

CAN-Gateway software
by <https://shop.myhome-control.de>

**Configuration of OpenHab using MQTT Discovery
(in this example OpenHab 4.0.1 and CAN-Gateway
SW 29.330 used)**

Preconditions

- CAN-Gateway Software (version \geq 29.330) including Parameters is configured (Demo or full version)
- OpenHab is installed
- MQTT Broker is installed (for example <https://mosquitto.org/>) and configured
- CAN-Gateway is connected to MQTT Broker (please refer to CAN-Gateway operating manual)
 - “Home Assistant MQTT Discovery” is activated in CAN-Gateway MQTT settings (as OpenHab uses the same technique)
- Check that MQTT works for example using <http://mqtt-explorer.com/>

Summary

- 1) Installing of required OpenHab Add-Ons (Steps 1-11)
 - MQTT Binding
 - JINJA Transformation
 - JSONPath Transformation
- 2) Configure MQTT Binding (Steps 12-20)
- 3) Add CAN-Gateway as Thing and Parameters as Items (Steps 21-29)
- 4) Add OpenHab Page (Steps 30-34) – you can skip it if you already have a page to add control elements
- 5) Example: configure a Sensor (Steps 35-42)
- 6) Example: configure a rounded slider as a control element (Steps 43-53)
- 7) Example: configure Label element with control option to choose for example operating modes (Steps 54-70)
- 8) Example: configure Switch element for parameters that can be switched on/off (Steps 71-81)

Additional notes

- In this document only one possibility using MQTT Discovery is considered. For Details please refer to OpenHab documentations:
 - <https://www.openhab.org/addons/bindings/mqtt/>
 - <https://www.openhab.org/addons/bindings/mqtt.homeassistant/>
- Examples show the minimal required configurations. You can adapt OpenHab cards to your needs use another options.
- You also can use, for example, raw MQTT without MQTT Discovery or REST API. Please refer to OpenHab documentation for details.

Installing of required OpenHab Add-Ons

The screenshot shows the openHAB Settings interface. A blue arrow labeled '1' points from the 'Administration' sidebar to the 'Settings' link in the top navigation bar. Another blue arrow labeled '2' points from the 'Add-ons' section in the main content area down to the 'Other Add-ons' item.

Navigation Bar: Back, Settings, Search icon

Left Sidebar (Administration):

- No pages
- Administration
 - Settings (highlighted with a blue arrow 1)
 - Things
 - Model
 - Items
 - Pages
 - Rules
 - Scenes
 - Scripts
 - Schedule
- Developer Tools
- Help & About

Main Content Area (Settings):

Configuration

- Things (Manage the physical layer)
- Model (The semantic model of your home)
- Items (Manage the functional layer)
- Pages (Design displays for user control & monitoring)
- Transformations (Manage transformations)

Automation

- Rules (Automate with triggers and actions)
- Scenes (Store a set of desired states as a scene)
- Scripts (Rules dedicated to running code)
- Schedule (View upcoming time-based rules)

Add-ons

- Bindings (Connect and control hardware and online services)
- Automation (Scripting languages, templates and module types)
- User Interfaces (Community widgets & alternative frontends)
- Other Add-ons (System integrations, persistence, storage & more)

Installing of required OpenHab Add-Ons

The screenshot shows the openHAB 2.5 Admin interface. A red box highlights the search bar at the top, which contains the text "MQTT". A blue arrow labeled "4" points to this red box. Below the search bar, the text "7 results" is displayed. The results list includes:

- MQTT Binding** by openHAB (version 2.5.0) - **INSTALL** button
- MQTT Online Status** by openHAB (version 2.5.0) - **INSTALL** button
- MQTT Event Bus Publication** by openHAB (version 2.5.0) - **INSTALL** button
- MQTT Actions** by openHAB (version 2.5.0) - **INSTALL** button
- Tuuvi Gateway MQTT binding** by Tuuvi (version 1.0.0) - **INSTALL** button
- MQTT Event Bus Subscription** by openHAB (version 2.5.0) - **INSTALL** button
- MQTT Event Bus** by openHAB (version 2.5.0) - **INSTALL** button

A blue arrow labeled "5" points to the "Tuuvi Gateway MQTT binding" entry. At the bottom of the screen, a blue arrow labeled "3" points to the "Search" input field in the footer.

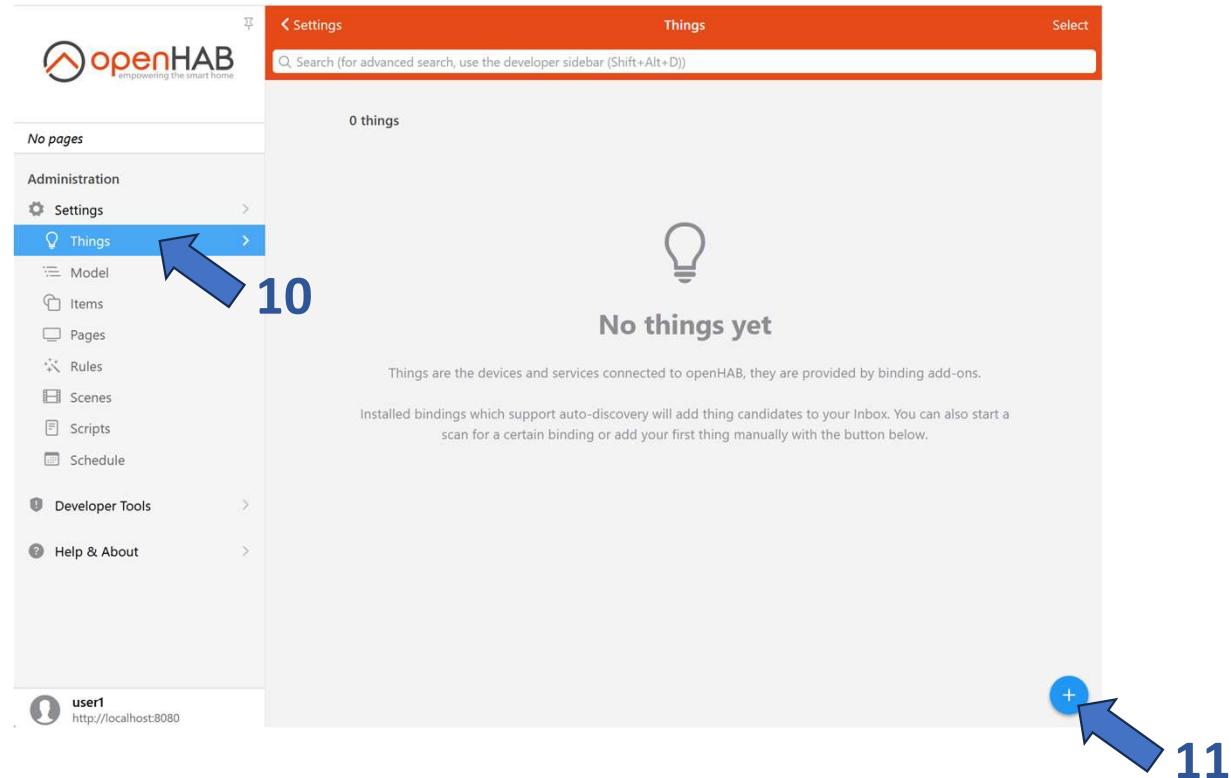
Installing of required OpenHab Add-Ons

The screenshot shows the openHAB web interface. On the left, there's a sidebar with navigation links like Administration, Settings, Things, Model, Items, Pages, Rules, Scenes, Scripts, Schedule, Developer Tools, and Help & About. The main area has a search bar at the top with the text "JINJA". A red arrow labeled "6" points to this search bar. Below the search bar, it says "1 result". A card for "Jinja Transformation" by "openHAB" is displayed, featuring a large "f(x)" icon. An "INSTALL" button is highlighted with a blue arrow labeled "7". At the bottom of the page, there's a footer with user information ("user1 http://localhost:8080"), navigation icons for Bindings, Automation, UI, Other, and a Search bar.

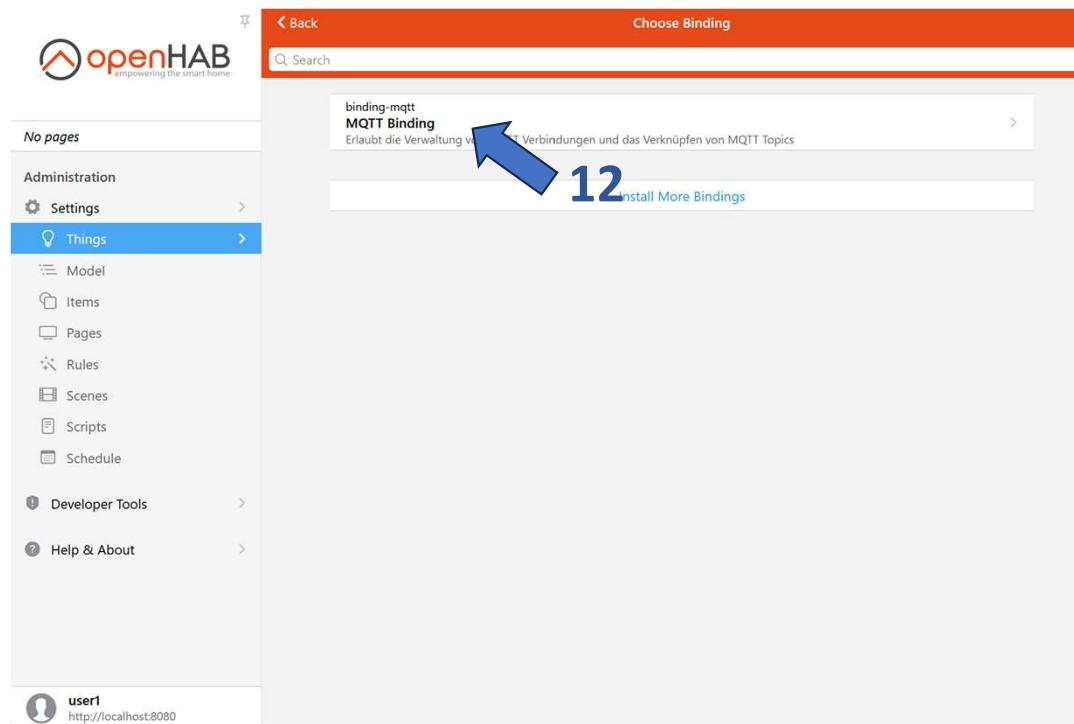
Installing of required OpenHab Add-Ons

The screenshot shows the openHAB web interface. A red box highlights the search bar at the top, which contains the text "JSONPath". A blue arrow labeled "8" points to this search bar. Below the search bar, a message indicates "1 result". A card for the "JSONPath Transformation" add-on is displayed, featuring a large black "O" icon. An "INSTALL" button is visible on the card, with a blue arrow labeled "9" pointing towards it. The interface includes a sidebar with navigation links like "Administration", "Settings", and "Developer Tools". At the bottom, there is a navigation bar with links for "user1", "Bindings", "Automation", "UI", "Other", and a "Search" bar.

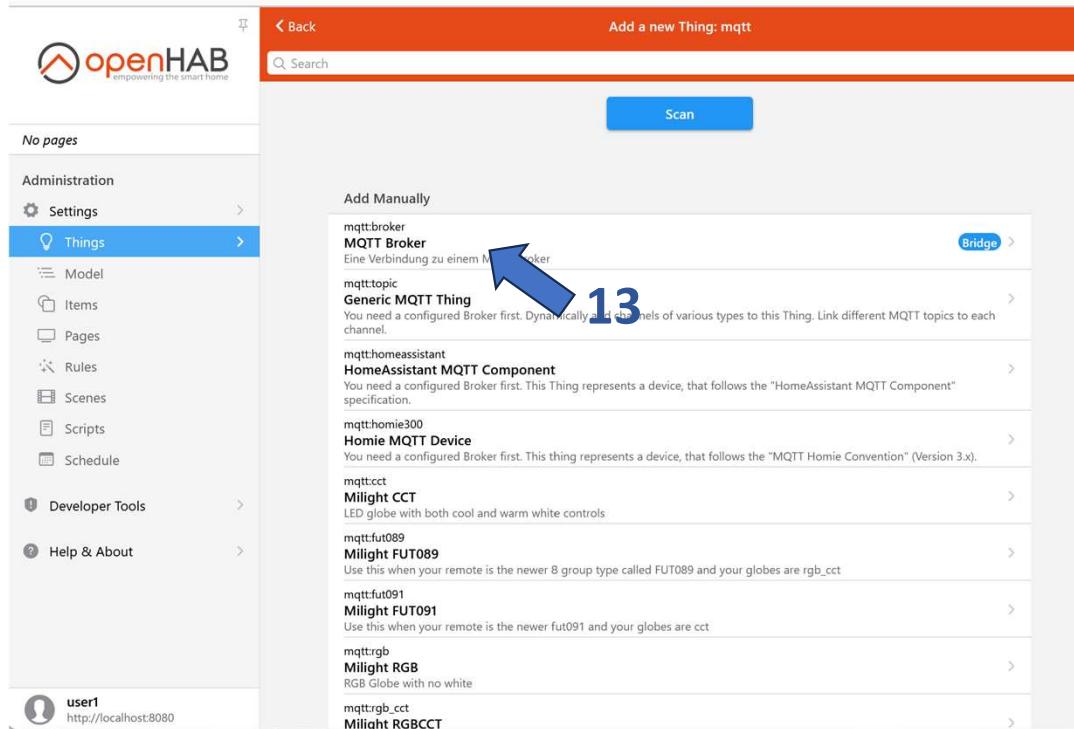
Installing of required OpenHab Add-Ons



Configure MQTT Binding



Configure MQTT Binding



The screenshot shows the openHAB web interface. On the left, there's a sidebar with 'Administration' and 'Things' selected. The main area is titled 'Add a new Thing: mqtt'. It has a search bar and a 'Scan' button. Below that, it says 'Add Manually' and lists several MQTT components:

- mqtt:broker** **MQTT Broker** (highlighted by a blue arrow and labeled '13')
Eine Verbindung zu einem MQTT-Broker.
- mqtt:topic** **Generic MQTT Thing**
You need a configured Broker first. Dynamically add channels of various types to this Thing. Link different MQTT topics to each channel.
- mqtt:homeassistant** **HomeAssistant MQTT Component**
You need a configured Broker first. This Thing represents a device, that follows the "HomeAssistant MQTT Component" specification.
- mqtt:homie300** **Homie MQTT Device**
You need a configured Broker first. This thing represents a device, that follows the "MQTT Homie Convention" (Version 3.x).
- mqtt:cct** **Milight CCT**
LED globe with both cool and warm white controls
- mqtt:fut089** **Milight FUT089**
Use this when your remote is the newer B group type called FUT089 and your globes are rgb_cct
- mqtt:fut091** **Milight FUT091**
Use this when your remote is the newer fut091 and your globes are cct
- mqtt:rgb** **Milight RGB**
RGB Globe with no white
- mqtt:rgb_cct** **Milight RGBCCT**

At the bottom left of the interface, it shows 'user1' and the URL 'http://localhost:8080'.

Configure MQTT Binding

The screenshot shows the openHAB web interface with the following details:

- Left Sidebar:** Shows "No pages", "Administration", "Settings" (selected), "Things" (highlighted in blue), "Model", "Items", "Pages", "Rules", "Scenes", "Scripts", "Schedule", "Developer Tools", and "Help & About".
- User Information:** "user1" and "http://localhost:8080".
- Right Panel - New MQTT Broker:**
 - Unique ID:** 32a4556bf8 (Note: cannot be changed after the creation)
 - Identifier:** mqtt:broker:32a4556bf8
 - Label:** MQTT Broker
 - Location:** e.g. Kitchen
 - MQTT Broker Section:** A form for connecting to an MQTT Broker.
 - Broker Hostname/IP:** 127.0.0.1 (Required)
 - Port des Brokers:** 1883 (Required)
 - Sichere Verbindung:** A toggle switch set to off.
 - Hostname bestätigt:** A toggle switch set to on.
 - Protokoll:** Shows "tcp" and "--"
 - Show advanced**: A checkbox checked with a blue arrow pointing to it labeled "14".

