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**OGC® Web Coverage Service Interface Standard -   
Coverage Collection Extension**

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Preface

This document specifies and additional service that enables coverages to be grouped together as a collection.

Suggested additions, changes, and comments on this draft document are welcome and encouraged. Such suggestions may be submitted by email message or by making suggested changes in an edited copy of this document.

Terms and definitions

This document uses the standard terms defined in Subclause 5.3 of [OGC 06-121r9], which is based on the ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards. In particular, the word “shall” (not “must”) is the verb form used to indicate a requirement to be strictly followed to conform to this standard.

Submitting organizations

The following organizations have submitted this Document to the Open Geospatial Consortium (OGC):

|  |  |
| --- | --- |
| * Met Office | * Jacobs University Bremen |

Submitter

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|  |  |  |  |  |

Changes to the OpenGIS® Abstract Specification

The OpenGIS® Abstract Specification does not require any changes to accommodate the technical contents of this (part of this) document.

Future Work

Among the topics for future development are the following items:

* None foreseen currently

Foreword

This WCS CoverageCollection extension relies on WCS Core [OGC 09-110r4] and the GML Application Schema for Coverages [OGC 09-110r2].

This document includes one normative Annex.

*Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The Open Geospatial Consortium shall not be held responsible for identifying any or all such patent rights.*

*Recipients of this document are requested to submit, with their comments, notification of any relevant patent claims or other intellectual property rights of which they may be aware that might be infringed by any implementation of the standard set forth in this document, and to provide supporting documentation.*

Introduction

The OGC *Web Coverage Service (WCS) –Coverage Collection Extension* defines an extension to the WCS Core [OGC 09-110r4] to allow the collection and description of coverage collections during processing of a new *DescribeCoverageCollection* request.

Note As such, this CoverageCollection Extension has impact on the operational behaviour and in particular the response to a GetCapabilities response.

The concept of “feature collections” is well established so given that a “coverage” is a type of feature then the extension for coverage collections is easy to understand. Each “coverage collection” will have an identifier that will be exposed in the “GetCapabilities” response document.

Support for coverage collections are reported by the service in its *GetCapabilities* response.

OGC® Web Coverage Service Interface Standard - CoverageCollection

# Scope

The OGC WCS CoverageCollection Extension – in short: *CoverageCollection Extension* – defines an Extension to the Web Coverage Service specification defining how a WCS server may group its offered coverages into uniquely identified collections and how information about those collections is provided.

# Conformance

This standard defines:

* An additional operation, *DescribeCoveragecollection*, whose request enables a client application to gather information about one or more Coveragecollection resources using their identifiers and whose response packages that information within CoveragecollectionDescription elements.
* An amended *GetCapabilities* operation whose response provides summary information of offered Coveragecollection resources; a client application may request only summary information about Coveragecollection resources in a *GetCapabilities* response by specifying the token *offeredCollections* in the Sections element of the GetCapabilities request.
* KVP and XML/POST protocol bindings for the new *DescribeCoveragecollection* operation.

Requirements are considered for two standardization targets:

* Key-value-pair (KVP) protocol binding; and
* XML/POST protocol binding.

This document establishes the following requirements and conformance classes:

* *covcoll\_offering* of URI<http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/covcoll_offering> defining Covcoll-WCS on the conceptual level in clause 7, the corresponding conformance class is covcoll\_offering with URI<http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/covcoll_offering> (see A.1)
* *covcoll\_ getCapabilities* of URI[http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/covcoll_getCapabilities%20)  defining Covcoll-WCS on the conceptual level in clauses 8.1 the corresponding conformance class is covcoll\_getCapabilities with URI<http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/covcoll_GetCapabilities> (See A.2)
* *covcoll\_ collection-summary* of URI[http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-summary](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/covcoll_collection-summary%20)  defining Covcoll-WCS on the conceptual level in clause 8.2 the corresponding conformance class is covcoll\_collection-summary with URI <http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/covcoll_collection-summary> (See A.3 )
* *covcoll\_ describe-coveragecollection* of URI[http://www.opengis.net/spec/WCS\_service-extension\_describe-coveragecollection /1.0/req/covcoll\_ coveragecollection](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/covcoll_%20getCapabilities%20)  defining Covcoll-WCS on the conceptual level in clause 8.3 the corresponding conformance class is covcoll\_describe-coveragecollection with URI [http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/covcoll\_describe-coveragecollection](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/covcoll_describe-coveragecollection%20)  (See A.4)
* *covcoll\_ collection-description* of URI[http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection /1.0/req/covcoll\_coverage-description](http://www.opengis.net/spec/WCS_service-extension_coveragecollection%20/1.0/req/covcoll_coverage-description) defining Covcoll-WCS on the conceptual level in clause 8.4 the corresponding conformance class is covcoll\_collection-description with URI [http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/covcoll\_ collection-description](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/covcoll_%20collection-description%20)  (See A.5)
* *covcoll\_ protocol-binding* of URI [http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection /1.0/req/covcoll\_protocol-binding](http://www.opengis.net/spec/WCS_service-extension_coveragecollection%20/1.0/req/covcoll_protocol-binding%20)  defining Covcoll-WCS on the conceptual level in clause 9.1 the corresponding conformance class is offering with URI <http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/covcoll_protocol-binding> (See A.6)
* *covcoll\_ get-kvp* of URI [http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection /1.0/req/covcoll\_get-kvp](http://www.opengis.net/spec/WCS_service-extension_coveragecollection%20/1.0/req/covcoll_get-kvp%20)  defining Covcoll-WCS on the conceptual level in clause 9.2 the corresponding conformance class is covcoll\_get-kvp with URI <http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/covcoll_get-kvp> (See A.7)
* *covcoll\_ post-xml* of URI <http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/covcoll_post-xml> defining Covcoll-WCS on the conceptual level in clause 9.3 the corresponding conformance class is covcoll\_post-xml with URI <http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/covcoll_post-xml> (See A.8)

Conformance with this standard shall be checked using all the relevant tests specified in Annex A (normative) of this document. The framework, concepts, and methodology for testing, and the criteria to be achieved to claim conformance are specified in the OGC Compliance Testing Policies and Procedures and the OGC Compliance Testing web site[[1]](#footnote-1).

All requirements-classes and conformance-classes described in this document are owned by the standard(s) identified.

# Normative references

The following normative documents contain provisions that, through referenced in this text, constitute provisions of this document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the normative document referred to applies.

The following normative documents contain provisions that, through referenced in this text, constitute provisions of this specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the normative document referred to applies.

OGC 06-121r9, *Web Services Common Standard*, version 2.0

OGC 09-146r2, *GML Application Schema for Coverages*, version 1.0

OGC 09-110r4, *Web Coverage Service 2.0 Interface Standard Core*, version 2.01

OGC 09-147r3, *WCS 2.0 Interface Standard – KVP Protocol Binding Extension*,

version 1.01

OGC 09-148r1, *WCS 2.0 Interface Standard – XML/POST Protocol Binding Extension*,

version 1.0

# Terms and definitions

This document uses the terms defined in Sub-clause 5.3 of [OGC 06-121r8], which is based on the ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards. In particular, the word “shall” (not “must”) is the verb form used to indicate a requirement to be strictly followed to conform to this standard.

For the purposes of this document, the following additional terms and definitions apply.

## Coverage

A feature that acts as a function to return values from its range for any direct position within its spatiotemporal domain.

## Coveragecollection

A grouping of individual coverages into a single, uniquely identified resource.

# Conventions

All UML diagrams appearing in this document follow the guidance as documented in OGC OWS Common 2.0 section 5.2.

## Data dictionary tables

The UML model data dictionary is specified herein in a series of tables. The contents of the columns in these tables follow the guidance as documented in OGC OWS Common 2.0 section 5.5.

## 5.3 Namespace prefix conventions

The following namespaces are used in this document. The prefix abbreviations used constitute conventions used here, but are **not** normative. The namespaces to which the prefixes refer are normative.

Table 1 — Namespace mappings

|  |  |  |
| --- | --- | --- |
| **Prefix** | **Namespace URI** | **Description** |
| xsd | <http://www.w3.org/2001/XMLSchema> | XML Schema namespace |
| gml | <http://www.opengis.net/gml/3.2> | GML 3.2.1 |
| gmlcov | <http://www.opengis.net/gmlcov/1.0> | GML Application Schema for Coverages 1.0 |
| wcs | <http://www.opengis.net/wcs/2.0> | WCS 2.0 Core |
| covcoll | [http://www.opengis.net/wcs/coveragecollection /1.0](http://www.opengis.net/wcs/coveragecollection%20/1.0) | WCS Coveragecollection Extension |

## 5.4 Multiple representations

When multiple representations of the same information are given in a specification document these are consistent. Should this not be the case then this is considered an error, and the XML schema shall take precedence.

# Coverage collection overview (non-normative)

It is not uncommon for a WCS server to expose many hundreds, if not thousands, of coverages. For example:

* A satellite instrument may provide many individual images, each a coverage, that may be composed into a single mosaic.
* The execution of a numerical weather prediction model may produce data for many physical quantities. Furthermore, operational meteorologists often work with the results of numerical weather prediction models as a set of 2-dimensional ‘fields’ (one for each physical quantity at each time-step and vertical level) rather than more complex 4-dimensional datasets. The resulting dataset can easily number in the thousands.

A Coveragecollection is a useful mechanism for grouping together coverages into a collection. The pattern is similar to a feature collection.

Each Coveragecollection is a single, uniquely identified resource specifying the member coverages. Furthermore, each member coverage within a Coveragecollection often shares similar characteristics such as provenance.

Use of Coveragecollection resources means that it becomes simpler to refer to an aggregate set of coverage resources (e.g. using the identifier) and that common metadata can be attributed to the Coveragecollection resource itself.

A Coveragecollection resource may contain other Coveragecollection resources- thus enabling coverages to be grouped in arbitrarily nested sets.

Where a WCS server is able to suppress information about individual coverages in its getCapabilities response, the XML document provided by the WCS end-point may be significantly smaller and easier to parse- thus mitigating challenges arising from working with very large XML documents.

In such situations, a client application may gather information about the Coveragecollection resources from a WCS server, and then subsequently request information about the member coverages of a given Coveragecollection- a subset of the complete set of coverages available from that WCS end-point.

# Coverage collection data model

## Requirements Class: Coverage collection offerings

This requirements class specifies underlying data model used to describe Coveragecollection resources and their relationship with the coverage resources themselves.

|  |  |
| --- | --- |
| **Requirements Class** | |
| [**http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_offering**](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/covcoll_offering) | |
| Dependency | **…** |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_offering/type**  *The coverage offering provided by a WCS server implementing this extension shall conform with the covcoll:CoverageOffering as specified in Figure 1 and Table 2- using the associated Classes specified in Table 3, Table 4, Table 5 and Table 6 as appropriate.* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_offering/service-metadata**  *The service metadata provided by a WCS server implementing this extension shall contain one Extension component of type covcoll: ServiceMetadataExtension.* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_offering/coveragecollection-unique-identifier**  *Each Coveragecollection resource offered by a WCS server implementing this extension shall specify an identifier that is unique within the scope of that WCS server. The identifier shall be specified using the gml:identifier attribute.* |

### Requirements class overview

A WCS server implementing this extension offers a – possibly empty – set of Coveragecollection resources.

Figure 1 illustrates how Coveragecollection resources are provided alongside Coverages and ServiceMetadata (as specified in [OGC 09-110r4]). New classes are highlighted in yellow.



Figure 1 Relationship of Coveragecollection resources with CoverageOfferings

### CoverageOfferings

This extension introduces an additional attribute offeredCollection, specified in Table 2, to the CoverageOfferings class established in [09-110r4].

Furthermore, two additional constraints are placed on CoverageOfferings such that:

* the ServiceMetadata component shall contain a single Extension component; and
* the type of that Extension component shall be ServiceMetadataExtension- a subtype of Extension, as specified in Table 3.

Table 2 CoverageOfferings components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| offeredCollection | Set of Coveragecollection resources offered by this service | OfferedCollection | zero or more (optional) |
| wcs::offered-Coverage | Set of coverages offered by this service | WCS::Offered-Coverage | zero or more (optional) |
| wcs::service-Metadata | Information specific to the WCS service as a whole | WCS::Service-Metadata | one (mandatory) |

Table 3 ServiceMetadataExtension components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| coverageCollectionProfileSupported | Identifier of Coveragecollection profiles which this server supports | anyURI | zero or more (optional) |

### OfferedCollection

An OfferedCollection, as specified in Table 4, contains a single Coveragecollection resource and a single ServiceParameter resource providing specific information about functionality the server can offer on the associated Coveragecollection resource.

Table 4 OfferedCollection components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| coverageCollection | The Coveragecollection | CoverageCollection | one (mandatory) |
| serviceParameters | Service parameters relating to the associated Coveragecollection. | ServiceParameters | one (mandatory) |

### CoverageCollection

CoverageCollection resources, as specified in Table 5, aggregate individual coverage offerings into single, identifiable resource.

A CoverageCollection resource may include subcollections – thus allowing arbitrarily nested groupings of coverages to be described.

As CoverageCollection derives from GML::AbstractFeature, a CoverageCollection resource inherits all properties from its parent class: gml:id, gml:metaDataProperty, gml:description, gml:descriptionReference, gml:identifier, gml:name and gml:boundedBy.

