

STN	Inteligentné dopravné systémy Špecifikácie výmeny dát v DATEX II pre riadenie dopravy a dopravné informácie Časť 1: Súvislosti a rámec	STN EN 16157-1 01 8594
------------	---	--

Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 1: Context and framework

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/19

Obsahuje: EN 16157-1:2018

Oznámením tejto normy sa ruší
STN P CEN/TS 16157-1 (01 8594) z apríla 2012

128563

EUROPEAN STANDARD

EN 16157-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2018

ICS 35.240.60

Supersedes CEN/TS 16157-1:2011

English Version

Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 1: Context and framework

Systèmes de transport intelligents - Spécifications DATEX II d'échange de données pour la gestion du trafic et l'information routière - Partie 1: Contexte et cadre général

Intelligente Verkehrssysteme - Datex II Datenaustauschspezifikation für Verkehrsmanagement und Verkehrsinformation - Teil 1: Kontext und Rahmenwerk

This European Standard was approved by CEN on 3 September 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 16157-1:2018 (E)

Contents	Page
European foreword	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Symbols and abbreviations	10
5 Conformance	10
6 General conventions and requirements	10
6.1 Metamodelling	10
6.2 DATEX II stereotype properties	11
6.3 Naming conventions	12
7 Platform independent model rules	13
7.1 General	13
7.2 Requirements on associations	14
7.3 Requirements on attributes	15
7.4 Requirements on classes	16
7.5 Requirements on datatypes	17
7.6 Requirements on enumerations	18
7.7 Requirements on generalizations	18
7.8 Requirements on literals	19
7.9 Requirements on packages	20
8 Extension rules	20
8.1 General	20
8.2 Numbered list of requirements	21
Annex A (normative) XML Schema Definition Mapping	23
A.1 General	23
A.2 Platform specific model rules for XML with XML schema definition	23
A.2.1 General	23
A.2.2 Requirements for mapping to XML schema definitions	23
A.3 Mapping the PSM to XML schema definition	24
A.3.1 General	24
A.3.2 Mapping of “D2Datatype” and “ExternalType”	24
A.3.3 Mapping of “D2Enumeration” and “D2Literal”	25
A.3.4 Mapping of “D2Class”	27
A.3.4.1 Mapping of “D2Class” classes that do not have a superclass	27
A.3.4.2 Mapping of “D2Class” classes with a superclass	29
A.3.5 Mapping of “D2Identifiable” and “D2VersionedIdentifiable” classes	30

A.3.6 XML elements.....	31
A.3.7 Extension mapping.....	31
A.3.8 Overall document structure and namespaces.....	33
Bibliography	34

EN 16157-1:2018 (E)**European foreword**

This document (EN 16157-1:2018) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, 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 June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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

Together with EN 16157-7, this document supersedes CEN/TS 16157-1:2011.

The major differences introduced in this part are the following:

- Correction of unclear phrases;
- Methodology now based on UML 2;
- Metamodel now based on explicit UML profile;
- Pre-defined model elements removed (these are now covered by Part 7, see below).

EN 16157-1 is the first part of a multi-part standard under the general title *Intelligent transport systems — DATEX II data exchange specifications for traffic management and information*.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard defines a common set of data modelling specifications to support the vision of a seamless interoperable exchange of traffic and travel information across boundaries, including national, urban, interurban, road administrations, infrastructure providers and service providers. Standardization in this context is a vital constituent to ensure interoperability, reduction of risk, reduction of the cost base, promotion of open marketplaces and many social, economic and community benefits to be gained from more informed travellers, network managers and transport operators.

Delivering European Transport Policy in line with the White Paper issued by the European Commission requires co-ordination of traffic management and development of seamless pan European services. With the aim to support sustainable mobility in Europe, the European Commission has been supporting the development of information exchange mainly between the actors of the road traffic management domain for a number of years. In the road sector, DATEX II has been long in fruition, with the European Commission being fundamental to its development through an initial contract and subsequent co-funding through the Euro-Regional projects. With this standardization of DATEX II there is a real basis for common exchange between the actors of the traffic and travel information sector.

This European Standard includes the framework and context for exchanges, the modelling approach, data content and data structure and relationships.

This European Standard supports a methodology that is extensible.

This part of EN 16157 is targeted towards all stakeholders that want to understand the modelling methodology applied throughout the DATEX II specifications. While this is potentially a wide range of readers, the document addresses specifically those users that intend to extend the DATEX II data model and therefore need to understand – and comply with – the modelling principles, the use of the Unified Modelling Language (UML) and other conventions for DATEX II modelling.

Further to the UML modelling, this document also defines the mapping of this model to the eXtensible Markup Language (XML), used for formatting data in DATEX II data exchanges. XML, being the most widely used method nowadays of formatting data for business-to-business data exchange (i.e. centre-to-centre) over the Internet, is one of the possible solutions for mapping the UML modelling into formatted data. Other method like UPER based on ASN.1 defined by ISO/IEC 8825-2 can also be considered.

EN 16157-1:2018 (E)

1 Scope

This document specifies and defines components required to support the exchange and shared use of data and information in the field of traffic and travel.

The components include the framework and context for the modelling approach, data content, data structure and relationships.

This document is applicable to:

- traffic and travel information which is of relevance to road networks (non-urban and urban),
- public transport information that is of direct relevance to the use of a road network (e.g. road link via train or ferry service),
- traffic and travel information in the case of Cooperative intelligent transport systems (C-ITS).

This document establishes specifications for data exchange between any two instances of the following actors:

- Traffic Information Centres (TICs),
- Traffic Control Centres (TCCs),
- Service Providers (SPs),

Use of this document can be applicable for use by other actors.

This document covers, at least, the following types of informational content:

- road traffic event information – planned and unplanned occurrences both on the road network and in the surrounding environment,
- information about operator-initiated actions – including both advisory and mandatory measures,
- road traffic measurement data, status data, and travel time data,
- travel information relevant to road users, including weather and environmental information,
- road traffic management information and information and advice relating to use of the road network.

This part of EN 16157 specifies the DATEX II framework of all parts of this European Standard, the context of use and the modelling approach taken and used throughout this European Standard. This approach is described using formal methods and provides the mandatory reference framework for all other parts.

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/IEC 14977:1996, *Information technology — Syntactic metalanguage — Extended BNF*

ISO/IEC 19505-1:2012, *Information technology — Object Management Group Unified Modeling Language (OMG UML) — Part 1: Infrastructure*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN