



TCR Webtool Manual

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Introduction

The User Manual contains all essential information for the user to make full use of the RNE TCR webtool 3.0 system. This manual includes a description of the system functions and capabilities, contingencies and alternate modes of operation, and step-by-step procedures for system access and use.

Purpose and Scope

Temporary Capacity Restrictions (TCRs), an umbrella term in the railway sector for various types of construction works and events which lead to a reduction of infrastructure capacity, are one of the main disrupting factors in timetabling: Even though they ultimately contribute to establishing a sound and stable rail infrastructure, as a short-term and mid-term result numerous trains have to be re-routed, replaced or even cancelled on their account and passengers as well as the freight traffic is confronted with a reduced quality of the transport or even with non-communicated delays. Particularly in an international context, TCRs play a major role as - due to the deployment of various planning systems and a lack of communication - the cross-border traffic is affected even more strongly.

Key factors to decrease the effects of TCRs by simultaneously increasing the quality and stability of international train timetabling are:

- careful planning of TCRs,
- improved coordination of TCR among countries and
- their publication in due time before the timetable changes.

With regards to these key factors the TCR Working Group (TCR WG) of RailNetEurope (RNE), a European association which aims to enhance the quality and the efficiency of the international rail traffic decided to set up a web-based platform which should focus on resolving the negative effects triggered by TCRs. Being the first international application treating TCRs and their consequences this platform should foster the information exchange and the coordination of internationally relevant TCRs as well as the timely publication of TCRs on the European-wide network.

Functionalities and impact of the TCR-tool

The specifications of the web-based TCR-tool cover three fundamental functionalities:

- Firstly, the tool gives a graphical overview of all European-wide planned TCRs on the national and international main axis, for instances by using maps or charts. Within the graphical overview also the consequences of TCRs for traffic will be displayed and certain filters allow a user-related display. It is important to note that the provided graphical overview will not be exclusively available to Infrastructure Managers (IMs) but to Railway Undertakings (RUs) as well to enable them to adapt their traffic concepts following the TCRs and their impacts.
- Secondly, the TCR-tool fosters the exchange of crucial information between IMs since it also provides information about TCRs in neighbouring IMs and their impact on traffic. In this regard a notification system is implemented to ensure an up-to-date information base and to continuously inform the users about possible amendments.
- Thirdly, the application shall support the harmonization of TCRs between IMs by installing a feature which requires the approval of an affected IM in case a new TCR is generated or an existing TCR has been modified. Thereby, the affected IM needs to agree on the impact on the capacity available for traffic on the one hand and on times when to develop and offer alternative timetables on the other hand.

Containing these major functionalities, the TCR-tool is not only useful for the coordination and publication of TCRs between IMs but will also generate value for RUs as it provides RUs one single platform in which each customer could find harmonized information (in contrast to the

current a situation where a customer has to review different Excel lists of various RFCs to assess the impact of TCRs for his traffic concepts).

Also, for smaller IMs which have no national tool available to plan TCRs the TCR-tool could even be applied to support national purposes.

Although the TCR-tool has to take certain obstacles to success it is already considered to be a great advancement for the railway sector. Being the first internationally used IT-tool to manage, coordinate and communicate TCRs it adds significant value to the timetabling process by decreasing the negative impacts of TCRs for both passenger and freight traffic.

In summary, the TCR-tool considerably contribute to an enhanced quality of timetabling and - together with the TTR programme – completely reshape today's world of planning capacities of the railway.

HELP FACILITIES

In a case that you have some problems working with TCR Tool, you can send the description of the problem (together with the screenshot, if needed) to the next mail address:

support.tcr@rne.eu

The problem will be sent to the RNE incident management system and you will get information that your problem is received. In the incident management system, a ticket with a problem will be created and sent to the first level support.

Glossary

Term	Description
TCR	Planned Temporary Capacity Restriction
RNE	RailNetEurope
TTR	Redesign of the international timetabling process'
RFC	Rail Freight Corridor
.xml	Extensible Markup Language
.xls	Microsoft Excel file format
IM	Infrastructure Manager
RU	Railway Undertaking
IM_User	Infrastructure Manager User
IM_Admin	Infrastructure Manager Administrator
ID	Identification
OU	Organizational Unit
GIS	Geo Information System
TAF/TAP TSI	Telematic Applications Freight/Passenger Technical Specifications for Interoperability
CAD	Computer aided design

1. TCR Tool – User Manual

1.1. Login user and TCR cockpit

1.1.1. Login users

The login functionality verifies that only registered users are able to access the TCR tool.

There are two environments of the TCR Tool:

- Production environment (<https://tcr-online.rne.eu>) – that is used for creation, coordination TCRs among IMs, and TCR publication. In this environment, TCRs are publicly visible to all Applicants.
- Test environment (<https://tcr-test.rne.eu>) – that is used for testing a various use case, for education of new users and similar.

It is **strongly recommended to test aspects of TCRs** before you coordinate and publish international TCRs in the Production environment.

The following actions are necessary to log-in.

#	Action	Expected result
1	Open the login screen of the TCR tool	The login screen is opened.
2	Fill in valid user credentials and click on the “login” button.	The user is logged in and the dashboard is shown.

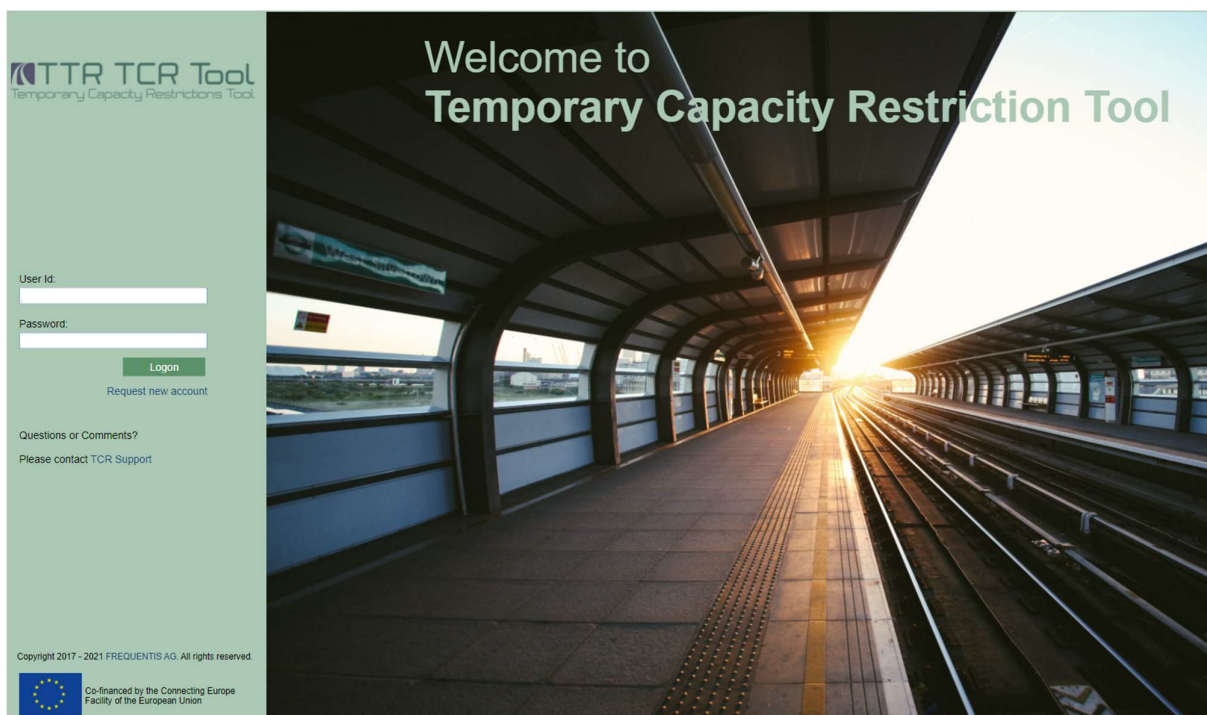


Figure 1 - Log-in screen

1.1.2. TCR Tool Cockpit

After successful log-on, the user specific dashboard page within the TCR cockpit is opened.

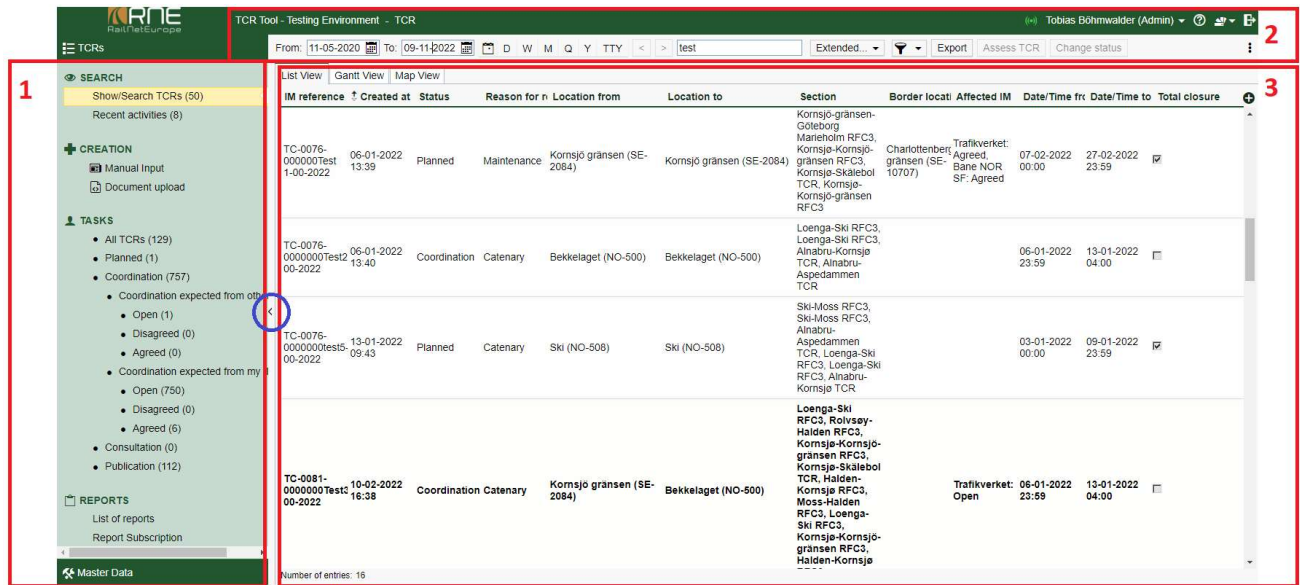


Figure 2 – The TCR Tool cockpit

The cockpit is made up of 3 major areas:

1 – Navigation section

Using the navigation section, users can execute different functionalities of the tool. The navigation section is divided into 2 main areas:

- TCRs – with the functionalities to perform all the necessary actions on the TCRs like searching and filtering TCRs, creating and importing TCRs, changing statuses and assessing TCRs, and executing predefined reports.
- Master Data – all data that is used in the tool is defined in this area. This data is synchronized from the RNE BigData database.

2 – Action buttons and Menu bar section

This menu bar gives the user several options to filter which TCRs should be displayed below, including time- and location-related filters. All other actions regarding working with TCRs, like save, cancel, bulk edit, export, etc., are defined in this section.

3 – Content section

All data as a result of selecting the functionalities from the navigation section or Action buttons and menu bar section will be shown in this section.

Circled in blue, a “<” button is presented that can be used to extend the working area of the content section by hiding the navigation section.

After the content section is extended, the “>” button, presented on the left side in the middle of the screen, can be used to show the navigation section again.

1.2. Search

The first group of functions is related to the filtering and overview possibilities of the TCR Tool. In this group two functions can be chosen:

- Show/Search TCRs
- Recent activities

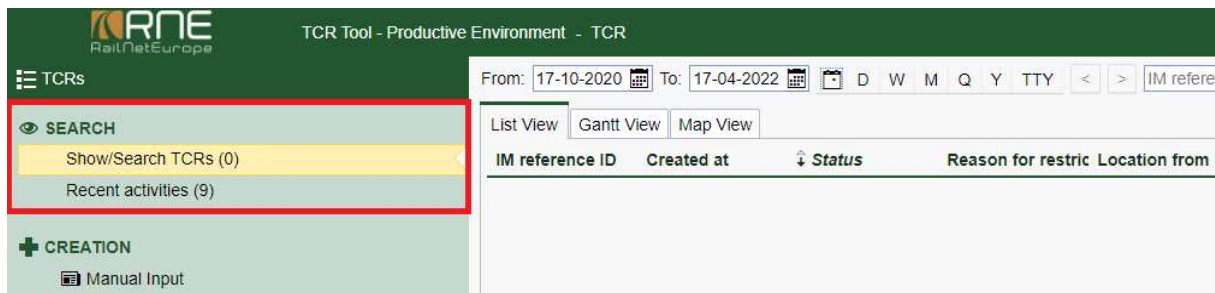


Figure 3 –Search group of functionalities

In general, TCRs can be displayed in two separate ways. Using specific overview types to give the user a comprehensive summary of TCRs, and a detail view allowing for capturing all relevant TCR data.

For displaying TCRs in an overview, the following three different presentation types are provided:

- List view
- Gantt view
- Map view

All three views have a common search form, that appears by clicking the “Show/Search TCRs” function and the results of a search are presented in the result pane. This means changing between these three views, the search results will be the same, even if the presentation is different.

The detail view for a TCR can be retrieved out of every overview type. The visibility of TCRs depends on the visibility permission of the user’s role (*Administration*).

The “Recent activities” function is used to search TCRs which were created or edited recently.

1.2.1. Show/Search TCRs

“Show/Search TCRs” is the first page that is presented after the successful login in the tool. Using this functionality, users can define various filtering options to search for specific TCRs and present them in three different views: **List view**, **Gantt view** and **Map view**.

There are four different filtering options (marked in the image with rectangles):

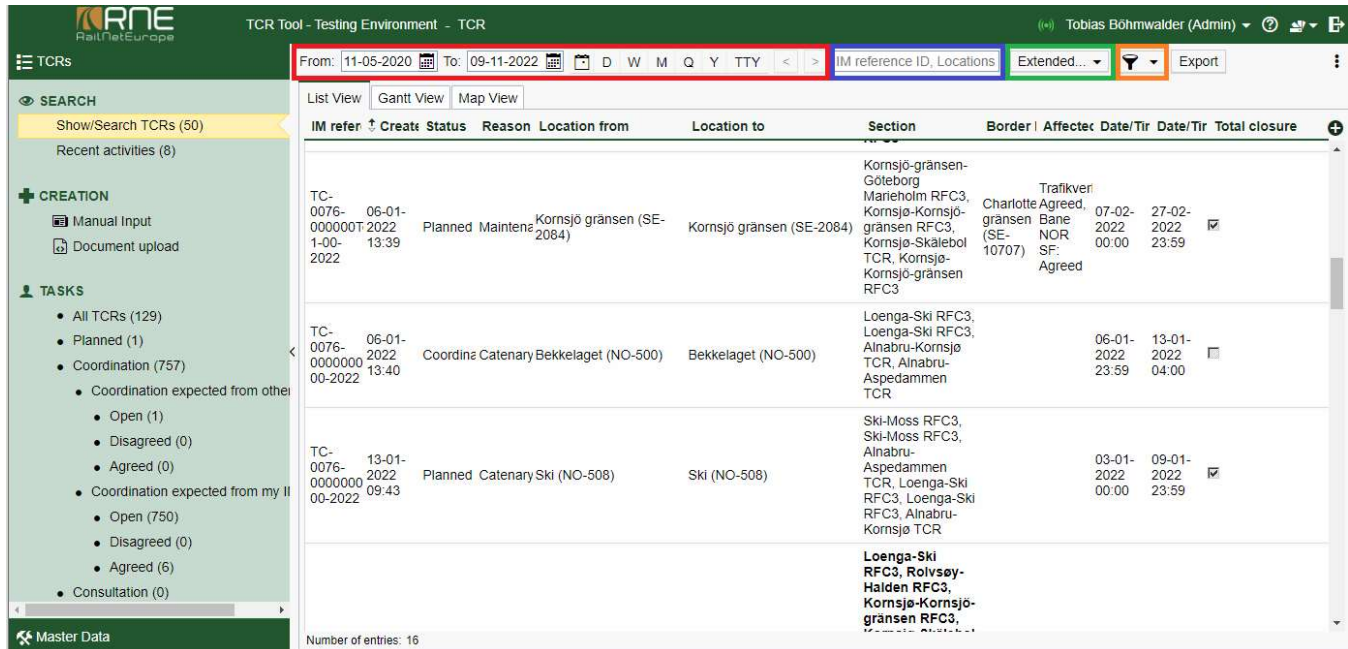


Figure 4 –The search filters

Filtering by date

Date filtering is presented on the top of the page of each view (List, Gantt, Map) and will be used to search the TCRs per specific date or validity period (presented in the red rectangle). Users can use this filter to make the first basic search for the TCRs.












By default, a period of 6 months is selected starting from the current date. For fast data entry and searching of specific periods, the following “Time” buttons can be used:

- “D” – one day
- “W” – one week
- “M” – one month
- “Q” – one quarter
- “Y” – one year
- “TTY” - a timetable year (selectable via a dropdown menu)
- “<” – a previous period (related to the “from” and “to” values)
- “>” – a previous period (related to the “from” and “to” values)

Clicking on these buttons, will change the “from” and “to” values accordingly, by calculating from the selected “from” date (e.g. if the selected date is 13th June 2022, clicking at the “d” button will present the 13th in the “from” and “to” fields, or by clicking the “w” a period from 13.06.2022-19.06.2022 will be selected, etc).

Two additional buttons are used to select a previous (“<”) or next (“>”) period relative to the selected period. These two buttons are only effective if the period (“from” and “to” values) is automatically filled by clicking one of the “Time” buttons. In the case of manual change of one of these values, these two buttons will be disabled.

Explanation of the other attributes:

ID	Item	Description																		
1	Time	<p>The following buttons can be used to automatically enter a valid date “from” and “to” for the period to be searched for TCRs:</p> <table><tr><td></td><td>Reset the entered values (period) to the default period starting with the current date</td></tr><tr><td>D</td><td>A single day based on the current “from” date</td></tr><tr><td>W</td><td>A weekly period starting with a current date</td></tr><tr><td>M</td><td>A monthly period starting with a current date</td></tr><tr><td>Q</td><td>A quarterly period starting with a current date</td></tr><tr><td>Y</td><td>A yearly period starting with the current date</td></tr><tr><td>TTY</td><td>A dropdown menu to select a timetable year</td></tr><tr><td></td><td>A previous period of the currently selected period in the “from” and “to” fields. The button is available only if the values are set automatically by the buttons above. In any manual modification of the values, the button will be disabled.</td></tr><tr><td></td><td>A next period of the currently selected period in the “from” and “to” fields. The button is available only if the values are set automatically by the buttons above. In any manual modification of the values, the button will be disabled.</td></tr></table> <p>Definition of the search period:</p> <p>From: <input type="text" value="02-07-2020"/>  To: <input type="text" value="02-07-2020"/> </p> <p>The search period can be filled in automatically using the buttons for setting the values or manually by entering values using the keyboard. By default, the date period is set to 6 months (starting from the current date) and time is set to 24 hours (a whole day). That means the TCRs for the following 6 months are presented in the result pane. Each TCR that exists in the specified period will be displayed.</p>		Reset the entered values (period) to the default period starting with the current date	D	A single day based on the current “from” date	W	A weekly period starting with a current date	M	A monthly period starting with a current date	Q	A quarterly period starting with a current date	Y	A yearly period starting with the current date	TTY	A dropdown menu to select a timetable year		A previous period of the currently selected period in the “from” and “to” fields. The button is available only if the values are set automatically by the buttons above. In any manual modification of the values, the button will be disabled.		A next period of the currently selected period in the “from” and “to” fields. The button is available only if the values are set automatically by the buttons above. In any manual modification of the values, the button will be disabled.
	Reset the entered values (period) to the default period starting with the current date																			
D	A single day based on the current “from” date																			
W	A weekly period starting with a current date																			
M	A monthly period starting with a current date																			
Q	A quarterly period starting with a current date																			
Y	A yearly period starting with the current date																			
TTY	A dropdown menu to select a timetable year																			
	A previous period of the currently selected period in the “from” and “to” fields. The button is available only if the values are set automatically by the buttons above. In any manual modification of the values, the button will be disabled.																			
	A next period of the currently selected period in the “from” and “to” fields. The button is available only if the values are set automatically by the buttons above. In any manual modification of the values, the button will be disabled.																			

Extended filtering

The extended filtering is used in combination with “Filtering by date” to filter the TCRs by additional parameters. Any combination of these additional parameters is acceptable. That means that the filter parameters defined in the “filter by date” will be used together with these additional parameters defined in the “Extended filter” form.

The extended filtering form is opened by clicking the “Extended...” button (marked in the **green** rectangle). The search form with additional parameters is presented as shown below:

Extended search

IM reference ID:
Location: From: To:
Border location:
IM of the TCR:

AB 'Lietuvos geležinkeliai'

Administrator de Infrastructuras Ferroviar

BLS AG

Bane NOR SF

☒ only TCRs within my IM

☐ only TCRs my IM is affected

Type:

Continuous

Periodical

Temporal Expansion:

☒ All

☐ Exact time known

☐ Exact time unknown

Reason for restriction:

Signal

Switch

Catenary

Track and Rail

Classification:

Major

High

Medium

Minor

Traffic measures:

Cancellation - Freight trains

Cancellation - Long distance trains

Cancellation - Short distance trains

Re-Routing - Freight trains

Impact on traffic:

Reduced track availability - LT

Reduced track availability - ST

Weight

Length

Sections:
RFC:

RFC0

RFC1

RFC10

RFC11

Status:

Planned

Cancelled

Coordination

Consultation

Working days: ☐ Mon ☐ Tue ☐ Wed ☐ Thu ☐ Fri ☐ Sat ☐ Sun
Line: ☐ Inland ☐ Mainline

Reset Search Close

Figure 5 –Extended search parameters

Users can define any combination of the parameters explained in the table as follows:

ID	Item	Description						
1	IM reference ID	Search for specific core value of the TCRID. In the most cases, the core value is the national ID for TCR provided by IM.						
2	Type	Search TCRs by types: <ul style="list-style-type: none">- Continuous- Periodical						
3	Location: From To	It is possible to search for the TCRs that are created between the selected locations or touches one of the locations. From and To locations could be selected.						
4	Temporal expansion	<p>Using the temporal expansion option, it is possible to define what kind of TCRs will be searched in a sense of defined time.</p> <p>The possible options are:</p> <table><tr><td>All</td><td>All TCRs will be searched, doesn't matter if the date and time is exactly defined or not</td></tr><tr><td>Exact time known</td><td>Only TCRs with an exactly defined time will be searched and presented</td></tr><tr><td>Exact time unknown</td><td>Only TCRs without an exactly defined time will be searched and presented</td></tr></table> <p>It is important to highlight that the period that applies to the temporary expansion is the same that is defined in the "Time" section (date and time defined by fields "from" and "to"). In the case of unknown exact time TCRs, the date and time that is defined in each TCR are calculated and compared with a period defined in the search section.</p>	All	All TCRs will be searched, doesn't matter if the date and time is exactly defined or not	Exact time known	Only TCRs with an exactly defined time will be searched and presented	Exact time unknown	Only TCRs without an exactly defined time will be searched and presented
All	All TCRs will be searched, doesn't matter if the date and time is exactly defined or not							
Exact time known	Only TCRs with an exactly defined time will be searched and presented							
Exact time unknown	Only TCRs without an exactly defined time will be searched and presented							

5	Border Location	Lists all locations that are marked as being border locations and filters for all TCRs that include selected locations.
6	IM of the TCR	Searching the TCRs that affects a specific IM. More IMs can be selected
7	Visibility	Using the visibility option, it is possible to search for TCRs created by the user's IM or TCRs in which the user's IM is involved. The "only TCRs within my IM" is selected by default. <input type="checkbox"/> only TCRs within my IM <input type="checkbox"/> only TCRs my IM is affected
8	Reason for restriction	Searching TCRs by the reason for the restriction. The values are: <ul style="list-style-type: none"> - Signal - Switch - Catenary - Track and Rail - Tunnel - Bridge - Miscellaneous - Maintenance - Other
9	Sections	A user can add a section/s, to filter all TCRs that are created on the entered sections
10	Classification	Searching TCRs by the classification. The values are: <ul style="list-style-type: none"> - Major - High - Medium - Minor - Unclassified
11	RFC	The RFCs that are involved or affected by TCRs. It is possible to select more RFC items.
12	Traffic measures	Search TCRs by one of the traffic measures. The values are: <ul style="list-style-type: none"> - Cancellation – Freight trains - Cancellation – Long distance trains - Cancellation – Short distance trains - Re-Routing – Freight trains - Re-Routing – Long distance trains - Re-Routing – Short distance trains - Train/Bus replacement – Freight trains - Train/Bus replacement – Long distance trains - Train/Bus replacement – Short distance trains - Estimated delays – Freight trains - Estimated delays – Long distance trains - Estimated delays – Short distance trains
13	Status	Search TCR by one of the statuses. The values are: <ul style="list-style-type: none"> - Planned - Cancelled - Coordination - Consultation - Publication
14	Impact on traffic	Search TCRs by their impact on traffic. One or more items can be selected. The values are: <ul style="list-style-type: none"> - Reduced track availability – LT - Reduced track availability – ST - Weight - Length - Profile - Total closure - Speed restriction - No catenary
15	Working Days	Shows only TCRs that are active on one of the selected days

16	Line	Search TCRs whose lines are marked as: <ul style="list-style-type: none"> - Inland - Mainland
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After clicking the “Search” button, the tool starts with searching all TCRs that satisfy the entered search parameters, including the dates defined in the top of the page.

The “Reset” button resets the entered values of all extended search fields.

The “Close” button quits entering the search parameters and closes the search form.

NOTE: To select more than one value in the field, a user can use the control (CTRL) key on their keyboard while selecting.

Results filtering

After filtering from the previous searches is done, the list of the TCRs that satisfied the entered parameters is returned. Depending on the number of the TCRs imported in the tool and also on the defined filters, a bigger or smaller number of records will be returned.

In some cases it is not easy to find a specific TCRs in the list. To avoid this situation and make it easier to find an individual record, the filter of the results could be used (marked in the [blue](#) rectangle).

Using this filter, the results can be filtered by the following parameters:

- IM reference ID
- Location from
- Location to

The entered value in this search field does not have to be exact. The entered value can contain a part or the whole value of the TCR presented on the screen. Any part of the value of these two parameters could be added to filter the results. All three columns will be searched with the entered value and the result will present the records in which at least one of the columns contain the entered value.

Example: In case that our search returned the list of 49 records as presented on the image below:

[List View](#)
[Gantt View](#)
[Map View](#)
 From: 02-07-2020 To: 31-12-2020
 IM reference ID, Locations
Extended...

List View

IM reference	Created at	Status	Reason for re:	Location from	Location to	Affected IM	Involved RFC	Date/Time from	Date/Time to	Total closure
0084-050684	01-07-2020 10:20	0	Bridge	Rotterdam Aansl Zuid (NL-1277)	Rotterdam Blaak (NL-529)			29-07-2020 00:00	30-07-2020 00:00	<input type="checkbox"/>
0084-050682	01-07-2020 10:19	Planned	Others	Amsterdam Amstel (NL-57)	Amsterdam Lijnwerkplaats Midden (NL-1045)		RFC2, RFC8, RFC1	15-07-2020 00:00	22-07-2020 00:00	<input type="checkbox"/>
0084-123	26-06-2020 08:59	Planned	Catenary	Amsterdam Amstel (NL-57)	Amsterdam Arena (NL-1043)		RFC1, RFC8, RFC2	09-07-2020 00:00	10-07-2020 00:00	<input type="checkbox"/>
0084-12345-5	25-06-2020 16:15	0	Switch	Zevenaar grens (NL-748)	Velperbroek aansl. (NL-1328)	DB Netz AG	RFC1, RFC8	22-06-2020 00:00	12-09-2021 23:59	<input type="checkbox"/>
0084-12345-0	25-06-2020 15:17	Coordination	Switch	Zevenaar grens (NL-748)	Velperbroek aansl. (NL-1328)	DB Netz AG, ÖBB-Holding AG, Ferrovie dello Stato Italiane SpA	RFC1, RFC8	14-09-2020 00:00	24-10-2021 23:59	<input checked="" type="checkbox"/>
0084-240577	23-06-2020 15:42	Coordination	Catenary	Didam (NL-174)	Zevenaar (NL-735)	Infrabel, DB Netz AG, Infrabel		07-07-2020 13:00	10-07-2020 23:00	<input checked="" type="checkbox"/>
0084-12345-1	22-06-2020 13:21	0	Switch	Zevenaar grens (NL-748)	Velperbroek aansl. (NL-1328)	DB Netz AG, Infrabel, DB Netz AG	RFC1, RFC8	22-06-2020 00:00	12-09-2021 23:59	<input checked="" type="checkbox"/>
0084-12345-2	22-06-2020 13:21	0	Catenary	Zevenaar grens (NL-748)	Velperbroek aansl. (NL-1328)	DB Netz AG, Infrabel, DB Netz AG	RFC1, RFC8	14-09-2020 00:00	05-12-2021 23:59	<input checked="" type="checkbox"/>
0084-123	18-06-2020 11:00	Planned	Signal	Amersfoort (NL-55)	's Heer Arendskerke		RFC8, RFC1	25-06-2020 00:00	02-07-2020 00:00	<input type="checkbox"/>

Number of entries: 49

Now we would like to find all records which "Location from" is equal to "Amsterdam". In this case in the results filtering field this value should be added. It searches these two columns for the entered value:

Amsterdam

After pressing the enter, the presented list of the records will be further reduced and will present only the records that fulfils this additional filter as well.

[List View](#)
[Gantt View](#)
[Map View](#)
 From: 02-07-2020 To: 31-12-2020
 Amsterdam
Extended...

List View

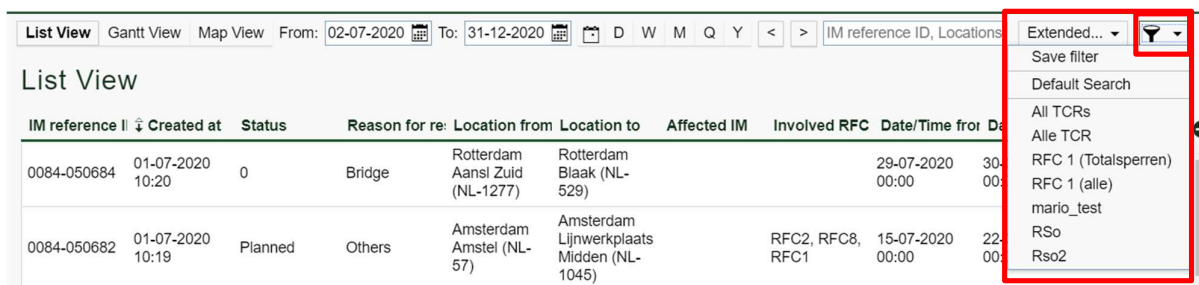
IM reference	Created at	Status	Reason for re:	Location from	Location to	Affected IM	Involved RFC	Date/Time from	Date/Time to	Total closure
0084-050682	01-07-2020 10:19	Planned	Others	Amsterdam Amstel (NL-57)	Amsterdam Lijnwerkplaats Midden (NL-1045)		RFC2, RFC8, RFC1	15-07-2020 00:00	22-07-2020 00:00	<input type="checkbox"/>
0084-123	26-06-2020 08:59	Planned	Catenary	Amsterdam Amstel (NL-57)	Amsterdam Arena (NL-1043)		RFC1, RFC8, RFC2	09-07-2020 00:00	10-07-2020 00:00	<input type="checkbox"/>
0084-323232	02-03-2020 15:42	Coordination	Signal	Amsterdam Lijnwerkplaats Midden (NL-1045)	Amsterdam Bijlmer ArenA (NL-74)			02-03-2020 00:00	13-09-2020 00:00	<input type="checkbox"/>
0084-TCR planned on another IM	10-10-2019 15:06	Cancelled	Catenary	Amsterdam Centraal (NL-58)	Marchegg (AT-2899)	ÖBB-Holding AG	RFC8, RFC1, RFC2	08-07-2020 00:00	21-08-2020 00:00	<input type="checkbox"/>
0084-R-2AE001	02-10-2019 15:05	Planned	Miscellaneous	Muiderberg aansl. (NL-1243)	Amsterdam Bijlmer ArenA (NL-74)		RFC8	14-07-2020 01:00	30-07-2020 05:00	<input checked="" type="checkbox"/>
0084-R-550020	02-10-2019 15:05	Planned	Tunnel	Muiderberg aansl. (NL-1243)	Amsterdam Bijlmer ArenA (NL-74)		RFC8	14-07-2020 01:00	30-07-2020 05:00	<input checked="" type="checkbox"/>

Saving filters

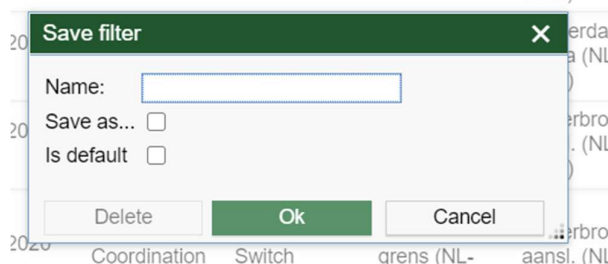
Users can define and save applied filters to avoid having to fill in the parameters each time they access the TCR Tool. This can be done by using the “Save filter” button (marked with an orange circle).

To save the filters, the user must do the following steps:

1. Set up one or more parameters for the filter (using the parameters related to the dates and extended parameters – explained above)
2. Save the filter by clicking the filter icon



3. Select the “Save filter” option

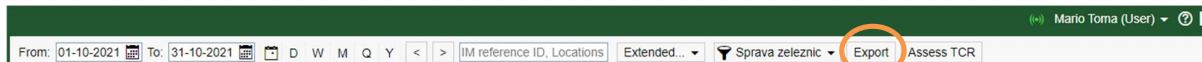


4. In the “Save filter” form enter the name of the filter and define if this filter will be used as default or not.
5. Press the “OK” button to finish the saving

User can define more filters.

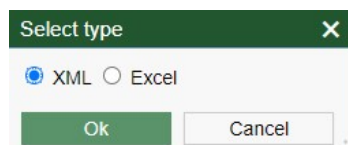
The default filter can be only one and this will be applied immediately after entering in the tool. The other filters can be selecting by clicking the filter icon and select the filter name that we want to apply.

Data export



The results returned by the search and presented in the table in the content section can be exported to an Excel or XML structure.

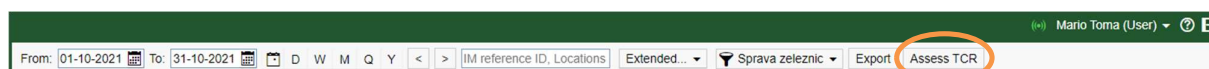
By clicking the “Export” button, a new popup window with data export possibilities will be presented.



After selecting the desired type for export and by clicking the “Ok” button, the tool will start exporting and create a file on your system. The file will be stored in “Downloads” folder on your computer by default.

It is important to highlight that data is exported in the same structure that is used for TCR import.

Assess TCR



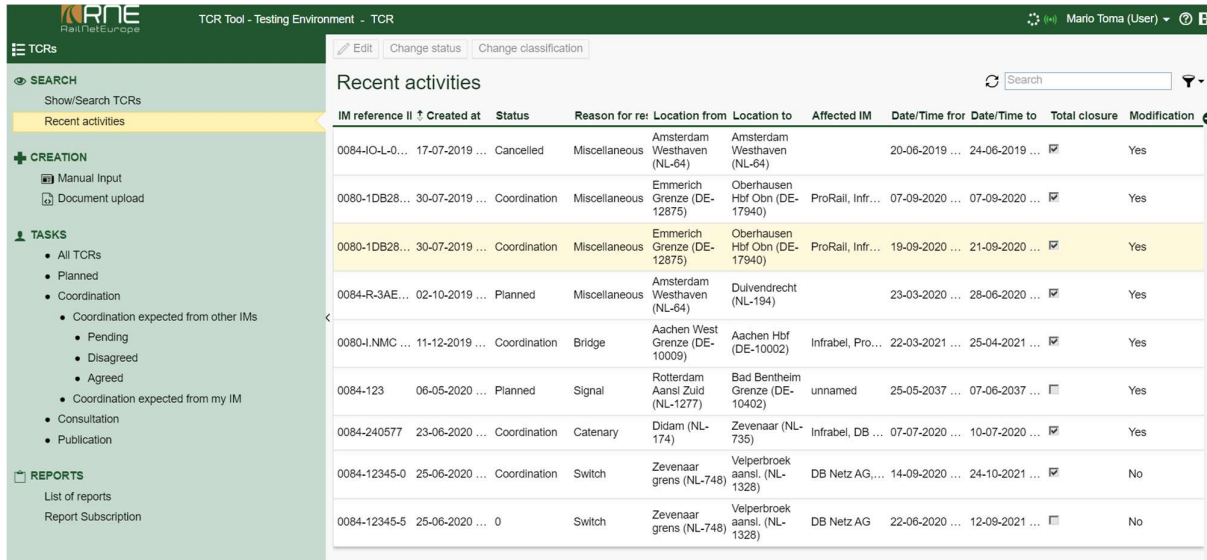
The “Assess TCR” button allows TCR coordination. By selecting a TCR of another company that we want to coordinate with (where we are involved) and pressing the assess button, the chosen TCR will be marked in blue. In addition, the TCRs of our own company that are planned in the same period (completely or partially) will be presented, as shown in the image below.

From: 24-06-2020 To: 20-02-2023															D W M Q Y < > IM reference ID, Locations Extended... Export Assess TCR Change coordination value														
List View Gantt View Map View																													
IM reference ID			Created at	Status	Reason for	Location from	Location to	Affected bor	Type of TCR	Exact time	Date/Time from	Date/Time to	Year to	In annual tin	Mod														
TC-0080-20975E28E047A.01-null-2021			23-08-2021 11:48	Planned	Switch	München Ost Pbf (DE-17254)	München-Trudering (DE-17323)		Continuous	Exact time known	27-08-2021 04:00	06-09-2021 04:00	2021	No	No														
TC-0080-2199-null-2020			31-03-2021 09:14	Coordinated	Switch	Emmerich Grenze (DE-12875)	Oberhausen Hbf Obn (DE-17940)	Emmerich Grenze (DE-12875), Emmerich Grenze (DE-12875)	Continuous	Exact time known	24-06-2020 17:46	20-02-2023 15:56		No	Yes														
TC-0084-R540500-2201-00-null-2022			22-12-2020 17:34	Planned	Miscellaneous	Meppel (NL-435)	Olst (NL-486)		Continuous	Exact time known	16-04-2022 01:00	19-04-2022 05:00	2022	No	Yes														
TC-0084-R493500-2201-00-null-2022			22-12-2020 17:34	Planned	Miscellaneous	De Diem overloopw. (NL-1101)	Oosterdoksdc (NL-1259)		Continuous	Exact time known	08-10-2022 01:00	10-10-2022 05:00	2022	No	Yes														
TC-0084-M004701-2201-00-null-2022			22-12-2020 17:34	Planned	Bridge	Lage Zwaluwe (NL-382)	Oudenbosch (NL-496)		Continuous	Exact time known	12-02-2022 01:00	14-02-2022 05:00	2022	No	Yes														

The IM who coordinates TCR, will see all its own TCRs planned in the same period of time, including TCRs from neighbouring companies. With this information it should be easier to make an approval decision.

1.2.2. Recent activities

The “Recent activities” tab is used to search for specific activities done on TCRs.



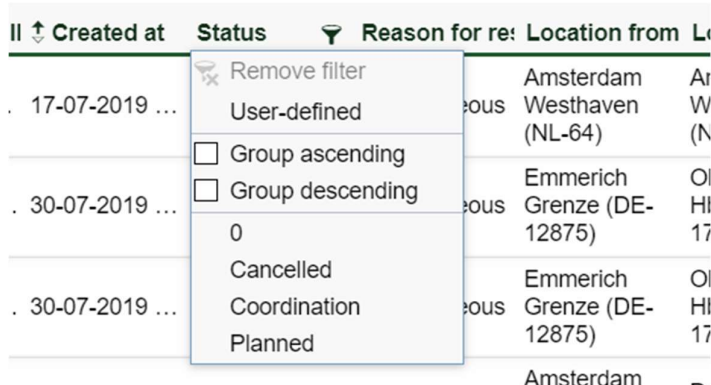
IM reference	Created at	Status	Reason for re:	Location from	Location to	Affected IM	Date/Time from	Date/Time to	Total closure	Modification
0084-IO-L-0...	17-07-2019 ...	Cancelled	Miscellaneous	Amsterdam Westhaven (NL-64)	Amsterdam Westhaven (NL-64)		20-06-2019 ...	24-06-2019 ...	<input checked="" type="checkbox"/>	Yes
0080-1DB28...	30-07-2019 ...	Coordination	Miscellaneous	Emmerich Grenze (DE-12875)	Oberhausen Hbf Obn (DE-17940)	ProRail, Infr...	07-09-2020 ...	07-09-2020 ...	<input checked="" type="checkbox"/>	Yes
0080-1DB28...	30-07-2019 ...	Coordination	Miscellaneous	Emmerich Grenze (DE-12875)	Oberhausen Hbf Obn (DE-17940)	ProRail, Infr...	19-09-2020 ...	21-09-2020 ...	<input checked="" type="checkbox"/>	Yes
0084-R-3AE...	02-10-2019 ...	Planned	Miscellaneous	Amsterdam Westhaven (NL-64)	Duivendrecht (NL-194)		23-03-2020 ...	28-06-2020 ...	<input checked="" type="checkbox"/>	Yes
0080-I-NMC ...	11-12-2019 ...	Coordination	Bridge	Aachen West Grenze (DE-10009)	Aachen Hbf (DE-10002)	Infrabel, Pro...	22-03-2021 ...	25-04-2021 ...	<input checked="" type="checkbox"/>	Yes
0084-123	06-05-2020 ...	Planned	Signal	Rotterdam Aansl Zuid (NL-1277)	Bad Bentheim Grenze (DE-10402)	unnamed	25-05-2037 ...	07-06-2037 ...	<input type="checkbox"/>	Yes
0084-240577	23-06-2020 ...	Coordination	Catenary	Didam (NL-174)	Zevenaar (NL-735)	Infrabel, DB ...	07-07-2020 ...	10-07-2020 ...	<input checked="" type="checkbox"/>	Yes
0084-12345-0	25-06-2020 ...	Coordination	Switch	Zevenaar aansl. (NL-1328)	Velperbroek aansl. (NL-1328)	DB Netz AG,...	14-09-2020 ...	24-10-2021 ...	<input checked="" type="checkbox"/>	No
0084-12345-5	25-06-2020 ...	0	Switch	Zevenaar aansl. (NL-1328)	Velperbroek aansl. (NL-1328)	DB Netz AG	22-06-2020 ...	12-09-2021 ...	<input type="checkbox"/>	No

Users are able to filter TCR activities by columns:



IM reference	Created at	Status	Reason for re:	Location from	Location to	Affected IM	Date/Time from	Date/Time to	Total closure	Modification
0084-123	06-05-2020 ...	Planned	Signal	Rotterdam Aansl Zuid (NL-1277)	Bad Bentheim Grenze (DE-10402)	unnamed	25-05-2037 ...	07-06-2037 ...	<input type="checkbox"/>	Yes

On move the mouse pointer over the column name (e.g. “Status”) a small filter icon is presented. By clicking this icon, the popup filter for the column is presented.



Created at	Status	Reason for re:	Location from	Location to
17-07-2019 ...	Cancelled	Miscellaneous	Amsterdam Westhaven (NL-64)	Amsterdam Westhaven (NL-64)
30-07-2019 ...	Coordination	Miscellaneous	Emmerich Grenze (DE-12875)	Oberhausen Hbf Obn (DE-17940)
30-07-2019 ...	Coordination	Miscellaneous	Emmerich Grenze (DE-12875)	Oberhausen Hbf Obn (DE-17940)

Using this popup filter, it is possible to select the exact values or define a “User-defined” filter to search the records per selected column. It is possible to filter the records by defining filters on more than one column.

1.2.3. List view

The “List view” displays the list of TCRs in a table form with the most used attributes displayed. Users can show/hide the additional attributes by their needs.

“List view” can be presented by clicking on “Show/Search TCRs”. The first view that is presented is the “List view” with a list of all TCRs.

From: 16-05-2022

To: 14-11-2022

D

W

M

Q

Y

TTY

<

>

IM reference ID, Locations

Extended...

▼

Export

Assess TCR

Change status

List View

Gantt View

Map View

IM referenc	Created	Status	Reason for	Location from	Location to	Section	Border loc	Affected IM	Date/Time	Date/Time	Total closure
TC-0086-NR2022B35 07-01-5.3.00-2022	2021 11:01	Cancelled	Bridge	Ringsted (DK-12)	Roskilde (DK-8)	Ringsted-Høje Taastrup RFC3			26-05-2022 00:00	29-05-2022 04:00	<input type="checkbox"/>
TC-0086-NR2022B35 07-01-5.4.00-2022	2021 11:03	Cancelled	Bridge	Ringsted (DK-12)	Roskilde (DK-8)	Ringsted-Høje Taastrup RFC3			04-06-2022 00:00	06-06-2022 04:00	<input type="checkbox"/>
TC-0086-NR2022B35 07-01-7.1.00-2022	2021 11:38	Cancelled	Bridge	Ringsted (DK-12)	Roskilde (DK-8)	Ringsted-Høje Taastrup RFC3			05-07-2022 00:00	16-07-2022 04:00	<input type="checkbox"/>
TC-0086-NR2022B35 07-01-7.2.00-2022	2021 11:39	Cancelled	Bridge	Ringsted (DK-12)	Roskilde (DK-8)	Ringsted-Høje Taastrup RFC3			08-08-2022 00:00	02-10-2022 04:00	<input type="checkbox"/>
TC-0086-NR2022B35 07-01-8.5.00-2022	2021 14:20	Publication	Bridge	Slagelse (DK-15)	Kørsør (DK-17)	Ringsted-Taulov TCR			04-06-2022 00:00	06-06-2022 04:00	<input type="checkbox"/>
TC-0086-NR2022B35 07-01-28-00-2022	2021 17:01	Cancelled	Signal	Københavns Lufthavn Kastrup (DK-90)	Københavns Lufthavn Kastrup (DK-90)	Høje Taastrup-Peberholm RFC3			16-07-2022 00:00	25-07-2022 04:00	<input type="checkbox"/>
TC-0086-01-2-2846-04-00-2022	28-07-2021 16:18	Publication	Track and Rail	Ringsted (DK-12)	Kværkeby (DK-11)	Ringsted-Høje Taastrup RFC3, Høje Taastrup-Ringsted TCR			03-07-2022 00:00	09-07-2022 00:00	<input type="checkbox"/>
TC-0086-01-2-2846-51-00-2022	05-01-2022 18:05	Publication	Track and Rail	Kværkeby (DK-11)	Borup (DK-10)	Ringsted-Høje Taastrup RFC3, Høje Taastrup-			21-09-2022 04:30	26-09-2022 04:30	<input type="checkbox"/>

Number of entries: 49

The “List view” has the following attributes that are presented by default:

- IM reference ID – ID that IM is using in their national tool (could be used for the automatic synchronization between national and central tool)
- Created at
- Status
- Reason for restriction
- Location from
- Location to
- Section
- Border location
- Affected IM – IM that is affected by the TCRs
- Date/Time from
- Date/Time to
- Total closure

In any case, it is possible to add additional attributes to the view or to hide attributes already displayed. To do that, the user has to click the “Column picker” button (“+” button) and select or deselect attributes.

The selected attributes will be shown/hidden from the list.

Additionally, by clicking the column header (column name), the list results will be sorted by the ascending/descending order of the selected column.

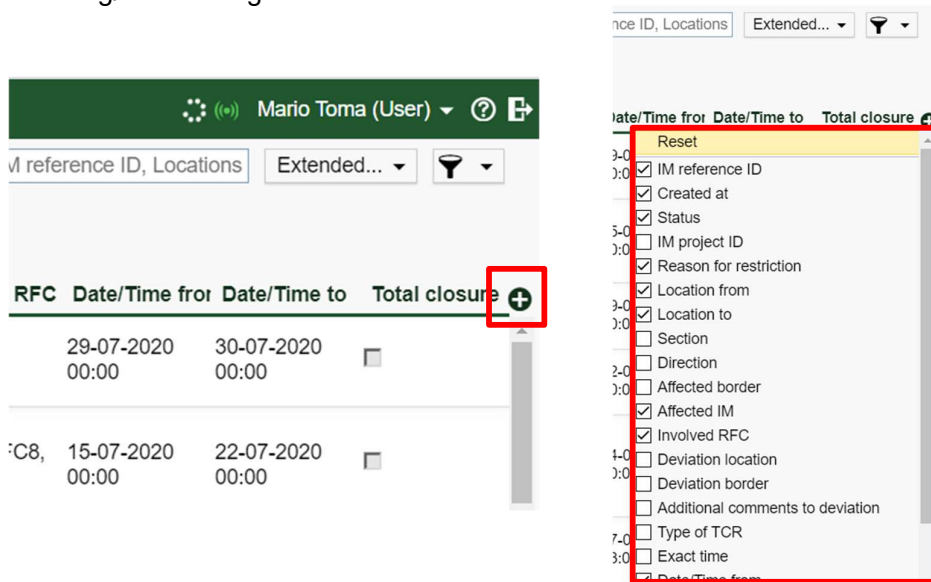


Figure 6 - Column picker and a list of all attributes that describe TCR

Note: This view might lead to a confusingly large number of small columns. Depending on the screen resolution used, this view may be unclear.

1.2.4. Gantt view

The Gantt-chart is used to represent the temporal expansion of TCRs. The same searching parameters apply to the Gantt View as on the List View (check [topic 1.2](#) "Search").

TCRs which match the search criteria are shown in a list. The Gantt-chart window is divided into two sections:

- Data section
TCRs in the Gantt-chart are shown considering the affected border, defined for each border crossing and agreed among IMs as a border for TCR coordination. Planned TCRs that affect one border point are grouped per IMs and lines.
The TCRs that are created on the sections that don't affect any border points are presented under the "Unspecified" border point.
- Graphical section
The header of x-axis shows the timeline of the selected time period (date from, date to). TCRs are displayed on the x-axis and represented with a horizontal bar, whose length is proportional to its temporal expansion. The left end marks the beginning of the TCR and the right end marks the completion date. Furthermore, specific colour-coding for the impacts on

the traffic is applied to the TCRs allowing the user for getting a quick reading of the work priority:

- Total closure → **red**
- Reduced track availability/ LT → **yellow**
- Reduced track availability/ST → **yellow**
- Speed restriction → **yellow**
- Profile → **yellow**
- Length → **yellow**
- Weight → **yellow**
- Diesel only → **yellow**
- In addition to this color-coding, the Gantt-chart distinguishes between the different TCR types. Continuous TCRs are displayed with **full bars**, periodical (continuous) TCRs are crosshatched.

General functionality of the Gantt-chart

By default, all TCRs within one affected border point are comprised of one single TCR item and shown in the Gantt. Data is further presented considering the IM names and name of lines on which are they created. The data shown in the data section is reduced to the line information and the date from/date to information of the TCRs (chronologically derived from the first and last TCR in this section).

The TCR bar shows a compressed view of all contained TCRs. By expanding the compressed view, all TCRs within the respective section are displayed in ascending order based on their temporal occurrence presenting the affected segments by the TCR, the time span, the type of the TCR as well as the issuing IM of the TCR. Also, each TCR within the section is displayed in one row, allowing the user for determining TCRs, which run sequentially (periodical), in parallel to each other or overlapping. Basic TCR information (IM reference ID, the reason for the restriction, the location from/to direction and traffic measures) can be retrieved by hovering over the bar of the respective item. Clicking on the TCR item in the data section or on the respective bar opens the detail view of the selected TCR.

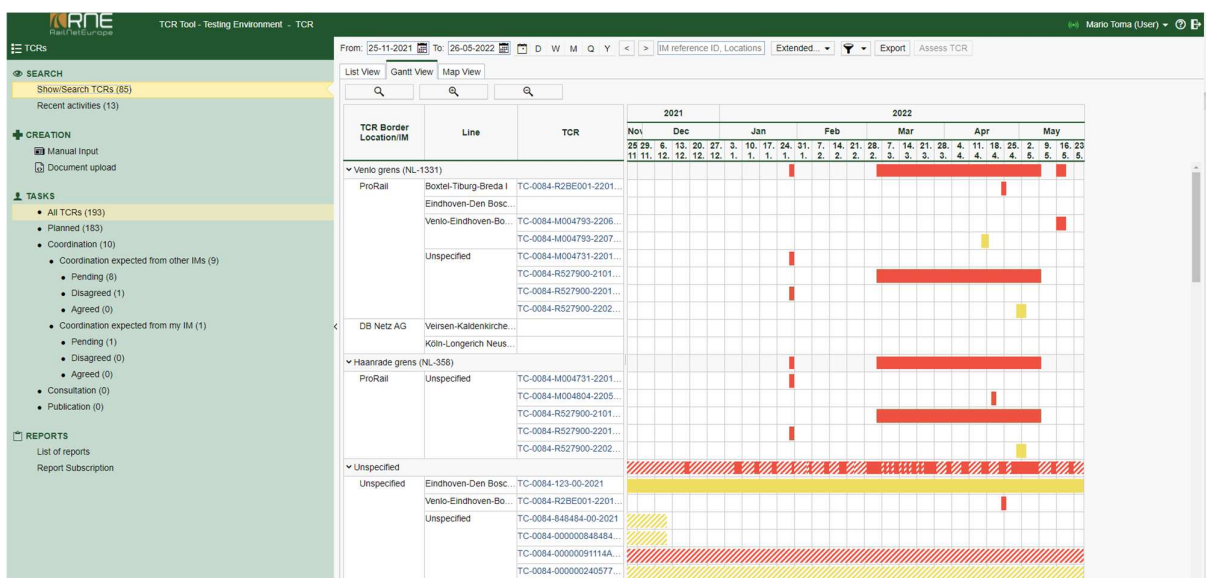


Figure 7 - Gantt View

1.2.5. Map view

The GIS map can be opened by pressing the button “Map View” (red marked). The map opens in the same window.



Figure 8 – Map View

With the map view, the TCR Tool provides the functionality to gather information of TCRs in their geographical context.

ID	Item	Description
1	Map picture section	<p>The picture section of the map (used maps are the license free <i>OpenStreetMap</i> and <i>OpenRailwayMap</i>) allows the users to gather graphical information of the RNE network and TCRs. The details shown on the map are depending on the following parameters:</p> <ul style="list-style-type: none"> - Zoom level - Enabled/Disabled layers - Set transparency <p>Basic TCR information (IM reference ID, the reason for the restriction, the location from/to, section and direction) can be retrieved by hovering over a TCR in the map. Clicking on a TCR in the map opens the detail view of the respective TCR.</p>
2	Autofocus	Upon opening the GIS-map, the system automatically focuses the picture section on the country of the logged in user. By clicking on this button, the system re-focusses the picture section to this default view.
3	Zoom in/Zoom out slider	Offers a zoom in/zoom out function. Depending on the zoom level, the GIS-viewer shows more or fewer details in regard to the sections, segments, locations and labels for the locations.
4	Adding/Removing layers	<p>This button allows adding/removing various layers including</p> <ul style="list-style-type: none"> - Segments - Sections - TCR layer (displaying TCRs) - RFC layers (each RFC can be displayed separately)

5	Set layer transparency	Allows to individually set the transparency for each layer in order to highlight specific layer information. This function works in combination with adding and removing layers. For instance, the user is able to display all RFCs, but set the transparency for each RFC separately for contrast purposes.
6	Search function	Present TCRs on the map based on respective search criteria
7	Export picture	Provides the functionality to save the current picture section as an image in the .png format based on the current settings (zoom level, enabled/disabled layers, layer transparency) to the file system.
8	Scale information	Provides a scale information in meter based on the current zoom level.
9	Rotate map	By clicking on this button, the user is able to rotate the map by inserting a rotation angle.
10	Attributions	Displays map related copyright information.
11	TCRs presentation	Presentation of TCRs on the map.

Table 1 Description of the GIS-viewer functionality

1.2.5.1. Drawing the geometry of the GIS objects in the TCR tool

The geometry of locations, segments and sections for each RFC is defined by the imported datasets from CRD, respective the entities location, segment, section. Multiple layers can be displayed at the same time to display the entire topology. The following picture illustrates how locations, segments and sections are interpreted to draw the GIS object geometry:

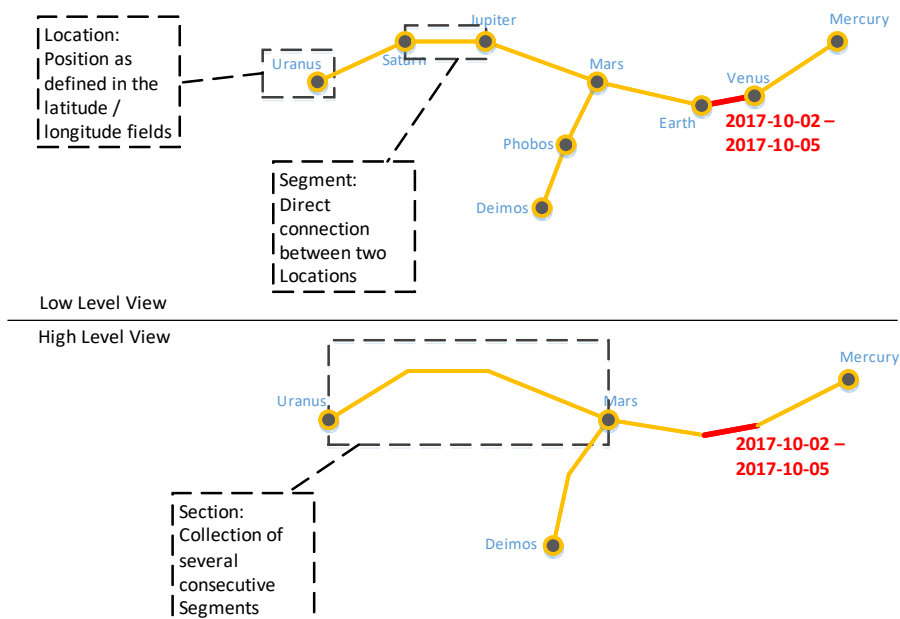


Figure 9 - Master data interpretation for drawing the GIS geometry

TCRs in the GIS-view are colour-coded based on the different reasons for restriction according to the RNE Guidelines for Coordination including the information in regard to the temporal expansion. Furthermore, the type of TCR (continuous, periodical, periodical continuous) is distinguished where each line for the types are displayed differently:

- Continuous TCR: solid line
- Periodical TCR: dotted line

Depending on the zoom level, the GIS viewer shows more or fewer details, as illustrated above. Locations are labelled by the location name. TCRs are illustrated in the map by colouring the affected segment(s) different than the other segments and are labelled by the start and end date of the TCR.

1.3. Creation

The second group of functions is related to the creation and importing possibilities of the TCR Tool.

In this group two functions can be chosen:

- Manual input
- Document upload

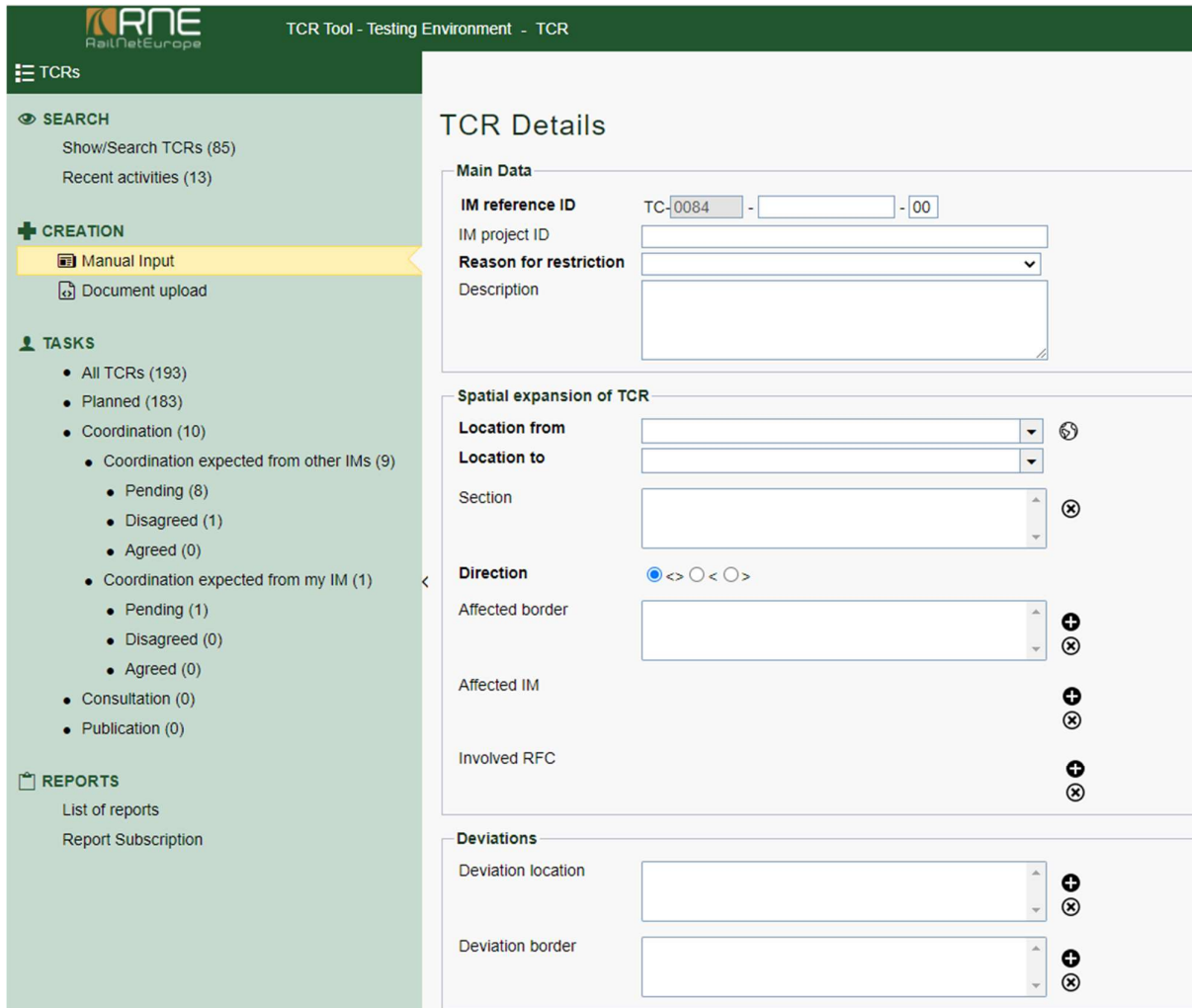
1.3.1. Manual input

A new TCR can be either created directly via a form in the TCR tool or by selecting an MS Excel file in xlsx-format from the user's local file system or via a .xml interface.

Note: that the system automatically detects parallel TCRs based on the time span and section of conflicting TCRs.

For creating a TCR via the from:

1. Select the “*Manual input*” of a TCR opens a standardized form. This form guides the user through the creation process of a new TCR and is divided into various sections for different types of business data as shown in the figure below. Mandatory fields are displayed bold.
2. When clicking on “*Insert*” the form is validated. Mandatory fields, which are not filled in, are highlighted with a red font colour upon submitting the form.
3. If all mandatory fields are filled the TCR is created and, depending on the defined status, put in the list that corresponds to the defined status under the “Tasks” group of functions



TCR Details

Main Data

IM reference ID: TC-0084 - [] - 00

IM project ID: []

Reason for restriction: []

Description: []

Spatial expansion of TCR

Location from: []

Location to: []

Section: []

Direction: ☒ <> ☐ < ☐ >

Affected border: []

Affected IM: []

Involved RFC: []

Deviations

Deviation location: []

Deviation border: []

Figure 10 - Standardized form for manually inserting TCRs

TCR main data

This section provides main information about the TCR including a unique identifier, the reason for restriction and an optional description.

Field name	Description	Free Editing / Data Validation	Mandatory
IM reference ID	<p>Considers CompositeIdentifier ID that contains the following information:</p> <ul style="list-style-type: none"> ObjectType = TC (for the TCRs) – this is fixed Company = UIC code 920-14 for the respective IM in a read-only field Core = it is a main part of identifier and is determined by the company that creates it (mostly, it is TCR ID from the national tool) Variant = "00" by default (can contain integer values from 00 to 99). It is part of ID. 		Yes

	<ul style="list-style-type: none"> Timetable year = value calculated by the tool. It is start year from the validity period of the TCR. 		
IM project ID	References to the project ID of the TCR issuing IM.	Free text, no validation	No
Reason for restriction	<p>Gives an indication about the works regarding the TCR. Hovering over the question mark icon next to the label shows the following description:</p> <p><i>*) mainly for rebuilding of stations or new infrastructure</i> <i>**) e.g. works on platforms, walls, noise protection walls, special installations, etc.</i></p>	One of the given values can be selected.	Yes
Description	Brief description of the TCR.	Free text, no validation	No

Table 2 Field definitions for the TCR main data

Spatial expansion of the TCR

The content of this section governs the spatial expansion in terms of the affected location/s, section, direction, affected border and affected IM.

Field name	Description	Free Editing / Data Validation	Mandatory
Location from	Defines the beginning location of the TCR. Only locations associated with the country of the issuing IM are displayed. The globe button opens the GIS-map, allowing the user to select a location by clicking on it. The respective location value is automatically filled into the form field. If the data of the current TCR causes a conflict with another TCR regarding this field, an exclamation mark icon is displayed. By clicking on the exclamation mark, a pop-up shows the details (Date/Time from/to, Location from/to, Type of TCR) of the TCR which causes conflicts. Independent of the conflict, the TCR can still be inserted.	One of the given values must be selected.	Yes
Location to	Defines the ending location of the TCR. Only locations associated with the country of the issuing IM are displayed. The globe button opens the GIS-map allowing the user for selecting a location by clicking on it. The respective location value is automatically filled into the form field. If the data of the current TCR causes a conflict with another TCR regarding this field, an exclamation mark icon is displayed. By clicking on the exclamation mark, a pop-up shows the details (Date/Time from/to, Location from/to, Type of TCR) of the TCR which causes conflicts. Independent of the conflict, the TCR can still be inserted.	One of the given values must be selected.	Yes
Section	Defines the section, within which the TCR occurs. This information is automatically derived from the chosen <i>Location from/Location to</i> value. If more than one section is derived, the user must select at least one of the options but is also able to select multiple section items.	-	No

Direction	Defines, which direction of the section is affected by the TCR (bi-directional, direction towards starting point of the location, direction towards end point of the location).	One of the given values must be selected	Yes
Affected border	If the selected <i>Location from</i> or <i>Location to</i> entity is defined as a border station, the value for the <i>Affected border</i> is automatically filled in and the harmonisation process is triggered.	One of the given values can be selected	No
Affected IM	If the selected <i>Location from</i> or <i>Location to</i> entity is defined as a border station, the value for the <i>Affected IM</i> is automatically filled in and the harmonisation process is triggered.	-	No
Involved RFC	Sections are mapped to RFCs. This information is derived from the automatically set <i>Section</i> value and automatically filled in by the system.	-	No

Table 3 Field definitions for the spatial expansion of the TCR

Deviations

In the case of need to define the deviation routes and borders, as alternative routes, this section should be used.

Field name	Description	Free Editing / Data Validation	Mandatory
Deviation location	Defines a location within the own network, where the rail traffic shall be re-routed. Clicking on the plus-icon ("+") adds an additional combo box to select another instance for a deviation location.	One of the given values can be selected	
Deviation border	Defines a border, where the rail traffic shall be re-routed. Clicking on the plus-icon ("+") adds an additional combo box to select another instance for a deviation border. Selecting a <i>Deviation border</i> triggers the harmonisation process.	One of the given values can be selected	No

Temporal expansion of the TCR

Time-based data and the temporal behaviour of the TCR are added in this section. A button to reset the temporal expansion of the TCR is displayed allowing clearing all entries in this section in order to make adaptations.

Field name	Description	Free Editing / Data Validation	Mandatory
Type of TCR	Defines the temporal expansion of the TCR. See paragraphs below this table for further information regarding the different types of temporal expansions of a TCR. If the data of the current TCR causes a conflict with another TCR regarding this field, an exclamation mark icon is displayed.	One of the given values must be selected	Yes
Time	Defines, whether the time for the TCR is known or unknown.	One of the given values must be selected	Yes
Date from	If the exact time of a TCR is known, a date/time range can be defined. A combo box allows selecting the <i>Date to</i> value	The selected value must have a valid date.	Conditional mandatory

		Incorrect information is highlighted.	
Time from	If the exact time of a TCR is known, a date/time range can be defined. A combo box allows selecting the <i>Time from</i> value.	The date field must be entered and the selected value must have a valid time.	Yes
Date to	If the exact time of a TCR is known, the <i>Date/Time to</i> information can be defined using this date and time picker.	The selected value must have a valid date. Incorrect information is highlighted.	Conditional mandatory
Time to	If the exact time of a TCR is known, a date/time range can be defined. A combo box allows selecting the <i>Time to</i> value.	The date field must be entered and the selected value must have a valid time.	Yes
Year from	If the exact time of a TCR is unknown, a year/week range can be defined. A combo box allows selecting the <i>Year from</i> value.	-	Conditional mandatory
Week from	If the exact time of a TCR is unknown, a year/week range can be defined. A combo box allows selecting the <i>Week from</i> value.	-	Conditional mandatory
Year to	If the exact time of a TCR is unknown, a year/week range can be defined. A combo box allows selecting the <i>Year to</i> value.	-	Conditional mandatory
Week to	If the exact time of a TCR is unknown, a year/week range can be defined. A combo box allows selecting the <i>Week to</i> value.	-	Conditional mandatory
Working days	Selecting either a periodic or a periodic continuous TCR allows the user to define specific working days.	-	Yes
Weekly interval	Defines the weekly interval of the planned works. E.g. 2 would mean, that the works happen every other week.	-	Yes
Duration	<p>Self-calculated indication of the total amount of time for the TCR.</p> <p>Note: The duration field in the Excel-file is currently filled in manually and there is no particular form on how this information has to be given (e.g. 11 days, 9 d, 600 min., 270'/300', 1 week-end, etc.). Because of this circumstance, the TCR-Tool is not able to interpret and validate free text. Therefore, the duration information upon the import will be inserted without validation of the factual accuracy. However, if the information regarding the temporal expansion is changed in the TCR-Form, the system automatically computes the right duration and overwrites the imported value.</p> <p>For TCRs with a known exact time the duration is displayed as follows as a read only information:</p> <ul style="list-style-type: none"> - Continuous TCRs: <i>sum of days/hours (e.g. 15d+4h)</i> 	Free text, no validation	No

	<p>- Periodical TCRs: <i>sum of repetitions, duration (in hours) of each work and weekly interval (e.g. 12x 4h every 2 weeks)</i></p> <p>For TCRs with an unknown exact time an indication regarding the duration can be given manually.</p> <p>Note: As this information is given as free text, no validation regarding the content is made.</p>		
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Table 4 Field definitions for the temporal expansion of the TCR

The user can choose one of the following scenarios as shown below:

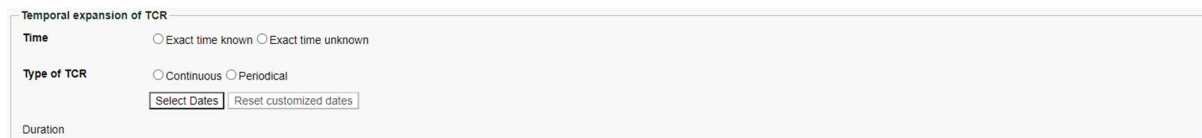


Figure 11 - Scenario selection for the temporal expansion of the TCR

Choosing one of the described scenarios provides the user a selection regarding the duration of the TCR. Depending on whether the exact time is known/unknown different options for the temporal expansion of the TCR are offered as shown in the following figures.

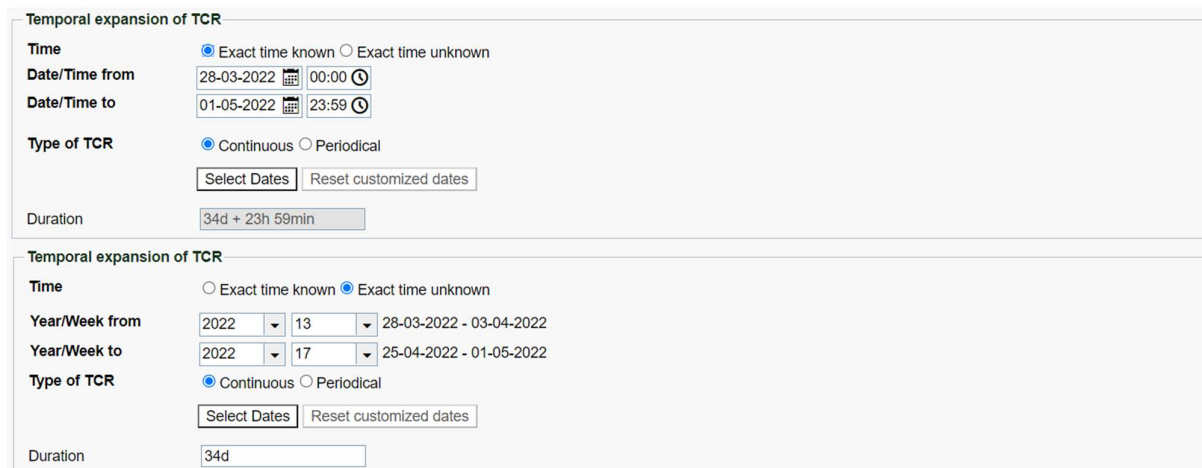


Figure 12 - Provided selections for the duration of a continuous TCR

- a) Exact time known - A date and time picker allow defining a specific date/time from/to timeframe using local time.

Temporal expansion of TCR

Time ☒ Exact time known ☐ Exact time unknown

Date/Time from 23-03-2022 01:00

Date/Time to 05-04-2022 04:00

Type of TCR ☐ Continuous ☐ Periodical

Select Dates Reset customized dates

Duration

- a) Exact time unknown - Combo boxes are displayed to limit the temporal expansion of the TCR in terms of year/week from/to.

Temporal expansion of TCR

Time ☐ Exact time known ☒ Exact time unknown

Year/Week from 2021 50 13-12-2021 - 19-12-2021

Year/Week to 2022 14 04-04-2022 - 10-04-2022

Type of TCR ☐ Continuous ☐ Periodical

Select Dates Reset customized dates

Duration

- b) Working days - Selecting a periodic TCR allows to define working days via check boxes. Hovering over the question mark icon next to the label displays a short description regarding the business logic behind this field.

Temporal expansion of TCR

Time ☒ Exact time known ☐ Exact time unknown

Date/Time from 13-12-2021 00:00

Date/Time to 10-04-2022 23:59

Type of TCR ☐ Continuous ☒ Periodical

Working days ☐ Mon ☐ Tue ☒ Wed ☐ Thu ☒ Fri ☐ Sat ☐ Sun

Weekly interval

Select Dates Reset customized dates

Duration

- c) Weekly interval Selecting a periodic TCR requires the definition of the weekly interval of the planned works in a text field. Hovering over the question mark icon next to the label displays the user a short description regarding the business logic behind this field.

Temporal expansion of TCR

Time ☒ Exact time known ☐ Exact time unknown

Date/Time from 13-12-2021 00:00

Date/Time to 10-04-2022 23:59

Type of TCR ☐ Continuous ☒ Periodical

Working days ☐ Mon ☐ Tue ☒ Wed ☐ Thu ☒ Fri ☐ Sat ☐ Sun

Weekly interval 2

Select Dates Reset customized dates

Duration 18 x 23h 59min every 2

Operational consequences

Information regarding the consequences of the TCR on the operations is given in this section. This includes the impact on traffic, classification of impact, traffic measures, and the incorporation of traffic measures in the yearly timetable.

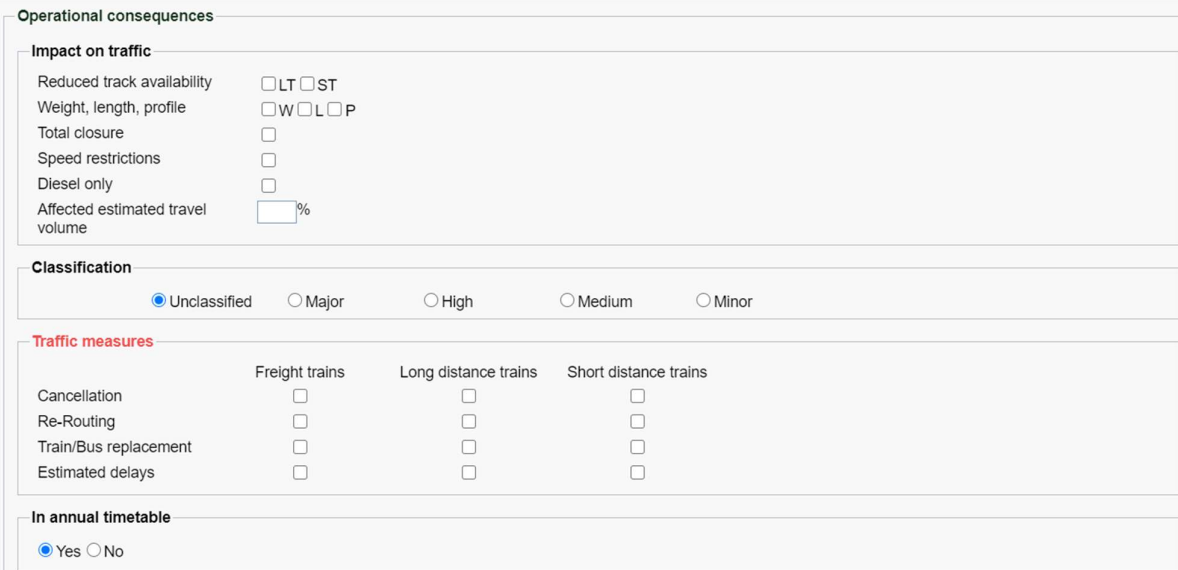


Figure 13 - Provided sections for the operational consequences

Field name	Description	Free Editing / Data Validation	Mandatory
Impact on traffic	<p>Defines the impact on the traffic triggered by the TCR. The following impacts can be defined:</p> <ul style="list-style-type: none"> - Reduced track availability - Weight, Length, Profile - Total closure - Speed restrictions - No catenary <p>For the associated labels of checkboxes descriptions are displayed, when hovering over the respective label.</p>	At least one of the given values must be selected.	Yes
Impact on traffic – Affected estimated travel volume	As part of the impacts on traffic, an estimation regarding affected travel volume as a percentage value can be defined. This field is only used for the manual creation of TCRs and does not affect the import of TCRs from external sources.	Only positive numbers are accepted. Three characters as maximum.	No
Classification	Classifies the impact of the TCR. By default, <i>Major</i> is selected. Hovering over the question mark icon next to the label shows the following description:	-	Yes

	<p><i>Major: >30 days and >50% impact on the estimated traffic</i> <i>High: >7 days and >30% impact on the estimated traffic</i> <i>Medium: ≤7 days and >50% impact on the estimated traffic</i> <i>Minor: ≤7 days and >10% impact on the estimated traffic</i></p> <p><i>Annex VII: The infrastructure manager may apply more stringent thresholds.</i></p> <p>The values for <i>Major/High/Medium/Minor</i> have specified due dates, which can be managed by the administrator. The following due dates are used (referring to the beginning date of the TCR, not the end date):</p> <ul style="list-style-type: none"> - TCR data editable - Due date for response - Due date for a TCR to be implicitly accepted <p>By default, the following time values are defined in the TCR-Tool (Major/High/Medium/Minor):</p> <ul style="list-style-type: none"> - TCR data editable → x-24/x-24/x-13.5/x-6.5 - Due date for response → x-18/x-13.5/x-13.5/x-6.5 - Due date for a TCR to be implicitly accepted → x-17/x-12/x-4 		
Traffic measures	<p>Indication of traffic measures taken regarding the TCR.</p> <p>It has been agreed that the column <i>Regional trains</i> will be included in the data model but be set temporarily invisible. Furthermore, the label will be renamed to <i>Commuter trains</i>. Also, the import of TCRs using external sources only takes freight traffic into account. Passenger train related traffic measures are only defined when TCRs are created using the TCR form. Since the traffic measure “Others” is a too generic phrase with no provided additional information, this field will not be included in the form.</p>	At least one of the given values must be selected.	Yes
Traffic measures – Estimated delays	As part of the traffic measures, an extra option to give an indication about the estimated delays for the different train types is available.	-	No
Traffic measures – Define delay minutes	A text field to define delay minutes for the train type will be enabled once the respective checkbox <i>Estimated delays</i> for a train type has been ticked.	Only positive integers are accepted.	No
Traffic measures – Define capacity to use	As part of the traffic measures, an extra capacity indicator option is available. It allows the user to enter how the remaining capacity should be allocated to the different transportation modes. It has been agreed that this capacity usage indicator will be included in the data model but be set temporarily invisible.	The total percentage for the capacity to be used is limited with 100%. If this value is exceeded the	No

		field label will be highlighted.	
Additional comments to deviation	Gives an addition to the deviation selection. Field will be enabled once <i>Deviation location</i> or <i>Deviation border</i> has been selected.	Free text, no validation	No
International coordination	Gives an additional information regarding the international coordination. Field will be enabled once the international harmonisation process has been triggered.	Free text, no validation	No
In annual timetable	Selection whether the TCR has been incorporated in the annual timetable	-	No
Indication of timetable adaption	Gives an indication when the timetable shall be adapted. Field will be enabled once “No” has been selected for the field <i>In annual timetable</i> .	Selected value must have a valid date. Incorrect information is highlighted.	Conditional mandatory

Table 5 Field definitions for operational consequences

TCR Status bar

In the TCR status bar, it is possible to define the status, publication and the promotion process that will be applied.

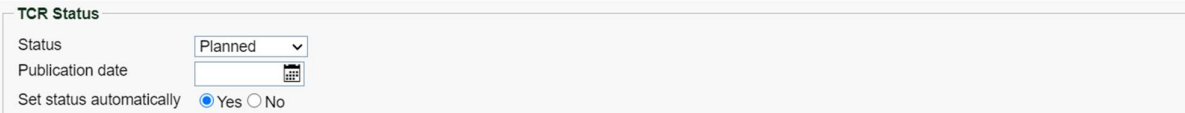


Figure 14 - Provided sections TCR status and the publication date

Field name	Description	Free Editing / Data Validation	Mandatory
Status	Defines the current status of the TCR	One of the given values must be selected.	Yes
Publication date	The date of the TCR publication	Date	Yes
Set status automatically	It defines if the automatic promotion process of the TCR to the publication will be applied or this promotion will be done manually	By default “yes”	Yes

Via GIS map (as part of the creation process of a TCR)

When a user creates or modifies a TCR, the TCR form allows for the fields “*Location from*” and “*Location to*” to select a location in the GIS viewer. There are globe-buttons (red marked 1 in the following figure) next to the mentioned input fields. Once the user clicks the button, the GIS viewer opens and shows the topology. The map is focused on the country of the logged-on user (e.g. Netherlands) but does not show any existing TCR’s.

By clicking on one of the locations shown on the map, the selected name of the location appears in the pop-up window and is presented as start or end point depends on clicking the

“Start” or “End” button in the pop-up window (red marked 2 in the following figure). The chosen locations are set in the corresponding field in the TCR form. The “Close” button is used to close the pop-up window on the map.

TCR Details

Main Data

IM reference ID
0084 -

IM project ID

Reason for restriction
Description

Spatial expansion of TCR

Location from
Utrecht Lunetten

Location to
Houten Castelum

Section
Amsterdam Westhaven-Emmerich Grenze

Direction
◀ ▶ ◀ ▶ ▶ ▶

Affected border

Affected IM

Involved RFC
TCR

Deviations

Deviation location

Deviation border

Temporal expansion of TCR

Type of TCR
☒ Continuous
 ☐ Periodical
 ☐ Periodical continuous

Operational consequences

Impact on traffic
 Reduced track availability
 Weight length profile

☐ LT
 ☐ ST
 ☐ WT
 ☐ LT
 ☐ ST
 ☐ WT

Not secure | 91.208.217.170:8080/gisviewer

Home

Houten Castelum (NL-335)

Start From: Utrecht Lunetten (NL-623)

End To: Houten Castelum (NL-335)

Close

Figure 15 - Provided sections TCR status and publication date

1.3.2. Document upload

To manually import TCRs in *.xls or *.xlsx (RNE standard), the Excel file used for importing a TCR needs to follow a pre-defined structure.

Following steps are necessary:

1. Click on “*Document upload*” (red marked-1)

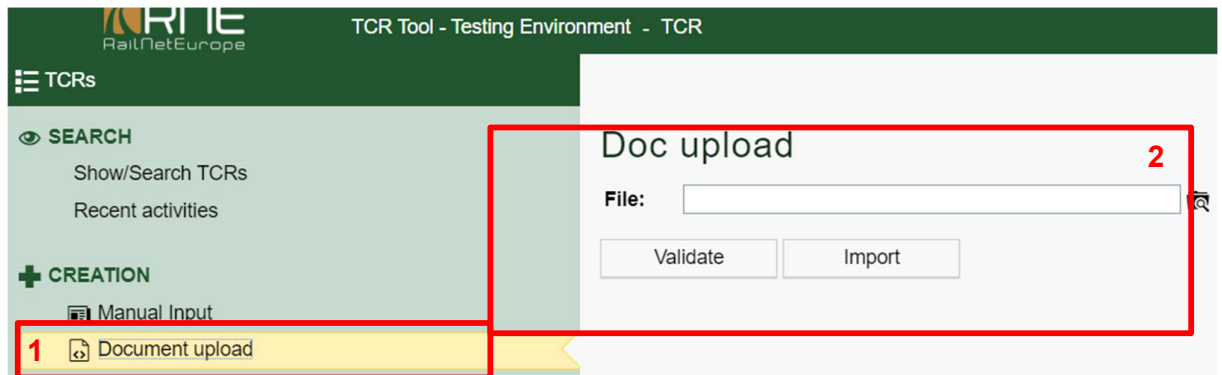
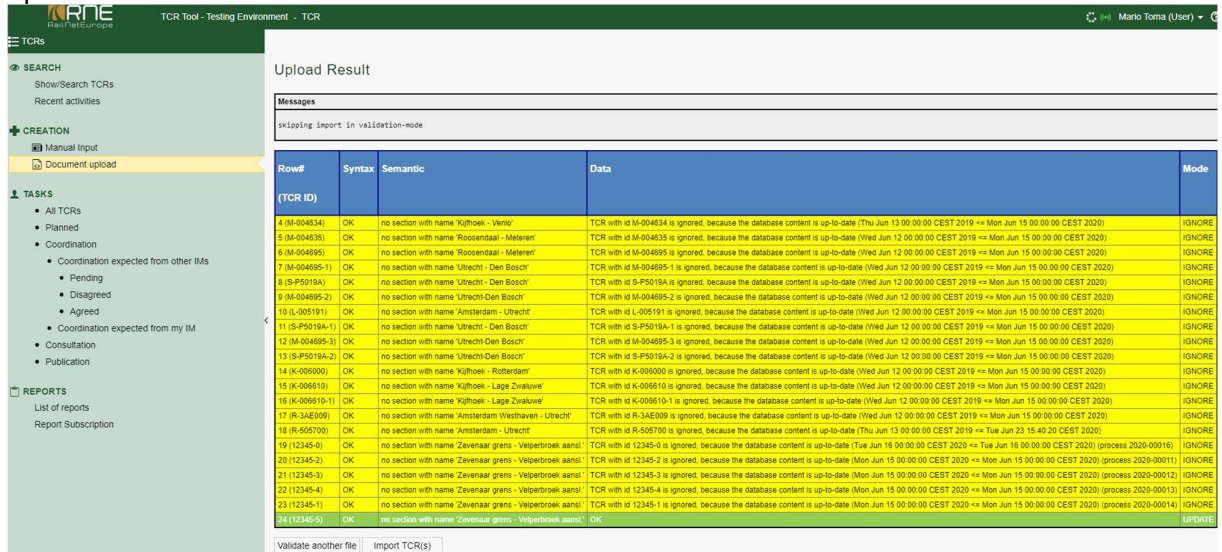


Figure 16 - Upload TCRs via .xls file

2. Click either the field "File" or the button next to it (🔍).
3. A file browser window will open. Use the file browser window to select the file you wish to upload.
4. The Excel file has been selected (red marked-2).
5. Click "Validate" to process the chosen file.
6. In case of errors, the TCR tool responds with a detailed error report (figure 19). The error report gives a detailed explanation of what is wrong and should be corrected before a next upload.



