**Open Geospatial Consortium**

Date: 2016-03-01

External identifier of this OGC® document:

Internal reference number of this OGC® document: 15-044r4

Version: 1.0

Category: OGC® Candidate Standard

Editor: Peter Trevelyan

**OGC® Web Coverage Service Interface Standard -   
WCS2.1 Coverage Collection Extension**

**Copyright notice**

Copyright © 2016 Open Geospatial Consortium  
To obtain additional rights of use, visit <http://www.opengeospatial.org/legal/>.

**Warning**

This document is not an OGC Standard. This document is distributed for review and comment. This document is subject to change without notice and may not be referred to as an OGC Standard.

Document type: OGC® Interface Standard

Document subtype:

Document stage: Draft

Document language: English

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

License Agreement

Permission is hereby granted by the Open Geospatial Consortium, ("Licensor"), free of charge and subject to the terms set forth below, to any person obtaining a copy of this Intellectual Property and any associated documentation, to deal in the Intellectual Property without restriction (except as set forth below), including without limitation the rights to implement, use, copy, modify, merge, publish, distribute, and/or sublicense copies of the Intellectual Property, and to permit persons to whom the Intellectual Property is furnished to do so, provided that all copyright notices on the intellectual property are retained intact and that each person to whom the Intellectual Property is furnished agrees to the terms of this Agreement.

If you modify the Intellectual Property, all copies of the modified Intellectual Property must include, in addition to the above copyright notice, a notice that the Intellectual Property includes modifications that have not been approved or adopted by LICENSOR.

THIS LICENSE IS A COPYRIGHT LICENSE ONLY, AND DOES NOT CONVEY ANY RIGHTS UNDER ANY PATENTS THAT MAY BE IN FORCE ANYWHERE IN THE WORLD.

THE INTELLECTUAL PROPERTY IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE DO NOT WARRANT THAT THE FUNCTIONS CONTAINED IN THE INTELLECTUAL PROPERTY WILL MEET YOUR REQUIREMENTS OR THAT THE OPERATION OF THE INTELLECTUAL PROPERTY WILL BE UNINTERRUPTED OR ERROR FREE. ANY USE OF THE INTELLECTUAL PROPERTY SHALL BE MADE ENTIRELY AT THE USER’S OWN RISK. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR ANY CONTRIBUTOR OF INTELLECTUAL PROPERTY RIGHTS TO THE INTELLECTUAL PROPERTY BE LIABLE FOR ANY CLAIM, OR ANY DIRECT, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM ANY ALLEGED INFRINGEMENT OR ANY LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR UNDER ANY OTHER LEGAL THEORY, ARISING OUT OF OR IN CONNECTION WITH THE IMPLEMENTATION, USE, COMMERCIALIZATION OR PERFORMANCE OF THIS INTELLECTUAL PROPERTY.

This license is effective until terminated. You may terminate it at any time by destroying the Intellectual Property together with all copies in any form. The license will also terminate if you fail to comply with any term or condition of this Agreement. Except as provided in the following sentence, no such termination of this license shall require the termination of any third party end-user sublicense to the Intellectual Property which is in force as of the date of notice of such termination. In addition, should the Intellectual Property, or the operation of the Intellectual Property, infringe, or in LICENSOR’s sole opinion be likely to infringe, any patent, copyright, trademark or other right of a third party, you agree that LICENSOR, in its sole discretion, may terminate this license without any compensation or liability to you, your licensees or any other party. You agree upon termination of any kind to destroy or cause to be destroyed the Intellectual Property together with all copies in any form, whether held by you or by any third party.

Except as contained in this notice, the name of LICENSOR or of any other holder of a copyright in all or part of the Intellectual Property shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Intellectual Property without prior written authorization of LICENSOR or such copyright holder. LICENSOR is and shall at all times be the sole entity that may authorize you or any third party to use certification marks, trademarks or other special designations to indicate compliance with any LICENSOR standards or specifications. This Agreement is governed by the laws of the Commonwealth of Massachusetts. The application to this Agreement of the United Nations Convention on Contracts for the International Sale of Goods is hereby expressly excluded. In the event any provision of this Agreement shall be deemed unenforceable, void or invalid, such provision shall be modified so as to make it valid and enforceable, and as so modified the entire Agreement shall remain in full force and effect. No decision, action or inaction by LICENSOR shall be construed to be a waiver of any rights or remedies available to it.

Contents Page

[1 Scope 6](#_Toc453245634)

[2 Conformance 6](#_Toc453245635)

[3 Normative references 8](#_Toc453245636)

[4 Terms and definitions 8](#_Toc453245637)

[4.1 Coverage 8](#_Toc453245638)

[4.2 Coverage Collection 8](#_Toc453245639)

[5 Conventions 8](#_Toc453245640)

[5.1 Data dictionary tables 9](#_Toc453245641)

[5.3 Namespace prefix conventions 9](#_Toc453245642)

[5.4 Multiple representations 9](#_Toc453245643)

[5.5 UML Notation 10](#_Toc453245644)

[6 Coverage Collection overview (non-normative) 10](#_Toc453245645)

[7 Coverage Collection data model 11](#_Toc453245649)

[7.1 Requirements Class: Coverage Collection offerings 11](#_Toc453245650)

[7.1.1 Requirements class overview 12](#_Toc453245651)

[7.1.2 CoverageOfferings 13](#_Toc453245652)

[7.1.3 Offered Collection 13](#_Toc453245653)

[7.1.4 Coverage Collection 13](#_Toc453245654)

[8 Amendments to WCS service model to support Coverage Collection offerings 14](#_Toc453245674)

[8.1 Requirements Class: Get capabilities 15](#_Toc453245676)

[8.1.1 Overview 16](#_Toc453245677)

[8.1.2 Requirements overview GetCapabilites Request 16](#_Toc453245678)

[8.1.3 Requirements overview GetCapabilites Response 16](#_Toc453245690)

[8.2 Requirements Class: DescribeCoverageCollection 21](#_Toc453245691)

[8.2.1 Requirements class overview 23](#_Toc453245692)

[8.2.2 DescribeCoverageCollection request 23](#_Toc453245694)

[8.2.3 DescribeCoveragecollection response 25](#_Toc453245696)

[9 Protocol Bindings 36](#_Toc453245697)

[9.1 Requirements Class: Protocol binding 36](#_Toc453245698)

[9.2 Requirements Class: HTTP/GET using KVP protocol binding 36](#_Toc453245699)

[9.2.1 DescribeCoverageCollection HTTP/GET using KVP request structure 37](#_Toc453245700)

[9.3 Requirements Class: HTTP/POST using XML request body protocol binding 38](#_Toc453245702)

[9.4 Requirements Class: SOAP Protocol Binding Conformance Class 39](#_Toc453245703)

[(normative) Abstract test suite 41](#_Toc453245704)

[A.1 Conformance class: covcoll\_offering 42](#_Toc453245785)

[A.2 Conformance class: covcoll\_GetCapabilities 44](#_Toc453245786)

[A.3 Conformance class: Describe coverage collection 47](#_Toc453245787)

[A.4 Conformance Protocol binding 54](#_Toc453245788)

[A.5 Conformance HTTP/GET using KVP protocol binding 54](#_Toc453245789)

[A.6 Conformance HTTP/POST using XML request body protocol binding 57](#_Toc453245790)

[A.7 Conformance SOAP protocol binding 58](#_Toc453245791)

[Annex B Bibliography 63](#_Toc453245792)

[Annex C Schemas 64](#_Toc453245793)

**Tables** Page

[Table 1 — Namespace mappings 9](#_Toc460432809)

[Table 2 CoverageOfferings components 13](#_Toc460432810)

[Table 3 OfferedCoverageCollection components 13](#_Toc460432811)

[Table 4 Components of CoverageCollectionSummary 17](#_Toc460432812)

[Table 5 Values for ows:Constraint elements 18](#_Toc460432813)

[Table 6 DescribeCoverageCollection request components 24](#_Toc460432814)

[Table 7 Exception codes for DescribeCoverage operation 25](#_Toc460432815)

[Table 8 CoverageCollectionDescription components 27](#_Toc460432816)

[Table 9 WCS CoverageSummary additional components (shaded components originate from OWS Common) 28](#_Toc460432817)

[Table 10 CollectionDescription 28](#_Toc460432818)

[Table 11 CoverageDescription 29](#_Toc460432819)

[Table 12 DescribeCoverageCollection request URL encoding 37](#_Toc460432820)

**Figures**

[Figure 1 Relationship of Coverage Collection resources with CoverageOfferings 12](#_Toc453514924)

[Figure 2 GetCapabilities response UML class diagram 17](#_Toc453514925)

[Figure 3 DescribeCoverageCollection operation UML class diagram 24](#_Toc453514926)

[Figure 4 Coverage Collection Descriptions Response 27](#_Toc453514927)

Preface

This document specifies an 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 | * . |

Submitter

|  |  |
| --- | --- |
| **Name** | **Organization** |
| Peter Trevelyan | Met Office |
| Paul Hershberg | US National Weather Service |

Revision history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Release | Author | Paragraph modified | Description |
| 2015-04-24 | 0.0.1 | Peter Trevelyan | All | Created |
| 2015-04-24 | 1.0 | Peter Trevelyan | All | Revised |
| 2015-04-24 | 1.2 | Peter Trevelyan | All | Revised |
| 2015-04-24 | 1.3 | Peter Trevelyan | All | Revised (with Peter B’s comments) |

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 Coverage Collection extension relies on WCS Core [OGC 09-110r5] and the CIS Coverage Application Schema [OGC 09-110r3].

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 09-110r5] to allow the collection and description of coverage collections during processing of a new *DescribeCoverageCollection* request.

Note As such, this Coverage Collection 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 - Coverage Collection

# Scope

The OGC WCS CoverageCollection Extension – in short: *Coverage Collection 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 Coverage Collection resources using their identifiers and whose response packages that information within CoverageCollectionDescription elements.
* An amended *GetCapabilities* operation whose response provides summary information of the offered Coveragecollection resources; a client application may request summary information about Coverage Collection resources in a *GetCapabilities* response by specifying the token *OfferedCollections* in the Sections element of the GetCapabilities request.
* KVP, XML/POST and SOAP protocol bindings for the new *DescribeCoveragecollection* operation.

Requirements are considered for three standardization targets:

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

This document establishes the following requirements and conformance classes:

* *covcoll\_offering* of URI [http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ req/covcoll\_offering](http://www.opengis.net/spec/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\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_offering]( http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ conf/covcoll_offering) (see A.1)
* *covcoll\_ getCapabilities* of URI[http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ req/covcoll\_getCapabilities](http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ req/covcoll_getCapabilities )  This Clause defines (in Section. 8.1) the GetCapabilities request type and response for operations on a WCS server that supports Coverage Collections. The corresponding conformance class is covcoll\_getCapabilities with URIhttp://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_getCapabilities (See A.2)

*Note :Coverage Collection that may be offered by a WCS server alongside with any other type of coverages*.

* *covcoll\_describeCoverageCollection* *of* URI http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ req/covcoll\_describeCoverageCollection . This Clause defines (in Section. 8.2) the DescribeCoverageCollection request type and response for operations on a WCS server that supports Coverage Collections. The corresponding conformance class is http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_describeCoverageCollection (See A.3 )
* *covcoll\_ protocol-binding* of URI  [http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/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\_application-profile\_coverage\_collections/1.0/conf/covcoll\_protocol-binding]( http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/conf/covcoll_protocol-binding) (See A.4)
* *covcoll\_ get-kvp* of URI  [http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/req/covcoll\_get-kvp]( http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ req/covcoll_get-kvp )  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.5)
* *covcoll\_ post-xml* of URI  [http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/req/covcoll\_post-xml]( http://www.opengis.net/spec/WCS_application-profile_coverage_collections/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_application-profile_coverage_collections/1.0/conf/covcoll_post-xml> (See A.6)
* *covcoll\_ soap* of URI  [http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/req/covcoll\_soap]( http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/req/covcoll_soap) defining Covcoll-WCS on the conceptual level in clause 9.4 the corresponding conformance class is covcoll\_post-xml with URI <http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/conf/covcoll_soap> (See A.7)

Requirements and conformance test URIs defined in this document are relative to http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0

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.

