



OASIS ebXML Messaging Transport Binding for Digital Signature Services Version 1.0

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Related work:

This specification is related to:

- OASIS Digital Signature Service Core Protocols, Elements and Bindings. Version 1.0.
- OASIS ebXML Messaging Services version 2.0
- OASIS ebXML Messaging Services version 3.0

Abstract:

Mappings from DSS messages into standard communication protocols are called DSS *bindings*. A *transport binding* specifies how DSS messages are encoded and carried using a transport protocol. The DSS Core standard [**DSS Core**] specifies two transport bindings. This document specifies an alternative transport binding that uses the OASIS ebXML Messaging Service. This profile supports is compatible with both the version 2.0 [**ebMS 2.0**] and version 3.0 [**ebMS 3.0**] ebXML Messaging OASIS standards.

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1 Introduction

Mappings from Digital Signature Services (DSS) messages into standard communication protocols are called *DSS bindings*. A *transport binding* specifies how DSS messages are encoded and carried using a transport protocol. The DSS 1.0 Core standard **[DSS Core]** specifies two transport bindings. This document specifies an alternative transport binding that uses the OASIS ebXML Messaging Service. This profile supports either version 2.0 **[ebMS 2.0]** or version 3.0 **[ebMS 3.0]**.

1.1 Benefits and intended use

The benefits of a DSS transport binding for ebXML Messaging include the following:

- An application area for DSS is to sign electronic business documents, such as electronic invoices and order documents. The ebXML Messaging service is designed to support electronic business. This profile allows user communities that use ebXML messaging to exchange electronic business documents to use the same message transport protocol to interface with DSS service providers.
- ebXML Messaging supports asynchronous messaging, using elements in the ebXML business document header to correlate requests and asynchronous responses. It therefore naturally supports use cases of DSS that require, or benefit from, an asynchronous messaging capability, where a signature may not be returned until hours after it was requested.
- ebXML Messaging includes functionality for reliable messaging. It therefore provides a more robust message channel between DSS clients and servers, which facilitates the use of DSS in automated workflows.

1.2 Scope

There are currently two versions of the ebXML Message Service specification, which are very similar from a user functionality perspective but are not interoperable. For the purpose of this profile, the differences between these two versions are unimportant as the relevant ebXML message header elements affected by this profile have similar syntax and identical semantics. This profile therefore defines how to use either version 2.0 **[ebMS 2.0]** or version 3.0 **[ebMS 3.0]** of the ebXML Messaging Service as transport protocol for DSS messages.

Unlike other DSS profiles that constrain or extend the DSS XML messages to support particular uses of DSS, this profile is limited to being a transport binding. It does not constrain or extend the use of DSS itself. It is therefore compatible, and can be used in conjunction with, other profiles that are defined for particular business uses of DSS.

1.3 Terminology

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 **[RFC 2119]**.

1.4 Namespaces

The following table lists the namespaces referenced in this specification.

Prefix	Namespace	Specification(s)
cpa2	http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd	[ebCPA 2.0]

dss	urn:oasis:names:tc:dss:1.0:core:schema	[DSS Core]
eb2	http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd	[ebMS 2.0]
eb3	http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/	[ebMS 3.0]
s11	http://schemas.xmlsoap.org/soap/envelope/	[SOAP 1.1]
s12	http://www.w3.org/2003/05/soap-envelope	[SOAP 1.2]

In the context of this profile, the differences between version 2.0 and version 3.0 of ebXML Messaging are limited. The generic prefix *eb* will be used to refer to either version in situations where elements are used that have the same syntax and semantics in both versions:

Prefix	Namespace	Specification(s)
eb	http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd or http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/	[ebMS 2.0] or [ebMS 3.0]

1.5 Normative References

- [DSS Core]** S. Drees et al., *Digital Signature Service Core Protocols, Elements and Bindings*. Version 1.0. <http://docs.oasis-open.org/dss/v1.0/oasis-dss-core-spec-v1.0-os.pdf>. OASIS Standard, 11 April 2007.
- [ebMS 2.0]** OASIS *ebXML Messaging Services*. Version 2.0. http://www.oasis-open.org/committees/ebxml-msg/documents/ebMS_v2_0.pdf. OASIS Standard, 1 April 2002.
- [ebMS 3.0]** P. Wenzel et al., *OASIS ebXML Messaging Services v3.0: Part 1, Core Features*. http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/core/os/ebms_core-3.0-spec-os.pdf. OASIS Standard, 1 October 2007.
- [RFC 2119]** S. Bradner, *Key words for use in RFCs to Indicate Requirement Levels*, <http://www.ietf.org/rfc/rfc2119.txt>, IETF RFC 2119, March 1997.
- [RFC 2246]** T Dierks, C. Allen., *The TLS Protocol Version 1.0*. <http://www.ietf.org/rfc/rfc2246.txt>. IETF RFC 2246, January 1999.
- [RFC 2822]** P. Resnick, *Internet Message Format*. <http://www.ietf.org/rfc/rfc2822.txt>. IETF RFC 2822, April 2001.
- [SOAP 1.1]** D. Box et al., *Simple Object Access Protocol (SOAP) 1.1*. <http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>. W3C Note, 08 May 2000.
- [SOAP 1.2]** M. Gudgin et al., *SOAP Version 1.2 Part 1: Messaging*. <http://www.w3.org/TR/2003/REC-soap12-part1-20030624/>. W3C Recommendation, 24 June 2003.
- [SOAPATTACH]** J. Barton et al., *SOAP Messages with Attachments*. <http://www.w3.org/TR/2000/NOTE-SOAP-attachments-20001211>. W3C Note, 11 December 2000.

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69 1.6 Non-Normative References

- 70 [ebCPA 2.0] *ebXML Collaboration-Protocol Profile and Agreement*. Version 2.0.
71 <http://www.oasis-open.org/committees/ebxml-cppa/documents/ebcpp-2.0.pdf>.
72 OASIS Standard, 23 September 2002.
- 73 [RFC 4346] T Dierks, C. Allen., *The Transport Layer Security (TLS) Protocol Version 1.1*.
74 <http://www.ietf.org/rfc/rfc4346.txt>. IETF RFC 4346, April 2006.
- 75 [SOAP 1.2(2nd)] M. Gudgin et al., *SOAP Version 1.2 Part 1: Messaging Framework (Second*
76 *Edition)*.
77 <http://www.w3.org/TR/2007/REC-soap12-part1-20070427/>. W3C
78 Recommendation, 27 April 2007.
79
80

2 Exchanging DSS Messages using the ebXML Messaging Service

This profile specifies how the ebXML messaging service can be used to transport DSS messages. Section 2.1 defines DSS message exchanges and describes how these map to ebXML message exchanges. The profile constrains the use of various elements in the ebXML message header (section 2.2) and defines how DSS XML messages and documents that are transmitted along with these messages are packaged into ebXML messages (section 2.3).

