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OUR REF. IS/iw
YOUR REF.

DATE: 12 June 2008

re: proposal for fast-track procedure

Dear Mr. Brannon,

Please find enclosed copies of the following Ecma Standards:

ECMA-355 3rd Edition Corporate Telecommunication Networks - Tunnelling of QSIG over SIP (June 2008)

ECMA-366 2nd Edition WS-Session - Web Services for Application Session Services (June 2008)

Adopted as Standard ECMA-355 3rd Edition and Standard ECMA-366 2nd Edition by the Ecma General Assembly, we are now contributing these Standards for adoption as ISO/IEC 22535 3rd edition and as ISO/IEC 25437 2nd edition respectively under the terms of the ISO/IEC JTC 1 fast-track procedure.

Ecma is waving its copyright and grants to ISO/IEC the right to copy, duplicate and/or distribute the documents at will. We are not aware of any patents for which no licences under RAND conditions can be obtained.

The subject of these Standards concerns ISO/IEC JTC1/SC6. We, therefore, recommend that these fast-track submissions be assigned to JTC1/SC6.

Ecma will provide the number of copies required for distribution as DISs to the National Bodies of JTC 1, if needed.

Under the above circumstances, we believe that the requirements of the fast-track procedure are met.

According to Resolution 9 of ISO/IEC JTC 1 plenary meeting of October 2004 (JTC 1 N7665), the electronically downloadable version of this ISO/IEC Standard should be made available at no cost.

Yours faithfully,

I. Sebestyen
Secretary General

cc:
Ms. L. Rajchel, Secretary JTC 1
Ms. J. Lee, Secretary JTC 1/SC6
Dr. B. Hammer, Chairman Ecma TC32
Mr. T. Miller, Convenor Ecma TC32-TG11
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ecma INTERNATIONAL

Standard ECMA-366

2nd Edition – June 2008

WS-Session - Web Services for Application Session Services

Standard

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Standard
ECMA-366
2nd Edition – June 2008

WS-Session - Web Services for Application Session Services

Introduction

ECMA-354, Application Session Services, specifies XML protocols that can be used to create and manage application sessions that are independent of the transport layer protocols. This Standard (WS-Session) specifies Web services for ECMA-354.

The ApplicationSessionTerminated operation of this Standard is an outbound asynchronous event notification. For Service Requester to receive the event notification from the Service Provider and from web services (e.g. ECMA-348) that use this Standard for session management, it standardized WS-Eventing and WS-BaseNotification as two Options.

This Ecma Standard has been adopted by the General Assembly of June 2008.

Table of contents

1 Scope

This Standard specifies Web Services (in WSDL, in Clause 5) and a SOAP binding (in Clause 6) for the Application Session Services defined in ECMA-354. The Application Session Services allow Applications to create and maintain a relationship with Servers termed Application Session. The Web services specified herein, allow Service Requesters (Applications in ECMA-354) and Service Providers (Servers in ECMA-354) to create and maintain such Application Sessions.

This Standard builds upon and imports the XML schema definitions from ECMA-354. The method of making the WSDL description of the specified services available to Service Provider and Requester is out of the scope of this Standard.

The ApplicationSessionTerminated operation of this Standard is an outbound asynchronous event notification that Service Requesters receive from the Service Provider. Service Requester may also receive the event notification from web services, e.g. ECMA-348, that use this Standard for session management.

Clause 7 specifies the event subscription and notification behaviors supported by the two Options defined in Annex A and B.

Annex A specifies the event subscription mechanism using WS-Eventing.

Annex B specifies the event subscription mechanism using WS-BaseNotification.

Annex C specifies the asynchronous subscription response Option for the two event subscription mechanisms.

Annex D shows an example WS-Session WSDL binding with SOAP/HTTP.

Annex E lists SOAP XML Templates for ECMA-354 messages.

Annex F lists some SOAP XML Templates for WS-Eventing messages.

Annex G lists some SOAP XML Templates for WS-BaseNotification messages.

Annex H provides a summary of changes.

2 Conformance

The Service Requester and Service Provider conform to the Application and Server conformance specified in ECMA-354, using the WSDL definitions, SOAP bindings, and event subscription and notification specified in Clause 5, 6 and 7 respectively.

The Service Provider implements at least one of the WS-Eventing and WS-BaseNotification event subscription Options as specified in Annex A and B.

Service Provider's WSDL for this Standard shall include the implemented operations from Annex A, Annex B and the WSDL specified in Clause 5.

The Service Requester shall itself initiate or delegate event subscription as specified in Annex A and B.

The Service Provider supports synchronous responses to Event Subscriptions and may implement the asynchronous response Option specified in Annex C.

3 References

Ecma references

ECMA-354	Application Session Services, June 2004: http://www.ecma-international.org/publications/standards/Ecma-354.htm

W3C references

SOAP 1.1	Simple Object Access Protocol 1.1, W3C Note 08 May 2000

WSDL 1.1	Web Service Description Language 1.1, W3C Note 15 March 2001
XML Schema 1.0:	XML Schema Language Part 1: Structure, W3C Recommendation 28 October 2004
	XML Schema Language Part 2: Data Types, W3C Recommendation 28 October 2004
WS-Addressing 1.0	Web Services Addressing 1.0 – Core W3C Recommendation 9 May 2006
	Web Services Addressing 1.0 - SOAP Binding W3C Recommendation 9 May 2006
	Web Services Addressing 1.0 – Metadata, W3C Recommendation 4 September 2007
WS-Eventing	Web Services Eventing (WS-Eventing) W3C Member Submission 15 March 2006
WS-BaseNotification 1.3	Web Services Base Notification 1.3 (WS-BaseNotification) OASIS Standard, 1 October 2006

4 Definitions

Consult ECMA-354 for Application Session Services specific terms.

This Standard refers to these Web services terms:

4.1 Service Requester

Web Service equivalent of Application in ECMA-354

4.2 Service Provider

Web Service equivalent of Server in ECMA-354

4.3 Namespaces

This Standard uses these Ecma prefixes and namespaces:

1. aps (http://www.ecma-international.org/standards/ecma-354/appl_session): This Standard imports all XML messages defined in ECMA-354 from the aps namespace.
2. wss (http://www.ecma-international.org/standards/ecma-366/ws-session/ed2): The WSDL target namespace for this Standard.
3. gsk (http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/generic_sink): The target namespace of the wrapped sink WSDL.

This Standard refers to these other prefixes and namespaces:

1. wsdl (http://schemas.xmlsoap.org/wsdl): This contains the W3C WSDL 1.1 schema.
2. xs (http://www.w3.org/2001/XMLSchema): This contains the W3C XML Schema definition.
3. S (http://schemas.xmlsoap.org/wsdl/soap): This contains the W3C SOAP bindings for WSDL 1.1.
4. wsa (http://www.w3.org/2005/08/addressing): The namespace for WS-Addressing 1.0
5. wse (http://schemas.xmlsoap.org/ws/2004/08/eventing): The target namespace for WS-Eventing Web Service
6. wsnt (http://docs.oasis-open.org/wsn/b-2): The target namespace for WS-BaseNotfication 1.3.

5 Service Provider WSDL Abstract Definitions

This Clause specifies the abstract WSDL definitions to support the services specified in ECMA-354.

```
<definitions
        xmlns="http://schemas.xmlsoap.org/wsdl/"
        xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session"
        xmlns:wss="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2"
        targetNamespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2">
        <types>
                <xs:schema>
                        <xs:import namespace="http://www.ecma-international.org/standards/ecma-354/appl_session"
schemaLocation="http://www.ecma-international.org/standards/ecma-354/appl_session/start-application-session.xsd"/>
                        <xs:import namespace="http://www.ecma-international.org/standards/ecma-354/appl_session"
schemaLocation="http://www.ecma-international.org/standards/ecma-354/appl_session/stop-application-session.xsd"/>
                        <xs:import namespace="http://www.ecma-international.org/standards/ecma-354/appl_session"
schemaLocation="http://www.ecma-international.org/standards/ecma-354/appl_session/reset-application-session-timer.xsd"/>
                        <xs:import namespace="http://www.ecma-international.org/standards/ecma-354/appl_session"
schemaLocation="http://www.ecma-international.org/standards/ecma-354/appl_session/application-session-terminated.xsd"/>
                </xs:schema>
        </types>
        <message name="startApplicationSession">
                <part name="parameter" element="aps:StartApplicationSession"/>
        </message>
        <message name="startApplicationSessionPosResponse">
                <part name="parameter" element="aps:StartApplicationSessionPosResponse"/>
        </message>
        <message name="startApplicationSessionNegResponse">
                <part name="parameter" element="aps:StartApplicationSessionNegResponse"/>
        </message>
        <message name="stopApplicationSession">
                <part name="parameter" element="aps:StopApplicationSession"/>
        </message>
        <message name="stopApplicationSessionPosResponse">
                <part name="parameter" element="aps:StopApplicationSessionPosResponse"/>
        </message>
        <message name="stopApplicationSessionNegResponse">
                <part name="parameter" element="aps:StopApplicationSessionNegResponse"/>
        </message>
        <message name="resetApplicationSessionTimer">
                <part name="parameter" element="aps:ResetApplicationSessionTimer"/>
        </message>
        <message name="resetApplicationSessionTimerPosResponse">
                <part name="parameter" element="aps:ResetApplicationSessionTimerPosResponse"/>
        </message>
        <message name="resetApplicationSessionTimerNegResponse">
                <part name="parameter" element="aps:ResetApplicationSessionTimerNegResponse"/>
        </message>
        <message name="applicationSessionTerminated">
                <part name="parameter" element="aps:ApplicationSessionTerminated"/>
        </message>
```

```
        <portType name="ApplicationSessionServicesPortType">
                <operation name="StartApplicationSessionOp">
                        <input message="wss:startApplicationSession"/>
                        <output message="wss:startApplicationSessionPosResponse"/>
                        <fault name="StartFault" message="wss:startApplicationSessionNegResponse"/>
                </operation>
                <operation name="StopApplicationSessionOp">
                        <input message="wss:stopApplicationSession"/>
                        <output message="wss:stopApplicationSessionPosResponse"/>
                        <fault name="StopFault" message="wss:stopApplicationSessionNegResponse"/>
                </operation>
                <operation name="ResetApplicationSessionTimerOp">
                        <input message="wss:resetApplicationSessionTimer"/>
                        <output message="wss:resetApplicationSessionTimerPosResponse"/>
                        <fault name="ResetFault" message="wss:resetApplicationSessionTimerNegResponse"/>
                </operation>
                <operation name="ApplicationSessionTerminatedOp">
                        <output message="wss:applicationSessionTerminated"/>
                </operation>
        </portType>
</definitions>
```

6 Service Provider WSDL SOAP Binding

This Clause specifies the binding template of the abstract WSDL definitions in Clause 5 with SOAP Messages without a specific transport protocol. Any SOAP binding to transport shall contain elements and attributes in this binding template.

```
<definitions
        xmlns="http://schemas.xmlsoap.org/wsdl/"
        xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session"
        xmlns:wss="http://www.ecma-international.org/standards/ecma-354/ws-session/ed2"
        targetNamespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2">
        <import namespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2"
                location="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/ws-session-
wsdl-abstract-definitions.wsdl" />
        <binding name="xs:nmtoken" type="wss:ApplicationSessionServicesPortType">
                <soap:binding style="document" transport="xs:anyURI"/>
                <operation name="StartApplicationSessionOp">
                        <input>
                                <soap:body use="literal"/>
                        </input>
                        <output>
                                <soap:body use="literal"/>
                        </output>
                        <fault name="StartFault">
                                <soap:fault name="StartFault" use="literal"/>
                        </fault>
                </operation>
                <operation name="StopApplicationSessionOp">
                        <input>
                                <soap:body use="literal"/>
                        </input>
                        <output>
                                <soap:body use="literal"/>
                        </output>
                        <fault name="StopFault">
                                <soap:fault name="StopFault " use="literal"/>
                        </fault>
                </operation>
                <operation name="ResetApplicationSessionTimerOp">
                        <input>
                                <soap:body use="literal"/>
                        </input>
                        <output>
                                <soap:body use="literal"/>
                        </output>
                        <fault name="ResetFault">
                                <soap:fault name="ResetFault " use="literal"/>
                        </fault>
                </operation>
                <operation name="ApplicationSessionTerminatedOp">
                        <output>
                                <soap:body use="literal"/>
                        </output>
                </operation>
        </binding>
</definitions>
```

ECMA-354 requires Applications to include the aps:sessionID in the service requests that address the established session. To standardize this requirement in Web services that exchange SOAP messages, the placement of aps:sessionID shall follow these rules.

1. The SOAP subscription message for WS-Eventing and WS-BaseNotification subscriptions shall include the aps:sessionID as a SOAP header block annoated with attribute: wsa:IsReferenceParameter="true".
2. Other SOAP messages within a session shall include the aps:sessionID as a header block.

