vsm Software

User Manual

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www.lawo.com/downloads

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1. Welcome

About this Manual

This document describes how to install, setup and operate the software components of a VSM system. Chapter 1 introduces the system. Chapters 2 to 16 cover **vsmStudio**, the main configuration and administration tool. The remaining chapters cover other software components including **Image Map**, **vsmPanel**, **vsmWebPanel** and **vsmTimeSync**.

Note that a complete system may comprise several software and hardware components. You will find more information about the hardware panel and interface options in the separate "vsm Gear User Manuals". All Lawo manuals are available from the **Download-Center** at www.lawo.com (after **Login**).

Look out for the following which indicate:

Notes - points of clarification.

Tips - useful tips and short cuts.

Warnings

Alert you when an action should *always* be observed.

Lawo User Registration

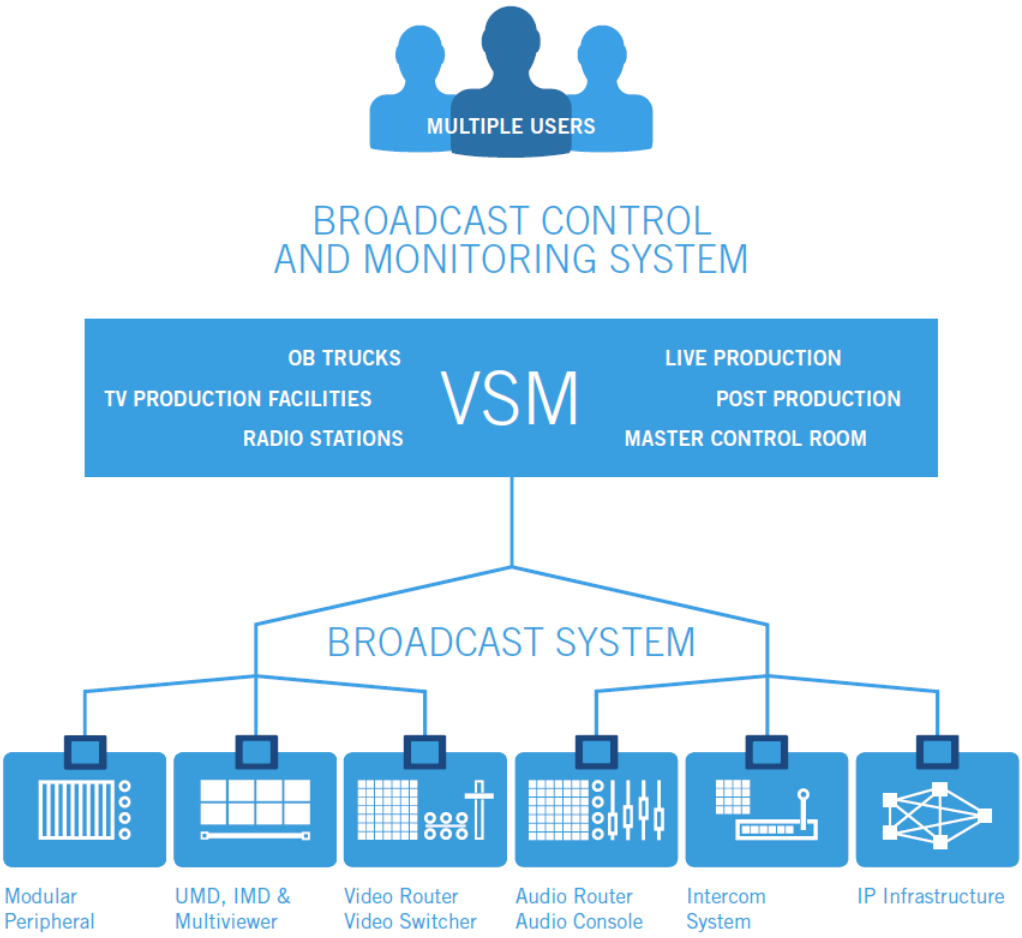
For access to the **Download-Center** and to receive regular product updates, please register at:

www.lawo.com/user-registration.

2. The VSM System: Overview

This chapter introduces the concept, architecture and components of a VSM system.

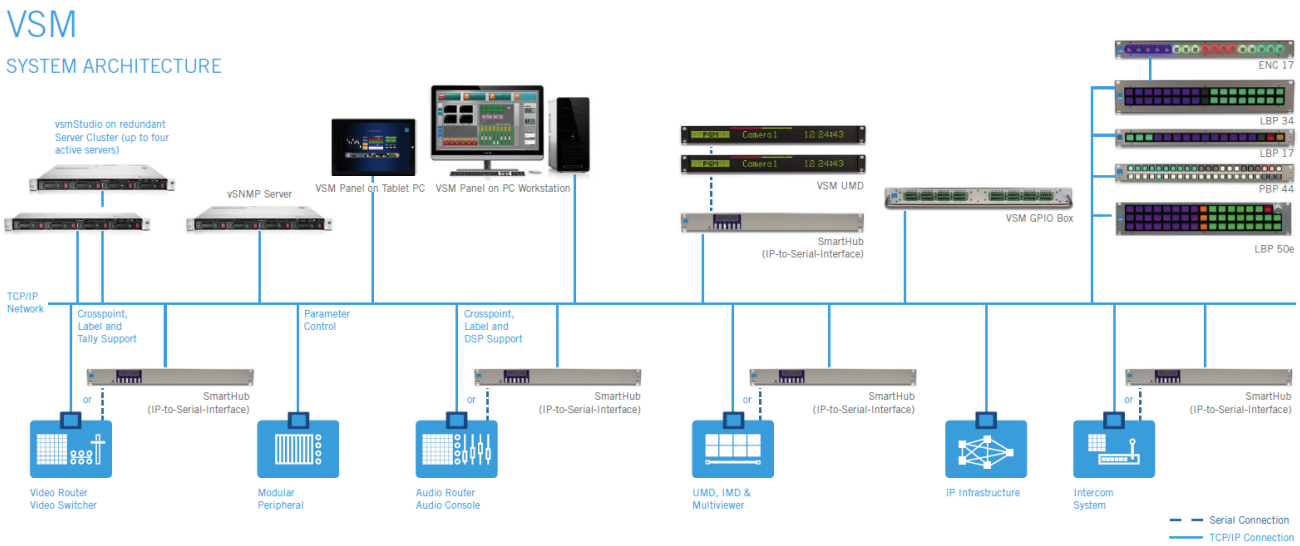
2.1 VSM – The Virtual Studio Manager



The basic concept of Lawo's Virtual Studio Manager (VSM) is to enable all production devices, parameters and functions to be controlled from a single, freely-configurable user interface which remains independent of the manufacturer. Thus, components such as a video switcher or router can be interchanged at any time, without impacting upon the end-user operation. During the last few years, this vision has grown into one of today's most powerful and cost-efficient universal control systems for broadcast applications. Having become the standard for OB-Vans, VSM has also proven itself to be a reliable partner for control functions in radio and TV studios, and master control rooms, around the globe.

The VSM controls routers and their integrated DSP functions, multiviewers, video mixers, audio consoles and modular equipment as well as any third-party devices. Additionally, the VSM control system offers functions, such as Tally, GPI, and Tie-Line Management as well as global labels of connected devices without requiring additional control systems. Most importantly, the VSM offers a unique feature: when running together with the **vsmPanel** application, the control system provides numerous, freely configurable software front-ends for all users and applications. This makes the Virtual Studio Manager the most flexible control solution to satisfy constantly evolving production demands.

2.2 System Architecture



The VSM control system is IP based. This means that the VSM is designed as an “Island Solution” but can also be smoothly integrated into an existing network. The VSM supports anything up to Layer3. Devices to be controlled are connected to the IP backbone, while third party devices are connected to the VSM via TCP/IP or RS-422/RS-232. If the latter only features serial ports, CommServers must be used to translate from RS-422 or RS-232 to TCP/IP. The TCP/IP structure also allows remote access to the system.

The base of the VSM control system consists of one or multiple routers, for increased redundancy. A redundant designed multiserver system can include up to 16 servers in one cluster. The servers can be based in different locations and provide all data multiple times, thereby providing a redundant system. What makes this VSM server cluster special in comparison to a Master/Backup-design is that different functions are distributed to different servers that all operate concurrently. This load distribution guarantees the highest level of system availability. In the case of one server failing, this server’s functions are smoothly picked up by another server in the cluster. Another advantage of the server cluster is the ability to implement software updates without interrupting the current broadcast.

Generally, all controlled hardware can be integrated into the VSM control system via IP-based serial ports, GPIs, or other standard ports. The VSM supports control protocols for audio, video, time code and control routers of all established manufacturers. The list of supported protocols also includes video mixers, audio consoles, multiviewers, monitors, intercom systems, modular equipment and multiple foreign devices. The VSM also allows the connection to automation systems as well as the control of video servers, audio work stations, CD/DVD players, and clip players. Our developers constantly add new protocols on request of our customers to continuously improve the VSM and to expand its usability. This ensures that the VSM represents a control solution that is constantly up to par and ready for use with cutting-edge technology. The VSM, of course, also controls the internal system hardware, such as “Under Monitor Displays” (UMDs) and “General Purpose Interfaces” (GPIs).

Where the operator is concerned, the VSM system offers hardware and software panels. With the freely configurable LCD button panel-series and the virtual GUI vsmPanel, the entire production environment can be monitored, managed, and controlled. Lastly, the VSM’s flexibility makes the configuration of all workflows quick and easy.

2.3 VSM Components

Software Toolbox

The **VSM Software Toolbox** comprises two principle applications:

- **vsmStudio** - is the main administration and configuration tool. It runs continuously on all VSM servers in the system and, as such, forms the heart of the system.
- **vSNMP** - is an easy-to-use SNMP manager. It provides a central monitoring solution for the complete system.

Control Panels

A combination of hardware button panels and software or web-based control clients can interact with the **vsmStudio** configuration running on the remote server. Note that, in each case, there is no need for a panel reboot or configuration download. This means that any changes to the design or functionality are instantaneous.

- **vsmPanel** - a software application that runs on a PC workstation. **vsmPanel** can be used, in conjunction with **vsmStudio**, to create virtual panels operated by mouse or touch-screen.
- **vsmWebPanel** - a software application similar to **vsmPanel** but with a browser-based (http) graphical user interface. **vsmWebPanel** can be opened on any desktop PC, laptop, or smartphone with a LAN or WLAN connection to the VSM system.
- **LBP Panels** - a range of hardware LCD button panels with full multi-color displays.
- **PBP Panels** - a range of hardware push-button panels with RGB-backlit displays.
- **TTP 10** - Lawo's own 10.4“ hardware touch-screen panel in desktop format.
- **ENC 17 Series** - a hardware panel with 17 incremental encoders using RGB-backlit displays.

VSM Monitors (UMDs)

A range of Under Monitor Displays (UMDs) can be added to the system to display source and tally information, timers, clocks, etc.

VSM Interfaces

Other optional interfaces include:

- **SmartHub** - a range of IP-to-Serial (RS422, RS232) interfaces for integrating non-IP devices.
- **Crosspoint Interface** - designed specifically to connect Grass Valley routers.
- **GPIO Box** - a range of GPIO interfaces for General Purpose Interface inputs and outputs.
- **LTC Sync Interface** - for connecting external time synchronization sources.

3. Installation and Update

This chapter covers the installation and update of the **vsmStudio** software.

3.1 System Requirements

3.1.1 vsmStudio Server

The requirements for a **vsmStudio** Server are as follows.

Note that the Standard Server is recommended. However, for installations with limited rack space a short-version Server can be specified.

Setup	Standard Server (recommended)	Short-version Server (compact)
Server	**HP DL360p** Gen8, Gen9	**HP DL20** Gen 9 (2017 onwards) **HP DL320e** G8 V2
CPU	min. Xeon E5 2620	min. Xeon E3 1220 (No Core i3 or Pentium)
RAID	Dedicated Raid Controller (e.g. HP Smart Array P440ar)	Dedicated Raid Controller (e.g. HP Smart Array P222)
RAM	min. 4 GB	
HARD DRIVE	min. 100 GB SATA/SAS	
OS	Windows Server 2016 English/German	

You can order any of the Servers listed above directly from Lawo, or buy a HP Server from your supplier:

- **Lawo-supplied Servers** - when you buy your server directly from Lawo it will be fully built, pre-configured and tested, and VSM will be licensed.

  Note: a Windows Server 2016 EN/DE license and product key must be provided.
- **Customer-supplied Servers** - if you buy a HP Server from your supplier, then Lawo will provide a download link to an installation image. The image contains all officially supported drivers for the relevant platforms.

Note that you *MUST* use the installation image *OR* purchase a pre-configured Server directly from Lawo.

3.1.2 vsmPanel Workstation Client

The requirements for a **vsmPanel** Workstation Client are:

vsmPanel Version 3.x

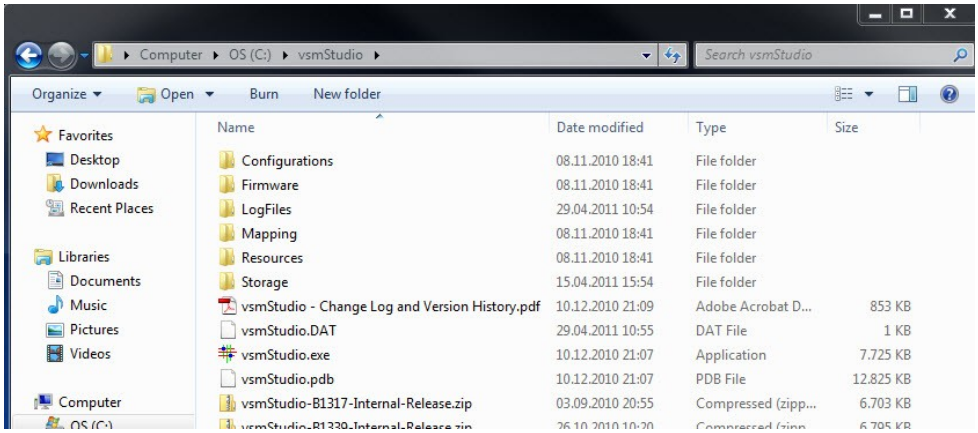
- OS: Windows7, Windows8 or Windows10
- CPU: min. Intel Core i3 or higher
- RAM: min. 4GB
- Graphics: min Intel HD Graphics 4000 or higher

3.2 Software Installation

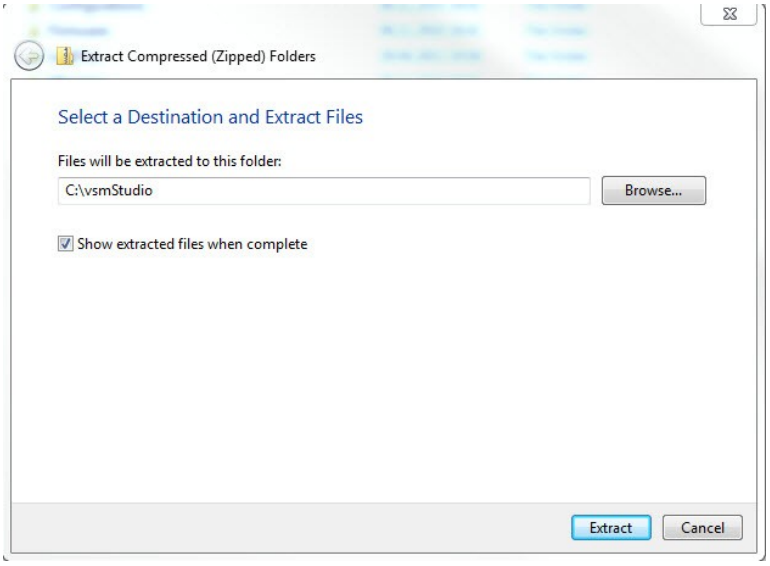
3.2.1 Installation of Demo Software

The demo software is available for download as .zip file or on a CD. A folder titled *vsmStudio* must be created on drive C as destination. Copy the .zip file into the folder.

vsmStudio Folder on C drive



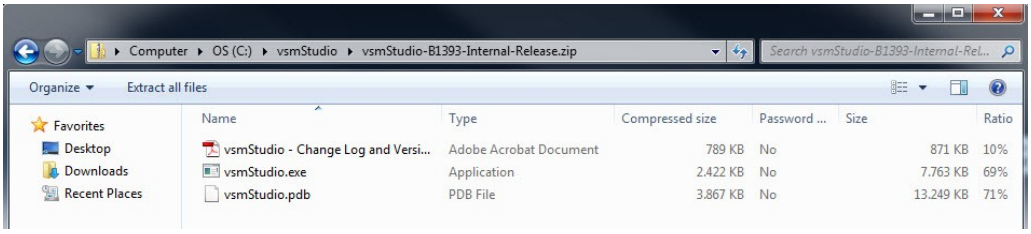
Unpack the .zip file in the same folder (C:\vsmStudio):



The folder contains the following three files:

- *vsmStudio – Change Log and Version History.pdf*, documents the changes made to the older versions of the software.
- *vsmStudio.exe*, the actual vsmStudio file.
- *vsmStudio.pdb*, the library that generates dump files.

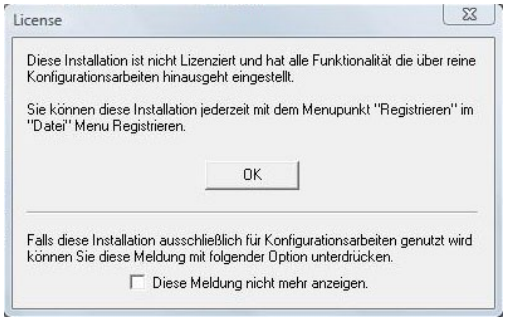
vsmStudio Update Folder



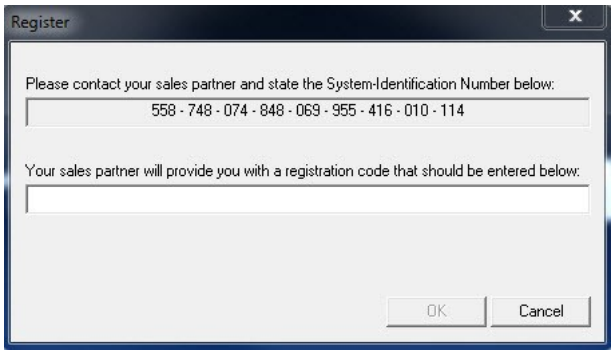
Start the software by executing the *vsmStudio.exe*.

3.3 Software Registration

After the initial start of vsmStudio, the following prompt will provide further information to register the software license:



To register your software, select the option registration under the menu tab. The following registration window will open:



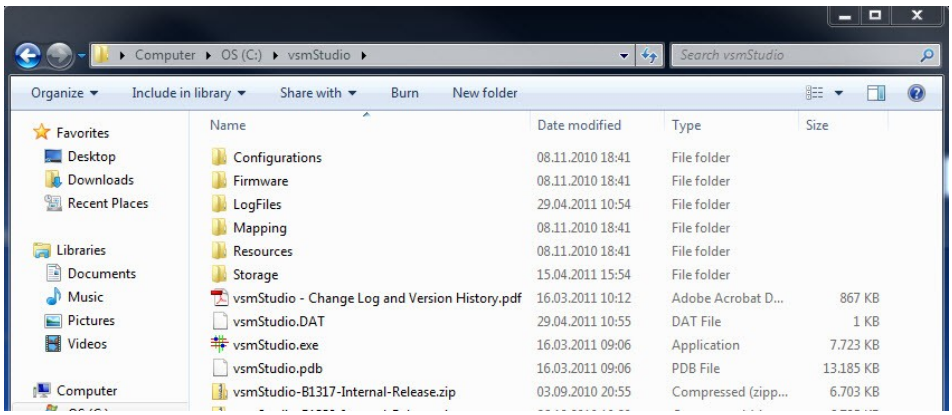
The system ID shown in the top row must be provided to the responsible sales partner together with the following information:

- Name of end customer
- Project or installation name
- Name of system integrator
- Server name
- On-site contact for technical questions
- If vsmPanel licenses are included in the order: number of vsmPanel licenses used
- Number of control ports (see Communication Ports Management).

The registration key will be provided after the aforementioned information has been fully submitted. Enter this combination in the blank line of the registration window shown above. This concludes the registration process – the software can now be used without any limitations.

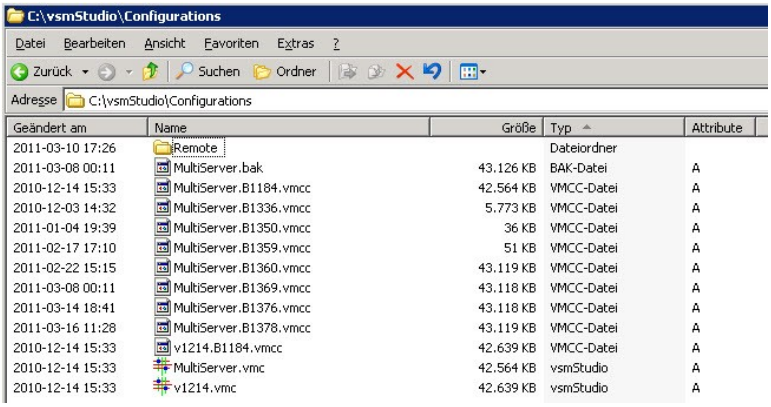
3.4 VSM Folder Structure

The folder vsmStudio on drive C is automatically created with the following folder structure:



3.4.1 Folder Configurations

The *Configurations* folder saves the following files for every configuration (see Configuration Settings).



.vmc Files

For every configuration, a **.vmc** file is created with an individual ID. It serves the synchronisation of servers in the multiserver cluster and contains the protocol assignment and configuration of the virtual master matrix (see Master Matrix).

.vmcc Files

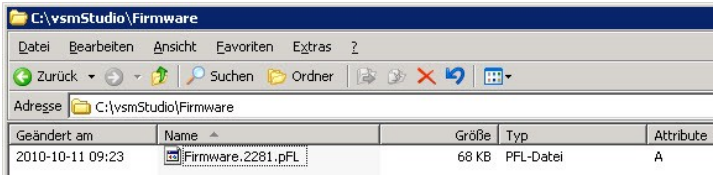
.vmcc files are generated automatically during software updates.

.bak Files

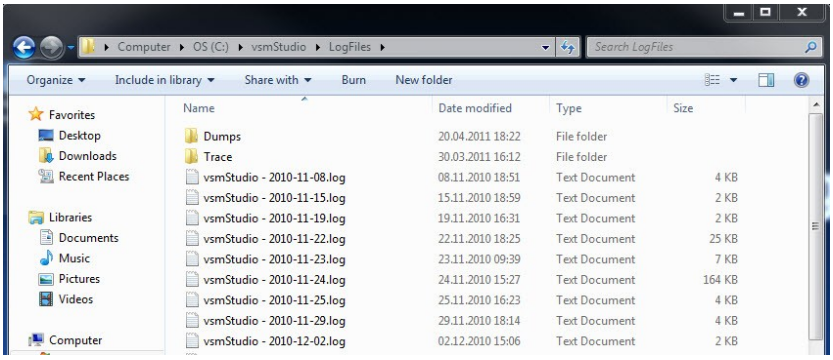
.bak files are backup files that are created automatically if system-critical changes are made to the configuration.

3.4.2 Folder Firmware

The folder *Firmware* initially contains no files. It is used to update the VSM hardware. Paste a new **.pFL** file into the folder to update the VSM hardware's firmware automatically. The hardware can be downgraded or flashed using a **Firmware.Patch.ini** file.



3.4.3 Folder LogFiles



.log Files

The software creates daily log files and saves them in this folder. This happens, for example, every time vsmStudio is started. If the software runs for 24 hours, a log file is created at 3:00am (local time) by default. Its size (in gigabytes) as well as length of time it will be saved can be defined at the start of every configuration (see Retention Limits for Log Files and Alarms). Log files are sorted by date and saved in a text format. Manual deleting of log files on a regular basis is recommended.

Subfolder Dumps

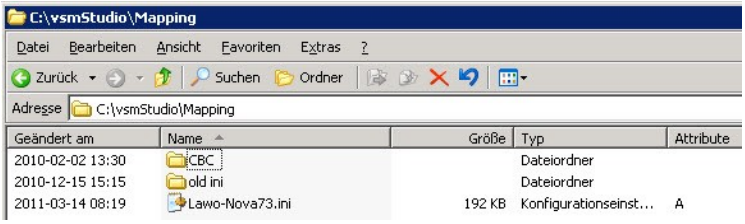
In the event of a crash, dump files (**.dmp**) are saved in the folder *LogFiles*. These contain a snapshot of the memory with time and date of the crash. This allows the identification of the problem that led to the crash.

Subfolder Trace

.txt files showing the *CommTrace* are saved in the subfolder *Trace*. Trace files contain information pertaining to the logging start of the computer, the version of vsmStudio used, running events, and crosspoints with pseudo devices (see Pseudo Devices). Go to the *System Debug Flags* rider under matrix settings to create a trace file (see Matrix Properties).

3.4.4 Folder Mapping

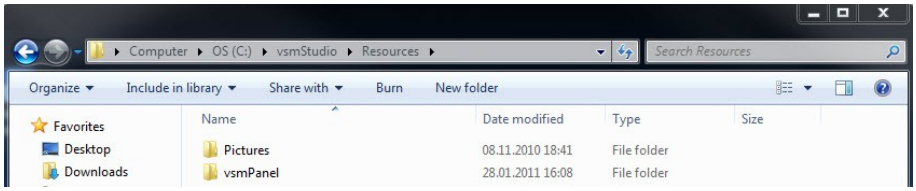
If a Lawo Nova 73 router is used, the folder *Mapping* saves a **.ini** file with the corresponding interfaces:



This file should *always* be read-only.

3.4.5 Folder Resources

The folder *Resources* contains two sub folders: *Pictures* and *vsmPanel*.



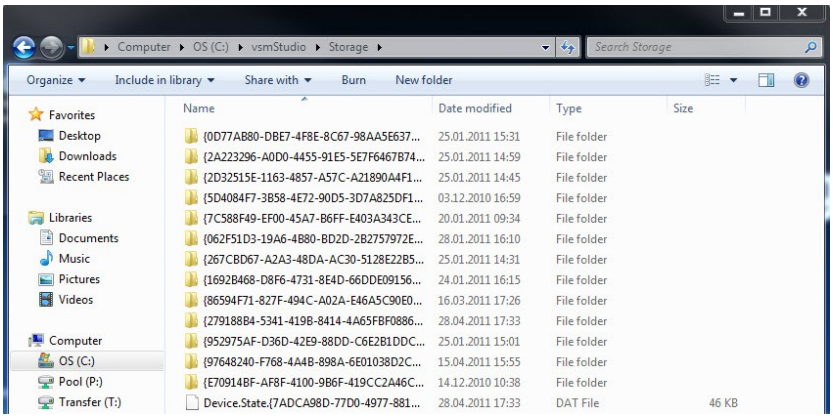
Subfolder Pictures

The folder *Pictures* allows the saving of different backgrounds for different panel IDs. If it contains the file **background.default.bmp**, this picture is used as background for the panel editor.

Subfolder vsmPanel

The folder *vsmPanel* contains pictures that are assigned to buttons in the panel editor. These are saved automatically.

3.4.6 Folder Storage



For every configuration, the folder *Storage* contains different .dat files with configuration-specific information. In these files, each label change and change of storage groups is assigned a time stamp and subsequently saved. The time stamp is not applied to all labels and storage groups, but only to those that were changed.

The following **.dat** files are saved here:

- **Labels.dat**: transfer of labels to other servers with time stamp and changes.

- **ScheduledEvents.dat**: events for the transfer to other servers set up in the scheduler.
- **SignalLocks.dat**: locked signals to be transferred to other servers.
- **StorageGroups.dat**: contents of storage groups to be transferred to other servers.
- **VirtualStates.dat**: crosspoints information of virtual signals (see Virtual Signals).
- **Tombstones.dat**: administrative file that saves changes and synchronizes the server (for a maximum of 90 days).
- **DeviceState.dat**: crosspoint information of the VSM Dummy X-Switches (see VSM Dummy X-Switch).

3.4.7 vsmStudio Files

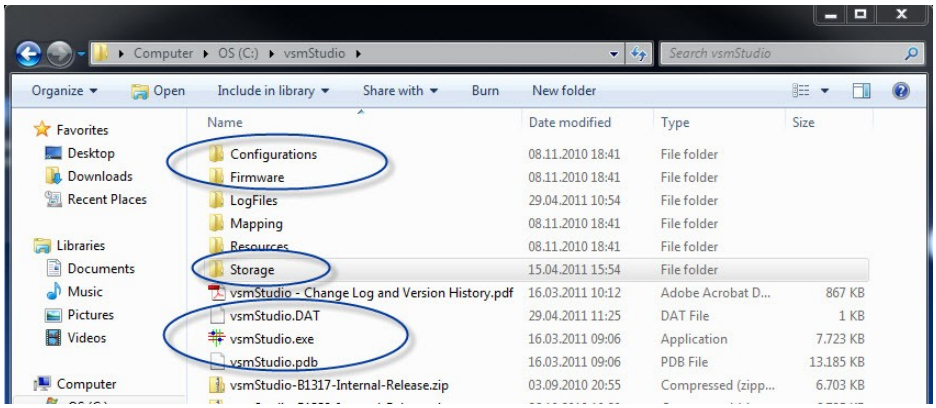
In addition, the folder contains the vsmStudio files made available for the installation and updating of the software (see Installation of Demo Software) as well as a **vsmStudio.DAT** to save user rights.

3.5 Software Update

3.5.1 Software Backup

> It is recommended to complete a backup of the running version before starting a software update. This ensures the availability of the current version should the software update fail.

The critical files that need to be saved to return to the currently running version of **vsmStudio** are located in the folder *vsmStudio* on the C drive:



To create a backup of the current version and configuration of **vsmStudio**, copy the following files and folders onto the backup drive:

- the folder *Firmware*
- the folder *Storage*
- the file **vsmStudio.DAT**
- the file **vsmStudio.pdb**
- the file **vsmStudio.exe** and
- if available the original **.zip** file.

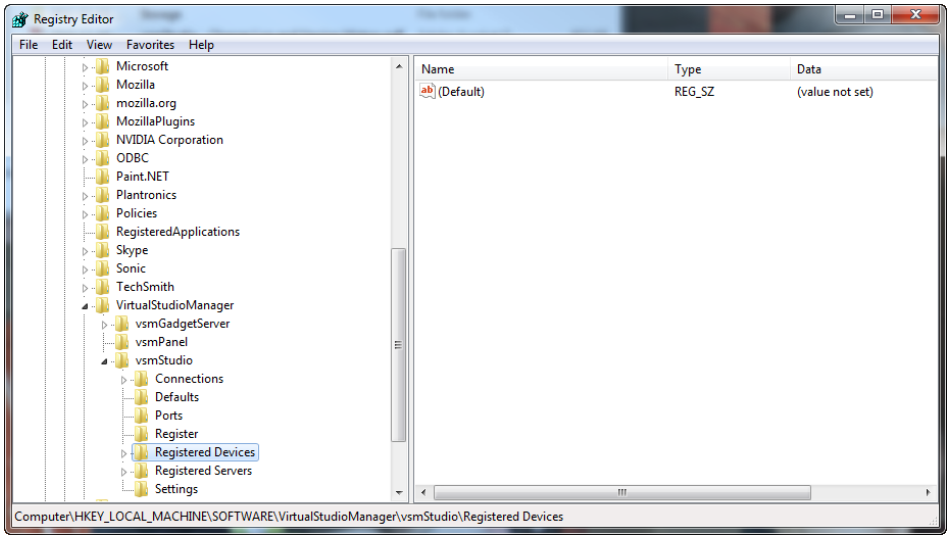
The used configurations from the folder *Configurations* (**.bak** and **.vmcc** files do not need to be stored but should be deleted from time to time due to the fact that they are created on a regular basis)

If devices from the manufacturer Lawo are used, the **Lawo-Nova73.ini** file from the folder *Mapping* must also be copied.

From the Registry Editor (Regedit at "HKEY_LOCAL_MACHINE\SOFTWARE\VirtualStudioManager\vsmStudio") the following files are to be copied:

- **Connections**

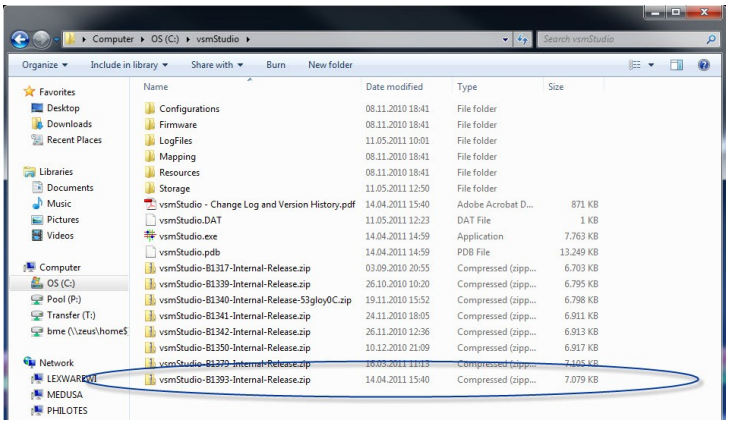
- **Ports**
- **Registered Devices**:



All files should be copied to a folder at the backup partition and named with the date of the day. Finally the **vsmStudio** software must be closed before completing the update.

3.5.2 Software Update

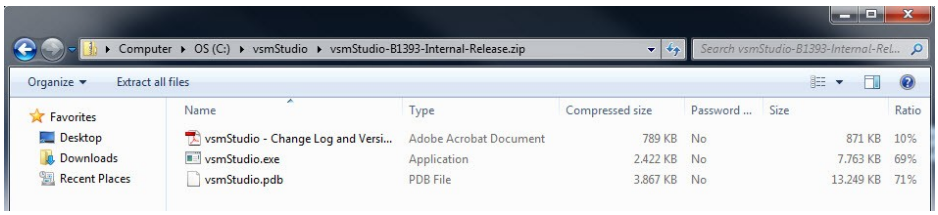
Lawo provides download links for the software update of **vsmStudio**. The **.zip** file received via e-mail must be opened by clicking on the download link and saved in the *vsmStudio* folder on the C drive:



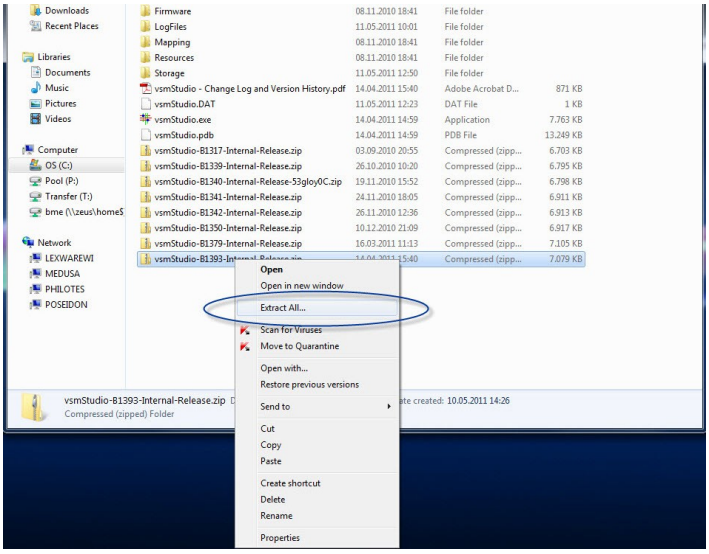
The update folder contains the following three vsmStudio files:

- **vsmStudio.exe**, the actual vsmStudio update file
- **vsmStudio.pdb** and
- **vsmStudio – Change Log and Version History.pdf**

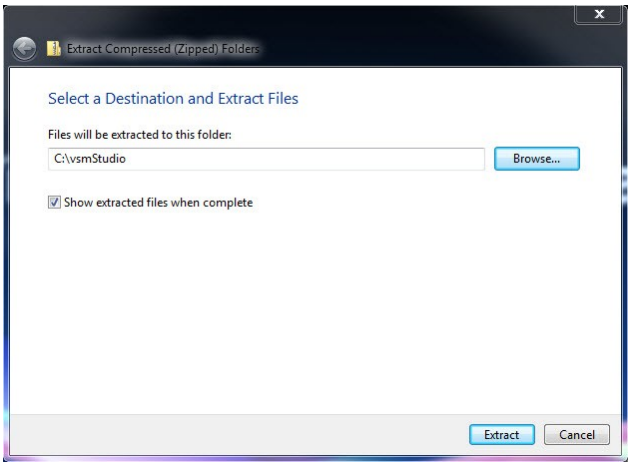
vsmStudio Update Folder



Select the **Extract all** option after right clicking on the **.zip** folder to extract the files:



The destination folder of the extracted files is again the *vsmStudio* folder on the C drive:



As older versions of the files already exist in the folder, the system will verify whether these files should be replaced. Confirm three times to update all three files.

When starting **vsmStudio** the next time, verify the success of the update by checking the start-up screen or the build number above the info symbol:

If available, these update steps should be repeated at the redundant server.

4. Configuration Settings

The **.vmc** file created by the **vsmStudio** software is called configuration. It contains all project-specific settings for the VSM control system. This chapter covers the settings stored by, and management of, configuration files.

4.1 New Configurations

To create a new configuration file, left-click on the page symbol in the main menu bar:

4.1.1 Size of Virtual Matrix

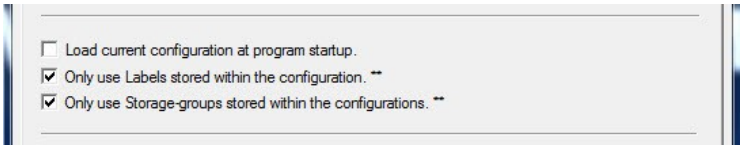
During the creation of a new configuration, the size of the virtual matrix (see Master Matrix) is defined by entering the size of the entire production complex to be controlled for the (approximate) number of in- and outputs. These initial settings can be changed later in the rider *Settings* (see Settings) under the tab Matrix Properties.

Settings for the creation of a new configuration

4.1.2 Operational Settings

In addition to the size of the virtual matrix, settings pertaining to the operating mode of the control system are entered in the same window. There are generally two types of operating modes: in an OB-Van or in a studio/studio complex.

Operating Mode OB-Van



If the system is operated in an OB-Van, the following attributes should be activated:

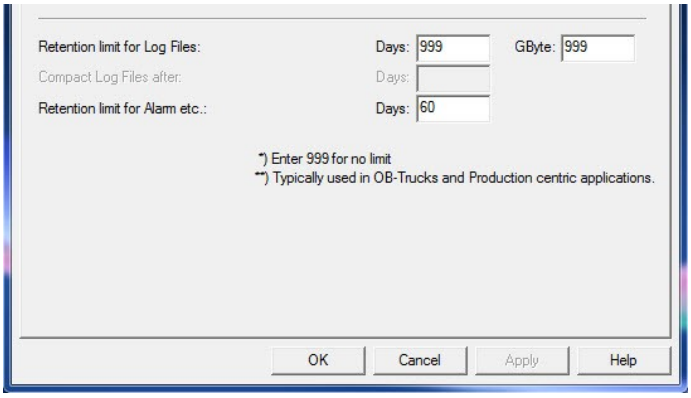
- *Only use Labels stored within the configuration.* and
- *Only use Storage-groups stored within the configurations.*

If both attributes are checked, labels and storage groups are saved within the configuration file. This allows the loading of different configuration files as well as accessing the labels and storage groups saved there.

Operating Mode Studio

If the entire system is operated in a studio or studio complex, the aforementioned attributes should not be activated. The system will so not only save labels and storage groups within the configuration, but also create additional files locally or on the server. These files can be found in the vsmStudio subfolder *Storage* (see Folder Storage). This ensures that only the newest labels and storage groups are used during studio operations, independent of the configuration loaded at the moment.

4.1.3 Retention Limits for Log Files and Alarms



Limitations for the saving of log files and alarms are defined the bottom part of the settings. By default, the maximum file size is set at 999 gigabytes. If this limit is reached, the system will commence deleting old log files. The used hard drive space can be defined anywhere between 12 gigabytes and 999 gigabytes. Moreover, it is possible to define the length of time – in days – that the system will keep the log files. It can be set anywhere between 30 days and 998 days. To deactivate the time limit, enter 999 for the number of days. The system will use whichever of the two limits is reached first and apply the appropriate limitation. Log files are saved in the vsmStudio folder *LogFiles* (see Folder LogFiles).

If the function alarm management is activated, alarm notifications will be included in the log file. For those, the limitations can be set between seven days and 998 days. The storage limitations are the same as those for log files.

4.2 Saving a Configuration

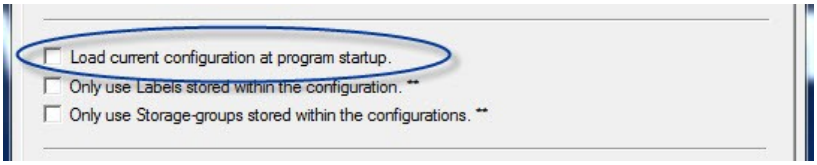
By left-clicking the floppy disk symbol in the main menu bar, the configuration file currently in use can be saved anywhere.

4.3 Loading a Configuration

Configuration files are opened through the folder symbol in the main menu bar:

In the top right of the main menu, the software will show whether a configuration files is opened. If so, it will display the name of the configuration file currently in use after the server/PC name:

Activate *Load current configuration at program start-up.* in either the initial settings (see Operational Settings) or the matrix settings (see Settings) to automatically load the configuration for which this attribute was checked:



The setting is only available after the configuration file has been saved. The program will load the configuration for which the attribute was activated until it is changed to a different configuration.

5. Layers

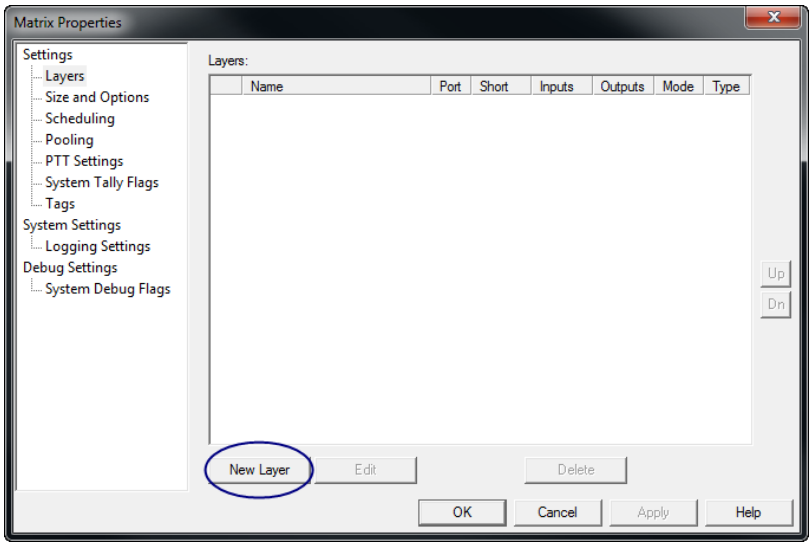
After defining the size of the virtual matrix in your **vsmStudio** configuration (see Size of Virtual Matrix), it is possible to create layers. In general, every router represents a separate layer. However, some routers may support multiple layers, such as audio and video.

This chapter covers the configuration of layers. Note that each layer - audio and video - must be setup individually.

5.1 First Steps

Open the *Matrix Properties* window by selecting the wrench symbol in the main menu bar:

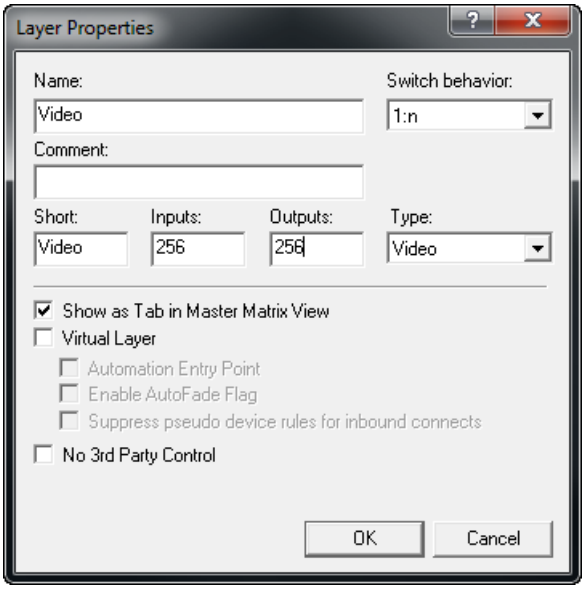
All existing layers are shown in the section *Layers*. They can be edited or deleted there. The layers can also be sorted in that view by pressing the *Up* and *Dn* (Down) buttons:



Left-clicking on **New Layer** opens a window, in which the properties for the newly set up layers can be defined. There are two different types of layers: physical and virtual layers.

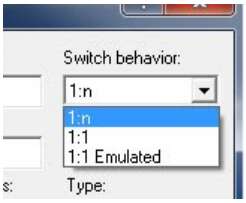
5.2 New Physical Layer

Layer properties



Enter a unique name for the router in the field labelled *Name*, for example “Video“.

5.2.1 Switch Behaviour of the Router

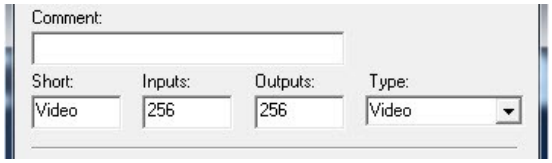


The operating behaviour of the router is defined in the drop-down-menu *Switch behavior*. The following behaviours can be defined here:

- *1:n*: The router allows the connection of one source to multiple destinations.
- *1:1*: The router allows one connection per source (typical for RS-422 routers).*
- *1:1 Emulated*: While the router allows the connection from one source to multiple destinations (*1:n*), the switch behaviour is that of a *1:1* router. *

*Please note: the *1:1* and *1:1 Emulated* definitions require a blind signal.

5.2.2 Comment and Short Form



The field *Comment* is not required and can be labelled in any way (for example with the name of the console’s manufacturer). The field *Short* is limited to a maximum of eight characters. The short form entered here can be found in the signal path list (see Signal Path List) and in the master matrix view (see Master Matrix).

5.2.3 In- and Outputs of the Router

The actual physical size of the layers must be defined in *Inputs* and *Outputs* (two separate windows).

> Please note: if the matrix is smaller than the entered value, this can prompt an error message.

5.2.4 Router Type

Like the field *Comment*, the field *Type* is not required: Defining the router type (freely selectable) may improve the ability to differentiate between the individual layers. One useful differentiation, for example, the division by types would be: video-, audio-, and remote matrices.

5.2.5 Layer in the Master Matrix

The setting *Show as Tab in Master Matrix View* is checked by default. This attribute allows the layer of the virtual matrix in question to be viewed individually by selecting its individual tab (see Layer and Position Display). In this layer view, the layout of signals cannot be changed. It depends on the physical assignment of the router.

5.2.6 Server Synchronisation

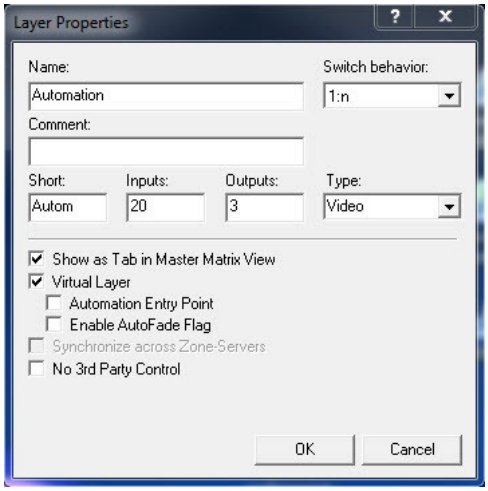
Synchronize across Zone-Servers is only used with so-called dummy layers. In this situation, the used layer has no physical counterpart. Therefore, there is no feedback from the crosspoints. It is possible, to assign a simulated feedback to such a layer (see VSM Dummy X-Switch). The crosspoint changes have to be transferred to other servers in the cluster, as these simulated feedbacks only take place locally on a PC or server. This can be activated by checking the box here.

5.2.7 Definition of the Control Instance

The setting *No 3rd Party Control* is activated if VSM is the only controlling party, and no other control or automation systems or other devices from the manufacturer are used for the control of the terminal equipment. With this setting activated, the behaviour of virtual devices changes (see Virtual Signals) depending on switches that are executed by another control instance.

5.3 New Virtual Layer

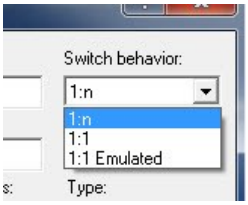
New virtual layer



A virtual layer, or vLayer, commonly serves as a connection of automation systems that should only have access to a section of the available routers. It can also be used as protocol converter. For example, if an automation system cannot control a router due to a missing protocol, the VSM control system will provide the automation system with a known protocol (ProBel SWp08, ProBel SWp02 or Quartz Native-1). The switch information is directly forwarded to the terminal device.

The properties of a new, virtual layer are defined in the same window. Similarly to the physical layer (see New Physical Layer), a unique name for the virtual layer must be entered in the field *Comment*.

5.3.1 Switch Behaviour of Virtual Layers



The switch behaviour of a virtual layer must always be *1:n*. It primarily depends on which signals are assigned to the virtual layer.

5.3.2 Peculiarities of Virtual Layers

If *Virtual Layer* is activated, two additional properties become available (in addition to those described in New Physical Layer):

- The attribute *Automation Entry Point* is checked if there is a connection to an automation system.
- When receiving a switch from an automation system, the attribute *Enable AutoFade Flag* prompts a fade out of the current source and a fade in of the new source. This requires the proper configuration of the AutoFader module.

The remaining attributes are not used in combination with virtual layers.

6. Signal Paths

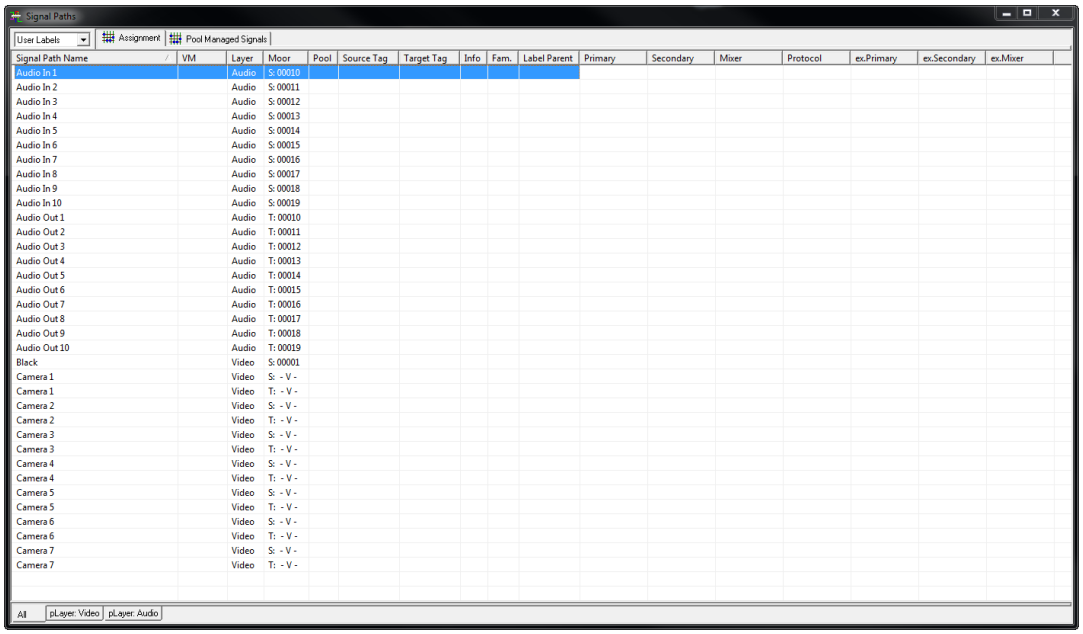
If **vsmStudio** is to control signal inputs or outputs - for example, to set crosspoints by connecting inputs to outputs in a matrix view - then these resources must be configured as signal paths. The signal path list contains all physical and virtual signals paths for the configuration.

This chapter covers the configuration of Signal Paths.

6.1 Signal Path List

Open the signal path list by clicking on the appropriate button in the main menu bar:

The list shows all existing signals and allows the set-up of new ones:



The signal path name can be found in the column titled *Signal Path Name*. It is also displayed as identifier (see Signal Path Name) in the master matrix (see Master Matrix). This name is created during the set-up of the signal path (see New Signal Path) and must be unique (across all routers) in the entire controlled system.

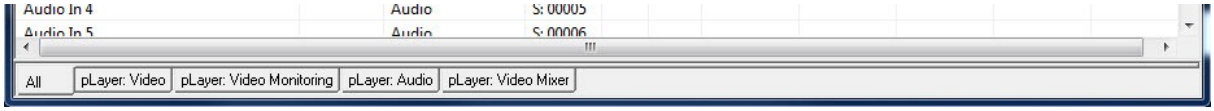
The column *VM* shows the location of each signal on a virtual layer (see New Virtual Layer). The column *Layer* shows on which phyiscal layer each signal lies (router, mixer, etc., see New Physical Layer). The column *Moor* indicates the position of each signal path on the physical layer. The abbreviations *S* and *T* stand for source and target, respectively.

The column *Info* shows for each signal path whether it contains secondary functions or is linked to another signal. In the column *Fam.*, each signal path's family is shown (see Signal Path Families).

The column *Primary* shows the primary label of each signal used on operating devices and UMDs (see UMDs). The column *Secondary* shows the secondary label.

The column *Mixer* may contain a label that is specifically displayed on a mixer. The same applies to *Protocol.* In this case, it depends on the label ID that is transferred in the network. If a label is shown under *Extern*, it overlays the primary label.

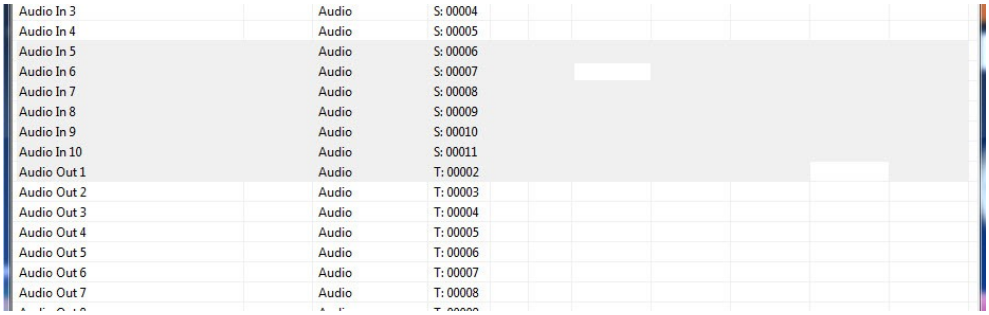
6.1.1 Layer-Oriented Display of Signal Paths



The first tab in the bottom left of the signal path list shows all signal paths. To obtain a better overview, the signal paths can be displayed by individual layers.

6.1.2 Changing Signal Path Names

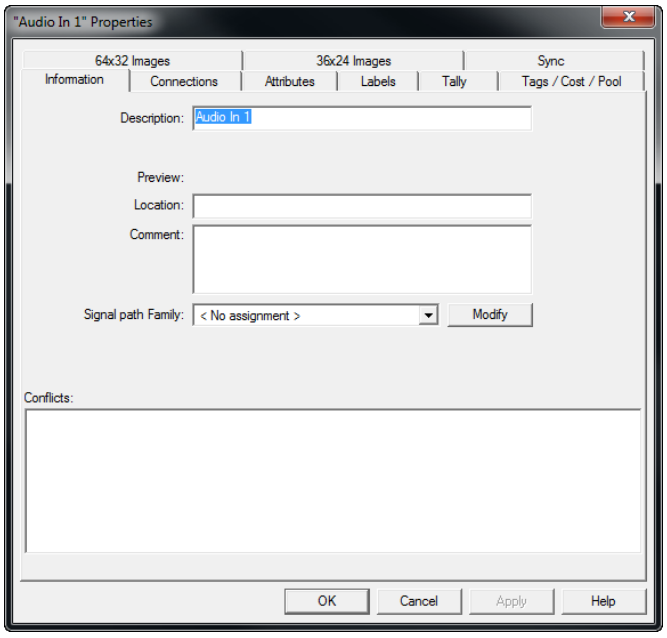
It is possible to change or add signal paths names to all labels in the signal path list except for the *Identifier* entered as signal path name. To do so, select the relevant signal path, click into the field that is to be changed, and overwrite the old signal name with the new one.



To change the names of multiple selected signal paths, it is possible to navigate from top to bottom by pressing the *Enter* button.

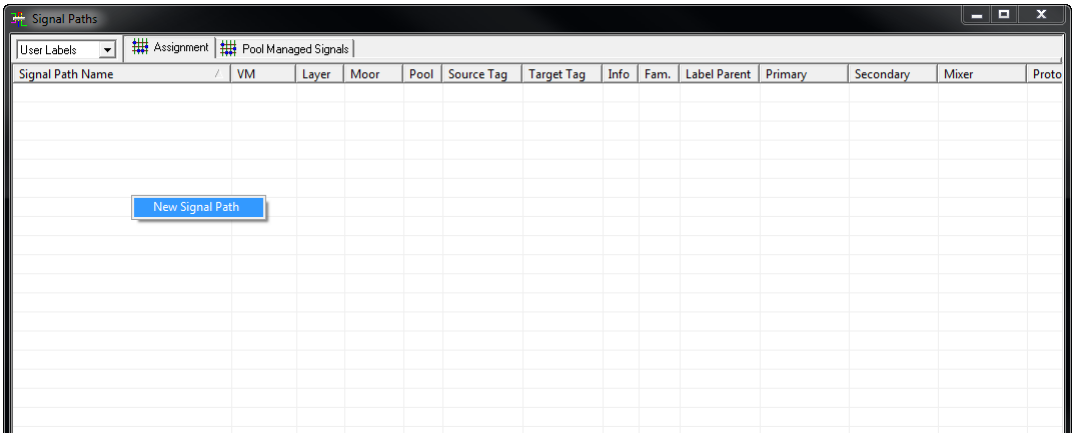
6.1.3 Signal Path Properties

Double-clicking on a signal will open the signal path's properties:



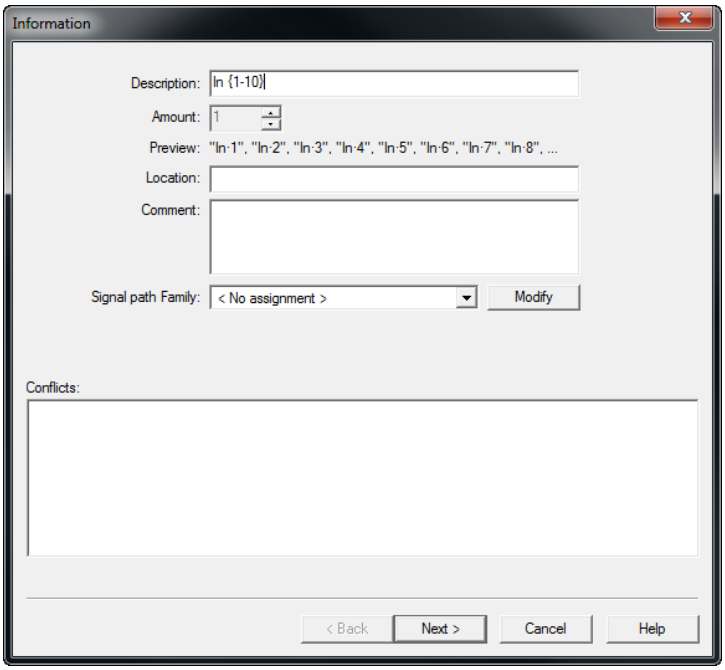
6.2 New Signal Path

Right-click onto the signal path list to set-up a new signal path:



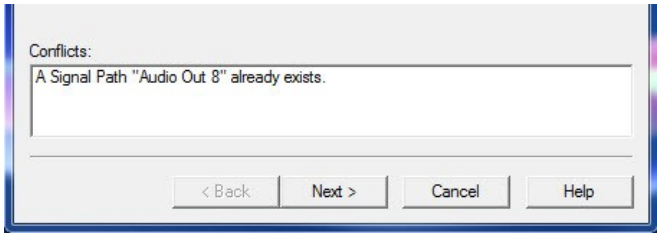
6.2.1 Signal Path Name

Signal path settings



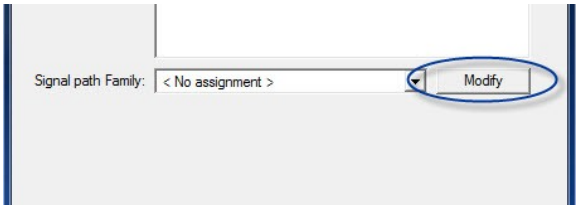
Enter a unique name, the so-called identifier, for the signal path in the field titled *Description*. Since the field features an iterator, multiple, consecutively counted signal paths can be set-up by using curly brackets, for example In {1-10} (see vsmStudio Application Note 020 Using Iterators). It is also possible to enter the number of consecutively counted signal paths as a digit in the field *Amount*.

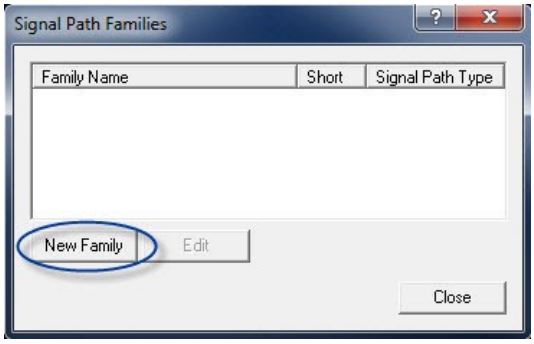
The *Preview* shows the newly set-up signal paths. Both the field *Location* and *Comment* are not mandatory. They rather serve to distinguish signal paths more precisely, for example by their locations. If the chosen identifier is already in use, the resulting conflict is indicated as shown below:



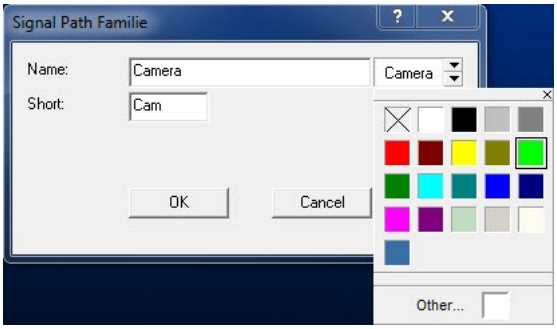
6.2.2 Signal Path Families

Groups of signal paths can be marked as families through the option *Signal path Family.* This first requires the creation of signal path families. Select *Modify* followed by *New Family* to do so.

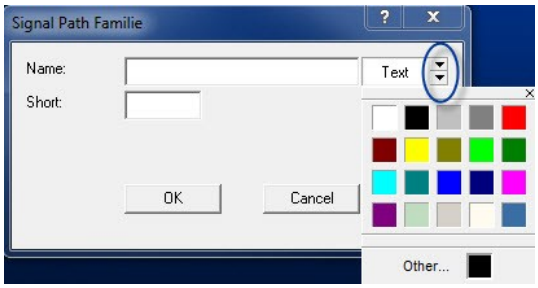




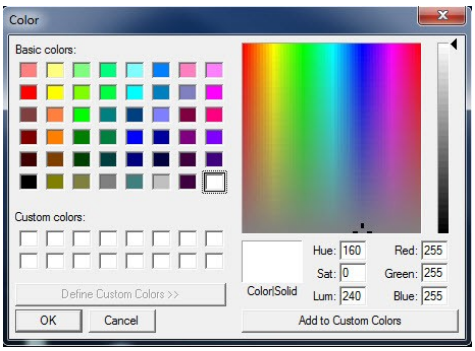
A short form and a colour can be assigned to each new signal path family, for example the family *Camera:*



The purpose of the upper drop down menu in the colour field is to assign a colour to the text; background colour is assigned with the lower drop down menu:

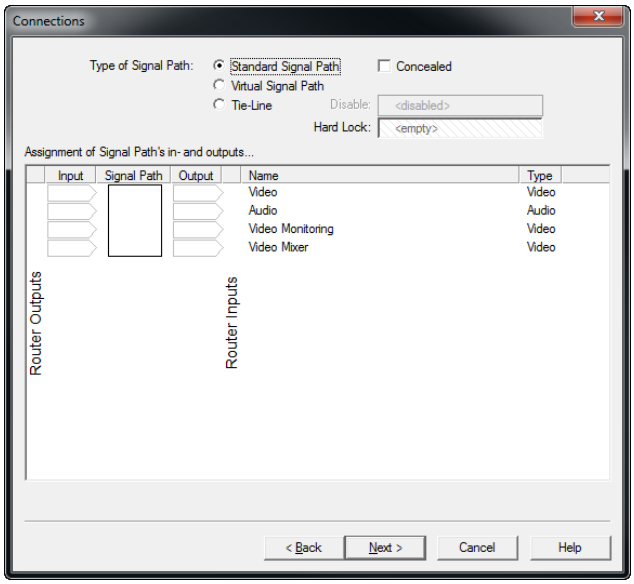


If the required colour is not included in the list, it can be added through *Other... .*



6.2.3 Signal Path Connections

When all required information has been entered, select *Next* to continue to the signal path connections.



Signal Path Type

The type of the signal path can be selected as a *Standard Signal Path* (a physical signal), a *Virtual Signal Path* (see Virtual Signals) as well as a cross connection or *Tie-Line* (see Tie-Lines).

If the option *Concealed* is checked, the label of this signal path will not be displayed but concealed. Instead, the label of the signal that is switched on it is shown.

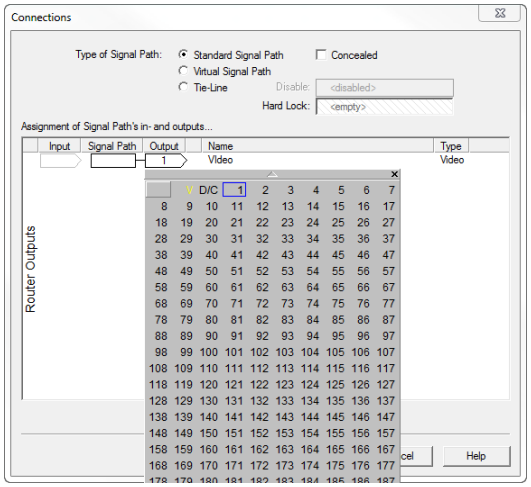
The option *Invisible (Sticks to Sources)* is mainly used for loop-through devices, in which case the loop-through device is generally “attached” to the source signal. Effectively, the physical crosspoint is set at the loop-through device, but the target is being switched. This allows, for example, assigning sources to processing devices, without them having to be visible or manually assigned to each target.

Assignment of Router Inputs and Outputs

Under *Assignment of Signal Path’s in- and outputs...* it is possible to define whether the created signal is a router input or output, meaning the physical position of the signal path. To this point, this field offers the device input for the router output (shown vertically at the margin) as well as the output for the router input. Signal paths that are looped-though multiple signals, such as a frame synchronizer, must be assigned on both the inputs and the outputs side. The assignment window also shows the *Name* and *Type* of the layers.

To start the physical assignment, click on the rhombus that represents the relevant side of the layer to be connected, for example the audio router. Subsequently, choose a free spot (the numbers shaded in grey represent used spots that do not allow another assignment) and select it. A number framed in blue indicates the successful assignment of the signal path. An assignment can be reverted by right-clicking into the blank field in front of *1*.

Assigning a signal path to a layer



6.2.4 Signal Path Attributes

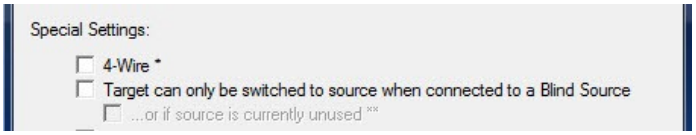
When the signal has been assigned, the next window offers *Attributes* for the signal path.

Settings Relevant to the Connection

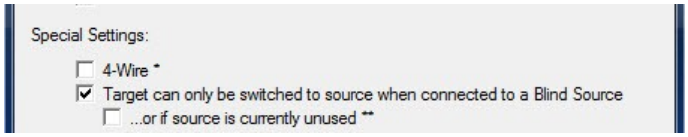
The attribute *No loopback* is checked by default. It prevents that the signal is switched onto itself. The second option makes the created signal a blind source.

If the attribute *Is "Cardinal" Source* is activated, this source will be set and displayed independently of all other signals. With the option *"Talk Back" Source*, the previously selected source can automatically be selected again: If this source is selected after a crosspoint had been set with it, the crosspoint will jump back to the previous source.

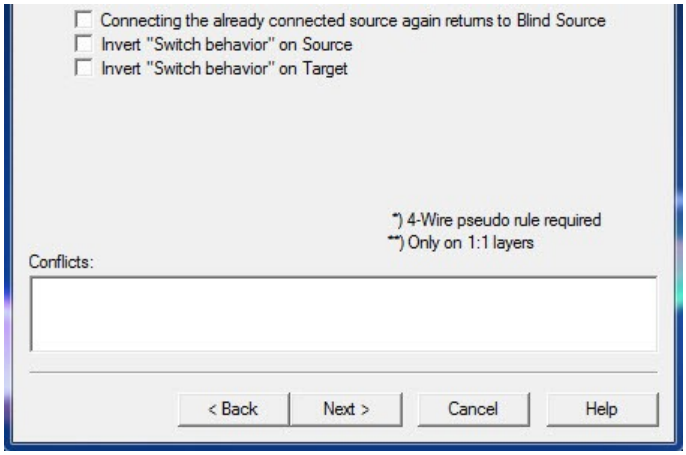
Special Settings



The option *4-Wire* allows (with the required 4 wire pseudo device rule, see Pseudo Devices) the creation of a 4 wire line. If *Target can only be switched to source when connected to a Blind Source* is checked, a target must first be connected to a blind signal before being switched to a source.



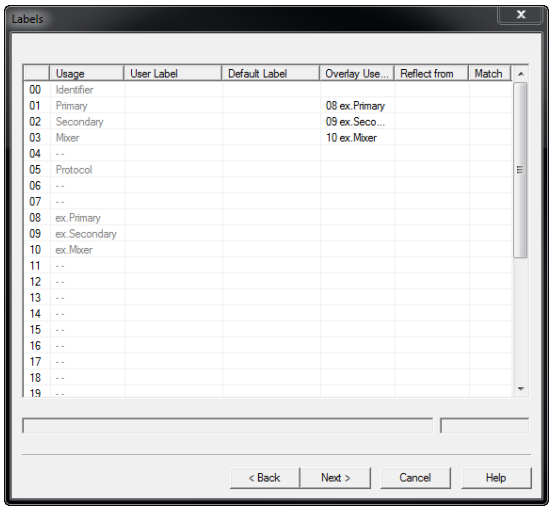
If *Target can only be switched to source when connected to a Blind Source* is checked, the option *...or if source is currently unused* becomes automatically available. Through it, the target can be switched directly to an unused source. This only applies to layers with 1:1 switch behaviour (see Switch Behaviour of the Router).



If the attribute *Connecting the already connected source again returns to Blind Source* is activated for a target, and if the target is switched to a source, it is connected to a blind signal when the source is selected again. If the options *Invert "Switch behavior" on Source* and *Invert "Switch behavior" on Target* are checked, it is possible to define a 1:1 switch behaviour for this signal.

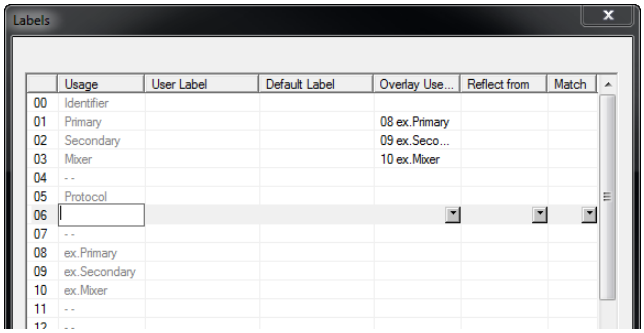
6.2.5 Labels

The next window allows the creation of up to 32 IDs for different labels. The primary label, for example, is used on panels and UMDs (see UMDs).



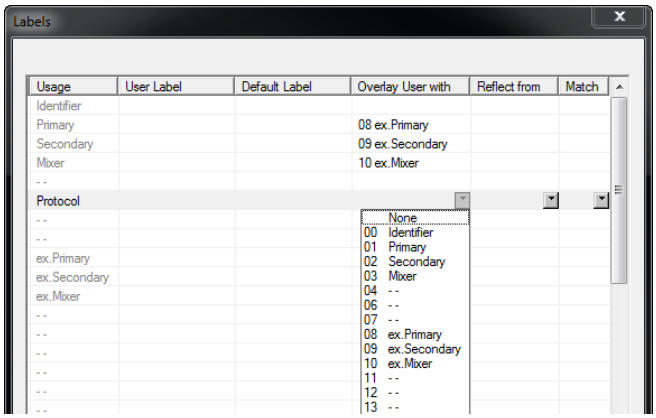
Label Names

The column *Usage* shows the name of the labels. To overwrite or add a name, simply left click on the relevant field. The name will then be displayed in the signal path list as an additional tab (see Signal Path List).



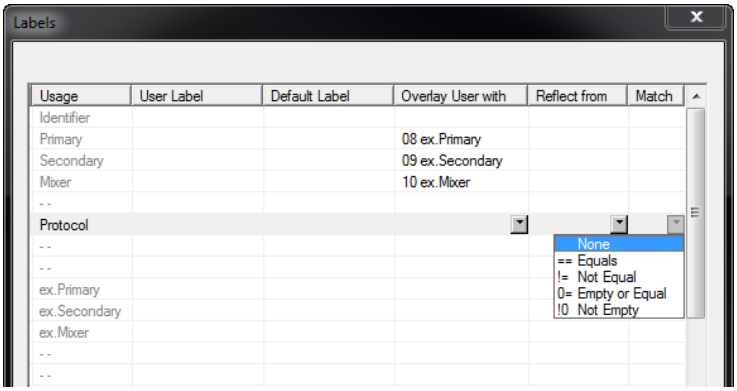
Overlaying Labels

The *Overlay User with* function allows a label to be overlaid by another one. To do so, choose the field with the ID that should be overlaid by the label. Subsequently, the newly defined label will be displayed.



Reflecting Labels and Match

The *Reflect from* function reflects the label of the target to the switched source.



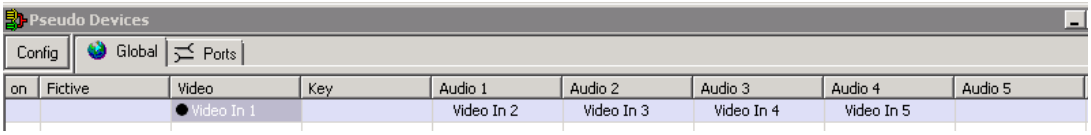
Through the *Match* function, the switching of a source can be changed as follows:

- == *Equals*: The selected target will only be connected with sources of the same name.
- *!= Not Equal*: The signal will only be connected to sources that have a different label.

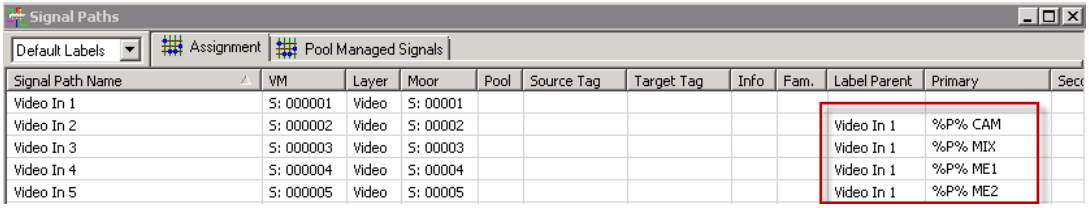
- *0= Empty or Equal*: The target will only be connected to the source that has the same or a blank label.
- *!0 Not Empty*: The target will only be connected if the field *Label* is not blank.

Label Parent

Using the function Label Parent it is possible for signal paths to reference to another label. This depends on the configuration in the Pseudo Device list. The signals on the right side can inherit the label of the trigger (Video).



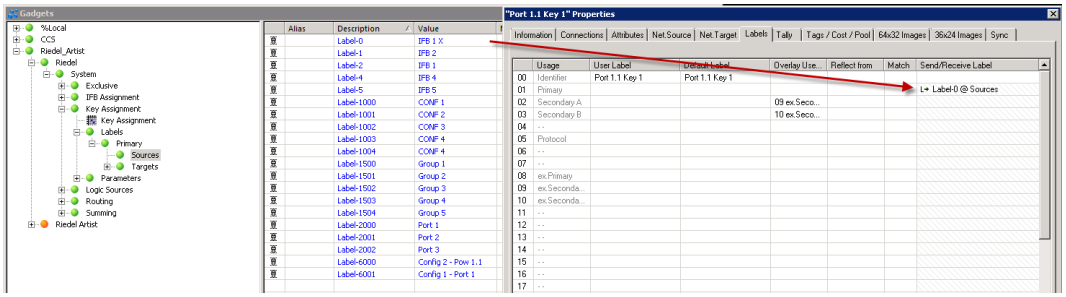
Within the Signal Path list you need to type '%P%' into a label in order to activate the Label Parent function.



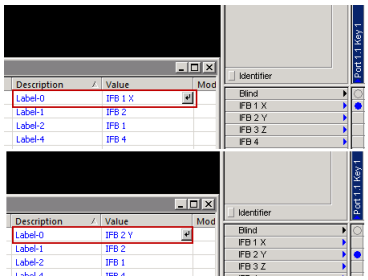
You can append the Label Parent with additional label information that will be added.

Send/Receive Label

Send/Receive Label allows to send a signal's source label to a label gadget parameter.



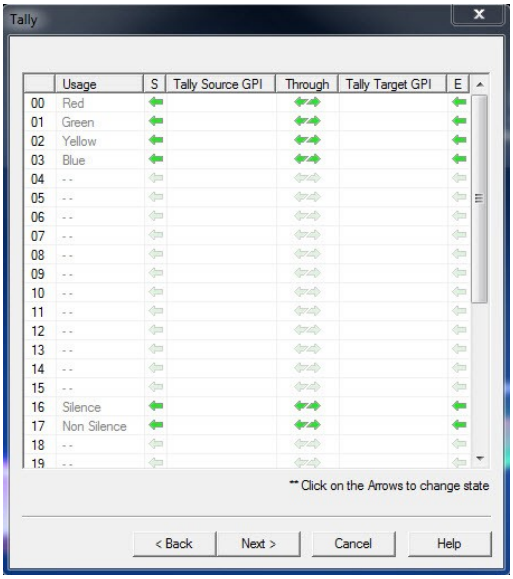
For this drag and drop a source label gadget parameter into the Send/Receive Label column drop zone of the desired target.



Now, the label of the connected source will be transferred to the attached label gadget.

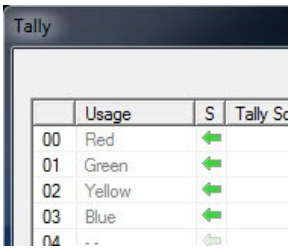
6.2.6 Tally

The next view shows whether tally is configured for this signal.



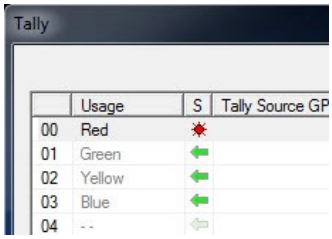
Tally Colours

All tally colours are shown in the column *Usage*.



The names of the colours can be changed here, and new ones can be added.

Static Tally



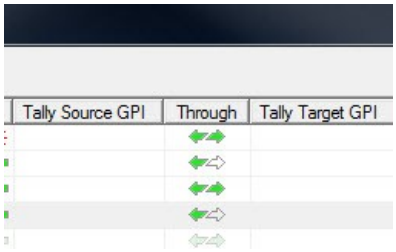
In the column *S* (static), a static tally can be assigned to this signal by left-clicking on the green arrow.

Tally Source/Target GPI

Tally Source GPI and *Tally Target GPI* define which GPO tally triggers. If the relevant signal is a target, the GPO can be found under *Tally Target GPI*. If it is a source, the GPO is located under *Tally Source GPI*.

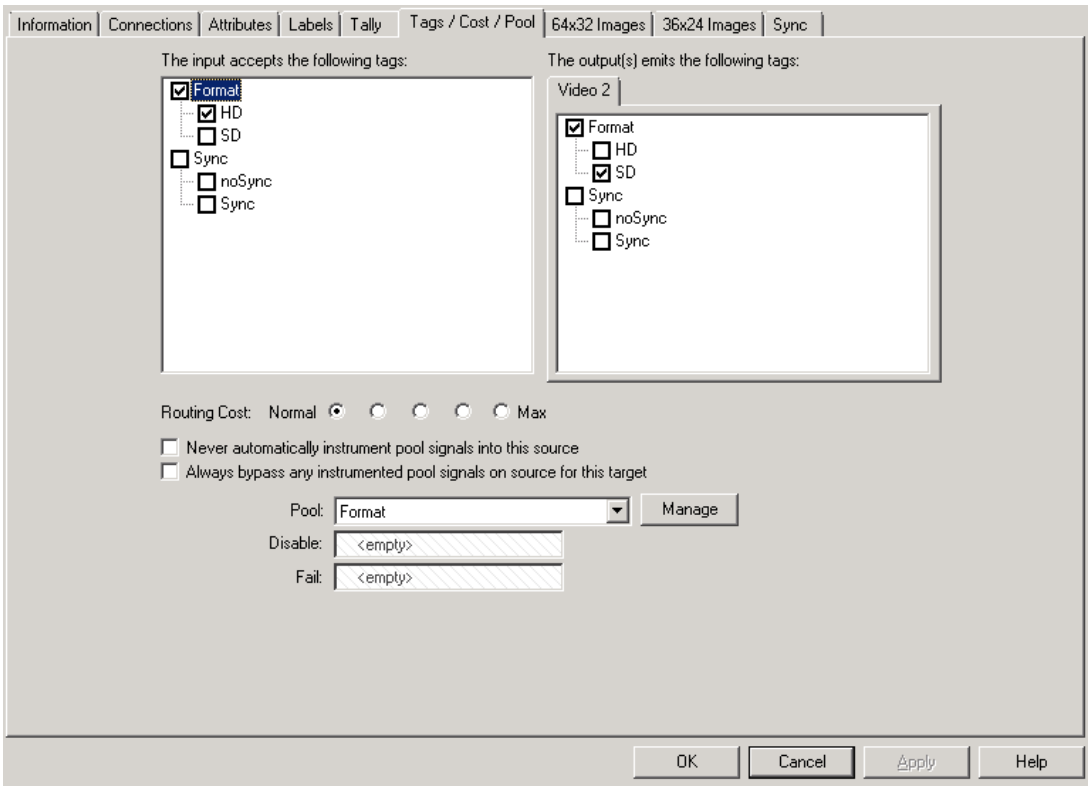
Passed-Through Tally

In the column *Through*, tally can be passed through two layers if the signal is linked with two layers. Tally is then displayed on both layers.



To display tally on one layer only, click on one of the two green arrows to deactivate it.

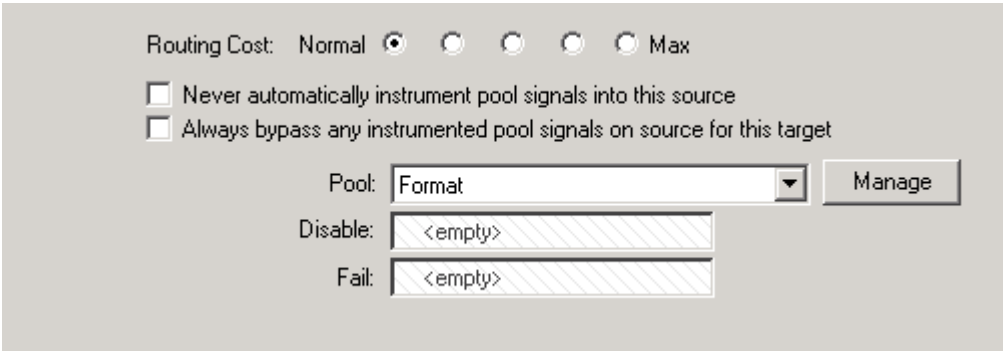
6.2.7 Tags/Cost/Pool



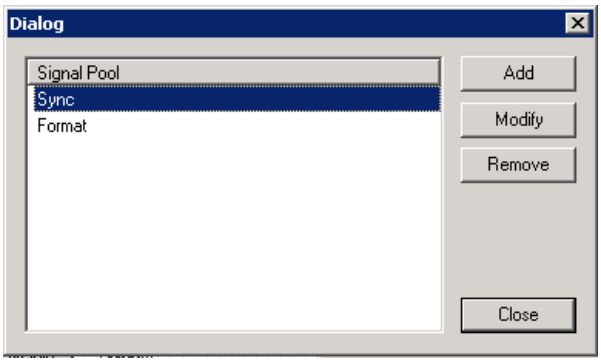
Tag Definition with a Pooling Device

The Pooldevice is “allowed” to receive HD marked signals.

The Pooldevice will provide a SD signal.



- **Routing Cost**: Routing Cost´s can be used to prevent using “expensive” signal processing units before all other “simple” signal processing units are used.
- **Never automatically instrument pool signals into this source**: Possibility to define a Tag which can be used in the following signals (Tag transmission) but will be denied for this source.
- **Always bypass any instrumented pool signals on source for this target**: Possibility to define Target which will always switch the “raw” source without any Pooling device. Should be not used for measurement positions.
- **Pool**: The Pooldevice belongs to the Pool “Format” (Format is predefined in the Pool Order) **Manage**: Allows you to manage Signal Pools.

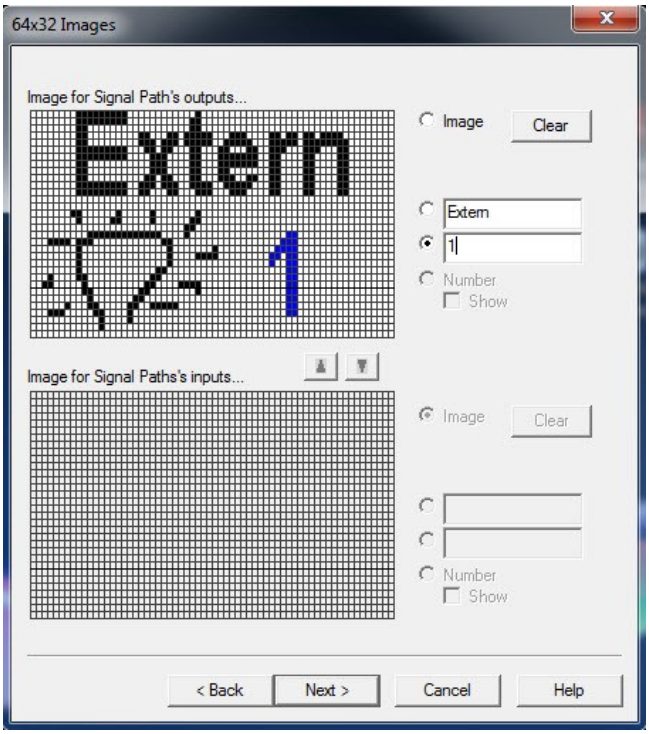


- **Disable:** Disable GPO is used to remove the device out of the pool. It will not influence existing routings. (Service Button).
- **Fail:** Fail GPO is used to remove the device out of the pool and perform a immediate switch to a new pool device.

6.2.8 Bitmaps

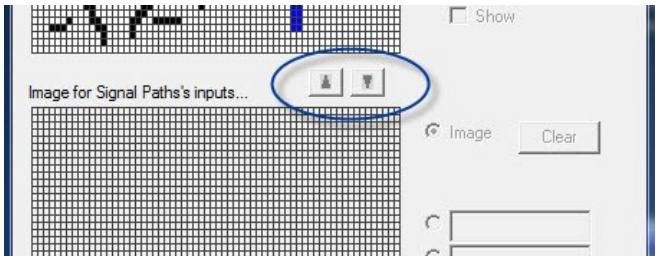
64x32 Images

In the next window *64x32 Images,* a bitmap can be created for the signal. It is displayed on panels.



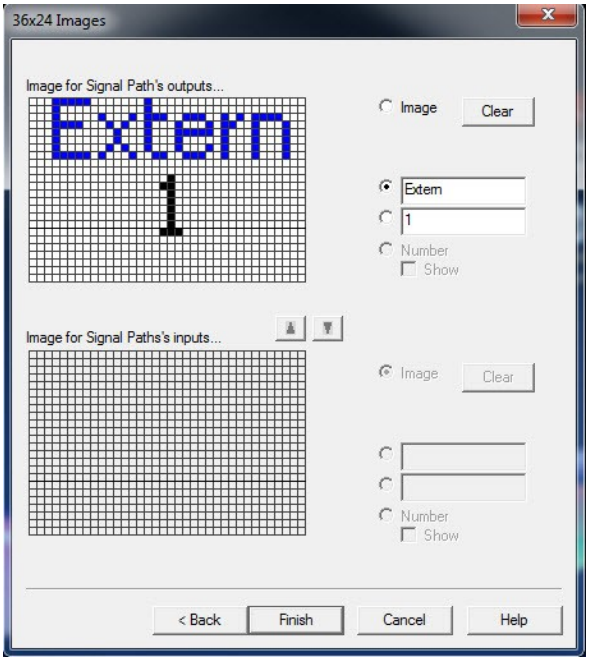
Here, two lines of text can be entered and moved to the desired position. Alternatively, select *Image* and draw an image. The blue element hereby represents the active one. If loop-through devices are used, an image can be created for both input and output. All other signals are usually represented with one image only.

Using the two arrows located between the two areas, an image can be transferred from one area into the other:



36x24 Images

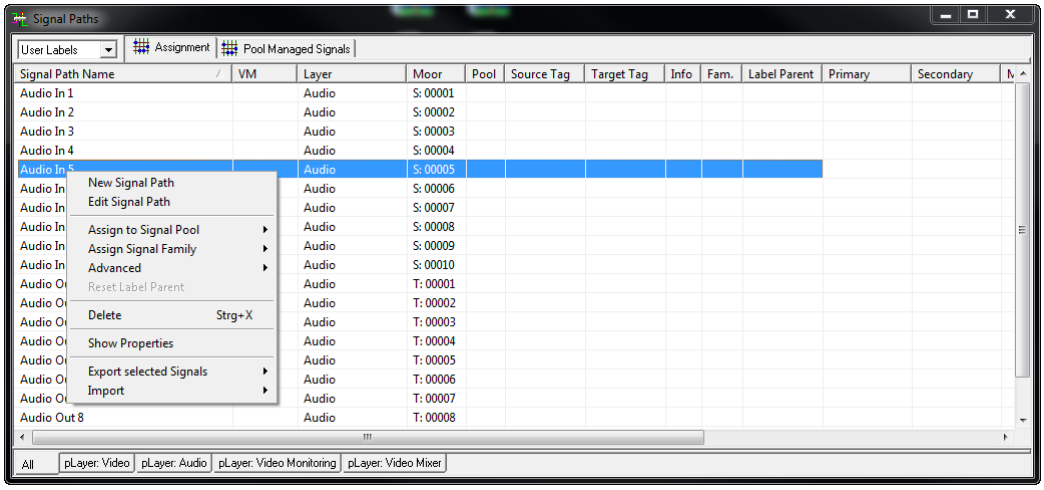
The same options are available in a lower resolution in the following window, *36x24 Images*.



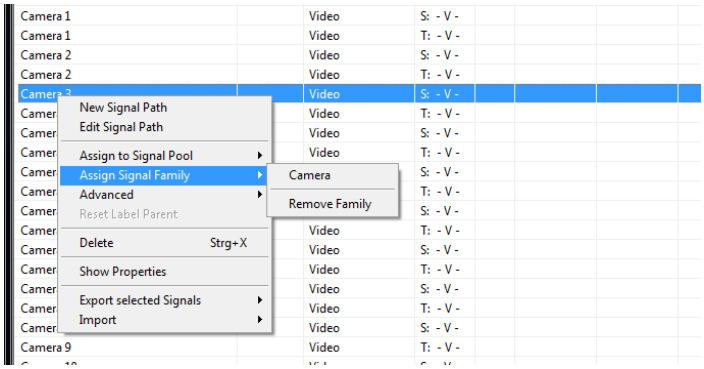
Select *Finish* to end the set-up of the new signal path.

6.3 Edit Signal Path

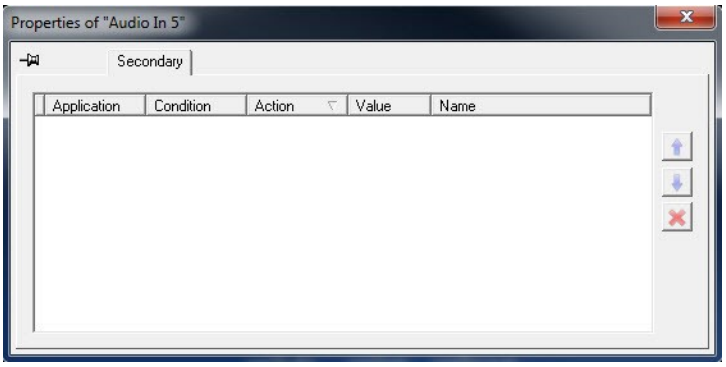
Existing signal paths can be edited, deleted, or added by right-clicking on them and selecting the appropriate option.



In the same way, it is possible to assign families to signal paths or remove previously assigned families. Select multiple signals to assign them to the same family (see Signal Path Families).



The function *Show Properties* opens a window in which the signal's existing secondary commands are listed.

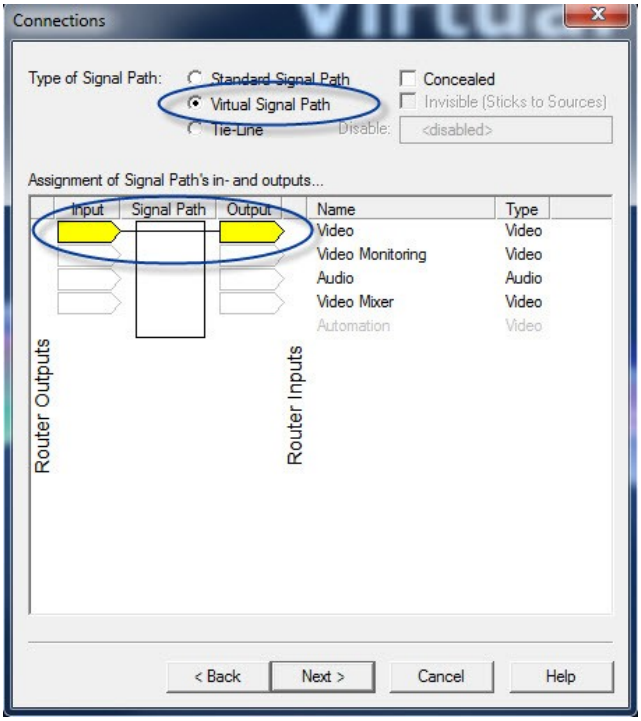


6.4 Virtual Signals

Virtual signals are used to assign physical signals dynamically. They serve as support signals that offer addition function, but do not use any additional physical resources. Virtual signals functions are independent of the size of physical layers (see New Physical Layer) and can be used across tie-lines (see Tie-Lines) to transfer assignments across physical layers.

6.4.1 New Virtual Signal

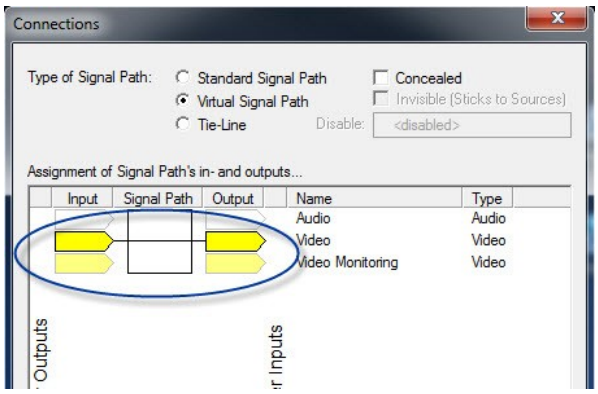
Virtual signals, like physical signals, are set-up in the signal path list (see New Signal Path). To define them, go to the window *Connections* and select *Virtual Signal Path.*



Virtual signals must be set-up as router inputs and outputs. This allows them to be assigned to physical signals dynamically at a later point in time. To do so, left-click both in the input and the output side. The virtual signal path is represented by yellow markings.

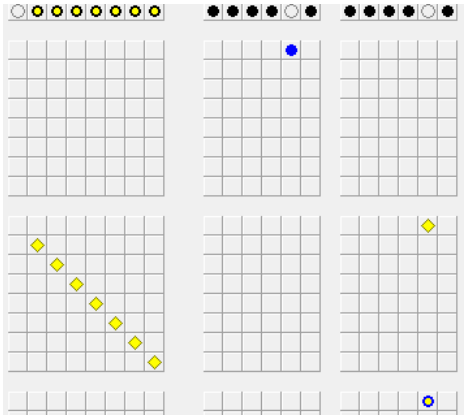
As with all other signals, virtual signals must be assigned to ports from the virtual matrix (see Master Matrix) since, at this point, no physical ports have been defined.

If virtual signals are assigned to layers that are linked by tie-lines (see Tie-Lines), the second layer is shown in a pale yellow to indicate its availability:



6.4.2 Crosspoints with Virtual Signals

A virtual crosspoint is represented by a yellow rhombus in the virtual matrix (see Master Matrix). If a physical crosspoint is connected due to a virtual assignment, it is shown as a yellow dot with blue outline. A black dot with yellow fill indicates the assignment of a blind source to a target over virtual signals (see Crosspoints with Virtual Signals).



Please note: a virtual-physical crosspoint has a lower priority than a physical crosspoint that is connected through a virtual-physical assignment. Therefore, a physical crosspoint overwrites a virtual-physical crosspoint.

6.5 Tie-Lines

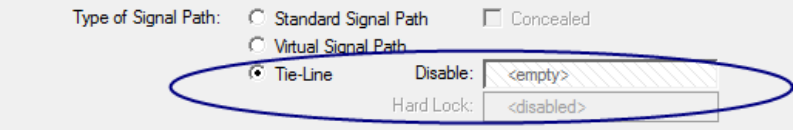
6.5.1 Dynamic Tie-Line Management

The VSM control system offers integrated, dynamic tie-line management. If the vsmStudio software administers the tie-lines, multiple routers connected with tie-lines can be controlled like one large router. For switches across routers, the dynamic tie-line management searches for a tie-line and connects the signal through that tie-line. If the source signal already lies on the tie-line, the already assigned tie-line is switched to the new receiver. No new tie-line is assigned.

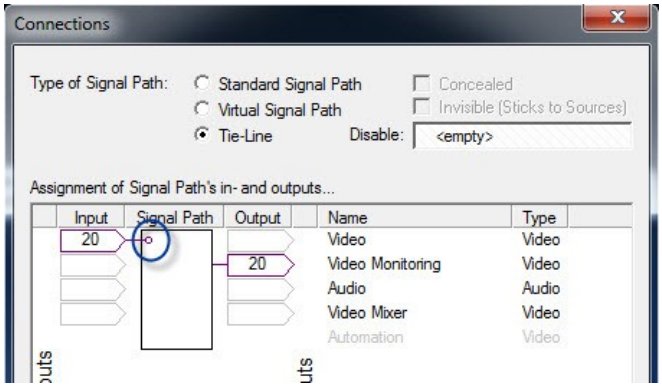
Label and tally information are concealed and transferred through the tie-line. If all tie-lines are used, the switches are not executed. This is indicated by a red button on the control device. In this event, the tie-lines must be cleared by a user. For automations with label transfer support, the tie-lines can be switched with priority. For these, switches over the VSM control system always have the highest priority.

6.5.2 New Tie-Line

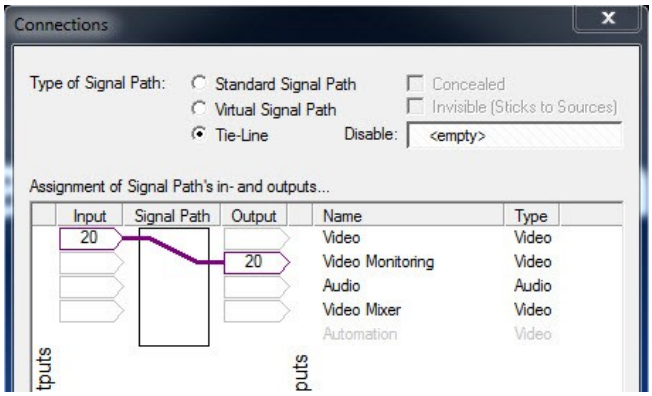
To set-up a tie-line, follow initially the same steps that were required to set-up a new signal path (see New Signal Path) until the window *Connections* is reached. There, choose the setting *Tie-Line.*



The attributes *Concealed* and *Invisible (Sticks to Sources)* are greyed out automatically. A new field becomes available, in which one or multiple tie-lines can be deactivated using a GPO (see GPIOs). This can be used, for example, to reserve some tie-lines should all of them be assigned and to clear them at the push of a button using a GPO.



The assignment of tie-lines can be defined in the rhombi located below input and output. Generally, this is done in the same way as the assignment of signal paths (see Signal Path Connections). However, layer inputs and outputs are assigned to tie-lines. To finish the set-up of a tie-line between two layers, right-click on the dot to the right of input.



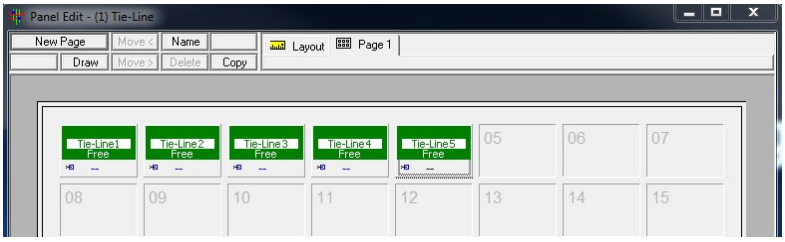
Please note: a blind signal must be created on each router layer used so that tie-line management will work properly (see Settings Relevant to the Connection). This blind signal is generally a Black or Mute on the relevant layer. Without this signal, the tie-lines cannot be cleared and the status of the tie-line with respect to its recipient cannot be reported properly.

6.5.3 Managing Tie-Lines

Tie-Line Management at the Control Panel

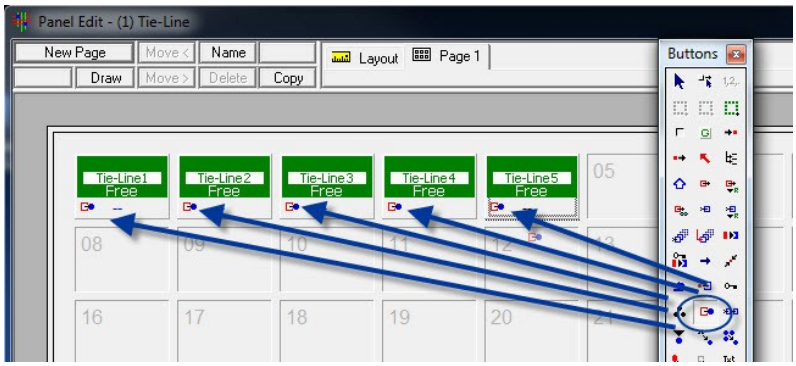
It is recommended to configure a panel to monitor the assignment of tie-lines. To do so, open the Panel Edit and create a new control panel or use an existing one. First, the tie-line's targets are assigned to the first five buttons of the panel.

Panel with tie-line targets



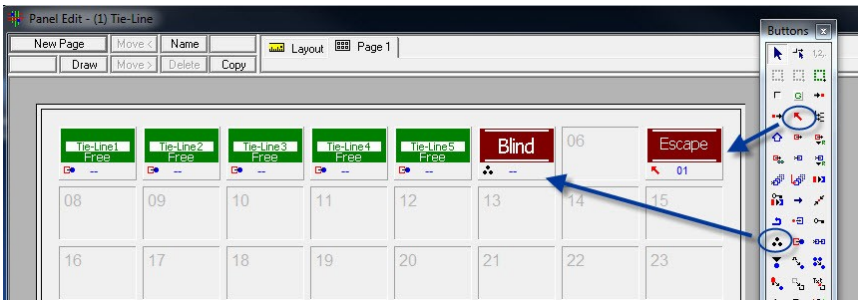
Next, assign the function *Target of Source* from the button toolbox to every signal.

Overwriting the tie-lines with the Target of Source function



Finally, add a Blind-Source button and a navigation button to the panel.

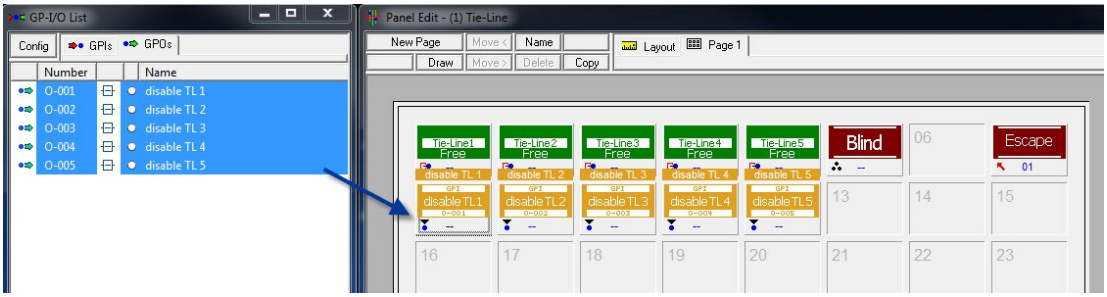
Adding Blind-Source and Escape keys



Please note: this page should only be used for tie-line management. No other sources or targets should be configurated to this page of the panel.

The GPOs for activation or deactivation can be included on this page.

Tie-line panel with Blank button, Escape button, and deactivation function



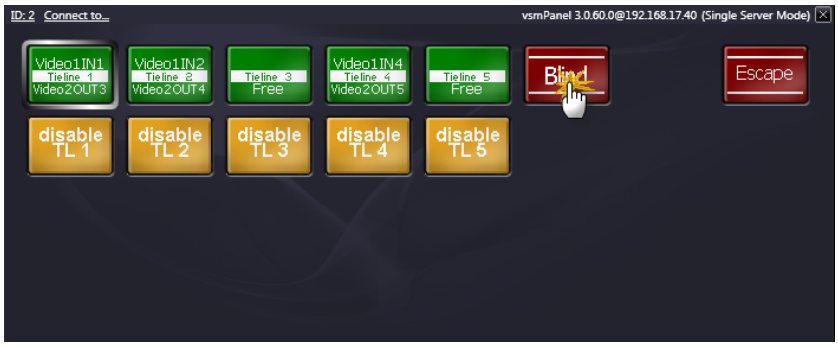
If the signals are connected and placed on the tie-lines, the panel shows clearly which tie-lines are available and which ones are used.

Panel with available tie-lines

The source located on the tie-line is shown in the first line on each button. The middle line shows the name of the tie-line, while the bottom line shows the last connected target.

Used tie-lines can only be cleared through a panel configured for the management of tie-lines. Select the relevant tie-lines and click the blind signal button.

Tie-Line 1 cleared



Since there may be more than one receiver, this process must be repeated until the tie-line button displays *Free*. The tie-line's current receiver is shown in the bottom line.

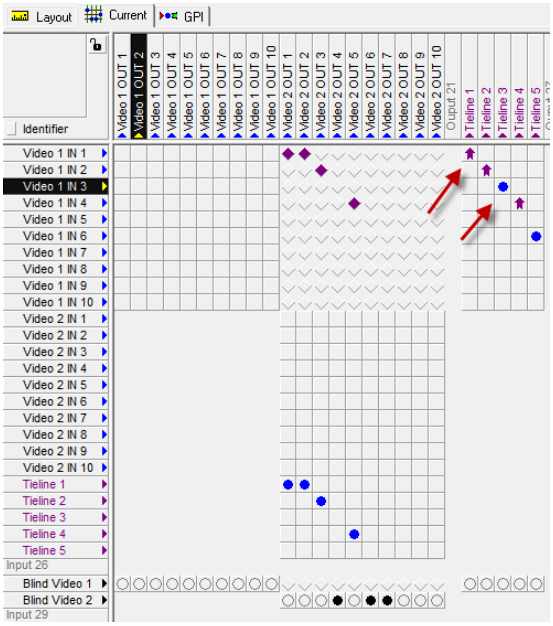
Video 1 In 1 is switched onto Video 2 Out 3. Blind is connected. Video 2 Out 3 is connected with Blind.

Video 1 In 1 is also switched onto Video 2 Out 1. Blind is connected. Video 2 Out 1 is connected with Blind.

The tie-line is available.

Tie-Line Management in the Master Matrix

In the master matrix (see Master Matrix), the view of this arrangement also indicates the available and unavailable tie-lines clearly: a purple arrow represents unavailable tie-lines, a blue dot available tie-lines (see Crosspoints with Tie-Lines).



Please note: beware that the tie-lines cannot be connected directly. The system prevents this action as arrangement of tie-lines is exclusively done with the VSM. The use of tie-lines from the same memory group should be avoided.

7. Master Matrix

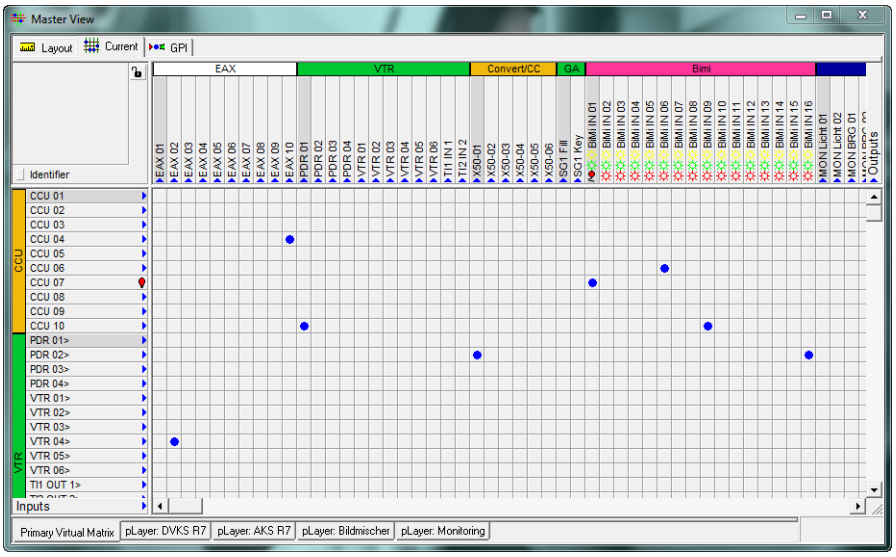
The master matrix (or virtual matrix) is the consolidation of all **vsmStudio**'s physical routers, mixers, and virtual devices (see Virtual Signals). This virtual matrix allows the user to sort input and output signals independent of their physical assignment.

This chapter covers the configuration of the master matrix.

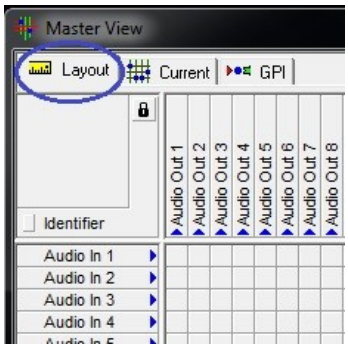
7.1 First Steps

Open the master matrix by clicking on the appropriate button in the main menu bar:

The master matrix opens - you will see the current configuration:

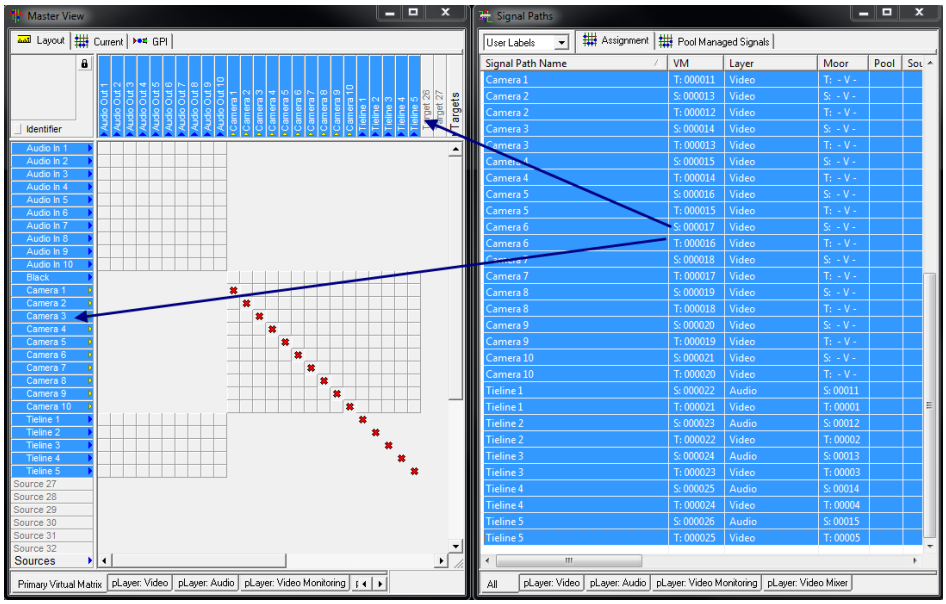


7.2 Layout View



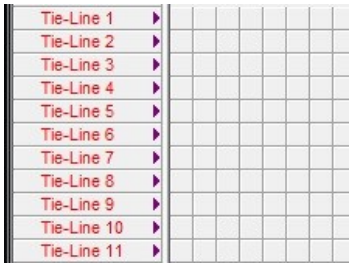
To display all signal paths in the master matrix, select them in the signal path list (see Signal Path List) and drag them into the master matrix. To mark all or several adjacent signal paths, select them with the cursor while pressing the Shift key. Multiple individual signal paths can be marked by selecting them with the cursor while pressing the Ctrl key. Drag the selected signal paths into the layout view of the master matrix and drop them there by releasing the left mouse key. The input signals are now placed on the input side and the output signals on the output side. Alternatively, all signals are once copied to the input and then once to the output side. They are distributed automatically to the correct input and output side of the matrix. By quickly pressing the Alt key, they can be dropped individually in their original order.

Drag and drop of signal paths



Please note: the text will appear in red if tie-lines are only set up on one side of the master matrix. It shows that it is not possible to set crosspoints until tie-lines have been set up on both sides of the X/Y matrix. Generally, it is not possible to switch crosspoints with tie-lines in the master matrix (See chapter 5.5.1 Dynamic Tie-Line Management).

Red marking of tie-lines on one side of the master matrix

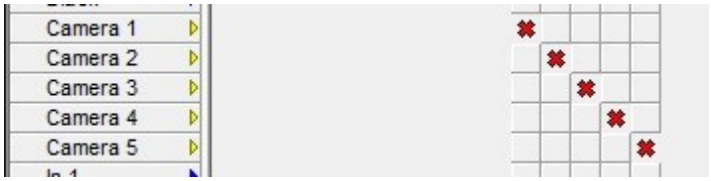


7.2.1 Arrangement of Signal Paths

In the layout view, the arrangement of signal paths can be chosen freely by selecting the signal in question and dragging it onto a free position. Using the same selection methods as described above, it is possible to select the required signals while pressing either the Shift or Ctrl key. Whle the layout view is selected, it is not possible to switch any crosspoints.

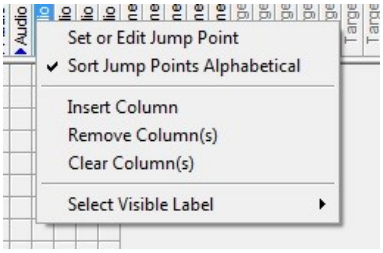
7.2.2 Invalid Crosspoint Switches

A red cross marks sources and targets that lie on the same layer but do not allow for a crosspoint switch. This occurs, for example, with a virtual signal (see Virtual Signals), which is designed to act as both, source and target. The respective crosspoint is marked with a red cross.

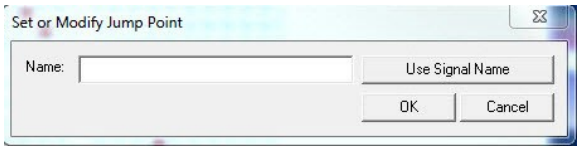


7.2.3 Jump Points

By right clicking on a signal, a window opens offering the following options:

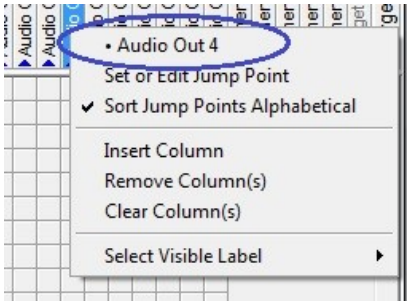


Jump points can be created to find signals or signal groups more easily. Right click on a signal and select the option *Set or Edit Jump Point*. A new window opens. There, the title of the jump point can be entered, edited or set by using the signal name.



The jump point is now ready to be used: just right click on any signal in the master matrix.

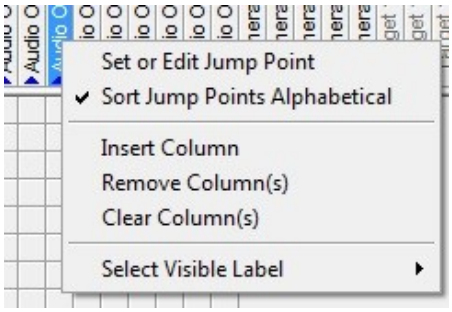
This opens a window in which the signal's jump point can be selected, while the view of the matrix automatically jumps to the corresponding signal:



Sort Jump Points Alphabetical is checked by default to allow multiple jump points to be listed alphabetically in the window above. Left click on *Sort Jump Points Alphabetical* to deactivate the function.

7.2.4 Insert or Remove Signals and Columns

Options in layout view



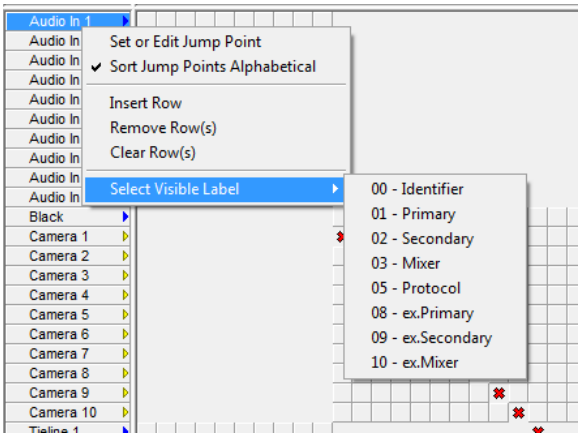
To insert a column above a signal, stay on Layout view and right click on the signal in question to open a new window, then left click on the *Insert Column* option in this window. Clicking *Remove Column(s)* will prompt a pop-up requiring a confirmation, after which the selected column will be deleted from the matrix. It is also possible to delete multiple columns at the same time (select multiple adjacent columns while pressing the Shift key or separate columns while pressing the Ctrl key).

Please note: the selected columns will be deleted even if signals are placed on them.

The selected signal is deleted from the virtual matrix by left-clicking *Clear Column(s)* (and the confirmation of a prompt). It is again possible to delete multiple signals from the matrix at once.

