### Abbreviation and Title

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Title</th>
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<tbody>
<tr>
<td>CCM</td>
<td>Change Control Management</td>
</tr>
<tr>
<td>CI</td>
<td>Common Interface</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
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<td>ERA</td>
<td>European Railway Agency</td>
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<tr>
<td>IM</td>
<td>Infrastructure Manager</td>
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<tr>
<td>IP</td>
<td>Internet Protocol</td>
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<tr>
<td>LRU</td>
<td>Lead railway undertaking</td>
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<td>RISC</td>
<td>Railway Interoperability and Safety Committee</td>
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<tr>
<td>RU</td>
<td>Railway Undertaking</td>
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<tr>
<td>TAF TSI</td>
<td>Telematics Applications for Freight - Technical Specifications for Interoperability</td>
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<tr>
<td>TAP TSI</td>
<td>Telematics Applications for Passengers – Technical Specifications for Interoperability</td>
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<td>TD</td>
<td>Technical Document of the European Railway Agency</td>
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</tbody>
</table>
1. Legal framework for TAF TSI
2. Content of TAF TSI
   - Chapter 4
   - Information to third parties
   - Available tools
3. Implementation
   - ERA co-operation WG
4. Questions and Answers
The TAF TSI is based on the following legal documents:

- Directive 2008/57/EC says:
  
  Annex II - § 2.5: Telematics Applications:
  
  “b) applications for freight services, including information systems (real-time monitoring of freight and trains), marshalling and allocation systems, reservation, payment and invoicing systems, management of connections with other modes of transport and production of electronic accompanying documents.”

- Above documents are publicly available at the EU web site
  

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1.4. Geographical Scope

The geographical scope of this TSI is the network of the whole rail system, composed of:

- The trans-European conventional rail system network (TEN) as described in Annex I section 1.1 “Network” of Directive 2008/57/EC [1].
- Other parts of the network of the whole rail system, following the extension of scope as described in Annex I section 4 of Directive 2008/57/EC [1].

The cases referred to in Article 1(3) of Directive 2008/57/EC [1] are excluded.
2.1. Function within the scope of the TSI

The subsystem Telematics Applications for Freight is defined in Annex II of the Directive 2008/57/EC [1], section 2.5 (b). It includes in particular:

- Information Systems
- Marshalling and Allocation Systems
- Reservation
- Management of Connections with other Modes of Transport
- Electronic accompanying Documents

\[ \text{TAF-TSI} \]
2.3.2. Considered Processes

This TSI for the railway freight transport industry is limited in accordance with Directive 2008/57/EC to IMs and RUs/LRUs with reference to their direct customers. Under contractual agreement the LRU shall provide information to the Customer in particular:

- Path information.
- Train Running Information on agreed reporting points, including at least departure, interchange/handover and arrival points of the contracted transport.
- Estimated Time of Arrival (ETA) to the final destination including yards and intermodal terminals.
- Service Disruption. When the Lead RU learns about a service disruption, it shall deliver to the Customer in due time.
Dependencies between TAF TSI and OPE TSI:

• Requirements requested in OPE TSI for Train Composition-> Section 4.2.3.2 Train Composition message: “Minimum elements to be delivered for the message exchange between RU and IM for the purpose Train Composition are defined in chapter 4.2.2.7.2. of Decision 2012/757/EU, OPE TSI.”

• Alignment between the requirements for Service Disruption in TAF TSI and in OPE TSI-> Section 4.2.5 Service Disruption Information
Chapter 4 content and TAF TSI Technical Documents:

- **RU or IM**: RU-IM comm.
- **Activity Area**:
  - Train Ready reporting
  - Train Running reporting
  - Train Forecast reporting
  - Train Interruption reporting
  - Short Term Timetable
- **TSI Ch.**:
  - 4.2.3
  - 4.2.4
  - 4.2.4
  - 4.2.5
  - 4.2.2
- **T.D.**
- **Code list (example)**
  - Appendix F
  - XSD
- **App F – Delay reason**

Diagram: RU or IM → Activity Area → TSI Ch. → T.D. → Code list (example)
The Technical Specification for Interoperability on “Telematics Applications for Freight” (TAF TSI) prescribes processes and protocols for the data exchange of:

- Consignment Note data
- Path Request
- Train Preparation
- Train Running Forecast
- Service Disruption Information
- Train Location
- Shipment Estimated Time of Interchange / Arrival
- Wagon Movement
- Interchange Reporting
- Data Exchange for Quality Improvement
Functionalities Communication RU/IM:

- Long-term planning, Path Request on Short Notice, Train Preparation, Train Running Forecast/Information and Service Disruption Information.
Functionalities Exchange of Data RU/RU:

- Consignment note data, exchange of information concerning ETI/ETA calculation, Interchange Reporting and Wagon Movement.

![Diagram showing exchange of data between Wagon Keepers & Customers, LRU's (1, 2,..N), RU 1, RU 2, RU N]
TAF TSI – Chapter 4 -> where to store the information?

TAF TSI prescribes furthermore databases which must be implemented by European RUs, IMs or Freight Customers:

- Infrastructure Restriction Notice Databases
- Rolling Stock Reference Databases
- Wagon and Intermodal Unit Operational Database
- Trip plan for wagon / Intermodal unit
- Reference Files (such as location ID, company ID, dangerous goods, etc).

Access granted to TAF actors: RU’s, IM’s and Freight Customers
TAF TSI / TAP TSI -> how can the information be reached by third parties?

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.

IM = Infrastructure Manager
RU = Railway Undertaking
HMI = Human Machine Interface
SM = Station Master
TAF TSI -> how can the information be reached by third parties?

› Common Interface “High Skilled Translator”:
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.
- Rolling Stock Reference Database (development co-funded by EC): UIP – RSRD²
- Other IT providers are possible or own IT developments within the companies (RUs and IMs).
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Let’s go for the Implementation! Commitment of the Sector

- **Infrastructure Managers Track-Kms**
  - responded 85%
  - no response 15%

- **Railway Undertakings Tonne-Kms**
  - responded 78%
  - no response 22%
Implementation in three phases

Phase one (Sector & ERA)
- detailed IT-Specification (ERA & Rail Sector)
- architecture (RU/IM, RU/RU) (Rail Sector)
- Master plan (Rail Sector)
- Governance (ERA & Rail Sector)

Phase two (Sector)
- Development
- Revision of Regulation

Phase three (Sector & ERA)
- Roll-out of TAF TSI (Rail Sector)
- Monitoring of the Implementation (ERA & Rail Sector)

Today

time ——— Ca. 2020
Implementation timeline for TAF RU/IM functions (Min/Max/Avg)

Average becomes the Target for companies not delivered Master Plan.
Cooperation Group to assess the TSI TAF implementation – Workflow
Two Reports per year on the progress of the implementation:

› per TAF-TSI Function compared to the Master Plan target date;
› per function by country, as an aggregate of all responses, compared to the Master Plan target date;
› progress (shown as percentage) of the implementation per TAF TSI function on weighted responses;
› proposed measures to mitigate possible delays.
Cooperation Group for TAF TSI implementation

- tool developed by ERA

- Section data to be updated by the members of the Cooperation Group

- Window for entering the implementation progress data
Cooperation Group for TAF TSI implementation
-> tool developed by ERA

- Implementation Progress will be available per corridor and per function

- This information will be inserted in the reports to EC-DG MOVE, TAF Steering Committee and RISC
TAF TSI Implementation is on-going!
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Thank you for your kind attention!
Making the railway system work better for society.

era.europa.eu
Backup
Example:

```xml
<TrainRunningInformationMessage ...>
<MessageHeader>
  <MessageReference>
    <MessageType>2002</MessageType>
    <MessageTypeVersion>01</MessageTypeVersion>
    <MessageIdentifier>123456</MessageIdentifier>
    <MessageDateTime>2001-12-17T09:30:47Z</MessageDateTime>
  </MessageReference>
  <MessageRoutingID>01</MessageRoutingID>
  <SenderReference>a</SenderReference><Sender
    CI_InstanceNumber="01">0001</Sender>
  <Recipient CI_InstanceNumber="01">0001</Recipient>
</MessageHeader>
<TrainLocationReport>
  <Location>
    <LocationPrimaryCode>98765</LocationPrimaryCode>
    <PrimaryLocationName>BTown</PrimaryLocationName>
    <LocationDateTime>2001-12-17T09:30:47Z</LocationDateTime>
    <TrainLocationStatus>13</TrainLocationStatus>
    <BookedLocationDateTime>2001-12-17T09:25:47Z</BookedLocationDateTime>
  </Location>
  ...
```