The negative responses from Service Providers shall be bound to the SOAP 1.1 fault properties: faultcode, faultstring and detail, using the following template.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>
                <S:Fault>
                        <faultcode>[faultcode]</faultcode>
                        <faultstring>[faultstring]</faultstring>
                        <detail>[detail]</detail>
                </S:Fault>
        </S:Body>
</S:Envelope>
```

The contents of fault properties are defined by the following table for each type of negative response.

Table 1 — Fault names and properties for WS-Session services

Fault Name	**StartFault**
faultcode	ECMA-354 defined standard error names: invalidApplicationInfo, requestedProtocolVersionNotSupported, serverResourcesBusy, maxNumberSessions, or application error name.
faultstring	For ECMA-354 standard errors, it is the Description of corresponding error in Table 4-3 of ECMA-354. Additonal text can be provided to elaborate the error message, for example, the maximal session number allowed by the service provider. For application errors, a proper English description shall be provided.
detail	Element aps:StartApplicationSessionNegResponse.
Fault Name	**StopFault**
faultcode	ECMA-354 defined standard error names: invalidSessionID, or application error name.
faultstring	For ECMA-354 standard errors, it is the Description of corresponding error in Table 4-6 of ECMA-354. Additonal text can be provided to elaborate the error message, for example, the valid session ID format allowed by the service provider. For application errors, a proper English description shall be provided.
detail	Element aps:StopApplicationSessionNegResponse.
Fault Name	**ResetFault**
faultcode	ECMA-354 defined standard error names: invalidSessionID, serverCannotResetSessionDuration, or application error name.
faultstring	For ECMA-354 standard errors, it is the Description of corresponding error in Table 4-9 of ECMA-354. Additonal text can be provided to elaborate the error message, for example, the duration allowed by the service provider. For application errors, a proper English description shall be provided.
detail	Element aps:ResetApplicationSessionTimerNegResponse.

7 Event Subscription and Notification

The ApplicationSessionTerminated operation is an outbound asynchronous event notification.

The Service Requester shall subscribe to receive the event notification from the Service Provider according to the event subscription mechanism of the Service Provider. It shall provide the event sink URI as defined in Annex A and B, and shall make the said event sink WSDL available to the Service Provider.

The Service Requester shall subscribe to receive the ApplicationSessionTerminated event immediately after the successful completion of the StartApplicationSession operation.

The Service Provider and Requester shall implement WS-Addressing defined by [WS-Addressing 1.0].

The subscription message shall include the unique aps:sessionID obtained from the StartApplicationSession operation. The aps:sessionID element shall be the first level child element of the subscription endpoint reference parameters [WS-Addressing 1.0], and the element is bound to the SOAP message as a header block as defined in Clause 6.

The Service Requester and Provider shall support the push mode of WS-Eventing or push-style of WS-BaseNotification to deliver the event notification. The Service Provider shall send event notifications to each of the valid event sink endpoints declared in the event subscription message.

The event notification message from the Service Provider shall include the sink endpoint reference parameters, if any, so that the Service Requester can correlate the event notification obtained from the Service Provider using those parameters.

If the application session terminates abnormally, before the ApplicationSessionTerminated event can be subscribed to, the subsequent subscription of ApplicationSessionTerminated event by the Service Requester shall result in a SOAP fault message as defined by the subscription protocol specified in Annex A and B.

When a session terminates, any subscription associated with the session is deemed invalid.

Annex A
(normative)

Event Subscription Using WS-Eventing Option

The Service Provider shall implement the wse:SubscribeOp operation defined in the EventSource portType of WS-Eventing WSDL and may implement other operations, such as wse:UnsubscribeOp, defined in the SubscriptionManager portType.

The Service Requester shall use wse:SubscribeOp operation to subscribe to the events. The subscription message from the Service Requester shall conform to the requirements of WS-Eventing.

To request wrapped event delivery mode, the Service Requester shall use the following URI in its event subscription request according to WS-Eventing:

http://schemas.xmlsoap.org/ws/2004/08/eventing/DeliveryModes/Wrap

To request unwrapped event delivery mode, the Service Requester shall use the following URI in its event subscription request according to WS-Eventing:

http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/typed_sink

If the Service Provider does not support the requested event delivery mode, it shall return the fault message wse:DeliveryModeRequestedUnavailable as specified by WS-Eventing.

If the aps:sessionID [sessionID] in the request is invalid, the Service Provider shall return a SOAP 1.1 fault message with these properties:

- [faultcode]=”wse:EventSourceUnableToProcess”
- [faultstring]=”The session [sessionID] is invalid”
- [detail]=invalidSessionID:[sessionID]

Service Requesters shall implement the event sink WSDL to receive events from the Service Provider. For wrapped event delivery mode, the event sink WSDL for Service Requester is specified in A.1. For unwrapped event delivery mode, the event sink WSDL for Service Requester is specified in A.2.

A.1 Wrapped Delivery Mode Event Sink WSDL for Service Requester and Its SOAP Binding

Service Requesters shall implement the following event sink interface to support wrapped event delivery mode.

```
<definitions
xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:gsk="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/generic_sink"
targetNamespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/generic_sink">
        <types>
            <xs:schema targetNamespace="http://www.ecma-international.org/standards/ecma-366/ws-
session/ed2/generic_sink">
                <xs:complexType name="EventType" mixed="true">
                    <xs:sequence>
                        <xs:any namespace="##any" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
                    </xs:sequence>
                    <xs:element name="Notify" type="gsk:EventType" />
                </xs:complexType>
            </xs:schema>
        </types>
        <message name="notifyEvent">
            <part name="parameter" element="gsk:Notify"/>
        </message>
        <portType name="GenericSinkPortType">
            <operation name="NotifyEvent">
                <input message="gsk:notifyEvent"/>
            </operation>
        </portType>
</definitions>
```

Any binding of wrapped event sink interface to SOAP shall contain elements and attributes in the following binding template.

