Sextant

End-User Manual for DTM

management V1.2

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Versions				
Version	Author	Status	Date	Comments
V0.0	Cyril Goasduff	Preliminary version	06/12/2011	Edited for the Geoseas/EMODnet hydrography training
V0.1	Cyril Goasduff and E.Moussat	1st release on the extranet of the projects	10/01/2012	Miscellaneous corrections
V0.2	Cyril Goasduff and E.Moussat	Release for EMODnet hydrography	30/01/12	Additional metadata inserted : - type of catalogue (see liste SDN L231) - EDMERP Project identifier - Metadata identifier Miscellaneous modifications related to the address of the catalogue, the terminology and to edit metadata in order to allow a wider use of the editing form.
V0.3	E.Moussat		06/05/13	Update of the document for the creation of thumbnails using the new Sextant interface
V0.4	E. Moussat	Release for EMODnet bathymetry	29/01/14	Update of the overall document linked to the new interface of Sextant
V1.0	C.Pertuisot B.Loubrieu	Release for EMODnet HRSM		Update to Sextant V6 Integration of Sextant API Miscellaneous corrections
V1.1	C.Pertuisot B.Loubrieu	Release for EMODnet HRSM2		Log in from Sextant API API functionalities
V1.2	C.Pertuisot B.Loubrieu	Update for EMODnet HRSM Phase2	19/06/2020	Implementation of sextant workflow (§4.6)

Table of content

1. Sextant contribution to EMODnet

The EMODnet Bathymetry portal (http://www.EMODnet-bathymetry.eu) provides a range of options for freely browsing and downloading new Digital Terrain Models (DTM) for a large part of the European seas.

The portal includes metadata discovery services by adopting the EU SeaDataNet (SDN) CDI standard, that gives clear information about the background survey data sets used for the DTMs, their access restrictions, originators and distributors.

By adopting a similar approach, **Sextant,** a Web GIS portal and data infrastructure developed by Ifremer for the management and the distribution of spatial data, gives information about background products (resulting of previous processing, mainly DTMs) used as complementary contribution to the DTM distributed on the EMODnet bathymetry portal.

Sextant uses :

- Geonetwork to set-up the Catalogue Service for the Web and the Open Geospatial Consortium (OGC) and ISO TC211 standards.

- the Seadatanet Marine Profile for ISO19139 together with the European Directory of Marine Organisations (EDMO), the European Directory of Marine Environmental Research Projects (EDMERP) and the SeaDataNet Common Vocabularies NVS2.0 (**http://www.seadatanet.org/**) for consistent descriptions of products (DTMs) with the EU SeaDataNet Common Data Index for survey data.

2. Sextant API for the EMODnet hydrography Composite Products (CPRD)

Sextant is used to provide a Common Index (Catalogue) and descriptions of the **composite products (CPRD)** delivered by partners and associated providers of EMODnet bathymetry projects who have opted to deliver bathymetric data as products of their own for the construction of the EMODnet final DTM.

These products are in most of the cases DTMs constructed with a methodology different of the EMODnet one. They derive usually from multiple surveys but use occasionally other source of depth information such as isolines. They are not an observed data files, but a derived product. So they cannot be described in the SeaDataNet catalog.

Sextant is now implemented in the EMODnet bathymetry portal as an API (Application Programming Interface) that offers a better integration in the website (http://www.emodnet-bathymetry.eu/metadata-amp-data/composite-dtms-catalogue-service#/search?from=1&to=20). The catalogue, map and basket can be display or not according to the requirement of the project.

