TMC Handbook

Location Table Exchange Format

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TMC Forum

Document Control Sheet

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1 Content

2 Preamble - TMC Forum Specification

The ALERT-C (or TMC) protocol, event lists and location referencing rules are described in the 3 parts of the ALERT-C (or TMC) standard [1], [2], [3]. Although the TMC building is firmly constructed and has good foundations, at the same time technology evolves. To meet the need to incorporate new developments, ideas and requirements, a use case procedure has been created. TMC Forum members can propose additions to and corrections of the TMC standard by submitting a filled-in *Use case request form* (available at the private part of the TMC Forum web site). Additions may range from complete new features to small extensions of existing features. The TMC Forum Management Group will discuss received use cases with the New Features Group (responsible for protocol and event lists) and Location Referencing Group (responsible for location referencing), and schedule use cases for discussion and solution in dedicated task forces, dependent on interest and resource availability of other interested members.

Once a solution for a use case has been created, it cannot be immediately incorporated in the ALERT-C standard. Standards have their specific, rather slow life cycles, and a standard is only renewed every two or three years. Therefore the instrument of the TMC Forum Specification (TMCFS) has been created. The solution for a use case will be drafted in a formal, standard-like way, and be put in a document called draft TMCFS, based on a dedicated template. Any draft TMCFS will submitted to the Management Group (MG) of the TMC Forum, and after adoption be circulated for a four weeks comments period. Comments will be resolved, after which the specification may be adopted as official by the MG. This process is described in the "Procedure for TMC Forum Specifications" [4]. TMCFS documents will be registered by the TMC Forum, and be available at the TMC Forum web site. They have the status of a TMC Forum standard.

Two types of TMCFS are distinguished. A formal TMCFS contains extensions and/or corrections to the standard, which eventually may be incorporated in one of the existing parts or a new part of the standard. A reference TMCFS contains information that derives form the standard, and therefore is not likely to be incorporated at a later stage in the standard. As soon as a new version of a part of the TMC standard starts being prepared, relevant existing formal TMCFSs will be incorporated in the new draft of the standard. As soon as the new draft version of the standard has become a formal standard, the incorporated TMCFSs will be rendered inoperative, and removed from the register.

3 Introduction

This document specifies the TMC Location Table Exchange Format. This format will be used for the exchange of TMC Location Tables between the various functional areas, i.e. receiver manufactures, map providers, certification of TMC location tables [4], Traffic Information Centres, service providers, receiver database bearer manufacturers. It was developed by the FORCE-ECORTIS project [7] and maintained by the TMC Location Table Release Team. The word table is used due to terminology used in the standard although it is very common to implement an TMC Location Table as a relational database with more than one table.

The two main objectives for this format are:

- complete and precise description of a TMC Location table, which is
- readable from software programs without any changes or adaptations.

4 TMC Location Table Exchange

4.1 Background

The exchange format for TMC Location Tables is derived from the Location Referencing Rules. In Figure 4-1 an overview is given of the methodology used for defining the exchange format.

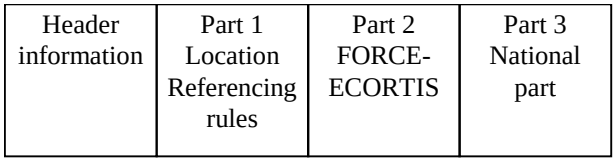


Figure 4-1 Methodology used for defining the exchange

The exchange format will be used by different actors, who all have their own requirements. Therefore, the exchange format is divided in the three parts.

Part 1 consists of tables and attributes which are defined in the Location Referencing Rules standard.

Part 2 consists of tables and attributes which are not part of the Location Referencing Rules standard but for which there is consensus among the FORCE-ECORTIS partners on there use. For example the table Languages, it is not part of the Location Referencing Rules standard but there is consensus among the FORCE-ECORTIS partners for its use. It offers the possibility to deliver location names in different language, e.g. in Belgium it is common to use 3 languages: Dutch, French and German. Therefore, all these parts are recommended by the FORCE-ECORTIS project [7].

Part 3 consists of national tables and attributes, if needed, which are not derived from the Location Referencing Rules. This part is completely optional.

The exchange format describes the minimum information which is needed to define a TMC location table. However it is open for additional information if it is needed. If for instance kilometre sign post for point locations have to be added, then this information should be placed in an new table which refers to the point table (5.3.15). This information is completely optional and e.g. is not relevant for the certification process. None of the essential parts of a TMC location table must be coded in these supplementary tables.

