



SLOVENSKI STANDARD
SIST EN 12896-6:2019

01-november-2019

Javni prevoz - Referenčni podatkovni model - 6. del: Informiranje potnikov

Public transport - Reference data model - Part 6: Passenger information

Öffentlicher Verkehr - Referenzdatenmodell - Teil 6: Information an Reisende

Transports publics - Modèle de données de référence - Partie 6 : Information des usagers

ITEH STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: EN 12896-6:2019

SIST EN 12896-6:2019

<https://standards.iteh.ai/catalog/standards/sist/76917f99-60db-4257-b79c-d32cec51098b/sist-en-12896-6-2019>

ICS:

35.240.60 Uporabniške rešitve IT v IT applications in transport
 prometu

SIST EN 12896-6:2019

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 12896-6:2019

<https://standards.iteh.ai/catalog/standards/sist/76917f99-60db-4257-b79c-d32cec51098b/sist-en-12896-6-2019>

EUROPEAN STANDARD

EN 12896-6

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2019

ICS 35.240.60

English Version

Public transport - Reference data model - Part 6: Passenger information

Transports publics - Modèle de données de référence -
Partie 6 : Information des usagers

Öffentlicher Verkehr - Referenzdatenmodell - Teil 6:
Information an Reisende

This European Standard was approved by CEN on 19 April 2019.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/76917f99-60db-4257-b79c-d32ccc51098b/sist-en-12896-6-2019>



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

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

Contents	Page
European foreword.....	11
Introduction	12
1 Scope.....	13
1.1 General Scope of the Standard.....	13
1.2 Functional Domain Description.....	14
1.3 Particular Scope of this document.....	14
2 Normative references.....	14
3 Terms and definitions	15
4 Symbols and abbreviations	18
5 Passenger Information Domain.....	19
5.1 Scope and overview.....	19
5.2 Passenger Information.....	20
5.2.1 Provision of Information	20
5.2.2 Types of Passenger Information.....	23
5.2.3 Timetable Information.....	25
5.2.4 Passenger Trip Planning	29
5.2.5 Estimation of Trip Duration.....	33
5.2.6 Information on Fares.....	35
5.2.7 Other Information.....	36
5.3 Use Cases for the Passenger Information Model.....	37
5.3.1 Purpose.....	37
5.3.2 Business context.....	37
5.3.3 Actors and use case types.....	38
5.3.4 Use cases.....	39
5.4 Public Transport Passenger Information – Conceptual MODEL	41
5.4.1 General.....	41
5.4.2 Trip Description	41
5.4.3 Passenger Information Queries.....	53
Annex A (normative) Data Dictionary	55
A.1 Introduction.....	55
A.2 Data Dictionary — Passenger Information.....	55
A.2.1 ACCESS LEG.....	55
A.2.2 LEG.....	55
A.2.3 LEG TRACK.....	55
A.2.4 MEAN INTERCHANGE TIME.....	56
A.2.5 MEAN PASSENGER WAIT TIME.....	56
A.2.6 MEAN RUN TIME	56
A.2.7 MIXED TRIP	57
A.2.8 MONITORED LEG	57

A.2.9	MONITORED LEG ARRIVAL.....	57
A.2.10	MONITORED LEG CALL.....	58
A.2.11	MONITORED LEG CALL PART.....	58
A.2.12	MONITORED LEG DEPARTURE.....	58
A.2.13	MONITORED LEG PROGRESS.....	59
A.2.14	MONITORED TRIP.....	59
A.2.15	MONITORED TRIP PATTERN.....	59
A.2.16	NON-PT TRIP.....	60
A.2.17	OTHER LEG.....	60
A.2.18	PARTICIPANT SYSTEM.....	60
A.2.19	PATH GUIDANCE.....	61
A.2.20	PI DELIVERY.....	61
A.2.21	PI REQUEST.....	61
A.2.22	PI REQUEST FILTER.....	62
A.2.23	PI REQUEST POLICY.....	62
A.2.24	PT CONNECTION LEG.....	62
A.2.25	PT FARE OFFER.....	63
A.2.26	PT RIDE LEG.....	63
A.2.27	PT TRIP.....	63
A.2.28	TRAVEL.....	64
A.2.29	TRAVEL FLOW.....	64
A.2.30	TRAVELLING ENTITY.....	64
A.2.31	TRIP.....	64
A.2.32	TRIP PATTERN.....	65
A.2.33	TRIP PATTERN MONITORING.....	65
A.2.34	TRIP REASON.....	65
A.2.35	TYPE OF GUARANTEE.....	66
A.2.36	TYPE OF PASSENGER.....	66
A.2.37	TYPE OF TRAVELLING ENTITY.....	66
A.2.38	TYPE OF REQUEST.....	67
Annex B (normative) Additional Common Concepts — Extension to EN 12896-1:2016, Public transport – Reference data model – Part 1: Common concepts.....		68
B.1	Methodology and Conventions.....	68
B.1.1	Methodology for conceptual modelling.....	68
B.1.1.1	General.....	68
B.1.1.2	Packages.....	68
B.1.1.3	Package Prefixes and Package order.....	69