2.1 DSS message exchanges

The DSS protocol defines two two-way message exchanges involving four DSS XML messages.

- A signature *generation* message exchange. A DSS client can send a message to invoke a `SignRequest` action on a DSS server. The DSS server responds by returning a `SignResponse` DSS response message.
- A signature *verification* message exchange. A DSS client can send a message to invoke a `VerifyRequest` action on a DSS server. The DSS server responds by returning a `VerifyResponse` DSS response message.

Depending on bilaterally agreed bindings, this profile allows these message exchanges to be executed either as a single synchronous ebXML SOAP request-response interaction, or asynchronously as two separate ebXML SOAP one way messages.

2.1.1 Element <MessageId> and <RefToMessageId>

The elements `<eb:MessageId>` and `<eb:RefToMessageId>` in the ebXML header are used to correlate ebXML request and response message. In an ebXML message containing a DSS response document, the value of `<eb:RefToMessageId>` MUST be set to the value of the `<eb:MessageId>` element of the ebXML message that contained the corresponding DSS request document.

At the level of DSS XML messages, correlation of DSS requests and response can be expressed by using the optional attribute `@RequestID` on the `<dss:SignRequest>`, `<dss:SignResponse>`, `<dss:VerifyRequest>` and `<dss:VerifyResponse>` XML elements. If this attribute is set on a `<dss:SignRequest>` or a `<dss:VerifyRequest>` DSS message, the DSS server MUST return it in the response `<dss:SignResponse>` or `<dss:VerifyResponse>` DSS documents, respectively.

If a DSS server receives an ebXML message containing a DSS request and subsequently sends back an ebXML message containing a DSS response, and if both DSS messages have the `@RequestID` set, then the value of these attributes MUST be the same and the value of the ebXML element `<eb:RefToMessageId>` in the ebXML response message MUST be identical to the value of the element `<eb:MessageId>` in the ebXML request message. The actual value of the `@RequestID` attribute in a DSS XML request document does not have to be the same as the value of the `<eb:MessageId>` element. The type of the `@RequestID` attribute is `xs:string`, whereas the value of the `<eb:MessageId>` element MUST match the *msg-id* production defined in [RFC 2822] and therefore MUST contain the "@" character.

2.1.2 Element <ConversationId>

The element `<eb:ConversationId>` in the ebXML business document header identifies the (possibly long-running) conversation that a particular message takes part in. Conversations may span multiple one way or two way ebXML message exchanges. The value of `<eb:ConversationId>` in a sign request message and in the corresponding sign response message MUST be the same. Similarly, the value of

123 <eb:ConversationId> in a verify request and corresponding verify response message MUST also be
124 the same.

125 2.2 Other Header Elements

126 The ebXML messaging service provides a general purpose business document header that contains
127 ebXML extension elements. This profile constrains the values for some of these values.

128 2.2.1 Service

129 The value of the ebXML <eb:Service> element MUST have the fixed value
130 urn:oasis:names:tc:dss:1.0.

131 2.2.2 Action

132 The value of the ebXML <eb:Action> element MUST have one of the following four fixed values:

- 133 – SignRequest
- 134 – SignResponse
- 135 – VerifyRequest
- 136 – VerifyResponse

137 Each of these values corresponds to the four DSS message types. An ebXML message conforming to
138 this profile MUST have the value SignRequest (or SignResponse, VerifyRequest,
139 VerifyResponse, respectively) for the <eb:Action> ebXML header element if, and only if, the
140 business document transmitted using the message is a valid DSS XML document that has the root
141 element <dss:SignRequest> (or <dss:SignResponse>, <dss:VerifyRequest>,
142 <dss:VerifyResponse>, respectively).

143 2.2.3 Role

144 The value of the ebXML <eb:Role> element MUST have one of the following values:

- 145 – DSSClient for the DSS client partner
- 146 – DSSServer for the DSS server partner

147 2.3 Packaging

148 The ebXML message service is based on SOAP and MIME enveloping and provides a number of ebXML
149 extension elements. The packaging differs due to the differences in message structure in versions 2.0
150 and 3.0 of ebXML Messaging.

151 DSS Core **[DSS Core]** itself also provides mechanisms to either include business documents in the DSS
152 XML structure or reference business documents in a MIME structure. The following example shows a
153 <dss:Document> element containing a PDF business document included in the DSS XML in base64
154 encoded form. The structure then has a format like:

```
155 <dss:Document ID="doc1">  
156   <dss:Base64Data MimeType="application/pdf"> ... </dss:Base64Data>  
157 </dss:Document>
```

158 Alternatively, DSS also allows documents to be transported in attachments and referenced from a
159 <dss:AttachmentReference> element, which is similar to the ebXML extension elements
160 <eb2:Manifest> and <eb3:PayloadInfo>.

161 2.3.1 Packaging in ebXML Messaging version 2.0

162 Version 2.0 of ebXML Messaging **[ebMS 2.0]** is based on SOAP 1.1 **[SOAP 1.1]** and provides extension
163 elements from the eb2: namespace to both the SOAP header and SOAP body. Version 2.0 is also based

on the SOAP with attachments specification **[SOAPATTACH]**. The SOAP 1.1 envelope, including ebXML version 2.0 extension elements, is transported as the first part of a MIME envelope. Any business documents transported in a version 2.0 ebXML message are not contained in the SOAP envelope, but rather included in separate MIME parts. These documents are referenced from the SOAP envelope using an ebXML <eb2:Manifest> extension element. A version 2.0 ebXML message that carries n business documents therefore always consists of $n+1$ MIME parts. This is shown in Figure 1 ebXML Messaging version 2 message structure, from **[ebMS 2.0]**.

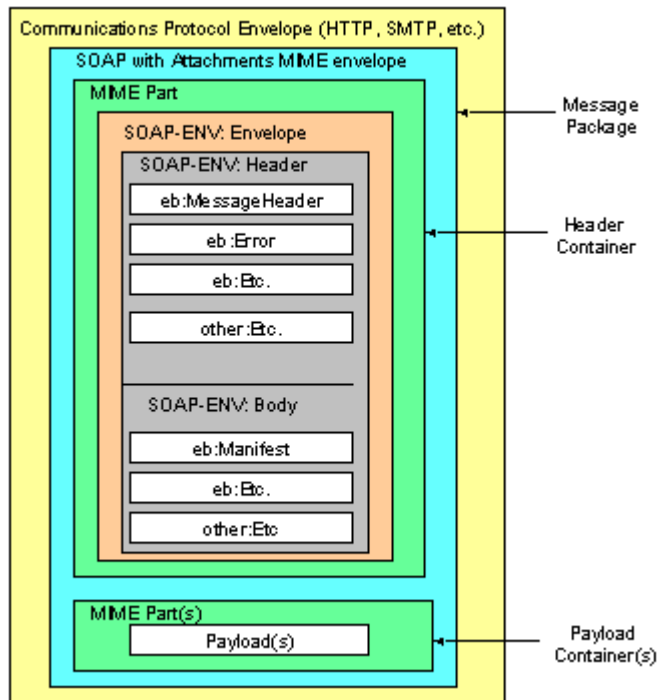


Figure 1 ebXML Messaging version 2 message structure

When a DSS message is transported with version 2.0 of ebXML messaging, the message MIME envelope MUST contain at least two MIME parts: a first part containing a SOAP 1.1 envelope including ebXML version 2.0 extension elements and a second part containing a DSS XML document. If the document(s) referenced from the DSS message are not included in the DSS XML document, they are packaged in a third or subsequent MIME part. The following diagram illustrates this enveloping. It contains an attached PDF document which is referenced from a DSS XML document, which itself is referenced from the ebXML manifest.

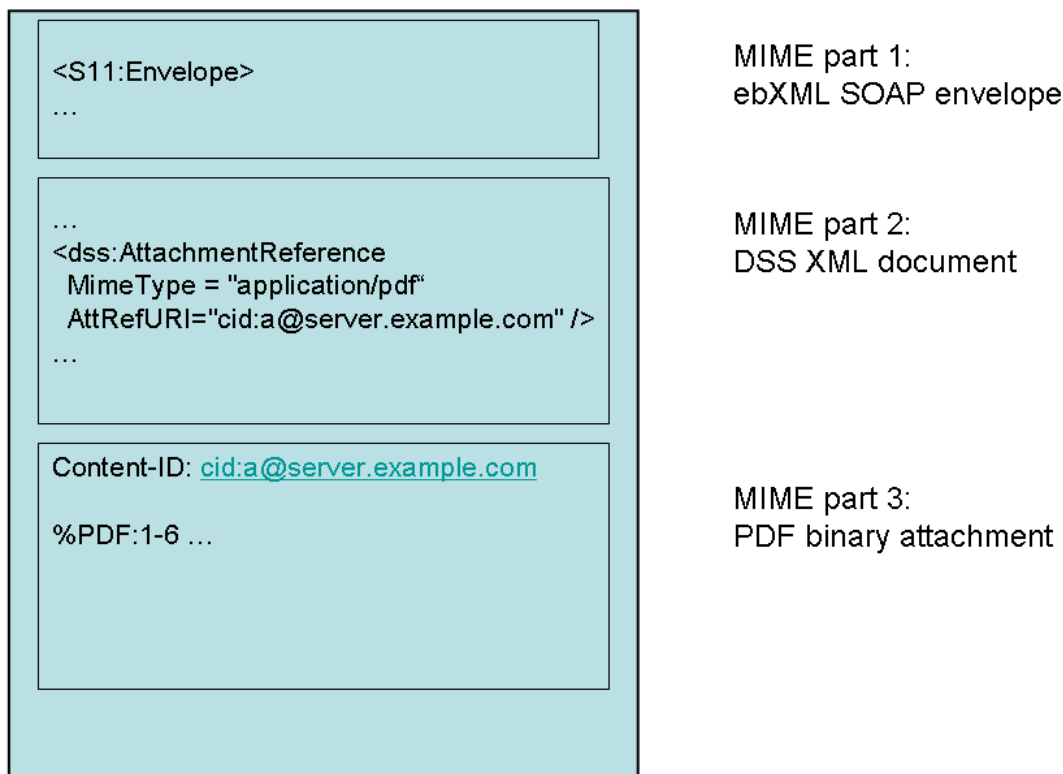


Figure 2 ebXML message containing a DSS XML document and a PDF document

2.3.2 Packaging in ebXML Messaging version 3.0

Version 3.0 of ebXML messaging can use either SOAP 1.1 [SOAP 1.1] or SOAP 1.2 [SOAP 1.2]. It provides a number of elements from the eb3: namespace included in an <eb3:Messaging> structure, included in the SOAP header. Any business documents transported in a version 3.0 ebXML message can be contained in the SOAP body, or contained in separate MIME parts, when using SOAP with attachments. These business documents are referenced from the SOAP envelope using an ebXML <eb3:PayloadInfo> extension element structure that has a similar function to the <eb2:Manifest> element. The use of SOAP with attachments is optional with version 3.0 of ebXML Messaging, and only needed in situations when the business document is not contained in the SOAP body. This is shown in Figure 3 ebXML Messaging version 3.0 message structure, from [ebMS 3.0].

