TSI TAP – Scope and Content

Workshop on Technical Specifications for Interoperability
Budapest, 29-30 October 2014

Mickael VARGA, Project officer
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Title</th>
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<tr>
<td>CCM</td>
<td>Change Control Management</td>
</tr>
<tr>
<td>CEN</td>
<td>European Normalization Committee</td>
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<tr>
<td>CI</td>
<td>Common Interface</td>
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<tr>
<td>EC</td>
<td>European Commission</td>
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<td>ERA</td>
<td>European Railway Agency</td>
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<td>IM</td>
<td>Infrastructure Manager</td>
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<td>IRT</td>
<td>Integrated Reservation Tickets</td>
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<td>NRT</td>
<td>Non-integrated reservation tickets</td>
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<td>PRM</td>
<td>Passengers with Reduced Mobility</td>
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<td>RU</td>
<td>Railway Undertaking</td>
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<td>TAF TSI</td>
<td>Telematics Applications for Freight - Technical Specifications for Interoperability</td>
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<td>TAP TSI</td>
<td>Telematics Applications for Passengers – Technical Specifications for Interoperability</td>
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</table>
1. Distribution for Railways
2. Legal framework for TAP TSI
3. Telematics applications for passenger services (TAP TSI)
   • Functionalities
   • Technical documents
   • Implementation
4. TAP TSI – RU/IM Communication
5. Questions and Answers
These functions have to be supported by the IT-system of the railway undertaking.
1. Distribution for Railways

2. **Legal framework for TAP TSI**

3. Telematics applications for passenger services (TAP TSI)
   - Functionalities
   - Technical documents
   - Implementation

4. TAP TSI – RU/IM Communication

5. Questions and Answers
The TAP TSI is based on the following legal documents:


Passenger rights regulation EC/1371/2007 – Annex II:

Part I: Pre-journey information
- General conditions applicable to the contract
- Time schedules and conditions for the fastest trip
- Time schedules and conditions for the lowest fares
- Accessibility, access conditions and availability on board of facilities for disabled persons and persons with reduced mobility
- Accessibility and access conditions for bicycles
- Availability of seats in smoking and non-smoking, first and second class as well as couchettes and sleeping carriages
- Any activities likely to disrupt or delay services
- Availability of on-board services
- Procedures for reclaiming lost luggage
- Procedures for the submission of complaints.

Part II: Information during the journey
- On-board services
- Next station
- Delays
- Main connecting services
- Security and safety issues.
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The Technical Specification for Interoperability on “Telematics Applications for Passengers” (TAP TSI) prescribes protocols for the data exchange of

- timetables,
- tariffs,
- reservations, fulfillment
- Information to passengers in station and vehicle area
- train running information,
- etc

which must be respected by the European rail sector (railways, infrastructure managers, ticket vendors etc.) according to the European Rail Passengers’ Rights Regulation EC/1371/2007 and to the Interoperability Directive EC/2008/57.
In Dec 2009 ERA has signed contract with UIC according to which UIC has transferred the underpinning UIC leaflets as ERA Technical Document B.1, B.2, B.3, B.4, B.5, B.6, B.7, B.8, B.9 and B.10.

ERA Technical Document B.30 is derived from the TAF TSI (Telematics Applications for Freight) RU/IM train movement messages.

Above ERA Technical Documents (and underpinning ERA TAP Passenger code list) are annexes of the TAP TSI, thus, legally binding message interfaces for timetables, tariffs, reservations, fulfilment, and train running information.


The documents are maintained by ERA through a change control management process.
The structure of TAP TSI can be outlined as follows:

<table>
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<th>TAP TSI</th>
<th>Activity Area</th>
<th>TSI Ch.</th>
<th>T.D.</th>
<th>Code lists (example)</th>
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<td>B.4.3039 - Name: Party identifier</td>
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<td>B.1 - 3</td>
<td>B.2.5 - Tariff Names</td>
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<td>B.10</td>
<td>B.10.6 – On Board Facility</td>
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<td>B.5.37.1 – Compartment request</td>
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<td>4.2.9</td>
<td>B.5</td>
<td>B.5.35 - Smoking/ non-smoking</td>
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TAP TSI – timetable data

Purpose:
- Exchange of timetable data

Conditions:
- Annual timetable must be published at least two months before entering into force
- Timetable changes must be published at least 7 days in advance

How:
- File in EDIFACT-format (technical document B.4)
Purpose:
- Exchange of tariff data *

Conditions:
- RU’s shall provide their tariff data to other RU’s, third parties according to distribution agreements between them
- tariffs must be published to authorized public bodies

How:
- distance based fares (technical document B.1)
- Ticket + reservation (technical document B.2)
- reduction cards, supplements and special offers (technical document B.3)

* For international and foreign sales
Purpose:
- Exchange of availability/reservation messages data between RU’s and ticket vendor
- Reservation of seats, berths, storage place for bicycles and cars

Conditions:
- Based on commercial agreements between RU’s and/or ticket vendors

How:
- Reservation of seats, berths and storage places for cars and bicycles (technical document B.5)
- Reservation of PRM assistance (technical document B.10)
- On bilateral agreement usage of proprietary standards possible
 › **Conditions:**
- Based on commercial agreements between issuer (e.g. RU, travel agency) and RU

 › **How:**
- RCT2 Ticket format (technical document B.6)
- Home printed ticket (technical document B.7)

 › **Future developments:**
- not all fulfilment methods are currently covered by TAP TSI
- ERA requested a CEN standard for e-ticket and manifest on list
- delivery of this standard 2012
• some standards could not be covered during the drafting phase of the TAP TSI → so called “Open points”

• These standards will be developed by ERA/CEN and incorporated during a revision of the TAP TSI as legally binding document

• The following European standards will be developed:
  1. For fulfilment:
     a) handling of security elements (e.g. barcodes) for product distribution
     b) Fulfilment ‘Ticket On Departure’ and for European ‘Manifest On List’
     c) fulfilment methods – direct and indirect - for domestic sales
  2. For tariff data exchange
     a) tariff data exchange intended for domestic sales
     b) exchange of fare information in the context of connection with other modes of transport - NeTex

→ New standards will be mandatory after incorporation in TAP TSI
Implementation in three phases

Phase one
- detailed IT-Specification
- architecture (RU/IM, commercial)
- Master plan
- Governance

Phase two
- development

Phase three
- Roll-out of TAP TSI

Today

Ca. 2016
Retail – functions:

The master plan define the implementation dates for the functionalities of the TAP TSI (retail and RU/IM-communication)
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Functionalities Communication RU/IM:

- Long-term planning, Path Request on Short Notice, Train Preparation, Train Running Forecast/Information and Service Disruption Information.

This basic parameter lays down the manner in which the railway undertaking must inform the infrastructure manager that the train is ready to access the network when train departure tasks as defined in OPE TSI Section 4.2.3.3 have been carried out or when the train number has changed:

• The provisions of this basic parameter shall apply to all trains of the railway undertaking.

• The railway undertaking shall send a ‘train ready’ message to the infrastructure manager every time a train is ready to access the network for the first time, unless under national rules the infrastructure manager accepts the timetable as a ‘train ready’ message.

• In the latter case, the railway undertaking shall inform the infrastructure manager and, if applicable, the station manager if the train is not ready as soon as possible.
4.2.15. Train running information and forecast.

This basic parameter lays down how the infrastructure manager must, at the appropriate time, send train running information to the railway undertaking and the next neighbouring infrastructure manager involved in the operation of the train:

- The train running forecast is used to provide information about the estimated time at contractually agreed forecast points.
- This message shall be sent from the infrastructure manager to the railway undertaking and the neighbouring infrastructure manager involved in the run.
- The information about the train running forecast shall be delivered to the station manager in due time by the railway undertakings and/or infrastructure managers according to a contractual agreement.
- The path contract specifies Reporting Points for the train’s movement.
4.2.16. Service disruption information.

This basic parameter lays down how service disruption information is handled between the railway undertaking and the infrastructure manager:

• The provisions of this basic parameter shall apply to all trains of the railway undertaking.

• For the purpose of dealing with passengers’ complaints, service disruption data shall be kept available for railway undertakings, ticket vendors and/or authorised public bodies for at least 12 months after such data has expired.

• The railway undertaking shall inform the infrastructure manager of the operational status of the trains (OPE TSI Section 4.2.3.3.2.).

• If train running is interrupted, the infrastructure manager shall send a ‘train running interrupted’ message. Additionally, if the length of the delay is known, the infrastructure manager must send a train running forecast message.
4.2.17. Handling of short term timetable data for trains.

This basic parameter lays down how Short notice Path Requests should be handled between the ‘Access Party’ (AP) and the infrastructure manager:

- These requirements are valid for all Short Notice Path Requests.
- It does not include Traffic Management issues.
- The time limit between Short Term paths and Traffic Management path changes is subject to Local Agreements.
- It has to be possible, where short-notice transport needs are concerned (e.g. special train, additional train), to request a Short Term path.
- The AP requesting a Short Term path must provide the infrastructure manager with all necessary information indicating when and where a train is required to run and the data relating thereto.
- Each infrastructure manager is responsible for the suitability of a path on their infrastructure, and the railway undertaking is obliged to check the train characteristics against the values given in the details of its contracted path.
4.2.17. Handling of short term timetable data for trains.

