **RSP0500**

**R0501** *In cases where the AcksTo EPR of a Sequence has an Address value equal to the WS-Addressing 1.0 Anonymous URI, the RMD MUST also limit piggybacking as described in section 3.9 of the WS-ReliableMessaging specification.* **TESTABLE** **RSP0501**

These requirements establish a minimum baseline for an RMD to correctly piggyback SequenceAcknowledgement headers. Both endpoints should expect that at minimum, an RMD can compare address IRIs based on a simple string comparison algorithm, as indicated in the [RFC3987] section 5.3.1, in order to make the decision to piggyback or not. Individual RMD implementations may choose to consider and/or compare additional elements of the EndpointReference (e.g. the value of any ReferenceParameters elements).

### 3.10.2 Treatment of ReferenceParameters in AcksTo EPRs

There exists an interoperability problem for Sequences in which the AcksTo EPR contains ReferenceParameters. According to the processing rules defined by Web Services Addressing 1.0 - SOAP Binding [WSAddrSoap], the RMS should expect that any acknowledgements for the Sequence will be accompanied by the contents of the wsm:AcksTo/wsa:ReferenceParameters promoted as headers in the message carrying that acknowledgement. However, in the case of piggybacked acknowledgments, the carrier message's [destination] EPR may contain Reference Parameters that conflict in some way with the wsm:AcksTo/ReferenceParameters.

**R0510** *If the algorithm used by the RMD to determine if a SequenceAcknowledgment can be piggybacked onto another message does not include a comparison of the value of the ReferenceParameters element (when present), then the RMD MUST NOT piggyback SequenceAcknowledgement headers for Sequences in which the AcksTo EPR contains ReferenceParameters.* **TESTABLE** **RSP0510**

This requirement ensures any RMS implementation that includes ReferenceParameters in its AckTo EPRs of the following invariant: regardless of whether or not the acknowledgments for such Sequences are piggybacked, any message containing the SequenceAcknowledgement header(s) for such Sequences will also contain the AcksTo/wsa:ReferenceParameters in its SOAP headers. Note, this requirement applies equally to Sequences for which AcksTo/wsa:Address is anonymous and Sequences for which AcksTo/wsa:Address is not anonymous.

### 3.10.3 Preventing Piggybacked Acknowledgements

In situations where an RMD exercises the opportunity to piggyback most or all of the wsrn:SequenceAcknowledgement headers for a particular Sequence to an RMS which does not support the processing of piggybacked acknowledgments, it is likely that the operation of the WS-RM protocol will be severely impacted. This situation can be avoided if the RMS takes steps to ensure that the AcksTo EPRs for any Sequence's it creates are sufficiently unique as to cause the RMD to rule out the possibility of piggybacking acknowledgments for these Sequences.

**R0520** *An RMS that does not support the processing of piggybacked SequenceAcknowledgement headers MUST differentiate the AcksTo EPRs for any Sequence's it creates from other EPRs.* **NOT\_TESTABLE**

The term "differentiate" in the above requirement refers to the process of altering the information in the EPR in such a way as to cause the RMD to rule out the possibility of piggybacking acknowledgments for these Sequences while preserving the RMDs ability to connect to the proper transport endpoint. For example, suppose a particular instance of a web services stack maintains a generic, asynchronous callback facility at <http://b2b.foo.com/async/AsyncResponseService>. In general, all the EPRs minted by this instance for the purpose of servicing callbacks will have this URI as the value of their wsa:Address element. However, if this web services stack does not support the processing piggybacked acknowledgments, the use of this value in the AcksTo EPR creates the potential for the problem described above. The RMS implementation of this web services stack could fulfill this requirement by specifying <http://b2b.foo.com/async/AsyncResponseService?p={unique value}> as the address of the AcksTo EPR for any sequences it creates. Since each sequence has a "different" AcksTo EPR (as defined by R0500) from all the other services listening for callbacks, no RSP 1.0 compliant RMD will piggyback acknowledgments for these sequences, though each RMD (in the case of SOAP/HTTP) will correctly connect to <http://b2b.foo.com> and POST to [/async/AsyncResponseService](#).

### 3.10.4 Conflicting Requirements for wsa:Action

Points (2) and (3) of Section 3.3 of the WS-ReliableMessaging [WSRM1.2] state that:

2. When an Endpoint generates an Acknowledgement Message that has no element content in the SOAP body, then the value of the wsa:Action IRI MUST be: <http://docs.oasis-open.org/ws-rx/wsrn/200702/SequenceAcknowledgement>
3. When an Endpoint generates an Acknowledgement Request that has no element content in the SOAP body, then the value of the wsa:Action IRI MUST be: <http://docs.oasis-open.org/ws-rx/wsrn/200702/AckRequested>

However, this text does not take into account the possibility of piggybacking either of the above RM headers on messages with empty SOAP Bodys that contain wsa:Action values necessary to the proper processing of those messages. Such Envelopes could be the result of a WSDL that contains a doc-literal description where the value of the parts attribute of soap:body is an empty string. To clarify the expected behavior of WS-RM nodes under these circumstances, this profile makes the following requirement:

**R0530** *In cases where the SequenceAcknowledgement or AckRequested header is piggybacked, then the wsa:Action value of the ENVELOPE MUST be as defined by Section 3.3 of the WS-ReliableMessaging specification if, and only if, the wsa:Action value has not been agreed upon by some other*

*mechanism (e.g. WSDL).* TESTABLE RSP0530a RSP0530b RSP0530c  
RSP0530d

### 3.10.5 Use of the mustUnderstand Attribute

Since they are not allowed to interfere with the processing of messages, piggybacked SequenceAcknowledgement and AckRequested SOAP header blocks must not have the mustUnderstand attribute set to a value of true. However, when the SequenceAcknowledgement and AckRequested SOAP header blocks are sent on messages with an empty SOAP body element and a wsa:Action SOAP header block with a corresponding value of <http://docs.oasis-open.org/ws-rx/wsrn/200702/SequenceAcknowledgement> or <http://docs.oasis-open.org/ws-rx/wsrn/200702/AckRequested> (i.e. not piggybacked), implementations are advised to set the mustUnderstand attribute on the SequenceAcknowledgement and AckRequested SOAP header blocks to a value of true. This ensures that these headers are not ignored and avoids the resulting unnecessary retransmissions.

**R0540** *SENDERs MUST NOT set the value of mustUnderstand attribute on AckRequested and SequenceAcknowledgement SOAP header blocks to true ("1") when those headers are piggybacked on outgoing MESSAGEs.* TESTABLE RSP0540

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## 4 Secure Conversation

The Profile includes the use of WS-SecureConversation to request and issue security tokens and to broker trust relationships.

This section of the Profile incorporates the following specifications by reference, and defines extensibility points within them:

- WS-SecureConversation 1.4 [WSSecCon1.4]  
Extensibility points:
  - **E0011** - SecurityContextToken element and attribute extensions - The SecurityContextToken element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options that apply to the security context identified by the token.

These extensibility points are listed, along with any extensibility points from other sections of this Profile, in Appendix A

All requirements in Section 4 apply only when WS-Security is used to secure a message. All requirements in Sections 4.1 through 4.5 apply only when WS-SecureConversation is used to secure a message.

### 4.1 WS-SecureConversation Support

#### 4.1.1 Requiring WS-SecureConversation

As noted in Section 0, support for WS-SecureConversation by a specific service is optional. However, a service may require the use of WS-SecureConversation, in which case, for successful interaction with that service, a client will need to support it.

**R1002** *If an endpoint requires the use of WS-SecureConversation, any **ENVELOPE** sent to that endpoint **MUST** conform to Section 4 of this Profile.* **TESTABLE** RSP1002a RSP1002b

**R1003** *If an endpoint requires or supports the use of WS-SecureConversation, the corresponding **INSTANCE** **MUST** behave in accordance with Section 4 of this Profile.* **NOT\_TESTABLE**

Note that two RSP compliant web services implementations might both support the use of WS-SecureConversation yet fail to agree on a common set of features necessary to interact with one another. For example, a service might require the use of a particular cipher suite that a client is not equipped to support.

### 4.2 Optionality of Operations

WS-SecureConversation (WS-SC) [WSSecCon1.4] describes a set of bindings of WS-Trust for amending, renewing, and canceling security contexts. WS-SC does not define whether support for these bindings is mandatory or optional, for either clients or services. This creates the potential for interoperability problems due to differing expectations about such support. The following requirements clarify the optionality of the SCT Amend, Renew, and Cancel bindings.

### 4.2.1 Support for Amending Contexts

As of the date of this Profile, there are no known implementations of WS-SC that support the SCT Amend binding. CONSUMERS are advised to avoid its use unless they are certain that the target INSTANCE supports it.

**R1004** A CONSUMER SHOULD NOT send an ENVELOPE containing a `wst:RequestSecurityToken` in the SOAP Body and an action URI of `http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Amend`. TESTABLE RSP1004

### 4.2.2 Support for Renewing Contexts

Support for the SCT Renew binding is elective for both CONSUMERS and INSTANCES.

**R1005** An INSTANCE that acts as a WS-SC security token service MAY process ENVELOPES containing a `wst:RequestSecurityToken` in the SOAP Body and an action URI of `http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Renew` as per Section 5 of WS-SecureConversation. NOT\_TESTABLE

**R1006** An INSTANCE that acts as a WS-SC security token service but does not process ENVELOPES containing a `wst:RequestSecurityToken` in the SOAP Body and an action URI of `http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Renew` as per Section 5 of WS-SecureConversation MUST generate a fault with a [Subcode] value of "wsa:ActionNotSupported" (as per Section 6.4.4 of WS-Addressing 1.0 SOAP Binding) upon receiving a MESSAGE containing such an ENVELOPE. TESTABLE RSP1006a RSP1006b

### 4.2.3 Support for Canceling Contexts

Support for the SCT Cancel binding is mandatory for INSTANCES and elective for CONSUMERS.

**R1007** An INSTANCE that acts as a WS-SC security token service MUST process ENVELOPES containing a `wst:RequestSecurityToken` in the SOAP Body and an action URI of `http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Cancel` as per Section 6 of WS-SecureConversation. TESTABLE RSP1007a RSP1007b

**R1008** When a CONSUMER concludes its use of a security context it SHOULD transmit an ENVELOPE containing a `wst:RequestSecurityToken` in the SOAP Body and an action URI of `http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Cancel` to the WS-SC security token service that issued the SCT for that context. TESTABLE RSP1008



## 4.3 Unsupported Context Tokens

### 4.3.1 Unrecognized Extensions in a Security Context Token

During the establishment of a security context, it is possible for a participant to obtain an SCT that, for some reason, it chooses not to accept. One such possible reason is the presence of unrecognized extensions which, by definition, may indicate unknown and possibly harmful semantics. If the RECEIVER chooses to accept such an SCT, however, it must preserve this unrecognized content or nodes that understand and depend on this content may break.

**R1000** A RECEIVER MAY not accept an SCT due to unrecognized extensions in exception to R0001. **NOT\_TESTED** RSP1000

**R1001** If a RECEIVER obtains an SCT containing content it does not recognize, the RECEIVER MUST preserve this unrecognized content in all subsequent use of the token. **TESTABLE\_SCENARIO\_DEPENDENT** RSP1001

R1001 goes beyond R0001 (which does not require preservation of unrecognized content) to bring forward requirements from the WS-SecureConversation specification. R1000 has precedence over R1001 since an INSTANCE which faulted due to unrecognized content would not subsequently use the relevant token.

## 4.4 Demonstrating Proof of Possession

The following requirements describe how, for ENVELOPES carrying a wst:RequestSecurityToken, the SOAP Body and crucial headers, specified in Section 4.5 and Section 6, must be signed.

### 4.4.1 Amending Contexts

**R1100** An ENVELOPE containing a wst:RequestSecurityToken in the SOAP Body and an action URI of `http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Amend`, MUST also contain a wsse:Security header with a ds:Signature child element that covers the SOAP Body and crucial headers as specified in Sections 4.5 and 6. **TESTABLE** RSP1100

**R1101** In an ENVELOPE, the signature referred to in R1100 MUST be created using the key associated with the security context that is being amended. **NOT\_TESTABLE** COM1101

### 4.4.2 Renewing Contexts

**R1110** An ENVELOPE containing a wst:RequestSecurityToken in the SOAP Body and an action URI of `http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Renew`, MUST also contain a wsse:Security header with a ds:Signature child element that covers the SOAP Body and crucial headers as specified in Sections 4.5 and 6. **TESTABLE** RSP1110

**R1111** In an ENVELOPE, the signature referred to in R1110 MUST be created using the key associated with the security context that is being renewed. **NOT\_TESTABLE**

### 4.4.3 Cancelling Contexts

**R1120** An **ENVELOPE** containing a *wst:RequestSecurityToken* in the SOAP Body and an action URI of *http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Cancel*, **MUST** also contain a *wsse:Security* header with a *ds:Signature* child element that covers the SOAP Body and crucial headers as specified in Sections 4.5 and 6. **TESTABLE** **RSP1120**

**R1121** In an **ENVELOPE**, the signature referred to in R1120 **MUST** be created using the key associated with the security context that is being canceled. **NOT\_TESTABLE**

## 4.5 Claims Re-Authentication

### 4.5.1 Re-Authenticating Claims

As per section 5 of the WS-SecureConversation [WS-SC1.4] specification, the request to renew a security context must include the re-authentication of the context's original claims. It is recommended, but not required, that the claims re-authentication be done in the same manner as the original token issuance request. This creates the potential for some implementations of WS-SecureConversation to attempt claims re-authentication in a manner different than the original token issuance request, to the obvious detriment of both interoperability and security.

**R1200** When a **SENDER** makes a request to renew a security context, it **MUST** re-authenticate the original claims in the same way as in the original token issuance request. **TESTABLE** **RSP1200**

## 4.6 Referencing Security Context Tokens

### 4.6.1 Associating a Security Context

Section 8 of WS-SecureConversation [WS-SC1.4] states that references to an SCT from within a *wsse:Security* header, a *wst:RequestSecurityToken* element, or a *wst:RequestSecurityTokenResponse* element may be either message dependent or message independent. However, references to SCTs from outside a *wsse:Security* header (or an RST, or an RSTR) must be message independent. In order to improve interoperability, this profile includes the following requirement:

**R1300** A **RECEIVER** **MUST** support both message dependent and message independent references to a *wssc:SecurityContextToken* from within a *wsse:Security* header, a *wst:RequestSecurityToken* element, or a *wst:RequestSecurityTokenResponse* element. **TESTABLE** **RSP1300**

### 4.6.2 Derived Token References to Security Contexts

Section 7 of the WS-SecureConversation [WS-SC1.4] specification describes a mechanism for using keys derived from a shared secret for signing and encrypting the messages associated with a security context. The *wssc:DerivedKeyToken* element is used to express these derived keys. WS-SC states that the */wssc:DerivedKeyToken/wsse:SecurityTokenReference* element **SHOULD** be used to



reference the `wssc:SecurityContextToken` of the security context whose shared secret was used to derive the key. This creates an interoperability issue because it leaves open the possibility for a derived key to either lack any relationship between the shared secret or for this relationship to be expressed by some mechanism other than a `wsse:SecurityTokenReference`.

**R1310** *When an ENVELOPE contains a `wssc:DerivedKeyToken`, the `wsse:SecurityTokenReference` element MUST be used to reference the `wssc:SecurityContextToken` of the security context from which they key is derived.* TESTABLE RSP1310

To properly and interoperably process derived keys it is necessary to relate the key to the shared secret from which it is derived. There are no alternatives to using `wsse:SecurityTokenReference`'s that are consistent with WS-Security.

## 4.7 Addressing Headers

### 4.7.1 Protecting Addressing Headers

Since the semantics of the WS-SecureConversation protocol are dependent upon the value of various WS-Addressing headers, ensuring the proper functioning of WS-SecureConversation requires protecting the integrity of these headers. These requirements are not specific to the use of WS-SecureConversation. They also apply whenever WS-Security is being used in conjunction with WS-Addressing.

**R1400** *When present in an ENVELOPE in which the SOAP Body in that ENVELOPE is signed, each of the following SOAP header blocks MUST be included in a signature: `wsa:To`, `wsa:From`, `wsa:ReplyTo`, `wsa:Action`, `wsa:FaultTo`, `wsa:MessageId`, `wsa:RelatesTo`.* TESTABLE RSP1400

**R1401** *In an ENVELOPE, the signature(s) referred to in R1400 MUST be coupled cryptographically (e.g. share a common signature) with the message body.* TESTABLE RSP1401

**R1402** *When present in an ENVELOPE in which the SOAP Body in that ENVELOPE is signed, SOAP Header blocks with the `wsa:isReferenceParameter` attribute MUST be included in a signature for their designated SOAP role.* TESTABLE RSP1402

**R1403** *In an ENVELOPE, the signature(s) referred to in R1402 MUST be coupled cryptographically (e.g. share a common signature) with the message body.* TESTABLE RSP1403

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## 5 Make Connection

The Profile includes the use of WS-MakeConnection to transfer messages using a transport-specific back-channel.

This section of the Profile incorporates the following specifications by reference, and defines extensibility points within them:

- Web Services Make Connection 1.1 [WSMC1.1]  
Extensibility points:
  - **E0012** - MakeConnection element and attribute extensions - The MakeConnection element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options that apply to the request.
  - **E0013** - Attribute extensions to the MakeConnection Address - The /wsmc:MakeConnection/wsmc:Address element may be extended via additional attributes to indicate the use of supplemental semantics or options that apply to this instance of the MakeConnection Anonymous URI
  - **E0014** - MessagePending element and attribute extensions - The MessagePending header element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the indication of pending messages.
- SOAP Version 1.2 Part 2: Adjunct (Second Edition) [SOAP1.2-2], Section 6.2 SOAP Request-Response Message Exchange Pattern
- Web Services Description Language (WSDL) 1.1 [WSDL1.1], Section 2.4 Port Types

These extensibility points are listed, along with any extensibility points from other sections of this Profile, in Appendix A

### 5.1 WS-MakeConnection Support

#### 5.1.1 Requiring WS-MakeConnection

As noted in Section 0, support for WS-MakeConnection by a specific service is optional. However, a service may require the use of WS-MakeConnection, in which case, for successful interaction with that service, a client will need to support it.

**R2011** *If an endpoint requires the use of WS-MakeConnection, any response EPRs in an **ENVELOPE** transmitted to this endpoint **MUST** use either an instance of the MakeConnection Anonymous URI, the WS-Addressing anonymous URI (<http://www.w3.org/2005/08/addressing/anonymous>), or the WS-Addressing none URI (<http://www.w3.org/2005/08/addressing/none>) in their wsa:Address element.* **TESTABLE** [RSP2011a](#) [RSP2011b](#)

#### 5.1.2 Honoring EPRs with the MakeConnection Anonymous URI

**R2012** *If an endpoint supports the use of WS-MakeConnection, the **INSTANCE** corresponding to that endpoint **MUST NOT** generate a fault due to the use of the wsmc:MakeConnection message.* **TESTABLE** [RSP2012](#)

**R2013** *If an endpoint supports the use of WS-MakeConnection, the **INSTANCE** corresponding to that endpoint **MUST NOT** generate a fault due to the use of a MakeConnection Anonymous URI in the `wsa:Address` element on any response EPRs in a request message.* **TESTABLE** [RSP2013](#)

**R2014** *If an endpoint requires the use of WS-MakeConnection, any **MESSAGE** transmitted from this endpoint **MUST** be transmitted over a connection that is associated with either an instance of the WS-MakeConnection Anonymous URI or the WS-Addressing anonymous URI (`http://www.w3.org/2005/08/addressing/anonymous`).* **TESTABLE** [RSP2014a](#) [RSP2014b](#)

The association referred to in R2014 can be established by either a request message that carries response EPRs that use instances of the MakeConnection Anonymous URI, a request message that carries response EPRs that use instances of the WS-Addressing Anonymous URI, or a `wsmc:MakeConnection` message.