Row# (TCR ID)	Syntax	Semantic	Data	Mode
4 (M-004034)	OK	no section with name 'Kijfhoek - Venlo'	TCR with id M-004034 is ignored, because the database content is up-to-date (Thu Jun 13 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
5 (M-004035)	OK	no section with name 'Roosendaal - Meleren'	TCR with id M-004035 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
6 (M-004095)	OK	no section with name 'Roosendaal - Meleren'	TCR with id M-004095 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
7 (M-004095-1)	OK	no section with name 'Utrecht - Den Bosch'	TCR with id M-004095-1 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
8 (S-P5019A)	OK	no section with name 'Utrecht - Den Bosch'	TCR with id S-P5019A is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
9 (M-004095-2)	OK	no section with name 'Utrecht - Den Bosch'	TCR with id M-004095-2 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
10 (L-005191)	OK	no section with name 'Amsterdam - Utrecht'	TCR with id L-005191 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
11 (S-P5019A-1)	OK	no section with name 'Utrecht - Den Bosch'	TCR with id S-P5019A-1 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
12 (M-004095-3)	OK	no section with name 'Utrecht - Den Bosch'	TCR with id M-004095-3 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
13 (S-P5019A-2)	OK	no section with name 'Utrecht - Den Bosch'	TCR with id S-P5019A-2 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
14 (K-006000)	OK	no section with name 'Kijfhoek - Rotterdam'	TCR with id K-006000 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
15 (K-006010)	OK	no section with name 'Kijfhoek - Lage Zwaluwe'	TCR with id K-006010 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
16 (K-006010-1)	OK	no section with name 'Kijfhoek - Lage Zwaluwe'	TCR with id K-006010-1 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
17 (R-3AE009)	OK	no section with name 'Amsterdam Westhaven - Utrecht'	TCR with id R-3AE009 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 => Mon Jun 15 00:00:00 CEST 2020)	IGNORE
18 (R-605700)	OK	no section with name 'Amsterdam - Utrecht'	TCR with id R-605700 is ignored, because the database content is up-to-date (Thu Jun 13 00:00:00 CEST 2019 => Tue Jun 23 15:40:29 CEST 2020)	IGNORE
19 (12345-0)	OK	no section with name 'Zevenaar grens - Velperbroek aansl.'	TCR with id 12345-0 is ignored, because the database content is up-to-date (Tue Jun 16 00:00:00 CEST 2020 => Tue Jun 16 00:00:00 CEST 2020) (process 2020-00016)	IGNORE
20 (12345-2)	OK	no section with name 'Zevenaar grens - Velperbroek aansl.'	TCR with id 12345-2 is ignored, because the database content is up-to-date (Mon Jun 15 00:00:00 CEST 2020 => Mon Jun 15 00:00:00 CEST 2020) (process 2020-00011)	IGNORE
21 (12345-3)	OK	no section with name 'Zevenaar grens - Velperbroek aansl.'	TCR with id 12345-3 is ignored, because the database content is up-to-date (Mon Jun 15 00:00:00 CEST 2020 => Mon Jun 15 00:00:00 CEST 2020) (process 2020-00012)	IGNORE
22 (12345-4)	OK	no section with name 'Zevenaar grens - Velperbroek aansl.'	TCR with id 12345-4 is ignored, because the database content is up-to-date (Mon Jun 15 00:00:00 CEST 2020 => Mon Jun 15 00:00:00 CEST 2020) (process 2020-00013)	IGNORE
23 (12345-1)	OK	no section with name 'Zevenaar grens - Velperbroek aansl.'	TCR with id 12345-1 is ignored, because the database content is up-to-date (Mon Jun 15 00:00:00 CEST 2020 => Mon Jun 15 00:00:00 CEST 2020) (process 2020-00014)	IGNORE
24 (12345-5)	OK	no section with name 'Zevenaar grens - Velperbroek aansl.'	OK	UPDATE

Figure 17 - Validated file with errors

7. After correcting all errors, start again from step 1 (by clicking the "Document upload" button)
8. If no validation and/or consistency errors occur after the validation, the "Import" button will be available in the bottom of the report.

Upload Result

Messages

skipping import in validation-mode

Row# (TCR ID)	Syntax	Semantic	Data	Mode
4 (M-004634)	OK	no section with name 'Kijfhoek - Venlo'	OK	NEW
5 (M-004635)	OK	no section with name 'Roosendaal - Meleren'	OK	NEW
6 (M-004695)	OK	no section with name 'Roosendaal - Meleren'	OK	NEW
7 (M-004695-1)	OK	no section with name 'Utrecht - Den Bosch'	OK	NEW
8 (S-P5019A)	OK	no section with name 'Utrecht - Den Bosch'	OK	NEW
9 (M-004695-2)	OK	no section with name 'Utrecht-Den Bosch'	OK	NEW
10 (R-550020)	OK	no section with name 'Amsterdam - Utrecht'	OK	NEW
11 (R-2AE001)	OK	no section with name 'Amsterdam - Utrecht'	OK	NEW
12 (L-005191)	OK	no section with name 'Amsterdam - Utrecht'	OK	NEW
13 (S-P5019A-1)	OK	no section with name 'Utrecht - Den Bosch'	OK	NEW
14 (M-004695-3)	OK	no section with name 'Utrecht-Den Bosch'	OK	NEW
15 (S-P5019A-2)	OK	no section with name 'Utrecht-Den Bosch'	OK	NEW
16 (K-006000)	OK	no section with name 'Kijfhoek - Rotterdam'	OK	NEW
17 (K-006610)	OK	no section with name 'Kijfhoek - Lage Zwaluwe'	OK	NEW
18 (K-006610-1)	OK	no section with name 'Kijfhoek - Lage Zwaluwe'	OK	NEW
19 (R-3AE009)	OK	no section with name 'Amsterdam Westhaven - Utrecht'	OK	NEW
20 (R-505700)	OK	no section with name 'Amsterdam - Utrecht'	OK	NEW

Validate another file

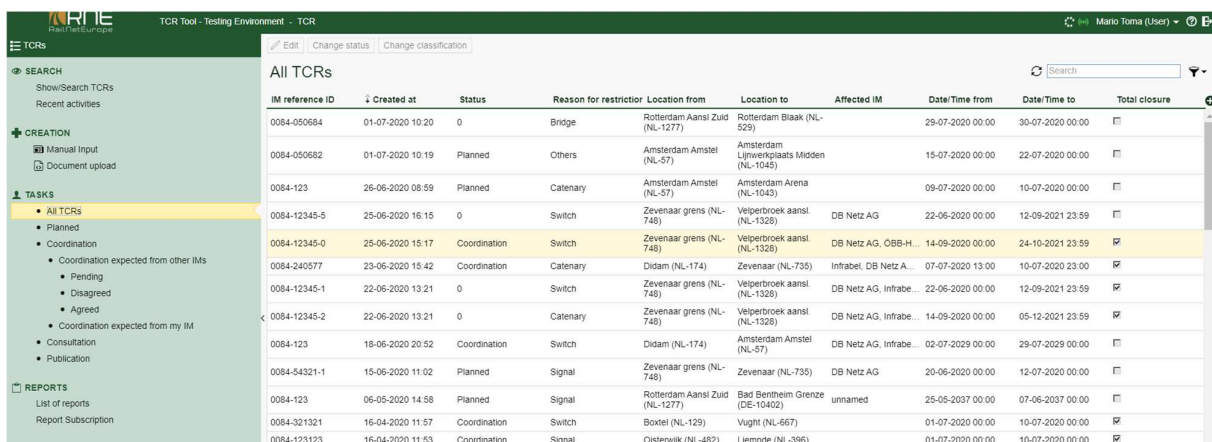
Import TCR(s)

Figure 18 - The excel import file has been successfully validated

9. Click on “Import” for the validated file.

10. All the imported TCRs will be presented in the “All TCRs” under the “Task” group of functions

11. The recently imported TCRs are displayed in the “Processed & Released” list by records in bold.



IM reference ID	Created at	Status	Reason for restriction	Location from	Location to	Affected IM	Date/Time from	Date/Time to	Total closure
0084-050684	01-07-2020 10:20	0	Bridge	Rotterdam Aansl Zuid (NL-1277)	Rotterdam Blaak (NL-529)		29-07-2020 00:00	30-07-2020 00:00	
0084-050682	01-07-2020 10:19	Planned	Others	Amsterdam Amstel (NL-57)	Amsterdam Lijnwerkpiaats Midden (NL-1048)		15-07-2020 00:00	22-07-2020 00:00	
0084-123	26-06-2020 08:59	Planned	Catenary	Amsterdam Amstel (NL-57)	Amsterdam Arena (NL-1048)		09-07-2020 00:00	10-07-2020 00:00	
0084-12345-5	25-06-2020 16:15	0	Switch	Zevenaar grens (NL-748)	Velperbroek aansl. (NL-1328)	DB Netz AG	22-06-2020 00:00	12-09-2021 23:59	
0084-12345-0	25-06-2020 15:17	Coordination	Switch	Zevenaar grens (NL-748)	Velperbroek aansl. (NL-1328)	DB Netz AG, ÖBB-H.	14-09-2020 00:00	24-10-2021 23:59	
0084-240577	23-06-2020 15:42	Coordination	Catenary	Didam (NL-174)	Zevenaar (NL-735)	Infrabel, DB Netz A...	07-07-2020 13:00	10-07-2020 23:00	
0084-12345-1	22-06-2020 13:21	0	Switch	Zevenaar grens (NL-748)	Velperbroek aansl. (NL-1328)	DB Netz AG, Infrabe...	22-06-2020 00:00	12-09-2021 23:59	
0084-12345-2	22-06-2020 13:21	0	Catenary	Zevenaar grens (NL-748)	Velperbroek aansl. (NL-1328)	DB Netz AG, Infrabe...	14-09-2020 00:00	05-12-2021 23:59	
0084-123	18-06-2020 20:52	Coordination	Switch	Didam (NL-174)	Amsterdam Amstel (NL-57)	DB Netz AG, Infrabe...	02-07-2020 00:00	29-07-2020 00:00	
0084-54321-1	15-06-2020 11:02	Planned	Signal	Zevenaar grens (NL-748)	Zevenaar (NL-735)	DB Netz AG	20-06-2020 00:00	12-07-2020 00:00	
0084-123	06-05-2020 14:58	Planned	Signal	Rotterdam Aansl Zuid (NL-1277)	Bad Bentheim Grenze (DE-10402)	unnamed	25-05-2020 00:00	07-06-2037 00:00	
0084-321321	16-04-2020 11:57	Coordination	Switch	Boxtel (NL-129)	Vught (NL-667)		01-07-2020 00:00	10-07-2020 00:00	
0084-123123	16-04-2020 11:53	Coordination	Signal	Oisterwijk (NL-482)	Lierpde (NL-396)		01-07-2020 00:00	10-07-2020 00:00	

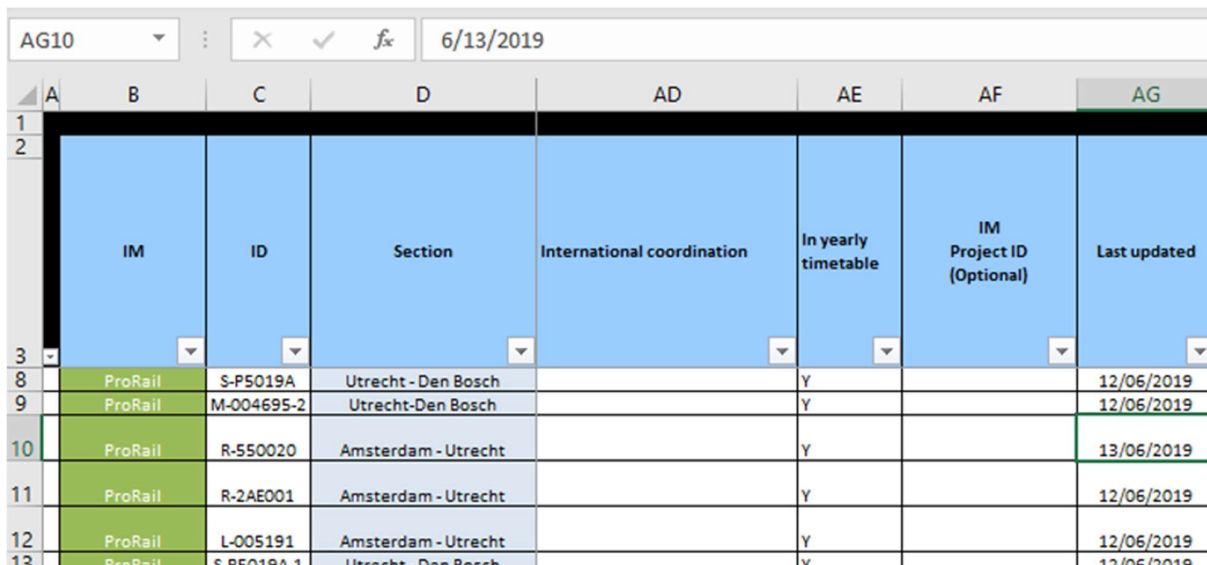
Figure 19 - A new imported data records

In case you try to import a file with data that is already imported into the TCR tool, the tool will give you warnings for each record that is already imported (figure 22).

Row# (TCR ID)	Syntax	Semantic	Data	Mode
4 (M-004634)	OK	no section with name 'Kijfhoek - Venlo'	TCR with id M-004634 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 <= Wed Jun 12 00:00:00 CEST 2019) (process 2019-01756)	IGNORE
5 (M-004635)	OK	no section with name 'Roosendaal - Meleren'	TCR with id M-004635 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 <= Wed Jun 12 00:00:00 CEST 2019) (process 2019-01757)	IGNORE
6 (M-004695)	OK	no section with name 'Roosendaal - Meleren'	TCR with id M-004695 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 <= Wed Jun 12 00:00:00 CEST 2019) (process 2019-01758)	IGNORE
7 (M-004695-1)	OK	no section with name 'Utrecht - Den Bosch'	TCR with id M-004695-1 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 <= Wed Jun 12 00:00:00 CEST 2019) (process 2019-01759)	IGNORE
8 (S-P5019A)	OK	no section with name 'Utrecht - Den Bosch'	TCR with id S-P5019A is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 <= Wed Jun 12 00:00:00 CEST 2019) (process 2019-01760)	IGNORE
9 (M-004695-2)	OK	no section with name 'Utrecht-Den Bosch'	TCR with id M-004695-2 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 <= Wed Jun 12 00:00:00 CEST 2019) (process 2019-01761)	IGNORE
10 (R-550020)	OK	no section with name 'Amsterdam - Utrecht'	TCR with id R-550020 is ignored, because the database content is up-to-date (Wed Jun 12 00:00:00 CEST 2019 <= Wed Jun 12 00:00:00 CEST 2019) (process 2019-01762)	IGNORE

Figure 20 - The TCRs are already imported into the tool

If you need to make some modification on already imported record/s and import these records again in the tool, it is possible. It is needed to do the necessary modification in the excel file and after that, you have to update the "Last updated" cell with a new date in each row in which you did changes.



	B	C	D	AD	AE	AF	AG
1	IM	ID	Section	International coordination	In yearly timetable	IM Project ID (Optional)	Last updated
8	ProRail	S-P5019A	Utrecht - Den Bosch		Y		12/06/2019
9	ProRail	M-004695-2	Utrecht-Den Bosch		Y		12/06/2019
10	ProRail	R-550020	Amsterdam - Utrecht		Y		13/06/2019
11	ProRail	R-2AE001	Amsterdam - Utrecht		Y		12/06/2019
12	ProRail	L-005191	Amsterdam - Utrecht		Y		12/06/2019
13	ProRail	S-P5019A-1	Utrecht - Den Bosch		Y		12/06/2019

Figure 21 - Upload already imported data

The same procedure that is written above (from step 1) should be followed.

Details on validation

After processing the document import, the user will be informed via a validation report if any errors occurred. Basically, the upload will validate against:

- the user's authorisation to create a new TCR depending on the provisioned transactional data
- if there are any mandatory attributes not provided in the import template
- if there are consistency issues with related master data

An imported TCR is created in the state *imported*.

An import of TCRs from an Excel File will be done in two basic steps:

1. Validation: Scan the Excel file and check data consistency.

A report will be generated which contains a list of identified errors and warnings. If the report contains errors, the user must correct the data in the import file (either by changing the data in a national system which produces the import file, or in the file directly). No data is created in the system. The updated file shall be validated as long as the report contains no errors.

2. Import: When the validation report contains no errors, the TCRs defined in the file are created in the system. A workflow is started for each imported TCR.

The import-validation parses through all TCRs in the Excel file row by row and performs checks for each line. The result of the checks is written into the validation report. The following validation-phases are performed for each row (=TCR) in the given order:

- Syntactic Checks: all columns of the Excel file are checked to comply to the allowed type / values. This check will e.g. identify if a numeric field contains other characters than [0-9].
- Semantic Checks: all columns of the Excel file are checked to comply to the constraints defined [in the table on page 21-22](#). This check will e.g. identify if a mandatory field is empty
- Checks against existing data: all rows are checked as illustrated in the following figure. During this phase, each TCR in the import will be checked one by one. The currently checked TCR is called TCR-I in the illustration. The goal is to check which import mode shall be applied to the TCR-I. Possible modes are:

- * NEW: no TCR exists in the DB with the same ID as TCR-I

- * UPDATE: there exists a TCR-DB in the database with the same ID as TCR-I. This TCR-DB will be updated according to the values of TCR-I

- * CANCEL: there exists a TCR-DB in the database with the same ID as TCR-I. This TCR-DB will be cancelled

- * IGNORE: the TCR-I will not be imported

Furthermore, the check identifies conflicting situations by raising an ERROR for TCR-I, e.g. if a TCR-DB shall be updated which is not editable by the importing IM.

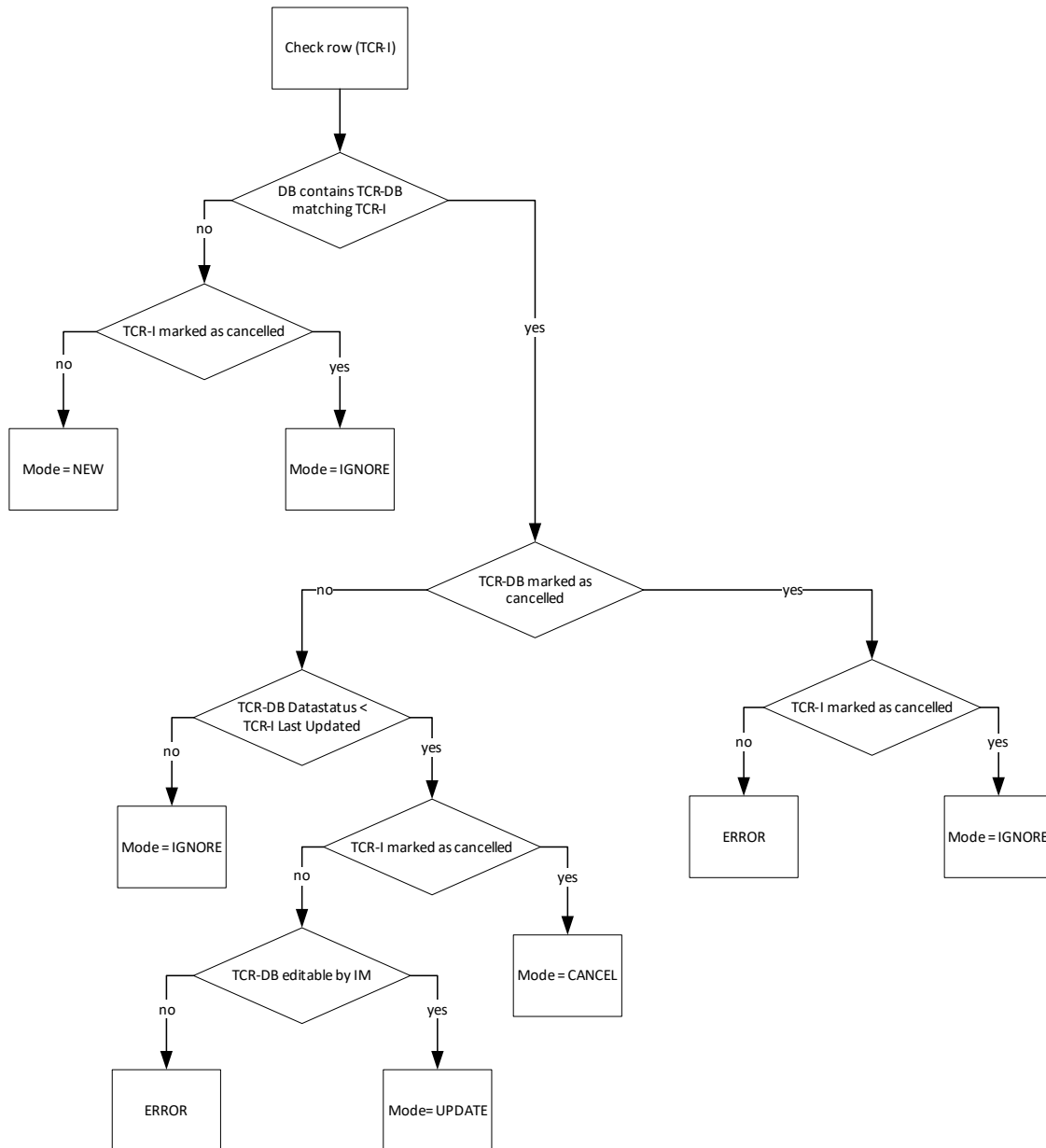


Figure 22 - Checks against existing data

The import validation is executed row by row on all TCRs of the Excel file. The validation-phases are executed in the order given above. If one of the phases results in an ERROR, the subsequent phases are skipped. The result of the validation is summarized in a report of the following structure:

Row# (TCR ID)	Syntax	Semantic	Data	Mode
3 (1452342)	OK	OK	OK	NEW
4 (983249)	OK	No Match for Location From (Column F) found Direction (Column E) shall not be null		
5 (3453245)	OK	OK	OK	IGNORE
6 (234734)	OK	OK	OK	UPDATE
7 (94563212)	OK	OK	TCR 94563212 currently assigned to IM B	
8 (34534234)	OK	WARNING: Calculated duration does not match given duration	OK	NEW
...

Table 6 Structure for results of the validation process

Each row (=TCR) in the report is colour-coded:

- If no errors or warnings occurred, the row is marked green.
- If the row will be ignored for the import, the row is marked yellow.
- If a warning occurred during one of the checks, the first column and the column of the corresponding check is marked orange. The same concept applies to errors, except that the columns are marked red.

Conflict solution

When creating a TCR via the TCR form, data validation routine checks if the entered data for the new or updated TCR causes a conflict with already submitted TCRs. The validation routine is as follows:

Note: When a TCR is created or updated, the timespan and the section of the planned TCR are validated against all existing TCRs that are not in status cancelled. In case there are already one or more existing TCRs in the same time span and section, the user will be informed with a dialog window.

The information in this dialog includes the IM reference ID, the spatial/temporal expansion of the TCR and a link to open the respective TCR. The dialog window offers the user to apply the new/updated data or to change the timespan/section for the respective TCR. If the user applies the data, which cause a conflict with existing TCRs, an exclamation mark icon is displayed next to the affected data field. If the TCR is created/updated by the import functionality and conflict is identified, a WARNING will be added to the validation report.

1.3.3. Via *.xml

The import can be done via manual XML import. The procedure is the same as for the import of the Excel file above.

To manually import TCRs in *.xml (TCR XSD based on TAF/TAP- TSI standards), the following steps are necessary:

1. Click on “Document upload”
2. Select the file XML file
3. Click the “Validate” button to check if there are consistency issues with related master data.
4. In case of errors, the TCR tool responds with a detailed error report (*figure 19*). The error report gives a detailed explanation of what is wrong and should be corrected before a next upload.
5. If no validation and/or consistency errors occur after the validation, the “Import” button will be available in the bottom of the report (marked red in *figure 19*).
6. Click on “*Import*” button for the recently uploaded and validated file.
7. Check the list “All TCRs” under the “*Tasks*” in the navigation menu. After the file has been processed, the label is written with bold letters indicating that a new dataset is added
8. The recently imported TCRs are displayed in the “*All TCRs*” list by records in bold.

1.4. Tasks

The third group of functions is related to the possibilities of the task to work with the TCRs. All TCRs from own companies are presented and users do the necessary job with them, like update TCRs, promote TCRs among the statuses, coordinate TCRs, cancel them, etc.

In this group two functions can be chosen:

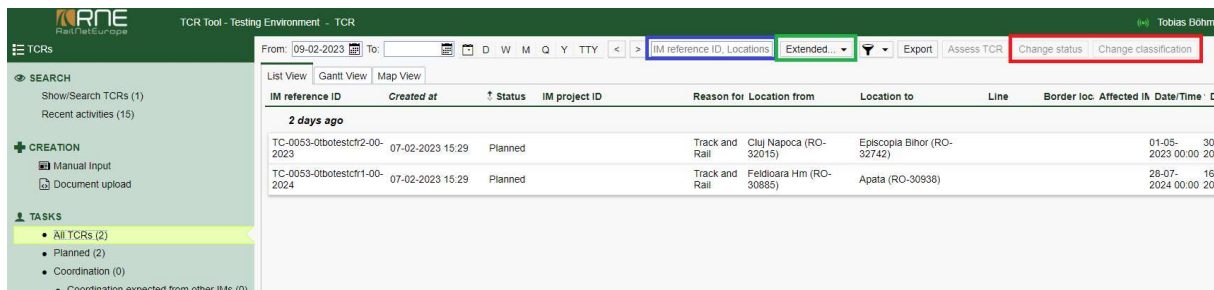
- All TCRs
- Planned
- Coordination
 - Coordination expected from other IMs
 - Pending
 - Disagreed
 - Agreed
 - Coordination expected from my IM
- Consultation
- Publication

The functions in this group are related to the statuses of the TCRs, to faster focus on the TCRs that must be managed.

In the “Tasks” group, only the TCRs from the own organization are presented, except in the “Coordination expected from my IM”, where are TCRs from the neighbouring IMs which own organization must assess.

1.4.1. All TCRs

In this “All TCRs” list, the TCRs that were manually created or imported via Excel or XML files from the user organization, are presented.



IM reference ID	Created at	Status	IM project ID	Reason for Location from	Location to	Line	Border loc	Affected IIR	Date/Time
TC-0053-0tbotestcr2-00-2023	07-02-2023 15:29	Planned		Track and Rail	Cluj Napoca (RO-32015)	Episcopias Bihor (RO-32742)			01-05-2023 00:00 20
TC-0053-0tbotestcr1-00-2024	07-02-2023 15:29	Planned		Track and Rail	Feldioara Hm (RO-30895)	Apata (RO-30938)			26-07-2024 00:00 20

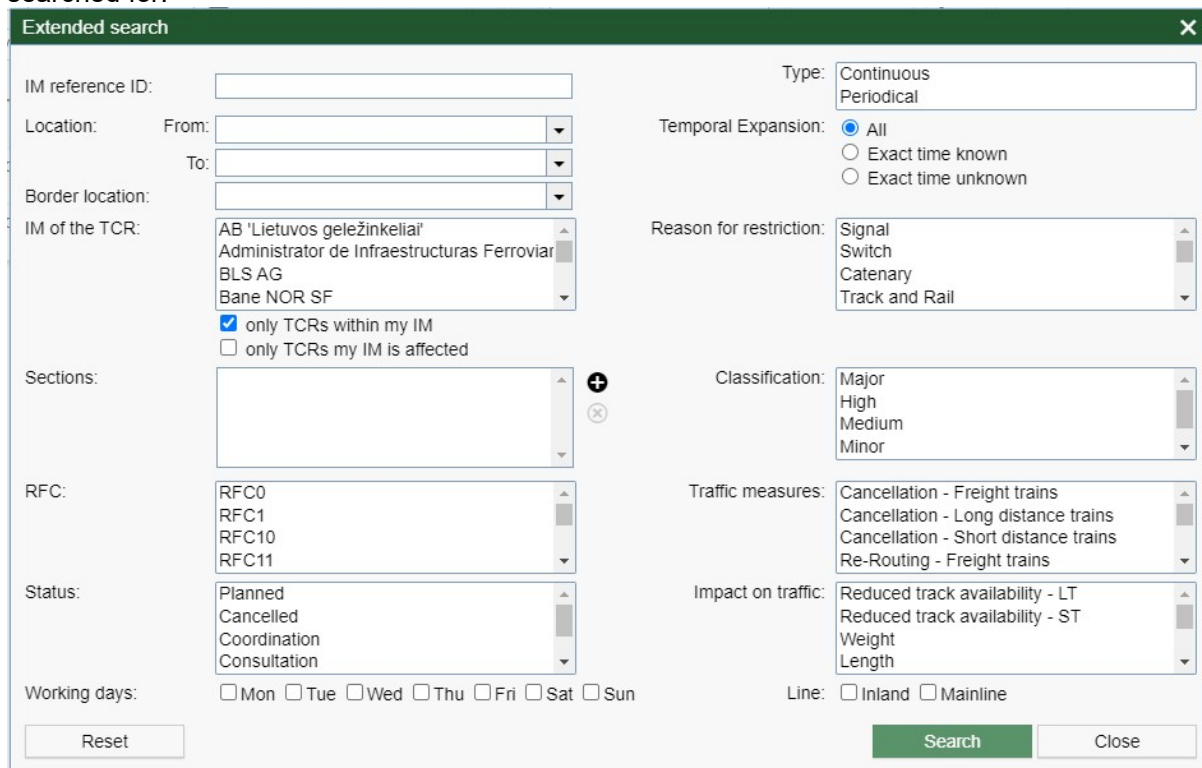
Figure 23 – All TCRs list

Users can do all the necessary jobs with the TCR by editing their attributes by double-clicking a TCR in the list. Marked in the red rectangle, are additional bulk-edit options to change statuses and classifications of TCRs as presented in the image above.

To search TCRs to work on, users have two possibilities:

- Use the quick search possibilities (marked with a blue rectangle) , which can be used to search the entered value in all fields.
- Use the search Extended Search options (marked with in green)

Doing so will open a new window, where users can specify several aspects of a TCR to be searched for:



Extended search

IM reference ID:

Location: From: To:

Border location:

IM of the TCR: AB 'Lietuvos geležinkeliai' Administrator de Infrastructuras Ferroviar BLS AG Bane NOR SF

☒ only TCRs within my IM ☐ only TCRs my IM is affected

Sections:

RFC: RFC0 RFC1 RFC10 RFC11

Status: Planned Cancelled Coordination Consultation

Working days: ☐ Mon ☐ Tue ☐ Wed ☐ Thu ☐ Fri ☐ Sat ☐ Sun

Type: Continuous Periodical

Temporal Expansion: ☒ All ☐ Exact time known ☐ Exact time unknown

Reason for restriction: Signal Switch Catenary Track and Rail

Classification: Major High Medium Minor

Traffic measures: Cancellation - Freight trains Cancellation - Long distance trains Cancellation - Short distance trains Re-Routing - Freight trains

Impact on traffic: Reduced track availability - LT Reduced track availability - ST Weight Length

Line: ☐ Inland ☐ Mainline

Figure 24 – Extended Search

User can save applied filters, and also delete them if not necessary anymore, with the button directly right of the Extended Filters.

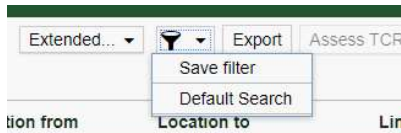


Figure 25 - Save filter

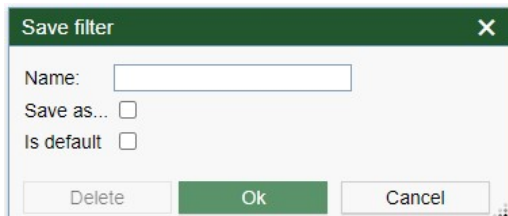


Figure 26 – Save filter options

A saved filter can be applied to all functions listed in the “Tasks” group.

Detail view

By double-clicking the TCR in the list or press the “Edit” button on the top of the page, the TCR is opened in the Detail view in which users can update all the TCR attributes, change the statuses and do all the necessary job with it.

The TCR detail view allows for capturing all relevant TCR data of the current step and state. The displayed information relies on the configured properties and fields of the data model. Currently, responsible editors of TCRs can make changes to the TCR (e.g. change field entries or the state of a TCR). In the TCR detail view, the user can retrieve the following TCR information via a tab bar as shown in the following figure (red marked in the image below):

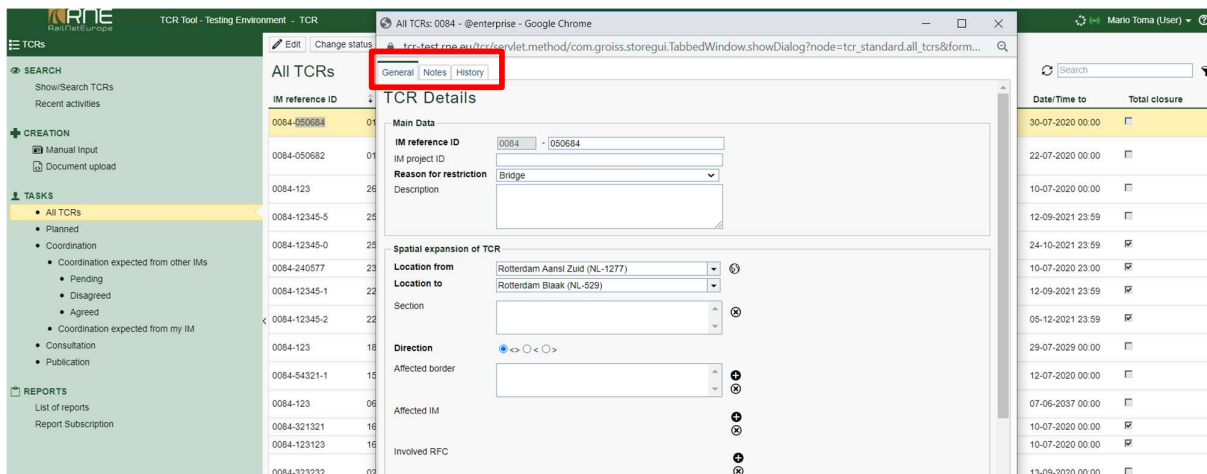


Figure 27 - Tab bar in the TCR detail view

- **General**

The TCR general tab shows the TCR form, which is also used to manually create a TCR. For a user, it is possible gathering TCR information and making user interactions according to

the current process step and the assigned user/role permissions. The information showed (data fields) in the TCR general tab as well as the possible user interactions (changing data field values or the state of a TCR), within a certain process step, is derived from the workflow depicting RNE's business rules.

Note: In the case that two users work on the same TCR in the same time, and the first user saves his/her changes, the second user will receive the message after he/she tries to save their job.



- **Notes**

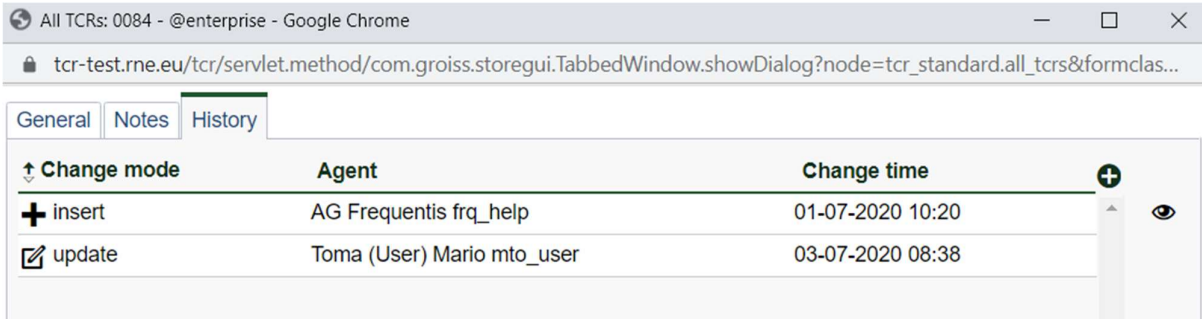
Based on the user/roles concept, users can comment on a TCR or write their notes. In order to support a continuous commenting function, a user does not need to be the currently responsible editor of a TCR to write a comment. The displayed information of comment includes the subject, the content, a *Created at* date and a *Created by* indication. To avoid misunderstandings, a comment cannot be edited or deleted by the issuing user after the comment has been submitted. To provide a consistent notification about new comments to TCRs (e.g. comments from RUs to TCRs after publication), the following function will be implemented:

- responsible IM personnel for TCRs are assigned to a configurable distribution list and will be notified via E-mail as soon as a new comment on a TCR of the respective IM has been submitted.
- as soon as a user makes a comment to a TCR (e.g. a user of a RU), the respective user will automatically be informed via E-mail about every new comment on this particular TCR.

- **History**

Each change of a TCR within its life cycle is logged and documented in the TCR-Tool. This includes the information about the activity (e.g. change of process steps), the field/s affected by the change (old values can be compared to new values), as well as the application user ("form change" → red marked 1 → e.g. result see red marked 2). Every change is marked with a timestamp to keep a complete history of all changes to a TCR. In addition, the position of the respective step in the process can be displayed including when an action has been taken, started, and finished. By default, the user's name and role in regard to action are displayed.

Note: For privacy reasons, the name attribute is anonym and not be displayed to any role except for the administrator.



Change mode	Agent	Change time
+ insert	AG Frequentis frq_help	01-07-2020 10:20
update	Toma (User) Mario mto_user	03-07-2020 08:38

Figure 28 - History of TCR

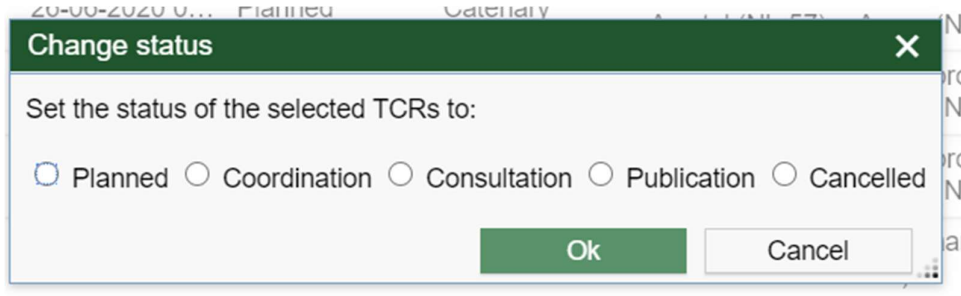
Also, TCR processes can be reactivated. In general, once a TCR is in the final state *Publication* its workflow process is finished. However, the issuing TCR creator is able to reactivate the TCR process (e.g. to make amendments).

Change the status

By selecting more TCRs, it is possible to change the status and classification for all of them at once.

The steps to change the status for all the selected TCRs are as follows:

1. Select the TCRs by hold the “CTRL” key on the keyboard and clicking with mouse each particular TCR in the list that you would like to select. It is also possible to select TCRs by hold “SHIFT” key on the keyboard and selecting all TCRs with mouse.
2. Click the “Change status” button after the selection is finished.
3. The “Change status” form is presented

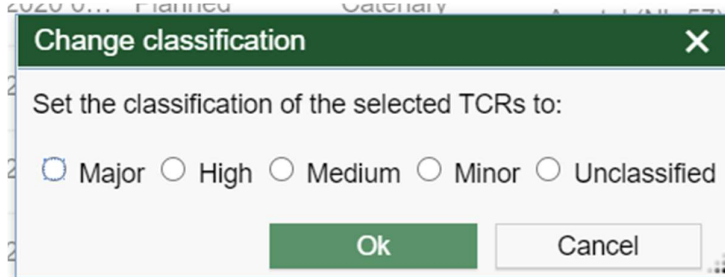


4. Select the appropriate status and press “OK” button
5. The status of the selected TCRs is changed to the matching status

Change the classification

The steps to change the status for all the selected TCRs are as follows:

1. Select the TCRs by hold the “CTRL” key on the keyboard and clicking with mouse each particular TCR in the list that you would like to select. It is also possible to select TCRs by hold “SHIFT” key on the keyboard and selecting all TCRs with mouse.
2. Click the “Change classification” button after the selection is finished.
3. The “Change classification” form is presented



Change classification [X]

Set the classification of the selected TCRs to:

☒ Major
 ☐ High
 ☐ Medium
 ☐ Minor
 ☐ Unclassified

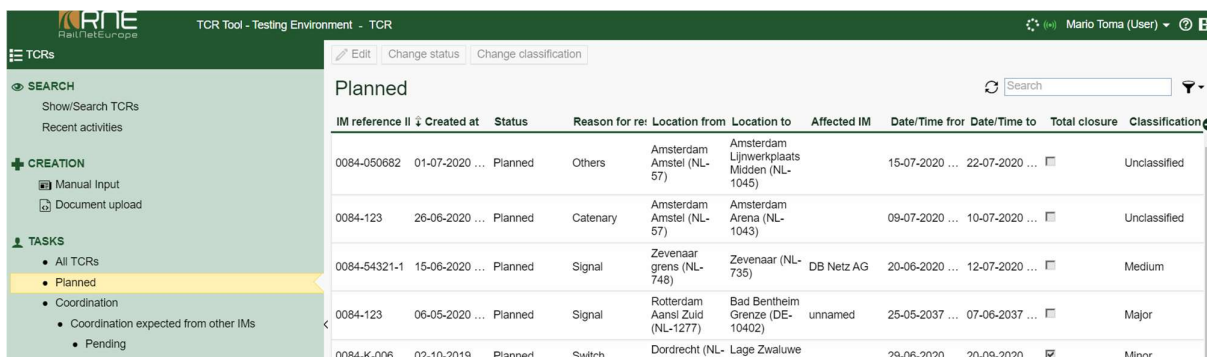
Ok Cancel

4. Select the appropriate classification and press “OK” button
5. The classification of the selected TCRs is changed to the matching classification

1.4.2. Planned

All the TCRs which status is “Planned” will be presented in this list. The TCRs in the status “Planned” are the TCRs that are national and will not be coordinated among the neighbours.

This list of TCRs in the “Planned” list is a subset of the TCRs that are presented in the “All TCRs” list. All the functionalities that were explained in the “All TCRs” topic, regarding work with TCR, filtering TCRs and so on, are applicable in this list as well.



TCR Tool - Testing Environment - TCR

SEARCH: Show/Search TCRs, Recent activities

CREATION: Manual Input, Document upload

TASKS: All TCRs, **Planned**, Coordination, Coordination expected from other IMs, Pending

IM reference	Created at	Status	Reason for re:	Location from	Location to	Affected IM	Date/Time from	Date/Time to	Total closure	Classification
0084-050682	01-07-2020	Planned	Others	Amsterdam Amstel (NL-57)	Amsterdam Lijnwerkplaats Midden (NL-1045)		15-07-2020	22-07-2020		Unclassified
0084-123	26-06-2020	Planned	Catenary	Amsterdam Amstel (NL-57)	Amsterdam Arena (NL-1043)		09-07-2020	10-07-2020		Unclassified
0084-54321-1	15-06-2020	Planned	Signal	Zevenaar grens (NL-748)	Zevenaar (NL-735)	DB Netz AG	20-06-2020	12-07-2020		Medium
0084-123	06-05-2020	Planned	Signal	Rotterdam Aansl Zuid (NL-1277)	Bad Bentheim Grenze (DE-10402)	unnamed	25-05-2037	07-06-2037		Major
0084-K-006...	02-10-2019	Planned	Switch	Dordrecht (NL-180)	Lage Zwaluwe (NL-180)		29-06-2020	20-09-2020		Minor

1.4.3. Coordination

All the TCRs which status is “Coordination” will be presented in this list. The TCRs in the status “Coordination” are the TCRs that must be coordinated among the neighbours.

This list of TCRs is a subset of the TCRs that are presented in the “All TCRs” list. All the functionalities that were explained in the “All TCRs” topic, regarding work with TCRs, are applicable in this list as well.

The “Coordination” list has two major parts:

- Coordination expected from other IMs
- Coordination expected from my IM

Coordination expected from other IMs

All the TCRs from own organization of the logged-in user, that should be coordinated with the involved IMs, are presented in the list.

Besides, the list contains sub lists to easier checking the progress of the coordination from neighbouring IMs:

Pending – the list of all TCRs that are not evaluated yet from the involved IMs

Disagreed – the list of all TCRs that involved IMs assessed, and at least one of them answers disagree

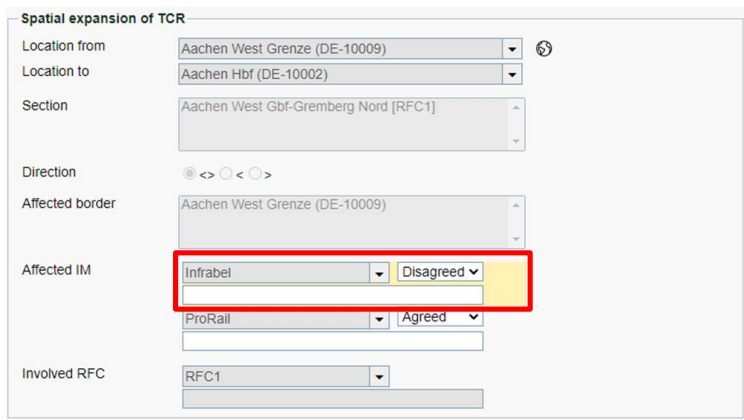
Agreed - the list of all TCRs that involved IMs assess agree

It is possible to check all answers that were provided from the neighbouring IMs, together with their comments or requests.

Coordination expected from my IM

All the TCRs from the neighbouring IMs, that own organization has to assess will be presented in this list.

By double-clicking, the details of the TCR are opened and the user can assess TCR by changing the status under “Affected IM” its company name to Agreed, Disagreed or Pending and enter some comments or suggestions in the textbox below the company’s name (*figure 35*).



Spatial expansion of TCR

Location from: Aachen West Grenze (DE-10009)

Location to: Aachen Hbf (DE-10002)

Section: Aachen West Gbf-Gremberg Nord [RFC1]

Direction: ☒ <> ☐ < ☐ >

Affected border: Aachen West Grenze (DE-10009)

Affected IM:

Infrabel	Disagreed
ProRail	Agreed

Involved RFC: RFC1

Figure 29 – Assess the TCR

After changing the status to agree/disagree/pending, and entering the comment, the TCR can be saved. With that, the work of assessing the TCR is done.

1.4.4. Consultation

All TCRs that should be discussed with the RUs are presented in this list. The RUs can see the TCR details and make their comments.

This functionality will not be tested in this year, according to the request from the TCR Tool core team and TCR Tool WG groups.

1.4.5. Publication

The “Publication” status means that TCRs are finalized and will be published when the deadlines are approaching according to the Anney VII deadlines. All the TCRs of the own company that are in “Publication” status are presented in this list.

The TCR from this list could be changed to “Planned” or “Coordination” status or even cancelled, but this must be done manually.

1.5. Harmonization/Coordination of TCRs

In the Tasks group of functions, all TCRs from own company are presented and users do the necessary job with them, like update TCRs, promote TCRs among the statuses, coordinate TCRs, cancel them, etc.

In this group two functions can be chosen:

- All TCRs
- Planned
- Coordination
 - Coordination expected from other IMs
 - Pending
 - Disagreed
 - Agreed
 - Coordination expected from my IM
 - Pending
 - Disagreed
 - Agreed
- Consultation
- Publication

The functions in this group are related to the statuses of the TCRs, to faster focus on the TCRs that must be managed.

In the “Tasks” group, only the TCRs from the own organization are presented, except in the “Coordination expected from my IM”, which shows TCRs from neighbouring IMs the user’s organization must assess. Users can do all necessary jobs with their own company’s TCRs by editing the attributes or changing their status and classification. To do that, double-click the TCRs in the list. This will show the TCR detail view with all the attributes that can be edited.

Coordination expected from other IMs

All the TCRs from the own organization of the logged in user that should be coordinated with the involved IMs are presented in this list. Besides this, the list contains sub-tasks to check the progress of coordination with neighboring IMs more easily:

- Pending – list of all TCRs that are not evaluated yet from the involved IMs
- Disagreed – list of all TCRs that involved IMs assessed and at least one chose “disagree”
- Agreed - list of all TCRs that the involved IMs agreed on

It is possible to check all answers that were provided from the neighboring IMs, together with their comments or request in the detail view of a TCR.

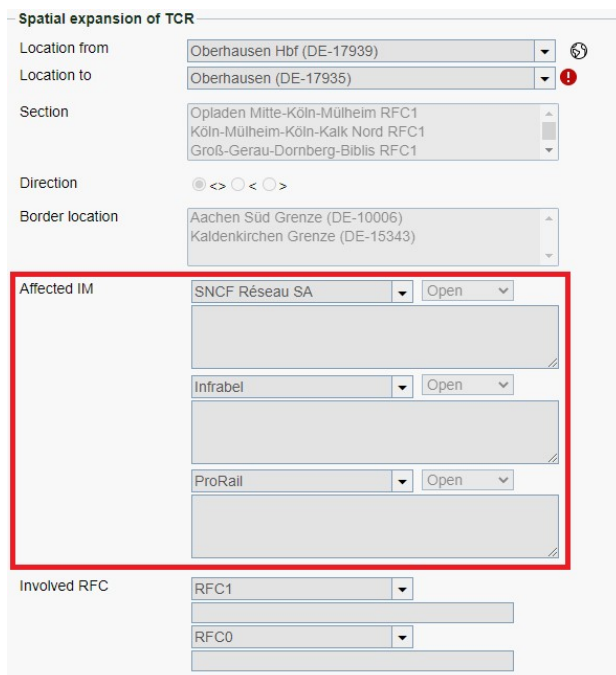


Figure 30 - Affected IM and their Agreement Statuses

If a TCR's “important data” like location or time is changed, the agreement status of all IMs reset to “Open”. This way corrections can be easily re-assessed and IMs can be sure their assessed TCRs don't change in scope after agreeing without their knowledge.

Coordination expected from my IM

All the TCRs from the neighboring IMs, that own organization has to assess will be presented in this list.

By double-clicking, the details of the TCR are opened and the user can assess TCR by changing the status under “Affected IM” its company name to Agreed, Disagreed or Pending and enter some comments or suggestions in the textbox below the company's name.

After changing the status to agree/disagree/pending, and entering the comment, the TCR should be saved. With that, the work of assessing the TCR is done.

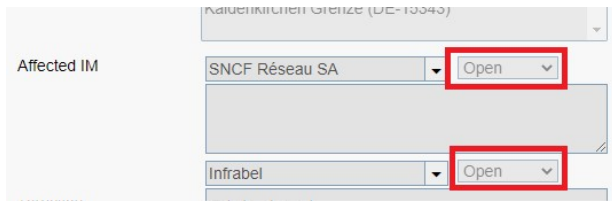


Figure 31 - Button to change Agreement Status

1.6. Reports

The fourth group of functions is related to the report and subscription possibilities to work with the TCRs. Users can execute different reports and subscribe to the reports to receive a notification to email.

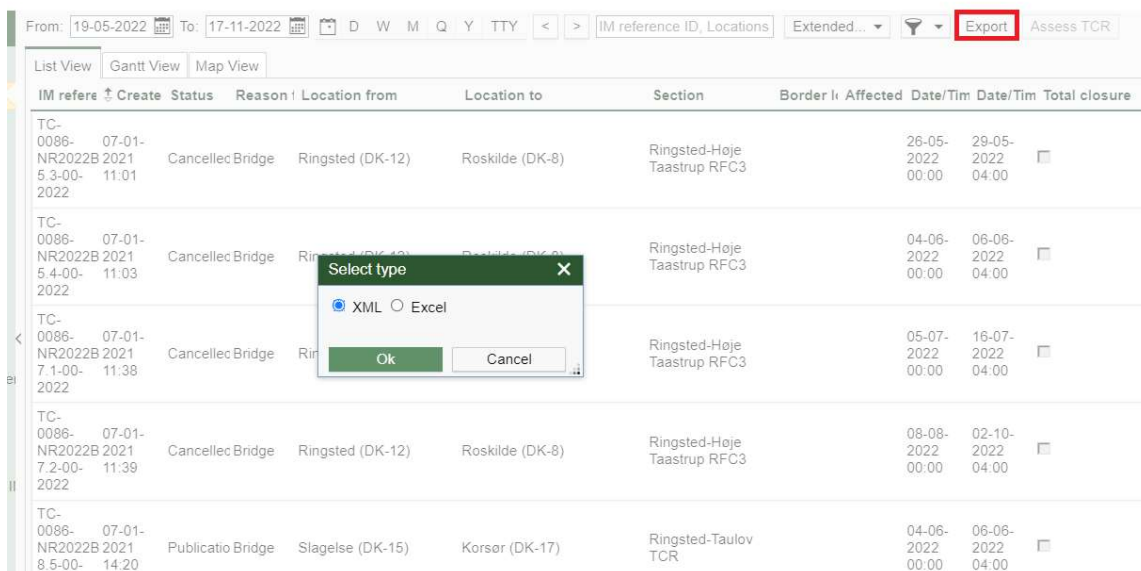
In this group two functions can be chosen:

- List of reports
- Report Subscription

1.6.1. List of reports

Export TCRs

In a case it is needed to export TCRs, users can use the button “Export” in either view to export the current selection as an XML-file or an Excel-sheet.



IM refere	Create	Status	Reason	Location from	Location to	Section	Border	Affected	Date/Tim	Date/Tim	Total closure
TC-0086-NR2022B 5.3-00-2022	07-01-2021 11:01	Cancelled	Bridge	Ringsted (DK-12)	Roskilde (DK-8)	Ringsted-Høje Taastrup RFC3			26-05-2022 00:00	29-05-2022 04:00	
TC-0086-NR2022B 5.4-00-2022	07-01-2021 11:03	Cancelled	Bridge	Ringsted (DK-12)	Roskilde (DK-8)	Ringsted-Høje Taastrup RFC3			04-06-2022 00:00	06-06-2022 04:00	
TC-0086-NR2022B 7.1-00-2022	07-01-2021 11:38	Cancelled	Bridge	Ringsted (DK-12)	Roskilde (DK-8)	Ringsted-Høje Taastrup RFC3			05-07-2022 00:00	16-07-2022 04:00	
TC-0086-NR2022B 7.2-00-2022	07-01-2021 11:39	Cancelled	Bridge	Ringsted (DK-12)	Roskilde (DK-8)	Ringsted-Høje Taastrup RFC3			08-08-2022 00:00	02-10-2022 04:00	
TC-0086-NR2022B 8.5-00-2022	07-01-2021 14:20	Publication	Bridge	Slagelse (DK-15)	Korsør (DK-17)	Ringsted-Taulov TCR			04-06-2022 00:00	06-06-2022 04:00	

Figure 32 - Export TCRs

Reporting and notification

The TCR-Tool provides various types of reports for users in order to work as a comprehensive information source. Attributes (e.g. used in the TCR-form for manually creating TCRs) can be related to each other allowing for generating different reports. These reports can be freely configured by the **Administrator** allowing of meeting the user's demands for individual TCR information. Users are able to run reports according to the rights of their role. Results for reports can be displayed in the output formats such as HTML table, Exports to Excel or PDF-exports. Furthermore, users can subscribe to these reports and define an interval, which shall be used for notifying in a periodic manner.

For instance, the Administrator can configure reports for

- number of updated TCRs (sum and average) in relation to the final publication
- number of coordination's (sum and average) per RFC
- number of operating users (sum and average) per day/week/month
- number of TCRs (sum and average) per reason for restriction
- timespan (sum and average) per TCR for a specific section
 - number of TCRs (sum and average) with a specific state
 - timespan (sum and average) in which a TCR stays in a certain state

1.6.2. Notifications

1.6.2.1. Notify concerned partners about edited TCRs

The system automatically notifies affected IMs about edited TCRs, which have already been successfully coordinated between IMs.

1.6.2.2. Notify concerned partners about cancelled TCRs

The system automatically notifies affected IMs about cancelled TCRs, which have already been successfully coordinated between IMs

1.6.2.3. Notify concerned RUs after publication

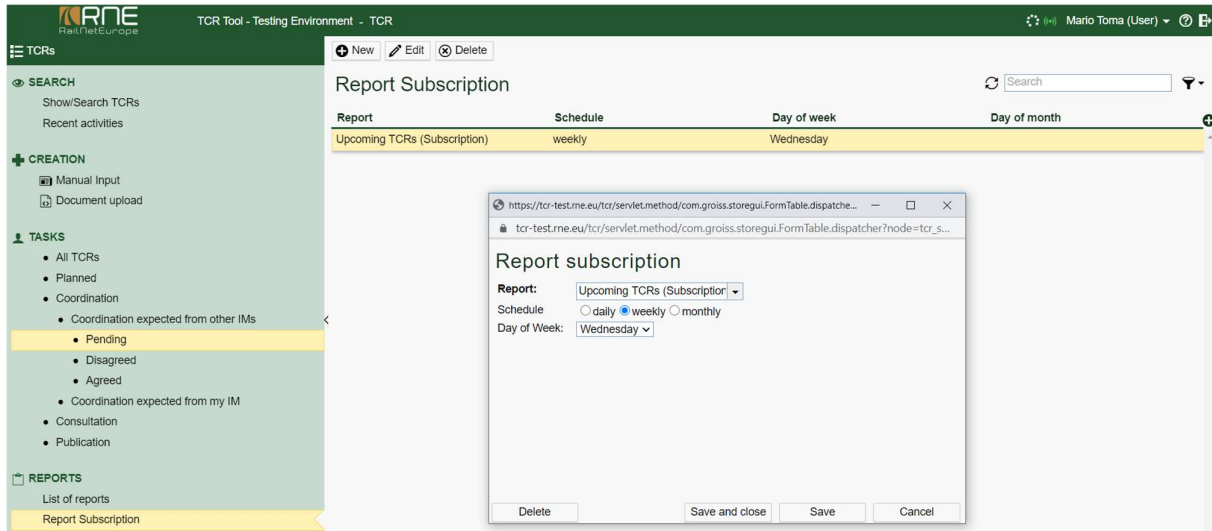
The system automatically notifies RUs and interested parties about notes added to a TCR if they are registered and assigned to the service.

1.6.2.4. Report subscription

Users can subscribe to pre-defined reports. The following steps show how a user can subscribe.

- 1.) Via the navigation menu select "Report Subscription". The "Report Subscription" is opened.
- 2.) Click on "New". A new browser window to configure a report subscription is opened.
- 3.) Check the presentation of the browser window. The following fields are displayed:
 - a combo box to select a defined report
 - radio buttons to define the interval of the report sendings. The user is able to select the following intervals:
 - daily
 - weekly
 - monthly
 - Insert button

- Cancel button
- 4.) Select the interval
- 5.) Select the report mentioned in the precondition from the combo box for “Report”.
- 6.) Click on the “Insert” button. The browser window has been closed and the selected report subscription is displayed with the according to schedule value in the “Report Subscription” list.



2. Administration

The administration allows the configuration of various data required for the operation of the TCRTool.

This includes managing users/roles and their permissions, languages as well as attributes of fields.

2.1.1. User/Roles concept

The TCR-Tool allows the configuration of application users. Users can be assigned to different roles, which have different application rights. Detailed information can be found in the following subsections.

2.1.1.1. Hierarchical structure

The hierarchical structure in the TCR-Tool is based on organizational units, roles and users. Each organizational unit can have up to n sub-organisational units (e.g. multiple IMs and RUs within a country) assigned. Furthermore, users can exercise up to n roles within an organisational unit. To depict RNE's and its member's business logic, the structure is shown in Figure 3 is outlined.



Figure 33 - Hierarchical structure of a user management

- A user with the Administrator role creates countries on the organisational unit level.
- An additional country administrator is assigned for each country and defines companies (IMs, RUs, allocation bodies, etc.), which operate on a national level. Also, a country-specific UIC-

Code 920-14 (80 Germany, 81 Austria, 84 Netherlands, etc.) can be mapped to a country. This UIC-Code is automatically linked to

- the IM reference ID (ensuring to keep a unique ID in the database),
- the locations assigned to the country (only locations of the respective country are shown and selectable),
- the longitude/latitude coordinates for the GIS-map (upon opening the GIS-viewer, the picture section focuses on the respective country).
- Company administrators (e.g. *IM_Admin* role) are responsible for the creation of users and the assignment of an arbitrary amount of roles to them.

2.1.1.2. Configuration of roles

For each role, specific rules/permissions regarding read/write options and visibilities can be configured to support the desired configuration of user/roles variations. The TCR-Tool will be implemented with the roles and the according to permissions as shown in the table below.

Roles	Create/Change/Modify TCRs		Import	Read TCRs			Cancel		Comment	
				not published		published			not published	published
	any TCR	any TCR from my IM	my IM TCR	Read my TCRs	Read all TCRs	Read all TCRs	any TCR	any TCR from my IM		
Administrator	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
IM_ADMIN	NO	YES	NO	YES	YES	YES	NO	YES	NO	NO
IM_USER	NO	YES	NO	YES	YES	YES	NO	YES	NO	NO
RU_ADMIN	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
RU_USER	NO	NO	NO	NO	NO	YES	NO	NO	NO	YES
Front end view	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
Import role	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO
RFC Coordinator	NO	NO	NO	YES	YES	YES	NO	NO	YES	YES

Table 7 - User/Roles matrix

As shown in the table above, each role has its own set of permissions. If a user has assigned multiple roles, the overall permission for this user derives from the sum of the partial permissions.

For instance, and according to Table 6, a user with the assigned roles *IM_User* and Import role has every permission of the *IM_User* role and besides, the user is also able to import TCRs of the own IM.

2.1.2. Creation of user and application of roles

To create users or modify user-roles it is necessary to be logged in with administrative rights. The cockpit view will be slightly different when logging in as an administrator. A new icon shall be visible (red marked - 1).

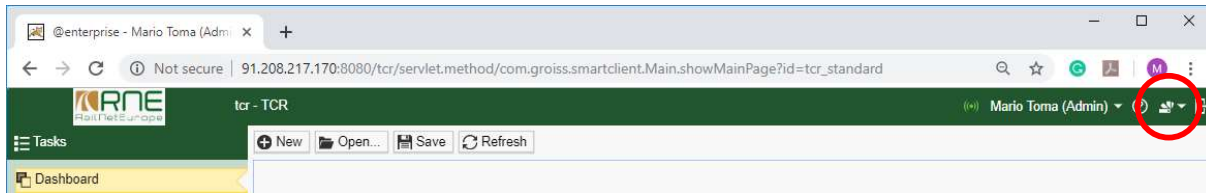
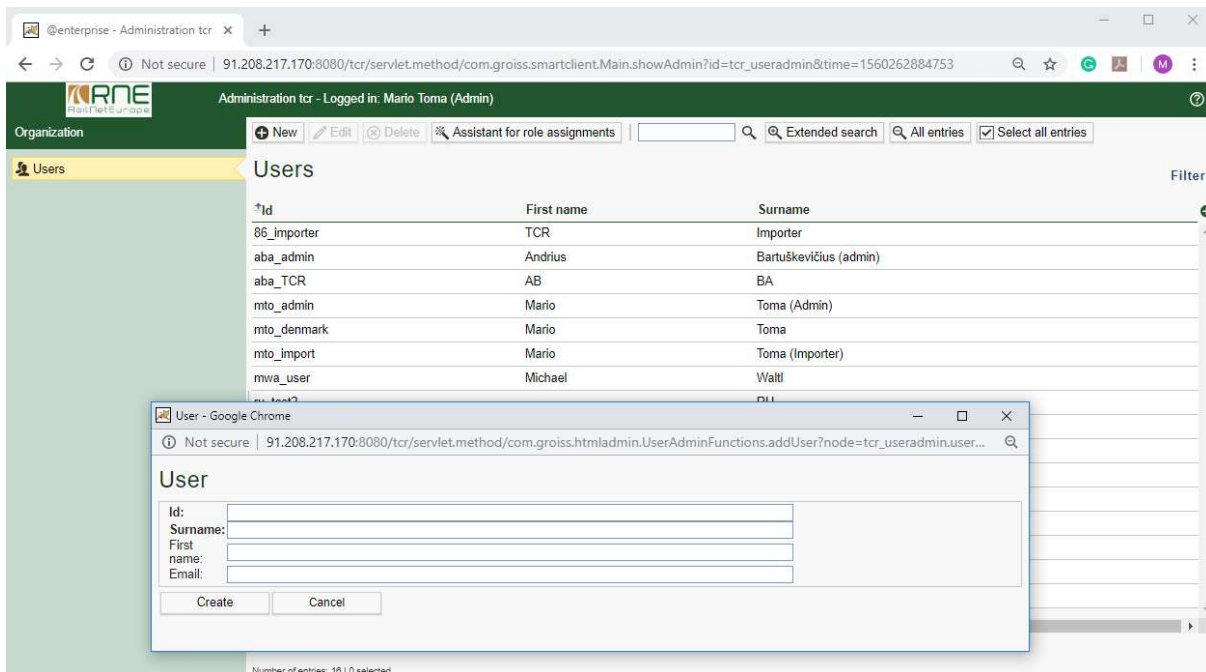


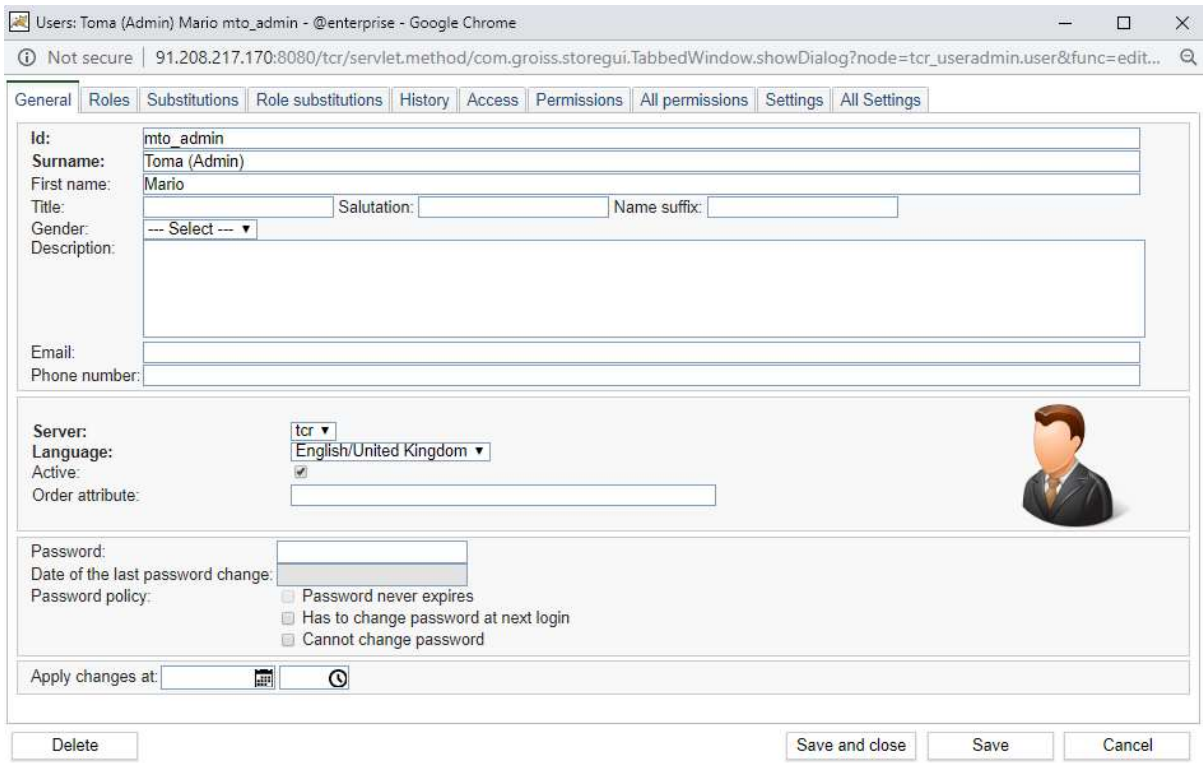
Figure 34 - Admin icon

To create a new user following steps must be taken:

- 1.) Click the Admin icon (Figure 4)
- 2.) Select "User admin"
- 3.) Log in with "Admin" credentials a second time
- 4.) Select under "Organization" the link "Users"
- 5.) The list of users shall be shown.
- 6.) Click "New" in the action section. A new window shall open

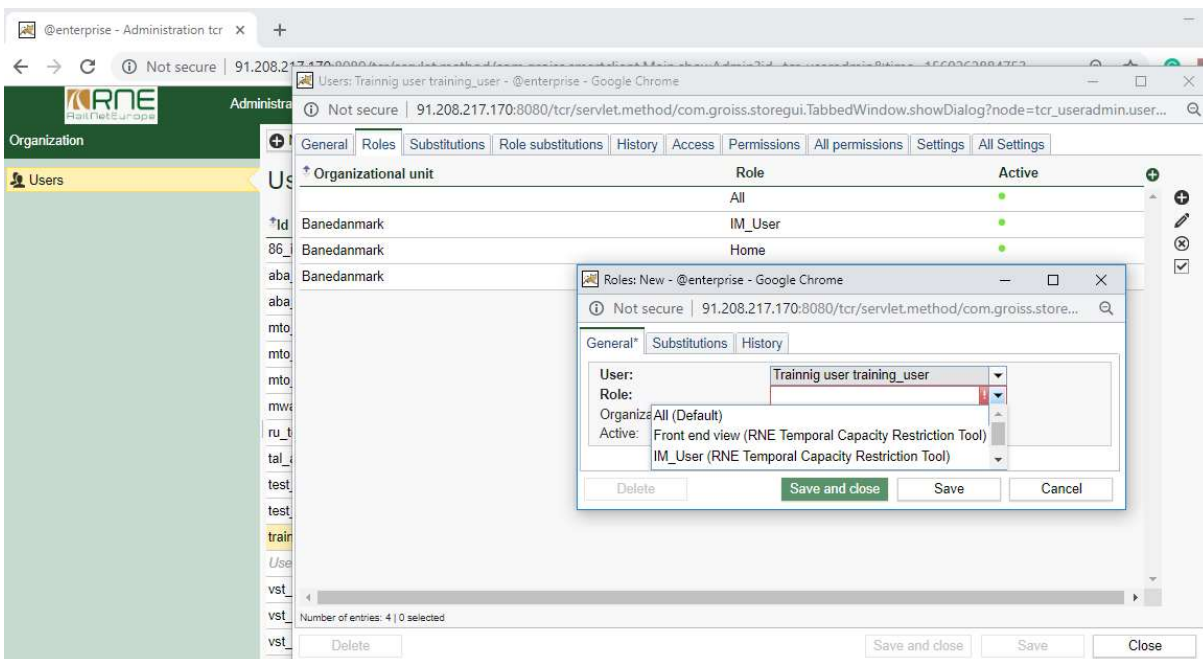


- 7.) Enter user credentials and click on "create" – the window changes its view.



8.) Now the general information can be inserted.

9.) Next step is to assign the roles. Therefore select the "Roles" tab and further click on "+"(1) to open the respective menu.



10.) A new window opens and the respective role and the organisational unit can be selected.

11.) Finish this step by click on "Apply" in the right corner at the end. Several roles can be added just to repeat the above-mentioned steps.

3. Connection between GeoEditor and TCR Tool

GeoEditor Production is linked to TCR Tool Production environment,

GeoEditor Staging is linked to TCR Tool Test.

Each GeoEditor system transfers data of the CRD BigData Database to their respective environments. This transfer happens daily, with the added option of a manual sync done by the TCR Tool administrators from within the tool.

There is no automated transfer of data between the different GeoEditor databases (staging <-> production). TCR Tool offers a manual transfer of data using XLS/XML files to move TCR Data inbetween the two environments, but no automatic one either.

The data transferred from GeoEditor to TCR Tool includes:

Company		
Name	Text	Title/Name of Company
Code	Number	4-Digit Company Code
Sequence Number	Number	Changes after every edit in the database. If Sequence Numbers are not synced, the Database might be out of sync.
Valid From	Date/Time	From when this Company exists in the Database
Valid To	Date/Time	When this Company stops existing
BigData ID	Number	Internal ID used by the database
Layer		
Name	Text	Name/Title of the GeoEditor Layer
Type	Text	Type of the GeoEditor Layer (to group/categorise)
Sequence Number	Number	Changes after every edit in the database. If Sequence Numbers are not synced, the Database might be out of sync.
Valid From	Date/Time	From when this Layer is valid
Valid To	Date/Time	Until when this Layer is valid
BigData ID	Number	Internal ID used by the database
Location		
Name	Text	Name of the Location
Abbreviation	Text	Abbreviation of the Location
Country Code	Text	Country code of the Location
PLC	Number	Number of the Location
ENEE	Number	Legacy Code of the location (from discontinued ENEE database)
Company	Text	Company which "owns" the Location
Longitude	Number	Longitude of geographical location
Latitude	Number	Latitude of geographical location
Second Company	Text	Name of Company on the other side of the border. Used for border locations
Sequence Number	Number	Changes after every edit in the database. If Sequence Numbers are not synced, the Database might be out of sync.
Valid From	Date/Time	From when this Location exists in the Database
Valid To	Date/Time	When this Location stops existing
BigDataID	Number	Internal ID used by the database
IM coordination	Number	Company Code of company across the border. Used for border locations

Section		
Location From	Text	Name and PLC of section's start-location
Location To	Text	Name and PLC of section's end-location
Name	Text	Name of Section
Layer	Text	GeoEditor Layer of the section
Distance IM		
Distance Linear	Number	Direct distance in meters between start and end location
Distance Polyline	Number	Distance in meters between start and end location considering track curvature
Distance Segments	Number	Sum of all segments' linear distances in meters
Starts with From Location	Y/N	If yes, from location is a dead-end (no segments before it)
Sequence Number	Number	Changes after every edit in the database. If Sequence Numbers are not synced, the Database might be out of sync.
Valid From	Date/Time	From when this section is valid
Valid To	Date/Time	Until when this section is valid
BigData ID	Number	Internal ID used by the database
IM coordination	Number	Company Code of IM on the other side of the border. Used for border locations
Line	Text	Name of the Line this section is in
Affected Border	Text	Name and PLC of border location

4. TCR Webtool V2.0- Technical Manual

4.1. Technical requirements

TCR tool is a web-based application and does not have any direct hardware requirements. The application can be used on many operating systems and with various web browsers.

For the best user experience, the TCR tool strongly recommends using a display with minimum screen resolution 1024*768 pixels or better. Recommended web browser is Chrome.

4.2. TCR master data management

The TCRs can be imported into TCR tool in two different ways: via Excel file or XML file, what is already explained in the chapter.

Additionally, import via XML file can be done via manual XML import file (like excel import) or a web-service. The XML structure will be validated on upload, and an appropriate status report is displayed. Besides, the import routine will validate if the user is authorised to create a new TCR (factoring in the provided transactional data) and if there are consistency issues with related master data. The import stores only data in the TCR tool, if no validation or consistency errors occur. In case of errors, the TCR tool responds with a detailed error report.

Descriptions of the excel and XML file structure (interface) are below.

4.3. Specification of .xls interface

The excel file used for importing TCRs needs to follow a predefined structure. The overview of this structure can be seen in Appendix 2 of this document.

The excel file to be imported must fulfil the following rules:

- The TCR is on the **2nd sheet**
- The TCR definitions start from the **4th row**

The current maximum import size is around 2.500 TCRs per file. This will be raised continually during development, but please be aware that larger files will lead to the import process timing out.

The columns in the Excel sheet must be used as defined below. Note that only columns relevant for the import are listed. The table has the following structure:

- Column – Column identifier in the Excel file
- Interpretation – Meaning of the column (from the Header row)
- Allowed type – The type of the column
- Constraints / Values – Rules that will be validated during the import and predefined values in the excel. Mandatory fields are marked with *Not null*.
- Mapping – The name of the field of the TCR form into which the value of the column will be mapped

Column	Interpretation	Allowed type	Constraints / Values	Mapping
B	IM	Text	Not null; Value must match the name of an Organisation Units defined in the TCR-Tool	IM (Organisation Unit)

C	ID	Text	Not Null; The combination IM (column B) together with ID (column C) must be unique	Reference ID
D	Section	Text	Not Null; Value must match the section which is computed from the fields 'Location From' and 'Location To'	<i>Not mapped</i>
E	Direction	Text	Not null; Value must be in [<, >, <>]	Direction
F	From Location	Text	Not Null; Value must match a Location stored in the TCR Tool topology data	Location from
G	To Location	Text	if null, then the interpretation is that 'To Location' is the same as 'From Location' if not null, the value must match a Location stored in the TCR Tool topology data	Location to
H	Year From	Number	Not null	Year From
I	Year To	Number	Not Null; Must be >= Year From (Column H)	Year To
J	Week From	Number	Not null; Value must be in [1-52]	Week From
K	Week To	Number	Not null; Value must be in [1-52]	Week To
L	Date From	Date	If not null, the date must be in the calendar week as defined by Year From and Week From	Date/Time From
M	Time From	Time	If not null, then also Date From must be not null; If null and Date From is not null, Time From is interpreted as 00:00	Date/Time From
N	Date To	Date	If not null, then also Date From must be not null; shall be equal or later than Date From	Date/Time To
O	Time To	Time	If not null, then also Date To must be not null; If null and Date To is not null, Time To is interpreted as 23:00	Date/Time To
P	Duration	Text	-	Duration
Q	Time of day	Text	Not null; Value must be in [continuous, periodical, periodical continuous]	Type of TCR
R	Reason of restriction	Text	-; Value must be in Signal; Switch; Catenary; Track & Rail; Tunnel; Bridge; Miscellaneous*; Maintenance, Others**]	Reason of restriction
S	Total Closure	Text	-; Value must be in [X]	Total Closure (true if value = X)
T	Reduced Track Availability	Text	-; Value must be in [LT, ST, LT+ST]	Reduced Track Availability LT (true if value in [LT; LT+ST]) Reduced Track Availability ST (true if value in [ST; LT+ST])
U	Speed Restrictions	Text	-; Value must be in [X]	Speed Restrictions (true if value = X)
V	Weight, Length, Profile	Text	-; Value must be in [W; L; P; W+L; W+P; L+P; W+L+P]	Weight (true if value in [W; W+L; W+P; W+L+P]) Length (true if value in [L; W+L; L+P; W+L+P]) Profile (true if value in [P; W+P; L+P; W+L+P])
W	No catenary (ex Diesel only)	Text	-; Value must be in [X]	No catenary (true if value = X)
X	Cancellation	Text	-; Value must be in [X], comma-separated (for the freight trains, long-distance trains and short-distance trains) e.g. [X,X] applies to freight and short-distance trains	Cancellation Freight trains (true if value X)
Y	Re-routing	Text	-; Value must be in [X], comma-separated (for the freight trains, long-distance trains and short-distance trains) e.g. [X,X] applies to freight and short-distance trains	Re-routing Freight trains (true if value = X)
Z	Train replacement	Text	-; Value must be in [X], comma-separated (for the freight trains, long-distance trains and short-distance trains) e.g. [X,X] applies to freight and short-distance trains	Train replacement Freight trains (true if value = X)
AA	Delays	Text	-; Value must be in [D, X, or positive integers]	Estimated delays (true if value not null) Define delay minutes (if value represents a positive integer)
AB	Other	Text	-	Other
AC	Description	Text	-	Description
AD	International coordination	Text	-	International coordination

AE	In yearly timetable	Text	-	In annual timetable (mapping TBD: proposal to change allowed values to [Y] or [Y; N])
AF	IM project ID	Text	-	IM Project ID
AG	Last update	Datetime	-	Data status
AH	Classification	Text	Not null; Value must be in [Major; High; Medium; Minor; Unclassified]	Classification
AI	Weekdays	Text	-; Working days comma-separated-values, from 1-7 starting with Monday (1), Tuesday (2)...	Working Days
AJ	Interval	Number	-; Values must be in 1-5 (Defines weekly interval of planned works)	Weekly interval
AK	Affected estimated travel volume	Number	-	Affected estimated travel volume
AL	Affected border	Text	-; PLC codes of the affected border locations (in the case of more borders, they must be comma-separated)	Affected border
AM	Deviation location	Text	-; comma-separated location PLCs on the deviation route	Deviation location
AN	Deviation border	Text	-; comma-separated border PLCs	Deviation border
AO	Status	Text	If null the value will be calculated in the tool considering GeoEditor coordination parameter; Value must be in [Planned, Coordination, Consultation, Published, Canceled or empty]	If null (empty) it will be set according to the import logic and GeoEditor parameter; Status
AP	Additional information	Text	-; Currently will not be used	-
AQ	Automatic process	Text	If yes, then automatic publication in the tool will start, according to Annex VII deadlines. The value must be in [Y; N]	Automatic process
AR	BitmapDays			
AS	Variant Value			

4.4. Excel structure

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
1	Ma p		Show all		New	Changed	Deleted																						
2	IM	ID	Section	Direction	Line	Year	Week	Period from	Period to	Duration	Time of day	Reason for restriction	Traffic impact	Traffic measures	Description														
3					From To	From To	From To	Date from Time from	Date to Time to				Total Closure Reduced Track Availability Speed Restrictions Weights/Length/Profile Diesel only	Cancellation Re-routing Train replacement Delays Other															
4	ProRail	IO-M-00451	<>	Betuweroute	Utrecht Cent	2018	2018	50	51	12/15/2018	1:10:00 AM	12/17/2018	5:10:00 AM	continuous	Miscellaneous	T	LT	X,X,X	X,X,X	0,0,20	Vernieuwen spoor								
5	ProRail	IO-M-00451	<>	Culemborg	Utrecht Cent	2018	2018	50	51	12/15/2018	1:10:00 AM	12/17/2018	5:10:00 AM	continuous	Miscellaneous	T	LT				Vernieuwen spoor								

	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
1																
2	International coordination	In yearly timetable	IM Project ID (Optional)	Last update	Classification	Weekdays	Interval	Affected estimated travel volume	Affected border	Deviation location	Deviation border	Status	Additional information	Automatic process	BitmapDays	Variant value
3																
4	80,85	Y		10/08/2018	Major	1,3	2			99960,621		Planned	N			00
5		Y		10/08/2018	Major	1,2,3,4,5,6,7	1					Coordination	Y			00

4.5. Specification of .xml interface

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2019 rel. 3 sp1 (x64) (http://www.altova.com)-
->
<xs:TCRMessage xmlns:xs="http://taf-jsg.info/schemes"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://taf-
jsg.info/schemes 21.04.2020%20-%20taf%20ttr%20schema_proposal_new.xsd">
  <xs:MessageHeader>
    <xs:MessageReference>
      <xs:MessageType>1</xs:MessageType>
      <xs:MessageTypeVersion>a</xs:MessageTypeVersion>
      <xs:MessageIdentifier>a</xs:MessageIdentifier>
      <xs:MessageDateTime>2001-12-17T09:30:47Z</xs:MessageDateTime>
    </xs:MessageReference>
    <xs:MessageRoutingID>1</xs:MessageRoutingID>
    <xs:SenderReference>a</xs:SenderReference>
    <xs:Sender>1</xs:Sender>
    <xs:Recipient>1</xs:Recipient>
  </xs:MessageHeader>
  <xs:AdministrativeContactInformation>
    <xs:Name>a</xs:Name>
    <xs:Address>a</xs:Address>
    <xs:eMail>a</xs:eMail>
    <xs:PhoneNumber>a</xs:PhoneNumber>
    <xs:FaxNumber>a</xs:FaxNumber>
    <xs:FreeTextField>a</xs:FreeTextField>
  </xs:AdministrativeContactInformation>
  <xs:CoordinatingIM>1</xs:CoordinatingIM>
  <xs:TCR>
    <xs:TCRID>
      <xs:ObjectType>TC</xs:ObjectType>
      <xs:Company>1</xs:Company>
      <xs:Core>*****</xs:Core>
      <xs:Variant>00</xs:Variant>
      <xs:TimetableYear>2012</xs:TimetableYear>
      <xs:StartDate>1957-08-13</xs:StartDate>
    </xs:TCRID>
    <xs:ReasonForRestriction>90</xs:ReasonForRestriction>
    <xs:Description>String</xs:Description>
    <xs:StartLocation>
      <xs:CountryCodeISO>aa</xs:CountryCodeISO>
      <xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
      <xs:PrimaryLocationName>a</xs:PrimaryLocationName>
    </xs:StartLocation>
    <xs:EndLocation>
      <xs:CountryCodeISO>aa</xs:CountryCodeISO>
      <xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
      <xs:PrimaryLocationName>a</xs:PrimaryLocationName>
    </xs:EndLocation>
    <xs:Sections>
      <xs:Section>
        <xs:StartLocation>
          <xs:CountryCodeISO>aa</xs:CountryCodeISO>
          <xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
          <xs:PrimaryLocationName>a</xs:PrimaryLocationName>
        </xs:StartLocation>
        <xs:EndLocation>
```

```

        <xs:CountryCodeISO>aa</xs:CountryCodeISO>
        <xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
        <xs:PrimaryLocationName>a</xs:PrimaryLocationName>
    </xs:EndLocation>
    <xs:Name>a</xs:Name>
</xs:Section>
</xs:Sections>
<xs:TCRDirection>20</xs:TCRDirection>
<xs:AffectedBorders>
    <xs:AffectedBorder>
        <xs:CountryCodeISO>aa</xs:CountryCodeISO>
        <xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
        <xs:PrimaryLocationName>a</xs:PrimaryLocationName>
    </xs:AffectedBorder>
</xs:AffectedBorders>
<xs:AffectedIMs>
    <xs:AffectedIM>
        <xs:CompanyCode>1</xs:CompanyCode>
        <xs:CompanyName>a</xs:CompanyName>
        <xs:CoordinationStatus>DISAGREED</xs:CoordinationStatus>
        <xs:CoordinationComment>String</xs:CoordinationComment>
    </xs:AffectedIM>
</xs:AffectedIMs>
<xs:InvolvedICE>
    <xs:InvolvedICE>
        <xs:ICENAME>a</xs:ICENAME>
        <xs:Recommendation>true</xs:Recommendation>
        <xs:Comments>String</xs:Comments>
    </xs:InvolvedICE>
</xs:InvolvedICE>
<xs:TemporalExpansion xs:ExpansionType="PERIODICAL">
    <xs:PlannedCalendar>
        <xs:BitmapDays>0</xs:BitmapDays>
        <xs:ValidityPeriod>
            <xs:StartDateTime>2001-12-
17T09:30:47Z</xs:StartDateTime>
            <xs:EndDateTime>2001-12-17T09:30:47Z</xs:EndDateTime>
        </xs:ValidityPeriod>
    </xs:PlannedCalendar>
    <!-- OR
    <xs:RoughDates>
        <xs:StartYear>2001</xs:StartYear>
        <xs:StartWeek>1</xs:StartWeek>
        <xs:EndYear>2001</xs:EndYear>
        <xs:EndWeek>2</xs:EndWeek>
    </xs:RoughDates>
    <xs:BitmapDays>000000</xs:BitmapDays>
    -->
    <xs:TCRTimeAtLocation xs:TCRTimeQualifier="ALL_LOCATIONS"> <!--
will be implemented in 2021 -->
        <xs:StartTime>
            <xs:Time>09:30:47+05:00</xs:Time>
            <xs:Offset>0</xs:Offset>
        </xs:StartTime>
        <xs:EndTime>
            <xs:Time>09:30:47+05:00</xs:Time>
            <xs:Offset>0</xs:Offset>
        </xs:EndTime>
    </xs:TCRTimeAtLocation>

```

```

        <xs:WeeklyPattern>000000</xs:WeeklyPattern>    <!-- will be
implemented in 2021 -->
        <xs:WeeklyInterval>2</xs:WeeklyInterval>
    </xs:TemporalExpansion>
    <xs:OperationalConsequences>
        <xs:ReducedTrackAvailability LT="true" ST="true"/>
        <xs:DimensionalRestriction weighth="true" length="true"
profile="true"/>
        <xs:TotalClosure>true</xs:TotalClosure>
        <xs:SpeedRestriction>true</xs:SpeedRestriction>
        <xs:NoCatenary>true</xs:NoCatenary>
        <xs:AffectedTrafficVolume>0</xs:AffectedTrafficVolume>
        <xs:TCRClassification>20</xs:TCRClassification>
        <xs:TrafficMeasures>
            <xs:Cancellation>
                <xs:TCRMeasures>10</xs:TCRMeasures>
                <xs:Value>true</xs:Value>
            </xs:Cancellation>
            <xs:ReRouting>
                <xs:TCRMeasures>30</xs:TCRMeasures>
                <xs:Value>true</xs:Value>
            </xs:ReRouting>
            <xs:Replacement>
                <xs:TCRMeasures>30</xs:TCRMeasures>
                <xs:Value>true</xs:Value>
            </xs:Replacement>
            <xs:EstimatedDelay>
                <xs:TCRMeasures>10</xs:TCRMeasures>
                <xs:Value>2</xs:Value>
            </xs:EstimatedDelay>
        </xs:TrafficMeasures>
        <xs:Deviations>
            <xs:Routes>
                <xs:DeviationLocation>
                    <xs:CountryCodeISO>aa</xs:CountryCodeISO>

<xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>

<xs:PrimaryLocationName>a</xs:PrimaryLocationName>
    </xs:DeviationLocation>
    <xs:DeviationComment>String</xs:DeviationComment>
</xs:Routes>
<xs:Borders>
    <xs:DeviationBorder>
        <xs:CountryCodeISO>aa</xs:CountryCodeISO>

<xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>

<xs:PrimaryLocationName>a</xs:PrimaryLocationName>
    </xs:DeviationBorder>
</xs:Borders>
</xs:Deviations>
<xs:InternationalCoordination>String</xs:InternationalCoordination>
<xs:InYearlyTimetable>true</xs:InYearlyTimetable>
<xs:IndicationOfTimetableAdaption>1957-08-
13</xs:IndicationOfTimetableAdaption>
    </xs:OperationalConsequences>
    <xs:ProjectID>String</xs:ProjectID>
    <xs:TCRStatus>20</xs:TCRStatus>
    <xs:LastUpdated>2001-12-17T09:30:47Z</xs:LastUpdated>

```

```

        <xs:AutomaticProcess>true</xs:AutomaticProcess>
    </xs:TCR>
</xs:TCRMessage>
    <xs:element name="TrafficMeasures" type="TrafficMeasuresType"
minOccurs="0"/>
    <xs:element name="DeviationLocations" type="DeviationLocationsType"
minOccurs="0"/>
    <xs:element name="DeviationBorders" type="DeviationBordersType"
minOccurs="0"/>
    <xs:element name="DeviationComment" type="xs:string" minOccurs="0"/>
    <xs:element name="InternationalCoordinationComment" type="xs:string"
minOccurs="0"/>
    <xs:element name="InYearlyTimetable" type="xs:boolean"/>
    <xs:element name="IndicationOfTimetableAdaption" type="xs:date"
minOccurs="0"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="TrafficMeasuresType">
    <xs:sequence>
        <xs:element name="Cancellation" type="TrainTypeType" minOccurs="0"/>
        <xs:element name="ReRouting" type="TrainTypeType" minOccurs="0"/>
        <xs:element name="Replacement" type="TrainTypeType" minOccurs="0"/>
        <xs:element name="Delay" type="TrainTypeType" minOccurs="0"/>
        <xs:element name="EstimatedDelay" type="DelayType" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="TrainTypeType">
    <xs:attribute name="freight" type="xs:boolean" use="optional"/>
    <xs:attribute name="longDistance" type="xs:boolean" use="optional"/>
    <xs:attribute name="shortDistance" type="xs:boolean" use="optional"/>
    <xs:attribute name="commuter" type="xs:boolean" use="optional"/>
</xs:complexType>
<xs:complexType name="DelayType">
    <xs:attribute name="freight" type="xs:positiveInteger" use="optional"/>
    <xs:attribute name="longDistance" type="xs:positiveInteger"
use="optional"/>
    <xs:attribute name="shortDistance" type="xs:positiveInteger"
use="optional"/>
    <xs:attribute name="commuter" type="xs:positiveInteger" use="optional"/>
</xs:complexType>
<xs:complexType name="DeviationLocationsType">
    <xs:sequence>
        <xs:element name="DeviationLocation" type="taf:LocationIdent"
minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="DeviationBordersType">
    <xs:sequence>
        <xs:element name="DeviationBorders" type="taf:LocationIdent"
minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>
</xs:schema>

```