3. Sextant API catalogue functionalities

3.1. Access

All the descriptions of composite products provided by partners can be viewed using the sextant API from EMODnet portal: http://www.EMODnet-bathymetry.eu/metadata-amp-data/sextant-catalogue-service.
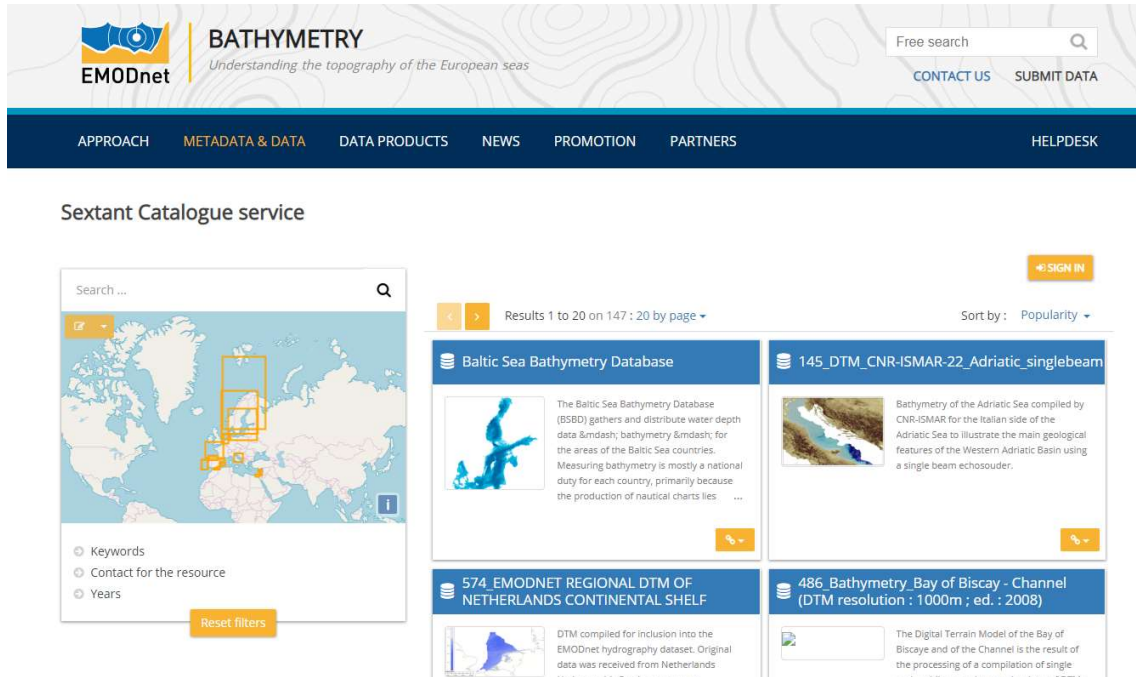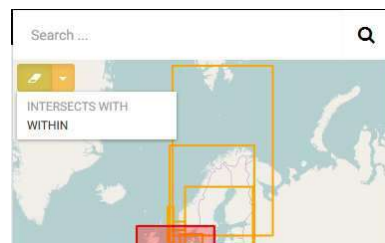

3.2.Filter criterias

3.2.1   Free Search

A free text search is carried out on all text fields of the metadata sets. The search tool is based on auto completion and suggests a list of words existing in the metadata sets as far as you enter 3 characters.

First, write your text and then click on the magnifying glass to display the result.
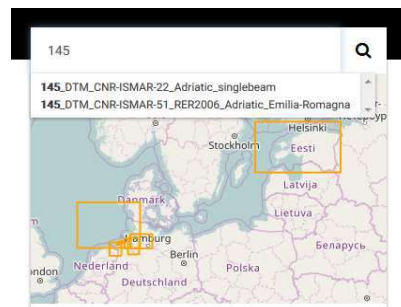
3.2.2   Geographic area

7

A search by geographical extent is carried out by choosing either the products strictly inside the selected area or the products intersecting with it.

First, click on the pen and draw your geographical area. Then, click on the arrow beside and select the type of spatial search "intersects with" or "within" mode.
You can switch to one or the other type of spatial area as you like.

