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**Javni prevoz - Izmenjava omrežnih in voznorednih podatkov (NeTEx) - 1. del:  
Izmenjavni format za topologijo omrežja javnega prevoza**

Public transport - Network and Timetable Exchange (NeTEx) - Part 1: Public transport network topology exchange format

Öffentlicher Verkehr - Netzwerk- und Fahrplan-Austausch (NeTEx) - Teil 1:  
Austauschformat für Netzwerk-Topologie im öffentlichen Verkehr

Transport Public - Échanges des informations planifiées (NeTEx) - Partie 1: Topologie du réseau

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35.240.60	Uporabniške rešitve IT v prometu	IT applications in transport

**SIST-TS CEN/TS 16614-1:2026****en,fr,de**

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SPÉCIFICATION TECHNIQUE  
TECHNISCHE SPEZIFIKATION

# CEN/TS 16614-1

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## Public transport - Network and Timetable Exchange (NeTEx) - Part 1: Public transport network topology exchange format

Transport Public - Échanges des informations  
planifiées (NeTEx) - Partie 1: Topologie du réseau

Öffentlicher Verkehr - Netzwerk- und Fahrplan-  
Austausch (NeTEx) - Teil 1: Austauschformat für  
Netzwerk-Topologie im öffentlichen Verkehr

This Technical Specification (CEN/TS) was approved by CEN on 9 February 2026 for provisional application.

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## European foreword

This document (CEN/TS 16614-1:2026) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

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.

This document supersedes CEN/TS 16614-1:2019.

This document presents Part 1 of the Technical Specification known as “NeTEx”. NeTEx provides a framework for specifying communications and data exchange protocols for organisations wishing to exchange scheduled Information relating to public transport operations. As defined by Transmodel, 'Public transport' has to be understood as services advertised and available for use by the general public carried out by any means of transport.

This Technical Specification is made up of six parts defining a single European Standard series, which provides a complete exchange format for public transport networks, timetable description and fare information.

- Part 1 is the description of the public transport network topology exchange format. It also contains use cases shared with part 2, and modelling rules and the description of a framework shared by all parts.
- Part 2 is the description of the scheduled timetables exchange format.
- Part 3 is the description of the fare information exchange format.
- Part 4 is the European profile for exchanging timetables with the netex data exchange format.
- Part 5 is the description of the alternative transport modes data exchange format.
- Part 6 is the description of the European passenger information accessibility profile.

Part 1 is fully standalone, and Parts 2, 3, 4, 5 and 6 rely on Part 1 and possibly any other previous part.

The XML schema can be downloaded from <https://github.com/NeTEx-CEN/NeTEx> and additional information are available from <http://netex-cen.eu>, along with available guidance on its use, example XML files, and case studies of national and local deployments.

This document is highly technical, and a special care has been taken to keep the text readable. In particular a set of formatting conventions is followed that enhances the usual CEN writing rules in order to distinguish references to elements of the formal models within text:

- Transmodel terms and NeTEx conceptual model elements are in capital letters (JOURNEY PATTERN for example).
- NeTEx physical model names are in bold italic font and use CamelCase style with no spaces (JourneyPattern, for example).
- NeTEx physical model attribute types are in italic font and use CamelCase style with no spaces (TypeOfEntity, for example).

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: 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, Türkiye and the United Kingdom.

## CEN/TS 16614-1:2026 (E)

### Introduction

Public transport services rely increasingly on information systems to ensure reliable, efficient operation and widely accessible, accurate passenger information. These systems are used for a range of specific purposes: setting schedules and timetables; managing vehicle fleets; issuing tickets and receipts; providing real-time information on service running, and so on.

This document specifies a Network and Timetable Exchange (NeTEx) standard for Public Transport (PT). It is intended to be used to exchange data relating to scheduled public transport between the systems of PT organisations. It can also be seen as complementary to the SIRI (Service Interface for Real-time Information) standard, as SIRI needs a prior exchange of reference data from NeTEx's scope to provide the necessary context for the subsequent exchange of real-time data.

Well-defined and open interfaces have a crucial role in improving the economic and technical viability of Public Transport Information Systems of all kinds. Using standardized interfaces, systems can be implemented as discrete pluggable modules that can be chosen from a wide variety of suppliers in a competitive market, rather than as monolithic proprietary systems from a single supplier. Interfaces also allow the systematic automated testing of each functional module, vital for managing the complexity of increasing large and dynamic systems. Furthermore, individual functional modules can be replaced or evolved, without unexpected breakages of obscurely dependent function.

