



STALEXPORT
**Autostrada
Małopolska**

EETS-SAM Domain Statement

Annex C

Technical Requirements – ANPR technology

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1. Introduction

Stalexport Autostrada Małopolska Spółka Akcyjna with its registered office at Mysłowice (41-404), address: ul. Piaskowa 20 (**Toll Charger, SAM**) is the concessionaire of A4 toll motorway section Katowice (Murckowska junction, 340.2 km) – Kraków (Balice junction, km 401,1) (the “Site”) with a length of 60.9 km (**EETS-SAM Domain**).

The Toll Charger has introduced technical and organizational solutions enabling the recognition of vehicle’s license plate and verification if this plate number is on the list of vehicle plate numbers authorized to drive through the EETS-SAM Domain or its part, provided by the EETS provider (**whiteList**).

The passage through the EETS-SAM Domain or its part may take place after registration in the toll collection system in accordance with the categorization used by the Toll Charger at that time and after checking whether the vehicle's plate number is on the currently binding whiteList (**Registration**).

These technical requirements, addressed to EETS providers, describes the communication method, in particular to provide, receive and acknowledge receipt of White Lists and to provide information about Registration.



2. Definitions

CP – EETS provider's software and devices.

VTO – Toll Charger's software and devices.

Passage – Registration.

Correction – change of an already sent Registration resulting in a change of payment amount, vehicle class or remove Registration. Only one correction can be made for any given Registration.

PPO – toll plazas.

Toll Charger – Stalexport Autostrada Małopolska S.A.

EETS Agreement – agreement for the provision of EETS services concluded between the EETS Provider and the Toll Charger.



3. Overview

This document describes the interface between CP and VTO.

The information to be exchanged is:

- CP -> VTO:
 - whiteList,

- VTO -> CP:
 - vehicle passage after Registration (Exit),
 - Correction,
 - daily report.



4. Assumptions

4.1. Format DateTime

Date and time in whole communication will be in ISO 8601 format
Example: 2018-12-03T04:25:00.950+0100.

4.2. Message encoding

All messages will be UTF-8 encoded

4.3. Supported currencies

PLN

4.4. Supported license plates and format

- EU
- Ukraine

Without whitespaces, but with special characters (like "-") preserved.

4.5. Dictionaries

Following information will be exchanged before the integration:

- PPO:
 - Dictionary should contain possible numbers and names for tolling lanes
- Vehicle classes:

Vehicle Class	Category
Number	Class Identifier
1	1M
2	1
3	2
4	3
5	4
6	5



5. Environments

Access to the API is secured using Basic Authentication. Username and password will be established in the working mode of technical teams.

The REST API will be available at the agreed URLs . The test and production environment will be launched.

Incoming and outgoing communication in production environment will be secured by establishing a VPN between VTO and CP.



6. Inbound communication to CP (VTO -> CP)

This section describes the flow of information from VTO to CP.

VTO will send events to CP for each Registration. Registration Messages are described in point 6.1.1. These messages should be sent to CP as soon as possible but not later than 5 days after passage. For each Exit message, VTO may send Correction in order to remove Registration, change Vehicle class or amount to be paid for passage.

There can only be **one** Correction send for any given Exit, consecutive requests will be discarded by CP with an error response.

VTO must redeliver messages until CP confirms them or sends response with an error message. Time-interval between resubmission has to be agreed.

VTO will generate a daily reports. Report will be sent to CP according to EETS Agreement.

Entry messages are not used.

Toll collection is carried out in an open system.

6.1. Messages

Exit and Correction events will be shared through a Web Service provided by CP. CP will send a response for every request, so that VTO will have the delivery status available immediately.

All messages will be UTF-8 encoded.

6.1.1. Exit

Title	Notification, that a vehicle has passed through the PPO. This event tells CP, that a payment should be made.
Method	POST
Parameters	<ul style="list-style-type: none">- Unique transaction identifier. Global uniqueness must be maintained- Toll plaza unique identifier as described in Dictionaries- Toll lane unique identifier as described in Dictionaries- Date and time of passage in ISO 8601 format- Currency of payment in ISO 4217



	<ul style="list-style-type: none">- Gross amount associated to vehicle class- Net amount- VAT amount- VAT percentage- License Plate country. Possible values are the ones provided by ISO 3166- License Plate Number as described in point 4.4- Class associated with the license plate recognized by toll collection system
Success Response	Code: 200
Error Response	Code: 400 Bad Request Code: 401 Unauthorized Code: 404 Not Found