Use of these inherited properties allows for discrimination between Coveragecollection resources without needing to interrogate the member coverages themselves.

Table 5 CoverageCollection components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| offeredCoverage | Coverage offered within this Coveragecollection | WCS::Offered-Coverage | zero or more (optional) |
| subCollection | SubCollection contained within this Coveragecollection resource. | OfferedCollection | zero or more (optional) |

### ServiceParameter

ServiceParameters, as specified in Table 6, provide specific information about functionality the server can offer on a particular Coveragecollection. In particular, where a Coveragecollection resource conforms to one or more registered profiles, this information is provided. A registered profile may, for example, specify additional metadata about the Coveragecollection which a client application may use to process the Coveragecollection resource. Furthermore, the ServiceParameters component may include additional ancillary data via use of an Extension component.

Table 6 ServiceParameters components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| coverageCollectionProfile | Identifier of Coveragecollection profile to which the associated Coveragecollection resource conforms | anyURI | zero or more (optional) |
| extension | Any kind of ancillary data | WCS::Extension | zero or more (optional) |

# Amendments to WCS service model to support Coveragecollection offerings

Example The following list is returned in the Capabilities document of a server supporting EO and MetOcean, coveragecollection profiles (URLs are fictitious; see OGC-NA for actually standardized coveragecollection URIs):

<ows:ServiceIdentification>  
 <ows:Title>Title</ows:Title>  
 <ows:Abstract>Abstract</ows:Abstract>  
 <ows:Keywords>  
 <ows:Keyword>EO-WCS</ows:Keyword>  
 <ows:Keyword>WCS 2.0</ows:Keyword>  
 <ows:Keyword>Keyword</ows:Keyword>  
 </ows:Keywords>  
 <ows:ServiceType codeSpace="OGC">OGC WCS</ows:ServiceType>  
 <ows:ServiceTypeVersion>2.0.1</ows:ServiceTypeVersion>  
 <ows:Profile>[http://www.opengis.net/spec/WCS\_service-extension\_crs/1.0/conf/crs</ows:Profile](http://www.opengis.net/spec/WCS_service-extension_crs/1.0/conf/crs%3c/ows:Profile)>  
 <ows:Profile>[http://www.opengis.net/spec/WCS/2.0/conf/core</ows:Profile](http://www.opengis.net/spec/WCS/2.0/conf/core%3c/ows:Profile)>  
 <ows:Profile>http://www.opengis.net/spec/WCS\_protocol-binding\_get-kvp/1.0/conf/get-  
 kvp</ows:Profile>  
 <ows:Profile>http://www.opengis.net/spec/WCS\_protocol-binding\_post-xml/1.0/conf/post-  
 xml</ows:Profile>  
 <ows:Profile>http://www.opengis.net/spec/GMLCOV/1.0/conf/gml-coverage</ows:Profile>  
 <ows:Profile>[http://www.opengis.net/spec/GMLCOV/1.0/conf/multipart</ows:Profile](http://www.opengis.net/spec/GMLCOV/1.0/conf/multipart%3c/ows:Profile)>  
 <ows:Profile>http://www.opengis.net/spec/GMLCOV\_geotiff-coverages/1.0/conf/geotiff-  
 coverage</ows:Profile>  
 <ows:Profile>http://www.opengis.net/spec/WCS\_service-model\_crs-predefined/1.0/conf/crs-  
 predefined</ows:Profile>  
 <ows:Profile>http://www.opengis.net/spec/WCS\_service-  
 model\_scaling+interpolation/1.0/conf/scaling+interpolation</ows:Profile>  
 <ows:Profile> [<http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/covcoll_post-xml> </ows:Profile](%20http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/protocol-binding/covcoll_get-kvp%20%3c/ows:Profile)>

<ows:Profile> [http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_get\_kvp </ows:Profile](%20http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/conf/protocol-binding/covcoll_get-kvp%20%3c/ows:Profile)>  
</ows:ServiceIdentification>

<wcs:ServiceMetadata>  
 <wcs:formatSupported>application/gml+xml</wcs:formatSupported>  
 <wcs:formatSupported>image/tiff</wcs:formatSupported>  
 <covcoll:ServiceMetadataExtension>  
 <covcoll:coveragecollectionProfileSupported>  
 http://www.opengis.net/def/coveragecollection/OGC/1/metOcean   
 </covcoll:coveragecollectionProfileSupported>  
 </covcoll:ServiceMetadataExtension>  
 </wcs:ServiceMetadata>

Example The following list is the Capabilities request document of a server supporting coverage Collections

<wcs:GetCapabilities  
 xmlns:ows='http://www.opengis.net/ows/2.0'  
 xmlns:wcs='http://www.opengis.net/wcs/2.0'  
 xmlns:covcoll="http://www.opengis.net/covcoll/1.0"  
 xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'  
 xsi:schemaLocation='http://www.opengis.net/wcs/2.0http://schemas.opengis.net/wcs/2.0/wcsAll.xsd'  
 service="WCS">  
 <ows:AcceptVersions>  
 <ows:Version>2.0.0</ows:Version>  
 </ows:AcceptVersions>  
 <ows:Sections>  
 <ows:Section>OperationsMetadata</ows:Section>  
 <ows:Section>CoverageSummary</ows:Section>  
 <ows:Section>OfferedCollections</ows:Section>  
 </ows:Sections>  
</wcs:GetCapabilities>

## Requirements Class: Get capabilities

This requirements class specifies the amendments to the *Get Capabilities* operation.

|  |  |
| --- | --- |
| **Requirements Class** | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities** | |
| Dependency | **http://www.opengis.net/doc/IS/WCS/2.0#clause:8.2** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.0/req/core/getCapabilities** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.0/req/core/wcsServiceMetadata-structure** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.0/req/core/wcsServiceMetadata-contents** |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-summary** |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities/request-sections**  *A WCS server implementing this extension shall accept the token*  *offeredCollections within the sections element of the GetCapabilities request in addition to those specified in OWS Common [OGC 06-121r9] subclause 7.3.3.* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities/response-extension-identification**  *A WCS server implementing this extension shall include the following URI in the Profile element of the ServiceIdentification in a GetCapabilities response:*  [*http://www.opengis.net/spec/WCS\_service-*](http://www.opengis.net/spec/WCS_service-)*extension\_*  *coveragecollection/1.0/conf/coverageCollection* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities/response-coveragecollection-summary**  *In response to a Get Capabilities request where the sections element specifies either all, contents or offeredCollections, a WCS server implementing this extension shall provide a CoveragecollectionSummary, as specified in subclause 8.2, for each of the Coveragecollection resources available from that WCS server.*  *All Coveragecollection resources shall be listed, irrespective of their position within a hierarchy of nested collections.*  *CoveragecollectionSummary elements shall be provided within the Extension element of the Contents:*  *Contents/Extension/CoveragecollectionSummary* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities/response-supported-profiles**  *If a WCS server that implements this extension provides explicit support for a registered Coveragecollection profile, the URI of that profile shall be provided in the coveragecollectionProfileSupported element within the Extension element of the ServiceMetadata:*  *ServiceMetadata/Extension/coveragecollectionProfileSupported*  *A WCS server may declare support for zero or more Coveragecollection profiles.* |

### Requirements class overview

The *Get Capabilities* operation of a WCS server implementing this extension provides summary information about its available Coveragecollection resources. Please refer to sub-clause 8.2 for more details about the CoveragecollectionSummary element.

