



# ibaAnalyzer-Maps

Displaying GPS positions and routes

Manual  
Issue 1.0

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The current version is available for download on our web site [www.iba-ag.com](http://www.iba-ag.com).

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# 1 About this manual

This documentation describes the function and application of the software *ibaAnalyzer-Maps*.

## 1.1 Target group

This documentation addresses in particular the qualified professionals who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded as a professional if he/she is capable of assessing the work assigned to him/her and recognizing possible risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

This documentation addresses in particular professionals who are in charge of analyzing measured data and process data. Because the data is supplied by other iba products the following knowledge is required or at least helpful when working with ibaAnalyzer:

- Windows operating system
- ibaPDA-V6 (creation and structure of the measuring data files)
- ibaAnalyzer (basic knowledge)

## 1.2 Notations

In this manual, the following notations are used:

Action	Notation
Menu command	Menu <i>Logic diagram</i>
Calling the menu command	<i>Step 1 – Step 2 – Step 3 – Step x</i> Example: Select the menu <i>Logic diagram - Add - New function block</i> .
Keys	<Key name> Example: <Alt>; <F1>
Press the keys simultaneously	<Key name> + <Key name> Example: <Alt> + <Ctrl>
Buttons	<Key name> Example: <OK>; <Cancel>
File names, paths	"Filename", "Path" Example: "Test.doc"

## 1.3 Used symbols

If safety instructions or other notes are used in this manual, they mean:

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### Danger!



The non-observance of this safety information may result in an imminent risk of death or severe injury:

- Observe the specified measures.
- 

### Warning!



The non-observance of this safety information may result in a potential risk of death or severe injury!

- Observe the specified measures.
- 

### Caution!



The non-observance of this safety information may result in a potential risk of injury or material damage!

- Observe the specified measures
- 

### Note



A note specifies special requirements or actions to be observed.

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### Tip



Tip or example as a helpful note or insider tip to make the work a little bit easier.

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### Other documentation



Reference to additional documentation or further reading.

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## 2 Introduction

### 2.1 What is ibaAnalyzer-Maps?

*ibaAnalyzer-Maps* is a purchasable add-on for the software *ibaAnalyzer*, which makes it possible to display geographic positions and movements based on GPS coordinates.

### 2.2 Functions and application

Based on recorded longitude and latitude data, *ibaAnalyzer-Maps* can be used to analyze positions of various assets also in combination with high-resolution measurement data stemming from industrial processes. Moving vehicles and machines can be tracked and the position signals can be used to display the corresponding route on various map types.

Functions include:

- Display configurable routes on different map types
- Analyze geographic positions together with high-resolution measurement data
- Two-way coupling of marker positions
- Integrated playback function
- Use the maps in *ibaAnalyzer-Reportgenerator*

The *ibaAnalyzer-Maps* add-on comes as a freely dockable view in *ibaAnalyzer* which can be easily integrated in existing analyses. For every view, individual map-types, the shown area, as well as route color and line thickness can be configured.

## 2.3 System requirements

The following system requirements apply to use the *ibaAnalyzer-Maps* add-on:

- ibaAnalyzer v7.3.0 or higher
- License ibaAnalyzer-Maps
- Active internet connection

For more prerequisites concerning the used PC hardware and the supported operating systems, please see the *ibaAnalyzer* documentation.

### License information

Order no.	Product name	Description
33.010000	ibaAnalyzer-V7	Offline analysis software for iba data files; free of charge
33.010007	ibaAnalyzer-Maps	Offline analysis: Displaying GPS positions and routes

Table 1: Available licenses

### Installation

The *ibaAnalyzer-Maps* add-on is installed automatically along with the installation of the free software *ibaAnalyzer-V7* and is enabled by purchase of the corresponding license.

## 3 Using ibaAnalyzer-Maps

### 3.1 Requirements

#### 3.1.1 License activation

You need an USB license dongle with the *ibaAnalyzer-Maps* feature enabled.

You can check it by using the app *ibaDongleViewer*.

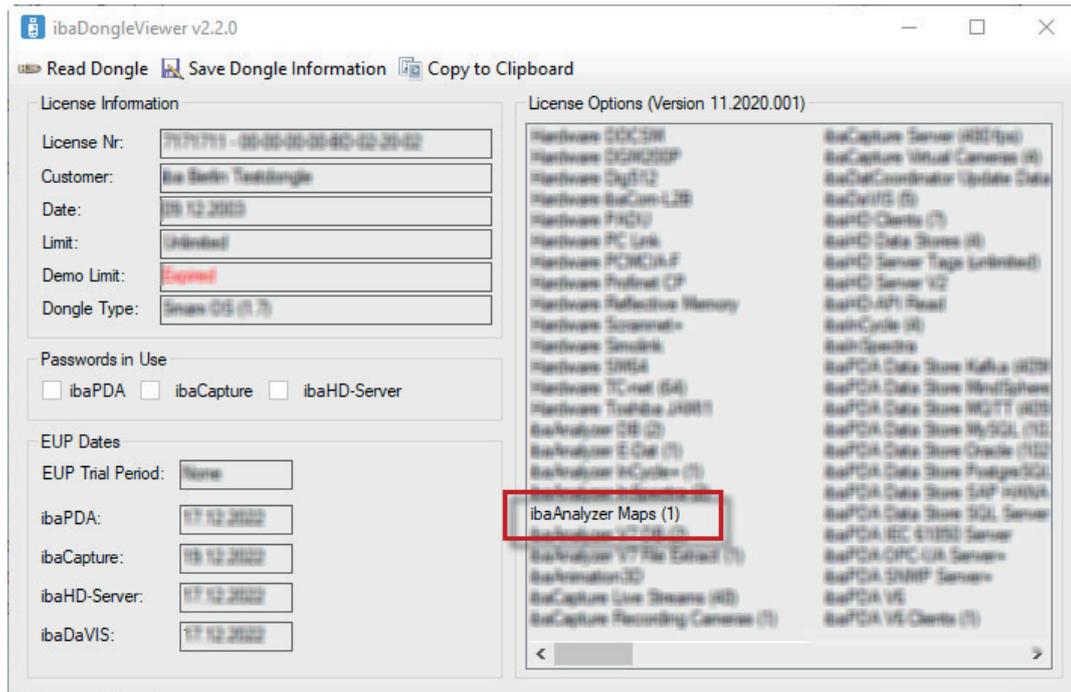


Fig. 1: License indication in ibaDongleViewer

If no valid license for *ibaAnalyzer-Maps* is available, the view can be opened but is non-functional. The view shows the symbol of a missing dongle.

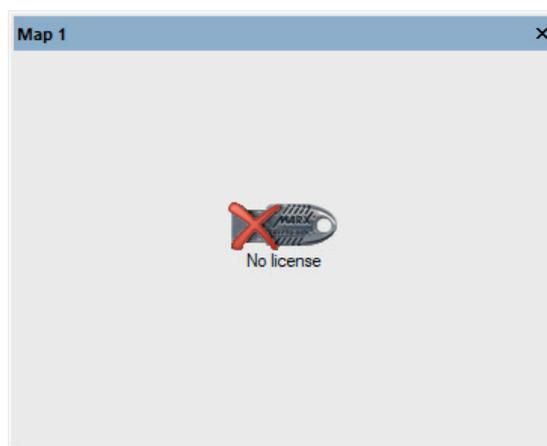


Fig. 2: Indication that either the dongle is not attached or the license is disabled.

**Note**

The license can be provided by the central license service application *ibaLicense-Service-V2*, too.

### 3.1.2 Active internet connection

*ibaAnalyzer-Maps* requires an active internet connection, in order to access the map services. If *ibaAnalyzer* cannot establish an internet connection, a suitable error message is displayed in the view.

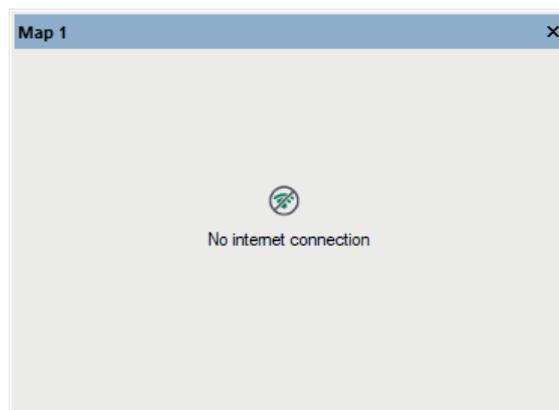


Fig. 3: Missing internet connection.

### 3.1.3 Geographic data

The data file or the HD data store must consist of two signals, representing the longitude and latitude.

The values of the signals have to represent degrees in floating point format, i.e. decimal degrees. Additional minutes and seconds as separate signals are not supported.

If needed, expressions in the *ibaAnalyzer* expression builder can be used to create suitable signals.

## 3.2 The map view

You can open a new map view by using the menu *View - Maps* or by clicking on the corresponding toolbar button.

