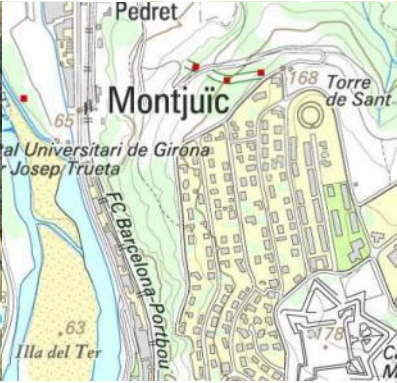




IDEC
Infraestructura de Dades
Espacials de Catalunya



IDEC Profile for Datasets



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**Generalitat
de Catalunya**

Document history

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1.1	20/07/2011	D. Barrot	Incorporation of CS-IDEDEC remarks, Quality and Methods
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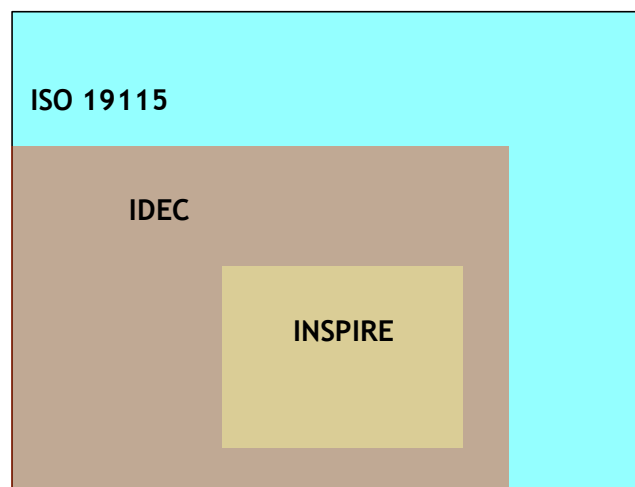
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Introduction

The international standard ISO 19115:2003 - Geographic Information Metadata - is a very comprehensive document that provides the necessary terminology for describing geographic data. This is a very general standard that should be useful in any field related to the territory and in any country; that is why it was decided to develop a specification of this standard for our territory, in order to facilitate its use among potential users. That is the origin of the currently called IDEC profile.

The IDEC profile contains all the "core" metadata, those proposed in the ISO19115 standard as the fundamental items of the metadata. This metadata main core comprises mandatory and optional metadata elements recommended for describing the data and subsequently being able to correctly locate them online. In addition, the IDEC profile includes another set of entities and metadata elements that, although defined as optional in the ISO standard, allow geographical data managers to document metadata with enough detail.

This new version of the IDEC profile reflects the experience accumulated in recent years, extends the metadata elements according to user needs and incorporates the changes of the standard from the 2006 *Corrigendum*. Also, while maintaining compatibility with previous versions, it provides recommendations or identifies requirements to meet for generating metadata in accordance with the European regulations no. 1205/2008 and 1089/2010 for the interoperability of data derived from the INSPIRE Directive,



The above graph shows the relationship between different sets of metadata.

1.1 Document structure

The contents of the document are structured following the standard. They emphasize those aspects specific of the IDEC profile and highlight the recommendations to meet the European model, derived from the abovementioned rules and described in the document "INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119 (Version 1.2)".

2 Scope

The IDEC profile is the view of the standard ISO 19115 that the Spatial Data Infrastructure of Catalonia (IDEC) launches for the organization and management of the metadata catalog. It is intended to standardize search, location and description of geographic information.

In compliance with the Article 20 of Decree 398/2006, the IDEC profile is applied to datasets recorded in the “Registre Cartogràfic de Catalunya”. Also, in accordance with paragraph 6 of Annex 1 of Decree 62/2010, it is also applied to all datasets of the “Pla Cartogràfic de Catalunya”.

3 Compliance

Dataset metadata compliant with the IDEC profile should meet the test requirements of the Annex A applicable to the dataset.

4 Legal and regulatory references

The reference rules and laws consulted for the definition of the IDEC profile are:

4.1 Legal documents

- Commission Regulation (EU) No 102/2011 of 4 February 2011 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial datasets and services.
- Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial datasets and services
- Decree 62/2010 of 18 May approving the Cartographic Plan of Catalonia.
- Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata.
- Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)
- Decree 398/2006 of 24 October, approving the implementing Regulation of the Law 16/2005 of 27 December on geographic information and on the Cartographic Institute of Catalonia, regarding the official status and use of cartographic services and the inter-administrative
- Law 16/2005 of 27 December, on geographic information and on the Cartographic Institute of Catalonia

4.2 Rules and standards

- ISO 639-2:1998 Codes for the representation of names of languages

- EN ISO 19115:2005, *Geographic information - Metadata*¹
- ISO 19115/Cor. 1:2006, *Geographic information - Metadata, Technical Corrigendum*¹

4.3 Other documents

- *INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119*
- *Núcleo Español de Metadatos (NEM v1.1)*

5 Terms and definitions

In this document, terms are defined as follows:

- Catalog features: description of the types of entities of the real world modeled in the dataset.
- Coverage: function of a spatial, temporal or space-temporal domain within the range of values of an attribute.
- Set of spatial data and, extensively, dataset: a collection of identifiable data which refer directly or indirectly to a specific location or geographic area.
- Metadata element: discrete unit of metadata, each element is unique within a metadata entity.
- Metadata entity: a set of metadata elements describing one aspect of the data.
- UML diagram: diagram based on the graphical Unified Modeling Language.
- Interoperability: ability of the system to share harmonized geographic information in order to make it available.
- Natural language: language used in usual human communication.
- Metadata: data that provides information about a resource.
- Profile of a standard: a particular view of the rule, restricted to the defined scope.
- Resource: asset or tool that meets a requirement; dataset, service, document body, etc.

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6 Glossary of symbols and abbreviations

IDEC	Spatial Data Infrastructure of Catalonia
ISO	International Organization for Standardization
CEN	European Committee for Standardization
UML	Unified Modeling Language
INSPIRE	European Spatial Data Infrastructure
PCC	Cartographic Plan of Catalonia

¹ EN ISO 19115:2005 is the adoption of ISO 19115:2003 by the CEN

7

IDEC Profile

The IDEC profile for datasets is an outline of the standard ISO 19115, that is, a subset of entities and metadata elements and a set of requirements and recommendations to harmonize the description of geographic information in Catalonia.

It is a generic profile that must be adapted to each dataset, regarding the characteristics of the data and the purpose of the product.

The description of the outline of the IDEC profile is presented through the seven subsets of information that defines and organizes the metadata, plus three entities that are repeated throughout the standard. For each section, there is an UML diagram derived from the standard ISO 19115, emphasizing with bold characters those entities, elements, or relationships that have restrictions, and with gray font those unregarded by the IDEC profile. There is also a description of the restrictions or changes from the standard and some other recommendations.

The tables in Annex B contain the description of all items included in each section, with the following information:

<u>Field</u>	<u>Description</u>
Id. f	Identifier matching the value of the 1st column of the tables included in Annex B of the standard ISO 19115: 2003.
Name / role	Name of the metadata entity, according to the column <i>Name / Role name</i> of the tables in Annex B of the standard ISO 19115: 2003.
Label	Name of the entity in natural language.
Definition	Description of the metadata element or entity.
Req.	It indicates whether the element or entity must be documented (R: <i>Required</i>), if it has to be documented only in certain circumstances (C: <i>Conditional</i>) or if it can either be documented or not (Op: <i>Optional</i>).
Condition	Whenever <i>Req.</i> is <i>Conditional</i> (C), it describes the circumstances under which the element or entity should be documented.
Mult.	It specifies the maximum number of occurrences of the element or entity. The value <i>N</i> indicates no limit on the number of occurrences.
Type / Domain	It specifies the type of values the item can take. For entities, it includes the <i>Id. f</i> of its elements. In the case of elements, it indicates the allowed values.
Comments	It includes the reference to the section of the standard ISO 19115: 2003, recommendations to generate metadata according to Regulation (EC) 1205/2008 on INSPIRE metadata, and, where appropriate, some examples.

7.1 Metadata overview (MD_Metadata)

This section contains the necessary information to identify metadata and adds other entities (UML classes) of metadata that describe the dataset.

The following UML diagram (Figure 1) shows only the entities included in the IDEC scheme for datasets and the elements in these entities. Detailed information is provided in section B.1 of Annex B.

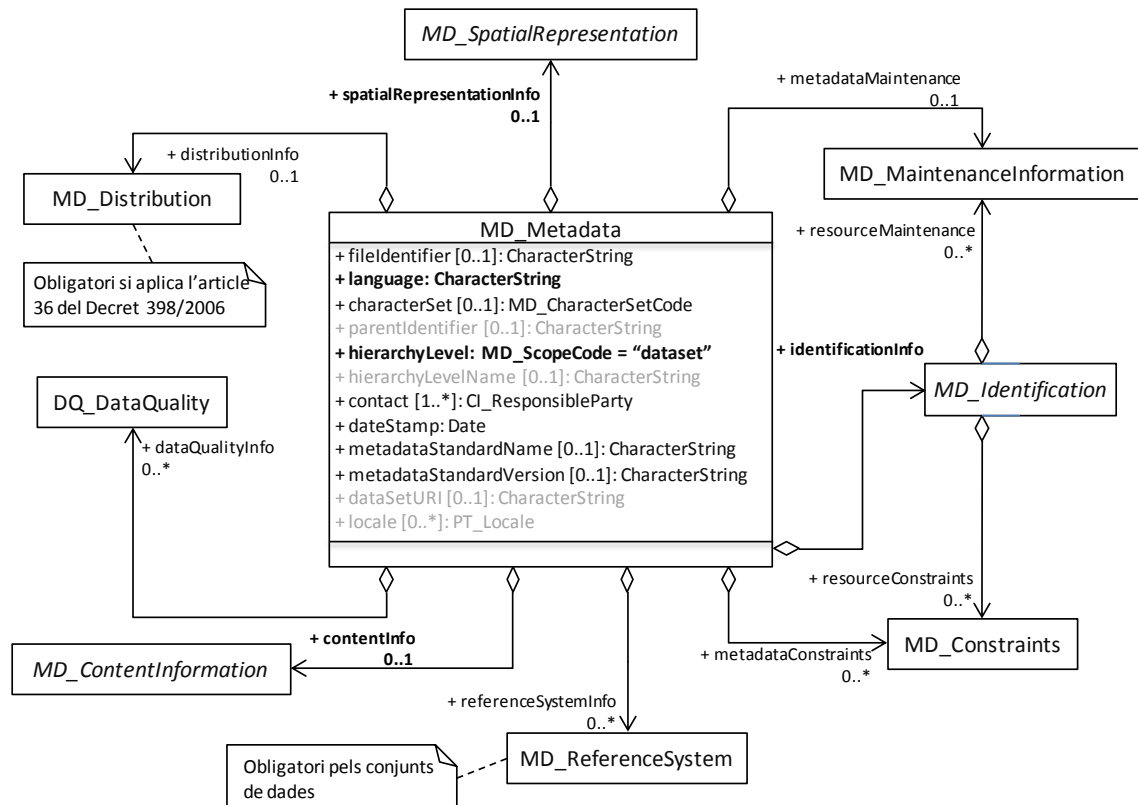


Figure 1 UML diagram according to ISO 19115

Restrictions:

- The *language* of metadata has to be specified.
- The hierarchical level (*hierarchyLevel*) has to be specified.
- The domain (*MD_ScopeCode*) is restricted to three allowed values: *Dataset*, *Series* and *Service* (according to INSPIRE).
- The information to identify the dataset (*identificationInfo*) is unique.
- Reporting the reference systems (*referenceSystemInfo*) of datasets is mandatory.
- The spatial representation (*spatialRepresentationInfo*) of each dataset, if any, is unique.
- The contents of the dataset (*ContentInfo*) can be described as a catalog of features or as coverage.
- For datasets concerned by the Article 36 of Decree 398/2006, reporting the distribution is mandatory.

Recommendations:

- Describe the metadata standard (*metadataStandardName*) with the expression *ISO 19115:2003/Cor. 1: 2006 Geographic Information - Metadata*.
- Describe the metadata standard (*metadataStandardVersion*) with the expression *IS*.

Restrictions:

- Each metadata file contains only one section of data information (*MD_DataIdentification*), and it concerns the dataset (according to INSPIRE).
- Only one graphical view (*graphicOverview*) is allowed for each dataset.
- Only a single information field about the dataset updating (*resourceMaintenance*) is allowed.
- Only one aggregation can be reported.
- The credits (*credit*) include all contributions to the creation of the dataset in a single element.
- It is not possible to include more than one *status of development* for each dataset.
- The coding system can only be identified by a character set (*characterSet*).
- The topic category (*topicCategory*) has to be specified (according to INSPIRE).
- Only datasets with a unique spatial resolution (*spatialResolution*) are considered.
- The *type* of the keywords has to be reported.
- It is mandatory to provide, at least, the spatial extent of the dataset; that is, the geographic element (*geographicElement*) of the extension (*extent*) described by a bounding rectangle (*EX_GeographicBoundingBox*).

Recommendations:

- For vectorial data, it is advisable to include at the *abstract* information about the size of the dataset.
- For datasets with multiple spatial resolutions, it is suggested not to indicate any value for *spatialResolution* but to report them at the *abstract*.
- When datasets are included in series, it is recommended to identify the series in the *citation*.

7.3 Data quality overview (DQ_DataQuality)

This section provides an overall evaluation of the quality of the dataset composed by the lineage aggregation and the reporting of the different quality elements.

Although it is an optional entity, is recommended to report, at least, about the lineage and, if possible, about the compliance with the specifications describing the product.

The UML diagram (Figure 4) shows the structure of the entity *DQ_DataQuality* and specifies the items included in the IDEC scheme to inform about the quality elements and subelements of the geographic information. Detailed information is provided in section B.3 of Annex B.

The information on the data quality includes as well the data sources and the production process. The UML diagram (Figure 5) depicts the structure of the *DQ_DataQuality* entity, and specifies the entities and elements included in the IDEC scheme to report the lineage of the dataset (in other words: sources and production process).

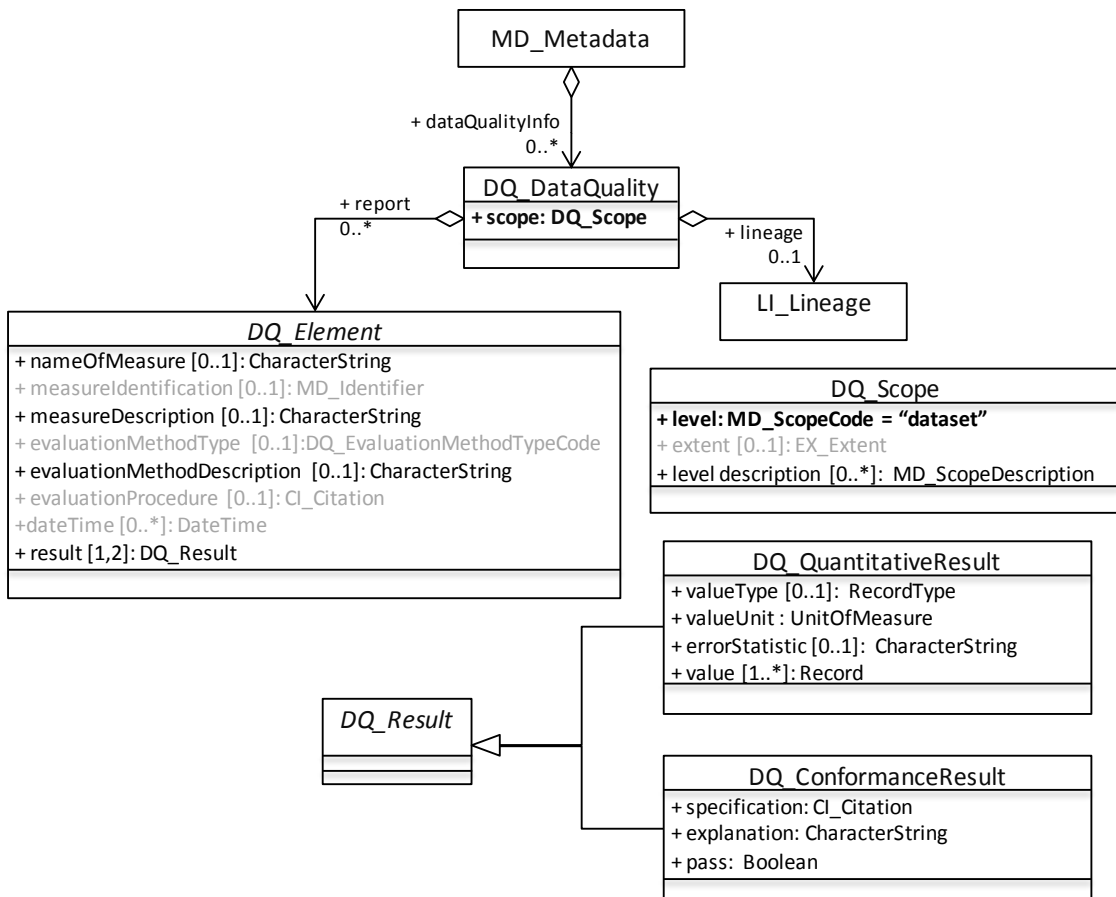


Figure 4 UML diagram according to ISO19115

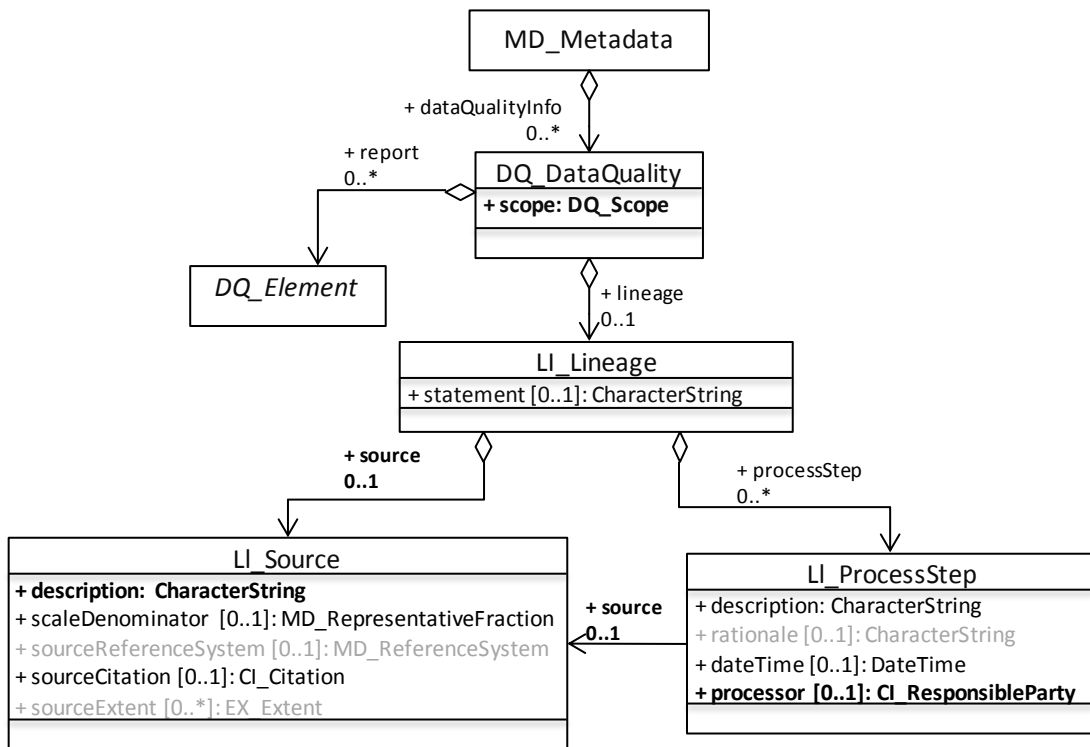


Figure 5 UML diagram according to ISO19115

Restrictions:

- The scope of the quality assessment should be a dataset.
- Currently, an unique source entity (*source*) of information directly related to the lineage is allowed.

Recommendations:

- It is advisable to always report the *lineage*.
- A brief description of the process step (*processStep*) related to each of the sources of information should be provided.
- The most relevant *source* should be provided as the data source.

7.4 Spatial representation information (MD_SpatialRepresentation)

Information section containing the entities and elements that report the mechanisms used to represent spatial information in the dataset, either vectorial or grid. The UML diagram in Figure 6 shows its structure. Detailed information is provided in section B.4 of Annex B.

Restrictions:

- A single spatial representation type is allowed for each dataset

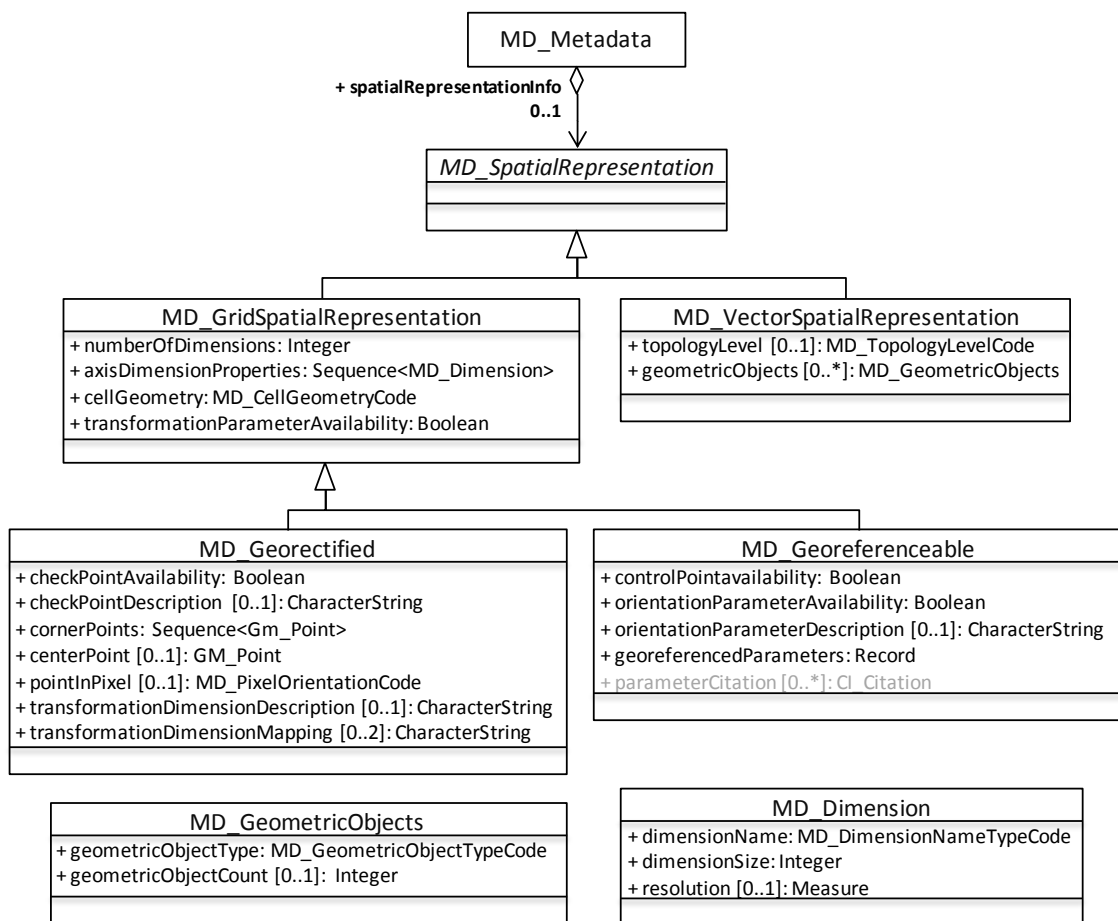


Figure 6 UML diagram according to ISO19115

7.5 Reference system information (MD_ReferenceSystem)

This information section describes the spatial and temporal reference system or systems for the dataset. The UML diagram (Figure 7) shows the elements specifying the references systems, each of them identified by a code. This code is the only required element and has to be included in a controlled thesaurus or list to ensure its identification. Detailed information is provided in section B.5 of Annex B.

Restrictions:

- For datasets, it is required to specify, at least, the spatial references system (*referenceSystemInfo*).
- The *code* value of the entity *MD_Identifier*, if identifying a spatial reference system, has to adjust to the following pattern: <controlled list identifier >:"<within-list identifier >" – "<name of the system>".

Recommendations:

- The list of identification codes for geodesic reference systems should be the [EPSG Geodetic Parameter Dataset](#) (EPSG), managed by the international OGP association (Oil and Gas Producers).
- For bi-dimensional datasets with altimetric information, it is advisable to specify the vertical reference system, even if it is included in the data model.

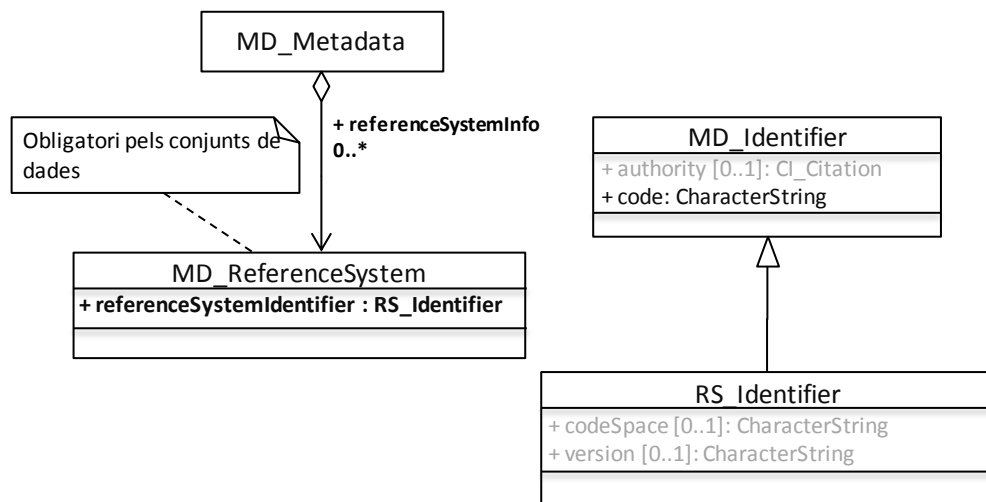


Figure 7 UML diagram according to ISO19115

7.6 Contents information (MD_ContentInformation)

This information section identifies the catalog of features of the dataset or, for coverages, describes the contents.

The UML schema (Figure 8) depicts the entities and elements describing the dataset. The catalog language is not considered, as it is an element of data and metadata, and it may vary without necessarily modifying any of them. Furthermore, there are other elements where the language of data and metadata can be specified. Detailed information is provided in section B.6 of Annex B.

Recommendations:

- It is advisable to provide information on the dataset contents by referring to the document containing the features catalog (*featureCatalogCitation*).

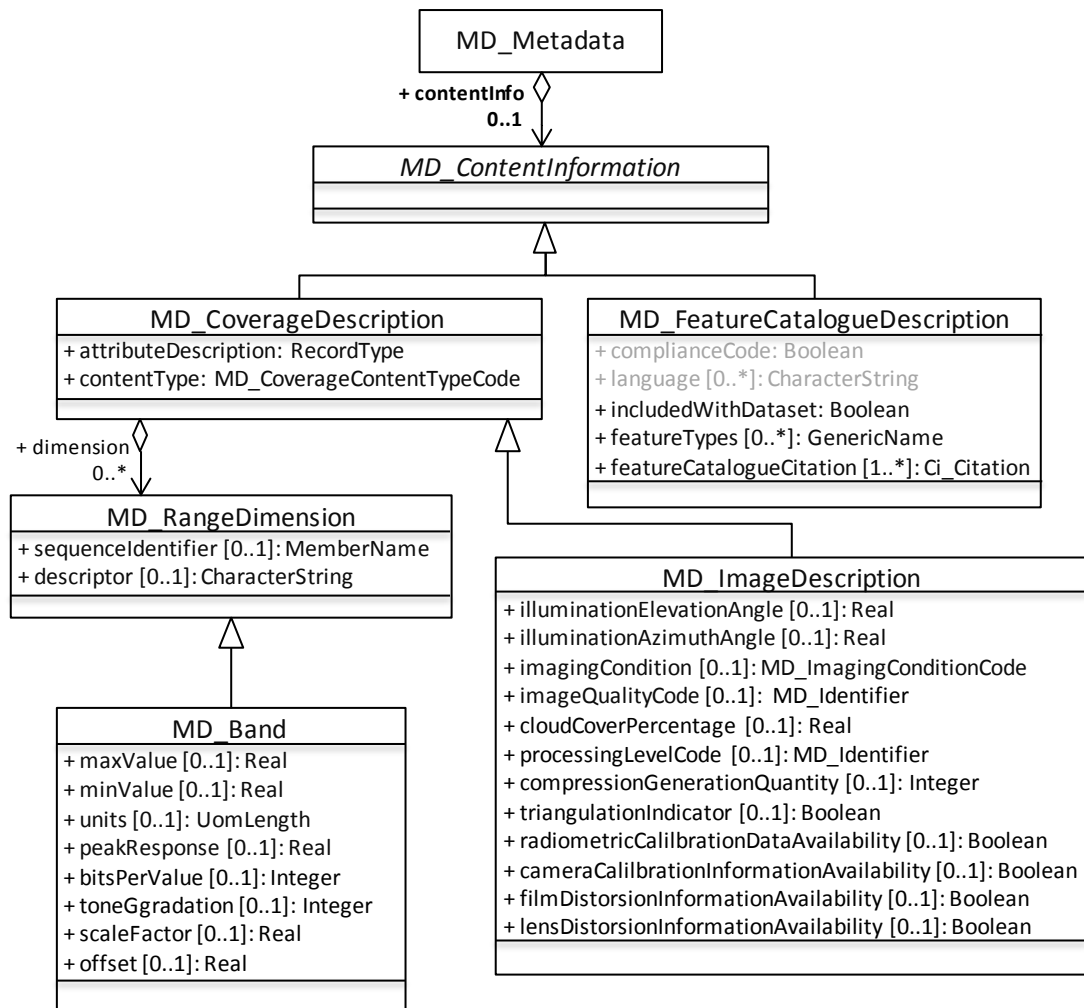


Figure 8 UML diagram according to ISO19115

7.7 Distribution information (MD_Distribution)

This section documents the distributor of the dataset, the distribution formats and the ordering process.