3.2.3   Predefined content

Each selected filter automatically updates the results display and also updates the other available filters:
- Keywords
- Contact for the resource
- Years

Note: there is a "Reset Filters" button allowing to reset all the criteria and to start a new selection

3.3. Metadata display
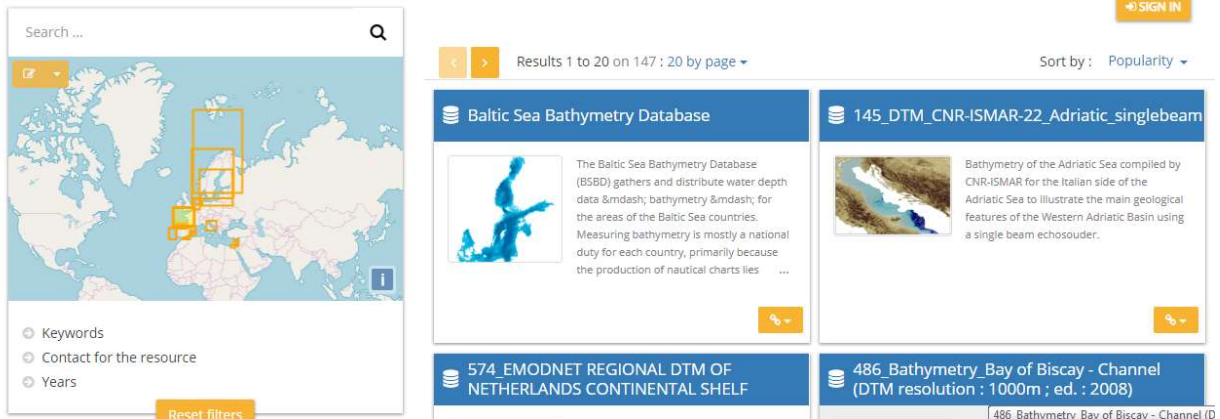
3.3.1   Results and sorting

The number of results after applying your filters appears on the top left of the display. By default, the first 20 results are displayed but you can choose to display 50 or 100 entries per page.

It is possible to organise the results by "Title" (alphabetic order), "Popularity" (number of consultation of the entry) and "Modified" (last updated entries appear first).

The list of metadata sets is displayed with an optional thumbnail in the right window while their bounding boxes are displayed on the map of the left window.

To locate a data set move the mouse to the metadata set entry. The corresponding bounding box is highlighted on the map (Figure 4).

Sextant Catalogue service

3.3.2 View

To display metadata, click on the title of the metadata set. Metadata are displayed according to the EMODnet bathymetry template (see chapter "Managing spatial data using Sextant" for metadata definitions and conventions).

Note the file identifier at the top of the metadata information which is generated automatically from metadata edited by the partner using the SeaDataNet syntax : "SDN_CPRD_EDMO-Id-of-holding-data- center_local-product-Id".

This identifier contains the EDMO_Id of the holding data center and the local_ID of the product used as source data for the EMODnet DTM. These Ids are recorded in the CDI layer of the EMODnet DTM. This allow to generate the URL for viewing the corresponding metadataset.

4.   Managing spatial data using Sextant

Before creating new metadata, read the EMODnet HRSM specifications documents which contain instructions for filling some of the metadata : "Methodology and guidelines for processing orginal input data into DTMs" and "Completing metadata elements for the generation of the Quality Index for the EMODnet DTM".

4.1.   Registration

To register, each partner needs an external account. If you don't have any, then contact the Sextant team: sextant@ifremer.fr.

4.2.   Vocabulary

Common vocabulary lists and organization identification

Lists implemented in the EMODnet template use the SeaDataNet Common Vocabularies (**http://www.seadatanet.org/**)

Organization are identified using the European Directory of Marine Organizations (EDMO) maintained by Seadatanet. Organization name and identifier can be querried on the SDN portal at:

http://www.seadatanet.org/Metadata/EDMO

File identifier

The file identifier at the top of the metadata information of the form is generated automatically using a combination of metadata edited by the partner. The syntax (derived from SeaDataNet practices) is:

SDN_CPRD_EDMO-Id_ short-name-of-dataset

Note that the short name of dataset is the product identifier at the holding data centre and must be unique. It is a component of the file identifier of the CPRD catalogue. The unicity of the entry is guaranteed by an automatic combination with the EDMO id.

