Synchronion

by otimon

Clear plans for public transport

Manual

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Otimon GmbH
Ahornstrasse 2 · 6003 Luzern
info@otimon.ch · www.synchronion.ch

Contents

1 What Synchronion is

Synchronion makes it possible to present services and plans for public transport clearly. Timetable data can either be entered by hand or imported from planning tools.

Representations produced with Synchronion are saved as a JSON file and can be exchanged freely between users and edited further. The edited documents can be exported as PDF or as a vector graphic in SVG format. The design of the documents can be parameterised freely in large part.

Synchronion works entirely locally. No data are transmitted; at the start only the program code is loaded into the browser. The editing takes place on your own device, and the data do not leave the computer. So that closing the window unintentionally costs nothing, Synchronion keeps the current state of the work between two sessions in the browser profile of the device and restores it at the next start, as chapter 9 describes. The project proper remains the file you secure yourself; anyone who does not want to leave traces ends a project with the command To the start page, which discards the kept state.

A slow internet connection therefore leads to no waiting times, at most right at the beginning, when the very compact code, which is markedly smaller than one megabyte, is loaded once.

The service points, too, are stored locally at the first load and used from there at the next start, so that work is possible even without a connection after the first load.

The interface is available in six languages: German, English, French, Italian, Spanish and Polish. The language is chosen on the start screen and remembered in the browser. It concerns the operating interface exclusively; designations that arise when a project is created, such as the labels of the transport modes or node names, are project data and are not renamed when the language is switched.

Released for use are the production of network graphics and the creation of corridor overviews, the so-called corridor views. Chapter 12 describes the corridor view in detail.

1.1 Prerequisites

Synchronion is called up at app.synchronion.ch and needs neither an installation nor special rights on the computer. A current browser suffices; the application then runs entirely within it.

Access requires a user name and a password; the sign-in page asks for both at the first call and appears with the same choice of languages as the application. One sign-in at a time is possible per account. Several windows or tabs on the same computer are not affected by this and can be kept open side by side; if the same account signs in from another device, the existing session ends.

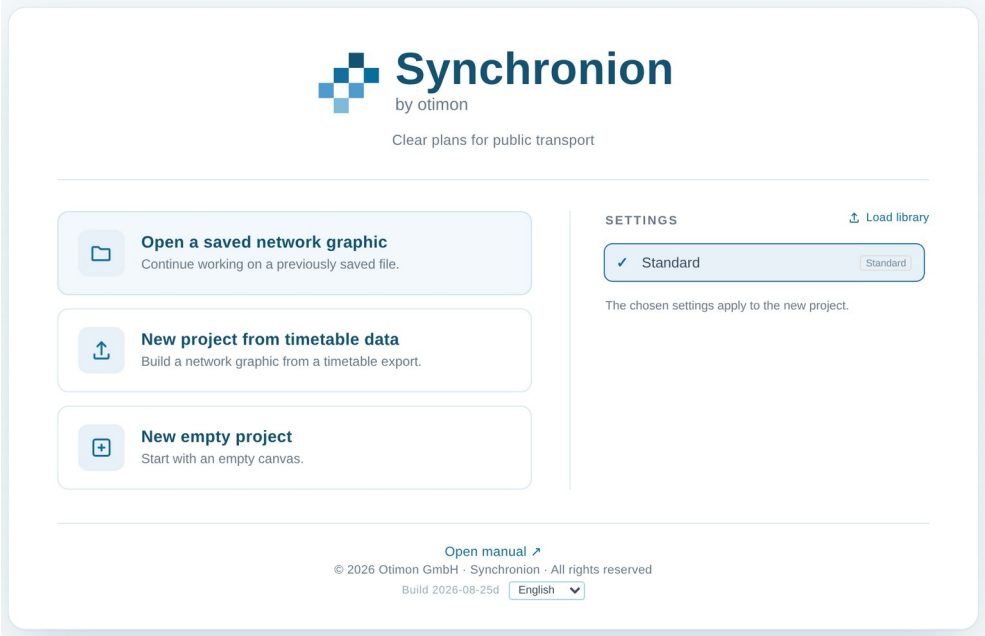
All functions are available in Chrome and Edge. Firefox and Safari show the network graphic and the corridor view just as well, but have no file dialogue: there the browser puts saved files in its download folder, and for the auto-save the choice of a fixed target file is not available.

After the first load Synchronion continues to work even without a connection, because program code and service points are stored locally. A connection is needed for the first call and for reloading the service points.

Screens from about 1400 pixels in width show the sidebar and the drawing surface side by side without restriction. For the export the browser itself suffices; an additional program for PDF or SVG is not necessary.

2 The start screen

After calling up app.synchronion.ch and signing in, the start screen appears; it is the point of departure of every session. On the left are three paths into a project, on the right the settings set is chosen under which the work takes place.



The start screen with the three paths into a project and the choice of the settings set.

Open a saved network graphic loads a previously saved project for further editing.

If a restored state of work from the last session is present, the start screen does not appear; Synchronion opens the screen last shown straight away. The command To the start page in the sidebar leads back to the start screen.

New project from timetable data creates a network graphic from a timetable export. CSV files from Treno by Trenolab are read in, further formats are in preparation. After reading in, the recognised pairing of outbound and return direction is presented for confirmation.

New empty project begins with an empty surface. From here the network graphic is built up by hand, first with the New line tool.

On the right is the list of settings sets; a click on an entry selects it, a tick shows the active choice. Every entry carries a mark: shared for sets from the common library file, local for those which lie only on this computer. The set determines colours, fonts and further defaults for the project. With Load library you additionally read in a library of your own with sets and templates.

At the foot of the start screen, next to the build indicator, is the choice of language. It takes effect immediately and applies again at the next start; it cannot be changed within a running project, so that the interface remains in one language throughout a session.

If no server can be reached, because the application was opened as a file for instance, the service points are loaded through a file selection.

3 The working environment

3.1 The sidebar

The sidebar gathers the controls. It contains the tools in the two groups Edit and Add, beneath them the commands and at the foot the settings area, which can be expanded.

At the very top you switch between network graphic and corridor view.

The tool groups Edit and Add as well as the commands Centre and Sort apply only to the network graphic and are hidden in the corridor view; their place is taken there by the corridor view sidebar from chapter 12.

For the tool selected at the time, a short note appears beneath it explaining the current meaning of clicking and dragging.

3.2 Drawing surface and navigation

The network graphic is displayed and edited on the drawing surface. The mouse wheel zooms continuously, shift and mouse wheel moves horizontally. The view is moved in three ways, independently of the tool selected: hold down the space bar and drag, drag with the middle mouse button, or drag into empty space, as far as the tool permits it. When drawing a line and when dragging nodes, the view moves along by itself at the edge of the picture. The command Centre brings the whole network graphic back into the picture.

