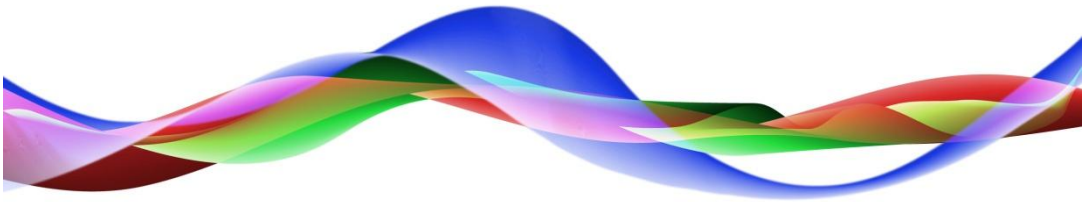
LSB
Broadcast Technologies GmbH

15 GP-I/Os

vsmStudio

Manual



MFU / BME
19.05.2011

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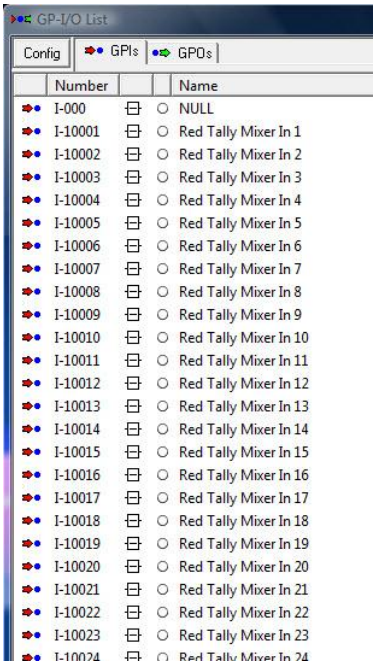
Content

General Purpose Interfaces (GPIs) can be used to create logics that start certain processes in accordance with pre-defined triggers.

Opening GP-I/O List

Select the symbol indicated in the screenshot above to access the GP-I/O List.

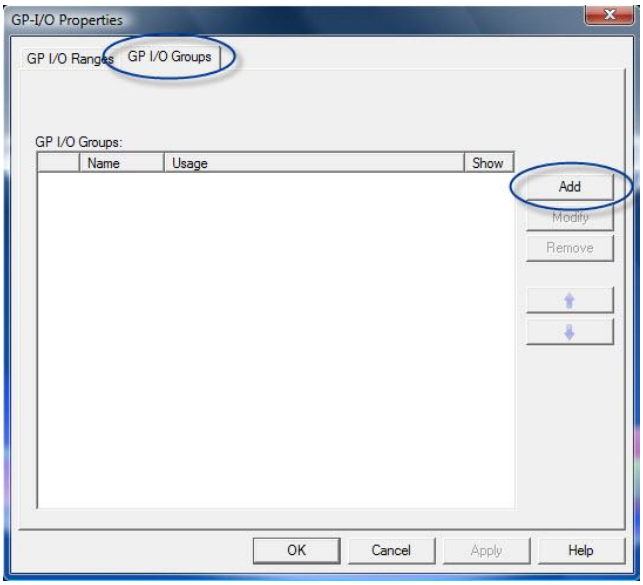


GP-I/O List

The GP-I/O List shows all existing GP-I/Os. GPI inputs (GPIs) are indicated with a red arrow. GPI outputs (GPOs) are located in a separate tab and marked by a green arrow. The difference between a GPI and a GPO is that a GPI does not contain a logic, but merely serves as trigger for a GPO. GPIs are triggered by a device or something similar. A GPO, in turn, can contain a logic that activates it. It can also serve as trigger.

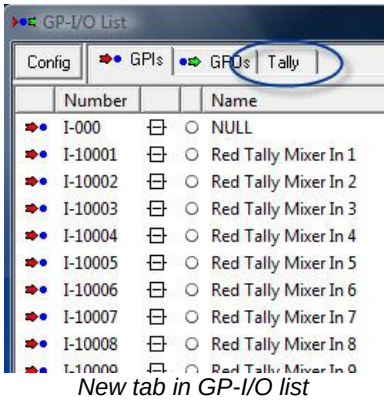
1 Editing the GP-I/O List

1.1 New GPI Group



GPI groups

To improve overview, GP-I/O groups can be created. These can be created and edited in the *Config* tab.



New tab in GP-I/O list

Select *Add* to create a new group. It will be displayed as a tab in the GP-I/O List.

