

Web Services Resource Properties 1.2 (WS-ResourceProperties)

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Abstract:

The relationship between Web services and stateful resources is defined in [\[WS-Resource\]](#) in terms of a WS-Resource which represents the composition of a stateful resource and a Web service.

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One characteristic of a WS-Resource is the set of properties associated with the resource. This document standardizes the means by which the definition of the properties of a WS-Resource may be declared as part of a Web service interface. The declaration of the WS-Resource's properties represents a projection of or a view on the WS-Resource's state. This projection is defined in terms of a resource properties document. This resource properties document serves to define a basis for access to the resource properties through Web service interfaces.

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Deleted: . This relationship is described as the WS-Resource Access Pattern [WS-Resource]. In the WS-Resource Access Pattern, messages to a Web service may include a component that identifies a stateful resource to be used in the execution of the message. We refer to the

This specification also defines a standard set of message exchanges that allow a requestor to query or update the property values of the WS-Resource. The set of properties defined in the resource properties document associated with the service interface defines the constraints on the valid contents of these message exchanges.

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Status:

This document is published by this TC as a "public review draft". It is possible that it may change during this process, but should nonetheless provide a stable reference for discussion and early adopters' implementations. Committee members should send comments on this specification to the wsrf@lists.oasis-open.org list. Others may submit comments to the TC via the web form found on the TC's web page at <http://www.oasis-open.org/committees/wsrf>. Click the button for "Send A Comment" at the top of the page.

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35 Submitted comments (for this work as well as other works of that TC) are publicly
36 archived and can be viewed at <http://lists.oasis-open.org/archives/wsrp-comment/>.

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

41

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1 Introduction

The relationship between Web services and stateful resources is defined in [\[WS-Resource\]](#) in terms of a *WS-Resource* which represents the composition of a stateful resource and a Web service as a *WS-Resource*.

One characteristic of a *WS-Resource* is the set of properties associated with the resource. This specification standardizes the means by which the definition of the properties of a *WS-Resource* may be declared as part of the Web service interface. The declaration of the *WS-Resource*'s properties represents a projection of or a *view* on the resource's state. The projection is defined in terms of a resource properties document. This resource properties document serves to define a basis for access to the resource properties through the Web service interface.

This specification also defines a standard set of message exchanges that allow a requestor to query or update the resource property values. The set of properties defined in the resource properties document, and associated with the service interface, defines the constraints on the valid contents of these message exchanges.

In this document, we outline the goals and requirements for resource properties. We define the means to declare resource properties as part of a Web service description. Following this, we define the message exchanges for querying and updating resource property values. We also define a standard means by which requestors can use *WS-Notification* to receive notification messages related to changes in resource property values. The document concludes with a discussion of security considerations, associated with resource properties. As an appendix, we provide normative XML and WSDL descriptions of resource properties.

WS-ResourceProperties is inspired by a portion of the Global Grid Forum's "Open Grid Services Infrastructure (OGSI) Version 1.0" specification [\[OGSI\]](#).

1.1 Goals and Requirements

The goal of *WS-ResourceProperties* is to standardize the terminology, concepts, operations, WSDL and XML needed to express the resource properties projection, its association with the Web service interface, and the messages defining the query and update capability against the properties of a *WS-Resource*.

1.1.1 Requirements

In meeting this goal, the specification must address the following specific requirements:

This specification MUST:

- Define the term "resource property" and its relationship to Web services and *WS-Resources*.
- Define the means by which a designer decorates a Web service description with the names and types of properties associated with a *WS-Resource*.
- Define the means by which a requestor can:
 - Retrieve the values of one or more properties of a *WS-Resource*
 - Update the values of one or more properties of a *WS-Resource*
 - Query across the values of one or more properties of a *WS-Resource*
 - Subscribe for notification [\[WS-BaseNotification\]](#) when the value of a *WS-Resource* property changes.

The means by which resource property values are retrieved and updated SHOULD reflect a document-oriented style and MUST provide the means to perform batched query and update operations against the *WS-Resource* in a single message exchange. This will facilitate improved

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137 performance over approaches requiring a separate request message exchange for each
138 individual resource property access.

139 Web services are often described using a collection of message exchange sets (e.g. WSDL 1.1
140 portTypes). These message exchange sets may be aggregated (using manual cut-and-paste in
141 WSDL 1.1) to form the “final” composed interface definition for the Web service. The requestor’s
142 exposure to and interpretation of the Web service interface may be defined by a partial subset of
143 the constituent message exchange sets in the overall interface composition. Therefore, a
144 requestor will form resource property-related message requests based on this potentially partial
145 understanding of the overall composed interface to the Web service. It MUST be possible for a
146 requestor, having partial knowledge of the composed service interface, to form correct and
147 consistent resource property access message requests that execute properly on a Web service
148 that implements an extended message exchange set.

149 1.1.2 Non-Goals

150 The following topics are outside the scope of this specification:

151 General purpose XML document query and update: This specification is not meant to be used for
152 querying and updating generic XML documents, or to be used outside the context of modeling
153 stateful resources with Web services.

154 1.2 Notational Conventions

155 The keywords "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD",
156 "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be
157 interpreted as described in [RFC2119](#).

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

161 This specification uses a notational convention, referred to as “Pseudo-schemas” in a fashion
162 similar to the WSDL 2.0 Part 1 specification [\[WSDL 2.0\]](#). A Pseudo-schema uses a BNF-style
163 convention to describe attributes and elements:

- 164 • '?' denotes optionality (i.e. zero or one occurrences),
- 165 • '*' denotes zero or more occurrences,
- 166 • '+' denotes one or more occurrences,
- 167 • '[' and ']' are used to form groups,
- 168 • '|' represents choice.

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169 Attributes are conventionally assigned a value which corresponds to their type, as defined in the
170 normative schema.

```
171 <!-- sample pseudo-schema -->  
172 <element  
173   required_attribute_of_type_QName="xs:QName"  
174   optional_attribute_of_type_string="xs:string"? >  
175 <required_element />  
176 <optional_element />?  
177 <one_or_more_of_these_elements />+  
178 [ <choice_1 /> | <choice_2 /> ]*  
179 </element>
```

180 Where there is disagreement between the separate XML schema and WSDL files describing the
181 messages defined by this specification and the normative descriptive text (excluding any pseudo-

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182 schema) in this document, the normative descriptive text will take precedence over the separate
183 files. The separate files take precedence over any pseudo-schema and over any schema and
184 WSDL included in the appendices.

185 1.3 Namespaces

186 The following namespaces are used in this document:

Prefix	Namespace
s11	http://schemas.xmlsoap.org/soap/envelope/
xsd	http://www.w3.org/2001/XMLSchema
wsa	http://www.w3.org/2005/08/addressing
wsrf-rp	http://docs.oasis-open.org/wsrf/rp-2
wsrf-rpw	http://docs.oasis-open.org/wsrf/rpw-2
wsrf-bf	http://docs.oasis-open.org/wsrf/bf-2
wsrf-rw	http://docs.oasis-open.org/wsrf/rw-2

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187 1.4 Fault Definitions

188 All faults generated by a WS-Resource SHOULD be compliant with the WS-BaseFaults [[WS-](#)
189 [BaseFaults](#)] specification.

190 All faults defined by this specification MUST use the following wsa:Action URI [[WS-Addressing](#)]:

191 <http://docs.oasis-open.org/wsrf/fault>.

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192 2 Terminology and Concepts

193 The following definitions outline the terminology and usage in this specification. This section gives
194 only brief description of these terms.

195 Resource Property:

- 196 • A resource property is a piece of information defined as part of the state model of a WS-
197 Resource.
- 198 • A resource property may reflect a part of the resource's state, meta-data, manageability
199 information, etc.

200 Resource Properties Document:

- 201 • The XML document representing a logical composition of resource property elements.
202 The resource properties document defines a particular view or projection of the state data
203 implemented by the WS-Resource.
- 204 • The type (e.g. the XML Schema definition of the root element) of a resource properties
205 document is associated with the WSDL portType defining the Web service interface. This
206 association is the basis of the WS-Resource definition. Each instance of a particular WS-
207 Resource type MUST implement a logical resource properties document of the type
208 declared in the WSDL portType.

209 Resource Property Element:

- 210 • The XML representation of a resource property.
- 211 • A resource property element must appear as the immediate child of the root element of a
212 resource properties document.
- 213 • A resource property element must be an XML global element definition (GED), and is
214 uniquely identified by QName.

215 Resource Property Value:

- 216 • The value(s) associated with a resource property.

217 3 Example

218 The simple example below defines the GenericDiskDrive portType and the resource properties
219 document associated with GenericDiskDrive. The association of the resource properties
220 document with the portType defines the type of the WS-Resource.

```
221 <wsdl:definitions ... xmlns:tns="http://example.com/diskDrive" ...>
222 ...
223 <wsdl:types>
224 <xsd:schema targetNamespace="http://example.com/diskDrive" ... >
225
226 <!-- Resource property element declarations -->
227 <xsd:element name="NumberOfBlocks" type="xsd:integer"/>
228 <xsd:element name="BlockSize" type="xsd:integer" />
229 <xsd:element name="Manufacturer" type="xsd:string" />
230 <xsd:element name="StorageCapability" type="xsd:string" />
231
232 <!-- Resource properties document declaration -->
233 <xsd:element name="GenericDiskDriveProperties">
234 <xsd:complexType>
235 <xsd:sequence>
236 <xsd:element ref="tns:NumberOfBlocks"/>
237 <xsd:element ref="tns:BlockSize" />
238 <xsd:element ref="tns:Manufacturer" />
239 <xsd:any minOccurs="0" maxOccurs="unbounded" />
240 <xsd:element ref="tns:StorageCapability"
241     minOccurs="0" maxOccurs="unbounded" />
242 </xsd:sequence>
243 </xsd:complexType>
244 </xsd:element>
245 ...
246 </xsd:schema>
247 </wsdl:types>
248 ...
249 <!-- Association of resource properties document to a portType -->
250 <wsdl:portType name="GenericDiskDrive"
251     wsrf-rp:ResourceProperties="tns:GenericDiskDriveProperties" >
252
253 <operation name="start" .../>
254 <operation name="stop" .../>
255 ...
256 </wsdl:portType>
257 ...
258 </wsdl:definitions>
```

259 The following represents the request message used to retrieve [three](#) resource property elements
260 from the WS-Resource that implements the GenericDiskDrive portType:

```
261 ...
262 <wsrf-rp:GetMultipleResourceProperties
263     xmlns:tns="http://example.com/diskdrive" ...>
```

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```
264 <wsrf-rp:ResourceProperty>
265   tns:NumberOfBlocks
266 </wsrf-rp:ResourceProperty>
267 <wsrf-rp:ResourceProperty>
268   tns:BlockSize
269 </wsrf-rp:ResourceProperty>
270 <wsrf-rp:ResourceProperty>
271   tns:StorageCapability
272 </wsrf-rp:ResourceProperty>
273 </wsrf-rp:GetMultipleResourceProperties>
274 ...
```

275 The following is a sample response to the simple get request:

```
276 ...
277 <wsrf-rp:GetMultipleResourcePropertiesResponse
278   xmlns:ns1="http://example.com/diskdrive"
279   xmlns:ns2="http://example.com/capabilities" ...>
280   <ns1:NumberOfBlocks>22</ns1:NumberOfBlocks>
281   <ns1:BlockSize>1024</ns1:BlockSize>
282   <ns1:StorageCapability>
283     <ns2:NoSinglePointOfFailure>true</ns2:NoSinglePointOfFailure>
284   </ns1:StorageCapability>
285   <ns1:StorageCapability>
286     <ns2:DataRedundancyMax>42</ns2:DataRedundancyMax>
287   </ns1:StorageCapability>
288
289 </wsrf-rp:GetMultipleResourcePropertiesResponse>
290 ...
```

291

4 Declaring Resource Properties

292

4.1 Resource Properties Document

293

The resource properties document type associated with a Web service's WSDL 1.1 portType definition provides the declaration of the exposed resource properties of the WS-Resource. It represents a particular composed structural view or projection of the resource properties of the WS-Resource, essentially exposing the stateful resource component within the WS-Resource composition. This may be used by a service requestor to form an XML-based query or update expression on the WS-Resource.

299

This specification does not dictate the means by which a service implements a resource properties document. A given service implementation may choose to realize its implementation of the resource properties document as an actual XML instance document, stored in memory, in the file system, in a database or in some XML Repository. Other service implementations may *dynamically* construct the resource property elements and their values, from data held in programming language objects (such as a J2EE EJB Entity Bean) or by executing a command on a private communications channel to a physical resource. Yet another implementation possibility is a mapping layer to a standard management interface (such as CIM or SNMP).

307

There is an explicit relationship between the resource properties document and the message exchanges defined in Section 5. Any Web service that implements an interface that includes a resource properties document type declaration is a WS-Resource and MUST comply with the definition of a WS-Resource in [WS-Resource]. A WS-Resource MUST accept message requests declared by the GetResourceProperty message exchange defined in Section 5. Similarly, such a Web service MAY accept message requests declared by the other message exchanges defined in Section 5.

314

However, there is no relationship, intended or implied by this specification, between the resource properties defined in the resource properties document and any other message exchanges that may be introduced as part of the Web service interface. Any relationships between the resource properties and messages that comprise an interface are entirely under the purview of the designer of that interface. For example, using the resource properties document described above in Section 3, it would be legal for an interface designer to introduce a "ReformatSectorBlock" message exchange. However, with respect to this specification, there is no relationship either required or prohibited between such an operation and the properties declared in the resource properties document.

323

4.2 Resource Properties Document and Resource Properties

324

A *resource properties document* MUST be defined in XML Schema as a global element declaration (GED) in some XML namespace. This GED refers to the definition of the root element of a resource properties document.

327

A resource properties document MAY contain resource property elements also referred to as simply resource properties. Resource properties appear as child elements of the root element of a resource properties document. If a resource properties document contains resource properties, its definition MUST be a complexType defining a collection of zero or more child elements, each of these child elements defining a resource property element. Each resource property element MUST be defined in XML Schema as a GED. The complexType defining the resource properties document MAY allow open element content (xsd:any). Resource properties are the atomic unit upon which many of the message exchanges defined in this document operate.

334

- Deleted: getNumberOfBlocks
- Deleted: Type
- Deleted: be defined using the following rules:¶
The resource properties document MUST
- Deleted: defines
- Deleted: type
- Deleted: and hence the type of the resource properties document itself.
- Formatted: No bullets or numbering
- Formatted: Font: Italic
- Formatted: Font: Italic
- Deleted: The resource properties document MUST be uniquely identified by a QName.¶
The complexType defining the resource properties document MUST define element children only. ¶
The
- Deleted: the resource properties document MUST define
- Deleted: called
- Formatted: Font: Not Italic
- Deleted: s
- Deleted: child
- Deleted: ¶
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335 **4.3 Declaring the Resource Properties Document Type in WSDL**

336 The resource properties document definition is associated with a Web service WSDL 1.1
337 portType in the following manner:

```
338 <wsdl:definitions ...>  
339   <wsdl:portType ...  
340     wsrf-rp:ResourceProperties="xsd:QName"? ... >  
341   ...  
342 </wsdl:portType>
```

343 This definition is further constrained as follows:

344 /wsdl:portType/@wsrf-rp:ResourceProperties

345 If this attribute appears on a WSDL 1.1 portType element (using attribute extensibility
346 available in the WSDL 1.1 XML schema definition for the portType element) its value
347 MUST be a QName referring to a resource properties document as defined in Section
348 4.2.

349 Any service that implements a portType annotated with @wsrf-rp:ResourceProperties MUST be a
350 component of a WS-Resource and MUST provide the interface to resource properties via a
351 document whose root element is defined by the XML global element declaration associated with
352 the portType.

5 Operations on Resource Properties

353

354 This section defines a collection of message exchanges that standardize the means by which a
355 requestor can retrieve values of resource properties, update values of resource properties, and
356 issue queries against resource properties.

357 Any interface that includes a resource properties document type declaration
358 (/wsdl:portType/@ResourceProperties) MUST also include the GetResourceProperty message
359 exchange (operation) defined in this section. Any Web service that implements an interface that
360 includes a resource properties document type declaration MAY also support the other message
361 exchanges defined in this section.

5.1 GetResourcePropertyDocument

362 A WS-Resource MAY support the message exchange defined in this section that allows a
363 requestor to retrieve the values of all resource properties associated with the WS-Resource.

364 The format of this request message MUST be:

```
366 <wsrf-rp:GetResourcePropertyDocument />
```

367 The wsa:Action MUST contain the URI

```
368 http://docs.oasis-open.org/wsrf/rpw-  
369 2/GetResourcePropertyDocument/GetResourcePropertyDocumentRequest.
```

370 The response of the GetResourcePropertyDocument request message is a message of the
371 following form:

```
372 <wsrf-rp:GetResourcePropertyDocumentResponse>  
373 {any}  
374 </wsrf-rp:GetResourcePropertyDocumentResponse>
```

375 The wsa:Action MUST contain the URI

```
376 http://docs.oasis-open.org/wsrf/rpw-  
377 2/GetResourcePropertyDocument/GetResourcePropertyDocumentResponse.
```

378 The contents of the GetResourcePropertyDocumentResponse message are further described as
379 follows:

```
380 /wsrf-rp:GetResourcePropertyDocumentResponse/{any}
```

381 An XML element that MUST correspond to [the resource properties document of the WS-
382 Resource](#).

383 If the WS-Resource does not respond to the GetResourcePropertyDocument request message
384 with the GetResourcePropertyDocumentResponse message, then it MUST send a fault. This
385 specification [does not define any additional faults for this operation other than those defined for
386 all WS-Resources in \[WS-Resource\]. One of these faults, or a specialization thereof, SHOULD be
387 sent upon failure although other fault messages MAY be returned instead.](#)

5.1.1 Example SOAP Encoding of the GetResourcePropertyDocument Message Exchange

390 Consider the following resource properties document defining resource properties for a WS-
391 Resource defined by the GenericDiskDrive portType:

```
392 <tns:GenericDiskDriveProperties  
393 xmlns:tns="http://example.com/diskDrive"
```

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Deleted: The GetResourcePropertyDocument request message MUST follow the WS-Resource Access Pattern.

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Deleted: the element declared in the value of the ResourceProperties attribute of the portType defining the GetResourcePropertyDocument operation. The contents of the element compris

Deleted: e all the resource property values contained in the WS-Resource's resource properties document

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Deleted: following faults associated with failure to process the GetResourcePropertyDocument request message: ¶ ResourceUnknownFault ¶ <#>The resource identified in the message

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Deleted: <#>(which follows the WS-Resource Access Pattern)

Deleted: <#>is not known to the Web service. This fault is specified by the WS-Resource [] specification. ¶

Deleted: GetResponsePropertyDocument

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```

394     xmlns:cap="http://example.com/capabilities">
395     <tns:NumberOfBlocks>22</tns:NumberOfBlocks>
396     <tns:BlockSize>1024</tns:BlockSize>
397     <tns:Manufacturer>DrivesRUs</tns:Manufacturer>
398     <tns:StorageCapability>
399     <cap:NoSinglePointOfFailure>true</cap:NoSinglePointOfFailure>
400     </tns:StorageCapability>
401     <tns:StorageCapability>
402     <cap:DataRedundancyMax>42</cap:DataRedundancyMax>
403     </tns:StorageCapability>
404     </tns:GenericDiskDriveProperties>

```

405 The following is a non-normative example of a GetResourcePropertyDocument request message
406 using SOAP 1.1:

```

407 <s11:Envelope ...>
408   <s11:Header>
409     <wsa:Action>
410     http://docs.oasis-open.org/wsrf/rpw-
411     2/GetResourcePropertyDocument/GetResourcePropertyDocumentRequest
412     </wsa:Action>
413     ...
414   </s11:Header>
415   <s11:Body>
416     <wsrf-rp:GetResourcePropertyDocument/>
417   </s11:Body>
418 </s11:Envelope>

```

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419 The following is an example GetResourcePropertyDocumentResponse message using SOAP
420 1.1:

```

421 <s11:Envelope ...>
422   <s11:Header>
423     <wsa:Action>
424     http://docs.oasis-open.org/wsrf/rpw-
425     2/GetResourcePropertyDocument/GetResourcePropertyDocumentResponse
426     </wsa:Action>
427     ...
428   </s11:Header>
429   <s11:Body>
430     <wsrf-rp:GetResourcePropertyDocumentResponse
431     xmlns:tns="http://example.com/diskDrive"
432     xmlns:cap="http://example.com/capabilities">
433     <tns:GenericDiskDriveProperties>
434     <tns:NumberOfBlocks>22</tns:NumberOfBlocks>
435     <tns:BlockSize>1024</tns:BlockSize>
436     <tns:Manufacturer>DrivesRUs</tns:Manufacturer>
437     <tns:StorageCapability>
438     <cap:NoSinglePointOfFailure>true</cap:NoSinglePointOfFailure>
439     </tns:StorageCapability>
440     <tns:StorageCapability>

```

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```

441 <cap:DataRedundancyMax>42</cap:DataRedundancyMax>
442 </tns:StorageCapability>
443 </tns:GenericDiskDriveProperties>
444 </wsrf-rp:GetResourcePropertyDocumentResponse>
445 </s11:Body>
446 </s11:Envelope>

```

5.2 GetResourceProperty

448 A WS-Resource whose portType includes the resource properties document type declaration
449 (/wsdl:portType/@ResourceProperties) MUST support the message exchange defined in this
450 section that allows a requestor to retrieve the value of a single resource property of a WS-
451 Resource.

452 The format of this request message MUST be:

```

453 <wsrf-rp:GetResourceProperty>
454   QName
455 </wsrf-rp:GetResourceProperty>
457

```

458 The wsa:Action MUST contain the URI

459 [http://docs.oasis-open.org/wsrf/rpw-
460 2/GetResourceProperty/GetResourcePropertyRequest](http://docs.oasis-open.org/wsrf/rpw-2/GetResourceProperty/GetResourcePropertyRequest).

Deleted: The GetResourceProperty request message MUST follow the WS-Resource Access Pattern.

Deleted: -1

461 The components of the GetResourceProperty request message are further described as follows:

462 /wsrf-rp:GetResourceProperty/QName

463 This MUST correspond to the QName of a resource property element (child of the root of
464 the WS-Resource's resource properties document).

465 The response of the GetResourceProperty request message is a message of the following form:

```

466 <wsrf-rp:GetResourcePropertyResponse>
467   {any}*
468 </wsrf-rp:GetResourcePropertyResponse>
470

```

471 The wsa:Action MUST contain the URI

472 [http://docs.oasis-open.org/wsrf/rpw-
473 2/GetResourceProperty/GetResourcePropertyResponse](http://docs.oasis-open.org/wsrf/rpw-2/GetResourceProperty/GetResourcePropertyResponse).

Deleted: -1

474 The contents of the GetResourceProperty response message are further described as follows:

475 /wsrf-rp:GetResourcePropertyResponse/{any}

476 The resource property value, as XML element(s), that corresponds to the QName in the
477 GetResourceProperty request. Note: in the case where the resource property element is
478 defined with minOccurs="0" and the resource properties document does not contain any
479 value for that resource property, the response MUST be an empty wsrf-
480 rp:GetResourcePropertyResponse element. [If an implementation cannot return all of the
481 resource property values associated with the request, due to, for example, security
482 considerations, then it MUST fault.](#)

Deleted: an

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483 If the WS-Resource does not respond to the GetResourceProperty request message with the
484 GetResourcePropertyResponse message, then it MUST send a fault. This specification defines
485 the following faults associated with failure to process the GetResourceProperty request message,
486 [in addition to those faults defined for all WS-Resources in \[WS-Resource\]:](#)

Deleted: ::

487 [InvalidResourcePropertyQNameFault](#)

Deleted: ¶
ResourceUnknownFault¶
The resource identified in the message

- 488 • The QName in the request message did not correspond to a resource property element
489 of the WS-Resource referred to in the request message.

Deleted: (which follows the WS-Resource Access Pattern)

490 [One of these faults, or a specialization thereof, SHOULD be sent upon failure although other fault](#)
491 [messages MAY be returned instead.](#)

Deleted: is not known to the Web service. This fault is specified by the WS-Resource [] specification.¶

492 **5.2.1 Example SOAP Encoding of the GetResourceProperty Message**
493 **Exchange**

494 Consider the resource properties document defining resource properties for a WS-Resource, [as](#)
495 [shown in section 5.1.1.](#) The following is a non-normative example of a GetResourceProperty
496 request message using SOAP 1.1:

Deleted: following

Deleted: defined by the GenericDiskDrive portType:

```
497 <s11:Envelope ...>  
498 <s11:Header>  
499 <wsa:Action>  
500 http://docs.oasis-open.org/wsrf/rpw-2/GetResourceProperty/GetResourcePropertyRequest  
501 </wsa:Action>  
502 ...  
503 </s11:Header>  
504 <s11:Body>  
505 <wsrf-rp:GetResourceProperty  
506 xmlns:tns="http://example.com/diskDrive">  
507 tns:NumberOfBlocks  
508 </wsrf-rp: GetResourceProperty>  
509 </s11:Body>  
510 </s11:Envelope>
```

Deleted: ¶
<GenericDiskDriveProperties ¶
xmlns:tns="http://example.com/diskDrive" ¶

xmlns:cap="http://example.com/capabilities">¶

<tns:NumberOfBlocks>22</tns:NumberOfBlocks>¶

<tns:BlockSize>1024</tns:BlockSize>¶

<tns:Manufacturer>DrivesRUs</tns:Manufacturer>¶

<tns:StorageCapability>¶

<cap:NoSinglePointOfFailure>true</cap:NoSinglePointOfFailure>¶

</tns:StorageCapability>¶

<tns:StorageCapability>¶

<cap:DataRedundancyMax>42</cap:DataRedundancyMax>¶

</tns:StorageCapability>¶

</GenericDiskDriveProperties>¶

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511 The following is an example GetResourcePropertyResponse message using SOAP 1.1:

```
512 <s11:Envelope ...>  
513 <s11:Header>  
514 <wsa:Action>  
515 http://docs.oasis-open.org/wsrf/rpw-2/GetResourceProperty/GetResourcePropertyResponse  
516 </wsa:Action>  
517 ...  
518 </s11:Header>  
519 <s11:Body>  
520 <wsrf-rp:GetResourcePropertyResponse  
521 xmlns:ns1="http://example.com/diskDrive">  
522 <ns1:NumberOfBlocks>22</ns1:NumberOfBlocks>  
523 </wsrf-rp:GetResourcePropertyResponse>  
524 </s11:Body>  
525 </s11:Envelope>
```

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5.3 GetMultipleResourceProperties

527 A WS-Resource MAY support the message exchange defined in this section that allows a
528 requestor to retrieve the values of multiple resource properties of a WS-Resource.

529 The format of this request message MUST be:

```
530 <wsrf-rp:GetMultipleResourceProperties>  
531 <wsrf-rp:ResourceProperty>QName <wsrf-rp:ResourceProperty>+  
532 </wsrf-rp:GetMultipleResourceProperties>
```

533 The wsa:Action MUST contain the URI

534 [http://docs.oasis-open.org/wsrf/rpw-
535 2/GetMultipleResourceProperties/GetMultipleResourcePropertiesRequest](http://docs.oasis-open.org/wsrf/rpw-2/GetMultipleResourceProperties/GetMultipleResourcePropertiesRequest).

Deleted: The GetMultipleResourceProperties request message MUST follow the WS-Resource Access Pattern.

Deleted: -1

536 The components of the GetMultipleResourceProperties request message are further described as
537 follows:

538 /wsrf-rp:GetMultipleResourceProperties/wsrf-rp:ResourceProperty+

539 This component MAY appear one or more times. Each ResourceProperty element
540 contains an xsd:QName which MUST correspond to the QName of a resource property
541 element child of the root of the WS-Resource's resource properties document.

542 The response of the GetMultipleResourceProperties request message is a message of the
543 following form:

```
544 <wsrf-rp:GetMultipleResourcePropertiesResponse>  
545 {any}*  
546 </wsrf-rp:GetMultipleResourcePropertiesResponse>
```

547 The wsa:Action MUST contain the URI

548 [http://docs.oasis-open.org/wsrf/rpw-
549 2/GetMultipleResourceProperties/GetMultipleResourcePropertiesResponse](http://docs.oasis-open.org/wsrf/rpw-2/GetMultipleResourceProperties/GetMultipleResourcePropertiesResponse).

Deleted: -1

550 The contents of the GetMultipleResourcePropertiesResponse message are further described as
551 follows:

552 /wsrf-rp:GetMultipleResourcePropertiesResponse/{any}

553 A collection of resource property values, as XML elements that correspond to the
554 QNames given in the GetMultipleResourceProperties request message. This collection is
555 formed in the following fashion. For each QName in the request message, the resource
556 must add to the collection all child elements of the root of the resource properties
557 document whose name corresponds to that QName. Note: in the case where the
558 resource property element is defined with minOccurs="0" and the resource properties
559 document does not contain any value for that resource property, no child element is
560 added to the collection for that QName. [If an implementation cannot return all of the
561 resource property values associated with the request, due to, for example, security
562 considerations, then it MUST fault.](#)

563 If the XML schema definition of the resource properties document root element does not
564 permit the root element to contain a child element with that QName the processing of the
565 GetMultipleResourceProperties request message MUST terminate with an
566 [InvalidResourcePropertyQName](#) fault message.

567 The collection of resource property values SHOULD be formed in the same order as the
568 resource property element QNames were specified in the GetMultipleResourceProperties
569 request message.

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570 If the WS-Resource does not respond to the GetMultipleResourceProperties request message
 571 with the GetMultipleResourcePropertiesResponse message, then it MUST send a fault. This
 572 specification defines the following faults associated with failure to process the
 573 GetMultipleResourceProperties request message, in addition to those faults defined for all WS-
 574 Resources in [WS-Resource]:

575 InvalidResourcePropertyQNameFault

- One or more of the QNames in the request message did not correspond to a resource property element of the WS-Resource referred to in the request message.

578 One of these faults, or a specialization thereof, SHOULD be sent upon failure although other fault
 579 messages MAY be returned instead.

580 Note: the functionality provided by the GetResourceProperty message exchange is a strict subset
 581 of that provided by GetMultipleResourceProperties. WS-ResourceProperties defines two
 582 message exchange sets to provide implementation flexibility. GetResourceProperty is a simple,
 583 required message exchange that allows simple Web service implementations to be compliant
 584 with WS-ResourceProperties. The optional GetMultipleResourceProperties, while more
 585 sophisticated, allows efficient retrieval of multiple resource property values using a single
 586 message exchange.

587 An example use of the GetMultipleResourceProperties operation is shown in Section 3. Note: it is
 588 the responsibility of the requestor to correlate the elements of the response message that
 589 correspond to the QNames contained in the request message.

590 **5.3.1 Example SOAP Encoding of the GetMultipleResourceProperties**
 591 **Message Exchange**

592 Consider the resource properties document defining resource properties for a WS-Resource as
 593 shown in section 5.1.1. The following is a non-normative example of a
 594 GetMultipleResourceProperties request message using SOAP 1.1:

```

595 <s11:Envelope ...>
596   <s11:Header>
597     <wsa:Action>
598       http://docs.oasis-open.org/wsrf/rpw-
599       2/GetMultipleResourceProperties/GetMultipleResourcePropertiesRequest
600     </wsa:Action>
601     ...
602   </s11:Header>
603   <s11:Body>
604     <wsrf-rp:GetMultipleResourceProperties
605       xmlns:tns="http://example.com/diskdrive">
606       <wsrf-rp:ResourceProperty>
607         tns:NumberOfBlocks
608       </wsrf-rp:ResourceProperty>
609       <wsrf-rp:ResourceProperty>
610         tns:BlockSize
611       </wsrf-rp:ResourceProperty>
612     </wsrf-rp:GetMultipleResourceProperties>
613   </s11:Body>
614 </s11:Envelope>
  
```

615 The following is an example GetMultipleResourcePropertiesResponse message using SOAP 1.1:

wsrf-ws_resource_properties-1.2-spec-pr-02

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Deleted: :¶
ResourceUnknownFault¶
The resource identified in the message

Deleted: (which follows the WS-Resource Access Pattern)

Deleted: is not known to the Web service. This fault is specified by the WS-Resource [] specification.¶

Deleted:

Deleted: following

Deleted: defined

Deleted: by the GenericDiskDrive portType:¶

```

<GenericDiskDriveProperties ¶
-----
xmlns:tns="http://example.com/diskDrive" ¶
-----
xmlns:cap="http://example.com/capabilities">¶
-----
<tns:NumberOfBlocks>22</tns:NumberOfBlocks>¶
-----
<tns:BlockSize>1024</tns:BlockSize>¶
-----
<tns:Manufacturer>DrivesRUs</tns:Manufacturer>¶
-----
  <tns:StorageCapability>¶
-----
  <cap:NoSinglePointOfFailure>true</cap:NoSinglePointOfFailure>¶
-----
  </tns:StorageCapability>¶
-----
  <tns:StorageCapability>¶
-----
  <cap:DataRedundancyMax>42</cap:DataRedundancyMax>¶
-----
  </tns:StorageCapability>¶
-----
</GenericDiskDriveProperties>¶
  
```

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```
<s11:Envelope ...>
  <s11:Header>
    <wsa:Action>
      http://docs.oasis-open.org/wsrf/rpw-
      2/GetMultipleResourceProperties/GetMultipleResourcePropertiesResponse
    </wsa:Action>
  ...
  </s11:Header>
  <s11:Body>
    <wsrf-rp:GetMultipleResourcePropertiesResponse
      xmlns:ns1="http://example.com/diskdrive" ...>
      <ns1:NumberOfBlocks>22</ns1:NumberOfBlocks>
      <ns1:BlockSize>1024</ns1:BlockSize>
    </wsrf-rp:GetMultipleResourcePropertiesResponse>
  </s11:Body>
</s11:Envelope>
```

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632 5.4 QueryResourceProperties

633 A WS-Resource MAY support the message exchange defined in this section that allows a
634 requestor to query the resource properties document of a WS-Resource using a query expression
635 such as XPath [XPATH].

Deleted: XPath

636 The format of this request message MUST be:

637
638
639
640
641

```
<wsrf-rp:QueryResourceProperties>
  <wsrf-rp:QueryExpression Dialect="xsd:anyURI">
    xsd:any
  </wsrf-rp:QueryExpression>
</wsrf-rp:QueryResourceProperties>
```

642 The wsa:Action MUST contain the URI

643
644

http://docs.oasis-open.org/wsrf/rpw-
2/QueryResourceProperties/QueryResourcePropertiesRequest.