In order to help client applications mitigate issues relating to parsing very large capabilities documents (e.g. due to the WCS server offering hundreds, if not thousands, of coverages) an additional term is added to the controlled vocabulary that is used in the sections element of the *Get Capabilities* request: offeredCollections. A client application may, therefore, request only the summary information about the Coveragecollection resources, omitting the summary information about the offered coverages themselves.

A WCS server implementing this extension shall also declare support for any registered Coveragecollection profiles.

## Requirements Class: Coverage collection summary

This requirements class specifies the structure of the summary information given for a Coveragecollection resource.

|  |  |
| --- | --- |
| **Requirements Class** | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-summary** | |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-summary/structure**  *The summary information describing a Coveragecollection resource provided by a WCS server implementing this extension shall conform with the covcoll:CoveragecollectionSummary as specified in* Figure 2 *and Table 7.* |

### Requirements class overview

The summary information describing a Coveragecollection resource in a Get Capabilities response includes:

* an identifier for the Coveragecollection resource;
* identifiers for the Coveragecollection profile(s) that the resource conforms to (if any);
* information about the bounding spatial (or spatiotemporal) extent that the member coverages of the Coveragecollection occupy; and
* other metadata or extension information.

Figure 2 illustrates how CoveragecollectionSummary elements are structured. New classes are highlighted in yellow.



Figure 2 Structure of coverage Collection summary

Table 7 Components of CoverageCollectionSummary

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| CoverageCollectionId | Identifier of a CoverageCollection offered by this service | NCName | one  (mandatory) |
| coverageCollectionProfile | Identifier of Coveragecollection profile to which the associated Coveragecollection resource conforms | anyURI | zero or more (optional) |
| wgs84­BoundingBox | Minimum bounding rectangle surrounding dataset, using WGS 84 CRS with decimal degrees and longitude before latitude. | OWS Common::WGS84­BoundingBox | zero or more (optional) |
| boundingBox | Minimum bounding rectangle surrounding dataset, in available CRS | OWS Common::BoundingBox | zero or more (optional) |
| metadata | Reference to more metadata about this CoverageCollection | OWS Common::Meta­data | zero or one  (optional) |
| extension | Further metadata | Extension | zero or one (optional) |

Example: - The following XML excerpt shows a possible Contents section containing CoverageCollection only information contained in a GetCapabilities response.

<wcs:Contents>  
 <!-- CoverageSummary including mandatory elements only -->  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_ISBL</wcs:CoverageId>  
 <wcs:CoverageSubtype>RectifiedGridCoverage</wcs:CoverageSubtype>  
 </wcs:CoverageSummary>  
 <!-- CoverageCollectionSummary including mandatory elements only -->  
 <wcs:Extension>  
 <covcoll:coverageCollectionSummary>  
 <covcoll:CoverageCollectionSummary>  
 <ows:WGS84BoundingBox>  
 <ows:LowerCorner>32.08007800 -4.04296900</ows:LowerCorner>  
 <ows:UpperCorner>45.17578100 33.13476600</ows:UpperCorner>  
 </ows:WGS84BoundingBox>  
 <covcoll:coverageCollectionId>UKPP4-2015-05-15-00Z</covcoll:coverageCollectionId>  
 <covcoll:coverageCollectionProfile>http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/coveragecollection  
 </covcoll:coverageCollectionProfile>  
 </covcoll:CoverageCollectionSummary>  
 </covcoll:coverageCollectionSummary>  
 <covcoll:coverageCollectionSummary>  
 <covcoll:CoverageCollectionSummary>  
 <ows:WGS84BoundingBox>  
 <ows:LowerCorner>20.0 -30.0</ows:LowerCorner>  
 <ows:UpperCorner>70.0 40.0</ows:UpperCorner>  
 </ows:WGS84BoundingBox>  
 <covcoll:coverageCollectionId>UKPP4-2012-05-15-12Z</covcoll:coverageCollectionId>  
 <covcoll:coverageCollectionProfile>http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/coveragecollection  
 </covcoll:coverageCollectionProfile>  
 </covcoll:CoverageCollectionSummary>  
 </covcoll:coverageCollectionSummary>  
 </wcs:Extension>  
 </wcs:Contents>

## Requirements Class: DescribeCoverageCollection

This requirements class specifies a new operation: *DescribeCoveragecollection*.

|  |  |
| --- | --- |
| **Requirements Class** | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_describe-coveragecollection** | |
| Dependency | **…** |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_describe-coveragecollection/request**  *A WCS server implementing this extension shall accept requests on the DescribeCoveragecollection operation that conform with the structure specified in* Figure 3 *and Table 8.* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_describe-coveragecollection/valid-identifier**  *Each value provided in a coveragecollectoionId element within a DescribeCoveragecollection request shall identify a Coveragecollection resource offered by the WCS server.* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_describe-coveragecollection/response**  *A WCS server implementing this extension shall provide a response to a successful DescribeCoveragecollection request consisting of a CoveragecollectionDe­script­ions element, as described in Figure 4, Table 10 and Table 11.* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_describe-coveragecollection/response-list-size**  *The response to a successful DescribeCoverageCollection request shall comprise a list containing one CoveragecollectionDescription elements for each of the requested Coveragecollection resources.* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_describe-coveragecollection/exceptions**  *A WCS server implementing this extension shall throw exceptions as defined in Table 9.* |

### Requirements class overview

A *DescribeCoverageCollection* request submits a list of identifiers for Coveragecollection resources and returns, for each identified Coveragecollection resource, a description of the coveragecollection.

NOTE A *GetCapabilities* request allows retrieval of the identifiers of all coveragecollection resources currently offered by the WCS service. A client application is not required to retrieve identifiers via a *GetCapabilities* request and may use alternative means to acquire the identifiers for the Coveragecollection resources available from a given WCS server.

### DescribeCoverageCollection request

The *DescribeCoveragecollection* request structure is derived from RequestBase, extended with a non-empty list of coveragecollection identifiers. This structure is shown in Figure 3 and Table 8.