Annotations:

- 14:** Points to the "Show advanced" checkbox.
- 15:** Points to the "Broker Hostname/IP" field.
- 16:** Points to the "Port des Brokers" field.
- 17: scroll down:** Points to the bottom of the configuration panel.

Configure MQTT Binding

New MQTT Broker

Shutdown Nachricht

Die Nachricht, die an den Broker gesendet werden soll, bevor die Verbindung beendet wird.

Shutdown Topic

Standardmäßig leer und deaktiviert damit die "Shutdown" Nachricht.

Shutdown Nachricht Retain

Wahr, wenn die "Shutdown" Nachricht aufbewahrt werden soll (Standardwert ist wahr)

Benutzername **user1**

Der MQTT-Name

Passwort ********

Das MQTT

Zertifikat fixieren

Wenn dieses und SSL gesetzt sind: Nachdem die nächste Verbindung erfolgreich hergestellt wurde, wird das Zertifikat angepinnt. Die Verbindung wird abgelehnt, wenn ein anderes Zertifikat verwendet wird. **Zertifikat** löschen, um ein neues Zertifikat für den nächsten Verbindungsversuch zu erlauben. Diese Option kann die Sicherheit erhöhen.

Zertifikat-Hash

Wenn **certificatepin** gesetzt ist, wird dieser Hash verwendet, um die Verbindung zu überprüfen, löschen des Wertes, um ein neues Zertifikat beim nächsten Verbindungsversuch anzupinnen. Wenn leer, wird automatisch nach dem ersten erfolgreichen Verbindungsversuch der Hash neu eingetragen. Eine Beispieleingabe wäre
'SHA-256:8F9171E06A313118889F7D79302BD1B7A2042EE0CFD029ABF8D06FFA6CD9D3'.

20: scroll down

Configure MQTT Binding

The screenshot shows the openHAB web interface with the following details:

- Left Sidebar:** Shows the navigation menu with "Things" selected.
- Main Content:** The title is "New MQTT Broker".
 - Zertifikat fixieren:** A toggle switch is off. Description: If set, after a successful connection, the certificate is pinned. If another certificate is used, it is rejected. To allow a new certificate for the next attempt, delete the certificate and enable this option to increase security.
 - Zertifikat-Hash:** A text input field containing "SHA-256:83F9171E06A313118889F7D79302BD1B7A2042EE0CFD029ABF8D06FFA6CD9D3". Description: If "certificatepin" is set, this hash is used to verify the connection. Delete the value for a new connection attempt.
 - Öffentlicher Schlüssel anpinnen:** A toggle switch is off. Description: If set, after a successful connection, the public key is pinned. If another public key is used, it is rejected. To allow a new public key for the next attempt, delete the public key and enable this option to increase security.
 - Öffentliche Schlüssel Hash:** A text input field containing "SHA-256:83F9171E06A313118889F7D79302BD1B7A2042EE0CFD029ABF8D06FFA6CD9D3". Description: If "publickeypin" is set, this hash is used to verify the connection. Delete the value for a new connection attempt.
 - Discovery aktivieren:** A toggle switch is off. Description: If set to true, the broker enables discovery services for all devices.
- User Information:** Shows "user1" and "http://localhost:8080".
- Action:** A large blue arrow points to the "Create Thing" button at the bottom right.

20

Configure MQTT Binding

The screenshot shows the openHAB web interface. On the left, the navigation sidebar is visible with the following items:

- No pages
- Administration
 - Settings
 - Things (highlighted with a blue background)
 - Model
 - Items
 - Pages
 - Rules
 - Scenes
 - Scripts
 - Schedule
- Developer Tools
- Help & About

At the bottom of the sidebar, it shows a user session: **user1** at <http://localhost:8080>.

The main content area has a header with tabs: **Settings**, **Things**, and **Select**. A search bar is present. Below it, there is a table with one item:

Alphabetical	By binding
M	MQTT Broker mqtt:broker:32a4556bf8 ⓘ ONLINE >

A large blue arrow points from the number **21** to the red **INBOX (1)** button.

Online!

Add CAN-Gateway as Thing and Parameters as Items

The screenshot shows the openHAB web interface. On the left, the navigation sidebar is visible with the following menu items:

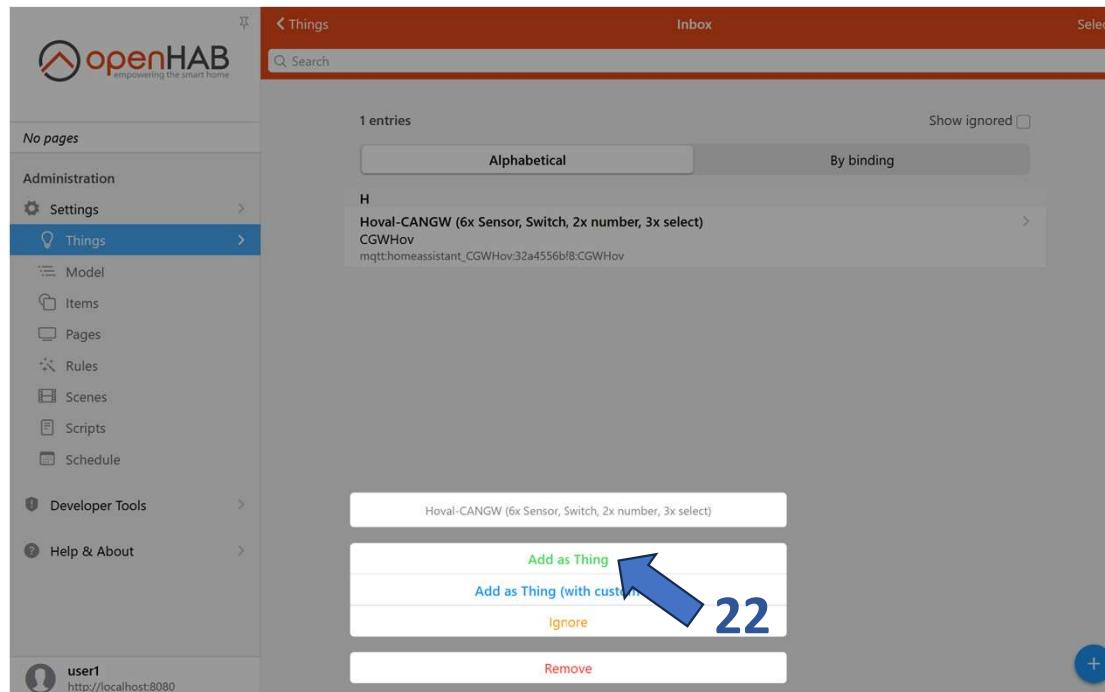
- No pages
- Administration
 - Settings
 - Things > (highlighted)
 - Model
 - Items
 - Pages
 - Rules
 - Scenes
 - Scripts
 - Schedule
- Developer Tools
- Help & About

On the right, the main content area displays the 'Things' list under the 'Inbox' tab. The list shows one entry:

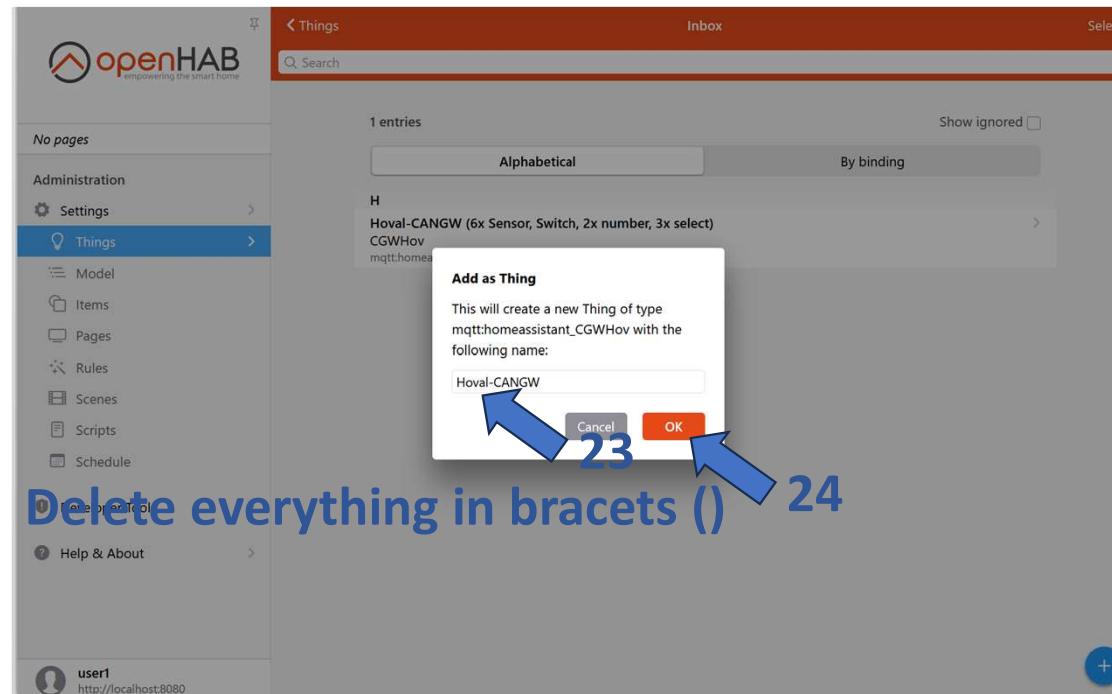
- 1 entries
- Show ignored
- Alphabetical By binding
- H
- Hoval-CANGW (6x Sensor, Switch, 2x number, 3x select)**
- CGWHov
- mqtt:homeassistant_CGWHov:32a4556bf8:CGWHov

A large blue arrow points from the text "Add CAN-Gateway as Thing and Parameters as Items" to the 'Hoval-CANGW' entry. The entry itself is also highlighted with a blue box. To the right of the entry, the number '22' is displayed in a large blue font.

Add CAN-Gateway as Thing and Parameters as Items



Add CAN-Gateway as Thing and Parameters as Items



Add CAN-Gateway as Thing and Parameters as Items

The screenshot shows the openHAB web interface. On the left, the navigation sidebar is visible with the following items:

- No pages
- Administration
 - Settings
 - Things
- Model
- Items
- Pages
- Rules
- Scenes
- Scripts
- Schedule
- Developer Tools
- Help & About

On the right, the main content area is titled "Things". It displays two entries:

- H**
Hoval-CANGW
mqtt:homeassistant_CGWHov:32a4556bf8:CGWHov
- M**
MQTT Broker
mqtt:broker:32a4556bf8

A large blue button labeled "Online!" with a green "ONLINE" status indicator is prominently displayed between the two entries. At the bottom right of the content area, there is a blue circular button with a white plus sign (+).

Add CAN-Gateway as Thing and Parameters as Items

The screenshot shows the openHAB Semantic Model interface. On the left, there's a sidebar with navigation links: Administration, Settings, Things (which is currently selected), Model (highlighted with a blue background), Items, Pages, Rules, Scenes, Scripts, Schedule, Developer Tools, and Help & About. At the bottom left is a user profile for 'user1' with the URL 'http://localhost:8080'. The main area has a title 'Start modelling your home' and instructions for building a semantic model. To the right, a 'Semantic Model' panel shows a search bar and a list titled 'Add to Model' with options: 'Add Location', 'Create Equipment from Thing' (highlighted with a blue arrow and the number '25'), 'Create Points from Thing', 'Add Equipment', and 'Add Point'. At the bottom of the main area are 'Clear' and 'Show non-semantic' buttons.

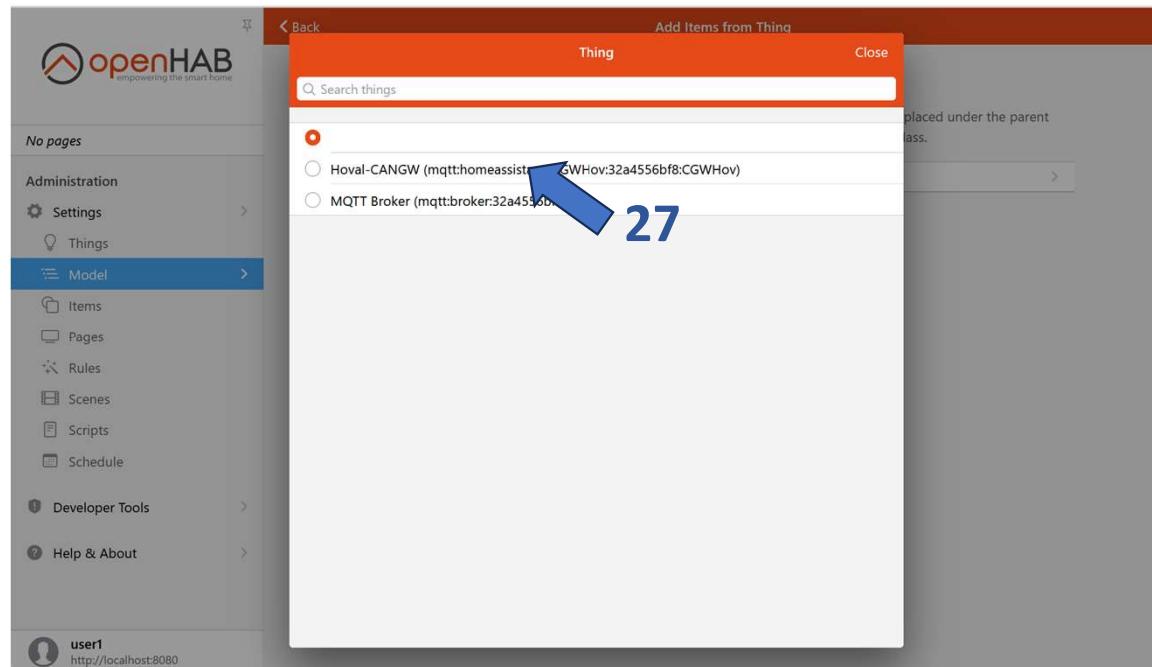
Add CAN-Gateway as Thing and Parameters as Items

The screenshot shows the openHAB web interface. On the left, the navigation menu is visible with the following items:

- No pages
- Administration
 - Settings
 - Things
- Model** (highlighted with a blue arrow)
- Items
- Pages
- Rules
- Scenes
- Scripts
- Schedule
- Developer Tools
- Help & About

On the right, the main content area displays the "Add Items from Thing" dialog. The title bar says "Add Items from Thing". The sub-header "Equipment" is followed by the instruction: "Select the Thing you wish to create as a new Equipment group in the model. It will be placed under the parent group above, if any. You can alter the new group's details and change its equipment class." Below this, there is a search input field labeled "Thing" containing the text "26", which is highlighted with a large blue arrow.

