



Web Services Base Notification 1.2 (WS-BaseNotification)

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Abstract:

The Event-driven, or Notification-based, interaction pattern is a commonly used pattern for inter-object communications. Examples exist in many domains, for example in publish/subscribe systems provided by Message Oriented Middleware vendors, or in system and device management domains. This notification pattern is increasingly being used in a Web services context.

WS-Notification is a family of related white papers and specifications that define a standard Web services approach to notification using a topic-based publish/subscribe pattern. It includes: standard message exchanges to be implemented by service providers that wish to participate in Notifications, standard message exchanges for a notification broker service provider (allowing publication of messages from entities that are not themselves service providers), operational requirements expected of service providers and requestors that participate in notifications, and an XML model that describes topics. The WS-Notification family of documents includes: a white paper: Publish-Subscribe Notification for Web services as well as three normative specifications: WS-BaseNotification, WS-BrokeredNotification, and WS-Topics.

This document defines the Web services interfaces for NotificationProducers and NotificationConsumers. It includes standard message exchanges to be implemented by service providers that wish to act in these roles, along with operational requirements expected of them. This is the base specification on which the other WS-Notification specification documents depend. An implementer interested just in direct, point to point,

35 notification need only read this WS-BaseNotification specification, together with the
36 Publish-Subscribe Notification for Web Services white paper.

37 **Status:**

38 On 17 June 2004, this document was approved by the OASIS WS-Notification Technical
39 Committee for publication so that users of the specification have a stable draft version
40 available until the TC publishes a Committee Draft. Send comments to the editor.

41 Committee members should send comments on this specification to the [wsn@lists.oasis-](mailto:wsn@lists.oasis-open.org)
42 [open.org](mailto:wsn@lists.oasis-open.org) list. Others should subscribe to and send comments to the [wsn-](mailto:wsn-comment@lists.oasis-open.org)
43 [comment@lists.oasis-open.org](mailto:wsn-comment@lists.oasis-open.org) list. To subscribe, send an email message to [wsn-](mailto:wsn-comment-request@lists.oasis-open.org)
44 [comment-request@lists.oasis-open.org](mailto:wsn-comment-request@lists.oasis-open.org) with the word "subscribe" as the body of the
45 message.

46 For information on whether any patents have been disclosed that may be essential to
47 implementing this specification, and any offers of patent licensing terms, please refer to
48 the Intellectual Property Rights section of the WSN TC web page ([http://www.oasis-](http://www.oasis-open.org/committees/wsn/)
49 [open.org/committees/wsn/](http://www.oasis-open.org/committees/wsn/)).

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83 **1 Introduction**

84 The Event-driven, or Notification-based, interaction pattern is a commonly used pattern for inter-
85 object communications. Examples exist in many domains, for example in publish/subscribe
86 systems provided by Message Oriented Middleware vendors, or in system and device
87 management domains.

88 The WS-Notification family of specifications defines a standard Web services approach to
89 notification. This document is the base specification on which all the other specifications in the
90 family depend. It defines the normative Web services interfaces for two of the important roles in
91 the notification pattern, namely the NotificationProducer and NotificationConsumer roles. This
92 specification includes standard message exchanges to be implemented by service providers that
93 wish to act in these roles, along with operational requirements expected of them.

94 A NotificationConsumer can be registered to receive notifications directly from a
95 NotificationProducer, so an implementer interested just in direct, point to point, notification need
96 only read this WS-Base Notification specification, together with the additional material that is to
97 be found in Publish-Subscribe Notification for Web Services document [WS-Notification
98 Whitepaper].

99 In the remainder of this section we will give a brief introduction to the Notification pattern, and the
100 terms we will use in this specification. For a more complete description, the reader is encouraged
101 to consult [WS-Notification Whitepaper].

102 In the Notification pattern a Web service, or other entity, disseminates information to a set of
103 other Web services, without having to have prior knowledge of these other Web services.

104 This specification defines a role called the NotificationProducer. A NotificationProducer accepts
105 incoming Subscribe requests, each subscribe request identifies one or more Topics of interest
106 and a reference to a NotificationConsumer. The NotificationProducer maintains a list of
107 subscriptions (each subscription entry contains the Topic(s), a reference to the
108 NotificationConsumer and possibly additional information). When it has a notification to distribute,
109 the NotificationProducer matches the notification against the interest registered in each
110 Subscription known to it. If it identifies a match it issues the Notification to the
111 NotificationConsumer associated with that Subscription.

112 This specification allows the use of a variety of dialects in which to refer to Topics, ranging from
113 simple QNames, to more sophisticated path-based Expression languages. Topic classifications
114 and Topic Expressions are discussed more fully in [WS-Topics].

115 The configuration where a NotificationConsumer is subscribed directly to the NotificationProducer
116 is referred to as the "direct" or "point-to-point" notification pattern. There are other variations of the
117 Notification pattern, where the NotificationConsumer is subscribed to an intermediary
118 NotificationBroker service. These are covered by the [WS-Brokered Notification] specification.

119 **1.1 Goals and Requirements**

120 The overall objectives of WS-Notification are presented in [WS-Notification
121 Whitepaper]. The specific subset of those objectives realized by WS-BaseNotification
122 is listed here.

123 The goal of WS-BaseNotification is to standardize the terminology, concepts,
124 operations, WSDL and XML needed to express the basic roles involved in Web
125 services publish and subscribe for notification message exchange.

126 1.1.1 Requirements

127 In meeting these goals, the WS-BaseNotification specification must explicitly address
128 the following requirements:

- 129 • **Must support resource-constrained devices.** The specifications must be
130 factored in a way that allows resource-constrained devices to participate in the
131 Notification pattern. Such devices will be able to send information to, and receive
132 information from Web services, without having to implement all the features of
133 the specifications.
- 134 • **Must provide runtime metadata:** There must be a mechanism that lets a
135 potential Subscriber discover what elements available for subscription are
136 provided by a NotificationProducer, and in what formats the subscription for
137 notification can be made.

138 In addition, the WS-BaseNotification must allow for the following requirements to be
139 met

- 140 • **WS-BaseNotification must be independent of binding-level details:**
141 Transport protocol details must be orthogonal to the subscription and the delivery
142 of the notifications, so that the specification can be used over a variety of
143 different transports.
- 144 • **Must allow for Message Oriented Middleware implementations.** The design
145 of the WS-BaseNotification must allow a service that is acting as a
146 NotificationProducer to delegate its implementation of WS-BaseNotification
147 semantics to a Message Oriented Middleware provider.
- 148 • **Relationship to other WS-* specifications:** WS-BaseNotification must be
149 composable with other Web services specifications, in particular WS-Security,
150 WS-Policy, WS-Federation, WS-Addressing, WS-Coordination, WS-
151 ResourceProperties, WS-ResourceLifetime, WS-ReliableMessaging [WS-
152 ReliableMessaging] and the WS-Resource framework [State Paper].

153 1.1.2 Non-Goals

154 The following topics are outside the scope of the WS-BaseNotification specification:

- 155 • **Defining the format of notification payloads:** The data carried in
156 NotificationMessage payloads is application-domain specific, and WS-
157 BaseNotification does not prescribe any particular format for this data.
- 158 • **Defining any Events or NotificationMessages.** The WS-BaseNotification
159 specification does not define any "standard" or "built-in" notification situations,
160 events or messages.
- 161 • **Defining the mapping between Situations and NotificationMessages.** The
162 WS-BaseNotification specification does not define the circumstances under which
163 a potential producer of information should decide if and when it should actually
164 notify the registered NotificationConsumers. However they do define how it
165 performs the notification once it has decided to do so.
- 166 • **Defining the means by which NotificationProducers are discovered by
167 subscribers** It is beyond the scope of this specification to define the mechanisms
168 for runtime discovery of NotificationProducers.

169

170 **1.2 Terminology**

171 The keywords "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD",
172 "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be
173 interpreted as described in [RFC 2119].

174 When describing abstract data models, this specification uses the notational convention used by
175 the [XML Infoset]. Specifically, abstract property names always appear in square brackets (e.g.,
176 [some property]).

177 When describing concrete XML schemas, this specification uses the notational convention of
178 [WS-Security]. Specifically, each member of an element's [children] or [attributes] property is
179 described using an XPath-like notation (e.g., /x:MyHeader/x:SomeProperty/@value1). The use of
180 {any} indicates the presence of an element wildcard (<xsd:any/>). The use of @{any} indicates
181 the presence of an attribute wildcard (<xsd:anyAttribute/>).

182 **1.3 Namespaces**

183 The following namespaces are used in this document:

Prefix	Namespace
s12	http://www.w3.org/2003/05/soap-envelope
xsd	http://www.w3.org/2001/XMLSchema
wsp	http://schemas.xmlsoap.org/ws/2002/12/policy
wsa	http://schemas.xmlsoap.org/ws/2003/02/addressing
wsrp	http://docs.oasis-open.org/wsr/2004/06/wsr-WS-ResourceProperties-1.2-draft-01.xsd
wsrpw	http://docs.oasis-open.org/wsr/2004/06/wsr-WS-ResourceProperties-1.2-draft-01.wsdl
wsrli	http://docs.oasis-open.org/wsr/2004/06/wsr-WS-ResourceLifetime-1.2-draft-01.xsd
wsrliw	http://docs.oasis-open.org/wsr/2004/06/wsr-WS-ResourceLifetime-1.2-draft-01.wsdl
wsbfi	http://docs.oasis-open.org/wsr/2004/06/wsr-WS-BaseFaults-1.2-draft-01.xsd
wsbfiw	http://docs.oasis-open.org/wsr/2004/06/wsr-WS-BaseFaults-1.2-draft-01.wsdl
wsn	http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-draft-01.xsd
wsnw	http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-draft-01.wsdl

184

185 **2 Terminology and Concepts**

186 Please refer to [WS-Notification Whitepaper] for a list of terms and their definitions.

3 NotificationConsumer Interface

187

188 WS-Notification allows a NotificationProducer to send a NotificationMessage to a
189 NotificationConsumer in one of two ways:

- 190 1. The NotificationProducer MAY simply send the "raw" NotificationMessage (i.e. the
191 application-specific content) to the NotificationConsumer.
- 192 2. The NotificationProducer MAY send the NotificationMessage data using the Notify
193 message described below

194 The second option (the Notify message) allows the NotificationProducer to supply additional WS-
195 Notification-defined information (such as the Topic) in addition to the application-specific
196 NotificationMessage content. It also means that the NotificationConsumer can receive a wide
197 range of NotificationMessages without having to explicitly provide support for each one in its
198 WSDL. Furthermore, this form of Notification allows a batch of multiple NotificationMessages to
199 be delivered using a single message.