```
<definitions
xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:gsk="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/generic_sink"
targetNamespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/generic_sink">
<import namespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/generic_sink"
location="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/generic_sink/generic-sink-
abstract.wsdl" />
    <binding name="xs:nmtoken" type="gsk:GenericSinkPortType">
        <soap:binding style="document" transport="xs:anyURI" />
        <operation name="NotifyEvent">
            <input>
                <soap:body use="literal"/>
            </input>
        </operation>
    </binding>
</definitions>
```

A.2 Unwrapped Delivery Mode Event Sink WSDL Specification and Its SOAP Binding

Service Requesters shall implement the following event sink interface to support unwrapped event delivery mode.

The unwrapped event sink interface contains an operation derived from the Service Provider's WSDL which is a "reversal" of the outbound operation of ApplicationSessionTerminated event operation of the Service Provider. The WSDL for the unwrapped event sink interface is specified as follows.

```
<definitions
        xmlns="http://schemas.xmlsoap.org/wsdl/"    xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session"
        xmlns:tns="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/typed_sink"
        targetNamespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/typed_sink">
        <types>
            <xs:schema>
                <xs:import namespace="http://www.ecma-international.org/standards/ecma-354/appl_session"
                        schemaLocation="http://www.ecma-international.org/standards/ecma-
354/appl_session/application-session-terminated.xsd"/>
            </xs:schema>
        </types>
        <message name="applicationSessionTerminated">
                <part name="parameter" element="aps:ApplicationSessionTerminated"/>
        </message>
        <portType name="ApplicationSessionTerminatedSinkPortType">
                <operation name="ApplicationSessionTerminatedOp">
                        <input message="tns:applicationSessionTerminated"/>
                </operation>
        </portType>
</definitions>
```

Any binding of unwrapped event sink interface to SOAP shall contain elements and attributes in the following binding template.

```
<definitions
        xmlns="http://schemas.xmlsoap.org/wsdl/"    xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session"
        xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
        xmlns:tns="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/typed_sink"
        targetNamespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/typed_sink">
        <import namespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/typed_sink"
        location="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/typed_sink/typed-sink-
abstract.wsdl" />
        <binding name="xs:nmtoken" type="tns:ApplicationSessionTerminatedSinkPortType">
                <soap:binding style="document" transport="xs:anyURI"/>
                <soap:operation name="ApplicationSessionTerminatedOp">
                        <input>
                                <soap:body use="literal"/>
                        </input>
                </soap:operation>
        </binding>
</definitions>
```

Annex B
(normative)

Subscription Using WS-BaseNotification Option

The Service Provider shall implement the wsnt:Subscribe operation defined in the NotificationProducer portType of WS-BaseNotification WSDL and may implement other operations, such as wsnt:Unsubscribe, defined in the SubscriptionManager portType [WS-BaseNotification 1.3].

The Service Requester shall use wsnt:Subscribe operation to subscribe to the events of Service Provider. The subscription request for wrapped or unwrapped (a.k.a. raw in WS-BaseNotification) event delivery mode shall follow WS-BaseNotification specification.

If the Service Provider does not support the requested event delivery mode, it shall return the fault message wsnt:UnsupportedPolicyRequestFault as specified by WS-BaseNotification.

If the aps:sessionID [sessionID] in the request is invalid, the Service Provider shall return a SOAP 1.1 fault message with these properties:

- [faultcode]=”wsrf-rw:ResourceUnknownFault”
- [faultstring]=”The session [sessionID] is invalid”
- [detail]=invalidSessionID:[sessionID]

B.1 Wrapped Delivery Mode Event Sink WSDL for Service Requester and Its SOAP Binding

Service Requesters shall implement WS-BaseNotification wrapped Notification Consumer WSDL and its SOAP binding to specify its wrapped event sink interface.

B.2 Unwrapped Delivery Mode Event Sink WSDL for Service Requester and Its SOAP Binding

Service Requesters shall implement unwrapped event sink WSDL and its SOAP binding specified in Annex A. 2 to specify its unwrapped event sink interface.

Annex C
(normative)

Asynchronous Response to Subscription Request Option

The Service Provider and Requester shall follow WS-Addressing [WS-Addressing 1.0] to annotate and correlate event subscription messages for asynchronous message exchange. The request SOAP message from Service Requester intended for an asynchronous response shall include at least the following WS-Addressing headers: wsa:To, wsa:Action, wsa:MessageID, and wsa:ReplyTo (wsa:FaultTo) whose value is defined by the Service Requester. In particular, the Service Requester shall provide a valid non-anonymous URI in wsa:ReplyTo field in its service request messages.

The asynchronous response or fault SOAP message shall include at least the following WS-Addressing headers: wsa:To, wsa:Action, and wsa:RelatesTo, whose values shall be formulated according to WS-Addressing specificiation [WS-Addressing 1.0 Core]. If the Service Provider only supports synchronous response, it shall return a SOAP fault message with faultcode set to wsa:OnlyAnonymousAddressSupported [WS-Addressing 1.0 SOAP Binding].

An asynchronous event subscription SOAP message template, applicable to both WS-Eventing and WS-BaseNotification, is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Header>
                <wsa:To>xs:anyURI</wsa:To>
                <aps:sessionID wsa:IsReferenceParameter='true'>xs:string</aps:sessionID>
                <wsa:MessageID>[message_id]</wsa:MessageID>
                <wsa:ReplyTo>[reply_address]</wsa:ReplyTo>
                <wsa:Action>xs:anyURI</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>…</S:Body>
</S:Envelope>
```

