CHORUS

Configuration of ZigBee devices with USB/ZigBee GWA1706

Configuration manual

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ZigBee network: type and limits

Limits of the ZigBee network: Bear in mind that a ZigBee network without Smart Gateway can support 50 ZigBee devices: 1 coordinator, 29 routers and 20 battery-operated end devices.

The “ZigBee configurator” software allows you to configure Gewiss ZigBee devices via the USB/ZigBee interface GWA1706.

The ZigBee network must not include the Smart Gateway device (if it does, the cloud configurator must be used in place of the one described in this document).

One of the devices must be chosen as the ZigBee network coordinator; the coordinator is the device that not only creates the network but is also its Trust Centre (allowing new devices to be added on).

The following Gewiss devices can be used as coordinators: GWA1502, GWA1521, GWA1522, GWA1523, GWA1531 or GWA1916. To identify one of these devices as the coordinator, follow the indications on the instruction sheet of that device.

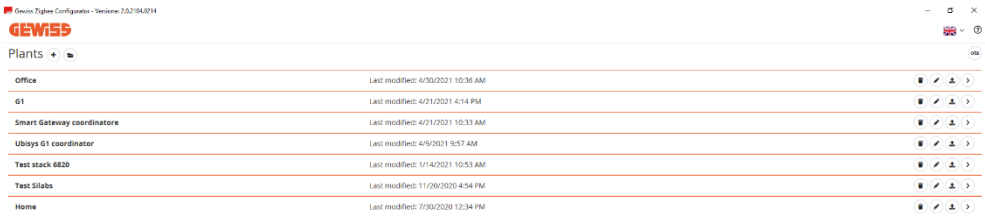
For all the devices, put the dip-switch selector (if installed) in programming mode via the PC (it's usually the first, and is positioned on ON). For more information, follow the indications given in the instruction sheets of the various devices.

The next chapters will explain how to create a project and therefore detect the devices in the ZigBee network (“Detection and association of new ZigBee devices”), and how to make the configurations that allow one device to command another one (“Connections” and “Scenes”).

During the programming, the USB/ZigBee GWA1706 interface will be a router of the ZigBee network, which will take part in the internal network communication and forward the messages. In order for the USB/ZigBee GWA1706 interface to enter the ZigBee network as a router, it must be joined to the network using the manual Permit Join procedure (manually activated on the device selected to be the coordinator. The USB/ZigBee GWA1706 will automatically join the network in its role as router – see The ZigBee configurator). Once the USB/ZigBee GWA1706 has been joined to the ZigBee network, Permit Join can be activated directly via the configurator.

THE ZIGBEE CONFIGURATOR

Once the ZigBee configurator software has been installed and launched, the following screen will appear:



On this screen, you can:

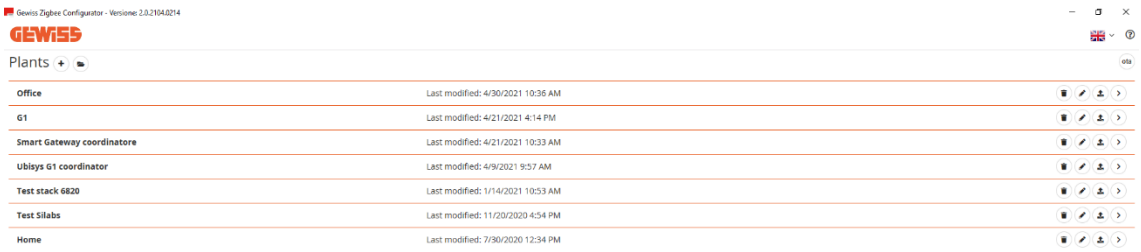
- import a file containing a system project already created (using the “folder” icon)
- access the “OTA” section using the relative button key (refer to the OTA-OverTheAir updates chapter) ota
- create a system using the “+” push-button

When there is at least one project (as in the screen shown below), additional push-buttons are made available:

- “bin”: for deleting the system
- “pencil”: for renaming the system
- “up arrow”: for exporting the system in a file
- “RH arrow”: for accessing the configurator and permitting the USB/ZigBee GWA1706 to join

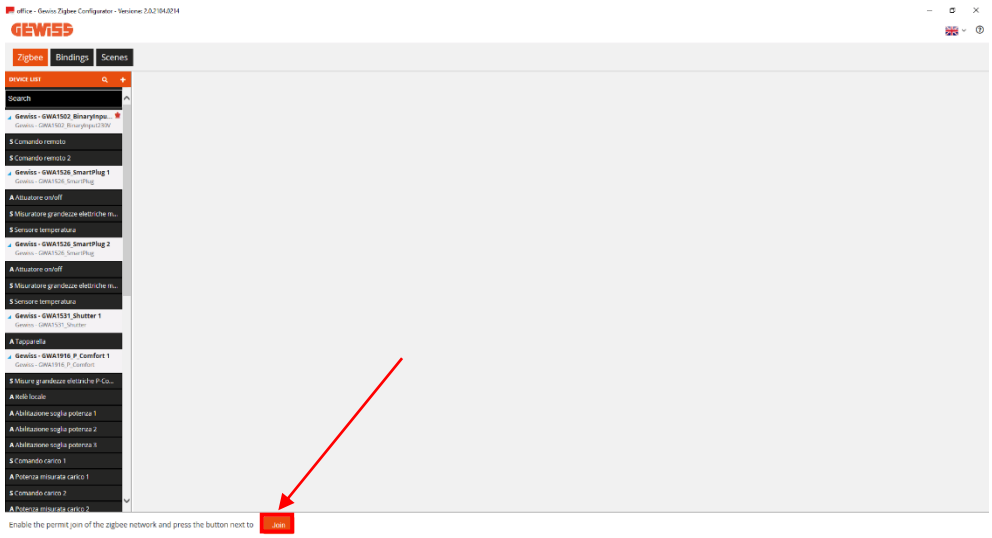
The word "GEWISS" at the top left is actually a link to the “Systems” page.

NB: unless configured otherwise, the project files of the various systems will be saved in the following path: C:\Users\Utente\AppData\Roaming\GWHH20.



Once the new system has been created, or an existing one opened using the “RH arrow” , the USB/ZigBee GWA1706 interface can be joined with the ZigBee system:

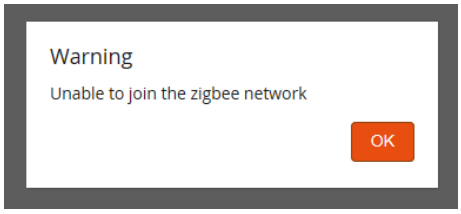
1. Insert the USB/ZigBee and click on the “Connect” push-button Connect at the bottom of the screen, then wait about 30 seconds
2. If the driver is correctly recognised, the “Join” push-button Join will appear
3. Activate the Permit Join function from the device chosen as coordinator (for Gewiss devices (GWA1502, GWA1521, GWA1522, GWA1523, GWA1531), press the local push-button briefly; the LEDs on all the routers will flash red, and the coordinator LED will flash green
4. Press the “Join” button key at the bottom of the configurator page



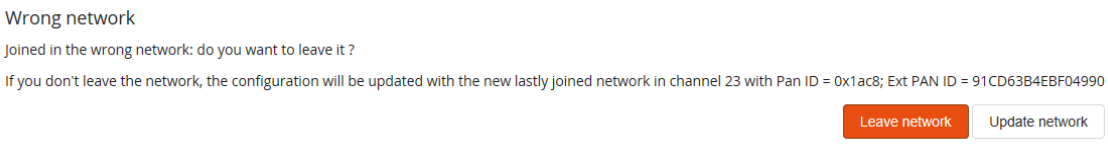
With the PComfort device GWA1916, Permit Join can be activated by following the procedure explained in the device manual.

As soon as the USB/ZigBee has joined the ZigBee network, the device selected as the network coordinator will be detected. It will appear in the left-hand column, with the logo next to the name of the device.

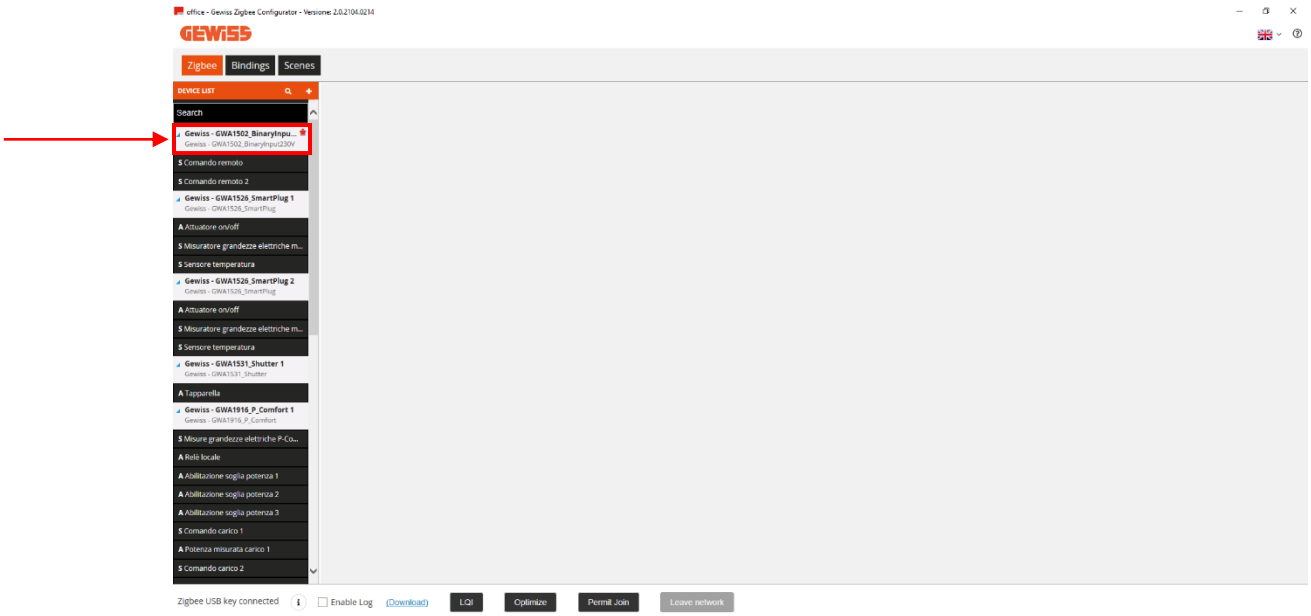
If Permit Join is not active on the network coordinator, and does not therefore flash green, the USB/ZigBee will not be able to join and the relative message will appear.



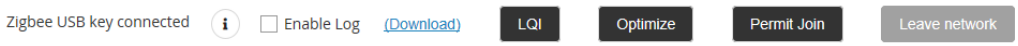
NB: when joining the ZigBee network of a system that has already been configured, the software might ask you to update the network parameters because something has changed (radio channel or Pan ID). Do this by clicking on “Update network” Update network:



The Network Manager device of the Home Automation network (which is usually the coordinator) can change the radio channel if there is any disturbance, or change the Pan ID if any conflict is detected. If, on the other hand, an attempt is being made to join the wrong system, it is important to select “Leave network” Leave network to avoid altering that project and causing configuration errors.



At the bottom of the page there are five push-buttons, each with a different function:



Zigbee USB key connected — Shows the USB/ZigBee status: connected or not connected to the ZigBee network

Returns information about the USB/ZigBee and the ZigBee network it belongs to.

The only data in this table that might change over time are the short address, the radio channel (in the event of interference, the coordinator may decide to migrate to another frequency) and the Pan ID.

Info

Communication	
Port	COM4
Baud rate	115200
Connected Serial	true
Info	
Role	Router
Short address	0xB034
IEEE address	30DE860000400178
Radio channel	13
Pan ID	0x8A29
Extended Pan ID	5C2E97CE569ACD52
Network key	E0 6A 5F B4 0C 5B 2B 1C 85 BA 89 E7 A1 7A CD E8
Running	true
Device status	Device_in_Router_Running_state

USB/ZigBee GWA1706: Router

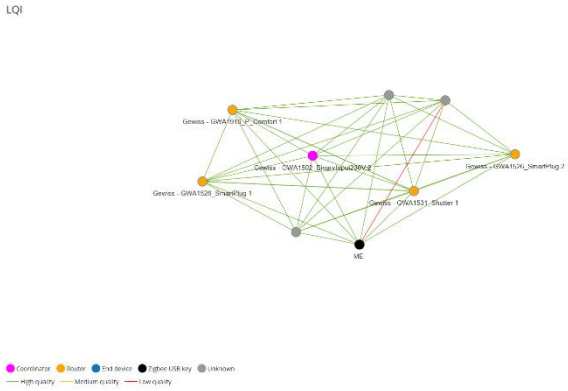
LQI

The Level-Quality-Indicator shows the quality of the radio signal via the various nodes of the ZigBee network

Green line:	Excellent signal
Yellow line:	Good signal
Red line:	Poor signal

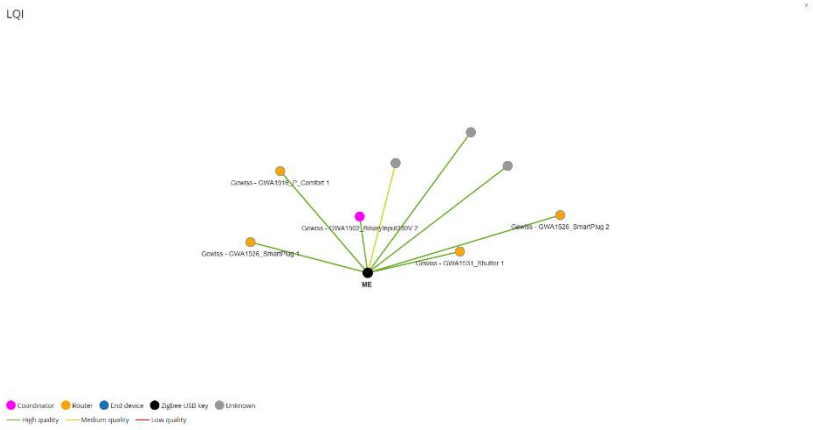
Bringing the cursor close to one of these lines, a window with a number will appear. This number indicates the intensity of the signal.

Click on a single node to see the specific connections of that node.



The whole ZigBee network

In the case of a battery-operated device, the connection identifies its parent router (in this case it is the GWA1502, which is also the coordinator).



The specific connections of a single device (in this case, the USB/ZigBee GWA1706)

Optimize

Lengthens the periodical wake-up time of battery-operated ZigBee devices if the device supports the Poll Control cluster (0x0020).

This cluster is not implemented on the battery-controlled device GWA1501, but it can be found on the other Gewiss codes (GWA1511, GWA1512, GWA1513, GWA1514).

Permit Join

This push-button sends the ZigBee network a broadcast command allowing a new device to join that network.

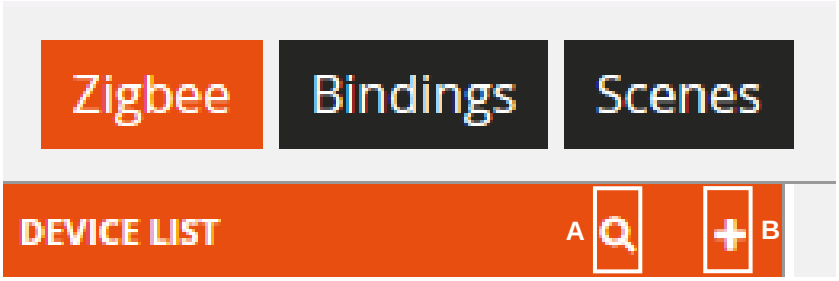
If Permit Join is already active on the ZigBee network, the push-button will turn orange and the label will become “Stop Permit Join“, preventing the opening of the network for the association of new devices.

Leave network

This push-button authorises the USB/ZigBee GWA1706 to quit the ZigBee network.

The USB/ZigBee abandons the ZigBee network in the following circumstances too: when it is disabled via the PC, when the software is closed, or when you quit the system that it is joined to (one example of the latter case might be during system configuration, if you accidentally return to the list of systems by clicking on the "GEWISS" link at the top left).

There are two push-buttons in the “Device list” column:



A

This command indicates the devices that have already been joined to the ZigBee network.

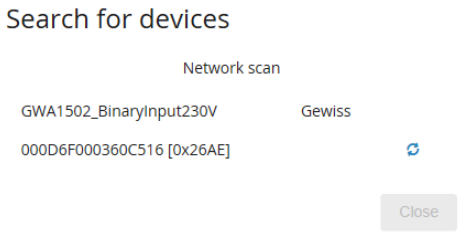
Attention: the command may take a few minutes to find and acquire all the devices belonging to the network. The effective time will depend on the number and type of devices.

Router devices belonging to the network must be powered, whereas battery-operated devices must be woken up so they can be detected. Follow the wake-up procedure explained in the instruction sheet of that device (for GWA1501, 10 on/off operations in 10 seconds on one of the two inputs, until the LED begins flashing; for GWA1511, GWA1512, GWA1513 and GWA1514, press the programming push-button for about 5 seconds until the LED begins flashing).

If some of the joined devices are not detected (e.g. in complex ZigBee networks or with devices that have a poor radio signal), you are advised to acquire the devices one at a time in the following way:

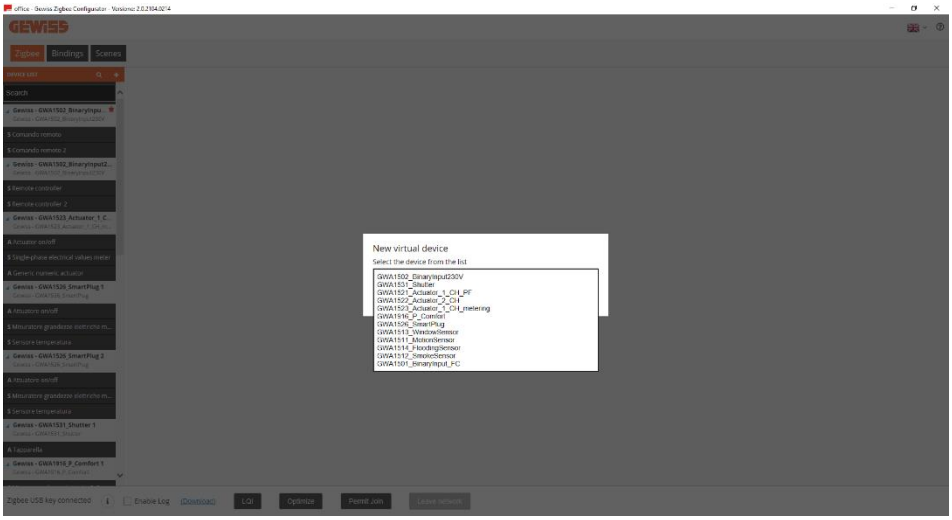
1. Go to the “ZigBee” section of the configurator
2. Switch off/on the router device in question; the USB/ZigBee should then be able to detect the new device and it will appear in the “device list” after about 30 seconds. If it still hasn't appeared after waiting at least 2 minutes, repeat the operation

3. In the case of a battery-operated end-device GWA1501, it must be woken up as indicated previously. The USB/ZigBee should detect the new device after about 1 minute, and it will appear in the “device list”; if it still hasn't appeared after waiting at least 2 minutes, repeat the operation
4. In the case of a battery-operated device GWA1511, GWA1512, GWA1513 or GWA1514, you are advised to remove the battery and then put it back in so the new device can be detected (even if this might change the parent router that allows the battery-operated device to communicate in the ZigBee network; this change may cause communication problems with the battery-operated device for a few minutes, preventing it from being detected by USB/ZigBee)

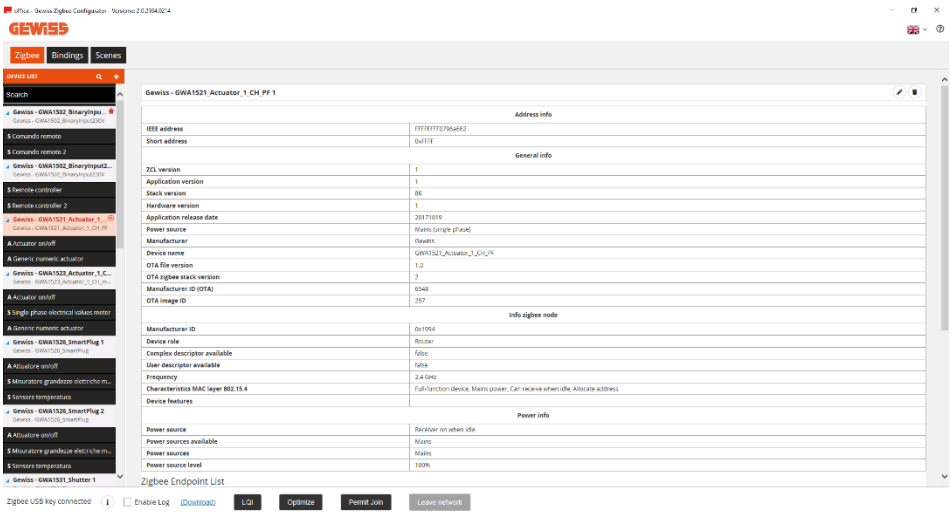


B This push-button adds virtual devices (i.e. not yet associated with the ZigBee network) from a predefined list.
Once the virtual device has been added, it must be transformed into a real device as follows:

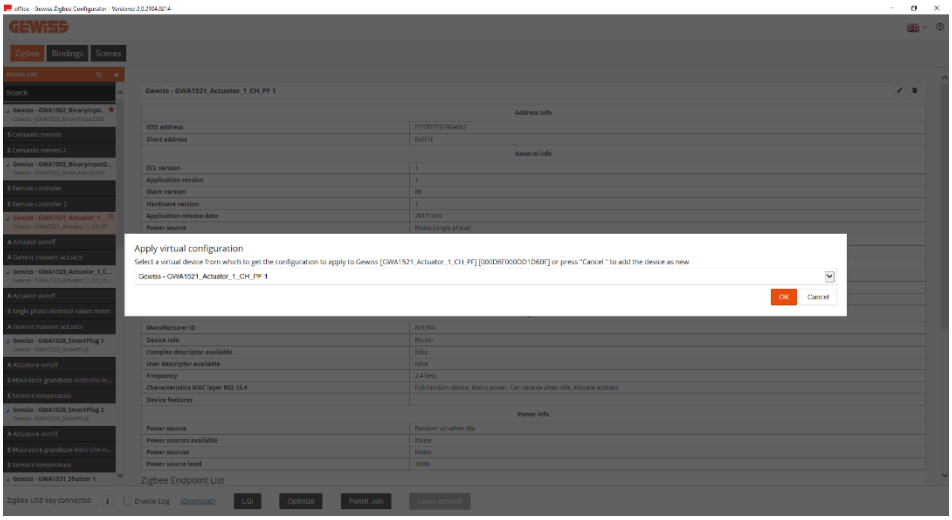
1. Join that type of device to the ZigBee network (e.g. in the case of a GWA1521)
2. Go to the “ZigBee” section of the configurator
3. Switch off/on the device in question. The USB/ZigBee should detect the new device and display a screen where you can link it with the virtual one by means of a drop-down menu
4. If the association is successful, the virtual device is converted into a real one



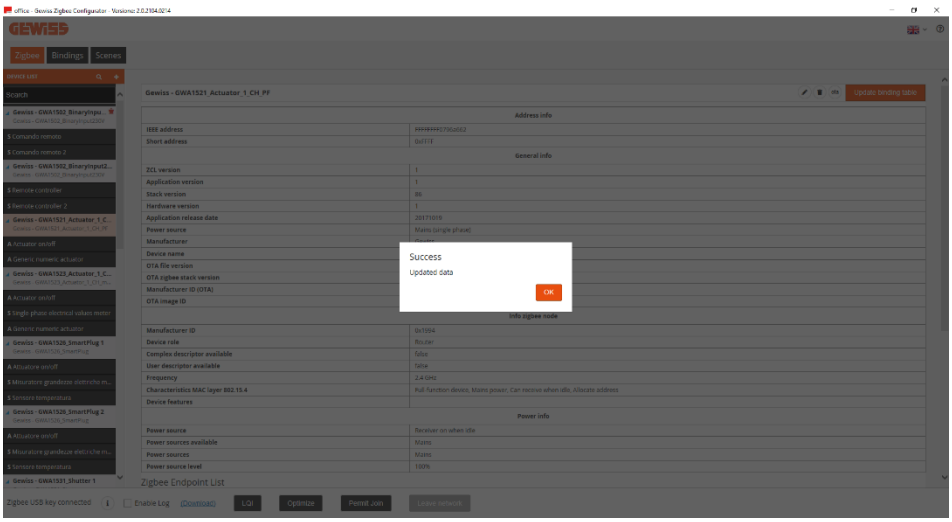
1


Zigbee
Bindings
Scenes
Gewiss - GWA1521_Actuator_1_CH_PF 1
Address info
General info
Info zigbee node
Power info
Zigbee Endpoint List
Zigbee USB key connected
Enable Log
(Download)
LQI
Optimize
Permit Join
Leave network

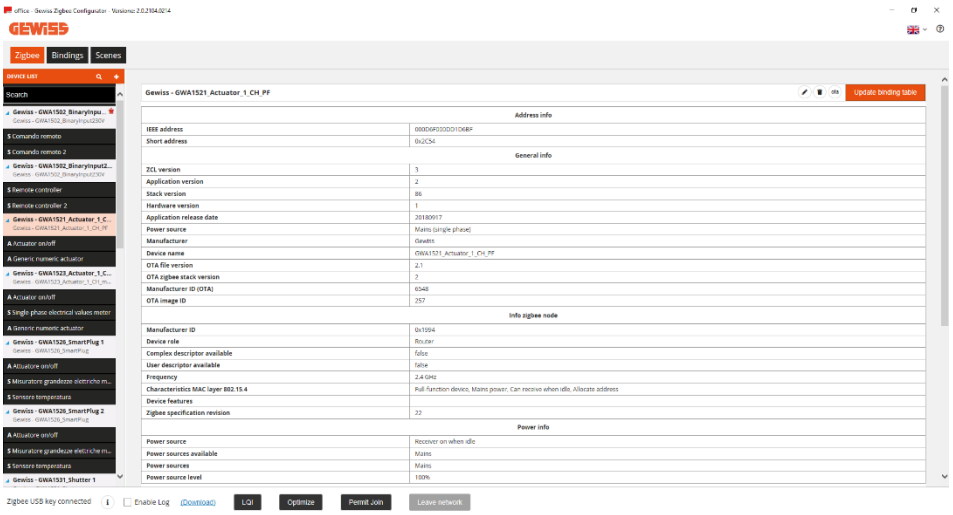
1


Apply virtual configuration
Select a virtual device from which to get the configuration to apply to Gewiss [GWA1521_Actuator_1_CH_PF] [000D6F000D1D6BF] or press "Cancel " to add the device as new
Gewiss - GWA1521_Actuator_1_CH_PF 1
OK
Cancel

3


Success
Updated data
OK

4



4

ASSOCIATION AND DETECTION OF NEW ZIGBEE DEVICES

If you want to add new devices to the ZigBee network, you must first of all define whether:

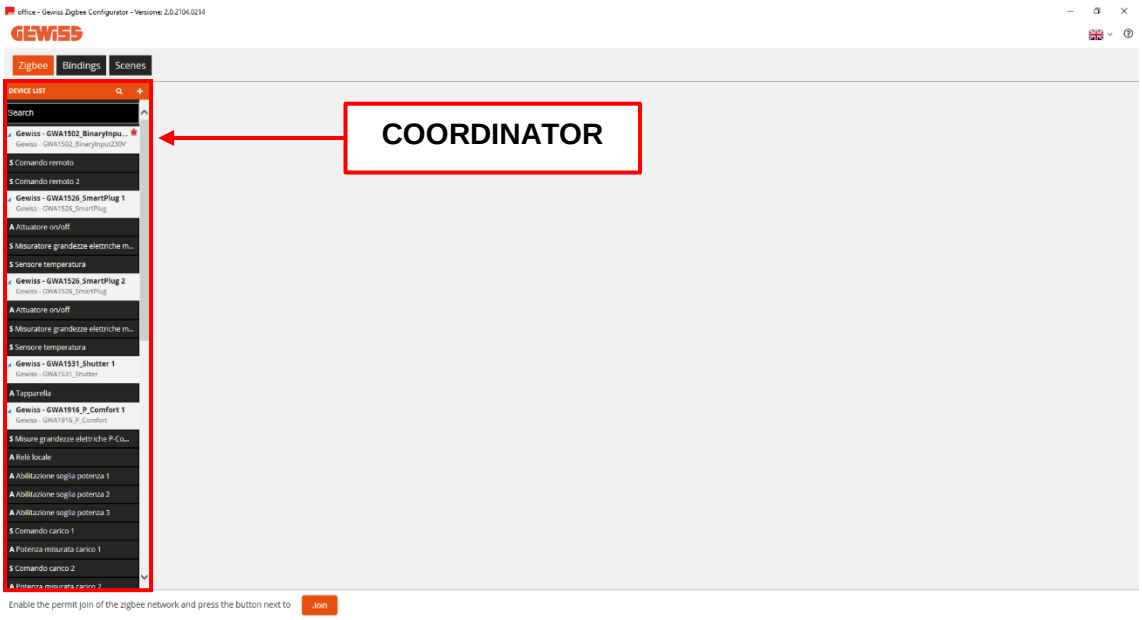
- the devices you want to add have already been joined to / associated with the network
- the devices you want to add have not yet been joined to / associated with the network

In the former case, acquire the new devices using the "Search" command on the "ZigBee" page.

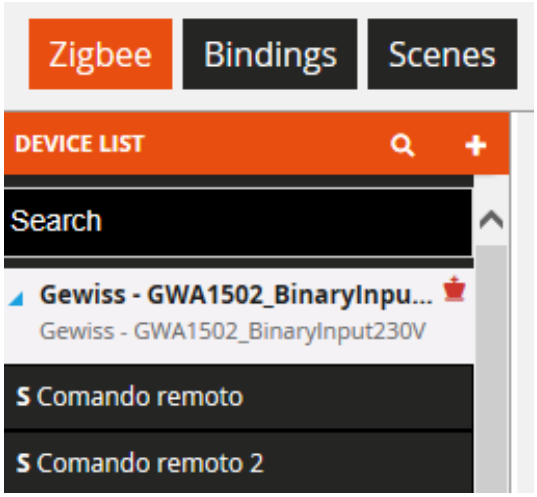
In the latter case, you are advised to proceed as follows:

1. Go to the "ZigBee" section of the configurator
2. Activate Permit Join in the ZigBee network via the "Permit Join" push-button of the configurator, or from a network device that allows it.
3. Power one router device at a time. The USB/ZigBee should detect the new device, and it will appear in the "device list" after about 30 seconds. If it still hasn't appeared after waiting a couple of minutes, check it has been correctly joined (check the LED status and compare it with the indications in the device installation manual). If the device has been correctly joined, proceed as explained in the "Search" paragraph on the "ZigBee" page. Otherwise, make sure Permit Join is effectively active on the ZigBee network, and that the coordinator is powered.
4. In the case of a battery-operated end-device (GWA1501, GWA1511, GWA1512, GWA1513, GWA1514), it must be powered by inserting the battery; only at that point can the USB/ZigBee detect it and include it in the "Device list" (after about 3 minutes). If the operation is not successful, check it has been correctly joined (check the LED status and compare it with the indications in the device installation manual).
   If the device has been correctly joined, proceed as explained in the "Search" paragraph on the "ZigBee" page. Otherwise, make sure Permit Join is effectively active on the ZigBee network, and that the coordinator is powered.

The following image shows ZigBee devices correctly acquired by the configurator. The device with the "King" symbol is the one chosen to be the coordinator of the ZigBee network.



In the “Device list” column, the devices are highlighted by a white background (image A) whereas the relative function channels have a black background (image B).



A

B

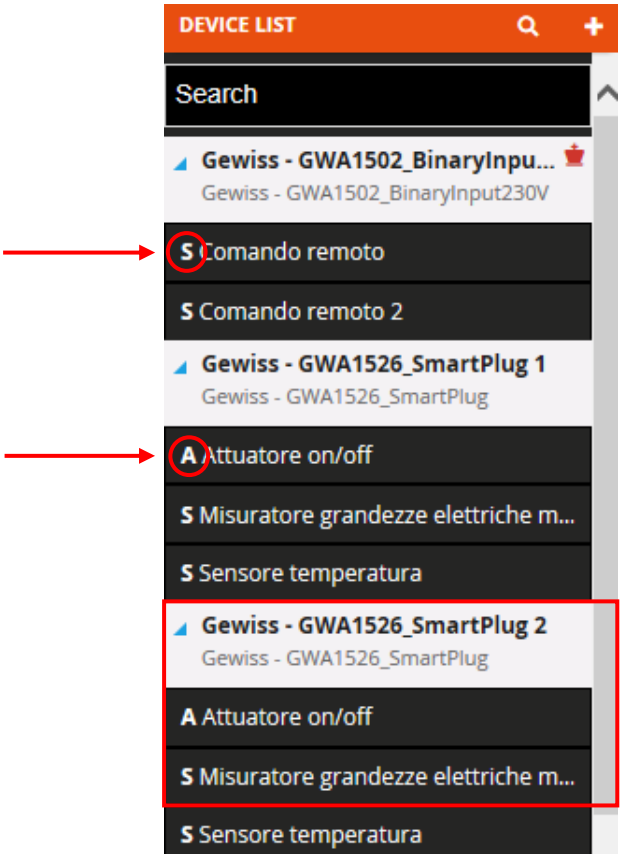
Each device can be renamed using the “pencil” symbol next to the default name given by the configurator.

The “bin” icon for deleting a device recalls the procedure explained in the “Deleting a device” paragraph.

FUNCTIONS OF THE ZIGBEE DEVICES

After adding the ZigBee devices as explained in "Association and detection of new ZigBee devices", you can check their functions.

For every ZigBee device (on the basis of its functions, which in turn depend on the clusters in the endpoints of the device itself), the configurator creates function channels that may be of the sensor type (indicated by the letter "S") or the actuator type (indicated by the letter "A").



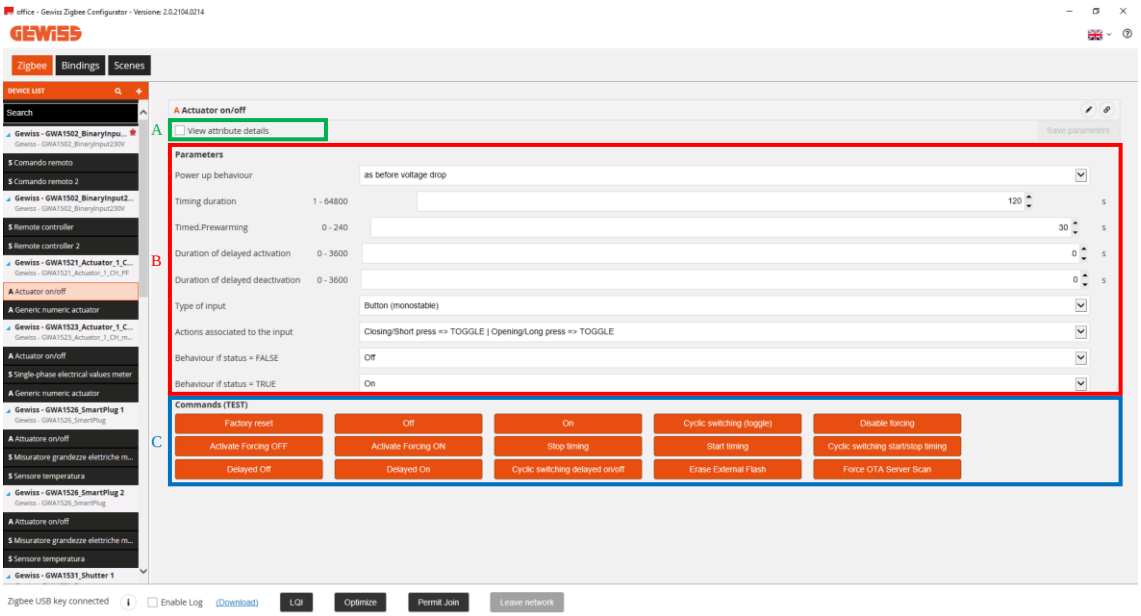
Type of function	Characteristics
"S" channel:	indicates functions allowing the device to send ZigBee commands/reports
"A" channel:	indicates functions allowing the device to receive commands/reports in order to carry out an action

As shown in the image above, a device like the GWA1523 (meter relay actuator) has both "A" type channels (for receiving commands/reports for operating the built-in relays) and an "S" channel (for sending the electric values).

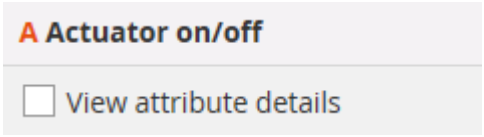
Each function channel can be accessed by clicking on it and, depending on its characteristics, it may contain:

- Attributes allowing the device to be parameterised (generally of the "write" type)
- Attributes giving status feedback (generally of the "read" type)
- For certain "A" type function channels, the commands for activating the device

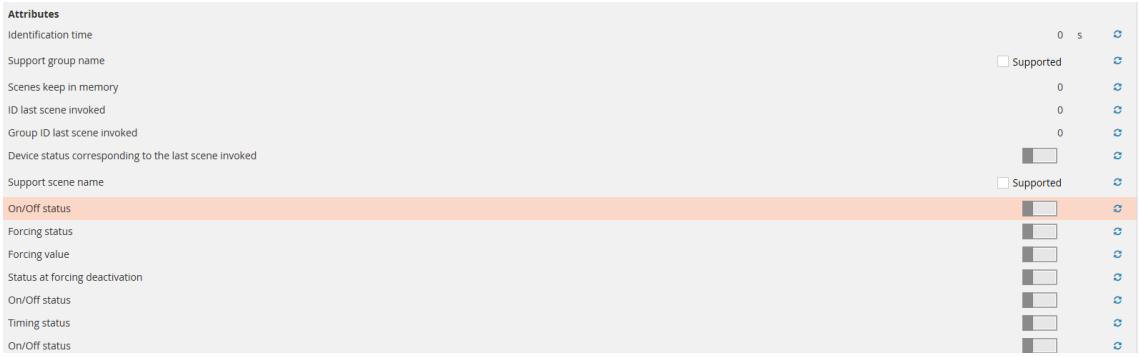
The following example shows the three types listed above:



A



If this box is ticked, the status feedback attributes are displayed:



The value can be read by clicking on the twin circular arrow push-button

B Under “Parameters” you can find the attributes for parameterising the device. The values can be modified via the drop-down menu or by entering a valid value directly in the space (if allowed). When at least one parameter has been modified, the “Save parameters” push-button will turn orange. Clicking on it, the modifications will be sent to the device and the push-button will turn grey again (if it is no long possible to click on the push-button, this means there are no modifications to be sent to the device).

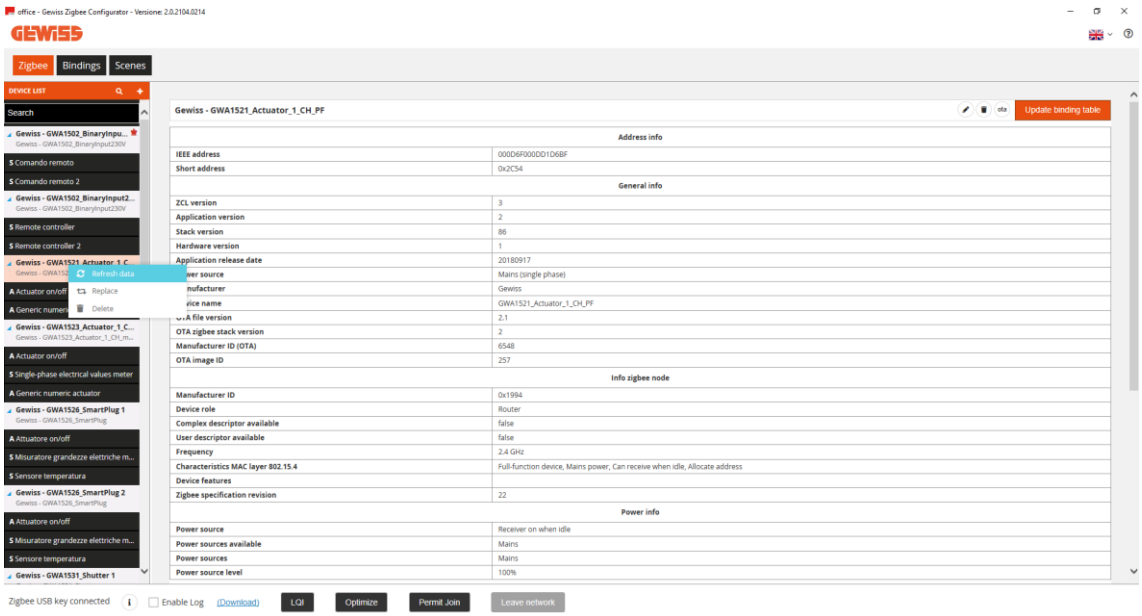
C The push-buttons in this part of the page are used to send commands directly to the device. The type of command visualised will depend on the type of device that you are interacting with.

The following commands are common to nearly all Gewiss ZigBee devices:

- Factory reset: the attributes of the function channels (or, more precisely, of the end points that the function channel refers to) are set at their default values.
- Erase external flash: used to delete the device flash containing any possible OTA versions. This operation is not usually necessary as, at the end of the OTA update, the device loads the new image and then automatically deletes the file saved in the external flash.
- Force OTA server scan: forces the device to search for an OTA server in the ZigBee network. Attention: this operation does not launch the OTA update process; it is used to enable the device to memorise the OTA server if there is one in the system. This operation is not usually necessary as every device searches for the OTA server at regular intervals.

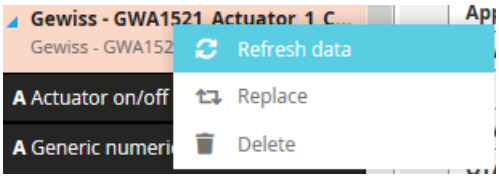
INFORMATION ABOUT THE ZIGBEE DEVICE AND BINDING TABLE MANAGEMENT

By remaining on the “ZigBee” page and selecting one of the devices joined to the ZigBee network in question, you can view the information relating to the device itself and see the contents of the binding table.

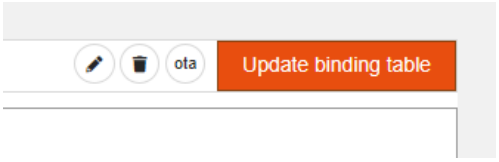


The image above is an example of a GWA1521 showing the device information and characteristics.

The information can be updated using the “Refresh data” push-button (called up with the right-hand mouse key). This is handy, for example, after an OTA update, to check that the version has effectively been changed.



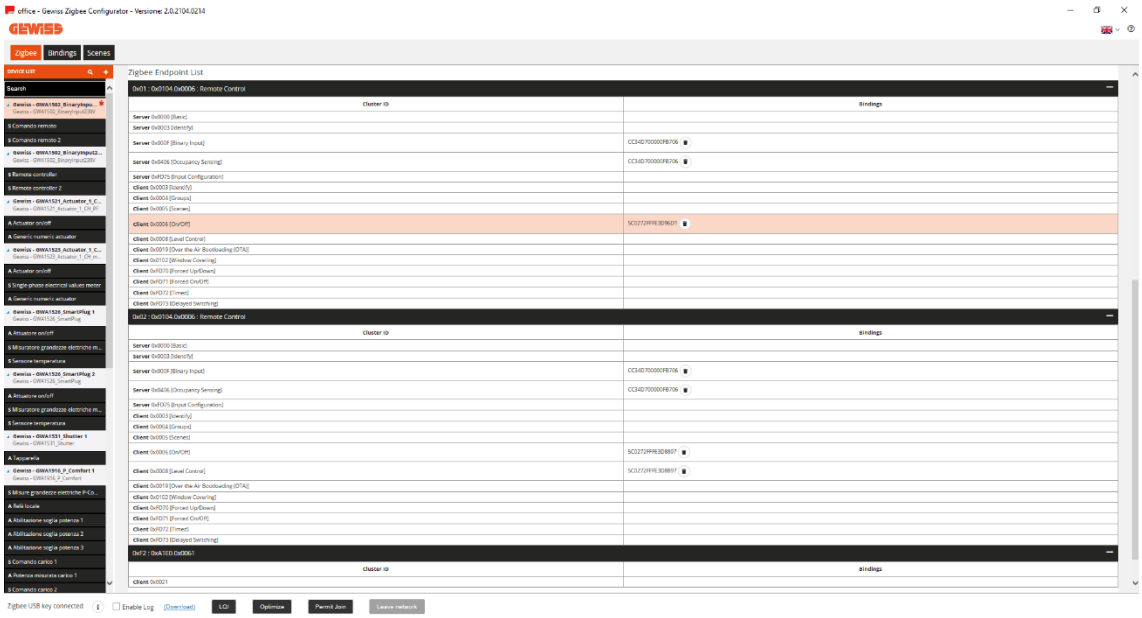
The “Update binding table” push-button can be used to read the device binding table and update the visualisation with the content shown.



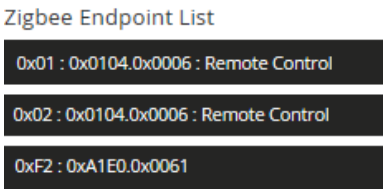
The binding table contains the list of recipients of the commands and/or reports sent for the device, for each cluster.

Example:

A GWA1502 device belonging to a ZigBee network commands a GWA1521 via input_2 of the device, using On/Off commands (cluster 0x0006).



The image shows the “ZigBee end point list” of the GWA1502 device. In this specific case, there are three:



- **0x01: 0x0104.0x0006: Remote Control**:
  - 0x01: this is the number in hexadecimals of the end point corresponding to input_1 of the device
  - 0x0104: indicates the ZigBee profile that it belongs to (in this case, Home Automation)
  - 0x0006: indicates the function of this end point (in this case, Remote Control)

- **0x02: 0x0104.0x0006: Remote Control**
  - 0x02: this is the number in hexadecimals of the end point corresponding to input_2 of the device
  - 0x0104: indicates the ZigBee profile that it belongs to (in this case, Home Automation)
  - .0x0006: indicates the function of this end point (in this case, Remote Control)

- **0XF2: 0XA1E0.0x0061: Remote Control**
  - 0xF2: this is the number in hexadecimals of the end point (in this case, not corresponding to a physical input of the device but to one of its functions)
  - 0xA1E0 indicates the ZigBee profile that it belongs to (in this case, Green Power)
  - .0x0061: indicates the function of this end point (in this case, GP Proxy Minimum)

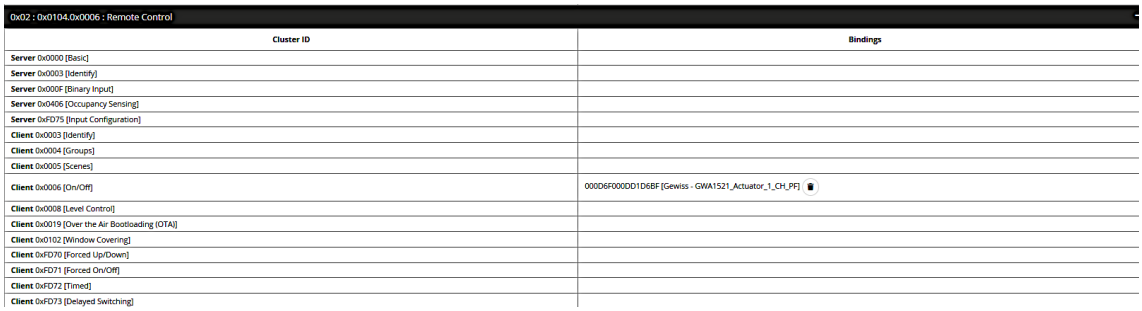
In general:

Every end point contains clusters of the client (out) or server (in) type, to carry out the device functions. Taking the end point_2 of GWA1502 as an example:

- in(server) cluster: 0x0000 (Basic): standard cluster containing information about the device
- out(client) cluster: 0x0003 (Identify): standard cluster for initial device start-up
- in (server) cluster: 0x0003 (Identify): standard cluster for initial device start-up
- out(client) cluster: 0x0004 (Groups): standard cluster for sending group commands
- out(client) cluster: 0x0005 (Scenes): standard cluster for sending scenes
- out(client) cluster: 0x0006 (On/off): standard cluster for sending On/Off commands
- out(client) cluster: 0x0008 (Level Control): standard cluster for sending dimming commands
- in(server) cluster: 0x000F (Binary Input (Basic)): standard cluster for sending reports on the general numerical channel of an actuator
- out(client) cluster: 0x0019 (Over The Air Bootloading): standard cluster for supporting the OTA firmware update
- out(client) cluster: 0x0102 (Window Covering): standard cluster for sending roller shutter/Venetian blind commands
- in (server) cluster: 0x0406 (Occupancy Sensing): standard cluster for sending reports with the presence sensor function to an actuator
- out(client) cluster: 0xFD70 (Forced up/down): proprietary cluster for sending forcing commands to roller shutter/Venetian blind actuators
- out(client) cluster: 0xFD71 (Forced on/off): proprietary cluster for sending On/Off forcing commands
- out(client) cluster: 0xFD72 (Timed): proprietary cluster for sending timer commands
- out(client) cluster: 0xFD73 (Delayed switching): proprietary cluster for sending delayed On/Off commands
- in(server) cluster: 0xFD75 (Input configuration): proprietary cluster for configuring the parameters of device input_2

The content of the previous image (showing the recipient devices contained in the device binding table) should now therefore be clearer.

The image below, on the other hand, only shows the part of the table with end point_2 corresponding to input_2 of the device.



0x02 : 0x0104.0x0006 : Remote Control

Cluster ID	Bindings
Server 0x0000 [Basic]	
Server 0x0003 [Identify]	
Server 0x000F [Binary Input]	
Server 0x0406 [Occupancy Sensing]	
Server 0xFD75 [Input Configuration]	
Client 0x0003 [Identify]	
Client 0x0004 [Groups]	
Client 0x0005 [Scenes]	
Client 0x0006 [On/Off]	000D6F000DD1D6BF [Gewiss - GWA1521_Actuator_1_CH_PF]
Client 0x0008 [Level Control]	
Client 0x0019 [Over the Air Bootloading (OTA)]	
Client 0x0102 [Window Covering]	
Client 0xFD70 [Forced Up/Down]	
Client 0xFD71 [Forced On/Off]	
Client 0xFD72 [Timed]	
Client 0xFD73 [Delayed Switching]	

From the image, you can see that the device sends commands for input_2:

- Cluster 0x0006: with actuator GWA1521 as the recipient

0x02 : 0x0104.0x0006 : Remote Control
Cluster ID
Server 0x0000 [Basic]
Server 0x0003 [Identify]
Server 0x000F [Binary Input]
Server 0x0406 [Occupancy Sensing]
Server 0xFD75 [Input Configuration]
Client 0x0003 [Identify]
Client 0x0004 [Groups]
Client 0x0005 [Scenes]
Client 0x0006 [On/Off]
Client 0x0008 [Level Control]
Client 0x0019 [Over the Air Bootloading (OTA)]
Client 0x0102 [Window Covering]
Client 0xFD70 [Forced Up/Down]
Client 0xFD71 [Forced On/Off]
Client 0xFD72 [Timed]
Client 0xFD73 [Delayed Switching]

On this page, you can remove any recipients that are still in the device binding table by mistake. This operation must only be carried out by experienced ZigBee users, or with the aid of Gewiss Customer Service. To delete a recipient from the binding table, use the “bin” push-button alongside.

Bindings
000D6F000DD1D6BF [Gewiss - GWA1521_Actuator_1_CH_PF]

MANAGING BATTERY-OPERATED END DEVICES

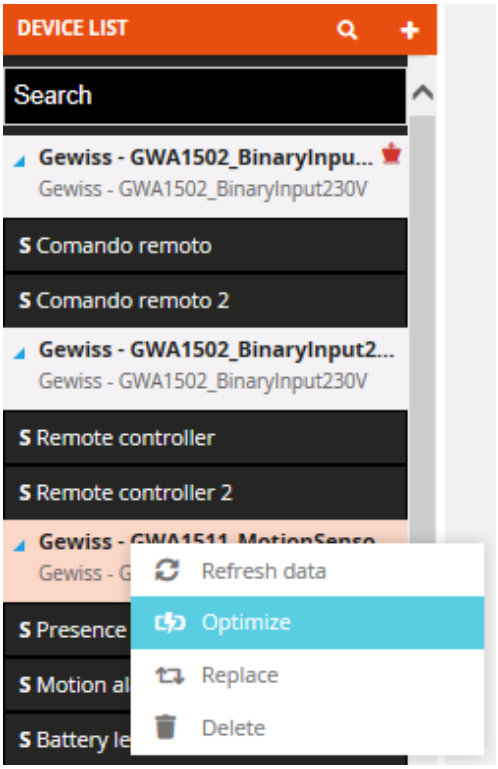
The characteristic feature of battery-operated ZigBee end devices is that they maintain a dormant status for a lot of the time. They usually keep the radio switched off to save energy, activating it only when needed or at regular intervals to transmit and/or receive ZigBee packages.

A battery-operated device can support the 0x0020 Poll Control cluster that allows the regular device wake-up time to be modified. The Gewiss devices that offer this possibility are: GWA1511, GWA1512, GWA1513 and GWA1514.

The exception is GWA1501.

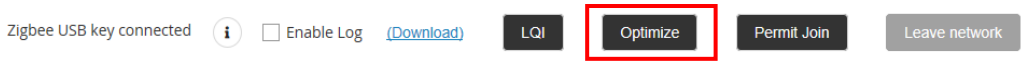
When a ZigBee device with Poll Control cluster joins the network with the configurator active, as explained in “Association and detection of new ZigBee devices”, the regular wake-up time is shortened to facilitate the configuration of the battery-operated device; otherwise, the device would have to be woken up in order to configure it (as in the case of GWA1501 - 10 closings/openings in 10 seconds on one of the two inputs, until the LED flashes).

Once the device has been acquired by the configurator and the configurations have been made, it is advisable to optimise the use of the battery via the relative command that appears when you click on the device itself with the right-hand mouse key:



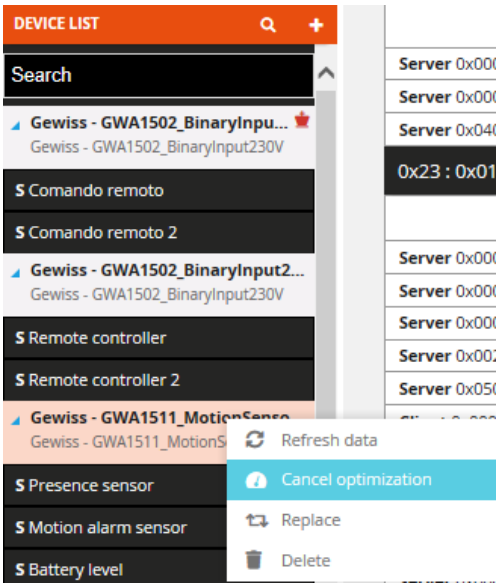
Optimised battery use will increase the time between one device wake-up and the next (lengthened Poll Control).

In the same way, the configurator is used to simultaneously optimise the use of the battery for all the end devices with shortened Poll Control in the ZigBee network. Just press the “Optimise” push-button at the bottom of the page.



If a device has a lengthened Poll Control, it will have to be woken up in order for the configurator to interact with it. The wake-up must be made as explained in the instruction leaflet supplied with the device itself (for codes GWA1511, GWA1512, GWA1513, GWA1514: press the programming push-button for about 5 seconds until the LED begins flashing).

If, on the other hand, Poll Control is not lengthened, click on the device name with the right-hand mouse key to see a drop-down with the item “Cancel optimisation”, which will launch the procedure for shortening the device wake-up time. The device will have to be woken up manually (as explained in the previous paragraph) to complete the operation.



If the battery-operated device is already joined to the network, a “Find devices” check must be run. Once the battery-operated device has been identified, it must then be manually woken up so the configurator can acquire it and, if necessary, set a short Poll Control as explained in this paragraph.

NB: the GWA1706 USB/ZigBee behaves to all intents and purposes like a network router so, during the configuration, it not only actively participates in the system mesh network but may become a parent router for a battery-operated device (called a "child", it can be checked via the sections of the LQI function). In the moment when the USB/ZigBee abandons the network for the first transmission of its child, the command may not be sent correctly as the child must first of all acquire a new parent router from the network via an automatically launched rejoin operation (the battery-operated devices usually run it when they are no longer able to communicate with their parent router).

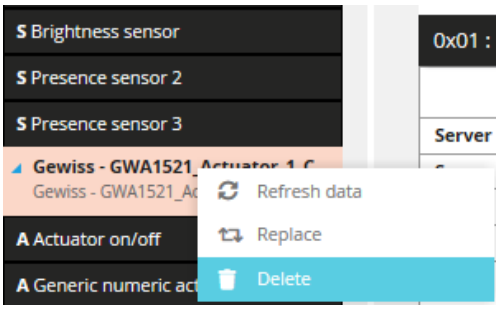
DELETING OR REPLACING A ZIGBEE DEVICE

If a ZigBee device needs to be deleted or replaced because it is faulty, just click on the name of the device using the right-hand mouse key to activate the relative procedure.