200 When a Subscriber sends a Subscribe request message, it indicates which form of Notification is
201 required (the raw NotificationMessage, or the Notify Message). The NotificationProducer MUST
202 observe this Subscription parameter, and use the form that has been requested.

203 This means that a NotificationConsumer MAY choose to implement the Notify Message, or to
204 implement raw NotificationMessage(s) explicitly (or both). When requesting creation of a
205 Subscription on behalf of a NotificationConsumer, a Subscriber SHOULD ensure that the
206 NotificationConsumer is able to handle the form of Notification it has requested for the given
207 Subscription.

3.1 Notify

208
209 A NotificationProducer MAY send the Notify message to the NotificationConsumer in order to
210 deliver one or more NotificationMessage(s). The format of the Notify message is:

```
211 ...  
212 <wsnt:Notify>  
213   <wsntw:NotificationMessage>  
214     <wsnt:Topic Dialect="xsd:anyURI">  
215       {any}  
216     </wsnt:Topic>  
217     <wsnt:ProducerReference?>  
218       wsa:EndpointReference  
219     </wsnt:ProducerReference>  
220     <wsnt:Message>xsd:any</wsnt:Message>  
221   <wsnt:NotificationMessage>+  
222 </wsnt:Notify>  
223 ...
```

224 The components of the Notify message are further described as follows:

225 /wsnt:Notify

226 Contains a collection of one or more NotificationMessages to be delivered. This message
227 MAY follow the implied resource pattern as outlined in [State Paper].

228 /wsnt:Notify/wsnt:NotificationMessage

229 Contains a NotificationMessage to be delivered.

230 /wsnt:Notify/wsnt:NotificationMessage/wsnt:Topic

231 The TopicExpression describing exactly one Topic - the Topic that is associated with this
232 NotificationMessage. This element describes the topic that matched to a subscription,
233 causing the NotificationProducer to send the Notify message to the
234 NotificationConsumer.

235 /wsnt:Notify/wsnt:NotificationMessage/wsnt:Topic/@Dialect

236 The dialect used in the TopicExpression. This must be the same dialect used by the
237 Subscriber when it created the Subscription that yielded this notify message.

238 /wsnt:Notify/wsnt:NotificationMessage/wsnt:ProducerReference

239 An OPTIONAL EndpointReference to the NotificationProducer that originally generated
240 the NotificationMessage artifact.

241 /wsnt:Notify/wsnt:NotificationMessage/wsnt:Message

242 A copy of the actual NotificationMessage payload.

243

244 No response is expected from the NotificationConsumer upon receipt of this message.

245 **3.1.1 Example SOAP Encoding of the Notify Message**

246 The following is a non-normative example of a Notify message using SOAP 1.2 [SOAP 1.2]:

```
247 <s12:Envelope
248     xmlns:s12="http://www.w3.org/2003/05/soap-envelope"
249     xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"
250     xmlns:wsnt=
251     "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-
252     draft-01.xsd"
253     xmlns:ncex="http://www.consumer.org/RefProp"
254     xmlns:npex="http://www.producer.org/RefProp">
255   <s12:Header>
256     <wsa:Action>
257     http://docs.oasis-open.org/wsn/2004/06/WS-BaseNotification/Notify
258   </wsa:Action>
259   <wsa:To s12:mustUnderstand="1">
260     http://www.consumer.org/ConsumerEndpoint
261   </wsa:To>
262   <ncex:NCRResourceDisambiguator>
263     uuid:9fef5fec-6dc3-44a2-ba32-8680cace43f9
264   </ncex:NCRResourceDisambiguator>
265 </s12:Header>
266 <s12:Body>
267   <wsnt:Notify>
268     <wsnt:NotificationMessage>
269       <wsnt:Topic
270         Dialect=
271         "http://docs.oasis-open.org/wsn/2004/06/TopicExpression/Simple">
272         npex:SomeTopic
273       </wsnt:Topic>
274       <wsnt:ProducerReference
275         xmlns:npex="http://www.producer.org/RefProp">
276       <wsa:Address>
277         http://www.producer.org/ProducerEndpoint
```

```
278     </wsa:Address>
279     <wsa:ReferenceProperties>
280         <npex:NPRResourceDisambiguator>
281             uuid:84decd55-7d3f-65ad-ac44-675d9fce5d22
282         </npex:NPRResourceDisambiguator>
283     </wsa:ReferenceProperties>
284 </wsnt:ProducerReference>
285 <wsnt:Message>
286     <npex:NotifyContent>exampleNotifyContent</npex:NotifyContent>
287 </wsnt:Message>
288 <wsnt:NotificationMessage>
289 </wsnt:Notify>
290 </s12:Body>
291 </s12:Envelope>
```

292 Note the use of the `wsa:ReferenceProperties` elements in the message. These are examples of
293 WS-Resource qualified `EndpointReferences`, following the implied resource pattern as outlined in
294 [State Paper].

4 NotificationProducer Interface

295

296 This section describes the message exchanges and resource properties that a
297 NotificationProducer MUST support. These message exchanges allow the NotificationProducer to
298 advertise its support for one or more Topics, and allow a Subscriber to create Subscriptions or to
299 control the delivery of NotificationMessages by the NotificationProducer.

4.1 NotificationProducer Resource Properties

300

301 In addition to the message exchanges described in this specification, a NotificationProducer
302 MUST also support the required message exchanges defined in the WS-ResourceProperties
303 specification and MAY support the optional message exchanges defined in the WS-
304 ResourceProperties specification.

305 The Resource Properties document defined by the NotificationProducer MUST include a
306 reference to the following resource property elements:

307

```
...  
308     targetNamespace=  
309     "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-  
310     draft-01.xsd"  
311     ...  
312  
313     <xsd:element name="Topics" type="wsnt:TopicExpressionType"  
314                 minOccurs="0" maxOccurs="unbounded" />  
315  
316     <xsd:element name="FixedTopicSet" type="xsd:boolean"  
317                 minOccurs="1" maxOccurs="1" />  
318  
319     <xsd:element name="TopicExpressionDialects" type="xsd:anyURI"  
320                 minOccurs="1" maxOccurs="unbounded" />  
321  
322     ...
```

323 These Resource Property elements are further constrained as follows:

324 /wsnt:Topics

325 This resource property contains collection of Topics supported by the
326 NotificationProducer. The set of topics is expressed using one or more wsnt:Topic
327 resource property element(s). Each wsnt:Topic resource property element is a
328 TopicExpression. The dialect of TopicExpression used can be any dialect. It is
329 RECOMMENDED to use one of the TopicExpression dialects described in [WS-Topics].
330 A NotificationProducer MAY use an expression that refers to multiple Topics, if the dialect
331 used has this capability. The same Topic may be referred to by multiple wsnt:Topic
332 resource property element(s), for example, in different resource property elements each
333 using a different dialect.

334 If a Topic appears in one of the wsnt:Topic resource property elements, a Subscriber can
335 reasonably expect the NotificationProducer to deliver NotificationMessages on this Topic.
336 It is not a guarantee that it will receive any NotificationMessages; the
337 NotificationProducer may not actually produce any NotificationMessages on the particular
338 Topic during the time that the Subscriber is registered.

339 /wsnt:FixedTopicSet
340 Indicates if the collection of Topics contained within the wsnt:Topic resource property
341 may change. This value is "true" if the collection of Topics supported by the
342 NotificationProducer does not change and "false" if the NotificationProducer allows the
343 collection to change (for example if it allows additional Topics to be supported should
344 publishers or subscribers request them).

345 /wsnt:TopicExpressionDialects
346 Indicates one or more TopicExpression dialect(s) that are supported by the
347 NotificationProducer. If a URI corresponding to a dialect appears in this resource
348 property, a subscriber is assured that a subscription request containing a valid topic
349 expression using that dialect will be accepted by the NotificationProducer. The
350 TopicExpressionDialects property is a "fixed property", i.e. its value, for any given
351 NotificationProducer WS-Resource, does not change over time.