Figure 3— RequestBase components

Table 8— DescribeCoveragecollection components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| Service | Service identifier | String,  fixed to “WCS” | one (mandatory) |
| Version | WCS service version indicator | String,  fixed to a pattern of three dot-separated decimal digits | one (mandatory) |
| extension | Any ancillary information to be sent from client to server | Any | zero or more (optional) |
| CoverageCollectionId | CoverageCollection identifiers | NCName | one or more (mandatory) |

### DescribeCoveragecollection response

The response to a successful DescribeCoveragecollection request contains a list of coverage metadata, one for each Coveragecollection identifier passed in the request.

### DescribeCoverageCollection-exceptions

Table 9— Exception codes for DescribeCoverage operation

|  |  |  |  |
| --- | --- | --- | --- |
| **exceptionCode value** | **HTTP code** | **Meaning of exception code** | **locator value** |
| NoSuchCoverageCollection | 404 | One or more of the identifiers passed does not match with any of the Coveragecollection resources offered by this server | list of violating Coveragecollection resource identifiers |

## Requirements Class: CoverageCollectionDescription

This requirements class specifies the structure of the summary information given for a Coveragecollection resource.

|  |  |
| --- | --- |
| **Requirements Class** | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-description** | |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-description/structure**  *The description of a CoverageCollection resource provided by a WCS server implementing this extension shall conform with the covcoll:CoveragecollectionDescription as specified in* Figure 4 *Table 10 and Table 11.* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-description/coverage-source**  *The coverages and subcollections referenced in a DescribeCoveragecollection response shall be available from the WCS service that provided that response.* |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-description/no-duplicates**  *A coverage offerings and subcollections specified in a given Coveragecollection shall be listed once, and only once, in the associated CoveragecollectionDescription element.* |

### Requirements class overview

The description of a Coveragecollection resource in a *DescribeCoveragecollection* response includes:

* an identifier for the Coveragecollection resource;
* identifiers for the Coveragecollection profile(s) that the resource conforms to (if any);
* summary information about coverages which comprise this Coveragecollection resource (if any);
* summary information about subcollections which comprise this Coveragecollection resource (if any);
* information about the bounding spatial (or spatiotemporal) extent that the member coverages of the Coveragecollection occupy; and
* other metadata or extension information.

Figure 4 illustrates how CoveragecollectionSummary elements are structured. New classes are highlighted in yellow.



Figure 4 CoveragecollectionDescriptions components

Table 10— CoverageCollectionDescriptions components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| coveragecollection­Description | description of Coveragecollection resources | CoveragecollectionDescription | one or more (mandatory) |

Table 11— CoverageCollectionDescription components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| coveragecollectionId | Identifier of the coverageCollection described | NCName | one (mandatory) |
| offeredCoverage | Coverage offered within this Coveragecollection | WCS::CoverageSummary | zero or more  (optional) |
| Subcollection | Subcollection contained within this Coveragecollection resource. | CoveragecollectionSummary | zero or more (optional) |
| serviceParameters | Service parameters relating to the associated Coveragecollection. | ServiceParameters | one  (mandatory) |
| Extension | Any kind of ancilliary data | WCS::Extension | zero or one  (optional) |
|  |  |  |  |

NOTE As CoveragecollectionDescription derives from GML::AbstractFeature, it inherits all properties from its parent class: gml:id, gml:metaDataProperty, gml:description, gml:descriptionReference, gml:identifier, gml:name and gml:boundedBy. Thus information about the spatial extent that the member coverages of the Coveragecollection occupy can be provided using GML::Envelope. In the situation that the Coveragecollection has spatiotemporal extent, the subtype GML::EnvelopeWithTimePeriod may be used.

Example 1 The response to a valid *DescribeCoverageCollection* request for coverageCollection with id UK\_GLOBAL-2015-05-15-00Z might be:-

<?xml version="1.0" encoding="UTF-8"?>  
<covcoll:CoverageCollectionDescriptions>  
 <covcoll:coverageCollectionDescription>  
 <covcoll:CoverageCollectionDescription gml:id="UK\_GLOBAL\_2012-05-15T00.00.00Z">  
 <gml:boundedBy>  
 <gml:EnvelopeWithTimePeriod axisLabels="lat long" srsDimension="2"  
 srsName="http://www.opengis.net/def/crs/EPSG/0/4326" uomLabels="deg deg" frame="#ISO-8601">  
 <gml:lowerCorner>-90 -180.0</gml:lowerCorner>  
 <gml:upperCorner>90.0 180.0</gml:upperCorner>  
 <gml:beginPosition>015-05-15T00.00.12Z</gml:beginPosition>  
 <gml:endPosition>2015-05-16T12.00.12Z</gml:endPosition>   
 </gml:EnvelopeWithTimePeriod>  
 </gml:boundedBy>  
 <covcoll:coverageCollectionId>UK\_GLOBAL-2015-05-15-00Z</covcoll:coverageCollectionId>  
 <covcoll:serviceParameters>  
 <covcoll:ServiceParameters>  
 <covcoll:coverageCollectionProfile><http://www.opengis.net/def/metocean/1.0/conf/coveragecollection>

</covcoll:coverageCollectionProfile>  
 </covcoll:ServiceParameters>  
 </covcoll:serviceParameters>  
 <covcoll:coverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_ISBL</wcs:CoverageId>  
 <wcs:CoverageSubtype>VerticalDependency</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/IsobaricSurface">  
 <covcoll:coverageDescription coverageName="Isobaric Surface"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_Max\_Wind</wcs:CoverageId>  
 <wcs:CoverageSubtype>ComputedSurface</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/MaximumWindLevel">  
 <covcoll:coverageDescription coverageName="Maximum Wind Level"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_Ground</wcs:CoverageId>  
 <wcs:CoverageSubtype>NoVerticalDependency</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/Ground">  
 <covcoll:coverageDescription coverageName="Ground"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_Thickness</wcs:CoverageId>  
 <wcs:CoverageSubtype>NamedRange</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/Thickness">  
 <covcoll:coverageDescription coverageName="Thickness"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_Specific\_Altitude\_Above\_Mean\_Sea\_Level

