



BSI Standards Publication

Intelligent transport systems — DATEX II data exchange specifications for traffic management and information

Part 11: Publication of machine interpretable traffic regulations

National foreword

This Published Document is the UK implementation of CEN/TS 16157-11:2025. It supersedes PD CEN/TS 16157-11:2022, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/278, Intelligent transport systems.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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European foreword

This document (CEN/TS 16157-11:2025) 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 16157-11:2022.

CEN/TS 16157-11:2025 includes the following significant technical changes with respect to CEN/TS 16157-11:2022:

- introduction of a new model for controlled zones;
- remodelling of some classes from the traffic regulation model for the use in the controlled zone model;
- addition of a publication model for predefined conditions;
- addition of a publication model for warnings that are not subject to traffic regulations;
- correction of different bugs.

The EN 16157 series consists of several parts under the general title “Intelligent transport systems — DATEX II data exchange specifications for traffic management and information”. Other parts may be developed in the future.

A list of all parts in a series can be found on the CEN website: www.cencenelec.eu.

Attention is drawn to the resources of www.datex2.eu. This web site contains related software tools and software resources that aid the implementation of EN 16157 DATEX II.

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 organizations 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.

Introduction

This document 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. 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.

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 standardization 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.

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

This European Standard supports a methodology that is extensible.

The 11th part of the CEN/TS 16157- EN 16157 series (this Technical Specification) deals with information on traffic regulations and controlled zones. It defines two DATEX II namespaces "TrafficRegulation" and "ControlledZone".

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

In normative Annex B, the data dictionary for the «D2Namespace» ControlledZone is specified.

In normative Annex C, the data dictionary for the «D2Namespace» Extension is specified.

In normative Annex D, the referenced XML schemas for the «D2Namespace» TrafficRegulation and the «D2Namespace» ControlledZone are specified.

1 Scope

This document specifies a publication sub-model within the DATEX II model that supports the publication of electronic traffic regulations and controlled zones.

This publication is intended to support the exchange of informational content from road traffic authorities issuing traffic regulation orders and organizations implementing these orders to other organizations 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*

CEN/TS 16157-4:2021, *Intelligent transport systems — DATEX II data exchange specifications for traffic management and information — Part 4: VMS publication*

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

EN ISO 14823-1, *Intelligent transport systems — Graphic data dictionary — Part 1: Specification (ISO 14823-1)*

ISO 8601-1, *Date and time — Representations for information interchange — Part 1: Basic rules*

ISO/IEC 19505-1, *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 terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 traffic regulation

legal agreement or order that restricts or prohibits the use of the road network

3.2 traffic regulation order

legally recognized document or publication issued to enact a specific traffic regulation or regulations by a competent authority

3.3**issuing authority**

competent authority that issued the traffic regulation order

3.4**ad hoc traffic regulation**

traffic regulations implemented by road operators without formal order due to urgent safety requirements

3.5**planned dynamic traffic regulation**

traffic regulation, often dynamically changeable, implemented by means of an automated or controllable technical system

3.6**controlled zone**

geographic zone together with an applicable set of regulations, e.g., usable for UVARS (Urban Vehicle Access Regulations)

3.7**low emission zone**

area where access by some polluting vehicles is restricted or deterred with the aim of improving air quality

3.8**limited traffic zone**

defined area in which access is only permitted for authorized vehicles

4 Symbols and abbreviations

UML Unified Modeling Language

XML eXtensible Markup Language

URL Uniform Resource Locator

EU European Union

GDD Graphic Data Dictionary

UVAR Urban Vehicle Access Regulation

LEZ Low Emission Zone

LTZ Limited Traffic Zone

ADR Agreement of 30 September 1957 concerning the International Carriage of Dangerous Goods by Road

5 Conformance

This document specifies DATEX II traffic regulation and controlled zone publications, except for the elements that relate to location information which are specified in EN 16157-2:2019, the common elements (i.e., shared between several publications) which are defined in EN 16157-7:2018 and facility information which is specified in CEN/TS 16157-12:2022 [3].

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 this document shall be as described in ISO/IEC 19505-1.

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

7 «D2Namespace» TrafficRegulation

7.1 Overview

This namespace gathers packages and classes related to traffic regulations. Figure 1 represents the different packages and classes belonging to the "TrafficRegulation" namespace, which uses the namespace prefix "tro".

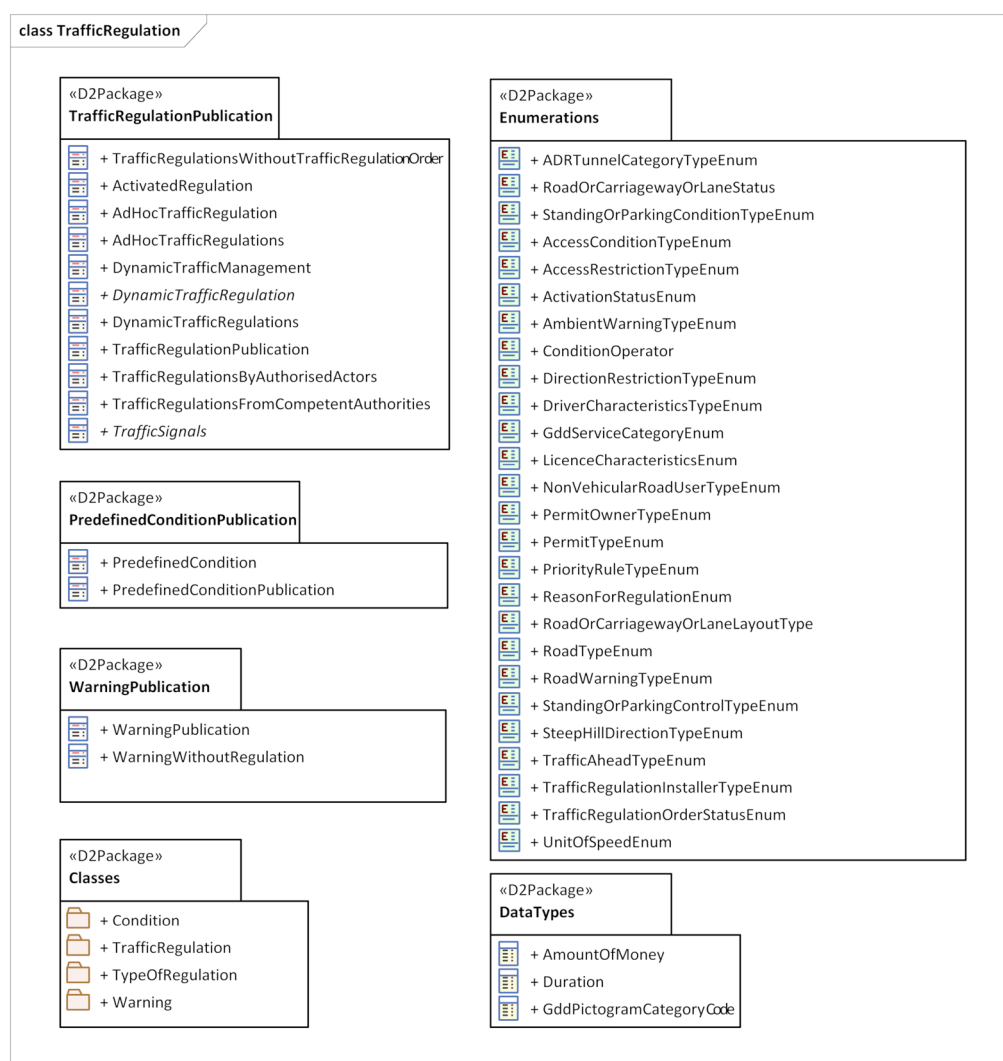


Figure 1 — The "TrafficRegulation" model

The "TrafficRegulation" namespace shall include the following five packages:

- TrafficRegulationPublication,
- PredefinedConditionPublication,
- WarningPublication,
- Classes,
- Enumerations,
- DataTypes.

The traffic regulation publication model comprises three top-level packages, "TrafficRegulationPublication" (see 7.2), "PredefinedConditionPublication" (see 7.3) and "WarningPublication" (see 7.4), each containing a class of the same name as the package. The classes "TrafficRegulationPublication", "PredefinedConditionPublication" and "WarningPublication" are specialisations of the "PayloadPublication" class and hence form the top of the hierarchy of the traffic regulation sub-model.

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

The XML schema corresponding to this document is provided in Annex D.

7.2 «D2Package» TrafficRegulationPublication

7.2.1 Overview of «D2Package» TrafficRegulationPublication

The "TrafficRegulationPublication" package shall comprise a sub-model for defining traffic regulations. The class "TrafficRegulationPublication" may include the following classes specifying different ways of publishing traffic regulations (see Figure 2):

- "TrafficRegulationsFromCompetentAuthorities",
- "AdHocTrafficRegulations",
- "TrafficRegulationsByAuthorisedActors",
- "DynamicTrafficRegulations",
- "TrafficRegulationsWithoutTrafficRegulationOrder".

The "TrafficRegulationsWithoutTrafficRegulationOrder" class is a container for traffic regulations that are not issued by a traffic regulation order, whereas the "AdHocTrafficRegulations" container shall only contain traffic regulations that are issued in urgent (usually safety relevant) situations.

The following Figure 2 represents the sub-model including the relationship between classes.

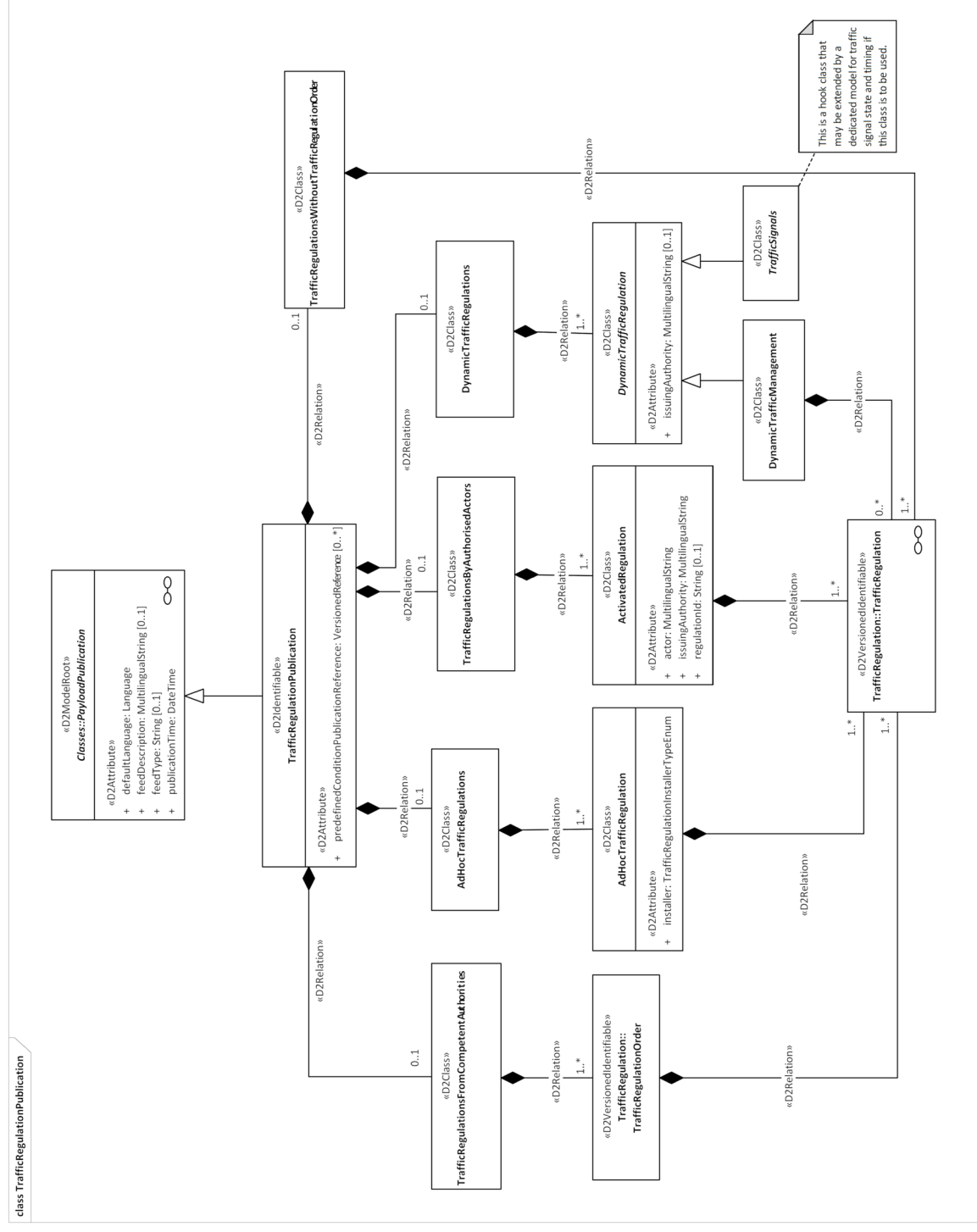


Figure 2 — The "TrafficRegulationPublication" package class model

7.2.2 Semantics of «D2Package» TrafficRegulationPublication

7.2.2.1 «D2Identifiable» TrafficRegulationPublication

The "TrafficRegulationPublication" class is a specific instantiable case of the "PayloadPublication" class. Each "TrafficRegulationPublication" class instance may be composed of one of the following classes:

- TrafficRegulationsFromCompetentAuthorities,
- AdHocTrafficRegulations,
- TrafficRegulationsByAuthorisedActors,
- DynamicTrafficRegulations,
- TrafficRegulationsWithoutTrafficRegulationOrder.