Deleting a device

The deletion of a ZigBee device involves two phases, where the configurator asks the user:

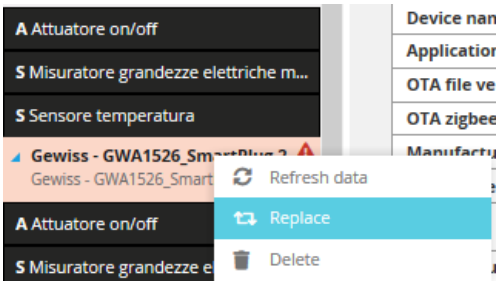
1. To confirm that the device is to be deleted from the project
2. If you want the device to abandon the network, use the “Leave Network” command. Not all ZigBee devices support this option however. When they don't, a factory reset will have to be made locally, following the procedure explained on the instruction sheet of the device itself.



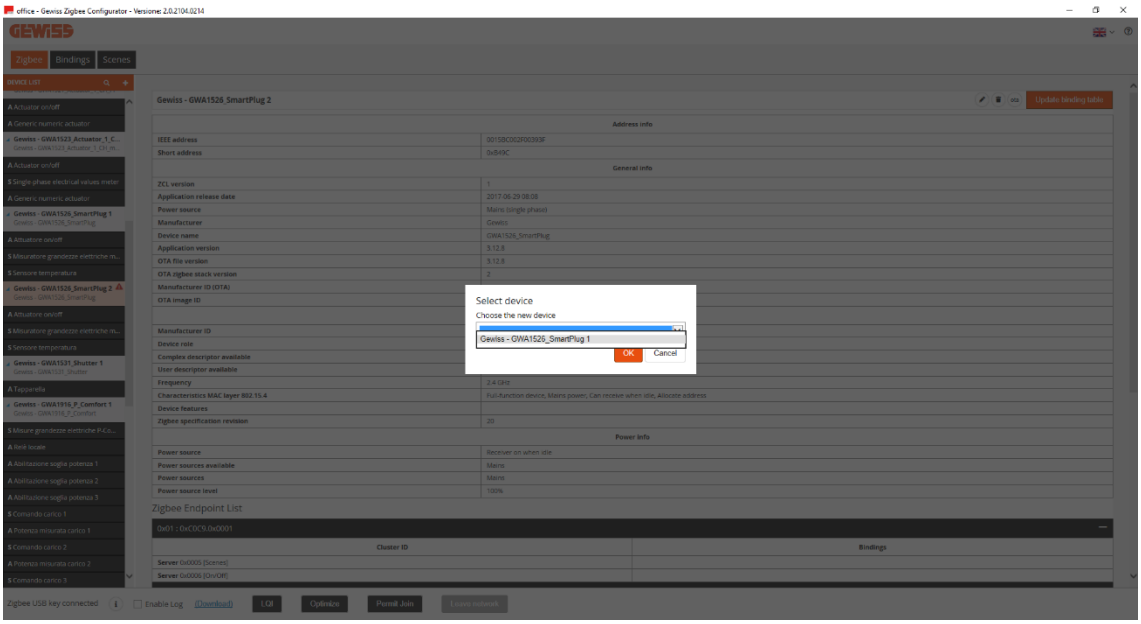
Attention: The coordinator cannot be deleted or - far less - made to abandon the network, via the configurator!

Replacing a device

The ZigBee device replacement procedure must be followed when a device is faulty and needs replacing. When the configurator is unable to communicate with the device, this problem is highlighted by a red triangle with a white exclamation mark next to the name of the device. As long as the radio part of the device in question is effectively faulty rather than the device being simply switched off (or dormant, as in the case of battery-operated end devices), the device can be replaced.



The configurator will search the ZigBee devices already acquired, to identify those similar to the one that needs replacing. These devices will be listed in a drop-down menu, where you can select the new one that will replace the faulty one.



In the current situation, the replacement of a ZigBee device does not lead to the removal of the connections/bindings with the faulty device, and does not automatically reproduce those same connections/bindings with the new device. They must therefore be modified manually, as explained in the connections section below.

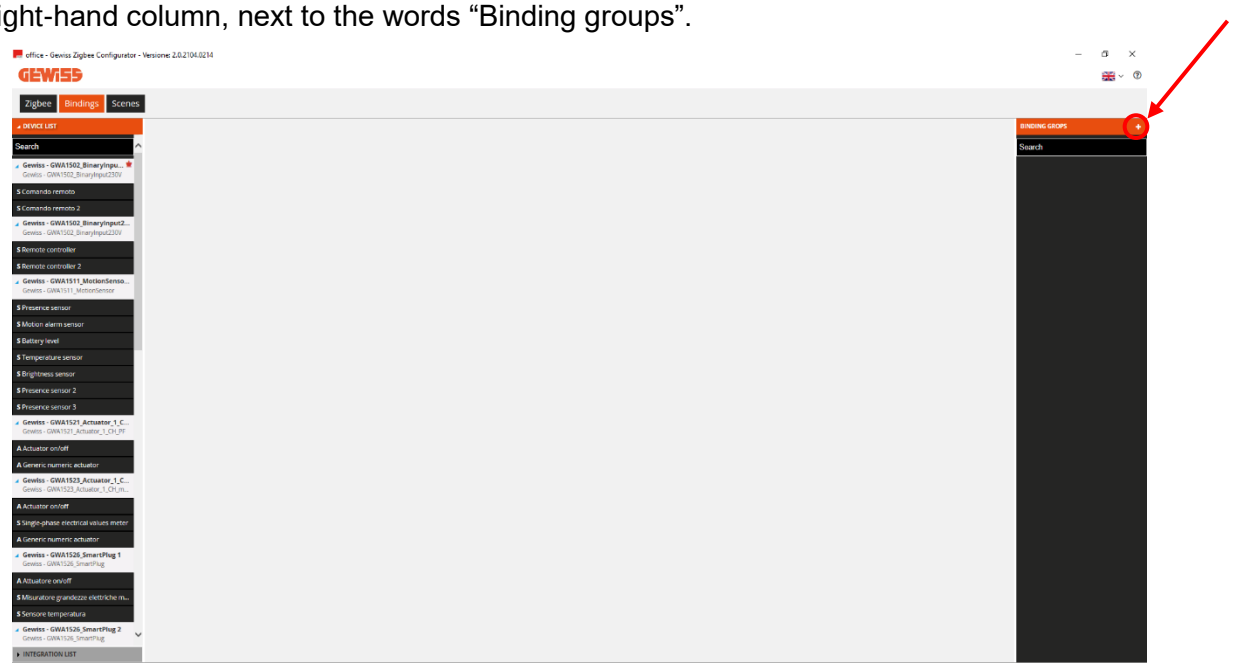
CONNECTIONS

In this section you can create, rename, modify and delete the functions between devices. (Attention: the “Rename” function can only be used in the moment when the connection is made).

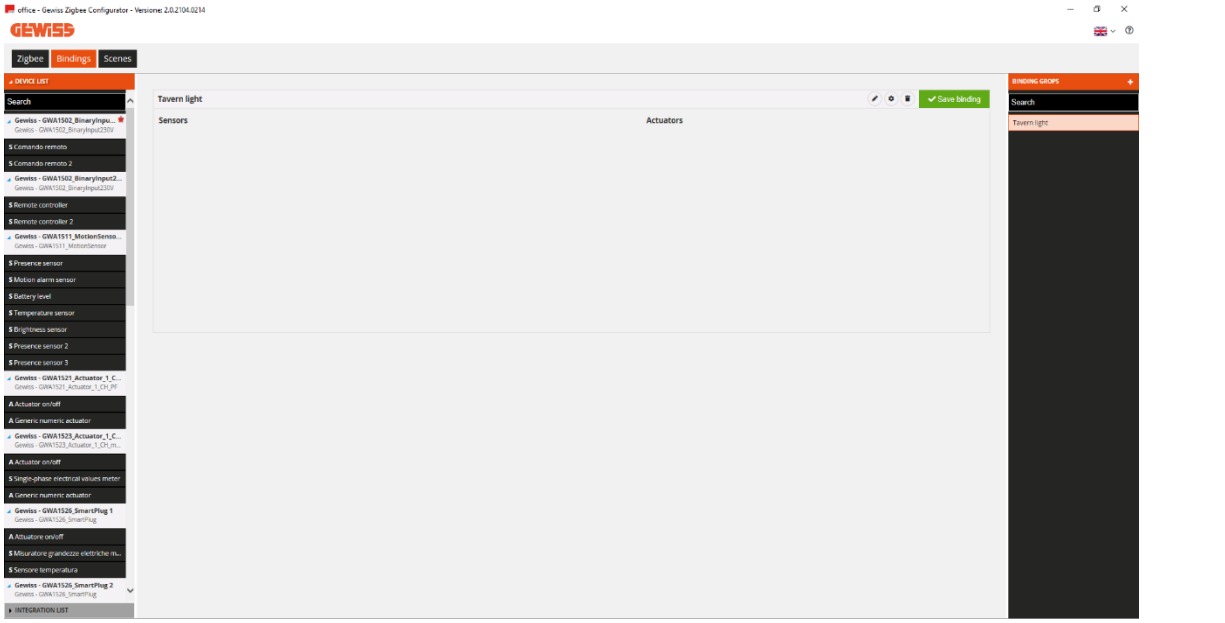
Creating the connection (binding)

In this section you can create the functions (bindings) for which a sensor sends commands/reports to an actuator. For example, when you press a push-button connected to a GWA1502, the latter will send a toggle (inversion) command to an OnOff actuator (e.g. a GWA1521).

To make this connection, open the “Bindings” section of the configurator and click on the “+” in the right-hand column, next to the words “Binding groups”.



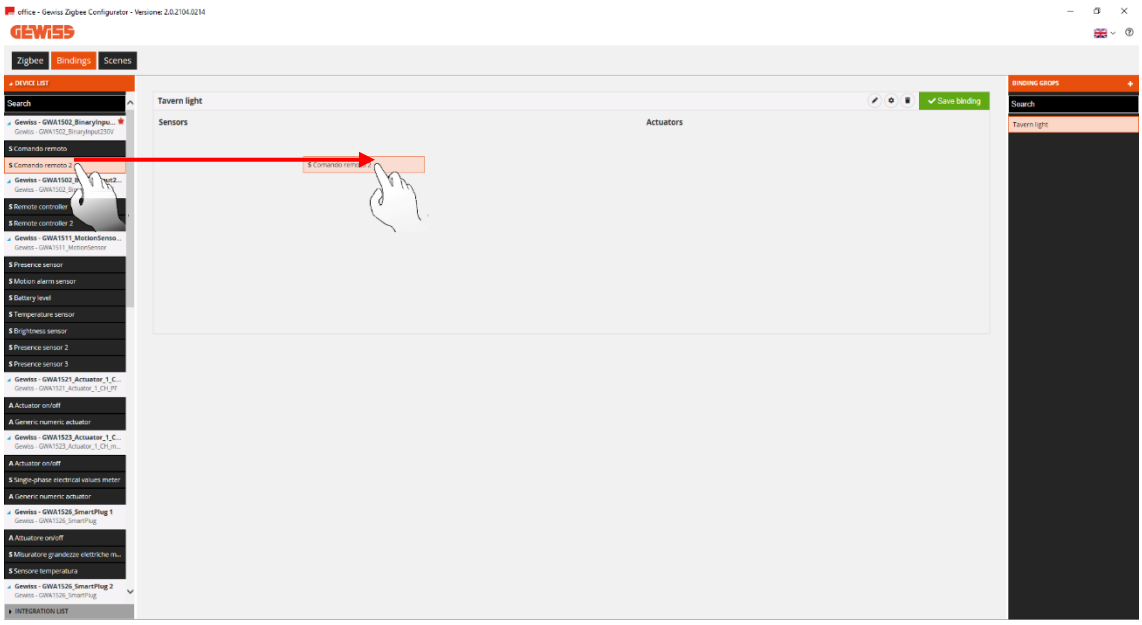
Once you have given the function a name (in this example, "Tavern light"), the newly created function will appear in the middle of the screen:



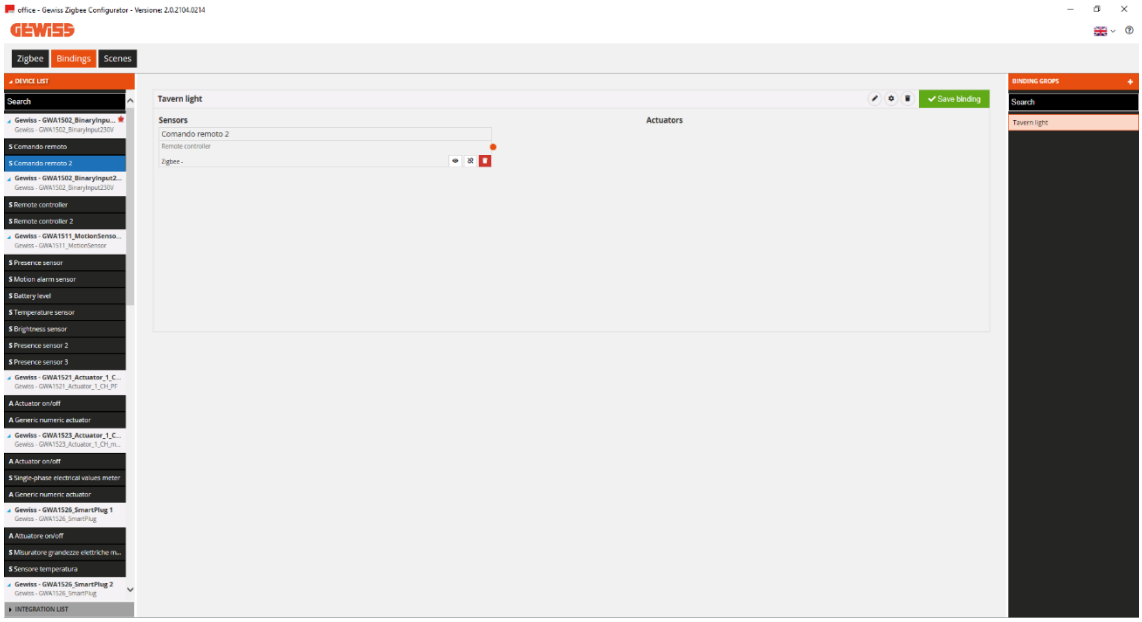
You can now make the connection (Binding) between a sensor and an actuator.

The following list shows the actions needed to parameterise the devices by writing the attributes, and to create the connection (i.e the binding) - in this case - in the GWA1502 sensor, allowing the GWA1521 actuator to be commanded.

1. Drag the function channel of the sensor that must command the GWA1521 actuator into the “Sensors” box. In this case, the sensor channel being dragged is the one relating to input_2, to which a push-button is connected (image 1 and image 2).



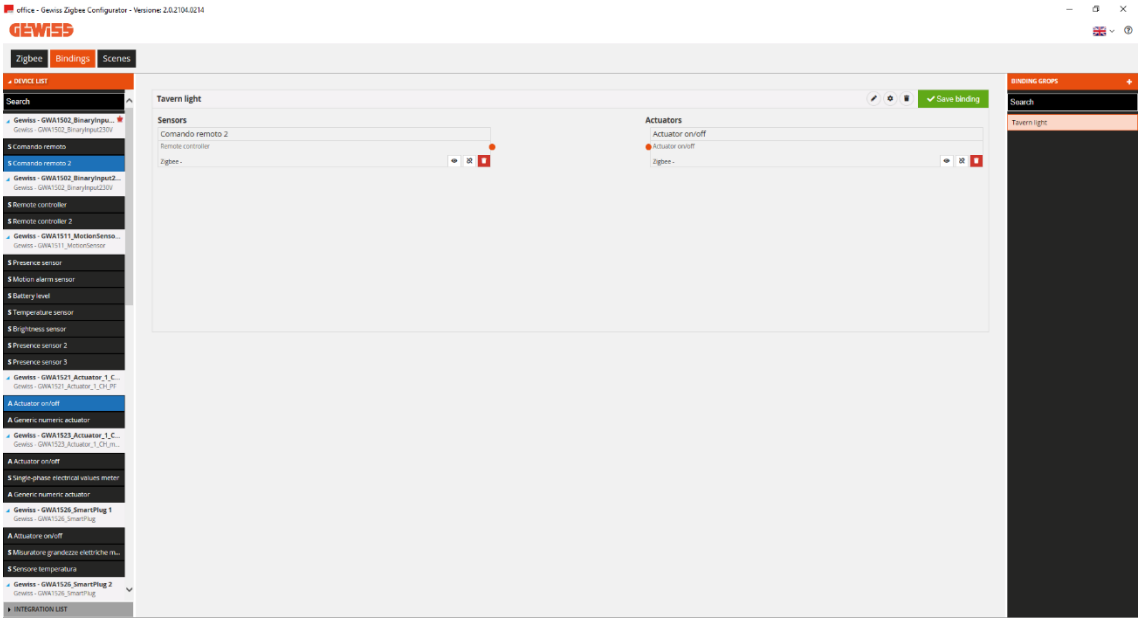
1



2

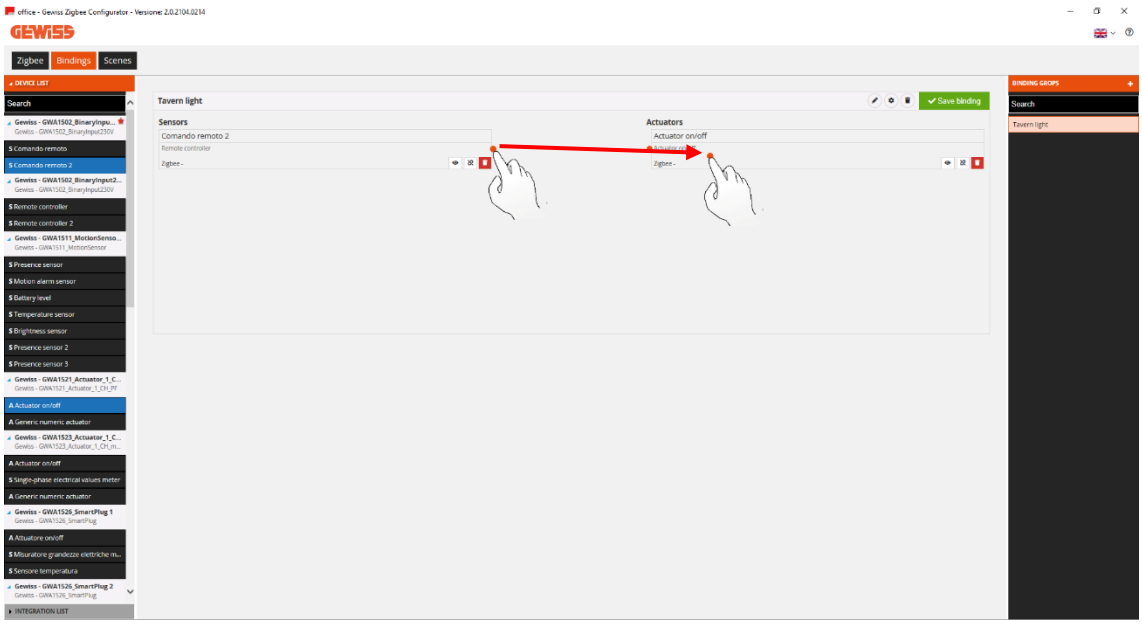
2. Drag the function channel of the actuator that must receive the command from the GWA1502 sensor into the “Actuators” box. In this case, the “Actuator on/off” channel is being dragged, not the “General numeric actuator” function channel (which is exclusive to cluster 0x000F and is not suitable for this purpose). (image 3 and image 4).

3



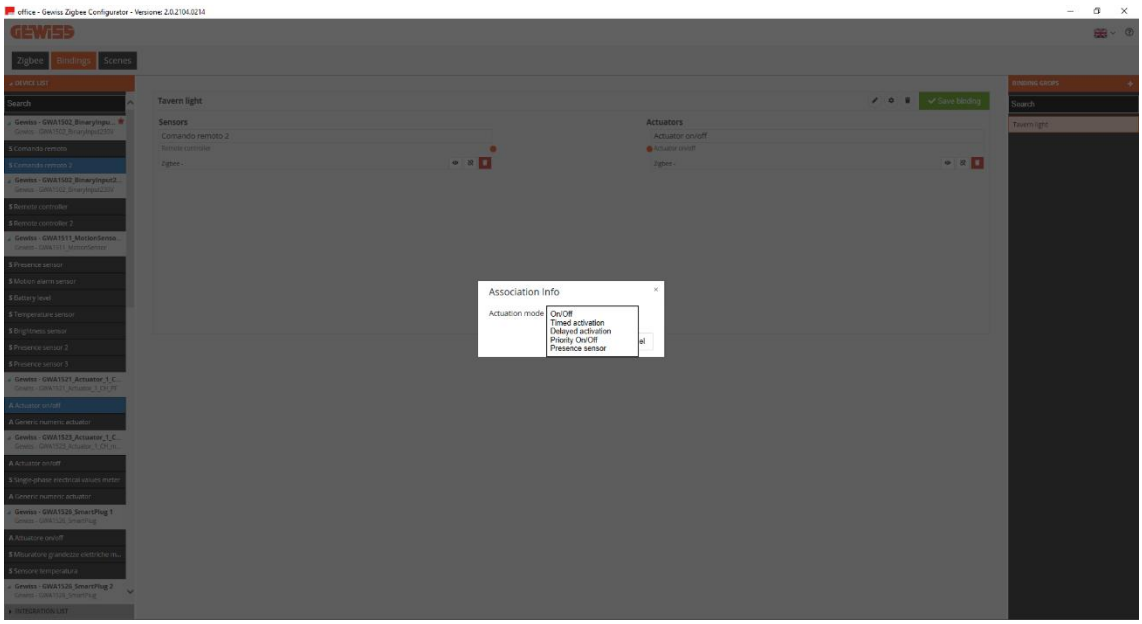
4

3. Make the connection, dragging the orange spot of the sensor function channel into the actuator function channel box (image 5).



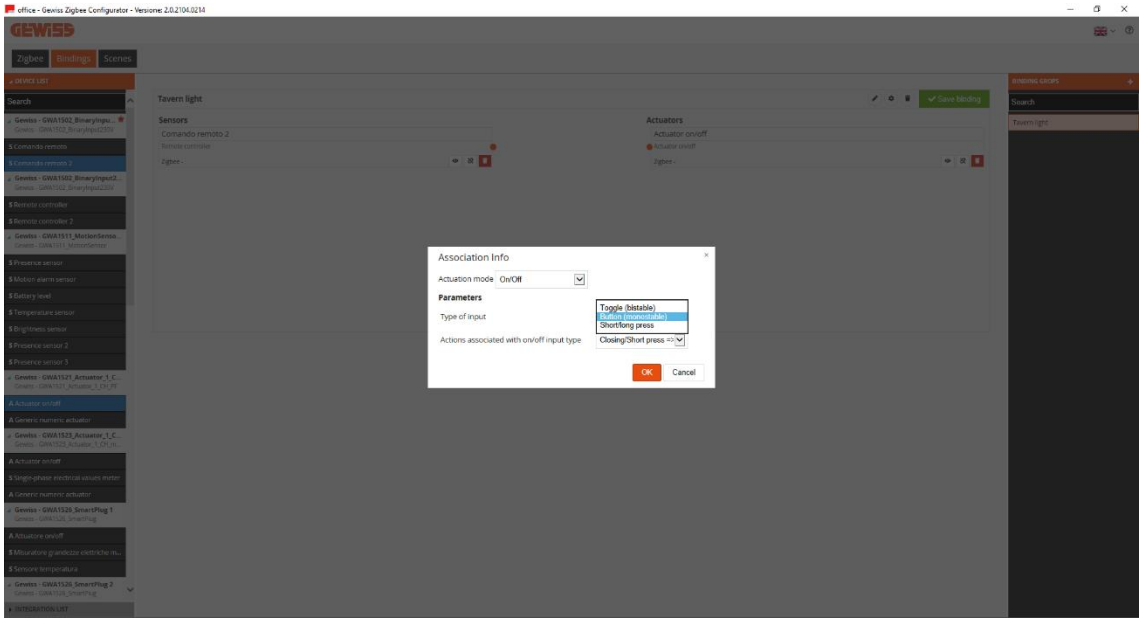
5

4. You will now see a page where you can choose the type of function to be adopted in order to command the actuator. A drop-down menu will show the functions that are compatible for the two devices. In this example, the selected function is “On/Off”.



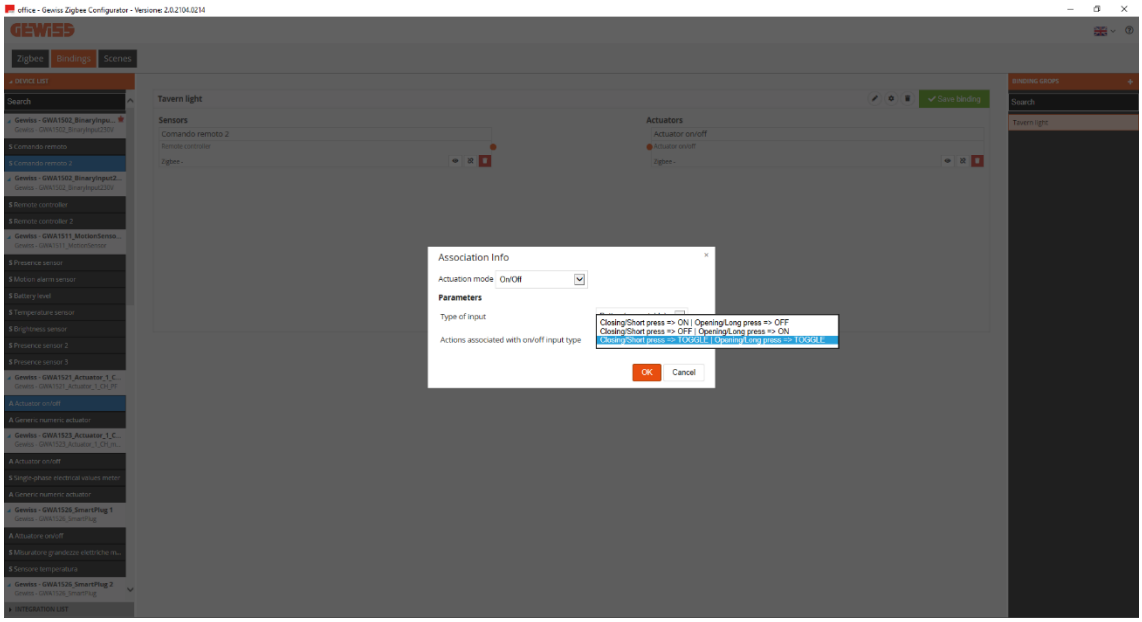
6

5. Input_2 of the GWA1502 sensor can now be parameterised using the drop-down menu defining the following parameters:
    a. Type of input: in this case, “Button (monostable)”



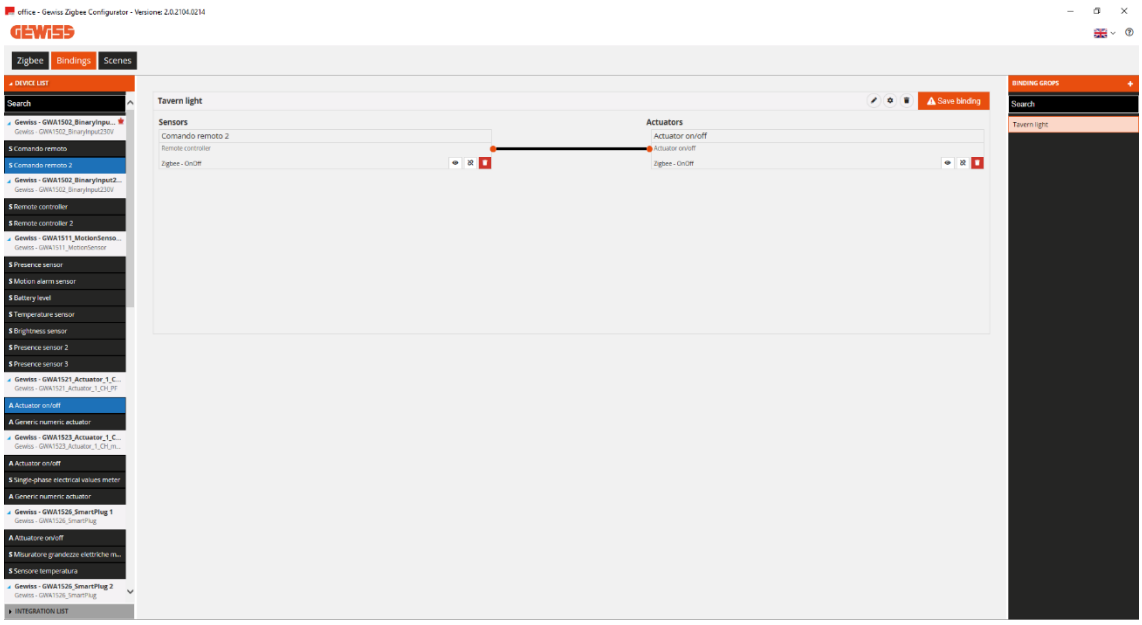
7

b. Actions associated with on/off input type: in this case, “INVERT”, which will be applied by the device only on the closure of the contact (not on the opening), so the device will send a toggle command when the push-button is pressed, but no command when the button is released



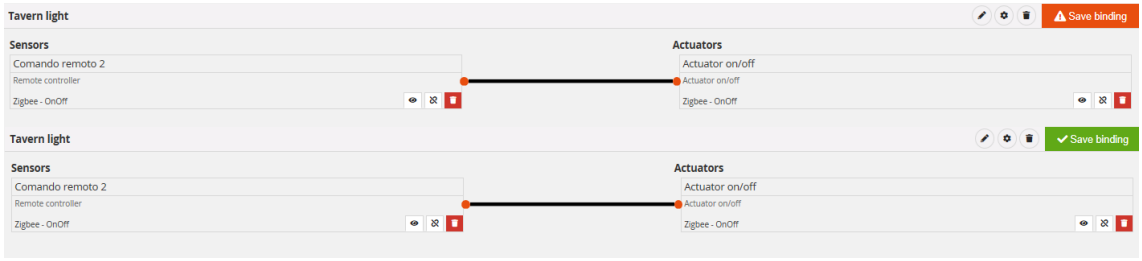
8

6. Once the settings have been made, the configurator shows a connection between the two function channels. At the same time, it writes (via the USB/ZigBee) the attributes on the 0xFD75 cluster of end point_2 on the GWA1502 device; these attributes will configure points “a” and “b” described above.



