



Connecting KNX and Matter Smart Home

How to set up the Elsner
KNX Matter server

BASTIAN ELSNER | OSTELSHEIM | 04.12.24

elsner | academy



Your speaker



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- Managing Partner at Elsner Elektronik GmbH

Imagine your smart home...

But unfortunately, you have forgotten to provide a window contact on an important window.



Learning goals

After the webinar you will be able to:

- ✓ Putting the KNX Matter Server into operation
- ✓ Conveniently operate KNX components via app
- ✓ Control devices and scenes by voice command
- ✓ Combine Matter devices with the KNX system
- ✓ Securely access the system remotely



Agenda

1. Basics: What is KNX? What is Matter?
2. What does the KNX Matter Server do?
3. First steps: Integrate KNX devices and use the mobile app
4. Use smart home appliance and voice control
5. Integrate Matter devices
6. Further functions of the KNX Matter Server
 - 6.1 Integrations - connection with KNX, Matter and beyond
 - 6.2 Automations - create smart functions yourself
 - 6.3 Remote access - Secure access to the smart home on the move

1 | Basics: What is KNX? What is Matter?

What is KNX?

Strengths of the building automation standard

- **Standard:** Globally acknowledged standard for home and building automation (ISO/IEC 14543).
- **Flexibility:** Supports various applications such as lighting, heating, security, energy management, blind control and more.
- **Interoperability:** Compatible with products from numerous manufacturers and thus ensures manufacturer-independent control and extensions.
- **Security:** Offers encrypted communication for data protection and protection against manipulation.



What is Matter?

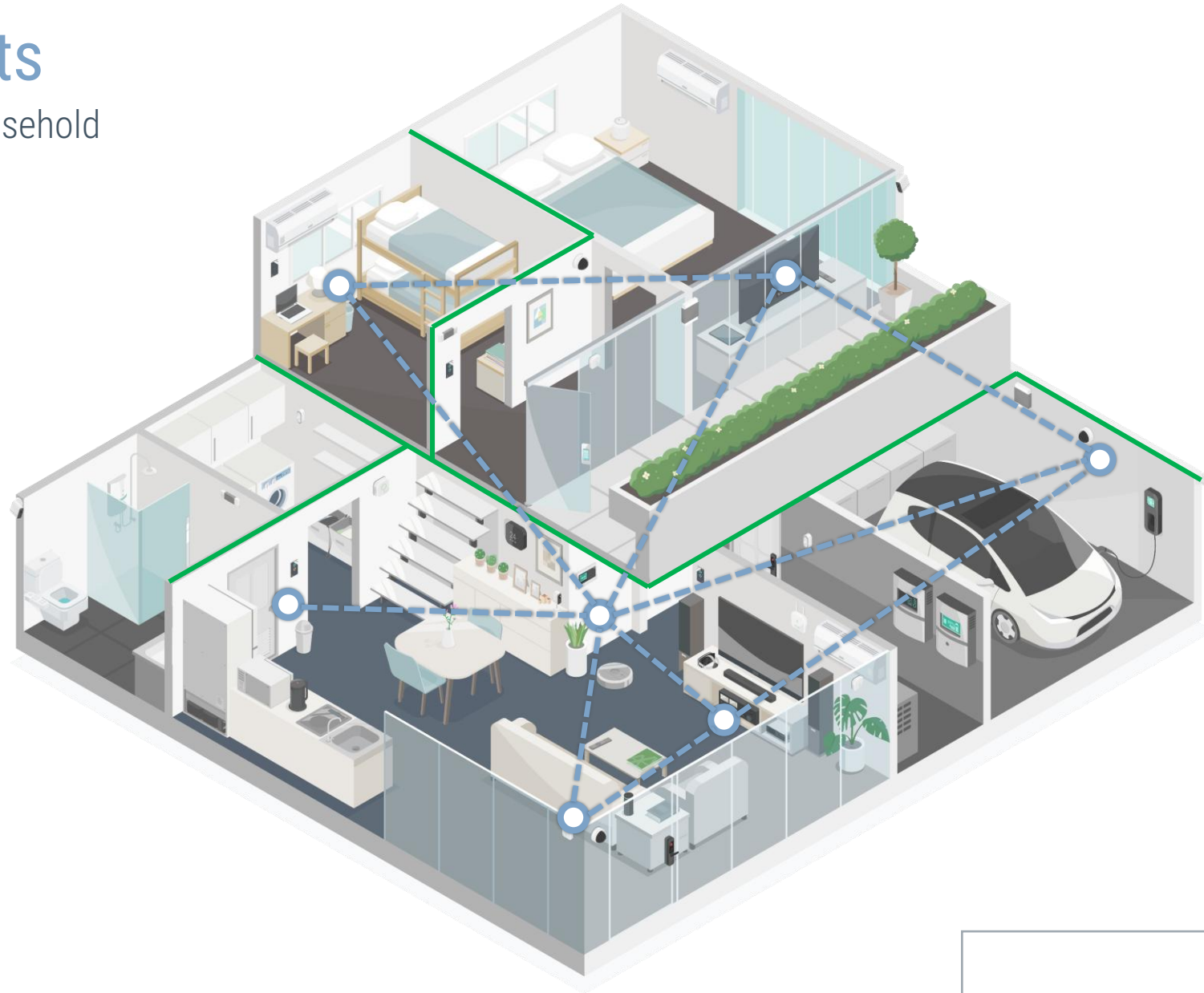
Strengths of the smart home wireless standard

- Communication protocol that enables the exchange of control commands as well as status and measurement data between home automation devices across manufacturers.
- The majority of providers in the smart home market are on board.
- Works (locally), ensuring operation without internet or cloud services - a plus for data protection and privacy.



Matter products

Networking the entire household



2 | KNX Matter Server

KNX Matter Server

Functions and areas of application

- The KNX Matter Server is the link between the KNX and Matter world
- Voice assistant for controlling KNX devices
- Integration and combination of Matter devices in KNX
- Remote access for programming KNX
- Control of KNX devices also possible outside the home network
- Setup by end user possible (e.g. upload KNX project)
- Powered by 1Home



KNX Matter Server

Technical data

- Power consumption typically 2-3 watts, maximum 5 watts at 30V DC
- 72 mm x 90 mm x 60 mm (W x H x D)
- External supply voltage 12-30V DC
- Mounting on 35 mm DIN rail possible
- IP20
- Operating temperature -5...+45°C
- Ethernet LAN connection socket RJ45



KNX Matter Server

Technical data: Connection



- 1 | KNX Bus
- 2 | Supply voltage A: 24V DC
- 3 | LAN/Ethernet
- 4 | Supply voltage B: 12 V DC Barrel 2.1 mm

Status RGB LED

The following RGB status codes are used during booting:

LED Color	Status
● Solid red	The device is booting.
● Fast blinking blue	Device is performing update installation.
● Slow blinking green	Software application is starting.
● Solid green	Software application is ready to use.

How secure is my data

Data protection

- Storage of serial number, MAC address, IP address and device version, e.g. for carrying out automatic updates.
- Temporary storage of the ETS project file (.knxproj) for one hour in the cloud.
- Storage of e-mail address, first name, surname and project details in the remote dashboard.
- History of remote connection sessions for monitoring server access.
- Detailed data processing described in the general 1Home privacy policy.

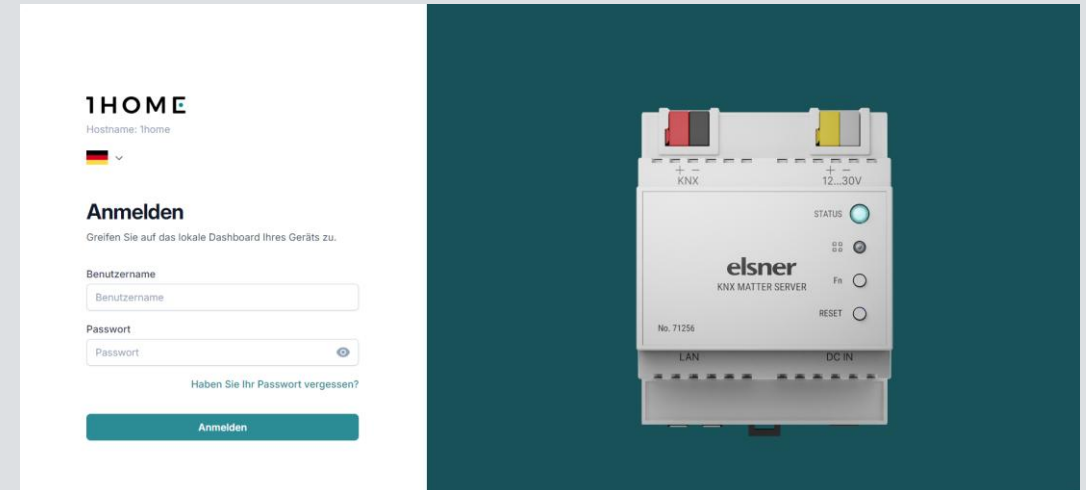
[Click here for the privacy policy of 1 Home](#)

3 | Integrate KNX devices and use the mobile app

Setting up the server

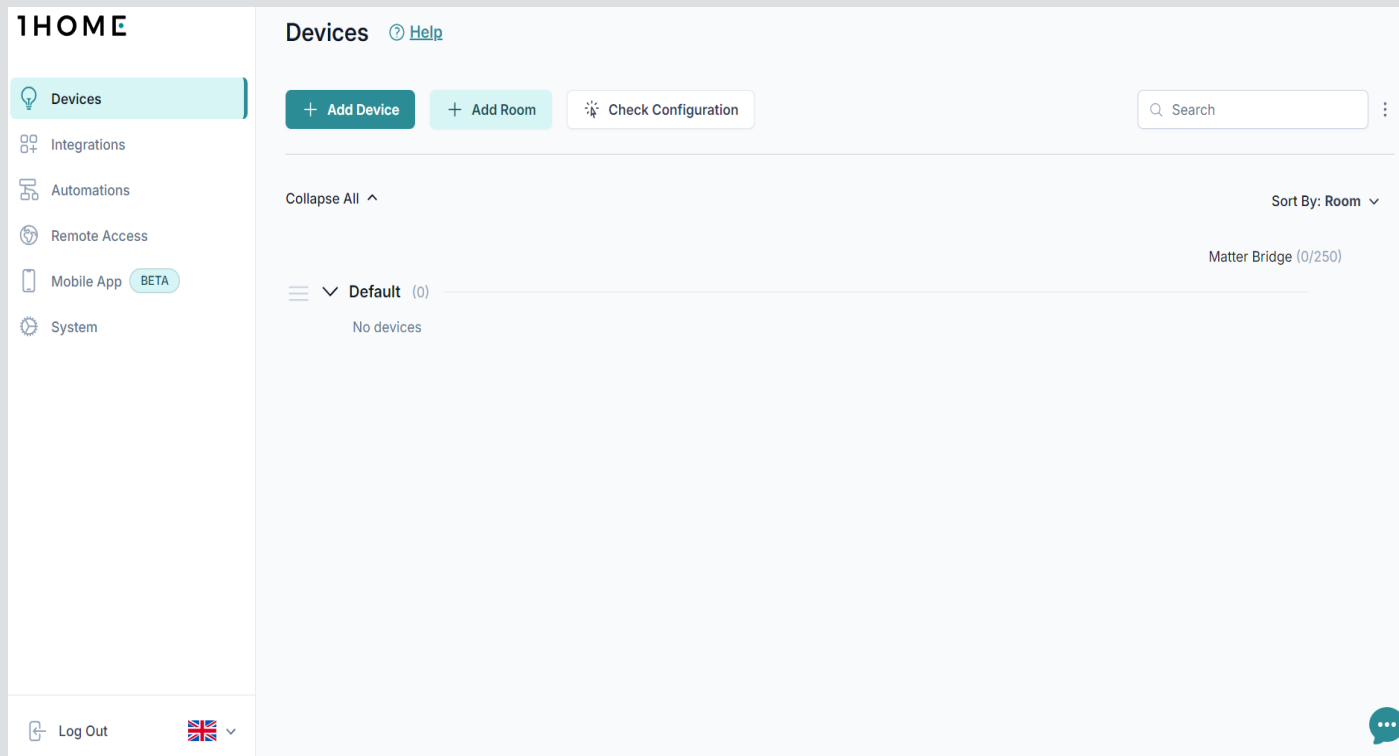
Establishing the connection to the server

- If the device is switched on and the status LED is permanently green, you can open 1home.local in the browser
- The default user name and password are on the label supplied with the device
- These should be changed after the first application



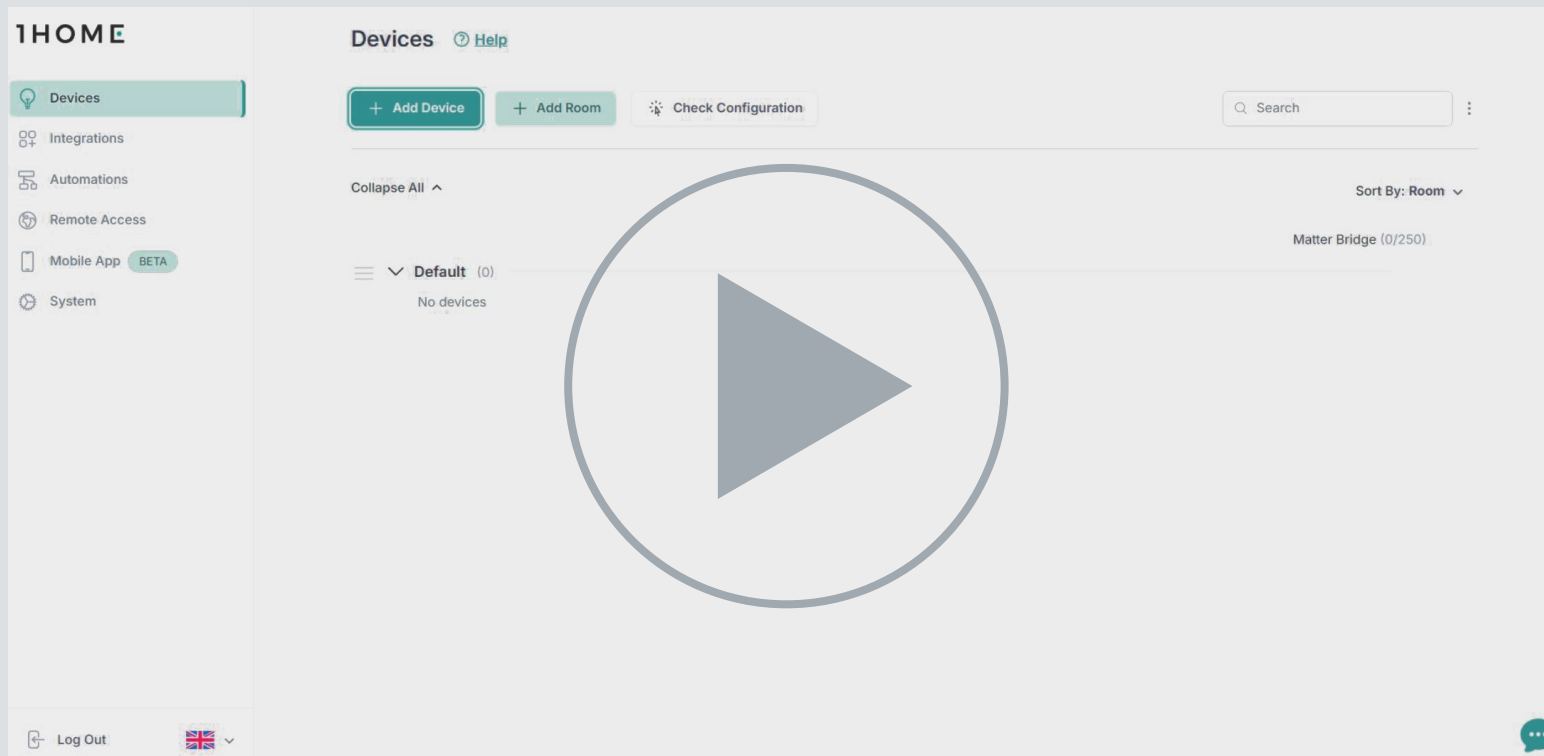
Setting up the server

KNX Matter Server start page



Setting up the server

Adding the KNX project / KNX devices



Setting up the server

Summary Add KNX devices / project

Add KNX Device

Auto Import Devices

Import and construct devices such as lights, blinds, sensor etc. automatically from your .knxproj file or 1Home Bridge config. No need to type in hundreds of group addresses and linking them with logical devices.

[Upload ETS File](#)


[Migrate from 1Home Bridge](#)

Add Manually [? Help](#)

Create devices manually and input all the needed group addresses by hand.


If you have access to your .knxproj file, we suggest you try our automatic detection first.

Device Type

 Light: On/Off

[Create](#)

Upload ETS project file [? Help](#)




Upload your ETS project file here

[Select from Device](#)

.knxproj files only

(*) Detection is done on 1Home cloud due to algorithm requirements. Cloud data is automatically deleted after you finish importing the project to 1Home.

Gateway

 TP (connected) [? Help](#)

ETS Password (Optional)

Password







[Start Detection →](#)

Setting up the server

Error message when uploading the KNX project

Devices With Wrong Flags: 1 [How to Fix?](#)

Focus: ☐

Device ▾	Room ▾	Merging Strategy ▲
 Blind south 	Living room ▾ + New	NEW ▾ Configure 
<div><div>Current Position Status: 0/0/15 Blind south Position feedback  R Detected on: 11.4 ~ KNX S4-B10 [70546] ~ CH-6</div><div>Target Position Set: 0/0/11 Blind south automatic travel position  W R</div><div>Stop Motion Set: 0/0/6 Blind south manual short time  W R</div></div>		

Setting up the server

Error message when uploading the KNX project

The screenshot shows the KNX project editor interface. On the left, there is a table of objects with columns: Number, Name, Object Function, Linked with, Other Linked, Length, C, R, W, T, U, Data Type, and Priority. The table lists various objects like Softwareversion, Kanal A1 - Schalten, and Kanal B - Status. On the right, there is a Properties panel with tabs for Settings, Comments, and Information. The Settings tab is active, showing fields for Name, Description, and Priority. A blue box highlights the 'Flags' section in the Properties panel, which contains checkboxes for Communication, Read, Write, Transmit, Update, and Read On Init. An arrow points from this box to a larger, detailed view of the flags on the right.

Number	Name	Object Function	Linked with	Other Linked	Length	C	R	W	T	U	Data Type	Priority
1	Softwareversion	Auslesbar			2 bytes	C	R	-	-	-	DPT version	Low
210	Kanal A1 - Schalten	Eingang	0/0/1 Ceiling lamp ON/OFF		1 bit	C	R	W	T	-	switch	Low
212	Kanal A1 - Status	Auslesbar	0/0/2 Ceiling lamp Feedback		1 bit	C	R	-	-	-	switch	Low
220	Kanal A2 - Schalten	Eingang			1 bit	C	R	W	-	-	switch	Low
300	Kanal B - Status Automatik oder Manuell	Ausgang	0/0/13 Automatic/manual status		1 bit	C	R	-	-	-	1-bit	Low
301	Kanal B - Manuell Langzeit	Eingang	0/0/5 Blind south Manual long term		1 bit	C	R	W	-	-	up/down	Low
302	Kanal B - Manuell Kurzzeit	Eingang	0/0/6 Blind south manual short ti...		1 bit	C	R	W	-	-	up/down	Low
303	Kanal B - Manuell Fahrposition	Eingang	0/0/7 Blind south Manual travel p...		1 byte	C	R	W	T	-	percentag...	Low
304	Kanal B - Manuell Lamellenposition	Eingang	0/0/8 Blind south Manual Slat pos...		1 byte	C	R	W	-	-	percentag...	Low
305	Kanal B - Automatik Langzeit	Eingang	0/0/9 Blind south automatic long...		1 bit	C	R	W	-	-	up/down	Low
306	Kanal B - Automatik Kurzzeit	Eingang	0/0/10 Blind south automatic shor...		1 bit	C	R	W	-	-	up/down	Low
307	Kanal B - Automatik Fahrposition	Eingang	0/0/11 Blind south automatic trav...		1 byte	C	R	W	-	-	percentag...	Low
308	Kanal B - Automatik Lamellenposition	Eingang	0/0/12 Venetian blind south auto...		1 byte	C	R	W	-	-	percentag...	Low
309	Kanal B - Wechsel von Manuell auf AutomatikEingang	Eingang	0/0/14 Change automatic/manual		1 bit	C	R	W	-	-	1-bit	Low
311	Kanal B - aktuelle Fahrposition	Ausgang	0/0/15 Blind south Position feedb...		1 byte	C	R	-	-	-	percentag...	Low
312	Kanal B - aktuelle Lamellenposition	Ausgang	0/0/16 Blind south feedback slat		1 byte	C	R	-	-	-	percentag...	Low

Properties panel (Flags):

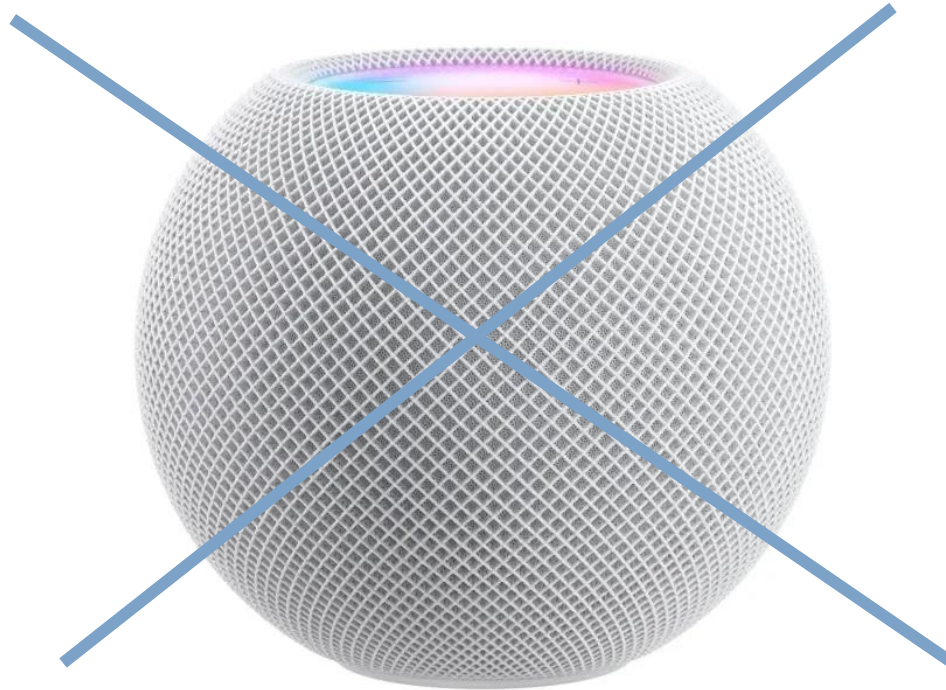
- ☒ Communication
- ☒ Read
- ☒ Write
- ☒ Transmit
- ☐ Update
- ☐ Read On Init

Flags

- ☒ Communication
- ☒ Read
- ☒ Write
- ☒ Transmit
- ☐ Update

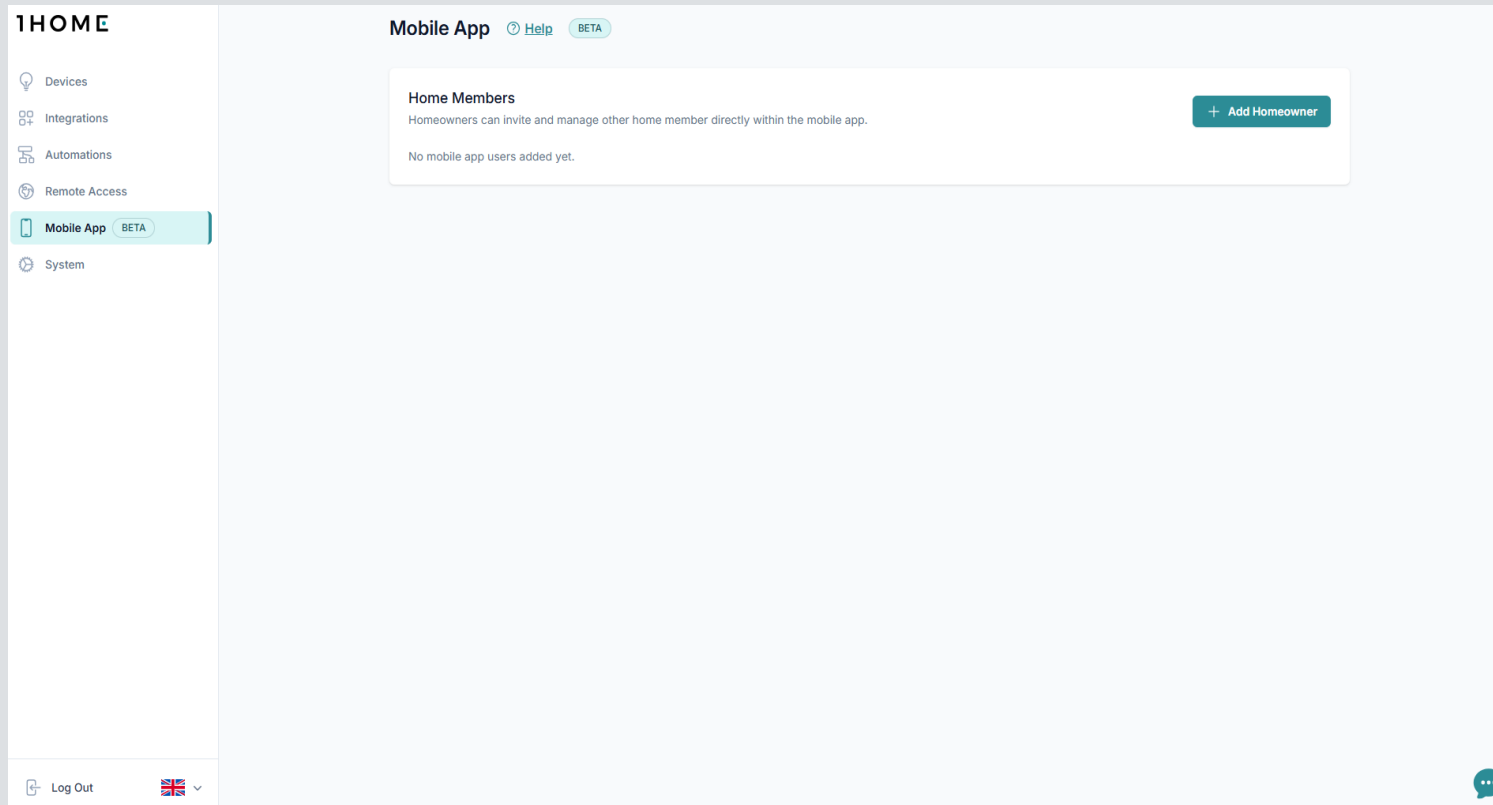
App control without additional hardware

For app control via 1Home app without voice control



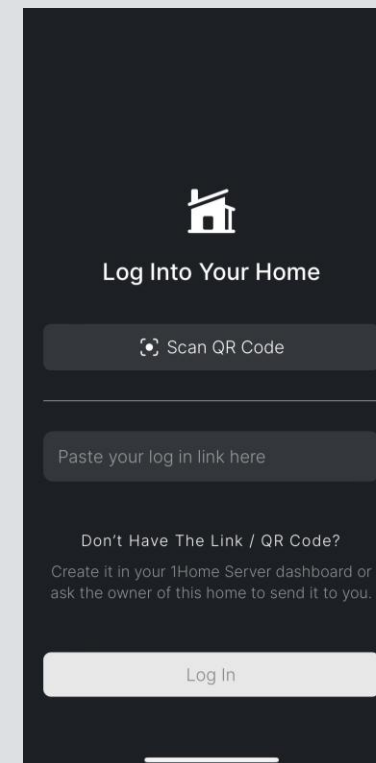
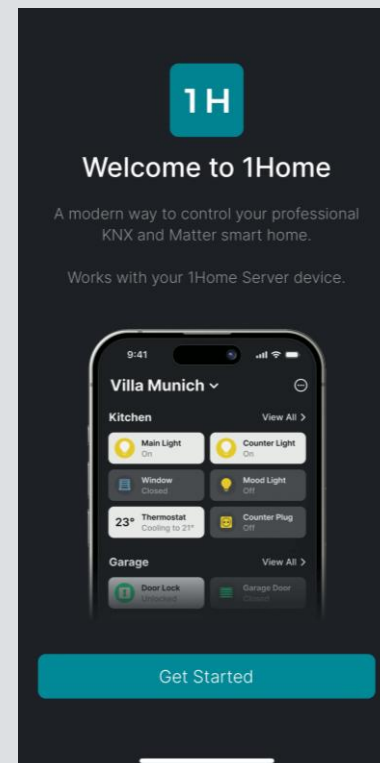
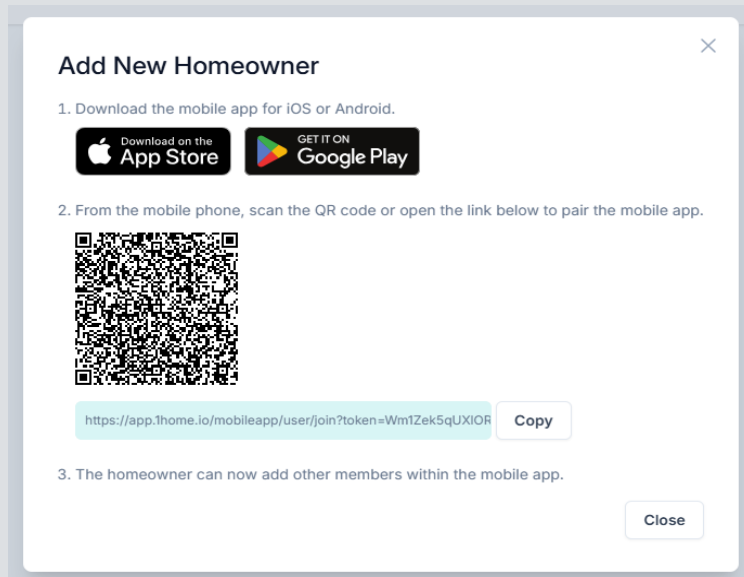
Setting up the server

Add household members in the mobile app



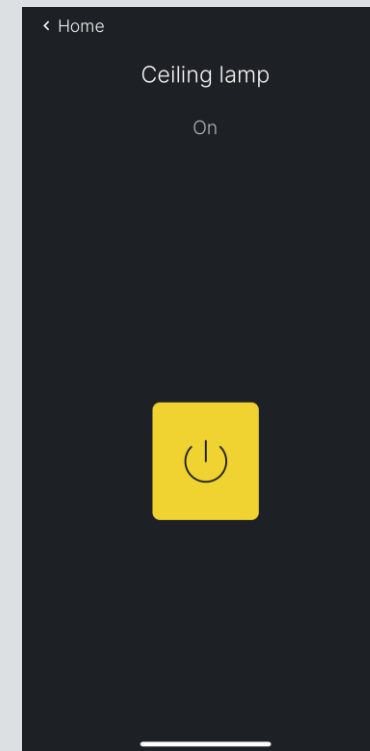
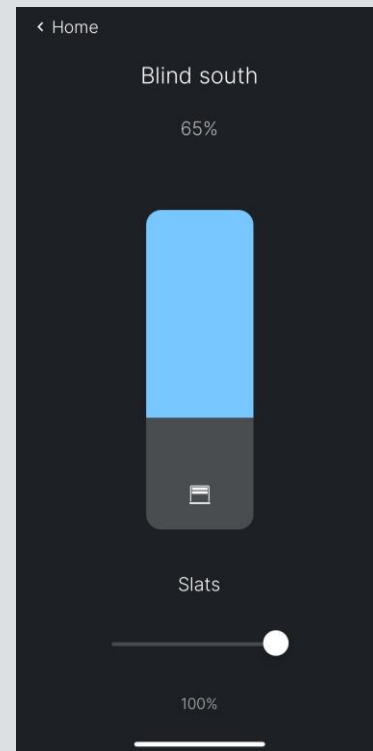
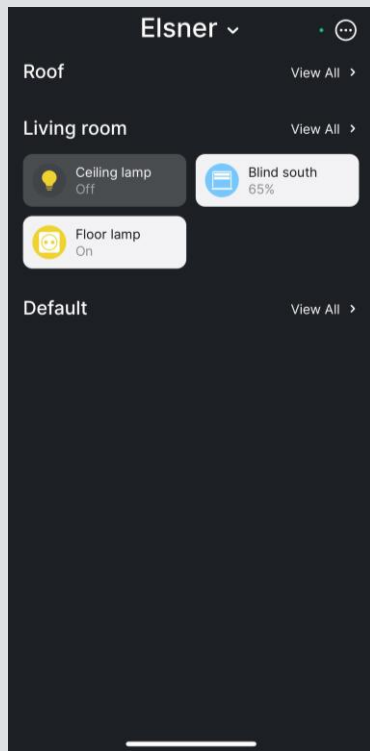
1Home mobile app

Setting up cell phone operation with the 1Home app



1 Home mobile app

Overview of operating options





4 | Use smart home appliance & voice control

Smartphone control

Installation

A suitable Home Pod must be integrated and set up in the Home app/smartphone, which counts as a “Matter Bridge”.



Apple Home

* Hub required

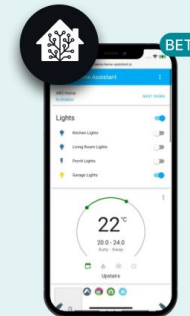
[LEARN MORE](#)



Google Home

* Hub required

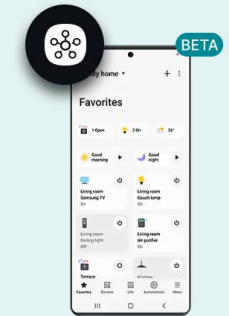
[LEARN MORE](#)



Home Assistant

* Hub required

[LEARN MORE](#)



Samsung SmartThings

* Hub required

[LEARN MORE](#)

Setting up the Smartphone control


Integrations

Integrations

KNX




Bring KNX devices to 1Home and open them up to the world of Matter

 [Configure](#)

Matter Bridge




Control devices in your 1Home dashboard via Matter controller apps such as Apple Home, Google Home and others.

 [Configure](#)

Matter Controller



Bring Matter certified devices (e.g. Eve, Philips Hue, ...) to 1Home and use them in Automations and other parts of the 1Home ecosystem.

 [Configure](#)

BETA

Setting up the Smartphone control

Connection with Matter Bridge

Matter Bridge Settings [Help](#)

Connected Apps (Fabrics)

All Matter fabrics that have access to this device. Consider fabric as a collection of devices that have access to each other (e.g. Apple Home, Google Home have a separate fabric for each home).

+ Pair

Are devices offline in Matter app after pairing?

[Confirm that assistant hub is reachable.](#)

Integration Details

Overview and control of the Matter integration.

Status: Running

Restart

Factory Reset

mDNS Implementation

If you are experiencing connectivity issues with your Matter app, you can try changing the mDNS implementation below. If this helps you solve your problem, please let us know.

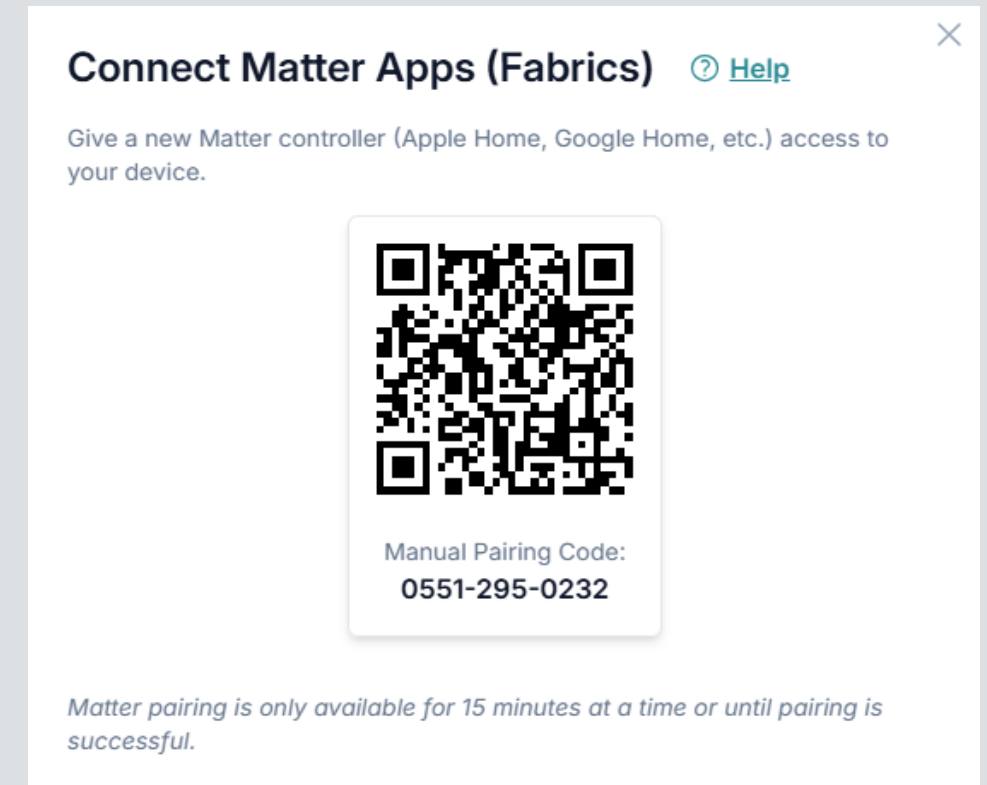
Default

Save

Setting up the Smartphone control

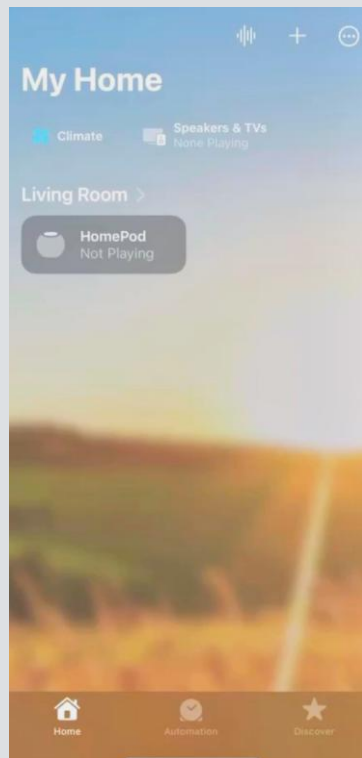
Connection to the Home app

- Go to “+” in the selected Home app and scan the QR code on the dashboard of the KNX Matter Server
- Follow the next steps in the app to create your home



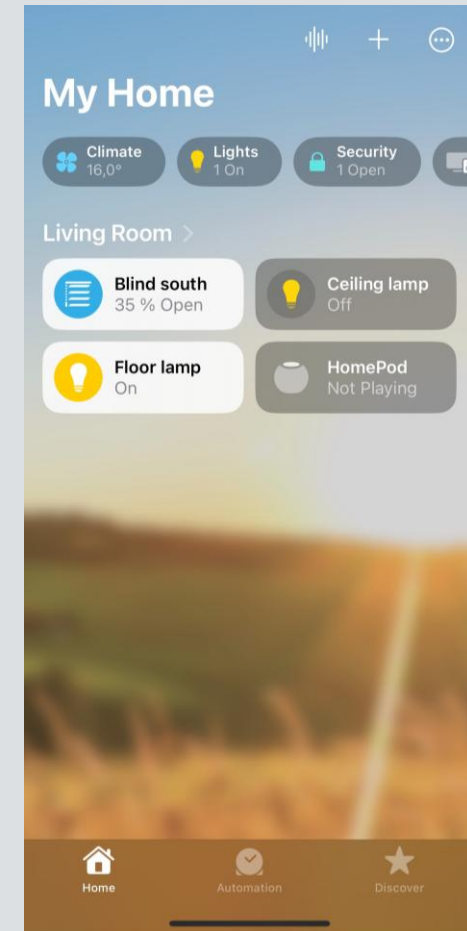
Connection to the Home app

Setting up the connection to the Apple Home app



Connection to the Home app

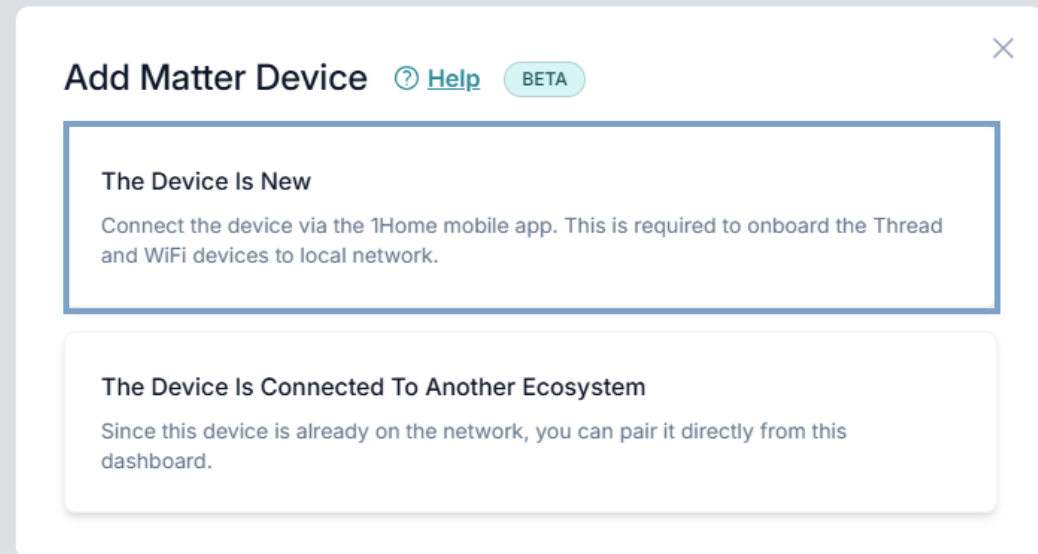
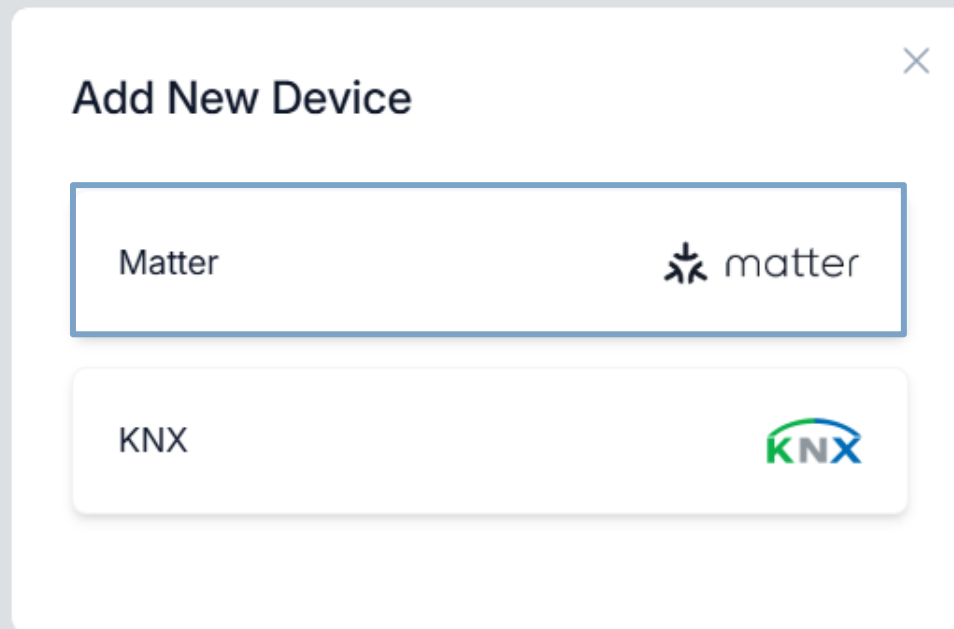
Voice control



5 | Integrate Matter devices

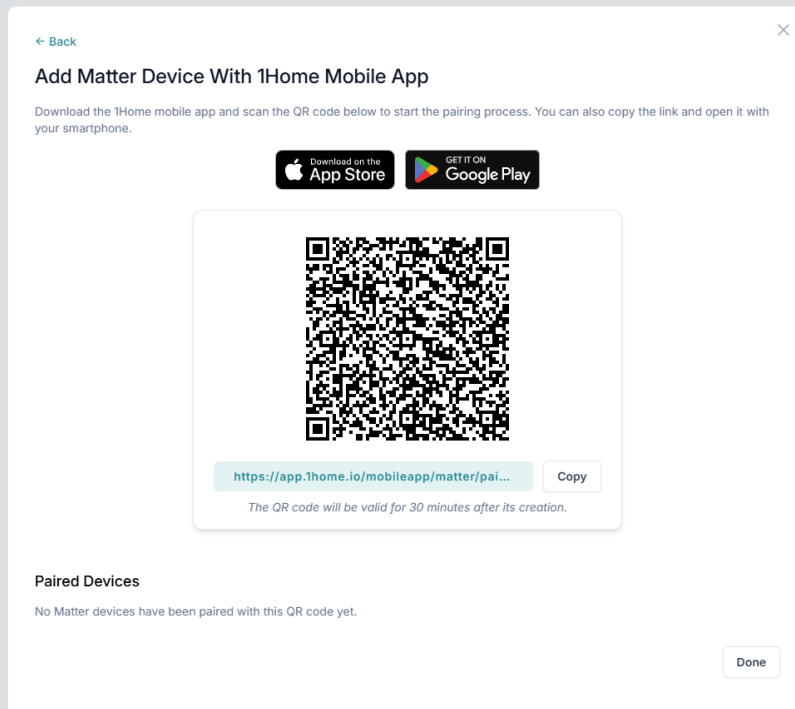
Integrate Matter devices into the server

With the 1Home mobile app



Integrate Matter devices into the server


With the 1Home mobile app




Integrate Matter devices into the server

Variant 2: With the pairing code

Add New Device

Matter

KNX

Add Matter Device

[Help](#) BETA

The Device Is New

Connect the device via the 1Home mobile app. This is required to onboard the Thread and WiFi devices to local network.

The Device Is Connected To Another Ecosystem

Since this device is already on the network, you can pair it directly from this dashboard.

Integrate Matter devices into the server

With the pairing code

← Back×

Add Matter Device

Manual Pairing Code

[Where can I find the manual pairing code in my ecosystem?](#)

Add

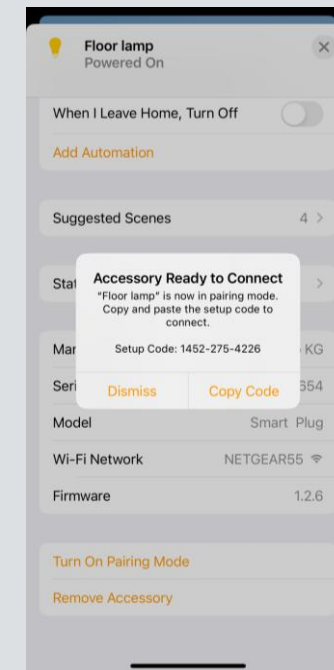
×

Handover From Another Ecosystem

Find a manual pairing code within the ecosystem of your choice (QR code that came with the device will not work).

- **Apple Home** - Click on the Matter device → Settings → Turn On Pairing Mode
- **Google Home** - Click on the Matter device → Linked Matter apps and services → Link apps and services
- **Other** - Click on the Matter device and find a way to turn on pairing mode and copy the manual pairing code.

Close



Integrate Matter devices into the server

Overview after successful integration

1HOME

Devices [Help](#)

+ Add Device + Add Room Check Configuration Search

Collapse All ^ Sort By: Room v

Matter Bridge (4/250)

Roof (2)

- Brightness KNX Configure [Toggle] [Delete]
- Outdoor temperature KNX Configure [Toggle] [Delete]

Living room (4)

- Blind south KNX Configure [Toggle] [Delete]
- Floor lamp Matter [Add] Configure - [Delete]
- Window contact Matter [Add] Configure - [Delete]
- Ceiling lamp KNX Configure [Toggle] [Delete]

Default (0)

No devices

Log Out UK

6.1 | Integrations - connection with KNX, Matter and beyond

Integrations


Adding devices

Integrations

KNX




Bring KNX devices to 1Home and open them up to the world of Matter

 [Configure](#)

Matter Bridge




Control devices in your 1Home dashboard via Matter controller apps such as Apple Home, Google Home and others.

 [Configure](#)

Matter Controller



Bring Matter certified devices (e.g. Eve, Philips Hue, ...) to 1Home and use them in Automations and other parts of the 1Home ecosystem.

 [Configure](#)

BETA

Integrations

Connection with KNX

KNX Integration Settings

IP Interface [? Help](#) Configure

To program other KNX devices via ETS, you first need to define individual addresses that the 1Home Server will use for communication on the bus. Default ones can cause issues when programming certain KNX devices.

Device IA: 15.15.255
Tunnel IA Range: 15.15.240 - 15.15.244

Gateways [? Help](#) + Add

Besides using the KNX TP bus connection, you can also configure up to 4 additional connections to KNX networks using any KNX IP Interface, KNX IP router or KNX IP gateway.

Name	Connection	Status		
TP	direct to bus	● Connected	<button>Restart</button>	<button>Configure</button>

Integrations

KNX IP interface and IP gateway

Configure IP Interface [? Help](#)

Assign unique individual addresses that don't overlap with any other individual addresses used in your ETS project file.

To avoid any issues, we suggest reserving the individual addresses with dummy devices in ETS. [Learn more](#)

Name

KNX Matter Server

Device Individual Address

15.15.255

Tunnel Individual Addresses

15.15.240

Range: 15.15.240- 15.15.244

Update

Add KNX IP Gateway

Name

Choose a name you will recognize

Hostname

e.g. 127.0.0.1

Port

3671

Enabled



If you want to connect to KNX IP Interface later, disable this. This is useful if you want to prepare the configuration before the actual installation is ready.

Create

Integrations


Adding devices

Integrations

KNX




Bring KNX devices to 1Home and open them up to the world of Matter

 [Configure](#)

Matter Bridge




Control devices in your 1Home dashboard via Matter controller apps such as Apple Home, Google Home and others.

 [Configure](#)

Matter Controller



Bring Matter certified devices (e.g. Eve, Philips Hue, ...) to 1Home and use them in Automations and other parts of the 1Home ecosystem.

 [Configure](#)

BETA

Integrations

Connection with Matter Bridge (e.g. Home Dot)

Matter Bridge Settings [Help](#)

Connected Apps (Fabrics)

All Matter fabrics that have access to this device. Consider fabric as a collection of devices that have access to each other (e.g. Apple Home, Google Home have a separate fabric for each home).

[+ Pair](#)

?

Are devices offline in Matter app after pairing?

[Confirm that assistant hub is reachable.](#)

Integration Details

Overview and control of the Matter integration.

Status: Running

[Restart](#)

[Factory Reset](#)

mDNS Implementation

If you are experiencing connectivity issues with your Matter app, you can try changing the mDNS implementation below. If this helps you solve your problem, please let us know.

Default

⇅

[Save](#)

Integrations


Adding devices

Integrations

KNX




Bring KNX devices to 1Home and open them up to the world of Matter

 Configure

Matter Bridge




Control devices in your 1Home dashboard via Matter controller apps such as Apple Home, Google Home and others.

 Configure

Matter Controller



Bring Matter certified devices (e.g. Eve, Philips Hue, ...) to 1Home and use them in Automations and other parts of the 1Home ecosystem.

 Configure

BETA

Integrations

Connection with Matter Controller

Matter Controller Settings [? Help](#) BETA


×

Paired Matter devices: 0 / 100

Integration Details

Overview and control of the Matter Controller integration.

Status: Running

 Restart

Connected Physical Matter Devices

These are all physical Matter certified devices that your 1Home Server is paired to. They represent a node in the Matter network (fabric).

No devices paired yet. Pair a device under Devices → Add Device


6.2 | Automations - create smart functions yourself

Automations

Adding automation

HOME

- Devices
- Integrations
- Automations**
- Remote Access
- Mobile App BETA
- System

Log Out 

Automations [Help](#)

Automations

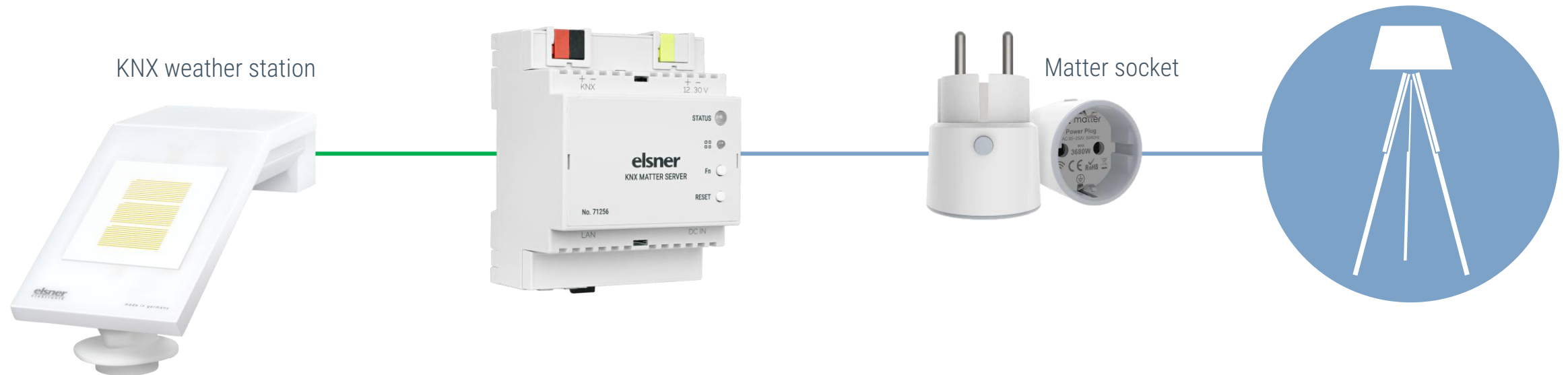
Run History

+ Add

+ Import

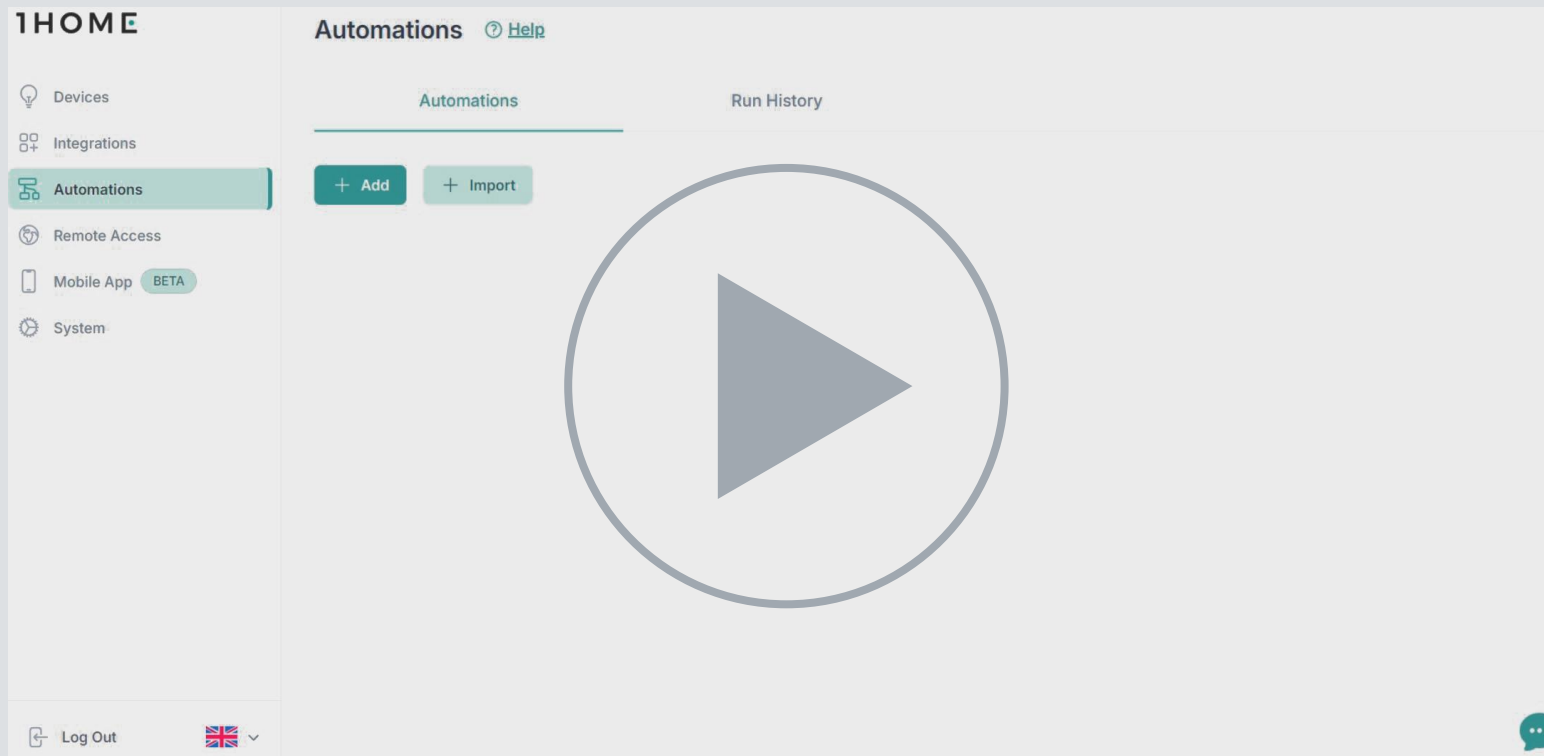
Automations

Example 1: Twilight control with KNX weather station and Matter socket



Automations

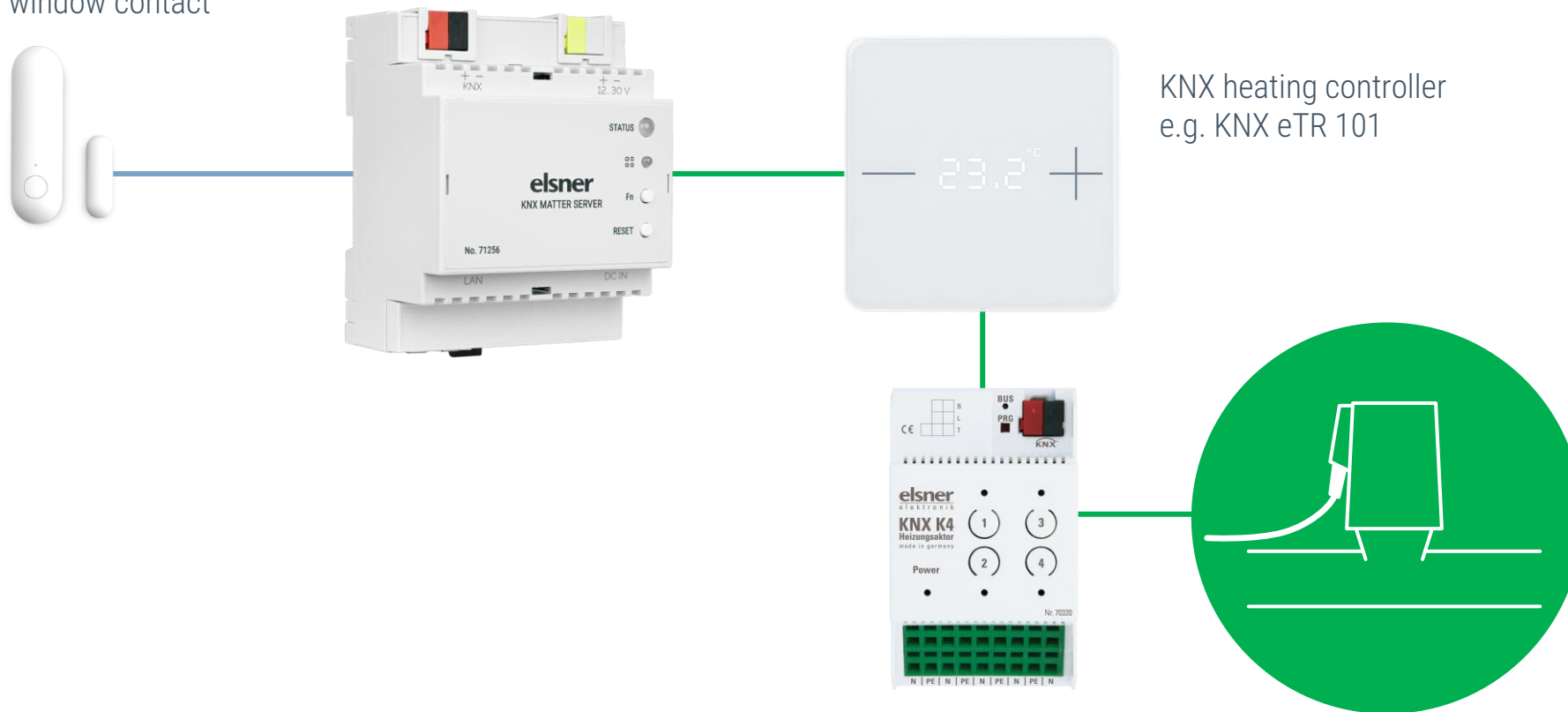
Example 1: Twilight control with KNX weather station and Matter socket



Automations

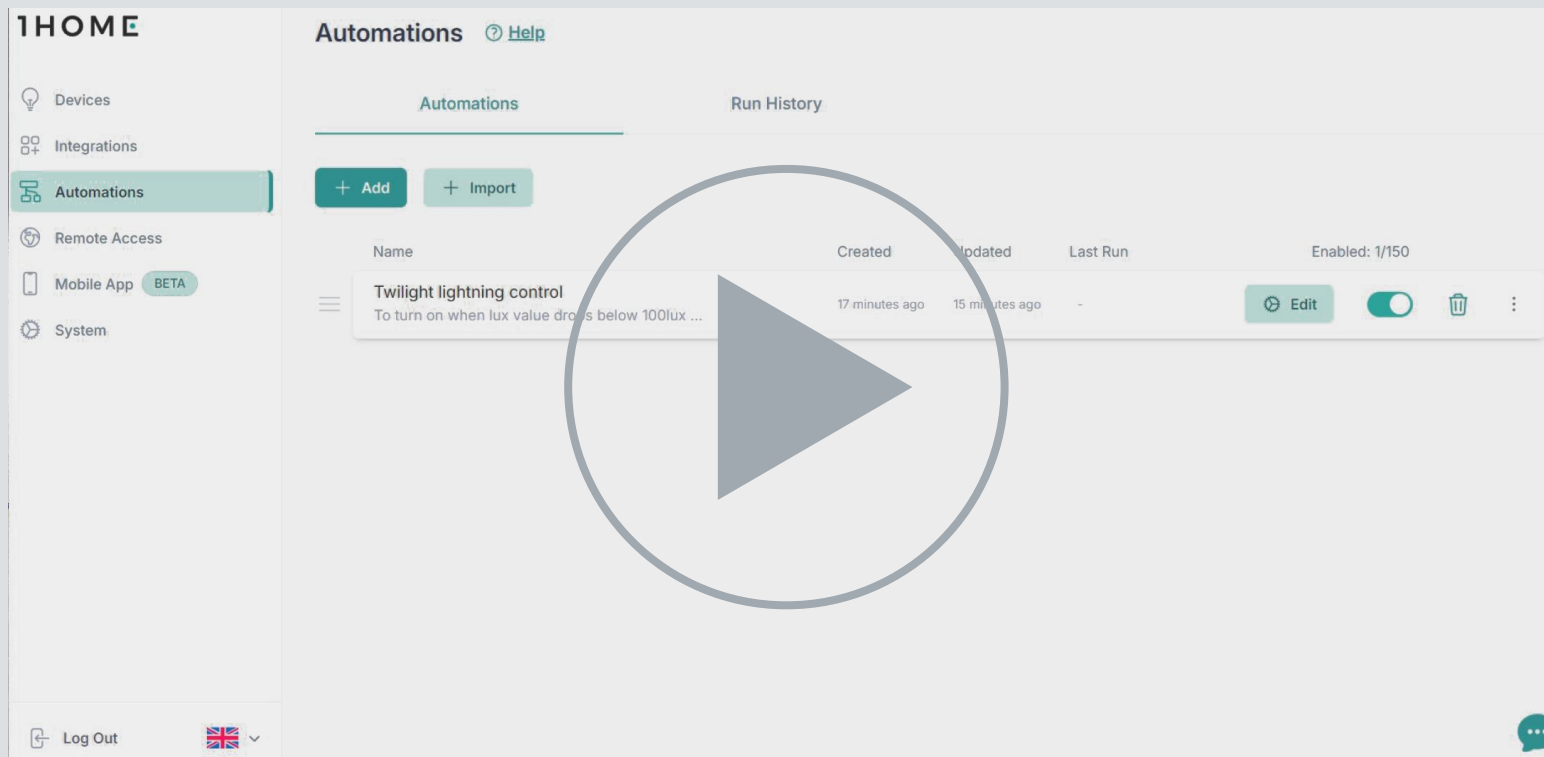
Example 2: Heating control with Matter window contact and KNX heating controller

Matter window contact



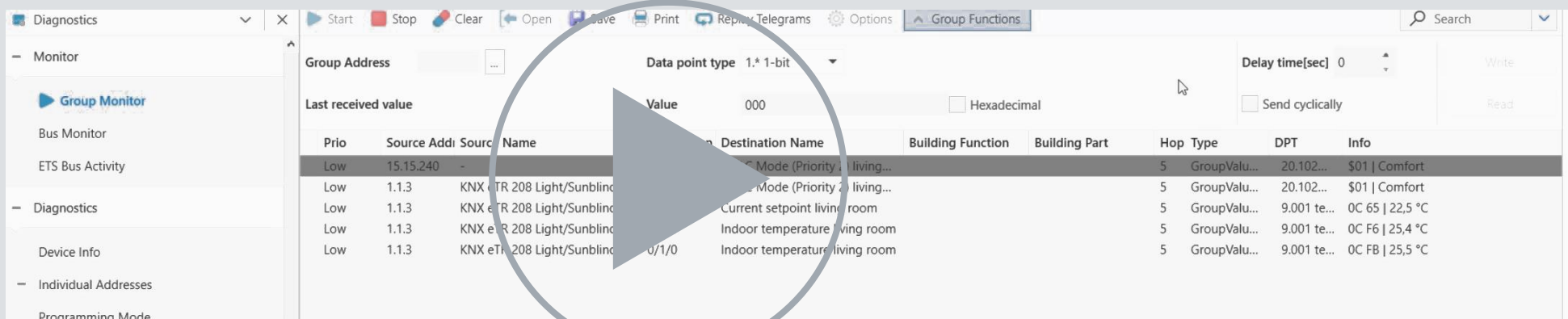
Automations

Example 2: Heating control with Matter window contact and KNX heating controller



Automations

Example 2: Heating control with Matter window contact and KNX heating controller

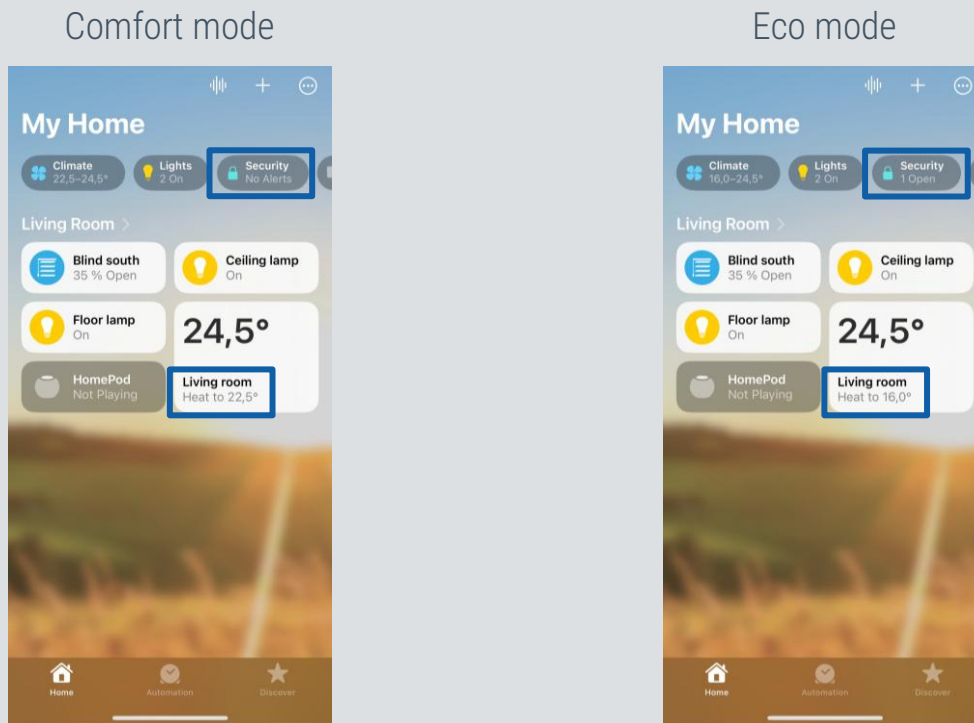


The screenshot shows the ETS software interface with the 'Group Functions' tab selected. A large play button icon is overlaid on the interface. The interface displays a table of KNX data points for a window contact and heating controller setup.

Prio	Source Addr	Source Name	Destination Name	Building Function	Building Part	Hop	Type	DPT	Info
Low	15.15.240	-	...	...	...	5	GroupValu...	20.102...	\$01 | Comfort
Low	1.1.3	KNX eTR 208 Light/Sunblind	...	...	...	5	GroupValu...	20.102...	\$01 | Comfort
Low	1.1.3	KNX eTR 208 Light/Sunblind	Current setpoint living room	...	...	5	GroupValu...	9.001 te...	0C 65 | 22,5 °C
Low	1.1.3	KNX eTR 208 Light/Sunblind	Indoor temperature living room	...	...	5	GroupValu...	9.001 te...	0C F6 | 25,4 °C
Low	1.1.3	KNX eTR 208 Light/Sunblind	Indoor temperature living room	...	...	5	GroupValu...	9.001 te...	0C FB | 25,5 °C

Automations

Example 2: Heating control with Matter window contact and KNX heating controller

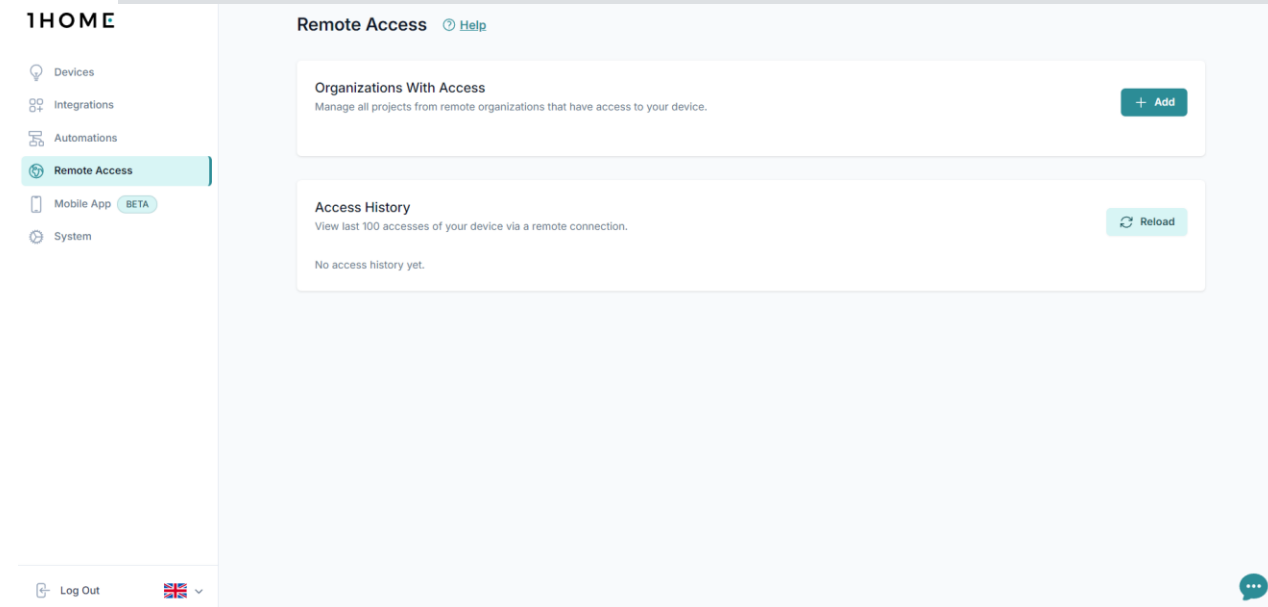


6.3 | Remote access - Secure access to the smart home on the move

Remote access

Setting up an external connection on the KNX Matter Server

- The system integrator must call up the website remote.1home.io
- Log in or register
- They must forward the displayed code to the end customer
- The end customer must enter the code in the server dashboard
- Remote access is thus granted



Remote access

Setting up an external connection to the KNX Matter server

System integrator

Pair your device to project

Copy this secret and paste it in your local device dashboard to establish secure connection. The device will then appear (after refreshing the page) under project details view.

Secrets are valid for **24 hours**.

You can always generate new pairing secret under project's settings.

Pairing code

cb9be8a1

Copy

End customer

Give Access to Organization

Use a pairing code received by your integrator (or the one you copied from 1Home remote dashboard) to pair your device with the remote organization.

Pairing Code

 Pair

KNX remote access

Use KNX Matter Server as a programming interface

The image displays the KNX remote access configuration interface, which is divided into several sections:

- Paired devices:** A table listing connected devices. One device, 'ElsnerWebinar 1Home Server', is shown as 'Online'. A 'Connect' button is visible next to it, with a dropdown menu showing 'Access history' and 'KNX remote access'.
- KNX remote access:** A modal window titled 'KNX remote access' with a 'Help' link. It contains:
 - Allowed IPs:** A list of public IP addresses that can connect. One IP, '37.24.157.212', is listed. There is an 'Add IP' button.
 - Gateways:** A table of active gateways. One gateway, 'TP 127.0.0.1:3671', is listed with a remote connection of 'knx.1ho.me:30480'. It is enabled until '01:33:07, 22.11.2024'. A 'Disable' button is present.
- IP Tunneling:** A configuration panel for IP tunneling. It includes fields for 'Name' (set to 'IP Tunneling'), 'Individual Address' (with a note 'Address free?'), 'Server' (set to 'knx.1ho.me'), and 'Port' (set to '30480'). The 'Network Address Translation' section is checked, with the option 'Connect using NAT mode' selected. A 'Test' button is at the bottom.

Feedback/wishes/suggestions

Your questions and suggestions:

- What other topics should we cover in the webinar?
- Are you interested in an in-depth explanation of KNX parameterization or practical examples?
- Please also note your feedback in the webinar survey.



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