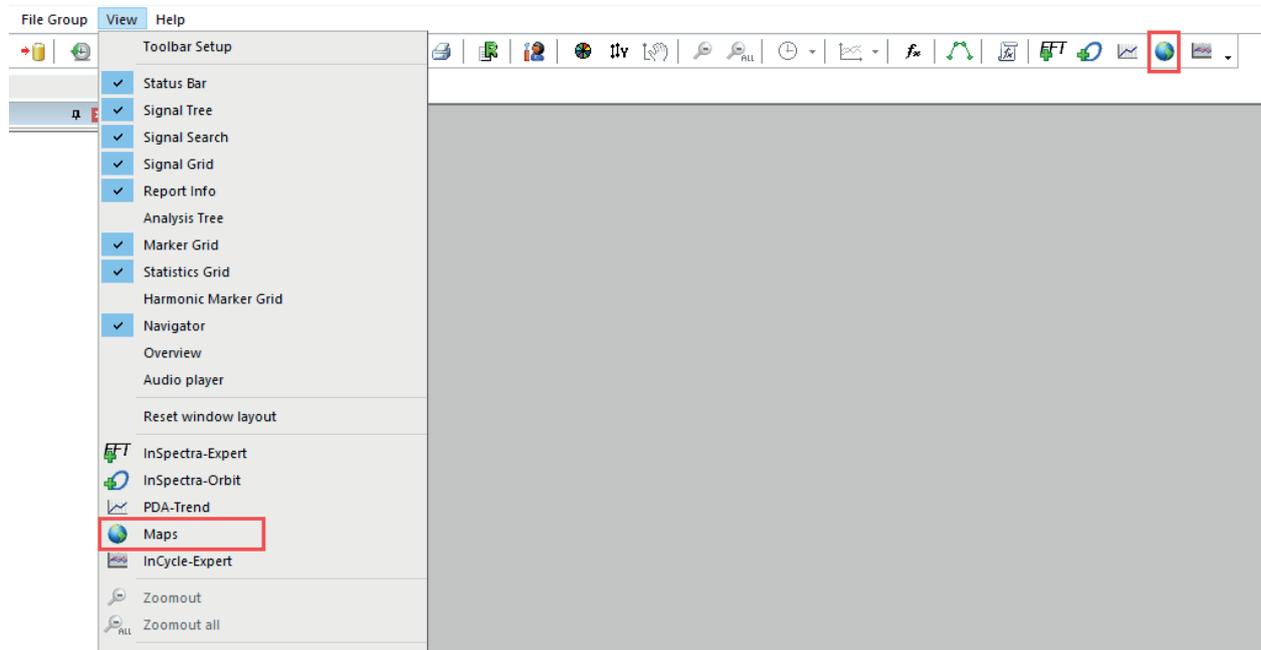


Fig. 4: Open a map view by menu or toolbar

The view can be floating on the screen or docked. If a view has been docked, it can be set to “auto hide”.



Fig. 5: Caption of the docked map view

1. Name of the view
2. Context menu for view options
3. Auto Hide
4. Close view

The map view consist of three main areas:

Configuration area (1)

Playback area (2)

Map area (3)

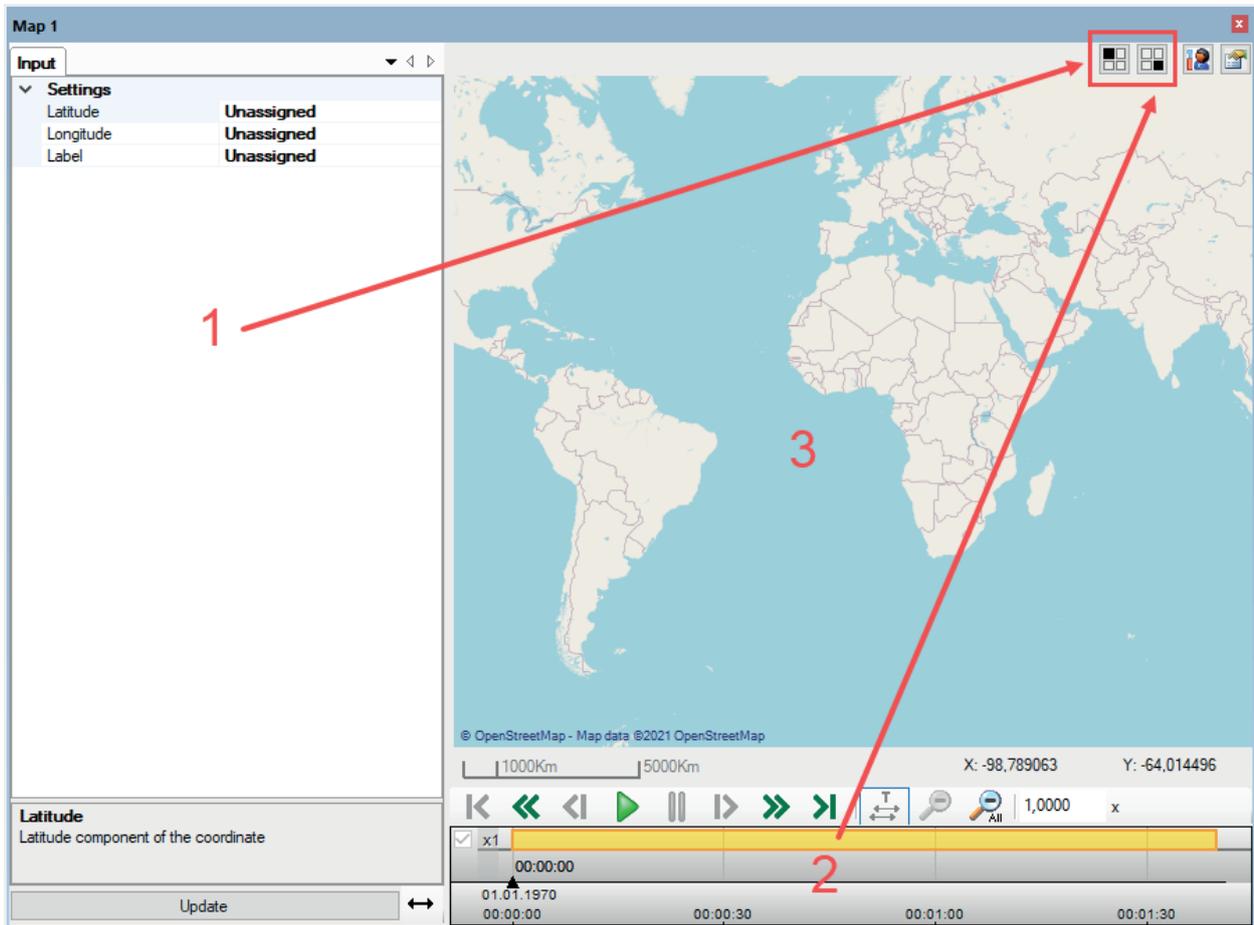


Fig. 6: The map view and its three areas

The following buttons are available in the view:

	Show/hide the configuration area
	Show/hide the playback area
	Open the preferences
	Open the view's properties
	Use ibaAnalyzer trend graph zoom area

Table 2: Buttons in the map view

In the context menu of the top bar you'll find among others the options to rename and duplicate the view. A duplicated view will initially have the same settings as the original.

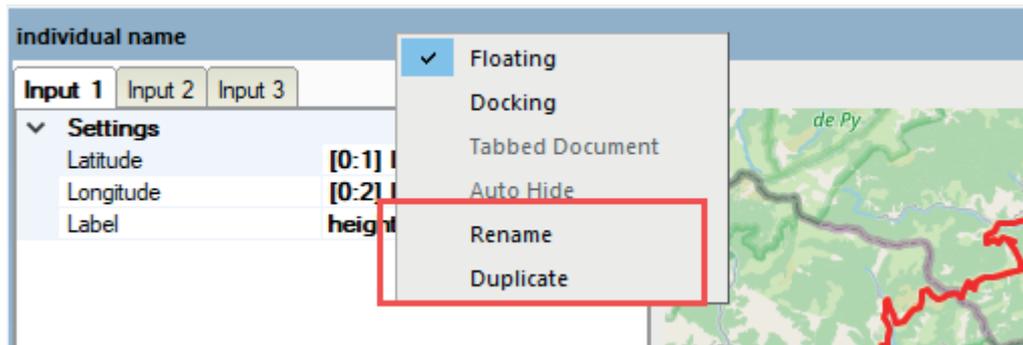


Fig. 7: View's context menu with commands to rename and duplicate

### 3.2.1 The configuration area

The input data for one or more routes can be configured in this area.

For each route to be displayed in the map you have to create a new tab *Input x*.

For each route you need at least one latitude and one longitude signal. Optionally, a text signal can be set up for a label.

The required signals can be entered either by drag & drop out of the signal tree or by selection in the drop-down list of the entry field.