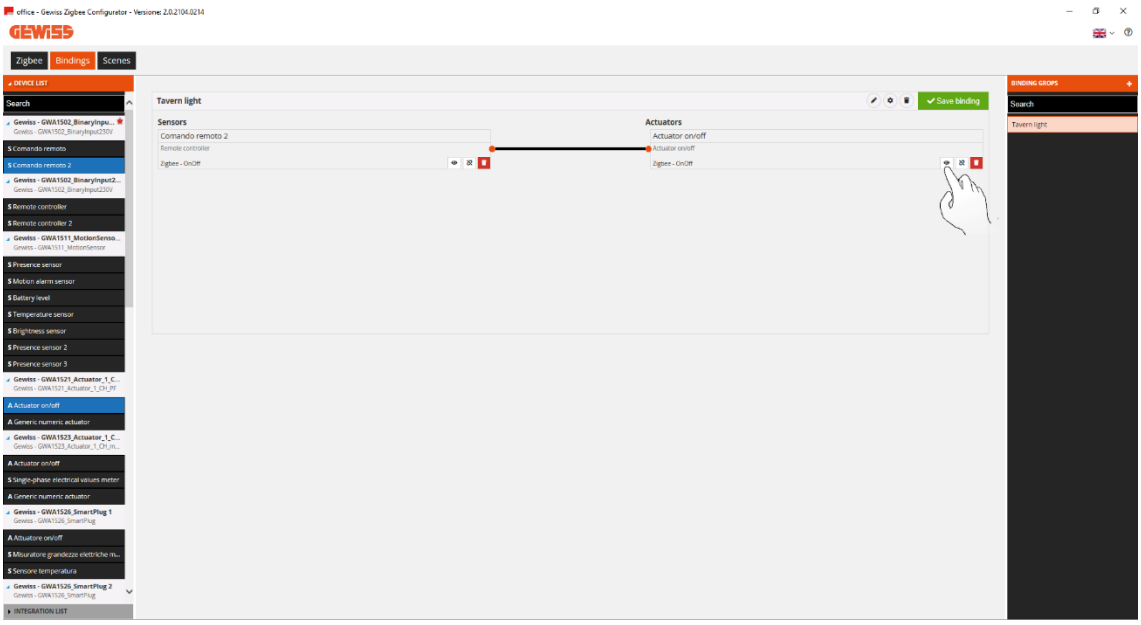
9

7. To complete the function, make the binding on the 0x0006 cluster of end point_2 in the GWA1502 sensor whose recipient will be the GWA1521. Carry out the following operations: press the orange “Save binding” push-button at the top right. The USB/ZigBee will make the binding, and, if the operation is successful, the “Save binding” push-button will turn green.

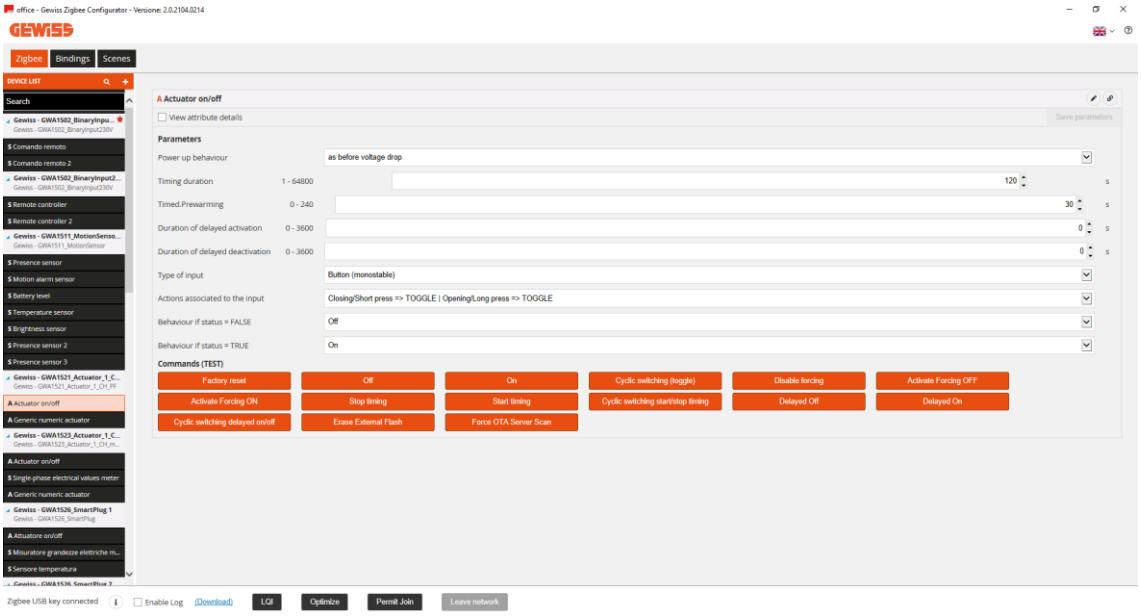


10

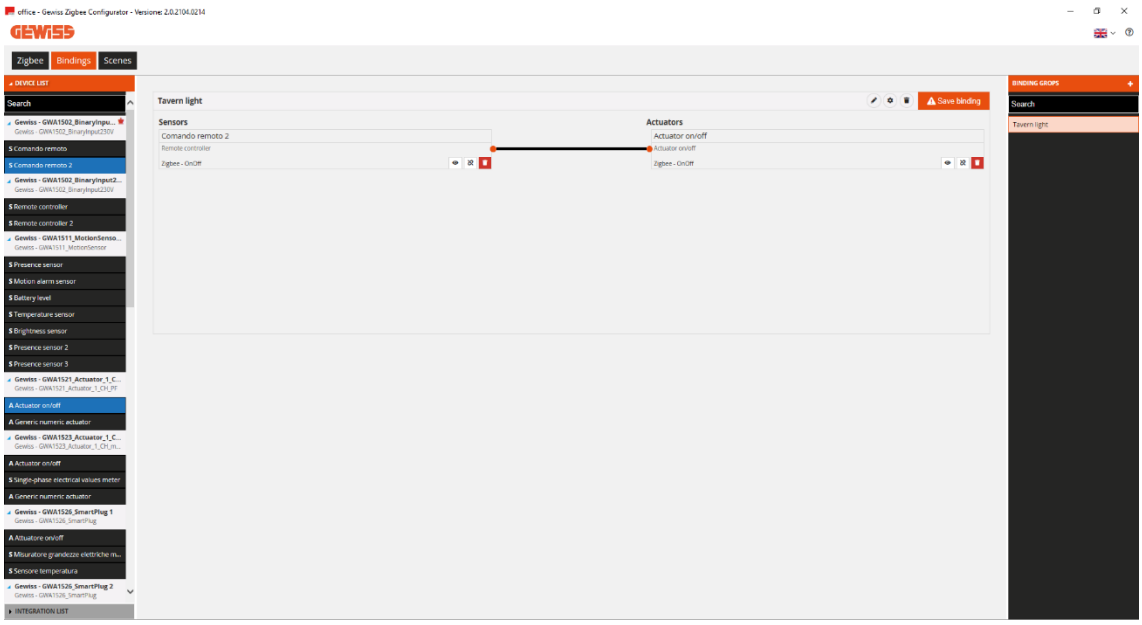
8. When the push-button connected on GWA1502 input_2 is pressed, a toggle command will be sent to the GWA1521 to invert the contact status.
9. If you also want to connect a local push-button or circuit breaker to the GWA1521 actuator (the command is directly on the device, so no ZigBee command is sent), this can be done by clicking on the “eye” icon of the actuator function channel, which will call up its parameters (image 11 and image 12). You must then:
    a. Configure the “Type of input”
    b. Configure the “Actions associated to the input”
    c. Write the modified parameters/attributes (0x0FD74 cluster of end point_1) using the orange “Save parameters” push-button (image 13) (which will turn grey again when the operation has been completed).


office - Gewiss Zigbee Configurator - Versione: 2.0.2104.0214
GEWISS
Zigbee
Bindings
Scenes
DEVICE LIST
Search
Tavern light
Save binding
Sensors
Actuators
Comando remoto 2
Actuator on/off
BINDING GROPS
Search
Tavern light

11


office - Gewiss Zigbee Configurator - Versione: 2.0.2104.0214
GEWISS
Zigbee
Bindings
Scenes
DEVICE LIST
Search
A Actuator on/off
View attribute details
Parameters
Power up behaviour
as before voltage drop
Timing duration
1 - 64800
120
Timed.Prewarming
0 - 240
30
Duration of delayed activation
0 - 3600
Duration of delayed deactivation
0 - 3600
Type of input
Button (monostable)
Actions associated to the input
Closing/Short press => TOGGLE | Opening/Long press => TOGGLE
Behaviour if status = FALSE
Off
Behaviour if status = TRUE
On
Commands (TEST)
Factory reset
Off
On
Cyclic switching (toggle)
Disable forcing
Activate Forcing OFF
Activate Forcing ON
Stop timing
Start timing
Cyclic switching start/stop timing
Delayed Off
Delayed On
Cyclic switching delayed on/off
Erase External Flash
Force OTA Server Scan
Zigbee USB key connected
Enable Log
(Download)
LQI
Optimize
Permit Join
Leave network

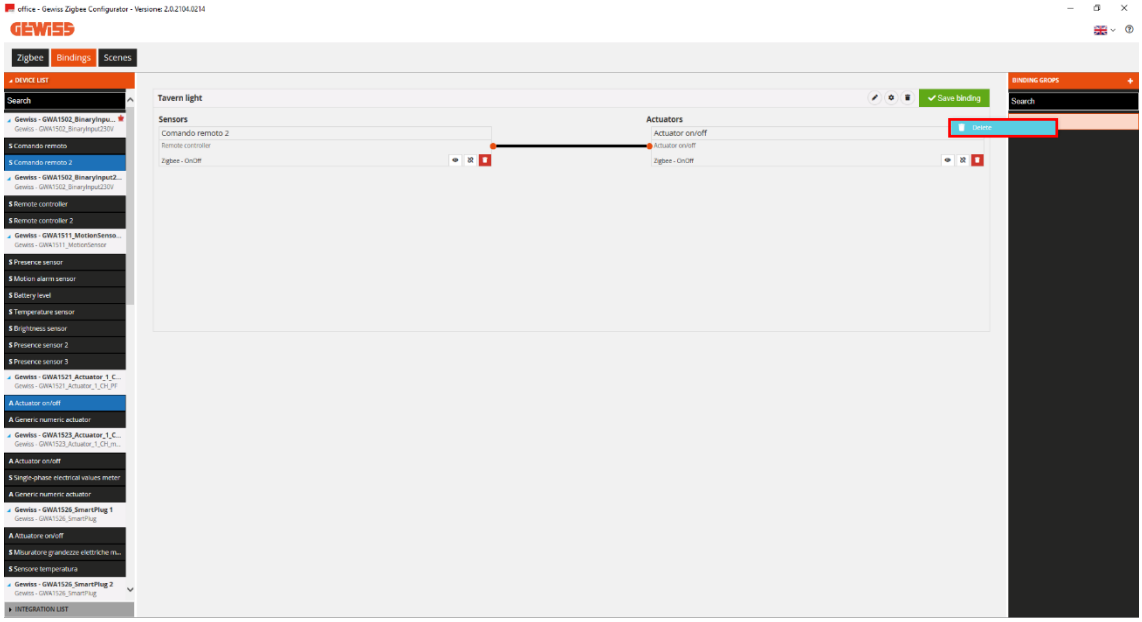
12



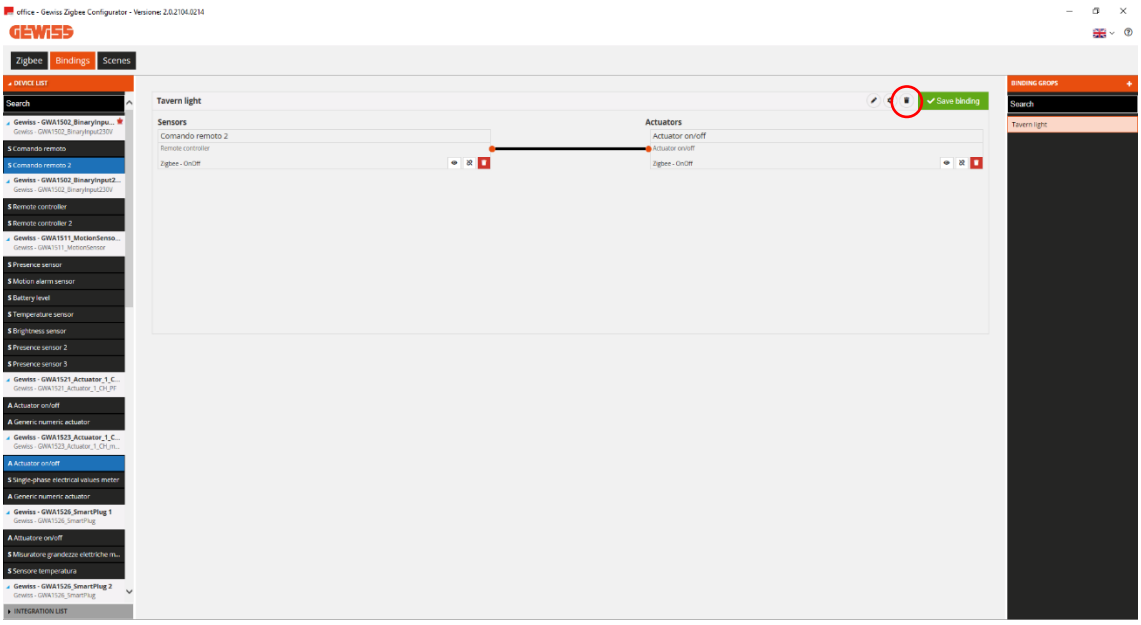
DELETING A CONNECTION (UNBIND)

A connection can be removed (Unbind) and therefore deleted from the binding table. There are two ways of removing a connection:

- Pressing the right-hand mouse key on the connection you want to remove



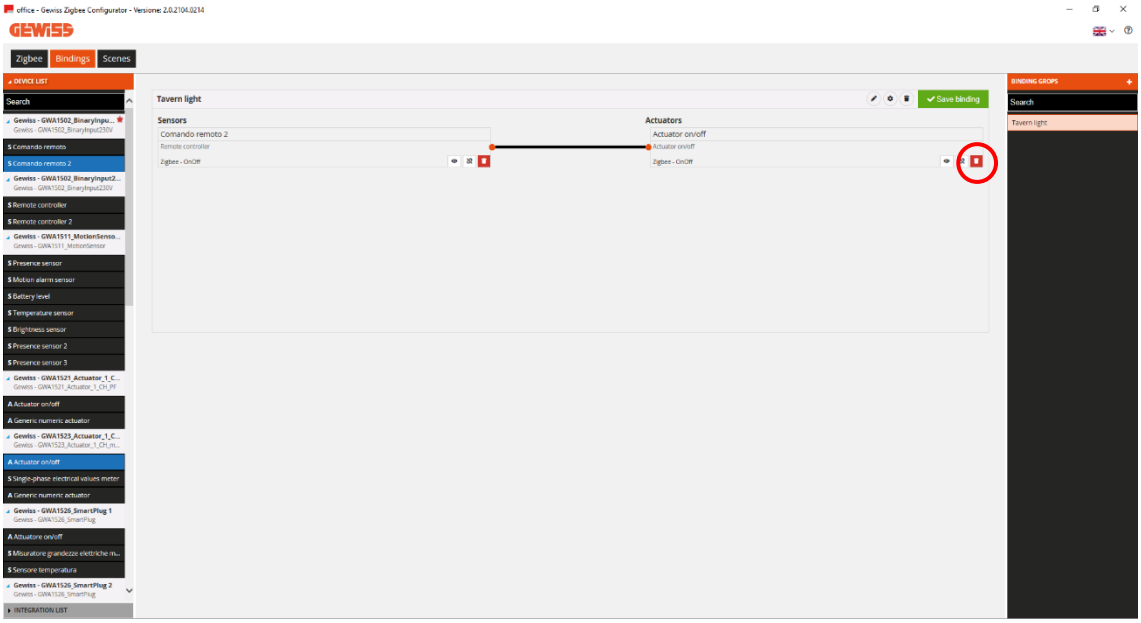
- Clicking on the “bin”

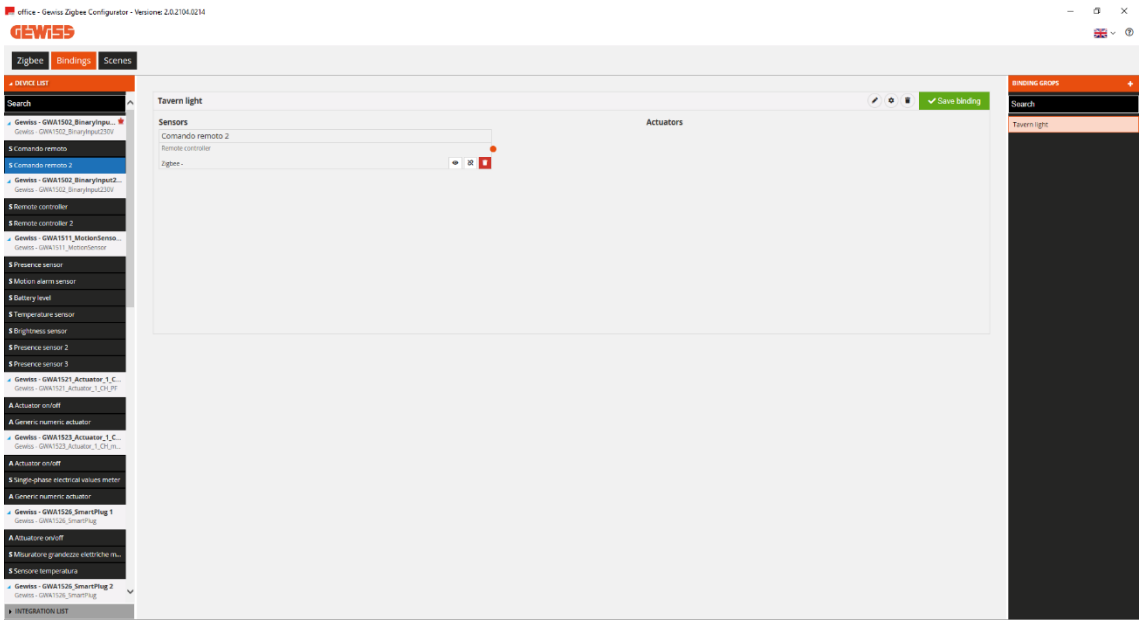


MODIFYING A CONNECTION (UNBIND AND BIND)

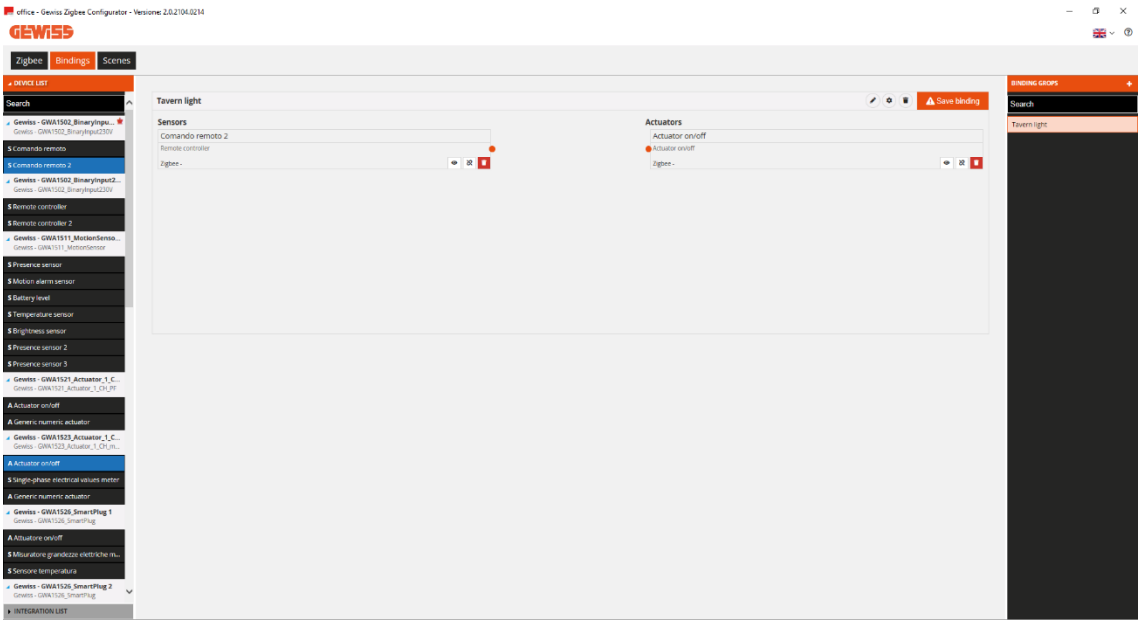
If you want to modify a connection, you can remove the function channel of the device that will no longer take part in the function, and add the new one.
In the following example, the GW1521 actuator for commanding a GWA1523 is removed.

1. From the function channel of the GWA1521 actuator, click on the “bin on red background” icon



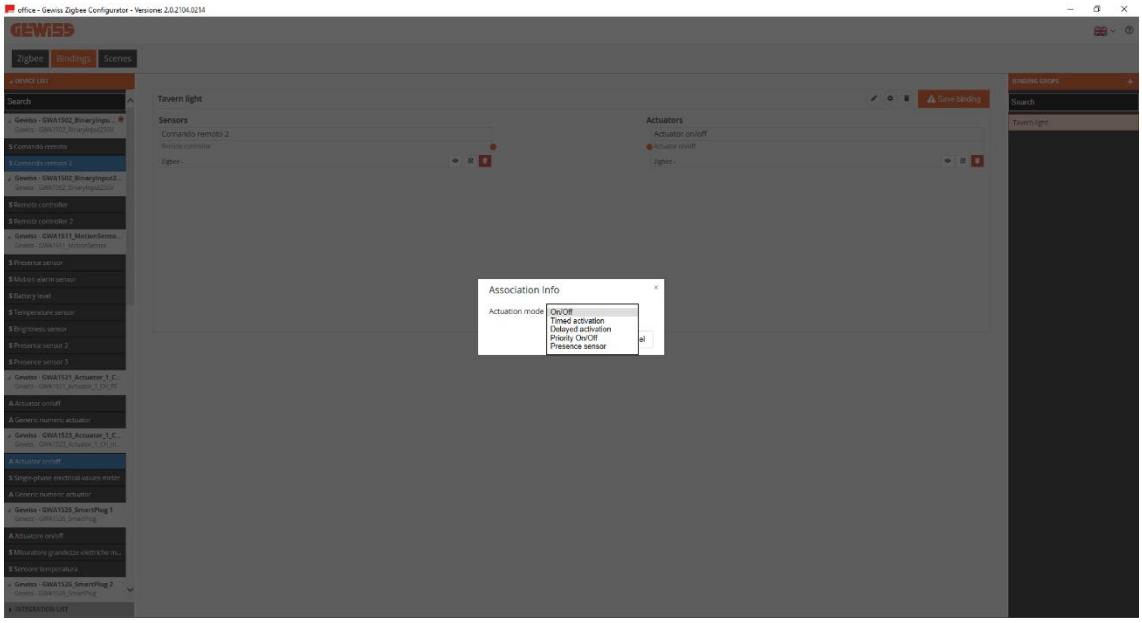


2. Drag the function channel of the new actuator into the “Actuators” box (in the example, the GWA1523 that must receive the command from the GWA1502 sensor). In this case, the “Actuator on/off” channel is being dragged, not the “General numeric actuator” function channel (which is exclusive to cluster 0x000F and is not suitable for this purpose)

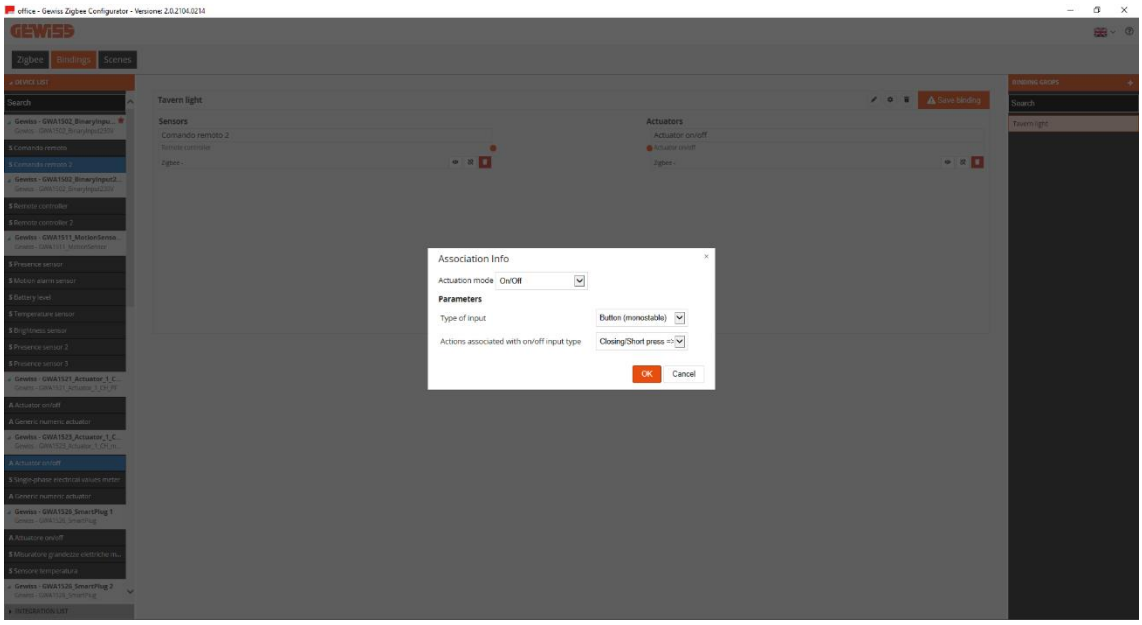


3. Make the connection, dragging the orange spot of the sensor function channel into the actuator function channel box.

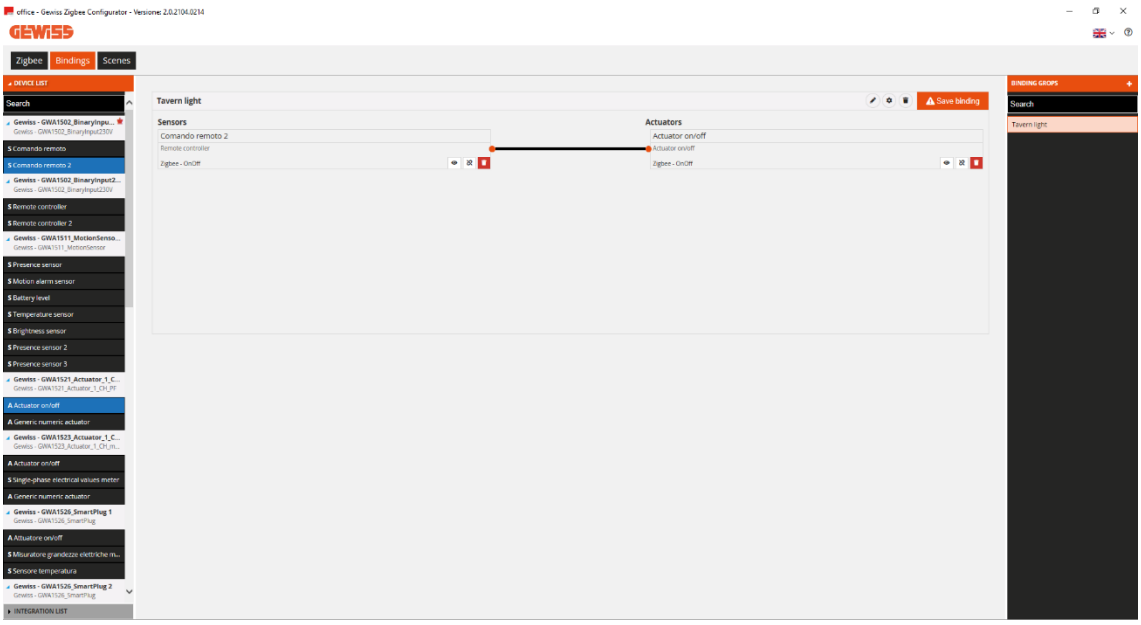
4. You will now see a page where you can choose the type of function to be adopted in order to command the actuator. A drop-down menu will show the functions that are compatible for the two devices (in the example, the “On/Off” function has been selected).



