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

Part 3: Data interfaces between centres for intelligent transport sytems (ITS) using XML (Profile A)

Systèmes de commande et d'information des transports — Interfaces de données entre les centres pour systèmes de commande et d'information des transports —

Partie 3: Interfaces de données entre centres pour systèmes intelligents de transport (ITS) utilisant XML

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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*.

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

The relationship between this document and other standards in the ISO 14827 series is as follows.

ISO 14827-1 defines fundamental requirements of messages exchanged among centres. ISO 14827-2 defines ASN.1 formats to implement messages over ASN.1 platform. This document conforms to the fundamental requirements defined in ISO 14827-1 and defines requirements on XML messages to implement messages using XML. There is no compatibility between ASN.1 messages defined by ISO 14827-2 and XML messages defined by this document.

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

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

Part 3:
Data interfaces between centres for intelligent transport sytems (ITS) using XML (Profile A)

1 Scope

This document is applicable to data exchange between different systems. This document defines the message rules and procedures for communication between transport information and control systems using XML. This document clarifies how to package end-application messages and relevant data. This document defines the mechanism to request end-application data from the client and to deliver the requested data from the supplier. Several profiles are defined, however only Profile A is defined in this document. Other profiles will be defined in future parts of the ISO 14827 series of standards. A system can be both a client and a supplier of another system simultaneously, using multiple sessions.

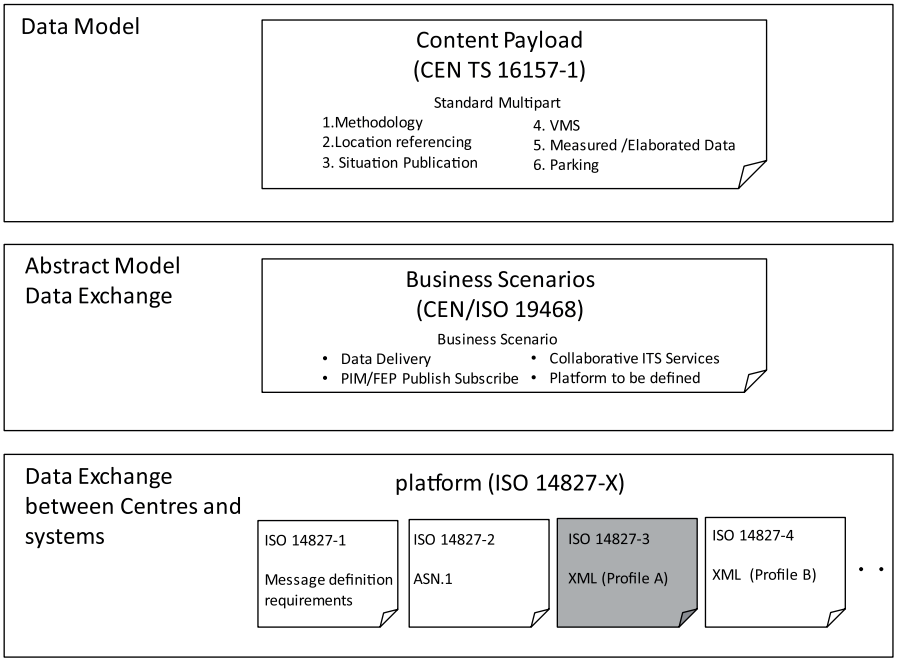


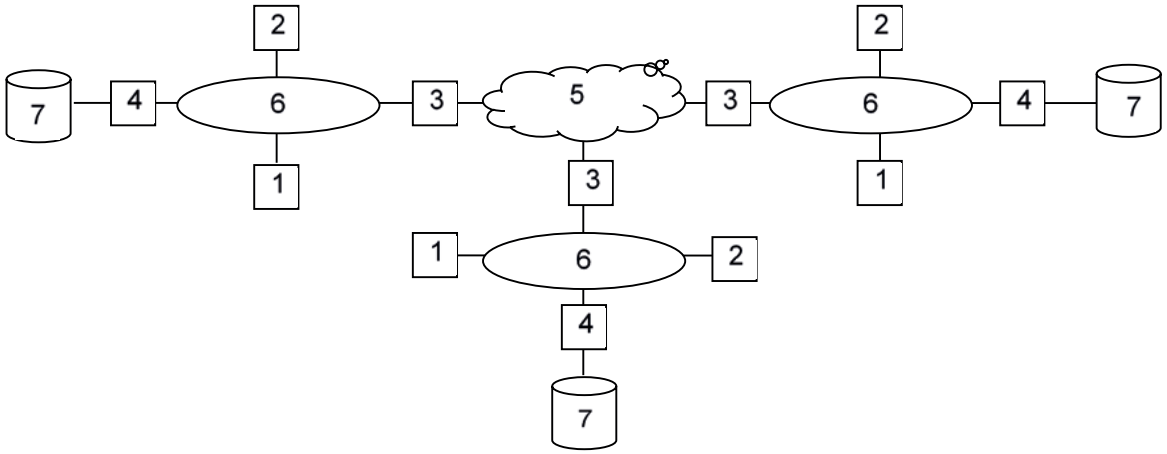
Figure 1 — Relationship between related documents

Rules and procedures for exchanging data-packets in lower layers are out of scope of this document. These functionalities can be implemented using generic protocols defined in the industrial standards. However this document defines how to use these protocols.

Data definition used in specific end-applications is out of scope in this document.

