Title	**Guidance notes for the production of discovery metadata for the Marine Environmental Data and Information Network (MEDIN)**
MEDIN Discipline	Discovery Metadata
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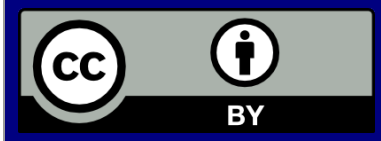
Licence 	
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Summary	The discovery metadata standard for resources submitted to the Marine Environmental Data Information Network.
Keywords	Discovery Metadata

Metadata standards are evolving at an international level and these guidelines are therefore subject to change.

It is recommended that you use a download of this document from the Marine Environmental Data and Information Network (MEDIN) website (www.medin.org.uk) rather than storing a local copy. A log of changes will be available on the website.

Change History			
Version	**Author**	**Date of last revision**	**Status**
Interim Draft 1.0	BS	2008-12-20	Draft for comment
Interim Draft 1.1	BS	2009-31-01	Draft for comment
Interim Draft 1.2	BS	2009-22-02	Final Draft
Interim Version 2.0	BS	2009-03-19	First interim release
Interim Version 2.1	MC	2009-03-27	Minor edits to test
Interim Version 2.2	BS	2009-03-31	Mapped to 19115
Interim Version 2.3	BS	2009-05-07	Updated WRT INSPIRE and GEMINI 2
Public Standard 2.3.1	OM & JR	2009-05-20	SeaZone Review
Public Standard 2.3.2	MC	2009-10-01	Updated to reflect changes in GEMINI 2.
Public Standard 2.3.3	MC	2010-01-27 to 2010-03-11	Some small tweaks following discussions within MEDIN and GEMINI 2 and extra guidance on spatial resolution and URIs and a refresh of xml examples
Public Standard 2.3.4	MC/JR	17-11-2010	Some minor tweaks following changes to GEMINI 2.1 standard. New Element 'Parent ID' and explanation of file identifier added. Some cosmetic changes. Details of changes available on request.
Public Standard 2.3.5	MC/JR	11-04-2011	Minor presentational changes to document. Changes to the way controlled vocabularies are encoded (see page 4) and the way end date is encoded if the resource is ongoing. Inclusion of sub element 'Online resource function code' and clarification of responsible party roles.
Public Standard 2.3.6	MC	06-10-2011	Minor changes to follow changes in GEMINI 2. Geographic bounding box and temporal extant made multiple; date of publication made conditional to follow GEMINI 2.
Public Standard 2.3.7	MC	14-04-2012	Minor changes: Clarification of encoding when resource end date is ongoing and of the N010 keyword. Some typos corrected.

Public Standard 2.3.7	CP	14-03-2013	Minor changes to the Guidance Notes. e.g. correcting typos, updating web addresses. No Changes to the standard.
Public Standard 2.3.8	CP	29-10-2013	Minor changes to follow changes in GEMINI 2.2: Multiple occurrences of Unique Resource Identifier allowed, multiple occurrences of spatial reference system allowed. Some changes to Temporal extent to match GEMINI 2.2. Distributor made mandatory to match INSPIRE and GEMINI 2.2. Inserted sub element Equivalent scale to match INSPIRE guidance (NB difference between INSPIRE and GEMINI 2.2 in obligation of this element). Also updated links to NERC vocabulary server to reflect a change to NVS2.0.
Public Standard 3.0	SG	08-03-2019	Update of MEDIN Discovery Standard to account for change from GEMINI 2.2 to GEMINI 2.3. See separate document 'MEDIN_Discovery_Metadata_Standard_2_3_8_to_3_0_Mar2019.pdf' for details of changes.
Public Standard 3.1	SG	08-07-2020	Clarifications on encoding and use of many metadata elements from AGI GEMINI Working Group. See separate document 'MEDIN_Discovery_Metadata_Standard_3_0_to_3_1_July2020.pdf' for details of changes
Public Standard 3.1.1	SG	27-10-2021	Changes described in 'MEDIN_Discovery_Metadata_Standard_3_1_to_3_1_1_Oct2021.pdf'

MEDIN Elements

1. Introduction

Metadata standards are essential to enable easy discovery, evaluation and use of resources. In most cases within MEDIN the resource will be a dataset, however model outputs and services such as web mapping services and data download services are also included. Different sorts of standards are applied for discovering a dataset, service or series (collectively known as resources), evaluating its fitness for purpose and in providing the information required to use it. This standard is one that sets out a specific format to record details of a resource so that in the future other people can easily discover resources that may be of use to them. It is therefore termed a 'metadata discovery standard' and this document sets out the format used by the Marine Environmental Data Information Network (MEDIN). All metadata released via the MEDIN portal must comply with a number of international and national metadata standards. The MEDIN metadata schema is based on the ISO 19115:2003 standard, and includes all core INSPIRE metadata elements. It also complies with the UK GEMINI 2.3 metadata standard. The xml produced conforms to the ISO 19139 standard for xml implementation.

This document is designed to assist those creating metadata for MEDIN and provides guidance on how to complete each element. Please refer to the INSPIRE metadata implementing rules, http://inspire.jrc.ec.europa.eu/ rules and UK GEMINI 2.3 specification https://www.agi.org.uk/gemini/40-gemini/1037-uk-gemini-standard-and-inspire-implementing-rules for additional information. In writing this document reference has been made to the Technical Guidance for the implementation of INSPIRE dataset and service metadata based on ISO/TS 19139:2007 (see guidelines at http://inspire.ec.europa.eu/document-tags/metadata)[1].

Metadata standards may change over time. It is recommended that this document is downloaded regularly to ensure the most current version is in use

2. Data Discoverability

It is important that other users of MEDIN can find out how to access the raw data or products by using the information held in this standard. Therefore, where available, links should be provided to web pages and/or contact details of the organisation or person who holds the dataset. If there is a direct web link to the dataset or service then it should be stated in Element 5 'Resource Locator'. Further information such as related documents and links to other portals that may also hold information on the dataset, should be given in Element 19 'Additional Information' and the contact details of the organisation or person who holds the dataset should be given in Element 22 'Responsible Party'.

MEDIN recommends that required contact information represents the organisation rather than any individual responsible for the relevant role (e.g. owner, originator). The job title of a contact within the organisation should also be supplied e.g. Data Support Officer. Only in circumstances where organisation and job title cannot be provided should contact details for an individual be given instead.

If intending to supply an individual's contact information, the application of the European Union General Data Protection Regulation (GDPR), through the UK Data Protection Act (2018), shall be taken into account by the metadata creator. Personal information, such as

[1] INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119, 2009-02-18, Version 1.1, MD_IR_and_ISO_20090218.
Technical Guidance for the implementation of INSPIRE dataset and service metadata based on ISO/TS 19139:2007

name, email, address, phone number shall not be provided by the metadata creator without the express permission of the subject. This information becomes publicly available once the metadata record is added to the MEDIN portal and the owner of such information must be made aware of this and give consent prior to publication of the record. Metadata creators should be aware of this public exposure of their personal information when supplying their own details.

Often it is difficult to decide if the data that has been collected constitutes one dataset or many - this is called 'granularity'. It is important to get the level or 'granularity' correct otherwise it is possible to end up with either too many or too few records which makes it difficult for a user to find what they want via a portal. MEDIN has some practical guidance to help you decide:

- The correct level for a dataset is a cruise, survey or a set of repeat observations with a common purpose.
- A dataset usually constitutes a specifically-funded piece of work.
- The dataset should be easily extractable from a database for a 3rd party.
- If you are searching for a dataset using a portal and get the result every time you search by different combinations of time, location and parameter then it is probably too coarse.

2.1 Date and time formatting

Date and time are key components of geospatial discovery metadata, enabling users to locate the temporal range of the data resources they are interested in. In order for these times to be of use however, they must be standardized. Therefore, MEDIN require that all times and dates in the MEDIN Discovery Metadata Standard be formatted in accordance to UK GEMINI's use of ISO 8601. The specific rules to follow are:

1. Dates may be to any degree of precision, from year (YYYY) to full date and time.
2. The extended date format (YYYY-MM-DD) should be used, where YYYY is the year, MM the month and DD the day.
3. If required, time (HH:MM:SS, where HH is the hour, MM the minute and SS the second) may be added, with T separating the two parts.
4. Periods are recorded as {fromdate/todate} (e.g. 2006-04-01/2007-03-31). Either fromdate or todate (but not both) may be left blank to indicate uncertainty.
5. There may be more than one Temporal Extent.
6. The coarsest resolution allowable is 'year'.

3. Using this document

This document outlines the elements that make up the MEDIN discovery metadata standard. It encompasses the INSPIRE standards which specifically cover datasets, series of datasets and services[2] (e.g. web services). In addition MEDIN allows metadata on other data types such as reports to be created. The elements required for MEDIN Discovery Metadata are listed below in this document. The table details each element and corresponding requirement level, depending on the resource type being described.

[2] See Element 4 resource type for definition of a 'service'

Element Number	Element Name	Requirement level for dataset or series	Requirement level for services
1	Resource title	Mandatory	Mandatory
2	Alternative resource title	Optional	Optional
3	Resource abstract	Mandatory	Mandatory
4	Resource type	Mandatory	Mandatory
5	Resource locator	Conditional	Conditional
6	Unique resource identifier	Mandatory	N/A[3]
7	Coupled Resource	N/A	Conditional
8	Resource language	Mandatory	N/A
9	Topic category	Mandatory	N/A
10	Spatial data service type	N/A	Mandatory
11	Keywords	Mandatory	Mandatory
12	Geographical bounding box	Mandatory	Conditional
13	Extent	Optional	Optional
14	Vertical extent information	Conditional	Conditional
15	Spatial reference system	Mandatory	Mandatory
16	Temporal reference	Mandatory	Mandatory
17	Lineage	Mandatory	N/A
18	Spatial resolution	Conditional	N/A
19	Additional information	Optional	N/A
20	Limitations on public access	Mandatory	Mandatory
21	Conditions applying for access and use	Mandatory	Mandatory
22	Responsible party	Mandatory	Mandatory
23	Data format	Mandatory	N/A
24	Frequency of update	Mandatory	Conditional
25	Conformity	Mandatory	Mandatory
26	Metadata date	Mandatory	Mandatory
27	Metadata standard name	Mandatory	Mandatory
28	Metadata standard version	Mandatory	Mandatory
29	Metadata language	Mandatory	Mandatory
30	Parent ID	Optional	Optional
31	Hierarchy level name	Conditional	Mandatory
32	Spatial representation type	Mandatory	N/A
33	Character encoding	Conditional	N/A

4. Filling in an element

The element descriptions are made up of 8 parts which are outlined below.

a) Element number – The MEDIN reference number of the element

b) Element name – The MEDIN name of the element

c) Requirement level – The requirement level for the element. This will be either 'M', 'C' or 'O' indicating:

Mandatory (M): the element must be filled in under all circumstances.

[3] N/A – this element should not be populated when generating discovery metadata for this resource type

Conditional (C): the element must be completed for the resource type being described if certain conditions are met e.g. Resource language must be completed if the resource contains textual information. Conditional can also indicate that the requirement level will vary depending on whether the resource being described is a dataset/series or a service.

Optional (O): the element may be filled in if desired. MEDIN encourage metadata creators to populate optional elements if they have the knowledge, as this provides more detailed information for people to search on, allowing better access to, and re-use of data.

d) Requirement level detail - Further information provided to clarify the requirement level. The requirement level for each element is applicable to all resource types, unless explicitly stated otherwise. For elements marked Conditional where the requirement level varies depending on resource type, this part will state the requirement levels for each appropriate resource type.

e) Occurrence – The number of times an element can occur in the schema, which will be either one or many.

f) Field type – The data allowed in a field (as specified below):

> ***Free text*** - enter text in this field.
> ***Controlled vocabulary*** - you must select an option from a list of values.
> ***Date or Date/time*** - specify a date or a date and time in the format yyyy-mm-dd for dates and hh:mm:ss for times. This follows the guidance in section 2.1 above.
> ***Numeric*** - enter only numbers into this field.
> ***Uniform Resource Locator URL (e.g. web address)*** - specify a full web address. e.g. http://www.medin.org.uk/ExampleFolder/ExampleSubfolder/Resource.html. There should be no spaces in the address. If there are spaces in an address, they should be encoded with '%20'. e.g. My Folder.resource.html becomes My%20Folder.resource.html

g) Description – A description of the data, with links to the code list used or websites where the controlled vocabularies can be found.

h) Example(s) – An example of the element.

An example of content that would satisfy the components of the element.

i) Example XML fragment - A fragment of an XML output from an ISO compliant schema. The mapping of MEDIN elements to the ISO 19115 elements can be found in section 8.0 of this document. Fragments may be examples for both dataset/series resources and service resources or just for one resource type. Annex B provides guidance on where complete XML examples for both dataset /series and service metadata instances can be sourced from.
More detailed guidance on XML encoding is available from GEMINI 2.3.

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
```

```
          <gmd:title>
            <gco:CharacterString>
              1998-2008 Marine Life Information Network UK
              (MarLIN) Sealife Survey Records
            </gco:CharacterString>
          </gmd:title>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

The XML comment tags `<!-- ... -->` indicate that other XML elements have been omitted in order to make the XML fragments clear.

Following agreement in MEDIN it was decided in May 2011, that to facilitate the portal and allow deprecation of vocabulary terms, the following vocabularies used should be encoded using the gmx:Anchor tag rather than the gco:CharacterString tag:

Element 11, Keywords: P02 SeaDataNet Parameter Discovery Vocabulary
Element 11, Keywords: L13 SeaVox Vertical Co-ordinate Coverages
Element 11, Keywords: N01 MEDIN Metadata Record Availability (for OAI Harvesting)
Element 13, Extent: C19 SeaVox Salt and fresh water body gazetteer
Element 13, Extent: C64 United Kingdom Charting Progress 2 sea regions
Element 23, Data Format: M01 MEDIN Data Format Categories
Element 25, Conformity: C48 MEDIN Data Guidelines

5. Elements for identifying a resource

Element 1 - Resource title (M)

Mandatory element. Only one occurrence allowed. Free text.

The title is used to provide a brief and precise description of the resource, which in most cases will be a dataset. MEDIN recommend the following format:

'Date' 'Originating organisation/programme' 'Location' 'Type of survey'. It is advised that acronyms and abbreviations are reproduced in full. Example: Centre for Environment, Fisheries and Aquaculture Science (Cefas).

If acronyms cannot be reproduced in full in the Title element, they must be fully expanded in one of the Resource Abstract or Alternative Resource Title elements.

Example 1

1992 Centre for Environment, Fisheries and Aquaculture Science (Cefas) North Sea 2m beam trawl survey.

Example 2

1980-2000 Marine Life Information Network UK (MarLIN) Sealife Survey records.

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <gmd:title>
            <gco:CharacterString>
1998-2008 Marine Life Information Network UK (MarLIN) Sealife
Survey Records
            </gco:CharacterString>
          </gmd:title>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <gmd:citation >
        <gmd:CI_Citation>
```

```
          <gmd:title>
            <gco:CharacterString >WMS publishing the Digital
Geological Map Data of Great Britain - 625k</gco:CharacterString>
          </gmd:title>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 2 - Alternative resource title (O)

Optional element. Multiple occurrences allowed. Free text.

The purpose of alternative title is to record any additional names by which the resource (e.g. dataset) may be known and may include short name, other name, acronyms or alternative language title e.g. Welsh language title of the same resource. If including acronyms in the text, they should be expanded in full if the full term has not been stated in the Resource title element.

Example

1980-2000 MarLIN Volunteer Sighting records.

Example XML fragment (for datasets and series of datasets) (showing title element and alternate title element):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <gmd:title>
            <gco:CharacterString>
1998-2008 Marine Life Information Network UK (MarLIN) Sealife
Survey Records
            </gco:CharacterString>
           </gmd:title>
          <gmd:alternateTitle>
            <gco:CharacterString>
1998-2008 MarLIN Volunteer Sighting Records
            </gco:CharacterString>
          </gmd:alternateTitle>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services) (showing title element and alternate title element):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <gmd:citation>
        <gmd:CI_Citatio>
          <gmd:title>
            <gco:CharacterString>WMS publishing the Digital
Geological Map Data of Great Britain - 625k</gco:CharacterString>
          </gmd:title>
              <gmd:alternateTitle>
                   <gco:CharacterString>
Service publishing DIGMaPGB-625
                   </gco:CharacterString>
              </gmd:alternateTitle>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 3 - Resource abstract (M)

Mandatory element. Only one resource abstract allowed. Free text.

The abstract should provide a clear and brief statement of the content of the resource (e.g. dataset). It shall be a minimum of 100 characters in length and shall not be a duplicate of the title. Metadata creators should include what has been recorded, what form the data takes, what purpose it was collected for, and any limiting information, i.e. limits or caveats on the use and interpretation of the data. Background methodology and quality information should be entered into the Lineage element (Element 17). It is recommended that acronyms and abbreviations are reproduced in full e.g. Centre for Environment, Fisheries and Aquaculture Science (Cefas).

Restrictions relating to spatial resolution for metadata for services shall be expressed in Resource abstract if they exist, and not in Element 18 Spatial Resolution.

Example 1

Benthic marine species abundance data from an assessment of the cumulative impacts of aggregate extraction on seabed macro-invertebrate communities. The purpose of this study was to determine whether there was any evidence of a large-scale cumulative impact on benthic macro-invertebrate communities as a result of the multiple sites of aggregate extraction located off Great Yarmouth in the North Sea.

Example 2

As part of the UK Department of Trade and Industry's (DTI's) ongoing sectorial Strategic Environmental Assessment (SEA) programme, a seabed survey programme (SEA2) was undertaken in May/June 2001 for areas in the central and southern North Sea UKCS. This report summarizes the sediment total hydrocarbon and aromatic data generated from the analyses of selected samples from two main study areas:

Area 2: the Dogger Bank in the SNS; and

Area 3: the pockmarks in the Fladen Ground vicinity of the central North Sea (CNS).

Example 3

The effects of a recent dumping of spoil in a licensed dumping ground within the Salcombe and Kingsbridge Estuary were studied during September 15th - 19th, 1987. The area was mapped using a combination of echo soundings and observations by divers. Data on species and biotope recorded and entered onto Marine Recorder. Species data and biotope data mapped as points using MapInfo. Includes Salcombe1 electronic data in the form of a Word document report..

Example 4

Conductivity, Temperature, Depth (CTD) grid survey in the Irish Sea undertaken in August 1981. Only temperature profiles due to conductivity sensor malfunction.

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:abstract>
        <gco:CharacterString>
          Sightings of seashore and underwater life collected
          through the MarLIN sealife recording scheme for the
          general public.  All records received are verified
          and validated.
        </gco:CharacterString>
      </gmd:abstract>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <gmd:abstract>
        <gco:CharacterString>
```

```
          This web mapping service (WMS) contains all the data
layers held on Marine Scotland's National Marine Plan Interactive
(NMPi) portal, excluding any layers consumed from a third party
WMS. Marine Scotland are a directorate of the Scottish Government.
        </gco:CharacterString>
      </gmd:abstract>
      <!-- ... -->
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 4 - Resource type (M)

Mandatory element. One occurrence allowed. Controlled vocabulary.

Identify the type of resource using the controlled vocabulary, MD_ScopeCode from ISO 19115. (See Annex C for code list). The resource type shall be a dataset, a series (collection of datasets with a common specification) or a service. In the vast majority of cases for MEDIN the resource type will be a dataset or a series. Further information on the difference between a dataset and a series and the definition of a service is available at http://www.medin.org.uk/medin/data/faqs.

Example

series

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:hierarchyLevel>
    <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="dataset">dataset</gmd:MD_ScopeCode>
  </gmd:hierarchyLevel>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:hierarchyLevel>
    <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="service">service</gmd:MD_ScopeCode>
  </gmd:hierarchyLevel>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 31 – Hierarchy level name (C)

Conditional element (shall be completed when Resource type is not “dataset”). Single occurrence allowed. Free text.

This is the name of the hierarchy level for which the metadata is provided. It should be used in conjunction with Resource type to provide users with information on the hierarchy of data within the resource.

Example 1

series

Example 2

service

Example XML fragment (for series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:hierarchyLevel>
    <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="series">series</gmd:MD_ScopeCode>
  </gmd:hierarchyLevel>
     <gmd:hierarchyLevelName>
          <gco:CharacterString>
          series
          </gco:CharacterString>
      </gmd:hierarchyLevelName>
      <!-- ... -->
          <gmd:identificationInfo>
               <gmd:MD_DataIdentification>
          <!-- ... -->
               </gmd:MD_DataIdentification>
          </gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:hierarchyLevel>
    <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="service">INSPIRE View Service</gmd:MD_ScopeCode>
  </gmd:hierarchyLevel>
     <gmd:hierarchyLevelName>
          <gco:CharacterString>
          service
          </gco:CharacterString>
```

```
        </gmd:hierarchyLevelName>
        <!-- ... -->
            <gmd:identificationInfo>
                <srv:SV_ServiceIdentification>
            <!-- ... -->
                </srv:SV_ServiceIdentification>
            </gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>
```

Element 5 - Resource locator (C)

Conditional element (shall be completed when online access is available). Multiple occurrences allowed. Free text.

Formerly named online resource. If the resource is available online you must provide a web address (URL) that links to the resource. If there is no online access to the resource but there is a publicly available online resource providing additional information about the described resource, a link to this information resource should be provided instead. This element should be used to provide the URL of any Digital Object Identifier (DOI) landing page(s) for the data resource.

Sub Element 5.1 - Resource locator URL (C)

Conditional element (must be completed if known). URL (web address).

The URL (web address) including the http://

Sub Element 5.2 - Resource locator name (O)

Optional element. Free text.

The name of the web resource.

Sub Element 5.3 - Resource function (O)

Optional element. Controlled vocabulary from ISO CI_OnlineFunctionCode. See Annex L.

Code for the function performed by the online resource. If the element is being populated for a DOI, the code shall be 'information'.

Sub Element 5.4 - Resource locator description (C)

Conditional element. Free text.

A detailed text description of what the online resource is or does. This element shall be populated for datasets and series metadata if 'Resource locator name' is unavailable. For services, it shall be populated if the service is an invocable spatial data service. Otherwise, population of this sub-element is optional.

Example 1

Resource locator URL:
http://www.defra.gov.uk/marine/science/monitoring/merman.htm
Resource locator name: The Marine Environment National Monitoring and Assessment Database
Resource locator function: download

Example 2

Resource locator URL:
https://doi.org/10.5285/481720C2-35BD-6C10-E053-6C86ABC06BB3
Resource locator name: An improved database of coastal flooding in the United Kingdom from 1915 to 2016
Resource locator function: information
Resource locator description: URL accesses a landing page (at the British Oceanographic Data Centre) for the UK database of coastal flooding from 1915 to 2016, allowing interested parties to download the data anonymously.

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:distributionInfo>
    <gmd:MD_Distribution>
      <!-- ISO 19115 Constraints require this element!-->
      <gmd:distributionFormat>
       <gmd:MD_Format>
        <gmd:name>
        <gco:CharacterString>Unknown</gco:CharacterString>
        </gmd:name>
        <gmd:version gco:nilReason="inapplicable"/>
       </gmd:MD_Format>
      </gmd:distributionFormat>
      <!-- ... -->
      <gmd:transferOptions>
        <gmd:MD_DigitalTransferOptions>
          <gmd:onLine>
            <gmd:CI_OnlineResource>
              <!-- Resource locator URL -->
              <gmd:linkage>
<gmd:URL>http://www.defra.gov.uk/marine/science/monitoring/merman.
htm</gmd:URL>
              </gmd:linkage>
              <!-- Resource name -->
               <gmd:name>
                    <gco:CharacterString>
                    The UK MERMAN database.
                  </gco:CharacterString>
               </gmd:name>
<!-- Resource locator description -->
               <gmd:description>
```

```
                    <gco:CharacterString>
                    Access page to the UK MERMAN database which
holds and provides access to data collected under the Clean Safe
Seas Environmental Monitoring Programme (CSEMP).
                    </gco:CharacterString>
                </gmd:description>
<!-- Resource function -->
                <gmd:function>
                 <gmd:CI_OnLineFunctionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_OnLineFu
nctionCode"
codeListValue="information">information</gmd:CI_OnLineFunctionCode
>
                </gmd:function>
              </gmd:CI_OnlineResource>
            </gmd:onLine>
          </gmd:MD_DigitalTransferOptions>
        </gmd:transferOptions>
      </gmd:MD_Distribution>
    </gmd:distributionInfo>
    <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services):

```
<gmd:MD_Metadata>
    <!-- ... -->
<gmd:distributionInfo>
    <gmd:MD_Distribution>
      <!-- ISO 19115 Constraints require this element!-->
      <gmd:distributionFormat>
       <gmd:MD_Format>
        <gmd:name>
        <gco:CharacterString>Unknown</gco:CharacterString>
        </gmd:name>
        <gmd:version gco:nilReason="inapplicable"/>
       </gmd:MD_Format>
      </gmd:distributionFormat>
      <!-- ... -->
      <gmd:transferOptions>
        <gmd:MD_DigitalTransferOptions>
          <gmd:onLine>
            <gmd:CI_OnlineResource>
              <!-- Resource locator URL -->
               <gmd:linkage>
               <gmd:URL>https://services.bgr.de/wms/geologie/emodne
               t2_prequaternary_seafloor_geology/?REQUEST=GetCapabi
               lities&SERVICE=WMS&</gmd:URL>
              </gmd:linkage>
              <!-- Resource name -->
               <gmd:name>
```

```
                    <gco:CharacterString>
                    BGR Geologie: EMODnet2.
                   </gco:CharacterString>
                </gmd:name>
<!-- Resource locator description -->
                <gmd:description>
                    <gmx:Anchor
                  xlink:href="http://inspire.ec.europa.eu/metadata-
codelist/OnLineDescriptionCode/endPoint">Capabilities document for
BGR Geologie: EMODnet2 Web Map Service</gmx:Anchor>
                </gmd:description>
<!-- Resource function -->
                <gmd:function>
                 <gmd:CI_OnLineFunctionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_OnLineFu
nctionCode"
codeListValue="information">information</gmd:CI_OnLineFunctionCode
>
              </gmd:function>
            </gmd:CI_OnlineResource>
          </gmd:onLine>
        </gmd:MD_DigitalTransferOptions>
      </gmd:transferOptions>
    </gmd:MD_Distribution>
  </gmd:distributionInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 6 - Unique resource identifier (C)

Mandatory element for datasets and series of datasets, not applicable to services[4]. Multiple occurrences allowed. Free text.

A Unique Resource Identifier allows a resource to be identified by a code. This code is generally assigned by the data owner and commonly consists of the organisation that manages the dataset and a number or code which is used to uniquely identify it within the databases of the organisation. If this code is unique then it is possible for an organisation to identify a dataset that a 3rd party may be referring to and also to quickly identify where dataset records may be duplicated in a portal.

The two parts to the element can either be provided separately as a code + a codespace or combined as 1 code. MEDIN recommends the use of code + a codespace as shown in example 1. Preferably the www address of the organisation should be given rather than the organisation acronym or name. *The code and the codespace should not include any spaces.* If you are unable to generate a Unique Identifier Code please contact medin.metadata@mba.ac.uk and we will generate a code for you or endeavour to provide a tool to generate your own codes.

Where present, a resource DOI should be recorded as a resource identifier, with the code reflecting the DOI and codespace being 'doi'.

[4] See Element 4 resource type for definition of a 'service'

Sub Element 6.1 - Code (M)

Mandatory sub-element (for datasets and series of datasets and also for services if element population is desired). One occurrence allowed. Free text.

A unique identification code for the resource. Where a DOI is being provided as a resource identifier, this code should be the DOI string. For DOIs, the resource needs to be encoded with an xlink anchor to the URL of the doi landing page.

Sub Element 6.2 - Code Space (C)

Conditional sub-element. Shall be populated if Code sub-element does not by itself uniquely identify the resource. One occurrence allowed. Free text.

This sub element is the authority that guarantees that the Sub element 6.1. 'Code' given is unique within its management system. For INSPIRE compliance, this should be the internet domain of the data owner/provider. Where a DOI is being provided as a resource identifier, this code space should be the text string 'doi'.

Example 1

Code: 5639287
Codespace: http://www.bodc.ac.uk

Example 2

Code: http://www.bodc.ac.uk/5639287

Example 3

Code: doi:10.5285/481720c2-35bd-6c10-e053-6c86abc06bb3
Codespace: doi

Example XML fragment (for datasets and series of datasets) (including code space):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:identifier>
            <gmd:MD_Identifier>
              <gmd:code>
                <gco:CharacterString>
                  MRMLN00400000002
                </gco:CharacterString>
              </gmd:code>
              <gmd:codeSpace>
                <gco:CharacterString>
                  http://www.dassh.ac.uk
                </gco:CharacterString>
              </gmd:codeSpace>
            </gmd:MD_Identifier>
          </gmd:identifier>
```

```
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets and series of datasets) (excluding code space):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:identifier>
            <gmd:MD_Identifier>
              <gmd:code>
                <gco:CharacterString>
                  MRMLN00400000002
                </gco:CharacterString>
              </gmd:code>
            </gmd:MD_Identifier>
          </gmd:identifier>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets and series of datasets) (encoding of a DOI landing page):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:identifier>
            <gmd:MD_Identifier>
              <gmd:code>
                <gmx:Anchor
xlink:href="https://www.bodc.ac.uk/data/published_data_library/catalogue/10.5285/7a8bd6b3-f066-31ea-e053-6c86abc00899/">doi:10.5285/7a8bd6b3-f066-31ea-e053-6c86abc00899</gmx:Anchor>
              </gmd:code>
              <gmd:codeSpace>
```

```
                <gco:CharacterString>
                  http://www.bodc.ac.uk
                </gco:CharacterString>
              </gmd:codeSpace>
            </gmd:MD_Identifier>
          </gmd:identifier>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 7 - Coupled resource (C)

Conditional element. Not applicable to datasets or series. Mandatory for View and Download services, optional for other service types. Multiple occurrences allowed. Free text.

This identifies the data resource(s) on which the service operates. Each occurrence shall be a URL that points to the metadata record of the data on which the service operates

Example

https://portal.medin.org.uk//portal/start.php#details?tpc=006_00806134608655879d57842c8138b1ff

Example XML fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <srv:operatesOn
xlink:href="https://portal.medin.org.uk/portal/start.php#details?tpc=006_00806134608655879d57842c8138b1ff"/>
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 8 - Resource language (C)

Conditional element. Mandatory for datasets and series, not applicable to services[5]. Multiple occurrences allowed. Controlled vocabulary, ISO 639-2.

Describes the language(s) of any textual information contained within the resource.

[5] See Element 4 resource type for definition of a 'service'

Select the relevant 3-letter code(s) from the ISO 639-2 code list of languages. Additional languages may be added to this list if required. A full list of UK language codes is listed in Annex D and a list of recognized languages available online http://www.loc.gov/standards/iso639-2/php/code_list.php.

For Welsh, ISO 639-2 allows either of 'cym' or 'wel', but MEDIN recommend that 'cym' is used as this is the abbreviation of the language's own name for itself. This follows guidance from GEMINI.

If there is no textual information in the data resource, then the code value **zxx** from ISO 639-2/B for 'no linguistic content; not applicable' shall be used.

Example 1

eng (English)

Example 2

cym (Welsh)

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:language>
        <gmd:LanguageCode
codeList="http://www.loc.gov/standards/iso639-2/php/code_list.php"
codeListValue="eng">English</gmd:LanguageCode>
      </gmd:language>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

6. Elements classifying spatial data and services

Element 9 - Topic category (C)

Conditional element. Mandatory for datasets and series of datasets. This element is not required if a service[6] is being described. Multiple occurrences allowed. Controlled vocabulary.

This indicates the main theme(s) of the data resource. The purpose of this element is to provide a basic classification for the data resource, for use in initial searches. The relevant topic category/categories shall be selected from the ISO MD_TopicCategory list. The full list can be found in Annex E or viewed in controlled vocabulary library P05 on the NVS2 Vocabulary Server https://www.bodc.ac.uk/resources/vocabularies/vocabulary_search/P05/.

MEDIN have mapped the MEDIN keywords (see element 11) to the ISO Topic Categories, so it is possible to generate the topic categories automatically once MEDIN keywords have been selected from the SeaDataNet Parameter Discovery Vocabulary (P02) https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/P02/.

Example 1

biota

Example 2
oceans

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:topicCategory>
       <gmd:MD_TopicCategoryCode>biota</gmd:MD_TopicCategoryCode>
      </gmd:topicCategory>
      <gmd:topicCategory>
       <gmd:MD_TopicCategoryCode>oceans</gmd:MD_TopicCategoryCode>
      </gmd:topicCategory>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

[6] See Element 4 resource type for definition of a 'service'

Element 10- Spatial data service type (C)

Conditional element. Mandatory if the described resource is a service[7]. Not applicable to datasets or series. One occurrence allowed. Controlled vocabulary, INSPIRE Service type code list

An element required by INSPIRE for metadata about data services e.g. web services. If a service is being described (from Element 4) it must be assigned a service type from the INSPIRE Service type code list. See Annex F for list.

Example

Download

Example XML fragment (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <srv:serviceType>
        <gco:LocalName>view</gco:LocalName>
      </srv:serviceType>
      <!-- ... -->
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 32 – Spatial representation type (C)

Conditional element. Mandatory for datasets and series of datasets. This element is not required if a service[8] is being described. Multiple occurrences allowed. Controlled vocabulary, subset of MD_SpatialRepresentationTypeCode from ISO 19115

This element describes the method used to spatially represent geographic information. The type in which the spatial data is represented may be of importance when evaluating the fit for purpose of the datasets.

This element is regarded by the INSPIRE metadata technical guidance as interoperability metadata for datasets and series. The element shall be populated with one or more of a subset of codes from MD_SpatialRepresentationTypeCode that most appropriately describe(s) the resource. See Annex M for list.

Example

grid

[7] See Element 4 resource type for definition of a 'service'

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
     <gmd:resourceConstraints>
      <!-- ... -->
     </gmd:resourceConstraints>
    <gmd:spatialRepresentationType>
     <gmd:MD_SpatialRepresentationTypeCode
codeList="http://standards.iso.org/itff/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_SpatialR
epresentationTypeCode"
codeListValue="grid" />
    </gmd:spatialRepresentationType
      <gmd:language>
        <!-- ... -->
      </gmd:language>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 11 - Keywords (M)

Mandatory element. Multiple keywords allowed. Controlled vocabularies.

The purpose of this element is to indicate the general subject area(s) of the data resource using key words. This enables searches to eliminate resources that are of no interest to users.

Keywords should be chosen using the code list options given below. OAI harvesting keywords should be linked to the data resource as described below if the metadata record is being submitted to MEDIN and to data.gov.uk.

In addition, if a spatial data service is being described, then a keyword defining the category or subcategory of the service using its language neutral name as defined in Part D 4 of the Metadata Implementing Rules shall be given.

The entry shall consist of two sub-elements: the keywords and reference to the controlled vocabulary used as shown in the sub elements below.

INSPIRE keywords (M)

MEDIN require at least one INSPIRE theme keyword as this ensures INSPIRE compliance.
A list of the INSPIRE theme keywords is available in Annex J. This list is also available at http://www.eionet.europa.eu/gemet/inspire_themes or library P22 in the NVS2 Vocabulary Server https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/P22/.

MEDIN Keywords (C)

The contents of the dataset shall be described using the SeadataNet Parameter Discovery Vocabulary (P02), unless there are no applicable terms in the list. This improves the discoverability of datasets by using terms related to the marine domain.

The P02 terms are available at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/P02/. The parameter groups and codes that are used may also be searched hierarchically through a user friendly interface which has been built as part of the European funded SeaDataNet project at http://seadatanet.maris2.nl/v_bodc_vocab_v2/vocab_relations.asp?lib=P08.

Vertical Extent Keywords (C)

Element 11: 'vertical extent keyword' shall be populated only if Element 14: 'Vertical extent information' cannot be completed.

A vocabulary of keywords is available to describe the vertical extent of the resource (e.g. dataset). The vocabulary is available as library L13 (Vertical Coordinate Coverages) at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/L13/. It can also be seen in Annex J.

Other Keywords (O)

Keywords from other vocabularies may be used as required, as long as they follow the format specified in 11.1 – 11.2.3.

Take care that selected keywords do not duplicate information that is used to populate other Elements in the Profile e.g. selection of sea area keywords, which should go into Element 13: 'Extent'.

Keywords for services (C)

If a service is being described, the category or subcategory of the service shall be described using its language neutral name. This is defined in Part D 4 of the Metadata Implementing Rules which can be found at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:326:0012:0030:EN:PDF and the keyword vocabulary available at http://inspire.ec.europa.eu/registry/.

Making Metadata Available to the MEDIN portal and data.gov.uk via OAI, CSW and WAF

If XML files are being collected using the MEDIN harvesting process, an additional keyword is required to allow the discovery web service to distinguish MEDIN records. The required term to use in the XML fragment is NDGO0001 (from the N01 controlled vocabulary at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/N01/). If you wish your discovery metadata records to also be made available to the UK Geoportal 'data.gov.uk' via MEDIN then you should include the additional term NDGO0005 i.e. Include both NDGO0001 and NDGO0005 in keywords to indicate a record will be published to both portals.

Sub Element 11.1 - Keyword value (M)

Mandatory element. Multiple occurrences allowed from each vocabulary. Controlled vocabulary.

Keyword from a formally registered controlled vocabulary/thesaurus or a similar

authoritative source of keywords. Multiple keywords can be specified.

Sub Element 11.2 - Originating controlled vocabulary (M)

Mandatory element. Multiple controlled vocabularies allowed. Controlled vocabulary.

The controlled vocabulary that is the store for the keywords in the discovery metadata record. Multiple controlled vocabularies can be specified, to allow keywords to define the data resource in different subject areas.

Originating controlled vocabulary shall be defined through the following properties:

Sub sub Element 11.2.1 - Thesaurus name (M)

Mandatory element. Single occurrence per vocabulary allowed. Free text.

Name of the formally registered thesaurus or a similar authoritative source of keywords.

Sub sub Element 11.2.2 - Date type[8] (M)

Mandatory element. Single occurrence per vocabulary allowed. Controlled vocabulary.

Select one of the following three values: Creation, Revision or Publication.

Sub sub Element 11.2.3 - Date (M)

Mandatory element. Single instance per date type allowed.. Date format, yyyy-mm-dd as in Section 2.1 Date and time formatting.

Date of creation, revision or publication as defined in 11.2.2 Date type.

Example 1

keywordValue: Fish taxonomy-related counts
keywordValue: Temperature of the water column
thesaurusName: SeaDataNet Parameter Discovery Vocabulary
dateType: revision
date: 2009-10-13

Example 2
keywordValue: upper_epipelagic
thesaurusName: SeaDataNet vertical coverage
dateType: Creation
date: 2006-11-15

[8] INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119, 2009-02-18, Version 1.1, MD_IR_and_ISO_20090218 specify at least one of a date of publication of the vocabulary (Publication), date of creation of the vocabulary (Creation) or date of last revision of the vocabulary (Revision)

Example XML fragment for keywords from controlled vocabulary P02 SeaDataNet Parameter Discovery Vocabulary (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
          <gmd:keyword>
            <gmx:Anchor
xlink:href="http://vocab.nerc.ac.uk/collection/P02/current/FCNT">F
ish taxonomy-related counts</gmx:Anchor>
          </gmd:keyword>
          <gmd:keyword>
            <gmx:Anchor xlink:href="
http://vocab.nerc.ac.uk/collection/P02/current/TEMP/ ">Temperature
of the water column</gmx:Anchor>
          </gmd:keyword>
          <gmd:thesaurusName>
            <gmd:CI_Citation>
              <gmd:title>
                <gco:CharacterString>SeaDataNet Parameter
Discovery Vocabulary</gco:CharacterString>
              </gmd:title>
              <gmd:date>
                <gmd:CI_Date>
                  <gmd:date>
                    <gco:Date>2011-03-25</gco:Date>
                  </gmd:date>
                  <gmd:dateType>
                    <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/ML_gmxCodelists.xml#CI_DateT
ypeCode" codeListValue="revision">revision</gmd:CI_DateTypeCode>
                  </gmd:dateType>
                </gmd:CI_Date>
              </gmd:date>
            </gmd:CI_Citation>
          </gmd:thesaurusName>
        </gmd:MD_Keywords>
      </gmd:descriptiveKeywords>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment for keywords from INSPIRE GEMET vocabulary (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
          <gmd:keyword>
            <gco:CharacterString>Hydrography</gco:CharacterString>
          </gmd:keyword>
          <gmd:thesaurusName>
            <gmd:CI_Citation>
              <gmd:title>
                <gco:CharacterString>
                  GEMET - INSPIRE themes, version 1.0
                </gco:CharacterString>
              </gmd:title>
              <gmd:date>
                <gmd:CI_Date>
                  <gmd:date>
                    <gco:Date>2008-06-01</gco:Date>
                  </gmd:date>
                  <gmd:dateType>
                    <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_DateType
Code" codeListValue="publication">publication</gmd:CI_DateTypeCode>
                  </gmd:dateType>
                </gmd:CI_Date>
              </gmd:date>
            </gmd:CI_Citation>
          </gmd:thesaurusName>
        </gmd:MD_Keywords>
      </gmd:descriptiveKeywords>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment showing OAI Harvesting keywords for MEDIN (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
```

```
          <gmd:keyword>
            <gmx:Anchor>
xlink:href="http://vocab.nerc.ac.uk/collection/N01/current/NDGO000
1">Marine Environmental Data and Information Network</gmx:Anchor>
          </gmd:keyword>
        </gmd:MD_Keywords>
      </gmd:descriptiveKeywords>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment for vertical extent keywords from controlled vocabulary L13 SeaVox Vertical Co-ordinate Coverages (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:extent>
        <gmd:EX_Extent>
          <gmd:geographicElement>
            <gmd:EX_GeographicDescription>
              <!-- ... -->
              <gmd:geographicIdentifier>
                <gmd:MD_Identifier>
                  <gmd:authority>
                    <gmd:CI_Citation>
                      <gmd:title>
                        <gco:CharacterString>SeaVoX Vertical Co-
ordinate Coverages</gco:CharacterString>
                      </gmd:title>
                      <gmd:date>
                        <gmd:CI_Date>
                          <gmd:date>
                            <gco:Date>2010-05-18</gco:Date>
                          </gmd:date>
                          <gmd:dateType>
                            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/ML_gmxCodelists.xml#CI_DateT
ypeCode" codeListValue="revision">revision</gmd:CI_DateTypeCode>
                          </gmd:dateType>
                        </gmd:CI_Date>
                      </gmd:date>
                    </gmd:CI_Citation>
                  </gmd:authority>
                  <gmd:code>
                    <gmx:Anchor xlink:href="http://vocab.
nerc.ac.uk/collection/L13/current/U1">upper epipelagic water
column</gmx:Anchor>
```

```
                </gmd:code>
              </gmd:MD_Identifier>
            </gmd:geographicIdentifier>
          </gmd:EX_GeographicDescription>
        </gmd:geographicElement>
        <!-- ... -->
      </gmd:extent>
    <!-- ... -->
    </gmd:EX_Extent>
    <!-- ... -->
  </gmd:identificationInfo>
 </gmd:MD_DataIdentification>
 <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment for service keyword from part D4 of the INSPIRE Metadata Implementing Rules (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <gmd:keywords>
        <gmd:MD_Keywords>
          <gmd:keyword>
<gco:CharacterString>humanCatalogueViewer</gco:CharacterString>
          </gmd:keyword>
          </gmd:thesaurusName>
            <gmd:CI_Citation>
            <gmd:title>
              <gco:CharacterString>Commission Regulation (EC) No
1205/2008 of 3 December 2008 implementing Directive 2007/2/
               EC of the European Parliament and of the Council as
regards metadata</gco:CharacterString>
            </gmd:title>
            <gmd:alternateTitle>
                    <gco:CharacterString>INSPIRE Metadata
Implementing Rules<gco:CharacterString>
            </gmd:alternateTitle>
             <gmd:date>
               <gmd:CI_Date>
               <gmd:date>
                 <gco:Date>2008-12-03</gco:Date>
               </gmd:date>
                  <gmd:dateType>
                    <gmd:CI_DateTypeCode
codeList='http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/
                        ML_gmxCodelists.xml#CI_DateTypeCode'
codeListValue='publication'>publication</gmd:CI_DateTypeCode>
                  </gmd:dateType>
```

```
                </gmd:CI_Date>
              </gmd:date>
                <gmd:identifier>
                 <gmd:MD_Identifier>
                  <gmd:code>
<gco:CharacterString>OJ:L:2008:326:0012:01<gco:CharacterString>
                    </gmd:code>
                  </gmd:MD_Identifier>
                </gmd:identifier>
                <gmd:otherCitationDetails>
                  <gco:CharacterString>D 4 CLASSIFICATION OF SPATIAL
DATA SERVICES<gco:CharacterString>
                <gmd:otherCitationDetails>
             </gmd:CI_Citation>
            </gmd:thesaurusName>
          </gmd:MD_Keywords>
        <gmd:keywords>
        <!-- ... -->
      </srv:SV_ServiceIdentification>
    </gmd:identificationInfo>
    <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment for keywords from INSPIRE GEMET vocabulary (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
          <gmd:keyword>
            <gco:CharacterString>water
monitoring</gco:CharacterString>
          </gmd:keyword>
          <gmd:keyword>
            <gco:CharacterString>water
quality</gco:CharacterString>
          </gmd:keyword>
          <gmd:thesaurusName>
            <gmd:CI_Citation>
              <gmd:title>
                <gco:CharacterString>GEMET - Concepts, version
2.4</gco:CharacterString>
              </gmd:title>
              <gmd:date>
                <gmd:CI_Date>
                  <gmd:date>
                    <gco:Date>2010-01-13</gco:Date>
                  </gmd:date>
                  <gmd:dateType>
```

```
                    <gmd:CI_DateTypeCode
codeList='http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/ML_gmxCodelists.xml#CI_DateT
ypeCode'codeListValue='publication'>publication
</gmd:CI_DateTypeCode>
                  </gmd:dateType>
                </gmd:CI_Date>
              </gmd:date>
            </gmd:CI_Citation>
          </gmd:thesaurusName>
        </gmd:MD_Keywords>
      </gmd:descriptiveKeywords>
      <!-- ... -->
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 12 - Geographic bounding box (C)

Mandatory element for datasets and series, conditional for services on their being a defined extent for the service. Multiple occurrences of each sub-element allowed. Numeric and controlled vocabulary.

The purpose of this element is to record the geographic extent that is covered by the metadata resource. This extent range is recorded as one or more bounding boxes that have positional information expressed as decimal degrees longitude and latitude. A minimum of two decimal places shall be provided for each coordinate.

Multiple bounding boxes are acceptable and can be used to describe resources that have a disparate geographic coverage; each bounding box must only have one occurrence of the east, west, north and south sub-elements.

Latitudes between 0 and 90N, and longitudes between 0 and 180E should be expressed as positive numbers, and latitudes between 0 and 90S, and longitudes between 0 and 180W should be expressed as negative numbers.

In the event that a single point is being described, the east bounding longitude should equal the west bounding longitude, and the north bounding latitude and south bounding latitude should be equal.

The latitude and longitude of the bounding box(es) is implicitly in WGS84.

Sub element 12.1 - West bounding longitude (M)

Mandatory element. One occurrence allowed per bounding box. Numeric decimal (minimum 2 decimal places).

The western-most limit of the data resource.

Sub element 12.2 - East bounding longitude (M)

Mandatory element. One occurrence allowed per bounding box Numeric decimal (minimum 2 decimal places).

The eastern-most limit of the data resource.

Sub element 12.3 - North bounding latitude (M)

Mandatory element. One occurrence allowed per bounding box Numeric decimal (minimum 2 decimal places).

The northern-most limit of the data resource.

Sub element 12.4 - South bounding latitude (M)

Mandatory element. One occurrence allowed per bounding box Numeric decimal (minimum 2 decimal places).

The southern-most limit of the data resource.

Example

westBoundingLongitude: -4.351
eastBoundingLongitude: -1.348
northBoundingLatitude: 52.949
southBoundingLatitude: 52.117

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:extent>
        <gmd:EX_Extent>
          <gmd:geographicElement>
            <gmd:EX_GeographicBoundingBox>
              <gmd:westBoundLongitude>
                <gco:Decimal>-14.00</gco:Decimal>
              </gmd:westBoundLongitude>
              <gmd:eastBoundLongitude>
                <gco:Decimal>3.80</gco:Decimal>
              </gmd:eastBoundLongitude>
              <gmd:southBoundLatitude>
                <gco:Decimal>48.00</gco:Decimal>
              </gmd:southBoundLatitude>
              <gmd:northBoundLatitude>
                <gco:Decimal>61.00</gco:Decimal>
              </gmd:northBoundLatitude>
            </gmd:EX_GeographicBoundingBox>
          </gmd:geographicElement>
        </gmd:EX_Extent>
      </gmd:extent>
```

```
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <srv:extent>
        <gmd:EX_Extent>
          <gmd:geographicElement>
            <gmd:EX_GeographicBoundingBox>
              <gmd:westBoundLongitude>
                <gco:Decimal>-14.00</gco:Decimal>
              </gmd:westBoundLongitude>
              <gmd:eastBoundLongitude>
                <gco:Decimal>3.80</gco:Decimal>
              </gmd:eastBoundLongitude>
              <gmd:southBoundLatitude>
                <gco:Decimal>48.00</gco:Decimal>
              </gmd:southBoundLatitude>
              <gmd:northBoundLatitude>
                <gco:Decimal>61.00</gco:Decimal>
              </gmd:northBoundLatitude>
            </gmd:EX_GeographicBoundingBox>
          </gmd:geographicElement>
        </gmd:EX_Extent>
      </srv:extent>
      <!-- ... -->
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 13 - Extent (O)

Optional element. Multiple occurrences allowed. Numeric and controlled vocabulary.

This element defines the geographic extent of coverage of the data resource relative to a defined authority. Keywords should be selected from controlled vocabularies to describe the spatial extent of the resource. MEDIN strongly recommends the use of the SeaVoX salt and freshwater body gazetteer available as vocabulary C19 at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/C19/, which is a managed vocabulary and has a worldwide distribution.

Other vocabularies available, including ICES areas and rectangles http://vocab.ices.dk/, or Charting Progress 2 regions, may be used as long as they follow the format specified in

13.1 – 13.2.3 (Charting Progress 2 regions are available as vocabulary C64 at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/C64/).

If populating Extent, the element shall be defined through the following properties:

Sub element 13.1 - Extent name (M)

Mandatory element. Multiple occurrences allowed. Controlled vocabulary.

Keyword describing the geographic extent of the resource from a formally registered thesaurus or a similar authoritative source of extents. Choose from a controlled vocabulary held on the MEDIN website http://www.medin.org.uk/data-standards/controlled-vocabularies. MEDIN recommends that this element be populated with the text description of the controlled vocabulary term, and that, when encoding the XML, the full URL of the code be stored as an XML xlink anchor (see example below).

Sub element 13.2 - Originating controlled vocabulary (M)

Mandatory sub-element. Multiple occurrences allowed. Free text.

Name of the formally registered thesaurus or a similar authoritative source of extents.

The controlled vocabulary for extent shall be defined through the following properties:

Sub sub element 13.2.1 - Thesaurus name (M)

Mandatory. Single occurrence per vocabulary allowed. Free text.

Title of vocabulary or thesaurus.

Sub sub element 13.2.2 - Date type (M)[9]

Mandatory. Single occurrence per vocabulary allowed. Controlled vocabulary.

Select one of the following three values: Creation, Revision or Publication.

Sub sub element 13.2.3 – Date (M)

Mandatory. Single instance per date type allowed. Date format, yyyy-mm-dd as in Section 2.1 Date and time formatting

Date of creation, revision or publication as defined in 13.2.2 Date type.

Example

This example includes multiple extents from different vocabularies.

extentName: Scotland
vocabularyName: ISO3166 Countries
dateType: Creation
date: 2005-04-29

[9] INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119, 2009-02-18, Version 1.1, MD_IR_and_ISO_20090218 specify at least one of a date of publication of the vocabulary (Publication), date of creation of the vocabulary (Creation) or date of last revision of the vocabulary (Revision)

extentName: ICES Area IVb
vocabularyName: ICES Regions
dateType: Revision
date: 2006-01-01

extentName: Northern North Sea
vocabularyName: Charting Progress 2 regions.
dateType: Revision
date: 2008-09-01

extentName: North Sea
thesaurusName: IHO Sea Areas 1952
dateType: creation
date: 1952-01-01

Example XML fragment (for datasets and series of datasets) (without xlink encoding):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:extent>
        <gmd:EX_Extent>
          <gmd:geographicElement>
            <gmd:EX_GeographicDescription>
              <!-- Extent - by Identifier -->
              <gmd:geographicIdentifier>
                <gmd:MD_Identifier>
                  <gmd:authority>
                    <gmd:CI_Citation>
                      <gmd:title>
                        <gco:CharacterString>ICES
Regions</gco:CharacterString>
                      </gmd:title>
                      <gmd:date>
                        <gmd:CI_Date>
                          <gmd:date>
                            <gco:Date>2006-01-01</gco:Date>
                          </gmd:date>
                          <gmd:dateType>
                            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_DateType
Code" codeListValue="revision">revision</gmd:CI_DateTypeCode>
                          </gmd:dateType>
                        </gmd:CI_Date>
                      </gmd:date>
                    </gmd:CI_Citation>
                  </gmd:authority>
                  <gmd:code>
```

```
                    <gco:CharacterString>IVc</gco:CharacterString>
                  </gmd:code>
                </gmd:MD_Identifier>
              </gmd:geographicIdentifier>
            </gmd:EX_GeographicDescription>
          </gmd:geographicElement>
        </gmd:EX_Extent>
      </gmd:extent>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets and series of datasets) (with xlink encoding)

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
       <gmd:extent>
        <gmd:EX_Extent>
         <gmd:geographicElement>
          <gmd:EX_GeographicDescription>
           <gmd:geographicIdentifier>
            <gmd:MD_Identifier>
             <gmd:authority>
             <gmd:CI_Citation>
              <gmd:title>
         <gco:CharacterString>SeaVoX salt and fresh water body
gazetteer</gco:CharacterString>
              </gmd:title>
        <gmd:date>
         <gmd:CI_Date>
          <gmd:date>
           <gco:Date>2015-02-19</gco:Date>
          </gmd:date>
           <gmd:dateType>
            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/ML_gmxCodelists.xml#CI_DateT
ypeCode" codeListValue="revision">revision</gmd:CI_DateTypeCode>
           </gmd:dateType>
          </gmd:CI_Date>
         </gmd:date>
          <gmd:edition>
           <gco:CharacterString>2</gco:CharacterString>
          </gmd:edition>
      </gmd:CI_Citation>
     </gmd:authority>
      <gmd:code>
```

```
       <gmx:Anchor xlink:type="simple"
xlink:href="http://vocab.nerc.ac.uk/collection/C19/current/1_4/">I
rish Sea</gmx:Anchor>
      </gmd:code>
     </gmd:MD_Identifier>
    </gmd:geographicIdentifier>
    </gmd:EX_GeographicDescription>
   </gmd:geographicElement>
  </gmd:EX_Extent>
 </gmd:extent>
 <!-- ... -->
 </gmd:MD_DataIdentification>
 </gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services) (with xlink encoding)

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
       <srv:extent>
        <gmd:EX_Extent>
         <gmd:geographicElement>
          <gmd:EX_GeographicDescription>
           <gmd:geographicIdentifier>
            <gmd:MD_Identifier>
             <gmd:authority>
             <gmd:CI_Citation>
              <gmd:title>
         <gco:CharacterString>SeaVoX salt and fresh water body
gazetteer</gco:CharacterString>
              </gmd:title>
        <gmd:date>
         <gmd:CI_Date>
          <gmd:date>
           <gco:Date>2009-06-11</gco:Date>
          </gmd:date>
           <gmd:dateType>
            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/ML_gmxCodelists.xml#CI_DateT
ypeCode" codeListValue="revision">revision</gmd:CI_DateTypeCode>
           </gmd:dateType>
          </gmd:CI_Date>
         </gmd:date>
          <gmd:edition>
           <gco:CharacterString>2</gco:CharacterString>
          </gmd:edition>
      </gmd:CI_Citation>
```

```
      </gmd:authority>
       <gmd:code>
        <gmx:Anchor xlink:type="simple"
xlink:href="http://vocab.nerc.ac.uk/collection/C19/current/1_4/">I
rish Sea</gmx:Anchor>
       </gmd:code>
      </gmd:MD_Identifier>
     </gmd:geographicIdentifier>
     </gmd:EX_GeographicDescription>
    </gmd:geographicElement>
   </gmd:EX_Extent>
  </srv:extent>
  <!-- ... -->
  </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>
```

Element 14 - Vertical extent information (C)

Conditional element. This element shall be filled in if the vertical coordinate reference system is known. Multiple occurrences allowed. Numeric free text and controlled vocabulary.

This element shall be filled in if the vertical Coordinate Reference System (CRS) is registered in the 'European Petroleum Survey Group (EPSG) database. https://epsg.org/home.html.

If you do not have the defined CRS you shall complete the vertical extent vocabulary defined in Element 11 – Keywords, to describe the vertical extent of the resource.

One of the elements '11: vertical extent keyword' or '14: vertical extent information' must be completed.

The vertical extent element has three sub-elements; the minimum vertical extent value, the maximum vertical extent value, and the coordinate reference system. Depth below sea water surface should be a negative number. Depth taken in the intertidal zone above the sea level should be positive. If the dataset covers from the intertidal to the subtidal zone then the sub element 14.1 should be used to record the highest intertidal point and 14.2 the deepest subtidal depth. Although the element itself is optional its sub-elements are mandatory if the field is filled.

For services, this element should be used to record the maximum vertical boundaries of all resources covered by the service.

Sub element 14.1 - Minimum Value (M)

Mandatory. One occurrence only. Numeric.

Record as positive or negative decimal number. The shallowest depth recorded if subtidal, or, if intertidal, the lowest point recorded.

Sub element 14.2 - Maximum Value (M)

Mandatory. One occurrence only. Numeric.

Record as positive or negative decimal number. The deepest depth recorded if subtidal, or

if intertidal, the highest point recorded.

Sub element 14.3 - Vertical coordinate reference system (M)

Mandatory. One occurrence only. Controlled vocabulary.

This sub-element defines the vertical coordinate reference system of the minimum and maximum vertical extent values. The vertical coordinate reference system should be included by reference to the EPSG register of geodetic parameters (https://epsg.org/home.html).

The EPSG Registry allows users to search for coordinate reference systems by text string, or via a map search.

If you know the title (e.g. WGS84) or type of CRS (e.g. vertical) then type this in the text box on the left or on the drop down from the 'EPSG Dataset' menu at the top of the window and click search. The name, code and further information is displayed. If you want to search for a reference system in a particular part of the world (e.g. Northern Ireland Grid) then you may do so by drawing a polygon in the Map window, then click search. The website also provides a database of the reference systems and web services to access the information. If the vertical coordinate reference system is not known or explicitly defined in the EPSG register then this element should not be completed and Element 11 should be filled out instead.

Example

minimumValue: 42
maximumValue: 94
verticalCoordinateReferenceSystem: urn:ogc:def:crs:EPSG::5701

Example XML fragment defining vertical CRS by reference (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:extent>
        <gmd:EX_Extent>
          <gmd:verticalElement>
            <gmd:EX_VerticalExtent>
              <gmd:minimumValue>
                <gco:Real>42</gco:Real>
              </gmd:minimumValue>
              <gmd:maximumValue>
                <gco:Real>94</gco:Real>
              </gmd:maximumValue>
              <gmd:verticalCRS
                 xlink:href="urn:ogc:def:crs:EPSG::5701"/>
            </gmd:EX_VerticalExtent>
          </gmd:verticalElement>
        </gmd:EX_Extent>
      </gmd:extent>
      <!-- ... -->
```

```
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment defining vertical CRS by reference (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <srv:extent>
        <gmd:EX_Extent>
          <gmd:verticalElement>
            <gmd:EX_VerticalExtent>
              <gmd:minimumValue>
                <gco:Real>42</gco:Real>
              </gmd:minimumValue>
              <gmd:maximumValue>
                <gco:Real>94</gco:Real>
              </gmd:maximumValue>
              <gmd:verticalCRS
                 xlink:href="urn:ogc:def:crs:EPSG::5701"/>
            </gmd:EX_VerticalExtent>
          </gmd:verticalElement>
        </gmd:EX_Extent>
      </srv:extent>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 15 - Spatial reference system (M)

Mandatory element. Multiple occurrences allowed. Controlled vocabulary.

Describes the system of spatial referencing (typically a coordinate reference system (CRS)) used in the resource. This should be derived from the EPSG register of geodetic parameters (https://epsg.org/home.html).

The EPSG Registry allows users to search for coordinate reference systems by text string, or via a map search.

If you know the title (e.g. WGS84) or type of CRS (e.g. vertical) then type this in the text box on the left or on the drop down from the 'EPSG Dataset' menu at the top of the window and click search. The name, code and further information is displayed. If you want to search for a reference system in a particular part of the world (e.g. Northern Ireland Grid) then you may do so by drawing a polygon in the Map window, then click search. The website also provides a database of the reference systems and web services to access the information.

Sub element 15.1 - Code (M)

Mandatory element. Single occurrence per code allowed. Free text.

Provide a code that is a full and unambiguous definition of the CRS used in the resource. The code shall be a fully resolvable Uniform Resource Identifier (URI). CRS definitions from registers such as the EPSG register are available as URIs.

Sub element 15.2 - Originating controlled vocabulary (O)

Optional sub-element. Single occurrence per vocabulary allowed.. Free text.

Name of the formally registered thesaurus or a similar authoritative source of extents. This can be used to provide further information on the source of the URI used in sub-element 15.1.

Sub sub element 15.2.1 - Thesaurus name (M)

Mandatory. Single occurrence per vocabulary allowed.. Free text.

Title of vocabulary or thesaurus.

Sub sub element 15.2.2 - Date type (M)[10]

Mandatory. Single occurrence per date type allowed. Controlled vocabulary.

Select one of the following three values: Creation, Revision or Publication.

Sub sub element 15.2.3 – Date (M)

Mandatory. Single instance per date type allowed. Date format, yyyy-mm-dd as in Section 2.1 Date and time formatting

Date of creation, revision or publication as defined in 13.2.2 Date type.

Example 1 (for WGS84)

Code: https://epsg.org/crs_4326/WGS-84.html

Example 2 (for National Grid of Great Britain)

Code: https://epsg.org/crs_4277/OSGB36.html
Thesaurus name: EPSG Geodetic Parameter Registry
Date type: revision
Date: 2021-03-18

Example XML fragment using Code only (applicable to datasets and series of datasets and to metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:referenceSystemInfo>
```

[10] INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119, 2009-02-18, Version 1.1, MD_IR_and_ISO_20090218 specify at least one of a date of publication of the vocabulary (Publication), date of creation of the vocabulary (Creation) or date of last revision of the vocabulary (Revision)

```
    <gmd:MD_ReferenceSystem>
      <gmd:referenceSystemIdentifier>
        <gmd:RS_Identifier>
         <gmd:code>
            <gmx:Anchor xlink:href='
              https://epsg.org/crs_4326/WGS-84.html'>WGS 84
            </gmx:Anchor>
         </gmd:code>
        </gmd:RS_Identifier>
      </gmd:referenceSystemIdentifier>
    </gmd:MD_ReferenceSystem>
  </gmd:referenceSystemInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment using Code and controlled vocabulary (applicable to datasets and series of datasets and to metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:referenceSystemInfo>
    <gmd:MD_ReferenceSystem>
      <gmd:referenceSystemIdentifier>
        <gmd:RS_Identifier>
         <gmd:authority>
            <gmd:CI_Citation>
              <gmd:title>
                <gco:CharacterString>EPSG Geodetic Parameter
Registry</gco:CharacterString>
              </gmd:title>
               <gmd:date>
                <gmd:CI_Date>
                 <gmd:date>
                   <gco:Date>2018-03-18</gco:Date>
                 </gmd:date>
                  <gmd:dateType>
                   <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/ML_gmxCodelists.xml#CI_DateT
ypeCode" codeListValue="revision">revision</gmd:CI_DateTypeCode>
                  </gmd:dateType>
                </gmd:CI_Date>
               </gmd:date>
            </gmd:CI_Citation>
          </gmd:authority>
          <gmd:code>
            <gmx:Anchor xlink:href='
              https://epsg.org/crs_4277/OSGB36.html'>OSGB 1936
            </gmx:Anchor>
          </gco:CharacterString>
          </gmd:code>
        </gmd:RS_Identifier>
      </gmd:referenceSystemIdentifier>
```

```
    </gmd:MD_ReferenceSystem>
  </gmd:referenceSystemInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 16 - Temporal reference (M)

Mandatory element. Multiplicity as stated below. Controlled vocabulary and Date/Time format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

The date of publication (i.e. the date at which the resource was made publicly available) is mandatory for datasets, series of datasets and services, and shall be provided. The temporal extent of the resource (e.g. the time period over which data were collected) is mandatory for datasets and series of datasets and shall be provided. Temporal extent should be provided for services where a temporal extent is relevant to the service. The date of last revision or date of creation for the resource may also be provided. One occurrence for each sub-element is allowed except for sub element 16.4 (Temporal extent) where multiple temporal extents are allowed to describe datasets and series which are temporally irregular.

Sub element 16.1 - Date of publication (M)

Mandatory. One occurrence allowed. Controlled vocabulary and Date/Time format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

This describes the publication date of the resource and shall be populated. If the resource is previously unpublished please use the date that the resource was made publicly available via the MEDIN network. It is recommended that a full date including year, month and day is added, but it is accepted that for some historical resources only vague dates (year only, year and month only) are available.

Sub sub element 16.1.1 Date type (M)

Mandatory. One occurrence allowed. Controlled vocabulary

Select an option from ‘creation’, ‘publication’ or ‘revision’. For Date of publication, select ‘publication’ from list.

Sub sub element 16.1.2 Date (M)

Mandatory. One occurrence allowed. Date/Time format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss as in Section 2.1 Date and time formatting

Populate with date or date and time of date type in element 16.1.1: yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

Sub element 16.2 - Date of last revision (C)

Conditional. Complete if known. One occurrence allowed. Controlled vocabulary and Date/Time format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

This describes the most recent date that the resource was revised. It is recommended that a full date including year, month and day is added.

Sub sub element 16.2.1 Date type (M)

Mandatory. One occurrence allowed. Controlled vocabulary

Select an option from ‘creation’, ‘publication’ or ‘revision’. For Date of last revision, choose ‘revision’.

Sub sub element 16.2.2 Date (M)

Mandatory. One occurrence allowed. Date/Time format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss as in Section 2.1 Date and time formatting

Populate with date or date and time of date type in element 16.2.1: yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

Sub element 16.3 - Date of creation (C)

Conditional. Complete if known. One occurrence allowed. Controlled vocabulary and Date/Time format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

This describes the most recent date that the resource was created. It is recommended that a full date including year, month and day is added.

Sub sub element 16.3.1 Date type (M)

Mandatory. One occurrence allowed. Controlled vocabulary

Select an option from ‘creation’, ‘publication’ or ‘revision’. For Date of creation, select ‘creation’ from list.

Sub sub element 16.3.2 Date (M)

Mandatory. Date/Time format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss as in Section 2.1 Date and time formatting

Populate with date or date and time of date type in element 16.3.1: yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

Sub element 16.4 - Temporal extent (C)

Mandatory for datasets and series; conditional for services where temporal extent is relevant to the service. Multiple occurrence(s) allowed for each of begin and end. Date or Date/Time format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

This describes the start and end date(s) of the resource (e.g. dataset). The start date(s) is mandatory and the end date (s) should be provided if known (conditional). It is recommended that a full date including year, month and day is added, but it is accepted that for some historical resources only vague dates (year only, year and month only) are available.

Please note that encoding of begin and end for Temporal extent must include an identifier (see XML encoding example below). A UUID can be used, The identifier only needs to be unique in the scope of the metadata instance so a value that is understood by the metadata creator is acceptable.

Sub sub element 16.4.1 Begin (M)

Mandatory. Multiple occurrence(s) allowed. Date format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss as in Section 2.1 Date and time formatting

Start of temporal extent.

date or date and time: yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

Sub sub element 16.4.2 End (C)

Conditional. Multiple occurrence(s) allowed. Date format, yyyy-mm-dd or yyyy-mm-ddThh:mm:ss as in Section 2.1 Date and time formatting

End of temporal extent. If the resource that you are describing is ongoing then use the encoding as described in the relevant example below. End may be left blank to indicate uncertainty.

date or date and time: yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

Example 1

dateType: creation
date: 2008-05-12T12:34:09 (date and time provided)

Example 2

dateType: revision
date:2008-05-12 (full date provided)

Example 3

dateType: publication
date:1952-06 (month and year provided, but no day)

Example 4

dateType: creation
date: 1899 (only year provided).

Example 5

dateType: temporalExtent
date: begin: 1980-01-01 end: 1990-03-01

Example XML fragment (for datasets and series of datasets) (temporal extent):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:extent>
        <gmd:EX_Extent>
          <gmd:temporalElement>
            <gmd:EX_TemporalExtent>
              <gmd:extent>
                <gml:TimePeriod gml:id="medinMEDIN01">
                  <gml:beginPosition>1998-01-
01</gml:beginPosition>
                  <gml:endPosition>2008-12-12</gml:endPosition>
```

```
                </gml:TimePeriod>
              </gmd:extent>
            </gmd:EX_TemporalExtent>
          </gmd:temporalElement>
        </gmd:EX_Extent>
      </gmd:extent>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

In the event that the resource being described is ongoing then this sub element should be encoded as:

```
<gml:endPosition indeterminatePosition="after">2010-01-
25</gml:endPosition>
```

The date should be the system date and time.

Example XML fragment (for for datasets and series of datasets) (publication):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
       <gmd:CI_Citation>
        <!-- ... -->
         <gmd:date>
          <gmd:CI_Date>
           <gmd:date>
            <gco:date>1995</gco:date>
           </gmd:date>
           <gmd:dateType>
            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/ML_gmxCodelists.xml#CI_DateT
ypeCode"
codeListValue="publication">publication</gmd:CI_DateTypeCode>
           </gmd:dateType>
          <gmd:CI_Date>
         </gmd:date>
        <!-- ... -->
       </gmd:CI_Citation>
      </gmd:citation>
     <!-- ... -->
   </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (metadata for services) (publication):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <gmd:citation>
       <gmd:CI_Citation>
        <!-- ... -->
         <gmd:date>
          <gmd:CI_Date>
           <gmd:date>
            <gco:date>1995</gco:date>
           </gmd:date>
           <gmd:dateType>
            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/ML_gmxCodelists.xml#CI_DateT
ypeCode"
codeListValue="publication">publication</gmd:CI_DateTypeCode>
           </gmd:dateType>
          <gmd:CI_Date>
         </gmd:date>
        <!-- ... -->
       </gmd:CI_Citation>
      </gmd:citation>
     <!-- ... -->
   </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

7. Elements describing data quality

Element 17 - Lineage (C)

Mandatory element for datasets or series of datasets. This Element is not required if a service[11] is being described. One occurrence allowed. Free text.

The purpose of this element is to record information about the events or source data used in the construction of the data resource.

Lineage includes the background information, history of the sources of data used and can include data quality statements. The lineage element should include information about: source material; data collection methods used; data processing methods used; quality control processes. Please indicate any data collection standards used. Apart from describing the process history, the overall quality of the dataset or series should be included in the Lineage metadata element. This statement should contain any quality information required for interoperability and/or valuable for use and evaluation of the dataset or series. Acronyms should be expanded to their full text the first time they are mentioned in the Lineage element. The abbreviated version of the term can be used from then onwards.

Although not required for describing a service, MEDIN recommend that this element is populated with information about the creation of the service and the data used to generate the service.

Please note that MEDIN's encoding of the Lineage element accounts for the GEMINI element 'Quality Scope'. Though lineage is not required for service metadata, the XML for this element will provide a service metadata encoding example for 'Quality Scope'.

Element 19. Additional information should be used to record relevant references to the data e.g. reports, articles, website.

Example 1

This dataset was collected by the Fisheries Research Services and provided to the British Oceanographic Data Centre for long term archive and management.

Example 2 (no protocols or standards used)

Forty 0.1m^2 Hamon grab samples were collected from across the region, both within and beyond the extraction area, and analyzed for macrofauna and sediment particle size distribution in order to produce a regional description of the status of the seabed environment. Samples were sieved over a 1mm mesh sieve. In addition, the data were analyzed in relation to the area of seabed impacted by dredging over the period 1993-1998. Areas subject to 'direct' impacts were determined through reference to annual electronic records of dredging activity and this information was then used to model the likely extent of areas potentially subject to 'indirect' ecological and geophysical impact.

Example 3: (collected using protocols and guidelines)

Data was collected using the National Marine Monitoring Programme (NMMP) data

[11] See Element 4 Resource type for definition of a 'service'

collection, processing and Quality Assurance Standard Operating Procedures (SOPs) and complies with MEDIN data guidelines.

Example 4

Survey data from Marine Nature Conservation Review (MNCR) lagoon surveys were used to create a GIS layer of the extent of saline lagoons in the UK that was ground-truthed using 2006-2008 aerial coastal photography obtained from the Environment Agency and site visits to selected locations.

Example 5

The Nutrients General Quality Assessment (GQA) described quality in terms of two nutrients: nitrates (mg NO3 /l) and phosphates (mg P/l) and graded from 1 to 6. Grades were allocated for both phosphate and nitrate; they were not combined into a single nutrients grade. There were no set 'good' or 'bad' concentrations for nutrients in the way that we describe chemical and biological quality. Locations in different parts of the country have naturally different concentrations of nutrients. 'Very low' nutrient concentrations, for example, are not necessarily good or bad; the classifications merely stated that concentrations in this location were very low relative to other sampling areas. Classification for phosphate Grade limit (mgP/l) Average Description: 0.02 to 0.06 Low >0.06 to 0.1 Moderate >0.1 to 0.2 High >0.2 to 1.0 Very high >1.0 Excessively high Classification for nitrate Grade limit (mg NO3/l) Average Description: 5 to 10 Low >10 to 20 Moderately low >20 to30 Moderate >30 to 40 High >40 Very high.

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <!-- Scope - Required by ISO 19115 constraint -->
      <gmd:scope>
        <gmd:DQ_Scope>
          <gmd:level>
            <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="dataset">dataset</gmd:MD_ScopeCode>
          </gmd:level>
        </gmd:DQ_Scope>
      </gmd:scope>
      <!-- Lineage -->
      <gmd:lineage>
        <gmd:LI_Lineage>
          <gmd:statement>
            <gco:CharacterString>
              Data was collected using the National Marine
Monitoring Programme (NMMP) data collection, processing and
Quality Assurance Standard Operating Procedures (SOPs) and
complies with MEDIN data guidelines.
            </gco:CharacterString>
          </gmd:statement>
        </gmd:LI_Lineage>
```

```
      </gmd:lineage>
    </gmd:DQ_DataQuality>
  </gmd:dataQualityInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (Quality Scope for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <!-- Scope - Required by ISO 19115 constraint -->
      <gmd:scope>
        <gmd:DQ_Scope>
          <gmd:level>
            <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="service">service</gmd:MD_ScopeCode>
          </gmd:level>
          <gmd:levelDescription>
             <gmd:MD_ScopeDescription>
               <gmd:other>
                <gco:CharacterString>service</gco:CharacterString>
               </gmd:other>
             <gmd:MD_ScopeDescription>
          </gmd:levelDescription>
        </gmd:DQ_Scope>
      </gmd:scope>
     <!-- ... -->
    </gmd:DQ_DataQuality>
  </gmd:dataQualityInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 18 - Spatial resolution (C)

Conditional for datasets and series where a resolution distance or scale can be specified, not applicable to services. Multiple occurrences allowed. Numeric (positive number).

Provides an indication of the spatial resolution of the data resource or the spatial limitations of the service. This element should only be populated if the distance or equivalent scale can be specified. Only one of Sub Element 18.1 – Distance or Sub Element 18.2 – Equivalent Scale shall be populated. Sub Element 18.2 shall only be populated if it is not possible to populate Sub Element 18.1.

For services, spatial resolution cannot be encoded in the ISO 191939 XML Schema that this MEDIN Standard adheres to. Therefore, spatial resolution of services shall be recorded in the Abstract where necessary. Spatial resolution for services shall refer to the spatial resolution of the datasets/series that the service operates on.

Sub Element 18.1- Distance (C)

Conditional for datasets and series where a resolution distance can be specified, not to be used if Sub-Element 18.2 – Equivalent Scale is populated. Multiple occurrences allowed. Numeric (positive number).

MEDIN requires that you shall provide the average distance (i.e. resolution) between sampling locations in metres, where this is possible. For example, if a dataset was composed of a grid of stations that have an average distance between stations of 2 km then 2000 metres should be recorded.

In the case of a multi-beam survey, the distance in metres should be the average distance between each sounding or 'ping' on the sea bed. For transect data such as an intertidal beach survey or a single beam echo sounder survey the resolution should be taken as the distance in metres between the transect lines.

For single samples and observational data MEDIN recommends using 'inapplicable' which may be encoded as shown in the last example below.

For high resolution datasets, sub-metre precision using decimals is allowed e.g. 0.5 m.

This sub-element shall not be populated if content is present in Sub Element 18.2 – Equivalent scale.

Sub Element 18.2 - Equivalent scale (O)

Optional, not to be used if Sub-Element 18.1 – Distance is populated. Multiple occurrences allowed. Numeric (positive whole number).

Where the data being described in the resource is captured from a map, the scale of that map should be recorded. Spatial resolution shall only be expressed by equivalent scale where a distance cannot be determined. Spatial resolution shall not be expressed by equivalent scale if Sub Element 18.1 – Distance is populated.

Example 1 (distance)

distance:10

units: metresExample 2 (equivalent scale)

5000

Example XML fragment (for datasets and series of datasets) (Distance) (encoded using EPSG unit of measure code for metre):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:spatialResolution>
        <gmd:MD_Resolution>
          <gmd:distance>
            <gco:Distance
uom="urn:ogc:def:uom:EPSG::9001">500</gco:Distance>
          </gmd:distance>
```

```
        </gmd:MD_Resolution>
      </gmd:spatialResolution>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets and series of datasets) (equivalent scale)

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:spatialResolution>
        <gmd:MD_Resolution>
          <gmd:equivalentScale>
            <gmd:MD_RepresentativeFraction>
              <gmd:denominator>
                <gco:Integer>25000</gco:Integer>
              </gmd:denominator>
            </gmd:MD_RepresentativeFraction>
          </gmd:equivalentScale>
        </gmd:MD_Resolution>
      </gmd:spatialResolution>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (Distance) 'Inapplicable':

```
<gmd:spatialResolution>
  <gmd:MD_Resolution>
    <gmd:distance gco:nilReason="inapplicable"/>
  </gmd:MD_Resolution>
</gmd:spatialResolution>
```

Element 19 - Additional information (O)

Optional element for datasets or series of datasets. This Element is not required if a service[12] is being described Single occurrence allowed. Free text.

The purpose of this element is to record relevant information that does not clearly belong in another element. This may be a reference to a web location that provides valuable information, through a URL, a document reference or a Digital Object Identifier (DOI) that points to a deferencing service or landing page for an information source

Information about access to the resource should not be in this element, but should be provided in Element 5 'Resource Locator'.

[12] See Element 4 Resource type for definition of a 'service'

Information about licencing or fees should be provided in Element 20 'Limitations on public access'.

Example 1

Malthus, T.J., Harries, D.B., Karpouzli, E., Moore, C.G., Lyndon, A.R., Mair, J.M., Foster-Smith, B.,Sotheran, I. and Foster-Smith, D. (2006). Biotope mapping of the Sound of Harris, Scotland. Scottish Natural Heritage Commissioned Report No. 212 (ROAME No. F01AC401/2).

Example 2

http://www.cefas.co.uk/publications/files/datarep42.pdf

Example 3

doi:10.1111/jbi.12708

Example XML fragment (for datasets and series of datasets) (A URL to a complementary web page):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:supplementalInformation>
        <gco:CharacterString>
          www.marlin.ac.uk/rml
        </gco:CharacterString>
      </gmd:supplementalInformation>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets and series of datasets) (A DOI reference to a journal article providing further information on the resource):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:supplementalInformation>
        <gmx:Anchor xlink:type="simple" xlink:href="http://
doi:10.1111/jbi.12708"> doi:10.1111/jbi.12708</gmx:Anchor>
      </gmd:supplementalInformation>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

8. Elements relating to data usage

Element 20 - Limitations on public access (M)

Mandatory element. One occurrence allowed. Controlled vocabulary and free text.

This element describes any restrictions imposed on accessing the resource for security and other reasons. Please provide information on any limitations to access of resource and the reasons for them. If different parts of the resource have different access constraints, generate occurrences for each using instances of Sub element 20.2 as required..

Sub element 20.1 – Access Constraints (M)

Mandatory. One occurrence allowed. Controlled vocabulary.

This shall be recorded as 'otherRestrictions' from ISO vocabulary RestrictionCode (see Annex G). This is an INSPIRE/GEMINI requirement.

Sub element 20.2 – Other Constraints (M)

Mandatory. Multiple occurrences allowed. Free text.

Record any limitations on access to the resource. At least one entry shall be encoded in a gmx:Anchor element, with xlink:href pointing to the relevant choice of limitation from the INSPIRE Metadata registry: http://inspire.ec.europa.eu/metadata-codelist/LimitationsOnPublicAccess. If a part of the resource has a specific limitation, make this clear in the text. If there are no limitations on public access, this shall be indicated by 'no limitations'.

For additional entries, if they too can be referenced against the INSPIRE Metadata registry, this should be done. Free text entries can also be added if required.

Example 1

accessConstraints: otherRestrictions
otherConstraints: No restrictions to public access

Example 2

accessConstraints: otherRestrictions
otherConstraints: Restricted public access due to sensitive species, only available at 10km resolution.

Example 3

accessConstraints: otherRestrictions
otherConstraints: no limitations

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
```

```
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:accessConstraints>
            <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Restrict
ionCode"
codeListValue="otherRestrictions">
              otherRestrictions
            </gmd:MD_RestrictionCode>
          </gmd:accessConstraints>
          <gmd:otherConstraints>
            <gmx:Anchor
xlink:href="http://inspire.ec.europa.eu.metadata-
codelist/LimitationsOnPublicAccess/INSPIRE_Directive_Article13_1h"
> Restricted public access due to sensitive species, only
available at 10km resolution.
            </gmx:Anchor>
          </gmd:otherConstraints>
        </gmd:MD_LegalConstraints>
      </gmd:resourceConstraints>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets and series of datasets) with multiple otherConstraints:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:accessConstraints>
            <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Restrict
ionCode"
codeListValue="otherRestrictions">
              otherRestrictions
            </gmd:MD_RestrictionCode>
          </gmd:accessConstraints>
          <gmd:otherConstraints>
            <gmx:Anchor
xlink:href="http://inspire.ec.europa.eu.metadata-
codelist/LimitationsOnPublicAccess/INSPIRE_Directive_Article13_1d"
> Metocean data only available to members of the SIMORC community.
```

```
            </gmx:Anchor>
          </gmd:otherConstraints>
          <gmd:otherConstraints>
          <gco:CharacterString>Queries on access to the data to be
directed to British Oceanographic Data Centre
</gco:CharacterString>
          </gmd:otherConstraints>
        </gmd:MD_LegalConstraints>
      </gmd:resourceConstraints>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->

</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services) (no limitations):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:accessConstraints>
            <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Restrict
ionCode"
codeListValue="otherRestrictions">
              otherRestrictions
            </gmd:MD_RestrictionCode>
          </gmd:accessConstraints>
          <gmd:otherConstraints>
            <gmx:Anchor
xlink:href="http://inspire.ec.europa.eu.metadata-
codelist/LimitationsOnPublicAccess/noLimitations">no limitations
            </gmx:Anchor>
          </gmd:otherConstraints>
        </gmd:MD_LegalConstraints>
      </gmd:resourceConstraints>
      <!-- ... -->
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 21 - Conditions applying for access and use (M)

Mandatory element. One occurrence allowed. Controlled vocabulary and free text.

This element provides information on any constraints on using the resource. Any known constraints such as licensing, fees, usage restrictions should be identified. If different parts of the resource have different use constraints, generate occurrences for each.

Conditions for access and use are different from Limitations on public access which describe limitations on access to the data. A data resource can have open access (e.g. to look at it), but restricted use.

Sub element 21.1 – Use Constraints (M)

Mandatory. One occurrence allowed. Controlled vocabulary.

This shall be recorded as 'otherRestrictions' from ISO vocabulary RestrictionCode (see Annex G). This is an INSPIRE/GEMINI requirement.

Sub element 21.2 – Other Constraints (M)

Mandatory. Multiple occurrences allowed. Free text.

Record any constraints on use of the data described in the resource here. Multiple conditions can be recorded for different parts of the data resource. If no conditions apply, then "no conditions apply" should be recorded.

If there is a formal licence title, that should be supplied along with, if available, a licence URL.

Example 1

Data is freely available for research or commercial use providing that the originators are acknowledged in any publications produced.

Example 2

Data is freely available for use in teaching and conservation but permission must be sought for use if the data will be reproduced in full or part or if used in any analyses.

Example 3

Not suitable for use in navigation.

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:useConstraints>
            <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Restrict
ionCode"
codeListValue="otherRestrictions">
```

```
            otherRestrictions
          </gmd:MD_RestrictionCode>
        </gmd:useConstraints>
        <gmd:otherConstraints>
         <gco:CharacterString>Not to be used for
navigation</gco:CharacterString>
        </gmd:otherConstraints>
        <!-- ... -->
      </gmd:MD_LegalConstraints>
    </gmd:resourceConstraints>
    <!-- ... -->
  </gmd:MD_DataIdentification>
 </gmd:identificationInfo>
 <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets and series of datasets) (URL to external licence):

```
    <!-- ... -->
    <gmd:resourceConstraints>
      <gmd:MD_LegalConstraints>
        <gmd:useConstraints>
          <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Restrict
ionCode"
codeListValue="otherRestrictions">
            otherRestrictions
          </gmd:MD_RestrictionCode>
        </gmd:useConstraints>
        <gmd:otherConstraints>
         <gmx:Anchor
xlink:href="http://www.nationalarchives.gov.uk/doc/open-
government-licence/version/3/">Open Government Licence
          </gmx:Anchor>
        </gmd:otherConstraints>
        <!-- ... -->
      </gmd:MD_LegalConstraints>
    </gmd:resourceConstraints>
    <!-- ... -->
```

Example XML fragment (for datasets and series of datasets) (encoding if no conditions apply):

```
    <!-- ... -->
    <gmd:resourceConstraints>
      <gmd:MD_LegalConstraints>
        <gmd:useConstraints>
          <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Restrict
ionCode"
codeListValue="otherRestrictions">
```

```
            otherRestrictions
          </gmd:MD_RestrictionCode>
        </gmd:useConstraints>
        <gmd:otherConstraints>
         <gmx:Anchor
xlink:href="http://inspire.ec.europa.eu/metadata-
codelist/ConditionsApplyingToAccessAndUse/noConditionsApply">no
conditions apply
          </gmx:Anchor>
        </gmd:otherConstraints>
        <!-- ... -->
      </gmd:MD_LegalConstraints>
    </gmd:resourceConstraints>
    <!-- ... -->
```

Example XML fragment with multiple use constraints (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:useConstraints>
            <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Restrict
ionCode"
codeListValue="otherRestrictions">
              otherRestrictions
            </gmd:MD_RestrictionCode>
          </gmd:useConstraints>
          <gmd:otherConstraints>
           <gco:CharacterString>Bathymetry data not to be used for
navigation</gco:CharacterString>
          </gmd:otherConstraints>
          <gmd:otherConstraints>
           <gco:CharacterString>Temperature data not to be used due
to instrument error</gco:CharacterString>
          </gmd:otherConstraints>
          <!-- ... -->
        </gmd:MD_LegalConstraints>
      </gmd:resourceConstraints>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services)

```
<gmd:MD_Metadata>
 <!-- ... -->
  <gmd:identificationInfo>
   <srv:SV_ServiceIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:useConstraints>
            <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Restrict
ionCode"
codeListValue="otherRestrictions">
              otherRestrictions
            </gmd:MD_RestrictionCode>
          </gmd:useConstraints>
          <gmd:otherConstraints>
            <gco:CharacterString>Not to be used for
navigation</gco:CharacterString>
          </gmd:otherConstraints>
          <!-- ... -->
        </gmd:MD_LegalConstraints>
      </gmd:resourceConstraints>
      <!-- ... -->
   </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
 <!-- ... -->
</gmd:MD_Metadata>
```

Element 22 - Responsible party (M)

Mandatory element. This shall include a minimum of organisation name and email address. Multiple occurrences are allowed for some responsible party roles. Free text and controlled vocabulary.

Provides a description of an organisation or person who has a role for the resource. MEDIN mandates that the roles of 'Originator', 'Custodian' (data holder), 'Distributor', 'Metadata point of contact' and 'Owner' shall be entered. Other types of responsible party may be specified from the controlled vocabulary (see Annex H, INSPIRE registry[13] or ISO Codelist CI_RoleCode[14] for code list) if desired.

If the data has been lodged with a MEDIN approved Data Archive Centre (DAC) then the DAC shall be specified as the Custodian.

Please refer back to Section 2. Data Discoverability so that the full implications of supplying personal data are understood before populating Element 22.

[13] http://inspire.ec.europa.eu/metadata-codelist/ResponsiblePartyRole
[14] http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml

Sub element 22.1 - Originator (M)

Mandatory element. This shall include a minimum of person/organisation name and email address. Multiple occurrences allowed.

Person(s) or organisation(s) who created the resource. This sub element should give details for the person or organisation who collected or produced the data. For example, if MEConsulting have been contracted to do an EIA of a wind farm site by 'Greeny Energy Ltd' then MEConsulting are the Originator. It should not be used to record who 'owns' the data as that information is recorded under Sub element 22.5.

Sub element 22.2 - Custodian (M)

Mandatory element. This shall include a minimum of person/organisation name and email address. Multiple occurrences allowed.

Person(s) or organisation(s) that accept responsibility for the resource and ensures appropriate care and maintenance. If a dataset has been lodged with a Data Archive Centre for maintenance then this organisation should be entered. If the organisation who owns the data or service continues to accept responsibility for it then they should also be stated here.

Sub element 22.3 - Distributor (M)

Mandatory element. This shall include a minimum of person/organisation name and email address. Multiple occurrences.

Person(s) or organisation(s) that distributes the resource.

Sub element 22.4 - Metadata point of contact (M)

Mandatory element. This shall include a minimum of person/organisation name and email address. One occurrence allowed.

Person or organisation with responsibility for the creation and maintenance of the metadata for the resource.

Sub element 22.5 - Owner (M)

Mandatory element. This shall include a minimum of person/organisation name and email address. Multiple occurrences allowed.

Person or organisation that owns the resource.

The sub sub-elements for describing each responsible party entry are as follows;

Sub sub element 22.0.1 - Job Position (O). One occurrence only per role in 22.0.8. Free text.

The position of the person within the organisation who holds or held the Responsible Party role being described. Do not identify an individual by name, as this is subject to change without warning and the information is impossible to keep up-to-date.

Sub sub element 22.0.2 - Organisation name (M) One occurrence only per role in 22.0.8. Controlled vocabulary or free text.

When providing details of an organisation, best endeavours shall be made to source the organisation from the European Directory of Marine Organisations (EDMO) (http://seadatanet.maris2.nl/edmo/). In the event that an organisation name is not present, please contact enquiries@medin.org.uk to discuss adding it to EDMO. If,after discussion with the MEDIN enquiries team, it is found that EDMO is not suitable for the organisation, it may be added as free text.

.

Where possible an organisation should be cited and **only** when this is impossible should Individual Name be used instead.

Sub sub element 22.0.3 - Postal address (O). One occurrence allowed per role in 22.0.8. Free text.

The full formal postal address (as defined for example by Royal Mail) should be given, including the postcode.

Sub sub element 22.0.4 - Telephone number (O). One occurrence allowed per role in 22.0.8. Numeric

Where possible a generic rather than individual telephone number should be used e.g. the organisational switchboard or a helpdesk number.

Sub sub element 22.0.5 - Email address (M). One occurrence allowed per role in 22.0.8. Free text.

Where possible a generic rather than an individual email should be used e.g. the organisation's enquiries email address.

Sub sub element 22.0.6 – Web address (O). One occurrence allowed per role in 22.0.8. Free text.

Where possible a valid World Wide Web address for the organisation should be given.

Sub sub element 22.0.8 - Responsible party role (M). Multiple occurrences allowed. Controlled vocabulary, ISO responsible party code list CI_RoleCode .

Populate for 'metadata point of contact', 'distributor', 'originator','custodian' and 'owner'. Other roles can be populated if desired using the codelist in Annex H.

Examples

Distributor:

JobPosition: DASSH Data officer
OrganisationName DASSH
PostalAddress: The Laboratory, Citadel Hill, Plymouth PL4 8SR
TelephoneNumber: 01752 633291
EmailAddress: dassh.enquiries@mba.ac.uk
WebAddress: http://www.dassh.ac.uk
ResponsiblePartyRole: distributor

Data point of contact:

JobPosition: Marine officer

OrganisationName Joint Nature Conservation Committee (JNCC)
PostalAddress:City Road, Peterborough, PE1 1JY,
TelephoneNumber: 01733 562626
EmailAddress: marine.teamexample@jncc.gov.uk
WebAddress: http://jncc.defra.gov.uk
ResponsiblePartyRole: pointOfContact

Originator:

OrganisationName: SeaZone Solutions
EmailAddress: info@seazone.com
ResponsiblePartyRole: Originator

Metadata point of contact:

JobPosition: BODC Enquiries Officer
EmailAddress: enquiries@bodc.ac.uk
TelephoneNumber: 01517954912
ResponsiblePartyRole: pointOfContact

Owner:

JobPosition: Operations Director
OrganisationName: Oceanwise Ltd
EmailAddress: info@oceanwise.eu
TelephoneNumber: 01420768262
ResponsiblePartyRole: owner

Example XML fragment (for datasets and series of datasets and metadata for services) (Metadata Point of Contact – this is encoded as MD_Metadata/gmd:contact unlike all other Responsible Party roles which are encoded as gmd:pointofContact within identificationInfo):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:contact>
    <gmd:CI_ResponsibleParty>
     <gmd:organisationName>
      <gco:CharacterString>British Oceanographic Data
Centre</gco:CharacterString>
     </gmd:organisationName >
       <gmd:contactInfo>
         <gmd:CI_Contact>
           <gmd:phone>
             <gmd:CI_Telephone>
               <gmd:voice>
                 <gco:CharacterString>
                   01517954912
                 </gco:CharacterString>
               </gmd:voice>
             </gmd:CI_Telephone>
           </gmd:phone>
            <gmd:address>
             <gmd:CI_Address>
              <gmd:electronicMailAddress>
```

```
<gco:CharacterString>enquiries@bodc.ac.uk</gco:CharacterString>
       </gmd:electronicMailAddress>
      </gmd:CI_Address>
     </gmd:address>
    </gmd:CI_Contact>
   </gmd:contactInfo>
     <gmd:role>
       <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_RoleCode
" codeListValue="pointOfContact">pointOfContact</gmd:CI_RoleCode>
      </gmd:role>
    </gmd:CI_ResponsibleParty>
  </gmd:contact>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets and series of datasets) (Originator):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:pointOfContact>
        <gmd:CI_ResponsibleParty>
          <gmd:organisationName>
            <gco:CharacterString>DASSH</gco:CharacterString>
          </gmd:organisationName>
          <gmd:positionName>
            <gco:CharacterString>
              DASSH Data Officer
            </gco:CharacterString>
          </gmd:positionName>
          <gmd:contactInfo>
            <gmd:CI_Contact>
              <gmd:phone>
                <gmd:CI_Telephone>
                  <gmd:voice>
                    <gco:CharacterString>
                      01752426237
                    </gco:CharacterString>
                  </gmd:voice>
                </gmd:CI_Telephone>
              </gmd:phone>
              <gmd:address>
                <gmd:CI_Address>
                  <gmd:deliveryPoint>
                    <gco:CharacterString>
                      The Laboratory
                    </gco:CharacterString>
                  </gmd:deliveryPoint>
                  <gmd:deliveryPoint>
```

```
                    <gco:CharacterString>
                      Citadel Hill
                    </gco:CharacterString>
                  </gmd:deliveryPoint>
                  <gmd:city>
                    <gco:CharacterString>
                      Plymouth
                    </gco:CharacterString>
                  </gmd:city>
                  <gmd:postalCode>
                    <gco:CharacterString>
                      PL4 8SR
                    </gco:CharacterString>
                  </gmd:postalCode>
                  <gmd:country>
                    <gco:CharacterString>UK</gco:CharacterString>
                  </gmd:country>
                  <gmd:electronicMailAddress>
                    <gco:CharacterString>
                      dassh.enquiries@mba.ac.uk
                    </gco:CharacterString>
                  </gmd:electronicMailAddress>
                </gmd:CI_Address>
              </gmd:address>
            </gmd:CI_Contact>
          </gmd:contactInfo>
          <gmd:role>
            <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_RoleCode
" codeListValue="originator">originator</gmd:CI_RoleCode>
          </gmd:role>
        </gmd:CI_ResponsibleParty>
      </gmd:pointOfContact>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services) (Distributor):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <gmd:pointOfContact>
        <gmd:CI_ResponsibleParty>
          <gmd:organisationName>
            <gco:CharacterString>Archaeology Data
Service</gco:CharacterString>
          </gmd:organisationName>
```

```
          <gmd:contactInfo>
            <gmd:CI_Contact>
              <gmd:address>
                <gmd:CI_Address>
                  <gmd:electronicMailAddress>
                    <gco:CharacterString>
                      help@archaeologydataservice.ac.uk
                    </gco:CharacterString>
                  </gmd:electronicMailAddress>
                </gmd:CI_Address>
              </gmd:address>
            </gmd:CI_Contact>
          </gmd:contactInfo>
          <gmd:role>
            <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_RoleCode
" codeListValue="distributor">distributor</gmd:CI_RoleCode>
          </gmd:role>
        </gmd:CI_ResponsibleParty>
      </gmd:pointOfContact>
      <!-- ... -->
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services) (Owner):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <gmd:pointOfContact>
        <gmd:CI_ResponsibleParty>
          <gmd:organisationName>
            <gco:CharacterString>The Met
Office</gco:CharacterString>
          </gmd:organisationName>
          <gmd:contactInfo>
            <gmd:CI_Contact>
              <gmd:address>
                <gmd:CI_Address>
                  <gmd:electronicMailAddress>
                    <gco:CharacterString>
                      enquiries@metoffice.gov.uk
                    </gco:CharacterString>
                  </gmd:electronicMailAddress>
                </gmd:CI_Address>
              </gmd:address>
            </gmd:CI_Contact>
          </gmd:contactInfo>
```

```
          <gmd:role>
            <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_RoleCode
" codeListValue="owner">owner</gmd:CI_RoleCode>
          </gmd:role>
        </gmd:CI_ResponsibleParty>
      </gmd:pointOfContact>
      <!-- ... -->
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 23 - Data format (C)

Mandatory for datasets and series, not applicable to services[15]. Multiple occurrences are allowed. Controlled vocabulary.

Indicate the formats in which digital data can be provided for transfer. MEDIN have defined a controlled vocabulary which is M01 'MEDIN data format categories' and is available at https://www.bodc.ac.uk/resources/vocabularies/vocabulary_search/M01/ or which can be seen in Annex K. One or more terms from this controlled vocabulary shall be used for the sub element 'name of format'. Sub element 'version' shall be populated with information about the version of the resource transfer format(s) if known, and 'unknown' if no information is available.

Sub Element 23.1 - Name of format (M)

Mandatory element. Single occurrence for each transfer format type. Controlled vocabulary.

Select an appropriate term for the format(s) that the data resource can be transferred as, using controlled vocabulary M01.

Sub Element 23.2 - Version (M)

Mandatory element. Single occurrence for each transfer format type. Free Text

Populate with version information about the transfer format of the resource. If no version information is available, populate with 'Unknown'

Example 1

name:Database
version:Unknown

Example 2

name: Network Common Data Form
version: CF 1.6

[15] See Element 4 resource type for definition of a 'service'

Example XML fragment (for datasets and series of datasets) (database with unknown version number):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:distributionFormat>
        <gmd:MD_Format>
          <gmd:name>
            <gmx:Anchor xlink:type="simple"
xlink:href="http://vocab.nerc.ac.uk/collection/M01/current/DB">Dat
abase</gmx:Anchor>
          </gmd:name>
          <gmd:version gco:nilReason="unknown"/>
        </gmd:MD_Format>
      </gmd:distributionFormat>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets and series of datasets) (example covers NetCDF file that is Climate Forecast (CF) v 1.6, and delimited with an unknown version number):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:distributionFormat>
        <gmd:MD_Format>
          <gmd:name>
            <gmx:Anchor xlink:type="simple" xlink:href="
http://vocab.nerc.ac.uk/collection/M01/current/NC/">Network Common
Data Form</gmx:Anchor>
          </gmd:name>
          <gmd:version>
           <gco:CharacterString>
            CF 1.6
           </gco:CharacterString>
          </gmd:version>
        </gmd:MD_Format>
      </gmd:distributionFormat>
      <gmd:distributionFormat>
        <gmd:MD_Format>
          <gmd:name>
```

```
            <gmx:Anchor xlink:type="simple"
xlink:href="http://vocab.nerc.ac.uk/collection/M01/current/DEL">De
limited</gmx:Anchor>
          </gmd:name>
          <gmd:version gco:nilReason="unknown"/>
        </gmd:MD_Format>
      </gmd:distributionFormat>
    <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 33 – Character encoding (C)

Conditional for datasets and series of datasets, not applicable to services[16]. Multiple occurrences are allowed. Controlled vocabulary.

This describes the character encoding used in the dataset. It shall be populated if an encoding is used that is not based on UTF-8, otherwise it is optional.

Select all applicable character encodings from ISO character set codelist (MD_CharacterSetCode). The full code list is presented in Annex N, or can be found in library G09 on the NVS2 Vocabulary Server https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/G09/

Example 1

8859part1

Example 2

utf8

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
     <gmd:citation>
       <!-- ... -->
     </gmd:citation>
     <!-- ... -->
      <gmd:language>
       <!-- ... -->
      </gmd:language>
     <gmd:characterSet>
     <gmd:MD_CharacterSetCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
```

