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INCITS/ISO 19134:2007 (R2017)

INCITS/ISO 19134:2007  
(ISO 19134:2007, IDT)

# American National Standard

*Geographic information —  
Location-based services  
— Multimodal routing  
and navigation*

**Developed by**



*Where IT all begins*



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**Adopted by INCITS (InterNational Committee for Information Technology Standards) as an American National Standard.**

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## **Geographic information — Location-based services — Multimodal routing and navigation**

*Information géographique — Services basés sur la localisation —  
Routage et navigation multi-modes*



Reference number  
ISO 19134:2007(E)

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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.

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

ISO 19134 was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

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## Introduction

In everyday life in metropolitan areas in the world, a typical traveller is involved in using various modes of transportation for daily activities: e.g. walking, driving, park-and-ride, mass transit and taxi. The traveller frequently faces the problem of finding the optimal or best route combining several modes, from the origin to the destination, passing through the locations (waypoints) where the traveller might want to engage in activities such as shopping and meeting people, possibly satisfying a set of constraints such as the sequence constraints like "activity 1 before activity 2", "location 1 before location 2", etc. A typical intercity traveller faces situations requiring decisions to be made such as which station (junction) and by which mode to travel in order to take which system among the available transportation modes between an origin and a destination. The decision will depend on the overall cost that includes the line-haul, parking, routing, stopping at stations (junctions), stopping at intermediate places, etc.

This International Standard provides a conceptual schema for describing the data and services needed to support routing and navigation application for mobile clients who intend to reach a target position using two or more modes of transportation. This conceptual schema is a standard schema such as the spatial schema (ISO 19107) or the temporal schema (ISO 19108). This International Standard provides a description of a service type to support routing and navigation for a mode that operates either on a fixed route or with a fixed schedule, a description of data type for transfers, and a description of data type for schedule information and route information of a mode with a fixed route and/or schedule.

Based upon ISO 19133:2005, this International Standard specifies additional classes as well as extensions to existing classes to be used for multimodal routing and navigation. As in ISO 19133:2005, this International Standard assumes that all requests for services will be encapsulated in a request/response pair between the mobile client and the client application or its on-web proxy application. Therefore, this International Standard describes service operation types and a set of request/response data types associated with some operations which are necessary for multimodal routing and navigation.

By way of adding and/or expanding ISO 19133:2005, standardized conceptual schemas for multimodal routing and navigation of mobile clients will increase the ability to share geographic information among multimodal location-based service applications. These schemas will be used by multimodal location-based service applications, mostly in metropolitan areas, and in all intercity travelling environments to provide consistently understandable spatial data structures.