



# SLOVENSKI STANDARD

## SIST ENV 12657:1999

01-januar-1999

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### Geografske informacije - Opis podatkov - Metapodatki

Geographic information - Data description - Metadata

Geoinformation - Datenbeschreibung - Metadaten

Information géographique - Description des données - Métadonnées

Ta slovenski standard je istoveten z: **ENV 12657:1998**

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#### **ICS:**

07.040	Astronomija. Geodezija. Geografija	Astronomy. Geodesy. Geography
35.240.70	Uporabniške rešitve IT v znanosti	IT applications in science

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**en**

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EUROPEAN PRESTANDARD  
PRÉNORME EUROPÉENNE  
EUROPÄISCHE VORNORM

ENV 12657

October 1998

ICS 07.040; 35.240.70

Descriptors: geographic information, data, data processing, description

English version

Geographic information - Data description - Metadata

Information géographique - Description des données -  
Métadonnées

Geoinformation - Datenbeschreibung - Metadata

This European Prestandard (ENV) was approved by CEN on 9 October 1998 as a prospective standard for provisional application.

The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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## Foreword

This European Prestandard has been prepared by Technical Committee CEN/TC 287 "Geographic Information", the secretariat of which is held by AFNOR.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this European Prestandard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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## 1 Scope

This European prestandard establishes a conceptual schema for metadata.

Metadata can be defined at its simplest as 'data about datasets'. This European prestandard specifies those data which shall be used to describe a geographic dataset. This includes data about the content, representation, extent (both geometric and temporal), spatial reference, quality and administration of a geographic dataset.

This European prestandard also identifies those data which are mandatory for describing geographic datasets, the minimum set of metadata.

This European prestandard gives examples of how the standard may be applied but does not provide instructions or techniques for its implementation and accordingly does not concern itself with the construction of databases for holding metadata.

This European prestandard is designed primarily for use with digital geographic datasets but the principles can also be used to describe geographic datasets in other forms, such as paper maps or lists.

This European prestandard is applicable for a range of uses. It allows the geographic dataset to be described in a consistent way which makes it easy to maintain a metadata catalogue service even from remote location. This European prestandard allows metadata to be described for a number of purposes such as documentation and inclusion in a transfer file and for comparing and exploring geographic datasets.

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## 2 Normative references (standards.iteh.ai)

This European prestandard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European prestandard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 28601:1992, *Data elements and interchange formats - Information interchange - Representation of dates and times (ISO 8601, 1<sup>st</sup> edition 1988 and technical corrigendum 1:1991)*

ENV 12009:1997, *Geographic Information - Reference Model*

ENV 12160:1997, *Geographic Information - Data Description - Spatial schema*

ENV 12656:1998, *Geographic Information - Data Description - Quality.*

ENV 12658:1998, *Geographic Information - Data Description - Transfer.*

ENV 12661:1998, *Geographic information- Referencing - Geographic identifiers.*

prENV 12762:1998, *Geographic Information - Referencing - Direct position.*

ENV ISO 10303-11:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 11 : Description methods : The EXPRESS language reference manual (ISO 10303-11:1994)*

ENV ISO 10303-41:1994, *Industrial automation systems and integration - Product data representation and exchange - Part 41 : Integrated generic resources : Fundamentals of product description and support (ISO 10303-41:1994)*

ISO 639:1988, *Codes for the representation of names of languages.*

ISO 2788:1988, *Documentation - Guidelines for the establishment and development of monolingual thesauri*.

### 3 Definitions

For the purposes of this European prestandard, the following definitions apply :

#### 3.1

##### **application schema**

conceptual schema, for a specific field of interest within the field of geographic information

[ENV 12009]

#### 3.2

##### **channel**

attribute of a raster-band, defined as a matrix of registered intensities of electromagnetic radiation within a specific range of wavelength

NOTE Usually, each channel is identified by a number.