The template for the reply message (response or fault) is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Header>
                <wsa:To>[reply_address]</wsa:To>
                <wsa:RelatesTo>[message_id]</wsa:RelatesTo>
                <wsa:Action>xs:anyURI</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>…</S:Body>
</S:Envelope>
```

Annex D
(informative)

Service Provider WSDL with SOAP/HTTP Binding

This Annex provides a more specific and complete binding of the SOAP binding specified in Clause 6 by adding the HTTP transport and Service Element.

```
<definitions xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session"
        xmlns:wss="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2"
        targetNamespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2">
        <import namespace="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2"
                location="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/ws-session-
wsdl-abstract-definitions.wsdl" />
        <binding name="SOAP_HTTP" type="wss:ApplicationSessionServicesPortType">
                <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
                <operation name="StartApplicationSessionOp">
                        <input>
                                <soap:body use="literal"/>
                        </input>
                        <output>
                                <soap:body use="literal"/>
                        </output>
                        <fault name="StartFault">
                                <soap:fault name="StartFault" use="literal"/>
                        </fault>
                </operation>
                <operation name="StopApplicationSessionOp">
                        <input>
                                <soap:body use="literal"/>
                        </input>
                        <output>
                                <soap:body use="literal"/>
                        </output>
                        <fault name="StopFault">
                                <soap:fault name="StopFault" use="literal"/>
                        </fault>
                </operation>
                <operation name="ResetApplicationSessionTimerOp">
                        <input>
                                <soap:body use="literal"/>
                        </input>
                        <output>
                                <soap:body use="literal"/>
                        </output>
                        <fault name="ResetFault">
                                <soap:fault name="ResetFault" use="literal"/>
                        </fault>
                </operation>
                <operation name="ApplicationSessionTerminatedOp">
                        <output>
                                <soap:body use="literal"/>
                        </output>
                </operation>
        </binding>
        <service name="ApplicationSessionServices">
                <port name="ApplicationSessionServicesSoapHttpPort" binding="wss:SOAP_HTTP">
                        <soap:address location="http://www.example.com/ws-session"/>
                </port>
        </service>
</definitions>
```

Annex E
(informative)

SOAP XML Templates for ECMA-354 Messages

E.1 StartApplicationSession request message template

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>aps:StartApplicationSession</S:Body>
</S:Envelope>
```

E.1.1 StartApplicationSession Positive response message template

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>aps:StartApplicationSessionPosResponse</S:Body>
</S:Envelope>
```

E.1.2 StartApplicationSession negative response message template

An example of negative response due to maximum session limit.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>
                <S:Fault>
                        <faultcode>maxNumberSessions</faultcode>
                        <faultstring>
                                the server cannot create an application session because
                                it has reached the maximum number of allowed application sessions
                        </faultstring>
                        <detail>
                            <aps:StartApplicationSessionNegResponse>
                                <aps:errorCode>
                                    <aps:definedError>maxNumberSessions</aps:definedError>
                                </aps:errorCode>
                            </aps:StartApplicationSessionNegResponse>
                        </detail>
                </S:Fault>
        </S:Body>
</S:Envelope>
```

E.2 StopApplicationSession request message template

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>aps:StopApplicationSession</S:Body>
</S:Envelope>
```

E.2.1 StopApplicationSession positive response message template

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>aps:StopApplicationSessionPosResponse</S:Body>
</S:Envelope>
```

E.2.2 StopApplicationSession negative response message template

An example negative response due to invalid session reference.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>
                <S:Fault>
                        <faultcode>invalidSessionID</faultcode>
                        <faultstring>the sessionID is not valid or known by the server</faultstring>
                        <detail>
                            <aps:StopApplicationSessionNegResponse>
                                <aps:errorCode>
                                    <aps:definedError>invalidSessionID</aps:definedError>
                                </aps:errorCode>
                            </aps:StopApplicationSessionNegResponse>
                        </detail>
                </S:Fault>
        </S:Body>
</S:Envelope>
```

E.3 ResetApplicationSessionTimer request message template

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>aps:ResetApplicationSessionTimer</S:Body>
</S:Envelope>
```