A network following this document comprises multiple kinds of systems. Each system can be viewed as an element including databases and interfaces, as shown in Figure 2:

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Key

1 application interface
2 operator interface
3 communication interface
4 database interface
5 communications cloud
6 system that makes a “subscription” or a “publication”
7 database

Figure 2 — System interfaces

This document is applicable to “communication interface” only. It is specified to meet the requirements of communication between ITS centres. However, it is designed in a generic fashion and thus can be used for data exchanges in other parts of the ITS field as well.

The framework for communication between centres using XML and the area that is prescribed by this document is shown in Figure 3. This document defines message rules and procedures for communication utilizing XML. In addition, this document explains how to use these protocols.

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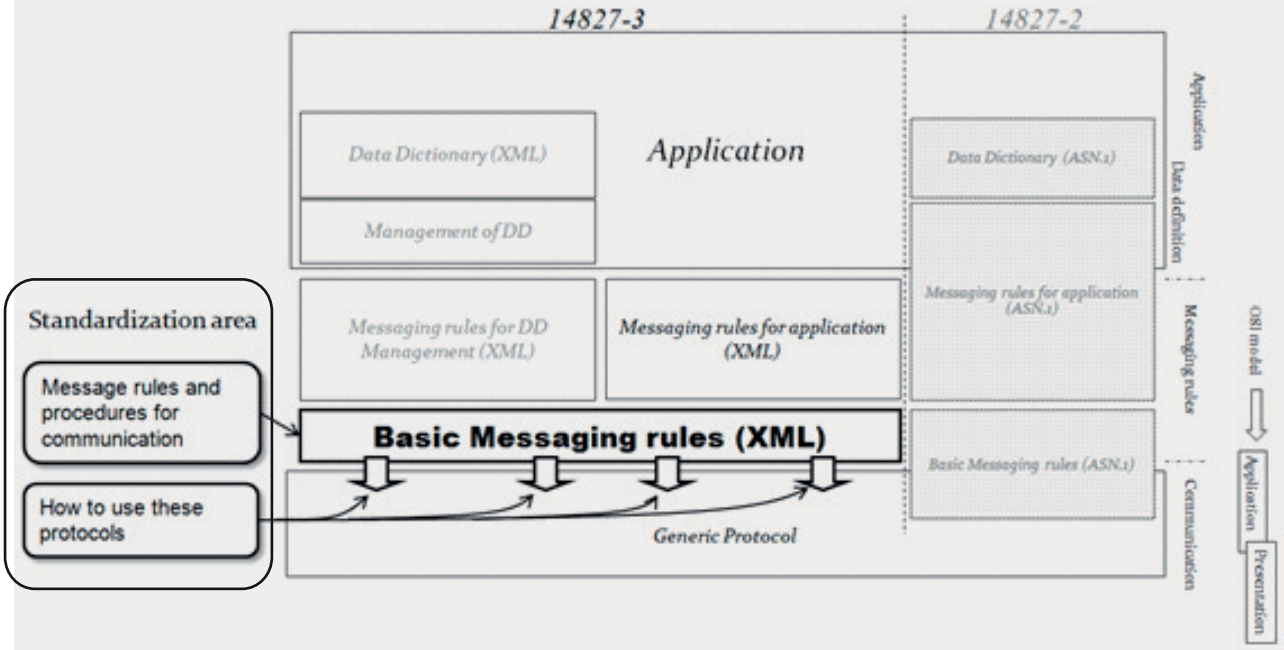


Figure 3 — Framework for transmissions between centres using XML and the standardization area

This document defines a Platform Specific Model (PSM) for exchange, which specifically uses XML. A PSM is an actual implementation of a Platform Independent Model (PIM) for exchange. A PIM is defined in another standard. When implementing a specific PSM, a Functional Exchange Profile (FEP), which is a selection of data exchange features, is identified. This document provides a FEP in Annex A.

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.

NTCIP 2306, *National Transportation Communications for ITS Protocol, Application Profile for XML Message Encoding and Transport in ITS Center-to-Center Communications, v01.69r, December 2008*

3 Terms and definitions

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

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

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

— IEC Electropedia: available at http://www.electropedia.org/

3.1
centre
computer or network that meets the requirements of a standardized communications interface over a fixed-point communications network, regardless of whether the centre is the only system within the building or just one of many, or even if the centre is in a remote location

Note 1 to entry: “Centres” include both government and private sector publishers and users of data.

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3.2
client
computer or application that requests and accepts data from a supplier computer or application using a protocol

3.3
message
data structure that is associated with a specific meaning and, when properly sent, an instance which can convey information between systems

Note 1 to entry: For example, a data structure might include a list of speeds from detector stations. This single data structure could be used to specify the content of several messages (e.g. the list of speeds currently being detected, the list of stored speeds that will trigger a congestion warning if current values fall below the indicated level, or a request for a list of locations where the current speed is less than the indicated speed). An instance of the message would then contain the actual values.

3.4
publication
data which has been prepared by a supplier, and made available

3.5
receipt
data which is prepared by the receiver of the subscription or publication in order to acknowledge the order

3.6
subscription
data which is prepared by a client in order to request current or future publication(s)

3.7
supplier
computer or application that receives and responds to requests for data from client computers or applications using a protocol

4 Symbols and abbreviated terms

FEP	Functional Exchange Profile
GNU	GNU is Not UNIX
GZIP	GNU Zip
HTTP	Hyper Text Transfer Protocol
ITS	Intelligent Transport Systems
PIM	Platform Independent Model
PSM	Platform Specific Model
SOAP	Simple Object Access Protocol
UCS	Universal Multi-octet Coded Character Set
UTF	UCS Transformation Format
XML	Extensible Markup Language

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