

Making the railway system
work better for society.

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Valenciennes, 11th March 2020

Compliance Results N° 2 – CEF Grant Agreement INEA/CEF/TRAN/M2017/1618997 acts as document D.2.1.3

To whom it may concern,

I confirm and certify herewith that the TAF TSI functionality implemented by the company GATX Rail Austria GmbH (Austria) and its subsidiaries within the Action “*Cross-border TAF TSI Telematics investment Action*”, co-financed by the Connecting Europe Facility Fund, are compliant with the appropriate provisions of the TAF-TSI Regulation No. 1305/2014 and its Technical Documents.

Details of the Action:

| | |
|--|--|
| Name of the Action: | Cross-border TAF TSI Telematics investment Action |
| No. of the Action: | 2017-AT-TM-0167-W |
| No. of the Grant Agreement: | INEA/CEF/TRAN/M2017/1618997 |
| Duration of the Action: | 12/04/2018 – 31/12/2023 |
| Verified Activity: | Activity 2 – Deployment of GATX TAF TSI platform |
| Verified TAF TSI Functionalities: | <ul style="list-style-type: none">• Rolling Sock Reference Database (RSRD) messages• Common Interface |

The results of the verification process are concluded as follows:

GATX has sent to the European Union Agency for Railway (Agency) on 03 February 2020 following attached deliverable documents / datasets for verification:

- *Description of GATX's Common Interface own development in line with the components required by the TAF TSI Technical Document ERA-TD-104 (TAF TSI - ANNEX D.2: APPENDIX E - COMMON INTERFACE).*
- *An updated List of Freight Wagons showing totally 3120 cars that were equipped with telematics devices during the period 18.4.2018 and 27.12.2019 according to the terms of Activity 1 of the Grant Agreement was submitted by GATX to the Agency on 03 February 2020. This list includes along wagon reference data also the type of information access to the individual wagons (web based solution, Common Interface, machine-to-machine).*
- *Description of GATX data exchange and RSRD message examples in the document „Technical Annex 1 to EDI agreement“.*
- *TAF TSI Rolling Stock Reference Database XML message examples.*

ERA hereby verifies, that Milestone 5 “TAF TSI compliant Common Interface implemented by 31/12/2019” is fulfilled.

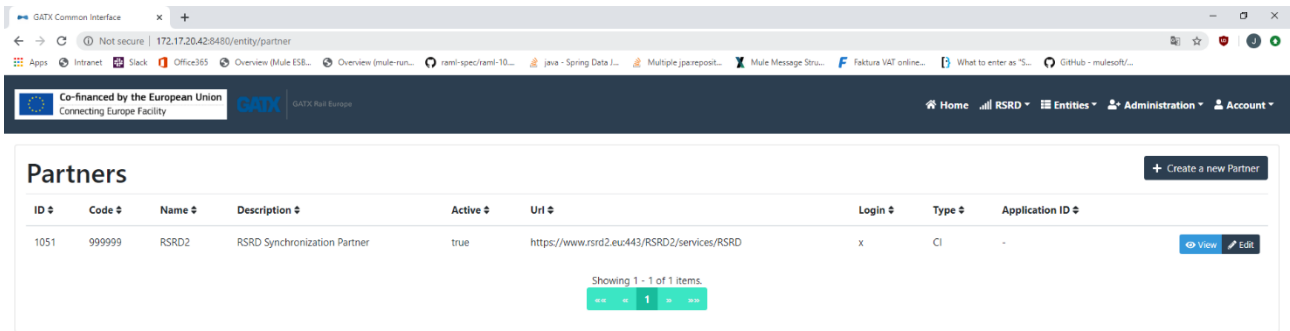
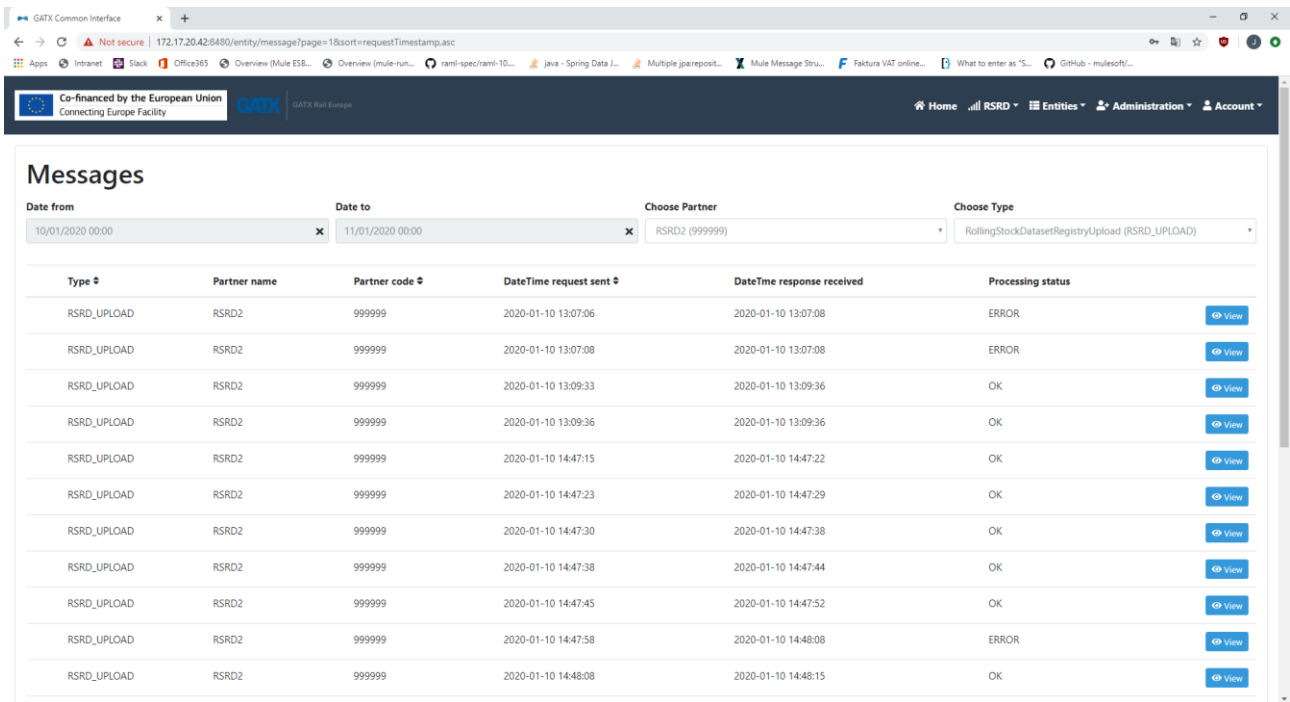
ERA hereby verifies that Milestone 6 “7218 wagons delivering data into TAF TSI platform by 31/12/2019” was fulfilled to an extent of 32% with 2.285 cars delivering data into the TAF TSI platform.

To assess the number of cars delivering data into the TAF TSI platform by 31/12/2019 out of the provided list D 2.1.2. with a total number of 3.120 cars, 75 cars have a mileage init date in 2020 and shall consequently be deducted; additional 760 cars shall be deducted as the data due to customer's decision currently not to use data access. Thereby, 2.285 cars are delivering data into the TAF TSI platform either by way of the web-based-solution, a machine-to-machine solution or by using the Common interface.

Description of GATX's Common Interface according to TAF TSI Technical Document ERA-TD-104:

Requirement 2.1.1 : To make it possible to connect the Common Interface to existing and future systems.