EN 12896-6:2019 (E)

B.1.1.4 Part Prefixes and diagram names	70
B.1.1.5 Class diagrams.....	70
B.1.1.6 Class Diagram Presentations	71
B.1.1.7 Use of Colour	71
B.1.2 MODEL Class Diagrams	72
B.1.2.1 General.....	72
B.1.2.2 Classes and attributes.....	73
B.1.2.2.1 General	73
B.1.2.2.2 Attribute visibility.....	74
B.1.2.2.3 Attribute names.....	74
B.1.2.2.4 Attribute types.....	74
B.1.2.2.5 Multiplicity of Attributes.....	74
B.1.2.2.6 Common attributes	74
B.1.2.2.7 Simple Diagram Example	74
B.1.2.3 Relationships.....	76
B.1.2.3.1 General	76
B.1.2.3.2 Association relationships	76
B.1.2.3.3 Reflexive associations.....	76
B.1.2.3.4 Aggregation relationship	77
B.1.2.3.5 Generalization relationship.....	78
B.1.2.3.6 Multiplicity (Cardinality) of Relationships.....	79
B.1.2.3.7 Presence of Relationships on a given diagram.....	79
B.1.2.3.8 Relationships and navigability	80
B.1.2.3.9 Positional semantics for laying out classes and relationships.....	81
B.1.2.3.10 Explicit Frames	81
B.1.3 Summary of Rules for Transmodel Presentation	82
B.1.3.1 Presentation of Class Structure diagrams.....	82
B.1.3.2 Rules for naming and presenting classes	82
B.1.3.3 Rules for use of role names.....	83
B.1.3.4 Rules for use of multiplicity	84
B.1.3.5 Rules for relationship qualifiers.....	84
B.1.3.6 Rules for presenting relationships	85
B.1.3.7 Rules for Placing Role names.....	86
B.2 Extensions to the Common Concept MODEL.....	86
B.2.1 General.....	86
B.2.2 Additional Common Concepts — Additional Generalizations	86

B.2.2.1 Generic Type of Value – Conceptual MODEL	86
B.2.2.2 Generic Assignment – Conceptual MODEL	88
B.2.2.3 Generic Section – Conceptual MODEL	88
B.2.3 Extensions to the Generic Framework	89
B.2.3.1 General	89
B.2.3.2 Alternative Text – Conceptual MODEL	89
B.2.3.3 Generic View – Conceptual MODEL	90
B.2.3.4 Generic Loggable Object – Conceptual MODEL	91
B.2.3.5 Event Model – Conceptual MODEL	91
B.2.4 Extensions to the Reusable Components	92
B.2.4.1 Employee Model – Conceptual MODEL	92
B.2.4.2 Message Model – Conceptual MODEL	93
B.2.4.2.1 Messages	93
B.2.4.2.2 Publication Scope	94
B.2.4.3 Role Model – Conceptual MODEL	95
B.2.4.3.1 Generic Roles	95
B.2.4.3.2 Service Organization Roles	96
B.2.4.3.3 Employee Roles	97
B.2.4.3.4 Administrative Organization Roles	97
B.2.4.3.5 Technology Organization Roles	98
B.2.4.3.6 Messaging Roles	99
B.2.4.3.7 Transport Customer Roles	100
B.2.4.4 Security List – Conceptual MODEL	100
B.2.4.5 Transfer Time – Conceptual MODEL	101
B.2.5 Data Dictionary	101
B.2.5.1 General	101
B.2.5.2 ADMINISTRATIVE ORGANIZATION ROLE	102
B.2.5.3 ALTERNATIVE TEXT	102
B.2.5.4 ASSIGNMENT	102
B.2.5.5 BLACKLIST	102
B.2.5.6 CLASS ATTRIBUTE	103
B.2.5.7 CONDUCTOR ROLE	103
B.2.5.8 CUSTOMER SERVICE PROVIDER ROLE	103
B.2.5.9 CUSTOMER SERVICE ROLE	104
B.2.5.10 DATA COLLECTOR ROLE	104
B.2.5.11 DRIVER ROLE	104

