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1.0	25.01.2011	All	Initial version	Mickael Varga
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2.0	17.10.2013	All	Validated by the ERA TAF CCB on 11.09.2013	Rodrigo Gutiérrez Domínguez

Important note

The present document belongs to the set of Technical Documents described in Annex A 'List of accompanying documents - List of mandatory specifications' of the Commission Regulation EC/62/2006 and transformed in Annex A included in Annex II according Commission Regulation (EU) No 328/2012 amending Regulation (EC) No 62/2006 concerning the technical specification for interoperability relating to the telematics applications for freight subsystem of the trans-European conventional rail system. A new amendment was published on 22 April 2013, Commission Regulation (EU) No 280/2013, amending Regulation (EC) No 62/2006, due to the modification of Appendixes B, C, D and F, and the abolishment of Appendix B-1, concerning the technical specification for interoperability relating to the telematic applications for freight subsystem of the trans-European conventional rail system.

STRATEGIC EUROPEAN DEPLOYMENT PLAN FOR THE EUROPEAN-WIDE IMPLEMENTATION OF THE TECHNICAL SPECIFICATION FOR INTEROPERABILITY TELEMATIC APPLICATIONS FOR FREIGHT (TAF TSI)

PROJECT No: 93008

Deliverable 2 - Definition of the functional and performance requirements and of the associated data necessary to deliver the TAF system

Appendix A (Wagon/ILU Trip Planning)

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Introduction

1.1 Purpose

The requirements for RUs to generate ETIs and ETAs are specified in many locations in the TAF TSI [4] [5] [6] however they are most clearly stated in § 4.2.6.3 "…..sending ETI or updated ETI from one RU to the next in the transport chain. The last RU in the transport chain of the wagon sends the ETA to the LRU."

In § 4.2.11.2 (Other Databases) the TAF TSI [4] [5] [6] states that "….This Database shows the movement of a wagon and of an intermodal unit from departure through to final delivery at customer siding with ETIs and actual times at different locations until the final delivery time ETA."

In § 2.3.2 (Considered Processes) the TAF TSI [4] [5] [6] states "… The LRU then prepares the preliminary wagon order individually for each RU….. The addressed RUs check the availability of of the train path. The responses from the RUs enable the LRU to …until the trip plan finially fits the customer requirements." Note: This requirement is covered in the Movement Planning Cycle defined in this guideline.

In § 4.3.4 (Interfaces with the …) the TAF TSI [4] [5] [6] states that "….The subsystem, Telematic Application for Freight specifies applications for freight services including real time monitoring of freight and trains and the management of connections with other modes."

The descriptions listed above define what capability RUs must have. The purpose of this document is to provide implementation guidance to RUs as to how these requirements can best be fulfilled. These guidelines are based upon experience gained from the operation and use of existing systems which are currently in operation in Europe and North America.

1.2 Intended Audience

This document is one of the references to be used by designers and engineers responsible for the deployment of the TAF TSI [4] [5] [6] requirements.

1.3 Evolution of the Guidance Document:

1.3.1 Distribution

The Guidance Document will be distributed to the Representative Bodies from the railway sector acting on a European level as defined in Article 3 (2) of Regulation (EC) No 881/2004 and made available to the stakeholders of the European Rail Freight Industry.

The Guidance Document will be delivered by electronic means in MS-Word format or in PDF Format and published on the ERA Web-site: era.europa.eu.

New versions will be accessible electronically.

1.3.2 Configuration Management

A new version of the document will be created if new changes are considered because of the Change Control Management Process led by ERA:- if there is a change in the requirements which influences the implementation

- if information is added to or deleted from the Guidance Document, e.g. adding test cases to the field checking in messages or databases.

The changes will be included in the Guidance Document. They must be marked in the new document for better realizing them.

1.4 References

1.4.1 Regulatory References

Id	Title	Doc ID, Edition	Date	Author / Publisher
1	Directive 2012/34/EU of The European Parliament and of The Council establishing a single European railway area.	Directive 2012/34/EU	21/11/12	EC
2	On the interoperability of the rail system within the Community (Recast)	Directive 2008/57/EC	17/06/08	EC
3	TSI OPE (repealed with effect from 01.01.2012) - Decision 2006/920/EC (as amended by 2009/107/EC and 2010/640/EU)	Decision 2011/314/EU (in force from 01.01.2012 on)	12/05/2011	EC
4	Technical Specification for Interoperability subsystem« Telematic Applications for freight	Commission Regulation (EC) No 62/2006 concerning the technical specification for interoperability relating to the telematic applications for freight subsystem of the trans-European conventional rail system.	23/12/05	EC
4.1	TAF TSI - ANNEX A.5: Figures and Sequence Diagrams of the TAF TSI Messages	ERA_FRS_TAF_A_Index_5.doc	25/01/11	ERA
4.2	TAF TSI – ANNEX D.2 : APPENDIX A – (WAGON/ILU TRIP PLANNING)	Version 2-0	23/03/13	ERA
4.3	TAF TSI – ANNEX D.2 : APPENDIX C – REFERENCE FILES	Version 2-0	13/05/12	EC

Id	Title	Doc ID, Edition	Date	Author / Publisher
4.4	TAF TSI – ANNEX D.2 : APPENDIX D – INFRASTRUCTURE RESTRICTION NOTICE DATA	Version 2-0	15/05/12	EC
4.5	TAF TSI — ANNEX D.2: APPENDIX E — COMMON INTERFACE	Version 2-0	23/03/13	ERA
4.6	TAF TSI APPENDIX F — Data and Message Model)	Version 2-0	08/08/13	ERA
5	Amendment to Technical Specification for Interoperability subsystem "Telematics Applications for Freight"	COMMISSION REGULATION (EU) No 328/2012 of 17 April 2012 amending Regulation (EC) No 62/2006 concerning the technical specification for interoperability relating to the telematic applications for freight subsystem of the trans-European conventional rail system	17/04/12	EC
6	Amendment to Technical Specification for Interoperability subsystem« "Telematics Applications for Freight"	Commission Regulation (EU) No 280/2013 of 22 April 2013 amending Regulation (EC) No 62/2006 concerning the technical specification for interoperability relating to the telematic applications for freight subsystem of the trans-European conventional rail system.	22/03/13	EC

1.4.2 Other References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- TAF TSI CWA Coding for Railways Business Locations
- TAF TSI CWA Coding for Customers in the Rail Transport Chain,
- TAF TSI CWA Coding for Railway Undertakings, Infrastructure Managers and other Companies involved in the Rail Transport chain,
- TAF TSI CWA Numbering of and Coding System for Trains

- List of Wagonload and Intermodal Events (Normal & Exception)
- The SEDP Phasing Plan.
- TAF TSI Master Plan, v 4.0, 17th January 2013.

1.5 Definitions and Acronyms:

For all definitions and acronyms see Common TAF Glossary

1.6 Responsibilities

This Guidance Document was written under the responsibility of the SEDP project team with support of nominated experts from European IMs, RUs and others. It is a deliverable of the SEDP project for the implementation of the TAF TSI. Since 2012 this document has been hand over to the European Railway Agency and it belongs to the ERA Technical Document set for TAF TSI. Therefore, any update of this document shall be brought to the TAF TSI Change Control Management Working Party under the aegis of the European Railway Agency.

2. RECOMMENDATIONS

2.1 Overview: Dynamic Trip Plans (DTPs): TAF TSI 4.2.11.2 (see Appendix 1)

Dynamic Trip Plans provide very significant benefits in terms of transit time reliability, wagon fleet and infrastructure productivity. Dynamic Trip Plans can be applied to all wagons in transit (loaded or empty – for single & multiple RU trips). When applied to all wagons, DTP functionality also provides individual RUs with a production management system which can be used to manage trainloads and yard workloads.

When a Consignment Order (see Appendix 4) and the release or consignor's siding departure are received, a Dynamic Trip Plan is automatically generated from the files and tables which represent the operating situation of all the RUs in the route of the wagon trip. These linked systems also automatically generate "re-trips" when a wagon fails to follow the current trip plan (see Appendix 5).

Special RUs will not require Dynamic Trip Plan capability but will need to have dynamic ETI/ETA capability delivered by systems using a from/to table concept which is less sophisticated than Dynamic Trip Planning. See § 2.2. Individual RUs will determine if Dynamic Trip Planning or ETIs/ETAs from tables are applicable to their situation.

2.1.1 Benefits – Dynamic Trip Plannings (DTP) TAF TSI 4.2.11.2. Other Databases

The purpose of Dynamic Trip Planning is to improve transit time reliability, generate ETIs at RU interchange points, ETAs at the consignee's sidings and to support the management of delayed wagons while they are en route.

Since Dynamic Trip Plans can be applied to all traffic (loads & empties, local & interoperable), they have the additional benefit of becoming a short term traffic (or production) management system since all wagons are scheduled to specific trains and are scheduled through specific yards. One of the major benefits of this type of production management system is the ability to increase tons/wagons per train.

2.1.2 Scope – Dynamic Trip Plans:

In a planning mode, the LRU works with the customer(s) and the potential RU service providers to establish mutually agreeable target transit times for the complete trip (from consignor's to consignee's siding) and for transit times on each RU. This may involve the use of "what if" trip plans or off line trip plan generators that would utilise the electronic operating plans components described below. These processes and functional capabilities are outside the scope of this Guidance Document.

The Dynamic Trip Planning functionality is for wagonload (&empty) traffic, local (single RU) and interoperable (multiple RU) wagon trips. The RU systems should be developed in a manner which would allow for similar capability for Intermodal Loading Units (ILUs) moving from a consignor's dock to consignee's dock (including gateway terminals), from

a port to a consignee's dock and from a consignor's dock to a port. See Appendix 2 for an illustrative list of ILU events.

Outside the scope of this Guidance Document are:

- structure of operating plan files and tables on individual RUs, the LRU systems required to compare ETAs with customer commitments and
- train load & yard workload management systems which can be based on DTPs. These workload management systems are critical to improving RU & IM productivity.
-

2.1.3 Logical Model – Dynamic Trip Plans (see flow charts in Appendix 4)

Effective Dynamic Trip Planning capability requires that individual RU operating plans be maintained in up to the minute electronic files at each RU. These plans must reflect day of week and holiday impacts.

The primary components of these individual electronic operating plans are as follows:

- Time of day/day of week and holiday cut off times and schedules for release, departure and delivery for each consignor's siding, consignee's siding and interchange point.
- These cut of times must be related to scheduled siding service for each industrial switcher.
- Connection standards between industrial switchers and trains and between trains at each yard.
- Train specifications which include origin, destination and through yards: schedules, and traffic handled (destination, commodity, RID codes, wagon types, max weight/axle, max weight/metre loading gauges etc)

Note that these plans must be current (up to the minute) on a 24 x 7 basis, i.e. must reflect train cancellations, extra trains, changes to train/switcher specs etc.

The scenario outlined below is for a wagon trip involving three RUs: an OriginRU, a TransitRU and a DestinationRU. The LRU could be any one of the three or could be a fourth entity. Note that all Consignment Notes are processed as described below . Also note that if a Consignment Note contains multiple wagon numbers, they are processed individually with separate Consignment Orders.

When the LRU receives a Consignment Note from the customer, it creates a Preliminary Consignment Order (PCO) and determines if a movement planning cycle – as shown in appendix 4 - is required The criteria for this decision is determined by the LRU which could include items such as:

- are alternative routings involving multiple RUs available?

If a planning cycle is not required, the LRU creates a Consignment Order and sends it to the Origin RU's Dynamic Trip Planning system and to the WIMO using the CI.

The OriginRU's Dynamic Trip Planning system retains the Consignment Order until it also receives a release or departure message via the CI (departures come from the Origin RU's operating system, releases can come from the LRU or Origin RU systems:

- the OriginRU's Dynamic Trip Planning system then automatically generates a detailed wagon trip plan from the logical linking of the operating plan components described above. (Note that train specs include commodities, RID codes, wagon types, max axle weights, max weight/meter, loading gauges etc). The detailed wagon trip plan includes all events on the RU, (See list of normal events Guidance Document 5 for WagonEvent) event locations, days, times and train numbers (if applicable). The last forecasted event on the OriginRU will be ETI#1 (Estimated Time, Date and Location of Interchange delivery notice – train # is optional) at the Interchange location specified in the Consignment Order . The OriginRU sends this ETI#1 to the LRU, the TransitRU and the WIMO using the CI.
- The TransitRU's system (which has also received the Consignment Order from the LRU via the CI) generates a detailed wagon trip plan (triggered by ETI#1) that ends with ETI#2 at the Interchange location specified in the Consignment Order and sends ETI#2 to the LRU, the DestinationRU and the WIMO using the CI.
- The DestinationRU's system (which has also received Consignment Order from the LRU via the CI) generates a detailed wagon trip plan based upon ETI#2 and generates the ETA at the consignee's siding identified in the Consignment Order from the LRU and sends the ETA to the LRU and the WIMO using the CI.
- The LRU compares the ETA with what has been promised to / contracted with the customer(s) (TAF TSI [4] [5] [6] 4.2.6 Shipment ETI/ETA), the ETIs with the transit time agreements between the LRU and the OrginRU, TransitRU and DestinationRU and takes corrective action if required (TAF TSI [4] [5] [6] 4.2.6 Shipment ETI/ETA & 4.2.7 Wagon Movement)

(In the case of a release event, the process described above should take place before the wagon leaves the consignor's siding. In the case of a siding departure event which preceeds a release event, the process described above should take place within minutes of the departure reporting.)

The TAF TSI [4] [5] [6] did not address the message requirements which could arise from exceptions caused by ETAs which are not acceptable to the customer. The section shown below addresses this point.

Corrective actions by the LRU could include:

- Advising the customer(s) of the delay
- Cancelling the, Consignment Order (Consignment Order Cancellation) sent to the OriginRU, TransitRU and DestinationRU and trying other RUs - if feasible. If this is done the original ETIs, the ETA and the Tranport Dossier sent to the WIMO must be retained but replaced,with the new values. Using the CI.
- A request to one or more RUs to manually modify (improve) their ETI(s)/ETA. As above the new ETIs and ETA must be sent to the WIMO (Using the CI) even though they have been manually generated In the RU"s system.

If a Movement Planning cycle is required as determined by the LRU's system:

- the "No Planning Cycle Required" process described above is followed except that the Consignment Order sent by the LRU to each RU is defined as a Preliminary Consignment Order. Note that the Preliminary Consignment Order sent to the OriginRU contains an estimated release date and time.
- When a Preliminary Consignment Order is received via the CI, each RU has the option of sending a negative response (Preliminary Consignment Order Reject)

or responding with an ETI or - in the case of the DRU - with an ETA from their DTP Systems using the CI. (Wagon ETI/ETA Message to LRU only – not to the WIMO)

- this Movement Planning cycle is repeated until the LRU sends an ETI/ETA accepted (ETI_ETA_Confirmed) (plus a Consignment Order) message to the RUs in the route. This ETI/ETA accepted message is also sent to the WIMO, using the CI)
- RUs with ETI/ETAs that have not been accepted by the LRU must be sent a cancellation message (Preliminary Consignment Order Cancellation) for the previous Movement Request using the CI.

Once an acceptable Dynamic Trip Plan has been established (and the successful RUs have been sent a Consignment Order to replace the previous Preliminary Consignment Order) and the ETA and ETIs have been sent to the WIMO (using the CI) the OriginRU monitors actual events, locations and times against the detailed trip plan ("equal" or "later than"). If events, locations or times do not match the original trip plan or if there is a non event according to the clock (reporting tolerance times determined by the OriginRU) :

- the OriginRU's system automatically calculates a revised ETI#1 at the interchange point (using the logic that links operating plan components, as described above) with the TransitRU specified in the Movement Dossier and, if it is different than the original ETI#1 sends the the revision in a new ETI/ETA Message to the LRU, TransitRU and the WIMO (using the CI) with a reason code from a pick list (see Appendix 3)
- The TRU calculates a revised trip plan and if the new ETI#2 is different than the original ETI#2, sends a new ETI/ETA Message to the LRU, DestinationRU and the WIMO using the CI.
- The DestinationRU calculates a new ETA and if it is different than the original ETA, sends a new ETA Message to the LRU and the WIMO using the CI.
- The LRU's system compares the revised ETA with what has been promised to the customer and takes corrective action if required as described above. The LRU is responsible for recording a Corrective Action Code from a pick list. (see Appendix 3).
- The processes described above (comparing actual events and non events with the detailed wagon trip plan) are performed in the OriginRU, TransitRU and DestinationRUs Dynamic Trip Planning systems as the wagon progresses through its trip. Only the ETIs/ETAs from these detailed Trip Plans are sent to the LRU and the WIMO using the CI.

The Dynamic Trip Planning Systems of the RUs must capture all versions of the detailed trip plans plus the actual events for detailed analysis and corrective action lead by the LRU.

2.1.4 Operational requirements

The best way for large RUs to deliver these DTP capabilities is to have them integrated into their operations systems that are used to process Consignment Notes, report events, create switch lists, train composition lists etc. Experience has shown that adding

these DTP and ETI/ETA capabilities to existing systems is a difficult and risky modification/integration task.

2.1.5 Data Security and access rights

Access to the detailed Trip Plans is limited to the individual RUs and they are not available to the LRU or sent to the WIMO. High level DTPs (containing releases or origin siding departure, ETI(s) date times and locations and the ETA date time and location are available for authorised users in the WIMO. TAF TSI [4] [5] [6] 4.2.11.2

2.1.6 Reliability

Any system that is part of railway operations such as a DTP system must have a high degree of reliability and availability since if the systems stop operating – so does the railway – or at least the operations are severely curtailed. It is up to individual RUs to determine the level of reliability required. .

2.1.7 External System Reference

Reporting of all versions of ETIs and ETAs, the actual events and the Delay Reason Codes must be stored in the WIMO in a manner which will allow analysis of performance on a trip (Consignor's siding to Consignee's siding) basis by the LRU however the most detailed information involving individual RU trip plans and the actual events will be at the RUs.

2.2 ETI/ETA capability for Special RUs

(see Appendix 6 for a flow chart. and Appendix 7 for a sample matrix)

2.2.1 General

Special RUs can be defined as those who have a small number of network nodes (i.e. few yards where wagons are switched between trains, few interchange locations and few consignor/consignee sidings.). These Special RUs can have significant volumes as measured by tons, ton km, daily loadings or trains per day, or limited wagonload traffic.

As opposed to the Dynamic Trip Plan approach described in § 2.1 above, ETIs/ETAs for special RUs can be automatically calculated using a “FROM / TO” matrix. See Appendix 7 for an example.

On one axis, this matrix would identify all locations where wagons could become available for special RU handling such as customer sidings and interchange points (the "FROM" points). This "FROM" axis could also specify time of day ranges and day of week for each point. Additional details such as wagon types and commodity could be added but this would not normally be required.

On the other axis, the matrix would identify all possible wagon destinations (the "TO" points).

At the intersection of the "FROM" line and the "TO" column the elapsed hours would be shown which would provide the basis for ETI or ETA calculations by adding these hours to the trip start event or cut off time.

2.2.2 Scope

The special RU ETI/ETA capability described above is best delivered within an operations system that can deliver yard inventory/switch list, train composition lists, dialogues with IMs as well as the WIMO event reporting specified in the TAF TSI. The functional requirements for these operations systems are outside the scope of this Guidance Document.

Normally special RUs will not be LRUs therefore these requirements have not been specified.

2.2.3 Logical Model

Upon the receipt of a Consignment Note from a local customer and the creation of a Consignment Order, or the receipt of a Consignment Orderor a Preliminary Consignment Order from a LRU, the special RU’s ETI/ETA system would flag potential matrix hits awaiting a local release/siding departure, ETI or interchange delivery event. The Consignment Order or Preliminary Consignment Order would be associated with the appropriate lines in the matrix . No hit would trigger an alert to the Special RU.

Note that when a Special RU receives a Consignment Note, it will also create a Consignment Order and sends it to the WIMO.

Note that if the Consignment Note contains multiple wagon numbers, they are processed individually and that Preliminary Consignment Orders contain estimated release times, dates and locations.

When an actual release, siding departure, ETI or interchange delivered event is reported to the special RUs system or received via the CI, the appropriate single matrix hit is selected (No match would trigger an Alert to the Special RU.). The elapsed time in hours from the matrix is used to generate the ETI at an interchange point or the ETA at the consignors siding in terms of date and time. The ETA or the ETI are sent to; the WIMO, the next RU (if any), and the LRU using the CI.

A clock within the RU's ETI/ETA system would trigger a periodic (table based – default 5 min) check of event reporting of consignee's sidings deliveries or interchange notices

If an event reporting is overdue by a tolerance threshold (table based – default 30 min) an alert would be generated to the Special RU. The Special RU would then manually create a revised ETI or ETA. A revised ETI would be sent to the next RU in the route and to the WIMO. A revised ETA would go to the LRU and to the WIMO. When a wagon is reported delivered to a consignee's siding or to an interchange, the appropriate data are moved to a history file (or status) in the special RUs system for service quality measurement and corrective action.

*****

APPENDIX 1

DTP Example 0054								
Location *)	**trip plan details**						**Event**	
	Day	elapsed time > from release cut off	reporting time tolerance	Time of day		Train number	Code **	**Description**
				date	time			
CZ343940000005	0	-	60'	24.10.05	22:00	VZ05	078	Release from client siding
CZ343940000005	*1*	*02:25*	*60'*	*25.10.05*	*01:25*	*VZ05*	*024*	*Departure from origin siding*
CZ343940000005	1	02:30	60'	25.10.05	01:30	VZ05	024	Departure from origin siding
CZ34364	*1*	*02:40*	*60'*	*25.10.05*	*01:40*	*VZ05*	*364*	*Arrival at yard*
CZ34364	1	02:45	60'	25.10.05	01:45	VZ05	364	Arrival at yard
CZ34364	*1*	*04:26*	*60'*	*25.10.05*	*03:26*	*45011*	*365*	*Departure from yard*
CZ34364	1	04:25	60'	25.10.05	03:25	45011	365	Departure from yard
CZ33425	1	08:58	60'	25.10.05	07:58	45011	*364*	Arrival at yard
CZ33425	1	09:43	60'	25.10.05	07:31	45011	364	Arrival at yard
CZ33425	*1*	*09:05*	*60'*	*25.10.05*	*08:05*	*45011*	*349*	*Delivered at Interchange*
CZ33425	1	09:50	60'	25.10.05	08:48	45011	349	Delivered at Interchange

*) see for more details the relevant refernce files and tables
**) Event codes based on UN Recommendation No. 24
N.B. in italic fond/schadow: scheduled events - normal font/clear: current events

DTP Example 2181								
Location *)	**trip plan details**						**Event**	
	Day	elapsed time > from release cut off	reporting time tolerance	Time of day		Train number	Code **	**Description**
				date	time			
AT02831	*0*	*11:12*	*60'*	*25.10.05*	*10:12*	*45011*	*366*	*Accepted at Interchange*
AT02831	0	11:10	60'	25.10.05	10:10	45011	366	Accepted at Interchange
AT02831	*0*	*11:58*	*60'*	*25.10.05*	*10:58*	*45011*	*365*	*Departure from yard*
AT02831	0	11:42	60'	25.10.05	10:42	45011	365	Departure from yard
AT02962	0	13:20	60'	25.10.05	12:20	45011	364	Arrival at yard
AT02962	0	13:07	60'	25.10.05	12:07	45011	364	Arrival at yard
AT02962	*0*	*17:55*	*60'*	*25.10.05*	*16:55*	*44037*	*365*	*Departure from yard*
AT02962	0	17:28	60'	25.10.05	16:28	44037	365	Departure from yard
AT03664	*1*	*25:15*	*60'*	*26.10.05*	*00:10*	*44037*	364	*Arrival at yard*
AT03664	0	24:42	60'	25.10.05	23:42	44037	364	Arrival at yard
AT03664	*1*	*30:55*	*60'*	*26.10.05*	*05:55*	*45265*	*365*	*Departure from yard*
AT03664	1	41:47	60'	26.10.05	16:47	45265	365	Departure from yard
AT03668	*1*	*31:33*	*60'*	*26.10.05*	*06:33*	*45265*	364	*Arrival at yard*
AT03668	1	42:14	60'	26.10.05	17:14	45265	364	Arrival at yard
AT03668	*1*	*31:45*	*60'*	*26.10.05*	*06:45*	*45265*	*349*	*Delivered at Interchange*
AT03668	1	42:30	60'	26.10.05	17:30	45265	349	Delivered at Interchange

*) see for more details the relevant refernce files and tables
**) Event codes based on UN Recommendation No. 24
N.B. in italic fond/schadow: scheduled events - normal font/clear: current events

DTP Example 0083								
Location *)	**trip plan details**						**Event**	
	Day	elapsed time > from release cut off	reporting time tolerance	Time of day		Train number	Code **	**Description**
				date	time			
IT03001	*0*	*32:22*	*60'*	*26.10.05*	*07:22*	*45265*	*366*	*Accepted at Interchange*
IT03001	0	43:07	60'	26.10.05	18:07	45265	366	Accepted at Interchange
IT03001	*0*	*32:45*	*60'*	*26.10.05*	*06:35*	*45265*	*365*	*Departure from yard*
IT03001	0	43:14	60'	26.10.05	18:14	45265	365	Departure from yard
IT01702	*0*	*42:30*	*60'*	*26.10.05*	*17:30*	*45265*	*364*	Arrival at yard
IT01702	1	52:11	60'	27.10.05	03:11	45265	364	Arrival at yard
IT01702	*1*	*51:48*	*60'*	*27.10.05*	*02:48*	*45265*	*365*	*Departure from yard*
IT01702	1	78:08	60'	28.10.05	05:08	45265	365	Departure from yard
IT00472	*1*	*58:23*	*60'*	*27.10.05*	*09:23*	*51571*	*364*	*Arrival at yard for detach*
IT00472	2	80:27	60'	28.10.05	07:27	51571	364	Arrival at yard for detach
IT00472	*1*	*69:33*	*60'*	*27.10.05*	*20:33*	*99999*	*365*	*Departure from yard attach*
IT00472	2	88:30	60'	28.10.05	15:30	99999	365	Departure from yard attach
IT00472000010	*1*	*69:48*	*60'*	*27.10.05*	*20:48*	*99999*	*021*	*Delivery to client*
IT00472000010	2	88:50	60'	28.10.05	15:50	99999	021	Delivery to client

*) see for more details the relevant refernce files and tables

**) Event codes based on UN Recommendation No. 24

N.B. in italic fond/schadow: scheduled events - normal font/clear: current events

APPENDIX 2

TSI - ILU Events	
Event	**Comment**
Consignor's Dock Pick up Appointment	Similar to release
Dock actual Pick up	Similar to departure
In Gate - Intermodal terminal / port	
Ramped (loaded on wagon)	ILU# must be related to wagon# in event or via wagon consignment data
Departure - from Intermodal terminal /port	this is a wagon event which must be translated into an ILU event
Yard arrival / departure (1-n) RU 1	this is a wagon event which must be translated into an ILU event
Interchange delivered (ETI) & received	this is a wagon event which must be translated into an ILU event
Yard arrival / departure (1-n) RU 2	could be gateway terminal - this is a wagon event which must be translated into an ILU event
Delivery o Intermodal terminal / port	this is a wagon event which must be translated into an ILU event
Deramped (Unloaded from wagon)	Availability time for road haulage
Out gate - Intermodal terminal / port	
Consignee's Dock Delivery - ETA	

APPENDIX 3

EVENT, ACTION AND REASONS CODE LIST FOR WAGONS

Note: Multiple Codes Can Apply

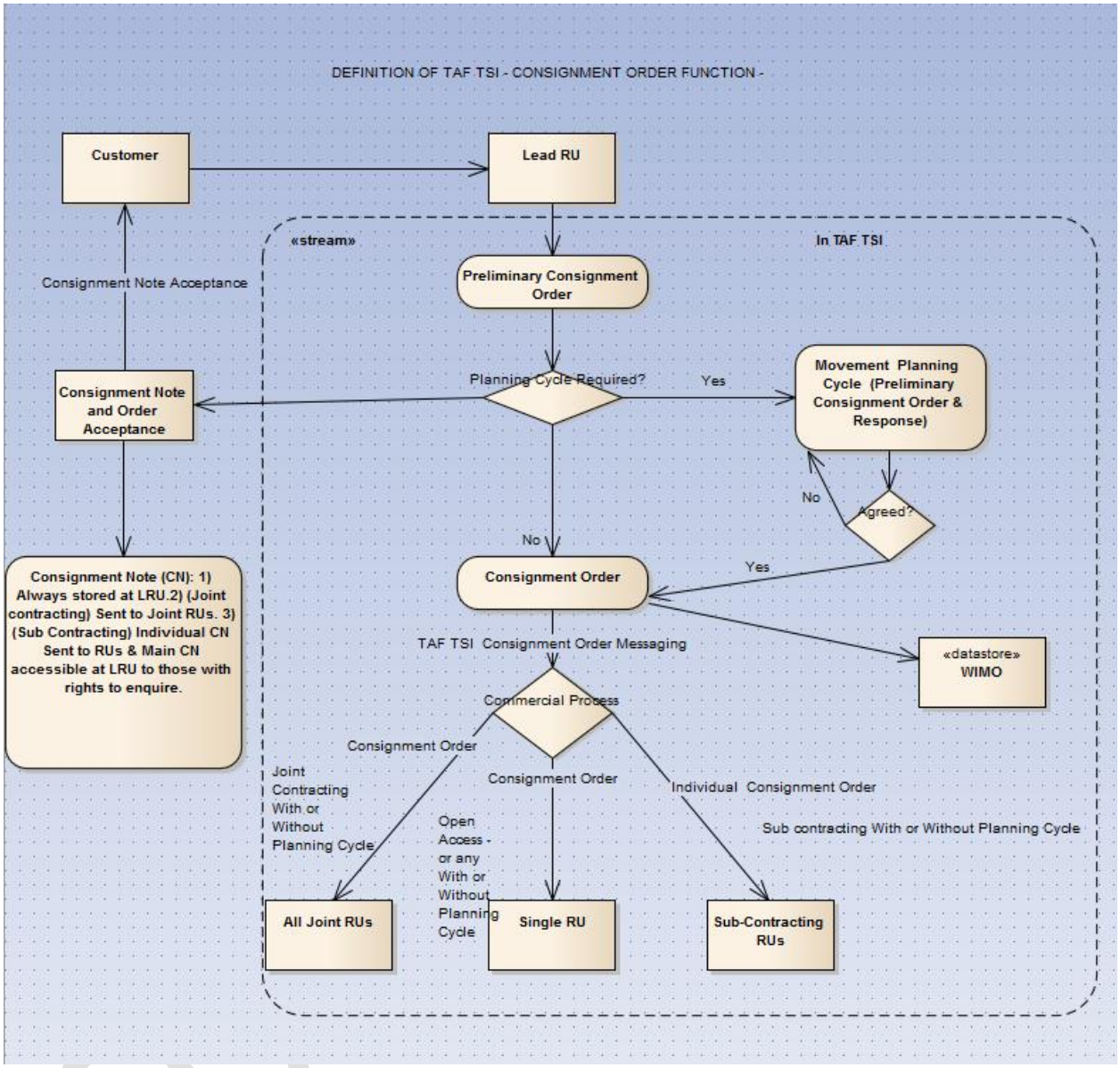
ACTION	UN-Code *
trip plan revised manually	369 **
customer advised	242
special wagon handling arranged	370 **
New shipment by another mode	100
Goods transshipped to another wagon	368 **
no action taken	367 **

*) see UN Trade & Transport status codes recommendation No. 24 1.7.2004
**) provisional - new code request in process

DELAY REASONS	UIC-code *
Bad weather (flooding, …, snow, etc)	86
Faults involving wagons	53
Technical faults in equipment / installations - ancillary equipments / instalations: Handling equipment, rolling stock handling/servicing facilities	66
Technical faults in equipment / installations - other	69
Missed connection - bad weather	91
Missed connection - train full	93
No release	92
Motive power unit breakdown (…)	43

*) see Appendix F (ERA/TD/2012-04/INT: Appendix F - TAF TSI Data and Message Model)

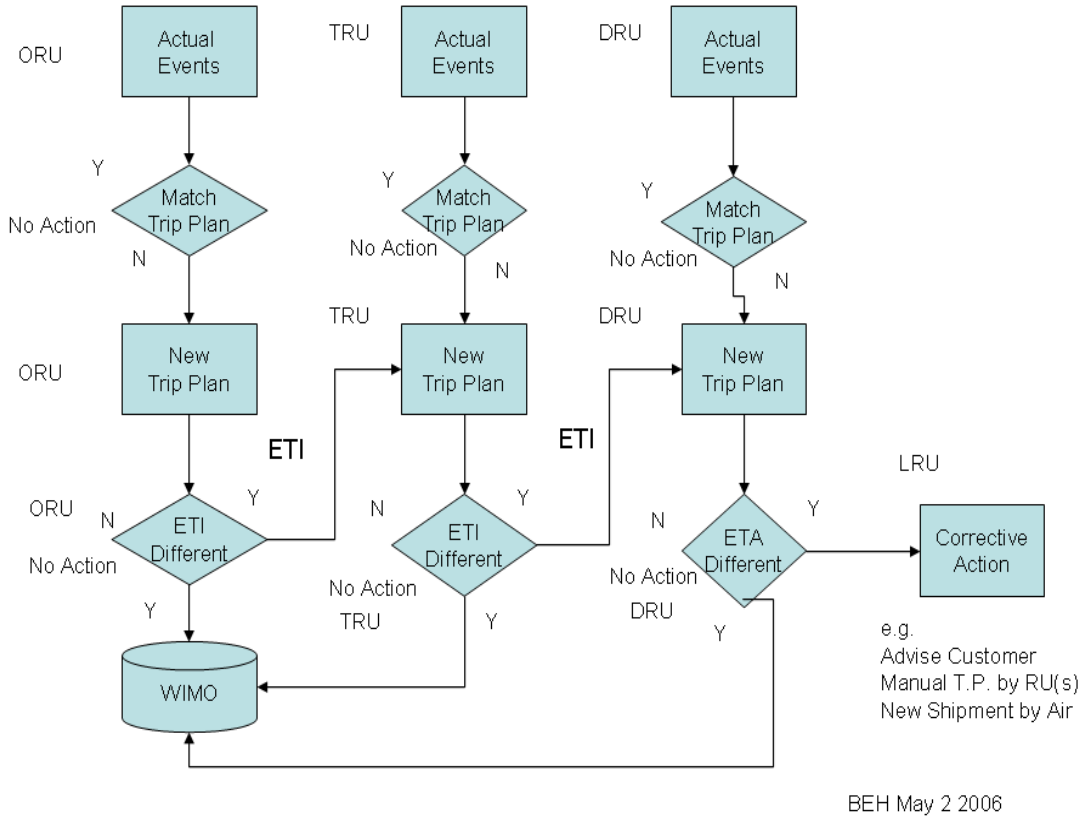
APPENDIX 4


DEFINITION OF TAF TSI - CONSIGNMENT ORDER FUNCTION -
Customer
Lead RU
«stream»
In TAF TSI
Consignment Note Acceptance
Preliminary Consignment Order
Planning Cycle Required?
Yes
Movement Planning Cycle (Preliminary Consignment Order & Response)
Consignment Note and Order Acceptance
No
Agreed?
No
Yes
Consignment Note (CN): 1) Always stored at LRU.2) (Joint contracting) Sent to Joint RUs. 3) (Sub Contracting) Individual CN Sent to RUs & Main CN accessible at LRU to those with rights to enquire.
Consignment Order
«datastore» WIMO
TAF TSI Consignment Order Messaging
Commercial Process
Consignment Order
Joint Contracting With or Without Planning Cycle
Consignment Order
Open Access - or any With or Without Planning Cycle
Individual Consignment Order
Sub contracting With or Without Planning Cycle
All Joint RUs
Single RU
Sub-Contracting RUs

