SLOVENSKI STANDARD
SIST-TP CEN/TR 15449-2:2013

01-januar-2013

Nadomešča:
SIST-TP CEN/TR 15449:2011

Geografske informacije - Infrastrukture za prostorske podatke - 2. del: Dobre prakse

Geographic information - Spatial data infrastructures - Part 2: Best practices

Geoinformation - Geodateninfrastrukturen - Teil 2: Best practice

Information géographique - Infrastructures de données spatiales - Partie 2 : Bonnes pratiques

Ta slovenski standard je istoveten z: **CEN/TR 15449-2:2012**

ICS:

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

SIST-TP CEN/TR 15449-2:2013 en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CEN/TR 15449-2

October 2012

ICS 07.040; 35.240.70

Supersedes CEN/TR 15449:2011

English Version

Geographic information - Spatial data infrastructures - Part 2: Best practices

Information géographique - Infrastructures de données spatiales - Partie 2 : Bonnes pratiques

Geoinformation - Geodateninfrastrukturen - Teil 2: Best practice

This Technical Report was approved by CEN on 27 May 2012. It has been drawn up by the Technical Committee CEN/TC 287.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. CEN/TR 15449-2:2012: E

CEN/TR 15449-2:2012 (E)

Contents

Page

2

iTeh STANDARD PREVIEW
(standards.iteh.ai)

CEN/TR 15449-2:2012 (E)

Foreword

This document (CEN/TR 15449-2:2012) 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.

This document supersedes CEN/TR 15449:2011.

The present standard comprises the following parts:

— CEN/TR 15449-1, *Geographic information — Spatial data infrastructures — Part 1: Reference model*;

— CEN/TR 15449-2, *Geographic information — Spatial data infrastructures — Part 2: Best practices* (the present part);

— CEN/TR 15449-3, *Geographic information — Spatial data infrastructures — Part 3: Data centric view*;

— CEN/TR 15449-4, *Geographic information — Spatial Data Infrastructure (SDI) — Part 4: Service centric view*.

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. This Technical Report takes these developments into account. 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 is comprised of multiple parts:

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

- Part 2: Best practices: 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 concerns related to the data, which includes application schemas and metadata;

- Part 4: Service centric view (in preparation): this includes the taxonomy of services, concepts of interoperability, service architecture, service catalogue, and the underlying IT standards.

Further parts may be created in the future.

5

CEN/TR 15449-2:2012 (E)

1 Scope

This part of the Technical Report provides best practices regarding Spatial Data Infrastructures (SDIs), referencing to the outcomes of the projects in the frame of the European Union funding programmes. It summarises the deliverables of projects, structured according to the reference model defined in Part 1 of this Technical Report, to be made available in an on-line repository where the relevant outcomes are collected and classified in order to provide a structured sets of recommendations for implementing SDIs at the European, national and sub-national levels.

This collection refers mainly to the projects funded by the European Union funding programmes: this choice is driven by the wide vision and analysis which such kind of projects can provide and the wide numbers of stakeholders which have been involved.

The outcomes delivered by these relevant practices are collected into a document registry available through the CEN/TC 287 web site. This part of the Technical Report defines the processes and the content of these projects and documents registries, which will help making them more accessible and re-usable. It provides the relevant project deliverables addressing the main SDI issues as described in the other parts of this Technical Report.

The intended readership of this Technical Report are those people who are responsible for creating frameworks for SDI, experts contributing to INSPIRE, experts in information and communication technologies and e-government that need to familiarize themselves with geographic information and SDI concepts, and standards developers and writers.

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 19115, *Geographic information — Metadata (ISO 19115)*

EN ISO 19135:2007, *Geographic information — Procedures for item registration (ISO 19135:2005)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
interoperability
capability to communicate, execute programs, or transfer data among various functional units in a manner that requires the user to have little or no knowledge of the unique characteristics of those units

[SOURCE: ISO/IEC 2382-1:1993]

3.2
register
set of files containing identifiers assigned to items with descriptions of the associated items

[SOURCE: EN ISO 19135:2007]

3.3
registry
information system on which a register is maintained

[SOURCE: EN ISO 19135:2007]

3.4
spatial data infrastructure
policies, standards and procedures under which organizations and technologies interact to foster more efficient use, management and production of geo-spatial data

[SOURCE: United Nations SDI initiative (UNSDI)]

4 Abbreviated terms

CB	Control body
CB-PoC	Point of contact of the Control Body
ESDI	European Spatial Data Infrastructure
GEO	Group on Earth Observations
GEOSS	Global Earth Observation System of Systems
GI	geographic information
GIGAS	GEOSS, INSPIRE and GMES, an Action in Support
GMES	Global Monitoring for Environment and Security
INSPIRE	Infrastructure for Spatial Information in Europe
ICT	information and communications technology
ISO	International Organization for Standardization
IT	information technology
OGC	Open Geospatial Consortium
OMG	Object Management Group
RM	Register manager
SDI	Spatial Data Infrastructure
SOA	Service Oriented Architecture
UML	Unified Modelling Language

5 Overview

5.1 Introduction

This clause describes the various roles that projects can assume in relation to the standardisation processes. It will describe the categories of contributions that projects give, directly or indirectly, to standards development, evaluation, support to the implementation, and education of standards for geographic

CEN/TR 15449-2:2012 (E)

information. In addition there are projects that help linking standards development to the implementation of legal acts and policies.

In particular for the outcomes and best practices of projects that are not directly involved in the standards development processes, it is paramount that their efforts be captured and made sustainable beyond the lifetime of the projects.

With INSPIRE[1], GEOSS[2] and GMES[3] now well established, numerous projects and activities that are (co-)funded by EU programmes are being asked to use or build upon standards and specifications in the domain of geographic information. Design methodologies, reference models, good practices in UML data model design and data model transformation, as well as standards for various services are examples of topics that are being or that have been addressed by dozens of European Union-funded projects. The paymasters and the consortia that developed these products have made investments that should be protected.

The GIGAS[4] project (GEOSS, INSPIRE and GMES, an Action in Support), financed by the Directorate General Information Society of the European Commission, has made concrete recommendations on how this could be done. In particular, a role is proposed for CEN/TC 287 Geographic Information to maintain relevant deliverables or parts thereof, not only of the GIGAS project, but also of other EU-funded projects. This is to lead to a formal EU-level repository of reference material on interoperability, where future projects can find state-of-the-art information on interoperability. At the same token, these projects could then add new reference material as they progress in their work programmes.

This part of the Technical Report, along with the CEN/TC 287 document registry, constitutes the backbone for making the outcomes and best practices of projects sustainable.

5.2 Categories of contribution

5.2.1 Content classification

The general issue is knowledge management related to standardization processes in projects funded by the European Union programmes. More specifically, the proposed relevant practices should support the analysis of project outcomes, which in the majority of the case are documents, but it can be also IT tools, infrastructure and datasets. The core goal of this repository is strictly limited in the setup of a document registry related to the relevant outcomes of European Union funded projects. Additional extension of this registry to manage references to outcomes different from the documents will be taken into account in the future release.

The content managed by this registry can be categorized according to different aspects, applying a faceted classification. A faceted classification allows the assignments of multiple classifications to a document, enabling the classifications to be ordered in multiple ways, rather than in a single, predetermined order. A facet comprises "clearly defined, mutually exclusive, and collectively exhaustive aspects, properties or characteristics of a class or specific subject. According to this concept, the outcomes of projects related to SDI can be categorized according to different facets which are listed below. According to this approach, each document register will be classified under these different facets and the implemented registry permits to address the registers according to this combined facets. The collected documents registers refers to best practices about implementing SDI.

The following subsections provide the classification of the project outcomes in terms of the reference model components, architectural reference services, and the phase(s) of an SDI, to which a project outcome is applicable.

---

1) Infrastructure for Spatial Information in the European Community (INSPIRE), http://inspire.jrc.ec.europa.eu.

2) Global Earth Observation System of Systems, http://earthobservations.org/ .

3) Global Monitoring for Environment and Sustainability, http:///www.gmes.info .

4) GEOSS, INSPIRE and GMES an Action in Support (GIGAS) http://www.thegigasforum.eu/project/project.html .

8

5.2.2 SDI reference model components

A project outcome addresses one or more of the following SDI components:

- Data;

- Register;

- Discovery;

- View;

- Invoke;

- Download;

- GeoRM;

- Orchestration and Composition.

5.2.3 Architectural reference model services

A project outcome is characterized by one or more of the following type of services:

- Human Interaction Services;

- Model Management Services;

- Workflow/Task Services;

- System Management Services;

- Processing Services;

- Communication Services.

