EuroGlobalMap

Pan-European Database at Small Scale

Specification and Data Catalogue

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Abstract (for dissemination):

The product defined is referred to as EuroGlobalMap. The purpose of these specifications is to provide a description of the content, accuracy and design philosophy of EuroGlobalMap. Conformance to this specification will insure uniformity among all mapping and charting agencies engaged in a co-coordinated production and maintenance program for the product range.

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1   Introduction

1.1   Scope and Purpose

This document defines the content and format of the small scale pan-European topographic data set EUROGLOBALMAP (EGM).

The purpose of these specifications is to provide a description of the content, accuracy, data format and design philosophy of EGM. Conformance to this specification will insure uniformity among all mapping and charting agencies engaged in a co-coordinated production and maintenance program for the product range.

1.2   Structure and latest changes

The EGM specification does not correspond only ArcInfo coverage structure any more (as previous version v2.5) but is open for any data production platform. Specifications are harmonised with the EuroRegionalMap (ERM) specifications, which helps EGM data production thru ERM database. Major changes made are listed in Annex C (table).

2   General structure of the database

2.1   Scale and generalization degree

EGM Database is intended to be used in map scale 1:1 000 000. This means that the data content is suitable for a map where 1 cm on the map indicates 10 km on the ground. Features saved to the database as lines or areas are in many cases generalized. Details are reduced mainly by feature selection, line simplification methods or by amalgamation for areas.

The average distance between the vertices (= points) of the line should be about 200 – 500 meters. Parallel lines with distance closer than 500 meters can be separated slightly for better cartographic presentation by moving lines further. If the features are moved, it should be noted that the relationships (= topology) of the features inside a layer and between the layers should not be changed and changing of the location should not exceed the positional accuracy limit (see 2.4 below).

2.2   Coordinates and Geodetic Datum

Coordinate system is geographical coordinates in decimal degrees (longitude and latitude). All latitude coordinates north of the Equator have positive values and south of the Equator have negative values. Values range from the North Pole +90 degrees to the South Pole –90 degrees. All longitude coordinates east of the Greenwich Prime Meridian have positive values and west of the Greenwich Prime Meridian have negative values. Values range from –180 degrees to +180 degrees.

The horizontal datum for EGM is ETRS89. Difference between WGS84, ITRF94 and ETRS89 (= EUREF89) coordinate systems is negligible at the scale 1:1 000 000. The ETRS89 corresponding ellipsoid is GRS80 (negligibly close to WGS84).

2.3   Vertical Datum

Some features have height or depth values stored as attributes. The vertical datum for EGM shall be the European Vertical Reference System EVRS. If the conversion between the national vertical datum and EVRS is not possible then the difference between these two datum is ignored and elevation values will be taken to be in reference to the Mean Sea Level. Elevation values are stored in meters. The vertical datum used should be indicated in the metadata.

2.4 Positional accuracy

The positional accuracy describes on how the coordinates of the feature agree with their real world values. The degree of the accuracy depends on the following processing steps:

−   The positional accuracy of the source dataset.
−   The errors due to conversion processes.
−   Errors due to the manipulation processes.

Recommended horizontal accuracy should be within 1000 meters or at least better than 2000 meters. Information about the horizontal accuracy should be included in the metadata.

2.5 Coordinate precision and tolerances

Coordinate precision refers to the mathematical exactness of a coordinate. EuroGlobalMap data will be stored in decimal degrees up to 7 significant digits for each coordinate.

Tolerances are used to affect the resolution of the data. Tolerances affect the coordinate spacing during the processing of the data. The following tolerances are recommended:

The minimum distance between vertices (= digitised points of a line) or points (weed tolerance) is **20 meters**.

The minimum distance separating all nodes and vertices of all lines (fuzzy tolerance) is **5 meters**. Coordinates of the vertices within 5 m are considered equal.

The minimum accepted area or the minimum length of a line is not defined but the restrictions named above should be taken into account.

2.6 Feature and Attribute Coding Structure

Feature and attribute coding structure is based on Digital Geographic Information Exchange Standard (DIGEST) Feature and Attribute Coding Catalogue (FACC) and therefore according ISOTC211/19126 Geographic information - Profile - FACC Data Dictionary. However specific features, attributes or attribute values missing in the DIGEST FACC or not compliant have been added and are highlighted in italic in the EuroGlobalMap data catalogue (chapters 3.1 and 3.2).

Within FACC, each feature is identified by a unique five-character code (AB123). The first character corresponds to the feature category and may have an alphabetic value from A to Z. Currently there are ten feature categories, including one category, S, which has been reserved for dataset-specific features. The categories are as follows (categories written with bold text are used in EGM):

A Culture
B Hydrography
C Hypsography
D Physiography
E Vegetation
F Demarcation
G Aeronautical Information
I Cadastral
S Special Use (Dataset-specific)
Z General

Each major category is further divided into subcategories, which are identified by the second character of the five-digit code containing an alphabetic value from A to Z.

Finally, the third, fourth, and fifth characters of the five-character feature code form a number in the range 000 to 999. This value provides unique feature identification within categories, yet allows flexibility. All features must be identified by all five alphanumeric characters (e.g., the feature "Road" is represented by AP030).

Further information on DIGEST Feature and Attribute Coding Catalogue (FACC) at the DIGEST Web site: http://www.digest.org/

2.7 Organizing the data

The EuroGlobalMap data is organized into 6 themes. Features logically connected with each other belong to the same theme (like e.g. lakes, rivers and glaciers belong to theme HYDRO).

- ❑ The administrative boundaries: Theme BND
- ❑ The water network: Theme HYDRO
- ❑ The transport network: Theme TRANS
- ❑ The settlements: Theme POP
- ❑ The elevation: Theme ELEV
- ❑ The named location: Theme NAME

For data management purposes the data is tiled to units. The basic tile unit is the country. Small countries can be amalgamated with a neighbouring country. On the sea area tiling limits follow mainly the latitude and longitude lines. No data overlap may exist in and between the tiles. Features and lines crossing the tile limits (international boundaries or limits on the sea area) shall be geometrically continuous whenever possible.

2.8 Data Model and Structure

2.8.1 Terminology

Area feature - A geographic entity that encloses a region; for example, a lake, administrative area, or state.

Connected node - One of the two primitive types used to represent linked features that are zero dimensional at a particular scale. Connected nodes are always found at the ends of edges and are topologically linked to the edges. Connected nodes are used in two ways: (1) to define edges topologically (always) and (2) to represent point features that are found at a juncture of linear features, such as overpasses, locks in a canal, or underground utility access points. Under the first usage, the connected nodes are referred to as start and end nodes. Under the second usage, attributes will be associated with the point features related to the connected nodes.

Coverage: a set of feature classes that has a spatial extent and in which primitives interconnect as described by the coverage's topology

Edge: A one-dimensional curve primitive joining two (possibly the same) nodes used to represent the location of a linear feature and/or the borders of faces. Depending upon the level of topology, edges

may be topologically linked to nodes, edges, and faces. Edges are located by an ordered collection of two or more coordinate tuples (pairs or triplets). At least two of the coordinate tuples must be distinct. The orientation of an edge can be recognized by the ordering of the coordinate tuples.

Face - A region enclosed by an edge or set of edges. Faces are topologically linked to their surrounding edges as well as to the other faces that surround them. Faces are always non-overlapping.

Feature - A geographic entity related in some way to the Earth's surface. A feature may be either of *Point*, *Line*, *Area* or *Text* type. It may be either a Simple Feature or a Complex Feature. A Simple or Complex Feature has a specific set of Attribute values. A Complex Feature consists of a number of Features (Simple and/or Complex).

Feature class - A set of features that shares a homogeneous set of attributes. A feature class consists of a set of tables that includes one or more primitive tables and one or more attribute tables. A feature class has the same columns of attribute information for each feature. Every feature class has one and only one feature table. The type of EuroGlobalMap feature classes is the simple feature class. The subtypes of the simple feature classes are the point feature class, line feature class, area feature class, and text feature class.

Feature code - A unique identifier assigned to a feature. The code is composed of five characters. The first is a letter indicating the category, the second is a letter indicating the sub-category and the last three characters (numeric) indicate a serial number in the sub-category.

Geometric primitive - The basic geometric units of representation, specifically, nodes, edges and face

Isolated node - One of the two node primitive types used to represent isolated features that are zero dimensional at a particular scale. An isolated node is never used as a start or end node. An isolated node is topologically linked to its containing face when faces are present and cannot occur on an edge. This is also known as an "Entity Node".

Layer: A layer consists of a consistent set of data of the same type. For vector data, a layer is a predefined collection of geographical features, grouped by theme, contained within a single specified level of topology (following the rules of that level topology, e.g., if it is planar graph there are no crossing lines). Layers will be composed of one or more area, line, or point features as defined by specification. A layer can also be referred to as coverage.

Line feature - A geographic entity that defines a linear (one-dimensional) structure; for example, a river, road, or a state boundary.

Node - A zero-dimensional geometric primitive that is composed of a single coordinate tuple. There are two types of nodes: isolated nodes and connected nodes. Only one node can occupy a single geographic location.

Point feature - A geographic entity that defines a zero-dimensional location; for example, a spring.

Text feature - A cartographic entity that relates a textual description to a zero- or one-dimensional location. A text feature usually contains information such as font, colour, and height.

2.8.2 Theoretical data model

The EuroGlobalMap vector data model is based on the DIGEST vector data model, which adheres to the geo-relational data model. Feature entities are real items that can be identified on the earth, such as a river or a road, or they are abstract items such as boundaries. Attributes may be ascribed to the features. Features may be either of Point, Line, Area or Text type. The spatial extent of features is described in terms of Isolated or Connected Node, Edge and Face elements. These primitive elements carry positional attributes.

In the EuroGlobalMap data model, the one-way relationship from simple features to primitives is restricted to many-to-one relationship. A simple feature is composed of only one primitive. A simple line feature is composed of only one edge, a simple point feature is composed of only one node and a simple area feature is composed of only one face. But several simple features can share the same primitive. For example, an island (simple feature area) is fully covered by built-up area (another feature area) and has identical area. Therefore island and built-up area share the same face.

2.8.3 Topology

The basic topological relationships for EuroGlobalMap are following the DIGEST data model and are set up at the level of the geometric primitives. Topological relationships can be described as edge-to-node, face-to-edge and node-to-face. In EuroGlobalMap, the acceptable levels of topology are the planar graph (level 2) or the full topology (level 3) within layer.

Planar graph data (level 2) consists of a set of edges and entity points, where edges meet only at connected nodes. Edges contain start node, end node, right edge and left edge information. Full topology data (level 3) introduces the concept of face and describes face-to-edge as well as node-to-face topological relationships. A planar surface is portioned by a set of mutually exclusive and collectively exhaustive faces. Edges contain left face and right face, start node and end node, and right and left edge information. Edges meet only at connected nodes. A text feature is a cartographic feature and exists to provide an annotation capability. Text feature does not take part in topology.

2.8.3.1 Topological rules

Topological rules are defined for the topological primitives within a layer or theme. These rules are set up for EuroGlobalMap:

- No two nodes may occupy the same (x, y or long, lat) coordinate point.
- No two edges may have the same geometry.
- A node will intersect edges only at their start/end point.
- No edge will intersect nor overlap any other edge, or itself.
- No two faces overlap.
- A face may contain any number of isolated nodes.
- As a result of the above rules, topological primitives may exist without being a component of any simple feature.
- No isolated node can be located on an edge; it has to be a connected node.

2.8.3.2 Topological Association

Functional, spatial, and logical association are examples of relationships that can be represented and analysed in a GIS database and need to be considered and specified for the EuroGlobalMap data. These topological associations are described at feature level within a theme or between themes. A topological association relates to how features are attached to one another functionally, spatially, or logically for example, when they share the same geometry (i.e. river being a boundary) or when they cannot logically overlap each other (i.e. built-up area with water area). These associations are described in annex A. Topological relationships between features and layers are checked through quality controls.

2.8.3.3 Connectivity

Because of the potential use of the EGM dataset for advanced spatial analysis road, railway and water networks (separately) should reach a full topological and geometrical connectivity in order to have a continuous network. For roads and railways this means that these lines are connected with each other by nodes. In a case of rivers this means that fictitious water lines through the lakes and other water areas are created.

2.9 Handling Names
2.9.1 Saving Information about the Different Languages

Names of the features are stored using two method of spelling. Each feature will have a name stored as attribute using both national characters and Latin 1 Alphabet characters without diacritical marks (= only ASCII letters from the ISO 8859-1 character set). For helping the user of the database to display also the national special character properly, each name will have also an ISO 639-2/B language code. Separate language code table EGM.CHR describes the national character sets used for each language.

Language name: NLN	Language name: LNM	Character set code: ISC	Description: DESC
e.g. FIN	e.g. Finnish	1	ISO 8859-1 character set (Latin 1)
..	..	2	ISO 8859-2 character set (Latin 2)
		3	ISO 8859-3 character set (Latin 3)
		4	ISO 8859-4 character set (Latin 4)
		5	ISO 8859-5 character set (Cyrillic)
		6	ISO 8859-6 character set (Arabic)
		7	ISO 8859-7 character set (Greek)
		8	ISO 8859-8 character set (Hebrew)
		9	ISO 8859-9 character set (Latin 5)
		10	ISO 8859-10 character set (Latin 6)
		11	ISO 8859-13 character set (Latin 7)
		13	ISO 8859-13 character set (Latin 7)
		14	ISO 8859-14 character set (Latin 8)
		15	ISO 8859-15 character set (Latin 9)
		16	Unicode UTF-8
		99	Other character set

When the names are stored using 8-bit ISO 8859 coding system with different character sets, it is not possible to display on screen all the national special characters properly at the same time. For displaying the characters of a certain language, the user should have a proper codeset file and font files implemented for proper displaying of the characters of that language. Font files should include the proper national characters (= glyphs) and codeset file is used to associate the keyboard values with the proper glyphs in font files. Keyboard values are those values, which are stored to the national characters when the names are created.

First letter of the name should be upper case and the other letters are lower case. Exception: names that consist of several words, are written out like: 'Stoke-on-Trent', 'North Walsham', 'Le Havre', 'Lytham-St. Annes'.

If a country has more than one official language, then the names of the features should be stored using at least the primary language of the (administrative) area. The names with the secondary language of the area are optional. In this case the "administrative area" means a unit, which belong to the lowest national administrative level collected to the EGM database.

Exceptions:

- Name of the country (table SHN.NAM) should be stored using the national primary and secondary language.
- Designation (name of the hierarchy level in table ADMIN.ISN) should be stored using the national primary language.

- Destination cities of Ferry Lines are stored using the national primary language.

2.10 Missing attribute values

The following attribute values are used for explaining missing attribution (consistent with DIGEST):

Attribute type	Null/No value	Unknown	Unpopulated	Not applicable
Text	N/A	UNK	N_P	N_A
Integer, coded	-32768	0	997	998
Integer, actual value	-32768	-29999	-29997	-29998

2.10.1 Unknown

This value is used when it is not possible to determine the value of an attribute for an object. Objects with missing attribute information have values "UNK" or 0 and other objects have actual values or classification code values to indicate the classification. For example when the "Elevation of the water body above the sea level" of a certain lake has not been measured, then this attribute value is unknown.
'Unknown' is used normally for a single attribute value of individual objects in a layer.

2.10.2 Unpopulated

This value is used when this attribute information exists but data producer don't have this attribute information and has left the attribute field empty. Values "N_P" or 997 indicate an empty attribute field. For example when the attribute "National hydrological identification code" for rivers and lakes has been defined but EGM–data-producer doesn't have this information and has left this attribute field empty, then this attribute value should be used.

'Unpopulated' is normally used for a set of objects in a layer, not for individual ones. Data producers should avoid to unpopulate an attribute. It can be used for cases when attribute values are extractable from accessible data source, but the data producer has good reason not to capture the information (for example expenses for capturing the data are too high).

'Unpopulate' should not be confused with 'Unknown'. A subset of objects of the same feature (i.e. lakes) for which the usage of 'Unpopulate' might be appropriate should have clearly distinct properties (f.i. small lakes with a specified maximum size or a specified class of rivers) than the one with known attribute values. The specifics of the subset have to be described in the metadata.

2.10.3 Not applicable

This value is used in the case when the attribute is defined to be used for a certain feature but there are objects for which the attribute values do not apply. For example in the case of "Name in the secondary language" when the feature doesn't have name in the secondary language, then "Not applicable" is used. Typical "not applicable" -cases are the values for a secondary attribute, which does not apply. Other example: there exist a class of watercourses in a country for which no hydrological ID (NHI) is defined (e.g. ditches). The difference to the usage of unpopulate has to be observed: a classification number exists, is defined but has not been captured for the dataset.

2.10.4 Null/No value

Features are gathered into feature classes. A feature class shares a common attribute table. The Null/No value is used for attribution when an attribute is not normalized to a feature. This means it is logically impossible for a feature to have this certain attribute.

3   Definition of Features and Attributes

3.1   List of Feature names, types and codes in EGM themes

THEME	Feature class name	Feature type	Feature code
BND	POLBNDL	Line	FA000
	POLBNDA	Area	FA001
HYDRO	COASTL	Line	BA010
	COASTA	Area	BA020
	ISLANDA	Area	BA030
	SEAA	Area	BA040
	LAKERESA	Area	BH080, BH130
	SPRINGC	Point	BH170
	SPRINGP	Point	BH170
	WATRCRSA	Area	*BH502*
	WATRCRSL	Line	*BH502*
	DAML	Line	BI020
	LANDICEA	Area	BJ030, BJ100
TRANS	RAILRDL	Line	AN010
	ROADL	Line	AP030
	FERRYL	Line	AQ070
	EXITC	Point	AQ090
	RAILRDC	Point	AQ125
	AIRFLDP	Point	GB005
POP	BUILTUPA	Area	AL020
	BUILTUPP	Point	AL020
ELEV	ELEVP	Point	CA030
NAME	NAMET	Text	ZD040

3.2 List of Features and Attributes in EGM Themes

The column "Obligation" shows if an element is mandatory (M) or optional (O) or conditional (C). When the entity is optional and information is not given then the elements even the mandatory are left empty. If you want to give information for this entity then at least the mandatory elements have to be filled in. When the entity is mandatory then at least the mandatory elements have to be filled.

THEME	FACC code	Feature name	Obligation
BND	**FA000**	**Administrative boundary**	**M**
	USE	Usage	M
	BST	Boundary status type	M
BND	**FA001**	**Administrative area**	**M**
	TAA	*Type of the administrative area*	*M*
	SHN0	*ID –Code of country level*	*M*
	SHN1	*ID Code of 1st order administrative unit*	*M*
	SHN2	*ID Code of 2nd order administrative unit*	*M*
	SHN3	*ID Code of 3rd order administrative unit*	*M*
	SHN4	*ID Code of 4th order administrative unit*	*M*
HYDRO	**BA010**	**Coastline / Shoreline**	**M**
HYDRO	**BA020**	**Foreshore**	**M**
	NAMN1	*Name of the feature, national primary language*	*O*
	NAMN2	*Name of the feature, national secondary language*	*O*
	NAMA1	*Name of the feature, national primary language, ASCII*	*O*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*O*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*O*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*O*
HYDRO	**BA030**	**Island**	**M**
	NAMN1	*Name of the feature, national primary language*	*M*
	NAMN2	*Name of the feature, national secondary language*	*M*
	NAMA1	*Name of the feature, national primary language, ASCII*	*M*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*M*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*M*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*M*
HYDRO	**BA040**	**Water (except inland)**	***M***
HYDRO	**BH080**	**Lake**	**M**
	HYC	Hydrological category	M
	NHI	*National hydrological identification code*	*O*
	ZV2	*Highest z-value (meters)*	*O*
	NAMN1	*Name of the feature, national primary language*	*M*
	NAMN2	*Name of the feature, national secondary language*	*M*
	NAMA1	*Name of the feature, national primary language, ASCII*	*M*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*M*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*M*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*M*
HYDRO	**BH130**	**Reservoir**	**M**

	HYC	Hydrological category	M
	NHI	*National hydrological identification code*	*O*
	ZV2	Highest z-value (meters)	O
	NAMN1	*Name of the feature, national primary language*	*M*
	NAMN2	*Name of the feature, national secondary language*	*M*
	NAMA1	*Name of the feature, national primary language, ASCII*	*M*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*M*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*M*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*M*
HYDRO	**BH170**	**Spring / Water hole**	**O**
	SWT	Spring type	M
HYDRO	**BH502**	**Watercourse**	**M**
	WIC	*Width category*	*M/O (O for fictitious lines)*
	HYC	Hydrological category	M/O(fict.)
	LOC	Location category	M/O(fict.)
	HOC	Hydrographic Origin Category	M/O(fict.)
	EXS	Existence category	M/O(fict.)
	NHI	*National hydrological identification code*	*O*
	NAMN1	*Name of the feature, national primary language*	*M/O(fict.)*
	NAMN2	*Name of the feature, national secondary language*	*M/O(fict.)*
	NAMA1	*Name of the feature, national primary language, ASCII*	*M/O(fict.)*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*M/O(fict.)*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*M/O(fict.)*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*M*
HYDRO	**BI020**	**Dam / Weir**	**M**
HYDRO	**BJ030**	**Glacier**	**M**
	NAMN1	*Name of the feature, national primary language*	***M***
	NAMN2	*Name of the feature, national secondary language*	*O*
	NAMA1	*Name of the feature, national primary language, ASCII*	*O*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*O*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*O*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*O*
HYDRO	**BJ100**	**Snow field / Ice field**	**M**
	NAMN1	*Name of the feature, national primary language*	*O*
	NAMN2	*Name of the feature, national secondary language*	*O*
	NAMA1	*Name of the feature, national primary language, ASCII*	*O*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*O*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*O*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*O*
TRANS	**AN010**	**Railway**	**M**
	EXS	Existence category	M
	LOC	Location category	M

	RSU	*Seasonal availability*	O
	FCO	Feature configuration	M
	RRA	Railway power source	M
	GAW	Gauge width	O
	RGC	Railway gauge category	M
TRANS	**AP030**	**Road**	***M***
	EXS	Existence category	M
	LOC	Location category	M
	RSU	*Seasonal availability*	O
	RTT	Route intended use	M
	MED	Median category	M
	RST	Road / Runway surface type	M
	RTN	Route number (national)	M
	RTE	*Route number (international)*	*M*
TRANS	**AQ070**	**Ferry crossing**	**M**
	RSU	*Seasonal availability*	O
	DETN	*Destination in primary language*	O
	DETA	*Destination in primary language with ASCII characters*	O
	DNLN	*Language of destination cities*	O
TRANS	**AQ090**	**Entrance / Exit**	**O**
	NAMN1	*Name of the feature, national primary language*	O
	NAMN2	*Name of the feature, national secondary language*	O
	NAMA1	*Name of the feature, national primary language, ASCII*	O
	NAMA2	*Name of the feature, national secondary language, ASCII*	O
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	O
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	O
TRANS	**AQ125**	**Railway station**	**M**
	NAMN1	*Name of the feature, national primary language*	*M*
	NAMN2	*Name of the feature, national secondary language*	*M*
	NAMA1	*Name of the feature, national primary language, ASCII*	*M*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*M*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*M*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*M*
TRANS	**GB005**	**Airport / Airfield**	**M**
	USE	Usage	M
	IKO	ICAO Code (4-letter designator)	M
	IAT	*IATA Code (3-letter designator)*	M
	ZV3	Airfield Elevation (meters)	O
	NAMN1	*Name of the feature, national primary language*	M
	NAMN2	*Name of the feature, national secondary language*	M
	NAMA1	*Name of the feature, national primary language, ASCII*	M
	NAMA2	*Name of the feature, national secondary language, ASCII*	M
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	M
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	M
POP	**AL020**	**Built-up area**	**M**

	PPL	Populated Place Category	C *(M if PP1 and PP2 not populated)*
	PP1	*Population Lower Range*	*C (M if PPL not populated)*
	PP2	*Population Higher Range*	*C (M if PPL not populated)*
	NAMN1	*Name of the feature, national primary language*	*M*
	NAMN2	*Name of the feature, national secondary language*	*M*
	NAMA1	*Name of the feature, national primary language, ASCII*	*M*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*M*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*M*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*M*
ELEV	**CA030**	**Height point**	**O**
	ZV2	*Highest z-value (meters)*	*M*
	NAMN1	*Name of the feature, national primary language*	*O*
	NAMN2	*Name of the feature, national secondary language*	*O*
	NAMA1	*Name of the feature, national primary language, ASCII*	*O*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*O*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*O*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*O*
NAME	**ZD040**	**Named location**	**O**
	CNL	*Category code for the named location*	*M*
	NAMN1	*Name of the feature, national primary language*	*M*
	NAMN2	*Name of the feature, national secondary language*	*M*
	NAMA1	*Name of the feature, national primary language, ASCII*	*M*
	NAMA2	*Name of the feature, national secondary language, ASCII*	*M*
	NLN1	*ISO 639-2/B 3-char Language Code for primary national language*	*M*
	NLN2	*ISO 639-2/B 3-char Language Code for secondary national language*	*M*

3.3   Theme: Administrative boundaries, BND

Administrative boundary   **FA000**

Definition: A line of demarcation between controlled areas.
Feature class: POLBNDL
Feature type: Line
Primitive type: Edge
Portrayal criteria: Boundary of an entity controlled by an administrative authority, this entity can be composed of several areas. All international boundaries. If a country has national administrative levels below a country level, then in EU-countries all levels from country level to a level equivalent to NUTS3 are stored and in other countries all levels from country level to a comparable level (f.i. LEVEL4 for CEEC countries) are stored. This feature type is used also to close the administrative areas in those cases, when the location of the real international boundary is not stored on sea area.
Quality criteria: International boundaries have to be geometrically consistent with topographical features (mainly the hydrographical ones). Geometrical consistency is recommended at lower level.

Attributes:

USE
Description: Usage
Data type: Short integer
Domain: Coded value

Value/Code	Value description
23	International
26	Primary / 1st order
30	Secondary / 2nd order
31	Tertiary / 3rd order
111	Quaternary / 4th order
984	For all lines closing the administrative units in those cases, where the international boundary is not portrayed in the dataset.

BST
Description: Boundary status type.
Data type: Short integer
Domain: Coded value

Value/Code	Value description
1	Definite
2	Indefinite
3	In Dispute
-32768	Null/No value (for USE = 984)

Administrative area **FA001**

Definition: An area controlled by administrative authority.
Feature class: POLBNDA
Feature type: Area
Primitive type: Face
Portrayal criteria: Each administrative unit consists of one main area and occasionally of one main area with exclave(s). Exclaves bigger than 3 km^2 included. If a country has national administrative levels below a country level, then the lowest level in EU-countries is a level equivalent to NUTS3 level and in other countries the lowest level is comparable to this level.

Attributes:

TAA
Description: Type of the administrative area.
Data type: Short integer
Domain: Coded value

Value/Code	*Value description*
0	Unknown (for in dispute areas only)
1	Mainland
3	Exclave or island
4	Condominium
7	Water only

SHN0
Description: Id-code of country-level (ISO 3166 Nation Code + number of zeros, so that fields SHN0 – SHN4 have equal width).
Data type: Character
Domain: Coded value

Value/Code	*Value description*
FI000000 *(Example)*	
XXYY000 *(Example)*	For in dispute areas between countries XX and YY

SHN1
Description: ID Code of 1st order administrative unit.
Data type: Character
Domain: Coded value

Value/Code	*Value description*
FI600000 *(Example)*	
N_A	Not applicable (if country has no more than the country level in EGM)

SHN2
Description: ID Code of 2nd order administrative unit.
Data type: Character
Domain: Coded value

Value/Code   *Value description*

FI108000 *(Example)*

N_A   Not applicable (if country has no more than the 1st order national level in EGM)

SHN3

Description: ID Code of 3rd order administrative unit.

Data type: Character

Domain: Coded value

Value/Code   *Value description*

DE01005300000 *(Example)*

N_A   Not applicable (if country has no more than the 2nd order national level in EGM)

SHN4

Description: ID Code of 4th order administrative unit.

Data type: Character

Domain: Coded value

Value/Code   *Value description*

GB11QL0000 *(Example)*

N_A   Not applicable (if country has no more than the 3rd order national level in EGM)

RELATED tables

SHN.NAM

Names of the administrative areas and the units and the Designations of administrative levels are placed into a related table SHN.NAM. The table includes the names of the units of all administrative levels.

The table is related to administrative areas via SHNn codes (which is used as an identification code). Relation is one-to-many: one record in the related table is connected to one or several administrative areas having the same SHNn code. Same record in the related table can exist just once and all the records should be related to at least one administrative area.

Columns:

SHN
Description: SABE hierarchical number
Data type: Character
Domain: Coded value

Value/Code	*Value description*
FI6000000	
XXYY000 *(Example)*	For in dispute areas between countries XX and YY

NAMN1
Description: Name of the administrative unit in the primary language with the national characters.
Data type: Character
Domain: Actual value

Value/Code	*Value description*
Åland *(Example)*	
N_A	For in dispute areas

NAMN2
Description: Name of the administrative unit in the secondary language with the national characters.
Data type: Character
Domain: Actual value

Value/Code	*Value description*
Ahvenanmaa *(Example)*	Name of the unit
N_A	Not applicable

NAMA1
Description: Name of the administrative unit in the primary language with the national characters, ASCII.
Data type: Character
Domain: Actual value

Value/Code	*Value description*
Aland *(Example)*	

N_A   Not applicable

NAMA2
Description: Name of the administrative unit in the secondary language with
                       the national characters, ASCII.
Data type: Character
Domain: Actual value

Value/Code   *Value description*
Ahvenanmaa *(Example)*
N_A   Not applicable

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code   *Value description*
SWE *(Example)*
N_A   Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code   *Value description*
FIN *(Example)*
N_A   Not applicable

ISN
Description: Structure ID of administrative unit (from the SABE Catalogue
                       of Internal Structures and Designators).
Data type: Short integer
Domain: Coded value

Value/Code   *Value description*
4904 *(Example)*
9999   In dispute areas

USE
Description: Usage (identifies the controlling authority = Level of
                       administration in the country's hierarchy)
Data type: Short integer
Domain: Coded value

Value/Code   *Value description*
23   International
26   Primary / 1st order
30   Secondary / 2nd order
31   Tertiary / 3rd order

| 111 | Quaternary / 4th order |
| 998 | Not applicable (For in dispute areas) |

ADMIN.ISN

Table is related to SHN.NAM table via ISN codes (SABE code). Relation is one-to-many: one record in the related table is connected to one or several records having the same ISN code. Same record in the ADMIN.ISN table can exist just once and all the records should be related to at least one SHN.NAM table.

Columns:

ISN
Description:	Structure ID of administrative unit (from the SABE Catalogue of Internal Structures and Designators).
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
4904 *(Example)*	
9999	In dispute areas

DESN
Description:	Designation (name of the hierarchy level) in the national primary language.
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
Lääni *(Example)*	
N_A	For in dispute areas

DESA
Description:	Designation (name of the hierarchy level) in the national primary language with ASCII -characters.
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
Laani *(Example)*	
N_A	For in dispute areas

NLN1
Description:	ISO 639-2/B 3-char Language Code for DESN
Data type:	Character
Domain:	Coded value

Value/Code	*Value description*
FIN *(Example)*	
N_A	Not applicable

3.4   Theme: Water network, HYDRO

Coastline / Shoreline   **BA010**

Definition: The line where a land mass is in contact with sea water.
Feature class: COASTL
Feature type: Line
Primitive type: Edge
Portrayal criteria: The vertical datum for the shoreline should be mean sea high water (MHW)
                           in tidal maritime zone or normal water (MSL, in non-tidal zone).

Attributes: None

Foreshore   **BA020**

Definition: That part of the shore or beach which lies between the low water mark and the coastline/shoreline. The same condition may exist in non-contiguous off-shore areas.

Feature class: COASTA
Feature type: Area
Primitive type: Face
Portrayal criteria: Foreshore areas where the <u>average horizontal distance</u> between MLW and MHW coastlines is more than 1000 m. Areas larger than 0.5 km^2

Attributes:

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
Groninger Wad *(Example)*	
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMN2
Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code	*Value description*
Groninger Wad *(Example)*	
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NLN1

Description:	ISO 639-2/B 3-char Language Code for NAMN1
Data type:	Character
Domain:	Coded value

Value/Code	Value description
GER *(Example)*	
N_A	Not applicable

NLN2

Description:	ISO 639-2/B 3-char Language Code for NAMN2
Data type:	Character
Domain:	Coded value

Value/Code	Value description
CES *(Example)*	
N_A	Not applicable

Island   **BA030**

Definition: A land mass smaller than a continent and surrounded by water.
Feature class: ISLANDA
Feature type: Area
Primitive type: Face
Portrayal criteria: Islands larger than 3 km^2. Smaller islands in water area can be portrayed if considered as landmark because containing an important settlement, etc.

Attributes:

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMN2
Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1

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Data type:	Character	
Domain:	Coded value	

Value/Code	Value description
GER *(Example)*	
N_A	Not applicable

NLN2

Description:	ISO 639-2/B 3-char Language Code for NAMN2
Data type:	Character
Domain:	Coded value

Value/Code	Value description
CES *(Example)*	
N_A	Not applicable

Water (except inland)   **BA040**

Definition: An area of water which normally has tidal fluctuations.

Feature class: SEAA
Feature type: Area
Primitive type: Face
Portrayal criteria: Usually the sea or ocean area.
Attributes:
                  None

Lake   **BH080**

Definition: A body of water surrounded by land.
Feature class: LAKERESA
Feature type: Area
Primitive type: Face
Portrayal criteria: Lakes larger than 0.5 km^2. Lakes being part of the water network have to be topologically connected to watercourses.

Attributes:

HYC
Description: Hydrological category. Identifies the annual water content of the feature.
Data type: Short integer
Domain: Coded value

Value/Code	*Value description*
0	Unknown
6	Non-Perennial/Intermittent/Fluctuating
8	Perennial/Permanent
998	Not applicable

NHI
Description: National hydrological identification code.
Data type: Character
Domain: Actual value

Value/Code	*Value description*
H08976 *(Example)*	
N_P	Unpopulated
N_A	Not applicable

ZV2
Description: Highest Z-Value (meters). Elevation above a given datum to the highest portion of the feature.
Data type: Short integer
Domain: Actual value

Value/Code	*Value description*
1245 *(Example)*	
-29999	Unknown
-29997	Unpopulated

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*

UNK   Unknown
N_A   Not applicable

NAMN2

Description:	Name of feature in second national language
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NAMA1

Description:	Name of feature in first national language (ASCII)
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NAMA2

Description:	Name of feature in second national language (ASCII)
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NLN1

Description:	ISO 639-2/B 3-char Language Code for NAMN1
Data type:	Character
Domain:	Coded value

Value/Code	Value description
GER *(Example)*	
N_A	Not applicable

NLN2

Description:	ISO 639-2/B 3-char Language Code for NAMN2
Data type:	Character
Domain:	Coded value

Value/Code	Value description
CES *(Example)*	
N_A	Not applicable

Reservoir   **BH130**

Definition: A man-made enclosure or area formed for the storage of water.
Feature class: LAKERESA
Feature type: Area
Primitive type: Face
Portrayal criteria: Reservoirs larger than 0.5 km^2. Reservoirs being part of the water network have to be topologically connected to watercourses.

Attributes:

HYC
Description: Hydrological category. Identifies the annual water content of the feature.
Data type: Short integer
Domain: Coded value

Value/Code	*Value description*
0	Unknown
6	Non-Perennial/Intermittent/Fluctuating
8	Perennial/Permanent
998	Not applicable

NHI
Description: National hydrological identification code. First two characters are the 2-character country code.
Data type: Character
Domain: Coded value

Value/Code	*Value description*
H08976 *(Example)*	
N_P	Unpopulated
N_A	Not applicable

ZV2
Description: Highest Z-Value (meters). Elevation above a given datum to the highest portion of the feature.
Data type: Short integer
Domain: Actual value

Value/Code	*Value description*
1245 *(Example)*	
-29999	Unknown
-29997	Unpopulated

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*

UNK   Unknown
N_A   Not applicable

NAMN2
Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code   Value description
GER *(Example)*
N_A   Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code   Value description
FIN *(Example)*
N_A   Not applicable

Spring / Water hole   **BH170**

Definition: A natural outflow of water from below the ground surface.
Feature class: SPRINGP
Feature type: Point
Primitive type: Isolated node
Portrayal criteria: Springs that are considered as landmark by their location or size, or have a
                             tourist interest and that are not related to the water network.