This document will improve a number of features of public transport information and service management: Interoperability – the Technical Specification will facilitate interoperability between information processing systems of the transport operators by: (i) introducing common architectures for message exchange; (ii) introducing a modular set of compatible information services for real-time vehicle information; (iii) using common data models and schemas for the messages exchanged for each service; and (iv) introducing a consistent approach to data management.

Technical advantages include the following: a modular reusing of a common communication layer shared with SIRI for all the various technical services enables cost-effective implementations, and makes the standard readily extensible in future.

# 1 Scope

## 1.1 General

NeTEx is dedicated to the exchange of scheduled data (network, timetable and fare information). It is based on Transmodel V6.2 (EN 12896 series) and SIRI (CEN/TS 15531-4/-5 and EN 15531-1/-2/-3) and supports the exchange of information of relevance for passenger information about public transport services and also for running Automated Vehicle Monitoring Systems (AVMS).

NOTE Many NeTEx concepts are taken directly from Transmodel. The definitions and explanation of these concepts are extracted directly from the respective standard and reused in NeTEx, sometimes with adaptations in order to fit the NeTEx context.

Although the data exchanges targeted by NeTEx are predominantly oriented towards provisioning passenger information systems and AVMS with data from public transport scheduling systems, it is not restricted to this purpose. NeTEx can also provide an effective solution to many other use cases for transport data exchange.

## 1.2 Transport modes

All mass public transport modes are taken into account by NeTEx, including train, bus, coach, metro, tramway, ferry, and their submodes. It is possible to describe airports and air journeys, but there has not been any specific consideration of any additional requirements that apply specifically to air transport. Such modes may be operated, conventionally according to a fixed timetable, or flexibly as demand responsive services.

Additionally, NeTEx v2.0 takes into account the alternative modes of operation such as cycle hire, taxis, car-pooling, ride sharing. They have both network (i.e., places where services may be accessed), service (i.e., the available services and how to book them), and fare aspects (i.e., the costs of different services).

Transmodel v6.2 distinguishes the following types of 'mode of operation':

- conventional mode of operation: the legacy method of operation which is provided as a scheduled and/or flexible publicly advertised flexible transport offer. This method of operation is either following a fixed schedule and fixed routes or linked to a fixed network/schedule but offering flexibility, in order for instance, to optimise the service or to satisfy passenger demand;
- alternative mode of operation: any publicly advertised mode of operation different from the conventional mode of operation, in particular vehicle sharing, vehicle rental and vehicle pooling; and
- personal mode of operation: a private mode of transport excluding any publicly advertised use.

## 1.3 Compatibility with existing standards and recommendations

Concepts covered in NeTEx that relate in particular to long-distance train travel include: rail operators and related organisations; stations and related equipment; journey coupling and journey parts; train composition and facilities; planned passing times; timetable versions and validity conditions.

In the case of long distance train the NeTEx takes into account the requirements formulated by the ERA (European Rail Agency) – TAP/TSI (Telematics Applications for Passenger/ Technical Specification for Interoperability, entered into force on 13 May 2011 as the Commission Regulation (EU) No 454/2011), based on UIC directives.

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As regards the other exchange protocols, a formal compatibility is ensured with TransXChange (UK), VDV 452 (Germany), NEPTUNE (France), UIC Leaflet, BISON (Netherlands) and NOPTIS (Nordic Public Transport Interface Standard).

The data exchange is possible either through dedicated web services, through data file exchanges, or using the SIRI exchange protocol as described in part 2 of the SIRI documentation.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

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

**NOTE** A lot of definitions are shared with Transmodel (EN 12896 series). Special attention was paid to the consistency of definitions, keeping exactly the same wording. The italic bracket name at the beginning of the definition is a package name that will help the reader to find the related concept in the UML data model.

### 3.1

#### **access**

*(Generic Place MODEL)*

physical (spatial) possibility for a passenger to access or leave the public transport system

Note 1 to entry: This link may be used during a trip for the walking movement of a passenger from a PLACE (origin of the trip) to a STOP POINT (origin of the PT TRIP), or for the walking movement from a STOP POINT (destination of the PT TRIP) to a PLACE (destination of the trip).

### 3.2

#### **access end**

*(Generic Place MODEL)*

origin or destination end of an ACCESS link

Note 1 to entry: May indicate a MODE, POINT and PLACE.