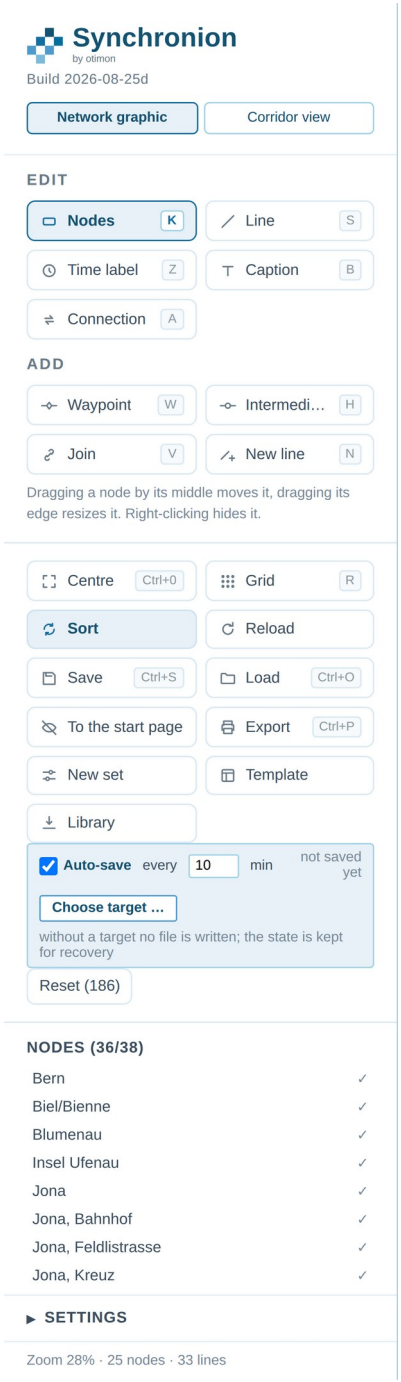
Sorting rates the resulting arrangement by crossings and overlaps and adopts it only if it is measurably better than the existing state; if no better arrangement is found, everything stays unchanged and a message explains it. Several starting arrangements are tried in the process and the best one is kept. Lines that have been dragged onto a slot by hand count as fixed points and stay in place; the sorting takes place around them.

The command Sort recalculates the sequence of the lines at all nodes from the current node layout and thus produces a tidy arrangement with one click, without every line having to be re-sorted by hand.

The command Grid shows a fine dot grid in the background which corresponds to the lattice on which nodes and lines lie. It helps with placing nodes regularly and never appears in the export. The key R also toggles it; all keyboard commands and gestures are in chapter 14.

4 The tools

The tools lie in two groups. Edit changes existing elements, Add brings new ones into the graphic. Which tool is selected determines what a click or a drag on the surface brings about.



The sidebar of the network graphic: switch, the groups Edit and Add with the key marks, beneath them the note on the tool and the commands.

Every tool additionally has a key; it appears as a small mark on the right in the button and in the tooltip: K for nodes, S for line, Z for time label, B for caption, A for connection, W for waypoint, H for intermediate stop, V for join and N for new line. The keys take effect on the drawing surface of the network graphic, not in input fields, not when the export or line window is open, and not while a line is being drawn, where the enter key and escape apply.

4.1 Nodes

A node stands for a service point. Its position determines the geometry of the network, its size the room that the lines converging there find side by side. The size follows on its own from the number of these lines; intervening by hand is necessary only when the result does not please.

Dragging in the middle moves the node and thereby changes the course of the network.

Dragging an edge enlarges or reduces the node by hand. With the reset under Node sizes it returns to the size determined on its own.

A right click hides the node in order to simplify the representation.

The lines follow the nodes: if a node is moved, the connected lines move along and look for the most favourable side on which to leave the node by themselves.

If nodes move too close together or are arranged in such a way that the geometric rules can no longer be kept, kinks arise in the lines and these partly overlap. This can be remedied by moving the nodes in such a way that the rules can be kept again.

4.2 Line

A line is the path of a service through the nodes. At every node the lines lie side by side in a particular sequence, and this sequence decides which services are led in parallel and how clear the graphic appears.

To re-sort a line you take hold of it by its stub at the node and drag it to the desired place. As soon as the light blue target circle pulsates, it sits correctly; on letting go the remaining lines move up, and two lines never lie on top of one another.

A right click on a section between two nodes hides this part of the line.

If a node was skipped while drawing, it can be inserted afterwards. To do so you drag the line onto the omitted node with the Ctrl key held down; a green frame shows the target node, and on letting go it is taken into the line at the geometrically fitting place. This applies to lines drawn by hand.

A double click opens the Edit line window, which chapter 5 describes.

4.3 Time label

The time labels are the arrival and departure minutes which are written at the nodes along a line. With this tool they can be adjusted individually.

Dragging a time label moves it to a freer place.

A double click edits the displayed text of a time label.

A right click hides a time label. In its place a fine dashed frame remains visible as long as this tool is active; a click on it brings the time label back with its text and its position. The frame does not appear in the export.

4.4 Caption

This tool labels the graphic. It places the line captions on the lines and manages the station names at the nodes alongside.

A click on a line places a label there, a small box with the name of the service.

Synchronion forms the text on its own from the description of the service: it consists of its first word, that is the text up to the first space, shortened to at most seven characters. S12 Uster thus becomes S12, and the single word RegioExpress becomes the shortened RegioEx. If a description is missing, the short line name serves as the basis.

A label travels along its line by dragging.

A double click on a label edits the text by hand, should the derivation on its own not fit.

A right click deletes a label.

Dragging a station name at a node moves it; a right click hides it.

4.5 Connection

The connection shows services which continue beyond the section displayed to a hidden neighbouring node, without the whole line having to be drawn. In this way it remains recognisable where a service leads.

A click on a node shows all services leading from there into a hidden neighbour as labelled stubs.

Every stub carries the destination in this direction as its label; a double click adjusts it where needed.

A right click on a stub hides it again individually.

4.6 Waypoint

A waypoint diverts a line via a freely placed intermediate point. In this way a service is led around others or along a desired course.

A click on a line places a waypoint.

Dragging a waypoint moves it and thus shapes the course of the service.

A right click deletes a waypoint.

4.7 Intermediate stop

An intermediate stop stands for a station which is served on a section between two displayed nodes but is not drawn as a node of its own.

A click on a section adds an intermediate stop.

A right click takes an intermediate stop away again.

Dragging the marker moves it to the right place.

4.8 Join

A join brings two lines together at a node and thus shows a through service in which two services are linked operationally. If several such joins are created at one node, more than two lines converge there as well, which makes it possible to represent a portion-working train, for instance, that divides into several services.

A click on a line at the node marks the first end, a click on a second line at the same node closes the join.

A right click on an existing join removes it.

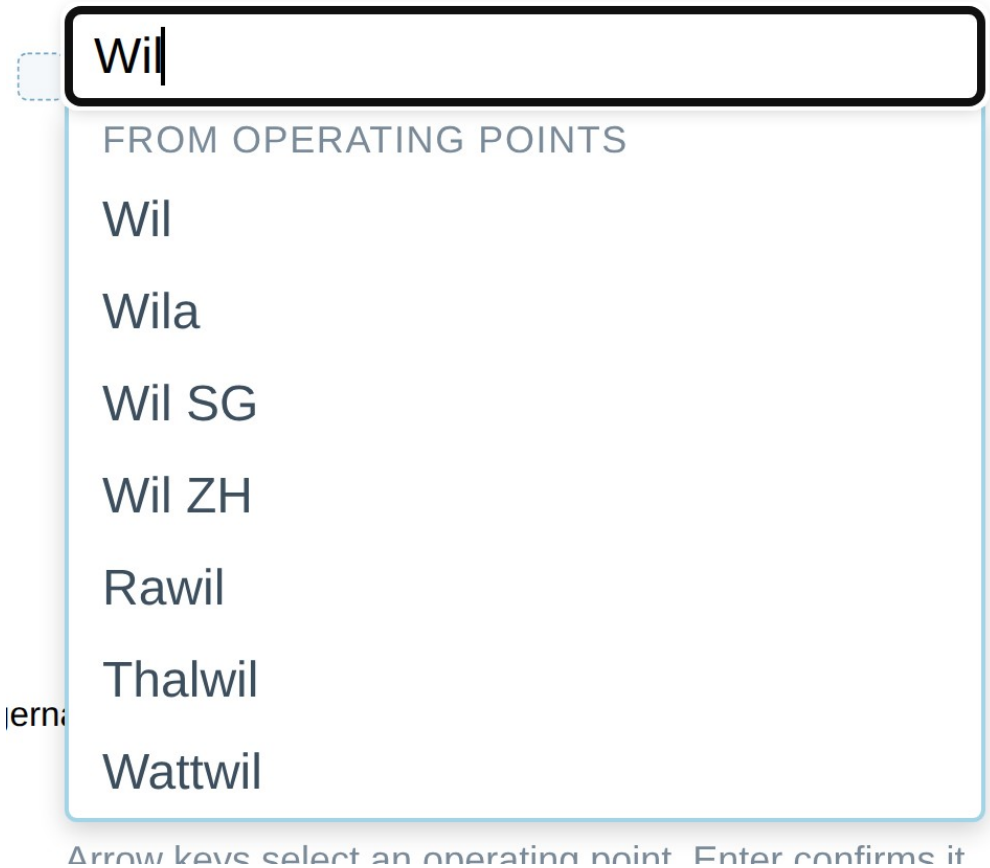
4.9 New line

New line is the central tool for building up a network graphic by hand. Anyone who imports no timetable data begins here and draws every service themselves.

A click on a node sets the beginning. Every further click extends the line, either onto an existing node or into empty space, where a new node arises in the process. A preview line shows where the next section leads.

If a new node arises in the process, a field asks for its name and suggests fitting operating points for it. The suggestions are ordered by closeness of fit: first the exact match, then names which begin with the entry, then names in which a word begins with it, and last matches in the middle of a word; where the rank is equal, the shorter name comes first. The entry Wil thus leads to Wil, Wila, Wil SG and Wil ZH, and only after those to occurrences such as Rawil or Wattwil.

The list is operated with mouse or keyboard. The arrow keys select a suggestion, the enter key adopts it; without a selection it adopts the freely typed name. Home and End jump to the beginning and the end of the list, escape first cancels the selection and only at the second press aborts the entry.



Suggestion list when naming a new node: the matches are ordered by closeness of fit.

The line is concluded with a right click, with the enter key, or with a click on the node placed last.

The escape key discards the line begun.

4.10 Interchange nodes

An interchange node combines several operating points into one node, a railway station and the bus station in front of it for instance.

Clicking nodes with the Ctrl key held down selects them; Merge, Split and Clear selection list then appear in the sidebar. On merging, the name of the new node is asked for.

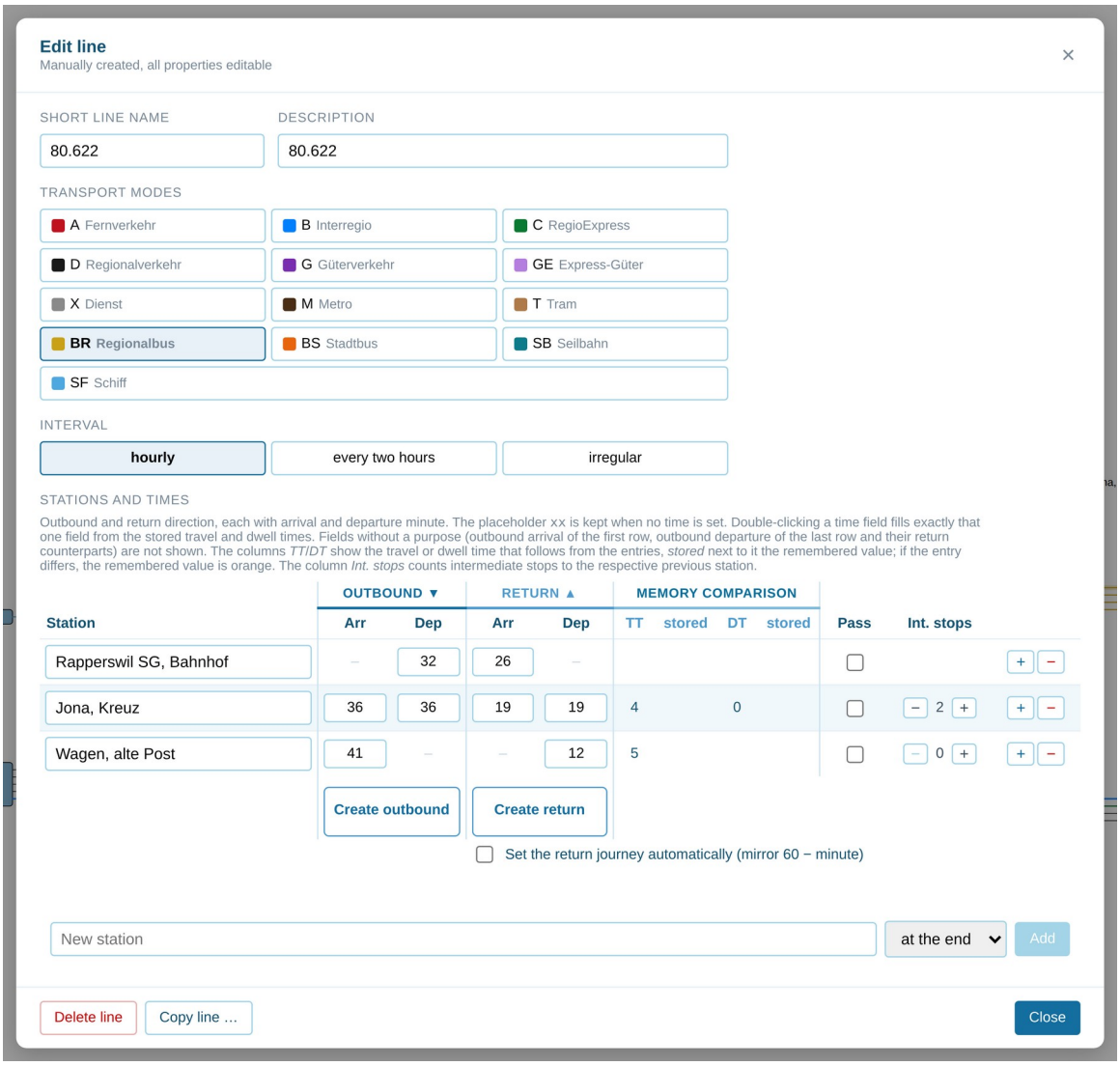
The combined operating points form one node in the network graphic and one column in the corridor view. The lines keep their original operating points. Split undoes the combination again.

5 The Edit line window

A double click on a line opens the Edit line window. It gathers all properties of a service: name, transport mode, interval and the complete timetable with all stations and times.

With a service drawn by hand all entries can be changed freely. With a service imported from timetable data, stations and times remain locked in this window; only transport mode

and interval can be changed here. The times labelled on the graphic are changed independently of this by the Time label tool.



The Edit line window of a service drawn by hand, with interval, transport mode and the station table.

5.1 Interval, transport mode and name

The interval is the entry that is set most often in daily work. It determines how densely a service runs, and controls the dash pattern: hourly or denser is drawn as a continuous line, two-hourly as a dashed line and irregular as dash-dot.

The transport mode is chosen from the list of the settings set and determines colour and stroke weight of the line.

With services drawn by hand, the short line name which appears in the sidebar, and the description, are added. The text of the line labels is derived from the description, as section 4.4 shows.

5.2 Stations and times

The table depicts the timetable of the service. Every row is a station.

For each station the arrival and departure minute are entered, separately for the outbound and the return journey. The outbound journey runs from top to bottom in the table, the return journey from bottom to top. Where no time is entered yet, the table shows the placeholder xx. The same placeholder also appears in the network graphic as long as a time has not yet been entered, and thus points to open work.

At the first station there is no arrival and at the last no departure. These fields have no function and are hidden.

A double click on an empty time field enters the minute from the stored travel and dwell times of the transport mode. In this way a timetable is built up quickly from values drawn from experience.

On the right the table sets the travel and dwell time following from the entries against the stored value drawn from experience. If the time entered deviates from the stored value, the latter appears in orange, so that unusual travel times are noticed at once.

The tab key follows the course of the journey instead of the table columns (overview in section 14.4): from the departure of the first row via the arrival and departure of every intermediate station to the arrival of the last row, and then back in the return direction from bottom to top. In this way a timetable can be entered in full with figure and tab. Pass-throughs and end fields without function are skipped; if the automatic return journey is active, the trail ends at the arrival at the destination.

Synchronion remembers the travel and dwell times entered for each transport mode across projects and builds from them a store of experience which serves as a suggestion for future entries. This store of experience belongs to the library and is saved and passed on together with it as JSON.

The Pass-through box marks a station which is passed through without stopping and therefore carries no times of its own. On activating it, the times of the row are emptied and a dash stands in their place: for a pass-through the travel time of the longer section counts, that is the departure at the stop before and the arrival at the stop after. In the network graphic such a station carries no time labels, not even a placeholder.

The Intermediate stops column states how many stops that are not displayed lie between this station and the previous one, and can be increased or decreased there.

5.3 Creating the outbound and return journey

Create outbound fills empty fields of the outbound journey from the stored travel and dwell times. The precondition is that at least one time of the outbound journey has been entered; times already set remain untouched.

Create return calculates the complete return journey from a single return time entered and the travel and dwell times of the outbound journey.

If the travel time of the outbound journey is missing in a section, the message names the section concerned; the return journey then arises only as far as there.

The box Set the return journey automatically keeps the outbound and return journeys symmetrical. In a symmetrical timetable the times are mirrored about a fixed minute of symmetry, usually the full hour: if a train runs outbound at minute 10, then the train in the opposite direction runs at minute 50, that is 60 minus 10. If the box is active, every entry of the outbound journey sets the corresponding return time automatically, and the separate creation of the return journey is not needed.

5.4 Adding and removing stations

With the plus sign of a row you insert a further station beneath it. A field at the foot of the table adds a station either at the beginning or at the end.

The minus sign removes a station. Because a service needs at least two stations, the last two cannot be removed.

5.5 Copying and deleting a line

Copy line produces a second service with the same stations, intermediate stops and waypoints, but shifted by a time offset that can be chosen. For a following train in a half-hourly interval you enter 30 minutes. The offset stays within the hour: with 30 minutes a departure at minute 10 becomes a departure at minute 40, and minute 50 becomes minute 20.

Delete line removes the service entirely.

6 Visibility

Nodes, line sections and time labels can be hidden in order to condense a graphic onto a section or onto particular services. The underlying data are preserved in the process.

If a service leads to a hidden node, the Connection tool makes it visible again as a labelled stub.

If many such stubs are shown, a command in the sidebar hides them again together.

A hidden time label remains within reach in the Time label tool as a dashed frame and can be brought back with a click.

7 Undo and reset

7.1 Undoing

Ctrl and Z takes back every editing step. Pressing repeatedly goes back step by step further.

Ctrl and Y or Ctrl and shift and Z restores a step that has been taken back.

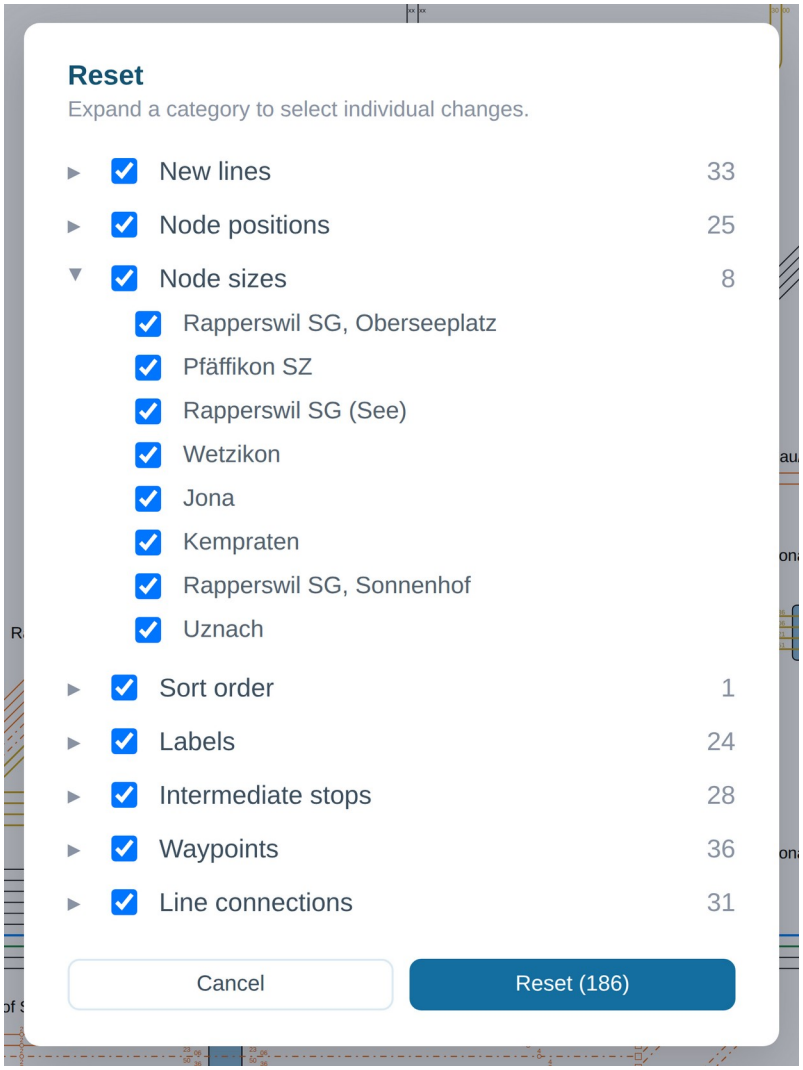
When drawing with the New line tool, the enter key concludes the line and the escape key discards it.

In input fields the browser's usual undo applies.

7.2 Reset

Besides the step-by-step undo there is the targeted reset. Synchronion keeps every adjustment made by hand as a layer of its own above the automatically calculated or imported basic state. The reset takes such adjustments away again and restores the basic state, without losing the underlying data.

The command appears in the sidebar as soon as any adjustment at all is present.



The reset dialogue groups the adjustments by kind; the group Node sizes is expanded and shows the individual nodes.

The dialogue orders the adjustments by their kind in groups. Covered are the new lines drawn by hand, moved nodes and node sizes set by hand.

Also belonging to them are the line labels placed, the manual sorting of the lines as well as the time labels moved, changed or hidden.

Lines dragged by hand are additionally listed by the dialogue as sort fixed points; if they are taken back, the command Sort sorts freely again at these places. Equally reversible are adjustments to intermediate stops and waypoints, the line attachments from sides and slots chosen, changed line properties such as transport mode and interval, hidden line sections and the adjustments to the connections.

A click on the triangle expands a group and shows the individual changes, so that only a particular one of them can be taken back instead of the whole group.

On opening, everything is marked; a confirmation thus resets the entire state, whereas for a targeted reset you restrict the marking accordingly.

8 File functions

Save stores the whole project as a JSON file. As long as the project has never been secured as a file in the running session, the button appears in a warning colour, and its tooltip points this out; after the first save it carries the familiar colour again. A project opened from the start screen or fetched with Load counts as secured from the outset, whereas a state restored

from the browser profile does not, because it is not present as a file. A project is passed on and edited further elsewhere by way of this file. In Chromium browsers such as Chrome and Edge a save dialogue appears for this, in which place and name are freely selectable; the same applies to the library export and the SVG export. In browsers without this dialogue the file is put in the download folder; section 1.1 names the differences between the browsers.

Load opens such a project file again.

For the frequent commands there are keyboard shortcuts, written on the buttons: Ctrl and S saves, Ctrl and O loads, Ctrl and P opens the export, Ctrl and 0 centres the view. Ctrl and S as well as Ctrl and P take the place of the corresponding browser functions in the process.

New set asks for a name in a dialogue and stores the current settings under it in the library.

Template secures the current nodes without lines as a reusable framework of nodes on which new projects can be built.

Library exports the sets, templates and the store of experience of travel and dwell times gathered as a file; at the start it can be read in again. In this way a team works with the same defaults.

9 Auto-save and restoration

Auto-save secures the project automatically at regular intervals, but only if something has been changed since the last securing.

The Auto-save box in the sidebar switches the securing on and off, the number field next to it sets the interval between 1 and 120 minutes. On the right is the time of the last securing.

9.1 Choosing the target file

With Choose target … you determine a file once which is overwritten at every securing; exactly one backup file therefore arises. After a restart of the browser, Grant access confirms the write permission anew. Change selects a different file, Detach gives up the target.

Without a target chosen, Synchronion stores no file in Chromium browsers; section 15.2 names the cases in which the securing rests. In browsers without a file dialogue, time-stamped copies arise in the download folder. The command Save always creates a new, time-stamped file independently of this.

9.2 Restoration of the state of work

Synchronion keeps the current state in the browser profile a few seconds after every change, including zoom, view, representation and tool. At the next start this screen opens again. The undo chain is not kept.

The command To the start page in the sidebar closes the project, discards the kept state and returns to the start screen. Because unsaved changes are lost in the process, it first opens a prompt with three paths: Save and return leads through the file dialogue and changes to the start screen only after the actual save, Return without saving discards the state, Cancel stays in the project. If the file dialogue is cancelled, the application likewise stays in the project. On a shared account this path is recommended at the end of the work.

10 Settings

A click on Settings at the foot of the sidebar expands the area in which every user sets up their own form of Synchronion. All values belong to the settings set and are saved and passed on with it. A button resets all values to the defaults.

10.1 Time editing

Cascade times controls how changing a time in the station table of the Edit line window takes effect. The switch is off by default.

If it is off, an entry changes only the time edited. If the automatic return journey is active, the mirrored counter time of the same station is set in addition; the remaining stations stay unchanged.

If it is on, a changed time additionally shifts all following stations of the same journey by the same amount, on the outbound journey the stations lying further down, on the return journey those lying further up. If the outbound and return journeys are coupled, the opposite direction moves along as a mirror image at the same stations.

An example: if a train departs from A at minute 0 and from B at minute 5, then with the cascade switched on, after a change of the departure from A to minute 2, B moves to minute 7 as well, and all following stations shift by two minutes likewise. With the cascade switched off, B stays at minute 5, whereby the travel time from A to B is shortened by two minutes.

10.2 Transport modes and line types

Here it is laid down which transport modes exist and how they look. This list appears in the Edit line window and forms the legend of the export.

Every row carries arrows for the sequence, a colour field, the abbreviation, the stroke weight and the designation written out in full; the minus sign at the end removes the entry. The transport modes differ in the graphic by colour and stroke weight; the dash pattern remains reserved for the interval.

+ Add transport mode at the foot of the list adds an entry. If a transport mode is removed to which visible services are still assigned, these are transferred to another one.

Time editing and the list of transport modes and line types in the settings area.

10.3 Fonts

In the Fonts area you enter typeface and size for the station names. The same applies separately for the times and for the line labels.

The corridor view carries font sizes of its own for line names and node names. The node names use the typeface of the stations, the line names that of the line labels.

10.4 Nodes

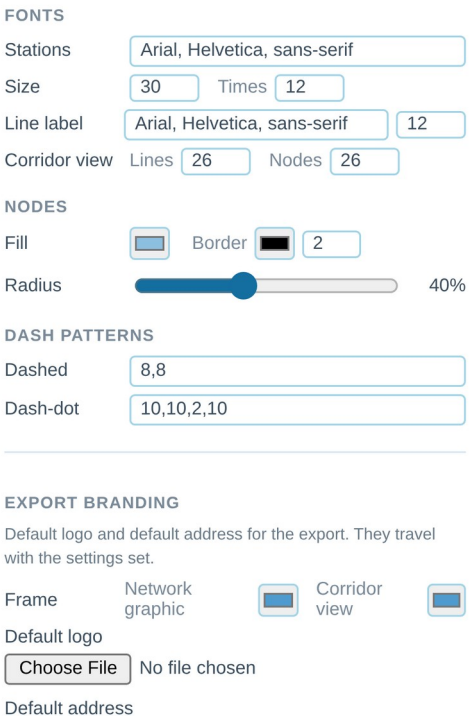
The appearance of the nodes is laid down by fill colour, border colour, border weight and corner radius.