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

OGC 09-146r3, *OGC® Implementation Schema for Coverages version 1.1*

OGC 09-110r5, *Web Coverage Service 2.0 Interface Standard Core*, version “2.1”

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

*OGC 09-149r1 WCS 2.0 Extension XML/SOAP Protocol version 1.0*

# Terms and definitions

This document uses the terms defined in Sub-clause 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.

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.

## Coverage Collection

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. ref OGC 06-121r9

## 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/2.1](http://www.opengis.net/wcs/2.0) | WCS 2.1 Core |
| covcoll | [http://www.opengis.net/wcs/coveragecollection /1.0](http://www.opengis.net/wcs/coveragecollection%20/1.0) | WCS Coverage Collection Extension |
| ows | http://www.opengis.net/ows/2.0 | The core OGC’s OWS |
| cis | http://www.opengis.net/cis/1.1 | The core CIS implementation |

## 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.

## UML Notation

The diagrams that appear in this standard are presented using the Unified Modeling Language (UML) static structure diagram.

**Note:** Within the context of this standard, the following color scheme is used to identify the package in which the class exists. This is just for informative purposes.

Tan: Defined in WCS, GML

Blue: Coverage Collection

# 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 Coverage Collection is a useful mechanism for grouping together coverages into a collection. The pattern is similar to a feature collection.

Each Coverage Collection is a single, uniquely identified resource specifying the member coverages. Furthermore, each member coverage within a Coverage Collection will share similar characteristics such as provenance and coordinate reference systems.

Use of Coverage Collection 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 Coverage Collection resource itself.

A Coverage Collection resource may contain other Coverage Collection 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 Coverage Collection resources from a WCS server, and then subsequently request information about the member coverages of a given Coverage Collection- 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 Coverage Collection resources and their relationship with the coverage resources themselves.

|  |  |
| --- | --- |
| **Requirements Class** | |
| **<http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ req/covcoll_offering>** | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/getCapabilities** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-structure** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-contents** |
| Dependency | **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_offering** |
| Dependency | **<http://www.opengis.net/spec/CIS/1.1/conf/ coverage>** |
| **Requirement** | **/req/covcoll\_offering/minimum-axis-envelope**  *The cis:envelope property,* ***shall*** *contain at a minimum, a horizontal bounding limit. Note the cis:envelope element may be used to provide the bounding box in as many dimensions as is appropriate.* |
| **Requirement** | **/req/covcoll\_offering/coverageCollection-unique-identifier**  *Each Coverage Collection resource offered by a WCS server implementing this extension* ***shall*** *specify an identifier that is unique within the scope of that WCS server through their coverageCollectionId identifier.* |
| **Requirement** | **/req/covcoll\_offering/coverageCollection-no-circular-references**  *A CoverageCollection identifier* ***shall*** *not refer to any CoverageCollection that refers to itself either directly or via another CoverageCollection identifier.* |
| **Requirement** | **req/covcoll\_offering/envelope-shared-axes**  *The OfferedCoverageCollection cis:envelope property* ***shall*** *only have those axes (as listed by the cis:axisLabels) that are shared by the Offered Coverages. Thus any axis that is unique to one of the constituent coverages would not be referenced by the CoverageCollection property cis:envelope.* |
| **Requirement** | **/req/covcoll\_offering/response-coverages-inside-envelope**  *All Offered Coverages belonging to a specific Coverage Collection* ***shall*** *lie within the boundary of the cis:envelope component of the OfferedCoverageCollection component as defined by the upper and lower limits of the cis:axisExtent element. This restraint is only relevant to those axes shared by each member of the OfferedCoverageCollection.* |

### Requirements class overview

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

Figure 1 illustrates how Coverage Collection resources are provided alongside Coverages and ServiceMetadata (as specified in [OGC 09-110r5]). New classes are highlighted in blue.



Figure 1 Relationship of Coverage Collection resources with CoverageOfferings

### CoverageOfferings

The new class CoverageOfferings extends wcs:CoverageOfferings, established in WCS core (OGC 09-110r5) by adding an additional content OfferedCoverageCollection, defined in Table 2.

Table 2 CoverageOfferings components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| 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) |
| offeredCoverageCollection | Set of CoverageCollection resources offered by this service | OfferedCoverageCollection | zero or more (optional) |



### Offered CoverageCollection

An OfferedCoverageCollection, as specified in Table 3, contains a single Coveragecollection resource.

Table 3 OfferedCoverageCollection components

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Definition** | | **Data type** | **Multiplicity** |
| subOfferedCoverageCollection | SubCollection contained within this Coverage Collection resource. | | OfferedCoverageCollection | zero or more (optional) |
| coverageCollectionId | Identifier of a Coverage Collection offered by this service | | NCName | one  (mandatory) |
| cis:envelope | The envelope around a coverage is defined by the lower and upper bound of each axis, respectively; an asterisk "\*" in lower/upper bound denotes a null value. | | cis:axisExtent | one (mandatory) |
| offeredCoverage | Coverages offered within this CoverageCollection | | WCS::Offered-Coverage | zero or more (optional) |

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







# Amendments to WCS service model to support Coverage Collection offerings

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

<?xml version="1.0" encoding="UTF-8"?>  
<wcs:GetCapabilities  
 xmlns:ows='http://www.opengis.net/ows/2.0'  
 xmlns:wcs='http://www.opengis.net/wcs/2.1'  
 xmlns:covcoll="http://www.opengis.net/wcs/covcoll/1.0"  
 xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'  
 xsi:schemaLocation=="http://www.opengis.net/wcs/covcoll/1.0  
 http://schemas.opengis.net/covcoll/1.0/  
 wcsCovCollGetCapabilitiesv.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\_application-profile\_coverage\_collections/1.0/ req/covcoll\_getCapabilities](http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ req/covcoll_getCapabilities )** | |
| Dependency | **http://www.opengis.net/doc/IS/WCS/2.1#clause:8.2** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/getCapabilities** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-structure** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-contents** |
| Dependency | **[http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_offering](http://www.opengis.net/spec/conf/covcoll_offering)** |
| Dependency | **http://www.opengis.net/spec/WCS/2.1/conf/core/coverageSummary** |
| **Requirement** | **/req/covcoll\_getCapabilities/request-sections**  *A WCS server implementing this extension* ***shall*** *accept the value "OfferedCollections" within an ows:Section element of the GetCapabilities request in addition to those specified in OWS Common [OGC 06-121r9] subclause 7.3.3". A successful response shall contain CoverageCollectionSummary elements if and only if the section parameter list contains one of the values “OfferedCollections* |
| **Requirement** | **/req/covcoll\_getCapabilities/response-CoverageCollectionSummary**  *In response to a Get Capabilities request where the sections element specifies OfferedCollections, a WCS server implementing this extension* ***shall*** *provide a CoverageCollectionSummary, for each of the CoverageCollection resources available from that WCS server.* |
| **Requirement** | **/req/covcoll\_getCapabilities/response-CoverageCollection-List**  *All CoverageCollection resources* ***shall*** *be listed, irrespective of their position within a hierarchy of nested collections within the Extension element of the Contents:* |
| **Requirement** | **/req/covcoll\_getCapabilities/response-operationsMetadata**  *The Operations­Meta­data com­pon­ent* ***shall*** *contain four Operat­ion instanc­es with case-sensitive name values “Get­Capab­il­ities”, “DescribeCoverage”, and “Get­Coverage” and DescribeCoverageCollections.* |
| **Requirement** | **/req/covcoll\_getCapabilities/response-extension-identification**  *A WCS server implementing this extension* ***shall*** *include the following URI in the Profile element of the ServiceIdentification element in a GetCapabilities response:* *<http://www.opengis.net/spec/WCS_service->extension\_coveragecollection/1.0/conf/coveragecollection* |
| **Requirement** | **/req/covcoll\_getCapabilities/getCapabilities/response-structure**  *The summary information describing a Coverage Collection resource provided by a WCS server implementing this extension* ***shall*** *conform with the covcoll:CoverageCollectionSummary structure as specified in Figure 2 , Table 4 and Table 5* |
| **Requirement** | **/req/covcoll\_getCapabilities/getCapabilities-response-countDefault**  *If the response to a successful GetCapabilities request contains an ows:Constraint element in its ows:OperationsMetadata element then its name attribute* ***shall*** *hold a value as defined in* Table 5 *and the XML Schema being part of this standard* |
| **Requirement** | **/req/covcoll\_getCapabilities/response-axisLabels**  *The attribute cis:axisLabels of the cis:envelope component of the CoverageCollectionSummary component* ***shall*** *only have values that are common to all Offered Coverages within the specific CoverageCollection.*  *See req/covcoll\_offering/envelope-shared-axes* |

### Overview

This Clause defines request types and their responses for operations on CoverageCollections. CoverageCollections may be offered by a WCS server alongside with any other type of coverages. Behaviour of the service on non-CoverageCollections remains unchanged.

### Requirements overview GetCapabilites Request

The Get Capabilities operation of a WCS server implementing this extension provides summary information about its available Coverage Collection resources.

The GetCapabilities request is extended over WCS Core [OGC 09-110r5] as follows: In the sections request parameter, a value of “*OfferedCollections* “ is allowed in addition to those defined in *OWS Common [OGC 06-121r9] subclause 7.3.3" and WCS2.1 Interface Standard Core[OGC09-110r5]subclause 8.2.2.*



### Requirements overview GetCapabilites Response

The GetCapabilities response is extended over WCS Core [OGC 09-110r5] as follows:

* There is an additional CoverageCollectionSummary section reporting identifiers of CoverageCollections offered by the service on hand.
* There is an optional constraint CountDefault specifying the maximum number of “CoverageCollectionDescription” elements reported in a DescribeCoverageCollection response.

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

* An identifier for the Coverage Collection resource;
* Information about the bounding spatial (or spatiotemporal) extent that the member coverages of the Coverage Collection occupy
* Other metadata or extension information.



Figure 2 GetCapabilities response UML class diagram

Figure 2 illustrates how CoverageCollectionSummary elements are structured. New classes are highlighted in blue.

Table 4 Components of CoverageCollectionSummary

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| coverageCollectionId | Identifier of a CoverageCollection offered by this service | NCName | one  (mandatory) |
| cis:envelope | The envelope around a coverage is defined by the lower and upper bound of each axis, respectively; an asterisk "\*" in lower/upper bound denotes a null value. | cis:axisExtent | zero or one  (optional) |
| metadata | Reference to more metadata about this Coverage Collection | OWS Common::Meta­data | zero or one  (optional) |

Table 5 Values for ows:Constraint elements

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| CountDefault | CountDefault Default value for the count parameter defined for *DescribeCoverageCollection* requests. | Integer greater than or equal to zero | zero or one  (optional) |

Example 1: - The following XML excerpt shows an example of a GetCapabilities response in reply to a GetCapabilites request with the value “OfferedCollections" within an ows:Section element of the GetCapabilities request.