Attributes:

> **SWT**
> *Description:*   Spring type
> *Data type:*   Short integer
> *Domain:*   Coded value
>
> *Value/Code*   *Value description*
> 0   Unknown
> 1   Geyser
> 2   Hot Spring
> 3   Fumaroles
> 999   Other

Spring / Water hole   BH170

Definition: A natural outflow of water from below the ground surface.
Feature class: SPRINGC
Feature type: Point
Primitive type: Connected node
Portrayal criteria: Springs that are considered as landmark by their location or size, or have a tourist interest and that are not related to the water network.

Attributes:

SWT
Description: Spring type
Data type: Short integer
Domain: Coded value

Value/Code	*Value description*
0	Unknown
1	Geyser
2	Hot Spring
3	Fumaroles
999	Other

Watercourse   BH502

Definition:	A natural or man-made flowing watercourse or stream.
Feature class:	WATRCRSL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Watercourse with width >10-20 m and < 500 m.

Quality criterion:

Fictitious river lines through the lakes and reservoirs are needed to reach the full water network connectivity. Also underground watercourses are saved.

Attributes:

WIC

Description:	Width category
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
0	Unknown
1	Width less or equal than 125 m
2	Width more than 125 m
997	Unpopulated

HYC

Description:	Hydrological category. Identifies the annual water content of the feature.
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
0	Unknown
3	Dry
6	Non-Perennial/Intermittent/Fluctuating
8	Perennial/Permanent
997	Unpopulated

LOC

Description:	Location category. Status of feature relative to surrounding area.
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
0	Unknown
8	On ground surface
25	Suspended or elevated above ground or water surface (for canals on bridges)
40	Underground
984	Fictitious axes through water areas
997	Unpopulated

HOC

Description: Hydrographic origin category
Data type: Short integer
Domain: Coded value

Value/Code	*Value description*
0	Unknown
4	Man-made
5	Natural
997	Unpopulated

EXS

Description: Existence category
Data type: Short integer
Domain: Coded value

Value/Code	*Value description*
0	Unknown
5	Under construction (for man-made)
724	Navigable and operational
997	Unpopulated
998	Not applicable (for non-navigability)

NHI

Description: National hydrological identification code.
Data type: Character
Domain: Coded value

Value/Code	*Value description*
H08976 *(Example)*	
N_P	Unpopulated
N_A	Not applicable

NAMN1

Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated (possible only for fictitious axes)

NAMN2

Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown

N_A   Not applicable
N_P   Unpopulated (possible only for fictitious axes)

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable
N_P   Unpopulated (possible only for fictitious axes)

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable
N_P   Unpopulated (possible only for fictitious axes)

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code   Value description
GER *(Example)*
N_A   Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code   Value description
SWE *(Example)*
N_A   Not applicable

Watercourse   BH502

Definition: A natural or man-made flowing watercourse
Feature class: WATRCRSA
Feature type: Area
Primitive type: Face
Portrayal criteria: Watercourse with width >= 500 m.

Attributes:

HYC
Description: Hydrological category. Identifies the annual water content of the feature.
Data type: Short integer
Domain: Coded value

Value/Code	Value description
0	Unknown
6	Non-Perennial/Intermittent/Fluctuating
8	Perennial/Permanent
998	Not applicable

HOC
Description: Hydrographic origin category
Data type: Short integer
Domain: Coded value

Value/Code	Value description
0	Unknown
4	Man-made
5	Natural

EXS
Description: Existence Category
Data type: Short integer
Domain: Coded value

Value/Code	Value description
0	Unknown
5	Under construction (for man-made)
724	Navigable and operational
998	not applicable (for non-navigability)

NHI
Description: National hydrological identification code. First two characters are the 2-character country code.
Data type: Character
Domain: Coded value

Value/Code	Value description
H08976 *(Example)*	

N_P   Unpopulated
N_A   Not applicable

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMN2
Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code   Value description
POR *(Example)*
N_A   Not applicable

NLN2

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Description:	ISO 639-2/B 3-char Language Code for NAMN2
Data type:	Character
Domain:	Coded value

Value/Code	Value description
SPA *(Example)*	
N_A	Not applicable

Dam / Weir   **BI020**

Definition:	A permanent barrier across a watercourse used to impound water or to control its flow.
Feature class:	DAML
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Dams with remarkable national meaning or longer than 2000 meters.
Attributes:	None

Glacier   **BJ030**

Definition: A large mass of snow and ice moving slowly down a slope or valley from
                                 above the snowline.
Feature class: LANDICEA
Feature type: Area
Primitive type: Face
Portrayal criteria: Glaciers larger than 3 km^2.

Attributes:

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMN2
Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

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NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code	Value description
FRE *(Example)*	
N_A	Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code	Value description
LIT *(Example)*	
N_A	Not applicable

Snow field / Ice field   **BJ100**

Definition: A large area permanently covered by ice or snow over land or water.
Feature class: LANDICEA
Feature type: Area
Primitive type: Face
Portrayal criteria: Ice fields larger than 3 km^2.

Attributes:

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable
N_P   Unpopulated

NAMN2
Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable
N_P   Unpopulated

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable
N_P   Unpopulated

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable
N_P   Unpopulated

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code	Value description
FRE *(Example)*	
N_A	Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code	Value description
ENG *(Example)*	
N_A	Not applicable

3.5   THEME: Transportation network, TRANS

Railway   **AN010**

Definition:	A rail or set of parallel rails on which a train or tram runs.
Feature class:	RAILRDL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Railway routes used for regular transportation of goods and passengers. Important industry railways can be included. Metro lines (= underground urban railways), tram lines or streetcar lines inside city areas are excluded. Railways are represented by one line regardless of the number of tracks. Railway yards are excluded. Railway lines shorter than 2 km are excluded.

Attributes:

EXS

Description:	Existence Category (the state or condition of the feature).
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
0	Unknown
5	Under construction
6	Abandoned/Disused
28	Operational

LOC

Description:	Location category. Status of feature relative to surrounding area or water.
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
0	Unknown
8	On ground surface
25	Suspended or elevated above ground or water surface (= bridge length more than 1000 m.)
40	Underground (= tunnel length more than 2000 m.)

RSU

Description:	Seasonal availability.
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
0	Unknown
1	All year
2	Seasonal
997	Unpopulated

FCO

Description:	Feature configuration (code for the number of tracks)
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
0	Unknown
2	Multiple
3	Single

RRA

Description:	Railway power source.
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
0	Unknown
1	Electrified track
3	Overhead electrified
4	Non-electrified

GAW

Description:	Gauge width (cm). The width of a single pair of rails, measured along the shortest distance from inside rail to inside rail.
Data type:	Short integer
Domain:	Actual value

Value/Code	*Value description*
143 *(Example)*	143 centimeters
-29999	Unknown
-29997	Unpopulated
-29998	Not applicable for "monorails"

RGC

Description:	Railway gauge category.
Data type:	Short integer
Domain:	Coded value

Value/Code	*Value description*
0	Unknown
1	Broad (broader than 1435 mm)
2	Narrow (narrower than 1435 mm)
3	Normal (European 1435 mm)
998	Not applicable for "monorails"

Road   **AP030**

Definition: An open way maintained for vehicular use.
Feature class: ROADL
Feature type: Line
Primitive type: Edge
Portrayal criteria: Roads that form up a logical transportation network at a map scale 1:1 000
                                  000. Roads can be omitted for cartographic reasons in those areas where
                                  the road network is very dense. Low-class roads can be added if these
                                  roads are important routes in settlement structure. Roads are represented
                                  by one line regardless of the number of lanes or carriageways. Road lines
                                  shorter than 2 km are excluded. All European roads (E-roads) are included.

Attributes:

EXS
Description: Existence Category (the state or condition of the feature).
Data type: Short integer
Domain: Coded value

Value/Code   *Value description*
0   Unknown
5   Under construction
6   Abandoned/Disused
28   Operational

LOC
Description: Location category. Status of feature relative to surrounding
                                   area or water.
Data type: Short integer
Domain: Coded value

Value/Code   *Value description*
0   Unknown
8   On ground surface
25   Suspended or elevated above ground or water surface
                                   (= bridge length more than 1000 m.)
40   Underground (= tunnel length more than 2000 m.)

RSU
Description: Seasonal availability.
Data type: Short integer
Domain: Coded value

Value/Code   *Value description*
0   Unknown
1   All year
2   Seasonal
997   Unpopulated

RTT

Description:	Route Intended Use
Data type:	Short integer
Domain:	Coded value

Value	*Value description*
0	Unknown
14	Primary route (= major, long-distance road)
15	Secondary route (= regional road)
16	Limited access route (= motorway)
984	Local road

MED

Description:	Median category.
Data type:	Short integer
Domain:	Coded value

Value	*Value description*
0	Unknown
1	With median
2	Without median

RST

Description:	Road / Runway surface type.
Data type:	Short integer
Domain:	Coded value

Value	*Value description*
0	Unknown
1	Paved
2	Unpaved

RTN

Description:	Route number (national)
Data type:	Character
Domain:	Actual value

Value	*Value description*
UNK	Unknown
A1#A45 *(Example)*	If more than one official national route number (# = delimiter)
N_A	Not applicable

RTE

Description:	Route number (international)
Data type:	Character
Domain:	Actual value

Value	*Value description*
UNK	Unknown

E18#E35 *(Example)*   If more than one European route number (# = delimiter)
N_A   Not applicable

Ferry crossing   **AQ070**

Definition: A route in a body of water where a ferry crosses from one shoreline to
                                another.
Feature class: FERRYL
Feature type: Line
Primitive type: Edge
Portrayal criteria: All important regular international ferry routes. All national ferry routes having
                                major importance in connecting the national road or railway network.

Attributes:

RSU
Description: Seasonal availability.
Data type: Short integer
Domain: Coded value

Value/Code   *Value description*
0   Unknown
1   All year
2   Seasonal
997   Unpopulated

DETN
Description: Destination in primary language.
Data type: Character
Domain: Actual value

Value   *Value description*
Kiel(DE)–Göteborg(SE)   *(Example)* The destinations of the ferry crossing is structured
                                to store the two named places of destination: <from
                                place>(country code)-<to place>(country code). The
                                destination is given by alphabetical order of the country code
UNK   Unknown
N_P   Unpopulated
N_A   Not applicable (When no named destinations exist, i.e. for
                                ferry lines crossing a river or a lake).

DETA
Description: Destination in primary language, with ASCII characters
Data type: Character
Domain: Actual value

Value   *Value description*
Kiel(DE)–Goeteborg(SE)   *(Example)* The destinations of the ferry crossing is structured
                                to store the two named places of destination: <from
                                place>(country code)-<to place>(country code). The
                                destination is given by alphabetical order of the country code.
UNK   Unknown
N_P   Unpopulated
N_A   Not applicable (When no named destinations exist, i.e. for
                                ferry lines crossing a river or a lake).

DNLN

Description:	ISO 639-2/B 3-char Language Code for primary national language (destination cities).
Data type:	Character
Domain:	Coded value

Value/Code or Example	*Value description*
GER *(Example)*	German

Entrance / Exit   **AQ090**

Definition:	A point of entrance or exit.
Feature class:	EXITC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	A point where a road or a railway goes across an international boundary and traffic across the boundary is allowed and there is a real customs or other kind of official facility. Node for representing border-crossing point is placed at the international boundary. Used outside Schengen area only.

Attributes:

NAMN1
Description:	Name of feature in first national language
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMN2
Description:	Name of feature in second national language
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMA1
Description:	Name of feature in first national language (ASCII)
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMA2
Description:	Name of feature in second national language (ASCII)
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

N_P   Unpopulated

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code   Value description
ITA *(Example)*
N_A   Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code   Value description
SWE *(Example)*
N_A   Not applicable

Railway station   **AQ125**

Definition: A stopping place for the transfer of passengers and/or freight.
Feature class: RAILRDC
Feature type: Point
Primitive type: Connected node
Portrayal criteria: Important main railway stations used for regular passenger traffic inside or near settlements.

Attributes:

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMN2
Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1

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Data type: Character
Domain: Coded value

Value/Code	Value description
GER *(Example)*	
N_A	Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code	Value description
FRE *(Example)*	
N_A	Not applicable

Airport / Airfield   **GB005**

Definition: A defined area used for landing, take-off, and movement of aircraft including associated buildings and facilities.
Feature class: AIRFLDP
Feature type: Point
Primitive type: Isolated node
Portrayal criteria: All airports having regular passenger traffic.

Attributes:

USE
Description: Usage
Data type: Short integer
Domain: Coded value

Value/Code	*Value description*
0	Unknown
4	National (Only domestic flights)
23	International (Only international or: domestic and international flights)
998	Not applicable

IKO
Description: ICAO 4-letter designator.
Data type: Short integer
Domain: Coded value

Value/Code	*Value description*
LSZH *(Example)*	
UNK	Unknown
N_A	Not applicable

IAT
Description: IATA 3-letter designator.
Data type: Short integer
Domain: Coded value

Value/Code	*Value description*
ANR *(Example)*	
UNK	Unknown
N_A	Not applicable

ZV3
Description: Airfield elevation.
Data type: Short integer
Domain: Actual value

Value/Code	*Value description*
1245 *(Example)*	
-29999	Unknown
-29997	Unpopulated

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NAMN2
Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code	Value description
FRE *(Example)*	
N_A	Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character

Domain: Coded value

Value/Code	Value description
SWE *(Example)*	
N_A	Not applicable

3.6   THEME: Settlements, POP

Built-up area   **AL020**

Definition: An area containing a concentration of buildings and other structures.
Feature class: BUILTUPP
Feature type: Point
Primitive type: Isolated node
Portrayal criteria: All built-up areas with 1 000 – 50 000 inhabitants OR
                              Total size less than 0.3 km^2 (despite the number of inhabitants)

                              Built-up areas, which have less than 1000 inhabitants but are main villages
                              or cities of the regional/local administrative units, are included. In that case it
                              should be taken care that all regional/local administrative units have at least
                              main village or city. If the number of inhabitants is not known, then the
                              selection criterion is size less than 0.3 km^2.

Attributes:

PPL
Description: Populated Place Category (actual population number). The
                             number of inhabitants within a built-up area. Unit = 1
                             inhabitant.
Data type: Long integer
Domain: Actual value

Value/Code	Value description
225 780 *(Example)*	
-29997	Unpopulated (used when PP1 and PP2 are populated)
-29999	Unknown

PP1
Description: Population lower range. This attribute is used when the actual
                             number of inhabitants is not known but the number of people
                             is expressed using lower range (PP1) and upper range (PP2)
                             values. Each data provider can use its own values to define
                             the population categories. Unit = 1 inhabitant.
Data type: Long integer
Domain: Actual value

Value/Code	Value description
10 000 *(Example)*	
-29999	Unknown
-29997	Not applicable (when actual number of inhabitants is stored into PPL)

PP2
Description: Population upper range. This attribute is used when the actual
                             number of inhabitants is not known but the number of people
                             is expressed using lower range (PP1) and upper range (PP2)
                             values. Each data provider can use its own values to define
                             the population categories. Unit = 1 inhabitant.
Data type: Long integer

Domain:	Actual value

Value/Code	*Value description*
25 000 *(Example)*	
-29999	Unknown
-29997	Not applicable (when actual number of inhabitants is stored into PPL)

NAMN1

Description:	Name of feature in first national language
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NAMN2

Description:	Name of feature in second national language
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NAMA1

Description:	Name of feature in first national language (ASCII)
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NAMA2

Description:	Name of feature in second national language (ASCII)
Data type:	Character
Domain:	Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NLN1

Description:	ISO 639-2/B 3-char Language Code for NAMN1
Data type:	Character
Domain:	Coded value

Value/Code	Value description

ITA *(Example)*
N_A   Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code   Value description
ROH *(Example)*
N_A   Not applicable

Built-up area   **AL020**

Definition:	An area containing a concentration of buildings and other structures.
Feature class:	BUILTUPA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	All built-up areas with equal or more than 50 000 inhabitants AND total size minimum 0.3 km^2. Minimum size of a discrete area: 0.3 km^2 (when the same built-up area is splitted to parts). Area 0.3 km^2 is used as only criteria when the number of inhabitants is unknown.

Certain seamless (= compound) built-up area can be split into separate parts with common borderlines if it is possible to attach a respective number of inhabitants (expressed by actual or class values) to each area separately. In that case all parts of this certain built-up area are represented as closed areas even if the number of inhabitants of a single part is less than 50000. Also actual names of each part can be stored.

If it's not possible to separate the number of inhabitants, then this certain built-up area is stored unsplit as one area and names of the sub-areas can be stored separated with slash / like: Namex/Namey/Namez

When a certain city is represented as several separated parts, then all these areas have the same name of this city and the same number of inhabitants is stored to every part of this certain city.

An area, which does not fulfil the conditions named in the specs but is closed and surrounded by one or several other features of the coverage is called background area (= "hole"). Background areas or sparsely populated areas surrounded by built-up areas smaller than 5 km^2 (inside built-up areas) are merged to the surrounding built-up areas.

Attributes:

PPL

Description:	Populated Place Category (actual population number). The number of people within a built-up area. Unit = 1 inhabitant.
Data type:	Long integer
Domain:	Actual value

Value/Code	Value description
225430 *(Example)*	
-29999	Unknown
-29997	Unpopulated (used when PP1 and PP2 are populated)

PP1

Description:	Population lower range. This attribute is used when the actual number of inhabitants is not known but the number of people is expressed using lower range (PP1) and upper range (PP2) values. Each data provider can use its own values to define the population categories. Unit = 1 inhabitant.
Data type:	Long integer
Domain:	Actual value

Value/Code	Value description
20000 *(Example)*	

-29999　Unknown
-29997　Unpopulated (when actual number of inhabitants is stored into PPL)

PP2
Description:　Population upper range. This attribute is used when the actual number of inhabitants is not known but the number of people is expressed using lower range (PP1) and upper range (PP2) values. Each data provider can use its own values to define the population categories. Unit = 1 inhabitant.
Data type:　Long integer
Domain:　Actual value

Value/Code　*Value description*
50000 *(Example)*
-29999　Unknown
-29997　Unpopulated (when actual number of inhabitants is stored into PPL)

NAMN1
Description:　Name of feature in first national language
Data type:　Character
Domain:　Actual value

Value/Code　*Value description*
UNK　Unknown
N_A　Not applicable

NAMN2
Description:　Name of feature in second national language
Data type:　Character
Domain:　Actual value

Value/Code　*Value description*
UNK　Unknown
N_A　Not applicable

NAMA1
Description:　Name of feature in first national language (ASCII)
Data type:　Character
Domain:　Actual value

Value/Code　*Value description*
UNK　Unknown
N_A　Not applicable

NAMA2
Description:　Name of feature in second national language (ASCII)
Data type:　Character
Domain:　Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable

NLN1

Description:	ISO 639-2/B 3-char Language Code for NAMN1
Data type:	Character
Domain:	Coded value

Value/Code	Value description
FIN *(Example)*	
N_A	Not applicable

NLN2

Description:	ISO 639-2/B 3-char Language Code for NAMN2
Data type:	Character
Domain:	Coded value

Value/Code	Value description
EST *(Example)*	
N_A	Not applicable

3.7 THEME: Elevation, ELEV

Height point   **CA030**

Definition: A designated location with an elevation value relative to a vertical datum.
Feature class: ELEVP
Feature type: Point
Primitive type: Isolated node
Portrayal criteria: 1 - 30 remarkable height points for each country. At least the highest point of the country.

Attributes:

ZV2
Description: Highest Z-Value (meters). Elevation above a given datum to the highest portion of the feature.

Data type: Short integer
Domain: Actual value

Value/Code	*Value description*
1245 *(Example)*	
-29999	Unknown

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMN2
Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown
N_A	Not applicable
N_P	Unpopulated

NAMA1
Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code	*Value description*
UNK	Unknown

N_A   Not applicable
N_P   Unpopulated

NAMA2
Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code   *Value description*
UNK   Unknown
N_A   Not applicable
N_P   Unpopulated

NLN1
Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code   Value description
FIN *(Example)*
N_A   Not applicable

NLN2
Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code   Value description
DAN *(Example)*
N_A   Not applicable

3.8   THEME: Named location, NAME

Named location   **ZD040**

Definition: A geographic place on the earth, not normally appearing as a feature on a map, but having a name that is required to be placed on a map.
Feature class: NAMET
Feature type: Text
Primitive type: Text string
Portrayal criteria: Cartographic text needed for named place at scale 1:1 000 000 that cannot be put into attributes or features.

Attributes:

CNL
Description: Category code for the named location
Data type: Short integer
Domain: Coded value

Value/Code   Value description
10   Boundaries
20   Hydrography
                     21 Sea or part of the sea
                     22 Bay
                     23 Fjord
                     24 Part of a lake
                     25 Marsh/Swamp or wetland
                     26 Sandbank, sea area
                     27 Beach
30   Miscellaneous
40   Settlement and named location
                     41 Settlement
                     42 Mountain range
                     43 Highland
                     44 Plain
                     45 Valley
                     46 Name of region
                     47 Headland / peninsular
                     48 Gorge
                     49 Peak
50   Transportation and infrastructure
60   Vegetation and soil
                     61 Ground surface element
                     62 Agricultural area, plantation
                     63 Woods / forest

NAMN1
Description: Name of feature in first national language
Data type: Character
Domain: Actual value

Value/Code   *Value description*
Jura *(Example)*

NAMN2

Description: Name of feature in second national language
Data type: Character
Domain: Actual value

Value/Code *Value description*
UNK Unknown
N_A Not applicable

NAMA1

Description: Name of feature in first national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code *Value description*
Jura *(Example)*

NAMA2

Description: Name of feature in second national language (ASCII)
Data type: Character
Domain: Actual value

Value/Code *Value description*
UNK Unknown
N_A Not applicable

NLN1

Description: ISO 639-2/B 3-char Language Code for NAMN1
Data type: Character
Domain: Coded value

Value/Code Value description
NOR *(Example)*

NLN2

Description: ISO 639-2/B 3-char Language Code for NAMN2
Data type: Character
Domain: Coded value

Value/Code Value description
FIN *(Example)*
N_A Not applicable

4 Metadata

Metadata is saved according the ISO/DIS 19115 standard. The structure of the metadata is described in the report *D6.4: EGM Metadata 20-01-2003, BKG/Werhahn.*

There are two categories of metadata files:

- Description of the whole dataset: Table and Lineage file
- Description of each national dataset: Table and Lineage file (national specifics)

Metadata according the standard ISO/DIS 19115 is saved to a table which structure is shown in Annex B1. Lineage file is a text file having additional information about data sources and country specifics etc. Contents of the lineage file is shown in Annex B2.

Annex A: Topological relationships

Boundaries BND

These topological relationships set up at feature class level are required and should be specified in the data schema

Nr	Feature class	Topological association	Related feature class	Description
1	POLBNDA	Boundary must be covered by	POLBNDL	Outer limit of an administrative area must be covered by the administrative boundary
2		Must not overlap		Administrative areas must not overlap each other.
3		Must have no gap		Administrative areas join each other and there is no gaps or void areas between them.
4	POLBNDL	Must not intersect or touch interior		Administrative boundaries touch at their ends and can not overlap each other.
5		Must not have isolated start node and end node		Administrative boundary lines must join other administrative boundaries (cannot be isolated). Exception: In some cases international boundaries.
6		Must not have pseudo-nodes		The end of a line is always connected to more than one (other) boundary lines (not just one line).