352 4.2 Subscribe

353 A Subscriber sends a Subscribe message to a NotificationProducer in order to register the
354 interest of a NotificationConsumer for NotificationMessages related to one or more Topics.
355 As part of the processing of a Subscribe request message, the NotificationProducer MUST create
356 a Subscription resource representing the Subscription. It returns an EndpointReference in the
357 response to the Subscribe request. This EndpointReference is a WS-Resource-Qualified
358 EndpointReference as defined in [State Paper] and includes the address of a
359 SubscriptionManager service and a reference property containing the identity of the Subscription
360 resource.
361 Sending two identical Subscribe request messages to a NotificationProducer will result in the
362 creation of two Subscription resources. The NotificationConsumer will be associated with both
363 Subscription resources and so will receive two copies of any matching NotificationMessage.
364 The format of the Subscribe message is:

```
365 ...  
366 <wsnt:Subscribe>  
367   <wsnt:ConsumerReference>  
368     wsa:endpointReference  
369   </wsnt:ConsumerReference>  
370   <wsnt:TopicExpression Dialect = "xsd:anyURI">  
371     {any}  
372   </wsnt:TopicExpression>  
373   <wsnt:UseNotify> xsd:boolean </wsnt:UseNotify>?  
374   <wsnt:Precondition> wsrp:QueryExpression </Precondition>?  
375   <wsnt:Selector> wsrp:QueryExpression </wsnt:Selector>?  
376   <wsnt:SubscriptionPolicy> {any} </wsnt:SubscriptionPolicy>?  
377   <wsnt:InitialTerminationTime>  
378     xsd:dateTime  
379   </wsnt:InitialTerminationTime>?  
380 </wsnt:Subscribe>  
381 ...
```

382 This request message MUST follow the implied resource pattern as outlined in [State Paper]. The
383 components of the Subscribe request message are further described as follows:

384 /wsnt:ConsumerReference
385 An endpoint reference element from WS-Addressing [WS-Addressing], used to identify
386 the NotificationConsumer.

387 In cases where the value of the wsnt:UseNotify component is “true”, the Web service
388 identified by the endpoint reference MUST implement the message exchanges defined
389 by NotificationConsumer (e.g. the Notify message).

390 /wsnt:ConsumerReference/wsa:ReferenceProperties
391 The ReferenceProperties MAY contain an identifier of the resource to which the
392 NotificationMessage should be delivered. This is used in the situation where the
393 NotificationConsumer itself is implementing the implied resource pattern [State Paper].

394 The ReferenceProperties MAY contain other elements useful in the NotificationMessage
395 delivery. For example the ReferenceProperties could contain a “correlationContext” - an
396 element that is returned as part of each NotificationMessage delivered to the
397 NotificationConsumer.

398 /wsnt:TopicExpression
399 A TopicExpression that identifies one or more Topics supported by the
400 NotificationProducer.

401 /wsnt:TopicExpression/@Dialect
402 A URI that identifies the language of the TopicExpression. WS-Topics defines some
403 standard URIs. Designers MAY define and use other domain-specific URIs to identify the
404 dialect of the TopicExpression.

405 The NotificationProducer MAY refuse to process the Subscribe request if the dialect used
406 by the Subscriber in the TopicExpression is not one of the dialects supported by the
407 NotificationProducer.

408 /wsnt:UseNotify
409 A boolean value that indicates how the NotificationProducer is to deliver
410 NotificationMessages to the NotificationConsumer. This component is optional, if missing
411 the default value is “true”.

412 If this value is “true” then the NotificationProducer MUST use the wsnt:Notify message to
413 deliver NotificationMessages to the NotificationConsumer. In this case the
414 NotificationConsumer referred to in the wsnt:ConsumerReference element MUST
415 implement the Notify message and include a Notify operation in its portType definition.

416 If this value is “false” then the NotificationProducer MUST deliver the NotificationMessage
417 using the raw NotificationMessage itself. In this case the NotificationConsumer referred to
418 in the wsnt:ConsumerReference element MUST implement all the NotificationMessages
419 associated with the Topic or Topics referred to by the TopicExpression, and include
420 corresponding operations in its portType definition.

421 /wsnt:Precondition
422 This component contains a QueryExpression as defined by WS-ResourceProperties.

423 This component expresses a NotificationProducer-specific precondition associated with
424 generation of NotificationMessages by the NotificationProducer. A NotificationProducer
425 object is free to define the syntax and meaning of this expression

426 Non-normative examples of a possible precondition include:

- 427 • An XPath expression on the Resource Properties of the NotificationProducer that
- 428 evaluates to a Boolean. The NotificationProducer must only deliver
- 429 NotificationMessages to the NotificationConsumer if this expression evaluates to
- 430 “true”.
- 431 • A database query operation to be performed in order to generate a
- 432 NotificationMessage, or periodic sequence of NotificationMessages.

433 /wsnt:Selector

434 A QueryExpression as defined by WS-ResourceProperties. A wsnt:Selector expression

435 MUST evaluates to a Boolean. The evaluation context is NotificationMessage(s) that are

436 Published on the Topic(s) identified by the TopicPathExpression defined by the

437 wsnt:TopicPathExpression component of this message.

438 The NotificationProducer must only deliver NotificationMessages to the

439 NotificationConsumer if this expression evaluates to “true”.

440 /wsnt:SubscriptionPolicy

441 This optional component is an open component intended to be used in an application

442 specific way to specify policy related requirements/assertions associated with the

443 subscribe requests. This mechanism could be used to govern the message rate (e.g.

444 maximum 3 messages per second), reliability of the NotificationMessage delivery, etc.

445 The semantics of how the NotificationProducer MUST or MAY react to the policy

446 requirements and assertions appearing in this component are specific to the actual policy

447 grammar used.

448 One non-normative example use of this component is to specify a WS-Policy [WS-Policy]

449 element indicating the requested policies to apply to the Subscription.

450 If this component is not specified in the Subscribe request message, then the

451 NotificationProducer SHOULD use other means (such as directly contacting the

452 NotificationConsumer) to resolve any policy-related inquiries.

453 /wsnt:InitialTerminationTime

454 This component contains the service requestor’s suggestion for the initial termination

455 time of the Subscription being created. This time is relative to the time source used by the

456 NotificationProducer. If the NotificationProducer is unable or unwilling to set the

457 TerminationTime resource property of the Subscription resource to the given value or

458 greater, then the Subscribe request MUST fault. If the value is not “in the future” relative

459 to the current time as known by the NotificationProducer, the Subscribe request MUST

460 fault. The use of the xsi:nil attribute with value “true” indicates there is no scheduled

461 termination time requested for the Subscription. If the element does not include the time

462 zone designation, the value of the element MUST be interpreted as universal time (UTC)

463 time.

464 If this component is not included, the initial value of the TerminationTime resource

465 property is dependent on the implementation of the NotificationProducer.

466 The response to the Subscribe request message is a message of the following form:

```

467 ...
468 <wsnt:SubscribeResponse>
469   <wsnt:SubscriptionReference>

```

```

470     <wsa:Address> Address of Subscription Manager </wsa:Address>
471     <wsa:ReferenceProperties>
472         Subscription Identifier
473     </wsa:ReferenceProperties>
474     ...
475 </wsnt:SubscriptionReference>
476 ...
477 </wsnt:SubscribeResponse>
478 ...

```

479 The contents of the SubscribeResponse message are further described as follows:

480 /wsnt:SubscriptionReference/wsa:Address

481 The address of a Web service that implements the SubscriptionManager set of
482 messages. This SubscriptionManager is associated with the Subscription resource
483 created by the Subscribe message following the implied resource pattern.

484 /wsnt:SubscriptionReference/wsa:ReferenceProperties

485 An identifier of the Subscription resource following to the implied resource pattern.

486 Instead of the SubscribeResponse message, the NotificationProducer may also send the
487 following faults in response to a Subscribe message:

- 488 • Unable to create subscription
- 489 • TopicPath Dialect not understood
- 490 • Others, TBD

491 **4.2.1 Example SOAP Encoding of the Subscribe Message Exchange**

492 The following is a non-normative example of a Subscribe request message using SOAP 1.2
493 [SOAP 1.2]:

```

494 <s12:Envelope
495     xmlns:s12="http://www.w3.org/2003/05/soap-envelope"
496     xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"
497     xmlns:wsnt=
498         "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-
499 1.2-draft-01.xsd"
500     xmlns:npex="http://www.producer.org/RefProp">
501 <s12:Header>
502     <wsa:Action>
503 http://docs.oasis-open.org/wsn/2004/06/WS-BaseNotification/Subscribe
504     </wsa:Action>
505     <wsa:To s12:mustUnderstand="1">
506         http://www.producer.org/ProducerEndpoint
507     </wsa:To>
508     <npex:NPRResourceDisambiguator>
509         uuid:84dec55-7d3f-65ad-ac44-675d9fce5d22
510     </npex:NPRResourceDisambiguator>
511 </s12:Header>
512 <s12:Body>
513     <wsnt:Subscribe>
514         <wsnt:ConsumerReference

```

```

515         xmlns:ncex="http://www.consumer.org/RefProp">
516         <wsa:Address>
517             http://www.producer.org/ProducerEndpoint
518         </wsa:Address>
519         <wsa:ReferenceProperties>
520             <ncex:NCResourceReference>
521                 uuid:9fef5fec-6dc3-44a2-ba32-8680cace43f9
522             </ncex:NCResourceReference>
523         </wsa:ReferenceProperties>
524     </wsnt:ConsumerReference>
525     <wsnt:TopicExpression
526         Dialect="http://docs.oasis-
527 open.org/wsn/2004/06/TopicExpression/Simple">
528         npex:SomeTopic
529     </wsnt:TopicExpression>
530     <wsnt:UseNotify>true</wsnt:UseNotify>
531     <wsnt:Precondition
532         Dialect="http://www.w3.org/TR/1999/REC-xpath-19991116">
533         boolean(ncex:NumberOfBlocks > 20 and ncex:BlockSize=1024)
534     </Precondition>
535     <wsnt:Selector
536         Dialect="http://www.w3.org/TR/1999/REC-xpath-19991116">
537         boolean(ncex:Producer="15")
538     </wsnt:Selector>
539     <wsnt:InitialTerminationTime>
540         2003-12-25T00:00:00.000000Z
541     </wsnt:InitialTerminationTime>
542     </wsnt:Subscribe>
543 </s12:Body>
544 </s12:Envelope>

