



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

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

V1.0-20130114

14 January 2013

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Revision History

Revision	Revised By	Date	Description
0.1		8 February 2012	Initial draft for subgroup review
0.2		16 February 2012	Updated based on subgroup review
0.3		27 February 2012	Updated based on subgroup review
0.4		12 March 2012	Updated based on adjudication meeting results
0.5		23 March 2012	Updated based on adjudication meeting results
0.6		30 March 2012	Updated based on adjudication meeting results
0.7		30 April 2012	Updated based on adjudication meeting results
0.8		31 May 2012	Updated based on adjudication meeting results
0.9		06 July 2012	Separation of Describe Specification into separate REST and SOAP Interface Encoding Specifications for CDR Describe
0.91		29 July 2012	Updated based on comments
1.0		7 August 2012	Updated based on comments
1.0		12 September 2012	Updated for CDR-IPT comments
1.0		12 December 2012	Updated for DCA comments and previously parked subgroup review comments
1.0		14 January 2013	Updated for DCA comments

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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 RESTful² web service, 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 REST is an architectural style that encapsulates the design principles of the World Wide Web (WWW).

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
58 This specification prescribes GET as the HTTP method used in making a Describe Request.
59 Future specifications may use the HTTP POST to support providing assignment instructions in
60 the HTTP payload.

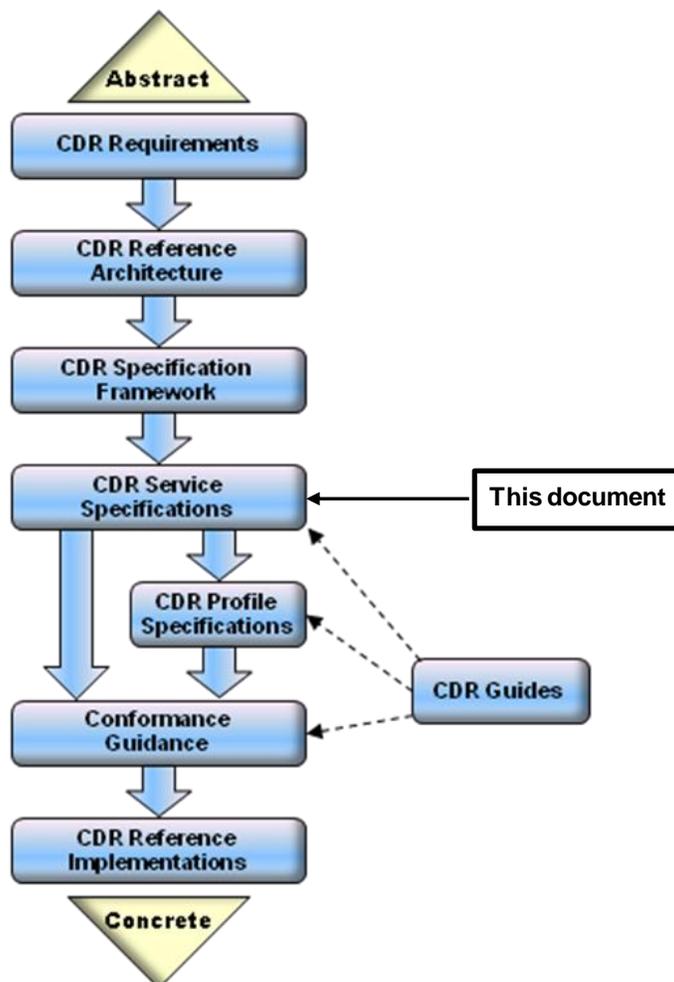
61 **1.3 Artifact Overview**

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

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

77
78 This document is a specification for implementing the CDR Describe Component using the
79 RESTful web service. It is intended to parallel the corresponding SOAP specification, the
80 IC/DoD SOAP Interface Encoding Specification for CDR Describe [CDR-DS], as closely as
81 possible, to minimize the difficulties in interoperating. Additional CDR Guides, Profile

82 Specifications, or Reference Implementations may provide additional guidance on implementing
83 this specification in a particular context.
84



85
86

Figure 1. CDR Artifact Model

87 1.4 Notational Convention

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

92
93 When describing concrete XML schemas and example XML documents, this specification uses
94 XPath as the notational convention. Each member of an XML schema is described using an
95 XPath notation (e.g., /x:RootElement/x:ChildElement/@Attribute).

96
97 In a URL template, a parameter contained in curly brace, generally represented in the form
98 {name}, is meant to be replaced with an actual value determined at run-time. Optional

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

101
102 Examples in this text are distinguished by a black border. These are meant to be illustrative and
103 only one way that the described syntax can be used.

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

104 1.5 Conformance

105 This specification defines an interface to a Describe Service to which an implementation and a
106 subsequent deployment MUST conform. A deployment is an instance of an implementation. For
107 an implementation to conform to this Describe Specification, it MUST adhere to all mandatory
108 aspects of the specification.

109 1.6 Namespaces

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

113 **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
xs	http://www.w3.org/2001/XMLSchema	XML Schema

114 1.7 Description Vocabulary and Format⁴ URIs

115 Table 2 and Table 3 list the Uniform Resource Identifiers (URIs) for Description vocabularies
116 and formats, respectively, which are currently defined as part of or recognized by the CDR
117 specification set⁵. These are acceptable values for the descriptionVocabulary and
118 descriptionFormat parameters defined in section 3.1.2.2.

119
120 Table 2 and Table 3 reference Description vocabularies and formats by name and specify a URI
121 that uniquely identifies each vocabulary or format. URI may be either URL or URN. Each
122 Uniform Resource Locator (URL) MUST link to a resource that defines the Description
123 vocabulary or Description format. Each Uniform Resource Name (URN) MUST be associated

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.

124 with a means, such as a Profile Specification or a CDR Guide, to retrieve the detailed definitions
125 of the Description vocabulary or Description format.

126 **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

127

128 **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

129

130 Either Defense Discovery Metadata Specification (DDMS) Description vocabulary and format or
131 Information Resource Metadata (IRM) Description vocabulary and format (see Table 2 and
132 Table 3) MUST be supported as the default Description vocabulary and format.

133

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

137

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

141 **1.8 Security**

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

148 **2 Describe Service Behavior**

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

151 **2.1 Describe**

152 The Describe Service accepts a Describe Request from a consumer. The Describe Request MAY
153 contain `descriptionVocabulary` (i.e., Description vocabulary identifier), MAY contain

154 `descriptionFormat` (i.e., Description format identifier) and `MAY` contain `lastUpdated`
155 (i.e., timestamp of the Description of the Content Collection in the possession of the consumer).

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

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

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

185
186 The `lastUpdated` is used to avoid the delivery of duplicate Description to a consumer if the
187 consumer already has the current Description in its possession. The `lastUpdated` **MAY** be
188 supported by the Describe Service and the HTTP caching **MAY** also be used transparently by the
189 Describe Service. The Describe request is processed as follows:

- 190 • If `lastUpdated` is supported by the Describe Service and provided on input, but the
191 HTTP caching is not used, the Describe Service **MUST** compare the `lastUpdated`
192 value with the timestamp of the current Description that would be retrieved to determine
193 whether the consumer already has the current Description. If the consumer already has
194 the current Description, the Describe Service returns a Describe Response without
195 Description to the consumer.
- 196 • If `lastUpdated` is supported by the Describe Service and provided on input, and the
197 HTTP caching is used, the HTTP caching would return the cached Description to the

198 consumer if and only if there is a cached Description and the cached Description has not
199 expired. Otherwise, the Describe Service MUST compare the `lastUpdated` value
200 with the timestamp of the current Description that would be retrieved to determine
201 whether the consumer already has the current Description. If the consumer already has
202 the current Description, the Describe Service returns a Describe Response without
203 Description to the consumer.

- 204 • If `lastUpdated` is not supported by the Describe Service or not provided on input,
205 and the HTTP caching is not used, the Describe Service MUST return a Describe
206 Response with the current Description to the consumer.
- 207 • If `lastUpdated` is not supported by the Describe Service or not provided on input, but
208 the HTTP caching is used, the HTTP caching would return the cached Description to the
209 consumer if and only if there is a cached Description and the cached Description has not
210 expired. Otherwise, the Describe Service MUST return a Describe Response with the
211 current Description to the consumer.

212 When the HTTP caching is used, if the Description of a content collection changes faster than
213 the HTTP caching expiration timer, the cached Description might be outdated and the consumer
214 may not always obtain the current Description from the HTTP cache. Therefore, the use of
215 HTTP caching better serves content collections with less-frequently changed Descriptions.

216 **3 Describe Service Interface**

217 The service interface contains the technical descriptions⁶ of the function through which the
218 consumer will interact with the service. Support for input and output parameters for Describe
219 Function is described in tables in this section in terms of what is expected of the Describe
220 Service and what is expected in terms of a consumer interacting with the Describe Service.

221 **3.1 Describe Function**

222 A Describe Service MUST implement the Describe Function.

223 **3.1.1 Preconditions**

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

- 226 1. The requester is authenticated and authorized according to applicable policy requirements
227 for this Describe Function.
- 228 2. Description vocabulary and format have been defined and are identified using URIs.
- 229 3. The Describe Service implements necessary logic to assign values to the indicated
230 Description vocabulary.
- 231 4. The Consumer finds the Describe Service associated with a particular content collection.

232 **3.1.2 Input**

233 The Describe Service is the application of an HTTP/HTTPS GET method (request) to a single
234 information resource, as identified by a URL.

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

235 **3.1.2.1 HTTP Method**

236 The Describe Function **MUST** use the HTTP GET method.

237 **3.1.2.2 URL Template**

238 ?descriptionVocabulary={descriptionVocabulary?}&descriptionForma
239 t={descriptionFormat?}&lastUpdated={lastUpdated?}

240 descriptionVocabulary – The parameter that the consumer **MAY** replace with
241 the desired Description vocabulary URI. The value for this parameter is in the type of
242 xs:anyURI.

243 descriptionFormat – The parameter that the consumer **MAY** replace with the
244 desired Description format URI. The value for this parameter is in the type of xs:anyURI.

245 lastUpdated – The parameter that the consumer **MAY** replace with the timestamp of
246 the Description of the Content Collection in the possession of the service consumer. The
247 value for this parameter is in the type of xs:dateTime.

248
249 The order of the parameters in the URL **MAY** be changed. Consideration should also be given in
250 the construction of the URL such that a potential recipient may request access to the resource
251 without the URL leaking restricted information about the content of the resource.

252 **3.1.2.3 HTTP Message Header**

253 There are no additional entries in the request message header beyond those defined in the HTTP
254 specification [HTTP].

255 **3.1.2.4 HTTP Message Body**

256 There is no request message body for this function.

257 **3.1.2.5 Describe Request - Message Example**

```
http://example.com/?descriptionVocabulary=urn:cdr:describe:vocabulary:ddms&  
descriptionFormat=urn:cdr:describe:format:ddms&lastUpdated=2012-02-  
04T18:13:51.0Z
```

results in

```
GET /?descriptionVocabulary=urn:cdr:describe:vocabulary:ddms&  
descriptionFormat=urn:cdr:describe:format:ddms&lastUpdated=2012-02-  
04T18:13:51.0Z HTTP/1.1  
HOST: example.com
```

258 **Figure 2. Example Describe Input**

259 The example in Figure 2 shows a Describe Request using the DDMS Description vocabulary and
260 format.

261 **3.1.3 Output**

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

- 263 • the `descriptionVocabulary` and `descriptionFormat` parameters in the
264 Describe Request or

- 265 • the `descriptionVocabulary` parameter in the Describe Request and the default
266 Description format or
- 267 • the default Description vocabulary and the `descriptionFormat` parameter in the
268 Describe Request or
- 269 • the default Description vocabulary and format.

270 For a Describe Request that results in an error, a HTTP Error code as given in Section 3.1.5
271 MUST be returned.

272 3.1.3.1 HTTP Status Code

273 If the GET request is successful, the Describe Service will respond with a '200 OK' Status Code
274 and the Description of the content collection.

275 3.1.3.2 HTTP Message Header

276 The response header SHOULD include the content type (i.e., the Content-Type header field with
277 a MIME type as the assigned value) of the response body so that the consumer may anticipate
278 how the response message should be processed. The response SHOULD also include the
279 Content-Length and Last-Modified headers.

280 3.1.3.3 HTTP Message Body

281 The body of the HTTP message MUST consist of the Description of a content collection. The
282 child elements in the Description element are determined by the value provided on input for the
283 `descriptionVocabulary` parameter or by the default vocabulary of the Describe
284 implementation if no value is specified for `descriptionVocabulary`.

285
286 The structure of the Description element is determined by the value provided on input for the
287 `descriptionFormat` parameter or by the default format of the Describe implementation if
288 no value is specified for `descriptionFormat`.

289
290 Figure 3 shows a HTTP output example using the DDMS Description vocabulary and format. If
291 different Description vocabulary and/or format are specified in `descriptionVocabulary`
292 and `descriptionFormat` parameters, the appropriate Description as defined by those
293 vocabulary and format MUST be returned.

294 3.1.3.4 Output Example

295 Figure 3 represents a sample Describe HTTP response message using the DDMS Description
296 vocabulary (in Appendix B) and format.

```
HTTP/1.1 200 OK
Content-Type: text/xml
Content-Length: 2138
Last-Modified: Tue, 6 Mar 2012 10:11:30 GMT

<?xml version="1.0" encoding="UTF-8"?>
<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: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:dates ddms:created="2001-10-31T17:00:00Z"
  ddms:infoCutOff="2006-05-04T18:13:51Z"/>
<ddms:type ddms:qualifier="DCMITYPE"
  ddms:value="http://purl.org/dc/dcmitype/Text"/>
<ddms:creator ISM:classification="U" ISM:ownerProducer="USA">
  <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@mail.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>
</ddms:resource>
</cdrd:Description>
```

297 **Figure 3. Example Describe HTTP Response Message**

298 **3.1.4 Post-Conditions**

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

- 300 1. The result returned to the requester is a HTTP 200 message with Description in the
301 correct vocabulary and format, or a HTTP message without Description or a fault.
302 2. The authenticated requester has been authorized to receive the result in the response.
303 3. The use of this function has been audited according to applicable policy.⁷

304 **3.1.5 Fault Conditions**

305 An implementation of the Describe Service MUST return the appropriate HTTP Status Code
306 (based on values from the HTTP Status Code Registry maintained by IANA) according to the
307 fault conditions defined in the [CDR-SF].
308

309 Table 4 maps the [CDR-SF] fault conditions to the HTTP status that SHOULD be returned for
310 each fault.

311 **Table 4. Fault Conditions and HTTP Responses**

[CDR-SF] Fault Condition	HTTP Status	HTTP Description
Security	403	Forbidden
Service Unavailable	503	Service Unavailable
Unsupported Description Vocabulary	400	Bad Request
Unsupported Description Format	400	Bad Request
Describe Execution Fault	500	Internal Server Error

312
313 **3.1.5.1 HTTP Fault Message Example**

314 Figure 4 shows an example HTTP fault message for ‘500 Internal Server Error’.

```
HTTP Error 500: Internal Server Error
```

315 **Figure 4. Example Describe HTTP Fault Message**

316 **4 References**

- 317 [CDR-DS] “IC/DoD SOAP Interface Encoding Specification for CDR Describe 1.0”; 2012.
318 [CDR-IRM] “IC/DoD CDR Search + IRM Implementation Guide 2.0”; 2012.
319 [CDR-RA] “IC/DoD CDR IPT Reference Architecture 2.0”; 2012.
320 [CDR-SF] “IC/DoD Content Discovery & Retrieval Specification Framework 2.0”; 2012.
321 Available at
322 https://intelshare.intelink.gov/sites/odni/cio/ea/library/ServiceSpecifications/CDRSpecifications/Spec_Framework/default.aspx.
323

⁷ The use of this function may be audited according to applicable policy and may include auditing of the success or failure of the function.

- 324 [DDMS] “Department of Defense Discovery Metadata Specification”. Available at
 325 <http://metadata.ces.mil/mdr/irs/DDMS/index.html>.
 326 [HTTP] “Hypertext Transfer Protocol -- HTTP/1.1”; 1999. Available at
 327 <http://www.ietf.org/rfc/rfc2616.txt>.
 328 [IRM] “Data Encoding Specifications for Information Resource Metadata”. Available at
 329 [http://www.dni.gov/index.php/about/organization/chief-information-officer/information-](http://www.dni.gov/index.php/about/organization/chief-information-officer/information-resource-metadata)
 330 [resource-metadata](http://www.dni.gov/index.php/about/organization/chief-information-officer/information-resource-metadata) (public release version) and
 331 <https://intelshare.intelink.gov/sites/odni/cio/ea/library/DataSpecifications/irm/default.aspx>
 332 (Intelink Unclassified version).
 333 [URI] “Uniform Resource Identifier (URI): Generic Syntax”; 2005. Available at
 334 <http://www.ietf.org/rfc/rfc3986.txt>.

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

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

339 **A.1. Describe Function**

340 **a. Input**

341 Table 5 maps the Describe Function inputs in the [CDR-SF] to the elements and attributes
 342 defined in this specification.

343 **Table 5. Describe Function Input Mapping to Specification Framework**

Specification Framework Variable	Describe Specification
Description Vocabulary	descriptionVocabulary
Description Format	descriptionFormat
(no counterpart)	lastUpdated

344 **b. Output**

345 Table 6 relates the disposition of the output variable defined in the [CDR-SF] to this
 346 specification.

347 **Table 6. Describe Function Output Mapping to the Specification Framework**

Specification Framework Variable	Describe Specification
Description	/cdrd:Description
(no counterpart)	Last-Modified

349 **Appendix B. DDMS Description Vocabulary⁸**

350

⁸ 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.

351 Table 7 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 8, a couple of additional elements, i.e., `cdrd:count` and
355 `cdrd:changeFrequency`, are introduced as potential 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

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Table 7. Minimum Common Elements for DDMS Description Vocabulary

Element Name in DDMS Definition	Support	Value Assignment Recommendation
<p>/ddms:metacardInfo</p> <p>1./ddms:metacardInfo/ddms:identifier Identifier of the Description</p> <p>2./ddms:metacardInfo/ddms:dates/@created Date and time when the Description was created. It is in DDMS CombinedDateType data type.</p> <p>3./ddms:metacardInfo/ddms:dates/@infoCutOff Date and time when the Description was last updated. It is in DDMS CombinedDateType data type.</p> <p>4./ddms:metacardInfo/ddms:publisher Publisher information of the Description</p>	<p>MUST be provided by Service</p>	<p>1./ddms:metacardInfo/ddms:identifier – 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.</p> <p>2./ddms:metacardInfo/ddms:dates/@created – should indicate when the Description was created.</p> <p>3./ddms:metacardInfo/ddms:dates/@infoCutOff should indicate when the Description was last updated.</p> <p>4./ddms:metacardInfo/ddms:publisher – the organization which published the Description for the content collection.</p>
<p>/ddms:security</p> <p>Security information (the common security characteristics) of the content collection that may affect access to the content collection</p>	<p>MUST be provided by Service</p>	<p>Highest classification of the content in the collection</p>
<p>/ddms:title</p> <p>Short descriptive name for the content collection as an attribute of Description in String format</p>	<p>MUST be provided by Service</p>	<p>A human readable name identifying the content collection</p>
<p>/ddms:identifier</p> <p>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.</p>	<p>MUST be provided by Service</p>	<p>A URL to the main page of the content collection</p>
<p>/ddms:creator</p> <p>Creator information (organization information) of the content collection</p>	<p>MUST be provided by Service</p>	<p>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.</p>
<p>/ddms:description</p> <p>Description of the content collection summarizing its contents</p>	<p>MUST be provided by Service</p>	<p>This should provide a short description summarizing the information offered by the content collection.</p>

Element Name in DDMS Definition	Support	Value Assignment Recommendation
<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.
<code>/ddms:dates</code> 1./ddms:dates/@created Date and time when the content collection was created. It is in DDMS CombinedDateType data type 2./ddms:dates/@infoCutOff Date and time when the content collection was last updated. It is in DDMS CombinedDateType data type	SHOULD be provided by Service	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. 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.
<code>/ddms:language</code> Languages used in the content collection	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.

Element Name in DDMS Definition	Support	Value Assignment Recommendation
/ddms:type Types of content in the content collection	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.

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Table 8. Extension Elements for DDMS Description Vocabulary

Element Name Definition	Support	Value Assignment Recommendation
/cdrd:count Current number of resources in the content collection as an attribute in positive Integer	SHOULD be provided by Service	This indicates the current number of resources in the content collection. This element is not a DDMS element.
/cdrd:changeFrequency How often the content in the collection is changed. It is in String data type.	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.

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