



**Intelligence Community and Department of Defense Content
Discovery & Retrieval Integrated Project Team**

**IC/DoD SOAP Interface Encoding Specification for
CDR Describe**

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1 Introduction

2 1.1 Service Overview

3 The Describe Component, as defined by the Intelligence Community/Department of Defense
4 (IC/DoD) Content Discovery and Retrieval (CDR) Reference Architecture (RA), serves as the
5 primary mechanism for a content provider to provide a consistent and unambiguous description
6 of a content collection¹. This component provides common service interfaces and a behavioral
7 model to enable Describe consumers to obtain descriptions that Describe consumers can use to
8 discover relevant content collections from disparate collections across the IC/DoD enterprise.
9 For example, Brokered Search providers can use descriptions containing relevant information to
10 perform smart query routing based on content type, temporary coverage, geographic coverage
11 and/or subject coverage. The Brokered Search provider could distribute a search request to a
12 short-list of selected content providers whose contents best match the request.

13
14 This specification does not specify the mechanism by which the description is generated but it
15 can support numerous mechanisms ranging from retrieval of a previously generated static
16 description document to dynamically generating the description at run-time.

17
18 This specification defines requirements and provides guidelines for the realization of the CDR
19 Describe Component as a web service using SOAP², hereafter termed a Describe Service in this
20 document. The content of this specification specifies the Describe Service's behavior, interface
21 and other aspects in detail, providing enough information for Describe Service providers and
22 consumers to create and use CDR-conformant Describe Services.

23
24 The Describe Service exposes one required Describe Function for exposing information that
25 describes a content collection. The exposed information, referred to as a Description³, is a
26 collection of metadata that refers to the entire content collection rather than individual content
27 resources in the content collection.

28 1.2 Scope

29 The Describe Service defines the message exchange required to request and obtain a consistent
30 and unambiguous Description of a content collection. In particular, a Describe consumer can
31 specify: (1) the Description vocabulary that defines the semantics used in creating the
32 Description, and (2) the Description response format that defines the structure and presentation
33 of the Description returned to the consumer. While this pattern is also applicable for generating
34 descriptions of other CDR resources, this specification does not consider if or what changes or
35 additions would be necessary to support resources other than content collections.

36
37 The Describe Service specification as defined assumes a Describe Service has a means to inform
38 Describe consumers as to what Description vocabularies and Description formats the Describe

¹ Please reference the CDR Specification Framework [CDR-SF] for the definition of Content Collection.

² SOAP is a protocol used by web services in the exchange of structured information.[SOAP]

³ Please reference the CDR Specification Framework [CDR-SF] for specific considerations in defining Description.

39 Service can support. This specification does not specify the means for making supported
40 Description vocabularies and formats known; however, an example approach could capture the
41 information about the supported Description vocabularies and Description formats in a service
42 description of the Describe Service and that service description would be stored in a service
43 registry. Section 3.1.5 defines appropriate faults a Describe Service would return if Describe
44 consumers request unknown Description vocabularies or formats.

45
46 The Describe Service specification as defined does not provide the consumer with a means to
47 specify how values are assigned to elements of the Description vocabulary; therefore, a Describe
48 Service implementation that conforms to this specification MUST contain necessary logic for
49 making these assignments.

50
51 The CDR Specification Framework [CDR-SF] defines the initiator of a Describe Process (i.e.,
52 the process through which the description is generated) as a Description Trigger and the receiver
53 of a Description from the Describe Process as a Description Recipient. This specification
54 assumes the Description Trigger is a consumer that makes a Describe Request and the same
55 consumer is also the Description Recipient. This closely aligns with the third example in the
56 Description Recipient section of [CDR-SF].

57 **1.3 Artifact Overview**

58 This specification is a part of the set of specifications that define the concrete, implementation-
59 specific guidance for the services defined under the auspices of the CDR Integrated Project Team
60 (IPT). The CDR Reference Architecture [CDR-RA] prescribes an abstract-to-concrete model for
61 the development of architecture elements and guidance for content discovery and retrieval. Each
62 layer or tier of the model is intended to provide key aspects of the overall guidance to achieve the
63 goals and objectives for joint IC/DoD content discovery and retrieval. Figure 1, discussed in
64 detail within the [CDR-RA], illustrates this model.

65
66 As illustrated in Figure 1, the CDR Specification Framework [CDR-SF] derives from the [CDR-
67 RA] and describes behavior in terms of the capabilities, components, and usage patterns defined
68 in the [CDR-RA]. Multiple CDR Service specifications are derived from the [CDR-SF], with
69 separate specifications associated with the components of the architecture (e.g., Describe) and,
70 for each service, separate specifications to address Representational State Transfer (REST) and
71 SOAP implementations.

72
73 This document is a specification for implementing the CDR Describe Service as a SOAP Web
74 Service. It is intended to parallel the corresponding REST specification, the IC/DoD REST
75 Interface Encoding Specification for CDR Describe [CDR-DR], as closely as possible, to
76 minimize the difficulties in interoperating. Additional CDR Guides, Profile Specifications, or
77 Reference Implementations may provide additional guidance on implementing this specification
78 in a particular context.