E.3.1 ResetApplicationSessionTimer positive response message template

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>aps:ResetApplicationSessionTimerPosResponse</S:Body>
</S:Envelope>
```

E.3.2 Reset Application Session Timer negative response message template

An example negative response due to invalid session reference.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Body>
                <S:Fault>
                        <faultcode>invalidSessionID</faultcode>
                        <faultstring>the sessionID is not valid or known by the server</faultstring>
                        <detail>
                            <aps:ResetApplicationSessionTimerNegResponse>
                                <aps:errorCode>
                                    <aps:definedError>invalidSessionID</aps:definedError>
                                </aps:errorCode>
                            </aps:ResetApplicationSessionTimerNegResponse>
                        </detail>
                </S:Fault>
        </S:Body>
</S:Envelope>
```

E.4 ApplicationSessionTerminated

E.4.1 Template of ApplicationSessionTerminated event notification for unwrapped event sink which applies to both WS-Eventing and WS-BaseNotification options

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Header>
                <wsa:Action>http://www.ecma-international.org/standards/ecma-366/ws-
session/ed2/typed_sink/ApplicationSessionSinkPortType/ApplicationSessionTerminated</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>aps:ApplicationSessionTerminated</S:Body>
</S:Envelope>
```

E.4.2 Template of ApplicationSessionTerminated event notification to wrapped event sink of WS-Eventing

```
<S:Envelope
xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session"
xmlns:gsk="http://www.ecma-international.org/standards/ecma-366/ws-session/ed2/generic_sink">
        <S:Header>
                <wsa:Action>http://www.ecma-international.org/standards/ecma-366/ws-
session/ed2/generic_sink/GenericSinkPortType/NotifyEvent</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>
            <gsk:Notify>
                aps:ApplicationSessionTerminated
            </gsk:Notify>
        </S:Body>
</S:Envelope>
```

E.4.3 Template of ApplicationSessionTerminated event notification to wrapped event sink of WS-BaseNotification

```
<S:Envelope
xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Header>
                <wsa:Action>http://docs.oasis-open.org/wsn/bw-2/NotificationConsumer/Notify</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>
            <wsnt:Notify>
                <wsnt:NotificationMessage>
                    <wsnt:Message>
                        aps:ApplicationSessionTerminated
                    </wsnt:Message>
                </wsnt:NotificationMessage>
            </wsnt:Notify>
        </S:Body>
</S:Envelope>
```

Annex F
(informative)

WS-Eventing SOAP XML Message Templates

F.1 ApplicationSessionTerminated Event Subscription SOAP message template

The subscription to the ApplicationSessionTerminated event is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session" >
        <S:Header>
                <wsa:To>xs:anyURI</wsa:To>
                <aps:sessionID wsa:IsReferenceParameter='true'>xs:string</aps:sessionID>
                <wsa:Action>http://schemas.xmlsoap.org/ws/2004/08/eventing/Subscribe</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>
                <wse:Subscribe>
                        <wse:Delivery Mode="xs:anyURI" >
                                <wse:NotifyTo>
                                        <wsa:Address>xs:anyURI</wsa:Address>
                                        <wsa:EndpointReferenceParameters>…
                                        </wsa:EndpointReferenceParameters>
                                </wse:NotifyTo>
                        </wse:Delivery>
                </wse:Subscribe>
        </S:Body>
</S:Envelope>
```

F.2 Template of positive response to the event subscription

The positive response to the ApplicationSessionTerminated event subscription is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
        <S:Header>
            <wsa:Action>http://schemas.xmlsoap.org/ws/2004/08/eventing/SubscribeResponse</wsa:Action>
            xs:any*
        </S:Header>
        <S:Body>
                <wse:SubscribeResponse>
                        <wse:SubscriptionManager>
                                wsa:EndpointReferenceType
                        </wse:SubscriptionManager>
                </wse:SubscribeResponse>
        </S:Body>
</S:Envelope>
```

F.3 Template of negative response (fault) to event subscription

The negative response to the ApplicationSessionTerminated event subscription is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing">
        <S:Header>
                <wsa:Action>http://www.w3.org/2005/08/addressing/fault</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body >
                <S:Fault>
                        <faultcode>wse:EventSouceUnableToProcess</faultcode>
                        <faultstring>The session [sessionID] is invalid</faultstring>
                        <detail>invalidSessionID:[sessionID]</detail>
                </S:Fault>
        </S:Body>
</S:Envelope>
```