<?xml version="1.0" encoding="UTF-8"?>  
<wcs:Capabilities updateSequence="20110104T160000Z" version="2.0.1"  
 xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:gmlcov="http://www.opengis.net/gmlcov/1.0"  
 xmlns:ogc="http://www.opengis.net/ogc" xmlns:ows="http://www.opengis.net/ows/2.0"  
 xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:wcs="http://www.opengis.net/wcs/2.1"  
 xmlns:cis="http://www.opengis.net/cis/1.1"  
 xmlns:covcoll="http://www.opengis.net/wcs/covcoll/1.0"  
 xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
 xsi:schemaLocation="http://www.opengis.net/wcs/covcoll/1.0 http://schemas.opengis.net/covcoll/1.0/  
 wcsCovCollGetCapabilitiesv.xsd">  
 <ows:ServiceIdentification>  
 <ows:Title>Title</ows:Title>  
 <ows:Abstract>Abstract</ows:Abstract>  
 <ows:Keywords>  
 <ows:Keyword>CoverageCollection</ows:Keyword>  
 <ows:Keyword>WCS 2.0</ows:Keyword>  
 <ows:Keyword>WCS</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>  
 <ows:Profile>http://www.opengis.net/spec/WCS/2.0/conf/core</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>  
 <ows:Profile>http://www.opengis.net/spec/GMLCOV/1.0/conf/special-format</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-model\_band-subsetting/1.0/conf/band-subsetting</ows:Profile>  
 <ows:Profile>http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/coveragecollection</ows:Profile>  
 </ows:ServiceIdentification>  
 <ows:OperationsMetadata>  
 <ows:Operation name="GetCapabilities">  
 <ows:DCP>  
 <ows:HTTP>  
 <ows:Get xlink:href="http://www.someu.rl?" xlink:type="simple"/>  
 <ows:Post xlink:href="http://server:8000/GetCapabilitiesURL">  
 <ows:Constraint name="PostEncoding">  
 <ows:AllowedValues>  
 <ows:Value>XML</ows:Value>  
 </ows:AllowedValues>  
 </ows:Constraint>  
 </ows:Post>  
 </ows:HTTP>  
 </ows:DCP>  
 </ows:Operation>  
 <ows:Operation name="DescribeCoverage">  
 <ows:DCP>  
 <ows:HTTP>  
 <ows:Get xlink:href="http://www.someu.rl?" xlink:type="simple"/>  
 <ows:Post xlink:href="http://server:8000/DescribeCoverageURL">  
 <ows:Constraint name="PostEncoding">  
 <ows:AllowedValues>  
 <ows:Value>XML</ows:Value>  
 </ows:AllowedValues>  
 </ows:Constraint>  
 </ows:Post>  
 </ows:HTTP>  
 </ows:DCP>  
 </ows:Operation>  
 <ows:Operation name="GetCoverage">  
 <ows:DCP>  
 <ows:HTTP>  
 <ows:Get xlink:href="http://www.someu.rl?" xlink:type="simple"/>  
 <ows:Post xlink:href="http://server:8000/GetCoverageURL" xlink:type="simple">  
 <ows:Constraint name="PostEncoding">  
 <ows:AllowedValues>  
 <ows:Value>XML</ows:Value>  
 </ows:AllowedValues>  
 </ows:Constraint>  
 </ows:Post>  
 </ows:HTTP>  
 </ows:DCP>  
 </ows:Operation>  
 <ows:Operation name="DescribeCoverageCollection">  
 <ows:DCP>  
 <ows:HTTP>  
 <ows:Get xlink:href="http://www.someu.rl?" xlink:type="simple"/>  
 <ows:Post xlink:href="http://server:8000/DescribeCoverageCollectionURL"  
 xlink:type="simple">  
 <ows:Constraint name="PostEncoding">  
 <ows:AllowedValues>  
 <ows:Value>XML</ows:Value>  
 </ows:AllowedValues>  
 </ows:Constraint>  
 </ows:Post>  
 </ows:HTTP>  
 </ows:DCP>  
 </ows:Operation>  
 <!-- CountDefault is used to limit the number of CoveragCollectionDescription elements returned with  
 DescribeCoverageCollection operations by the server. -->  
 <ows:Constraint name="CountDefault">  
 <ows:NoValues/>  
 <ows:DefaultValue>100</ows:DefaultValue>  
 </ows:Constraint>  
 </ows:OperationsMetadata>  
 <wcs:ServiceMetadata>  
 <wcs:formatSupported>application/gml+xml</wcs:formatSupported>  
 <wcs:formatSupported>image/tiff</wcs:formatSupported>  
 </wcs:ServiceMetadata>  
 <wcs:Contents>  
 <wcs:Extension>  
 <covcoll:coverageCollectionSummary>  
 <covcoll:CoverageCollectionSummary>  
 <covcoll:coverageCollectionId>UKPP4-2015-05-15-00Z</covcoll:coverageCollectionId>  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate&amp;  
 3=http://www.codes.wmo.int/GRIB2/table4.5/IsobaricSurface"   
 axisLabels="lat long ansi pressure" srsDimension="4">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansi" uomLabel="ansiTime" lowerBound="2015-05-15T12:00:00Z"   
 upperBound="2015-05-17T12:00:00Z" />   
 </cis:envelope>  
 </covcoll:CoverageCollectionSummary>  
 </covcoll:coverageCollectionSummary>  
 <covcoll:coverageCollectionSummary>  
 <covcoll:CoverageCollectionSummary>  
 <covcoll:coverageCollectionId>UKPP4-2015-05-15-00Z</covcoll:coverageCollectionId>  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansi " srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansi" uomLabel="ansiTime" lowerBound="2015-05-15T00:00:00Z"   
 upperBound="2015-05-17T00:00:00Z" />   
 </cis:envelope>  
 </covcoll:CoverageCollectionSummary>  
 </covcoll:coverageCollectionSummary>  
 </wcs:Extension>  
 </wcs:Contents>  
</wcs:Capabilities>

## Requirements Class: DescribeCoverageCollection

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

|  |  |
| --- | --- |
| **Requirements Class** | |
| **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ req/covcoll\_describeCoverageCollection** | |
| Dependency | **OGC06-121r9] (<http://www.opengis.net/doc/OWS/2.0/clause/8>)** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-structure** |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-contents** |
| Dependency | **<http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ req/covcoll_offering>** |
| Dependency | **<http://www.opengis.net/spec/WCS/2.1/>./conf/core/coverageSummary** |
| Dependency | **<http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ req/covcoll_offering>** |
| **Requirement** | **/req/covcoll\_describeCoverageCollection/request-structure**  *The DescribeCoverageCollection request structure is derived from RequestBase, extended with a non-empty list of coverage collection identifiers. A WCS server implementing this extension* ***shall*** *accept requests on the DescribeCoverageCollection operation that conform to the structure specified in Figure 3 and Table 6* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection/request-valid-identifier**  *Each value provided in a coverageCollectionId element within a DescribeCoverageCollection request* ***shall*** *identify a CoverageCollection resource offered by the WCS server.* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection/response-structure**  *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 8, Table 9, Table 10, Table 11 and Table 12* |
| **Requirement** | **/req/covcoll/describeCoverageCollection/request-valid-axisTrim**  *Every axisExtent component of the AxisTrim component used in a DescribeCoverageCollection request* ***shall*** *only have values that are equal to the cis:axisLabels specified in the cis:axisExtent component of the CoverageCollection’s cis:envelope component.* |
| **Requirement** | **/req/covcoll/describeCoverageCollection/request- no-duplicate-dimension**  *A DescribeCoverageCollection request* ***shall*** *contain at most one subsetting operation for each of the cis:axisLabels of the CoverageCollection addressed.* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection /response-description-containment**  *The element CoverageCollectionDescription* ***shall*** *contain one of:-wcs:CoverageSummary or covcoll:subCollectionDescription or both.* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection/response-structure-list**  *The response to a successful DescribeCoverageCollection request* ***shall*** *comprise a list containing one CoverageCollectionDescription element for each of the requested CoverageCollection resources.* |
| **Requirement** | **http /req/covcoll\_describeCoverageCollection /response-coverage-source**  *The coverages and subCollections referenced in a DescribeCoverageCollection response* ***shall*** *be available from the WCS service that provided that response.* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection /response-no-duplicates**  *A coverage offerings and subCollections specified in a given Coverage Collection* ***shall*** *be listed once, and only once, in the associated CoverageCollectionDescription element.* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection/response-count**  *In the response to a successful DescribeCoverageCollection request the sum of CoverageCollectionDescription elements* ***shall*** *be less or equal to the minimum of the value of the CountDefault element and the count parameter of present in the request. If none of both are present all matching elements shall be reported.* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection /response-aggregation-type**  *If the CoverageCollectionDescription element contains aggregationType then the value* ***shall*** *have the string value of “bag”* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection /response-collection-shared-axes**  *The cis:envelope component of the collectionDescription component of the CoverageCollectionDescription component* ***shall*** *only have those axes (as listed by the cis:axisLabels attribute of the cis:envelope element) that are shared by the Offered Coverages. Thus any axis that is unique to one of the constituent coverages would not be referenced by the coverageDescription property i.e. cis:envelope.*  ***See*** *req/covcoll\_offering/envelope-shared-axes* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection /response-unique-srsNames**  *Within the CoverageCollectionDescription response document there* ***shall*** *be a unique relationship between the cis:axisLabel value and the associated srsName attribute of the cis:envelope element. Thus all axisLabels with the same name must have the same coordinate reference system.* |
| **Requirement** | **/req/covcoll\_describeCoverageCollection/response-coverages-inside-envelope**  *All Offered Coverages belonging to a specific CoverageCollection* ***shall*** *lie within the boundary of the cis:envelope as defined by the upper and lower limits of the cis:axisExtent element component of the collectionDescription component. This restraint is only with relevant to those axes shared by each member of the OfferedCoverageCollection.*  **See** req/covcoll\_offering/envelope-shared-axes |
| **Requirement** | **/req/covcoll\_describeCoverageCollection/response-list-size:**  *The response to a successful DescribeCoverageCollection request with n CoverageCollection identifiers* ***shall*** *contain a CoverageCollectionDescriptions element consisting of n coverageCollectionDescription items as specified in Figure 4 and Table 8, Table 9, Table 10,Table 11and Table 12* |

### Requirements class overview

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

The description of a Coverage Collection resource in a DescribeCoverageCollection response includes:

* An identifier for the Coverage Collection resource;
* Summary information about coverages which comprise this Coverage Collection resource (if any);
* Summary information about subcollections which comprise this Coverage Collection resource (if any);
* Information about the boundary spatial (or spatiotemporal) extent of the CoverageCollection.
* Information about the bounding spatial (or spatiotemporal) extent that the member coverages of the Coverage Collection occupy; and
* Other metadata or extension information.

### DescribeCoverageCollection request

The *DescribeCoverageCollection* request structure is derived from *RequestBase*, extended with a non-empty list of Coverage Collection identifiers. This structure is shown in Figure 3 and Table 6.

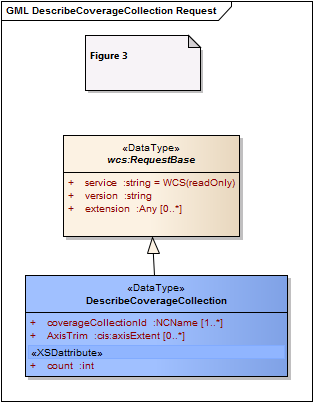


Figure 3 — DescribeCoverageCollection operation UML class diagram

Table 6 DescribeCoverageCollection request 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 | Coverage Collection identifiers | NCName | one or more (mandatory) |
| AxisTrim | Allows for upper and lower limits of cut-out | cis:axisExtent | zero or more |
| count | Maximum number of CoverageCollectionDescription elements to be included in the response | Integer greater than zero | zero or one (optional |

Example 2: - The following XML excerpt shows an example of a DescribeCoverageRequest.

<?xml version="1.0" encoding="UTF-8"?>  
<covcoll:DescribeCoverageCollection  
 xmlns:covcoll="http://www.opengis.net/wcs/covcoll/1.0"  
 xmlns:wcs="http://www.opengis.net/wcs/2.1"  
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
 xmlns:cis="http://www.opengis.net/cis/1.1"  
 service="WCS" version="2.0.1" count="100"  
 xsi:schemaLocation="http://www.opengis.net/wcs/covcoll/1.0 http://www.opengis.net/wcs/covcoll/1.0  
 http://schemas.opengis.net/covcoll/1.0/DescribeCoverageCollection.xsd">  
 <covcoll:coverageCollectionId>someCoverageCollectionId</covcoll:coverageCollectionId>  
 <covcoll:AxisTrim srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate&amp;  
 3=http://www.codes.wmo.int/GRIB2/table4.5/IsobaricSurface"   
 axisLabels="lat long ansiTime pressure" srsDimension="4">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="h" lowerBound="2015-05-15T00:00:00Z"  
 upperBound="2015-05-17T00:00:00Z" />   
 </covcoll:AxisTrim>  
</covcoll:DescribeCoverageCollection>

### DescribeCoveragecollection response

The response to a successful DescribeCoveragecollection request contains a list of coverage metadata, one for each Coveragecollection identifier passed in the request. This structure is shown in Figure 4 and Table 8, Table 9, Table 10,Table 10and Table 11.

