2025

RIS TOPOLOGY USER MANUAL

Austria Campus 3
Jakov-Lind-Straße 5
1020 Vienna, Austria

Phone: +43 1 907 62 72 00
E-Mail: mailbox@rne.eu

www.rne.eu

Version	Description	Who
v.01	Initial draft	C.B.
v.02	Smaller adaptions, extension to CIP specific functionalities	C.B.
v.04	Introduction of enhancements CR04, CR09, CR12	C.B.

Contents

1 Introduction

This document is intended to describe in detail the functionalities of RIS that are made available for the data management of the infrastructure topology that is managed in RIS application.

It is divided into 3 main chapters, in each of which the functionalities of the Geoeditor/BigData systems to be replaced, the data management function of CIP and the data management function of RFP are described.

The first version contains the main chapter on the GeoEditor functions.

The other chapters will follow successively in the next document's versions.

2 System Access

2.1 Internet Access

The RIS system is accessible to public and undergoes an authentication process.

The respective URLs for the different environments are:

- Staging: for test purposes

  ➔ https://ris-stage.rne.eu/

- Production: for all purposes in production environment

  ➔ https://ris-online.rne.eu/

2.2 Landing Page for Public Users

A dedicated landing page has been introduced for users accessing RIS without valid session credentials. This page serves as an entry point for:

- Triggering the Azure login flow
- Navigating to a public registration form for new user accounts

After login, the standard RIS application is loaded. If the user is already authenticated, the landing page is bypassed.

3 Registration / Login / Logout and Change Password

This topic provides information on how to Login and Logout of the application. It also mentions what to do if you forgot your password, and the method to change your password and your profile details.

3.1 Public Registration

- Clicking Register on the landing page redirects to a public registration form.
- Upon submission, a request is stored for administrator's approval.
- Users are notified via email once approved or rejected.
- Administrators handle approvals in a new grid interface under *Settings* > *User Management*.

3.2 Precursor

To be able to access the application via Web-User-Interface you have to be set up as a user in RNE's active directory first.

To achieve please contact RNE using the following option

- Email: <xxxxxxxxxxxx>
- Tel: <xxxxxxxxxxxxxx>

3.3 Login

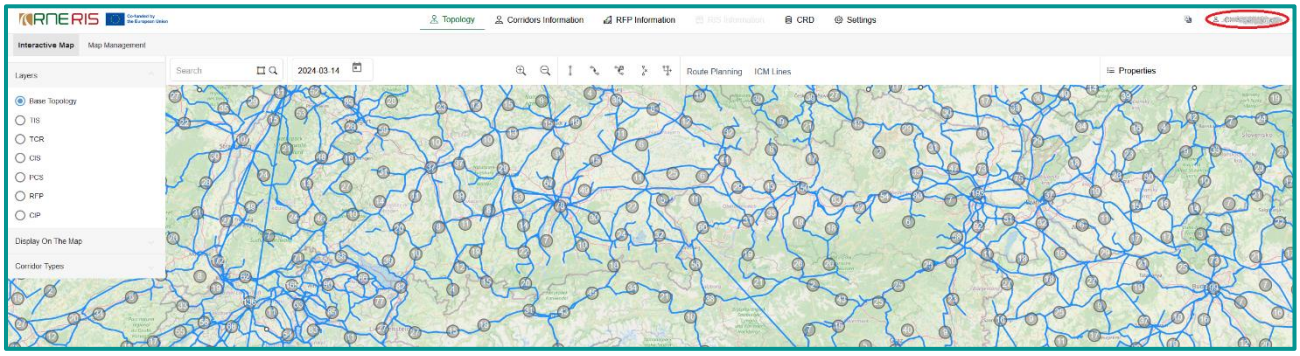
Normally you are automatically logged in by means of your user you are logged in on your device. In case this user deviates from your user set up in RNE's active directory (AD) or you logged out from RIS system, you will be directed to the AD login screen

You can either use a proposed account or in case it is not listed chose other account.

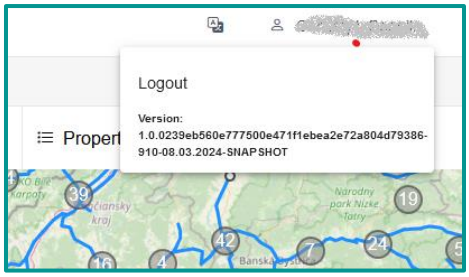
Then you have to enter your account credentials

3.4 Logout

In RIS you will see always in the upper right corner your account under which you launched the application



Clicking on your user you get an option to logout.



Logout will redirect you to the RNE AD Login screen (see above)

Version of application:

Can be obtained by clicking on your user. This is sometimes helpful for communication in case of issues with the application.

3.5 Change Password

Can be chosen when you log in with your user account

You will receive an email with a link that will direct you to a web site to set a new password.

4 RIS navigation logic

The RIS application is structured, clear and menu-driven and also contains the CRD functionality. Which functions are visible via the respective menu items depends on the permissions of the user role. For the sake of simplicity, the screenshots resulting from the assignment of all rights are shown below.

The menu is structured in the following functional groups:

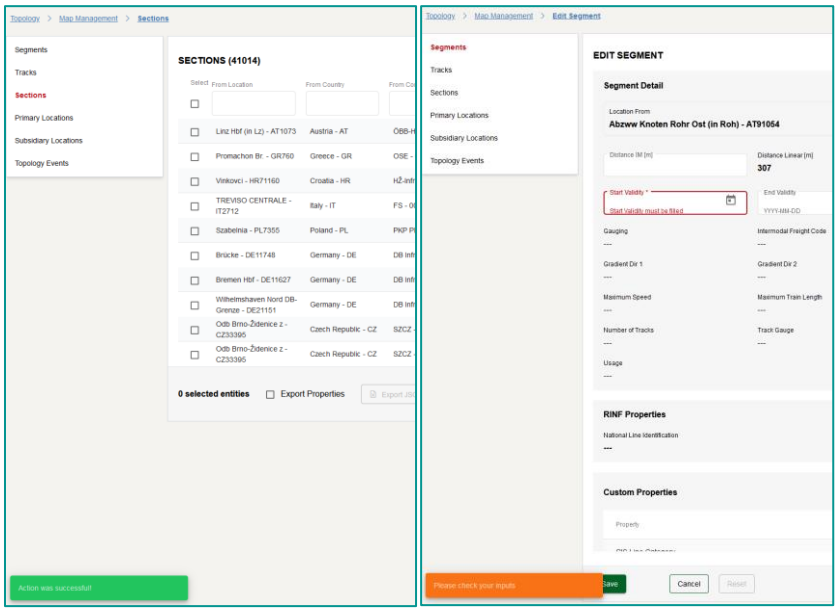
- Topology: Contains all functionalities that are provided to manage and handle the topological network
- Corridors Information: contains all specific functionalities of railfreight corridors that are not topology-related
- ETC Information: contains all specific functionalities of *European Train Corridors* that are not topology-related
- RFP Information: contains all specific functionalities of rail facility portal that are not topology-related
- CRD: contains the CRD functionality (as described in document “RIS Manual CRD_v2”)

- Settings: contains RIS-Specific settings that are not topology-related, especially the approval of user registrations.

5 Notification panel

Notification panel is displayed whenever an action is performed in RIS. Of the action is successful, the notification panel is green, if the input in the user interface is not sufficient to carry out the action correctly the notification panel is orange; if the action is not successful or any error occurs during its execution, the notification panel is red.

e.g.



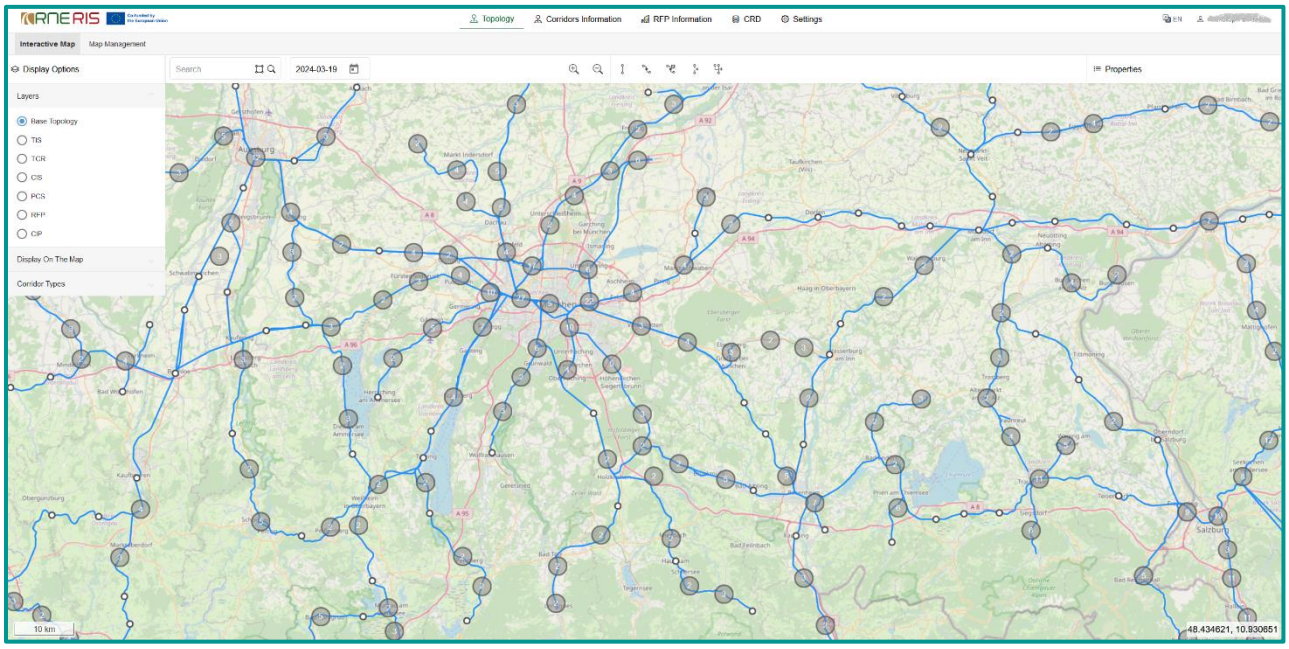
6 Topology

This is the central part of the RIS application. It includes the presentation of the map display of the topological network, the data maintenance of the network via map tools and the data management of the network entities.

A general overview of the topological logic, the dependencies of entities to each other (macro- and mesoscopic layer) and also the impact of introduction of tracks and also time dimensions to entities (by means of validity periods) is summarised in the document “Topological Model and Data Model RIS – Validity Periods”.

6.1 Interactive Map

An important representation in RIS is the interactive map. This shows the topological model in various forms, which can be set using the selection on the left-hand side.



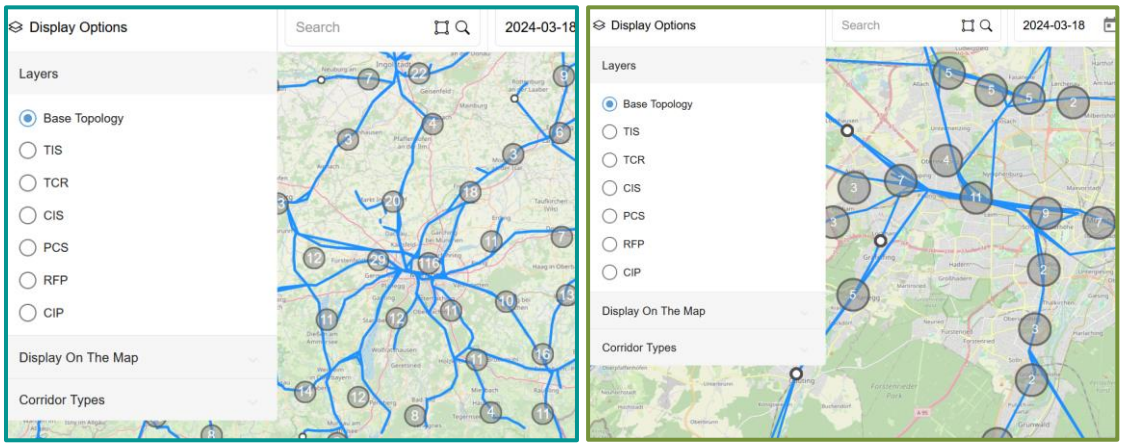
The interactive map is structured as follows:

- Central part: shows the map (derivative of open street map as background) with the topological entities selected, respectively.
- Display options: Shows different display options or possibilities to show or hide different entities.
- Search: searches for names of entities in the topological network
- Date: shows the date on which the network is to be displayed. E.g. a date in the past shows the network as it existed in the past; a date in the future, showing the network as it is currently stored in the system for the future. This allows for future-planned entities to be displayed as well.
- Map Tools - Centrally at the top in the middle:
  - +/-: Zoom in / out in the map
  - : Map tools, described below
- Properties: shows properties of a selected entity

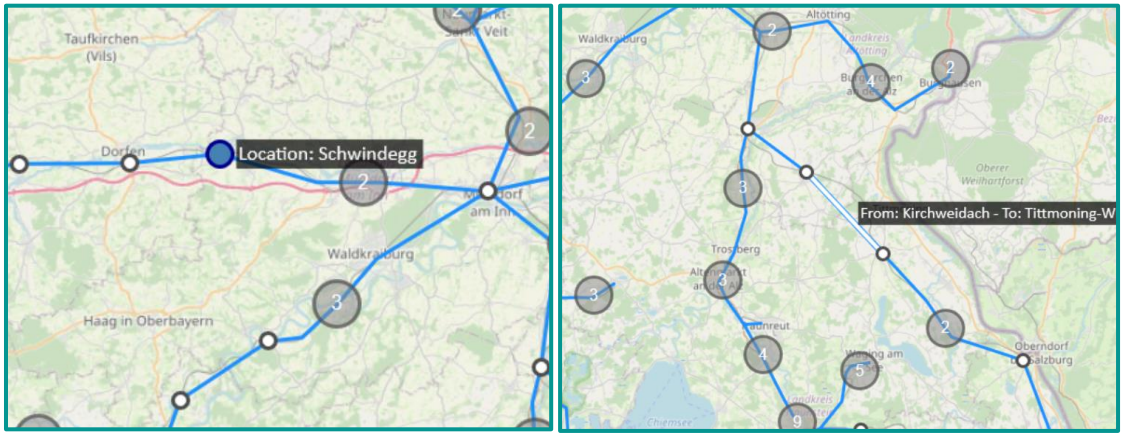
6.1.1 General map functionalities

Grouping:

Dependent on the zoom level, locations are too narrow are grouped in one icon showing the number of elements grouped together:

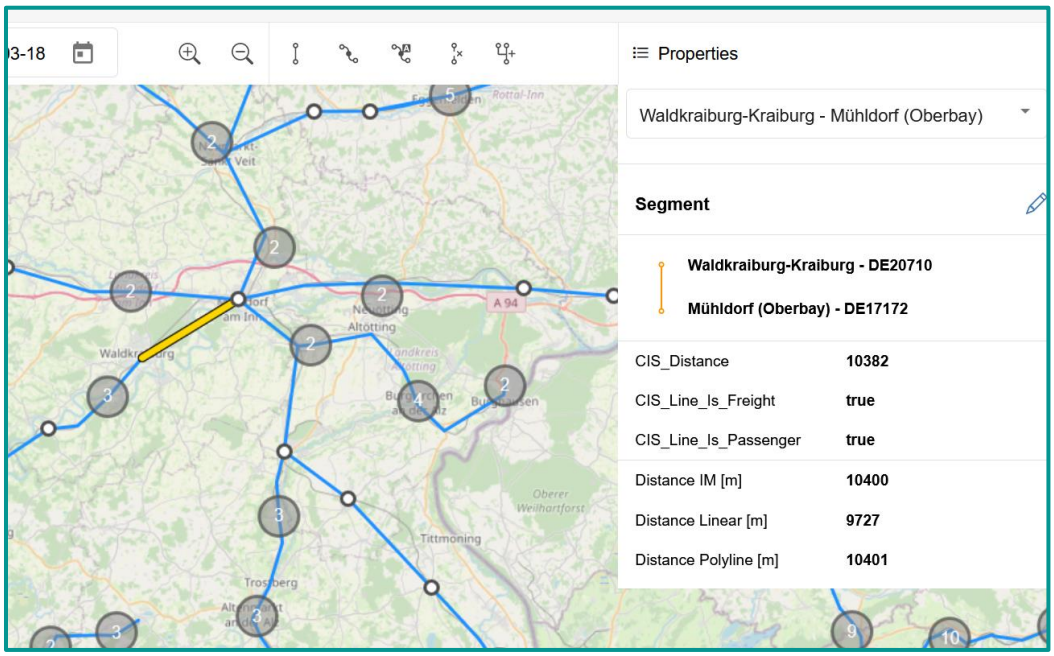


When you hover the mouse over the network, entities are automatically highlighted and their names displayed.



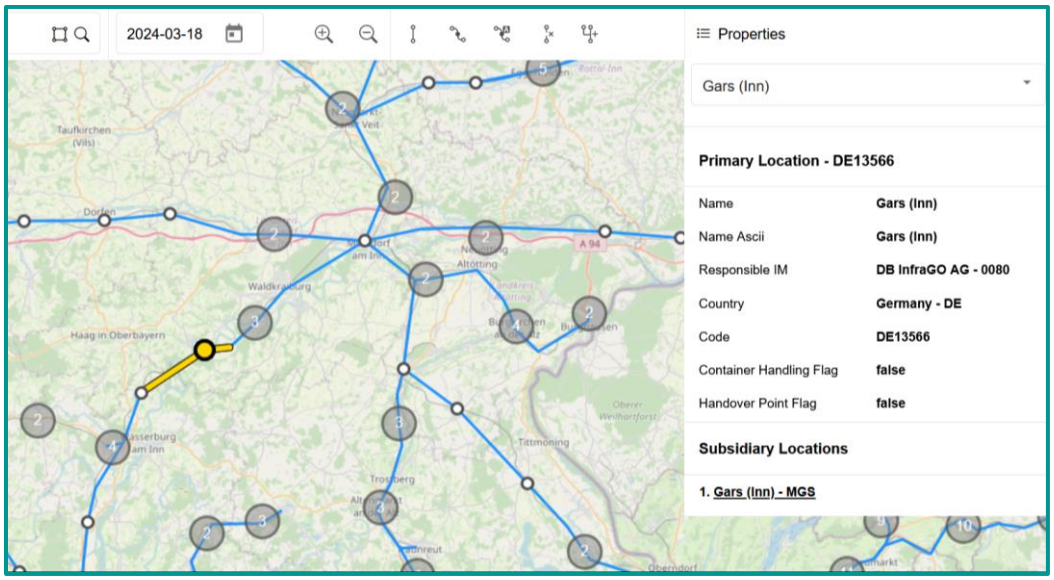
When you select an entity on the map, it is highlighted, and its properties are shown on the right side panel.

In the following a segment in the network was selected



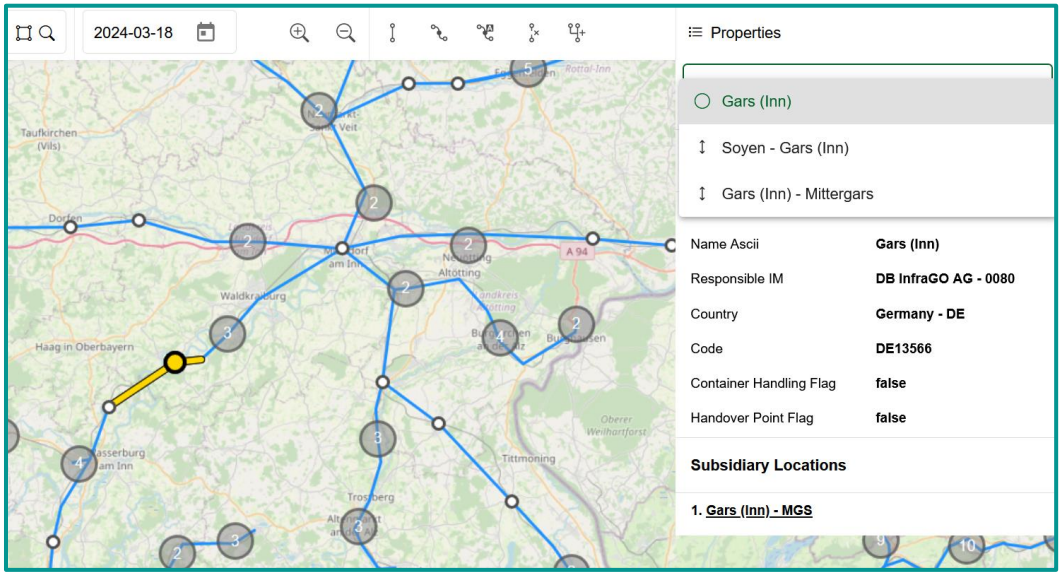
The edit Icon leads directly to the detail data dialogue of the segment.

Another example is the selection of a location in the map:



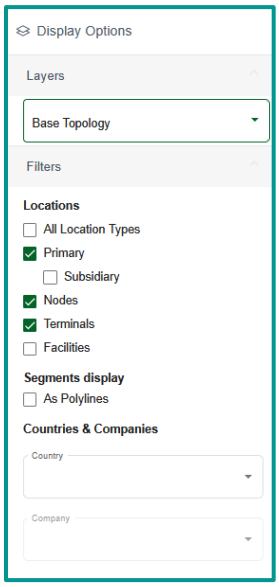
The data of the primary location, however, must be performed in CRD-part due to regulatory restrictions.

Above the shown properties the user can select between entities adjacent to that selected.



6.1.2 Display options

The user can select the network that should be presented on the map. Base Topology shows the network of segments connected to each other and locations (managed by selection in “display on the map”). The base topology is the underlying network for all layers and therefore the same for all layers.



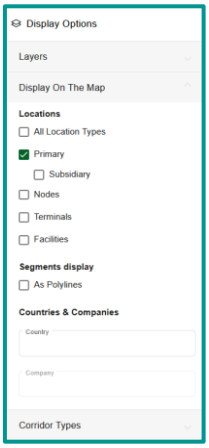
Furthermore, the user can select a specific layer, whereby the view on the map then changes and refers exclusively to the layer.

New: Layer *RFC new alignment* →This layer comprises the European Transport Corridors

In the second group *Filters*, the presentation on the map can be specified: For example, the display of subsidiary locations can be switched on and off, or additional service facilities can be displayed.

Furthermore, the display of the base topology as polylines can be selected here. This means that the rail connections are displayed along the actual course of the rail and not as straight connecting lines.

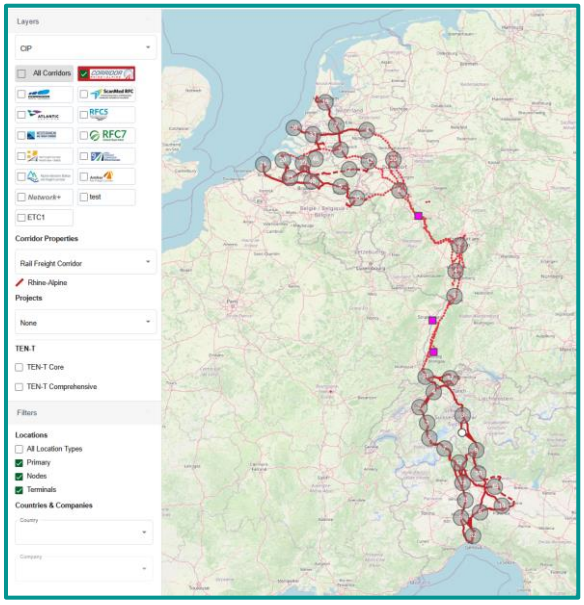
Finally, the Country and Company fields can be used to restrict the display to certain countries or entities that are assigned to the selected company (responsible IM).



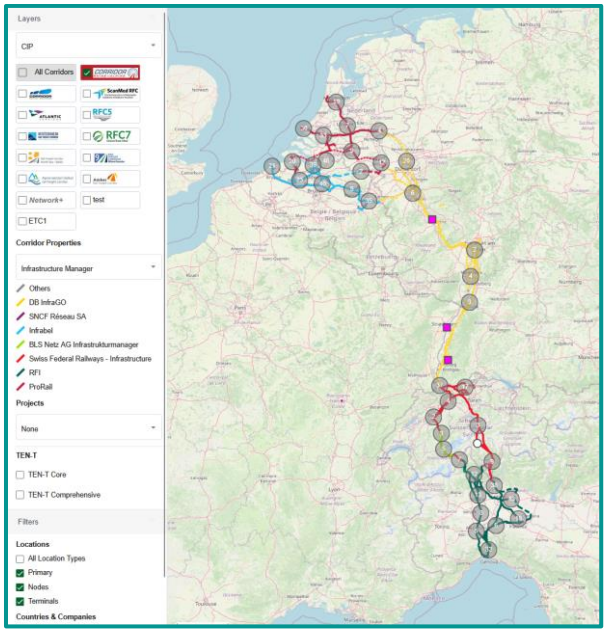
The third part relates to the presentation of *Corridor Properties* (in case of layer *CIP* or *RFC new alignment*) or Facility types (in case of layer *RFP*).

In case of corridor layers *CIP* or *RFP new alignment*:

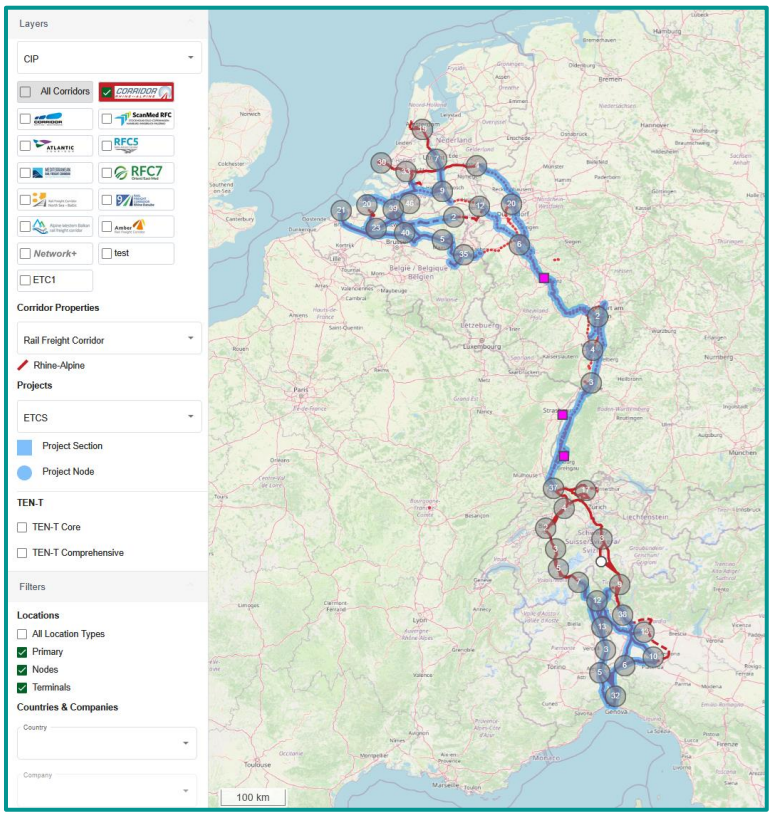
By default, each corridor has a different color along the entire course of the corridor:



However, this corridor can also be displayed in different colors depending on the IM responsible. This can be achieved by selecting respective *Corridor Properties* (in this case corridor coloured for difrerent responsible infrastructure managers):

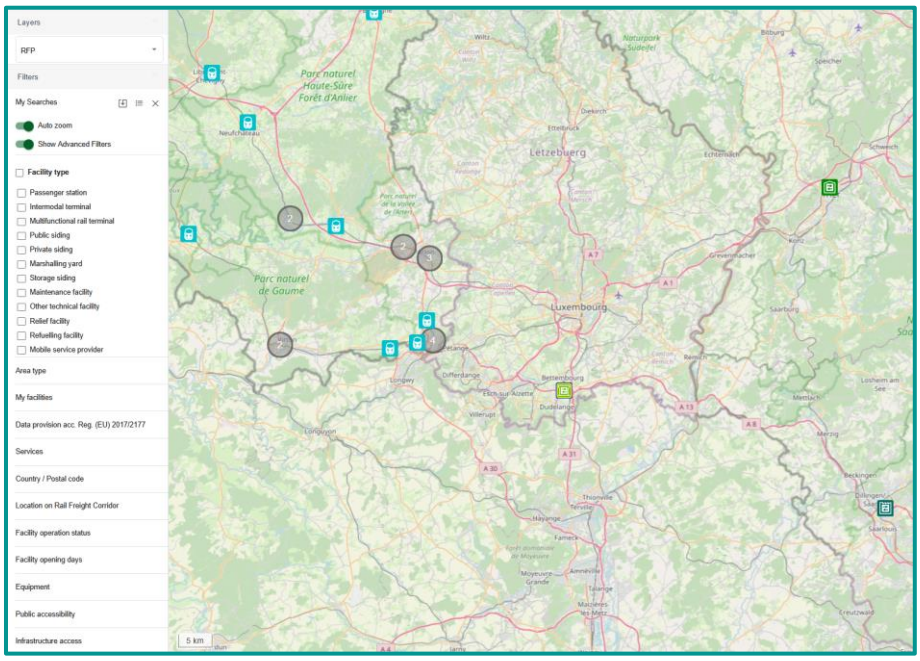


Or here the same corridor but with additional representation of ETCS projects along the corridor route



In case of facility layer:

If the user selects the RFP layer, he can select various preset settings and filters for the service facilities, similar to corridors. In particular, specific types of service facilities can be displayed to give the user a better overview.



Advanced filters allow the user to make further restrictions specifically for their purposes

6.1.3 Search in Map

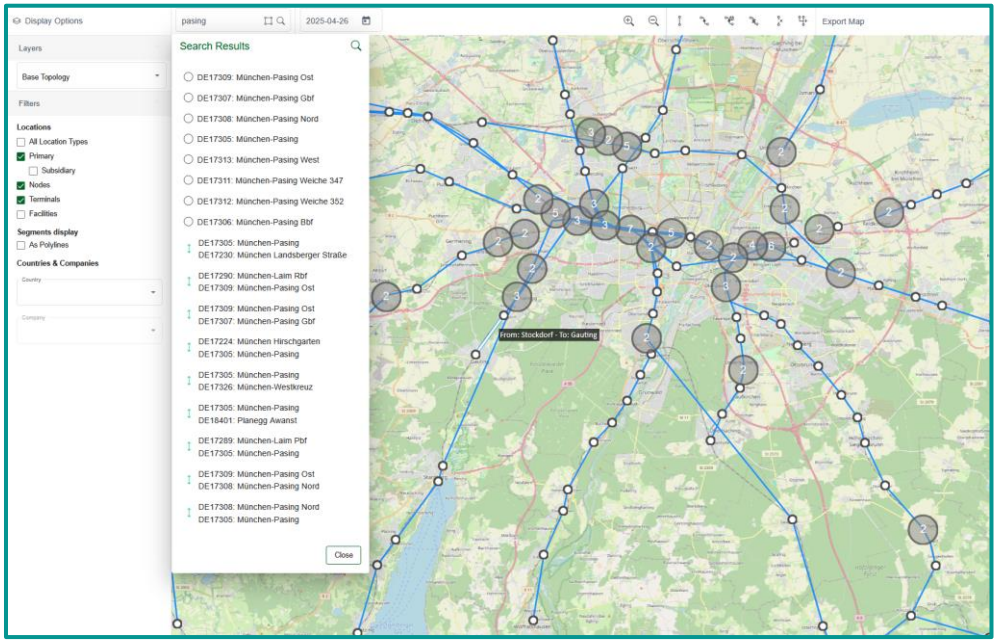
The search field next to the display options can be used to search for entities in the map display. The lens performs a search in the entire data set of entities, thus, independent on current shown map partition.

The rectangle, however, performs a search on entities displayed currently in the map.

Matching parts of names are searched for, and the result is displayed.

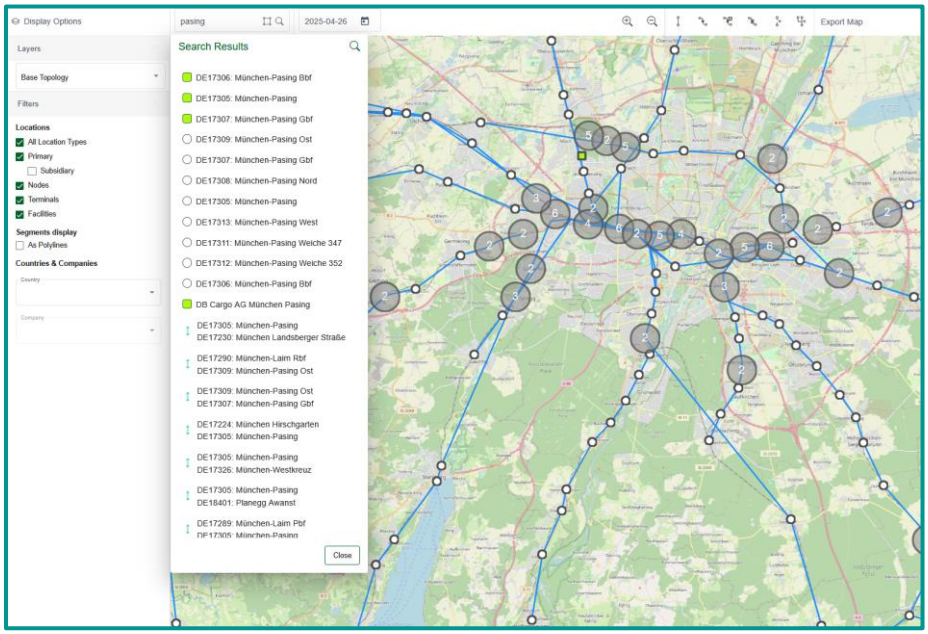
The result depends on which display option has been selected.

If the base topology was selected, all matches that were also selected to display on the map are searched for. E.g. for segments and e.g. terminals, if terminals were selected as the display option.

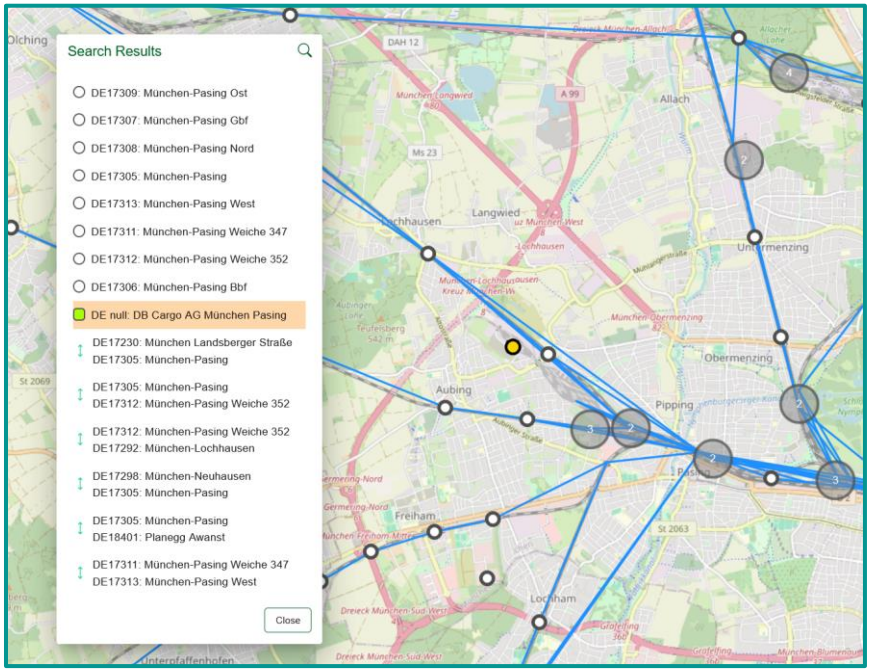


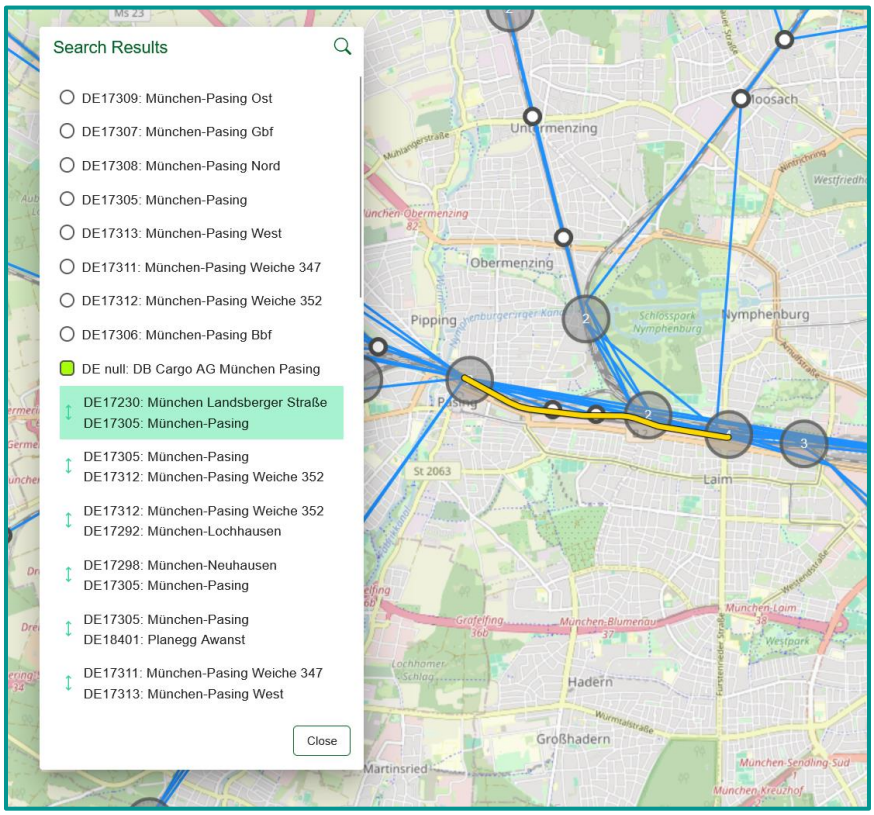
The first group in the search result are the found primary locations, the second group are the found segments.

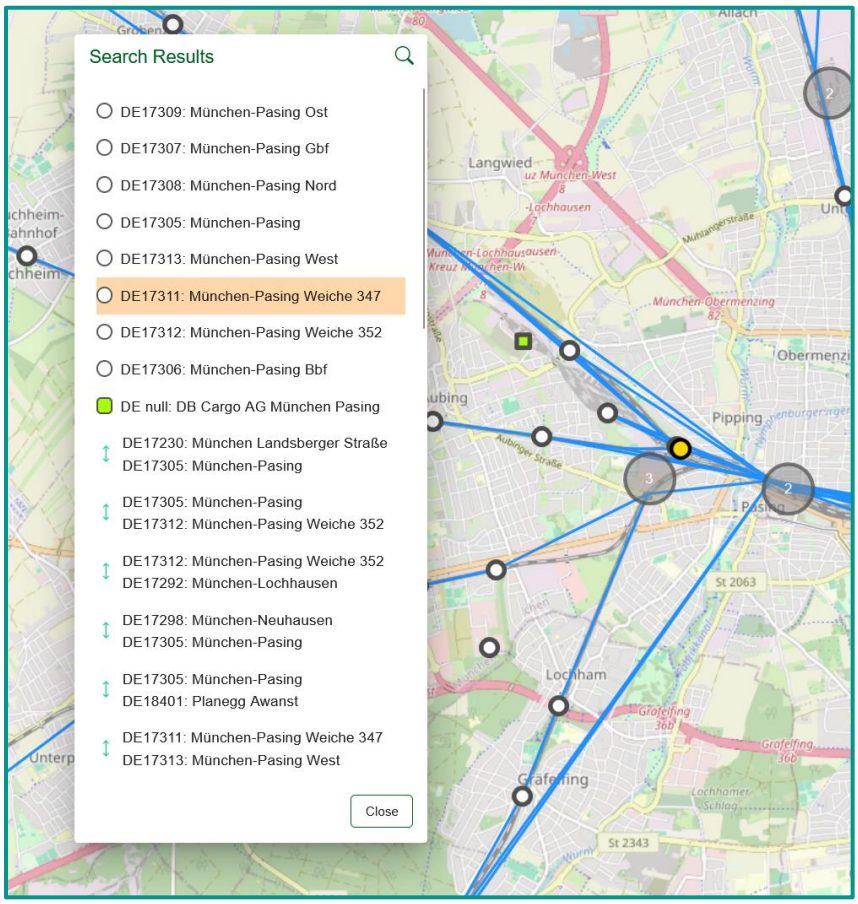
The same search, with selected option to show also facilities which are marked light green in the search results:



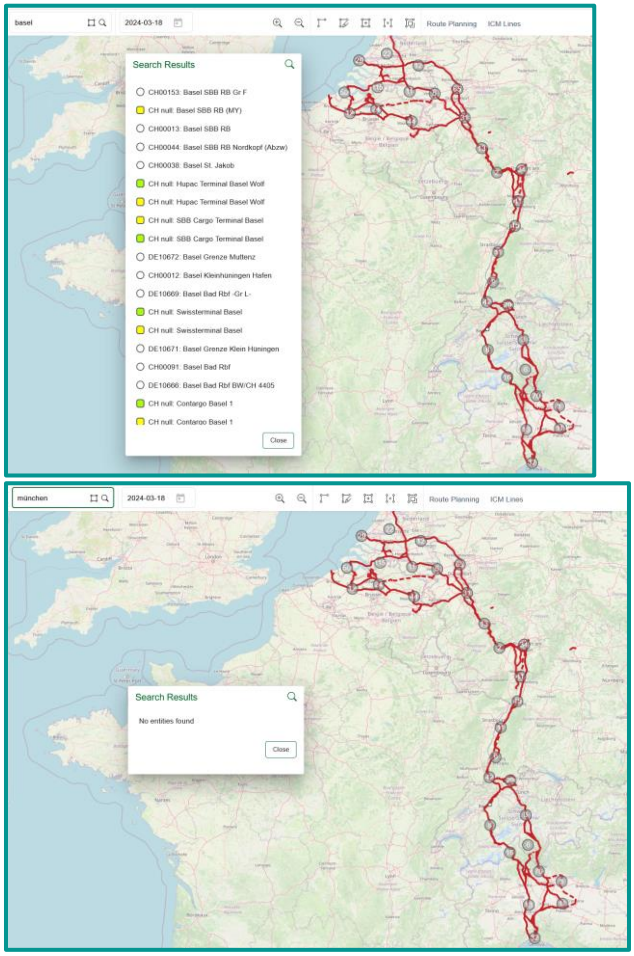
Selecting an entity in the result list, automatically zoom and center to that entity and shows it highlighted:


Search Results
DE17309: München-Pasing Ost
DE17307: München-Pasing Gbf
DE17308: München-Pasing Nord
DE17305: München-Pasing
DE17313: München-Pasing West
DE17311: München-Pasing Weiche 347
DE17312: München-Pasing Weiche 352
DE17306: München-Pasing Bbf
DE null: DB Cargo AG München Pasing
DE17230: München Landsberger Straße
DE17305: München-Pasing
DE17305: München-Pasing
DE17312: München-Pasing Weiche 352
DE17312: München-Pasing Weiche 352
DE17292: München-Lochhausen
DE17298: München-Neuhausen
DE17305: München-Pasing
DE17305: München-Pasing
DE18401: Planegg Awanst
DE17311: München-Pasing Weiche 347
DE17313: München-Pasing West
Close
Allach
Langwied
Untermenzing
Obermenzing
Aubing
Pipping
Freiham
Lochham
St 2063


Search Results
DE17309: München-Pasing Ost
DE17307: München-Pasing Gbf
DE17308: München-Pasing Nord
DE17305: München-Pasing
DE17313: München-Pasing West
DE17311: München-Pasing Weiche 347
DE17312: München-Pasing Weiche 352
DE17306: München-Pasing Bbf
DE null: DB Cargo AG München Pasing
DE17230: München Landsberger Straße
DE17305: München-Pasing
DE17305: München-Pasing
DE17312: München-Pasing Weiche 352
DE17312: München-Pasing Weiche 352
DE17292: München-Lochhausen
DE17298: München-Neuhausen
DE17305: München-Pasing
DE17305: München-Pasing
DE18401: Planegg Awanst
DE17311: München-Pasing Weiche 347
DE17313: München-Pasing West
Close
Untermenzing
Obermenzing
Pipping
Nymphenburg
Laim
St 2063
Hadern
Großhadern
Martinsried



If a layer, e.g. a corridor, has been selected, only the corresponding entities along the corridor are searched for (exception: if service facilities are also selected to be shown, also corresponding facilities are searched independent on the selected corridor).



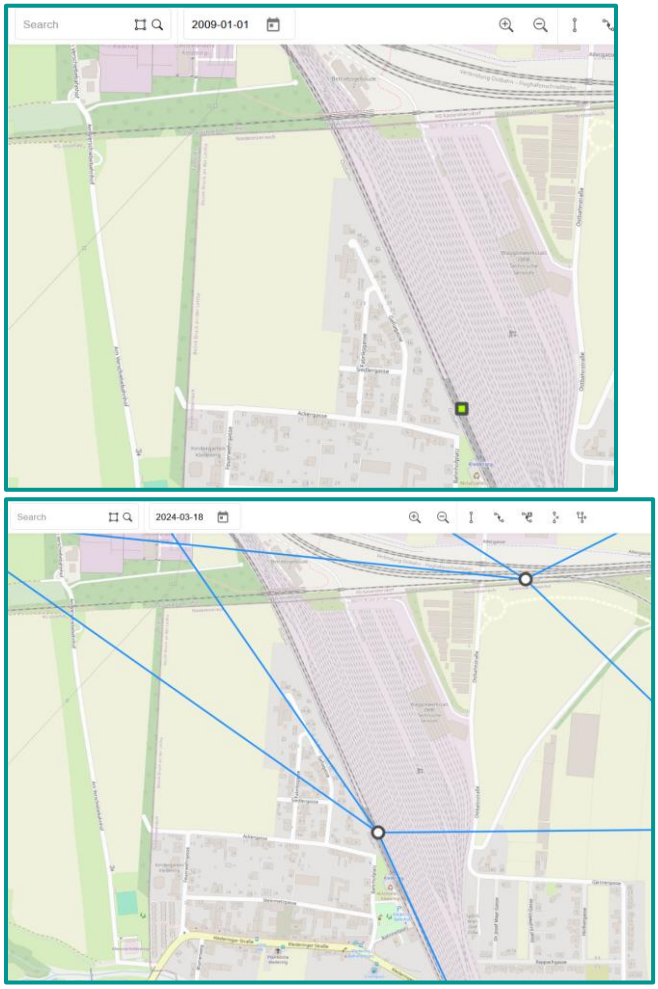
6.1.4 Date

The date field is set default to today and defines the date for which the network shall be shown on the map. As described in the document “Topological Model and Data Model RIS – Validity Periods” all entities have a validity period in which the current data of the entity are valid. Outside a given validity period the entity might exist with different set of data or even does not exist. E.g. today a station might not exist but maybe by 1st January 2025. Thus, this entity is not found if the date is set to 2024, but it is found if the date is set to a date in 2025.

By means of this field the user can do a time travel through the topology in the past and also in the future.

Example: the primary location “Kledering” is existing in the system as valid from 1.1.2013. Before, this location is not existing in the system.

Left, date is set to 1st Jan 2009. Only Kledering as service facility is available in the system, but not as primary location. Later, today, Kledering is already created as primary location and connected to other primary locations with segments.



6.1.5 Map Tools

6.1.5.1 Tools for base topology

The user can manipulate segments by means of this tool. These are

Create segment: a user can select the tool and 2 locations he wants to have connected with a segment. The segment will be created. The validity period of that segment will start with the date of creation and has no end date.

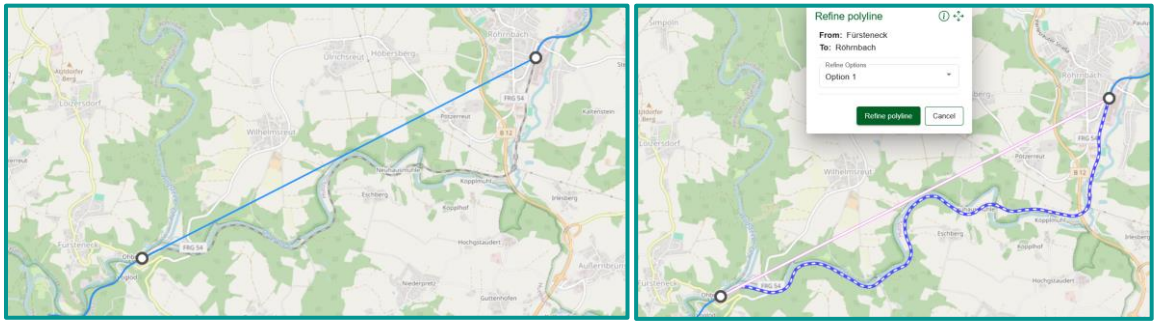
Split segment: a user can split a segment. The segment to be split must be selected and a location. The end validity date of the existing segment will be set to yesterday and 2 new segments starting with today will be created including the selected location.

Combine segments: a user can combine two existing segments into a single new one. The 2 end validity date of the 2 selected (adjacent) segments will be set to yesterday and a single new segment starting with today will be created between start point of first and end point of second segment

Adjust polyline: a user can select a segment, the waypoints that build the polylines are shown. These waypoints can be moved, or additional waypoints can be added. This tool supports the user to create accurate polylines that shows the real course of the tracks.

Refine polyline: a user can select a segment and a polyline will be automatically calculated based on real railway map data. In most cases this returns very good results and is much faster than doing it manually. It is possible, however, that the underlying provided data are not returning useful results. In this case the polyline should be created manually as described above.

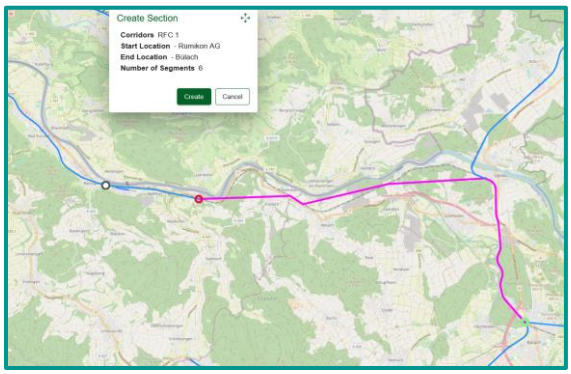
Example: Segment without polyline and after creating polyline by means of refine function:



6.1.5.2 Tools for layers

The user can manipulate sections by means of this tool. The changes of sections are done within a selected layer and do not have impacts on other layers. The functions are:

Create Section: if a user selects this tool the map switches to the display of segments. The user can select adjacent segments that the user wants to group into a new section:



The red circle represents the starting point of the section and the green circle the current end point. The section can be extended by adding a further section next to the green circle.

The validity period of the segment is defined as the latest start date of all segments in the section and earliest end date of the segment in the section.

Edit Section: a user can select a section and add or deselect a group of adjacent segments of the section. By means of this tool a section can be shortened or extended to either side.

Combine Section: a user can select 2 adjacent sections and can perform this function. The end date of the 2 sections will be set to yesterday and one new section combining the 2 selected sections will be created with current start date.

Split Section: a user can select a section, define a location the section comprises and split the section into 2 new ones. The original section's end date is set to yesterday and the start date of the 2 new created sections is set to current date.

Copy Section into different layer: a user can select a section and chose a layer to which the section shall be copied. A identical section is then created in the selected layer.

Attention:

It is only allowed to create a section, combine section or edit a section if the following properties of the segments that shall be grouped in the section are the same:

- Segment Type
- Line Category
- Traction Power
- Signalling Class B

- Intermodal Freight Code
- Gauging
- Track Gauge
- Maximum Train length
- Maximum speed
- Usage
- Country
- Responsible IM

6.1.6 Properties

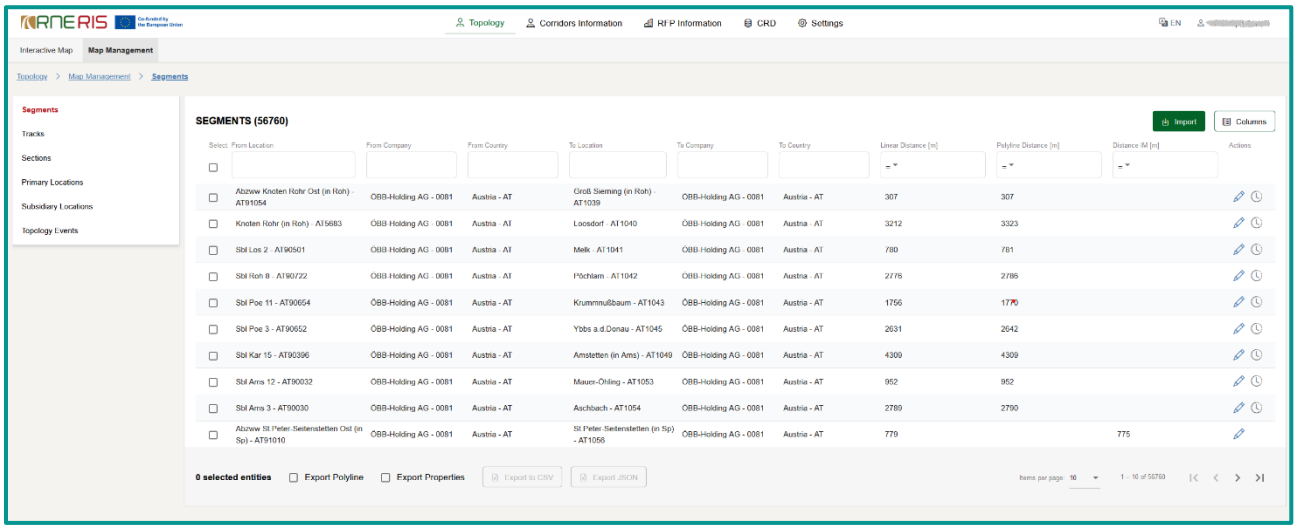
This panel is already described in General map functionalities.

6.2 Map Management

6.2.1 Segments

6.2.1.1 Overview of segments

This overview shows the segments that are managed in the RIS application. The overview also contains the segments that are generated via map tools.



Filter / Sorting / Paging

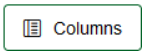
Filter can be set directly below column headers. In text or composite fields, the application searches for all records that contains case-insensitive the typed-in characters. Other types may contain controls in the left part where logical operators can be set (e.g. all dates that are greater than a selected date).

Sorting can be done by means of clicking on the header (lexicographical sorting up or down)

Paging size can be changed in the lower right corner.

Actions

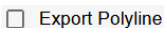
Segments may be imported via Json or csv file. The structure is defined in the same way as the export file formats



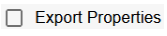
a column selector is opened by means of which the shown columns can be changed.

selected segments can be exported to a csv-file

selected segments can be exported to a json-file



polylines of segments are additionally exported to respective file format



custom properties of segments are additionally exported to respective file format


Edit: Opens the detail dialogue by means of which data can be edited


Set inactive: An active segment can be set inactive by means of setting the end-date of the segment to yesterday. Triggering this function opens a dialogue, where the user gets an end date proposed (default=yesterday). The user is allowed to change the end date and set it individually. The possibility to set an end date, however, is dependent on the topology managed in the application. To keep data consistencies, it might be necessary to first set end dates on other objects first. In such cases the application shows a meaningful message to the user and what to do.

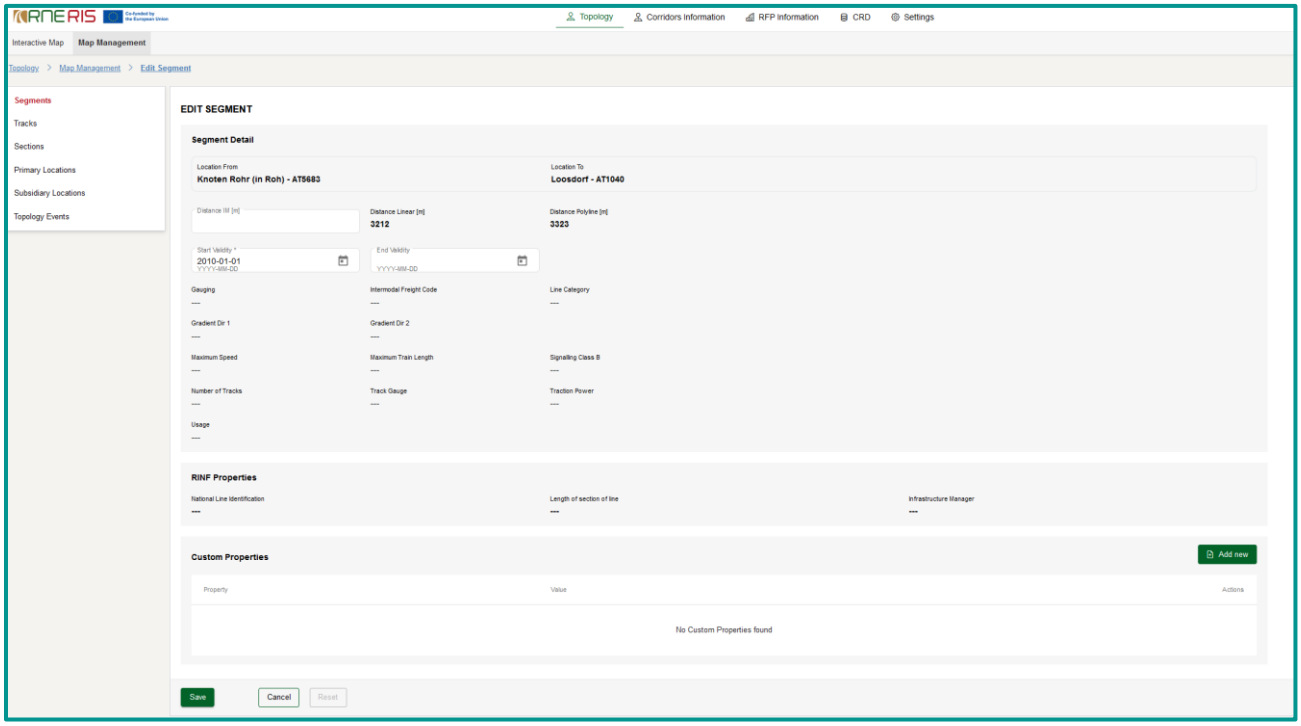
6.2.1.2 Segment details

You can open the detailed data of the segment via the edit icon in the overview.

Depending on the privilege, the user can change the detailed data of the segment.

The properties of a segment are aggregated data of track properties of the segment that are assigned to this segment, and, thus, cannot be changed.

If properties of a segment shall be changed the change must be performed on track level.



The RINF properties are imported properties from RINF database, that were not previously managed in the legacy applications of RIS.

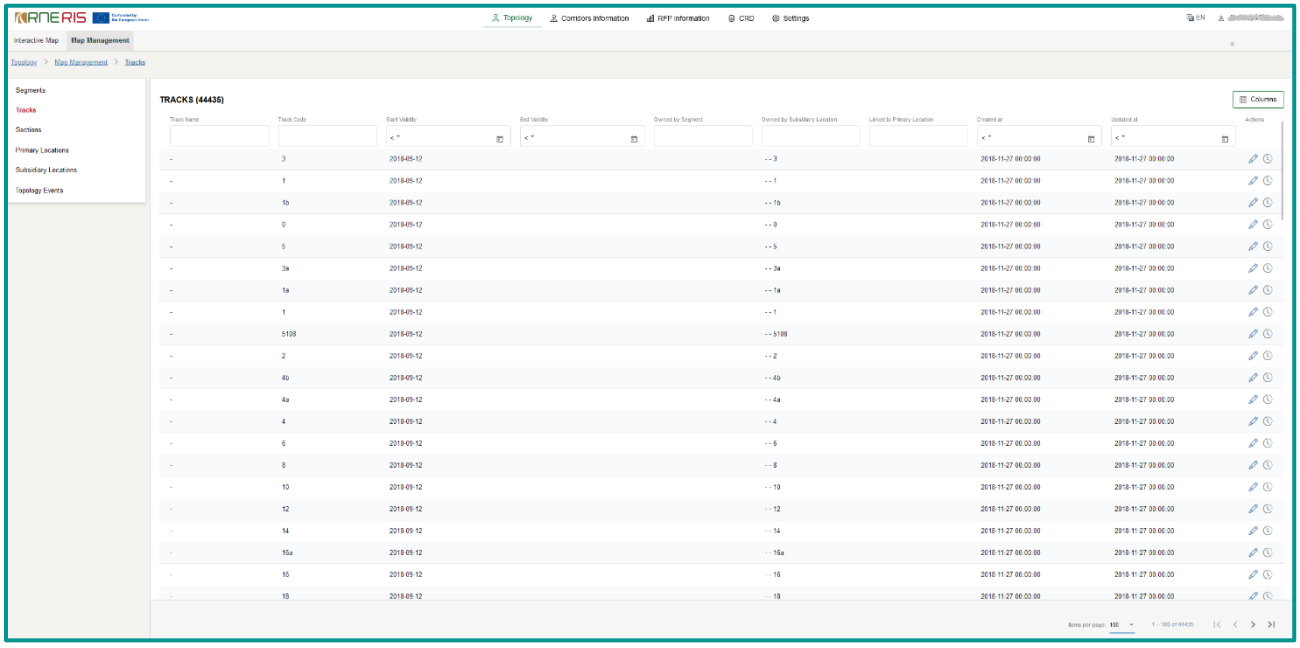
The logic of how properties of the tracks are aggregated at segment level is described in the document RINF - CIP Parameters Alignment v2.

In this dialogue a user can edit custom properties. This is performed by adding a property and giving the property a value.

6.2.2 Tracks

6.2.2.1 Overview of tracks

All tracks that are managed in RIS are displayed in the overview. Both tracks that are assigned to a segment and tracks that are assigned to a Subsidiary Location and therefore Primary Location are displayed.



Filter / Sorting / Paging

Filter can be set directly below column headers. In text or composite fields, the application searches for all records that contains case-insensitive the typed-in characters. Other types may contain controls in the left part where logical operators can be set (e.g. all dates that are greater than a selected date).

Sorting can be done by means of clicking on the header (lexicographical sorting up or down)

Paging size can be changed in the lower right corner.

Actions

Columns a column selector is opened by means of which the shown columns can be changed.

Edit: Opens the detail dialogue by means of which data can be edited

Set inactive: An active track can be set inactive by means of setting the end-date of the track to yesterday. Triggering this function opens a dialogue, where the user gets an end date proposed (default=yesterday). The user is allowed to change the end date and set it individually.

6.2.2.2 Track details

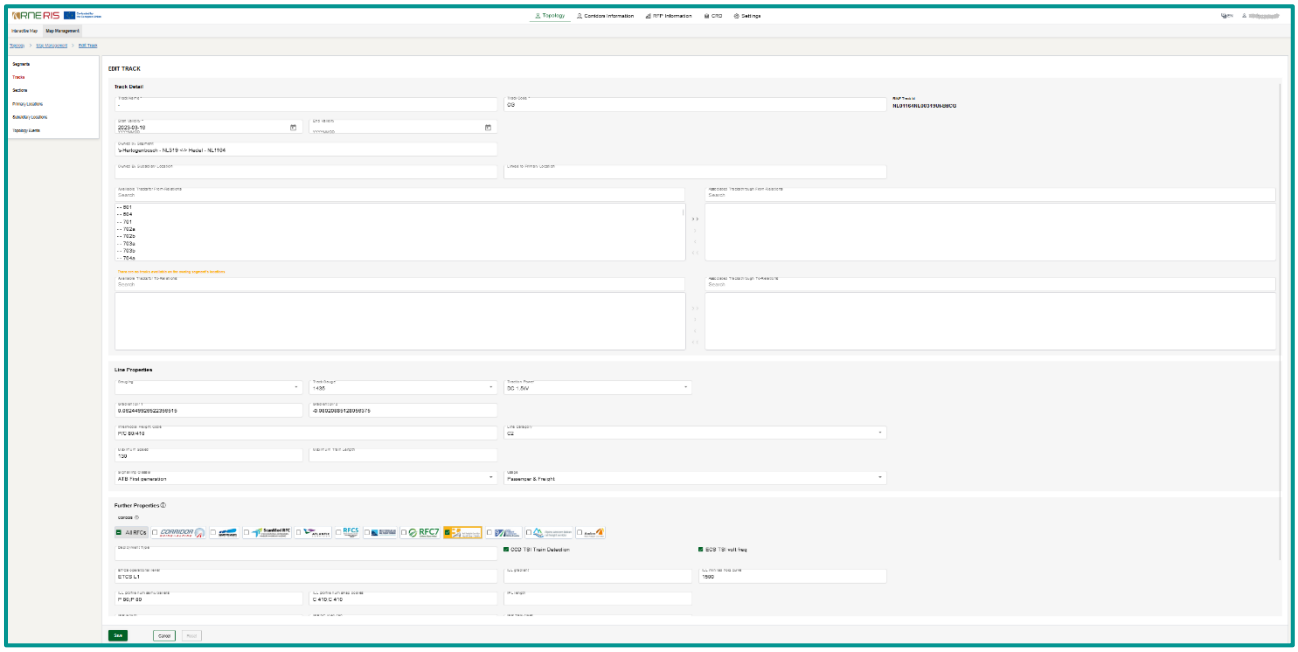
You can open the detailed data of a track via the edit icon in the overview.

Depending on the privilege, the user can change the detailed data of the track. Data like RINF Track ID refers to corresponding RINF data and indicates that this track or data of this track were transferred from RINF to RIS.

In the middle section, the user can link the track to tracks of the from-location to tracks of the to-location.

The same principle applies to tracks from Primary Locations. Here, the user can assign the track to tracks from adjacent segments in the same way.

This creates the topological network at track level.

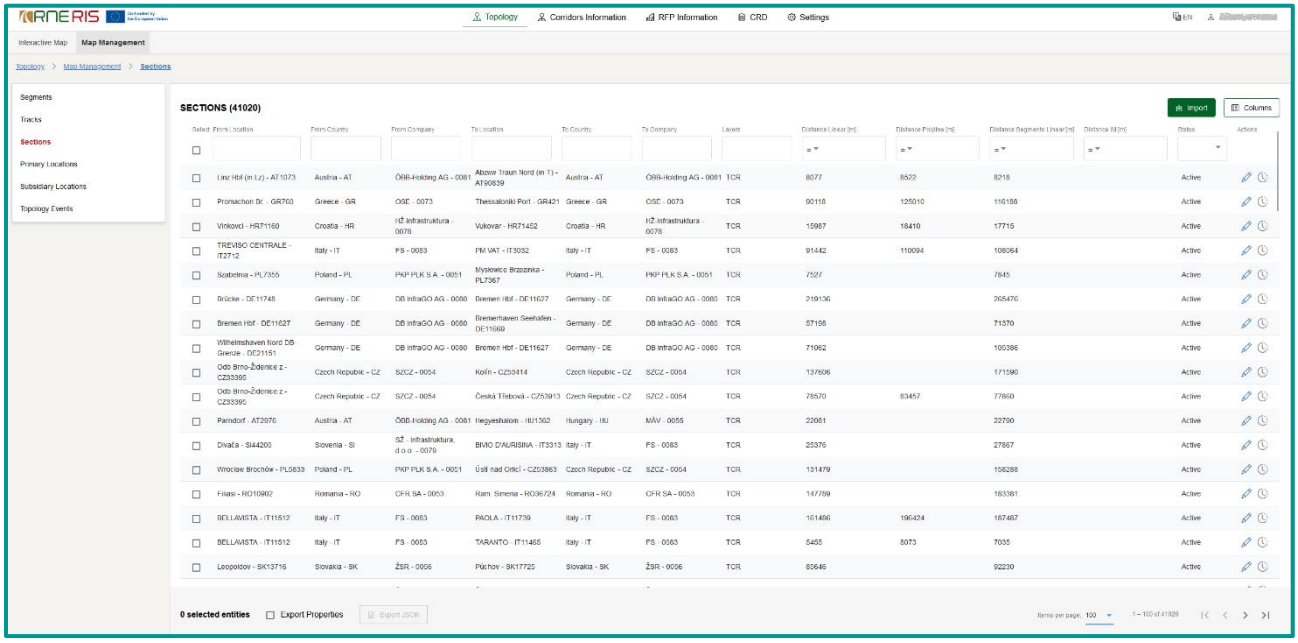


6.2.3 Sections

6.2.3.1 Overview of Sections

All sections that are managed in RIS are displayed in the overview.

This means that sections that actually have the same segments grouped together can occur several times. The only difference is that they belong to different layers. The filtering for a specific layer can be done in the overview.



Filter / Sorting / Paging

Filter can be set directly below column headers. In text or composite fields, the application searches for all records that contains case-insensitive the typed-in characters. Other types may contain controls in the left part where logical operators can be set (e.g. all dates that are greater than a selected date).

Sorting can be done by means of clicking on the header (lexicographical sorting up or down)

Paging size can be changed in the lower right corner.

Actions

Import Sections may be imported via JSon file. The structure is defined in the same way as the export file format

Columns a column selector is opened by means of which the shown columns can be changed.

Export JSON selected segments can be exported to a json-file

Export Properties custom properties of sections are additionally exported to respective file format

Edit: Opens the detail dialogue by means of which data can be edited

Set inactive: An active section can be set inactive by means of setting the end-date of the section to yesterday. Triggering this function opens a dialogue, where the user gets an end date

proposed (default=yesterday). The user is allowed to change the end date and set it individually. The possibility to set an end date, however, is dependent on the topology managed in the application. To keep data consistencies, it might be necessary to first set end dates on other objects first. In such cases the application shows a meaningful message to the user and what to do.

New Column: "Has Discrepancies"

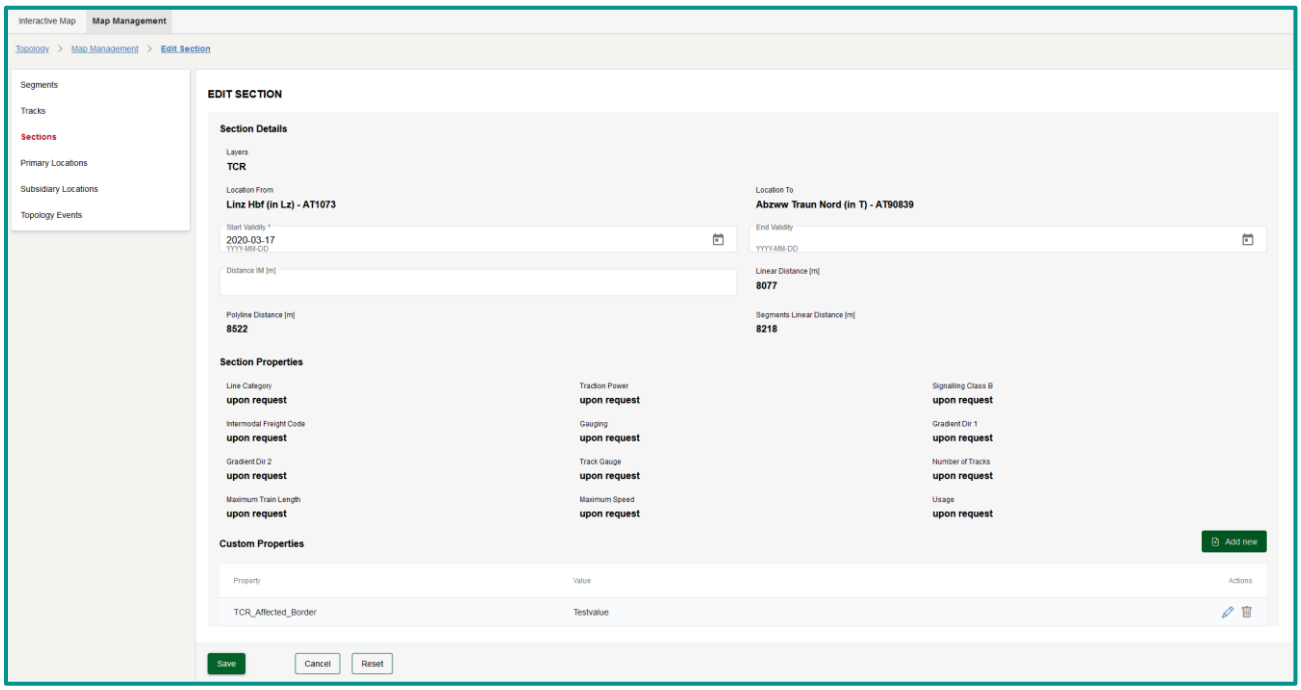
Via Column Selector, a Boolean column indicates whether a section's validity period is misaligned with that of its assigned segments.

- If true, a discrepancy exists and is recorded in the internal section discrepancies table.
- This column supports sorting and filtering, allowing users to easily identify problematic sections.

6.2.3.2 Section details

You can open the detailed data of a track via the edit icon in the overview.

Depending on the privilege, the user can change the detailed data of the track. The section properties that ultimately originate from the aggregation of the track properties cannot be changed. These must be edited at track level.



In this dialogue a user can edit custom properties. This is performed by adding a property and giving the property a value.

Segment List and Discrepancy Highlighting

A new grid at the bottom has been added to the detail page, listing all segments associated with the section.

- Segments that do not align with the section's validity period are highlighted visually
- Each row links to the corresponding segment's detail view.
- The highlight allows users to quickly assess which segments are causing the inconsistency.

A new button is available: **"Align Validity Period"**

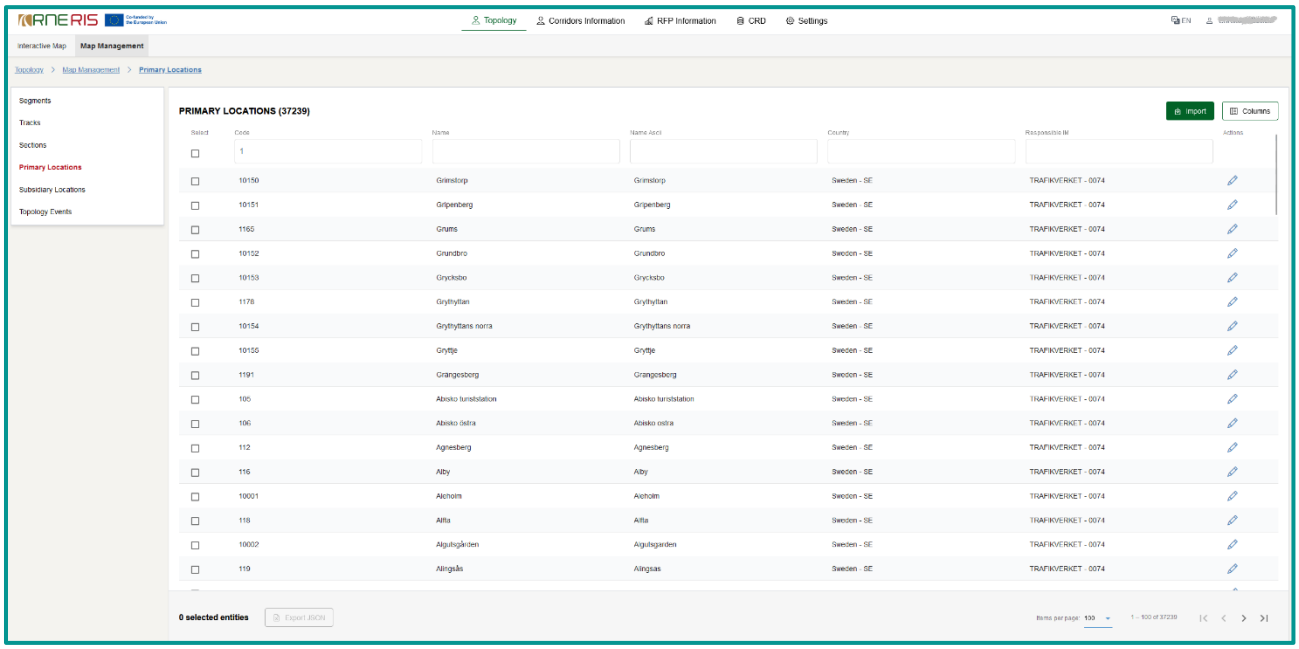
- This button triggers a system operation that aligns the section's start and end validity with the **maximum start** and **minimum end** dates among the associated segments.
- After alignment, the discrepancy flag is cleared.

6.2.4 Primary locations

6.2.4.1 Overview of Primary locations

Like the CRD area of the application, the primary locations are shown here in an overview.

Basically this part is used for the management of customer properties of primary locations.



Filter / Sorting / Paging

Filter can be set directly below column headers. In text or composite fields, the application searches for all records that contains case-insensitive the typed-in characters. Other types may

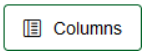
contain controls in the left part where logical operators can be set (e.g. all dates that are greater than a selected date).

Sorting can be done by means of clicking on the header (lexicographical sorting up or down)

Paging size can be changed in the lower right corner.

Actions

Primary locations' custom properties can be imported to the system.



a column selector is opened by means of which the shown columns can be changed.

Column: "Isolated"

- This Boolean column indicates whether the location is not used by any active segment.
- A location is marked true (Isolated) if it:
    - Is not part of any segment at the current validity date, or
    - Is only connected to inactive segments (past validity)
- The value is precomputed during specific system operations (e.g. segment import, release of new versions, validity changes).

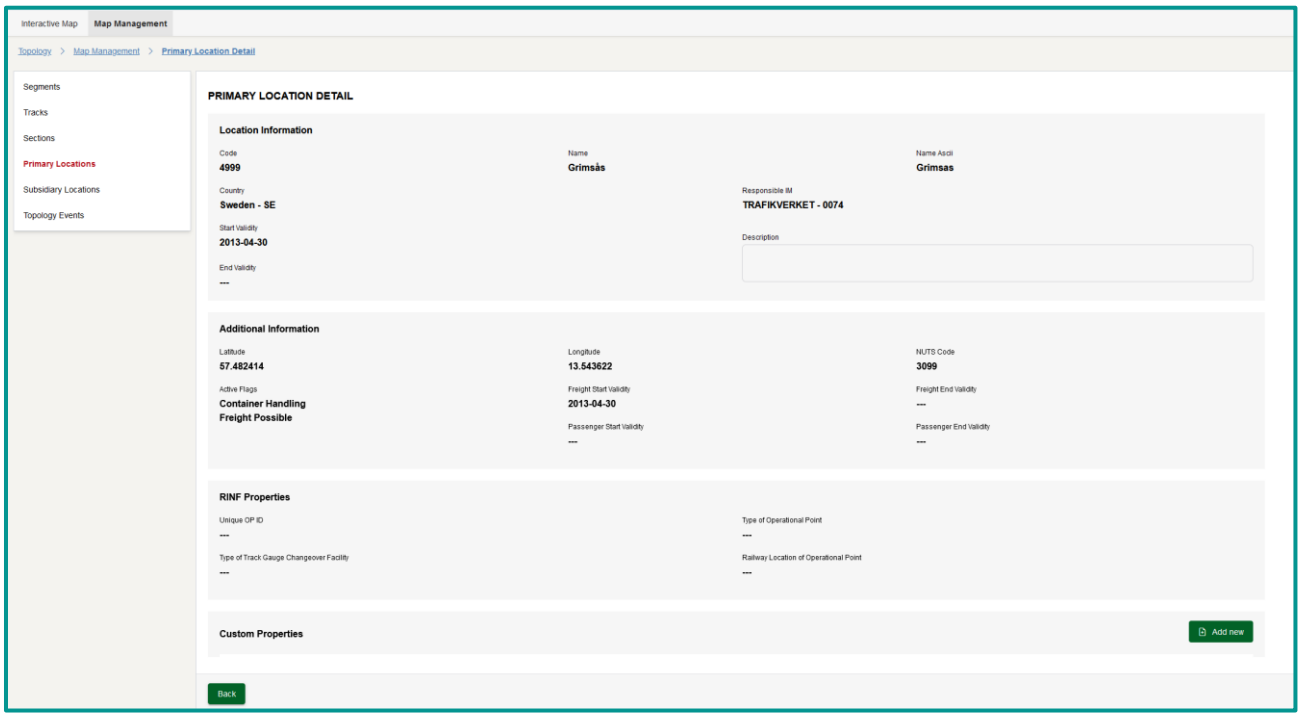
selected locations can be exported to a json-file


Edit: Opens the detail dialogue by means of which data can be edited

6.2.4.2 Primary location details

The user can open the detailed data of a primary location via the edit icon in the overview.

Here the user can add or edit custom properties for primary locations



Other data cannot be changed as this is restricted functionality of CRD part of the application.

Isolated Status:

- The field "Isolated" appears in the detail view under the "Basic Properties" group.
- It is read-only and reflects the precomputed isolation status.
- This allows topology editors to immediately recognize disconnected nodes.

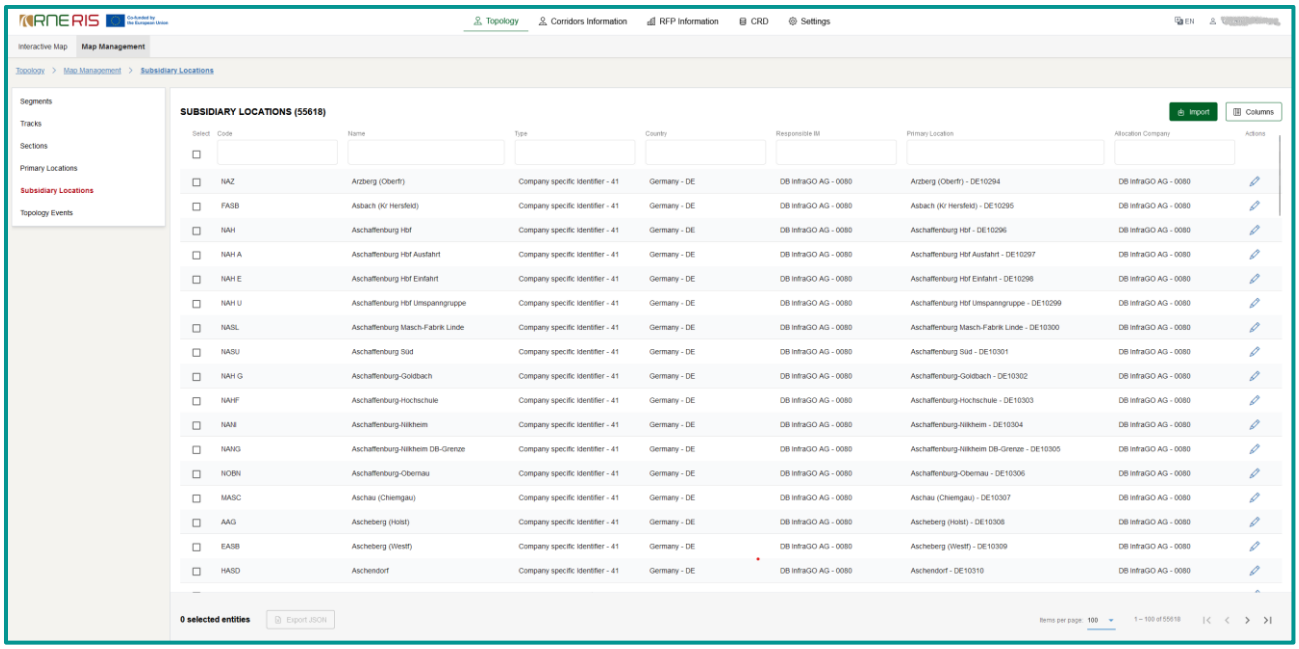
Automatic Update of Isolated Status:

- The system automatically recalculates the isolation status of a primary location after the following events:
    - Import of new segment data (CSV, JSON, railML)
    - Release of a new version in RIS topology
    - Manual creation or validity modification of segments
- Isolation is determined using current system date (no historical/future validity selection possible in the grid)

6.2.5 Subsidiary locations

6.2.5.1 Overview of subsidiary locations

Like the CRD area of the application, the subsidiary locations are shown here in an overview



Filter / Sorting / Paging

Filter can be set directly below column headers. In text or composite fields, the application searches for all records that contains case-insensitive the typed-in characters. Other types may contain controls in the left part where logical operators can be set (e.g. all dates that are greater than a selected date).

Sorting can be done by means of clicking on the header (lexicographical sorting up or down)

Paging size can be changed in the lower right corner.

Actions

Import Subsidiary locations' custom properties can be imported to the system.

Columns a column selector is opened by means of which the shown columns can be changed.

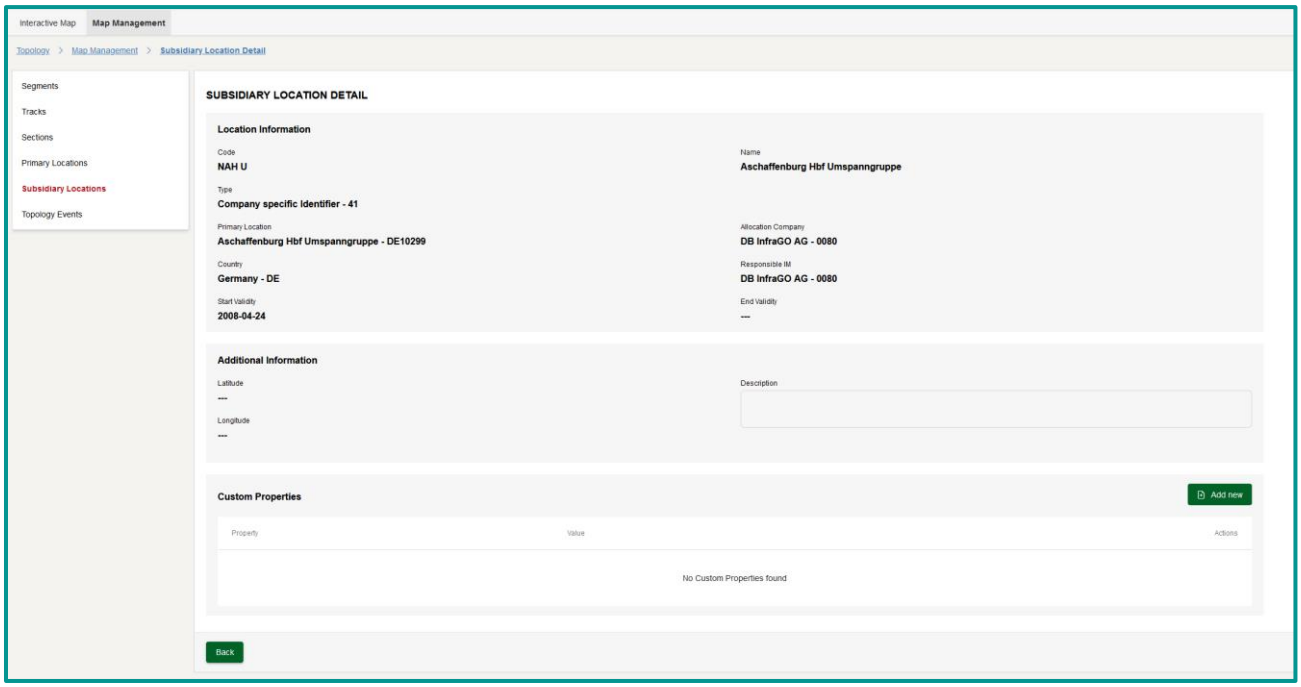
Export JSON selected locations can be exported to a json-file

Edit: Opens the detail dialogue by means of which data can be edited

6.2.5.2 Subsidiary location details

The user can open the detailed data of a track via the edit icon in the overview.

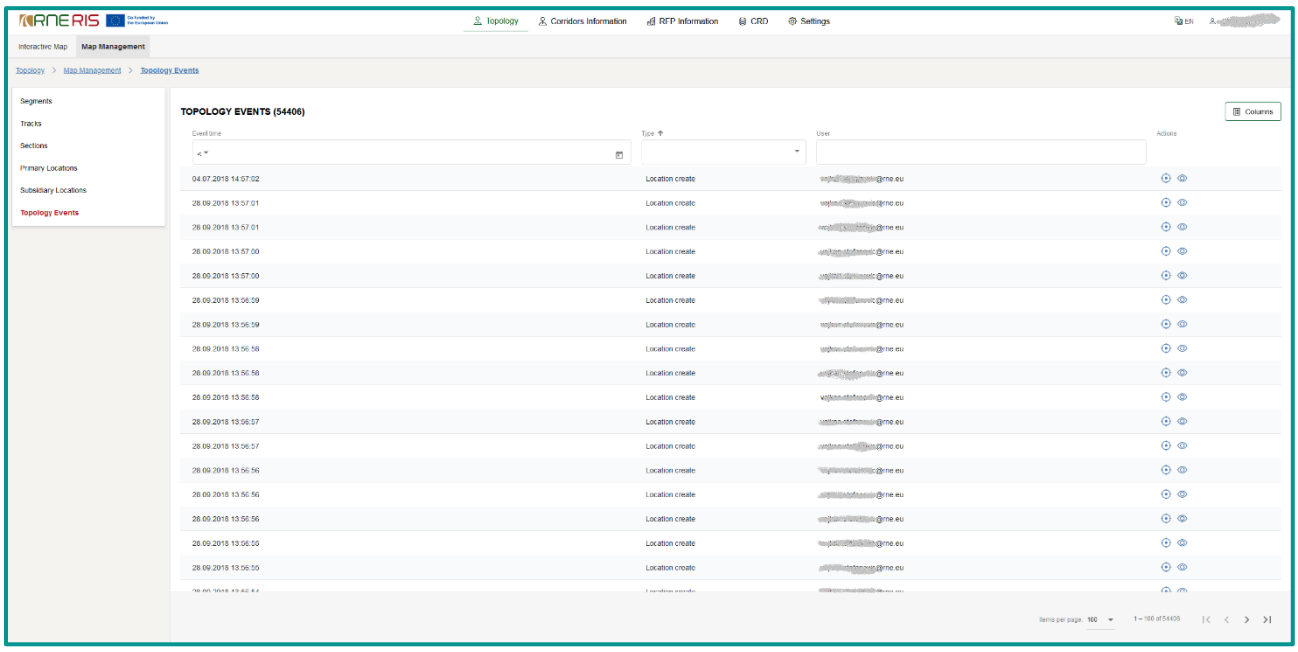
Here the user can add or edit custom properties for subsidiary locations



Other data cannot be changed as this is restricted functionality of CRD part of the application.

6.2.6 Topology events

This overview shows the chronological sequence of changes to the topological network.



The following events are tracked:

- Location create, modify, delete
- Section create, modify, delete, split, combine
- Segment create, modify, delete, split, combine
- Track create, modify

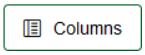
Filter / Sorting / Paging

Filter can be set directly below column headers. In text or composite fields, the application searches for all records that contains case-insensitive the typed-in characters. Other types may contain controls in the left part where logical operators can be set (e.g. all dates that are greater than a selected date).

Sorting can be done by means of clicking on the header (lexicographical sorting up or down)

Paging size can be changed in the lower right corner.

Actions



a column selector is opened by means of which the shown columns can be changed

6.3 RailML Interface

RailML interface allows infrastructure data to be exported or imported as a RailML v2.5 XML file.

This is a manually initiated process and must be performed by IT support if required.

Details about the data structures and also implemented logics of the import are described in the document DocumentationRISInterfaceRailML

6.4 RINF Interface

RINF data can be imported via the RINF Interface of RIS. For this purpose, an import can be carried out country by country. First, the RINF data is obtained from the ERA-RINF database via a Rest API and stored as raw data in RIS.

In a second step, this data is migrated to the RIS topology. Which data are used and which mapping logic is applied is described in the document RINF - CIP Parameters Alignment v2.

The import is a manually initiated process and must be performed by IT support if required.