Whenever the distribution is specified, it is required to detail the format in which the dataset is distributed.

The UML schema (Figure 9) shows the elements and entities that inform about who distributes the resource and how it is distributed. Detailed information is provided in section B.7 of Annex B.

Restrictions:

- For datasets concerned by the Article 36 of Decree 398/2006, it is mandatory to report the distribution.
- Whenever distribution is specified, *distributor* and distribution format (*distributionFormat*) have to be reported.
- Only the usual registration density (*density*) has to be reported.

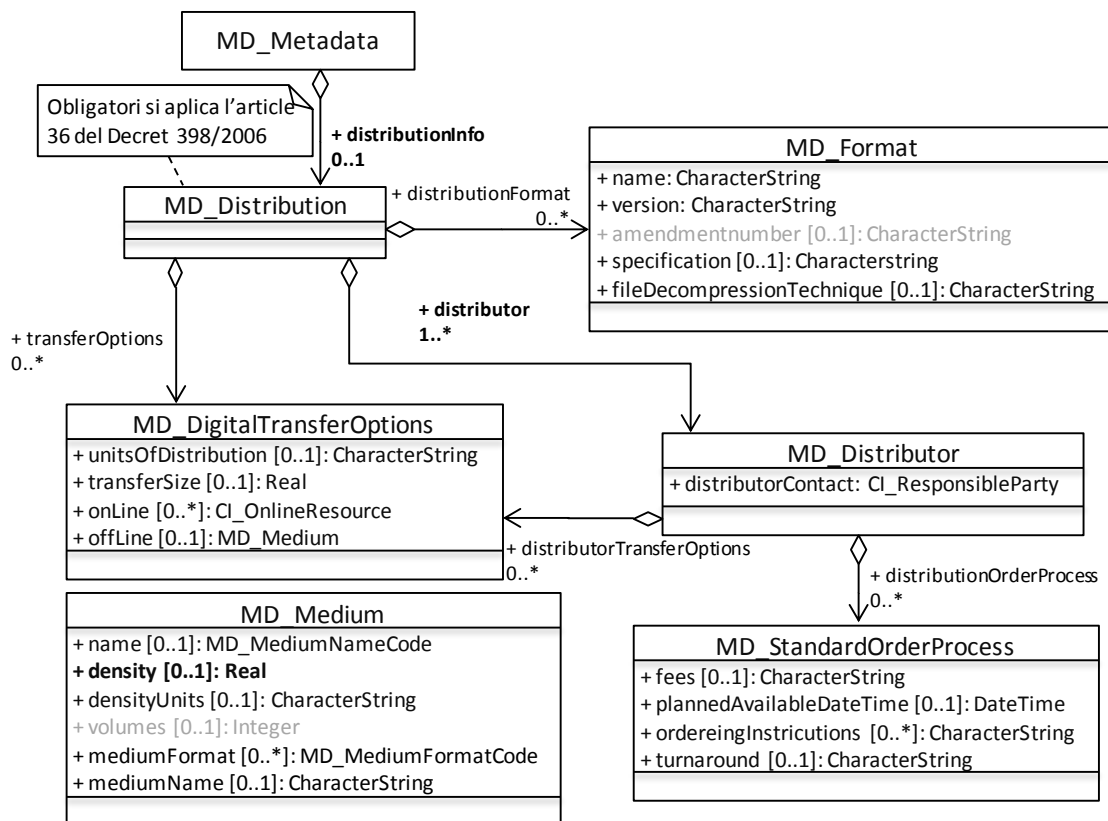


Figure 9 UML diagram according to ISO19115

Recommendations:

- If data is accessible through geoservices (WMS, WFS, etc.), it is suggested to describe it as an on-line (*online*) transfer option (*transferOptions*), specifying the URL, and to assign the value “*information*” in the field *function* (see section 7.12).

7.8 Restrictions (MD_Constraints)

This entity includes information about the use restrictions of the dataset, either legal restrictions, security restrictions or other.

The UML schema in Figure 10 shows the elements and entities necessary to inform about the use restrictions of a resource (data or metadata). Detailed information is provided in section B.8 of Annex B.

Restrictions:

- All use limitations (*useLimitation*) are included in a single element.
- All the other restrictions (*otherConstraints*) are included in a single element.

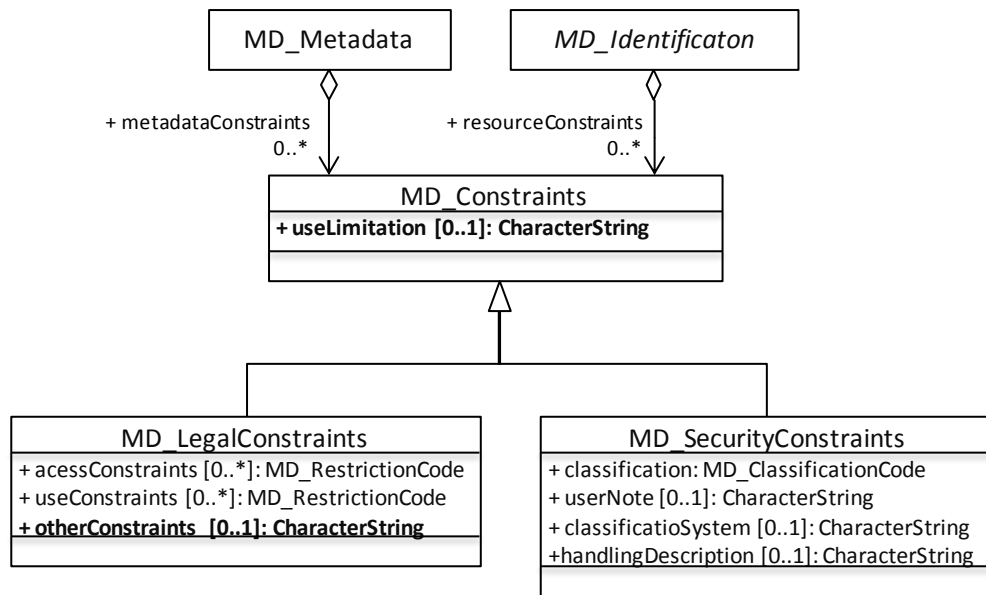


Figure 10 UML diagram according to ISO19115

7.9 Maintenance information (MD_MaintenanceInformation)

This entity provides information about the updating scope and frequency of metadata, data or services.

The IDEC schema regards exclusively information about datasets. Thus, only general information regarding metadata and datasets updating will be included.

The UML schema in Figure 11 depicts the elements and entities that contain information about the updating frequency. Detailed information is provided in section B.9 of Annex B.

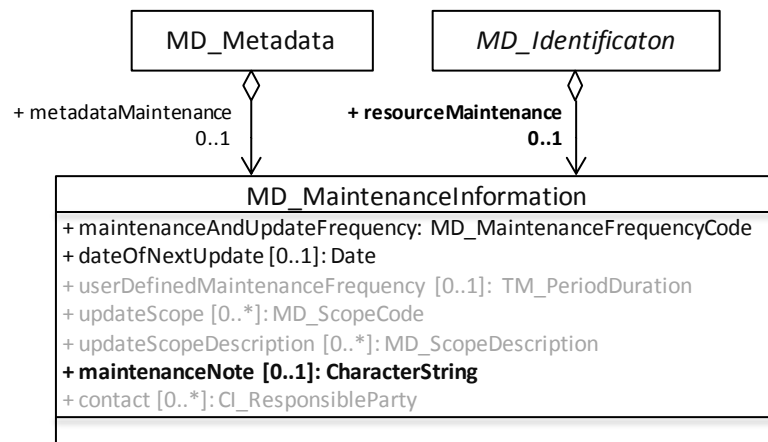


Figure 11 UML diagram according to ISO19115

Restrictions:

- The updating frequency (*maintenanceAndUpdateFrequency*) generically concerns the whole dataset.
- Any additional information has to be included in a single maintenance note (*maintenanceNote*).

Recommendations:

- The maintenance note (*maintenanceNote*) should include the updating characteristics.

7.10 Citation (CI_Citation)

Entity describing a metadata data format to standardize resource citation for some of the previously described metadata entities.

Figure 12 shows the elements for any *citation*, *series* and *data* included in a citation.

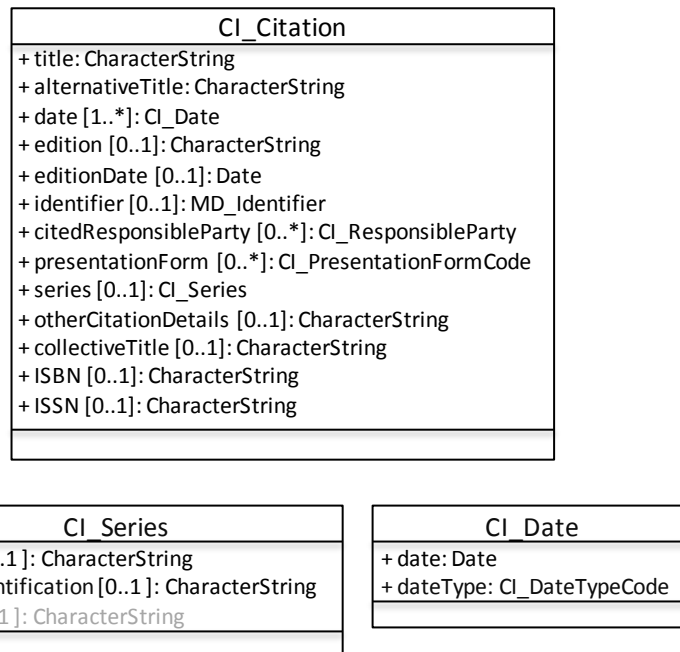


Figure 12 UML diagram according to ISO19115

Recommendations:

- The element referred by the citation determines which elements of that citation are required:
 - When the dataset is part of a series, it is advisable to provide information to identify the series (*citation*) in the data information (*MD_DataIdentification*).

7.11 Responsible party (CI_ResponsibleParty)

Entity describing a metadata data format to standardize the citation of organisms or individuals related to a resource for some of the previously described metadata entities.

Figure 13 shows the elements for any *responsible party*, *contact*, *address* or *telephone* included in a citation.

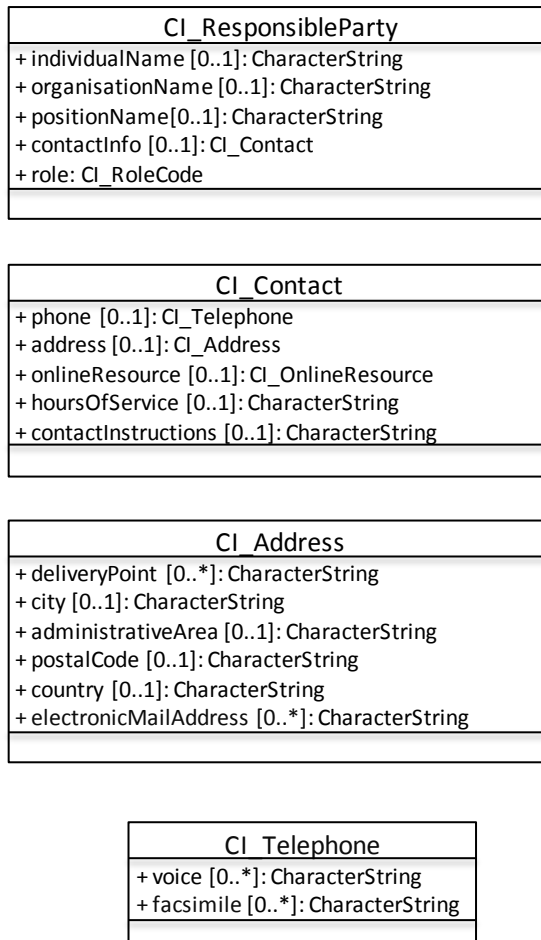


Figure 13 UML diagram according to ISO19115

Recommendations:

- When an organization name (*organization Name*) is provided, it is advisable to include a web URL in the contact information (*contactInfo*) of the responsible party (*CI_ResponsibleParty*).
- The referred entity or element determines which elements of the responsible party (*CI_ResponsibleParty*) are required. For example, it is necessary to consider the following:
 - To compile with INSPIRE requirements and recommendations, metadata *contact role* has to include, at least, the organization name and an e-mail address

7.12 Online resources (CI_OnlineResource)

Entity describing a metadata data format to standardize the description of the online access to organizations, individuals or resources.

Figure 14 shows the elements for any online resource.

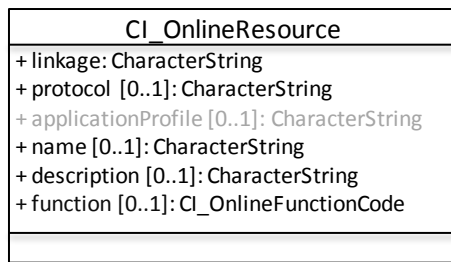


Figure 14 UML diagram according to ISO19115

Recommendations:

- The referred entity or element determines whether elements of online resource are mandatory or not.

8

IDEC Metadata compliant with INSPIRE

The following aspects must be considered to generate metadata compliant with the IDEC profile and with the requirements and recommendations of the European legislation, as well as with the implementation rules described in the section 4 of this document.