Table 7 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 |





Figure 4 Coverage Collection Descriptions Response

Figure 4 illustrates how CoverageCollectionSummary elements are structured. New classes are highlighted in blue.



Table 8 CoverageCollectionDescription components

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| coverageCollectionId | Identifier of a Coverage Collection offered by this service | NCName | one  (mandatory) |
| OWS::metadata | Reference to more metadata about this Coverage Collection | OWS Common::Meta­dataType | zero or one  (optional) |
| subCollectionDescription | SubCollection contained within this Coverage Collection resource. | CoverageCollectionDescription | zero or one (optional) |
| coverageSummary | A summary of the coverages contained within a coverage collection. | WCS::CoverageSummary | zero or one (optional) |
| GML::AggregationTypeGroup | An enumeration of aggregation types. For this application it is set to “bag” | Gml: AggregationType | zero or one (optional) |

Table 9 WCS CoverageSummary additional components   
(shaded components originate from OWS Common)

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| coverageId | Identifier of a coverage offered by the service on hand | NCName | one (mandatory) |
| coverage­Subtype | Type name of the coverage on hand | QName | one (mandatory) |
| coverage­Subtype­Parent | Recursive list of the coverage’s supertypes | CoverageSubtype­Parent | zero or one (optional) |
| extension | Further metadata | Any | zero or one (optional) |
| WGS84-BoundingBox | 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 dataset | OWS Common:: Metadata | zero or one  (optional) |

Table 10 CollectionDescription

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| CovColl: referenceTime | The analysis time i.e. the start or “reference time” of the simulation process. | gml:timePosition | zero or one (optional) |
| cis:envelope | The envelope around a coverage is defined by the lower and upper bound of each axis, respectively; an asterisk "\*" in lower/upper bound denotes a null value. | cis:axisExtent | zero or one  (optional) |
| collectionName | An attribute that, if used, adds semantic meaning. | string | zero or one (optional) |

Table 11 CoverageDescription

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Definition** | **Data type** | **Multiplicity** |
| CovColl: referenceTime | The analysis time i.e. the start or “reference time” of the simulation process. | gml:timePosition | zero or one (optional) |
| cis:envelope | The envelope around a coverage is defined by the lower and upper bound of each axis, respectively; an asterisk "\*" in lower/upper bound denotes a null value. | cis:axisExtent | zero or one  (optional) |
| coverageName | An attribute that, if used, adds semantic meaning. | string | zero or one (optional) |

Example 1:- The response to a valid *DescribeCoverageCollection* request for coverageCollection with id UK\_GLOBAL-2015-05-15-00Z might be:- xsi:schemaLocation="http://www.opengis.net/wcs/covcoll/1.0   
 http://schemas.opengis.net/covcoll/1.0/covcollAll.xsd">

<?xml version="1.0" encoding="UTF-8"?>  
<covcoll:CoverageCollectionDescriptions  
 xmlns:gml="http://www.opengis.net/gml/3.2"  
 xmlns:xlink="http://www.w3.org/1999/xlink"  
 xmlns:ows="http://www.opengis.net/ows/2.0"  
 xmlns:wcs="http://www.opengis.net/wcs/2.1"  
 xmlns:cis="http://www.opengis.net/cis/1.1"  
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
 xmlns:covcoll="http://www.opengis.net/wcs/covcoll/1.0"  
 xsi:schemaLocation="http://www.opengis.net/wcs/covcoll/1.0   
 http://schemas.opengis.net/covcoll/1.0/covcollAll.xsd">   
 <covcoll:coverageCollectionDescription>  
 <covcoll:CoverageCollectionDescription aggregationType="bag">  
 <covcoll:coverageCollectionId>UK\_GLOBAL-2015-05-15-00Z</covcoll:coverageCollectionId>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/codeflag/0.0/\_0/Meteorological Products">  
 <covcoll:collectionDescription collectionName="Generic NWP Model Run">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansi " srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansi" uomLabel="ansiTime" lowerBound="2015-05-15T00:00:00Z" upperBound="2015-05-17T00:00:00Z" />   
 </cis:envelope>  
 </covcoll:collectionDescription>  
 </ows:Metadata>  
 <covcoll:coverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.00Z\_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">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate&amp;  
 3=http://www.codes.wmo.int/GRIB2/table4.5/IsobaricSurface"   
 axisLabels="lat long ansiTime Pressure" srsDimension="4">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T00:00:00Z" upperBound="2015-05-17T00:00:00Z" />   
 <cis:axisExtent axisLabel="Pressure" uomLabel="hPa" lowerBound="1000.0" upperBound="200.0" />  
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.00Z\_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">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansiTime" srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T00:00:00Z" upperBound="2015-05-17T00:00:00Z" />   
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.00Z\_Ground</wcs:CoverageId>  
 <wcs:CoverageSubtype>NoVerticalDependency</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/Ground">  
 <covcoll:coverageDescription coverageName="Ground">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansiTime" srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T00:00:00Z" upperBound="2015-05-17T00:00:00Z" />   
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.00Z\_Thickness</wcs:CoverageId>  
 <wcs:CoverageSubtype>NamedRange</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/Thickness">  
 <covcoll:coverageDescription coverageName="Thickness">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansiTime" srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T00:00:00Z" upperBound="2015-05-17T00:00:00Z" />   
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.00Z\_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">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansiTime" srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T00:00:00Z" upperBound="2015-05-17T00:00:00Z" />   
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 </covcoll:coverageSummary>  
 </covcoll:CoverageCollectionDescription>  
 </covcoll:coverageCollectionDescription>  
 <covcoll:coverageCollectionDescription>  
 <covcoll:CoverageCollectionDescription aggregationType="bag">  
 <covcoll:coverageCollectionId>UK\_GLOBAL-2015-05-15-12Z</covcoll:coverageCollectionId>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/codeflag/0.0/\_0/Meteorological Products">  
 <covcoll:collectionDescription collectionName="Generic NWP Model Run">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansi " srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansi" uomLabel="ansiTime" lowerBound="2015-05-15T12:00:00Z" upperBound="2015-05-17T12:00:00Z" />   
 </cis:envelope>  
 </covcoll:collectionDescription>  
 </ows:Metadata>  
 <covcoll:coverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.12Z\_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">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate&amp;  
 3=http://www.codes.wmo.int/GRIB2/table4.5/IsobaricSurface"   
 axisLabels="lat long ansiTime Pressure" srsDimension="4">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T12:00:00Z" upperBound="2015-05-17T12:00:00Z" />   
 <cis:axisExtent axisLabel="Pressure" uomLabel="hPa" lowerBound="1000.0" upperBound="200.0" />  
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.12Z\_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">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansiTime" srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T12:00:00Z" upperBound="2015-05-17T12:00:00Z" />   
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.12Z\_Ground</wcs:CoverageId>  
 <wcs:CoverageSubtype>NoVerticalDependency</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/Ground">  
 <covcoll:coverageDescription coverageName="Ground">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansiTime" srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T12:00:00Z" upperBound="2015-05-17T12:00:00Z" />   
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.12Z\_Thickness</wcs:CoverageId>  
 <wcs:CoverageSubtype>NamedRange</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.codes.wmo.int/GRIB2/table4.5/Thickness">  
 <covcoll:coverageDescription coverageName="Thickness">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansiTime" srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T12:00:00Z" upperBound="2015-05-17T12:00:00Z" />   
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>UK\_GLOBAL\_2015-05-15T00.00.12Z\_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">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326;  
 2=http://http://www.opengis.net/def/crs/OGC/0/AnsiDate"   
 axisLabels="lat long ansiTime" srsDimension="3">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="-90" upperBound="90" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-180" upperBound="180" />  
 <cis:axisExtent axisLabel="ansiTime" uomLabel="ansiTime" lowerBound="2015-05-15T12:00:00Z" upperBound="2015-05-17T12:00:00Z" />   
 </cis:envelope>  
 </covcoll:coverageDescription>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 </covcoll:coverageSummary>  
 </covcoll:CoverageCollectionDescription>  
 </covcoll:coverageCollectionDescription>  
</covcoll:CoverageCollectionDescriptions>  
  
  
  
  
Example 2:- The response to a valid DescribeCoverageCollection request for coverageCollection that contains sub-collections. This example is designed to show that be using sub collection description the discovery process uses a hierarchical structure. The example is built around discovering primary schools in England and Wales. The top level collection is labelled “England and Wales”. Each country is also a collection of counties (for brevity only a few are used) and each county has a coverageId that identifies a multipoint coverage that describes the location and name for each school. To avoid ambiguity and circular references all identifiers must be unique.

<?xml version="1.0" encoding="UTF-8"?>  
<covcoll:CoverageCollectionDescriptions  
 xmlns:gml="http://www.opengis.net/gml/3.2"  
 xmlns:xlink="http://www.w3.org/1999/xlink"  
 xmlns:ows="http://www.opengis.net/ows/2.0"  
 xmlns:wcs="http://www.opengis.net/wcs/2.1"  
 xmlns:cis="http://www.opengis.net/cis/1.1"  
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
 xmlns:covcoll="http://www.opengis.net/wcs/covcoll/1.0"  
 xsi:schemaLocation="http://www.opengis.net/wcs/covcoll/1.0   
 http://schemas.opengis.net/covcoll/1.0/covcollAll.xsd">   
 <covcoll:CoverageCollectionDescription aggregationType="bag">  
 <covcoll:coverageCollectionId>EngladandWales</covcoll:coverageCollectionId>  
 <ows:Metadata xlink:href="www.edu.co.uk/Sc/table4.5/IsobaricSurface">  
 <covcoll:collectionDescription collectionName="Primary Schools in England and Wales">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326"  
 axisLabels="lat long " srsDimension="2">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="50.0" upperBound="56.0" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="=-5.0" upperBound="5.0" />  
 </cis:envelope>  
 </covcoll:collectionDescription>  
 </ows:Metadata>  
   
 <covcoll:subCollectionDescription>  
 <covcoll:CoverageCollectionDescription aggregationType="bag">  
 <covcoll:coverageCollectionId>England</covcoll:coverageCollectionId>  
 <ows:Metadata xlink:href="www.school.uk.gov/academy/type/Primarye">  
 <covcoll:collectionDescription collectionName="IPrimary Schools in England">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326"  
 axisLabels="lat long " srsDimension="2">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="50.0" upperBound="56.0" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-5.0" upperBound="5.0" />  
 </cis:envelope>  
 </covcoll:collectionDescription>  
 </ows:Metadata>  
   
 <covcoll:subCollectionDescription>  
 <covcoll:CoverageCollectionDescription aggregationType="bag">  
 <covcoll:coverageCollectionId>SW\_England</covcoll:coverageCollectionId>  
 <ows:Metadata xlink:href="www.school.uk.gov/acedemy/type/Primary">  
 <covcoll:collectionDescription collectionName="Primary Schools in SW England">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326"  
 axisLabels="lat long " srsDimension="2">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="50.0" upperBound="52.0" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-5" upperBound="-3.0" />  
 </cis:envelope>  
 </covcoll:collectionDescription>  
 </ows:Metadata>  
 <covcoll:coverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>Devon</wcs:CoverageId>  
 <wcs:CoverageSubtype>MultiPointCoverage</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.school.uk.gov/acedemy/type/Primary">  
 <covcoll:coverageDescription coverageName="Primary Schools in Devon"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>Cornwall</wcs:CoverageId>  
 <wcs:CoverageSubtype>MultiPointCoverage</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.school.uk.gov/acedemy/type/Primary">  
 <covcoll:coverageDescription coverageName="Primary Schools in Cornwall"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 </covcoll:coverageSummary>  
 </covcoll:CoverageCollectionDescription>  
 </covcoll:subCollectionDescription>  
 <covcoll:subCollectionDescription>  
 <covcoll:CoverageCollectionDescription aggregationType="bag">  
 <covcoll:coverageCollectionId>SE\_England</covcoll:coverageCollectionId>  
 <ows:Metadata xlink:href="www.school.uk.gov/acedemy/type/Primary">  
 <covcoll:collectionDescription collectionName="Primary Schools in SE England">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326"  
 axisLabels="lat long " srsDimension="2">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="50.0" upperBound="52.0" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="1.0" upperBound="-2.0" />  
 </cis:envelope>  
 </covcoll:collectionDescription>  
 </ows:Metadata>  
 <covcoll:coverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>Kent</wcs:CoverageId>  
 <wcs:CoverageSubtype>MultiPointCoverage</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.school.uk.gov/acedemy/type/Primary">  
 <covcoll:coverageDescription coverageName="Primary Schools in Kent"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>ESussex</wcs:CoverageId>  
 <wcs:CoverageSubtype>MultiPointCoverage</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.school.uk.gov/acedemy/type/Primary">  
 <covcoll:coverageDescription coverageName="Primary Schools in ESussex"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>WSussex</wcs:CoverageId>  
 <wcs:CoverageSubtype>MultiPointCoverage</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.school.uk.gov/acedemy/type/Primary">  
 <covcoll:coverageDescription coverageName="Primary Schools in WSussex"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 </covcoll:coverageSummary>  
 </covcoll:CoverageCollectionDescription>  
 </covcoll:subCollectionDescription>  
 </covcoll:CoverageCollectionDescription>  
 </covcoll:subCollectionDescription>  
   