EN 12896-6:2019 (E)

B.2.5.12	EMPLOYEE	104
B.2.5.13	EMPLOYEE ROLE	105
B.2.5.14	EVENT	105
B.2.5.15	GENERAL EVENT	105
B.2.5.16	GENERAL OBSERVER ROLE	106
B.2.5.17	GENERAL SECTION	106
B.2.5.18	LOG	106
B.2.5.19	LOG ENTRY	106
B.2.5.20	LOGGABLE OBJECT	107
B.2.5.21	MESSAGE	107
B.2.5.22	MESSAGE PART	107
B.2.5.23	MESSAGE PRIORITY	107
B.2.5.24	ORGANIZATION ROLE	108
B.2.5.25	PT SCOPE	108
B.2.5.26	PUBLICATION APPROVER ROLE	108
B.2.5.27	PUBLICATION DECISION	109
B.2.5.28	PUBLICATION SCOPE	109
B.2.5.29	PUBLICATION WINDOW	109
B.2.5.30	PUBLISHING ACTION	109
B.2.5.31	PUBLISHING CHANNEL	110
B.2.5.32	QUALIFICATION	110
B.2.5.33	REGISTRAR ROLE	110
B.2.5.34	SECTION	110
B.2.5.35	SECTION IN LINK SEQUENCE	111
B.2.5.36	SECURITY LIST	111
B.2.5.37	SECURITY LISTABLE	111
B.2.5.38	SECURITY LISTING	111
B.2.5.39	SECURITY MANAGER ROLE	111
B.2.5.40	SERVICE OPERATOR ROLE	112
B.2.5.41	SITUATION AUTHOR ROLE	112
B.2.5.42	SPECIFIC OBSERVER ROLE	112
B.2.5.43	STATION EMPLOYEE ROLE	113
B.2.5.44	TECHNOLOGY ORGANIZATION ROLE	113
B.2.5.45	TRAFFIC INFORMATION OFFICER ROLE	113
B.2.5.46	TRANSFER TIME	114
B.2.5.47	TRANSPORT USER ROLE	114

ITeH STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 12896-6:2019

<https://standards.iteh.ai/catalog/standards/sist/76917f99-60db-4257-b79c-d32ccc51098b/sist-en-12896-6-2019>

B.2.5.48	TRAVEL DOCUMENT CONTROLLER ROLE.....	114
B.2.5.49	TRAVEL DOCUMENT CONTROLLING ORGANIZATION ROLE	114
B.2.5.50	TRAVEL ORGANIZATION ROLE	115
B.2.5.51	TYPE OF AUDIENCE.....	115
B.2.5.52	TYPE OF EVENT	115
B.2.5.53	TYPE OF MESSAGE.....	116
B.2.5.54	TYPE OF MESSAGE PART CONTENT	116
B.2.5.55	TYPE OF QUALIFICATION	116
B.2.5.56	TYPE OF SECURITY LIST.....	116
B.2.5.57	TYPE OF VALUE	117
B.2.5.58	View.....	117
B.2.5.59	WHITELIST.....	117
Annex C (informative) Data Model Evolution.....		118
C.1	Change Requests	118
C.2	Source of Text.....	128
C.3	Diagram Status.....	130
Annex D (informative) Mapping to OADJP and to SIRI		131
D.1	Table of equivalent SIRI Services.....	131
D.2	Table of equivalent OADJP Services.....	131
Annex E (informative) Passenger Information Functional Requests		133
E.1	Introduction.....	133
E.2	Overview of Passenger Information Functional Requests.....	133
E.2.1	General	133
E.2.2	Further types of PI Query	135
E.3	System Provisioning Queries — Exchange Point Query	135
E.3.1	Exchange Point Request	135
E.3.2	Exchange Point Delivery	135
E.3.2.1	General	135
E.3.2.2	Exchange Point example	136
E.4	Travel Related Queries.....	137
E.4.1	Location Query.....	137
E.4.1.1	Location Request.....	137
E.4.1.2	Location Delivery.....	138
E.4.2	Stop Event Query.....	139
E.4.2.1	Stop Event Request.....	139
E.4.2.2	Stop Event Delivery.....	140

EN 12896-6:2019 (E)

E.4.3	Schedule Query	141
E.4.3.1	Schedule Request	141
E.4.3.2	Schedule Delivery	142
E.4.4	Situation Query	143
E.4.4.1	Situation Request	143
E.4.4.2	Situation Delivery	144
E.4.5	Trip Query.....	145
E.4.5.1	Trip Request.....	145
E.4.5.2	Trip Delivery.....	146
E.4.6	Service Journey Query	147
E.4.6.1	Service Journey Request.....	147
E.4.6.2	Service Journey Delivery	148
E.5	Fare Related Queries.....	149
E.5.1	Stop Fare Query	149
E.5.1.1	Stop Fare Request	149
E.5.1.2	Stop Fare Delivery.....	150
E.5.2	Trip Fare Queries	151
E.5.2.1	General.....	151
E.5.2.2	Common Trip Fare Query Model	151
E.5.2.3	Single Trip Fare Query	152
E.5.2.3.1	Single Trip Fare Request	152
E.5.2.3.2	Single Trip Fare Delivery	153
E.5.2.4	Repeated Trip Fare Query.....	154
E.5.2.4.1	Repeated Trip Fare Request	154
E.5.2.4.2	Repeated Trip Fare Delivery	155
E.5.3	Fare Product Query	156
E.5.3.1	Fare Product Request	156
E.5.3.2	Fare Product Delivery.....	157
E.6	Data Dictionary — Passenger Information Requests.....	158
E.6.1	EXCHANGE POINTS DELIVERY	158
E.6.2	EXCHANGE POINTS REQUEST	158
E.6.3	EXCHANGE POINTS REQUEST FILTER.....	159
E.6.4	EXCHANGE POINTS REQUEST POLICY.....	159
E.6.5	FARE PRODUCT DELIVERY.....	159
E.6.6	FARE PRODUCT REQUEST	160
E.6.7	FARE PRODUCT REQUEST POLICY	160

ITeH STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 12896-6:2019](https://standards.iteh.ai/catalog/standards/sist/76917f99-60db-4257-b79c-d32ccc51098b/sist-en-12896-6-2019)

<https://standards.iteh.ai/catalog/standards/sist/76917f99-60db-4257-b79c-d32ccc51098b/sist-en-12896-6-2019>

E.6.8	LOCATION DELIVERY.....	161
E.6.9	LOCATION GEOMETRY RESTRICTION.....	161
E.6.10	LOCATION PLACE FILTER.....	161
E.6.11	LOCATION REQUEST	161
E.6.12	LOCATION REQUEST POLICY	162
E.6.13	PLACE RESULT	162
E.6.14	PROFILE REQUIREMENTS	162
E.6.15	REPEATED TRIP FARE REQUEST	163
E.6.16	REPEATED TRIP FARE REQUIREMENTS	163
E.6.17	SCHEDULE DELIVERY	164
E.6.18	SCHEDULE REQUEST	164
E.6.19	SCHEDULE REQUEST CONTENT FILTER.....	164
E.6.20	SCHEDULE REQUEST POLICY	165
E.6.21	SERVICE JOURNEY DELIVERY	165
E.6.22	SERVICE JOURNEY REQUEST.....	165
E.6.23	SERVICE JOURNEY REQUEST POLICY	166
E.6.24	SINGLE TRIP FARE REQUEST	166
E.6.25	STOP EVENT DELIVERY.....	167
E.6.26	STOP EVENT REQUEST	167
E.6.27	STOP EVENT REQUEST CONTENT FILTER.....	167
E.6.28	STOP EVENT REQUEST POLICY	168
E.6.29	STOP FARE DELIVERY	168
E.6.30	STOP FARE REQUEST	169
E.6.31	TARIFF ZONE IN AREA.....	169
E.6.32	TRIP ACCESS CONSTRAINT	169
E.6.33	TRIP DELIVERY	169
E.6.34	TRIP DESTINATION PLACE	170
E.6.35	TRIP FARE DELIVERY	170
E.6.36	TRIP FARE REQUEST	170
E.6.37	TRIP FARE REQUEST FILTER	170
E.6.38	TRIP FARE REQUEST POLICY	171
E.6.39	TRIP MOBILITY FILTER	171
E.6.40	TRIP ORIGIN PLACE.....	171
E.6.41	TRIP REQUEST	172
E.6.42	TRIP REQUEST FILTER.....	172
E.6.43	TRIP REQUEST PLACE	172

EN 12896-6:2019 (E)

E.6.44 TRIP REQUEST POLICY	173
E.6.45 TRIP VIA PLACE.....	174
Bibliography.....	175

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

SIST EN 12896-6:2019

<https://standards.iteh.ai/catalog/standards/sist/76917f99-60db-4257-b79c-d32cec51098b/sist-en-12896-6-2019>

European foreword

This document (EN 12896-6:2019) 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 March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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.