- *Metadata information* entity:
 - The contact has to include, at least, the name of the organization and an e-mail address.
 - The *language* of metadata must be one of the 23 official languages of the European Community.
 - The *contact role* of the metadata must to be set to *Contact Point* and has to include, at least, the organization name and an e-mail address.
- *Data information* entity:
 - The *citation* must include the dataset identifier, understood as an unique identifier for the resource within a name space.
 - The *citation* cannot include more than a single creation data.
 - At least one *keyword* from the *General Environmental Multilingual Thesaurus (GEMET)* has to be included to describe the subject of the dataset according to the Annexes I, II and III of the Directive 2007/2/CE.
 - Any keyword extracted from a controlled thesaurus has to identify it explicitly with, at least, the title and a reference date (publication, last update or creation).
 - If possible, an equivalent scale or resolution would be specified.
 - The character codification system of the dataset should be specified if not utf8.
 - The point of contact (*pointOfContact*) has to include, at least, the organization name and an e-mail address.
- *Data quality information* entity:
 - The *lineage* of the dataset has to be described, at least, with the *statement*.

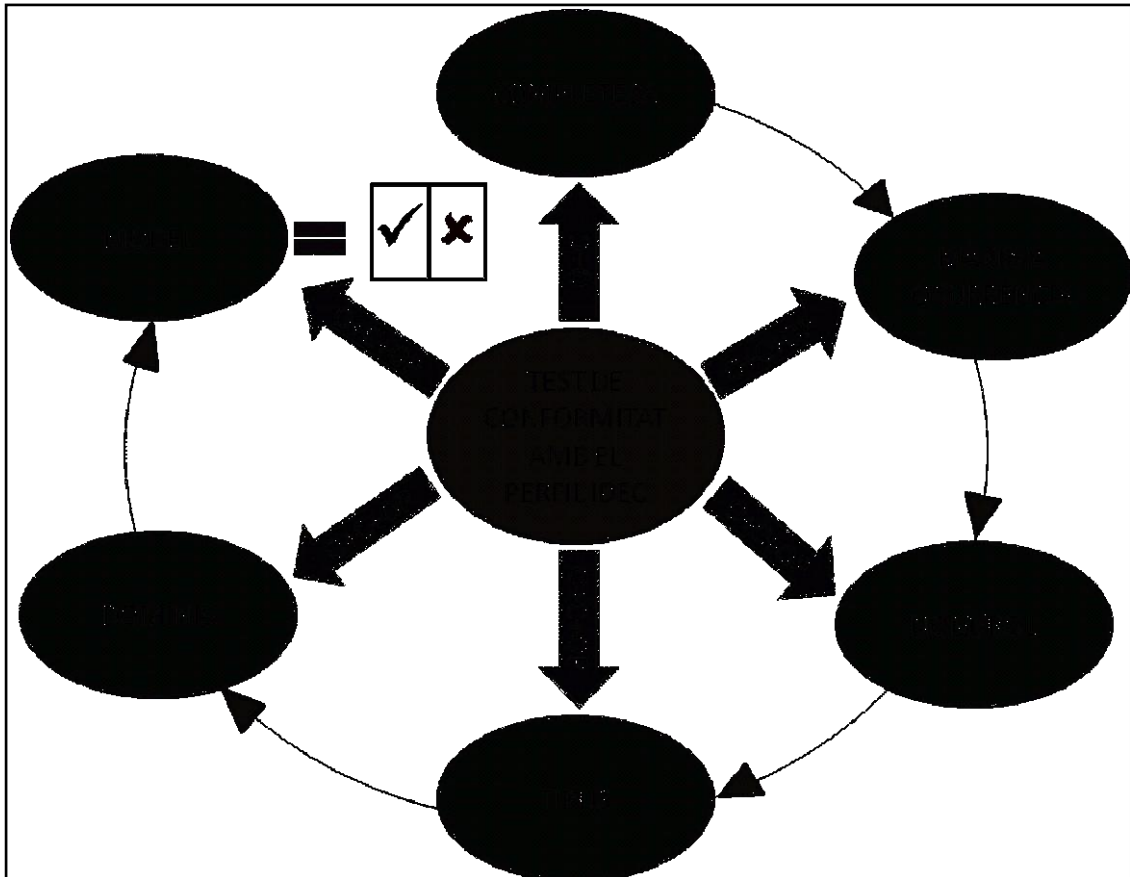
- Information about the degree of compliance with INSPIRE must be reported as an element of domain consistency (*DQ_DomainConsistency*), expressed as a conformity result regarding the appropriate INSPIRE specifications.
- For INSPIRE datasets including data of the Network Generic Model, information about compliance with topologic requirements should be included as topological consistency (*DQ_TopologicalConsistency*).
- *Distribution information* entity:
 - If the dataset is available online, the URL address should be provided.
- *Restrictions* to the dataset entity:
 - The use limits (*useLimitation*) must describe the access and use conditions including, if appropriate, the fees or the link (URL) to the document describing these conditions.
 - The legal, security or other constraints must be explicitly specified, even if there is any.

A

Compliance test

A.1 Assemblage of 6 generic tests

This group of tests is applied to the IDEC profile. The goal of the tests is to ensure that the provided metadata complies with the requirements specified in the section 7 and the Annex B of this document.



Legend: O, C and Op refer to sections, entities or elements that are required (O), conditional (C) or optional (OP).

A.2 Assemblage of metadata tests

A.2.1 Completeness test

- a) Purpose: to determine compliance regarding the existence of all the mandatory or conditional (if applicable) metadata sections, entities and elements
NOTE: Required elements included in optional entities are only mandatory if that entity is used.
- b) Methodology: it is checked that all the mandatory metadata, according to Annex B, are completed for the analyzed dataset. Also, it is necessary to ensure that conditional metadata are completed whenever the conditions are met.
- c) Reference standard: IDEC profile, Annex B

Following tests are applied indistinctively for mandatory, conditional and optional metadata.

A.2.2 Maximum occurrence test

- a) Purpose: to check that metadata elements do not exceed the specified maximum.
- b) Methodology: the number of entries in each metadata section, entity or element is checked for compliance with the value of the item "Mult." specified in the Annex B.
- c) Reference standard: IDEC profile, Annex B.

A.2.3 Name/role test

- a) Purpose: to check that the name/role used for the analyzed dataset is included within the domain specified by the IDEC profile.
- b) Methodology: it is checked that the name/role of each metadata element of the dataset exists in the IDEC standard profile.
- c) Reference standard: IDEC profile, Annex B.

A.2.4 Data format test

- a) Purpose: to verify whether each metadata element of the dataset uses the specified data format.
- b) Methodology: the value of each metadata element is checked with the specified data format.
- c) Reference standard: IDEC profile, Annex B.

A.2.5 Domains test

- a) Purpose: to verify that the metadata elements of the dataset are within the specified domain.
- b) Methodology: the value of each metadata element is checked with the specified domain.
- c) Reference standard: IDEC profile, Annex B.

A.2.6 Model test

- a) Purpose: to verify that the metadata elements of the dataset suit the model defined in the IDEC standard profile
- b) Methodology: it is checked that each metadata element is contained in the specified metadata entity.
- c) Reference standard: IDEC profile, Annex B.

A.3 Compliance with INSPIRE assessment tests

A.3.1 Extended completeness test

In order to comply with INSPIRE, the following metadata entities and elements are mandatory:

Id f	Name / role	Label	Mand.
29	pointOfContact	Point of contact	O
38	spatialResolution	Spatial resolution	C
40	characterSet	Character set	C
68	useLimitation	Use limitations	O
69	MD_LegalConstraints	Legal constraints	C
73	MD_SecurityConstraints	Security constraints	C
80	report	Report	C
83	statement	Statement	O
132	pass	Pass	O
277	onLine	On line access	O

NOTE: The conditions which rend mandatory conditional elements or entities are detailed in the column *Condition* of the table in Annex B.

A.3.2 Extended domain test

It is necessary to check that the information of following entities and elements is in accordance with the domain restrictions of INSPIRE:

Id f	Name / role	Label
3	language	Language
8	contact	Contact
24	citation	Citation
29	pointOfContact	Point of contact
33	descriptiveKeywords	Descriptive keywords
55	thesaurusName	Thesaurus name
115	DQ_TopologicalConsistency	Report – topological consistency
130	specification	Specification
344	westBoundLongitude	Longitude west bound
345	eastBoundLongitude	Longitude east bound
346	southBoundLatitude	Latitude south bound
347	northBoundLatitude	Latitude north bound

NOTE: Domain restrictions are detailed in the column *Comments* of the table in Annex B.

B Glossary of elements and entities

B.1 Metadata information

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
1	MD_Metadata	Metadata information	Root entity defining metadata of one or more resources.				Id. f 2-22	
2	fileIdentifier	File identifier	Unique identifier for the metadata file.	Op			Text	
3	language	Language	Language used for metadata documentation.	R		1	Code list based on ISO 639-2	Metadata language is required. NOTE: cat (Catalan), oci (Aranese), spa (Spanish). INSPIRE : Language code list are restricted to the 23 official languages of the EU.
4	characterSet	Character set	Complete name of the character code standard used for the metadata set.	C	It is required unless the ISO/IEC 10646-1 is used or it is not defined by code.	1	Code list MD_CharacterSetCode	Section B.11 includes a list of allowed values.
6	hierarchyLevel	Hierarchy level	Application scope of the metadata (it specifies the level of abstraction of the documented resource)	R		1	Code list MD_ScopeCode	Value list is restricted to Dataset , Series and Service . Section B.11 includes a list of allowed values.
8	contact	Contact	Organization responsible for the metadata information.	R		N	Class CI_ResponsibleParty	See sections 7.11 and B.10. INSPIRE : according to metadata regulations, the description of the responsible organisation must include, at least, the name of the organisation and an e-mail address. The <i>role</i> should be set to Point of contact .
9	dateStamp	Creation date	Creation date of the metadata.	R		1	Date	Date value should meet ISO8601 format: aaaa-mm-dd; when the day is unknown, it would be: aaaa-mm-01; if only the year is known, it would be: aaaa-01-01
10	metadataStandardName	Standard for metadata	Name of the metadata standard used to document the resource.	Op		1	Text	Recommended value: <i>ISO 19115:2003/Cor.1:2006 Geographic Information – Metadata</i>
11	metadataStandardVersion	Metadata standard version	Metadata standard version (profile version) used to document the resource.	Op		1	Text	Recommended value: <i>IS</i>
12	spatialRepresentationInfo	Spatial representation information	Digital representation of spatial information from the dataset.	Op		1	Association MD_SpatialRepresentation	See sections 7.3 and B.3. Metadata files must only contain information in a single spatial representation format.

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
13	referenceSystemInfo	Reference system information	Description of the spatial and temporal reference system used in the dataset.	C	Required for datasets.	N	Association MD_ReferenceSystem	See sections 7.4 and B.4 INSPIRE: according to Article 13 of the interoperability regulations, reference system or systems should be specified for datasets.
15	identificationInfo	Resource information	Basic information about the resource or resources referred by the metadata.	R		1	Association MD_Identification	See sections 7.2 and B.2 INSPIRE: Only dataset metadata must be documented.
16	contentInfo	Contents information	Documents the catalog of features and describes the attributes of images and coverages.	Op		1	Association MD_ContentInformation	See sections 7.6 and B.6 Contents information refers to a catalog of features or to a coverage description.
17	distributionInfo	Distribution information	Specifies the resource distributor and the accessing conditions.	Op		1	Association MD_Distribution	See sections 7.7 and B.7
18	dataQualityInfo	Data quality information	Offers a global quality assessment of the resource.	Op		N	Association DQ_DataQuality	See sections 7.3 and B.3
20	metadataConstraints	Metadata constraints	Specifies the access and use constraints concerning the metadata.	Op		N	Association MD_Constraints	See sections 7.8 and B.8.
22	metadataMaintenance	Metadata maintenance	Documents the maintenance applied to the metadata (frequency and scope).	Op		1	Association MD_MaintenanceInformation	See sections 7.9 and B.9.

B.2 Data information

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
23	<i>MD_Identification</i>		Necessary information for the univocal identification of the resources.	R		1	Id. f 24-35.1	
24	citation	Citation	Resource citation data.	R		1	Class CI_Citation	See sections 7.10 and B.10. INSPIRE: metadata specification requires a unique identifier for the dataset and, according to the implementation rules, it is associated with the citation identifier.
25	abstract	Abstract	Brief description of the contents and the attributes of the resource.	R		1	Text	It should briefly describe the most relevant attributes of the dataset. For vectorial data, it should specify the size of the dataset.
26	purpose	Purpose	Enumeration of the purposes of the resource creation.	Op		1	Text	It should describe the expected uses of the dataset.
27	credit	Credits	Acknowledgement of the participants in the resource creation.	Op		1	Text	All acknowledgements must be included in a single field.

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
28	status	Status	Resource status regarding its development and maintenance.	Op		1	Code list MD_ProgressCode	Only one value is allowed. See section B.11 for possible values.
29	pointOfContact	Point of Contact	Identification of the individual or organization associated to the resource and the contact information.	Op		N	Class CI_ResponsibleParty	See sections 7.11 and B.10 INSPIRE: metadata standard requires describing the responsible organisation with, at least, its name and an e-mail address; it is assimilated to this entity by the identification rule.
30	resourceMaintenance	Resource maintenance	Documents the scope and frequency of the resource updating.	Op		1	Association MD_MaintenanceInformation	See sections 7.9 and B.9. One only information about resource maintenance is allowed.
31	graphicOverview	Overview graphic	Offers a picture of the resource. It should include a legend to allow its interpretation.	Op		1	Association MD_BrowseGraphic	Only one picture of the graphic representation of the resource is allowed.
33	descriptiveKeywords	Descriptive keywords	Includes categories of keywords, its type and its reference source.	Op		N	Association MD_Keywords	INSPIRE: at least, the INSPIRE subject (according GEMET) should be included. Any keyword from a controlled thesaurus must explicitly mention, at least, its title and a reference date (publication, last revision or creation).
35	resourceConstraints	Resource constraints	Informs about the restrictions concerning the resource.	Op		N	Association MD_Constraints	See sections 7.8 and B.8. INSPIRE: this element is mandatory and must include use limitations and restrictions.
36	MD_DataIdentification	Data information	Necessary information to identify the dataset.	R		1	Specified class (MD_Identification) Id f. 37-46 and 24-35.1	
37	spatialRepresentationType	Spatial representation type	Method used to spatially represent the geographic information.	Op		N	Code list MD_SpatialRepresentationTypeCode	Section B.11 includes a list of allowed values.
38	spatialResolution	Spatial resolution	Offers an overall value for the density of spatial data in the dataset.	Op		1	Class MD_Resolution	It applies only to datasets with a single level of detail or spatial resolution. INSPIRE: it is required if it is possible to specify an equivalent scale or resolution; if the dataset is multi-resolution, it may be specified as a range.
39	language	Language	Language or languages used in the dataset.	R		N	Code list based on ISO 639-2	If the dataset does not use any language, it is recommended to use the metadata language. NOTE: cat (Catalan), oci (Aranese), spa (Spanish).
40	characterSet	Character set	Complete name of the character code standard used for the metadata set.	C	It is required unless the ISO/IEC 10646-1 is used or it is not defined by code.	1	Code list MD_CharacterSetCode	Only a single value is allowed. Section B.11 includes a list of possible values. INSPIRE: Article 13 of the interoperability regulations requires the specification of the character set unless it is utf8.