```

545

546 The following is a non-normative example of a Subscribe response message using SOAP 1.2
547 [SOAP 1.2]:

```

548 <s12:Envelope
549     xmlns:s12="http://www.w3.org/2003/05/soap-envelope"
550     xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"
551     xmlns:wsnt=
552     "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-
553 draft-01.xsd"
554     xmlns:ncex="http://www.consumer.org/RefProp">
555     <s12:Header>
556         <wsa:Action>
557             http://docs.oasis-open.org/wsn/2004/06/WS-
558 BaseNotification/SubscribeResponse
559         </wsa:Action>
560         <wsa:To s12:mustUnderstand="1">
561             http://www.consumer.org/ConsumerEndpoint
562         </wsa:To>

```

```

563     <ncex:NCResourceReference>
564         uuid:9fef5fec-6dc3-44a2-ba32-8680cace43f9
565     </ncex:NCResourceReference>
566 </s12:Header>
567 <s12:Body>
568     <wsnt:SubscribeResponse>
569         <wsnt:SubscriptionReference
570             xmlns:npex="http://www.producer.org/RefProp">
571             <wsa:Address>
572                 http://www.producer.org/SubsMgrEndpoint
573             </wsa:Address>
574             <wsa:ReferenceProperties>
575                 <npex:NSResourceDisambiguator>
576                     uuid:8fefcd11-7d3d-66b344a2-ca44-9876bacd44e9
577                 </npex:NSResourceDisambiguator>
578             </wsa:ReferenceProperties>
579         </wsnt:SubscriptionReference>
580     </wsnt:SubscribeResponse>
581 </s12:Body>
582 </s12:Envelope>

```

583 4.3 GetCurrentMessage

584 In response to a GetCurrentMessage message, the NotificationProducer MAY return the last
585 NotificationMessage published to a given Topic. This is a non-destructive read, and allows a
586 newly-subscribed NotificationConsumer to get the last NotificationMessage that other
587 NotificationConsumers have received.

588 In certain circumstances, a NotificationProducer MAY choose to not cache the last
589 NotificationMessage to one or more Topics it supports. In such cases, the NotificationProducer
590 MUST respond with a fault message indicating that no current message is available on that
591 Topic. The NotificationProducer MAY choose to communicate its caching policy by some means
592 not specified in this document, such as using a policy assertion.

593 The format of the GetCurrentMessage request message is:

```

594 ...
595 <wsnt:GetCurrentMessage>
596     <wsnt:Topic Dialect="xsd:anyURI">{any}</wsnt:Topic>
597 </wsnt:GetCurrentMessage>
598 ...

```

599 This request message MUST follow the implied resource pattern as outlined in [State Paper]. The
600 components of the GetCurrentMessage request message are further described as follows:

601 /wsnt:Topic

602 A TopicExpression that identifies exactly one Topic.

603 The response of the GetCurrentMessage request message is a message of the following form:

```

604 ...
605 <wsnt:GetCurrentMessageResponse>
606     {any}
607 </wsnt:GetCurrentMessageResponse>

```

608

...

609 The contents of the GetCurrentMessage response message are further described as follows:

610 /wsnt:GetCurrentMessageResponse/{any}

611 Contains the last NotificationMessage associated with the Topic identified by the request
612 message.

613 Instead of the GetCurrentMessageResponse message, the NotificationProducer may also send
614 the following faults in response to a GetCurrentMessage message:

- 615 • Invalid TopicExpression
- 616 • Given TopicExpression did not match exactly one Topic supported by the
617 NotificationProducer
- 618 • The Topic is supported but there is no NotificationMessage currently available on that
619 Topic
- 620 • Others, TBD

621 **4.3.1 Example SOAP Encoding of the GetCurrentMessage Message** 622 **Exchange**

623 The following is a non-normative example of a GetCurrentMessage request message using
624 SOAP 1.2 [SOAP 1.2]:

```
625 <s12:Envelope
626     xmlns:s12="http://www.w3.org/2003/05/soap-envelope"
627     xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"
628     xmlns:wsnt=
629     "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-
630     draft-01.xsd"
631     xmlns:npex="http://www.producer.org/RefProp">
632   <s12:Header>
633     <wsa:Action>
634       http://docs.oasis-open.org/wsn/2004/06/WS-
635     BaseNotification/GetCurrentMessage
636     </wsa:Action>
637     <wsa:To s12:mustUnderstand="1">
638       http://www.producer.org/ProducerEndpoint
639     </wsa:To>
640     <npex:NPRResourceDisambiguator>
641       uuid:84decd55-7d3f-65ad-ac44-675d9fce5d22
642     </npex:NPRResourceDisambiguator>
643   </s12:Header>
644   <s12:Body>
645     <wsnt:GetCurrentMessage>
646       <wsnt:Topic
647         Dialect="http://docs.oasis-
648     open.org/wsn/2004/06/TopicExpression/Simple">
649         npex:SomeTopic
650       </wsnt:Topic>
651     </wsnt:GetCurrentMessage>
652   </s12:Body>
```

653 </s12:Envelope>

654 The following is a non-normative example of a GetCurrentMessage response message using
655 SOAP 1.2 [SOAP 1.2]:

```
656 <s12:Envelope
657   xmlns:s12="http://www.w3.org/2003/05/soap-envelope"
658   xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"
659   xmlns:wsnt=
660     "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-
661     draft-01.xsd"
662   xmlns:npex="http://www.producer.org/RefProp">
663   <s12:Header>
664     <wsa:Action>
665       http://docs.oasis-open.org/wsn/2004/06/WS-
666     BaseNotification/GetCurrentMessageResponse
667     </wsa:Action>
668     <wsa:To s12:mustUnderstand="1">
669       http://www.consumer.org/ConsumerEndpoint
670     </wsa:To>
671     <ncex:NCResourceReference
672       xmlns:ncex="http://www.consumer.org/RefProp">
673       uuid:9fef5fec-6dc3-44a2-ba32-8680cace43f9
674     </ncex:NCResourceReference>
675   </s12:Header>
676   <s12:Body>
677     <wsnt:GetCurrentMessageResponse>
678       <npex:NotifyContent>exampleNotifyContent</npex:NotifyContent>
679     </wsnt:GetCurrentMessageResponse>
680   </s12:Body>
681 </s12:Envelope>
```

682 **5 SubscriptionManager Interface**

683 The SubscriptionManager interface defines message exchanges to manipulate Subscription
684 resources. The SubscriptionManager follows the implied resource pattern as described in [State
685 Paper].

686 A SubscriptionManager MUST support the required message exchanges associated with the WS-
687 ResourceProperties specification [WS-ResourceProperties] and MAY support the optional
688 message exchanges defined by WS-ResourceProperties.

689 The SubscriptionManager MUST support the message exchanges defined for both forms of
690 resource lifetime (immediate and scheduled destruction) by WS-ResourceLifetime [WS-
691 ResourceLifetime]. These message exchanges define the means by which Subscription
692 resources can be explicitly destroyed, or destroyed using a scheduled (time-based) mechanism.

693 **5.1 Subscription Resource Properties**

694 In addition to the Resource Properties required by WS-ResourceLifetime, the Subscription
695 resource MUST include a reference to each of the following Resource Property elements in its
696 Resource Properties document:

```
697 ...  
698 <xsd:element name="ConsumerReference"  
699           type="wsa:EndpointReferenceType"  
700           minOccurs="1" maxOccurs="1" />  
701 <xsd:element name="TopicExpression"  
702           type="wsnt:TopicExpressionType"  
703           minOccurs="1" maxOccurs="1" />  
704 <xsd:element name="UseNotify"  
705           type="xsd:boolean"  
706           minOccurs="1" maxOccurs="1" />  
707 <xsd:element name="Precondition"  
708           type="wsrp:QueryExpressionType"  
709           minOccurs="0" maxOccurs="1" />  
710 <xsd:element name="Selector"  
711           type="wsrp:QueryExpressionType"  
712           minOccurs="0" maxOccurs="1" />  
713 <xsd:element name="SubscriptionPolicy"  
714           type="xsd:anyType"  
715           minOccurs="0" maxOccurs="1" />  
716 <xsd:element name="CreationTime"  
717           type="xsd:dateTime"  
718           minOccurs="0" maxOccurs="1" />  
719
```

720 These Resource Property elements are further described as follows:

721 /wsnt:ConsumerReference and /wsnt:TopicExpression and /wsnt:UseNotify and
722 /wsnt:Precondition and /wsnt:Selector and /wsnt:SubscriptionPolicy

723 These elements are as defined in the description of the Subscribe request message (see
724 4.2).

725 /wsnt:CreationTime

726 Indicates the date and time at which the Subscription was created. This is an optional
727 component, supporting resource constrained devices which cannot associate a creation
728 time with subscription resources they create.

729 If the SubscriptionManager also accepts the SetResourceProperties request message as defined
730 in WS-ResourceProperties, the following properties MAY be modified by the requestor:

731 /wsnt:ConsumerReference and /wsnt:TopicExpression and /wsnt:UseNotify and
732 /wsnt:Precondition and /wsnt:Selector and /wsnt:SubscriptionPolicy

733 5.2 PauseSubscription

734 To temporarily suspend the delivery of NotificationMessages on the given Subscription, a
735 requestor MUST send a PauseSubscription request message to the SubscriptionManager. The
736 PauseSubscription request message has the following form:

```
737 ...  
738 <wsnt:PauseSubscription/>  
739 ...
```

740 This request message MUST follow the implied resource pattern as outlined in [State Paper].

741 Upon successful processing of this message the Subscription is in the *paused* state. Delivery of
742 NotificationMessages can be resumed by sending the ResumeSubscription request message
743 (see 5.3).