Messages to be used:

- Path request message,
- Path details message,
- Path not available message,
- Path confirmed message,
- Path details refused message,
- Path cancelled message,
- Booked path no longer available message,
- Receipt confirmation message.
TAP TSI prescribes furthermore databases for RU/IM communication which must be implemented by European RUs and IMs - > Reference Files:

- reference file of the coding for all infrastructure managers, railway undertakings, station managers, service provider companies,
- reference file of the coding of locations,
- reference file of all existing train control systems,
- reference file of all different locomotive types,
- and reference file of all European maintenance workshops.

European Railway Agency will centrally store and maintain unique codes for the following reference data - > Access granted to RU’s, IM’s and TAP TSI actors
RU/IM system architecture: Peer to peer communication through internet (IP Network) to exchange of information concerning Rail processes, e.g. Path Allocation, timetable, etc.

Authorities and 3rd parties as Amadeus, Travel Port, etc.
TAP TSI -> how can the information be reached by third parties?

Common Interface “High Skilled Translator”:

- **Legacy System Data**
- **TAF/TAP complaints Data**
- **Supported protocols**: SOAP (HTTP, JMS, FTP), File, SMTP, JMS, MQ, JMS-JMS, JMS-JMSI
- **Supported formats**: XML, Text, CSV, XML/JavaNet 431-A
- **Connectors**: FTP, JMS, RS, Web services
- **Specific Connector Configuration**
- **Common Interface (Software)**
- **Connectors**: FTP, JMS, RS, Web services
- **Supported protocols**: SOAP (HTTP, JMS, FTP, File, SMTP, JMS-JMS, JMS-JMSI)
- **Supported formats**: XML, Text, CSV, XML/JavaNet 431-A
- **Data**: Legacy System Data
- **Processing**:
  - Preprocessing
  - Normalization
  - Translation
  - Validation
- **Message**:
  - Compression
  - Signature
  - Encryption
  - Routing
  - Security
  - Transport
- **Database**: MySQL, Java EE, CI Application components, Java PKI APIs
- **Application Server**: Java EE, SBS, Struts2
- **Network**: IP, SOAP (HTTPS), XML (UTF8)
Tools available in the market:

- Common Interface Provider (development co-funded by EC): CCG-UIC.
- International Path Request (development co-funded by EC): RNE – PCS.
- International Train Movement Monitoring (development co-funded by EC): RNE – TIS.
- Other IT providers are possible or own IT developments within the companies (RUs and IMs).
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Thank you for your kind attention!
Making the railway system work better for society.

era.europa.eu
Backup
Example:

PRD+00090::37:::Vauban+0083**0085'
PUD+273:2003-12-15/2003-12-20::111111'
PDT++:::50'
SER+9'
POR+008301700:37:12+*0810'
POR+008507000:37:12+1156*1204'
POR+008721202:37:12+1444*1446'
POR+008200100:37:12+1650'
ODL+008507000*008200100+2*4'
SER+26'

EC 90 provides a restaurant (code 9).

The train runs from MILANO (008301700) via BERN (008507000) and STRASBOURG (008721202) to LUXEMBOURG (008200100).

Bicycle transport (code 26) is available only from BERN (stop index 2) to LUXEMBOURG (stop index 4).
Example:

<table>
<thead>
<tr>
<th>RU</th>
<th>Series N°</th>
<th>Origin</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1181023990300123600</td>
<td>Feldkirch</td>
<td>00317600</td>
<td>Flugh. Graz-Feld.010000</td>
</tr>
</tbody>
</table>

0000<1181>Zell/See*Trieben*Bruck/Mur

via with carrier code

000616000616010100100000000000000000011451001637100315810
Km in 2nd class fare table N°

00000000000000200912100120991231

Validity period
Examples:

**B.5:**

83859302707811000165900 001101001221904830011185000800522 070000005
(reservation request for 5 places Milano-Brig)

**B.10:**

```xml
Requestor Company="1180" System="1"/>
<Dialogue DialogId="12345" Date="2010-08-13"/>
<PrmCustomer DisabilityDegree="25" PriorityCard="true" WheelChairChange="true">
<pc:FirstName>Jan</pc:FirstName>
<pc:LastName>Smith</pc:LastName>
<pc:Title>Mr</pc:Title>
<pc:DateOfBirth>1967-08-13</pc:DateOfBirth>
<pc:Phone Preferred="false">+49 5558 458787</pc:Phone>
<pc:MobilePhone Preferred="false">+49 5458</pc:MobilePhone>
<pc:E-mail Preferred="false">JS@blah.com</pc:E-mail>
...
```
Practical example: B.6

Generic layout of a RCT2 ticket:
Practical example: B.7

Generic layout of a home print ticket (A4 format) - upper and lower part: