Title	Guidance notes for the production of non-spatial discovery metadata for the Marine Environmental Data and Information Network (MEDIN)
MEDIN Discipline	Discovery Metadata
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License 	
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Summary	The discovery metadata standard for non-spatial resources submitted to the Marine Environmental Data and Information Network.
Keywords	Discovery Metadata, non-spatial dataset, nonGeographicDataset.

Metadata standards evolve and these guidelines are 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) or MEDIN GitHub (http://github.com/medin-marine/Discovery-Standard-public-content) rather than storing a local copy. A log of changes will be available on the website.

Change History

Version	Author	Revision Date	Status
Interim Draft 1.0	CW	2024-02-28	Draft for comment
Interim Draft 1.0	CW	2024-10-11	Final draft
Public Standard 1.0	CW	2024-10-23	Official public release

MEDIN Elements

(Please note that for consistency, the element numbering follows the MEDIN geospatial standard discovery metadata standard.)

1. Introduction

Metadata standards are essential to enable easy discovery, evaluation, and use of resources. Standards play a pivotal role in providing comprehensive descriptions and enhancing the discoverability of data resources, such as non-spatial dataset or spatial dataset, series, or service metadata. They ensure that a resource is fit for purpose by comprehensively describing the data which facilitates its effective utilisation. This standard for non-geographic data defines a specific format for recording details of non-spatial resources, enabling easy discoverability and usability in the future. It is therefore termed a 'metadata discovery standard' and this document sets out the format used by the Marine Environmental Data Information Network (MEDIN). MEDIN defines a non-geographic marine dataset as marine data that are independent of geographic location. Examples of non-spatial data include:

- Laboratory or experimental results
- Non-geospatial social science data
- Mathematical model outputs
- Species traits
- DNA sequences
- Histology data
- Documentation reports

All metadata released via the MEDIN portal must comply with certain international and national metadata standards. This non-spatial metadata standard is based on the ISO 19115:2003 standard and 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. Metadata standards may change over time. As metadata standards may evolve, it is recommended to regularly download this document to ensure the use of the most current version.

2. Data Discoverability

It is important that other users of MEDIN can find out how to access 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 non-geographic dataset. If there is a direct web link to the non-spatial dataset 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. These 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 20 'Responsible Party'.

MEDIN recommends that the 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. Contact details for an individual should only be provided when organisation and job title information cannot be provided. 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 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 the public exposure of their personal information when supplying their own details.

Determining whether the collected data constitutes a single dataset, or multiple datasets can often be challenging, this concept is referred to as '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:

- 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 discovery metadata as they enable users to locate the temporal range of the data resources they are interested in. For these times to be of use however, they must be standardised. Therefore, MEDIN require that all times and dates in the MEDIN Discovery Metadata Standard be formatted in accordance with 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. 2020-04-01/2022-03-31). 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 non-spatial discovery metadata standard. The elements required are listed below and the table details each element and corresponding requirement level. Please note that for consistency, the element numbering follows the MEDIN geospatial standard discovery metadata standard.

Number	Element Name	Requirement Level
1	Resource title	Mandatory
2	Alternative resource title	Optional
3	Resource abstract	Mandatory
4	Resource type	Mandatory
5	Resource locator	Conditional
6	Unique resource identifier	Mandatory
8	Resource language	Mandatory
9	Topic category	Mandatory
11	Keywords	Mandatory
13	Extent	Mandatory
16	Temporal reference	Mandatory
17	Lineage	Mandatory
19	Additional information	Optional
20	Limitations on public access	Mandatory
21	Conditions applying for access and use	Mandatory
22	Responsible party	Mandatory
23	Data format	Mandatory
24	Frequency of update	Mandatory
25	Conformity	Conditional
26	Metadata date	Mandatory
27	Metadata standard name	Mandatory
28	Metadata standard version	Mandatory
29	Metadata language	Mandatory
30	Parent ID	Optional
33	Character encoding	Conditional

4. Filling in an element

The element descriptions are made up of 9 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: Each element's requirement level will be indicated as 'M', 'C', or 'O':

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

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. Annex A provides guidance on where complete XML examples for non-geographic metadata instances can be sourced from.

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <gmd:title>
             <gco:CharacterString>Genome sequence and gene annotations of the
             Patagonion toothfish 2019</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: N01 MEDIN Metadata Record Availability (for OAI Harvesting)

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. MEDIN recommend the following format:

'Date' 'Originating organisation/programme' 'Type of survey'. It is advised that acronyms and abbreviations are reproduced in full. Example: Atlantic Meridional Overturning Circulation (AMOC).

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

P-wave velocity and attenuation 1/Q data of water-saturated sand pack (from dry to full saturation) at 10 kilohertz frequency under 10 MPa effective pressure, 2022 - 2023.

Example 2

Experimental results on the effect of Acid and Neutral Iodine on phytoplankton sample preservation expressed as cell counts, undertaken in 2013 – 2014

Example XML fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <gmd:title>
              <gco:CharacterString>Management Strategy Evaluation toolkit for Ecopath
              with Ecosim (model output and technical report)</gco:CharacterString>
          </gmd:title>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </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 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

Effect of Acid and Neutral Iodine on Phytoplankton Preservation: 2013–2014 Cell Count Results

Example XML fragment (showing title element and alternate title element):

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

```
      <gmd:citation>
        <gmd:CI_Citation>
          <gmd:title>
             <gco:CharacterString>Experimental results on the effect of Acid and
             Neutral Iodine on phytoplankton sample preservation expressed as cell
             counts, undertaken in 2013 - 2014</gco:CharacterString>
           </gmd:title>
          <gmd:alternateTitle>
             <gco:CharacterString>Effect of Acid and Neutral Iodine on Phytoplankton
             Preservation: 2013-2014 Cell Count Results</gco:CharacterString>
          </gmd:alternateTitle>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </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. the non-spatial 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).

Example 1

This dataset contains LiDAR scans as Faro Scene files of 53 scans which cover 15 different fossiliferous surfaces. The number of scans per surface varies depending on the topology of the bedding plane. These LiDAR scans were made in Newfoundland, Canada, from Mistaken Point Ecological Reserve (10 surfaces), Discovery Geopark (4 surfaces) and Ferryland (1 surface). 45 scans were made in July 2022 and 8 in September 2022. The scans were made in order to enable the mapping of fossil specimens within their communities so that spatial analyses can be used to infer the underlying biological and ecological processes than govern Ediacaran eco-evolutionary dynamics. The dataset is complete to reconstruct the bedding surfaces accurately.

Example 2

Outputs include the genome of the Patagonian toothfish, including the sequence of the genome and gene annotations and raw sequencing data, which includes the genome and transcriptome sequenced from multiple different tissues, using different sequencing technologies. Patagonian toothfish (*Dissostichus eleginoides*) is an economically and ecologically important fish species in the family Nototheniidae. Juveniles occupy progressively deeper waters as they mature and grow, and adults have been caught as deep as 2500 m, living on or in just above the southern shelves and slopes around the sub-Antarctic islands of the Southern Ocean. As apex predators, they are a key part of the food web, feeding on a variety of prey, including krill, squid, and other fish. Despite its importance, genomic sequence data, which could be used for more accurate dating of the divergence between Patagonian and Antarctic toothfish, or establish whether it shares adaptations to temperature with fish living in more polar or equatorial climes, has so far been limited

Example XML fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:abstract>
         <gco:CharacterString>Outputs include the genome of the Patagonian toothfish,
         including the sequence of the genome and gene annotations and raw sequencing
         data, which includes the genome and transcriptome sequenced from multiple
         different tissues, using different sequencing technologies. Patagonian
         toothfish (*Dissostichus eleginoides*) is an economically and ecologically
         important fish species in the family Nototheniidae. Juveniles occupy
         progressively deeper waters as they mature and grow, and adults have been
         caught as deep as 2500 m, living on or in just above the southern shelves and
         slopes around the sub-Antarctic islands of the Southern Ocean. As apex
         predators, they are a key part of the food web, feeding on a variety of prey,
         including krill, squid, and other fish. Despite its importance, genomic
         sequence data, which could be used for more accurate dating of the divergence
         between Patagonian and Antarctic toothfish, or establish whether it shares
         adaptations to temperature with fish living in more polar or equatorial
         climes, has so far been limited.</gco:CharacterString>
      </gmd:abstract>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </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 B for code list). The resource type shall be 'nonGeographicDataset'.

Example

nonGeographicDataset

Example XML fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:hierarchyLevel>
     <gmd:MD_ScopeCode
     codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#MD_ScopeCo
     de"codeListValue="nonGeographicDataset">nonGeographicDataset</gmd:MD_ScopeCode>
  </gmd:hierarchyLevel>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 5 - Resource locator (C)

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

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 J.

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 if 'Resource locator name' is unavailable. Otherwise, population of this sub-element is optional.

Example 1

Resource locator URL:
http://webapps.bgs.ac.uk/services/ngdc/accessions/index.html#item178211
Resource locator name: NGDC deposited data search
Resource locator description: download
Resource locator function: This search allows you to discover data that has been ingested by the National Geoscience Data Centre (NGDC) and the National Geological Repository (NGR). Use of the data is subject to NGDC Terms and Conditions. You can also find the data using the Deposited Data layers on the Geoindex.

Example 2

Resource locator URL: http://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:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:distributionInfo>
    <gmd:MD_Distribution>
      <!-- ... -->
      <gmd:transferOptions>
        <gmd:MD_DigitalTransferOptions>
          <gmd:onLine>
            <gmd:CI_OnlineResource>
              <!-- Resource locator URL -->
                <gmd:linkage>
```

```
                    <gmd:URL>
                    http://webapps.bgs.ac.uk/services/ngdc/accessions/index.html#item178
                    211</gmd:URL>
                </gmd:linkage>
                <!-- Resource name -->
                  <gmd:name>
                    <gco:CharacterString>NGDC deposited data
                    search</gco:CharacterString>
                  </gmd:name>
                  <!-- Resource locator description -->
                  <gmd:description>
                    <gco:CharacterString>This search allows you to discover data that
                    has been ingested by the National Geoscience Data Centre (NGDC) and
                    the National Geological Repository (NGR). Use of the data is subject
                    to NGDC Terms and Conditions. You can also find the data using the
                    Deposited Data layers on the Geoindex.</gco:CharacterString>
                  </gmd:description>
                  <!-- Resource function -->
                  <gmd:function>
                    <gmd:CI_OnLineFunctionCode
                    codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.
                    xml#CI_OnLineFunctionCode"
                    codeListValue="download">download</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 (M)

Mandatory element. 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 components of the element (code and codespace) can be provided separately using code and codespace encapsulated by an RS_Identifier. When a complete URI is present, MEDIN strongly recommend that code and codespace are combined into a single gmd:code occurrence using a gmx:Anchor encapsulated by an MD_Identifier. See XML examples below. *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'.

Sub Element 6.1 - Code (M)

Mandatory sub-element. One occurrence allowed. Free text.

The code is generally a unique identification code for the resource that has been assigned by some authority.

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. Where a DOI is being provided as a resource identifier, this codespace should be the text string 'doi'.

Example 1

Code: EDMED6725

Example 2

Code: 2603
Codespace: http://data.cefas.co.uk/view/2603

Example 3

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

Example XML fragment (code and codespace with RS_Identifier):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:identifier>
            <gmd:RS_Identifier>
              <gmd:code>
                  <gco:CharacterString>CEFAS21804</gco:CharacterString>
              </gmd:code>
              <gmd:codeSpace>
                  <gco:CharacterString>http://data.cefas.co.uk</gco:CharacterString>
              </gmd:codeSpace>
            </gmd:RS_Identifier>
          </gmd:identifier>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (code and codespace combined into a single code occurrence in a gmx:Anchor using MD_Identifier because a complete URI is present):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:identifier>
            <gmd:MD_Identifier>
              <gmd:code>
                <gmx:Anchor
                xlink:href="http://www.bodc.ac.uk/resources/inventories/edmed/search/67
                25">EDMED6725</gmx:Anchor>
              </gmd:code>
            </gmd:MD_Identifier>
          </gmd:identifier>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (encoding of a DOI landing page):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:identifier>
            <gmd:RS_Identifier>
              <gmd:code>
                <gmx:Anchor
                xlink:href="http://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>doi</gco:CharacterString>
              </gmd:codeSpace>
            </gmd:RS_Identifier>
          </gmd:identifier>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 8 - Resource language (M)

Mandatory element. Multiple occurrences allowed. Controlled vocabulary, ISO 639-2.

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

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 are listed in Annex C and a list of recognized languages are 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.

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:

```
<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 a resource

Element 9 - Topic category (M)

Mandatory element. 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 D or viewed in controlled vocabulary library P05 on the NVS2 Vocabulary Server http://vocab.nerc.ac.uk/collection/P05/current/.

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) http://vocab.nerc.ac.uk/collection/P02/current/.

Example 1

biota

Example 2

oceans

Example XML fragment:

```
<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>
```

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 keywords. This enables searches to eliminate resources that are of no interest to users.

Keywords should be chosen using the codelist 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.

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 (O)

If relevant to the subject matter of the non-spatial resource being described, an INSPIRE theme keyword can be applied to the resource. INSPIRE thematic categories, such as 'Environmental monitoring facilities', 'Energy resources', or 'Statistical units', are closely linked to spatial datasets

but may also apply more broadly to related non-spatial resources. A list of the INSPIRE theme keywords is available in Annex H. This list is also available at http://inspire.ec.europa.eu/theme, http://www.eionet.europa.eu/gemet/inspire_themes or library P22 in the NVS2 Vocabulary Server http://vocab.nerc.ac.uk/collection/P22/current/.

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 http://vocab.nerc.ac.uk/collection/P02/current/. 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.

Socio-economic keywords (O)

If a non-spatial dataset related to socio-economic data is being described, MEDIN recommends using the following controlled vocabularies: socio-economic governance objective categories (M05), available at http://vocab.nerc.ac.uk/collection/M05/current/, and monitoring activity categories (M06) available at http://vocab.nerc.ac.uk/collection/M06/current/.

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. Topic category terms, which should go into Element 9: 'Topic category'.

Providing Metadata to 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 http://vocab.nerc.ac.uk/collection/N01/current/). 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[1] (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
thesaurusName: SeaDataNet Parameter Discovery Vocabulary
dateType: revision
date: 2009-10-13

Example 2
keywordValue: Hydrography
thesaurusName: GEMET - INSPIRE themes, version 1.0
dateType: revision
date: 2011-03-25

Example XML fragment for keywords from controlled vocabulary P02 SeaDataNet Parameter Discovery Vocabulary:

```
<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/ICEM/">Ice
             motion and related parameters</gmx:Anchor>
          </gmd:keyword>
          <gmd:keyword>
             <gmx:Anchor
             xlink:href="http://vocab.nerc.ac.uk/collection/P02/current/TEMP/">Temperat
             ure 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>2023-12-12</gco:Date>
                  </gmd:date>
                  <gmd:dateType>
                      <gmd:CI_DateTypeCode
                      codeList="http://standards.iso.org/iso/19139/resources/gmxCodeli
```

[1] 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)

```
                        sts.xml#CI_DateTypeCode"
                        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:

```
<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/iso/19139/resources/gmxCodeli
                      sts.xml#CI_DateTypeCode"
                      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:

```
<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/NDGO0001/">Mari
             ne Environmental Data and Information Network</gmx:Anchor>
          </gmd:keyword>
          <gmd:thesaurusName>
            <gmd:CI_Citation>
              <gmd:title>
                  <gco:CharacterString>MEDIN metadata record
                  availability</gco:CharacterString>
              </gmd:title>
              <gmd:date>
                <gmd:CI_Date>
                  <gmd:date>
                    <gco:Date>2022-09-13</gco:Date>
                  </gmd:date>
                  <gmd:dateType>
                     <gmd:CI_DateTypeCode
                     codeList="http://standards.iso.org/iso/19139/resources/gmxCodelis
                     ts.xml#CI_DateTypeCode"
                     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>
```

Element 13 - Extent (M)

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

To ensure compliance with ISO 19115, a Geographic Description must be provided in a non-spatial resource using a defined authority, even if geographic information is not relevant to the resource itself. As non-spatial resources are typically not associated with a specific geographic area, in such cases, the term 'Inapplicable' from the SeaVoX salt and freshwater body gazetteer (vocabulary C19) http://vocab.nerc.ac.uk/collection/C19/current/ shall be used to indicate this. Should a geographic area or place name be associated with a non-geographic dataset (for example, 'Humber Estuary' or 'European mainland'), terms describing these are be selected from controlled vocabularies to describe the area associated with the resource.

When 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)[2]

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 1
extentName: inapplicable
vocabularyName: SeaVoX salt and fresh water body gazetteer
dateType: revision
date: 2011-08-26

Example 2
extentName: Scotland
vocabularyName: ISO3166 Countries
dateType: Creation
date: 2005-04-29

Example 3
extentName: Scotland
vocabularyName: ISO3166 Countries
dateType: Creation
date: 2005-04-29

Example XML fragment

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

[2] 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: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>2011-08-26</gco:Date>
                </gmd:date>
                 <gmd:dateType>
                    <gmd:CI_DateTypeCode
                    codeList="http://standards.iso.org/iso/19139/resources/gmxCodelis
                    ts.xml#CI_DateTypeCode"
                    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/IA/">inapplicabl
           e</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

```
<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>2009-06-11</gco:Date>
                     </gmd:date>
                      <gmd:dateType>
                          <gmd:CI_DateTypeCode
                          codeList="http://standards.iso.org/iso/19139/resources/gmxCodeli
                          sts.xml#CI_DateTypeCode"
                          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/">Irish
               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>
```

