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DIN CEN/TS 16614-2
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**Öffentlicher Verkehr –
Netzwerk- und Fahrplan-Austausch (NeTEx) –
Teil 2: Austauschformat für Fahrpläne im öffentlichen Verkehr;
Englische Fassung CEN/TS 16614-2:2020, nur auf CD-ROM**

Public transport –
Network and Timetable Exchange (NeTEx) –
Part 2: Public transport scheduled timetables exchange format;
English version CEN/TS 16614-2:2020, only on CD-ROM

Transport Public –
Échanges des informations planifiées (NeTEx) –
Partie 2: Description de l'offre de transport;
Version anglaise CEN/TS 16614-2:2020, seulement en CD-ROM

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DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE

Nationales Vorwort

Dieses Dokument (CEN/TS 16614-2:2020) wurde vom Technischen Komitee CEN/TC 278 „Intelligente Verkehrssysteme“ ausgearbeitet, dessen Sekretariat von NEN (Niederlande) gehalten wird.

Das zuständige deutsche Normungsgremium ist der Gemeinschaftsarbeitsausschuss NA 052-02-71 GA „Gemeinschaftsarbeitsausschuss NAAutomobil/DKE: Intelligente Verkehrssysteme“ des DIN-Normenausschusses Automobiltechnik.

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Dieses Dokument enthält unter Berücksichtigung des DIN-Präsidialbeschlusses 1/2004 nur die Englische Fassung von CEN/TS 16614-2:2020.

Diese europäische Technische Spezifikation legt für den öffentlichen Verkehr Normen zum Datenaustausch für Netzwerke und Fahrpläne (NeTEx) fest. NeTEx wird als Ergänzung zu SIRI (en: Service Interface for Real-time Information) gesehen.

Die Nutzung von offenen normierten Schnittstellen verbessert im Allgemeinen die Wirtschaftlichkeit und technische Realisierbarkeit von System im öffentlichen Verkehr. Eine große Anzahl von Systemlieferanten kann eigenständige austauschbare Systeme herstellen und somit konkurrenzfähige Produkte am Markt anbieten. Die Norm fördert somit den Wettbewerb und vermeidet proprietäre Lösungen einzelner Anbieter.

Standardisierte Lösungen erlauben außerdem automatische Prüfprozeduren aller funktionellen Module und reduzieren somit Prüfaufwand und Kosten.

Erfahrungen mit dieser Technischen Spezifikation sind erbeten:

- vorzugsweise als Datei per E-Mail an eric.wern@vda.de in Form einer Tabelle. Die Vorlage dieser Tabelle kann im Internet unter <http://www.din.de/stellungnahme> abgerufen werden;
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Änderungen

Gegenüber DIN CEN/TS 16614-2 (DIN SPEC 74122-2):2014-12 wurden folgende Änderungen vorgenommen:

- a) Anpassung des Teil 2 an Änderungen, die im Teil 1 durchgeführt wurden.

Frühere Ausgaben

DIN CEN/TS 16614-2 (DIN SPEC 74122-2): 2014-12

Nationaler Anhang NA
(informativ)

Begriffe

Für die Anwendung dieses Dokuments gelten die Begriffe aus DIN CEN/TS 16614-1.

English Version

Public transport - Network and Timetable Exchange
(NeTEx) - Part 2: Public transport scheduled timetables
exchange format

Transport Public - Échanges des informations
planifiées (NeTEx) - Partie 2: Description de l'offre de
transport

Öffentlicher Verkehr - Netzwerk- und Fahrplan-
Austausch (NeTEx) - Teil 2: Austauschformat für
Fahrpläne im öffentlichen Verkehr

This Technical Specification (CEN/TS) was approved by CEN on 2 March 2020 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (CEN/TS 16614-2:2020) 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 16614-2:2014.

This document presents Part 2 of the European 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.

NeTEx is made up of three parts defining a single European Standard, 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 case 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 1 is fully standalone, and Parts 2 and 3 rely on Part 1.

The XML schema can be downloaded 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 on keeping the text readable. This has been done through a set of editorial rules enhancing usual CEN writing rules:

- To avoid confusion with usual wording, Transmodel terms are in capital letters (JOURNEY PATTERN for example).
- To avoid confusion with usual wording, attributes names are in bold/italic style and use camelcase style with no spaces (JourneyPattern for example).
- To avoid confusion with usual wording, attributes types are in italic style and use camelcase style with no spaces (TypeOfEntity for example).

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this document: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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 European Technical Specification specifies a Network and Timetable Exchange (NeTEx) about public transport. 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 a complement 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 a real-time data.

Well-defined, open interfaces have a crucial role in improving the economic and technical viability of public transport Information Systems of all kinds. Using standardised 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 standard will improve a number of features of public transport information and service management: Interoperability – the standard 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; (ii) 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: reusing 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) based on Transmodel V5.1 (EN 12986), IFOPT (CEN/TS 28701) and SIRI (CEN/TS 15531-4/5 and EN 15531-1/2/3¹) and supports information exchange of relevance to public transport services for passenger information and AVMS systems.

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

The data exchanges targeted by NeTEx are predominantly oriented towards passenger information and also for data exchange between transit scheduling systems and AVMS (Automated Vehicle Monitoring Systems). However it is not restricted to these purposes, and NeTEx can provide an effective solution to many other use cases for transport exchange.

1.2 Transport modes

Most 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 provisions that apply especially to air transport.

1.3 Compatibility with existing standards and recommendations

The concepts covered in NeTEx that relate in particular to long-distance train travel include; rail operators and related organizations; 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.

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

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN/TS 16614-1, *Public transport — Network and Timetable Exchange (NeTEx) — Part 1: Public transport network topology exchange format*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TS 16614-1 apply.

¹ Under preparation.

4 Symbols and abbreviations

For the purposes of this document, the symbols and abbreviations given in CEN/TS 16614-1 apply.

5 Use Cases for Journey & Journey Time Exchange

NeTEx Part 2 shares its use cases with NeTEx Part 1 since many use cases involve both part 1 and part 2 entities. Please refer to NeTEx Part 1 for a detailed use case description.

6 Generic Physical Model and XSD mapping rules

For consistency, the mapping rules for transforming a Conceptual Model to Physical Model and then to XSD are shared between all parts of NeTEx.

Please refer to NeTEx Part 1 for a detailed description of the Physical Model and XSD mapping rules.

7 Timing Information – Conceptual and physical data model

7.1 Introduction

The NeTEx Part 2 timing information model is split into four main submodels defined as UML packages.

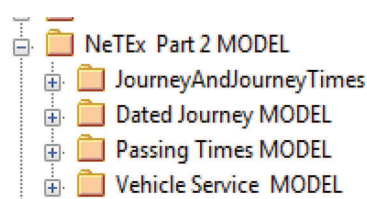


Figure 1 – NeTEx Part 2 main packages

The Journey and Journey Times model: describes the model planned services and dead runs and their timings

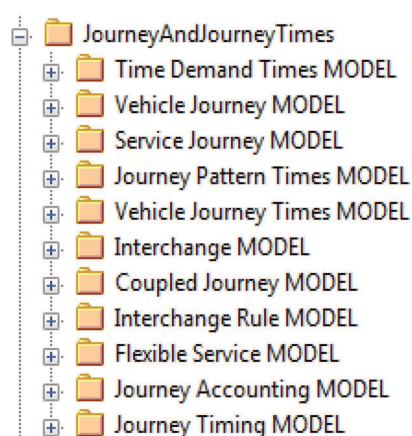


Figure 2 – JourneyAndJourneyTimes packages

- The dated journey model: describes the services for a single operating day
- The passing times model: describes all the different types of passing times
- The vehicle service model: describes the information related to vehicles and their services

7.2 Journey and Journey Times – Model dependencies

The JOURNEY AND JOURNEY TIMES Model describes the VEHICLE JOURNEYS and other components making up a timetable and is itself divided into a number of separate submodels covering different aspects of VEHICLE JOURNEYS. For ease of understanding, the submodels are presented one at a time, each describing only a small set of related concepts.

The submodels depend on a number of general NeTex framework models and reusable components described elsewhere (for example, the GENERIC POINT AND LINK model, NOTICE model, etc.,) – See NeTex Part 1 for further details.

The following figure shows the dependencies between the JOURNEY AND JOURNEY TIMES physical submodels. The terminal packages contain the SERVICE FRAME and the TIMETABLE FRAME. These two VERSION FRAMEs are containers that organise the other payload elements into a coherent set of elements suitable for exchange as a serialised file. The payload elements are contained in the following packages:

TIMETABLE FRAME

- VEHICLE JOURNEY: models journeys that vehicles make.
- SERVICE JOURNEY: additionally models the properties of journeys that carry passengers.
- TIME DEMAND TIMES: models the times of the different demand levels found during a day.
- PASSING TIMES: describes the times of vehicles at points in their journey.
- JOURNEY TIMINGS: describes the common timing properties for journeys.
- JOURNEY PATTERN TIMES: describes the timings of JOURNEY PATTERNS.
- VEHICLE JOURNEY TIMES: describes the timings of VEHICLE JOURNEYS.
- INTERCHANGE: describes interchanges between journeys.
- COUPLED JOURNEY: describes multipart journeys which join and split.
- FLEXIBLE SERVICE: additional describes demand responsive transport services.
- JOURNEY ACCOUNTING: assigns a cost basis for journeys.

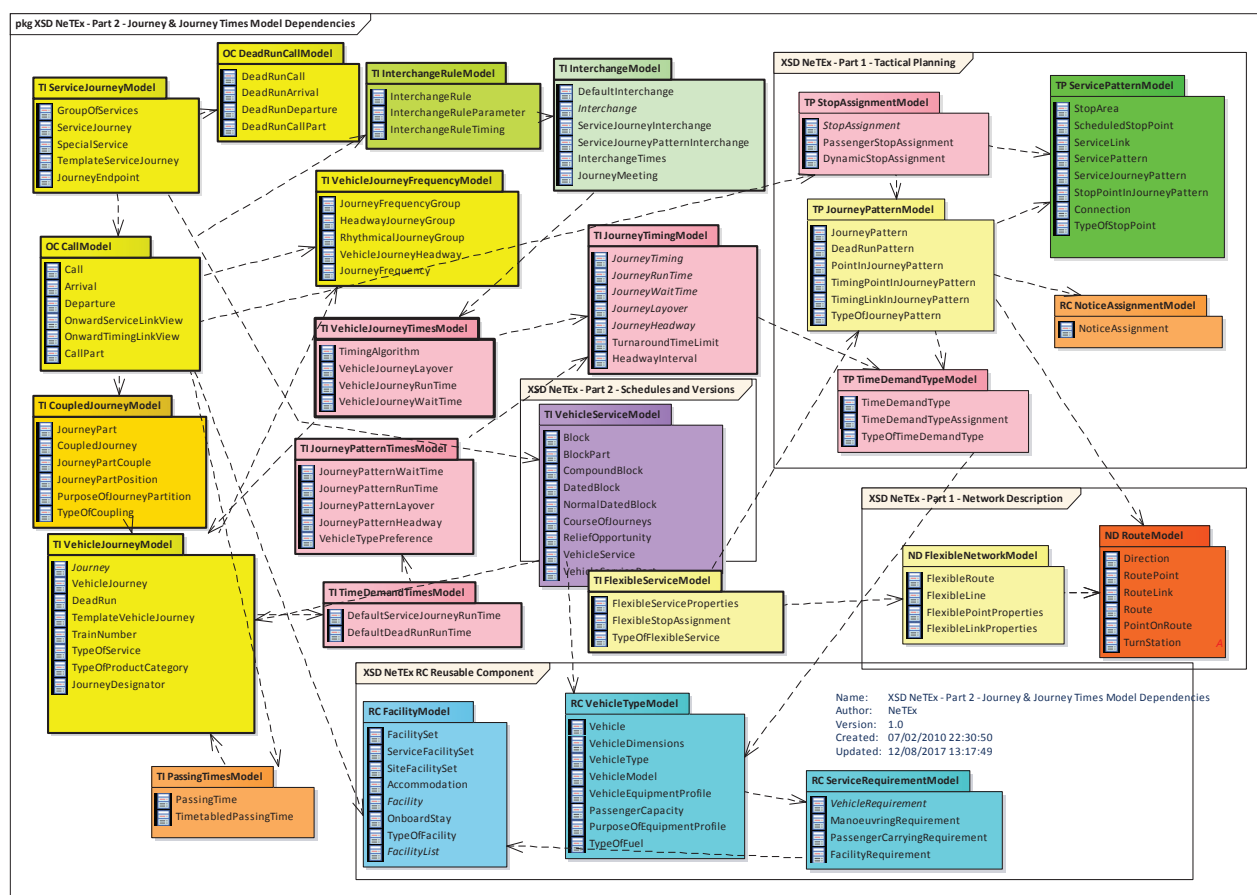


Figure 3 — Journey – Model Dependencies

7.3 Explicit Frames

7.3.1 Timetable Frame

7.3.1.1 TIMETABLE FRAME – Conceptual MODEL

The elements of the JOURNEY AND JOURNEY TIMES model can be grouped with a TIMETABLE FRAME which holds a coherent set of timetable related elements for data exchange (see VERSION FRAME in the NeTeX Framework section for general concepts relating to version frames).

The primary component exchanged by a TIMETABLE FRAME is a SERVICE JOURNEY, which describes an individual journey. This and other components of a TIMETABLE FRAME are described in detail in the following sections.

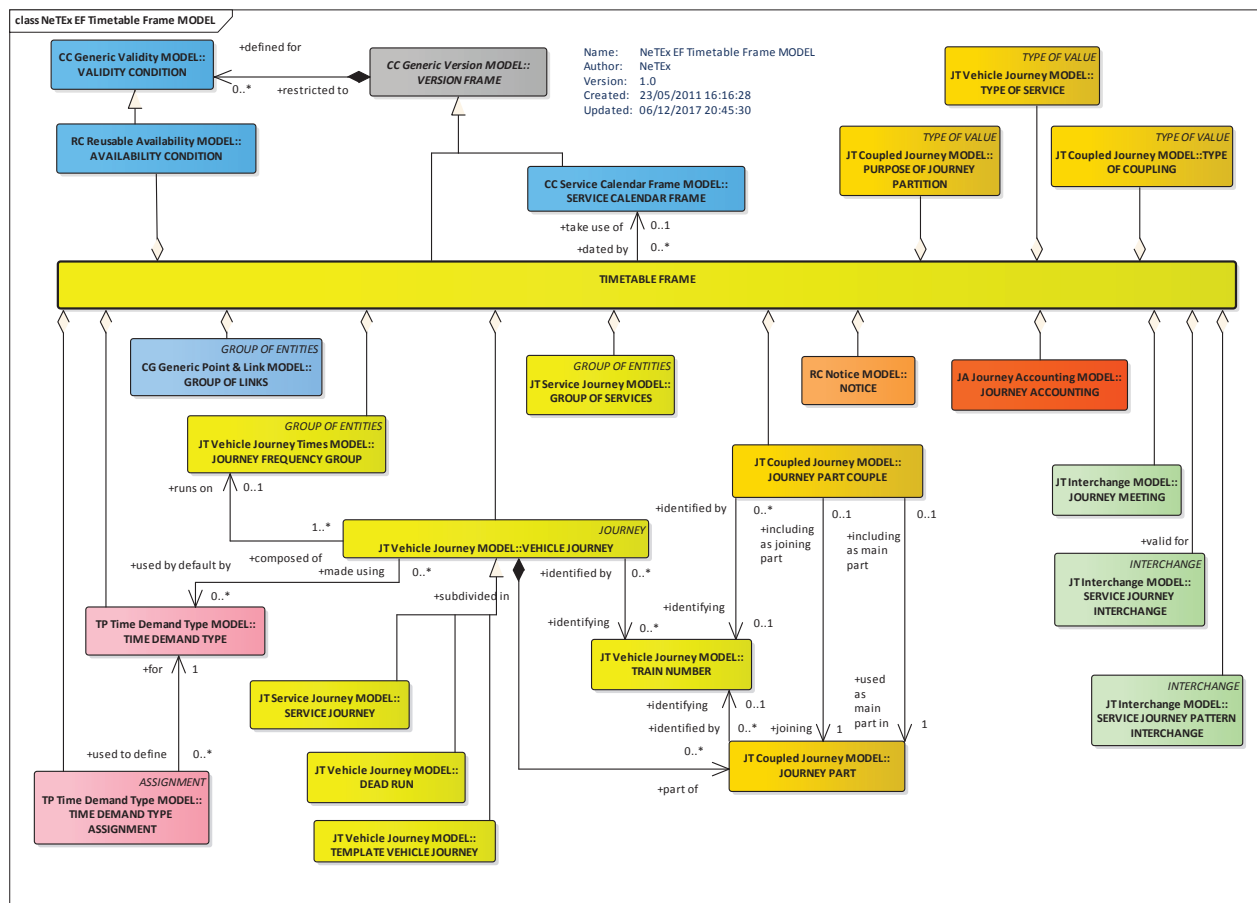
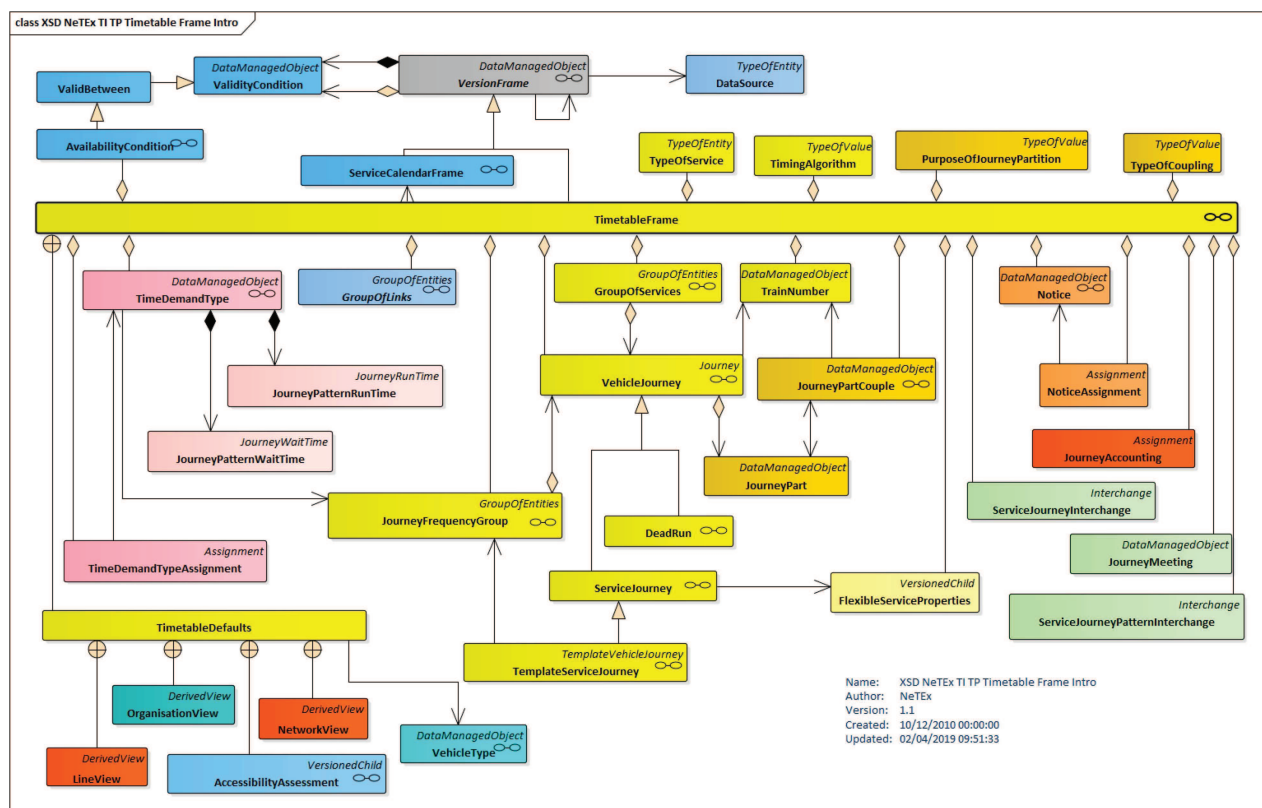


Figure 4 — Timetable Frame – Conceptual MODEL (UML)

7.3.1.2 Timetable Frame – Physical Model

The following diagram gives an overview of the contents of a TIMETABLE FRAME.



7.3.1.3 Timetable Frame Details – Physical Model

The following diagram shows the Physical model for a TIMETABLE FRAME.

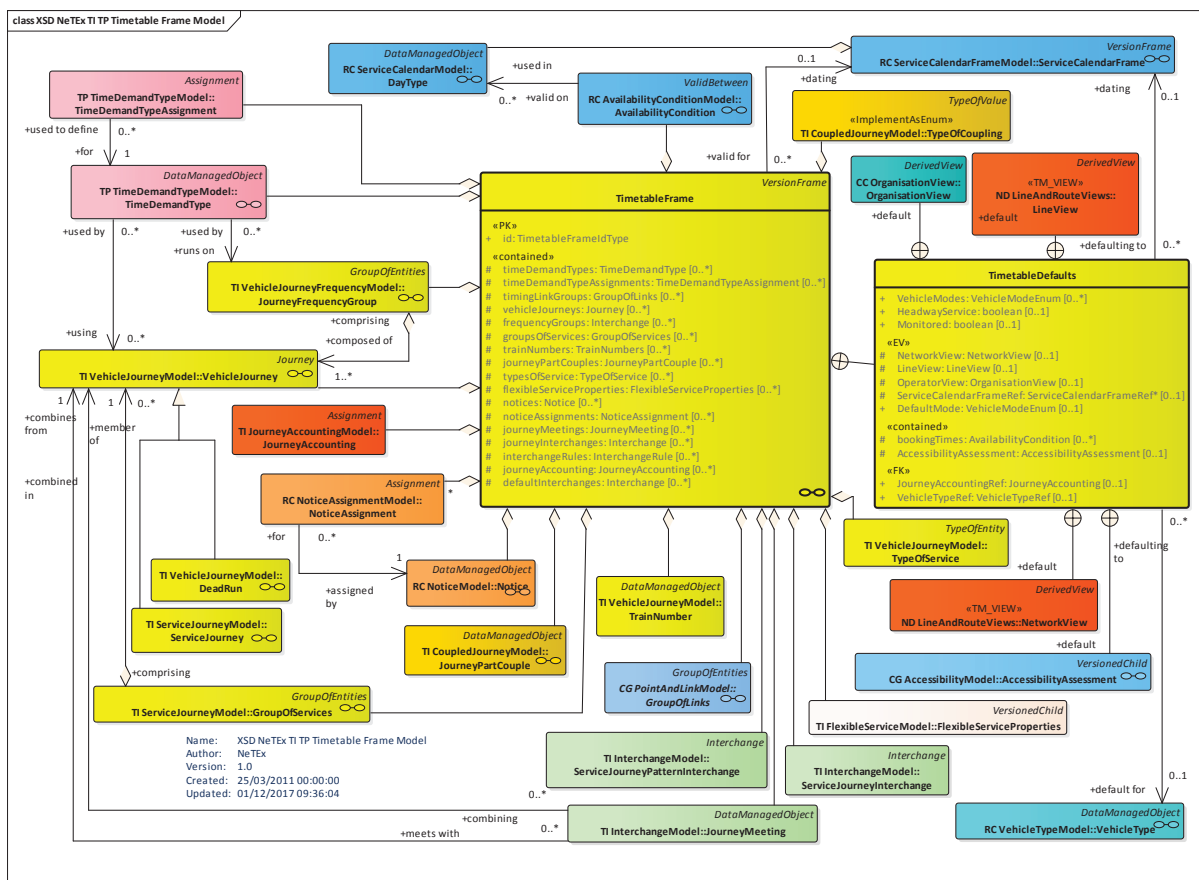


Figure 6 — Timetable Frame – Physical Model Detail (UML)

7.3.1.4 Timetable Frame – XSD and attributes

7.3.1.4.1 TimetableFrame – Model Element

A set of timetable data (VEHICLE JOURNEYS, etc.) to which the same VALIDITY CONDITIONS have been assigned.

Table 1 – *TimetableFrame* – Element

Classification	Name	Type	Cardinality	Description
::>	::>	<u>VersionFrame</u>	::>	TIMETABLE FRAME inherits from VERSION FRAME.
«PK»	id	<i>TimetableFrameIdType</i>	1:1	Identifier of TIMETABLE FRAME.
«enum»	VehicleModes	<i>VehicleModeEnum</i>	0:*	Reference to vehicle transport MODES for TIMETABLE.
	HeadwayService	<i>xsd:boolean</i>	0:1	Whether services of TIMETABLE are operated a headway services.
	Monitored	<i>xsd:boolean</i>	0:1	Whether services of TIMETABLE are monitored in real time.

Classification	Name	Type	Cardinality	Description
XGRP	<i>TimetableDefaultsGroup</i>	<u>xmlGroup</u>	0:1	Elements specifying shared defaults for timetable.
«cntd»	<i>timeDemandTypes</i>	<u><i>TimeDemandType</i></u>	0:*	TIME DEMAND TYPEs in the frame.
«cntd»	<i>timeDemandTypeAssignments</i>	<u><i>TimeDemandTypeAssignment</i></u>	0:*	TIME DEMAND TYPE ASSIGNMENTS in the frame.
«cntd»	<i>timingLinkGroups</i>	<u><i>GroupOfLinks</i></u>	0:*	TIMING LINK GROUPs in the frame.
XGRP	<i>TimetableJourneyIn-FrameGroup</i>	<u>xmlGroup</u>	0:1	Elements describing VEHICLE JOURNEYs in timetable.
«cntd»	<i>notices</i>	<u><i>Notice</i></u>	0:*	NOTICEs in the frame.
«cntd»	<i>noticeAssignments</i>	<u><i>NoticeAssignment</i></u>	0:*	NOTICE ASSIGNMENTs in the frame.
XGRP	<i>InterchangesInFrameGroup</i>	<u>xmlGroup</u>	0:1	Elements describing INTERCHANGES in timetable.
«cntd»	<i>vehicleTypes</i>	<u><i>VehicleType</i></u>	0:*	VEHICLE TYPEs in the frame.
«cntd»	<i>journeyAccountings</i>	<u><i>JourneyAccounting</i></u>	0:*	Default JOURNEY ACCOUNTING values for JOURNEYs in frame.

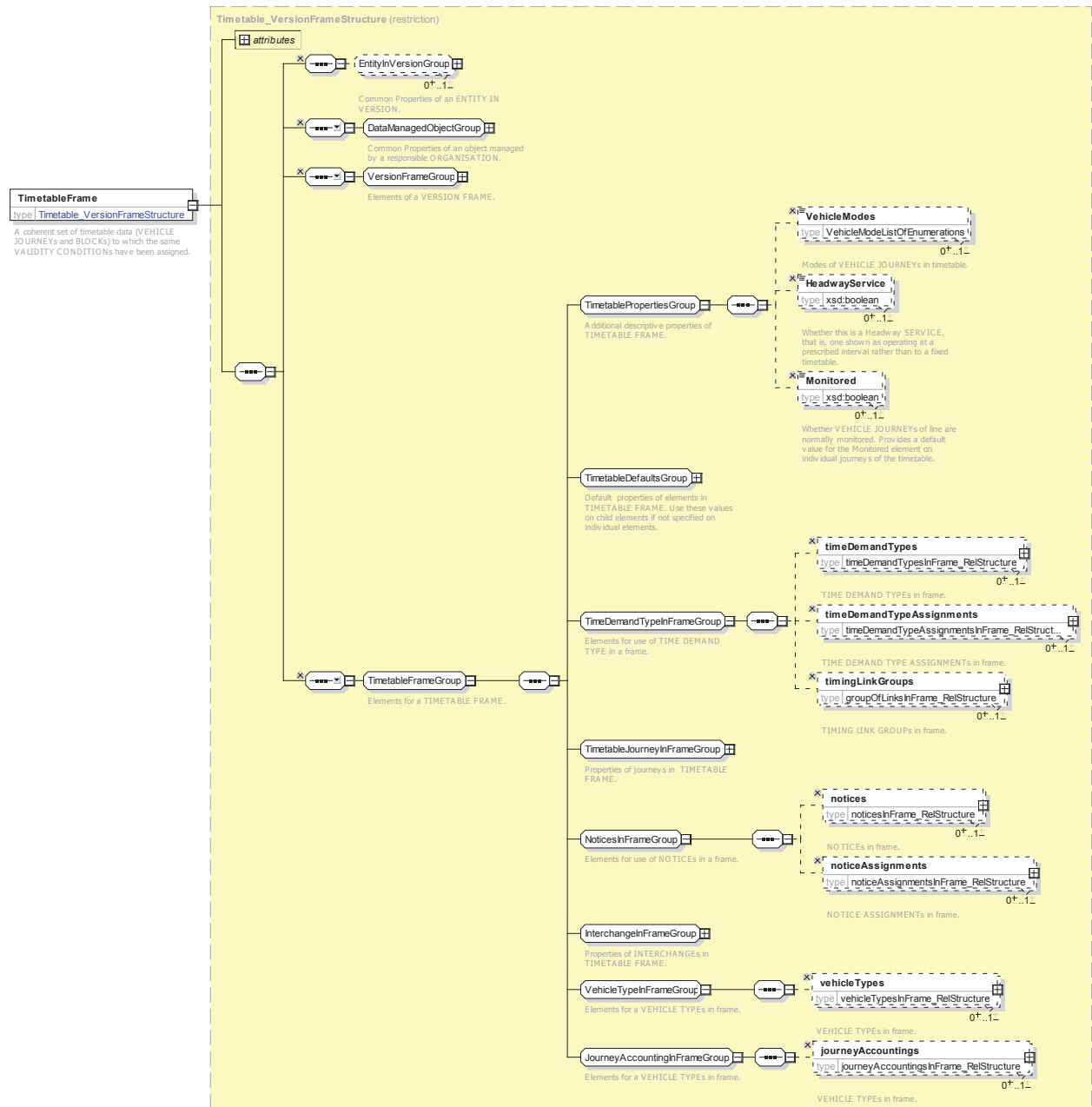


Figure 7 — *TimetableFrame* — XSD

7.3.1.4.1.1 TimetableDefaultsGroup – Model Group

The **TimetableDefaultsGroup** specifies default values that apply to all journeys in the TIMETABLE FRAME timetable unless explicitly overridden by a specific journey.

Table 2 – *TimetableDefaultsGroup* – Group

Classification	Name	Type	Cardinality	Description
«EV»	NetworkView	<i>NetworkView</i>	0:1	Reference to default NETWORK for TIMETABLE and derived values of NETWORK.
«EV»	LineView	<i>LineView</i>	0:1	Reference to default LINE for TIMETABLE and derived values of LINE.
«EV»	OperatorView	<i>OrganisationView</i>	0:1	Reference to default OPERATOR for TIMETABLE and derived values of OPERATOR.
«FK»	ServiceCalendar-FrameRef	<i>ServiceCalendarFrameRef</i>	0:1	Reference to default Service CALENDAR for TIMETABLE.
«enum»	DefaultMode	<i>VehicleModeEnum</i>	0:1	Reference to default Transport MODE for TIMETABLE. See Part 1 for allowed values.
«FK»	JourneyAccountingRef	<i>JourneyAccountingRef</i>	0:1*	Default JOURNEY ACCOUNTING values for JOURNEYS in frame.
«cntd»	bookingTimes	<u><i>AvailabilityCondition</i></u>	0:*	Times at which bookings can be made for the services in the Timetable.
«cntd»	AccessibilityAssessment	<u><i>AccessibilityAssessment</i></u>	0:1	Default ACCESSIBILITY ASSESSMENT to assume for journeys in frame. +v1.1
«FK»	VehicleTypeRef	<i>VehicleTypeRef</i>	0:1	Default ACCESSIBILITY ASSESSMENT to assume for journeys in frame. +V1.1



Figure 8 — *TimetableDefaultsGroup* — XSD

7.3.1.4.1.2 TimetableJourneyInFrameGroup – XML Group

The *TimetableJourneyInFrameGroup* specifies the journeys in the TIMETABLE.

Table 3 – *TimetableJourneyInFrameGroup* – Group

Classification	Name	Type	Cardinality	Description
«cntd»	<i>vehicleJourneys</i>	<i>Journey</i>	0:*	VEHICLE JOURNEYs & SERVICE JOURNEYs in the frame.
«cntd»	<i>frequencyGroups</i>	<i>FrequencyGroup</i>	0:*	FREQUENCY GROUPs in the frame.
«cntd»	<i>groupsOfServices</i>	<i>GroupOfServices</i>	0:*	GROUP OF SERVICEs in the frame.

Classification	Name	Type	Cardinality	Description
«cntd»	<i>trainNumbers</i>	<u><i>TrainNumber</i></u>	0:*	TRAIN NUMBERS in the frame.
«cntd»	<i>journeyPartCouples</i>	<u><i>JourneyPartCouple</i></u>	0:*	JOURNEY PART COUPLES in the frame.
«cntd»	<i>coupledJourneys</i>	<u><i>CoupledJourney</i></u>	0:*	COUPLED JOURNEYS in the frame.
«cntd»	<i>serviceFacilitySets</i>	<u><i>ServiceFacilitySet</i></u>	0:*	SERVICE FACILITY SETS in the frame.
«cntd»	<i>typesOfService</i>	<u><i>TypeOfService</i></u>	0:*	TYPES OF SERVICE in the frame.
«cntd»	<i>flexibleServiceProperties</i>	<u><i>FlexibleServiceProperties</i></u>	0:*	FLEXIBLE SERVICE PROPERTIES in the frame.



Figure 9 — *TimetableJourneyInFrameGroup* — XSD

7.3.1.4.1.3 InterchangeInFrameGroup – XML Group

The *InterchangeInFrameGroup* specifies the interchanges in the TIMETABLE.

Table 4 – *InterchangeInFrameGroup* – Group

Classification	Name	Type	Cardinality	Description
«cntd»	<i>journeyMeetings</i>	<i>JourneyMeeting</i>	0:*	JOURNEY MEETINGs in the frame.
«cntd»	<i>journeyInterchanges</i>	<i>Interchange</i>	0:*	INTERCHANGES in the frame.
«cntd»	<i>defaultInterchanges</i>	<i>DefaultInterchange</i>	0:*	DEFAULT INTERCHANGES in the frame.
«cntd»	<i>interchangeRules</i>	<i>InterchangeRule</i>	0:*	INTERCHANGE RULEs in the frame.

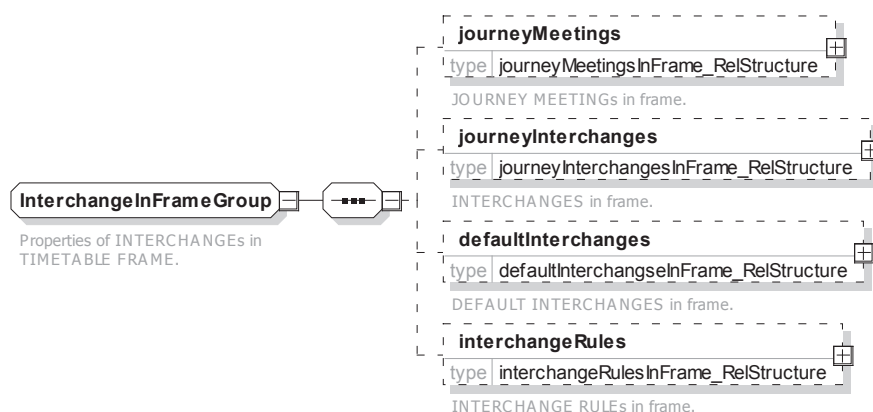


Figure 10 — *InterchangeInFrameGroup* — XSD

7.4 Journey and Journey Times

The JOURNEY and JOURNEY TIMES model exchanges planned services and dead runs and their timings.

7.4.1 Vehicle Journey

7.4.1.1 VEHICLE JOURNEY – Conceptual MODEL

NOTE The following explanations use excerpts from Transmodel.

The daily operation of a vehicle is described by VEHICLE JOURNEYS. A VEHICLE JOURNEY is the defined movement of a vehicle using a specified JOURNEY PATTERN on a particular ROUTE. This movement is hence made between the first and the last POINTs IN JOURNEY PATTERN. Being defined for a DAY TYPE, a VEHICLE JOURNEY is a class of journeys that would take place at the same time on each day of a specific DAY TYPE.

7.4.1.1.1 Basic Vehicle Journey – Conceptual MODEL

There are two different main types of VEHICLE JOURNEYS: passenger-carrying SERVICE JOURNEYS and non-service DEAD RUNs.

- A SERVICE JOURNEY is a VEHICLE JOURNEY on which passengers will be allowed to board or alight from vehicles at stops. These journeys are usually published and known by passengers.
- A DEAD RUN may be necessary for the vehicle to proceed, from the PARKING POINT it was parked at, to the first STOP POINT of the JOURNEY PATTERN where it will start its service operation. On the opposite direction, a DEAD RUN may relate the last STOP POINT the vehicle has stopped at (finishing its service) to the PARKING POINT where it will be parked. A DEAD RUN may also occur when a vehicle changes from one ROUTE to another one in order to continue its service there, or for other various reasons.

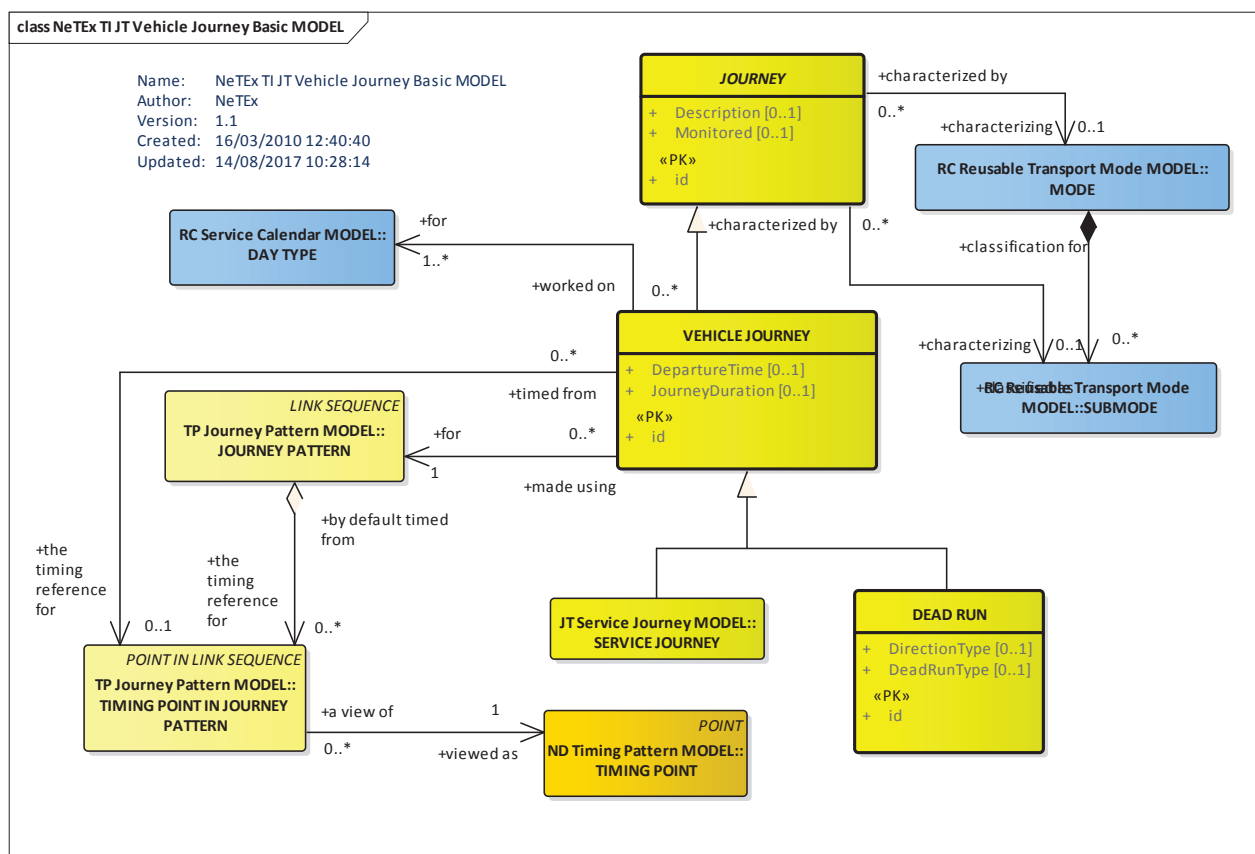


Figure 11 — Basic Vehicle Journey – Conceptual MODEL (UML)

7.4.1.1.2 Vehicle Journey Details – Conceptual MODEL

A VEHICLE JOURNEY may be further defined by a number of other elements, as shown in the following figure. These include interactions with other journeys (JOURNEY PART, JOURNEY MEETING, etc.); temporal and other conditions (DAY TYPE, VALIDITY CONDITION); further descriptive and classification information (TRAIN NUMBER, PRODUCT CATEGORY, TYPE OF SERVICE, stops etc.); and operational data (BLOCK).

A TEMPLATE JOURNEY allows a set of VEHICLE JOURNEYS to be defined that follow a common temporal pattern – See FREQUENCY GROUPS below.

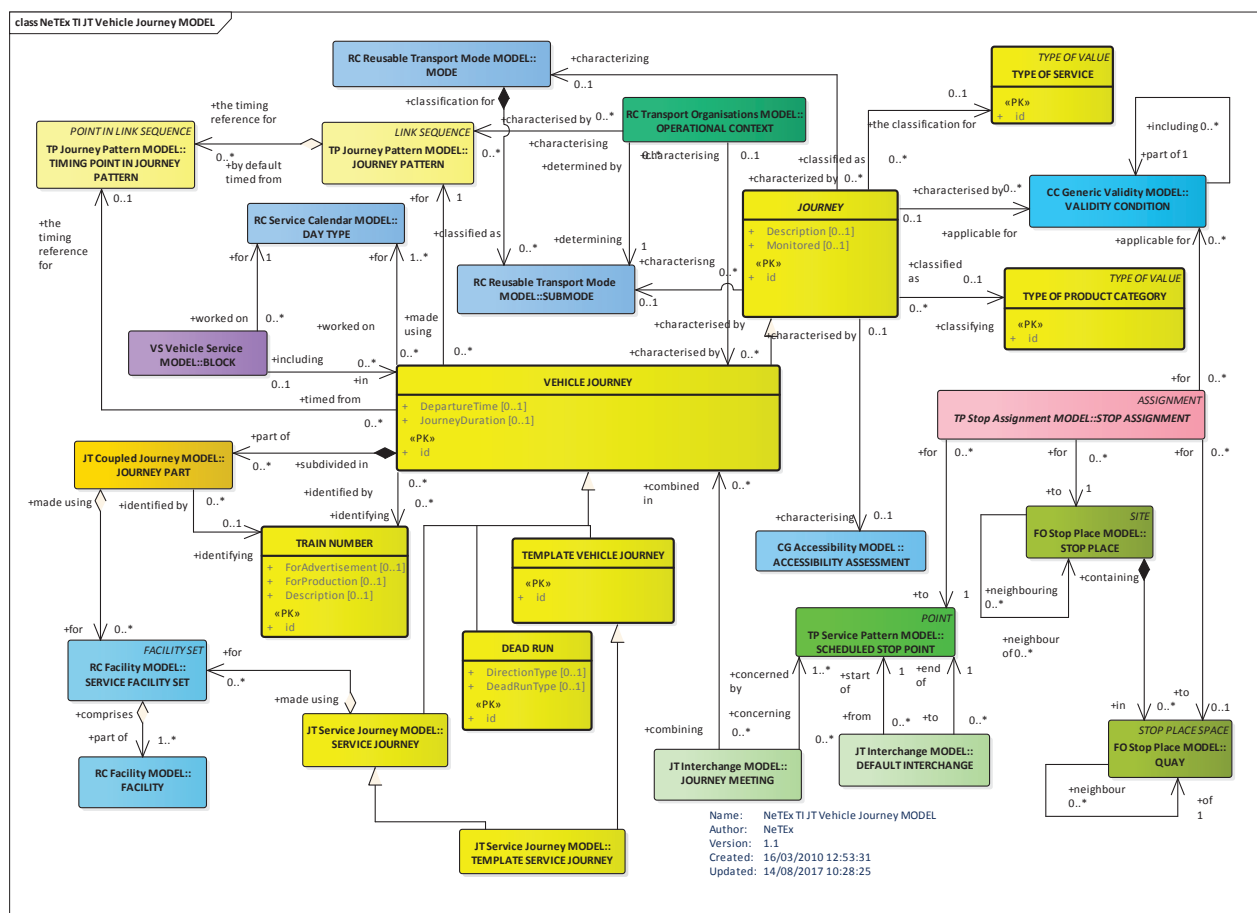


Figure 12 — Vehicle Journey – Conceptual MODEL (UML)

7.4.1.2 Vehicle Journey – Physical Model

7.4.1.2.1 Journey – Physical Model

The JOURNEY physical model describes common properties of all types of JOURNEY.

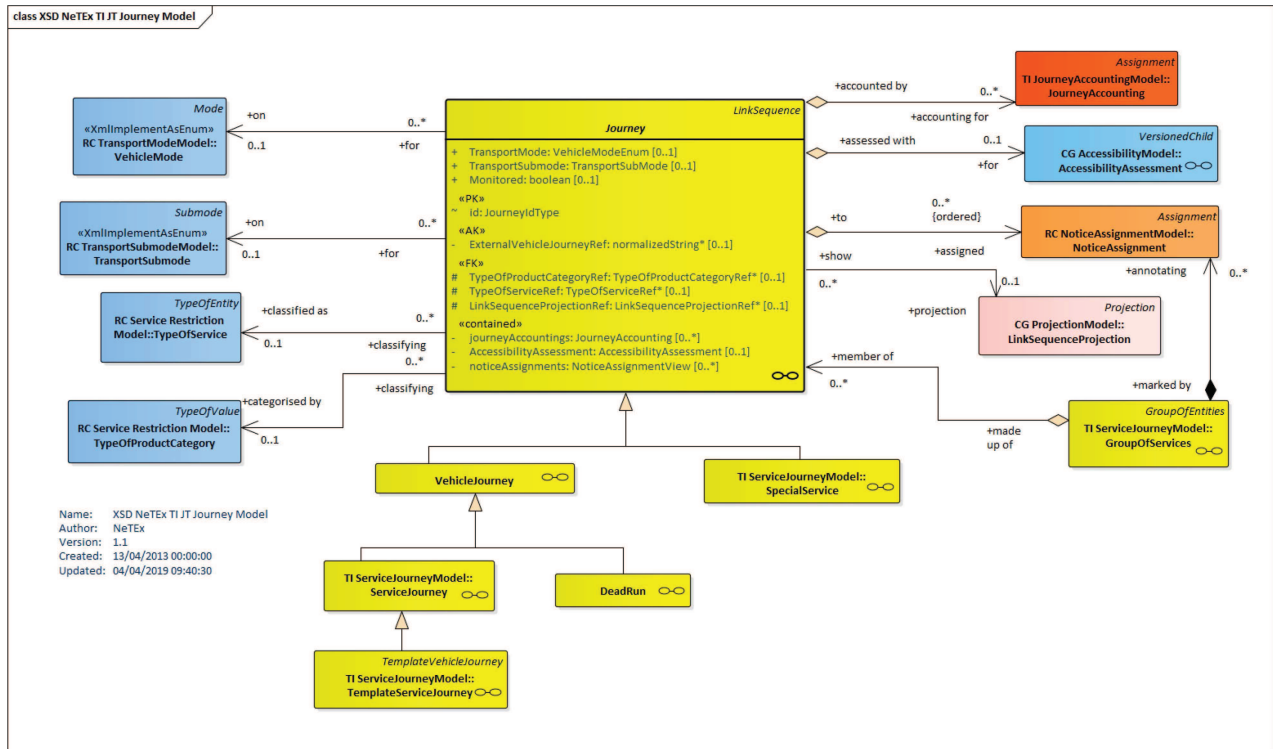


Figure 13 —Journey - Journey MODEL (UML)

7.4.1.2.2 Vehicle Journey Details – Physical Model

The VEHICLE JOURNEY physical model adds detailed attributes for VEHICLE JOURNEYS.

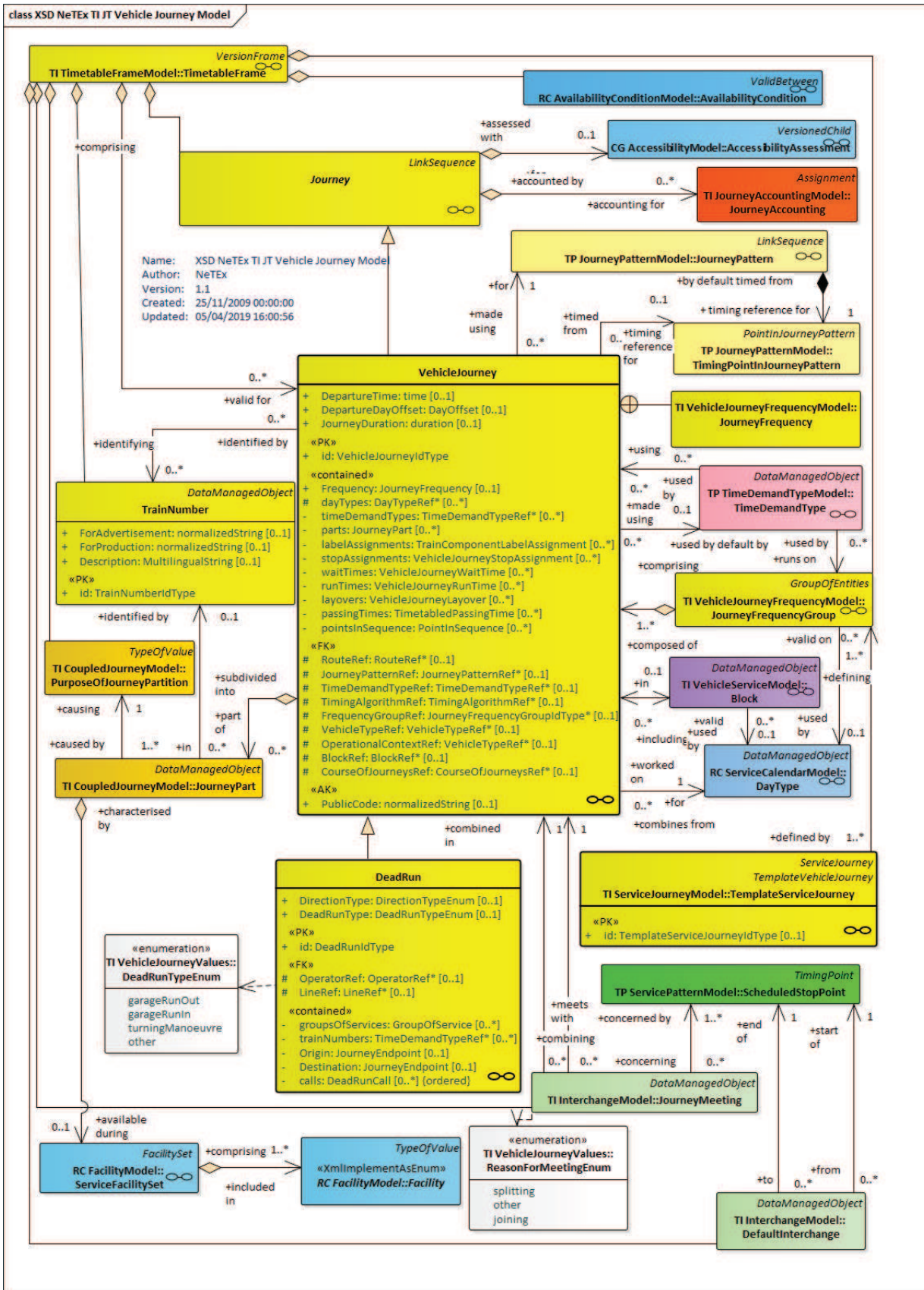


Figure 14 — Vehicle Journey - Physical Model (UML)

7.4.1.2.3 Journey Identification – Physical Model

Sometimes it is useful to be able to reference a service journey without specifying an identifier. A *JourneyDesignator* allows a JOURNEY to be identified using a combination of attributes.

For example, “the SNCF operated Train that arrives in Paris from Lyon at 16:52”

A particular case in point is to arrange interchange between services on two different networks that are not privy to each other’s service identifiers or TRAIN NUMBERS.

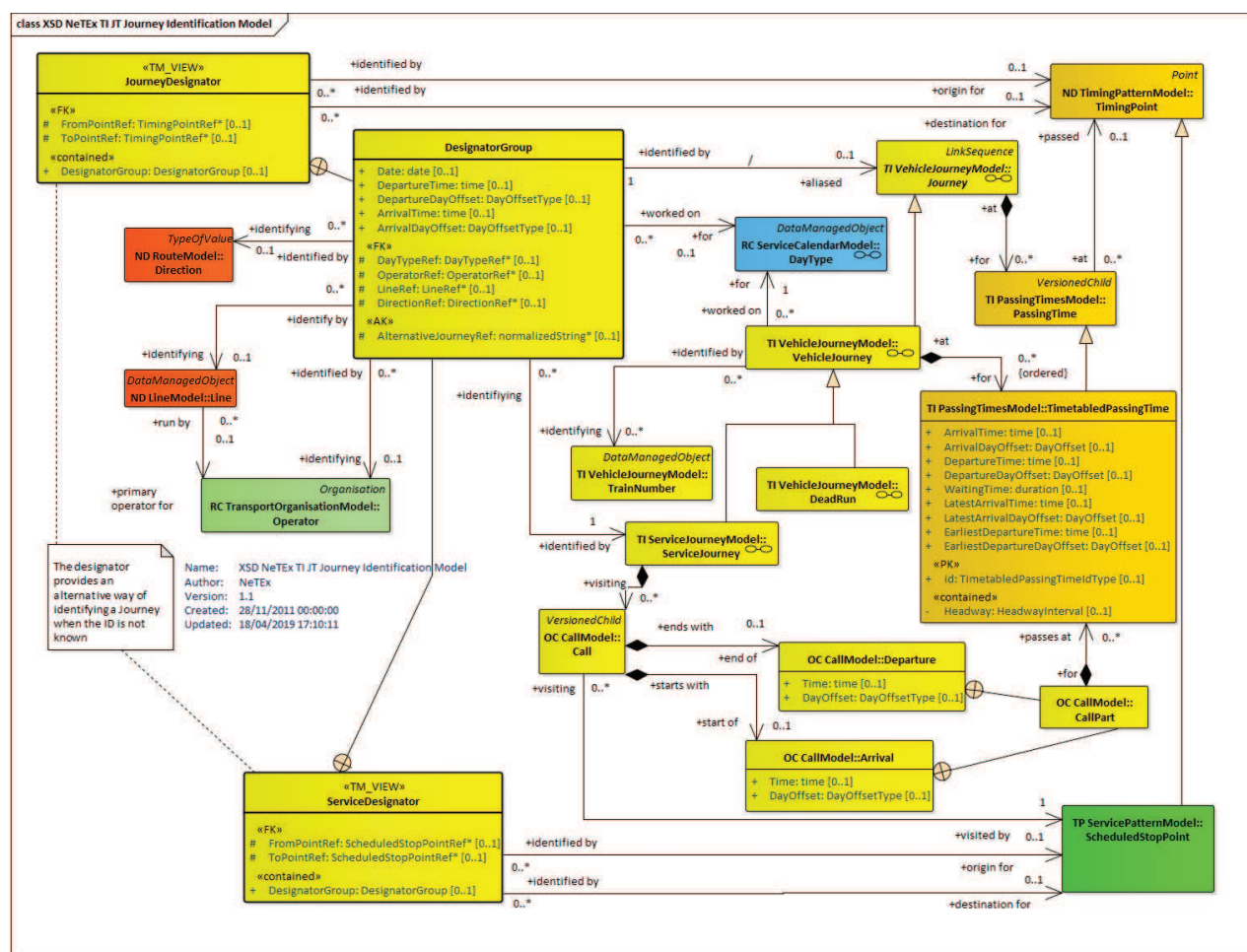


Figure 15 — Journey Identification – Physical Model (UML)

7.4.1.3 Vehicle Journey – Attributes and XSD

7.4.1.3.1 Journey – Model Element

JOURNEY defines common properties of a journey, such as TYPE OF SERVICE, JOURNEY ACCOUNTING, etc.

Table 5 – Journey – Element

Classification	Name	Type	Cardinality	Description
::>	::>	<u>LinkSequence</u>	::>	JOURNEY inherits from LINK SEQUENCE.
«PK»	id	<i>JourneyIdType</i>	1:1	Identifier of JOURNEY.
	Description	<i>MultilingualString</i>	0:1	Description of JOURNEY.
«enum»	TransportMode	<i>VehicleMode</i>	0:1	Transport MODE of JOURNEY. See Part 1.
«enum»	TransportSubmode	<i>TransportSubmode</i>	0:1	Transport Sub MODE of JOURNEY. See Part 1 for allowed values.
«AK»	ExternalJourneyRef	<i>ExternalObjectRef</i>	0:1	An alternative code that uniquely identifies the JOURNEY, specifically for use in AVMS systems. NOTE For VDV compatibility.
«FK»	TypeOfProductCategoryRef	<i>TypeOfProductCategoryRef</i>	0:1	PRODUCT CATEGORY of a JOURNEY. See Part 1.
«FK»	TypeOfServiceRef	<i>TypeOfServiceRef</i>	0:1	TYPE OF SERVICE of JOURNEY. See Part 1.
«FK»	a LinkSequenceProjectionRef	<i>LinkSequenceProjectionRef</i>	0:1	Reference to LINK SEQUENCE PROJECTION to use to project JOURNEY onto map, etc.
«cntd»	b LinkSequenceProjection	<i>LinkSequenceProjection</i>	0:1	LINK SEQUENCE PROJECTION to use to project JOURNEY onto map, etc.
	Monitored	<i>xsd:boolean</i>	0:1	Whether the JOURNEY will be monitored in real time.
«cntd»	AccessibilityAssessment	<u>AccessibilityAssessment</u>	0:1	ACCESSIBILITY ASSESSMENT that applies to JOURNEY.
«cntd»	journeyAccountings	<u>JourneyAccounting</u>	0:*	JOURNEY ACCOUNTINGS that apply to JOURNEY.
«cntd»	noticeAssignments	<u>NoticeAssignment</u>	0:*	NOTICES relevant for the JOURNEY.

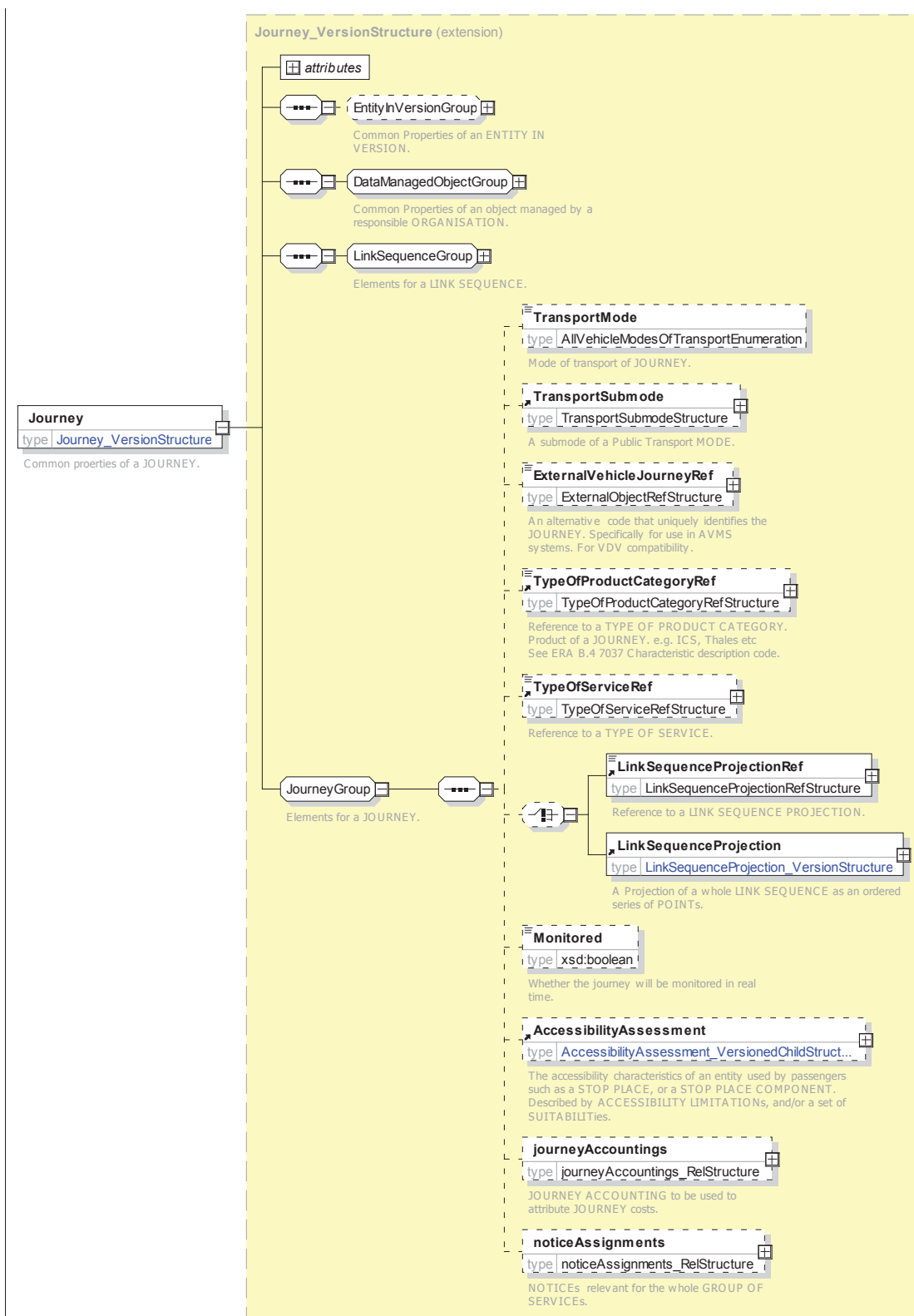


Figure 16 — Journey — XSD

7.4.1.3.2 VehicleJourney – Model Element

The planned movement of a public transport vehicle on a DAY TYPE from the start point to the end point of a JOURNEY PATTERN on a specified ROUTE.

Table 6 – *VehicleJourney* – Element

Classifi- cation	Name	Type	Cardi- nality	Description
::>	::>	<i>Journey</i>	::>	VEHICLE JOURNEY inherits from JOURNEY.
«PK»	<i>id</i>	<i>VehicleJourney IdType</i>	1:1	Identifier of VEHICLE JOURNEY.
	<i>DepartureTime</i>	<i>xsd:time</i>	1:1	Departure time of VEHICLE JOURNEY.
	<i>DepartureDayOff- set</i>	<i>DayOffsetType</i>	0:1	Day offset if day of departure time of VEHICLE JOURNEY differs from the current OPERATING DAY. +V1.1
«cntd»	<i>Frequency</i>	<i>FrequencyStructure</i>	0:1	Frequency of VEHICLE JOURNEY.
	<i>JourneyDuration</i>	<i>xsd:duration</i>	0:1	Duration of VEHICLE JOURNEY.
XGRP	<i>VehicleJourneyRef- erencesGroup</i>	<i>xmlGroup</i>	0:1	References to other entities relevant for specifying a VEHICLE JOURNEY.
XGRP	<i>VehicleJourney- PartsesGroup</i>	<i>xmlGroup</i>	0:1	JOURNEY PARTs of a VEHICLE JOURNEY.
XGRP	<i>VehicleJourney- TimesGroup</i>	<i>xmlGroup</i>	0:1	Timing elements for a VEHICLE JOURNEY.

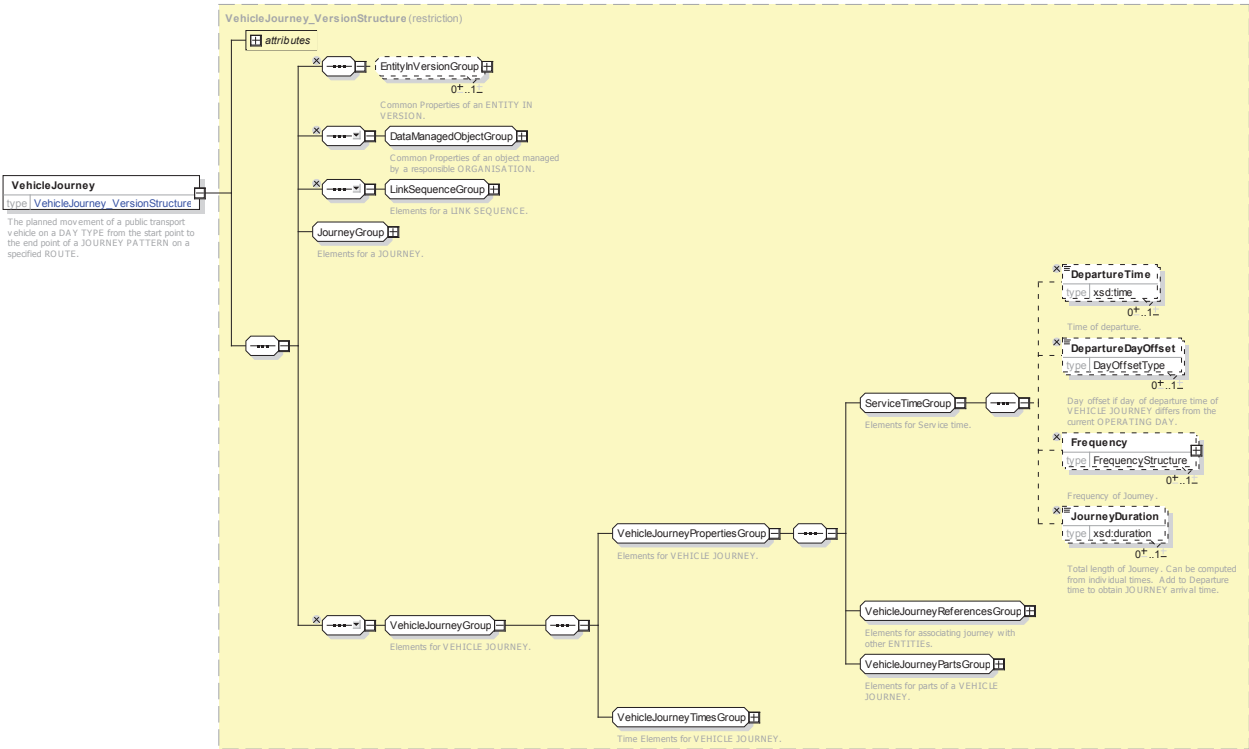


Figure 17 — *VehicleJourney* — XSD

7.4.1.3.2.1 VehicleJourneyReferencesGroup – XML Group

Table 7 – VehicleJourneyReferencesGroup – Group

Classification	Name	Type	Cardinality	Description
«cntd»	dayTypes	<i>DayTypeRef</i>	1:*	Reference to DAY TYPE on which VEHICLE JOURNEY runs.
«FK»	RouteRef	<i>RouteRef</i>	0:1	Reference to ROUTE on which VEHICLE JOURNEY runs.
«FK»	JourneyPatternRef	<i>JourneyPatternRef</i>	0:1	Reference to JOURNEY PATTERN over which VEHICLE JOURNEY runs.
«FK»	TimeDemandRef	<i>TimeDemandTypeRef</i>	0:1	Reference to TIME DEMAND TYPE during which VEHICLE JOURNEY starts.
«FK»	TimingAlgorithmRef	<i>TimingAlgorithmRef</i>	0:1	Reference to TIMING ALGORITHM to use to compute passing times for VEHICLE JOURNEY.
«FK»	JourneyFrequencyGroupRef	<i>JourneyFrequencyGroupRef</i>	0:1	FREQUENCY GROUP of VEHICLE JOURNEY.
«FK»	VehicleTypeRef	<i>VehicleTypeRef</i>	0:1	Reference to VEHICLE TYPE which VEHICLE JOURNEY runs.
«FK»	OperationalContextRef	<i>OperationalContextRef</i>	0:1	Reference to OPERATIONAL CONTEXT in which VEHICLE JOURNEY runs.
«FK»	BlockRef	<i>BlockRef</i>	0:1	Reference to BLOCK under which VEHICLE JOURNEY runs.
«FK»	CourseOfJourneysRef	<i>CourseOfJourneysRef</i>	0:1	Reference to COURSE OF JOURNEYS under which VEHICLE JOURNEY runs.
«AK»	PublicCode	<i>xsd:normalizedString</i>	0:1	Public Code for VEHICLE JOURNEY.



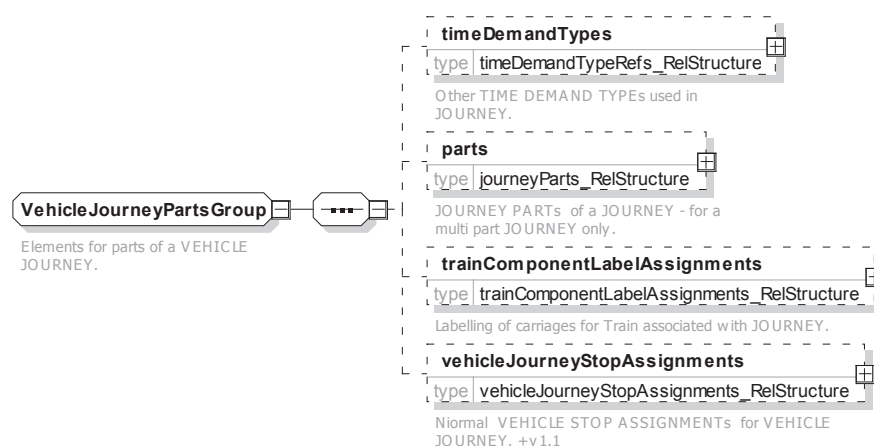
Figure 18 — *VehicleJourneyReferencesGroup* — XSD

7.4.1.3.3 *VehicleJourneyPartsGroup* – XML Group

Elements specifying related components for a VEHICLE JOURNEY.