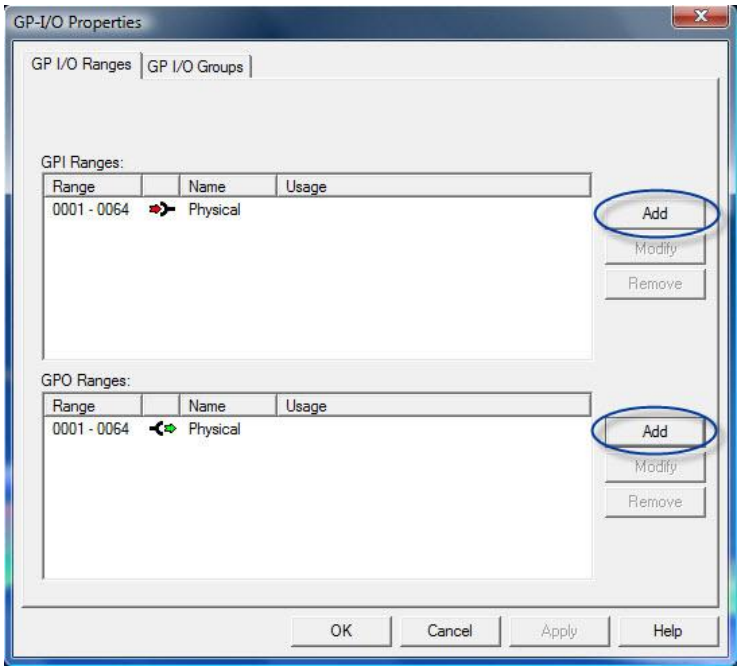
Creating new GPI groups

To create a group, enter a name and, if necessary, a purpose in the field *Usage*. *Show GPIs in this group also in the GPI or GPO Groups* is checked by default. If the checkmark is removed, the GP-I/Os can only be viewed in this group. If it is not removed, they can be viewed in the overview.

Select *Modify* to edit a selected group. Press *Remove* to delete it. Use the arrow buttons to sort the groups.

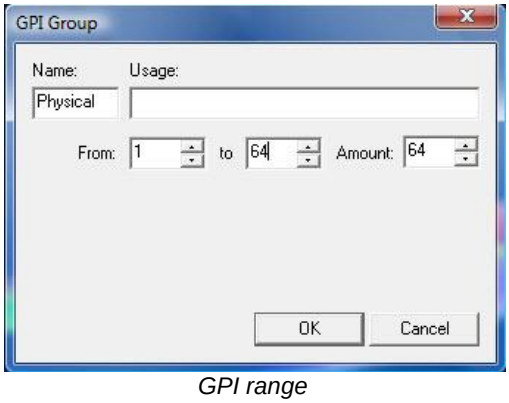
1.2 New GPI Range

To improve overview, it is possible to set up GP-I/O ranges. In these, numbers can be assigned to certain GP-I/O groups, for instance the numbers 1 to 64 for physical GP-I/Os.



GP-I/O ranges

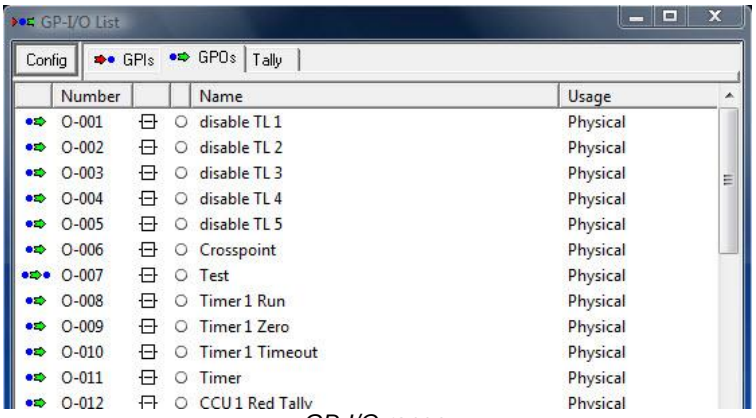
To create a new range, select *Add*.



GPI range

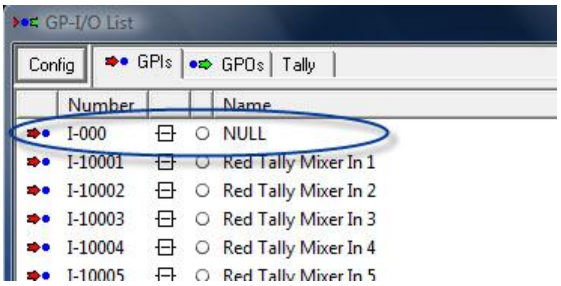
In the newly opened window, enter a name and, if necessary, a purpose for the GP-I/O. Next, define the GP-I/O range. If, for higher numbers, only the number of the first GP-I/O and the total amount of GP-I/Os is known, the system automatically calculates the last number used in this range using *Amount*.

To edit or delete a created range, select *Modify* or *Remove*, respectively.



GP-I/O range

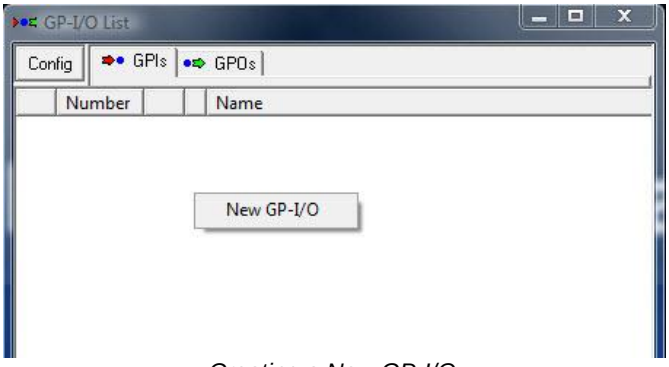
The name of the range is shown at the appropriate GP-I/Os using the GP-I/O list.