This requirement is satisfied as visible in the GATX Common Interface screenshots:

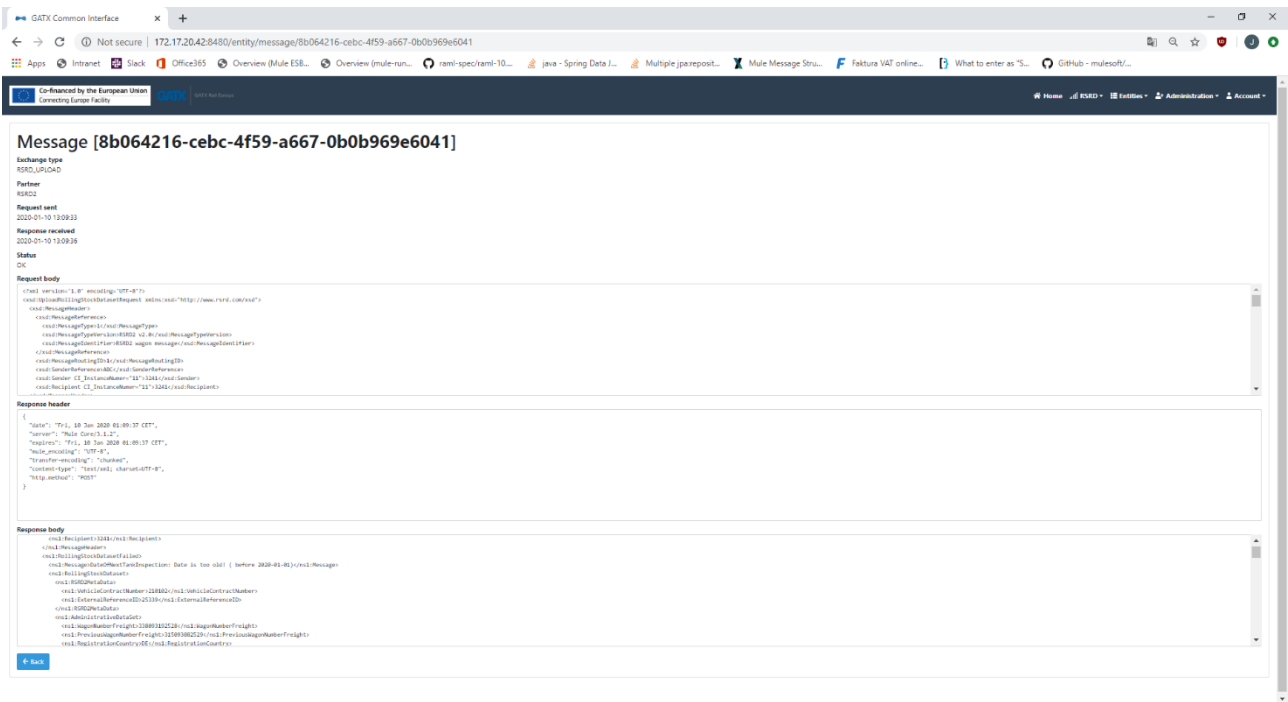


Requirement 2.1.2 : To have a Platform independent API

This requirement is satisfied as the IT System was developed as platform independent JAVA/React application.

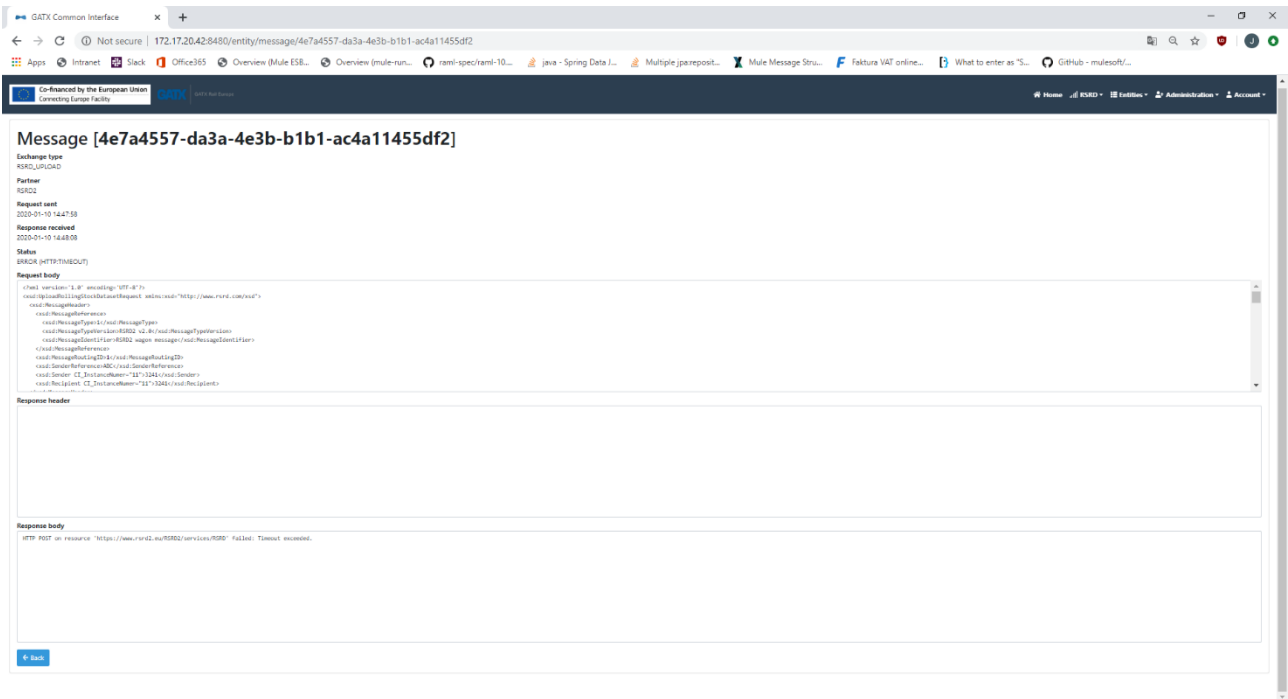
Requirement.3 : To provide support for rail industry-standard programming languages

This requirement is satisfied as visible in the GATX Common Interface screenshot where XML standard is used:



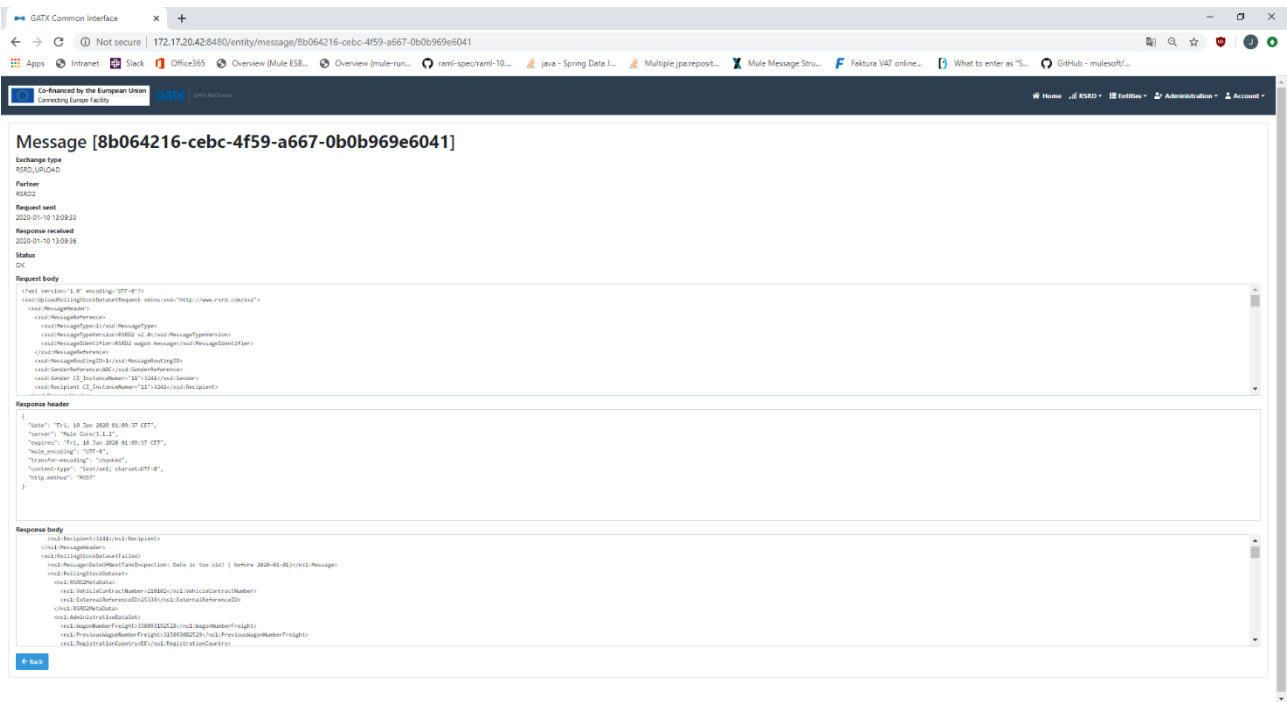
Requirement 3.1: To report the success or raise the exception with reasons in case of failure conditions.