</wcs:CoverageId>  
 <wcs:CoverageSubtype>VerticalDependency</wcs:CoverageSubtype>  
 <ows:Metadata  
 xlink:href="www.codes.wmo.int/GRIB2/table4.5/Specific Altitude Above Mean Sea Level">  
 <covcoll:coverageDescription coverageName="Specific Altitude Above Mean Sea Level"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 </covcoll:coverageSummary>  
 </covcoll:CoverageCollectionDescription>  
 <covcoll:CoverageCollectionDescription gml:id="UK\_GLOBAL\_2012-05-15T12.00.00Z">  
 <gml:boundedBy>  
 <gml:EnvelopeWithTimePeriod axisLabels="lat long" srsDimension="2"  
 srsName="http://www.opengis.net/def/crs/EPSG/0/4326" uomLabels="deg deg" frame="#ISO-8601">  
 <gml:lowerCorner>-90 -180.0</gml:lowerCorner>  
 <gml:upperCorner>90.0 180.0</gml:upperCorner>  
 <gml:beginPosition>2015-05-15T00.00.12Z</gml:beginPosition>  
 <gml:endPosition>2015-05-16T12.00.12Z</gml:endPosition>   
 </gml:EnvelopeWithTimePeriod>  
 </gml:boundedBy>  
 <covcoll:coverageCollectionId>UK\_GLOBAL-2015-05-15-12Z</covcoll:coverageCollectionId>  
 <covcoll:serviceParameters>  
 <covcoll:ServiceParameters>  
 <covcoll:coverageCollectionProfile><http://www.opengis.net/def/metocean/1.0/conf/coveragecollection>  
 </covcoll:coverageCollectionProfile>  
 </covcoll:ServiceParameters>  
 </covcoll:serviceParameters>  
 <covcoll:coverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_ISBL</wcs:CoverageId>  
 <wcs:CoverageSubtype>VerticalDependency</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/IsobaricSurface">  
 <covcoll:coverageDescription coverageName="Isobaric Surface"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_Max\_Wind</wcs:CoverageId>  
 <wcs:CoverageSubtype>ComputedSurface</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/MaximumWindLevel">  
 <covcoll:coverageDescription coverageName="Maximum Wind Level"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_Ground</wcs:CoverageId>  
 <wcs:CoverageSubtype>NoVerticalDependency</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/Ground">  
 <covcoll:coverageDescription coverageName="Ground"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_Thickness</wcs:CoverageId>  
 <wcs:CoverageSubtype>NamedRange</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/Thickness">  
 <covcoll:coverageDescription coverageName="Thickness"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2012-05-15T00.00.00Z\_Specific\_Altitude\_Above\_Mean\_Sea\_Level  
 </wcs:CoverageId>  
 <wcs:CoverageSubtype>VerticalDependency</wcs:CoverageSubtype>  
 <ows:Metadata  
 xlink:href="www.codes.wmo.int/GRIB2/table4.5/Specific Altitude Above Mean Sea Level">  
 <covcoll:coverageDescription coverageName="Specific Altitude Above Mean Sea Level"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 </covcoll:coverageSummary>  
 </covcoll:CoverageCollectionDescription>  
 </covcoll:coverageCollectionDescription>  
</covcoll:CoverageCollectionDescriptions>

Example 1 The response to a valid *DescribeCoverageCollection* request a radar mosaic might look something like this:-

<?xml version="1.0" encoding="UTF-8"?>  
<covcoll:CoverageCollectionDescriptions >  
 <covcoll:coverageCollectionDescription>  
 <covcoll:CoverageCollectionDescription gml:id="UK\_GLOBAL\_2012-05-15T00.00.00Z">  
 <gml:boundedBy>  
 <gml:EnvelopeWithTimePeriod axisLabels="lat long" srsDimension="2"  
 srsName="http://www.opengis.net/def/crs/EPSG/0/4326" uomLabels="deg deg"  
 frame="#ISO-8601">  
 <gml:lowerCorner>50 -10.0</gml:lowerCorner>  
 <gml:upperCorner>60.0 10.0</gml:upperCorner>  
 <gml:beginPosition>2015-05-15T00.00.00Z</gml:beginPosition>  
 <gml:endPosition>2015-05-05T12.00.00Z</gml:endPosition>  
 </gml:EnvelopeWithTimePeriod>  
 </gml:boundedBy>  
 <covcoll:coverageCollectionId>UK\_MOSAIC-2015-05-15-00Z</covcoll:coverageCollectionId>  
 <covcoll:serviceParameters>  
 <covcoll:ServiceParameters>  
 <covcoll:coverageCollectionProfile>http://www.opengis.net/def/metocean/1.0/conf/coveragecollection</covcoll:coverageCollectionProfile>  
 </covcoll:ServiceParameters>  
 </covcoll:serviceParameters>  
 <covcoll:coverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>Clee\_Hill-2015-05-15-00Z</wcs:CoverageId>  
 <wcs:CoverageSubtype>Radar</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="http://codes.wmo.int/grib2/codeflag/4.2/\_0\_15\_5/Precipitation">  
 <covcoll:coverageDescription coverageName="Clee\_Hill Radar"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>Dean\_Hill-2015-05-15-00Z</wcs:CoverageId>  
 <wcs:CoverageSubtype>Radar</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="http://codes.wmo.int/grib2/codeflag/4.2/\_0\_15\_5/Precipitation">  
 <covcoll:coverageDescription coverageName="Dean Hill Radar"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>Hambeldon\_Hill-2015-05-15-00Z</wcs:CoverageId>  
 <wcs:CoverageSubtype>Radar</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="http://codes.wmo.int/grib2/codeflag/4.2/\_0\_15\_5/Precipitation">  
 <covcoll:coverageDescription coverageName="Hambeldon\_Hill Rada"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>Predannack-2015-05-15-00Z</wcs:CoverageId>  
 <wcs:CoverageSubtype>Radar</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="http://codes.wmo.int/grib2/codeflag/4.2/\_0\_15\_5/Precipitation">  
 <covcoll:coverageDescription coverageName="Predannack Radar"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>Cobbacomebe\_Cross-2015-05-15-00Z</wcs:CoverageId>  
 <wcs:CoverageSubtype>Radar</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="http://codes.wmo.int/grib2/codeflag/4.2/\_0\_15\_5/Precipitation">  
 <covcoll:coverageDescription coverageName="Cobbacomebe\_Cross rada"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 </covcoll:coverageSummary>  
 </covcoll:CoverageCollectionDescription>  
 </covcoll:coverageCollectionDescription>  
</covcoll:CoverageCollectionDescriptions

# Protocol Bindings

## Requirements Class: Protocol binding

This requirements class specifies the binding of the DescribeCoveragecollection operation to a concrete protocol.

|  |  |
| --- | --- |
| **Requirements Class** | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_protocol-binding** | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/describe-coveragecollection** |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/kvp-binding** |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/xml-post-binding** |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/protocol-binding/minimim**  *At least one of HTTP/Get with KVP (KVP binding) or HTTP/POST with XML request body (XML/POST) shall be supported.* |

## Requirements Class: HTTP/GET using KVP protocol binding

This requirements class specifies how the *DescribeCoveragecollection* operation is provided in WCS servers that implement the HTTP/GET using KVP protocol binding.

|  |  |
| --- | --- |
| **Requirements Class** | |
| [**http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_get-kvp**](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/covcoll_get-kvp)  [http://www.opengis.net/spec/WCS\_application-profile\_earth-observation/1.0/req/eowcs\_get-kvp](http://www.opengis.net/spec/WCS_application-profile_earth-observation/1.0/req/ap-eo) | |
| Dependency | [**http://www.opengis.net/spec/WCS\_protocol-binding\_get-kvp/1.0/req/get-kvp**](http://www.opengis.net/spec/WCS_protocol-binding_get-kvp/1.0/req/get-kvp) |
| Dependency | [**http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/describe-coveragecollection**](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/describe-coveragecollection) |
| **Requirement** | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_protocol-binding/covcoll\_get-kvp/url-encoding**  *A WCS server implementing both this extension and the KVP protocol binding extension shall encode the DescribeCoveragecollection operation request as specified in* Table 12*.* |

### 

### *DescribeCoveragecollection* HTTP/GET using KVP request structure

The *DescribeCoveragecollection* request for HTTP/GET using KVP is defined below:

Table 12 DescribeCoveragecollection request URL encoding

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| service | Service identifier | String,  fixed to “WCS” | one (mandatory) |
| Version | WCS service version indicator | String | one (mandatory) |
| request | Request type name | String,  fixed to “DescribeCoveragecollection” | one (mandatory) |
| CoverageCollectionId | CoverageCollection identifiers | Comma-separated NCName list | one (mandatory) |

## Requirements Class: HTTP/POST using XML request body protocol binding

This requirements class specifies how the *DescribeCoveragecollection* operation is provided in WCS servers that implement the HTTP/GET using XML request body protocol binding.

|  |  |
| --- | --- |
| **Requirements Class** | |
| [**http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_post-xml**](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/covcoll_post-xml) | |
| Dependency | [**http://www.opengis.net/spec/WCS\_protocol-binding\_post-xml/1.0/req/post-xml**](http://www.opengis.net/spec/WCS_protocol-binding_post-xml/1.0/req/post-xml) |
| Dependency | [**http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/describe-coveragecollection**](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/describe-coveragecollection) |
| **Requirement** | [**http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_post-xml**](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)**/xml-encoding**  *A WCS server implementing both this extension and the XML/POST protocol binding extension shall encode request body of the DescribeCoveragecollection operation using an XML document of type covcoll:DescribeCoveragecollection.* |

# (normative) Abstract test suite

A CoverageCollection Extension implementation must satisfy the following system characteristics to be conformant with this specification.

Test identifiers below are relative to <http://www.opengis.net/spec/WCS/2.0/WCS_service-extension_coveragecollection/1.0/conf>. Media Types for any data encoding(s)

1. Conformance Class Abstract Test Suite (normative)
   1. Conformance class: covcoll\_offering

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/covcoll\_offering** | | | |
| Dependency | **http://www.opengis.net/doc/IS/WCS/2.0#clause:8.2** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.0/req/core/getCapabilities** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.0/req/core/wcsServiceMetadata-structure** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.0/req/core/wcsServiceMetadata-contents** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_offering/type** | | |
|  | | **/type** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_offering/type** | |
|  | | Test purpose | Test a WCS server implementing this extension supports The coverage offering provided by a WCS server and it conforms to covcoll:CoverageOffering as specified in Figure 1 and Table 2- using the associated Classes specified in Table 3, Table 4, Table 5 and Table 6 as appropriate | |
|  | | Test method | Inspect that the GetCapabilities response contains offeredCollections element within the sections element. | |
|  | | Test type | Conformance | |
|  | | **/service-metadata** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_offering/service-metadata** | |
|  | | Test purpose | Test that the service metadata provided by a WCS server implementing this extension shall contain one Extension component of type covcoll: ServiceMetadataExtension. | |
|  | | Test method | Inspect that the GetCapabilities response contains the element covcoll: ServiceMetadataExtension | |
|  | | Test type | Conformance | |
|  | | **/coveragecollection-unique-identifier** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_offering/coveragecollection-unique-identifier** | |
|  | | Test purpose | To test that Each Coveragecollection resource offered by a WCS server implementing in this extension shall specify an identifier that is unique within the scope of that WCS server. The identifier shall be specified using the gml:identifier attribute. | |
|  | | Test method | Inspect the GetCapabilities response and pass if the gml:identifier is unique. | |
|  | | Test type | Conformance | |

* 1. Conformance class: covcoll\_GetCapabilities

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/covcoll\_getCapabilities** | | | |
| Dependency | **http://www.opengis.net/doc/IS/WCS/2.0#clause:8.2** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.0/req/core/getCapabilities** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.0/req/core/wcsServiceMetadata-structure** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.0/req/core/wcsServiceMetadata-contents** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities** | | |
|  | | **/request-sections** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities/request-sections** | |
|  | | Test purpose | Test a WCS server implementing this extension supports the token offeredCollections within the sections element of the GetCapabilities request in addition to those specified in OWS Common [OGC 06-121r9] sub clause 7.3.3. | |
|  | | Test method | Inspect that the GetCapabilities response contains offeredCollections element within the sections element. | |
|  | | Test type | Conformance | |
|  | | **/response-extension-identification** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities/response-extension-identification** | |
|  | | Test purpose | Check that a WCS server implementing this extension shall include the following URI in the Profile element of the ServiceIdentification in a GetCapabilities response:  <http://www.opengis.net/spec/WCS_service->extension | |
|  | | Test method | Inspect that the GetCapabilities response contains the URI http://www.opengis.net/spec/WCS\_service-extension within the profile element. | |
|  | | Test type | Conformance | |
|  | | **/response-coveragecollection-summary** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_getCapabilities/response-coveragecollection-summary** | |
|  | | Test purpose | To check that the response to a Get Capabilities request where the sections element specifies either all, contents or offeredCollections, a WCS server implementing this extension shall provide a CoveragecollectionSummary, as specified in subclause 8.2, for each of the Coveragecollection resources available from that WCS server.  All Coveragecollection resources shall be listed, irrespective of their position within a hierarchy of nested collections.  CoveragecollectionSummary elements shall be provided within the Extension element of the Contents:  Contents/Extension/CoveragecollectionSummary | |
|  | | Test method | Inspect the GetCapabilities response and pass if the response containing a CoveragecollectionSummary elements conform. | |
|  | | Test type | Conformance | |
|  | | **/response-supported-profiles** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/getCapabilities/response-supported-profiles** | |
|  | | Test purpose | Ensure a WCS server that implements this extension provides explicit support for a registered Coveragecollection profile, the URI of that profile provides the coveragecollectionProfileSupported element within the Extension element of the ServiceMetadata:  ServiceMetadata/Extension/coveragecollectionProfileSupported  A WCS server may declare support for zero or more Coveragecollection profiles. | |
|  | | Test method | Inspect the GetCapabilities response and pass if the response contains a coveragecollectionProfileSupported element. | |
|  | | Test type | Conformance | |