[16] See Element 4 resource type for definition of a 'service'

```
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Characte
rSetCode"
codeListValue="8859part1">ISO/IEC 8859-1 (also known as Latin 1)
</gmd:MD_CharacterSetCode>
     </gmd:characterSet>
     <gmd:topicCategory>
     <!-- ... -->
     </gmd:topicCategory>
     <gmd:extent>
     <!-- ... -->
     </gmd:extent>
     <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 24 - Frequency of update (C)

Mandatory for datasets and series of datasets, Conditional for services where frequency of update is relevant to the service. One occurrence allowed. Controlled vocabulary.

This describes the frequency that the resource (dataset) is modified or updated and shall be included if known. For example if the dataset is from a monitoring programme which samples once per year then the frequency is annually. Select one option from ISO frequency of update codelist (MD_MaintenanceFrequencyCode codelist). The full code list is presented in Annex I, or can be found in library G17 on the NVS2 Vocabulary Server https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/G17/

Example 1

monthly

Example 2

annually

Example XML fragment (for datasets and series of datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceMaintenance>
        <gmd:MD_MaintenanceInformation>
          <gmd:maintenanceAndUpdateFrequency>
            <gmd:MD_MaintenanceFrequencyCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Maintena
nceFrequencyCode" codeListValue="asNeeded">
              asNeeded
```

```
            </gmd:MD_MaintenanceFrequencyCode>
          </gmd:maintenanceAndUpdateFrequency>
        </gmd:MD_MaintenanceInformation>
      </gmd:resourceMaintenance>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <gmd:resourceMaintenance>
        <gmd:MD_MaintenanceInformation>
          <gmd:maintenanceAndUpdateFrequency>
            <gmd:MD_MaintenanceFrequencyCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_Maintena
nceFrequencyCode" codeListValue="monthly">
              monthly
            </gmd:MD_MaintenanceFrequencyCode>
          </gmd:maintenanceAndUpdateFrequency>
        </gmd:MD_MaintenanceInformation>
      </gmd:resourceMaintenance>
      <!-- ... -->
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

9. Elements relating to Conformity

Element 25 – Conformity (M)

Mandatory element. Multiple occurrences allowed. Free text, controlled vocabulary and date.

This element specifies if the dataset or service being described is conformant with other specifications such as the INSPIRE data specifications or MEDIN data guidelines. There are 3 sub-elements which give the title of the specification, the degree of conformity (if it is or not conformant) and an explanation which gives further details of how conformant it is or any other useful information for the user. Conformity can be assessed with respect to more than one specification.

Dataset, series and metadata for services shall always include one Conformity occurrence that references **Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services**. This reference shall be present, even if it is to indicate that the data resource is non-conformant to the Regulation.

Other occurrences, referencing either INSPIRE or other specifications, can be populated as part of the same metadata record.

The list of MEDIN data guidelines can be found in library C48 on the NVS2 Vocabulary Server at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/C48/

Sub element 25.1 - Specification (M)

Mandatory element. Single occurrence per specification. Free text, controlled vocabulary and date.

Give the citation of the specification or user requirement against which data resource is evaluated.

Sub sub element 25.1.1 - Title (M)

Mandatory. One occurrence only. Free text.

Title of specification that the data resource is being evaluated against.

Sub sub element 25.1.2 - Date type (M)

Mandatory. One occurrence only. Controlled vocabulary.

Type of date of the specification[17]. Choose from 'publication', 'revision' or 'creation' to reflect date of specification, revision date etc. MEDIN recommend use of 'publication' date rather than revision or creation. For the INSPIRE Conformity occurrence, a 'publication' date shall be provided.

Sub sub element 25.1.3 - Date (M)

Mandatory. One occurrence only. Date format, yyyy-mm-dd as in Section 2.1 Date and time formatting

Date format for date type specified in element 25.1.2. yyyy-mm-dd

[17] See Element 11.2.2 for definition of Date type

Sub element 25.2 - Degree of conformity (M)

Mandatory element. Single occurrence per specification. Controlled vocabulary

This element identifies the conformity of the data resource to a specification cited in 25.1.1. The values shall be one of either:

True – select this to indicate that the resource conforms to the specification in 25.1.1
False – select this to indicate that the resource is not conformant to the specification in 25.1.1

Sub element 25.3 - Explanation (M)

Mandatory element. Single occurrence per specification. Free Text.

This provides meaning of the conformance statement in 25.2 for this degree of conformance result. It should include a statement about which (if any) aspects of the specification the data resource conforms and any exceptions.

Example 1

D2.8.I.5 INSPIRE Data Specification on *Addresses* – Guidelines, publication, 2010-04-26
True
Only mandatory items included

Example 2
MEDIN Data Guideline for sediment sampling by grab or core for benthos, publication, 2009-07-29
True
All mandatory and conditional items were completed

Example XML fragment (for datasets) (Example of a conformity report for INSPIRE Implementing Rule 1089/2010, where conformance is not evaluated):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <!-- Scope - Required by ISO 19115 constraint -->
      <gmd:scope>
        <gmd:DQ_Scope>
          <gmd:level>
            <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="dataset">dataset</gmd:MD_ScopeCode>
          </gmd:level>
        </gmd:DQ_Scope>
      </gmd:scope>
      <gmd:report>
        <gmd:DQ_DomainConsistency>
          <gmd:result>
            <gmd:DQ_ConformanceResult >
```

```
            <gmd:specification>
              <gmd:CI_Citation>
                <gmd:title>
                  <gmx:Anchor xlink:type="simple" xlink:href="
http://data.europa.eu/eli/reg/2010/1089">Commission Regulation
(EU) No 1089/2010 of 23 November 2010 implementing Directive
2007/2/EC of the European Parliament and of the Council as regards
interoperability of spatial data sets and services</gmx:Anchor>
                </gmd:title>
                <gmd:date>
                  <gmd:CI_Date>
                    <gmd:date>
                      <gco:Date>2010-12-08</gco:Date>
                    </gmd:date>
                    <gmd:dateType>
                      <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_DateType
Code"
codeListValue="publication">publication</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                  </gmd:CI_Date>
                </gmd:date>
              </gmd:CI_Citation>
            </gmd:specification>
             <!-- Explanation is a required element but can be
             empty -->
             <gmd:explanation gco:nilReason="inapplicable"/>
              <!—Conformance has not been evaluated -->
            <gmd:pass gco:nilReason="unknown"/>
          </gmd:DQ_ConformanceResult>
        </gmd:result>
      </gmd:DQ_DomainConsistency>
    </gmd:report>
    <!-- ... -->
  </gmd:DQ_DataQuality>
 </gmd:dataQualityInfo>
 <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for datasets):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <!-- Scope - Required by ISO 19115 constraint -->
      <gmd:scope>
        <gmd:DQ_Scope>
          <gmd:level>
            <gmd:MD_ScopeCode
```

```
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="dataset">dataset</gmd:MD_ScopeCode>
          </gmd:level>
        </gmd:DQ_Scope>
      </gmd:scope>
      <gmd:report>
        <gmd:DQ_DomainConsistency>
          <gmd:result>
            <gmd:DQ_ConformanceResult >
              <gmd:specification>
                <gmd:CI_Citation>
                  <gmd:title>
                    <gco:CharacterString>
                      INSPIRE Implementing rules laying down
                      technical arrangements for the
                      interoperability and harmonisation of
                      orthoimagery
                    </gco:CharacterString>
                  </gmd:title>
                  <gmd:date>
                    <gmd:CI_Date>
                      <gmd:date>
                        <gco:Date>2011-05-15</gco:Date>
                      </gmd:date>
                      <gmd:dateType>
                        <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_DateType
Code"
codeListValue="publication">publication</gmd:CI_DateTypeCode>
                      </gmd:dateType>
                    </gmd:CI_Date>
                  </gmd:date>
                </gmd:CI_Citation>
              </gmd:specification>
              <gmd:explanation>
                <gco:CharacterString>See the referenced
specification</gco:CharacterString>
              </gmd:explanation>
              <gmd:pass>
                <gco:Boolean>true</gco:Boolean>
              </gmd:pass>
            </gmd:DQ_ConformanceResult>
          </gmd:result>
        </gmd:DQ_DomainConsistency>
      </gmd:report>
      <!-- ... -->
    </gmd:DQ_DataQuality>
  </gmd:dataQualityInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <!-- Scope - Required by ISO 19115 constraint -->
      <gmd:scope>
        <gmd:DQ_Scope>
          <gmd:level>
            <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="service">service</gmd:MD_ScopeCode>
          </gmd:level>
          <!-- ... -->
          <gmd:levelDescription>
           <gmd:MD_ScopeDescription>
            <gmd:other>
             <gco:CharacterString>service</gco:CharacterString>
            <gmd:other>
           </gmd:MD_ScopeDescription>
          </gmd:levelDescription>
        </gmd:DQ_Scope>
      </gmd:scope>
      <gmd:report>
        <gmd:DQ_DomainConsistency>
          <gmd:result>
            <gmd:DQ_ConformanceResult >
              <gmd:specification>
                <gmd:CI_Citation>
                  <gmd:title>
                    <gco:CharacterString>
                      Service Abstract Test Suite
                    </gco:CharacterString>
                  </gmd:title>
                  <gmd:date>
                    <gmd:CI_Date>
                      <gmd:date>
                        <gco:Date>2011-05-15</gco:Date>
                      </gmd:date>
                      <gmd:dateType>
                        <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#CI_DateType
Code"
codeListValue="publication">publication</gmd:CI_DateTypeCode>
                      </gmd:dateType>
                    </gmd:CI_Date>
                  </gmd:date>
                </gmd:CI_Citation>
              </gmd:specification>
              <gmd:explanation>
```

```
                <gco:CharacterString>See the referenced
specification</gco:CharacterString>
              </gmd:explanation>
              <gmd:pass>
                <gco:Boolean>true</gco:Boolean>
              </gmd:pass>
            </gmd:DQ_ConformanceResult>
          </gmd:result>
        </gmd:DQ_DomainConsistency>
      </gmd:report>
      <!-- ... -->
    </gmd:DQ_DataQuality>
  </gmd:dataQualityInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

10. Elements relating to metadata

File Identifier (M)

The file identifier is a code that is encoded in XML that is globally unique and remains with the same metadata record even if the record is edited or transferred between portals or tools. It is not therefore an actual element but part of the xml record. The file identifier can be used to identify and remove duplication of records in a portal if it is harvesting records from a wide range of sources. As such it is not an element of the metadata but is used to uniquely identify the metadata xml record (as opposed to the element Unique Resource Identifier which refers to the dataset, series or service itself).

The file identifier should be created either by the organisation generating metadata or by the tools from which the metadata record is generated. Applications that are used subsequently to edit the metadata shall not change the file identifier. MEDIN recommends the use of a 'Globally Unique Identifier' or GUID as the file identifier. It is a system generated 128-bit integer number used to identify resources (e.g. 79557726-b60a-4cf3-a8fd-9799c603d4dc). GUIDs can be generated from a variety of sources including internal PC systems and online resources such as http://www.guidgenerator.com/online-guid-generator.aspx

Example XML fragment:

```
<gmd:MD_Metadata>
  <gmd:fileIdentifier>
   <gco:CharacterString>98e25be5-388d-4be3-bc5f-
ba07ef6009b2</gco:CharacterString>
  </gmd:fileIdentifier>
  ...
</gmd:MD_Metadata>
```

Element 26 - Metadata date (M)

Mandatory element. One occurence allowed. Date format as in Section 2.1 Date and time formatting.

This describes the last date the metadata was updated on. If the metadata has not been updated it shall give the date on which it was created. This shall be provided as a date or date and time in the format:

yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

Example 1

2008-05-12

Example 2

2008-05-12T09:09:09

Example XML fragment (Date):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dateStamp>
    <gco:Date>2009-03-01</gco:Date>
  </gmd:dateStamp>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (DateTime):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dateStamp>
    <gco:DateTime>2009-01-01T09:09:09</gco:DateTime>
  </gmd:dateStamp>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 27 - Metadata standard name (M)

Mandatory element. One occurence allowed. Free text.

This element is to identify the metadata standard used to create the metadata. Select one option from NERC Vocabulary Server code list M25 at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/M25/. For MEDIN discovery metadata profiles, it shall be populated with the text 'MEDIN'.

Example

MEDIN

Example XML fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:metadataStandardName>
    <gmx:Anchor xlink:type="simple"
xlink:href="http://vocab.nerc.ac.uk/collection/M25/current/MEDIN/"
>MEDIN</gmx:Anchor>
  </gmd:metadataStandardName>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 28 - Metadata standard version (M)

Mandatory element. One occurence allowed. Free text

This element shall be populated with the version of the MEDIN Discovery Metadata Standard used to create the metadata record for the resource.

Example

3.1

Example XML fragment (for datasets and series, and for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:metadataStandardVersion>
    <gco:CharacterString>3.1</gco:CharacterString>
  </gmd:metadataStandardVersion>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 29 - Metadata language (M)

Mandatory element. One occurrence allowed. Controlled vocabulary.

Describes the language used in documenting the metadata.

This element should be used to indicate the main language used in populating the metadata for the resource. If a second language is used in some elements e.g. Alternative title, the main language should still be used to populate this element.

Select the relevant 3-letter code(s) from the ISO 639-2 code list of languages. Additional languages may be added to this list if required. A full list of UK language codes is listed in Annex D and a list of recognized languages is available online at http://www.loc.gov/standards/iso639-2/php/code_list.php.

For Welsh, ISO 639-2 allows either of 'cym' or 'wel', but MEDIN recommend that 'cym' is used as this is the abbreviation of the language's own name for itself. This follows guidance from GEMINI.

Example 1 (English)

eng

Example 2 (Welsh)

cym

Example XML fragment (for datasets and series, and for metadata for services):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:language>
    <gmd:LanguageCode
codeList="http://www.loc.gov/standards/iso639-2/php/code_list.php"
codeListValue="eng">English</gmd:LanguageCode>
  </gmd:language>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 30 – Parent ID (O)

Optional element. One occurence allowed. Free text.

This field holds the file identifier code of the series metadata record for which the dataset which is being described is part of. Therefore, this element allows links to be made between a dataset and a series (see http://www.medin.org.uk/data/faqs for MEDINs definition of these terms). This will then allow the MEDIN portal to be able to find related metadata records. For example, a large multidisciplinary project may be described as a 'series' and each of the themes of work will be described as 'datasets'. Using this field allows the user when viewing the series metadata to ask for the metadata records of all the datasets of each theme. Alternatively, a user may ask for all related records when viewing a dataset.

For services, this element should only be populated if the service that the metadata record is populated for consists of part of a larger set of services.

Example

79557726-b60a-4cf3-a8fd-9799c603d4dc

Example XML fragment (for datasets and series, and for metadata for services):