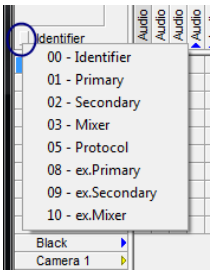
7.2.5 Displayed Label

Left-click on *Select Visible Label* to open a variety of different labels (see Labels):



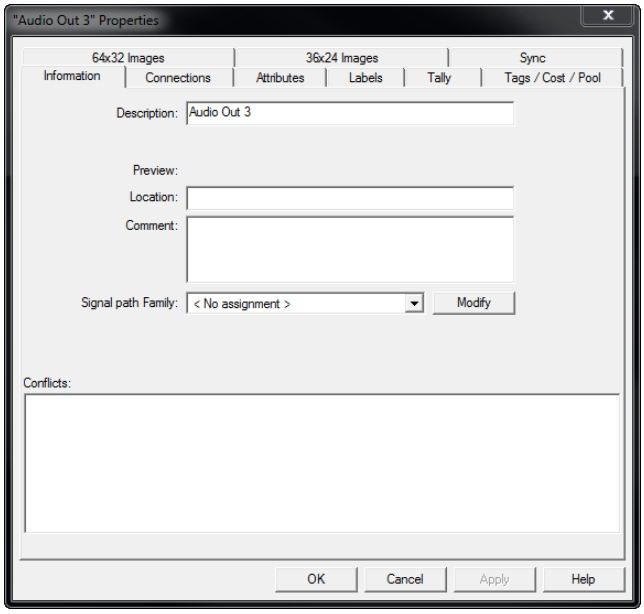
Label settings affect all signal paths in all three views of the master matrix.

They can be changed for the entire matrix in the small grey square on the label display (see Label Display).

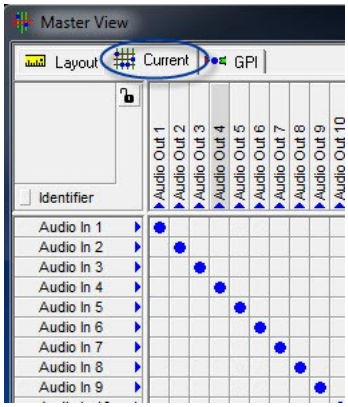


7.2.6 Signal Path Properties

Signal path properties can be displayed by double clicking on a signal (see Edit Signal Paths).



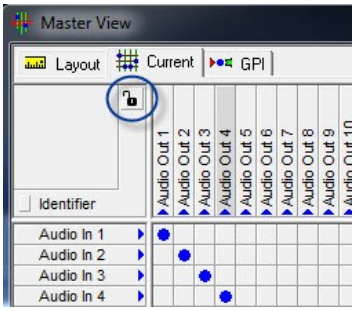
7.3 Current View



The *Current* mode is the second tab of the master matrix. It is located in the top left of the master view. In this mode, the switching of crosspoints is possible. The *Current* view also offers an overview over recently set crosspoints.

7.3.1 Switching Crosspoints

To enable crosspoint switching in the *Current* view, select the small lock symbol. This will unlock the switch view.



If switching is attempted without first unlocking the switching view, the lock symbol will blink repeatedly.

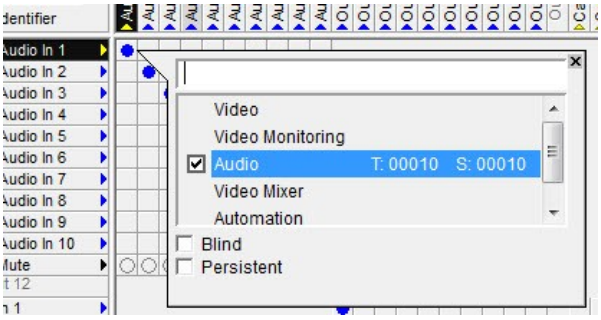
> Please note: before crosspoints can be set, the switched layers must be assigned to a router (or to the VSM Dummy X-Switch) so that vsmStudio receives feedback through the switch.

Blue dots in the area connecting input and output signals on the matrix indicate set crosspoints.

7.3.2 Crosspoint Properties

Coordination of Crosspoints

Right-click on any field in the matrix to open a window showing the coordinates of the selected crosspoint on the connected layer as well as other properties.

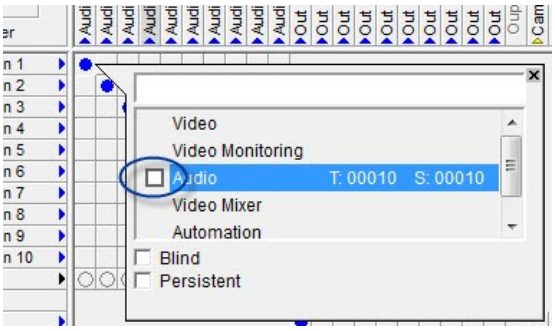


Comments about this crosspoint can be added in the blank, white field. The numbers after *T* (target) and *S* (source) show the position of source and target on the respective layer.

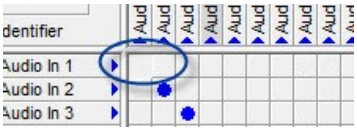
Display of Layers

All available layers are shown below the comment field. The check mark shows the layer on which the selected crosspoint is located. If the check mark is removed, the crosspoint cannot be set any longer.

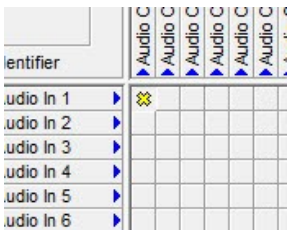
Removed checkmark in layer view



In the matrix, this is represented by an empty field that cannot be selected.

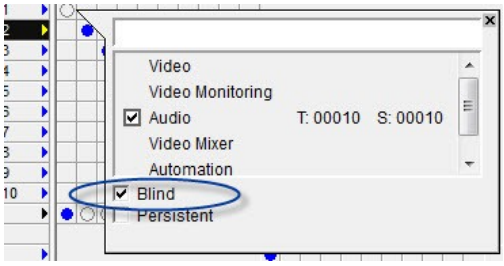


In layout mode (see Layout View), this is shown with a yellow cross.

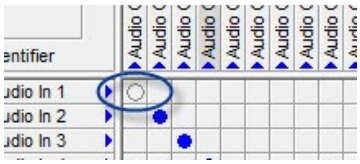


Blind Source

If *Blind* is ticked, the crosspoint becomes a blind signal source.



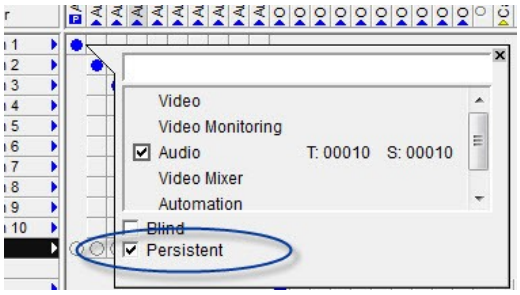
This is signalled by an empty dot with a black frame.



Permanent Switch

If *Persistent* is ticked, only the specific source can be switched onto this target.

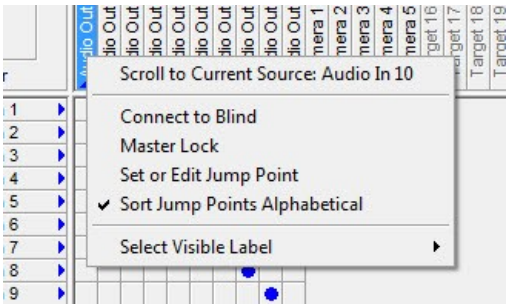
Permanent crosspoint



As a result, all other fields in this column are empty and cannot be selected, and a small *P* appears below the signal name.

7.3.3 Locking a Target

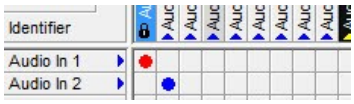
Target options in Current View



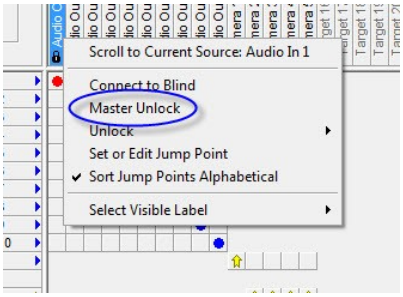
The window that opens when right-clicking onto a target in the *Current* view offers two more options besides *Select Visible Lable* and the Jump Point functions discussed above: *Scroll to Current Source* and *Master Lock* (right-clicking onto a source signal will open a window with jump point functions and *Select Visible Label*, see Jump Points).

While in *Current* view, the function *Scroll to Current Source* scrolls to the source switched to the selected target. *Master Lock* locks this target for all switches. This is shown with a small lock symbol located just below the signal name.

Locked target



To release the master lock, right-click onto a target and select the function *Master Unlock*.



7.3.4 Display of Crosspoints

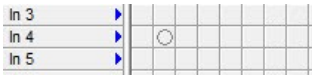
Crosspoints with different signal types are colour-coded and distinguished by different symbols.

Physical Crosspoints

In *Current* view, a blue dot indicates a physical crosspoint:

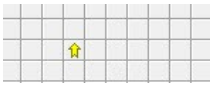
A black dot indicates that a target is switched onto a black signal:

An empty circle indicates a blind signal source (see Blind Source):

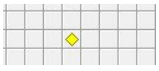


Crosspoints with Virtual Signals

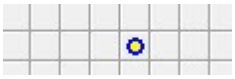
A yellow arrow indicates a physical source switched onto a virtual target:



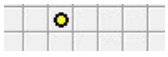
The yellow rhombus indicates a virtual source switched onto a physical target:



A physical crosspoint set using a virtual signal (that is a physical source onto a physical target using a virtual signal) is indicated by a yellow circle with blue outline:

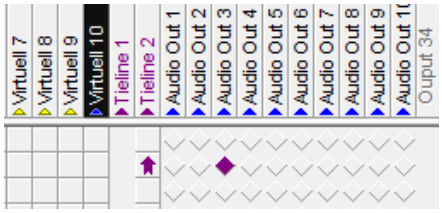


A yellow circle with black outline indicates a physical target switched onto a black signal using a virtual signal:



Crosspoints with Tie-Lines

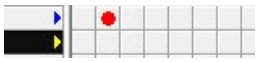
In *Current* view, tie-lines are shown as grey rhombi, not square fields.



A purple arrow indicates a source switched onto a tie-line. If the signal is switched onto another layer with a tie-line, the crosspoint is marked with a purple rhombus.

Locked Crosspoints

A red dot indicates a locked crosspoint (see Locking a Target). It can only be unlocked by the controlling device that executed it, or with a master unlock.

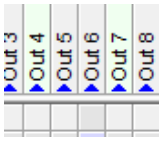


Crosspoints with Loop-Through Devices

If a source is routed first to a loop-through device and then to a target, the crosspoint is displayed as a blue rhombus.

Linked Signals

In *Current* view, one signal following another is highlighted in bright green:



Inverted Switching

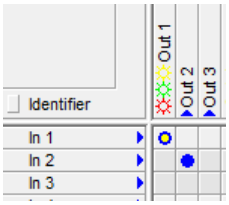
It is possible to configure inverted switches for certain sources and targets (see Special Settings). This means that the switch behaviour of the layer (see Switch Behaviour of the Router) is changed for pre-defined crosspoints: For example, if the switch behaviour of the layer was defined as 1:n, it is still possible to switch crosspoints 1:1.

These crosspoints are indicated by a change of background colour in the matrix: inverted switching in an area is indicated by areas with blue background. A grey background indicates inverted switching of this source or target.

Inverted switches

7.3.5 Tally Display

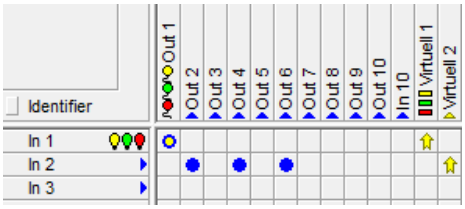
In the master matrix, tally is indicated by coloured suns with respect to the target:



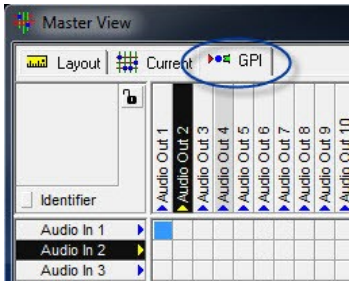
If tally is activated, the suns are replaced by coloured lamps. These indicate that the source currently sends tally. The source switched onto this target is marked with light bulbs of the same colour as the tally colour.

If the source with tally is switched onto multiple targets, the tally is passed on. This allows all switched targets to receive tally. A passed-on tally is indicated by coloured rectangles.

Active Tally



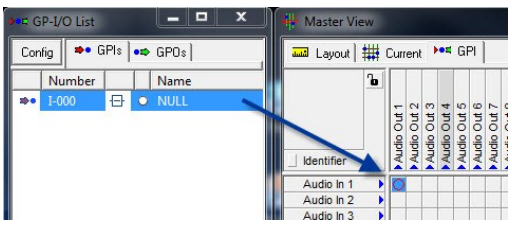
7.4 GPI View



7.4.1 Connection of a Crosspoint with a GPI

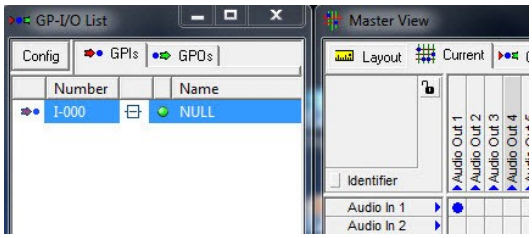
The GPI mode allows the connection of a crosspoint with a GPI (see GPIOs). If a GPI is selected in the GPIO list and dragged onto a crosspoint, this GPI logic is placed on top of the crosspoint.

Drag and drop GPI onto crosspoint

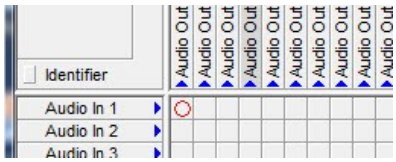


The crosspoint will now be set automatically when the GPI is set.

Crosspoint triggered by GPI



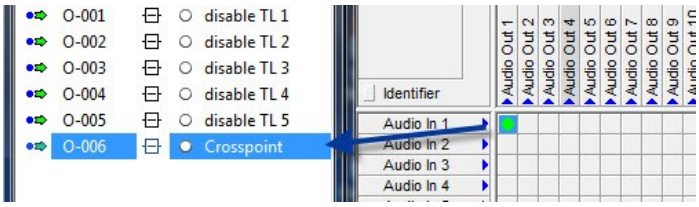
In GPI view, this is indicated by a red circle:



7.4.2 Connection of a GPO with a Crosspoint

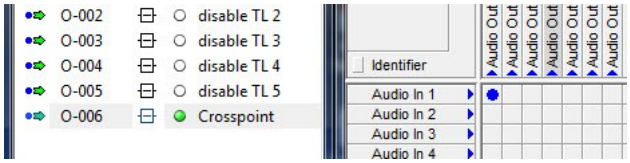
In turn, it is also possible to connect a GPO with a set crosspoint. Simply drag the crosspoint in question from the GPI view onto the GPO in the GPO-I/O list.

Drag and drop crosspoint into GPO

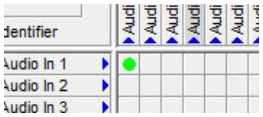


Setting the crosspoint will now automatically result in the execution of the connected GPO logic.

Setting GPO by setting a crosspoint



In the GPI view, this is indicated by a green crosspoint:

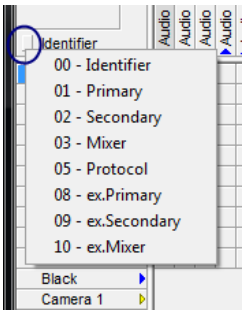


7.5 Label Display

The signal name used as identifier during the set-up of a signal path is shown in the master matrix by default.

This can be changed by clicking onto the small grey square next to the currently shown label (Identifier). This opens a tab with various label options that can be shown as signal name in the master matrix.

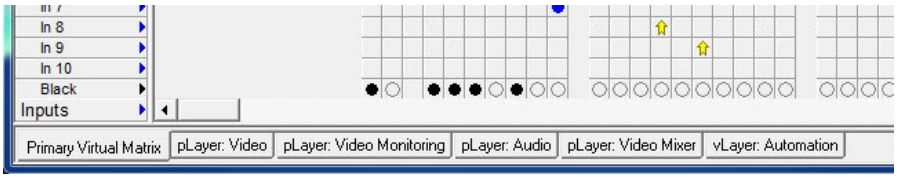
Identifier



7.6 Layer and Position Display

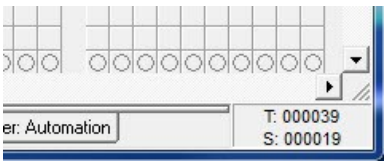
It is possible to select other matrices on the bottom right of the master matrix to the right of the primary virtual matrix. These represent the signals of all available layers (see Layers).

Layer display



The physical layers hereby indicate the actual assignment of the routers. Signals can be arranged arbitrarily on the virtual layers (see New Virtual Layer).

Source and target display

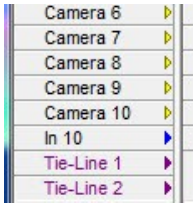


In all three views, the position of the currently selected crosspoint's sources (*S*) and targets (*T*) is shown in the bottom right corner of the master matrix.

7.7 Display of Different Signal Types

There are various signal types that are displayed differently in the master matrix: physical signals, virtual signals, and tie-lines (see Signal Paths). They are set apart by different colour-coding.

Physical signal, virtual signal, and tie-line



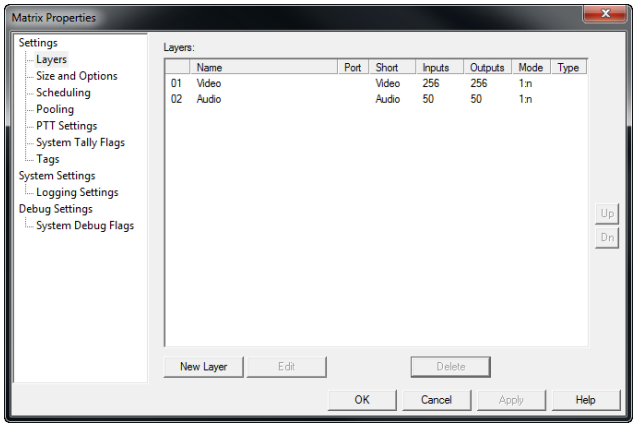
In general, a physical signal path is indicated by a blue arrow and a virtual signal by a yellow arrow in all three views of the master matrix. A tie-line is indicated by a purple arrow and purple font.

7.8 Matrix Properties

To go to matrix properties, click the wrench symbol in the main menu bar:

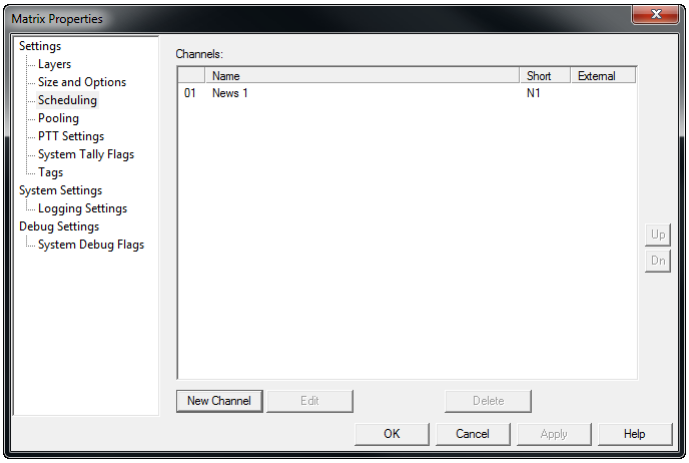
7.8.1 Layers

The first view, introduced in the Layers chapter, offers the functions to set up, edit, delete, and sort layers:

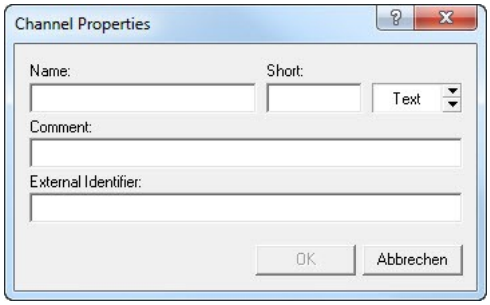


7.8.2 Scheduling

The tab *Scheduling* offers the same properties for channels:

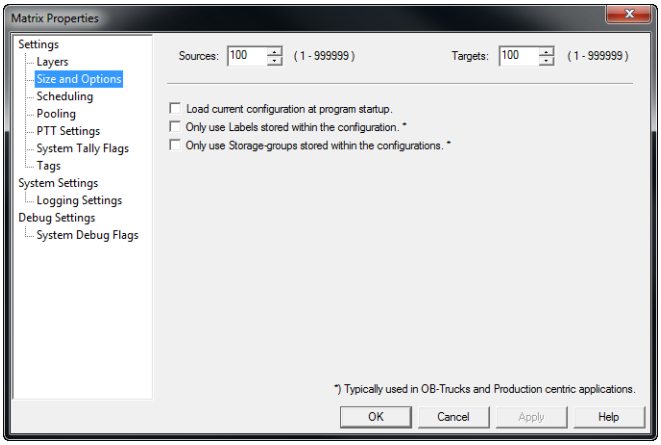


If a new channel is set up, the *Name*, *Short* form of the channel name, and, if required, a *Comment* must be entered:



7.8.3 Settings

As described in New Configurations, configuration settings can be edited under *Size and Options*:



8. Views

Using "Views" in **vsmStudio**, it is possible to create multiple matrices which contain a subset of signals. These have the same properties as the master matrix (described earlier), but for a limited number of signal paths.

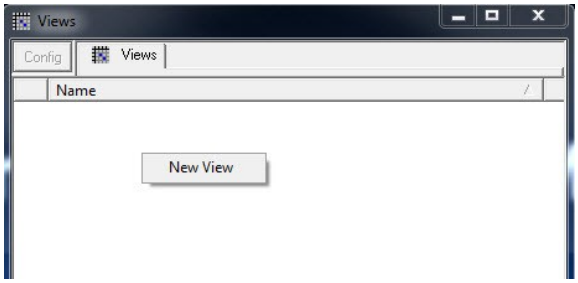
This chapter covers the configuration of Views.

8.1 First Steps

Open the Views setup window by clicking on the appropriate button in the main menu bar:

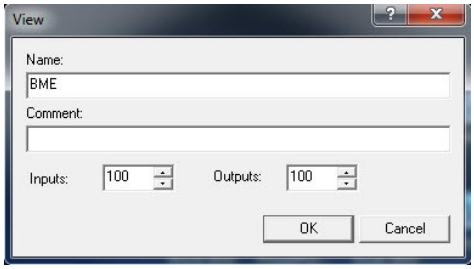
8.2 New View

By right-clicking in the Views window, a new view can be created.



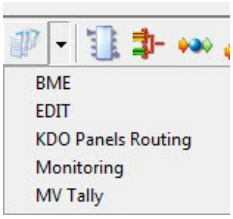
Selecting *New View* will open a new window. There, a *Name*, a *Comment* (if required), and the size of the matrix (*Inputs* and *Outputs*) are defined for the new view.

View settings

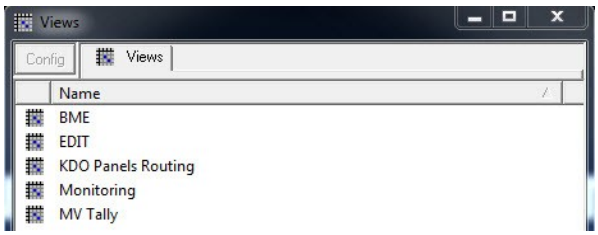


8.3 Opening a View

Once a new view has been created, it can be accessed directly using the drop-down menu besides the Views symbol:

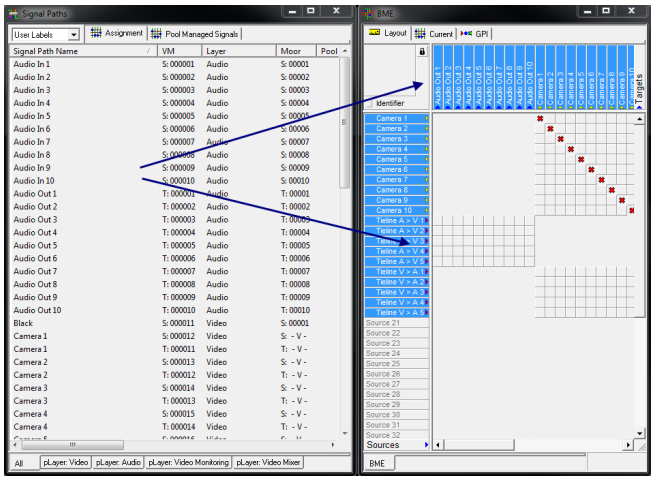


Alternatively, it can also be accessed by double-clicking on the name in the Views list:



As with the master matrix (see Layout View), it is possible to drag and drop the necessary signal paths from the signal path list into the layout view of the empty matrix. There, they can be arranged arbitrarily. The same functions as those used in the master matrix (see Master Matrix) are available for use with those defined signal paths.

Dragging signal paths into a view



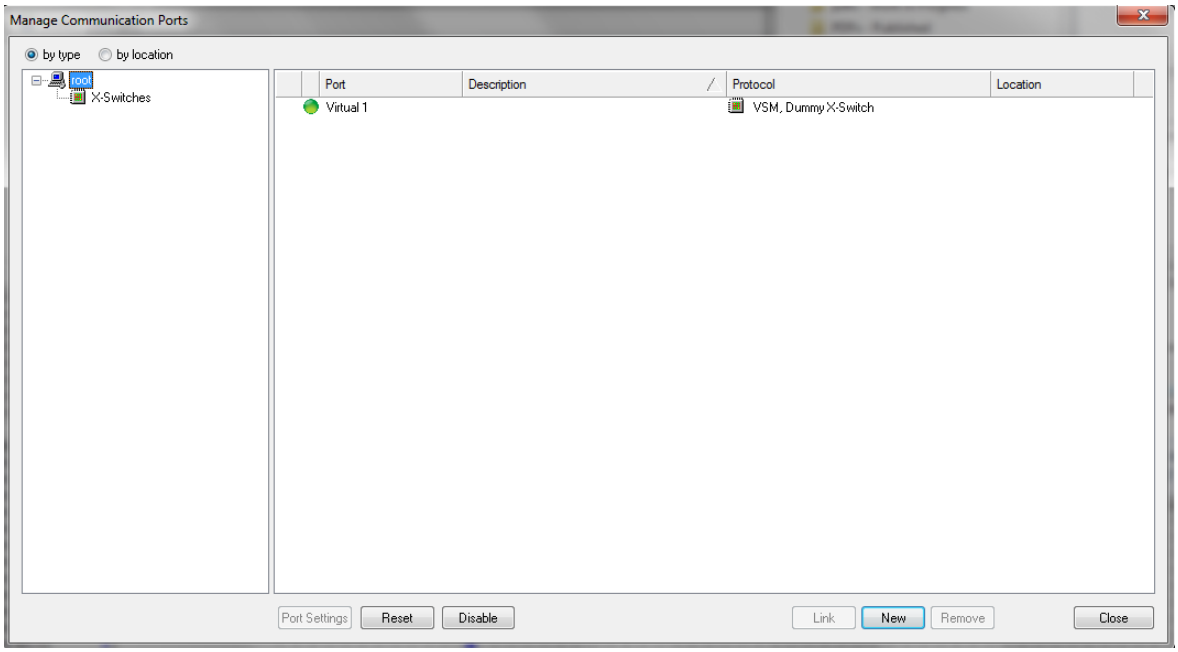
9. Communication Ports Management

This chapter covers the management of **vsmStudio**'s communication ports.

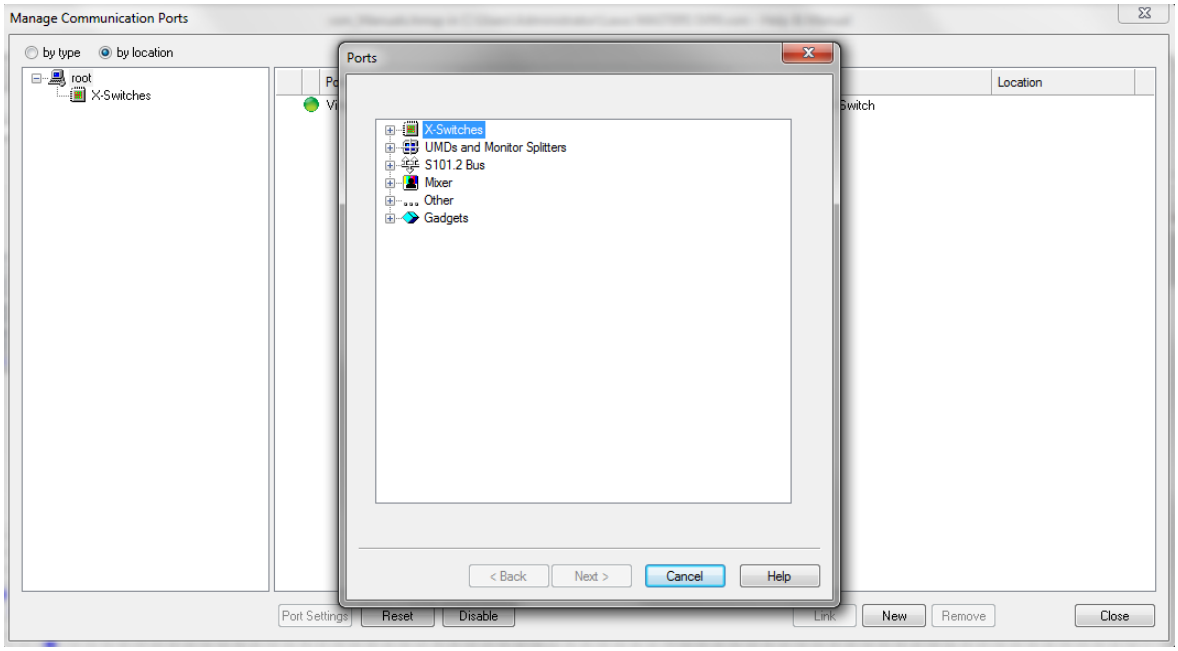
9.1 New Port

To configure a new interface, left-click the port symbol in the main menu bar or press F8:

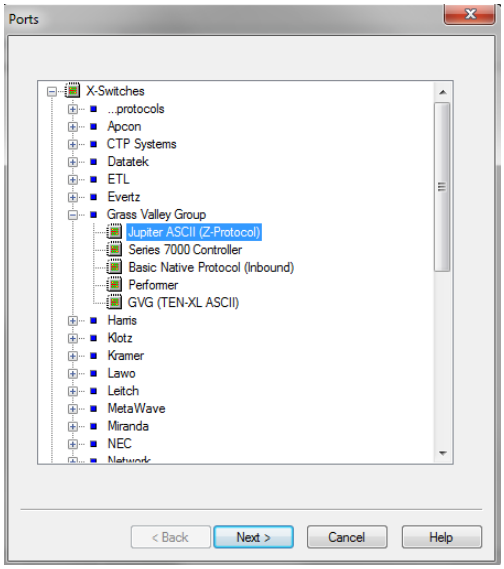
This will open the *Manage Communication Ports* window in which existing ports can be viewed and new ones set up:



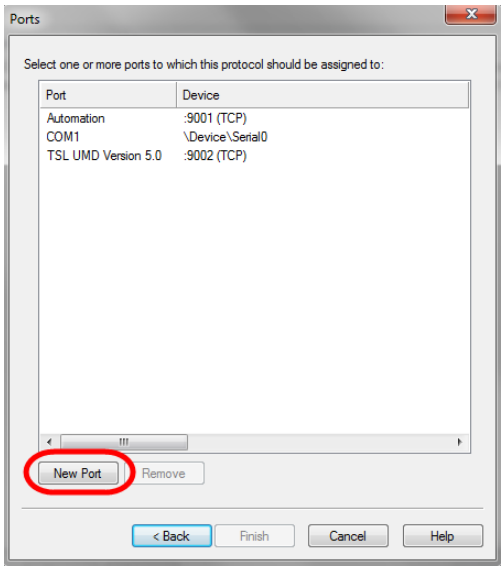
Left-click on **New** to open the *Ports* window and select the required driver from the categories: *X-switches*, *UMDs and Monitor Splitters*, etc:



To open the categories, click the small plus sign located in front of the category name. If the required driver is found under the respective manufacturer's name, then select it:



Then left-click *Next* to open another window listing the available ports:



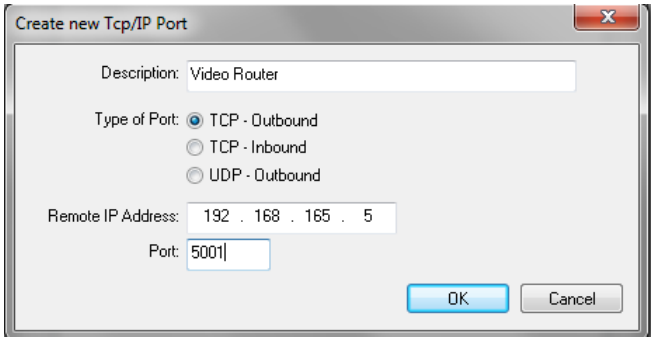
There are three different port types:

- Local COM interfaces at the server.
- Incoming connections to a defined port (TCP or UDP)
- Outgoing connections to an IP address with port (TCP or UDP)

If the required interface is not listed, it can be added by selecting **New Port**.

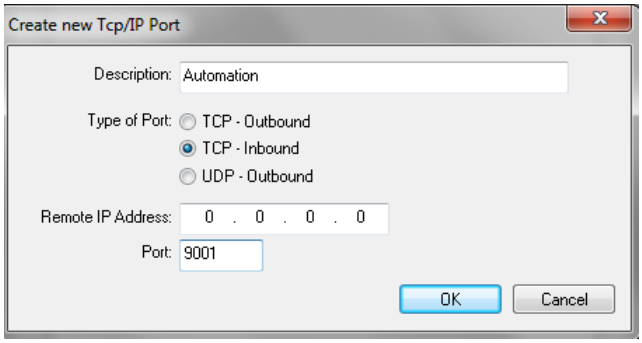
9.1.1 Outgoing Connections

To set up an outgoing connection, enter IP address and port and select TCP- or UDP- Outbound. After naming the port, confirm by clicking *OK*.



9.1.2 Incoming Connections

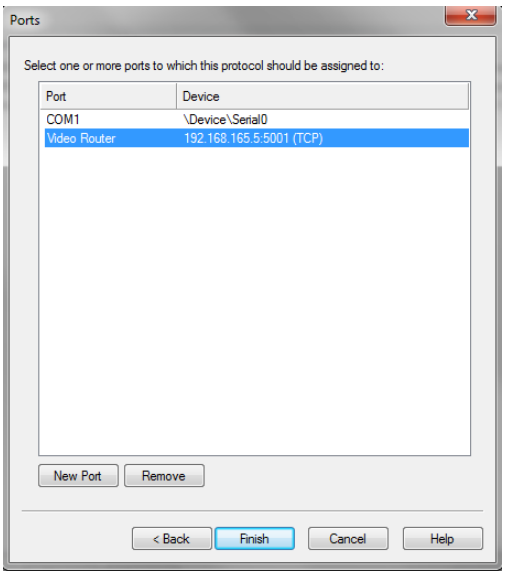
To set up an incoming connection, use the default IP address 0.0.0.0, enter a port, choose TCP Inbound, and enter a name for the new port. Confirm by clicking *OK*.



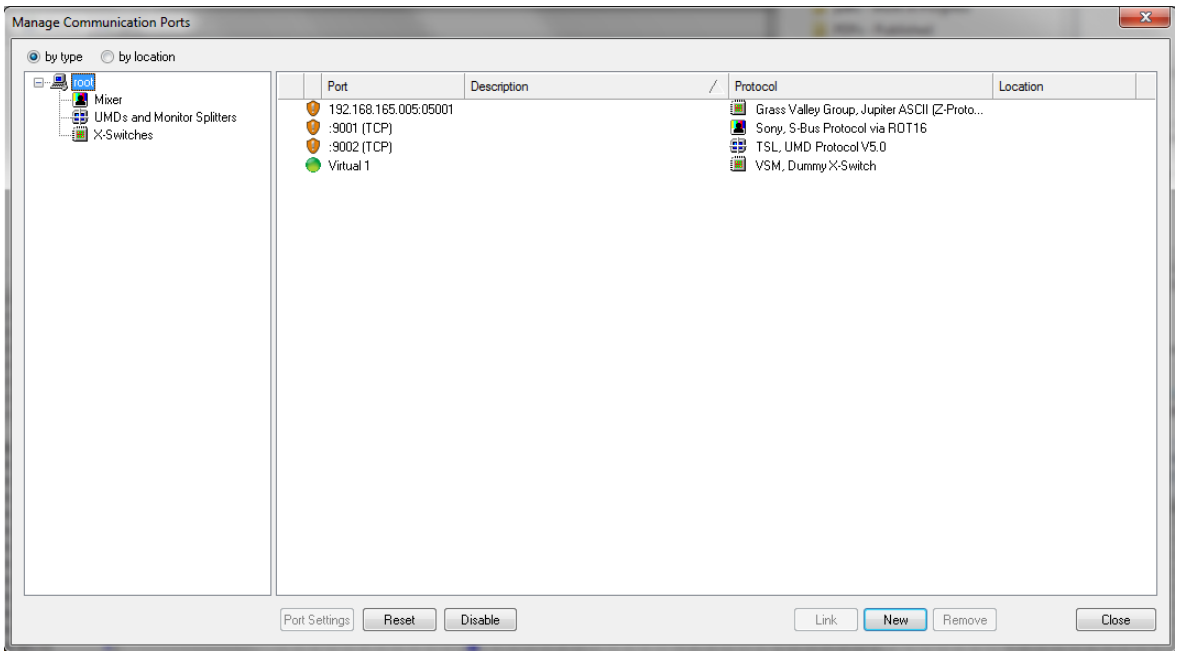
9.1.3 COM Ports

It is not possible to add local COM ports here, as they are exclusively managed by the operating system.

9.1.4 Finishing the Setup



In each case, finish the set-up process by selecting a port and clicking *Finish.* The new interface is added to the *Manage Communication Ports* window:

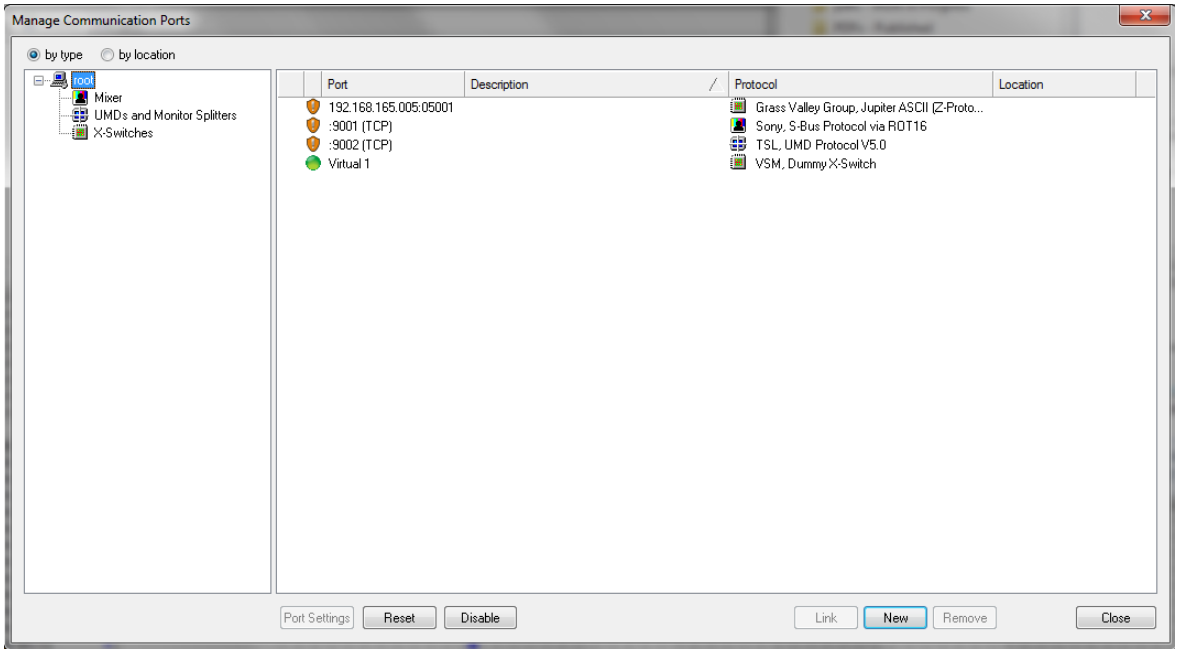


The *Port Settings* now automatically opens to configure further settings for the terminal device (see Port Settings).

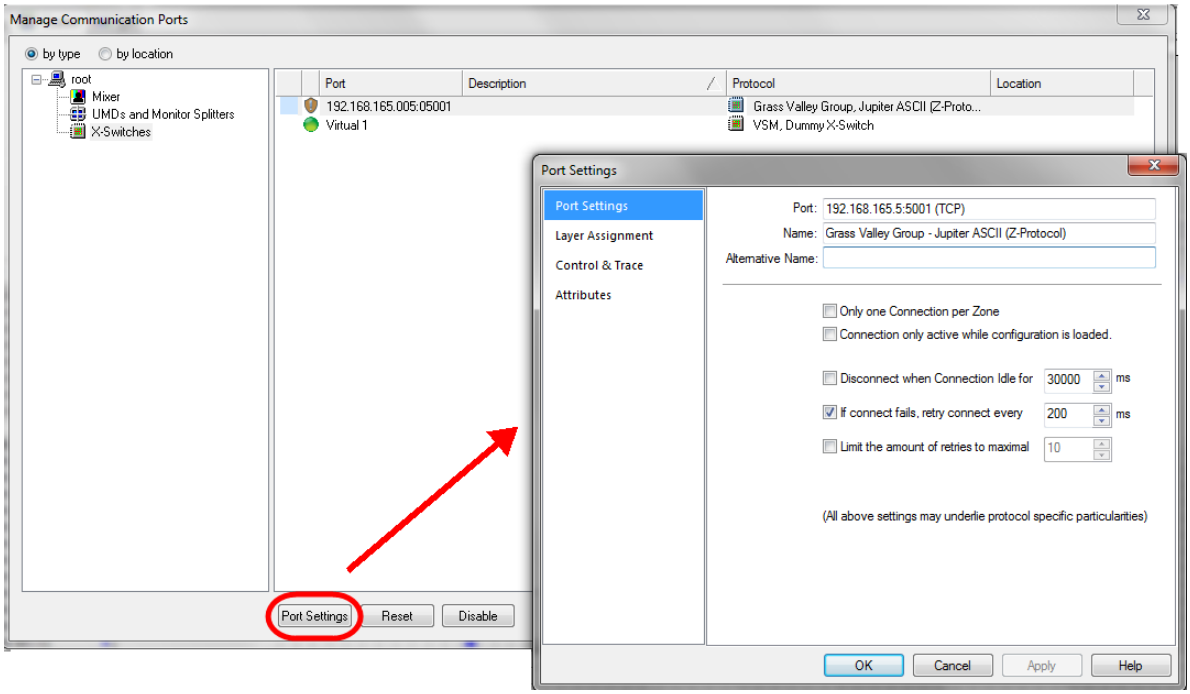
9.2 Port Settings

The vsmStudio software allows each port to be adapted individually. To do so, access the window *Manage Communication Ports* through the main menu bar or by pressing F8.

Use the driver categories on the left to sort the list or select **root** to view all configured ports:



Select a port and click *Port Settings* - this opens the *Port Settings* window. (Note that this window opens automatically if you have just configured a New Port.):



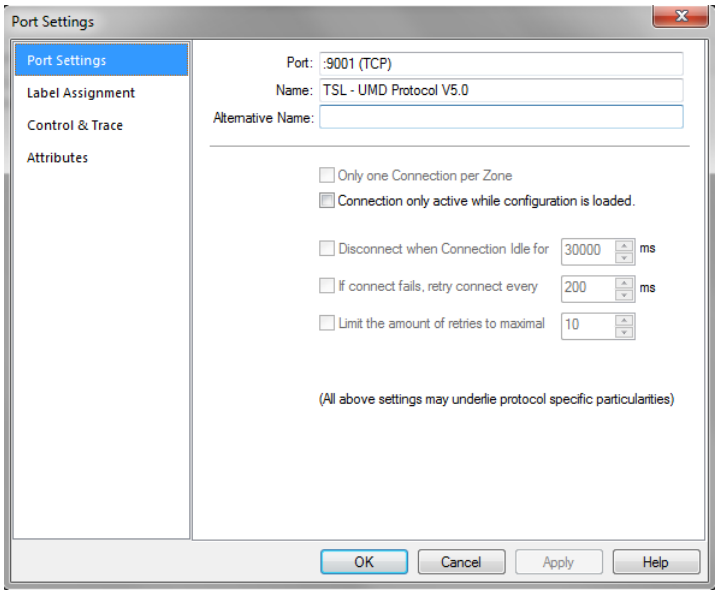
From here you can configure further settings for the terminal device. Use the tabs on the left to access the different pages.

Note that the pages and their options vary depending on the driver; three different driver types are possible:

- Under monitor/In-monitor display or Multi-viewer
- Router or Automation
- Video Mixer with tally and mnemonic

9.2.1 UMD/IMD or Multi-Viewer

If the driver is a UMD (IMD) or multi-viewer, then the *Port Settings* will looks as follows:



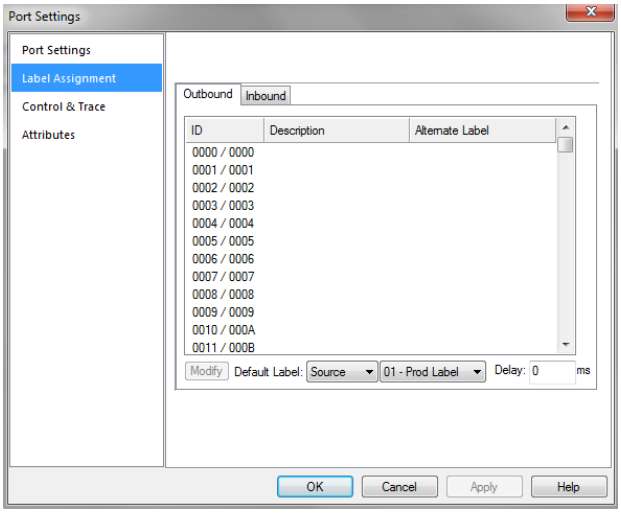
The most important settings are:

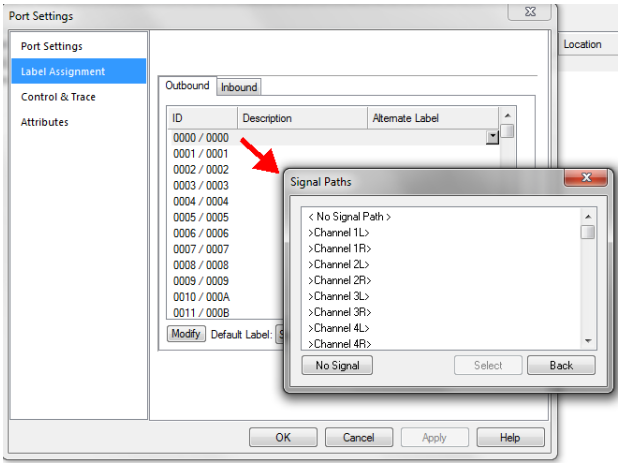
Port Settings Page

In the *Name* field, a unique name for the terminal device must be entered.

Label Assignment Page

In this window, a target (*Outbound*) or source (*Inbound*) is assigned to each ID. Double-click on the relevant ID to open a window in which the signals can be assigned:

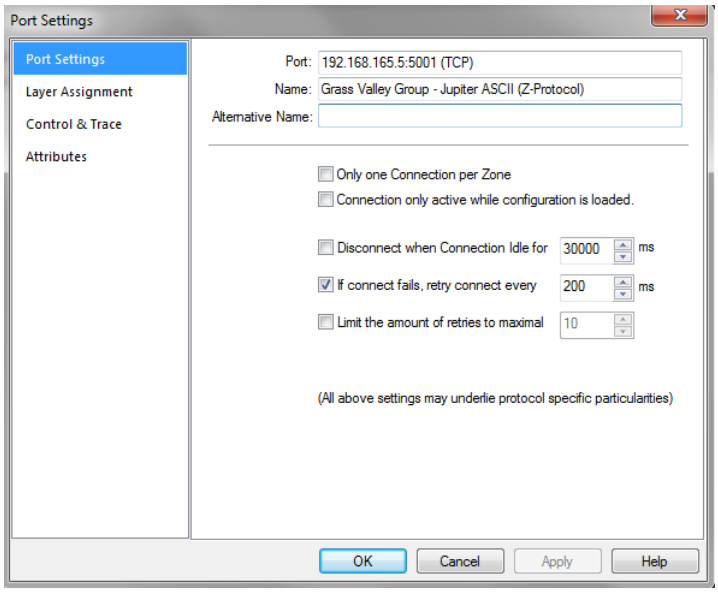




By assigning a target or a source (*Inbound*), it is possible to define whether the system will send a corresponding ID (*Outbound*) or an external label layer (*Inbound*). Under *Outbound*, it is also possible to specify that the system sends the name of the source that is connected to the target to this ID. Tally information is transmitted directly as well. Inbound means that the VSM control system receives a label and transmits it to the external label layer of the source.

9.2.2 Router or Automation

If the terminal device for the interface is a router or automation, then the *Port Settings* will looks as follows:



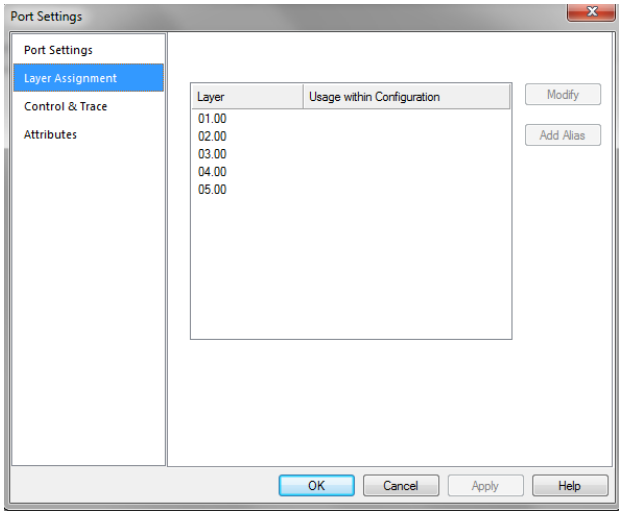
The most important settings are:

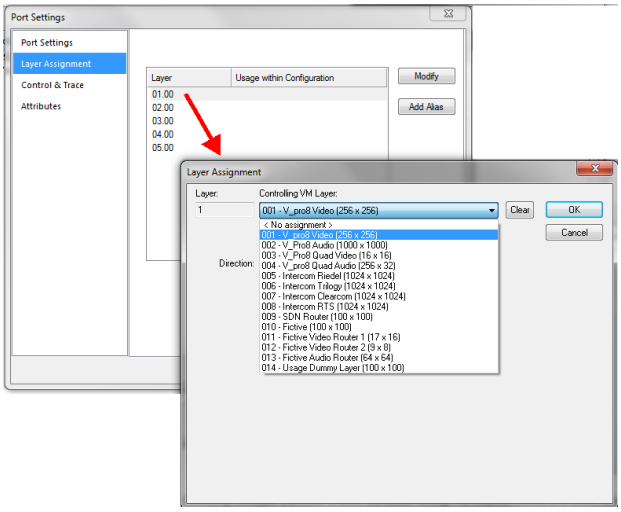
Port Settings Page

In the *Name* field, a unique name for the terminal device must be entered.

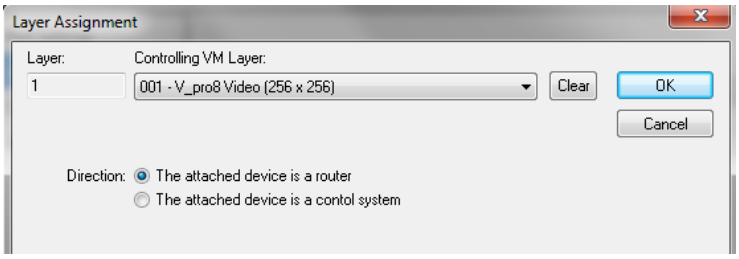
Layer Assignment Page

Depending on the driver chosen, one or multiple layers are displayed here. By double-clicking the relevant layer, a new window opens in which the layer can be assigned:





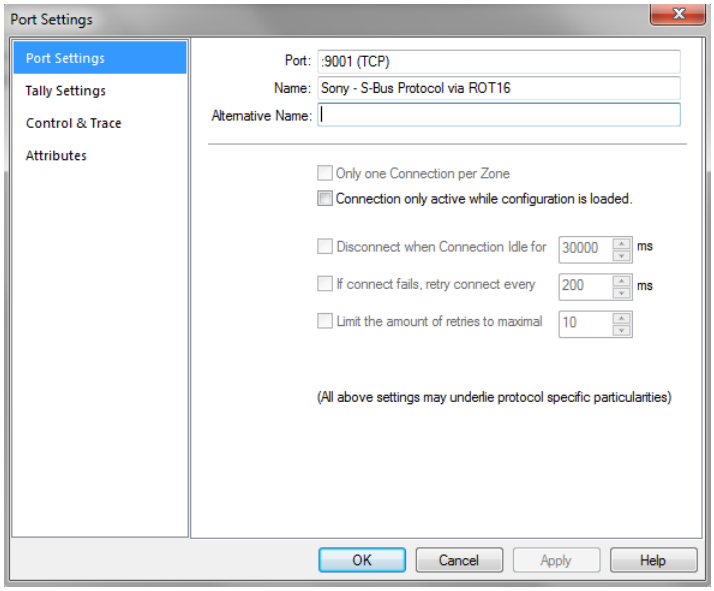
Select a layer using the drop down menu. If a router is assigned, the default setting *The attached device is a outer* is selected for the control direction:



If a virtual layer (vLayer) is chosen in the drop down menu, then it is most likely that a controlling instance is connected. In this case, the control direction must be changed to *The attached device is a control system*. When this function is activated, the layer acts as a router that can be controlled by an automation system.

9.2.3 Video Mixer

If the terminal device for the interface is a video mixer with tally and mnemonic, then the *Port Settings* will looks as follows:



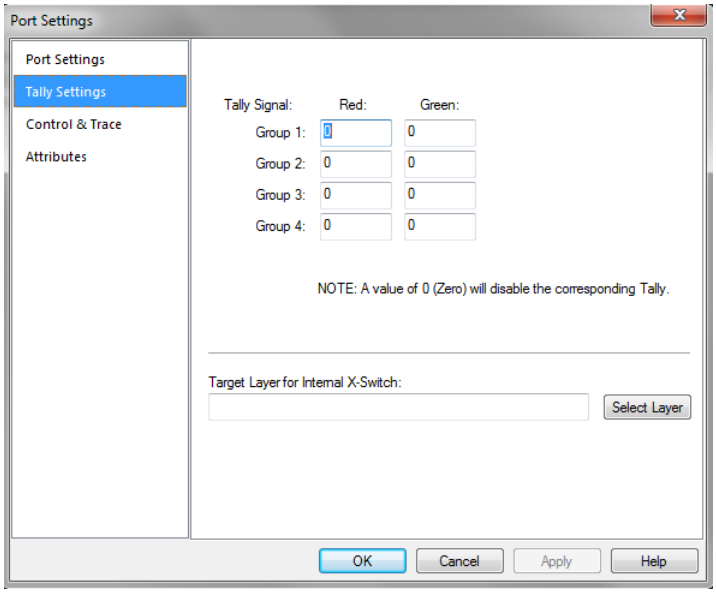
The most important settings are:

Port Settings Page

In the *Name* field, a unique name for the terminal device must be entered.

Tally Settings Page

The fields under *Tally Signal* serve to define where the mapping of the GPIOs starts:

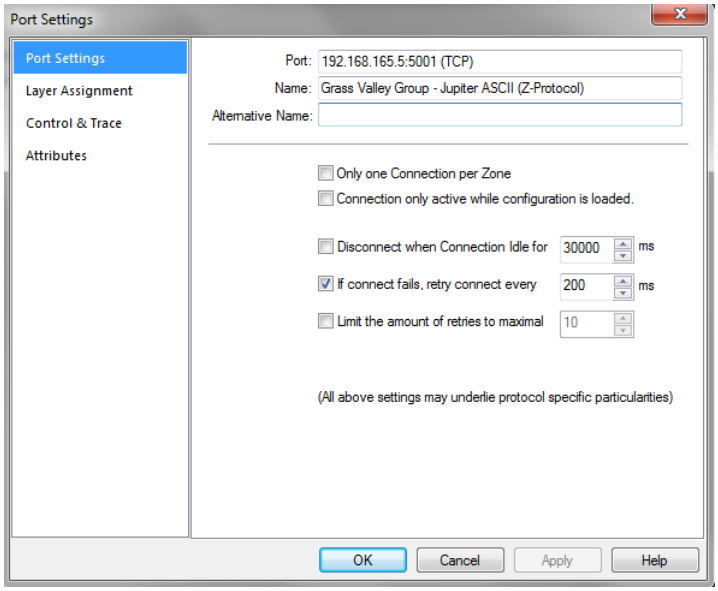


Use *Select Layer* to select the relevant, configured video mixer layer.

> Please note: these areas must not overlap.
> Depending on the driver chosen, the window may differ from the screenshot shown above.

9.2.4 Port Settings

Depending on the driver type, the following *Port Settings* may also be available:



One Connection per Zone

The VSM control system operates in a so-called multiserver cluster. This means that every server located in the cluster establishes a connection with the terminal device. The function is not supported by every terminal device. In such cases, the attribute *Only one Connection per Zone* is activated. The server is so limited to only one active connection, while other servers remain on standby.

> Please note: the change must be made manually on every server.

Duration until Disconnect

If a terminal device loses its connection to the server, the relevant IP port may not close. It is possible to define a time frame in milliseconds under *Disconnect when Connection Idle for...* after which vsmStudio disconnects automatically.

Duration until Re-connection Attempt

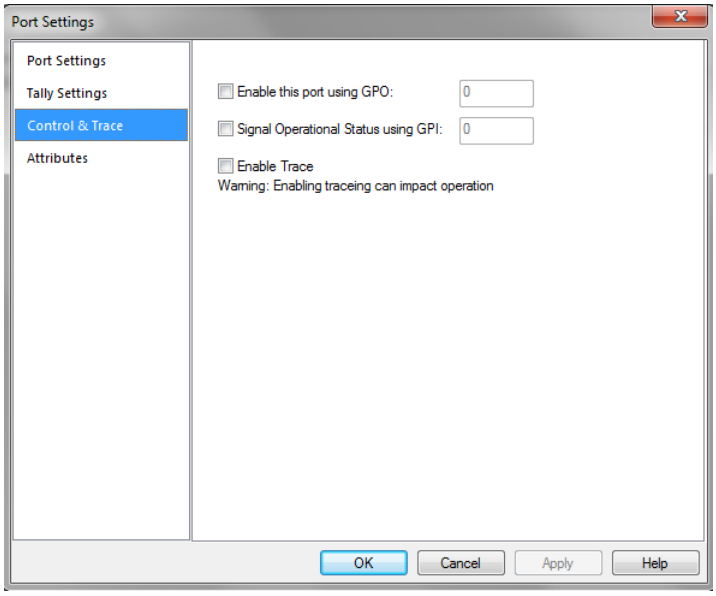
If the connection was lost or the terminal device was turned off, the VSM control system will attempt to re-connect the port after a defined period of time if this attribute is activated. This time frame can be entered in milliseconds under *If connect fails, retry connect every...* and will be used as default.

Number of Attempted Re-connects

If a terminal device loses its connection to the server cluster, vsmStudio will try to re-connect the port. The maximum number of re-connect attempts can be defined in the field following *Limit the amount of retries to maximal...* When this maximum number is reached, the port must be re-created manually.

9.2.5 Control & Trace

The *Control & Trace* page provides access to the following options:



Deactivating Ports through GPO

Every port can be activated or deactivated with a GPO (see GPIOs). In the field *Enable this port using GPO*, it is possible to enter an unassigned GPO that will activate or deactivate this or multiple ports. It is irrelevant whether the GPO is physical or virtual. The function can be provided with a logic and assigned to operating elements.

Signal Monitoring via GPI

Each port with a so-called heartbeat can be monitored with a GPI. To do so, an unassigned GPI that will monitor this port can be chosen following *Signal Operational Status using GPI*. This GPI can be either physical or virtual. Within the configuration, this function can be provided with a logic that creates alarms and can be assigned to operating elements.

Service Tool Trace

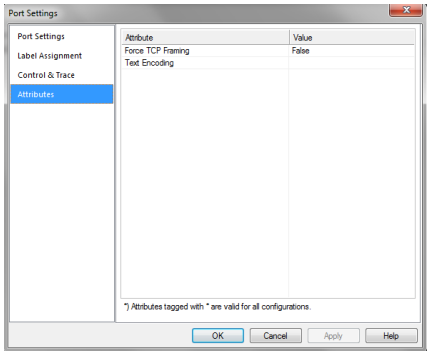
Check *Enable Trace* to activate the trace mode. It provides additional information in the *CommTrace*.

> Please note: this function may affect the performance of your system.

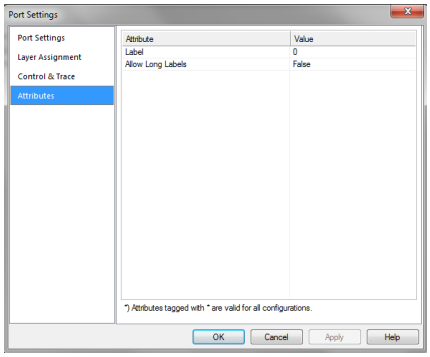
9.2.6 Attributes

The *Attributes* page displays attributes for the terminal device. Note that these will vary depending on the driver - below are three examples:

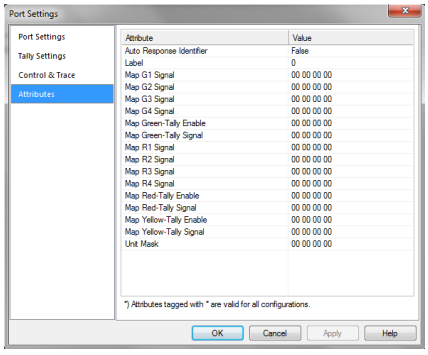
Attributes: UMD



Attributes: Router

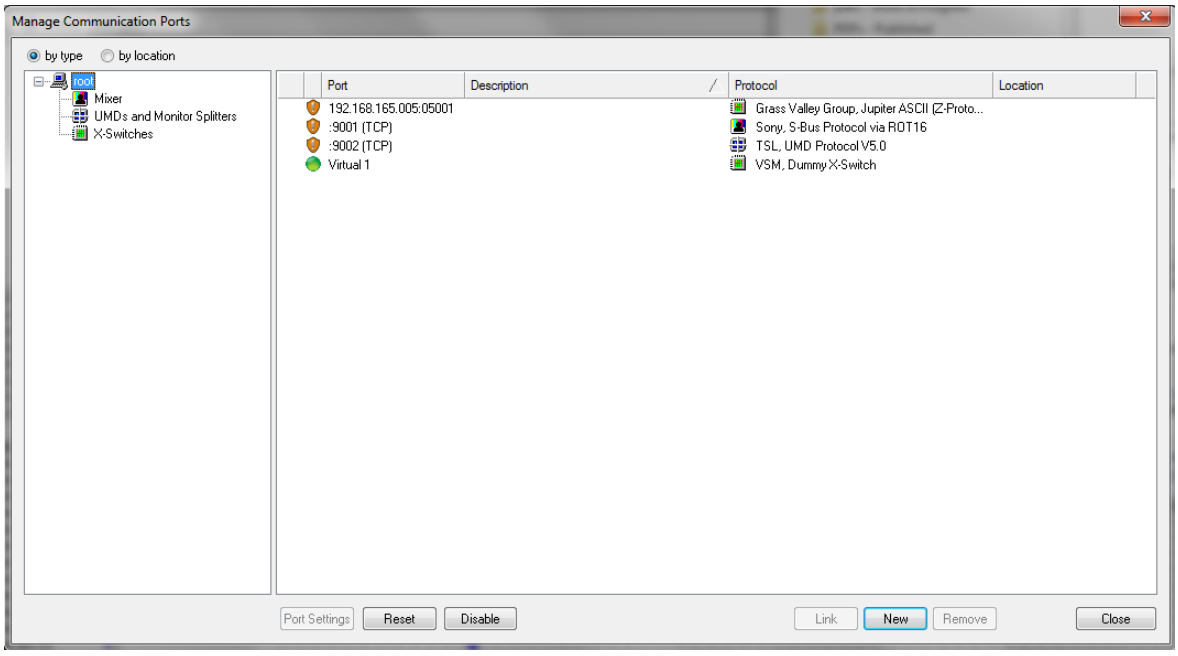


Attributes: Video Mixer



9.3 Port Monitoring

Using the *Manage Communication Ports* window, it is possible to spot which ports are active and in working order, and at which points, if any, problems are occurring.



The symbols in front of the listed ports have the following meaning:

A connection is confirmed and operating.

A connection is confirmed but there is no communication.

A connection is confirmed, but there has been no communication in the last 15 seconds.

A connection is being established.


A renewed connection is being established.


A delayed connection is being established.


Connection failed.


Connection is deactivated.


Connection is on standby (One zone Connect).


Connection is deactivated through a GPI.

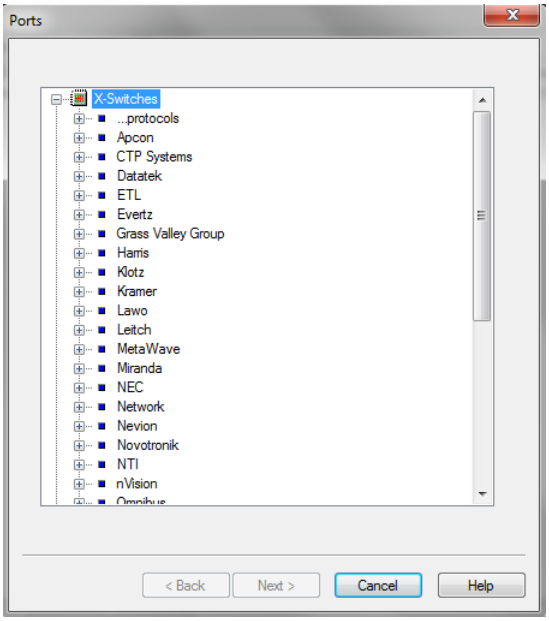

A linked port has been stopped.

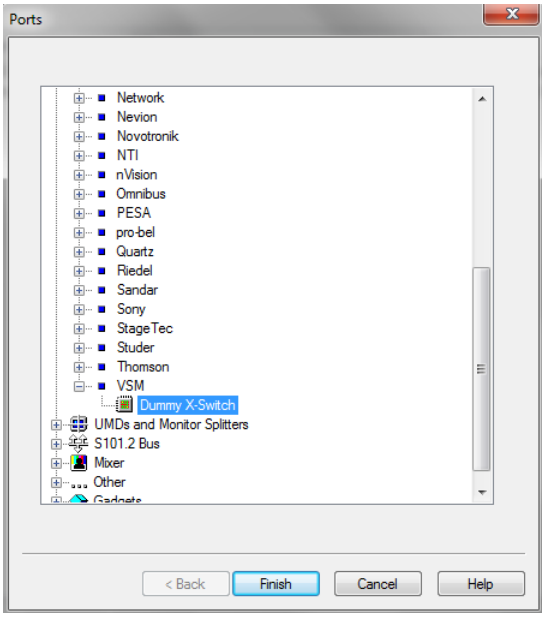

Incoming connection.

9.4 VSM Dummy X-Switch

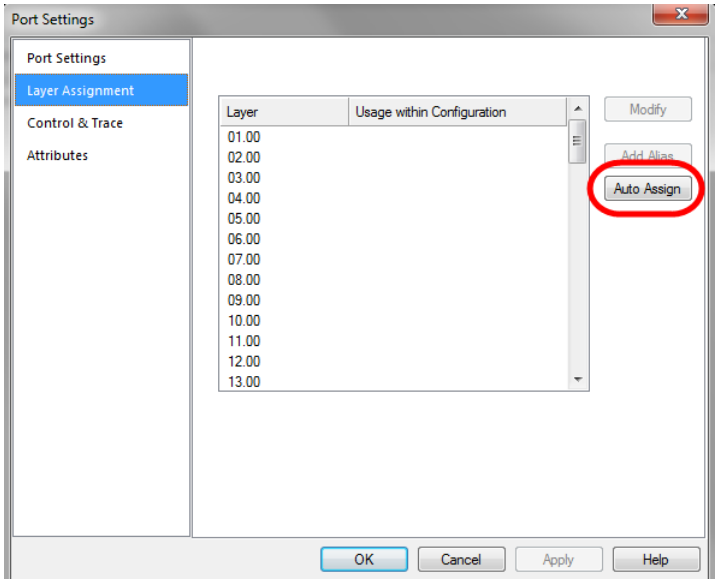
To simulate feedback from a router locally on a computer, vsmStudio offers a so-called VSM Dummy X-Switch. It allows the editing of a configuration without having access to the terminal devices that are to be controlled.

The Dummy X-Switch can be selected from the *X-Switches -> VSM* driver list:

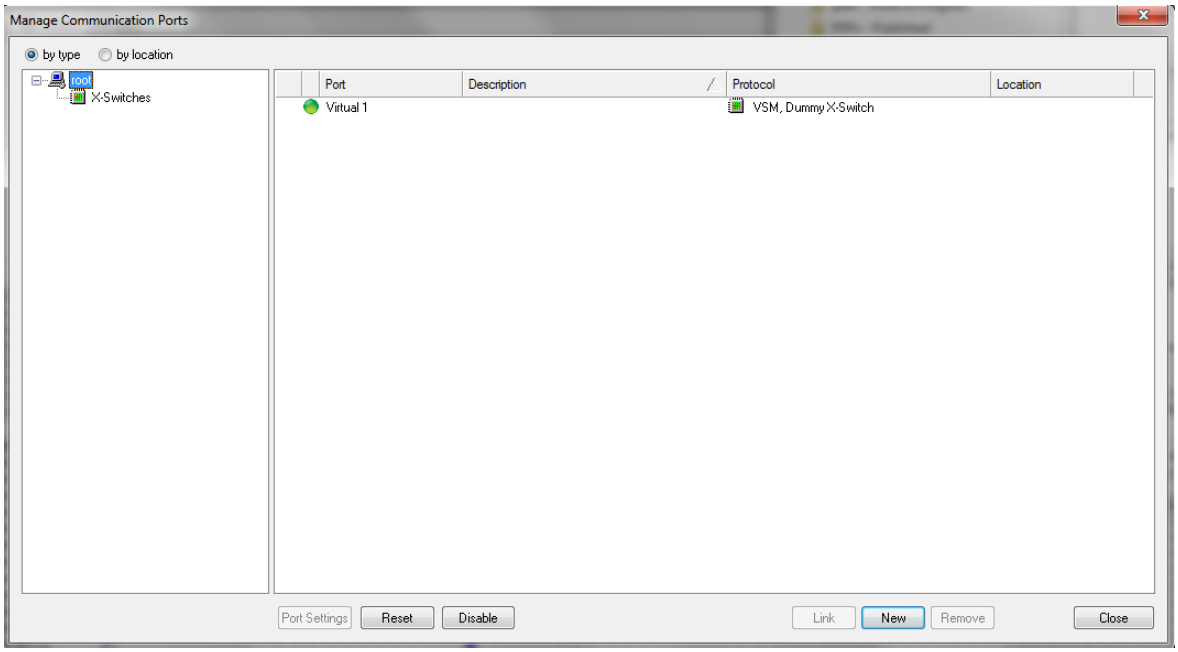




Select *Finish* to open the associated input mask, and navigate to the *Layer Assignment* page of the Port Settings window. Existing layers are assigned to the Dummy X-Switch by pressing *Auto Assign*.



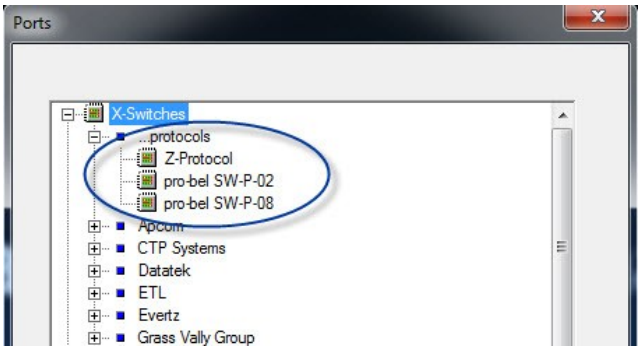
In the *Manage Communication Ports* window, a green dot indicates whether a connection to the VSM Dummy X-Switch is in place:



9.5 vsmGadgetServer

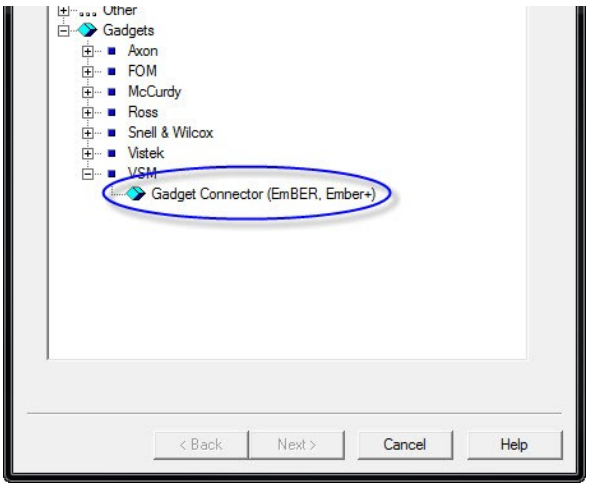
There are individual protocols that cannot be selected directly through the vsmStudio software, but communicate through the vsmGadgetServer. The control system must be connected to the vsmGadgetServer, so that it can establish a connection with the terminal device. Two protocols are used to this end: The protocol to switch the terminal device and to transfer the label through the vsmGadgetServer is called ProBel SWp08. It can be found in the driver list (see New Port) in the category X-Switches under ...protocols (for the relevant IP port, see documentation vsmGadgetServer; for the label transfer to the terminal device, see vsmStudio Application Note 14).

ProBel SWp08 for the vsmGadgetServer



The protocol to control parameters of the terminal device over the vsmGadgetServier is called Ember+ (for the relevant IP port, see documentation vsmGadgetServer).

Ember+ for parameter control



10. Storage Groups

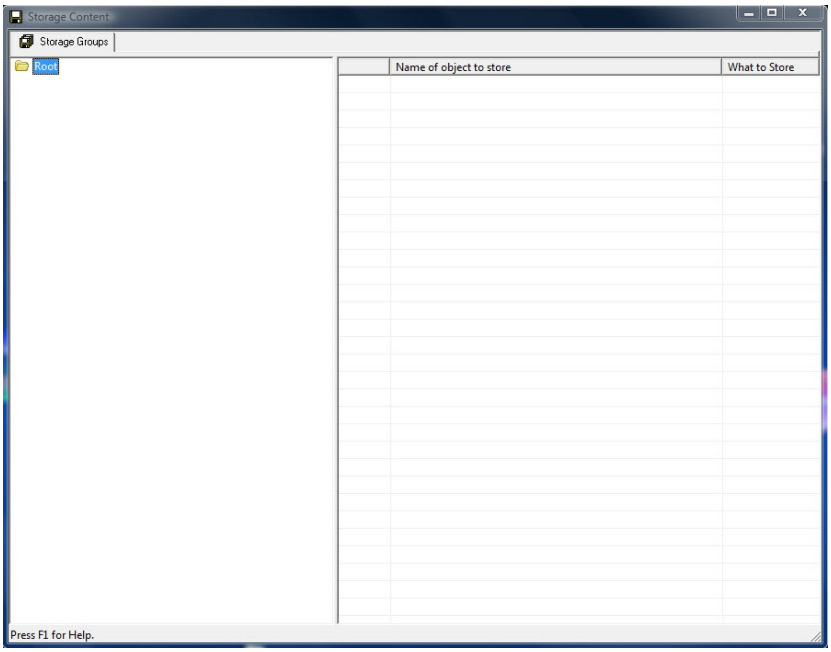
In **vsmStudio**, "Storage Groups" can be used to save and load defined presets. Each preset can contain signal paths, GPIOs and Gadget parameters.

This chapter covers the configuration of Storage Groups.

10.1 Storage Content Window

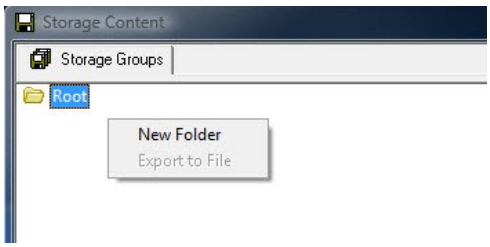
Click on the folder symbol in the main menu bar to open the *Storage Content* window:

The window is divided into two parts: the left half displays storage groups and storage discs, while saved content (signal paths, gadget parameters, and GPIOs) is shown on the right. By default, this folder is empty except for the *Root* folder.

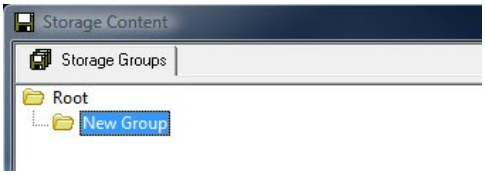


10.2 New Storage Group

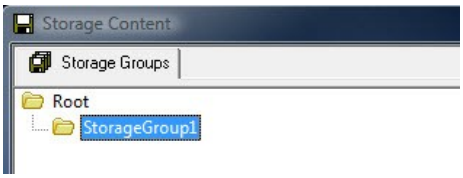
Right-click into the right field of the Storage Content Window to open the menu shown below:



Select the option *New Folder* to create a new storage group. A new entry (*New Group*) will appear on the left side.

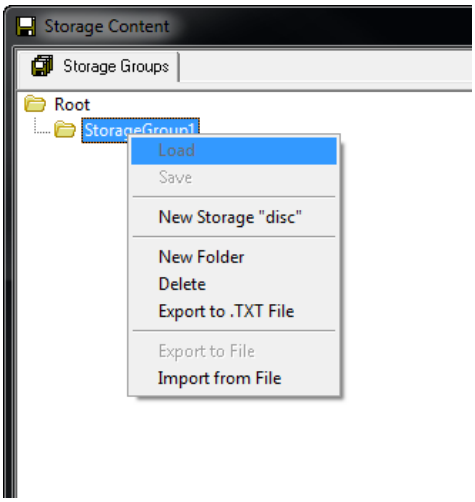


The name of the storage group can be changed by left-clicking onto *New Group*.

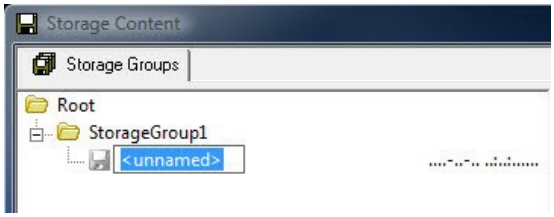


10.3 New Storage Disc

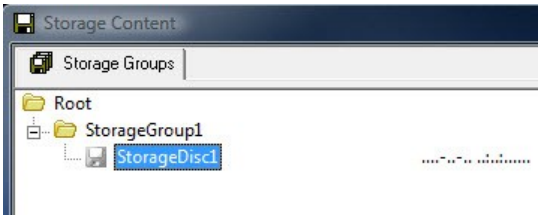
A right-click on *StorageGroup1* will open the menu shown below:



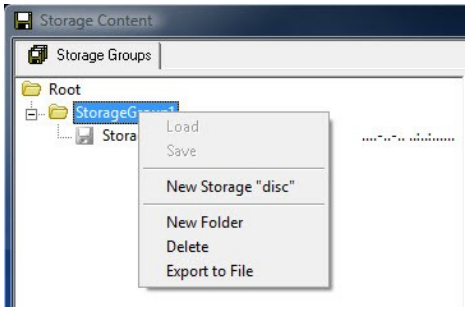
Select *New Storage "disc"* to create a storage disc.



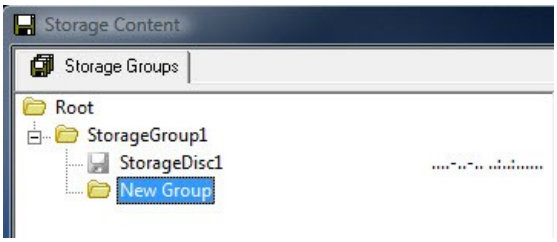
The name of the storage disc can be changed by left-clicking <*unnamed*>.



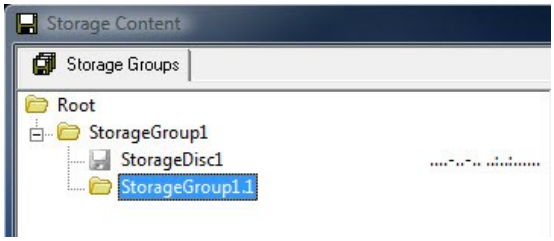
10.4 New Subgroup



Right-click onto the created storage group to create a *New Folder.*



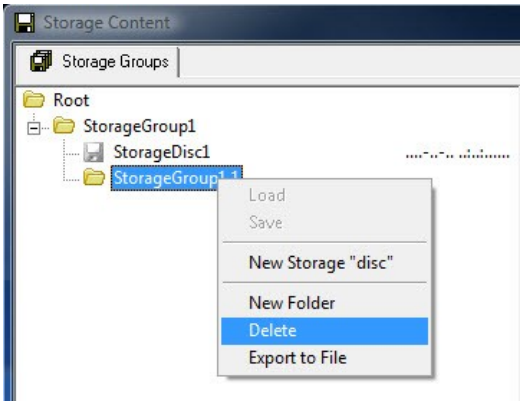
Left-click onto *New Group* to change the name of the corresponding storage group.



10.5 Deleting and Exporting Storage Groups

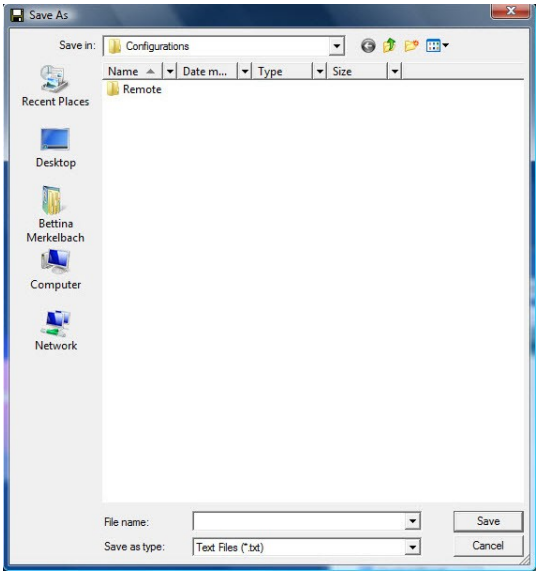
10.5.1 Deleting Storage Groups

Right-click onto the relevant storage group and select the option *Delete* to delete it.



10.5.2 Exporting storage groups

Selecting the option *Export to File* will prompt the opening of a new explorer window. It is used to define a destination to which the folder with all its contents will be saved as a.txt file.



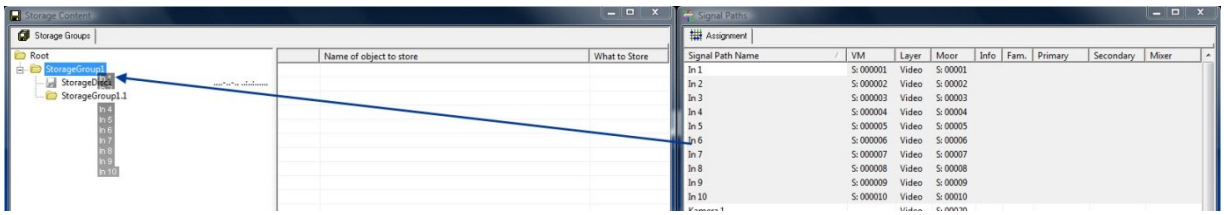
10.6 Adding Storage Content

All contents that can be loaded and saved in the storage groups can be added to the relevant storage group using drag and drop.

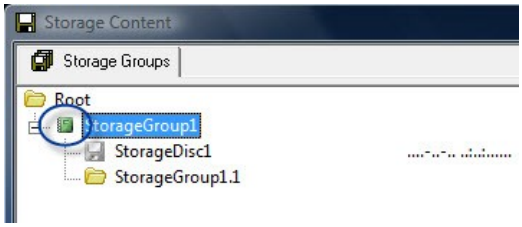
10.6.1 Signal Paths

Signal paths (see Signal Paths) can be assigned to the storage group from the signal path list (see Signal Path List), the master matrix (see Master Matrix), or from one of the views (see Views).

Dragging signal paths from the signal path list into a storage group

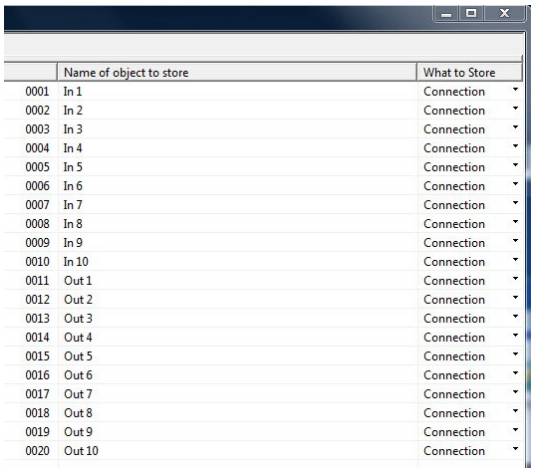


The symbol of a storage group changes as soon as content is assigned to it.



The right side of the storage content window will look as shown below after signals have been assigned to it:

Saved signal paths



	Name of object to store	What to Store
0001	In 1	Connection
0002	In 2	Connection
0003	In 3	Connection
0004	In 4	Connection
0005	In 5	Connection
0006	In 6	Connection
0007	In 7	Connection
0008	In 8	Connection
0009	In 9	Connection
0010	In 10	Connection
0011	Out 1	Connection
0012	Out 2	Connection
0013	Out 3	Connection
0014	Out 4	Connection
0015	Out 5	Connection
0016	Out 6	Connection
0017	Out 7	Connection
0018	Out 8	Connection
0019	Out 9	Connection
0020	Out 10	Connection

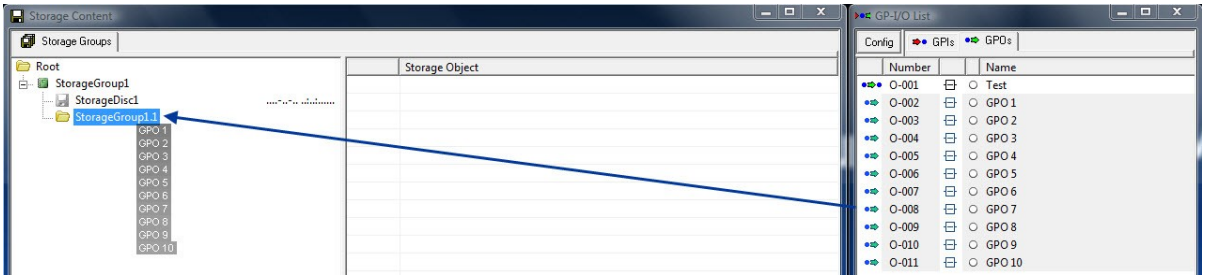
This window shows the numbered, assigned signal paths and the actual storage content.

For signal paths, it is possible to choose between crosspoint (*Connection*) and label using a drop down menu. For input signals, only the label can be saved.

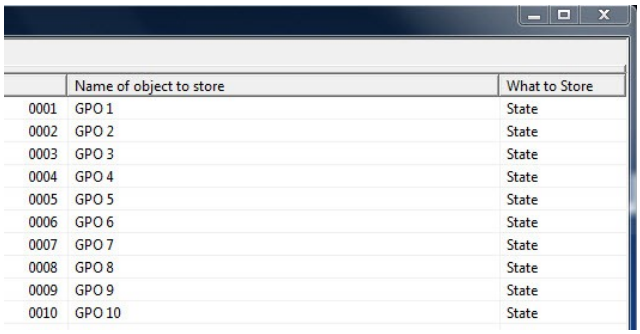
10.6.2 GPIOs

GPIOs (see GPIOs) can be assigned to a storage group from the GPIO list.

Dragging GPOs from the GPIO list into a storage group



After the addition of GPIOs, the right side of the window looks as shown below:



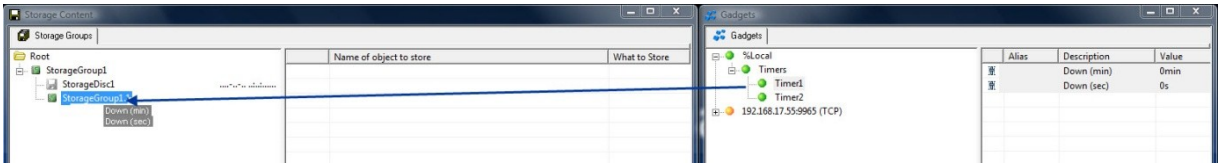
	Name of object to store	What to Store
0001	GPO 1	State
0002	GPO 2	State
0003	GPO 3	State
0004	GPO 4	State
0005	GPO 5	State
0006	GPO 6	State
0007	GPO 7	State
0008	GPO 8	State
0009	GPO 9	State
0010	GPO 10	State

Here, the assigned GPIOs are numbered, and the GPIO state is shown as storage content.

10.6.3 Gadget Parameter

Gadget parameters (see Gadgets) can only be assigned to a storage group from the gadget list (see Gadget View).

Dragging gadget parameters from the gadget list into a storage group



The right side of the storage content window looks as shown below after the addition of gadget parameters:

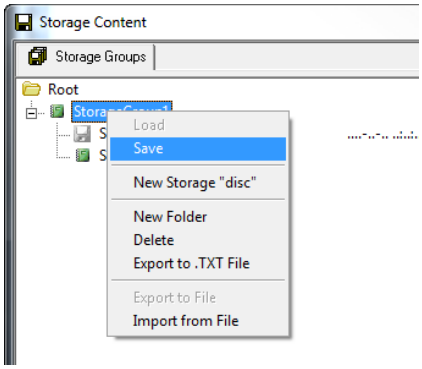
0010	GPO 10	State
0011	Down (min)	Value
0012	Down (sec)	Value
0013	Down (min)	Value
0014	Down (sec)	Value

The numbers and names of assigned gadget parameters as well as the information that a *Value* is saved is shown here.

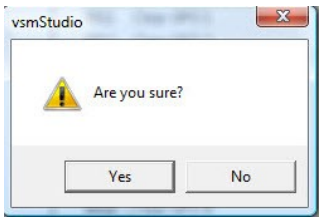
10.7 Saving and Loading Storage Groups and Storage Discs

10.7.1 Saving through the Storage Group

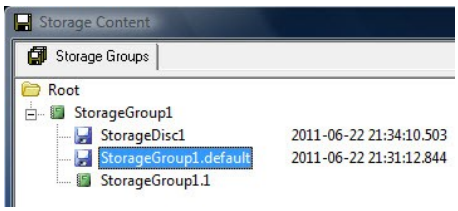
Right-click onto the relevant storage group and select the option *Save* from the drop down menu to save already assigned crosspoints, GPIO states, or gadget parameter values.



Subsequently, a new window opens requesting the confirmation for the save. Select *Yes* to finish the saving process (if *No* is selected, the changes will not be saved).



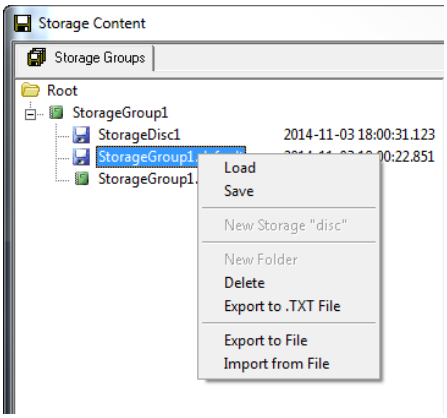
If the storage group is overwritten, a new storage disc with the ending *.default* is created by default.



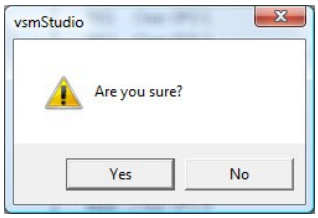
Date and time of the last change are indicated after the storage groups. If a created storage disc is overwritten, no new storage disc is created.

10.7.2 Loading through the Storage Group

To load previously saved crosspoints, GPIO states, or gadget parameter values, right-click onto the relevant storage group. The following menu will open:



Selecting *Load* will prompt a query asking for confirmation to load.

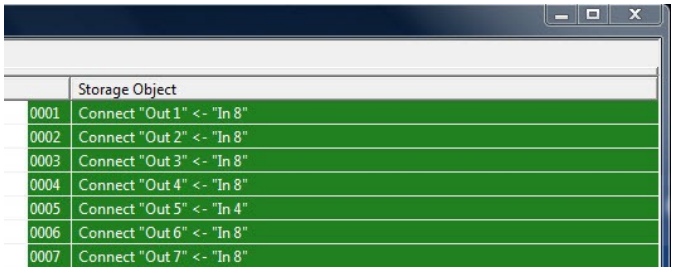


To load the changes, select *Yes*. If *No* is chosen, the changes will not be loaded. The state of the storage disc with the *.default* ending will be loaded.

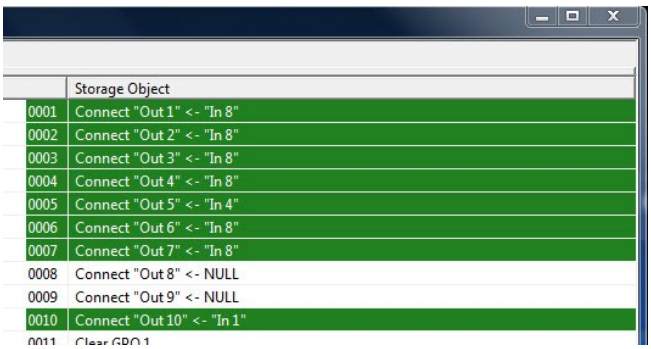
10.8 View of the Storage Disc after Saving and Loading

10.8.1 Signal Paths

If signal paths have been saved and the storage disc is selected, the right side of the window looks as follows:

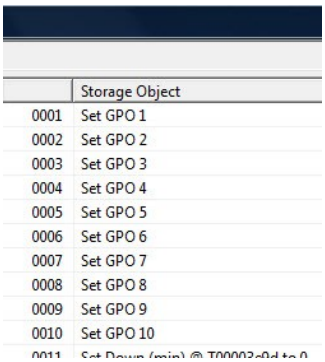


All saved crosspoints are indicated with a green background. The view shows which output is connected to which input. Saved labels are treated somewhat differently: they are not indicated by a green background. If a crosspoint switch does not have a green background, the switch was not executed.



10.8.2 GPIOs

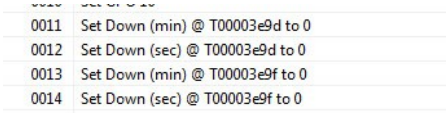
If GPIOs have been saved, the right side of the window looks as follows when the storage disc is selected:



Like labels, GPIOs are not shown with a green background. However, an indicator in front of the GPIO names specifies whether they are set or reset.

10.8.3 Gadget Parameter

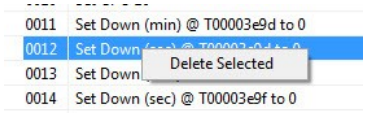
If gadget parameters were saved and the storage disc is selected, the right side of the window will look as follows:



Gadget parameter values are not shown with a green background after having been saved. The value set for each gadget parameter is shown in front of the gadget parameter name.

10.9 Deleting Content from Storage Groups

If a signal path, GPIO, or a gadget parameter is no longer needed, storage group contents can be deleted in two ways: a single element can be deleted from the storage group by right-clicking on it and selecting the function *Delete Selected.*



Alternatively, the relevant function can also be deleted by pressing *Ctrl+X*

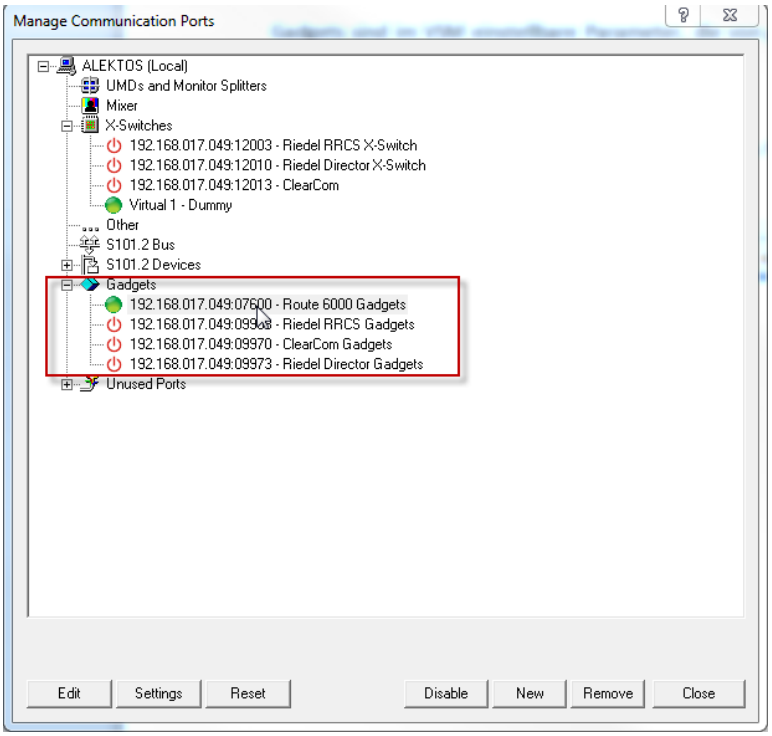
11. Gadgets

In **vsmStudio**, "Gadgets" are parameters that are made available by controlled devices through protocol.

This chapter covers the configuration of Gadget ports and their parameters.

11.1 Setting-up Gadget Ports

In order to be able to control gadgets, a gadget port must be created for the relevant device under port management (see New Port). The Ember protocol located under VSM is oftentimes used here.

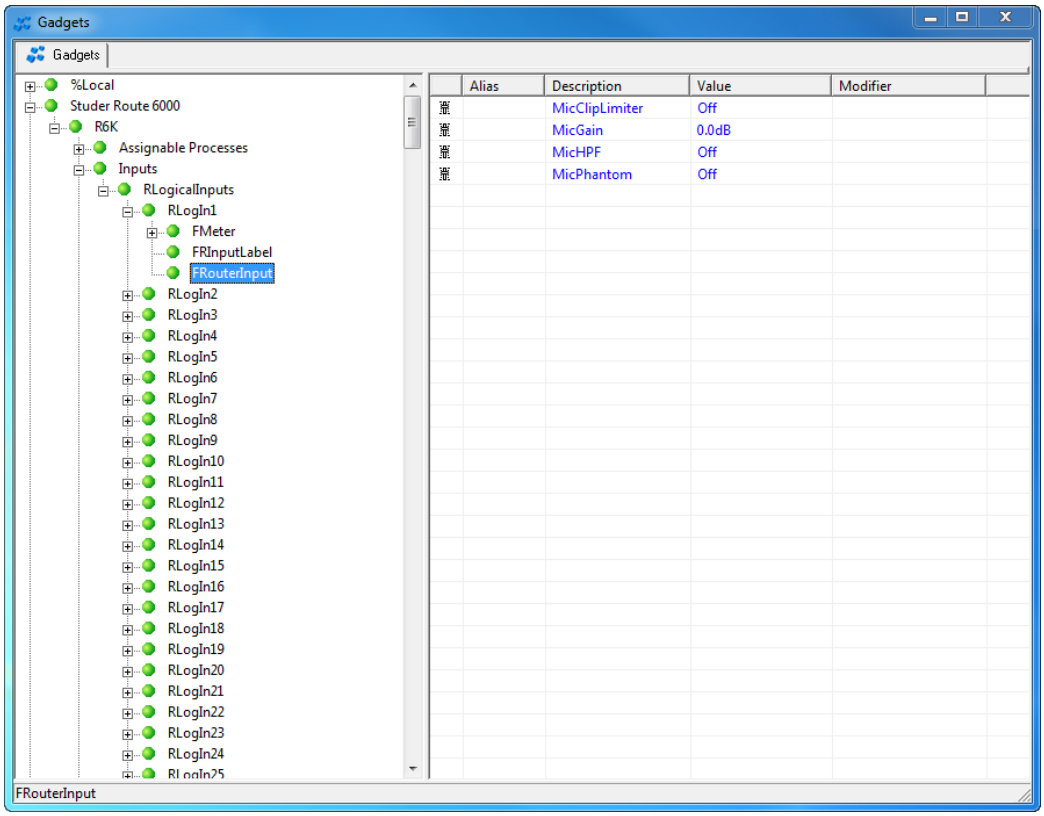


11.2 Gadget Tree

For an overview of all existing gadgets, click on the appropriate button in the main menu bar:

All available gadgets are listed in a tree structure, the so-called gadget tree. The controlled parameters can be found in subfolders on the right side. If the values are shown in blue font, they can be changed directly in this view. Black font indicates gadgets that cannot be changed.

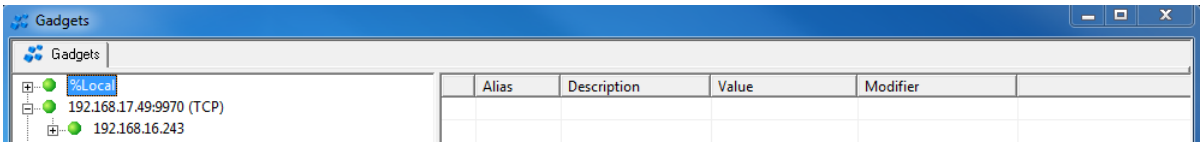
Gadget tree



This view allows the further use of already existing parameters. They can, for example, be assigned to a panel for control purposes, linked with GPIOs (see GPIOs), or even saved in meta-gadget containers (see Meta Gadgets).

11.2.1 Gadget View

There are four columns on the right side of the gadget view.



Alias

Should parameters in a gadget folder have the same name, they can be re-named in the column *Alias*. The vsmStudio software will subsequently use this name.

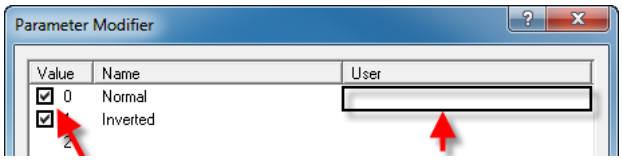
Description

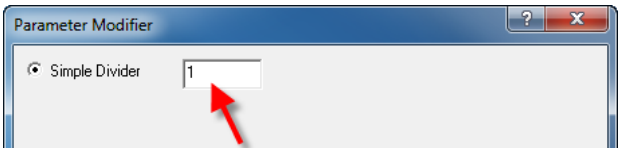
The column *Description* indicates a parameter's pre-defined name.

Value

The column *Value* shows a parameter's current value.

Modifier





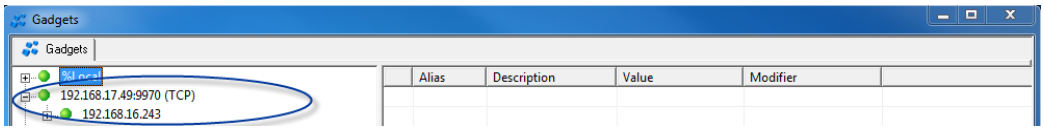
In the column *Modifier,* the display of the available values can be limited. Moreover, the interval for decimals (for rotary controls or faders) can be increased or decreased using a divider.

In addition, the name of specific values can be changed in the field *User*.

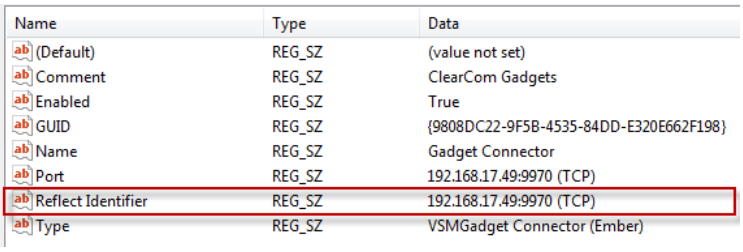
11.2.2 IP Address of the Gadget Port

Once a gadget port has been set-up, the IP address and port that were defined there will be used in the gadget's folder structure:

IP addresses of gadget ports



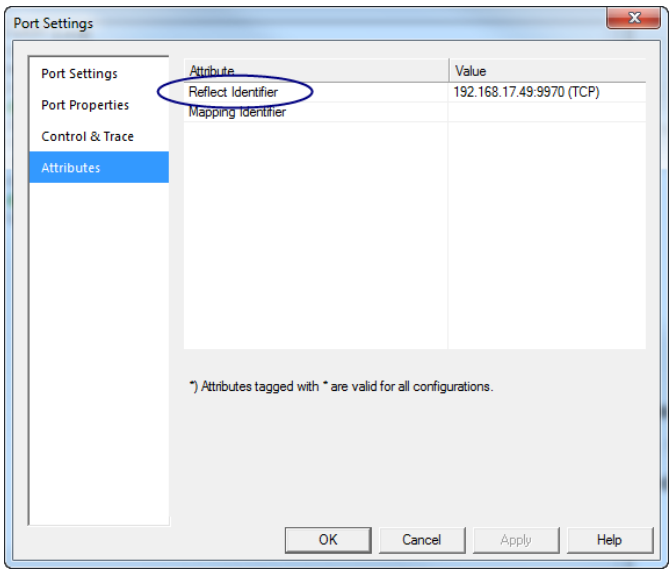
It can often be more useful to define a unique name as reference instead of using a pre-defined IP address and port. The unique name can be changed in the registry. The corresponding entry is located in the relevant gadget connector entry under connections.



Name	Type	Data
(Default)	REG_SZ	(value not set)
Comment	REG_SZ	ClearCom Gadgets
Enabled	REG_SZ	True
GUID	REG_SZ	{9808DC22-9F5B-4535-84DD-E320E662F198}
Name	REG_SZ	Gadget Connector
Port	REG_SZ	192.168.17.49:9970 (TCP)
Reflect Identifier	REG_SZ	192.168.17.49:9970 (TCP)
Type	REG_SZ	VSMGadget Connector (Ember)

Please note: vsmDiscover also allows the definition of a Reflect Identifier for the vsmGadgetServer. Both identifiers are, however, separate entries.

It is also possible to change the unique name in the *Port Settings*. Therefore double left-click on your desired connection in the Communication Port list. The *Port Settings* allow you under the Tab Attributes to manipulate the *Reflect Identifier.*


Port Settings
Port Settings
Port Properties
Control & Trace
Attributes
Attribute
Value
Reflect Identifier
192.168.17.49:9970 (TCP)
Mapping Identifier
*) Attributes tagged with * are valid for all configurations.
OK
Cancel
Apply
Help

12. Meta Gadgets

In **vsmStudio**, Gadgets and other objects can be assigned to signals directly using "Meta Gadgets". Using Dynamic Attachment Scripts, it is possible to link from a signal to an object deposited in a meta gadget. Meta gadgets containing objects, such as signals, GPIOs, gadget parameters, etc. are called meta gadget containers. Meta gadgets are also used by some modules.

This chapter covers the configuration of Meta Gadgets.

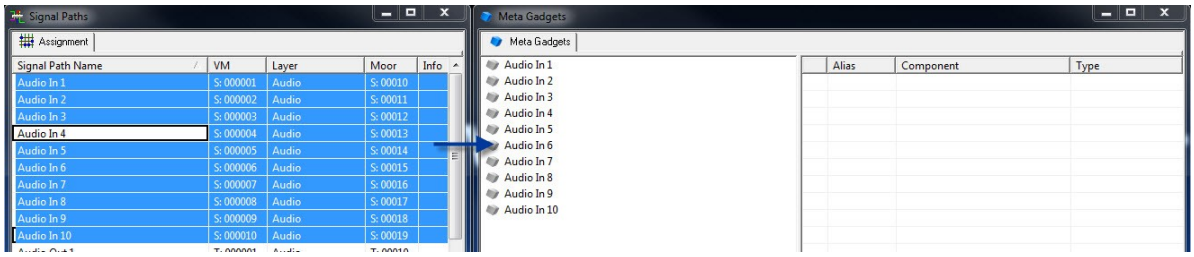
12.1 Display of Meta Gadget Containers

For an overview of all existing meta gadgets, click on the appropriate button in the main menu bar:

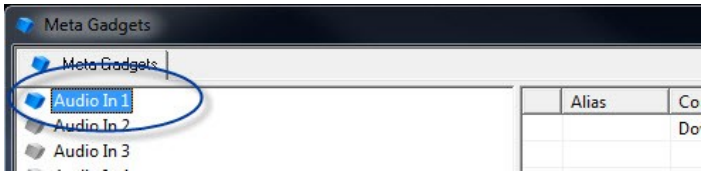
The meta gadget view appears and is divided into two parts:

- the required files from the signal path list are placed on the left side.
- the meta gadgets assigned to the currently selected signal path are shown on the right side.

Click to drag and and drop the required signal paths into meta gadgets (from left to right):



Initially, the meta gadget containers are coloured grey to show that the containers are empty and contain no meta gadgets. As soon as a specific object is assigned to a signal, the container's colour changes to blue:



12.2 Objects in Meta Gadget Containers

The following objects can be placed in a meta gadget container:

- Physical and virtual signals (see Signal Paths)
- GPIOs (see GPIOs)
- Storage discs
- Gadget parameter (see Gadgets).

As with gadgets, the names of the meta gadgets can be changed through an entry in the field *Alias*. If the meta gadgets to be added are not signals, they can be dragged and dropped directly onto the name of the meta gadget container on the left side.

Both meta gadget containers and meta gadgets can be deleted by pressing *Ctrl + X*.

13. Pseudo Devices

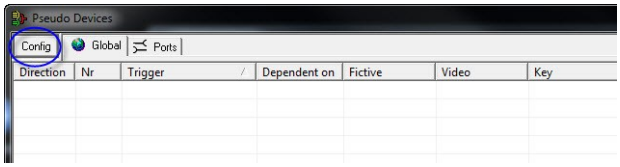
In **vsmStudio**, the "Pseudo Device" function allows the linking of signals. This makes it possible to have one or more crosspoints follow the switching of another crosspoint. The function is frequently used for stereo shortcuts or Audio follows Video.

This chapter covers the configuration of Pseudo Devices.

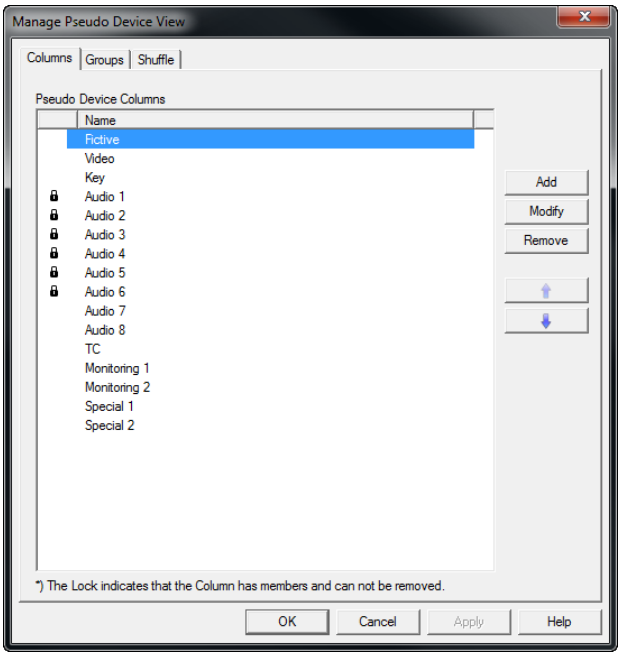
13.1 Configuration of the Pseudo Device List

To open the pseudo device list, click on the appropriate button in the main menu:

The global pseudo device list has some pre-defined columns. With the exception of *Trigger* and *Dependent on*, all of these can be modified or deleted under the tab *Columns* in the configuration menu{

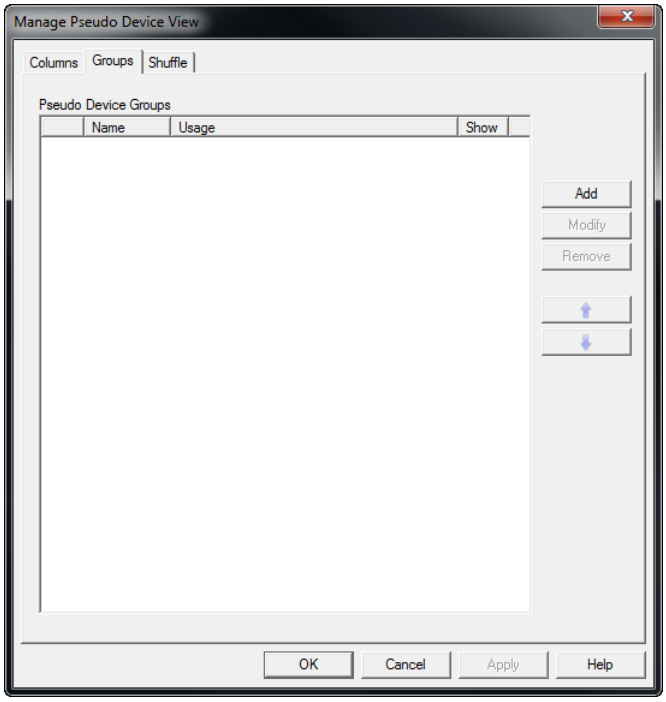


Configuring Columns in the Pseudo Device List

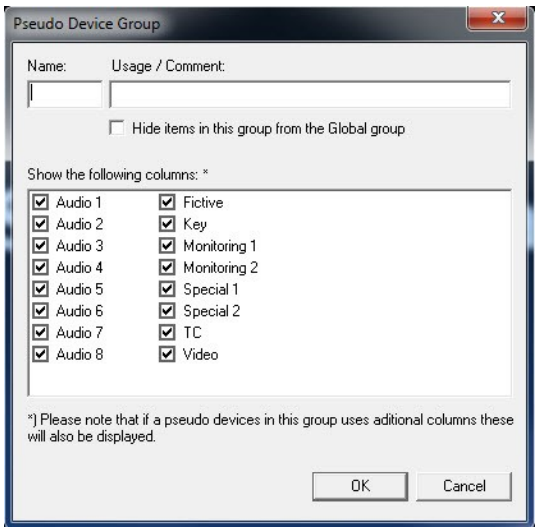


New groups can be setup under the tab *Groups* in the configuration menu. Signals of one type chosen by the user can be assigned to these.

Configuration of Groups



New Pseudo Device Group



While setting up groups, it is possible to choose whether the signals placed there can be found exclusively within the group or also in the global list. For better overview, it is recommended to allow all signals to be shown in the global list. Pseudo device rules can also be moved into the other groups using drag and drop.

13.2 New Pseudo Device Rule

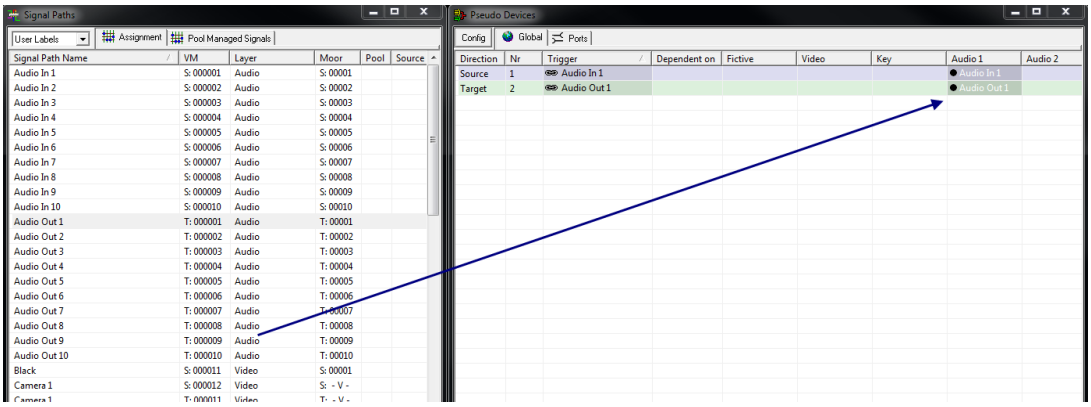
The first signal placed into a new line of the pseudo device list is defined as a trigger. The vsmStudio software automatically moves this signal into the column *Trigger*. This trigger acts as condition for additional following signals.

> Please note: during the set-up of pseudo device rules, the corresponding triggering source or target signal must be defined as trigger in the same column. The pseudo device rule will only become operative if both the source and the target signal have the trigger in the same column. This rule also applies to signals that are to follow a triggering signal.

Signals are dragged and dropped into the corresponding column. Multiple signals can be selected at the same time and dropped individually by pressing the Alt key while holding the left mouse button.

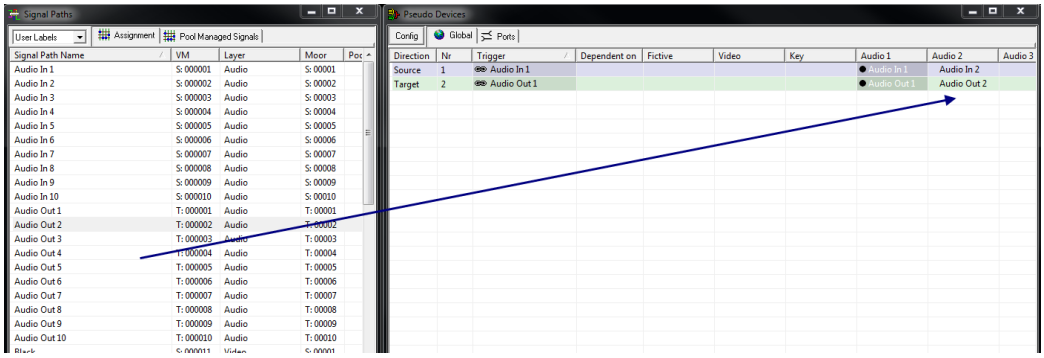
The triggering signal is dragged from the signal path list (see Signal Path List) into the column *Audio 1*. It is automatically displayed in the column *Trigger*. Use the same procedure for the target signal.

Dragging the triggering signal into the pseudo device list



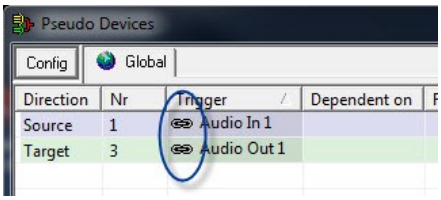
Next, the signal to be linked is dragged from the signal path list (see Signal Path List) into the column *Audio 2*. If the two triggering signals (*Audio Out 1* > *Audio In 1*) are linked with each other, the crosspoint *Audio Out 2* > *Audio In 2* follows automatically.

Dragging a linked signal into the pseudo device list

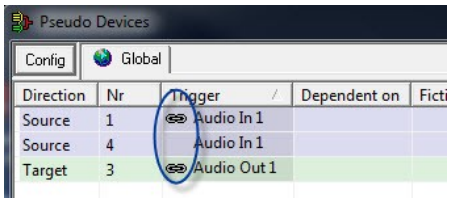


If a signal is defined as trigger, a lock symbol appears in the column *Trigger* in front of the signal name. Should a signal be defined as trigger multiple times, the lock symbol does not appear.

Lock Symbol

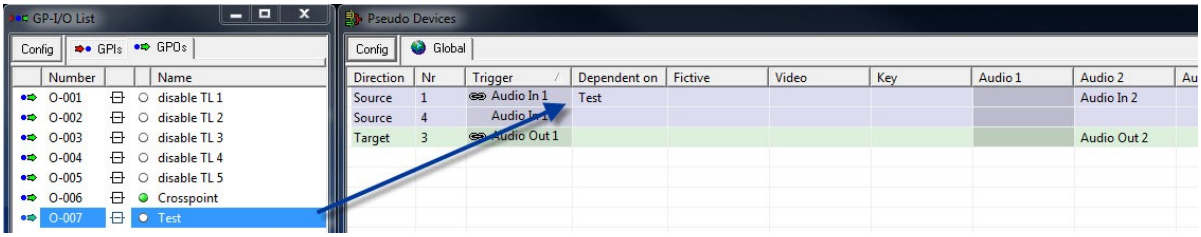


Identical trigger signal



13.3 Activation of a Pseudo Device Rule using GPO

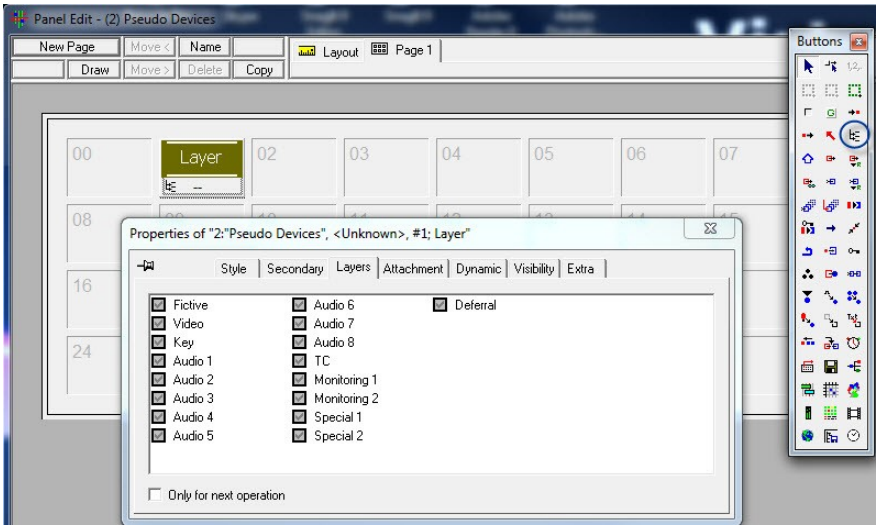
A pseudo device rule can be activated or deactivated depending on a GPO (see GPIOs). To do so, drag and drop a GPO into the field *Dependent on* of an existing pseudo device rule.



13.4 Pseudo Device Rules on Control Panels

Using the *Layer* function on a control panel, pseudo device rules can be deactivated on this control panel as long as the *Layer* button is active.

Layer function for the deactivation of pseudo device rules



14. Timer

In **vsmStudio**, the main purpose of a timer is to count a set time to zero, possibly with a postroll time. There are multiple ways to activate a timer.

This chapter covers the configuration of timers.

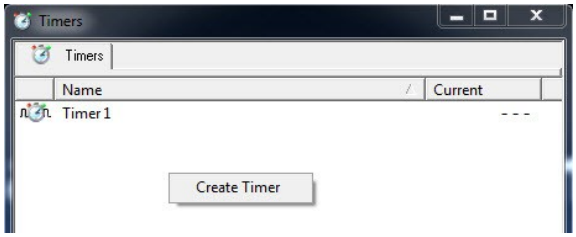
14.1 New Timer

To access the Timer function, select the clock symbol in the main menu bar:

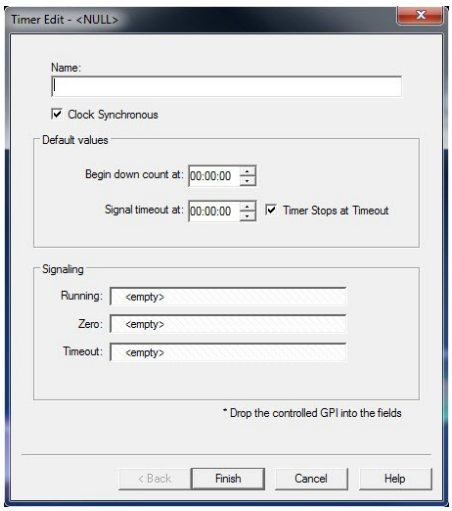
The Timer view opens:

Existing timers will be shown in the Timers view. The column *Current* shows whether they are currently active or not.

To set up a new timer, right-click into the Timers view and select the option *Create Timer*.



Creating new timer



First, enter a name for the new timer in the input mask. The name should not be too long as it will be displayed on control panels. By checking attribute *Clock Synchronous*, the timer will run synchronously to the server time. If it is not checked, the timer will start running as soon as it is activated.

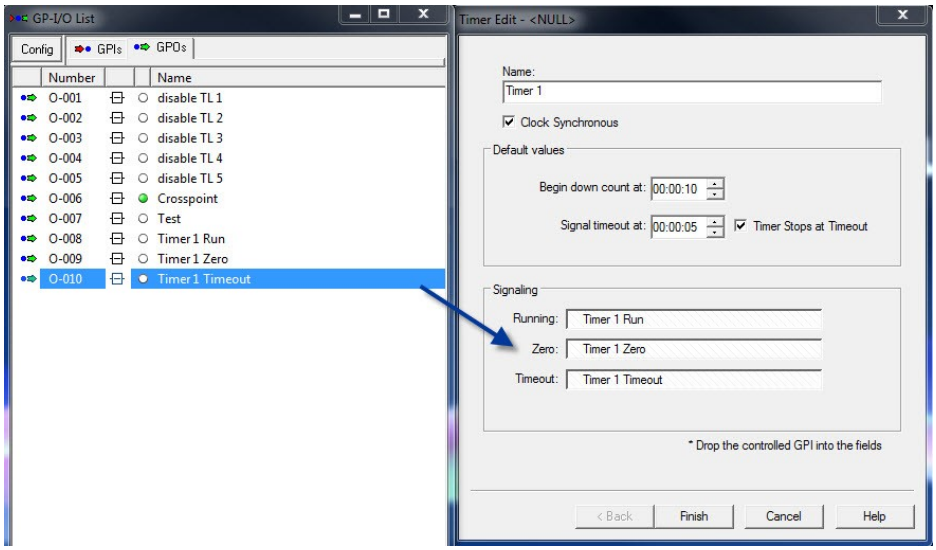
After *Begin down count at,* the starting value for the countdown is defined in hours, minutes and seconds. The time after *Signal timeout at:* represents the postroll time.

The attribute *Timer Stops at Timeout* is checked by default. If the checkmark is removed, all three GPOs remain active and the time continues to run until the timer is reset manually. Under *Signaling*, GPOs are assigned using drag and drop (see Time Activation using GPO). The GPOs are accordingly activated or deactivated once the time markers are reached.

14.2 Timer Activation using GPO

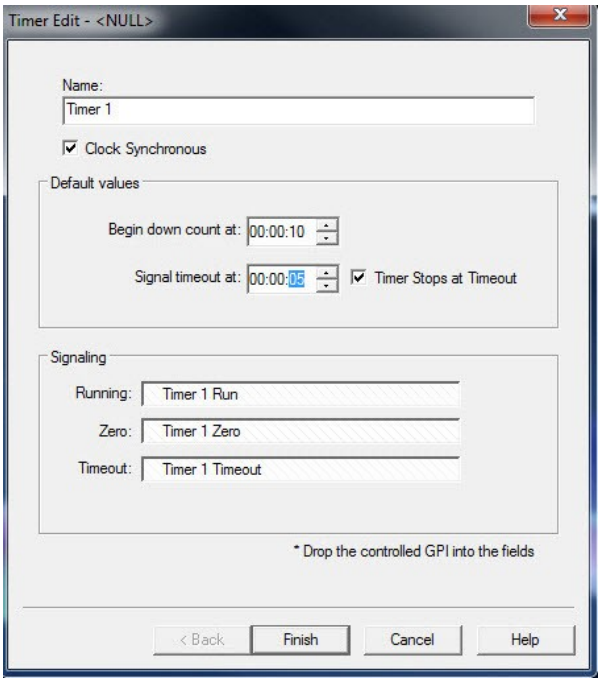
A timer can be activated using GPO (see GPIOs). To do so, an active timer has to be set. When the GPO reaches the zero mark, another GPO can be set, and another one once the postroll time has been reached.

GPOs to activate a timer



Follow this predefined procedure or the set-up: set the *Run* GPO when the timer is active. As soon as zero (without postroll time) is reached, the *Run* GPO becomes inactive while the *Zero* GPO becomes active. If a postroll time has been set-up, the *Run* GPO stays active while the *Zero* GPO becomes active. As soon as the end of the postroll time is reached, the *Run* GPO becomes inactive and the *Timeout* GPO becomes active. The *Zero* GPO becomes inactive and the *Timeout* GPO becomes active. The *Zero* GPO will stay active until the timer is reset.

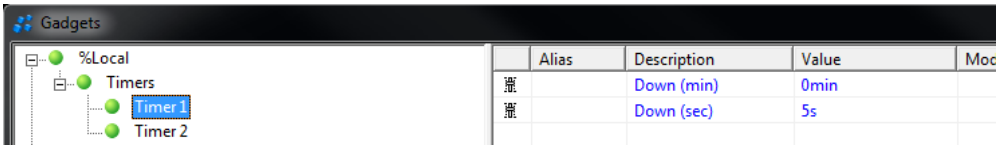
Timer set-up



A timer can be locked or changed at any time via a control panel (see Timer on Control Panels).

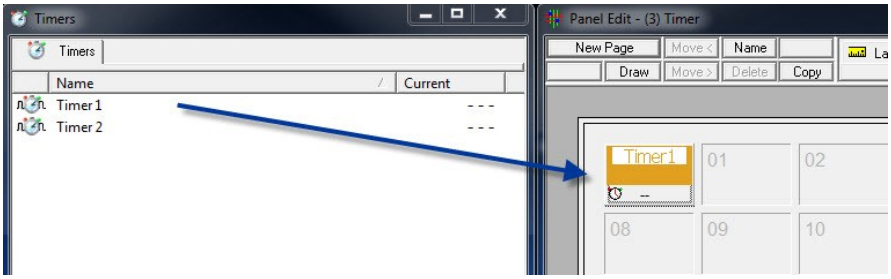
14.3 Timer in the Gadget Tree

Each timer is shown as an active gadget in the gadget tree (see Gadget Tree).



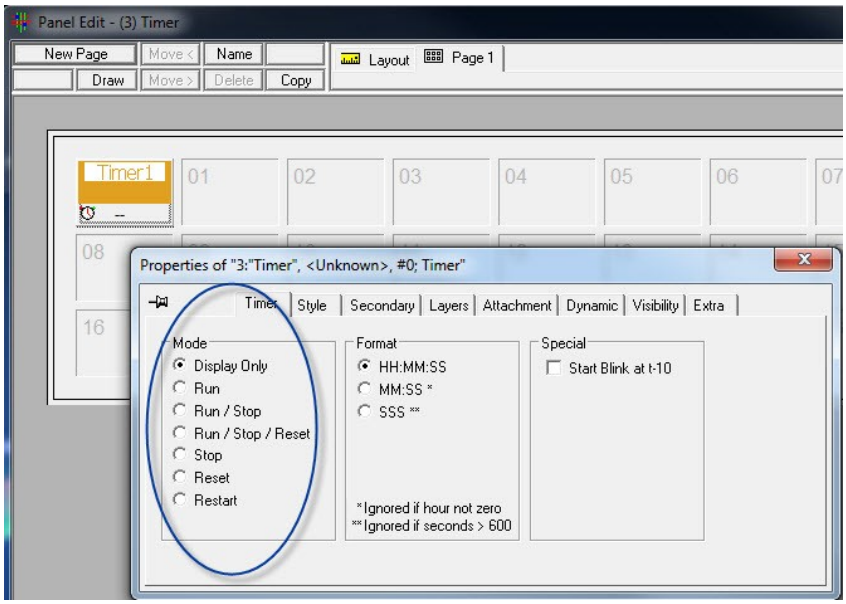
14.4 Timer on Control Panels

Using drag and drop to place a timer on a free control button, the timer value can also be changed from a control panel.



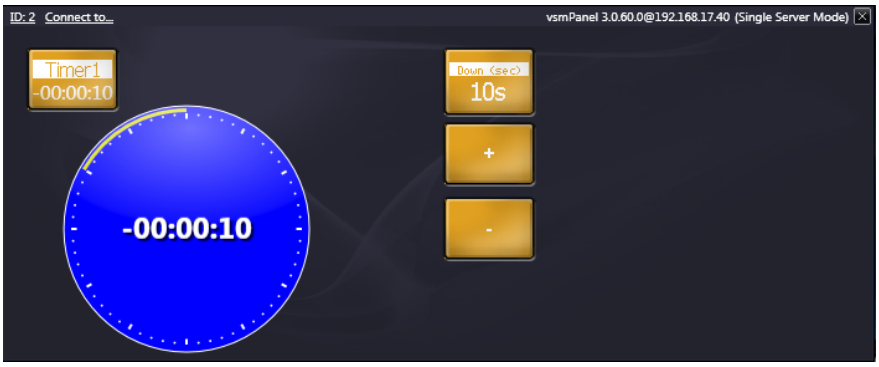
This button is a display button by default. To open the Property-window in which button mode can be changed, select this button in the Panel Edit.

Changing time button properties



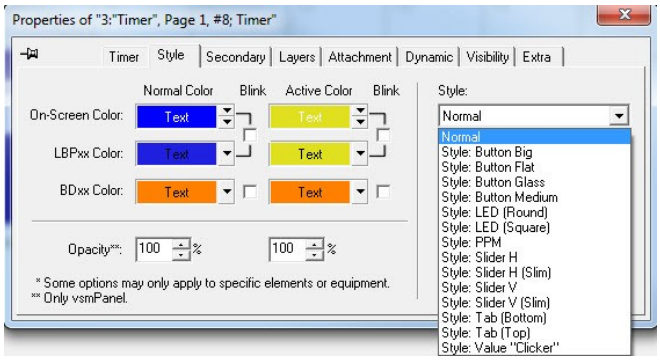
The timer can be displayed as button or as clock.

vsmPanel with timer



To do so, change the button style from *Flat* to *Normal.*

Changing time button properties

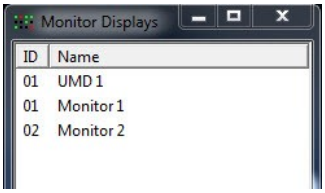


Using gadgets (see Gadgets), pre-defined values can be accessed. Plus or minus rules can be set-up through secondary commands.

14.5 Timer on UMDs

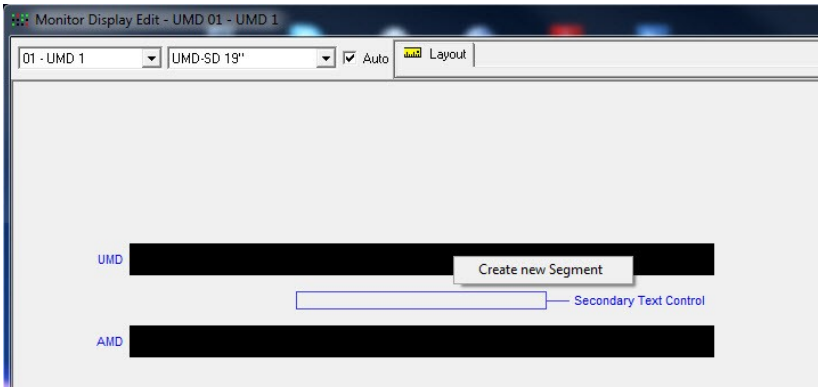
Each timer can be displayed on UMDs (see UMDs). To access an existing UMD, double-click on its ID in the *Monitor Displays* view:

Editing UMD

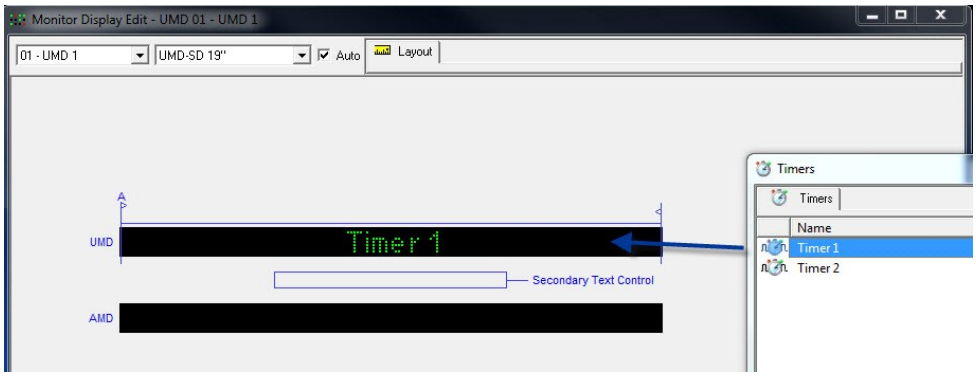


By right-clicking, a new segment can be created in the UMD. Use drag and drop to move a timer into the new segment.

Creating a new segment



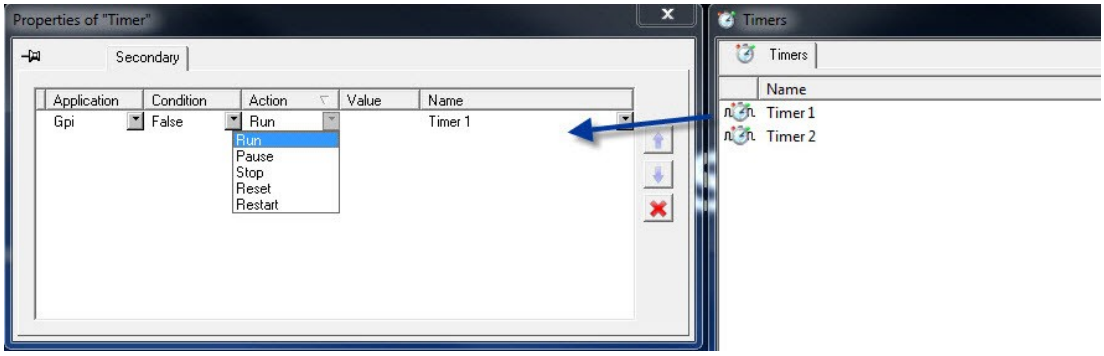
Placing a timer on a UMD



14.6 Timer as Secondary Command of GPIOs

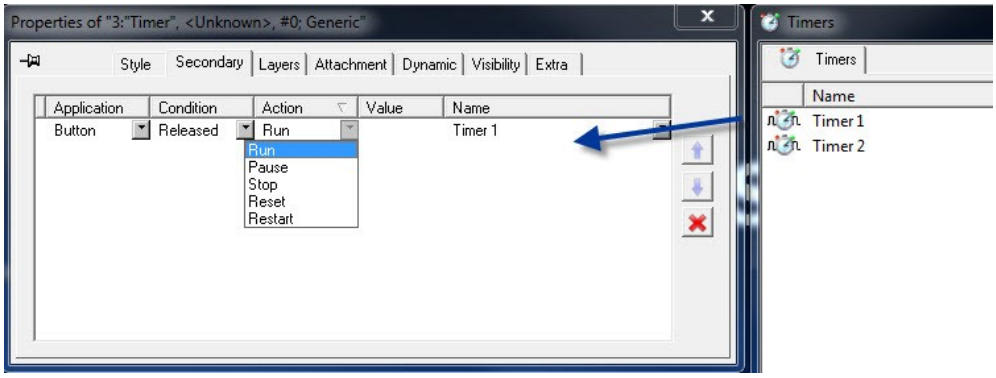
As secondary command, a timer can be started, stopped, reset, or put on hold. To do so, move the timer into the properties window of a GPIO (see GPIOs) using drag and drop.

Timer as secondary command of a GPIO



Alternatively, the timer can also be assigned to a control button in the tab *Secondary* property window.

Timer as secondary command on a button



15. Tally Management

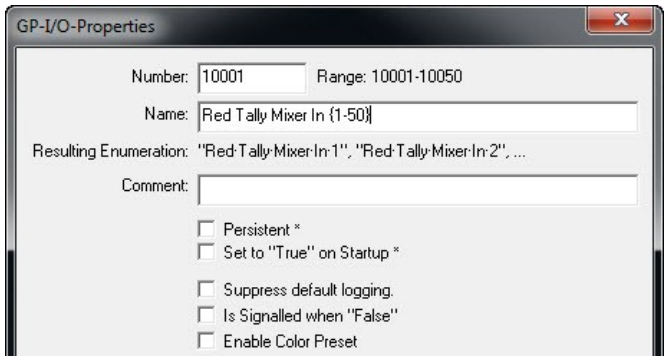
In **vsmStudio**, you will need GPIOs to configure tallies. GPIs are needed for the physical mixer tally and, in exchange, GPOs for the corresponding tally logic.

This chapter covers the setup of tally GPIOs and the resulting tally options.

15.1 Setting Up Tally GPIOs

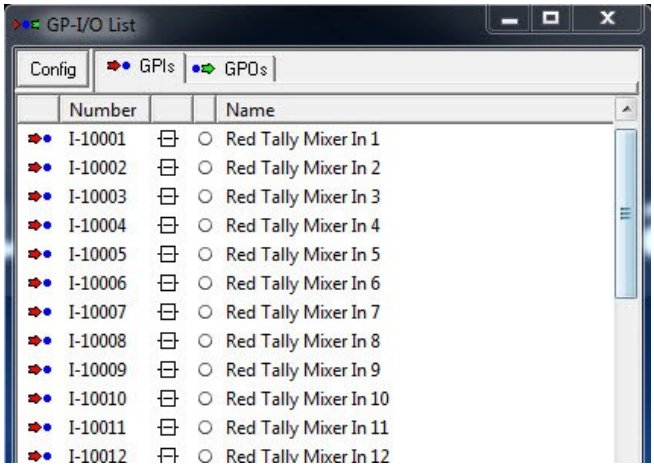
First, create around 50 GPIs named *Red/Green/Yellow Tally Mixer In* (for each free colour) in the GPIO list (see New GPIO).

Setting-up tally GPIs



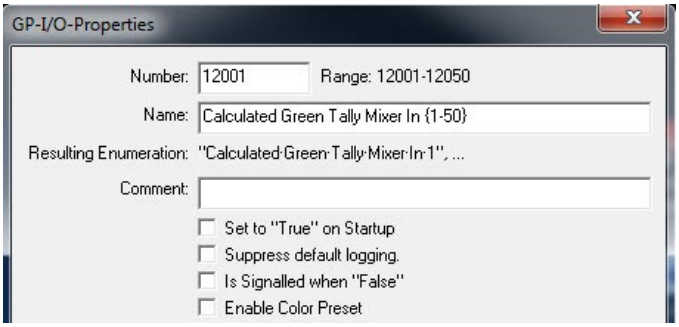
The numbering for the Red Tally GPIs begins at 10.001, for Green Tally at 12.001, and for Yellow Tally at 14.001. These settings also have to be entered in the port.

Red Tally GPIs



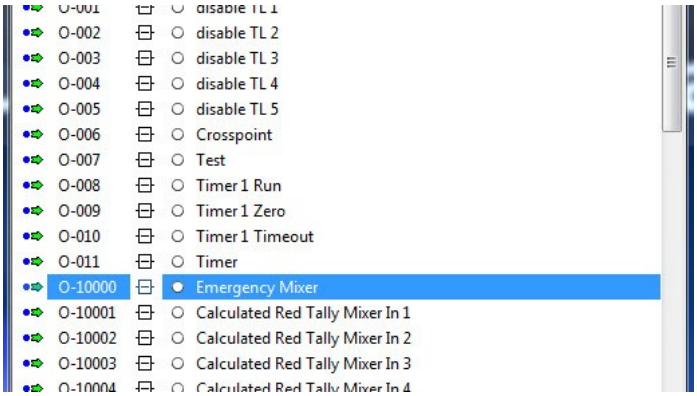
Next, create the same number of GPOs, named *Calculated Red/Green/Yellow Tally Mixer In*. The different colours begin at the same number as those mentioned above.

Green Tally GPOs



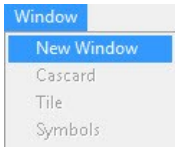
For emergency purposes, an *Emergency* GPO with the number 10,000 should also be created. This GPO can be activated through an emergency panel in the event of a mixer failure. Tally will then be sent from a defined target, for example a program target.

Emergency GPO



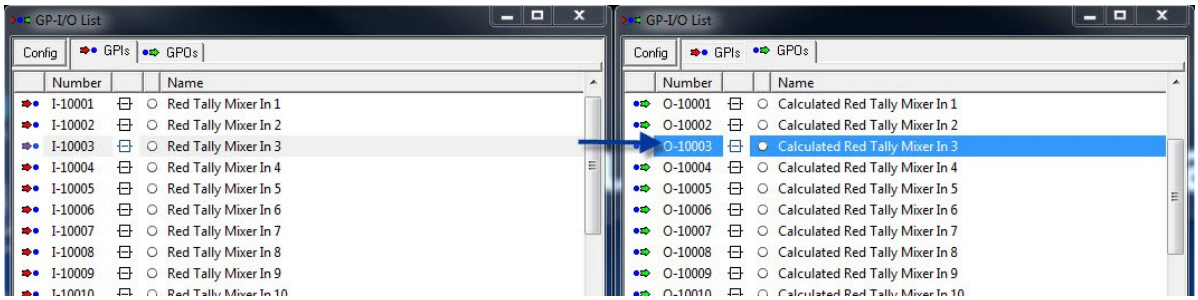
15.1.1 Linking of Tally GPIOs

When the GPIs and GPOs have been created, they must be linked with each other. To do so, open a second window so that two GPIO windows can be placed side by side.



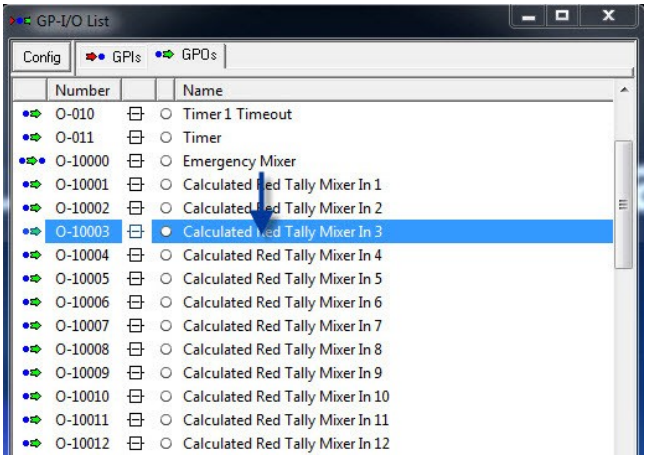
Next, drag and drop each GPI from the GPI view into the corresponding GPO.

Linking of GPIOs



In the event of an emergency, also drag and drop the *Emergency* GPO into every GPO.

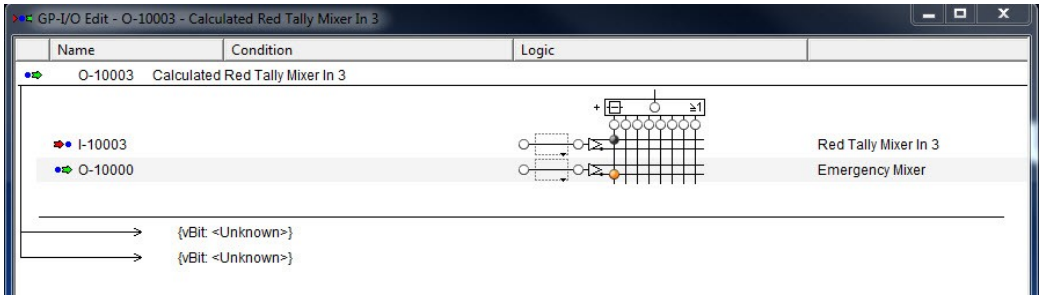
Linking emergency GPO with all GPOs



15.1.2 Setting the Tally GPO Logic

Next, set the GPO logic: to do so, turn off the *Emergency* GPO and activate the corresponding GPI. Therefore, if the *Emergency* GPO is not active while the GPI *Red Tally Mixer In* is active, the *Calculated Red Tally Mixer In* GPO will be activated.

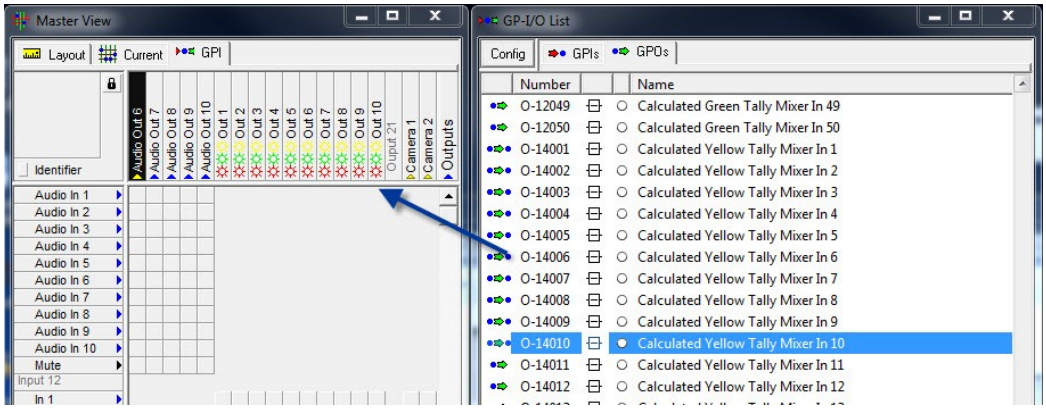
GPO logic



15.2 Linking Tally GPOs with Signal Paths

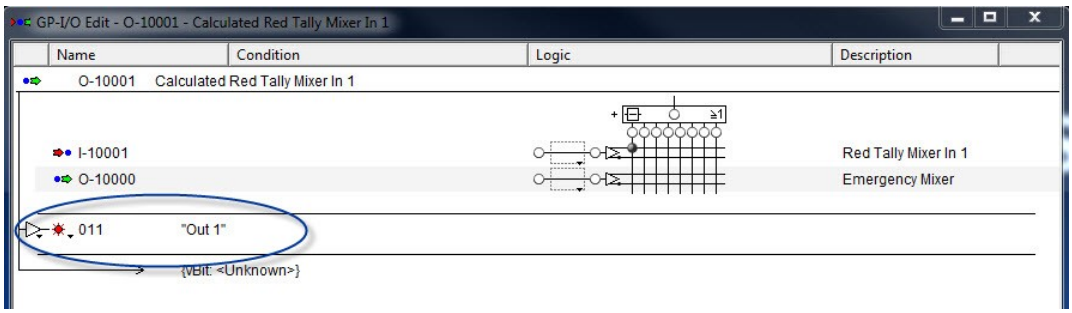
In the GPI view of the master matrix (see GPI View), place the relevant signal so that the GPO tally sends to a target.

Dragging GPOs onto signals in the master matrix



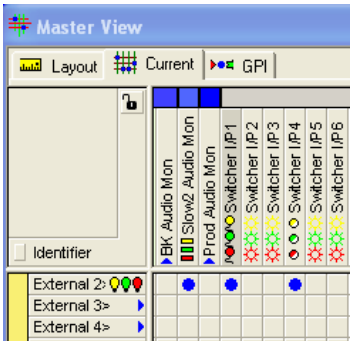
If a GPO is dragged onto a target in the matrix, a coloured sun is displayed next to the signal. It indicates that the target receives tally. An arrow in the GPO logic shows that this GPO sends tally to this target. If a target should only receive Green Tally, the tally colour can be defined in the GPO logic through the small arrow beside the sun.

Tally display in the GPO logic



If the tally is active, the GPI is set to ON and triggers a GPO that sends a red light to a target.

Tally display in the Current view of the master matrix

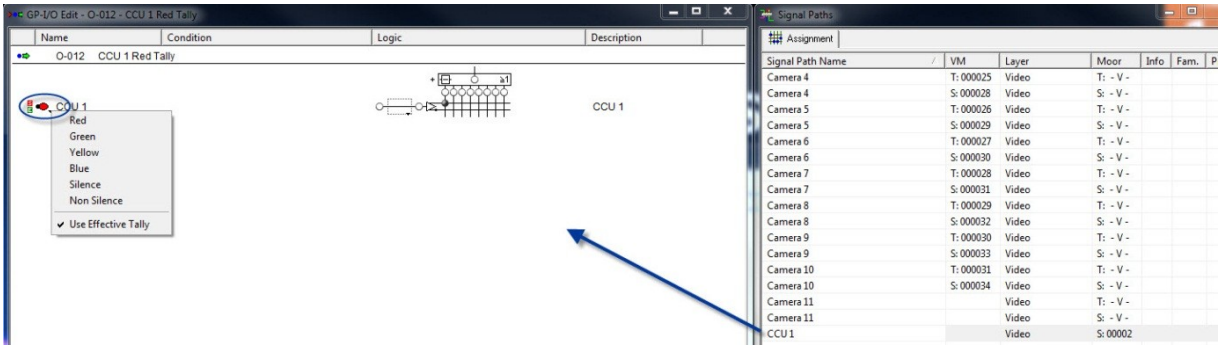


In the Current view of the master matrix (see Current View), active tally is shown through small lamps on the relevant signal paths. The sources switched onto that target will also receive tally. This is again indicated by a small lamp. If this source is switched to additional targets, they will also receive tally. Passed-through tally that is inactive is indicated at the target with a half-filled circle.

15.3 Tally Forwarding to External Devices

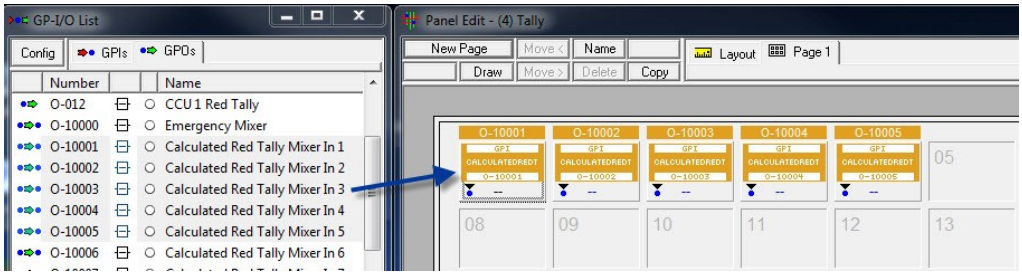
To forward a tally to an external device, for example a CCU, an additional GPO must be created. Drag and drop the relevant signal into that GPO. The signal will now trigger the GPO. If this signal receives tally, the GPO becomes active and the CCU, or an arbitrary external device, receives tally.

Logic for tally forwarding to an external device



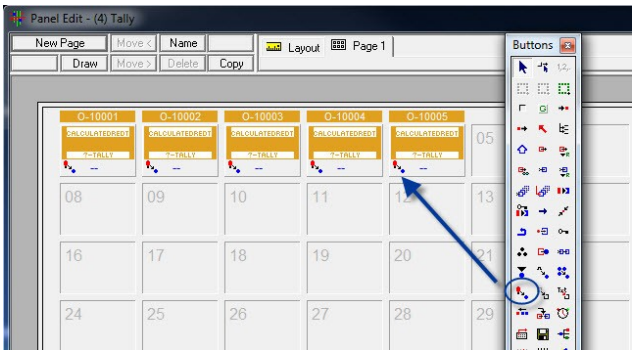
Tally colour as well as *Silence, Non-Silence*, and *Use Effective Tally* can be adjusted through the small arrow beside the lamp. Activate *Use Effective Tally* to prevent the tally's self-preservation.

Assigning GPOs to a control panel



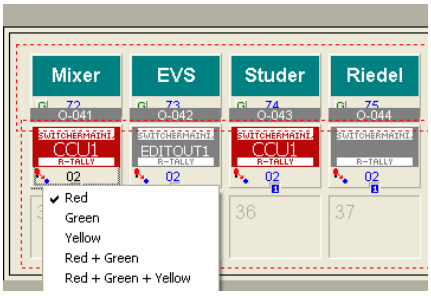
Tally can also be forwarded to third party devices via physical GPOs. To do so, place GPOs onto a control panel and assign the function *Assign Tally to GPO* to it.

Assigning tally



Configure the buttons so that they jump to the sources. There, the appropriate source is selected, and the GPO that forwards the tally physically to the relevant third party device becomes active. In this configuration, the tally colour can be selected through the tally symbol on the control button in the panel edit.

Selecting tally colour in the panel edit



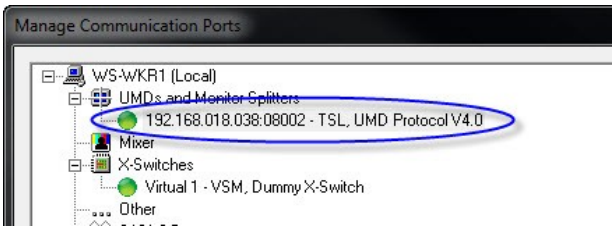
15.4 Manual Tally Configuration

To configure tally for a target manually, for example for an EVS server while it is recording, only one GPO must be dragged onto the relevant target. The tally colour can be set in the GPO. The GPO can only be activated at the push of a button or through a logic.

15.4.1 Tally Brightness

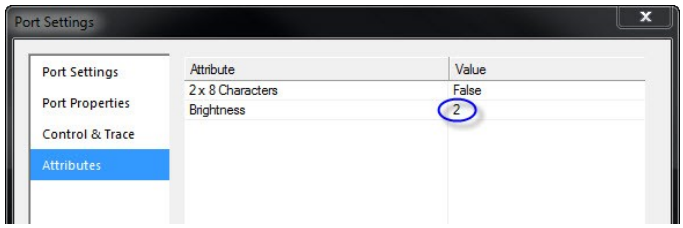
It is also possible to control the brightness of the tally text. Using the TSL protocol you need you configure a connection within the *Manage Communication Ports*.

Communication Ports



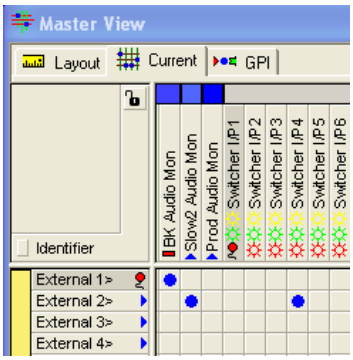
Double left-click on the connection will open the *Port Settings*. Under *Attributes* you can manipulate the brightness of a tally text between three states. 0 for no brightness, 1 for 1/7 of brightness, 2 for 1/2 of brightness and 3 for full brightness.

Port Settings



15.5 Source as Tally Trigger

A source can also function as tally trigger. To set it up, the GPO must be dragged onto the relevant source. If the GPO becomes active, a small lamp is displayed at the source in the current view of the master matrix (see Current View)



16. GPIOs

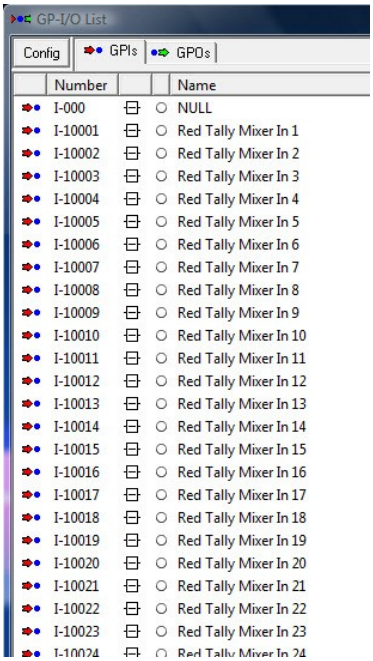
In **vsmStudio**, General Purpose Interface Inputs and Outputs (GPIOs) can be used to create logic that starts certain processes in accordance with pre-defined triggers.

This chapter covers the configuration of GPIOs.

16.1 First Steps

Click on the appropriate button in the main menu bar to open the GPIO list:

The list shows all existing GPIOs:

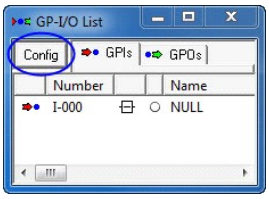


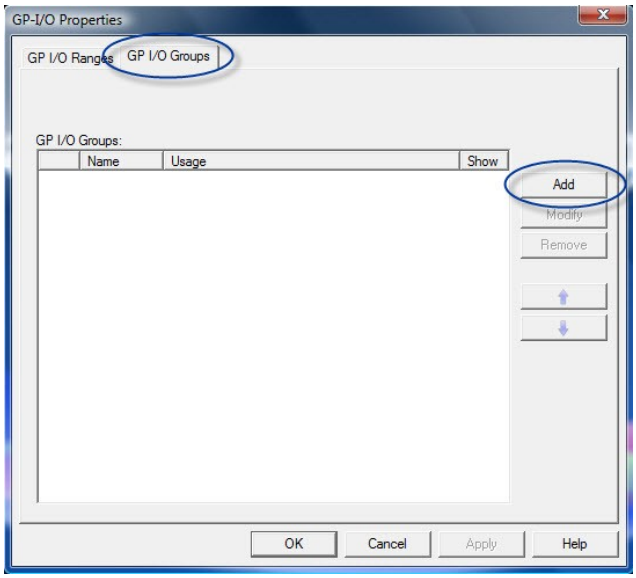
GPI inputs (GPIs) are indicated with a red arrow. GPI outputs (GPOs) are located in a separate tab and marked by a green arrow. The difference between a GPI and a GPO is that a GPI does not contain a logic, but merely serves as trigger for a GPO. GPIs are triggered by a device or something similar. A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

16.2 Editing the GPIO List

16.2.1 New GPI Group

To improve overview, GPIO groups can be created. These can be created and edited in the *Config* tab. Select *Add* to create a new group. It will be displayed as a tab in the GPIO List.

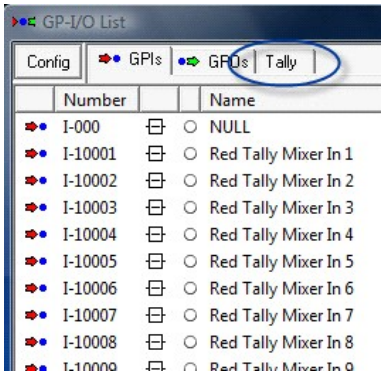




To create a group, enter a name and, if necessary, a purpose in the field *Usage*. *Show GPIs in this group also in the GPI or GPO Groups* is checked by default. If the checkmark is removed, the GPIOs can only be viewed in this group. If it is not removed, they can be viewed in the overview.

Creating new GPIO groups

New tab in GPIO list

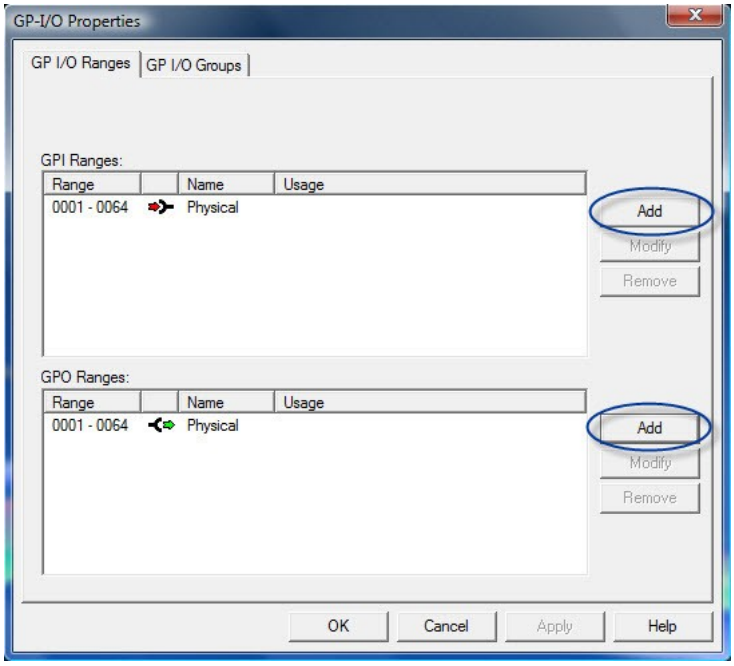


Select *Modify* in the GPIO Properties to edit a selected group. Press *Remove* to delete it or use the arrow buttons to sort the groups.

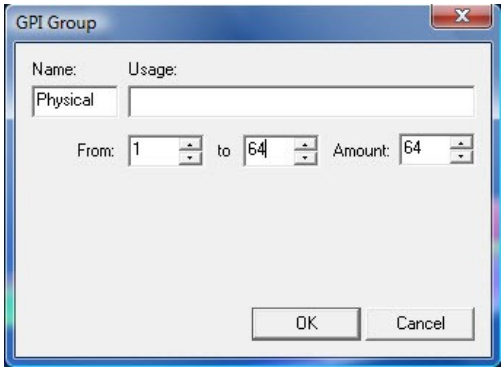
16.2.2 New GPI Range

To improve overview, it is possible to set up GPIO ranges. In these, numbers can be assigned to certain GPIO groups, for instance the numbers 1 to 64 for physical GPIOs.

To create a new range, select *Add*.

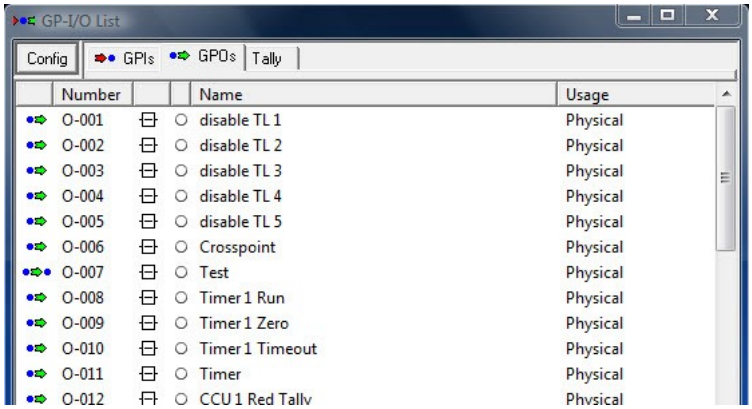


In the newly opened window, enter a name and, if necessary, a purpose for the GPIO. Next, define the GPIO range. If, for higher numbers, only the number of the first GPIO and the total amount of GPIOs is known, the system automatically calculates the last number used in this range using *Amount*.

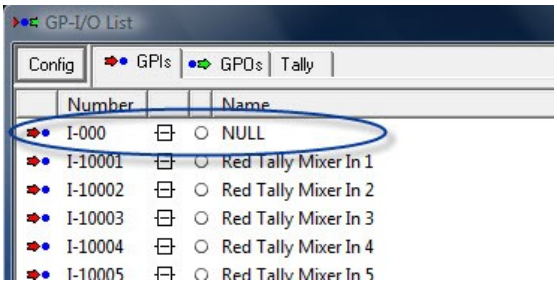


To edit or delete a created range, select *Modify* or *Remove*, respectively.

The name of the range is shown at the appropriate GPIOs using the GPIO list.

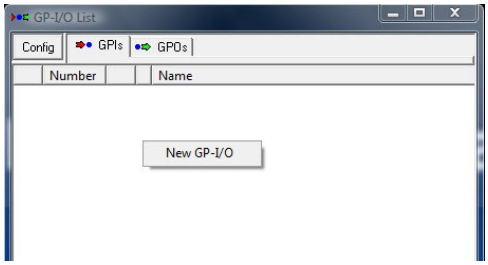


The system automatically creates the GPI *NULL* when a new configuration is first opened. If the GPI *NULL* is dragged into a GPO but not linked, this GPO is set to logical *High* if the configuration is opened.

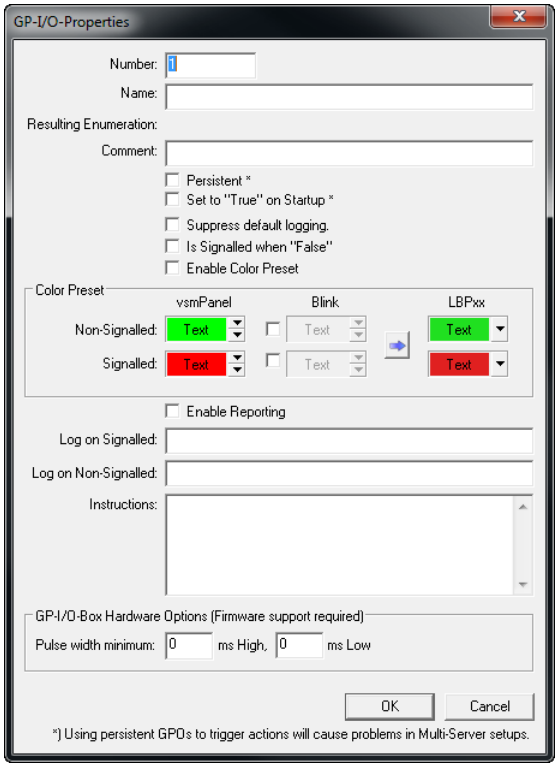


16.3 New GPIO

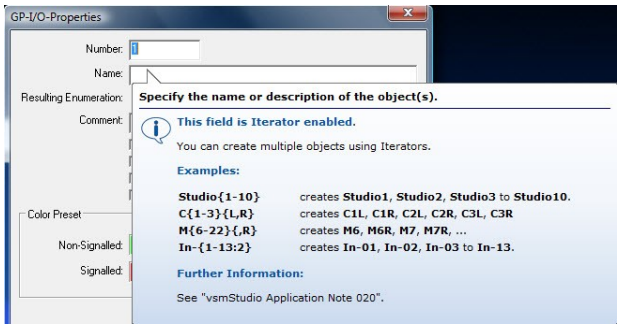
To create a new GPIO, right-click into the GPIO list.



Enter name and number for the GPIO in the window, *GPIO-Properties*.



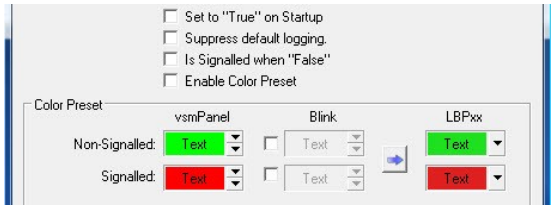
Iterator



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

If a GPIO should be logical *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.

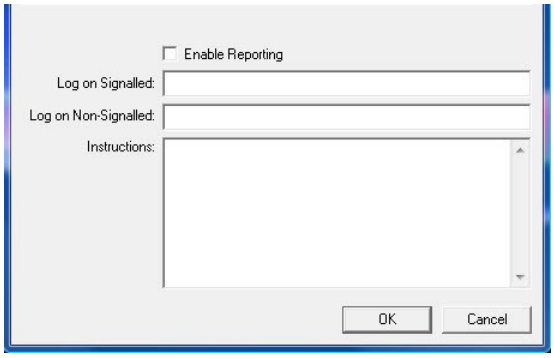
16.3.1 Alarm Settings



All other settings refer to the alarm management.

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

16.3.2 Scheduler Settings

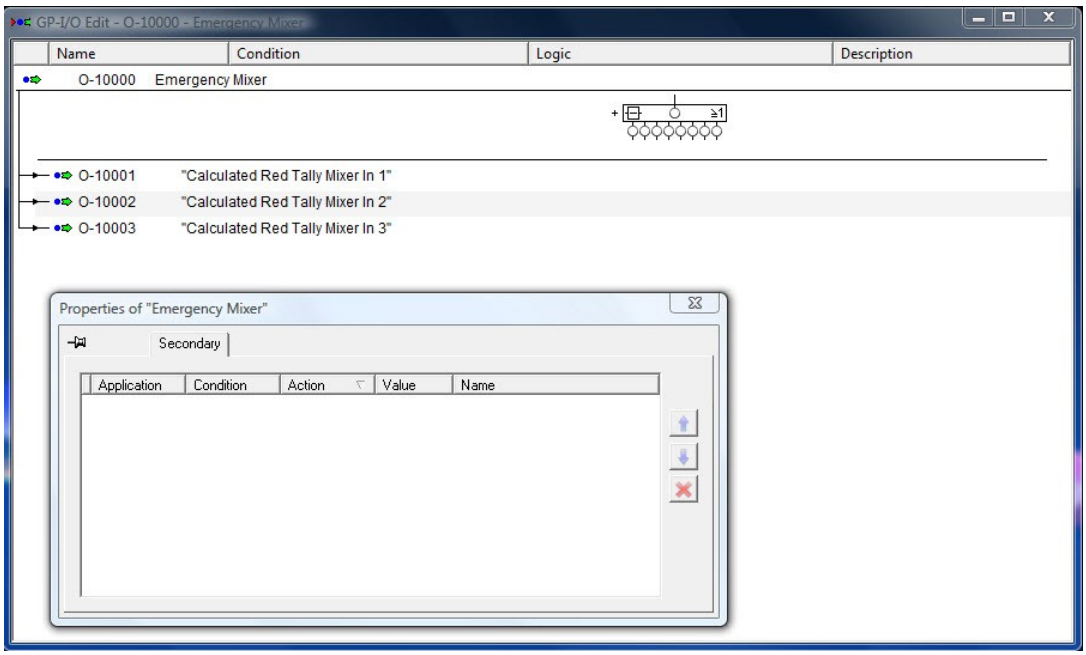


If *Enable Reporting* is checked, a new channel is created in the scheduler. This channel is shown as *Reporting* with the text that was entered under *Instructions* in the scheduler.

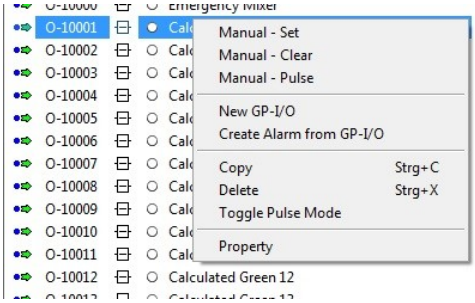
16.3.3 GPIOs in the GPIO List

All existing GPIOs are shown in the GPIO list. The green dot shows that this GPIO is active. A second, blue dot indicates that this GPO is executing a logic if it is active.

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



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

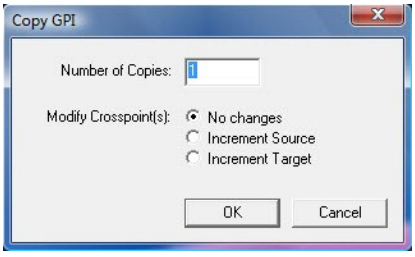


In this window, the selected GPIO can be manually activated (*Set*), deactivated (*Clear*) or create a short pulse signal *(Pulse)*. Further, new GPIOs can be set-up and alarms can be created from GPIOs. Moreover, it is also possible to delete the selected GPIO, put the GPIOs into a toggle pulse mode or to open the properties window.

16.3.4 Copying GPIOs

In the window that opens following a right-click onto a GPIO, the selected GPIO can be copied.

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



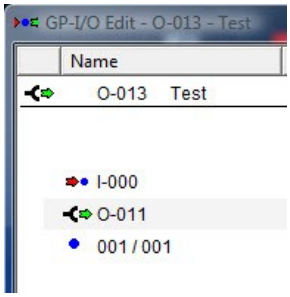
16.4 New GPIO Logic

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

16.4.1 GPIO Edit Window

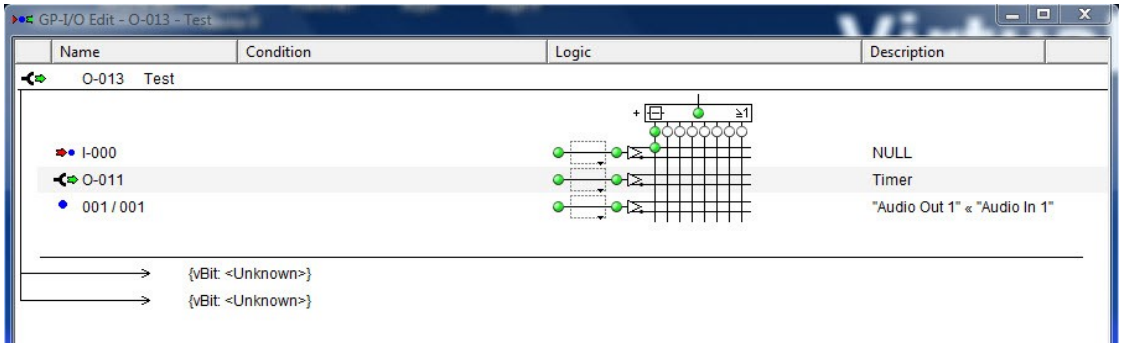
The name, here *Test*, and the GPO's trigger, here a GPI, a GPO, and a crosspoint, can be viewed in the GPIO Edit window in the top left under *Name*. The green arrow in front of the GPO's name indicates that the GPIO is a GPO.

Name and trigger of the GPO

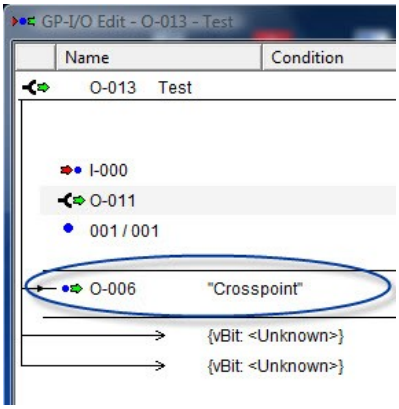


The GPO logic is shown in the center of the edit window. The names of triggers are shown under *Description.*

Logic and trigger of the GPO



The bottom left indicates what the opened GPO triggers – the GPO *Crosspoint* in the scenario shown below:

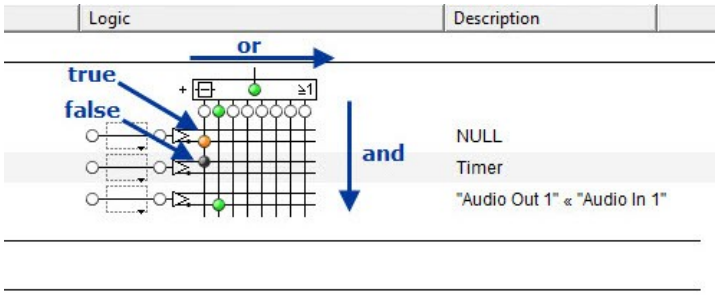


16.4.2 Boolean Logic

The GPIO 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



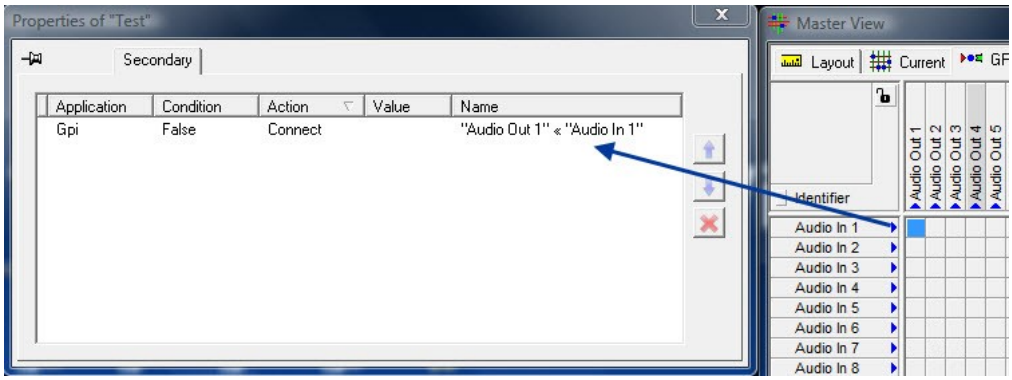
This concept is exemplified in the screenshot above: The opened GPO will become active as soon as the GPO *Timer* is active and the GPI *NULL* is inactive, or the crosspoint *Audio Out 1* < *Audio In 1* is set. The differently coloured connections hereby indicate the following: The orange-coloured dot 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.

16.5 Secondary Commands for GPIOs

When a GPIO is opened, a property box will open in addition to the *Edit* window, in which secondary commands can be entered.

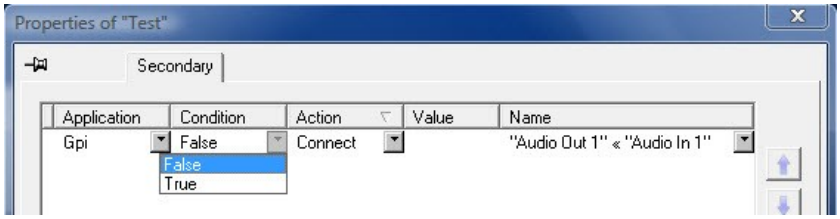
16.5.1 Crosspoint as Secondary GPIO Command

Crosspoint as secondary GPI command



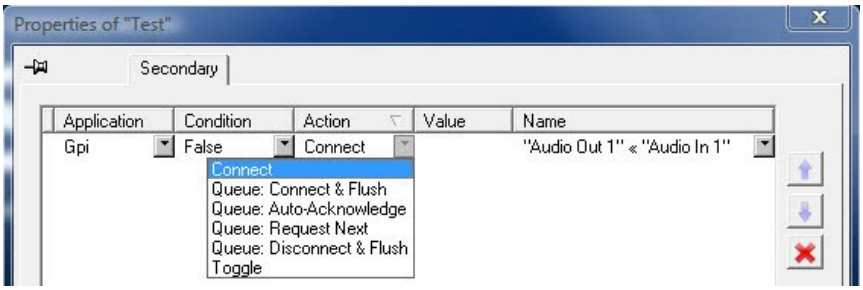
It is, for example, possible to drag-and-drop a crosspoint from the GPI view of the master matrix (see GPI View) into this window, for which various functions can be set-up.

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.

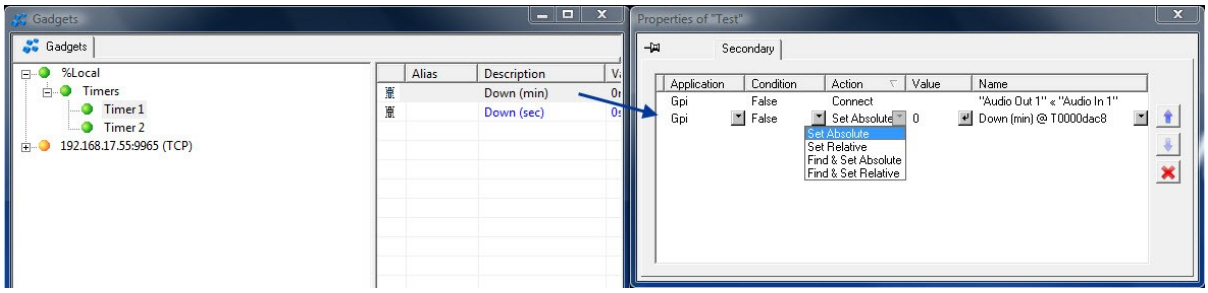
Action of the secondary command



16.5.2 Gadget as Secondary GPIO Command

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

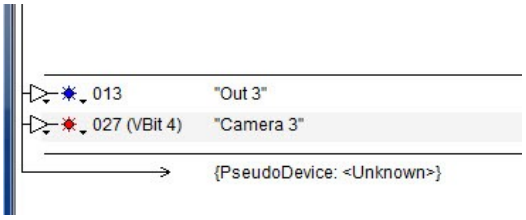
Gadget as secondary GPI command



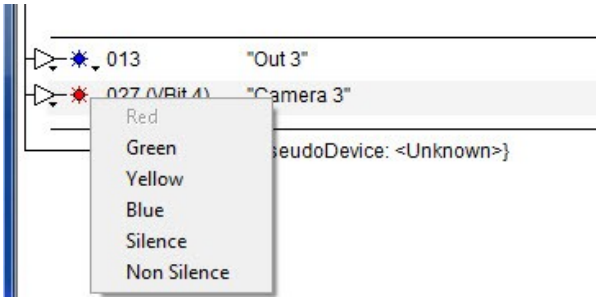
In this case, a value can be entered in addition to *Condition* and *Action* which will cause the GPI to become active as soon as this gadget value is reached. The order of secondary commands can be changed with the blue arrows on the right side of the window. Use the red cross to delete them.

16.6 Tally GPOs

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



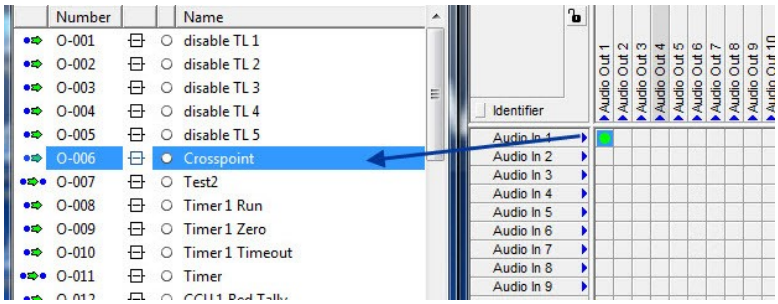
The desired tally colour can be defined using the arrow beside the tally symbol. The greyed-out colour – red in the screenshot below – is already assigned. Since each color can only be used once, it can no longer be selected.



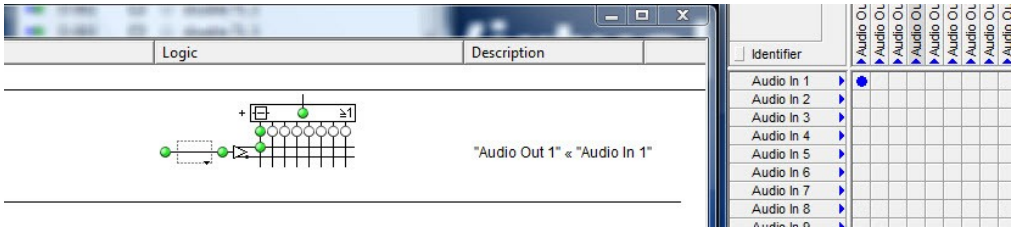
16.7 Crosspoint-GPO-Connection

16.7.1 Triggering a Crosspoint through a GPO

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



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



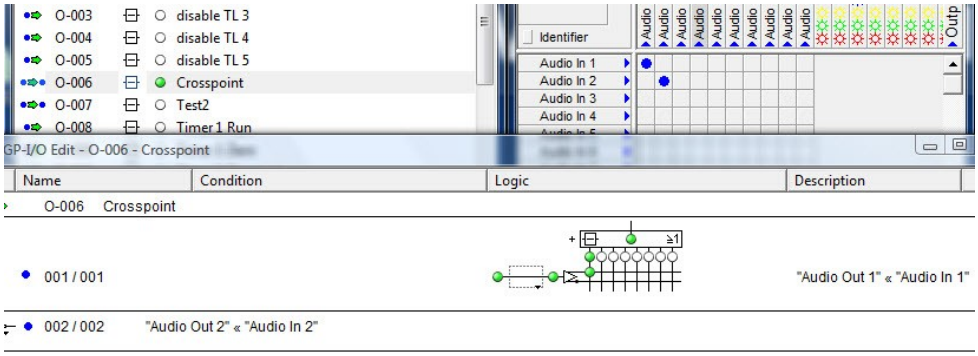
16.7.2 Setting a Crosspoint through a GPO

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 (see also Connection of a Crosspoint with a GPI).

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* activates the GPO, which will also automatically set the second crosspoint.

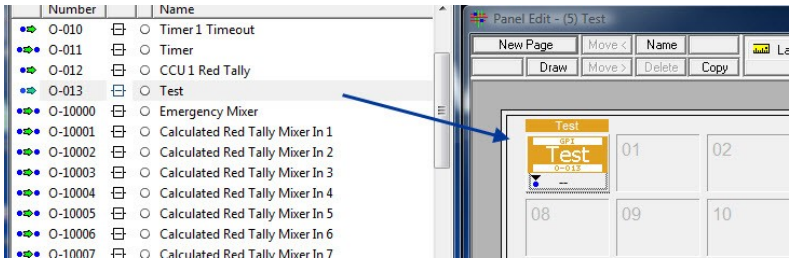
Crosspoint set using a GPO

Connection of two crosspoints via GPO



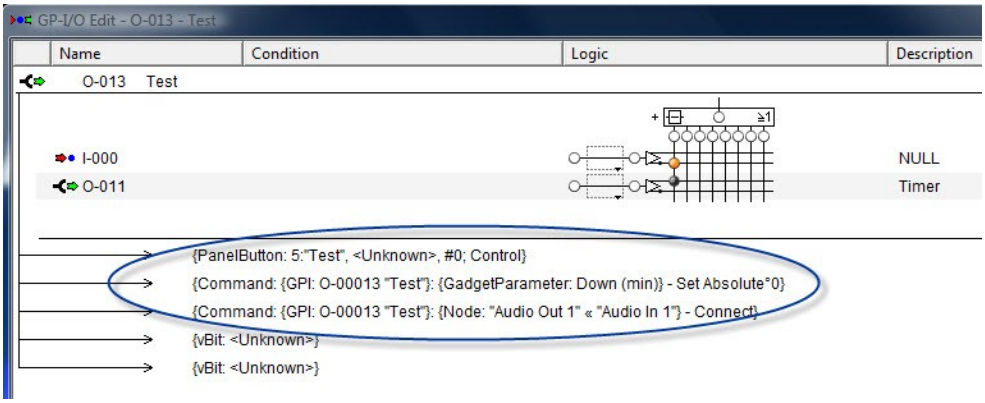
16.8 GPIOs on Control Panels

Placing a GPO on a control panel



In the GPIO window, it is indicated whether a GPIO 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.

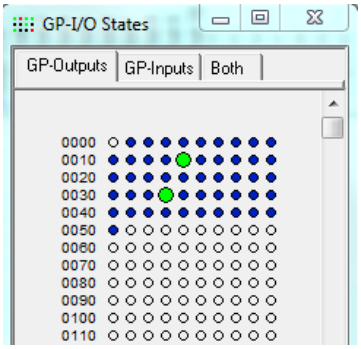
16.9 GPIO Status

To open the GPIO status display, select the corresponding symbol in the main menu bar.

All GPIOs are shown in this view and can be activated or deactivated there.

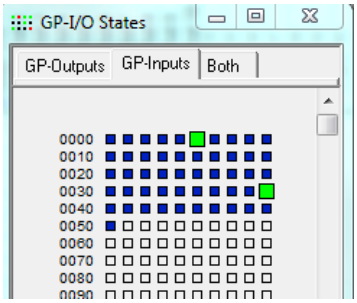
Under the tab *GP-Outputs*, the GPOs are displayed as dots. Green dots indicate that these GPOs are active.

GPO state

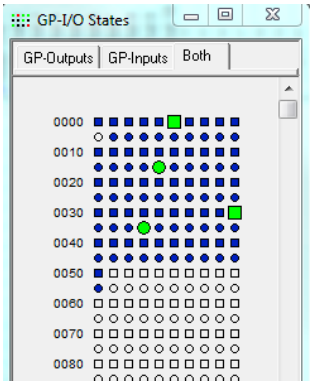


The same applies to the two tabs *GP-Inputs* and *Both*, in which GPIs and GPIOs are displayed.

GPI state



GPIO state



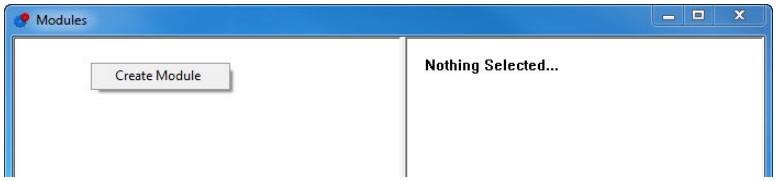
17. Modules

This chapter covers the configuration of Modules.

17.1 First Steps

To open and close the module menu, left-click on the appropriate button in the main menu bar:

The Modules window appears - right-click inside the empty module view to create a new module:



17.2 Alarm

17.2.1 Alarm Management

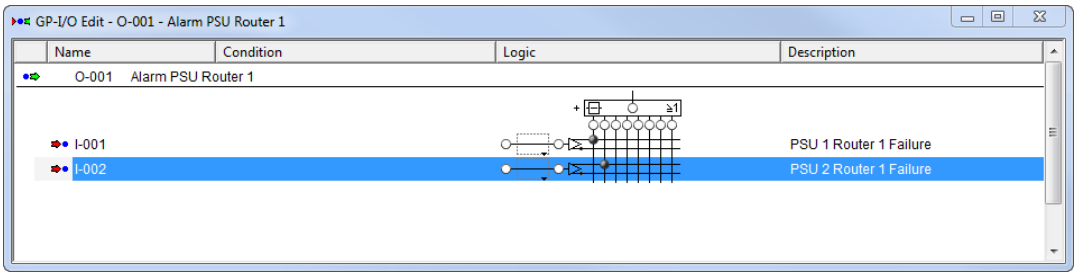
The VSM control system provides integrated alarm management which enables the evaluation of alarm messages from connected foreign devices through SNMP, proprietary protocols, or GPIs using the GPIO logic. With virtual GPOs, the parameters can be evaluated and displayed, administrated, and edited on the graphic user interface.

17.2.2 Alarm GPO

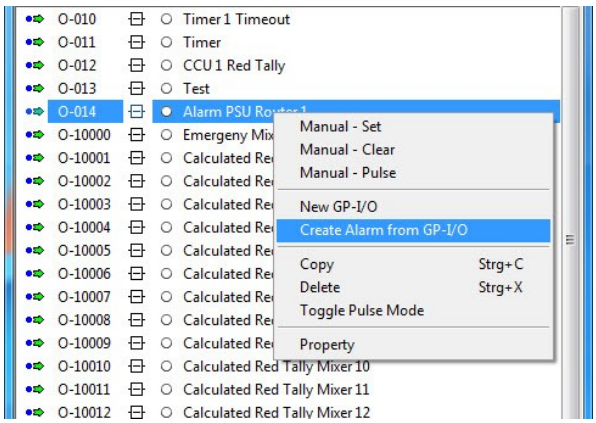
To create an alarm, a virtual GPO has to be set up first. To do so, open the GPIO configuration interface and set up a new GPO (see GPIOs: New GPIO).

In the simplest case, this GPO can be activated due to the failure of a power supply or a similar event. To this end, a GPI has to be set from the terminal device for every power supply. This GPI indicates that the power supply is defective. This kind of GPI can be linked to the alarm GPO by dragging and dropping it into the GPO. From now on, the set-up GPO will become active as soon as a GPI signals the failure of a power supply.

GPO logic

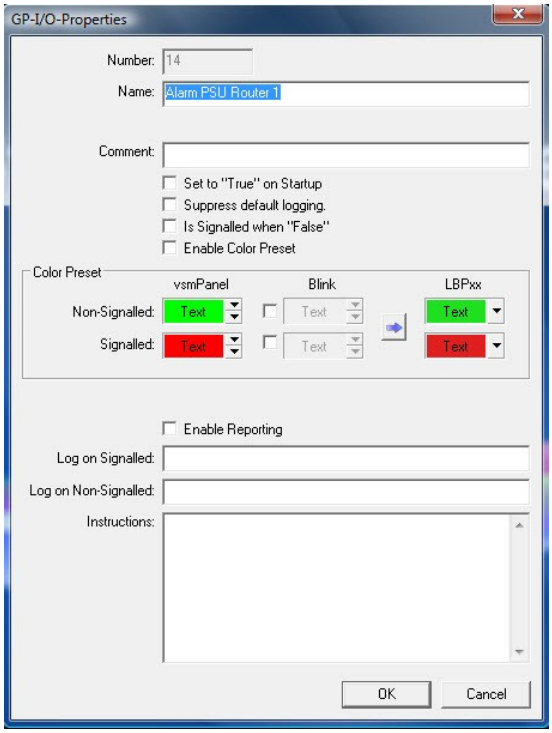


After the corresponding logic has been created for the alarm, this GPO can be transferred into the alarm module. To do so, right-click onto the GPO and select the option *Create Alarm from GPIO*.



If the corresponding log information has been created in the *vsmStudio.log*, the GPO properties can be adjusted and relevant textual information added. Right-click onto the GPO and select *Property* to access the required input window.

GPO properties



Logging of GPIOs is activated in the GPIO management of the VSM control system by default. The GPIO is therefore recorded in the logfile (see Installation & Update: Folder LogFiles). To deactivate this function, select the option *Suppress default logging*.

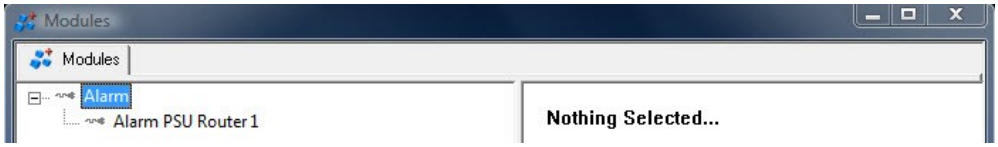
If the logic is *Set*, the attribute *Is Signalled when "False"* activates the alarm, allowing an easy, inverted evaluation. The attribute *Enable Color Preset* activates that underlying colour theme and the corresponding coloured displays on vsmPanels and hardware control panels. *Enable Reporting* enables the integration of alarm evaluation and alarm display in the event scheduler. Active alarms are then shown in the scheduler bar.

The fields *Log on Signalled* and *Log on Non-Signalled* provide space to enter customer-specific, textual information that will be shown in the log file and the scheduler bar. Instruction or measures for the event of an alarm can be included in the field *Instructions.*

Further information concerning the alarm configuration can be entered in the alarm module.

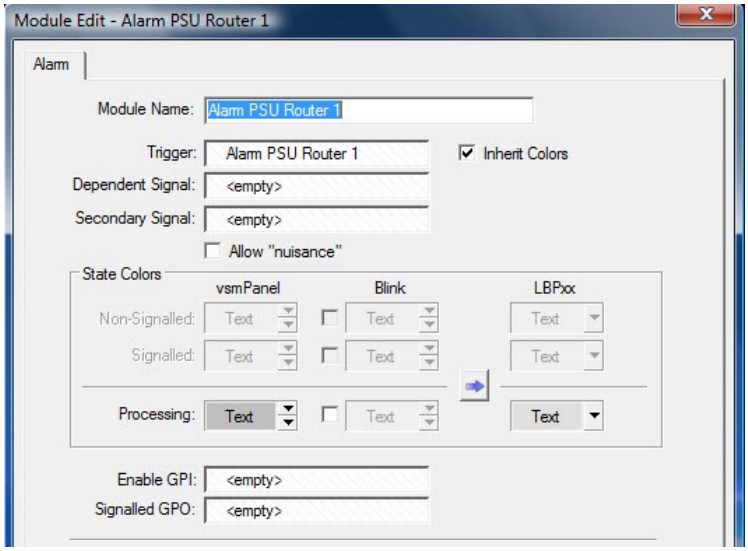
17.2.3 Alarm Module

Alarm module



Since an alarm has already been created from the previously set-up GPO, it is already shown in the module list under *Alarm*. Further adjustments can be made by double-clicking on the alarm.

Alarm settings



The module name is taken from the GPO name and can be changed if required. The GPO from which the alarm was created also serves as *Trigger*. If necessary, it can be exchanged with another GPO from the GPIO list (see Editing the GPIO List) using drag and drop.

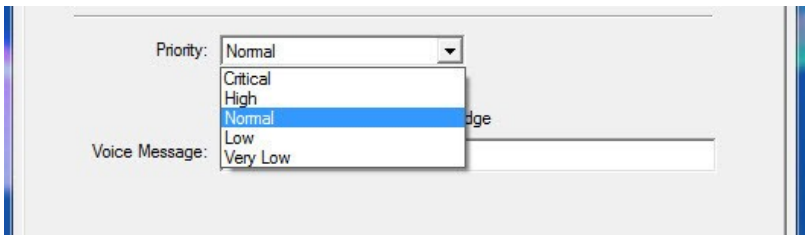
The *Dependent Signal* is the signal corresponding to the alarm. Here, it is, for example, possible to evaluate a silence, an audio target or audio source and to deposit the corresponding source or target there. This information is included in the alarm page item of the vsmPanel. The *Secondary Signal* would then be the signal to the right of dependent signal.

The attribute *Inherit Colors* is checked by default. It prompts the adoption of colours from the GPO. If the attribute is not checked, the colours can be defined independently of the GPO colour.

Checking the attribute *Allow "nuisance"* will result in the suppression of alarm messages. This is useful, for example, if a malfunction of a terminal device repeatedly generates alarm messages. If this option is activated, the alarm panel offers the possibility to set this alarm to *Nuisance* and therefore suppress recurrent alarm messages.

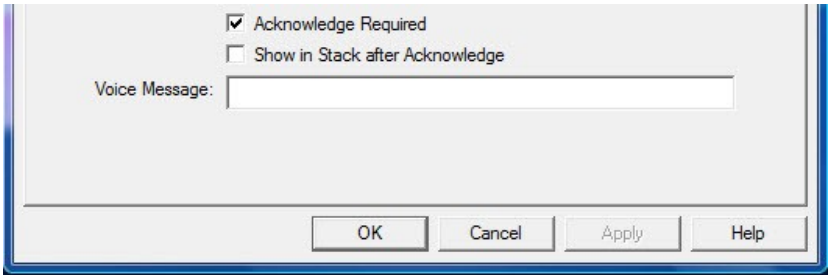
With *Enable GPI*, this alarm can only be evaluated once the corresponding GPI has been set. To define a GPI to that end, drag and drop the relevant GPI into this field. With the attribute *Signalled GPO*, the alarm can be linked with a GPO. This GPO can, for example, be a physically available contact that causes a warning (a siren, a flashing light, etc).

To weight individual alarms differently, their priority can be defined. The alarms are displayed in the corresponding tabs in the alarm management window:



If the attribute *Acknowledge Required* is checked, each active, set alarm must be confirmed even if it is no longer active. This ensures the recognition of errors occurring on short-notice. The attribute *Show in Stack after Acknowledge* shows this alarm in the *AlarmStack* (see AlarmStack) even after the confirmation.

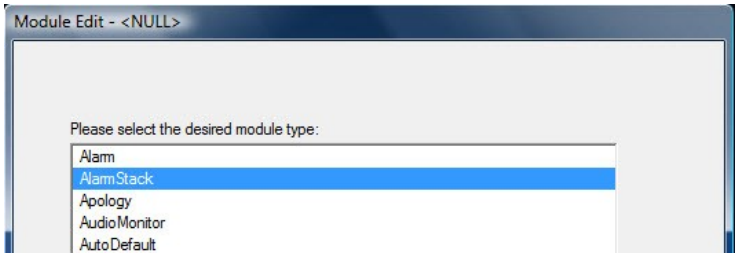
The field *Voice Message* offers space to enter a text that will be played as text-to-speech on the local work station in the event of an active alarm.



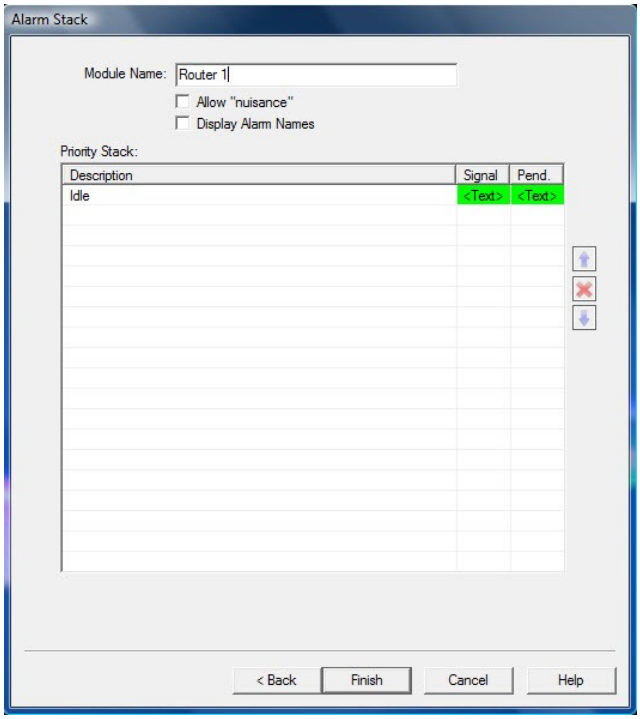
17.3 AlarmStack

To evaluate a number of individual alarms that are received from one device, they can be summarized in an *AlarmStack*. To access this module, right-click into the module list.

AlarmStack module

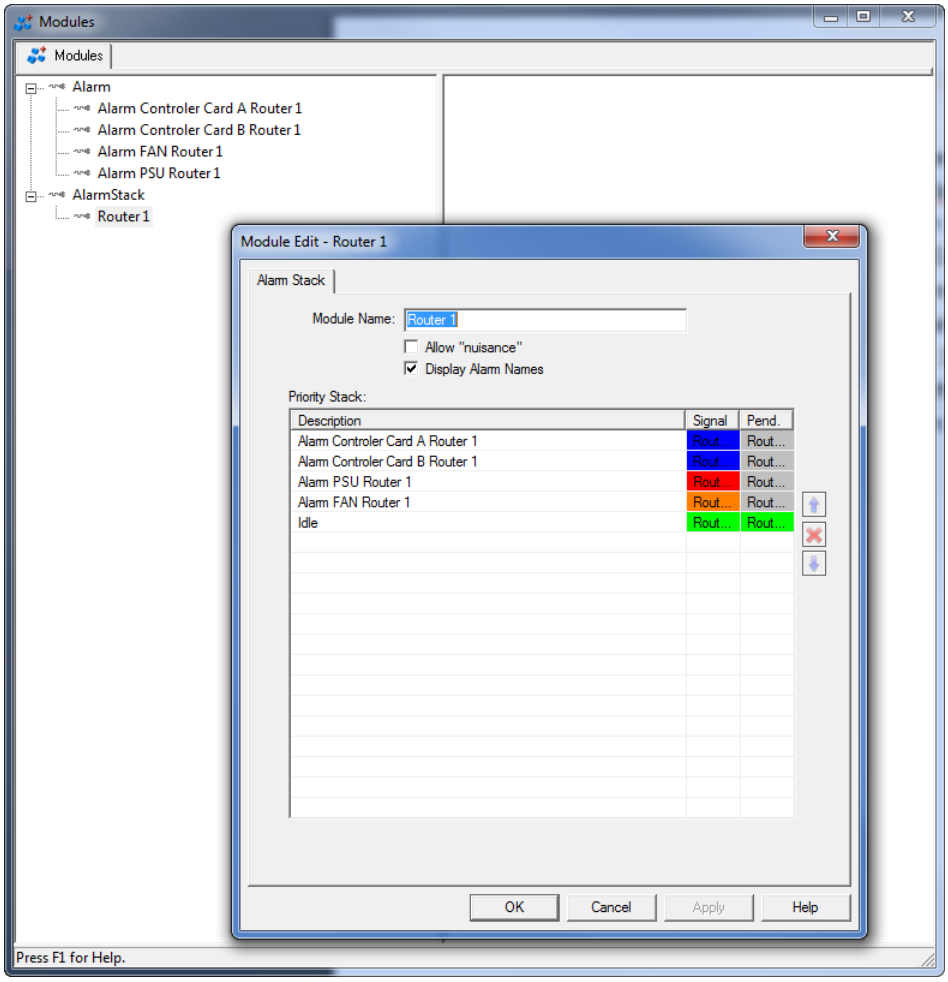


Confirm with *Next and* the following window will open:



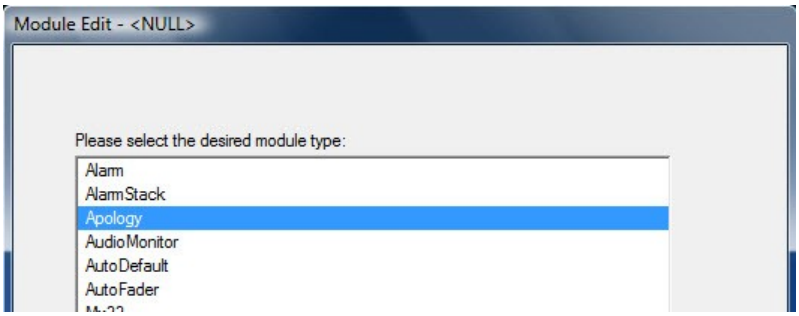
There, first define a name for the new AlarmStack. Similar to the individual alarms (see Alarm), the attribute *Allow "nuisance"* can be set here as well. Check *Display Alarm Names* to display the individual alarm on the alarm management console in the vsmPanel in addition to the AlarmStack.

In the empty field below, the individual alarms can be dragged and dropped from the alarm module view (see Alarm) into the stack list. Use the arrows on the right side to sort the alarms according to their priority, where the alarm on the top has the highest priority. An arbitrary colour that can be edited for each individual alarm as described above can be chosen for each individual alarm within the AlarmStack.



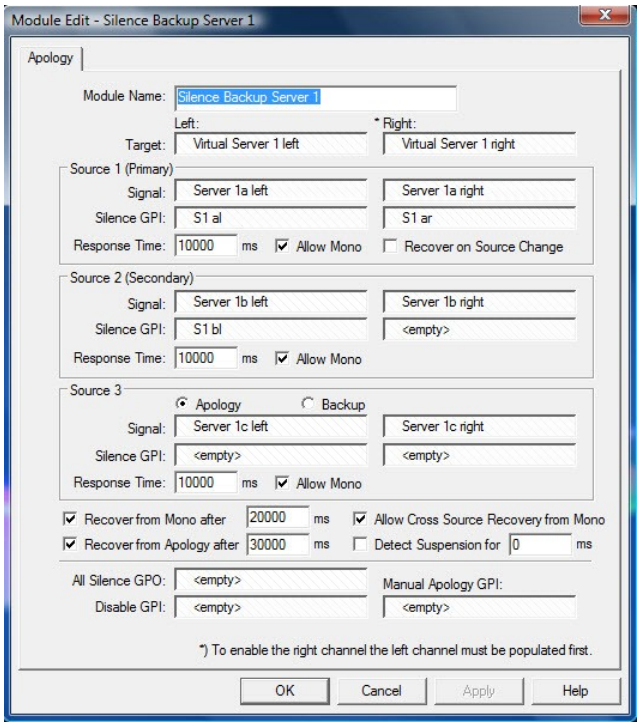
17.4 Apology

Apology module



An *Apology* module allows, for example, the configuration of a backup/apology solution for a silence detect on a server. In this event, the module automatically switches to a redundant server or another source.

Apology settings



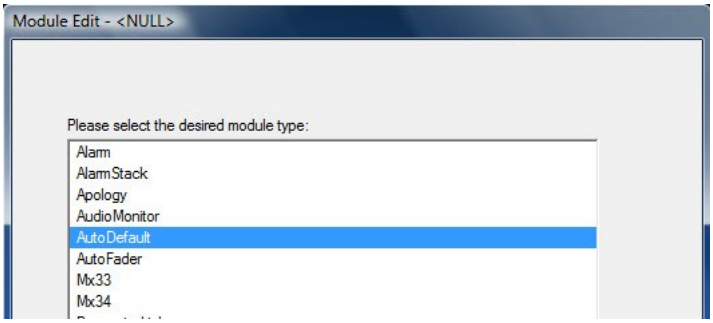
Enter a name for the new Apology module in the field after *Module Name – Silence Backup Server 1* in the example above. Drag and drop the signal path that the Apology module refers to, for example *Virtual Server 1 left* for *Left* and *Virtual Server 1 right* for *Right:* from the signal path list (see Signal Path List) or the master matrix (see Master Matrix) into the field beside *Target*. These signal are monitored, and the *Apology* module will become active in the event of a silence detect.

The source signals are placed in the fields *Signal* under *Source 1, 2* and *3*, for example *Server 1a* to *c left* and *right*. GPIs from the GPI list that were created specifically for silence detection (see New GPIO) are placed in the fields following *Silence GPI.*

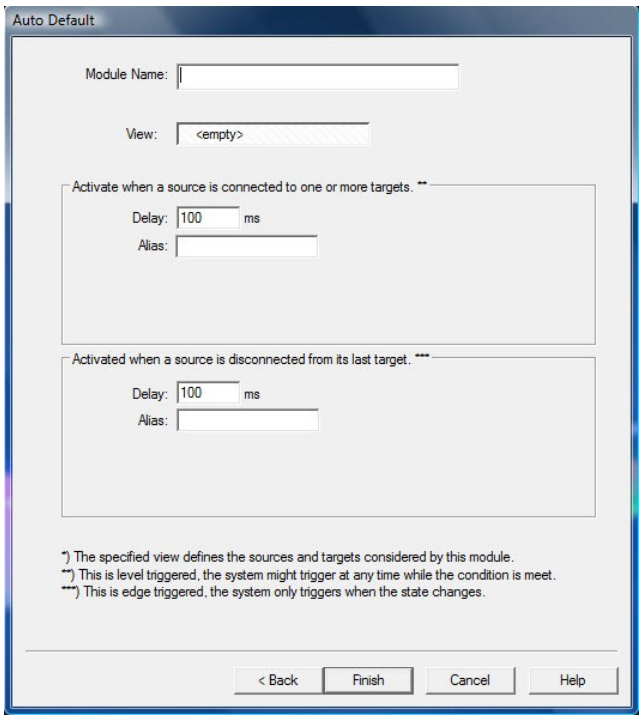
If silence is recognized on the signals entered as target, the module will automatically switch to the *Source 1 (Primary)*. A duration can be entered in a response timer for this purpose. The checkmark after *Allow Mono* enables or prohibits a mono connection. Under *Source 3*, it is possible to define whether the module should serve as apology or as backup.

17.5 AutoDefault

AutoDefault module



Using an AutoDefault module, it is possible to trigger a meta gadget component (see Objects in Meta Gadget Containers) depending on whether a source is connected to a pre-defined target or not.



Enter a name for the new module after *Module Name.* Drag and drop a view (see Views) that contains exactly the signal paths that this module refers to from the views list into the field after *View.*

In the field *Delay*, a duration can be entered in milliseconds, after which the linked meta gadget component is activated if the source is connected to one or more pre-defined targets, or if the connection to the last source is reverted.

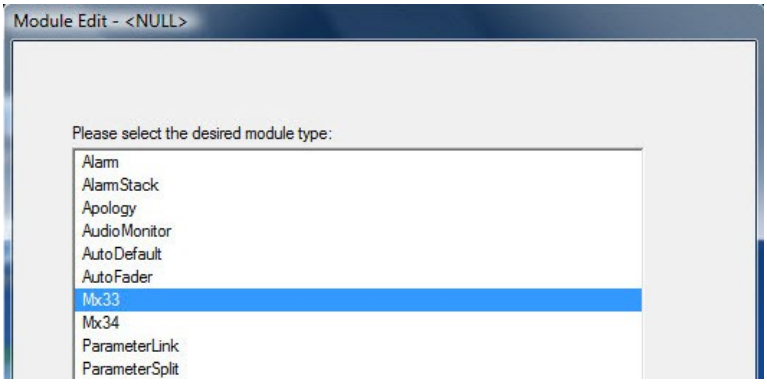
The first scenario, shown in the module window above, is called *Level Triggered*. Thereby, the meta gadget component is activated in the selected view for every crosspoint change. The second scenario, called *Edge Triggered*, activates the entered meta gadget component if the source is not connected to a target. The module therefore checks the connection in the selected view and activates the meta gadget component as soon as there is no more connection or after the time entered under *Delay* has passed.

Enter the meta gadget component that is to be activated under *Alias.* These could be GPIOs (see GPIOs), storage discs or gadget parameters (see Gadgets).

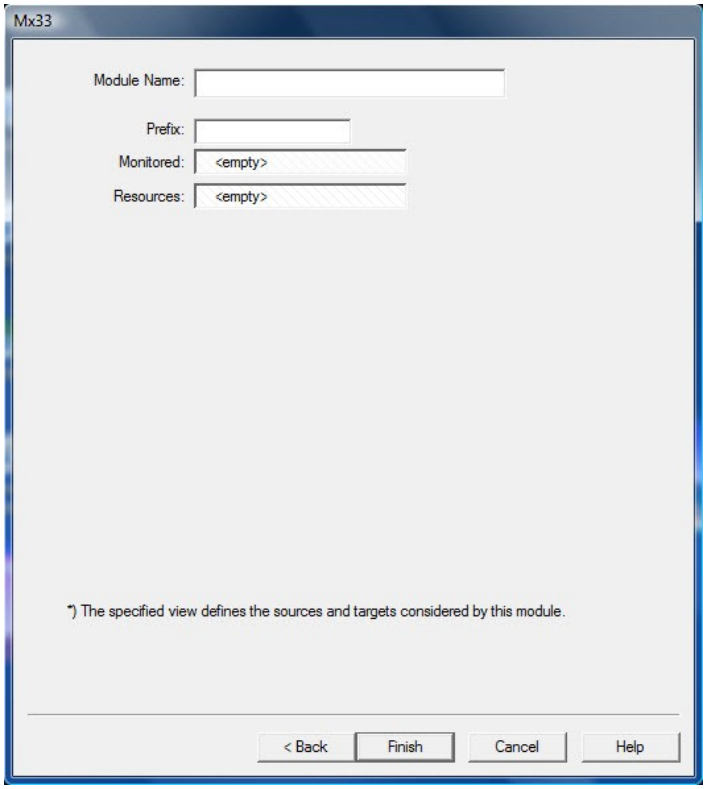
17.6 Mx33

Mx33 is a module with which a dynamic tie-line assignment (see Tie-Lines) with respect to a defined switch is made possible. This module is mainly used with intercom system applications.

Module Mx33



A switch, monitored by the module, is defined as trigger for all following switches. The signals triggering these switches are set-up in a separate view (see Views). This view is then dragged and dropped from the views list into the field *Monitored.*



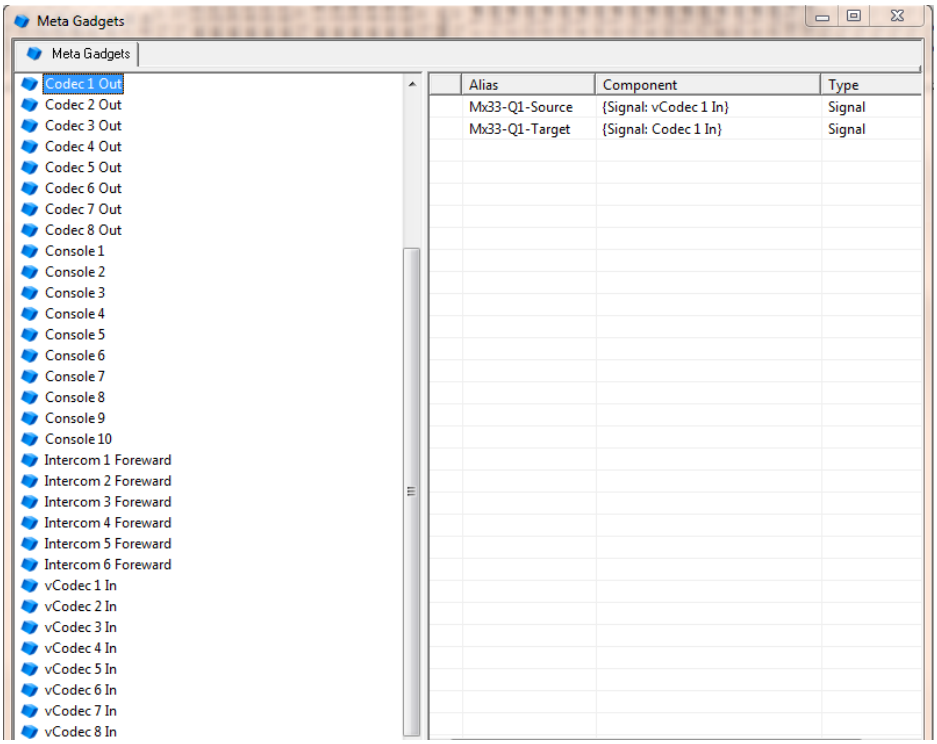
Enter a name for the module in the field after *Module Name.* The targets (dynamic tie-lines, see Tie-Lines) whose outputs are, for example, forwarded to an intercom system, are placed in a separate view. Place the view with these signal paths in the field *Resources*. In addition, a unique prefix, for example Mx33, must be defined that will be needed later during the definition of meta gadgets (see Meta Gadgets). Moreover, a virtual loop-through device is needed to tap the input (target) of the triggering source.

The signals used in the two views as well as the loop-through device must be deposited in the meta gadgets and defined there as follow:

- Signals from the view *Monitored* – definition in meta gadgets:
  - Sources: virtual output (source) of the triggering source, physical input (target) of the triggering source
  - Targets: Source (output) connected to the monitoring target.
  - Signals from the view Resources – definition in meta gadgets:
  - Targets: includes the target that is forwarded to the intercom system for recording
  - Source that is lead back into the control system from the intercom system with signal and voice (mix).
- The virtual loop-through device includes the physical target linked to it.

The *Alias* of the signals in the meta gadgets must be defined as follows (see Objects in Meta Gadget Containers): *{Prefix from Module Definition}-Q{0-2}-{"Source" or "Target"}*, for example: *Mx-Q1-Source*.

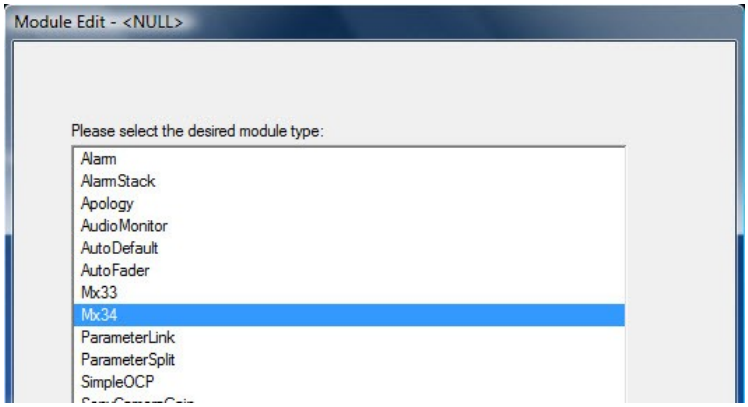
Meta gadgets for Mx33 module



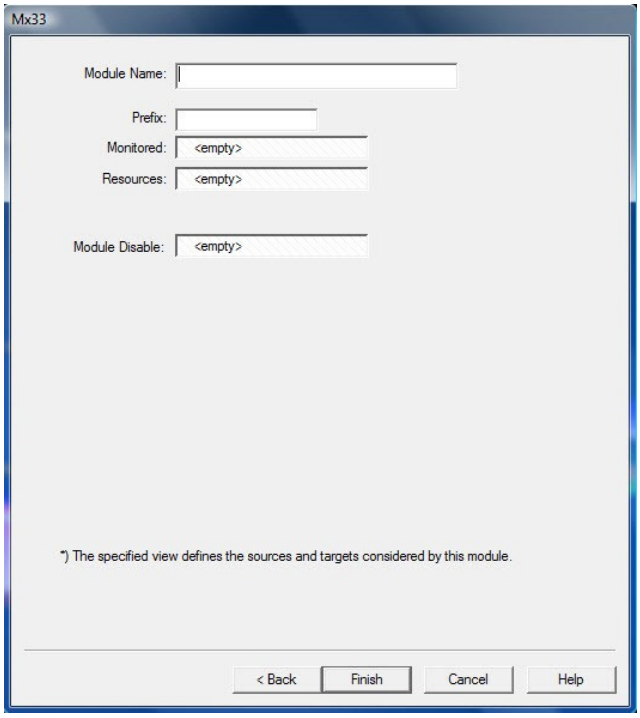
17.7 Mx34

Using the module Mx34 in connection with the module Mx33 (see Mx33), the button assignment on the intercom level can be carried out. Buttons are then individually monitored, and functions, such as talk, listen, etc., are assigned.

Mx34 module

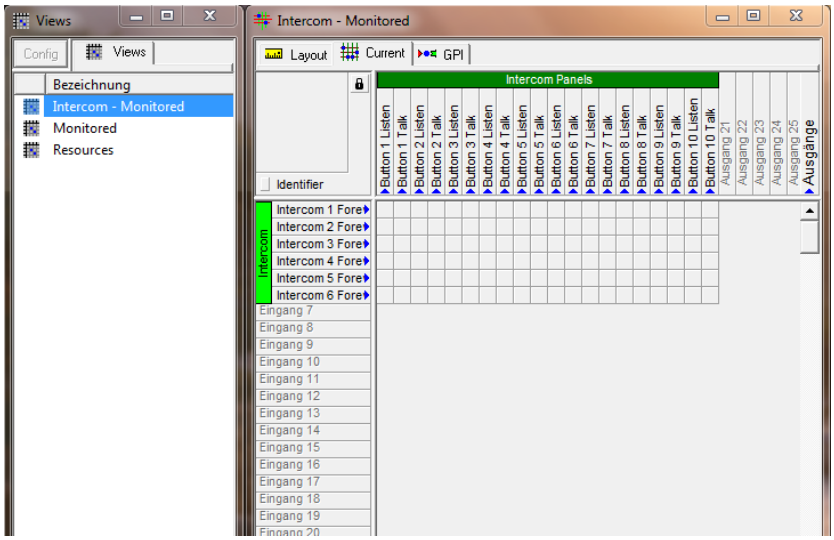


The module Mx34 can be selected in the module overview. Just as for the module Mx33, a unique *Prefix* must be defined.



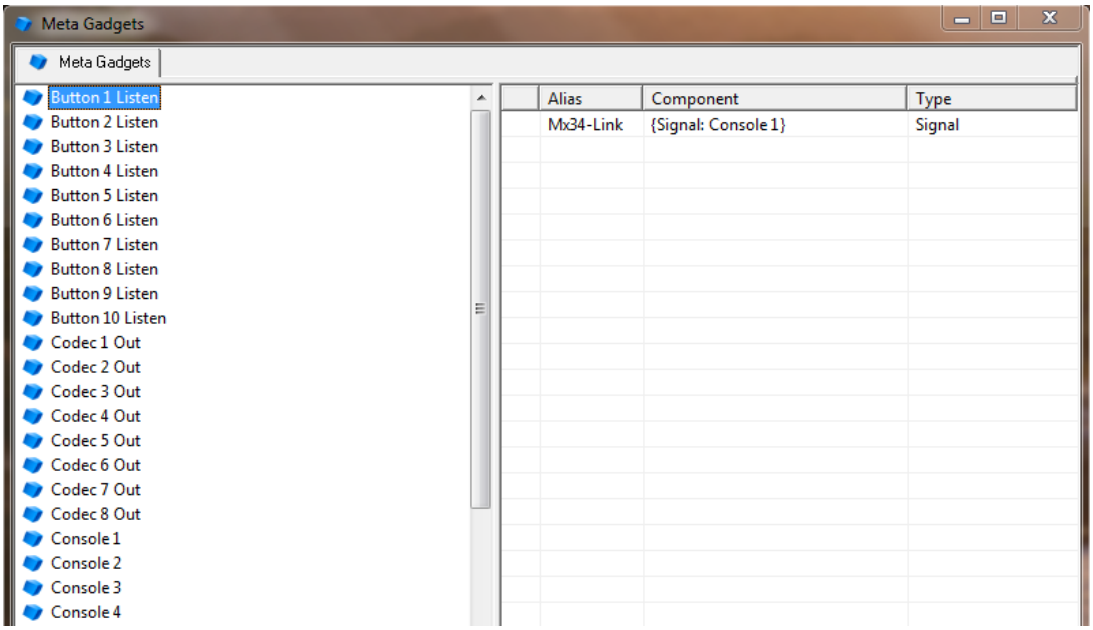
This module also requires a view (see Views) that is then placed into the field *Monitored* containing the tie-line outputs form an audio router (source) and the talk targets or listen targets from the intercom level.

Intercom monitored view



Contrary to module Mx33, the view *Resources* is irrelevant for module Mx34. *Button Listen* have to be pre-defined in the meta gadgets (see Meta Gadgets) and labelled with the names from the prefix link and the corresponding target from the output switch. For example: The source connected to *Target 1* in the initial switch is to be controlled via *Button 1* on the intercom system. It must therefore be labelled *Mx34-Link* (Assignment *Source 1* in *Button 1* lists).

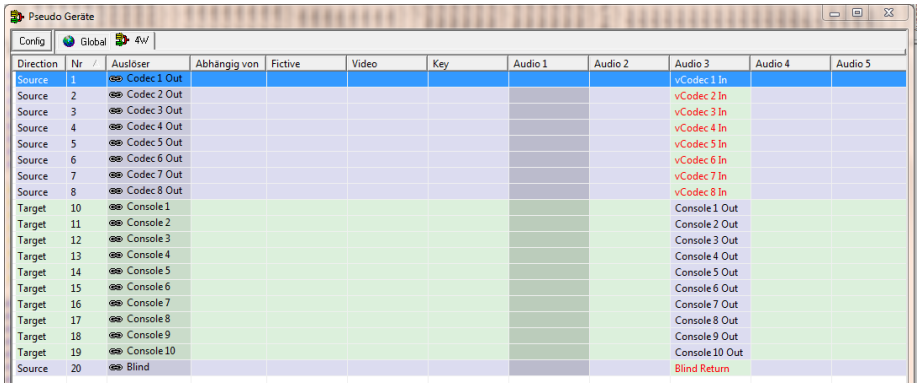
Button listen configuration in meta gadgets



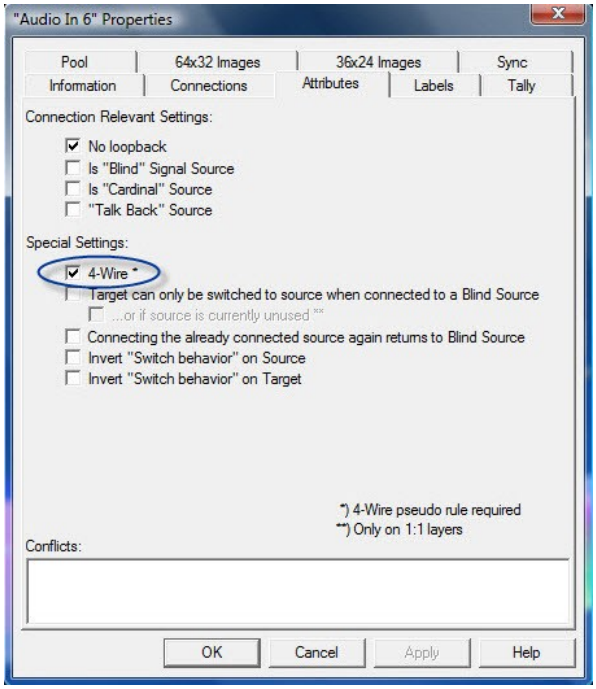
17.8 Addition Information for Mx33 and Mx34

In addition to the settings explained under Mx33 and Mx34, the following must be considered configured for the two modules Mx33 and Mx34:

- As usual, pseudo devices (see Pseudo Devices) have to be set for the RX and TX connections:



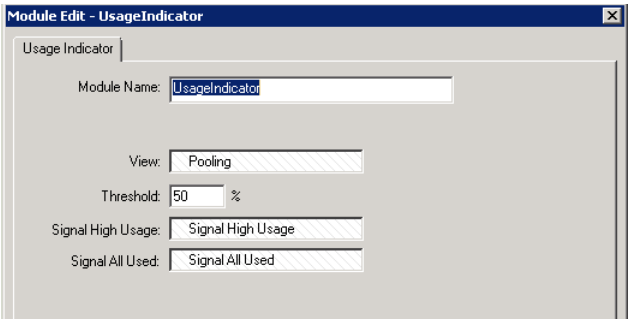
- Triggering targets must (for prioritization) be defined as 4-Wire in the signal path attributes (see Signal Path Attributes).



- For 4-Wire switches, the sources of the return path can be set to blind as well. To do so, use a (virtual) target that is defined as blind-source (see Signal Path Attributes).
- The first triggering starts the preset connection; the second triggering merely makes the function *Talk* available.

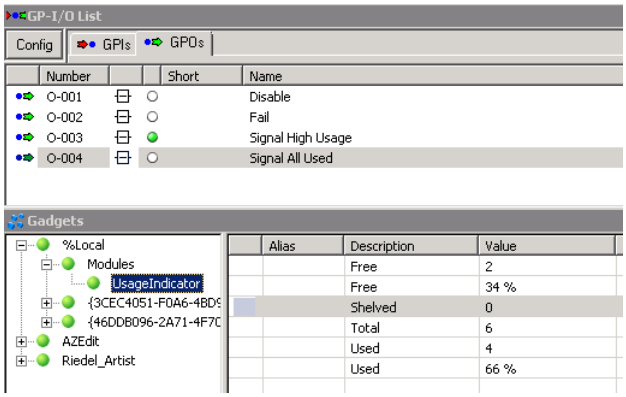
17.9 Signal Usage Indicator

The Module “Usage Signal Indicator” will monitor the amount of available devices within a pool.



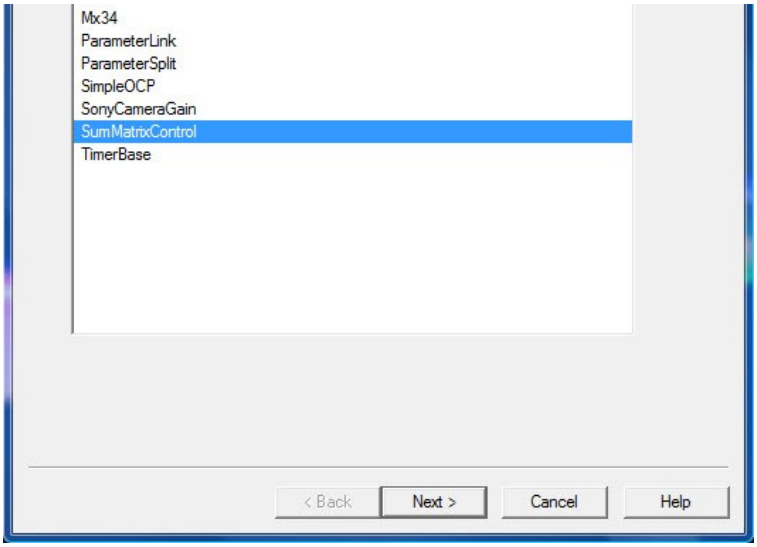
- **Module Name**: Name of the Module
- **View**: Drop View with pooling structure of interest.
- **Threshold**: Threshold when Signal High Usage will be activated.
- **Signal High Usage**: Signals high usage when threshold is reached .
- **Signal All Used**: Signals when all Pool Devices are in Use

The Module parameters can be observed in the Gadgettree:

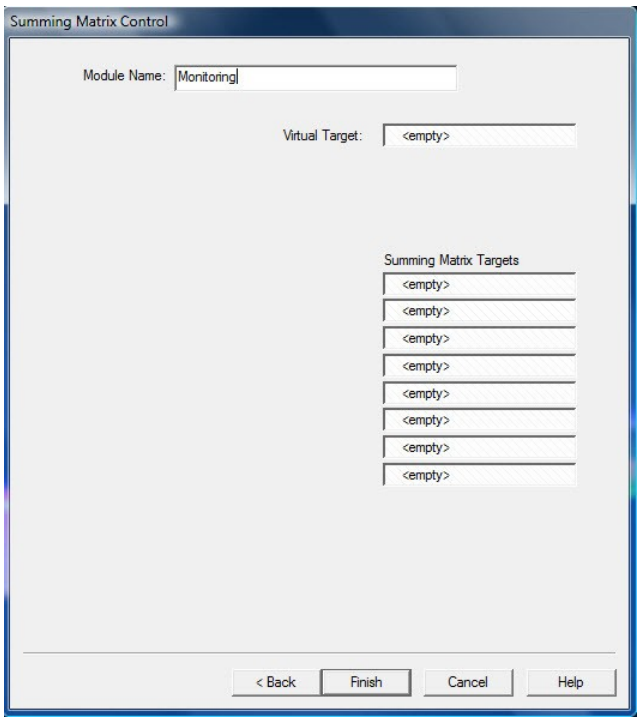


17.10 SumMatrixControl

SumMatrixControl module

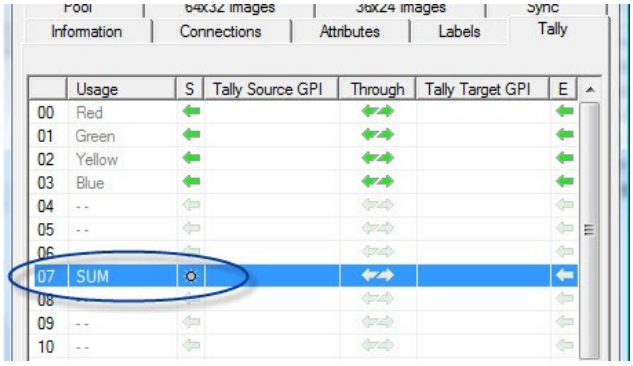


The *SumMatrixControl* module is a module that can be used for summing monitoring applications.



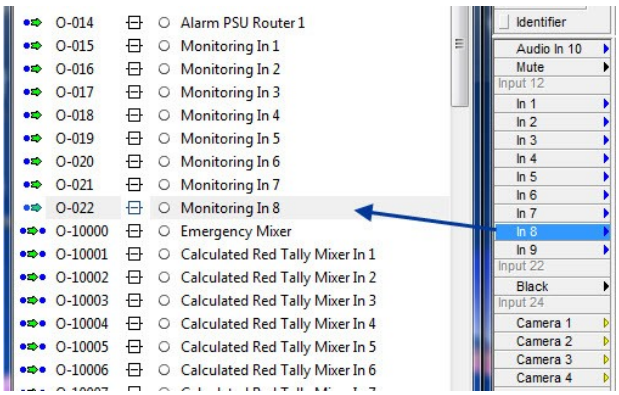
To do so, enter a name under *Module Name*. Drag a signal path that was set-up as a summing virtual signal (see New Signal Path) into the field following *Virtual Target*. The signals to be summed and monitored are placed in the eight fields under *Summing Matrix Targets.* Prior to this step, each of these signals must be configured as "summing" tally: to do so, go the tab *Tally* under signal path properties (see Tally) and add a new tally named, for example, *SUM* to each signal path that should be summed.

Configuring tally



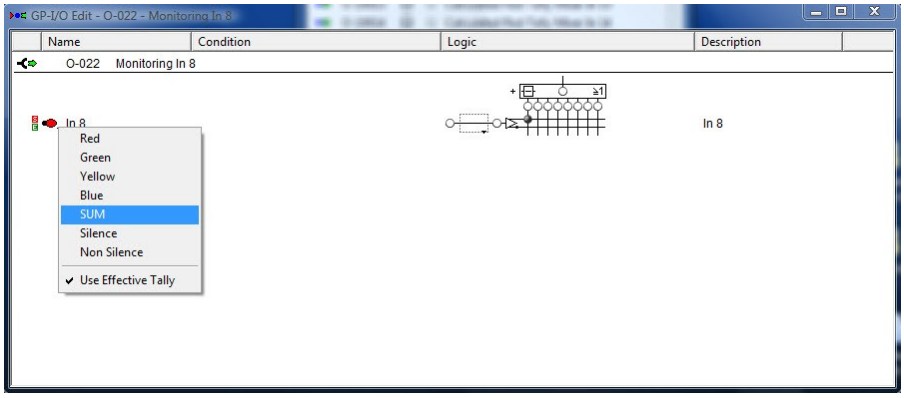
Moreover, a GPO must be created for each monitoring signal (see New GPIO).

Linking monitoring signals with GPOs



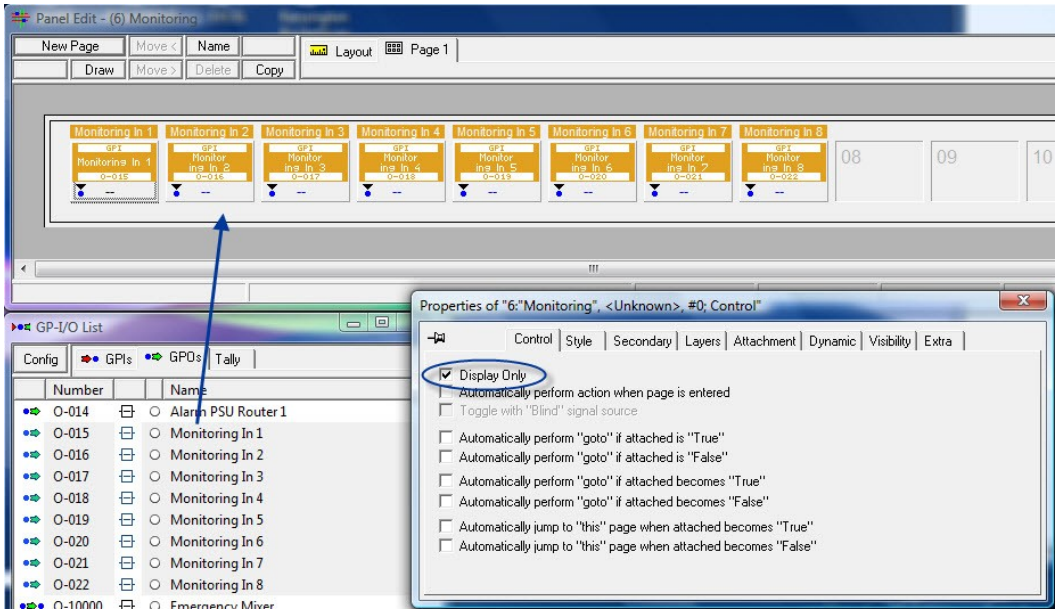
Next, drag the signals into the GPOs and activate the tally created for them earlier.