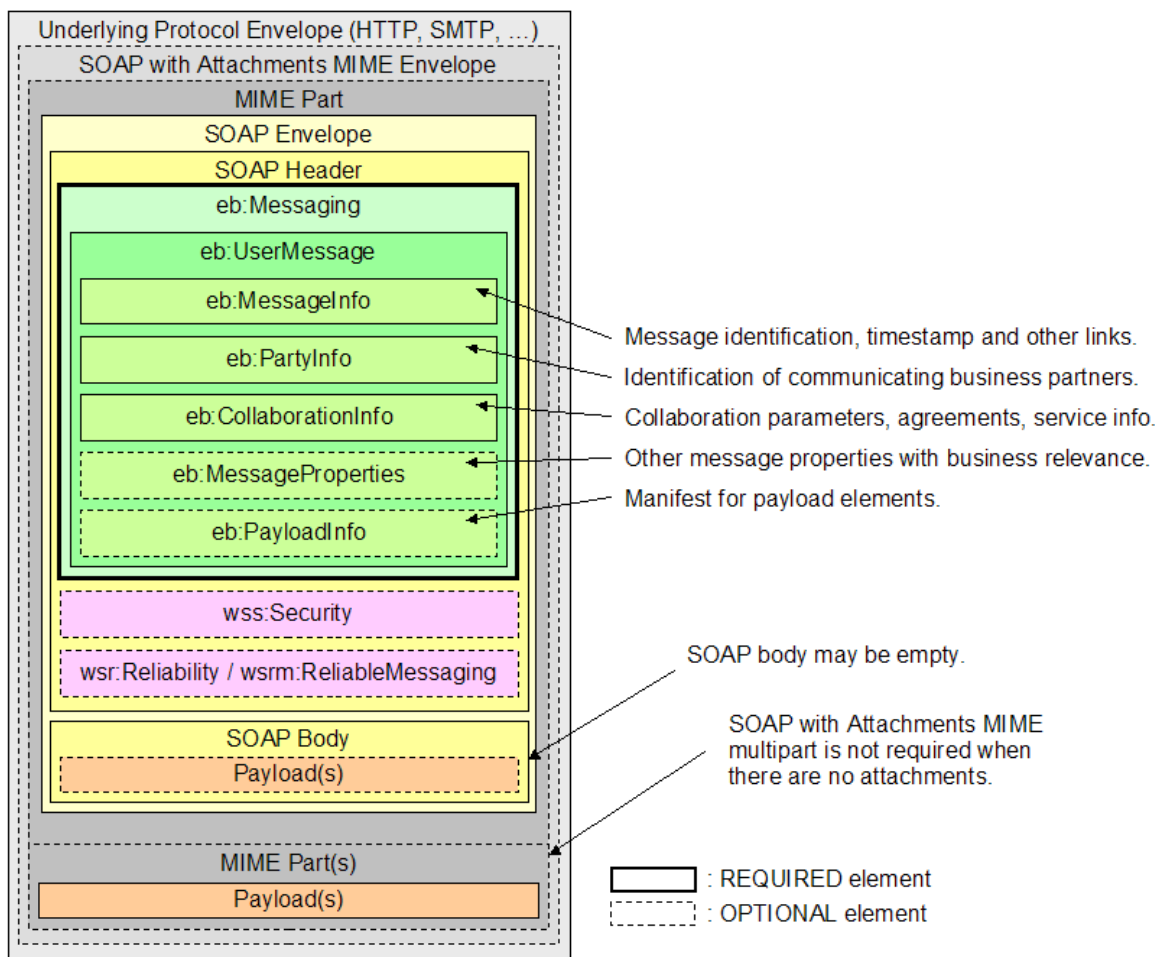


Figure 3 ebXML Messaging version 3.0 message structure

When a DSS message is transported with version 3.0 of ebXML messaging, it can be included as the second MIME part as in version 2.0. An alternative packaging option is for the DSS XML document to be included in the SOAP body. If any documents referenced from the DSS document are base64 included in the DSS XML structure, there is no need to use a SOAP with attachments MIME envelope as all data can be included in the SOAP envelope.

3 Security Binding

This profile is based on the security bindings defined in section 6 of the DSS Core specification **[DSS Core]**. Specifically, the ebXML message exchange between the DSS client and DSS server **SHOULD** use TLS 1.0 **[RFC 2246]** to provide message confidentiality, integrity and authentication.

Note: Although at the time of writing this profile TLS 1.0 is an obsoleted standard, which is superseded by TLS 1.1 **[RFC 4346]**, it is still used as normative reference to keep it aligned with the DSS Core specification **[DSS Core]**.

The DSS Core protocol defines a mechanism to carry data authenticating the claimed identity of the entity on whose behalf the DSS services are invoked, such as the use of SAML tokens. The use of such additional security mechanisms is out of the scope for this transport binding profile, but may be required by profiles that use this transport binding for particular DSS applications.

4 Conformance

Any implementation of this profile is not conformant with this specification if it fails to satisfy one or more of the MUST or REQUIRED level requirements defined in this specification.

An implementation of this profile provides DSS client functionality, DSS server functionality, or both DSS client and DSS server functionality.

An implementation of this profile provides support for either version 2.0 or 3.0 of the OASIS ebXML Messaging Service specification, or supports both.

Any implementation of this profile SHOULD support the DSS security binding described in section 3.

4.1 Conformance as a DSS Client using ebMS 2.0

An implementation of this profile conforms to this profile as a *DSS Client using ebMS 2.0* if it meets the following requirements:

- Supports sending of `SignRequest` signature generation request messages and `VerifyRequest` signature verification request messages with syntax and semantics defined in section 2 of this specification.
- Supports receiving of `SignResponse` signature generation response messages and `VerifyResponse` signature verification response message with syntax and semantics defined in section 2 of this specification.
- Supports version 2.0 of the ebXML Messaging Service version 2.0 OASIS Standard [ebMS 2.0].

4.2 Conformance as a DSS Server using ebMS 2.0

An implementation of this profile conforms to this profile as a *DSS Server using ebMS 2.0* if it meets the following requirements:

- Supports receiving of `SignRequest` signature generation messages and `VerifyRequest` signature verification messages with syntax and semantics defined in section 2 of this specification.
- Supports sending of `SignResponse` signature generation messages and `VerifyResponse` signature verification messages with syntax and semantics defined in section 2 of this specification.
- Supports version 2.0 of the ebXML Messaging Service version 2.0 OASIS Standard [ebMS 2.0].

4.3 Conformance as a DSS Client using ebMS 3.0

The conformance requirements for a *DSS Client using ebMS 3.0* are the same as for a *DSS Client using ebMS 2.0*, except that it support version 3.0 of the ebXML Messaging Service version 3.0 OASIS Standard [ebMS 3.0] instead of version 2.0 [ebMS 2.0].

4.4 Conformance as a DSS Server using ebMS 3.0

The conformance requirements for a *DSS Server using ebMS 3.0* are the same as for a *DSS Server using ebMS 2.0*, except that it support version 3.0 of the ebXML Messaging Service version 3.0 OASIS Standard [ebMS 3.0] instead of version 2.0 [ebMS 2.0].

A. Sample ebXML Messaging 2.0 SOAP envelopes

This non-normative appendix contains sample SOAP envelopes with version 2.0 ebXML extension elements that reference a DSS <SignRequest> message (section A.1) and the response ebXML message containing the DSS <SignResponse> message (section A.2). The enveloping MIME structures and the DSS messages are omitted.

A.1 Sample SOAP envelope for DSS SignRequest message

```
<?xml version="1.0" encoding="UTF-8"?>
<s11:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://schemas.xmlsoap.org/soap/envelope/
http://www.oasis-open.org/committees/ebxml-msg/schema/envelope.xsd">
  <s11:Header xmlns:eb2="http://www.oasis-open.org/committees/ebxml-
msg/schema/msg-header-2_0.xsd"
    xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-
msg/schema/msg-header-2_0.xsd
http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd">
    <eb2:MessageHeader eb2:id="ID18890041183727249323localhost"
eb2:version="2.0"
      s11:mustUnderstand="1">
      <eb2:From>
        <eb2:PartyId eb2:type="urn:oasis:names:tc:ebxml-cppa:partyid-
type:0088">1234567890123</eb2:PartyId>
        <eb2:Role>DSSClient</eb2:Role>
      </eb2:From>
      <eb2:To>
        <eb2:PartyId eb2:type="urn:oasis:names:tc:ebxml-cppa:partyid-
type:0088">3210987654321</eb2:PartyId>
        <eb2:Role>DSSServer</eb2:Role>
      </eb2:To>
      <eb2:CPAId>CPAID_3210987654321_1234567890123_0001</eb2:CPAId>
      <eb2:ConversationId>89612fb6-08ba-49c6-aff2-
8ddf81988495</eb2:ConversationId>
      <eb2:Service>urn:oasis:names:tc:dss:1.0</eb2:Service>
      <eb2:Action>SignRequest</eb2:Action>
      <eb2:MessageData>
        <eb2:MessageId>d8afbc35-2bc1-11dc-8605-
000c29eb4f66@localhost.localdomain</eb2:MessageId>
        <eb2:Timestamp>2007-07-06T13:07:29.314Z</eb2:Timestamp>
      </eb2:MessageData>
      <eb2:DuplicateElimination/>
    </eb2:MessageHeader>
    <eb2:AckRequested eb2:id="ID137206991183727249317localhost"
eb2:signed="false" eb2:version="2.0"
      s11:actor="urn:oasis:names:tc:ebxml-msg:actor:toPartyMSH"
    </s11:Header>
    <s11:Body xmlns:eb="http://www.oasis-open.org/committees/ebxml-msg/schema/msg-
header-2_0.xsd"
      xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-
msg/schema/msg-header-2_0.xsd http://www.oasis-open.org/committees/ebxml-
msg/schema/msg-header-2_0.xsd">
      <eb2:Manifest eb2:id="ID59975701183727249325localhost" eb2:version="2.0">
        <eb2:Reference eb2:id="ID177805471183727249323localhost"
          xlink:href="cid:A1183727249322.85513@localhost_cn"
          xlink:type="simple"/>
      </eb2:Manifest>
```

```
304     </s11:Body>
305 </s11:Envelope>
```

306 A.2 Sample SOAP envelope for DSS SignResponse message

```
307 <?xml version="1.0" encoding="UTF-8"?>
308 <s11:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
309   xmlns:xlink="http://www.w3.org/1999/xlink"
310   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
311   xsi:schemaLocation="http://schemas.xmlsoap.org/soap/envelope/
312     http://www.oasis-open.org/committees/ebxml-msg/schema/envelope.xsd">
313   <s11:Header xmlns:eb="http://www.oasis-open.org/committees/ebxml-
314     msg/schema/msg-header-2_0.xsd"
315     xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-
316     msg/schema/msg-header-2_0.xsd
317       http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd">
318     <eb2:MessageHeader eb2:id="ID283962961183731565500Vega" eb2:version="2.0"
319       s11:mustUnderstand="1">
320       <eb2:From>
321         <eb2:PartyId eb2:type="urn:oasis:names:tc:ebxml-cppa:partyid-
322         type:0088">3210987654321</eb2:PartyId>
323         <eb2:Role>DSSServer</eb2:Role>
324       </eb2:From>
325       <eb2:To>
326         <eb2:PartyId eb2:type="urn:oasis:names:tc:ebxml-cppa:partyid-
327         type:0088">1234567890123</eb2:PartyId>
328         <eb2:Role>DSSClient</eb2:Role>
329       </eb2:To>
330       <eb2:CPAId>CPAID_3210987654321_1234567890123_0001</eb2:CPAId>
331       <eb2:ConversationId>89612fb6-08ba-49c6-aff2-
332       8ddf81988495</eb2:ConversationId>
333       <eb2:Service>urn:oasis:names:tc:dss:1.0</eb2:Service>
334       <eb2:Action>SignResponse</eb2:Action>
335       <eb2:MessageData>
336
337       <eb2:MessageId>M1183731565500.20294@vega_cn6692455690889293175</eb2:MessageId>
338       <eb2:Timestamp>2007-07-06T14:19:25.500Z</eb2:Timestamp>
339       <eb2:RefToMessageId>d8afbc35-2bc1-11dc-8605-
340       000c29eb4f66@localhost.localdomain</eb2:RefToMessageId>
341       </eb2:MessageData>
342       <eb2:DuplicateElimination/>
343     </eb2:MessageHeader>
344     <eb2:AckRequested eb2:id="ID187545611183731565500Vega" eb2:signed="false"
345     eb2:version="2.0"
346       s11:actor="urn:oasis:names:tc:ebxml-msg:actor:toPartyMSH"
347     s11:mustUnderstand="1"/>
348   </s11:Header>
349   <s11:Body xmlns:eb="http://www.oasis-open.org/committees/ebxml-msg/schema/msg-
350     header-2_0.xsd"
351     xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-
352     msg/schema/msg-header-2_0.xsd http://www.oasis-open.org/committees/ebxml-
353     msg/schema/msg-header-2_0.xsd">
354     <eb2:Manifest eb2:id="ID118631211183731565500Vega" eb2:version="2.0">
355       <eb2:Reference eb2:id="ID67656811183731565500Vega"
356       xlink:href="cid:A1183731565500.20296@vega_cn"
357       xlink:type="simple"/>
358     </eb2:Manifest>
359   </s11:Body>
360 </s11:Envelope>
```

B. Sample Collaboration Protocol Agreement

362 The OASIS ebXML Collaboration Protocol Profiles and Agreements version 2.0 technical specification
 363 **[ebCPA 2.0]** is an OASIS standard that defines an XML language to encode and exchange the technical
 364 configuration parameters used to exchange ebXML version 2.0 messages. Implementations of ebXML
 365 messaging may use CPAs to configure ebXML message handlers.

366 The following non-normative sample CPA defines the agreement between the sample DSS client and
 367 server used to create the sample messages displayed in section A. The certificate details have been
 368 omitted to simplify the example.

369

```

370 <?xml version="1.0" encoding="UTF-8"?>
371 <cpa2:CollaborationProtocolAgreement xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
372   xmlns:cpa2="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd"
373   xmlns:ds="http://www.w3.org/2000/09/xmldsig#" xmlns:xlink="http://www.w3.org/1999/xlink"
374   xmlns:axsl="http://www.w3.org/1999/XSL/TransformAlias"
375   xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd
376   http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd"
377   cpa2:cpaid="CPAID_3210987654321_1234567890123_0001" cpa2:version="1.0">
378   <cpa2:Status cpa2:value="agreed"/>
379   <cpa2:Start>2007-06-12T00:00:00Z</cpa2:Start>
380   <cpa2:End>2008-06-12T00:00:00Z</cpa2:End>
381   <cpa2:PartyInfo cpa2:partyName="Company X"
382     cpa2:defaultMshChannelId="Client_defaultDeliveryChannel_ProfileReliableMessaging"
383     cpa2:defaultMshPackageId="defaultPackage_Profile">
384     <cpa2:PartyId cpa2:type="urn:oasis:names:tc:ebxml-cppa:partyid-
385     type:0088">1234567890123</cpa2:PartyId>
386     <cpa2:PartyRef xlink:href="http://www.company_X.com/">
387     <cpa2:CollaborationRole>
388       <cpa2:ProcessSpecification cpa2:name="Digital Signature Services" cpa2:version="0.1"
389         xlink:href="http://docs.oasis-open.org/dss/v1.0/"
390         cpa2:uuid="http://docs.oasis-open.org/dss/v1.0/">
391       <cpa2:Role cpa2:name="DSSClient" xlink:href="http://docs.oasis-open.org/dss/v1.0/">
392       <cpa2:ServiceBinding>
393       <cpa2:Service>urn:oasis:names:tc:dss:1.0</cpa2:Service>
394       <cpa2:CanSend>
395       <cpa2:ThisPartyActionBinding cpa2:id="Client_S_SignRequest"
396         cpa2:action="SignRequest" cpa2:packageId="defaultPackage_Profile">
397       <cpa2:BusinessTransactionCharacteristics cpa2:isAuthenticated="transient"
398         cpa2:isAuthorizationRequired="true" cpa2:isConfidential="transient"
399         cpa2:isIntelligibleCheckRequired="false"
400         cpa2:isNonRepudiationReceiptRequired="false"
401         cpa2:isNonRepudiationRequired="false" cpa2:isTamperProof="transient"
402         cpa2:timeToAcknowledgeReceipt="PT8H" cpa2:timeToPerform="P2D"/>
403       </cpa2:BusinessTransactionCharacteristics>
404     </cpa2:ThisPartyActionBinding>
405     <cpa2:ChannelId>Client_defaultDeliveryChannel_ProfileReliableMessaging</cpa2:ChannelId>
406     </cpa2:ThisPartyActionBinding>
407   <cpa2:OtherPartyActionBinding>Server_R_SignRequest</cpa2:OtherPartyActionBinding>
408   </cpa2:CanSend>
409   <cpa2:CanSend>
410     <cpa2:ThisPartyActionBinding cpa2:id="Client_S_VerifyRequest"
411       cpa2:action="VerifyRequest" cpa2:packageId="defaultPackage_Profile">
412     <cpa2:BusinessTransactionCharacteristics cpa2:isAuthenticated="transient"
413       cpa2:isAuthorizationRequired="true" cpa2:isConfidential="transient"
414       cpa2:isIntelligibleCheckRequired="false"
415       cpa2:isNonRepudiationReceiptRequired="false"
416       cpa2:isNonRepudiationRequired="false" cpa2:isTamperProof="transient"
417       cpa2:timeToAcknowledgeReceipt="PT8H" cpa2:timeToPerform="P2D"/>
418     </cpa2:BusinessTransactionCharacteristics>
419   </cpa2:ThisPartyActionBinding>
420   <cpa2:ChannelId>Client_defaultDeliveryChannel_ProfileReliableMessaging</cpa2:ChannelId>
421   </cpa2:ThisPartyActionBinding>
422   <cpa2:OtherPartyActionBinding>Server_R_VerifyRequest</cpa2:OtherPartyActionBinding>
423   </cpa2:CanSend>
424   <cpa2:CanReceive>

```

```

425         <cpa2:ThisPartyActionBinding cpa2:id="Client_R_SignResponse"
426             cpa2:action="SignResponse" cpa2:packageId="defaultPackage_Profile">
427             <cpa2:BusinessTransactionCharacteristics cpa2:isAuthenticated="transient"
428                 cpa2:isAuthorizationRequired="true" cpa2:isConfidential="transient"
429                 cpa2:isIntelligibleCheckRequired="false"
430                 cpa2:isNonRepudiationReceiptRequired="false"
431                 cpa2:isNonRepudiationRequired="false" cpa2:isTamperProof="transient"
432                 cpa2:timeToAcknowledgeReceipt="PT8H" cpa2:timeToPerform="P2D"/>
433         </cpa2:ThisPartyActionBinding>
434     <cpa2:ChannelId>Client_defaultDeliveryChannel_ProfileReliableMessaging</cpa2:ChannelId>
435     </cpa2:ThisPartyActionBinding>
436
437     <cpa2:OtherPartyActionBinding>Server_S_SignResponse</cpa2:OtherPartyActionBinding>
438     </cpa2:CanReceive>
439     <cpa2:CanReceive>
440         <cpa2:ThisPartyActionBinding cpa2:id="Client_R_VerifyResponse"
441             cpa2:action="VerifyResponse" cpa2:packageId="defaultPackage_Profile">
442             <cpa2:BusinessTransactionCharacteristics cpa2:isAuthenticated="transient"
443                 cpa2:isAuthorizationRequired="true" cpa2:isConfidential="transient"
444                 cpa2:isIntelligibleCheckRequired="false"
445                 cpa2:isNonRepudiationReceiptRequired="false"
446                 cpa2:isNonRepudiationRequired="false" cpa2:isTamperProof="transient"
447                 cpa2:timeToAcknowledgeReceipt="PT8H" cpa2:timeToPerform="P2D"/>
448         </cpa2:ThisPartyActionBinding>
449     <cpa2:ChannelId>Client_defaultDeliveryChannel_ProfileReliableMessaging</cpa2:ChannelId>
450     </cpa2:ThisPartyActionBinding>
451
452     <cpa2:OtherPartyActionBinding>Server_S_VerifyResponse</cpa2:OtherPartyActionBinding>
453     </cpa2:CanReceive>
454     </cpa2:ServiceBinding>
455     </cpa2:CollaborationRole>
456     <cpa2:Certificate cpa2:certId="X_ServerCert">
457         <KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
458             <!-- Details omitted -->
459         </KeyInfo>
460     </cpa2:Certificate>
461     <cpa2:Certificate cpa2:certId="X_ClientCert">
462         <KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
463             <!-- Details omitted -->
464         </KeyInfo>
465     </cpa2:Certificate>
466     <cpa2:SecurityDetails cpa2:securityId="X_TransportSecurity"/>
467     <cpa2:DeliveryChannel
468         cpa2:channelId="Client_defaultDeliveryChannel_ProfileReliableMessaging"
469         cpa2:docExchangeId="Client_ReliableMessaging"
470         cpa2:transportId="Client_transport_HTTPS">
471         <cpa2:MessagingCharacteristics cpa2:syncReplyMode="none" cpa2:ackRequested="always"
472             cpa2:actor="urn:oasis:names:tc:ebxml-msg:actor:toPartyMSH"
473             cpa2:ackSignatureRequested="never" cpa2:duplicateElimination="always"/>
474     </cpa2:DeliveryChannel>
475     <cpa2:Transport cpa2:transportId="Client_transport_HTTPS">
476         <cpa2:TransportSender>
477             <cpa2:TransportProtocol cpa2:version="1.1">HTTP</cpa2:TransportProtocol>
478             <cpa2:TransportClientSecurity>
479                 <cpa2:TransportSecurityProtocol
480                     cpa2:version="1.0">TLS</cpa2:TransportSecurityProtocol>
481                 <cpa2:ClientCertificateRef cpa2:certId="X_ClientCert"/>
482                 <cpa2:ServerSecurityDetailsRef cpa2:securityId="X_TransportSecurity"/>
483             </cpa2:TransportClientSecurity>
484         </cpa2:TransportSender>
485         <cpa2:TransportReceiver>
486             <cpa2:TransportProtocol cpa2:version="1.1">HTTP</cpa2:TransportProtocol>
487             <cpa2:Endpoint cpa2:uri="http://company_X.com:4080/exchange/1234567890123"
488                 cpa2:type="allPurpose"/>
489             <cpa2:TransportServerSecurity>
490                 <cpa2:TransportSecurityProtocol
491                     cpa2:version="1.0">TLS</cpa2:TransportSecurityProtocol>
492                 <cpa2:ServerCertificateRef cpa2:certId="X_ServerCert"/>
493                 <cpa2:ClientSecurityDetailsRef cpa2:securityId="X_TransportSecurity"/>
494             </cpa2:TransportServerSecurity>
495         </cpa2:TransportReceiver>
496     </cpa2:Transport>
497     <cpa2:DocExchange cpa2:docExchangeId="Client_ReliableMessaging">
498     </cpa2:DocExchange>
499     <cpa2:ebXMLSenderBinding cpa2:version="2.0">
500     </cpa2:ebXMLSenderBinding>