744 In an asynchronous implementation, there could be some NotificationMessages *in-flight* at the
745 time the Subscription was paused. A NotificationProducer MAY attempt to deliver these in-flight
746 NotificationMessages.

747 Note: transitioning between the paused state and the resumed state has no effect on the
748 TerminationTime of the Subscription resource [WS-ResourceLifetime]. A Subscription's
749 TerminationTime may elapse while it is in a paused state, initiating the scheduled destruction of
750 the Subscription resource.

751 If the SubscriptionManager accepts the PauseSubscription request message, it must respond
752 with a message of the following form:

```
753 ...  
754 <wsnt:PauseSubscriptionResponse />  
755 ...
```

756 Instead of the PauseSubscriptionResponse message, the SubscriptionManager may also send
757 the following faults in response to a PauseSubscription request message:

- 758 • Pause operation could not be performed on the Subscription
- 759 • Others, TBD

760 5.2.1 Example SOAP Encoding of the PauseSubscription Message 761 Exchange

762 The following is a non-normative example of a PauseSubscription request message using SOAP
763 1.2 [SOAP 1.2]:

```
764 <s12:Envelope  
765   xmlns:s12="http://www.w3.org/2003/05/soap-envelope"  
766   xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"  
767   xmlns:wsnt=
```

```

768     "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-
769 1.2-draft-01.xsd"
770     xmlns:npex="http://www.producer.org/RefProp">
771     <s12:Header>
772     <wsa:Action>
773         http://docs.oasis-open.org/wsn/2004/06/WS-
774 BaseNotification/PauseSubscription
775     </wsa:Action>
776     <wsa:To s12:mustUnderstand="1">
777         http://www.producer.org/SubsMgrEndpoint
778     </wsa:To>
779     <npex:NSResourceDisambiguator>
780         uuid:8fefcd11-7d3d-66b344a2-ca44-9876bacd44e9
781     </npex:NSResourceDisambiguator>
782     </s12:Header>
783     <s12:Body>
784         <wsnt:PauseSubscription/>
785     </s12:Body>
786 </s12:Envelope>

```

787 The following is a non-normative example of a PauseSubscription response message using
788 SOAP 1.2 [SOAP 1.2]:

```

789 <s12:Envelope
790     xmlns:s12="http://www.w3.org/2003/05/soap-envelope"
791     xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"
792     xmlns:wsnt=
793         "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-
794 BaseNotification-1.2-draft-01.xsd"
795     xmlns:ncex="http://www.consumer.org/RefProp">
796     <s12:Header>
797     <wsa:Action>
798         http://docs.oasis-open.org/wsn/2004/06/WS-
799 BaseNotification/PauseSubscriptionResponse
800     </wsa:Action>
801     <wsa:To s12:mustUnderstand="1">
802         http://www.consumer.org/ConsumerEndpoint
803     </wsa:To>
804     <ncex:NCRResourceReference>
805         uuid:9fef5fec-6dc3-44a2-ba32-8680cace43f9
806     </ncex:NCRResourceReference>
807     </s12:Header>
808     <s12:Body>
809         <wsnt:PauseSubscriptionResponse/>
810     </s12:Body>
811 </s12:Envelope>

```

812 5.3 ResumeSubscription

813 If a requestor wishes to resume the delivery of NotificationMessages on the given Subscription, it
814 must send a ResumeSubscription request message. The ResumeSubscription request message
815 has the following form:

```
816 ...  
817 <wsnt:ResumeSubscription/>  
818 ...
```

819 This request message MUST follow the implied resource pattern as outlined in [State Paper].

820 Upon successful processing of this message the Subscription is no longer in the *paused* state.

821 If a Subscription is not in the *paused* state, and it is the subject of a ResumeSubscription request
822 message, no change occurs.

823 When a Subscription is resumed the NotificationProducer MAY choose from one of the following
824 courses of action. The choice MAY be determined by the NotificationProducer itself, or MAY be
825 specified by a Policy associated with the Subscription.

- 826 1. Generate NotificationMessages for all the Situations related to the Subscription that
827 occurred while the Subscription was paused (as well as for any new Situations that occur
828 after the Subscription has been resumed).
- 829 2. Generate a NotificationMessage for the last Situation that occurred while the Subscription
830 was paused (as well as for any new situations that occur after the topic has been
831 resumed).
- 832 3. Generate no NotificationMessages until a Situation occurs after the Subscription has
833 been resumed.

834 If the SubscriptionManager accepts the ResumeSubscription request message, it MUST respond
835 with a message of the following form:

```
836 ...  
837 <wsnt:ResumeSubscriptionResponse />  
838 ...
```

839 Instead of the ResumeSubscriptionResponse message, the SubscriptionManager may also send
840 the following faults in response to a ResumeSubscription request message:

- 841 • Resume operation could not be performed on the Subscription
- 842 • Others, TBD

843 5.3.1 Example SOAP Encoding of the ResumeSubscription Message 844 Exchange

845 The following is a non-normative example of a ResumeSubscription request message using
846 SOAP 1.2 [SOAP 1.2]:

```
847 <s12:Envelope  
848   xmlns:s12="http://www.w3.org/2003/05/soap-envelope"  
849   xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"  
850   xmlns:wsnt=  
851     "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-  
852     1.2-draft-01.xsd"  
853   xmlns:npex="http://www.producer.org/RefProp">  
854 <s12:Header>  
855   <wsa:Action>
```

```

856         http://docs.oasis-open.org/wsn/2004/06/WS-
857 BaseNotification/ResumeSubscription
858     </wsa:Action>
859     <wsa:To s12:mustUnderstand="1">
860         http://www.producer.org/SubsMgrEndpoint
861     </wsa:To>
862     <npex:NSResourceDisambiguator>
863         uuid:8fefcd11-7d3d-66b344a2-ca44-9876bacd44e9
864     </npex:NSResourceDisambiguator>
865 </s12:Header>
866 <s12:Body>
867     <wsnt:ResumeSubscription/>
868 </s12:Body>
869 </s12:Envelope>

```

870 The following is a non-normative example of a ResumeSubscription response message using
871 SOAP 1.2 [SOAP 1.2]:

```

872 <s12:Envelope
873     xmlns:s12="http://www.w3.org/2003/05/soap-envelope"
874     xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"
875     xmlns:wsnt=
876         "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-
877 1.2-draft-01.xsd"
878     xmlns:ncex="http://www.consumer.org/RefProp">
879 <s12:Header>
880     <wsa:Action>
881         http://docs.oasis-open.org/wsn/2004/06/WS-
882 BaseNotification/ResumeSubscriptionResponse
883     </wsa:Action>
884     <wsa:To s12:mustUnderstand="1">
885         http://www.consumer.org/ConsumerEndpoint
886     </wsa:To>
887     <ncex:NCRResourceReference>
888         uuid:9fef5fec-6dc3-44a2-ba32-8680cace43f9
889     </ncex:NCRResourceReference>
890 </s12:Header>
891 <s12:Body>
892     <wsnt:ResumeSubscriptionResponse/>
893 </s12:Body>
894 </s12:Envelope>

```

895

896 **6 Security Considerations**

897 A non-normative discussion of the security scenarios and considerations associated with the
898 entire family of WS-Notification specifications is contained in [WS-Notification Whitepaper].

899 7 References

900 7.1 Normative

- 901 **[RFC2119]** S. Bradner, *Key words for use in RFCs to Indicate Requirement*
902 *Levels*, <http://www.ietf.org/rfc/rfc2119.txt>, IETF RFC 2119, March
903 1997.
- 904 **[SOAP 1.2]** <http://www.w3.org/TR/soap12-part1/>
905 **[URI]** T. Berners-Lee, R. Fielding, L. Masinter, "Uniform Resource
906 Identifiers (URI): Generic Syntax," RFC 2396, MIT/LCS, U.C.
907 Irvine, Xerox Corporation, August 1998.
- 908 **[State Paper]** <http://www.oasis->
909 [open.org/apps/org/workgroup/wsrf/download.php/6795/ws-](http://www.oasis-open.org/apps/org/workgroup/wsrf/download.php/6795/ws-modelingresources.pdf)
910 [modelingresources.pdf](http://www.oasis-open.org/apps/org/workgroup/wsrf/download.php/6795/ws-modelingresources.pdf)
- 911 **[WS-Addressing]** <http://www.ibm.com/developerworks/webservices/library/ws-add/>
912 **[WS-BrokeredNotification]** [http://docs.oasis-open.org/wsn/2004/06/wsn-WS-](http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BrokeredNotification-1.2-draft-01.pdf)
913 [BrokeredNotification-1.2-draft-01.pdf](http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BrokeredNotification-1.2-draft-01.pdf)
- 914 **[WS-Policy]** <http://www.ibm.com/developerworks/library/ws-policy>
915 **[WS-ResourceLifetime]** [http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-](http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-ResourceLifetime-1.2-draft-03.pdf)
916 [ResourceLifetime-1.2-draft-03.pdf](http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-ResourceLifetime-1.2-draft-03.pdf)
- 917 **[WS-ResourceProperties]** [http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-](http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-ResourceProperties-1.2-draft-04.pdf)
918 [ResourceProperties-1.2-draft-04.pdf](http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-ResourceProperties-1.2-draft-04.pdf)
- 919 **[WS-Topics]** [http://docs.oasis-open.org/wsn/2004/06/wsn-WS-Topics-1.2-](http://docs.oasis-open.org/wsn/2004/06/wsn-WS-Topics-1.2-draft-01.pdf)
920 [draft-01.pdf](http://docs.oasis-open.org/wsn/2004/06/wsn-WS-Topics-1.2-draft-01.pdf)
- 921 **[XML-Infoset]** <http://www.w3.org/TR/xml-infoset/>
922 **[XPath]** <http://www.w3.org/TR/xpath>

923 7.2 Non-Normative

- 924 **[WS-Notification Whitepaper]** <http://www.oasis->
925 [open.org/committees/download.php/6661/WSNpubsub-1-0.pdf](http://www.oasis-open.org/committees/download.php/6661/WSNpubsub-1-0.pdf)
- 926 **[WS-Security]** <http://www.oasis->
927 [open.org/committees/download.php/5531/oasis-200401-wss-](http://www.oasis-open.org/committees/download.php/5531/oasis-200401-wss-soap-message-security-1.0.pdf)
928 [soap-message-security-1.0.pdf](http://www.oasis-open.org/committees/download.php/5531/oasis-200401-wss-soap-message-security-1.0.pdf)

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952 Kevin Liu (SAP), Nataraj Nagaratnam (IBM), Martin Nally (IBM), Jeff Nick (IBM), Jay Parikh
953 (Akamai Technologies), Claus von Riegen (SAP), Rick Rineholt (IBM), John Rofrano (IBM),
954 Shivajee Samdarshi (TIBCO Software), Igor Sedukhin (Computer Associates International),
955 Eugène Sindambiwe (SAP), Jay Unger (IBM), Bill Weihl (Akamai Technologies), Mark Weitzel
956 (IBM), and Dan Wolfson (IBM).

