

Austrian Traffic Data Profile

Version 1.0 Rev.1

A.1 Introduction

ASFINAG provides DATEX II traffic information of Austrian motorways and highways for service providers and other interested institutions.

This document describes the Austrian Traffic Data Profile.

This profile contains the one-minute aggregated cross section data provided by traffic sensors:

- Mean velocity values grouped by vehicle class (car, trucks)
- Traffic flow
- Occupancy
- Basic statistics (minimum velocity ,maximum velocity, standard deviation)
- Plausibility of the values

For data delivery the traffic data is split in two DATEX II files:

1. **TrafficData_static**: This file contains the identifiers of the traffic sensors along with the location information for all traffic sensors in different location referencing methods, as described in section **A.2**.
2. **TrafficData_dynamic**: This file contains the identifiers of the traffic sensors along with the actual measurement values of the traffic sensors.

For providing location information “MeasurementSiteTablePublication” is used, whereas for providing the actual content (measured values), “MeasuredDataPublication” is used.

Example 1 shows an extract of TrafficData_static and Example 2 shows and extract of TrafficData_dynamic.

```

19 <measurementSiteTable id="GUID-MeasurementTable" version="1">
20 <measurementSiteRecord id="326290386" version="1">
21 <measurementSiteLocation xsi:type="Point">
22 <alertCPoint xsi:type="AlertCMethod4Point">
23 <alertCLocationCountryCode>10</alertCLocationCountryCode>
24 <alertCLocationTableNumber>1</alertCLocationTableNumber>
25 <alertCLocationTableVersion>3.1</alertCLocationTableVersion>
26 <alertCDirection>
27 <alertCDirectionCoded>positive</alertCDirectionCoded>
28 </alertCDirection>
29 <alertCMethod4PrimaryPointLocation>
30 <alertCLocation>
31 <specificLocation>35845</specificLocation>
32 </alertCLocation>
33 <offsetDistance>
34 <offsetDistance>3334</offsetDistance>
35 </offsetDistance>
36 </alertCMethod4PrimaryPointLocation>
37 </alertCPoint>
38 <pointByCoordinates>
39 <pointCoordinates>
40 <latitude>46.4876175</latitude>
41 <longitude>14.0112314</longitude>
42 </pointCoordinates>
43 </pointByCoordinates>
44 <pointExtension>
45 <extendedPointForGipLink>
46 <gipLinkPointLocationReference>
47 <gipLink>
48 <linkId>461000385</linkId>
49 <linkDirection>fromTo</linkDirection>
50 <percentageFrom>
51 <percentageDistanceAlong>88.3</percentageDistanceAlong>
52 </percentageFrom>
53 <percentageTo>
54 <percentageDistanceAlong>89.5</percentageDistanceAlong>
55 </percentageTo>
56 </gipLink>
57 </gipLinkPointLocationReference>
58 </extendedPointForGipLink>
59 </pointExtension>
60 </measurementSiteLocation>
61 </measurementSiteRecord>
62 </measurementSiteTable>
63 </payloadPublication>
64 </d2LogicalModel>

```

Example 1: Location referencing of measurement site 326290386 (TrafficData_static)

```

 9 <payloadPublication xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="MeasuredDataPublication" lang="en">
10 <publicationTime>2017-10-19T15:00:00+02:00</publicationTime>
11 <publicationCreator>
12 <country>at</country>
13 <nationalIdentifier>ASFINAG</nationalIdentifier>
14 </publicationCreator>
15 <measurementSiteTableReference targetClass="MeasurementSiteTable" id="GUID-MeasurementTable" version="1"/>
16 <headerInformation>
17 <confidentiality>internalUse</confidentiality>
18 <informationStatus>test</informationStatus>
19 </headerInformation>
20 <siteMeasurements>
21 <measurementSiteReference id="326290386" version="1" targetClass="MeasurementSiteRecord"/>
22 <measurementTimeDefault>2016-03-31T20:32:00+01:00</measurementTimeDefault>
23 <measuredValue index="0">
24 <measuredValue>
25 <basicData xsi:type="TrafficFlow">
26 <measurementOrCalculationPeriod>240</measurementOrCalculationPeriod>
27 <measurementOrCalculationTime>2016-03-31T20:32:00+01:00</measurementOrCalculationTime>
28 <vehicleFlow>
29 <vehicleFlowRate>2700</vehicleFlowRate>
30 </vehicleFlow>
31 </basicData>
32 </measuredValue>
33 </measuredValue>
34 <measuredValue index="1">
35 <measuredValue>
36 <basicData xsi:type="TrafficFlow">
37 <measurementOrCalculationPeriod>240</measurementOrCalculationPeriod>
38 <measurementOrCalculationTime>2016-03-31T20:32:00+01:00</measurementOrCalculationTime>
39 <forVehiclesWithCharacteristicsOf>
40 <vehicleType>lorry</vehicleType>
41 </forVehiclesWithCharacteristicsOf>
42 <vehicleFlow>
43 <vehicleFlowRate>600</vehicleFlowRate>
44 </vehicleFlow>
45 </basicData>
46 </measuredValue>
47 </measuredValue>
48 <measuredValue index="2">
49 <measuredValue>
50 <basicData xsi:type="TrafficFlow">
51 <measurementOrCalculationPeriod>240</measurementOrCalculationPeriod>
52 <measurementOrCalculationTime>2016-03-31T20:32:00+01:00</measurementOrCalculationTime>
53 <forVehiclesWithCharacteristicsOf>
54 <vehicleType>car</vehicleType>
55 </forVehiclesWithCharacteristicsOf>
56 <vehicleFlow>
57 <vehicleFlowRate>2100</vehicleFlowRate>
58 </vehicleFlow>
59 </basicData>
60 </measuredValue>
61 </measuredValue>
62 </siteMeasurements>
63 </payloadPublication>

```

Example 2: Measurement values for measurement site 326290386 (TrafficData_dynamic)

A.2 Location Referencing

ASFINAG provides a number of location referencing methods for locating the measurement sites as described in Table 2. An overview about the provided location referencing methods is shown in Table 1 **Fehler! Verweisquelle konnte nicht gefunden werden..**

Location Referencing	DATEX II element	Description
AlertC location codes	alertCLinear	The <i>alertCPoint</i> element defines location using an AlertC Location code, direction and offsetDistance.
ASFINAG road km	pointAlongLinearElement	The <i>pointAlongLinearElement</i> element contains the road km location as referenced by ASFINAG. Any point on the ASFINAG road network is described by road number, direction and road km provided in meters.
WGS84	pointByCoordinates	The <i>pointByCoordinates</i> element contains the latitude/longitude values of the location point.
GIP	GIPLink	Location reference of GIP (Graph Integration Platform). GIP provides a digital map of Austria's transport network to all authorities.

Table 1: Location referencing methods

A.3 Measurement Values

Table 2 shows an overview about the provided measurement values.

measurement element ASFINAG QTRAFFIC	Unit	Description	DATEX basicData type	DATEX II element	DATEX II condition
velo_KFZ	km/h	Mean velocity all vehicles	TrafficSpeed		
velo_LKW	km/h	Mean velocity lorries	TrafficSpeed		vehicleType=lorry
velo_PKW	km/h	Mean velocity cars	TrafficSpeed		vehicleType=car
st_velo_KFZ		Plausibility value for velo_KFZ		measurementEquipmentFault	
st_velo_LKW		Plausibility value for velo_LKW		measurementEquipmentFault	
st_velo_PKW		Plausibility value for velo_PKW		measurementEquipmentFault	
velo_Max	km/h	Maximum velocity	TrafficSpeed	maxVehicleSpeed	
velo_Min	km/h	Minimum velocity	TrafficSpeed	minVehicleSpeed	
velo_Diff	km/h	Velocity difference	TrafficSpeed	deltaVehicleSpeed	
st_velo_Max		Plausibility value for velo_Max		measurementEquipmentFault	
st_velo_Min		Plausibility value for velo_Min		measurementEquipmentFault	
st_velo_Diff		Plausibility value for velo_Diff		measurementEquipmentFault	
deviation		Standard deviation of velocity	TrafficSpeed	standardDeviation	
st_deviat		Plausibility value for deviation		measurementEquipmentFault	
numb_KFZ	veh/h	Traffic flow all vehicles	TrafficFlow		

numb_LKW	veh/h	Traffic flow lorries	TrafficFlow		vehicleType=lorry
numb_PKW	veh/h	Traffic flow cars	TrafficFlow		vehicleType=car
st_numb_KFZ		Plausibility value for numb_KFZ		measurementEquipmentFault	
st_numb_LKW		Plausibility value for numb_LKW		measurementEquipmentFault	
st_numb_PKW		Plausibility value for numb_PKW		measurementEquipmentFault	
unitsPKW	car-units/h	Number of car units	TrafficFlow	pcuFlowRate	
st_unitsPKW		Plausibility value for unitsPKW		measurementEquipmentFault	
rate		Occupancy rate	TrafficConcentration	occupancy	
density	vehicles/km	traffic density	TrafficConcentration	concentration	
st_density		Plausibility value for density		measurementEquipmentFault	
st_rate		Plausibility value for rate		measurementEquipmentFault	
max_rate		maximum occupancy rate	TrafficConcentration	maxOccupancy	
st_max_rate		Plausibility value for max_rate		measurementEquipmentFault	
proz_LKW	%	percentage of lorries	TrafficFlow	percentageLongVehicles	vehicleType=lorry
st_proz_LKW		Plausibility value for proz_LKW		measurementEquipmentFault	
intervalx	s	Interval length		measurementOrCalculationPeriod	

Table 2: Provided measurement values

A.4 Data Dictionary for "AustrianTrafficDataProfile"

In this document all data elements that are provided by the ASFINAG Content interface are marked in green colour. Other elements, attributes, enumeration and enumeration literals are left open for future use.

A.4.1 "AlertCMethod2Point" package

A.4.1.1 "AlertCMethod2Point" package classes

Class name	Designation	Definition	Stereotype	Abstract
AlertCMethod2Point	ALERT-C method2 point	A single point on the road network defined by reference to a point in a pre-defined ALERT-C location table and which has an associated direction of traffic flow.		no

Table 3— Classes of the "AlertCMethod2Point" package

A.4.1.2 "AlertCMethod2Point" package association roles

There are no defined association roles in the "AlertCMethod2Point" package.

A.4.1.3 "AlertCMethod2Point" package attributes

There are no defined attributes in the "AlertCMethod2Point" package.

A.4.2 "AlertCMethod4Point" package

A.4.2.1 "AlertCMethod4Point" package classes

Class name	Designation	Definition	Stereotype	Abstract
AlertCMethod4Point	ALERT-C method4 point	A single point on the road network defined by reference to a point in a pre-defined ALERT-C location table plus an offset distance and which has an associated direction of traffic flow.		no

Table 4— Classes of the "AlertCMethod4Point" package

A.4.2.2 "AlertCMethod4Point" package association roles

There are no defined association roles in the "AlertCMethod4Point" package.

A.4.2.3 "AlertCMethod4Point" package attributes

There are no defined attributes in the "AlertCMethod4Point" package.

A.4.3 "BasicData" package

A.4.3.1 "BasicData" package classes

Class name	Designation	Definition	Stereotype	Abstract
BasicData	Basic data	Data that is either measured or calculated (elaborated) at the same time or over the same time period.		yes

Table 5— Classes of the "BasicData" package

A.4.3.2 "BasicData" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
BasicData	pertinentLocation	Pertinent location	The location (e.g. the stretch of road or area) to which the data value(s) is or are pertinent/relevant. This may be different from the location of the measurement equipment (i.e. the measurement site location).	0..1	GroupOfLocations

Table 6— Associations of the "BasicData" package

A.4.3.3 "BasicData" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
BasicData	measurementOrCalculatedTimePrecision	Measurement or calculated time precision	The precision to which the time of measurement or calculation is given.	0..1	TimePrecisionEnum
	measurementOrCalculationPeriod	Measurement or calculation period	The time elapsed between the beginning and the end of the sampling or measurement period. This item may differ from the unit attribute; e.g. an hourly flow can be estimated from a 5-minute measurement period.	0..1	Seconds
	measurementOrCalculationTime	Measurement or calculation time	Point in time at which this specific value or set of values has been measured or calculated. It may also be a future time at which a data value is predicted.	0..1	DateTime

Table 7— Attributes of the "BasicData" package

A.4.4 "Exchange" package

A.4.4.1 "Exchange" package classes

Class name	Designation	Definition	Stereotype	Abstract
Exchange	Exchange	Details associated with the management of the exchange between the supplier and the client.		no

Table 8— Classes of the "Exchange" package

A.4.4.2 "Exchange" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
Exchange	supplierIdentification	Supplier identification		1..1	InternationalIdentifier

Table 9— Associations of the "Exchange" package

A.4.4.3 "Exchange" package attributes

There are no attributes in the Exchange package

Class name	Attribute name	Designation	Definition	Multiplicity	Type
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Table 10— Attributes of the "Exchange" package

A.4.5 "Fault" package

A.4.5.1 "Fault" package classes

Class name	Designation	Definition	Stereotype	Abstract
Fault	Fault	Information about a fault relating to a specific piece of equipment or process.		no
MeasurementEquipmentFault	Measurement equipment fault	Details of a fault which is being reported for the related measurement equipment.		no

Table 11— Classes of the "Fault" package

A.4.5.2 "Fault" package association roles

There are no defined association roles in the "Fault" package.

A.4.5.3 "Fault" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
Fault	faultCreationTime	Fault creation time	The date and time at which the fault was originally recorded/reported.	0..1	DateTime
	faultDescription	Fault description	Textual description of the fault.	0..1	String
	faultIdentifier	Fault identifier	Unique identifier of the fault.	0..1	String
	faultLastUpdateTime	Fault last update time	The date and time at which the fault information as specified in this instance was last updated.	1..1	DateTime
	faultSeverity	Fault severity	The severity of the fault in terms of how it affects the usability of the equipment or the reliability of the data generated by the equipment.	0..1	FaultSeverityEnum
MeasurementEquipmentFault	measurementEquipmentFault	Measurement equipment fault	The type of fault which is being reported for the specified measurement equipment.	1..1	MeasurementEquipmentFaultEnum

Table 12— Attributes of the "Fault" package

A.4.6 "GipLinkExtensions" package

A.4.6.1 "GipLinkExtensions" package classes

Class name	Designation	Definition	Stereotype	Abstract
ExtendedPointForGipLink	Extended point for gip link	An extension for Point to provide GipLink information		no
GipLink	Gip link	A GIPLink object		no
GipLinkPointLocationReference	Gip link point location reference	Location referencing for a GIP point		no

Table 13— Classes of the "GipLinkExtensions" package

A.4.6.2 "GipLinkExtensions" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
GipLink	percentageFrom	Percentage from	From offset	1..1	PercentageDistanceAlongLinearElement
	percentageTo	Percentage to	To offset	1..1	PercentageDistanceAlongLinearElement

Table 14— Associations of the "GipLinkExtensions" package

A.4.6.3 "GipLinkExtensions" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
GipLink	linkDirection	Link direction	Digitalization direction	1..1	GipLinkDirectionEnum
	linkId	Link id	Identifier of the GipLink	1..1	String

Table 15— Attributes of the "GipLinkExtensions" package

A.4.7 "GroupOfLocationExtensions" package

A.4.7.1 "GroupOfLocationExtensions" package classes

Class name	Designation	Definition	Stereotype	Abstract
GroupOfLocationsExtendedAustrianProfile	Group of locations extended austrian profile	Extensions for GroupOfLocations to provide additional information relevant to the AustriaProfile		no
LocationInfo	Location info	Additional details of the location of a traffic message that are not part of the GroupOfLocations		no
RoadInfo	Road info	Information related to the street, e.g., roadNumber, roadName, etc.		no

Table 16— Classes of the "GroupOfLocationExtensions" package

A.4.7.2 "GroupOfLocationExtensions" package association roles

There are no defined association roles in the "GroupOfLocationExtensions" package.

A.4.7.3 "GroupOfLocationExtensions" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
LocationInfo	country	Country	Country where the event lies. The info is important for the exchange of messages with neighboring countries or for the import of messages from neighbouring countries	1..1	CountryEnum
	locationName	Location name	Location name if the event location is not on any street. Eg: on a POI.	0..1	MultilingualString
	locationText	Location text	Free text for the location: eg. A23 Klagenfurt West, St.Veit at the Glan city center.	0..1	MultilingualString
	region	Region	Specification of the federal state, so that messages can be filtered by region. It can also affect several states.	0..*	String
RoadInfo	roadName	Road name	Road name	1..1	MultilingualString
	roadNumber	Road number	Road number	0..1	String
	roadOperator	Road operator	Name of the responsible road operator for this road	1..1	String
	roadSection	Road section	Specification of the road sections	0..*	String

Table 17— Attributes of the "GroupOfLocationExtensions" package

A.4.8 "MeasuredDataPublication" package

A.4.8.1 "MeasuredDataPublication" package classes

Class name	Designation	Definition	Stereotype	Abstract
LocationCharacteristicsOverride	Location characteristics override	Location characteristics which override values set in the referenced measurement point.		no
MeasuredDataPublication	Measured data publication	A publication containing one or more measurement data sets, each set being measured at a single measurement site.		no
MeasuredValue	Measured value	Contains optional characteristics for the specific measured value (indexed to correspond with the defined characteristics of the measurement at the referenced measurement site) which override the static characteristics defined in the MeasurementSiteTable.		no
SiteMeasurements	Site measurements	A measurement data set derived from a specific measurement site.		no

Table 18— Classes of the "MeasuredDataPublication" package

A.4.8.2 "MeasuredDataPublication" package association roles

There are no defined association roles in the "MeasuredDataPublication" package.

A.4.8.3 "MeasuredDataPublication" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
LocationCharacteristic sOverride	measurementLanesOv erride	Measurement lanes override	Overrides for this single measured value instance the lane(s) defined for the set of measurements.	0..1	LaneEnum
	reversedFlow	Reversed flow	Indicates that the direction of flow for the measured lane(s) is the reverse of the normal direction of traffic flow. Default is "no", which indicates traffic flow is in the normal sense as defined by the referenced measurement point.	0..1	Boolean
MeasuredDataPublicat ion	measurementSiteTabl eReference	Measurement site table reference	A reference to a versioned Measurement Site table.	1..1	VersionedRefer ence
MeasuredValue	measurementEquipme ntTypeUsed	Measurement equipment type used	The type of equipment used to gather the raw information from which the data values are determined, e.g. 'loop', 'ANPR' (automatic number plate recognition) or 'urban traffic management system' (such as SCOOT).	0..1	MultilingualStrin g
SiteMeasurements	measurementSiteRef erence	Measurement site reference	A reference to a versioned measurement site record defined in a Measurement Site table.	1..1	VersionedRefer ence
	measurementTimeDef ault	Measurement time default	The time associated with the set of measurements. It may be the time of the beginning, the end or the middle of the measurement period.	1..1	DateTime

Table 19— Attributes of the "MeasuredDataPublication" package

A.4.9 "MeasurementSiteTablePublication" package

A.4.9.1 "MeasurementSiteTablePublication" package classes

Class name	Designation	Definition	Stereotype	Abstract
MeasurementSiteRecord	Measurement site record	An identifiable single measurement site entry/record in the Measurement Site table.	versionedIdentifiable	no
MeasurementSiteTable	Measurement site table	A Measurement Site Table comprising a number of sets of data, each describing the location from where a stream of measured data may be derived. Each location is known as a "measurement site" which can be a point, a linear road section or an area.	versionedIdentifiable	no
MeasurementSiteTablePublication	Measurement site table publication	A publication containing one or more Measurement Site Tables.		no
MeasurementSpecificCharacteristics	Measurement specific characteristics	Characteristics which are specific to an individual measurement type (specified in a known order) at the given measurement site.		no

Table 20— Classes of the "MeasurementSiteTablePublication" package

A.4.9.2 "MeasurementSiteTablePublication" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
MeasurementSiteRecord	measurementSiteLocation	Measurement site location		1..1	GroupOfLocations
MeasurementSpecificCharacteristics	specificVehicleCharacteristics	Specific vehicle characteristics		0..1	VehicleCharacteristics

Table 21— Associations of the "MeasurementSiteTablePublication" package

A.4.9.3 "MeasurementSiteTablePublication" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
MeasurementSiteRecord	computationMethod	Computation method	Method of computation which is used to compute the measured value(s) at the measurement site.	0..1	ComputationMethodEnum
	measurementEquipmentReference	Measurement equipment reference	The reference given to the measurement equipment at the site.	0..1	String
	measurementEquipmentTypeUsed	Measurement equipment type used	The type of equipment used to gather the raw information from which the data values are determined, e.g. 'loop', 'ANPR' (automatic number plate recognition) or 'urban traffic management system' (such as SCOOT).	0..1	MultilingualString
	measurementSide	Measurement side	Side of the road on which measurements are acquired, corresponding to the direction of the road.	0..1	DirectionEnum
	measurementSiteIdentification	Measurement site identification	Identification of a measurement site used by the supplier or consumer systems.	0..1	String
	measurementSiteName	Measurement site name	Name of a measurement site.	0..1	MultilingualString
	measurementSiteNumberOfLanes	Measurement site number of lanes	The number of lanes over which the measured value is determined.	0..1	NonNegativeInteger
	measurementSiteRecordVersionTime	Measurement site record version time	The date/time that this version of the measurement site record was defined. The identity and version of the measurement site record are defined by the class stereotype implementation.	0..1	DateTime
MeasurementSiteTable	measurementSiteTableIdentification	Measurement site table identification	An alphanumeric identification for the measurement site table, possibly human readable.	0..1	String
MeasurementSpecificCharacteristics	accuracy	Accuracy	The extent to which the value is expected to be free from error, measured as a percentage of the data value. 100% means fully accurate.	0..1	Percentage

Class name	Attribute name	Designation	Definition	Multiplicity	Type
	period	Period	The time elapsed between the beginning and the end of the sampling or measurement period. This item may differ from the unit attribute; e.g. an hourly flow can be estimated from a 5-minute measurement period.	0..1	Seconds
	smoothingFactor	Smoothing factor	Coefficient required when a moving average is computed to give specific weights to the former average and the new data. A typical formula is, F being the smoothing factor: New average = (old average) F + (new data) (1 - F).	0..1	Float
	specificLane	Specific lane	The lane to which the specific measurement at the measurement site relates. This overrides any lane specified for the measurement site as a whole.	0..1	LaneEnum
	specificMeasurementValue type	Specific measurement value type	The type of this specific measurement at the measurement site.	1..1	MeasuredOrDerivedDataTypeEnum

Table 22— Attributes of the "MeasurementSiteTablePublication" package

A.4.10 "PayloadPublicationExtensions" package

A.4.10.1 "PayloadPublicationExtensions" package classes

Class name	Designation	Definition	Stereotype	Abstract
GIPMetaInfo	G i p meta info	Meta information related to the Austrian Graph Integration Platform (GIP). The GIP provides a digital map of Austria's transport network available to all authorities.		no
LanguageInfo	Language info	Language information		no
PayloadPublicationExtendedAustrianProfile	Payload publication extended austrian profile	Extension to the payload publication to add additional information needed for AustriaProfile		no

Table 23— Classes of the "PayloadPublicationExtensions" package

A.4.10.2 "PayloadPublicationExtensions" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
PayloadPublicationExtendedAustrianProfile	gipMetaInfo	Gip meta info		0..1	GIPMetaInfo

Table 24— Associations of the "PayloadPublicationExtensions" package

A.4.10.3 "PayloadPublicationExtensions" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
GIPMetaInfo	name	Name	Name of the GIP	1..1	String
	version	Version	Version number of the GIP	1..1	String
LanguageInfo	mainLanguage	Main language	Specifies the language in which the message is created	1..1	Language
	translation	Translation	Specification of the language used during translation. Multiple translations are possible.	0..*	Language

Table 25— Attributes of the "PayloadPublicationExtensions" package

A.4.11 "Point" package

A.4.11.1 "Point" package classes

Class name	Designation	Definition	Stereotype	Abstract
AlertCPoint	ALERT-C point	A single point on the road network defined by reference to a pre-defined ALERT-C location table and which has an associated direction of traffic flow.		yes
Point	Point	A single geospatial point.		no
PointByCoordinates	Point by coordinates	A single point defined only by a coordinate set with an optional bearing direction.		no

Table 26— Classes of the "Point" package

A.4.11.2 "Point" package association roles

There are no defined association roles in the "Point" package.

A.4.11.3 "Point" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
AlertCPoint	alertCLocationCountry Code	ALERT-C location country code	EBU country code.	1..1	String
	alertCLocationTableNumber	ALERT-C location table number	Number allocated to an ALERT-C table in a country. Ref. EN ISO 14819-3 for the allocation of a location table number.	1..1	String
	alertCLocationTableVersion	ALERT-C location table version	Version number associated with an ALERT-C table reference.	1..1	String
PointByCoordinates	bearing	Bearing	A bearing at the point measured in degrees (0 - 359). Unless otherwise specified the reference direction corresponding to 0 degrees is North.	0..1	NonNegativeInteger

Table 27— Attributes of the "Point" package

A.4.12 "PointAlongLinearElement" package

A.4.12.1 "PointAlongLinearElement" package classes

Class name	Designation	Definition	Stereotype	Abstract
DistanceAlongLinearElement	Distance along linear element	Distance of a point along a linear element either measured from the start node or a defined referent on that linear element, where the start node is relative to the element definition rather than the direction of traffic flow.		yes
DistanceFromLinearElementReferent	Distance from linear element referent	Distance of a point along a linear element measured from a "from referent" on the linear element, in the sense relative to the linear element definition rather than the direction of traffic flow or optionally towards a "towards referent".		no
DistanceFromLinearElementStart	Distance from linear element start	Distance of a point along a linear element measured from the start node of the linear element, where start node is relative to the element definition rather than the direction of traffic flow.		no
LinearElement	Linear element	A linear element along a single linear object, consistent with ISO 19148 definitions.		no
PercentageDistanceAlongLinearElement	Percentage distance along linear element	Distance of a point along a linear element measured from the start node expressed as a percentage of the whole length of the linear element, where start node is relative to the element definition rather than the direction of traffic flow.		no
PointAlongLinearElement	Point along linear element	A point on a linear element where the linear element is either a part of or the whole of a linear object (i.e. a road), consistent with ISO 19148 definitions.		no
Referent	Referent	A referent on a linear object that has a known location such as a node, a reference marker (e.g. a markerpost), an intersection etc.		no

