

Making the railway system
work better for society.

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Compliance Results – CEF Grant Agreement INEA/CEF/TRAN/M2017/1618997

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:	Rolling Sock Reference Database (RSRD)

The results of the verification process are concluded as follows:

GATX has sent to the European Union Agency for Railway (Agency) on 20 February 2019 following attached deliverable documents / datasets for verification:

- D.2.1.2 List of freight wagons equipped with telematics GPS devices: Excel sheet with 651 cars equipped with GPS devices. This sheet contains following detailed wagon data:
 - a) *registration number in NVR*
 - b) *commercial owner*
 - c) *Lifecycle Status*
 - d) *basic characteristic*
 - e) *UIC freight wagon type*
 - f) *RU as customer*
 - g) *access1: web based solution*
 - h) *access 2: Common Interface*
 - i) *access 3: machine-to-machine solution.*
- *An updated List of Freight Wagons showing 672 cars (also including above 651 cars) that were equipped with telematics devices during the period 12.4.2018 and 31.12.2018 according to the terms of Activity 1 of the Grant Agreement was submitted by GATX to the Agency on 09 March 2019. This list includes additional information about the mounting information, the mounted telematics device including serial number and the date when mileage information was submitted for the first time (mileage initat. Date).*
- Provided details of the delivery of communication solution¹
 - a) *access1: web based solution (screenshot from the client web solution, RSRD import and export Excel sheets and ITSS JSON communication specifications with JSON (JavaScript Object Notation) request / response XML examples for sample cars no. 33 80 7818 395-5; 33 80 7843 157-8; 33 80 7818 383-1; 33 80 7933 215-5; 33 80 7933 477-1; 33 80 7818 380-7)*
 - c) *access 3: machine-to-machine solution (Web Service defintion (WSDL) with SOAP (Simple Object Access Protocol) request / response XML examples for sample cars 33 80 7837 967-8; 37 84 7809 753-8; 37 84 7830 187-2; 37 84 7830 196-3; 37 84 7809 659-7; 37 84 7830 187-2).*

The elements from D.2.1.2 demonstrate from GATX that above wagons are equipped with the telematics GPS devices. It must be stated here as a reminder that by 31/12/2019 all 7218 wagons must be equipped (Milestone N° 4 of the action).

The elements of the provided details of the delivery of communication solution demonstrate that the

- *Excel sheets for RSRD import and export contain the mandatory data elements from the RollingStockDataset message as defined in the official TAF TSI data catalogue V2.2.2 (XSD)². See Annex 1.*

¹ The *access 2: implementation of the Common Interface* from this deliverable is scheduled for 31/12/2019 (Milestone N° 5 of the action). For this reason this communication solution was not tested by the Agency.

² See: https://www.era.europa.eu/node/641/1091792_en

- *Communication between the client and web interface via the JSON requests and responses is ensured through messages complying with the data elements specified in the ITSS Standard Specification Interface IF 1 (V1.2)³. See Annex 2.*
- *Web based solution developed for the client contains aforementioned ITSS data elements (based on above screenshot). See Annex 3.*
- *Machine-To-Machine Communication via the SOAP requests and responses is ensured through messages complying with the data elements specified in the official SOAP definitions⁴. See Annex 4.*

The provided details of the delivery of communication solution have been checked with Altova XML Spy and Map Force 2017 tools on 04 March 2019).



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³ See : http://www.innovative-freight-wagon.de/wp-content/uploads/ITSS_Standard_Specification_Interface1_V1-2_final.pdf

⁴ See : <http://schemas.xmlsoap.org/soap/envelope/>

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Annex 1 – GATX RSRD data elements

Edvnummer	Ecverificationdate	Withdrawalcode
Wagennr	Ecdeclarationofverification	Withdrawaldate
Wagonnumberfreight	Eratvreference	Gcuwagonflag
Previouswagonnumberfreight	Additionalcertification	Lettermarking
Registrationcountry	Channeltunnelpermittedflag	Combinedtransportwagontype
Dateputintoservice	Owner	Tankcode
Nationalsafetyauthority	Gatx Commercialowner	Wagonnumberofaxles
Nsa Text	Keeper	Wheelsettype1
Authorisationreference	Gatx Keepertext	Wheelsettype2
Authorisationdate	Ecm	Wheelsettype3
Authorisationvaliduntil	Ecm Text	Wheelsettype4
Suspensionofauthorisationflag	Gatx Lifecyclestatus	Wheeldiameter
Datesuspensionofauth	Previouskeeper	Wheelsetgauge
Ecverificationnotifiedbody	Interopcapability	Wheelsettransformationmethod
	Outofserviceflag	Numberofbogies