In 2003 a task force of the TMC Forum developed a set of compliance (compliance item is described in the document which describes these tests) items as a quality reference for TMC location tables [5] which is the base for the certification of a TMC location table [4]. The TMC forum offers a check tool called “TMC Inspector” based on this specification. This tool imports the “Location Table Exchange Format”.

The exchange format consists of:

- 1 text file, which contains the meta information (for details see 5.2) and
- 23 text files, which represent a normalised version of a TMC location table.

The following annexes are of importance to the exchange format:

Annex A, division of the tables and attributes by its origin (Location Referencing Rules, FORCE-ECORTIS and national).

Annex B, Implementation of ALERT Service level in location databases. Guidelines for making road network selections (e.g. TERN, TERN+).

5 Exchange format

5.1 Specifications of the exchange format

To achieve the objective to be readable from software programs without any changes or adaptations each of the 23 tables are stored in a separate file and not in propriety format. This avoids for examples problems with the character set. The character set, used for the exchange format, is specified in the meta information file (for details see 5.1) The character set ISO 8859-15 (Latin 9) is the default character set which covers the requirements for most European countries.

An example of a file of table COUNTRIES is given in Table 5-1.

CID;CCD;CNAME	27;9;Latvia	45;3;San Marino
17;1;Germany	28;A;Lebanon	46;D;Serbia
1;9;Albania	29;D;Libya	47;5;Slovak Republic
10;2;Cyprus	3;3;Andorra	48;9;Slovania
11;2;Czech Rep.	30;9;Liechtenstein	49;E;Spain
12;9;Denmark	31;C;Lithuania	5;F;Belarus
13;F;Egypt	32;7;Luxembourg	50;E;Sweden
14;2;Estonia	33;4;Macedonia	51;4;Switzerland
15;6;Finland	34;C;Malta	52;6;Syria
16;F;France	35;1;Moldova	53;7;Tunisia
18;A;Gibraltar	36;B;Monaco	54;3;Turkey
19;1;Greece	37;1;Montenegro	55;C;UK
2;2;Algeria	38;1;Morocco	56;6;Ukraine
20;B;Hungary	39;8;Netherlands	57;4;Vatican
21;A;Iceland	4;A;Austria	58;D;Germany
22;B;Iraq	40;F;Norway	6;6;Belgium
23;2;Ireland	41;3;Poland	7;F;Bosnia Herz.
24;4;Israel	42;8;Portugal	8;8;Bulgaria
25;5;Italy	43;E;Romania	9;C;Croatia
26;5;Jordan	44;7;Russia	

Table 5-1 Example export file of table countries (COUNTRIES.DAT)

The first line “CID;CCD;CNAME” specifies the columns of the table. Each column is separated by a semicolon. All lines are separated by a carriage return and a line feed.
Table 5-1 is an example how it could look like. For a specific location table it shall contain at least one entry for this country.

Table 5-2 defines all files that have to be exported, their file names and the order in which the export files have to be imported. The import order is necessary due to the primary and foreign key relationships in the dataset. The name of each export file is defined by the code name of the respective tables and the extension .DAT (see Table 5-2: Export file name). If the operating system does not support file names longer than eight characters, the name of the export file is the import order number combined with the extension .DAT (for example instead of "OTHERAREAS.DAT" the export file name is "14.DAT"). All columns of the tables in Table 5-2 have to be exported whether they are mandatory or optional, filled or left empty.

Im-port order	Logical name	Code	Export file name
13	AdministrativeAreas	ADMINISTRATIVEAREA	ADMINISTRATIVEAREA.DAT
4	Classes	CLASSES	CLASSES.DAT
1	Countries	COUNTRIES	COUNTRIES.DAT
12	ERNo_belongs_to_country	ERNO_BELONGS_TO_CO	ERNO_BELONGS_TO_CO.DAT
8	EuroRoadNo	EUROROADNO	EUROROADNO.DAT
22	Intersections	INTERSECTIONS	INTERSECTIONS.DAT
7	Languages	LANGUAGES	LANGUAGES.DAT
3	Locationcodes	LOCATIONCODES	LOCATIONCODES.DAT
2	LocationDataSets	LOCATIONDATASETS	LOCATIONDATASETS.DAT
9	Names	NAMES	NAMES.DAT
10	NameTranslations	NAMETRANSLATIONS	NAMETRANSLATIONS.DAT
14	OtherAreas	OTHERAREAS	OTHERAREAS.DAT
21	Poffsets	POFFSETS	POFFSETS.DAT
20	Points	POINTS	POINTS.DAT
15	Roads	ROADS	ROADS.DAT
19	Seg_has_ERNo	SEG_HAS_ERNO	SEG_HAS_ERNO.DAT
17	Segments	SEGMENTS	SEGMENTS.DAT
18	Soffsets	SOFFSETS	SOFFSETS.DAT
6	Subtypes	SUBTYPES	SUBTYPES.DAT
11	SubtypeTranslations	SUBTYPETRANSLATION	SUBTYPETRANSLATION.DAT
5	Types	TYPES	TYPES.DAT
16	Road_network_level_types	ROAD_NETWORK_LEVEL_TYPES	ROAD_NETWORK_LEVEL_TYPES.DAT
-	Meta information	README	README.DAT