The "TrafficRegulationPublication" class is the root class containing the published traffic regulations.

7.2.2.2 «D2Class» TrafficRegulationsFromCompetentAuthorities

The "TrafficRegulationsFromCompetentAuthorities" class is a container for traffic regulation orders.

7.2.2.3 «D2Class» AdHocTrafficRegulations

The "AdHocTrafficRegulations" class is a container for ad hoc traffic regulations.

7.2.2.4 «D2Class» AdHocTrafficRegulation

The "AdHocTrafficRegulation" class describes an ad hoc traffic regulation in urgent (usually safety relevant) situations without a traffic regulation order. It may include one or more instances of the "TrafficRegulation" class (see 7.5.3.2.1).

7.2.2.5 «D2Class» TrafficRegulationsByAuthorisedActors

The "TrafficRegulationsByAuthorisedActors" class is a container for activated regulations.

7.2.2.6 «D2Class» ActivatedRegulation

The "ActivatedRegulation" class describes a traffic regulation currently active according to a traffic regulation by authorised actor. Each instance may include one or more instances of the "TrafficRegulation" class (see 7.5.3.2.1).

7.2.2.7 «D2Class» DynamicTrafficRegulations

The "DynamicTrafficRegulations" class is a container for dynamic traffic regulations.

7.2.2.8 «D2Class» DynamicTrafficRegulation

The "DynamicTrafficRegulation" class describes a traffic regulation which is often dynamically changeable and implemented by means of an automated or controllable technical system.

7.2.2.9 «D2Class» DynamicTrafficManagement

The "DynamicTrafficManagement" class is a specialisation of the "DynamicTrafficRegulation" class and describes technical systems that perform traffic regulations automatically to manage traffic. Each instance of this class may be associated with zero or more traffic regulations (see 7.5.3.2.1).

7.2.2.10 «D2Class» TrafficSignals

The abstract "TrafficSignals" class is empty and may be extended by a dedicated model for traffic signal state and timing if this class is to be used.

7.2.2.11 «D2Class» TrafficRegulationsWithoutTrafficRegulationOrder

The "TrafficRegulationsWithoutTrafficRegulationOrder" class is a container for traffic regulations that are not issued by a traffic regulation order.

7.3 «D2Package» PredefinedConditionPublication

7.3.1 Overview of «D2Package» PredefinedConditionPublication

The "PredefinedConditionPublication" package shall comprise a sub-model for defining predefined conditions.

The following Figure 3 represents the sub-model including the relationship between classes.

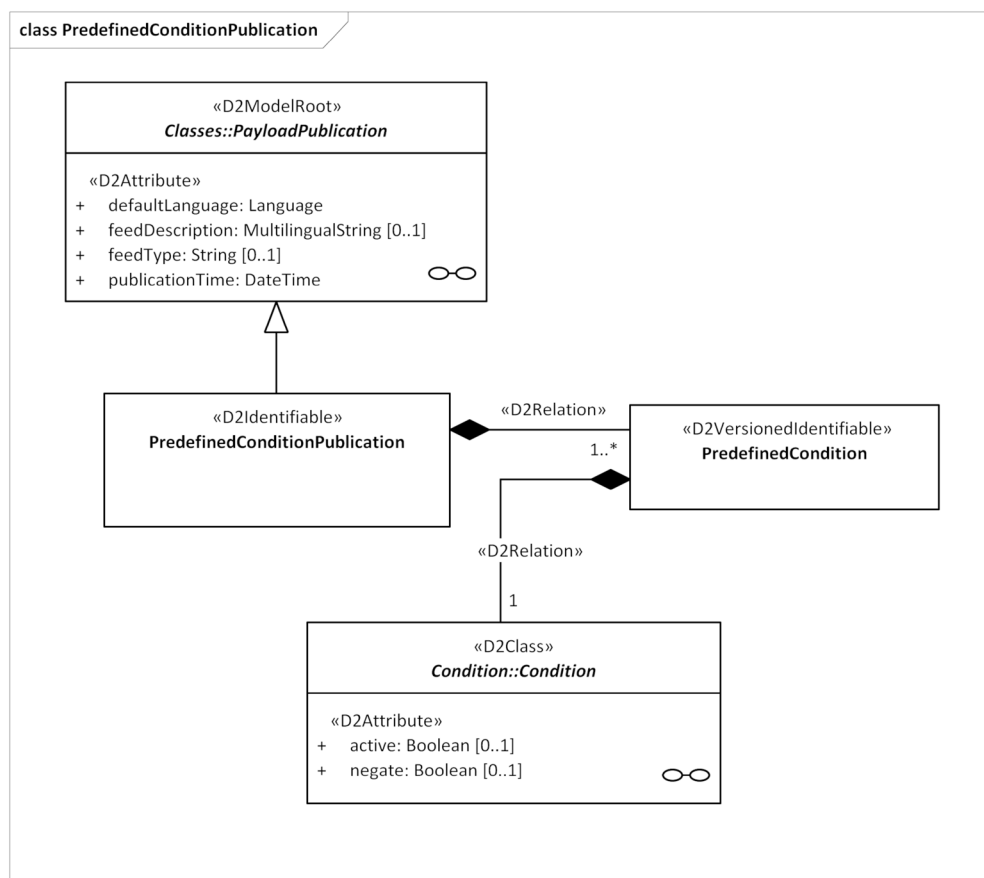


Figure 3 — The "PredefinedConditionPublication" package class model

7.3.2 Semantics of «D2Package» PredefinedConditionPublication

7.3.2.1 «D2Identifiable» PredefinedConditionPublication

The "PredefinedConditionPublication" class is a specific instantiable case of the "PayloadPublication" class.

Each "PredefinedConditionPublication" class instance shall be composed of at least one instance of the "PredefinedCondition" class.

7.3.2.2 «D2VersionedIdentifiable» PredefinedCondition

The "PredefinedCondition" class shall be used to specify predefined conditions that are published in a "PredefinedConditionPublication". Each instance of the "PredefinedCondition" class shall include exactly one condition defined by the "Condition" class in 7.5.5.2.1.

7.4 «D2Package» WarningPublication

7.4.1 Overview of «D2Package» WarningPublication

The "WarningPublication" package shall comprise a sub-model for defining warnings that are not subject to traffic regulations.

The following Figure 4 represents the sub-model including the relationship between classes.

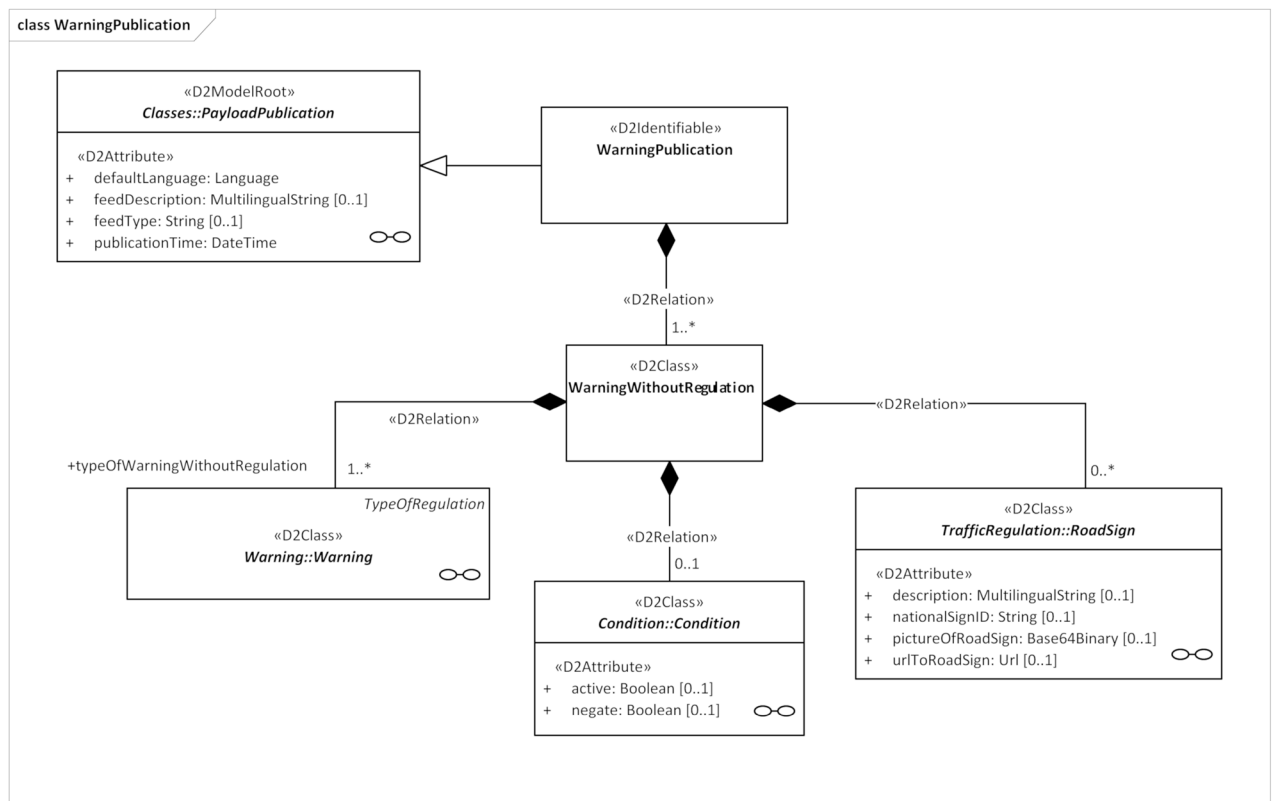


Figure 4— The "WarningPublication" package class model

7.4.2 Semantics of «D2Package» WarningPublication

7.4.2.1 «D2Identifiable» WarningPublication

The "WarningPublication" class is a specific instantiable case of the "PayloadPublication" class.

Each "WarningPublication" class instance shall be composed of one to many instances of the "WarningWithoutRegulation" class.

7.4.2.2 «D2Class» WarningWithoutRegulation

The "WarningWithoutRegulation" class shall be used to specify warnings that are not subject to traffic regulations. Each instance of the "WarningWithoutRegulation" class shall include at least one instance of the "Warning" class (see 7.5.6.2.1) specifying the type of warning without regulation. Optionally, conditions for the applicability of the warning may be specified using the "Condition" class (see 7.5.5.2.1) and road signs using the "RoadSign" class (see 7.5.3.2.3).

7.5 «D2Package» Classes

7.5.1 Introduction

This package contains a collection of packages and classes used by the traffic regulation namespace defined in this document (see Figure 5).

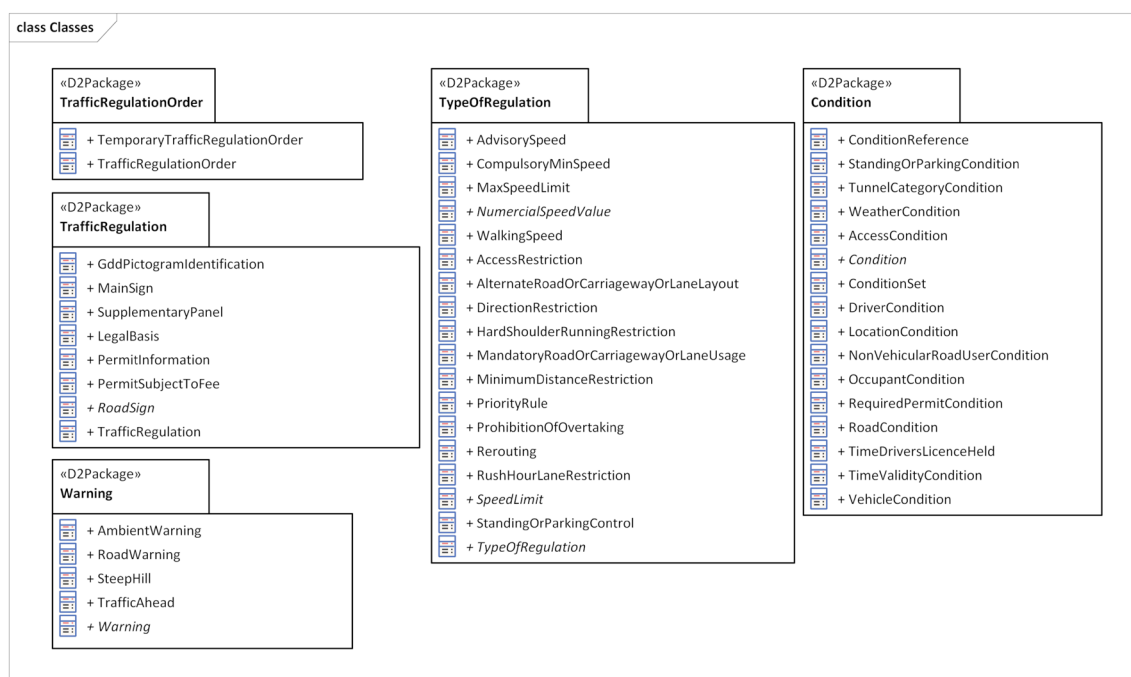


Figure 5 — The “Classes” package

7.5.2 «D2Package» TrafficRegulationOrder

7.5.2.1 Overview of «D2Package» TrafficRegulationOrder

This package describes data relating to the publication of traffic regulation orders.

Traffic regulations may be issued by a traffic regulation order, which can also be a temporary traffic regulation order.

The following Figure 6 represents the sub-model including the relationship between classes.

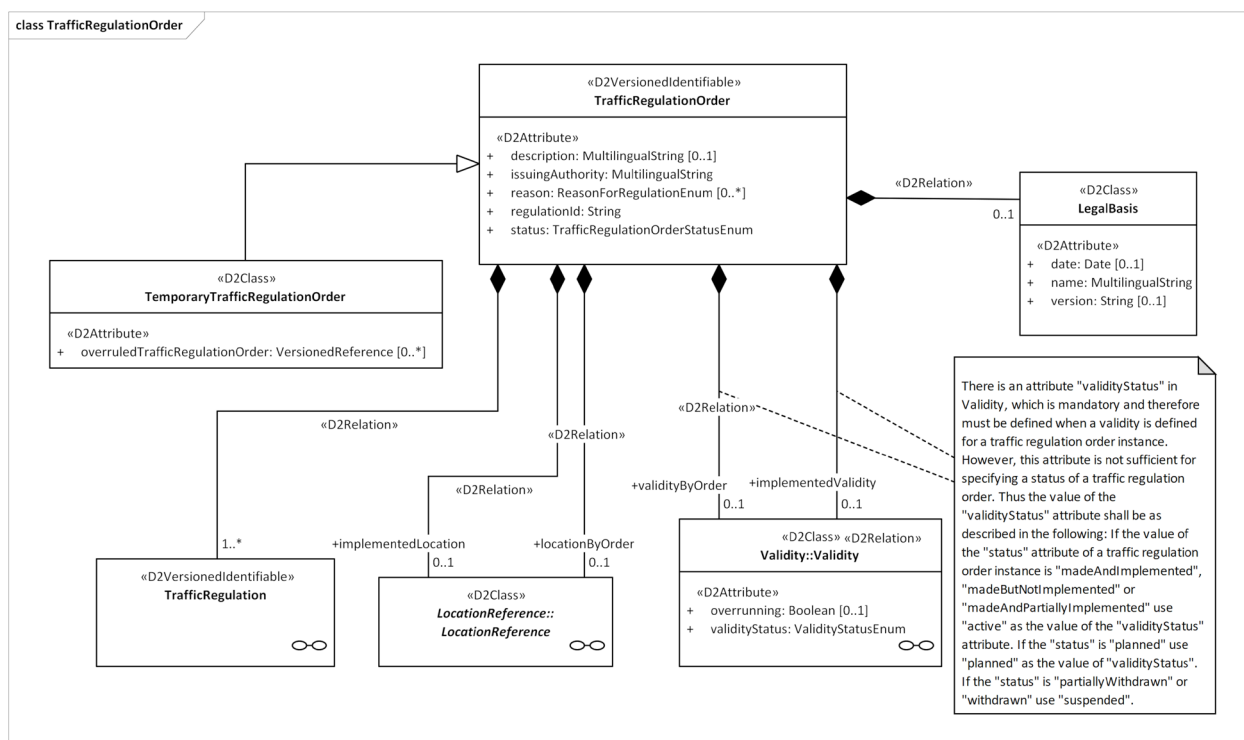


Figure 6 — The "TrafficRegulationOrder" class model

7.5.2.2 Semantics of «D2Package» TrafficRegulationOrder

7.5.2.2.1 «D2VersionedIdentifiable» TrafficRegulationOrder

The "TrafficRegulationOrder" class describes a regulation ordered by a competent authority. It may include the following components:

- at least one traffic regulation(s) defined by the "TrafficRegulation" class (see 7.5.3.2.1),
- optional "implementedLocation" and/or "locationByOrder" defined by the "LocationReference" class, which belongs to the "LocationReferencing" package specified in EN 16157-2:2019,
- optional "implementedValidity" and/or "validityByOrder" defined by the "Validity" class, which belongs to the "Validity" package specified in EN 16157-7:2018,
- optional legal basis defined by the "LegalBasis" class.

There is an attribute "validityStatus" in Validity, which is mandatory but not sufficient for traffic regulation orders. Since the attribute is mandatory, it should be set to the following values. If the "status" of the class "TrafficRegulationOrder" is "madeAndImplemented", "madeButNotImplemented" or "madeAndPartiallyImplemented" use "active" as the value of the "validityStatus" attribute. If the "status" of the class "TrafficRegulationOrder" is "planned" use "planned" as the value of "validityStatus". If the "status" of the class "TrafficRegulationOrder" is "partiallyWithdrawn" or "withdrawn" use "suspended".

7.5.2.2.2 «D2Class» TemporaryTrafficRegulationOrder

The "TemporaryTrafficRegulationOrder" defines traffic regulation orders that are temporary. The attribute "overruledTrafficRegulationOrder" may be used to reference a traffic regulation order defined by the "TrafficRegulationOrder" class that is overruled by the temporary traffic regulation order.

7.5.3 «D2Package» TrafficRegulation

7.5.3.1 Overview of «D2Package» TrafficRegulation

This package describes data relating to the publication of traffic regulation information.

Each traffic regulation is defined by a type of regulation (e.g. a prohibition of overtaking or a speed limit) and conditions for the applicability of the regulation.

It is represented including the relationships between classes in Figure 7.

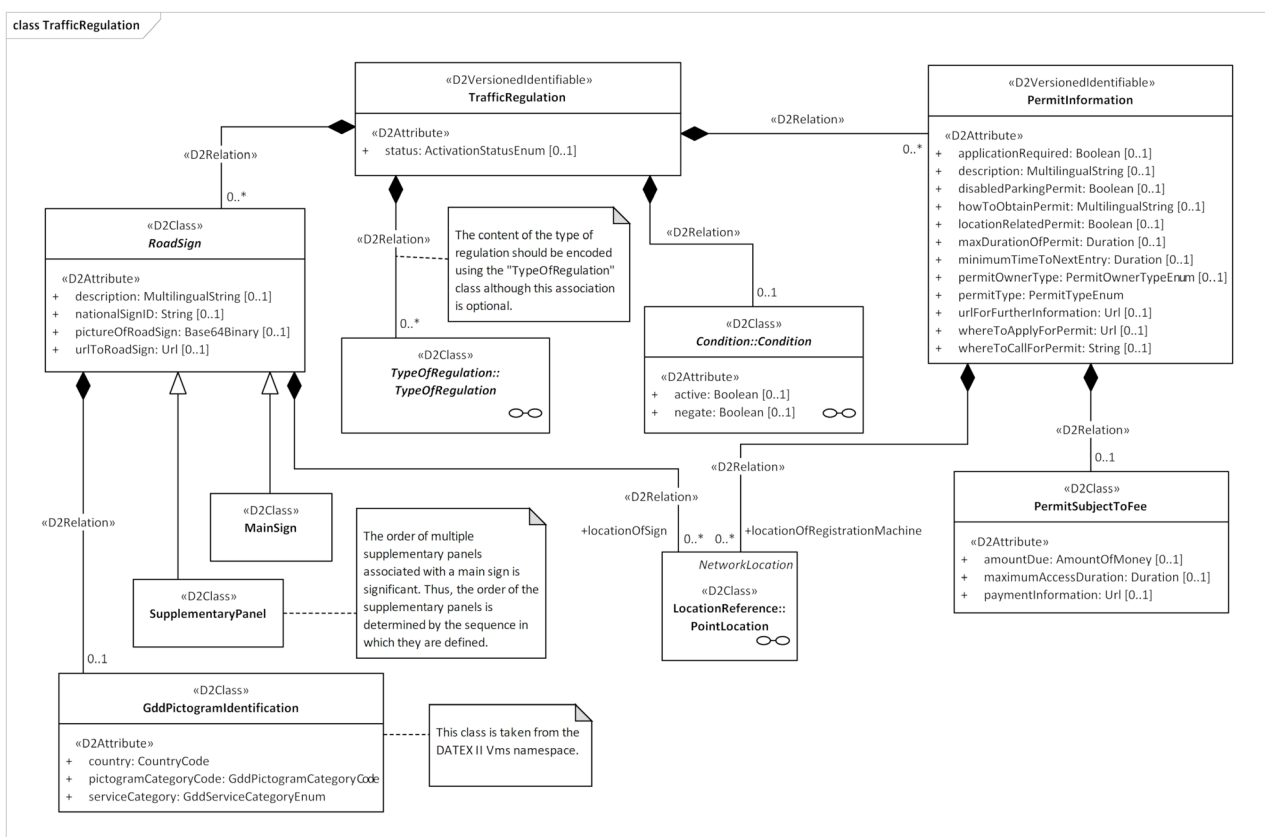


Figure 7 — The "TrafficRegulation" class model

7.5.3.2 Semantics of «D2Package» TrafficRegulation

7.5.3.2.1 «D2VersionedIdentifiable» TrafficRegulation

The "TrafficRegulation" class describes any kinds of traffic regulations, defined by the type of regulation via the "TypeOfRegulation" class (see 7.5.4.2.1) and conditions for applicability via the "Condition" class (see 7.5.5.2.1). A traffic regulation may also be composed of road signs (class "RoadSign") and information on permits (class "PermitInformation").

The implementation status of the traffic regulation may be described by the "status" attribute.

There is an attribute "validityStatus" in Validity, which is mandatory but not sufficient for traffic regulations. Since the attribute is mandatory, it should be set to the following values. If the "status" of the class "TrafficRegulation" is "active", "beingSetUp" or "beingShutDown" use "active" as the value of the "validityStatus" attribute. If the "status" of the class "TrafficRegulation" is "scheduled" use "planned" as the value of "validityStatus". If the "status" of the class "TrafficRegulation" is "inactive" use "suspended" as the value of "validityStatus".

7.5.3.2.2 «D2Class» LegalBasis

The "LegalBasis" class defines a legal text which is e.g. referenced in a traffic regulation order.

7.5.3.2.3 «D2Class» RoadSign

The abstract class "RoadSign" specifies a road sign as a Base64Binary or by giving the GDD pictogram and service categories or via a URL to a picture of the road sign. It shall be specialised by the class "MainSign" and if applicable also by the class "SupplementaryPanel". The class may include an optional point location indicating the location of the road sign. In case one traffic regulation is issued by multiple road signs, all locations may be specified for one road sign.

7.5.3.2.4 «D2Class» MainSign

The class "MainSign" is a specific instantiable case of the "RoadSign" class. It shall be used to specify main signs.

7.5.3.2.5 «D2Class» SupplementaryPanel

The class "SupplementaryPanel" is a specific instantiable case of the "RoadSign" class. It shall be used to specify supplementary panels. The order of multiple supplementary panels associated with a main sign is significant. Thus, the order of the supplementary panels is determined by the sequence in which they are defined.

7.5.3.2.6 «D2Class» GddPictogramIdentification

The "GddPictogramIdentification" class shall be used to encode the structured GDD code information provided by country, service and pictogram category as defined in EN ISO 14823-1.

7.5.3.2.7 «D2VersionedIdentifiable» PermitInformation

The "PermitInformation" class specifies all relevant information for permits (e.g. information on the application process, a description, type of permit, information on the owner of the permit, etc.). It may include the "PermitSubjectToFee" class that specifies fees for permits.

7.5.3.2.8 «D2Class» PermitSubjectToFee

The "PermitSubjectToFee" class describes permits for which a payment is required. The attributes of this class shall be used to define information about the amount of the fee, the maximum access duration, the minimum time to the next entry and a link to the information on the payment.

7.5.4 «D2Package» TypeOfRegulation

7.5.4.1 Overview of «D2Package» TypeOfRegulation

The "TypeOfRegulations" package shall comprise a sub-model for defining types of traffic regulations.

It is represented including the relationships between the classes in Figure 8.

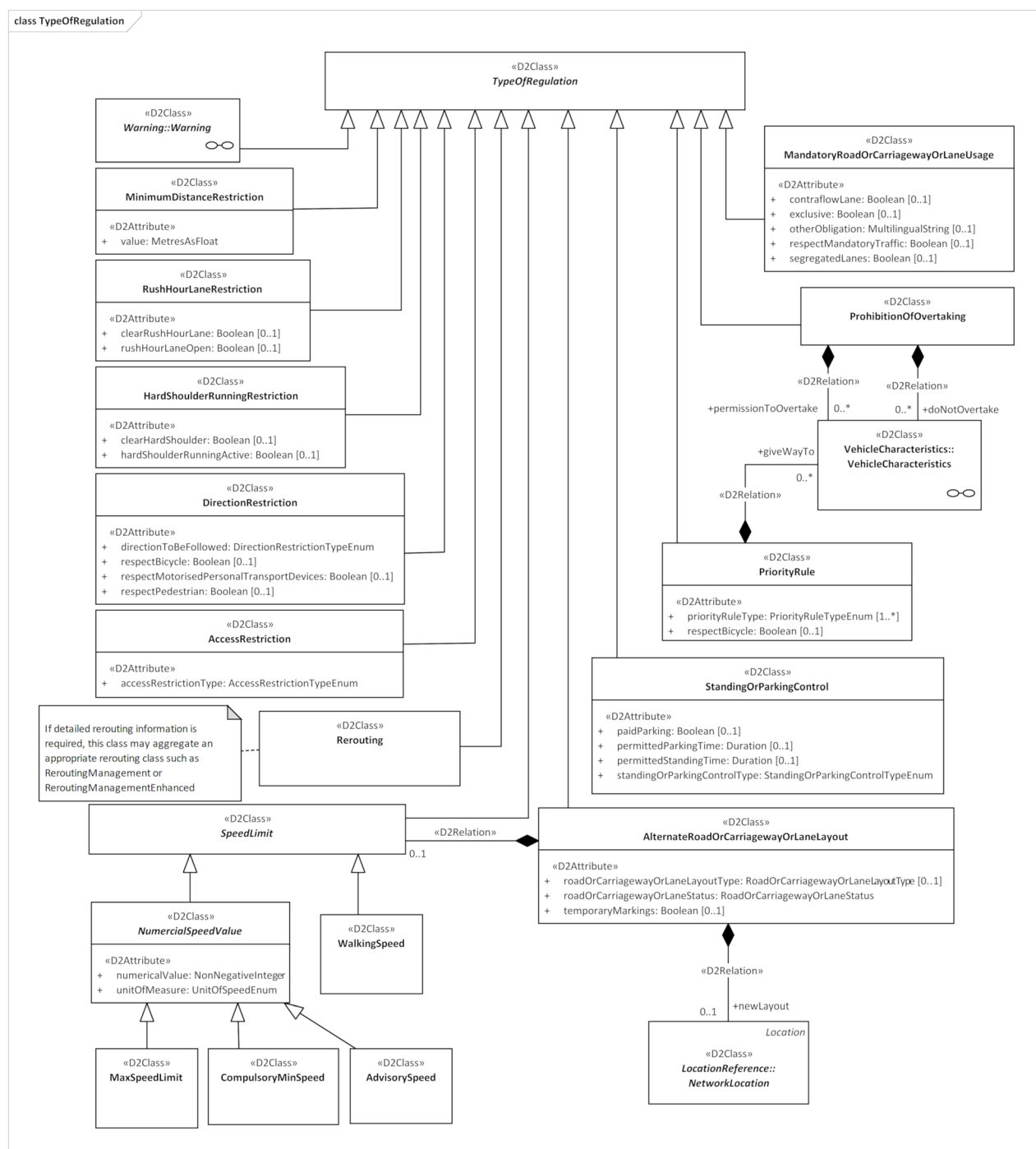


Figure 8 — The “TypeOfRegulation” package class model

7.5.4.2 Semantics of «D2Package» TypeOfRegulation

7.5.4.2.1 «D2Class» TypeOfRegulation

The “TypeOfRegulation” class is an abstract class, i.e. it shall be specialized in one of the possible types given below:

- Warning (see 7.5.6.2.1),
- MinimumDistanceRestriction,

- RushHourLaneRestriction,
- HardShoulderRunningRestriction,
- DirectionRestriction,
- AccessRestriction,
- Rerouting,
- SpeedLimit,
- AlternateRoadOrCarriagewayOrLaneLayout,
- StandingOrParkingControl,
- PriorityRule,
- ProhibitionOfOvertaking,
- MandatoryRoadOrCarriagewayOrLaneUsage.

7.5.4.2.2 «D2Class» MinimumDistanceRestriction

The "MinimumDistanceRestriction" class describes the restriction of the minimum distance between vehicles.

7.5.4.2.3 «D2Class» RushHourLaneRestriction

The "RushHourLaneRestriction" class describes restrictions of the rush hour lane (e.g. traffic to clear rush hour lane).

7.5.4.2.4 «D2Class» HardShoulderRunningRestriction

The "HardShoulderRunningRestriction" class describes restrictions of the usage of the hard shoulder (e.g. traffic to clear hard shoulder or hard shoulder open to traffic).

7.5.4.2.5 «D2Class» DirectionRestriction

The "DirectionRestriction" class describes restrictions of the direction of the traffic flow (e.g. turn left).

7.5.4.2.6 «D2Class» AccessRestriction

The "AccessRestriction" class describes access restrictions (e.g. no entry or restricted access). Conditions for the access restrictions may be specified via the condition model (see 7.5.5).

7.5.4.2.7 «D2Class» Rerouting

The "Rerouting" class may describe regulated rerouting of traffic.

NOTE If detailed rerouting information is required, this class can aggregate an appropriate rerouting class such as the DATEX II classes ReroutingManagement or ReroutingManagementEnhanced.

7.5.4.2.8 «D2Class» SpeedLimit

The abstract class "SpeedLimit" describes traffic speed limits. It shall be specialised by either "NumericSpeedValue" or "WalkingSpeed".

7.5.4.2.9 «D2Class» NumericalSpeedValue

The class "NumericalSpeedValue" is an abstract class describing numerical speed values. It shall be specialised by one of the following classes: "MaxSpeedLimit", "CompulsoryMinSpeed" or "AdvisorySpeed".

7.5.4.2.10 «D2Class» MaxSpeedLimit

The class "MaxSpeedLimit" is a specific instantiable case of the "NumericalSpeedValue" class. It shall be used to specify a maximum speed limit.

7.5.4.2.11 «D2Class» CompulsoryMinSpeed

The class "CompulsoryMinSpeed" is a specific instantiable case of the "NumericalSpeedValue" class. It shall be used to specify a compulsory minimum speed.

7.5.4.2.12 «D2Class» AdvisorySpeed

The class "AdvisorySpeed" is a specific instantiable case of the "NumericalSpeedValue" class. It shall be used to specify an advisory speed.

7.5.4.2.13 «D2Class» WalkingSpeed

The class "WalkingSpeed" is a specific instantiable case of the "SpeedLimit" class. It shall be used to specify walking speed.

7.5.4.2.14 «D2Class» AlternateRoadOrCarriagewayOrLaneLayout

The "AlternateRoadOrCarriagewayOrLaneLayout" class describes the alternate layout of a road or carriageway or lane. Further information on the layout and markings of the road or carriageway or lane may be specified using the attributes of this class.

The new layout of the road or carriageway or lane shall be specified with the "NetworkLocation" class. This class belongs to the "LocationReferencing" package specified in EN 16157-2:2019.

7.5.4.2.15 «D2Class» StandingOrParkingControl

The "StandingOrParkingControl" class describes restrictions/controls of standing or parking permissions on roads, verge, or footway.

7.5.4.2.16 «D2Class» PriorityRule

The "PriorityRule" class describes priority rules (e.g. priority at next junction). Characteristics on the prioritised vehicles may be specified via the "VehicleCharacteristics" class, which belongs to the "VehicleCharacteristics" package specified in EN 16157-7:2018.

7.5.4.2.17 «D2Class» ProhibitionOfOvertaking

The "ProhibitionOfOvertaking" class indicates a zone where overtaking of other vehicles is prohibited. It may be specified which vehicles are permitted to be overtaken and for which vehicles it is prohibited. If this is not defined, it means that it is prohibited to overtake vehicles of any type.

The "MandatoryRoadOrCarriagewayOrLaneUsage" class describes a mandatory road or carriageway or lane for different types of traffic (e.g. mandatory bus lanes).

7.5.5.1 Overview of «D2Package» Condition

It is represented including the relationships between classes in Figure 9.



7.5.5.2 Semantics of «D2Package» Condition

7.5.5.2.1 «D2Class» Condition

The abstract "Condition" class describes conditions for the applicability of traffic regulations. It shall be specialised in one of the possible types given below:

- RoadCondition,
- RequiredPermitCondition,
- TunnelCategoryCondition,
- StandingOrParkingCondition,
- AccessCondition,
- LocationCondition,
- TimeValidityCondition,
- DriverCondition,
- OccupantCondition,
- VehicleCondition,
- NonVehicleRoadUserCondition,
- WeatherCondition,
- ConditionReference,
- ConditionSet.

A specialisation of the "Condition" class may have an optional legal basis defined by the "LegalBasis" class, which belongs to the "TrafficRegulation" package (see 7.5.3).

7.5.5.2.2 «D2Class» RoadCondition

The "RoadCondition" class describes different types of roads (e.g. motorway, express road).

7.5.5.2.3 «D2Class» RequiredPermitCondition

The "RequiredPermitCondition" class describes conditions for required permits (e.g., the type of permit, the issuing authority, and an identifier). The attribute "permitCharacteristics" is a reference to the "PermitInformation" class, which may give additional information about the permit.

7.5.5.2.4 «D2Class» TunnelCategoryCondition

The "TunnelCategoryCondition" class may be used to specify tunnel categories according to ADR (European Agreement for transport of Dangerous Goods by Road).

7.5.5.2.5 «D2Class» StandingOrParkingCondition

The "StandingOrParkingCondition" may be used to specify conditions for standing or parking restrictions/controls.

7.5.5.2.6 «D2Class» AccessCondition

The "AccessCondition" class describes conditions for the access to a road or carriageway or lane (e.g. access only for loading and unloading or source traffic). It may include an optional "applicableLocation" defined by the "LocationReference" class, which belongs to the "LocationReferencing" package specified in EN 16157-2:2019. The "applicableLocation" shall be used to specify the location, where the access condition applies.

7.5.5.2.7 «D2Class» LocationCondition

The "LocationCondition" class specifies location conditions. It may include an optional "implementedLocation", "locationByOrder" and/or "trafficImpactLocation" defined by the "LocationReferencing" class, which belongs to the "LocationReferencing" package specified in EN 16157-2:2019.

If there is no "implementedLocation" or "locationByOrder" defined for the "TrafficRegulationOrder" class (see 7.5.2.2.1) at least one of "implementedLocation" or "locationByOrder" shall be specified for the "TrafficRegulation" class.

7.5.5.2.8 «D2Class» ValidityCondition

The "ValidityCondition" class specifies validity conditions. It may include an optional "implementedValidity" and/or "validityByOrder" defined by the "Validity" class, which belongs to the "Validity" package specified in EN 16157-7:2018.

If there is no "implementedValidity" or "validityByOrder" defined for the "TrafficRegulationOrder" class (see 7.5.2.2.1) at least one of "implementedValidity" or "validityByOrder" shall be specified for the "TrafficRegulation" class.

7.5.5.2.9 «D2Class» DriverCondition

The "DriverCondition" class describes conditions for the driver of a vehicle (e.g., disability, information on the driver's licence, age of driver).

7.5.5.2.10 «D2Class» TimeDriversLicenceHeld

The "TimeDriversLicenceHeld" class specifies the numerical value of the time for which the driver has held a driving licence.

NOTE Since the multiplicity of this class is 0..1, it is only possible to define one numerical threshold (upper or lower) at a time. To specify an upper and a lower limit for numerical values, a condition set shall be defined (see 7.5.5.2.16) using the operator "and" and defining one condition as the upper limit and one condition as the lower limit. In each of the condition instances, the "comparisonOperator" attribute shall be used.

7.5.5.2.11 «D2Class» OccupantCondition

The "OccupantCondition" class describes conditions for occupants of a vehicle (e.g. number of occupants).

7.5.5.2.12 «D2Class» VehicleCondition

The "VehicleCondition" class specifies conditions for vehicles. It may include the "VehicleCharacteristics" class, which belongs to the "VehicleCharacteristics" package specified in EN 16157-7:2018.

7.5.5.2.13 «D2Class» NonVehicularRoadUserCondition

The "NonVehicularRoadUserCondition" class specifies condition for non-vehicular road users (e.g. pedestrians).

7.5.5.2.14 «D2Class» WeatherCondition

The "WeatherCondition" class may be used to specify weather type condition applicability relating to a traffic regulation.

7.5.5.2.15 «D2Class» ConditionReference

The "ConditionReference" class may be used to reference a predefined condition that is published in a "PredefinedConditionPublication" (see 7.3.2.1).

7.5.5.2.16 «D2Class» ConditionSet

The "ConditionSet" class specifies a set of conditions. The "operator" attribute shall be used to specify the operator to be applied between the conditions. It may include one or more "conditions" specified by the "Condition" class.

7.5.6 «D2Package» Warning

7.5.6.1 Overview of «D2Package» Warning

The "Warning" package shall comprise a sub-model for traffic warnings.

NOTE Warnings are not subject to traffic regulation orders in all countries and therefore can be profiled out. Alternatively, warnings can be specified via the "TrafficRegulationsWithoutTrafficRegulationOrder" class (see 7.2.2.11) in case warnings are subject to traffic regulations or the "WarningPublication" class (see 7.4) in case warnings are not subject to traffic regulations.

It is represented including the relationships between the classes in Figure 10.

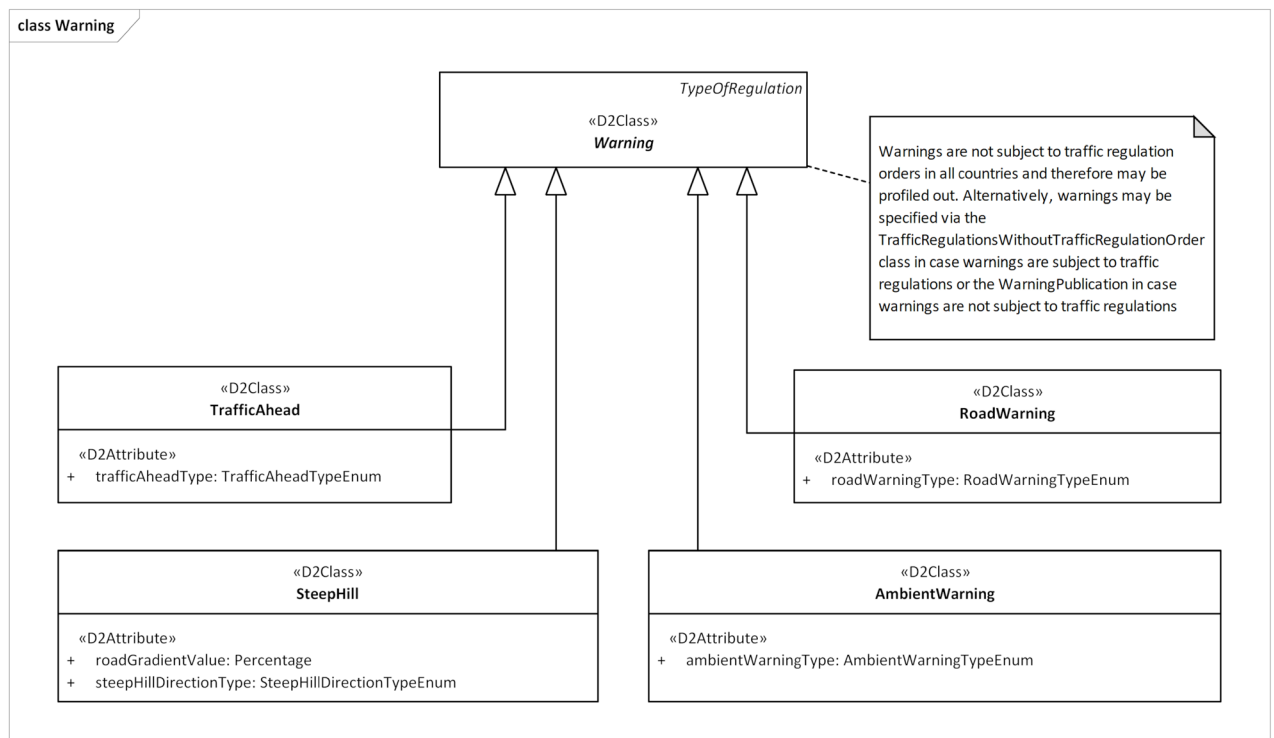


Figure 10 — The “Warning” package class model

7.5.6.2 Semantics of «D2Package» Warning

7.5.6.2.1 «D2Class» Warning

The "Warning" class is an abstract class, i.e. it shall be specialised in one of the possible types given below:

- TrafficAhead,
- SteepHill,
- AmbientWarning,
- RoadWarning.

