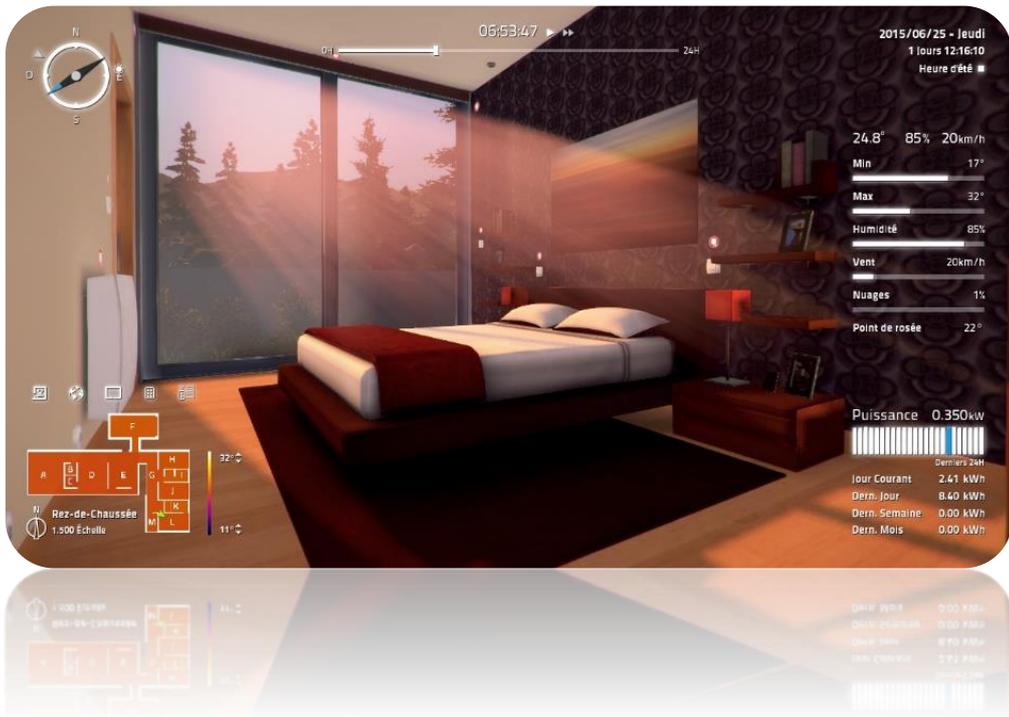


Using the Home IO Web Server

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Summary

The Home IO software offers an integrated web server that allows retrieving information and acting on the actuators through **http** requests. Scratch interacts with Home IO thanks to this server. The information comes from the environment, the sensors and the buttons. The possible actions concern the lighting, the heating, the roller shades... We find the same information and actions as on the Connect IO software. This document presents the different requests that allows interactions with the virtual house through this integrated web server. Some of the keywords used in these requests are dependent on the localization setting (language) of Home IO.

1 Configuration

The web server included in Home IO is by default on port 9797. You can modify the configuration of this web server in the *settings.yml* file. It is located in the Home IO installation directory. At the end of this file, you will find:

```
RunScratch2Server : true
Scratch2ServerPort : 9797
```

The web server responds to the .GET method. In the following, the IP address of the computer where the software is running is *IP.Home.IO*. If the client (e.g. Internet browser) is on the same computer, this address can simply be *localhost*.

2 Virtual Home Controls

To act on the house's actuators, the general principle is to open the page:

http://IP.Home.IO:9797/request

Example, to up the roller shades M:

http://IP.Home.IO:9797/strs/1/up/M (http://IP.Home.IO:9797/strs/monter/1/M)

The **request will be replaced** by one of the elements described below depending on the desired request. The web server does not return anything. The commands are only possible on the elements positioned on **external mode** (blue indicator). The French keywords are showed in brackets next to the English keywords.

swl/turn_on/i/X(swl/allumer/i/X) Turn on the light *i* on the room *X*. You can replace *turn_on(allumer)* with *turn_off(eteindre)* to turn off the light.

stl/i/X/Value' Set the lighting *i* of room *X* to 'Value' (from 0 to 10).

stsw/turn_on/entrance_lights (stsw/allumer/lumière_entrée). Turn on the entrance lights. Replace *turn_on(allumer)* with *turn_off(eteindre)* to turn off the lights. You can also replace *entrance_lights(lumière_entrée)* with *garden_lights(lumière_jardin)*, *pool_lights(lumière_piscine)*, *porche_1_lights(lumière_porche_1)*, *porche_2_lights(lumière_porche_2)*, *exterior_sirene(sirène_ext)*, *interior_sirene(sirène_int)* to control these different parts.

stlg/entrance_lights/Value' (stlg/lumière_entrée/Value')

Set the lighting of the entrance to 'Value' (from 0 to 10). You can also replace *entrance_lights(lumière_entrée)* with *garden_lights(lumière_jardin)*, *pool_lights(lumière_piscine)*,

porche_1_lights(lumière_porche_1), *porche_2_lights(lumière_porche_2)*.

strs/i/up/X(strs/monter/i/X) to up the roller shades *i* of the room *X*. You can replace *up(monter)* with *down(descendre)* to down the roller shades or *stopped(stopper)* to stop it.

cgate/open/garage_door (cgate/ouvrir/porte_garage) to open the garage door. You can replace *open(ouvrir)* with *close(fermer)* or *stop(stopper)* to close or stop the garage door. You can also replace *garage_door(porte_garage)* with *entrance_gate(portail)* to command the entrance gate.

swh/turn_on/X(swh/allumer/X) turn on the heating in room *X*. Replace *turn_on(allumer)* with *turn_off(eteindre)* to turn off the heating.

sth/X/Value' set the heating of room *X* to 'Value' (from 0 to 10).

sal/on(sal/activer) to activate the alarm. To deactivate replace *on(activer)* with *off(désactiver)*.

3 Reading the information

The reading of the house information is done by querying the server on:

http://IP.Home.IO :9797/poll

If you are on the same station where Home I/O run, you can use the following command:

<http://localhost:9797/poll>

```
lsw/1/A false lsw/2/A false lsw/3/A false lsw/1/B false lsw/2/B false lsw/1/C false lsw/2/A false lsw/1/E false lsw/2/E false lsw/3/E false lsw/4/E false
lsw/5/E false lsw/1/F false lsw/2/F false lsw/1/G false lsw/2/G false lsw/3/G false lsw/4/G false lsw/5/G false lsw/1/H false lsw/2/H false lsw/1/I false lsw/1/J
false lsw/2/J false lsw/1/L false lsw/2/L false lsw/1/M false lsw/1/N false lsw/2/N false lsw/3/N false udsw/1/A/up false udsw/1/A/down false udsw/2/A/up
false udsw/2/A/down false udsw/1/D/up false udsw/1/D/down false udsw/1/E/up false udsw/1/E/down false udsw/1/F/up false udsw/1/F/down false
udsw/2/F/up false udsw/2/F/down false udsw/1/G/up false udsw/1/G/down false udsw/1/H/up false udsw/1/H/down false udsw/1/J/up false udsw/1/J/down
false udsw/1/L/up false udsw/1/L/down false udsw/1/M/up false udsw/1/M/down false udsw/1/N/up false udsw/1/N/down false lsd/1/A/up false
lsd/1/A/down false lsd/2/A/up false lsd/2/A/down false lsd/3/A/up false lsd/3/A/down false lsd/1/D/up false lsd/1/D/down false lsd/2/D/up false lsd/2/D/down
false lsd/1/E/up false lsd/1/E/down false lsd/2/E/up false lsd/2/E/down false lsd/1/H/up false lsd/1/H/down false lsd/1/I/up false lsd/1/I/down false lsd/1/J/up
false lsd/1/J/down false lsd/1/K/up false lsd/1/K/down false lsd/1/L/up false lsd/1/L/down false lsd/2/L/up false lsd/2/L/down false lsd/1/N/up false
lsd/1/N/down false lsd/2/N/up false lsd/2/N/down false lsd/3/N/up false lsd/3/N/down false ddtc/1/A false ddtc/2/A false ddtc/1/D false ddtc/1/E false
ddtc/2/E false ddtc/1/H false ddtc/2/H false ddtc/1/J false ddtc/2/J false ddtc/1/L false ddtc/2/L false ddtc/1/M true ddtc/2/M true ddtc/1/N false ddtc/2/N false
sdte/A false sdte/G false sdte/H false sdte/J false sdte/L false sdte/N false mdte/A false mdte/B false mdte/D false mdte/E false mdte/F false mdte/G false
mdte/H false mdte/I false mdte/J false mdte/K false mdte/L false mdte/M false mdte/N false mdte/O false bdte/A false bdte/D false bdte/E false bdte/F false
bdte/H false bdte/J false bdte/L false bdte/M true bdte/N false bdte/O false gts/entrance_gate/open false gts/entrance_gate/closed false gts/garage_door/open
false gts/garage_door/closed false gtde/infrared_1 false gtde/infrared_2 false gtde/infrared_3 false gtdg false rmt/1 false rmt/2 false rmt/3 false rmt/4 false
rmt/5 false rmt/6 false rmt/7 false rmt/8 false aa false rso/1/A 0.000 rso/2/A 0.000 rso/3/A 0.000 rso/4/A 0.000 rso/1/D 0.000 rso/1/E 0.000 rso/1/F 0.000
rso/1/G 0.000 rso/1/H 0.000 rso/1/J 0.000 rso/1/L 0.000 rso/1/M 5.456 rso/1/N 0.000 bgs/A 0.000 bgs/D 0.000 bgs/E 0.000 bgs/F 0.000 bgs/H 0.000 bgs/J
0.000 bgs/L 0.000 bgs/M 0.392 bgs/N 0.000 bgs/O 0.000 temp/A 0.000 temp/D 0.000 temp/E 0.000 temp/G 0.000 temp/H 0.000 temp/I 0.000 temp/J 0.000
temp/K 0.000 temp/L 0.000 temp/M 20.064 temp/N 0.000 tsp/A 0.000 tsp/D 0.000 tsp/E 0.000 tsp/G 0.000 tsp/H 0.000 tsp/I 0.000 tsp/J 0.000 tsp/K 0.000
tsp/L 0.000 tsp/M 0.000 tsp/N 0.000 otemp 292.190 rhm 0.260 wdsp 6.111 lat 49.241 long 4.064 year 2022 month 2 day 11 hour 17 minute 54 second 40
```

3.1 General information about the house

aa is the activation of the alarm. Followed by *false* or *true*.

otemp is the outside temperature in Kelvin.

rhm is the humidity level (from 0 to 1).

wdsp is the wind speed in *m/s*.

lat, long are respectively the latitude and the longitude.

second, minute, hour, day, month, year, are the information about the time and date of the simulation.



3.2 Sensor information

Letters on the map (A, B, etc...) each represent a room. In the following requirements, the letter X represents the desired room. Similarly if multiple instances of a similar type of object are present in a room, they will be differentiated by their id (letter *i*). If only one instance of an object is present in a room, the id will default to 1. If your Home I/O is in French, use the commands in brackets.

mdtc/X is the motion detector for room X. Followed by *false* or *true*.

bdtc/X is the Boolean light detector of room X. Followed by *false* or *true*.

bgs/X is the brightness sensor of room X. Followed by a 'Value' from 0 (dark) to 10 (light).

ddtc/i/X is the opening detector of the door *i* of the room X. Followed by *false* or *true*.

gtde/infrared_i is the infrared detector *i* (from 1 to 3) of the entrance gate. Followed by *false* if nothing is detected or *true*.

gtdg is the infrared detector of the garage door. Followed by *false* if nothing is detected or *true*.

gts/entrance_gate/open (gts/portail/ouvert) is the opening detector of the entrance gate. Followed by *false* if the gate is not open or *true* if it is. You can replace open(ouvert) with close(fermé) to know if the gate is closed. The same information exists for the garage door by replacing entrance_gate with garage_door(porte_garage).

rso/i/X is the opening information of the roller shades *i* of the part X. Followed by a 'Value' from 0 (closed) to 10 (open).

sdtc/X is the smoke detector in room X. Followed by *false* or *true*.

temp/X is the temperature sensor of room X (the unit depends on the Home IO settings in Celsius or Fahrenheit).

3.3 Button information

lsw/i/X the push button *i* of part X is pressed. Followed by *false* or *true*.

udsw/i/X/up(**udsw/haut/i/X**) the up button of roller shades *i* of part X is pressed. Followed by *false* or *true*. You can replace *up(haut)* with *down(bas)* to get the status of the down button.

lsd/i/X/up (**lsd/haut/i/X**) the up button of light *i* of part X is pressed. Followed by *false* or *true*. You can replace *up(haut)* with *down(bas)* to get the status of the down button.

rmt/i the *i* button on the remote control is pressed. Followed by *false* or *true*.

tsp/X is the temperature set point for room X. Followed by a 'Value' in degrees.



4 Appendix list of information

Requests	Information
aa	Alarme on
bdtc/A	Room A light sensor
bdtc/D	Room D light sensor
bdtc/E	Room E light sensor
bdtc/F	Room F light sensor
bdtc/H	Room H light sensor
bdtc/J	Room J light sensor
bdtc/L	Room L light sensor
bdtc/M	Room M light sensor
bdtc/N	Room N light sensor
bdtc/O	Room O light sensor
bgs/A	Room A brightness sensor
bgs/D	Room D brightness sensor
bgs/E	Room E brightness sensor
bgs/F	Room F brightness sensor
bgs/H	Room H brightness sensor
bgs/J	Room J brightness sensor
bgs/L	Room L brightness sensor
bgs/M	Room M brightness sensor
bgs/N	Room N brightness sensor
bgs/O	Room O brightness sensor
day	Day
ddtc/1/A	Room A door opening sensor 1
ddtc/1/D	Room D door opening sensor 1
ddtc/1/E	Room E door opening sensor 1
ddtc/1/H	Room H door opening sensor 1
ddtc/1/J	Room J door opening sensor 1
ddtc/1/L	Room L door opening sensor 1
ddtc/1/M	Room M door opening sensor 1

ddtc/1/N	Room N door opening sensor 1
ddtc/2/A	Room A door opening sensor 2
ddtc/2/E	Room E door opening sensor 2
ddtc/2/H	Room H door opening sensor 2
ddtc/2/J	Room J door opening sensor 2
ddtc/2/L	Room L door opening sensor 2
ddtc/2/M	Room M door opening sensor 2
ddtc/2/N	Room N door opening sensor 2
gtde/infrared_1	Entrance gate infrared 1
gtde/infrared_2	Entrance gate infrared 2
gtde/infrared_3	Entrance gate infrared 3
gtdg	Garage door infrared
gts/entrance_gate/close	Entrance gate closing sensor
gts/entrance_gate/open	Entrance gate opening sensor
gts/garage_door/close	Garage door closing sensor
gts/garage_door/open	Garage door opening sensor
hour	Hour
lat	Latitude
long	Longitude
lsd/1/A/down	Room A button 1 down
lsd/1/A/up	Room A button 1 up
lsd/1/D/down	Room D button 1 down
lsd/1/D/up	Room D button 1 up
lsd/1/E/down	Room E button 1 down
lsd/1/E/up	Room E button 1 up
lsd/1/H/down	Room H button 1 down
lsd/1/H/up	Room H button 1 up
lsd/1/I/down	Room I button 1 down

Isd/1/I/up	Room I button 1 up
Isd/1/J/down	Room J button 1 down
Isd/1/J/up	Room J button 1 up
Isd/1/K/down	Room K button 1 down
Isd/1/K/up	Room K button 1 up
Isd/1/L/down	Room L button 1 down
Isd/1/L/up	Room L button 1 up
Isd/1/N/down	Room N button 1 down
Isd/1/N/up	Room N button 1 up
Isd/2/A/down	Room A button 2 down
Isd/2/A/up	Room A button 2 up
Isd/2/D/down	Room D button 2 down
Isd/2/D/up	Room D button 2 up
Isd/2/E/down	Room E button 2 down
Isd/2/E/up	Room E button 2 up
Isd/2/L/down	Room L button 2 down
Isd/2/L/up	Room L button 2 up
Isd/2/N/down	Room N button 2 down
Isd/2/N/up	Room N button 2 up
Isd/3/A/down	Room A button 3 down
Isd/3/A/up	Room A button 3 up
Isd/3/N/down	Room N button 3 down
Isd/3/N/up	Room N button 3 up
Isw/1/A	Room A button 1 pressed
Isw/1/B	Room B button 1 pressed
Isw/1/C	Room C button 1 pressed
Isw/1/E	Room E button 1 pressed
Isw/1/F	Room F button 1 pressed
Isw/1/G	Room G button 1 pressed
Isw/1/H	Room H button 1 pressed

Isw/1/I	Room I button 1 pressed
Isw/1/J	Room J button 1 pressed
Isw/1/L	Room L button 1 pressed
Isw/1/M	Room M button 1 pressed
Isw/1/N	Room N button 1 pressed
Isw/2/A	Room A button 2 pressed
Isw/2/A	Room B button 2 pressed
Isw/2/B	Room E button 2 pressed
Isw/2/E	Room F button 2 pressed
Isw/2/F	Room G button 2 pressed
Isw/2/G	Room H button 2 pressed
Isw/2/H	Room I button 2 pressed
Isw/2/J	Room J button 2 pressed
Isw/2/L	Room L button 2 pressed
Isw/2/N	Room N button 2 pressed
Isw/3/A	Room A button 3 pressed
Isw/3/E	Room E button 3 pressed
Isw/3/G	Room G button 3 pressed
Isw/3/N	Room N button 3 pressed
Isw/4/E	Room E button 4 pressed
Isw/4/G	Room G button 4 pressed
Isw/5/E	Room E button 5 pressed
Isw/5/G	Room G button 5 pressed
mdtc/A	Room A motion sensor
mdtc/B	Room B motion sensor

mdtc/D	Room D motion sensor
mdtc/E	Room E motion sensor
mdtc/F	Room F motion sensor
mdtc/G	Room G motion sensor
mdtc/H	Room H motion sensor
mdtc/I	Room I motion sensor
mdtc/J	Room J motion sensor
mdtc/K	Room K motion sensor
mdtc/L	Room L motion sensor
mdtc/M	Room M motion sensor
mdtc/N	Room N motion sensor
mdtc/O	Room O motion sensor
minute	Minute
month	Month
otemp	Outdoor temperature (K)
rhm	Humidity level
rmt/1	Remote control button 1
rmt/2	Remote control button 2
rmt/3	Remote control button 3
rmt/4	Remote control button 4
rmt/5	Remote control button 5
rmt/6	Remote control button 6
rmt/7	Remote control button 7
rmt/8	Remote control button 8
rso/1/A	Room A roller shades opening sensor 1
rso/1/D	Room D roller shades opening sensor 1

rso/1/E	Room E roller shades opening sensor 1
rso/1/F	Room F roller shades opening sensor 1
rso/1/G	Room G roller shades opening sensor 1
rso/1/H	Room H roller shades opening sensor 1
rso/1/J	Room J roller shades opening sensor 1
rso/1/L	Room L roller shades opening sensor 1
rso/1/M	Room M roller shades opening sensor 1
rso/1/N	Room N roller shades opening sensor 1
rso/2/A	Room A roller shades opening sensor 2
rso/3/A	Room A roller shades opening sensor 3
rso/4/A	Room A roller shades opening sensor 4
sdtc/A	Room A smoke detector
sdtc/G	Room G smoke detector
sdtc/H	Room H smoke detector
sdtc/J	Room J smoke detector
sdtc/L	Room L smoke detector
sdtc/N	Room N smoke detector
second	Second
temp/A	Room A temperature sensor
temp/D	Room D temperature sensor
temp/E	Room E temperature sensor
temp/G	Room G temperature sensor
temp/H	Room H temperature sensor
temp/I	Room I temperature sensor
temp/J	Room J temperature sensor

temp/K	Room K temperature sensor
temp/L	Room L temperature sensor
temp/M	Room M temperature sensor
temp/N	Room N temperature sensor
tsp/A	Room A temperature setpoint
tsp/D	Room D temperature setpoint
tsp/E	Room E temperature setpoint
tsp/G	Room G temperature setpoint
tsp/H	Room H temperature setpoint
tsp/I	Room I temperature setpoint
tsp/J	Room J temperature setpoint
tsp/K	Room K temperature setpoint
tsp/L	Room L temperature setpoint
tsp/M	Room M temperature setpoint
tsp/N	Room N temperature setpoint
udsw/1/A/down	Room A roller shades button 1 down
udsw/1/A/up	Room A roller shades button 1 up
udsw/1/D/down	Room D roller shades button 1 down
udsw/1/D/up	Room D roller shades button 1 up
udsw/1/E/down	Room E roller shades button 1 down

udsw/1/E/up	Room E roller shades button 1 up
udsw/1/F/down	Room F roller shades button 1 down
udsw/1/F/up	Room F roller shades button 1 up
udsw/1/G/down	Room G roller shades button 1 down
udsw/1/G/up	Room G roller shades button 1 up
udsw/1/H/down	Room H roller shades button 1 down
udsw/1/H/up	Room H roller shades button 1 up
udsw/1/J/down	Room J roller shades button 1 down
udsw/1/J/up	Room J roller shades button 1 up
udsw/1/L/down	Room L roller shades button 1 down
udsw/1/L/up	Room L roller shades button 1 up
udsw/1/M/down	Room M roller shades button 1 down
udsw/1/M/up	Room M roller shades button 1 up
udsw/1/N/down	Room N roller shades button 1 down
udsw/1/N/up	Room N roller shades button 1 up
udsw/2/A/down	Room A roller shades button 2 down
udsw/2/A/up	Room A roller shades button 2 up
udsw/2/F/down	Room F roller shades button 2 down
udsw/2/F/up	Room F roller shades button 2 up
wdsp	Wind speed (m/s)
year	Year