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e-SENS AS4 profile

Test Assertions Description

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Approach and purpose of the document

The present document describes the test assertions for the e-SENS AS4 profile which has been adopted in CEF eDelivery AS4 Access Points.

More specifically, the AS4 profile of eDelivery is the AS4 Usage Profile defined by e-SENS based on the AS4 Profile of ebMS 3.0 Version 1.0. OASIS Standard. AS4 itself is based on other standards, in particular on OASIS ebXML Messaging Services Version 3.0: Part 1, Core Features OASIS Standard, which in turn is based on various Web Services specifications.

The purpose of the test assertions is to focus more on what is expected from the implementation rather than how to test it. In fact, some of the test assertions might not be testable (transformed into test cases).

This document is intended for software providers implementing the specifications of CEF eDelivery and service providers reusing the sample software of CEF eDelivery.

The applicable terms and conditions of CEF eDelivery can be consulted in its Master Service Arrangement, available on the CEF Digital Single Web Portal:

https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/eDelivery+Resources

Glossary

The key terms used in this Test Assertions Description are defined in the CEF Definitions section on the CEF Digital Single Web Portal:

https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/CEF+Definitions

The key acronyms used in this Test Assertions Description are defined in the CEF Glossary on the CEF Digital Single Web Portal:

https://ec.europa.eu/cefdigital/wiki/pages/viewpage.action?spaceKey=CEFDIGITAL&title=CEF+Glossary

1. INTRODUCTION

1.1. System overview

1.1.1. System entities

Entity	Description
Message Service Handler (MSH):	An entity that is able to generate or process e-SENS AS4 messages.
Producer:	An entity (e.g. application) that interacts with a sending MSH to initiate the sending of a user message.
Consumer:	An entity that interacts with a receiving MSH to consume data from a received user message.

1.1.2. Messaging Model

Business applications or middleware, acting as Producer, Submit message content and metadata to the Sending MSH, which packages this content and sends it to the Receiving MSH of the business partner, which in turn Delivers the message to another business application that Consumes the message content and metadata. Subject to configuration, Sending and Receiving MSH may Notify Producer or Consumer of particular events.

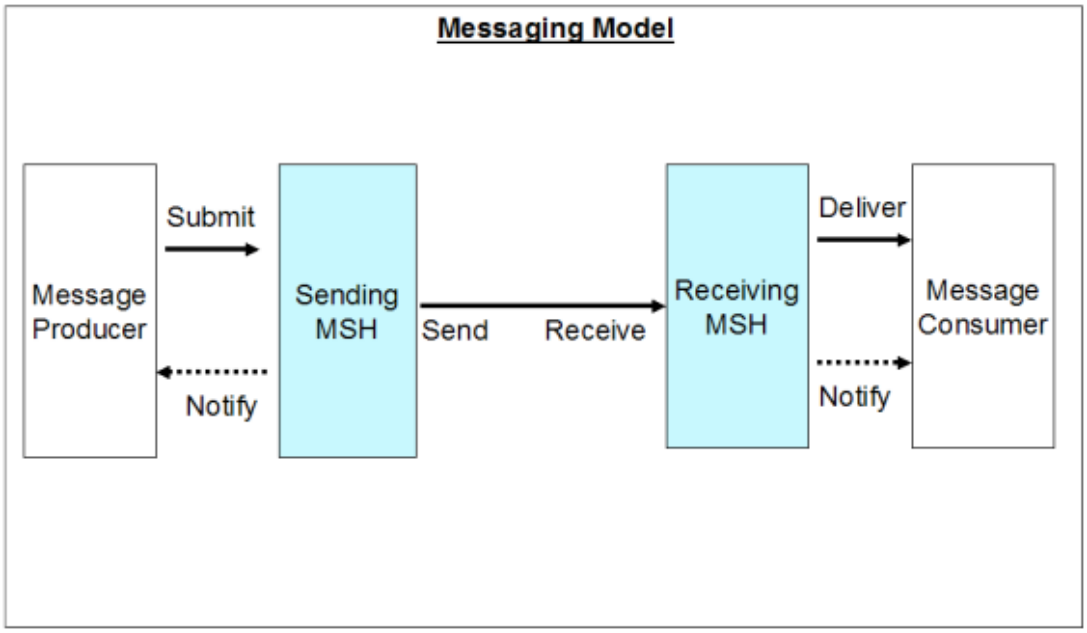

Figure 1: Messaging Model

1.1.3. Definitions

Term	Description
User Message	A message that contains a User Message unit. It allows transmitting data interpreted by a Consumer
Signal Message	A message that contains a Signal Message unit. It allows transmitting data interpreted by an MSH (as a signal).
MEP (Message Exchange Pattern):	An agreement between sending and receiving MSHs. Some aspects of MEPs supported in the messaging layer include: - Specifying the correlation between messages sent and received in the message header. - Message binding to the underlying transfer-protocol. Two MEPs are defined in this specification, not exclusive of others: • The One-Way MEP, which governs the exchange of a single, User Message Unit unrelated to other User Messages. Its label is "oneway". • The Two-Way MEP, which governs the exchange of two User Message Units in opposite directions, the first one to occur, is labeled "request", the other one "reply". In an actual instance, the "reply" must reference the "request" using eb:RefToMessageId.
PMode (Processing Mode):	The contextual information that governs the processing of a particular message (thus is basically a set of configuration parameters).

1.1.4. Abbreviations

Abbreviation	Description
SMSH	An MSH in the sending role.
RMSH	An MSH in the receiving role.

1.1.5. Notes

This document contains two lists of test assertions

- A list for specific to the e-SENS profile requirements. Those test assertions are labelled e-SENS_TAXX.

- A list for generic AS4 requirements. Those test assertions are labelled AS4_TAXX.