Table 28— Classes of the "PointAlongLinearElement" package

A.4.12.2 "PointAlongLinearElement" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
DistanceFromLinearElementReferent	fromReferent	From referent	A known location along the linear element from which the distanceAlong is measured, termed the "fromReferent" in ISO 19148.	1..1	Referent
	towardsReferent	Towards referent	A known location along the linear element towards which the distanceAlong is measured, termed the "towardsReferent" in ISO 19148.	0..1	Referent

Table 29— Associations of the "PointAlongLinearElement" package

A.4.12.3 "PointAlongLinearElement" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
DistanceFromLinearElementReferent	distanceAlong	Distance along	A measure of distance along a linear element.	1..1	MetresAsFloat
DistanceFromLinearElementStart	distanceAlong	Distance along	A measure of distance along a linear element.	1..1	MetresAsFloat
LinearElement	linearElementNature	Linear element nature	An indication of the nature of the linear element.	0..1	LinearElementNatureEnum
	linearElementReferenceModel	Linear element reference model	The identifier of a road network reference model which segments the road network according to specific business rules.	0..1	String
	linearElementReferenceModelVersion	Linear element reference model version	The version of the identified road network reference model.	0..1	String
	roadName	Road name	Name of the road of which the linear element forms a part.	0..1	MultilingualString
	roadNumber	Road number	Identifier/number of the road of which the linear element forms a part.	0..1	String
PercentageDistanceAlongLinearElement	percentageDistanceAlong	Percentage distance along	A measure of distance along a linear element from the start of the element expressed as a percentage of the total length of the linear object.	1..1	Percentage
PointAlongLinearElement	administrativeAreaOfPoint	Administrative area of point	Identification of the road administration area which contains the specified point.	0..1	MultilingualString
	directionBoundAtPoint	Direction bound at point	The direction of traffic flow at the specified point in terms of general destination direction.	0..1	DirectionEnum
	directionRelativeAtPoint	Direction relative at point	The direction of traffic flow at the specified point relative to the direction in which the linear element is defined.	0..1	LinearReferencingDirectionEnum

Class name	Attribute name	Designation	Definition	Multiplicity	Type
	heightGradeOfPoint	Height grade of point	Identification of whether the point on the linear element is at, above or below the normal elevation of a linear element of that type (e.g. road or road section) at that location, typically used to indicate "grade" separation.	0..1	HeightGradeEnum
Referent	referentDescription	Referent description	Description of the referent.	0..1	MultilingualString
	referentIdentifier	Referent identifier	The identifier of the referent, unique on the specified linear element (i.e. road or part of).	1..1	String
	referentName	Referent name	The name of the referent, e.g. a junction or intersection name.	0..1	String
	referentType	Referent type	The type of the referent.	1..1	ReferentTypeEnum

Table 30— Attributes of the "PointAlongLinearElement" package

A.4.13 "TrafficConcentration" package

A.4.13.1 "TrafficConcentration" package classes

Class name	Designation	Definition	Stereotype	Abstract
TrafficConcentration	Traffic concentration	Averaged measurements or calculations of traffic concentration.		no

Table 31— Classes of the "TrafficConcentration" package

A.4.13.2 "TrafficConcentration" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
TrafficConcentration	concentration	Concentration	An averaged measurement or calculation of the concentration of vehicles at the specified measurement site.	0..1	ConcentrationOfVehiclesValue
	occupancy	Occupancy	An averaged measurement or calculation of the percentage of time that a section of road at the specified measurement site is occupied by vehicles.	0..1	PercentageValue

Table 32— Associations of the "TrafficConcentration" package

A.4.13.3 "TrafficConcentration" package attributes

There are no defined attributes in the "TrafficConcentration" package.

A.4.14 "TrafficData" package

A.4.14.1 "TrafficData" package classes

Class name	Designation	Definition	Stereotype	Abstract
TrafficData	Traffic data	Measured or derived values relating to traffic or individual vehicle movements on a specific section or at a specific point on the road network.		yes

Table 33— Classes of the "TrafficData" package

A.4.14.2 "TrafficData" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
TrafficData	forVehiclesWithCharacteristicsOf	For vehicles with characteristics of	Used to define the vehicle characteristics to which the TrafficValue is applicable primarily in Elaborated Data Publications, but may also be used in Measured Data Publications to override vehicle characteristics defined for the measurement site.	0..1	VehicleCharacteristics

Table 34— Associations of the "TrafficData" package

A.4.14.3 "TrafficData" package attributes

There are no defined attributes in the "TrafficData" package.

A.4.15 "TrafficFlow" package

A.4.15.1 "TrafficFlow" package classes

Class name	Designation	Definition	Stereotype	Abstract
TrafficFlow	Traffic flow	Averaged measurements or calculations of traffic flow rates.		no

Table 35— Classes of the "TrafficFlow" package

A.4.15.2 "TrafficFlow" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
TrafficFlow	axleFlow	Axle flow	An averaged measurement or calculation of flow rate defined in terms of the number of vehicle axles passing the specified measurement site.	0..1	AxleFlowValue
	pcuFlow	Pcu flow	An averaged measurement or calculation of flow rate defined in terms of the number of passenger car units passing the specified measurement site.	0..1	PcuFlowValue
	percentageLongVehicles	Percentage long vehicles	An averaged measurement or calculation of the percentage of long vehicles contained in the traffic flow at the specified measurement site.	0..1	PercentageValue
	vehicleFlow	Vehicle flow	An averaged measurement of flow rate defined in terms of the number of vehicles passing the specified measurement site.	0..1	VehicleFlowValue

Table 36— Associations of the "TrafficFlow" package

A.4.15.3 "TrafficFlow" package attributes

There are no defined attributes in the "TrafficFlow" package.

A.4.16 "TrafficSpeed" package

A.4.16.1 "TrafficSpeed" package classes

Class name	Designation	Definition	Stereotype	Abstract
SpeedPercentile	Speed percentile	Details of percentage (from an observation set) of vehicles whose speeds fall below a stated value.		no
TrafficSpeed	Traffic speed	Averaged measurements or calculations of traffic speed.		no

Table 37— Classes of the "TrafficSpeed" package

A.4.16.2 "TrafficSpeed" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
SpeedPercentile	speedPercentile	Speed percentile	The speed below which the associated percentage of vehicles in the measurement set are travelling at.	1..1	SpeedValue
	vehiclePercentage	Vehicle percentage	The percentage of vehicles from the observation set whose speeds fall below the stated speed (speedPercentile).	1..1	PercentageValue
TrafficSpeed	averageVehicleSpeed	Average vehicle speed	An averaged measurement or calculation of the speed of vehicles at the specified location.	0..1	SpeedValue

Table 38— Associations of the "TrafficSpeed" package

A.4.16.3 "TrafficSpeed" package attributes

There are no defined attributes in the "TrafficSpeed" package.

A.4.17 "TrafficSpeedExtensions" package

A.4.17.1 "TrafficSpeedExtensions" package classes

Class name	Designation	Definition	Stereotype	Abstract
TrafficSpeedExtended	Traffic speed extended	Extension class that adds min/max speed to the average speed measurement of level A		no

Table 37— Classes of the "TrafficSpeed" package

A.4.17.2 "TrafficSpeedExtensions" package association roles

Class name	Role name	Designation	Definition	Multiplicity	Target
TrafficSpeedExtended	minVehicleSpeed	Min vehicle speed	A minimum measurement or calculation of the speed of vehicles at the specified location.	0..1	SpeedValue
	maxVehicleSpeed	Max vehicle speed	A maximum measurement or calculation of the speed of vehicles at the specified location.	0..1	SpeedValue
	deltaVehicleSpeed	Delta vehicle speed	Change in vehicle speed	0..1	SpeedValue

Table 38— Associations of the "TrafficSpeed" package

A.4.17.3 "TrafficSpeedExtensions" package attributes

There are no defined attributes in the "TrafficSpeedExtensions" package.

A.4.18 "VehicleCharacteristics" package

A.4.18.1 "VehicleCharacteristics" package classes

Class name	Designation	Definition	Stereotype	Abstract
GrossWeightCharacteristic	Gross weight characteristic	Gross weight characteristic of a vehicle.		no
HeaviestAxleWeightCharacteristic	Heaviest axle weight characteristic	Weight characteristic of the heaviest axle on the vehicle.		no
HeightCharacteristic	Height characteristic	Height characteristic of a vehicle.		no
LengthCharacteristic	Length characteristic	Length characteristic of a vehicle.		no
NumberOfAxlesCharacteristic	Number of axles characteristic	Number of axles characteristic of a vehicle.		no
VehicleCharacteristics	Vehicle characteristics	The characteristics of a vehicle, e.g. lorry of gross weight greater than 30 tonnes.		no
WidthCharacteristic	Width characteristic	Width characteristic of a vehicle.		no

Table 398— Classes of the "VehicleCharacteristics" package

A.4.18.2 "VehicleCharacteristics" package association roles

There are no defined association roles in the "VehicleCharacteristics" package.

A.4.18.3 "VehicleCharacteristics" package attributes

Class name	Attribute name	Designation	Definition	Multiplicity	Type
GrossWeightCharacteristic	comparisonOperator	Comparison operator	The operator to be used in the vehicle characteristic comparison operation.	1..1	ComparisonOperatorEnum
	grossVehicleWeight	Gross vehicle weight	The gross weight of the vehicle and its load, including any trailers.	1..1	Tonnes
HeaviestAxleWeightCharacteristic	comparisonOperator	Comparison operator	The operator to be used in the vehicle characteristic comparison operation.	1..1	ComparisonOperatorEnum
	heaviestAxleWeight	Heaviest axle weight	The weight of the heaviest axle on the vehicle.	1..1	Tonnes
HeightCharacteristic	comparisonOperator	Comparison operator	The operator to be used in the vehicle characteristic comparison operation.	1..1	ComparisonOperatorEnum
	vehicleHeight	Vehicle height	The height of the highest part, excluding antennae, of an individual vehicle above the road surface, in metres.	1..1	MetresAsFloat
LengthCharacteristic	comparisonOperator	Comparison operator	The operator to be used in the vehicle characteristic comparison operation.	1..1	ComparisonOperatorEnum
	vehicleLength	Vehicle length	The overall distance between the front and back of an individual vehicle, including the length of any trailers, couplings, etc.	1..1	MetresAsFloat
NumberOfAxlesCharacteristic	comparisonOperator	Comparison operator	The operator to be used in the vehicle characteristic comparison operation.	1..1	ComparisonOperatorEnum
	numberOfAxles	Number of axles	The total number of axles of an individual vehicle.	1..1	NonNegativeInteger
VehicleCharacteristics	fuelType	Fuel type	The type of fuel used by the vehicle.	0..1	FuelTypeEnum
	loadType	Load type	The type of load carried by the vehicle, especially in respect of hazardous loads.	0..1	LoadTypeEnum
	vehicleEquipment	Vehicle equipment	The type of equipment in use or on board the vehicle.	0..1	VehicleEquipmentEnum
	vehicleType	Vehicle type	Vehicle type.	0..*	VehicleTypeEnum
	vehicleUsage	Vehicle usage	The type of usage of the vehicle (i.e. for what purpose is the vehicle being used).	0..1	VehicleUsageEnum
WidthCharacteristic	comparisonOperator	Comparison operator	The operator to be used in the vehicle characteristic comparison operation.	1..1	ComparisonOperatorEnum

Class name	Attribute name	Designation	Definition	Multiplicity	Type
	vehicleWidth	Vehicle width	The maximum width of an individual vehicle, in metres.	1..1	MetresAsFloat

Table 39— Attributes of the "VehicleCharacteristics" package

A.5 Data Dictionary of <<datatype>> for "AustrianTrafficDataProfile"

This clause contains the definitions of all data types which are used in the "AustrianTrafficDataProfile".

A.5.1 The <<datatype>> "MetresAsFloat"

A measure of distance defined in metres in a floating point format.

A.5.2 The <<datatype>> "Percentage"

A measure of percentage.

A.5.3 The <<datatype>> "Seconds"

Seconds.

A.5.4 The <<datatype>> "Tonnes"

A measure of weight defined in metric tonnes.

A.6 Data Dictionary of <<enumerations>> for "AustrianTrafficDataProfile"

This clause contains the definitions of all enumerations which are used in the "AustrianTrafficDataProfile".

A.6.1 The <<enumeration>> "ComparisonOperatorEnum"

Logical comparison operations.

Enumerated value name	Designation	Definition
equalTo	Equal to	Logical comparison operator of "equal to".
greaterThan	Greater than	Logical comparison operator of "greater than".
greaterThanOrEqualTo	Greater than or equal to	Logical comparison operator of "greater than or equal to".
lessThan	Less than	Logical comparison operator of "less than".
lessThanOrEqualTo	Less than or equal to	Logical comparison operator of "less than or equal to".

Table 40— Values contained in the enumeration "ComparisonOperatorEnum"

A.6.2 The <<enumeration>> "ComputationMethodEnum"

Types of computational methods used in deriving data values for data sets.

Enumerated value name	Designation	Definition
arithmeticAverageOfSamplesBasedOnAFixedNumberOfSamples	Arithmetic average of samples based on a fixed number of samples	Arithmetic average of sample values based on a fixed number of samples.
arithmeticAverageOfSamplesInATimePeriod	Arithmetic average of samples in a time period	Arithmetic average of sample values in a time period.
harmonicAverageOfSamplesInATimePeriod	Harmonic average of samples in a time period	Harmonic average of sample values in a time period.
medianOfSamplesInATimePeriod	Median of samples in a time period	Median of sample values taken over a time period.
movingAverageOfSamples	Moving average of samples	Moving average of sample values.

Table 41— Values contained in the enumeration "ComputationMethodEnum"

A.6.3 The <<enumeration>> "CountryEnum"

List of countries.

Enumerated value name	Designation	Definition
at	at	Austria
be	be	Belgium
bg	bg	Bulgaria
ch	ch	Switzerland
cs	cs	Serbia and Montenegro
cy	cy	Cyprus
cz	cz	Czech Republic
de	de	Germany
dk	dk	Denmark
ee	ee	Estonia
es	es	Spain
fi	fi	Finland
fo	fo	Faroe Islands
fr	fr	France
gb	gb	Great Britain
gg	gg	Guernsey
gi	gi	Gibraltar
gr	gr	Greece
hr	hr	Croatia
hu	hu	Hungary
ie	ie	Ireland
im	im	Isle Of Man
is	is	Iceland
it	it	Italy
je	je	Jersey

Enumerated value name	Designation	Definition
li	li	Lichtenstein
lt	lt	Lithuania
lu	lu	Luxembourg
lv	lv	Latvia
ma	ma	Morocco
mc	mc	Monaco
mk	mk	Macedonia
mt	mt	Malta
nl	nl	Netherlands
no	no	Norway
other	other	Other than as defined in this enumeration.
pl	pl	Poland
pt	pt	Portugal
ro	ro	Romania
se	se	Sweden
si	si	Slovenia
sk	sk	Slovakia
sm	sm	San Marino
tr	tr	Turkey
va	va	Vatican City State

Table 42— Values contained in the enumeration "CountryEnum"

A.6.4 The <<enumeration>> "DirectionEnum"

List of directions of travel.

Enumerated value name	Designation	Definition
allDirections	All directions	All directions (where more than two are applicable) at this point on the road network.
anticlockwise	Anticlockwise	Anti-clockwise.
bothWays	Both ways	Both directions that are applicable at this point on the road network.
clockwise	Clockwise	Clockwise.
eastBound	East bound	East bound general direction.
inboundTowardsTown	Inbound towards town	Heading towards town centre direction of travel.
innerRing	Inner ring	Inner ring direction.
northBound	North bound	North bound general direction.
northEastBound	North east bound	North east bound general direction.
northWestBound	North west bound	North west bound general direction.
opposite	Opposite	Opposite direction to the normal direction of flow at this point on the road network.
other	Other	Other than as defined in this enumeration.
outboundFromTown	Outbound from town	Heading out of or away from the town centre direction of travel.
outerRing	Outer ring	Outer ring direction.
southBound	South bound	South bound general direction.
southEastBound	South east bound	South east bound general direction.
southWestBound	South west bound	South west bound general direction.
unknown	Unknown	Direction is unknown.
westBound	West bound	West bound general direction.

Table 433— Values contained in the enumeration "DirectionEnum"

A.6.5 The <<enumeration>> "FaultSeverityEnum"

Classification of the severity of faults.

Enumerated value name	Designation	Definition
high	High	The fault is of high severity which will render the equipment unusable or any data generated by the equipment to be of no value.
low	Low	The fault is of low severity and has only limited impact on the usability of the equipment or the value of the data generated by the equipment.
medium	Medium	The fault is of medium severity which will significantly limit the usability of the equipment or devalue the usefulness of the data generated by the equipment.
unknown	Unknown	The fault is of unknown severity and hence its effect on the usability of the equipment or the usefulness of the data generated by the equipment can not be assessed.

Table 444— Values contained in the enumeration "FaultSeverityEnum"

A.6.6 The <<enumeration>> "FuelTypeEnum"

Type of fuel used by a vehicle.