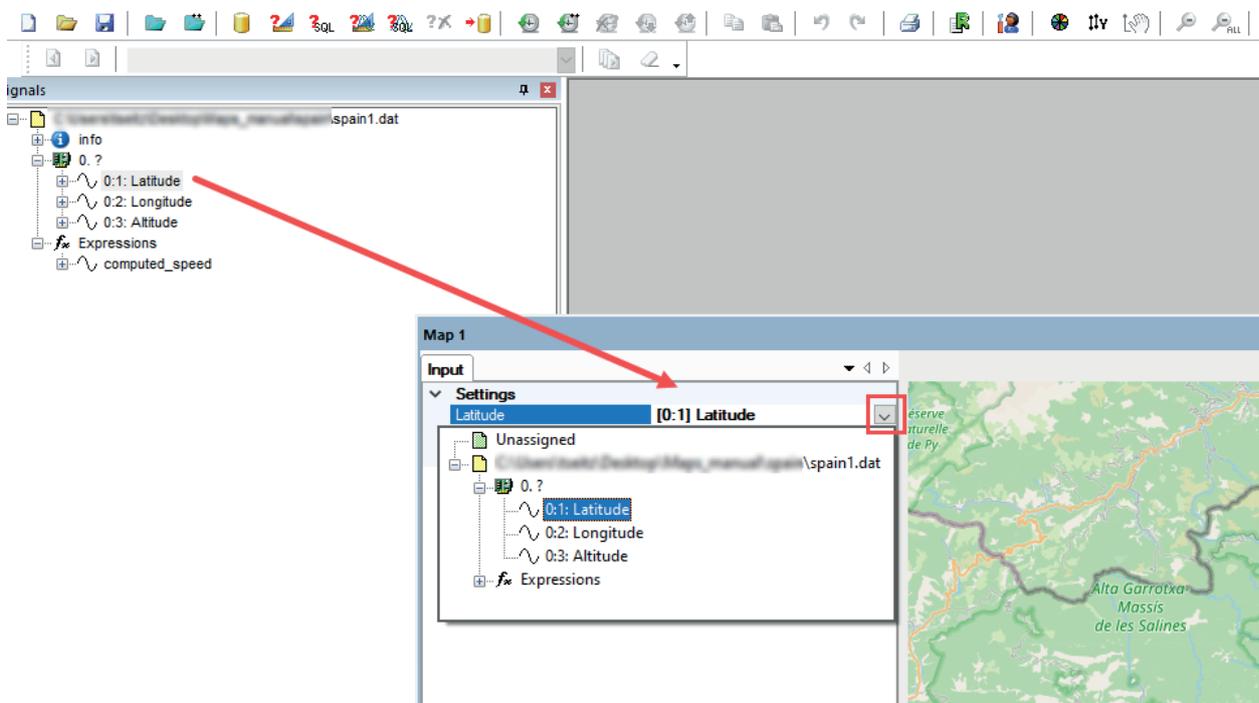


Fig. 8: Selecting the latitude signal in the signal tree

If you use the label, the value of a text signal will be displayed along the route with every change as a small flag.

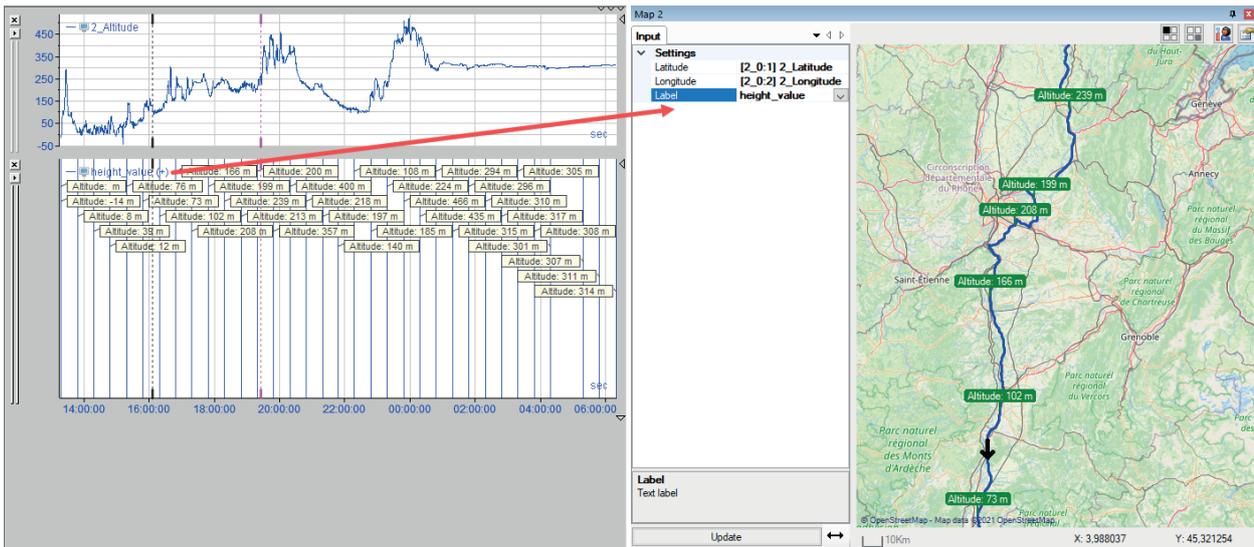


Fig. 9: Each sample of a text signal (left) creates a label along the route (right)

You can add further routes by either duplicating a present route or by using the context menu under the little black triangle in the caption of the configuration area. There, you also can find the command to remove a route (input).

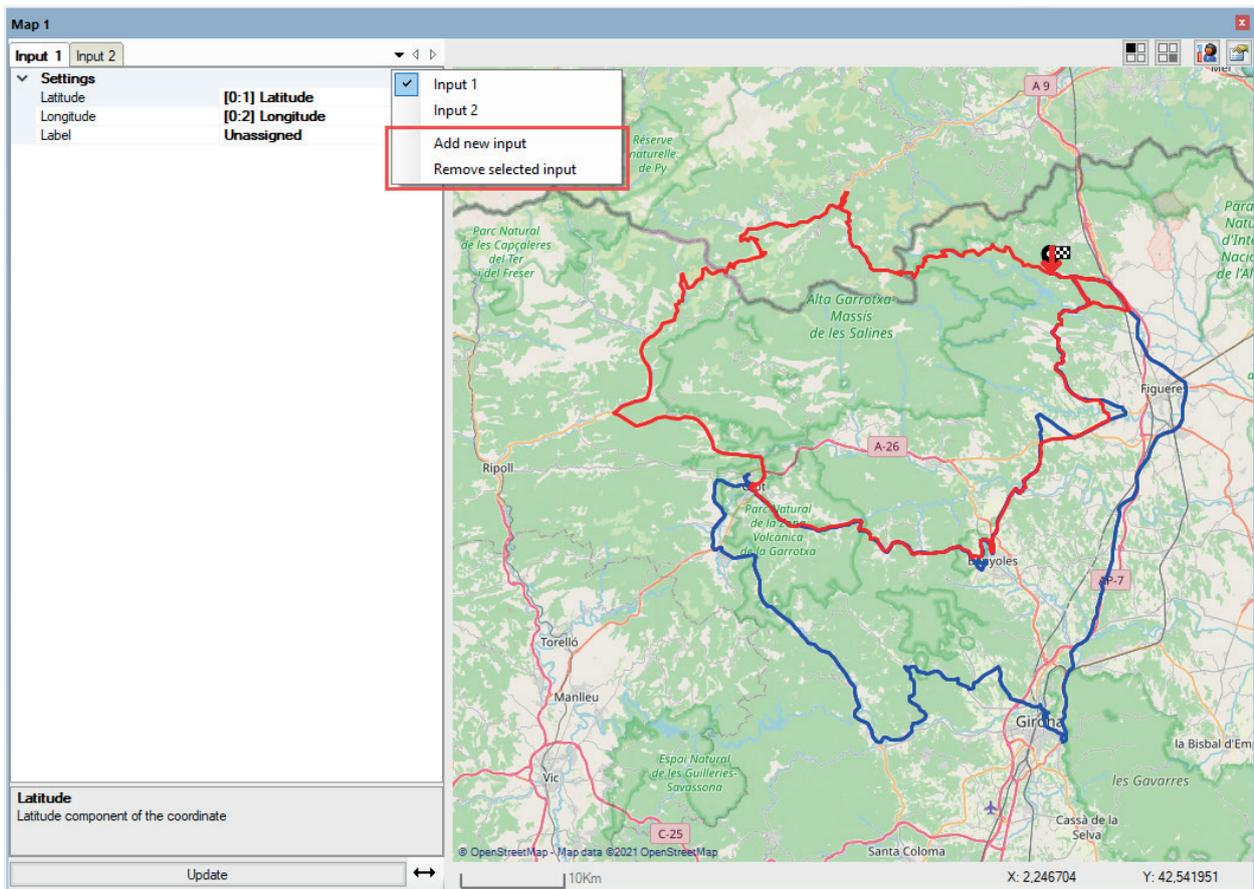


Fig. 10: Add or remove a route in the context menu of the configuration area

Every change made to the configuration area needs to be applied by pressing the <Update> button. The button is highlighted with yellow color to indicate that changes were made which have not yet been applied.