Test assertions not related to the AS4 protocol (load, size, volume…) are provided in a separate document (details still need to be discussed to have a normative source).

For the details on the MSHs configuration, please refer to the document "PMode_Parameters_e-SENS_profile.doc". Configurations as described in test assertions:

Configuration in predicate	PMode parameters
"***SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile***"	PModes are set according to the document "PMode_Parameters_e-SENS_profile.doc".
"***SMSH and RMSH are configured to exchange AS4 messages: One-Way/Push MEP***"	- PMode[1].MEP: set to One-Way. - PMode[1].MEPBinding: set to Push.
"***SMSH and RMSH are configured to exchange AS4 messages: Two-Way/Push-and-Push MEP***"	- PMode[1].MEP: set to Two-Way. - PMode[1].MEPBinding: set to Push-and-Push.

In order to cover some requirement, MSHs are sometimes misconfigured or "simulated" to produce AS4 messages not conform to the e-SENS profile. This can also be achieved by intercepting the messages and altering them before they reach their destination.

More information can be found in the following sources:

[e-SENS] (specifications source)	http://wiki.ds.unipi.gr/display/ESENS/PR+-+AS4
[EBMS3]	http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/core/os/
[AS4]	http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/profiles/AS4-profile/v1.0/os/AS4-profile-v1.0-os.html
[XML10]	http://www.w3.org/TR/REC-xml/

2. E-SENS SPECIFIC TEST ASSERTIONS

eSENS_TA01	
TA id	eSENS_TA01
Normative source	[e-SENS] "*The AS4 ebHandler Conformance Profile is the AS4 conformance profile that provides support for Sending and Receiving roles using Push channel bindings. Support is required for the following Message Exchange Patterns:* • *One Way / Push* • *Two Way / Push-and-Push*"
Target	"One-Way/Push" MEP
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile: One-Way/Push MEP. • SMSH sends an AS4 User message to the RMSH.
Predicate	The RMSH returns a non-repudiation receipt within a HTTP response with status code 2XX (for more details on http response codes please refer to https://issues.oasis-open.org/browse/EBXMLMSG-57?jql=project%20%3D%20EBXMLMSG).
Prescription Level	Mandatory
Tag	Message Exchange pattern, One-Way/Push
Variable	

eSENS_TA02	
TA id	eSENS_TA02
Normative source	[e-SENS] " Message Exchange Patterns: • One Way / Push • Two Way / Push-and-Push" And "AS4 provides multiple mechanisms to correlate messages within a particular flow. 1.UserMessage/MessageInfo/RefToMessageId provides a way to express that a message is a response to a single specific previous message. Presence of a RefToMessageId is required in response messages in Two Way message exchanges. By default, exchanges are considered One Way."
Target	"Two-Way/Push-and-Push" MEP, CollaborationInfo
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile: Two-Way/Push-and-Push MEP. • SMSH sends an AS4 User Message (M1 with ID MessageId) that requires a consumer response to the RMSH.
Predicate	The RMSH sends back a User Message (M2) with element REFTOMESSAGEID set to MESSAGEID (of M1).
Prescription Level	Mandatory
Tag	Message Exchange pattern, Two-Way/Push-and-Push, correlation Request/Response
Variable	MESSAGEID: XML element (M1)Messaging/UserMessage/MessageInfo/MessageId REFTOMESSAGEID: XML element (M2)Messaging/UserMessage/MessageInfo/ RefToMessageId

eSENS_TA03	
TA id	eSENS_TA03
Normative source	[e-SENS] "Both UserMessage/PartyInfo/From and UserMessage/PartyInfo/To must not include more than one PartyId element"
Target	User Message single exchange parties
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile: One-Way/Push MEP. • SMSH and RMSH exchange several AS4 User Messages.
Predicate	Each exchanged AS4 message contains single ORIGIN and DESTINATION elements.
Prescription Level	Mandatory
Tag	User Message, party info
Variable	ORIGIN: XML element Messaging/UserMessage/PartyInfo/From DESTINATION: XML element Messaging/UserMessage/PartyInfo/To

eSENS_TA04	
TA id	eSENS_TA04 Note: This test assertion is created to verify that non compressed payloads (in case it happens) are also processed and delivered to the consumer.
Normative source	[e-SENS] "Due to the mandatory use of the AS4 compression feature in this profile (see section 2.2.3.3), XML payloads MAY be converted to binary data " And "A receiving MSH MUST NOT reject messages with payloads that are not compressed even though AS4 compression is specified in the P-Mode. However, the receiving MSH is REQUIRED to decompress any compressed payloads for messages for which the P-Mode specifies the use of AS4 compression, and for which the CompressionType part property is set to application/gzip."
Target	Payload compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile. (One-Way/Push MEP) • SMSH is simulated to produce uncompressed payloads. • The SMSH sends the AS4 message to the RMSH.
Predicate	The RMSH returns a non-repudiation receipt and delivers the message to the consumer.
Prescription Level	Mandatory
Tag	Payload, compression
Variable	

eSENS_TA05	
TA id	eSENS_TA05
Normative source	[e-SENS] "Due to the mandatory use of the AS4 compression feature in this profile (see section 2.2.3.3), XML payloads MAY be converted to binary data, which is carried in separate MIME parts and not in the SOAP Body. Compliant AS4 message always have an empty SOAP Body. "
Target	Payload location
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile. (One-Way/Push MEP) • Producer submits a message with metadata information and an XML payload to the SMSH. • SMSH generates an AS4 message to send to the RMSH.
Predicate	In the AS4 message created by the SMSH, the compressed payload is carried in a separate MIME part and the soap body is empty.
Prescription Level	Mandatory
Tag	Payload packaging
Variable	