Deleted: The QueryResourceProperties request message MUST follow the WS-Resource Access Pattern.

Deleted: -1

645 The components of the QueryResourceProperties request message are further described as
646 follows:

647 /wsrf-rp:QueryResourceProperties/wsrf-rp:QueryExpression

648 The context of the expression is to be evaluated against the resource properties
649 document of the WS-Resource identified by the request. The results of evaluating the
650 QueryExpression are returned in the response to this request message.

651 /wsrf-rp:QueryResourceProperties/wsrf-rp:QueryExpression/@Dialect

652 This attribute contains a URI specifying the type of expression contained by the element.

653 If the implementation does not recognize the URI identified by @Dialect, it MUST fault.

654 There is one well known dialect identified by this specification, corresponding to the
655 current stable version of the XPath [XPATH] language.

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http://www.w3.org/TR/1999/REC-xpath-19991116

656
657
658
659

This URI identifies the XPath 1.0 language. The contents of the
QueryExpression MUST be a string containing a valid XPath 1.0
expression. The namespace URI prefixes for the in-scope namespace

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703

[declarations of the QueryExpression element may be used in the XPath expression. The actual namespace declaration may be on any of the ancestors of the QueryResourceProperties element.](#)
[Note: it is RECOMMENDED that users avoid the use of previously-defined namespace prefixes when there is a chance the message could traverse intermediaries or when encryption is applied to the message, as there is a chance that an intermediary will modify the namespace prefixes. In such cases the expression will become incoherent with respect to the namespace prefix to namespace URI mapping intended by the requestor.](#)

[A WS-Resource that supports the QueryResourceProperties message exchange MUST support QueryExpressions that contain a Dialect with value "http://www.w3.org/TR/1999/REC-xpath-19991116". Such a WS-Resource MAY also support other dialects.](#)

`wsrf-rp:QueryResourceProperties/QueryExpression/{any}`

The QueryExpression MUST contain an expression in an expression language specified by the dialect attribute. Note: this element may contain mixed content.

The response of the QueryResourceProperties request message MUST be a message of the following form:

```
<wsrf-rp:QueryResourcePropertiesResponse>
  {any}
</wsrf-rp:QueryResourcePropertiesResponse>
```

The `wsa:Action` MUST contain the URI

`http://docs.oasis-open.org/wsrf/rpw-2/QueryResourceProperties/QueryResourcePropertiesResponse.`

The contents of the QueryResourcePropertiesResponse message are further described as follows:

`wsrf-rp:QueryResourcePropertiesResponse/{any}`

The response of the QueryResourceProperties request is variable, depending on the nature of the QueryExpression component of the QueryResourceProperties request. The response MUST contain an XML serialization of the results of evaluating the QueryExpression against the resource properties document. Note: this element has mixedContent, to allow for the case where the QueryExpression evaluates to a simple type (such as a Boolean, a string or an integer) as well as the case where a node-set of elements is returned.

If the WS-Resource does not respond to the QueryResourceProperties request message with the QueryResourcePropertiesResponse message, then it MUST send a fault. This specification defines the following faults associated with failure to process the QueryResourceProperties request message, [in addition to those faults defined for all WS-Resources in \[WS-Resource\]](#).

[UnknownQueryExpressionDialectFault](#)

- The given QueryExpression has a dialect that is unknown to the Web service.

[InvalidQueryExpressionFault](#)

- The given Query Expression is not valid within the QueryExpression language identified by the dialect attribute.

Deleted: <http://www.w3.org/TR/2003/WD-xpath20-20031112>
This URI identifies the XPath 2.0 (working draft) language. The contents of the QueryExpression MUST be a string containing a valid XPath 2.0 expression. Note: an additional URI will be added to represent the W3C Recommendation form of the XPath 2.0 language.

Deleted: For XPath dialects, the namespace URI prefixes for the in-scope namespace declarations of the QueryResourceProperties element may be used in the XPath expression. The actual namespace declaration may be on any of the ancestors of the QueryResourceProperties element. ¶ Note: it is RECOMMENDED that users avoid the use of previously-defined namespace prefixes when there is a chance the message could traverse intermediaries or when encryption is applied to the message, as there is a chance that an intermediary will modify the namespace prefixes. In such cases the expression will become incoherent with respect to the namespace prefix to namespace URI mapping intended by the requestor. ¶

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Deleted: ::

Deleted: ResourceUnknownFault ¶ <#>The resource identified in the message

Deleted: <#>(which follows the WS-Resource Access Pattern)

Deleted: <#>is not known to the Web service. This fault is specified by the WS-Resource [] specification. ¶

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704 | QueryEvaluationErrorFault

- 705 | • The Query Expression failed during evaluation.

706 | One of these faults, or a specialization thereof, SHOULD be sent upon failure although other fault

707 | messages MAY be returned instead.

708 | 5.4.1 QueryExpressionDialect Resource Property

709 | If a WS-Resource supports the QueryResourceProperty operation and supports dialects in

710 | addition to the required XPath 1.0 dialect, then it MUST include a wsrf-rp:QueryExpressionDialect

711 | resource property within its resource property document definition. Such a WS-Resource MAY

712 | include this resource property if it supports only the XPath 1.0 dialect. The form of the wsrf-

713 | rp:QueryExpressionDialect Resource Property is:

```
714 | <wsrf-rp:QueryExpressionDialect>
715 |   xsd:anyURI
716 | </wsrf-rp:QueryExpressionDialect>
```

Deleted: When a portType includes the definition of the QueryResourceProperties operation, it MUST also include a reference to the wsrf-rp:QueryExpressionDialect Resource Property.

717 | Furthermore, this reference MUST reflect the minOccurs and maxOccurs properties as follows:

```
718 | <xsd:element ref="wsrf-rp:QueryExpressionDialect"
719 |   minOccurs="0" maxOccurs="unbounded" />
```

720 | This resource property element is further constrained as follows:

721 | /wsrf-rp:QueryExpressionDialect

722 | This resource property declares one or more QueryExpression dialects that are

723 | supported by the Web service.

724 | /wsrf-rp:QueryExpressionDialect/{anyURI}

725 | If a requestor sends a QueryResourceProperties request message, using a

726 | QueryExpression with Dialect matching the URI contained in this resource property

727 | element, the WS-Resource MUST NOT issue an *UnknownQueryExpressionDialect* fault.

728 | The value of this element is a URI that MUST correspond to a QueryExpression dialect.

729 | 5.4.2 Example SOAP Encoding of the QueryResourceProperties

730 | Message Exchange

731 | Consider the resource properties document defining resource properties for a WS-Resource as

732 | shown in section 5.1.1. The following is a non-normative example of a QueryResourceProperties

733 | request message using SOAP 1.1:

```
734 | <s11:Envelope ...>
735 |   <s11:Header>
736 |     <wsa:Action>
737 |       http://docs.oasis-open.org/wsrf/rpw-
738 |       2/QueryResourceProperties/QueryResourcePropertiesRequest
739 |     </wsa:Action>
740 |     ...
741 |   </s11:Header>
742 |   <s11:Body>
743 |     <wsrf-rp:QueryResourceProperties>
744 |       <wsrf-rp:QueryExpression
745 |         Dialect="http://www.w3.org/TR/1999/REC-xpath-19991116" >
```

Deleted: following

Deleted: defined

Deleted: by the GenericDiskDrive portType:¶

```
<GenericDiskDriveProperties ¶
xmlns:tns="http://example.com/diskDrive"¶
xmlns:cap="http://example.com/capabilities">¶
<tns:NumberOfBlocks>22</tns:NumberOfBlocks>¶
<tns:BlockSize>1024</tns:BlockSize>¶
<tns:Manufacturer>DrivesRUs</tns:Manufacturer>¶
  <tns:StorageCapability>¶
<cap:NoSinglePointOfFailure>true</cap:NoSinglePointOfFailure>¶
  </tns:StorageCapability>¶
  <tns:StorageCapability>¶
<cap:DataRedundancyMax>42</cap:DataRedundancyMax>¶
  </tns:StorageCapability>¶
</GenericDiskDriveProperties>¶
```

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```

746     boolean(/*/NumberOfBlocks > 20 and */BlockSize=1024)
747   </wsrf-rp:QueryExpression>
748 </wsrf-rp:QueryResourceProperties>
749 </s11:Body>
750 </s11:Envelope>

```

751 The following is an example QueryResourcePropertiesResponse message using SOAP 1.1,
 752 containing the results of evaluating that XPath [\[XPATH\]](#) expression against the root element of
 753 the resource's resource properties document:

```

754 <s11:Envelope ...>
755   <s11:Header>
756     <wsa:Action>
757       http://docs.oasis-open.org/wsrf/rpw-
758       2/QueryResourceProperties/QueryResourcePropertiesResponse
759     </wsa:Action>
760   </s11:Header>
761   <s11:Body>
762     <wsrf-rp:QueryResourcePropertiesResponse>
763       true
764     </wsrf-rp:QueryResourcePropertiesResponse>
765   </s11:Body>
766 </s11:Envelope>

```

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767 5.5 PutResourcePropertyDocument

768 [A WS-Resource MAY support the message exchange defined in this section that](#) allows a
 769 requestor to completely replace the values of a WS-Resource's properties with an entirely new
 770 resource property document. This message exchange is symmetric to the
 771 GetResourcePropertyDocument message exchange defined in Section 5.1.

Deleted: The PutResourcePropertyDocument message exchange

772 The format of the PutResourcePropertyDocument request message MUST be:

```

773 <wsrf-rp:PutResourcePropertyDocument>
774   {any}
775 </wsrf-rp:PutResourcePropertyDocument>

```

776 The wsa:Action MUST contain the URI

```

777     http://docs.oasis-open.org/wsrf/rpw-
778     2/PutResourcePropertyDocument/PutResourcePropertyDocumentRequest.

```

Deleted: The PutResourcePropertyDocument request message MUST follow the WS-Resource Access Pattern.

Deleted: -1

779 The contents of the PutResourcePropertyDocument request message are further described as
 780 follows:

```
781 /wsrf-rp:PutResourcePropertyDocument/{any}
```

782 An XML element that MUST correspond to the element declared in the value of the
 783 ResourceProperties attribute of the portType defining the PutResourcePropertyDocument
 784 operation. This is the value the requestor intends to be the new resource property
 785 document for the WS-Resource.

786 The response of the PutResourcePropertyDocument request message is a message of the
 787 following form:

```
788 <wsrf-rp:PutResourcePropertyDocumentResponse>
```

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789

```
{any} ?
</wsrf-rp:PutResourcePropertyDocumentResponse>
```

790

791 The wsra:Action MUST contain the URI

792

http://docs.oasis-open.org/wsrf/rpw-
2/PutResourcePropertyDocument/PutResourcePropertyDocumentResponse.

793

794 The contents of the PutResourcePropertyDocumentResponse message are further described as
795 follows:

796 /wsrf-rp:PutResourcePropertyDocumentResponse/{any}

797

If, after processing the PutResourcePropertyDocument request, the XML Infoset of the
798 WS-Resource's resource properties document is identical to the XML Infoset of the
799 contents of the PutResourcePropertyDocument request itself, then the contents of the
800 PutResourcePropertyDocumentResponse MUST be empty.

801

If, after processing the PutResourcePropertyDocument request, the XML Infoset of the
802 WS-Resource's resource properties document is **not** identical to the XML Infoset of the
803 contents of the PutResourcePropertyDocument request itself, then the contents of the
804 PutResourcePropertyDocumentResponse MUST contain the updated resource property
805 document. If an implementation cannot return all of the resource property values
806 associated with the request, due to, for example, security considerations, then it MUST
807 fault.

808

If the WS-Resource does not respond to the PutResourcePropertyDocument request message
809 with the PutResourcePropertyDocumentResponse message, then it MUST send a fault. If the
810 request results in a fault for any reason, such as read-only property changed or some other
811 update fault, none of the resource properties are modified. This specification defines the following
812 faults associated with failure to process the PutResourcePropertyDocument request message, in
813 addition to those faults defined for all WS-Resources in [WS-Resource].

814 UnableToPutResourcePropertyDocumentFault

815

- The WS-Resource was unable to complete the processing of the
816 PutResourcePropertyDocument for some reason.

817

One of these faults, or a specialization thereof, SHOULD be sent upon failure although other fault
818 messages MAY be returned instead.

819 5.5.1 Example SOAP Encoding of the

820 PutResponsePropertyDocument Message Exchange

821

Consider the resource properties document defining resource properties for a WS-Resource, as
822 shown in section 5.1.1. The following is a non-normative example of a
823 PutResourcePropertyDocument request message using SOAP 1.1:

824

```
<s11:Envelope ...>
825 <s11:Header>
826 <wsa:Action>
827 http://docs.oasis-open.org/wsrf/rpw-
828 2/PutResourcePropertyDocument/PutResourcePropertyDocumentRequest
829 </wsa:Action>
830 ...
831 </s11:Header>
832 <s11:Body>
```

825

826

827

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829

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Deleted: :

Deleted: ResourceUnknownFault:¶
<#>The resource identified in the
message

Deleted: <#>(which follows the WS-
Resource Access Pattern)

Deleted: <#>is not known to the
Web service. This fault is specified by
the WS-Resource [] specification.¶

Deleted: :

Deleted: following

Deleted: defined

Deleted: by the GenericDiskDrive
portType:

Deleted: ¶

<GenericDiskDriveProperties ¶

xmlns:tns="http://example.com/diskDr
ive">¶

<tns:NumberOfBlocks>22</tns:Numb
erOfBlocks>¶

<tns:BlockSize>1024</tns:BlockSize>¶

<tns:Manufacturer>DrivesRUs</tns:M
anufacturer>¶

<tns:DriveIdentifier>ABC123</tns:Dri
veIdentifier>¶

</GenericDiskDriveProperties>¶

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```
<wsrf-rp:PutResourcePropertyDocument>
  <tns:GenericDiskDriveProperties
    xmlns:tns="http://example.com/diskDrive"
    xmlns:cap="http://example.com/capabilities">
    <tns:NumberOfBlocks>22</tns:NumberOfBlocks>
    <tns:BlockSize>1024</tns:BlockSize>
    <tns:Manufacturer>DrivesRUs</tns:Manufacturer>
    <tns:StorageCapability>
      <cap:NoSinglePointOfFailure>true</cap:NoSinglePointOfFailure>
    </tns:StorageCapability>
    <tns:StorageCapability>
      <cap:DataRedundancyMax>42</cap:DataRedundancyMax>
    </tns:StorageCapability>
    </tns:GenericDiskDriveProperties>
  </wsrf-rp:PutResourcePropertyDocument>
</s11:Body>
</s11:Envelope>
```

Deleted:
<abc:GenericDiskDriveProperties ¶
xmlns:abc="http://example.com/diskDrive">¶
<abc:NumberOfBlocks>22</abc:NumberOfBlocks>¶
<abc:BlockSize>1024</abc:BlockSize>¶
<abc:Manufacturer>DrivesRUs</abc:Manufacturer>¶
<abc:DriveIdentifier>ABC123</abc:DriveIdentifier>¶
</abc:GenericDiskDriveProperties>¶

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850 The following is an example PutResourcePropertyDocumentResponse message using SOAP
851 1.1:

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```
<s11:Envelope ...>
  <s11:Header>
    <wsa:Action>
      http://docs.oasis-open.org/wsrf/rpw-
      2/PutResourcePropertyDocument/PutResourcePropertyDocumentResponse
    </wsa:Action>
    ...
  </s11:Header>
  <s11:Body>
    <wsrf-rp:PutResourcePropertyDocumentResponse />
  </s11:Body>
</s11:Envelope>
```

864 5.6 SetResourceProperties

865 A WS-Resource MAY support the message exchange defined in this section that allows a
866 requestor to modify the values of multiple resource properties of a WS-Resource.
867 The SetResourceProperties message allows the processing of a single request message to make
868 multiple changes to the resource properties document. There are three types of changes, each
869 modeled as separate types of component (called SetRequestComponent) of a
870 SetResourceProperties request message:

- 871 • Insert: wherein a new resource property element is inserted into the resource properties
872 document;
- 873 • Update: wherein existing resource property element(s) are modified; and
- 874 • Delete: wherein existing resource property element(s) are removed.

875 The format of this request message MUST be:

876
877

```
<wsrf-rp:SetResourceProperties>
```

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```

878 <wsrf-rp:Insert >
879 {any}*
880 </wsrf-rp:Insert> |
881
882 <wsrf-rp:Update >
883 {any}*
884 </wsrf-rp:Update> |
885
886 <wsrf-rp:Delete ResourceProperty="QName" />
887 ↓+
888 </wsrf-rp:SetResourceProperties>

```

Deleted: }+

Deleted: The SetResourceProperties request message MUST follow the WS-Resource Access Pattern.

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889 The wsra:Action MUST contain the URI

890 <http://docs.oasis-open.org/wsrf/rpw-2/SetResourceProperties/SetResourcePropertiesRequest>.

892 The contents of the SetResourceProperties request message are further described as follows:

893 /wsrf-rp:SetResourceProperties

894 This element contains a collection of one or more components called
895 SetRequestComponents. Each of the SetRequestComponents must be processed
896 against the WS-Resource's resource properties document. These
897 SetRequestComponents MUST appear to be processed in the order in which they are
898 listed in the request. Each request component MUST be processed to completion in this
899 conceptual sequence before a subsequent SetRequestComponent is processed. The
900 result of processing a given SetRequestComponent MUST be observable to the
901 processing of a subsequent SetRequestComponent, and to subsequent message
902 exchanges with the same WS-Resources.

903 If a service fails to process a SetRequestComponent, it MUST cease processing the
904 SetResourceProperties request message. The values of the resource properties
905 associated with this SetRequestComponent MAY reflect partial processing of this
906 SetRequestComponent. An implementation MAY restore the contents of the resource
907 properties document to a state as if no processing of the failed SetRequestComponent
908 had occurred. The implementation MAY additionally choose to restore the resource
909 properties document as if none of the SetRequestComponents had been processed.
910 Refer to Section 7 for additional information of resource recovery.

911 /wsrf-rp:SetResourceProperties/wsrf-rp:Insert

912 The intent of this component is to insert the contents of the component into the resource
913 properties document. The exact placement of the element insertion is implementation-
914 dependent. If, as a result of processing the Insert component, the resource properties
915 document is no longer able to validate, the processing of the component MUST fault. The
916 implementation may be unable to accept the insertion of an element because it does not
917 allow the requestor to insert a resource property (or its value) of that given name. In such
918 circumstances, the resource MUST fault the processing of the component.

919 /wsrf-rp:SetResourceProperties/wsrf-rp:Insert/{any}

920 This component identifies the element(s) to be inserted into the resource properties
921 document. If there are multiple child elements of the Insert component, each MUST have
922 the same namespace and name (i.e. the same QName). The QName MUST correspond
923 to the QName of a resource property element associated with the WS-Resource (i.e. an

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924 element that is a valid child element of the root element of the resource properties
925 document). Note, for those resource properties documents that allow open element
926 content, the set of valid content types can be very large.

927 /wsrf-rp:SetResourceProperties/wsrf-rp:Update

928 The intent of this component is to change the value of the resource property by removing
929 any and all resource property element(s) of the given QName and replacing them with
930 the contents of this component. If, as a result of processing the Update component, the
931 resource properties document is no longer able to validate, the processing of the
932 component MUST fail. The resource may be unable to accept the update of an element
933 because it does not allow the requestor to update a resource property (or its value) of
934 that given name. In such circumstances, the resource MUST fail the processing of the
935 component.

936 /wsrf-rp:SetResourceProperties/wsrf-rp:Update/{any}

937 This identifies the element(s) to be inserted into the resource properties document,
938 replacing all element children of the root of the resource properties document with the
939 same QName. If there are multiple child elements of the Insert component, each MUST
940 have the same namespace and name (i.e. the same QName). The QName MUST
941 correspond to the QName of a resource property element associated with the WS-
942 Resource (i.e. an element that is a valid child element of the root element of the resource
943 properties document). Note, for those resource properties documents that allow open
944 element content, the set of valid content types can be very large.

945 /wsrf-rp:SetResourceProperties/wsrf-rp>Delete

946 The intent of this component is to remove all element children of the root of the resource
947 properties document whose QNames correspond to the value of @ResourceProperty. If
948 the resource is unable to remove all identified elements, the processing of the component
949 MUST fail. If, as a result of processing the Delete component, the resource properties
950 document is no longer able to validate, the processing of the component MUST fail. The
951 resource may be unable to accept the delete of an element because it does not allow the
952 requestor to delete a resource property (or its value) of the given name. In such
953 circumstances, the resource MUST fail the processing of the component.

954 /wsrf-rp:SetResourceProperties/wsrf-rp>Delete/@ResourceProperty

955 This attribute contains the QName of a resource property to be deleted by this
956 component.

957 The response of the SetResourceProperties request message, all of whose components were
958 successfully processed, MUST be a message of the following form:

```
959 <wsrf-rp:SetResourcePropertiesResponse>  
960 </wsrf-rp:SetResourcePropertiesResponse>
```

961 The wsa:Action MUST contain the URI

962 [http://docs.oasis-open.org/wsrf/rpw-
963 2/SetResourceProperties/SetResourcePropertiesResponse](http://docs.oasis-open.org/wsrf/rpw-2/SetResourceProperties/SetResourcePropertiesResponse).

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964 If the WS-Resource does not respond to the SetResourceProperties request message with the
965 SetResourcePropertiesResponse message, then it MUST send a fault message. This
966 specification defines the following faults associated with failure to process the
967 SetResourcePropertyDocument request message, [in addition to those faults defined for all WS-
968 Resources in \[WS-Resource\]](#).

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- 969 | [InvalidModificationFault](#)
- 970 | • The contents of the SetResourceProperties request component causes the resource
- 971 | properties document to no longer be able to validate.
- 972 | [UnableToModifyResourcePropertyFault](#)
- 973 | • A resource property identified by one of the SetResourceProperties request components
- 974 | is read-only.
- 975 | [InvalidResourcePropertyQNameFault](#)
- 976 | • [A resource property QName does not identify a resource property.](#)
- 977 | [SetResourcePropertyRequestFailedFault](#)
- 978 | • One or more components of the SetResourceProperties request failed.
- 979 | [One of these faults, or a specialization thereof, SHOULD be sent upon failure although other fault](#)
- 980 | [messages MAY be returned instead.](#)

Deleted: ResourceUnknownFault:¶
<#>The resource identified in the message

Deleted: <#>(which follows the WS-Resource Access Pattern)

Deleted: <#>is not known to the Web service. This fault is specified by the WS-Resource ¶ specification.¶

Deleted: :

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Deleted: <#>A resource property QName does not identify a proper number of resource properties.¶

981 | Any fault message indicating a failure during the update of the resource properties document

982 | MUST also indicate whether the document was restored or not by using the

983 | ResourcePropertyChangeFailure element of the fault. This fault element indicates the resource

984 | property element change associated with the fault and indicates if the resource property

985 | document as a whole was restored. The format of this element is indicated as follows:

```

986 | <wsrf-rp:ResourcePropertyChangeFailure Restored=xsd:boolean?>
987 |   <wsrf-rp:CurrentValue>{any}*</wsrf-rp:CurrentValue> ?
988 |   <wsrf-rp:RequestedValue>{any}*</wsrf-rp:RequestedValue> ?
989 | </wsrf-rp:ResourcePropertyChangeFailure>

```

- 990 | This element is further constrained as follows:
- 991 | /wsrf-rp:ResourcePropertyChangeFailure
- 992 | The contents of this element provide more information about the element associated with
- 993 | a failed modification to a resource property document.
- 994 | /wsrf-rp:ResourcePropertyChangeFailure/@Restored
- 995 | If the value of this optional attribute is "true", then the resource property document was
- 996 | restored to its state prior to the attempt to process the request message. The absence of
- 997 | this attribute is identical to this attribute having the value "false", indicating that no attempt
- 998 | was made to restore the resource property document.
- 999 | /wsrf-rp:ResourcePropertyChangeFailure/wsrf-rp:CurrentValue
- 1000 | If present, this component contains the current value(s) of the resource property
- 1001 | elements associated with the fault.
- 1002 | /wsrf-rp:ResourcePropertyChangeFailure/wsrf-rp:RequestedValue
- 1003 | If present, this component contains the value(s) of the resource property elements
- 1004 | associated with the fault as found within the request message.
- 1005 | Note: There is no isolation policy implied, for either modifications to the resource properties
- 1006 | document resulting from the processing of the request or the modifications implemented by the
- 1007 | restore. See Section [7](#) for more discussion.

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1008 **5.6.1 Example SOAP Encoding of the SetResourceProperties**
 1009 **Message Exchange**

1010 Consider the resource properties document defining resource properties for a WS-Resource as
 1011 [shown in section 5.1.1](#); The following is a non-normative example of a SetResourceProperties
 1012 request message using SOAP 1.1:

```

1013 <s11:Envelope ...>
1014   <s11:Header>
1015     <wsa:Action>
1016     http://docs.oasis-open.org/wsrf/rpw-2/SetResourceProperties/SetResourcePropertiesRequest
1017     </wsa:Action>
1018     ...
1019   </s11:Header>
1020   <s11:Body>
1021     <wsrf-rp:SetResourceProperties
1022       xmlns:tns="http://example.com/diskdrive">
1023       <wsrf-rp:Update>
1024         <tns:NumberOfBlocks>143</tns:NumberOfBlocks>
1025       </wsrf-rp:Update>
1026
1027       <wsrf-rp>Delete ResourceProperty="tns:StorageCapability" />
1028
1029       <wsrf-rp:Insert>
1030         <tns:someElement>42</tns:someElement>
1031       </wsrf-rp:Insert>
1032     </wsrf-rp:SetResourceProperties>
1033   </s11:Body>
1034 </s11:Envelope>
  
```

Deleted: following

Deleted: defined by the GenericDiskDrive portType

Deleted: ¶

<GenericDiskDriveProperties ¶

xmlns:tns="http://example.com/diskDrive"¶

xmlns:cap="http://example.com/capabilities">¶

<tns:NumberOfBlocks>22</tns:NumberOfBlocks>¶

<tns:BlockSize>1024</tns:BlockSize>¶

<tns:Manufacturer>DrivesRUs</tns:Manufacturer>¶

<tns:StorageCapability>¶

<cap:NoSinglePointOfFailure>true</cap:NoSinglePointOfFailure>¶

</tns:StorageCapability>¶

<tns:StorageCapability>¶

<cap:DataRedundancyMax>42</cap:DataRedundancyMax>¶

</tns:StorageCapability>¶

</GenericDiskDriveProperties>¶

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1036 The following is an example SetResourcePropertiesResponse message using SOAP 1.1:

```

1037 <s11:Envelope ...>
1038   <s11:Header>
1039     <wsa:Action>
1040     http://docs.oasis-open.org/wsrf/rpw-2/SetResourceProperties/SetResourcePropertiesResponse
1041     </wsa:Action>
1042     ...
1043   </s11:Header>
1044   <s11:Body>
1045     <wsrf-rp:SetResourcePropertiesResponse>
1046     </wsrf-rp:SetResourcePropertiesResponse>
1047   </s11:Body>
1048 </s11:Envelope>
  
```

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1049 The new contents of the resource properties document after successful processing of the request
 1050 message will be:

```

1051 <tns:xmlns:tns="http://example.com/diskDrive" >
1052 <tns:NumberOfBlocks>143</tns:NumberOfBlocks>
1053 <tns:BlockSize>1024</tns:BlockSize>
  
```

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```
1054 <tns:someElement>42</tns:someElement>
1055 <tns:Manufacturer>DrivesRUs</tns:Manufacturer>
1056 </tns:GenericDiskDriveProperties>
```

1057 [Now consider the situation wherein it is illegal to change the value of the resource property](#)
1058 [tns:Manufacturer, for example the resource property is not modifiable. If a SetResourceProperties](#)
1059 [operation contained a component that attempted to modify this resource property value, then a](#)
1060 [fault message would be returned in response to the SetResourceProperties request, and that](#)
1061 [fault message would contain the following XML fragment:](#)

```
1062 ...
1063 <wsrf-rp:ResourcePropertyChangeFailure Restored="true">
1064 <wsrf-rp:CurrentValue>
1065 <tns:Manufacturer>DrivesRUs</tns:Manufacturer>
1066 </wsrf-rp:CurrentValue>
1067 <wsrf-rp:RequestedValue>
1068 <tns:Manufacturer>BogusName</tns:Manufacturer>
1069 </wsrf-rp:RequestedValue>
1070 </wsrf-rp:ResourcePropertyChangeFailure>
```

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1071 5.7 InsertResourceProperties

1072 A WS-Resource MAY support the message exchange defined in this section that allows a
1073 requestor to insert new values of a resource property of a WS-Resource.

1074 The InsertResourceProperties message is used to request the insertion of one or more element
1075 values of a single resource property into the resource properties document of a WS-Resource.

1076 The format of this request message MUST be:

```
1077 <wsrf-rp:InsertResourceProperties>
1078 <wsrf-rp:Insert>
1079 {any}*
1080 </wsrf-rp:Insert>
1081 </wsrf-rp:InsertResourceProperties>
```

1082 The wsa:Action MUST contain the URI

1083 [http://docs.oasis-open.org/wsrf/rpw/](http://docs.oasis-open.org/wsrf/rpw/2/InsertResourceProperties/InsertResourcePropertiesRequest)
1084 [2/InsertResourceProperties/InsertResourcePropertiesRequest](#).

Deleted: The InsertResourceProperties request message MUST follow the WS-Resource Access Pattern.

1085 The contents of the InsertResourceProperties request message are further described as follows:

1086 /wsrf-rp:InsertResourceProperties/wsrf-rp:Insert

1087 The intent of this component is to insert the contents of the component into the resource
1088 properties document. The exact placement of the element insertion is implementation-
1089 dependent. If, as a result of processing the InsertResourceProperties request, the
1090 resource properties document is no longer able to validate, the processing of the request
1091 MUST fault. The implementation may be unable to accept the insertion of an element
1092 because it does not allow the requestor to insert a resource property (or its value) of that
1093 given name. In such circumstances, the resource MUST fault the processing of the
1094 request message.

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1095 /wsrf-rp:InsertResourceProperties/wsrf-rp:Insert/{any}

1096 This component identifies the element(s) to be inserted into the resource properties
1097 document. If there are multiple child elements of the wsrf-rp:Insert element, each MUST

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1098 have the same namespace and name (i.e. the same QName). The QName MUST
1099 correspond to the QName of a resource property element associated with the WS-
1100 Resource (i.e. an element that is a valid child element of the root element of the resource
1101 properties document). Note, for those resource properties documents that allow open
1102 element content, the set of valid content types can be very large.

1103 When an InsertResourceProperties request message has been successfully processed, the
1104 response message, MUST have the following form:

```
1105 <wsrf-rp:InsertResourcePropertiesResponse>  
1106 </wsrf-rp:InsertResourcePropertiesResponse>
```

1107 The wsra:Action MUST contain the URI

1108 [http://docs.oasis-open.org/wsrf/rpw-
1109 2/InsertResourceProperties/InsertResourcePropertiesResponse](http://docs.oasis-open.org/wsrf/rpw-2/InsertResourceProperties/InsertResourcePropertiesResponse).

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1110 If the WS-Resource does not respond to the InsertResourceProperties request message with the
1111 InsertResourcePropertiesResponse message, then it MUST send a fault. This specification
1112 defines the following faults associated with failure to process the InsertResourceProperties
1113 request message, [in addition to those faults defined for all WS-Resources in \[WS-Resource\]](#);

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1114 [InvalidModificationFault](#)

Deleted: :

1115 • The contents of the InsertResourceProperties request component causes the resource
1116 properties document to no longer be able to validate.

Deleted: ResourceUnknownFault:¶
<#>The resource identified in the
message

1117 [UnableToModifyResourcePropertyFault](#)

Deleted: <#>(which follows the WS-
Resource Access Pattern)

1118 • A resource property identified by the InsertResourceProperties request is not modifiable.

Deleted: <#>is not known to the
Web service. This fault is specified by
the WS-Resource [] specification.¶

1119 [InvalidResourcePropertyQNameFault](#)

1120 • A resource property QName does not identify a resource property.

Deleted: :

1121 [InsertResourcePropertiesRequestFailedFault](#)

Deleted: :

1122 • The InsertResourceProperties request failed for some reason.

Deleted: :

1123 [One of these faults, or a specialization thereof, SHOULD be sent upon failure although other fault
1124 messages MAY be returned instead.](#)

Deleted: :

1125 Any fault message indicating a failure during the update of the resource properties document
1126 MUST also indicate whether the document was restored by using the
1127 ResourcePropertyChangeFailure element of the fault. This fault element indicates the resource
1128 property element change associated with the fault and indicates if the resource property
1129 document as a whole was restored. The format of this element is described in Section 5.6.

1130 5.7.1 Example SOAP Encoding of the InsertResourceProperties 1131 Message Exchange

1132 Consider the following resource properties document defining resource properties for a WS-
1133 Resource defined by the GenericDiskDrive portType:

```
1134 <tns:GenericDiskDriveProperties xmlns:tns="http://example.com/diskDrive" >  
1135 <tns:NumberOfBlocks>22</tns:NumberOfBlocks>  
1136 <tns:BlockSize>1024</tns:BlockSize>  
1137 <tns:Manufacturer>DrivesRUs</tns:Manufacturer>  
1138 </tns:GenericDiskDriveProperties>
```

1139 The following is a non-normative example of an InsertResourceProperties request message using
1140 SOAP 1.1:

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wsrf-ws_resource_properties-1.2-spec-pr-02

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```
1141 <s11:Envelope ...>
1142   <s11:Header>
1143     <wsa:Action>
1144     http://docs.oasis-open.org/wsrf/rpw-
1145     2/InsertResourceProperties/InsertResourcePropertiesRequest
1146     </wsa:Action>
1147     ...
1148   </s11:Header>
1149   <s11:Body>
1150     <wsrf-rp:InsertResourceProperties
1151       xmlns:tns="http://example.com/diskdrive">
1152       <wsrf-rp:Insert>
1153         <tns:StorageCapability>
1154           <tns:NoSinglePointOfFailure>true</tns:NoSinglePointOfFailure>
1155         </tns:StorageCapability>
1156         <tns:StorageCapability>
1157           <tns:DataRedundancyMax>42</tns:DataRedundancyMax>
1158         </tns:StorageCapability>
1159       </wsrf-rp:Insert>
1160     </wsrf-rp:InsertResourceProperties>
1161   </s11:Body>
1162 </s11:Envelope>
```

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1164 The following is an example InsertResourcePropertiesResponse message using SOAP 1.1:

```
1165 <s11:Envelope ...>
1166   <s11:Header>
1167     <wsa:Action>
1168     http://docs.oasis-open.org/wsrf/rpw-
1169     2/InsertResourceProperties/InsertResourcePropertiesResponse
1170     </wsa:Action>
1171     ...
1172   </s11:Header>
1173   <s11:Body>
1174     <wsrf-rp:InsertResourcePropertiesResponse>
1175   </wsrf-rp:InsertResourcePropertiesResponse>
1176   </s11:Body>
1177 </s11:Envelope>
```

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1178 The new contents of the resource properties document after successful processing of the request
1179 message will be:

Deleted: MUST

```
1180 <tns:GenericDiskDriveProperties xmlns:tns="http://example.com/diskDrive" >
1181   <tns:NumberOfBlocks>22</tns:NumberOfBlocks>
1182   <tns:BlockSize>1024</tns:BlockSize>
1183   <tns:Manufacturer>DrivesRUs</tns:Manufacturer>
1184   <tns:StorageCapability>
1185     <tns:NoSinglePointOfFailure>true</tns:NoSinglePointOfFailure>
1186   </tns:StorageCapability>
1187   <tns:StorageCapability>
```

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```
1188 </tns>DataRedundancyMax>42</tns>DataRedundancyMax>
1189 </tns:StorageCapability>
1190 </tns:GenericDiskDriveProperties>
```

1191 5.8 UpdateResourceProperties

1192 A WS-Resource MAY support the message exchange defined in this section that allows a
1193 requestor to replace the existing values of a resource property with new values.

1194 The UpdateResourceProperties message is used to request the replacement of all the element
1195 values of a single resource property in the resource properties document of a WS-Resource with
1196 a new set of values.

1197 The format of this request message MUST be:

```
1198 <wsrf-rp:UpdateResourceProperties>
1199 <wsrf-rp:Update>
1200 {any}*
1201 </wsrf-rp:Update>
1202 </wsrf-rp:UpdateResourceProperties>
```

1203 The `wsa:Action` MUST contain the URI

1204 [http://docs.oasis-open.org/wsrf/rpw-
1205 2/UpdateResourceProperties/UpdateResourcePropertiesRequest](http://docs.oasis-open.org/wsrf/rpw-2/UpdateResourceProperties/UpdateResourcePropertiesRequest).

1206 The contents of the UpdateResourceProperties request message are further described as
1207 follows:

1208 `/wsrf-rp:UpdateResourceProperties/wsrf-rp:Update`

1209 The intent of this request is to change the value of the elements of a resource property by
1210 removing any and all resource property element(s) of the given QName and replacing
1211 them with the contents of this component. If, as a result of processing the entire
1212 UpdateResourceProperties request, the resource properties document is no longer able
1213 to validate, the processing of the request MUST fault. The resource may be unable to
1214 accept the update of an element because it does not allow the requestor to update a
1215 resource property (or its value) of that given name. In such circumstances, the resource
1216 MUST fault the processing of the request message.

1217 `/wsrf-rp:UpdateResourceProperties/wsrf-rp:Update/{any}`

1218 This identifies the element(s) to be inserted into the resource properties document,
1219 replacing all element children of the root of the resource properties document with the
1220 same QName. If there are multiple child elements of the `wsrf-rp:Update` component, each
1221 MUST have the same namespace and name (i.e. the same QName). The QName MUST
1222 correspond to the QName of a resource property element associated with the WS-
1223 Resource (i.e. an element that is a valid child element of the root element of the resource
1224 properties document). Note, for those resource properties documents that allow open
1225 element content, the set of valid content types can be very large.

1226 When an UpdateResourceProperties request message has been successfully processed, the
1227 response message MUST have the following form:

```
1228 <wsrf-rp:UpdateResourcePropertiesResponse>
1229 </wsrf-rp:UpdateResourcePropertiesResponse>
```

1230 The `wsa:Action` MUST contain the URI

wsrf-ws_resource_properties-1.2-spec-pr-02

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Deleted: The UpdateResourceProperties request message MUST follow the WS-Resource Access Pattern.

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1231 <http://docs.oasis-open.org/wsrp/rpw-2/UpdateResourceProperties/UpdateResourcePropertiesResponse>.

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1233 If the WS-Resource does not respond to the UpdateResourceProperties request message with the UpdateResourcePropertiesResponse message, then it MUST send a fault. This specification defines the following faults associated with failure to process the UpdateResourceProperties request message, in addition to those faults defined for all WS-Resources in [WS-Resource]:

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1237 InvalidModificationFault

- The contents of the UpdateResourceProperties request component causes the resource properties document to no longer be able to validate.

Deleted: :
ResourceUnknownFault:
<#>The resource identified in the message

1240 UnableToModifyResourcePropertyFault

- A resource property identified by the UpdateResourceProperties request is not modifiable.

Deleted: <#>(which follows the WS-Resource Access Pattern)

1243 InvalidResourcePropertyQNameFault

- A resource property QName does not identify a resource property.

Deleted: <#>is not known to the Web service. This fault is specified by the WS-Resource [] specification.

1245 UpdateResourcePropertiesRequestFailedFault

- The UpdateResourceProperties request failed for some reason.

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1247 One of these faults, or a specialization thereof, SHOULD be sent upon failure although other fault messages MAY be returned instead.

1249 Any fault message indicating a failure during the update of the resource properties document MUST also indicate whether the document was restored by using the ResourcePropertyChangeFailure element of the fault. This fault element indicates the resource property element change associated with the fault and indicates if the resource property document as a whole was restored. The format of this element is described in Section 5.6.

1254 5.8.1 Example SOAP Encoding of the UpdateResourceProperties Message Exchange

1256 Consider the resource properties document defining resource properties for a WS-Resource as shown in section 5.7.1. The following is a non-normative example of a UpdateResourceProperties request message using SOAP 1.1:

Deleted: following

Deleted: defined by the GenericDiskDrive portType:

```

1259 <s11:Envelope ...>
1260   <s11:Header>
1261     <wsa:Action>
1262       http://docs.oasis-open.org/wsrp/rpw-2/UpdateResourceProperties/UpdateResourcePropertiesRequest
1263     </wsa:Action>
1264     ...
1265   </s11:Header>
1266   <s11:Body>
1267     <wsrf-rp:UpdateResourceProperties
1268       xmlns:tns="http://example.com/diskdrive">
1269       <wsrf-rp:Update>
1270         <tns:NumberOfBlocks>143</tns:NumberOfBlocks>
1271       </wsrf-rp:Update>
1272     </wsrf-rp:UpdateResourceProperties>
1273   </s11:Body>
1274 </s11:Envelope>

```

Deleted: :
<GenericDiskDriveProperties
xmlns:tns="http://example.com/diskDrive" >

<tns:NumberOfBlocks>22</tns:NumberOfBlocks>

<tns:BlockSize>1024</tns:BlockSize>

<tns:Manufacturer>DrivesRUs</tns:Manufacturer>

</GenericDiskDriveProperties>

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1276 The following is an example UpdateResourcePropertiesResponse message using SOAP 1.1:

```
1277 <s11:Envelope ...>
1278   <s11:Header>
1279     <wsa:Action>
1280       http://docs.oasis-open.org/wsrf/rpw-
1281       2/UpdateResourceProperties/UpdateResourcePropertiesResponse
1282     </wsa:Action>
1283     ...
1284   </s11:Header>
1285   <s11:Body>
1286     <wsrf-rp:UpdateResourcePropertiesResponse>
1287     </wsrf-rp:UpdateResourcePropertiesResponse>
1288   </s11:Body>
1289 </s11:Envelope>
```

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1290 The new contents of the resource properties document after successful processing of the request
1291 message will be:

```
1292 <tns:GenericDiskDriveProperties xmlns:tns="http://example.com/diskDrive" >
1293   <tns:NumberOfBlocks>143</tns:NumberOfBlocks>
1294   <tns:BlockSize>1024</tns:BlockSize>
1295   <tns:Manufacturer>DrivesRUs</tns:Manufacturer>
1296 </tns:GenericDiskDriveProperties>
```

Deleted: MUST

1297 5.9 DeleteResourceProperties

1298 A WS-Resource MAY support the message exchange defined in this section that allows a
1299 requestor to remove all values of a resource property of a WS-Resource.

1300 The DeleteResourceProperties message is used to request the removal of all values of a single
1301 resource property from the resource properties document of a WS-Resource.

1302 The format of this request message MUST be:

```
1303 <wsrf-rp:DeleteResourceProperties>
1304   <wsrf-rp:Delete ResourceProperty="QName" />
1305 </wsrf-rp:DeleteResourceProperties>
```

1306 The wsa:Action MUST contain the URI

```
1307   http://docs.oasis-open.org/wsrf/rpw-
1308   2/DeleteResourceProperties/DeleteResourcePropertiesRequest.
```

Deleted: The DeleteResourceProperties request message MUST follow the WS-Resource Access Pattern.

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1309 The contents of the DeleteResourceProperties request message are further described as follows:

1310 /wsrf-rp:DeleteResourceProperties/wsrf-rp:Delete

1311 The intent of this message is to remove all element children of the root of the resource
1312 properties document whose QNames correspond to the value of @ResourceProperty. If
1313 the resource is unable to remove all identified elements, the processing of the message
1314 MUST fault. If, as a result of processing the DeleteResourceProperty request, the resource
1315 properties document is no longer able to validate, the processing of the request MUST
1316 fault. The resource may be unable to accept the deletion of an element because it does
1317 not allow the requestor to delete a resource property (or its value) of the given name. In
1318 such circumstances, the resource MUST fault the processing of the request message.

1319 /wsrf-rp:DeleteResourceProperties/wsrf-rp:Delete/@ResourceProperty

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1320 This attribute contains the QName of a resource property to be deleted by this request.

1321 When a DeleteResourceProperties request message has been successfully processed, the
1322 response message MUST have the following form:

```
1323 <wsrf-rp:DeleteResourcePropertiesResponse>  
1324 </wsrf-rp:DeleteResourcePropertiesResponse>
```

1325 The wsra:Action MUST contain the URI

1326 [http://docs.oasis-open.org/wsrf/rpw-
1327 2/DeleteResourceProperties/DeleteResourcePropertiesResponse](http://docs.oasis-open.org/wsrf/rpw-2/DeleteResourceProperties/DeleteResourcePropertiesResponse).

1328 If the WS-Resource does not respond to the DeleteResourceProperties request message with the
1329 DeleteResourcePropertiesResponse message, then it MUST send a fault. This specification
1330 defines the following faults associated with failure to process the DeleteResourceProperties
1331 request message, [in addition to those faults defined for all WS-Resources in \[WS-Resource\]](#):

1332 [InvalidModificationFault](#)

- 1333 • The contents of the DeleteResourceProperties request component causes the resource
1334 properties document to no longer be able to validate.

1335 [UnableToModifyResourcePropertyFault](#)

- 1336 • A resource property identified by the DeleteResourceProperties request is not modifiable.

1337 [InvalidResourcePropertyQNameFault](#)

- 1338 • A resource property QName does not identify a resource property.

1339 [DeleteResourcePropertiesRequestFailedFault](#)

- 1340 • One or more components of the DeleteResourceProperties request failed.

1341 [One of these faults, or a specialization thereof, SHOULD be sent upon failure although other fault
1342 messages MAY be returned instead.](#)

1343 Any fault message indicating a failure during the update of the resource properties document
1344 MUST also indicate whether the document was restored by using the
1345 ResourcePropertyChangeFailure element of the fault. This fault element indicates the resource
1346 property element change associated with the fault and indicates if the resource property
1347 document as a whole was restored. The format of this element is described in Section 5.6.

1348 5.9.1 Example SOAP Encoding of the DeleteResourceProperties 1349 Message Exchange

1350 Consider the resource properties document defining resource properties for a WS-Resource [as
1351 shown in section 5.7.1](#). The following is a non-normative example of a DeleteResourceProperties
1352 request message using SOAP 1.1:

```
1353 <s11:Envelope ...>  
1354 <s11:Header>  
1355 <wsa:Action>  
1356 http://docs.oasis-open.org/wsrf/rpw-  
1357 2/DeleteResourceProperties/DeleteResourcePropertiesRequest  
1358 </wsa:Action>  
1359 ...  
1360 </s11:Header>  
1361 <s11:Body>  
1362 <wsrf-rp:DeleteResourceProperties
```

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ResourceUnknownFault:¶
<#>The resource identified in the message

Deleted: <#>(which follows the WS-Resource Access Pattern)

Deleted: <#>is not known to the Web service. This fault is specified by the WS-Resource ¶ specification.¶

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Deleted: following

Deleted: defined by the GenericDiskDrive portType:

Deleted: ¶
<GenericDiskDriveProperties xmlns:tns="http://example.com/diskDrive" >¶

<tns:NumberOfBlocks>22</tns:NumberOfBlocks>¶

<tns:BlockSize>1024</tns:BlockSize>¶

<tns:Manufacturer>DrivesRUs</tns:Manufacturer>¶
</GenericDiskDriveProperties>¶

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```
1363     xmlns:tns="http://example.com/diskdrive">
1364     <wsrf-rp:Delete ResourceProperty="tns:Manufacturer" />
1365     </wsrf-rp:DeleteResourceProperties>
1366     </s11:Body>
1367 </s11:Envelope>
```

1368 The following is an example DeleteResourcePropertiesResponse message using SOAP 1.1:

```
1369 <s11:Envelope ...>
1370   <s11:Header>
1371     <wsa:Action>
1372       http://docs.oasis-open.org/wsrf/rpw-
1373       2/DeleteResourceProperties/DeleteResourcePropertiesResponse
1374     </wsa:Action>
1375     ...
1376   </s11:Header>
1377   <s11:Body>
1378     <wsrf-rp:DeleteResourcePropertiesResponse>
1379     </wsrf-rp:DeleteResourcePropertiesResponse>
1380   </s11:Body>
1381 </s11:Envelope>
```

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1382 The new contents of the resource properties document after successful processing of the request
1383 message will be:

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```
1384 <tns:GenericDiskDriveProperties xmlns:tns="http://example.com/diskDrive" >
1385   <tns:NumberOfBlocks>22</tns:NumberOfBlocks>
1386   <tns:BlockSize>1024</tns:BlockSize>
1387 </tns:GenericDiskDriveProperties>
```

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1388

6 Subscription

1389 | The WS-Notification [[WS-BaseNotification](#)] [[WS-Topics](#)] family of specifications describes the
1390 patterns, concepts, standard message exchanges, and protocols of a topic-based, publish-
1391 subscribe messaging pattern in Web services. In the notification model, a service creates
1392 messages that are delivered to other services that had previously registered an interest in the
1393 situation associated with that message.

1394 With WS-ResourceProperties, it is a common pattern for Web service requestors to request
1395 notification of inserts, updates and deletions made to the values of one or more resource property
1396 elements of a given WS-Resource. This suggests the need for the WS-Resource to encapsulate
1397 the stateful resource to ensure all changes made to the stateful resource (those made by Web
1398 services invocations, or those that happen to the resource by other means) are *observed* by the
1399 WS-Resource implementation. To the extent that encapsulation is not provided, and changes to
1400 the stateful resource are made outside of the knowledge of the associated WS-Resource
1401 implementation, the WS-Resource may not be able to provide notifications reflecting those
1402 changes.

1403 If a WS-Resource supports the resource property value-change notification pattern, and if it uses
1404 WS-Notification to implement this feature, then it MUST implement the message exchanges for
1405 the NotificationProducer role, as specified in [[WS-BaseNotification](#)]. The WS-Resource MAY
1406 accept subscriptions to only a subset of the resource properties defined for a WS-Resource. If an
1407 implementation does not use WS-Notification, then it MAY ignore the requirements outlined in this
1408 section.

6.1 Individual Resource Property Value Changes

1409
1410 One notification message artifact is created for each change to each resource property observed
1411 by the WS-Resource implementation. For example, a SetResourceProperties request message
1412 may contain five SetRequestComponents. Each of these components would result in the creation
1413 of a separate message artifact. A PutResourcePropertyDocument request may result in the
1414 change of most of the WS-Resource's resource properties, in which case each resource property
1415 changed by the PutResourcePropertyDocument request would result in a separate message
1416 artifact.

1417 | WS-ResourceProperties defines the Notification Topic [Expressions](#) and Topic [Namespace](#)
1418 elements [[WS-Topics](#)] that MUST be used to express the organization of the WS-Resource
1419 property element value change notifications. By understanding the relationship between
1420 Topic [Expression](#) and resource properties, and examining the set of Topic [Expression](#) supported
1421 by the NotificationProducer Web service, the service requestor can determine which of the
1422 resource properties are able to participate in the value-change notification pattern. The
1423 Topic [Expression](#) and Topic [Namespace](#) elements associated with resource property value-
1424 change notification are described as follows:

1425 1. The WS-Resource's resource properties document MAY be defined using resource
1426 properties declared in multiple XML namespaces. For each of these XML namespaces, an
1427 associated Topic [Namespace](#) element MUST be defined. The [TopicNamespace](#) element
1428 defines a [namespace](#) intended to contain topics related to value changes of resource
1429 properties declared in that XML namespace.

1430 | o The value of the Topic [Namespace](#) element's targetNamespace attribute MUST be
1431 the same as the URI of the namespace in which the resource property element is

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1432 defined. The name attribute of the TopicNamespace element SHOULD have the
1433 value "ResourcePropertiesTopicNamespace".

- 1434 2. For each resource property participating in the value-change notification pattern, a
1435 TopicExpression element MUST be defined as a child of the TopicNamespace element
1436 defined in 1.
- 1437 o Notification messages reflecting changes to the resource property are associated
1438 with this TopicExpression.
 - 1439 o The value of the TopicExpression element's name attribute MUST be the same as
1440 the NCName of the resource property element.
 - 1441 o The value of the TopicExpression element's messageTypes attribute MUST include
1442 wsrf-rp:ResourcePropertyValueChangeNotification (defined later in this section). In
1443 addition, it MAY include QNames of other message elements.
 - 1444 o A designer MAY introduce additional child sub-topic elements to the TopicExpression
1445 element that represent application-specific needs.

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- 1446 3. The WS-Resource acting as the NotificationProducer MUST include TopicExpressions
1447 defined in 2, as part of the value of its "wsnt:TopicExpression" resource property element.
1448 One such TopicExpression MUST be included for each resource property element offered as
1449 a target for a value-change subscription.

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- 1450 4. When a WS-Resource observes a resource property value change, it SHOULD create a
1451 notification message that expresses the situation, and associate the notification message
1452 with the TopicExpression associated with that resource property. Note: there are many
1453 circumstances in which a change to a resource property might not result in the generation of
1454 a notification message. For example, a resource property value may change frequently,
1455 making generation of notification messages too expensive for the service. In this situation, a
1456 WS-Resource may choose to never generate notification message artifacts to record value
1457 change, or it may choose to generate notification message artifacts for a subset of the value
1458 change situations.

1459 The wsrf-rp:ResourcePropertyValueChangeNotification element MUST appear as a component
1460 of the notification message associated with resource property value change topics. This element
1461 is defined as follows:

```
1462 <wsrf-rp:ResourcePropertyValueChangeNotification>  
1463 <wsrf-rp:OldValues> xsd:any */wsrf-rp:OldValues>?  
1464 <wsrf-rp:NewValues> xsd:any */wsrf-rp:NewValues>?  
1465 </wsrf-rp:ResourcePropertyValueChangeNotification>
```

1466 This element may appear as the root element of the notification message, or it may appear as a
1467 descendent of the root, accommodating patterns where the notification message itself is
1468 contained in an enveloping mechanism. The form of the
1469 ResourcePropertyValueChangeNotification is further constrained as follows:

1470 /wsrf-rp:ResourcePropertyValueChangeNotification

1471 One ResourcePropertyValueChangeNotification element is created for each resource
1472 property value change situation detected and acted upon by the WS-Resource. This
1473 component records the value change of the affected resource property.

1474 /wsrf-rp:ResourcePropertyValueChangeNotification/OldValues

1475 This element, if it appears, MUST contain the resource property elements of the affected
1476 WS-Resource property immediately prior to when the value change was applied. If the

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1477 resource property did not have any value prior to the value change (for example, this
1478 notification represents an insertion of a new resource property element) then this element
1479 is empty and will contain the attribute xsi:nil with value "true". If this component does not
1480 appear in the message, then the WS-Resource was unable or unwilling to record the
1481 resource property elements prior to the value change.

1482 /wsrf-rp:ResourcePropertyValueChangeNotification/NewValues

1483 This element MUST contain the resource property elements of the affected WS-Resource
1484 property after the value change condition was detected. If the WS-Resource property
1485 does not have any value after the value change (for example, this notification represents
1486 a deletion of the resource property element) then this element is empty and will contain
1487 the attribute xsi:nil with value "true".

1488 6.2 Value Changes on Any Resource Property

1489 | In addition to the Topic [Expression](#)s defined for value change notification to individual resource
1490 properties (described in the previous section), the WS-Resource MAY also support subscription
1491 for changes to *any* resource property. This specification defines a distinguished topic, named
1492 | "AnyResourcePropertyValueChange" in a distinguished Topic [Namespace](#) corresponding to the
1493 WS-ResourceProperties specification namespace.

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1494 If the WS-Resource supports the NotificationProducer interface (as defined by WS-
1495 BaseNotification) and it supports subscriptions on the wsrf-rp:AnyResourcePropertyValueChange
1496 | topic, then it MUST include this Topic [Expression](#)'s QName in the value of its
1497 | wsnt:Topic [Expression](#), resource property. Furthermore, for any ResourcePropertyValueChange
1498 notification message published on any Topic, the WS-Resource MUST also publish the
1499 notification message on the wsrf-rp:AnyResourcePropertyValueChange Topic.

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1500 7 ACID Properties of Operations on WS- 1501 Resources

1502 The ability to associate a transactional recovery policy to the execution of a Web service
1503 message exchange is a quality of service the designer would compose into the definition of a
1504 WS-Resource. In the presence of a transactional unit of work, a Web service capable of
1505 participating in the transactional protocol must abide by the rules of two-phase-commit
1506 transaction management. However, in the absence of a transaction management policy, the Web
1507 service is under no obligation to recover the state of the WS-Resource in the event of a failure
1508 during message processing.

1509 This specification is not prescriptive with respect to policy that governs concurrent read or write
1510 access to a WS-Resource. The definition of specific policy governing concurrent updates,
1511 whether or not separate message executions targeting the same WS-Resource may be
1512 interleaved, and whether partially-completed WS-Resource updates within a given message
1513 execution may be observed by other concurrent requests is beyond the scope of this definition.
1514 The scope and extent of the isolation of changes made to the WS-Resource is an implementation
1515 dependent responsibility of the WS-Resource itself. The WS-Resource must also take on the
1516 responsibility for the scope and extent to which notifications of changes to the WS-Resource are
1517 isolated and made observable. If WS-Resource update isolation is needed, we suggest the use of
1518 a transaction to provide a context within which isolation of WS-Resource updates can be
1519 provided. In the absence of a transactional unit of work, the level of WS-Resource update
1520 atomicity, recovery, isolation, and durability provided is implementation-dependent.

1521 The ability to declare and attach isolation-level policy to the definition of a Web service message
1522 exchange, whether or not a transactional unit of work is present, represents a general
1523 requirement not met by the current Web service architecture. In the future, isolation-level policy
1524 declarations may be introduced as a formal part of the WS-Resource definition.

1525 **8 Security Considerations**

1526 This specification defines the resource properties document and also the set of message
1527 exchanges that MUST be supported by a WS-Resource. In this context, there are two categories
1528 of security aspects that need to be considered: (a) securing the message exchanges and (b)
1529 securing the resource properties.

1530 **8.1 Securing the message exchanges**

1531 When messages are exchanged between a requestor and a WS-Resource in order to access or
1532 act upon one or more resource properties, it is RECOMMENDED that the communication
1533 between the services be secured using the mechanisms described in WS-Security [\[WS-Security\]](#).

1534 **8.2 Securing Resource Properties**

1535 Since WS-ResourceProperties defines a mechanism to expose properties of a WS-Resource,
1536 security policies should be established that ensure that only authorized requestors can access
1537 the value of a resource property. In order to secure access to the resource properties, the
1538 message exchanges that provide the access should be appropriately controlled. Authorization
1539 policies should be put in place so that the implications of providing the state information (through
1540 [GetResourceProperty](#), [GetMultipleResourceProperties](#), [GetResourcePropertyDocument](#), or
1541 [QueryResourceProperties](#) messages or through notification of value change and modification of
1542 the resource properties), are taken into account. These policies should also take into account the
1543 semantic difference between components of the [SetResourceProperties](#) message – i.e. that an
1544 Update component updates a *value* of a resource property, whereas Insert and Delete
1545 components modify whether the WS-Resource actually *contains* the resource property values.

1546 The authorization policies may also reflect the sensitivity of the resource property(ies) that are
1547 accessible from a WS-Resource. Policies can be set at the coarse granularity of the message
1548 exchange (e.g., [Get\(Multiple\)ResourceProperty\(ies\)](#) vs [SetResourceProperty](#)), but finer-grained
1549 control at the level of individual resource properties may be desired in some scenarios (e.g. user
1550 Bob can access value of “Manufacturer” but not “NumberOfBlocks”).

1551 Given that a requestor will be able to access a resource property value by subscribing to state
1552 changes, care should be taken to set up security policies so that a consistent policy is in effect
1553 irrespective of whether the resource property value is accessed through direct message
1554 exchanges (e.g., [GetResourceProperty](#)) or indirectly through subscription for state changes (i.e.,
1555 subscription to “ResourcePropertyValueChangeNotification” topic). It should also be noted that a
1556 requestor will be able to query the value of a property through the [QueryResourceProperties](#)
1557 operation, or by using a domain-specific operation corresponding to a resource property (e.g.,
1558 [getNumberOfBlocks](#)) if one exists. Therefore, the authorization policy on
1559 [QueryResourceProperties](#) operation (and the [getXXX](#) operation, if one is declared on the Web
1560 service for resource property named XXX) should be set so that a requestor who is not
1561 authorized to get a value of a resource property through a [GetResourceProperty](#) request is not
1562 able to deduce the value indirectly through the [QueryResourceProperties](#) request (or the [getXXX](#)
1563 operation on the Web service).

1564 Even if the requestor is authorized to access the requested resource properties, it is
1565 RECOMMENDED that the resource properties that are exchanged between a requestor and a
1566 Web service are secured to ensure integrity and/or confidentiality of the resource property values.
1567 This will prevent unauthorized alteration of and/or access to the property values while in transit.
1568 This would mean that the specific resource property elements are signed and/or encrypted within
1569 the message by leveraging WS-Security as discussed in the previous section.

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1570 9 References

1571 9.1 Normative

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1573 *Levels*, <http://www.ietf.org/rfc/rfc2119.txt>, IETF RFC 2119, March
1574 1997.

1575 [WS-Addressing] <http://www.w3.org/TR/ws-addr-core>

1576 [WS-BaseFaults] http://docs.oasis-open.org/wsrf/wsrfl-ws_base_faults-1.2-spec-pr-02.pdf

1577
1578 [WS-BaseNotification] http://docs.oasis-open.org/wsn/wsn-ws_base_notification-1.3-spec-pr-02.pdf

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1580 [WS-Resource] http://docs.oasis-open.org/wsrf/wsrfl-ws_resource-1.2-spec-pr-02.pdf

1581
1582 [WS-Topics] http://docs.oasis-open.org/wsn/wsn-ws_topics-1.3-spec-pr-01.pdf

1583
1584 [XML-Infoset] <http://www.w3.org/TR/xml-infoset/>

1585 [XPATH] <http://www.w3.org/TR/xpath>

1586 9.2 Non-Normative

1587 [OGSI 1.0] Open Grid Services Infrastructure (OGSI) V1.0
1588 [http://forge.gridforum.org/projects/ggf-editor/document/draft-ogsi-](http://forge.gridforum.org/projects/ggf-editor/document/draft-ogsi-service-1/en/1)
1589 [service-1/en/1](http://forge.gridforum.org/projects/ggf-editor/document/draft-ogsi-service-1/en/1)

1590 [WS-Security] [http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-](http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0.pdf)
1591 [message-security-1.0.pdf](http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0.pdf)

1592 [WSDL 2.0] <http://www.w3.org/TR/wsd12/>

1593 [WS-I] <http://www.ws-i.org/Profiles/BasicProfile-1.1.html>

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Deleted: <http://docs.oasis-open.org/wsn/wsn-WS-Topics-1.3-cd-01.pdf>

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1595

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1597 which defined the OGSi v1.0 [\[OGSI\]](#) specification which was a large inspiration for the ideas
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1617 In addition, the following people made contributions to this specification:

1618 Nick Butler (IBM), Karl Czajkowski (Globus / USC/ISI), Andrew Eisenberg (IBM), Donald F
1619 Ferguson (IBM), Ian Foster (Globus / Argonne), Jeffrey Frey (IBM), Diane Jordan (IBM), Frank
1620 Leymann (IBM), Andreas Meier (IBM), Nataraj Nagaratnam (IBM), Martin Nally (IBM), John
1621 Rofrano (IBM), Ellen Stokes (IBM), Tony Storey (IBM), Jay Unger (IBM), Sanjiva Weerawarana
1622 (IBM).

1623

Appendix B. XML Schema

1624 The XML types and elements used in this specification are included here for convenience. The
1625 authoritative version of this schema document is available at

1626 <http://docs.oasis-open.org/wsrp/rp-2.xsd>

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```
<?xml version="1.0" encoding="UTF-8"?>
```

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<!--
```

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1665

```
-->
```

1666

```
<xsd:schema
```

1667

```
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
```

1668

```
xmlns:wsrf-rp="http://docs.oasis-open.org/wsrp/rp-2"
```

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wsrf-ws_resource_properties-1.2-spec-pr-02

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```
xmlns:wsrf-bf="http://docs.oasis-open.org/wsrf/bf-2"
elementFormDefault="qualified" attributeFormDefault="unqualified"
targetNamespace="http://docs.oasis-open.org/wsrf/rp-2"
>
<xsd:import
  namespace="http://docs.oasis-open.org/wsrf/bf-2"
  schemaLocation="http://docs.oasis-open.org/wsrf/bf-2.xsd"
/>
<!-- ===== Resource Property Related ===== -->
<!-- ===== Resource Properties for QueryResourceProperties ===== -->
<xsd:element name="QueryExpressionDialect" type="xsd:anyURI"/>

<xsd:element name="QueryExpressionRPDocument">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="wsrf-rp:QueryExpressionDialect"
        minOccurs="0" maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

<!-- ===== Global Attribute Declaration for WSDL 1.1 portType===== -->
<xsd:attribute name="ResourceProperties" type="xsd:QName" />

<!-- = Notification Message for ResourceProperties value change === -->
<xsd:complexType name="ResourcePropertyValueChangeNotificationType">
  <xsd:sequence>
    <xsd:element name="OldValues" nillable="true"
      minOccurs="0" maxOccurs="1" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:any minOccurs="1" maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="NewValues" nillable="true"
      minOccurs="1" maxOccurs="1" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:any minOccurs="1" maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>

<xsd:element name="ResourcePropertyValueChangeNotification"
  type="wsrf-rp:ResourcePropertyValueChangeNotificationType" />
```

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1718 <xsd:complexType name="QueryExpressionType" mixed="true">
1719 <xsd:sequence>
1720 <xsd:any minOccurs="0" maxOccurs="1" processContents="lax" />
1721 </xsd:sequence>
1722 <xsd:attribute name="Dialect" type="xsd:anyURI" />
1723 </xsd:complexType>
1724
1725 <xsd:element name="QueryExpression" type="wsrf-rp:QueryExpressionType" />
1726
1727 <!-- ===== Message Types for GetResourcePropertyDocument ===== -->
1728
1729 <xsd:element name="GetResourcePropertyDocument">
1730 <xsd:complexType/>
1731 </xsd:element>
1732
1733 <xsd:element name="GetResourcePropertyDocumentResponse">
1734 <xsd:complexType>
1735 <xsd:sequence>
1736 <xsd:any minOccurs="1" maxOccurs="1"/>
1737 </xsd:sequence>
1738 </xsd:complexType>
1739 </xsd:element>
1740
1741 <!-- ===== Message Types for GetResourceProperty ===== -->
1742
1743 <xsd:element name="GetResourceProperty"
1744 <xsd:complexType base="wsrf-rp:QueryExpressionType" />
1745 </xsd:element>
1746
1747 <xsd:element name="GetResourcePropertyResponse" >
1748 <xsd:complexType>
1749 <xsd:sequence>
1750 <xsd:any minOccurs="0" maxOccurs="unbounded" />
1751 </xsd:sequence>
1752 </xsd:complexType>
1753 </xsd:element>
1754
1755 <xsd:complexType name="InvalidResourcePropertyQNameFaultType">
1756 <xsd:complexContent>
1757 <xsd:extension base="wsrf-bf:BaseFaultType"/>
1758 </xsd:complexContent>
1759 </xsd:complexType>
1760 <xsd:element name="InvalidResourcePropertyQNameFault"
1761 <xsd:complexType base="wsrf-rp:InvalidResourcePropertyQNameFaultType"/>
1762
1763 <!-- ===== Message Types for GetMultipleResourceProperties ===== -->
1764 <xsd:element name="GetMultipleResourceProperties">
1765 <xsd:complexType>
1766 <xsd:sequence>
1767 <xsd:element name="ResourceProperty" type="xsd:QName"

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1767         minOccurs="1" maxOccurs="unbounded" />
1768     </xsd:sequence>
1769 </xsd:complexType>
1770 </xsd:element>
1771
1772 <xsd:element name="GetMultipleResourcePropertiesResponse">
1773     <xsd:complexType>
1774         <xsd:sequence>
1775             <xsd:any minOccurs="0" maxOccurs="unbounded" />
1776         </xsd:sequence>
1777     </xsd:complexType>
1778 </xsd:element>
1779
1780 <!-- ===== Message Types for PutResourceProperty ===== -->
1781
1782 <xsd:element name="PutResourcePropertyDocument">
1783     <xsd:complexType>
1784         <xsd:sequence>
1785             <xsd:any minOccurs="1" maxOccurs="1"/>
1786         </xsd:sequence>
1787     </xsd:complexType>
1788 </xsd:element>
1789
1790 <xsd:element name="PutResourcePropertyDocumentResponse">
1791     <xsd:complexType>
1792         <xsd:sequence>
1793             <xsd:any minOccurs="0" maxOccurs="1"/>
1794         </xsd:sequence>
1795     </xsd:complexType>
1796 </xsd:element>
1797
1798 <xsd:complexType name="ResourcePropertyChangeFailureType">
1799     <xsd:sequence>
1800         <xsd:element name="CurrentValue" minOccurs="0" maxOccurs="1">
1801             <xsd:complexType>
1802                 <xsd:sequence>
1803                     <xsd:any minOccurs="1" maxOccurs="unbounded" />
1804                 </xsd:sequence>
1805             </xsd:complexType>
1806         </xsd:element>
1807         <xsd:element name="RequestedValue" minOccurs="0" maxOccurs="1">
1808             <xsd:complexType>
1809                 <xsd:sequence>
1810                     <xsd:any minOccurs="1" maxOccurs="unbounded" />
1811                 </xsd:sequence>
1812             </xsd:complexType>
1813         </xsd:element>
1814     </xsd:sequence>
1815     <xsd:attribute name="Restored" type="xsd:boolean"/>

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```

1816 </xsd:complexType>
1817
1818 <xsd:complexType
1819   name="UnableToPutResourcePropertyDocumentFaultType">
1820 <xsd:complexContent>
1821   <xsd:extension base="wsrf-bf:BaseFaultType">
1822     <xsd:sequence>
1823       <xsd:element name="ResourcePropertyChangeFailure" type=
1824         "wsrf-rp:ResourcePropertyChangeFailureType"/>
1825     </xsd:sequence>
1826   </xsd:extension>
1827 </xsd:complexContent>
1828 </xsd:complexType>
1829 <xsd:element name="UnableToPutResourcePropertyDocumentFault"
1830   type=
1831     "wsrf-rp:UnableToPutResourcePropertyDocumentFaultType"/>
1832
1833 <!-- ===== Message Types for SetResourceProperties ===== -->
1834
1835 <xsd:complexType name="InsertType">
1836 <xsd:sequence>
1837   <xsd:any processContents="lax"
1838     minOccurs="1" maxOccurs="unbounded" />
1839 </xsd:sequence>
1840 </xsd:complexType>
1841 <xsd:element name="Insert" type="wsrf-rp:InsertType"/>
1842
1843 <xsd:complexType name="UpdateType">
1844 <xsd:sequence>
1845   <xsd:any processContents="lax"
1846     minOccurs="1" maxOccurs="unbounded" />
1847 </xsd:sequence>
1848 </xsd:complexType>
1849 <xsd:element name="Update" type="wsrf-rp:UpdateType"/>
1850
1851 <xsd:complexType name="DeleteType">
1852 <xsd:attribute name="ResourceProperty"
1853   type="xsd:QName" use="required" />
1854 </xsd:complexType>
1855 <xsd:element name="Delete" type="wsrf-rp:DeleteType"/>
1856
1857 <xsd:element name="SetResourceProperties">
1858 <xsd:complexType>
1859   <xsd:choice minOccurs="1" maxOccurs="unbounded">
1860     <xsd:element ref="wsrf-rp:Insert"/>
1861     <xsd:element ref="wsrf-rp:Update"/>
1862     <xsd:element ref="wsrf-rp:Delete"/>
1863   </xsd:choice>
1864 </xsd:complexType>

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1865 </xsd:element>
1866
1867 <xsd:element name="SetResourcePropertiesResponse" >
1868   <xsd:complexType />
1869 </xsd:element>
1870
1871 <xsd:complexType
1872   name="InvalidModificationFaultType">
1873   <xsd:complexContent>
1874     <xsd:extension base="wsrf-bf:BaseFaultType">
1875       <xsd:sequence>
1876         <xsd:element name="ResourcePropertyChangeFailure" type=
1877           "wsrf-rp:ResourcePropertyChangeFailureType"/>
1878       </xsd:sequence>
1879     </xsd:extension>
1880   </xsd:complexContent>
1881 </xsd:complexType>
1882 <xsd:element name=
1883   "InvalidModificationFault"
1884   type=
1885   "wsrf-rp:InvalidModificationFaultType"/>
1886
1887 <xsd:complexType name="UnableToModifyResourcePropertyFaultType">
1888   <xsd:complexContent>
1889     <xsd:extension base="wsrf-bf:BaseFaultType">
1890       <xsd:sequence>
1891         <xsd:element name="ResourcePropertyChangeFailure" type=
1892           "wsrf-rp:ResourcePropertyChangeFailureType"/>
1893       </xsd:sequence>
1894     </xsd:extension>
1895   </xsd:complexContent>
1896 </xsd:complexType>
1897 <xsd:element name="UnableToModifyResourcePropertyFault"
1898   type="wsrf-rp:UnableToModifyResourcePropertyFaultType"/>
1899
1900 <xsd:complexType name="SetResourcePropertyRequestFailedFaultType">
1901   <xsd:complexContent>
1902     <xsd:extension base="wsrf-bf:BaseFaultType">
1903       <xsd:sequence>
1904         <xsd:element name="ResourcePropertyChangeFailure" type=
1905           "wsrf-rp:ResourcePropertyChangeFailureType"/>
1906       </xsd:sequence>
1907     </xsd:extension>
1908   </xsd:complexContent>
1909 </xsd:complexType>
1910 <xsd:element name="SetResourcePropertyRequestFailedFault"
1911   type=
1912   "wsrf-rp:SetResourcePropertyRequestFailedFaultType"/>
1913

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1914 <xsd:complexType name="InsertResourcePropertiesRequestFailedFaultType">
1915 <xsd:complexContent>
1916 <xsd:extension base="wsrf-bf:BaseFaultType">
1917 <xsd:sequence>
1918 <xsd:element name="ResourcePropertyChangeFailure" type=
1919 "wsrf-rp:ResourcePropertyChangeFailureType"/>
1920 </xsd:sequence>
1921 </xsd:extension>
1922 </xsd:complexContent>
1923 </xsd:complexType>
1924 <xsd:element name="InsertResourcePropertiesRequestFailedFault"
1925 type=
1926 "wsrf-rp:InsertResourcePropertiesRequestFailedFaultType"/>
1927
1928 <xsd:complexType name="UpdateResourcePropertiesRequestFailedFaultType">
1929 <xsd:complexContent>
1930 <xsd:extension base="wsrf-bf:BaseFaultType">
1931 <xsd:sequence>
1932 <xsd:element name="ResourcePropertyChangeFailure" type=
1933 "wsrf-rp:ResourcePropertyChangeFailureType"/>
1934 </xsd:sequence>
1935 </xsd:extension>
1936 </xsd:complexContent>
1937 </xsd:complexType>
1938 <xsd:element
1939 name="UpdateResourcePropertiesRequestFailedFault"
1940 type="wsrf-rp:UpdateResourcePropertiesRequestFailedFaultType"/>
1941
1942 <xsd:complexType name="DeleteResourcePropertiesRequestFailedFaultType">
1943 <xsd:complexContent>
1944 <xsd:extension base="wsrf-bf:BaseFaultType">
1945 <xsd:sequence>
1946 <xsd:element name="ResourcePropertyChangeFailure" type=
1947 "wsrf-rp:ResourcePropertyChangeFailureType"/>
1948 </xsd:sequence>
1949 </xsd:extension>
1950 </xsd:complexContent>
1951 </xsd:complexType>
1952 <xsd:element
1953 name="DeleteResourcePropertiesRequestFailedFault"
1954 type="wsrf-rp:DeleteResourcePropertiesRequestFailedFaultType"/>
1955
1956 <!-- ===== Message Types for InsertResourceProperties ===== -->
1957 <xsd:element name="InsertResourceProperties">
1958 <xsd:complexType>
1959 <xsd:sequence>
1960 <xsd:element ref="wsrf-rp:Insert"/>
1961 </xsd:sequence>
1962 </xsd:complexType>

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1963 </xsd:element>
1964
1965 <xsd:element name="InsertResourcePropertiesResponse" >
1966   <xsd:complexType />
1967 </xsd:element>
1968
1969 <!-- ===== Message Types for UpdateResourceProperties ===== -->
1970 <xsd:element name="UpdateResourceProperties">
1971   <xsd:complexType>
1972     <xsd:sequence>
1973       <xsd:element ref="wsrf-rp:Update"/>
1974     </xsd:sequence>
1975   </xsd:complexType>
1976 </xsd:element>
1977
1978 <xsd:element name="UpdateResourcePropertiesResponse" >
1979   <xsd:complexType />
1980 </xsd:element>
1981
1982 <!-- ===== Message Types for DeleteResourceProperties ===== -->
1983 <xsd:element name="DeleteResourceProperties">
1984   <xsd:complexType>
1985     <xsd:sequence>
1986       <xsd:element ref="wsrf-rp:Delete"/>
1987     </xsd:sequence>
1988   </xsd:complexType>
1989 </xsd:element>
1990
1991 <xsd:element name="DeleteResourcePropertiesResponse" >
1992   <xsd:complexType />
1993 </xsd:element>
1994
1995 <!-- ===== Message Types for QueryResourceProperties ===== -->
1996
1997 <xsd:element name="QueryResourceProperties" >
1998   <xsd:complexType>
1999     <xsd:sequence>
2000       <xsd:element ref="wsrf-rp:QueryExpression"
2001         minOccurs="1" maxOccurs="1"/>
2002     </xsd:sequence>
2003   </xsd:complexType>
2004 </xsd:element>
2005
2006 <xsd:element name="QueryResourcePropertiesResponse" >
2007   <xsd:complexType>
2008     <xsd:complexContent mixed="true">
2009       <xsd:restriction base="xsd:anyType">
2010         <xsd:sequence>
2011           <xsd:any processContents="lax"

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```
2012         minOccurs="1" maxOccurs="unbounded"/>
2013     </xsd:sequence>
2014 </xsd:restriction>
2015 </xsd:complexContent>
2016 </xsd:complexType>
2017 </xsd:element>
2018
2019 <xsd:complexType name="UnknownQueryExpressionDialectFaultType">
2020 <xsd:complexContent>
2021 <xsd:extension base="wsrf-bf:BaseFaultType"/>
2022 </xsd:complexContent>
2023 </xsd:complexType>
2024 <xsd:element name="UnknownQueryExpressionDialectFault"
2025     type="wsrf-rp:UnknownQueryExpressionDialectFaultType"/>
2026
2027 <xsd:complexType name="InvalidQueryExpressionFaultType">
2028 <xsd:complexContent>
2029 <xsd:extension base="wsrf-bf:BaseFaultType"/>
2030 </xsd:complexContent>
2031 </xsd:complexType>
2032 <xsd:element name="InvalidQueryExpressionFault"
2033     type="wsrf-rp:InvalidQueryExpressionFaultType"/>
2034
2035 <xsd:complexType name="QueryEvaluationErrorFaultType">
2036 <xsd:complexContent>
2037 <xsd:extension base="wsrf-bf:BaseFaultType"/>
2038 </xsd:complexContent>
2039 </xsd:complexType>
2040 <xsd:element name="QueryEvaluationErrorFault"
2041     type="wsrf-rp:QueryEvaluationErrorFaultType"/>
2042
2043 </xsd:schema>
```

2044 Appendix C. WSDL 1.1

2045 The WSDL 1.1 for the Web service methods described in this specification is compliant with WS-I
2046 Basic Profile 1.1 [\[WS-I\]](#) and is included here for convenience. The authoritative version of this
2047 WSDL is available at:

2048 <http://docs.oasis-open.org/wsrp/rpw-2.wsdl>

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2049 <?xml version="1.0" encoding="utf-8"?>

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2085 PARTICULAR PURPOSE.

2086

2087 -->

2088

2089 <wsdl:definitions name="WS-ResourceProperties"

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```
xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:wsrf-bf="http://docs.oasis-open.org/wsrf/bf-2"
xmlns:wsrf-rp="http://docs.oasis-open.org/wsrf/rp-2"
xmlns:wsrf-rpw="http://docs.oasis-open.org/wsrf/rpw-2"
xmlns:wsrf-rw="http://docs.oasis-open.org/wsrf/rw-2"
targetNamespace="http://docs.oasis-open.org/wsrf/rpw-2"
>

<!-- ===== Imports ===== -->

<wsdl:import
  namespace="http://docs.oasis-open.org/wsrf/rw-2"
  location="http://docs.oasis-open.org/wsrf/rw-2_wsdl" />

<!-- ===== Types Definitions ===== -->
<wsdl:types>
  <xsd:schema>
    <xsd:import
      namespace="http://docs.oasis-open.org/wsrf/rp-2"
      schemaLocation="http://docs.oasis-open.org/wsrf/rp-2_xsd" />
    </xsd:schema>
  </wsdl:types>

<!-- ===== GetResourcePropertyDocument =====
  GetResourcePropertyDocument()
  returns: any
-->
<wsdl:message name="GetResourcePropertyDocumentRequest">
  <wsdl:part name="GetResourcePropertyDocumentRequest"
    element="wsrf-rp:GetResourcePropertyDocument"/>
</wsdl:message>

<wsdl:message name="GetResourcePropertyDocumentResponse">
  <wsdl:part name="GetResourcePropertyDocumentResponse"
    element="wsrf-rp:GetResourcePropertyDocumentResponse"/>
</wsdl:message>

<!-- ===== GetResourceProperty =====
  GetResourceProperty(QName)
  returns: any
-->
<wsdl:message name="GetResourcePropertyRequest">
  <wsdl:part name="GetResourcePropertyRequest"
    element="wsrf-rp:GetResourceProperty" />
</wsdl:message>
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2139 <wsdl:message name="GetResourcePropertyResponse">
2140 <wsdl:part name="GetResourcePropertyResponse"
2141     element="wsrf-rp:GetResourcePropertyResponse" />
2142 </wsdl:message>
2143
2144 <wsdl:message name="InvalidResourcePropertyQNameFault">
2145 <part name="InvalidResourcePropertyQNameFault"
2146     element="wsrf-rp:InvalidResourcePropertyQNameFault" />
2147 </wsdl:message>
2148
2149 <!-- =====GetMultipleResourceProperties =====
2150 GetMultipleResourceProperties(list of QName)
2151 returns: sequence of any
2152 -->
2153 <wsdl:message name="GetMultipleResourcePropertiesRequest">
2154 <wsdl:part name="GetMultipleResourcePropertiesRequest"
2155     element="wsrf-rp:GetMultipleResourceProperties" />
2156 </wsdl:message>
2157
2158 <wsdl:message name="GetMultipleResourcePropertiesResponse">
2159 <wsdl:part name="GetMultipleResourcePropertiesResponse"
2160     element="wsrf-rp:GetMultipleResourcePropertiesResponse" />
2161 </wsdl:message>
2162 <!-- ===== PutResourcePropertyDocument =====
2163 PutResourcePropertyDocument(any)
2164 returns: any?
2165 -->
2166 <wsdl:message name="PutResourcePropertyDocumentRequest">
2167 <wsdl:part name="PutResourcePropertyDocumentRequest"
2168     element="wsrf-rp:PutResourcePropertyDocument"/>
2169 </wsdl:message>
2170
2171 <wsdl:message name="PutResourcePropertyDocumentResponse">
2172 <wsdl:part name="PutResourcePropertyDocumentResponse"
2173     element="wsrf-rp:PutResourcePropertyDocumentResponse"/>
2174 </wsdl:message>
2175
2176 <wsdl:message name="UnableToPutResourcePropertyDocumentFault">
2177 <part name="UnableToPutResourcePropertyDocumentFault"
2178     element="wsrf-rp:UnableToPutResourcePropertyDocumentFault" />
2179 </wsdl:message>
2180
2181 <!-- ===== SetResourceProperties =====
2182 SetResourceProperties(
2183 { insert (any)* |
2184 update (any)* |
2185 delete@QName } +
2186 )
2187 returns: empty

```

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```

2188 -->
2189 <wsdl:message name="SetResourcePropertiesRequest">
2190 <wsdl:part name="SetResourcePropertiesRequest"
2191     element="wsrf-rp:SetResourceProperties" />
2192 </wsdl:message>
2193
2194 <wsdl:message name="SetResourcePropertiesResponse">
2195 <wsdl:part name="SetResourcePropertiesResponse"
2196     element="wsrf-rp:SetResourcePropertiesResponse" />
2197 </wsdl:message>
2198
2199 <wsdl:message name="InvalidModificationFault">
2200 <part name="InvalidModificationFault"
2201     element="wsrf-rp:InvalidModificationFault" />
2202 </wsdl:message>
2203
2204 <wsdl:message name="UnableToModifyResourcePropertyFault">
2205 <part name="UnableToModifyResourcePropertyFault"
2206     element="wsrf-rp:UnableToModifyResourcePropertyFault" />
2207 </wsdl:message>
2208
2209 <wsdl:message name="SetResourcePropertyRequestFailedFault">
2210 <part name="SetResourcePropertyRequestFailedFault"
2211     element="wsrf-rp:SetResourcePropertyRequestFailedFault" />
2212 </wsdl:message>
2213
2214 <!-- ===== InsertResourceProperties =====
2215 InsertResourceProperties((any)* )
2216 returns: empty
2217 -->
2218 <wsdl:message name="InsertResourcePropertiesRequest">
2219 <wsdl:part name="InsertResourcePropertiesRequest"
2220     element="wsrf-rp:InsertResourceProperties" />
2221 </wsdl:message>
2222
2223 <wsdl:message name="InsertResourcePropertiesResponse">
2224 <wsdl:part name="InsertResourcePropertiesResponse"
2225     element="wsrf-rp:InsertResourcePropertiesResponse" />
2226 </wsdl:message>
2227
2228 <wsdl:message name="InsertResourcePropertiesRequestFailedFault">
2229 <part name="InsertResourcePropertiesRequestFailedFault"
2230     element="wsrf-rp:InsertResourcePropertiesRequestFailedFault" />
2231 </wsdl:message>
2232
2233 <!-- ===== UpdateResourceProperties =====
2234 UpdateResourceProperties((any)* )
2235 returns: empty
2236 -->