957 **Appendix B. XML Schema**

958 The XML types and elements used in this specification are defined in the following XML Schema:

```
959 <?xml version="1.0" encoding="UTF-8"?>
960 <!--
961
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963 intellectual property or other rights that might be claimed to pertain
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1002 INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED
1003 WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
1004
1005 -->
1006
1007 <xsd:schema
1008 xmlns="http://www.w3.org/2001/XMLSchema"
1009 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
1010 xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"
1011 xmlns:wsnt=
1012 "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-
1013 1.2-draft-01.xsd"
1014 xmlns:wsrp=
1015 "http://docs.oasis-open.org/wsrp/2004/06/wsrp-WS-
1016 ResourceProperties-1.2-draft-01.xsd"
1017 targetNamespace=
1018 "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-
1019 1.2-draft-01.xsd"
1020 elementFormDefault="qualified" attributeFormDefault="unqualified">
1021
1022 <!-- ===== Imports ===== -->
1023
1024 <xsd:import namespace=
1025 "http://schemas.xmlsoap.org/ws/2003/03/addressing"
1026 schemaLocation=
1027 "http://schemas.xmlsoap.org/ws/2003/03/addressing"
1028 />
1029
1030 <xsd:import namespace=
1031 "http://docs.oasis-open.org/wsrp/2004/06/wsrp-WS-
1032 ResourceProperties-1.2-draft-01.xsd"
1033 schemaLocation=
1034 "http://docs.oasis-open.org/wsrp/2004/06/wsrp-WS-ResourceProperties-
1035 1.2-draft-01.xsd"
1036 />
1037
1038 <!-- ===== Topic Expression Container ===== -->
1039 <xsd:complexType name="TopicExpressionType" mixed="true">
1040 <xsd:sequence>
1041 <xsd:any minOccurs="0" maxOccurs="1" processContents="lax" />
1042 </xsd:sequence>
1043 <xsd:attribute name="Dialect" type="xsd:anyURI" />
1044 </xsd:complexType>
1045
1046 <xsd:element name="TopicExpression"
1047 type="wsnt:TopicExpressionType" />

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```
<!-- ===== Resource Property Related ===== -->
<!-- ===== Resource Properties for NotificationProducer ===== -->
<xsd:element name="Topic" type="wsnt:TopicExpressionType" />

<xsd:element name="FixedTopicSet" type="xsd:boolean"/>

<xsd:element name="TopicExpressionDialects" type="xsd:anyURI" />

<!-- ===== Resource Properties for SubscriptionManager ===== -->
<xsd:element name="ConsumerReference"
            type="wsa:EndpointReferenceType" />
<xsd:element name="UseNotify"
            type="xsd:boolean" />
<xsd:element name="Precondition"
            type="wsrp:QueryExpressionType" />
<xsd:element name="Selector"
            type="wsrp:QueryExpressionType" />
<xsd:element name="SubscriptionPolicy"
            type="xsd:anyType" />
<xsd:element name="CreationTime"
            type="xsd:dateTime" />

</xsd:schema>
```

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Appendix C. WSDL 1.1

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The following illustrates the WSDL 1.1 for the Web service methods described in this specification:

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```
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<!--
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1119 WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
1120
1121 -->
1122 <wsdl:definitions name="WS-BaseNotification"
1123 xmlns="http://schemas.xmlsoap.org/wsdl/"
1124 xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
1125 xmlns:xsd="http://www.w3.org/2001/XMLSchema"
1126 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
1127 xmlns:wsa="http://schemas.xmlsoap.org/ws/2003/03/addressing"
1128 xmlns:wsp="http://schemas.xmlsoap.org/ws/2002/12/policy"
1129 xmlns:wsnt=
1130 "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-
1131 1.2-draft-01.xsd"
1132 xmlns:wsntw=
1133 "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-
1134 1.2-draft-01.wsdl"
1135 xmlns:wsrp=
1136 "http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-
1137 ResourceProperties-1.2-draft-01.xsd"
1138 xmlns:wsrpw=
1139 "http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-
1140 ResourceProperties-1.2-draft-01.wsdl"
1141 xmlns:wbsf=
1142 "http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-BaseFaults-1.2-
1143 draft-01.xsd"
1144 xmlns:wsl=
1145 "http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-ResourceLifetime-
1146 1.2-draft-01.xsd"
1147 xmlns:wslw=
1148 "http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-ResourceLifetime-
1149 1.2-draft-01.wsdl"
1150 targetNamespace=
1151 "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-
1152 draft-01.wsdl">
1153
1154 <!-- ===== Imports ===== -->
1155 <wsdl:import
1156 namespace=
1157 "http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-ResourceProperties-
1158 1.2-draft-01.wsdl"
1159 location=
1160 "http://docs.oasis-open.org/wsrf/2004/06/wsrf-WS-ResourceProperties-
1161 1.2-draft-01.wsdl" />
1162
1163 <wsdl:import

```

1164         namespace=
1165         "http://docs.oasis-open.org/wsrif/2004/06/wsrif-WS-ResourceLifetime-
1166 1.2-draft-01.wsdl"
1167         location=
1168         "http://docs.oasis-open.org/wsrif/2004/06/wsrif-WS-ResourceLifetime-
1169 1.2-draft-01.wsdl" />
1170
1171 <!-- ===== Types Definitions ===== -->
1172 <wsdl:types>
1173 <xsd:schema
1174     targetNamespace=
1175     "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-
1176 draft-01.xsd"
1177     elementFormDefault="qualified"
1178     attributeFormDefault="unqualified">
1179
1180     <xsd:include schemaLocation=
1181     "http://docs.oasis-open.org/wsn/2004/06/wsn-WS-BaseNotification-1.2-
1182 draft-01.xsd" />
1183
1184     <xsd:import
1185         namespace=
1186         "http://schemas.xmlsoap.org/ws/2003/03/addressing"
1187         schemaLocation=
1188         "http://schemas.xmlsoap.org/ws/2003/03/addressing"
1189     />
1190
1191     <xsd:import
1192         namespace=
1193         "http://docs.oasis-open.org/wsrif/2004/06/wsrif-WS-BaseFaults-1.2-
1194 draft-01.xsd"
1195         schemaLocation=
1196         "http://docs.oasis-open.org/wsrif/2004/06/wsrif-WS-BaseFaults-1.2-
1197 draft-01.xsd"
1198     />
1199
1200     <xsd:import namespace=
1201     "http://docs.oasis-open.org/wsrif/2004/06/wsrif-WS-ResourceProperties-
1202 1.2-draft-01.xsd"
1203         schemaLocation=
1204         "http://docs.oasis-open.org/wsrif/2004/06/wsrif-WS-ResourceProperties-
1205 1.2-draft-01.xsd"
1206     />
1207     <xsd:import
1208         namespace=
1209         "http://docs.oasis-open.org/wsrif/2004/06/wsrif-WS-ResourceLifetime-
1210 1.2-draft-01.xsd"
1211         schemaLocation=

```

```

1212 "http://docs.oasis-open.org/wsrfl/2004/06/wsrfl-WS-ResourceLifetime-
1213 1.2-draft-01.xsd"
1214     />
1215
1216 <!-- ===== Resource Property Related ===== -->
1217 <!-- ===== Resource Properties for NotificationProducer ===== -->
1218     <xsd:element name="NotificationProducerRP" >
1219         <xsd:complexType>
1220             <xsd:sequence>
1221                 <xsd:element ref="wsnt:Topic"
1222                     minOccurs="1" maxOccurs="unbounded" />
1223                 <xsd:element ref="wsnt:FixedTopicSet"
1224                     minOccurs="1" maxOccurs="1" />
1225                 <xsd:element ref="wsnt:TopicExpressionDialects"
1226                     minOccurs="1" maxOccurs="unbounded" />
1227             </xsd:sequence>
1228         </xsd:complexType>
1229     </xsd:element>
1230
1231 <!-- ===== Resource Properties for SubscriptionManager ===== -->
1232     <xsd:element name="SubscriptionManagerRP" >
1233         <xsd:complexType>
1234             <xsd:sequence>
1235                 <!-- From WS-ResourceLifetime ScheduledResourceTermination -->
1236                 <xsd:element ref="wsrl:CurrentTime"
1237                     minOccurs="1" maxOccurs="1" />
1238                 <xsd:element ref="wsrl:TerminationTime"
1239                     minOccurs="1" maxOccurs="1" />
1240
1241                 <!-- SubscriptionManager specific -->
1242                 <xsd:element ref="wsnt:ConsumerReference"
1243                     minOccurs="1" maxOccurs="1" />
1244                 <xsd:element ref="wsnt:TopicExpression"
1245                     minOccurs="1" maxOccurs="1" />
1246                 <xsd:element ref="wsnt:UseNotify"
1247                     minOccurs="1" maxOccurs="1" />
1248                 <xsd:element ref="wsnt:Precondition"
1249                     minOccurs="0" maxOccurs="1" />
1250                 <xsd:element ref="wsnt:Selector"
1251                     minOccurs="0" maxOccurs="1" />
1252                 <xsd:element ref="wsnt:SubscriptionPolicy"
1253                     minOccurs="0" maxOccurs="1" />
1254                 <xsd:element ref="wsnt:CreationTime"
1255                     minOccurs="0" maxOccurs="1" />
1256             </xsd:sequence>
1257         </xsd:complexType>
1258     </xsd:element>
1259
1260 <!-- ===== Message Helper Types ===== -->

```

```

1261     <xsd:complexType name="NotificationMessageHolderType" >
1262         <xsd:sequence>
1263             <xsd:element name="Topic"
1264                 type="wsnt:TopicExpressionType"
1265                 minOccurs="1" maxOccurs="1" />
1266             <xsd:element name="ProducerReference"
1267                 type="wsa:EndpointReferenceType"
1268                 minOccurs="0" maxOccurs="1" />
1269             <xsd:element name="Message" type="xsd:anyType"
1270                 minOccurs="1" maxOccurs="1" />
1271         </xsd:sequence>
1272     </xsd:complexType>
1273
1274 <!-- ===== Message Types for NotificationConsumer ===== -->
1275     <xsd:element name="Notify" >
1276         <xsd:complexType>
1277             <xsd:sequence>
1278                 <xsd:element name="NotificationMessage"
1279                     type="wsnt:NotificationMessageHolderType"
1280                     minOccurs="1" maxOccurs="unbounded" />
1281             </xsd:sequence>
1282         </xsd:complexType>
1283     </xsd:element>
1284
1285 <!-- ===== Message Types for NotificationProducer ===== -->
1286     <xsd:element name="Subscribe" >
1287         <xsd:complexType>
1288             <xsd:sequence>
1289                 <xsd:element name="ConsumerReference"
1290                     type="wsa:EndpointReferenceType"
1291                     minOccurs="1" maxOccurs="1" />
1292                 <xsd:element name="TopicExpression"
1293                     type="wsnt:TopicExpressionType"
1294                     minOccurs="1" maxOccurs="1" />
1295                 <xsd:element name="UseNotify"
1296                     type="xsd:boolean" default="true"
1297                     minOccurs="0" maxOccurs="1" />
1298                 <xsd:element name="Precondition"
1299                     type="wsrp:QueryExpressionType"
1300                     minOccurs="0" maxOccurs="1" />
1301                 <xsd:element name="Selector"
1302                     type="wsrp:QueryExpressionType"
1303                     minOccurs="0" maxOccurs="1" />
1304                 <xsd:element name="SubscriptionPolicy"
1305                     type="xsd:anyType"
1306                     minOccurs="0" maxOccurs="1" />
1307                 <xsd:element name="InitialTerminationTime"
1308                     type="xsd:dateTime"
1309                     minOccurs="0" maxOccurs="1" />

```

```

1310         </xsd:sequence>
1311     </xsd:complexType>
1312 </xsd:element>
1313
1314     <xsd:element name="SubscribeResponse">
1315         <xsd:complexType>
1316             <xsd:sequence>
1317                 <xsd:element name="SubscriptionReference"
1318                     type="wsa:EndpointReferenceType"
1319                     minOccurs="0" maxOccurs="1" />
1320             </xsd:sequence>
1321         </xsd:complexType>
1322     </xsd:element>
1323
1324     <xsd:element name="GetCurrentMessage">
1325         <xsd:complexType>
1326             <xsd:sequence>
1327                 <xsd:element name="Topic"
1328                     type="wsnt:TopicExpressionType" />
1329             </xsd:sequence>
1330         </xsd:complexType>
1331     </xsd:element>
1332
1333     <xsd:element name="GetCurrentMessageResponse">
1334         <xsd:complexType>
1335             <xsd:sequence>
1336                 <xsd:any />
1337             </xsd:sequence>
1338         </xsd:complexType>
1339     </xsd:element>
1340
1341     <xsd:complexType name="ResourceUnknownFaultType">
1342         <xsd:complexContent>
1343             <xsd:extension base="wsbf:BaseFaultType" />
1344         </xsd:complexContent>
1345     </xsd:complexType>
1346     <xsd:element name="ResourceUnknownFault"
1347         type="wsnt:ResourceUnknownFaultType" />
1348
1349     <xsd:complexType name="SubscribeCreationFailedFaultType">
1350         <xsd:complexContent>
1351             <xsd:extension base="wsbf:BaseFaultType" />
1352         </xsd:complexContent>
1353     </xsd:complexType>
1354     <xsd:element name="SubscribeCreationFailedFault"
1355         type="wsnt:SubscribeCreationFailedFaultType" />
1356
1357     <xsd:complexType name="TopicPathDialectUnknownFaultType">
1358         <xsd:complexContent>

```

```

1359         <xsd:extension base="wsbf:BaseFaultType" />
1360     </xsd:complexContent>
1361 </xsd:complexType>
1362 <xsd:element name="TopicPathDialectUnknownFault"
1363             type="wsnt:TopicPathDialectUnknownFaultType" />
1364
1365 <xsd:complexType name="InvalidTopicExpressionFaultType">
1366     <xsd:complexContent>
1367         <xsd:extension base="wsbf:BaseFaultType" />
1368     </xsd:complexContent>
1369 </xsd:complexType>
1370 <xsd:element name="InvalidTopicExpressionFault"
1371             type="wsnt:InvalidTopicExpressionFaultType" />
1372
1373 <xsd:complexType name="TopicNotSupportedFaultType">
1374     <xsd:complexContent>
1375         <xsd:extension base="wsbf:BaseFaultType" />
1376     </xsd:complexContent>
1377 </xsd:complexType>
1378 <xsd:element name="TopicNotSupportedFault"
1379             type="wsnt:TopicNotSupportedFaultType" />
1380
1381 <xsd:complexType name="NoCurrentMessageOnTopicFaultType">
1382     <xsd:complexContent>
1383         <xsd:extension base="wsbf:BaseFaultType" />
1384     </xsd:complexContent>
1385 </xsd:complexType>
1386 <xsd:element name="NoCurrentMessageOnTopicFault"
1387             type="wsnt:NoCurrentMessageOnTopicFaultType" />
1388
1389
1390 <!-- ===== Message Types for SubscriptionManager ===== -->
1391
1392     <xsd:element name="PauseSubscription" />
1393
1394     <xsd:element name="PauseSubscriptionResponse" />
1395
1396     <xsd:element name="ResumeSubscription" />
1397
1398     <xsd:element name="ResumeSubscriptionResponse" />
1399
1400 <xsd:complexType name="PauseFailedFaultType">
1401     <xsd:complexContent>
1402         <xsd:extension base="wsbf:BaseFaultType" />
1403     </xsd:complexContent>
1404 </xsd:complexType>
1405 <xsd:element name="PauseFailedFault"
1406             type="wsnt:PauseFailedFaultType" />
1407

```

```

1408         <xsd:complexType name="ResumeFailedFaultType">
1409             <xsd:complexContent>
1410                 <xsd:extension base="wsbf:BaseFaultType" />
1411             </xsd:complexContent>
1412         </xsd:complexType>
1413         <xsd:element name="ResumeFailedFault"
1414             type="wsnt:ResumeFailedFaultType" />
1415
1416
1417     </xsd:schema>
1418 </wsdl:types>
1419
1420 <!-- ===== NotificationConsumer::Notify =====
1421 Notify(
1422     NotificationMessage
1423     (TopicExpression, ProducerReference, Message)*
1424     returns: n/a (one way)
1425 -->
1426 <wsdl:message name="Notify">
1427     <wsdl:part name="Notify" element="wsnt:Notify" />
1428 </wsdl:message>
1429
1430 <!-- ===== NotificationProducer::Subscribe =====
1431 Subscribe(
1432     (ConsumerEndpointReference, TopicExpression, [UseNotify],
1433     [Precondition], [Selector], [SubscriptionPolicy],
1434     [InitialTerminationTime])
1435     returns: WS-Resource qualified EPR to a Subscription
1436 -->
1437 <wsdl:message name="SubscribeRequest" >
1438     <wsdl:part name="SubscribeRequest"
1439         element="wsnt:Subscribe" />
1440 </wsdl:message>
1441
1442 <wsdl:message name="SubscribeResponse">
1443     <wsdl:part name="SubscribeResponse"
1444         element="wsnt:SubscribeResponse" />
1445 </wsdl:message>
1446
1447 <wsdl:message name="ResourceUnknownFault">
1448     <part name="ResourceUnknownFault"
1449         element="wsnt:ResourceUnknownFault" />
1450 </wsdl:message>
1451
1452 <wsdl:message name="SubscribeCreationFailedFault">
1453     <part name="SubscribeCreationFailedFault"
1454         element="wsnt:SubscribeCreationFailedFault" />
1455 </wsdl:message>
1456

```

```

1457 <wsdl:message name="TopicPathDialectUnknownFault">
1458   <part name="TopicPathDialectUnknownFault"
1459     element="wsnt:TopicPathDialectUnknownFault" />
1460 </wsdl:message>
1461
1462 <!-- ===== NotificationProducer::GetCurrentMessage =====
1463 GetCurrentMessage(topicExpression)
1464 returns: a NotificationMessage (xsd:any)
1465 -->
1466 <wsdl:message name="GetCurrentMessageRequest">
1467   <wsdl:part name="GetCurrentMessageRequest"
1468     element="wsnt:GetCurrentMessage" />
1469 </wsdl:message>
1470
1471 <wsdl:message name="GetCurrentMessageResponse">
1472   <wsdl:part name="GetCurrentMessageResponse"
1473     element="wsnt:GetCurrentMessageResponse" />
1474 </wsdl:message>
1475
1476 <wsdl:message name="InvalidTopicExpressionFault">
1477   <part name="InvalidTopicExpressionFault"
1478     element="wsnt:InvalidTopicExpressionFault" />
1479 </wsdl:message>
1480
1481 <wsdl:message name="TopicNotSupportedFault">
1482   <part name="TopicNotSupportedFault"
1483     element="wsnt:TopicNotSupportedFault" />
1484 </wsdl:message>
1485
1486 <wsdl:message name="NoCurrentMessageOnTopicFault">
1487   <part name="NoCurrentMessageOnTopicFault"
1488     element="wsnt:NoCurrentMessageOnTopicFault" />
1489 </wsdl:message>
1490
1491 <!-- ===== SubscriptionManager::PauseSubscription =====
1492 PauseSubscription()
1493 returns: empty
1494 -->
1495 <wsdl:message name="PauseSubscriptionRequest">
1496   <wsdl:part name="PauseSubscriptionRequest"
1497     element="wsnt:PauseSubscription" />
1498 </wsdl:message>
1499
1500 <wsdl:message name="PauseSubscriptionResponse">
1501   <wsdl:part name="PauseSubscriptionResponse"
1502     element="wsnt:PauseSubscriptionResponse" />
1503 </wsdl:message>
1504
1505 <wsdl:message name="PauseFailedFault">

```

```

1506     <part name="PauseFailedFault"
1507         element="wsnt:PauseFailedFault" />
1508     </wsdl:message>
1509
1510 <!-- ===== SubscriptionManager::ResumeSubscription =====
1511     ResumeSubscription()
1512     returns: empty
1513 -->
1514     <wsdl:message name="ResumeSubscriptionRequest">
1515         <wsdl:part name="ResumeSubscriptionRequest"
1516             element="wsnt:ResumeSubscription"/>
1517     </wsdl:message>
1518
1519     <wsdl:message name="ResumeSubscriptionResponse">
1520         <wsdl:part name="ResumeSubscriptionResponse"
1521             element="wsnt:ResumeSubscriptionResponse"/>
1522     </wsdl:message>
1523
1524     <wsdl:message name="ResumeFailedFault">
1525         <part name="ResumeFailedFault"
1526             element="wsnt:ResumeFailedFault" />
1527     </wsdl:message>
1528
1529 <!-- ===== PortType Definitions ===== -->
1530 <!-- ===== NotificationConsumer PortType Definition ===== -->
1531     <wsdl:portType name="NotificationConsumer">
1532         <wsdl:operation name="Notify">
1533             <wsdl:input message="wsntw:Notify" />
1534         </wsdl:operation>
1535     </wsdl:portType>
1536
1537 <!-- ===== NotificationProducer PortType Definition ===== -->
1538     <wsdl:portType name="NotificationProducer"
1539         wsrp:ResourceProperties ="wsnt:NotificationProducerRP">
1540
1541         <!-- ===== extends wsrpw:ResourceProperties ===== --
1542     >
1543         <wsdl:operation name="GetResourceProperty">
1544             <wsdl:input name="GetResourcePropertyRequest"
1545                 message="wsrpw:GetResourcePropertyRequest" />
1546             <wsdl:output name="GetResourcePropertyResponse"
1547                 message="wsrpw:GetResourcePropertyResponse" />
1548             <wsdl:fault name="ResourceUnknownFault"
1549                 message="wsrpw:ResourceUnknownFault" />
1550             <wsdl:fault name="InvalidResourcePropertyQNameFault"
1551                 message="wsrpw:InvalidResourcePropertyQNameFault"
1552         />
1553         </wsdl:operation>
1554

```

```

1555 <!-- ===== NotificationProducer Specific ===== -->
1556 <wsdl:operation name="Subscribe">
1557   <wsdl:input message="wsntw:SubscribeRequest" />
1558   <wsdl:output message="wsntw:SubscribeResponse" />
1559   <wsdl:fault name="ResourceUnknownFault"
1560     message="wsntw:ResourceUnknownFault" />
1561   <wsdl:fault name="SubscribeCreationFailedFault"
1562     message="wsntw:SubscribeCreationFailedFault"/>
1563   <wsdl:fault name="TopicPathDialectUnknownFault"
1564     message="wsntw:TopicPathDialectUnknownFault"/>
1565 </wsdl:operation>
1566
1567 <wsdl:operation name="GetCurrentMessage">
1568   <wsdl:input message="wsntw:GetCurrentMessageRequest" />
1569   <wsdl:output message="wsntw:GetCurrentMessageResponse"/>
1570   <wsdl:fault name="ResourceUnknownFault"
1571     message="wsntw:ResourceUnknownFault" />
1572   <wsdl:fault name="InvalidTopicExpressionFault"
1573     message="wsntw:InvalidTopicExpressionFault" />
1574   <wsdl:fault name="TopicNotSupportedFault"
1575     message="wsntw:TopicNotSupportedFault" />
1576   <wsdl:fault name="NoCurrentMessageOnTopicFault"
1577     message="wsntw:NoCurrentMessageOnTopicFault" />
1578 </wsdl:operation>
1579 </wsdl:portType>
1580
1581 <!-- ===== SubscriptionManager PortType Definition ===== -->
1582 <wsdl:portType name="SubscriptionManager"
1583   wsrp:ResourceProperties ="wsntw:SubscriptionManagerRP">
1584   <!-- ===== extends wsrpw:ResourceProperties ===== -->
1585 >
1586   <wsdl:operation name="GetResourceProperty">
1587     <wsdl:input name="GetResourcePropertyRequest"
1588       message="wsrpw:GetResourcePropertyRequest" />
1589     <wsdl:output name="GetResourcePropertyResponse"
1590       message="wsrpw:GetResourcePropertyResponse" />
1591     <wsdl:fault name="ResourceUnknownFault"
1592       message="wsrpw:ResourceUnknownFault" />
1593     <wsdl:fault name="InvalidResourcePropertyQNameFault"
1594       message="wsrpw:InvalidResourcePropertyQNameFault"
1595   />
1596   </wsdl:operation>
1597
1598   <!-- === extends wsrlw:ImmediateResourceTermination ===== -->
1599 >
1600   <wsdl:operation name="Destroy">
1601     <wsdl:input message="wsrlw:DestroyRequest" />
1602     <wsdl:output message="wsrlw:DestroyResponse" />
1603     <wsdl:fault name="ResourceUnknownFault"

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1604         message="wsrlw:ResourceUnknownFault" />
1605     <wsdl:fault name="ResourceNotDestroyedFault"
1606         message="wsrlw:ResourceNotDestroyedFault" />
1607 </wsdl:operation>
1608
1609 <!-- === extends wsrlw:ScheduledResourceTermination ===== -->
1610 <wsdl:operation name="SetTerminationTime">
1611     <wsdl:input message="wsrlw:SetTerminationTimeRequest" />
1612     <wsdl:output message="wsrlw:SetTerminationTimeResponse" />
1613     <wsdl:fault name="ResourceUnknownFault"
1614         message="wsrlw:ResourceUnknownFault" />
1615     <wsdl:fault name="UnableToSetTerminationTimeFault"
1616         message="wsrlw:UnableToSetTerminationTimeFault" />
1617     <wsdl:fault name="TerminationTimeChangeRejectedFault"
1618         message="wsrlw:TerminationTimeChangeRejectedFault"
1619 />
1620 </wsdl:operation>
1621
1622 <!-- ===== SubscriptionManager specific operations ===== -->
1623 <wsdl:operation name="PauseSubscription">
1624     <wsdl:input message="wsntw:PauseSubscriptionRequest" />
1625     <wsdl:output message="wsntw:PauseSubscriptionResponse" />
1626     <wsdl:fault name="ResourceUnknownFault"
1627         message="wsntw:ResourceUnknownFault" />
1628     <wsdl:fault name="PauseFailedFault"
1629         message="wsntw:PauseFailedFault" />
1630
1631 </wsdl:operation>
1632 <wsdl:operation name="ResumeSubscription">
1633     <wsdl:input message="wsntw:ResumeSubscriptionRequest" />
1634     <wsdl:output message="wsntw:ResumeSubscriptionResponse" />
1635     <wsdl:fault name="ResourceUnknownFault"
1636         message="wsntw:ResourceUnknownFault" />
1637     <wsdl:fault name="ResumeFailedFault"
1638         message="wsntw:ResumeFailedFault" />
1639 </wsdl:operation>
1640 </wsdl:portType>
1641
1642 </wsdl:definitions>

```

Appendix D. Revision History

Rev	Date	By Whom	What
wd-01	2004-05-18	Steve Graham	Initial version created from submission by contributing companies. Minor modifications made to reflect OASIS formatting and namespace URI choices.
wd-02	2004-05-24	Steve Graham	Added requirements section draft and updated acknowledgments appendix.
wd-03	2004-06-07	Steve Graham	Minor modifications on wd-02 as reported by Peter N. and William V.
wd-04	2004-06-21	Steve Graham	Finalize list of acknowledgments and annotate title page with result of TC vote.
wd-03	2004-07-12	Steve Graham	"rename" 04 back to 03 to minimize reference rework in WSRF.

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