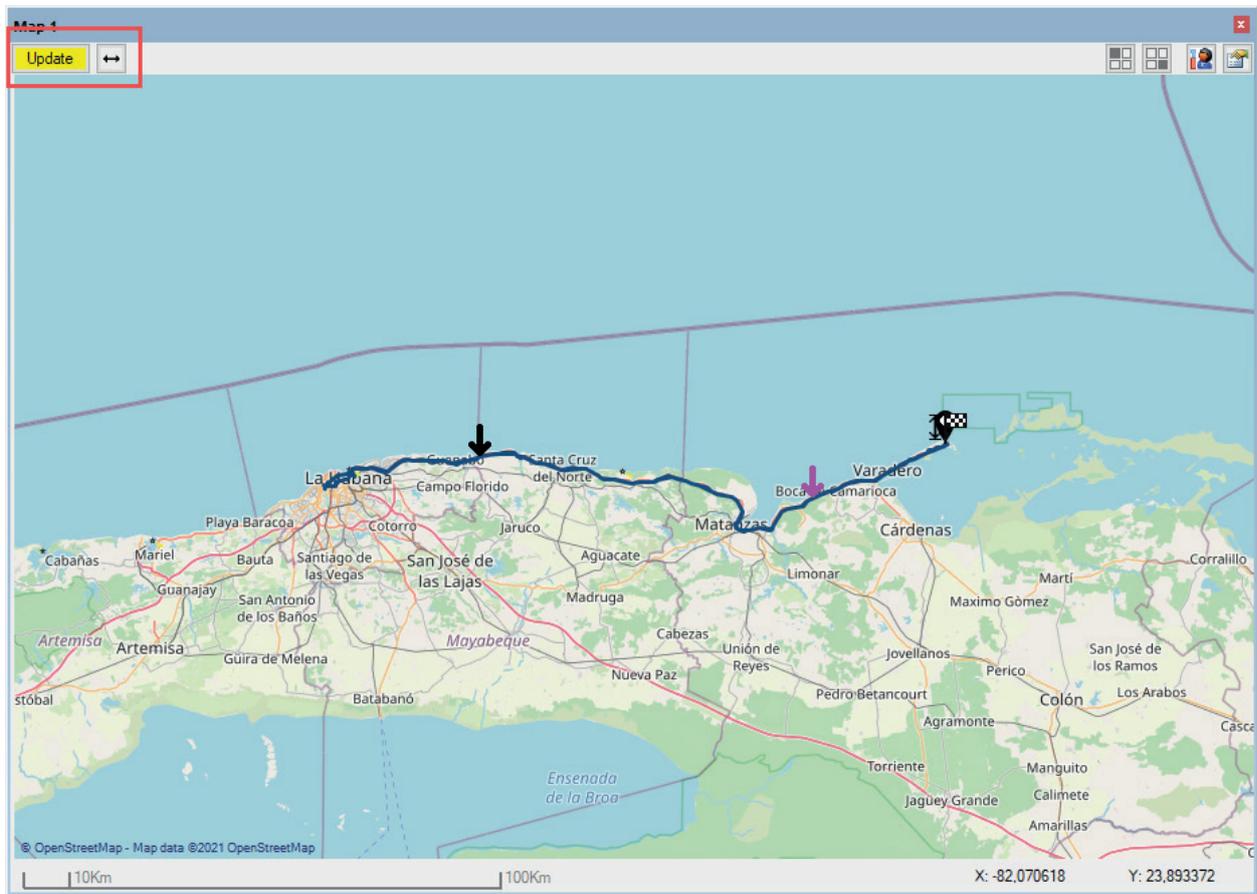


Fig. 11: View data not up-to-date

### Note



If the configuration area is hidden, the <Update> and <<=>> (“Use ibaAnalyzer zoom area”) buttons are shown in the bar above the route view instead.

If the mode “Use ibaAnalyzer zoom area” is selected, only the part of the route is shown which corresponds to the data shown in the main ibaAnalyzer trend graph. Start and end of this section are marked with extra icons in addition to the marks for start and end position of the entire route.

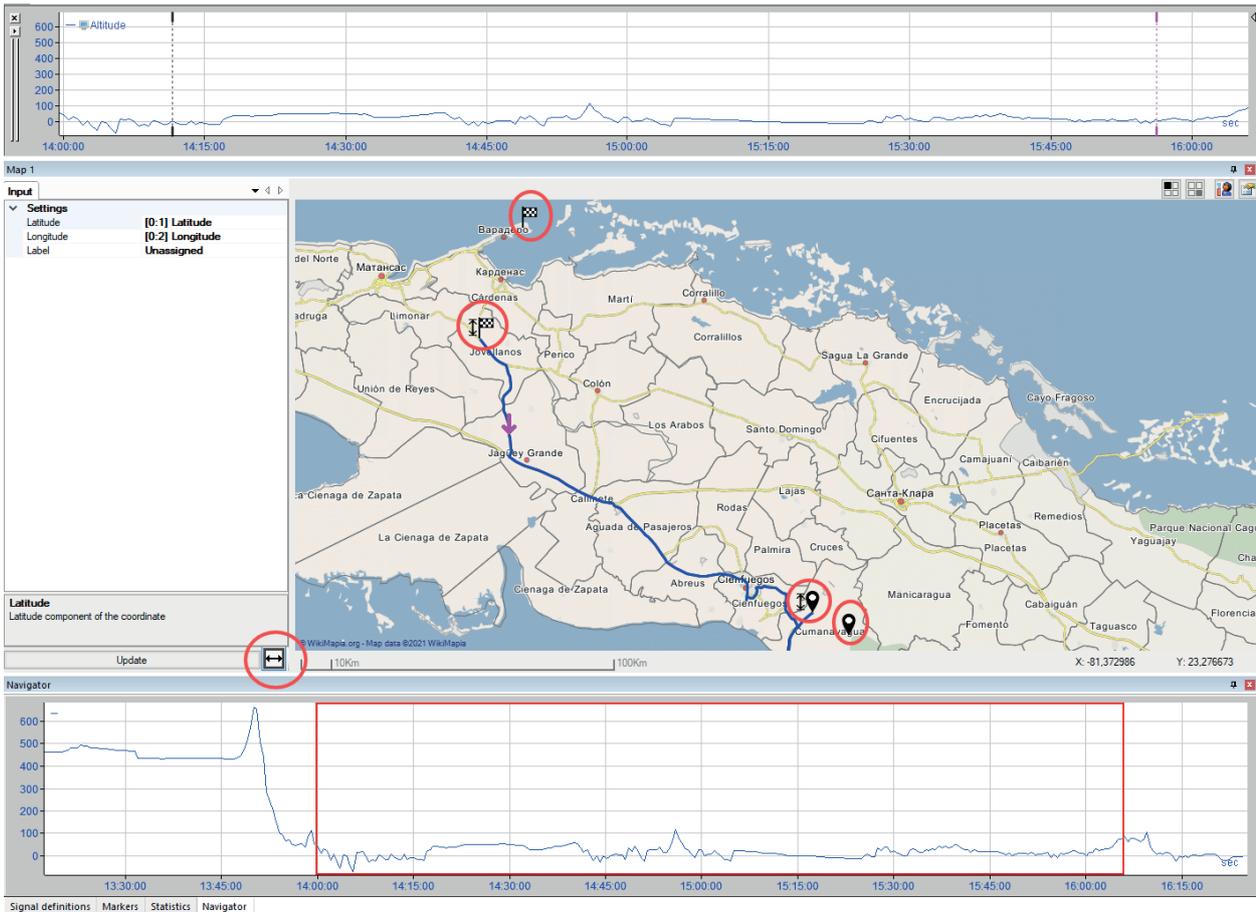


Fig. 12: On top - zoomed trend graph, center - route according to zoomed area, bottom - navigator

**Route symbols**

	Start of the route
	Start of the route section, corresponding to zoomed trend graph
	End of the route section, corresponding to zoomed trend graph
	End of the route

Table 3: Symbols along the route

**3.2.2 The playback area**

The markers X1 and X2 in the trend graph are linked with two corresponding markers shown on the route. It is possible to move the markers on the map or the markers in the trend graph with the mouse. Additionally, the X1 marker is coupled to the playback area.