 <covcoll:subCollectionDescription>  
 <covcoll:CoverageCollectionDescription aggregationType="bag">  
 <covcoll:coverageCollectionId>Wales</covcoll:coverageCollectionId>  
 <ows:Metadata xlink:href="www.school.uk.gov/academy/type/Primary">  
 <covcoll:collectionDescription collectionName="Primary Schools in Wales">  
 <cis:envelope srsName="http://www.opengis.net/def/crs-compound?  
 1=http://www.opengis.net/def/crs/EPSG/0/4326"  
 axisLabels="lat long " srsDimension="2">  
 <cis:axisExtent axisLabel="lat" uomLabel="deg" lowerBound="52.0" upperBound="54.0" />   
 <cis:axisExtent axisLabel="long" uomLabel="deg" lowerBound="-3.0" upperBound="-1.0" />  
 </cis:envelope>  
 </covcoll:collectionDescription>  
 </ows:Metadata>  
 <covcoll:coverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>DFED</wcs:CoverageId>  
 <wcs:CoverageSubtype>MultiPointCoverage</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.school.uk.gov/acedemy/type/Primary">  
 <covcoll:coverageDescription coverageName="Primary Schools in DYFED"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 <wcs:CoverageSummary>  
 <wcs:CoverageId>CLWYD</wcs:CoverageId>  
 <wcs:CoverageSubtype>MultiPointCoverage</wcs:CoverageSubtype>  
 <ows:Metadata xlink:href="www.school.uk.gov/acedemy/type/Primary">  
 <covcoll:coverageDescription coverageName="Primary Schools in CLYWD"/>  
 </ows:Metadata>  
 </wcs:CoverageSummary>  
 </covcoll:coverageSummary>  
 </covcoll:CoverageCollectionDescription>  
 </covcoll:subCollectionDescription>  
 </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\_application-profile\_coverage\_collections/1.0/req/covcoll\_protocol-binding** | |
| Dependency | **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ req/covcoll\_describeCoverageCollection** |
| Dependency | **<http://www.opengis.net/spec/WCS_protocol-binding_get-kvp/1.0/conf/get-kvp>/1.0** |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/xml-post-binding/1.0** |
| Dependency | **http://www.opengis.net/spec/WCS\_protocol-binding\_soap/1.0/conf/soap.** |
| **Requirement** | **/req/protocol-binding/minimim**  *Implementations of this coverage\_collection extension-WCS* ***shall*** *support at least one of the requirements classes:*  http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/conf/covcoll\_get-kvp  http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/conf/covcoll\_post-xml  http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/conf/covcoll\_soap |

## 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\_application-profile\_coverage\_collections/1.0/ req/covcoll\_get-kvp** | |
| Dependency | **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_post-xml** |
| Dependency | **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_describeCoverageCollection** |
| Dependency | **<http://www.opengis.net/spec/WCS_protocol-binding_get-kvp/1.0/conf/get-kvp>** |
| Dependency | **WCS 2.0 protocol extension GET/KVP [OGC 09-147r3].** |
| **Requirement** | /**req/covcoll\_get-kvp/ mandatory**  *Implementations of this CoverageCollection extension-WCS which support the* ***covcoll\_get-kvp*** *requirements class* ***shall*** *support the WCS 2.0 protocol extension GET/KVP [OGC 09-147r3].* |
| **Requirement** | **/req/covcoll\_get-kvp/conformance-class-in-profile**  *Implementations of this CoverageCollection extension-WCS which support the* ***covcoll\_get-kvp*** *requirements class* ***shall*** *include the following URI in a Profile element in the ServiceIdentification in a GetCapabilities response:*  *http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_get-kvp* |
| **Requirement** | **/req/covcoll\_protocol-binding/covcoll\_get-kvp/describeCoverageCollection-request-structure**  *A WCS server implementing both this get-kvp protocol binding extension* ***shall*** *encode the DescribeCoverageCollection operation request as specified in* Table 12*.* |
| **Requirement** | **/req/covcoll\_get-kvp/describeCoverageCollection-request**  *The request parameter in the DescribeCoverageCollection request parameter of a DescribeCoverageCollection request* ***shall*** *be indicated as follows: request= DescribeCoverageCollection* |
| **Requirement** | **/req/covcoll\_protocol-binding/covcoll\_get-kvp/describeCoverageCollection-request-coverageCollectionId**  *The coverageCollectionId parameter in the DescribeCoverageCollection request parameter of a DescribeCoverageCollection request* ***shall*** *be indicated as follows, for parameter values v1, …, vn: coverageCollectionId= v1,…,vn* |
| **Requirement** | **/req/covcoll\_protocol-binding/covcoll\_get-kvp/describeCoverageCollection-request-subset**  *The subset parameters in the DescribeCoverageCollection request parameter of a DescribeCoverageCollection request* ***shall*** *be indicated through a possibly empty set of subset specifications, each one with key “subset” and value specification given by a SubsetSpec (see example for structure)* |

### 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 | Coverage Collection identifiers | Comma-separated NCName list | one (mandatory) |
| subset | boundaries of coverageCollection subset | SubsetSpec as defined in the example | zero or more  (optional) |

Example The following KVP-encoded DescribeCoverageCollection request addresses service path on server www.service.org at port 8080 retrieves all Coverage Collections in the domain specified by the bounding box with longitude (-30,40) and latitude 20,70), expressed in spatial CRS WGS84 2D and temporal CRS ISO:8601 (which are assumed to be supported for the collection):

http://www:server.org:port/8080?  
service=WCS&version=2.1.0  
&request=DescribeCoverageCollection  
&coverageCollectionId= UKPP4-2015-05-15-12Z  
&subset=lon,http://www.opengis.net/def/crs/EPSG/0/4326(-30,40)   
&subset=lat,http://www.opengis.net/def/crs/EPSG/0/4326(20,70)  
&subset=t,http://www.opengis.net/def/trs/ISO-8601/0/Gregorian+UTC("2015-05-15T12:00:00Z",”2015-05-16T12:00:00Z”)

## 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/POST using XML request body protocol binding.

|  |  |
| --- | --- |
| **Requirements Class** | |
| **[http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ req/covcoll\_post-xml]( http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ req/covcoll_post-xml)** | |
| Dependency | **<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>** |
| Dependency | **Web Coverage Service 2.0 Interface Standard - XML/POST Protocol Binding Extension [:OGC 09-148r1]** |
| **Requirement** | /**req/covcoll\_post-xml/ mandatory**  *Implementations of this CoverageCollection extension-WCS which support the covcoll\_post-xml requirements class* ***shall*** *support the WCS 2.1 protocol extension XML-POST [OGC 09-148r1].* |
| **Requirement** | **req/covcoll\_post-xml /conformance-class-in-profile**  *Implementations of this covcoll-WCS which support the covcoll\_xml-post requirements class* ***shall*** *include the following URI in a Profile element in the ServiceIdentification in a GetCapabilities response:*  *http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_post-xml* |
| **Requirement** | **[/req/covcoll\_post-xml](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-request-structure**  *A WCS server implementing the XML/POST protocol binding extension* ***shall*** *encode request body of the DescribeCoverageCollection operation using an XML document of type covcoll:DescribeCoverageCollection.* |
| **Requirement** | **[/req/covcoll\_post-xml](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-response-structure**    *In the response to a successful DescribeCoverageCollection request, the response* ***shall*** *contain exactly one element which contains covcoll:CoverageCollectionDescriptions as its single element* |

## Requirements Class: SOAP Protocol Binding Conformance Class

1. This requirements class specifies how the *DescribeCoverageCollection* operation is provided in WCS servers that implement the SOAP protocol.

|  |  |
| --- | --- |
| **Requirements Class** | |
| http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ req/covcoll\_soap | |
| Dependency | **http://www.opengis.net/spec/WCS\_protocol-binding\_soap/1.0/conf/soap** |
| Dependency | **[http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/describe-coveragecollection](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/describe-coveragecollection)** |
| Dependency | **http://www.opengis.net/spec/WCS\_protocol-binding\_soap/1.0/conf/soap.** |
| **Requirement** | /**req/covcoll\_soap/ mandatory**  *Implementations of this CoverageCollection extension-WCS which support the covcoll\_soap requirements class* ***shall*** *support the WCS 2.0 protocol extension SOAP [OGC 09-149r1]* |
| **Requirement** | **req/covcoll\_soap /conformance-class-in-profile**  *Implementations of this covcoll-WCS which support the covcoll\_soap requirements class* ***shall*** *include the following URI in a Profile element in the ServiceIdentification in a GetCapabilities response:*  *http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_soap* |
| **Requirement** | **[/req/covcoll\_soap](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-request-structure**  *A DescribeEOCoverageSet request* ***shall*** *contain exactly one Body element containing exactly one DescribeCoverageCollection element.* |
| **Requirement** | **[/req/covcoll\_soap](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-response-structure**    *In the response to a successful DescribeCoverageCollection request, the SOAP Envelope* ***shall*** *contain exactly one Body element which contains a*  *covcoll:CoverageCollectionDescriptions as its single element.* |
| **Requirement** | **[/req/covcoll\_soap](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-response-structure**    *Publication of a WCS SOAP service endpoint* ***shall*** *be based on the binding as defined in file wsdl/wcs-soap-binding.wsdl of the WCS package* |

# (normative) Abstract test suite

A Coverage Collection 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_application-profile_coverage_collections/1.0/ conf/covcoll_offering> | | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/getCapabilities** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-structure** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-contents** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_offering** | | |
| **Test** | | **/conf/covcoll\_offering/minimum-axis-envelope** | | |
|  | | Requirement | **/req/covcoll\_offering/minimum-axis-envelope** | |
|  | | Test purpose | *The cis:envelope property,* ***shall*** *contain at a minimum, a horizontal bounding limit. Note the cis:envelope element may be used to provide the bounding box in as many dimensions as is appropriate.* | |
|  | | Test method | *Obtain the coverageDescription via DescribeCoverageCollection and check that all instances of cis:envelope within a coverageCollectionDescription contain a horizontal bounding box.*  *Obtain the coverageCollectionSummary via getCapabilities request and check that all instances of cis:envelope within a coverageCollectionSummary contain a horizontal bounding box.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_offering/coverageCollection-unique-identifier** | | |
|  | | Requirement | **/req/covcoll\_offering/coverageCollection-unique-identifier** | |
|  | | Test purpose | *Each Coverage Collection resource offered by a WCS server implementing this extension* ***shall*** *specify an identifier that is unique within the scope of that WCS server through their coverageCollectionId identifier.* | |
|  | | Test method | *Check the responses of a GetCapabilites and DescribeCoverageCollection request and ensure all CoverageCollection identifiers are unique.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_offering/coveragecollection-no-circular-references** | | |
|  | | Requirement | **/req/covcoll\_offering/coveragecollection-no-circular-references** | |
|  | | Test purpose | *A CoverageCollection identifier* ***shall*** *not refer to any CoverageCollection that refers to itself either directly or via another CoverageCollection identifier.* | |
|  | | Test method | *Check the responses of a GetCapabilites and DescribeCoverageCollection request and ensure there are no circular references in particular through the covcoll:subCollectionDescription.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_offering/envelope-shared-axes** | | |
|  | | Requirement | **req/covcoll\_offering/envelope-shared-axes** | |
|  | | Test purpose | *The OfferedCoverageCollection cis:envelope property* ***shall*** *only have those axes (as listed by the cis:axisLabels) that are shared by the Offered Coverages. Thus any axis that is unique to one of the constituent coverages would not be referenced by the CoverageCollection property cis:envelope.* | |
|  | | Test method | *Retrieve a set of CoverageCollectionDescriptions via a DescribeCoverageCollection operation. Inspect all coverages referenced by the wcs:summary component of the collectionDescription component. Check the axisLabels attribute of the cis:envelope referenced by the collectionDescription element does not contain a value that does not appear in all of the referenced coverages.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_offering/response-coverages-inside-envelope** | | |
|  | | Requirement | **/req/covcoll\_offering/response-coverages-inside-envelope** | |
|  | | Test purpose | *All Offered Coverages belonging to a specific Coverage Collection* ***shall*** *lie within the boundary of the cis:envelope component of the OfferedCoverageCollection component as defined by the upper and lower limits of the cis:axisExtent element. This restraint is only relevant to those axes shared by each member of the OfferedCoverageCollection.* | |
|  | | Test method | *Retrieve a set of CoverageCollectionDescriptions via a DescribeCoverageCollection operation. Inspect all coverages referenced by the wcs:summary component of the collectionDescription component and check they all lie within the cis:envelope referenced by the collectionDescription element.* | |
|  | | Test type | Conformance | |