Enumerated value name	Designation	Definition
battery	Battery	Battery.
biodiesel	Biodiesel	Biodiesel.
diesel	Diesel	Diesel.
dieselBatteryHybrid	Diesel battery hybrid	Diesel and battery hybrid.
ethanol	Ethanol	Ethanol.
hydrogen	Hydrogen	Hydrogen.
liquidGas	Liquid gas	Liquid gas of any type including LPG.
lpg	LPG	Liquid petroleum gas.
methane	Methane	Methane gas.
petrol	Petrol	Petrol.
petrolBatteryHybrid	Petrol battery hybrid	Petrol and battery hybrid.

Table 455— Values contained in the enumeration "FuelTypeEnum"

A.6.7 The <<enumeration>> "GipLinkDirectionEnum"

Enumeration for GipLink digitalization direction

Enumerated value name	Designation	Definition
fromTo	From to	
toFrom	To from	

Table 466— Values contained in the enumeration "GipLinkDirectionEnum"

A.6.8 The <<enumeration>> "HeightGradeEnum"

List of height or vertical gradings of road sections.

Enumerated value name	Designation	Definition
aboveGrade	Above grade	Above or over the normal road grade elevation.
atGrade	At grade	At the normal road grade elevation.
belowGrade	Below grade	Below or under the normal road grade elevation.

Table 477— Values contained in the enumeration "HeightGradeEnum"

A.6.9 The <<enumeration>> "LaneEnum"

List of descriptors identifying specific lanes.

Enumerated value name	Designation	Definition
allLanesCompleteCarriageway	All lanes complete carriageway	In all lanes of the carriageway.
busLane	Bus lane	In the bus lane.
busStop	Bus stop	In the bus stop lane.
carPoolLane	Car pool lane	In the carpool lane.
centralReservation	Central reservation	On the central median separating the two directional carriageways of the highway.
crawlerLane	Crawler lane	In the crawler lane.
emergencyLane	Emergency lane	In the emergency lane.
escapeLane	Escape lane	In the escape lane.
expressLane	Express lane	In the express lane.
hardShoulder	Hard shoulder	On the hard shoulder.
heavyVehicleLane	Heavy vehicle lane	In the heavy vehicle lane.
lane1	Lane1	In the first lane numbered from nearest the hard shoulder to central median.
lane2	Lane2	In the second lane numbered from nearest the hard shoulder to central median.
lane3	Lane3	In the third lane numbered from nearest the hard shoulder to central median.
lane4	Lane4	In the fourth lane numbered from nearest the hard shoulder to central median.
lane5	Lane5	In the fifth lane numbered from nearest the hard shoulder to central median.
lane6	Lane6	In the sixth lane numbered from nearest the hard shoulder to central median.
lane7	Lane7	In the seventh lane numbered from nearest the hard shoulder to central median.
lane8	Lane8	In the eighth lane numbered from nearest the hard shoulder to central median.
lane9	Lane9	In the ninth lane numbered from nearest the hard shoulder to central median.
layBy	Lay by	In a lay-by.

Enumerated value name	Designation	Definition
leftHandTurningLane	Left hand turning lane	In the left hand turning lane.
leftLane	Left lane	In the left lane.
localTrafficLane	Local traffic lane	In the local traffic lane.
middleLane	Middle lane	In the middle lane.
opposingLanes	Opposing lanes	In the opposing lanes.
overtakingLane	Overtaking lane	In the overtaking lane.
rightHandTurningLane	Right hand turning lane	In the right hand turning lane.
rightLane	Right lane	In the right lane.
rushHourLane	Rush hour lane	In the lane dedicated for use during the rush (peak) hour.
setDownArea	Set down area	In the area/lane reserved for passenger pick-up or set-down.
slowVehicleLane	Slow vehicle lane	In the slow vehicle lane.
throughTrafficLane	Through traffic lane	In the through traffic lane.
tidalFlowLane	Tidal flow lane	In the lane dedicated for use as a tidal flow lane.
turningLane	Turning lane	In the turning lane.
verge	Verge	On the verge.

Table 488— Values contained in the enumeration "LaneEnum"

A.6.10 The <<enumeration>> "LinearElementNatureEnum"

List of indicative natures of linear elements.

Enumerated value name	Designation	Definition
other	Other	Other than as defined in this enumeration.
road	Road	The nature of the linear element is a road.
roadSection	Road section	The nature of the linear element is a section of a road.
slipRoad	Slip road	The nature of the linear element is a slip road.

Table 49— Values contained in the enumeration "LinearElementNatureEnum"

A.6.11 The <<enumeration>> "LinearReferencingDirectionEnum"

Directions of traffic flow relative to the direction in which the linear element is defined.

Enumerated value name	Designation	Definition
aligned	Aligned	Indicates that the direction of traffic flow affected by the situation or related to the traffic data is in the same sense as the direction in which the linear element is defined.
both	Both	Indicates that both directions of traffic flow are affected by the situation or relate to the traffic data.
opposite	Opposite	Indicates that the direction of traffic flow affected by the situation or related to the traffic data is in the opposite sense to the direction in which the linear element is defined.
unknown	Unknown	Indicates that the direction of traffic flow affected by the situation or related to the traffic data is unknown.

Table 50— Values contained in the enumeration "LinearReferencingDirectionEnum"

A.6.12 The <<enumeration>> "LoadTypeEnum"

Types of load carried by a vehicle.

Enumerated value name	Designation	Definition
abnormalLoad	Abnormal load	A load that exceeds normal vehicle dimensions in terms of height, length, width, gross vehicle weight or axle weight or any combination of these. Generally termed an "abnormal load".
ammunition	Ammunition	Ammunition.
chemicals	Chemicals	Chemicals of unspecified type.
combustibleMaterials	Combustible materials	Combustible materials of unspecified type.
corrosiveMaterials	Corrosive materials	Corrosive materials of unspecified type.
debris	Debris	Debris of unspecified type.
empty	Empty	No load.
explosiveMaterials	Explosive materials	Explosive materials of unspecified type.
extraHighLoad	Extra high load	A load of exceptional height.
extraLongLoad	Extra long load	A load of exceptional length.
extraWideLoad	Extra wide load	A load of exceptional width.
fuel	Fuel	Fuel of unspecified type.
glass	Glass	Glass.
goods	Goods	Any goods of a commercial nature.
hazardousMaterials	Hazardous materials	Materials classed as being of a hazardous nature.
liquid	Liquid	Liquid of an unspecified nature.
livestock	Livestock	Livestock.
materials	Materials	General materials of unspecified type.
materialsDangerousForPeople	Materials dangerous for people	Materials classed as being of a danger to people or animals.
materialsDangerousForTheEnvironment	Materials dangerous for the environment	Materials classed as being potentially dangerous to the environment.
materialsDangerousForWater	Materials dangerous for water	Materials classed as being dangerous when exposed to water (e.g. materials which may react exothermically with water).
oil	Oil	Oil.

Enumerated value name	Designation	Definition
ordinary	Ordinary	Materials that present limited environmental or health risk. Non-combustible, non-toxic, non-corrosive.
other	Other	Other than as defined in this enumeration.
perishableProducts	Perishable products	Products or produce that will significantly degrade in quality or freshness over a short period of time.
petrol	Petrol	Petrol or petroleum.
pharmaceuticalMaterials	Pharmaceutical materials	Pharmaceutical materials.
radioactiveMaterials	Radioactive materials	Materials that emit significant quantities of electromagnetic radiation that may present a risk to people, animals or the environment.
refuse	Refuse	Refuse.
toxicMaterials	Toxic materials	Materials of a toxic nature which may damage the environment or endanger public health.
vehicles	Vehicles	Vehicles of any type which are being transported.

Table 51— Values contained in the enumeration "LoadTypeEnum"

A.6.13 The <<enumeration>> "MeasuredOrDerivedDataTypeEnum"

Types of measured or derived data.

Enumerated value name	Designation	Definition
humidityInformation	Humidity information	Measured or derived humidity information.
individualVehicleMeasurements	Individual vehicle measurements	Measured or derived individual vehicle measurements.
pollutionInformation	Pollution information	Measured or derived pollution information.
precipitationInformation	Precipitation information	Measured or derived precipitation information.
pressureInformation	Pressure information	Measured or derived pressure information.
radiationInformation	Radiation information	Measured or derived radiation information.
roadSurfaceConditionInformation	Road surface condition information	Measured or derived road surface conditions information.
temperatureInformation	Temperature information	Measured or derived temperature information.
trafficConcentration	Traffic concentration	Measured or derived traffic concentration information.
trafficFlow	Traffic flow	Measured or derived traffic flow information.
trafficHeadway	Traffic headway	Measured or derived traffic headway information.
trafficSpeed	Traffic speed	Measured or derived traffic speed information.
trafficStatusInformation	Traffic status information	Measured or derived traffic status information.
travelTimeInformation	Travel time information	Measured or derived travel time information.
visibilityInformation	Visibility information	Measured or derived visibility information.
windInformation	Wind information	Measured or derived wind information.

Table 52— Values contained in the enumeration "MeasuredOrDerivedDataTypeEnum"

A.6.14 The <<enumeration>> "MeasurementEquipmentFaultEnum"

Types of measurement equipment faults.

Enumerated value name	Designation	Definition
intermittentDataValues	Intermittent data values	Data values are being produced at intermittent intervals which are not consistent with the expected reporting interval.
noDataValuesAvailable	No data values available	No measured data values are currently available.
other	Other	Other than as defined in this enumeration.
spuriousUnreliableDataValues	Spurious unreliable data values	Spurious or unreliable data values are being produced.
unspecifiedOrUnknownFault	Unspecified or unknown fault	An unspecified or unknown fault exists in the measurement equipment.

Table 53— Values contained in the enumeration "MeasurementEquipmentFaultEnum"

A.6.15 The <<enumeration>> "ReferentTypeEnum"

A set of types of known points along a linear object such as a road.

Enumerated value name	Designation	Definition
boundary	Boundary	A boundary between two jurisdictional or administrative areas. These may be legal boundaries such as between counties or countries, maintenance responsibility boundaries or control boundaries.
intersection	Intersection	A crossing of two or more roads where the precise point of intersection is defined according to specific business rules.
landmark	Landmark	A visible identifiable physical landmark either alongside or close to the linear object.
referenceMarker	Reference marker	A marker which is usually but not necessarily physical that is one of a sequence which are spaced out along the linear object (road) to provide a location reference. The spacing of markers is not necessarily even.
roadNode	Road node	A topological node defined on a road network. Such nodes may delineate the segmentation of the road network according to defined business rules or may constitute a purely topological representation of a road network.

Table 54— Values contained in the enumeration "ReferentTypeEnum"

A.6.16 The <<enumeration>> "TimePrecisionEnum"

List of precisions to which times can be given.

Enumerated value name	Designation	Definition
halfHour	Half hour	Time given to the nearest half hour.
hour	Hour	Time given to the nearest hour.
minute	Minute	Time given to the nearest minute.
quarterHour	Quarter hour	Time given to the nearest quarter hour.
second	Second	Time given to the nearest second.
tenthsOfSecond	Tenths of second	Time given to the nearest tenth of a second.

Table 55— Values contained in the enumeration "TimePrecisionEnum"

A.6.17 The <<enumeration>> "VehicleEquipmentEnum"

Types of vehicle equipment in use or on board.

Enumerated value name	Designation	Definition
notUsingSnowChains	Not using snow chains	Vehicle not using snow chains.
notUsingSnowChainsOrTyres	Not using snow chains or tyres	Vehicle not using either snow tyres or snow chains.
snowChainsInUse	Snow chains in use	Vehicle using snow chains.
snowChainsOrTyresInUse	Snow chains or tyres in use	Vehicle using snow tyres or snow chains.
snowTyresInUse	Snow tyres in use	Vehicle using snow tyres.
withoutSnowTyresOrChainsOnBoard	Without snow tyres or chains on board	Vehicle which is not carrying on board snow tyres or chains.

Table 56— Values contained in the enumeration "VehicleEquipmentEnum"

A.6.18 The <<enumeration>> "VehicleTypeEnum"

Types of vehicle.

Enumerated value name	Designation	Definition
agriculturalVehicle	Agricultural vehicle	Vehicle normally used for agricultural purposes, e.g. tractor, combined harvester etc.
anyVehicle	Any vehicle	Vehicle of any type.
articulatedVehicle	Articulated vehicle	Articulated vehicle.
bicycle	Bicycle	Bicycle.
bus	Bus	Bus.
car	Car	Car.
caravan	Caravan	Caravan.
carOrLightVehicle	Car or light vehicle	Car or light vehicle.
carWithCaravan	Car with caravan	Car towing a caravan.
carWithTrailer	Car with trailer	Car towing a trailer.
constructionOrMaintenanceVehicle	Construction or maintenance vehicle	Vehicle normally used for construction or maintenance purposes, e.g. digger, excavator, bulldozer, lorry mounted crane etc.
fourWheelDrive	Four wheel drive	Four wheel drive vehicle.
highSidedVehicle	High sided vehicle	High sided vehicle.
lorry	Lorry	Lorry of any type.
moped	Moped	Moped (a two wheeled motor vehicle characterized by a small engine typically less than 50cc and by normally having pedals).
motorcycle	Motorcycle	Motorcycle.
motorcycleWithSideCar	Motorcycle with side car	Three wheeled vehicle comprising a motorcycle with an attached side car.
motorscooter	Motorscooter	Motorscooter (a two wheeled motor vehicle characterized by a step-through frame and small diameter wheels).
other	Other	Other than as defined in this enumeration.
tanker	Tanker	Vehicle with large tank for carrying bulk liquids.

Enumerated value name	Designation	Definition
threeWheeledVehicle	Three wheeled vehicle	Three wheeled vehicle of unspecified type.
trailer	Trailer	Trailer.
tram	Tram	Tram.
twoWheeledVehicle	Two wheeled vehicle	Two wheeled vehicle of unspecified type.
van	Van	Van.
vehicleWithCaravan	Vehicle with caravan	Vehicle (of unspecified type) towing a caravan.
vehicleWithCatalyticConverter	Vehicle with catalytic converter	Vehicle with catalytic converter.
vehicleWithoutCatalyticConverter	Vehicle without catalytic converter	Vehicle without catalytic converter.
vehicleWithTrailer	Vehicle with trailer	Vehicle (of unspecified type) towing a trailer.
withEvenNumberedRegistrationPlates	With even numbered registration plates	Vehicle with even numbered registration plate.
withOddNumberedRegistrationPlates	With odd numbered registration plates	Vehicle with odd numbered registration plate.

Table 57— Values contained in the enumeration "VehicleTypeEnum"

A.6.19 The <<enumeration>> "VehicleUsageEnum"

Types of usage of a vehicle.

Enumerated value name	Designation	Definition
agricultural	Agricultural	Vehicle used for agricultural purposes.
commercial	Commercial	Vehicle which is limited to non-private usage or public transport usage.
emergencyServices	Emergency services	Vehicle used by the emergency services.
military	Military	Vehicle used by the military.
nonCommercial	Non commercial	Vehicle used for non-commercial or private purposes.
patrol	Patrol	Vehicle used as part of a patrol service, e.g. road operator or automobile association patrol vehicle.
recoveryServices	Recovery services	Vehicle used to provide a recovery service.
roadMaintenanceOrConstruction	Road maintenance or construction	Vehicle used for road maintenance or construction work purposes.
roadOperator	Road operator	Vehicle used by the road operator.
taxi	Taxi	Vehicle used to provide an authorised taxi service.

Table 58— Values contained in the enumeration "VehicleUsageEnum"

A.7 Extensions

The Level B Extensions are summarised in this section.

A.7.1 GroupOfLocationsExtensions

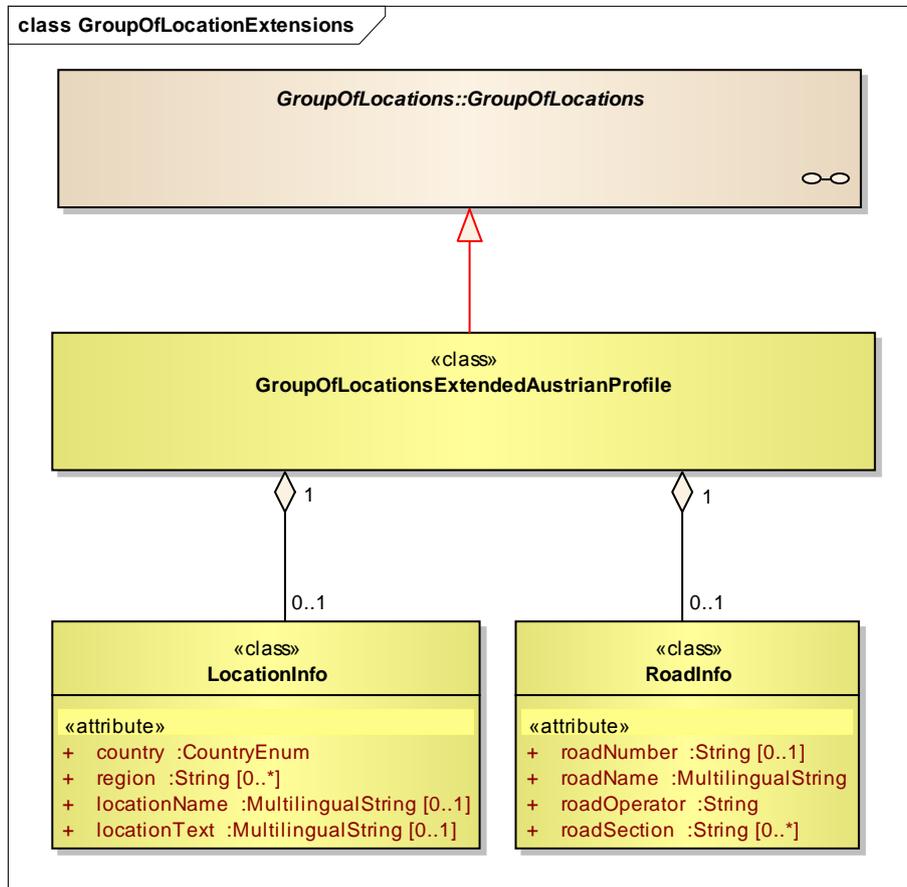


Figure A.5.2.1 Extensions for GroupOfLocations

The following classes are added to the GroupOfLocations class:

- **LocationInfo**: - Specifies the information such as country and region (or regions), where the event lies. In addition it also specifies the custom location name (locationName) and free text (locationText) related to the location of the traffic message.
- **RoadInfo**: - Specifies the information related to the Road, such as road number, road name, operator name, and one or more road sections.

A.7.2 GipLinkExtensions

To add the GIP location referencing the **Point** type is extended. The GIP location referencing method is composed of one or more GIP nodes. Each GIP node is represented as a GIPLink, which contains an id, digitalization direction, a begin offset (in percentage) and an end offset (in percentage). Note that the GIP is a proprietary standard used by multiple stake holders within Austria. In addition to these details clients also requires the shape files of the GIP digital map to interpret the location.

A.7.2.1 GipLinkPointExtension

This extension specifies the point location of a traffic message by one or more GIP links. In most cases one GIP link is sufficient to represent the point location, however for a point at intersection there may be more than one GIP link.

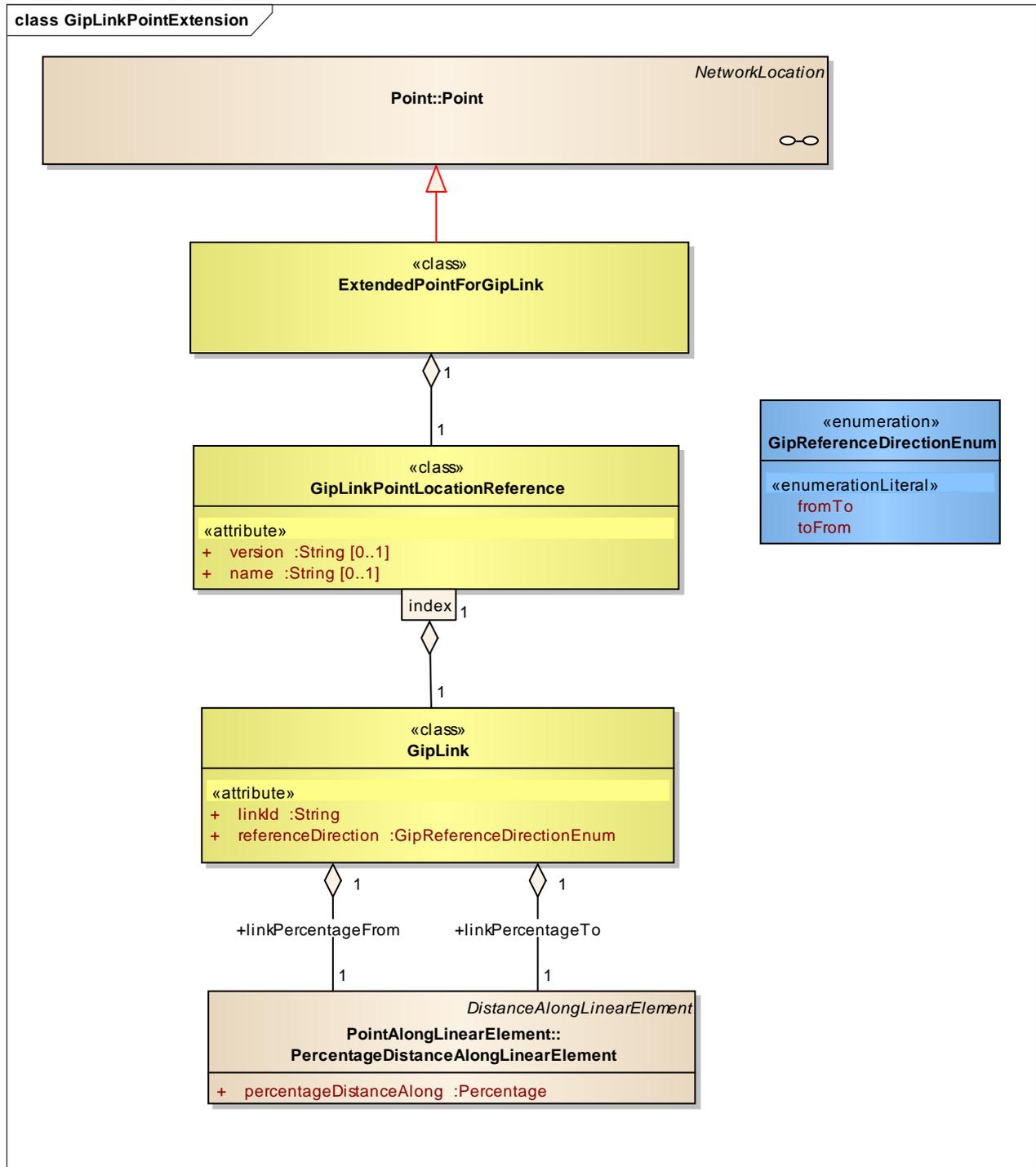


Figure A.5.3.1 Extension for Point

A.7.3 TrafficSpeedExtensions

The class TrafficSpeed is extended to provide maxVehicleSpeed, maxVehicleSpeed, and deltaVehicleSpeed.

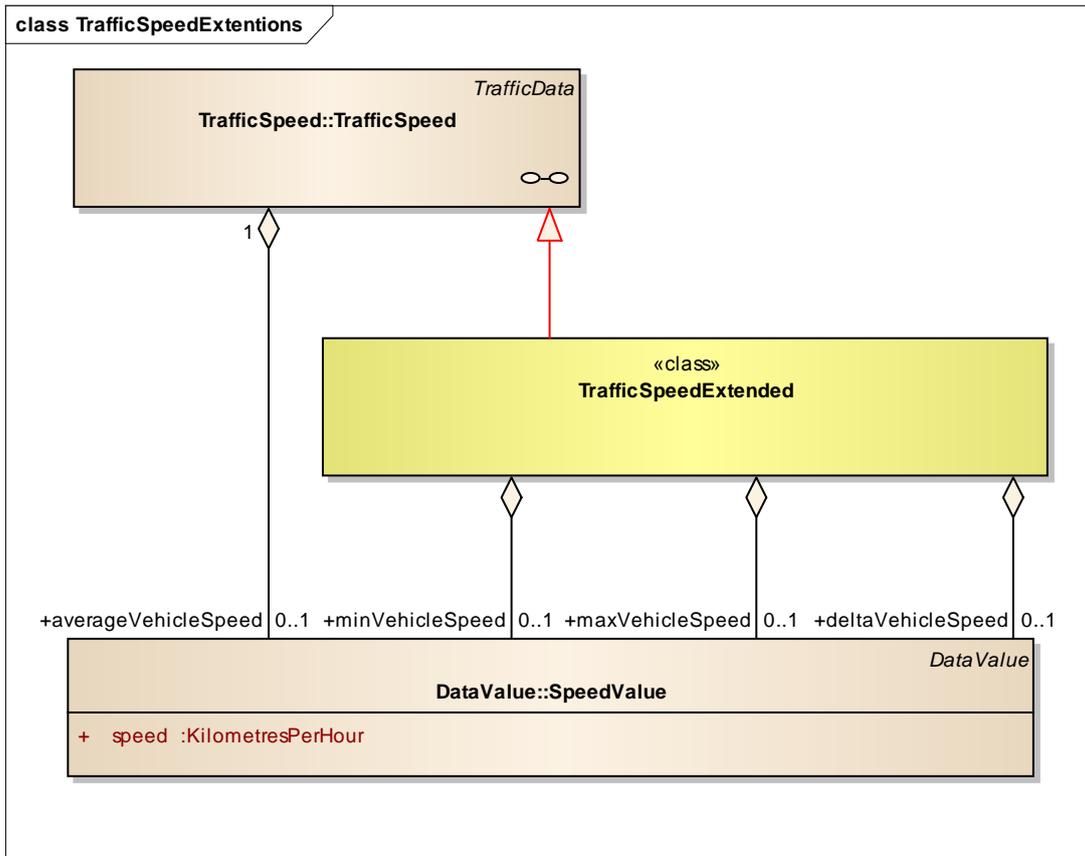


Figure A.5.4.1 Extension for TrafficSpeed