F.4 Template of Unsubscribe message

The request to unsubscribe an existing subscription is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session">
        <S:Header>
                <wsa:To>xs:anyURI</wsa:To>
                <wse:Identifier>xs:anyURI</wse:Identifier>
                <wsa:Action>http://schemas.xmlsoap.org/ws/2004/08/eventing/Unsubscribe</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>
                <wse:Unsubscribe />
        </S:Body>
</S:Envelope>
```

F.5 Template of positive response to Unsubscribe message

The positive response to unsubscribing an existing subscription is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing" >
        <S:Header>
            <wsa:Action>http://schemas.xmlsoap.org/ws/2004/08/eventing/UnsubscribeResponse</wsa:Action>
            xs:any*
        </S:Header>
        <S:Body></S:Body>
</S:Envelope>
```

Annex G
(informative)

WS-BaseNotification SOAP XML Message Templates

G.1 ApplicationSessionTerminated Event Subscription SOAP message template

The subscription to the ApplicationSessionTerminated event is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
        xmlns:aps="http://www.ecma-international.org/standards/ecma-354/appl_session" >
        <S:Header>
                <wsa:To>xs:anyURI</wsa:To>
                <aps:sessionID wsa:IsReferenceParameter='true'>xs:string</aps:sessionID>
                <wsa:Action>http://docs.oasis-open.org/wsn/bw-
    2/NotificationProducer/SubscribeRequest</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>
                <wsnt:Subscribe>
                        <wsnt:ConsumerReference>
                                <wsa:Address>xs:anyURI</wsa:Address>
                                <wsa:EndpointReferenceParameters>…
                                </wsa:EndpointReferenceParameters>
                        </wsnt:ConsumerReference>
                        <wsnt:SubscriptionPolicy>  <wsnt:UseRaw /> </wsnt:SubscriptionPolicy> ?
                </wsnt:Subscribe>
        </S:Body>
</S:Envelope>
```

G.2 Template of positive response to the event subscription

The positive response to the ApplicationSessionTerminated event subscription is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2" >
        <S:Header>
                <wsa:Action>http://docs.oasis-open.org/wsn/bw-
    2/NotificationProducer/SubscribeResponse</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>
                <wsnt:SubscribeResponse>
                        <wsnt:SubscriptionReference>
                                wsa:EndpointReferenceType
                        </wsnt:SubscriptionReference>
                </wsnt:SubscribeResponse>
        </S:Body>
</S:Envelope>
```

G.3 Template of negative response to the event subscription

The negative response to the ApplicationSessionTerminated event subscription is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
        xmlns:wsrf-rw="http://docs.oasis-open.org/wsrf/rw-2">
        <S:Header>
                <wsa:Action>http://docs.oasis-open.org/wsn/fault</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>
                <S:Fault>
                        <faultcode>wsrf-rw:ResourceUnknownFault</faultcode>
                        <faultstring>The session [sessionID] is invalid</faultstring>
                        <detail>invalidSessionID:[sessionID]</detail>
                </S:Fault>
        </S:Body>
</S:Envelope>
```

G.4 Template of Unsubscribe message

The request to unsubscribe an existing subscription is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2">
        <S:Header>
                <wsa:To>xs:anyURI</wsa:To>
                <wsa:Action>http://docs.oasis-open.org/wsn/bw-
    2/SubscriptionManager/UnsubscribeRequest</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>
                <wsnt:Unsubscribe />
        </S:Body>
</S:Envelope>
```

G.5 Template of positive response to Unsubscribe message

The positive response to unsubscribing an existing subscription is shown below.

```
<S:Envelope
        xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:wsa="http://www.w3.org/2005/08/addressing"
        xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2">
        <S:Header>
                <wsa:Action>http://docs.oasis-open.org/wsn/bw-
    2/SubscriptionManager/UnsubscribeResponse</wsa:Action>
                xs:any*
        </S:Header>
        <S:Body>
                <wsnt:UnsubscribeResponse />
        </S:Body>
</S:Envelope>
```

Annex H
(informative)

Summary of Changes

1. Standardized WS-Eventing and WS-BaseNotification as two Options for subscribing to the ApplicationSessionTerminated event.
    - Added an Option for asychronous response to subscription request.
    - Removed original option “typed+generic”. The term “wrapped” and “unwrapped” are used in place of “generic” and “typed”.
    - Added the XML templates for event subscription request, response and notification using WS-BaseNotification Option.
    - Updated the XML templates for event subscription request, response and notification using WS-Eventing Option.
2. Changed WS-Session WSDL operations from tns:xxx to xxxOp.
3. Added SOAP fault definitions for WS-Session fault messages.
4. Modified WS-Session target namespace to include edition number (ed2).
5. Rename namespace prefix for WS-Session to wss.
6. Added namespaces for sink interface and wrapped sink services.
7. Clarified aps:sessionID usage for Service Requester and Provider.