eSENS_TA06	
TA id	eSENS_TA06
Normative source	[e-SENS] "Due to the mandatory use of the AS4 compression feature in this profile (see section 2.2.3.3), XML payloads MAY be converted to binary data, which is carried in separate MIME parts and not in the SOAP Body. Compliant AS4 message always have an empty SOAP Body. " And "A single AS4 UserMessage must reference, via the PayloadInfo header, a single structured business document and may reference one or more other (structured or unstructured) payload parts. The business document is considered the "leading" payload part for business processing."
Target	Payload location
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile. (One-Way/Push MEP) • Producer submits a message to the SMSH with metadata information, an XML payload (leading business document) and other payloads (XML and non XML). • SMSH generates an AS4 message to send to the RMSH.
Predicate	In the AS4 message created by the SMSH, the compressed payloads are carried in separate MIME parts and the soap body is empty.
Prescription Level	Mandatory
Tag	Payload packaging
Variable	

eSENS_TA07	
TA id	eSENS_TA07
Normative source	[e-SENS] "A single AS4 UserMessage must reference, via the PayloadInfo header, a single structured business document and may reference one or more other (structured or unstructured) payload parts. The business document is considered the "leading" payload part for business processing. Any payload parts other than the business document are not to be processed in isolation but only as adjuncts to the business document."
Target	Payload processing
Prerequisite	• eSENS_TA06 • SMSH sends an AS4 message to the RMSH.
Predicate	The RMSH successfully processes the AS4 message and sends a non-repudiation receipt to the SMSH.
Prescription Level	Mandatory
Tag	Payload packaging
Variable	

eSENS_TA08	
TA id	eSENS_TA08 Note: Not testable.
Normative source	[e-SENS] "A single AS4 UserMessage must reference, via the PayloadInfo header, a single structured business document and may reference one or more other (structured or unstructured) payload parts. The business document is considered the "leading" payload part for business processing. Any payload parts other than the business document are not to be processed in isolation but only as adjuncts to the business document."
Target	Payload processing
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile. (One-Way/Push MEP) • SMSH is simulated to send an AS4 message to the RMSH with non XML payloads and without a leading business document payload. • The SMSH sends the AS4 User Message to the RMSH.
Predicate	The RMSH sends back a synchronous error response.
Prescription Level	Mandatory
Tag	Payload packaging
Variable	

eSENS_TA09	
TA id	eSENS_TA09
Normative source	[e-SENS] "The ebMS3 mechanism of supporting "external" payloads via hyperlink references (as mentioned in section 5.2.2.12 of the ebMS3 Core Specification [EBMS3]) must not be used."
Target	Payload location
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • SMSH is simulated to send an AS4 user message with a payload hyperlink reference.
Predicate	The RMSH sends back a synchronous ebMS error message.
Prescription Level	Mandatory
Tag	Payload reference
Variable	

eSENS_TA10	
TA id	eSENS_TA10
Normative source	[e-SENS] "This profile requires the use of the AS4 Reception Awareness feature. This feature provides a built-in Retry mechanism that can help overcome temporary network or other issues and detection of message duplicates. •The parameter PMode[1].ReceptionAwareness must be set to true. •The parameter PMode[1].ReceptionAwareness.Retry must be set to true. •The parameter PMode[1].ReceptionAwareness.DuplicateDetection must be set to true. The parameters PMode[1].ReceptionAwareness.Retry.Parameters and related PMode[1].ReceptionAwareness.DuplicateDetection.Parameters are sets of parameters configuring retries and duplicate detection. These parameters are not fully specified in [AS4] and implementation-dependent. Products must support configuration of parameters for retries and duplicate detection."
Target	Message reliability
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Simulate the RMSH to not send receipts (can be done by intercepting the receipts). • SMSH tries to send an AS4 User Message to the RMSH.
Predicate	The SMSH retries to send the AS4 User Message (at least once).
Prescription Level	Mandatory
Tag	Reception Awareness
Variable	

eSENS_TA11	
TA id	eSENS_TA11
Normative source	[e-SENS] "This profile requires the use of the AS4 Reception Awareness feature. This feature provides a built-in Retry mechanism that can help overcome temporary network or other issues and detection of message duplicates. The parameters PMode[1].ReceptionAwareness.Retry.Parameters and related PMode[1].ReceptionAwareness.DuplicateDetection.Parameters are sets of parameters configuring retries and duplicate detection. These parameters are not fully specified in [AS4] and implementation-dependent. Products must support configuration of parameters for retries and duplicate detection. "
Target	Message reliability
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Simulate the RMSH to not send receipts. • SMSH tries to send an AS4 User Message to the RMSH. • Before a TIME_OUT is reached network connection is restored (RMSH is able to send a non-repudiation receipt).
Predicate	The RMSH sends back an AS4 non-repudiation receipt to the SMSH and delivers only one message to the consumer and the SMSH stops resending the original AS4 User Message.
Prescription Level	Mandatory
Tag	Reception Awareness
Variable	TIME_OUT: deadline (in terms of time or number of retries) allocated for resending messages.

