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Geografske informacije - Pregled

Geographic information - Overview

Geoinformation - Übersicht

Information géographique - Vue d'ensemble

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document has been prepared by CEN /TC 287, "Geographic Information".

Introduction

Geographic information concerns objects and phenomena directly or indirectly related to a location on or near the surface of the Earth. Geographic Information Systems (GIS) are computer systems for the handling of geographic information. There is widespread recognition among users of information technology that indexing data by location is a fundamental way to organise and to use digital data. Digital data from a wide variety of sources is being referenced to locations for use in a diversity of applications including administration, the provision of utility and other services, the environment, transport, demographics and defence.

Consequently, there is an increasing need for geographic information standards. These are needed to enable universal usage of digital geographic information, to enhance the ability to integrate geographic information with other digital information and applications, and to incorporate geoprocessing functionality into a broad spectrum of existing and emerging information technologies.

In general, the underlying principle of such standards is to use formal description techniques for describing the information, data transformations and service interfaces. The standards foresee a new generation of GIS providing various data encodings and transformations, based on end-user demand described by formal models.

1 Scope

This CEN Report provides an overview of the family of European Prestandards (ENVs) for geographic information. It describes the areas of application to which those ENVs apply, and explains the overall context within which the family will operate.

This family of ENVs provides a means to represent geographic information, along with the necessary mechanisms and definitions to enable geographic data to be used by different computer systems, in different environments and for different applications.

The following are within scope of this CEN Report :

- an overview of this family of ENVs ;
- the structure of this family of ENVs ;
- an overview of data description methods including the EXPRESS data specification language ;
- an overview of how geographic data is referenced with respect to position and time ;
- an overview of definition of processing carried out on geographic data.

The scopes of the other ENVs in this family are defined within those individual ENVs.

2 References

This CEN Report 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 CEN Report only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

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 12657:1998, *Geographic Information – Data description – Metadata.*

ENV 12658:1998, *Geographic Information – Data description – Transfer.*

ENV 12661:1998, *Geographic Information – Referencing – Geographic identifiers.*

ENV 12762:1998, *Geographic Information – Referencing – Direct position.*

prENV 13376:1998, *Geographic Information – Data description - Rules for application schemas.*

CR 12660:1998, *Geographic Information – Processing – Query and Update : spatial aspects.*

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

3 Definitions

For the purposes of this CEN Report, 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
conceptual schema
result from a conceptual modelling of geographic data

[ENV 12009]

3.3
gazetteer
directory of instances of locations

[ENV 12661]

3.4
geographic identifier
unique identifier for a location

[ENV 12261]

3.5
geographic information
information concerning phenomena directly or indirectly associated with a location relative to the surface of the Earth

[ENV 12009]

3.6
graphical notation
formal language using graphical symbols

3.7
lexical language
formal language using words and mathematical symbols

3.8
location
identifiable part of the real world

[ENV 12661]

3.9
metadata
data about a geographic dataset or geographic datasets

[ENV 12657]

3.10
quality
totality of characteristics of a product that bear on its ability to satisfy stated or implied needs

[ENV 12656]

3.11
query
operation to select and retrieve data from a database without changing their contents

[CR 12660]

3.12
spatial reference
label or alphanumeric code that identifies a location

3.13
transfer
move from one location to another

3.14
update
operation to amend or replace data in a dataset

[CR 12660]

4 Abbreviations

EDI	Electronic Data Interchange
SDAI	Standard Data Access Interface
SQL	Structured Query Language
STEP	Standard for Technical Exchange of Product data

5 Standardisation in the field of geographic information

5.1 Objectives

Geographic information concerns objects and phenomena directly or indirectly associated with a location relative to the surface of the Earth. The basic objective of standardisation in this field is to enable geographic information to be accessed by different users, applications and systems, and from different locations. This requires a standard way of defining and describing this information, a standard method for structuring and encoding it, and a standard way of accessing, transferring and updating it via geographic information processing and communication functions, independent of any particular computer system. Standardisation enables consistent implementations across multiple applications and systems, but permits different implementation technologies to be used for storing data in computer systems.

5.2 Principles

The Geographic Information European Prestandards are intended for use by suppliers of data and developers of systems and applications as well as users. They are based on existing information systems standards and methodologies, especially those relating to open systems interconnection. To enable databases and applications that are different in structure, form and content to interconnect and inter-operate, a distinction is made between internal and external applicability of this standard, with the major emphasis placed on the external aspects. Additional benefits may be gained from application of this standard internally to databases and applications.