Network Diagram Builder

User guide: editor interface and features

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1. What the editor is
2. Getting started
3. Program window
4. Devices
5. Connections
6. Groups, pages and background
7. Annotations
8. Selecting and arranging
9. VLANs and search
10. Diagram validation
11. Device table and CSV
12. Rack cabinets
13. Cables, ports and addressing
14. Appearance
15. Projects, files and export
16. Keyboard shortcuts

1. What the editor is

Network Diagram Builder is a browser tool for drawing IT network diagrams. You can place devices, connect them, describe them with IP addresses and VLANs, check the diagram for errors and save the result as an image, a PDF or a project file.

2. Getting started

Open the editor page in your browser. On the program’s website you enter the editor by signing in to an account (chapter 17): enter your email address and password and choose “Sign in”. After refreshing the page, the program asks for your password again to unlock your projects, unless you tick “Remember on this computer for 12 hours” when signing in. Without an account, choose “Try without an account” on the program’s website or on the sign-in screen: for 2 hours you have the full editor, and projects stay in this browser (chapter 17, Guest mode).

On first launch the editor shows a small sample diagram. After that it returns to the project you opened last.

The editor is available in Polish, English and German. On first launch it follows your browser language. You can change it with the small language selector at the top of the page, also on the sign-in screen. The page reloads and remembers your choice. Your project stays as it was, but the undo history is cleared. Names you typed in are not translated.

3. Program window

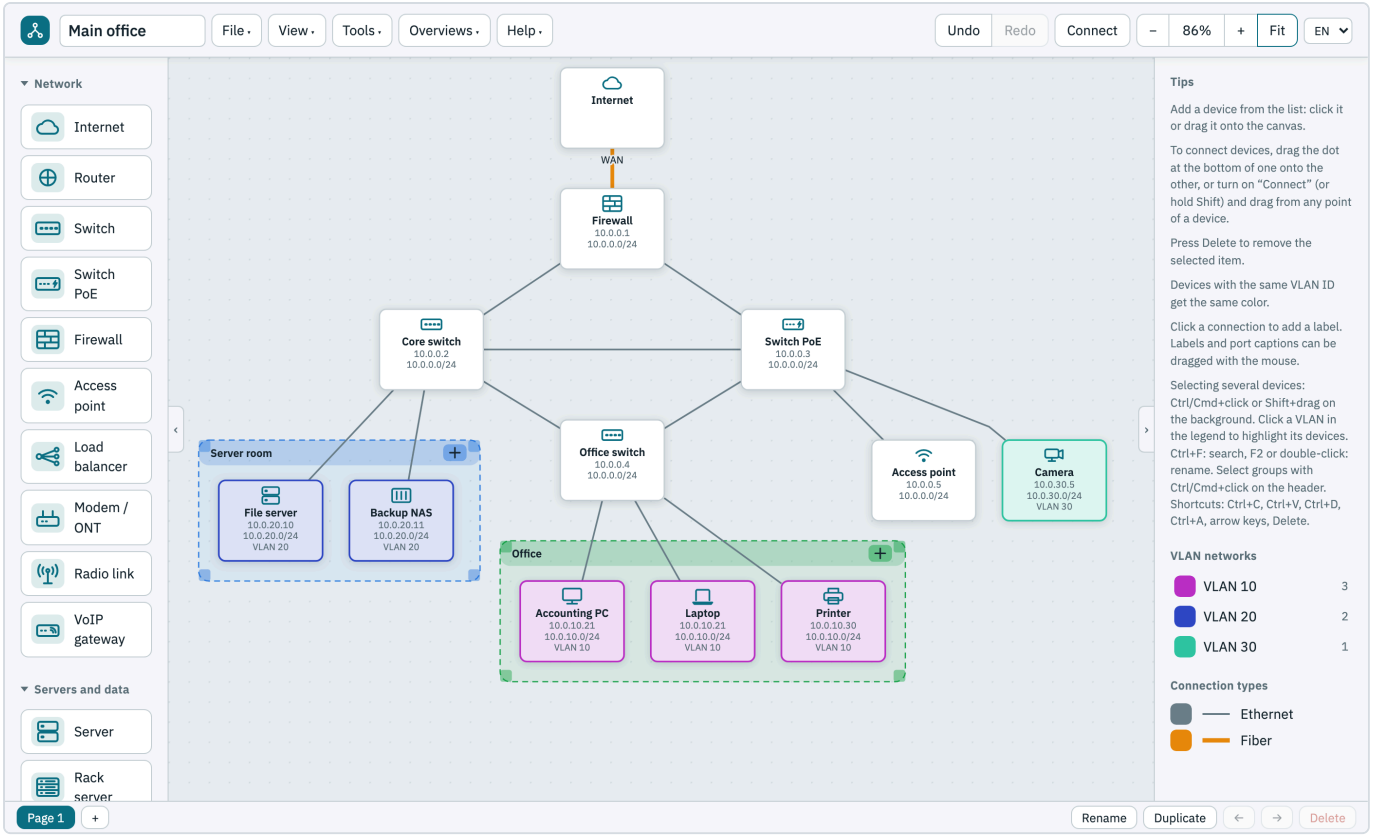


Figure 1. Main window: palette on the left, canvas in the middle, properties panel on the right.

Area	What it is for
Header	Project name, command menus, pinned commands, undo, zoom and language.
Palette (left panel)	Devices sorted into categories, plus groups. Sections can be collapsed, and their state is remembered.
Canvas	The drawing area. Drag the background to pan the view. To pan from anywhere, even over a device, hold Space or use the middle mouse button.
Properties panel (right)	Fields of the selected item. When nothing is selected, it shows tips and the legends of VLANs and connection types.

Both side panels have a small button on their edge that collapses and expands them. Dragging this button or the edge changes the panel width, and a collapsed panel expands right away. Double-clicking the edge restores the default width. A wider palette arranges devices in columns. The program remembers these settings.

Commands are in five drop-down menus in the header, and the longer menus are split into labelled groups. **File**: Project (Projects, Account when the website has accounts, saving and opening a file), Backups (Project versions, backup and restore) and Export (PNG, SVG, PDF and title block, draw.io, JSON), plus Clear. **View**: Arrows, Frames, Frames on this page only, Grid, Appearance, Settings and Presentation mode. **Tools**: Create (Templates, Diagram generator, Arrange diagram), Analysis (Validation, Route, Failure simulation, Subnet calculator) and Terminal. **Overviews**: Table, Racks, Cable list, Port map, IP plan, Deployment plan and Network report. **Help**: Documentation, Keyboard shortcuts, Changelog and About, and in the Legal group Privacy and, on the program’s website, Privacy policy, License and terms and Contact (how to write to the author). Undo, Redo, Connect, zoom and language are always on the bar.

The pin next to a command in a menu pins it to the bar as a separate button, and clicking it again unpins it. The command also stays in the menu. Pinned commands are remembered in this browser.

Command	What it does
Undo, Redo	Reverses or restores a change. The history covers 100 steps.
−, 100%, +	Zoom from 25% to 250%. Clicking the value returns to 100%.
Fit	Fits the view to the whole diagram.
Arrows, Frames, Grid	Show or hide arrows on connections, frames around devices and the grid.
Helper	A plug in the bottom left corner of the canvas. Clicking it shows a random tip, and the Next button shows another. It is off by default; turn it on in the Settings window.
Frames on this page only	When off, Frames applies to all pages of the project. When on, the open page has its own setting and Frames changes only that page. Export and PDF show each page with its setting.
Connect	Mode for drawing connections from any point of a device.
Appearance	Appearance settings window (chapter 14).
Settings	Program theme (automatic, light, dark, high contrast or themed), the blue light filter and the helper (chapter 14). With an account you can also open the window from the account panel.
Presentation mode	Full screen with the diagram only, no editing. Change the project page with the buttons at the bottom of the screen, the mouse wheel, the arrow keys, Page Up and Page Down, or the space bar. **Esc** ends the mode.
Validation	Opens the diagram check panel (chapter 10).
Table	Device sheet with CSV import and export (chapter 11).
Diagram generator, Deployment plan	A new page from groups and device counts, and a deployment task list (chapter 13).
Route	Shortest path between two devices (chapter 13).
Templates	Ready-made network fragments and your own templates (chapter 6).
Arrange diagram	Arranges devices in layers and creates group frames (chapter 11).
Racks	Rack view: placing devices in slots (chapter 12).
Cable list, Port map, IP plan, Network report	Overviews of connections, ports, IP addresses and VLANs (chapter 13).
Terminal	Commands typed on the keyboard and a search for menu features, also with Ctrl+K (chapter 16).
Projects	Project list: open, duplicate, delete, new project.
Save file, Open file	Saves and opens a project as a `.json` file.
Save PNG, Save SVG	Exports the diagram to an image.
Export to draw.io (BETA)	A .drawio file with all project pages (chapter 15).
PDF and title block	Title block data and saving to PDF (chapter 15).
JSON	Project data as text: view, copy, load pasted data.

Command	What it does
Clear	Deletes the whole diagram, or with several pages everything on the open page (after confirmation). You can undo this.
Documentation	Opens this guide in a new tab.
Keyboard shortcuts	List of shortcuts. The `?` key opens it too.
Changelog	Program versions and what changed in each. After a program update, the first time you enter after signing in, a What's new window shows the changes since your last visit; the Don't show again box turns it off, and the Show what's new after a program update switch in the Changelog window turns it back on.
Privacy	What data the program saves and where.
About	Program version and author.
PL, EN, DE	Language of the editor (chapter 2).

4. Devices

Add a device by clicking it in the palette or dragging it onto the canvas. Rename it by double-clicking, with `F2` or in the properties panel.

Category	Device types (31)
Network	Internet, Router, Switch, Switch PoE, Firewall, Access point, Load balancer, Modem / ONT, Radio link, VoIP gateway
Servers and data	Server, Rack server, Virtual machine, NAS, KVM switch
Workstations and peripherals	Computer, Laptop, Smartphone / tablet, IP phone, Printer, Scanner / MFP, TV
Power and infrastructure	UPS, PDU, Rack cabinet, Patch panel
Security and IoT	Camera, CCTV recorder, Card reader, IP intercom, IoT / PLC controller

Device data

- **Basic:** name, IP address, VLAN ID, network.
- **Additional information:** MAC, model, location, serial number, description or notes. They appear in the tooltip when you hover over a device, and the search covers them.
- **Size:** tile size, label font and frame size. The "Apply size, font and frame to" list sets the scope of the change: this device, all of this type or all devices.

Custom elements

When something is missing from the palette, the "New element" button in the "Custom elements" section creates a new device type. Enter a name and pick an icon from the set or upload your own (PNG, JPG or SVG). A custom element works like any other device: it has the same fields and connections, and it appears in the table, cabinets and exports.

- **Availability:** elements are remembered in this browser, so you see them in every project.
- **Project file:** a used element is also saved in the project, so the file opens correctly on another computer.
- **Editing:** changing the name or icon applies at once across the project. The names of devices already added stay.

- **Deleting:** an element used in the open project cannot be deleted.
- **Backup:** it also includes the list of custom elements.

5. Connections

To connect devices, drag the dot at the bottom of one onto the other. You can also turn on “Connect” or hold `Shift` and drag from any point of a device.

Connection points

A line can attach at any point of a device frame. When frames are turned off, it attaches at the edge of the icon and label. This works in all routing modes.

- **Line end:** lands where you release the mouse button. Releasing inside a device picks the nearest point of the frame. A dot shows that point while dragging.
- **Line start:** lands where you start dragging with `Shift` or in “Connect” mode. A line started from the dot at the bottom of a device has an automatic start.
- **Changing the point:** select the connection and drag the dot at its end along the frame.
- **Going back:** the “Restore automatic line ends” button in the connection panel.

The point stays at the same place on the frame even when the frame is resized.

Property	Description
Type	Ethernet, Fiber, Wi-Fi, VPN / WAN and fibers by fiber kind: single-mode OS1/OS2 (yellow), multimode OM1/OM2 (orange), OM3 (aqua), OM4 (violet) and OM5 (lime green), as well as DAC cable (copper with SFP/QSFP plugs), AOC cable (active optical), stacking cable and console cable. Fiber colors match the cable jacket colors. On stacking and console cables, validation does not check VLANs or loops. Each type has its own line style and a color you can change in the “Connection types” legend.
Line width	For this connection, all of this type or all connections.
Arrows	Both ends, one end or no arrows.
Arrowhead style	Filled triangle, open (V), diamond, circle.
Label and ports	Connection description and port names at both ends. Labels can be dragged with the mouse.
Port VLANs	Set separately at each end. One value is an access port, and several values or a range are a trunk, e.g. `10,20,30–40`. They appear in the caption next to the line.
Cable type and length	E.g. Cat6, OM3 and 30 m. They appear in the tooltip when you hover over the line.
Aggregation (LAG)	Bundle name, e.g. Po1.

Parallel connections and LAG

You can draw several connections between the same devices. You can also use the “Add parallel” button in the connection panel, which copies the type, cable data and LAG name.

- Automatic lines arrange themselves side by side. Lines with fixed points or a manual route stay where you put them.
- Two or more links between the same pair of devices with the same LAG name form a bundle. It is marked with an ellipse and its name, also in exports.

- Validation treats a bundle as one link. Parallel links without a shared LAG name are reported as a possible loop.

Line routing

In the “Appearance” window, choose one of the modes: straight lines, avoiding devices or right-angle lines. You can also set a route by hand:

- a filled dot on the selected line moves a bend, and double-clicking it removes the bend,
- an empty dot in the middle of a segment adds a new bend,
- the “Keep right angles” option preserves right angles in a manual route,
- “Restore automatic route” clears the manual points.

6. Groups, pages and background

Groups

A group is a colored frame with a header, e.g. “Server room”. Add one with the button in the “Layout” section of the palette, or drag it onto the canvas. When you click the button, the group lands on free space in the view or, when there is none, below the diagram.

- A new group has “Move frame only” turned on: dragging the header moves the frame alone, so you can fit it around devices without moving them.
- With the option off, dragging the header moves the group with the devices whose center lies inside the frame, and the cross handle then moves the frame alone.
- A group lying entirely inside another group (e.g. “Server room” in “Building A”) moves with it, just like devices. A locked group stays in place.
- The corner handles resize the frame.
- Rename the group by double-clicking the header or in the panel, where you can also pick its color.

Project pages

A project can have many pages, e.g. “Floor 1”, “Server room”, “Logical L3”. The tabs are in the bar below the canvas.

- **Page bar:** the + button adds a page and Duplicate copies the open one. The arrows change the order, and Delete removes the page. A page with content is deleted only after confirmation.
- **Name:** the “Rename” button or a double-click on the open tab.
- Each page has its own devices, connections, groups and annotations. Appearance, VLAN colors and title block data are shared by the project.
- **Copying between pages:** `Ctrl` + `C` on one page and `Ctrl` + `V` on the other.
- **Open page:** validation, the table with CSV, search, “Clear” and PNG and SVG export cover only this page. Validation and the table counter then show the page name, validation lists the pages with problems (clicking goes to the page), and search shows hits on other pages and goes to them with Enter.
- Undo takes you to the page where the change was made.

Background: floor plan or map

The “Background” button in the “Layout” section of the palette loads a PNG, JPG or SVG image under the diagram. Each page can have its own background, so each floor can have its own plan.

- **Placing:** drag the image to move it. The corner dots resize it and keep its proportions. The arrow keys work too.
- **Visibility:** the slider in the panel lightens the plan so that the diagram stays readable.
- **Lock:** lock the background once it is in place. Clicks then pass through the image, and you can reopen its panel with the “Background” button in the palette.
- **Export:** the background is included in PNG, SVG and PDF.

> **Important:** images take up a lot of browser storage. The longer side is reduced to 2400 px and the image is saved as JPEG. When space runs out, the program warns you and the diagram is saved as usual. The image then lasts only until you close the page, so save the project with “Save file”, because the file contains all images.

Templates

The Templates command in the Tools menu inserts ready-made network fragments: a small office, server room, monitoring, Wi-Fi network and branch with VPN. The fragment is placed below the diagram and stays selected, so you can move it right away. Undo removes it in one step.

- **Your own template:** select items on the diagram, enter a name and click Save selection. The template includes devices, the connections between them, groups and annotations.
- **Single device:** select one device, for example a server with a model, port count and U height, and you get a ready pattern to insert.
- **What is not saved:** the IP address, MAC and serial number, because they belong to one unit. Locks and manual line routes are not saved either.
- **Names:** when a name already exists on the page, the program uses the next number, for example SW-01 becomes SW-02.
- **Availability:** your templates are shared by all projects in this browser and are included in backups. Deleting a template cannot be undone.

7. Annotations

Annotations are free labels and shapes, e.g. “DMZ” or “Building B”. Add them in the “Layout” section of the palette: Text, Rectangle, Ellipse, Arrow. Click a button or drag it onto the canvas. They are included in PNG, SVG and PDF exports.

- **Text:** you can start typing right after adding a text. Edit the content in the panel, and a double-click or `F2` puts the cursor there. Text can have many lines, and shapes and arrows can have a caption too.
- **Moving and size:** drag an annotation to move it. The corner dots resize a shape, and the dots at the ends of an arrow set its direction and length. Arrow text runs parallel to it, above the middle of the line, and is never upside down.
- **Appearance:** color, text size, line width, dashed line, fill.
- Grab a shape without a fill by its edge or caption. A click inside it reaches whatever lies underneath.

- **Layers:** annotations lie above groups and below connections and devices. You can change the order of annotations in the panel (chapter 8).
- **Groups:** an annotation whose center lies in a group moves and copies with it.

Annotations can be selected together with devices and groups: `Ctrl` + `A`, `Ctrl`+click or `Shift`+drag on the background. An area selects an annotation when it covers all of it.

8. Selecting and arranging

- **Several items:** `Ctrl`+click or `Shift`+drag on the background. Select groups with `Ctrl`+click on the header. A selection can combine devices, groups and annotations.
- **Alignment:** horizontally (left, center, right) and vertically (top, center, bottom).
- **Even spacing:** horizontally or vertically, from three selected devices.
- **Copying:** `Ctrl` + `C`, `Ctrl` + `V`, `Ctrl` + `D`. A copy includes the connections between selected devices and the full contents of groups: devices, annotations and the groups lying inside. A copy of an inner group takes only what is inside it.
- **Moving:** the arrow keys move by 12 px, and with `Shift` by 48 px.
- **Arranging aids:** snapping to a 12 px grid and guide lines at the edges of other items. Turn both on in the “Appearance” window.
- **Auto-scroll:** dragging near the edge scrolls the canvas.

Order

Items lie in fixed layers, from the bottom: background, groups, annotations, connections, devices. An annotation therefore cannot lie above a device. Within a layer, change the order with the buttons in the panel of the selected device, group or annotation. Connections do not have these buttons.

- **To front, To back:** move the item to the very top or bottom of the layer. Shortcuts: `Ctrl` + `Shift` + `]` and `Ctrl` + `Shift` + `[`.
- **Forward, Backward:** move the item by one place. Shortcuts: `Ctrl` + `]` and `Ctrl` + `[`.
- **Several items:** each kind changes place in its own layer, and selected items keep their order among themselves.
- **Export:** PNG, SVG and PDF use the same order as the canvas.
- **Table:** the device order is also the default row order in the table and in the CSV file.

Locking

The “Lock” button in the panel or `Ctrl` + `L` locks the selected devices, groups and annotations. Connections cannot be locked. A locked item shows a padlock on the canvas, which does not appear in exports. The button then changes to “Unlock”, and with a partly locked selection it first locks everything.

- **What you cannot do:** move the item with the mouse or arrow keys, resize it with handles or delete it. Alignment and dragging the group it lies in do not move it either.
- **What still works:** selecting, editing in the panel (also the size slider), renaming, changing the order, drawing connections from a device and copying.
- **Dragging:** dragging a locked item pans the view, so a large locked shape does not get in the way.
- **Several items:** locked items stay in place, and the rest of the selection moves or is deleted. When deleting, the program reports how many were skipped.

- **Copy:** a pasted item is unlocked.
- **Clear:** this command in the File menu also deletes locked items.

Locking the background works differently and is described in chapter 6.

9. VLANs and search

Devices with the same VLAN ID get the same color. The color is automatic, but you can change it in the device panel or in the legend. Clicking a VLAN in the legend highlights its devices and dims the others. The legend and highlighting use the device VLAN field, not port VLANs.

`Ctrl` + `F` opens the search. It covers names, IP addresses, networks, VLANs (e.g. “vlan 20”), MAC addresses, models, locations, serial numbers and notes. `Enter` goes to the next result, and `Shift` + `Enter` to the previous one.

10. Diagram validation

The Validation command in the Tools menu opens a floating panel with a list of problems on the open page. With several pages the panel also tells you how many IP addresses belong to another device on another page. This is not an error, because pages can be separate networks, e.g. branches with the same range; the same device (the same name) on several pages does not count. The IP plan shows the details. The panel does not block your work and the list refreshes with every change, so you can fix the diagram with the panel open. Validation changes nothing in the project.

- Clicking a problem selects the devices or link and scrolls the view to them.
- Move the panel by its header and resize it with the handle in the bottom right corner.
- The panel does not leave the browser window. After a page reload it returns to its default position.

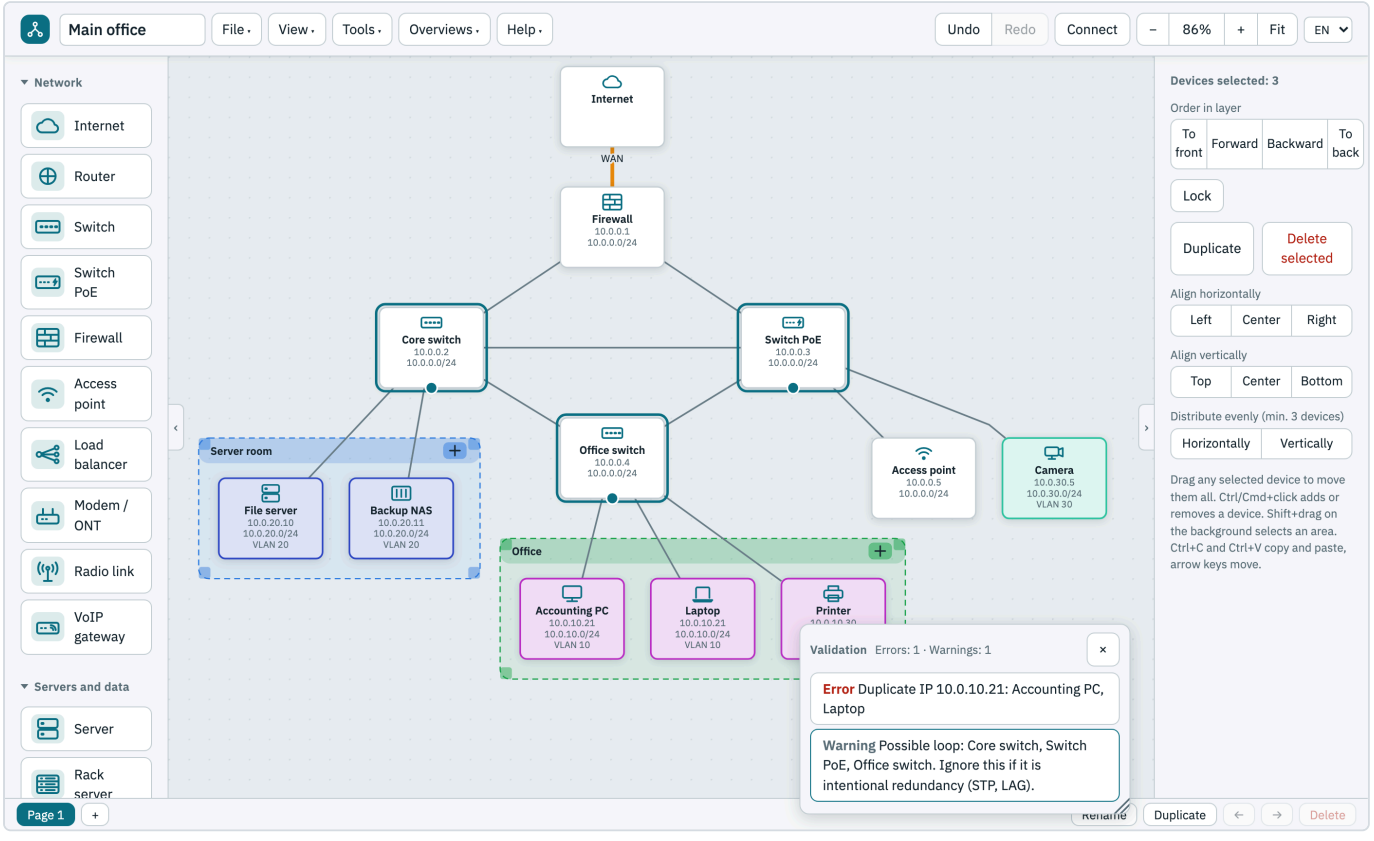


Figure 2. Validation panel. Clicking a problem selected the devices that form a loop.

Level	Rule	When it appears
Error	Duplicate IP	The same address on several devices, also when one entry has a mask (`10.0.0.1` and `10.0.0.1/24`).
Error	Address outside network	The IP address is not in any network entered for the device.
Error	Invalid format	An incorrect address or network, or a network without a mask.
Error	VLAN mismatch	The link ends have no VLAN in common. The program compares port VLANs, or the VLAN of the end device if there are none.
Error	Invalid port VLAN	A number outside 1–4094 or an incorrect range.
Error	Different VLANs in a bundle	Links of one LAG bundle have different VLANs at the same device.
Warning	Different VLANs on a trunk	Both ends are trunks, but some VLANs exist on one side only.
Error	VLAN split	Devices of the same VLAN cannot see each other, because a link on the way does not carry that VLAN. The message points to the break, and with a single break a click selects that link.
Warning	VLAN split without a break	The devices of a VLAN have no network path between them. This may mean two separate networks with the same number.
Warning	VLAN does not reach the gateway	The VLAN devices are cabled to a router or firewall, but a link on the way does not carry that VLAN. The VLAN may be isolated on purpose.
Warning	No connections	The device has no connection.
Warning	Possible loop	Devices form a closed circuit in the network.
Error	Position taken in a cabinet	Two items occupy the same slot on the same side of a cabinet.
Error	Outside the cabinet	A device sticks out above the top of the cabinet.
Warning	The cabinet is full	The cabinet has no free slot left.
Warning	No U position	The device has a cabinet selected but no slot number.

How a VLAN path is traced

A VLAN passes through switches, PoE switches, access points, radio links and patch panels. It ends at a router or firewall, and a server or computer does not carry it further. VPN links and power connections do not count. A port with no VLANs entered passes all of them, so a diagram without port data reports no breaks.

What validation skips on purpose

- **VLAN:** link ends with no known VLANs. The VLAN field of a router, switch, PoE switch, firewall, access point, load balancer, radio link and patch panel does not describe a port, so only port VLANs count for these devices. VPN links are also skipped.
- **Loops:** circuits through a router, firewall or Internet, VPN links and connections to a UPS, PDU or cabinet. A loop is only a warning, because it may be intentional redundancy (STP, LAG).
- **No connections:** UPS, PDU and rack cabinets.
- **Addresses:** entries other than IPv4, e.g. `DHCP`, IPv6 or host names.

- **Other pages:** validation checks only the open page, so it will not find e.g. the same IP address on two pages.

> The address and network fields can hold several values separated by a comma, semicolon or space, e.g. `10.0.0.1, 10.0.1.1`. A mask can be written as `/24` or `/255.255.255.0`.

11. Device table and CSV

The Table command in the Overviews menu has two tabs: Devices and Connections. The first shows all devices as a sheet. Changes in cells appear on the diagram right away, and each field is one undo step.

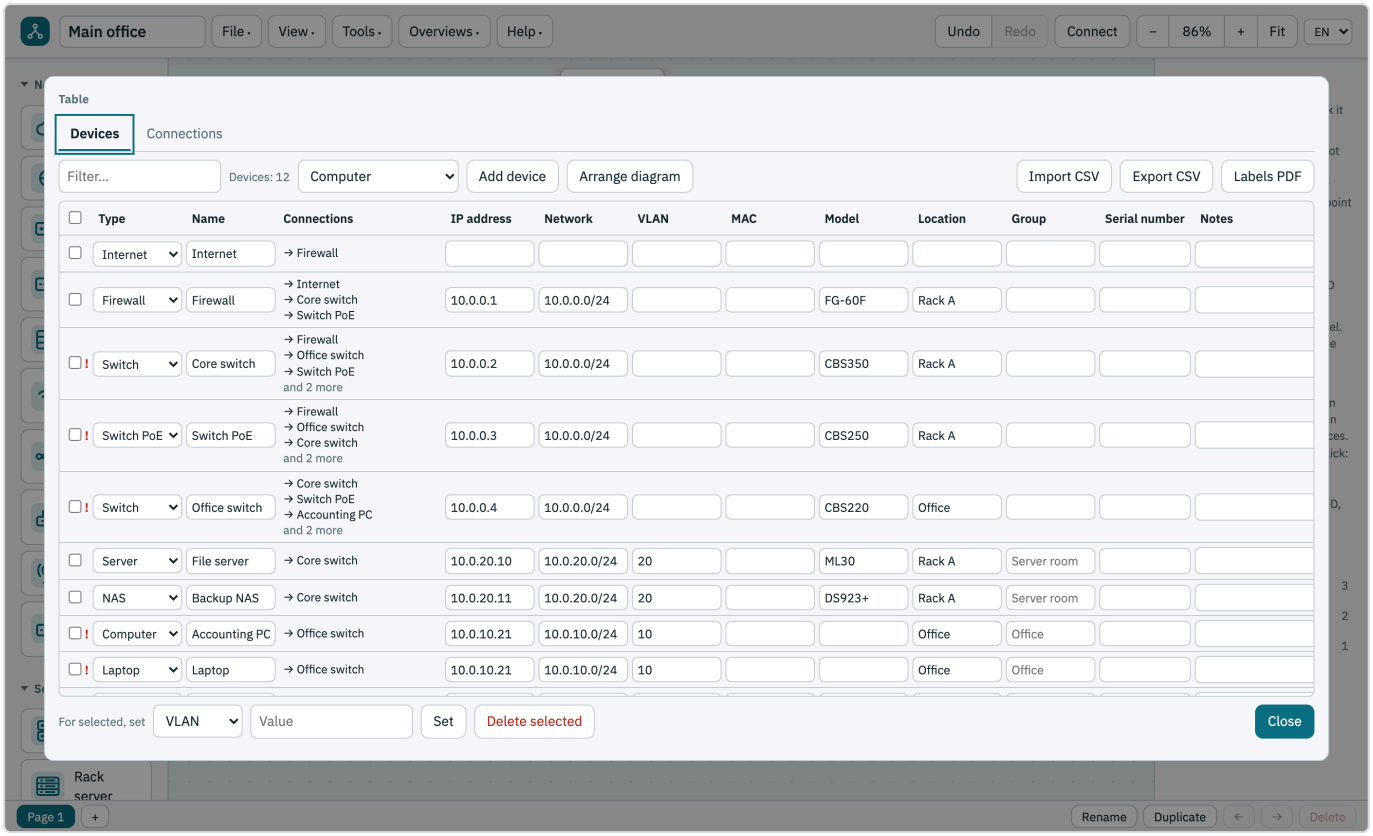


Figure 3. Device table. An exclamation mark means a validation problem, and hovering over it shows the description.

- **Filter:** searches all columns and ignores accents.
- **Sorting:** click a column header. Clicking again reverses the order.
- **Bulk change:** select rows and set their VLAN, network, location or model. You can also delete the selected rows with their connections. Locked devices are skipped.
- **Show:** closes the table and goes to the device on the diagram.
- **Add device:** choose a type from the list and click the button. The device is placed in a free spot on the diagram, and the cursor moves to its name.
- **Connections column:** shows where a device leads, for example `1 → SW-02 (24)`: the port, the other device and its port. With many connections, the full list is in the tooltip. Clicking opens this device's connections in the second tab.

Connections tab

Each row is one connection. Here you change the devices at both ends, the ports and the type, and the changes appear on the diagram right away. Further cable data, such as length, is in the Cable list.

- **New connection:** choose two devices, enter the ports and click Add connection, or press Enter in a port field. The first device stays selected and the port number goes up by one, so you can quickly enter the next switch ports.
- **Changing a device** moves that end of the connection. The manual line route and that end's attachment point and VLAN are then cleared.
- **Delete selected** removes the chosen connections and keeps the devices.
- **Import CSV** reads a file with the columns From, Port, To, Port and Type, as well as a file saved from the Cable list. Devices are matched by name and then by IP address, so import the devices first. A connection with the same ends and ports is updated instead of being added again. The summary gives the number of unknown devices.
- **Filter, sorting and Show** work as in the Devices tab.

Arrange diagram

The command in the Tools menu or the button in the table places devices from the top: Internet, firewall, router, switches and end devices. The order comes from the connections, so fill in the Connections tab first. Arranging works on the open page, only when you run it, and Undo restores the previous layout in one step.

- **Group:** devices with the same name in the Group column are placed together in one frame. An existing frame with that name is kept, and a missing one is created. If the column is empty, the frame the device stands in counts. Its name then appears in the field as a hint.
- **Locked** devices and groups stay in place, and the layout starts below them.
- **Lines:** manual routes, attachment points and moved connection labels return to automatic settings.
- **Annotations and the background** stay in place. Frames without devices move below the diagram.

CSV export

The file has the columns ID, Type, Name, IP address, Network, VLAN, MAC, Model, Location, Group, Serial number, Notes, Cabinet, U position, U height and Cabinet side. The column names follow the language of the editor. The file opens correctly in Excel. Values starting with =, +, – or @ get an apostrophe, so that Excel does not treat them as formulas. Import removes it.

CSV import

- **File format:** the separator can be a semicolon, comma or tab. The program also recognizes the encoding of files from Polish Excel.
- **Columns:** you need Name or IP address, the rest is optional. Column names are recognized in Polish, English and German, and so are other headers, e.g. Hostname, IP, Subnet, Description, S/N.
- **Matching:** a row updates the device with the same ID or, if there is none, the same name. Without a name, it matches the device with the same IP address. The remaining rows create new devices below the diagram.
- **Empty cells** do not erase existing data. Remove a value in the table.
- **Unknown type:** a new device gets the type Computer, and the summary shows how many such rows there were.
- **Cabinet:** the program looks for a cabinet with that name on the open page. If there is none, the device stays without a cabinet, and the summary shows how many such rows there were. Import does not change the position of locked devices.
- **Undo:** the whole import is one step.

> CSV contains devices only. It does not include connections, groups or annotations, so use “Save file” for a full copy of the project.

12. Rack cabinets

The Racks command in the Overviews menu opens the rack view. It shows the same devices as the diagram, so you do not enter anything twice. A cabinet is an ordinary “Rack cabinet” device from the palette, which also has a height in U. A new cabinet added in this window also appears on the diagram, below the existing devices.

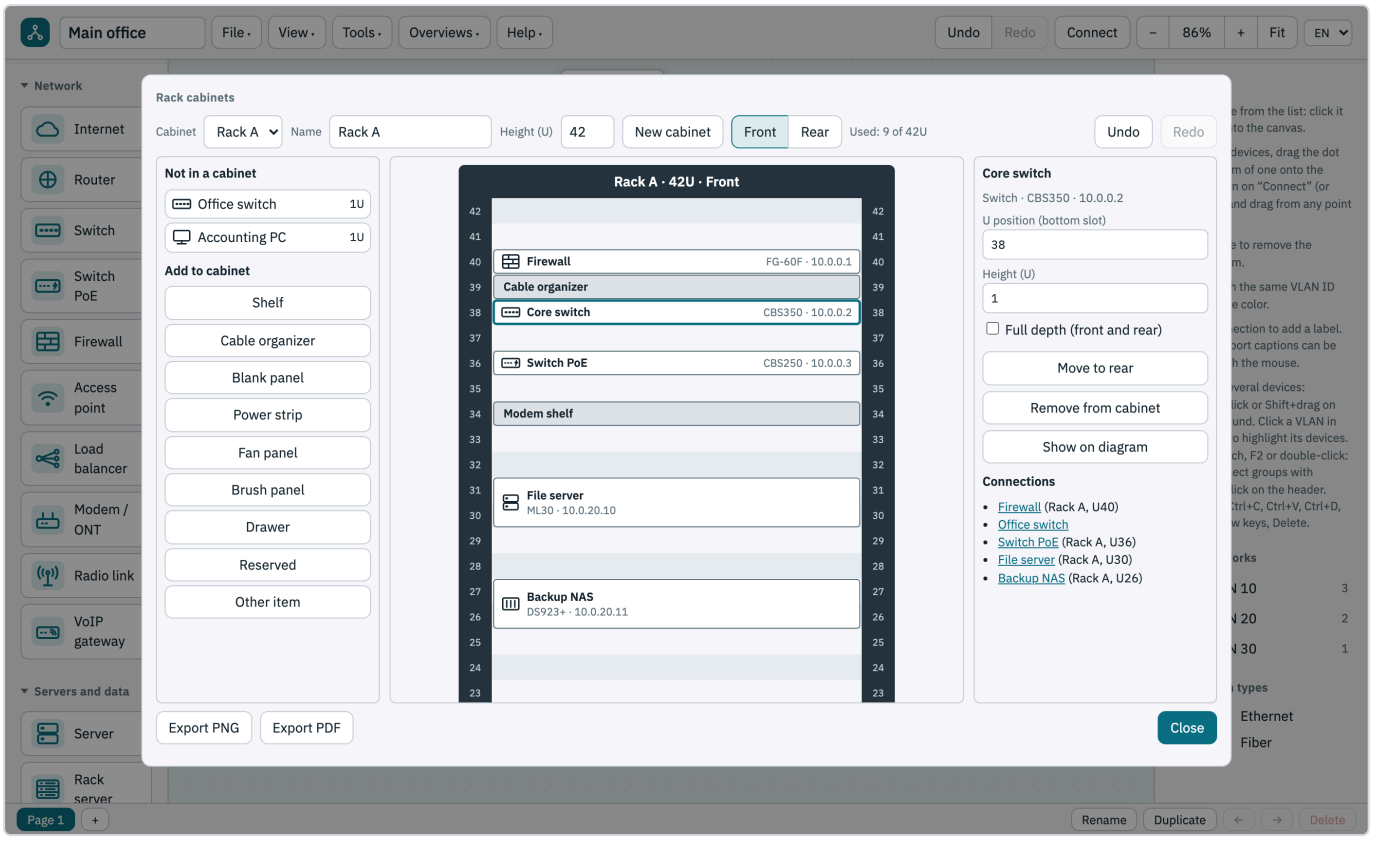


Figure 4. Rack view. On the left, devices without a position; on the right, the data and connections of the selected device.

- **Choosing a cabinet:** at the top of the window, pick a cabinet and change its name and height (from 1 to 60U). The default height is 42U. The window opens on the cabinet of the selected device.
- **Placing:** drag a device from the list on the left onto a slot. The preview is green when the position is free, blue when a swap will happen and red when the device cannot go there. The “Place in the first free slot” button does the same without dragging.
- **Moving:** drag a device in the cabinet or enter a number in the “U position” field. Slots are counted from the bottom of the cabinet, and the position is the bottom slot of the device.
- **Front and rear:** the Front and Rear buttons above the cabinet switch the view. Each side has its own slots, so the same U number can be used at the front and at the rear. New devices and items go to the side you are viewing. “Move to rear” or “Move to front” moves the selected device to the other side if the same position is free there.
- **Full depth:** turn this option on in the panel on the right for long devices. The item then takes the slot at the front and at the rear, and it appears with a dashed frame on the other side. You cannot turn it on when the same position on the other side is taken. CSV files do not include it.

- **Swapping places:** drop a device onto another and they swap places in one undo step. Devices of different heights swap only if both fit. A device from the list takes the place of the one it hits, and that one returns to the list. An item that exists only in the cabinet does not return to the list, so a device from the list cannot take its place. Locked items do not swap.
- **Device height:** servers, NAS devices, UPS units and recorders are 2U by default, and other types 1U. Enter a different value in the panel on the right. A device grows upward and, when there is no room there, downward, and its position then changes.
- **Removing:** drag a device onto the list on the left or choose “Remove from cabinet”. The device stays on the diagram.
- **Connections:** the panel on the right lists the connections of the selected device. The name of the other end takes you to that device. The view does not draw lines between slots.
- **Show on diagram:** closes the window and goes to the device.
- **Undo:** the Undo and Redo buttons also work in this window.

Cabinets on other pages

The Cabinet list shows the cabinets of the whole project, grouped by page. Choosing a cabinet from another page also moves to that page. If the open page has no cabinets, the window moves to the first page that has them, and the **Back to page** button undoes that move. A new cabinet goes on the open page.

Items that exist only in the cabinet

Add shelves, cable organizers, blank panels, power strips, fan and brush panels, drawers and other items with the buttons on the left. They go to the highest free position, and you can then drag them, name them and change their height. They exist only in the rack view, so they are not on the diagram, in the table or in CSV.

The “Reserved” item holds a position for the future, e.g. “new server in March”. It has a yellow background and a dashed frame, and you enter the description in the Name field.

Device list

The list on the left does not show types that usually do not stand in a cabinet: Internet, virtual machines, access points, laptops, smartphones, phones, printers, scanners, TVs, cameras, card readers and intercoms. To place such a device in a cabinet, choose the cabinet and position in the table.

Table, validation and export

- **Table:** it has the columns Cabinet, U position, U height and Cabinet side. Here you can enter a taken position, and validation will show the problem. In the row of a cabinet, the U height column is the height of the cabinet.
- **Validation:** it shows taken positions, devices outside the cabinet, full cabinets and missing positions (chapter 10). Taken positions and devices sticking out have a red frame in the rack view.
- **Export PNG** saves the open cabinet, and **Export PDF** saves all cabinets in the project, each on its own page of the file. A cabinet drawn on several pages goes into the file once. When something stands at the rear of a cabinet, the image shows the front and rear side by side. If the title block is on, it appears on these images too.

> Locking works here too: you cannot move a locked device or remove it from a cabinet, and you cannot move or delete the items of a locked cabinet.

> A copied device does not take the position of the original, so the copy leaves the cabinet. When you copy together with the cabinet, the copies stand in the new cabinet at the same positions. After a cabinet is deleted, its devices return to the list of devices without a position.

13. Cables, ports and addressing

These commands in the Overviews menu gather data you have already entered on the diagram. The cable list and port map show one page, and the IP plan and report cover all pages of the project. You choose the page of the cable list in the Page list, which also gives the number of connections. The device list in the port map is grouped by page. If the open page has no data, the window moves to the first page that does.

Cable list

A table of the cables on the open page: from, to, ports, type, cable, length, label and LAG. Wi-Fi connections and VPN tunnels are not cables, so the list, its exports and the labels leave them out, and the summary gives their number. You can correct ports and cable data directly in the cells, and changes appear on the diagram right away. Filter and sorting work as in the device table, and “Show” goes to the connection.

Below the table you see the number of cables and the total length, overall and for each cable type. When a cable has no length, the total is marked “at least”, with the number of cables without a length next to it. **Export CSV** and **Export PDF** save a list of all cables on the open page. The PDF is landscape and has as many pages as needed.

Labels PDF saves labels for each end of a cable: this place first, then the other end, e.g. `SW1 Gi0/1` and → `Server eth0`. The same button in the device table makes device labels for the selected rows, or for all devices if none is selected. A device label always has the name, and you tick the IP address, model, MAC and serial number in the window before saving; empty fields take no space.

In the same window you choose the size: a ready-made A4 sheet of self-adhesive labels, a custom size in millimetres on an A4 sheet (with or without cutting lines), or a **label printer**, which means one label per PDF page the size of the label. On a partly used sheet, enter the label to start at. Print the file at 100% scale without fitting to the page, otherwise the labels will not line up with the sheet. The program remembers the last settings.

Port map

The ports of the selected device as a grid: odd numbers on top, even numbers at the bottom. A used port has the color of its connection type, and red means it has several connections. Clicking a port shows where it leads, with the type, VLANs, cable and label.

- **Port number:** the number at the end of the name in the connection, e.g. `Gi0/12` is port 12.
- **Number of ports:** by default 24 for switches and patch panels, 8 for routers and firewalls, and 4 for others. Enter your own value above the grid (up to 96). Without it, the grid grows to the highest number in use, and the usage counter says “default number of ports for the type”, as the network report does.
- **Free port:** if the device has connections without a port name, pick one and click “Assign to port”. The name gets the same beginning as the other ports of the device, e.g. `Gi0/2`.
- **Used port:** “Free the port” clears the port name in the connection, and the connection stays.

- **Outside the grid:** below the details you see connections without a port and ports that cannot be shown, e.g. `wan` or `Gi1/1` next to `Gi0/1`.

Validation also reports an error when the same port of a device has several connections.

IP plan

A list of subnets from the Network field and from addresses with a mask, e.g. `10.0.0.1/24`. Each shows its VLANs, the number of used and free addresses, a usage bar and the next free address. Clicking a subnet expands the list of addresses with devices and the free ranges. An address used by two different devices is red. The same device, meaning the same name and address, on several pages counts once. Below the list are addresses that do not belong to any entered network.

Export CSV saves one row per address: network, VLAN, address, device and project page. **Export PDF** saves the whole plan with a summary and the free ranges of each subnet.

When a device has a network with a mask but no address, the properties panel suggests “Next free”. Clicking it fills in the address. The program does not count network and broadcast addresses as free.

DHCP pool: the range in the DHCP column of the Network report, e.g. `.100 – .199 (DC-01)`, `100-199` or `10.0.0.100-10.0.0.199`, does not count as free addresses: the plan, the PDF, “Next free”, the subnet calculator and the `free` command skip it. An ending with a dot replaces the last octets of the network address. Text without a range, e.g. “none”, stays a description. The subnet details show the pool, and devices with an address in the pool are marked “in the DHCP pool”.

The plan only knows the devices in the project (all pages). An address that is free in the plan may be taken in the real network by a device that is not on the diagram, so check it before use. The line above the list and a note in the PDF say the same.

Diagram generator

The generator builds a diagram from a few pieces of data, without drawing. In the window you enter groups, their network and VLAN, and the number of devices of each type, optionally with a model. The result appears on a new page, and you can then change it in the table and on the diagram. Undo removes it in one step.

- **Core:** the first group is the network edge and main switches. Internet, modem, firewall and router connect in that order, and the main switches connect to the last of them.
- **Cables** run along shared buses above the device rows, and port labels sit next to the devices. A group frame takes the colour of its VLAN. You can change the routes by hand later, and “Arrange diagram” returns to automatic routes.
- **You enter the switches yourself,** with a model and port count. The generator does not add them. By default a group switch connects to the core with its last port, and with two main switches the groups are shared between them. In the Connect to field you can choose another switch or gateway, and in Port here and Port there the exact ports. The generator makes sure a port is not used twice and that switches do not connect in a circle.
- **Devices** get consecutive ports on their group's switch. Cameras, access points and phones go to a PoE switch first. A group without a switch connects to the core. A UPS, PDU or rack stays unconnected.
- **Virtual machines** always run on a server. Choose which in the Server field. With the automatic option they are spread over the group's servers, then the others. Without any server the generator will not run.
- **Addresses:** the router, or the firewall if there is no router, gets the first address of each network. If the list does not fit, the device shows the first address and the number of others, for example 10.0.1.1 +3, and

the full list is in the tooltip. Other devices get consecutive addresses. Several groups can share a network, and addresses then continue without repeating. If such a network has different VLANs in its groups, the generator warns you. A group without a network stays without addresses.

- **The summary** below the form shows the device and connection counts. Errors, such as a network that is too small, block generating. Warnings, such as no free ports, do not, and those devices stay unconnected.

Import from UniFi controller

This command in the Tools menu builds a ready diagram from the UniFi Network controller device list: from a file or from the controller response pasted into the window (pasted text does not stay in the field). The result appears on a new page, laid out in layers, or updates the open page (see Updating the open page), and Undo removes it in one step.

- **The controller file:** sign in to the controller in your browser, open `https://controller-address:8443/api/s/default/stat/device` in it (on UniFi OS: `https://console-address/proxy/network/api/s/default/stat/device`) and save the page as a file. If you have several sites, replace “default” with the site ID. In Firefox, save the file from the “Raw Data” tab. A tree view copied from the screen is not enough, because it lacks the full data structure; the window then tells you how to save the file.
- **What goes into the project:** switches (with PoE ports as PoE switch), access points, gateways and other network devices with name, model, local network IP address, MAC address, serial number and port count, plus connections with port numbers from uplinks and LLDP neighbors. Two cables in one bundle get a LAG name, and wirelessly linked access points are joined by a Wi-Fi line.
- **What the program leaves out:** passwords, device keys and fingerprints, network, VLAN and Wi-Fi configuration and all other data in the file, the public (WAN) address, the provider's equipment and end devices such as computers and phones. The program looks only for the fields it needs and skips the values of all other fields without reading them. The file is read only in the browser and is not sent anywhere, even when you are signed in: only the finished diagram goes to the cloud, encrypted like every project.
- **No MAC addresses or serial numbers:** with this option checked, the diagram and the preview leave them out. A device without a name then gets its model and a sequence number instead of the end of its MAC address.
- **Internet at the top** adds an Internet device connected to the UniFi gateway. When the file has no UniFi gateway, e.g. the network sits behind a firewall of another brand, the program also adds a “Non-UniFi gateway” above the top switch and connects it through that switch's uplink ports, including the whole LAG bundle. Rename the gateway on the diagram.
- **Layout:** the program uses the switch order reported by the controller. Access points stand in frames below the switch they are connected to (their Group field is the switch name), and non-UniFi devices in frames together with their access points.
- **Non-UniFi devices**, e.g. a switch of another brand that UniFi switches connect to, are added from LLDP neighbors on uplink ports. They are named “Non-UniFi 1”, “Non-UniFi 2” and get the port number from their side; rename them on the diagram. They stand above the switches connected to them. If it is an Aruba switch, an access point only knows its internal port number, e.g. “local 107”; the LLDP output from that switch, loaded as a page update, fills in the real switch name and ports.
- **The preview** before creating the diagram shows the device list and connection count, and what the program left out. Devices whose connection the controller did not report stay unconnected.

Import from LLDP and CDP

This command in the Tools menu builds a diagram from text copied from a switch console. The result appears on a new page, laid out in layers, or updates the open page (see below), and Undo removes it in one step.

- **Which command:** on an Aruba switch (ArubaOS-Switch, e.g. 2930F) `show lldp info remote-device detail`, on a Cisco switch (IOS, IOS-XE) `show cdp neighbors detail` or `show lldp neighbors detail`. Copy the whole output together with the command line, because the program takes the switch name from it, and paste it into the window or load text files (RTF saved e.g. in TextEdit works too).
- **Several switches at once:** paste the output from further switches one below the other, also from different vendors, or select several files at once in the file dialog. The program recognises the same device by name or MAC address and draws a cable seen from both ends once. CDP and LLDP output from the same switch becomes one device.
- **Switches with the same name**, e.g. the factory one, are separate devices with a number in brackets, e.g. “Aruba-2930F (1)”, “Aruba-2930F (2)”. The program assigns a neighbour with such a name by MAC address or by the ports both switches see of each other, and the preview reminds you to give the switches their own names.
- **What goes into the project:** switches, access points, phones, routers and other neighbouring devices with name, model, local network management IP address and MAC address, plus connections with port names.
- **What the program leaves out:** everything except these fields, including lines pasted by accident that are not part of the command output (e.g. part of a configuration) and public addresses. The text is not sent anywhere and is gone when you close the window; when you are signed in, only the finished diagram goes to the cloud, encrypted like every project.
- **Stack:** a stacked switch (ports written as member/port, e.g. 2/1 or Gi2/0/1) is split into members, e.g. “Core-1”, “Core-2”, in one group. Uncheck this option to keep the stack as one device. For an Aruba VSF stack, add the output of `show vsf detail`: the program then adds members without neighbours, the model and serial number of each member, and the stack cables labelled VSF.
- **Loop:** a cable between two ports of the same device is reported in the preview and not drawn.
- **Devices without a name**, visible only by MAC address, are skipped by default. An option adds them as “Device” with the end of the MAC address. Another option leaves MAC addresses and serial numbers out of the diagram.
- **Layout:** access points and other devices stand in frames below the switch they are connected to.

Updating the open page from an import

Both imports, from the UniFi controller and from LLDP, can update the diagram on the open page instead of creating a new page. Choose “Update the diagram on the open page” in the window. This way you can build one diagram from several sources: UniFi first, then the LLDP output of further switches, with each new file completing it.

- **Matching devices:** by MAC address, then by IP address, and finally by name when it is unambiguous.
- **What changes:** empty fields (model, IP, MAC, serial number) are filled in, and automatically assigned names, e.g. “Non-UniFi 4”, are replaced with the real switch names. Unnamed ports and ports written as “local 107” (Aruba's internal port number that an access point receives over LLDP) get their real name, e.g. 4/12. Missing devices and cables are added, and new devices stand next to their neighbour.

- **Stack:** when a device turns out to be a stack, it becomes the first member and the other members stand next to it. A cable drawn to the wrong member is moved according to the LLDP ports. An import without real ports, e.g. another UniFi import, does not move such a cable back.
- **What stays:** the program removes and moves nothing. Your names and the ports you entered stay. The preview before saving shows how many devices and cables will be added, how many devices completed and how many ports fixed, and Undo reverts the whole update in one step.

Deployment plan

The plan is a task list for the whole project, calculated from all pages each time it opens, so it always matches the current state. A device with the same name and address on several pages counts once, and with diagrams on several pages the subsections show the page name. A connection to a rack, such as a cable route on a floor plan, does not count as a separate cable if the device already has a connection to a switch. You tick tasks off in the window, and the program saves the progress in the project. Checkmarks stay after diagram changes, and tasks for removed items disappear.

Sections are split into subsections: materials into devices and cables, installation into racks and locations, cabling by the device the cables start from, and configuration by group. A subsection for a group that has a frame on the diagram has a marker in that frame's colour, also in the PDF. At the start, subsections are collapsed. Clicking a header collapses or expands that block, and the buttons at the top do it for the whole plan. The box next to a header selects all tasks in the block, including collapsed ones, and the counter shows progress, for example 3/12.

- **Materials:** devices by type and model, and cables by kind, with meters if entered.
- **Installation:** racks with their contents and U position, then devices outside racks, with location or group.
- **Cabling:** each cable with its ports, from the network edge down.
- **Configuration:** device addresses and VLANs, and for switches, routers and firewalls also the mode of each port.
- **Tests and handover:** connectivity to the gateway in each network, Internet access, Wi-Fi coverage, camera images, UPS, and closing the documentation.

Validation problems appear above the list. The plan has no vendor-specific commands or dates, because the diagram does not contain them. The more data you enter, such as models and cable lengths, the more accurate the result. Export PDF saves the plan for printing, with the checkmarks.

The list is short: end devices are grouped by type, for example Install computers (5) or Check camera images (4), with details under each task. Network devices have separate entries because each has its own configuration.

Custom tasks: below each section there is a field for a task that is not on the diagram, e.g. user training or handing over keys; add it with the Add button or Enter. Custom tasks sit in the "Custom tasks" subsection, are ticked off like the others, go into the PDF and are saved in the project. The cross deletes a task, and Undo brings it back.

Add page to project creates a tab with a work description in three cards: Deployment, Handover and Maintenance. The sentences come from what is in the project, for example the recorder is mentioned only with cameras. The page updates itself and is included in the project PDF. It is a starting point, so add what the diagram does not know, such as dates and firewall rules.

Route

The Route command in the Tools menu shows the shortest path between two devices on the open page. Select two devices before opening the panel, or choose them from the lists. The path lights up on the diagram and the rest is dimmed.

- **Segment list:** each segment has ports, connection type and length. Clicking shows that connection on the diagram.
- **Length:** the sum of cable lengths from the Cable list. If a segment has none, the program says “at least”.
- **The shortest path** is the one with the fewest segments. The program does not know how traffic really flows, for example with STP or routing. With several equal paths, it shows one.
- **A LAG bundle** lights up as a whole.
- **The panel** moves by its header, and the handle in the bottom right corner resizes it. It stays there until the page is refreshed.
- The route updates with every diagram change. It does not change the project and is not exported. Esc or × closes it.

Failure simulation

The Failure simulation command in the Tools menu answers “what if … fails”. Devices and a connection selected before opening it are turned off right away. Turned-off devices and connections are crossed out in red, and devices that lose connectivity to the reference point because of them get a red outline. When the page has an Internet device, devices that lose Internet access get an orange outline.

- **The reference point** is the device the rest of the network must reach, usually the core or the firewall. The program picks the device with the most connections, and you can change it in the list.
- **Turn off selected** turns the selected devices and connection off, and a second click turns them back on. Clicking an item in the Turned off list also turns it on, and **Clear** turns everything on.
- Above the list is a summary, e.g. “Devices without connectivity to R1: 6 · 4 × Access point, 2 × Camera”, followed by the list of cut-off devices. A click shows the device on the diagram.
- **Internet access** is a second measure, counted to all Internet devices on the page. Example: when both firewalls fail, the core and the switches still reach each other, so nothing loses connectivity to the core, but the whole network behind the firewalls loses the Internet. The summary then has a second line “No Internet access: 54 · …”, and below the cut-off list there is a No Internet list. A device cut off from the reference point is not counted twice.
- **Weak points** are devices and connections whose failure alone cuts off part of the network, from the biggest loss. Clicking an item makes it the only failure, so you see at once what it cuts off. A ring and backup connections are not weak points, and a LAG bundle counts as one link. With Internet devices the list also gives how many devices lose the Internet, e.g. “ONT: cuts off 1, no Internet for 40”.
- Only devices that have a path to the reference point without failures count, so e.g. a rack without connections is not “cut off”. The program looks at the connections on the diagram and does not know STP, routing or power.
- The simulation updates with every diagram change, does not change the project and is not exported. You move and resize the panel like the Route panel. Esc or × closes it, and so does opening Route.

Subnet calculator

The Subnet calculator command in the Tools menu splits an address pool into networks for VLANs (VLSM). Enter the pool, e.g. 10.10.0.0/22. Without a mask the program assumes /24. Below the field you see the

mask, wildcard, range, broadcast address and the number of addresses for devices.

- **Networks:** on first opening, the list is filled with the project's VLANs and their number of devices, with names from the Network report. **Load VLANs from the project** does it again, and **Add network** adds an empty row. You can raise the number of devices to leave spare room.
- **Result:** each network gets the smallest size that fits its devices and a gateway. Networks are allocated from the largest, so the pool has no gaps. The table shows the network, mask, gateway (first address), range for devices, broadcast address and spare addresses. Below the table are the pool usage and free blocks, and a red message when something does not fit.
- **Assign addresses to devices:** devices without an IP address on the open page, with a VLAN from the table, get the next free addresses from their network. The gateway stays free, and addresses used anywhere in the project are skipped. This is one undo step.
- **Export CSV** saves the network table. The calculator rows themselves are not saved in the project.

