SLOVENSKI STANDARD
oSIST prEN ISO 19152-5:2024

01-september-2024

Geografske informacije - Model domene za zemljiško administracijo (LADM) - 5.del: Informacije o prostorskem načrtu (ISO/DIS 19152-5:2024)

Geographic information - Land Administration Domain Model (LADM) - Part 5: Spatial plan information (ISO/DIS 19152-5:2024)

Geoinformationen - Land Administration Domain Model (LADM) - Teil 5: Raumbezogene Planinformationen (ISO/DIS 19152-5:2024)

Information géographique - Modèle du domaine de l'administration des terres (LADM) - Partie 5: Informations sur le plan d'aménagement du territoire (ISO/DIS 19152-5:2024)

Ta slovenski standard je istoveten z: **prEN ISO 19152-5**

ICS:

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

oSIST prEN ISO 19152-5:2024 **en,fr,de**

DRAFT International Standard

ISO/DIS 19152-5

ISO/TC **211**

Secretariat: **SIS**

Voting begins on:
2024-06-19

Voting terminates on:
2024-09-11

Geographic information — Land Administration Domain Model (LADM) —

Part 5: Spatial plan information

Information géographique — Modèle du domaine de l'administration des terres (LADM) —

Partie 5: Informations sur le plan d'aménagement du territoire

ICS: 35.240.70

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO/DIS 19152-5:2024(en)

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Published in Switzerland

Contents

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO *[had/had not]* received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 287, *Geographic Information*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Additional part is planned to address Implementation Aspects (Part 6) under the general title Geographic information — Land Administration Domain Model (LADM).

This edition of the ISO 19152 multi-part series of standards is backwards compatible to ISO 19152:2012 version of the Land Administration Domain Model.

A list of all parts in the ISO 19152 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Spatial planning plays an essential role in land management. Integration of physical and sectoral planning at the local level usually produces some degree of permissions, authorizations, restrictions, responsibilities, obligations and sanctions. Essentially jurisdictions reserve the powers to control activities over certain areas of land. They exert this power by providing agencies with powers which either restrict or sanction the rights of land owners or create positive obligations (responsibilities or obligations) on land owners. The same agencies might have the powers to empower land owners with rights that would overwise be restricted or waive positive obligations. Where this occurs a time-limited permit or authorization is commonly used. However, it is typical in many countries to establish land administration and the spatial plan processes through different regulations, authorities, and processes. Cities establish and maintain Land Administration Systems (LAS) to manage information about the land and urban space. Information about land rights recorded in a land administration system (under its applicable legislation) may be required to inform spatial planning decisions. Legally binding planning conditions which create rights, responsibilities and restrictions under local or national planning legislation, which are not recorded in a land registration system, may be required for a full understanding of the permitted uses of a specific land parcel. Outputs of the planning system may anticipate changes in land rights that will be recorded in the land registration system in the future. The Land Administration Domain Model (LADM) offers guidelines to support interoperability in the representation of Rights, Restrictions, and Responsibilities (RRRs). The LADM is also capable of standardizing multi-dimensional representation, including the temporal aspects in documenting and visualizing all legal aspects of land use or space.

The purpose of this International Standard is to provide the general reference model, as an extension of core LADM (i.e., ISO 19152-1:2024 and ISO 19152-2), for all objects of spatial planning covering land/water and below/on/above surfaces. This standard supports 4D (3D + time) representation of the spatial plans including marine spatial plans.

The first goal of this standard is to enable involved parties, both within one country and between different countries, to communicate, based on the shared vocabulary, implied by the model. It is not to replace existing systems, but rather to provide a formal language for describing them, so that their similarities and differences can be better understood.

The second goal is to provide an extensible basis for the development and refinement of efficient and effective LAS, based on a Model Driven Architecture (MDA). The standard is relevant for creating standardized information services in a national or international context, where land administration domain semantics have to be shared between organizations, regions, or countries, in order to enable necessary translations. Four considerations during the design of the model were:

— it will cover the common aspects shared by objects created by spatial plans;
— it will be based on the conceptual framework of ‘Cadastre 2014’ of the International Federation of Surveyors (FIG), Plan4All and Land Use/Cover data themes of INSPIRE;
— it will be as simple as possible in order to be useful in practice.

The scope of this document is provided in Clause 1. Normative references are presented in Clause 2. The used terms, definitions and abbreviations are included in Clause 3. Conformance in relation to this document is given in Clause 4, and a conformance test is specified in Annex A. Clause 5 provides the notation. Clause 6 introduces the classes, attributes and associations of Part 5 – Spatial Plan Information in detail. Clause 7 presents the relationships between the core LADM and this standard. Annex B presents studies related to spatial plan interoperability. A set of informative examples using instance level diagrams is available in Annex C. Annex D presents code lists as a basis to describe a flexible enumeration. A set of country profiles is presented Annex E. The relationships between LADM Part 5 and INSPIRE is presented in Annex F. Examples of 3D spatial information planning and regulation are given in Annex G. A bibliography is given at the end of the document.

Geographical information — Land Administration Domain Model (LADM) — Part 5: Spatial plan information

1 Scope

This document:

- defines a reference Land Administration Domain Model (LADM) covering basic information-related components of spatial plan information on land/water, and elements below/on/above the surface of the earth with 2D/3D/4D (3D + time) geometric representation;
- provides an abstract, conceptual model with packages related to
  - plan unit (i.e., smallest homogenous area/space (2D/3D/4D) with assigned function/purpose, e.g., office, education, or retail);
  - plan block (i.e., a set of neighbouring plan units decided by planning authorities, e.g., high-density residential area, nature area, or heavy industry area);
  - plan group (i.e., hierarchy in spatial plans consisting of multiple plan block, e.g., (a) continent/regional-wide (e.g., European regions), (b) country-wide (e.g., Indonesia, the Netherlands, so forth), (c) island, (d) state or region province, (e) municipality or city, and (f) urban or rural;
  - permit (i.e., something that is granted to a party which gives the party permission to undertake an activity which would otherwise be restricted);
- provides terminology for spatial plan information as part of land administration, based on various national and international systems, that is as simple as possible in order to be useful in practice. The terminology allows a shared description of different formal or informal practices and procedures in various jurisdictions;
- provides a platform for Sustainable Development Goal (SDG) indicators based comparison and monitoring for spatial plan information;
- provides an approach to modelling the integration of spatial plan information (outputs of spatial plans) into land administration;
- provides a basis for national and regional profiles; and
- enables the combining of land-use planning and land development planning in land administration information from different sources in a coherent manner.

The following is outside the scope of this International Standard:

- interference with (national) and sub-national spatial planning laws that may have any legal implications.

This document provides the concepts and basic structure for standardization for spatial plan information within the land administration domain. It defines a general schema that enables regulatory information to be described. It also allows for the relationship to multiple parties and groups to be expressed together with a referencing structure so that sourcing of all information systems may be maintained. It reuses core LADM classes so that sourcing of all information systems may be maintained. This document establishes the common elements and basic schema for spatial plan information upon which more detailed schema may be established.

2 Normative references

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

ISO 19103:2015, *Geographic information — Conceptual schema language*

ISO 19105:2000, *Geographic information — Conformance and testing*

ISO 19107:2019, *Geographic information — Spatial schema*

ISO 19152-1:2024, *Geographic information — Land Administration Domain Model — Part 1: Generic conceptual model*

ISO/DIS 19152-2:—,[1)] *Geographic information — Land Administration Domain Model — Part 2: Land registration*

3 Terms, definitions, and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19152-1, ISO 19152-2 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp
— IEC Electropedia: available at https://www.electropedia.org/

3.1.1
permit
<LADM> explicit proof of a right (to perform a task) granted by authorities and granted to parties fitting within the relevant plan unit, that is, the object having the correct function for the requested location

Note 1 to entry: A permit can be considered as an authorisation granted by the authorities to the parties in accordance with the planning unit. The use of plan unit identifiers within a permit document may enable a closely coupled integration.

3.1.2
plan block
<LADM> set of touching plan units together defined by the spatial planning authorities, depicting the intended use of the area

Note 1 to entry: A plan block represents planned land use (PLU) that corresponds to spatial plans, defined by spatial planning authorities, depicting the possible utilization and/or development of the land. A plan block contains the plan units to express the PLU defined by the authority.

Note 2 to entry: Planned land use (PLU) is regulated by spatial planning documents elaborated at various levels of administration. Land use regulation over a geographical area is in general composed of an overall strategic orientation, a textual regulation and a cartographic representation. Spatial planning documents result from the spatial planning process once adopted, all parties must conform to the document. A spatial planning document corresponds to the plan block.

Note 3 to entry: It is containing area/volume (2D/3D) to the characterized by a (set of) boundary(ies) of the PLU policy. Typical representations are residential, commercial, retail, industry, territorial sea and exclusive economic zone.

Note 4 to entry: Geometrical representation of the plan block is equal to the union of the set of constituent plan units.

[1)] Under preparation.

3.1.3
plan group
<LADM> administrative hierarchy of spatial plans, where lower level plans (more detailed) are integrated with the intention of higher level plans (less detailed)

EXAMPLE The hierarchy may be as follows: national level (national plans), regional level (regional plans), city level spatial planning (urban/rural plans) and finally sub-city level (zoning plans).

Note 1 to entry: A spatial plan group has specific attributes and the level of the administrative hierarchy is accommodated in the plan group. It may include administrative information (which is expressed by an association to LA_AdministrativeSource), such as legislation reference or date and reference to a legal act according to which it entered into force.

3.1.4
plan unit
zoning unit
<LADM> homogenous area/space (2D/3D) with assigned function/purpose to represent the potential land use development according to the spatial planning authorities at the highest detail, largest scale (usually the municipality/ neighbourhood level)

EXAMPLE Zoning plan of block X in city Y. Zoning unit may be used as synonym of plan unit.

Note 1 to entry: Plan units are usually prepared at the municipality/neighbourhood level.

Note 2 to entry: A plan unit, which is part of *plan block* (3.1.2), is a feature type that consist of area/volumes (2D/3D). It represents zoning arrangement with regulation regarding the potential land use development. Plan units have several specific attributes to accommodate rights, restrictions and responsibilities, such as the nature of a regulation, indications on dimension rules that apply to the use of land and reference to the applicable regulation.

Note 3 to entry: It is containing area/volume characterized boundary of one zone plan. Typical representations are high-density residential area, banking, and heavy industry.

3.1.5
plan unit group
<LADM> areas corresponding to the higher planning levels with corresponding boundaries and space function sketched by the higher plan level authorities

3.1.6
spatial plan
zoning plan
<LADM> set of documents that indicates a strategic direction for the development of a given geographic area

Note 1 to entry: A spatial plan states the policies, priorities, programmes and land allocations that will implement the strategic direction and influences the distribution of people and activities in spaces of various scales.

Note 2 to entry: Spatial plans may be developed for urban planning, regional planning, environmental planning, landscape planning, national spatial plans, or spatial planning at the Union level.

3.1.7
spatial planning
<LADM> methods used largely by the public sector to influence the future distribution of activities in space