



Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 12896-6:2019

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

National Foreword

This European Standard EN 12896-6:2019 was adopted as Luxembourgish Standard ILNAS-EN 12896-6:2019.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

THIS PUBLICATION IS COPYRIGHT PROTECTED

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

EUROPEAN STANDARD ILNAS-EN 12896-6:2019 **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.



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

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

| | Page |
|--|-----------|
| Contents | |
| 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, <i>Public transport – Reference data model – Part 1: Common concepts</i> | 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 |

| | |
|---|-----------|
| 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 |

| | | |
|-----------------|---|------------|
| 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 |

| | | |
|----------|---|-----|
| 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 |