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Foreword

This document (CEN/TR 15449-5:2015) has been prepared by Technical Committee CEN/TC 287 "Geographic information", the secretariat of which is held by BSI.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

Introduction

Spatial data infrastructure (SDI) is a general term for the computerised environment for handling data that relates to a position on or near the surface of the earth. It may be defined in a range of ways, in different circumstances, from the local up to the global level.

This Technical Report focuses on the technical aspects of SDIs, thereby limiting the term SDI to mean an implementation neutral technological infrastructure for geospatial data and services, based upon standards and specifications. It does not consider an SDI as a carefully designed and dedicated information system; rather, it is viewed as a collaborative framework of disparate information systems that contain resources that stakeholders desire to share. The common denominator of SDI resources, which can be data or services, is their spatial nature. It is understood that the framework is in constant evolution, and that therefore the requirements for standards and specifications supporting SDI implementations evolve continuously.

SDIs are becoming more and more linked and integrated with systems developed in the context of e-Government. Important drivers for this evolution are the Digital Agenda for Europe, and related policies (see Part 1 of this Technical Report). By sharing emerging requirements at an early stage with the standardization bodies, users of SDIs can help influence the revision of existing or the conception of new standards.

The users of an SDI are considered to be those individuals or organisations that, in the context of their business processes, need to share and access geo-resources in a meaningful and sustainable way. Based on platform- and vendor-neutral standards and specifications, an SDI aims at assisting organisations and individuals in publishing, finding, delivering, and eventually, using geographic information and services over the internet across borders of information communities in a more cost-effective manner.

Considering the complexity of the subject and the need to capture and formalize different conceptual and modelling views, CEN/TR 15449 comprises multiple parts. The other parts, published previously, are:

— Part 1: Reference model: This provides a general context model for the other Parts, applying general IT architecture standards;

— Part 2: Best Practice: This provides best practices guidance for implementing SDI, through the evaluation of the projects in the frame of the European Union funding programmes.

— Part 3: Data centric view: This addresses the data, which includes application schemas and metadata.

— Part 4: Service centric view: This addresses the concepts of service specifications, the methodology for developing service specifications through the application of the relevant International Standards, and the content of such service specifications.

Further parts may be created in the future.

One of the major challenges in the implementation of an SDI is to ensure the conformity of its components with the requirements specified in the relevant standards and guidelines. This applies to the data specifications, the derived schemas, the spatial data sets and metadata and the network services. Only if conformance is ensured, can true interoperability of the harmonized metadata and data by means of network services be guaranteed. This Part (5) provides guidance for validation and testing of data, metadata and services, as the main Spatial Data Infrastructure (SDI) components defined in other parts of this Technical Report.

The intended readers of this document belong to a range of categories:

— technicians engaged in validation and testing of SDI components, who need to find reference material to use within the validation and testing processes;

— managers who need to assess the complexity of the processes of validation and testing of SDI components;

— data, metadata and network service providers, aiming at self-validating their own data sets, metadata or services, who wish to implement validation and testing processes within their organizations;

— designers of data and metadata models, who need to validate their schemas;

— data users interested in acquiring a deeper knowledge about validation and testing processes of SDI components.

Because the operation of SDIs in Europe is governed by the INSPIRE Directive EC/02/2007 and its relevant legal and technical documents, this report aims at considering INSPIRE as the reference context, even though some concepts, wherever possible, are generalized beyond INSPIRE.

Because Validation and Testing is a subject in continuous and rapid evolution, and many different implementations could exist based on different technical solutions, the topics covered in this report, as well as the relevant examples provided in the Annexes, cannot be considered complete nor exhaustively presented. In order to keep updated on the subject, the readers of this report are recommended to follow the activities and outcomes of the Working Group 5 "Validation and Conformity Testing", set-up within the INSPIRE MIG (Maintenance and Implementation Group) and MIF (Maintenance and Implementation Framework)[1].

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1) http://inspire.ec.europa.eu/index.cfm/pageid/5160

1 Scope

This part of the Technical Report provides guidance for validation and testing of data, metadata and services, as the main Spatial Data Infrastructure (SDI) components defined in other parts of the CEN/TR 15449.

The guidance is given by means of examples of the validation and testing process required to ensure conformance with the requirements existing in the relevant standards and guidelines.

The National validation and testing context is out of scope of this report.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 19105:2005, *Geographic information - Conformance and testing (ISO 19105:2000)*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions of EN ISO 19105:2005 shall apply.

3.2 Abbreviations

ATS: Abstract Test Suite

CRS: Coordinate Reference System

DS: Data Specifications

ESDIN: European Spatial Data Infrastructure with a Best Practice Network — a project supported by eContent+ programme

ETF: ESDIN Testing Framework

ETS: Executable Test Suite

FE: Filter Encoding

GI: Geographic Information

GML: Geography Markup Language

ISO: International Organization for Standardization

IR: Implementing Rule

MD: Metadata

NA: Not Applicable

NS: Network Services

OGC: Open Geospatial Consortium

PS: Protected Sites

SLA: Service Level Agreement

SOAP: Simple Object Access Protocol

XML: eXtensible Markup Language