#### 3.3

##### **completeness**

quality parameter describing the presence and absence of entity instances, relationship instances and attribute instances

[ENV 12656]

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#### 3.4

##### **coordinate system**

rule for designating each point in space by an ordered set of numbers

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[ENV 12762]

#### 3.5

##### **datum**

set of fundamental parameters which collectively serve as a reference for defining other parameters

[ENV 12762]

#### 3.6

##### **extent**

space covered by a geographic dataset

NOTE Space is meant here as Euclidean space but also as a period in time.

#### 3.7

##### **geodetic ellipsoid**

flattened ellipsoid of rotation, usually chosen to fit the geoid as closely as possible, either locally or globally

[ENV 12762]

#### 3.8

##### **geographic data**

computer treatable form of geographic information

[ENV 12009]

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### 3.9

#### **geographic dataset**

identifiable collection of geographic data

[ENV 12656]

### 3.10

#### **geographic information**

information concerning phenomena directly or indirectly associated with a location relative to the Earth

[ENV 12009]

### 3.11

#### **geometric primitive**

description, partial or total, of the spatial aspects of an object by means of coordinates and mathematical functions

[ENV 12160]

### 3.12

#### **grid**

point distribution defining a regular pattern, derived from the corners of the tessellation of a specific frame or a limited part of it

[ENV 12160]

### 3.13

#### **location**

identifiable part of the real world

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[ENV 12661]

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### 3.14

#### **logical consistency**

degree of conformance of a geographic dataset with respect to the internal structure given in its specification

[ENV 12656]

### 3.15

#### **map projection**

mathematical mapping of a geodetic ellipsoid, or part of a geodetic ellipsoid, to a plane

[ENV 12762]

### 3.16

#### **metadata**

data about a geographic dataset or geographic datasets

### 3.17

#### **nominal ground**

view of the real world implied by the specification of the geographic dataset

[ENV 12656]

### 3.18

#### **object**

single phenomenon existing in the real world

[ENV 12160]



**3.19****pixel**

2-dimensional geometric primitive which is the unit in a specific 2-dimensional frame

[ENV 12160]

**3.20****positional accuracy**

quality parameter describing accuracy of geographic position within a geographic dataset

[ENV 12656]

**3.21****quality**

totality of characteristics of a product that bear on its ability to satisfy stated and implied needs

[ENV 12656]

**3.22****quality parameter**

quantifiable quality element describing the performance of a geographic dataset compared with its nominal ground

[ENV 12656]

**3.23****semantic accuracy**

quality parameter describing the accuracy of the semantic aspects of a geographic dataset

[ENV 12656]

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**3.24****spatial schema**

a spatial schema is a conceptual schema for the spatial (geometrical and topological) aspects of geographic data

[ENV 12009]

**3.25****temporal accuracy**

quality parameter describing the accuracy of temporal aspects of a geographic dataset

[ENV 12656]

**3.26****topological primitive**

description, partial or total, of the topological aspects of an object

[ENV 12160]

**3.27****vertical datum (1-dimensional datum, unidimensional datum)**

datum which serves as a reference for defining heights

[ENV 12762]

## 4 Metadata for describing geographic datasets

### 4.1 General

Clause 4 identifies mandatory and optional data to be used for describing geographic datasets. This textual description is supported by :

- elements of metadata - full listing (see annex C) ;
- EXPRESS definition of the metadata schema (see annex A) ;
- EXPRESS-G definition of the metadata schema (see annex B).

NOTE EXPRESS and EXPRESS-G are defined in ENV ISO 10303-11.

- two examples of how the standard may be used to describe geographic datasets (see annex D).

### 4.2 Geographic datasets and levels of metadata

A geographic dataset contains one or more geographic objects described by their attributes and relationships (see ENV 12009 clause 4.2.2). Data shall be given to describe the geographic dataset itself and may be given at the more detailed level to describe the object by using the object type, and attribute type, and the relationship type which occur in the geographic dataset.

### 4.3 Conformance requirements

A metadata set conforming to this European prestandard shall be based on a metadata schema which includes all mandatory type declarations, entity declarations and attribute declarations defined in the metadata schema, the extent\_metadata schema, the data\_definiton\_metadata schema, the classification\_metadata schema and the administrative\_metadata schema in Annex A.

### 4.4 Dates

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All references to dates as plain text shall be recorded using EN 28601. For example, December, 31, 1995 would be given as 1995-12-31.

In some circumstances dates may be open, where something has happened and not been terminated, or where the start or end date is not known additional expressions shall be added.

EXAMPLE 1 "before 1994-12-31".

EXAMPLE 2 "1990-06 to 1994-08-15".

EXAMPLE 3 "after 1990".

EXAMPLE 4 "end date not known".

### 4.5 Metadata language

The languages for textual statements in the description of geographic datasets shall be identified by codes defined in ISO 639.

Where appropriate, statements may be repeated in several languages.

## 4.6 Elements of metadata for describing geographic datasets

### 4.6.1 General

This clause describes the main elements of metadata. The text is supported by informative EXPRESS-G schemas. Each element of metadata described in this clause shall be applied according to its formal EXPRESS specification (see Annex A).

The description is divided into five EXPRESS schemas :

- metadata (see 4.6.2 to 4.6.3.6) ;
- extent\_metadata (see 4.6.3.7) ;
- data\_definition\_metadata (see 4.6.3.8) ;
- classification\_metadata (see 4.6.3.9) ;
- administrative\_metadata (see 4.6.3.10).

### 4.6.2 Metadata schema identifier and external references

The following EXPRESS declarations begins the metadata schema and identifies the necessary external references.

For the computerised structuring of dates the definition of date in ENV ISO 10303-41 is referenced.

For the description of dataset extent the definition of dataset\_extent in the schema extent\_metadata is used.

For the description of data definitions the definition of dataset\_data\_definition in the schema data\_definition\_metadata is used. <https://standards.iteh.ai/catalog/standards/sist/da96745c-583a-4b12-a303-97680e824ec6/sist-env-12657-1999>

For the description of classification the definition of dataset\_classification in the schema classification\_metadata is used.

For the description of administrative\_metadata the definition of dataset\_administrative\_metadata in the schema geographic\_dataset\_administrative\_metadata is used.

For the lineage description of the geographic dataset, the definition of lineage in the quality schema in ENV 12656 is used.

For quality data given at the total dataset level, the definition of quality\_parameter in the quality schema in ENV 12656 is used.

For the usage description of the geographic dataset the definition of usage in the quality schema in ENV 12656 is used.

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EXPRESS specification

```

*)
SCHEMA metadata;

REFERENCE FROM date_time_schema (date) ;
USE FROM extent_metadata
    (extent);
USE FROM data_definition_metadata
    (data_definition);
USE FROM classification_metadata
    (thesaurus);
USE FROM administrative_metadata
    (administrative_metadata);

USE FROM quality_schema
    (lineage,
     quality_parameter,
     usage);

```

For the description of the updatedness of quality elements, the type updatedness being a list of strings is defined.

A possible external graphics file for a sample from the geographic dataset is given using the type external graphic file, being a SELECT data type with the possible select types : raster file, vector file.

A sample external graphics file in raster format is given using the type raster file, being a STRING.

A sample external graphics file in vector format is given using the type vector file, being a STRING.

For the description of the language used in the textual statements, the type metadata\_language is defined.

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EXPRESS specification

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```

*)
TYPE updatedness = LIST [1:?] OF STRING;
END_TYPE;
TYPE external_graphic_file = SELECT(raster_file, vector_file);
END_TYPE;
TYPE raster_file = STRING;
END_TYPE;
TYPE vector_file = STRING;
END_TYPE;
TYPE metadata_language = STRING;
END_TYPE;

```

(\*

The EXPRESS specifications given in clause 4.6.3 define the entities.

### 4.6.3 Dataset description

#### 4.6.3.1 General

For each dataset the following information shall be given :

- identification : each dataset has an unique identification ; see 4.6.3.2 ;
- overview : see 4.6.3.3 ;
- quality elements : see 4.6.3.4 ;
- metadata reference : see 4.6.3.5 ;
- extent : see 4.6.3.7.

The following data may be given :

- spatial reference system : see 4.6.3.6 ;
- data definition : see 4.6.3.8 ;
- classification : see 4.6.3.9 ;
- administrative metadata : see 4.6.3.10.

EXPRESS specification iTeh STANDARD PREVIEW  
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\*)  
 ENTITY dataset\_description;  
   has\_identification : dataset\_identification;  
   has\_overview : dataset\_overview;  
   has\_quality\_element : dataset\_quality\_elements;  
   has\_metadata\_reference : dataset\_metadata\_reference;  
   has\_spatial\_reference\_system : OPTIONAL SET [0:?] OF  
     spatial\_reference\_system;  
   has\_extent : SET [1:?] OF extent;  
   has\_data\_definition : OPTIONAL data\_definition;  
   has\_classification : OPTIONAL dataset\_classification;  
   has\_administrative\_metadata :  
     OPTIONAL administrative\_metadata;  
   has\_metadata\_language : metadata\_language;  
 END\_ENTITY;  
 (\*

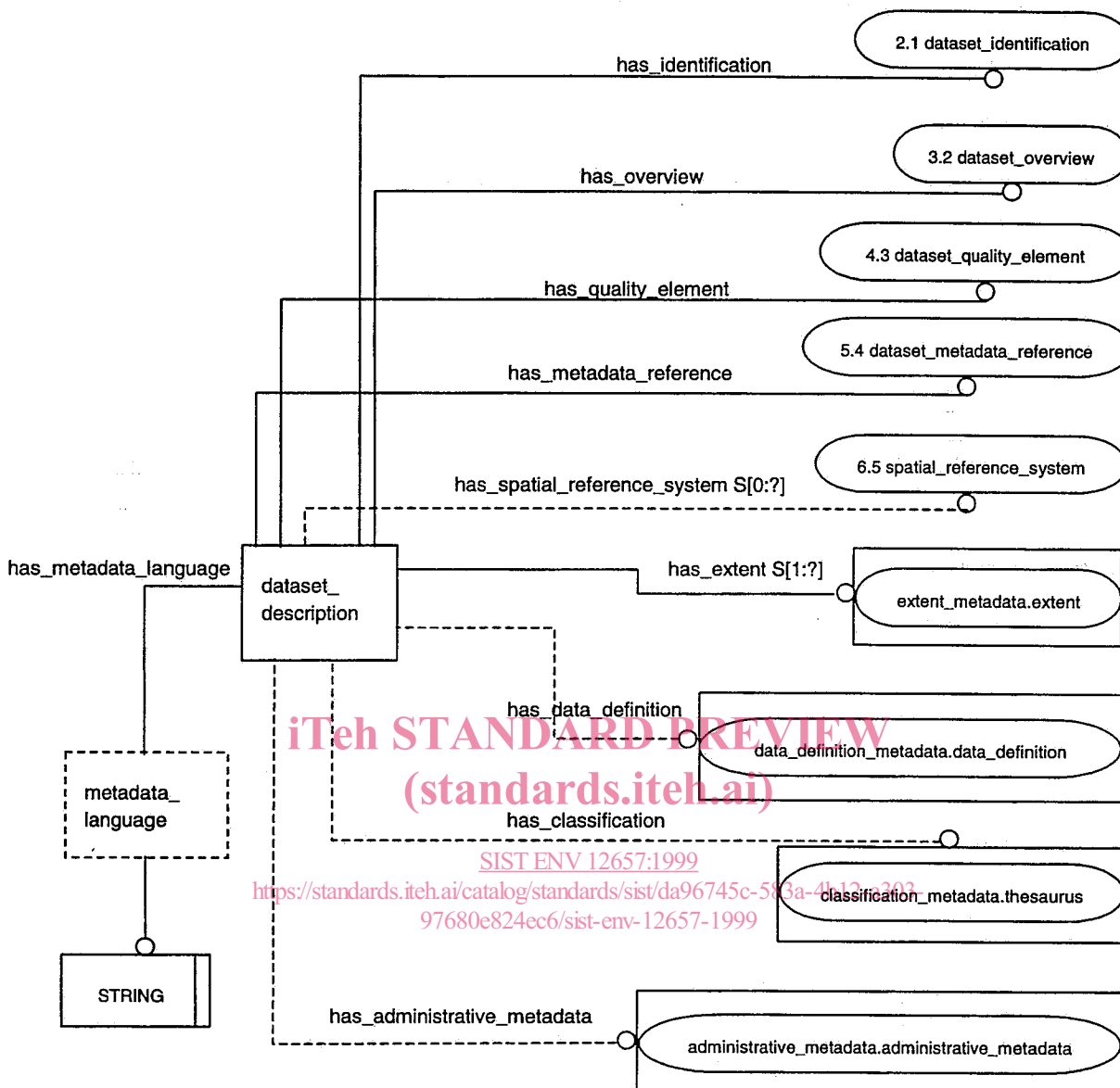


Figure 1 - Metadata schema page 1

#### 4.6.3.2 Dataset identification

Sufficient data shall be provided to clearly identify the geographic dataset.

The following data shall be given :

- the geographic dataset title ; this shall be the explicit name of the geographic dataset, to sufficiently identify it by the users.