NULL GPI

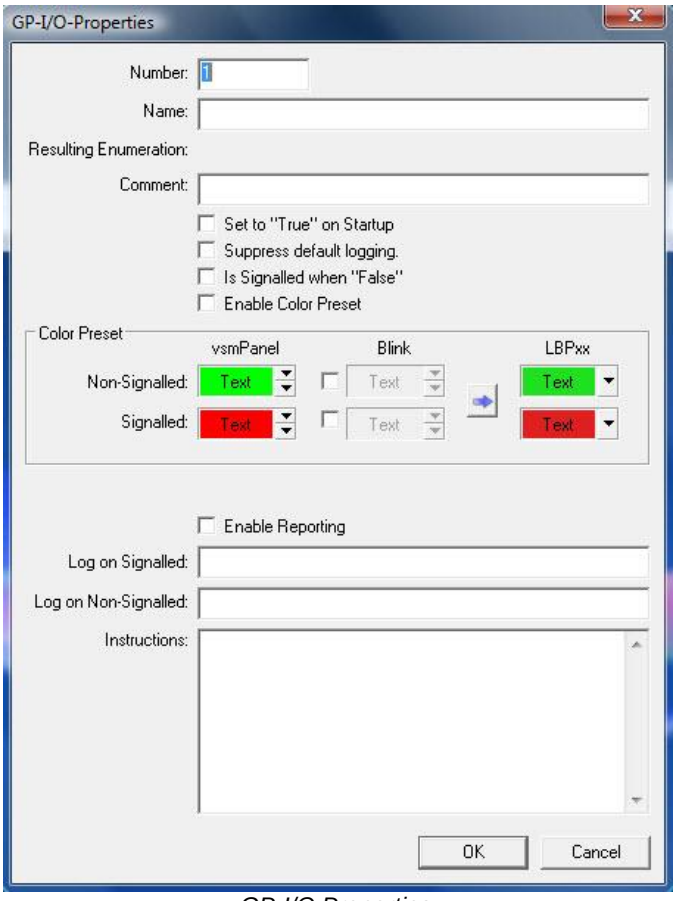
The system automatically creates the GPI *NULL* when a new configuration is first opened. If the GPI *NULL* is dragged into a GPO but not linked, this GPO is set to *High* if the configuration is opened.

2 New GP-I/O



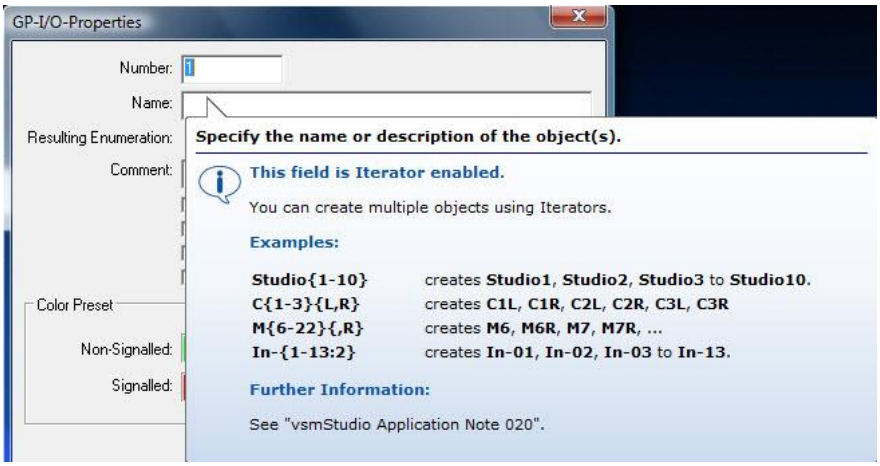
Creating a New GP-I/O

To create a new GP-I/O, right-click into the GP-I/O list.



GP-I/O Properties

Enter name and number for the GP-I/O in the window, *GP-I/O-Properties*.



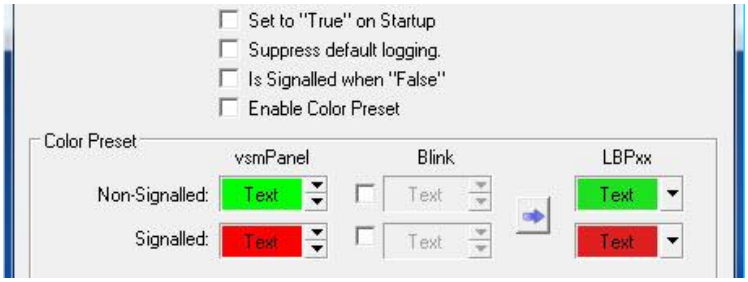
Iterator

Since the name field features an iterator, multiple continuously counted GP-I/Os can be created using winged brackets (also see vsmStudio Application Note 020 Using Iterators). The field *Comment* offers space for comments.