5.2.4 Phases of an SDI

A project outcome can focus mainly on one of the following different phases related to the SDI implementation process:

— **Concept and design**: including analyses, methodologies, reference models, state of play related to the main SDI areas;

— **Implementation**: including development methodologies, development implementation, deployment, management and maintenance;

— **Validation**: including monitoring, testing and reference standards compliance.

5.2.5 Project document types

Given the current way of delivering project results by submitting documents, this overarching goal implies taking documents pertinent to the issue required to implement an SDI, and in particular:

1) **Standards**: the reference standards analysis, applicability, implementation, testing, refinements and validation. This information must be applied.

CEN/TR 15449-2:2012 (E)

2) **Specifications**: related to the standards or legally binding documents containing detailed description of the requirements, recommendations and where relevant open issues. Specifications provide more flexible level of documentation supporting more fixed binding documents. Specifications usually remain on more conceptual level of reality abstraction.

3) **Technical reports**: often representing overall or partial outputs of the projects. Technical reports often stands on more logical level of reality abstraction.

4) **Guidelines**: the technical documentation and guidelines related to the issues described above. Guidelines can contain practical examples, best practices of the specific SDI components implementations.

5) **Software tool**: the software component (either OSS than COTS tools) including products, API, development environment, etc.

6 Processes and procedures

6.1 Requirements from a content provider perspective

This clause defines the processes and procedures for the inclusion and update of the outcomes and best practices of projects. These processes and procedures has been determined by the analysis of the registry requirements according to a project perspective.

From a project perspective, it is expected to have a simple system to populate and to upload the register related to the best practice document. This entails:

a) being able to register the project through a wizard approach: a step-by-step process where the best practice provider enters:

1) project details,

2) executive abstract,

3) contact details, etc.,

4) link to other "persistent" Web 2.0-like information available (e.g. YouTube channel, etc.),

5) PR material (official brochure / flyer as PDF),

6) link to official website,

7) project duration,

8) gantt chart and deliverables (incl. delivery dates),

9) other (e.g. funding programme),

At any time the document provider should be able to "save" and continue later, and should see the remaining information needed to complete the process.

b) when uploading information minimise re-structuring of deliverables which would be time consuming and discouraging;

c) ideally the document provider would like to upload a series of pdfs and tag them through a pre-defined structure. An option could be to have online forms where to copy and paste (with all the problems this may cause) the various sections of the deliverable (like Wikipedia but it should be much more usable);

d) have facilities to access the software code by the provision of a URL or software code page or repository.

6.2   Inclusion of projects in this part Technical Report

6.2.1   Permanent call for contributions

The contributions collected and referred to in this technical report are related to the date of publication of this version of document. However, the collection of the best practice documents related to the outcomes of the European Union funded projects will continue and a permanent call for contribution will be maintained and open by the CEN/TC 287 secretariat. The upcoming requests for inclusion in the registry of new best practices references will be processed according to the procedure defined in the following paragraph, and they will be stored into the online registry managed by the CEN/TC 287 secretariat. It will be evaluated when it will be opportune to publish an updated version of this part of this technical report, including the updated reference documents and best practices collected into the on-line registry.

6.2.2   Role definitions

Regarding item registration in general, EN ISO 19135 identifies six diverse roles:

— **Register Owner**: an organization establishing the register and has the primary responsibility for the management, dissemination and intellectual content of the register.

— **Register Manager**: manages the register(s) of items.

— **Submitting Organizations**: a qualified organization to propose changes to the content of a register, or an appeal if the proposals are not accepted.

— **Control Body**: a group of technical / thematic domain experts deciding on the acceptability of the proposals and changes to the content of a register. The control body shall accept proposals from the register manager and renders a decision regarding each proposal.

— **Registry Manager**: a person or an organization responsible for the day-to-day management of a registry (an information system on which a register is maintained). The registry manager ensures the integrity of any register held in the registry and provides means of electronic access to the registry for register managers, control body(ies) and register users.

— **Register Users**: access a registry in order to use one or more of the registers. They may include any person or organization interested in accessing or influencing the content of a register. They may have a variety of requirements and therefore present different categories of users (for example developers of standards and specifications, data producers, data users, system developers). A register owner may set terms and conditions for different levels of access to the register to satisfy the requirements of different categories of users.

Multiple parties my play each of these roles and a single entity may play more than one role. These roles are summarised in Table 1.