Bogiepitch	Changeoverweighthalf	Noise
Bogiepivotpitch	Airbrakedmassloaded	Technicalforwardingrestr
Innerwheelbase	Airbrakedmassloadedhalf	Maintenanceplanref
Couplingtype	Brakespecialcharacteristics	Dateoflastoverhaul
Buffertype	Handbraketype	Datenextoverhaul
Normalloadinggauge	Handbrakedweight	Permittedtolerance
Mincurveradius	Parkingbrakeforce	Dateofnexttankinspection
Minverticleradiusyardhump	Derailmentdetectiondevice	
Wagonweightempty	Brakeblockname	
Lengthoverbuffers	Compositebrakeblock	
Maxaxleweight	Brakeblockinstallationdate	
Maxdesignspeed	Loadcapacity	
Numberofbrakes	Maxgrossweight	
Brakesystem	Ferrypermittedflag	
Airbraketype	Ferryrampangle	
Brakingpowervariationdevice	Maxtemp	
Airbrakedmassempy	Mintemp	
Changeoverweight	Noisebypasslimit	

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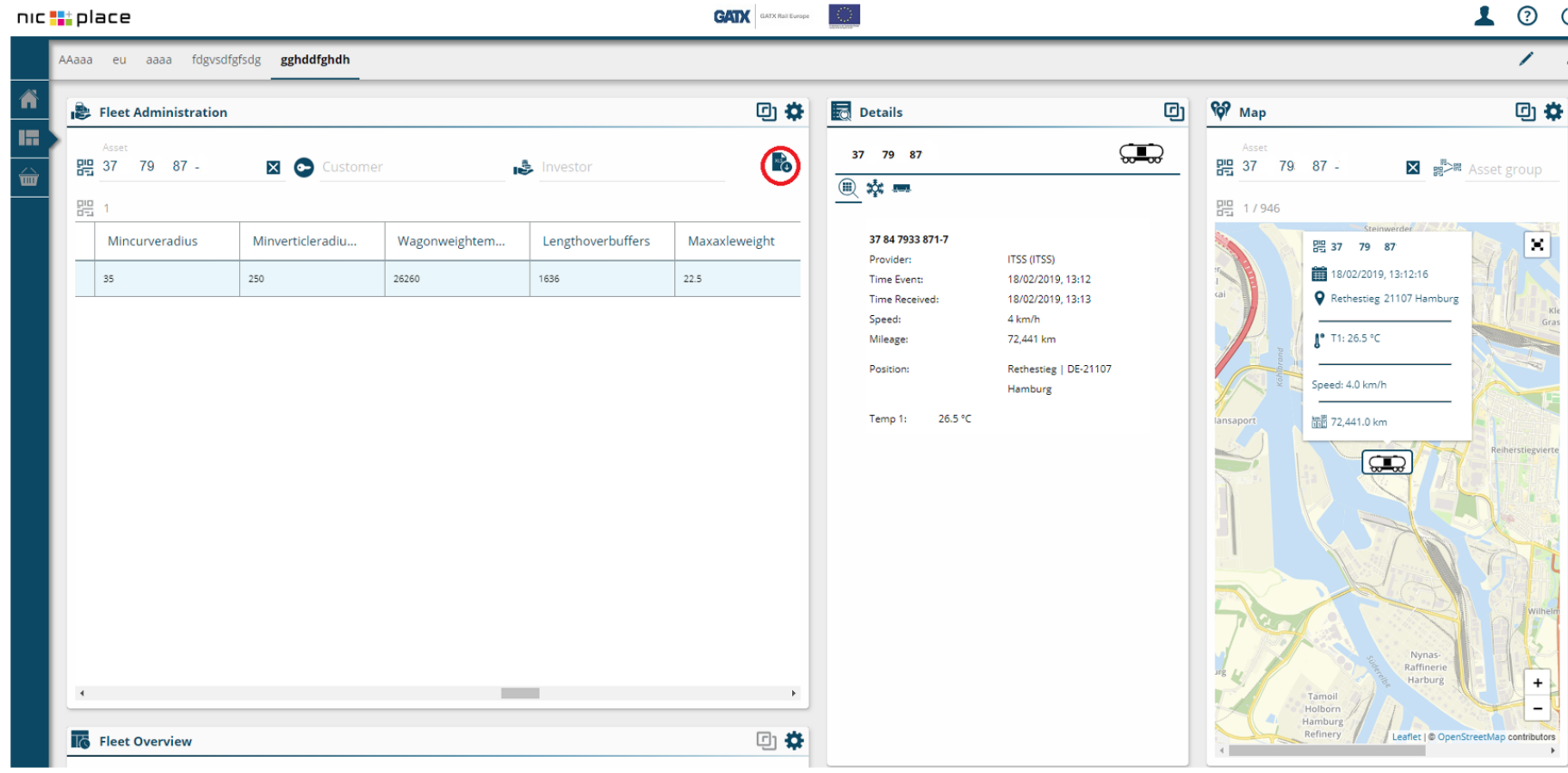
Annex 2 – GATX JSON request and response example

```
{"ITSS_TransportDeviceID":"12 00 3456 789-0", "ITSS_TelematicsDeviceID":"DOTMK000001234567890", "UTCtimestamp":1550467837.000, "GNSS_Position":{"GNSS_UTCtimestamp":1550467837.000, "GNSS_Latitude":51.19506, "GNSS_Longitude":12.38039, "GNSS_Speed_kmph":0.0, "GNSS_Heading_deg":0.0}, "mileage":8327000, "ITSS_SensorValueList":[{"SamplingUTCtimestamp":1550467837.000, "ITSS_SensorId":"DOTMK000001234567890", "Value":269.8, "ITSS_SensorType":"temperature", "ITSS_SensorPosition":"waggon"}], "ITSS_TelematicsApplicationID":"itss_provider"}
```

```
{  
  "code": 101,  
  "message": "Parameter validation failed."  
}
```