If a GP-I/O was set to *High* at the start of a configuration, the box in front of *Set to "True" on Startup* must be checked. However, this only works for GPOs without logic that merely execute another application or function, for example controlling another GPO.

2.1 Alarm Settings

All other settings refer to the alarm management.



Alarm settings

By checking *Suppress default logging*, logging of logfiles (see chapter 2.3.3 Folder LogFiles) can be suppressed for this GP-I/O. The function *Is Signalled when "False"* turns the alarm logic around without requiring a change of the GP-I/O logic. A checkmark before *Enable Color Preset* enables the editing of colours for the alarm management.

2.2 Scheduler Settings

Scheduler settings

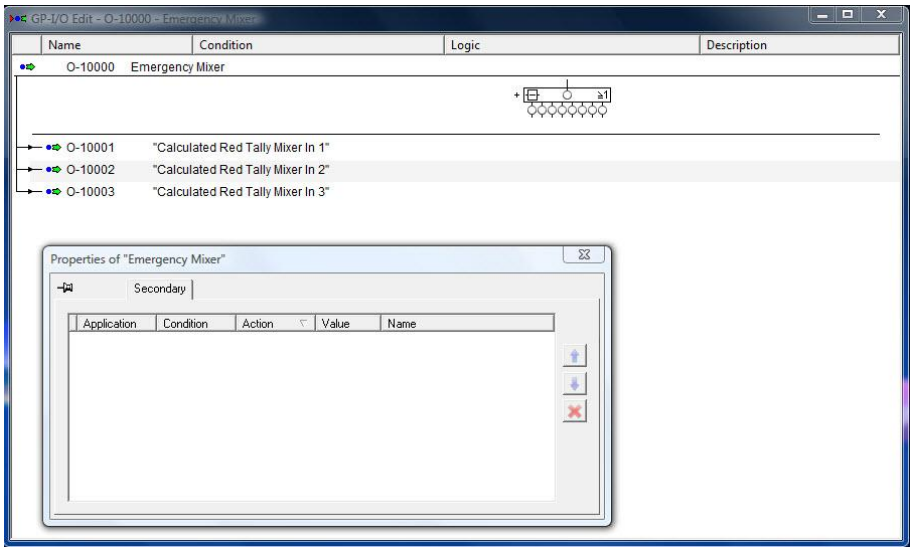
If *Enable Reporting* is checked, a new channel is created in the scheduler. This channel is shown as *Reporting* with the text that was entered under *Instructions* in the scheduler.

2.3 GP-I/Os in the GP-I/O List

All existing GP-I/Os are shown in the GP-I/O list. The green dot shows that this GP-I/O is active. A second, blue dot indicates that this GPO is executing a logic if it is active.

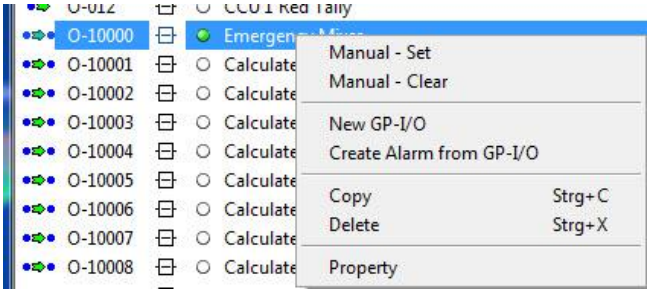
GPO with logic

Moreover, the numbers and the name of the GP-I/O are shown in the GP-I/O list. To open the *GP-I/O Edit*, double-click onto a GP-I/O.



BGP-I/O Edit window

Here, the connections of the GP-I/O can be viewed and edited, if required. By right-clicking, the following window opens:

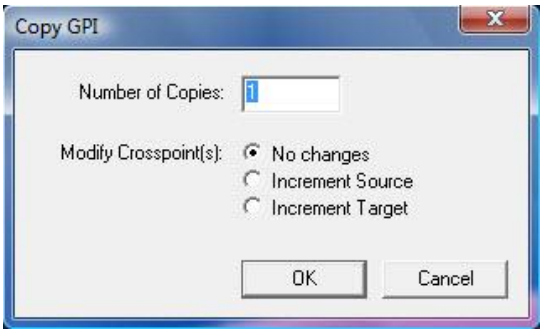


Right-clicking onto a GP-I/O

In this window, the selected GP-I/O can be manually activated (*Set*) or deactivated (*Clear*). Further, new GP-I/Os can be set-up, and alarms can be created from GP-I/Os. Moreover, it is also possible to delete the selected GP-I/O or to open the properties window.

2.4 Copying GP-I/Os

In the window that opens following a right-click onto a GP-I/O, the selected GP-I/O can be copied.



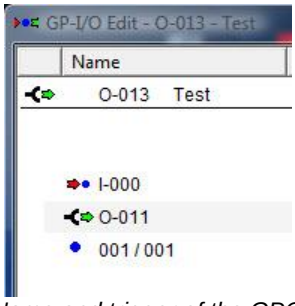
Copying a GPI

Next, define how often the GP-I/O should be copied. The functions *Increment Source* and *Increment Target* are used to copy crosspoint-dependent GP-I/Os. The crosspoint logic of this GP-I/O therefore counts either the sources or targets if the relevant function is checked. This way, a continuous series of crosspoint-dependent GP-I/Os can be copied.