### 3.3

#### **access mode**

*(Reusable Transport Mode MODEL)*

PERSONAL MODE used to access or leave the public transport system (e.g., by foot, by private bicycle, by private car)

### 3.4

#### **access space**

*(Stop Place MODEL)*

passenger area within a STOP PLACE such as a concourse or booking hall, immigration hall or security area that is accessible by passengers, but without a direct access to vehicles

Note 1 to entry: Direct access to a VEHICLE is always from a QUAY and/or BOARDING POSITION.

Note 2 to entry: An ACCESS SPACE may be a Room, Hall, Concourse, Corridor, or bounded open space within a STOP PLACE.

### 3.5

#### **access zone**

*(Site MODEL)*

ZONE for which the duration to cover any ACCESS LINK to a particular STOP POINT is the same

### 3.6

#### **accessibility assessment**

*(Accessibility MODEL)*

accessibility characteristics of an entity used by passengers such as a STOP PLACE or a STOP PLACE COMPONENT

Note 1 to entry: Described by ACCESSIBILITY LIMITATIONS, and/or a set of SUITABILITIES.

### 3.7

#### **accessibility limitation**

*(Accessibility MODEL)*

categorisation of the accessibility characteristics of a SITE, e.g. a STOP PLACE or a STOP PLACE COMPONENT to indicate its usability by passengers with specific needs, for example, those needing wheelchair access, step-free access or wanting to avoid confined spaces such as lifts

Note 1 to entry: A small number of well-defined categories are used that are chosen to allow the consistent capture of data and the efficient computation of routes for different classes of user.

### 3.8

#### **accommodation**

*(Facility MODEL)*

combination of accommodation characteristics available on a service, e.g. First Class Couchette with shower and 2 bunks

### 3.9

#### **activated equipment**

*(Activation MODEL)*

equipment activated by the passage of a vehicle at an ACTIVATION POINT or on an ACTIVATION LINK

**CEN/TS 16614-1:2026 (E)****3.10****activation assignment***(Activation MODEL)*

assignment of an ACTIVATION POINT/LINK to an ACTIVATED EQUIPMENT related on its turn to a TRAFFIC CONTROL POINT

Note 1 to entry: The considered ACTIVATION POINT/LINK will be used to influence the control process for that TRAFFIC CONTROL POINT (e.g. to fix priorities as regards the processing of competing requests from different ACTIVATION POINTS/LINKS).

**3.11****activation link***(Activation MODEL)*

LINK where a control process is activated when a vehicle passes it

**3.12****activation point***(Activation MODEL)*

POINT where a control process is activated when a vehicle passes it. Equipment may be needed for the activation

**3.13****actual vehicle equipment***(Actual Vehicle Equipment MODEL)*

item of equipment of a particular type in an individual VEHICLE

**3.14****address***(Topographic MODEL)*

address of a PLACE

**3.15****administrative zone***(Generic Organisation MODEL)*

area of a district, a region, a city, a municipality, or other area with which an ORGANISATION has a RESPONSIBILITY ROLE

**3.16****allowed line direction***(Route MODEL)*

allowed DIRECTION that can be used on a given ROUTE. This can be used to validate the selection of allowed values

**3.17****alternative name***(Mode of Operation MODEL)*

alternative name for the entity

**3.18****alternative mode of operation**

*(Mode of Operation MODEL)*

any publicly advertised mode of operation different from the CONVENTIONAL MODE OF OPERATION, for example: VEHICLE SHARING, VEHICLE RENTAL, VEHICLE POOLING

**3.19****alternative text**

*(Alternative Text MODEL)*

alternative text for any textual attribute of an ENTITY

**3.20****assistance service**

*(Local Service Equipment MODEL)*

specialisation of LOCAL SERVICE for ASSISTANCE providing information like language, accessibility trained staff, etc.

**3.21****authority**

*(Transport Organisations MODEL)*

organisation under which the responsibility of organising the transport service in a certain area is placed.

**3.22****availability condition**

*(Reusable Availability MODEL)*

VALIDITY CONDITION expressed in terms of temporal parameters and referring to DAY TYPEs

**3.23****beacon point**

*(Activation MODEL)*

POINT where a beacon or similar device to support the automatic detection of vehicles passing by is located.

**3.24****bed equipment**

*(Spot Equipment MODEL)*

a specialisation of SPOT EQUIPMENT describing the detailed properties of a bed.

**3.25****blacklist**

*(Generic Security List MODEL)*

list of items (TRAVEL DOCUMENTs, CONTRACTs, etc.) the validity of which has been cancelled temporarily or permanently, for a specific reason like loss of the document, technical malfunction, no credit on bank account, offences committed by the customer, etc.