Network report

The report gathers VLANs, networks and ports in one place. The program calculates it from the diagram every time you open it, so it always matches the current project. It covers all pages of the project.

- **VLANs and networks:** the network, gateway (router or firewall address) and number of devices are calculated. You enter the name, DHCP and purpose in the table. A range in the DHCP field, e.g. `.100 – .199`, is a pool that the IP plan skips as free addresses; and they are saved in the project.
- **Ports:** for switches, routers, firewalls and patch panels, and for devices with a set number of ports. Each row is a port, the other end, VLANs, mode and cable, and usage is shown below the table. Connections with a port name count: below the table you see how many connections have none, and devices without any port name are listed at the end of the report.
- **Mode:** one VLAN is access, and several are a trunk. Connections in a bundle also show the LAG name.
- **Group colours:** the table of a device that stands in a group frame takes that frame's colour: a marker next to the name in the window, the table frame on the project page, and a marker and a tinted header in the PDF. Devices without a frame keep the default colour. Text is always dark, so light colours stay readable when printed.
- **Export: Export CSV** saves the port tables, and **Export PDF** the whole report. The "Include the network report" option in the "PDF and title block" window adds it at the end of the project PDF.
- **Page in the project:** "Add page to project" creates a page with neatly arranged tables. It refreshes itself when you open it and when you export, so make changes on the diagram, not on this page. If the page already exists, the button goes to it. When it is in the same PDF, the report is not added a second time.

14. Appearance

The "Appearance" window changes the style of the current project. The settings are saved with it.

Program theme

View → **Settings** (with an account also account panel → Settings) changes the colours of the program itself and turns the helper on. Each card in the window shows a preview, and the choice applies at once:

- **Automatic** is light or dark, following the system setting.
- **Light** and **Dark** always stay that way.
- **High contrast** is black, white and a yellow accent with thicker borders. It is easier to read for low vision.

- Themed looks: **Rust & Sand** (a wasteland of rusty steel and fire), **Console** (green text on black, like an old terminal), **Blueprint** (light lines on navy blue, like a technical drawing), **Server room** (graphite, brushed metal and green LEDs) and **Paper** (warm and light, easy on the eyes for long sessions).

The **blue light filter** below the cards warms the colours on screen, e.g. in the evening. It works with every theme, and the slider sets the strength from 10 to 100%. Moving the slider turns the filter on. At high strength VLAN colours are harder to tell apart, so a lower strength is better for work with colours.

The theme and the filter are saved in this browser, not in the project, so others see the project in the theme they choose. VLAN and connection type colours are the same in every theme, and PNG, SVG and PDF exports always use light document colours.

Setting	Options
Frame corners	Square, slightly rounded, very rounded
Frame outline and shadow	Thin, normal, thick; shadow on or off
Frame margin	Small, normal, large, very large
Grid	Dots, lines, none; three transparency levels
Snapping and guide lines	On or off
Canvas background	Default, paper, light blue, plain
Connection routing	Straight, avoiding devices, elbow
Group frame style	Dashed, solid, no outline
Diagram font	IBM Plex Sans, system, serif, monospace
Accent color	Teal, blue, violet, green, orange, pink

15. Projects, files and export

Every change is saved automatically in the browser storage. In the “Projects” window you can keep many projects, and you can rename the current one in the header.

> **Important:** projects exist only in this browser on this computer. Clearing browser data deletes them, so also save important diagrams with the “Save file” button. This is also how you move a project to another computer or browser.

No space left in the browser

The browser has limited space for projects, and background images take up the most. When it runs out, a warning below the header says that your latest changes are not being saved. Click “Save file”, then free up space, for example by deleting unneeded projects or backgrounds. The warning disappears after the first successful save.

Project versions

The Project versions command in the File menu saves a named point you can return to, for example before a big change. A version covers all pages of the project.

- **Save version:** enter a name and click the button. Without a name, the program uses the next number.

- **Restore:** the program returns to that version and keeps the current state as a new “Before restoring” version, so you lose nothing.
- **Limit:** a project can have 20 versions. To save another one, delete an older one.
- **Where they are stored:** in this browser and in backups. The `.json` project file does not include them. Versions take up browser space, so delete the ones you do not need.

Backup

“Backup” in the File menu saves all projects with their images to one file. “Restore backup” loads such a file: it adds projects to the list, overwrites nothing and skips those already there. “Open file” opens a backup too.

When a week has passed since the last backup and projects have changed, a reminder appears below the header. The “Later” button postpones it for a few days.

Format	What it contains
JSON	Full project data with background images. The file can be opened again, and opening it creates a new project on the list. The JSON window shows the data without images.
SVG	Vector image of the diagram with the legends of VLANs and connection types (`network-diagram.svg`).
draw.io (BETA)	A `.drawio` file named after the project, to open in draw.io (diagrams.net). Each project page is a separate page. Devices have their icon, name, addresses and VLAN colour, and their data is under “Edit Data” in draw.io. Connections keep their route, colour, arrowheads, labels and port captions, groups are containers and floor plans are background images. Before saving, a window shows what the export does not include: among others the rack view, the lists (cable list, port map, IP plan), legends, the title block and LAG markers. Changes made in draw.io do not return to the program. This is a beta: draw.io draws shapes its own way, so the diagram looks simpler than in the editor.
PNG	The same image as a picture, at double resolution, and up to 8000 px for large diagrams (`network-diagram.png`).
PDF	An A4 or A3 page with a lossless image of the diagram at about 300 dpi. The file has the name of the project. The “Save all project pages” option adds each non-empty page of the project. You can include the network report, cabinets, cable list and IP plan at the end of the file. Cabinets and the cable list come from the saved pages, and each page has its own list. The IP plan covers the whole project. The orientation of each page follows the diagram. The diagram is an image, so its text cannot be selected or searched.

Title block

In the “PDF and title block” window, enter the title, client or site, author, version and date. When “Show the title block” is on, it appears in the bottom right corner of the image in PNG, SVG and PDF. It is not visible on the canvas.

- Empty fields take up no space, and the project name replaces an empty title. In a project with many pages, the title block also shows the page name.
- When you turn the title block on for the first time, the program enters today's date.
- Texts that are too long are shortened with an ellipsis.
- The data is saved in the project, and the title and author also go into the PDF file properties.

16. Terminal

The terminal opens with Ctrl + K or the Terminal command in the Tools menu. It is a field at the bottom of the screen where you type commands instead of clicking. The diagram stays visible and changes right away. The terminal works on the open page, like the table.

In the same field you can type a feature name from the menu, e.g. `table` or `IP plan`, and press Enter to open it. Commands work in English, Polish and German, and letter case does not matter.

Command	What it does
`help`, `help connect`	Lists commands or describes one with examples.
`list`, `list type camera`, `list vlan 10`	Devices on the open page as a table, with a filter. Clicking a name shows the device.
`find 10.20.10.*`	Searches names, addresses, MACs, models and notes on all pages and selects the results on the open page.
`show SW-01`, `info SW-01`, `links SW-01`	Scrolls to the device, prints its data or its connections with ports.
`add switch SW-02 ip 10.20.10.3/24 vlan 10`	Adds a device in a free spot of the view. A name range, e.g. `CAM-01..08`, adds several at once, and the given IP address goes up by one for each.
`set SW-02 model "Cisco C9200" ports 48`	Changes data: name, type, ip, network, vlan, mac, model, location, group, sn, notes, ports, rack, u, height, side. An empty value `""` clears the field.
`connect SW-02:Gi1/0/1 CAM-01:eth0 cable Cat6`	Connects devices. Options: type (ethernet, fiber, os2, om2, om3, om4, om5, wifi, vpn), cable, label, length, lag. A port in use stops the command.
`disconnect SW-02 CAM-01`, `disconnect SW-02:Gi1/0/1`	Removes connections between devices or from one port.
`delete CAM-08`, `move SW-02 120 0`	Deletes devices with their connections or moves them by the given number of pixels. Locked devices stay in place.
`select`, `lock`, `unlock`	Selects, locks or unlocks devices.
`trace R1 CAM-01`	The shortest path between devices, highlighted on the diagram, with a list of hops and ports.
`check`	Diagram validation. Clicking a problem selects the devices.
`free 10.20.40.0/24`	Free addresses in a subnet, counted across all project pages.
`fail SW-01`	Failure simulation: turns devices off and lists what loses connectivity. `fail` alone lists the weak points of the network.
`subnet 10.10.0.0/22 200 50 10`	Describes a network or splits a pool into networks for the given device counts, with a gateway and free blocks.

Command	What it does
`page`, `page Warehouse`, `fit`, `types`, `menu`	List of pages and going to a page, fitting the view, device types and menu commands.
`undo`, `redo`, `clear`	Undoes or redoes a change, clears the terminal window.

You point to a device by its name, IP address, a pattern with an asterisk (e.g. `CAM-*` means all cameras whose name starts like that) or the word `selected`. Put a name with a space in quotes.

- Tab accepts a suggestion: a command, device, field, type, rack or page name. The arrow keys pick another suggestion.
- The up arrow in an empty field brings back previous commands. The history stays in the browser on this computer.
- Several lines at once, pasted or added with Shift + Enter, are a script. Lines starting with # are comments. An error stops the script and says in which line it happened.
- Each command and each script is one undo step, so Undo removes e.g. eight added cameras at once.
- After a typo the terminal suggests the closest name, e.g. “Did you mean: SW-01?”.
- Esc hides suggestions, clears the field, and in an empty field closes the terminal. The ⤢ button makes the window larger, and – minimizes it to just the bar (so does double-clicking the bar). Drag the title bar to move the window and the bottom right corner to resize it.

17. Account and cloud saving

On the program’s website you enter the editor by signing in to an account or in guest mode. The sign-in screen lets you sign in, create an account from an invitation link (and, when the administrator turns it on, also without an invitation: “Create a free account”), try the editor without an account and regain access with a recovery code. In the editor, the account is handled by the button with a cloud in the header and the File → Account command. You can save projects in the cloud and open them on other computers, and projects you do not move stay only in this browser.