eSENS_TA12	
TA id	eSENS_TA12 Note: Not testable.
Normative source	[e-SENS] "The parameter PMode[1].ErrorHandling.Report.SenderErrorsTo must not be set. There is no support for reporting sender errors to a third party"
Target	Message reliability
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile.
Predicate	PMode parameter " PMode[1].ErrorHandling.Report.SenderErrors" is not set.
Prescription Level	Mandatory
Tag	Error report
Variable	

eSENS_TA13	
TA id	eSENS_TA13
Normative source	[e-SENS] "This e-SENS AS4 profile uses the following AS4 parameters and values: •The PMode[1].Security.X509.Sign parameter must be set in accordance with section 5.1.4 and 5.1.5 of [AS4]. •The PMode[1].Security.X509.Signature.HashFunction parameter must be set to http://www.w3.org/2001/04/xmlenc#sha256. •The PMode[1].Security.X509.Signature.Algorithm parameter must be set to http://www.w3.org/2001/04/xmldsig-more#rsa-sha256." And "The PMode[1].Security.X509.Signature.Certificate parameter must be set to a value matching the certificate of the sender. The PMode[1].Security.X509.Encryption.Certificate parameter must be set to a value matching the certificate of the receiver."
Target	Payload signature
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Producer submits a message with metadata information and a payload to the SMSH. • SMSH sends an AS4 signed message to the RMSH.
Predicate	In the AS4 Message generated by the SMSH: - Signature Hash function parameter is set to http://www.w3.org/2001/04/xmlenc#sha256 - Signature Algorithm parameter is set to http://www.w3.org/2001/04/xmldsig-more#rsa-sha256 - Signature Certificate used is the certificate of the SMSH.
Prescription Level	Mandatory
Tag	Signature/Compression
Variable	

eSENS_TA14	
TA id	eSENS_TA14
Normative source	[e-SENS] "This e-SENS AS4 profile uses the following AS4 parameters and values: For encryption, WS-Security leverages the W3C XML Encryption recommendation. The following AS4 configuration options configure this feature: •The PMode[1].Security. X509.Encryption.Encrypt parameter must be set in accordance with section 5.1.6 and 5.1.7 of [AS4]. •The parameter PMode[1].Security.X509.Encryption.Algorithm must be set to http://www.w3.org/2009/xmlenc11#aes128-gcm. This is the algorithm used as value for the Algorithm attribute of xenc:EncryptionMethod on xenc:EncryptedData." And "The PMode[1].Security.X509.Encryption.Certificate parameter must be set to a value matching the certificate of the receiver."
Target	Payload signature
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Producer submits a message with metadata information and a payload to the SMSH. • SMSH sends an AS4 encrypted message to the RMSH.
Predicate	In the AS4 Message generated by the SMSH: - Encryption Algorithm is set to http://www.w3.org/2009/xmlenc11#aes128-gcm - Encryption Certificate used is the certificate of the RMSH.
Prescription Level	Mandatory
Tag	Signature/Compression
Variable	

eSENS_TA15	
TA id	eSENS_TA15
Normative source	[e-SENS] "To be able to forward a received message, the receiving gateway (C3) needs to be able to determine the end entity (C4) that an e-SENS AS4 message is intended for. This information is generally available in the business document. However, using information from the business document assumes an understanding of the schema on which the document is based. Since gateways need to be able to process documents of any type, it is desirable to adopt a mechanism that is independent of particular schemas. The e-CODEX documentation for its use of ebMS3/AS4 [ECODEXD59] uses the ebMS3 property mechanism to attach arbitrary pairs of property-values to a message to address C1 and C4: •The property named originalSender addresses the original (end entity) sender party. •The property named finalRecipient addresses the final (end entity) recipient party The type attribute may be used to categorize party identifier types. Implementations of the e-SENS e-Delivery AS4 profile must support this mechanism: the sender gateway (or integration middleware) must set, and the receiver gateway (or integration middleware) must get, these properties and values."
Target	Messaging Reliability
Prerequisite	• Producer submits a business document with the information “Sender” and “destination” to the SMSH • SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • SMSH sends an AS4 User message to the RMSH.
Predicate	The message received by the RMSH contains 2 property elements in the MessageProperties node with attributes name and type. One has name = "OriginalSender" and value producerID and the other has name = "finalRecipient" and value consumerID (producerID and consumerID are provided by the original message submitted by the producer).
Prescription Level	Mandatory
Tag	User message, end entity Addressing
Variable	producerID: ID of the producer of the AS4 message consumerID: ID of the consumer of the message

eSENS_TA16	
TA id	eSENS_TA16
Normative source	[e-SENS] "For Reliable Messaging this profile specifies that non-repudiation receipts must be sent synchronously for each message type. Note that non-repudiation is only "per hop" in the case of the four-corner-model, in particular the hop from corner two to corner three. In e-SENS, the optional end-to-end services module supports the traceability across the four corners. •The parameter PMode[1].Security.SendReceipt.NonRepudiation must be set to the value true. •The parameter PMode[1].Security.SendReceipt.ReplyPattern must be set to the value Response."
Target	Message reliability
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (Two-Way/Push-and-Push MEP). • SMSH sends an AS4 User Message to the RMSH.
Predicate	The RMSH returns a non-repudiation receipt within a HTTP response with status code 2XX.
Prescription Level	Mandatory
Tag	Non-repudiation receipt
Variable	

eSENS_TA17	
TA id	eSENS_TA17
Normative source	[e-SENS] "Reception awareness errors generated by the Sender must be reported to the Submitting application: •The parameter PMode[1].ErrorHandling.Report.MissingReceiptNotifyProducer must be set to true. •The parameter PMode[1].ErrorHandling.Report.SenderErrorsTo must not be set. There is no support for reporting sender errors to a third party"
Target	Message reliability
Prerequisite	• eSENS_TA10. • TIME_OUT for resending the messages is reached.
Predicate	The SMSH reports an error to the message producer.
Prescription Level	Mandatory
Tag	Reception Awareness
Variable	TIME_OUT: deadline (in terms of time or number of retries) allocated for resending messages.

eSENS_TA18	
TA id	eSENS_TA18
Normative source	[e-SENS] " Section 5.2.2 of [EBMS3] defines a server test feature that allows an organization to "Ping" a communication partner. The feature is based on messages with the values of: UserMessage/CollaborationInfo/Service set to http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/service UserMessage/CollaborationInfo/Action set to http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/test This feature must be supported so that business partners can perform a basic test of the communication configuration (including security at network, transport and message layer, and reliability) in any environment, including the production environment. This functionality may be supported as a built-in feature of the AS4 product. If not, a PMode must be configured with these values. "
Target	Test service
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile: One-Way/Push MEP. • Producer submits a "ping" message with metadata information to the SMSH (to "ping" consumer).
Predicate	The SMSH generates an AS4 message with values (and sends it to the RMSH): UserMessage/CollaborationInfo/Service set to http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/service UserMessage/CollaborationInfo/Action set to http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/test
Prescription Level	Mandatory
Tag	Ping message
Variable	

eSENS_TA19	
TA id	eSENS_TA19
Normative source	[e-SENS] "The AS4 product must be configured so that messages with these values are not delivered to any business application."
Target	Test service
Prerequisite	• eSENS_TA18. • The consumer is reachable.
Predicate	The RMSH sends back a non-repudiation receipt within a HTTP response with status code 2XX and the consumer doesn't receive any message.
Prescription Level	Mandatory
Tag	Ping message
Variable	

eSENS_TA20	
TA id	eSENS_TA20
Normative source	[e-SENS] "This profile defines an additional, optional third property: The property named trackingIdentifier provides a mechanism to include an identifier (in arbitrary string format) that allows end-to-end tracking of messages in a four-corner exchange. Its value could be set to the value of an identifier for the message from C1 to C2 that the AS4 message relates to. This allows tracking and tracing of messages from C1, via C2 to (at least) C3."
Target	Message Exchange tracking
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile: One-Way/Push MEP. • SMSH sends an AS4 User Message including a TRACKINGIDENTIFIER property set by the producer.
Predicate	The RMSH returns a non-repudiation receipt within a HTTP response with status code 2XX and the received AS4 message contains the TRACKINGIDENTIFIER property.
Prescription Level	Optional
Tag	Message Packaging, Tracking, TrackingIdentifier
Variable	TRACKINGIDENTIFIER: an arbitrary string format.

3. GENERIC AS4 TEST ASSERTIONS

AS4_TA01	
TA id	AS4_TA01
Normative source	[e-SENS] "AS4 provides multiple mechanisms to correlate messages within a particular flow. 1.UserMessage/MessageInfo/RefToMessageId provides a way to express that a message is a response to a single specific previous message. Presence of a RefToMessageId is required in response messages in Two Way message exchanges. By default, exchanges are considered One Way. 2.UserMessage/CollaborationInfo/ConversationId provides a more general way to associate a message with an ongoing conversation, without requiring a message to be a response to a single specific previous message, but allowing update messages to existing conversations from both Sender and Receiver of the original message."
Target	Message Exchange conversation
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile: Two-Way/Push-and-Push MEP. • SMSH sends an AS4 User Message (M1) associated to a specific conversation through variable (element) CONVERSATIONIDM1 (set by the producer). • The consumer replies to the message M1.
Predicate	The RMSH sends back a User Message (M2) with element CONVERSATIONIDM2 equal to ConversationIdM1 (set by the consumer).
Prescription Level	Mandatory
Tag	Message Packaging, Correlation, Conversation ID
Variable	CONVERSATIONIDM1: XML element (M1) UserMessage/CollaborationInfo/ConversationId CONVERSATIONIDM2: XML element (M2) UserMessage/CollaborationInfo/ConversationId

AS4_TA02	
TA id	AS4_TA02
Normative source	[e-SENS] "A compliant product, acting as Sending MSH, must allow the Producer, when submitting a message, to: • set the value for ConversationId. This enables the Consumer to correlate the message to related messages that are part of the same conversation. • set the value for RefToMessageId, for business response messages in a Two WAY MEP. This allows the Consumer to determine to which previous AS4 request message the message is a response. Note that a shared value for ConversationId is not sufficient for correlating requests and responses as there may be more than one outstanding request in a single conversation."
Target	User Message exchange parameters
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile: Two-Way/Push-and-Push MEP. • SMSH sends an AS4 User Message (M1 with ID MessageId) that requires a consumer response to the RMSH. Additionally, the message is associated to a specific conversation through variable (element) CONVERSATIONIDM1 (set by the producer) • The consumer replies to the message M1.
Predicate	The RMSH sends back a User Message (M2) with element REFTOMESSAGEID set to MESSAGEID (of M1) and with element CONVERSATIONIDM2 equal to ConversationIdM1.
Prescription Level	Mandatory
Tag	User Message

Variable	REFTOMESSAGEID: XML element Messaging/UserMessage/MessageInfo/ RefToMessageId CONVERSATIONID: XML element Messaging/UserMessage /CollaborationInfo/ConversationId

AS4_TA03	
TA id	AS4_TA03
Normative source	[e-SENS] "As in the AS4 ebHandler profile, support for MessageProperties is required in this profile. It must be possible to set the type attribute for message properties" and "https://issues.oasis-open.org/browse/EBXMLMSG-2"
Target	User Message properties
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • SMSH is simulated to send an AS4 User message to the RMSH with parameter MESSAGEPROPERTIES containing: • A property with attributes "name" and "type" present. • A property with only attribute "name" present.
Predicate	The RMSH returns a non-repudiation receipt within a HTTP response with status code 2XX.
Prescription Level	Optional
Tag	User Message
Variable	MESSAGEPROPERTIES: XML element Messaging/UserMessage/MessageProperties with children nodes format <Property name="" type=""> </Property>

AS4_TA04	
TA id	AS4_TA04
Normative source	[e-SENS] "Section 5.1.1 of the ebMS3 Core Specification [EBMS3] requires implementations to process both non-multipart (simple SOAP) messages and multipart (SOAP-with-attachments) messages" and this is a requirement for the AS4 ebHandler Conformance Profile.
Target	AS4 Message format
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile: One-Way/Push MEP. • SMSH sends an AS4 message (User Message with payload) to the RMSH.
Predicate	The RMSH sends a non-repudiation receipt to the SMSH.
Prescription Level	Mandatory
Tag	Message format, Message packaging, SOAP-with-attachments
Variable	