* 1. Conformance class: covcoll\_GetCapabilities

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/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/2.1/conf/core/getCapabilities** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-structure** | | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-contents** | | |
| Dependency | **<http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ req/covcoll_offering>** | | |
| Dependency | **OGC06-121r9] Clause 8 (<http://www.opengis.net/doc/OWS/2.0/clause/8>)** | | |
| Dependency | **[OGC 06-121r9] Clause 7 (<http://www.opengis.net/doc/OWS/2.0/clause/7>)** | | |
| **Test** | | **/conf/covcoll\_offering /request-sections** | | |
|  | | Requirement | **http://www.opengis.net/spec/req/covcoll/getCapabilities/request-sections** | |
|  | | Test purpose | *A WCS server implementing this extension* ***shall*** *accept the value "OfferedCollections" within an ows:Section element of the GetCapabilities request in addition to those specified in OWS Common [OGC 06-121r9] subclause 7.3.3". A successful response* ***shall*** *contain coverageCollectionSummary elements if and only if the section parameter list contains one of the values “OfferedCollections* | |
|  | | Test method | Inspect that the GetCapabilities response contains CoverageCollectionSummary element within the wcs:Contents component element. | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_getCapabilities /response-extension-identification** | | |
|  | | Requirement | **http://www.opengis.net/spec/req/covcoll/getCapabilities/response-extension-identification** | |
|  | | Test purpose | *A WCS server implementing this extension* ***shall*** *include the following URI in the Profile element of the ServiceIdentification element in a GetCapabilities response:* *<http://www.opengis.net/spec/WCS_service->extension\_coveragecollection/1.0/conf/coveragecollection* | |
|  | | Test method | *Inspect that the GetCapabilities response contains the URI <http://www.opengis.net/spec/WCS_service->extension\_coveragecollection/1.0/conf/coveragecollection* *within the profile element.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_getCapabilities /response-coverageCollectionSummary** | | |
|  | | Requirement | **http://www.opengis.net/spec/req/covcoll/getCapabilities/response-coverageCollectionSummary** | |
|  | | Test purpose | *In response to a Get Capabilities request where the sections element specifies OfferedCollections, a WCS server implementing this extension* ***shall*** *provide a CoverageCollectionSummary, for each of the CoverageCollection resources available from that WCS server.* | |
|  | | Test method | *Inspect the GetCapabilities response and pass if the response containing a CoverageCollectionSummary elements conform.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_getCapabilities /response-CoverageCollection-List** | | |
|  | | Requirement | **/req/covcoll\_getCapabilities/response-CoverageCollection-List** | |
|  | | Test purpose | *All CoverageCollection resources* ***shall*** *be listed, irrespective of their position within a hierarchy of nested collections within the Extension element of the Contents:* | |
|  | | Test method | *Inspect the GetCapabilities response and pass if the response containing a CoverageCollectionSummary elements conform* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_getCapabilities/response-operationsMetadata** | | |
|  | | Requirement | **/req/covcoll\_getCapabilities/response-operationsMetadata** | |
|  | | Test purpose | *The Operations­Meta­data com­pon­ent* ***shall*** *contain four Operat­ion instanc­es with case-sensitive name values “Get­Capab­il­ities”, “DescribeCoverage”, “Get­Coverage” and DescribeCoverageCollections.* | |
|  | | Test method | *Inspect that the GetCapabilities response contains the operation instances listed by the requirement.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_getCapabilities/getCapabilities/response-structure** | | |
|  | | Requirement | **/req/covcoll\_getCapabilities/getCapabilities/response-structure** | |
|  | | Test purpose | *The summary information describing a Coverage Collection resource provided by a WCS server implementing this extension* ***shall*** *conform with the covcoll:CoverageCollectionSummary structure as specified in Figure 2 , Table 4 and Table 5* | |
|  | | Test method | Inspect the GetCapabilities response element and pass if the CoverageCollectionSummary component conforms to *Figure 2 , Table 5 and Table 6*. | |
|  | | Test type | Conformance. | |
| **Test** | | **/conf/covcoll\_getCapabilities/getCapabilities-response-countDefault** | | |
|  | | Requirement | **/req/covcoll\_getCapabilities/getCapabilities-response-countDefault** | |
|  | | Test purpose | *If the response to a successful GetCapabilities request contains an ows:Constraint element in its ows:OperationsMetadata element then its name attribute* ***shall*** *hold a value as defined in* Table 5 *and the XML Schema being part of this standard.* | |
|  | | Test method | *Send a valid GetCapabilities request to the server under test, check that its ows:OperationsMetadata element contains an ows:Constraint element, as defined in the places referenced.* | |
|  | | Test type | Conformance. | |
| **Test** | | **/conf/covcoll\_getCapabilities/response-axisLabels** | | |
|  | | Requirement | **/req/covcoll\_getCapabilities/response-axisLabels** | |
|  | | Test purpose | *The attribute cis:axisLabels of the cis:envelope component of the CoverageCollectionSummary component* ***shall*** *only have values that are common to all Offered Coverages within the specific CoverageCollection.*  *See req/covcoll\_offering/envelope-shared-axes.* | |
|  | | Test method | *Retrieve a set of CoverageCollectionDescriptions via a DescribeCoverageCollection operation. Inspect all coverages referenced by the wcs:summary component of the collectionDescription component. Check the axisLabels attribute of the cis:envelope referenced by the collectionDescription element does not contain a value that does not appear in all of the referenced coverages.* | |
|  | | Test type | Conformance | |



* 1. Conformance class: Describe coverage collection

|  |  |  |
| --- | --- | --- |
| **Conformance Class** | | |
| **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_describeCoverageCollection** | | |
| Dependency | **[OGC 06-121r9] Clause 7 (<http://www.opengis.net/doc/OWS/2.0/clause/7>)** | |
|  | **OGC06-121r9] Clause 8 (<http://www.opengis.net/doc/OWS/2.0/clause/8>)** | |
| Dependency | **[http://www.opengis.net/spec/conf/covcoll\_offering](http://www.opengis.net/spec/req/covcoll_offering)** | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-contents** | |
| Dependency | **http:/www.opengis.net/spec/WCS/2.1/conf/core/wcsServiceMetadata-structure** | |
| Dependency | **[OGC 06-121r9] Clause 7 (<http://www.opengis.net/doc/OWS/2.0/clause/7>)** | |
| **Test** | **/conf/covcoll\_describeCoverageCollection/request-structure** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection/request-structure** |
|  | Test purpose | *The DescribeCoverageCollection request structure is derived from RequestBase, extended with a non-empty list of coverage collection identifiers. A WCS server implementing this extension* ***shall*** *accept requests on the DescribeCoverageCollection operation that conform to the structure specified in Figure 3 and* Table 6 |
|  | Test method | *Send DescribeCoverageCollection requests with valid and invalid request structure.*  *Pass test if appropriate valid results or exceptions, resp., are delivered.* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection/request-valid-identifier** | |
| Requirement | **/req/covcoll\_describeCoverageCollection/request-valid-identifier** |
| Test purpose | *Each value provided in a coverageCollectionId element within a DescribeCoverageCollection request* ***shall*** *identify a CoverageCollection resource offered by the WCS server.* |
| Test method | *Check that for every coverageCollectionID sent via a valid DescribeCoverageCollection request that a valid collection is returned by the server.* |
| Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection/response-structure** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection/response-structure** |
|  | Test purpose | *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 9, Table 9, Table 10 and Table 11* |
|  | Test method | *Send a DescribeCoverageCollection request to the server under test, check the result consist of a covcoll:CoverageCollectionDescriptions structure.* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll/describeCoverageCollection/request-valid-axisTrim** | |
|  | Requirement | **/req/covcoll/describeCoverageCollection/request-valid-axisTrim** |
|  | Test purpose | *Every axisExtent component of the AxisTrim component used in a DescribeCoverageCollection request* ***shall*** *only have values that are equal to the cis:axisLabels specified in the cis:axisExtent component of the CoverageCollection’s cis:envelope.* |
|  | Test method | *Send DescribeCoverageCollection requests with an invalid axisTrim i.e it contains an axisLabel that is not equal to any specified and check an exception is thrown.* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll/describeCoverageCollection/request- no-duplicate-dimension** | |
|  | Requirement | **/req/covcoll/describeCoverageCollection/request- no-duplicate-dimension** |
|  | Test purpose | *A DescribeCoverageCollection request* ***shall*** *contain at most one subsetting operation for each of the cis:axisLabels of the CoverageCollection addressed.* |
|  | Test method | *Send DescribeCoverageCollection requests with a duplicate cis:axisLabel and check an exception is thrown.* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection/response-structure-list** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection/response-structure-list** |
|  | Test purpose | *The response to a successful DescribeCoverageCollection request* ***shall*** *comprise a list containing one CoverageCollectionDescription element for each of the requested CoverageCollection resources.* |
|  | Test method | *Send DescribeCoverageCollection request with n Collection Coverage identifiers and check the response document contains n covcoll:CoverageCollectionDescription elements* |
|  | Test type | Conformance. |
| **Test** | **http /conf/covcoll\_describeCoverageCollection /response-coverage-source** | |
|  | Requirement | **http /req/covcoll\_describeCoverageCollection /response-coverage-source** |
|  | Test purpose | *The coverages and subCollections referenced in a DescribeCoverageCollection response* ***shall*** *be available from the WCS service that provided that response.* |
|  | Test method | *Check that for every coverageCollectionID sent via a valid DescribeCoverageCollection request that a valid coverage or subCollection is returned by the server.* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection /response-no-duplicates** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection/response-no-duplicates** |
|  | Test purpose | *A CoverageOffering and subCollections specified in a given Coverage Collection* ***shall*** *be listed once, and only once, in the associated CoverageCollectionDescription element.* |
|  | Test method | *Send DescribeCoverageCollection request and check the response for any duplication.* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection/response-count** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection/response-count** |
|  | Test purpose | *In the response to a successful DescribeCoverageCollection request the sum of CoverageCollectionDescription elements* ***shall*** *be less or equal to the minimum of the value of the CountDefault element and the count parameter if present in the request. If none of both are present all matching elements shall be reported.* |
|  | Test method | *Send a valid DescribeCoverageCollection request and check the response for the number of CoverageCollectionDescription is equal to or less than the CountDefault element and the count parameter if present* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection /response-aggregation-type** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection /response-aggregation-type** |
|  | Test purpose | *If the CoverageCollectionDescription element contains aggregationType then the value* ***shall*** *have the string value of “bag”* |
|  | Test method | *Send a valid DescribeCoverageCollection request and check the element CoverageCollectionDescription has, and if the aggregationType attribute is has the value “bag”* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection /response-collection-shared-axes** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection /response-collection-shared-axes** |
|  | Test purpose | *The cis:envelope component of the collectionDescription component of the CoverageCollectionDescription component* ***shall*** *only have those axes (as listed by the cis:axisLabels attribute of the cis:envelope element) that are shared by the Offered Coverages. Thus any axis that is unique to one of the constituent coverages would not be referenced by the coverageDescription property i.e. cis:envelope.*  ***See*** *req/covcoll\_offering/envelope-shared-axes* |
|  | Test method | *Send a valid DescribeCoverageCollection request and check that the element collectionDescription cis:envelope component has only those axes (as listed by the cis:axisLabels attribute of the cis:envelope element) that are shared by the Coverages* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection /response-unique-srsNames** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection /response-unique-srsNames** |
|  | Test purpose | *Within the CoverageCollectionDescription response document there* ***shall*** *be a unique relationship between the cis:axisLabel value and the associated srsName attribute of the cis:envelope element. Thus all axisLabels with the same name must have the same coordinate reference system.* |
|  | Test method | *Send a valid DescribeCoverageCollection request and check that all axisLabels with the same name have the same coordinate reference system.* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection/response-coverages-inside-envelope** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection/response-coverages-inside-envelope** |
|  | Test purpose | *All Offered Coverages belonging to a specific CoverageCollection* ***shall*** *lie within the boundary of the cis:envelope as defined by the upper and lower limits of the cis:axisExtent element component of the collectionDescription component. This restraint is only with relevant to those axes shared by each member of the OfferedCoverageCollection.* |
|  | Test method | *Send a valid DescribeCoverageCollection request and check that all listed coverages lie within the collectionDescription cis:envelope component with respect to the shared axes..* |
|  | Test type | Conformance. |
| **Test** | **/conf/covcoll\_describeCoverageCollection/response-list-size:** | |
|  | Requirement | **/req/covcoll\_describeCoverageCollection/response-list-size:** |
|  | Test purpose | *The response to a successful DescribeCoverageCollection request with n CoverageCollection identifiers* ***shall*** *contain a CoverageCollectionDescriptions element consisting of n coverageCollectionDescription items as specified in Figure 4 and Table 8, Table 9,Table 10 and Table 11* |
|  | Test method | *Send a valid DescribeCoverageCollection request for n coverageCollection identifiers and check that the response document has n CoverageCollectionDescription elements.* |
|  | 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\_application-profile\_coverage\_collections/1.0/ req/covcoll\_describeCoverageCollection** | | | | |
| Dependency | **<http://www.opengis.net/spec/WCS_protocol-binding_get-kvp/1.0/conf/get-kvp>/1.0** | | | | |
| Dependency | **http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/xml-post-binding/1.0** | | | | |
| **Test** | | **/conf /covcoll\_protocol-binding/minimim** | | | | |
|  | | Requirement | | | /**req /covcoll\_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\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_get-kvp** | | | |
| Dependency | **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_post-xml** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_describeCoverageCollection** | | |
| Dependency | **<http://www.opengis.net/spec/WCS_protocol-binding_get-kvp/1.0/conf/get-kvp>** | | |
| **Test** | | **/conf/covcoll\_get-kvp/ mandatory** | | |
|  | | Requirement | /**req/covcoll\_get-kvp/ mandatory** | |
|  | | Test purpose | *Implementations of this coverage\_collection extension-WCS which support the* ***covcoll\_get-kvp*** *requirements class* ***shall*** *support the WCS 2.1 protocol extension GET/KVP [OGC 09-147r3].* | |
|  | | Test method | *Determine the list of supported extensions via a valid GetCapabilities request; check that the extension required is listed.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_get-kvp/conformance-class-in-profile** | | |
|  | | Requirement | **/req/covcoll\_get-kvp/conformance-class-in-profile** | |
|  | | Test purpose | *Implementations of this coverage\_collection extension-WCS which support the* ***covcoll\_get-kvp*** *requirements class* ***shall*** *include the following URI in a Profile element in the ServiceIdentification in a GetCapabilities response:*  *http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_get-kvp* | |
|  | | Test method | *Determine the list of supported extensions via a valid GetCapabilities request; check that the extension required is listed.* | |
|  | | Test type | Conformance | |
| **Test** | | /**conf/ covcoll\_get-kvp/describeCoverageCollection -request-structure** | | |
|  | | Requirement | **/req/ covcoll\_get-kvp/describeCoverageCollection -request-structure** | |
|  | | Test purpose | *A WCS server implementing the get-kvp protocol binding extension* ***shall*** *encode the DescribeCoverageCollection operation request as specified in* Table 12*.* | |
|  | | Test method | *Send DescribeCoverageCollection requests testing server response on the cases distinguished in said reference. Check proper response.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_get-kvp/describeCoverageCollection-request** | | |
|  | | Requirement | **/req/covcoll\_get-kvp/describeCoverageCollection-request** | |
|  | | Test purpose | *The request parameter in the DescribeCoverageCollection request parameter of a DescribeCoverageCollection request* ***shall*** *be indicated as follows: request= DescribeCoverageCollection* | |
|  | | Test method | *Send a valid get-kvp DescribeCoverageCollection request as defined. Check that the response is not an exception.* | |
|  | | Test type | Conformance | |
| **Test** | | /**conf/covcoll\_get-kvp/describeCoverageCollection-coverageCollectionId** | | |
|  | | Requirement | **/req/covcoll\_get-kvp/describeCoverageCollection-coverageCollectionId** | |
|  | | Test purpose | *The coverageCollectionId parameter in the DescribeCoverageCollection request parameter of a DescribeCoverageCollection request* ***shall*** *be indicated as follows, for parameter values v1, …, vn: coverageCollectionId= v1,…,vn* | |
|  | | Test method | *Send a valid get-kvp DescribeCoverageCollection request as defined. Check that the response is not an exception* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_get-kvp/describeCoverageCollection-subset** | | |
|  | | Requirement | **/req/covcoll\_get-kvp/describeCoverageCollection-subset** | |
|  | | Test purpose | *The subset parameters in the DescribeCoverageCollection request parameter of a DescribeCoverageCollection request* ***shall*** *be indicated through a possibly empty set of subset specifications, each one with key “subset” and value specification given by a SubsetSpec (see example for structure)* | |
|  | | Test method | *Send a valid get-kvp DescribeCoverageCollection request as defined. Check that the response is not an exception.* | |
|  | | Test type | Conformance | |



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

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| **[http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_post-xml]( http://www.opengis.net/spec/WCS_application-profile_coverage_collections/1.0/ conf/covcoll_post-xml)** | | | |
| Dependency | **<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>** | | |
|  | **Web Coverage Service 2.0 Interface Standard - XML/POST Protocol Binding Extension [:OGC 09-148r1]** | | |
| **Test** | | **/conf/covcoll\_post-xml/conformance-class-in-profile** | | |
|  | | Requirement | **/req/covcoll\_post-xml/conformance-class-in-profile** | |
|  | | Test purpose | *Implementations of this CoverageCollection extension-WCS which support the* ***covcoll\_post-xml*** *requirements class* ***shall*** *include the following URI in a Profile element in the ServiceIdentification in a GetCapabilities response:*  *http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_post-xml* | |
|  | | Test method | *Determine the list of supported extensions via a valid GetCapabilities request; check that the extension required is listed.* | |
|  | | Test type | Conformance | |
| **Test** | | /**conf/covcoll\_post-xml/describeCoverageCollection-request-structure** | | |
|  | | Requirement | **/req/covcoll\_post-xml/describeCoverageCollection-request-structure** | |
|  | | Test purpose | *A WCS server implementing 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 syntactically legal and illegal GetCoverage request to server under test, verify that the server responds appropriately.* | |
|  | | Test type | Conformance | |
| **Test** | | **/conf/covcoll\_post-xml/ mandatory** | | |
|  | | Requirement | /**req/covcoll\_post-xml/ mandatory** | |
|  | | Test purpose | *Implementations of this coverage\_collection extension-WCS which support the* ***covcoll\_get-kvp*** *requirements class* ***shall*** *support the WCS 2.1 protocol extension GET/KVP [OGC 09-147r3].* | |
|  | | Test method | *Determine the list of supported extensions via a valid GetCapabilities request; check that the extension required is listed.* | |
|  | | Test type | Conformance | |
| **Test** | | **[/conf/covcoll\_post-xml](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-response-structure** | | |
|  | | Requirement | **[/req/covcoll\_post-xml](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-response-structure** | |
|  | | Test purpose | *In the response to a successful DescribeCoverageCollection request, the response* ***shall*** *contain exactly one element which contains covcoll:CoverageCollectionDescriptions as its single element* | |
|  | | Test method | **S***end a valid soap DescribeCoverageCollection request to sever under test. Check response whether the condition is fulfilled* | |
|  | | Test type | Conformance | |



* 1. Conformance SOAP protocol binding

|  |  |  |  |
| --- | --- | --- | --- |
| **Conformance Class** | | | |
| **http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_soap** | | | |
| Dependency | **http://www.opengis.net/spec/WCS\_protocol-binding\_soap/1.0/conf/soap** | | |
| Dependency | **[http://www.opengis.net/spec/WCS\_service-extension\_coveragecollection/1.0/conf/describe-coveragecollection](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/describe-coveragecollection)** | | |
| Dependency | **http://www.opengis.net/spec/WCS\_protocol-binding\_soap/1.0/conf/soap.** | | |
|  | | /**conf/covcoll\_soap/ mandatory** | | |
|  | | Requirement | /**req/covcoll\_soap/ mandatory** | |
|  | | Test purpose | *Implementations of this CoverageCollection extension-WCS which support the covcoll\_soap requirements class* ***shall*** *support the WCS 2.0 protocol extension SOAP [OGC 09-149r1* | |
|  | | Test method | *Determine the list of supported extensions via a valid GetCapabilities request; check that the extension required is listed.* | |
|  | | Test type | Conformance | |
|  | | **/conf/covcoll\_soap /conformance-class-in-profile** | | |
|  | | Requirement | **req/covcoll\_soap /conformance-class-in-profile** | |
|  | | Test purpose | *Implementations of this covcoll-WCS which support the covcoll\_soap requirements class* ***shall*** *include the following URI in a Profile element in the ServiceIdentification in a GetCapabilities response:*  *http://www.opengis.net/spec/WCS\_application-profile\_coverage\_collections/1.0/ conf/covcoll\_soap* | |
|  | | Test method | *Determine the list of supported extensions via a valid GetCapabilities request; check that the extension required is listed.* | |
|  | | Test type | Conformance | |
|  | | **[/conf/covcoll\_soap](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-request-structure** | | |
|  | | Requirement | **[/req/covcoll\_soap](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/describeCoverageCollection-request-structure** | |
|  | | Test purpose | *A DescribeCoverageCollection request* ***shall*** *contain exactly one Body element containing exactly one covcoll:CoverageCollectionDescriptions element.* | |
|  | | Test method | *Send otherwise soap DescribeCoverageCollection requests containing:-*   * *exactly one Body element containing exactly one DescribeCoverageCollection element;* * *exactly one Body element containing more than one DescribeCoverageCollection element;* * *exactly one Body element containing no DescribeCoverageCollection;* * *more than one Body element;* * *without a Body elment;*   *Pass test if appropriate valid results or exceptions, resp., are delivered.* | |
|  | | Test type | Conformance | |
|  | | **[/conf/covcoll\_soap](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-response-structure** | | |
|  | | Requirement | **[/req/covcoll\_soap](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-response-structure** | |
|  | | Test purpose | *In the response to a successful DescribeCoverageCollection request, the SOAP Envelope* ***shall*** *contain exactly one Body element which contains a*  *covcoll:CoverageCollectionDescriptions as its single element.* | |
|  | | Test method | *Send a valid soap DescribeCoverageCollection request to the sever under test and check the response for conformity.* | |
|  | | Test type | Conformance | |
|  | | **[/conf/covcoll\_soap](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-response-structure** | | |
|  | | Requirement | **[/req/covcoll\_soap](http://www.opengis.net/spec/WCS_service-extension_coveragecollection/1.0/req/post-xml)/ describeCoverageCollection-response-structure** | |
|  | | Test purpose | *Publication of a WCS SOAP service endpoint* ***shall*** *be based on the binding as defined in file wsdl/wcs-soap-binding.wsdl of the WCS package* | |
|  | | Test method | *For the service under test, retrieve the WSDL description and issue requests which make use of this service definition. Check that the service can be addressed and that queries can be retrieved properly.* | |
|  | | Test type | Conformance | |

# Bibliography

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

OGC 09-110r3 OGC® WCS 2.0 Interface Standard – Core

OGC 09-110r5 OGC® WCS 2.1 Interface Standard- Core: Corrigendum

OGC 10-140 OGC® Web Coverage Service 2.0 Interface Standard -Earth Observation Application Profile

OGC 07-036 OpenGIS® Geography Markup Language (GML) Encoding Standard

# Schemas

CovCollGetCapabilities

<?xml version="1.0" encoding="UTF-8"?>  
<schema targetNamespace="http://www.opengis.net/wcs/covcoll/1.0"  
 xmlns:covcoll="http://www.opengis.net/wcs/covcoll/1.0"  
 xmlns:wcs="http://www.opengis.net/wcs/2.1"  
 xmlns:ows="http://www.opengis.net/ows/2.0"  
 xmlns:gml="http://www.opengis.net/gml/3.2"  
 xmlns:cis="http://www.opengis.net/cis/1.1"  
 xmlns="http://www.w3.org/2001/XMLSchema"  
 elementFormDefault="qualified" version="1.0.0" xml:lang="en">  
 <annotation>  
 <appinfo>wcsCovCollGetCapabilities.xsd</appinfo>  
 <documentation>This XML Schema defines the wcsCovCollGetCapabilities" operation request and response XML elements and types, used by the  
 OGC Web Coverage Service (WCS) and the Coverage Collection Interface standard. The OGC Coverage Collection interface definition is an OGC  
 standard Last updated: 2016-feb-04 Copyright (c) 2016 Open Geospatial Consortium, Inc. All Rights Reserved. To obtain additional rights   
 of use, visit http://www.opengeospatial.org/legal/.  
 </documentation>  
 </annotation>  
   
 <!-- =========================================================== -->  
 <!-- includes and imports -->  
 <!-- =========================================================== -->  
 <import namespace="http://www.opengis.net/ows/2.0" schemaLocation="http://schemas.opengis.net/ows/2.0/owsAll.xsd"/>  
 <import namespace="http://www.opengis.net/wcs/2.1" schemaLocation="file:/C:/Users/PTrevelyan/WCS/MetOceanWCS/CovColl/Schemas/wcsAll.xsd"/>  
<!-- <import namespace="http://www.opengis.net/wcs/2.0" schemaLocation="http://schemas.opengis.net/wcs/2.0/wcsAll.xsd"/>-->  
 <import namespace="http://www.opengis.net/gml/3.2" schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>  
<!-- <import namespace="http://www.opengis.net/cis/1.1" schemaLocation="file:/C:/Users/PTrevelyan/WCS/CIS/Schemas/cisAll.xsd"/>-->  
 <import namespace="http://www.opengis.net/cis/1.1" schemaLocation="file:/C:/Users/PTrevelyan/WCS/MetOceanWCS/CovColl/Schemas/cisAll.xsd"/>  
   
 <!-- =========================================================== -->  
 <!-- elements and types -->  
 <!-- =========================================================== -->  
 <element name="CoverageCollectionSummary" type="covcoll:CoverageCollectionSummaryType">  
 <annotation>  
 <documentation>A CoverageCollectionSummary contains information essential to address a specifce CoveregeCollection.</documentation>  
 </annotation>  
 </element>  
   
 <element name="coverageCollectionId" type="NCName">  
 <annotation>  
 <documentation>This element represents CoverageCollection identifiers. It uses the same type as gml:id to allow for identifier values to be used in both contexts. </documentation>  
 </annotation>  
 </element>  
 <element name="coverageCollectionProfile" type="anyURI"/>  
   
 <element name="coverageCollectionSummary">  
 <complexType>   
 <sequence>  
 <element ref="covcoll:CoverageCollectionSummary" minOccurs="0"/>  
 </sequence>  
 <attributeGroup ref="gml:AssociationAttributeGroup"/>  
 </complexType>  
 </element>  
   
 <element name="coveragecollectionMetadata" type="covcoll:coveragecollectionMetadataType"/>  
 <complexType name="coveragecollectionMetadataType">  
 <sequence>  
 <element name="coveragecollectionProfileSupported" type="anyURI" minOccurs="0" maxOccurs="unbounded"/>  
 </sequence>  
 </complexType>  
   
 <element name="ServiceMetadataExtension" type="covcoll:ServiceMetadataExtensionType" substitutionGroup="wcs:Extension">  
 <annotation>  
 <documentation>Request to a WCS to perform the GetCapabilities operation.</documentation>  
 </annotation>  
 </element>  
 <complexType name="ServiceMetadataExtensionType">  
 <complexContent>  
 <extension base="wcs:ExtensionType">  
 <sequence>  
 </sequence>  
 </extension>  
 </complexContent>  
 </complexType>  
   
 <complexType name="CoverageCollectionSummaryType">  
 <complexContent>  
 <extension base="ows:DescriptionType">  
 <sequence>  
 <element ref="covcoll:coverageCollectionId"/>  
 <element ref="cis:envelope" minOccurs="1" maxOccurs="1"/>  
 <element ref="ows:Metadata" minOccurs="0" maxOccurs="unbounded"/>  
 </sequence>  
 </extension>  
 </complexContent>  
 </complexType>  
</schema>

DescribeCoverageCollection.xsd

<?xml version="1.0" encoding="UTF-8"?>  
<schema targetNamespace="http://www.opengis.net/wcs/covcoll/1.0"  
 xmlns:covcoll="http://www.opengis.net/wcs/covcoll/1.0"  
 xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:wcs="http://www.opengis.net/wcs/2.1"  
 xmlns:gmlcov="http://www.opengis.net/gmlcov/1.0" xmlns:gml="http://www.opengis.net/gml/3.2"  
 xmlns:cis="http://www.opengis.net/cis/1.1" xmlns:ows="http://www.opengis.net/ows/2.0"  
 xmlns="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified" version="1.0.0"  
 xml:lang="en">  
 <annotation>  
 <appinfo>DescribeCoverageCollection.xsd</appinfo>  
 <documentation>This XML Schema defines the DescribeCoverageCollection" operation request and  
 response XML elements and types, used by the OGC Web Coverage Service (WCS) and the  
 Coverage Collection Interface standard. The OGC Coverage Collection interface definition  
 is an OGC standard Last updated: 2016-feb-04 Copyright (c) 2016 Open Geospatial  
 Consortium, Inc. All Rights Reserved. To obtain additional rights of use, visit  
 http://www.opengeospatial.org/legal/. </documentation>  
 </annotation>  
 <!-- =========================================================== -->  
 <!-- includes and imports -->  
 <!-- =========================================================== -->  
  
 <import namespace="http://www.opengis.net/wcs/2.1"  
 schemaLocation="file:/C:/Users/PTrevelyan/WCS/MetOceanWCS/CovColl/Schemas/wcsAll.xsd"/>  
 <import namespace="http://www.opengis.net/gmlcov/1.0"  
 schemaLocation="http://schemas.opengis.net/gmlcov/1.0/gmlcovAll.xsd"/>  
 <import namespace="http://www.opengis.net/gml/3.2"  
 schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>  
 <import namespace="http://www.opengis.net/ows/2.0"  
 schemaLocation="http://schemas.opengis.net/ows/2.0/owsAll.xsd"/>  
 <import namespace="http://www.opengis.net/cis/1.1"  
 schemaLocation="file:/C:/Users/PTrevelyan/WCS/CIS/Schemas/cisAll.xsd"/>  
  
 <element name="DescribeCoverageCollection" type="covcoll:DescribeCoverageCollectionType">  
 <annotation>  
 <appinfo>wcsCovCollDescribeCoverageCollectionv.xsd</appinfo>  
 <documentation>Request to a WCS to perform the DescribeCoveragesCollection operation.  
 This operation allows a client to retrieve descriptions of one or more  
 CoverageCollections. In this XML encoding, no "request" parameter is included, since  
 the element name specifies the specific operation. </documentation>  
 </annotation>  
 </element>  
 <complexType name="DescribeCoverageCollectionType">  
 <complexContent>  
 <extension base="wcs:RequestBaseType">  
 <sequence>  
 <element ref="covcoll:coverageCollectionId" maxOccurs="unbounded">  
 <annotation>  
 <documentation>Unordered list of identifiers of desired  
 CoverageCollections. A client can obtain identifiers by a prior  
 GetCapabilities request, or from a third-party source.  
 </documentation>  
 </annotation>  
 </element>  
 <element ref="covcoll:AxisTrim" minOccurs="0" maxOccurs="5"/>  
 </sequence>  
 <attribute name="count" type="nonNegativeInteger"/>  
 </extension>  
 </complexContent>  
 </complexType>  
  
 <element name="AxisTrim" type="cis:EnvelopeByAxisType"/>  
 <element name="coverageCollectionId" type="NCName"/>  
  
 <element name="CoverageCollectionDescription" type="covcoll:CoverageCollectionDescriptionType"/>  
 <complexType name="CoverageCollectionDescriptionType">  
 <sequence>  
 <element ref="covcoll:coverageCollectionId" minOccurs="1"/>  
 <element ref="ows:Metadata" minOccurs="1" maxOccurs="unbounded"/>  
 <element name="coverageSummary" minOccurs="0" maxOccurs="unbounded">  
 <complexType>  
 <sequence>  
 <element ref="wcs:CoverageSummary" minOccurs="1" maxOccurs="unbounded"/>  
 </sequence>  
 </complexType>  
 </element>  
  
 <element name="subCollectionDescription" minOccurs="0" maxOccurs="unbounded">  
 <complexType>  
 <sequence>  
 <element ref="covcoll:CoverageCollectionDescription" minOccurs="0"  
 maxOccurs="unbounded"/>  
 </sequence>  
 </complexType>  
 </element>  
 </sequence>  
 <attributeGroup ref="gml:AggregationAttributeGroup" id="bag"/>  
 </complexType>  
  
 <element name="CoverageCollectionDescriptions">  
 <complexType>  
 <sequence>  
 <element ref="covcoll:coverageCollectionDescription" minOccurs="1"  
 maxOccurs="unbounded"/>  
 </sequence>  
 </complexType>  
 </element>  
  
 <element name="coverageCollectionDescription">  
 <complexType>  
 <sequence>  
 <element ref="covcoll:CoverageCollectionDescription" minOccurs="1" maxOccurs="1"/>  
 </sequence>  
 </complexType>  
 </element>  
  
 <xs:element name="referenceTime">  
 <xs:complexType>  
 <xs:sequence>  
 <xs:element ref="gml:timePosition"/>  
 </xs:sequence>  
 </xs:complexType>  
 </xs:element>  
  
 <element name="coverageDescription" substitutionGroup="ows:AbstractMetaData">  
 <complexType>  
 <complexContent>  
 <extension base="ows:MetadataType">  
 <sequence>  
 <element ref="covcoll:referenceTime" minOccurs="0" maxOccurs="1"/>  
 <element ref="cis:envelope" minOccurs="0" maxOccurs="1"/>  
 </sequence>  
 <attribute name="coverageName" type="string"/>  
 </extension>  
 </complexContent>  
 </complexType>  
 </element>  
  
 <element name="collectionDescription" substitutionGroup="ows:AbstractMetaData">  
 <complexType>  
 <complexContent>  
 <extension base="ows:MetadataType">  
 <sequence>  
 <element ref="covcoll:referenceTime" minOccurs="0" maxOccurs="1"/>  
 <element ref="cis:envelope" minOccurs="0" maxOccurs="1"/>  
 </sequence>  
 <attribute name="collectionName" type="string"/>  
 </extension>  
 </complexContent>  
 </complexType>  
 </element>  
  
</schema>

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