6.1.2. Correction

Title	Request send when an Registration should be removed or vehicle class or amount should be updated (an Exit message must be delivered before) eg. when a category has been changed by toll point operator.
Method	POST
Parameters	<ul style="list-style-type: none">- Unique transaction identifier. Global uniqueness must be maintained. Indicator for the base transaction (for the corresponding exit)- Currency of payment in ISO 4217- New gross amount associated to vehicle class- New net amount- New VAT amount- VAT percentage- New class associated with the license plate recognized by toll collection system- Reason for correction, possible values are: category change, cancel transit, other- Additional description
Success Response	Code: 200
Error Response	Code: 400 Bad Request Code: 401 Unauthorized



Code: 404 Not Found

6.2. Daily report

VTO should prepare a daily report with information about all passages that have been recorded for the previous day (D-1) and any Corrections made. There's probability that the report will contains Corrections for Registrations older than D-1.

VTO sends Daily reports via REST service – JSON message.

6.2.1. Message structure – JSON

Title	Daily report containing passages from the previous day
Method	POST
Parameters	<p>Record Type P – PASSAGE</p> <ul style="list-style-type: none">- Unique transaction identifier- Toll plaza unique identifier- Toll lane unique identifier- Date and time of passage in ISO 8601 format.- Currency of payment in ISO 4217- Gross amount associated to vehicle class- Net amount- VAT percentage- License Plate country. Possible values are the ones provided by ISO 3166- License Plate Number as described in point 4.4 Supported license plates and format- Class associated with the license plate recognized by toll collection system <p>Record Type C – CORRECTION</p> <ul style="list-style-type: none">- Unique transaction identifier. Indicator for the base transaction (for the corresponding exit)- New gross amount associated to vehicle class- New net amount- New VAT amount- VAT percentage- New class associated with the license plate recognized by toll collection system- Reason for correction, possible values are: category change, cancel transit, other



	- Additional description
Success Response	Code: 200
Error Response	Code: 400 Bad Request Code: 401 Unauthorized Code: 404 Not Found



7. Outbound communication from CP (CP → VTO)

CP will send:

- whiteList;
- whiteList updates (differential whiteLists).

7.1. Messages

WhiteList events will be shared through a Web Service provided by VTO. These will be delivered using JSON messages and REST endpoints. VTO will send a response for every request, so that CP will have the delivery status available immediately.

All messages will be UTF-8 encoded.

A correctly delivered White List is a list whose initiation of delivery begins by CP and whose correct receipt by the VTO will be confirmed by the VTO with code 200 after the last page of the whiteList has been received by the VTO.

A White List received correctly by the VTO is a list whose receipt ends with the VTO sending a 200 code after the last page of the White List has been received by the VTO. Confirmation of a correctly received White List is understood as sending the code 200 by VTO after VTO receives the last page of the White List.

7.1.1. WhiteList update (differential whiteList)

Title	Sending the differential white list. Since the system is Event Based, each request will contain ONLY ONE entry in the vehicles section.
Method	POST
Parameters	„Definition” section <ul style="list-style-type: none">– Creation date and time – from this time data is valid– Type (FULL, DIFFERENTIAL)– Current page– Number of all pages– Number of records on each page If the number of vehicles is greater than the number defined in pageSize, the list transfer will be divided into several synchronous

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	<p>messages, sending n + 1 will be carried out only after confirmation of receipt of message n. Confirmation of the last message (pageNumber = pageTotal) is considered as acknowledgment that VTO has received the whitelist.</p> <p>„Vehicles” section</p> <ul style="list-style-type: none">- Type of event (ADD, UPDATE, DELETE)- Recognized License Plate as described in 4.4- License Plate country. Possible values are the ones provided by ISO 3166- Class associated with the license plate on whitelist- Week day(s) in which the license plate should be valid- Last modify time of the vehicle <p>„Control” section:</p> <ul style="list-style-type: none">- Number of records in message
Success Response	Code: 200
Error Response	Code: 400 Bad Request Code: 401 Unauthorized Code: 404 Not Found

7.1.2. Full whiteList

CP should prepare a full whitelist with information about all active vehicles that are currently registered. Any vehicle not included in this list will be removed from authorized ones and it will be no more able to pass through the lanes. Report will be delivered to VTO using REST protocol – JSON.

Message is send using JSON as described in Whitelist, with type field set to "FULL" in the definition block. Additionally type of event will have only "ADD" value.

While a full whitelist is being delivered, the dispatch of a differential list is paused. Differential whitelist will be resumed after 10 minutes since receiving confirmation of full whitelist from VTO.