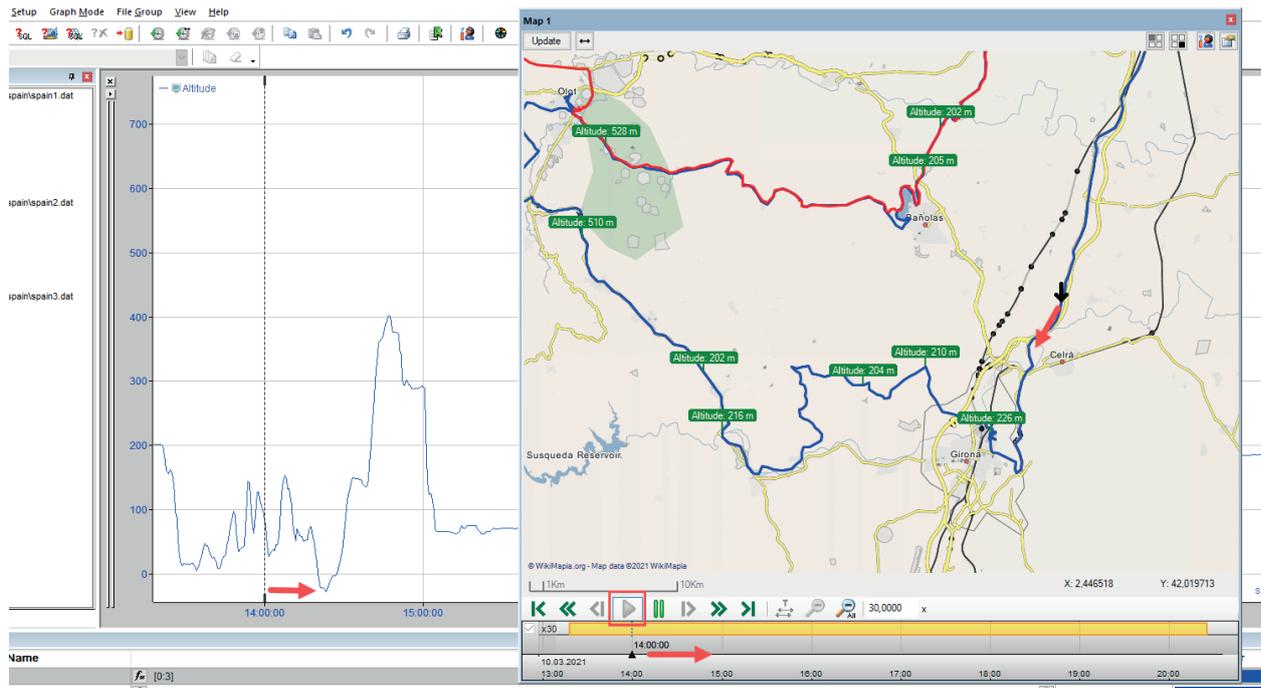


Fig. 13: Marker X1 in the trend graph and the corresponding marker in the map

Using the playback area, it is possible to auto-move the X1 marker forward in real-time, slower or faster and follow the position in the map.

### Operating elements

In the playback area, you can control the playback of the dat file using the buttons and the slider.

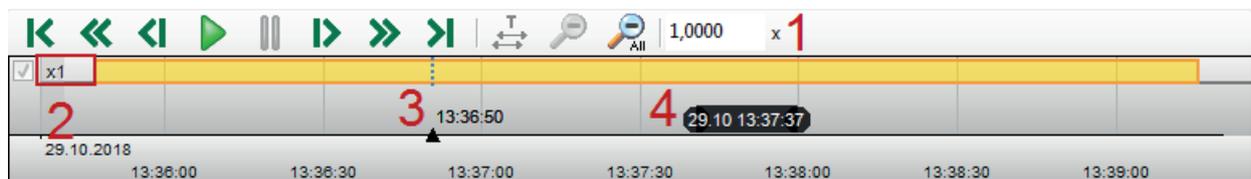


Fig. 14: Playback area

Meaning of buttons:

-   Start / stop playback
-   Jump to start / end
-   Reduce/increase replay speed  
(The set replay speed is shown on the left (2))
-   without function for ibaAnalyzer-Maps (not available)
-  Display the total time period
-   Remove one/all zoom level(s)

More features:

- 1 Input of the replay speed  
You can enter the factor of the replay speed here. The new speed is adopted by pressing <Enter>. The replay speed is relative to the normal speed. For example, 2.00x means that the current replay speed is twice the normal speed.
- 2 Display of the replay speed
- 3 Time marker  
On the timeline, a black triangle represents the current time stamp. If you move the time marker, the X1 marker follows accordingly in the trend graph and the associated marker on the map moves to corresponding position along the route. The time marker can be moved by clicking and dragging it with the mouse. If you click anywhere on the timeline, the marker will jump to this position.
- 4 Tooltip  
If you move the mouse over the timeline, the time stamp of the mouse position will be shown in the tooltip.

The playback area can also be controlled by the keyboard:

Key	Function
< ↑ >	Increase replay speed
< ↓ >	Decrease replay speed
<Blank>	Replay/Pause

### Zooming and shifting the time scale

You can zoom in the time scale by drawing a rectangle with the mouse button pressed down on the timeline.

You can shift the time range by clicking the time axis and then dragging the mouse horizontally. The cursor then appears as a double arrow.

Zooming the timeline has no impact on the zoomed map view.

### 3.2.3 The map area

This area shows the the configured routes on the selected map type. In this area you may zoom in or out by using the mouse wheel in order to change the visible part of the map. Depending on the map type more or less details may become visible.

Using drag & drop, the map can be moved manually. The markers X1 and X2 can be dragged individually on the map.

#### Note



You can adapt the color of the markers in the properties of the corresponding trend view. The same color will be used for the markers in the map view.

Using the context menu of the map area, you can

- open the properties dialog,
- reset the map scale, so that the entire route is shown (auto zoom) and
- center the map around marker X1

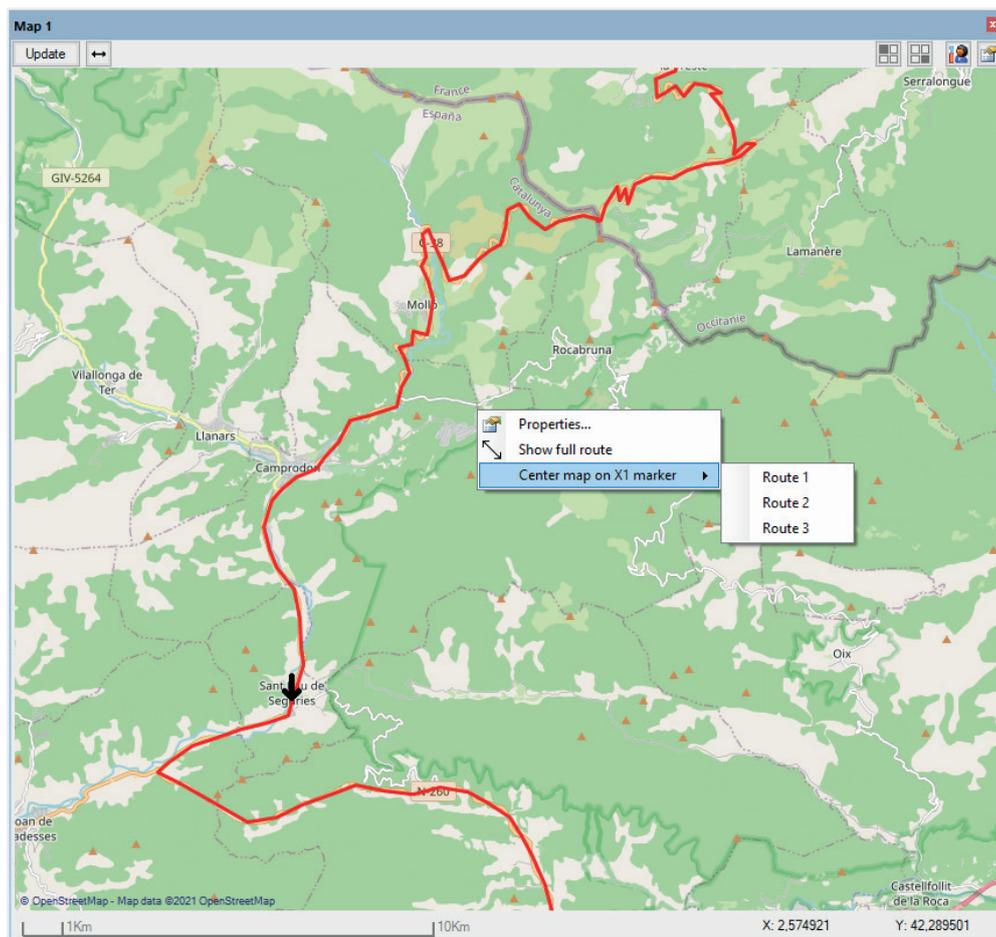


Fig. 15: Context menu in the map area, centering map around marker X1 of the selected route

If “Center map on X1 marker” has been selected the map moves along the route referring to the X1-position. The marker can be moved either by using the tool bar buttons in the playback area or manually in the trend view. As soon as the map has been moved with the mouse or the marker on the map has been dragged manually, the center mode will be disabled.

### 3.3 Properties and configuration

Several options to configure the display of a route are available in the properties dialog. You can open the dialog via the context menu of the map view or the corresponding button in the upper right corner.

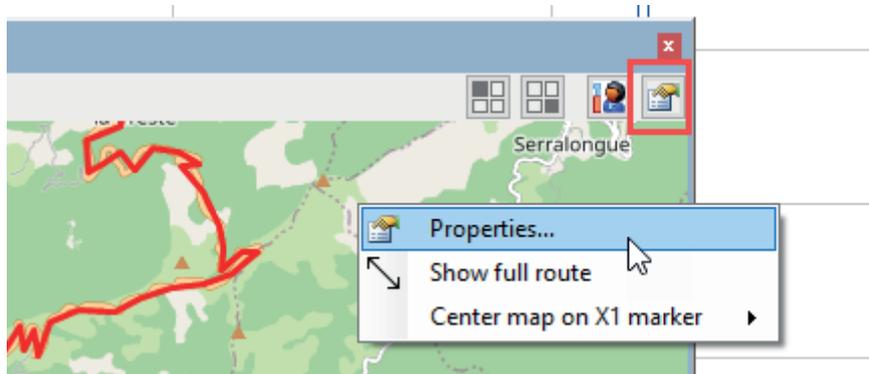


Fig. 16: Open the properties in the context menu

#### 3.3.1 Main properties

Under the root node *Maps view* several open-source map types can be selected.

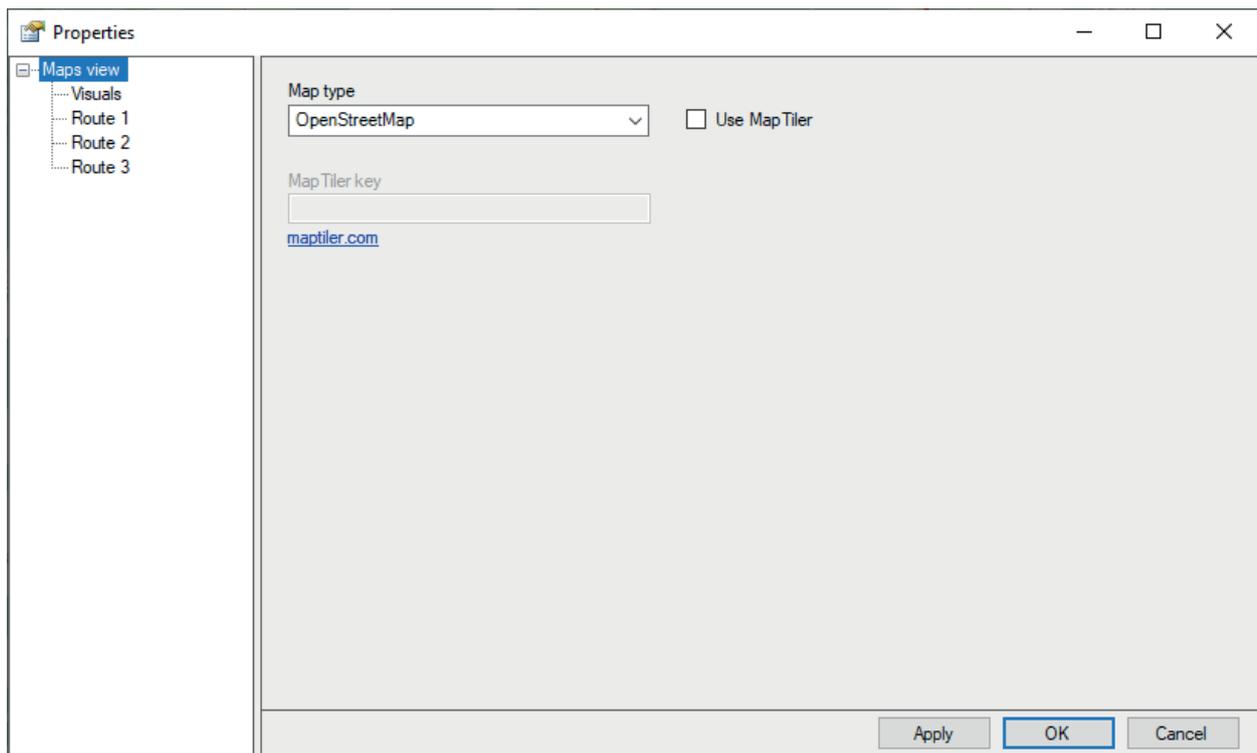


Fig. 17: Dialog for map type selection

## Map type

Available map types by default:

- OpenStreetMap
- OpenSeaMap
- WikiMapia

## Use MapTiler

If you enable this option, additional maps provided by our partner MapTiler become available.

To use this option, it is necessary to set up an account with MapTiler where additional fees may apply. For testing it is possible to set up a “free” account.

See <https://www.maptiler.com/cloud/> for more details.

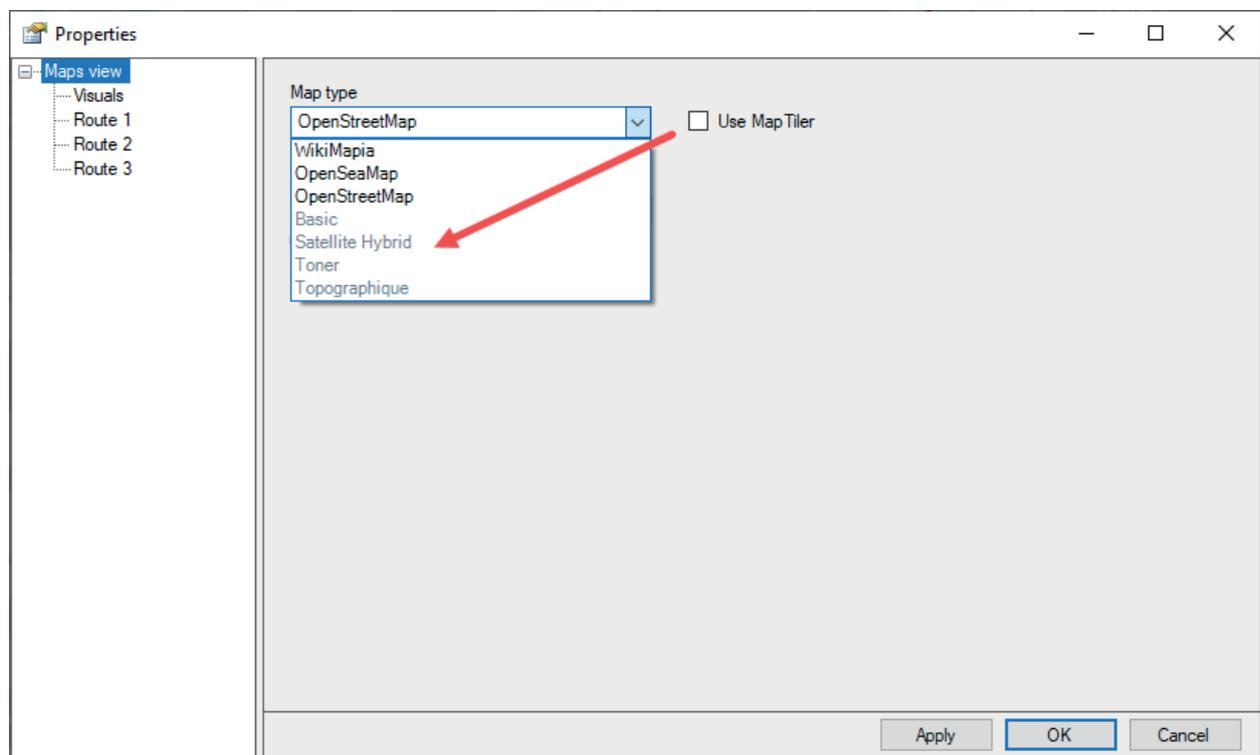


Fig. 18: Additional map types provided by MapTiler

To use the maps provided from MapTiler, a valid API key needs to be entered. In order to get a valid API key, sign in to your MapTiler account and select *Account – Keys*.

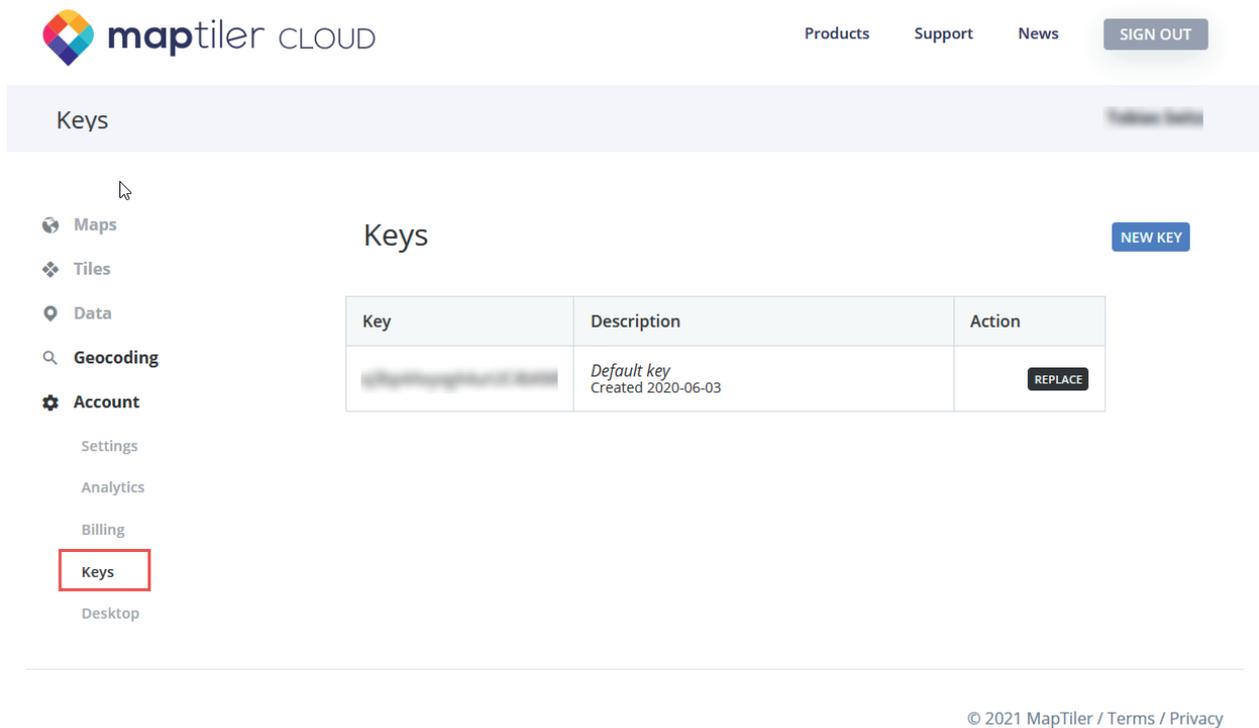


Fig. 19: MapTiler website for requesting an API key

If no valid key is entered, a corresponding error is shown.

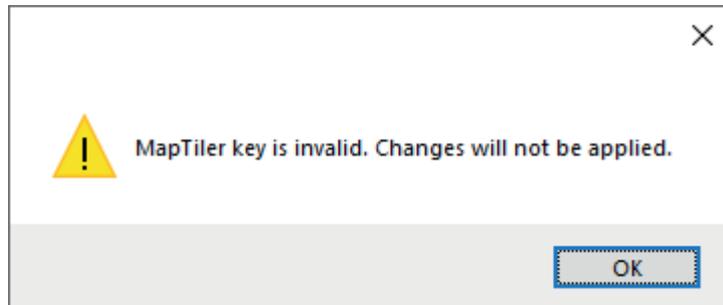


Fig. 20: Error message on missing or invalid API key

### 3.3.2 Visuals

On the node *Visuals* you can define the standard colors which are used by the automatic coloring when adding more routes to a map. Integer numbers from 0 to 15 are assigned 16 selected colors and determine the order.

To change a color, just click on the color field and select the desired color from the color selection dialog.

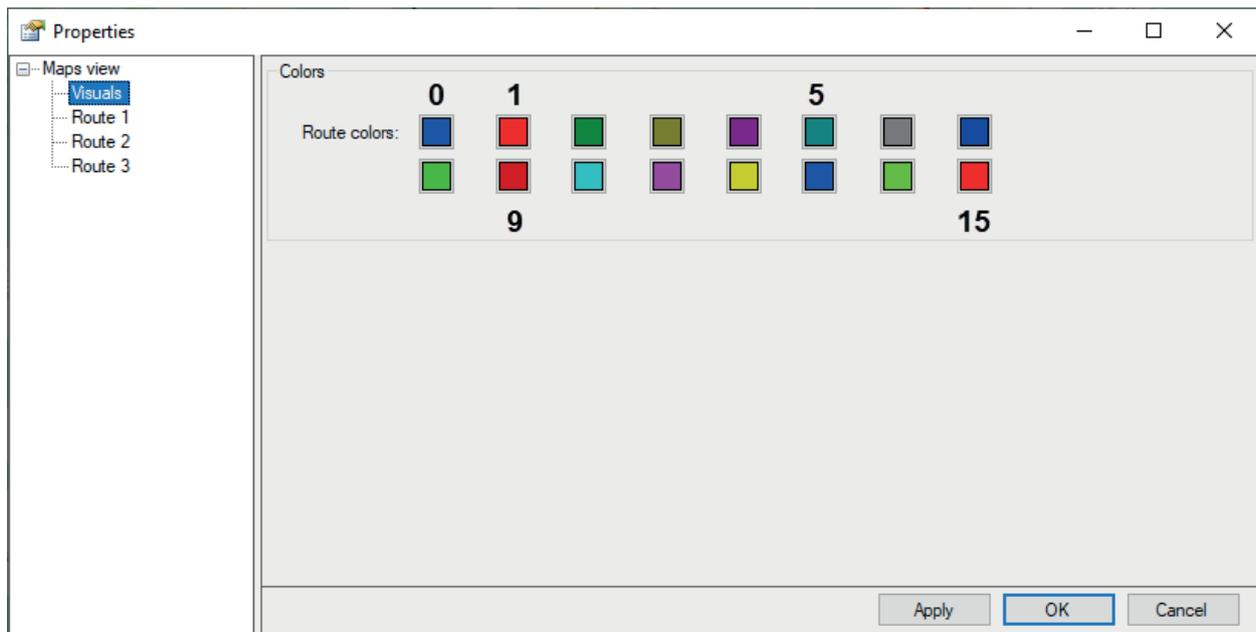


Fig. 21: Color index for the routes

### 3.3.3 Route settings

Each route has its own node.

The route settings show the selected latitude, longitude and label signals. These fields are read-only and can be modified in the configuration area.

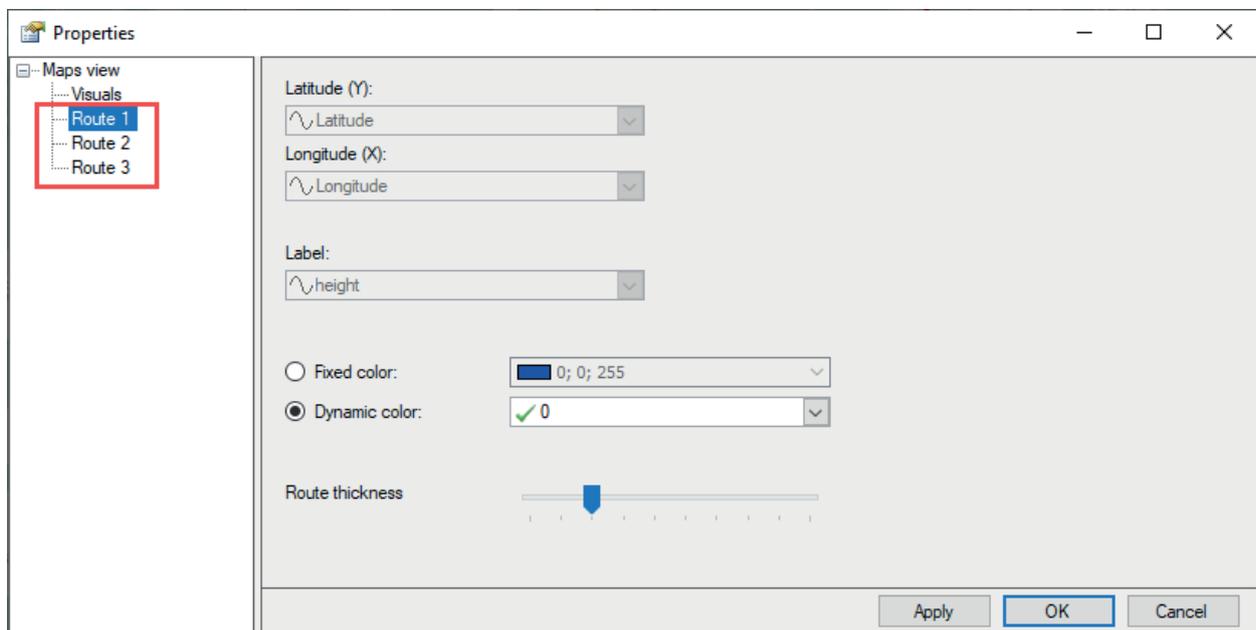


Fig. 22: Route properties

Only the settings for color and line thickness can be changed here.

You can choose between a fixed color, which has to be set in the field nearby, and a dynamic color.

In dynamic color mode the color is controlled by the value of an integer signal. This signal can be both an input signal or a virtual signal created in the expression editor. Only integer numbers from 0 to 15 are permitted. The assignment of integer numbers and colors follows the settings on the *Visuals* node.