3 New GP-I/O Logic

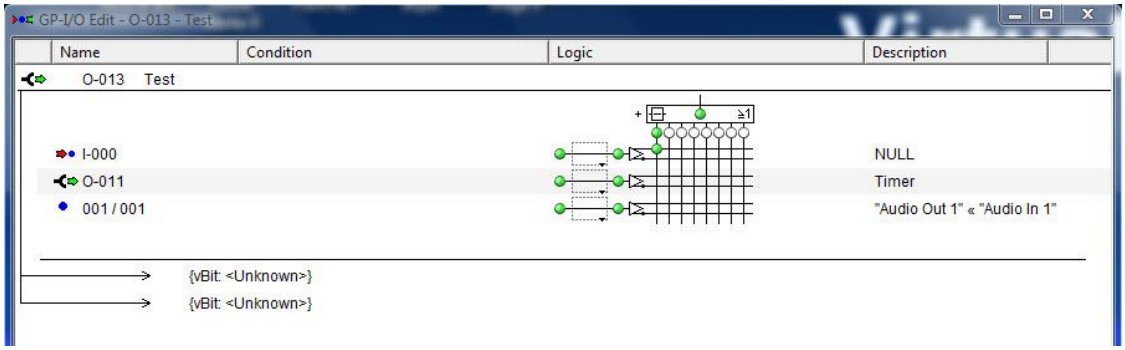
A GP-I/O can contain a logic if it is set to *High* at the point when this logic becomes true. To create a GP-I/O logic, select a GP-I/O or a crosspoint and drag and drop it into the relevant GPO in the GP-I/O list.

3.1 GP-I/O Edit Window



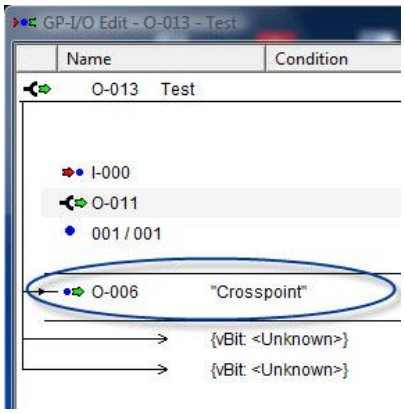
Name and trigger of the GPO

The name, here *Test*, and the GPO's trigger, here a GPI, a GPO, and a crosspoint, can be viewed in the GP-I/O Edit window in the top left under *Name*. The green arrow in front of the GPO's name indicates that the GP-I/O is a GPO.



Logic and trigger of the GPO

The GPO logic is shown in the center of the edit window. The names of triggers are shown under *Description.*

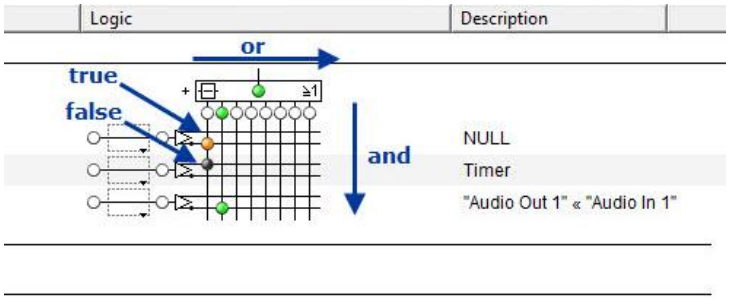


Object triggered with GPO

The bottom left indicates what the opened GPO triggers – the GPO *Crosspoint* in the scenario shown above.

3.2 Boolean Logic

The GP-I/O logic is created according to the Boolean Algebra. This means that the connection arranged in the square above must be true in order to activate this GPO. In turn, the connection arranged below must be false. A situation in which two connections lay side-by-side is called an Or-condition. In this scenario, the GPO logic is triggered by one trigger or the other. A situation where the connections are linked with each other is called an And-condition. This means that the GPO event will only become active if both triggers are true.



GPO logic

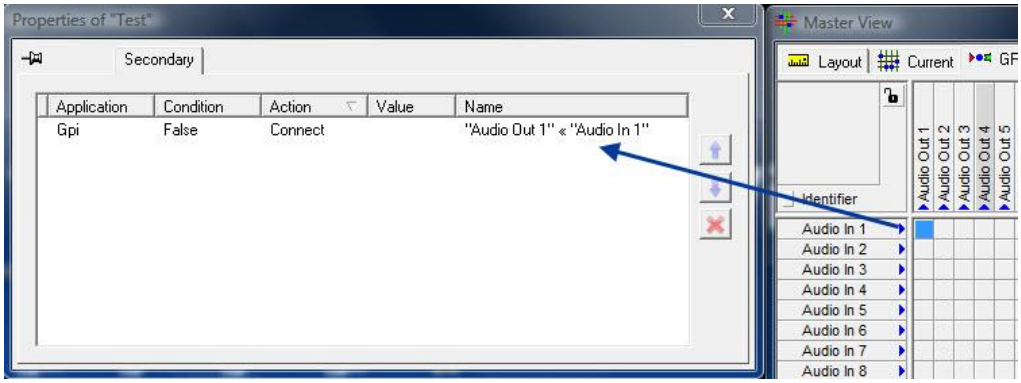
This concept is exemplified in the screenshot above: The opened GPO will become active as soon as the GPO *Timer* is active and the GPI *NULL* is inactive, or the crosspoint *Audio Out 1 < Audio In 1* is set. The differently coloured connections hereby indicate the following: The orange-coloured dot indicates that the connection is true, but that the execution of the logic is prevented by the And-connection with the other trigger (which is false). A black dot indicates