## 5.2 Guidance On the Use of MakeConnection

This section describes how, when `wsmc:MakeConnection` is used, WSDL input and output messages correspond to SOAP envelopes containing a request or a response sent over HTTP.

### 5.2.1 Action Values

The WS-MakeConnection specification, while not formally requiring the use of WS-Addressing headers, neglects to mention what the `wsa:Action` and `soapAction` URIs should be - when needed.

**R2030** *If an **ENVELOPE** contains a `wsmc:MakeConnection` element as the child of the SOAP Body, the `wsa:Action` header, if present, **MUST** contain the value "`http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection`".* **TESTABLE** [RSP2030](#)

**R2031** *If a **MESSAGE** contains a SOAP 1.1 envelope with the `wsmc:MakeConnection` element as the child of the Body, the HTTP `SOAPAction` header, if present and not equal to the value of "" (empty string), **MUST** contain the value "`http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection`".* **TESTABLE** [RSP2031](#)

**R2032** *If a **MESSAGE** contains a SOAP 1.2 envelope with the `wsmc:MakeConnection` element as the child of the Body, the `action` parameter of the HTTP `Content-Type` header, if present, **MUST** contain the value "`http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection`".* **TESTABLE** [RSP2032](#)

### 5.2.2 Binding to HTTP

Consider the case of a non-addressable client *NA* invoking an addressable service *B* that supports a WSDL request-response operation. A possible request-response exchange involving `wsmc:MakeConnection` might take the following form:

1. Through some mechanism, *NA* is provided the EPR for *B*.
2. *NA* sends a SOAP request message (contained in the entity body of an HTTP request) to *B*. The SOAP request message corresponds to and is described by the input message in the WSDL request-response operation supported by *B*.
3. If *B* chooses not to send the application response on the current back channel, then *B* sends an HTTP response (via the HTTP back channel) with a status code of "202 Accepted". No SOAP envelope is included as part of this HTTP response.
4. *NA* sends a MakeConnection request message (in the entity body of an HTTP request) to *B* using the same MakeConnection anonymous URI identifying *NA* as in the `wsa:ReplyTo` addressing property contained in the SOAP envelope of the original request message.
5. *B* sends a SOAP response message (contained in the entity body of an HTTP response) via the HTTP back channel. The SOAP response message corresponds to and is described by the output message in the WSDL request-response operation supported by *B*. If the HTTP response in step 5 does not contain a SOAP envelope, and if there is no failure, then the HTTP response must not contain an entity body and the status code must be 202.

Note: If the HTTP response from step 5 above does not contain a response message corresponding to the output message in the WSDL request-response operation, *NA* repeats step 3 above until a response message corresponding to the output message in the WSDL request-response operation is retrieved from *B*, as described in step 4.

Now consider the case of an addressable client *A* invoking a non-addressable service *NB*. Another possible message exchange involving `wsmc:MakeConnection` might take the following form:

1. Through some mechanism, *A* is provided an EPR for *NB* - this EPR uses an instance of a MakeConnection anonymous URI that identifies *NB*, and *NB* is provided the EPR for *A*.
2. *NB* sends a MakeConnection request message (contained in the entity body of an HTTP request) to *A* using the same MakeConnection anonymous URI identifying *NB* as in the EPR for *NB*.
3. *A* sends a SOAP request message (contained in the entity body of the HTTP response) via the back channel. This SOAP request message corresponds to and is described by the input message in the WSDL operation supported by *NB*.
4. In the case of a request-response operation, *NB* sends a SOAP response message (contained in the entity body of a new HTTP request) to *A*. This SOAP response message corresponds to and is described by the output message in the WSDL request-response operation supported by *NB*.
5. *A* sends an HTTP response via the back channel with a status code of 202 Accepted. No SOAP envelope is included as part of the HTTP response.

Note: In step 3 above, if *NB* encounters an infrastructure level fault resulting from the processing the SOAP request message (that corresponds to and is described by the input message in the WSDL operation supported by *NB*), *NB* will send the fault to *A* via a separate HTTP request. Notice, this fault message replaces the output message in the WSDL request-response operation, if any, supported by *NB*.

A non-addressable endpoint may use `wsmc:MakeConnection` in a SOAP envelope to obtain any pending messages from an endpoint.

The MakeConnection specification does not mandate how long an MCRceiver needs to wait for an outgoing message to be generated - this is left as an implementation choice. For example, in some environments if there is no message ready to be sent back to the MCSender then returning an HTTP 202 immediately might be appropriate, while in some other cases waiting a certain period of time might improve performance with respect to network traffic. Either case could occur.

When the SOAP request-response MEP is in use and the client is non-addressable the general rules for binding SOAP envelopes to HTTP requests messages (as described by the Basic Profile) apply. SOAP envelopes, that are described by the input message of the WSDL operations supported by a service, are bound to HTTP request messages. SOAP envelopes, that are described by the output message of the WSDL operations supported by a service, are bound to HTTP response messages. For non-addressable services the situation is reversed; the SOAP envelopes, that are described by the input message of the WSDL operations supported by the service, are bound to HTTP response messages and SOAP

envelopes, that are described by the output message of the WSDL operations supported by the service, are bound to HTTP request messages.

The following requirements extend the requirements defined in Basic Profile:

**R2004** *When the `wsa:ReplyTo` addressing property of a request message (SOAP envelope included in the HTTP entity body of the HTTP request) described by the input message of a WSDL request-response operation is set to a `MakeConnection` anonymous URI, the corresponding response **MESSAGE** (SOAP envelope included in the HTTP entity body of the HTTP response) described by the WSDL output message of the same WSDL request-response operation **MUST** be sent as an HTTP response to either the HTTP request that carried the WSDL input message, or to the HTTP request that carried a `wsmc:MakeConnection` message with the correct `MakeConnection` anonymous URI.* **TESTABLE** RSP2004a RSP2004b

**R2005** *Any **MESSAGE** resulting from the processing of a SOAP envelope included in the HTTP entity body of the HTTP response, if transmitted, **MUST** be sent via a new HTTP request.* **TESTABLE** RSP2005

## 5.2.3 Transmission of MakeConnection Faults

Section 3.2 of the WS-MakeConnection [WSMC1.1] specification states that there is no reply to the `MakeConnection` message and therefore section 3.4 ("Formulating a Reply Message") of the WS-Addressing [WSAddrCore] specification is not used. This requires some clarification with respect to Fault processing. The `MakeConnection` message is, by definition, a one-way message. Therefore, if during the processing of the `MakeConnection` message a Fault is generated that is related to the processing of `MakeConnection` message itself, that Fault message is to be treated like any other Fault related to a one-way message; that is, if the Fault message is transmitted then it will follow the rules defined by section 3.4 of the WS-Addressing specification. Note that this is different from the use of the `MakeConnection` protocol to transmit a Fault message - those messages are not replies to the `MakeConnection` message and section 3.4 would not apply.

**R2050** *If, when processing a `MakeConnection` message, an **MC-RECEIVER** generates a fault related to the `MakeConnection` message (e.g. a `wsmc:UnsupportedSelection` or a `wsmc:MissingSelection` Fault) the transmission of that Fault **MUST** adhere to the rules as defined by section 3.4 of the WS-Addressing specification.* **TESTABLE** RSP2050

## 5.3 MakeConnection Addressing

In section 3.1 of the WS-MakeConnection [WSMC1.1] specification the WS-MC Anonymous URI is defined to uniquely identify anonymous endpoints and to signal the intention to use the `MakeConnection` protocol to transfer messages between the endpoints. The WS-MakeConnection protocol uses the receipt of the `MakeConnection` message at an endpoint as the mechanism by which the back-channel of that connection can be uniquely identified. Once identified, the MC Receiver is then free to use that back-channel to send any pending message targeted to the URI specified within the `MakeConnection` message.

### 5.3.1 Addressing Variants

The WS-MakeConnection specification defines two distinct ways for the MC-Sender to indicate its messages of interest. One of these mechanisms uses the wsmc:MakeConnection Anonymous URI, the other uses a WS-RM Sequence ID. However, the WS-MakeConnection specification doesn't define any way of advertising or agreeing upon which variant of the MakeConnection protocol is supported or required by an endpoint. This creates the potential for different, incompatible implementations of WS-MakeConnection. To promote interoperability this Profile refines the WS-MakeConnection specification with additional requirements to mandate the use of a single, consistent addressing variant. Since the URI variant of WS-MakeConnection is a superset of the functionality of the Sequence-ID variant, use of the URI variant is mandated by this Profile.

**R2100** *If an **ENVELOPE** contains a wsmc:MakeConnection element as a child of the SOAP Body, the wsmc:MakeConnection element MUST contain a wsmc:Address child element.* TESTABLE RSP2100

**R2101** *If an **ENVELOPE** contains a wsmc:MakeConnection element as a child of the SOAP Body, the wsmc:MakeConnection element MUST NOT contain a wsmr:Identifier child element.* TESTABLE RSP2101

**R2102** *If a wsmc:MakeConnection request does not contain a wsmc:Address child element (in violation of R2100), the **MC-RECEIVER** MUST generate a wsmc:MissingSelection fault.* TESTABLE RSP2102

**R2103** *If a wsmc:MakeConnection request contains a wsmr:Identifier element (in violation of R2101) the **MC-RECEIVER** MUST generate a wsmc:UnsupportedSelection fault.* TESTABLE RSP2103

### 5.3.2 MakeConnection Anonymous URI

The following requirements describe how the MakeConnection anonymous URI is used in the various addressing properties and within RM protocol elements transmitted on SOAP messages.

**R2110** *When present in a SOAP **ENVELOPE**, the /wsmc:MakeConnection/wsmc:Address element MUST be set to a MakeConnection anonymous URI that identifies the MC-SENDER.* TESTABLE RSP2110

**R2111** *Once the MakeConnection protocol is established through the exchange of an EPR that contains the wsmc:MakeConnection Anonymous URI as its [address] property, the **MC-RECEIVER** MUST make use of the MakeConnection response channel to transfer messages targeted to that EPR.* TESTABLE RSP2111

**R2112** *A **MESSAGE** sent to a non-addressable endpoint MUST have the wsa:To addressing property set to an instance of the MakeConnection anonymous URI that identifies that endpoint, except in the following situation where this is [permitted but] not required (a) the message (that is not a WS-RM lifecycle message) is sent non-reliably over the back-channel of an underlying protocol connection initiated by the non-addressable endpoint.* TESTABLE RSP2112



**R2113** *When referring to a non-addressable endpoint, and if present in a SOAP ENVELOPE, the /wsrm:CreateSequence/wsrm:Offer/wsrm:Endpoint element MUST be set to an instance of the WS-MakeConnection anonymous URI.* TESTABLE RSP2113

## 5.4 MakeConnection Fault Behavior

Section 4 of WS-MakeConnection [WSMC1.1] describes how to map the properties of the faults generated by WS-MakeConnection implementations to SOAP 1.1 and 1.2 fault messages. Although the description of the binding to SOAP 1.2 binds the [Detail] property of a fault to the /soap12:Fault/soap12:Detail element, there is no description of how to bind the [Detail] property to any element of a SOAP 1.1 fault message.

### 5.4.1 [Detail] Property Mapping

The following requirement describes how to bind the [Detail] property of a fault to a SOAP 1.1 fault message.

**R2200** *An MC-RECEIVER that generates a SOAP 1.1 fault MUST include the value of the [Detail] property, if such a value exists, as the first child of the /soap11:Fault/detail element.* TESTABLE RSP2200

---

## 6 Secure Reliable Messaging

This section of the Profile contains requirements that address the composition of reliable and secure messaging.

This section of the Profile incorporates the following specifications by reference:

- Web Services Reliable Messaging 1.2 [WSRM1.2]
- Web Services Make Connection 1.1 [WSMC1.1]
- WS-SecureConversation 1.4 [WSSecCon1.4]
- WS-SecurityPolicy 1.3 [WSS-Policy1.3]

These extensibility points are listed, along with any extensibility points from other sections of this Profile, in Appendix A

### 6.1 Initiating a Secure Sequence

#### 6.1.1 Secure Context Identification

Section 5.2.2.1 of the WS-ReliableMessaging [WSRM1.2] specification states that "During the CreateSequence exchange, the RM Source SHOULD explicitly identify the security context that will be used to protect the Sequence". This leaves open the possibility for RMS implementations that, for some reason, attempt to use WS-SC to secure their Sequences in some manner that does not explicitly identify the security context that will be used to protect the Sequence (e.g. by some out of band understanding of an inferred security context). This possibility creates an obvious operational and interoperability issues since (a) point-to-point, out-of-band configuration creates unscalable operational overhead and (b) not all WS-RM implementations may be capable of supporting such understandings.

Within Section 6, the phrase "secure Sequence" is defined as "a Sequence beginning with an exchange in which the wsrn:CreateSequence element has been extended with a wsse:SecurityTokenReference element." This profile does not cover the out-of-band understandings mentioned just above.

#### 6.1.2 Security Token References

When initiating a secure Sequence, an RMS must ensure that the RMD both understands and will conform to the requirements listed above.

**R3010** *If an ENVELOPE contains a wsrn:CreateSequence element as a child of the SOAP Body, and the proposed Sequence is to be secured, the ENVELOPE MUST also include the wsrn:UsesSequenceSTR element as a SOAP header block.* **TESTABLE** **RSP3010**

### 6.2 Signature Coverage

In a secure Sequence there exists both security and interoperability issues around the inclusion of SOAP message elements within signatures.



## 6.2.1 Single Signature for Sequence Header and SOAP Body

As discussed in Section 5.1.1 of WS-ReliableMessaging [WSRM1.2], any mechanism which allows an attacker to alter the information in a Sequence Traffic Message or break the linkage between a `wsm:Sequence` header block and its assigned message, represents a threat to the WS-RM protocol.

- R3100** *When present in an **ENVELOPE** in a secure Sequence, the `wsm:Sequence` header block **MUST** be included in a signature.* TESTABLE RSP3100a RSP3100b
- R3101** *In an **ENVELOPE**, the signature referred to in R3100 **MUST** be coupled cryptographically (e.g. share a common signature) with the message body.* TESTABLE RSP3101a RSP3101b
- R3102** *In an **ENVELOPE**, the signature referred to in R3100 **MUST** be created using the key(s) associated with the security context that protects the applicable Sequence.* NOT\_TESTABLE

## 6.2.2 Signed Elements

As discussed in Section 5.1.1 of WS-ReliableMessaging [WSRM1.2], any mechanism which allows an attacker to alter the information in a Sequence Lifecycle Message, Acknowledgement Messages, Acknowledgement Request, or Sequence-related fault represents a threat to the WS-RM protocol.

- R3110** *If a `wsm:CreateSequence`, `wsm:CreateSequenceResponse`, `wsm:CloseSequence`, `wsm:CloseSequenceResponse`, `wsm:TerminateSequence`, or `wsm:TerminateSequenceResponse` element appears in the body of an **ENVELOPE** in a secure Sequence, that body **MUST** be included in a signature.* TESTABLE RSP3110a RSP3110b
- R3111** *In an **ENVELOPE**, the signature referred to in R3110 **MUST** be created using the key(s) associated with the security context, that protects the applicable Sequence.* NOT\_TESTABLE
- R3114** *If a `wsm:AckRequested`, or `wsm:SequenceAcknowledgement` element appears in the header of an **ENVELOPE** and that element refers to a secure Sequence, that element **MUST** be included in a signature.* TESTABLE RSP3114a RSP3114b
- R3115** *In an **ENVELOPE**, the signature referred to in R3114 **MUST** be created using the key(s) associated with the security context that protects the applicable Sequence.* NOT\_TESTABLE
- R3117** *When using SOAP 1.2, if a `soap12:Fault` element appears as the body of an **ENVELOPE** and the fault relates to a known secure Sequence, the `soap12:Body` **MUST** be included in a signature.* TESTABLE RSP3117a RSP3117b
- R3118** *In an **ENVELOPE**, the signature referred to in R3117 **MUST** be created using the key(s) associated with the security context that protects the applicable Sequence.* NOT\_TESTABLE

### 6.2.3 Single Signature for SOAP 1.1 Fault and SequenceFault Header

As described in Section 4.1 of WS-ReliableMessaging [WSRM1.2], the `wsm:SequenceFault` element is used to carry the specific details any SOAP 1.1 faults generated during the WS-RM-specific processing of a message. As with SOAP 1.2, the integrity of fault information needs to be protected. In addition to this, it is necessary to ensure that the linkage between a `wsm:SequenceFault` header and the `soap11:Fault` body is preserved.

**R3120** *When using SOAP 1.1, if a `wsm:SequenceFault` appears in the header of an ENVELOPE and the fault relates to a known secure Sequence, the `wsm:SequenceFault` header MUST be included in a signature.* TESTABLE RSP3120a RSP3120b RSP3120c

**R3121** *In an ENVELOPE, the signature referred to in R3120 MUST be coupled cryptographically (e.g. share a common signature) with the message body.* TESTABLE RSP3121a RSP3121b

**R3122** *In an ENVELOPE, the signature referred to in R3120 MUST be created using the key(s) associated with the security context that protects the applicable Sequence.* NOT\_TESTABLE

## 6.3 Secure Use of MakeConnection

This Profile places additional requirements on the composition of MakeConnection, WS-SecureConversation, and WS-ReliableMessaging.

### 6.3.1 Security Context for MakeConnection

From a security standpoint, it will be commonly desired that the security context of the message sent on the backchannel established by a MakeConnection and that of the MakeConnection message itself be the same. However, it is important to keep in mind that the WS-MakeConnection protocol is independent of the application protocol(s) flowing over it, thus there will be cases in which the MC-SENDER has no knowledge of the security context (if any) of the backchannel messages. For example, the WS-MakeConnection specification details a scenario in which MakeConnection is used to deliver Notifications from an Event Source. The Event Source may have a variety of different security contexts that it uses depending on the type of Notification being delivered. In this case the MC-SENDER has no way of knowing which security context, if any, should to be used. In such situations, the MC-RECEIVER needs to simply ensure that the MC-SENDER is authenticated. It would still be the MC-SENDER's responsibility to ensure that any message sent on the backchannel has the correct security context - just as would any endpoint receiving a message over a new connection.

### 6.3.2 Signing the MessagePending header

Since the value of the `wsmc:MessagePending` header effects the operation of the MakeConnection protocol, it must be protected to ensure the proper functioning of that protocol.

**R3201** *If a `wsmc:MessagePending` element appears as a header block in an ENVELOPE, that element MUST be signed using the key(s) associated with a security context, if any, that protects the SOAP Body of the ENVELOPE.* TESTABLE RSP3201

## 6.4 Replay Detection

As mentioned in Section 5 of WS-ReliableMessaging [WSRM1.2], there is a potential tension between certain aspects of security and reliable messaging; a security implementation may attempt to detect and prevent message replay attacks, but one of the invariants of the WS-RM protocol is to resend messages until they are acknowledged. Implementations must have the information necessary to distinguish between a valid retransmission of an unacknowledged message and a replayed message.