10.5 Dash patterns

The dash pattern of the two-hourly and of the irregular interval is entered as a sequence of dashes. The hourly interval remains continuous.

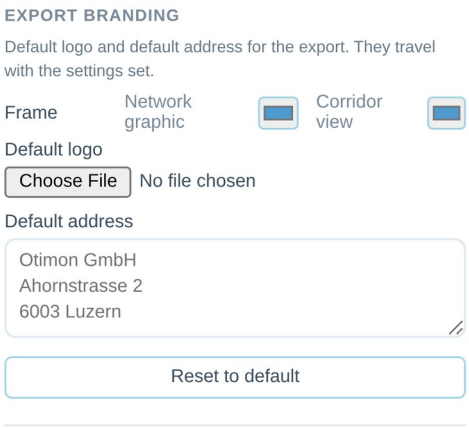
10.6 Export branding

Choose file stores the default logo, the text field beneath it the default address; both appear in the legend of the export. Reset to default takes a change away again. Both belong to the settings set and are passed on with it, so that a team presents itself uniformly.



Fonts, nodes, dash patterns and export branding in the settings area.

The frame colour of the legend block in the export is laid down here separately for the network graphic and the corridor view; it colours the frame and the title of the header block in each case. As long as no colour of its own is set for the corridor view, the colour of the network graphic applies.



Export branding with default logo, default address and the frame colours for network graphic and corridor view.

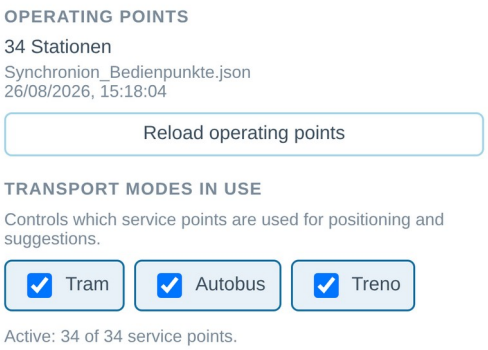
10.7 Operating points

If service points are loaded, this area shows their number, the file name and the time of loading; the command Reload reads them in anew. Stored behind it is the complete data set of the operating points from opentransportdata.swiss.

Under Transport modes in use it is restricted which service points Synchronion draws on for the positioning of the nodes and for the time suggestions.

One box each stands for the groups train, tram, bus, boat, cable car and other, as well as for Only Treno, that is operating points which stem from the Treno data alone.

A second filter narrows down by countries. A service point is used if one of its categories and its country are selected; at the bottom Synchronion shows how many service points are active with the current selection.



The Operating points area and beneath it the filter Transport modes in use with the countries and the number of active service points.

11 Export

11.1 Format and orientation

The command Export opens the export dialogue. In the first step the sheet format is chosen from a list which states the dimensions in millimetres for every entry. It carries the series ISO A from A0 to A5 and ISO B from B0 to B2, the North American formats Letter, Legal, Tabloid and ANSI C to E, the architectural series Arch A to E as well as the Japanese series JIS B4 to B1. Two icon buttons next to it set portrait or landscape.

At the very top of the list is a custom size. It opens two fields for width and height, permitted are 50 to 5000 millimetres; the dimensions of the format previously chosen serve as starting values. The orientation buttons are without effect in this case, because both dimensions are

set freely. The entries belong to the project and are saved with it. The format used last applies again to new projects at the next start.

11.2 Contents and legend

Title, project name and date are entered in the dialogue and appear in the legend, the title as a heading and the project name beneath it.

The legend also shows the logo, the address and the explanation of the transport modes and of the interval. The sample lines carry exactly the stroke weight with which the lines appear on the sheet, in the corridor view the band weight. If the header block is enlarged or reduced at its corner handle, texts, logo and spacings follow the new size, whereas the sample lines and their dash patterns remain true to the scale of the sheet.

The logo comes from the settings set. For a single export, Choose file selects a different logo, and Standard fetches the stored one back.

If the export is made from the corridor view, the legend draws transport modes and interval in the band appearance of the corridor view, and the title reads Corridor view by default, as long as it has not been changed by hand.

11.3 Arrangement

In the preview you pick up network graphic, title, logo and legend with the mouse and move them freely; the legend can thus be shifted to any place.

At the corner handles of the network graphic it is enlarged or reduced proportionally.

Reset layout to default restores the original placement.

The preview zoom at the top right changes only the view, not the export; the 1:1 button next to it restores the fitted size.

11.4 Fonts of the export

Under Adjust fonts, typeface and size for title, legend, project name and date are available separately for selection.

11.5 Producing

SVG saves the network graphic as a vector graphic for further processing.

Create PDF exports it in the chosen paper format as a PDF.

11.6 Viewer file

Create viewer file stores a self-contained HTML file. It contains both views of the project and can be opened in any browser, without Synchronion and without access; it is thus the simplest way of passing on a result.

The file is meant for viewing. Switching between network graphic and corridor view, zooming and fitting are possible, editing is not. The tick Allow PDF and SVG export in the viewer file decides whether the recipient may produce an export from it themselves.

The language of the operating interface is baked in when it is produced: the file appears in the language in which it was created.