that the trigger is turned *Clear*. A green dot indicates that the trigger is *Set*, and that the logic is being executed.

4 Secondary Commands for GP-I/Os

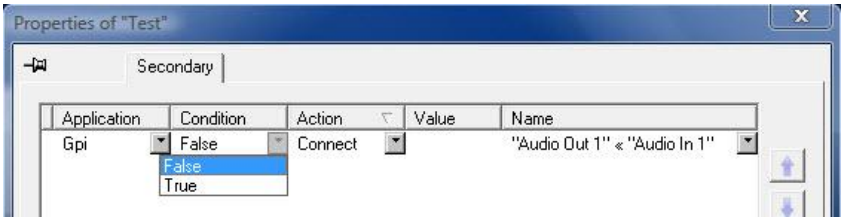
When a GP-I/O is opened, a property box will open in addition to the *Edit* window, in which secondary commands can be entered.

4.1 Crosspoint as Secondary GP-I/O Command



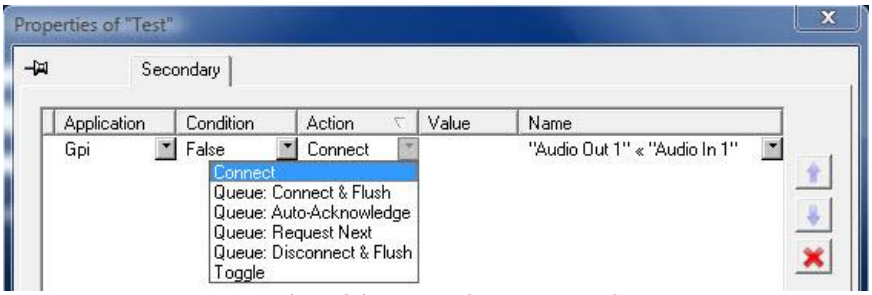
Crosspoint as secondary GPI command

It is, for example, possible to drag-and-drop a crosspoint from the GPI view of the master matrix (see chapter 6.3 GPI View) into this window, for which various functions can be set-up.



Conditions for a secondary command

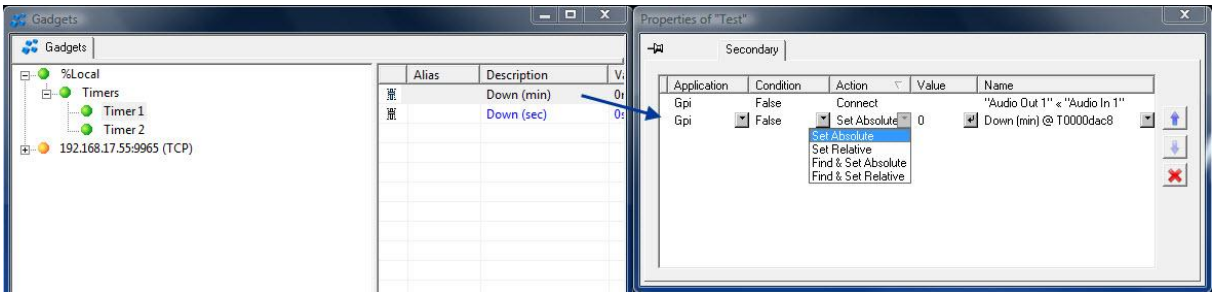
In the property window, the *Condition* as well as the *Action* that is to be executed if the condition becomes true or false can be defined. An action can, for example, be the connecting or toggling of a crosspoint.



Action of the secondary command

4.2 Gadget as Secondary GP-I/O Command

It is also possible to drag a gadget from the gadget tree (see chapter 10.2 Gadget Tree) into the secondary command window.

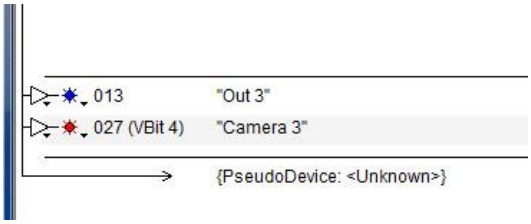


Gadget as secondary GPI command

In this case, a value can be entered in addition to *Condition* and *Action* which will cause the GPI to become active as soon as this gadget value is reached. The order of secondary commands can be changed with the blue arrows on the right side of the window. Use the red cross to delete them.