### 6.4.1 Unique Timestamp Values

**R3300** *In the absence of WS-SecurityPolicy assertions that indicate otherwise, an **ENVELOPE** in a secure Sequence that contains a `wsm:Sequence` header **MUST** contain a `wsu:Timestamp` as a sub-element of the `wsse:Security` header.* **TESTABLE** RSP3300

**R3301** *For any two **ENVELOPE**s in a particular secure Sequence that contain WS-RM Sequence headers in which the value of their `wsm:MessageNumber` elements are equal, it **MUST** be true that neither of the envelopes contains a `wsu:Timestamp` as a child element of `wsse:Security` header, **OR** that both messages contain a `wsu:Timestamp` as child elements of their `wsse:Security` headers and the value of these `wsu:Timestamp` elements are **NOT** equal.* **TESTABLE** RSP3301

---

## Appendix A. Extensibility Points

This section identifies extensibility points, as defined in "Scope of the Profile," for the Profile's component specifications.

Agreements on these extensibility points are out of the scope of the Profile and Profile conformance. An initial, non-exhaustive list of these extensibility points is provided here as their use may affect interoperability. In order to avoid interoperability issues not addressed by the Profile, out-of-band agreement on the use of these extensibility points may be necessary between the parties to a Web service.

In Web Services Reliable Messaging 1.2 [WSRM1.2]:

- **E0001 - CreateSequence element and attribute extensions** - Extending CreateSequence, via additional elements or attributes, is the primary mechanism for negotiating supplemental semantics to be applied to the requested and/or offered Sequence. Note this extensibility point does not cover the pre-defined use of the /wsrm:CreateSequence/wsse:SecurityTokenReference element.
- **E0002 - CreateSequenceResponse element and attribute extensions** - Extending CreateSequenceResponse, via additional elements or attributes, may be used to signal the acceptance of the supplemental semantics requested by the use of E0001 or it may be used in its own right to request or signal additional semantics to be applied to either requested and/or offered Sequence.
- **E0003 - CloseSequence element and attribute extensions** - The CloseSequence element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options in the closure of the Sequence.
- **E0004 - CloseSequenceResponse element and attribute extensions** - The CloseSequenceResponse element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options in the closure of the Sequence.
- **E0005 - TerminateSequence element and attribute extensions** - The TerminateSequence element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options in the termination of the Sequence.
- **E0006 - TerminateSequenceResponse element and attribute extensions** - The TerminateSequenceResponse element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options in the termination of the Sequence.
- **E0007 - Sequence element and attribute extensions** - The Sequence header element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the Sequence identified by the header.
- **E0008 - AckRequested element and attribute extensions** - The AckRequest header element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the request.
- **E0009 - SequenceAcknowledgment element and attribute extensions** - The SequenceAcknowledgment header element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the acknowledgment.
- **E0010 - SequenceFault element and attribute extensions** - The SequenceFault element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the fault.

In WS-SecureConversation 1.4 [WSSecCon1.4]:

- **E0011 - SecurityContextToken element and attribute extensions** - The SecurityContextToken element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options that apply to the security context identified by the token.

In Web Services Make Connection 1.1 [WSMC1.1]:

- **E0012 - MakeConnection element and attribute extensions** - The MakeConnection element may be extended via additional elements or attributes to indicate the use of supplemental semantics or options that apply to the request.
- **E0013 - Attribute extensions to the MakeConnection Address** - The /wsmc:MakeConnection/wsmc:Address element may be extended via additional attributes to indicate the use of supplemental semantics or options that apply to this instance of the MakeConnection Anonymous URI
- **E0014 - MessagePending element and attribute extensions** - The MessagePending header element may be extended via additional elements or attributes to convey supplemental semantics or options that apply to the indication of pending messages.

---

## Appendix B. Schemas

A copy of the XML Schema (non-normative) for WS-Policy conformance claims is listed below for convenience:

```
<xs:schema targetNamespace='http://ws-i.org/profiles/rsp/1.0/'
  xmlns:xs='http://www.w3.org/2001/XMLSchema'
  elementFormDefault='qualified'
  blockDefault='#all'>
  <xs:element name='Conformant'>
    <xs:complexType>
      <xs:sequence>
        <xs:any namespace='##other' processContents='lax' minOccurs='0'
maxOccurs='unbounded' />
      </xs:sequence>
      <xs:anyAttribute namespace='##other' processContents='lax' />
    </xs:complexType>
  </xs:element>
</xs:schema>
```

---

## Appendix C. Testing

### C.1 Testability of Requirements

The testability of each Requirement is indicated as informational. It is a non-normative complement to this profile. It is represented by the following tags:

- **TESTABLE:** This means that the requirement could be tested, and that some test assertion(s) has been written for it.
- **TESTABLE\_SCENARIO\_DEPENDENT:** This means that a specific test scenario is needed in order to exercise the related test assertion, because the test assertion is designed to trigger only on specific input material. Producing this input material requires executing a scenario with specific data that is very unlikely to be produced by systems in production under normal operating conditions (e.g. material known to NEVER be recognizable by an endpoint.)
- **NOT\_TESTED:** This is the case for most optional requirements (SHOULD, MAY), and for most Extensibility points as well as for requirements targeting UDDI. Some requirements may also require Schema awareness (ability to process schemas) from the Analyzer test tool. As this conflicted with the ability to use several freely available XSLT20 processors that are not Schema aware, such requirements have been marked "NOT\_TESTED" unless this verification was done by tools prior to creating the test log file, which would then just contain some metadata indicating the results of these schema-related tests. A subsequent version may cover untested requirements. In this profile, the core requirements for assessing interoperability of implementations have been initially targeted
- **NOT\_TESTABLE:** This means that these requirements cannot be tested based on the technology choices (black-box testing, XPath scripting)

### C.2 Structure of Test Assertions

The test assertions are structured in XML, with some elements scripted using XPath2.0 and are automatically processable using the version 2.0 of the WS-I Analyzer tools.

Test Assertion Part	What it means:
<b>Test Assertion ID</b> (required)  <i>[markup: testAssertion/@id]</i>	A unique ID for the current test assertion.
<b>Description</b> (optional)  <i>[markup: testAssertion/description ]</i>	A plain text description of the current test assertion. At minimum expressing the TA predicate.
<b>Comments</b> (optional)  <i>[markup: testAssertion/comments ]</i>	A plain text comment about the TA script and how well it covers the profile requirement. Explanation material for users, and developers (what could be improved, etc.).
<b>Target</b> (required)  <i>[markup: testAssertion/target ]</i>	The artifacts to be tested, defined by an XPath expression that returns a list of XML nodes from the log file in input. For every artifact (node) selected by the Target expression, there will be a report entry for this TA in the test report, with a result of either: <ul style="list-style-type: none"><li>• passed</li></ul>



	<ul style="list-style-type: none"> <li>• failed</li> <li>• warning</li> <li>• notApplicable</li> <li>• notRelevant</li> <li>• missingInput</li> <li>• undetermined</li> </ul> <p>See the "reporting" item for the meaning of these results.</p>
<b>Cotarget</b> (optional)  <i>[markup: testAssertion/cotarget ]</i>	<p>Artifact that is related to the target, and that needs be accessed for the testing. Identified by an XPath expression that may refer to the related target node using the variable '\$target'.</p> <p>For example, the target can be a SOAP message and the cotarget the WSDL file that describes this SOAP message.</p> <p>A cotarget must have a @name attribute that identifies it. The value of this attribute can be used as a variable (when prepending '\$' to it) by subsequently defined cotargets, prerequisite and predicate.</p>
<b>Prerequisite</b> (optional)  <i>[markup: testAssertion/@preReq ]</i> (optional)  <i>[markup: testAssertion/prerequisite ]</i> (optional)	<p>The pre-condition for evaluating this Test Assertion on this target. If the prerequisite evaluates to "false" then the target does not qualify for this Test Assertion (the test report is "notRelevant")</p> <p>The first part (preReq attribute) is an enumeration of Test Assertion IDs. Each one of the prerequisite TAs must either use the same target (e.g. SOAP Envelope, or WSDL binding, etc.) as this TA, or a target that is of a more general type than the main TA target. The target must "pass" each one of these prerequisite TAs in order to qualify for this TA.</p> <p>(e.g. the target of TA t1 can be a WSDL binding while the target of a TA t2 prerequisite of t1, can be the entire WSDL file).</p> <p>The second part ("prerequisite" element) is an XPath (boolean) expression of the same nature as the predicate. If present, it must evaluate to "true" for the target to qualify. If it fails, the result for the current TA in the report will be "notRelevant". Otherwise, the target can be further evaluated by the predicate of the main TA. The expression may refer to the target explicitly using the variable name "\$target", or to any cotarget using its name as variable name (\$[name]).</p>
<b>Predicate</b> (required)  <i>[markup: testAssertion/predicate]</i>	<p>A logical expression that evaluates whether this target is fulfilling the profile requirement addressed by this test Assertion. By default:</p> <ul style="list-style-type: none"> <li>- A result of <b>true</b> means the requirement is fulfilled (reported as a "passed" in the test report).</li> <li>- A result of <b>false</b> means the requirement is violated (reported as a "failed" in the test report).</li> </ul> <p>However, in some cases and for testability reasons, the predicate may be designed as a partial indicator e.g. only</p>

	<p>indicates some cases of fulfillment, or some cases of violation. As a result, when "true" indicates fulfillment it may be that "false" is inconclusive, or conversely "false" will indicate violation, but "true" is inconclusive. In such cases, the "Reporting" element specifies the meaning of the predicate result w/r to the profile requirement.</p> <p>The predicate expression implicitly refers to the target (which is its "XPath context") although it may explicitly refer to it using the variable name "\$target". It may refer to any cotarget using its name as variable name (\$[name]).</p>
<p><b>Prescription</b> (required)</p> <p><i>[markup: testAssertion/prescription/@level ]</i></p>	<p>Conveys the level of prescription associated with the profile requirement. At least three values may be used:</p> <ul style="list-style-type: none"> <li>• <b>mandatory</b>: maps to RFC2119 keywords MUST, MUST NOT, SHALL, SHALL NOT, REQUIRED (and sometimes MAY NOT)</li> <li>• <b>preferred</b>: maps to RFC2119 keywords SHOULD, SHOULD NOT, RECOMMENDED, NOT RECOMMENDED</li> <li>• <b>permitted</b>: maps to RFC2119 keywords MAY, OPTIONAL.</li> </ul>
<p><b>Reporting</b> (optional)</p> <p><i>[markup: testAssertion/reporting ]</i></p>	<p>For each possible outcome of the predicate (true or false), specifies how it must be interpreted w/r to the profile feature. Two attributes are used that both must be present, when this element is present:</p> <ul style="list-style-type: none"> <li>• <b>@true attribute</b>: may take values among {passed, failed, warning, undetermined} (default is 'passed')</li> <li>• <b>@false attribute</b>: may take values among {passed, failed, warning, undetermined} (default is 'failed')</li> </ul> <p>The reported outcomes have the following meaning:</p> <ul style="list-style-type: none"> <li>• <b>passed</b>: the target passes the test and can be considered as fulfilling the profile feature.</li> <li>• <b>failed</b>: the target fails the test and can be considered as violating (or not exhibiting) the profile feature.</li> <li>• <b>warning</b>: the test result is inconclusive. There is a possibility of profile requirement violation, that deserves further investigation.</li> <li>• <b>undetermined</b>: the test result is inconclusive for this predicate value.</li> </ul> <p>NOTES: the predicate of the TA may be worded in a negative way so that @false='passed' although that is not recommended. The result of a test should not be related to the prescription level, e.g. a "preferred" or "permitted" level should not imply that @false='warning'.</p> <p>Other test results that are automatically generated and not</p>

controlled by the "reporting" element are:

- **notRelevant**: the target failed the prerequisite condition and therefore does not qualify for further testing (i.e. the predicate expression is NOT evaluated on it).
- **missingInput**: a cotarget expression returned an empty node set.
- **notApplicable**: this target was not even selected by the target XPath expression, while being of the same general artifact type (e.g. message type).

### C.3 Test Log Conventions

The test assertions designed for this test suite are written to work over "test log" files that are assumed to follow some rules in their structure and content. These rules are more completely stated in the documentation associated with the log file description. Some of these rules are:

- Every message in the log must be uniquely identified: it must have a unique pair of values for: {message/@conversation, message/@id}, where @id is unique within each conversation. Typically, a conversation is used to identify an HTTP connection and the group of messages over this connection.
- A response message (for WSDL request-responses as well as RM lifecycle messages) always appears after the request message in the log file.
- A wsa:RelatesTo reference always refers to a message that has been logged before.
- A Fault message always appears after the message-in-error.
- An RM acknowledgement always appears after the messages it acknowledges.
- There should not be both a doc-lit and an rpc-lit bindings for the same portType.
- Imports must be resolved locally to the log file.

## Appendix D. Test Assertions

This is a non-normative complement to this profile

<b>Test Assertion:</b>	<b>RSP8001</b>
<b>Description:</b>	This TA does not match any specific Rxxxx requirement. It is however verifying a general RSP requirement, and is intended to be used as prerequisite to other TAs. It allows other TAs to make abstraction of SOAP version, i.e. to assume an Envelope is always either SOAP 1.1 or 1.2. That way, (almost all) other TAs can be written in a more generic way.
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope
<b>Predicate:</b>	(fn:namespace-uri-from-QName(fn:node-name(.)) = 'http://www.w3.org/2003/05/soap-envelope') or (fn:namespace-uri-from-QName(fn:node-name(.)) = 'http://schemas.xmlsoap.org/soap/envelope/')
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The message is neither a SOAP 1.1 message or a SOAP 1.2 message.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2200</b>
<b>Description:</b>	An MC-RECEIVER that generates a SOAP 1.1 fault MUST include the value of the [Detail] property, if such a value exists, as the first child of the /soap11:Fault/detail element.
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/soap11:Envelope[soap11:Body/soap11:Fault]
<b>Predicate:</b>	\$target/soap11:Body/soap11:Fault/*:detail or not(\$target/soap11:Body/*:detail)
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP 1.1 message containing a Fault element in its body, has a default element that is not immediate child of soap11:Body/soap11:Fault.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0001</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[ some \$elt in /* satisfies string(fn:namespace-uri(\$elt)) = 'http://dummy.example.org/unknown/nmnamespace' ]
<b>co-Target:</b> myresponse	/wsil:testLog/wsil:messageLog/wsil:message[ (@type = 'response' and @conversation = \$target/../../@conversation) or (/*:Envelope/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID) ] /wsil:messageContents/*:Envelope
<b>Predicate:</b>	not(\$myresponse/*:Body/*:Fault)
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP Fault was generated in response to a message that contains elements with an unrecognized extension - here, a predefined namespace URI.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0002a</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message[/wsil:testLog/wsdl:descriptionFiles/wsdl:feature[@name = 'http://docs.oasis-open.org/ws-rx/wsrmp/200702/RMAssertion' and @mode = 'required']] [@type = 'request']/wsil:messageContents/*:Envelope [*:Body[not(/*:Fault) and not(/*:wsrm:* ) and not(/*:EncryptedData) ]] [*:Header[not(wsrn:AckRequested) and not(wsrn:SequenceAcknowledgement) and not(/*:xenc:ReferenceList)]] [ some \$myenv in . satisfies some \$message in //wsdl:definitions/wsdl:message satisfies (\$message/wsdl:part[1]/@type) ]
<b>co-Target:</b> myOpBinding	/wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:binding [./*[ @style = 'rpc']/wsdl:operation[@name = fn:local-name-from-QName(node-name(\$target/*:Body/*[1]))]]
<b>Predicate:</b>	\$target/*:Header/wsrn:Sequence
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP Envelope with an WSDL rpc-lit binding, and for which the use of WS-ReliableMessaging was required, did not contain a wsrm:Sequence header.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0002b</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message[/wsil:testLog/wsdl:descriptionFiles/wsdl:feature[@name = 'http://docs.oasis-open.org/ws-rx/wsrmp/200702/RMAssertion' and @mode = 'required']] [@type = 'request']/wsil:messageContents/*:Envelope [*:Body[not(/*:Fault) and not(/*:wsrm:* ) and not(/*:wsmc:* ) and not(/*:EncryptedData) ]] [*:Header[not(wsrn:AckRequested) and not(wsrn:SequenceAcknowledgement) and not(/*:xenc:ReferenceList)]] [some \$myenv in . satisfies ( every \$message in //wsdl:definitions/wsdl:message satisfies ( (not(\$message/wsdl:part[1]/@type) ) and ( \$myenv/*:Body/*[1] or \$myenv/*:Header/wsa:Action ) ) ) ]
<b>co-Target:</b> myOpBinding	/wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:binding/wsdl:operation [ some \$opBinding in . satisfies (if (\$target/*:Body/*[1] ) then (some \$dmesg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:message[wsdl:part{fn:resolve-QName(xsd:string(@element), . ) = fn:node-name(\$target/*:Body/*[1])}] ] satisfies some \$dopmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:portType/wsdl:operation/wsdl:input {fn:local-name-from-QName(fn:resolve-QName(xsd:string(@message), . ) ) = \$dmesg/@name} satisfies \$opBinding/@name = \$dopmsg/./@name ) else fn:true() ) and ( if (\$target/*:Header/wsa:Action) then ( some \$opmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:portType/wsdl:operation/wsdl:input satisfies ( \$target/*:Header/wsa:Action = ( if (\$opmsg/@wsam:Action) then \$opmsg/@wsam:Action else fn:concat(\$opmsg/./@name, ' ', if(\$opmsg/@name) then \$opmsg/@name else fn:concat(\$opmsg/./@name, 'Request' ) ) ) ) and ( \$opBinding/@name = \$opmsg/./@name ) ) else fn:true() ) ]
<b>Predicate:</b>	\$target/*:Header/wsrn:Sequence
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP Envelope with an WSDL doc-lit binding, and for which the use of WS-ReliableMessaging was required, did not contain a wsrm:Sequence header.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0003</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message[@type = 'response' and /wsil:testLog/wsdl:descriptionFiles/wsdl:feature[@name = 'http://docs.oasis-open.org/ws-rx/wsrmp/200702/RMAssertion' and (@mode = 'required' or @mode = 'supported')]] /wsil:messageContents/*:Envelope [*:Header[not(/*:xenc:ReferenceList)]]/*:Body/*:Fault]
<b>Predicate:</b>	not(\$target/*:Body/*:Fault[ fn:ends-with(*:Code/*:Subcode/*:Value,