Table 5-2 Overview of export files

Each column of a table has to be exported separated by the field-delimiter semicolon (;).
Strings can be optionally embedded in double quotes
(example: ..;"This is a String ";" This ; also";..).
Lines are separated by the sequence of the two white space characters CR (carriage return) and LF (line feed) - hex: 0D0A.

The first line (header-line) of each export file contains the column names. The column names are the column codes defined in this document. They are separated by a field-delimiter (;) semicolon. The end-of-line sequence of the header-line is CR+LF.

Notice: An empty field is represented by two successive field-delimiters without any space.

The order of columns of each export file is described by the sort column of the column list of the respective tables.

For the tables ADMINISTRATIVEAREAS and SEGMENTS (see in Table 5-2) a row sorting order is necessary due to the relationship of primary and foreign keys. E.g. a country refers to a continent which has to be defined. The sorting order is described in the specific table/export file descriptions.
The order in which tables are exported in their export files is absolutely not important. The import order is necessary due to the primary and foreign key relationships in the dataset (see Import order of Table 5-2).

5.2 Meta information (1 file)

The meta information file contains meta information of the dataset such as identification of the location dataset and the character set used in all **other** files. To enable a broad number of systems to read and display this file it is recommended to use only ASCII character set for **this** file. The file name for the meta information is 'README.DAT'. Although it is redundant, it is strongly recommended to also include the meta information in the column "Version Description" of table LOCATIONDATASETS with, as a minimum, the data shown in Table 5-3 (this table also defines the meta information file):

Content	Type	Format	Example
ALERT Level of Location Dataset	int(1)		1
Major version number of the dataset (for details see [6])	unsigned int(1)		1
Minor version number of the dataset (for details see [6])	unsigned int(1)		0
Release date of the dataset	char(10)	dd/mm/yyyy	09/01/2004
Planned date of the next update of the dataset with the same country code and table number.	char(10)	dd/mm/yyyy	09/01/2005
Publisher name	char(100)		Bundesanstalt fuer Strassenwesen
Character set of the dataset	char(30)		ISO 8859-15 (Latin 9)
Major version number of the location table exchange format	unsigned int(1)		1
Minor version number of the location table exchange format	unsigned int(1)		0
Future extensions			

Table 5-3 Meta information

5.3 Table specification

5.3.1 Introduction

This section describes the exact structure and format of the 23 tables which are stored in the corresponding export files. The specification itself is presented in tables which common structure is shown in Table 5-4.

Sort	Logical name	Code	Type	Optional

Table 5-4 Common structure of the definition tables

- The first column named “Sort” defines in which order the field of the table occur in the export file form left to right.

- The second column named “Logical name” is a descriptive name for the field. These names are derived either from the standard documents or where defined during the FORCE-ECORTIS project.

- The third column name “Code” defines the code for this field which is used to identify the column and are part of the first line of the specific export file.

- The forth column defines the type of the field. Two types are possible: CHAR for characters and NUMERIC for unsigned numbers. The width of a field is given in parenthesis. E.g. CHAR(1) specifies a character field for one character.

- The 5th column of each table named ‘Optional’ contains either ‘yes’ or ‘no’. The Location Referencing Rules standard has additional levels, such as ‘mandatory if exists’. For example, in Table 5-20 ROADS, the entries ‘Road name’ and ‘Road number’ are optional; this does not mean that they may both stay empty. In the Location Referencing Rules it is stated that a Road shall have a ‘Road name’ AND/OR a ‘Road number’ if it exists.

