Border Crossing Dwelling Time Report

Operational Working Group
2019-10-30

1. Description

The Operational Working Group (OPE WG) within ScanMed RFC has done this preliminary study on the border crossing time for the five borders within the Corridor. The border crossings along the Corridor that have been studied are:

- ✓ Kornsjø (NO/SE)
- ✓ Malmö godsbangård (SE/DK)
- ✓ Padborg (DK/DE)
- ✓ Kufstein (DE/AT)
- ✓ Brenner (AT/IT)

The purpose of this study was mainly to look into the process time at the borders and to ensure that all the appropriate actions are taken so that the process time does not exceed 120 minutes at any boarder.

1.1. The study

With the exception of Öresundsbro Konsortiet, each Infrastructure Manager (Bane NOR, Trafikverket, Banedanmark, DB Netz, ÖBB Infra and RFI chose one Railway Undertaker (RU) as a representative for each border, the choice was to contact, preferably, the RU which operate the higher number of trains at the cross border station. The process times was then split up into more detailed activity time-frames: change locomotives, change of drivers, wagon shunting, technical check, brake test, administration and train ready message. The selected RUs were then asked to fill in a template (Annex 2) providing with the maximum time needed to arrange the boarder procedures of their trains. From this template an expected duration for the planned process time could be read, this is not the same as the schedule time.

To do a follow up on average scheduled and real time trains of the selected RUs, one specific week was chosen (this aspect is relevant because the general findings from the internal study are affected by the specific week choice). For this phase of the study the OPE WG agreed on week 38 2019, that is from the 16 of September to 22 of September 2019.

1.2. Conditions framework and key parameters

Different sources were used to receive real times. In some cases times from TIS (DB Netz) were used and in others times from national control systems (Bane NOR, Trafikverket, Banedanmark, ÖBB Infra and RFI).

To evaluate the schedule and real times, only trains with the same train number on both sides of the border or linked train numbers were considered.

Only one RU per border was considered;

- ✓ Hector Rail (Kornsjø)
- ✓ DB Cargo (Malmö godsbangård)

- ✓ DB Cargo (Padborg)
- ✓ Locomotion (Kufstein, DE)
- ✓ Rail Cargo Austria (Kufstein, AT)
- ✓ Mercitalia Rail (Brenner)

Different RUs will have different process time.

2. Progression and Success

The result of this preliminary study shows that the process time at all borders within the ScanMed RFC copes the threshold of 120 minutes with large margins.

It should be noted that the adopted reference week was in a period with few interruptions and disturbances. Also the weather conditions during this period were favourable for train traffic. These facts contribute to the positive result.

3. Findings

The following circumstances at each individual border crossing along the Corridor are of relevance when considering the results presented in the table of Annex 1.

At the border between Norway and Sweden all trains run through without any delays due to border crossing. Drivers undertake a dedicated training to drive across the border. Most freight trains passing the border are not ordered within the freight corridor.

At the Sweden - Denmark border there are no train stops, all trains need to have the same train number on both sides of the border. Only customized locomotives can pass the border.

At the Denmark - Germany border there is sometimes a change of drivers but it varies between the different railway companies. Some have to change power system and others have to change braking system.

At the border between Germany and Austria most trains run through, however some change drivers, very much depending on which RU it is. For this border the two largest traffic flows were examined, both the main RUs and data for locomotives.

Between Austria and Italy trains always stop to change drivers, documents and sometimes locomotives. The power systems are different between both countries. Change of the safety system on the locomotives takes about 5 to 10 minutes when they are crossing the border. For these reasons, not present in other border crossing station as explained above, the study shows that this border has the longest process time across the ScanMed RFC.

Summing up, most borders within RFC 3 have a system where trains can pass through without complications.

The border between Austria and Italy has the highest number of trains that cross border within RFC 3.

4. Recommendations

The Operational working group suggests that this study is seen as a brief overview of the process time at the borders within ScanMed RFC, according to the above mentioned conditions framework.

To make a more thorough study it is suggested the adoption of the same source of data.

Intricate use of the TIS system among all Infrastructure Managers would grant access to valuable statistics from a unique system, for further studies and for deeper knowledge of the flow within the whole corridor.

The preliminary study will be shared with the RUs to get comments and to check if further joint steps can be possibly taken.

Annex 1

Table

Hector Rail / Kornsjo

		Process Time																	Average **Schedule** time week 38 2019	Week 38 Average **Real Time** week 38 2019
RU	**North/South**	**Maximum time that trains need to arrange their border procedures**																			
	Process time	from arriaval to (can be parallel) in minutes	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140		0 minutes drive through	0 minutes drive through
Hector Rail	**Kornsjo**	Change Loco																		
		Wagon Shunting (e.g. buffer wagon)																		
		Technical check (with or without ATTI)																		
		Brake test																		
		Administration (paper train orders)																		
		Train ready message/route control																		
		Duration of procedure: 0																		

DB Cargo / Malmö

		Process Time																	Average **Schedule** time week 38 2019	Week 38 Average **Real Time** week 38 2019
RU	**North/South**	**Maximum time that trains need to arrange their border procedures**																			
	Process time	from arriaval to (can be parallel) in minutes	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140		**23/22 minutes** DB Cargo, schelduled time, arrived/departure Shunting time,	All trains left ahead the schedule (30´earlier)
DB Cargo	**Malmö**	Change Loco																		
		Wagon Shunting (e.g. buffer wagon)																		
		Technical check (with or without ATTI)																		
		Brake test																		
		Administration (paper train orders)																		
		Train ready message/route control																		
		Duration of procedure: 23 minutes																		

DB Cargo / Padborg

		Process Time																	Average **Schedule** time week 38 2019	Week 38 Average **Real Time** week 38 2019
RU	**North/South**	**Maximum time that trains need to arrange their border procedures**																	**28 min.** only DB Cargo trains with one trainnumber are counted - train number changes are not considered and there isen´t many trains running	**9 min.** Gained* only DB Cargo trains with one trainnumber are counted - train number changes are not considered and there isen´t many
	Process time	from arriaval to (can be parallel) in minutes	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140			
DB Cargo	**Padborg**	Change Loco																		
		Wagon Shunting (e.g. buffer wagon)																		
		Technical check (with or without ATTI)																		
		Brake test																		
		Administration (paper train orders)																		
		Train ready message/route control																		
		Duration of procedure 28 min																		

Rail Cargo Austria / Kufstein

		Process Time																	Average **Schedule** time week 38 2019	Week 38 Average **Real Time** week 38 2019
RU	**North/South**	**Maximum time that trains need to arrange their border procedures**																	**17 Minutes** Source ÖBB ARAMIS (only trains with one trainnumber are counted - train number changes are not considered)	**13 Minutes** Source ÖBB ARAMIS (only trains with one trainnumber are counted - train number changes are not considered)
	Process time	from arriaval to (can be parallel) in minutes	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140			
Rail Cargo Austria	**Kufstein**	Change Loco																		
		Wagon Shunting (e.g. buffer wagon)																		
		Technical check (with or without ATTI)																		
		Brake test																		
		Administration (paper train orders)																		
		Train ready message/route control																		
		Duration of procedure: 60 minutes																		

Lokomotion / Kufstein

		Process Time																	Average **Schedule** time week 38 2019	Week 38 Average **Real Time** week 38 2019
RU	**North/South**	**Maximum time that trains need to arrange their border procedures**																	**34 Minutes** Source: RNE TIS (Point Oriented Report)	**27 Minutes** Source: RNE TIS (Point Oriented Report)
	Process time	from arriaval to (can be parallel) in minutes	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140			
Lokomotion	**Kufstein**	Change Loco Driver																		
		Wagon Shunting (e.g. buffer wagon)																		
		Technical check (with or without ATTI)																		
		Brake test																		
		Administration (paper train orders)																		
		Train ready message/route control																		
		Duration of procedure: 3 minutes																		

MIR / Brenner

		Process Time																	Average **Schedule** time week 38 2019	Week 38 Average **Real Time** week 38 2019
RU	**North/South**	**Maximum time that trains need to arrange their border procedures**																	**65 Minutes** RFI PIC Web/M42 (only trains with one trainnumber are counted - train number changes are not considered	**40 Minutes** Source RFI PIC Web/M42 (only trains with one trainnumber are counted - train number changes are not considered
	Process time	from arriaval to (can be parallel) in minutes	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140			
MIR	**Brenner**	Change Loco																		
		Wagon Shunting (e.g. buffer wagon)																		
		Technical check (with or without ATTI)																		
		Brake test																		
		Administration (paper train orders)																		
		Train ready message/route control																		
		Duration of procedure: up to max. 40 minutes; the last three operations take place in parallel.																		

Section 1 — Hector Rail / Kornsjo

		Process Time	Average Schedule time week 38 2019	Week 38 Average Real Time week 38 2019
RU	North/South	Maximum time that trains need to arrange their border procedures	0 minutes drive through	0 minutes drive through
Hector Rail	Kornsjo	Process time — from arriaval to (can be parallel) in minutes: 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140		

Rows: Change Loco; Wagon Shunting (e.g. buffer wagon); Technical check (with or without ATTI); Brake test; Administration (paper train orders); Train ready message/route control

Duration of procedure: 0

Section 2 — DB Cargo / Malmö

		Process Time	Average Schedule time week 38 2019	Week 38 Average Real Time week 38 2019
RU	North/South	Maximum time that trains need to arrange their border procedures	23/22 minutes DB Cargo, schelduled time, arrived/departure Shunting time,	All trains left ahead the schedule (30´earlier)
DB Cargo	Malmö	Process time — from arriaval to (can be parallel) in minutes: 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140		

Rows: Change Loco; Wagon Shunting (e.g. buffer wagon); Technical check (with or without ATTI); Brake test; Administration (paper train orders); Train ready message/route control

Duration of procedure: 23 minutes

Section 3 — DB Cargo / Padborg

		Process Time	Average Schedule time week 38 2019	Week 38 Average Real Time week 38 2019
RU	North/South	Maximum time that trains need to arrange their border procedures	28 min. only DB Cargo trains with one trainnumber are counted - train number changes are not considered and there isen´t many trains running	9 min. Gained* only DB Cargo trains with one trainnumber are counted - train number changes are not considered and there isen´t many
DB Cargo	Padborg	Process time — from arriaval to (can be parallel) in minutes: 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140		

Rows: Change Loco; Wagon Shunting (e.g. buffer wagon); Technical check (with or without ATTI); Brake test; Administration (paper train orders); Train ready message/route control

Duration of procedure 28 min

Section 4 — Rail Cargo Austria / Kufstein

		Process Time	Average Schedule time week 38 2019	Week 38 Average Real Time week 38 2019
RU	North/South	Maximum time that trains need to arrange their border procedures	17 Minutes Source ÖBB ARAMIS (only trains with one trainnumber are counted - train number changes are not considered)	13 Minutes Source ÖBB ARAMIS (only trains with one trainnumber are counted - train number changes are not considered)
Rail Cargo Austria	Kufstein	Process time — from arriaval to (can be parallel) in minutes: 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140		

Rows: Change Loco; Wagon Shunting (e.g. buffer wagon); Technical check (with or without ATTI); Brake test; Administration (paper train orders); Train ready message/route control

Duration of procedure: 60 minutes

Section 5 — Lokomotion / Kufstein

		Process Time	Average Schedule time week 38 2019	Week 38 Average Real Time week 38 2019
RU	North/South	Maximum time that trains need to arrange their border procedures	34 Minutes Source: RNE TIS (Point Oriented Report)	27 Minutes Source: RNE TIS (Point Oriented Report)
Lokomotion	Kufstein	Process time — from arriaval to (can be parallel) in minutes: 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140		

Rows: Change Loco Driver; Wagon Shunting (e.g. buffer wagon); Technical check (with or without ATTI); Brake test; Administration (paper train orders); Train ready message/route control

Duration of procedure: 3 minutes

Section 6 — MIR / Brenner

		Process Time	Average Schedule time week 38 2019	Week 38 Average Real Time week 38 2019
RU	North/South	Maximum time that trains need to arrange their border procedures	65 Minutes RFI PIC Web/M42 (only trains with one trainnumber are counted - train number changes are not considered)	40 Minutes Source RFI PIC Web/M42 (only trains with one trainnumber are counted - train number changes are not considered)
MIR	Brenner	Process time — from arriaval to (can be parallel) in minutes: 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140		

Rows: Change Loco; Wagon Shunting (e.g. buffer wagon); Technical check (with or without ATTI); Brake test; Administration (paper train orders); Train ready message/route control

Duration of procedure: up to max. 40 minutes; the last three operations take place in parallel.

Annex 2

Template