



CatMDEdit

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User Manual of the tool for the creation and edition of Geographic Metadata

CatMDEdit 3.5.3

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Consejo Superior Geográfico

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1. Introduction

CatMDEdit is a metadata editor tool that facilitates the documentation of resources, with special focus on the description of geographic information resources.

The file that you have downloaded is a zip auto-executable file that will start the set-up automatically.

This version of the application is multiplatform, i.e. it works on Windows (Windows 9x, Windows NT, Windows 2000, Windows XP) and UNIX/LINUX platforms. As it has been developed in Java and the storage of metadata records is managed directly through the file system, the application can be deployed in any platform with the minimum requirement of having installed a Java virtual machine.

The set-up program will create a folder called "Program Files\CatMDEdit" (by default) with the application and documentation. Besides, a shortcut will also be included in your "Start : Program Files" menu.

Finally, it must be mentioned that the application is multilingual. The application has been developed following the Java internationalization methodology. Nowadays, there is a Spanish and English version. From <http://sourceforge.net/projects/catmdeedit> you can download the appropriate installation file for the desired language.

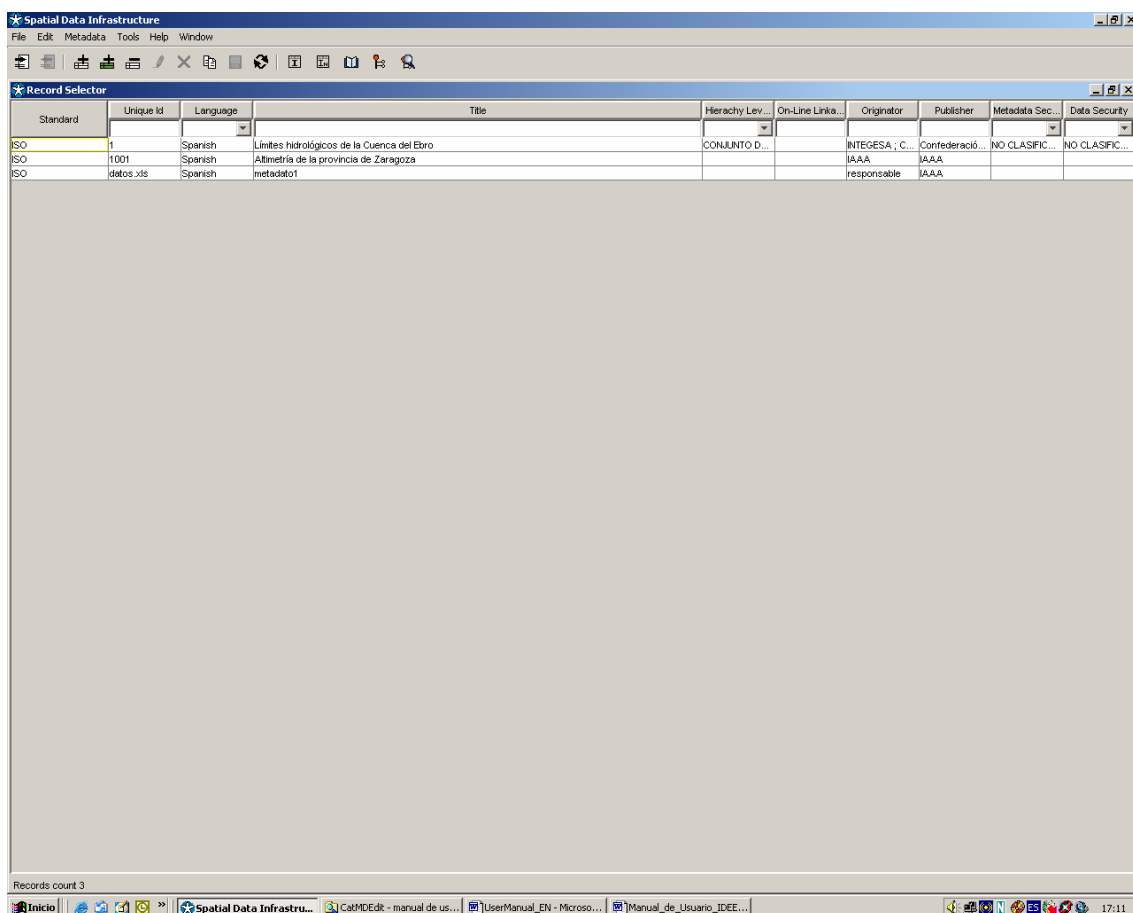


Figure 1 : Main window (window "Record selector")

When the tool starts, it automatically shows the window that lets you select the available metadata records in the metadata repository and upon which different operations can be made (see Figure 1).

The characteristics of this record selector are:

- It allows a multiple or simple record selection. Multiple selection is done in the common way in Windows CTRL + mouse press to select one by one, and CAPS + mouse press to select a group of rows. Records selected in this window will be manipulated in the other tool windows.
- It allows to order the elements it contains alphabetically by any column.
- It allows to filter visible metadata records by making a restriction of the value of one or several columns. The value that imposes the restriction is that one that is introduced below the title of each column (by using selection lists or text boxes).

Section 2 describes the tool menu options through which you can make different operations on the selected metadata records. In any case and to summarize, the following operations can be made on the selected metadata records:

- To create, delete and duplicate metadata records by accessing the menu Edition (or toolkit bar icons), see section 2.2.
- To visualize or edit all metadata of each record. If you select an entry in the record selection window and then you open any metadata edition window (Metadata menu options), all metadata corresponding to the selected metadata record will be displayed as it is shown in section 3. Displayed record identifier and title will be shown in the metadata edition window title bar. If there are several records selected in the record selection window, for it can only display one, it shows the first selected.
- Import and export of metadata records. Through Import and Export options of menu File it is possible to import and export metadata in different file formats and in accordance with different metadata standards. For more details, see section 4.

Besides the referenced sections in this introduction, this user manual also covers section 5, that describes additional utilities to complete some metadata elements.

2. Tool Menus

Tool menus are explained in the following sections and are as follows:

- Menu File
- Menu Edit
- Menu Metadata
- Menu Tools
- Menu Help
- Menu Window

You can also access all the menu options through the toolbar. Toolbar icons are the same as in the menu options, for they carry out the same task.

All the options functionality is explained along the following points in this section.

2.1. Menu File

Menu File has the following options:



-  Import: It allows to import metadata records according to several file formats and fitting different standards (ISO 19115, FGDC, Dublin Core). For more details, see section 4.1.
-  Export: It allows to export metadata records according to several file formats and fitting different standards (ISO 19115, FGDC, Dublin Core). For more details, see section 4.2.
- Exit: It allows to exit the tool. You also can finish by pressing X on the top right corner of the window.



Figure 2 Menu File









2.2. Menu Edit

This menu allows to make all common edit operations on the record selection window or on any other metadata edition sub-window. Apart from edit, save, cancel and refresh operations, it also adds operations to treat rows in windows that contain multi-valued table-represented elements. These tables appear both in the record selection element and in the metadata edition windows that contain several occurrences of a metadata element.









Figure 3 Menu Edit

Toolkit bar and menu you can see in Figure 3 have the options detailed below.