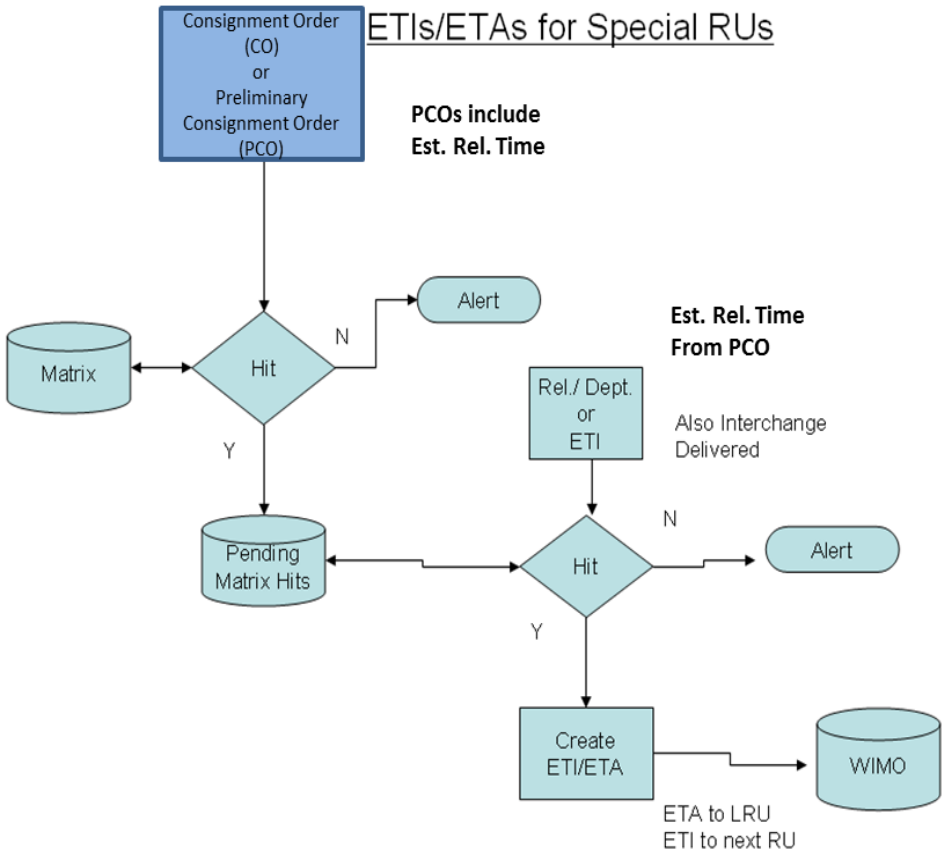
.

APPENDIX 5

DTPs Supporting TAF TSI FUNCTION 01 Monitoring Mode



APPENDIX 6


ETIs/ETAs for Special RUs
Consignment Order (CO) or Preliminary Consignment Order (PCO)
PCOs include Est. Rel. Time
Alert
N
Matrix
Hit
Y
Est. Rel. Time From PCO
Rel./ Dept. or ETI
Also Interchange Delivered
N
Pending Matrix Hits
Hit
Alert
Y
Create ETI/ETA
WIMO
ETA to LRU
ETI to next RU

APPENDIX 7

MATRIX for ETA/ETI Capability

Operation			Cut off times		planningcriteria									from		to					
period	day of week	not valid on:	release	departure	Load, Empty, Residue	wagon type range	wagon type exception	comodity code range	comodity code exception	dangerous range	dangerous exception	max. weight / axle	max weight/meter	Location	Consignor	Location CZ34394000005 / Consignee Alphadescription	Location CZ34364 / Consignee Alphadescription	Location CZ33425 / Consignee Alphadescription	Location CZ33456 / Consignee Alphadescription	Location CZ65432 / Consignee Alphadescription	Location CZ23456000005 / Consignee Alphadescription
12.12.04-10-12-05	1 - 5	362, 363	23:00	00:45	L/E/R (ALL)	ALL	1234, 6789, 7654	ALL	NONE	ALL	NONE	22,50	5	CZ34394000005	Alphadescription		1	7	9	6	42
12.12.04-10-12-05	6 - 7	362, 363	23:00	00:45	L/E/R (ALL)	ALL	1234, 6789, 7654	1234, 6789, 7654	123456, 765432 098765	0-50	14, 33	22,50	5	CZ34394000005	Alphadescription		1	7	8	12	63
12.12.04-10-12-05	1 - 5	362, 363, 105, 18	23:00	00:45	L/E/R (ALL)	0001-9000	NONE	ALL	NONE	ALL	NONE	17,50	5	CZ33425	Alphadescription	7	4		4	8	36
12.12.04-10-12-05	6 - 7	362, 363, 105, 18	23:00	00:45	L/E/R (ALL)	0001-9000	NONE	1234, 6789, 7654	123456, 765432 098765	0-50 (ALL)	0-50	14, 33	5	CZ33456	Alphadescription	8	8		12	50	60
12.12.04-10-12-05	1 - 5	362, 363, 105, 18	21:00	00:45	L/E/R (ALL)	0001-9000	1234, 6789, 7654 (NONE)	ALL	NONE	ALL	NONE	17,50	5	CZ65432	Alphadescription	1	4	6	5		30
12.12.04-10-12-05	6 - 7	362, 363, 105, 18	21:00	00:45	L/E/R (ALL)	0001-9000	1234, 6789, 7654 (NONE)	1234, 6789, 7654	123456, 765432 098765 (NONE)	0-50 (ALL)	0-50	14, 33	5	CZ23456000005	Alphadescription	13	15	16	16		40

APPENDIX 8 Trip Plan Data & Messaging

The complete definition of all the elements to be used for the Wagon/ILU Trip Planning are located at TAF TSI [4] [5] [6] Annex II, Annex A, Appendix F (ERA/TD/2012-04/INT: Appendix F - TAF TSI Data and Message Model), which encloses the whole xml catalogue for the implementation of TAF TSI after every Change Control Management cycle. Within this document is specified all the different elements, complex types and simplex types of the so called TAF TSI catalogue, among them the elements and messages used to implement the functionality described on this Appendix A for Wagon/ILU Trip Planning. Consequently the corresponding xml elements from this document have been deleted.

E N D O F D O C U M E N T

Warning