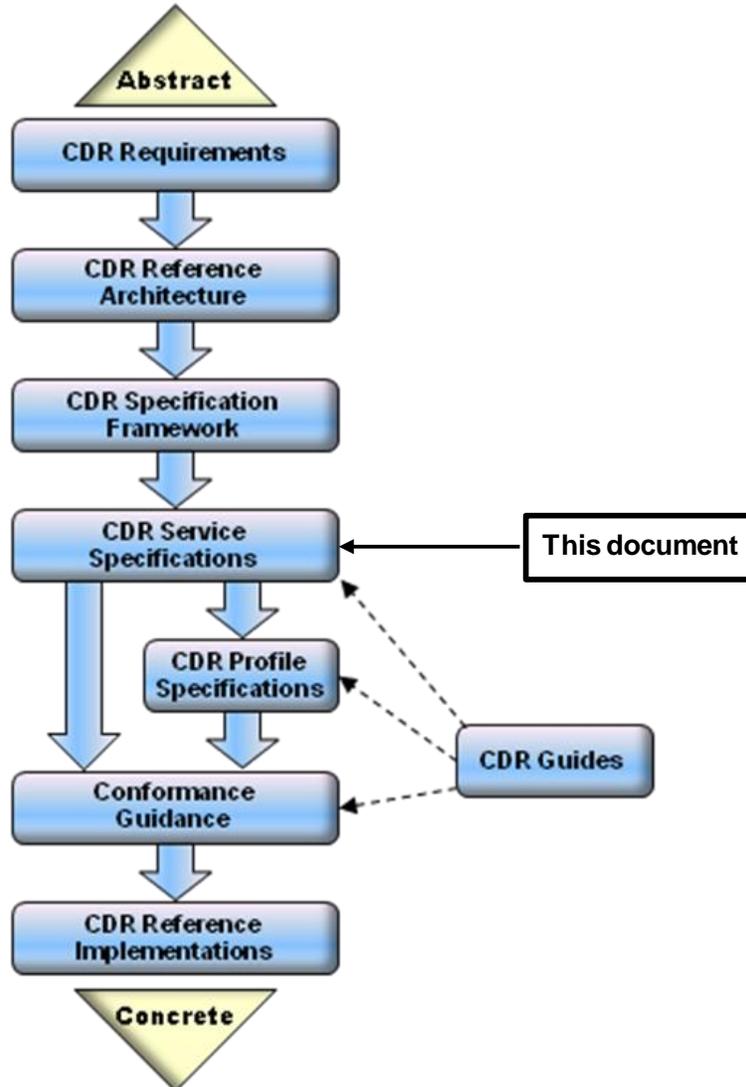


Figure 1. CDR Artifact Model

79
80

81 1.4 Notational Convention

82 The key words "MUST," "MUST NOT," "REQUIRED," "SHALL," "SHALL NOT,"
83 "SHOULD," "SHOULD NOT," "RECOMMENDED," "MAY," and "OPTIONAL" in this
84 specification are to be interpreted as described in the IETF RFC 2119. When these words are not
85 capitalized, they are meant in their natural-language sense.

86
87 When describing concrete XML schemas and example XML documents, this specification uses
88 XPath as the notational convention. Each member of an XML schema is described using an
89 XPath notation (e.g., /x:RootElement/x:ChildElement/@Attribute).

90
91 In a URL template, a parameter contained in curly brace, generally represented in the form
92 {name}, is meant to be replaced with an actual value determined at run-time. Optional

93 parameters in a URL template are those whose name is followed by ?, e.g., {name?} and these
94 MAY be replaced by an empty string.

95
96 Examples in this text are distinguished by a black border. These are meant to be illustrative and
97 only one way that the described syntax can be used.

```
<atom:entry>
<atom:title>This is an example.</atom:title>
</atom:entry>
```

98 1.5 Conformance

99 This specification defines an interface to a Describe Service to which an implementation and a
100 subsequent deployment MUST conform. A deployment is an instance of an implementation. For
101 an implementation to conform to this Describe Specification, the implementation MUST adhere
102 to all mandatory aspects of the specification.

103 1.6 Namespaces

104 Namespaces referenced in this document and the prefixes used to represent them are listed in
105 Table 1. The namespace prefix of any XML Qualified Name (QName) used in any example in
106 this document should be interpreted using the information in Table 1.

107 **Table 1. List of Namespaces**

Prefix	URI	Description
cdrd	urn:cdr:describe:1.0	Namespace of the CDR-IPT Describe schema
ddms	urn:us:mil:ces:metadata:ddms:4	Namespace of the DDMS 4.1 schema
irm	urn:us:gov:ic:irm	Namespace of IRM schema
ism	urn:us:gov:ic:ism	Namespace of ISM schema
ntk	urn:us:gov:ic:ntk	Namespace of NTK schema
soap	http://www.w3.org/2003/05/soap-envelope	SOAP 1.2 Envelope
wsa	http://www.w3.org/2005/08/addressing	WS-Addressing (Combined)
xs	http://www.w3.org/2001/XMLSchema	XML Schema

108 1.7 Description Vocabulary and Format⁴ URIs

109 Table 2 and Table 3 list the Uniform Resource Identifiers (URIs) for Description vocabularies
110 and formats, respectively, which are currently defined as part of or recognized by the CDR
111 specification set⁵. These are acceptable values for the
112 /cdrd:DescribeRequest/descriptionVocabulary and
113 /cdrd:DescribeRequest/descriptionFormat elements defined in

⁴ Please reference the CDR Specification Framework [CDR-SF] for the definitions of Description vocabulary and format.