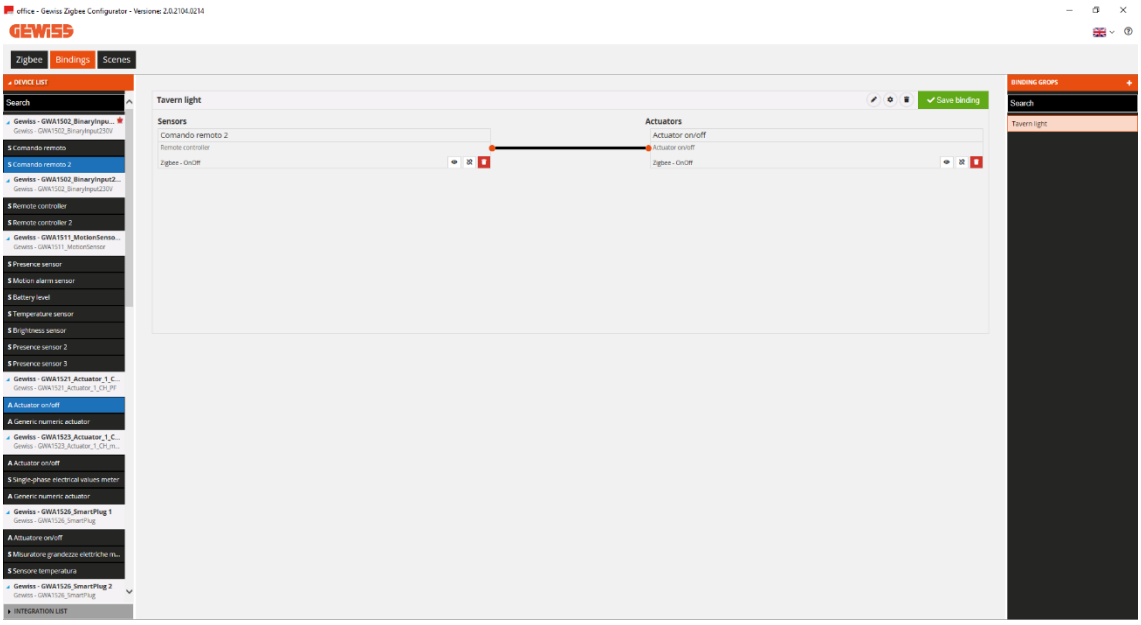
5. Input_2 of the GWA1502 sensor can now be parameterised again, via the drop-down menu.



6. Once all the settings have been entered, the configurator will show a connection between the two function channels and, at the same time, will write - via the USB/ZigBee - the attributes on the 0xFD75 cluster of end point_2 on the GWA1502 device (in our example).



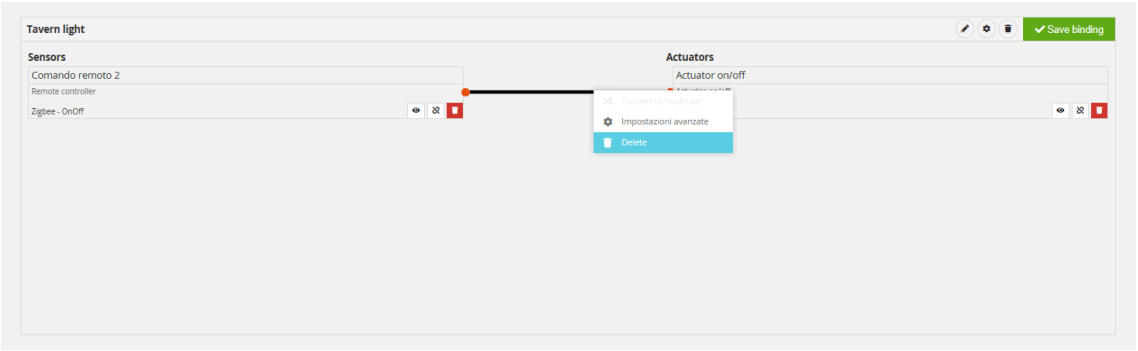
7. To complete the function, remove (Unbind) the connection with the previous actuator and make the binding with the new one on the 0x0006 cluster of end point_2 in the GWA1502 sensor (whose new recipient will be the GWA1523 in this example); do this via the orange "Save connection" push-button at the top right. The USB/ZigBee will make the unbinding and then the new binding, and, if the operation is successful, the “Save binding” push-button will turn green.



8. When the push-button connected on GWA1502 input_2 is pressed, a toggle command will be sent to the GWA1523 (no longer to the GWA1521) to invert the contact status.

DEACTIVATING AN ACTUATOR CONNECTION

If you want to deactivate the command to an actuator without fully deleting the connection, this can be done by clicking with the right-hand mouse key on the section that links the function channel of the sensor with that of the actuator.

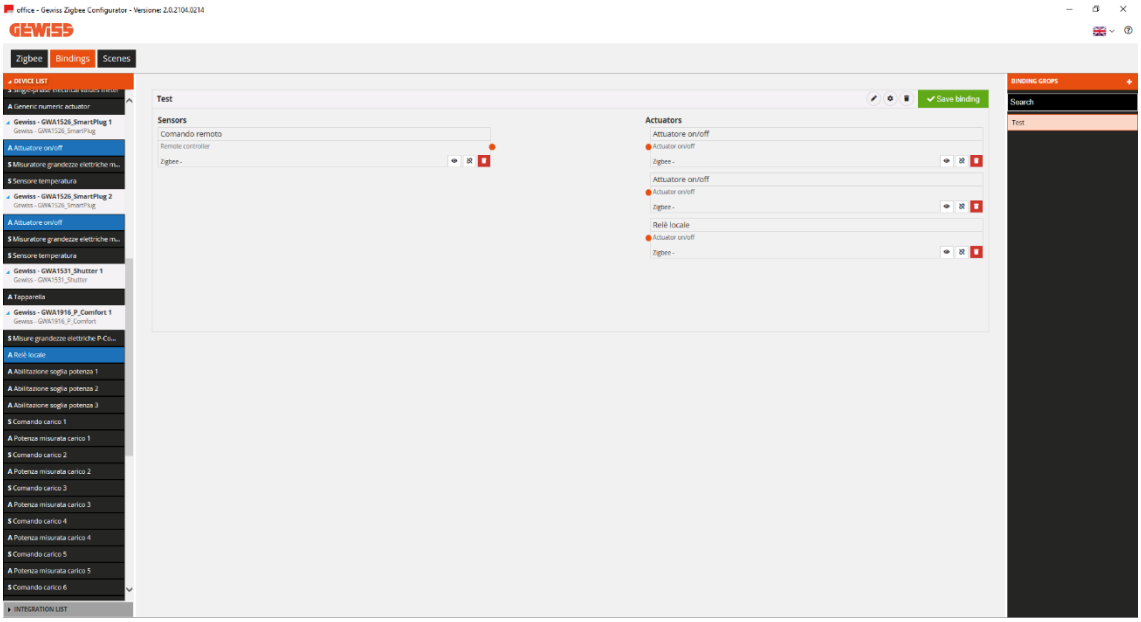


After clicking on “Delete”, the “Save binding” push-button will turn orange. Clicking on it, the binding will be removed (Unbind). The push-button will turn green again if the operation is successfully completed.

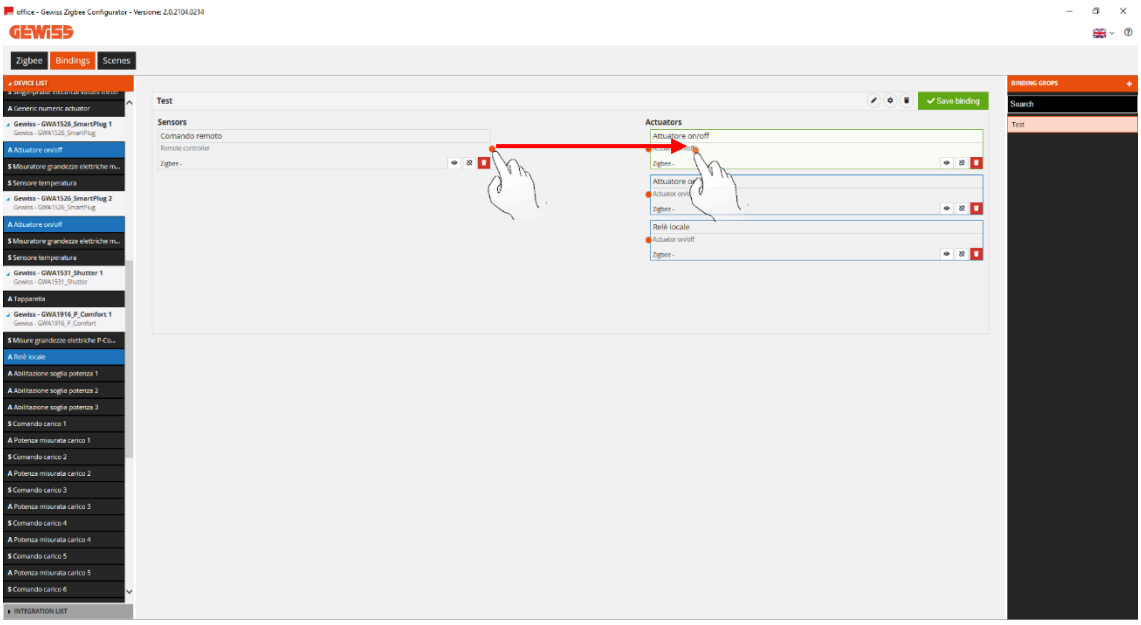
MULTICAST CONNECTIONS

If several actuators need to be commanded simultaneously, it may be useful to use multicast or groupcast bindings. Multicast mode, thanks to the sending of a single command that is simultaneously received by all the recipients, allows a high number of actuators to be commanded (something that is not possible with unicast type commands).

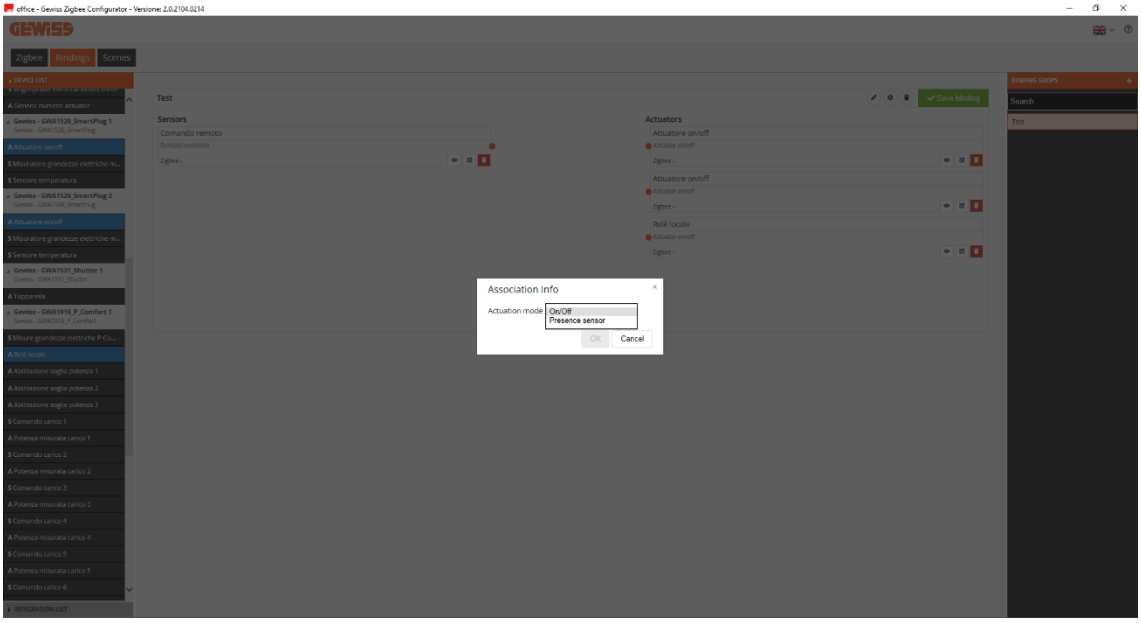
It is only possible to associate several actuators with one sensor if they can all use the same type of function channel cluster and share a group. If more than two actuators are associated with the sensor, the configurator will automatically transform the unicast connections already made into multicast ones and the actuators will automatically be associated with a group. The establishment of a multicast connection means that the sensor sends just one command which is received in the same moment by all the actuators connected.



1

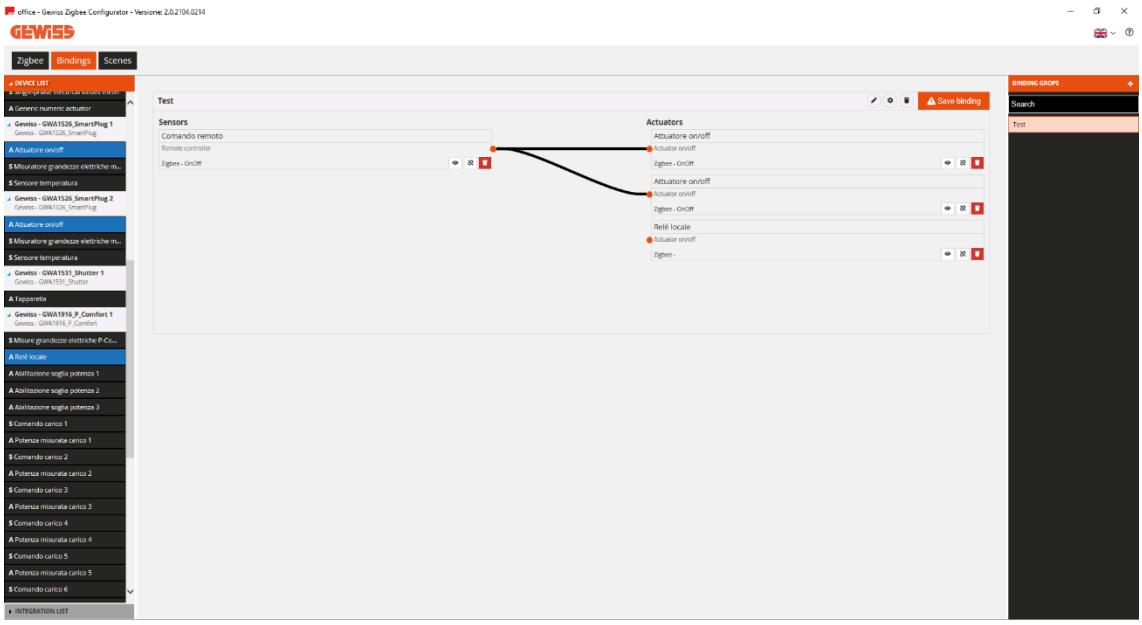


2

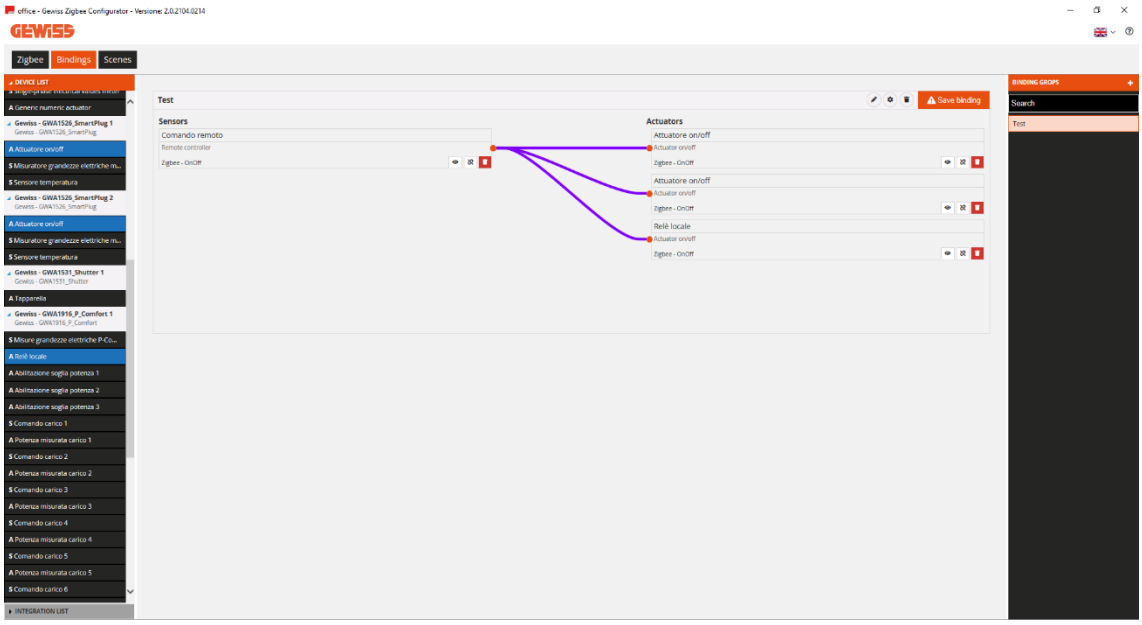


3

The first two connections created will initially be unicast. From the third connection on, all the connections created will be automatically transformed into multicast. This change is also highlighted by the change of colour (from black to purple) of the segments indicating the connections.



4



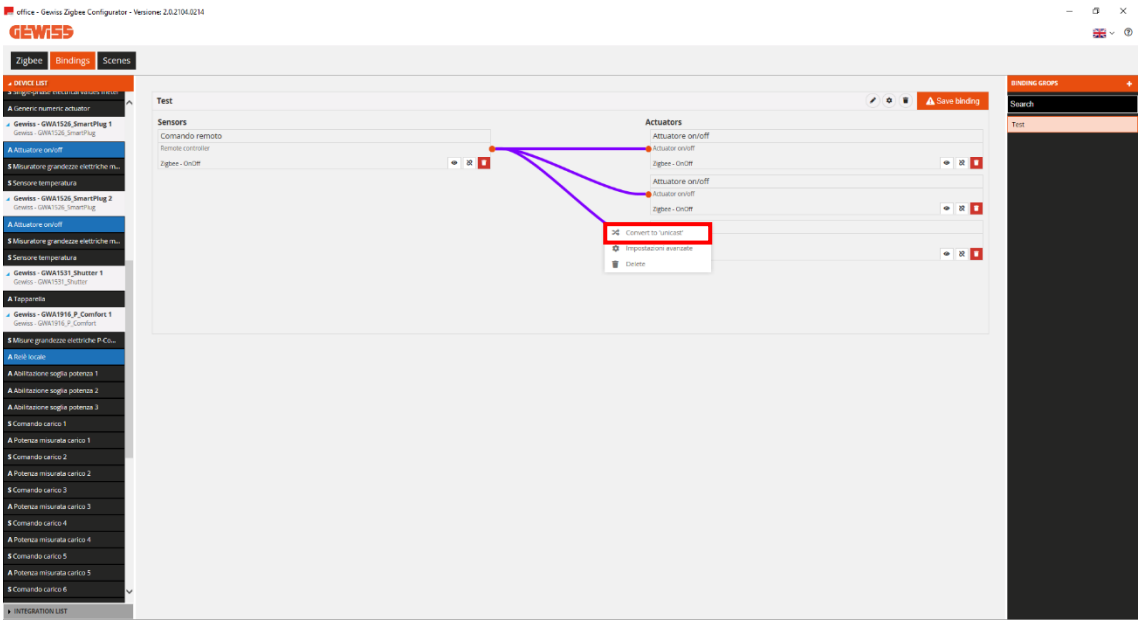
5

Once the configuration on a multicast connection has been terminated, click on “Save binding” at the top right. The push-button will change from orange to green and the logo will change from an exclamation mark in a triangle to a tick

.

To change a connection from multicast back to unicast:

- Click on the connection with the right-hand mouse key
- A drop-down menu will appear
- Click on the first item - “Convert to unicast”



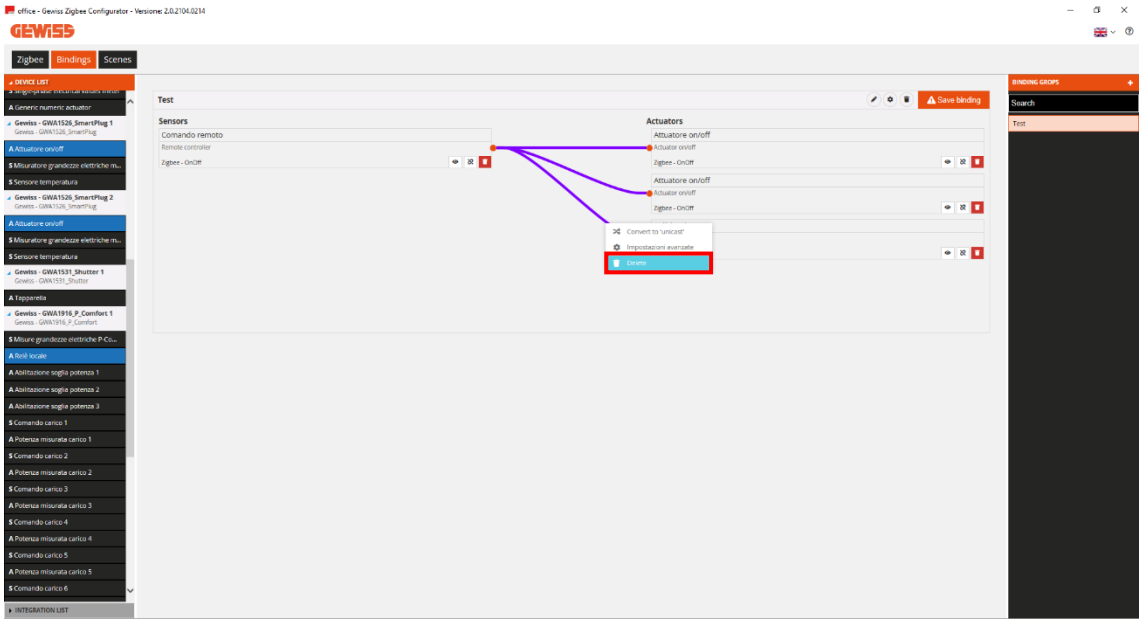
This item cannot be selected if fewer than three connections have been created.

Deleting a multicast connection

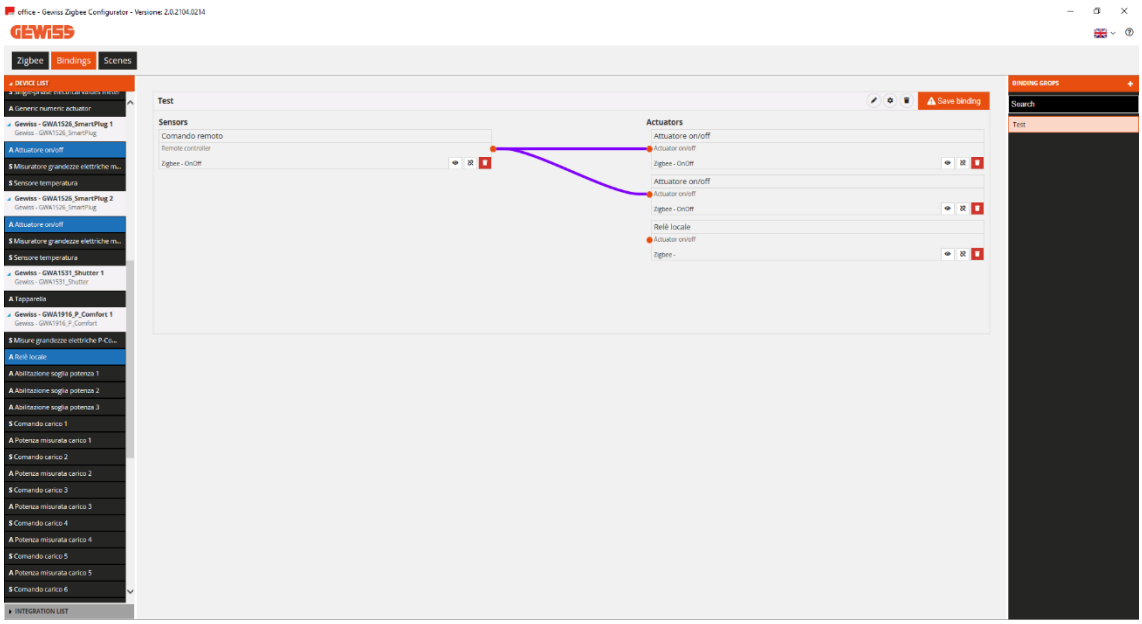
If a multicast connection has been created, it is possible to delete either just one connection or the whole multicast connection.

To delete a single connection:

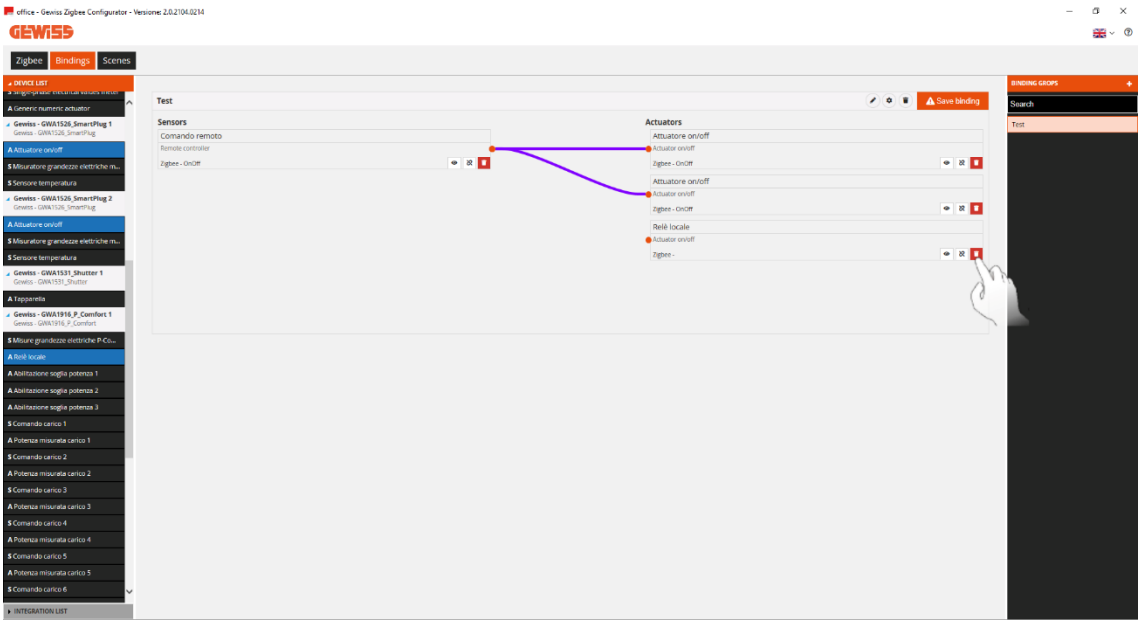
- Click on the connection to be deleted with the right-hand mouse key
- A drop-down menu will appear
- Click on “Delete”



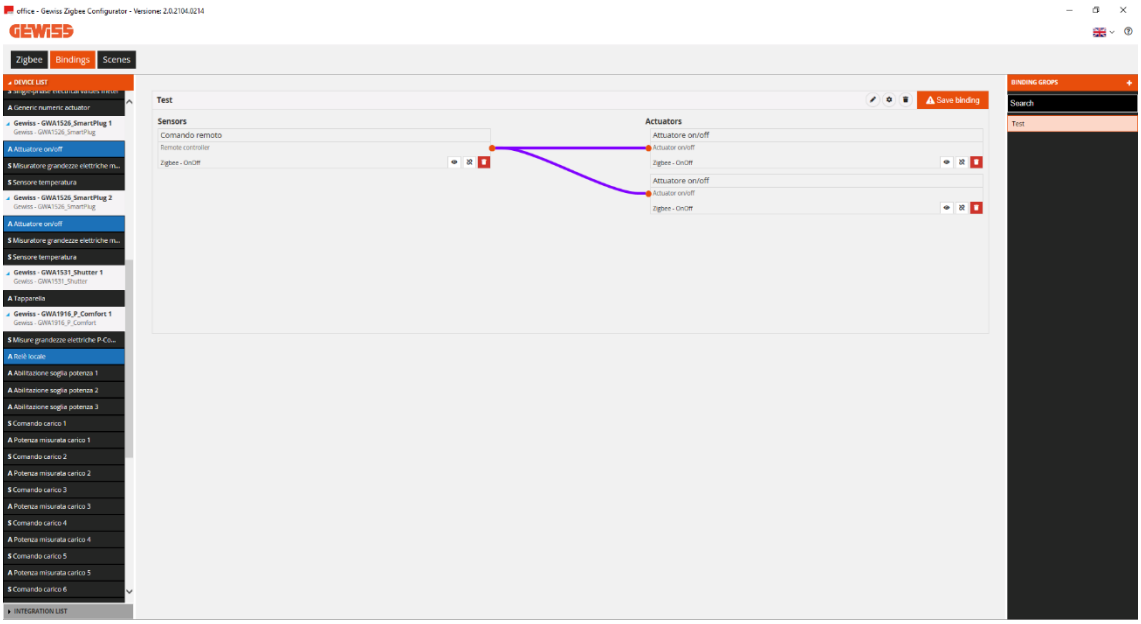
- This command deletes the connection, but not the actuator



Using the icon at the bottom right of the box containing the single actuator, you can delete both the connection and the actuator

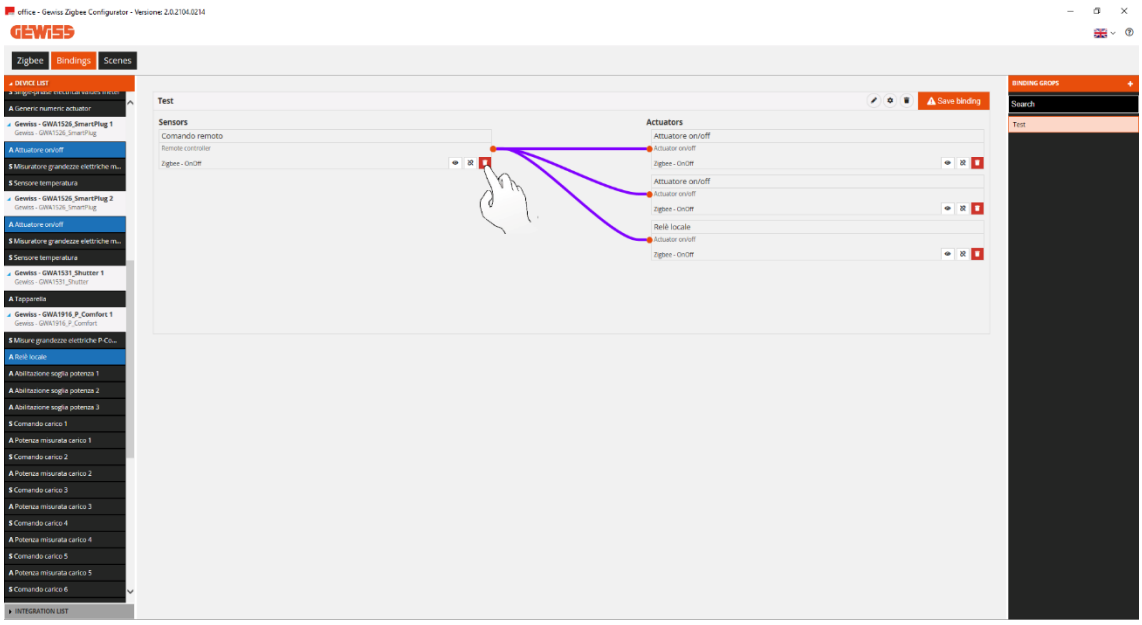


1

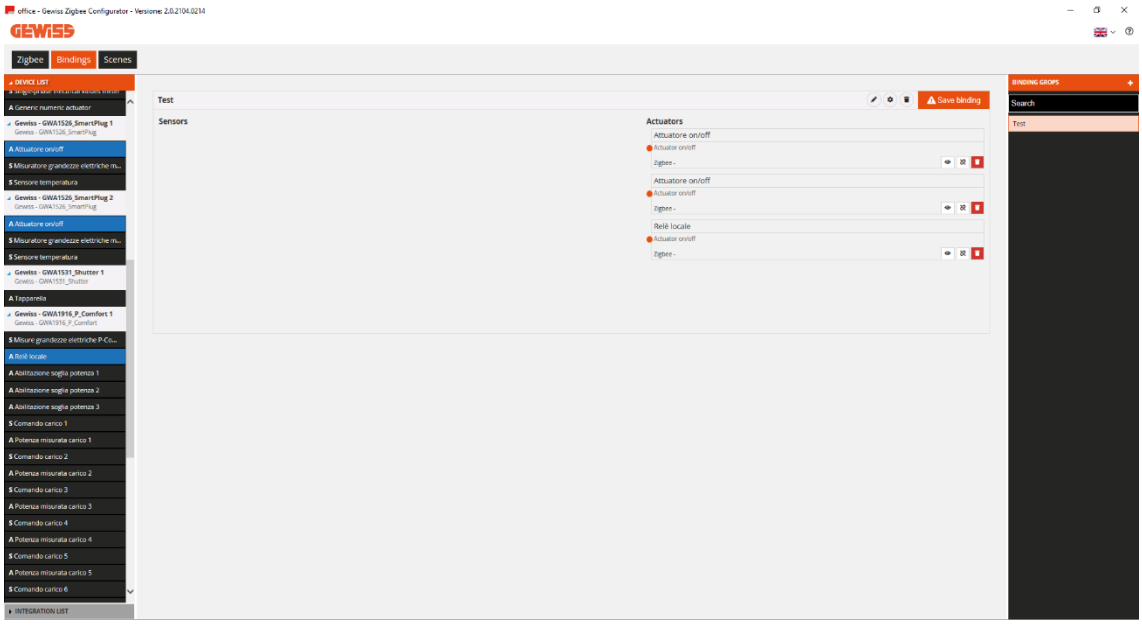


2

In the same way, the icon at the bottom right of the box containing the sensor can be used to delete the sensor and, consequently, all the multicast connections



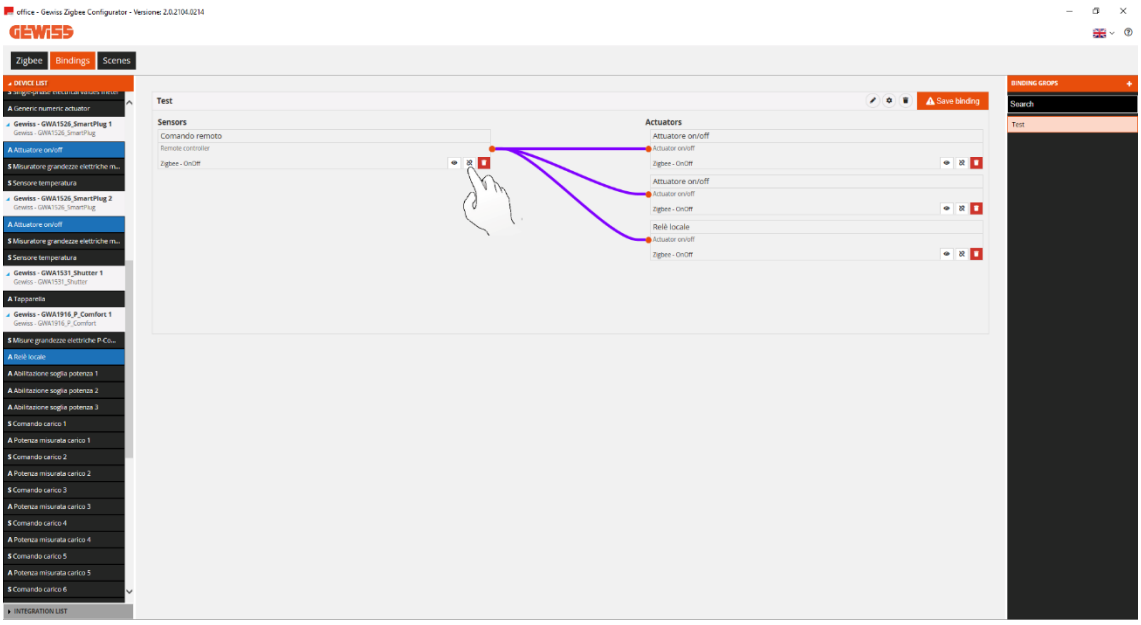
1



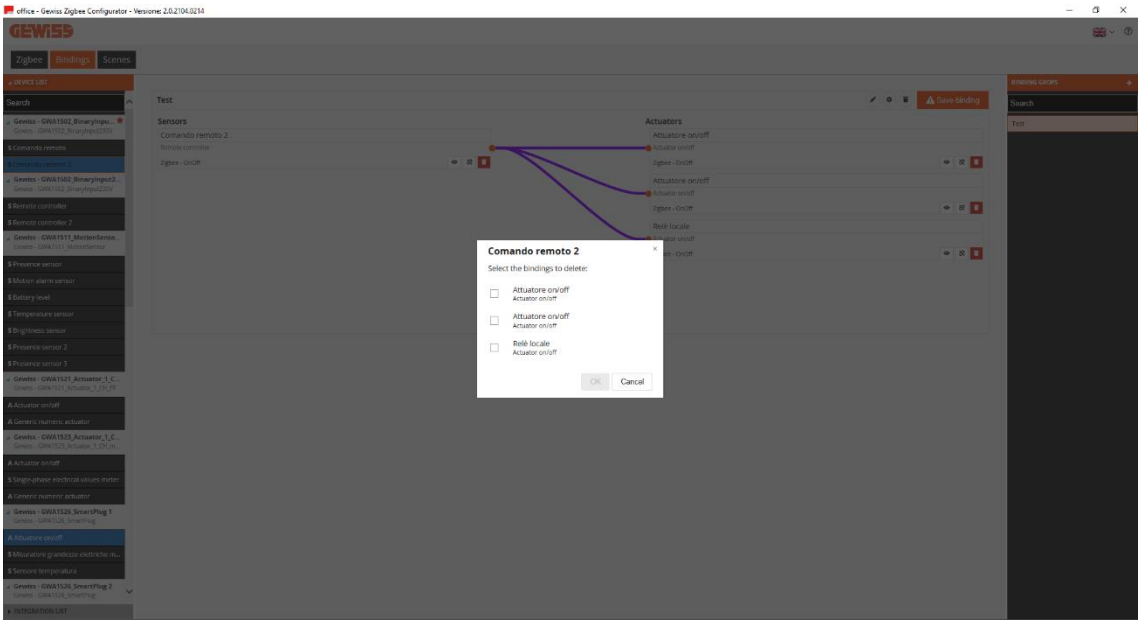
2

If, on the other hand, you want to delete several connections simultaneously:

- Click on the icon at the bottom right of the box containing the sensor
- A window will appear, with a list of the multicast connections. Tick the connections you want to delete



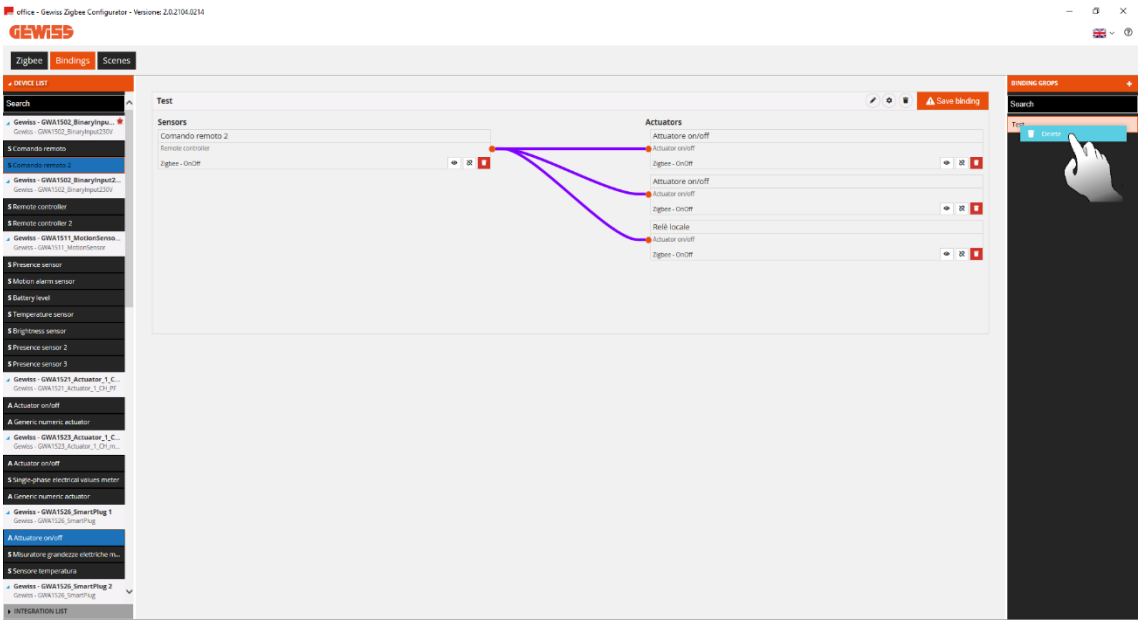
1



2

If you want to delete the whole multicast connection:

- Using the right-hand mouse key, click on the connection to be deleted in the “Binding groups” column on the right
- The “Delete” window will appear; click on it to delete the whole multicast connection


office - Gewiss Zigbee Configurator - Versione: 2.0.2104.0214
GEWISS
Zigbee
Bindings
Scenes
DEVICE LIST
Search
Test
Save binding
Sensors
Comando remoto 2
Zigbee - OnOff
Actuators
Attuatore on/off
Relè locale
BINDING GROPS
Search
Delete

ZigBee scenes

ZigBee scenes are used to send commands to a group of actuators, acting on different clusters.

For example: by pressing a push-button connected to a GWA1502, the Scene_1 command is sent on Group_0 to launch an OFF action on certain actuators of the 0x0006 cluster (On/Off) and activate a percentage position of the roller shutters on other actuators, via the 0x0102 cluster (Window Covering).

In this section you can create, rename, copy, modify and delete the scenes between ZigBee devices. The "rename" function can be accessed once the connection has been made using the “pencil” icon next to the name of the connection.

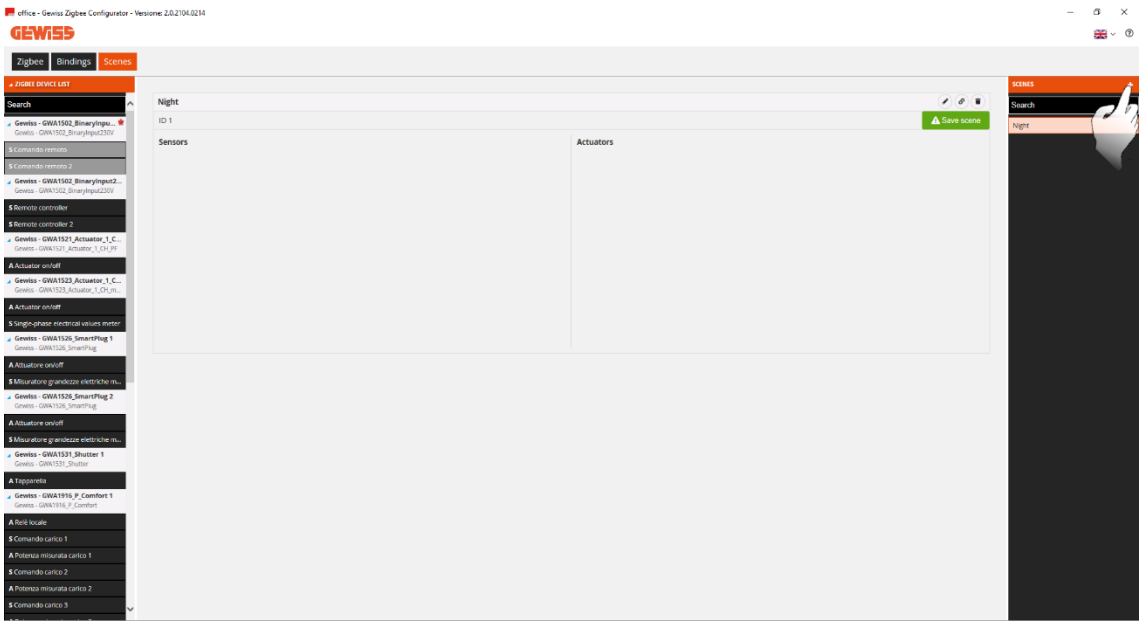
CREATING A SCENE

To create this scene, go to the “Functions/Scenes” section of the configurator and click on the “+” , as shown in the figure below (image 1).

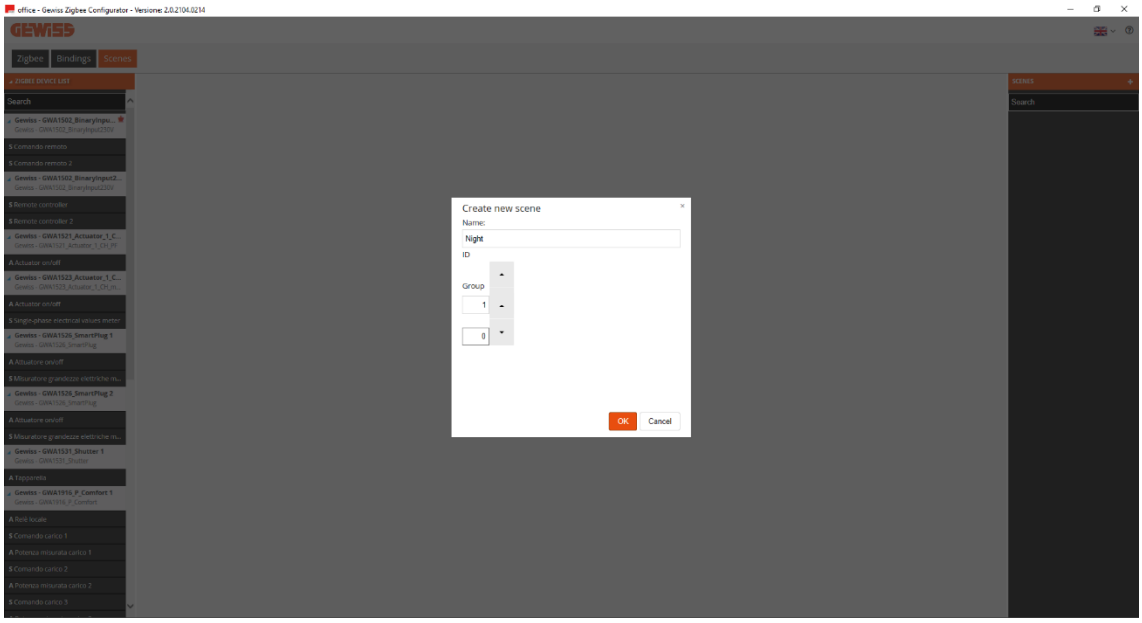
To help you understand the following steps, we have created an example scene where, by pressing a push-button connected to a GWA1502, a Scene command is sent to an OnOff actuator (a GWA1521, for example) and a GWA1531 roller shutter actuator.

It is then necessary (image 2):

- To give the scene a name (in this example, "Night")
- Enter the scene ID, which is a number from 0 to 63 (in this example, 1)
- Enter the number that identifies the “Group” of actuators, which is a number from 0 to 255 (in this example, 0)



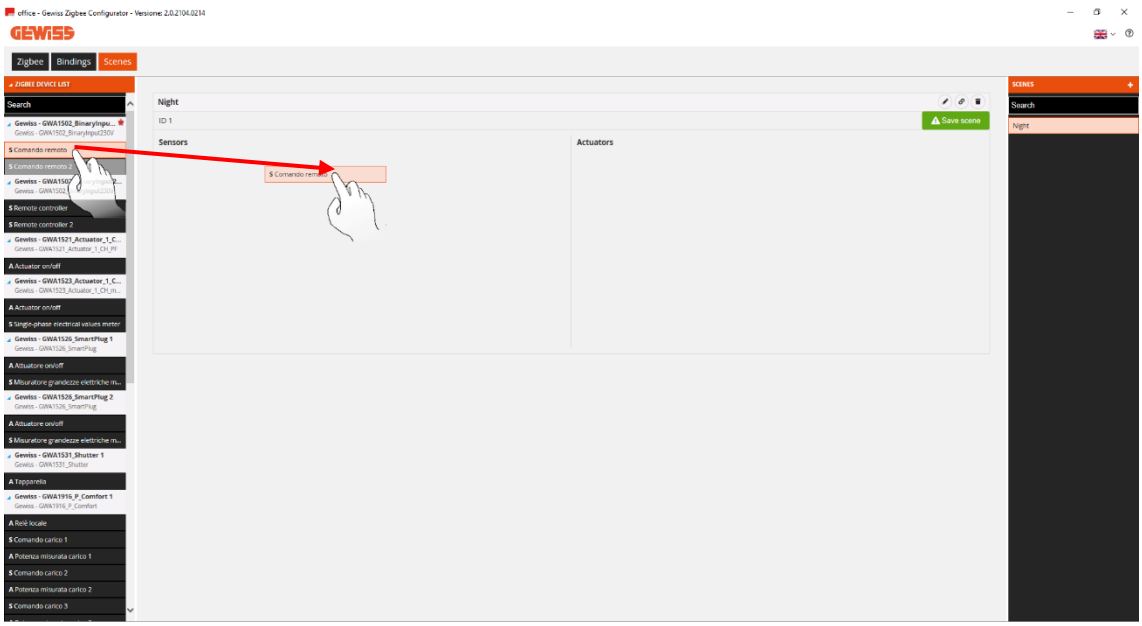
1



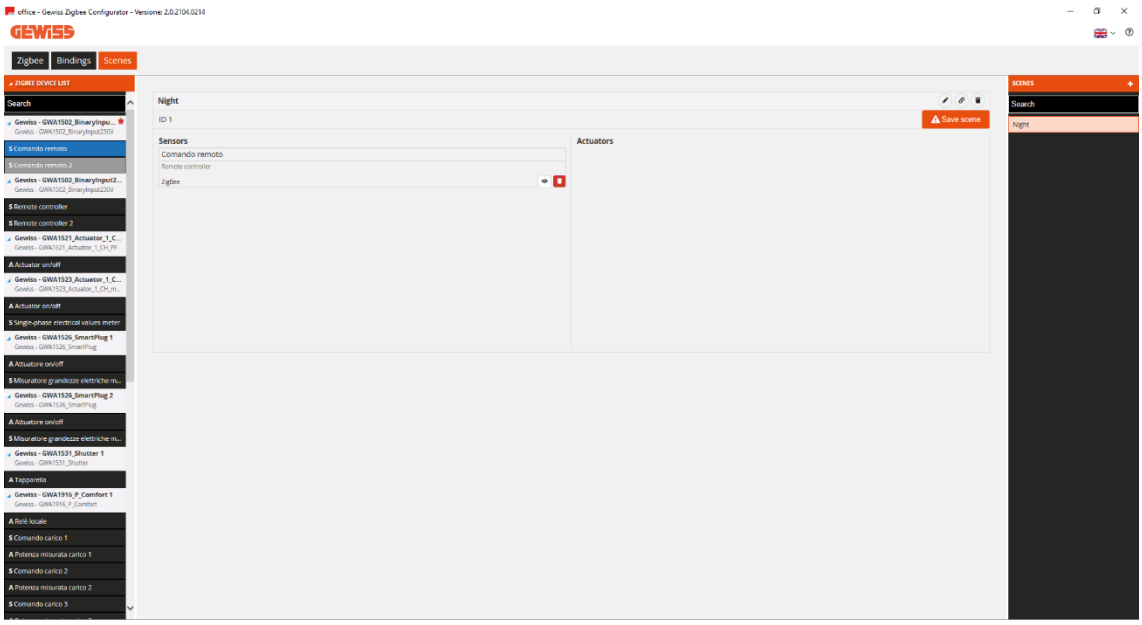
2

The steps listed here are those needed to create the Group and scene, and to parameterise the devices by writing the attributes - in other words, everything that will allow a GWA1502 sensor to command the GWA1521 and GWA1531 actuators.

1. Drag the function channel of the sensor that must command the actuators into the “Sensors” box. In this case, the sensor channel being dragged is the one relating to input_1, to which a push-button is connected.

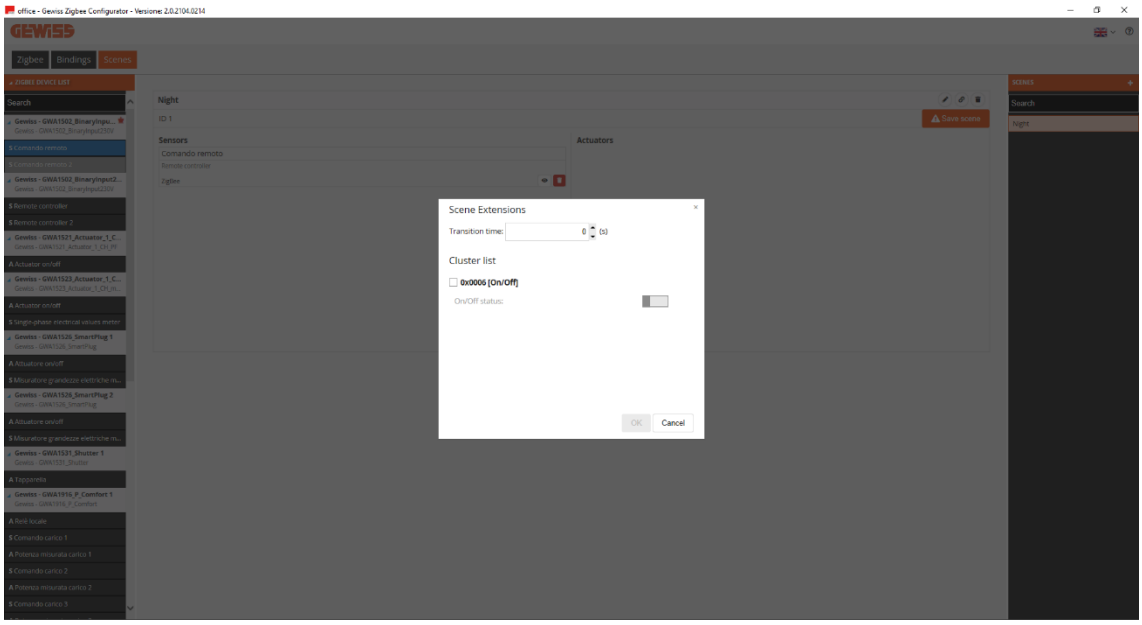


1

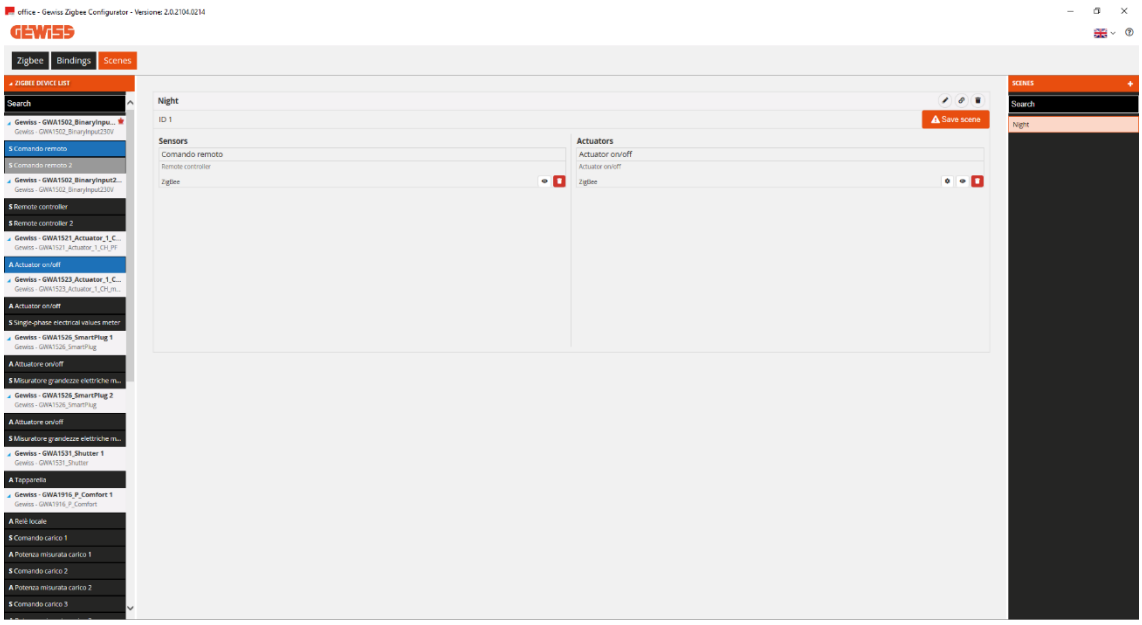


2

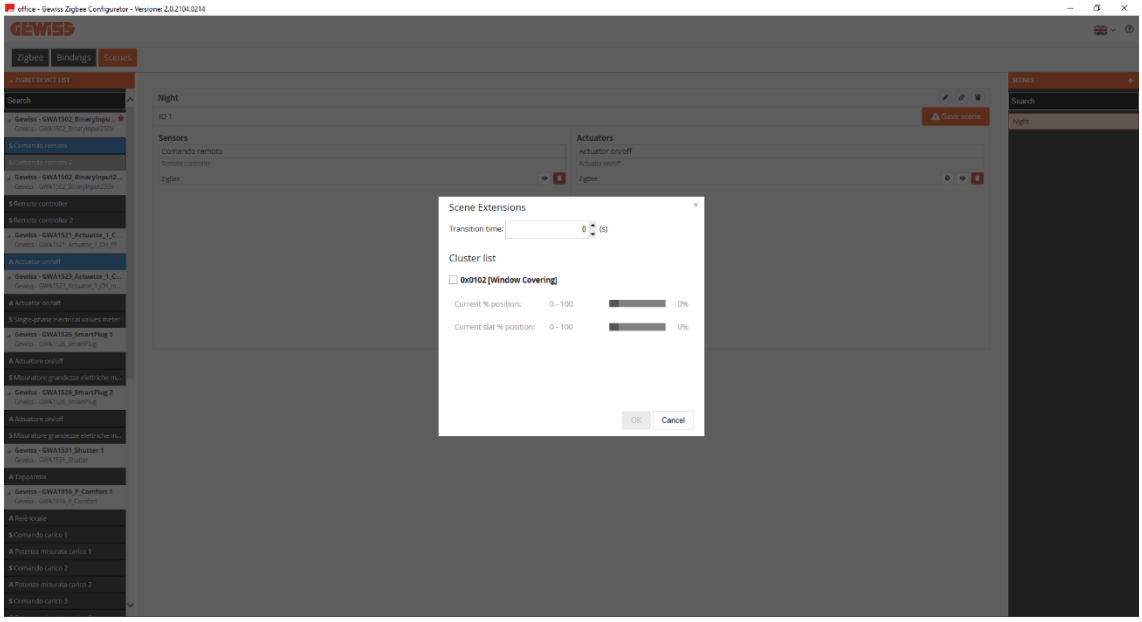
2. Drag the function channel of the GWA1521 actuator into the “Actuators” box. You will be asked to set:
    a. The transition time: a value of 0 is usually entered
    b. (Using the slider) the value that the actuator must assume via the 0x0006 cluster: in this example, the value is OFF



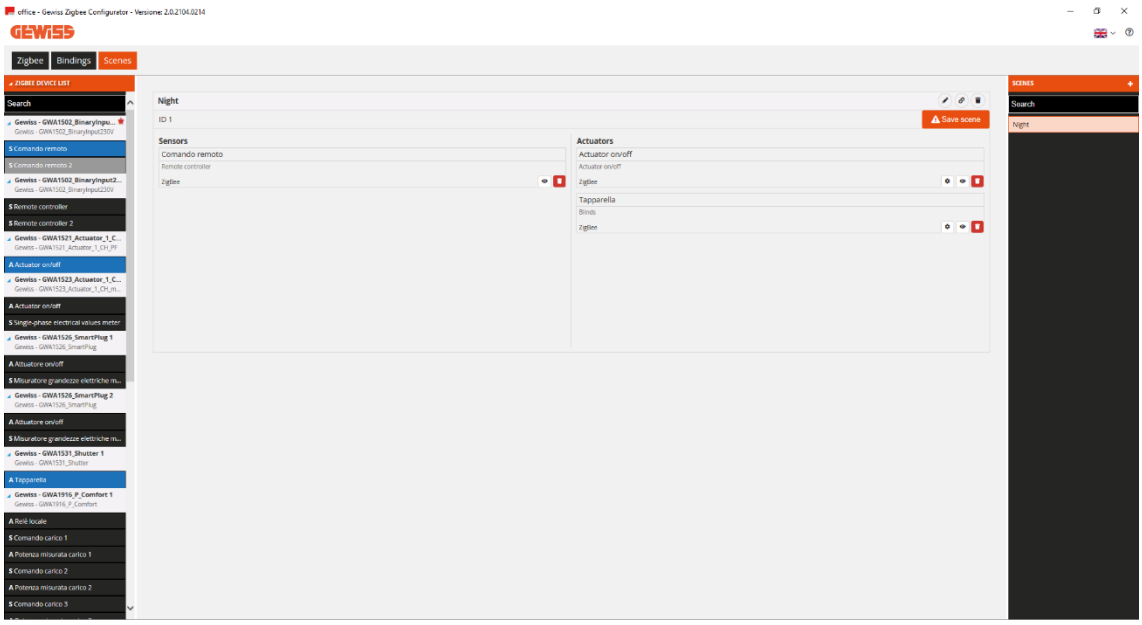
The function channel of the GWA1521 actuator must now be entered.



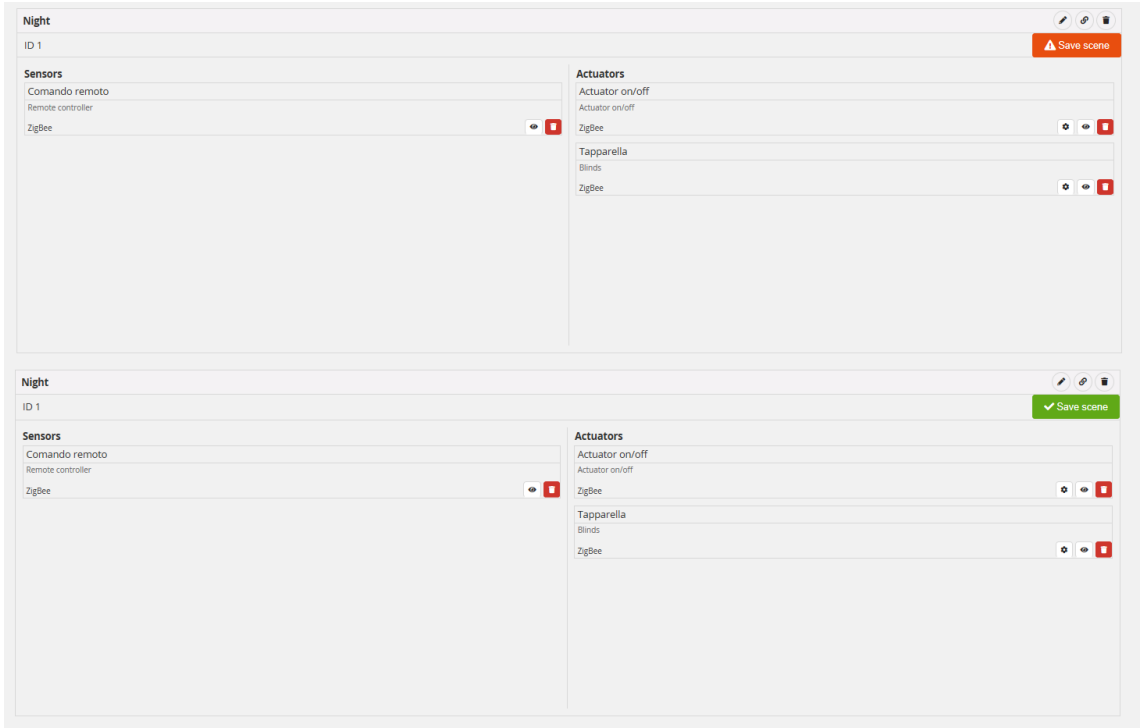
3. Drag the function channel of the GWA1531 actuator into the “Actuators” box. You will be asked to set:
    a. The transition time: a value of 0 is usually entered
    b. (Activating the 0x0102 cluster) the position of the roller shutters and the tilt of the slats (0% in this example, meaning that the roller shutters are completely lowered)



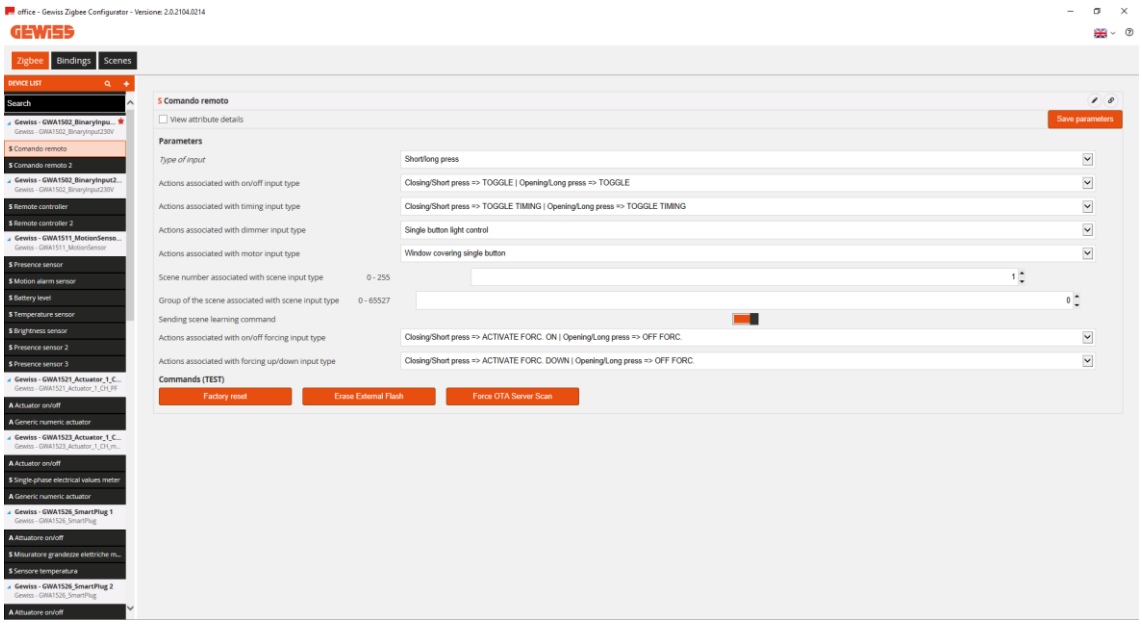
The function channel of the GWA1531 actuator must now also be entered.



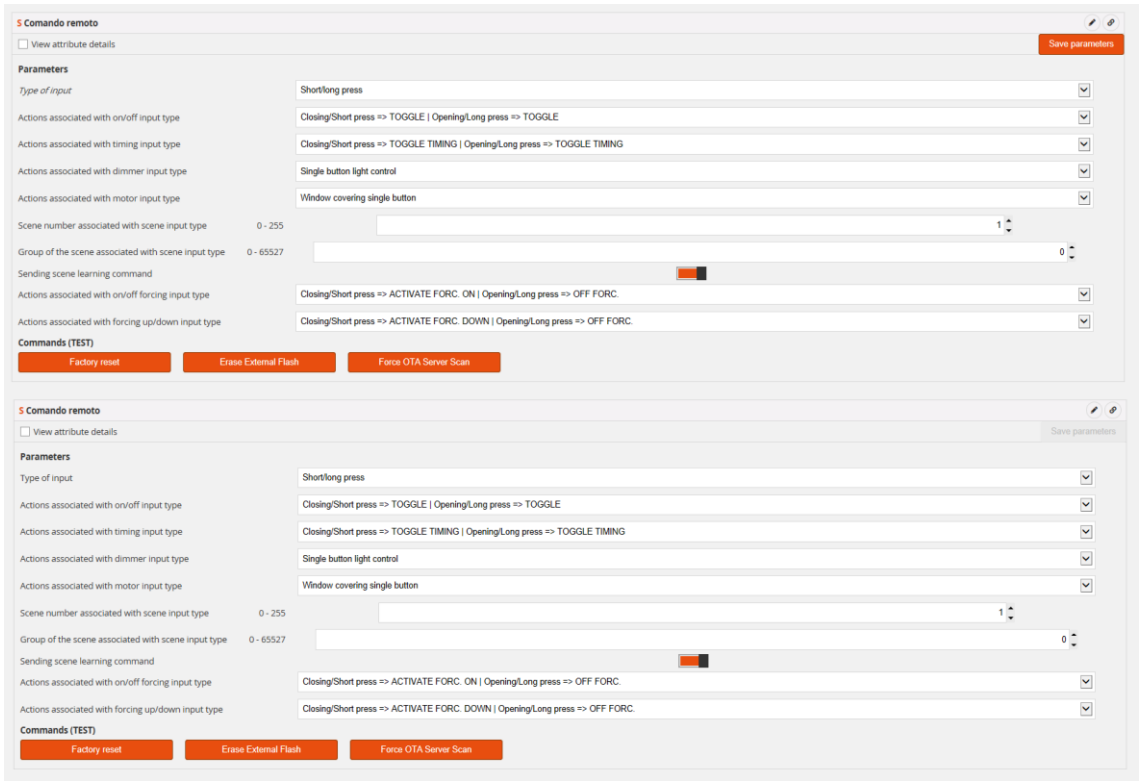
4. To complete the scene, click on the orange “Save scene” push-button to write the group in the actuators on the 0x0004 cluster and make the binding on the 0x0005 cluster of end point_1 in the GWA1502 sensor whose recipient is the group. If the operation is successful, the push-button will turn green.



5. It is now necessary to parameterise input_1 of the GWA1502 sensor (using the “eye” icon 👁 that calls up the parameters page) as follows:
    a. Type of input: in this case, “Short/long press”.
    b. Scene number associated with scene input type: in this case, 1 (the same value entered when creating the scene)
    c. Group of the scene associated with scene input type: in this case, 0 (the same value entered when creating the scene)
    d. Sending scene learning command: the possibility to learn a scene can be disabled with a long press (in this example, the function has been left active).



After filling in all the necessary fields, the modifications must be saved in the device: press the “Save parameters” push-button. When the modifications have been saved, the push-button will turn grey again.



6. A short press on the push-button connected to input_1 of the GWA1502 will send a command to call up Scene_1 on Group_0. At that point, the GWA1521 actuator must shift to OFF and the GWA1531 to 0% (roller shutter completely lowered).

MODIFYING THE SCENE VALUES

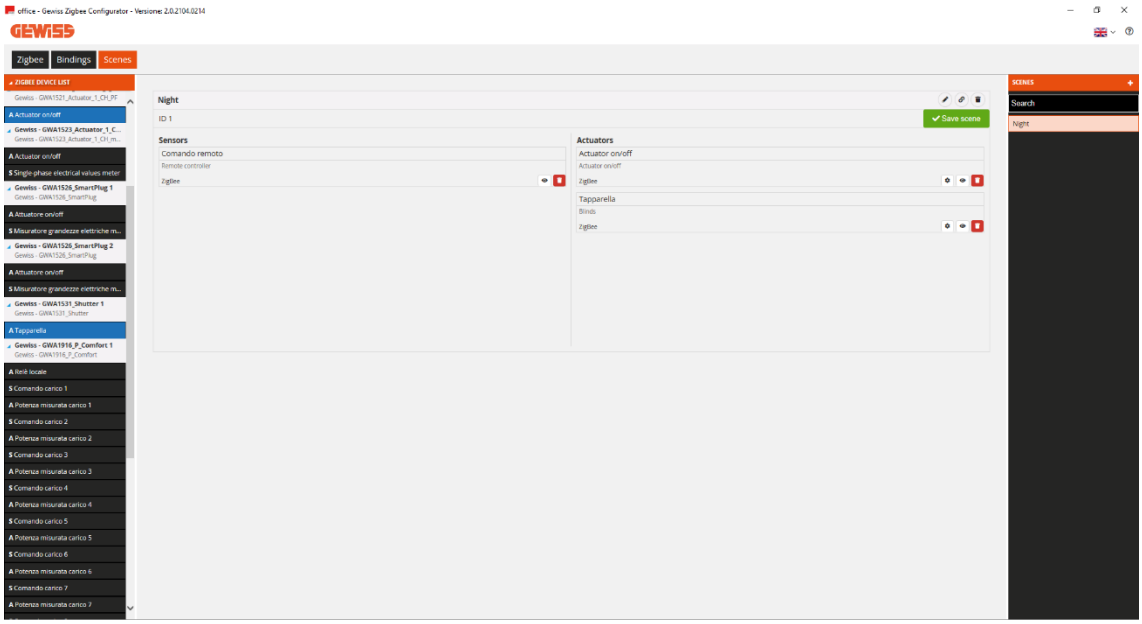
The values assumed by the actuators when they receive the scene command can be modified in two ways:

1. By a long press on the push-button of the GWA1502, allowing new values to be memorised for the scene in question. For example, if the GWA1521 is ON and the roller shutter is at

70% at the time of the long press, the actuators will adopt the new values when the scene is called up by means of a short press (with reference to the example used in the previous paragraph).

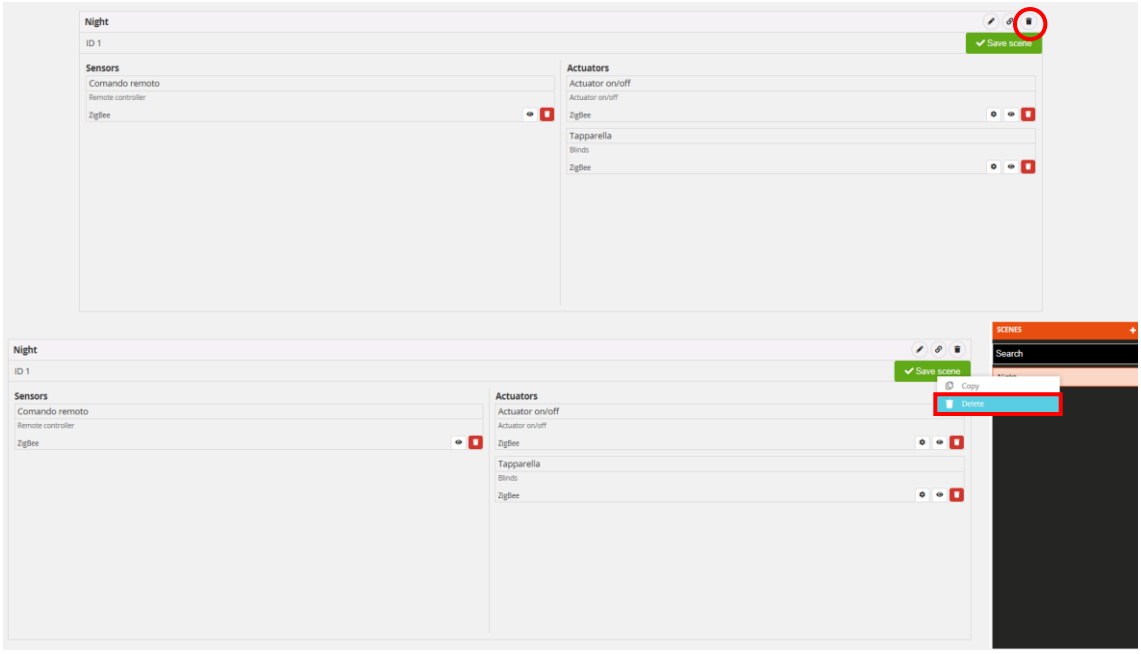
This function is available if the “Sending scene learning command” parameter is enabled.

2. Via the configurator, the “gear” icons ⚙ in the function channel of the relative actuator can be used to modify the scene, as explained in points 2, 3 and 4 of the previous paragraph “Creating a scene”.



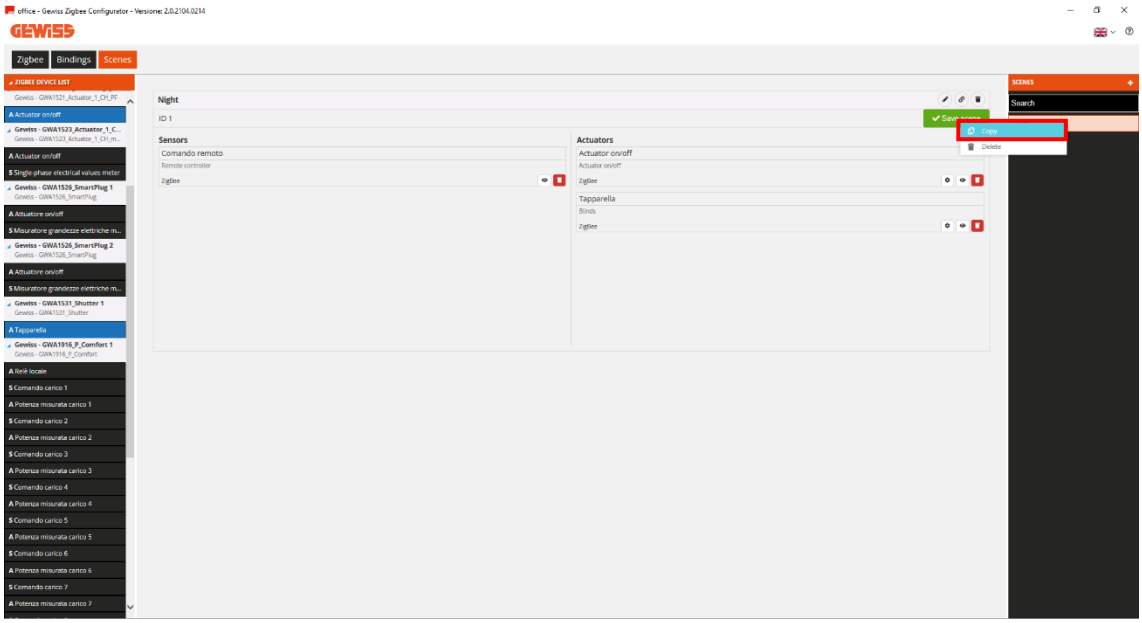
DELETING A SCENE

A scene can be deleted using the “bin” icon 🗑 on the row with the name of the scene in question (no. 1 in the image below), or by clicking on the scene list with the right-hand mouse key (no. 2 in the image below).



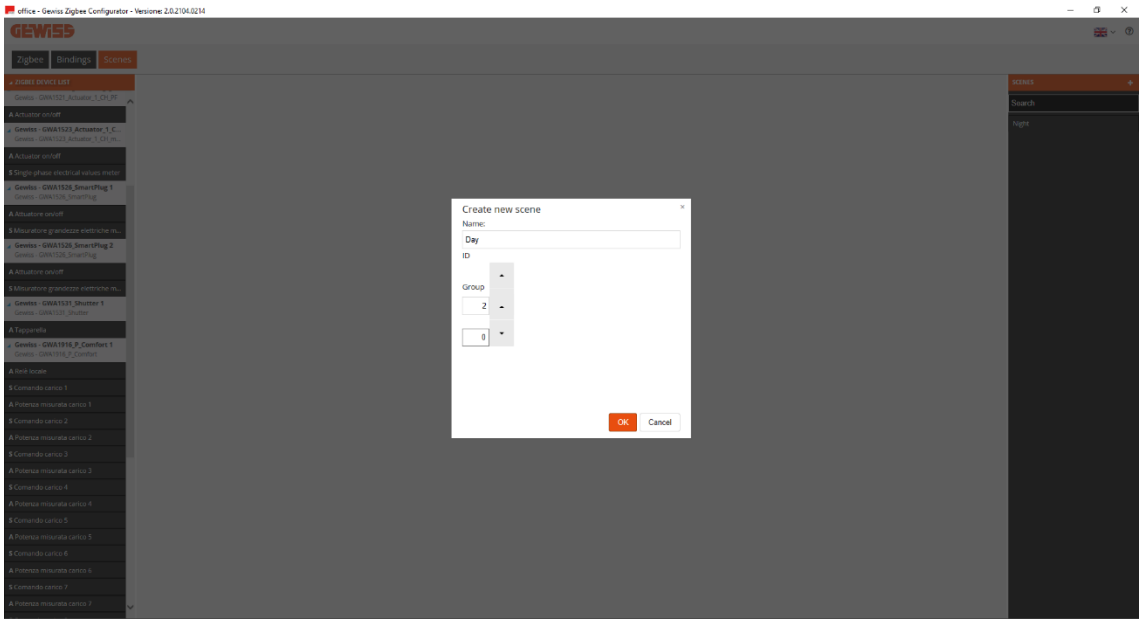
COPYING A SCENE

The "Copy scene" function is accessed by clicking with the right-hand mouse key on the scene you want to copy.

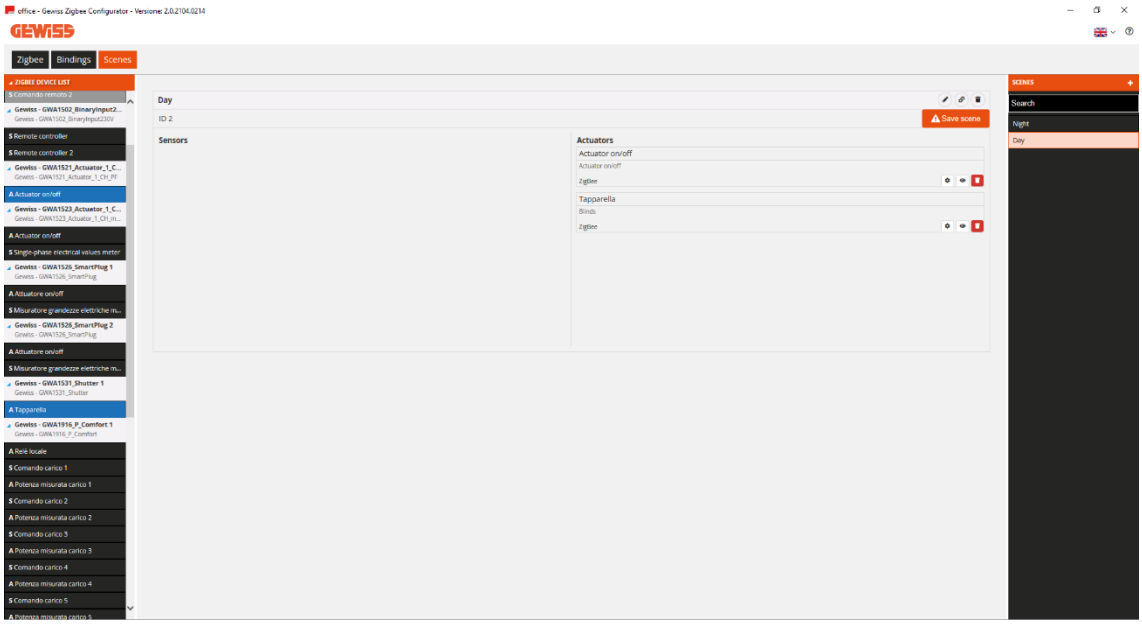


In the window that appears:

- Modify the “Name” field: in this example, “Night” has been changed to “Day”.
- Change the scene number (even though an incremental value is suggested): in this example, the value "2" has been automatically entered in the ID field by the configurator.
- Change the “Group” (even though the same data item can be used, as it is presumed that the same actuators are used): in this example, Group_0 is maintained.



Once these values have been filled in, you will be asked to complete the scene by entering a function channel of a sensor. The “actuators” field will contain those of the scene that the copy was made from (but this does not mean that you cannot remove some or add others).



The next steps for completing the creation are those explained in the “Creating a scene” paragraph.

MODIFYING A SCENE

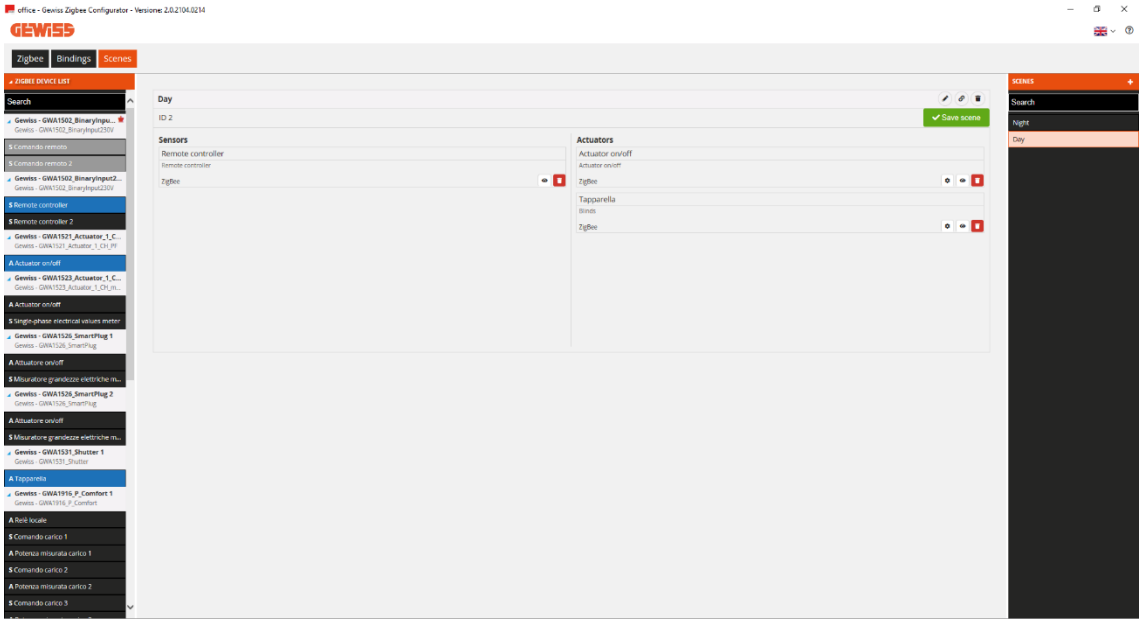
To modify a scene, just select it from the “Scenes” list (the right-hand column on the “Functions/Scenes” page) and intervene in the box showing the functions associated with that scene (you can change the function channel of the sensors or actuators).

In the following example, the function channel of input_1 of the GWA1502 is added to the “Night” scene (images 1 and 2).

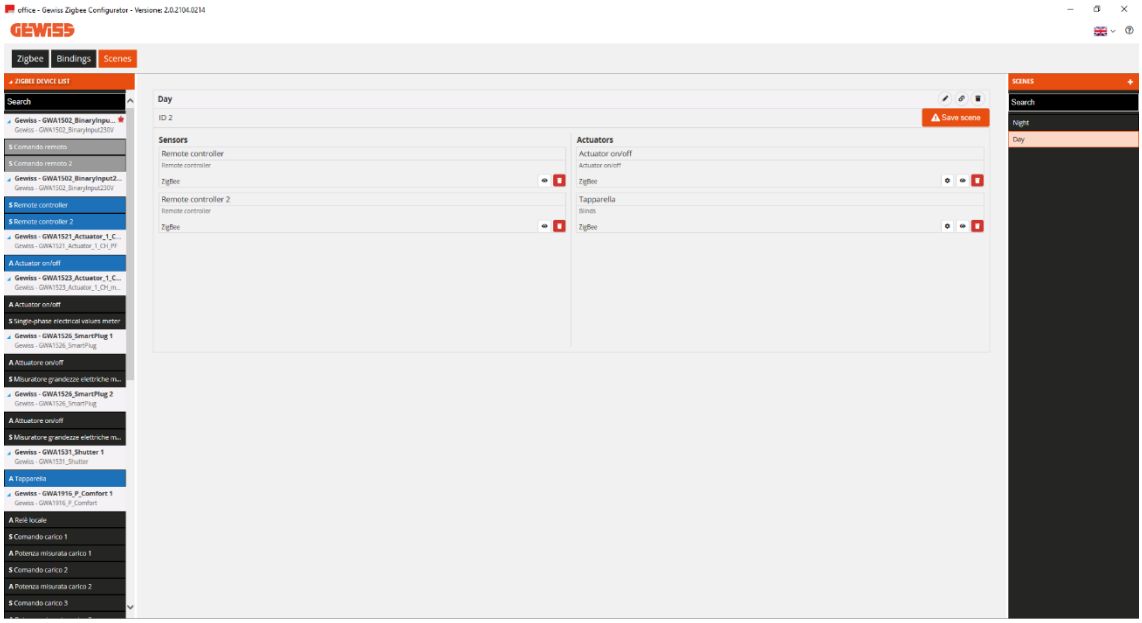
To confirm the modification, click on the orange “Save scene” push-button. The binding will be made as explained in the “Creating a scene” paragraph, with particular reference to the parameterisation of the input (point 5 of that paragraph).

If the operation is successful, the “Save scene” push-button will turn green

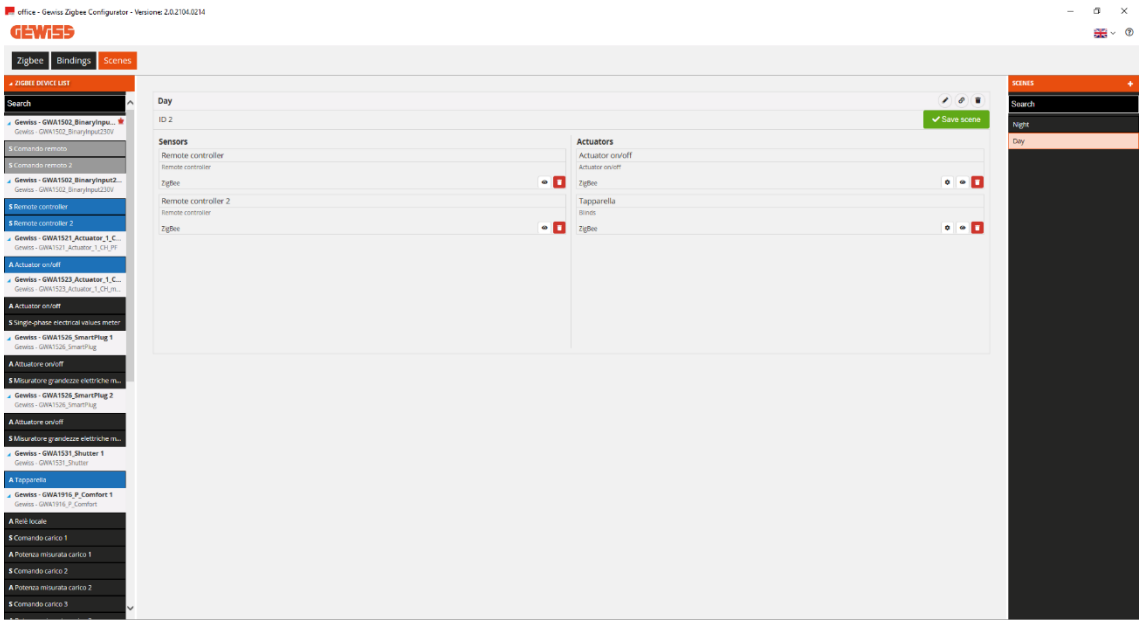
(image 3).



1



2

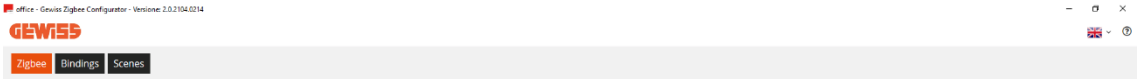

office - Gewiss Zigbee Configurator - Versione: 2.0.2104.0214
GEWISS
Zigbee
Bindings
Scenes
ZIGBEE DEVICE LIST
Search
Day
ID 2
Save scene
Sensors
Remote controller
Remote controller
ZigBee
Remote controller 2
Remote controller
ZigBee
Actuators
Actuator on/off
Actuator on/off
ZigBee
Tapparella
Blinds
ZigBee
SCENES
Search
Night
Day

3

UPGRADES

If the Gewiss ZigBee Configurator software is connected to the Internet, it informs the user (at the time of start-up) when a new version is available. The user can therefore choose whether to upgrade to the new version or carry on using the current one.

To see the version, press the ⓘ icon on the bar at the top.



Using the configurator, the firmware of the ZigBee devices can be upgraded via the USB/ZigBee in two ways:

1. clicking on the “OTA” icon on the “Plants” page. This option allows you to join the system network even without a project file.
2. clicking on the “OTA” icon next to the name of the device to be upgraded. This option allows you to join the system network using the project file.

These two methods are described in the following paragraphs. Bear in mind that the upgrade files are needed in order to make the upgrade.

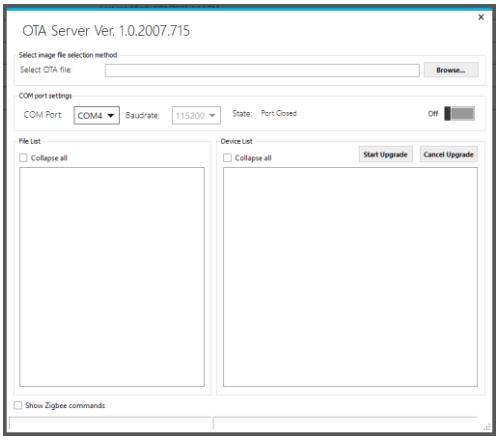
Downgrades (switching from one version to a lower one) are never recommended, unless Gewiss Customer Service indicates otherwise.

Check the availability of the device upgrade files on the Gewiss website, or contact Customer Service.

OTA – FROM THE PLANTS PAGE

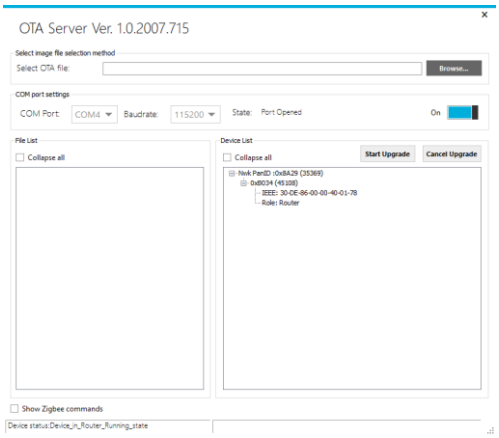
Even if you do not have the project file, the ZigBee devices can still be upgraded via OTA, with the USB/ZigBee acting as an OTA server.

Click on the “OTA” icon ⓞ to open the following window for communicating with the USB/ZigBee:



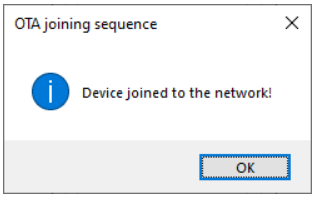
With the USB/ZigBee already inserted in the PC, proceed as follows:

1. Activate the communication on the virtual-COM by turning the relative selector Off → On to ON, then wait for the “State: Port Opened” indication State: Port Opened

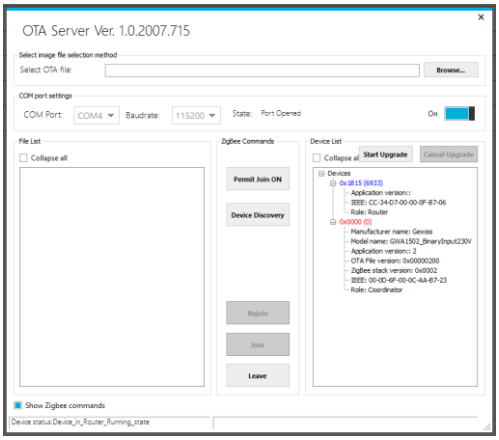


Show Zigbee commands

2. Tick the “Show Zigbee commands” box Show Zigbee commands - the “Rejoin”, “Join” and “Leave” push-buttons will appear
3. Activate the Permit Join function from the device chosen as coordinator (for Gewiss devices (GWA1502, GWA1521, GWA1522, GWA1523, GWA1531), briefly press the local push-button; the LEDs on all the router devices will flash red, and the coordinator LED will flash green)
4. Press the “Join” push-button Join and wait for the indication that the USB/ZigBee device has joined the network

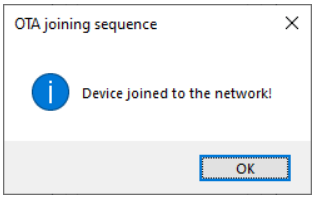


5. Press the “Device Discovery” push-button Device Discovery and wait for the devices in the network to be listed (the USB/ZigBee is the first on the list - identified as "Flex Grid"). The command may take a few minutes to find all the devices of the network. In every device, the current firmware version can be seen in the “OTA file version” description.

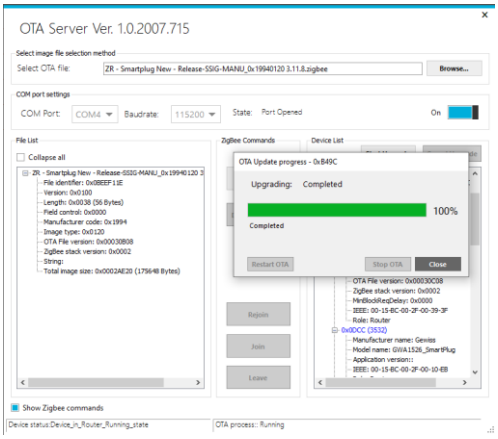


6. Use the browse button to upload the OTA upgrade file. The left-hand column will show the characteristics of the file that also contains the “OTA file version”.
7. From the list of devices, select the one you want to upgrade and then click on the “Start Upgrade” push-button Start Upgrade (in this example it is a Smart Plug). The procedure will be monitored by means of a percentage progress bar, after which the ZigBee device will be relaunched, The OTA upgrade usually takes about 10 minutes; you are advised not to stop

the upgrade (“Stop OTA” push-button), let alone to switch off the device in question while the upgrade is in progress.



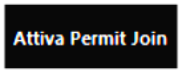
8. At the end, if the upgrade has been carried out correctly, the "Completed" message will appear and you can then click on “Close”.



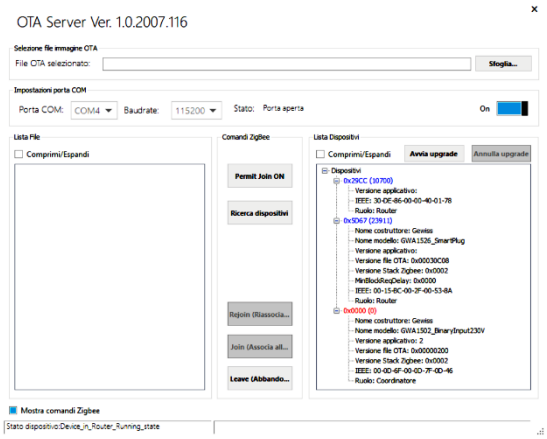
9. Implement any other OTA upgrades.
   The OTA upgrade of battery-operated devices is not recommended because it has a significant effect on the battery lifespan. In addition, there is a risk that the battery may run down during the upgrade itself, leading to the possible malfunctioning of the device in question. The OTA upgrade of a battery-operated device usually takes about 15 minutes; you are advised not to stop the upgrade (“Stop OTA” push-button), let alone to switch off the devices in question while the upgrade is in progress. To upgrade a battery-operated device, the device must be woken up using the procedure explained on its instruction sheet (GWA1501: 10 on/off operations in 10 seconds on one of the two inputs, until the LED begins flashing; for GWA1511, GWA1512, GWA1513 and GWA1514, press the programming push-button for about 5 seconds until the LED begins flashing).

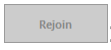
10. After completing the upgrades, abandon the network by closing first of all the active page (clicking on the “x” at the top right) and then the program; the USB/ZigBee can then be disabled.

Notes relating to the other functions visible on the page, but not usually used:

- 

: once the USB/ZigBee has been joined to the network and the device search has been made, the network Permit Join can be activated/deactivated by first of all selecting the coordinator in the device list (short 0x0000 in red) and then clicking on the Permit Join ON/Permit Join OFF push-button.

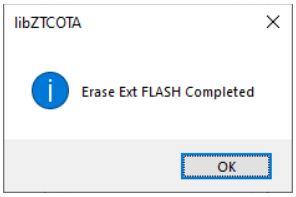


- 

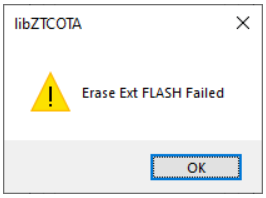
: allows the USB/ZigBee to come back into the network if it was previously joined and if the network has not been extracted or abandoned via the “Leave” push-button.
-

: authorises the USB/ZigBee to abandon the network.
- Delete external flash: by clicking with the right-hand mouse key on a device in the list, you can delete the device flash that may contain OTA versions. This operation is not usually necessary as, at the end of the OTA update, the device loads the new image and then automatically deletes the file saved in the external flash.

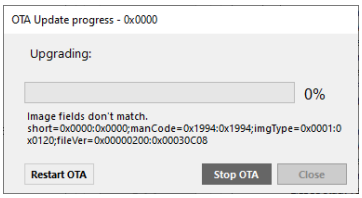
  If the command is supported by the device, the message “Erase Ext FLASH completed” will appear.



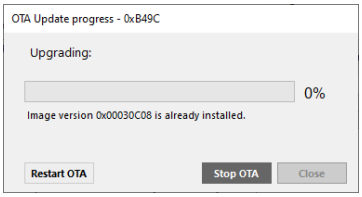
  If the command is not supported by the device, the message “Erase Ext FLASH failed” will appear.



- Restart OTA: this attempts the OTA upgrade again, if the remote device did not answer.
- Stop OTA and Annul upgrade: this terminates the OTA upgrade in advance and is generally used when the wrong device has been selected in relation to the upgrade file uploaded by the program. In these cases, the program displays a message similar to the one in the image, and you will have to click on “Stop OTA” to terminate the operation.



If the upgrade version is the same as the one already on the device, a message similar to the one below will be displayed.

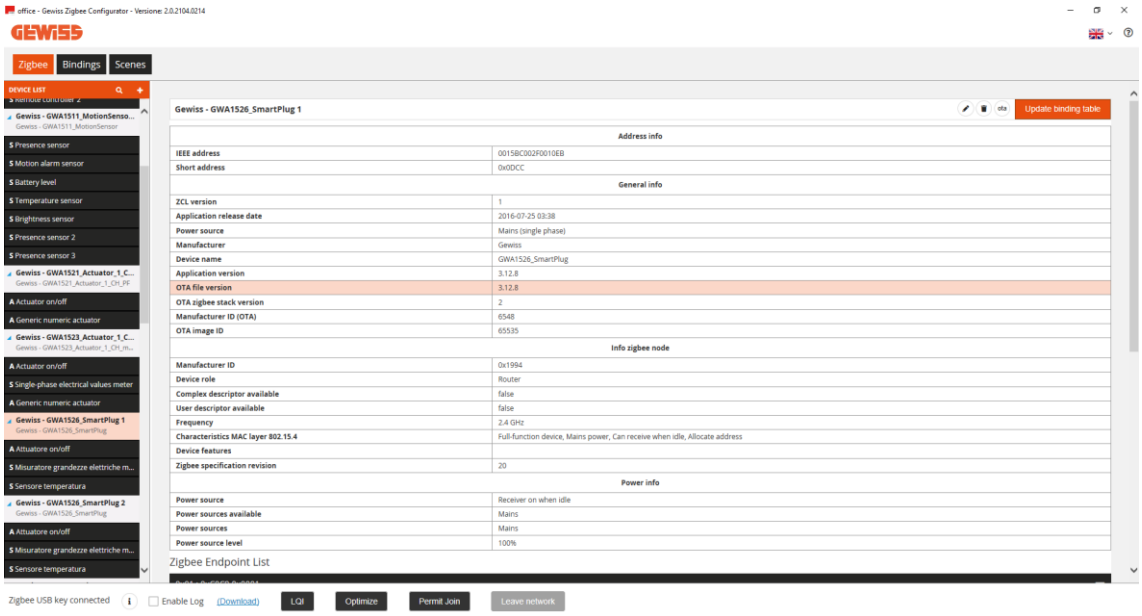


OTA – FROM THE PROJECT FILE

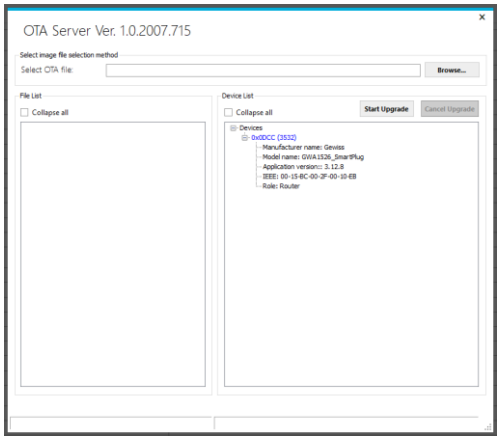
If you have the project file, the ZigBee devices can be upgraded via OTA, with the USB/ZigBee acting as an OTA server.

Once the USB/ZigBee has been joined to the network as explained in the "ZigBee configurator" paragraph, proceed as follows:

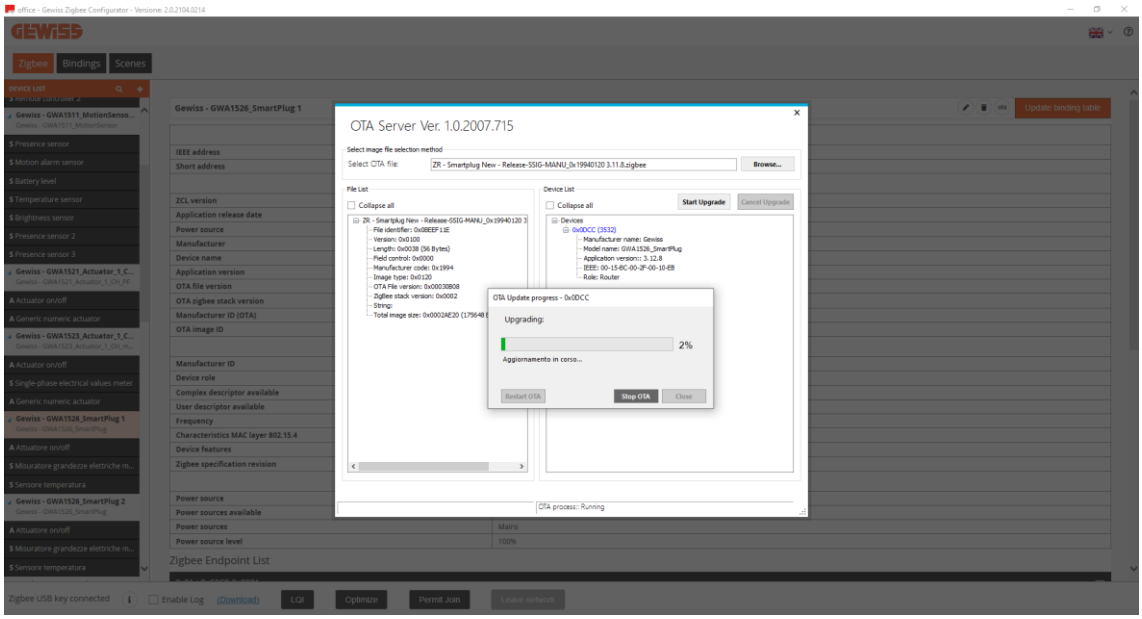
1. Select the device you want to upgrade from the device list
2. Identify the OTA file version currently installed (in the example, it is the 3.11.8 of a Smart Plug)



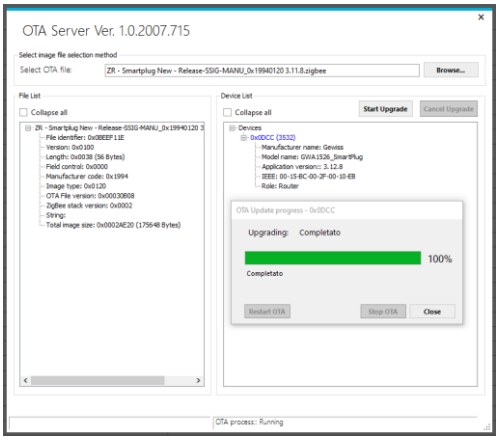
3. Click on the "OTA" icon ota on the device name bar. The following window will appear:



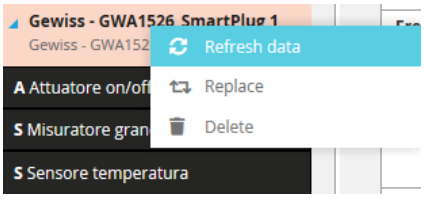
4. Use the "browse" button to upload the OTA upgrade file. The left-hand column will show the file characteristics, including the "OTA file version"
5. Select the device and then click on the "Start Upgrade" push-button (in this example it is a Smart Plug). The procedure will be monitored by means of a percentage progress bar, after which the ZigBee device will be relaunched. The OTA upgrade usually takes about 10 minutes; you are advised not to stop the upgrade ("Stop OTA" push-button), let alone to switch off the device in question while the upgrade is in progress.



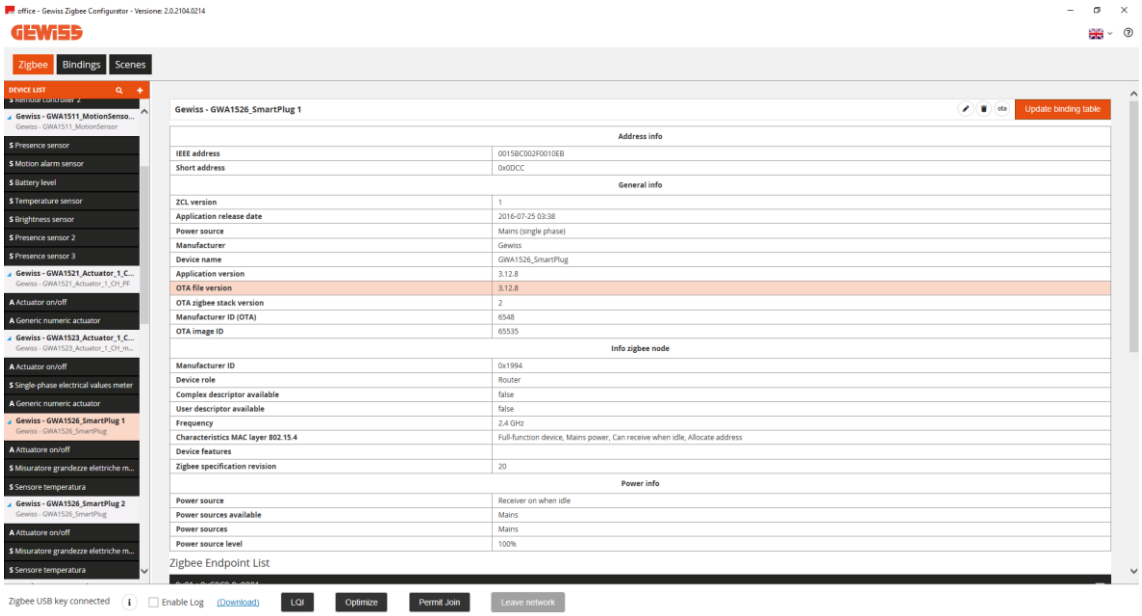
6. At the end, if the upgrade has been carried out correctly, the "Completed" message will appear. Click first of all on “Close” and then on the “x” at the top right, to close the active page.



7. To make sure the device has uploaded the firmware version, click with the right-hand mouse key on “Refresh data”; the new “OTA file version” should appear.



1



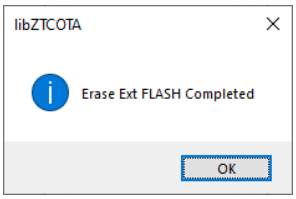
2

8. If necessary, implement the OTA upgrade for any other devices.
   The OTA upgrade of battery-operated devices is not recommended because it has a significant effect on the battery lifespan. In addition, there is a risk that the battery may run down during the upgrade itself, leading to the possible malfunctioning of the device in question. The OTA upgrade of a battery-operated device usually takes about 15 minutes; you are advised not to stop the upgrade (“Stop OTA” push-button), let alone to switch off the devices in question while the upgrade is in progress. To upgrade a battery-operated device, the device must be woken up using the procedure explained on its instruction sheet (GWA1501: 10 on/off operations in 10 seconds on one of the two inputs, until the LED begins flashing; for GWA1511, GWA1512, GWA1513 and GWA1514, press the programming push-button for about 5 seconds until the LED begins flashing).
9. After completing the upgrades, continue using the configurator or abandon the network by clicking on the relative push-button at the bottom of the page.

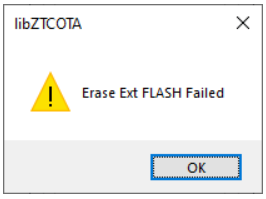
Notes relating to the other functions visible on the page, but not usually used:

- Delete external flash: click with the right-hand mouse key on the device, to delete the flash containing any possible OTA versions. This operation is not usually necessary as, at the end of the OTA update, the device loads the new image and then automatically deletes the file saved in the external flash.

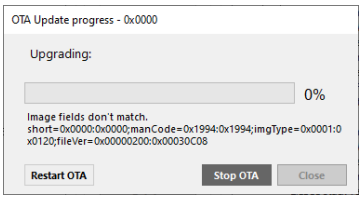
  If the command is supported by the device, the message “Erase Ext FLASH completed” will appear.



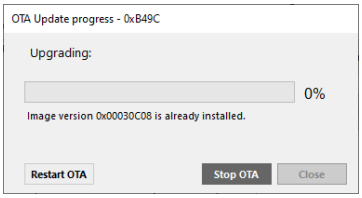
If the command is not supported by the device, the message “Erase Ext FLASH failed” will appear.



- Restart OTA: this attempts the OTA upgrade again, if the remote device did not answer.
- Stop OTA and Annul upgrade: this terminates the OTA upgrade in advance and is generally used when the wrong device has been selected in relation to the upgrade file uploaded by the program. In these cases, the program displays a message similar to the one in the image, and you will have to click on “Stop OTA” to terminate the operation.



If the upgrade version is the same as the one already on the device, a message similar to the one below will be displayed.



code 7.01.9.931.0

Punto di contatto indicato in adempimento ai fini delle direttive e regolamenti UE applicabili:
Contact details according to the relevant European Directives and Regulations:
GEWISS S.p.A. Via A.Volta, 1 IT-24069 Cenate Sotto (BG) Italy tel: +39 035 946 111 E-mail: qualitymarks@gewiss.com

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lunedì ÷ venerdì - monday ÷ friday

24h **+39 035 946 260**

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LAST REVISION 08/2021