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
41	topicCategory	Topic category	Main topic or topics of the dataset.	R		N	Code list MD_TopicCategoryCode	A value must be specified. Section B.11 includes a list of possible values.
44	environmentDescription	Environment description	Description of the dataset within its production environment. It includes items such as the used software or operative system, the file name or the size of the dataset.	Op		1	Text	
45	extent	Extent	Documents the extent of the dataset. At least, a bounding rectangle containing the dataset must be specified. Optionally, vertical and temporal extent can be specified.	R		1	Class EX_Extent	It must include the corners of a bounding rectangle containing the dataset. These corners are expressed in geographic coordinates either in ETR89 or in WGS84, with Greenwich meridian as de longitude origin.
46	supplementalInformation	Supplemental information	Any other descriptive information related to the dataset not included in other elements.	Op		1	Text	
48	MD_BrowseGraphic		Offers a picture of the resource. It should include a legend to allow its interpretation.	Op		1	Aggregated class (MD_Identification) Id f. 49-51	Picture of the graphic representation of the dataset.
49	fileName	File Name	Name of the file containing the graphic depicting the dataset.	Op		1	Text	
50	fileDescription	File description	Text description of the graphic.	R		1	Text	
51	fileType	File type	File format encoding the graphic (CGM, EPS, GIF, JPEG, PBM, TIFF, XWD)	R		1	Text	
52	MD_Keywords		Includes categories of keywords, its type and its reference source.	Op		N	Aggregated class (MD_Identification) Id f. 53-55	INSPIRE: at least, the INSPIRE subject (according GEMET) should be included.
53	keyword	Keyword	Word or expression usually used to describe certain attributes of the resource.	R		1	Text	INSPIRE: at least, the INSPIRE subject (according GEMET) should be included.
54	type	Type	Subject grouping similar keywords.	R		1	Code list MD_KeywordTypeCode	Keyword type is required. Section B.11 includes a list of possible values.
55	thesaurusName	Thesaurus name	Name of a registered thesaurus or of a similar authorized keyword source.	Op		1	Class CI_Citation	See sections 7.10 and B.10. INSPIRE: . Any keyword from a controlled thesaurus must explicitly mention, at least, its title and a reference date (publication, last revision or creation).
56	MD_RepresentativeFraction			C			Id. f 57	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
57	denominator	Denominator	Value under a fraction slash.	R		1	Integer > 0	
59	MD_Resolution		Degree of detail.	Op		1	Id. f 60-61	It applies only to datasets with a single level of detail or spatial resolution. INSPIRE: it is required if it is possible to establish. It can be expressed either as an equivalent scale or as a distance, but NOT as both.
60	equivalentScale	Equivalent scale	Degree of detail expressed as a map or graphic scale.	C	Required if distance is not specified.	1	Class MD_RepresentativeFraction	INSPIRE: It is only required if no distance is specified.
61	distance	Distance	Degree of detail expressed as a distance on the terrain.	C	Required if equivalent scale is not specified.	1	Class Distance	The class Distance is documented in the standard ISO/TS 19103. INSPIRE: It is only required if no equivalent scale is specified.
66.1	MD_AggregateInformation		Information about the aggregated dataset.	Op		1	Aggregated class (MD_Identification) Id. f 62.2-62.5	
66.2	aggregateDataSetName	Name of the aggregated dataset	Information on the citation of the aggregated dataset.	C	Required if the identifier is not provided.	1	Class CI_Citation	
66.3	aggregateDataSetIdentifier	Identifier of the aggregated dataset	Information on the identification of the aggregated dataset.	C	Required if the name is not provided.	1	Class MD_Identifier	
66.4	associationType	Association type	Association type of the aggregated dataset.	R		1	Code list DS_AssociationTypeCode	
66.5	initiativeType	Initiative Type	Type of the initiative that promoted the creation of the aggregated dataset.	Op		1	Code list DS_InitiativeTypeCode	
334	EX_Extent		Information on the geographical, vertical and temporal extent.	R		1	Class Id. f 335-338	
335	description	Description	Description of the spatial and temporal extent of the referred object.	Op		1	Text	
336	geographicElement	Geographic element	Information about the geographical extent of the dataset.	R		1	Association EX_GeographicExtent	It must include the corners of a bounding rectangle containing the dataset. These corners are expressed in geographic coordinates either in ETR89 or in WGS84, with Greenwich meridian as de longitude origin.
337	temporalElement	Temporal element	Information about the temporal extent of the dataset.	Op		1	Association EX_TemporalExtent	The specification of the temporal extent is recommended. It describes the period when the information was verified (flight, field work).
338	verticalElement	Vertical element	Information about the vertical extent of the dataset.	Op		1	Association EX_VerticalExtent	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
339	EX_GeographicExtent		Geographical area covered by the dataset.	R		1	Aggregated class (:EX_Extent)	Only considered as a bounding box.
343	EX_GeographicBoundingBox		Geographic bounding box of the dataset	R		1	Specified class (EX_GeographicExtent) Id. f 344-347	NOTE: it is only an approximation; the geographic coordinate system is not specified; it can be ETR89 or WGS84, with Greenwich meridian as de longitude origin.
344	westBoundLongitude	West longitude bound	Westernmost coordinate of the dataset expressed as a longitude in decimal degrees (positive at east).	R		1	Decimal -180,0 <= West longitude value <= 180,0	The value of the West longitude bound must be lower than the value of the East longitude bound. INSPIRE: coordinates should be expressed with at least 2 decimal positions.
345	eastBoundLongitude	East longitude bound	Easternmost coordinate of the dataset expressed as a longitude in decimal degrees (positive at east).	R		1	Decimal -180,0 <= East longitude value <= 180,0	The value of the East longitude bound must be higher than the value of the West longitude bound. INSPIRE: coordinates should be expressed with at least 2 decimal positions.
346	southBoundLatitude	South latitude bound	Southernmost coordinate of the dataset expressed as a latitude in decimal degrees (positive at north).	R		1	Decimal -90,0 <= South latitude value <= 90,0	The value of the South latitude bound must be lower than the value of the North latitude bound. INSPIRE: coordinates should be expressed with at least 2 decimal positions.
347	northBoundLatitude	North latitude bound	Northernmost coordinate of the dataset expressed as a latitude in decimal degrees (positive at north).	R		1	Decimal -90,0 <= North latitude value <= 90,0	The value of the North latitude bound must be higher than the value of the South latitude bound. INSPIRE: coordinates should be expressed with at least 2 decimal positions.
350	EX_TemporalExtent		Period of time covered by the dataset.	C		1	Aggregated class (EX_Extent) Id. f 351	
351	extent	Temporal extent	Date or date range of the dataset content.	R		1	TM_Primitive	According to ISO19106, it should be expressed as starting date and finishing date of the period covered by the dataset. Date format is aaaa-mm-dd.
354	EX_VerticalExtent		Vertical domain of the dataset.	Op		1	Aggregated class (EX_Extent) Id. f 355-358	
355	minimumValue	Minimum value	Minimum value of the vertical domain of the dataset.	R		1	Real	
356	maximumValue	Maximum value	Maximum value of the vertical domain of the dataset.	R		1	Real	
358	VerticalCRS	Vertical coordinates reference system	Informs about the reference system of the vertical coordinates used to measure the maximum and minimum elevations. It includes measuring units.	R		1	Association SC_CRS	SC_CRS: Documented at the ISO19111 NOTE: It refers only to the reference coordinates system of the vertical extent, and it is not necessarily the same as the vertical reference system of the data.

B.3 Data quality information

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
78	DQ_DataQuality	Data quality	Information of the quality of the data specified in the scope.	Op			Aggregated class (MD_Metadata) Id. f 79-81	Only the information about the dataset is considered. INSPIRE: Information about dataset quality is required.
79	scope	Scope	Particular data to which the quality information applies.	R		1	Class DQ_Scope	It is only considered at a dataset level.
80	report	Report	Quantitative data about the quality of the data specified in the scope.	C	Required if lineage is not documented.	N	Association DQ_Element	INSPIRE: informing about the conformity degree of the dataset is required.
81	lineage	Lineage	Non-quantitative information about the procedures, parameters and sources of the data specified in the scope.	C	Required if report is not documented.	1	Association LI_Lineage	INSPIRE: lineage documentation is required.
82	LI_Lineage		Information about the events or sources for data creation or statement of absence of knowledge about them.			1	Aggregated class (DQ_DataQuality) Id. f 83-85	INSPIRE: lineage documentation is required.
83	statement	statement	General description of the lineage knowledge of the data creator.	C	Required if process step and source are not provided.	1	Text	It should include the quality information necessary for interoperability and/or relevant for the use and assessment of the dataset. INSPIRE: required.
84	processStep	Process step	Information about the events of the dataset evolution.	C	Required if statement is void and source is not provided	N	Association LI_ProcessSetp	It is advisable to report, at least, the procedures related to each one of the data sources.
85	source	Source	Information about the source used to create the data.	C	Required if statement is void and process steps are not provided	1	Association LI_Source	It is recommended to describe the most relevant data source.
86	LI_ProcessStep		Information about an event or transformation of the dataset evolution.				Aggregated class (LI_Lineage) Id. f 87-91	It is advisable to report, at least, the procedures related to each one of the data sources.
87	description	Description	Description of the event, including related parameters and tolerances,	R		1	Text	
89	dateTime	Date / Time	Date and time where the process step was performed.	Op		1	DateTime	If only date is specified, time is assumed to be 00:00.0.
90	processor	Processor	Identification and contact information of the individual or organization associated to the processing process.	Op		1	Class CI_ResponsibleParty	See sections 7.11 and B.10. Only a single processor is allowed.
91	source	Source	Information about the source used in the process step.	Op		1	Association LI_Source	Only one data source is allowed for each process step.

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
92	LI_Source		Information about the most relevant data source for the creation of the dataset or its process steps.			1	Aggregated class (LI_Lineage and LI_ProcessStep) Id. f 93-98	It is recommended to describe the most relevant data source.
93	description	Source description	Description of the source	R		1	Text	It is advisable to include a brief description of the source scope.
94	scaleDenominator	Scale denominator	Denominator of the representative fraction of a cartographic data source	Op		1	Class MD_RepresentativeFraction	
96	sourceCitation	Source citation	Citation of the source of information used in the creation process of the dataset.	Op		1	Class CI_Citation	See sections 7.10 and B.10.
99	<i>DQ_Element</i>		Quantitative quality information.				Aggregated class (DQ_DataQuality) Id. f 100-107	Abstract entity allowing the description of any quality subelement according to ISO19114
100	nameOfMeasure	Measure name	Name of the test or measure applied to the data.	Op		1	Text	It is advisable to use names from controlled list or to include in the name a reference identifier from a controlled register such as ISO19138.
102	measureDescription	Measure description	Description of the test or measure applied to the data.	Op		1	Text	
104	evaluationMethodDescription	Evaluation method description	Description of the evaluation method	Op		1	Text	
107	result	Result	Value or set of values obtained from the quality test or the result of assessing it in comparison with an acceptable conformity level.	R		2	Class <i>DQ_Result</i>	
108	<i>DQ_Completeness</i>		Presence or absence of features, attributes or relationships among them.				Specified class (DQ_Element) Id. f 100-107	
109	<i>DQ_CompletenessCommission</i>	Report – commission Completeness	Excessive presence of features, attributes or relationships among them.				Specified class (DQ_Completeness) Id. f 100-107	
110	<i>DQ_CompletenessOmission</i>	Report – Omission completeness	Absence of features, attributes or relationships among them.				Specified class (DQ_Completeness) Id. f 100-107	
111	<i>DQ_LogicalConsistency</i>		Degree of compliance with the logical rules of the data structure, of the attributes and of the relations (structure may be conceptual, logical or physical).				Specified class (DQ_Element) Id. f 100-107	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
112	DQ_ConceptualConsistency	Report – Conceptual consistency	Degree of compliance with the conceptual model rules.				Specified class (DQ_LogicalConsistency) Id. f 100-107	
113	DQ_DomainConsistency	Report – Domain consistency	Degree of compliance of the values with their domains.				Specified class (DQ_LogicalConsistency) Id. f 100-107	INSPIRE: implementation rules use this entity to describe the degree of compliance with specifications. Absence of information is interpreted as non-assessed compliance.
114	DQ_FormatConsistency	Report – Format consistency	Degree of compliance of the data storing formats with the physical structure of the dataset.				Specified class (DQ_LogicalConsistency) Id. f 100-107	
115	DQ_TopologicalConsistency	Report – Topological consistency	Degree of correctness of the specified topological attributes of the dataset.				Specified class (DQ_LogicalConsistency) Id. f 100-107	INSPIRE: To meet the interoperability regulations, it is required to inform about the evaluation of the topological consistency of the Generic Network Model data type.
116	<i>DQ_PositionalAccuracy</i>		Accuracy of the features placement.				Specified class (DQ_Element) Id. f 100-107)	
117	DQ_AbsoluteExternalPositionalAccuracy	Report – Absolute external positional accuracy	Proximity of the coordinate values to the real or so-considered ones.				Specified class (DQ_PositionalAccuracy) Id. f 100-107)	
118	DQ_GridDEDDataPositionalAccuracy	Report – Gridded data positional accuracy	Proximity of the position values of gridded data to the real or so-considered values.				Specified class (DQ_PositionalAccuracy) Id. f 100-107)	
119	DQ_RelativeInternalPositionalAccuracy	Report – Relative internal position accuracy	Proximity of the relative position of features to the real or so-considered ones.				Specified class (DQ_PositionalAccuracy) Id. f 100-107)	
120	<i>DQ_TemporalAccuracy</i>		Accuracy of the temporal attributes and the temporal relationships among features.				Specified class (DQ_Element) Id. f 100-107)	
121	DQ_AccuracyOfATimeMeasure	Report – Accuracy of a time measure	Correctness of temporal references of an item, describing the errors in time measures.				Specified class (DQ_TemporalAccuracy) Id. f 100-107)	
122	DQ_TemporalConsistency	Report – Temporal consistency	Correctness in event order or ordered sequences, if provided.				Specified class (DQ_TemporalAccuracy) Id. f 100-107)	
123	DQ_TemporalValidity	Report – Temporal validity	Temporal validity of the specified scope.				Specified class (DQ_TemporalAccuracy) Id. f 100-107)	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
124	<i>DQ_ThematicAccuracy</i>		Accuracy of the quantitative attributes correctness of the non-quantitative ones and correctness of features classification and relationships.				Specified class (DQ_Element) Id. f 100-107	
125	DQ_ThematicClassificationCorrectness	Report – Thematic classification correctness	Comparison of the classes assigned to features or their attributes to the overall contents.				Specified class (DQ_ThematicAccuracy) Id. f 100-107	
126	DQ_NonQuantitativeAttributeAccuracy	Report – Non-quantitative attribute accuracy	Correctness of non-quantitative attributes.				Specified class (DQ_ThematicAccuracy) Id. f 100-107	
127	DQ_QuantitativeAttributeAccuracy	Report – Quantitative attribute accuracy	Accuracy of quantitative attributes.				Specified class (DQ_ThematicAccuracy) Id. f 100-107	
128	<i>DQ_Result</i>		Generic results class					
129	DQ_ConformanceResult	Conformance results	Informs about the results of comparing the value (or set of values) to an acceptable conformance level.				Specified class (DQ_Result) Id. f 130-132	
130	specification	Specification	Citation of the product specifications or of the user requirements used to evaluate data.	R		1	Class CI_Citation	See sections 7.10 and B.10. INSPIRE: Specifications should be identified by its title (in one of the official languages), a reference date and the type of date.
131	explanation	Explanation	Description of the meaning of conformance for this result.	R		1	Text	
132	pass	Pass	Conformity value of the result (0 = fail and 1 = pass)	R		1	Boolean	
133	DQ_QuantitativeResult	Quantitative result	Value (or set of values) resulting from a measure or quality test.				Specified class (DQ_Result) Id. f 134-137	
134	valueType	Value type	Type of value used to inform about the quantitative results of data quality assessment.	Op		1	Class RecordType	The class RecordType is documented in the standard ISO /TS 19103
135	valueUnit	Value unit	Units of the value used to describe the results of data quality assessment.	R		1	Class UnitOfMeasure	The class UnitOfMeasure is documented in the standard ISO /TS 19103
136	errorStatistic	Statistic error	Statistic method used to calculate the value.	Op		1	Text	
137	value	Value	Quantitative value or set of values obtained by the data quality assessment.	R		N	Class Record	The class Record is documented in the standard ISO /TS 19103
138	DQ_Scope		Particular data to which quality information applies.				Id. f 139	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
139	level	Level	Hierarchical level of the data.	R		1	Code list MD_ScopeCode	Value list is limited to Dataset and Service .