The series composed of the following documents:

- *Public transport – Reference data model – Part 1: Common concepts;*
- *Public transport – Reference data model – Part 2: Public transport network;*
- *Public transport – Reference data model – Part 3: Timing information and vehicle scheduling;*
- *Public transport – Reference data model – Part 4: Operations monitoring and control;*
- *Public transport – Reference data model – Part 5: Fare management;*
- *Public transport – Reference data model – Part 6: Passenger information;*
- *Public transport – Reference data model – Part 7: Driver management*
- *Public transport – Reference data model – Part 8: Management information & statistics; and*
- *Public transport – Reference data model – Part 9: Informative documentation [CEN/TR].*

Together these create version 6 of the European Standard EN 12896, known as “Transmodel”, and thus replace EN 12896:2006, known as “Transmodel v5.1”.

In comparison with EN 12896:2006, the technical modifications made are presented in the Technical CEN/TR 12896-9, *Public transport – Reference data model – Part 9: Informative documentation*.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 12896-6:2019 (E)

Introduction

Part 1 of this European Standard presents the following items:

- Rationale for the Transmodel Standard;
- Use of the Transmodel Standard;
- Applicability of the Transmodel Standard;
- Conformance Statement;
- Transmodel Origins;
- Reference to the Previous Version and Other Documents.

The data structures represented in Part 1 are generic patterns that are referenced by different other parts.

Part 2 of this European Standard presents space-related data structures.

Part 3 presents time-related data structures and replaces the sections of EN 12896:2006 referring to the time-related Tactical Planning Components and to Vehicle Scheduling.

Part 4 presents data referring to daily operations (i.e. to operational days), different from those planned for day types (space-related data structures and tactical planning components) and including operational raw data referring to operations follow-up.

Part 5 presents fares structures including sales, validation and control.

Part 6 (this part) presents Passenger Information (planned and real-time).

Part 7 presents Driver Management including Driver Scheduling (day-type related driver schedules), Rostering (ordering of driver duties into sequences according to some chosen methods) and Driving Personnel Disposition (assignment of logical drivers to physical drivers and recording of driver performance).

Part 8 presents Management Information and Statistics.

1 Scope

1.1 General Scope of the Standard

The main objective of the present standard is to present the Reference Data Model for Public Transport, based on:

- the Reference Data Model, EN 12896, known as Transmodel V5.1;
- EN 28701:2012, *Intelligent transport systems – Public transport – Identification of Fixed Objects in Public Transport (IFOPT)*, although note that this particular standard has been withdrawn as it is now included within Parts 1 and 2 of this standard (EN 12896-1:2016 and EN 12896-2:2016) following their successful publication,

incorporating the requirements of:

- EN 15531-1 to -3 and CEN/TS 15531-4 and -5: *Public transport – Service interface for real-time information relating to public transport operations (SIRI)*;
- CEN/TS 16614-1 and -2: *Public transport – Network and Timetable Exchange (NeTEx)*, in particular the specific needs for long distance train operation.

Particular attention is drawn to the data model structure and methodology:

- the data model is described in a modular form in order to facilitate the understanding and the use of the model;
- the data model is entirely described in UML.

The following functional domains are considered:

- Network Description: routes, lines, journey patterns, timing patterns, service patterns, scheduled stop points and stop places;
- Timing Information and Vehicle Scheduling (runtimes, vehicle journeys, day type-related vehicle schedules);
- Passenger Information (planned and real-time);
- Fare Management (fare structure, sales, validation, control);
- Operations Monitoring and Control: operating day-related data, vehicle follow-up, control actions;
- Driver Management:
 - Driver Scheduling (day-type related driver schedules),
 - Rostering (ordering of driver duties into sequences according to some chosen methods),
 - Driving Personnel Disposition (assignment of logical drivers to physical drivers and recording of driver performance);
- Management Information and Statistics (including data dedicated to service performance indicators).

The data modules dedicated to cover most functions of the above domains will be specified.