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Intelligent transport systems — Data interfaces between centres for transport information and control systems —

Part 2:
AP-DATEX

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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.

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 204, *Intelligent transport systems*.

This second edition cancels and replaces the first edition (ISO 14827-2:2005), which has been technically revised.

The main changes are as follows:

— the title has been modified;

— the concept of a platform-independent model (PIM) as defined in ISO/TS 19468 has been integrated;

— the message format previously defined in ISO 14827-1:2005 (to be withdrawn) has been included.

A list of all parts in the ISO 14827 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.

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Introduction

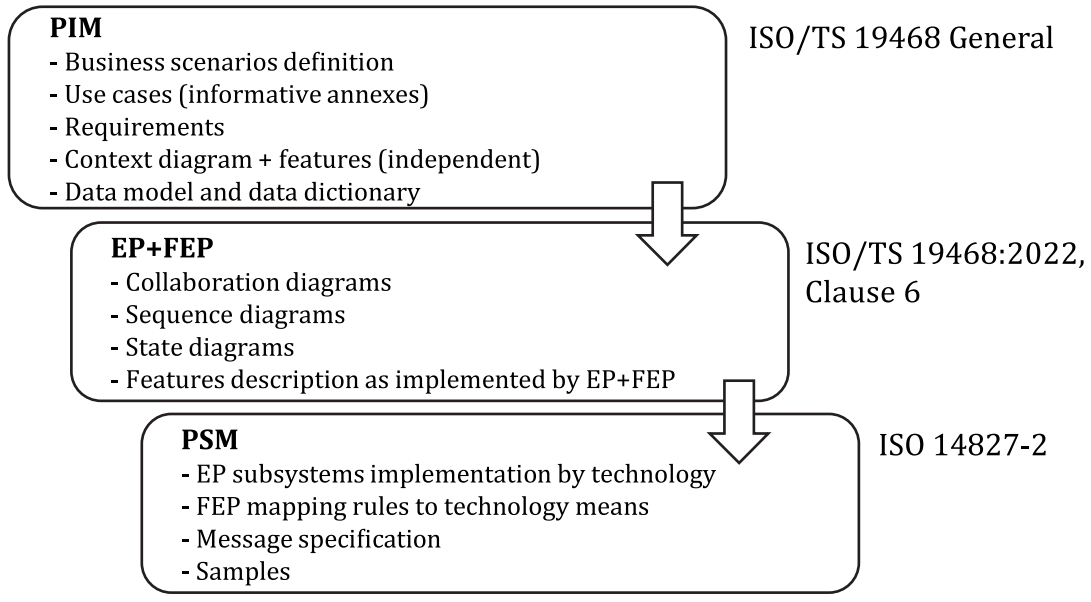
Data exchange among centres is a baseline service for implementing intelligent transport system (ITS) services. For interoperability purposes, data delivery and collaborative ITS services need to be implemented according to certain specifications based on fully-described interfaces.

This document has been revised based on the concept of a platform-independent model (PIM) as defined in ISO/TS 19468, maintaining backward compatibility with ISO 14827-2:2005 and taking into consideration the future withdrawal of ISO 14827-1:2005.

The development of the first editions of ISO 14827-1 and ISO 14827-2 began in the 1990s. These documents were published in 2005 based on European DATEX. Since then, the exchange environment of traffic information and traffic data has made a great deal of progress and DATEX II has been developed, enabling the distribution of traffic information and traffic management information in a way that is not dependent on language and presentation format. DATEX II is closely related to ISO/TS 19468. ISO/TS 19468 aims to describe the general exchange specification technology and to describe interaction through a high-level model which is not dependent on a specific technology in a model-driven approach; it defines functional exchange profiles by several possible exchange patterns.

According to this concept, ISO 14827-2 (this document) was revised as a platform-specific model for AP-DATEX (application profile-data exchange) and other Internet protocol (IP) networks. The relationship between ISO/TS 19468 and the ISO 14827 series (including this document) is shown in Figure 1. This document aims to define and describe the data exchange requirements using TCP/UDP (transmission control protocol/user datagram protocol) datagrams (defined as "DATEX-ASN") and the basics of ASN.1 messages, as defined in ISO 14827-1.

This document is not intended to conflict with existing International Standards on interfaces of data exchange among ITS centres.



Key

PIM platform-independent model

EP exchange pattern

FEP functional exchange profile

PSM platform-specific model

Figure 1 — Relationship between exchange-related documents

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Intelligent transport systems — Data interfaces between centres for transport information and control systems —

Part 2:
AP-DATEX

1 Scope

This document defines a platform-specific model (PSM) for data exchange, which specifically uses ASN.1 and TCP/UDP (transmission control protocol/user datagram protocol) datagrams which were defined as "DATEX-ASN" in the first edition of this document for AP-DATEX (application profile-data exchange) and other Internet protocol (IP) networks. A PSM is an actual implementation of a platform-independent model (PIM) for exchange. This document specifies the message rules and procedures for communication between different systems for ITS using TCP/UDP datagrams.

This document deals mainly with the communication interfaces. It has been designed to meet the unique requirements of intelligent transport systems (ITS). However, it has also been designed in a generic fashion and thus can be used for other data exchanges as well.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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/TS 19468, *Intelligent transport systems — Data interfaces between centres for transport information and control systems — Platform-independent model specifications for data exchange protocols for transport information and control systems*

ISO/IEC 8824-1, *Information technology — Abstract Syntax Notation One (ASN.1) — Part 1: Specification of basic notation*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 19468 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
DATEX-ASN
data exchange protocol in abstract syntax notation as TCP/UDP (transmission control protocol/user datagram protocol) datagrams exchange

Note 1 to entry: This was initially defined in ISO 14827-2:2005 (first edition of this document).

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3.2
DatexDatapacket
TCP/UDP (transmission control protocol/user datagram protocol) datagrams which are defined in ASN.1 as application layer data packets and can be exchanged using any compatible lower-layer combination

Note 1 to entry: See Annex B.

3.3
guaranteed delivery
TCP/UDP (transmission control protocol/user datagram protocol) datagrams exchange mechanism in which the client acknowledges the receipt of a publication (reply)

3.4
heartbeat
data packet sent to indicate that the sending system is still alive and communicating

3.5
publication
information (usually contained in payload) exchange from a supplier

Note 1 to entry: "Payload publication" is defined in ISO/TS 19468.

3.6
subscription
request to a supplier from a client for information exchange

3.7
transport profile
set of services which are responsible for providing a virtually error-free, point-to-point connection so that host A can send data packets to host B and they will arrive uncorrupted

4 Symbols and abbreviated terms

AP-DATEX	application profile-data
BER	basic encoding rule
CORBA	common object request broker architecture
DATEX-ASN	data exchange in abstract syntax notation
DTLS	datagram transport layer security
EDIFACT	electronic data interchange for administration, commerce and transport
EP	exchange pattern
FDDI	fibre distributed data interface
FEP	functional exchange profile
FrED	friendly exchange of data
FTP	file transfer protocol
IP	Internet protocol
ISDN	integrated services digital network

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