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 non-geographic datasets and shall be provided. The temporal extent of the resource (e.g. the time period over which data were collected) is also mandatory for non-spatial datasets and shall be provided. 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 non-spatial datasets 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. 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. 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 (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 (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/iso/19139/resources/gmxCodelists.xml#CI_DateTypeCode"
                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>
```

7. Elements describing data quality

Element 17 - Lineage (M)

Mandatory element. 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, and quality control processes. Please indicate any data collection standards used. Apart from describing the process history, the overall quality of the non-geographic dataset 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 non-spatial dataset. 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.

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

Example 1

Model data arise from 1000 simulations run to evaluate the European Commissions proposed North Sea Multi-Annual Plan for demersal stocks (EC 2016/0493). The possible impacts of the plan are evaluated in terms of its likely outcomes to achieve management objectives for fishing pressure, species' biomass, fishery yield, the landed value of key species and ecosystem objectives (given change in indicators). Full details are given in Mackinson et al. (in review) and Cefas contract report MF1228 Milestone 1.2 "Contribute to the development of regional long-term management plans based on an ecosystem approach" Christopher Lynam and Steven Mackinson. 12 June 2017.

Example 2

Backscattered electron maps were obtained on a Zeiss Sigma HD Field Emission Gun analytical scanning electron microscope (ASEM). Major element maps Element maps were obtained on the same ASEM using dual Oxford Instruments X-max 150 mm2 energy dispersive silicon drift detectors. An acceleration voltage of 20 kV and dwell time of 20 ms was used. The beam aperture was adjusted to obtain optimum output count rates of 400,000 cps, enabling rapid mapping of large proportions of the samples at high spatial resolution. Raw counts were background-corrected using Oxford Instrument's AZtec software, which was then used to generate element maps.

Example 3

The species table give a 3 letter code, common name and Scientific name of each species. Gear table provides a description of the gear codes. To be used to cross link species codes from the downloaded survey data on the Cefas data hub.

Example XML fragment:

```
<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/iso/19139/resources/gmxCodelists.xml#MD
```

```
            _ScopeCode"
            codeListValue="nonGeographicDataset">nonGeographicDataset</gmd:MD_ScopeCod
            e>
          </gmd:level>
          <!-- levelDescription - Required by ISO 19115 constraint if 'level' is not
          'dataset' or 'series' -->
          <gmd:levelDescription>
            <gmd:MD_ScopeDescription>
              <gmd:other>
                <gco:CharacterString>nonGeographicDataset</gco:CharacterString>
              </gmd:other>
            <gmd:MD_ScopeDescription>
          </gmd:levelDescription>
        </gmd:DQ_Scope>
      </gmd:scope>
      <!-- Lineage -->
      <gmd:lineage>
        <gmd:LI_Lineage>
          <gmd:statement>
            <gco:CharacterString>Backscattered electron maps were obtained on a Zeiss
            Sigma HD Field Emission Gun analytical scanning electron microscope
            (ASEM). Major element maps Element maps were obtained on the same ASEM
            using dual Oxford Instruments X-max 150 mm2 energy dispersive silicon
            drift detectors. An acceleration voltage of 20 kV and dwell time of 20 ms
            was used. The beam aperture was adjusted to obtain optimum output count
            rates of 400,000 cps, enabling rapid mapping of large proportions of the
            samples at high spatial resolution. Raw counts were background-corrected
            using Oxford Instrument's AZtec software, which was then used to generate
            element maps.gco:CharacterString>
          </gmd:statement>
        </gmd:LI_Lineage>
      </gmd:lineage>
    </gmd:DQ_DataQuality>
  </gmd:dataQualityInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 19 - Additional information (O)

Optional element. 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 referencing 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'.

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 (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 (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 E).

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 specified. These can be encoded as a gmx:Anchor with an xlink:href referencing the relevant choice of limitation or as free text entries. 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'.

Example 1
accessConstraints: otherRestrictions
otherConstraints: No restrictions to public access

Example 2
accessConstraints: otherRestrictions
otherConstraints: Restricted public access due to sensitive species.

Example 3
accessConstraints: otherRestrictions
otherConstraints: no limitations

Example XML fragment (Free Text):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:accessConstraints>
             <gmd:MD_RestrictionCode
             codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#MD
             _RestrictionCode"
             codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCod
             e>
          </gmd:accessConstraints>
          <gmd:otherConstraints>
             <gco:CharacterString>No limitations apply</gmd:otherConstraints>
           </gmd:otherConstraints>
          <gmd:otherConstraints>
             <gco:CharacterString>Data are freely available to all following agreement
             to the terms and conditions of a Data Licence</gmd:otherConstraints>
           </gmd:otherConstraints>
        </gmd:MD_LegalConstraints>
      </gmd:resourceConstraints>
```

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

Example XML fragment (with gmx:Anchor):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:accessConstraints>
            <gmd:MD_RestrictionCode
            codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#MD
            _RestrictionCode"
            codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCod
            e>
          </gmd:accessConstraints>
          <gmd:otherConstraints>
            <gmx:Anchor xlink:href="http://example.com/dsra_report.htm">Report of
            Data Sharing Risk Assessment</gmx:Anchor>
          </gmd:otherConstraints>
          <gmd:otherConstraints>
            <gco:CharacterString>Queries on Data Sharing Risk Assessment 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>
```

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 E).

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:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:useConstraints>
             <gmd:MD_RestrictionCode
             codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#MD
             _RestrictionCode"
             codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCod
             e>
          </gmd:useConstraints>
            <gmd:otherConstraints>
             <gco:CharacterString>Data is freely available for research or commercial
             use providing that the originators are acknowledged in any publications
             produced.</gco:CharacterString>
            </gmd:otherConstraints>
          <!-- ... -->
        </gmd:MD_LegalConstraints>
      </gmd:resourceConstraints>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (URL to external licence):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:useConstraints>
              <gmd:MD_RestrictionCode
              codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#M
              D_RestrictionCode"
              codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCo
              de>
          </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>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (encoding if no conditions apply):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:useConstraints>
             <gmd:MD_RestrictionCode
             codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#MD
             _RestrictionCode"
             codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCod
             e>
          </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>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment with multiple use constraints:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:useConstraints>
              <gmd:MD_RestrictionCode
              codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#M
              D_RestrictionCode"
              codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCo
              de>
          </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>
```

Element 22 - Responsible party (M)

Mandatory element. This shall include a minimum of organisation name and email address. Multiple occurrences 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 F, ISO Codelist CI_RoleCode 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.

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 information about an organisation, the preferred method is to source the organisation name from the European Directory of Marine Organisations (EDMO) (http://seadatanet.maris2.nl/edmo/). In the event that the desired organisation name is not present, please contact enquiries@medin.org.uk to see whether it is feasible to add it to EDMO. If it is determined that EDMO is not suitable for the organisation, it may be added as free text. Terms from other vocabularies that list organisation names may also be added as free text in this instance.

When possible, an organisation is to be cited. An Individual Name may **only** be used when citing an organisation is not possible.

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 F.

Example: (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

Example (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

Example (Originator):

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

Example (Metadata point of contact):

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

Example (Owner):

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

Example XML fragment (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/iso/19139/resources/gmxCodelists.xml#CI_Rol
       eCode" codeListValue="pointOfContact">pointOfContact</gmd:CI_RoleCode>
     </gmd:role>
    </gmd:CI_ResponsibleParty>
  </gmd:contact>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (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:CharacterStr
                       ing>
                  </gmd:electronicMailAddress>
                </gmd:CI_Address>
              </gmd:address>
```

```
            </gmd:CI_Contact>
          </gmd:contactInfo>
          <gmd:role>
             <gmd:CI_RoleCode
             codeList="http://standards.iso.org/iso/19139/resources/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 (Distributor):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <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:Char
                      acterString>
                  </gmd:electronicMailAddress>
                </gmd:CI_Address>
              </gmd:address>
            </gmd:CI_Contact>
          </gmd:contactInfo>
          <gmd:role>
             <gmd:CI_RoleCode
             codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#CI
             _RoleCode" codeListValue="distributor">distributor</gmd:CI_RoleCode>
          </gmd:role>
        </gmd:CI_ResponsibleParty>
      </gmd:pointOfContact>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (Owner):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <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:CharacterSt
                      ring>
                  </gmd:electronicMailAddress>
                </gmd:CI_Address>
              </gmd:address>
            </gmd:CI_Contact>
          </gmd:contactInfo>
          <gmd:role>
             <gmd:CI_RoleCode
             codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#CI
             _RoleCode" codeListValue="owner">owner</gmd:CI_RoleCode>
          </gmd:role>
        </gmd:CI_ResponsibleParty>
      </gmd:pointOfContact>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 23 - Data format (M)

Mandatory element. 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 http://vocab.nerc.ac.uk/collection/M01/current/ or which can be seen in Annex I. 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

Example XML fragment (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">Database</g
            mx:Anchor>
          </gmd:name>
          <gmd:version gco:nilReason="unknown"/>
        </gmd:MD_Format>
      </gmd:distributionFormat>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Example XML fragment (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">Delimited<
            /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 element. 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 K, or can be found in library G09 on the NVS2 Vocabulary Server http://vocab.nerc.ac.uk/collection/G09/current/.

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/iso/19139/resources/gmxCodelists.xml#MD_CharacterSetCode" codeListValue="8859part1">ISO/IEC 8859-1 (also known as Latin 1)</gmd:MD_CharacterSetCode>
           </gmd:characterSet>
        <gmd:topicCategory>
        <!-- ... -->
        </gmd:topicCategory>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 24 - Frequency of update (M)

Mandatory element. One occurrence allowed. Controlled vocabulary.

This describes the frequency that the resource (nonGeographicDataset) 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 G, or can be found in library G17 on the NVS2 Vocabulary Server http://vocab.nerc.ac.uk/collection/G17/current/.

Example 1
monthly

Example 2
annually

Example XML fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceMaintenance>
        <gmd:MD_MaintenanceInformation>
          <gmd:maintenanceAndUpdateFrequency>
             <gmd:MD_MaintenanceFrequencyCode
             codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#MD
             _MaintenanceFrequencyCode"
             codeListValue="asNeeded">asNeeded</gmd:MD_MaintenanceFrequencyCode>
          </gmd:maintenanceAndUpdateFrequency>
        </gmd:MD_MaintenanceInformation>
      </gmd:resourceMaintenance>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

9. Elements relating to Conformity

Element 25 - Conformity (C)

Conditional element. Required if claiming conformance to a specification. Multiple occurrences allowed. Free text, controlled vocabulary and date.

This element specifies whether the nonGeographicDataset being described is conformant, non-conformant, or not evaluated against specifications, such as INSPIRE data specifications or MEDIN data guidelines, if claiming conformance to a specification is applicable. There are 3 sub-elements which give the title of the specification, the degree of conformity (conformant, not conformant, or not evaluated) 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.

Occurrences referencing MEDIN 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 http://vocab.nerc.ac.uk/collection/C48/current/.

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[3]. 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.

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

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. There are three possible conformance results: conformant, not conformant and not evalulated.

The values shall be one of either:

- True - to indicate that the resource conforms to the specification in 25.1.1.
- False - to indicate that the resource is not conformant to the specification in 25.1.1.
- nilReason (unknown) - to indicate that conformance to the specification in 25.1.1 has not been evaluated.

[3] See Element 11.2.1 for definition of Date type

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 timed searched data, publication, 2022-06-01
True
All mandatory and conditional items were completed

Example XML fragment (Example of conformance)

```
<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/iso/19139/resources/gmxCodelists.xml#MD_S
           copeCode"
           codeListValue="nonGeographicDataset">nonGeographicDataset</gmd:MD_ScopeCode>
          </gmd:level>
           <!-- levelDescription - Required by ISO 19115 constraint if 'level' is not
           'dataset' or 'series' -->
          <gmd:levelDescription>
            <gmd:MD_ScopeDescription>
               <gmd:other>
                <gco:CharacterString>nonGeographicDataset</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>
                       <gmx:Anchor xlink:type="simple" xlink:href="http://ddi-
                       lifecycle-technical-
                       guide.readthedocs.io/en/latest/Specific%20Structures/Survey%20De
                       velopment.html#">DDI Lifecycle (3.3) Technical Guide for Survey
                       Development.</gmx:Anchor>
                  </gmd:title>
                  <gmd:date>
                    <gmd:CI_Date>
                      <gmd:date>
                        <gco:Date>2020-07-31</gco:Date>
```

```
                    </gmd:date>
                    <gmd:dateType>
                        <gmd:CI_DateTypeCode
                        codeList="http://standards.iso.org/iso/19139/resources/gmxCod
                        elists.xml#CI_DateTypeCode"
                        codeListValue="publication">publication</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                  </gmd:CI_Date>
                </gmd:date>
              </gmd:CI_Citation>
            </gmd:specification>
            <gmd:explanation>
                <gco:CharacterString>Only mandatory items
                included</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 (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/iso/19139/resources/gmxCodelists.xml#MD_S
           copeCode"
           codeListValue="nonGeographicDataset">nonGeographicDataset</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>MEDIN data guideline for the recording of
                      oceanographic vertical profile data</gco:CharacterString>
                  </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/iso/19139/resources/gmxCod
                        elists.xml#CI_DateTypeCode"
                        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: (Example of non-conformance)

```
<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/iso/19139/resources/gmxCodelists.xml#MD
             _ScopeCode"
             codeListValue="nonGeographicDataset">nonGeographicDataset</gmd:MD_ScopeCod
             e>
          </gmd:level>
           <!-- levelDescription - Required by ISO 19115 constraint if 'level' is not
           'dataset' or 'series' -->
          <gmd:levelDescription>
            <gmd:MD_ScopeDescription>
               <gmd:other>
                <gco:CharacterString>nonGeographicDataset</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>MEDIN Data Guideline for timed searched
                      data</gco:CharacterString>
                  </gmd:title>
```

```
                <gmd:date>
                  <gmd:CI_Date>
                    <gmd:date>
                      <gco:Date>2022-06-01</gco:Date>
                    </gmd:date>
                    <gmd:dateType>
                        <gmd:CI_DateTypeCode
                        codeList="http://standards.iso.org/iso/19139/resources/gmxCod
                        elists.xml#CI_DateTypeCode"
                        codeListValue="revision">revision</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                  </gmd:CI_Date>
                </gmd:date>
              </gmd:CI_Citation>
            </gmd:specification>
            <gmd:explanation>
                <gco:CharacterString>All mandatory and conditional items were
                completed</gco:CharacterString>
            </gmd:explanation>
            <gmd:pass>
              <gco:Boolean>false</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

Element - File Identifier (M)

Mandatory. One occurrence allowed. Free text

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 non-spatial dataset 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 occurrence 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 occurrence 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 http://vocab.nerc.ac.uk/collection/M25/current/. 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:Anc
      hor>
  </gmd:metadataStandardName>
  <!-- ... -->
</gmd:MD_Metadata>
```

Element 28 - Metadata standard version (M)

Mandatory element. One occurrence 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.