-  Insert: Adds an empty row to the active table. The active table is the one that is visible in the selected window and, if there are two tables in that window, the last one upon which you have pressed. If no table is selected as active table, this option has no effect.
-  Insert other language: Replicates the metadata record, changing the metadata language. The new record remains related to the original one, so they are different versions of the same record.
-  Delete: Deletes the selected row in the active table, removing all its information. If no row is selected, this option has no effect.
-  Edit: Enables to make changes in the selected window.
-  Cancel: Cancels the edition, leaving data as they were before all changes.
-  Replicate: Creates an identical copy of the selected element in the metadata record selector window.
-  Save: If the selected window was in editing mode, it saves all the changes made.
-  Refresh: Reloads the information shown in the selected window. It is useful in multi-user environments, where there may be several people creating or modifying metadata records and where the information seen by other users can be obsolete.

These options are enabled depending on the selected window state. Cases in which each option is enabled or disabled are as follows:

-  Insert and  delete: If an auto-save window is selected, these options are always enabled. Otherwise, they are only enabled in editing mode. In that windows in which information can not be changed, they are not enabled.
-  Refresh: This option is enabled only if you are not editing and only if the selected window has information that can be refreshed.
-  Edit: It is only enabled in windows that can change to edition mode and when they are not in that mode. It locks the window so you can not close the window or select another one.
-  Save: It is only enabled in windows that are in editing mode. It saves the changes made and changes to visualization mode.
-  Cancel: It is only enabled in windows that are in editing mode. It undoes the changes made, reloads the original information and changes to visualization mode.

2.3. Menu Metadata

Menu Metadata includes the following options:

-  Edition ISO19115: It allows to visualize and modify all metadata elements of the selected record in “Record Selector” window (see Figure 1) using an interface in keeping with standard ISO19115. For more details, see section 3.1.
-  Edition ISO19115 - NEM: It allows to visualize and modify all metadata elements of the selected record using an interface in keeping with the “Núcleo Español de Metadatos” (NEM) recommendation. For more details, see section 3.2.

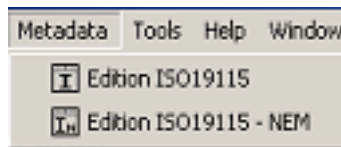





Figure 4 Menu Metadata

2.4. Menu Tools

This menu collects additional tools used to fill in some metadata elements. Included options are the followings:

-  Contact: It shows the contact directory. This directory allows to visualize existing contacts and also modify them, add new ones and delete them. For more details, see section 5.1.
- Thesaurus: This tool allows to select terms belonging to different kinds of keywords specialized thesaurus. This menu option contains two sub-options:  “Thesaurus Selector” and  “Term Selector” which are explained in section 5.2.

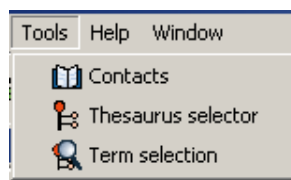


Figure 5 Menu Tools

2.5. Menu Help

This menu contains the following options:

- User manual: This option shows this user manual, integrated in the tool.
- About: It shows information about the version and author of this tool.

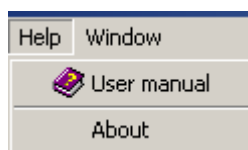


Figure 6 Menu Help

2.6. Menu Window

It shows all the windows that are open in the tool, and allows to place the one you want on the foreground.

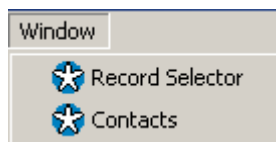


Figure 7 Menu Window

3. Metadata Edition

3.1. Edition ISO19115

When you select the “Edition ISO19115” option from Menu Metadata or when you double-click on the “Record Selector” window (see Figure 1), the metadata edition window will open using the interface shown in the following figure. This window allows to visualize and also to edit the metadata of the record selected in the metadata record selection window. The interface in this window follows the ISO19115 standard [ISO 2003, CSG 2003] section and subsection structure.

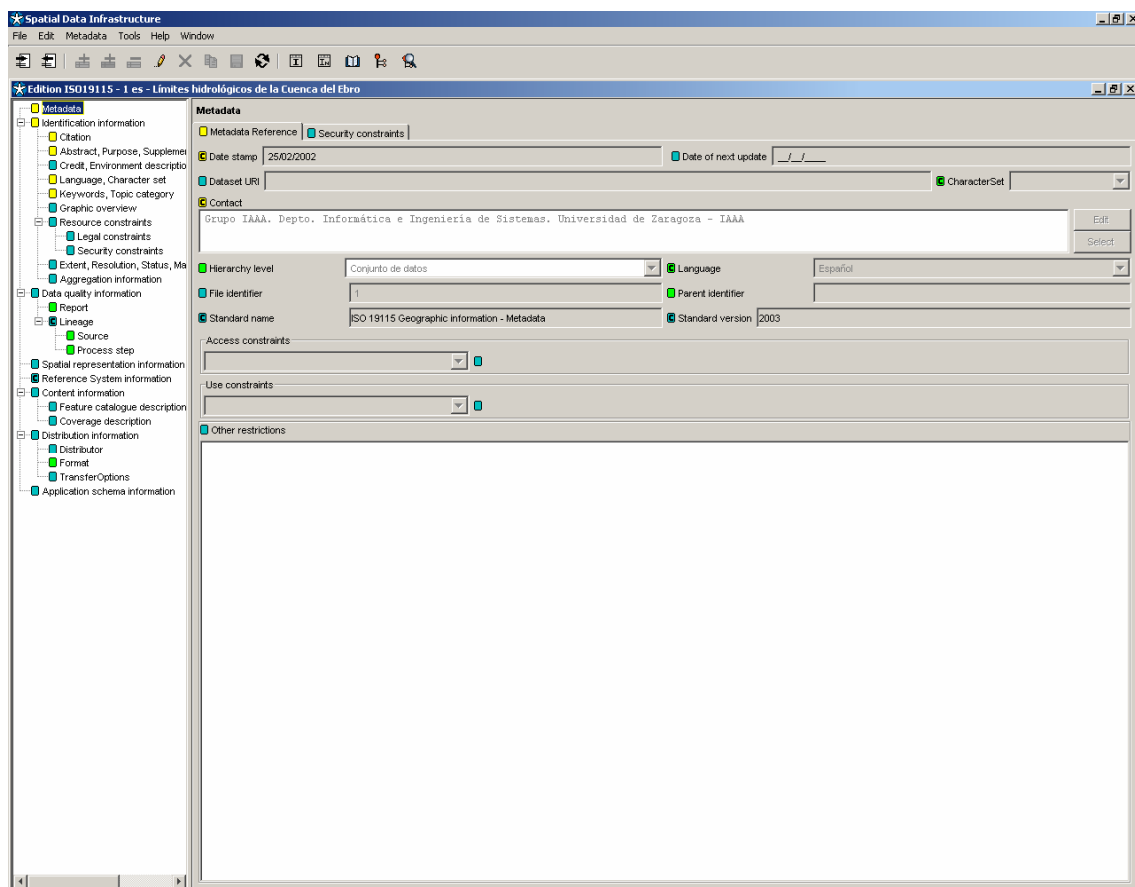










Figure 8 Edition ISO19115 Window

When you select a record in the metadata record selection window, its meta-information is automatically shown, and the edit option set enabled (if no record is selected, this option can not be used). On the metadata edit window title, you can see what record is being shown.

If you want to create a new metadata record, you should first add a row in the “Record Selector” window (see Figure 1) using the Menu Edit options on that window:  Insert,  Replicate, or  Insert other language (for more details, see section 2.2). And, once the record is created, you select it and open the “Edition ISO19115” window.