This requirement is satisfied as visible in the GATX Common Interface screenshot:



Requirement 2.2.1 : To translate from API data to XML-formatted TAF TSI messages and vice versa

This requirement is satisfied as visible in the GATX Common Interface screenshot (transformation of RSRD² database record set into TAF XML):

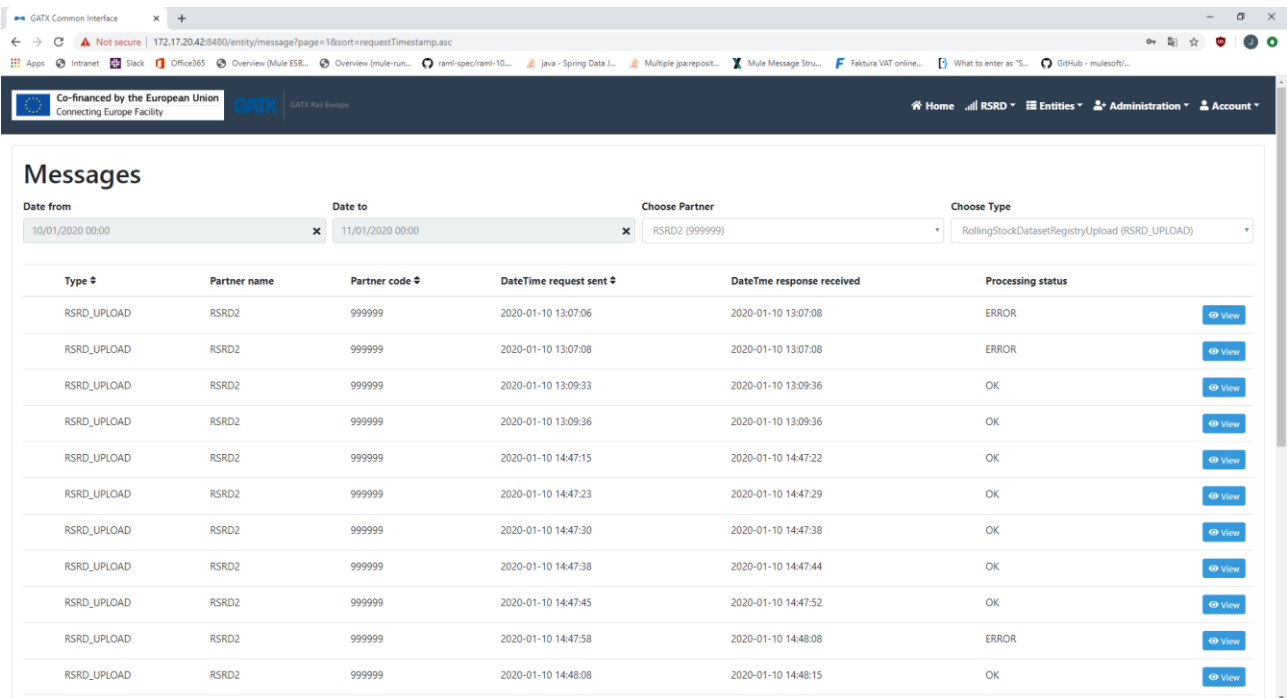


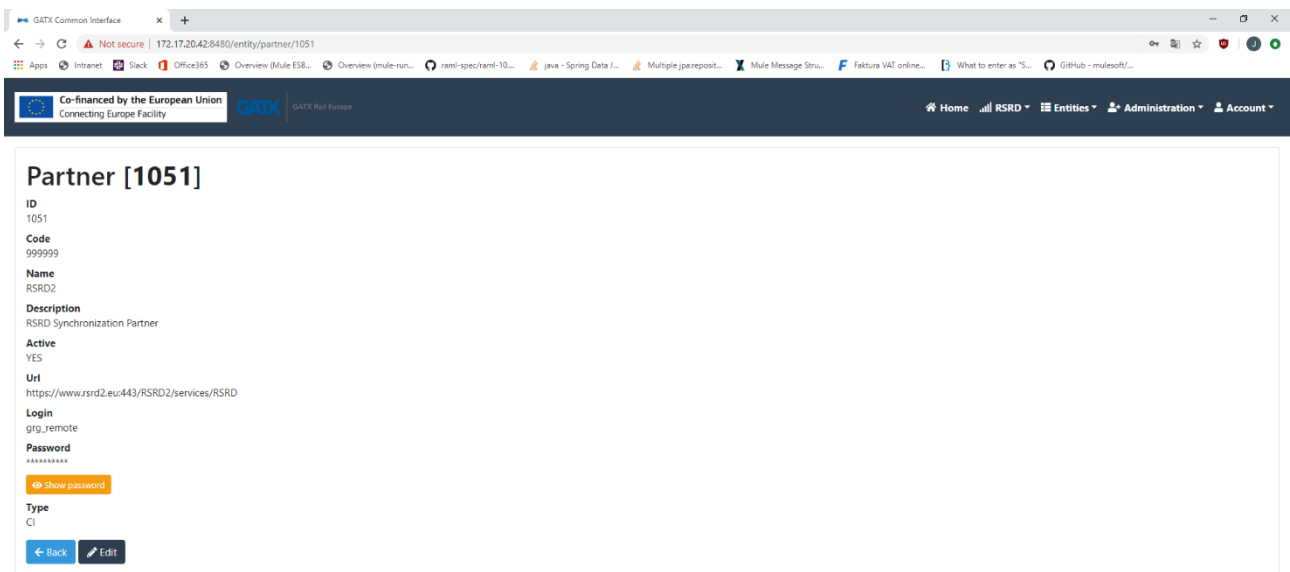
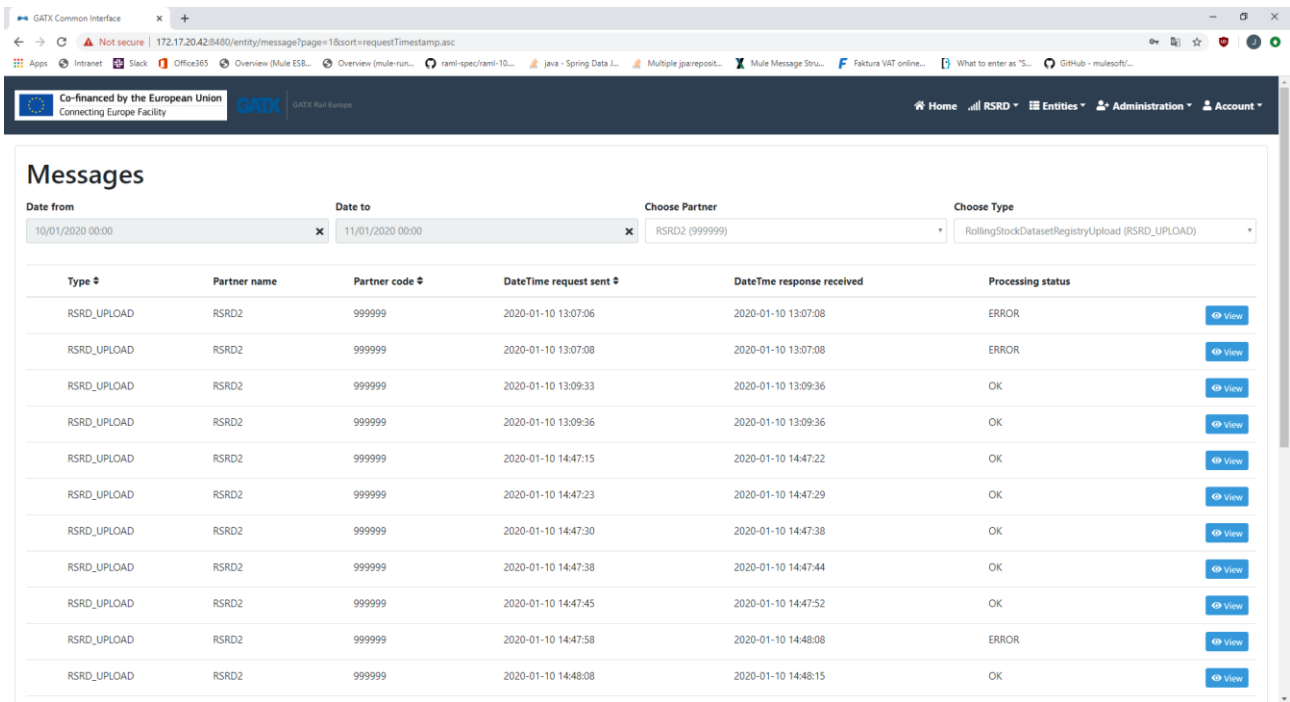
Requirement 2.2.2 : To apply multiple levels of syntactic and/or semantic validation of API data against rules and reference data