See http://github.com/medin-marine/Discovery-Standard-public-content/blob/main/Guidance_notes/Guidance%20on%20filling%20out%20element%20Metadata%20Standard%20Version%20v1.pdf for full guidance on structure to follow when populating this element. All published versions of the MEDIN Standard are available on http://github.com/medin-marine.

Example

1.0

Example XML fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:metadataStandardVersion>
    <gco:CharacterString>1.0</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 C 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:

```
<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 occurrence allowed. Free text.

This field holds the file identifier code of the series metadata record for which the non-spatial dataset is being described is part of. Therefore, this element allows links to be made between a non-geographic 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 non-spatial datasets. Using this field allows the user when viewing the series metadata to ask for the metadata records of all the non-geographic datasets of each theme. Alternatively, a user may ask for all related records when viewing a non-spatial dataset.

Example

79557726-b60a-4cf3-a8fd-9799c603d4dc

Example XML fragment:

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

Annex A - Example XML files for non-spatial datasets

Example XML files for dataset, non-spatial dataset, series and metadata for services are available on request from MEDIN and through the MEDIN GitHub repository http://github.com/medin-marine/Discovery-Standard-public-content/tree/main/XML_examples.

Annex B - ISO Scope code codelist.

The ISO Scope codelist can be accessed directly from the ISO website.
http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#MD_ScopeCode

Please note that MEDIN only has standards that cover the dataset, series, nonGeographicDataset and service resource types.

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.
007	nonGeographicDataset	information applies to non-geographic data
014	service	Information applies to a facility to view, download data e.g. web service

Annex C - 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.

Code	Name
eng	English
cym[4]	Welsh/Cymru ('cym' recommended over 'wel')
gle	Irish (Gaelic)
gla	Scottish (Gaelic)
cor	Cornish

[4] ISO 639-2 allows the use of either 'wel' or 'cym' for Welsh/Cymru but MEDIN recommend that 'cym' only is used.

Annex D - 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.

Version	Author	Revision Date	Status
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 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 affecting health, hygiene, mental and physical health, substance abuse, and health services.	This category applies to the following Directive 2007/2/EC 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 describing tides, tidal waves, coastal information, and reefs.	This category applies to the following Directive 2007/2/EC 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.

Annex E - ISO Restriction codelist

Derived from the ISO 19115/TC 211 Codelist http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#MD_RestrictionCode. 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.

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

Annex F - ISO Responsible party codelist

Derived from the ISO 19115/TC 211 Codelist http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#CI_RoleCode. 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.
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 G - ISO Frequency of maintenance codelist

Derived from the ISO 19115/TC 211 Codelist http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#MD_MaintenanceFrequencyCode.
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 H - 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
Geographical names
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 http://vocab.nerc.ac.uk/collection/P02/current/ and the full and most recent keyword list.

SeaVox Vertical Coordinate Coverages Keywords

Please refer to vocab L13 at http://vocab.nerc.ac.uk/collection/L13/current/ 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 average 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 I - MEDIN Data Format vocabulary

Please refer to vocab M01 at http://vocab.nerc.ac.uk/collection/M01/current/ for the most up to date list.

Keyword	Alternative	Definition
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 J - ISO CI_OnlineFunctionCode

Derived from the ISO 19115/TC 211 Codelist http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#CI_OnLineFunctionCode. Please refer to ISO19115 for the most up to date list.

ID	Name	Description
CI_OnLineFunctionCode_download	download	online instructions for transferring data from one storage device or system to another
CI_OnLineFunctionCode_information	information	online information about the resource
CI_OnLineFunctionCode_offlineAccess	offlineAccess	online instructions for requesting the resource from the provider
CI_OnLineFunctionCode_order	order	online order process for obtening the resource
CI_OnLineFunctionCode_search	search	online search interface for seeking out information about the resource
CI_OnLineFunctionCode_search	search	online search interface for seeking out information about the resource

Annex K - ISO Character set codelist

Derived from the ISO 19115/TC 211 Codelist http://standards.iso.org/iso/19139/resources/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
029	GB2312	Simplified Chinese code set