5.3.2 Table / export file AdministrativeAreas

This table contains all administrative areas of the dataset.
The sorting order of all rows in the export file ADMINISTRATIVEAREA.DAT is:

Sort	Description	Type code	Subtype code
1st	Continent	1	0
2nd	Country Group	2	0
3rd	Country	3	0
4th	Order1Area	7	0
5th	Order2Area	8	0
6th	Order3Area	9	0
7th	Order4Area	10	0
8th	Order5Area	11	0

Table 5-5 Sorting Order of administrative areas

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	Type class	CLASS	CHAR(1)	No
5	Type code	TCD	NUMERIC(3)	No
6	Subtype code	STCD	NUMERIC(3)	No
7	Name	NID	NUMERIC	No
8	Upward area reference	POL_LCD	NUMERIC(5)	Yes

Table 5-6 Column List AdministrativeAreas

5.3.3 Table / export file Classes

This table defines the categories (A: Area location, L: line location, P: point location) used in the dataset.

Sort	Logical name	Code	Type	Optional
1	Type class	CLASS	CHAR(1)	No

Table 5-7 Column list Classes

5.3.4 Table / export file Countries

This table contains the country codes used in the dataset. Usually there is only one country code for each dataset.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Country code	CCD	CHAR(1)	No
3	Name	CNAME	CHAR(50)	No

Table 5-8 Column List Countries

5.3.5 Table / export file ERNo_belongs_to_country

This table contains all European road number which belongs to the country described in Table 5-1.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	European road number	ENO	CHAR(10)	No

Table 5-9 Column List ERNo_belongs_to_country

5.3.6 Table / export file EuroRoadNo

This table contains all European road numbers used in the dataset.

Sort	Logical name	Code	Type	Optional
1	European road number	ENO	CHAR(10)	No
2	Comment	ECOMMENT	CHAR(100)	Yes

Table 5-10 Column List EuroRoadNo

5.3.7 Table / export file Intersections

This table contains the relation between two or more locations which describes the same intersection for different segments or roads. If there are more the two the location the first is related to the second, the second to the third,... and the last points again to the first.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	Intersection country ID	INT_CID	NUMERIC(3)	No
5	Intersection table code	INT_TABCD	NUMERIC(2)	No
6	Intersection location code	INT_LCD	NUMERIC(5)	No

Table 5-11 Column List Intersections

5.3.8 Table / export file Languages

This table describes the languages used e.g. for location name. There is one entry for each language used in the dataset.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Language ID	LID	NUMERIC(2)	No
3	Language	LANGUAGE	CHAR(25)	No

Table 5-12 Column List Languages

5.3.9 Table / export file Locationcodes

Contains all allowed location codes and marks those with “1” which used in the dataset.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	Allocated	ALLOCATED	NUMERIC(1)	No

Table 5-13 Column List Locationcodes

5.3.10 Table / export file LocationDataSets

This table describes the table number and the version of the dataset.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Comment	DCOMMENT	CHAR(100)	Yes
4	Version	VERSION	CHAR(7)	No
5	Version Description	VERSIONDESCRIPTION	CHAR(100)	Yes

Table 5-14 Column List LocationDataSets

The content of fifth field name “Version” consists of a major and a minor number separated by a dot, e.g. “1.0”. For details refer to [6]. This information is also given in the file README.DAT. The intention is to define a reference for a TMC location table in the dataset itself which could be included for example during a conversion process to identify the dataset later.

5.3.11 Table / export file Names

This table contains all the string of the dataset e.g. name of the road, road numbers, location names, etc. It is a good practice that each name is unique. The language ID specifies the language used in this table. It will be one of the official languages of the country where the TMC location table is meant for.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Language ID	LID	NUMERIC(2)	No
3	Name ID	NID	NUMERIC	No
4	Name	NAME	CHAR(100)	No
5	Comment	NCOMMENT	CHAR(100)	Yes

Table 5-15 Column List Names

5.3.12 Table / export file NameTranslations

This table contains the translation of the names table for each languages used in the dataset.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Language ID	LID	NUMERIC(2)	No
3	Name ID	NID	NUMERIC	No
4	Translation	NTRANSLATION	CHAR(100)	No

Table 5-16 Column List NameTranslations

5.3.13 Table / export file OtherAreas

This table contains the other areas of the dataset.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	Type class	CLASS	CHAR(1)	No
5	Type code	TCD	NUMERIC(3)	No
6	Subtype code	STCD	NUMERIC(3)	No
7	Name1	NID	NUMERIC	No
8	Admin area reference	POL_LCD	NUMERIC(5)	No