⁵ IRM and DDMS are fully harmonized as of IRM v6 and DDMS 4.0. Even with harmonization, IRM continues to impose additional constraints and provide extensions for the IC communities, which are not required in DDMS. As a result, IRM may use Description vocabulary and/or format different from those of DDMS.

114 Table 5.

115
116 Table 2 and Table 3 reference Description vocabularies and formats by name and specify a URI
117 that uniquely identifies each vocabulary or format. URI may be either URL or URN. Each
118 Uniform Resource Locator (URL) MUST link to a resource that defines the Description
119 vocabulary or Description format. Each Uniform Resource Name (URN) MUST be associated
120 with a means, such as a Profile Specification or a CDR Guide, to retrieve the detailed definitions
121 of the Description vocabulary or Description format.

122 **Table 2. Description Vocabulary URIs**

Name	URI	Description
DDMS	urn:us:mil:ces:metadata:ddms	Definition for DDMS Description vocabulary using the latest mandated DDMS version in the DISR/ICSR
IRM	urn:us:gov:ic:irm	Definition for IRM Description vocabulary using the latest mandated IRM version in the DISR/ICSR

123

124 **Table 3. Description Format URIs**

Name	URI	Description
DDMS	urn:us:mil:ces:metadata:ddms	Definition for DDMS Description format using the latest mandated DDMS version in the DISR/ICSR
IRM	urn:us:gov:ic:irm	Definition for IRM Description format using the latest mandated IRM version in the DISR/ICSR

125
126 Either Defense Discovery Metadata Specification (DDMS) Description vocabulary and format or
127 Information Resource Metadata (IRM) Description vocabulary and format (see Table 2 and
128 Table 3) MUST be supported as the default Description vocabulary and format.

129
130 Additional acceptable values for Description vocabularies and formats may be defined in the
131 future and MUST also be identified by Name and by a URI that is associated with detailed
132 definitions of the new Description vocabulary or the new Description format.

133
134 Profile Specifications or CDR Guides that describe how to utilize this Describe specification in
135 the context of the use of one of the Description vocabularies and formats identified in Table 2
136 and Table 3 or defined in the future may be added to the CDR collection of artifacts.

137 **1.8 Security**

138 This specification does not directly address security concerns. It will be necessary for any
139 implementation of this specification to address security concerns relevant to the systems with
140 which they interact and the corresponding governance bodies. Several aspects of Describe, to
141 include only returning Description for which the requesting entity is authorized to access, should
142 be addressed in the detailed security plan of an implementation, but are out of scope for this
143 document.

144 **2 Describe Service Behavior**

145 As defined in the [CDR-SF], Describe behavior is realized through a single activity and is
146 accessed through the use of the Describe Function interface.

147 **2.1 Describe**

148 The Describe Service accepts a Describe Request from a consumer. The Describe Request MAY
149 contain `descriptionVocabulary` (i.e., Description vocabulary identifier), MAY contain
150 `descriptionFormat` (i.e., Description format identifier) and MAY contain `lastUpdated`
151 (i.e., timestamp of the Description of the Content Collection in the possession of the consumer).
152

153 If `descriptionVocabulary` and `descriptionFormat` are supported by the Describe
154 Service and provided on input, the Describe Service processes the request and provides a
155 Describe Response according to the requested `descriptionVocabulary` and
156 `descriptionFormat`. When processing the request, operations of the Describe Service
157 might include the following: first the Service retrieves and parses the requested Description
158 vocabulary; next the Service assigns values to data elements in the Description vocabulary; then
159 it composes a Description element based on requested Description format; finally it returns a
160 Describe Response with the composed Description to the consumer. If
161 `descriptionVocabulary` and/or `descriptionFormat` are not supported by the
162 Describe Service or not provided on input, the Describe Service provides a Describe response
163 according to the default Description vocabulary and/or format. The default Description
164 vocabulary and format MUST be specified in the service description. Either IRM or DDMS
165 Description vocabulary MUST be used as the default vocabulary. Either the Description format
166 defined for IRM or the Description format defined for DDMS MUST be used as the default
167 format.
168

169 Using data elements in DDMS 4.1 as example, Appendix B provides the value assignment
170 recommendations for data elements in the DDMS Description vocabulary. When a newer version
171 of DDMS becomes mandated in the DISR/ICSR, the DDMS Description vocabulary may be
172 changed. However, as long as a data element is still used in the DDMS Description vocabulary,
173 the value assignment for the data element provided in Appendix B MUST be followed.
174

175 Using data elements in IRM 8.0 as example, the CDR IRM Guide [CDR-IRM] provides the
176 value assignment recommendations for data elements in the IRM Description vocabulary. When
177 a newer version of IRM becomes mandated in the DISR/ICSR, the IRM Description vocabulary
178 may be also changed. However, as long as a data element is still used in the IRM Description
179 vocabulary, the value assignment for the data element provided in the CDR IRM Guide MUST
180 be followed.
181

182 The `lastUpdated` is used to avoid the delivery of duplicate Description to a consumer if the
183 consumer already has the current Description in its possession. If `lastUpdated` is supported
184 by the Describe Service and provided on input, the Describe Service MUST compare the
185 `lastUpdated` value with the timestamp of the current Description that would be retrieved to
186 determine whether the consumer already has the current Description. If the consumer already has

187 the current Description, the Describe Service returns a Describe Response without Description to
188 the consumer. If the consumer does not have the current Description or `lastUpdated` is not
189 supported by the Describe Service or not provided on input, the Describe Service **MUST** return a
190 Describe Response with the current Description to the consumer.

191 **3 Describe Service Interface**

192 The service interface contains the technical descriptions⁶ of the function through which the
193 consumer will interact with the service. Support for input and output parameters for Describe
194 function is described in tables in this section in terms of what is expected of the Describe Service
195 and what is expected in terms of a consumer interacting with the Describe Service.

196 **3.1 Describe Function**

197 A Describe Service **MUST** implement the Describe Function.

198 **3.1.1 Preconditions**

199 The following preconditions **MUST** be satisfied if the Describe Function is to correctly process
200 input and generate results and reach post-conditions as specified:

- 201 1. The requester is authenticated and authorized according to applicable policy requirements
202 for this Describe Function.
- 203 2. Description vocabulary and format have been defined and are identified using URIs.
- 204 3. The Describe Service implements necessary logic to assign values to the indicated
205 Description vocabulary.
- 206 4. The Consumer finds the Describe Service associated with a particular content collection.

207 **3.1.2 Input**

208 The input to the CD Describe Service **MUST** be a valid SOAP⁷ message that meets criteria
209 identified in this section. The input **SHOULD** be directed to the SOAP Endpoint address
210 identified by the implementer.

211 **3.1.2.1 Header**

212 The header of the SOAP input message **MUST** contain the Action element, as defined in WS-
213 Addressing [WS-A] and shown in Table 4. The purpose of this element is to convey to the
214 service which behavior to invoke. Additional elements, such as other WS-Addressing elements,
215 **MAY** be added to the SOAP header.

216 **Table 4. Header Elements for Describe Request**

Element Name and Description	Support
/wsa:Action This element (whose content is of type <code>xs:anyURI</code>) conveys the value of the [action] property and indicates to a web service which	MUST be supported by Service. MUST be provided by consumer with a value of <code>urn:cdr:describe:1.0:request</code>

⁶ The Describe Service is intended to conform as described by the Describe Component section of the Specification Framework [CDR-SF].

⁷ Consult the relevant standards registry (such as the ICSR or DISR) to determine the appropriate current version of the SOAP standard to use. Examples in this document use SOAP 1.2.

operation should be invoked.	
------------------------------	--

217 **3.1.2.2 Body**

218 The body of the SOAP input message **MUST** contain a single `/cdrd:DescribeRequest`
219 element, as defined in

220 **Table 5.** The `/cdrd:DescribeRequest` element contains two sub-elements:
221 `descriptionVocabulary` and `descriptionFormat`, and one attribute
222 `lastUpdated`.
223

224

Table 5. Child Elements of /cdrd:DescribeRequest Element

Element Name and Description	Support
<p>/cdrd:DescribeRequest/descriptionVocabulary A URI that identifies a Description vocabulary desired by the consumer. If provided, the value MUST be a URI that corresponds to a definition of a Description vocabulary defined as part of the CDR specifications. If not provided, the Service will use its default vocabulary.</p>	<p>MAY be supported by Service. MAY be provided by consumer.</p>
<p>/cdrd:DescribeRequest/descriptionFormat A URI that identifies a Description format desired by the consumer. If provided, the value MUST be a URI that corresponds to a definition of a Description format defined as part of the CDR specifications. If not provided, the Service will use its default format.</p>	<p>MAY be supported by Service. MAY be provided by consumer.</p>
<p>/cdrd:DescribeRequest/@lastUpdated Timestamp specified as xs:dateTime type that identifies the date/time when a Description instance known by the consumer was last updated. If the lastUpdated attribute is supported by the Service, provided by the consumer, and matches the corresponding value of the current Description that would be retrieved, the Service MUST return a response without Description information. If the attribute is not provided, the Service MUST return a response with its current Description for the content collection.</p>	<p>MAY be supported by Service. MAY be provided by consumer.</p>

225

226 Additional extension attributes MAY be supported by the Describe Function and/or provided by
 227 the consumer to convey additional Describe properties. However, any additional attributes
 228 supported by the Describe Function MUST be OPTIONAL for the consumer to provide. If the
 229 consumer provides extension attributes that the Describe Function does not support, these
 230 attributes MUST be ignored.

231 **3.1.2.3 SOAP Input Example**

232 An example SOAP message constituting a Describe Service request is shown in Figure 2.

```
<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:cdrd="urn:cdr:describe:1.0"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soap:Header>
    <wsa:action>urn:cdr:describe:1.0:request</wsa:action>
  </soap:Header>
  <soap:Body>
    <cdrd:DescribeRequest lastUpdated="2012-02-04T18:13:51Z">
      <cdrd:descriptionVocabulary>
        urn:cdr:describe:vocabulary:ddms
      </cdrd:descriptionVocabulary>
      <cdrd:descriptionFormat>
```

```
urn:cdr:describe:format:ddms
  </cdrd:descriptionFormat>
</cdrd:DescribeRequest>
</soap:Body>
</soap:Envelope>
```

233 **Figure 2. Example Describe Input**

234 The example in Figure 2 shows a Describe Request using the DDMS Description vocabulary and
235 format and the timestamp when the Description known by the consumer was last updated.

236 3.1.3 Output

237 The output of the Describe Service is a Description for a content collection determined by:

- 238 • the descriptionVocabulary and descriptionFormat elements in the
239 Describe Request or
- 240 • the descriptionVocabulary element in the Describe Request and the default
241 Description format or
- 242 • the default Description vocabulary and the descriptionFormat element in the
243 Describe Request or
- 244 • the default Description vocabulary and format.

245 This section describes a SOAP output message that can be used to encapsulate a pluggable
246 Description with different vocabulary and format. It uses the DDMS Description vocabulary and
247 format as the basis for the examples in this section. For requests that result in an error, a SOAP
248 fault message as given in Section 3.1.5 will be output.

249 3.1.3.1 Header

250 As shown in Table 6, the header of the SOAP output message MUST contain the Action element
251 as defined in WS-Addressing and the /cdrd:lastUpdated element. The purpose of the
252 Action element is to convey to the receiver which behavior was invoked. The purpose of the
253 /cdrd:lastUpdated is to provide timestamp when the Description of the content collection
254 offered by the Service was last updated.

255 **Table 6. Required Header Elements for Describe Responses**

Element Name and Description	Support
/wsa:Action This element (content is of type xs:anyURI) conveys the value of the [action] property and indicates to a web service which operation should be invoked.	MUST be provided by Service with a value of urn:cdr:describe:1.0:response
/cdrd:lastUpdated Timestamp specified as xs:dateTime type that identifies the date/time when the current Description of the content collection provided by the Service was last updated.	MUST be provided by Service

256 Additional elements, such as other WS-Addressing elements, MAY be added to the SOAP
257 header.
258

259 **3.1.3.2 Body**

260 The body of the SOAP output message **MUST** consist of a single `Description` element, as
261 defined in

262 Table 7. The child elements in the `Description` element are determined by the value provided on
263 input for the `/cdrd:DescribeRequest/descriptionVocabulary` element or by the
264 default vocabulary of the Describe implementation if no value is specified for
265 `/cdrd:DescribeRequest/descriptionVocabulary`.

266
267 The structure of the `Description` element is determined by the value provided on input for the
268 `/cdrd:DescribeRequest/descriptionFormat` element or by the default format of
269 the Describe implementation if no value is specified for
270 `/cdrd:DescribeRequest/descriptionFormat`.

271
272 Figure 3 shows a SOAP output example in the context of the DDMS Description vocabulary and
273 format. If different Description vocabulary and/or format are specified in
274 `/cdrd:DescribeRequest/descriptionVocabulary` and
275 `/cdrd:DescribeRequest/descriptionFormat`, the appropriate Description as
276 defined by those vocabulary and format **MUST** be returned.

277 **Table 7. Body Elements for Describe Responses**

Element Name and Description	Support
<p>/cdrd:Description Description corresponding to specified or default Description vocabulary and formatted per specified or default Description format. It is defined in <code>xs:any type</code>.</p>	<p>MUST be provided by Service</p>

278 **3.1.3.3 Output Example**

279 Figure 3 represents a sample SOAP output message with a `Description` element defined
280 using the DDMS Description vocabulary (in Appendix B) and format.

```
<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:cdrd="urn:cdr:describe:1.0">
  <soap:Header>
    <wsa:action>urn:cdr:describe:1.0:response</wsa:action>
    <cdrd:lastUpdated>2012-03-06T10:11:30Z</cdrd:lastUpdated>
  </soap:Header>

  <soap:Body>
    <cdrd:Description xmlns:cdrd="urn:cdr:describe:1.0">
      <ddms:resource xmlns:ddms="urn:us:mil:ces:metadata:ddms:4"
        xmlns:ISM="urn:us:gov:ic:ism"
        xmlns:ntk="urn:us:gov:ic:ntk"
        ISM:resourceElement="true" ISM:createDate="2011-10-12" ntk:DESVersion="7"
        ISM:DESVersion="9" ISM:classification="U" ISM:ownerProducer="USA">
      <ddms:metacardInfo ISM:classification="U" ISM:ownerProducer="USA">
        <ddms:identifier ddms:qualifier="http://purl.org/dc/terms/URI"
          ddms:value="http://www.org.mil/reports/description"/>
        <ddms:dates ddms:created="2011-10-12"
          ddms:infoCutOff="2012-03-06T10:11:30Z"/>
        <ddms:publisher>
          <ddms:organization>
```

```
        <ddms:name>Some Agency</ddms:name>
        <ddms:email>someone@mail.mil</ddms:email>
    </ddms:organization>
</ddms:publisher>
</ddms:metacardInfo>
<ddms:identifier ddms:qualifier="http://purl.org/dc/terms/URI"
  ddms:value="http://www.org.mil/reports"/>
<ddms:title ISM:classification="U" ISM:ownerProducer="USA">
  US Military Reports </ddms:title>
<ddms:dates ddms:created="2001-10-31T17:00:00Z"
  ddms:infoCutOff="2006-05-04T18:13:51Z"/>
<ddms:description ISM:classification="U" ISM:ownerProducer="USA">
  US military reports since 2006</ddms:description>
<ddms:language ddms:qualifier="http://purl.org/dc/elements/1.1/language"
  ddms:value="en"/>
<ddms:type ddms:qualifier="DCMITYPE"
  ddms:value="http://purl.org/dc/dcmitype/Text"/>
</ddms:resource>
<ddms:creator>
  <ddms:organization>
    <ddms:name>Some Agency</ddms:name>
    <ddms:phone>111-111-1111</ddms:phone>
    <ddms:email>someone@mail.mil</ddms:email>
  </ddms:organization>
</ddms:creator>
<ddms:pointOfContact>
  <ddms:person>
    <ddms:name>Joe</ddms:name>
    <ddms:surname>Jones</ddms:surname>
    <ddms:phone>222-222-2222</ddms:phone>
    <ddms:email>joe.jones@someagency.mil</ddms:email>
    <ddms:userID>12345678</ddms:userID>
    <ddms:affiliation>DoD</ddms:affiliation>
  </ddms:person>
</ddms:pointOfContact>
<ddms:format>
  <ddms:mimeType>text/xml</ddms:mimeType>
</ddms:format>
<ddms:subjectCoverage>
  <ddms:keyword ddms:value="SIGACT"/>
  <ddms:keyword ddms:value="POSREP"/>
</ddms:subjectCoverage>
<ddms:temporalCoverage>
  <ddms:start>2006-05-04T18:13:51Z</ddms:start>
  <ddms:end>2011-02-16T20:21:18Z</ddms:end>
</ddms:temporalCoverage>
<ddms:geospatialCoverage>
  <ddms:boundingBox>
    <ddms:westBL>39</ddms:westBL>
    <ddms:eastBL>48</ddms:eastBL>
    <ddms:southBL>29</ddms:southBL>
    <ddms:northBL>38</ddms:northBL>
  </ddms:boundingBox>
</ddms:geospatialCoverage>
<ddms:security ISM:excludeFromRollup="true"
  ISM:classification="U" ISM:ownerProducer="USA"/>
<cdrd:count>5000</cdrd:count>
<cdrd:changeFrequency>closed</cdrd:changeFrequency>
</cdrd:Description>
</soap:Body>
```

</soap:Envelope>

281 **Figure 3. Example Describe Output**

282 If no Description is returned, i.e., there is no more recent description, the Description
283 element MUST be empty.

284 **3.1.4 Post-Conditions**

285 The following conditions MUST be met upon successful completion of a Describe:

- 286 1. The result returned to the requester is a Description in the correct vocabulary and format,
287 or an empty `cdrd:description` element or a fault.
- 288 2. The authenticated requester has been authorized to receive the result in the response.
- 289 3. The use of this function has been audited according to applicable policy.⁸

290 **3.1.5 Fault Conditions**

291 An implementation of the Describe Function MAY provide any of the faults listed in Table 8 as
292 a SOAP Fault to the consumer. The SOAP fault message MUST contain the header entry of
293 `<wsa:Action>http://www.w3.org/2005/08/addressing/fault</wsa:Acti`
294 `on>` and MUST contain a single SOAP Fault element as the only child of the SOAP Body
295 element.

296
297 The SOAP fault response adheres to the SOAP 1.2 specification [SOAP]. The
298 `/soap:Fault/Code/Value` element is used to convey the general type of error condition
299 and MUST be from the enumeration `/soap:faultCodeEnum` as described in the SOAP 1.2
300 specification section 5.4.6. In addition, for the current use of this function, the fault MUST also
301 contain the `/soap:Fault/Code/Subcode` element and its child element
302 `/soap:Fault/Code/Subcode/Value`. The `/soap:Fault/Code/Subcode/Value`
303 as listed in Table 8 supports automated processing of CDR specific errors. The
304 `/soap:Fault/Reason` element has one or more `/soap:Fault/Reason/Text` elements
305 as its children, where the value as listed in Table 8 for each `/soap:Fault/Reason/Text`
306 element SHOULD be used to provide a human-readable explanation of the fault. The
307 `/soap:Fault/Reason/Text` element MUST include the `xml:lang` attribute.

308 Table 8 outlines the service specific fault conditions that MAY be generated by CDR Describe
309 Function implementations.

310 **Table 8. List of Describe Function Faults**

<code>/soap:Fault/Code/Value</code> <code>/soap:Fault/Code/Subcode/Value</code> <code>/soap:Fault/Reason/Text</code>	Fault Description
<code>soap:Sender</code> <code>cdrd:describe:soap:fault:security</code> Security	The Consumer is either not authenticated or not authorized to perform the Describe Function.

⁸ The use of this function may be audited according to applicable policy and may include auditing of the success or failure of the function.

/soap:Fault/Code/Value /soap:Fault/Code/Subcode/Value /soap:Fault/Reason/Text	Fault Description
soap:Sender cdr:describe:soap:fault:vocabulary Unsupported Description Vocabulary	The Describe does not support the description vocabulary specified by the descriptionVocabulary input parameter.
soap:Sender cdr:describe:soap:fault:format Unsupported Description Format	The Describe does not support the description format specified by the descriptionFormat input parameter.
soap:Sender cdr:describe:soap:fault:execution Describe Execution Fault	The Describe Service encounters an error during service execution.

311 **3.1.5.1 Fault Message Example**

312 Figure 4 shows a fault message of type “Describe Execution Fault”.

313

```

<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:xml="http://www.w3.org/XML/1998/namespace">
  <soap:Header>
    <wsa:Action>http://www.w3.org/2005/08/addressing/fault</wsa:Action>
  </soap:Header>

  <soap:Body>
    <soap:Fault>
      <soap:Code>
        <soap:Value>soap:Sender</soap:Value>
        <soap:Subcode>
          <soap:Value>cdr:describe:soap:fault:execution</soap:Value>
        </soap:Subcode>
      </soap:Code>
      <soap:Reason>
        <soap:Text xml:lang="en">Describe Execution Fault</soap:Text>
      </soap:Reason>
    </soap:Fault>
  </soap:Body>
</soap:Envelope>

```

314 **Figure 4. Example Describe SOAP Fault**

315 **4 References**

316 [CDR-DR] “IC/DoD REST Interface Encoding Specification for CDR Describe 1.0”; 2012.

317 [CDR-IRM] “IC/DoD CDR Search + IRM Implementation Guide 2.0”; 2012.

318 [CDR-RA] “IC/DoD CDR IPT Reference Architecture 2.0”; 2012.

319 [CDR-SF] “IC/DoD Content Discovery & Retrieval Specification Framework 2.0”; 2012.

320 Available at

321 https://intelshare.intelink.gov/sites/odni/cio/ea/library/ServiceSpecifications/CDRSpecifications/Spec_Framework/default.aspx.

323 [DDMS] “Department of Defense Discovery Metadata Specification”. Available at

324 <http://metadata.ces.mil/mdr/irs/DDMS/index.html>.

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 326 <http://www.dni.gov/index.php/about/organization/chief-information-officer/information->
 327 [resource-metadata](http://www.dni.gov/index.php/about/organization/chief-information-officer/information-) (public release version) and
 328 <https://intelshare.intelink.gov/sites/odni/cio/ea/library/DataSpecifications/irm/default.aspx>
 329 (Intelink Unclassified version).
 330 [SOAP] “[SOAP Version 1.2 Part 1: Messaging Framework \(Second Edition\)](http://www.w3.org/TR/soap12-part1/)”. Available at
 331 <http://www.w3.org/TR/soap12-part1/>.
 332 [URI] “Uniform Resource Identifier (URI): Generic Syntax”; 2005. Available at
 333 <http://www.ietf.org/rfc/rfc3986.txt>.
 334 [WS-A] “Web Services Addressing 1.0 - SOAP Binding”; 2006. Available at
 335 <http://www.w3.org/TR/ws-addr-soap/>.

336 **Appendix A. Mapping to CDR Specification Framework**

337 This section explicitly ties the items in this specification to the requirements of the [CDR-SF].
 338 The [CDR-SF] identifies the requirements for creating specifications, while implementation
 339 details are outlined in this document.

340 **A.1. Describe Function**

341 **a. Input**

342 Table 9 maps the Describe Function inputs in the [CDR-SF] to the elements and attributes
 343 defined in this specification.

344 **Table 9. Describe Function Input Mapping to Specification Framework**

Specification Framework Variable	Describe Specification
Description Information	
Description Vocabulary	/cdrd:DescribeRequest/descriptionVocabulary
Description Format	/cdrd:DescribeRequest/descriptionFormat
(no counterpart)	/cdrd:DescribeRequest/@lastUpdated

345 **b. Output**

346 Table 10 relates the disposition of the output variable defined in the [CDR-SF] to this
 347 specification.
 348

349 **Table 10. Describe Function Output Mapping to the Specification Framework**

Specification Framework Variable	Describe Specification
Description	/cdrd:Description
(no counterpart)	/cdrd:lastUpdated

350 **Appendix B. DDMS Description Vocabulary**⁹

351 Table 11 lists the minimum common elements for DDMS Description vocabulary using data
352 elements in DDMS 4.1. The DDMS Description vocabulary does not intend to use all possible
353 DDMS elements, but would rather select a subset of DDMS elements suitable for describing
354 content collections. As shown in Table 12, a couple of additional data elements, i.e., `cdrd:count`
355 and `cdrd:changeFrequency`, are also introduced as DDMS extensions for the purpose of
356 describing content collections.

357
358 The DDMS Description vocabulary may have static and dynamic elements. Static elements, such
359 as `title` and `creator`, may be entered manually and/or configuration controlled. Dynamic
360 elements, such as resource `count` of content collection, may be generated at the time a
361 Description is requested.

362 **Table 11. Minimum Common Elements for DDMS Description Vocabulary**

Element Name in DDMS Definition	Support	Value Assignment Recommendation
<code>/ddms:metacardInfo</code> <code>1./ddms:metacardInfo/ddms:identifier</code> Identifier of the Description <code>2./ddms:metacardInfo/ddms:dates/@created</code> Date and time when the Description was created. It is in DDMS CombinedDateType data type. <code>3./ddms:metacardInfo/ddms:dates/@infoCutOff</code> Date and time when the Description was last updated. It is in DDMS CombinedDateType data type. <code>4./ddms:metacardInfo/ddms:publisher</code> Publisher information of the Description	MUST be provided by Service	<code>1./ddms:metacardInfo/ddms:identifier</code> – A URI to identify the Description. It could be the URL to the Description file if Describe Service stores the Description file for the content collection. <code>2./ddms:metacardInfo/ddms:dates/@created</code> – should indicate when the Description was created. <code>3./ddms:metacardInfo/ddms:dates/@infoCutOff</code> should indicate when the Description was last updated. <code>4./ddms:metacardInfo/ddms:publisher</code> – the organization which published the Description for the content collection.
<code>/ddms:security</code> Security information (the common security characteristics) of the content collection that may affect access to the content collection	MUST be provided by Service	Highest classification of the content in the collection
<code>/ddms:title</code> Short descriptive name for the content collection as an attribute of Description in String format	MUST be provided by Service	A human readable name identifying the content collection

⁹ *The IRM Description Vocabulary is documented in the CDR IRM guide [CDR-IRM]. Once the CDR DDMS guide is updated to include the DDMS Description Vocabulary, Appendix B will be removed from this Describe Specification.*

Element Name in DDMS Definition	Support	Value Assignment Recommendation
<code>/ddms:identifier</code> 1./ddms:identifier/@qualifier 2./ddms:identifier/@value Identifier of the content collection. @qualifier is an attribute of Identifier that contains a URI specifying the encoding scheme by which the Identifier value is to be interpreted. @value is an attribute of identifier that contains a URL reference.	MUST be provided by Service	A URL to the main page of the content collection
<code>/ddms:creator</code> Creator information (organization information) of the content collection	MUST be provided by Service	In order of preference, this should be: 1) the organization which created the resources in the content collection, 2) the organization which compiled the content collection if the resources came from multiple creators or 3) the organization which serves as content steward.
<code>/ddms:description</code> Description of the content collection summarizing its contents	MUST be provided by Service	This should provide a short description summarizing the information offered by the content collection.
<code>/ddms:subjectCoverage</code> Aggregated subject information about the content collection	MUST be provided by Service	Use defined keywords and categories that apply to all or most of the resources in the content collection, such as SIGACT, POSREP and ENESIT. Use a concise list instead of a comprehensive list, i.e., does not list all possible keywords and categories, but list the major keywords and categories.
<code>/ddms:geospatialCoverage</code> Aggregated geographical constraints for the content collection	SHOULD be provided by Service	Use the aggregated geospatial area, such as a boundingBox covering all geospatial sub-areas applicable to the content collection. Use only if the information in the content collection is restricted to a geospatial area. Do not use this element if the information in the content collection is global. Do not use this element to provide a master list of every place name mentioned in the content collection.
<code>/ddms:temporalCoverage</code> Aggregated time frame constraints for the content collection	SHOULD be provided by Service	Use the aggregated temporal coverage, the time span from the earliest information to the latest information in the collection. Use only if the temporal coverage of the information in the collection is restricted to a particular time span.
<code>/ddms:pointOfContact</code> Point of Contact (person or organization) of the content collection	SHOULD be provided by Service	This should be the person who maintains the content collection.
<code>/ddms:format</code> Data format used in the content collection	SHOULD be provided by Service	Use defined data types that apply to all or most of the resources in the content collection.

Element Name in DDMS Definition	Support	Value Assignment Recommendation
<p>/ddms:dates</p> <p>1./ddms:dates/@created Date and time when the content collection was created. It is in DDMS CombinedDateType data type.</p> <p>2./ddms:dates/@infoCutOff Date and time when the content collection was last updated. It is in DDMS CombinedDateType data type.</p>	SHOULD be provided by Service	<p>1. /ddms:dates/@created should indicate when the content collection was created, i.e., the earliest point at which a resource was added to the collection.</p> <p>2. /ddms:dates/@infoCutOff should indicate when the content collection was last updated, i.e., the last point at which the content collection was added with a new resource or was updated with an existing resource.</p>
<p>/ddms:language</p> <p>Languages used in the content collection</p>	MAY be provided by Service	Use defined languages. Use this element to identify each major language used in the collection. If the content collection has multiple languages, each major language is a language used in a significant number of records, e.g., the number of records/total number of records is above a percentage threshold defined by an implementation.
<p>/ddms:type</p> <p>Types of content in the content collection</p>	MAY be provided by Service	Use defined keywords or categories. Use this element to indicate each major content type in the collection. If the content collection has multiple types, each major type is a type used in a significant number of records, e.g., the number of records/total number of records is above a percentage threshold defined by an implementation.

363

364

Table 12. Extension Elements for DDMS Description Vocabulary

Element Name Definition	Support	Value Assignment Recommendation
<p>/cdrd:count</p> <p>Current number of resources in the content collection as an attribute in positive Integer</p>	SHOULD be provided by Service	This indicates the current number of resources in the content collection. This element is not a DDMS element.
<p>/cdrd:changeFrequency</p> <p>How often the content in the collection is changed. It is in String data type.</p>	MAY be provided by Service	Use defined keyword, i.e., closed, yearly, monthly, daily, hourly or minute. Use polling/crawl frequency. This element is not a DDMS element.

365