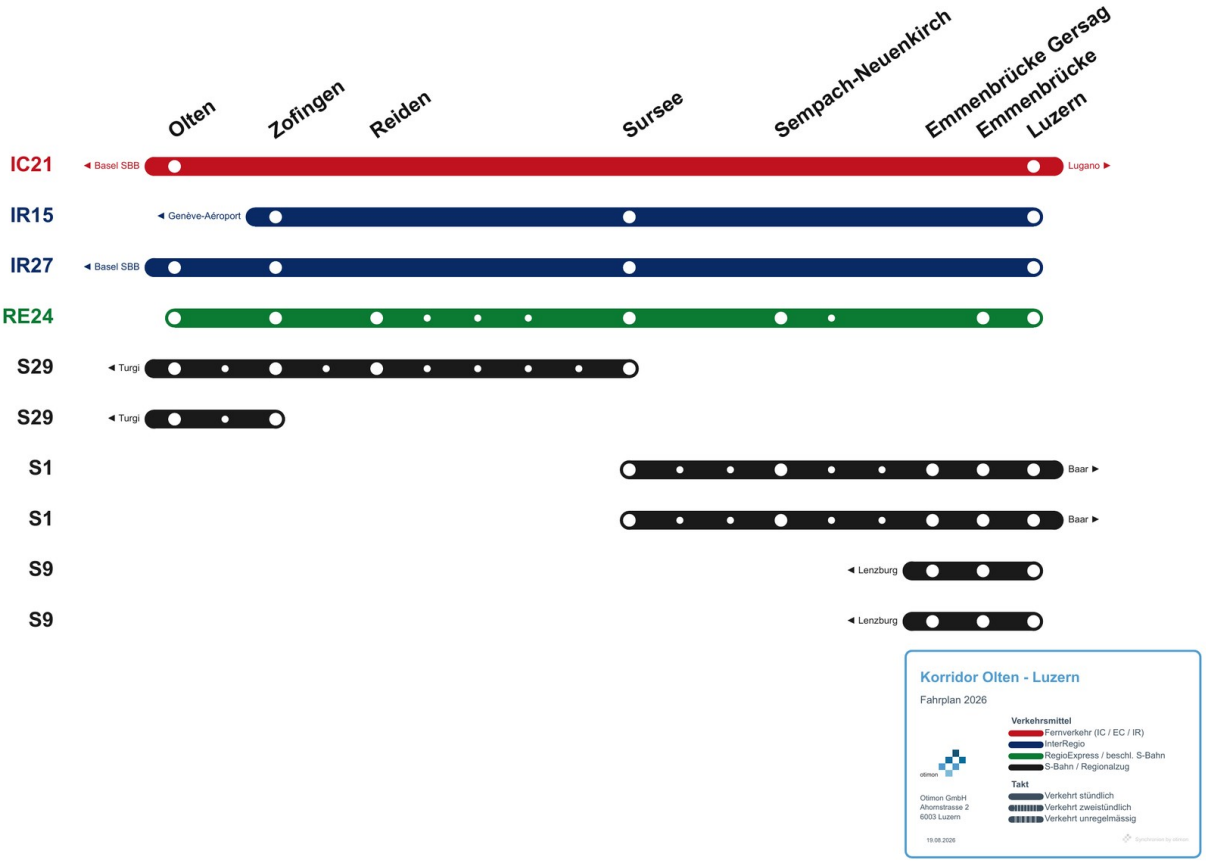
12 Corridor view

12.1 What the corridor view shows

The corridor view is the corridor overview. Every line occupies one row and appears as a thick band in the colour of its transport mode; the dash pattern shows the interval as in the

network graphic. Nodes, that is stations with at least two lines stopping there, are large white dots and are labelled above; served stops of individual services are small dots. Intermediate stops likewise appear as small dots, distributed evenly between the neighbouring stations.

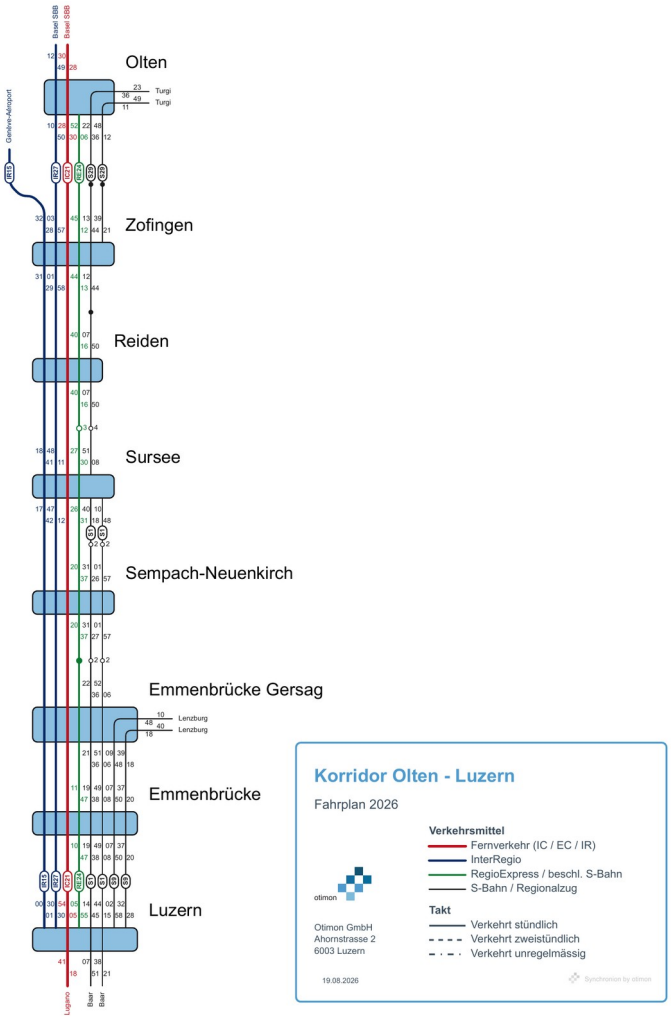
The line names stand right-aligned in a column at the left edge, independently of the beginning of the band; the outbound and return direction of the same service carry the same name. If a service runs beyond the corridor, a band extension names the destination in the colour of the line.



Corridor view of the Olten – Lucerne corridor: one direction of travel per row, nodes as large dots, intermediate stops as small ones.

The corridor view stays clear when only one corridor is shown per view; for further corridors you create views of their own.

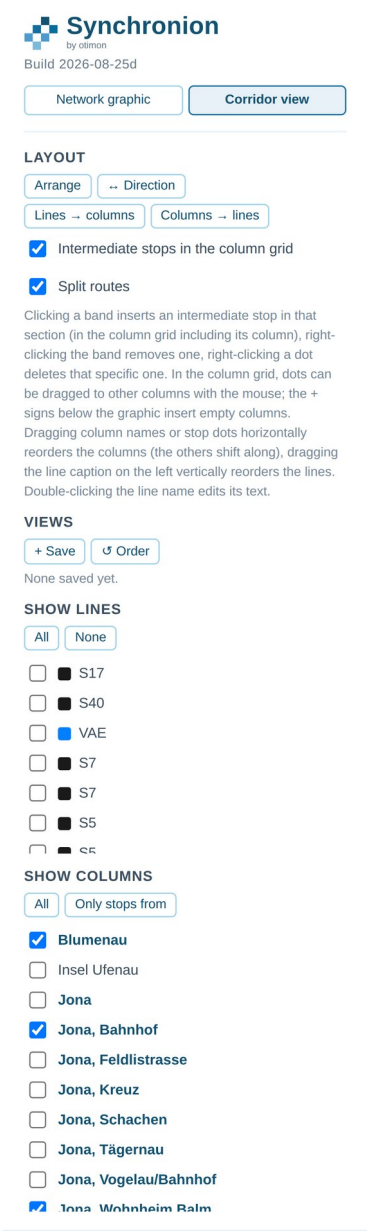
Network graphic and corridor view show the same data: the one the network with geometry and times, the other the service of a corridor. Switching does not change the project.



The same services as a network graphic: geometry, time labels and connections instead of the corridor perspective.

12.2 Choosing lines and columns

The corridor view sidebar carries two lists: Show lines and Show columns. Every service and every station is switched on and off there individually; the button Only stops from reduces the columns to the nodes with one click. Two matching commands keep both selections consistent: Lines → columns shows exactly those columns at which a visible line really stops, and Columns → lines hides the lines which stop at fewer than two visible columns. Both commands are exact matches and, where needed, show again what was previously hidden.



The corridor view sidebar with the arrangement, the saved views as well as the lists for lines and columns.