Add CAN-Gateway as Thing and Parameters as Items



Add CAN-Gateway as Thing and Parameters as Items

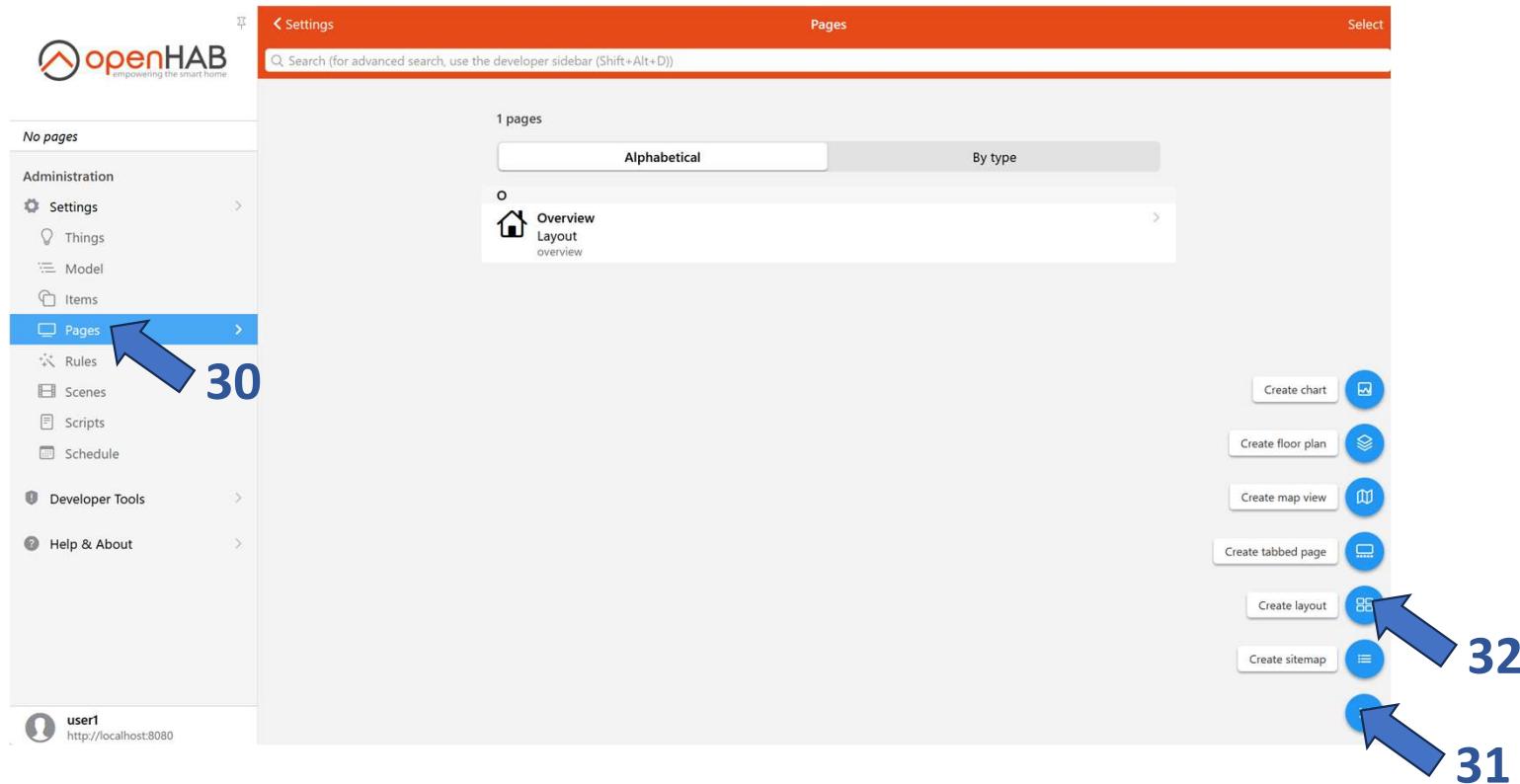
The screenshot shows the openHAB web interface with the following details:

- Left Sidebar (Administration):** No pages, Settings, Things (selected), Model (selected), Items, Pages, Rules, Scenes, Scripts, Schedule.
- Top Bar:** Back, Add Items from Thing.
- Content Area:** A list of items from a CAN-Gateway thing:
 - Fan exhaust air set
 - Heat generator operation choice
 - Status vent regulation
 - Humidity set value
 - Heating operation choice
 - Op choice ventilation
 - Extract air temp
 - Humidity extract air
 - Normal ventilation modulation
- Bottom Buttons:** Select All, Unselect All, Add to Model.

Blue annotations are present:

- A large blue arrow points to the "Add to Model" button.
- Two smaller blue arrows point to the "Select All" and "Unselect All" buttons.
- The number "28" is placed near the "Select All" button.
- The number "29" is placed near the "Unselect All" button.

Add OpenHab Page



Add OpenHab Page

The screenshot shows the openHAB interface for creating a new page. The left sidebar has 'Pages' selected. The main area is titled 'Create layout page' with tabs for 'Design' and 'Code'. In the 'Design' tab, there are fields for 'ID' (page_4f121e729b), 'Label' (MyPage1), and 'Sidebar order' (set to 1). Arrows labeled 32a, 33, and 34 point to the 'Label', 'Sidebar order', and 'Add Block' buttons respectively. The bottom right shows 'Run mode (Ctrl-R)'.

No pages

Administration

- Settings
- Things
- Model
- Items
- Pages**
- Rules
- Scenes
- Scripts
- Schedule

Developer Tools

Help & About

Back

Create layout page

Design

ID: page_4f121e729b
Note: cannot be changed after the creation

Label: MyPage1

Sidebar & Visibility

Visible only to:

Show on sidebar:

Sidebar order: Assign order index to rearrange pages on sidebar

Layout Type: Switch to Fixed Layout

Add Block

Add Masonry

user1 http://localhost:8080

Fullscreen

Save (Ctrl-S)

Run mode (Ctrl-R)

32a

33

34

Example: configure a Sensor

The screenshot shows the openHAB interface for creating a layout page. The left sidebar has 'Pages' selected. The main area shows the configuration for 'MyPage1'. A blue arrow labeled '35' points to the 'Add Cells +' button. Another blue arrow labeled '36' points to the '+' icon inside a cell placeholder.

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No pages

Administration

- Settings
- Things
- Model
- Items
- Pages > **Pages**
- Rules
- Scenes
- Scripts
- Schedule

Developer Tools

Help & About

Back

Create layout page

Design

ID: page_52fa18506c
Label: MyPage1
Note: cannot be changed after the creation

Sidebar & Visibility

Show on sidebar:

Sidebar order:

Add Row + Add Cells +

35

36

Add Block

Add Masonry

Fullscreen

Run mode (Ctrl-R)

user1
http://localhost:8080

Example: configure a Sensor

The screenshot shows the openHAB configuration interface. On the left, there is a sidebar with the following navigation options:

- No pages
- Administration
 - Settings
 - Things
 - Model
 - Items
- Pages (selected)
- Rules
- Scenes
- Scripts
- Schedule
- Developer Tools
- Help & About

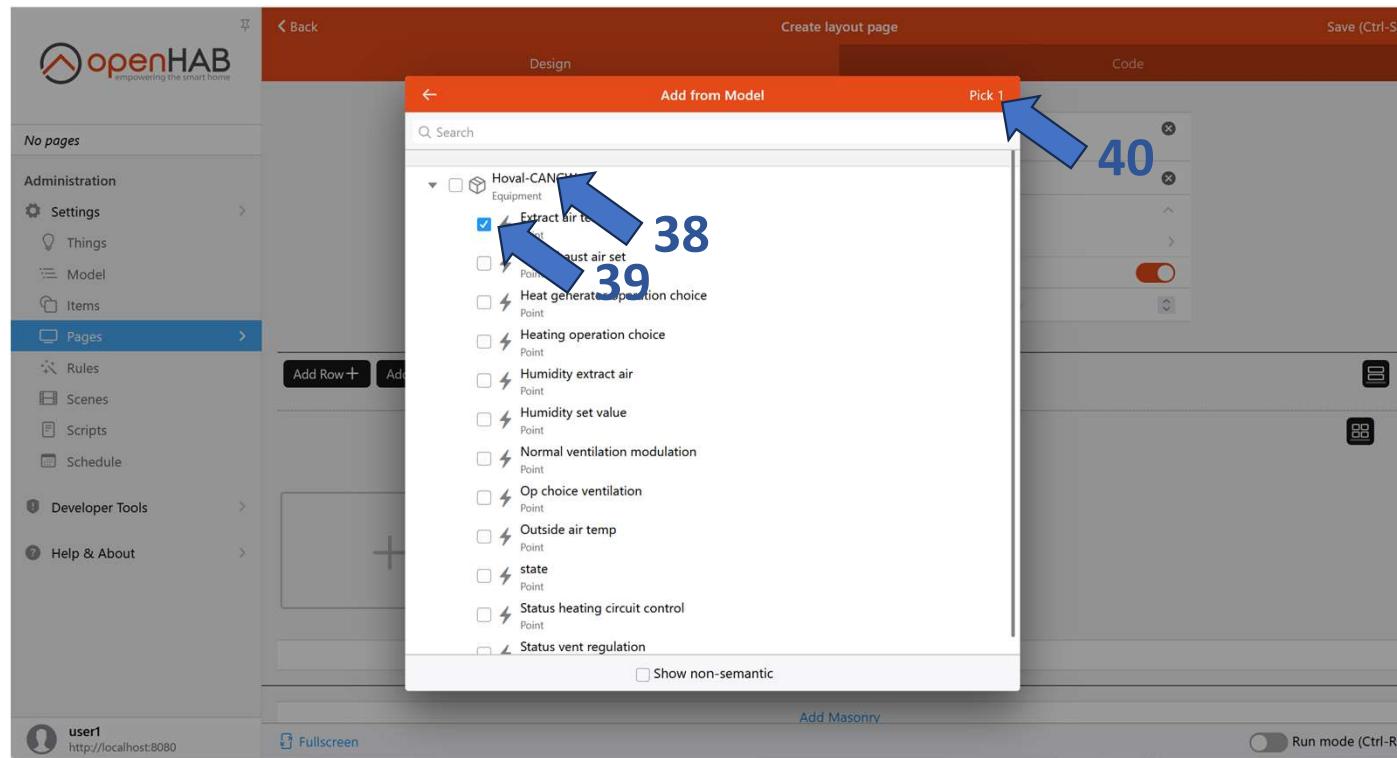
The main area is titled "Create layout page". It has tabs for "Design" and "Code". The "Design" tab is active. The "ID" field is set to "page_52fa18506c" and the "Label" field is set to "MyPage1". Under "Sidebar & Visibility", the "Visible only to" dropdown is set to "Everyone". The "Show on sidebar" switch is turned on. The "Sidebar order" section allows assigning an order index. Below this, there is a "Standard Library (Cells)" panel with the following items:

- Cell
- Label Cell
- Slider Cell
- Knob & Rounded Slider Cell
- Colorpicker Cell
- Rollershutter Cell

Below this is a "Personal Widgets" section. At the bottom of the panel, there are buttons for "Add Row +", "Add Cells +", "Add Block", and "Add from Model...". A blue arrow points to the "Add from Model..." button. The number "37" is displayed at the bottom right of the panel.

The footer of the interface includes the user information "user1 http://localhost:8080", a "Fullscreen" button, a "Cancel" button, and a "Run mode (Ctrl-R)" toggle switch.

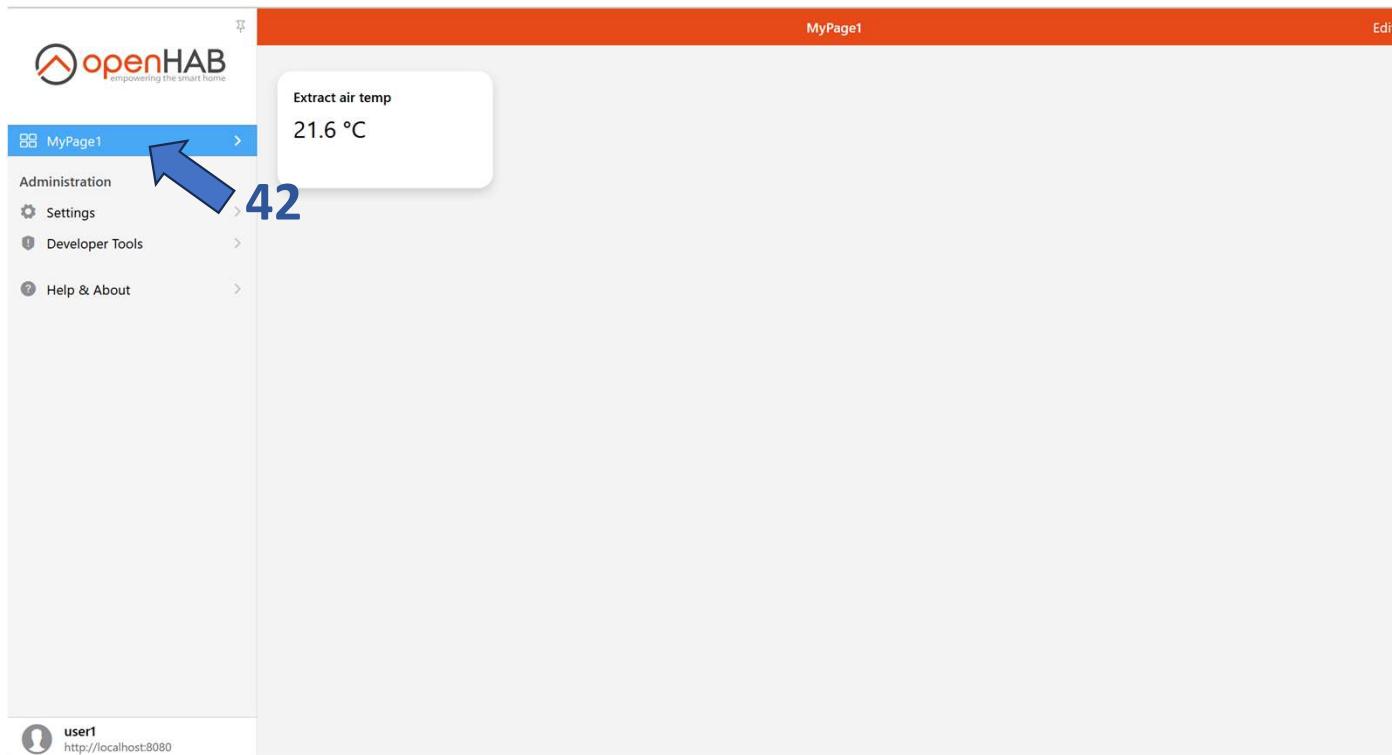
Example: configure a Sensor



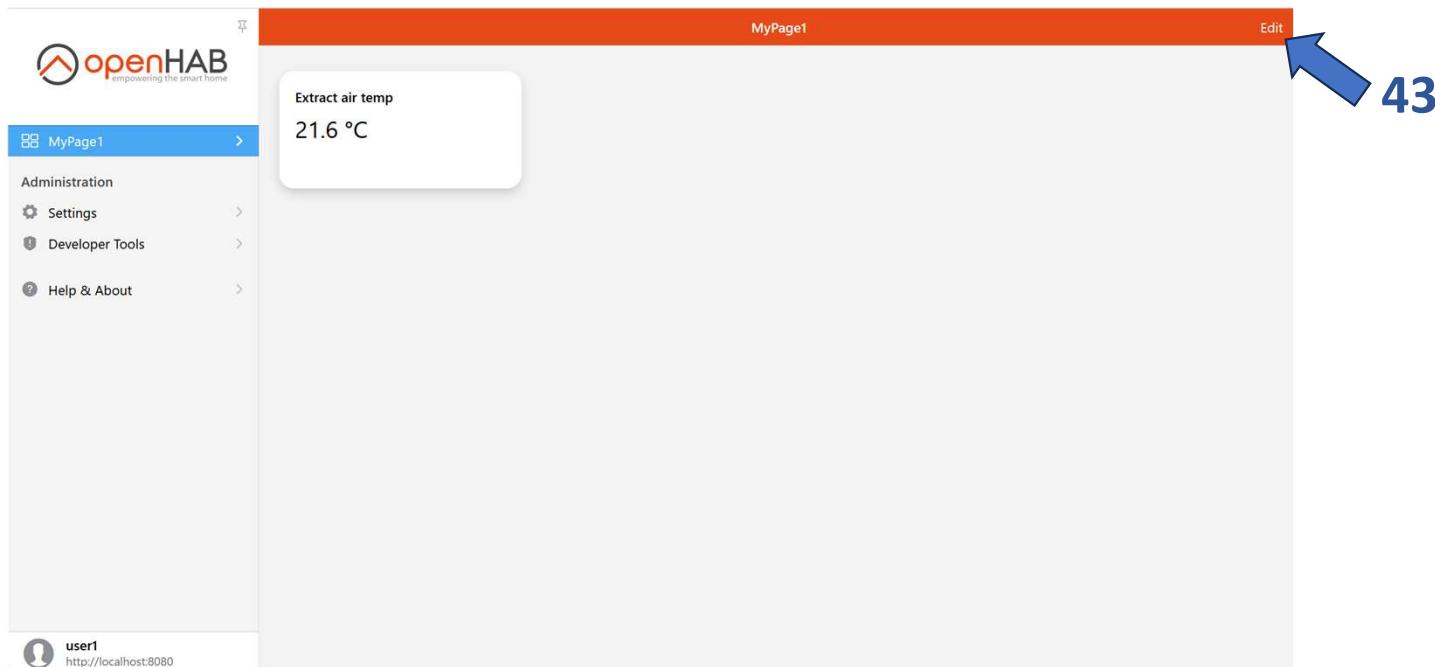
Example: configure a Sensor

The screenshot shows the openHAB configuration interface. The left sidebar has a 'Pages' section selected. The main area is titled 'Create layout page' and shows a 'Design' tab. The design includes a table with columns for 'ID' (page_52fa18506c) and 'Label' (MyPage1). It also includes sections for 'Sidebar & Visibility' (Visible only to, Show on sidebar), 'Sidebar order' (Assign order index to rearrange pages on sidebar), and a row editor with 'Add Row +' and 'Add Cells +' buttons. Below this is a card with the title 'Extract air temp' and the value '21.6 °C'. There is a '+' button to add more blocks. At the bottom, there are buttons for 'Add Block', 'Add Masonry', and 'Run mode (Ctrl-R)'. A blue arrow points from the number 41 to the 'Save (Ctrl-S)' button in the top right corner.

Example: configure a Sensor



Example: configure a rounded slider as a control element

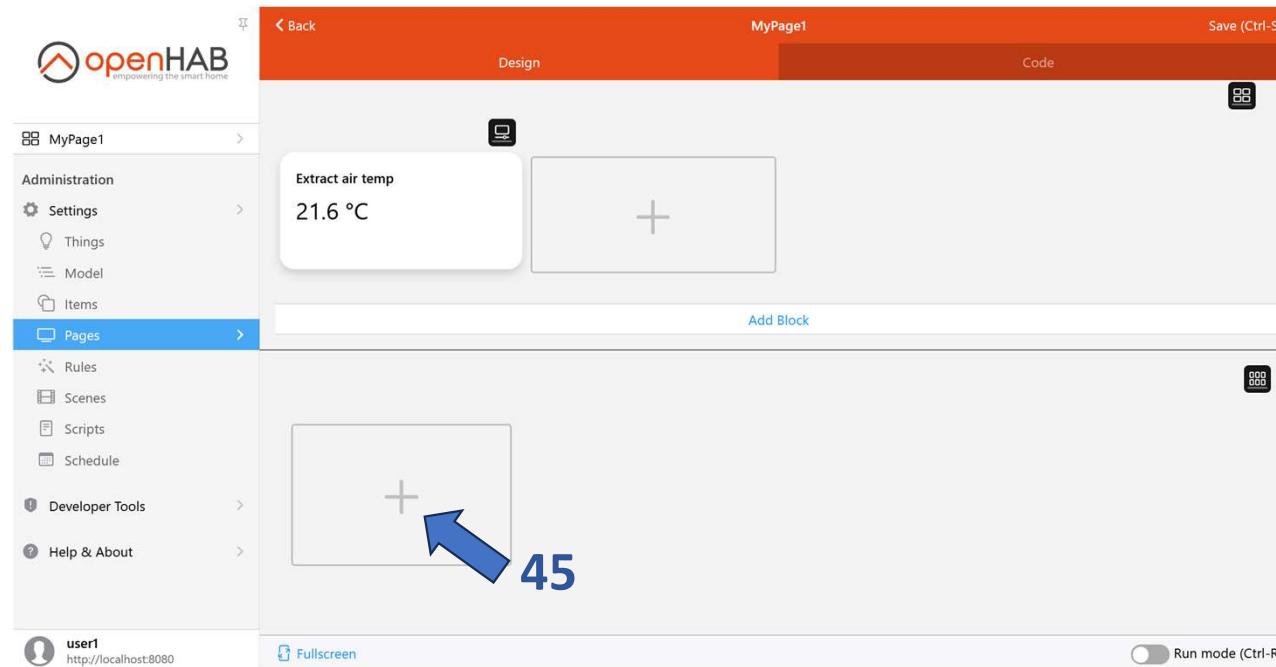


Example: configure a rounded slider as a control element

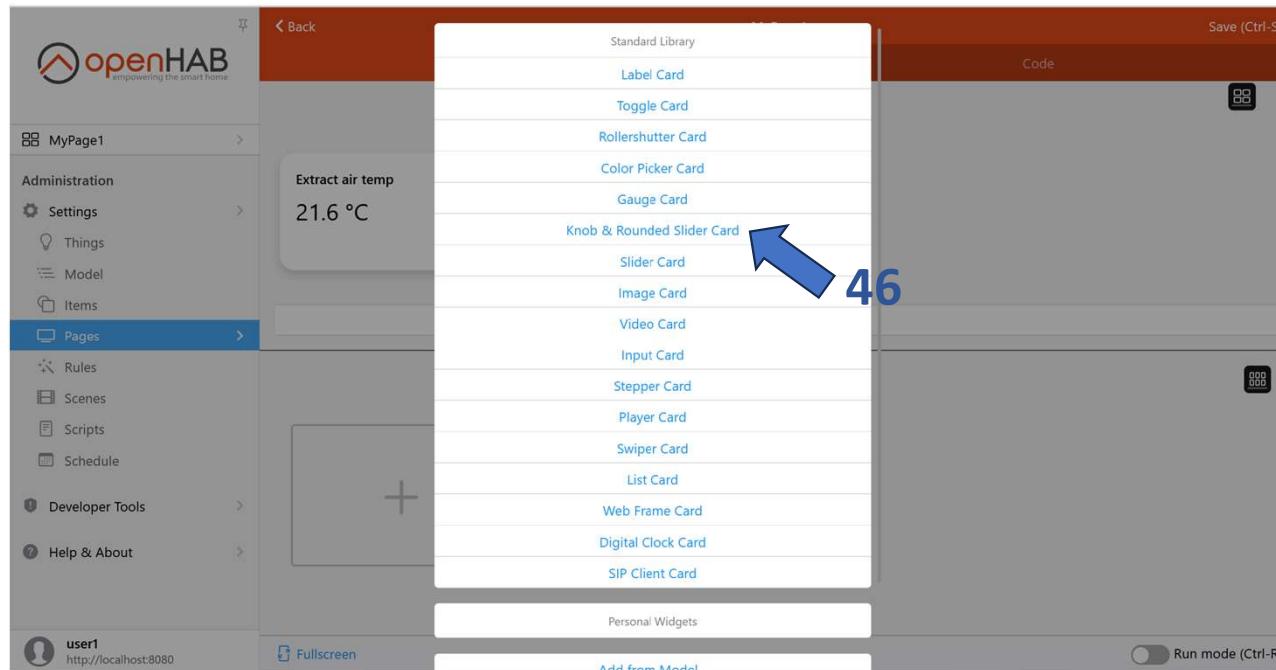
The screenshot shows the openHAB configuration interface for creating a page. On the left, a sidebar menu includes 'Administration' (Settings, Things, Model, Items), 'Pages' (selected), 'Rules', 'Scenes', 'Scripts', 'Schedule', 'Developer Tools', and 'Help & About'. The top right shows the page title 'MyPage1' and a 'Save (Ctrl-S)' button. The main area is titled 'Design' and contains a configuration form for 'MyPage1'. The form fields are: ID (page_52fa18506c), Label (MyPage1), and Sidebar & Visibility (expanded). Below the form is a table with two rows. The first row has a header cell with a monitor icon and a data cell containing 'Extract air temp' and '21.6 °C'. The second row has a header cell with a plus sign and a data cell with a 'Add Block' button. At the bottom of the table is an 'Add Masonry' button. A blue arrow points from the text '44' to the 'Add Masonry' button. The bottom navigation bar includes 'Fullscreen' and 'Run mode (Ctrl-R)'.

44

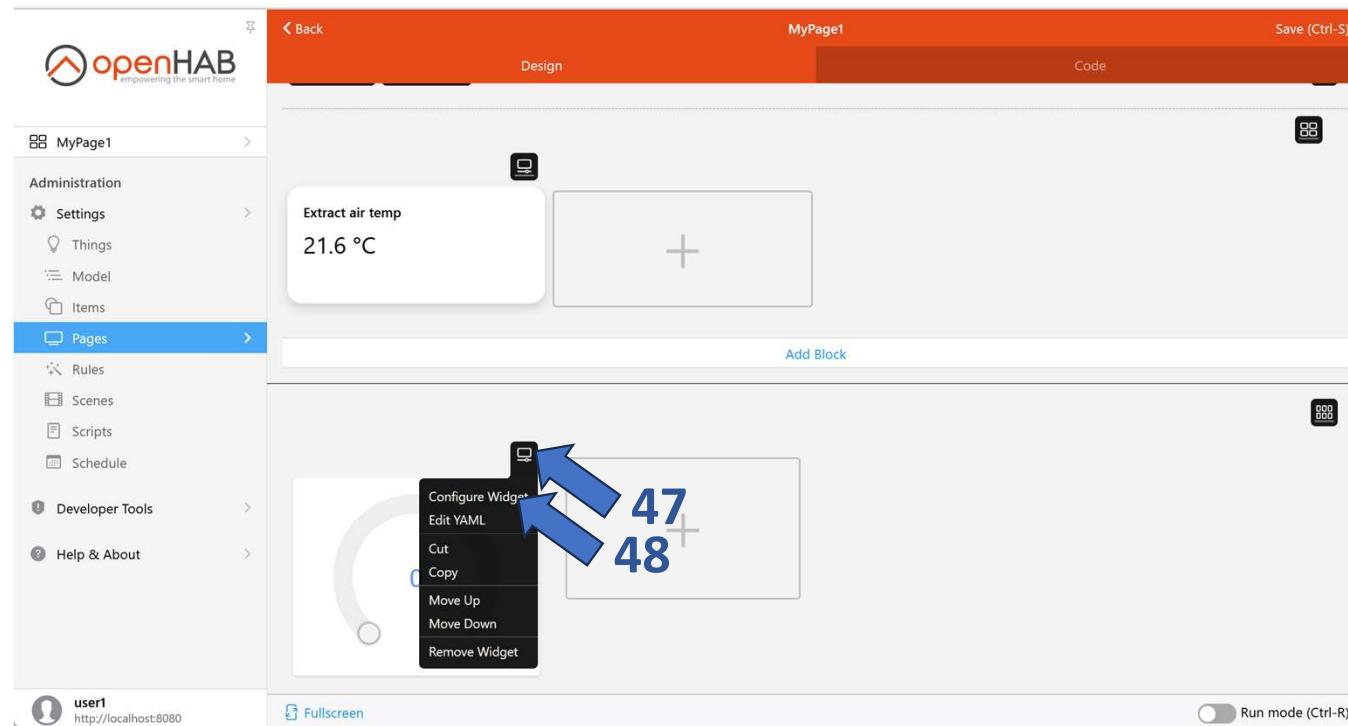
Example: configure a rounded slider as a control element



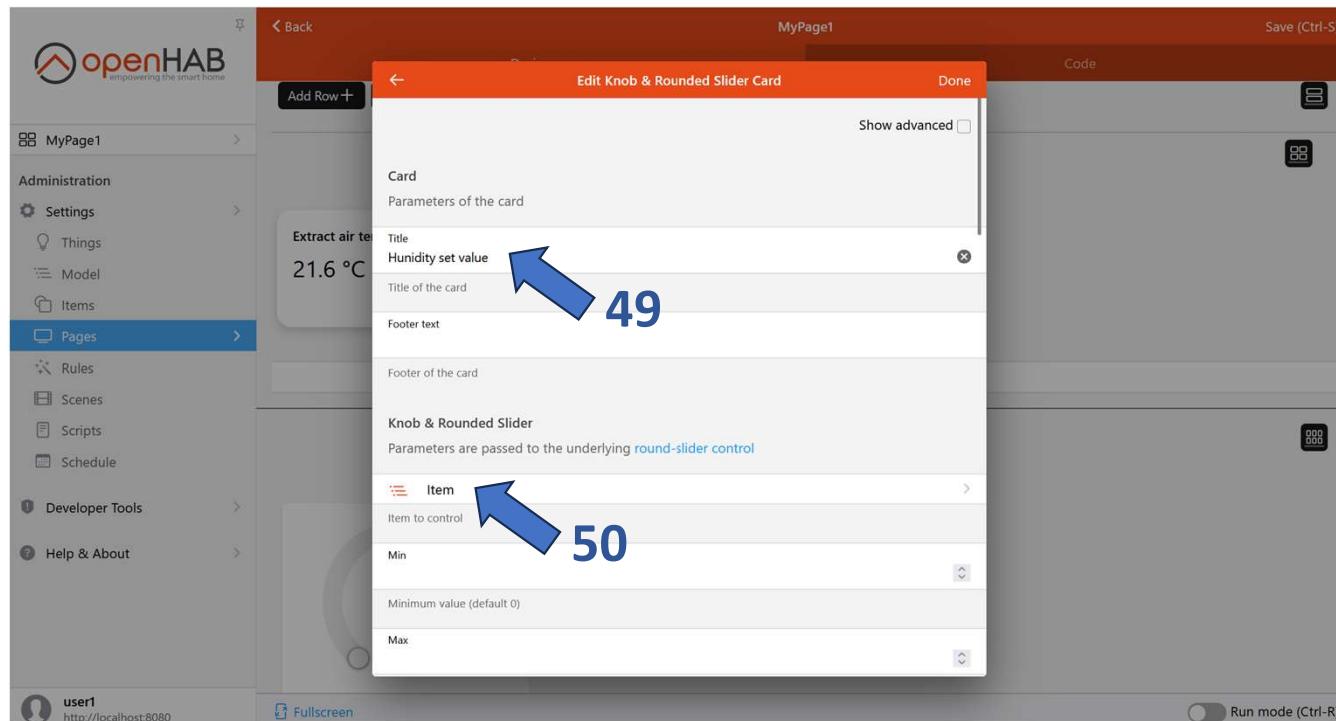
Example: configure a rounded slider as a control element



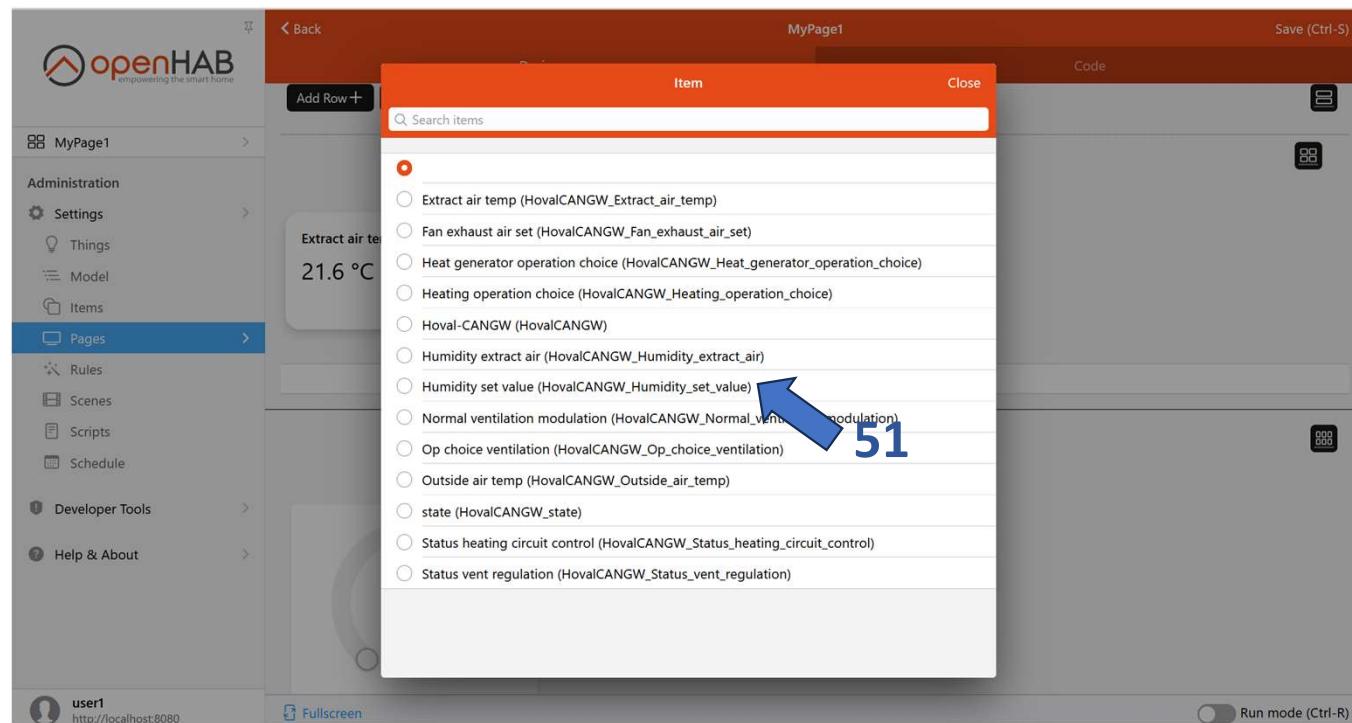
Example: configure a rounded slider as a control element



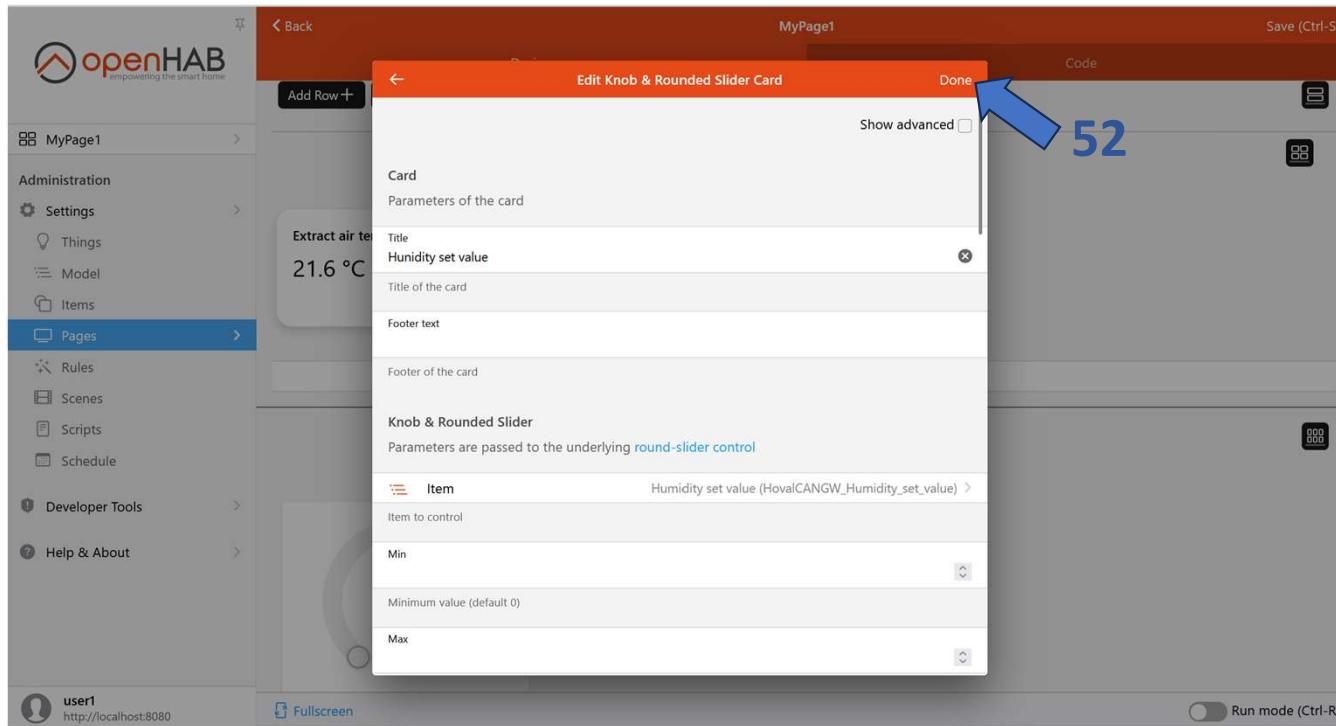
Example: configure a rounded slider as a control element



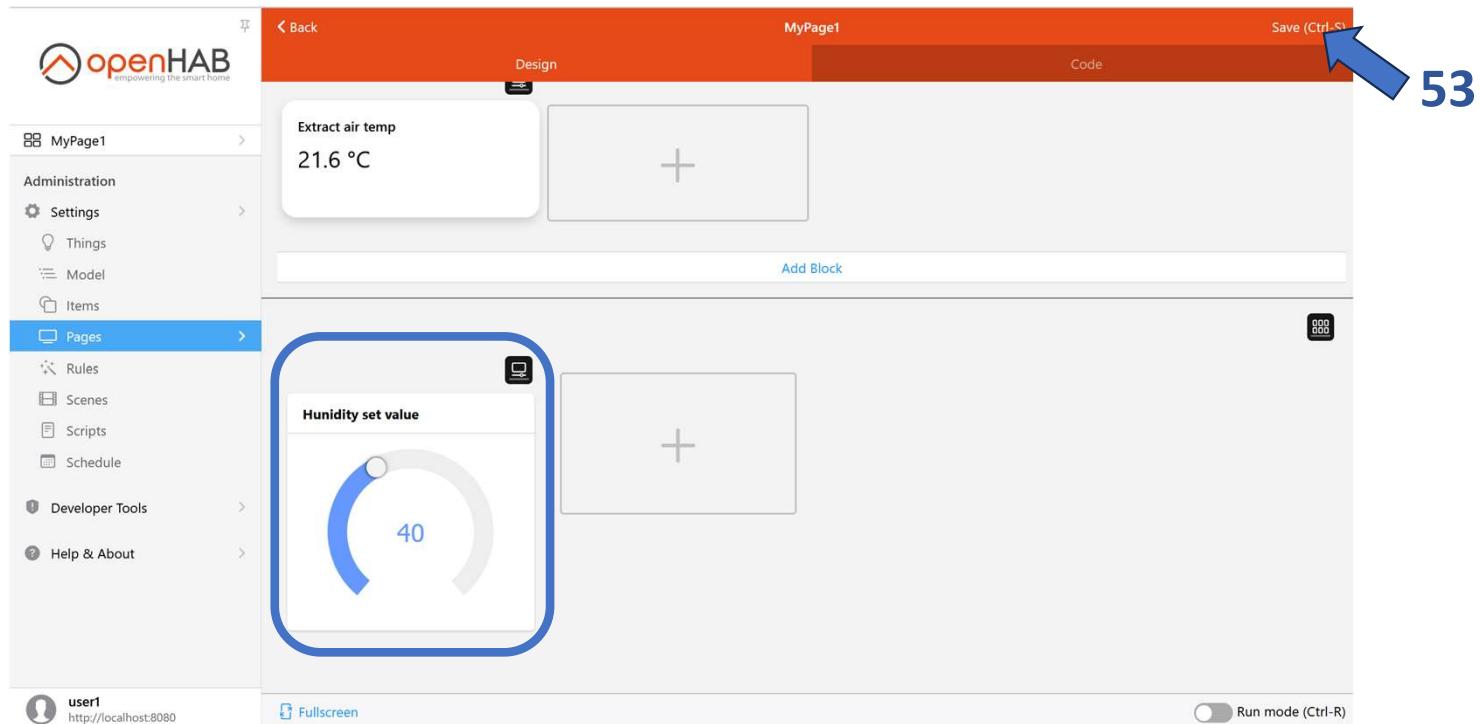
Example: configure a rounded slider as a control element



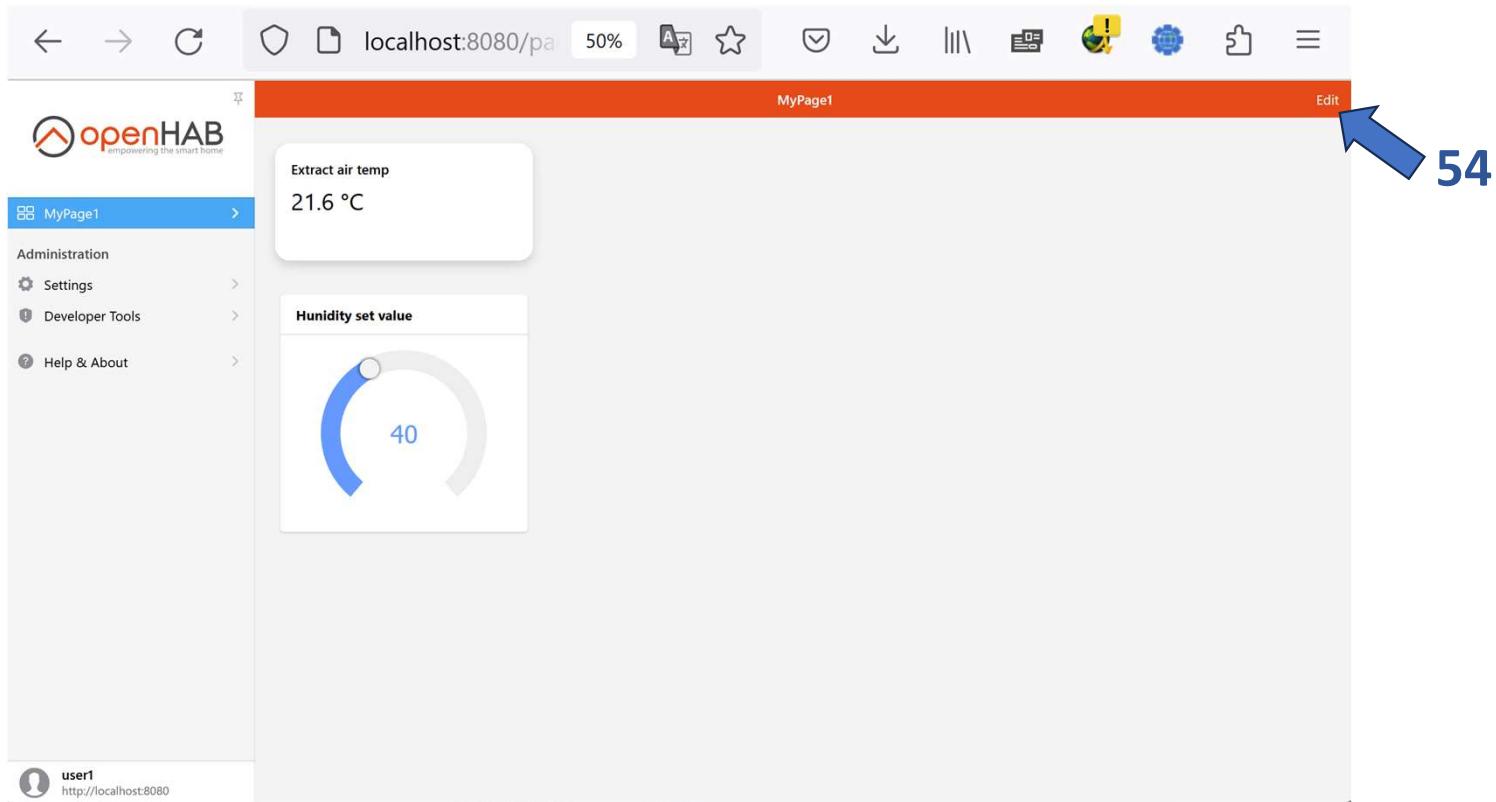
Example: configure a rounded slider as a control element



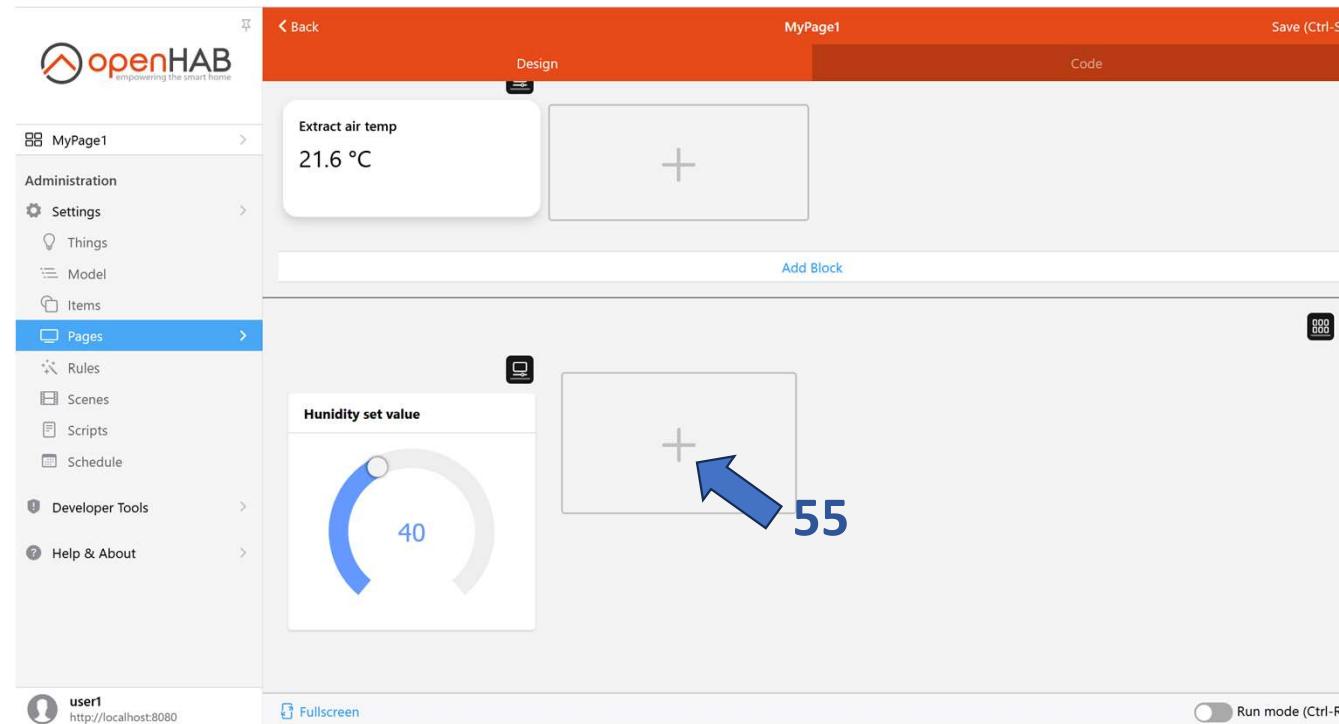
Example: configure a rounded slider as a control element



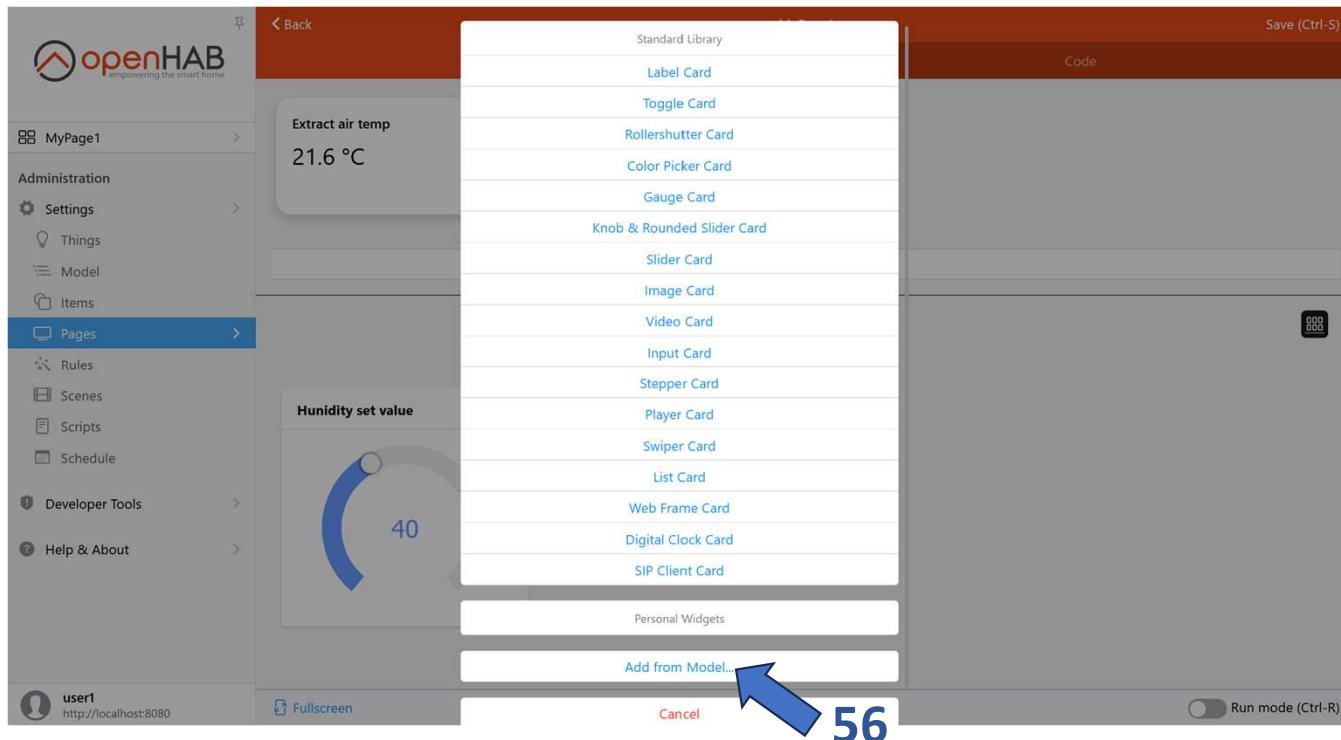
Example: configure Label element with control option



Example: configure Label element with control option

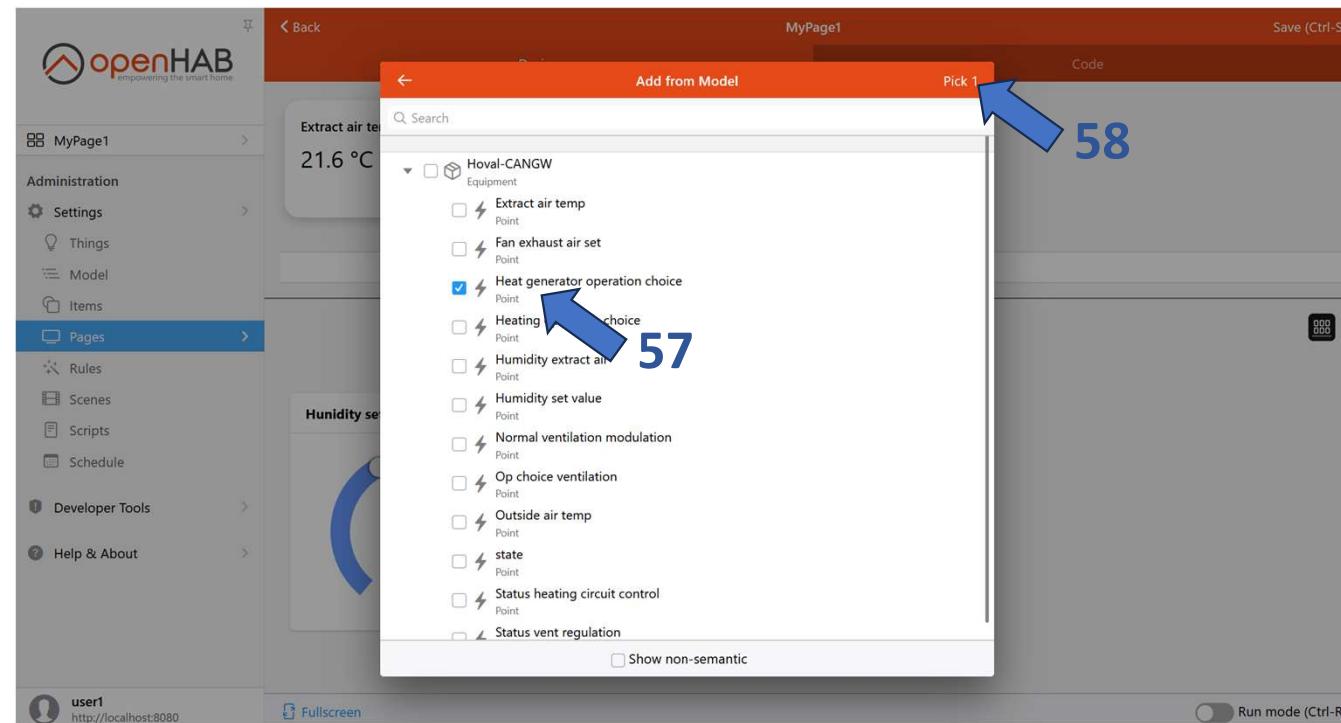


Example: configure Label element with control option

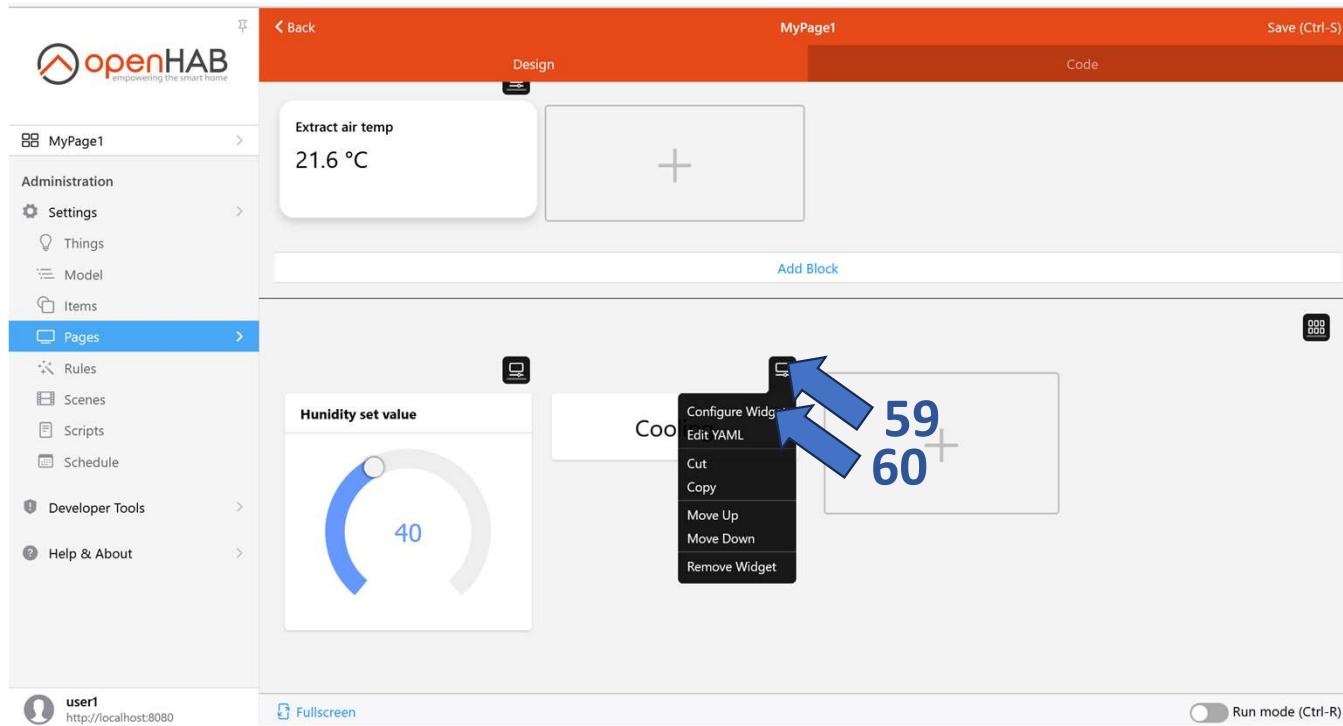


56

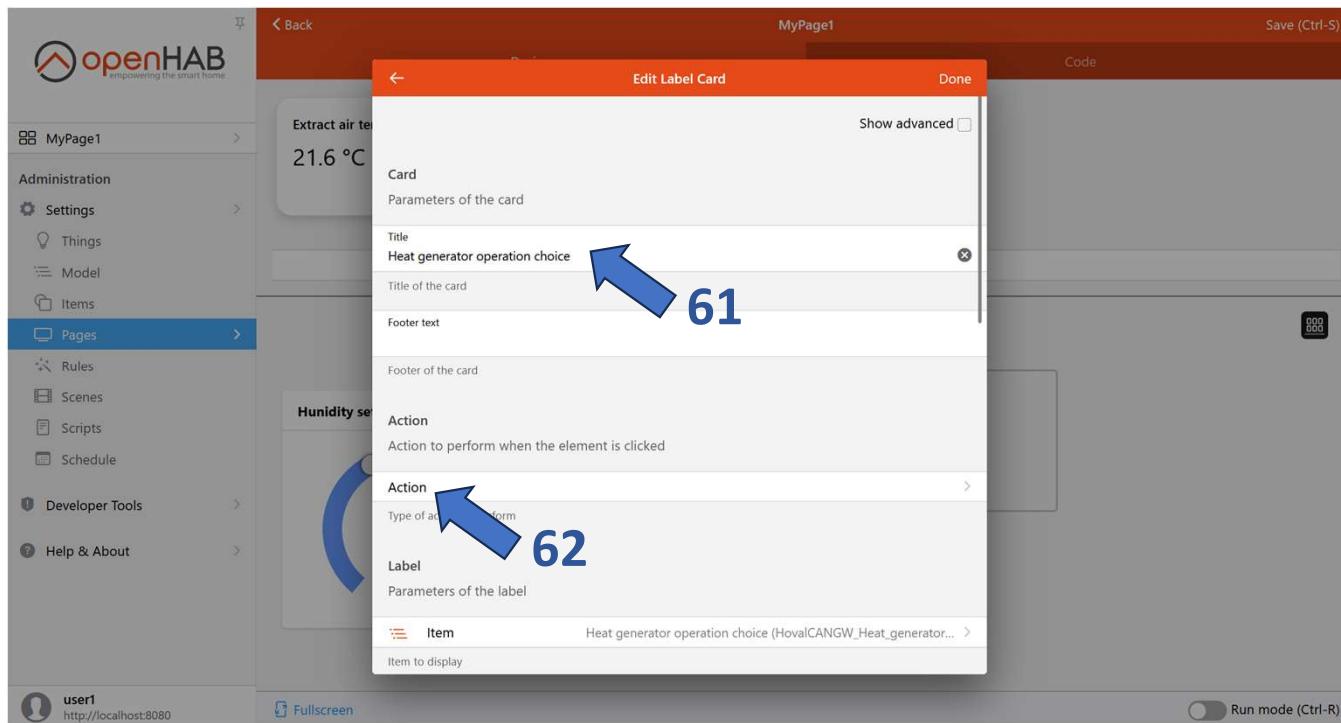
Example: configure Label element with control option



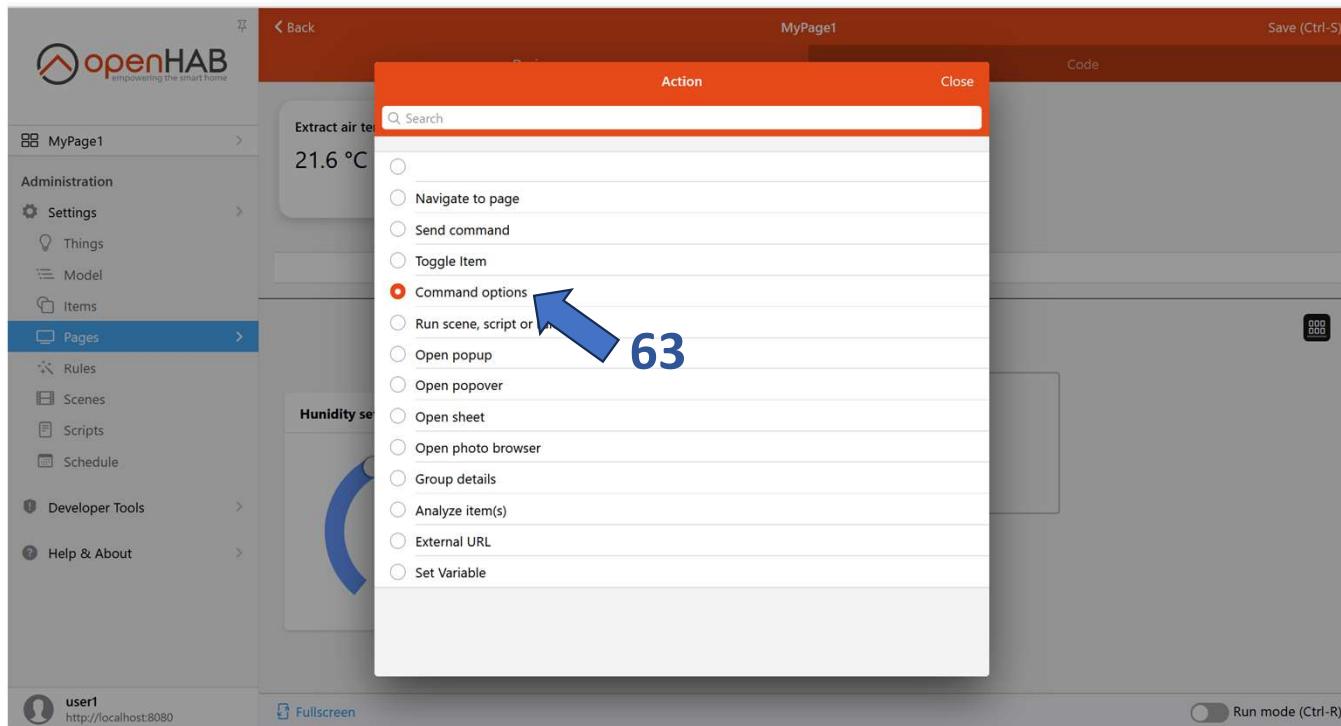
Example: configure Label element with control option



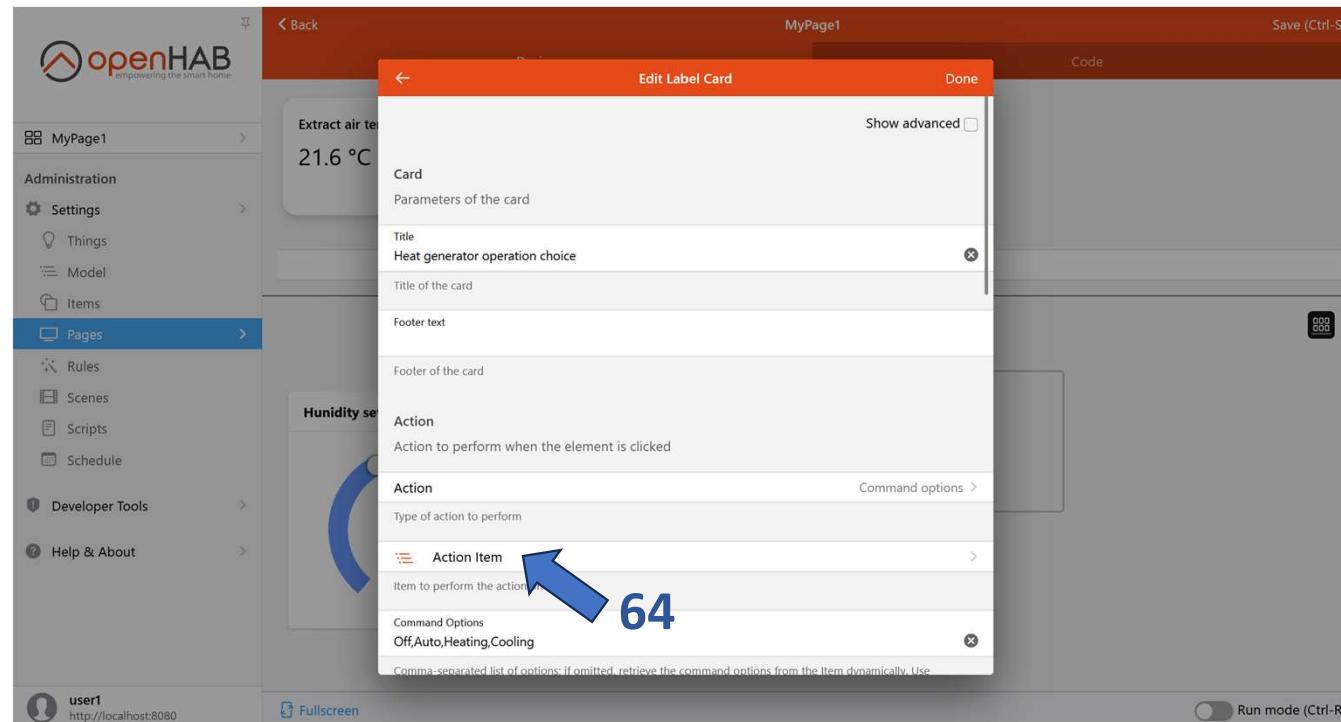
Example: configure Label element with control option



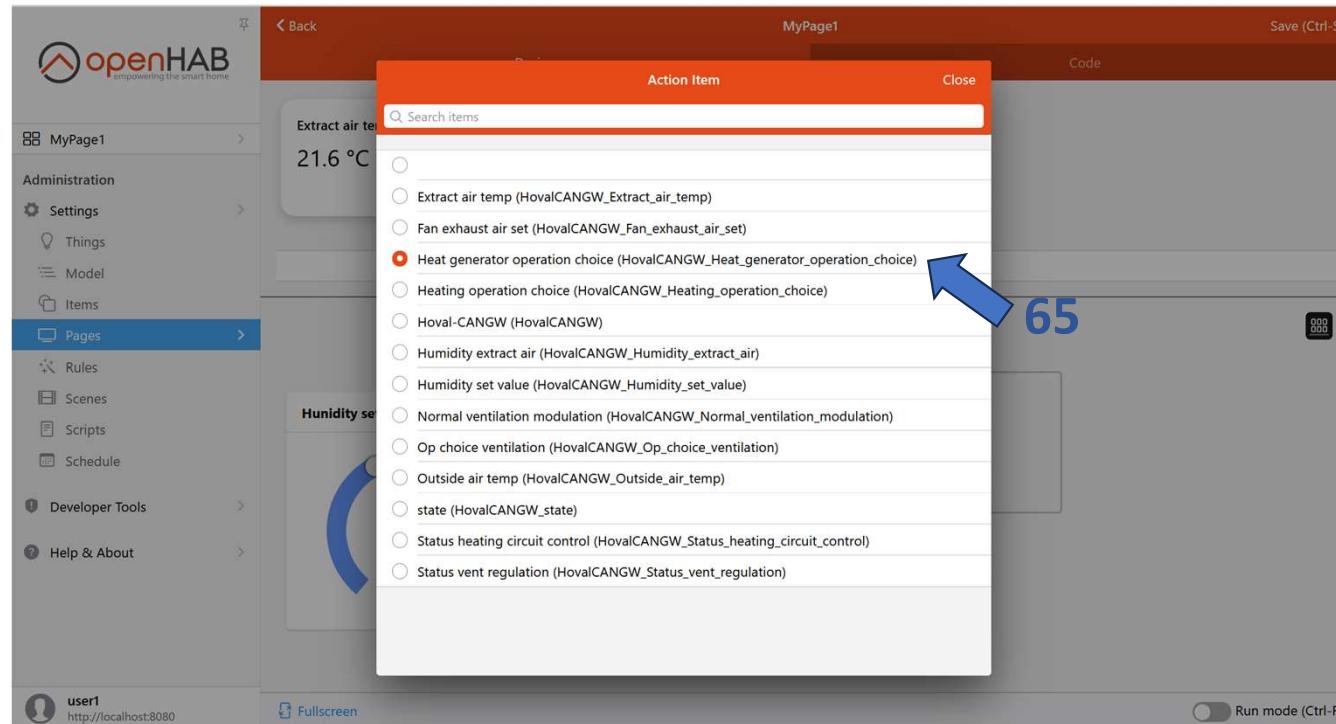
Example: configure Label element with control option



Example: configure Label element with control option



Example: configure Label element with control option



Example: configure Label element with control option

66 Copy exactly names,
comma separated

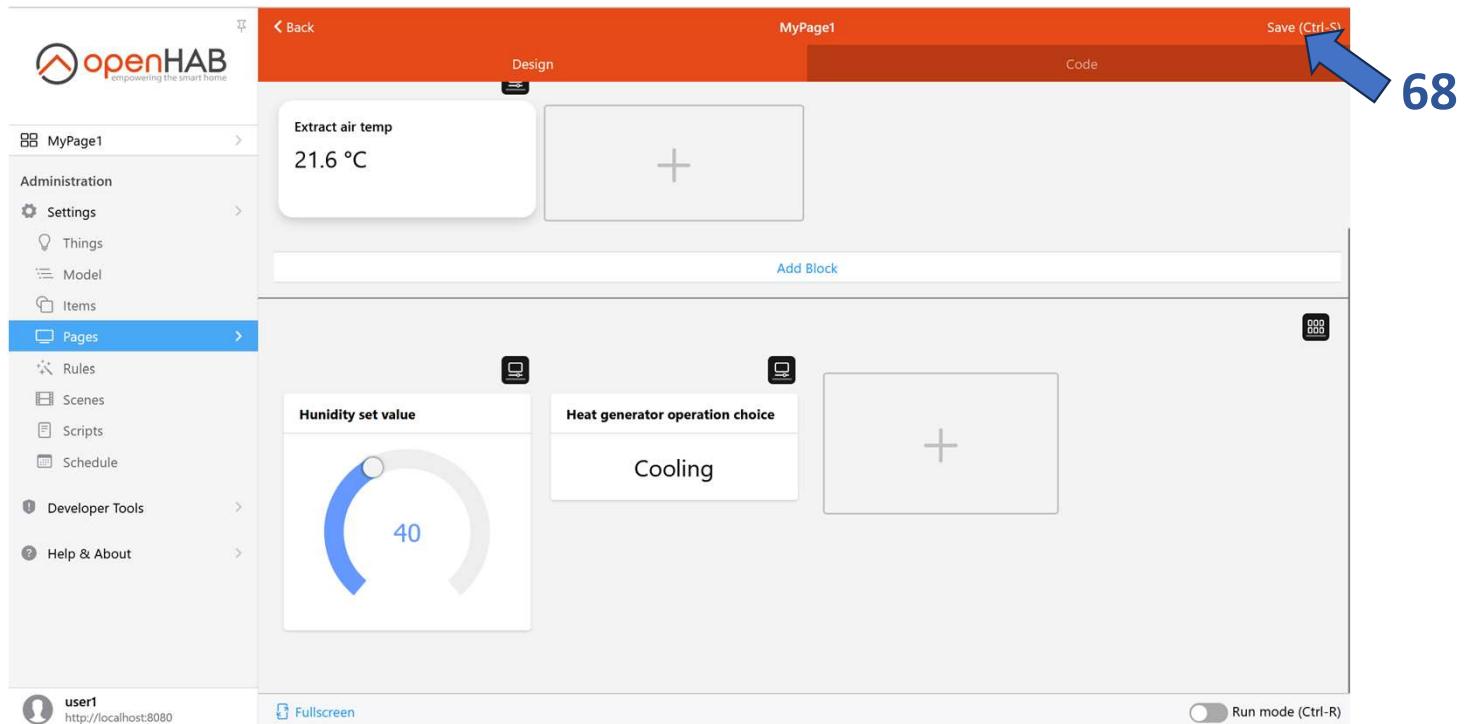
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CAN Gateway: Parameter list

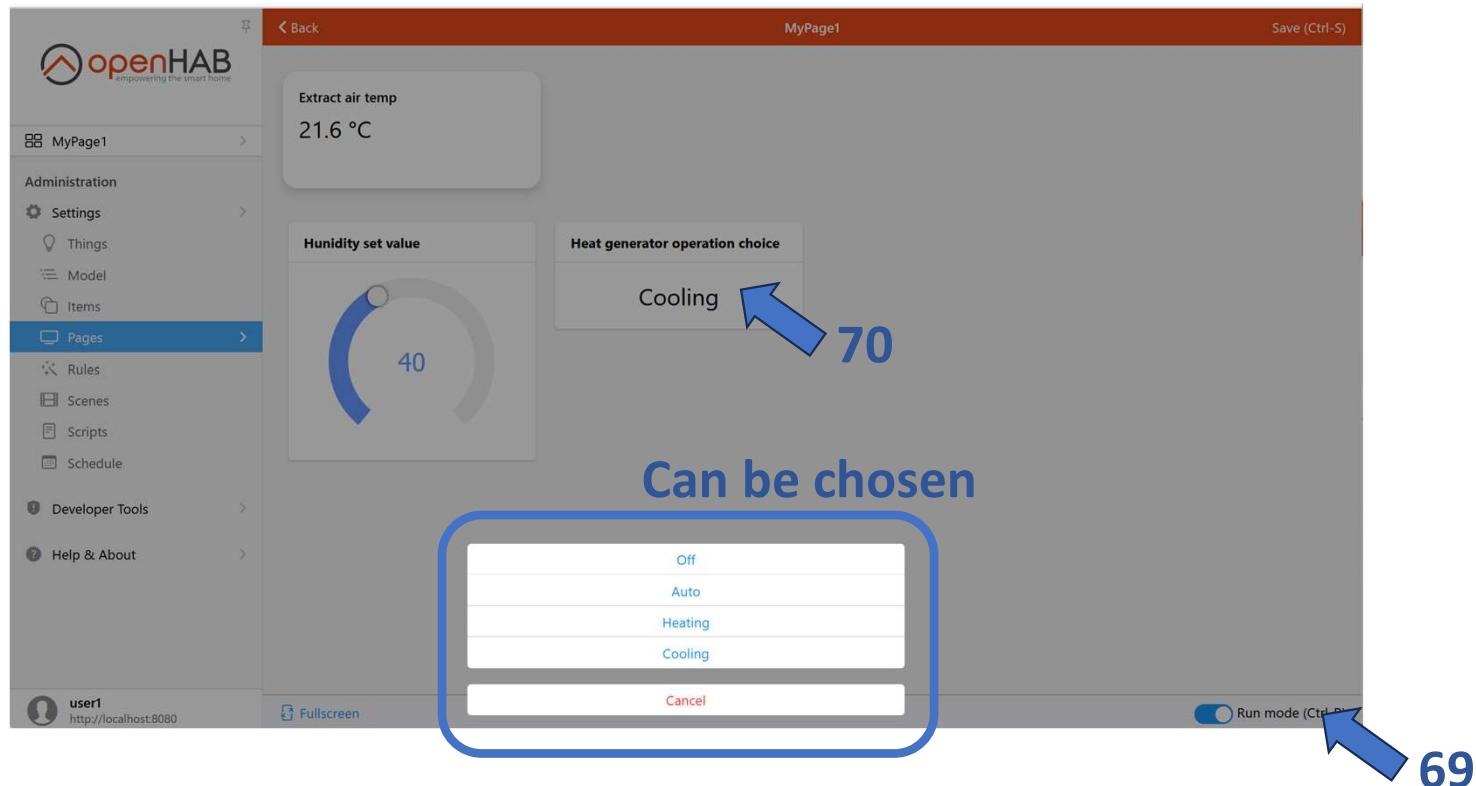
Click on „i“

Number	MQTT topic	Modbus address	Value	Raw value (hex)	Age, s
1 [H P]	Outside_air_temp_gradC	0	12.4	00	6
2 [H P]	Humidity_extract_air_percent	10	56	00	6
3 [H P]	Extract_air_temp_gradC	20	21.6	00	6
4 [H P]	Fan_exhaust_air_set_percent	30	48	00	6
5 [H P]	Status_vent_regulation [i]	40	3	00	6
6 [H P]	Op_choice_ventilation [i]	50	4	00	6
7 [H P]	Normal_ventilation_modulation_percent	60	45	00	6
8 [H P]	Humidity_set_value_percent	70	40	00	6
9 [H P]	Status_heating_circuit_control [i]	80	2	00	6
10 [H P]	Heating_operation_choice [i]	90	4	00	6
11 [H P]	CoolVent_activate [i]	100	0	00	6
12 [H P]	Heat_generator_operation_choice [i]	110	4	00	6

Installing of required OpenHab Add-Ons

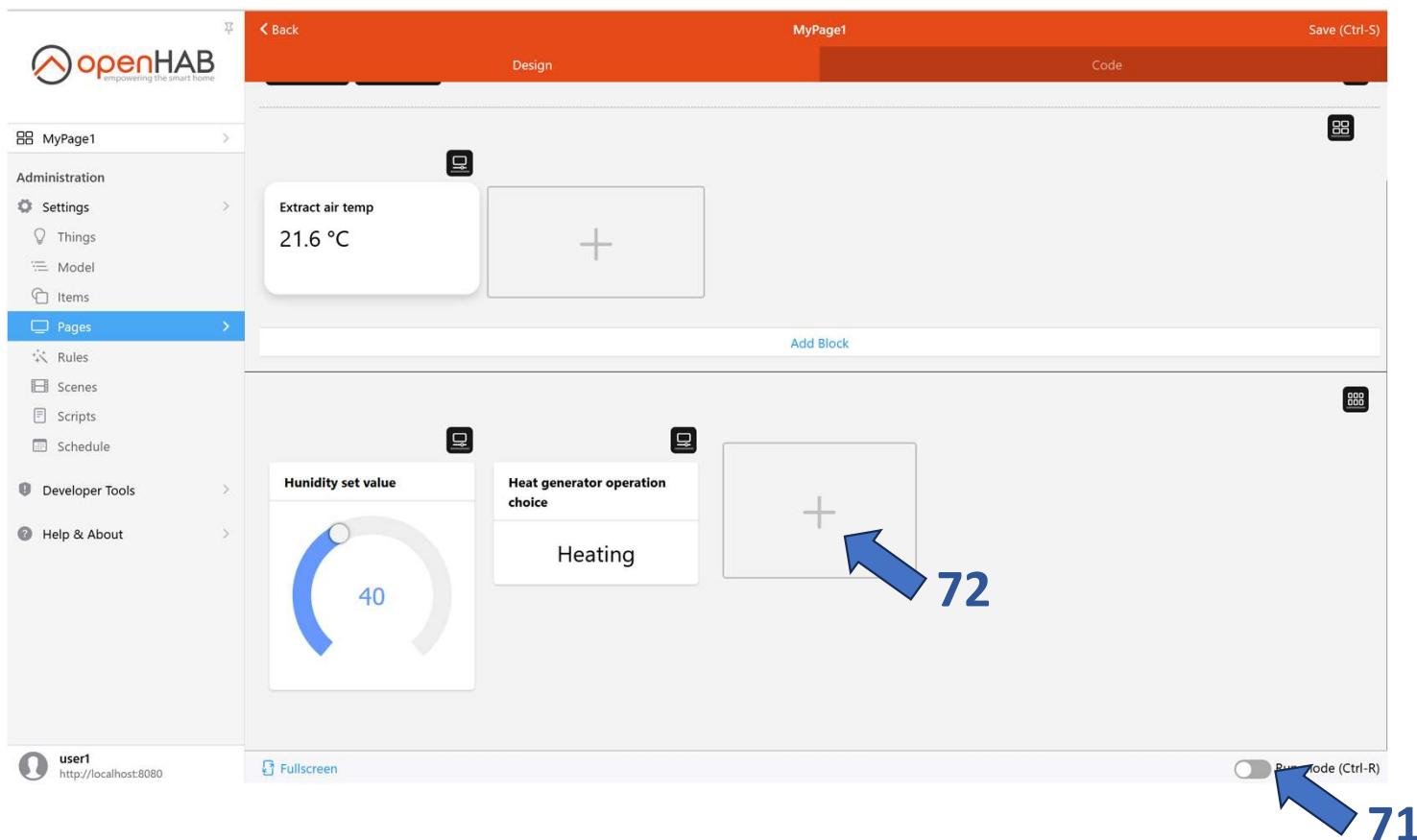


Example: configure Label element with control option

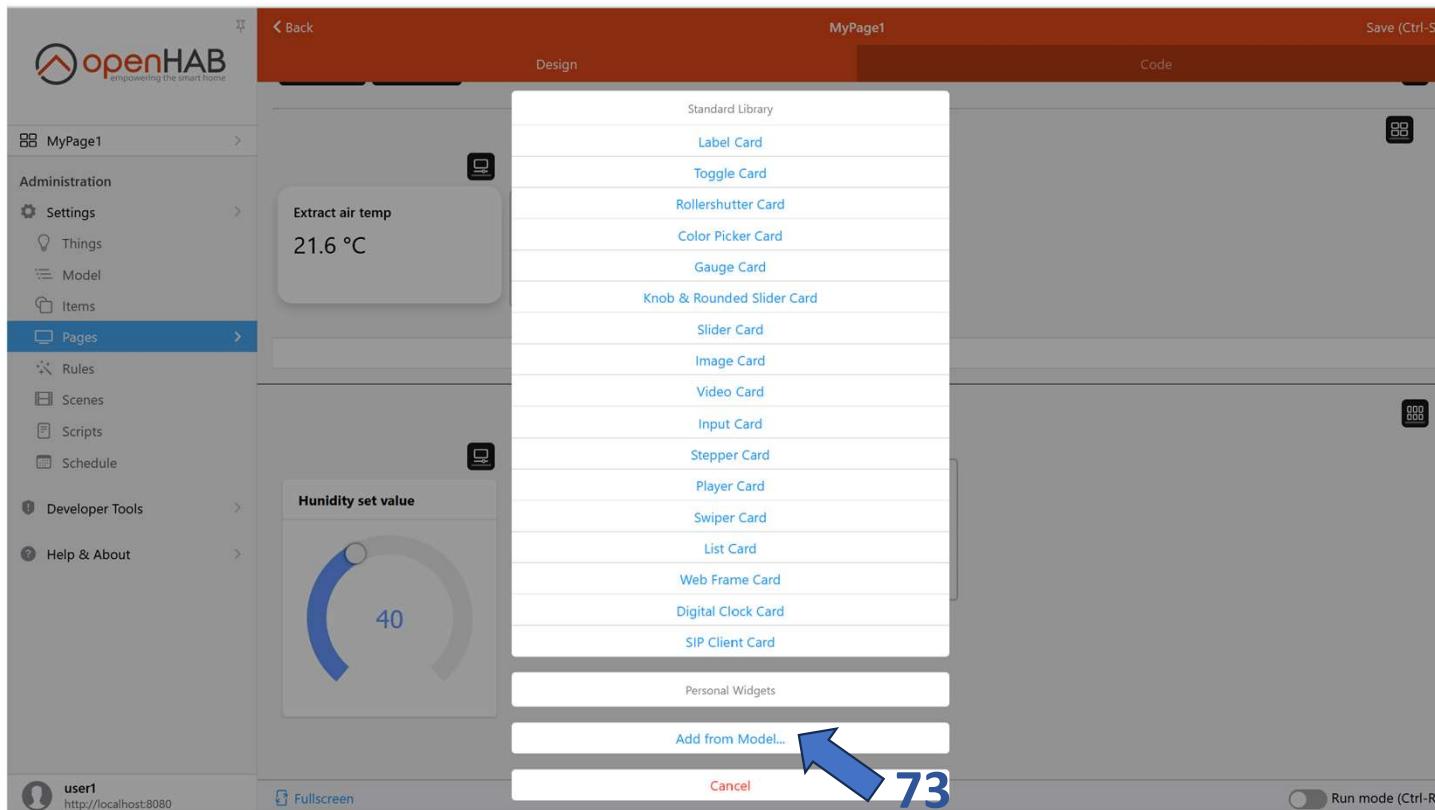


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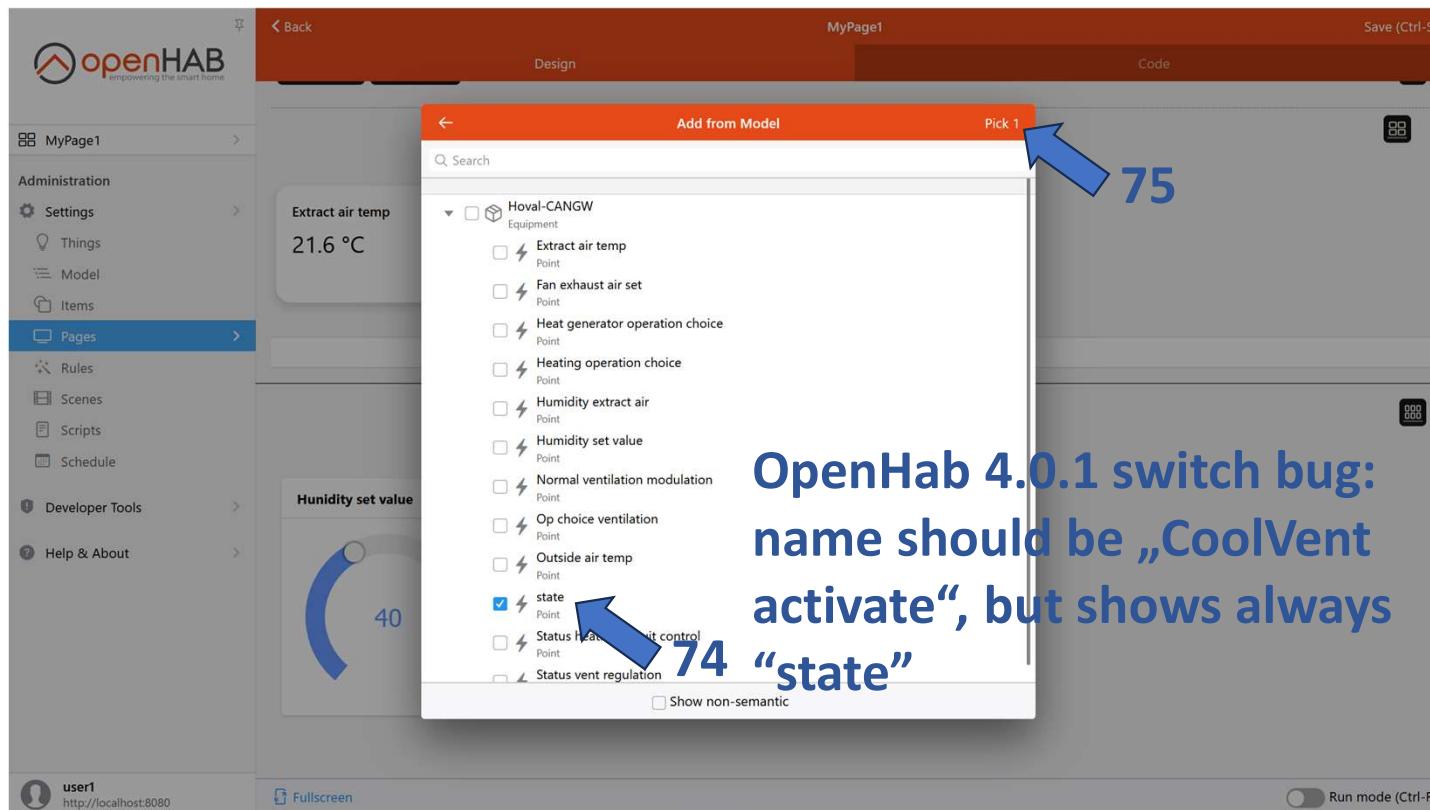
Example: configure Switch element



Example: configure Switch element

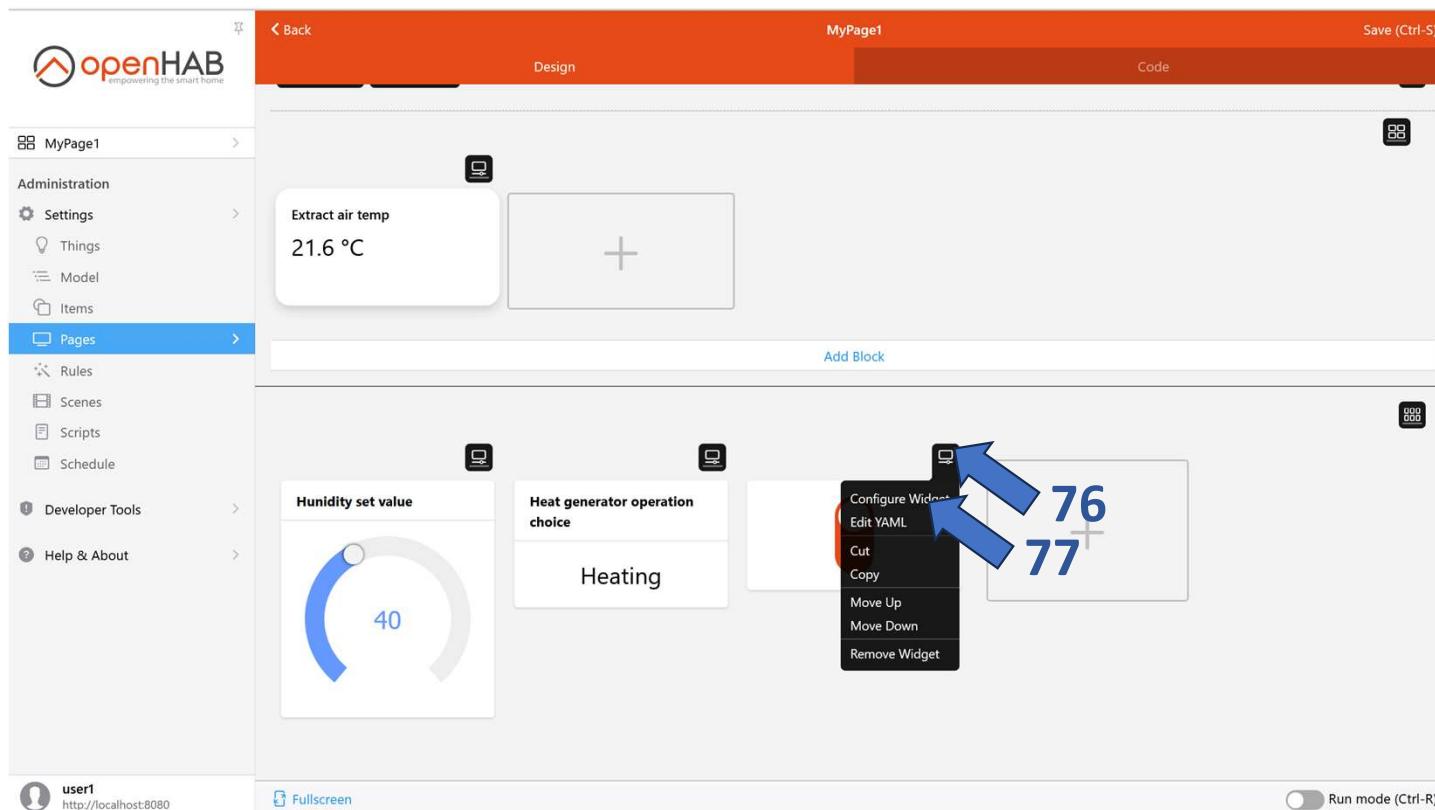


Example: configure Switch element

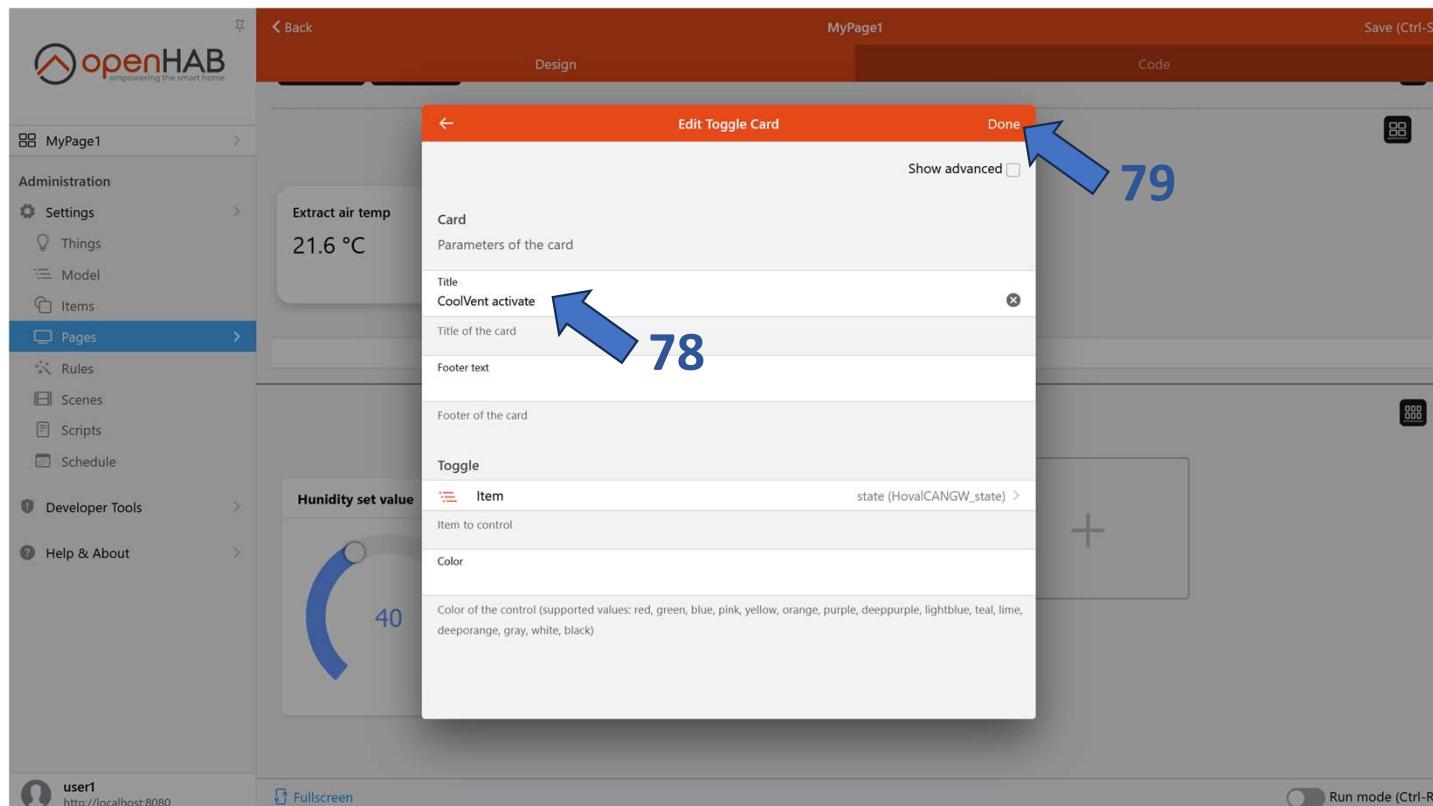


**OpenHab 4.0.1 switch bug:
name should be „CoolVent
activate“, but shows always
“state”**

Example: configure Switch element



Example: configure Switch element



Example: configure Switch element