Encryption. Projects, including their names and floor plans, are encrypted in the browser with a key from your password before they reach the server. The server and the administrator only see account details (email address, name, company and consent to emails), dates and the number and size of projects, not their content. That is why nobody can reset your password: the recovery code is for that.

Guest mode

- On the program’s website or on the sign-in screen, choose **Try without an account**. For 2 hours from your first visit you have the full editor, without cloud saving. Projects stay only in this browser. On your first visit the program offers a **sample project** (Small Company Demo: office, Wi-Fi, CCTV, network report and deployment plan) or a blank page.
- When the website allows creating an account without an invitation, a guest does not save projects to a file: Save file, Backup, JSON and the draw.io export open the **Saving to a file needs a free account** window. After you create an account, the projects from the browser move to the cloud. You can save PNG, SVG and PDF images and CSV lists without an account. When accounts are created by invitation only, saving to a file works as usual, so save backups (File → Backup).
- When you come back to the website, the editor opens straight in guest mode. The **Guest mode** button in the header shows how much time is left, e.g. “Guest mode · 1 h 25 min”, the end time in its tooltip, and

changes colour in the last 10 minutes.

- Clicking the Guest mode button takes you to the sign-in screen, where you sign in or create an account. Once you are in an account, the program offers to move the projects from the browser to the cloud. You return to guest mode with the button of that name.
- After 2 hours the editor shows a “The trial has ended” window with **Save a backup** and **Create an account or sign in** buttons. Projects stay in the browser, so nothing is lost. The sign-in screen then shows “The trial has ended”. You can then create an account (when sign-up is open), sign in or choose **Download my projects**: this creates a backup file that you load in the editor via File → Restore backup.

Creating an account

- Open the invitation link or, when sign-up is open, choose “Create a free account” on the sign-in screen. On the sign-in screen, enter your first name, optionally your company name, your email address and a password (at least 12 characters) twice, then tick that you accept the license and terms and have read the privacy policy. Links to both documents are below the box. A separate, optional box is consent to emails about news in the program.
- The program shows a **recovery code** in 8 groups of 4 characters. Copy it or save it to a file and keep it somewhere safe. The code is shown only once, and the editor opens only after you confirm that you saved it.
- When the website confirms email addresses, an account created without an invitation works only after confirmation: the program sends a link valid for 48 hours to your address. Open it and sign in with the password you registered with (the link alone does not confirm the account, so nobody can do it for you). No email? Check your spam folder or choose “Send the link again” when signing in. An unconfirmed account is deleted after 7 days. Accounts from an invitation do not need confirmation.
- If the browser has projects saved without an account, the program asks which ones to move to the cloud. The rest stay only in this browser, and you can move them later in the Account window.

Working with an account

- Changes are saved in the cloud automatically, a few seconds after editing. The header button shows a person icon with your first name and the status: Saved, Saving..., Offline or Save error. Without internet, changes wait in the browser and are sent later.
- **Your details** in the Account window: first name, company and consent to emails. You can change them there at any time, including withdrawing consent. An account created before version 0.47.0 is asked there to add a first name.
- Projects created after signing in go to the cloud right away. In the Projects window they have a ☁ mark.
- After refreshing the page you stay signed in, but the program asks for your password to unlock projects in this tab.
- **Remember on this computer for 12 hours** (a box under the password, off by default): for 12 hours after signing in, refreshing the page opens the editor without your password. Projects stay encrypted: the key stays in this browser and the server has only an encrypted copy it cannot read by itself. Signing out, changing your password or the end of the 12 hours ends it, and then the program asks for your password again. Do not tick this box on a shared or someone else’s computer.
- On another computer, sign in with the same address and password: projects download automatically. Changes from another computer arrive when you return to the tab and every minute, and the Account window has a Sync now button.

- If you change the same project on two computers at once, nothing is lost: the cloud version stays under the project name and your changes are saved as a copy marked “(conflict …)”.
- A project deleted on one computer disappears on the others too, unless it had unsent changes there.
- Project versions stay in the browser where they were saved.

Password and signing out

- The Account window has Change password (current password and the new one twice). Other devices are then signed out, and projects and the recovery code do not change.
- **Cloud space:** each account has 200 MB for projects. The Account window shows how much is used. A project that does not fit stays only in this browser, and changes to a project already saved in the cloud wait in the browser (the account button shows “No space”) until you free up space by deleting projects from the cloud.
- **Delete account** in the Account window: after you enter your password and confirm, the program immediately deletes the account, cloud projects, your details and messages. This cannot be undone, not even with the recovery code. Copies of projects in this browser stay; save a backup of all projects first with the button in the same window.
- **New recovery code** in the Account window: after you enter your current password, the program shows a new code once, as when creating the account. Save it and confirm. The old code stops working at once, and projects, the password and signed-in devices stay the same. Use it when the old code is lost or someone else may have seen it.
- **I forgot my password**: enter your email, the recovery code and a new password. The code can be typed in lowercase and with spaces.
- **No recovery code** (when the website sends emails): in the “I forgot my password” window choose “No code: reset the password by email” and enter your address. You get a link valid for one hour. Cloud projects are encrypted with the old password, so the reset deletes them: nobody, including the administrator, can read them any more. Copies in the browsers you worked in do not disappear: after you sign in with the new password on those computers, they return to the cloud by themselves. Your account, details and messages stay, all devices are signed out, and the program shows a new recovery code (the old one stops working). After the reset you get a confirmation email; if it was not you, someone has access to your mailbox. Have your recovery code? Use it: your projects stay.
- Sign out ends the session on this computer and returns to the sign-in screen, and Sign out on all devices also ends it on the others. On someone else’s computer, tick removing copies of cloud projects before signing out: they disappear from that browser but stay in the cloud.

Account panel and messages

The button with a cloud in the header opens the account panel in full screen, with a menu on the left:

- **Account**: address, sync status, projects only in this browser, password change and signing out.
- **Messages**: New message to the administrator and a list of sent ones. Choose the type (🐞 Bug, 💡 Idea, ❓ Question, 👍 Praise, ✉️ Other), enter the subject and text and click Send. For a bug report, “Attach technical data” is ticked: it attaches the program version, browser, language and screen size, never project content, and “Show what will be attached” shows exactly what is sent. The administrator’s reply appears in the same thread; an unread reply shows as ✉ next to the cloud button and as a number next to Messages. You can reply in the thread, also after it was closed, which reopens it.

Messages are not encrypted like projects, because the administrator reads them, so do not put passwords or your recovery code in them. Closed threads are deleted after a year, and all of them when the account is deleted.

Leave feedback (Help menu, on the website with an account or in guest mode): click 1 to 5 stars, add a few words if you like (up to 2000 characters) and click “Send feedback”. The feedback goes to the author of the program. From an account it is signed with your email address; a guest sends it without an address, so the author cannot reply; for a conversation use Messages or the Contact page. Your project is not sent, and feedback, like messages, is not encrypted. Feedback is deleted after a year.

Administration (administrator only)

The administrator has additional menu items in the account panel:

- **Dashboard**: at the top, **Website traffic**: how many people are in the editor right now (with an account and guests separately, refreshed every minute), visits today and in the last 7 and 30 days, and a daily chart of the last 30 days split into home page, editor with an account and guest editor. Hovering over a day shows its numbers. The counter is anonymous: it counts visits, not people, and does not tell who visited. Below, **Accounts and data**: the number of accounts, accounts active in the last week and blocked ones, new messages and open threads, pending invitations and the number and size of cloud projects. Clicking a tile opens the related part. Below the tiles are the **Access to the editor** switches: Guest mode (on by default; turning it off also closes access without an account for guests in the middle of their trial) and Sign-up without an invitation (off by default; when on, anyone can create a free account). A change is saved immediately.
- **Users**: address, first name, company, consent to emails, role, creation and last sign-in dates, number and size of projects and status, with search by address and sorting by clicking a column header. Buttons: Block or Unblock, Sign out (on all devices) and Delete (the account together with its cloud projects and messages, cannot be undone). Your own account cannot be changed.
- **Invitations**: a new invitation with an optional email address (then only that person can create an account), a note and validity from 1 to 30 days. The program shows a link that you copy and send to the tester; the link is shown only at that moment and works once. Below is the list of invitations with their status and a Cancel button for unused ones.
- **Inbox**: messages from users with a filter by status (New, In progress, Closed) and type. New ones are bold, and their number is shown next to Inbox and next to the cloud button. An opened thread shows the sender’s address, technical data (if attached) and the conversation. A reply changes the status from New to In progress; you can also change the status by hand, and Delete thread removes it permanently.
- **Feedback**: ratings and texts from the Leave feedback window, newest first, with the number of feedback entries and the average rating. Each shows the date, the account address or “guest”, the program version and the language. The number of new feedback entries is shown next to Feedback and next to the cloud button; opening the list marks them as read. Delete removes an entry permanently. When the website sends emails, a short email with only the rating arrives for new feedback (the next one only after the list was read).

The administrator cannot see the content or names of users’ projects, because they are encrypted with their passwords.

18. Keyboard shortcuts

Shortcut	Action
Ctrl + Z	Undo
Ctrl + Y or Ctrl + Shift + Z	Redo
Ctrl + C, Ctrl + V	Copy, paste
Ctrl + D	Duplicate selection
Ctrl + A	Select all
Ctrl +], Ctrl + [	Forward, backward in the layer
Ctrl + Shift +], Ctrl + Shift + [	To front, to back of the layer
Ctrl + L	Lock or unlock
Ctrl + F	Search
Ctrl +mouse wheel	Zoom in and out
Space +drag	Pan the view from anywhere
Middle mouse button	Pan the view from anywhere
?	List of shortcuts
F2	Rename a device or group
Delete or Backspace	Delete selection
Esc	Deselect
Arrow keys, Shift +arrow keys	Move by 12 px, by 48 px

On a Mac, use Cmd instead of Ctrl. Shortcuts do not work while a window such as Table or Appearance is open.