12.3 Arranging, direction and sorting

The button Arrange places the remaining columns in the sequence in which they occur in the visible lines; lines running in the opposite direction are turned to a uniform direction in the process. ↔ Direction mirrors the whole axis, ↺ Sequence resets all manual interventions in sequence, empty columns and moved dots.

Columns are re-sorted horizontally directly in the graphic: grab a node name or a stop dot and drag; the remaining columns move up, and the gap closes. Lines are re-sorted vertically by dragging their line name onto the desired row. In all dragging operations, including the moving of intermediate stop dots, a shadow preview at the exact target position shows what will happen on letting go.

A double click on the line name changes its text. The name applies to all views of the project; if it is reset to the derived name, the automatic derivation takes effect again, and an empty text deliberately means that no label is written. The reset dialogue lists such renamings individually under Corridor view names.

12.4 Intermediate stops

The number of intermediate stops per section follows the same rule as in the network graphic: without manual intervention the hidden stations with a stop are counted, and a number set by hand replaces this count.

Editing takes place on the band, as section 14.5 summarises: a click inserts an intermediate stop in the section beneath the mouse, a right click removes one, a right click on a dot deletes that dot. Dragging on the band moves the view.

The switch Intermediate stops in the column grid gives every intermediate stop a column of its own; the dots snap onto it, columns of other corridors stay free. With the plus signs below the graphic you insert empty columns, the minus sign removes them; in the grid you drag the dots onto other columns.

The switch Split routes gives intermediate stops of different routes columns of their own. Because intermediate stops carry no station names, Synchronion evaluates the number of stops and the travel time: the same number of stops with a differing travel time means a different route, as do more stops in a shorter time.

A differing number of stops with a correspondingly differing travel time counts as a fast and a slow product of the same route and divides the grid. Without travel times entered, the dots stay together; the result is a suggestion which can be adjusted by hand.

12.5 Saving views

+ Save stores the view as set up under a name: the selection of lines and columns, the sequence, empty columns, moved dots as well as the switches for the column grid and the separation of routes. A click on the name in the list restores it, the cross next to it deletes it. ↺ Sequence resets the sequence of columns and lines including empty columns. In this way you switch between the corridors of a project with one click. All corridor view entries travel with the project file, the undo and the auto-save.

12.6 Export

The command Export is available in the corridor view as well and uses the same dialogue as the network graphic, including paper format, preview and freely movable arrangement. The legend draws transport modes and interval in the true band weight of the corridor view, the title reads Corridor view by default, and editing aids such as column guides or empty column buttons never appear in the export.

12.7 What does not apply in the corridor view

The corridor view has no geometry and no time labels; node positions, waypoints, connections and times belong to the network graphic. The Edit and Add tools are hidden there, as are Centre, Sort and the grid.

Interchange nodes and the number of intermediate stops apply in both views.

13 Details of the representation

13.1 Transport mode and interval

In the network graphic the lines carry two statements independent of one another. Colour and stroke weight stand for the transport mode, the dash pattern for the interval. This separation is maintained throughout the program and in the export.

For the time labels the following applies: a minute that has been entered appears with two digits, one not yet entered as the placeholder xx. No label stands where a time does not

belong to the role of the node — no arrival at the first station, no departure at the last station of a direction of travel — and at stations which are passed through without stopping.

13.2 Geometry

Lines run exclusively horizontally, vertically or at an angle of 45 degrees. A line label aligns itself with the running direction of its line.

14 Keyboard commands and gestures

The following overviews summarise what is described in context elsewhere.

14.1 Tools

Key	Tool
K	Nodes
S	Line
Z	Time label
B	Caption
A	Connection
W	Waypoint
H	Intermediate stop
V	Join
N	New line

14.2 Commands

Keyboard command	Effect
Ctrl and S	Secure the project as a file
Ctrl and O	Open a project file
Ctrl and P	Open the export
Ctrl and 0	Bring the whole graphic into the picture
R	Switch the background grid on and off
Ctrl and Z	Take back the last step
Ctrl and Y	Restore a step taken back

14.3 Mouse and keyboard on the drawing surface

Gesture	Effect
Mouse wheel	Zoom continuously
Shift and mouse wheel	Move the view horizontally
Space bar and drag	Move the view, with every tool
Middle mouse button drag	Move the view, with every tool

Nodes tool: drag the middle	Move the node
Nodes tool: drag the edge	Change the node size by hand
Nodes tool: Ctrl and click	Select nodes for an interchange node
Right click on a node	Hide the node
Line tool: drag the stub	Re-sort the line at the node
Line tool: Ctrl and drag	Insert a skipped node afterwards
Right click on a line section	Hide the section
Double click on a line	Open the Edit line window
Drawing as far as the edge of the picture	The view moves along automatically

14.4 Edit line window

Key	Effect
Tab	To the next time field along the journey
Shift and tab	To the previous time field
Double click on an empty time field	Set the minute from the stored times

14.5 Corridor view

Gesture	Effect
Click on a band	Insert an intermediate stop in the section
Right click on a band	Remove an intermediate stop in the section
Right click on a dot	Delete this intermediate stop
Drag a column name horizontally	Re-sort the columns
Drag a line name vertically	Re-sort the lines
Double click on the line name	Change the text of the name
Drag a dot in the column grid	Place an intermediate stop on another column

15 When something does not work

15.1 Saving and exporting

If no file dialogue appears on saving and the file lands in the download folder instead, the browser works without a file dialogue; this concerns Firefox and Safari. Place and name are then determined by the download setting of the browser.

If a save fails entirely, in Chrome you check the error text under chrome://downloads and the target folder under chrome://settings/downloads. If the latter lies on a drive that is not connected or in a folder that is not synchronised, every save fails.

15.2 Auto-save and restoration

If the auto-save box shows no target and no Choose target … button appears either, the browser lacks the file dialogue. In this case time-stamped copies arise in the download folder.

If an orange Grant access button stands next to the target, the browser has reset the write permission after a restart; a click on it restores it. Until then the securing into the file rests.

If the start screen opens at the start instead of the last state of work, either the session was ended with To the start page, or the browser deletes website data on closing. This setting is found in Chrome under chrome://settings/cookies. In an incognito window nothing is kept as a matter of principle.

15.3 Representation

If xx stands at a station instead of a minute, no time has been entered there yet. At stations passed through, every label is missing, because the times of the neighbouring stops apply for them.

If a node seems too large, a line section is presumably hidden there; the node size follows all the lines connecting to it. The reset dialogue shows under Hidden line sections which they are.

If lines overlap or kinks arise, the nodes lie too close together or in an arrangement which the geometric rules do not permit. Moving the nodes and then the command Sort remedies this.

If the corridor view stays empty, either no line is switched on or fewer than two columns are visible. All in both lists restores the initial state.

15.4 Operating points

If Synchronion reports at the start that the service points could not be loaded, the connection to the server is missing or the file cannot be reached. The file can be loaded by hand through the file selection; afterwards Synchronion continues to work as usual.

If the suggestion list does not find a known station, it is excluded in the filter Transport modes in use or in the choice of countries. The row beneath states the number of active service points.