This requirement is satisfied as the API data is transformed into TAF XML (see above screenshot) including reference to XSD schema, code lists and reference data (wagon numbers).

Requirement 2.2.3 : To report on data quality, service quality, manageability and volumes.

This requirement is satisfied as visible in the GATX Common Interface screenshot:





Requirement 2.4.2 : To provide a transaction mechanism that gives the authenticated sender of a TAF TSI-formatted message on an outbound queue the guarantee that the message is received in the inbound queue of the destination Common Interface.

This requirement is satisfied as visible in the GATX Common Interface screenshots:

The screenshot shows the RabbitMQ management interface. At the top, it displays 'RabbitMQ 3.7.6 Erlang 20.3' and 'Refreshed 2019-10-23 14:14:50'. The 'Queues' tab is active, showing a graph of message rates and various operation rates (Publish, Deliver, Consumer ack, Redelivered, Get) all at 0.00/s. The 'Details' section shows features like 'x-dead-letter-exchange: resend_itss_data_received' and 'durable: true'. A table of statistics is visible:

| Messages | Total | Ready | Unacked | In memory | Persistent | Transient, Paged Out |
|----------|-------|-------|---------|-----------|------------|----------------------|
| 1 | 0 | 0 | 0 | 0 | 0 | 0 |

Additional statistics include: Consumers: 1, Consumer utilisation: 0%, Message body bytes: 0B, Process memory: 17kB.

The screenshot shows the 'Messages' page in the GATX Common Interface. It includes filters for 'Date from' (10/01/2020 00:00), 'Date to' (11/01/2020 00:00), 'Choose Partner' (RSRD2 (999999)), and 'Choose Type' (RollingStockDatasetRegistryUpload (RSRD_UPLOAD)). The main table lists message processing records:

| Type | Partner name | Partner code | DateTime request sent | DateTime response received | Processing status |
|-------------|--------------|--------------|-----------------------|----------------------------|-------------------|
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 13:07:06 | 2020-01-10 13:07:08 | ERROR |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 13:07:08 | 2020-01-10 13:07:08 | ERROR |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 13:09:33 | 2020-01-10 13:09:36 | OK |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 13:09:36 | 2020-01-10 13:09:36 | OK |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 14:47:15 | 2020-01-10 14:47:22 | OK |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 14:47:23 | 2020-01-10 14:47:29 | OK |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 14:47:30 | 2020-01-10 14:47:38 | OK |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 14:47:38 | 2020-01-10 14:47:44 | OK |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 14:47:45 | 2020-01-10 14:47:52 | OK |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 14:47:58 | 2020-01-10 14:48:08 | ERROR |
| RSRD_UPLOAD | RSRD2 | 999999 | 2020-01-10 14:48:08 | 2020-01-10 14:48:15 | OK |

List of Freight Wagons showing totally 3120 cars that were equipped with telematics devices

| identification of the freight wagon types | | | | | | mode of easy data access | | | mounting information | |
|---|----------------------------|------------------|------------------|---------------------------|------------------------|-----------------------------|---|---------------------------------------|----------------------|-----------------------------------|
| | registration number in NVR | commercial owner | Lifecycle Status | basic characteristic | UIC freight wagon type | access1: web based solution | access 2: Common Interface (RSRD2 at the moment only) | access 3: machine-to-machine solution | RU as customer | date of equipping with telematics |
| 1 | 11 xx 3221 624-2 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 17/09/2019 |
| 2 | 11 xx 3233 646-1 | HTH | Existing | Chemical Rail Tank Car | Zacens | X | | | | 13/09/2019 |
| 8 | 11 xx 3223 034-2 | HTH | Existing | Gas Rail Tank Car | Zagkks | | X | | | 24/10/2019 |
| 9 | 11 xx 3223 045-8 | HTH | Existing | Gas Rail Tank Car | Zagkks | | X | X | | 20/10/2019 |
| 10 | 11 xx 3223 047-4 | HTH | Existing | Gas Rail Tank Car | Zagkks | | X | X | | 08/10/2019 |
| 11 | 11 xx 3223 049-0 | HTH | Existing | Gas Rail Tank Car | Zagkks | | X | | | 15/07/2019 |
| 12 | 11 xx 3223 050-8 | HTH | Existing | Gas Rail Tank Car | Zagkks | | X | | | 30/07/2019 |
| 13 | 11 xx 3223 051-6 | HTH | Existing | Gas Rail Tank Car | Zagkks | | X | X | | 05/11/2019 |
| 16 | 11 xx 3231 020-1 | HTH | Existing | Chemical Rail Tank Car | Zacens | X | | | | 26/11/2019 |
| 18 | 11 xx 3231 027-6 | HTH | Existing | Chemical Rail Tank Car | Zacens | X | | | | 07/12/2019 |
| 19 | 11 xx 3231 028-4 | HTH | Existing | Chemical Rail Tank Car | Zacens | X | | | | 11/12/2019 |
| 20 | 11 xx 3231 109-2 | HTH | Existing | Chemical Rail Tank Car | Zacens | X | | | | 12/08/2019 |
| 21 | 11 xx 3221 438-7 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | Railway Undertaking | 08/11/2019 |
| 22 | 11 xx 3221 079-9 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 25/11/2019 |
| 23 | 11 xx 3221 082-3 | HTH | Existing | Gas Rail Tank Car | Zagkks | X | | | | 06/06/2019 |
| 24 | 11 xx 3221 087-2 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 29/11/2019 |
| 25 | 11 xx 3221 093-0 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 07/06/2019 |
| 26 | 11 xx 3221 097-1 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 16/07/2019 |
| 27 | 11 xx 3221 208-4 | HTH | Existing | Gas Rail Tank Car | Zagkks | X | X | | Railway Undertaking | 05/08/2019 |
| 28 | 11 xx 3221 209-2 | HTH | Existing | Gas Rail Tank Car | Zagkks | X | X | | Railway Undertaking | 02/10/2019 |
| 29 | 11 xx 3221 213-4 | HTZ | Existing | Gas Rail Tank Car | Zagkks | | | | | 13/06/2019 |
| 30 | 11 xx 3221 226-6 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 16/07/2019 |
| 31 | 11 xx 3223 026-8 | HTH | Existing | Gas Rail Tank Car | Zagkks | | X | | | 06/09/2019 |
| 33 | 11 xx 3221 346-2 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 19/07/2019 |
| 34 | 11 xx 3221 348-8 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 08/07/2019 |
| 35 | 11 xx 3221 351-2 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 08/08/2019 |
| 36 | 11 xx 3231 006-0 | HTH | Existing | Chemical Rail Tank Car | Zacens | X | | | | 15/01/2019 |
| 39 | 11 xx 3221 448-6 | HTH | Existing | Gas Rail Tank Car | Zagkks | | | | | 04/06/2019 |
| 40 | 11 xx 3221 449-4 | HTZ | Existing | Gas Rail Tank Car | Zagkks | | | | Railway Undertaking | 29/08/2019 |
| 42 | 11 xx 3233 109-0 | HTH | Existing | Chemical Rail Tank Car | Zacens | X | | | | 25/01/2019 |
| 46 | 11 xx 3233 218-9 | HTH | Existing | Chemical Rail Tank Car | Zacens | X | | | | 11/02/2019 |
| 48 | 11 xx 3256 456-7 | HTZ | Existing | Mineral Oil Rail Tank Car | Zas | X | | | | 26/11/2019 |
| 49 | 11 xx 3256 465-8 | HTH | Existing | Mineral Oil Rail Tank Car | Zac | X | | | | 31/10/2019 |

Above list is an excerpt of the Excel list with 3120 wagons provided by GATX to ERA where some commercial information has been modified intentionally.

Description of GATX data exchange and RSRD message examples in the document „Technical Annex 1 to EDI agreement“:

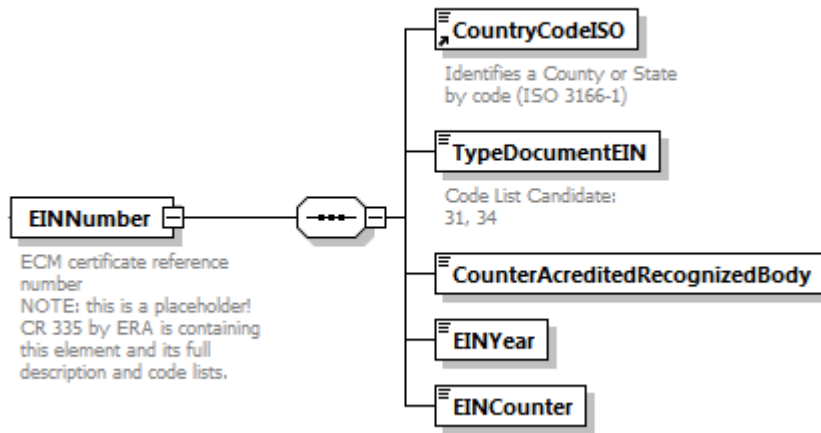
This Annex can be found at the end of this report.

TAF TSI Rolling Stock Reference Database XML message examples:

As an example the TAF TSI XML message „UploadRollingStockDatasetRequest.xml“ (sent from GATX to ERA) was tested. This message corresponds to the TAF XSD message „RollingStockDatasetMessage“ but carries on top of it some GATX defined RSRD2MetaData.

The provided details have been successfully checked for TAF TSI hard compliance with Altova XML Spy 2019 tool on 09 March 2020.

At this stage it must be stated that above GATX message expresses the EINNumber as a concatenated value <n1:EINNumber>CH/31/02/18/7218</n1:EINNumber> whereas in the TAF TSI it is a complex type:



Some excerpts of above Rolling Stok Reference Database XML message (where some commercial information has been modified intentionally) can be found at the end of the document.

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Technical Annex 1 to EDI agreement

1. Overview

This document contains technical specification of data exchange activity between two parties:

Sender – GATX Rail Poland

Receiver (*Customer*) - XXX

Data exchange will be provided using SOAP web services technology for administrative and technical data. Telematics data will be transferred using REST webservice technology. Both parties have to prepare endpoints according below specification and annexes to this document.

Administrative and technical message specified in this annex is built on base on TAF TSI 1.2 catalogue which is existing data exchange standard promoted by European Railway Agency. This data is available via push and via pull (via request). Customer will receive data pushed by GATX or has to send query message to get the requested data.

Telematics message is based on ITSS1.2 Assembled Notification and it's proactively forwarded to customer whenever GPS device provided new data to GATX.

2. Communication scenarios

2.1. Administrative and technical data

2.1.1. Flow I – Data Push

In designed interface, GATX will push data to customer endpoint on daily basis. Pushed dataset will contain only wagons that got changes in data in last calendar day. Push of data will happened in morning hours (around 6:00 AM.). One push message will contain data for maximum

50 wagons. If Customer’s endpoint cannot be reached for any reason or error message was send as response message will be send to queue. Re-push will be triggered after one hour (around 7:00 AM) and again after two hours (around 8:00 AM). If after this two additional tries data was not successfully received by customer messages will be removed from queue. In such cases missing data will be pushed during full synchronization or using pull method triggered by customer.



Picture 1. Administrative and technical data – Flow I

2.1.2. Flow II – Data Pull

In designed flow customer can query dataset by sending Query Message to GATX endpoint. Query message should contain maximum 50 wagon numbers as maximum, if customer would like to receive data for more wagons multiple queries have to be send. Response dataset will contain datasets for requested wagons and potentially list of refused wagons (e.g. if wagon is not rented by PKN or rental is ended).



Picture 2. Administrative and technical data – Flow II

2.2. Query Message (RollingStockDatasetQueryMessage)

| | Field Name | required | data type |
|---------------|--------------------------------------|----------|-------------|
| MessageHeader | MessageReference->MessageType | yes | integer |
| | MessageReference->MessageTypeVersion | yes | string |
| | MessageReference->MessageIdentifier | yes | string |
| | MessageReference->MessageDateTime | yes | datetime |
| | MessageRoutingID | no | numeric (2) |
| | SenderReference | no | string |
| | Sender | yes | numeric (4) |
| | Recipient | yes | numeric (4) |
| | SenderReference | no | string |
| | WagonNumberFreight | yes | string (12) |

Example:

```
<?xml version="1.0" encoding="utf-8"?>
<RollingStockDatasetQueryMessage xmlns="http://taf-jsg.info/schemes">
  <MessageHeader>
    <MessageReference>
      <MessageType>1</MessageType>
      <MessageTypeVersion>MessageTypeVersion1</MessageTypeVersion>
      <MessageIdentifier>MessageIdentifier1</MessageIdentifier>
      <MessageDateTime>1900-01-01T01:01:01+01:00</MessageDateTime>
    </MessageReference>
    <MessageRoutingID>1</MessageRoutingID>
    <SenderReference>SenderReference1</SenderReference>
    <Sender>1000</Sender>
    <Recipient>2000</Recipient>
  </MessageHeader>
  <WagonNumberFreight>123456123456</WagonNumberFreight>
  <WagonNumberFreight>123456123456</WagonNumberFreight>
</RollingStockDatasetQueryMessage>
```

```
<WagonNumberFreight>123456123456</WagonNumberFreight>  
</RollingStockDatasetQueryMessage>
```

2.3. Dataset Message (RollingStockDatasetMessage)

| | | Field Name | required | data type |
|--------------------|---------------------|--|--------------------|-------------|
| MessageHeader | | MessageReference->MessageType | yes | integer |
| | | MessageReference->MessageTypeVersion | yes | string |
| | | MessageReference->MessageIdentifier | yes | string |
| | | MessageReference->MessageDateTime | yes | datetime |
| | | MessageRoutingID | no | numeric (2) |
| | | SenderReference | no | string |
| | | Sender | yes | numeric (4) |
| | | Recipient | yes | numeric (4) |
| | | SenderReference | no | string |
| | RollingStockDataset | AdministrativeDataSet | WagonNumberFreight | yes | string (12) |
| DatePutIntoService | | | yes | date |
| RepairWeek | | | no | numeric (2) |
| RepairYear | | | no | numeric (4) |
| RepairShop | | | no | string |
| ContractBegin | | | yes | date |
| ContractEnd | | | yes | date |
| CarOwner | | | yes | string |
| KeeperShortNameVKM | | | yes | string |
| DesignDataSet | | LetterMarking | yes | string |
| | | LoadingCapacity | no | decimal |
| | | DateNextOverhaul | yes | date |
| | | DateOfNextTankInspection | yes | date |
| | | WagonWeightEmpty | yes | integer |

| | | | | |
|--|-----------|---|---|-------------|
| | | TankCode | no | string |
| | | VapourReturnSystem | no | boolean |
| | | LengthOverBuffers | yes | integer |
| | LoadTable | LoadTableProduct -> ProductUNCode | no | numeric (4) |
| | | LoadTableProduct -> ProductRIDName | no | string |
| | | CountryIdentISO | no | string (2) |
| | | SpeedCategory | yes | numeric (5) |
| | | LoadTableStars | no | integer |
| | | RouteClassPayloads -> RouteClass | yes | string |
| | | RouteClassPayloads -> MaxPayload | yes | decimal |
| | | | RefusedWagonNumbers -> WagonNumberFreight | no | string (12) |
| | | RefusedWagonNumbers -> RefusalCode | no | integer |
| | | RefusedWagonNumbers -> KeeperShortNameVKM | no | string |

Example:

```
<?xml version="1.0" encoding="utf-8"?>
<RollingStockDatasetMessage xmlns="http://taf-jsg.info/schemes">
  <MessageHeader>
    <MessageReference>
      <MessageType>1</MessageType>
      <MessageTypeVersion>MessageTypeVersion1</MessageTypeVersion>
      <MessageIdentifier>MessageIdentifier1</MessageIdentifier>
      <MessageDateTime>1900-01-01T01:01:01+01:00</MessageDateTime>
    </MessageReference>
    <MessageRoutingID>1</MessageRoutingID>
    <SenderReference>SenderReference1</SenderReference>
    <Sender>1000</Sender>
    <Recipient>2000</Recipient>
  </MessageHeader>
  <RollingStockDataset>
    <AdministrativeDataSet>
      <WagonNumberFreight>123456123456</WagonNumberFreight>
      <DatePutIntoService>1900-01-01</DatePutIntoService>
      <RepariWeek>12</RepariWeek>
      <RepairYear>2021</RepairYear>
      <RepairShop>Wagon Service Ostróda</RepairShop>
      <ContractBegin>1900-01-01</ContractBegin>
      <ContractEnd>1900-01-01</ContractEnd>
    </AdministrativeDataSet>
  </RollingStockDataset>
</RollingStockDatasetMessage>
```



```

        <KeeperShortNameVKM>GRA</KeeperShortNameVKM>
        <KeeperShortNameVKM>GATXA</KeeperShortNameVKM>
    </AdministrativeDataSet>
    <DesignDataSet>
        <LetterMarking>LetterMarking1</LetterMarking>
        <LoadingCapacity>1</LoadingCapacity>
        <DateNextOverhaul>1900-01-01</DateNextOverhaul>
        <DateOfNextTankInspection>1900-01-01</DateOfNextTankInspection>
        <TankCode>TankCode1</TankCode>
        <VapourReturnSystem>true</VapourReturnSystem>
        <LengthOverBuffers>999999</LengthOverBuffers>
        <LoadTable>
            <LoadTableProduct>
                <ProductUNCode>1</ProductUNCode>
                <ProductRIDName>ProductRIDName1</ProductRIDName>
            </LoadTableProduct>
            <LoadTableCountry>L1</LoadTableCountry>
            <SpeedCategory>1</SpeedCategory>
            <LoadTableStars>1</LoadTableStars>
            <RouteClassPayloads>
                <RouteClass>A</RouteClass>
                <MaxPayload>20.2</MaxPayload>
            </RouteClassPayloads>
            <RouteClassPayloads>
                <RouteClass>B</RouteClass>
                <MaxPayload>30.2</MaxPayload>
            </RouteClassPayloads>
            <RouteClassPayloads>
                <RouteClass>C</RouteClass>
                <MaxPayload>40.2</MaxPayload>
            </RouteClassPayloads>
        </LoadTable>
    </DesignDataSet>
</RollingStockDataset>
<RefusedWagonNumbers>
    <WagonNumberFreight>123456123457</WagonNumberFreight>
    <RefusalCode>1</RefusalCode>
    <KeeperShortNameVKM>KeeperSho1</KeeperShortNameVKM>
</RefusedWagonNumbers>
<RefusedWagonNumbers>
    <WagonNumberFreight>123456123458</WagonNumberFreight>
    <RefusalCode>2</RefusalCode>
    <KeeperShortNameVKM>KeeperSho2</KeeperShortNameVKM>
</RefusedWagonNumbers>
<RefusedWagonNumbers>
    <WagonNumberFreight>123456123459</WagonNumberFreight>
    <RefusalCode>1</RefusalCode>
    <KeeperShortNameVKM>KeeperSho3</KeeperShortNameVKM>
</RefusedWagonNumbers>
</RollingStockDatasetMessage>
    
```

2.4. Confirmation Message (ReceiptConfirmationMessage)

| MessageHeader | Field Name | required | data type |
|---------------|---------------------------------|----------|-----------|
| | MessageReference -> MessageType | yes | integer |

| | | | |
|------------------|--------------------------------------|-----|-------------|
| | MessageReference->MessageTypeVersion | yes | string |
| | MessageReference->MessageIdentifier | yes | string |
| | MessageReference->MessageDateTime | yes | datetime |
| | MessageRoutingID | no | numeric (2) |
| | SenderReference | no | string |
| | Sender | yes | numeric (4) |
| | Recipient | yes | numeric (4) |
| | SenderReference | no | string |
| RelatedReference | RelatedType | yes | integer |
| | RelatedIdentifier | yes | string |
| | RelatedMessageDateTime | yes | datetime |
| | | | |
| | | | |
| | | | |

Example:

```
<?xml version="1.0" encoding="utf-8"?>
<ReceiptConfirmationMessage xmlns="http://taf-jsg.info/schemes">
  <MessageHeader>
    <MessageReference>
      <MessageType>1</MessageType>
      <MessageTypeVersion>MessageTypeVersion1</MessageTypeVersion>
      <MessageIdentifier>MessageIdentifier1</MessageIdentifier>
      <MessageDateTime>1900-01-01T01:01:01+01:00</MessageDateTime>
    </MessageReference>
    <MessageRoutingID>1</MessageRoutingID>
    <SenderReference>SenderReference1</SenderReference>
    <Sender>1000</Sender>
    <Recipient>1900</Recipient>
  </MessageHeader>
  <RelatedReference>
    <RelatedType>1</RelatedType>
    <RelatedIdentifier>RelatedIdentifier1</RelatedIdentifier>
    <RelatedMessageDateTime>1900-01-01T01:01:01+01:00</RelatedMessageDateTime>
  </RelatedReference>
</ReceiptConfirmationMessage>
```

2.5. Error Message (ErrorMessage)

| | Field Name | required | data type |
|---|--------------------------------------|----------|-------------|
| MessageHeader | MessageReference->MessageType | yes | integer |
| | MessageReference->MessageTypeVersion | yes | string |
| | MessageReference->MessageIdentifier | yes | string |
| | MessageReference->MessageDateTime | yes | datetime |
| | MessageRoutingID | no | numeric (2) |
| | SenderReference | no | string |
| | Sender | yes | numeric (4) |
| | Recipient | yes | numeric (4) |
| | SenderReference | no | string |
| | MessageStatus | | yes | token (1,2,3) |
| AdministrativeContactInformation -> Name | | yes | string |
| ErrorCauseReference-> MessageReference-> MessageType | | yes | integer |
| ErrorCauseReference-> MessageReference-> MessageTypeVersion | | yes | string |
| ErrorCauseReference-> MessageReference-> MessageIdentifier | | yes | string |
| ErrorCauseReference-> MessageReference-> MessageDateTime | | yes | datetime |
| ErrorCauseReference-> TagReference | | yes | string |
| TypeOfError | | yes | integer |
| Severity | | yes | integer |
| ErrorCode | | yes | integer |
| FreeTextField | | yes | string |