It is requested to rename the DTM file corresponding to your metadata entry as **EDMO-Id_ short-name-of-dataset.dtm.**

The EDMO_Id of the holding data center and the short name of dataset of the product used as source data for the EMODnet DTM are also recorded in the "Identifier" layer of the EMODnet DTM (see EMODnet hydrography specifications). This allows viewing services of the EMODnet bathymetry portal and of the 3D viewer of the Ifremer Globe software to generate the URL to access the metadata set of the CPRD catalogue.

Data set name

This is the title of the data set that will appear in the catalog

Abstract

Partners are strongly encouraged to complete carefully the ABSTRACT / SHORT SUMMARY

with a valuable description of the (composite) DTM (what).

In case of the file is also associated to a CDI entry, please note it in the "description of processed data sources" field.
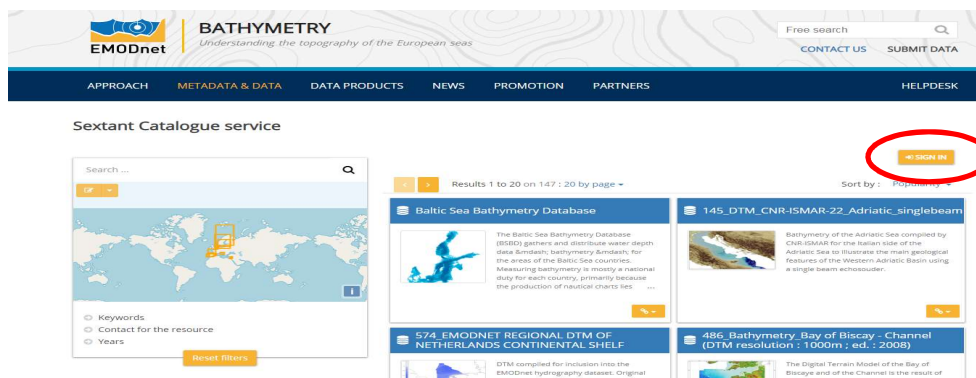
Other fields

Mandatory fields have been defined not only in function of the ISO and Inspire standards and Directive but also in function of the requirement of the projects.

For example, someone may consider useless to force providers to fill Min and Max depth field but it is a requirement to allow an automatic scaling of the colours when viewing DTM. Other fields are not mandatory because it depends on the dataset but they are all strongly recommended to allow data processing by the end users.

4.3.   Log in instructions

Log in function is available through Sextant API on EMODnet website:http://www.emodnet-bathymetry.eu/metadata-amp-data/composite-dtms-catalogue-service#/search?from=1&to=20
And sign in with your sextant credentials:

The "Administration" functionality appears.

4.4. Detailed instructions

To create a new metadata set, an dedicated metadata template has been designed for the purpose of EMODnet projects. To use it, follow the instructions below.

Select "New metadata" in the menu "Administration" (see 4.2.) A window appears:
- As Template, select "Template for EMODnet Bathymetry metadata"
- As "In", select the appropriate catalogue "EMODnet hydrography - **CPRD**" catalogue
- And then "Create".

1

SEXTANT disconnects you automatically if you are inactive. Save regularly what you have edited (every15 mns).

Most of the fields are pre-filled or user friendly and don't need specific explanation. Attention will be paid to specific or text fields. Explanations are given by thematic tabs.

4.4.1. What

It is **strongly recommended** to start filling the "Dataset name" and "Short name of dataset" to avoid Sextant to save your entry under a default name. Use the "Save metadata" button and continue. The short data set name is the identifier at the holding data centre and must be unique for this reason. This is a component of the file identifier of the CPRD catalogue.

File identifier: is generated automatically using a combination of metadata edited by the partner. The syntax is: "SDN_CPRD_EDMO-Id_local-product-Id"

Project name: by default as EMODnet HRSM2. This field corresponds to the EDMERP SDN list.

Dataset name: title of the data set that will appear in the catalog.

Short name of dataset (SDN Local Product-ID): Local identifier[2] of the bathymetric grid (according to local rules of Data Center). **This is a component of the file identifier.**

Parameter Discovery/Measure devices/Positioning devices: metadata are given by default but you can also delete them and/or add others by clicking on "Search" (auto completion search). Use of L05 and P02 lists.

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[2] The local identifier must not be longer than 75 characters (this constraint comes from the length of the string used to keep track of the source of data in the DTM NetCDF format.

Geometry: fill in the information, and use lists or "Recommended" values when proposed.

Dataset description abstract: write down a summary about the dataset (cruise/purpose/context description, specific characteristics, valuable details…)

Description of processed data sources: indicate the data sources and write down the corresponding CDIs when they exist.

Description of data processing: any valuable detail about the processing software or processing methodology.

14

4.4.2. Associated resources (tab "What" upper right corner) – thumbnail and online resources
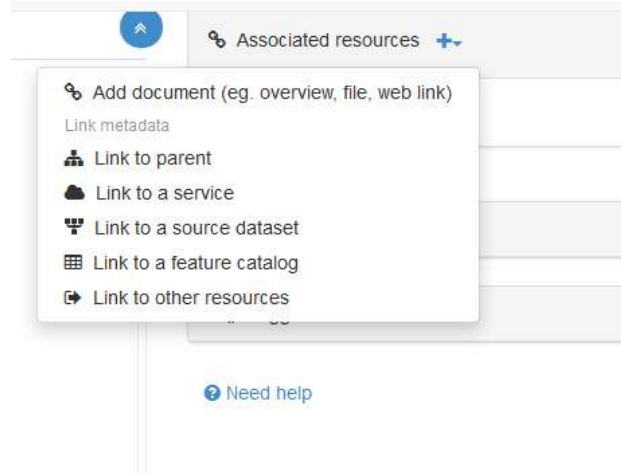
It is recommended to attach a thumbnail to illustrate your composite product in the catalogue. Click on the add button of the "**Associated resources**" field and seclect "**Add document**".

Click on "Add a thumbnail" (1), select the thumbnail with the "Choose or drop reource here" tool (2) and click on your thumbnail in the "metadata file store" to update the URL.