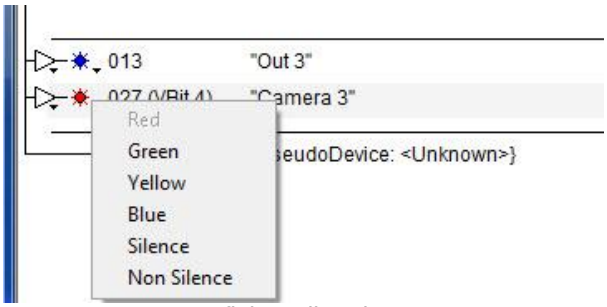
5 Tally GPOs

If a GPO is dragged onto a signal, a tally is created for this signal (see chapter 14 Tally Management).



GPO tally

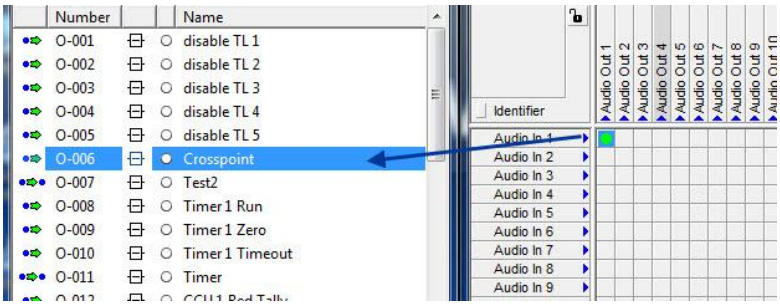
The desired tally colour can be defined using the arrow beside the tally symbol. The greyed-out colour – red in the screenshot below – is already assigned. Since each colour can only be used once, it can no longer be selected.



Defining tally colours

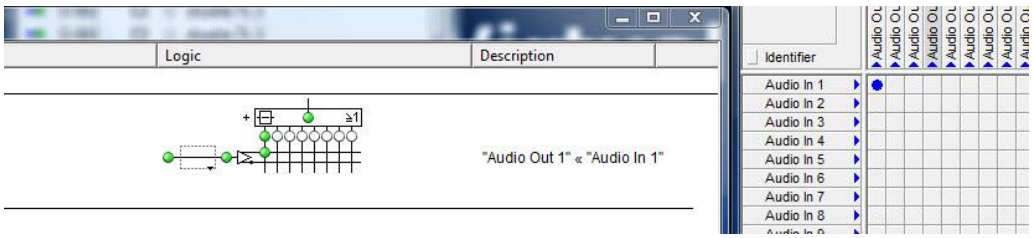
6 Crosspoint-GPO-Connection

6.1 Triggering a Crosspoint through a GPO



Crosspoint as GPO trigger

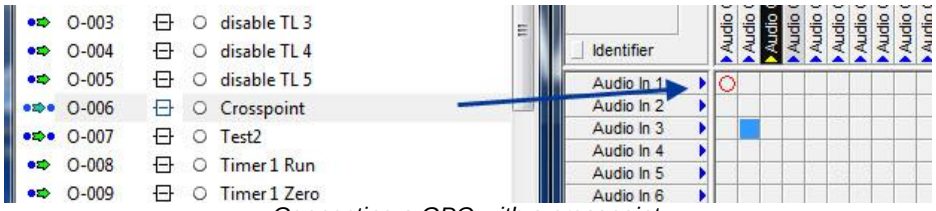
A GPO can be triggered with a crosspoint. To do so, drag the relevant crosspoint from the GPI view of the master matrix (see chapter 6.3 GPI View) into a GPO.



GPO triggered by crosspoint

If this crosspoint is set, the GPO becomes active (also see chapter 6.3.2 Connection of a GPO with a Crosspoint)

6.2 Setting a Crosspoint through a GPO

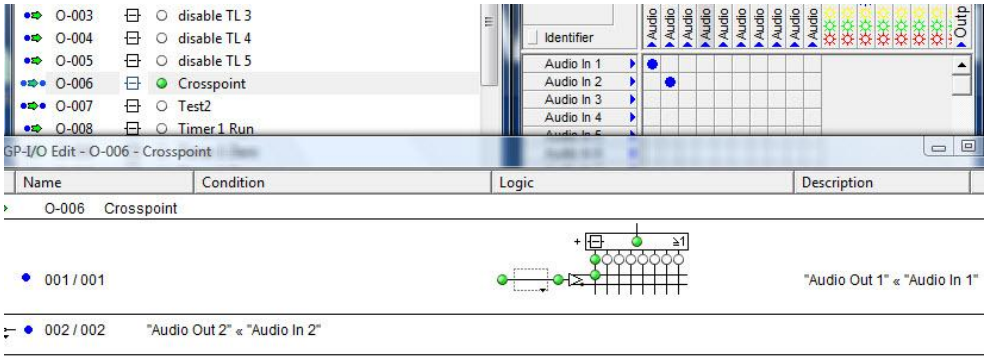


Connecting a GPO with a crosspoint

In turn, it is also possible to drag a GPO onto a crosspoint (in the GPI view of the master matrix) so that the crosspoint is set once the GPO is activated (also see chapter 6.3.1 Connection of a Crosspoint with a GPI).