Hydrography HYDRO

These topological relationships set up at feature class level are required and should be specified in the data schema

Nr	Feature class	Topological association	Related feature class	Description
1	COASTA	Must not overlap with	COASTA ISLANDA SEAA WATRCRSA LAKERESA LANDICEA	Foreshore area must not overlap with itself and island area, water area, watercourse area, lake area, ice area.
2		Must not have gap with	SEAA WATRCRSA	Foreshore area must not have void area with adjacent features as water area, and watercourse area
3	COASTL	Must not intersect or touch interior		Coastline must only touch at their ends and must not overlap each other
4		Must not overlap with	WATRCRSL DAML	Shore lines must not overlap with watercourse lines, dam
5	COASTL	Must be covered by boundary of	COASTA or ISLANDA or SEAA	Coastlines must be covered by the boundaries of foreshore, island or sea area.
6	DAML	Must not intersect or touch		Dam lines must only touch at their

		interior		ends and must not overlap each other.
7		Must not overlap with	**COASTL, WATRCRSL**	Dam lines must not overlap with shoreline or watercourse lines
8		Must be covered by boundary of	**LAKERESA or WATRCRSA**	Dam line must be covered by boundary of reservoir area or by watercourse area
9		Must not overlap with	**SPRINGP SPRINGC**	Dams must not overlap with springs
10	**LAKERESA**	Must not overlap with	**COASTA ISLANDA SEAA WATRCRSA LAKERESA LANDICEA**	Lake areas must not overlap each other and not with foreshore areas, sea areas, watercourse areas, island areas, ice areas.
11	**LANDICEA**	Must not overlap	**COASTA SEAA WATRCRSA LAKERESA LANDICEA**	Ice areas must not overlap between themselves and with foreshore areas, sea areas, watercourse areas and lake areas.
12	**ISLANDA**	Must not overlap with	**COASTA SEAA ISLANDA WATRCRSA LAKERESA LANDICEA**	Island areas must not overlap between them and with water area, foreshore area, watercourse area, lake area and ice area.
13		Must not have gap with	**COASTA SEAA WATRCRSA LAKERESA LANDICEA**	Islands area must not have void area with water area and foreshore area, watercourse area, lake area and ice area.
14	**SEAA**	Must not overlap with	**COASTA ISLANDA LAKERESA WATRCRSA SEAA LANDICEA**	Water (except inland) must not overlap between them and with foreshore area, and lake/reservoir area watercourse area, island area, ice area.
15	**SPRINGP**	Must not overlap with	**SPRINGP SPRINGC**	Spring/water hole as an isolated node must not overlap between them and with spring water (as connected) and dams.
16	**SPRINGC**	Must not overlap with	**SPRINGP SPRINGC WELLP RAPIDSC DAMC**	Spring/water hole as connected node must not overlap between them and with spring water (as isolated), dams.
17		Must be covered by endpoint of	**WATRCRSL**	Spring/water hole as a connected node must be covered by the end of watercourse line.
18	**WATRCRSA**	Must not overlap with	**COASTA ISLANDA SEAA WATRCRSA LAKERESA LANDICEA**	Watercourse areas must not overlap between themselves and with foreshore areas, sea areas, land ice areas, island areas, lake areas.
19		Must not have gap with	**SEAA, COASTA**	Watercourse area must not have void area with sea area and foreshore area

| 20 | WATRCRSL | Must not intersect or touch interior | | Watercourse lines must only touch at their ends and must not overlap each other. |
| 21 | | Must not overlap with | COASTL, DAML | Watercourse lines must not overlap with shoreline, dam |

Settlements POP

These topological relationships set up at feature class level are required and should be specified in the data schema

Nr	Feature class	Topological association	Related feature class	Description
1	BUILTUPA	Must not overlap		Built-up areas as area feature must not overlap each other
2	BUILTUPP	Must not overlap		Built-up areas as nodes must not overlap each other
3		Must not overlap	BUILTUPA	Built-up area as node feature must not overlap built-up area as area feature.

Transportation TRANS

These topological relationships set up at feature class level are required and should be specified in the data schema

Nr	Feature class	Topological association	Related feature class	Description
1	AIRFLDP	Must not overlap with	AIRFLDP, EXITC RAILRDC	Airfields as node must not overlap each other and not with border crossing points or railway stations
2	EXITC	Must be covered by end node of	ROADL or RAILRDL	Entrance/exit as connected nodes must be covered by end nodes of roads or railways
3		Must not overlap with	AIRFLDP, EXITC RAILRDC	Entrance/exit as connected node must not overlap between them and with airfield, helifield, interchange, level crossing, railway stations, and control towers.
4	FERRYL	Must not intersect or touch interior		Ferry lines can only touch at their ends and must not overlap each other
5		Must not overlap with	RAILRDL, FERRYL	Ferry lines must not overlap with road lines and railroad lines
6	RAILRDL	Must not intersect or touch interior		Railroad lines can only touch at their ends and must not overlap each other
7		Must not overlap with	ROADL, FERRYL	Railroad lines must not overlap with road lines and ferry lines
8	RAILRDC	Must be covered by end node of	RAILRDL	Railroad stations as connected nodes must be covered by end nodes of railroads
9		Must not overlap with	AIRFLDP, EXITC RAILRDC	Railway station, as connected node, must not overlap each other and with exits, or airfield.
10	ROADL	Must not intersect or touch interior		Road lines can only touch at their ends and must not overlap each other
11		Must not overlap with	RAILRDL, FERRYL	Road lines must not overlap with railroad lines and ferry lines

Topological associations between themes

Nr	Feature class	Topological association	Related feature class	Description
1	BUILTUPA	Must be covered by	POLBNDA	Built-up area (as area) must be covered by just a single administrative area.
2		Must not be covered by	SEAA	Built-up Area as area must not be covered by sea area.
3	BUILTUPP	Must be properly inside	POLBNDA	Built-up Area as nodes must be inside single faces of administrative areas.
4		Must not be covered by	SEAA	Built-up Area as nodes must not be covered by sea area.
5	AIRFLDP	Must be covered by	POLBNDA	The airfield point must be covered by the areas of the administrative areas.
6	EXITC	Must be covered by boundary of Must be covered by line	POLBNDA POLBNDL with USE = 23	The exit must touch the boundaries of the administrative entities.

Topological associations needed for quality control and good consistency between features

(grey)	= Relationships defined in the tables above
(pink)	= Area must not overlap with area
(green)	= No relationships defined or allowed

An area1 overlapping an area2

AREA1 / AREA2	SEAA	COASTA	LAKERESA	WATRCRSA	ISLANDA	LANDICEA	BUILTUPA
SEAA	grey	grey	grey	grey	grey	grey	grey
COASTA	grey	grey	grey	grey	grey	grey	pink
LAKERESA	grey	grey	grey	grey	grey	grey	pink
WATRCRSA	grey	grey	grey	grey	grey	grey	pink
ISLANDA	grey	grey	grey	grey	grey	grey	green
LANDICEA	grey	grey	grey	grey	grey	grey	pink
BUILTUPA	grey	pink	pink	pink	green	pink	grey

An area overlapping a point

AREA / POINT	COASTA	LAKERESA	LANDICEA	ISLANDA	SEAA	WATRCRSA	BUILTUPA
SPRINGP, SPRINGC	pink	pink	pink	green	pink	pink	green
BUILTUPP	pink	pink	pink	green	grey	pink	grey
AIRFLDP	pink	pink	pink	green	pink	pink	green
RAILRDC	pink	pink	pink	green	pink	pink	green
EXITC	pink	pink	pink	green	pink	pink	green
ELEVP	pink	green	pink	green	pink	pink	green

A line overlapping a line

LINE / LINE	COASTL	DAML	WATRCRSL	FERRYL	RAILRDC	ROADL
COASTL	grey	grey	grey	pink	pink	pink
DAML	grey	grey	grey	pink	green	green
WATRCRSL	grey	grey	grey	pink	pink	pink
FERRYL	pink	pink	pink	grey	grey	grey
RAILRDC	pink	green	pink	grey	grey	grey
ROADL	pink	green	pink	grey	grey	grey

A line overlapping a point

LINE / POINT	COASTL	DAML	WATRCRSL	FERRYL	RAILRDC	ROADL
SPRINGP	pink	pink	pink	pink	pink	pink
BUILTUPP	pink	pink	pink	pink	green	green
AIRFLDP	pink	pink	pink	pink	pink	green
ELEVP	pink	pink	pink	pink	pink	pink

A point overlapping a point

POINT / POINT	SPRINGP SPRINGC	BUILTUPP	NAMEP	AIRFLDP	ELEVP	RAILRDC	EXITC
SPRINGP	grey	pink	pink	pink	pink	pink	pink
BUILTUPP	pink	grey	grey	pink	pink	pink	pink
AIRFLDP	pink	pink	pink	grey	green	pink	pink
ELEVP	pink	pink	green	green	green	green	green
EXITC	pink	green	pink	green	green	grey	green

Annex B1: Metadata: General information and table structure
Deliverable D6.4: EGM Metadata, 20-1-2003, BKG/S.Werhahn

1 Introduction

1.1 Metadata in general

Metadata is data about a dataset. It gives information that allows a better understanding of the data and enables the user to determine whether the data is useful for the application in question and to apply the data in the most efficient way. It also enables the data producer to document and characterize the produced data.

1.2 Metadata in EuroGlobalMap

The EuroGlobalMap database covers most of Europe and producers and users are located all over Europe therefore an international standard for the metadata was adopted. Additionally the requirements of the other EuroGeographics projects and databases and other European wide initiatives had to be taken into account. Therefore the following decisions and conditions were stated at the beginning of the project.

- The EuroGlobalMap metadata follows the ISO standard 19115 and it contains information about the whole database and also about the national datasets. [TG V0.5, page 6]

- The metadata for EuroGlobalMap database will be defined, taking into account coherence needs with EuroRegionalMap and the INSPIRE initiative findings. [eContent proposal]

EuroGlobalMap consists of the national contribution of the participating countries produced according to common specifications. This leads to a hierarchical structure of the metadata with two levels:

1. EuroGlobalMap database

2. national contributions

The metadata for the EuroGlobalMap database contains all the information that applies to the whole dataset. The metadata for the national contributions contains information about the used national databases and any specialities that apply only for one country. There is a metadata set for each participating country and one for the EuroGlobalMap database. The metadata set for the EuroGlobalMap database contains all the elements in the table below, for the national contributions only part of the elements apply.

The metadata will be stored in a database.

2 Structure and content

The metadata for EuroGlobalMap follows the ISO/DIS 19115 standard and is structured in packages, entities and elements (with sub-elements). There are mandatory, optional and conditional elements. Most elements are text, some elements can be coded values, dates, integers, URLs or other data types.

	Metadata (MD_Metadata)
packages:	
entities:	**contact**
elements:	edition
sub-elements:	citation
	date
	date

All core metadata elements defined in the standard are included. Core elements are printed blue. Additional elements from the standard were included. They are printed in black. There is one new element which was added to the EuroGlobalMap metadata (Area of data provision). It is marked red.

The column "Obligation" shows if an element is mandatory (M), optional (O) or conditional (C) as given in the standard. The conditions under which the elements marked with "C" are mandatory are listed at the end of the table.

If the entity is optional and no information is given then even the mandatory elements are left empty. If information is given for this entity or the entity is mandatory then at least the mandatory elements have to be filled in.

All elements apply to the EuroGlobalMap database (marked green in column "EGM"). In the column "Partners" those elements which apply to the contributions of the individual countries are marked orange.