```

```

497         <cpa2:ReliableMessaging>
498             <cpa2:Retries>8</cpa2:Retries>
499             <cpa2:RetryInterval>PT3H</cpa2:RetryInterval>
500             <cpa2:MessageOrderSemantics>NotGuaranteed</cpa2:MessageOrderSemantics>
501         </cpa2:ReliableMessaging>
502         <cpa2:PersistDuration>P1D</cpa2:PersistDuration>
503     </cpa2:ebXMLSenderBinding>
504     <cpa2:ebXMLReceiverBinding cpa2:version="2.0">
505         <cpa2:ReliableMessaging>
506             <cpa2:Retries>8</cpa2:Retries>
507             <cpa2:RetryInterval>PT3H</cpa2:RetryInterval>
508             <cpa2:MessageOrderSemantics>NotGuaranteed</cpa2:MessageOrderSemantics>
509         </cpa2:ReliableMessaging>
510         <cpa2:PersistDuration>P1D</cpa2:PersistDuration>
511     </cpa2:ebXMLReceiverBinding>
512 </cpa2:DocExchange>
513 </cpa2:PartyInfo>
514 <cpa2:PartyInfo cpa2:partyName="Company Y"
515     cpa2:defaultMshChannelId="Server_defaultDeliveryChannel_ProfileReliableMessaging"
516     cpa2:defaultMshPackageId="defaultPackage_Profile">
517     <cpa2:PartyId cpa2:type="urn:oasis:names:tc:ebxml-cppa:partyid-
518 type:0088">3210987654321</cpa2:PartyId>
519     <cpa2:PartyRef xlink:href="http://www.company_y.com"/>
520     <cpa2:CollaborationRole>
521         <cpa2:ProcessSpecification cpa2:name="Digital Signature Services" cpa2:version="0.1"
522             xlink:href="http://docs.oasis-open.org/dss/v1.0/"
523             cpa2:uuid="http://docs.oasis-open.org/dss/v1.0/">
524         <cpa2:Role cpa2:name="DSSServer" xlink:href="http://docs.oasis-open.org/dss/v1.0/">
525         <cpa2:ServiceBinding>
526             <cpa2:Service>urn:oasis:names:tc:dss:1.0</cpa2:Service>
527             <cpa2:CanSend>
528                 <cpa2:ThisPartyActionBinding cpa2:id="Server_S_SignResponse"
529                     cpa2:action="SignResponse" cpa2:packageId="defaultPackage_Profile">
530                     <cpa2:BusinessTransactionCharacteristics cpa2:isAuthenticated="transient"
531                         cpa2:isAuthorizationRequired="true" cpa2:isConfidential="transient"
532                         cpa2:isIntelligibleCheckRequired="false"
533                         cpa2:isNonRepudiationReceiptRequired="false"
534                         cpa2:isNonRepudiationRequired="false" cpa2:isTamperProof="transient"
535                         cpa2:timeToAcknowledgeReceipt="PT8H" cpa2:timeToPerform="P2D"/>
536             </cpa2:CanSend>
537         </cpa2:ServiceBinding>
538     </cpa2:CollaborationRole>
539 </cpa2:PartyInfo>
540 <cpa2:ChannelId>Server_defaultDeliveryChannel_ProfileReliableMessaging</cpa2:ChannelId>
541 </cpa2:ThisPartyActionBinding>
542 <cpa2:OtherPartyActionBinding>Client_R_SignResponse</cpa2:OtherPartyActionBinding>
543 </cpa2:CanSend>
544 <cpa2:CanSend>
545     <cpa2:ThisPartyActionBinding cpa2:id="Server_S_VerifyResponse"
546         cpa2:action="VerifyResponse" cpa2:packageId="defaultPackage_Profile">
547         <cpa2:BusinessTransactionCharacteristics cpa2:isAuthenticated="transient"
548             cpa2:isAuthorizationRequired="true" cpa2:isConfidential="transient"
549             cpa2:isIntelligibleCheckRequired="false"
550             cpa2:isNonRepudiationReceiptRequired="false"
551             cpa2:isNonRepudiationRequired="false" cpa2:isTamperProof="transient"
552             cpa2:timeToAcknowledgeReceipt="PT8H" cpa2:timeToPerform="P2D"/>
553     </cpa2:CanSend>
554 </cpa2:CanReceive>
555 <cpa2:ChannelId>Server_defaultDeliveryChannel_ProfileReliableMessaging</cpa2:ChannelId>
556 </cpa2:ThisPartyActionBinding>
557 <cpa2:OtherPartyActionBinding>Client_R_VerifyResponse</cpa2:OtherPartyActionBinding>
558 </cpa2:CanSend>
559 <cpa2:CanReceive>
560     <cpa2:ThisPartyActionBinding cpa2:id="Server_R_SignRequest"
561         cpa2:action="SignRequest" cpa2:packageId="defaultPackage_Profile">
562         <cpa2:BusinessTransactionCharacteristics cpa2:isAuthenticated="transient"
563             cpa2:isAuthorizationRequired="true" cpa2:isConfidential="transient"
564             cpa2:isIntelligibleCheckRequired="false"
565             cpa2:isNonRepudiationReceiptRequired="false"
566             cpa2:isNonRepudiationRequired="false" cpa2:isTamperProof="transient"
567             cpa2:timeToAcknowledgeReceipt="PT8H" cpa2:timeToPerform="P2D"/>
568     </cpa2:CanReceive>
569 </cpa2:CanSend>
570 </cpa2:CanReceive>
571 <cpa2:ChannelId>Server_defaultDeliveryChannel_ProfileReliableMessaging</cpa2:ChannelId>
572 </cpa2:ThisPartyActionBinding>