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Annex 3 – GATX web based solution developed for the client



The screenshot displays the GATX web-based solution interface, which is divided into three main panels: Fleet Administration, Details, and Map.

Fleet Administration Panel: This panel shows a table of asset data. The table has the following columns: Mincurveradius, Minverticleradiu..., Wagonweightem..., Lengthoverbuffers, and Maxaxleweight. The data row shows values: 35, 250, 26260, 1636, and 22.5. Above the table, there are fields for Asset (37 79 87 -), Customer, and Investor.

Mincurveradius	Minverticleradiu...	Wagonweightem...	Lengthoverbuffers	Maxaxleweight
35	250	26260	1636	22.5

Details Panel: This panel provides specific information for the asset 37 79 87. The details include:

- Asset: 37 79 87
- Provider: ITSS (ITSS)
- Time Event: 18/02/2019, 13:12
- Time Received: 18/02/2019, 13:13
- Speed: 4 km/h
- Mileage: 72,441 km
- Position: Rethestieg | DE-21107 Hamburg
- Temp 1: 26.5 °C

Map Panel: This panel shows a map of the location. A pop-up window displays the following information:

- Asset: 37 79 87
- Time: 18/02/2019, 13:12:16
- Location: Rethestieg 21107 Hamburg
- Temperature: T1: 26.5 °C
- Speed: 4.0 km/h
- Mileage: 72,441.0 km

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Annex 4 – GATX SOAP request and response example

```
<?xml version="1.0" encoding="UTF-8"?>
<S:Envelope xmlns:S="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <S:Body>
    <ns2:PushDataArray xmlns:ns2="http://rail.push.ws.nicbase.com/">
      <pushData>
        <assetId>123456</assetId>
        <assetIdProvider>DOTMK00000012345678</assetIdProvider>
        <assetName>37 84 7809 753-8</assetName>
        <boxData>
          <boxId>DOTMK00000012345678</boxId>
          <timestamp>2019-02-17T23:11:30.000Z</timestamp>
          <timeReceived>2019-02-17T23:13:08.081Z</timeReceived>
          <gpsData>
            <latitude>45.65073</latitude>
            <longitude>4.84114</longitude>
            <direction>218</direction>
            <totalDistance>8686.0</totalDistance>
            <speed>2.0</speed>
          </gpsData>
          <locationData>
            <street>Chemin A</street>
            <streetNumber/>
            <zipCode>12345</zipCode>
            <city>BVille</city>
            <country>Frankreich</country>
            <isoCountryCode>FR</isoCountryCode>
          </locationData>
          <sensorData>
            <timestamp>2019-02-17T23:11:30.000Z</timestamp>
            <sensorId>1</sensorId>
            <sensorType>TEMPERATURE</sensorType>
            <value>-1.35</value>
          </sensorData>
          <loadingData/>
        </boxData>
      </pushData>
      <pushData>
        <assetId>654321</assetId>
        <assetIdProvider>DOTMK000000987654321</assetIdProvider>
        <assetName>33 80 7921 895-8</assetName>
        <boxData>
          <boxId>DOTMK000000987654321</boxId>
          <timestamp>2019-02-17T23:09:29.000Z</timestamp>
          <timeReceived>2019-02-17T23:13:19.946Z</timeReceived>
          <gpsData>
            <latitude>48.69727</latitude>
            <longitude>16.87506</longitude>
            <direction>164</direction>
            <totalDistance>2957.0</totalDistance>
```



```
        <speed>88.0</speed>
    </gpsData>
    <locationData>
        <street>Cthal</street>
        <streetNumber>67</streetNumber>
        <zipCode>9876</zipCode>
        <city>Dthal</city>
        <country>Österreich</country>
        <isoCountryCode>AT</isoCountryCode>
    </locationData>
    <sensorData>
        <timestamp>2019-02-17T23:09:29.000Z</timestamp>
        <sensorId>1</sensorId>
        <sensorType>TEMPERATURE</sensorType>
        <value>-5.65</value>
    </sensorData>
    <loadingData/>
</boxData>
</pushData>
</ns2:PushDataArray>
</S:Body>
</S:Envelope>
```

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns2:PushResponse xmlns:ns2="http://rail.push.ws.nicbase.com/">
      <success>>false</success>
    </ns2:PushResponse>
  </soap:Body>
</soap:Envelope>
```