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```

2237 <wsdl:message name="UpdateResourcePropertiesRequest">
2238 <wsdl:part name="UpdateResourcePropertiesRequest"
2239     element="wsrf-rp:UpdateResourceProperties" />
2240 </wsdl:message>
2241
2242 <wsdl:message name="UpdateResourcePropertiesResponse">
2243 <wsdl:part name="UpdateResourcePropertiesResponse"
2244     element="wsrf-rp:UpdateResourcePropertiesResponse" />
2245 </wsdl:message>
2246
2247 <wsdl:message name="UpdateResourcePropertiesRequestFailedFault">
2248 <part name="UpdateResourcePropertiesRequestFailedFault"
2249     element="wsrf-rp:UpdateResourcePropertiesRequestFailedFault" />
2250 </wsdl:message>
2251
2252 <!-- ===== DeleteResourceProperties =====
2253 DeleteResourceProperties( ResourceProperty )
2254 returns: empty
2255 -->
2256 <wsdl:message name="DeleteResourcePropertiesRequest">
2257 <wsdl:part name="DeleteResourcePropertiesRequest"
2258     element="wsrf-rp:DeleteResourceProperties" />
2259 </wsdl:message>
2260
2261 <wsdl:message name="DeleteResourcePropertiesResponse">
2262 <wsdl:part name="DeleteResourcePropertiesResponse"
2263     element="wsrf-rp:DeleteResourcePropertiesResponse" />
2264 </wsdl:message>
2265
2266 <wsdl:message name="DeleteResourcePropertiesRequestFailedFault">
2267 <part name="DeleteResourcePropertiesRequestFailedFault"
2268     element="wsrf-rp:DeleteResourcePropertiesRequestFailedFault" />
2269 </wsdl:message>
2270
2271 <!-- ===== QueryResourceProperties =====
2272 QueryResourceProperties(QueryExpression)
2273 returns: any
2274 -->
2275 <wsdl:message name="QueryResourcePropertiesRequest">
2276 <wsdl:part name="QueryResourcePropertiesRequest"
2277     element="wsrf-rp:QueryResourceProperties" />
2278 </wsdl:message>
2279
2280 <wsdl:message name="QueryResourcePropertiesResponse">
2281 <wsdl:part name="QueryResourcePropertiesResponse"
2282     element="wsrf-rp:QueryResourcePropertiesResponse" />
2283 </wsdl:message>
2284
2285 <wsdl:message name="UnknownQueryExpressionDialectFault">

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```

2286     <part name="UnknownQueryExpressionDialectFault"
2287         element="wsrf-rp:UnknownQueryExpressionDialectFault" />
2288 </wsdl:message>
2289
2290 <wsdl:message name="InvalidQueryExpressionFault">
2291     <part name="InvalidQueryExpressionFault"
2292         element="wsrf-rp:InvalidQueryExpressionFault" />
2293 </wsdl:message>
2294
2295 <wsdl:message name="QueryEvaluationErrorFault">
2296     <part name="QueryEvaluationErrorFault"
2297         element="wsrf-rp:QueryEvaluationErrorFault" />
2298 </wsdl:message>
2299
2300 <!-- ===== PortType Definitions ===== -->
2301 <wsdl:portType name="GetResourcePropertyDocument">
2302 <wsdl:operation name="GetResourcePropertyDocument">
2303     <wsdl:input name="GetResourcePropertyDocumentRequest"
2304         message="wsrf-rpw:GetResourcePropertyDocumentRequest"/>
2305     <wsdl:output name="GetResourcePropertyDocumentResponse"
2306         message="wsrf-rpw:GetResourcePropertyDocumentResponse"/>
2307     <wsdl:fault name="ResourceUnknownFault"
2308         message="wsrf-rw:ResourceUnknownFault"/>
2309     <wsdl:fault name="ResourceUnavailableFault"
2310         message="wsrf-rw:ResourceUnavailableFault"/>
2311 </wsdl:operation>
2312 </wsdl:portType>
2313
2314 <wsdl:portType name="GetResourceProperty">
2315 <wsdl:operation name="GetResourceProperty">
2316     <wsdl:input name="GetResourcePropertyRequest"
2317         message="wsrf-rpw:GetResourcePropertyRequest" />
2318     <wsdl:output name="GetResourcePropertyResponse"
2319         message="wsrf-rpw:GetResourcePropertyResponse" />
2320     <wsdl:fault name="ResourceUnknownFault"
2321         message="wsrf-rw:ResourceUnknownFault"/>
2322     <wsdl:fault name="ResourceUnavailableFault"
2323         message="wsrf-rw:ResourceUnavailableFault"/>
2324     <wsdl:fault name="InvalidResourcePropertyQNameFault"
2325         message="wsrf-rpw:InvalidResourcePropertyQNameFault" />
2326 </wsdl:operation>
2327 </wsdl:portType>
2328
2329 <wsdl:portType name="GetMultipleResourceProperties">
2330 <wsdl:operation name="GetMultipleResourceProperties">
2331     <wsdl:input name="GetMultipleResourcePropertiesRequest"
2332         message="wsrf-rpw:GetMultipleResourcePropertiesRequest" />
2333     <wsdl:output name="GetMultipleResourcePropertiesResponse"
2334         message="wsrf-rpw:GetMultipleResourcePropertiesResponse" />

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2335 <wsdl:fault name="ResourceUnknownFault"
2336 message="wsrf-rw:ResourceUnknownFault"/>
2337 <wsdl:fault name="ResourceUnavailableFault"
2338 message="wsrf-rw:ResourceUnavailableFault"/>
2339 <wsdl:fault name="InvalidResourcePropertyQNameFault"
2340 message="wsrf-rpw:InvalidResourcePropertyQNameFault" />
2341 </wsdl:operation>
2342 </wsdl:portType>
2343
2344 <wsdl:portType name="PutResourcePropertyDocument">
2345 <wsdl:operation name="PutResourcePropertyDocument">
2346 <wsdl:input name="PutResourcePropertyDocumentRequest"
2347 message="wsrf-rpw:PutResourcePropertyDocumentRequest" />
2348 <wsdl:output name="PutResourcePropertyDocumentResponse"
2349 message="wsrf-rpw:PutResourcePropertyDocumentResponse" />
2350 <wsdl:fault name="ResourceUnknownFault"
2351 message="wsrf-rw:ResourceUnknownFault"/>
2352 <wsdl:fault name="ResourceUnavailableFault"
2353 message="wsrf-rw:ResourceUnavailableFault"/>
2354 <wsdl:fault name="UnableToPutResourcePropertyDocumentFault"
2355 message="wsrf-rpw:UnableToPutResourcePropertyDocumentFault" />
2356 </wsdl:operation>
2357 </wsdl:portType>
2358
2359 <wsdl:portType name="SetResourceProperties">
2360 <wsdl:operation name="SetResourceProperties">
2361 <wsdl:input name="SetResourcePropertiesRequest"
2362 message="wsrf-rpw:SetResourcePropertiesRequest" />
2363 <wsdl:output name="SetResourcePropertiesResponse"
2364 message="wsrf-rpw:SetResourcePropertiesResponse" />
2365 <wsdl:fault name="ResourceUnknownFault"
2366 message="wsrf-rw:ResourceUnknownFault"/>
2367 <wsdl:fault name="ResourceUnavailableFault"
2368 message="wsrf-rw:ResourceUnavailableFault"/>
2369 <wsdl:fault name="InvalidModificationFault"
2370 message="wsrf-rpw:InvalidModificationFault" />
2371 <wsdl:fault name="UnableToModifyResourcePropertyFault"
2372 message="wsrf-rpw:UnableToModifyResourcePropertyFault" />
2373 <wsdl:fault name="InvalidResourcePropertyQNameFault"
2374 message="wsrf-rpw:InvalidResourcePropertyQNameFault" />
2375 <wsdl:fault name="SetResourcePropertyRequestFailedFault"
2376 message="wsrf-rpw:SetResourcePropertyRequestFailedFault" />
2377 </wsdl:operation>
2378 </wsdl:portType>
2379
2380 <wsdl:portType name="InsertResourceProperties">
2381 <wsdl:operation name="InsertResourceProperties">
2382 <wsdl:input name="InsertResourcePropertiesRequest"
2383 message="wsrf-rpw:InsertResourcePropertiesRequest" />

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2384 <wsdl:output name="InsertResourcePropertiesResponse"
2385     message="wsrf-rpw:InsertResourcePropertiesResponse" />
2386 <wsdl:fault name="ResourceUnknownFault"
2387     message="wsrf-rw:ResourceUnknownFault"/>
2388 <wsdl:fault name="ResourceUnavailableFault"
2389     message="wsrf-rw:ResourceUnavailableFault"/>
2390 <wsdl:fault name="InvalidModificationFault"
2391     message="wsrf-rpw:InvalidModificationFault" />
2392 <wsdl:fault name="UnableToModifyResourcePropertyFault"
2393     message="wsrf-rpw:UnableToModifyResourcePropertyFault" />
2394 <wsdl:fault name="InvalidResourcePropertyQNameFault"
2395     message="wsrf-rpw:InvalidResourcePropertyQNameFault" />
2396 <wsdl:fault name="InsertResourcePropertiesRequestFailedFault"
2397     message="wsrf-rpw:InsertResourcePropertiesRequestFailedFault" />
2398 </wsdl:operation>
2399 </wsdl:portType>
2400
2401 <wsdl:portType name="UpdateResourceProperties">
2402 <wsdl:operation name="UpdateResourceProperties">
2403 <wsdl:input name="UpdateResourcePropertiesRequest"
2404     message="wsrf-rpw:UpdateResourcePropertiesRequest" />
2405 <wsdl:output name="UpdateResourcePropertiesResponse"
2406     message="wsrf-rpw:UpdateResourcePropertiesResponse" />
2407 <wsdl:fault name="ResourceUnknownFault"
2408     message="wsrf-rw:ResourceUnknownFault"/>
2409 <wsdl:fault name="ResourceUnavailableFault"
2410     message="wsrf-rw:ResourceUnavailableFault"/>
2411 <wsdl:fault name="InvalidModificationFault"
2412     message="wsrf-rpw:InvalidModificationFault" />
2413 <wsdl:fault name="UnableToModifyResourcePropertyFault"
2414     message="wsrf-rpw:UnableToModifyResourcePropertyFault" />
2415 <wsdl:fault name="InvalidResourcePropertyQNameFault"
2416     message="wsrf-rpw:InvalidResourcePropertyQNameFault" />
2417 <wsdl:fault name="UpdateResourcePropertiesRequestFailedFault"
2418     message="wsrf-rpw:UpdateResourcePropertiesRequestFailedFault" />
2419 </wsdl:operation>
2420 </wsdl:portType>
2421
2422 <wsdl:portType name="DeleteResourceProperties">
2423 <wsdl:operation name="DeleteResourceProperties">
2424 <wsdl:input name="DeleteResourcePropertiesRequest"
2425     message="wsrf-rpw:DeleteResourcePropertiesRequest" />
2426 <wsdl:output name="DeleteResourcePropertiesResponse"
2427     message="wsrf-rpw:DeleteResourcePropertiesResponse" />
2428 <wsdl:fault name="ResourceUnknownFault"
2429     message="wsrf-rw:ResourceUnknownFault"/>
2430 <wsdl:fault name="ResourceUnavailableFault"
2431     message="wsrf-rw:ResourceUnavailableFault"/>
2432 <wsdl:fault name="InvalidModificationFault"

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2433     message="wsrf-rpw:InvalidModificationFault" />
2434     <wsdl:fault name="UnableToModifyResourcePropertyFault"
2435         message="wsrf-rpw:UnableToModifyResourcePropertyFault" />
2436     <wsdl:fault name="InvalidResourcePropertyQNameFault"
2437         message="wsrf-rpw:InvalidResourcePropertyQNameFault" />
2438     <wsdl:fault name="DeleteResourcePropertiesRequestFailedFault"
2439         message="wsrf-rpw:DeleteResourcePropertiesRequestFailedFault" />
2440 </wsdl:operation>
2441 </wsdl:portType>
2442
2443 <wsdl:portType name="QueryResourceProperties"
2444     wsrf-rp:ResourceProperties="wsrf-rp:QueryExpressionRPDocument">
2445     <wsdl:operation name="QueryResourceProperties">
2446         <wsdl:input name="QueryResourcePropertiesRequest"
2447             message="wsrf-rpw:QueryResourcePropertiesRequest" />
2448         <wsdl:output name="QueryResourcePropertiesResponse"
2449             message="wsrf-rpw:QueryResourcePropertiesResponse" />
2450         <wsdl:fault name="ResourceUnknownFault"
2451             message="wsrf-rw:ResourceUnknownFault"/>
2452         <wsdl:fault name="ResourceUnavailableFault"
2453             message="wsrf-rw:ResourceUnavailableFault"/>
2454         <wsdl:fault name="InvalidResourcePropertyQNameFault"
2455             message="wsrf-rpw:InvalidResourcePropertyQNameFault" />
2456         <wsdl:fault name="UnknownQueryExpressionDialectFault"
2457             message="wsrf-rpw:UnknownQueryExpressionDialectFault" />
2458         <wsdl:fault name="InvalidQueryExpressionFault"
2459             message="wsrf-rpw:InvalidQueryExpressionFault" />
2460         <wsdl:fault name="QueryEvaluationErrorFault"
2461             message="wsrf-rpw:QueryEvaluationErrorFault" />
2462     </wsdl:operation>
2463 </wsdl:portType>
2464 </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 the following issues: WSRF2, WSRF3, WSRF14, WSRF33.
wd-02	2004-05-31	Steve Graham, Jem Treadwell	Mods to draft 01, including hyphenation, clarification of acknowledgements section
wd-03	2004-06-04	Steve Graham	Reformat rogue Veranda text with Arial.
wd-04	2004-06-07	Steve Graham	Base faults comment on faults (align with ResourceLifetime), update date URIs to 2004/06, update URLs in references to point to .pdfs, update Acknowledgements
wd-05	2004-07-19	Jem Treadwell	Changed [State Paper] & [WS-Notification] references to public URLs.
wd-06 (wd-05.b)	2004-09-17	Steve Graham	WSRF15, WSRF16, WSRF21
wd-05.c	2004-11-22	Jem Treadwell Steve Graham	Confirm WSRF15, WSRF16, WSRF21, fix up some small typos (Jem), verify typos fixes are correct and reversion to 05.c (sgg)
wd-05.d	2004-11-22	Steve Graham	Incorporate Chairman's editorial modifications (from Ian Robinson) on Title page, namespace URIs and References section. Incorporate changes due to adoption of WS-Resource specification. Addresses: WSRF4, WSRF24, WSRF27, WSRF30, WSRF43, WSRF49, WSRF53, WSRF56
wd-05.e	2004-11-26	Ian Robinson	Handful of typos corrected.
wd-05	2004-11-30	Steve Graham	Final typos accepted, PDF generated.
wd-06.a	2005-02-18	Steve Graham	WSRF25, WSRF51, WSRF55, WSRF62, WSRF63, WSRF68, WSRF72, WSRF79, WSRF81, WSRF83, WSRF86, WSRF93, WSRF95, WSRF96

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Rev	Date	By Whom	What
wd-06.b	2005-02-25	Jem Treadwell	Few minor typos etc. corrected.
wd-06.c	2005-03-07	Jem Treadwell	Updated wsa namespace reference.
wd-06.d	2005-03-24	Ian Robinson	Added ResourcePropertyChangeFailure type to schema
wd-07.a	2005-05-16	Steve Graham	91, 92 (no changes required), 97, 98, 99, 101, 102, 103
wd-07.c	2005-05-17	Steve Graham	100, 109
wd-07.d	2005-05-17	Steve Graham	113
wd-07.e	2005-05-18	Steve Graham	Updates to 114, per Ian Robinson and F2F discussion.
wd-07.f	2005-05-18	Steve Graham	WSRF 91,97,99,100,101,102, 103
wd-07.g	2005-06-10	Steve Graham	Minor typos as reported by Hideharu Kato, a few additional related typos, update references to WS-Notification, update Acknowledgements.
pr-01	2005-06-10	Steve Graham	Change status to PR
wd-08	2005-09-06	Ian Robinson	127. TopicSpace->Topic Namespace
wd-09	2005-09-15	Steve Graham	Remove unused references and use hyperlinks for references, namespace URIs from -1 to -2, namespace locations now include .xsd and .wsdl WSRF 141, 152, 125, 126 (no action due to WSRF 140), 132, 133, 134, 135, 136, 138, 140, 143, 144, 146, 147

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