7.5.6.2.2 «D2Class» TrafficAhead

The "TrafficAhead" class describes warnings of traffic ahead (e.g. traffic queues).

7.5.6.2.3 «D2Class» SteepHill

The "SteepHill" class describes warnings of steep hills by defining the road gradient value and the direction of the road gradient.

7.5.6.2.4 «D2Class» AmbientWarning

The "AmbientWarning" class defines warnings about ambient factors (e.g. falling rocks).

7.5.6.2.5 «D2Class» RoadWarning

The "RoadWarning" class defines warnings concerning the road or condition of the road (e.g. road narrows both sides, slippery road).

7.6 Data types

The following data types shall be part of the traffic regulation model (see Figure 11):

- Duration,
- AmountOfMoney, derived from Decimal specified in EN 16157-7:2018,
- GddPictogramCategoryCode as specified in EN 16157-4:2021 [1], derived from NonNegativeInteger specified in EN 16157-7:2018.

A value for data type "Duration" shall follow the form [PnnYnnMnnDTnnHnnMnnS] according to ISO 8601-1.

A value for data type "GddPictogramCategoryCode" shall be a 3-digit code to identify a pictogram, as defined in EN ISO 14823-1 Graphic Data Dictionary.

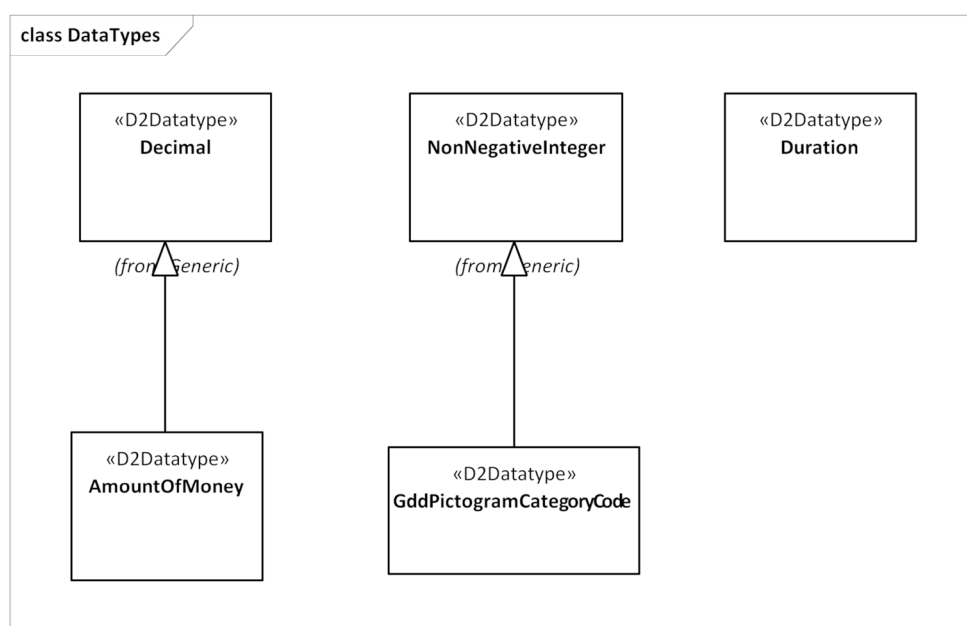


Figure 11 — Data types

8 «D2Namespace» ControlledZone

8.1 Overview

This namespace gathers packages and classes related to controlled zones. In this namespace, concepts from the "TrafficRegulation" namespace are reused, but the scope is extended to include informational and organisational aspects only relating to controlled zones. Figure 12 represents the different packages and classes belonging to the "ControlledZone" namespace, which uses the namespace prefix "cz".

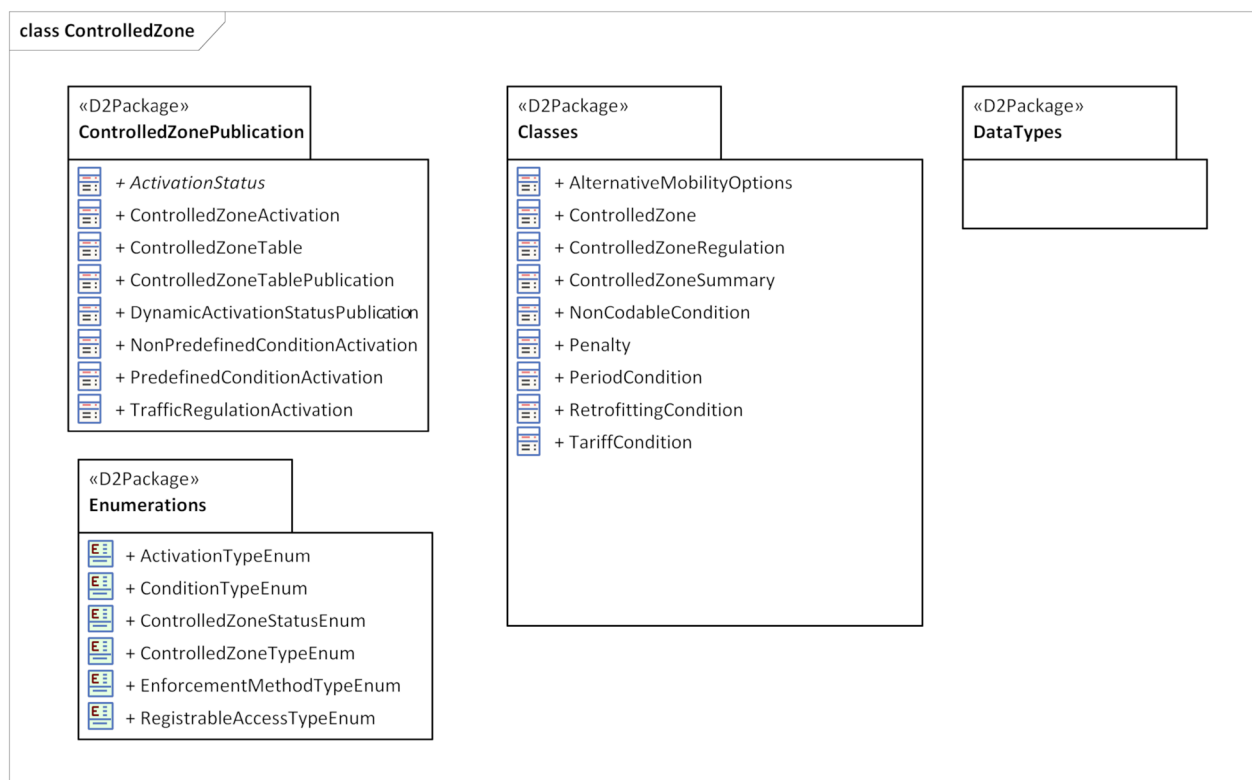


Figure 12 — The "ControlledZone" model

The "ControlledZone" namespace shall include the following four packages:

- ControlledZonePublication,
- Enumerations,
- Classes,
- DataTypes.

The classes, attributes, data types and enumerations that are specific to the "ControlledZone" namespace are defined in Annex B.

The XML schema corresponding to the "ControlledZone" namespace is provided in Annex D.

8.2 «D2Package» ControlledZonePublication

8.2.1 Overview of «D2Package» ControlledZonePublication

The controlled zone publication model (see Figure 13) comprises one top-level package, "ControlledZonePublication" containing the "ControlledZoneTablePublication" and "DynamicActivationStatusPublication" classes, which are specialisations of the "PayloadPublication" class and hence form the top of the hierarchy of the controlled zone publication sub-model. This package shall support the publication of controlled zones as well as the dynamic publication of activation statuses of controlled zones.

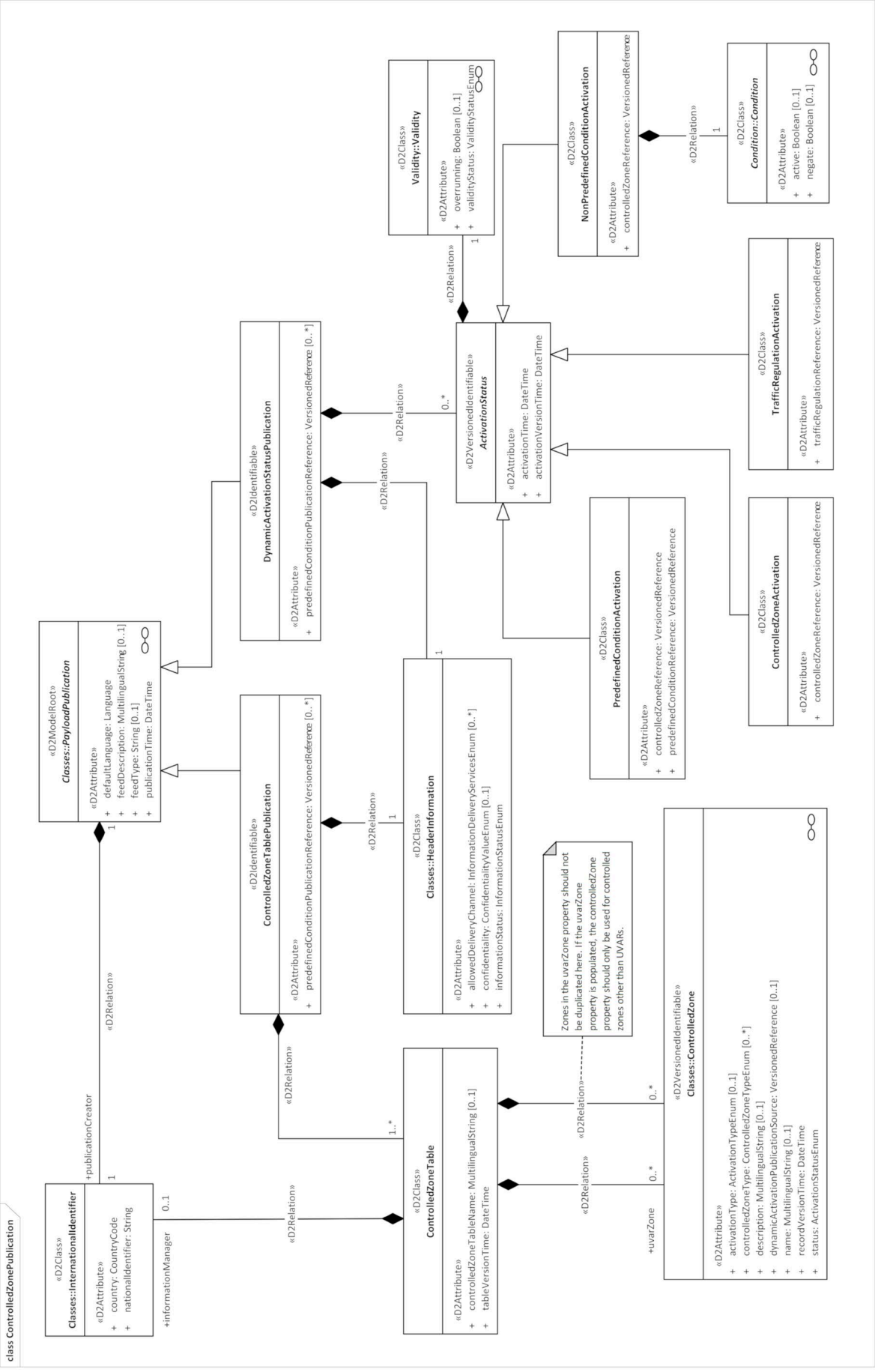


Figure 13 — The "ControlledZonePublication" package class model

8.2.2 Semantics of «D2Package» ControlledZonePublication

8.2.2.1 «D2Identifiable» ControlledZoneTablePublication

The "ControlledZoneTablePublication" class is a specific instantiable case of the "PayloadPublication" class. The class shall be used to publish one or multiple instances of the "ControlledZoneTable" class.

8.2.2.2 «D2Class» ControlledZoneTable

The "ControlledZoneTable" class shall be used to specify tables of controlled zones. A "ControlledZoneTable" represents a set of controlled zones (see 8.3.2.1), where each entry shall either be a UVAR or a different kind of controlled zone.

8.2.2.3 «D2Identifiable» DynamicActivationStatusPublication

The "DynamicActivationStatusPublication" class is a specific instantiable case of the "PayloadPublication" class. An instance of the "DynamicActivationStatusPublication" class may be used to publish instances of the "ActivationStatus" class.

8.2.2.4 «D2VersionedIdentifiable» ActivationStatus

Each instance of the abstract "ActivationStatus" class shall describe exactly one activation status.

It shall be specialised by:

- the class "PredefinedConditionActivation" to specify the activation of a condition by referencing an instance of the "PredefinedCondition" class (see 7.3.2.2),
- the class "NonPredefinedConditionActivation" to specify the activation of a non-predefined condition,
- the class "TrafficRegulationActivation" to specify the activation of a traffic regulation by referencing a predefined instance of the "TrafficRegulation" class (see 7.5.3.2.1),
- the class "ControlledZoneActivation" to specify the activation of a controlled zone by referencing a predefined instance of the "ControlledZone" class (see 8.3.2.1).

The activation status shall be specified by setting the "validityStatus" attribute of the "Validity" class.

8.2.2.5 «D2Class» PredefinedConditionActivation

An instance of this class shall describe a versioned reference to a predefined condition («D2VersionedIdentifiable» PredefinedCondition) for which an activation status shall be published.

8.2.2.6 «D2Class» ControlledZoneActivation

An instance of this class shall describe a versioned reference to a predefined controlled zone («D2VersionedIdentifiable» ControlledZone) for which an activation status shall be published.

8.2.2.7 «D2Class» TrafficRegulationActivation

An instance of this class shall describe a versioned reference to a predefined traffic regulation («D2VersionedIdentifiable» TrafficRegulation) for which an activation status shall be published.

8.2.2.8 «D2Class» NonPredefinedConditionActivation

An instance of this class shall describe a non-predefined condition, by specifying a new condition via the "Condition" model (see 7.5.5.2.1). A versioned reference to a predefined controlled zone («D2VersionedIdentifiable» ControlledZone) instance shall specify where the newly defined condition belongs to.

8.3 «D2Package» Classes

8.3.1 Overview of «D2Package» Classes

The "Classes" package of the "ControlledZone" namespace contains all the classes used by the controlled zone model defined in this document.

The "ControlledZone" class model (see Figure 14) supports providing detailed information about controlled zones and conditions for applicability via the "Condition" class (see Figure 15).

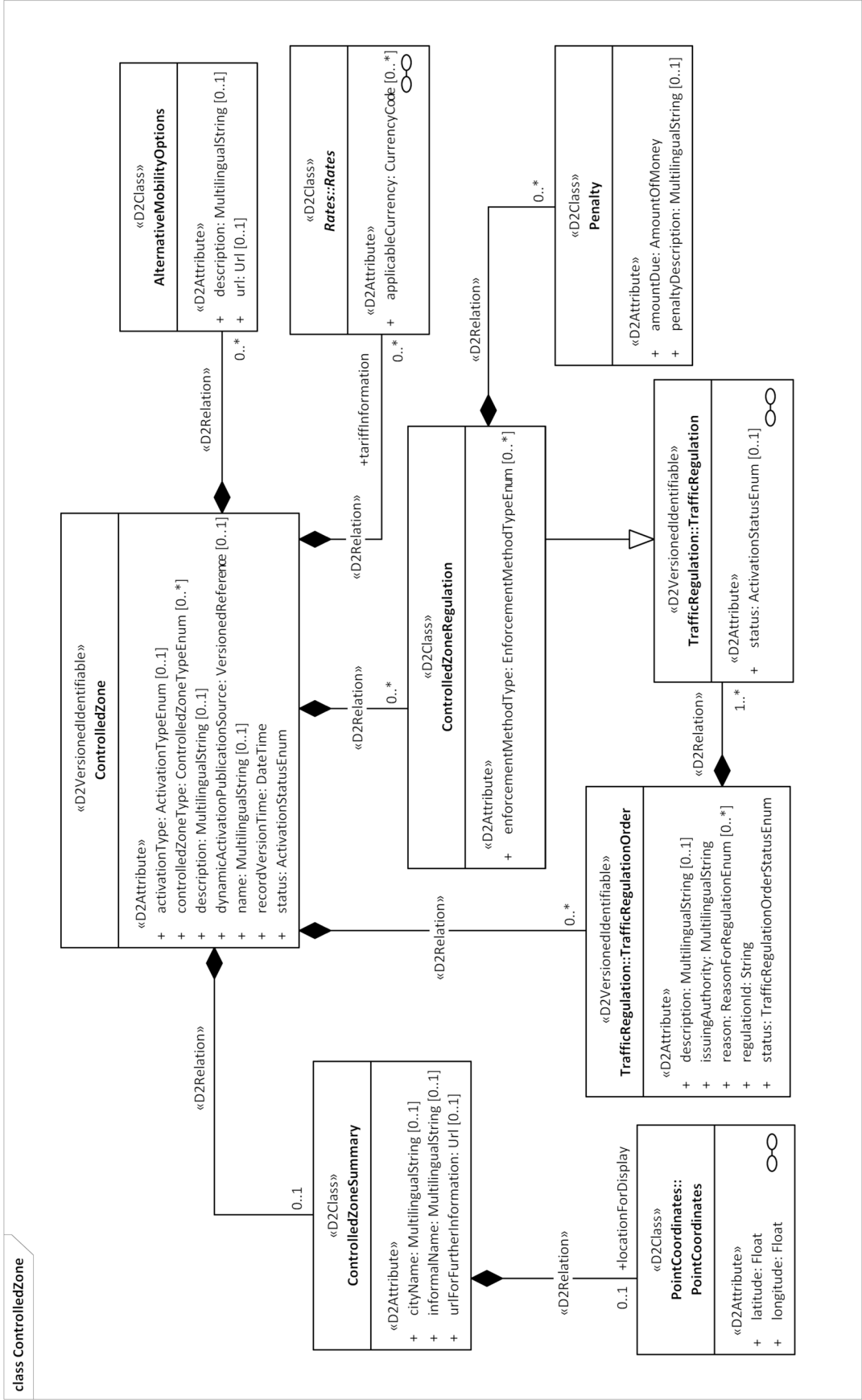


Figure 14 — The "ControlledZone" class model

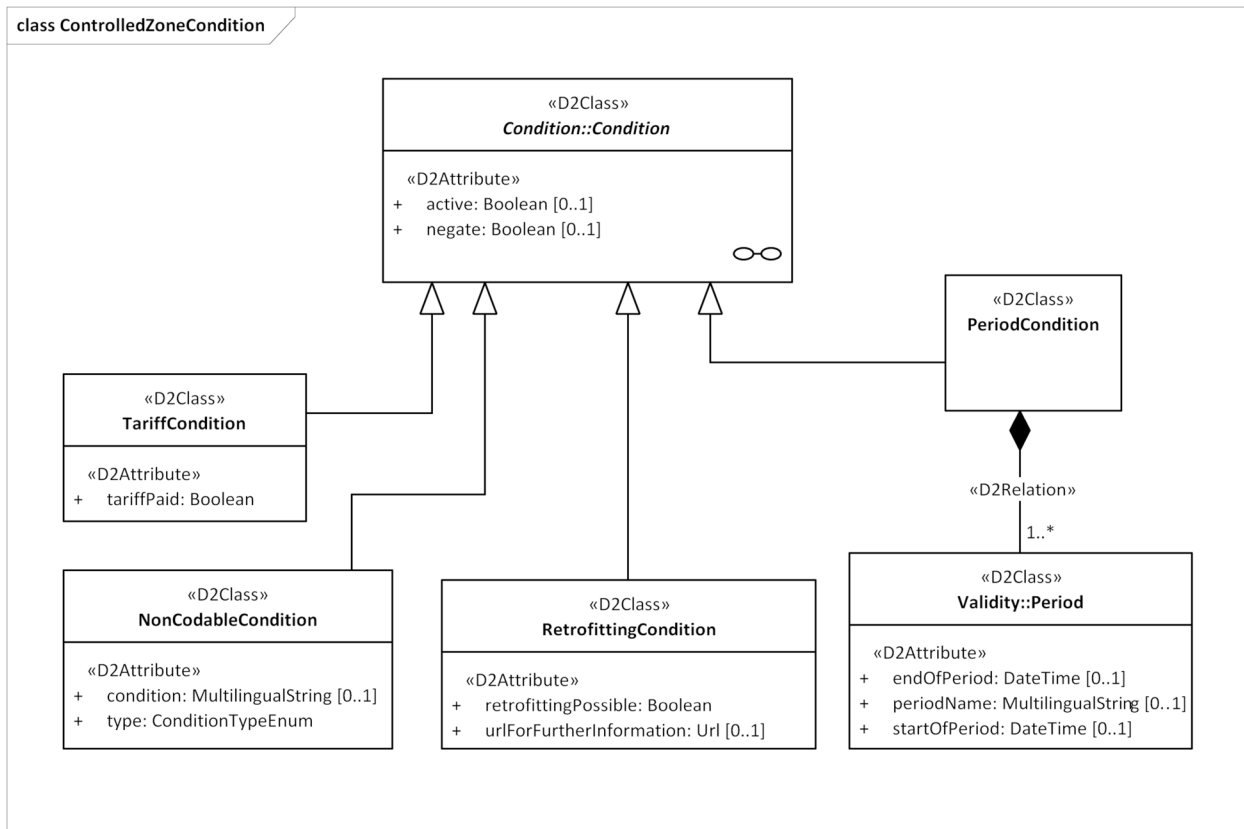


Figure 15 — The "ControlledZoneCondition" class model

8.3.2 Semantics of «D2Package» Classes

8.3.2.1 «D2VersionedIdentifiable» ControlledZone

Each instance of the "ControlledZone" class shall describe exactly one controlled zone. The attributes in this class may be used to define the general properties of the controlled zone, including a name, the type of the controlled zone (e.g., LEZ, LTZ etc.) and a description.

It may include the following classes defining further properties of the controlled zone:

- the class "ControlledZoneSummary" to specify further information on the controlled zone,
- the class "TrafficRegulationOrder" to specify traffic regulation order(s) issuing the controlled zone,
- the class "ControlledZoneRegulation" to specify regulations that are specific to controlled zones,
- the class "Rates" to specify tariff information (this class belongs to the "Facilities" namespace specified in CEN/TS 16157-12:2022 [3]),
- the class "AlternativeMobilityOptions" to specify alternative mobility options that may be used when a vehicle is not allowed to enter a controlled zone.

NOTE There is an attribute "validityStatus" in Validity, which is mandatory but not sufficient for controlled zones. Since the attribute is mandatory, it should be set to the following values. If the "status" attribute of the "ControlledZone" class is set to "active", "beingSetUp" or "beingShutDown" use "active" as the value of the "validityStatus" attribute. If the "status" of the "ControlledZone" class is "scheduled" use "planned" as the value of "validityStatus". If the "status" of the "ControlledZone" class is "inactive" use "suspended" as the value of "validityStatus".

8.3.2.2 «D2Class» ControlledZoneSummary

This class shall be used to define descriptive information for a controlled zone, including the name of the city where the controlled zone is located, an informal name of the controlled zone and a point location (class "PointCoordinates", defined in EN 16157-2:2019) that may be used as a location for display.

8.3.2.3 «D2Class» ControlledZoneRegulation

An instance of this class is a specialisation of the "TrafficRegulation" class (see 7.5.3.2.1). This class shall be used to define traffic regulations that are specific to controlled zones and are therefore not covered by the specialisations of the "Condition" class defined in the "TrafficRegulation" namespace.

It may include the following class "Penalty" to specify penalties for violating traffic regulations.

8.3.2.4 «D2Class» Penalty

Each instance of this class shall be used to specify exactly one penalty for violating a traffic regulation. For each instance of the "TrafficRegulation" class (see 7.5.3.2.1) it is possible to define zero or more penalties.

8.3.2.5 «D2Class» AlternativeMobilityOptions

This class shall be used to define alternative mobility options that may be used as an alternative to individual traffic (e.g., public transport options).

8.3.2.6 «D2Class» TariffCondition

The "TariffCondition" class specifies the condition whether a tariff is paid.

8.3.2.7 «D2Class» NonCodableCondition

Each instance of this class specifies a condition that is not covered by the specialisations of the "Condition" class (see 7.5.5.2.1) that are defined in the "TrafficRegulation" and the "ControlledZone" namespaces. A non-codable condition shall be specified by a type, which can be chosen from the names of the specialisations of the "Condition" class to give a category for the condition, and a description of the condition.

8.3.2.8 «D2Class» RetrofittingCondition

An instance of the class "RetrofittingCondition" shall be used to define information of retrofitting conditions by indicating if retrofitting (the addition of new technology or features in order to reduce vehicle emissions) is possible and by defining a URL for further information.

8.3.2.9 «D2Class» PeriodCondition

The class "PeriodCondition" shall be used to define validity periods using the "Period" class from the "Validity" package defined in EN 16157-7:2018.

9 Extension namespaces

9.1 Overview

The "Extension" package is used to group all Level B extensions of elements from other namespaces from the EN 16157 series.

The classes, attributes, data types and enumerations that are specific to the "CommonExtension" and "LocationExtension" namespaces are defined in Annex C.

The XML schema corresponding to the "CommonExtension" and "LocationExtension" namespaces are provided in Annex D.

9.2 «D2Namespace» CommonExtension

9.2.1 Overview of «D2Namespace» CommonExtension

The "CommonExtension" namespace shall define all Level B extensions of elements defined in the "Common" namespace specified in EN 16157-7:2018.

It is represented including the relationships between classes in Figure 16 and Figure 17. All «D2DataType» data types and «D2Enumeration» enumerations from the "CommonExtension" namespace are shown in Figure 18, including newly added data types and enumerations as well as enumerations that have been extended by a «D2LevelBExtension».

In the "Common" namespace a multiplicity of 0..2 for the association end of a numerical comparison class is used to ensure that an upper and a lower bound can be defined. However, this document specifies a condition model that offers an alternative solution for specifying upper and lower bounds for numerical values by specifying a condition set (see 7.5.5.2.16) using the operator "and" and defining one condition as the upper limit and one condition as the lower limit. In each of the condition instances, the "comparisonOperator" attribute shall be used. In the context of the traffic regulation and controlled zone models, the latter option shall be used. This holds specifically for the following classes defined in the "CommonExtension" namespace:

- "EmissionsExtension",
- "AgeCharacteristics",
- "NumericalEmissionValues",
- "EnginePowerCharacteristics",
- "GrossTrailerWeightCharacteristics".

To allow proper use of the extensions in other context, the multiplicity is nevertheless defined as 0..2. When used in this context, the multiplicity of this class may be profiled to 0..1.



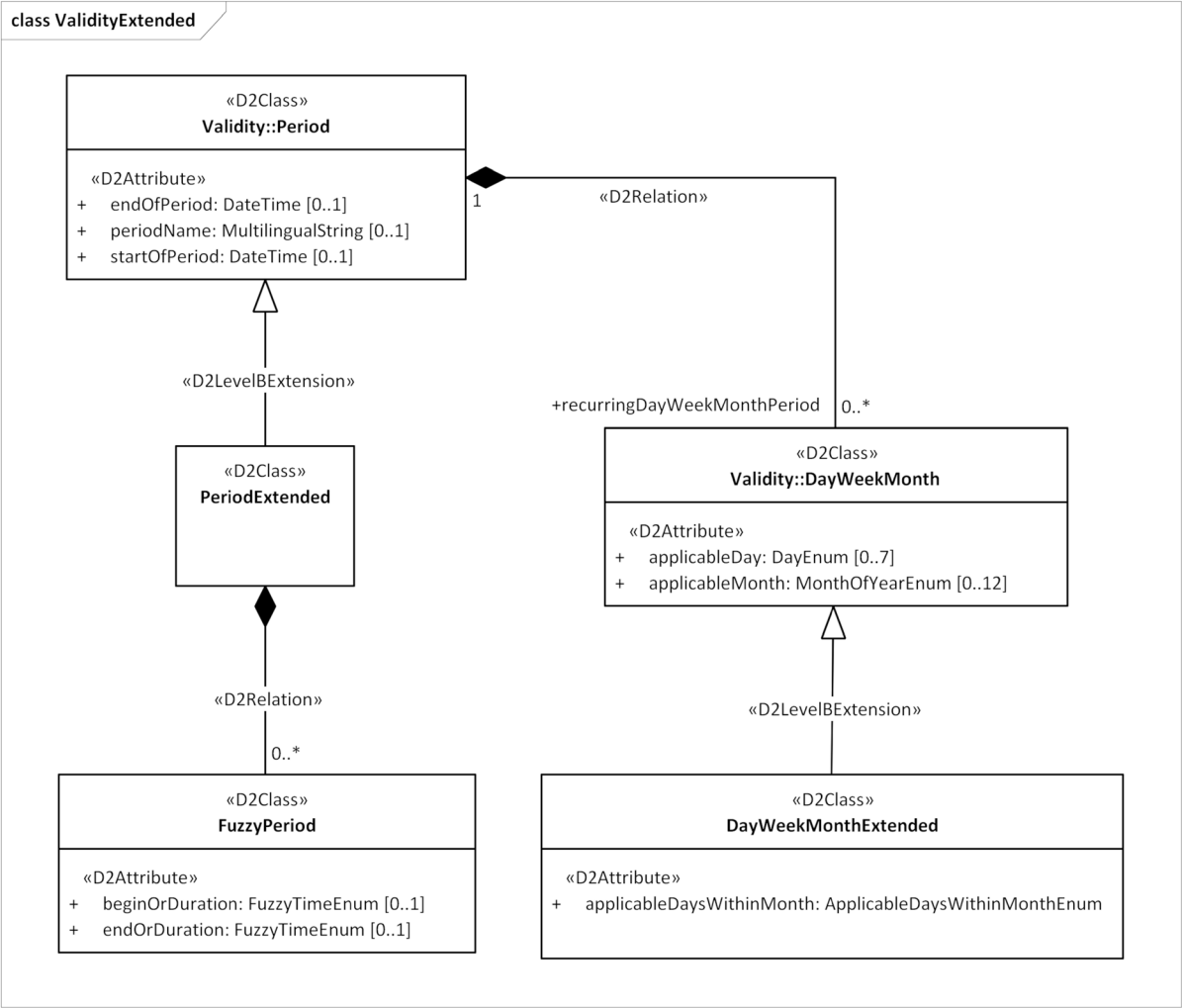


Figure 17 — The "Period" extension

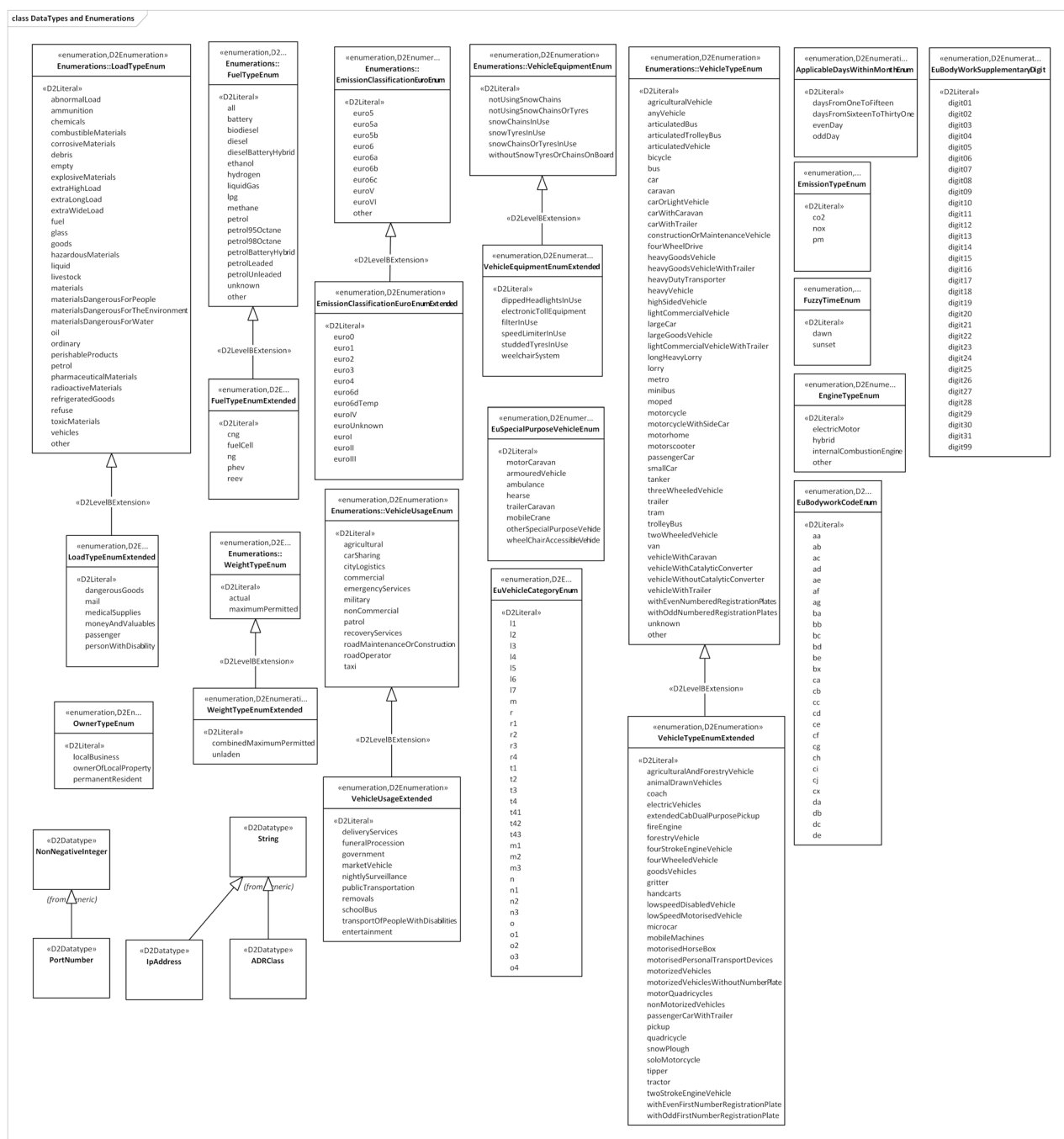


Figure 18 — DataTypes and Enumerations in the "CommonExtension" namespace

9.2.2 Semantics of «D2Namespace» CommonExtension

9.2.2.1 «D2Class» EmissionsExtension

The "EmissionsExtension" class shall form a «D2LevelBExtension» of the "Emissions" class from the "Common" namespace specified in EN 16157-7:2018.

With this extension, a comparison operator will be added to the Emissions class to be able to address specific ranges of applicable emissions. The comparison applies to the Roman- or Arabic numbered portion of the specified value (e.g. euro6 > euro5b), but not crosswise (e.g. euro6 cannot be compared to euroV).

NOTE Clause 9.2.1 defines a recommendation on the usage of the multiplicity of 0..2 for the association end of a numerical comparison class.

9.2.2.2 «D2Class» VehicleCharacteristicsExtended

The "VehicleCharacteristicsExtended" class shall form a «D2LevelBExtension» of the "VehicleCharacteristics" class from the "Common" namespace specified in EN 16157-7:2018. It may include the following classes:

- the class "Speed" to specify a maximum design speed of a vehicle,
- the class "VehicleRegistrationCharacteristics" to specify if a vehicle is registered as a historic vehicle,
- the class "NumericalEmissionValues" to specify emission values,
- the class "RegulatedCharacteristics" to specify vehicle characteristics that are specified in a regulation,
- the class "AgeCharacteristics" to specify characteristics of the age of the vehicle and the dates of first and last registration,
- the class "OwnerCharacteristic" specifying characteristics of vehicle owners,
- the class "NumberPlateCharacteristics" specifying characteristics of number plates,
- the class "EnginePowerCharacteristics" specifying properties of the power of vehicle engines,
- the class "HazardousMaterials" (from the "Common" namespace defined in EN 16157-7:2018) specifying details on hazardous materials,
- the class "TrailerCharacteristics" specifying characteristics of trailers.

The height, length and width characteristics that may be used with this class may represent a dimension originally expressed in feet and inches; in that case the precise value in the original expression shall be understood to be the nearest whole inch to the figure achieved by converting the specified metres value back to feet and inches.

9.2.2.3 «D2Class» Speed

This class may be used to specify a maximum design speed of a vehicle.

9.2.2.4 «D2Class» VehicleRegistrationCharacteristics

This class may be used to indicate whether a vehicle is officially registered as a historic vehicle.

9.2.2.5 «D2Class» NumericalEmissionValues

By using this class, it is possible to specify emission values that are composed of a numerical value, an emission type (e.g., Co2, Nox etc.) and a comparison operator.

9.2.2.6 «D2Class» RegulatedCharacteristics

This class may be used to specify characteristics of vehicles that are defined in EU and or national regulations.

9.2.2.7 «D2Class» AgeCharacteristics

This class may be used to specify the age of a vehicle and to provide information on when the vehicle was first/last registered.

NOTE Chapter 9.2.1 defines a recommendation on the usage of the multiplicity of 0..2 for the association end of a numerical comparison class.

9.2.2.8 «D2Class» NonNegativeIntegerComparison

This class may be used to specify comparison operations for a non-negative integer value.

9.2.2.9 «D2Class» OwnerCharacteristics

By using this class, it is possible to specify characteristics of a vehicle owner (e.g., that the vehicle is owned by a local business or a permanent resident). The class may include an optional location (class "LocationReference", defined in EN 16157-2:2019) to specify a location of residency (e.g., to specify that a person is a permanent resident at a certain location).

9.2.2.10 «D2Class» NumberPlateCharacteristics

This class may be used to define information on the number plate of a vehicle, including the country in which the vehicle is registered and the start of the numeric code on the number plate.

9.2.2.11 «D2Class» EnginePowerCharacteristics

An instance of this class specifies the numerical value of the engine power of a vehicle by defining a value, a unit of measure and a comparison operator.

NOTE Clause 9.2.1 defines a recommendation on the usage of the multiplicity of 0..2 for the association end of a numerical comparison class.

9.2.2.12 «D2Class» DangerousGoodsExtended

The "DangerousGoodsExtended" class is a «D2LevelBExtension» of the "HazardousMaterials" class from the "Common" namespace defined in EN 16157-7:2018, to describe ADR classes of dangerous goods defined in [2].

9.2.2.13 «D2Class» TrailerCharacteristics

This class describes a base set of trailer characteristics. It may include the "GrossTrailerWeightCharacteristics" class.

9.2.2.14 «D2Class» GrossTrailerWeightCharacteristics

The "GrossTrailerWeightCharacteristics" class may be used to specify the actual gross weight of a trailer.

NOTE Clause 9.2.1 defines a recommendation on the usage of the multiplicity of 0..2 for the association end of a numerical comparison class.

9.2.2.15 «D2Class» PeriodExtended

The "PeriodExtension" class shall form a «D2LevelBExtension» of the "Period" class from the "Common" namespace defined in EN 16157-7:2018.

9.2.2.16 «D2Class» FuzzyPeriod

This class shall be used to specify fuzzy time periods (e.g., dawn, sunset etc.).