Click at the very bottom of the page to "add the link" (4).
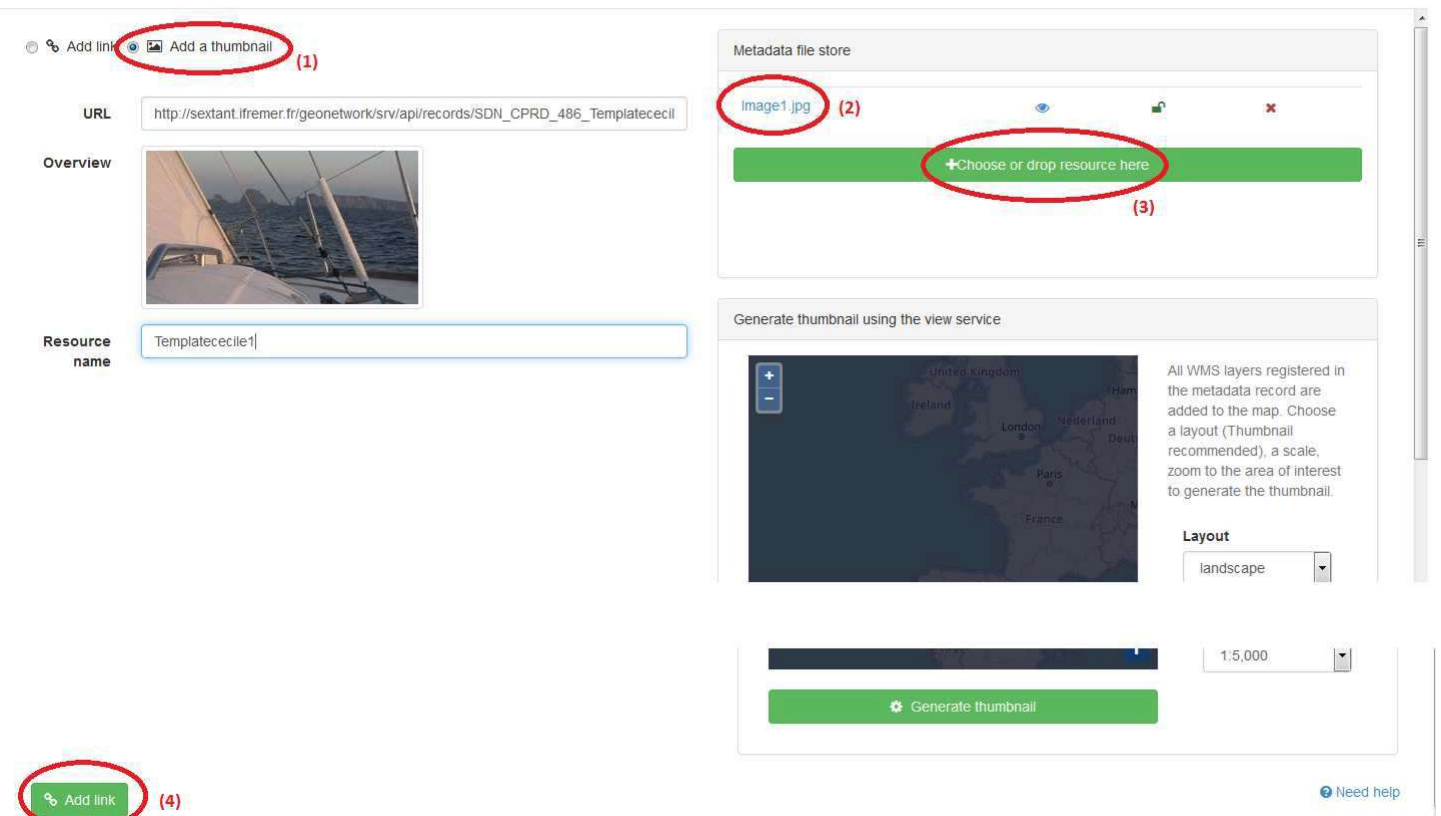
You can also add different kind of links, like a URL to a web site or to web services (WMS,

WFS…). Click on the add button of the "**Associated resources**" field and seclect "**Add link**" and select the appropriate information in the Function and Protocol lists. Fill in others details and click on "Add link".

These links will be attached to your metadata description in the catalogue:

4.4.3. Quality

Horizontal accuracy:

Measure description: give any information about the horizontal accuracy of the acquisition system, the positioning system as well as the sounding method.

Value: In case you wish to give a digital estimator of the horizontal accuracy.

Evaluation method description: Reference to standard which have been used to qualify the horizontal accuracy (hydrographic standards, industrial specification…)

Vertical accuracy:

Meaure description: any information about the vertical accuracy of the depth in the file

Evaluation method description: Reference to standard which have been used to qualify the horizontal accuracy (hydrographic standards, industrial specification…)

Shoal bias: tick this field only in case of existing bias and precise details in text field below.

Suitability: precise the type of use that can be made of the datasets (example: not suitable for navigation)

Quality Indicators have been implemented in the EMODnet HRSM project to use further qualitative information (in CPRD and CDI) related to the data source such as type of sensor. For the CPRD case, the data producer has to consider giving each of the quality indicator based on the contribution with the lowest quality.

Click on "search" to make appear the appropriate list.

The following document describes the Quality Index proposed in the framework of the HRSM project :
"Completing metadata elements for the generation of the Quality Index for the EMODnet DTM"

It will help you to verify your entries.
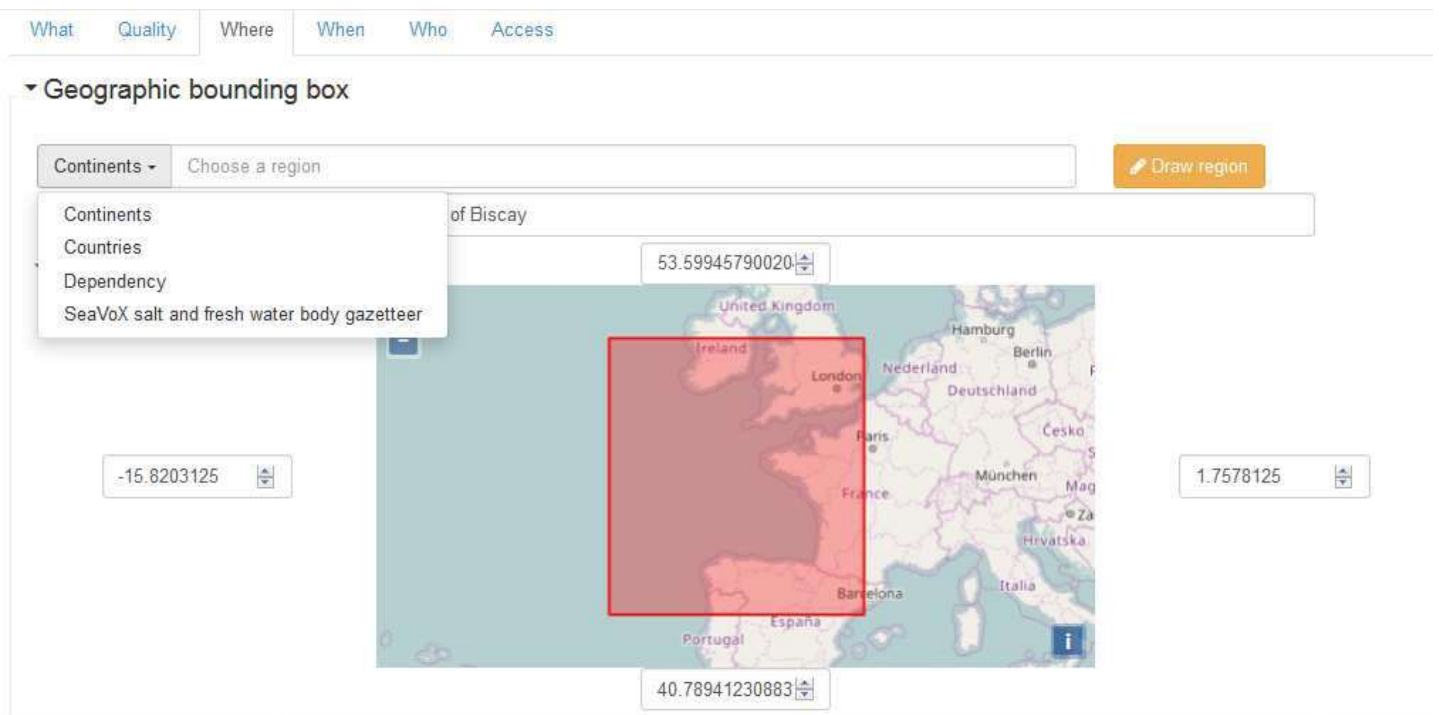
The **<u>Geographic Bounding Box</u>** can be created in 3 different ways:

☒   By drawing your own area: click on "Draw region", select the area and the coordinates will automatically be updated

☒   By entering the coordinates (decimal degrees) manually in the appropriate fields

☒   By selecting an area in the international SeaVox list

Fill in the information, and use lists values when proposed.