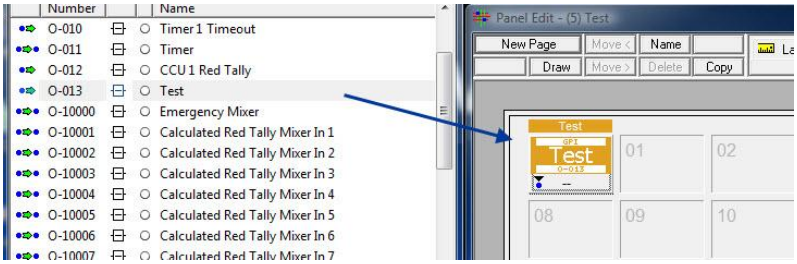
Crosspoint set using a GPO

This allows, for example, the setting of two crosspoints simultaneously through activating a GPO: If, for example, the crosspoint *Audio Out 1 > Audio In 1* is connected with the GPO *Crosspoint* and this GPO is connected with the crosspoint *Audio Out 2 > Audio In 2*, setting the crosspoint *Audio Out 1 > Audio In 1* actives the GPO, which will also automatically set the second crosspoint.



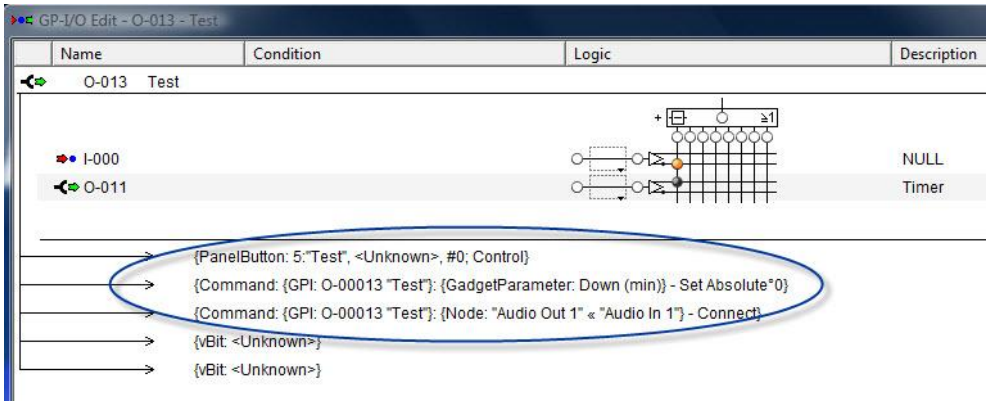
Connection of two crosspoints via GPO

7 GP-I/Os on Control Panels



Placing a GPO on a control panel

In the GP-I/O window, it is indicated whether a GP-I/O is used on a control panel.



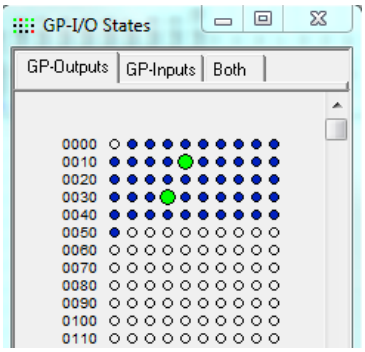
Display in the GPO edit window

The information that the GPO is being used on a control panel is shown in the relevant GPO's *Edit* window with ID (*5*) and name (*Test*) of the panel. Secondary commands of the GPO are listed here as well – in the screenshot above, the crosspoint *Audio Out 1 > Audio In 1* and a gadget parameter. Moreover, system-specific *vBit* entries are shown here as well, which should be neglected.

8 GP-I/O Status

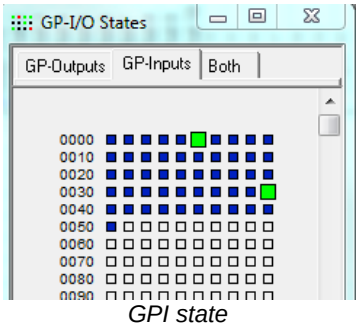
GP-I/O status display

To open the GP-I/O status display, select the corresponding symbol in the main menu. All GP-I/Os are shown in this view and can be activated or deactivated there.



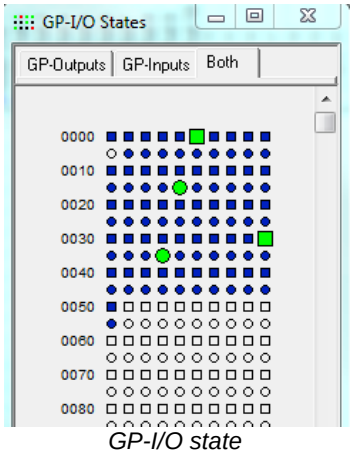
GPO state

Under the tab *GP-Outputs*, the GPOs are displayed as dots. Green dots indicate that these GPOs are active.



GPI state

The same applies to the two tabs *GP-Inputs* and *Both*, in which GPIs and GP-I/Os are displayed.



GP-I/O state

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