To modify the record metadata, you should press on Edit button  (section 2.2), that will enable options:  add,  delete (add or remove rows in a table that allows to edit metadata

multiple elements),  save and  cancel (save or discard changes). Furthermore, it will lock the rest of the tool, to avoid that another record is selected while one is being modified.

To make the metadata introduction as easier as possible, all confusing situations have been removed. So, when you are in edition mode, only the fields in which data can really be introduced are enabled; since, for example, if no row is selected in a table, fields related to this table will remain disabled and no modification will be allowed on them, until you select a row on which data will be saved.

On each one of the sub-windows and edition areas of metadata elements in this edition window, it has been assigned a symbol that indicates conditionality in icon standard ISO19115. Colour coding can be seen in the following figure. If the icon also includes a “c”, it means that it belongs to the subset “Core metadata for geographic datasets” ISO19115 [ISO 2003].




Color	Description
	Mandatory
	Conditional (mandatory if applicable)
	Optional

Figure 9 : Conditionality indicator

Finally, lets underline that the metadata edition window provides access to the following tools to complete some metadata elements:

- Thesaurus selection tool (see section 5.2).
- Contact directory to indicate a reference to a contact in some metadata record sections (see section 5.1).
- Tools for geographic bounding box definition (see section 5.3).

3.2. Edition ISO19115 – NEM

When you select the option “Edition ISO19115-NEM” in Menu Metadata, the metadata edition window will open using the interface shown in the following figure. This window allows to visualize and also to edit the metadata of the record selected in the metadata record selection window. The interface in this window complies with the metadata elements included in the “Núcleo Español de Metadatos” (NEM) recommendation, now in development, defined by the Spanish National Geographical High Board (“Consejo Superior Geográfico”) and that follows a subset of ISO19115 [ISO 2003, CSG 2003]. See the elements nowadays included in this recommendation in Appendix 6.1.

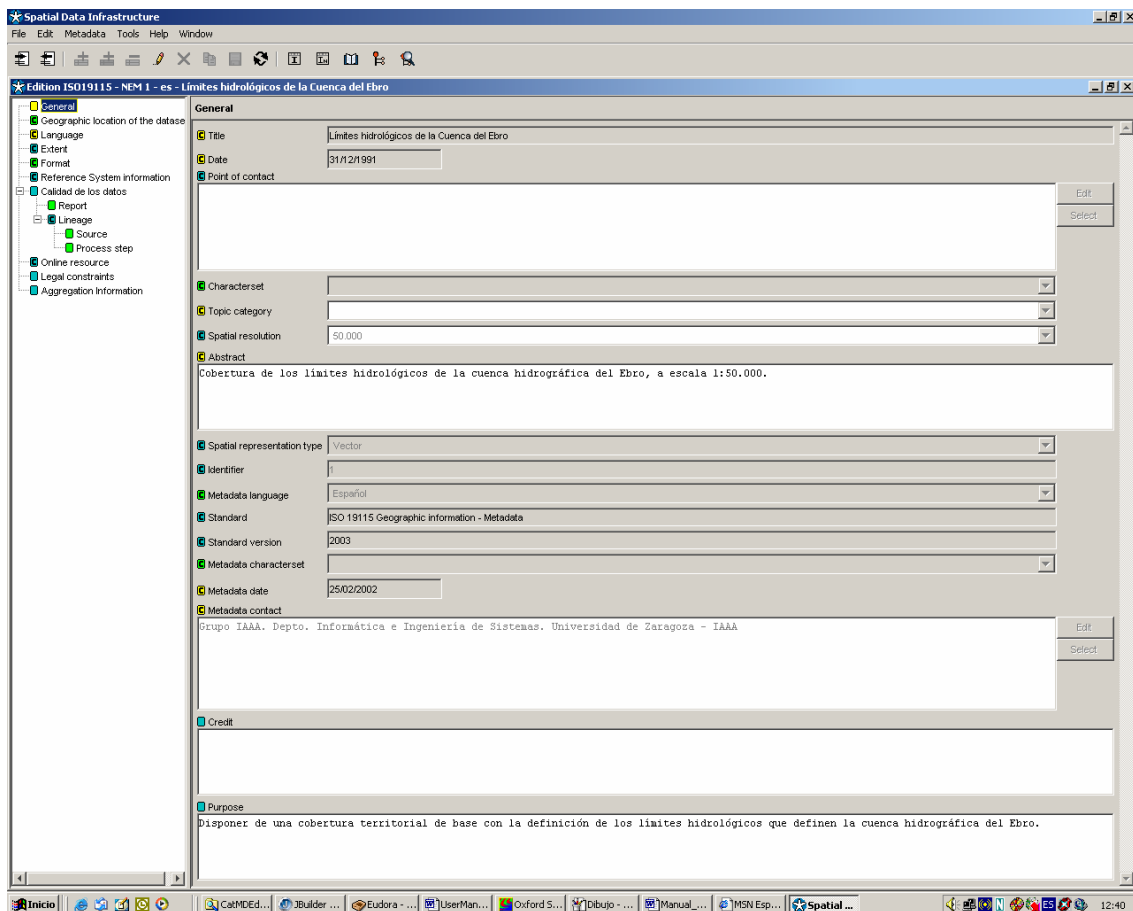


Figure 10 ISO19115-NEM Edition Window

This edition window use is equivalent to the window “Edition ISO19115”. See section 3.1 for the general use of this kind of windows.

4. Import/Export

4.1. Import

This tool allows to import metadata files following different formats (XML y Excel) and standards (ISO19115 [ISO 2003], CSDGM [FGDC 98], or Dublin Core [DCMI]). The metadata records will be added to the tool internal repository.

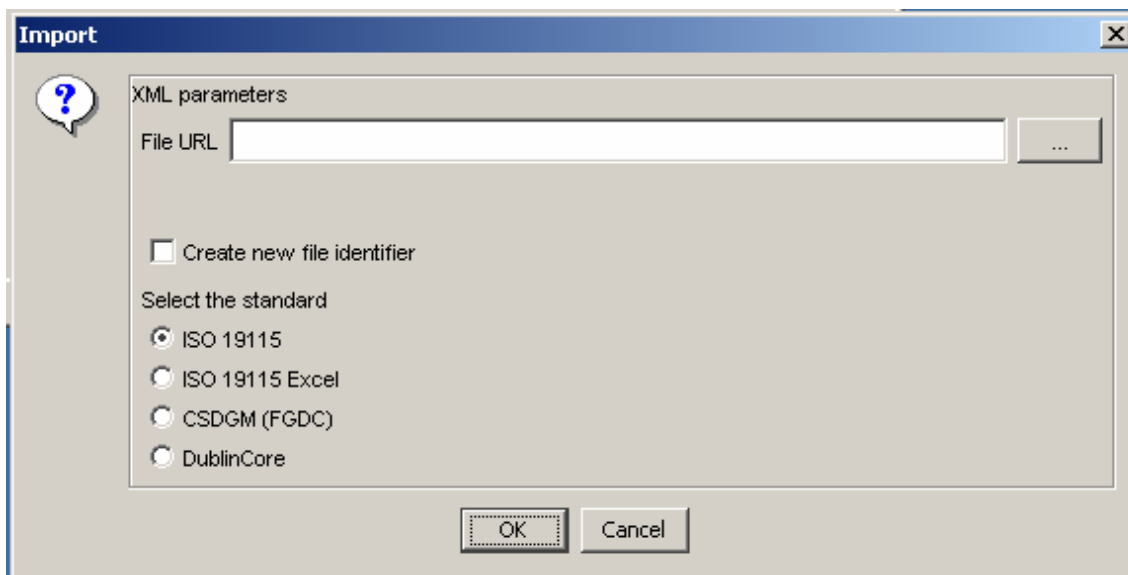


Figure 11 Import window

This tool allows to select the file you want to import, both by writing the whole path of the file or by pressing the “...” button and selecting the file to import from the file selection dialog.

If you select a directory, it will import all the XML files in the directory.

Besides, it allows to respect the record identifier or to ignore it and generate a new one.

You mark the standard followed by the importing data:

- ISO 19115. It allows to import XML files following ISO19115 [ISO2003] standard.
- ISO 19115 Excel. It allows to import Excel format files (Excel 95 or later) following the format specified in section 6.2.
- CSDGM (FGDC). It allows to import XML files following CSDGM Standard from FGDC [FGDC 98].
- Dublin Core. It allows to import XML files following Dublin Core [DCMI] standard.

Once you have finished these steps, you can import by pressing OK, in which case the record will be imported and the rest of the windows information will be refreshed so changes made will be displayed.

If in any moment you press Cancel, the window will close making no operation.

Additional notes:

- If “Create new file identifier” checkbox is not selected and, both unique identifier and language already exist in the repository, this record will be overwritten with the metadata contained in the importing file.
- On the other hand, if “Create new file identifier” checkbox is selected, we will make sure that new records will always be created.

4.2. Export

This tool allows to export records selected in “Record Selection” window to XML, HTML or Excel format files.

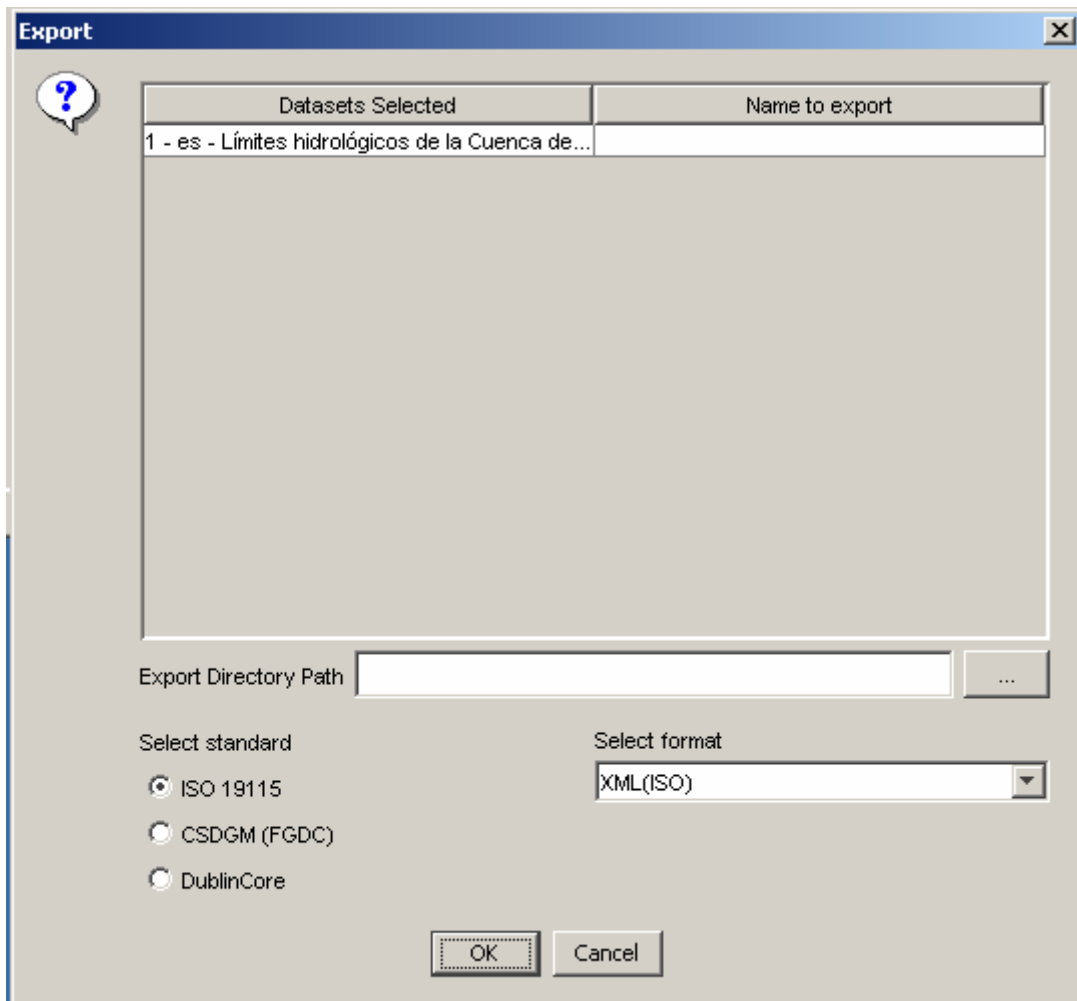


Figure 12 Export window

The export tool window shows the selected records to export, with a blank column that allows to introduce, if you want, the name the .xml file will have. If no name is introduced, it will be exported to a .xml file named for the record identifier (E.g.: 2.xml, 3.xml).

Besides, you have to select the directory in which the created XML files will be placed. You can both write the hole path, or press the “...” button and select the file from the file selection dialog.

It also allows to select the standard in which you want to export (CSDGM, ISO19115 or Dublin Core) and the sort of format that will be generated. The available formats for each standard are:

- ISO 19115:
 - XML (ISO): It generates a XML format file in accordance with the elements defined in ISO19115 standard [ISO 2003].
 - HTML (ISO es): It generates a HTML format file using Spanish labels following the ISO19115 standard organization.
 - HTML (ISO en): It generates a HTML format file using English labels following the ISO19115 standard organization.
 - HTML MIGRA: It generates a HTML following the format established by the MIGRA regulation [AENOR 98].
 - Excel: It generates an Excel 97 file that contains fields specified in section 6. They will be written starting from the second row of the first page of the file.
- CSDGM (FGDC):
 - XML (CSDGM): It generates a XML file in accordance with the syntax defined by FGDC for CSDGM standard [FGDC 98].
 - HTML (CSDGM es): It generates a HTML format file using Spanish labels following the FGDC standard according to the style used by NSDI Clearinghouse (<http://www.fgdc.gov/clearinghouse/clearinghouse.html>).
 - HTML (CSDGM en): It generates a HTML format file using English labels following the FGDC standard according to the style used by NSDI Clearinghouse (<http://www.fgdc.gov/clearinghouse/clearinghouse.html>).
 - HTML (FAQ): It generates a HTML format file using English labels following the question/answer FGDC format.
 - HTML (Geography_Network): It generates a HTML format file using English labels according to the Geography Network style (<http://www.geographynetwork.com>).
 - HTML (ESRI en): It generates a HTML format file using English labels according to the style created by ESRI (default style used by ArcCatalog).
 - HTML (ESRI es): It generates a HTML format file using Spanish labels according to the style created by ESRI (default style used by ArcCatalog).
- Dublin Core:
 - XML (RDF): It generates a XML format file following the RDF standard (Resource Description Framework) and using the elements defined by Dublin Core.