9.2.2.17 «D2Class» DayWeekMonthExtended

The "DayWeekMonthExtended" class shall form a «D2LevelBExtension» of the "DayWeekMonth" class from the "Common" namespace defined in EN 16157-7:2018.

With this extension, it shall be possible to specify days within a month (e.g., even/odd days within a month).

9.3 «D2Namespace» LocationExtension

9.3.1 Overview of «D2Namespace» LocationExtension

The "LocationExtension" namespace shall define all Level B extensions of elements defined in the "LocationReferencing" namespace specified in EN 16157-2:2019.

It is represented including the relationships between classes in Figure 19.

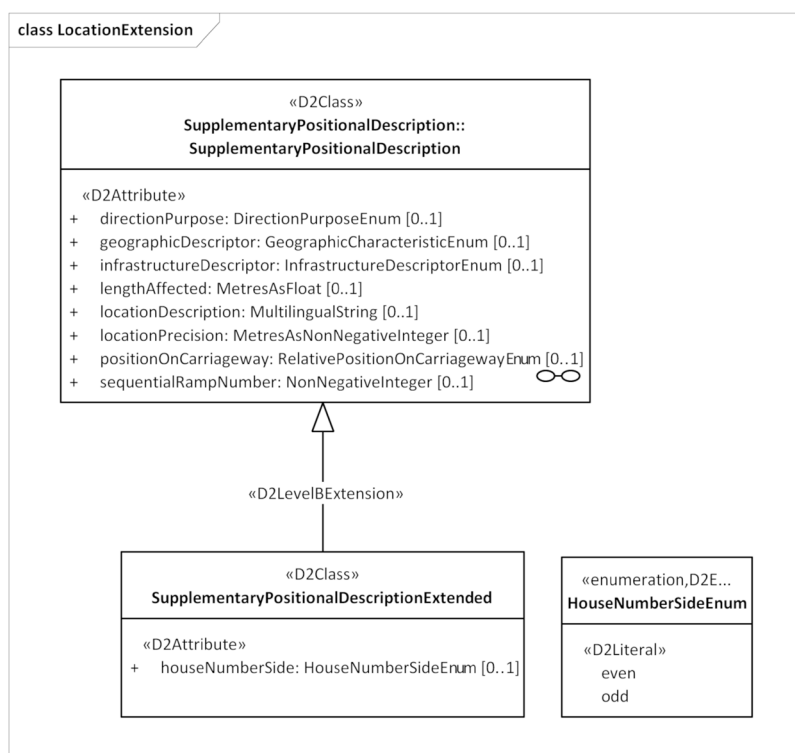


Figure 19 — The "SupplementaryPositionalDescription" extension

9.3.2 Semantics of «D2Namespace» LocationExtension

9.3.2.1 «D2Class» SupplementaryPositionalDescriptionExtended

The "SupplementaryPositionalDescriptionExtended" class shall form a «D2LevelBExtension» of the "SupplementaryPositionalDescription" class from the "LocationReferencing" namespace defined in EN 16157-2:2019.

With this extension, it shall be possible to specify the side of the house number (even/odd).

Annex A (normative)

Data Dictionary for «D2Namespace» TrafficRegulation

A.1 Overview

This data dictionary identifies the definitions and characteristics of the different classes, attributes, association ends, data types and enumerations appearing in the data model defined in Clause 7. The data dictionary is specified as a whole, for the whole “TrafficRegulation” namespace.

The generic data types which are used throughout all publications are defined in EN 16157-7:2018.

The first part of the data dictionary for each publication is partitioned into subclauses which relate to each of the UML model packages and each subclause defines the contained classes, their attributes and any association ends defined for associations between the classes within that package.

The Data Dictionary tables use the following columns:

Column **Class name**: it provides the symbolic name (upper camel case) given to the corresponding class. Where a class name is prefixed by another name separated by a dot, the first name identifies the namespace.

Column **Association end**: it provides the symbolic name (lower camel case) given to the corresponding association end.

Column **Attribute name**: it provides the symbolic name (lower camel case) given to the corresponding attribute of a class.

Column **Enumerated value name**: It provides the symbolic name (lower camel case) given to the corresponding enumerated value.

Column **Designation**: it provides the corresponding name in natural language of the corresponding class, attribute, association end or enumeration value.

Column **Definition**: it provides a comprehensive definition detailing the class, attribute or association end.

Column **Stereotype**: it provides a statement of the stereotype that is assigned to the class, if any – see EN 16157-1:2018, 6.2 for further details.

Column **Abstract**: it provides a statement as to whether the class is abstract (non-instantiable) or concrete (instantiable).

Column **Multiplicity**: it provides a statement of the allowed multiplicity for the attribute or association end.

Column **Target**: It provides the name of the class which is at the end of the association to which the association end applies.

Column **Type**: it provides the name of the class used to define the data type relating to the attribute of the class.

A.2 Data Dictionary for "TrafficRegulation"

A.2.1 "Condition" package

A.2.1.1 Location of "Condition" package

The location of "Condition" package is:

— D2Payload/PayloadPublication/TrafficRegulation/Classes/Condition

A.2.1.2 Classes of the "Condition" package

Table A.1— Classes of the "Condition" package

Class name	Designation	Definition	Stereotype	Abstract
AccessCondition	Access condition	Conditions for the access of a road or carriageway or lane.	D2Class	no
Condition	Condition	Specifies a condition for applicabilities or exemptions of a traffic regulation.	D2Class	yes
ConditionReference	Condition reference	Reference to a predefined condition instance.	D2Class	no
ConditionSet	Condition set	Groups a number of conditions into a condition set.	D2Class	no
DriverCondition	Driver condition	Conditions for the driver, e.g. holding a disabled permit.	D2Class	no
LocationCondition	Location condition	Conditions for the location of a traffic regulation.	D2Class	no
NonVehicularRoadUserCondition	Non vehicular road user condition	Conditions for non-vehicular road users.	D2Class	no
OccupantCondition	Occupant condition	Conditions for the occupants of a vehicle.	D2Class	no
RequiredPermitCondition	Required permit condition	Characteristics of a required permit (the permit must be available).	D2Class	no
RoadCondition	Road condition	Specification of road types (e.g. motorway, express way, etc.).	D2Class	no
StandingOrParkingCondition	Standing or parking condition	Conditions for standing or parking restrictions.	D2Class	no
TimeDriversLicenceHeld	Time drivers licence held	The time a person has held their driving licence.	D2Class	no

Class name	Designation	Definition	Stereotype	Abstract
TimeValidityCondition	Time validity condition	Specifies timing applicability relating to a traffic regulation.	D2Class	no
TunnelCategoryCondition	Tunnel category condition	Tunnel categories according to ADR (European Agreement for transport of Dangerous Goods by Road).	D2Class	no
VehicleCondition	Vehicle condition	Specifies vehicle characteristics condition applicability relating to a traffic regulation.	D2Class	no
WeatherCondition	Weather condition	Specifies weather type condition applicability relating to a traffic regulation.	D2Class	no

A.2.1.3 Specializations of the "Condition" package

Table A.2— Specializations of the "Condition" package

Class name	Parent Class Name
AccessCondition	TrafficRegulation.Condition
ConditionReference	TrafficRegulation.Condition
ConditionSet	TrafficRegulation.Condition
DriverCondition	TrafficRegulation.Condition
LocationCondition	TrafficRegulation.Condition
NonVehicularRoadUserCondition	TrafficRegulation.Condition
OccupantCondition	TrafficRegulation.Condition
RequiredPermitCondition	TrafficRegulation.Condition
RoadCondition	TrafficRegulation.Condition
StandingOrParkingCondition	TrafficRegulation.Condition
TimeValidityCondition	TrafficRegulation.Condition

Class name	Parent Class Name
TunnelCategoryCondition	TrafficRegulation.Condition
VehicleCondition	TrafficRegulation.Condition
WeatherCondition	TrafficRegulation.Condition

A.2.1.4 Associations of the "Condition" package

Table A.3— Associations of the "Condition" package

Class name	Association end	Designation	Definition	Multiplicity	Target
AccessCondition	applicableLocation	Applicable location	Location where access condition applies.	0..1	LocationReferencing.LocationReference
Condition	legalBasis	Legal basis	Legal basis where applicability characteristics or exemptions are specified.	0..1	TrafficRegulation.LegalBasis
ConditionSet	conditions	Conditions	Specifies the conditions that are present in the set.	1..*	TrafficRegulation.Condition
DriverCondition	ageOfDriver	Age of driver	The age of the driver.	0..1	CommonExtension.NonNegativeIntegerComparison
	timeDriversLicenceHeld	Time drivers licence held	Time drivers licence held for the associated DriverCondition	0..1	TrafficRegulation.TimeDriversLicenceHeld
LocationCondition	implementedLocation	Implemented location	The actual (implemented) location of the traffic regulation.	0..1	LocationReferencing.LocationReference
	locationByOrder	Location by order	The ordered (planned) location as defined in the original traffic regulation order, if existent.	0..1	LocationReferencing.LocationReference

Class name	Association end	Designation	Definition	Multiplicity	Target
	trafficImpactLocation	Traffic impact location	The spatial location (typically area) of the road upon which the impact of a regulation is considered to be effective (which is not always the same as the implementedLocation).	0..1	LocationReferencing.LocationReference
OccupantCondition	numberOfOccupants	Number of occupants	Number of occupants of a vehicle.	1..1	CommonExtension.NonNegativeIntegerComparison
TimeValidityCondition	implementedValidity	Implemented validity	The actual (implemented) validity of the traffic regulation.	0..1	Common.Validity
	validityByOrder	Validity by order	The ordered (planned) validity as defined in the original traffic regulation order, if existent.	0..1	Common.Validity
VehicleCondition	vehicleCharacteristics	Vehicle characteristics	Traffic regulation only for special vehicles.	1..1	Common.VehicleCharacteristics

A.2.1.5 Attributes of the "Condition" package

Table A.4— Attributes of the "Condition" package

Class name	Attribute name	Designation	Definition	Multiplicity	Type
AccessCondition	accessConditionType	Access condition type	Type of access condition.	1..*	TrafficRegulation.AccessConditionTypeEnum
	otherAccessRestriction	Other access restriction	Other access restriction not listed elsewhere.	0..1	Common.MultilingualString
Condition	active	Active	If the condition is dynamic, this attribute shall be set to "true" if the condition is currently active and to "false" if the condition is currently inactive.	0..1	Common.Boolean

Class name	Attribute name	Designation	Definition	Multiplicity	Type
	negate	Negate	If set to true means that the effect is the logical inverse of the specified condition.	0..1	Common.Boolean
ConditionReference	reference	Reference	Reference to a predefined condition.	1..1	Common.VersionedReference (tro:PredefinedCondition)
ConditionSet	operator	Operator	Specifies the operator to be applied between the conditions in the set.	1..1	TrafficRegulation.ConditionOperator
DriverCondition	driverCharacteristicsType	Driver characteristics type	Type of driver characteristics.	0..1	TrafficRegulation.DriverCharacteristicsTypeEnum
	licenceCharacteristics	Licence characteristics	Characteristics of the driver's licence.	0..1	TrafficRegulation.LicenceCharacteristicsEnum
NonVehicularRoadUserCondition	nonVehicularRoadUser	Non vehicular road user	Types of non-vehicular road users for which the condition applies.	1..1	TrafficRegulation.NonVehicularRoadUserTypeEnum
RequiredPermitCondition	identifier	Identifier	A unique identifier for the permit.	0..1	Common.String
	issuingAuthority	Issuing authority	The competent authority that issued the permit.	0..1	Common.MultilingualString
	permitCharacteristics	Permit characteristics	A reference to the characteristics of the permit.	0..1	Common.VersionedReference (tro:PermitInformation)
	permitType	Permit type	The type of the permit.	1..*	TrafficRegulation.PermitTypeEnum

Class name	Attribute name	Designation	Definition	Multiplicity	Type
RoadCondition	roadType	Road type	Type of road (e.g. motorway, express way, etc.).	1..1	TrafficRegulation.RoadTypeEnum
StandingOrParkingCondition	standingOrParkingConditionType	Standing or parking condition type	Type of standing or parking condition.	1..1	TrafficRegulation.StandingOrParkingConditionTypeEnum
TimeDriversLicenceHeld	comparisonOperator	Comparison operator	The operator to be used in the time drivers licence held comparison operation.	1..1	Common.ComparisonOperatorEnum
	value	Value	Period in which the driver has held and continues to hold a driving licence.	1..1	TrafficRegulation.Duration
TunnelCategoryCondition	tunnelCategoryType	Tunnel category type	Tunnel category type according to ADR.	1..1	TrafficRegulation.ADRTunnelCategoryTypeEnum
WeatherCondition	weatherConditionType	Weather condition type	Specifies the weather type condition for a traffic regulation.	1..1	Common.WeatherRelatedRoadConditionTypeEnum

A.2.2 "PredefinedConditionPublication" package

A.2.2.1 Location of "PredefinedConditionPublication" package

The location of "PredefinedConditionPublication" package is:

— D2Payload/PayloadPublication/TrafficRegulation/PredefinedConditionPublication

A.2.2.2 Classes of the "PredefinedConditionPublication" package

Table A.5— Classes of the "PredefinedConditionPublication" package

Class name	Designation	Definition	Stereotype	Abstract
PredefinedCondition	Predefined condition	A predefined condition.	D2VersionedIdentifiable	no
PredefinedConditionPublication	Predefined condition publication	Publication of predefined conditions.	D2Identifiable	no

A.2.2.3 Specializations of the "PredefinedConditionPublication" package

Table A.6— Specializations of the "PredefinedConditionPublication" package

Class name	Parent Class Name
PredefinedConditionPublication	Common.PayloadPublication