

DATEX II ESTONIAN PROFILE (TARK TEE)

1 INTRODUCTION

DATEX II is a European standard for exchanging traffic related data. More information about the standard can be found on the official webpage <https://www.datex2.eu>.

This document gives a short overview of DATEX II feeds offered by Estonian Transport Administration's traffic information system Tark Tee. It is intended for clients who wish to use traffic data from Tark Tee.

Tark Tee uses DATEX II version 2.3. The following extensions are used:

- LineString extension (https://datex2.eu/implementations/extension_directory/linestring-extension)
- SituationRecordExtendedApproved (approved extension present in the default schema)
- SituationRecordExtension with attribute *alertCEventCode*

2 LOCATION ADDRESSING

Locations used in messages are either point locations or linear locations. Point locations are given using *PointCoordinates* and *PointAlongLinearElement* elements. Linear locations use *LinearLineStringExtension* (containing GML line strings) and *LinearWithinLinearElement*. *LinearElement* is the underlying road identified by *roadName* and *roadNumber* elements. Road name/number identifies the road in Road Register (<https://teeregister.mnt.ee>).

3 PUBLICATIONS

The following publication types are used:

- MeasurementSiteTablePublication – for road weather station and traffic detector locations.
- MeasuredDataPublication – for weather data and traffic data.
- SituationPublication – for road restrictions.
- TrafficViewPublication – for road camera images.
- PredefinedLocationsPublication – for road camera locations.
- GenericPublication – for truck parking sites.

4 IDENTIFIERS AND VERSIONING

Most identifiers used in the Tark Tee DATEX II profile are in UUID format. In some cases it's not possible and different types of ID-s are used. Identifier types used for each feed type are mentioned in each feed description.

4.1 VERSIONING

Only the current versions of elements are present in XML message, historic data is not available. If a situation or measurement site is deleted or is no longer valid in Tark Tee, it no longer appears in messages.

5 SCHEMAS

Each feed type has its specific schema that contains only the elements used in that feed. In addition there's a complete schema that contains all the elements used in the all Tark Tee messages.

Enumerations still contain all the values from the default schema, possible values used in messages are listed in this document for each feed type. Some enumerations used in truck parking are the exception; in that case only the values in EC minimum profile are used and only those are present in the truck parking schema.

6 TARK TEE FEEDS

The following data feeds in DATEX II format are currently available:

6.1 MEASUREMENT SITE LOCATIONS

Measurement Site location messages contain the locations of road weather stations (and later also traffic detectors). Locations are given out as *PointCoordinates*.

Publication type: *MeasurementSiteTablePublication*

Identifiers: MeasurementSiteTable ID for road weather stations is "WEATHER_STATION_SITES". MeasurementSiteTable ID for traffic counters is "TRAFFIC_COUNTER_SITES". *MeasurementSite* ID for road weather stations is a UUID. *MeasurementSite* ID for traffic detectors is a UUID + carriageway direction identifier (1 for forwards direction, 2 for backwards direction).

6.2 WEATHER DATA

Weather data is imported from road weather stations and is updated every 10 minutes. Weather data published is precipitation type and intensity, humidity, wind speed and direction, visibility, air and dew point temperature, road surface temperature and road surface status.

Publication type: *MeasuredDataPublication*

Identifiers: none, only references to measurement site locations

Values used in enumerations:

Enumeration	Values	Comment
PrecipitationTypeEnum	hail, rain, sleet, snow	
WeatherRelatedRoadConditionTypeEnum	dry, ice, slipperyRoad, slushOnRoad, snowOnTheRoad, wet	Values are not mutually exclusive, e.g. <i>ice</i> and <i>slipperyRoad</i> can be present at the same time

Road condition type *slipperyRoad* is present if there is frost, snow, slush or ice on the road or there's a grip warning or alarm. Other road conditions are mostly taken directly from the sensor data.

6.3 TRAFFIC COUNTER DATA

Traffic counter data is imported from traffic counters. Types of traffic data published are vehicle flow and average speed. Vehicle flow is measured in 15 minute intervals and expressed as vehicles per hour.

Publication type: *MeasuredDataPublication*

Identifiers: none, only references to measurement site locations

6.4 ROAD RESTRICTIONS

Road restrictions data contains events like road closures, partial closures, temporarily increased speed limits, roadworks, size and weight limits and detours. Locations are given either as *PointCoordinates* and *PointAlongLinearElement* for point locations or *LinearWithinLinearElement* and *LinearLineStringExtension* for line locations. Detours are given as *NonOrderedLocationGroupByList* containing *LinearWithinLinearElement* elements (unless only one road segment is known in which case there is only one *LinearWithinLinearElement*).

Publication type: *SituationPublication*

Identifiers: UUID, custom identifiers

Values used in enumerations:

Enumeration	Values	Comment
ConfidentialityValueEnum	noRestriction	Data is not restricted
InformationStatusEnum	real	Only real data is transmitted
UrgencyEnum	normalUrgency	Data available to Tark Tee is not truly urgent
ProbabilityOfOccurrenceEnum	certain	Only certain events and situations are transmitted
SeverityEnum	all values are possible	
RoadworksDurationEnum	all values are possible	
RoadMaintenanceTypeEnum	installationWork, resurfacingWork, roadMarkingWork, roadsideWork, roadworks, other	
ComplianceOptionEnum	all values are possible	
GeneralNetworkManagementTypeEnum	trafficBeingManuallyDirected	
SpeedManagementTypeEnum	other	
RoadOrCarriagewayOrLaneManagementTypeEnum	laneClosures, roadClosed, other	
ReroutingManagementTypeEnum	followLocalDiversion	
PublicEventTypeEnum	other	Specific type is not known, it is usually described in comments
ValidityStatusEnum	active, definedByValidityTimeSpec	
CountryEnum	ee	
VehicleTypeEnum	anyVehicle, lorry, vehicleWithTrailer	
ComparisonOperatorEnum	greaterThanOrEqualTo	
ObstructionTypeEnum	objectOnTheRoad, obstructionOnTheRoad	
EnvironmentalObstructionTypeEnum	fallenTrees, flooding	
AnimalPresenceTypeEnum	largeAnimalsOnTheRoad	

SituationRecords in a road restriction message have non-UUID identifiers that consist of the parent Situation ID (which is UUID) and *SituationRecord* type code. Codes used are described in the following table:

SituationRecord type	ID extension
RoadOrCarriagewayOrLaneManagement	RCLM
SpeedManagement	SM
PublicEvent	PE
MaintenanceWorks	MW
GeneralNetworkManagement	GNM
ReroutingManagement	RM
GeneralObstruction	GO
EnvironmentalObstruction	EO
AnimalPresenceObstruction	APO
WeatherRelatedRoadConditions	WRRC

For example, a RoadOrCarriagewayOrLaneManagement *SituationRecord* ID might look like this: d1e0a418-0420-4168-b575-8fa8801b297f-RCLM. The maximum length of a *SituationRecord* ID is 41 characters.

6.5 SAFETY RELATED MESSAGES

Safety related messages contain all events or conditions in Tark Tee database that are classified in Commission Delegated Regulation (EU) No 886/2013 as “safety related”. The following table lists all such events or conditions that can be found in Tark Tee.

SituationRecord type	Attribute
WeatherRelatedRoadConditions	slipperyRoad
WeatherRelatedRoadConditions	ice
GeneralObstruction	objectOnTheRoad
GeneralObstruction	obstructionOnTheRoad
GeneralObstruction	unprotectedAccidentArea
EnvironmentalObstruction	flooding
EnvironmentalObstruction	fallenTrees
AnimalPresenceObstruction	largeAnimalsOnTheRoad
MaintenanceWorks	roadMarkingWork

Publication type: *SituationPublication*

Identifiers: UUID, custom identifiers

SituationRecord identifiers are mostly the same as road restriction identifiers, the exception being *WeatherRelatedRoadConditions*. *WeatherRelatedRoadConditions* identifiers look like this: 201811161440-123456-WRRC, where the first part is situation time formatted as *yyyyMMddHHmm*.

6.6 ROAD CAMERA IMAGES

Road camera images are updated every 10 minutes. Only the latest picture URL for each road camera is present in the message. Road camera locations are available in a separate publication as *PredefinedLocations*.

Publication type: *TrafficViewPublication*

Identifiers: Custom identifier

6.7 ROAD CAMERA LOCATIONS

Road Camera location messages contain the locations of road. Locations are given out as *PointCoordinates*.

Publication type: *PredefinedLocationsPublication*

Identifiers: UUID

6.8 TRUCK PARKING SITES

Truck parking sites feed contains the information about truck parking sites in Estonia.

Publication type: *GenericPublication*

Identifiers: UUID

7 ACCESSING FEEDS

To be able to access Tark Tee feeds, a valid and active API-key is needed. The process to get this API-key, is as follows:

1. Register as user of Tark Tee data gateway. You will be sent an API-key.
2. Wait for an e-mail that your API-key is activated.
3. You can now access all Tark Tee DATEX II feeds by providing your API-key. Keep your API-key secret!

To access a feed, you need to provide the API key in your request header in a X-DATEX-API-KEY field.

Example (road restrictions feed):

```
GET /api/v1/datex/restrictions HTTP/1.1
X-DATEX-API-KEY: Czq00eHzBSQIY7eYBVC5Vf
```

If you don't include the API-key or your API-key is not activated yet, you will get an HTTP 403 error.