```
<gmd:MD_Metadata>
 ...
 <gmd:parentIdentifier>
  <gco:CharacterString>79557726-b60a-4cf3-a8fd-
9799c603d4dc</gco:CharacterString>
 </gmd:parentIdentifier>
 ...
</gmd:MD_Metadata>
```

Annex A Mapping of MEDIN profile to the ISO 19115 and 19119 standard

This Annex will consist of a mapping table showing how the MEDIN elements map to ISO standards 19115 and 19119. It will be populated in a subsequent update to v3.1.1.

Annex B Example XML files for dataset and series and metadata for services

Example XML files for dataset and series metadata and metadata for services are available on request from MEDIN and through the MEDIN GitHub repository https://github.com/medin-marine.

Annex C ISO Scope code codelist.

For the latest list it is recommended to be accessed directly from the ISO website. Please note that the terms dataset, series and service are only allowed for the UK Location Programme and INSPIRE.

Code	Name	Description
005	dataset	Information applies to a single dataset.
006	series	Information applies to a group of datasets linked by a common specification.
014	service	Information applies to a facility to view, download data e.g. web service

Annex D ISO Language codelist

Derived from the ISO 639-2 Codes for Languages. Below are the codes relevant to the UK. Please refer to the on-line resource at http://www.loc.gov/standards/iso639-2/php/English_list.php for the latest version

eng	English
cym(*)	Welsh/Cymru (note do not use the code 'wel')
gle	Irish (Gaelic)
gla	Scottish (Gaelic)
cor	Cornish

(*) ISO 639-2 allows the use of either ‘wel’ or ‘cym’ for Welsh/Cymru but GEMINI 2.3 recommend that ‘cym’ only is used .

Annex E ISO Topic category codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard with relevant INSPIRE data themes. Please refer to http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R1205:EN:NOT for the most recent list.

Code	Name	Definition	INSPIRE Theme
001	Farming	Rearing of animals or cultivation of plants. For example, resources describing irrigation, aquaculture, herding, and pests and diseases affecting crops and livestock.	This category applies to Directive 2007/2/EC spatial data theme Annex III(9) Agricultural and aquaculture facilities.
002	Biota	Naturally occurring flora and fauna. For example, resources describing wildlife, biological sciences, ecology, wilderness, sea life, wetlands, and habitats.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(17) Bio-geographical regions, Annex III(18) Habitats and biotopes, Annex III(19) Species distribution.
003	Boundaries	Legal land descriptions.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex I(4) Administrative units, Annex III(1) Statistical units.
004	Climatology/Meteorology/Atmosphere	Atmospheric processes and phenomena. For example, resources describing cloud cover, weather, atmospheric conditions, climate change, and precipitation.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(13) Atmospheric conditions, Annex III(14) Meteorological geographical

Code	Name	Definition	INSPIRE Theme
			features.
005	Economy	Economic activities or employment. For example, resources describing labour, revenue, commerce, industry, tourism and ecotourism, forestry, fisheries, commercial or subsistence hunting, and exploration and exploitation of resources such as minerals, oil, and gas.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(20) Energy resources, Annex III(21) Mineral resources.
006	Elevation	Height above or below sea level. For example, resources describing altitude, bathymetry, digital elevation models, slope, and products derived from this information.	This category applies to the following Directive 2007/2/EC spatial data theme: Annex II(1) Elevation.
007	Environment	Environmental resources, protection, and conservation. For example, resources describing pollution, waste storage and treatment, environmental impact assessment, environmental risk, and nature reserves.	This category applies to the following Directive 2007/2/EC spatial data theme: Annex I(9) Protected sites.
008	Geoscientific Information	Earth sciences. For example, resources describing geophysical features and processes, minerals, the composition, structure and origin of the earth's rocks, earthquakes, volcanic activity, landslides, gravity information, soils, permafrost, hydrogeology, and erosion.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(3) Soil , Annex II(4) Geology, Annex III(12) Natural risk zones.
009	Health	Health services, human ecology, and safety. For example, resources describing human disease and illness, factors	This category applies to the following Directive 2007/2/EC

Code	Name	Definition	INSPIRE Theme
		affecting health, hygiene, mental and physical health, substance abuse, and health services.	spatial data theme: Annex III(5) Human health and safety.
010	Imagery/Base Maps/Earth Cover	Base maps. For example, resources describing land cover, topographic maps, and classified and unclassified images.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex II(3) Orthoimagery, Annex II(2) Land cover.
011	Intelligence/Military	Military bases, structures, and activities. For example, resources describing barracks, training grounds, military transportation, and information collection.	This category does not apply specifically to any Directive 2007/2/EC spatial data themes.
012	Inland Waters	Inland water features, drainage systems, and their characteristics. For example, resources describing rivers and glaciers, salt lakes, water use plans, dams, currents, floods, water quality, and hydrographic charts.	This category applies to the following Directive 2007/2/EC spatial data theme: Annex I(8) Hydrography.
013	Location	Positional information and services. For example, resources describing addresses, geodetic networks, postal zones and services, control points, and place names.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex I(3) Geographical names, Annex I(5) Addresses.
014	Oceans	Features and characteristics of salt water bodies excluding inland waters. For example, resources	This category applies to the following Directive 2007/2/EC

Code	Name	Definition	INSPIRE Theme
		describing tides, tidal waves, coastal information, and reefs.	spatial data themes: Annex III(16) Sea regions, Annex III(15) Oceanographic geographical features.
015	Planning Cadastre	Land use. For example, resources describing zoning maps, cadastral surveys, and land ownership.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex I(6) Cadastral parcels, Annex III(4) Land use, Annex III(11) Area management/restriction/regulation zones & reporting units.
016	Society	Characteristics of societies and cultures. For example, resources describing natural settlements, anthropology, archaeology, education, traditional beliefs, manners and customs, demographic data, crime and justice, recreational areas and activities, social impact assessments, and census information.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(10) Population distribution – demography.
017	Structure	Man-made construction. For example, resources describing buildings, museums, churches, factories, housing, monuments, and towers.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(2) Buildings, Annex III(8) Production and industrial facilities, Annex III(7) Environmental monitoring facilities.

Code	Name	Definition	INSPIRE Theme
018	Transportation	Means and aids for conveying people and goods. For example, resources describing roads, airports and airstrips, shipping routes, tunnels, nautical charts, vehicle or vessel location, aeronautical charts, and railways.	This category applies to the following Directive 2007/2/EC spatial data theme: Annex I(7) Transport networks.
019	Utilities/Communications	Energy, water and waste systems, and communications infrastructure and services. For example, resources describing hydroelectricity, geothermal, solar, and nuclear sources of energy, water purification and distribution, sewage collection and disposal, electricity and gas distribution, data communication, telecommunication, radio, and communication networks.	This category applies to the following Directive 2007/2/EC spatial data theme: Annex III(6) Utility and governmental services.

Annex F Inspire Service type codelist

Code list from ISO 19119 adapted by INSPIRE for the classification of service types. Please refer to this website for the latest list http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R1205:EN:NOT

Possible values are as follows (in brackets are the language neutral names to be used):

Discovery Service (discovery)

View Service (view)

Download Service (download)

Transformation Service (transformation)

Invoke Spatial Data Service (invoke)

Other Service (other)

Annex G ISO Restriction codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard. Please refer to ISO19115 for the most up to date list.

Code	Name	Description
001	copyright	Exclusive right to the publication, production, or sale of the rights to a literary, dramatic, musical, or artistic work, or to the use of a commercial print or label, granted by law for a specified period of time to an author, composer, artist, distributor
002	patent	Government has granted exclusive right to make, sell, use or license an invention or discovery.
003	patentPending	Produced or sold information awaiting a patent.
004	trademark	A name, symbol, or other device identifying a product, officially registered and legally restricted to the use of the owner or manufacturer.
005	license	Formal permission to do something.
006	intellectualPropertyRights	Rights to financial benefit from and control of distribution of non-tangible property that is a result of creativity.

Code	Name	Description
007	restricted	Withheld from general circulation or disclosure.
008	otherRestrictions	Limitation not listed.

Annex H ISO Responsible party codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard. Please refer to ISO19115 for the most up to date list.

Code	Name	Description
001	resourceProvider	Party that supplies the resource.
002	custodian	Party that accepts accountability and responsibility for the data and ensures appropriate care and maintenance of the resource.
003	owner	Party that owns the resource.
004	user	Party who uses the resource.
005	distributor	Party that distributes the resource.
006	originator	Party who created the resource.
007	pointOfContact	Party who can be contacted for acquiring knowledge about or acquisition of the resource.
008	principalInvestigator	Key party responsible for gathering information and conducting research.

Code	Name	Description
009	processor	Party who has processed the data in a manner such that the resource has been modified.
010	publisher	Party who published the resource.
011	author	Party who authored the resource.

Annex I ISO Frequency of maintenance code list

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard. Please refer to ISO19115 for the most up to date list.

Code	Name	Description
001	continual	Data is repeatedly and frequently updated
002	daily	Data is updated each day
003	weekly	Data is updated on a weekly basis
004	fortnightly	Data is updated every two weeks
005	monthly	Data is updated each month
006	quarterly	Data is updated every three months
007	biannually	Data is updated twice each year
008	annually	Data is updated every year
009	as needed	Data is updated as deemed necessary
010	irregular	Data is updated at intervals that are uneven in duration
011	not planned	There are no plans to update the data
012	unknown	Frequency of maintenance for the data is not known

Annex J Keywords

INSPIRE themes

Please refer to http://www.eionet.europa.eu/gemet/inspire_themes?langcode=en for the authoritative and most recent keyword list

Addresses
Administrative units
Agricultural and aquaculture facilities
Area management/restriction/regulation zones and reporting units
Atmospheric conditions
Bio-geographical regions
Buildings
Cadastral parcels
Coordinate reference systems
Elevation
Energy resources
Environmental monitoring facilities
Geographical grid systems
Geology
Habitats and biotopes
Human health and safety
Hydrography
Land cover
Land use
Meteorological geographical features
Mineral resources
Natural risk zones
Oceanographic geographical features
Orthoimagery
Population distribution — demography
Production and industrial facilities
Protected sites Sea regions
Soil Geographical names
Species distribution

Statistical units
Transport networks
Utility and governmental services

SeaDataNet Parameter Discovery Vocabulary

Please refer to vocab P02 at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/ and the full and most recent keyword list.

SeaVox Vertical Coordinate Coverages Keywords

Please refer to vocab L13 at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/ for the most up to date list.

Keyword	Alternative	Definition
abyssobenthic	abyssobenthic	The zone of the seabed comprising the ocean floor with a bathymetric depth greater than approximately 2700 metres where the bathyal fauna are replaced by more primitive abyssal fauna.
abyssopelagic water column	abyssopelagic	The water column zone of total darkness extending down to the abyssal sea floor. Typically between depths of approximately 4000 metres and 6000 metres.
atmosphere	atmosphere	The envelope of gases surrounding the Earth.
atmospheric boundary layer	atmosphere_boundary	The region of the atmosphere close enough to the Earth's surface for frictional effects of that surface to be significant. Typically not more than 1 km thick.
bathybenthic	bathybenthic	The zone of the seabed between the permanent thermocline in the overlying water body and the limit of colonisation by bathyal fauna. It incorporates the lower part of the slope and the ocean floor to around 2700 metres bathymetric depth. It includes several faunal discontinuities.
bathypelagic water column	bathypelagic	The water column zone illuminated only by bioluminescent organisms. Typically between depths of approximately 1000 metres and 4000 metres.
benthic boundary layer	benthic_boundary	The water column that is significantly influenced by the seabed, which is broader in deep ocean than in shelf seas. Guideline approximation is bottom 10m of oceans and bottom 5% of shelf (<200m) seas.

circalittoral	circalittoral	The zone of the seabed dominated by animals. On open coastline this is from bottom of the infralittoral zone to the depth to which storms and waves still influence the seabed (wave-base).
core	core	The central zone of the earth largely composed of solid or molten metal alloys, typically from the centre of the Earth to approximately 2900 km below the surface..
crust	crust	The layer of lithified rock between the unconsolidated sediment and the Moho seismic discontinuity. Typically 5-10 km thick beneath oceans and 60-70 km thick beneath continents.
deep circalittoral	offshore_circalittoral	The zone of the seabed between the depth to which storms and waves still influence the seabed (wave-base) and the marked break of slope that characterises the offshore limit of the shelf (shelf-break).
epipelagic water column	epipelagic	The water column zone in which for clear water there is adequate light for photosynthesis. Typically from the surface down to a depth of approximately 200 metres.
exosphere	exosphere	The outermost layer of the atmosphere from which atoms can escape into outer space. Lies above the thermosphere from about 400 km in altitude.
hadopelagic water column	hadopelagic	The zone of the water column occupying ocean trenches, deeper than approximately 6000 metres.
heterosphere	heterosphere	The region of the atmosphere where the mixing ratio of gases is differentiated by gravity. Lies above the homosphere, from about 100 km in altitude.
homopause	homopause	The boundary region between the homosphere and the heterosphere. Typically at about 100 km.
homosphere	homosphere	The region of the atmosphere where gases are fully mixed by diffusion and turbulence. Lies between the surface (0 km) and the base of the heterosphere (at about 100 km).
inapplicable	inapplicable	There is no appropriate value
infralittoral	infralittoral	The zone of the seabed dominated by macroalgae below the low water mark. It extends to a depth where 1% of the surface illumination reaches the seabed, which varies according to turbidity.
littoral	littoral	That part of the shore (the fringe of a body of water that has been geologically modified by the action of that body of water past and present) above the low water mark and therefore exposed to the atmosphere at low tide.

mantle	mantle	The layer of basic (i.e ferromagnesian) solid rock between the core and the crust. Typically from between 5-70 km below the surface to approximately 2900 km below the surface.
mesopause	mesopause	The boundary between the mesosphere and the thermosphere characterised by a temperature minimum. Typically lies somewhere between 80 and 90 km.
mesopelagic water column	mesopelagic	The water column zone penetrated by light, but in insufficient quantities for photosynthesis. Typically between depths of approximately 200 metres and 1000 metres.
mesosphere	mesosphere	The layer of atmosphere overlying the stratospause characterised by decreasing temperature with height, typically from about 50 to about 80 km
soil and sediment	sediment	The unlithified sediments (of any grain size from silt to boulders) that form a layer between the solid crust and either the atmosphere or the water column.
soil and sediment boundary layer	sediment_boundary	The upper surface (interface plus surficial substrate) of the layer of unlithified sediments (of any grain size from silt to boulders) that form a layer between the solid crust and either the atmosphere or the water column.
stratopause	stratopause	The boundary between the stratosphere and the mesosphere characterised by a temperature maximum. Typically at about 50 km.
stratosphere	stratosphere	The layer of the atmosphere from the tropopause to a height of approximately 50 km, characterised by increasing temperature with height.
thermopause	thermopause	The boundary between the thermosphere and the exosphere. Typically at about 400 km.
thermosphere	thermosphere	The atmospheric layer extending between heights of approximately 80 km to approximately 400 km characterised by rising temperature with height and phenomena associated with ionisation. Part of the thermosphere is sometimes termed the ionosphere.
tropopause	tropopause	The boundary between the troposphere and stratosphere, characterized by change in temperature gradient with height from decreasing below to increasing above. May extend over a few km in height. Typically lies somewhere between 10 and 15 km.
troposphere	troposphere	The lowest broad layer of the atmosphere characterised by decreasing avearage temperature with height. Typically from the surface to between 10 and 15 km.
unknown	unknown	The correct value is not known to, and not computable by, the sender of this data. However, a correct value probably exists.
upper epipelagic water column	upper_epipelagic	The strongly illuminated upper half of the epipelagic zone. Typically from the surface down to a depth of approximately 100 metres.

upper slope	upper_slope	The zone of steeply-sloping seabed between the shelf-break and the permanent thermocline in the overlying water body.
water column	water_column	The entire body of water between the bed and the atmosphere.
water column boundary layer	water_column_boundary	The zone of the water column that is significantly influenced by the atmosphere. Typically the top 10m of the water column.
water column skin	water_column_skin	The zone a few microns thick at the extreme surface of the water column that is sampled by radiometers.

Annex K MEDIN Data Format vocabulary

Please refer to vocab M01 at https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/ for the most up to date list.

ANAUD	Analogue Audio	Recordings of sound converted to an electrical signal which is stored continuously using a medium such as magnetic tape or vinyl.
BIN	Binary	Any file format for digital data that are not encoded in a recognised standard character code such as ASCII. Binary files need bespoke APIs in order to be interrogated or manipulated and cannot be read using text viewers.
DB	Database	Files that are used to store data in database applications such as Oracle or MS Access
DEL	Delimited	File formats that are delimited by commas, tabs, semi colons that can be opened using software packages such as MS Excel
DIGAUD	Digital Audio	Recordings of sound converted to an electrical signal the properties of which are determined as numbers at regular intervals and stored.
DOC	Documents	Files that hold written information such as pdf, doc,
KMX	Google Earth and Oceans	Files (e.g. kml, kmg) used to display data and images using Google applications Earth and Oceans.
GIS	Geographic Information System	Files that are geographic in scope and can be opened by MapInfo or ESRI
IMG	Image	Still image files such as jpeg, tiff, png that may be opened by applications such as PhotoShop
MOV	Movie	Files that capture moving images such as avi, mpeg, mov, wmv

NC	Network Common Data Form	Binary data files conforming to a set of conventions allowing them to be manipulated through the NetCDF API and tools built using that API
ODV	Ocean Data View	Delimited files conforming to a set of conventions that allow them to be opened and interrogated using the OCEAN Data View application
TXT	Text or Plaintext	Files encoded in a character convention, usually ASCII, that need to be handled with a generic text editor such as Vi or Notepad or bespoke software

Annex L ISO CI_OnlineFunctionCode

download
information
offlineAccess
order
search

Annex M ISO Spatial representation type code list subset

Derived from the ISO 19115/TC 211 Codelist http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_SpatialRepresentationTypeCode. Please refer to ISO19115 for the most up to date list, and to UK GEMINI for UK guidance on use

ID	Name	Description
MD_SpatialRepresentation TypeCode_vector	vector	vector data is used to represent geographic data
MD_SpatialRepresentation TypeCode_grid	grid	grid data is used to represent geographic data

MD_SpatialRepresentation TypeCode_textTable	textTable	textual or tabular data is used to represent geographic data
MD_SpatialRepresentation TypeCode_tin	tin	triangulated irregular network

Annex N ISO Character set code list

Derived from the ISO 19115/TC 211 Codelist http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/codelist/gmxCodelists.xml#MD_CharacterSetCode. Please refer to ISO19115 for the most up to date list.

ID	Name	Description
001	ucs2	16-bit fixed size Universal Character Set, based on ISO/IEC 10646
002	ucs4	32-bit fixed size Universal Character Set, based on ISO/IEC 10646
003	utf7	7-bit variable size UCS Transfer Format, based on ISO/IEC 10646
004	utf8	8-bit variable size UCS Transfer Format, based on ISO/IEC 10646
005	utf16	16-bit variable size UCS Transfer Format, based on ISO/IEC 10646
006	8859part1	ISO/IEC 8859-1, Information technology - 8-bit single byte coded graphic character sets - Part 1 : Latin alphabet No.1
007	8859part2	ISO/IEC 8859-2, Information technology - 8-bit single byte coded graphic character sets - Part 2 : Latin alphabet No.2
008	8859part3	ISO/IEC 8859-3, Information technology - 8-bit single byte coded graphic character sets - Part 3 : Latin alphabet No.3
009	8859part4	ISO/IEC 8859-4, Information technology - 8-bit single byte coded graphic character sets - Part 4 : Latin alphabet No.4
010	8859part5	ISO/IEC 8859-5, Information technology - 8-bit single byte coded graphic character sets - Part 5 : Latin/Cyrillic alphabet
011	8859part6	ISO/IEC 8859-6, Information technology - 8-bit single byte coded graphic character sets - Part 6 : Latin/Arabic alphabet

012	8859part7	ISO/IEC 8859-7, Information technology - 8-bit single byte coded graphic character sets - Part 7 : Latin/Greek alphabet
013	8859part8	ISO/IEC 8859-8, Information technology - 8-bit single byte coded graphic character sets - Part 8 : Latin/Hebrew alphabet
014	8859part9	ISO/IEC 8859-9, Information technology - 8-bit single byte coded graphic character sets - Part 9 : Latin alphabet No.5
015	8859part10	ISO/IEC 8859-10, Information technology - 8-bit single byte coded graphic character sets - Part 10 : Latin alphabet No.6
016	8859part11	ISO/IEC 8859-11, Information technology - 8-bit single byte coded graphic character sets - Part 11 : Latin/Thai alphabet
018	8859part13	ISO/IEC 8859-13, Information technology - 8-bit single byte coded graphic character sets - Part 13 : Latin alphabet No.7
019	8859part14	ISO/IEC 8859-14, Information technology - 8-bit single byte coded graphic character sets - Part 14 : Latin alphabet No.8 (Celtic)
020	8859part15	ISO/IEC 8859-15, Information technology - 8-bit single byte coded graphic character sets - Part 15 : Latin alphabet No.9
021	8859part16	ISO/IEC 8859-16, Information technology - 8-bit single byte coded graphic character sets - Part 16 : Latin alphabet No.10
022	jis	Japanese code set used for electronic transmission
023	shiftJIS	Japanese code set used on MS-DOS machines
024	eucJP	Japanese code set used on UNIX based machines
025	usAscii	United States ASCII code set (ISO 646 US)
026	ebcdic	IBM mainframe code set
027	eucKR	Korean code set
028	big5	Traditional Chinese code set used in Taiwan, Hong Kong of China and other areas
029	GB2312	Simplified Chinese code set