Example:

```
<?xml version="1.0" encoding="utf-8"?>
<ErrorMessage xmlns="http://taf-jsg.info/schemes">
  <MessageHeader>
    <MessageReference>
      <MessageType>1</MessageType>
      <MessageTypeVersion>MessageTypeVersion1</MessageTypeVersion>
      <MessageIdentifier>MessageIdentifier1</MessageIdentifier>
      <MessageDateTime>1900-01-01T01:01:01+01:00</MessageDateTime>
```

```
</MessageReference>
<MessageRoutingID>1</MessageRoutingID>
<SenderReference>SenderReference1</SenderReference>
<Sender>1564</Sender>
<Recipient>1456</Recipient>
</MessageHeader>
<MessageStatus>1</MessageStatus>
<AdministrativeContactInformation>
  <Name>Name1</Name>
</AdministrativeContactInformation>
<ErrorCauseReference>
  <MessageReference>
    <MessageType>9999</MessageType>
    <MessageTypeVersion>MessageTypeVersion2</MessageTypeVersion>
    <MessageIdentifier>MessageIdentifier2</MessageIdentifier>
    <MessageDateTime>0001-01-01T00:00:00+01:00</MessageDateTime>
  </MessageReference>
  <TagReference>TagReference1</TagReference>
</ErrorCauseReference>
<TypeOfError>0</TypeOfError>
<Severity>1</Severity>
<ErrorCode>1</ErrorCode>
<FreeTextField>FreeTextField1</FreeTextField>
</ErrorMessage>
```

3. Telematics data

In designed interface telematics data will be pushed to customer end point proactively. Push will be triggered as soon as new telematics message for car rented by customer is available. If customer's system received message he send back confirmation or error message as http code. All communication is done during one open connection. Designed interface is using REST technology, datasets are send as JSON files. Each message contains one dataset for one car.

3.1. Telematics data

Telematics dataset is in line with ITSS 1.2 Assembled Notification as a common market standard. Detailed information can be found at ITSS website they are also annex to this document. If message can be received by customer or error code was received message will be moved to queue and retry periodically for 24 hours. After that message will be removed from queue.



Picture 3. Telematics data communication

3.2. Dataset Message (AssembledNotification)

| | |
|-------------------|---|
| HTTP Type | POST |
| MIME Type | application/json |
| Request Path | https://customeruri/itss/1.2/assembledNotification |
| BODY: json Schema | <pre> { "title": "assembledNotification", "\$schema": "http://json-schema.org/draft-04/schema#", "type": "object", "properties": { "ITSS_TransportDeviceID": { "type": "string", required:false }, "ITSS_TelematicsDeviceID": { "type": "string", required:true }, "UTctimestamp": { "type": "number", required:true }, "GNSS_Position" : { "type": "object", required: false "properties": { "GNSS_UTctimestamp": { "type": "number", required:true }, "GNSS_Latitude": { "type": "number", required:true }, "GNSS_Longitude": { "type": "number", required:true }, "GNSS_Speed_kmph": { "type": "number", required:false }, "GNSS_Heading_deg": { "type": "number", required:false }, "GNSS_Altitude": { "type": "number", required:false }, "GNSS_Accuracy": { "type": "number", required:false }, "ITSS_LocationInfo": { "type": "object", required:false, "properties": { "Location_ZIP": { "type": "string", required: false }, "Location_City": { "type": "string", required: false }, "Location_Street": { "type": "string", required: false }, "Location_Description": { "type": "string", required: false }, "Location_Country": { "type": "string", required: false }, "Location_UIC_Code": { "type": "string", required: false }, "Location_GeoZone": { "type": "string", required: false } } } } }, "mileage": { "type": "number", required:false}, "loadingState": { "type": "string", required: false}, "payload": { "type": "number", required: false}, "ITSS_SensorValueList" : { "type": "array", required:false } { "ITSS_SensorValue": { "type": "object", required: false } "properties": { "SamplingUTCTimestamp": { "type": "number", required: true }, "ITSS_SensorId": { "type": "string", required: true }, "Value": { "type": "float", required: true }, "ITSS_SensorType": { "type": "string", required: true }, "ITSS_SensorPosition": { "type": "string", required: true } } } } </pre> |

| | |
|-----------------------------|---|
| | <pre> }, "ITSS_TelematicsApplicationID": { "type": "string", required:true} } </pre> |
| BODY example | <pre> { "ITSS_TransportDeviceID": "3180 4674 001-1", "ITSS_TelematicsDeviceID": "MANUF000000751", "UTCtimestamp": 1436712339.124, "GNSS_Position" : { "GNSS_UTCtimestamp": 1436712345.154, "GNSS_Latitude": 52.264304, "GNSS_Longitude": 10.525537, "GNSS_Speed_kmph": 48.87, "GNSS_Heading_deg": 350.1, "ITSS_LocationInfo": { "Location_ZIP": "38126", "Location_City": "Braunschweig", "Location_Street": "Berliner Platz", "Location_Description": "Braunschweig Hbf", "Location_Country": "Germany", "Location_UIC_Code": "051", "Location_GeoZone": "DE" } }, }, "ITSS_TelematicsApplicationID": "TeleApp0815" } </pre> |
| Response on success | |
| HTTP Status | 201 |
| MIME Type | Text plain |
| Response on undefined error | |
| HTTP Status | All other HTTP Status codes |
| MIME Type | text/plain |

4. Service availability

In case of any disturbances in interface customer should notify GATX using e-mail. By disturbances means condition of the interface preventing the access and use cause by GATX side. The notifications are pre-classified and examined by the GATX on **working days** between **8:00AM and 5:00PM** (Polish Time). Accepted notifications and problems shall be resolved maximum 5 working days.

GATX ensure maximum data loss for period of 8 hours; after interface is back functional, re-push of missing data will be triggered.

GATX e-mail address for notifications :.....

Customer e-mail address:

5. Security

All connections will be secured using SSL protocol. Messages before push will not be encrypted or signed.

6. Additional documentation

I - taf_cat_codelists_sector.xsd

II - taf_cat_complete_sector.xsd

III - ITSS_Standard_Specification_Interface1_V1-2_final (002).pdf

7. Endpoints specification

7.1. Administrative and technical data (SOAP)

| | | |
|-----------------------|----------------------------|-------|
| GATX End Point | IP Address | ..... |
| | Port | ..... |
| | URI | ..... |
| | Basic Authentication Login | ..... |
| | Basic Authentication Pass | ..... |

| | | |
|---------------------------|----------------------------|-------|
| Customer End Point | IP Address | ..... |
| | Port | ..... |
| | URI | ..... |
| | Basic Authentication Login | ..... |
| | Basic Authentication Pass | ..... |

7.2. Telematics Data (REST)

| | | |
|-----------------------|------------|-------|
| GATX End Point | IP Address | ..... |
| | | |
| | | |
| | | |
| | | |

| | | |
|---------------------------|----------------------------|-------|
| Customer End Point | IP Address | ..... |
| | Port | ..... |
| | URI | ..... |
| | Basic Authentication Login | ..... |
| | Basic Authentication Pass | ..... |

8. Change log

01.03.2019 – v1.0 – Initial Creation – H.Gołębiewski

28.03.2019 – v1.1 ; v1.2 – General corrections – H.Gołębiewski

24.01.2020 – v1.3 – Main changes due to new communication scenarios, - H.Gołębiewski

Making the railway system
work better for society.