The following data may be given :

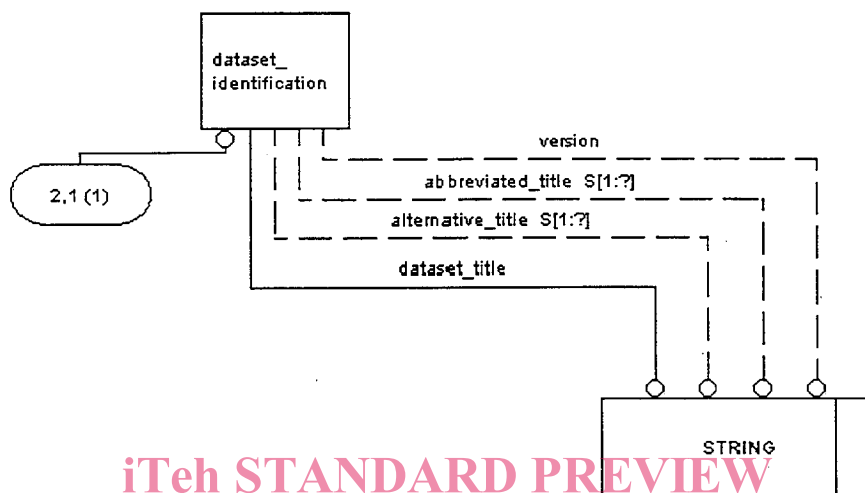
- alternative title : a geographic dataset may have one or more alternative title(s). These may be given in a different language from the title ; the alternative title or titles shall be unique within the owning organisation(s) ;
- abbreviated title : a geographic dataset name may be shortened ; the abbreviated title(s) shall be unique within the owning organisation(s) ;
- version : the version number or other description of the version of the geographic dataset.

- version : the version number or other description of the version of the geographic dataset.

### EXPRESS specification

\*)

```
ENTITY dataset_identification;
  dataset_title      : STRING;
  alternative_title  : OPTIONAL SET [1:?] OF STRING;
  abbreviated_title  : OPTIONAL SET [1:?] STRING;
  version            : OPTIONAL STRING;
END_ENTITY;
(*
```



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Figure 2 - Metadata schema page 2, dataset identification

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#### 4.6.3.3 Dataset overview

Sufficient data shall be provided to give an overall description of the geographic dataset. This shall include :

- summary : a brief textual description of the geographic dataset which summarises the content of the geographic dataset ;
- producer organisation name.

If a producer is unknown then this shall be recorded as "Unknown" in the name of the organisation and all contact details are omitted in the administrative metadata.

If a producer is not confirmed then the words "Thought to be" are inserted before the name of the organisation.

NOTE The organisation responsible for commissioning production may be different from an organisation actually carrying out the work.

- spatial schema type : the type of the spatial schema(s) of the geographic dataset shall be given according to ENV 12160. For this purpose the type spatial\_schema\_type is defined. It is an enumeration with the following possible values :
  - spatialG0 ;
  - spatialG1 ;
  - spatialG2 ;
  - spatialG3