	'MustUnderstand') or ../../faultcode[fn:contains(string(node()), 'MustUnderstand')]] and *:Header/*:NotUnderstood[fn:namespace-uri-for-prefix(fn:substring-before(@qname, ':'), .) = 'http://docs.oasis-open.org/ws-rx/wsrn/200702'] ]]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP Fault from an INSTANCE is reporting a NotUnderstood fault about a wsrn element, while the use of RM was required (RMAssertion).
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1002a</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message[wsil:testLog/wsdl:descriptionFiles/wsdl:feature[ @name = 'http://docs.oasis-open.org/ws-sx/ws-securitypolicy/200702/SecureConversationToken' and @mode = 'required']] [ @type = 'request']/wsil:messageContents/*:Envelope [*:Body(not(../../Fault) and not(../../wsrm:* ) and not(../../EncryptedData) ) ] [*:Header(not(wsrn:AckRequested) and not(wsrn:SequenceAcknowledgement) and not(../../xenc:ReferenceList))] [ some \$myenv in . satisfies some \$message in /wsdl:definitions/wsdl:message satisfies (\$message/wsdl:part[1]/@type) ]
<b>co-Target:</b> myOpBinding	/wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:binding [ ../../@style = 'rpc']/wsdl:operation[ @name = fn:local-name-from-QName(node-name(\$target/*:Body/*[1]))]
<b>Predicate:</b>	\$target/*:Header//wssc:SecurityContextToken
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP Envelope with an WSDL rpc-lit binding, and for which the use of a SecurityContextToken was required, did not contain a wssc:SecurityContextToken header.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1002b</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message[wsil:testLog/wsdl:descriptionFiles/wsdl:feature[ @name = 'http://docs.oasis-open.org/ws-sx/ws-securitypolicy/200702/SecureConversationToken' and @mode = 'required']] [ @type = 'request']/wsil:messageContents/*:Envelope [*:Body(not(../../Fault) and not(../../wsrm:* ) and not(../../EncryptedData) ) ] [*:Header(not(wsrn:AckRequested) and not(wsrn:SequenceAcknowledgement) and not(../../xenc:ReferenceList))] [ some \$myenv in . satisfies ( every \$message in /wsdl:definitions/wsdl:message satisfies ( not(\$message/wsdl:part[1]/@type) ) and ( \$myenv/*:Body/*[1] or \$myenv/*:Header/wsa:Action ) ) ]
<b>co-Target:</b> myOpBinding	/wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:binding/wsdl:operation [ some \$opBinding in . satisfies ( if (\$target/*:Body/*[1] ) then ( some \$dmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:message[wsdl:part[fn:resolve-QName(xsd:string(@element), .) = fn:node-name(\$target/*:Body/*[1])] ] satisfies some \$dopmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:portType/wsdl:operation/wsdl:input [fn:local-name-from-QName(fn:resolve-QName(xsd:string(@message), .)) = \$dmsg/@name] satisfies \$opBinding/@name = \$dopmsg/../../@name ) else fn:true() ) and ( if (\$target/*:Header/wsa:Action) then ( some \$opmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:portType/wsdl:operation/wsdl:input satisfies (\$target/*:Header/wsa:Action = ( if (\$opmsg/@wsam:Action) then \$opmsg/@wsam:Action else fn:concat(\$opmsg/../../@targetNamespace, if (not(fn:ends-with(\$opmsg/../../@targetNamespace, '/')) then '/' else " ", \$opmsg/../../@name, '/', if(\$opmsg/@name) then \$opmsg/@name else fn:concat(\$opmsg/../../@name, 'Request' ) ) ) ) and ( \$opBinding/@name = \$opmsg/../../@name ) ) else fn:true() ) ]
<b>Predicate:</b>	\$target/*:Header//wssc:SecurityContextToken
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP Envelope with an WSDL doc-lit binding, and for which the use of a SecurityContextToken was required, did not contain a wssc:SecurityContextToken header.
<b>Diagnostic</b>	

Data:	
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Test Assertion:	<b>RSP2011a</b>
Description:	
Target:	/wsil:testLog/wsdl:messageLog/wsdl:message[/wsil:testLog/wsdl:descriptionFiles/wsdl:feature[@name = 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MCSupported' and @mode = 'required']] [@type = 'request']/wsil:messageContents/*:Envelope [*:Body[not(./*:Fault) and not(./*:EncryptedData) ]] [*:Header[not(./xenc:ReferenceList)]] [ some \$myenv in . satisfies some \$message in //wsdl:definitions/wsdl:message satisfies (\$message/wsdl:part[1]/@type) ]
co-Target: myOpBinding	/wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:binding [./*[ @style = 'rpc']]wsdl:operation[@name = fn:local-name-from-QName(node-name(\$target/*:Body/*[1]))]
Predicate:	\$target/*:Header[ (not(wsa:ReplyTo) or ( fn:contains(xsd:string(wsa:ReplyTo[1]/wsa:Address), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=') or xsd:string(wsa:ReplyTo[1]/wsa:Address) = 'http://www.w3.org/2005/08/addressing/anonymous' or xsd:string(wsa:ReplyTo[1]/wsa:Address) = 'http://www.w3.org/2005/08/addressing/none' )) and (not(wsa:FaultTo) or ( fn:contains(xsd:string(wsa:FaultTo[1]/wsa:Address), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=') or xsd:string(wsa:FaultTo[1]/wsa:Address) = 'http://www.w3.org/2005/08/addressing/anonymous' or xsd:string(wsa:FaultTo[1]/wsa:Address) = 'http://www.w3.org/2005/08/addressing/none' )) ]
Reporting:	true=passed, false=failed
Prescription:	mandatory
Error Message:	A SOAP Envelope with an WSDL rpc-lit binding, and for which the use of MakeConnection was required, did not contain an appropriate wsa:ReplyTo or wsa:FaultTo value (either anonymous URI or a wsa "none" URI)
Diagnostic Data:	

Test Assertion:	<b>RSP2011b</b>
Description:	
Target:	/wsil:testLog/wsdl:messageLog/wsdl:message[/wsil:testLog/wsdl:descriptionFiles/wsdl:feature[@name = 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MCSupported' and @mode = 'required']] [@type = 'request']/wsil:messageContents/*:Envelope [*:Body[not(./*:Fault) and not(./wsrm:* ) and not(./wsmc:*) and not(./*:EncryptedData) ]] [*:Header[not(./xenc:ReferenceList)]] [some \$myenv in . satisfies ( every \$message in //wsdl:definitions/wsdl:message satisfies ( (not(\$message/wsdl:part[1]/@type) ) and ( \$myenv/*:Body/*[1] or \$myenv/*:Header/wsa:Action ) ) ) ]
co-Target: myOpBinding	/wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:binding/wsdl:operation [ some \$opBinding in . satisfies (if (\$target/*:Body/*[1] ) then (some \$dmesg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:message[wsdl:part[fn:resolve-QName(xsd:string(@element), . ) = fn:node-name(\$target/*:Body/*[1])]] satisfies some \$dopmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:portType/wsdl:operation/wsdl:input [fn:local-name-from-QName(fn:resolve-QName(xsd:string(@message), . )) = \$dmesg/@name] satisfies \$opBinding/@name = \$dopmsg/./@name ) else fn:true() ) and ( if (\$target/*:Header/wsa:Action) then ( some \$opmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:portType/wsdl:operation/wsdl:input satisfies (\$target/*:Header/wsa:Action = ( if (\$opmsg/@wsam:Action) then \$opmsg/@wsam:Action else fn:concat(\$opmsg/././@targetNamespace, if (not(fn:ends-with(\$opmsg/././@targetNamespace, '/')) then '/' else '', \$opmsg/././@name, '/', if(\$opmsg/@name) then \$opmsg/@name else fn:concat(\$opmsg/./@name, 'Request' ) ) ) ) and ( \$opBinding/@name = \$opmsg/./@name ) ) else fn:true() ) ]
Predicate:	\$target/*:Header[ (not(wsa:ReplyTo) or ( fn:contains(xsd:string(wsa:ReplyTo[1]/wsa:Address), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=') or xsd:string(wsa:ReplyTo[1]/wsa:Address) = 'http://www.w3.org/2005/08/addressing/anonymous' or xsd:string(wsa:ReplyTo[1]/wsa:Address) = 'http://www.w3.org/2005/08/addressing/none' )) and (not(wsa:FaultTo) or ( fn:contains(xsd:string(wsa:FaultTo[1]/wsa:Address), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=') or xsd:string(wsa:FaultTo[1]/wsa:Address) = 'http://www.w3.org/2005/08/addressing/anonymous' or xsd:string(wsa:FaultTo[1]/wsa:Address) = 'http://www.w3.org/2005/08/addressing/none' )) ]
Reporting:	true=passed, false=failed
Prescription:	mandatory
Error	A SOAP Envelope with an WSDL doc-lit binding, and for which the use of MakeConnection was required, did



<b>Message:</b>	not contain an appropriate wsa:ReplyTo or wsa:FaultTo value (either anonymous URI or a wsa "none" URI)
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2012</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message[ @type = 'response' and contains(xsd:string(wsdl:httpHeaders/wsdl:requestLine), '500') and /wsil:testLog/wsdl:descriptionFiles/wsdl:feature[ @name = 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MCSupported' and ( @mode = 'required' or @mode = 'supported') ] and (some \$resp1 in . satisfies /wsil:testLog/wsdl:messageLog/wsdl:message[ @type = 'request' and @conversation = \$resp1/@conversation]/wsdl:messageContents/*:Envelope[*:Body/wsmc:MakeConnection] ) ]/wsil:messageContents/*:Envelope [*:Header[not(../xenc:ReferenceList)]]
<b>Predicate:</b>	not(*:Body/*:Fault[ (fn:ends-with(*:Code, 'Sender') and fn:ends-with(*:Code/*:Subcode/*:Value, 'ActionNotSupported')) or ../*:faultcode[fn:contains(string(node()), 'ActionNotSupported')] ] )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP Envelope with an HTTP 500 error code in response to a MakeConnection, in a context where the use of MC is required (MCSupported), contains a Fault with 'ActionNotSupported' code value.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2013</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message[ @type = 'response' and /wsil:testLog/wsdl:descriptionFiles/wsdl:feature[ @name = 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MCSupported' and ( @mode = 'required' or @mode = 'supported') ] and (some \$resp1 in . satisfies /wsil:testLog/wsdl:messageLog/wsdl:message[ @type = 'request' and @conversation = \$resp1/@conversation]/wsdl:messageContents/*:Envelope[fn:contains(xsd:string(*:Header/wsa:ReplyTo[1]/wsa:Address), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=') ] ) ]/wsil:messageContents/*:Envelope [*:Header[not(../xenc:ReferenceList)]]
<b>Predicate:</b>	not(*:Body/*:Fault[ (fn:ends-with(*:Code, 'Sender') and fn:ends-with(*:Code/*:Subcode/*:Value, 'InvalidAddressingHeader')) or ../*:faultcode[fn:contains(string(node()), 'InvalidAddressingHeader')] ] )
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP Envelope in response to a request with ReplyTo address set to MakeConnection anonymous URI, in a context where the use of MC is required (MCSupported) contains a Fault with 'InvalidAddressingHeader' code value.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2014a</b>
<b>Description:</b>	If an endpoint using a doc-lit binding requires the use of WS-MakeConnection, any MESSAGE transmitted from this endpoint MUST be transmitted over a connection that is associated with either an instance of the WS-MakeConnection Anonymous URI or the WS-Addressing anonymous URI (http://www.w3.org/2005/08/addressing/anonymous).
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [*:Body[not (*:Fault) and not(../*:EncryptedData) and not(../wsrm:*) and not(../wssc:*)] and *:Header[not(wsa:Action ) or ( not(fn:starts-with(wsa:Action,'http://docs.oasis-open.org/ws-sx/ws-trust')) and not(fn:starts-with(wsa:Action,'http://docs.oasis-open.org/ws-rx/wsrn')) ) ] and /wsil:testLog/wsdl:descriptionFiles/wsdl:feature[ @name = 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MCSupported' and ( @mode = 'required') ] and *:Header/wsa:RelatesTo[ @RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not ( @RelationshipType) ] and (some \$resp1 in . satisfies some \$req in /wsil:testLog/wsdl:messageLog/wsdl:message satisfies \$req/wsdl:messageContents/*:Envelope/*:Header/wsa:MessageID = \$resp1/*:Header/wsa:RelatesTo

	[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] and \$req/wsdl:messageContents/*:Envelope/*:Header[fn:contains(wsa:ReplyTo[1]/wsa:Address, 'http://www.w3.org/2005/08/addressing/anonymous') or not(wsa:ReplyTo)] ) ] [ some \$myenv in . satisfies ( every \$message in //wsdl:definitions/wsdl:message satisfies ( ( not(\$message/wsdl:part[1]/@type) ) and ( \$myenv/*:Body/*[1] or \$myenv/*:Header/wsa:Action ) ) ) ]
<b>co-Target:</b> myOpBinding	/wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:binding/wsdl:operation [ some \$opBinding in . satisfies ( if (\$target/*:Body/*[1] ) then ( some \$dmesg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:message[wsdl:part[fn:resolve-QName(xsd:string(@element), . ) = fn:node-name(\$target/*:Body/*[1])] ] satisfies some \$dopmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:portType/wsdl:operation/wsdl:output [fn:local-name-from-QName(fn:resolve-QName(xsd:string(@message), . )) = \$dmesg/@name] satisfies \$opBinding/@name = \$dopmsg/./@name ) else fn:true() ) and ( if (\$target/*:Header/wsa:Action) then ( some \$opmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:portType/wsdl:operation/wsdl:output satisfies (\$target/*:Header/wsa:Action = ( if (\$opmsg/@wsam:Action) then \$opmsg/@wsam:Action else fn:concat(\$opmsg/./@targetNamespace, if (not(fn:ends-with(\$opmsg/./@targetNamespace, '/')) then '/' else '', \$opmsg/./@name, '/', if(\$opmsg/@name) then \$opmsg/@name else fn:concat(\$opmsg/./@name, 'Response' ) ) ) ) and ( \$opBinding/@name = \$opmsg/./@name ) ) else fn:true() ) ]
<b>Predicate:</b>	\$target/./@type = 'response'
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	In a context where the use of MC is required (MCSupported), a response message in a WSDL doc/lit request-response exchange was sent over an HTTP request.
<b>Diagnostic Data:</b>	Complete message.

<b>Test Assertion:</b>	<b>RSP2014b</b>
<b>Description:</b>	If an endpoint using a rpc-lit binding requires the use of WS-MakeConnection, any MESSAGE transmitted from this endpoint MUST be transmitted over a connection that is associated with either an instance of the WS-MakeConnection Anonymous URI or the WS-Addressing anonymous URI ( <a href="http://www.w3.org/2005/08/addressing/anonymous">http://www.w3.org/2005/08/addressing/anonymous</a> ).
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [*:Body(not (*:Fault) ) and /wsil:testLog/wsdl:descriptionFiles/wsdl:feature[@name = 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MCSupported' and (@mode = 'required')] and /*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] and (some \$respenv in . satisfies some \$req in /wsil:testLog/wsdl:messageLog/wsdl:message satisfies \$req/wsdl:messageContents/*:Envelope/*:Header/wsa:MessageID = \$respenv/*:Header/wsa:RelatesTo [ @RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] and \$req/wsdl:messageContents/*:Envelope/*:Header[fn:contains(wsa:ReplyTo[1]/wsa:Address, 'http://www.w3.org/2005/08/addressing/anonymous') or not(wsa:ReplyTo)] ) ] [ some \$myenv in . satisfies some \$message in //wsdl:definitions/wsdl:message satisfies (\$message/wsdl:part[1]/@type) ]
<b>co-Target:</b> myOpBinding	/wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:binding[.//*[@style = 'rpc']] / wsdl:operation [fn:string-join((@name, 'Response' ), " ) = fn:local-name-from-QName(node-name(\$target/*:Body/*[1]))]
<b>Predicate:</b>	\$target/./@type = 'response'
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	In a context where the use of MC is required (MCSupported), a response message in a WSDL rpc/lit request-response exchange was sent over an HTTP request.
<b>Diagnostic Data:</b>	Complete message.

<b>Test Assertion:</b>	<b>RSP2005</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[ some \$reqm in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope

	satisfies \$reqm/*:Header/wsa:MessageID = ./*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] and \$reqm/../../@type = 'response' ]
<b>Predicate:</b>	\$target/../../@type = 'request'
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A soap:Envelope is sent as a response (wsa:RelatesTo) to another Envelope sent over an HTTP response. Such an envelope was not sent over an HTTP Request.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0010</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmr>CreateSequence[not(wsmr:Offer)]]
<b>co-Target:</b> myresponse	/wsil:testLog/wsil:messageLog/wsil:message[ (@type = 'response' and @conversation = \$target/../../@conversation) or (./*:Envelope/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID) ] /wsil:messageContents/*:Envelope
<b>Predicate:</b>	not(\$myresponse/*:Body/*:Fault)
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Warning: A wsmr>CreateSequence message was faulted. Please verify to make sure it was not faulted because of the absence of an Offer element.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0011</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmr>CreateSequence/wsmr:Offer]
<b>co-Target:</b> myresponse	/wsil:testLog/wsil:messageLog/wsil:message[ (@type = 'response' and @conversation = \$target/../../@conversation) or (./*:Envelope/*:Header/wsa:RelatesTo[not (@RelationshipType) or ( @RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' ) ] = \$target/*:Header/wsa:MessageID) ]/wsil:messageContents/*:Envelope
<b>Predicate:</b>	not(\$myresponse/*:Body/*:Fault)
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Warning: A wsmr>CreateSequence message was faulted. Please verify to make sure it was not faulted because of the presence of an Offer element.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0120</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Header/wsmr:Sequence = preceding::*:Envelope/*:Header/wsmr:Sequence]
<b>Predicate:</b>	some \$curenv in . satisfies every \$prevenv in preceding::*:Envelope[*:Header/wsmr:Sequence = \$curenv/*:Header/wsmr:Sequence] satisfies ((not(\$prevenv/*:Header/wsa:MessageID) and not(\$curenv/*:Header/wsa:MessageID)) or \$prevenv/*:Header/wsa:MessageID = \$curenv/*:Header/wsa:MessageID )

<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A message has been resent (by an RMS), yet it had an wsa:MessageId different from the previous sending, or the wsa:MessageId header was present in one but not in the other.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0210</b>
<b>Description:</b>	The soap:envelope in the message also contains a wsrn:LastMsgNumber element if it has a wsrn:CloseSequence or a wsrn:TerminateSequence element.
<b>Target:</b>	//wsil:messageContents/*:Envelope[ *:Body/wsrn:CloseSequence or *:Body/wsrn:TerminateSequence] [./*:Body/wsrn:Identifier = preceding::*:Envelope/*:Header/wsrn:Sequence/wsrn:Identifier]
<b>Predicate:</b>	*:Body/wsrn:*/*:wsrn:LastMsgNumber
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Warning: The soap:envelope in a wsrn:CloseSequence or a wsrn:TerminateSequence message for a non-empty RM sequence does not contain a wsrn:LastMsgNumber element. Please verify that the message was sent by the sequence destination (RMD) as the LastMsgNumber element must be present otherwise
<b>Diagnostic Data:</b>	{SOAP message}

<b>Test Assertion:</b>	<b>RSP0400a</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[ *:Body/wsrn:CloseSequence or *:Body/wsrn:TerminateSequence or *:Header/wsrn:AckRequested] [some \$id in ./wsrn:Identifier satisfies fn:contains(\$id, 'http://dummy.example.org/unknown/nmspace')]
<b>co-Target:</b> myresponse	/wsil:testLog/wsil:messageLog/wsil:message[ (@type = 'response' and @conversation = \$target/./../@conversation) or (./*:Envelope/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID) ] /wsil:messageContents/*:Envelope
<b>Predicate:</b>	\$myresponse/*:Body/*:Fault
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Warning: A fault must have been generated due to unrecognized RM sequence ID in wsrn:CloseSequence, wsrn:TerminateSequence or *:Header/wsrn:AckRequested message, but the fault was not transmitted as response.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0400b</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[ *:Body/wsrn:CloseSequence or *:Body/wsrn:TerminateSequence or *:Header/wsrn:AckRequested] [some \$id in ./wsrn:Identifier satisfies fn:contains(\$id, 'http://dummy.example.org/unknown/nmspace')]
<b>co-Target:</b> myresponse	/wsil:testLog/wsil:messageLog/wsil:message[ (@type = 'response' and @conversation = \$target/./../@conversation) or (./*:Envelope/*:Header/wsa:RelatesTo[@RelationshipType =

