Irish Standard
I.S. EN ISO 19141:2009

Geographic information - Schema for moving features (ISO 19141:2008)

I.S. EN ISO 19141:2009

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EUROPEAN STANDARD

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English Version

Geographic information - Schema for moving features (ISO 19141:2008)

Information géographique - Schéma des entités mobiles (ISO 19141:2008)

Geoinformation - Schema für sich bewegende Objekte (ISO 19141:2008)

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Foreword

The text of ISO 19141:2008 has been prepared by Technical Committee ISO/TC 211 “Geographic information/Geomatics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 19141:2009 by Technical Committee CEN/TC 287 “Geographic Information” the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.

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The text of ISO 19141:2008 has been approved by CEN as a EN ISO 19141:2009 without any modification.

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I.S. EN ISO 19141:2009

INTERNATIONAL STANDARD

ISO 19141

First edition
2008-06-01

Geographic information — Schema for moving features

Information géographique — Schéma des entités mobiles

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 19141 was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

Introduction

This International Standard specifies a conceptual schema that addresses moving features, i.e., features whose locations change over time. This schema includes classes, attributes, associations and operations that provide a common conceptual framework that can be implemented to support various application areas that deal with moving features, including:

— Location Based Services,

— Intelligent Transportation Systems,

— Tracking and navigation (land-based, marine, or space), and

— Modeling and simulation.

The schema specifies mechanisms to describe motion consisting of translation and/or rotation of the feature, but not including deformation of the feature. The schema is based on the concept of a one parameter set of geometries that may be viewed as a set of leaves or a set of trajectories, where a leaf represents the geometry of the moving feature at a particular value of the parameter (e.g., a point in time) and a trajectory is a curve that represents the path of a point in the geometry of the moving feature as it moves with respect to the parameter.

Geographic information — Schema for moving features

1 Scope

This International Standard defines a method to describe the geometry of a feature that moves as a rigid body. Such movement has the following characteristics.

a) The feature moves within any domain composed of spatial objects as specified in ISO 19107.

b) The feature may move along a planned route, but it may deviate from the planned route.

c) Motion may be influenced by physical forces, such as orbital, gravitational, or inertial forces.

d) Motion of a feature may influence or be influenced by other features, for example:

   1) The moving feature might follow a predefined route (e.g. road), perhaps part of a network, and might change routes at known points (e.g. bus stops, waypoints).

   2) Two or more moving features may be "pulled" together or pushed apart (e.g. an airplane will be refuelled during flight, a predator detects and tracks a prey, refugee groups join forces).

   3) Two or more moving features may be constrained to maintain a given spatial relationship for some period (e.g. tractor and trailer, convoy).

This International Standard does not address other types of change to the feature. Examples of changes that are not adressed include the following:

— The deformation of features.

— The succession of either features or their associations.

— The change of non-spatial attributes of features.

— The feature's geometric representation cannot be embedded in a geometric complex that contains the geometric representations of other features, since this would require the other features' representations to be updated as the feature moves.

Because this International Standard is concerned with the geometric description of feature movement, it does not specify a mechanism for describing feature motion in terms of geographic identifiers. This is done, in part, in ISO 19133.

2 Conformance

2.1 Conformance classes

2.1.1 Introduction

This International Standard specifies four conformance classes (Table 1). They are differentiated on the basis of two criteria: purpose and level of complexity.

