
Intelligentni transportni sistemi - Specifikacije za izmenjavo podatkov DATEX II pri upravljanju prometa in informiranju - 12. del: Publikacije v zvezi z objekti

Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 12: Facility related publications

Intelligente Verkehrssysteme - Datex-II-Datenaustauschspezifikationen für Verkehrsmanagement und Verkehrsinformationen - Teil 12: Publikationen von Anlagen und Einrichtungen

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TECHNICAL SPECIFICATION
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FINAL DRAFT
FprCEN/TS 16157-12

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Intelligent transport systems - DATEX II data exchange
specifications for traffic management and information -
Part 12: Facility related publications

Intelligente Verkehrssysteme - Datex-II-
Datenaustauschspezifikationen für
Verkehrsmanagement und Verkehrsinformationen -
Teil 12: Publikationen von Anlagen und Einrichtungen

This draft Technical Specification is submitted to CEN members for Vote. It has been drawn up by the Technical Committee CEN/TC 278.

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FprCEN/TS 16157-12:2026 (E)**European foreword**

This document (FprCEN/TS 16157-12:2026) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

This document is currently submitted to the Vote on TS.

This document will supersede CEN/TS 16157-12:2022.

FprCEN/TS 16157-12:2026 includes the following significant technical changes with respect to CEN/TS 16157-10:2022:

- adding elements to provide support for COMMISSION IMPLEMENTING REGULATION (EU) 2025/655 - Rules for the application of Regulation (EU) 2023/1804 of the European Parliament and of the Council as regards specifications and procedures relating to the availability and accessibility of data on alternative fuels infrastructure
- introducing the new namespace AfirFacilities (afac) because of non-backwards compatible model changes
- further model improvements
- correction of different bugs.

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Introduction

This European Standard defines a common set of data exchange specifications to support the vision of a seamless interoperable exchange of road traffic and travel information across boundaries, including national, urban, interurban, road administrations, infrastructure providers and service providers. Standardisation 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.

Deploying intelligent transport systems in line with European Sustainable and Smart Mobility Strategy as issued by the European Commission requires co-ordination of traffic management operation and development of seamless pan-European information services. These jointly aim at contributing to the transformation of the European transport system for the objectives of efficient, safe, sustainable, smart and resilient mobility.

In this context the European Commission has been supporting the development of information exchange between the actors of road traffic management and related services for several 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 of the further evolution of the standard and user support ecosystem. With this standardisation of DATEX II, there is a real basis for common exchange between the actors of the traffic and travel information sector both in the collaboration between traffic management organisations and their systems, as well as in coherent information provision to service providers. DATEX II supports the requirements of the stakeholder organisations involved in the road traffic and travel domain in compliance with the EU policy and legal frameworks aimed at the sector.

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.

1 Scope

This document specifies sub-model elements within the DATEX II framework that support the publication of generic information about facilities (e.g. operating hours, rates, information on owners or operators for facilities like e.g. energy infrastructure stations or parking sites). These model elements are intended to be used by other publications defined in the CEN/TS / EN 16157 series.

In normative Annex A, the data dictionary for the «D2Namespace» AfirFacilities is specified.

These publications are intended to support the exchange of informational content from road traffic authorities issuing traffic regulation orders and organisations implementing these orders to other organisations providing ITS services or onward information exchange.

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.

EN 16157-1:2018, *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 1: Context and framework*

EN 16157-2:2019, *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 2: Location referencing*

EN 16157-7:2018, *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 7: Common data elements*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16157-1, EN 16157-2, EN 16157-7 and the following 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 facility

any kind of site, building, structure, including also service- or supplemental facilities and equipment

4 Symbols and abbreviations

BLE	Bluetooth Low Energy
EU	European Union
GUID	Globally Unique Identifier
IP	Internet Protocol
QR code	Quick Response code
UML	Unified Modeling Language
URL	Uniform Resource Locator

5 Conformance

This document specifies DATEX II information for facilities, except for the elements that relate to location information which are specified in EN 16157-2:2019 and the common elements (i.e., shared between several publications) which are defined in EN 16157-7:2018.

The DATEX II platform independent data model, of which this publication sub-model is a part, corresponds to the level A model as defined in EN 16157-1.

Conformance with this Part shall require platform independent models from which platform specific models are generated to comply with the UML modelling rules defined in EN 16157-1 and with the following requirements of the models which are expressed in this part.

6 UML notation

The UML notation used in these Technical Specifications shall be as described in ISO/IEC 19505-1:2012.