	'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID) ]
<b>Predicate:</b>	not(\$myresponse/*:Body/wsm:CreateSequenceResponse) and not(\$myresponse/*:Body/wsm:TerminateSequenceResponse) and not(\$myresponse/*:Header/wsm:SequenceAcknowledgement)
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A legitimate response - either a wsm:CreateSequenceResponse or a wsm:TerminateSequenceResponse or a wsm:SequenceAcknowledgement - has been sent back to a lifecycle management message that contained an unrecognizable sequence ID.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0500</b>
<b>Description:</b>	Case non-encrypted CS/CSR. Ack is sent back over a message with non-empty Body, and with wsa:To header. Then the AcksTo address must be same as the wsa:To address.
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [ *:Header[wsm:SequenceAcknowledgement and not(*:Header/wsse:Security//xenc:ReferenceList) and wsa:To] and *:Body(node() and not(*:Fault) and not(wsm:*))]] [ some \$tgt in . satisfies some \$csr in /wsil:testLog/wsdl:messageLog/wsdl:message/*:Envelope[*:Body/wsm:CreateSequenceResponse][ \$tgt/*:Header/wsm:SequenceAcknowledgement = *:Body/wsm:CreateSequenceResponse/wsm:Identifier] satisfies some \$cs in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Body/wsm:CreateSequence] satisfies (\$csr/./../@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$csr/*:Header/wsa:MessageID)]
<b>co-Target:</b> mycreateseq	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[ (*:Body/wsm:CreateSequence and ( : --- case CS/CSR n \$cs in . satisfies (some \$csr in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Body/wsm:CreateSequenceResponse] (\$target/*:Header/wsm:SequenceAcknowledgement/wsm:Identifier = \$csr/*:Body/wsm:CreateSequenceResponse/wsm:Identifier and (\$csr/./../@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$csr/*:Header/wsa:MessageID)))) ]
<b>Predicate:</b>	\$target/*:Header/wsa:To = \$mycreateseq/*:Body/wsm:CreateSequence/wsm:AcksTo/wsa:Address
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A wsm:SequenceAcknowledgement piggybacked on a message (with non-empty body) was sent to a destination (wsa:To) that has an address wsm:AcksTo value associated with this RM sequence.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0530a</b>
<b>Description:</b>	Case (a): Ack is sent back over a response message that RelatesTo a request message in a 2-way WSDL operation.
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [ *:Header[wsm:SequenceAcknowledgement and not(*:Header/wsse:Security//xenc:ReferenceList)] and *:Body[ not(*:Fault) and not(wsm:*)/* and ( *:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID) ]
<b>co-Target:</b> myOpBind	//wsil:descriptionFile/wsdl:definitions/wsdl:binding/wsdl:operation [ some \$opb in . satisfies some \$req in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[ *:Header/wsa:ReplyTo or ./../@type = 'request' ] satisfies (\$target/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$req/*:Header/wsa:MessageID)

	and ( \$opb/@name = local-name-from-QName(node-name(\$req/*:Body/*[1])) or (some \$pop in //wsil:descriptionFile/wsd:definitions/wsd:portType/wsd:operation[@name = \$opb/@name] satisfies some \$dmsg in \$pop/../wsdl:message[fn:resolve-QName(xsd:string(wsd:part[1]/@element), .) = fn:node-name(\$req/*:Body/*[1]))] satisfies fn:ends-with(\$pop/wsd:input/@message, \$dmsg/@name) ) ) [[1]
<b>Predicate:</b>	fn:ends-with(\$target/*:Header/wsa:Action, fn:concat(\$myOpBind[1]/@name, 'Response')) or (some \$ptop in //wsil:descriptionFile/wsd:definitions/wsd:portType/wsd:operation[@name = \$myOpBind/@name] satisfies \$target/*:Header/wsa:Action = \$ptop/*:output/@name)
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A wsmr:SequenceAcknowledgement sent as response to a request message mapping to a WSDL two- way operation, does not conform to Section 3.3 of the WS-ReliableMessaging specification: it does not have the wsa:Action conforming to the output/@name attribute (if any) of the port definition or does not have the default value of operation name concatenated with 'Response'.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0530b</b>
<b>Description:</b>	Case (b): Ack is piggybacked over a (non-empty) request message, i.e. no RelatesTo element.
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [ *:Header[wsmr:SequenceAcknowledgement and not(//xenc:ReferenceList)] and *:Body[element() and not(wsmc:MakeConnection) and not(*:Fault) and not(wsmr:*)] and not(*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)]) ]
<b>co-Target:</b> myOpBind	//wsil:descriptionFile/wsd:definitions/wsd:binding/wsd:operation [ some \$opb in . satisfies ( \$opb/@name = local-name-from-QName(node-name(\$target/*:Body/*[1])) or (some \$pop in //wsil:descriptionFile/wsd:definitions/wsd:portType/wsd:operation[@name = \$opb/@name] satisfies some \$dmsg in \$pop/../wsdl:message[fn:resolve- QName(xsd:string(wsd:part[1]/@element), .) = fn:node-name(\$target/*:Body/*[1]))] satisfies fn:ends-with(\$pop/wsd:input/@message, \$dmsg/@name) ) ] [1]
<b>Predicate:</b>	fn:ends-with(\$target/*:Header/wsa:Action, \$myOpBind[1]/@name) or (some \$ptop in //wsil:descriptionFile/wsd:definitions/wsd:portType/wsd:operation[@name = \$myOpBind/@name] satisfies \$target/*:Header/wsa:Action = \$ptop/*:input/@name)
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A wsmr:SequenceAcknowledgement piggybacked over a request message does not conform to Section 3.3 of the WS-ReliableMessaging specification: it does not have the wsa:Action conforming to the input/@name attribute (if any) of the port definition or does not have the default value of operation name.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0530c</b>
<b>Description:</b>	Case (c): Ack is over an empty request message that is not a Response, i.e. "not piggybacked": no RelatesTo element.
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [ *:Header[wsmr:SequenceAcknowledgement and not(*:Body/*) and not(*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)]) ]



	]
<b>Predicate:</b>	\$target/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsrn/200702/SequenceAcknowledgement' or (\$target/*:Header/wsrn:AckRequested and \$target/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsrn/200702/AckRequested' )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A wsrn:SequenceAcknowledgement sent over a message with an empty s:Body and that is not a response message, does not have its wsa:Action URI value set to the predefined: "http://docs.oasis-open.org/ws-rx/wsrn/200702/SequenceAcknowledgement"
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0530d</b>
<b>Description:</b>	Case (b): Ack is piggybacked over a (non-empty) request message, i.e. no RelatesTo element.
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [ /*:Header/wsrn:SequenceAcknowledgement and /*:Body/wsmc:MakeConnection ]
<b>Predicate:</b>	\$target/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection'
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A wsrn:SequenceAcknowledgement piggybacked over an MakeConnection message does not have the wsa:Action set to http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0600</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [./wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] and ./*:Header/wsrn:Sequence] [some \$resp1 in . satisfies some \$req1 in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[ (./*:Header/wsa:MessageID = \$resp1/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType))] and ./*:Header/wsrn:Sequence] satisfies \$req1/preceding::wsdl:message/wsdl:messageContents/*:Envelope[ (./*:Header/wsrn:Sequence/wsrn:Identifier = \$req1/*:Header/wsrn:Sequence/wsrn:Identifier) and (./*:Header/wsa:ReplyTo/wsa:Address = \$req1/*:Header/wsa:ReplyTo/wsa:Address or not(./*:Header/wsa:ReplyTo) and not(\$req1/*:Header/wsa:ReplyTo)) ] ]
<b>co-Target: siblingresp</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [./wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] and ./*:Header/wsrn:Sequence] [ some \$resp2 in . satisfies some \$req2 in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[ (./*:Header/wsa:MessageID = \$resp2/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType))] ] satisfies some \$req1 in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[./*:Header/wsrn:Sequence/wsrn:Identifier = \$req2/*:Header/wsrn:Sequence/wsrn:Identifier] satisfies (\$req1/*:Header/wsa:MessageID = \$target/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)]) ] [fn:last()]



<b>Predicate:</b>	\$siblingresp/*:Header/wsm:Sequence/wsm:Identifier = \$target/*:Header/wsm:Sequence/wsm:Identifier
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	preferred
<b>Error Message:</b>	Two Message envelopes E1resp and E2resp were sent reliably (RM) as responses to two other envelopes E1req and E2req that both belong to the same RM sequence. Yet, E1resp and E2resp do not belong to the same RM sequence.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0610</b>
<b>Description:</b>	
<b>Target:</b>	<pre> /wsil:testLog/wsil:messageLog/wsil:message [ @type = 'request' and /*:Header/wsm:Sequence [some \$req1 in . satisfies \$req1/preceding::wsil:message[ @type = 'request' and ( /*:Header/wsm:Sequence/wsm:Identifier = \$req1/*:Header/wsm:Sequence/wsm:Identifier) and ( not( /*:Header/wsa:ReplyTo) and \$req1/*:Header/wsa:ReplyTo and not(fn:contains(xsd:string(\$req1/*:Header/wsa:ReplyTo[1]/wsa:Address), 'anonymous')) or ( not(\$req1/*:Header/wsa:ReplyTo) and /*:Header/wsa:ReplyTo and not(fn:contains(xsd:string( /*:Header/wsa:ReplyTo[1]/wsa:Address), 'anonymous')) or ( \$req1/*:Header/wsa:ReplyTo and /*:Header/wsa:ReplyTo and ( not( /*:Header/wsa:ReplyTo/wsa:Address = \$req1/*:Header/wsa:ReplyTo/wsa:Address) or not( /*:Header/wsa:ReplyTo/wsa:ReferenceParameters = \$req1/*:Header/wsa:ReplyTo/wsa:ReferenceParameters) ) ) ] ] ] </pre>
<b>co-Target:</b> myresponse	<pre> /wsil:testLog/wsil:messageLog/wsil:message[ ( @type = 'response' and @conversation = \$target/@conversation) or ( /*:Envelope/*:Header/wsa:RelatesTo[ @RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not ( @RelationshipType) ] = \$target/*:Header/wsa:MessageID) ] /wsil:messageContents/*:Envelope </pre>
<b>Predicate:</b>	not(\$myresponse/*:Body/*:Fault)
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Warning: A request message sent reliably (RM) with a ReplyTo value different from a ReplyTo in preceding request message sent reliably (RM) over the same sequence, was faulted. Please verify this is not because there were two different ReplyTo values for the same sequence, as this is allowed.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2004a</b>
<b>Description:</b>	
<b>Target:</b>	<pre> /wsil:testLog/wsil:messageLog/wsil:message [ /*:Envelope/*:Header/wsa:RelatesTo and not(*:Header/wsse:Security//xenc:ReferenceList) and not(*:Body/*:Fault) and not(*:Body/wsm:*) ] [ some \$resp1 in . satisfies some \$req1 in /wsil:testLog/wsil:messageLog/wsil:message[ /*:Header/wsa:MessageID = \$resp1/wsa:RelatesTo[ @RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not ( @RelationshipType) ] ] satisfies  ( \$req1/wsil:messageContents/*:Envelope[not(*:Body/wsmc:MakeConnection) and fn:contains(xsd:string( /*:Header/wsa:ReplyTo[1]/wsa:Address), 'http://docs.oasis- open.org/ws-rx/wsmc/200702/anonymous?id=') ] and /wsil:testLog/wsil:descriptionFiles/wsil:descriptionFile/wsd:definitions/wsd:binding[ /*[ @style = 'rpc' ] ]/wsdl:operation[ wsdl:input and wsdl:output[ @name = fn:local-name-from- QName(node-name(\$req1/*:Body/*[1])) ] ] ] ] ] </pre>
<b>co-Target:</b> myRequestMsg	<pre> /wsil:testLog/wsil:messageLog/wsil:message [ /*:Header/wsa:MessageID = \$target/wsa:RelatesTo[ @RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not ( @RelationshipType) ] and not ( /*:messageContents/*:Envelope/*:Body/wsmc:MakeConnection ) ] </pre>

<b>co-Target:</b> myOpBinding	//wsil:descriptionFile/wsdl:definitions/wsdl:binding [./*[ @style = 'rpc']/wsdl:operation[wsdl:input and wsdl:output][ @name = fn:local-name-from-QName(node-name(\$myRequestMsg/*:Body/*[1]))][1]
<b>Predicate:</b>	\$target/@type = 'response' and (\$myRequestMsg/@conversation = \$target/@conversation or (some \$req2 in /wsil:testLog/wsdl:messageLog/wsdl:message[ @type = 'request' and @conversation = \$target/@conversation] satisfies ( \$req2/wsdl:messageContents/*:Envelope/*:Body/wsmc:MakeConnection/wsmc:Address = \$myRequestMsg/wsdl:messageContents/*:Envelope/*:Header/wsa:ReplyTo/wsa:Address ) ))
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A response message that binds to an rpc-literal WSDL request-response binding, and relates to a request message sent over HTTP request, is not sent over same HTTP connection (response), and is not sent on an HTTP response to a MakeConnection request with same MC URI in wsmc:Address.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2004b</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message [./*:Envelope/*:Header/wsa:RelatesTo and not(*:Header/wsse:Security//xenc:ReferenceList) and not(*:Body/*:Fault) and not(*:Body/wsm:*]] [ some \$resp1 in . satisfies some \$req1 in /wsil:testLog/wsdl:messageLog/wsdl:message[./*:Header/wsa:MessageID = \$resp1/wsa:RelatesTo[ @RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not ( @RelationshipType)]] satisfies ( \$req1/wsdl:messageContents/*:Envelope[not(*:Body/wsmc:MakeConnection) and fn:contains(xsd:string(/*:Header/wsa:ReplyTo[1]/wsa:Address), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=') ] and /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:message[fn:resolve-QName(xsd:string(wsdl:part[1]/@element), . ) = fn:node-name(\$req1/*:Envelope/*:Body/*[1]))] ]
<b>co-Target:</b> myRequestMsg	/wsil:testLog/wsdl:messageLog/wsdl:message [./*:Header/wsa:MessageID = \$target/wsa:RelatesTo[ @RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not ( @RelationshipType)] and not (./wsil:messageContents/*:Envelope/*:Body/wsmc:MakeConnection )]
<b>co-Target:</b> myOpBinding	/wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:binding [not(./*[ @style = 'rpc'])/wsdl:operation [wsdl:input and wsdl:output] [ some \$opBinding in . satisfies some \$dmesg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:message[wsdl:part[fn:resolve-QName(xsd:string(@element), . ) = fn:node-name(\$myRequestMsg/*:Envelope/*:Body/*[1])] ] satisfies some \$dopmsg in /wsil:testLog/wsdl:descriptionFiles/wsdl:descriptionFile/wsdl:definitions/wsdl:portType/wsdl:operation/wsdl:input [fn:local-name-from-QName(fn:resolve-QName(xsd:string(@message), . )) = \$dmesg/@name] satisfies \$opBinding/@name = \$dopmsg/./@name ]]1]
<b>Predicate:</b>	\$target/@type = 'response' and (\$myRequestMsg/@conversation = \$target/@conversation or (some \$req2 in /wsil:testLog/wsdl:messageLog/wsdl:message[ @type = 'request' and @conversation = \$target/@conversation] satisfies ( \$req2/wsdl:messageContents/*:Envelope/*:Body/wsmc:MakeConnection/wsmc:Address = \$myRequestMsg/wsdl:messageContents/*:Envelope/*:Header/wsa:ReplyTo/wsa:Address ) ))
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A response message that binds to an doc-literal WSDL request-response binding, and relates to a request message sent over HTTP request, is not sent over same HTTP connection (response), and is not sent on an HTTP response to a MakeConnection request with same MC URI in wsmc:Address.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2030</b>
<b>Description:</b>	
<b>Target:</b>	//wsil:messageContents/*:Envelope [*:Body/wsmc:MakeConnection and *:Header/wsa:Action]
<b>Predicate:</b>	fn:contains(*:Header/wsa:Action, 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection')
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	An Envelope with soap:Body/wsmc:MakeConnection and wsa:Action header, does not have http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection in wsa:Action.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2031</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message [wsil:messageContents/soap11:Envelope/soap11:Body/wsmc:MakeConnection and (some \$ky in wsil:httpHeaders/wsil:httpHeader/@key satisfies fn:lower-case(\$ky) = 'soapaction' )]
<b>Predicate:</b>	<p>(wsil:httpHeaders/wsil:httpHeader[fn:lower-case(@key) = 'soapaction']/@value = 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection' or wsil:httpHeaders/wsil:httpHeader[fn:lower-case(@key) = 'soapaction']/@value = " )</p> <p>and</p> <p>(wsil:httpHeaders/wsil:httpHeader[fn:lower-case(@key) = 'soapaction']/@quoted = 'true' or not (wsil:httpHeaders/wsil:httpHeader[fn:lower-case(@key) = 'soapaction']/@quoted ))</p>
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A message containing wsmc:MakeConnection has a non-empty SOAPAction header value different from 'http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection' or this HTTP header is not quoted.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2032</b>
<b>Description:</b>	
<b>Target:</b>	//wsil:message [wsil:messageContents/soap12:Envelope/soap12:Body/wsmc:MakeConnection and (wsil:httpHeaders/wsil:contentTypeHeader/wsil:parameter/@key = 'action' )]
<b>Predicate:</b>	wsil:httpHeaders/wsil:contentTypeHeader/wsil:parameter[@key = 'action']/@value = "http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection"
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	In a SOAP 1.2 MESSAGE with the wsmc:MakeConnection element, the action parameter of the HTTP Content-Type header does not contain the value "http://docs.oasis-open.org/ws-rx/wsmc/200702/MakeConnection".
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2050</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope

	[*:Body/*:Fault/*:Value[ ( : fn:namespace-uri-for-prefix(fn.substring-before(string(node()),':') , . ) = 'http://docs.oasis-open.org/ws-rx/wsmc/200702' and :) (fn:contains(string(node()), 'MissingSelection') or fn:contains(string(node()), 'UnsupportedSelection'))] or *:Body/*:Fault/*:faultcode[ ( : fn:namespace-uri-for-prefix(fn.substring-before(string(node()),':') , . ) = 'http://docs.oasis-open.org/ws-rx/wsmc/200702' and :) (fn:contains(string(node()), 'MissingSelection') or fn:contains(string(node()), 'UnsupportedSelection'))] ]
<b>Predicate:</b>	some \$mc in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmc:MakeConnection] satisfies (\$mc/*:Header/wsa:MessageID = \$target/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] ( : and ( not(\$target/*:Header/wsa:To) or (\$target/*:Header/wsa:To = \$mc/*:Header/wsa:FaultTo/wsa:Address or (not(\$mc/*:Header/wsa:FaultTo) and (\$target/*:Header/wsa:To = \$mc/*:Header/wsa:ReplyTo/wsa:Address or (not(\$mc/*:Header/wsa:ReplyTo) and fn:contains(\$target/*:Header/wsa:To, 'http://www.w3.org/2005/08/addressing/anonymous') ) )))) : ) ) or (not(\$mc/*:Header/wsa:MessageID) and \$mc/../../@conversation = \$target/../../@conversation and (not(\$target/*:Header/wsa:To) or fn:contains(\$target/*:Header/wsa:To, 'http://www.w3.org/2005/08/addressing/anonymous')) )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A wsmc:UnsupportedSelection or wsmc:MissingSelection Fault either does not relate to a MakeConnection message or has a wsa:To content that does not match the wsa:FaultTo or wsa:ReplyTo in the MC message if no FaultTo.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2100</b>
<b>Description:</b>	
<b>Target:</b>	//wsil:messageContents/*:Envelope[*:Body/wsmc:MakeConnection]
<b>Predicate:</b>	*:Body/wsmc:MakeConnection/wsmc:Address
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The MakeConenction element does not contain a wsmc:Address child element.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2102</b>
<b>Description:</b>	
<b>Target:</b>	//wsil:messageContents/*:Envelope[*:Body/wsmc:MakeConnection and not(*:Body/wsmc:MakeConnection/wsmc:Address)]
<b>Predicate:</b>	some \$mcfault in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Body/*:Fault/*:Value[ ( : fn:namespace-uri-for-prefix(fn.substring- before(string(node()),':') , . ) = 'http://docs.oasis-open.org/ws-rx/wsmc/200702' and ) fn:contains(string(node()), 'MissingSelection')] or *:Body/*:Fault/*:faultcode[ ( : fn:namespace-uri-for-prefix(fn.substring- before(string(node()),':') , . ) = 'http://docs.oasis-open.org/ws-rx/wsmc/200702' and ) fn:contains(string(node()), 'MissingSelection')] ] satisfies (\$target/*:Header/wsa:MessageID = \$mcfault/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] or (not(\$target/*:Header/wsa:MessageID) and \$mcfault/../../@conversation = \$target/../../@conversation))
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A MakeConnection message without wsmc:Address did not cause the generation of a wsmc:MissingSelection Fault associated with this MC message.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2101</b>
<b>Description:</b>	

<b>Target:</b>	//wsil:messageContents/*:Envelope/*:Body/wsmc:MakeConnection]
<b>Predicate:</b>	not (*:Body/wsmc:MakeConnection/wsrn:Identifier)
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2103</b>
<b>Description:</b>	
<b>Target:</b>	//wsil:messageContents/*:Envelope/*:Body/wsmc:MakeConnection/wsrn:Identifier]
<b>Predicate:</b>	some \$mcfault in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [*:Body/*:Fault/*:Value[ (: fn:namespace-uri-for-prefix(fn:substring- before(string(node()),':') , . ) = 'http://docs.oasis-open.org/ws-rx/wsmc/200702' and ) fn:contains(string(node()), 'UnsupportedSelection')] or *:Body/*:Fault/*:faultcode[ (: fn:namespace-uri-for-prefix(fn:substring- before(string(node()),':') , . ) = 'http://docs.oasis-open.org/ws-rx/wsmc/200702' and ) fn:contains(string(node()), 'UnsupportedSelection')] ] satisfies (\$target/*:Header/wsa:MessageID = \$mcfault/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] or (not(\$target/*:Header/wsa:MessageID) and \$mcfault/../../@conversation = \$target/../../@conversation))
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A MakeConnection message with an wrn:Identifier did not cause the generation of a wsmc:UnsupportedSelection Fault associated with this MC message.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2110</b>
<b>Description:</b>	
<b>Target:</b>	//wsil:messageContents/*:Envelope/*:Body/wsmc:MakeConnection/wsmc:Address]
<b>Predicate:</b>	fn:contains(xsd:string(*:Body/wsmc:MakeConnection/wsmc:Address), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=')
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The Envelope contains an wsmc:MakeConnection/wsmc:Address child element whose value is not an instance of the MC Anonymous URI template (ie. does not start with 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=' )
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2113</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [*:Body/wsrn:CreateSequence/wsrn:Offer and (fn:contains(xsd:string(*:Body/wsrn:CreateSequence/wsrn:Offer/wsrn:Endpoint/*:Address), 'anonymous') or fn:contains(xsd:string(*:Body/wsrn:CreateSequence/wsrn:Offer/wsrn:Endpoint/*:Address), 'none')) ]
<b>Predicate:</b>	fn:contains(xsd:string(*:Body/wsrn:CreateSequence/wsrn:Offer/wsrn:Endpoint/*:Address), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=')
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error</b>	The CreateSequence message is Offering a sequence and provides an Endpoint address that does

<b>Message:</b>	not indicate an addressable endpoint, yet that is not an MC Anonymous URI.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0020</b>
<b>Description:</b>	
<b>Target:</b>	
<b>Predicate:</b>	
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0101</b>
<b>Description:</b>	
<b>Target:</b>	<pre>//wsil:messageContents/*:Envelope [*:Body/wsm:CloseSequence or *:Body/wsm:TerminateSequence] [some \$seqid in *:Body//wsm:Identifier satisfies some \$env1 in ./preceding::*:Envelope[*:Header/wsm:Sequence/wsm:Identifier = \$seqid] satisfies      \$env1/preceding::*:Envelope[*:Header/wsm:Sequence/wsm:Identifier =     \$seqid and *:Header/wsm:Sequence/wsm:MessageNumber =     \$env1/*:Header/wsm:Sequence/wsm:MessageNumber ] ]</pre>
<b>Predicate:</b>	<pre>not ( some \$seqid in /*:Body//wsm:Identifier satisfies (some \$env1 in ./preceding::*:Envelope[*:Header/wsm:Sequence/wsm:Identifier = \$seqid ] satisfies     (./following::*:Envelope[*:Header/wsm:Sequence/wsm:Identifier =     \$seqid and     *:Header/wsm:Sequence/wsm:MessageNumber =     \$env1/*:Header/wsm:Sequence/wsm:MessageNumber ])) )</pre>
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A CloseSequence message or a TerminateSequence message was sent by RMS for a sequence that contains messages that have been resent. But the resending has not stopped after these terminating messages have been logged.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0102</b>
<b>Description:</b>	
<b>Target:</b>	<pre>/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Header/wsm:Sequence = preceding::*:Envelope/*:Header/wsm:Sequence] [some \$tgen in . satisfies     not( some \$clseq in     \$tgen/preceding::*:Envelope[*:Body/wsm:CloseSequence or     *:Body/wsm:TerminateSequence ] satisfies     \$clseq/*:Body//wsm:Identifier =     \$tgen/*:Header/wsm:Sequence/wsm:Identifier ) ]</pre>
<b>Predicate:</b>	<pre>( some \$env in following::*:Envelope[*:Header/wsm:SequenceAcknowledgement/wsm:Identifier = \$target/*:Header/wsm:Sequence/wsm:Identifier] satisfies some \$ackrange in \$env/*:Header/wsm:SequenceAcknowledgement/wsm:AcknowledgementRange satisfies     (\$ackrange/@Lower le     \$target/*:Header/wsm:Sequence/wsm:MessageNumber and</pre>

	\$ackrange/@Upper ge \$target/*:Header/wsrn:Sequence/wsrn:MessageNumber) ) and not (/wsil:testLog/wsil:messageLog/wsil:message[ (@type = 'response' and @conversation = \$target/../../../../@conversation) or (//*:Envelope/*:Header/wsa:RelatesTo[not (@RelationshipType) or ( @RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' ) ] = \$target/*:Header/wsa:MessageID]) /wsil:messageContents/*:Envelope/*:Body/*:Fault )
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Warning: One of these two conditions occurred: (a) A resent message (reliable messaging) was not acknowledged before the closing/termination of the RM sequence, or (b) the resent message was faulted. In both cases, this could be a sign that the receiving RMD did not accept the resent message: to investigate further.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0110</b>
<b>Description:</b>	
<b>Target:</b>	
<b>Predicate:</b>	
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>COM0200</b>
<b>Description:</b>	
<b>Target:</b>	
<b>Predicate:</b>	
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>COM0500</b>
<b>Description:</b>	
<b>Target:</b>	
<b>Predicate:</b>	
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0501</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Header/wsrn:SequenceAcknowledgement and (some \$tgt in . satisfies some \$csr in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsrn:CreateSequence/wsrn:AcksTo/wsa:Addressing:anonymous] satisfies (some \$csr in = 'http://www.w3.org/2005/08/addressing/anonymous') satisfies (some \$csr in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsrn:CreateSequenceResponse] satisfies



	(\$tgt/*:Header/wsm:SequenceAcknowledgement/wsm:Identifier = \$csr/*:Body/wsm:CreateSequenceResponse/wsm:Identifier and (\$csr/.../@conversation = \$cs/.../@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)))) ]
<b>co-Target:</b> myRequestMsg	/wsil:testLog/wsil:messageLog/wsil:message [ @type = 'request' and (@conversation = \$target/.../@conversation or /*:Header/wsa:MessageID = \$target/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)]) ]
<b>Prerequisite:</b>	not (\$myRequestMsg/wsil:messageContents/*:Envelope/*:Body/wsmc:MakeConnection )
<b>Predicate:</b>	(\$target/.../@type = 'response') and ((every \$seqack in \$target/*:Header/wsm:SequenceAcknowledgement satisfies (\$seqack/wsm:Identifier = \$myRequestMsg/*:Envelope/*:Header/wsm:Sequence/wsm:Identifier)) or (\$target/*:Body/wsm:TerminateSequenceResponse/wsm:Identifier = \$myRequestMsg/*:Envelope/*:Body/wsm:TerminateSequence/wsm:Identifier) or (\$target/*:Body/wsm:CloseSequenceResponse/wsm:Identifier = \$myRequestMsg/*:Envelope/*:Body/wsm:CloseSequence/wsm:Identifier)) and (\$target/*:Header/wsa:To = 'http://www.w3.org/2005/08/addressing/anonymous' or not(\$target/*:Header/wsa:To) )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A sequence acknowledgement message related to an RM Sequence defined with an AcksTo element set to wsa:AnonymousURI, was either sent back over an HTTP request, or was sent as a response to an HTTP request that did not carry a message sent reliably over the same RM Sequence.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0510</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [ /*:Header[wsm:SequenceAcknowledgement and not(*:Header/wsse:Security//xenc:ReferenceList)] and /*:Body[node() and not(*:Fault) and not(wsm:*)]] [ some \$tgt in . satisfies some \$csr in /wsil:testLog/wsil:messageLog/wsil:message/*:Envelope[*:Body/wsm:CreateSequenceResponse][\$tgt/*:Header/wsm:SequenceAcknowledgement/wsm:Identifier] satisfies some \$cs in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsm:CreateSequence] satisfies (\$csr/.../@conversation = \$cs/.../@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)]
<b>co-Target:</b> mycreateseq	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[ (*:Body/wsm:CreateSequence and ( : --- case CS/CSR n \$cs in . satisfies (some \$csr in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsm:CreateSequenceResponse/wsm:Identifier] satisfies (\$csr/*:Header/wsm:SequenceAcknowledgement/wsm:Identifier = \$csr/*:Body/wsm:CreateSequenceResponse/wsm:Identifier and (\$csr/.../@conversation = \$cs/.../@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)))) ]
<b>Predicate:</b>	not(\$mycreateseq/*:Body/wsm:CreateSequence/wsm:AcksTo/wsa:ReferenceParameters[*])
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Warning: a SequenceAcknowledgement message is piggybacked, while relating to a sequence with wsm:CreateSequence/wsm:AcksTo reference parameters. This is only allowed if the RMD is able to compare the value of the ReferenceParameters elements in order to determine if the relationship is appropriate.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0620a</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Body/*:Fault] [some \$fc in *:Header/*:SequenceFault/*:FaultCode satisfies (fn:namespace-uri-for-prefix(fn:substring-before(\$fc,':') , .) = 'http://docs.oasis-open.org/ws-rx/wsm/200702') or ( fn:substring-after(\$fc,':') eq 'SequenceTerminated' or fn:substring-after(\$fc,':') eq 'UnknownSequence' or fn:substring-after(\$fc,':') eq 'InvalidAcknowledgment' or fn:substring-after(\$fc,':') eq 'CreateSequenceRefused' or fn:substring-after(\$fc,':') eq 'MessageNumberRollover' or fn:substring-after(\$fc,':') eq 'SequenceClosed' or

	fn:substring-after(\$fc,':' ) eq 'WSRMRequired' )]
<b>Predicate:</b>	not(/*:Header ) or /*:Header[not (wsrm:Sequence) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP11 wsrm error message contains a wsrm:Sequence header.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0620b</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Body/*:Fault] [some \$fc in *:Body/*:Fault/*:Value satisfies (fn:namespace-uri-for-prefix(fn:substring-before(\$fc,':' ) , . ) = 'http://docs.oasis-open.org/ws-rx/wsrm/200702') or ( fn:substring-after(\$fc,':' ) eq 'SequenceTerminated' or fn:substring-after(\$fc,':' ) eq 'UnknownSequence' or fn:substring-after(\$fc,':' ) eq 'InvalidAcknowledgment' or fn:substring-after(\$fc,':' ) eq 'MessageNumberRollover' or fn:substring-after(\$fc,':' ) eq 'CreateSequenceRefused' or fn:substring-after(\$fc,':' ) eq 'SequenceClosed' or fn:substring-after(\$fc,':' ) eq 'WSRMRequired' )]
<b>Predicate:</b>	not(/*:Header ) or /*:Header[not (wsrm:Sequence) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP12 wsrm error message contains a wsrm:Sequence header.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>COM0700</b>
<b>Description:</b>	
<b>Target:</b>	
<b>Predicate:</b>	
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0800</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Body/wsrm:CreateSequence][ some \$cs in . satisfies some \$mycsr in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Body/wsrm:CreateSequenceResponse/wsrm:Identifier = /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope/*:Header/wsrm:Sequence/wsrm:Identifier] satisfies (\$mycsr/././@conversation = \$cs/././@conversation) or (\$mycsr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)]
<b>Predicate:</b>	some \$mycsr in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Body/wsrm:CreateSequenceResponse] [(./././@conversation = \$target/././@conversation) or (*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID)] satisfies some \$env in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Header/wsrm:Sequence/wsrm:Identifier = \$mycsr/*:Body/wsrm:CreateSequenceResponse/wsrm:Identifier] satisfies (\$env/*:Header/wsa:To = \$target/*:Header/wsa:To)
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	None of the messages sent in a reliable sequence, has been sent to the same destination endpoint as the CreateSequence message (at least one should be).

<b>Diagnostic Data:</b>	
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<b>Test Assertion:</b>	<b>RSP0900</b>
<b>Description:</b>	This test assertion takes as prerequisite RSP8001, a "base TA" that does match any particular Rxxxx requirement, but matches fundamental requirements from RSP: namely that an Envelope is either under SOAP 1.2 or SOAP 1.1 namespace.
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [(/*:Header/wsm:SequenceAcknowledgement/wsm:Identifier = preceding::*:Envelope/*:Body/wsm:CreateSequenceResponse/wsm:Identifier) or (*:Body/wsm:CloseSequenceResponse/wsm:Identifier = preceding::*:Envelope/*:Body/wsm:CreateSequenceResponse/wsm:Identifier) or (*:Body/wsm:TerminateSequenceResponse/wsm:Identifier = preceding::*:Envelope/*:Body/wsm:CreateSequenceResponse/wsm:Identifier) or (*:Body/wsm:CreateSequenceResponse)]
<b>Prerequisite:</b>	RSP8001
<b>Predicate:</b>	some \$csr in /wsil:testLog/wsdl:messageLog/*:Envelope [*:Body/wsm:CreateSequenceResponse/wsm:Identifier = \$target/*:Header/wsm:SequenceAcknowledgement/wsm:Identifier or (*:Body/wsm:CreateSequenceResponse/wsm:Identifier = \$target/*:Body/wsm/*:wsm:Identifier)] satisfies some \$cs in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Body/wsm:CreateSequence] satisfies (((\$cs/../../@conversation = \$csr/../../@conversation) or (\$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)) and fn:namespace-uri(\$target) = fn:namespace-uri(\$cs)
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Some RM Lifecycle message related to a requested sequence (CreateSequence) was sent to the AckTo EPR with a SOAP version different from the version used for the CreateSequence message.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0540</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[ (*:Header/wsm:AckRequested or *:Header/wsm:SequenceAcknowledgement) and not(*:Header/wsse:Security/xenc:ReferenceList ) and *:Body[element() and not(//*:EncryptedData) ]]
<b>Predicate:</b>	not (*:Header/wsm:AckRequested/attribute::*:mustUnderstand = '1') and not (*:Header/wsm:AckRequested/attribute::*:mustUnderstand = 'true') and not (*:Header/wsm:SequenceAcknowledgement/attribute::*:mustUnderstand = '1') and not (*:Header/wsm:SequenceAcknowledgement/attribute::*:mustUnderstand = 'true')
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Some message containing AckRequested or SequenceAcknowledgement has mustUnderstand attribute set to true ('1'), while these headers were piggybacked on another message.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP0901</b>
<b>Description:</b>	This test assertion takes as prerequisite RSP8001, a "base TA" that does match any particular Rxxxx requirement, but matches fundamental requirements from RSP: namely that an Envelope is either under SOAP 1.2 or SOAP 1.1 namespace.
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [(/*:Header/wsm:AckRequested/wsm:Identifier =

	preceding::*:Envelope/*:Body/wsrn:CreateSequence/wsrn:Offer/wsrn:Identifier) or (*:Body/wsrn:CloseSequence/wsrn:Identifier = preceding::*:Envelope/*:Body/wsrn:CreateSequence/wsrn:Offer/wsrn:Identifier) or (*:Body/wsrn:TerminateSequence/wsrn:Identifier = preceding::*:Envelope/*:Body/wsrn:CreateSequence/wsrn:Offer/wsrn:Identifier) ]
<b>Prerequisite:</b>	RSP8001
<b>Predicate:</b>	some \$cs in preceding::*:Envelope [*:Body/wsrn:CreateSequence/wsrn:Offer/wsrn:Identifier = \$target/*:Header/wsrn:AckRequested/wsrn:Identifier or (*:Body/wsrn:CreateSequence/wsrn:Offer/wsrn:Identifier = \$target/*:Body/wsrn:*:wsrn:Identifier)] satisfies fn:namespace-uri(\$target) = fn:namespace-uri(\$cs)
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Some RM Lifecycle message related to an offered sequence (CreateSequence) was sent to the CreateSequence/Offer/Endpoint EPR with a SOAP version different from the version used for the CreateSequence message.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1000</b>
<b>Description:</b>	
<b>Target:</b>	
<b>Predicate:</b>	
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1100</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Body//wst:RequestSecurityToken and *:Header/wsa:Action eq 'http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Amend']
<b>Predicate:</b>	some \$dsig in \$target/*:Header/wsse:Security//ds:Signature satisfies (\$dsig/ds:Reference[fn:substring-after(@URI, '#') eq \$target/@wsu:Id]) or ( (\$dsig/ds:Reference[fn:substring-after(@URI, '#') eq \$target/*:Header/@wsu:Id] or (every \$cruxp in \$target/*:Header/wsrn:*   \$target/*:Header/wsa:* satisfies some \$ref in \$dsig/ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$cruxp/@wsu:Id)) and ( \$dsig/ds:Reference[fn:substring-after(@URI, '#') eq \$target/*:Body/@wsu:Id] or (every \$cruxp in \$target/*:Body/* satisfies some \$ref in \$dsig/ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$cruxp/@wsu:Id )) ) )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	An ENVELOPE containing a wst:RequestSecurityToken for amending a Security Context, does not contain a Signature element in a wsse header that references both the SOAP body (using @wsu:Id) and crucial wsrn or wsa headers.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>COM1101</b>
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<b>Description:</b>	
<b>Target:</b>	
<b>Predicate:</b>	
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1110</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Body//wst:RequestSecurityToken and *:Header/wsa:Action eq 'http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Renew']
<b>Predicate:</b>	<p>some \$dsig in \$target/*:Header/wsse:Security//ds:Signature satisfies  (\$dsig/ds:Reference[fn:substring-after(@URI, '#') eq \$target/@wsu:Id])  or (  (\$dsig/ds:Reference[fn:substring-after(@URI, '#') eq  \$target/*:Header/@wsu:Id] or (every \$cruxp in \$target/*:Header/wsm:*    \$target/*:Header/wsa:* satisfies  some \$ref in \$dsig/ds:Reference satisfies  fn:substring-after(\$ref/@URI, '#') = \$cruxp/@wsu:Id))  and (  \$dsig/ds:Reference[fn:substring-after(@URI, '#') eq  \$target/*:Body/@wsu:Id] or  (every \$cruxp in \$target/*:Body/* satisfies  some \$ref in \$dsig/ds:Reference satisfies  fn:substring-after(\$ref/@URI, '#') = \$cruxp/@wsu:Id ))  )</p>
<b>Reporting:</b>	true=warning, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	An ENVELOPE containing a wst:RequestSecurityToken for renewing a Security Context, does not contain a Signature element in a wsse header that references both the SOAP body (using @wsu:Id) and crucial wsm or wsa headers.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1120</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope [*:Body//wst:RequestSecurityToken and *:Header/wsa:Action eq 'http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Cancel']
<b>Predicate:</b>	<p>some \$dsig in \$target/*:Header/wsse:Security//ds:Signature satisfies  (\$dsig/ds:Reference[fn:substring-after(@URI, '#') eq \$target/@wsu:Id])  or (  (\$dsig/ds:Reference[fn:substring-after(@URI, '#') eq  \$target/*:Header/@wsu:Id] or  (every \$cruxp in \$target/*:Header/wsm:*   \$target/*:Header/wsa:*  satisfies  some \$ref in \$dsig/ds:Reference satisfies  fn:substring-after(\$ref/@URI, '#') = \$cruxp/@wsu:Id))  and (  \$dsig/ds:Reference[fn:substring-after(@URI, '#') eq  \$target/*:Body/@wsu:Id] or  (every \$cruxp in \$target/*:Body/* satisfies  some \$ref in \$dsig/ds:Reference satisfies  fn:substring-after(\$ref/@URI, '#') = \$cruxp/@wsu:Id ))  )</p>
<b>Reporting:</b>	true=warning, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	An ENVELOPE containing a wst:RequestSecurityToken for canceling a Security Context, does not contain a Signature element in a wsse header that references

	both the SOAP body (using @wsu:Id) and crucial wsmr or wsa headers.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1121</b>
<b>Description:</b>	
<b>Target:</b>	
<b>Predicate:</b>	
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1200</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[/*:Body//wst:RequestSecurityToken and /*:Header/wsa:Action eq 'http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Renew']
<b>co-Target:</b> myOriginalRSTR	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Body//wst:RequestSecurityTokenResponse and *:Header/wsa:Action eq 'http://docs.oasis-open.org/ws-sx/ws-trust/200512/RSTR/SCT'] [*:Body//wst:RequestSecurityTokenResponse/wst:RequestedSecurityToken/wssc:SecurityContextToken/wssc:Identifier = \$target/*:Body//wst:RequestSecurityToken/wst:RenewTarget/wsse:SecurityTokenReference/wsse:Reference/@URI ]
<b>Predicate:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Body//wst:RequestSecurityToken and *:Header/wsa:Action eq 'http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT'] [(./../@conversation = \$myOriginalRSTR/./../@conversation) or (\$myOriginalRSTR/*:Header/wsa:RelatesTo[not (@RelationshipType) or (@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply') ] = /*:Header/wsa:MessageID) ]/*:Header/wsse:Security/ds:Signature/ds:KeyInfo/wsse:Reference/@URI = \$target/*:Header/wsse:Security/ds:Signature/ds:KeyInfo/wsse:Reference/@URI
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A renew security context message did not correlate with an original RST token issuance request that used the same authentication mechanism - i.e. here a Signature with KeyInfo that refer to same certificate ID.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1001</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope [ some \$sct in /*:Header//wssc:SecurityContextToken satisfies some \$sct0 in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope//wst:RequestSecurityTokenResponse//wssc:SecurityContextToken satisfies \$sct0/wssc:Identifier = \$sct/wssc:Identifier and (some \$elt in \$sct0/* satisfies string(fn:namespace-uri(\$elt)) = 'http://dummy.example.org/unknown/nsmpace') ]
<b>Predicate:</b>	some \$elt in \$target/*:Header//wssc:SecurityContextToken/* satisfies string(fn:namespace-uri(\$elt)) = 'http://dummy.example.org/unknown/nsmpace'
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	An Envelope with an SCT that originally contained an unrecognizable content (with unrecognizable namespace: http://dummy.example.org/unknown/nsmpace') has been stripped from this unrecognizable content when reused.
<b>Diagnostic Data:</b>	

<b>Test</b>	<b>RSP1300</b>
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<b>Assertion:</b>	
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsse:Security//wssc:SecurityContextToken or ../wst:RequestSecurityTokenReponse//wssc:SecurityContextToken or ../wst:RequestSecurityToken//wssc:SecurityContextToken][../wsse:SecurityTokenReference/wsse:Reference/@URI] [some \$tgt in . satisfies some \$resp in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/soap11:Envelope satisfies (\$resp/../../@conversation = \$tgt/../../@conversation) or (\$resp/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$tgt/*:Header/wsa:MessageID)]
<b>Predicate:</b>	not( wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[(../../@conversation = \$target/../../@conversation) or (*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID)][*:Body/*:Fault] )
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	An Envelope with wssc:Security or RST or RSTR and with SecurityContextToken that have either message dependent or independent message references, has been Faulted. User should verify that it is not faulted because of the receiver not supporting some type of message reference (either message dependent or independent message reference)
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1310</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsse:Security//wssc:DerivedKeyToken/wsse:SecurityTokenReference/wsse:Reference/@URI]
<b>Predicate:</b>	(some \$rstr in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope satisfies \$rstr/*:Header/wsa:Action eq 'http://www.w3.org/ws-sx/ws-trust/200512/RSTR/SCT' ) and \$target/*:Header/wsse:Security//wssc:DerivedKeyToken/wsse:SecurityTokenReference/wsse:Reference/@URI
<b>Reporting:</b>	true=warning, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	In case of warning: the test is inconclusive as the related RequestSecurityTokenResponse content could not be accessed. In case of failure: wssc:DerivedKeyToken does not refer (with wsse:SecurityTokenReference) to a wssc:SecurityContextToken returned in a RequestSecurityTokenResponse message, or the related RequestSecurityTokenResponse message is missing.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3010</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Body/wsmr:CreateSequence/wsse:SecurityTokenReference/wsse:Reference/@URI]
<b>Predicate:</b>	../*:Header/wsmr:UsesSequenceSTR
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	An Envelope that contains a wsmr:CreateSequence element that has a security token reference (wsse:SecurityTokenReference) does not include the UsesSequenceSTR header.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3100a</b>
<b>Description:</b>	Case non-encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsse:Security and *:Header/wsmr:Sequence and not(*:Header/wsse:Security//xenc:ReferenceList)][ some \$tgt in . satisfies some \$csr in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[\$tgt/*:Header/wsmr:Sequence/wsmr:Identifier = *:Body/wsmr:CreateSequenceResponse/wsmr:Identifier] satisfies some \$csr in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Body/wsmr:CreateSequence/wsse:SecurityTokenReference/wsse:Reference/@URI] satisfies (\$csr/../../@conversation = \$tgt/../../@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$tgt/*:Header/wsa:MessageID)]



<b>Predicate:</b>	some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies (fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/wsm:Sequence/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id)
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	In an Envelope that belong to a secured RM sequence the wsm:Sequence element is not signed. (Case with wsm:CSR non-encrypted)
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3100b</b>
<b>Description:</b>	Case encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Header/wsm:Sequence and not(*:Header/wsse:Security//xenc:ReferenceList)] [ some \$tgt in . satisfies (some \$scs in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsm:CreateSequence/wsse:SecurityTokenReference/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsm/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/xenc:ReferenceList))] satisfies (\$scs/*:Header/wsa:To = \$tgt/*:Header/wsa:To and not(/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsm:CreateSequence[not(wsse:SecurityTokenReference/*:Header/wsa:To = \$tgt/*:Header/wsa:To and not(*:Header/wsse:Security//xenc:ReferenceList) ])] ) ] ]
<b>Predicate:</b>	some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies (fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/wsm:Sequence/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id)
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	In an Envelope that belong to a secured RM sequence the wsm:Sequence element is not signed. (Case with wsm:CSR encrypted)
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3101a</b>
<b>Description:</b>	Case non-encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Header/wsse:Security and *:Header/wsm:Sequence]
<b>Prerequisite:</b>	RSP3100a
<b>Predicate:</b>	( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) or ( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$target/*:Body/@wsu:Id and (some \$ref2 in \$ref/..ds:Reference satisfies ( fn:substring-after(\$ref2/@URI, '#') = \$target/*:Header/@wsu:Id or fn:substring-after(\$ref2/@URI, '#') = \$target/*:Header/wsm:Sequence/@wsu:Id ) ) ) )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The wsm:Sequence element is not signed with the same signature as the Body signature, based on existing @wsu:Id references.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3101b</b>
<b>Description:</b>	Case encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Header/wsse:Security and *:Header/wsm:Sequence]
<b>Prerequisite:</b>	RSP3100b
<b>Predicate:</b>	( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) or ( some \$ref in

	<code>\$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$target/*:Body/@wsu:Id and (some \$ref2 in \$ref/../ds:Reference satisfies ( fn:substring-after(\$ref2/@URI, '#') = \$target/*:Header/@wsu:Id or fn:substring-after(\$ref2/@URI, '#') = \$target/*:Header/wsm:Sequence/@wsu:Id )) )</code>
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The wsm:Sequence element is not signed with the same signature as the Body signature, based on existing @wsu:Id references.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2112</b>
<b>Description:</b>	
<b>Target:</b>	<code>/wsil:testLog/wsdl:messageLog/wsdl:message[@type = 'response' and ../*:Header/wsm:Sequence][some \$resp1 in . satisfies some \$req1 in /wsil:testLog/wsdl:messageLog/wsdl:message[@type = 'request' and (@conversation = \$resp1/@conversation or ../*:Header/wsa:MessageID = \$resp1/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)]) (: and ../*:Header/wsm:Sequence : ) ] satisfies ((fn:contains(xsd:string(\$req1/..*:Header/wsa:ReplyTo/wsa:Address), 'anonymous') or not(\$req1/..*:Header/wsa:ReplyTo)) and \$req1/wsdl:messageContents/*:Envelope/*:Body/wsmc:MakeConnection) ]</code>
<b>Predicate:</b>	<code>fn:contains(xsd:string(../*:Header/wsa:To[1]), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=')</code>
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A Message sent on an HTTP response contains a wsm:Sequence Header, but the wsa:To Header is not an instance of the MC Anonymous URI (ie. does not start with 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=')
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP2111</b>
<b>Description:</b>	
<b>Target:</b>	<code>/wsil:testLog/wsdl:messageLog/wsdl:message[fn:contains(xsd:string(../*:Header/wsa:To[1]), 'http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=')]</code>
<b>Predicate:</b>	<code>@type = 'response'</code>
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A message with a wsa:To value set to an instance of the MC Anonymous URI template (ie. starts with "http://docs.oasis-open.org/ws-rx/wsmc/200702/anonymous?id=" ) is not sent as an HTTP response.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3102</b>
<b>Description:</b>	
<b>Target:</b>	
<b>Predicate:</b>	
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3110a</b>
<b>Description:</b>	Case non-encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmr:CloseSequence or *:Body/wsmr:TerminateSequence or *:Body/wsmr>CreateSequenceResponse or *:Body/wsmr:TerminateSequenceResponse or *:Body/wsmr:CloseSequenceResponse] [ some \$tgt in . satisfies some \$csr in /wsil:testLog/wsil:messageLog/wsil:message/*:Envelope[*:Body/wsmr>CreateSequenceResponse][\$tgt/*:Body//wsmr:Identifier = *:Body/wsmr>CreateSequenceResponse/wsmr:Identifier] satisfies some \$cs in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmr>CreateSequence/wsse:SecurityTokenReference satisfies (\$csr/./../@conversation = \$cs/./../@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)]
<b>Predicate:</b>	\$target/*:Header/wsse:Security[ some \$ref in //ds:Signature//ds:Reference satisfies (fn:substring-after(\$ref/@URI, '#') = \$target/*:Body/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The Body of an RM Sequence LifeCycle message that relates to a secure RM sequence is not included in a Signature. (Case non-encrypted CS/CSR)
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3110b</b>
<b>Description:</b>	Case encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmr:CloseSequence or *:Body/wsmr:TerminateSequence or *:Body/wsmr>CreateSequenceResponse or *:Body/wsmr:TerminateSequenceResponse or *:Body/wsmr:CloseSequenceResponse] [ some \$tgt in . satisfies (some \$cs in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmr>CreateSequence/wsse:SecurityTokenReference/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsmr/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/xenc:ReferenceList))] satisfies not(/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmr>CreateSequence[not(wsse:SecurityTokenReference/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsmr/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/xenc:ReferenceList) )])]
<b>Predicate:</b>	\$target/*:Header/wsse:Security[ some \$ref in //ds:Signature//ds:Reference satisfies (fn:substring-after(\$ref/@URI, '#') = \$target/*:Body/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The Body of an RM Sequence LifeCycle message that relates to a secure RM sequence is not included in a Signature. (Case encrypted CS/CSR)
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3114a</b>
<b>Description:</b>	Case non-encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Header/wsmr:AckRequested or *:Header/wsmr:SequenceAcknowledgement) and not(*:Header/wsse:Security/xenc:ReferenceList)][ some \$tgt in . satisfies some \$csr in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmr>CreateSequenceResponse][\$tgt/*:Header/wsmr:Identifier = *:Body/wsmr>CreateSequenceResponse/wsmr:Identifier] satisfies some \$cs in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsmr>CreateSequence/wsse:SecurityTokenReference/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)]
<b>Prerequisite:</b>	RSP3110a
<b>Predicate:</b>	(not(\$target/*:Header/wsmr:AckRequested) or (some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/wsmr:AckRequested/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id )) and (not(\$target/*:Header/wsmr:SequenceAcknowledgement) or (some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/wsmr:SequenceAcknowledgement/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ))
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory

<b>Error Message:</b>	The wsm:AckRequested header that relates to a secure RM sequence is not included in a Signature. (Case with wsm:CSR non-encrypted)
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3114b</b>
<b>Description:</b>	Case encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[(*:Header/wsm:AckRequested or *:Header/wsm:SequenceAcknowledgement) and not(*:Header/wsse:Security/xenc:ReferenceList) ] [ some \$tgt in . satisfies (some \$cs in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsm:CreateSequence/wsse:SecurityTokenReference/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsm/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/xenc:ReferenceList))] satisfies (((\$cs/*:Header/wsa:To = \$tgt/*:Header/wsa:To or not(\$tgt/*:Header/wsm:AckRequested)) and not(/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsm:CreateSequence[not(wsse:SecurityTokenReference/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsm/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/xenc:ReferenceList) ]))) ]
<b>Prerequisite:</b>	RSP3110b
<b>Predicate:</b>	\$target/*:Header/wsse:Security[ some \$ref in ../ds:Signature//ds:Reference satisfies ((fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/wsm:AckRequested/@wsu:Id or not(\$target/*:Header/wsm:AckRequested )) and (fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/wsm:SequenceAcknowledgement/@wsu:Id or not(\$target/*:Header/wsm:SequenceAcknowledgement ))) or fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The wsm:AckRequested header or wsm:SequenceAcknowledgement element that relates to a secure RM sequence is not included in a Signature. (Case with wsm:CSR encrypted).
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3117a</b>
<b>Description:</b>	Case non-encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/soap12:Envelope[soap12:Body/soap12:Fault][ some \$tgt in . satisfies (some \$cs in /wsil:testLog/wsil:messageLog/wsil:message/*:Envelope[*:Body/wsm:CreateSequenceResponse/wsrm:Identifier] satisfies some \$cs in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsm:CreateSequence/wsse:SecurityTokenReference/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsm/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/xenc:ReferenceList))] satisfies (\$csr/../../@conversation = \$cs/../../@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/RelationshipType'] = \$cs/*:Header/wsa:MessageID)]
<b>Predicate:</b>	\$target/*:Header/wsse:Security[ some \$ref in ../ds:Signature//ds:Reference satisfies (fn:substring-after(\$ref/@URI, '#') = \$target/soap12:Body/soap12:Fault/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The soap12:Fault element that relates to a secure RM sequence, is not included in a Signature. (Case non-encrypted CS/CSR)
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3117b</b>
<b>Description:</b>	Case encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/soap12:Envelope[soap12:Body/soap12:Fault/soap12:Detail//wsm:Identifier][ some \$tgt in . satisfies (some \$cs in /wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/soap12:Envelope[*:Body/wsm:CreateSequence/wsse:SecurityTokenReference/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsm/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/xenc:ReferenceList))] satisfies not(/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wsm:CreateSequence[not(wsse:SecurityTokenReference/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsm/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/xenc:ReferenceList) ]))) ]
<b>Predicate:</b>	\$target/*:Header/wsse:Security[ some \$ref in ../ds:Signature//ds:Reference satisfies (fn:substring-after(\$ref/@URI, '#') = \$target/soap12:Body/soap12:Detail//wsm:Identifier/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) ]
<b>Reporting:</b>	true=passed, false=failed