Table 5-17 Column List OtherAreas

5.3.14 Table / export file Poffsets

This table contains the positive and negative offsets for all point locations used in the data-set.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	Negative offset	NEG_OFF_LCD	NUMERIC(5)	Yes
5	Positive offset	POS_OFF_LCD	NUMERIC(5)	Yes

Table 5-18 Column List Poffsets

5.3.15 Table / export file Points

This table contains all the point location of the dataset. The co-ordinates are in WGS84. The format is describe in chapter 4.3.8 of the standard [3]: ”For each point location the WGS 84 longitude and latitude of the (approximate) centre of the location shall be given (M), in decimal degrees with 5 micro degrees resolution, with a plus sign (+) for eastern longitude and northern latitude, and a minus sign (-) for western longitude and southern latitude. Degrees longitude are given in three digits (with leading zeros if needed), degrees latitude in two digits (with leading zeros if needed).”
Example: +00435455 (Longitude) +5083940 (Latitude) represents 4°.35455 E 50°.83940 N.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	Type class	CLASS	CHAR(1)	No
5	Type code	TCD	NUMERIC(3)	No
6	Subtype code	STCD	NUMERIC(3)	No
7	Junction number	JUNCTIONNUMBER	CHAR(10)	Yes
8	Road name	RNID	NUMERIC	Yes
9	Name1	N1ID	NUMERIC	Yes
10	Name2	N2ID	NUMERIC	Yes
11	Admin area reference	POL_LCD	NUMERIC(5)	Yes
12	Other area reference	OTH_LCD	NUMERIC(5)	Yes
13	Segment reference	SEG_LCD	NUMERIC(5)	Yes
14	Road reference	ROA_LCD	NUMERIC(5)	Yes
15	InPos	INPOS	NUMERIC(1)	Yes
16	InNeg	INNEG	NUMERIC(1)	Yes
17	OutPos	OUTPOS	NUMERIC(1)	Yes
18	OutNeg	OUTNEG	NUMERIC(1)	Yes
19	PresentPos	PRESENTPOS	NUMERIC(1)	Yes
20	PresentNeg	PRESENTNEG	NUMERIC(1)	Yes
21	DiversionPos	DIVERSIONPOS	CHAR(10)	Yes
22	DiversionNeg	DIVERSIONNEG	CHAR(10)	Yes
23	Xcoord (Longitude)	XCOORD	CHAR(9)	No
24	Ycoord (Latitude)	YCOORD	CHAR(8)	No
25	InterruptsRoad	INTERRUPTSROAD	NUMERIC(1)	Yes
26	Urban	URBAN	NUMERIC(1)	No

Table 5-19 Column List Points

5.3.16 Table / export file Roads

This table contains the road description of the dataset.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	Type class	CLASS	CHAR(1)	No
5	Type code	TCD	NUMERIC(3)	No
6	Subtype code	STCD	NUMERIC(3)	No
7	Road number	ROAD NUMBER	CHAR(10)	Yes
8	Road name	RNID	NUMERIC	Yes
9	Name1	N1ID	NUMERIC	Yes
10	Name2	N2ID	NUMERIC	Yes
11	Admin area reference	POL_LCD	NUMERIC(5)	Yes
12	Road network level	PES_LEV	NUMERIC(1)	No

Table 5-20 Column List Roads

5.3.17 Table / export file Seg_has_ERNo

This table relates the segments and the European road numbers.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	European road number	ENO	CHAR(10)	No

Table 5-21 Column List Seg_has_ERNo

5.3.18 Table / export file Segments

This table defines the 1st and 2nd order segments of the dataset.
The sorting order of all rows in the export file SEGMENTS.DAT is:

Sort	Description	Type code	Subtype code
1st	Order 1 Segment	3	x
2nd	Order 2 Segment	4	x

Table 5-22 Sorting order of Column List Segments

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	Type class	CLASS	CHAR(1)	No
5	Type code	TCD	NUMERIC(3)	No
6	Subtype code	STCD	NUMERIC(3)	No
7	Road number	ROADNUMBER	CHAR(10)	Yes
8	Road name	RNID	NUMERIC	Yes
9	Name1	N1ID	NUMERIC	No
10	Name2	N2ID	NUMERIC	No
11	Road reference	ROA_LCD	NUMERIC(5)	Yes
12	Order1 segment reference	SEG_LCD	NUMERIC(5)	Yes
13	Admin area reference	POL_LCD	NUMERIC(5)	Yes

Table 5-23 Column List Segments

5.3.19 Table / export file Soffsets

This table describes the positive and negative offsets for the segments.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Table code	TABCD	NUMERIC(2)	No
3	Location code	LCD	NUMERIC(5)	No
4	Negative offset	NEG_OFF_LCD	NUMERIC(5)	Yes
5	Positive offset	POS_OFF_LCD	NUMERIC(5)	Yes

Table 5-24 Column List Soffsets

5.3.20 Table / export file Subtypes

This table defines the subtypes used in this dataset.

Sort	Logical name	Code	Type	Optional
1	Type class	CLASS	CHAR(1)	No
2	Type code	TCD	NUMERIC(3)	No
3	Subtype code	STCD	NUMERIC(3)	No
4	Subtype description	SDESC	CHAR(50)	Yes
5	National subtype code	SNATCODE	CHAR(5)	Yes
6	National subtype description	SNATDESC	CHAR(50)	Yes

Table 5-25 Column List Subtypes

5.3.21 Table / export file SubtypeTranslations

This table contains the translations of the subtypes for each language used in the dataset.

Sort	Logical name	Code	Type	Optional
1	Country ID	CID	NUMERIC(3)	No
2	Language ID	LID	NUMERIC(2)	No
3	Type class	CLASS	CHAR(1)	No
4	Type code	TCD	NUMERIC(3)	No
5	Subtype code	STCD	NUMERIC(3)	No
6	Translation	STRANSLATION	CHAR(100)	No

Table 5-26 Column List SubtypeTranslations

5.3.22 Table / export file Types

Sort	Logical name	Code	Type	Optional
1	Type class	CLASS	CHAR(1)	No
2	Type code	TCD	NUMERIC(3)	No
3	Type description	TDESC	CHAR(50)	Yes
4	National type code	TNATCD	CHAR(5)	Yes
5	National type description	TNATDESC	CHAR(50)	Yes

Table 5-27 Column List Types

5.3.23 Table / export file Road Network Level Types

Sort	Logical name	Code	Type	Optional
1	Road network level	PES_LEV	NUMERIC(1)	No
2	Road network level description	PES_LEV_DESC	CHAR(5)	Yes
3	National road network level description	TDESC	CHAR(50)	Yes

Table 5-28 Column list Road_network_level_types

5.4 Annex A - Division of tables and attributes

The following gives an overview of every table and attribute, showing from which source it is derived. There are three different sources:

- Location referencing standard: the table or attribute is derived from the standard, indicated with ‘Standard’.
- The table or attribute was developed within the FORCE-ECORTIS projects, indicated with ‘F/E’.
- National: the tables or attribute is nationally defined, indicated with ‘National’.

Table	Derived from
Classes	Standard
Countries	Standard
ERNo_belongs_to_country	F/E
EuroRoadNo	F/E
Intersections	Standard
Languages	F/E
Locationcodes	F/E
LocationDataSets	Standard
Names	F/E
NameTranslations	F/E
OtherAreas	Standard

Table	Derived from
Poffsets	Standard
Points	Standard
AdministrativeAreas	Standard
Roads	Standard
Seg_has_ERNo	F/E
Segments	Standard
Soffsets	Standard
Subtypes	Standard
SubtypeTranslation	F/E
Types	Standard
Road network level types	F/E

Table 5-29 Division of Tables

Attribute	Origin
Country ID	F/E
Type Code	Standard
Location Code	Standard
Type class	Standard
Table Code	Standard
Subtype Code	Standard
Upward area reference	Standard
Country code	Standard
European road number	F/E
Intersection country ID	F/E
Intersection table code	Standard
Intersection location code	Standard
Language ID	F/E
Language	F/E
Allocated	F/E
Version	F/E
VersionDescription	F/E
Translation	F/E
Admin area reference	Standard
Negative offset	Standard
Positive offset	Standard
Junction number	Standard
Road name	Standard

Attribute	Origin
Other area reference	Standard
Segment reference	Standard
Road reference	Standard
InPos	Standard
InNeg	Standard
OutPos	Standard
OutNeg	Standard
PresentPos	Standard
PresentNeg	Standard
DiversionPos	F/E
DiversionNeg	F/E
Xcoord	F/E
Ycoord	F/E
InterruptsRoad	F/E
Urban	Standard
Road number	Standard
National subtype code	National
National subtype description	National
Type description	Standard
Road network level	Standard
Road network level description	Standard
National road network level description	Standard

Table 5-30 Division of attributes

In Table 5-31 all attributes are given used in this specification e.g. where it is defined in the standard and in which table it is used.
A primary key is a unique identifier of a row in each table. A foreign key refers (points) to a primary key.