NOTE Some introductory guides to UML 2 are provided in the Bibliography of EN 16157-1:2018

7 «D2Namespace» AfirFacilities

7.1 Overview

This namespace shall define a facility class structure with properties that are related to all kind of facilities, for example, parking sites or energy infrastructure stations.

For some of the elements it shall be possible to specify a separate publication. By this construct, it will be possible to predefine sets and to reference them later.

The following elements are included in this namespace:

- «D2Package» Facility – An abstract facility class structure that utilises the elements of the hereafter following packages;
- «D2Package» Dimension – Dimensions of facilities;
- «D2Package» OrganisationPublication – Organisation data with contact information;
- «D2Package» RatesPublication – A generic structure for tariffs and payment;
- «D2Package» SupplementalFacility – Equipment and service facilities supplemental to some origin facility, offering all facility properties themselves;

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— «D2Package» OperatingHoursPublication – Operating hours of facilities.

The namespace includes further data types, data values and enumerations that are integral part of the above model parts.

The prefix of the namespace shall be "afac".

Some of the packages and individual classes used within the "AfirFacilities" namespace reside in the namespaces "Common" and "Location" defined in EN 16157-7 and EN 16157-2.

The classes, attributes, data types and enumerations that are specific to the namespace "AfirFacilities" are defined in the normative Annex A.

The classes, attributes, data types and enumerations that are specific to two additional extensions specified in clause 8 are defined in the normative Annex B.

The XML schema corresponding to this namespace is provided in the normative Annex C.

7.2 «D2Package» Facilities**7.2.1 Overview**

The "Facility" and "FacilityObject" class shall form an abstract class structure that utilises the elements of the hereafter following clauses. Classes from other namespaces may specialise the Facility class to inherit the features of a facility described in this document – see Figure 1.

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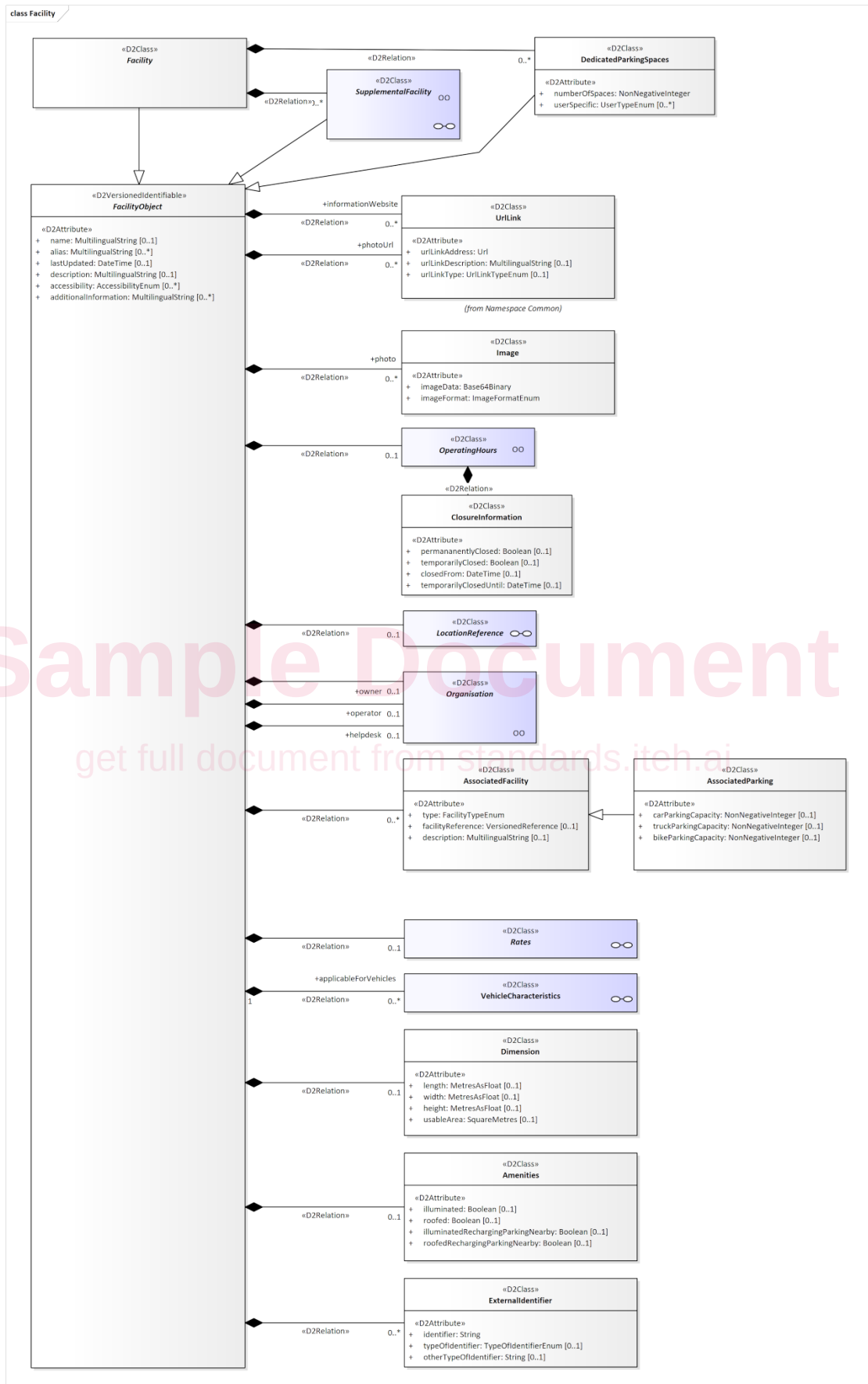