B.4 Spatial representation information

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
156	<i>MD_SpatialRepresentation</i>	Spatial representation information	Digital means used to represent spatial information.	Op		1	Aggregated class (MD_Metadata)	
157	MD_GridSpatialRepresentation	Grid spatial representation	Information on the spatial grid of the dataset.				Specified class (MD_SpatialRepresentation) Id. f 158-161	
158	numberOfDimensions	Number of dimensions	Number of independent spatiotemporal axes.	R		1	Integer > 0	
159	axisDimensionsProperties	Attributes of the axes	Information on the attributes of each axis.	R		1	Sequence MD_Dimension	
160	cellGeometry	Cell geometry	Identification of the data geometry as either point or area.	R		1	Code list MD_CellGeometryCode	A list of allowed values is available at section B. 11.
161	transformationParameterAvailability	Transformation parameter availability	Indicates the existence (and availability) of parameters to transform from image coordinates to geographic coordinates or their projection.	R		1	Boolean	
162	MD_Georectified	Georectified grid spatial representation	Regularly spaced grid in a coordinate system defined by the CRS, so that cells can be located with the grid coordinates, origin, spacing and orientation.				Specified class (MD_GridSpatialRepresentation) Id. f 163-169 and 158-161	
163	checkPointAvailability	Check point availability	States whether known-position points to verify grid precision are available.	R		1	Boolean	
164	checkPointDescription	Check point description	Description of the known-position points to verify grid precision.	C	Compulsory if any point is available	1	Text	
165	cornerPoints	Corner points	Terrain coordinates of the cells placed at opposite ends of the diagonals of the image, expressed in the CRS of the grid. The first cell is the origin of the grid.	R		1	Sequence GM_Point	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
166	centralPoint	Central point	Terrain coordinates of the cells placed at the centre of opposite bounds of the image, expressed in the CRS of the grid.	Op		1	Class GM_Point	
167	pointInPixel	Pixel point	Point of the pixel corresponding to the location of the pixel on the terrain.	R		1	Code list MD_PixelOrientationCode	A list of allowed values is available at section B. 11.
168	transformationDimensionDescription	Transformation dimension description	General description of the transformation.	R		1	Text	
169	transformationDimensionMapping	Transformation dimension mapping	Information about which of the grid axes are spatial.	R		2	Text	
170	MD_Georeferenceable	Georeferenceable grid spatial representation	Irregularly spaced grid in a coordinate system defined by the CRS, where cells cannot be located only with the grid attributes.				Specified class (MD_GridSpatialRepresentation) Id. f 171-174 and 158-161	
171	controlPointAvailability	Control point availability	States whether control points are available.	R		1	Boolean	
172	orientationParameterAvailability	Orientation parameters availability	States whether orientation parameters are available.	R		1	Boolean	
173	orientationParameterDescription	Orientation parameters description	Description of the sensor orientation parameters.	R		1	Text	
174	georeferencedParameters	Georeferenced parameters	Parameters used to georeference the grid.	Op		1	Class Record	The class Record is documented in the standard ISO /TS 19103.
176	MD_VectorialSpatialRepresentation	Vectorial spatial representation	Information on vectorial data				Specified class (MD_SpatialRepresentation) Id. f 177-178	
177	topologyLevel	Topology level	Identifies the degree of complexity of the spatial relationships.	Op		1	Code list MD_TopologyLevelCode	A list of allowed values is available at section B. 11.
178	geometricObjects	Geometric objects	Information about the geometric objects used in the dataset.	Op		N	Class MD_GeometricObjects	
179	MD_Dimension	Dimension	Axis attributes				Id. f 180-182	
180	dimensionName	Dimension name	Name of the axis	R		1	Code list MD_DimensionNameTypeCode	A list of allowed values is available at section B. 11.
181	dimensionSize	Size	Number of elements along the axis.	R		1	Integer	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
182	resolution	Resolution	Degree of detail of the grid dataset.	Op		1	Class Measure	The class Measure is documented in the standard ISO /TS 19103.
183	MD_GeometricObject	Geometric object	Number of objects, enlisted by type of geometric object, used in the dataset.				Id. f 184-185	
184	geometricObjectType	Type of geometric object	Name of the point or vector objects used to specify zero, one-, two- or three-dimensional locations in the dataset.	R		1	Code list MD_GeometricObjectTypeCode	A list of allowed values is available at section B. 11.
185	geometricObjectCount	Geometric object count	Number of point or vector objects in the dataset.	Op		1	Integer > 0	

B.5 Reference system information

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
186	MD_ReferenceSystem	Reference system information	Information about the reference system.	R			Aggregated class (MD_Metadata) Id. f 187	
187	referenceSystemIdentifier	Reference system identifier	Name of the reference system.	O		1	Class RS_Identifier	
205	MD_Identifier		Univocal value identifying objects within a name space.				Id. f 207	
207	code	Code	Alphanumeric value identifying instances within a name space.	R		1	Text	
208	RS_Identifier		Reference system identifier				Specified class (MD_identifier) Id. f 207	It is advisable to use a geodesic reference system: the list name (EPSG), the reference system code (23031) and the name of the system (ED50 / UTM Zone 31N), separated by : and - , respectively. E. g.: EPSG:23031 - ED50 / UTM Zone 31N

B.6 Contents information

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
232	MD_ContentInformation	Contents information	Description of the contents of a dataset.	Op			Aggregated class (MD_Metadata)	It is advisable to cite explicitly the document containing the features catalog.

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
233	MD_FeatureCatalogDescription		Information identifying the feature catalog or the conceptual schema.				Specified class (MD_ContentInformation) Id. f 236-238	
236	includedWithDataset	Included in the dataset	States whether the catalog is included in the dataset.	R		1	Boolean	
237	featureTypes	Feature types	Subset of features from the dataset catalog.	Op		N	Class GenericName	The class GenericName is documented in the standard ISO /TS 19103.
238	featureCatalogCitation	Feature catalog citation	Complete bibliographical citation of an external catalog.	R		N	Class CI_Citation	It is recommended to cite explicitly the document containing the features catalog. See sections 7.10 and B.10.
239	MD_CoverageDescription	Coverage description	Information about the contents of the grid cells.				Specified class (MD_ContentInformation) Id. f 240-242	
240	attributeDescription	Attribute description	Description of the attribute through its measured value.	R		1	Class RecordType	The class RecordType is documented in the standard ISO /TS 19103.
241	contentType	Content type	Type of information represented by the cell value.	R		1	Code list MD_CoverageContentTypeCode	A list of allowed values is available at section B. 11.
242	dimension	Dimension	Information about the dimensions of the cell value.	R		N	Class MD_RangeDimension	
243	MD_ImageDescription	Image description	Information about the use appropriateness of the image.				Specified class (MD_CoverageDescription) Id. f 244-255 and 240-242	
244	illuminationElevationAngle	Illumination elevation angle	Illumination elevation measured clock-wise in decimal degrees, from the intersection plane of the viewing optical line ant the earth surface.	Op		1	-90 < Real ≤ 90	
245	illuminationAzimuthAngle	Azimuth illumination angle	Azimuth illumination measured clock-wise in decimal degrees from the true North at the moment of image capture. For scanned images, it must refer to the image central pixel.	Op		1	0 ≤ Real < 360	
246	imagingCondition	Imaging conditions	Conditions affecting the image	Op		1	Code list MD_ImagingConditionCode	Section B.11 includes a list of allowed values.
247	imageQualityCode	Image quality code	Alphanumeric code specifying the image quality.	Op		1	Class MD_Identifier	
248	cloudCoverPercentage	Cloud covered percentage	Area of the image covered by clouds, expressed as a percentage of the spatial extent of the dataset.	Op		1	Integer	
249	processingLevelCode	Processing level code	Alphanumeric code identifying the geographical and radiometric processing level of the image.	Op		1	Class MD_Identifier	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
250	compressionGenerationQuantity	Compression generation quantity	Quantifies the number of pixels lost through the different compression processes applied to the image.	Op		1	Integer	
251	triangulationIndicator	Applied triangulation index	States whether any triangulation process has been applied to the image.	Op		1	Boolean	
252	radiometricCalibrationDataAvailability	Radiometric calibration data availability	States whether any information about radiometric calibration of the image is available.	Op		1	Boolean	
253	cameraCalibrationInformationAvailability	Camera calibration information availability	States whether any constant to correct camera calibration is available.	Op		1	Boolean	
254	filmDistortionInformationAvailability	Film distortion information availability	States whether any information about film distortion is available.	Op		1	Boolean	
255	lensDistortionInformationAvailability	Lens distortion information availability	States whether any information about lens distortion is available.	Op		1	Boolean	
256	MD_RangeDimension		Information about the range of values of each dimension of a cell.				Aggregated class (MD_CoverageDescription) Id. f 257-258	
257	sequenceIdentifier	Sequence identifier	Univocal numeric identifier for the sensor operating wavelengths bands.	Op		1	Class MemberName	The class MemberName is documented in the standard ISO /TS 19103.
258	descriptor	Descriptor	Description of the measured cell value.	Op		1	Text	
259	MD_Band		Wavelength range of the electromagnetic spectrum.				Specified class (MD_RangeDimension) Id. f 260-267 and 257-258	
260	maxValue	Maximum value	Maximum wavelength detected by the sensor in a particular band.	Op		1	Real	
261	minValue	Minimum value	Minimum wavelength detected by the sensor in a particular band.	Op		1	Real	
262	units	Units	Units in which wavelength are expressed.	C	Compulsory if a minimum or maximum value is provided.	1	Class UomLength	The class UomLength is documented in the standard ISO /TS 19103.
263	peakResponse	Peak response	Maximum response wavelength.	Op		1	Real	
264	bitsPerValue	Bits per value	Maximum number of significant bits per pixel in the uncompressed representation of the values for each band.	Op		1	Integer	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
265	toneGradation	Tone graduation	Number of discrete values of the grid data.	Op		1	Integer	
266	scaleFactor	Scale factor	Scale factor applied to de cell value.	Op		1	Real	
267	offset	Offset	Physical value corresponding to a cell with value zero.	Op		1	Real	

B.7 Distribution information

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
270	MD_Distribution		Information about resource distribution				Aggregated class (MD_Metadata) Id. f 271-273	
271	distributionFormat	Distribution format	Describes the format of the distributed data.	R		N	Association MD_Format	If any information is provided about dataset distribution, <i>Format</i> is required.
272	distributor	Distributor	Information about the distributor.	R		N	Association MD_Distributor	If any information is provided about dataset distribution, <i>Distributor</i> is required.
273	transferOptions	Transfer options	Information about the different mediums and methods to obtain the dataset.	Op		N	Association MD_DigitalTransferOptions	INSPIRE: If data are available on line, <i>Transfer options</i> or <i>Distributor transfer options</i> must be specified.
274	MD_DigitalTransferOptions	Transfer options	Informs about the means to obtain a resource.				Aggregated class (MD_Distribution and MD_Distributor) Id. f 275-278	
275	unitsOfDistribution	Units of distribution	Sheets, layers, geographical areas, etc. for which data is available.	Op		1	Text	
276	transferSize	Transfer size	Estimated size of each unit of distribution in the distribution format, expressed in Mb.	Op		1	Real > 0	
277	onLine	On line access	Information about the on line sources to obtain the resource.	Op		N	Class CI_OnlineResource	It is recommended to specify the on line geoservices associated to the dataset. See sections 7.12 and B.10. INSPIRE: If data are available on line, <i>On line access</i> must be documented.
278	offLine	Off line access	Information about other supports in which the resource is distributed.	Op		1	Class MD_Medium	
279	MD_Distributor	Distributor	Information about the distributor.				Aggregated class (MD_Distribution) Id. 280-283	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
280	distributorContact	Distributor contact	Organization from which data can be obtained.	R		1	Class CI_ResponsibleParty	See sections 7.12 and B.10.
281	distributionOrderProcess	Distribution order process	Information and instructions to obtain the resource and price of the resource.	Op		N	Association MD_StandardOrderProcess	
283	distributorTransferOptions	Distribution transfer options	Information about the different mediums and methods to obtain the dataset.	Op		N	Association MD_DigitalTransferOptions	INSPIRE: If data are available on line, <i>Transfer options</i> or <i>Distributor transfer options</i> must be specified.
284	MD_Format	Format	Description of the structure in machine code specifying the data representation in files, messages, storing device or communication channel.				Aggregated class (MD_Distribution) Id. 285-289	
285	name	Name	Name of the transfer format or formats.	R		1	Text	
286	version	Version	Format version (date, number, etc.).	R		1	Text	
288	specification	Specification	Name of a format, profile or profile section specification.	Op		1	Text	
289	fileDecompressionTechnique	File decompression technique	Advice on algorithms or procedures necessary to read or decompress compressed resources.	Op		1	Text	
291	MD_Medium	Medium	Information about the different media in which the resource is distributed.				Id. f 292-297	
292	name	Name	Name of the medium in which the resource can be obtained.	Op		1	Code list MD_MediumNameCode	Section B.11 includes a list of allowed values.
293	density	Density	Data recording density.	Op		1	Real > 0	
294	densityUnits	Density units	Units to measure recording density.	C	Required if density value is provided.	1	Text	
296	mediumFormat	Medium format	Format used to record in the medium.	Op		N	Code list MD_MediumFormatCode	Section B.11 includes a list of allowed values.
297	mediumNote	Notes	Description of restrictions or requirements to use the medium.	Op		1	Text	
298	MD_StandardOrderProcess		Usual procedure to obtain the resource, instructions and information on fees.				Aggregated class (MD_Distribution) Id. 299-302	
299	Fees	Fees	Fees and conditions to pay for the use of the resource.	Op		1	Text	
300	plannedAvailableDate	Planned available date and time	Moment when the resource would be available.	Op		1	DateTime	If only date is specified, time is assumed to be 00:00.0.
301	orderingInstructions	Ordering instructions	General instructions, advice and services provided by the distributor.	Op		1	Text	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
302	turnaround	Turnaround	Time needed to get the order.	Op		1	Text	

B.8 Constraints

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
67	MD_Constraints	Constraints	Access and use constraints of resources or metadata.				Aggregated class (MD_Metadata and MD_Identification) Id. f 68	INSPIRE: It is necessary to specify the use limitations and the legal or security constraints of the resource.
68	useLimitation	Use limitations	Limits affecting capability or convenience of resource or metadata use.	Op		1	Text	All conditions must be included in a single field. INSPIRE: It is mandatory to describe resource access and use conditions including, if appropriate, the fees and the link (URL) where this description is available.
69	MD_LegalConstraints	Legal constraints	Constraints and legal prerequisites to access or use resources or metadata.				Specified class (MD_Constraints) Id. f 70-72 and 68	INSPIRE: It is mandatory to include information on legal and security constraints of the resource.
70	accessConstraints	Access constraints	Access constraints guaranteeing privacy or intellectual propriety preservation, as well as any other special restriction or limitation in the obtaining of metadata or resources.	Op		N	Code list MD_RestrictionCode	Section B.11 includes a list of allowed values. INSPIRE: It is mandatory to specify access constraints or other constraint if security constraints are not provided.
71	useConstraints	Use constraints	Constraints guaranteeing privacy or intellectual propriety preservation, as well as any other special restriction or limitation in the use of metadata or resources.	Op		N	Code list MD_RestrictionCode	Section B.11 includes a list of allowed values.
72	otherConstraints	Other constraints	Other constraints or legal prerequisites in the access to or use of metadata or resources.	C	Required if the value of <i>Access constraints</i> or <i>Use constraints</i> is "Other constraints"	1	Text	Any other restriction must be included in a single field. INSPIRE: It is mandatory to specify access constraints or other constraint if security constraints are not provided.
73	MD_SecurityConstraints	Security constraints	Constraints to resource or metadata handling related to national security or similar.				Specified class (MD_Constraints) Id. f 74-77 and 68	INSPIRE: Information about legal or security constraints of the resource is required.
74	classification	Classification	Name of the constraints to resource or metadata handling.	R		1	Code list MD_ClassificationCode	Section B.11 includes a list of allowed values. INSPIRE: Required if legal constraints are not specified.
75	userNote	User note	Description of the application of legal or other constraints and of legal prerequisites to obtain and use the dataset.	Op		1	Text	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
76	classificationSystem	Classification system	Name of the classification system.	Op		1	Text	
77	handlingDescription	Handling description	Additional information on handling constraints to metadata or datasets.	Op		1	Text	

B.9 Maintenance

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
142	MD_MaintenanceInformation	Maintenance	Information on the scope and frequency of updating.				Aggregated class (MD_Metadata and MD_Identification) Id. f 143-148	
143	maintenanceAndUpdateFrequency	Maintenance and updating frequency	Frequency of the modification and updating of the initially complete resource.	R		1	Code list MD_MaintenanceFrequencyCode	Section B.11 includes a list of allowed values.
144	dateOfNextUpdate	Date of next update	Planned date of next update of the resource.	Op		1	Date	Date value should meet ISO8601 format: aaaa-mm-dd; when the day is unknown, it would be: aaaa-mm-01; if only the year is known, it would be: aaaa-01-01.
148	maintenanceNote	Maintenance date	Information on specific requirements for resource maintenance.	Op		1	Text	Any additional information about the resource maintenance should be included in a single field.

B.10 Data type

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
359	CI_Citation	Citation					Id. 360-373	See section 7.10
360	title	Title	Name of the cited resource.	R		1	Text	
361	alternateTitle	Alternate title	Alternate title, alias or acronym referring to the cited resource.	Op		N	Text	
362	date	Date	Reference date of the cited resource.	R		N	Class CI_Date	
363	edition	Edition	Version of the cited resource.	Op		1	Text	
364	editionDate	Edition date	Edition date.	Op		1	Date	Date value should meet ISO8601 format: aaaa-mm-dd; when the day is unknown, it would be: aaaa-mm-01; if only the year is known, it would be: aaaa-01-01.

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
365	identifier	Identifier	Unique identifier for the cited resource	Op		1	Class MD_identifier	
367	citedResponsibleParty	Cited responsible party	Name and position of the person or organization responsible for the cited resource.	Op		N	Class CI_ResponsibleParty	See section 7.11
368	presentationForm	Presentation form	Format of the resource presentation.	Op		1	Code list CI_PresentationFormCode	Section B.11 includes a list of allowed values.
369	series	Series	Information on the series or collection that includes the dataset.	Op		1	Class CI_Series	
370	otherCitationDetails	Other citation details	Any other complementary information of the citation not included in other items.	Op		1	Text	
371	collectiveTitle	Collective title	General title for all the elements of the series, including information on the available elements.	Op		1	Text	
372	ISBN	ISBN	International standard book number.	Op		1	Text	
373	ISSN	ISSN	International standard series number.	Op		1	Text	
374	CI_ResponsibleParty	Responsible party	Identifies the individuals and organization responsible for the resource and the contact information.				Id. f 375-379	See section 7.11
375	individualName	Individual name	Name, surname and treatment of responsible individuals, comma separated.	C	Required if organization is not provided.	1	Text	
376	organizationName	Organization name	Name of the responsible organization.	C	Required if individual names are not provided	1	Text	
377	positionName	Position	Position of the responsible individuals.	Op		1	Text	
378	contactInfo	Contact info	Contact address of the responsible party.	Op		1	Class CI_Contact	
379	role	Role	Role or function of the responsible party.	R		1	Code list CI_RoleCode	Section B.11 includes a list of allowed values.
380	CI_Address		Address of the responsible party.				Id. f 381-386	
381	deliveryPoint	Delivery point	Postal address (ISO11180, annex A).	Op		N	Text	
382	city	City	City where the postal address is located.	Op		1	Text	
383	administrativeArea	Administrative area	State or county where the postal address is located.	Op		1	Text	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
384	postalCode	Postal code	ZIP or any other postal code.	Op		1	Text	
385	country	País	Country of the where the postal address is located.	Op		1	Text	
386	electronicMailAddress	Electronic mail address	Electronic mail address of the responsible party.	Op		N	Text	It is advisable to detail whether it is a contact address for the dataset, the service or the metadata.
387	CI_Contact		Contact information of the responsible party.				Id. f 388-392	
388	phone	Phone	Phone numbers to contact the responsible party.	Op		1	Class CI Telephone	
389	address	Address	Postal and electronic mail address to contact the responsible party.	Op		1	Class CI Address	
390	onlineResource	On line resource	On line resource to contact the responsible party.	Op		1	Class CI OnlineResource	See section 7.12.
391	hoursOfService	Hours of service	Hours of service to contact the responsible party.	Op		1	Text	
392	contactInstructions	Contact instructions	Complementary instructions about how or when to contact with the responsible party.	Op		1	Text	
393	CI_Date		Reference date and event related to it.				Id. f 394-395	
394	date	Date	Reference date of the resource.	R		1	Date	Date value should meet ISO8601 format: aaaa-mm-dd; when the day is unknown, it would be: aaaa-mm-01; if only the year is known, it would be: aaaa-01-01.
395	dateType	Date type	Event related to the date.	R		1	Code list CI DateTypeCode	Section B.11 includes a list of allowed values.
396	CI_OnlineResource	On line resource	Information about on line sources for datasets, specifications, profile names or metadata extents.				Id. f 397-402	See section 7.12.
397	linkage	linkage	On line access address in URL or similar format (e.g. http://www.statkart.no/isotc211)	R		1	Class URL	Linkage description according IETF RFC 1738 and IETF RFC 2056 protocols.
398	protocol	Protocol	Connection protocol.	Op		1	Text	
400	name	Name	Name of the on line resource.	Op		1	Text	
401	description	Description	Detailed description of the on line resource.	Op		1	Text	
402	function	Function	Function code of the on line resource.	Op		1	Code list CI OnLineFunctionCode	Section B.11 includes a list of allowed values.
403	CI_Series	Series	Information on the series or collection where that includes the dataset.				Id. f 404-405	

Id. f	Name / role	Label	Definition	Req.	Condition	Mult.	Format / domain	Comments
404	name	Name	Name of the series or collection that includes the dataset.	Op		1	Text	
405	issuidentification	Issue identification	Information about the issue within the series.	Op		1	Text	
407	CI_Telephone	Telephone	Telephone number to contact the responsible individual or organization.				Id. f 408-409	
408	voice	Voice telephone	Voice telephone number to contact the responsible individual or organization.	Op		N	Text	
409	facsimile	Facsimile telephone	Facsimile telephone number to contact the responsible individual or organization.	Op		N	Text	

B.11 Code lists

<i>CI_DateTypeCode</i>		
Code	Value	Definition
001	Creation	Identifies when the resource was brought into existence.
002	Publication	Identifies when the resource was issued.
003	Revision	Identifies when the resource was examined or re-examined and improved or amended.

<i>CI_OnLineFunctionCode</i>		
Code	Value	Definition
001	Download	Online instructions for transferring data from one storage device or system to another.
002	Information	Online information about the resource.
003	Offline Access	Online instructions for requesting the resource from the provider.
004	Order	Online order process for obtaining the resource.
005	Search	Online search interface for seeking out information about the resource.

<i>CI_PresentationFormCode</i>		
Code	Value	Definition
001	Digital document	Digital representation of a primarily textual item (can contain illustrations also).
002	Print Copy	Representation of a primarily textual item (can contain illustrations also) on paper, photographic material, or other media.
003	Digital Image	Likeness of natural or man-made features, objects, and activities acquired through the sensing of visual or any other segment of the electromagnetic spectrum by sensors, such as thermal infrared and high resolution radar and stored in digital format.
004	Hard Copy Documents	Likeness of natural or man-made features, objects, and activities acquired through the sensing of visual or any other segment of the electromagnetic spectrum by sensors, such as thermal infrared, and high resolution radar and reproduced on paper, photographic material, or other media for use directly by the human user.
005	Digital Map	Map represented in raster or vector form.
006	Hard Copy Map	Map printed on paper, photographic material, or other media for use directly by the human user.
007	Digital Model	Multi-dimensional digital representation of a feature, process, etc.
008	Hard Copy Model	Three-dimensional, physical model.
009	Digital Profile	Vertical cross-section in digital form.
010	Hard Copy Profile	Vertical cross-section printed on paper, etc.
011	Digital Table	Digital representation of facts or figures systematically displayed, especially in columns.
012	Hard Copy Table	Representation of facts or figures systematically displayed, especially in columns, printed on papers, photographic material, or other media.
013	Digital Video	Digital video recording.
014	Hard Copy Video	Video recording on film.

<i>CI_RoleCode</i>		
Code	Value	Definition
001	Provider	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 who distributes the resource.
006	Originator	Party who created the resource.
007	Point of contact	Party who can be contacted for acquiring the resource.
008	Principal Investigator	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.

<i>DS_AssociationTypeCode</i>		
Code	Value	Definition
001	Cross Reference	Reference from one dataset to another.
002	Larger Work Citation Part of a	Reference to a master dataset of which this one is a part.
003	Continuum Data Base	Part of the same structured set of data held in a computer.
004	Source	Cartographic information from which the dataset content originates.
005	Stereo Mate	Part of a set of images that used jointly provides three-dimension images.

<i>DS_InitiativeTypeCode</i>		
Code	Value	Definition
001	Campaign	Series of organized planned actions.
002	Collection	Collection of dataset assembled for a specific purpose.
003	Exercise	Specific implementation of a function or group of functions.
004	Experiment	Process design to find if something is effective or valid.
005	Investigation	Search or systematic inquiry.
006	Mission	Specific operation of a data collection system.
007	Sensor	Device or piece of equipment which detects or records.
008	Operation	Action that is a part of a series of actions.
009	Platform	Vehicle or other support base that holds a sensor.
010	Process	Method of doing something involving a number of steps.
011	Program	Specific planned activity.
012	Project	Organized task, research or development.
013	Study	Examination or investigation.
014	Task	Part of work.
015	Trial	Process of testing to discover or demonstrate something.

<i>MD_CellGeometryCode</i>		
Code	Value	Definition
001	Point	Each cell represents a point.
002	Area	Each cell represents an area.

<i>MD_CharacterSetCode</i>		
Code	Value	Definition
001	Ucs2	16-bit fixed size Universal character set, based on ISO 10646.
002	Ucs4	32-bit fixed size Universal character set, based on ISO 10646.
003	utf7	7-bit variable size UCS transfer format, based on ISO 16046.
004	utf8	8-bit variable size UCS transfer format, based on ISO 16046.
005	utf16	16-bit variable size UCS transfer format, based on ISO 16046.

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.
017	Reserved for future use	Future ISO/IEC set of graphical characters codified by a byte_ 8 bit- (Probably 8859, part 12).
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 use don MS-DOS machines.
024	EucJP	Japanese code set use don 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 code set used in Taiwan, Hong Kong of China and other areas.
029	GB2312	Simplified Chinese code set.

<i>MD_ClassificationCode</i>		
Code	Value	Definition
001	Declassified	Available for general access.
002	Restricted	Not available for general Access.
003	Confidential	Available for someone who can be entrusted with information.
004	Reserved	Kept it private from all excepted for a select group of people.
005	Secret	The highest protection.

<i>MD_CoverageContentTypeCode</i>		
Code	Value	Definition
001	Image	Meaningful numerical representation of a physical parameter that is not the real value of the physical parameter.
002	Thematic	Meaningful non quantitative meaning, used to represent a physical quantity.

003	classification Physical measurement	Value in physical units of the quantity being measured.
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<i>MD_DimensionNameTypeCode</i>		
Code	Value	Definition
001	Row	Ordinate (y) axis.
002	Column	Abscissa (x) axis.
003	Vertical	Vertical (z) axis.
004	Trajectory	Movement direction of exploration point.
005	Perpendicular to the trajectory	Perpendicular of the movement direction of exploration point.
006	Line	Scan line of a sensor.
007	Sample	Element along a scan line.
008	Time	Duration.

<i>MD_GeometricObjectTypeCode</i>		
Code	Value	Definition
001	Complex	Set of geometric primitives such that their boundaries can be represented as a union of the other primitives.
002	Composite	Connected set of curves, solids or surfaces.
003	Curve	Bounded, one-dimensional geometric primitive shape, representing the continuous image of a line.
004	Point	Zero-dimensional geometric primitive shape, representing a position but not an extend having.
005	Solid	Bounded, connected three-dimensional geometric primitive shape, representing the continuous image of a region of space.
006	Surface	Bounded, connected two-dimensional geometric primitive shape, representing the continuous image of a region of a plane.

<i>MD_ImagingConditionCode</i>		
Code	Value	Definition
001	Blurred image	Blurred part of an image.
002	Cloud	Portion of the image is partially obscured by cloud cover.
003	Degrading obliquity	Acute angle between the plane of the ecliptic (the plane of the Earth's orbit) and the plane of the celestial equator.
004	Fog	Portion of the image is partially obscured by fog.
005	Heavy smoke or dust	Portion of the image is partially obscured by heavy smoke or dust.
006	Night	Nocturne image.
007	Rain	Image taken during the rainfall.
008	Semi darkness	Image taken during semi-dark conditions- twilight conditions.
009	Shadow	Portion of the image is obscured by shadow.
010	Snow	Portion of the image is obscured by snow.
011	Terrain masking	The absence of collection data of a given pinto r area is caused by the relative location of topographic features which obstruct the collection path between the collector(s) and the subject(s) of interest.

<i>MD_KeywordTypeCode</i>		
Code	Value	Definition
001	Discipline	Keyword identifies the instrument used to collect the resource.
002	Place	Keyword identifies a location.

003	Stratum	Keyword identifies the layer(s) of any deposited substance.
004	Temporal	Keyword identifies a time period related to the dataset.
005	Theme	Keyword identifies a particular subject or topic.

<i>MD_MaintenanceFrequencyCode</i>		
Code	Value	Definition
001	Continual	Data are repeatedly and frequently updated.
002	Daily	Data are updated each day.
003	Weekly	Data are updates on a weekly basis.
004	Fortnightly	Data are updated every two weeks.
005	Monthly	Data are updated each month.
006	Quarterly	Data are updated every three months.
007	Biannually	Data are updated twice a year.
008	Annually	Data are updated every year.
009	As needed	Data are updated as deemed necessary.
010	Irregular	Data are updated in intervals that are uneven in duration.
011	Not planned	There are no plans to update the data.
011	Unknown	Frequency of maintenance for the data is unknown.

<i>MD_MediumFormatCode</i>		
Code	Value	Definition
001	Cpio	Copy In / Out (UNIX file format and command).
002	Tar	Tape Archive.
003	High sierra	High sierra files system.
004	ISO9660	Information processing volume and file structure of CD-ROM.
005	ISO9660RockRidge	Rock ridge interchange protocol (UNIX).
006	ISO9660AppleHFS	Hierarchical file system (Macintosh).

<i>MD_MediumNameCode</i>		
Code	Value	Definition
001	CD ROM	Read-only optical disk.
002	DVD	Digital versatile disk.
003	DVD ROM	Digital versatile disk, read only.
004	3 half inch floppy	3, 5 inch magnetic disk.
005	5 quarter inch floppy	5, 25 inch magnetic disc.
006	7 track tape	7 track magnetic tape.
007	9 track type	9 track magnetic tape.
008	3480 Cartridge	3480 cartridge tape drive.
009	3490 Cartridge	3490 cartridge tape drive.
010	3580 Cartridge	3580 cartridge tape drive.
011	4 mm Cartridge Tape	4 millimeter magnetic tape.
012	8 mm Cartridge tape	8 millimeter magnetic tape.
013	1 Quarter inch cartridge tape	0, 25 inch magnetic tape.
014	Digital linear tape	Half inch cartridge streaming tape drive.
015	Online	Direct computer linkage.
016	Satellite	Linkage though a satellite communication system.
017	Telephone link	Communication through a telephone network.
018	Hard copy	Pamphlet or leaflet giving descriptive information.

MD_PixelOrientationCode

Code	Value	Definition
001	Center	Half-way point between the lower left and the upper right of the pixel.
002	Lower left	The corner in the closest pixel to the origin of the SRS; if there are two at the same distance from the origin, the one with the smallest x-value.
003	Lower right	Next corner count-clockwise from the lower left.
004	Upper right	Next corner count-clockwise from the lower right.
005	Upper left	Next corner count-clockwise from the upper right.

MD_ProgressCode

Code	Value	Definition
001	Completed	Production of the data has been completed.
002	Historical archive	Data has been stored in an offline storage facility.
003	Obsolete	Data are no outstanding.
004	On going	Data are continually being updated.
005	Planned	Fixed data have been established upon or by which the data will be created or updated.
006	Required	Data need to be generated or updated.
007	Under development	Data are currently in the process of being created.

MD_RestrictionCode

Code	Value	Definition
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, or distributor.
002	Patent	Government has granted exclusive right to make, sell, use or license an invention or discovery.
003	Patent pending	Produced or sold information awaiting a patent.
004	Trade mark	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	Intellectual property rights	Right to economic benefits and control of distribution of non-tangible property that is a result of creativity.
007	Restricted	Limitation from general circulation or spreading.
008	Other restrictions	Limitation not listed.

MD_ScopeCode

Code	Value	Definition
005	Dataset	Applicable Information to the dataset.
006	Series	Applicable information to the series.
014	Service	Applicable information to the service.

MD_SpatialRepresentationTypeCode

Code	Value	Definition
001	Vector	Representation of geographic data through vector data.
002	Grid	Representation of geographic data through grid data.
003	Text table	Representation of geographic data through textual or tabular data
004	TIN	Triangulated irregular network.
005	Stereo model	Three-dimensional view composed by the intersecting homologous rays of an overlapping pair of images.

006	Video	Scene from a video recording.
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MD_TopicCategoryCode		
Code	Value	Definition
001	Farming	Rearing of animals and/or cultivation of plants. Examples: agriculture, irrigation, aquaculture, plantations, herding, pests and diseases affecting crops and livestock.
002	Biota	Flora and/or fauna in natural environment. Examples: wildlife, vegetation, biological sciences, ecology, wilderness, sea life, wetlands, and habitat.
003	Boundaries	Legal land descriptions. Examples: political and administrative boundaries.
004	Climatology Meteorology Atmosphere	Processes and phenomenon of the atmosphere.
005	Economy	Economic activities, conditions and employment. Examples: Production, revenue, commerce, industry, tourism and ecotourism, forestry, fisheries, commercial or subsistence hunting, exploration and exploitation of resources such as minerals, oil and gas.
006	Elevation	Height above or below sea level. Examples: altitude, bathymetry, digital elevation models, slope, derived products.
007	Environment	Environmental resources, protection and conservation. Examples: environmental pollution, waste storage and treatment, environmental impact assessment, monitoring environmental risk, nature reserves, landscape.
008	Geo-scientific Information	Information pertaining to earth sciences. Examples: geophysical features and processes, geology, minerals, sciences dealing with the composition, structure and origin of the earth s rocks, risks of earthquakes, volcanic activity, landslides, gravity information, soils, permafrost, hydrogeology, erosion.
009	Health	Heath, health services, human ecology, and safety. Examples: disease and illness, factors affecting heath hygiene, substance abuse, mental and physical health, health services.
010	Imagery base maps earth cover	Base maps. Examples: land cover, topographic maps, imagery, unclassified images, and annotations.
011	Intelligence Military	Military bases, structures, activities. Examples: barracks, training groups, military transportation, information collection.
012	Inland waters	Inland water features, drainage systems and their characteristics. Examples: rivers and glaciers, salt lakes, water utilization plans, dams, currents, floods, water quality, hydrographic charts.
013	Location	Positional information and services. Examples: addresses, geodetic networks, control points, postal zones and services, place names.
014	Oceans	Features and characteristics of salt water bodies (excluding inland waters). Examples: tidies, tidal waves, coastal information, reefs.
015	Planning Cadastre	Information used for appropriate actions for future use of the land. Examples: land use maps, zoning maps, cadastral surveys, land ownership
016	Society	Characteristics of society and cultures. Examples: settlements, anthropology, archaeology, education, traditional beliefs, manners and customs, demographic data, recreational areas and activities, social impact assessments, crime and justice, census information
017	Structure	Man-made constructions. Examples: buildings, museums, churches, factories, housing, monuments,

018	Transportation	shops, towers. Means and aids for conveying persons and/or merchandises. Examples: roads, airports/airstrips, shipping routes, tunnels, nautical charts, vehicle or vessel location, aeronautical charts, railways. Energy, water and waste systems and communications infrastructure and services.
019	Public services	Examples: hydroelectricity, geothermal, solar and nuclear sources of energy, water purification and distribution, sewage collection and disposal, electricity and gas distribution, data communication, telecommunication, radio, communication networks.

MD_TopologyLevelCode

Code	Value	Definition
001	Only geometry	Geometry objects without any additional structure which describes topology.
002	One-dimensional topology	One-dimensional topological complex called chain-node topology.
003	Planar graph	One-dimensional topological complex that is planar. (A planar graph is a graph that can be drawn in a plane in such a way that no two edges intersect except at a vertex).
004	Full planar graph	Two-dimensional topological complex that is planar. (A two-dimensional topological complex is called full topology in a cartographic two-dimensional environment).
005	Surface graph	One-dimensional topological complex that is isomorphic to a subset of a surface. (A geometric complex is isomorphic to a topological complex if their elements are in a one-to-one, dimensional-and boundary-preserving correspondence to one another).
006	Full surface graph	Two-dimensional topological complex that is isomorphic to a subset of a surface.
007	Three-dimensional topology	Three-dimensional topological complex. (A topological complex is a collection of topological primitives that are closed under the boundary operations).
008	Full three-dimensional topology	Complete coverage of a three-dimensional Euclidean coordinate space.
009	Abstract	Complex topological without any specified geometric realization.

C

XML Examples

- Example 1:

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- <keyword>
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        o parcial sense permís exprés de l'entitat propietària.</gco:CharacterString>
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        codeListValue="restricted" />
    </useConstraints>
  </MD_LegalConstraints>
</resourceConstraints>
- <spatialRepresentationType>
  <MD_SpatialRepresentationTypeCode codeList="http://idec.icc.cat/schema/Codelist/ML_gmxCodelists.xml"
    codeListValue="vector" />
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- <spatialResolution>
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- <characterSet>

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                </gml:TimeInstant>
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            - <organisationName>
              <gco:CharacterString>Ajuntament de Granollers</gco:CharacterString>
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  - <CI_OnlineResource>
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    </linkage>
    - <function>
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        codeListValue="information" />
    </function>
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- <hoursOfService>
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- <contactInstructions>
  <gco:CharacterString>Trucar per telèfon o enviar mail a Xavier Caparrós</gco:CharacterString>
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</CI_Contact>
</contactInfo>
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    - <version>
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    </version>
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- <contactInstructions>
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- <processStep>
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- <LI_ProcessStep>
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        1:500 i 1:1000 per obtenir una cartografia 1:1000 unificada i continua i l'elaboració de nova
        cartografia 1:1000 de 76 ha. La cartografia és 3d sense volums.</gco:CharacterString>
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- <CI_Contact>
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- <CI_Telephone>
- <voice>
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</LI_ProcessStep>
</processStep>
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                la informació del plec tècnic que es va utilitzar en l'elaboració de la cartografia. Cartografia 3d sense
                volums a escala 1:1000 i escala de vol 1:5000. La data de vol és 01/07/2006 i la data d'edició és
                01/01/2007. Information about pages: Flight date:2006-07-01 , Flight
                scale:5000</gco:CharacterString>
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        - <accessConstraints>
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        </accessConstraints>
        - <useConstraints>
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    </useConstraints>

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```
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</metadataMaintenance>
</MD_Metadata>
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- Example 2:

```

<?xml version="1.0" encoding="ISO-8859-1" ?>
- <!--
MetaD Ver. 4.0.0 Exportació de Metadades - IDEC - www.geoportal-idec.cat
-->
- <!--
Date: 20/04/2012 Time: 10:53:01
-->
- <MD_Metadata xmlns="http://www.isotc211.org/2005/gmd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:gco="http://www.isotc211.org/2005/gco" xmlns:gml="http://www.opengis.net/gml"
  xmlns:gmd="http://www.isotc211.org/2005/gmd" xsi:schemaLocation="http://www.isotc211.org/2005/gco
  http://idec.icc.cat/schema//gco/gco.xsd http://www.isotc211.org/2005/gmd http://idec.icc.cat/schema//gmd/gmd.xsd"
  xmlns:srv="http://www.isotc211.org/2005/srv" id="ID0001">
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- <characterSet>
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</hierarchyLevel>
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    </organisationName>
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            - <voice>
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            </voice>
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  </contactInfo>
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- <metadataStandardVersion>
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                                codeListValue="creation" />
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            </CI_Citation>
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            1:5.000</gco:CharacterString>
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            - <organisationName>
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            </organisationName>
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