Projection: fill in the geodetic system and the projection of the catalogued product. Some of them are listed in the "Add coordinate system" list.

You can input additional details in the "Version or custom projection details.

As example:

for a latitude/longitude file :

Write "WGS84" in the "Projection" field.

for a UTM Zone 33 file

Write "WGS84 / UTM" in the "Projection" field

Then write "Zone 33" in the "Custom projection details.

Vertical Datum uses L11 SDN list.

4.4.5. When

Fill in the date information using the calendar. To go throw years, click first once or twice on 2017. **Creation date** is the date of production of the composite product.

Temporal extent covers the period of datasets used in the composite product

Measurement frequency can be used in case of periodic acquisition of datasets. Optional field.

4.4.6. Who

The **Originator**, **Data Holding Center** and **Collating Center** contacts are filtered on the EDMO_id list. **The data holding center contact is a component of the file identifier.**

Enter the name of your institute or department and corresponding entries will appear (then click on the corresponding "+" button). If not, click on the binocular, and write in "search for a contact" field or use the proposed filters on the left of the screen (check number of pages). Once you have found the correct entry, click on the "+" button at the bottom left corner.

Once you selected the correct contact, Organisation name, Email and EDMO id are automatically filled in.

4.4.7. Access

Click on "Add distributor" to enter the **Distributor** contact details (also filtered on EDMO id). And fill in the other information using "Recommended values" when possible.

Version and **Transfer size** are optional.

Use limitation: free text field that can be used to detail intellectual property rights when no appropriate values are found in the **Use constraints** list – but is optional.

Access constraints: uses list SDN L08. Gives information about how to get access to the DTM.

Use constraints: gives information about the condition of use of the DTM.

Other constraints: complementary information about the use of the data. This is the appropriate field to enter the DOI of your dataset when existing or the obligation of citation

24

4.5. Save your metadata

Your sextant template is now complete, you can "**save and close**" the template. You can check your new entry on the sextant API catalogue: http://www.emodnet-bathymetry.eu/metadata-amp-data/composite-dtms-catalogue-service?#/search?from=1&to=20

4.6 Submit your metadata for validation

A workflow status has been implemented in the CPRD catalogue to prevent any inconsistency with EMODnet rules when updating or creating a metadata. Each creation or update will have to be validated by a sextant administrator.

To submit your metadata:

1- click on the Wheel tool>Update record status
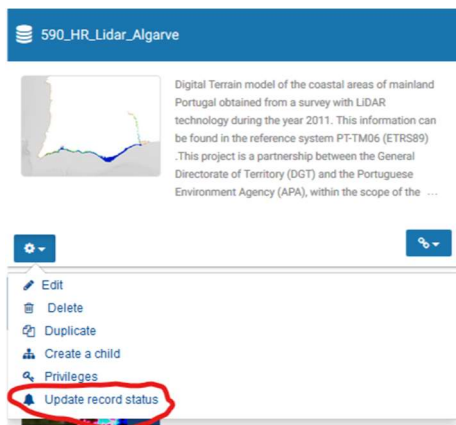
2- select the "Submitted" status.

The sextant catalogue administrator will receive a notification by email and will validate and publish your sextant entry. **These short steps have to be done for each new entry and each updated entry.**

5. Guidelines for updating an existing HR-cDTM entry

If you need to update any of your description, select your sextant entry on the sextant API catalogue: http://www.emodnet-bathymetry.eu/metadata-amp-data/composite-dtms-catalogue-service?#/search?from=1&to=20
and click on the wheel tool on the upper right hand corner and select edit.

25

Once updated, do not forget to submit your entry through the sextant workflow – see chapter 4.6.

6.   Sextant helpdesk

If any problem when using Sextant, you can contact the Sextant team sextant@ifremer.fr .

Your question will be routed toward the appropriate person.