Figure 1 — The facility class structure

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Example: An EnergyInfrastructureSite from Namespace AfirEnergyInfrastructure (specified in CEN/TS 16157-10) is a specialisation of a Facility, and thus information on its location, operating hours, specific images and more can be specified.

The distinction between FacilityObject and Facility (which is a specialisation of FacilityObject) shall avoid recursion by the means of a SupplementalFacility, which is a specialisation of a FacilityObject itself.

The "FacilityStatus" and "FacilityObjectStatus" class shall form an abstract class structure in the same sense described above, focussing on dynamic status information for a facility – see Figure 2.

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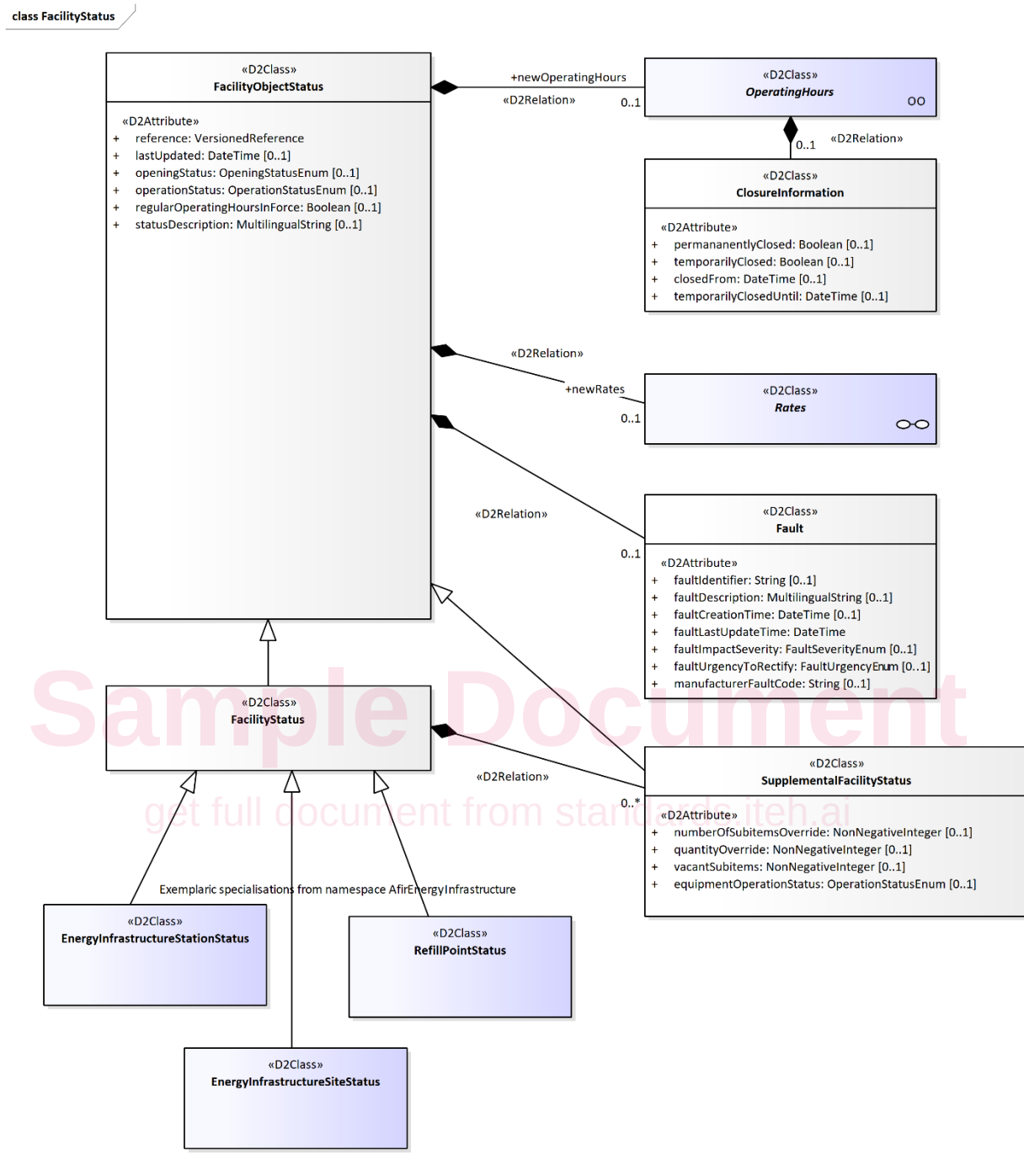