AS4_TA05	
TA id	AS4_TA05
Normative source	[e-SENS] "Section 5.1.1 of the ebMS3 Core Specification [EBMS3] requires implementations to process both non-multipart (simple SOAP) messages and multipart (SOAP-with-attachments) messages"
Target	AS4 Message format
Prerequisite	• AS4_TA04
Predicate	The SMSH sends a success notification to the producer.
Prescription Level	Mandatory
Tag	Message format, simple SOAP
Variable	

AS4_TA06	
TA id	AS4_TA06
Normative source	[e-SENS] "Due to the mandatory use of the AS4 compression feature in this profile (see section 2.2.3.3), XML payloads MAY be converted to binary data"
Target	Payload compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Producer submits a Message with metadata information and XML payload to the SMSH.
Predicate	The SMSH generates an AS4 message with a gzip compressed payload.
Prescription Level	Mandatory
Tag	Payload, compression
Variable	

AS4_TA07	
TA id	AS4_TA07
Normative source	[e-SENS] "The PartInfo element in the message header that relates to the compressed message part, must have an Property element with @name ="CompressionType" … The content type of the compressed attachment must be "application/gzip""
Target	Payload compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Producer submits a Message with metadata information and payload to the SMSH.
Predicate	In the AS4 message generated by the SMSH, a property element with name "CompressionType" and value set to "application/gzip" is present.
Prescription Level	Mandatory
Tag	Payload, compression, compression Type
Variable	

AS4_TA08	
TA id	AS4_TA08
Normative source	[e-SENS] "Packaging requirements: •An PartInfo/PartProperties/Property/@name="MimeType" value is required to identify the MIME type of the payload before compression was applied."
Target	Payload compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Producer submits a message to the SMSH with payload (ex: xml document) and metadata information including a property element with name "MimeType" and value ("application/xml").
Predicate	The SMSH generates an AS4 message with the property "MimeType" present and set to the value specified by the producer ("application/xml").
Prescription Level	Mandatory
Tag	Payload, compression, Mime Type
Variable	

AS4_TA09	
TA id	AS4_TA09
Normative source	[e-SENS] "Packaging requirements: •An PartInfo/PartProperties/Property/@name="MimeType" value is required to identify the MIME type of the payload before compression was applied."
Target	Payload compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • The SMSH is simulated to send an AS4 message without property "MimeType" present to the RMSH.
Predicate	The RMSH sends a synchronous ebMS error response.
Prescription Level	Preferred
Tag	Payload, compression, Mime Type
Variable	

AS4_TA10	
TA id	AS4_TA10
Normative source	[e-SENS] "Packaging requirements: •For XML payloads, an PartInfo/PartProperties/Property/@name="CharacterSet" value is recommended to identify the character set of the payload before compression was applied. The value of this property MUST conform to the values defined in section 4.3.3 of [XML10]."
Target	Payload compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Producer submits a message to the SMSH with xml (UTF-16) payload and metadata information including payload characterset info.
Predicate	The SMSH generates an AS4 message with the property "CharacterSet" present and set to the value "UTF-16".
Prescription Level	Preferred
Tag	Payload, compression, Character Set
Variable	

AS4_TA11	
TA id	AS4_TA11
Normative source	[e-SENS] "Packaging requirements: •For XML payloads, an PartInfo/PartProperties/Property/@name="CharacterSet" value is recommended to identify the character set of the payload before compression was applied. The value of this property MUST conform to the values defined in section 4.3.3 of [XML10]."
Target	Payload compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Producer submits a message to the SMSH with xml (UTF-8) payload and metadata information including payload characterset info.
Predicate	The SMSH generates an AS4 message with the property "CharacterSet" present and set to the value "UTF-8".
Prescription Level	Preferred
Tag	Payload, compression, Character Set
Variable	

AS4_TA12	
TA id	AS4_TA12 Note: Not testable (might become valid after the requirements EBXMLMSG-87 and EBXMLMSG-88 are validated).
Normative source	[e-SENS] "Packaging requirements: •For XML payloads, an PartInfo/PartProperties/Property/@name="CharacterSet" value is recommended to identify the character set of the payload before compression was applied. The value of this property MUST conform to the values defined in section 4.3.3 of [XML10]." And "https://issues.oasis-open.org/browse/EBXMLMSG-87" And "https://issues.oasis-open.org/browse/EBXMLMSG-88"
Target	Payload compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • SMSH is simulated to send an AS4 message with property element "CharacterSet" set to value not conform to section 4.3.3 of [XML10] (example: "!utf*"). • The SMSH sends the AS4 message to the RMSH.
Predicate	The RMSH returns a synchronous ebMS error message.
Prescription Level	Preferred
Tag	Payload, compression, Character Set
Variable	

AS4_TA13	
TA id	AS4_TA13
Normative source	[e-SENS] "In case of error during decompression, the following error MUST be used: Code = EBMS:0303, Short Description = DecompressionFailure, Severity = Failure, Category = Communication. " "Error Handling For the error handling this profile specifies that errors must be reported and transmitted synchronously to the Sender and should be reported to the Consumer. •The parameter PMode[1].ErrorHandling.Report.AsResponse must be set to the value true."
Target	Message compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • SMSH is simulated to send an AS4 User Message with compressed but damaged payloads. • The SMSH sends the AS4 User Message to the RMSH.
Predicate	The RMSH sends back a synchronous error response with error code "Code = EBMS:0303, Short Description = DecompressionFailure, Severity = Failure, Category = Communication".
Prescription Level	Mandatory
Tag	Payload Compression, error handling
Variable	