Table 8 – *VehicleJourneyPartsGroup* – Group

Classification	Name	Type	Cardinality	Description
«cntd»	<i>timeDemandTypes</i>	<i>TimeDemandTypeRef</i>	0:*	TIME DEMAND TYPEs referenced by VEHICLE JOURNEY.
«cntd»	<i>parts</i>	<i>JourneyPart</i>	0:*	JOURNEY PARTs for VEHICLE JOURNEY.
«cntd»	<i>trainComponentLabelAssignments</i>	<i>TrainComponentLabelAssignment</i>	0:*	TRAIN COMPONENT LABEL ASSIGNMENTs for VEHICLE JOURNEY.
«cntd»	<i>vehicleJourneyStopAssignments</i>	<i>VehicleJourneyStopAssignment</i>	0:*	VEHICLE JOURNEY STOP ASSIGNMENTs for VEHICLE JOURNEY.

Figure 19 — *VehicleJourneyPartsGroup* — XSD7.4.1.3.3.1 *VehicleJourneyTimesGroup* – XML Group

Elements specifying timings for VEHICLE JOURNEY.

Table 9 – *VehicleJourneyTimesGroup* – Group

Classification	Name	Type	Cardinality	Description
«cntd»	<i>waitTimes</i>	<i>VehicleJourneyWaitTime</i>	0:*	WAIT TIMEs for VEHICLE JOURNEY.
«cntd»	<i>runTimes</i>	<i>VehicleJourneyRunTime</i>	0:*	RUN TIMEs for VEHICLE JOURNEY.
«cntd»	<i>layovers</i>	<i>VehicleJourneyLayoverTime</i>	0:*	VEHICLE JOURNEY LAYOVERs for VEHICLE JOURNEY.
«cntd»	<i>passingTimes</i>	<i>TimetabledPassingTime</i>	0:*	TIMETABLED PASSING TIMEs for VEHICLE JOURNEY.

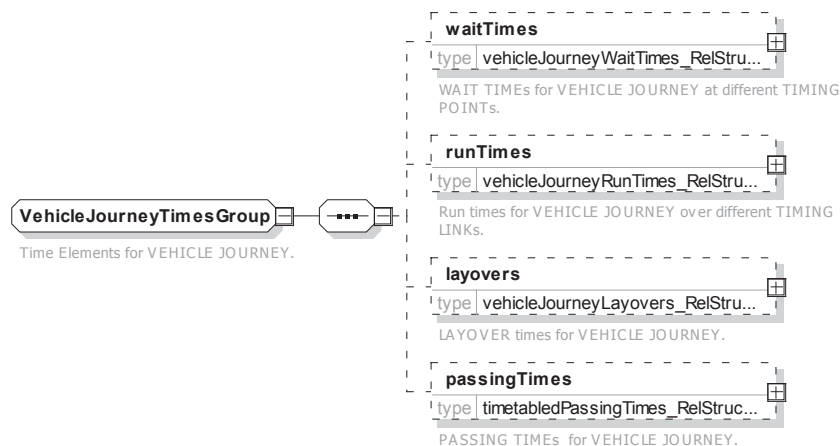


Figure 20 — *VehicleJourneyTimesGroup* — XSD

7.4.1.3.4 DeadRun – Model Element

A non-service VEHICLE JOURNEY (i.e. to position a vehicle to start a service or return it to the depot after service.).

Table 10 – *DeadRun* – Element

Classification	Name	Type	Cardinality	Description
::>	::>	<u>VehicleJourney</u>	::>	DEAD RUN inherits from VEHICLE JOURNEY.
«PK»	id	<i>DeadRunIdType</i>	1:1	Identifier of DEAD RUN.
«EV»	OperatorRef	<i>OperatorRef</i>	0:1	Reference to OPERATOR of DEAD RUN.
«EV»	LineRef	<i>LineRef+</i>	0:1	Reference to LINE of DEAD RUN.
«enum»	DirectionType	<i>DirectionType</i>	0:1	Type of DIRECTION. See Part 1 for allowed values.
«cntd»	groupsOfServices	<i>GroupOfServicesRef</i>	0:*	GROUP OF SERVICES to which DEAD RUN belongs.
«cntd»	trainNumbers	<u>TrainNumber</u>	0:*	TRAIN NUMBERS associated with DEAD RUN.
«cntd»	Origin	<u>DeadRunEndpoint</u>	0:1	Origin of DEAD RUN.
«cntd»	Destination	<u>DeadRunEndpoint</u>	0:1	Destination of DEAD RUN.
«enum»	DeadRunType	<i>DeadRunType</i>	1:1	Type of DEAD RUN. See allowed values below
«cntd»	calls	<u>DeadRunCall</u>	0:*	CALLs making up DEAD RUN.

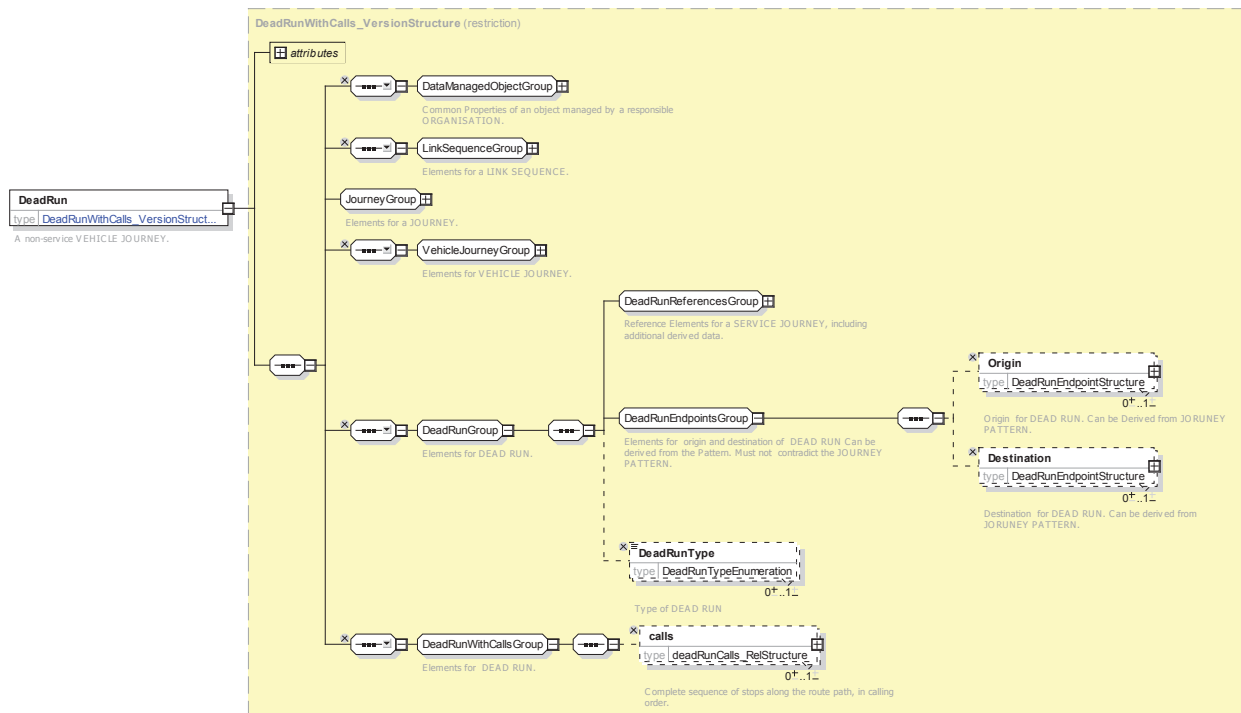


Figure 21 — *DeadRun* — XSD

7.4.1.3.4.1 *DeadRunReferencesGroup* – XML Group

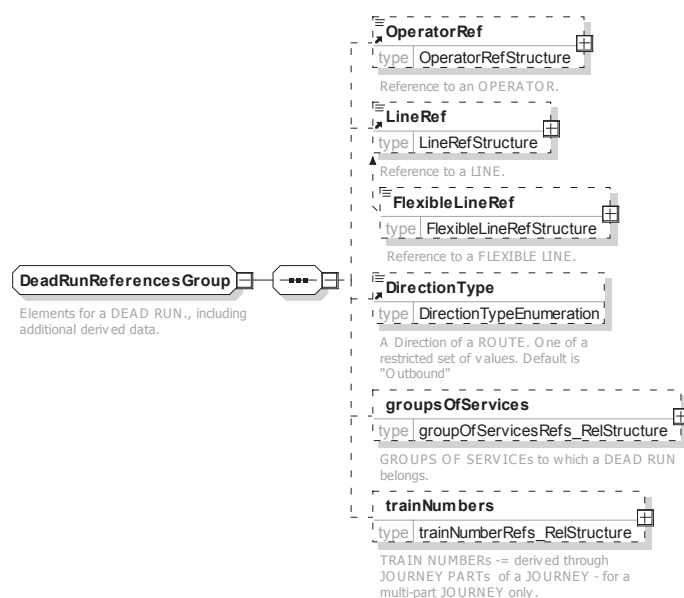


Figure 22 — *DeadRunReferencesGroup* — XSD

7.4.1.3.4.1 DeadRunType – Allowed values

The following figure shows the allowed values for *DeadRunType* (*DeadRunTypeEnumeration*).

Table 11 – *DeadRunType* – Allowed values

Value	Description		
<i>garageRunOut</i>	Garage run out	<i>turningManoeuvre</i>	Turning manoeuvre
<i>garageRunIn</i>	Garage run in	<i>other</i>	Other

7.4.1.3.5 DeadRunEndPoint – Model Element

Elements for origin and destination of DEAD RUN can be derived from the Pattern. Shall not contradict the JOURNEY PATTERN.

Table 12 – *DeadRunEndPoint* – Structure

Classification	Name	Type	Cardinality	Description
«EV»	<i>PointRef</i>	<i>PointRef</i>	0:1	Reference to POINT at end of DEAD RUN.
«EV»	<i>TypeOfPointRef</i>	<i>TypeOfPointRef</i>	0:1	Reference to TYPE OF POINT of POINT at end of DEAD RUN.

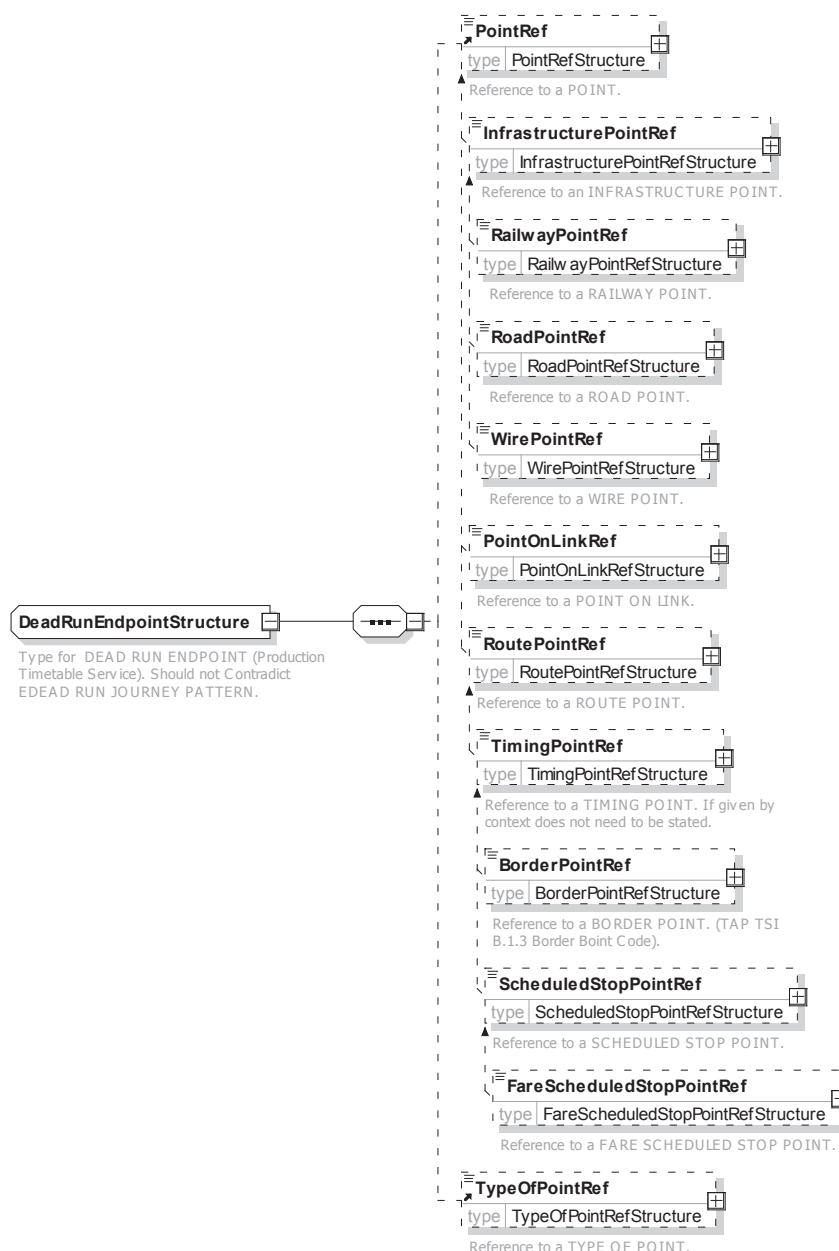


Figure 23 — *DeadRunEndPoint* — XSD

7.4.1.3.6 TemplateVehicleJourney - Model Element

A repeating VEHICLE JOURNEY for which a frequency has been specified, either as a HEADWAY JOURNEY GROUP (e.g. every 20 minutes) or a RHYTHMICAL JOURNEY GROUP (e.g. at 15, 27 and 40 minutes past the hour). It may thus represent multiple journeys or it could also be used simply as a template for adding single extra DATED VEHICLE JOURNEYS after the planning phase.

The frequency of the journey could be defined by a FREQUENCY GROUP. *See later.*

The TEMPLATE VEHICLE JOURNEY of a RHYTHMICAL JOURNEY GROUP needs passing times, where only the minute part is meaningful (passing times are repeated every hour with the same minutes), therefore the hour part of passing times will be ignored (a "00" value is recommended)

Table 13 – *TemplateVehicleJourney* – Element

Classification	Name	Type	Cardinality	Description
::>	::>	<i>Journey</i>	::>	TEMPLATE VEHICLE JOURNEY inherits from JOURNEY.
«PK»	<i>id</i>	<i>TemplateVehicleJourney-IdType</i>	0:1	Identifier of TEMPLATE VEHICLE JOURNEY.
«enum»	<i>TemplateVehicleJourneyType</i>	<i>TemplateVehicleJourneyType</i>	0:1	Type of TEMPLATE VEHICLE JOURNEY. See allowed values below.
«cntd»	<i>frequencyGroups</i>	<i>(JourneyFrequencyGroup)</i>	0:*	FREQUENCY GROUPs defining TEMPLATE VEHICLE JOURNEY.
«FK»	<i>a</i> <i>HeadwayJourneyGroupRef</i>	<i>HeadwayJourneyGroupRef</i>	0:1	Reference to a HEADWAY JOURNEY GROUP element specifying headway for service.
«cntd»	<i>b</i> <i>HeadwayJourneyGroup</i>	<i>HeadwayJourneyGroup</i>	0:1	HEADWAY JOURNEY GROUP element specifying headway for service.
«FK»	<i>c</i> <i>RhythmicalJourneyGroupRef</i>	<i>RhythmicalJourneyGroupRef</i>	0:1	Reference to a RHYTHMICAL JOURNEY GROUP element specifying times past the hour for service departures.
«cntd»	<i>d</i> <i>RhythmicalJourneyGroup</i>	<i>RhythmicalJourneyGroup</i>	0:1	RHYTHMICAL JOURNEY GROUP element specifying times past the hour for service departures.

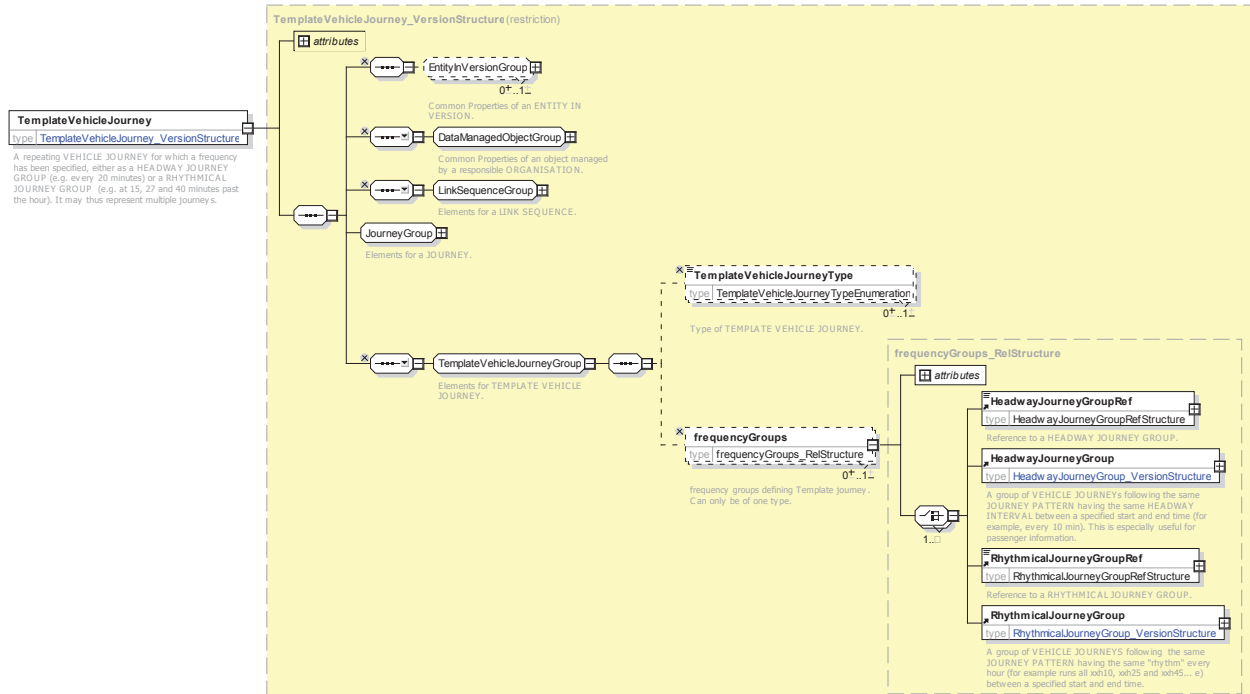


Figure 24 — *TemplateVehicleJourney* — XSD

7.4.1.3.6.1 TemplateVehicleJourneyType – Allowed values

The following table shows the allowed values for **TemplateVehicleJourneyType** (*TemplateVehicleJourneyType*).

Table 14 – TemplateVehicleJourneyType – Allowed values

Value	Description
<i>headway</i>	Journeys run at intervals
<i>rhythmic</i>	Journeys run according to a pattern of start times, e.g. at 10, 32 and 49 minutes past the hour.
<i>other</i>	Other

7.4.1.3.7 TrainNumber – Model Element

Specification of codes assigned to particular VEHICLE JOURNEYS when operated by TRAINs of COMPOUND TRAINs according to a functional purpose (passenger information, operation follow-up, etc.).

Table 15 – TrainNumber – Element

Classification	Name	Type	Cardinality	Description
::>	::>	<u>DataManagedObject</u>	::>	TRAIN NUMBER inherits from DATA MANAGED OBJECT
«PK»	id	<i>TrainNumberIdType</i>	1:1	Identifier of TRAIN NUMBER.
	Description	<i>MultilingualString</i>	0:1	Description of TRAIN NUMBER.
	ForAdvertisement	<i>xsd:normalizedString</i>	0:1	TRAIN NUMBER to use for advertisement to public if different from ID.
	ForProduction	<i>xsd:normalizedString</i>	0:1	TRAIN NUMBER to use for production purposes, for instance towards technical systems that require an odd or even value according to safety regulations, if different from ID.

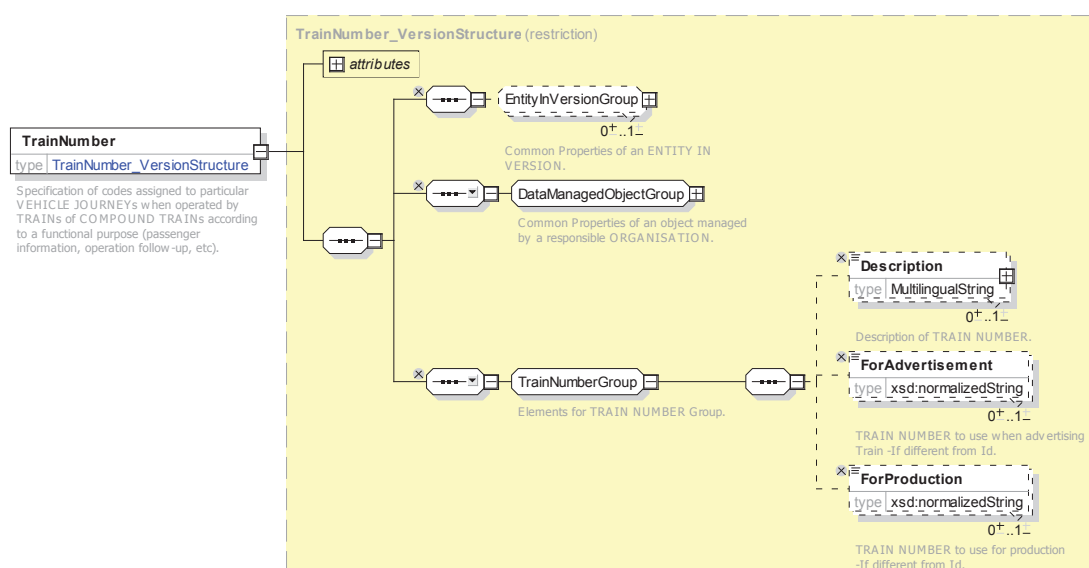


Figure 25 — *TrainNumber* — XSD

7.4.1.3.8 JourneyDesignator – Model Element

A set of descriptive attributes of a JOURNEY between any two TIMING POINTs that may be used to identify it by value, for example “10:22 from Kings Cross”. This is of use in particular when describing journeys from a foreign system for which the identifiers are not known.

Table 16 – *JourneyDesignator* – Element

Classification	Name	Type	Cardinality	Description
«FK»	FromPointRef	<i>TimingPointRef+</i>	0:1	Origin TIMING POINT to use to identify a JOURNEY. May also be a SCHEDULED STOP POINT..
«FK»	ToPointRef	<i>TimingPointRef+</i>	0:1	Destination TIMING POINT to use to identify JOURNEY.
XGRP	DesignatorGroup	<u><i>xmlGroup</i></u>	0:1	Common Designator elements.

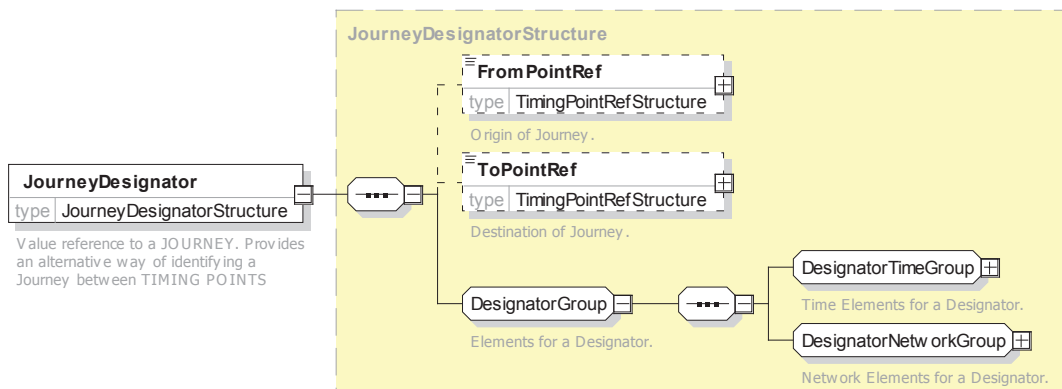


Figure 26 — *JourneyDesignator* — XSD

7.4.1.3.9 DesignatorGroup – XML Group

Time and network elements that can be used to identify a JOURNEY by value.

Table 17 – *DesignatorGroup* – Group

Classification	Name	Type	Cardinality	Description
	Date	<i>xsd:date</i>	0:1	Departure date of VEHICLE JOURNEY from origin point.
	DepartureTime	<i>xsd:time</i>	0:1	Departure time of VEHICLE JOURNEY from origin point.
	DepartureDayOffset	<i>DayOffsetType</i>	0:1	Departure day offset from current OPERATING DAY of VEHICLE JOURNEY from origin point.
	ArrivalTime	<i>xsd:time</i>	0:1	Arrival time of VEHICLE JOURNEY at destination point.

Classification	Name	Type	Cardinality	Description
	ArrivalDayOffset	<i>ArrivalOffsetType</i>	0:1	Arrival day offset from current OPERATING DAY of VEHICLE JOURNEY from origin point.
«FK»	DayTypeRef	<i>DayTypeRef</i>	0:1	DAY TYPE to use to identify JOURNEY.
«FK»	TransportOperatorRef	<i>(TransportOrganisationRef) OperatorRef / AuthorityRef</i>	0:1	OPERATOR or AUTHORITY to use to identify JOURNEY. +v1.1
«FK»	LineRef	<i>LineRef</i>	0:1	LINE to use to identify JOURNEY.
«FK»	DirectionRef	<i>DirectionRef</i>	0:1	DIRECTION to use to identify JOURNEY.
«AK»	AlternativeJourneyRef	<i>xsd:normalizedString</i>	0:1	Alternative identifier of JOURNEY. May possibly be unique only in a limited context.

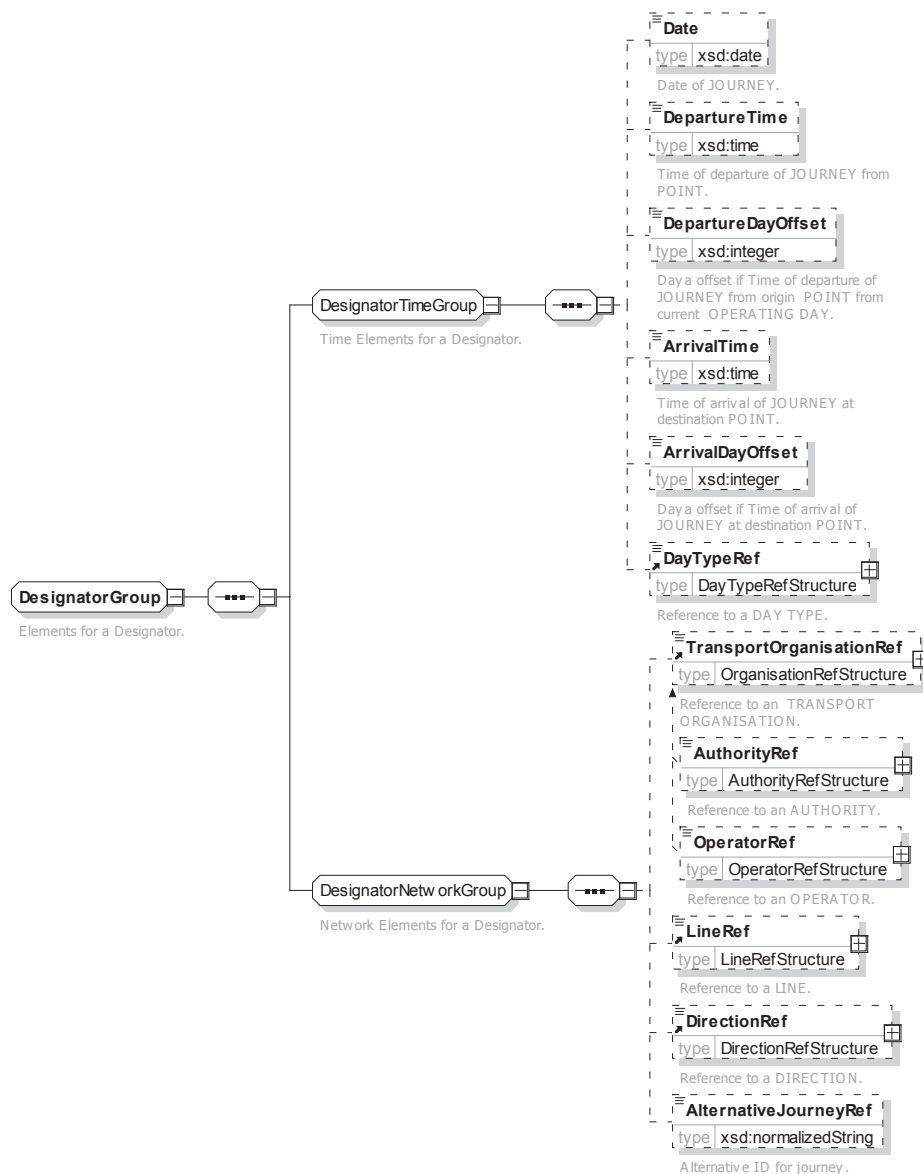


Figure 27 — *DesignatorGroup* — XSD

7.4.1.4 XML Examples of Vehicle Journey

See SERVICE JOURNEY for examples of a VEHICLE JOURNEY.

7.4.1.4.1 Dead Run XML Example with passing times and calls

The following code fragment shows a DEAD RUN to position a vehicle at the first stop of a service.

For EXAMPLE

```
<DeadRun version="any" id="xj:dr_L24_01o">
  <Name>1st Dead Run out from Garage in Day service</Name>
  <DepartureTime>11:00:00.0Z</DepartureTime>
  <dayTypes>
    <DayTypeRef version="any" ref="xj:DT_01"/>
  </dayTypes>
  <RouteRef version="any" ref="kx:rt_24o"/>
  <DeadRunJourneyPatternRef version="any" ref="kx:drjp_L24_01o"/>
  <BlockRef version="any" ref="ops:blk_L24_01"/>
  <passingTimes>
    <TimetabledPassingTime id="kx:tpt_dr_L24_01o_001">
      <TimingPointInJourneyPatternRef version="any" ref="kx:pjip_drjp_L24_01o_001"/>
      <DepartureTime>11:00:00.0Z</DepartureTime>
    </TimetabledPassingTime>
    <TimetabledPassingTime id="kx:tpt_dr_L24_01o_002">
      <StopPointInJourneyPatternRef version="any" ref="kx:pjip_drjp_L24_01o_002"/>
      <ArrivalTime>11:10:00.0Z</ArrivalTime>
      <WaitingTime>PT5M</WaitingTime>
    </TimetabledPassingTime>
  </passingTimes>
  <DirectionType>outbound</DirectionType>
  <Origin>
    <PointRef version="any" ref="mybus:grgpt1"/>
  </Origin>
  <Destination>
    <PointRef version="any" ref="mybus:ssp_001"/>
  </Destination>
  <DeadRunType>garageRunOut</DeadRunType>
</DeadRun>
```

7.4.2 Vehicle Journey Assignment

7.4.2.1 Vehicle Journey Assignment – Conceptual MODEL

Sometimes it is necessary to specify specific information about the use of a stop for a specific VEHICLE JOURNEY.

7.4.2.1.1 VEHICLE JOURNEY STOP ASSIGNMENT – Conceptual MODEL

The VEHICLE JOURNEY STOP ASSIGNMENT specifies changes to a PASSENGER STOP ASSIGNMENT for a specific VEHICLE JOURNEY.

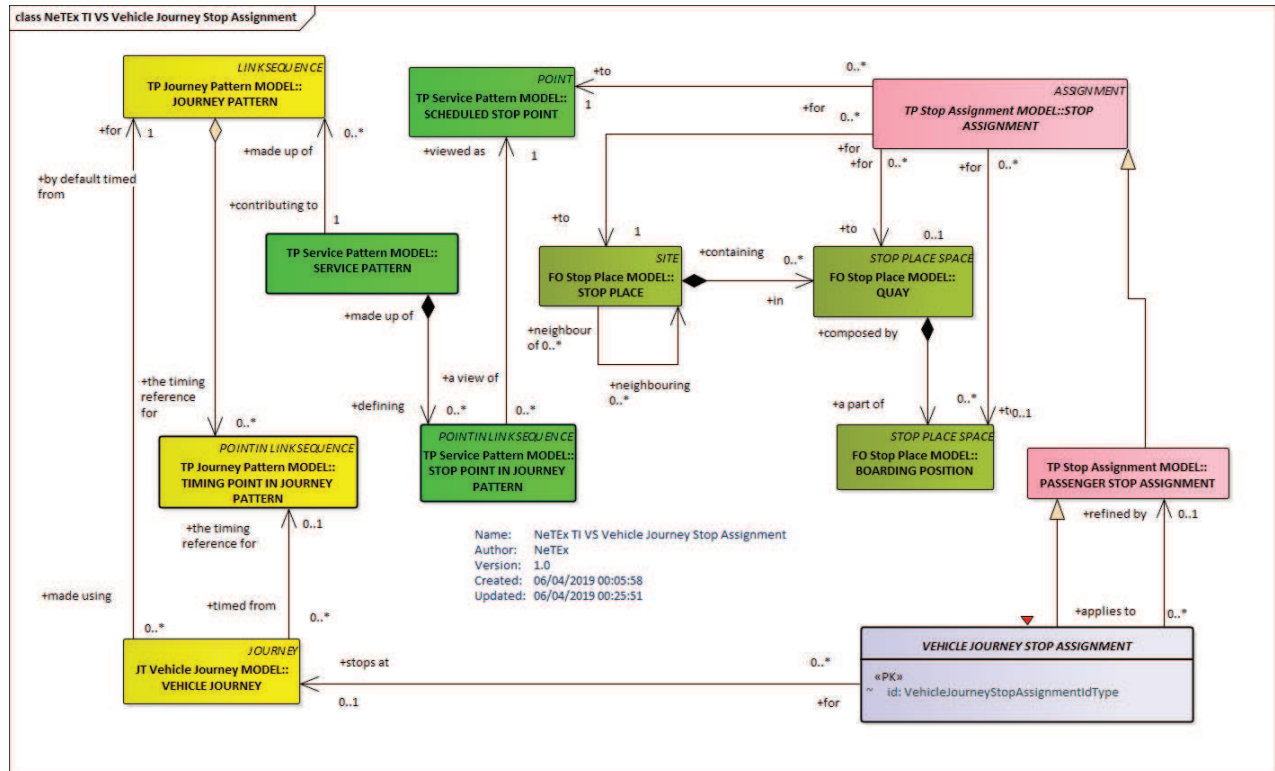


Figure 28 — Vehicle Journey Stop Assignment – Conceptual MODEL (UML)

7.4.2.1.2 VEHICLE TYPE STOP ASSIGNMENT – Conceptual MODEL

The VEHICLE TYPE STOP ASSIGNMENT element specifies the allocation of a stopping position of a VEHICLE TYPE for a particular VEHICLE JOURNEY and./or VEHICLE TYPE.

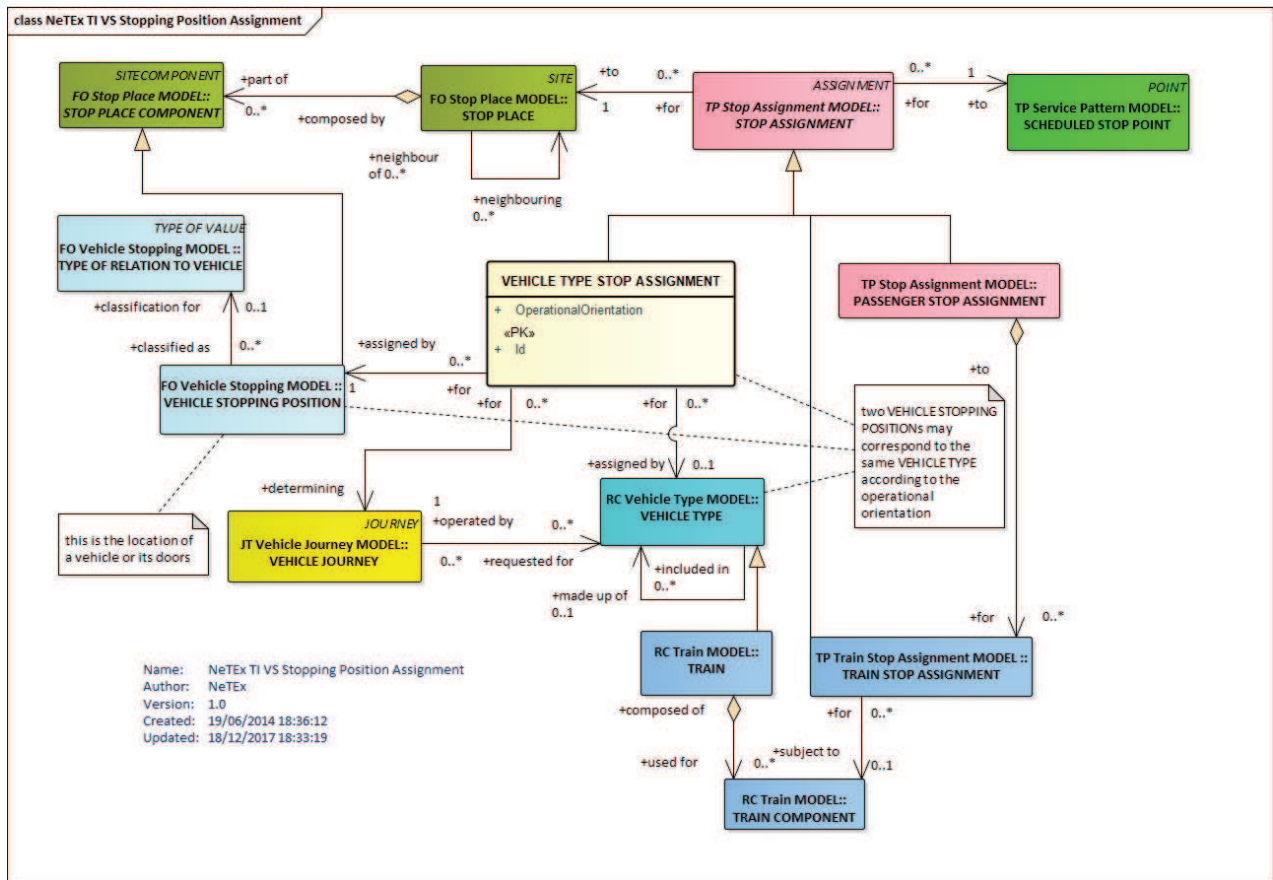


Figure 29 —Vehicle Type Stop Assignment – Conceptual MODEL (UML)

7.4.2.1.3 TRAIN COMPONENT LABEL ASSIGNMENT – Conceptual MODEL

The TRAIN COMPONENT LABEL ASSIGNMENT element specifies the allocation of an advertised designation for a vehicle or vehicle element for passengers.

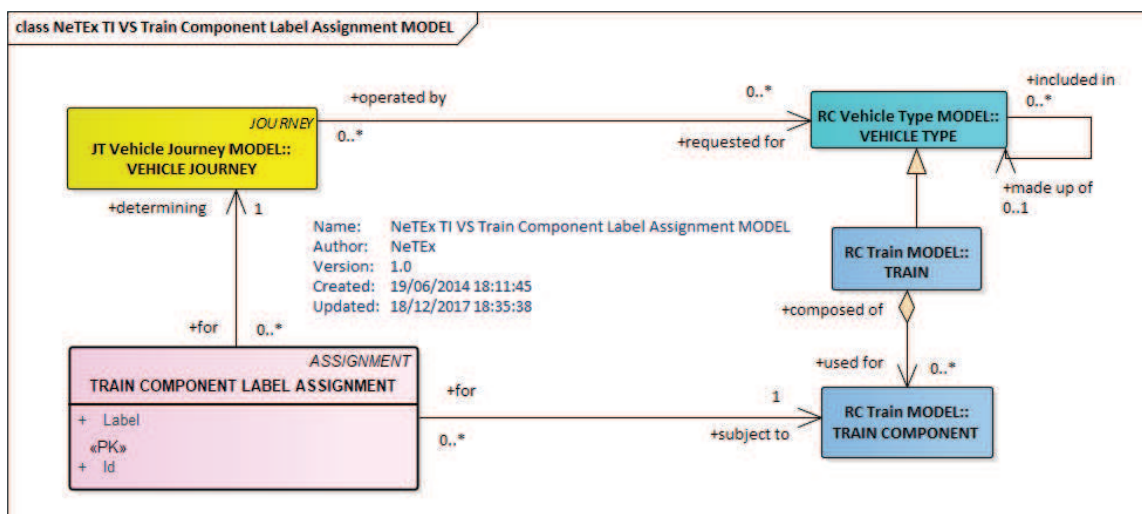


Figure 30 —Train Component Label Assignment – Conceptual MODEL (UML)

7.4.2.2 Vehicle Journey Assignment – Physical MODEL

7.4.2.2.1 Vehicle Journey Stop Assignment – Physical Model

The VEHICLE JOURNEY specifies change to a PASSENGER STOP ASSIGNMENT for a specific VEHICLE JOURNEY

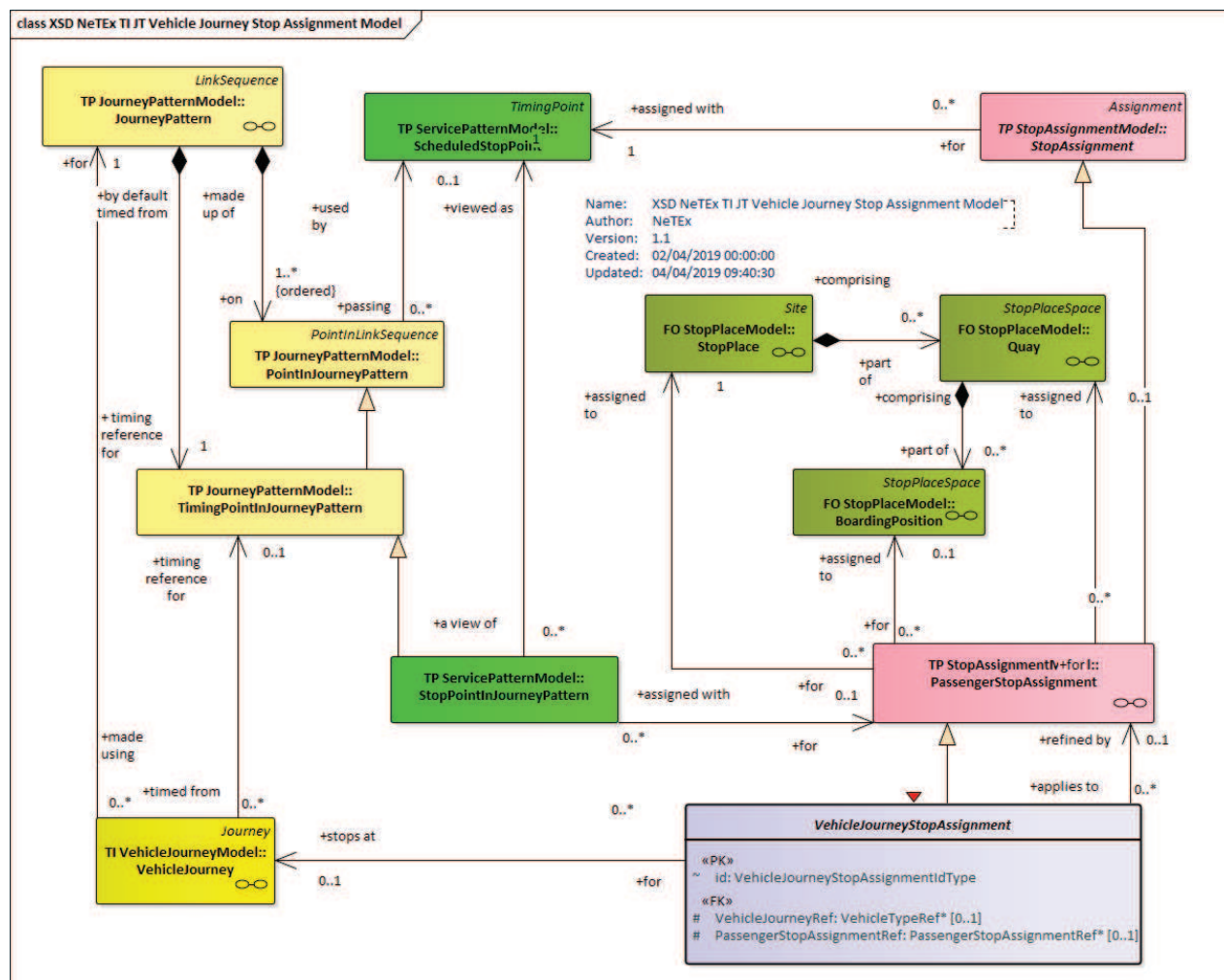


Figure 31 —Vehicle Journey Stop Assignment - Physical Model (UML)

7.4.2.2.2 Vehicle Type Stop Assignment - Physical Model

Sometimes it is necessary to specify specific information about the use of a stop for a specific VEHICLE JOURNEY.

The VEHICLE TYPE STOP ASSIGNMENT specifies the allocation of a stopping position of a VEHICLE TYPE for a particular VEHICLE JOURNEY and/or VEHICLE TYPE.

THE TRAIN COMPONENT LABEL ASSIGNMENT specifies the allocation of an advertised designation for a vehicle or vehicle element for passengers.

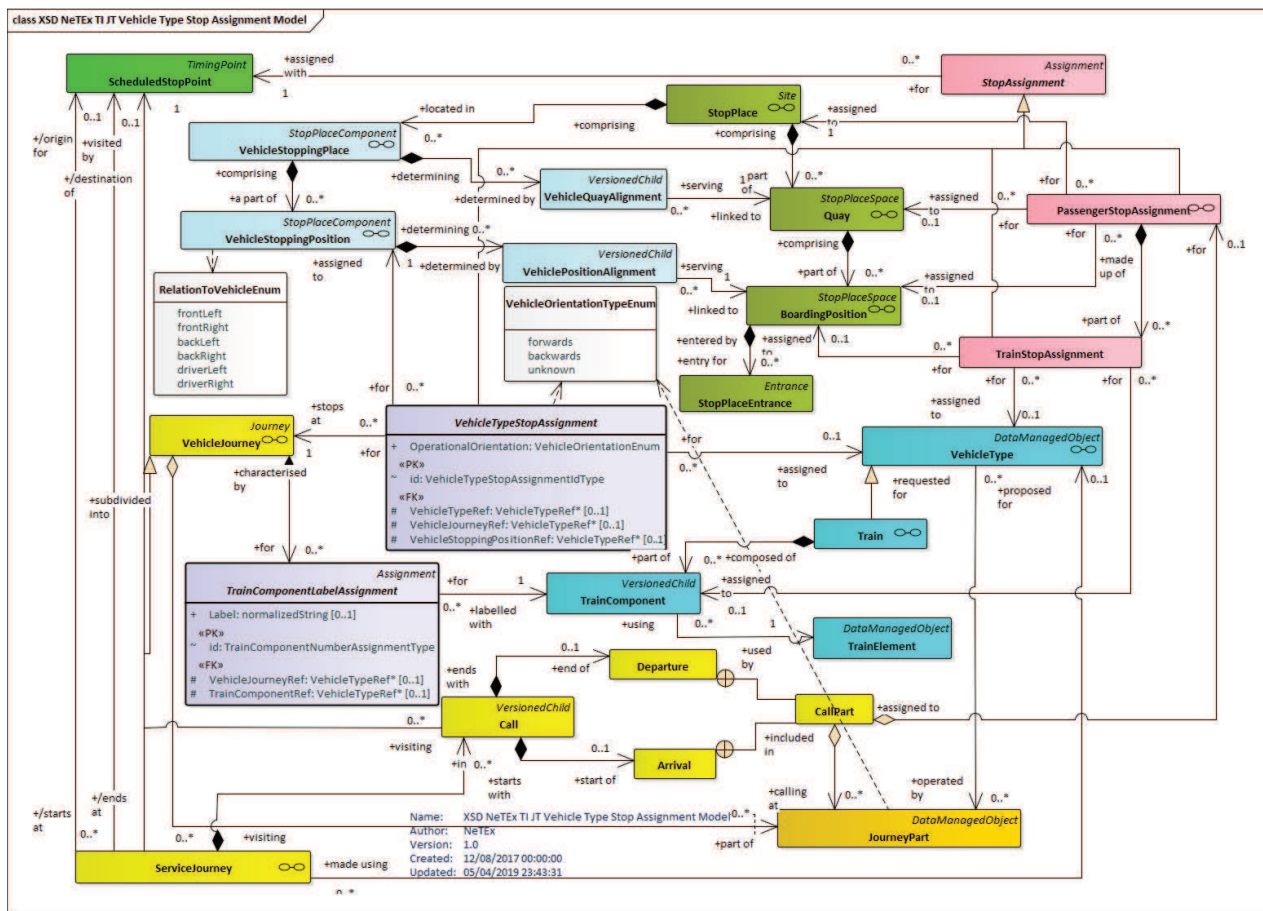


Figure 32 —Vehicle Type Stop Assignment – Physical Model (UML)

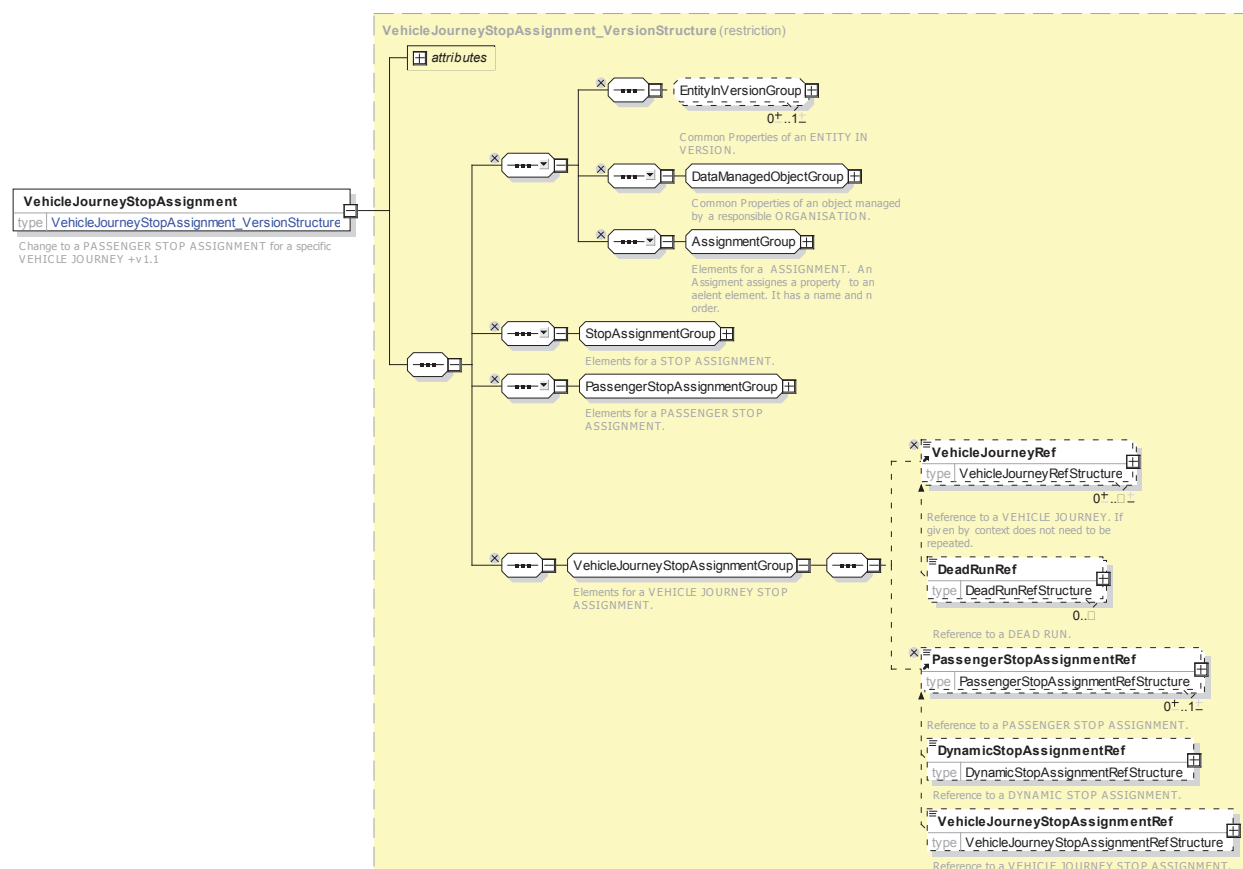
7.4.2.3 Vehicle Journey Assignment – Attributes and XSD

7.4.2.3.1 VehicleJourneyStopAssignment – Model Element

Change to a PASSENGER STOP ASSIGNMENT for a specific VEHICLE JOURNEY.