Once you have finished the previous steps, if you press OK, the records will be exported and, if you press Cancel, the window will close making no operation.

5. Tools

5.1. Contact directory

Contact directory is a tool used to keep personal data of people or organizations from which geographic information exists in the catalog, so it is possible to contact them if needed.

It allows both to visualize, create, modify and edit contacts or to link contacts to certain record fields so to know who has created metadata, who distributes the information associated to the records or who has taken part in that information creation process.

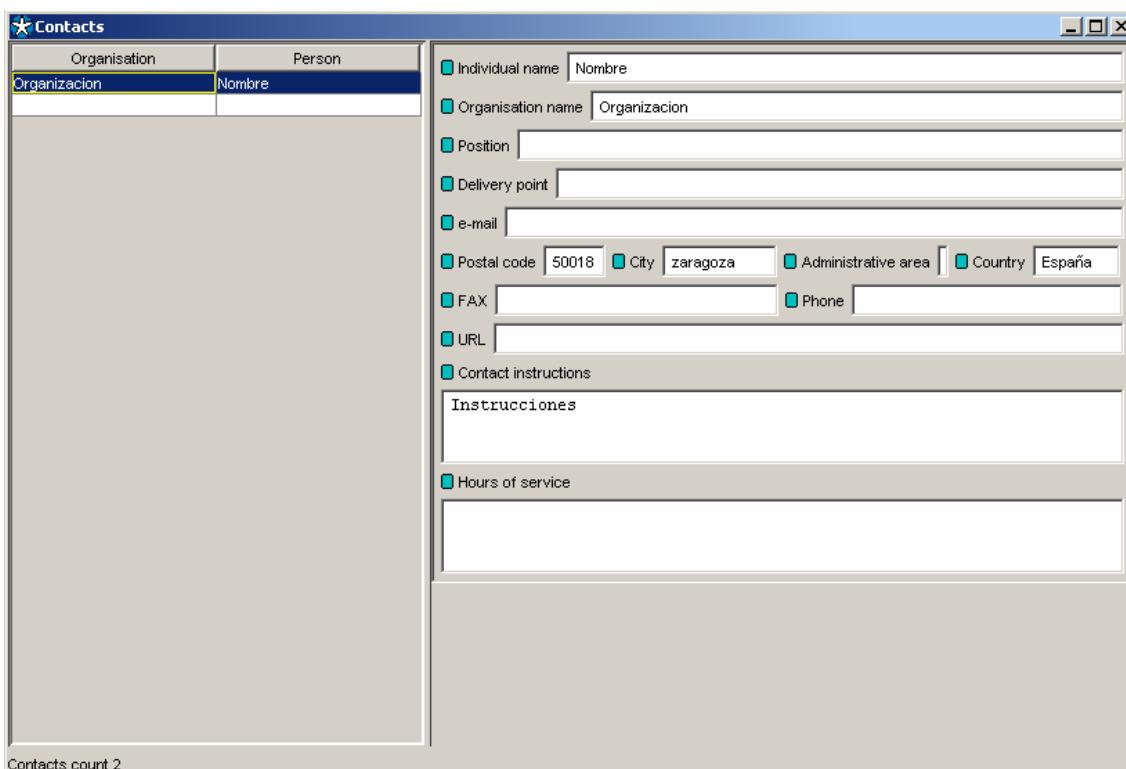


Figure 13 Edition mode in contact window

The way this tool works is very simple. You select in the table the row for the contact you want to visualize, and on the right you will see the selected contact information.

If you visualize this component through the menu option or the toolbar option, you have the chance of modifying contacts pressing edit (see section 2.2), which enables add, delete, save and cancel options. Once you have made all the changes, you can save changes, pressing save, or cancel, pressing cancel.

5.2. Thesaurus selection tool

This tool is used to make it easier the process of filling certain fields which values are terms belonging to a thesaurus. A thesaurus is a structure that allows to collect terms and their associations in an specific domain.

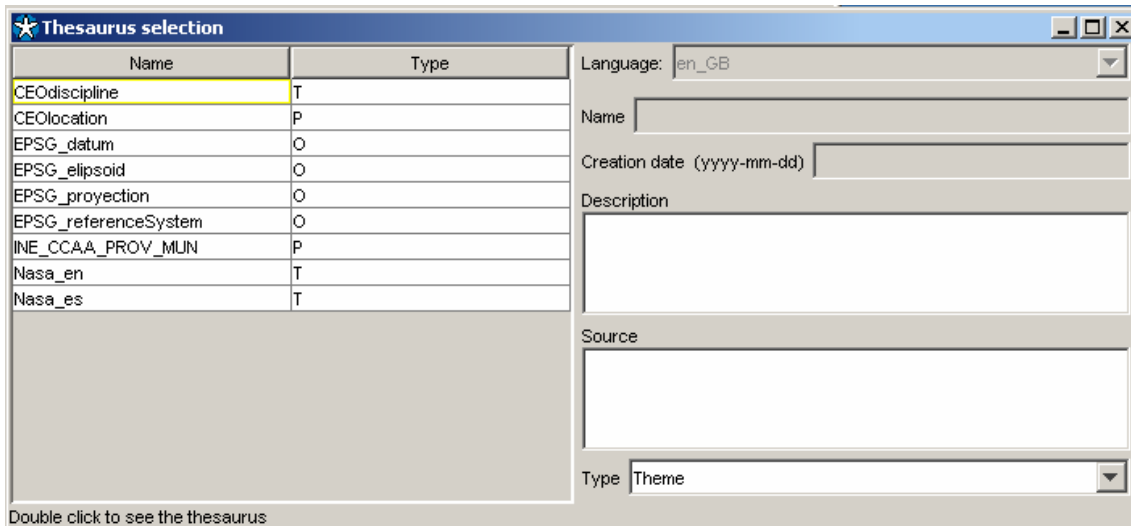


Figure 14 Thesaurus selection window

For example, from keyword selection flap on the record edition window, you can visualize the thesaurus selection window by pressing “Search keyword” button (see Figure 16).

The purpose of this tool is to make it easier to introduce a thesaurus terms in the record edition window fields which values are useful to be thesaurus terms, so they have a well-known set of values and it is easier to search in the catalog record set.

To do that, those thesaurus which terms can be introduced in the edited record field will be shown in the thesaurus selection window.

To select a thesaurus term, you have to double-click on the thesaurus from which you want to see the terms, and the term selection window will be shown.