```

```

569 <cpa2:OtherPartyActionBinding>Client_S_SignRequest</cpa2:OtherPartyActionBinding>
570 </cpa2:CanReceive>
571 <cpa2:CanReceive>
572 <cpa2:ThisPartyActionBinding cpa2:id="Server_R_VerifyRequest"
573 cpa2:action="VerifyRequest" cpa2:packageId="defaultPackage_Profile">
574 <cpa2:BusinessTransactionCharacteristics cpa2:isAuthenticated="transient"
575 cpa2:isAuthorizationRequired="true" cpa2:isConfidential="transient"
576 cpa2:isIntelligibleCheckRequired="false"
577 cpa2:isNonRepudiationReceiptRequired="false"
578 cpa2:isNonRepudiationRequired="false" cpa2:isTamperProof="transient"
579 cpa2:timeToAcknowledgeReceipt="PT8H" cpa2:timeToPerform="P2D"/>
580
581 <cpa2:ChannelId>Server_defaultDeliveryChannel_ProfileReliableMessaging</cpa2:ChannelId>
582 </cpa2:ThisPartyActionBinding>
583
584 <cpa2:OtherPartyActionBinding>Client_S_VerifyRequest</cpa2:OtherPartyActionBinding>
585 </cpa2:CanReceive>
586 </cpa2:ServiceBinding>
587 </cpa2:CollaborationRole>
588 <cpa2:Certificate cpa2:certId="Y_ServerCert">
589 <KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
590 <!-- Details omitted -->
591 </cpa2:Certificate>
592 <cpa2:Certificate cpa2:certId="Y_ClientCert">
593 <KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
594 <!-- Details omitted -->
595 </cpa2:Certificate>
596 <cpa2:SecurityDetails cpa2:securityId="Y_TransportSecurity"/>
597 <cpa2:DeliveryChannel
598 cpa2:channelId="Server_defaultDeliveryChannel_ProfileReliableMessaging"
599 cpa2:docExchangeId="Server_ReliableMessaging"
600 cpa2:transportId="Server_transport_HTTPS">
601 <cpa2:MessagingCharacteristics cpa2:syncReplyMode="none" cpa2:ackRequested="always"
602 cpa2:actor="urn:oasis:names:tc:ebxml-msg:actor:toPartyMSH"
603 cpa2:ackSignatureRequested="never" cpa2:duplicateElimination="always"/>
604 </cpa2:DeliveryChannel>
605 <cpa2:Transport cpa2:transportId="Server_transport_HTTPS">
606 <cpa2:TransportSender>
607 <cpa2:TransportProtocol cpa2:version="1.1">HTTP</cpa2:TransportProtocol>
608 <cpa2:TransportClientSecurity>
609 <cpa2:TransportSecurityProtocol
610 cpa2:version="1.0">TLS</cpa2:TransportSecurityProtocol>
611 <cpa2:ClientCertificateRef cpa2:certId="Y_ClientCert"/>
612 <cpa2:ServerSecurityDetailsRef cpa2:securityId="Y_TransportSecurity"/>
613 </cpa2:TransportClientSecurity>
614 </cpa2:TransportSender>
615 <cpa2:TransportReceiver>
616 <cpa2:TransportProtocol cpa2:version="1.1">HTTP</cpa2:TransportProtocol>
617 <cpa2:Endpoint cpa2:uri="http://company_y.com:4080/exchange/3210987654321"
618 cpa2:type="allPurpose"/>
619 <cpa2:TransportServerSecurity>
620 <cpa2:TransportSecurityProtocol
621 cpa2:version="1.0">TLS</cpa2:TransportSecurityProtocol>
622 <cpa2:ServerCertificateRef cpa2:certId="Y_ServerCert"/>
623 <cpa2:ClientSecurityDetailsRef cpa2:securityId="Y_TransportSecurity"/>
624 </cpa2:TransportServerSecurity>
625 </cpa2:TransportReceiver>
626 </cpa2:Transport>
627 <cpa2:DocExchange cpa2:docExchangeId="Server_ReliableMessaging">
628 <cpa2:ebXMLSenderBinding cpa2:version="2.0">
629 <cpa2:ReliableMessaging>
630 <cpa2:Retries>8</cpa2:Retries>
631 <cpa2:RetryInterval>PT3H</cpa2:RetryInterval>
632 <cpa2:MessageOrderSemantics>NotGuaranteed</cpa2:MessageOrderSemantics>
633 </cpa2:ReliableMessaging>
634 <cpa2:PersistDuration>P1D</cpa2:PersistDuration>
635 </cpa2:ebXMLSenderBinding>
636 <cpa2:ebXMLReceiverBinding cpa2:version="2.0">
637 <cpa2:ReliableMessaging>
638 <cpa2:Retries>8</cpa2:Retries>
639 <cpa2:RetryInterval>PT3H</cpa2:RetryInterval>
640

```

```
641         <cpa2:MessageOrderSemantics>NotGuaranteed</cpa2:MessageOrderSemantics>
642     </cpa2:ReliableMessaging>
643     <cpa2:PersistDuration>P1D</cpa2:PersistDuration>
644 </cpa2:ebXMLReceiverBinding>
645 </cpa2:DocExchange>
646 </cpa2:PartyInfo>
647 <cpa2:SimplePart cpa2:id="DefaultSimplePart" cpa2:mimetype="application/xml"/>
648 <cpa2:Packaging cpa2:id="defaultPackage_Profile">
649     <cpa2:ProcessingCapabilities cpa2:parse="true" cpa2:generate="true"/>
650     <cpa2:CompositeList>
651         <cpa2:Composite cpa2:id="DefaultComposite" cpa2:mimetype="type=text/xml">
652             <cpa2:Constituent cpa2:idref="DefaultSimplePart"/>
653         </cpa2:Composite>
654     </cpa2:CompositeList>
655 </cpa2:Packaging>
656 </cpa2:CollaborationProtocolAgreement>
```

C. Revision History

[optional; should not be included in OASIS Standards]

Revision	Date	Editor	Changes Made
0.1	2007-11-16	Pim van der Eijk, Ernst Jan van Nigtevecht	Initial Draft.
0.2	2008-02-18	Pim van der Eijk	Updated and restructured based on review by Juan Carlos Cruellas
0.3	2008-04-14	Pim van der Eijk, TC Chairs	Edits to reflect Committee Draft status
0.4	2008-04-27	Stefan Drees	Minor edits in normative references (obsoleted RFC, SOAP and applying bibliographic style)
0.5	2008-04-28	Stefan Drees	Added a note on referencing obsoleted or historical standards as alignment to dss core.
0.6	2008-05-09	Pim van der Eijk	Feedback from OASIS TC admin; conformance section added.
0.7	2008-05-26	Stefan Drees	Minor edits, normative version set to PDF and added normative indicator to latest version section.