

Virtual devices

Document number: PO-079-EN Version: 3.0 Date of publication: October 2, 2024

Introduction

Virtual devices help to extend the functionalities of the Ampio system by transmitting messages from other types of devices (eg. ZigBee modules).

Configuration in Ampio Designer

To add a virtual device to the project, select the + icon shown in the right-hand side of the DEVICES table.



Assign the MAC address according to the device you wish to support. Select the functionalities and their number one by one, then press *Add*.

NEW DEVICE			×
MAC			
0x10000a			
Name			
Button			
Inputs & outputs	Inputs 6 Output	X Choose function	n
	Add		

Conditions

Conditions are created in the *LOGIC* tab. From the list of devices in the *TRIGGERS* column, select the device created in the previous step and create a condition as for traditional modules.

#	TRIGGERS	OUTPUT TYPE	INPUT NUMBERS	FUNCTIO	N
	10000a - Buttor	pn			_
<u>∧</u>	Button	X Inputs & outputs \$	input X + X	Simple	⇒

Example use of virtual devices

Adding a virtual device makes it possible, for example, to integrate with external temperature sensors using Node-RED.

In this section of the guide, you will learn how to send the temperature from an external sensor to the Ampio system's CAN network using **Node-RED** and a virtual device created in Ampio Designer.

Requirements

- Temperature sensor providing an API to retrieve temperature values.
- Ampio installation with access to Node-RED. You can find a full tutorial on Node-RED here.

Configuration in Node-RED

- 1. Launch Node-RED and log into the interface.
- 2. Add a sensor reading:
 - · Configure an input block that will take data from your temperature sensor.
 - If you do not have a physical sensor, you can use the Inject block to simulate a fixed measurement (e.g. 27°C).

3. Add the MQTT Out block:

• Drag the **mqtt out** block to the work area and link it to the sensor reading block.



4. Configure MQTT Out block:

- Open the settings of the **mqtt out** block.
- Select an existing MQTT configuration or create a new one with the details of the MQTT server used by the Ampio system.
- In the Topic field, type: ampio/to/broadcast/<MAC>/t, where <MAC> is the MAC address selected for the virtual device (in hexadecimal format, between 000 and FFF). Make sure that this address is not already in use in your installation. In our example, we will use the address 030.
- Click Done to save the settings.

5. Save and run flow:

- Click **Deploy** to save and run the configuration.
- Check in the **Debug** tab that the connection has been made and data is being sent correctly.

Use of readings in the Ampio system

Now that the sensor data is available in the system, you can use it in a variety of ways:

- Displaying the temperature on touch panels or in the mobile app.
- Controlling heating zones by adding the sensor as a data source for thermostats.
- Creation of automations that respond to temperature changes, such as triggering ventilation or notifications when certain thresholds are exceeded.
- · Integration with other systems, using sensor data in more complex scenarios.

Sensor readings will not be visible in the Ampio Designer, but if configured correctly, the readings will be on the CAN network, meaning they will work for the conditions created and will be visible in the Ampio UNI application.

Configuration in the Smart Home Configurator*

*from January 2024, the Smart Home Configurator software is no longer being developed. It is recommended to use it only in substantiated instances.

To add a new virtual device, you have to start by running the Ampio Smart Home configurator.

Adding a virtual device

💏 An	npio Sn	nartHor	ne device configurator ver. 5.0.0.4502									_		×
File [Device	Projec	t Utils Language											
List of	online	L	.oad project						_	۱	Your software is up to da	ite Remote Suppo	ort - dov	nload
Se	arch bel	5	Save project as	Search column:	Device name	~ 1	<u>م</u> ا	Search for description	IS					
On	MAC	5	Save Project		Pcb	Soft	Buffer	U/Temp	Pps	Prot.	Status			
1	COOF	4	Add new device manually		8	11503	4096 1% (2)	12,0V	1,1	23	14880E	٧		
2	7C94	E	dit the list of event descriptions	P	6	11512	2560 1% (1)	11,8V	11,0	23	4 * 880E	Device mo	nitor	
3	B378	E	export Configuration Lists to a CSV file	yJaś	7	11503	16384 2% (16)	11,9V	5,5	23	i 🗱 🧿 🔳 Ē	ويبو		
4	25	C	Clear cache		2	10006	1024 0% (0)		3,3	22	* E	~0		
				,								Device config	guration	
												A 10 10 10 10 10 10 10 10 10 10 10 10 10	, ,	
												Device para	meters	
												24		
												Network m	onitor	
												Q		
												Find day	icee	
												Lind dev	icea	
												Debugger:		
												Ampio SmartHome configurator ver. Interface recogni	e device 5.0.0.45 zed	32
	2%		PCB: 2 SOFT: 321 SN: D30AG6I4 (0,52kbps 1,8%	6 Max: 6,39kbps 21,7%)										.5

Picking the type, MAC address and name

😽 New device				_		\times
MAC Adress (HEX)	: Device type:					
10001001	U000 VIRTUAL	Device added	manually			\sim
Device name:						
Virtual device						
				Accept	Cano	el

After accepting, you can see the new device on the list.

sta - File	mpio SmartH Device Proi	ome device	configurator ver. 5.0.0.4502												- 🗆 X
List	f online devi	ces:	Language									١	Your softwa	re is up to d	ate Remote Support - downloa
	earch below:				Search column:	Device name	• ×		Q 9	Search for descriptions	5				
On	MAC	Local	▲ Туре	Name		Pcb	Soft	Buffer		U/Temp	Pps	Prot.	Status		
1	10001001	10001001	U000 VIRTUAL	Virtual device				1 0% (0)			0,0		- X	■ E .	
2	COOF	COOF	U004 MPR-8s			8	11503	4096 1%	(2)	12,0V	0,8	23	128	i E,	Device monitor
3	7C94	101	U010 MSERV (192.168.76.56)	serwer IP		6	11512	2560 1%	(1)	11,8V	0,6	23	₽₩8		6 2
4	B378	1	U010 MSERV (192.168.76.47)	domowyJaś		7	11503	16384 29	% (16)	11,9V	4,7	23	1 🔆 0	E.	
5	25	25	U044 MSENS			2	10006	1024 0%	(0)		0,5	22	- 🛠 -		Device configuration
															S 1
															Device parameters
				gaage Your software is up to date Remote Ype Name Pcb Soft Buffer UTemp Pps Prot. Status Image:	100										
															14 A.
															Network monitor
															Q
															Find devices
															- One derives
															Debugger:
		_													Ampio SmartHome device configurator ver. 5.0.0.4502 Interface recognized
. ●	2%	PCB: 2	SOFT: 321 SN: D30AG6l4 (0,44k	bps 1,5% Max: 6,3	9kbps 21,7%)										

A virtual device is on the list of devices only until the first closing of the Ampio Smart Home configurator. Remember to save the project, otherwise you will have to add it from scratch at the next launch.

Conditions

You can create condition from the virtual device but not to the virtual device.

😤 Configuration wind	dow c	of actuating device																				_		×
List of online devices:	- 0	Device configura	ation- Ty	pe: UOC)4-MP	R-8s,	MAC 0	0C00F,																
Search for devices:						Search co	lumn:	Devic	e name		~ 🌵	Î												
On MAC L	ocal	▲ Type		Name					Pcb	So	ft	Buf	fer	U/Te	mp	Pps	Prot.	Status						
1 10001001 1	00010	001 U000 VIRTUAL		Virtual de	evice																			
2 COOF C	00F	The condition-MAC:	10001001/LC	DC: 100010	01 Virtua	l device	ver: 5.0.0	4564															×	
4 B378 1		The definition of forcing information. Warning!!! in this window, we only mark what we want to respond to.																						
5 25 2	5	🙃 Inputs/Outputs 🔉 Linear output 🏹 Linear inputs 🚺 Flags Bin 🛛 🖡 Flags In 8bit 👫 Flags In 16bit 🔱 DS18820 🛛 🗛															Features							
		Inputs:								Outpu	uts:								[
		> 1	2		3		4			> 1		1	2		3		4		- 1	Type of logical operation:				
		Act		t 🗌		Act		Act			Act	٦.	Ac			Act		Act	111	(AND) all 🛛 🗸				
		5	6		7					5			6		7		8		-	Type of condition:				
		Act		t 🗆		Act		Act			Act	٦.	Act			Act		Act	11	Basic function		\sim	-	
List of conditions for de	vice: I	9	10		11		12			•			10		11		12		-				3	
		Act		+		Act	- 6	Act			Act	٦.	Ad			\ct		Act	11				'n	ditio
On MAC Ty	/De	13	14		15					12			14		15		16		41				-	nctio
1 🗸 3 De	evice			. 🗆		Act	- L^	Act			Act	٦.				let.		Act	11				de	encie
2 🗸 3 De	evice			~		ALL		ACC			ACC		10				20	ALL	41					In
3 📝 25 UC	044 M		18		19	a	- L ~	A -1			0	- L	19		19	-	20		- 11					
		ACL	AC	а <u>–</u>		ACE		ACC			ACC		Act			ICE		ACE	4				Ê	
<		21	22		23		<u>24</u>			21		- L	22		23		24		- 4				_ 1	est
Download fr	om c	Act	L Ac	t		Act		Act			Act		Act			lct		Act					20	elete
- Download P		<							>	<								_	>	[C	ору
1%	Devi																		_		× .	×		
1																					Accept	Close		
		Opis statusu USB																						

For example, in the case of Z-Wave you can create a condition from slave inputs using the virtual device, but controlling outputs is done through the function tab of the M-CON-ZWAVE-s module.