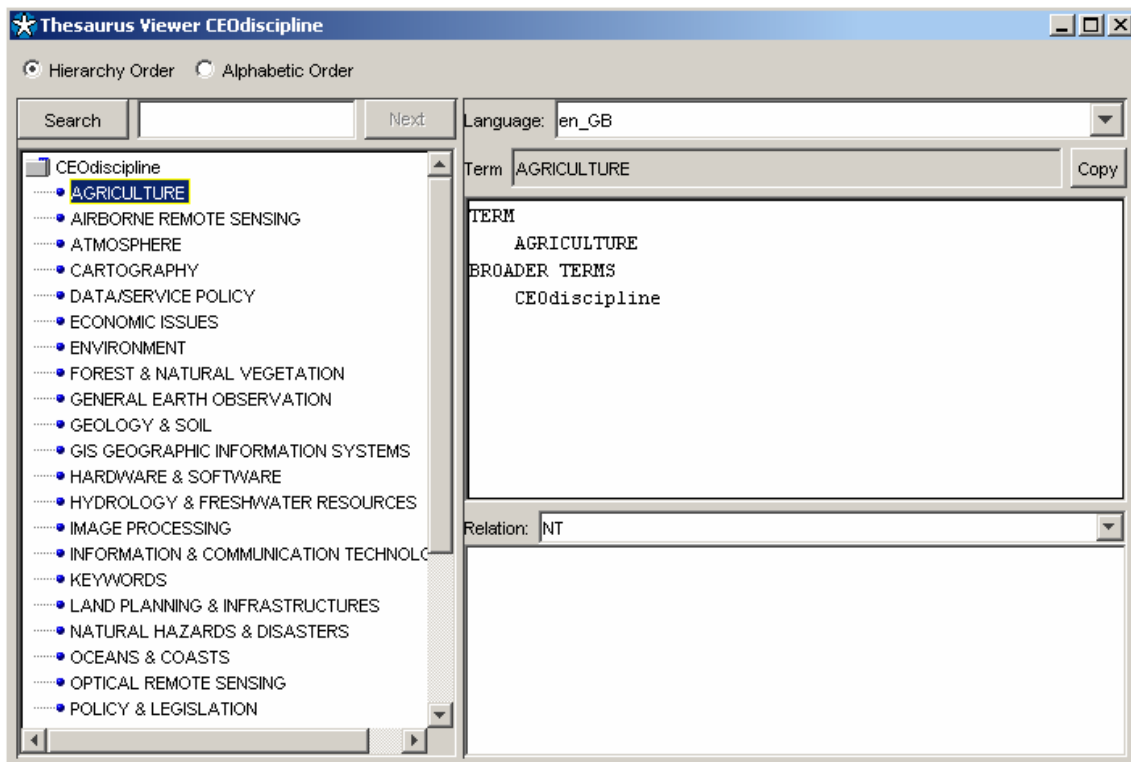


Figure 15 Term selection window

On the term selection window, on the left, you can see the thesaurus treelike structure or the thesaurus term list in alphabetical order, depending on the selection made on the top of the window: hierarchy order or alphabetic order.

Once you have selected a term, all available information for that term will be shown on the right (definition, connections with other terms,...).

To introduce a term in the right field on the record edition window, you have to select it in the term selection window, press “copy” button, and then, in the record edition window, press “paste” button (see Figure 16).

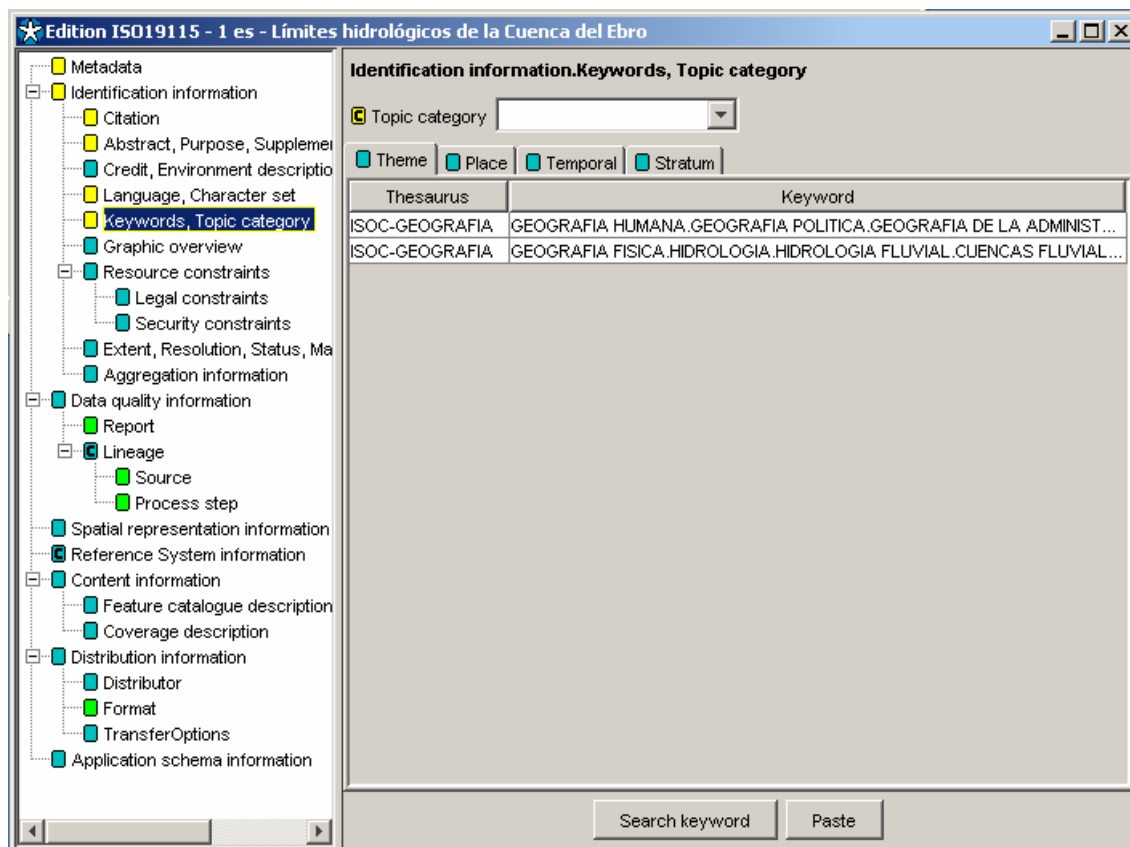


Figure 16 Keywords tab in ISO19115 edition window

5.3. Tools for geographic bounding box definition

To select the geographic coordinates that define the bounding box from the metadata edition windows (see Figure 17), a couple of tools described below are provided.

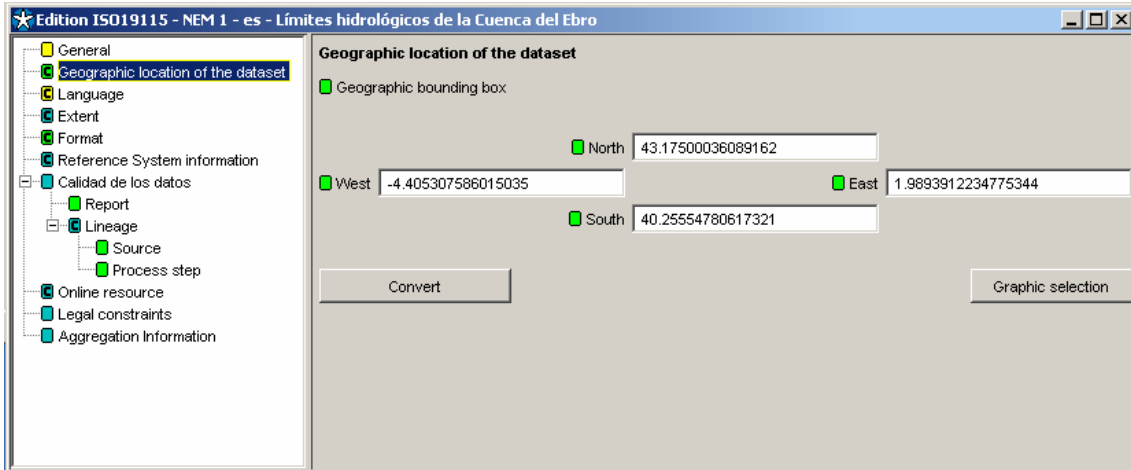


Figure 17 "Geographic bounding box" edition

5.3.1 Coordinates conversion tool

You can access this tool from "Convert" button when editing "Geographic bounding box" (see Figure 17). Coordinates defining geographic bounding box must be geographic coordinates (longitude/latitude). So this tool allows to convert other reference system coordinates.