Figure 2 — The facility status class structure

Example: The class `EnergyInfrastructureSiteStatus` from Namespace `AfirEnergyInfrastructure` (specified in CEN/TS 16157-10) is a specialisation of `FacilityStatus`, and thus status information on updated operating hours, faults and more can be specified.

The distinction between FacilityObjectStatus and FacilityStatus (which is a specialisation of FacilityObjectStatus) shall avoid recursion by the means of a SupplementalFacilityStatus, which is a specialisation of FacilityObjectStatus itself.

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The class `FacilityObject` shall be of type «D2VersionedIdentifiable». Thus, each facility may be referenced by id and version. In class `FacilityObjectStatus`, the mandatory attribute reference of type `VersionedReference` shall form the link between static and the dynamic part of the facility model.

NOTE All further classes depicted in Figure 1 and Figure 2 that are not denoted in 7.2.2 will be described in the later clauses.

7.2.2 Semantics**7.2.2.1 «D2Class» Facility and «D2VersionedIdentifiable» FacilityObject**

By the `Facility` class and its inheritance of the `FacilityObject` class, a facility may be described with the following features:

- Basic information: A name, alias, timestamp of last update, a description, information on accessibility and some additional information;
- Supplemental facility: Some associated service facility or equipment, being itself characterised as a facility, see 7.6.
- Dedicated parking spaces for this facility with their number and user-specific, if applicable
- URLs of information websites and photos;
- Photos (in binary format);
- Operating hours (including closure information), see 7.7;
- Location reference, as specified in EN 16157-2;
- Owner and operator information, using the Organisation structure, see 7.4;
- Associated facility: A reference to another facility or a short indication of it;
- Rates: Tariffs and payment information, see 7.5;
- Applicable vehicles, as specified by `VehicleCharacteristics` in EN 16157-7;
- Dimension, i.e. basic information on height, width, length or usable area;
- Amenities, like information on illumination and roof ;
- External identifier

NOTE: For the external identifier, the type of identifier points to the empty enumeration `TypeOfIdentifierEnum`. This enumeration may be extended national specific to support national identifiers.

7.2.2.2 «D2Class» FacilityStatus and «D2Class» FacilityObjectStatus

By the `FacilityStatus` class and its inheritance of the `FacilityObjectStatus` class, a facility status may be described with the following features:

- Basic status information: The reference to the static facility object, timestamp of last update, the opening status, a status description;
- Operating hours (will replace formerly defined operating hours);

- Rates (will replace formerly defined rates);
- A fault;
- Supplemental facility status. As a supplemental facility is a facility itself, each supplemental facility can be addressed and referenced by the versioned-identifiable mechanism of the FacilityObject.

7.3 «D2Package» Dimension

7.3.1 Overview

The “Dimension” class (see Figure 1) shall support provision of dimension information for a facility or object.

7.3.2 Semantics

7.3.2.1 «D2Class» Dimension

Each instance of the “Dimension” class may be used to define dimensions (length, width, height, usable area) of some facility or object, including length, width, height and the usable area.

7.4 «D2Package» OrganisationPublication

7.4.1 Overview

The “OrganisationPublication” package shall support the specification of organisation related information such as organisation unit and contact information. The information may be specified directly or by reference (see Figure 3).

By using the «D2Class» "OrganisationPublication", it shall be possible to define tables of organisation information in advance and reference them later (see Figure 4).