Attribute	**Origin**	**Code**	**for definition refer to**	**primary key value in table**	**foreign key in table(s)**	**attribute in table**
Admin area reference	Standard	POL_LCD	EN ISO 14819-3 chap. 4.3.4		AdministrativeAreas, OtherAreas, Points, Roads	
Allocated	F/E	ALLOCATED				Locationcodes
Country code	Standard	CCD	EN ISO 14819-3 chap 4.1.5			Countries
Country ID	F/E	CID	Internal reference for the country code	Countries	AdministrativeAreas, ERNo_belongs_ to_country, Intersections, Languages, Locationcodes, LocationDataSets, Names, NameTranslations, OtherAreas, Poffsets, Points, Seg_has_ERNo, Segments, Soffsets, SubtypeTranslations	
DiversionNeg	F/E	DIVERSIONNEG				Points
DiversionPos	F/E	PRESENTNEG				Points

Attribute	Origin	Code	for definition refer to	primary key value in table	foreign key in table(s)	attribute in table
Europeanroad-number	F/E	ENO				ER-No_belongs_to_country
InNeg	Standard	INNEG	EN ISO 14819-3 chap 4.6.3.1			Points
InPos	Standard	INPOS	EN ISO 14819-3 chap 4.6.3.1			Points
InterruptsRoad	F/E	INTERRUPTSROAD				Points
Intersection country ID	F/E	INT_CID				Intersections
Intersection location code	Standard	INT_LCD				Intersections
Intersection table code	Standard	INT_TABCD				Intersections
JunctionNum-ber	Standard	JUNCTIONNUMBER	EN ISO 14819-3 chap 4.3.2.2			Points
Language	F/E	LANGUAGE	EN ISO 14819-3 chap 4.3.3			Languages
Language ID	F/E	LID	internal reference for used languages	Languages	NameTranslations, SubtypeTranslations	
Location Code	Standard	LCD	EN ISO 14819-3 chap 4.1	AdministrativeAreas, OtherAreas, Points, Roads, Segments	Intersections, Locationcodes, Seg_has_ERNo, Soffsets, Poffsets	

Attribute	Origin	Code	for definition refer to	primary key value in table	foreign key in table(s)	attribute in table
Name Id	F/E	NID	internal reference for names	Names	AdministrativeAreas, NameTranslations, OtherAreas, Points, Roads, Segments	
National road network level description	Standard	TDESC				Road_ network_ le-vel_types
National subtype code	National	SNATCODE				Subtypes
National subtype descripiton	National	SNATDESC				Subtypes
Negative offset	Standard	NEG_OFF_LCD	EN ISO 14819-3 chap 4.3.5			Poffsets, Soffsets
Other area reference	Standard	OTH_LCD				Points
OutNeg	Standard	OUTNEG	EN ISO 14819-3 chap 4.6.3.1			Points
OutPos	Standard	OUTPOS	EN ISO 14819-3 chap 4.6.3.1			Points
Positive offset	Standard	POS_OFF_LCD	EN ISO 14819-3 chap 4.6.3.1			Poffsets, Soffsets
PresentNeg	Standard	PRESENTNEG	EN ISO 14819-3 chap 4.6.3.1			Points
PresentPos	Standard	PRESENTPOS	EN ISO 14819-3 chap 4.6.3.1			Points

Attribute	Origin	Code	for definition refer to	primary key value in table	foreign key in table(s)	attribute in table
Road network level	Standard	PES_LEV		Road_network_ level_types	Roads	
Road network level de-scription	Standard	PES_LEV_DESC		Road_network_ level_types		
Road reference	Standard	ROA_LCD	EN ISO 14819-3 chap 4.6.3.1		Points, Segments	
Roadname	Standard	RNID	EN ISO 14819-3 chap 4.3.2.1		Points, Roads, Segments	
Roadnumber	Standard	ROADNUMBER	EN ISO 14819-3 chap 4.3.2.1			Roads
Segment reference	Standard	SEG_LCD	EN ISO 14819-3 chap 4.3.1		Points, Segments	
Subtype Code	Standard	STCD	EN ISO 14819-3 chap 4.2	Subtypes	AdministrativeAreas, OtherAreas, Points, Roads, Segments, SubtypeTranslations	
Table Code	Standard	TABCD	EN ISO 14819-3 chap 4.1.5 (table number)	AdministrativeAreas, OtherAreas, Points, Roads, Segments	Intersections, Locationcodes, Seg_has_ERNo, Soffsets, Poffsets	
Translation	F/E	STRANSLATION				SubtypeTranslations

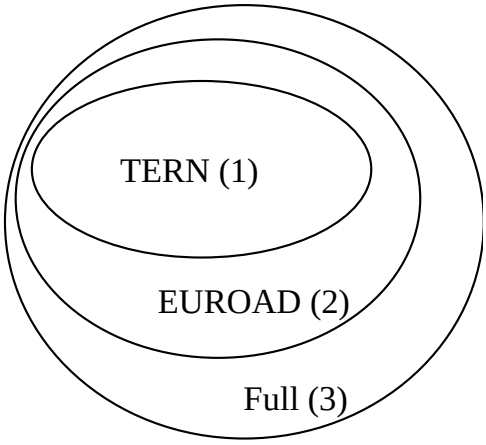
Attribute	Origin	Code	for definition refer to	primary key value in table	foreign key in table(s)	attribute in table
Type class	Standard	CLASS	EN ISO 14819-3 chap 4.2 (categories)	Classes	AdministrativeAreas, OtherAreas, Points, Roads, Segments, SubtypeTranslations, Types	
Type Code	Standard	TCD	EN ISO 14819-3 chap 4.2	Types	AdministrativeAreas, OtherAreas, Points, Roads, Segments, Subtype, SubtypeTranslations	
Type description	Standard	TDESC	EN ISO 14819-3 chap Annex A			Types
Upward area reference	Standard	POL_LCD	EN ISO 14819-3 chap 4.3.4			
Urban	Standard	URBAN	EN ISO 14819-3 chap 4.3.6			Points
Version	F/E	VERSION				LocationDataSets
Version Description	F/E	VERSIONDESCRIPTION				LocationDataSets
Xcoord (Longitude)	F/E	XCOORD	EN ISO 14819-3 chap 4.3.8			Points
Ycoord (Latitude)	F/E	YCOORD	EN ISO 14819-3 chap 4.3.8			Points

Table 5-31 References to standard

5.5 Annex B -Implementation of alert service level in a location database

General principle

Within Force-ECORTIS, the decision has been taken to define levels in the Alert-C location database to make it possible to derive subsets of the entire location database.
Levels in the location database will be:
Locations that belong to the TERN (politically defined / mandatory).
Locations that belong to the European Road Network.
Locations that belong to the full national location database.
Other locations.
The relation between the levels is:



All individual locations in the location database will get a marker that shows to what level the location involved belongs. The markers can be used to derive the desired subset of the complete database:

Subset	Explanation
TERN	Locations marked 1
European Road Network	Locations marked 1 plus locations marked 2
Full national database	Locations marked 1 plus locations marked 2 plus locations marked 3
Entire database	All locations

How to select locations per level?
In the WA200 meeting on 22-10-1998, the decision was taken to select on road level:
Selection per road:
Rules:
Entire roads are marked to belong to a specific level (TERN, EUROAD, full, other).
First order segments get the same level as the road to which they belong.
Second order segments get the same level as the first order segment to which they belong
Point locations get the same level as the road or segment to which they belong.
Per subset (from smallest to entire location database), all area locations are marked to identify them as either linear and/or point locations
Additional area locations (from lowest level to highest level) are marked to remove any inconstancies in the area references.

6 References

[1]	Traffic and traveller Information (TTI) - TTI Messages via traffic message coding - Part 1: Coding protocol for Radio Data System - Traffic Message Channel (RDS-TMC), EN ISO 14819-1:2002.
[2]	Traffic and traveller Information (TTI) - TTI Messages via traffic message coding - Part 2: Event and information codes for Radio Data System - Traffic Message Channel (RDS-TMC), EN ISO 14819-2:2002.
[3]	Traffic and traveller Information (TTI) - TTI Messages via traffic message coding - Part 3: Location Referencing for ALERT-C, EN ISO 14819-3:2003
[4]	TMC Forum, Procedure for certification of TMC location tables, version 06, 15 April 2002. http://www.tmcforum.com/private/document/ltrt_v06.pdf
[5]	TMC Forum, TMC Tool Requirement – Items to be checked, Document No.: 31102002, Issues: 31 October 2002, http://www.tmcforum.com/private/document/tr311002.pdf
[6]	TMC Forum, Version identification of TMC location tables, version 01, 2003. http://www.tmcforum.com/private/document/uc6_1102.pdf
[7]	Final Report for Publication, FORCE 3 Consortium, January 2000, http://europa.eu.int/comm/transport/extra/final_reports/road/Force3_rep.pdf