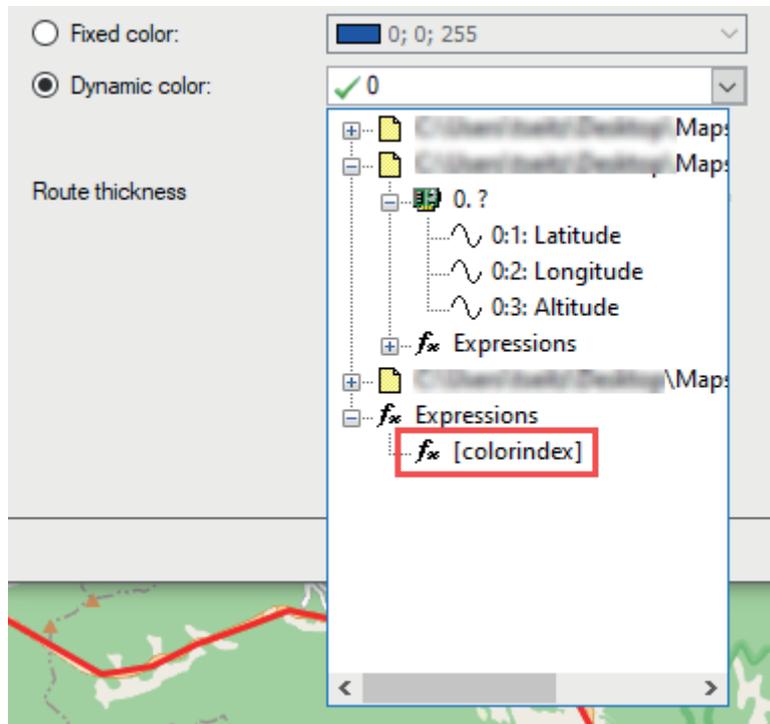


Fig. 23: Using an expression for controlling the dynamic route color

## 4 Examples for using positional data

With *ibaAnalyzer-Maps* you can compare measured and computed signals with the position of various assets like e.g. vessels, trains or other moving vehicles.

You can then use the corresponding data e.g. in reports.

### 4.1 Using a map in a report

Any view which is configured in *ibaAnalyzer* will be immediately available in *ibaAnalyzer-Report-generator*.

To use the view follow these steps:

1. Open the report designer.
2. In the right pane extend the branch *Variables – ibaAnalyzer – views – name of the view* and drag "Complete" onto the canvas ("Report view" window).

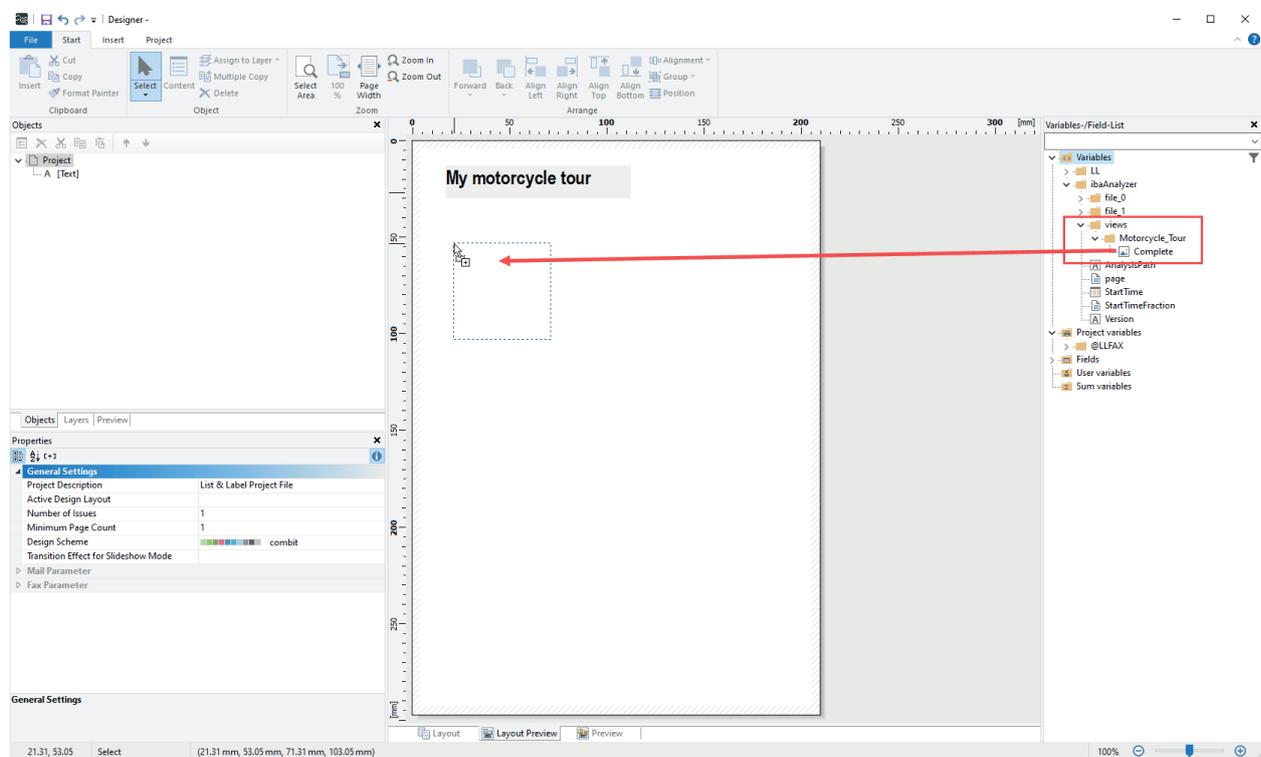


Fig. 24: Inserting the map into the report

The view shown in the report can be individually resized. More options are available after a mouseclick on the element.

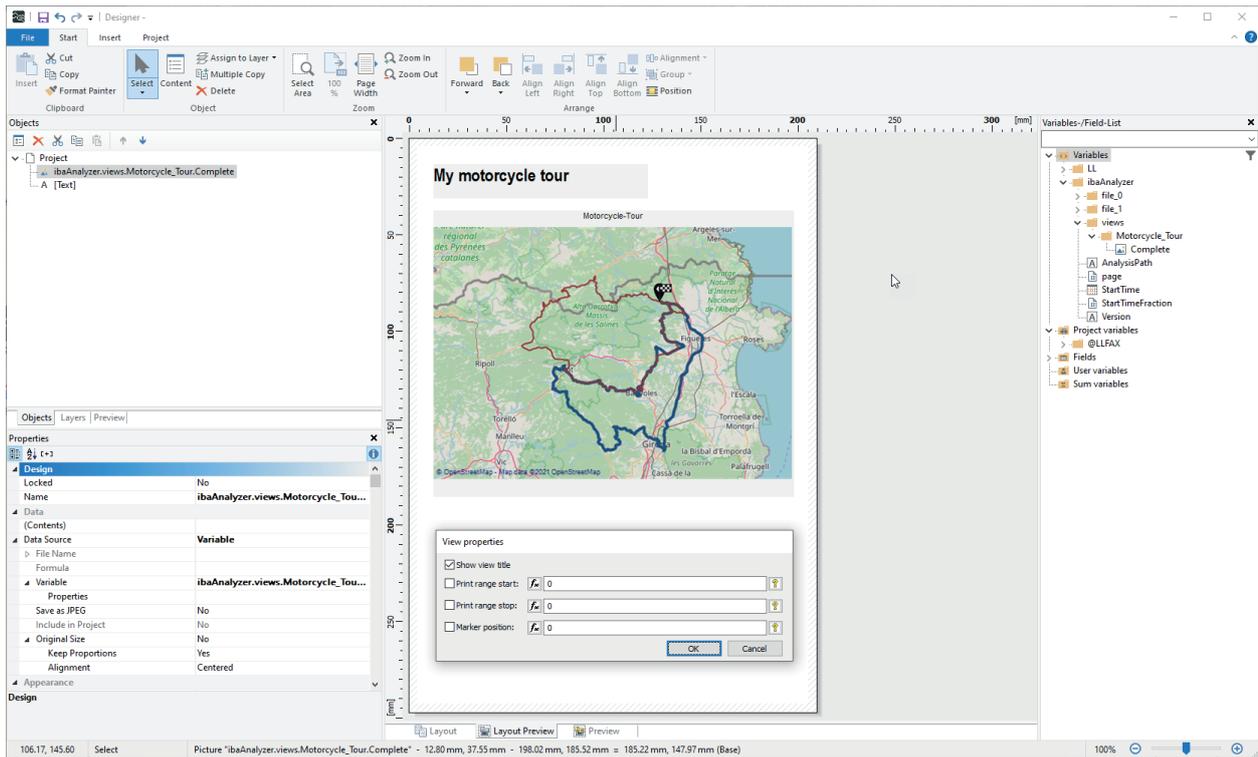


Fig. 25: Preview of the map in the report and more options

## 5 Support and contact

### Support

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#### Note



If you require support, indicate the serial number (iba-S/N) of the product or the license number.

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