AS4_TA14	
TA id	AS4_TA14
Normative source	[e-SENS] "In case of error during decompression, the following error MUST be used: Code = EBMS:0303, Short Description = DecompressionFailure, Severity = Failure, Category = Communication. " "Error Handling For the error handling this profile specifies that errors must be reported and transmitted synchronously to the Sender and should be reported to the Consumer. •The parameter PMode[1].ErrorHandling.Report.AsResponse must be set to the value true. •The parameter PMode[1].ErrorHandling.Report.ProcessErrorNotifyConsumer should be set to the value true. "
Target	Message compression
Prerequisite	• AS4_TA13. • The User Message is bound to a PMode with parameter PMode[1].ErrorHandling.Report.ProcessErrorNotifyConsumer: set to true.
Predicate	The RMSH sends back a synchronous error response (with error code "Code = EBMS:0303, Short Description = DecompressionFailure, Severity = Failure, Category = Communication") and the RMSH sends an error notification to the consumer of the message.
Prescription Level	Preferred
Tag	Payload Compression error
Variable	

AS4_TA15	
TA id	AS4_TA15
Normative source	[e-SENS] "The receiving AS4 MSH must decompress any payload part(s) compressed by the SMSH before delivering the message."
Target	Payload reception
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • SMSH sends an AS4 User Message with a compressed payload to the RMSH.
Predicate	The RMSH delivers the message with decompressed payload to the consumer.
Prescription Level	Mandatory
Tag	Payload delivery
Variable	

AS4_TA16	
TA id	AS4_TA16
Normative source	[e-SENS] "The receiving AS4 MSH must decompress any payload part(s) compressed by the SMSH before delivering the message."
Target	Payload reception
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • SMSH sends an AS4 User Message with a several compressed payloads (XML and non XML) to the RMSH.
Predicate	The RMSH delivers the message with decompressed payloads to the consumer.
Prescription Level	Mandatory
Tag	Payload delivery
Variable	

AS4_TA17	
TA id	AS4_TA17
Normative source	[e-SENS] "When compression, signature and/or encryption are required, any attached payload(s) must be compressed prior to being signed and/or encrypted."
Target	Payload compression
Prerequisite	• eSENS_TA13. • The SMSH is simulated to send an AS4 User message with a compressed then signed payload to the RMSH.
Predicate	The RMSH sends back an AS4 non-repudiation receipt.
Prescription Level	Mandatory
Tag	Signature/Compression
Variable	

AS4_TA18	
TA id	AS4_TA18
Normative source	[e-SENS] "When compression, signature and/or encryption are required, any attached payload(s) must be compressed prior to being signed and/or encrypted."
Target	Message level security
Prerequisite	• eSENS_TA13 • Simulated SMSH sends a signed AS4 User Message with a signed then compressed payload to the RMSH.
Predicate	The SMSH receives a WS-Security SOAP Fault.
Prescription Level	Mandatory
Tag	Encryption/Signing Compression
Variable	

AS4_TA19	
TA id	AS4_TA19
Normative source	[e-SENS] "When compression, signature and/or encryption are required, any attached payload(s) must be compressed prior to being signed and/or encrypted."
Target	Payload encryption
Prerequisite	• eSENS_TA14. • The SMSH is simulated to send a compressed then encrypted AS4 message to the RMSH.
Predicate	The RMSH sends back an AS4 non-repudiation receipt.
Prescription Level	Mandatory
Tag	encryption/Compression
Variable	

AS4_TA20	
TA id	AS4_TA20
Normative source	[e-SENS] "When compression, signature and/or encryption are required, any attached payload(s) must be compressed prior to being signed and/or encrypted."
Target	Message level security
Prerequisite	• eSENS_TA14 • Simulated SMSH sends a signed AS4 User Message with an encrypted first, then compressed payload to the RMSH.
Predicate	The SMSH receives a WS-Security SOAP Fault.
Prescription Level	Mandatory
Tag	Encryption/Signing Compression
Variable	

AS4_TA21	
TA id	AS4_TA21
Normative source	[e-SENS] "When compression, signature and/or encryption are required, any attached payload(s) must be compressed prior to being signed and/or encrypted."
Target	Payload signature/encryption/compression
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • The SMSH sends an AS4 message with a compressed then encrypted and signed payload to the RMSH.
Predicate	The RMSH sends back an AS4 non-repudiation receipt.
Prescription Level	Mandatory
Tag	Signature/encryption/compression
Variable	

AS4_TA22	
TA id	AS4_TA22 Note: This test assertion is only valid in case TLS is handled by the AS4 message handler.
Normative source	[e-SENS] "•It must be possible to configure the accepted TLS version(s) in the AS4 message handler. •It must be possible to configure accepted TLS cipher suites in the AS4 message handler."
Target	Transport Layer security
Prerequisite	
Predicate	Parameters to configure TLS version and cipher suites exist.
Prescription Level	Mandatory
Tag	TLS
Variable	

AS4_TA23	
TA id	AS4_TA23 Note: This test assertion is only valid in case TLS is handled by the AS4 message handler.
Normative source	[e-SENS] "The ENISA and BSI reports state that TLS 1.0 and TLS 1.1 should not be used in new applications. Older version such as SSL 2.0 [RFC6176] and SSL 3.0 must not be used. Products compliant with this profile should therefore support TLS 1.2 [RFC5246]."
Target	Transport Layer security
Prerequisite	• AS4_TA23 • RMSH is configured with TLS version 1.2 • SMSH is configured with TLS1.0 or TLS1.1 version • SMSH tries to submit an AS4 message to the RMSH.
Predicate	Connection is not established between the SMSH and the RMSH.
Prescription Level	Preferred
Tag	TLS
Variable	

AS4_TA24	
TA id	AS4_TA24 *Note:* *This test assertion is only valid in case TLS is handled by the AS4 message handler.*
Normative source	[e-SENS] "The ENISA and BSI reports state that TLS 1.0 and TLS 1.1 should not be used in new applications. Older version such as SSL 2.0 [RFC6176] and SSL 3.0 must not be used. Products compliant with this profile should therefore support TLS 1.2 [RFC5246]."
Target	Transport Layer security
Prerequisite	• AS4_TA22 • RMSH is configured with TLS version 1.2 • SMSH is configured with SSL2.0 or SSL3.0 version • SMSH tries to submit an AS4 message to the RMSH.
Predicate	Connection is not established between the SMSH and the RMSH.
Prescription Level	Mandatory
Tag	TLS, Error
Variable	

AS4_TA25	
TA id	AS4_TA25 Note: This test assertion is only valid in case TLS is handled by the AS4 message handler.
Normative source	[e-SENS] "•IANA publishes a list of TLS cipher suites [TLSSP], only a subset of which the ENISA Report considers future-proof (see [ENISAAKSP], section 5.1.2). Products must support cipher suites included in this subset. Vendors must add support for newer, safer cipher suites, as and when such suites are published by IANA/IETF. •Support for SSL 3.0 and for cipher suites that are not currently considered secure should be disabled by default. •Perfect Forward Secrecy, which is required in [BSITLS], is supported by the TLS_ECDHE_* and TLS_DHE_* cipher suites, which are therefore preferred and should be supported."
Target	Transport Layer security
Prerequisite	• AS4_TA22 • RMSH is configured with TLS version 1.2 and list_accepted_cipher_ suites. • SMSH is configured with TLS 1.2 and cipher_suites not in list_accepted_cipher_ suites. • SMSH submits an AS4 message to the RMSH.
Predicate	Connection is not established between the SMSH and the RMSH.
Prescription Level	Mandatory
Tag	TLS
Variable	list_accepted_cipher_ suites: subset of list of TLS cipher suites [TLSSP] and TLS_ECDHE_* and TLS_DHE_* cipher suites

AS4_TA26	
TA id	AS4_TA26
Normative source	[e-SENS] "•IANA publishes a list of TLS cipher suites [TLSSP], only a subset of which the ENISA Report considers future-proof (see [ENISAAKSP], section 5.1.2). Products must support cipher suites included in this subset. Vendors must add support for newer, safer cipher suites, as and when such suites are published by IANA/IETF. •Support for SSL 3.0 and for cipher suites that are not currently considered secure should be disabled by default. •Perfect Forward Secrecy, which is required in [BSITLS], is supported by the TLS_ECDHE_* and TLS_DHE_* cipher suites, which are therefore preferred and should be supported."
Target	Transport Layer security
Prerequisite	• AS4_TA22 • RMSH is configured with TLS version 1.2 and list_accepted_cipher_ suites. • SMSH is configured with TLS version 1.2 and cipher_suites in list_accepted_cipher_ suites. • SMSH submits an AS4 message to the RMSH.
Predicate	The RMSH returns an HTTP response code 2XX.
Prescription Level	Mandatory
Tag	TLS
Variable	list_accepted_cipher_ suites: subset of list of TLS cipher suites [TLSSP] and TLS_ECDHE_* and TLS_DHE_* cipher suites

AS4_TA27	
TA id	AS4_TA27
Normative source	[e-SENS] "From/PartyId and To/PartyId shall therefore in this case address the identifiers of gateways. This is consistent with current practice for ebMS3 in e-CODEX and with the PEPPOL AS2 profile"
Target	Messaging Reliability
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • SMSH sends an AS4 User message to the RMSH.
Predicate	In the message sender|receiver elements reference the MSHs and not the (producer,consumer).
Prescription Level	Mandatory
Tag	Adressing
Variable	sender|receiver: UserMessage/PartyInfo/{From|to}/PartyId elements

AS4_TA28	
TA id	AS4_TA28 Note: This test assertion is valid (and then mandatory) only in case SBDH is used.
Normative source	[e-SENS] "An option for e-SENS is to use UN/CEFACT Standard Business Document Header [SBDH] that allows end entities to encode information on business process, business transaction, agreement, and business quality-of-service. The SBDH is widely adopted in e-business communities like GS1 […] for e-SENS should be used a Manifest block for sending non-XML documents or files. […]When sending non-XML documents the SBDH and the payload have to be in separate MIME parts(see the figure above) because they have different content types: SBDH is XML and the payload non-XML."
Target	SBDH
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • Producer submits two payloads, first being an SBDH document, second being an actual payload (non-XML payload). • SMSH sends an AS4 User Message to the RMSH.
Predicate	Message has two additional MIME parts. The first mime part is the SBDH document and the second is the actual payload
Prescription Level	Mandatory
Tag	Message Packaging
Variable	SDBH: information on end point IDs, business process, business transaction, agreement and business quality.

AS4_TA29	
TA id	AS4_TA29
Normative source	"https://issues.oasis-open.org/browse/EBXMLMSG-2"
Target	User Message properties
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the e-SENS profile (One-Way/Push MEP). • SMSH is simulated to send an AS4 User message to the RMSH with parameter PARTPROPERTIES containing: • A property with attributes "name" and "type" present. • A property with only attribute "name" present.
Predicate	The RMSH returns a non-repudiation receipt within a HTTP response with status code 2XX.
Prescription Level	Optional
Tag	User Message
Variable	PARTPROPERTIES: XML element Messaging/UserMessage/PayloadInfo/PartInfo/PartProperties with children nodes format <Property name="" type=""> </Property>

4. CONTACT INFORMATION

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