Rolling Stock Reference Database XML message

```
<n1:RollingStockDatasetMessage xmlns:xsd="http://www.rsrld.com/xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.era.europa.eu/schemes/TAFTSI/2.3
file:///T:/Technical%20Specifications%20-
%20TSIs/WP%20TAF/WG%2010%20TAF%20Implementation/99%20Other%20documents/Compliance%20map
ping/... /taf_cat_complete.xsd" xmlns:n1="http://www.era.europa.eu/schemes/TAFTSI/2.3">
  <n1:MessageHeader>
    <n1:MessageReference>
      <n1:MessageType>1</n1:MessageType>
      <n1:MessageTypeVersion>RSRD2 v2.0</n1:MessageTypeVersion>
      <n1:MessageIdentifier>RSRD2 wagon message</n1:MessageIdentifier>
      <n1:MessageDateTime>2001-04-28T10:37:37</n1:MessageDateTime>
    </n1:MessageReference>
    <n1:MessageRoutingID>1</n1:MessageRoutingID>
    <n1:SenderReference>ABC</n1:SenderReference>
    <n1:Sender n1:CI_InstanceNumber="78">213x</n1:Sender>
    <n1:Recipient n1:CI_InstanceNumber="91">x281</n1:Recipient>
  </n1:MessageHeader>
  <n1:RollingStockDataset>
    <n1:RSRD2MetaData>
      <n1:VehicleContractNumber>6845000614</n1:VehicleContractNumber>
      <n1:ExternalReferenceID>9984</n1:ExternalReferenceID>
    </n1:RSRD2MetaData>
    <n1:AdministrativeDataSet>
      <n1:WagonNumberFreight>112723681056</n1:WagonNumberFreight>
      <n1:PreviousWagonNumberFreight>225878889617</n1:PreviousWagonNumberFreight>
      <n1:RegistrationCountry>HK</n1:RegistrationCountry>
      <n1>DatePutIntoService>1998-12-14</n1>DatePutIntoService>
      <n1:SuspensionOfAuthorisation
xmlns="http://www.era.europa.eu/schemes/TAFTSI/2.3">true</n1:SuspensionOfAuthorisation>
      <n1:ChannelTunnelPermitted>false</n1:ChannelTunnelPermitted>
      <n1:KeeperShortNameVKM
xmlns="http://www.era.europa.eu/schemes/TAFTSI/2.3">a</n1:KeeperShortNameVKM>
      <n1:OwnerCompanyCode>254021</n1:OwnerCompanyCode>
      <n1:KeeperCompanyCode>598021</n1:KeeperCompanyCode>
      <n1:KeeperShortNameVKM>MEGATanker</n1:KeeperShortNameVKM>
      <n1:ECMCompanyCode>258022</n1:ECMCompanyCode>
      <n1:ECM>MEGATanker</n1:ECM>
      <n1:ECMCertificate>
        <n1:EINNumber>TK/39/02/18/7287</n1:EINNumber>
        <n1:ECMCertificateValidFrom>2012-05-
24</n1:ECMCertificateValidFrom>
        <n1:ECMCertificateValidTo>2032-07-
23</n1:ECMCertificateValidTo>

      <n1:CoversTankWagonsForDangerousGoods>true</n1:CoversTankWagonsForDangerousGoods>

      <n1:CoversNonTankWagonsForDangerousGoods>true</n1:CoversNonTankWagonsForDangerous
Goods>
```

```

<n1:ECMCertificateSuspended>>false</n1:ECMCertificateSuspended>
  </n1:ECMCertificate>
  <n1:InteropCapability>03</n1:InteropCapability>
  <n1:GCUWagon>>true</n1:GCUWagon>
</n1:AdministrativeDataSet>
<n1:DesignDataSet>
  <n1:LetterMarking>Zaes</n1:LetterMarking>
  <n1:TankCode>L1,5BN</n1:TankCode>
  <n1:WagonNumberOfAxles>4</n1:WagonNumberOfAxles>
  <n1:WheelSetType>314; 314; 314; 314</n1:WheelSetType>
  <n1:WheelDiameter>920</n1:WheelDiameter>
  <n1:WheelsetGauge>1435</n1:WheelsetGauge>
  <n1:NumberOfBogies>2</n1:NumberOfBogies>
  <n1:BogiePitch>1800</n1:BogiePitch>
  <n1:BogiePivotPitch>8800</n1:BogiePivotPitch>
  <n1:InnerWheelbase>7000</n1:InnerWheelbase>
  <n1:CouplingType>2</n1:CouplingType>
  <n1:BufferType>A</n1:BufferType>
  <n1:NormalLoadingGauge>G1</n1:NormalLoadingGauge>
  <n1:MinCurveRadius>75</n1:MinCurveRadius>
  <n1:MinVerticalRadiusYardHump>250</n1:MinVerticalRadiusYardHump>
  <n1:WagonWeightEmpty>24220</n1:WagonWeightEmpty>
  <n1:LengthOverBuffers>1384</n1:LengthOverBuffers>
  <n1:MaxAxleWeight>20</n1:MaxAxleWeight>
  <n1:LoadTable>
    <n1:SpeedCategory>100</n1:SpeedCategory>
    <n1:RouteClassPayloads>
      <n1:RouteClass>A</n1:RouteClass>
      <n1:MaxPayload>39.7</n1:MaxPayload>
    </n1:RouteClassPayloads>
    <n1:RouteClassPayloads>
      <n1:RouteClass>B1</n1:RouteClass>
      <n1:MaxPayload>44.9</n1:MaxPayload>
    </n1:RouteClassPayloads>
    <n1:RouteClassPayloads>
      <n1:RouteClass>B2</n1:RouteClass>
      <n1:MaxPayload>47.7</n1:MaxPayload>
    </n1:RouteClassPayloads>
    <n1:RouteClassPayloads>
      <n1:RouteClass>C</n1:RouteClass>
      <n1:MaxPayload>55.7</n1:MaxPayload>
    </n1:RouteClassPayloads>
  </n1:LoadTable>
  <n1:MaxDesignSpeed>100</n1:MaxDesignSpeed>
  <n1:AirBrake>
    <n1:NumberOfBrakes>1</n1:NumberOfBrakes>
    <n1:BrakeSystem>KE</n1:BrakeSystem>
    <n1:AirBrakeType>3</n1:AirBrakeType>

<n1:BrakingPowerVariationDevice>1</n1:BrakingPowerVariationDevice>
  <n1:AirBrakedMass>27</n1:AirBrakedMass>
  <n1:LoadChangeDevice>
    <n1:ChangeOverWeight>45</n1:ChangeOverWeight>
    <n1:AirBrakedMassLoaded>52</n1:AirBrakedMassLoaded>
  </n1:LoadChangeDevice>

<n1:BrakeSpecialCharacteristics>6</n1:BrakeSpecialCharacteristics>

```

```
</n1:AirBrake>
<n1:HandBrake>
  <n1:HandBrakeType>2</n1:HandBrakeType>
  <n1:HandBrakedWeight>20</n1:HandBrakedWeight>
  <n1:ParkingBrakeForce>21.2</n1:ParkingBrakeForce>
</n1:HandBrake>
<n1:BrakeBlock>
  <n1:BrakeBlockName>Bg 320, LL</n1:BrakeBlockName>

  <n1:CompositeBrakeBlockRetrofitted>true</n1:CompositeBrakeBlockRetrofitted>
  <n1:CompositeBrakeBlockInstallationDate>2017-04-
12</n1:CompositeBrakeBlockInstallationDate>
</n1:BrakeBlock>
<n1>LoadingCapacity>62.9</n1>LoadingCapacity>
<n1:MaxGrossWeight>80000</n1:MaxGrossWeight>
<n1:FerryPermittedFlag>>false</n1:FerryPermittedFlag>
<n1:TemperatureRange>
  <n1:MaxTemp>45</n1:MaxTemp>
  <n1:MinTemp>-25</n1:MinTemp>
</n1:TemperatureRange>
<n1>DateLastOverhaul>2005-07-06</n1>DateLastOverhaul>
<n1>DateNextOverhaul>2025-02-09</n1>DateNextOverhaul>
<n1:PermittedTolerance>0</n1:PermittedTolerance>
<n1>DateOfNextTankInspection>2022-08-
01</n1>DateOfNextTankInspection>
  </n1:DesignDataSet>
</n1:RollingStockDataset>
</n1:RollingStockDatasetMessage>
```