<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The soap12:Fault element that relates to a secure RM sequence, is not included in a Signature. (Case encrypted CS/CSR)
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3120a</b>
<b>Description:</b>	Case non encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/soap11:Envelope[soap11:Header/wsrn:SequenceFault][ some \$tgt in . satisfies some \$fms in preceding::soap11:Envelope[./../@conversation = \$tgt/./../@conversation or \$tgt/soap11:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = ./soap11:Header/wsa:MessageID] satisfies some \$csr in \$fms/preceding::*:Envelope[*:Body/wsrn:CreateSequenceResponse][\$fms/soap11:Header/wsrn:Sequence/wsrn:Identifier = *:Body/wsrn:CreateSequenceResponse/wsrn:Identifier] satisfies some \$cs in \$csr/preceding::*:Envelope[*:Body/wsrn:CreateSequence/wsse:SecurityTokenReference] satisfies (\$csr/./../@conversation = \$cs/./../@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)]
<b>Predicate:</b>	\$target/soap11:Header/wsse:Security[ some \$ref in ./ds:Signature/ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/wsrn:SequenceFault/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The wsrn:SequenceFault element of a SOAP 1.1 envelope is not signed while referring to a secure RM sequence.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3120b</b>
<b>Description:</b>	Case encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/soap11:Envelope[soap11:Header/wsrn:SequenceFault and not(soap11:Header/wsse:Security/xenc:ReferenceList)][ some \$tgt in . satisfies some \$fms in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/soap11:Envelope[./../@conversation = \$tgt/./../@conversation or \$tgt/soap11:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = ./soap11:Header/wsa:MessageID] satisfies some \$cs in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/soap11:Envelope[*:Body/wsrn:CreateSequence/wsse:SecurityTokenReference] satisfies (\$cs/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsrn/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/xenc:ReferenceList)) satisfies (\$fms/./../@conversation = \$tgt/./../@conversation) or (\$tgt/soap11:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$tgt/soap11:Header/wsa:MessageID)]
<b>Predicate:</b>	\$target/soap11:Header/wsse:Security[ some \$ref in ./ds:Signature/ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/wsrn:SequenceFault/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The wsrn:SequenceFault element of a SOAP 1.1 envelope is not signed while referring to a secure RM sequence.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3120c</b>
<b>Description:</b>	Case where CS itself is faulted
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/soap11:Envelope[soap11:Header/wsrn:SequenceFault and not(soap11:Header/wsse:Security/xenc:ReferenceList)][ some \$tgt in . satisfies some \$fms in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/soap11:Envelope[*:Body/wsrn:CreateSequence/wsse:SecurityTokenReference] satisfies (\$fms/./../@conversation = \$tgt/./../@conversation) or (\$tgt/soap11:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$tgt/soap11:Header/wsa:MessageID)]

	\$fms/soap11:Header/wsa:MessageID])
<b>Predicate:</b>	\$target/soap11:Header/wsse:Security[ some \$ref in ../ds:Signature//ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/wsm:SequenceFault/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The wsm:SequenceFault element of a SOAP 1.1 envelope is not signed while referring to a secure RM sequence.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3121a</b>
<b>Description:</b>	Case non-encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/soap11:Envelope[soap11:Header/wsm:SequenceFault]
<b>Prerequisite:</b>	RSP3120a
<b>Predicate:</b>	\$target/soap11:Header/wsse:Security[ some \$ref in ../ds:Signature//ds:Reference satisfies ( ( fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/wsm:SequenceFault/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) and (some \$ref2 in \$ref/../ds:Reference satisfies ( fn:substring-after(\$ref2/@URI, '#') = \$target/soap11:Body/@wsu:Id or fn:substring-after(\$ref2/@URI, '#') = \$target/@wsu:Id ))) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The Body of a SOAP 1.1 message with signed wsm:SequenceFault element is not covered by the same signature while referring to a secure RM sequence.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3121b</b>
<b>Description:</b>	Case encrypted CS/CSR
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/soap11:Envelope[soap11:Header/wsm:SequenceFault]
<b>Prerequisite:</b>	RSP3120b
<b>Predicate:</b>	\$target/soap11:Header/wsse:Security[ some \$ref in ../ds:Signature//ds:Reference satisfies ( ( fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/wsm:SequenceFault/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/soap11:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) and (some \$ref2 in \$ref/../ds:Reference satisfies ( fn:substring-after(\$ref2/@URI, '#') = \$target/soap11:Body/@wsu:Id or fn:substring-after(\$ref2/@URI, '#') = \$target/@wsu:Id ))) ]
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The Body of a SOAP 1.1 message with signed wsm:SequenceFault element is not covered by the same signature while referring to a secure RM sequence.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1400</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[ some \$tgt in . satisfies some \$ref in *:Header/wsse:Security//ds:Signature//ds:Reference satisfies (fn:substring-after(\$ref/@URI, '#') = \$tgt/*:Body/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$tgt/@wsu:Id )]
<b>Predicate:</b>	( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) or ( every \$wsah in \$target/*:Header/wsa:* satisfies some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$wsah/@wsu:Id ) )



<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The SOAP Body of a message is signed but some ws-addressing header is not.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1401</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsse:Security and *:Header/wsa:*]
<b>Prerequisite:</b>	RSP1400
<b>Predicate:</b>	( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) or ( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$target/*:Body/@wsu:Id and (every \$wsah in \$target/*:Header/wsa:* satisfies some \$ref2 in \$ref/./ds:Reference satisfies ( fn:substring-after(\$ref2/@URI, '#') = \$wsah/@wsu:Id)) ) )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Some ws-addressing header is not signed with the same signature as the Body of the message (based on @wsu:Id references).
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1402</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/*/@wsa:IsReferenceParameter][ some \$tgt in . satisfies some \$ref in *:Header/wsse:Security//ds:Signature//ds:Reference satisfies (fn:substring-after(\$ref/@URI, '#') = \$tgt/*:Body/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$tgt/@wsu:Id )]
<b>Predicate:</b>	( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$target/*:Header/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) or ( every \$rfp in \$target/*:Header/*[@wsa:IsReferenceParameter] satisfies some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$rfp/@wsu:Id))
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The SOAP Body of a message is signed but some ws-addressing reference parameter header block is not.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1403</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsse:Security and *:Header/*/@wsa:IsReferenceParameter]
<b>Prerequisite:</b>	RSP1402
<b>Predicate:</b>	( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) or ( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$target/*:Body/@wsu:Id and (every \$rfp in \$target/*:Header/*[@wsa:IsReferenceParameter] satisfies some \$ref2 in \$ref/./ds:Reference satisfies ( fn:substring-after(\$ref2/@URI, '#') = \$rfp/@wsu:Id)) ) )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Some ws-addressing reference parameter header block is not signed with same signature as the SOAP Body of the message (based on @wsu:Id references).
<b>Diagnostic</b>	



<b>Data:</b>	
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<b>Test Assertion:</b>	<b>RSP3201</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsse:Security and *:Header/wsmc:MessagePending and (some \$tgt in . satisfies some \$ref in *:Header/wsse:Security//ds:Signature//ds:Reference satisfies (fn:substring-after(\$ref/@URI, '#') = \$tgt/*:Body/@wsu:Id or fn:substring-after(\$ref/@URI, '#') = \$tgt/@wsu:Id ))]
<b>Predicate:</b>	( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies fn:substring-after(\$ref/@URI, '#') = \$target/@wsu:Id ) or ( some \$ref in \$target/*:Header/wsse:Security//ds:Signature//ds:Reference satisfies ( fn:substring-after(\$ref/@URI, '#') = \$target/*:Body/@wsu:Id and (some \$ref2 in \$ref/./ds:Reference satisfies ( fn:substring-after(\$ref2/@URI, '#') = \$target/*:Header/wsmc:MessagePending/@wsu:Id))) )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The wsmc:MessagePending header block is not signed with same signature as the Soap Body (based on @wsu:Id references).
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3300</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsm:Sequence][*:Header/wsse:Security] [not(*:Header/wsm:Sequence/wsm:Identifier = /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope/*:Body/wsm:CreateSequence/wsm:Offer/wsm:Identifier)]
<b>co-Target:</b> mycreateseq	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[ (*:Body/wsm:CreateSequence and (: --- case CS/CSR not encrypted --- :) (some \$cs in . satisfies (some \$csr in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope/*:Body/wsm:CreateSequenceResponse) satisfies (\$target/*:Header/wsm:Sequence/wsm:Identifier = \$csr/*:Body/wsm:CreateSequenceResponse/wsm:Identifier and (\$csr/./@conversation = \$cs/./@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)))] or (: --- case CS/CSR encrypted --- :) ( (*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsm/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/wsse:Security//xenc:ReferenceList)) and (*:Header/wsa:To = \$target/*:Header/wsa:To or \$target/./@type = 'response') ) ]
<b>Prerequisite:</b>	\$mycreateseq/*:Body/wsm:CreateSequence/wsse:SecurityTokenReference or \$mycreateseq/*:Header/wsse:Security//xenc:ReferenceList
<b>Predicate:</b>	\$target/*:Header/wsse:Security/wsu:Timestamp
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A SOAP Envelope that belongs to a Secure Sequence does not contain a wsse:Security header that has a wsu:Timestamp child element.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP3301</b>
<b>Description:</b>	
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[ *:Header/wsm:Sequence = preceding::*:Envelope/*:Header/wsm:Sequence] [*:Header/wsse:Security] [not(*:Header/wsm:Sequence/wsm:Identifier = /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope/*:Body/wsm:CreateSequence/wsm:Offer/wsm:Identifier
<b>co-Target:</b> mycreateseq	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[ (*:Body/wsm:CreateSequence and (: --- case CS/CSR not encrypted --- :) (some \$cs in . satisfies (some \$csr in /wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope/*:Body/wsm:CreateSequenceResponse) satisfies (\$target/*:Header/wsm:Sequence/wsm:Identifier = \$csr/*:Body/wsm:CreateSequenceResponse/wsm:Identifier and (\$csr/./@conversation = \$cs/./@conversation or \$csr/*:Header/wsa:RelatesTo[@RelationshipType =

	'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$cs/*:Header/wsa:MessageID)))) or ( : --- case CS/CSR encrypted --- : ) ( (*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-rx/wsrn/200702/CreateSequence' and (*:Body/*:EncryptedData or *:Header/wsse:Security/xenc:ReferenceList)) and (*:Header/wsa:To = \$target/*:Header/wsa:To or \$target/../../@type = 'response' ) ) ]
<b>Predicate:</b>	(not (\$target/*:Header/wsse:Security/wsu:Timestamp) and not (preceding::*:Envelope[*:Header/wsrn:Sequence = \$target/*:Header/wsrn:Sequence][*:Header/wsse:Security/wsu:Timestamp])) or (\$target/*:Header/wsse:Security/wsu:Timestamp and not (preceding::*:Envelope[*:Header/wsrn:Sequence = \$target/*:Header/wsrn:Sequence][*:Header/wsse:Security/wsu:Timestamp = \$target/*:Header/wsse:Security/wsu:Timestamp ) )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	Either a SOAP Envelope that belongs to a Secure RM Sequence contains a wsse:Security/wsu:Timestamp child element, but a previous RM retry SOAP Envelope (same wsrn:Sequence/wsrn:Identifier and same wsrn:Sequence/wsrn:MessageNumber) has a same wsse:Security/wsu:Timestamp value, or the SOAP Envelope does not contain a wsse:Security/wsu:Timestamp and yet some previous RM retry SOAP Envelope does contain a wsu:Timestamp.
<b>Diagnostic Data:</b>	

<b>Test Assertion:</b>	<b>RSP1004</b>
<b>Description:</b>	This assertion checks for the use of the WS-SC Amend binding and logs a warning.
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wst:RequestSecurityToken or *:Body/xenc:EncryptedData]
<b>Predicate:</b>	not (\$target/*:Header/wsa:Action='http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Amend')
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	preferred
<b>Error Message:</b>	The request uses the SCT Amend binding. Verify that the service supports this binding.
<b>Diagnostic Data:</b>	Complete message.

<b>Test Assertion:</b>	<b>RSP1006a</b>
<b>Description:</b>	This assertion examines the response to an SCT/Renew request and, if that response is not a fault, makes sure that it meets the basic criteria of a "proper" response (as defined by WS-SC).
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Header/wsa:Action='http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Renew'] [(*:Body/wst:RequestSecurityToken or *:Body/xenc:EncryptedData)]
<b>co-Target:</b> myresponse	/wsil:testLog/wsil:messageLog/wsil:message[ (@type = 'response' and @conversation = \$target/../../@conversation) or (/*:Envelope/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID) ] /wsil:messageContents/*:Envelope
<b>Prerequisite:</b>	not (\$myresponse/*:Body/*:Fault)
<b>Predicate:</b>	(\$myresponse/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-sx/ws-trust/200512/RSTR/SCT/Renew' and \$myresponse/*:Body/wst:RequestSecurityTokenResponse)
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	The service responded to a request to renew a security context with something other than the correct response.
<b>Diagnostic Data:</b>	Complete message.

<b>Test Assertion:</b>	<b>RSP1006b</b>
<b>Description:</b>	This assertion examines the response to an SCT/Renew request and, if that response is fault, makes sure that it is a wsa:ActionNotSupported fault. Because there are many reasons for a fault to be generated, this assertion only logs a warning in case the fault had some other cause than the services inability to support SCT/Renew.

<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsa:Action='http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Renew'] [(/*:Body/wst:RequestSecurityToken or /*:Body/xenc:EncryptedData)]
<b>co-Target:</b> myresponse	/wsil:testLog/wsdl:messageLog/wsdl:message[ (@type = 'response' and @conversation = \$target/../@conversation) or (/*:Envelope/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID) ] /wsil:messageContents/*:Envelope
<b>Prerequisite:</b>	\$myresponse/*:Body/*:Fault
<b>Predicate:</b>	( if (\$myresponse/soap11:Body) then ( fn:ends-with(\$myresponse/soap11:Body/soap11:Fault/faultcode, 'ActionNotSupported') ) else ( fn:ends- with(\$myresponse/soap12:Body/soap12:Fault/soap12:Code/soap12:Value, 'Sender') and fn:ends- with(\$target/soap12:Body/soap12:Fault/soap12:Code/soap12:Subcode/soap12:Value, 'ActionNotSupported') ) )
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A request to renew a security context received a fault response other than "wsa:ActionNotSupported". This could be due to some problem with the request, some problem with the service, or it could be due to incorrect error reporting behavior on the part of the service. If the service is attempting to indicate that it does not support the WS-SC Renew operation via some other fault than the wsa:ActionNotSupported fault, it is non-conformant with R1006 of RSP 1.0.
<b>Diagnostic Data:</b>	Complete message.

<b>Test Assertion:</b>	<b>RSP1007a</b>
<b>Description:</b>	This assertion examines the response to an SCT/Cancel request and checks for the wsa:ActionNotSupported fault response. Such a fault unambiguously indicates that the SCT/Cancel binding is NOT supported by the service, which violates R1007. This assertion assumes that the client is transmitting the SCT/Cancel request to the appropriate endpoint i.e. that the service is acting as a security token service.
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsa:Action='http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Cancel'] [(/*:Body/wst:RequestSecurityToken or /*:Body/xenc:EncryptedData)]
<b>co-Target:</b> myresponse	/wsil:testLog/wsdl:messageLog/wsdl:message[ (@type = 'response' and @conversation = \$target/../@conversation) or (/*:Envelope/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID) ] /wsil:messageContents/*:Envelope
<b>Predicate:</b>	(not (if (\$myresponse/soap11:Body) then ( fn:ends-with(\$myresponse/soap11:Body/soap11:Fault/faultcode, 'ActionNotSupported') ) else ( fn:ends- with(\$myresponse/soap12:Body/soap12:Fault/soap12:Code/soap12:Value, 'Sender') and fn:ends- with(\$myresponse/soap12:Body/soap12:Fault/soap12:Code/soap12:Subcode/soap12:Value, 'ActionNotSupported') ) ) )
<b>Reporting:</b>	true=passed, false=failed
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A request to cancel a security context received a wsa:ActionNotSupported fault response, which indicates that the SCT/Cancel binding is not supported by the service. This indicates that the service does not conform to R1007 of RSP 1.0.
<b>Diagnostic Data:</b>	Complete message.

<b>Test Assertion:</b>	<b>RSP1007b</b>
<b>Description:</b>	This assertion examines the response to an SCT/Cancel request and checks for the appropriate, WS-SC-defined response. The lack of such a response might indicate that the service does not support the SCT/Cancel binding, which would violate R1007. This assertion assumes that the client is transmitting the SCT/Cancel request to the appropriate endpoint i.e. that the service is acting as a security token service. It also relies on RSP1007a as a prerequisite. This avoids double-reporting the behavior that RSP1007a checks for.
<b>Target:</b>	/wsil:testLog/wsdl:messageLog/wsdl:message/wsdl:messageContents/*:Envelope[*:Header/wsa:Action='http://docs.o

	asis-open.org/ws-sx/ws-trust/200512/RST/SCT/Cancel'] [(*:Body/wst:RequestSecurityToken or *:Body/xenc:EncryptedData)]
<b>co-Target:</b> myresponse	/wsil:testLog/wsil:messageLog/wsil:message[ (@type = 'response' and @conversation = \$target/../../@conversation) or (./*:Envelope/*:Header/wsa:RelatesTo[@RelationshipType = 'http://www.w3.org/2005/08/addressing/reply' or not (@RelationshipType)] = \$target/*:Header/wsa:MessageID) ] /wsil:messageContents/*:Envelope
<b>Prerequisite:</b>	RSP1007a
<b>Predicate:</b>	(\$myresponse/*:Header/wsa:Action = 'http://docs.oasis-open.org/ws-sx/ws-trust/200512/RSTR/SCT/Cancel' and \$myresponse/*:Body//wst:RequestedTokenCancelled)
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	mandatory
<b>Error Message:</b>	A request to cancel a security context did not receive the appropriate response. This might indicate that the service does not support the SCT/Cancel binding, which would violate R1007 of RSP 1.0. Check the response to determine if it is the result of some problem other than the services inability to support the SCT/Cancel binding.
<b>Diagnostic Data:</b>	Complete message.

<b>Test Assertion:</b>	<b>RSP1008</b>
<b>Description:</b>	This assertion checks for the presence of an SCT request and checks for the corresponding SCT/Cancel. The lack of an SCT/Cancel indicates either that the log file did not capture all of the messages in the interaction between the client and server, or that the client simply neglected to send a SCT/Cancel request. The latter indicates a issue with R1008, which states that clients SHOULD cancel their security contexts.
<b>Target:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body//wst:RequestSecurityToken Response and *:Header/wsa:Action = 'http://docs.oasis-open.org/ws-sx/ws-trust/200512/RSTR/SCT']
<b>Predicate:</b>	/wsil:testLog/wsil:messageLog/wsil:message/wsil:messageContents/*:Envelope[*:Body/wst:RequestSecurityToken and *:Header/wsa:Action='http://docs.oasis-open.org/ws-sx/ws-trust/200512/RST/SCT/Cancel'] [*:Body//wst:RequestSecurityToken/wst:CancelTarget/wsse:SecurityTokenReference/wsse:Reference/@URI = \$target/*:Body//wst:RequestSecurityTokenResponse/wst:RequestedSecurityToken/wssc:SecurityContextToken/ws sc:Identifier]
<b>Reporting:</b>	true=passed, false=warning
<b>Prescription:</b>	preferred
<b>Error Message:</b>	A client requested and obtained a security context that it never subsequently canceled. Verify that the log contains a complete record of the clients interaction with the service and that the cancel request was not missed. If the log is complete and there are no missing messages, the fact that the client did not cancel the security context both increases the risk of that security context being compromised and consumes additional resources on the service.
<b>Diagnostic Data:</b>	Complete message.

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## Appendix E. Acknowledgments

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## Appendix F. Revision History

Revision	Date	Editor	Changes Made
[WD01]	[3/6/2013]	[Tom Rutt]	[Moved referenced specs annex into Normative references]
[WD02]	[5/6/2013]	[jacques Durand]	Aligned references in specification body Added conformance clauses.
[WD06]	[3/17/2014]	[Tom Rutt]	Resolves all PR comments