EGM	Partners	Metadata (MD_Metadata)	ISO-ID	Obligation	Data type	Definition
		file identifier	2	O	Text	unique identifier for this metadata file
		language	3	M	Text	language used for documenting metadata
		character set	4	M	Code	full name of the character coding standard used for the metadata set, **Code List B.5.10**
		parentIdentifier	5	O	Text	file identifier of the metadata to which this metadata is a subset (child)
		hierarchyLevel	6	M	Code	scope to which the metadata applies, **Code List B.5.25**
		hierarchyLevelName	7	O	Text	name of the hierarchy levels for which the metadata is provided
		contact	8	**M**		party responsible for the metadata information

	eurogeographics	**EuroGlobalMap Specification v3.0**	Page 78

EGM	Partners		ISO-ID	Obligation	Data type	Definition
		individual Name	375	O	Text	
		organisation Name	376	M	Text	
		contact Info	378	O		
		phone	388	O		
		voice	408	O	Text	
		facsimile	409	O	Text	
		address	389	O		
		delivery point	381	O	Text	
		city	382	O	Text	
		administrative area	383	O	Text	
		postal Code	384	O	Text	
		country	385	O	Text	
		electronic Mail Address	386	O	Text	
		on-line resource	390	O		
		linkage	397	M	URL	
		date	9	M	Date	date that the metadata was created
		Standard Name	10	O	Text	name of the metadata standard (including profile name) used
		Standard version	11	O	Text	version (profile) of the metadata standard used
Data identification (MD_DataIdentification)						
		citation	24	**M**		citation data for the resource(s)
		title	360	M	Text	name by which the cited resource is known
		alternate title	361	O	Text	short name or other language name by which the cited information is known.
		date	362	M		reference date for the cited resource
		date	394	M	Date	**ISO 8601 (YYYY-MM-DD --> 2002-09-01)**
		date type	395	M	Code	**Code List B.5.2**
		edition	363	O	Text	version of the cited resource
		edition date	364	O	Text	date of the edition
		abstract	25	M	Text	brief narrative summary of the content of the resource(s)
		purpose	26	O	Text	summary of the intentions with which the resource(s) was developed
		point of contact	29	**C**[*1]		identification of, and means of communication with, person(s) and organizations(s) associated with the resource(s)
		individual Name	375	O	Text	
		organisation Name	376	M	Text	1= NLS, 2= EGG HO, 3- n= data providers ?
		contact Info	378	O		
		phone	388	O		
		voice	408	O	Text	
		facsimile	409	O	Text	
		address	389	O		
		delivery point	381	O	Text	
		city	382	O	Text	
		administrative area	383	O	Text	
		postal Code	384	O	Text	
		country	385	O	Text	ISO 3166-3 (?) / use **ISO 3166-1**

		electronic Mail Address	386	O	Text	
		on-line resource	390	O		
		linkage	397	M	URL	
		role	379	M	Code	**Code List B.5.5**
		Area of data provision				Countries, for which the point of contact was responsible during data production
		graphic overview	31	**O**		provides a graphic that illustrates the resource
		file name	49	M	Text	name of the file that contains a graphic that provides an illustration of the dataset
		keywords	33	**O**		provides category keywords, their type, and reference source
		keyword	53	M	Text	commonly used word(s) or formalised word(s) or phrase(s) used to describe the subject
		thesaurus Name	55	O		
		title	360	M	Text	
		date	362	M		
		date	394	M	Date	**ISO 8601 (YYYY-MM-DD --> 2002-09-01)**
		date type	395	M	Code	**Code List B.5.2**
		Specification	130	**M**		Name, version and date of the specification used for data production
		title	360	M	Text	
		date	362	M		
		date	394	M	Date	**ISO 8601 (YYYY-MM-DD --> 2002-09-01)**
		date type	395	M	Code	**Code List B.5.2**
		status	28	O	Code	status of the resource(s), Code List B.5.23
		Maintenance	30	**O**		provides information about the frequency of resource updates, and the scope of those updates
		Maintenance and update frequency	143	M	Code	**Code List B.5.18**
		Restrictions/Constraints	35	**O**		provides information about constraints which apply to the resource(s)
		use limitation	68	O	Text	limitation affecting the fitness for use of the resource. Example, "not to be used for navigation
		access Constraints	70	O	Code	access constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations on obtaining the resource, **Code List B.5.24**
		use Constraints	71	O	Code	constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations or warnings on using th resource, **Code List B.5.24**
		other Constraints	72	O	Text	other restrictions and legal prerequisites for accessing and using the resource
		spatial representation type	37	O	Code	method used to spatially represent geographic information, **Code List B.5.26**
		spatial resolution	38	**O**		factor which provides a general understanding of the density of spatial data in the dataset
		equivalent scale	60	M		
		denominator	57	M	Integer	the number below the line in a vulgar fraction
		language	39	M	Text	language(s) used within the dataset, **ISO 639-2**

			ISO-ID	Obligation	Data type	Definition
		character set	40	M	Code	full name of the character coding standard used for the dataset, **Code List B.5.10**
		topic category	41	M	Code	main theme(s) of the datset **Code List B.5.27**
		geographic box	42	**C*2**		minimum bounding rectangle within which data is available
		extentTypeCode	340	O	Boolean	indication of whether the bounding polygon encompasses an area covered by the data or an area where data is not present, **0 - exclusion, 1 inclusion**
		polygon	342	M	?	sets of points defining the bounding polygon
		West Bound Longitude	344	M	Angle	western-most coordinate of the limit of the dataset extent, expressed in longitude in decimal degrees (positive east)
		East bound Longitude	345	M	Angle	eastern-most coordinate of the limit of the dataset extent, expressed in longitude in decimal degrees (positive east)
		South Bound Latitude	346	M	Angle	southern-most, coordinate of the limit of the dataset extent expressed in latitude in decimal degrees (positive north)
		North bound Latitude	347	M	Angle	northern-most, coordinate of the limit of the dataset extent expressed in latitude in decimal degrees (positive north)
		geographic description	43	C*2	Text	description of the geographic area within which data is available
		environment description	44	O	Text	description of the dataset in the producer's processing environment, including items such as the software, the computer operating system, file name, and the dataset size
		extent	45	**O**		additional extent information including the bounding polygon, vertical, and temporal extent of the dataset
		description	335	M	Text	

EGM	Partners	**Reference system (MD_ReferenceSystem)**	ISO-ID	Obligation	Data type	Definition
		reference system identifier	187	**O**		name of the reference system
		code	207	M	Text	
		projection	190	**O**		identity of the projection used
		code	207	M	Text	
		ellipsoid	191	**O**		identity of the ellipsoid used
		code	207	M	Text	

EGM	Partners	**Data quality (DQ_DataQuality)**	ISO-ID	Obligation	Data type	Definition
		scope	79	**M**		the specific data to which the data quality information applies
		level	139	M	Code	hierarchical level of the data specified by the scop, **Code List B.5.25**
		level description	141	M		detailed description about the level of the data specified by the scope

		other	155	M	Text	
		lineage	81	**M**		non-quantitative quality information about the lineage of the data specified by the scope
		statement	83	C*3	Text	general explanation of the data producer's knowledge about the lineage of a dataset
		process Step	84	C*3		information about an event in the creation proces for the data specified by the scope
		description	87	M	Text	description of the event, including related parameters or tolerances
		source	85	C*3		information about the source data used in creating the data specified by the scope
		description	93	C*4	Text	detailed description of the level of the source dat
		scale	94	O		denominator of the representative fraction on a source map
		denominator	57	M	Integer	
		reference system	95	O		spatial reference system used by the source dat
		reference system identifier	187	O		name of the reference system
		code	207	M	Text	
		projection	190	O		identity of the projection used
		code	207	M	Text	
		ellipsoid	191	O		identity of the ellipsoid used
		code	207	M	Text	
		citation	96	O		citation data for the resource(s)
		title	360	M	Text	
		date	362	M		
		date	394	M	Date	**ISO 8601 (YYYY-MM-DD --> 2002-09-01)**
		date type	395	M	Code	**Code List B.5.2**
		extent	97	C*4		information about the spatial, vertical, and temporal extent of the source data
		description	335	M	Text	
		report	80	**M**		quantitative quality information for the data specified by the scope
		completeness	108	O		presence and absence of features, their attribute and their relationships
		result	107	M		
		explanation	131	M	Text	explanation of the meaning of conformance for this result
		logical consistency	111	O		degree of adherence to logical rules of data structure, attribution and relationships (data structure can be conceptual, logical or physical)
		result	107	M		
		explanation	131	M	Text	explanation of the meaning of conformance for this result
		topological consistency	115	O		correctness of the explicitly encoded topological characteristics of the dataset as described by th scope
		result	107	M		
		explanation	131	M	Text	explanation of the meaning of conformance for this result
		positional accuracy	116	O		accuracy of the position of features

EGM	Partners		ISO-ID	Obligation	Data type	Definition
		result	107	M		
		explanation	131	M	Text	explanation of the meaning of conformance for this result
		thematic accuracy	124	O		accuracy of quantitative attributes and the correctness of non-quantitative attributes and of the classifications of features and their relationships
		result	107	M		
		explanation	131	M	Text	explanation of the meaning of conformance for this result
		Distribution (MD_Distribution)				
		digital transfer options	273	**O**		technical means and media by which a resource is obtained from the distributor
		units of distribution	275	O	Text	tiles, layers, geographic areas, etc., in which dat is available
		transfer size	276	O	Real	estimated size of a unit in the specified transfer format, expressed in megabytes. The transfer size is > 0.0
		online	277	O		information about online sources from which the resource can be obtained
		linkage	397	M	URL	location (address) for on-line access using a Uniform Resource Locator address or similar addressing scheme such as http://www.statkart.no/isotc211
		offline	278	O		information about offline media on which the resource can be obtained
		name	292	M	Code	name of the medium on which the resource can be received, **Code List B.5.20**
		distributor	272	**O**		party from whom the resource may be obtained. This list need not be exhaustive
		contact	280	M		
		individual Name	375	O	Text	
		organisation Name	376	M	Text	
		contact Info	378	O		
		phone	388	O		
		voice	408	O	Text	
		facsimile	409	O	Text	
		address	389	O		
		delivery point	381	O	Text	
		city	382	O	Text	
		administrative area	383	O	Text	
		postal Code	384	O	Text	
		country	385	O	Text	
		electronic Mail Address	386	O	Text	
		on-line resource	390	O		
		linkage	397	M	URL	
		standardOrderProcess	281	O		
		fees	299	O	Text	
		orderingInstructions	301	O	Text	

						description of the computer language construct that specifies the representation of data objects i a record, file, message, storage device or
		format	271	**O**		transmission channel
		Name	285	M	Text	name of the data transfer format(s)
		version	286	M	Text	version of the format (date, number, etc.)

*1 : Mandatory if different from metadata provider

*2 : either "geographic box" or "geographic description" has to be given

*3 : at least one of the elements "statement", "process step" or "source" has to be given

*4 : either "description" or "extent" has to be given

3 Code lists

In this section all the necessary code lists are shown (copied from ISO/DIS 19115).

In the code list B.5.25 a new value was added: nationalContribution (marked red)

B.5.2   Date type Code

Name	Domain	Code	Definition
1	CI_DateTypeCode	DateTypCd	identification of when a given event occurred
2	creation	001	date identifies when the resource was brought into existence
3	publication	002	date identifies when the resource was issued
4	revision	003	date identifies when the resource was examined or re-examined and improved or amended

B.5.5   Role Code

Name	Domain	Code	Definition
1	CI_RoleCode	RoleCd	function performed by the responsible party
2	resourceProvider	001	party that supplies the resource
3	custodian	002	party that accepts accountability and responsibility for the data and ensures appropriate care and maintenance of the resource
4	owner	003	party that owns the resource
5	user	004	party who uses the resource
6	distributor	005	party who distributes the resource
7	originator	006	party who created the resource
8	pointOfContact	007	party who can be contacted for acquiring knowledge about or acquisition of the resource
9	principalInvestigator	008	key party responsible for gathering information and conducting research
10	processor	009	party who has processed the data in a manner such that the resource has been modified
11	publisher	010	party who published the resource

B.5.10   Character Set Code

Name	Domain	code	Definition
1	MD_CharacterSetCode	CharSetCd	name of the character coding standard used for the resource
2	ucs2	001	16-bit fixed size Universal Character Set, based on ISO/IEC 10646
3	ucs4	002	32-bit fixed size Universal Character Set, based on ISO/IEC 10646
4	utf7	003	7-bit variable size UCS Transfer Format, based on ISO/IEC 10646
5	utf8	004	8-bit variable size UCS Transfer Format, based on ISO/IEC 10646

			16-bit variable size UCS Transfer Format, based on
6	utf16	005	ISO/IEC 10646
7	8859part1	006	latin-1, west European code set
8	8859part2	007	latin-2, central European code set
9	8859part3	008	latin-3, south European code set
10	8859part4	009	latin-4, north European code set
11	8859part5	010	cyrillic code set
12	8859part6	011	arabic code set
13	8859part7	012	greek code set
14	8859part8	013	hebrew code set
15	8859part9	014	latin-5, Turkish code set
16	8859part11	015	thai code set
17	8859part14	016	latin-8 code set
18	8859part15	017	latin-9 code set
19	jis	018	japanese code set used for electronic transmission
20	shiftJIS	019	japanese code set used on MS-DOS based machines
21	eucJP	020	japanese code set used on UNIX based machines
22	usAscii	021	united states ASCII code set (ISO 646 US)
23	ebcdic	022	ibm mainframe code set
24	eucKR	023	korean code set
25	big5	024	taiwanese code set