Table 18 – *VehicleJourneyStopAssignment* – Element

Classification	Name	Type	Cardinality	Description
::>	::>	<u><i>PassengerStopAssignment</i></u>	::>	VEHICLE JOURNEY STOP ASSIGNMENT inherits from PASSENGER STOP ASSIGNMENT.
«PK»	<i>id</i>	<i>VehicleJourneyStopAssignmentIdType</i>	1:1	Identifier of a VEHICLE JOURNEY STOP ASSIGNMENT.
«FK»	<i>VehicleJourneyRef</i>	<i>VehicleJourneyRef+</i>	0:1	Reference to a VEHICLE JOURNEY to which the VEHICLE STOPPING POSITION and VEHICLE TYPE is assigned.
«FK»	<i>PassengerStopAssignmentRef</i>	<i>PassengerStopAssignmentRef+</i>	0:1	Reference to a PASSENGER STOP ASSIGNMENT that this assignment overrides.

Figure 33 — *VehicleJourneyStopAssignment* — XSD

7.4.2.3.2 VehicleTypeStopAssignment – Model Element

The allocation of a stopping position of a VEHICLE TYPE for a particular VEHICLE JOURNEY.

Table 19 – *VehicleTypeStopAssignment* – Element

Classifi- cation	Name	Type	Cardin- ality	Description
::>	::>	<u>StopAssignment</u>	::>	VEHICLE TYPE STOP ASSIGNMENT inherits from PASSENGER STOP ASSIGNMENT.
«PK»	id	<i>VehicleTypeStopAssignmen- tIdType</i>	1:1	Identifier of a VEHICLE TYPE STOP ASSIGNMENT.
«enum»	VehicleOrienta- tion	<i>VehicleOrientationEnum</i>	0:1	Whether TRAIN is operating forwards or backwards at this point. See Part 1 for allowed values.
«FK»	VehicleStopping- PositionRef	<i>VehicleStoppingPositionRef</i>	0:1	Reference to a VEHICLE STOPPING POSITION to which the VEHICLE JOURNEY and VEHICLE TYPE is assigned.
«FK»	VehicleJourneyRef	<i>VehicleTypeRef</i>	0:1	Reference to a VEHICLE JOURNEY to which the VEHICLE STOPPING POSITION and VEHICLE TYPE is assigned.
«FK»	VehicleTypeRef	<i>VehicleTypeRef</i>	0:1	Reference to a VEHICLE TYPE to which the VEHICLE JOURNEY and STOPPING POSITION is assigned.

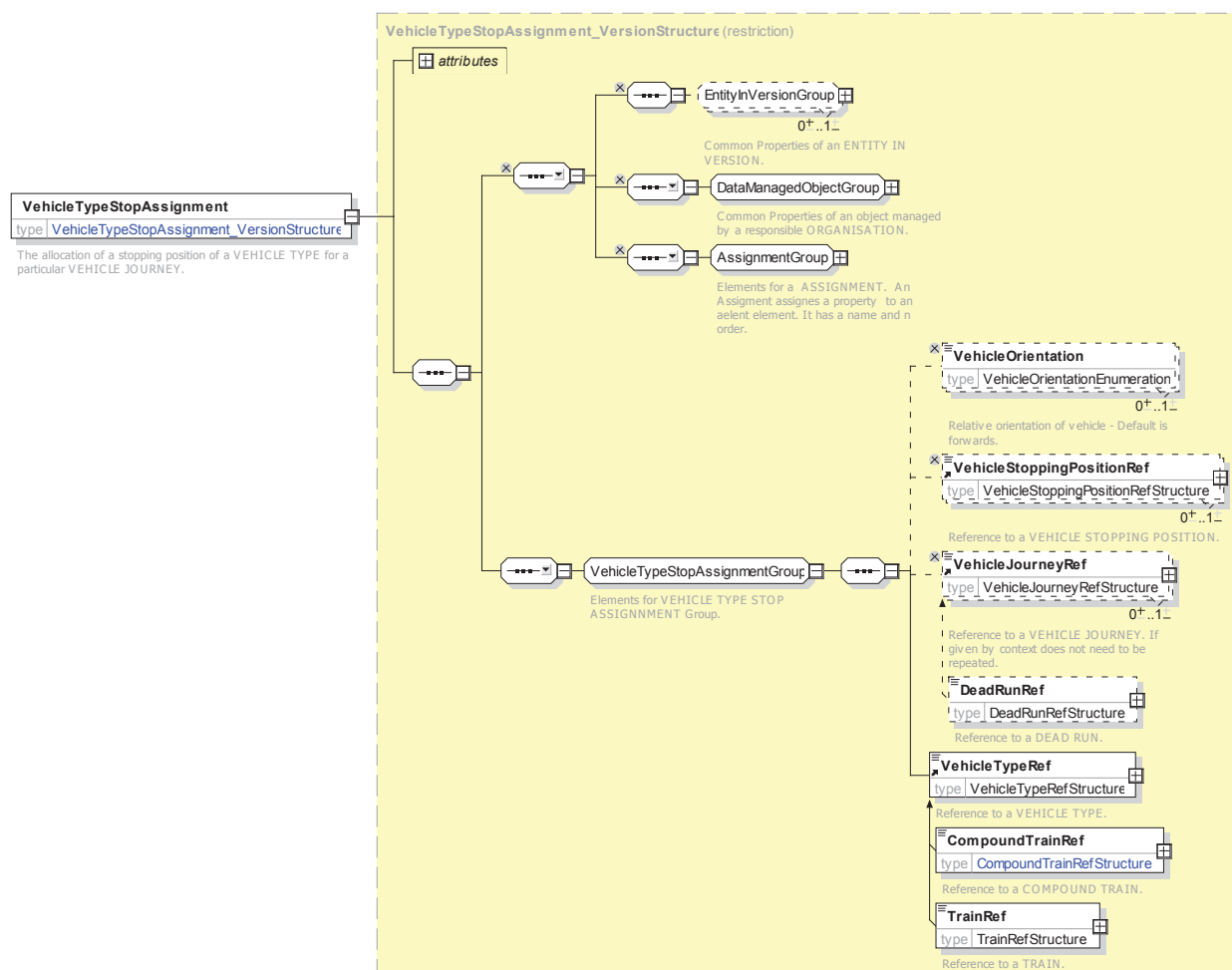


Figure 34 — *VehicleTypeStopAssignment* — XSD

7.4.2.3.3 TrainComponentLabelAssignment – Model Element

The allocation of an advertised designation for a vehicle or vehicle element for passengers.

Table 20 – *TrainComponentLabelAssignment* – Element

Classification	Name	Type	Cardinality	Description
::>	::>	<i>Assignment</i>	::>	TRAIN COMPONENT LABEL ASSIGNMENT inherits from PASSENGER STOP ASSIGNMENT.
«PK»	id	<i>TrainComponentLabelAssignmentType</i>	1:1	Identifier of a TRAIN COMPONENT LABEL ASSIGNMENT.
	Label	<i>MultilingualString</i>	0:1	Label on TRAIN COMPONENT.
«FK»	VehicleJourneyRef	<i>VehicleJourneyRef+</i>	0:1	Reference to a VEHICLE JOURNEY to which the LABEL is assigned.
«FK»	TrainComponentRef	<i>TrainComponentRef</i>	0:1	Reference to a TRAIN COMPONENT to which the LABEL is assigned.

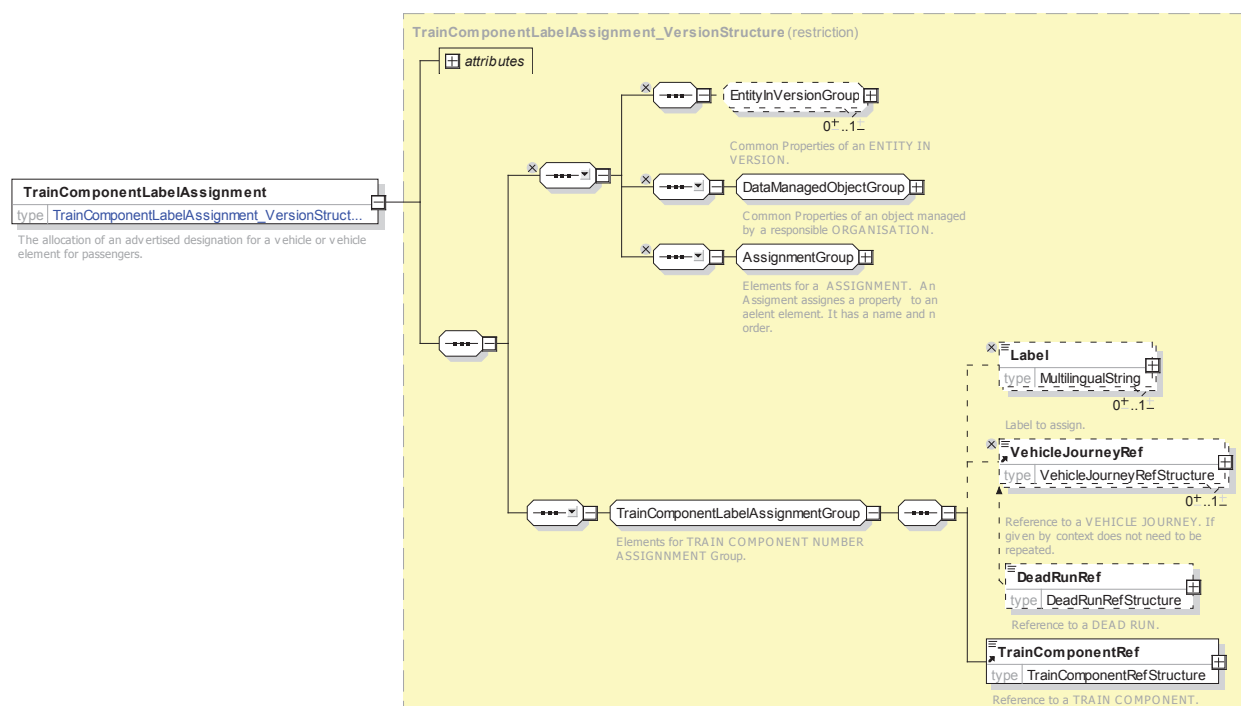


Figure 35 — *TrainComponentLabelAssignment* — XSD

7.4.3 Service Journey

7.4.3.1 SERVICE JOURNEY – Conceptual MODEL

NOTE The following explanations use excerpts from Transmodel.

A SERVICE JOURNEY is a VEHICLE JOURNEY on which passengers will be allowed to board or alight from vehicles at stops. There are several different possible ways to define SERVICE JOURNEYS, in particular the two following:

- As the service between an origin and a destination, as advertised to the public.
- As the longest service during which a passenger is allowed to stay on the same vehicle.

In addition to the distinction between SERVICE JOURNEYS and DEAD RUNS, operators may wish to classify VEHICLE JOURNEYS by further criteria. For these purposes a TYPE OF SERVICE may be assigned to a VEHICLE JOURNEY, which would express other common properties (e.g. “journey at the maximum load period”).

A default VEHICLE TYPE may be proposed for a journey chosen according to the time of day at which a SERVICE JOURNEY takes place, and the ROUTE and JOURNEY PATTERN it covers. The proposed VEHICLE TYPE will preferably be taken into account by the scheduling algorithm used to compile blocks of vehicle operation. The choice of such a preference may take into account a ranked list of VEHICLE TYPEs for each SERVICE JOURNEY PATTERN. This is described by the entity VEHICLE TYPE PREFERENCE, depending on a particular SERVICE JOURNEY PATTERN, for which a priority ‘rank’ is given for each VEHICLE TYPE, for each DAY TYPE and TIME DEMAND TYPE.

SERVICE JOURNEY INTERCHANGE (the scheduled possibility for transfer of passengers between two SERVICE JOURNEYS at the same or different STOP POINTs) occurring on the SERVICE JOURNEY and facilities (grouped in a SERVICE FACILITY SET) available for the SERVICE JOURNEY, are also important related information, especially when advertising to the public.

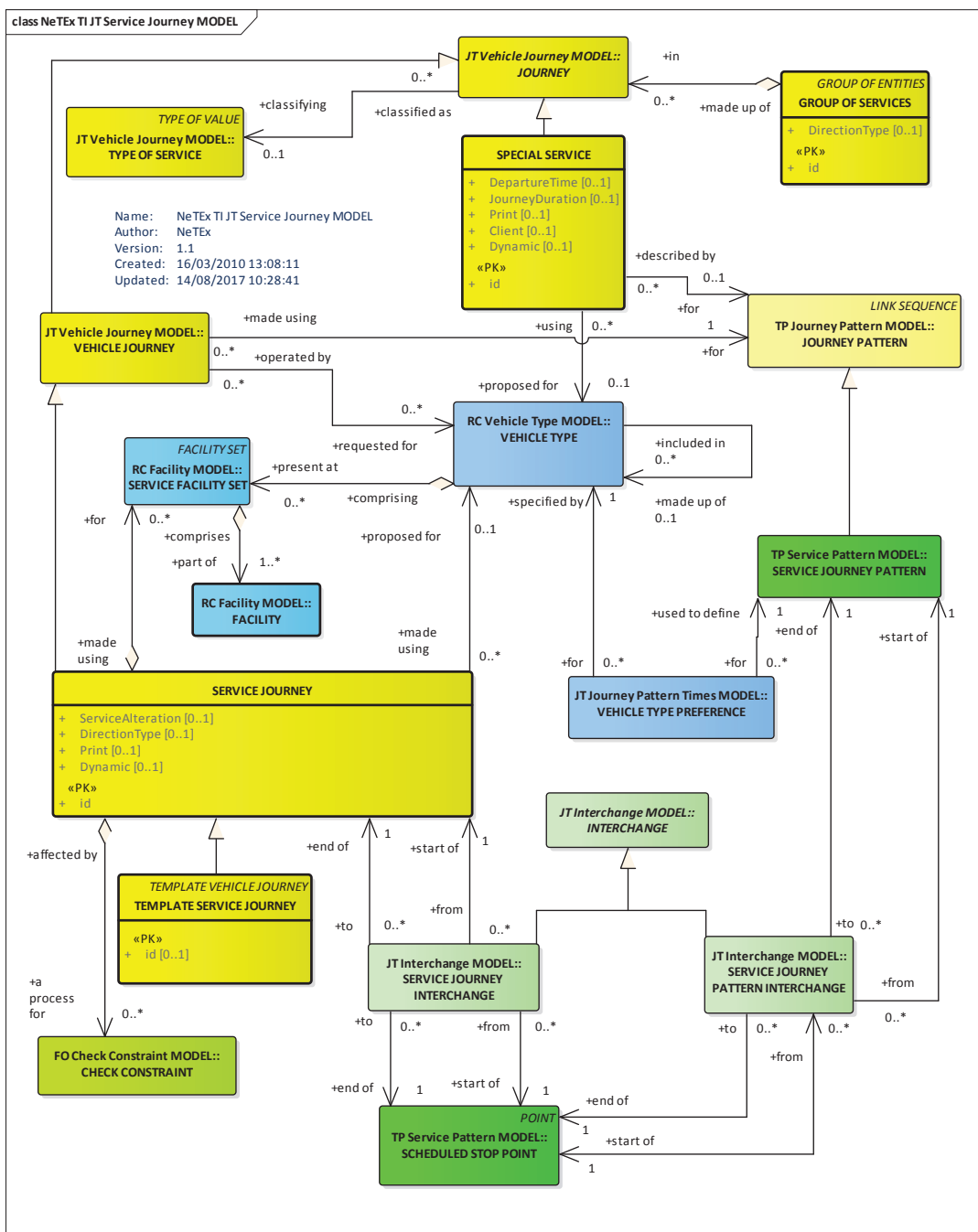


Figure 36 — Service Journey – Conceptual MODEL (UML)

7.4.3.1.1 Special Services

Most of public transport services are operated in a classical way, on a LINE grouping two or more SERVICE JOURNEY PATTERNS, along which passengers may board or alight at fixed stop points, paying fares according to the fare system in use. However, some other types of service may be offered (school services, occasional services, demand-responsive services, etc.). They are usually named “special” services.

The differences between classical services and special services may refer to a number of different aspects, the most important being that the access rights to SPECIAL SERVICES may differ from the others. Besides occasional services for which the usual fare system applies (e.g. a football match), there are other services using a different system: special fares, access restricted to certain population groups (e.g. pupils from a particular school), etc. In some cases, the service is not directly ordered by the authority in charge of the classical services, but by another