* 1. Conformance class: covcoll\_collection summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/covcoll\_collection-summary** | | | |
| Dependency |  | | |
|  | | **/structure** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-summary/structure** | |
|  | | Test purpose | Ensure that the summary information describing a Coveragecollection resource provided by a WCS server implementing this extension shall conform with the covcoll:CoveragecollectionSummary as specified in Figure 2 and Table 7. | |
|  | | Test method | Inspect the GetCapabilities response and pass if the response conforms to Figure 2 and Table 7. | |
|  | | Test type | Conformance. | |

* 1. Conformance class: Describe coverage collection

|  |  |  |
| --- | --- | --- |
| **Conformance Class** | | |
| **http://www.opengis.net/spec/waterml/part2/1.0/conf/covcoll\_describe-coveragecollection** | | |
| Dependency |  | |
|  | **/request** | | |
|  | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_describe-coveragecollection/request** | |
|  | Test purpose | Ensure a WCS server implementing this extension shall accept requests on the DescribeCoveragecollection operation that conform with the structure specified in Figure 3 and Table 8. | |
|  | Test method | Inspect DescribeCoverageCollection response and pass if the response conforms to Figure 3 and Table 8.. | |
|  | Test type | Conformance. | |
|  | **/valid-identifier** | | |
| Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_describe-coveragecollection/valid-identifier** | |
| Test purpose | Ensure each value provided in a coverageCollectoionId element within a DescribeCoveragecollection request shall identify a Coveragecollection resource offered by the WCS server*.* | |
| Test method | Inspect the Inspect DescribeCoverageCollection response and pass if all the coverage collection identifiers are valid. | |
| Test type | Conformance. | |
|  | **/response** | | |
|  | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_describe-coveragecollection/response** | |
|  | Test purpose | Ensure a WCS server implementing this extension shall provide a response to a successful DescribeCoveragecollection request consisting of a CoverageCollectionDe­script­ions element, as described in Figure 4, Table 10 and Table 11.. | |
|  | Test method | Inspect DescribeCoverageCollection response and pass if the response conforms to Figure 4, Table 10 and Table 11. | |
|  | Test type | Conformance. | |
|  | **/response-list-size** | | |
|  | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/describe-coveragecollection/response-list-size** | |
|  | Test purpose | Ensure the response to a successful DescribeCoverageCollection request shall comprise a list containing one CoverageCollectionDescription elements for each of the requested CoverageCollection resources. | |
|  | Test method | Inspect the Inspect DescribeCoverageCollection response and pass if each requested coverageCollection has one and only one, CoverageCollectionDescription elements. | |
|  | Test type | Conformance. | |
|  | **/exceptions** | | |
|  | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/describe-coveragecollection/exceptions** | |
|  | Test purpose | Ensure a WCS server implementing this extension shall throw exceptions as defined in Table 9*.* | |
|  | Test method | Test the WCS server to create the errors outlined in Table 9 . | |
|  | Test type | Conformance. | |

* 1. Conformance Coverage collection description

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/covcoll\_collection-description** | | | |
| Dependency |  | | |
|  | | **/structure** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-description/structure** | |
|  | | Test purpose | Ensure the description of a CoverageCollection resource provided by a WCS server implementing this extension shall conform with the covcoll:CoveragecollectionDescription as specified in Figure 4 Table 10 and Table 11. | |
|  | | Test method | Inspect the Inspect DescribeCoverageCollection response and pass if CoverageCollection resource provided by a WCS server shall conform with the covcoll:CoveragecollectionDescription as specified in Figure 4 Table 10 and Table 11.. | |
|  | | Test type | Conformance. | |
|  | | **/coverage-source** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-description/coverage-source** | |
|  | | Test purpose | Ensure the coverages and subcollections referenced in a DescribeCoveragecollection response shall be available from the WCS service that provided that response. | |
|  | | Test method | Inspect the Inspect DescribeCoverageCollection response and pass if all coverages and sub-collections are available from the server. | |
|  | | Test type | Conformance. | |
|  | | **/no-duplicates** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/covcoll\_collection-description/no-duplicates** | |
|  | | Test purpose | Ensure a coverage offerings and subcollections specified in a given Coveragecollection shall be listed once, and only once, in the associated CoveragecollectionDescription element. | |
|  | | Test method | Inspect the Inspect DescribeCoverageCollection response and pass if each CoverageCollection is listed only once. | |
|  | | Test type | Conformance | |

* 1. Conformance Protocol binding

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/protocol-binding** | | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/describe-coveragecollection** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/kvp-binding** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/xml-post-binding** | | |
|  | | **/minimum** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/protocol-binding/minimim** | |
|  | | Test purpose | To ensure that at least one of HTTP/Get with KVP (KVP binding) or HTTP/POST with XML request body (XML/POST) shall be supported. | |
|  | | Test method | Send a valid request to the server encoded either as a kvp or xml-post binding. | |
|  | | Test type | Conformance | |

* 1. Conformance HTTP/GET using KVP protocol binding

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf//covcoll\_get-kvp** | | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/describe-coveragecollection** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/kvp-binding** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/xml-post-binding** | | |
|  | | **/url\_encoding** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/protocol-binding/covcoll\_get-kvp//url\_encoding** | |
|  | | Test purpose | A WCS server implementing both this extension and the KVP protocol binding extension shall encode the DescribeCoveragecollection operation request as specified in Table 12. | |
|  | | Test method | Send a get\_kvp request to the server and pass if the server responds with a valid response | |
|  | | Test type | Conformance | |

* 1. Conformance HTTP/POST using XML request body protocol binding

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/covcoll\_xml-post** | | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/describe-coveragecollection** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/kvp-binding** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/req/xml-post-binding** | | |
|  | | **/xml-encoding** | | |
|  | | Requirement | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/covcoll\_xml-post /xml-encoding** | |
|  | | Test purpose | A WCS server implementing both this extension and the XML/POST protocol binding extension shall encode request body of the DescribeCoveragecollection operation using an XML document of type covcoll:DescribeCoveragecollection. | |
|  | | Test method | Send a xml-post request to the server and pass if the server responds with a valid response | |
|  | | Test type | Conformance | |

# Bibliography

OGC 07-011, Ab*stract Specification Topic 6: The Coverage Type and its Subtypes*, version 7.0 (identical to ISO 19123:2005)

1. [www.opengeospatial.org/cite](http://www.opengeospatial.org/cite) [↑](#footnote-ref-1)