Figure 17 shows the conversion tool looking, where you can configure source and destination coordinates reference systems (geographic coordinates, but choosing different kinds of ellipsoids).

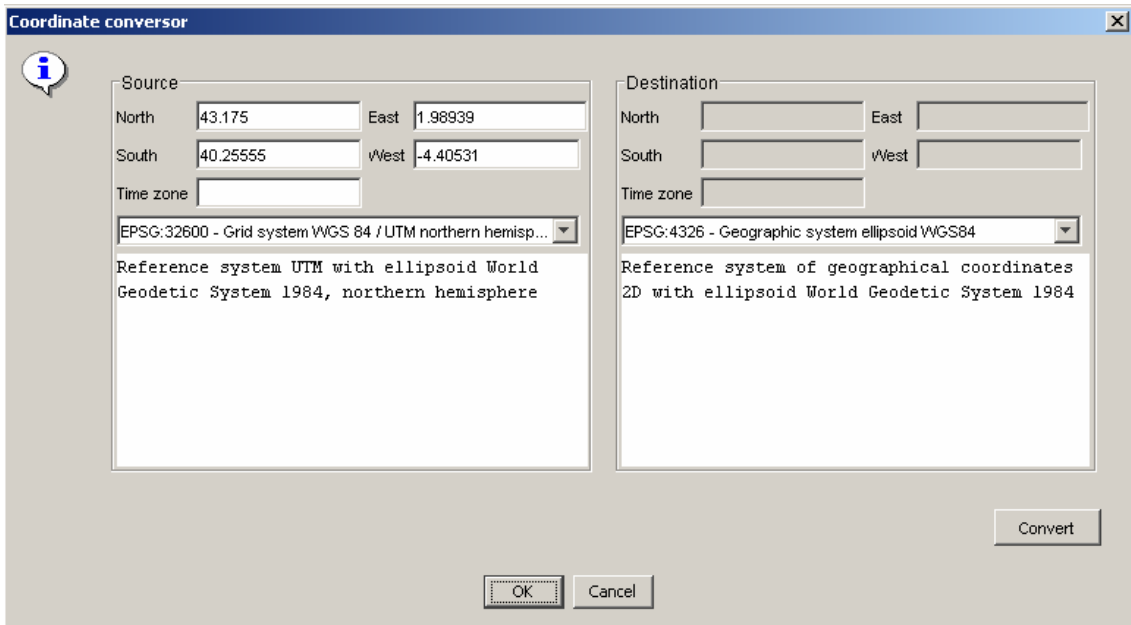


Figure 18 Coordinates conversion tool

5.3.2 Coordinates selection tool

You can access this tool from “Graphic selection” button when editing “Geographic bounding box” (see Figure 17). Figure 17 shows the graphic selection tool looking, that allows to establish with the cursor the box or rectangle that, on the displayed map, defines the spatial extension of the geographic resource.

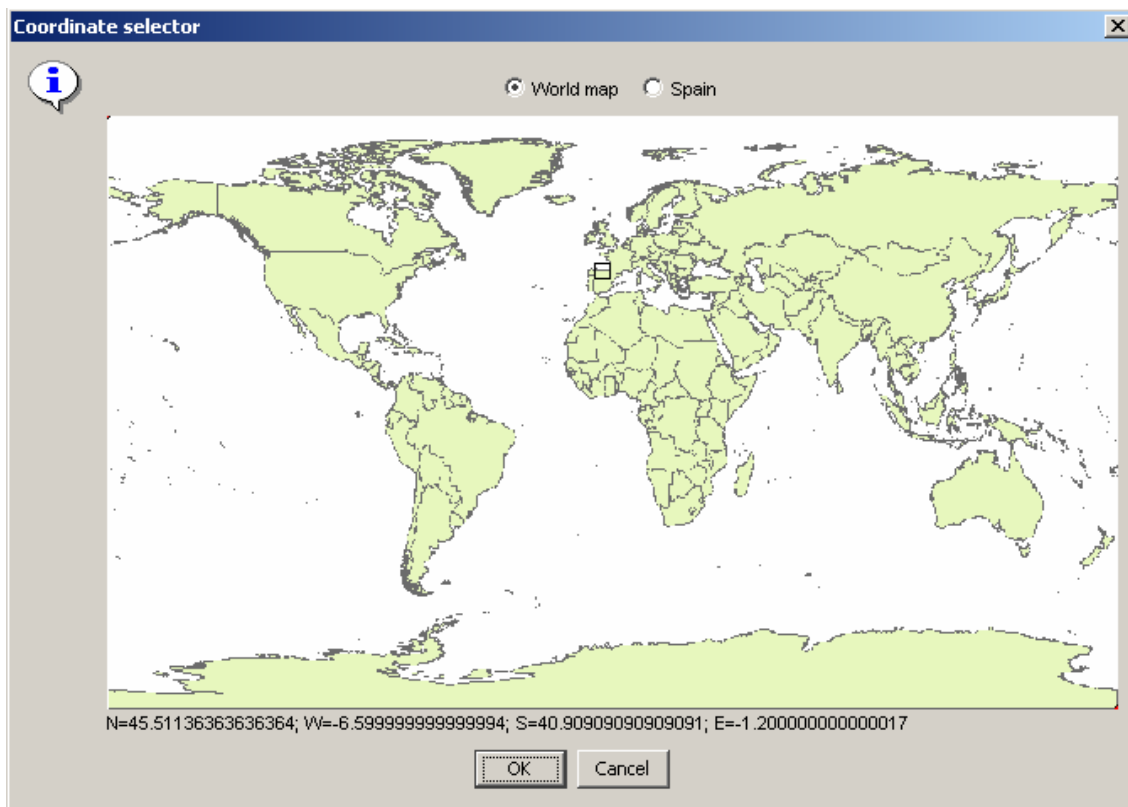


Figure 19 Coordinates graphic selection tool

6. Appendix

6.1. Núcleo Español de Metadatos

Complete ISO19115 standard is so extensive, that the need to recommend a more restricted core has arisen. The idea is to suggest a set of minimum in such a way that, even if it is useful for collecting basic information in the most usual searches, it avoids the need to take a great effort in metadata creation, the resulting discouragement and risk of slowing down the creation progress.

The table below shows metadata elements currently included in “Núcleo Español de Metadatos” recommendation. Elements on white background also belong to “Core Metadata for Geographic Datasets” profile defined within ISO19115 standard [CSG 2003, ISO 2003]. Elements on yellow background have been included within “Núcleo Español de Metadatos”, for they also provide basic information which is included in basic description metadata standards like Dublin Core [DCMI].

Nr	NEM Element *
1	Dataset title (M) (MD_Metadata>MD_Identification.citation>CI_Citation.title)
2	Dataset reference date (M) (MD_Metadata>MD_Identification.citation>CI_Citation.date)
3	Dataset responsible party (O) (MD_Metadata>MD_Identification.pointOfContact>CI_ResponsibleParty)
4	Geographic location of the dataset (by four coordinates) (C) (MD_Metadata>MD_DataIdentification.extent>EX_Extent>EX_GeographicExtent>EX_GeographicBoundingBox or EX_GeographicDescription)
5	Dataset Language (M) (MD_Metadata>MD_DataIdentification.language)
6	Dataset character set (C) (MD_Metadata>MD_DataIdentification.CharacterSet)
7	Dataset topic category (M) (MD_Metadata>MD_DataIdentification.TopicCategory)
8	Spatial resolution of the dataset (O) (MD_Metadata>MD_DataIdentification.spatialResolution>MD_Resolution.equivalentScale o MD_Resolution.distance)
9	Abstract describing the dataset (M) (MD_Metadata>MD_Identification.abstract)
10	Distribution Format (O) (MD_Metadata>MD_Distribution>MD_Format.name y MD_Format.version)
11	Additional extent information for the dataset (vertical and temporal) (O) (MD_Metadata>MD_DataIdentification.extent>EX_Extent>EX_TemporalExtent o EX_VerticalExtent)
12	Spatial Representation Type (O) (MD_Metadata>MD_DataIdentification.spatialRepresentation Type)
13	Reference System (O) (MD_Metadata>MD_ReferenceSystem)
14	Lineage (O) (MD_Metadata>DQ_DataQuality.lineage>LI_Lineage)
15	On-line resource (O) (MD_Metadata> MD_Distribution >MD_DigitalTransferOption.online>CI_OnlineResource)
16	Metadata file identifier(O) (MD_Metadata.fileIdentifier)
17	Metadata standard name (O) (MD_Metadata.metadataStandardName)
18	Metadata standard version (O) (MD_Metadata.metadataStandardVersion)
19	Metadata language (C) (MD_Metadata.language)
20	Metadata character set (C) (MD_Metadata.characterSet)
21	Metadata point of contact (M) (MD_Metadata.contact>CI_ResponsibleParty)
22	Metadata date stamp (M)

Nr	NEM Element *
	(MD_Metadata.dateStamp)
23	Credits (O) MD_Metadata.identificationInfo > MD_DataIdentification.credit
24	Aggregation Information (O) MD_Metadata.identificationInfo > MD_DataIdentification.aggregationInfo > MD_AggregateInfo
25	Legal Constraints (O) MD_Metadata.identificationInfo > MD_DataIdentification.resourceConstraints>MD_LegalConstraints
26	Purpose (O) MD_Metadata.identificationInfo > MD_DataIdentification.purpose

*: Obligation/Condition is indicated for each element: M (Mandatory), O (Optional), C (Conditional)

6.2. Import/Export Excel Format

CatMDEdit tool allows to import/export metadata records from/towards an Excel file (ISO19115 Excel option) containing elements belonging to “Núcleo Español de Metadatos” (NEM) [CSG 2003].

This Excel file main characteristics are as follows:

- The tool will only read first page information. A file is provided as an example, and can be used to write metadata and import them.
- The first row in the page that has the metadata records is reserved to write each column name.
- For each metadata record, you have to fill a row that has some columns for “Núcleo Español de Metadatos” elements (NEM) (see Appendix 6.1), subset of ISO19115 standard [ISO 2003]. If any of them is left blank, the metadata will also be created without this information. Dates will be introduced writing: four digit year, followed by two digit month and then two digit day of the month (v. gr. 20040216 is 2004 february, the 16th). Lets point out that if you write a date using a different format, text processing tool will not be able to reload it.

Next, it is shown a table that describes all the columns in the Excel file: name, value set, and a content example. For further information of each metadata element description in this Excel file, see ISO19115 en standard definition [ISO 2003].

Nr	Name (english)	Domain	Example
1	Dataset title	Cadena de texto	Primer metadato
2	Dataset reference date	fecha (aaaammdd)	20040216
3	Dataset responsible party	Cadena de texto	IAAA
4	Geographic location of the dataset (by four coordinates)		
	North Bound Latitude	Real (decimales con "punto")	11
	South Bound Latitude	Real (decimales con "punto")	11
	East Bound Longitude	Real (decimales con "punto")	11
	West Bound Longitude	Real (decimales con "punto")	11
5	Dataset Language	Cadena de texto	Es
6	Dataset character set	Cadena de texto	utf-8
7	Dataset topic category	Cadena de texto	Transporte
8	Spatial resolution of the dataset	Cadena de texto	50000
9	Abstract describing the dataset	Cadena de texto	Comentario
10	Distribution Format	Cadena de texto	ASCII
11	Additional extent information for the dataset (vertical)		
	Vertical extent: minimum value	Real (decimales con "punto")	0
	Vertical extent: maximum value	Real (decimales con "punto")	1000
	Vertical extent: units of measure	Cadena de texto	Metros
11	Additional extent information for the dataset (temporal)		
	Temporal element: begin date	Fecha (aaaammdd)	19800123
	Temporal element: end date	Fecha (aaaammdd)	19880522
12	Spatial Representation Type	Cadena de texto	Grid
13	Reference System	Cadena de texto	
14	Lineage		
	Lineage: Process step: date	Fecha (aaaammdd)	20030208
	Lineage: Process step: processor	Cadena de texto	IAAA

Nr	Name (english)	Domain	Example
	Lineage: Process step: description	Cadena de texto	Ejemplo
15	On-line resource	Cadena de texto	iaaa.cps.unizar.es
16	Metadata file identifier	Cadena de texto	prueba.xls
17	Metadata standard name	Cadena de texto	ISO 19115 Geographic Information – Metadata
18	Metadata standard version	Cadena de texto	2003
19	Metadata language	Cadena de texto	Es
20	Metadata character set	Cadena de texto	utf-8
21	Metadata point of contact	Cadena de texto	IAAA
22	Metadata date stamp	Fecha (aaaammdd)	20000101
23	Credits	Cadena de texto	Javier González
24	Aggregation Info		
	Aggregation Info: Association Type	Cadena de texto	Mención del trabajo principal
	Aggregation Info: Aggregate Dataset Identifier	Cadena de texto	233545:55678
	Aggregation Info: Aggregate Dataset Name	Cadena de texto	Base cartográfica numérica 1:200.000
25	Purpose	Cadena de texto	El propósito es...
26	Resource Constraints		
	Access Constraints	Cadena de texto	Patente
	Use Constraints	Cadena de texto	Patente
	Other Constraints	Cadena de texto	No hay otro tipo de constricciones

7. References

- [AENOR 98] *"UNE 148001 EXP: 1998, Mecanismo de Intercambio de Información Geográfica Relacional formado por Agregación (MIGRA), versión 1"*. Comité Técnico de Normalización 148 de AENOR (AEN/CTN 148)
- [CSG 2003] *"SGT3_2003_05v2: Documento de Metadatos (Borrador de la norma española de metadatos de información geográfica)"*. Infraestructura de Datos Espaciales Española, Consejo Superior Geográfico (Ministerio de Fomento).
- [DCMI] *Dublin Core Metadata Initiative* . <http://dublincore.org/>
- [FGDC 98] Metadata Ad Hoc Working Group. Document FGDC-STD-001-1998 *"Content Standard for Digital Geospatial Metadata"*, Federal Geographic Data Committee (USA), 1998. <http://www.fgdc.gov/metadata/metadata.html>
- [ISO 2003] *"ISO 19115:2003. Geographic information - Metadata"*. International Organization for Standardization (ISO), 2003.