B.5.18 Maintenance Frequency Code

Name	Domain	code	Definition
1	MD_MaintenanceFrequencyCode	MaintFreqCd	frequency with which modifications and deletions are made to the data after it is first produced
2	continual	001	data is repeatedly and frequently updated
3	daily	002	data is updated each day
4	weekly	003	data is updated on a weekly basis
5	fortnightly	004	data is updated every two weeks
6	monthly	005	data is updated each month
7	quarterly	006	data is updated every three months
8	biannually	007	data is updated twice each year
9	annually	008	data is updated every year
10	asNeeded	009	data is updated as deemed necessary
11	irregular	008	data is updated in intervals that are uneven in duration
12	notPlanned	009	there are no plans to update the data
13	unknown	998	frequency of maintenance for the data is not known

B.5.20 Medium Name Code

Name	Domain	code	Definition
1	MD_MediumNameCode	MedNameCd	name of the medium
2	cdRom	001	read-only optical disk
3	dvd	002	digital versatile disk

4	dvdRom	003	digital versatile disk, read only
5	3halfInchFloppy	004	3,5 inch magnetic disk
6	5quarterInchFloppy	005	5,25 inch magnetic disk
7	7trackTape	006	7 track magnetic tape
8	9trackTape	007	9 track magnetic tape
9	3480Cartridge	008	3480 cartridge tape drive
10	3490Cartridge	009	3490 cartridge tape drive
11	3580Cartridge	010	3580 cartridge tape drive
12	4mmCartridgeTape	011	4 millimetre magnetic tape
13	8mmCartridgeTape	012	8 millimetre magnetic tape
14	1quarterInchCartridgeTape	013	0,25 inch magnetic tape
15	digitalLinearTape	014	half inch cartridge streaming tape drive
16	onLine	015	direct computer linkage
17	satellite	016	linkage through a satellite communication system
18	telephoneLink	017	communication through a telephone network
19	hardcopy	018	pamphlet or leaflet giving descriptive information

B.5.23 Progress Code

Name	Domain	code	Definition
1	MD_ProgressCode	ProgCd	status of the dataset or progress of a review
2	completed	001	production of the data has been completed
3	historicalArchive	002	data has been stored in an offline storage facility
4	obsolete	003	data is no longer relevant
5	onGoing	004	data is continually being updated
6	planned	005	fixed date has been established upon or by which the data will be created or updated
7	required	006	data needs to be generated or updated
8	underdevelopment	007	data is currently in the process of being created

B.5.24 Restriction Code

Name	Domain	code	Definition
1	MD_RestrictionCode	RestrictCd	limitation(s) placed upon the access or use of the data
2	copyright	001	exclusive right to the publication, production, or sale of the rights to a literary, dramatic, musical, or artistic work, or to the use of a commercial print or label, granted by law for a specified period of time to an author, composer, artist, distributor
3	patent	002	government has granted exclusive right to make, sell, use or license an invention or discovery
4	patentPending	003	produced or sold information awaiting a patent
5	trademark	004	a name, symbol, or other device identifying a product, officially registered and legally restricted to the use of the owner or manufacturer
6	license	005	formal permission to do something
7	intellectualPropertyRights	006	rights to financial benefit from and control of distribution of non-tangible property that is a result of creativity

| 8 | restricted | 007 | withheld from general circulation or disclosure |
| 9 | otherRestrictions | 008 | limitation not listed |

B.5.25 Scope Code

Name	Domain	code	Definition
1	MD_ScopeCode	ScopeCd	class of information to which the referencing entity applies
2	attribute	001	information applies to the attribute class
3	attributeType	002	information applies to the characteristic of a feature
4	collectionHardware	003	information applies to the collection hardware class
5	collectionSession	004	information applies to the collection session
6	dataset	005	information applies to the dataset
7	series	006	information applies to the series
8	nonGeographicDataset	007	information applies to non-geographic data
9	dimensionGroup	008	information applies to a dimension group
10	feature	009	information applies to a feature
11	featureType	010	information applies to a feature type
12	propertyType	011	information applies to a property type
13	fieldSession	012	information applies to a field session
14	software	013	information applies to a computer program or routine
15	service	014	information applies to a capability which a service provider entity makes available to a service user entity through a set of interfaces that define a behaviour, such as a use case
16	model	015	information applies to a copy or imitation of an existing or hypothetical object
17	nationalContribution	016	information applies to the national contribution to the dataset

B.5.26 Spatial Representation Type Code

Name	Domain	code	Definition
1	MD_SpatialRepresentationTypeCode	SpatRepTypCd	method used to represent geographic information in the dataset
2	vector	001	vector data is used to represent geographic data
3	grid	002	grid data is used to represent geographic data
4	textTable	003	textual or tabular data is used to represent geographic data
5	tin	004	triangulated irregular network
6	stereoModel	005	three-dimensional view formed by the intersecting homologous rays of an overlapping pair of images
7	video	006	scene from a video recording

B.5.27 Topic Category Code

Name	Domain	code	Definition

1	MD_TopicCategoryCode	TopicCatCd	high-level geographic data thematic classification to assist in the grouping and search of available geographic data sets. Can be used to group keywords as well. Listed examples are not exhaustive. NOTE It is understood there are overlaps between general categories and the user is encouraged to select the one most appropriate.
2	farming	001	rearing of animals and/or cultivation of plants **Examples:** agriculture, irrigation, aquaculture, plantations, herding, pests and diseases affecting crops and livestock
3	biota	002	flora and/or fauna in natural environment **Examples:** wildlife, vegetation, biological sciences, ecology, wilderness, sealife, wetlands, habitat
4	boundaries	003	legal land descriptions **Examples:** political and administrative boundaries
5	climatologyMeteorologyAtmosphere	004	processes and phenomena of the atmosphere **Examples:** cloud cover, weather, climate, atmospheric conditions, climate change, precipitation
6	economy	005	economic activities, conditions and employment **Examples:** production, labour, revenue, commerce, industry, tourism and ecotourism, forestry, fisheries, commercial or subsistence hunting, exploration and exploitation of resources such as minerals, oil and gas
7	elevation	006	height above or below sea level **Examples:** altitude, bathymetry, digital elevation models, slope, derived products
8	environment	007	environmental resources, protection and conservation **Examples:** environmental pollution, waste storage and treatment, environmental,impact assessment, monitoring environmental risk, nature reserves, landscape
9	geoscientificInformation	008	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
10	health	009	health, health services, human ecology, and safety **Examples:** disease and illness, factors affecting health, hygiene, substance abuse, mental and physical health, health services
11	imageryBaseMapsEarthCover	010	base maps **Examples:** land cover, topographic maps, imagery, unclassified images, annotations
12	intelligenceMilitary	011	military bases, structures, activities **Examples:** barracks, training grounds, military transportation, information collection
13	inlandWaters	012	inland water features, drainage systems and their characteristics **Examples:** rivers and glaciers, salt lakes, water utilization plans, dams, currents, floods, water quality, hydrographic charts

14	location	013	positional information and services **Examples:** addresses, geodetic networks, control points, postal zones and services, place names
15	oceans	014	features and characteristics of salt water bodies (excluding inland waters) **Examples:** tides, tidal waves, coastal information, reefs
16	planningCadastre	015	information used for appropriate actions for future use of the land **Examples:** land use maps, zoning maps, cadastral surveys, land ownership
17	society	016	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
18	structure	017	man-made construction **Examples:** buildings, museums, churches, factories, housing, monuments, shops, towers
19	transportation	018	means and aids for conveying persons and/or goods **Examples:** roads, airports/airstrips, shipping routes, tunnels, nautical charts, vehicle or vessel location, aeronautical charts, railways
20	utilitiesCommunication	019	energy, water and waste systems and communications infrastructure and 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

Annex B2: Metadata: Structure of the Lineage file

This file provides additional information to the metadata in the field of the Data Quality. Lineage is saved to a normal text file e.g. "Lineage.doc" or "Lineage.txt".

Contents:

1. Title: e.g. "The *<country/area>* details of its EGM national dataset

2. Short description of the process and data sources applied to derive the national EGM

3. All deviations from selecting criterion defined in EGM specifications

4. Possible specific ways to populate some attributes at national level, which should need to be interpreted by the user.

5. Currency/Update remarks: actual date of the modification of the data differentiated by themes/layers (and/or feature types: if needed)

6. Date and data sources used for the population of the built-up areas

7. Description about the completeness of the data:

   a. Which themes and/or features just do not exist in the area of interest

   b. Which themes and/or features exist but are not saved to EGM DB

   c. Attributing the data: % of features populated with "real" value

8. Transliteration rules (when transliteration is used) e.g.

   Transliteration:
   Å, å → A, a
   Ä, ä → A, a
   Ö, ö → O, o

9. Lineage information -producer: name, organisation and other contact information

Annex C: Main changes from EGM specs v2.5 to v3.0

Spec 2.5	Feature type	Feature	Spec 3.0		
Cover			Theme	Feature class	Attribute changes
ADMIN	Line	FA000 Administrative boundary	BND	POLBNDL	
		BA010 Sea Coastline			BA010 → FA000 (closing line) (USE=984, BST=-32768)
	Area	FA001 Administrative area		POLBNDA	MOC, LEV, ISN, NA4 – dropped TAA – introduced (→ MOC)
		ZD020 Void Collection Area	Dropped. Using FC_NAM = N/A instead		
SHN0-SHN4.NAM		Related tables	Combined to a one related table SHN.NAM. Third national language not used any more.		
			ADMIN.ISN: item USE added		
WATER	Point	BH170 Spring	HYDRO	SPRINGP SPRINGC	River vanishing points are not spring points any more. NA4 dropped.
	Line	BA010 Sea coastline	HYDRO	COASTL	CLC, NA4, SCN – dropped
		BH210 Inland shoreline	Dropped		
		BH140 River, attr. WIC	BH502: New WIC limit 125 m (earlier 100 m).		
		XX500 Help line (non-FACC code)	Dropped		
		BH140 River/Stream	BH502: New attributes HOC and EXS, NA4, SCN – dropped		
		BH140 River/Stream		→ BH502 (WATRCRSL), NA4, SCN – dropped	
		BH020 Canal			
		BH030 Ditch			
	Area	BA040 Sea water	HYDRO	SEAA	
		BA020 Foreshore		COASTA	NA4, SCN – dropped
		BA030 Island		ISLANDA	NA4, SCN – dropped
		BH080 Lake		LAKERESA	NA4, SCN – dropped
		BH130 Reservoir			
		BH140 River/Stream		→ BH502 (WATRCRSA), NA4, SCN – dropped	
		XX600Background area (non-FACC code)	Dropped		
(New)	Line	BH502 Watercourse (non-FACC code)	HYDRO	WATRCRSL	New attributes: EXS, HOC

	Area	FACC code)		WATRCRSA	
DAMWE	Line	BI020 Dam / Weir	HYDRO	DAML	
SPRIN	Point	BH170 Spring / Waterhole	HYDRO	SPRINP SPRINC	NA4, SCN – dropped
		BH145 River vanishing point	Dropped		
		BH170 Spring / Waterhole	BH170 Spring / Waterhole: New SWT definition		
GLACI	Line	BJ500 Borderline of an ice feature (non-FACC code)	Dropped		
		XX500 Help line (non-FACC code)	Dropped		
	Area	BJ030 Glacier	HYDRO	LANDICEA	NA4, SCN – dropped
		BJ100 Snow field / Ice field			
		XX600 Background area (non-FACC code)	Dropped		
FICRI	Line	BH140 River / Stream (fictitious)	→ BH502		
TRANS	Line	AN010 Railway	TRANS	RAILRD	
		AP030 Road		ROADL	RTE1-3 → RTE RTN1-3 → RTN RTTN: Dropped
		AQ070 Ferry route		FERRYL	NA41, NA41, NA43 → DETN, DETA, DNLN USE: Dropped
	Point	AQ125 Railway station		RAILRDC	
		AQ090 Border crossing point		EXITC	Just outside the Schengen area
		ZD003 Artifact Location	Dropped		
AIRPO	Point	GB005 Airport / Airfield	TRANS	AIRFLDP	NA4 – dropped
SETTP	Point	AL020 Built-up area as a point	POP	BUILTUPP	New selection criterion, NA4, SCN – dropped
		STS	Dropped		
CITYA	Area	AL020 Built-up area as an area	POP	BUILTUPA	MOC, NA4, SCN – dropped
		XX600 Background area (non-FACC code)	Dropped		
		STS	Dropped		
ELEVP	Point	CA030 Height point	ELEV	ELEVP	NA4, SCN – dropped
NAMES	Text	ZD040 Named location	NAME	NAMEP NAMET	