Activating SUM tally



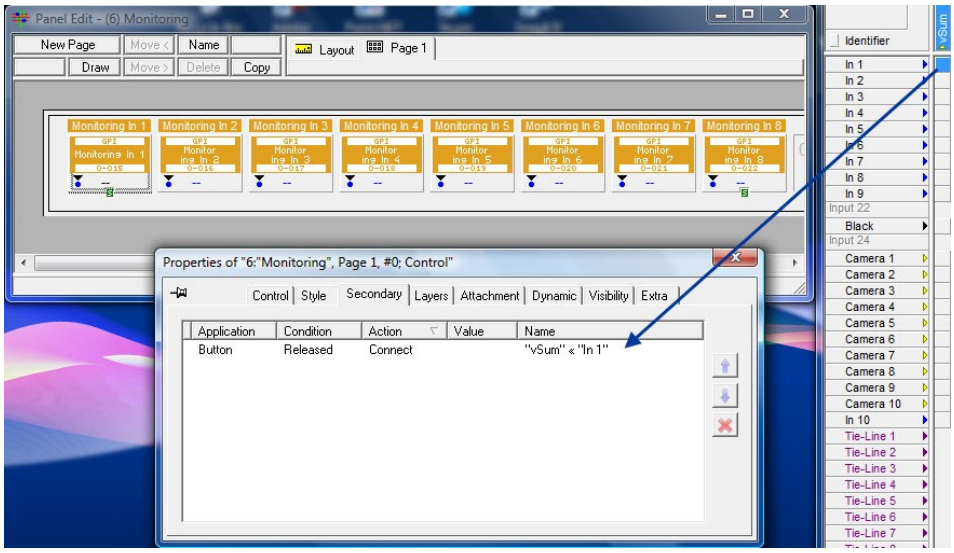
The GPOs are then placed onto a control panel as *Display Only* buttons.

Control panel configuration

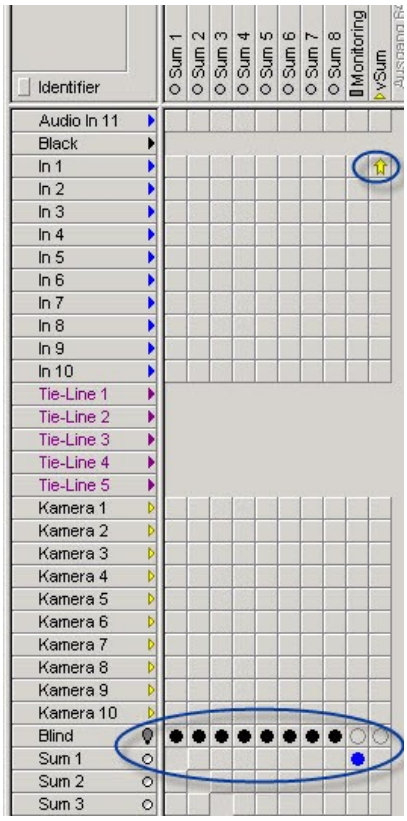


Next, place the crosspoints from the monitoring signals and *vSum* from the GPI view of the master matrix (see GPI View) on buttons as *Secondary* function (the crosspoint *In 1* > *vSum* onto *Monitoring In 1*, the crosspoint *In 2* < *vSum* on *Monitoring In 2*, etc.).

Dragging crosspoints onto buttons

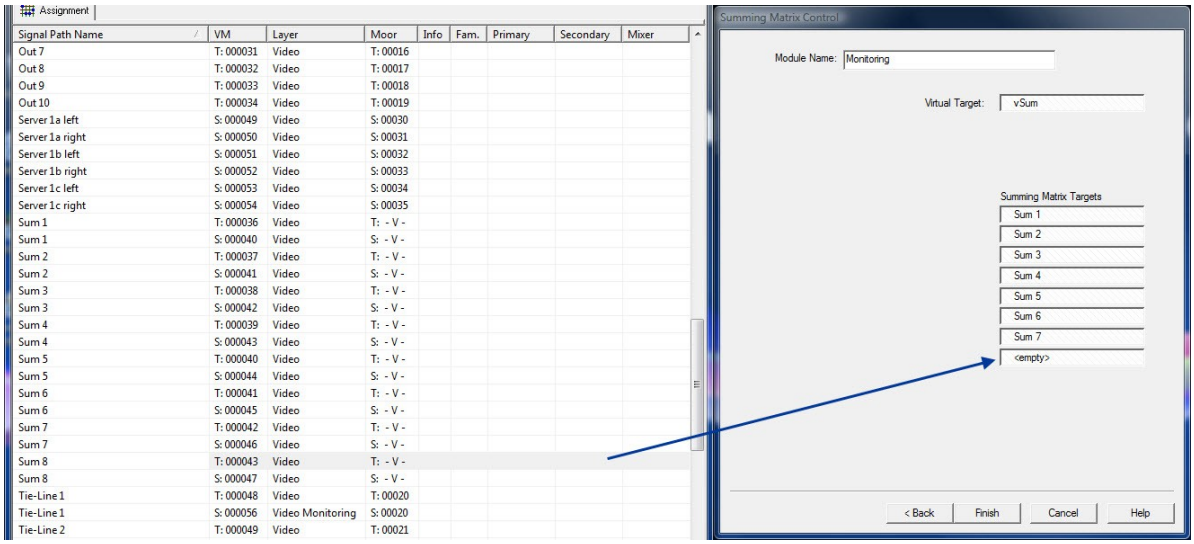


The crosspoints must then be set as shown in the screenshot below:



Finally, the virtual sum target and the individual targets are placed in the fields *Virtual Target* and *Summing Matrix Targets*.

Placing targets into the SumMatrixControl module



The signal paths *In 1* to *In 10* can now be monitored (eight at the same time).

18. UMDs

Under Monitor Displays (UMDs) are a hardware option that can be added to a VSM system to display source and tally information, timers, clocks, etc. Each one must be added to the **vsmStudio** configuration.

This chapter covers the configuration of UMDs.

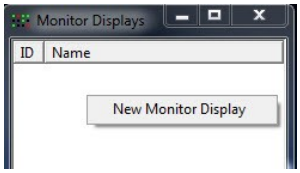
18.1 First Steps

To open the configuration window for UMDs, click on the appropriate button in the main menu bar:

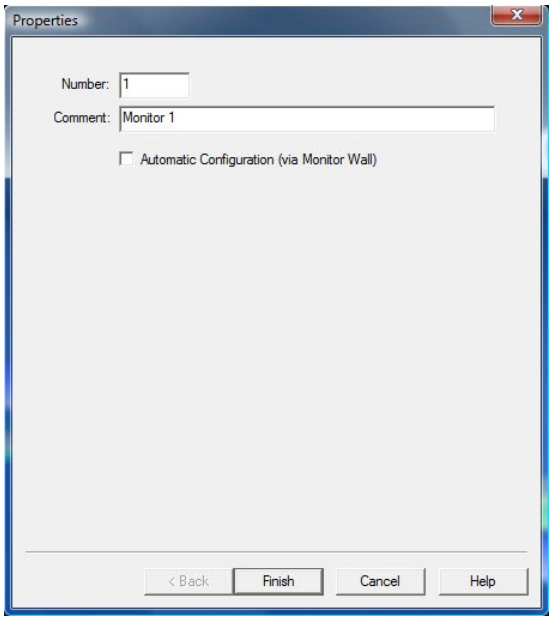
The *Monitor Display* window appears listing any previously configured UMDs. If none have been configured, then the list will be empty.

18.2 New UMD

Right-click inside the window to begin the setup of a new UMD:



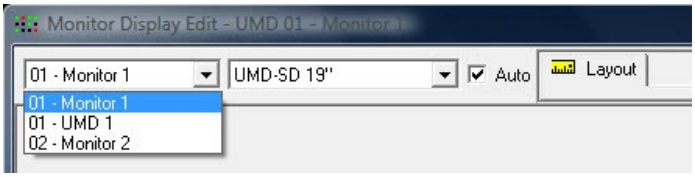
In the *Properties* window, enter an ID and a name for the UMD in the fields following *Number* and *Comment*, respectively. The ID has to correspond with the hardware ID that can be defined with the rotary control on the back of the UMD. For the configuration of a monitor wall to which the UMD belongs, the UMD settings can be set-up automatically through the attribute *Automatic Configuration (via Monitor Wall)*.



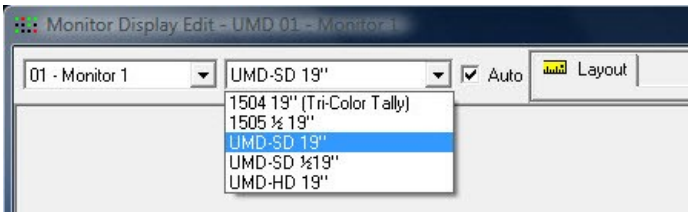
The created UMD will appear in the *Monitor Display* list and can be opened for further editing by double-clicking onto it.

18.3 Monitor Display Edit

In the top left of the *Monitor Display Edit* window, the UMD that is to be edited can be selected through a drop down menu.



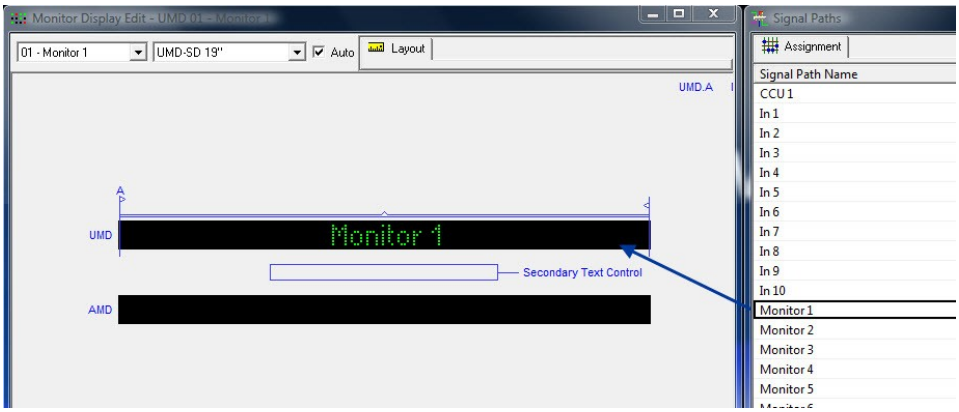
In the drop down menu directly to the right, the hardware UMD to be configurated can be chosen: 19", ½ 19", SD or HD.



The box directly to the right determines automatically the size of the UMD and can therefore be ignored.

18.4 Display of a Signal Path

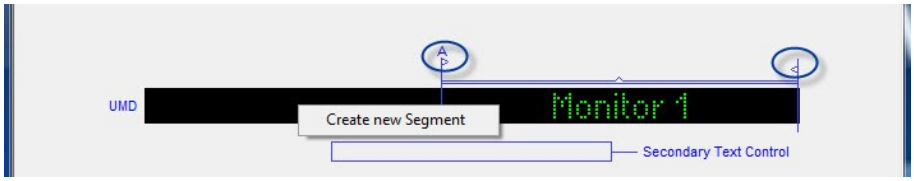
Placing a signal on a UMD



Through the edit view, it is possible to choose which signal will be displayed on the UMD. To do so, drag and drop the relevant signal from the master matrix (see Master Matrix) or the signal path list (see Signal Path List) into the UMD line.

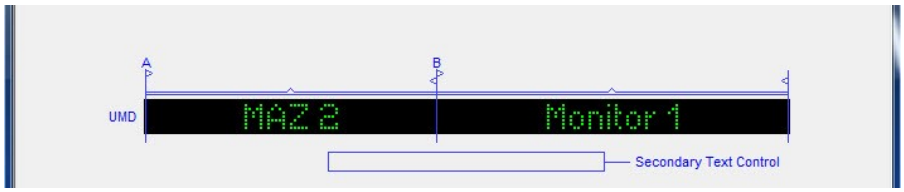
18.5 Creating and Editing Segments

The small arrows above the UMD line can be used to change the size and orientation of the displayed segments. To add additional segments, right-click into the UMD.

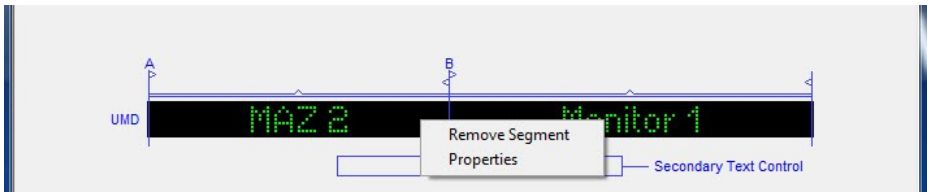


These segments can be equipped independently with different signals.

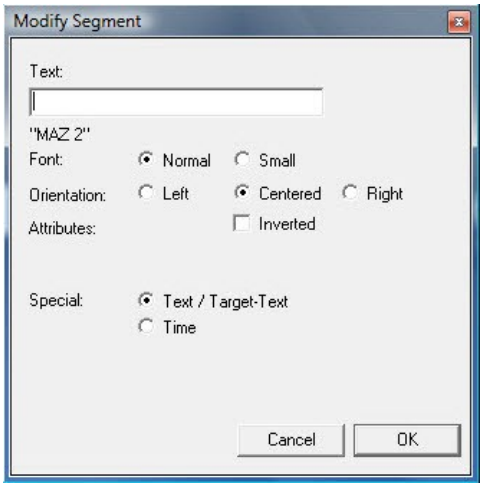
Two signals on UMD



A segment can be deleted or its properties edited by right-clicking on it.



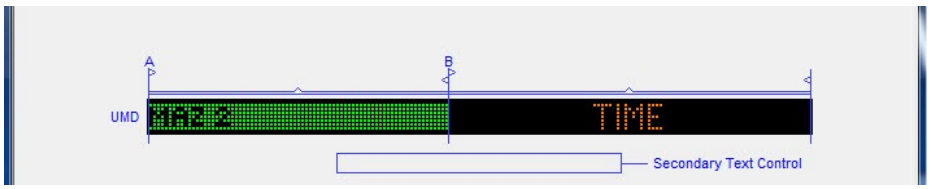
Defining segment properties



In the window *Modify Segment*, different attributes concerning the font on the UMD can be edited:

- A static text can be entered in the field beside *Text*. This text will be displayed on the UMD and overlays the signal.
- The font size can be set to *Normal* or *Small*.
- Under *Orientation*, the position of the displayed text in the relevant segment can be defined.
- Set the checkmark in front of the attribute *Inverted* to invert the font. It will then be displayed with a negative colour theme.
- Under *Special*, it is possible to define whether (target specific) font or the time should be displayed.

Example UMD



The screenshot shows an example configuration for a UMD that inverts a target in small font oriented to the left in segment A and shows the time in segment B.

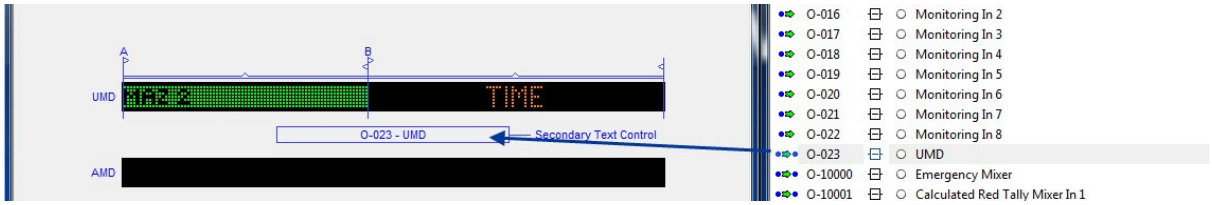
18.6 Displaying a Timer

A timer can also be displayed on a UMD (see Timer on UMDs). To do so, drag and drop the timer into a UMD segment. The timer display thereby orients itself always by the timer's current status (stop, run, reset, etc.).

18.7 Displaying Secondary Labels

Generally, a UMD shows the primary label. To display a different label, it is necessary to use a GPO that will switch between primary and secondary label. To do so, create a GPO and drag and drop it from the GPIO list (see New GPIO) into the field *Secondary Text Control*.

GPO for display of the secondary label



When the GPO becomes active, the UMD switches to the secondary label. As soon as the GPO is deactivated, the display jumps back to the primary label.

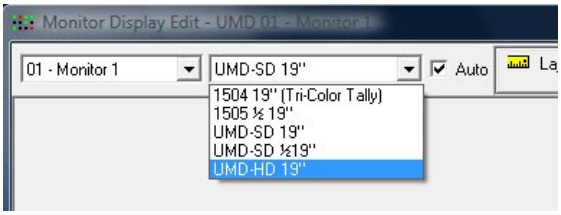
18.8 New AMD

The AMD line below the UMD can only be used by one signal. Additional segments cannot be added. All other settings can be configured analogously to those described for the UMD line above.

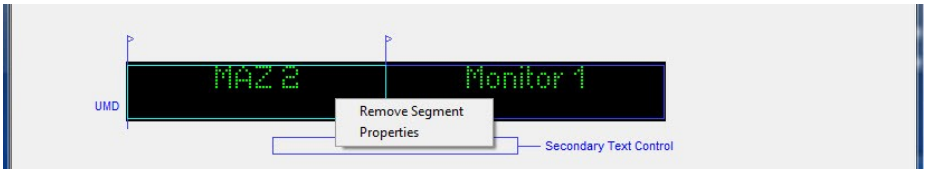
AMD configuration

18.9 Configuration UMD-HD

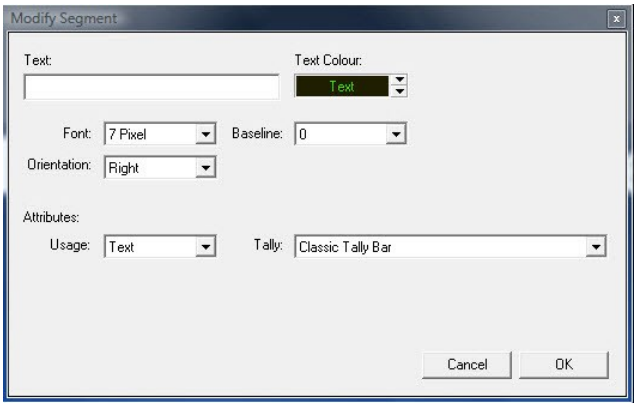
Even though the display deviates slightly from that of the UMD-SD, a UMD-HD is generally configured like a UMD-SD. To switch between the two, use the drop down menu at the top of the screen.



There are, however, a number of additional attributes available for the UMD-HD.

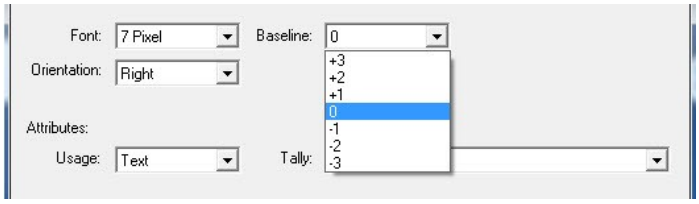


Editing a segment



Under *Text Colour*, the font colour can be changed between red, yellow, and green colours and shades. There are four different font sizes available, specified in pixels. The option *Baseline* allows changing the vertical position of the text.

Vertical adjustment of the text



Orientation defines the positioning of the font in the segment. Under *Usage,* the purpose of the UMD is determined, meaning whether it serves the display of a text, of the time, of a peak meter, or of another special function.

Selecting a purpose

Moreover, the display of tally, for example as text or traditionally with tally bars, can be specified.

Tally settings

18.10 Monitor Walls

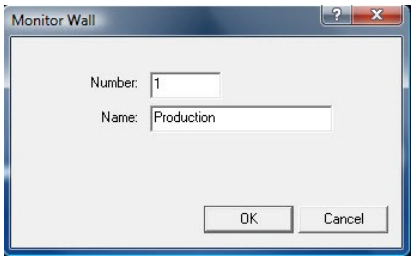
To open the window in which monitor walls can be created, select the indicated icon in the main menu.

18.10.1 New Monitor Wall

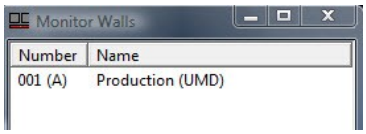
Right-click into the *Monitor Walls* window in order to start setting up a new monitor wall.

Similar to the set-up process of UMDs, an ID and a name have to be entered for the new monitor wall. Subsequently, the monitor wall will be shown in the *Monitor Walls* window.

Setting-up a new monitor wall

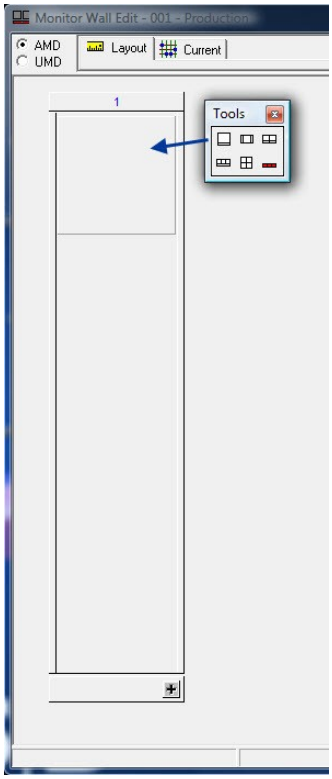


Open the *Monitor Wall Edit* window by double-clicking onto the relevant monitor wall.



There, the monitor wall can be edited. Editing is only possible in the *Layout* view, while the *Current* tab only serves to display the monitor wall.

It is possible to choose between UMD and AMD in the top left of the edit window. If a UMD is set-up between two monitors, the assignment changes automatically.

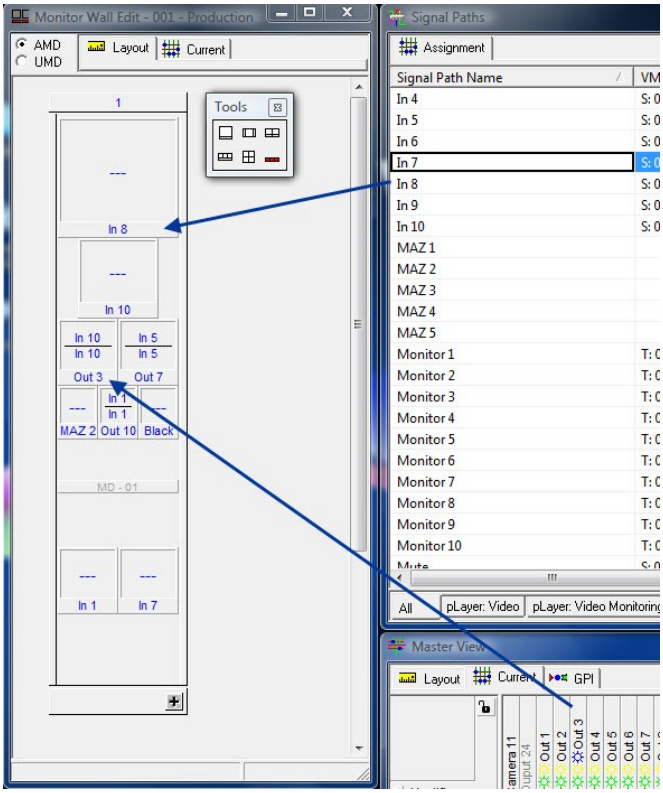


Any required monitors, such as a quad split or a dual monitor, can be dragged from the toolbox into the monitor wall.

18.10.2 Display of Signal Paths

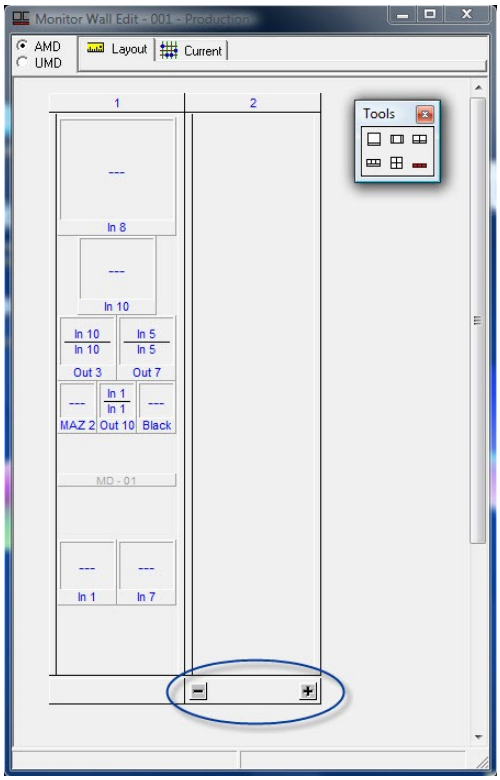
Next, the signal paths are dragged and dropped from the signal path list (see Signal Path List) or the master matrix (see Master Matrix) into the created monitor segments.

Placing signal paths onto a monitor wall



The identifier (see Signal Path Name) as well as the secondary label (see Labels) of the signal are displayed on the monitor.

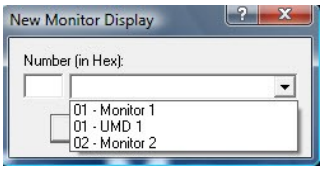
Extending or reducing the monitor wall



Using the plus and minus symbols, the monitor wall can be extended or reduced by a field.

18.10.3 Displaying UMDs

UMDs on which the signal switched onto the corresponding target is shown can also be placed on the monitor wall. During the set-up of a UMD, a window opens in which an already existing UMD can be selected.



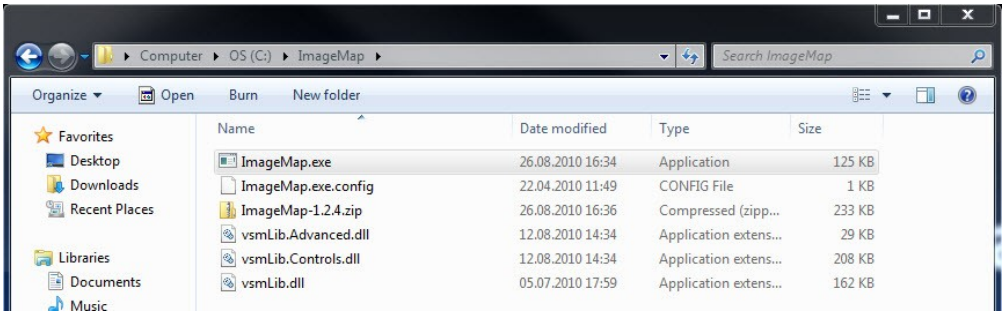
19. Image Map

Image Map is a separate software tool that allows image files to be displayed by the graphical user interface. It can be used to customise the look of your production environment.

This chapter covers the installation and configuration of **Image Map**.

19.1 Software Installation

Image map installation folder



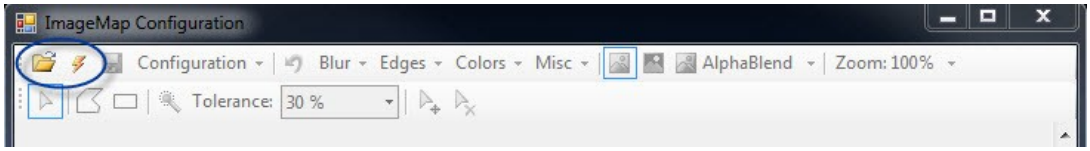
The following files are included in the image map installation .zip file:

- *ImageMap.exe*
- *ImageMap.exe.config*
- the received .zip file *ImageMap-1.2.X.zip*
- *vsmLib.Advanced.dll*
- *vsmLib.Controls.dll*
- *vsmLib.dll*

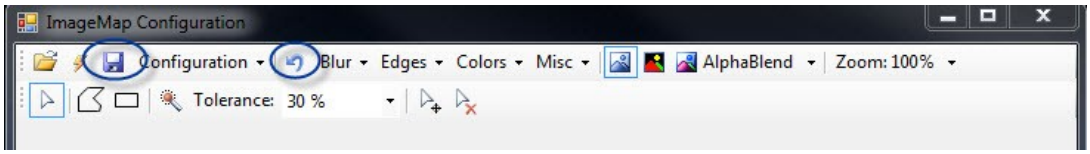
Start the software by executing the *ImageMap.exe*.

19.2 Opening, Importing and Saving an Image Map

Existing image maps can be opened and edited through the folder symbol *Open ImageMap*. To create a new image map, select the lightning symbol *Import Image Map*. If no image map is currently opened, only these two functions are available initially.

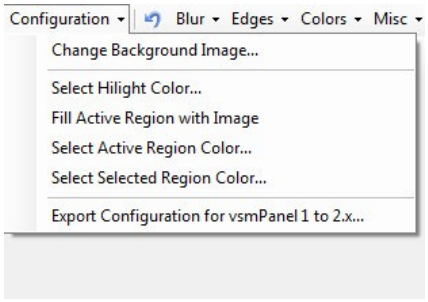


By left-clicking onto the floppy disk symbol *Save Image Map*, a created image map is saved as .imageMap file (for vsmPanel version 3.x). Use the *Undo* button to revert the last change made to the image.



19.3 Configuring the Keypad Region

Configuration menu



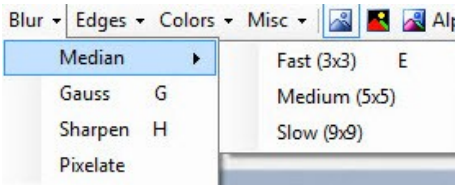
Selecting *Configuration* will open a drop down menu with the following functions:

- *Change Background Image* allows you to change your background Image
- Through *Select Highlight Color...* it is possible to choose the colour that the keypad region will take when moving the cursor over it
- The functions *Fill Active Region* and *Select Selected Region Color...* are used in vsmPanel 1.x and 2.x.
- Use *Select Active Region Color...* to define the colour that the buttons should take on after they have been pushed.
- The function *Export Configuration for vsmPanel 1 to 2.x...* servers the creation of image maps for vsmPanel versions 1.x and 2.x.

19.4 Editing an Image

19.4.1 Defining Sharpness

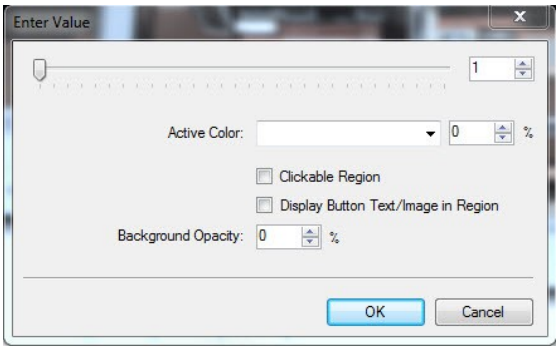
Blur menu



Click on *Blur* to open a drop down menu with the following functions:

- *Median* offers the properties *Fast (3x3)*, *Medium (5x5)*, and *Slow (9x9)*. These settings represent degrees of blurring: *Fast (3x3)* will blur the image slightly, while with *Medium (5x5)*, fonts and dividing lines are no longer visible, and *Slow (9x9)* shows only outlines.
- The *Gauss* function will blur the image.
- *Sharpen* will make the image sharper.
- *Pixelate* opens a new window, in which the strength of the pixel representation can be defined.

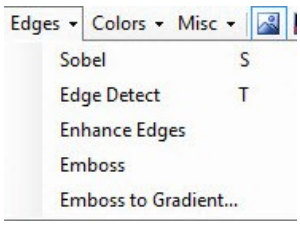
Pixelate window



Using the scale or the input field lying behind it, the strength of the pixel representation can be defined. Further settings cannot be changed in this window.

19.4.2 Editing Fonts and Lines

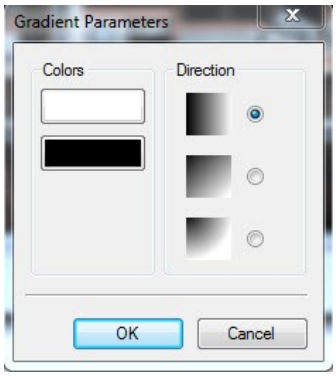
Edges menu



Click on *Edges* to open a drop down menu with the following functions:

- *Sobel* colours the image black except for fonts and dividing lines. These retain their original colour.
- *Edge Detect* also colours the image black, but fonts and dividing lines are highlighted.
- *Enhanced Edges* highlights fonts and dividing lines in the image while the image itself retains its original colour.
- *Emboss* colours the image in grey, and highlights fonts and dividing lines.
- *Emboss to Gradient...* opens an additional window, in which gradients can be defined.

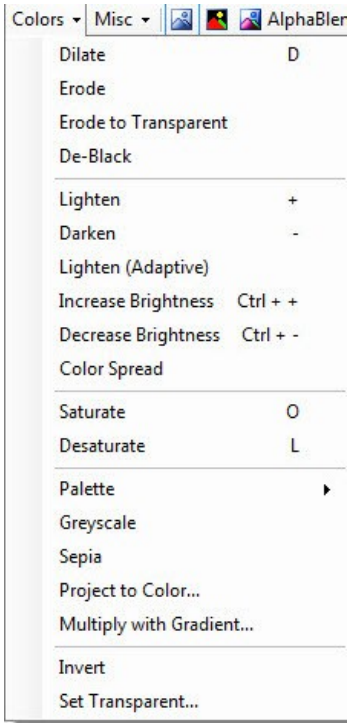
Gradient settings



- Under *Colors*, two different colours can be chosen for the gradient.
- The direction of the gradient can be chosen under *Direction*. The program thereby always starts in the top corner. The available options are from left to right, from top left to bottom, and from top left to bottom right in a semi-circular shape.

19.4.3 Editing Colours

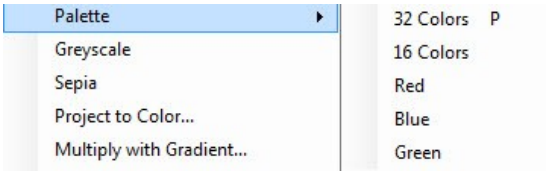
Color menu



A click on *Colors* opens a drop down menu in which colour settings can be edited:

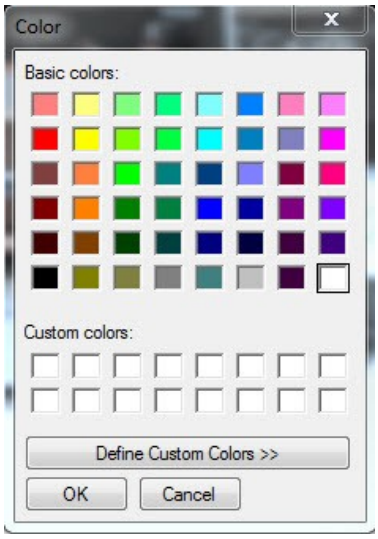
- *Erode* erodes the colors.
- *Lighten* increases the brightness of the image.
- *Darken* decreases the brightness of the image
- *Lighten (Adaptive)* increases the brightness of dark spots in particular.
- *Increase Brightness* increases the brightness of colours.
- *Decrease Brightness* decreases the brightness of colours.
- *Color Spread* will display black to white gradation as grey scale.
- *Saturate* increases the colour saturation in the picture.
- *Desaturate* decreases colour saturation.
- *Palette* opens a new menu with the following options:

Palette settings



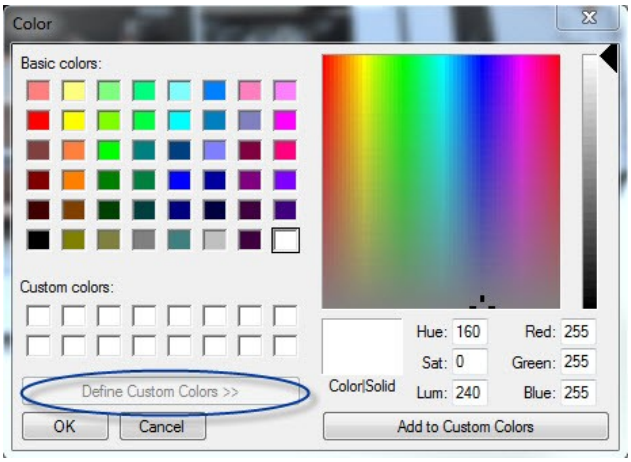
  - 32 Colors reduces the image to 32 colours.
  - 16 Colors reduces the image to 16 colours.
  - Red colours the entire image red.
  - Blue colours the entire image blue.
  - Green colours the entire image green.
- *Greyscale* will display the image in different shades of grey.
- *Sepia* shows the image in different shades of brown.

Selecting a colour



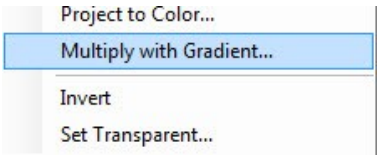
- *Project to Color...* shows the image in a colour of choice.

Create individual colours



Select *Define Custom Colors* in the colour menu to add individual colours.

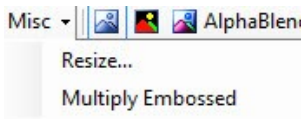
Colour menu



- Using *Multiply with Gradient...*, gradients can be created and then placed over the original colour.
- *Invert* inverts the colours, meaning their inverse is displayed.
- *Set Transparent...* allows choosing one colour to be displayed transparently.

19.4.4 Editing Further Options

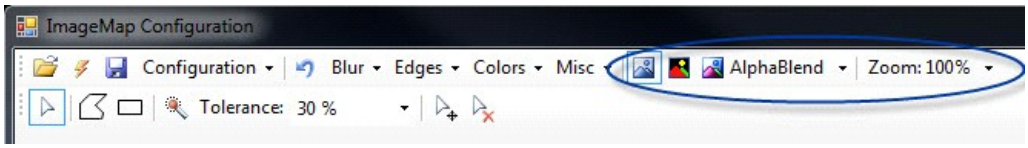
Misc menu



Selecting *Misc* will open another drop down menu with the following functions:

- *Resize...* allows resizing of the image.
- *Multiply Embossed* reinforces the highlighting of fonts and dividing lines (see *Emboss* and *Emboss to Gradient).*

19.5 Image Map Display



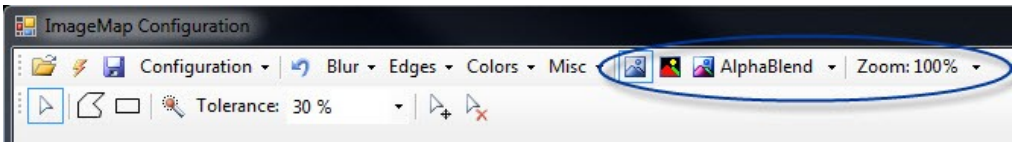
The first three symbols indicated to the right in the main menu serve the display of the file either as image only (used in vsmPanel 1. and 2.x), as map image only (used in vsmPanel 1.x and 2.x), or as image and map one above the other (AlphaBlend).

The size of the shown image can be set under *Zoom*. Through the function *Fit Window,* the image will always be adapted to the current monitor size so that it is always visible in its entirety and the need for scrolling is eliminated.

19.6 Creating and Editing Button Areas

19.6.1 Editing Button Areas

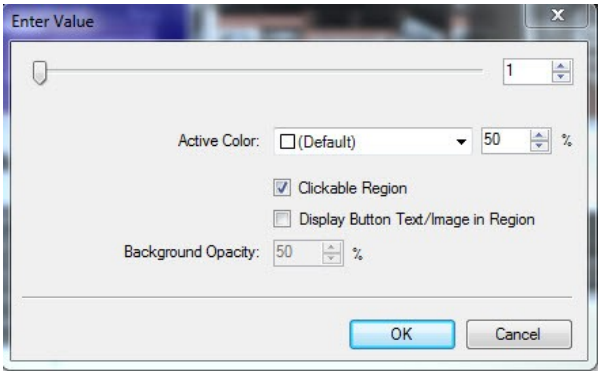
Edit Button Mapping



By selecting the arrow symbol *Edit Button Mapping*, a button area can be edited and activated.

- Left-click onto a button area to activate it.
- Right-click onto a button area to open the following window:

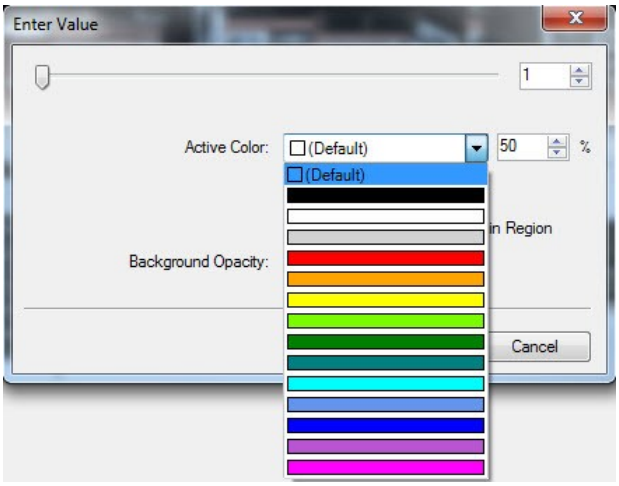
Button area settings



Use the scale or the input field located behind it in order to define this button area as the new ID, which will later be referenced with the ID of a control panel. Depending on the application, each button area should have its own ID.

Select *Active Color* to open a drop down menu, in which the active colour of the button area can be defined.

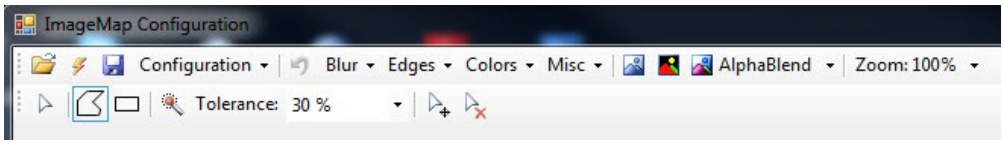
Colour selection for active button areas



In the input field to the right, the saturation of the active colour can be defined. If the checkmark beside *Clickable Region* is ticked, the button area can later be activated by clicking onto it. If the checkmark is not ticked, this is impossible. If the attribute *Display Button Text/Image in Region* is active, it is possible to display text in the button area if a label is enclosed.

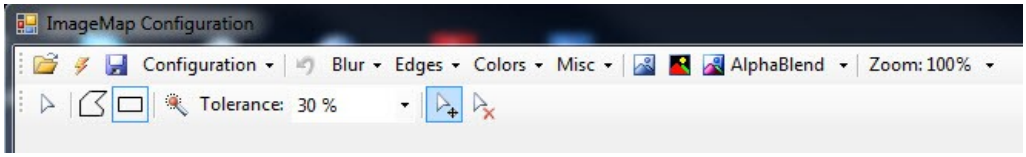
19.6.2 Creating Button Areas

Create Polygon Region



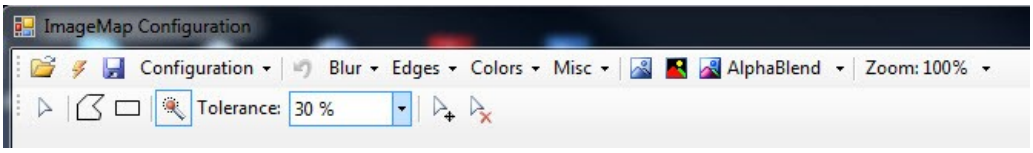
Use the function *Create Polygon Region* to freely create button areas.

Create Rectangle Region



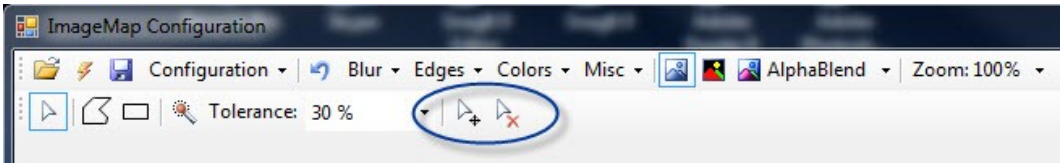
Create Rectangle Region creates rectangular button areas.

Magic Wand



Use the *Magic Wand* function to display button areas in an arbitrary form. The sensibility of the function can be defined through the option *Tolerance* directly to the right. Areas with more or less colour difference will then be imported into the button area. This option is set to 30 percent by default.

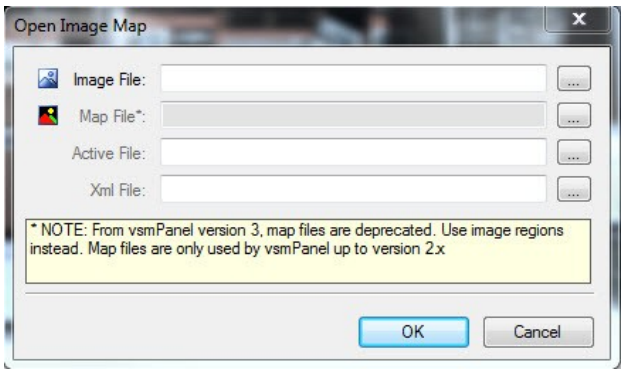
Editing and deleting regions



With the two arrow functions *Edit Regions* and *Delete Regions*, button areas can be edited or deleted subsequently.

19.7 New Image Map

Select the lightning symbol *Import Image Map...* to create a new image map.

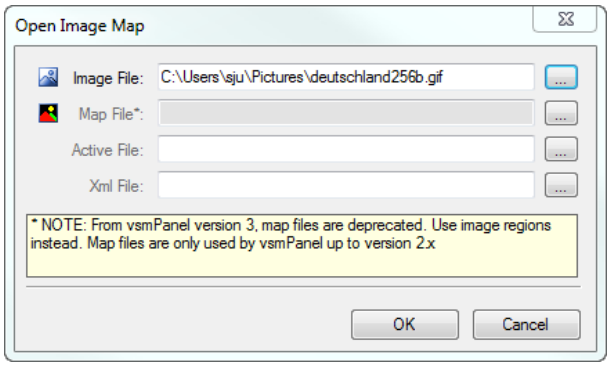


By clicking the button behind *Image File,* an image can be chosen as background of the new image map. The following file formats can be used: .jpg, .png, .gif, .bmp and .tif.

For vsmPanel versions 1.x and 2.x, an existing map file can be loaded through *Map File*. For the same versions of the software, *Active File* loads an existing active file that shows a map file with active colour. Also for versions 1.x and 2.x, an Xml file containing button areas can be loaded by selecting *Xml File.*

An explorer can be opened with all these functions. There, an image can be chosen and opened. Once the image is selected, the path will be shown in the corresponding line.

Loading an image file

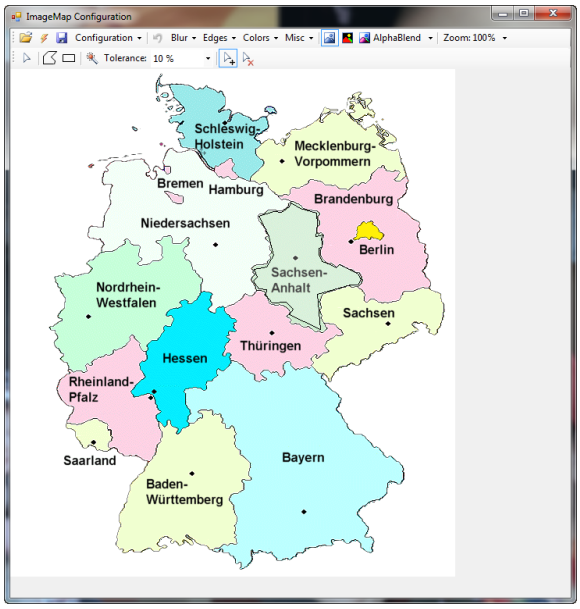


After confirming with OK, the image will be loaded to enable the definition of button areas for the use on a graphic user interface.

Example: Image map on a map of Germany

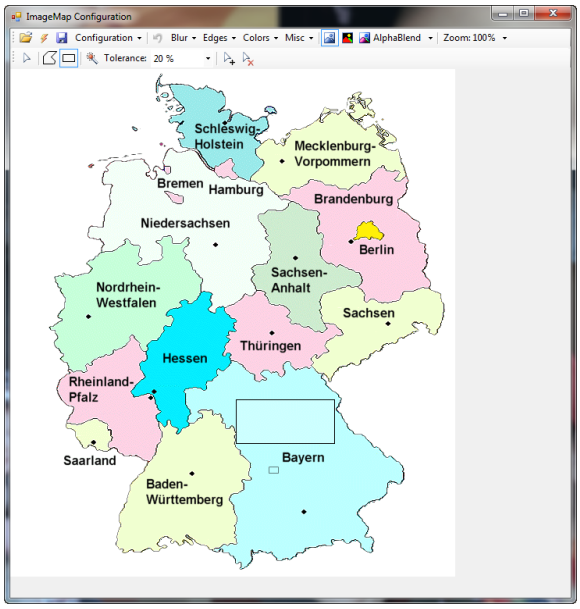
In the example above, the button areas are created via the *Create Polygon Region* function (see Creating Button Areas) by indicating the relevant area dot by dot until the path closes.

Create Polygon Region



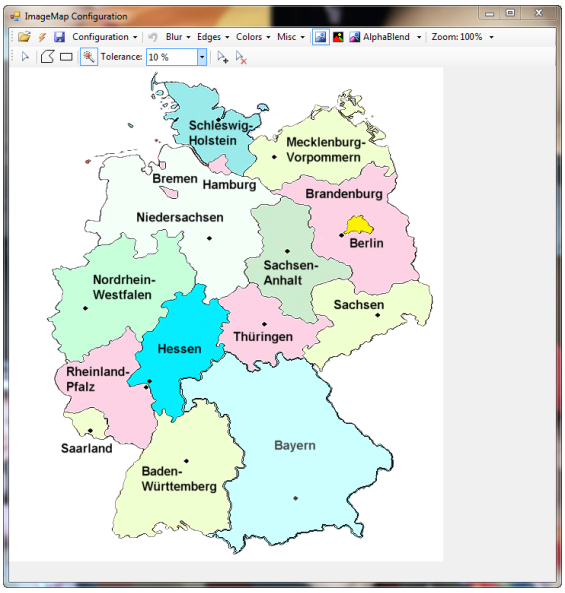
The function *Create Rectangle Region* can also be used to create a button area (see Creating Button Areas). To do so, drag the frame from one corner into the relevant area.

Create Rectangle Region



Use the *Magic Wand* function to create a button area (see Creating Button Areas) by selecting the image's relevant area. The accuracy of the selected area can be defined through *Tolerance*.

Magic Wand



20. vsmPanel

vsmPanel is a separate software application that runs on a PC workstation. It can be used, in conjunction with **vsmStudio**, to create virtual panels operated by mouse or touch-screen, and offers almost all the functions available on hardware control panels. The workstation must have a LAN or WLAN connection to the VSM system.

This chapter covers the installation and setup of **vsmPanel**. Note that the panel configuration is handled by **vsmStudio** - see Panel List & Panel Editor for more details.

20.1 System Requirements

The requirements for a **vsmPanel** Workstation Client are:

vsmPanel Version 3.x

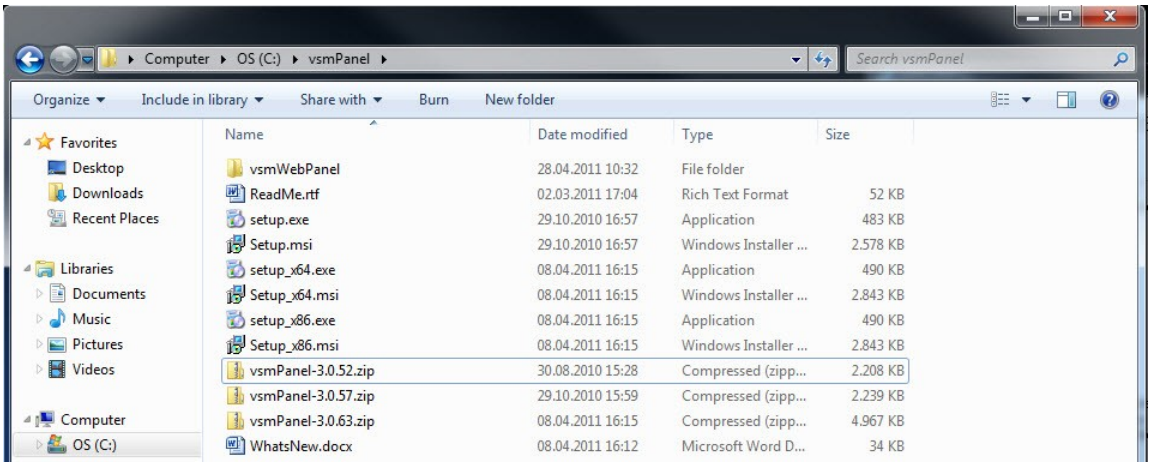
- OS: Windows7, Windows8 or Windows10
- CPU: min. Intel Core i3 or higher
- RAM: min. 4GB
- Graphics: min Intel HD Graphics 4000 or higher

20.2 Software Installation

20.2.1 PC Installation

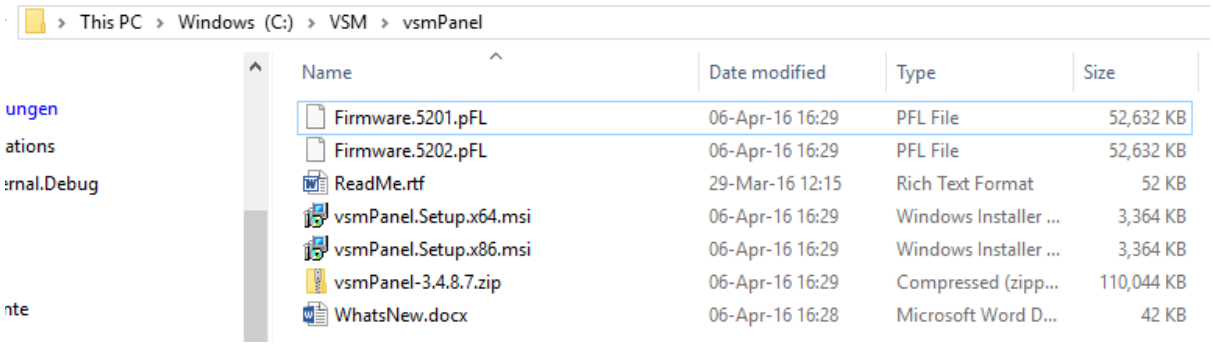
When installing the software application vsmPanel on a PC, create a subfolder named vsmPanel in the VSM folder on the C drive.

vsmPanel folder



Next, copy the .zip file provided by Lawo for the installation into this vsmPanel folder. Once copied, either open the file and copy the contained files into the vsmPanel folder or extract the .zip file into the aforementioned folder.

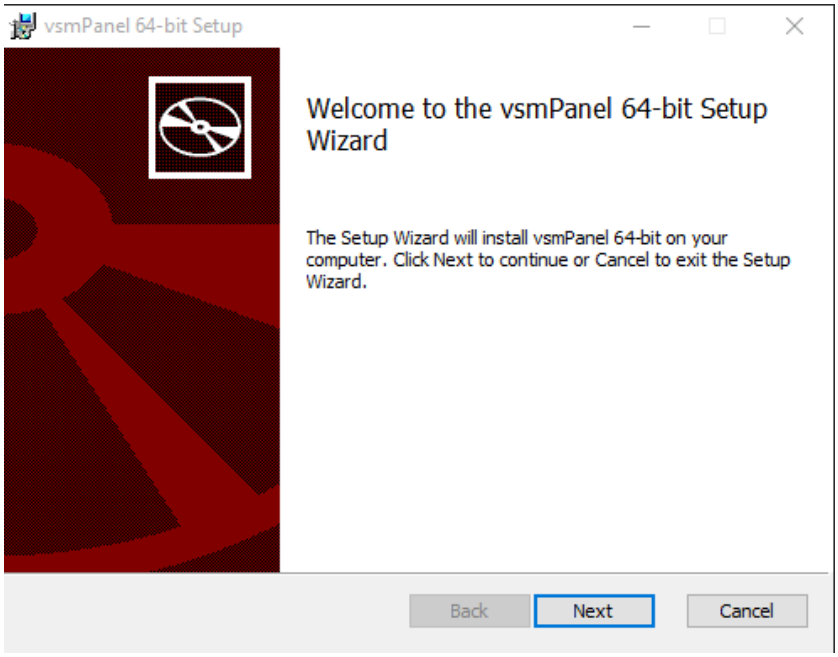
Extracted vsmPanel files



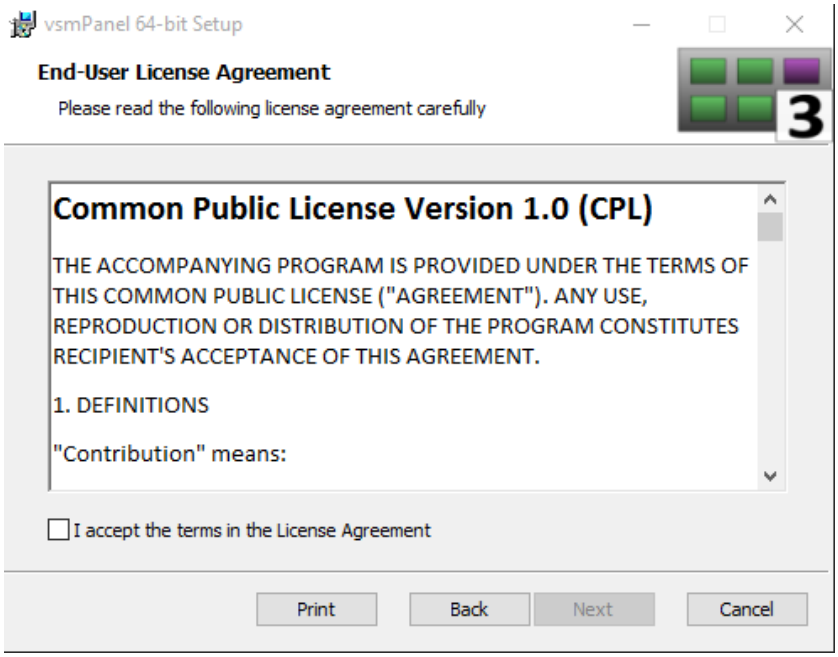
To start the installation of vsmPanel, double click onto vsmPanel.Setup.x86.msi or vsmPanel.Setup.x64.msi.

The vsmPanel Setup Wizard will lead you through the rest of the installation. To start the process, select *Next* in the first window of the installation wizard.

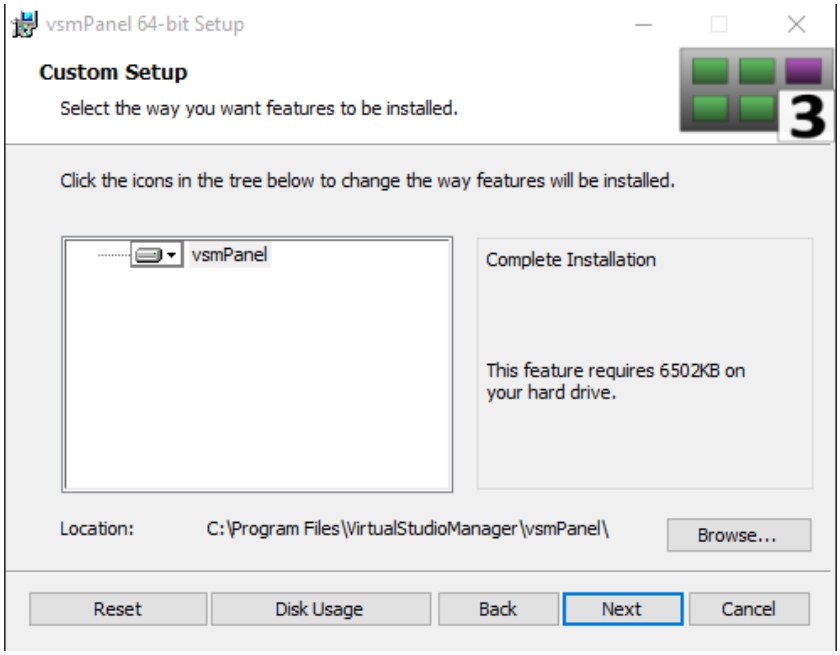
vsmPanel Setup Wizard



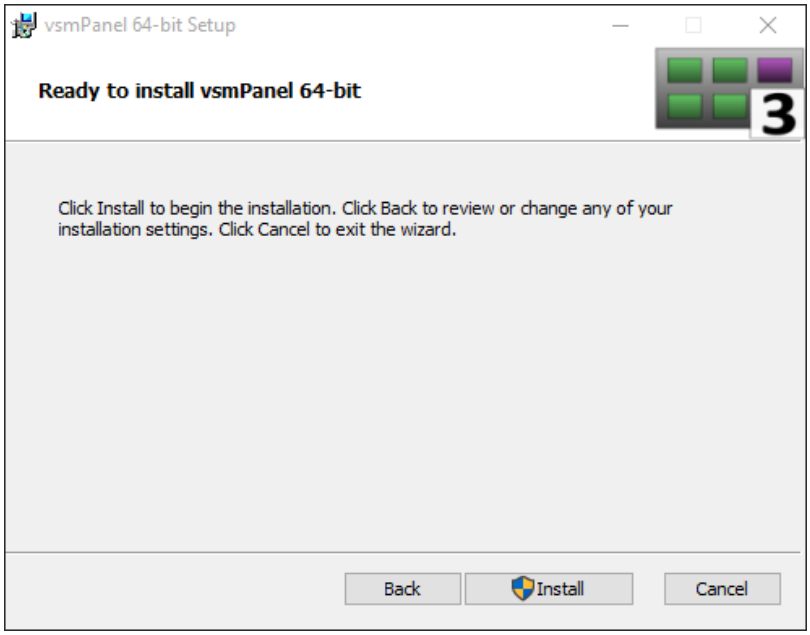
Execpt terms in the License Agreement to continue with Next.



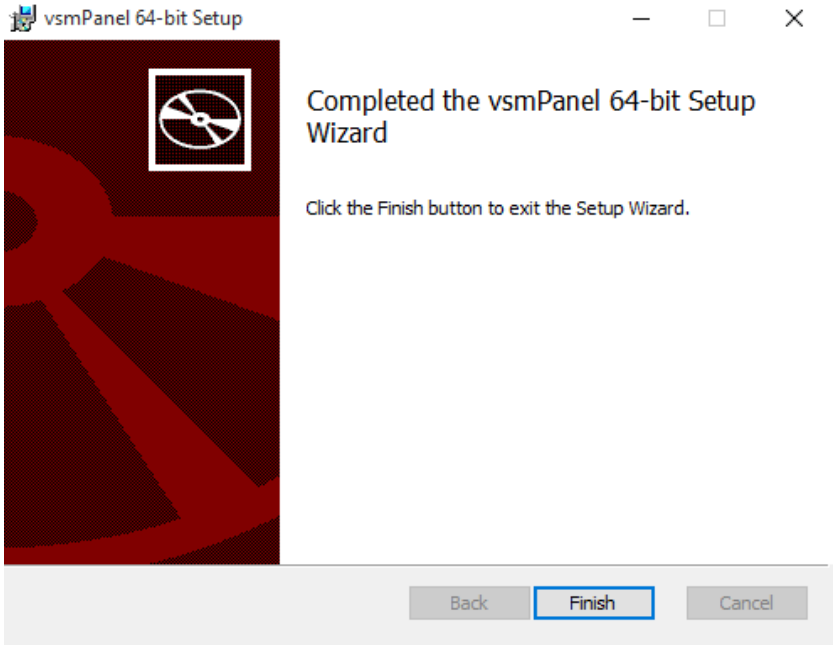
Select *Browse* and choose the vsmPanel folder on the C drive as installation destination. Select *Next.*



Select Install to start the installation.



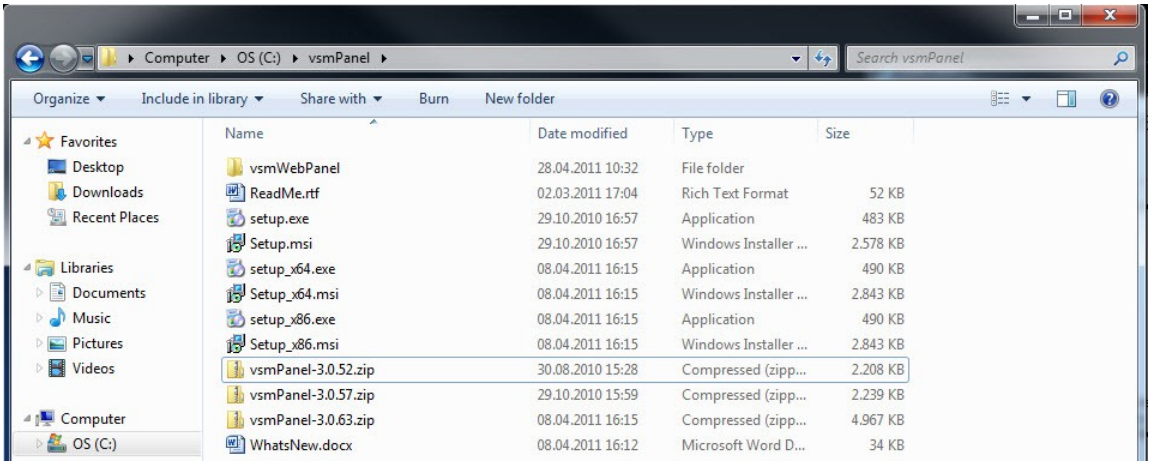
To complete the installation process, select *Finish* in the last window.



20.2.2 Server Installation

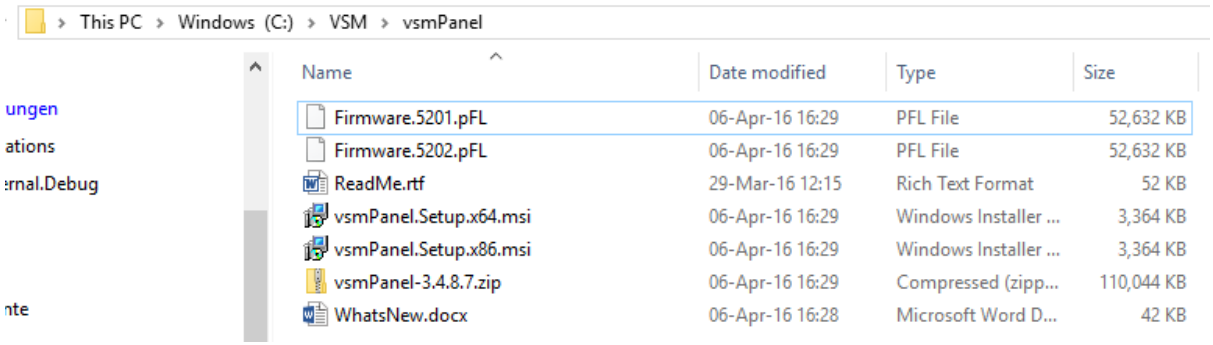
When installing vsmPanel on a server, create a folder named vsmPanel on the partition that contains the installation of vsmStudio.

vsmPanel folder



Next, copy the .zip file provided by Lawo for the installation into this vsmPanel folder. Once copied, either open the file and copy the contained files into the vsmPanel folder or extract the .zip file into the aforementioned folder.

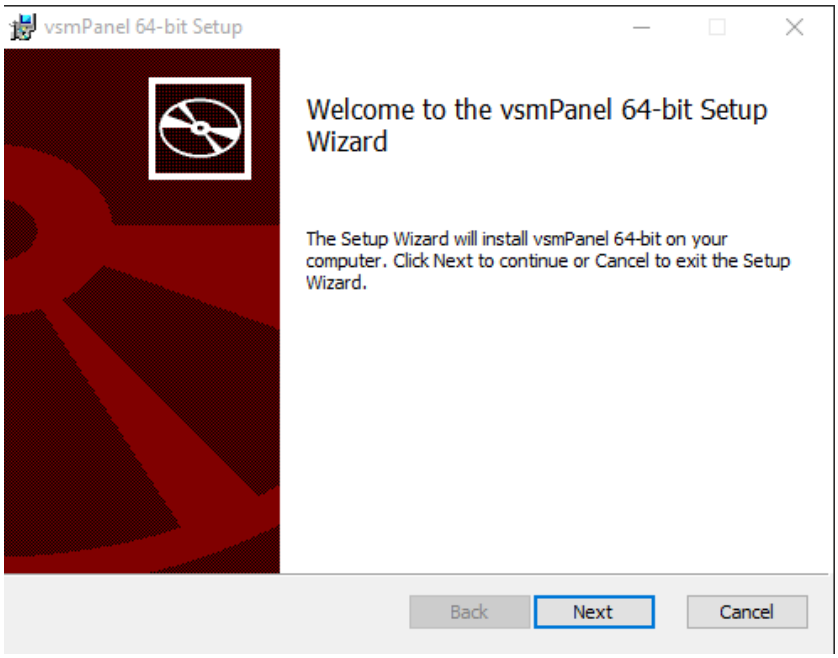
Extracted vsmPanel files



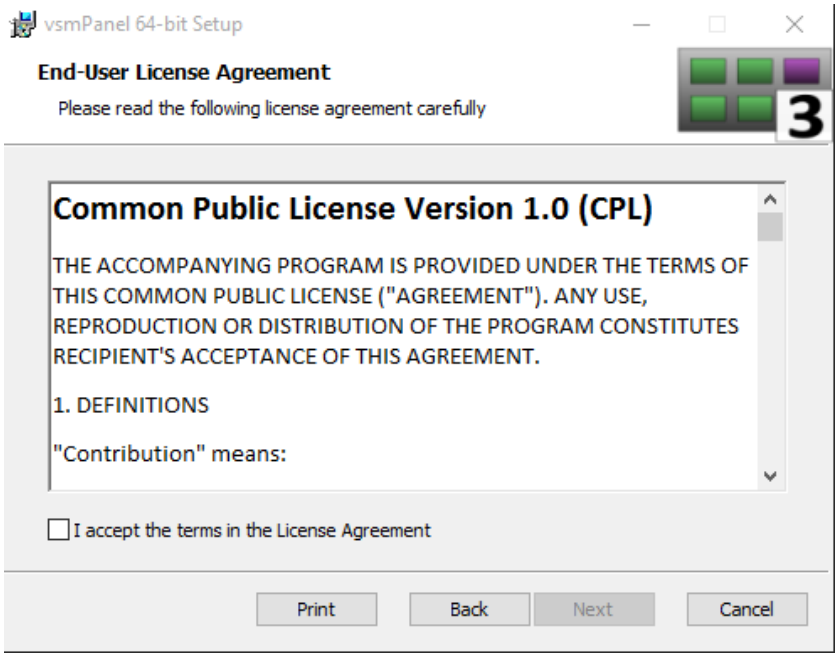
To start the installation of vsmPanel, double click onto vsmPanel.Setup.x86.msi or vsmPanel.Setup.x64.msi.

The vsmPanel Setup Wizard will lead you through the rest of the installation. To start the process, select *Next* in the first window of the installation wizard.

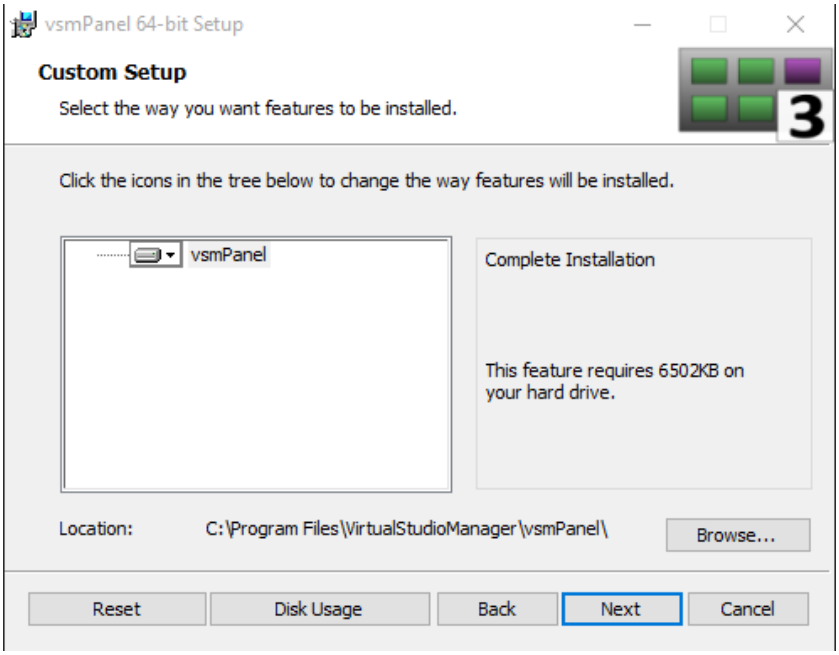
vsmPanel Setup Wizard



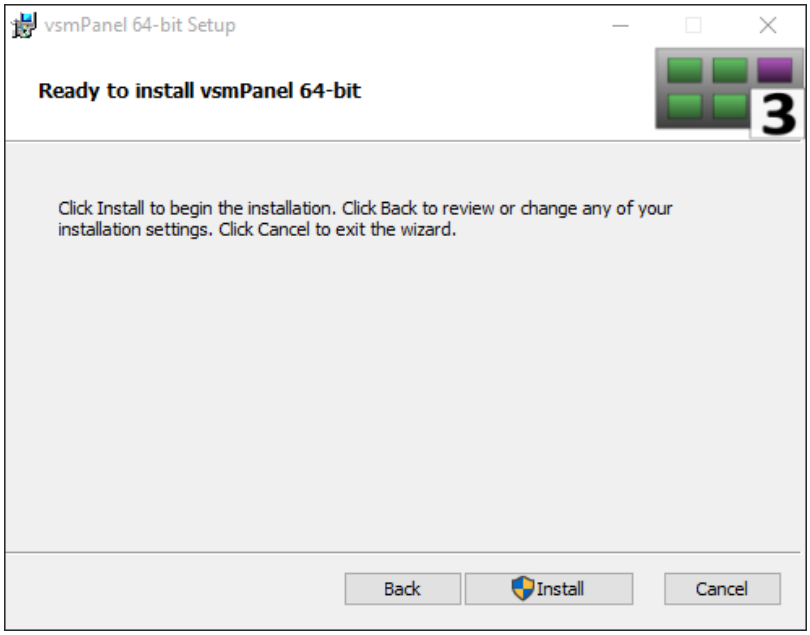
Execpt terms in the License Agreement to continue with Next.



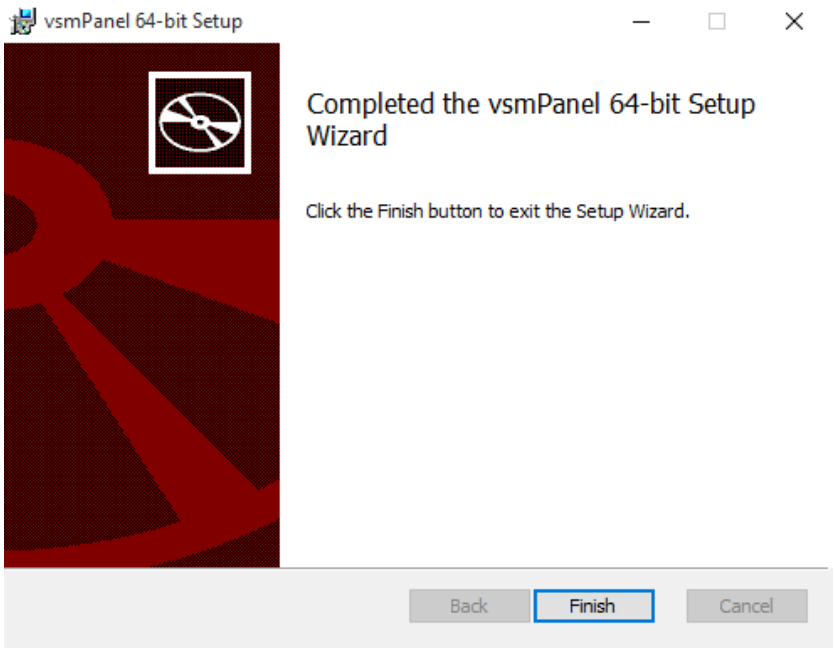
Select *Browse* and choose the vsmPanel folder on the C drive as installation destination. Select *Next.*



Select Install to start the installation.

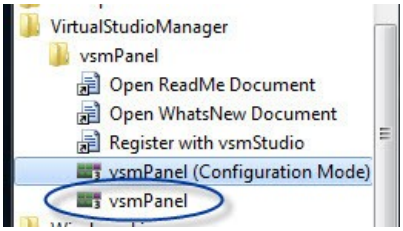


To complete the installation process, select *Finish* in the last window.



20.3 Starting vsmPanel

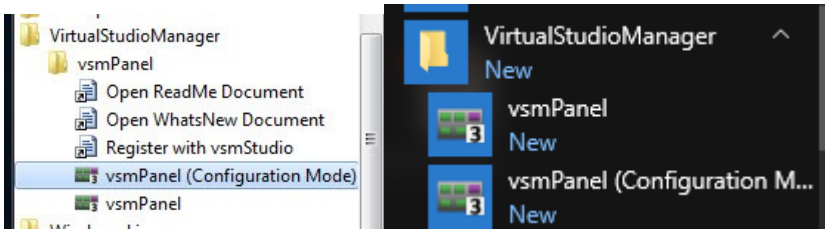
After vsmPanel has been installed, the application can be started through the windows start function (Virtual Studio Manager > vsmPanel). Initially started the Host entry is empty and Panel ID has the value '0' entered. Furthermore you can decide either opening the vsmPanel directly or the vsmPanel Configuration Mode.



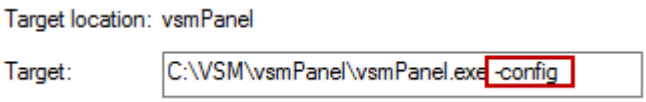
Selecting vsmPanel will automatically open the control panel of the currently set panel ID. Alternatively, a desktop shortcut can be created, or the vsmPanel icon can be placed in the Windows taskbar from where the program can be started.

20.4 vsmPanel Configuration Mode

Using vsmPanel (Configuration Mode) will open the vsmPanel configuration window where you can change settings regarding the virtual panel.



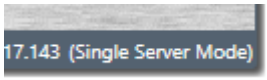
You can create a configuration mode .exe by creating a shortcut of vsmPanel.exe and adding '-config' at the end of the Target string within the shortcut properties.

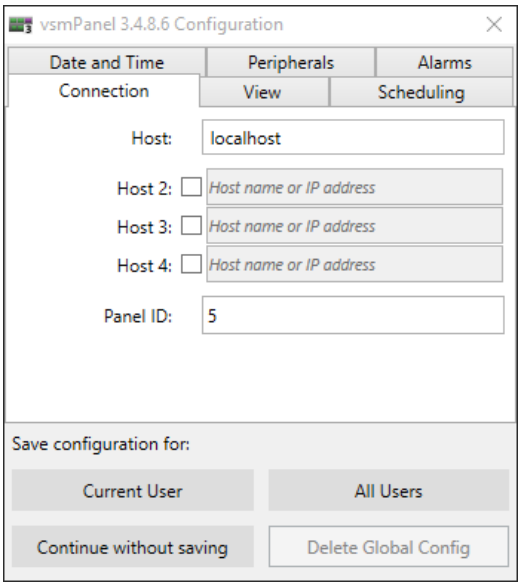


20.4.1 Connection

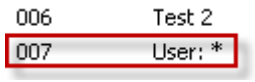
The currently connected host can be entered under Connection in the window *vsmPanel (Configuration Mode)*.

When entering 'localhost' as the host vsmPanel runs in Single Server Mode.



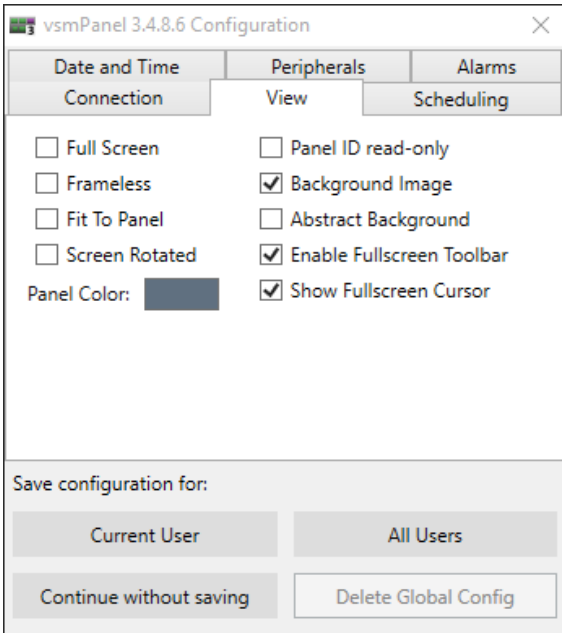


When naming a virtual Panel 'User: *' in vsmStudio every panel user that will connect to this server will be connected to this ID independent of the ID in the vsmPanel configuration mode.



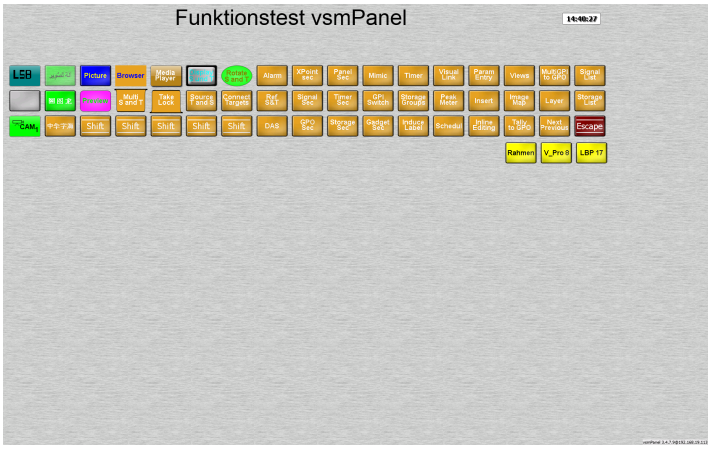
20.4.2 View

Under the *View* tab, different views can be chosen:

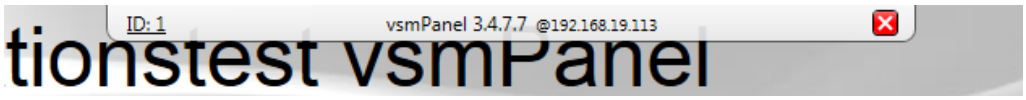


Full Screen

'Full Screen' checked will display vsmPanel in full screen mode.



It is possible to close vsmPanel by selecting the white cross in the Fullscreen Toolbar or by pressing Alt+F4.



Frameless

'Frameless' checked will display vsmPanel without any borders.

Fit To Panel

Once checked the window borders of vsmPanel will adjust to the size of the virtual Panel when opening vsmPanel. Afterwards you can change the size of the window.

Screen Rotated

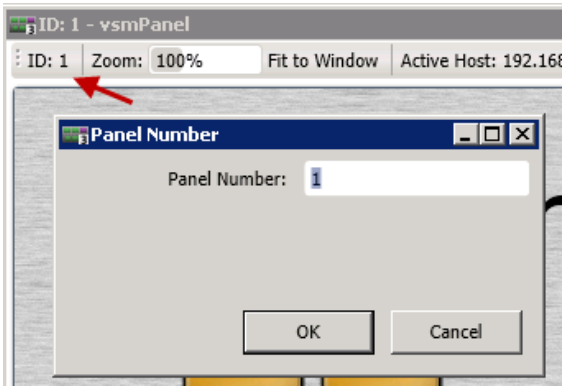
'Screen rotated' turn the virtual Panel upside down.

Enable Fullscreen Toolbar

'Enable Fullscreen Toolbar' activates the toolbar in fullscreen mode which pops up when crossing the top border of the screen. When unchecked the toolbar is no longer available.

Panel ID read-only

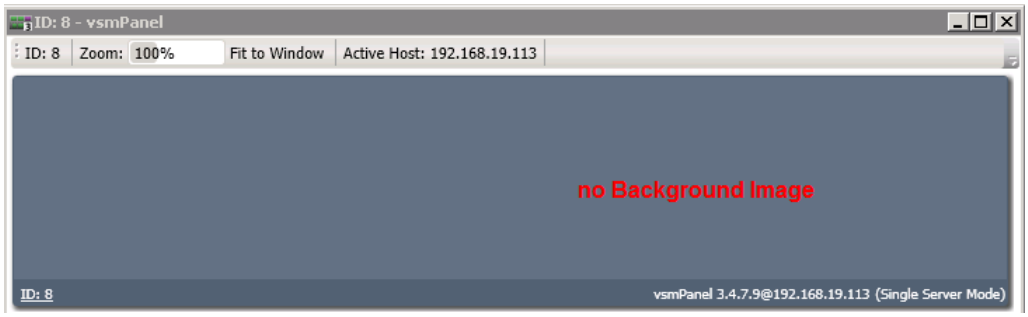
It is possible to change the Panel ID within the vsmPanel window. For this reason press onto the ID section which opens the Panel Number window where you can enter another Panel ID.

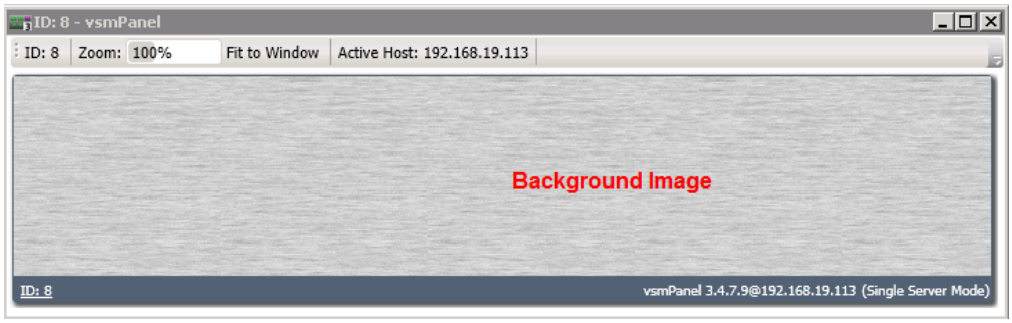


When 'Panel ID read-only' is checked this function is turned off and you are just able to observe the Panel ID.

Background Image

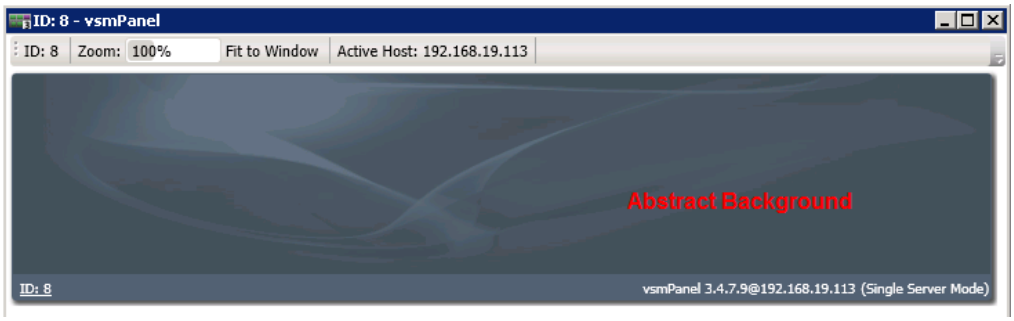
'Background Image' checked will place a default background onto the virtual Panel.





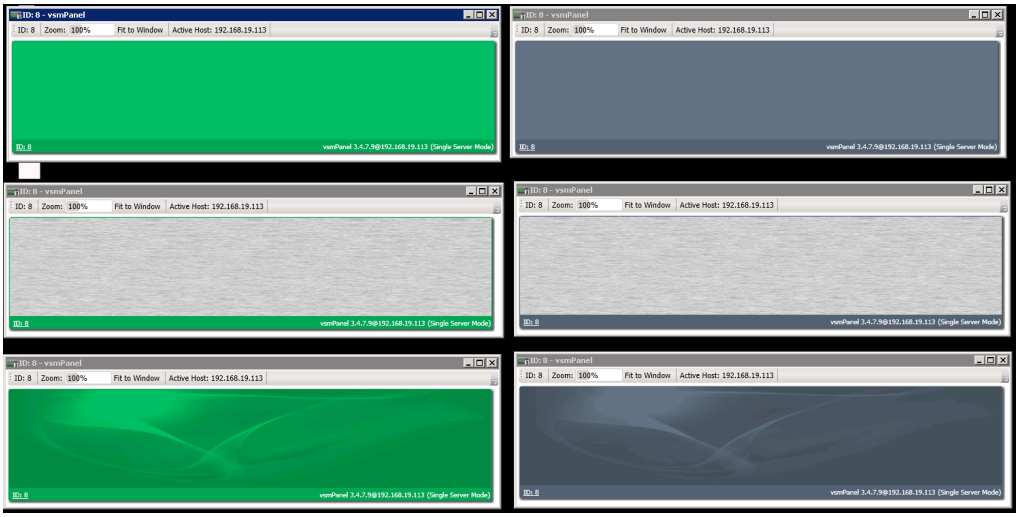
Abstract Background

This is the same for 'Abstract Background'



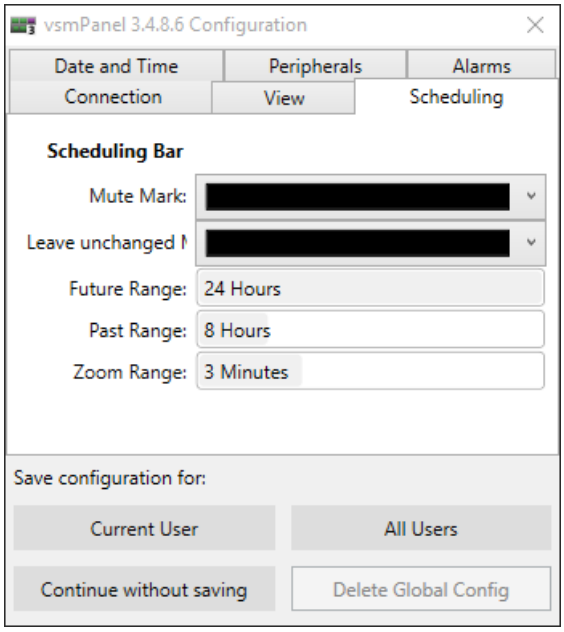
Panel Colour

'Panel color' allows you to choose a background color for the virtual panel when no default background is used. The background color combined with a default background image shows the following effect:



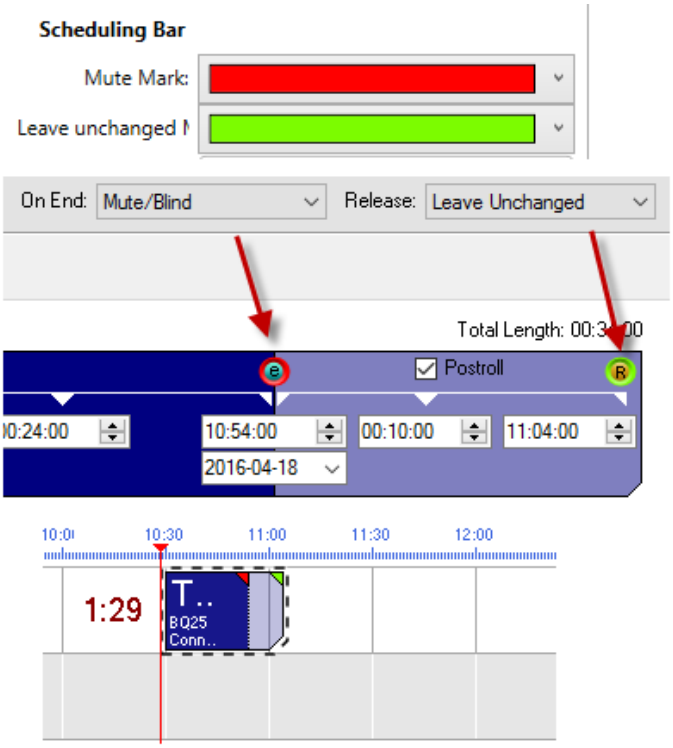
20.4.3 Scheduling

The settings of the scheduler bar can be changed under *Scheduling*.



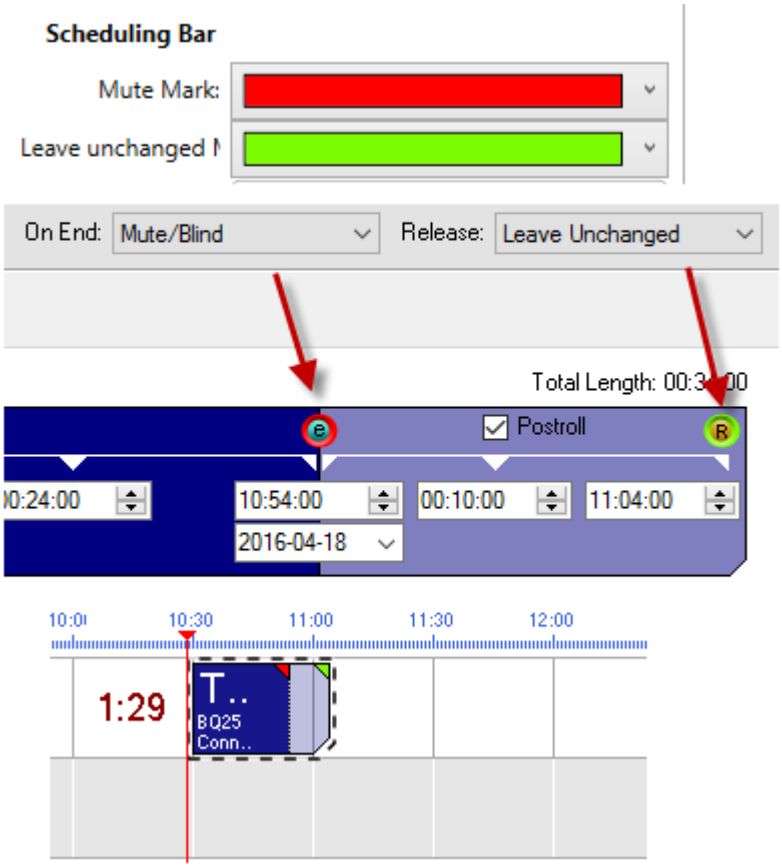
Mute Mark

Here you can choose the colour of the Mute Mark that will be displayed within a scheduler event when configured. It can be configured either at the end of an event or the Release of the event.



Leave unchanged Mark

Here you can choose the colour of the Leave Unchanged Mark that will be displayed within a scheduler event when configured. It can be configured either at the end of an event or the Release of the event.

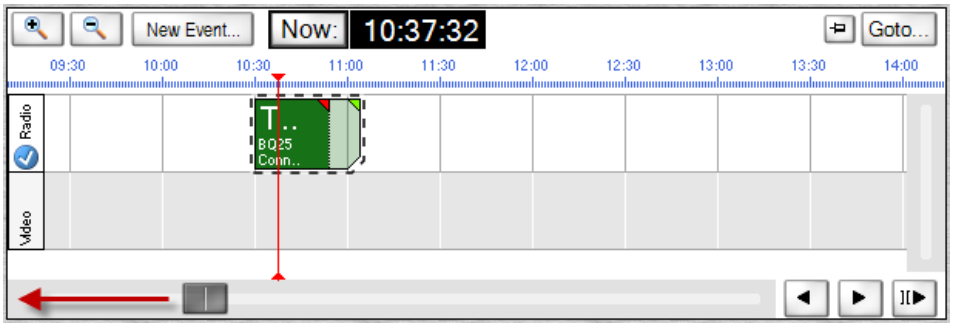


Future Range

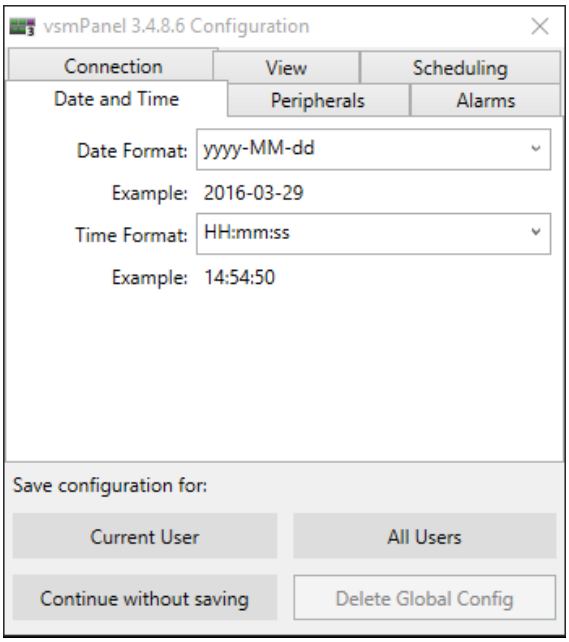
Here you can choose the amount of time you can scroll into the future. (Range 4-24 hours)

Past Range

Here you can choose the amount of time you can scroll into the past. (Range 4-24 hours)

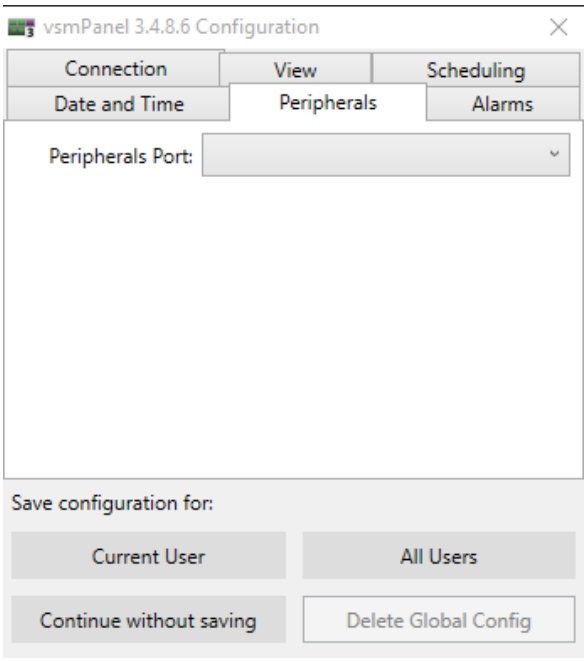


20.4.4 Date and Time



Within the Date and Time tab you can change the format of the displayed Date and Time. The format changes will be displayed in the Scheduler page and clock item.

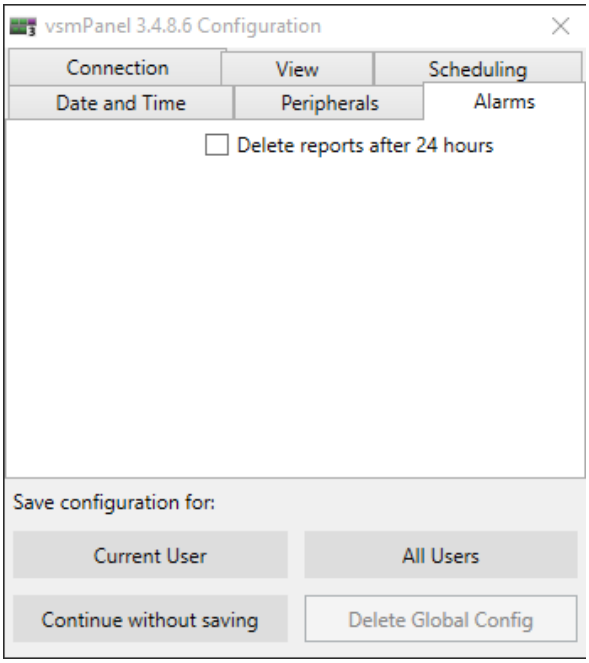
20.4.5 Peripherals



Additional ports can be selected under the *Peripherals* tab.

20.4.6 Alarms

'Delete reports after 24 hours' will delete the reports within the Alarm Management page item after 24 hours.



20.4.7 Save configuration for:

When upgrading vsmPanel to 3.4.8.6 or higher, the registry keys containing the following vsmPanel settings will be deleted:

HKEY_CURRENT_USER\Software\VirtualStudioManager\vsmPanel\Settings.3

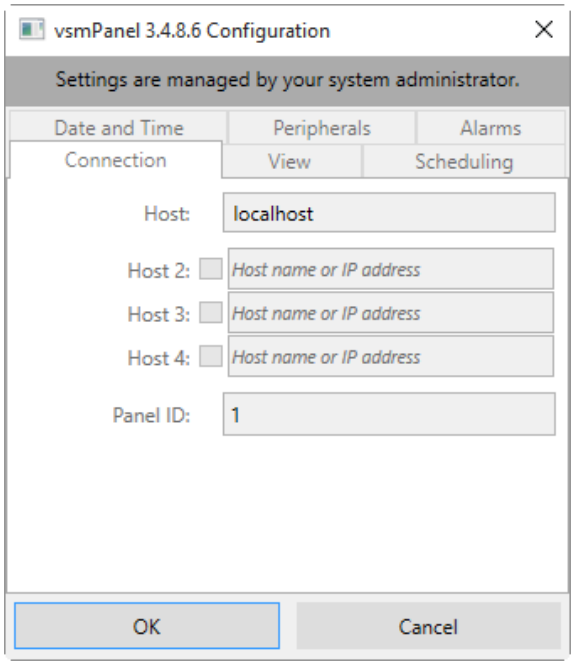
HKEY_LOCAL_MACHINE\Software\VirtualStudioManager\vsmPanel\Settings.3. This action does not depend on admin rights.

If there is a Global configuratoin file (.xml) under D:\VSM\vsmPanel it will be deleted after installing and opening vsmPanel 3.4.8.6 or higher with or without admin rights. The content of the xml file will be saved under C:\ProgramData\Lawo\vsmPanel as a new Global configuration file.

If there is no Global configuration file opening vsmPanel 3.4.8.6 will not create a Global Configuration until you open vsmPanel as administrator and save the settings for all users.

The initial start of vsmPanel 3.4.8.6 or higher will create a User configuration under C:\Users\wkr\AppData\Local\Lawo\vsmPanel.

Global Configuration is present but no admin rights



unetbootin-windows-613.exe

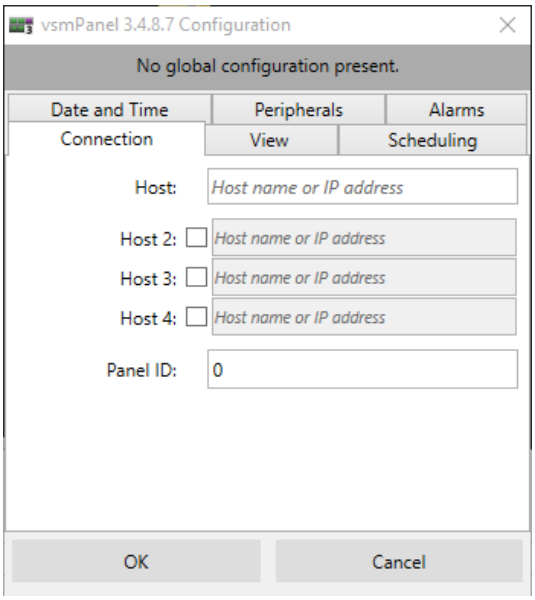
In this mode it is not possible to make any changes.

When there is no User configuration it will be created after opening the panel and closing it again or by selecting ‘Cancel’ or ‘X’.

When the User configuration differs from the Global configuration it will be overwritten by the Global configuration when selecting ‘OK’.

‘Cancel’ or ‘X’ closes the configuration mode window and either creates the initial User configuration or overwrites it if it is already available.

No Global Configuration is present and no admin rights

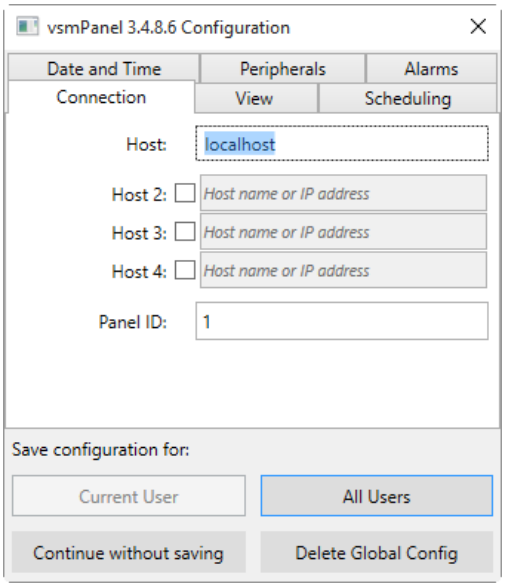


When no Global configuration is present the host entry field is empty and the Panel ID is set to '0'. Since there is no Global configuration you can change settings in the configuration window.

If there is also no User Configuration it will be created automatically when opening or closing the panel with 'Cancel' or 'X'.

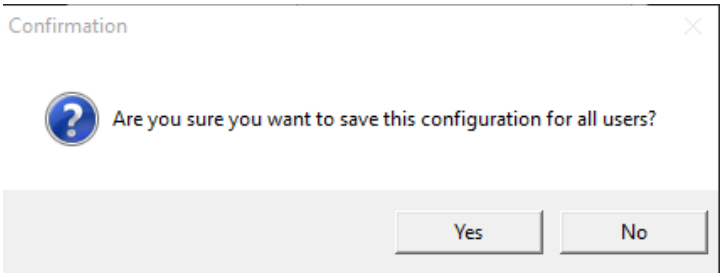
'OK' will open the panel and save changes to the User Configuration. 'Cancel' or 'X' will close the configuration mode window and overwrite the User configuration when changes have been made.

Global Configuration is present with admin rights



If a Global configuration is available the configuration mode window will import its settings from there. In this case the 'Current User' button is greyed out.

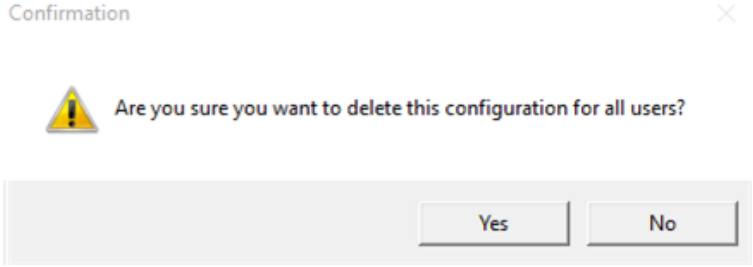
Selecting 'All Users' will write changes into the Global Configuration. Once selected a confirmation prompt will pop up.



Selecting 'Yes' will open the vsmPanel window. When closing the window the User configuration gets overwritten by the Global Configuration.

'Continue without saving' overwrites the User Configuration as soon as the panel will be opened. The Global configuration remains untouched. This is also the case when closing the configuration mode window with 'X'. When opening vsmPanel again the configuration mode window will import its settings from the global configuration. Again, opening and closing the vsmPanel window will overwrite the User Configuration with the global configuration.

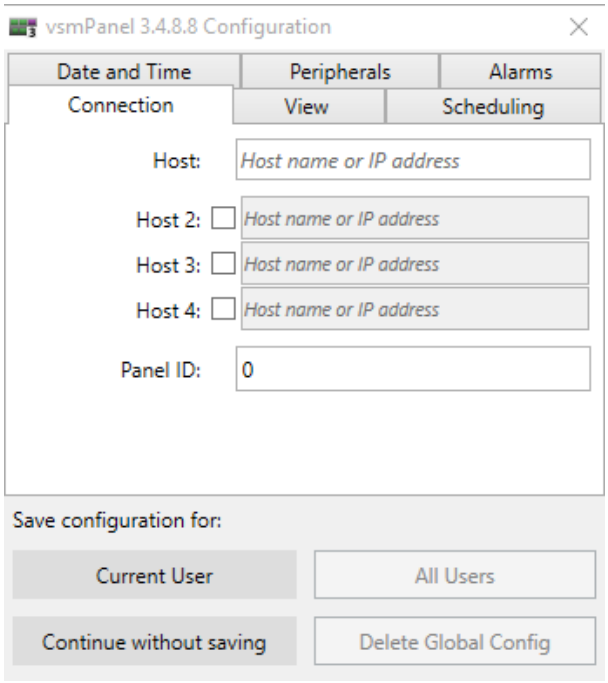
'Delete Global Config' deletes the Global configuration from C:\ProgramData\Lawo\vsmPanel. Once selected a confirmation window pops up.



The 'Current User' button gets usable again after selecting 'Delete Global Config'.

When you close the vsmPanel window the User configuration gets overwritten by the Global configuration.

No Global configuration is present with admin rights

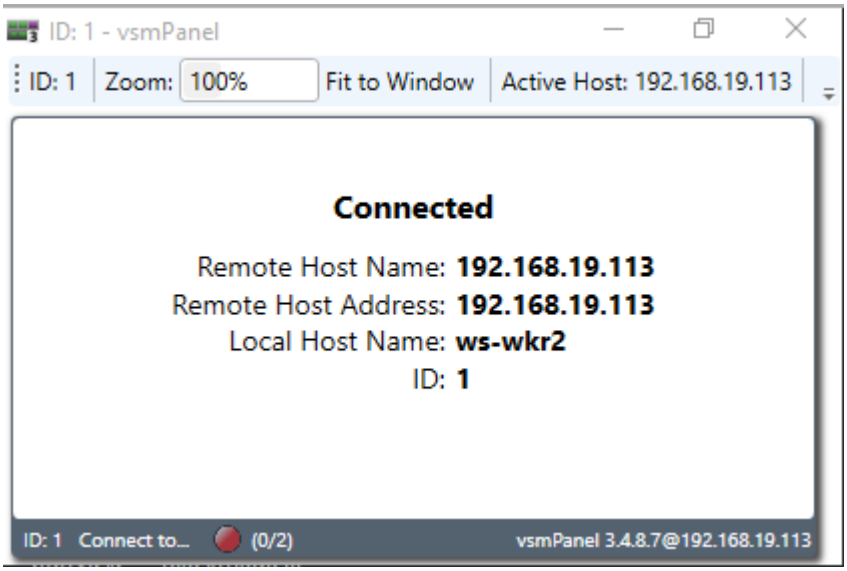


When no global configuration is present the ‘Delete Global Config’ button is greyed out as well as the ‘All Users’ button when the host entry is empty.

If there is no User configuration ‘Current User’ or ‘Continue without saving’ or ‘X’ will create a xml file. ‘Current User’ or ‘Continue without saving’ or ‘X’ will overwrite the user configuration when changes have been made.

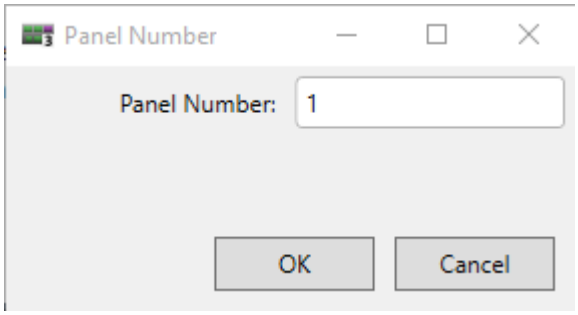
‘All Users’ will create a global configuration and grey out the ‘Current’ user button.

20.5 vsmPanel Window



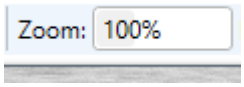
20.5.1 ID

It is possible to change the Panel ID when selecting the section ID on the top and bottom left corner.



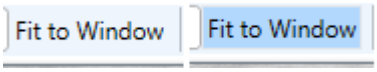
Once selected the Panel Number window opens where an alternatively Panel Number can be entered and confirmed by OK. Once confirmed the panel will switch the new entered Panel ID.

20.5.2 Zoom



Using Zoom it is possible to zoom in and out of the virtual Panel. The range goes from 80 to 150%. You can zoom in or out by selecting the entry field with the left mouse button and moving the mouse from left to right or up and down. The value will in- or decrease in steps of 10%. Alternatively you can enter a value between 80 and 150.

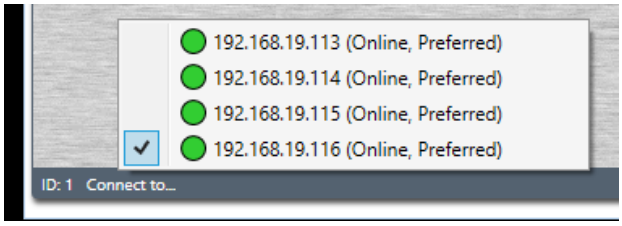
20.5.3 Fit to Window

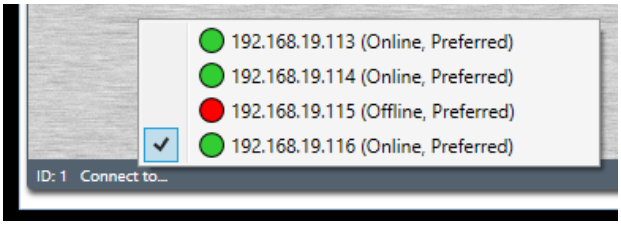


Using fit to window will adapt the size of the virtual panel to the size of the vsmPanel window as long as the vsmPanel window is smaller than the virtual panel. It will not enlarge the virtual panel. Once selected Fit to Window is highlighted blue.

20.5.4 Connect to…

This section displays the available Servers and their online status which serve as backup and contain the same configuration. These servers are in the same cluster. The checkmark indicates to which server the panel is connected.





It is possible to switch to another Server by selecting it from the list.

20.5.5 Redundancy state

The redundancy state is a red dot that will blink as soon as there is no redundancy guaranteed anymore.

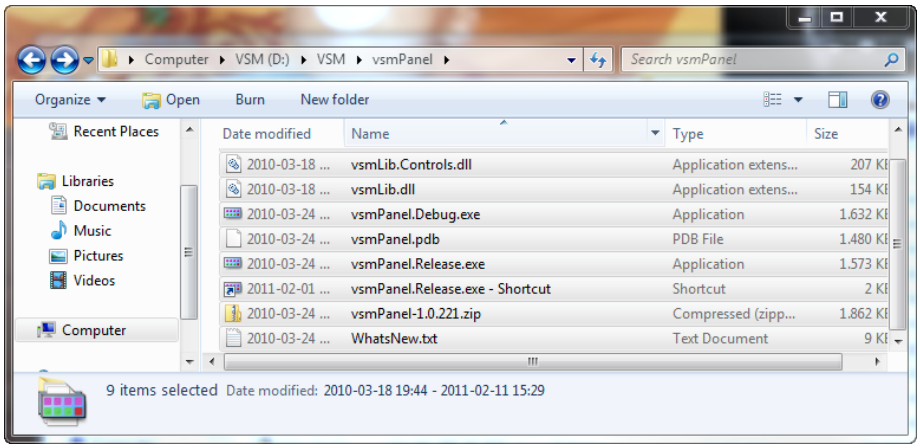
1 Server	No redundancy state
2 Server	Redundancy state will be active when one Server fails
3 Server	Redundancy state will be active when two Server fail
4 Server	Redundancy state will be active when three Server fail

20.6 vsmPanel Update

20.6.1 vsmPanel Versions 1.x and 2.x

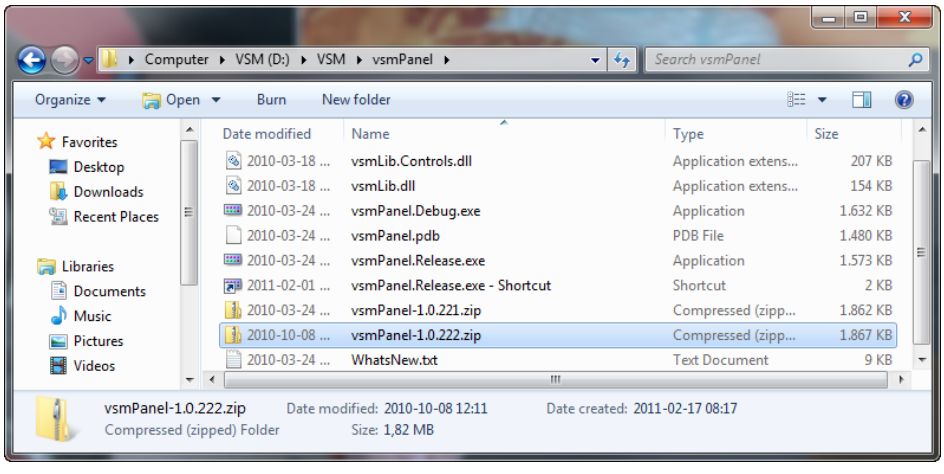
Please note: before updating vsmPanel, it is recommended to backup the currently running version of vsmPanel. To do so, copy all files located in the folder \VSM\vsmPanel onto your backup partition.

Copying vsmPanel files



Place the .zip file provided for the update in the folder \VSM\vsmPanel.

Update .zip file

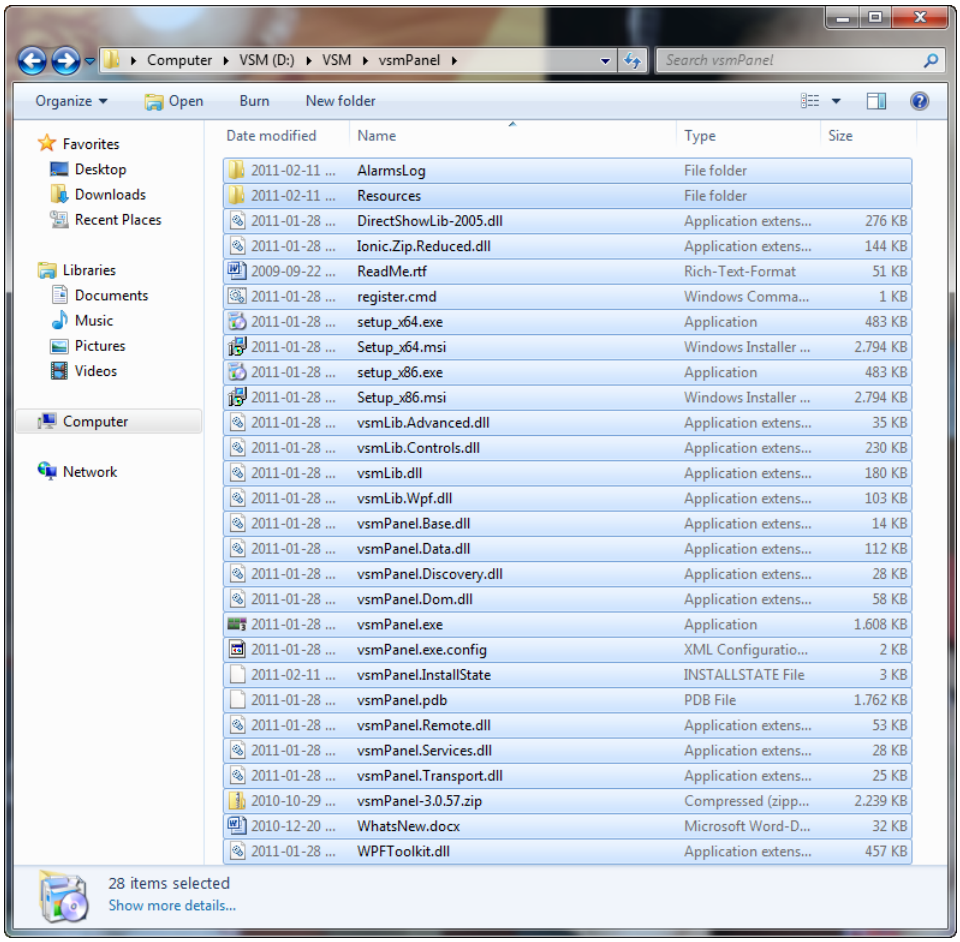


All files from the .zip-folder will be copied into the vsmPanel folder. Older versions of files located in the vsmPanel folder must be replaced. To do so, delete the old .zip file from the folder and proceed with the installation of the new vsmPanel version.

20.6.2 vsmPanel Version 3.x

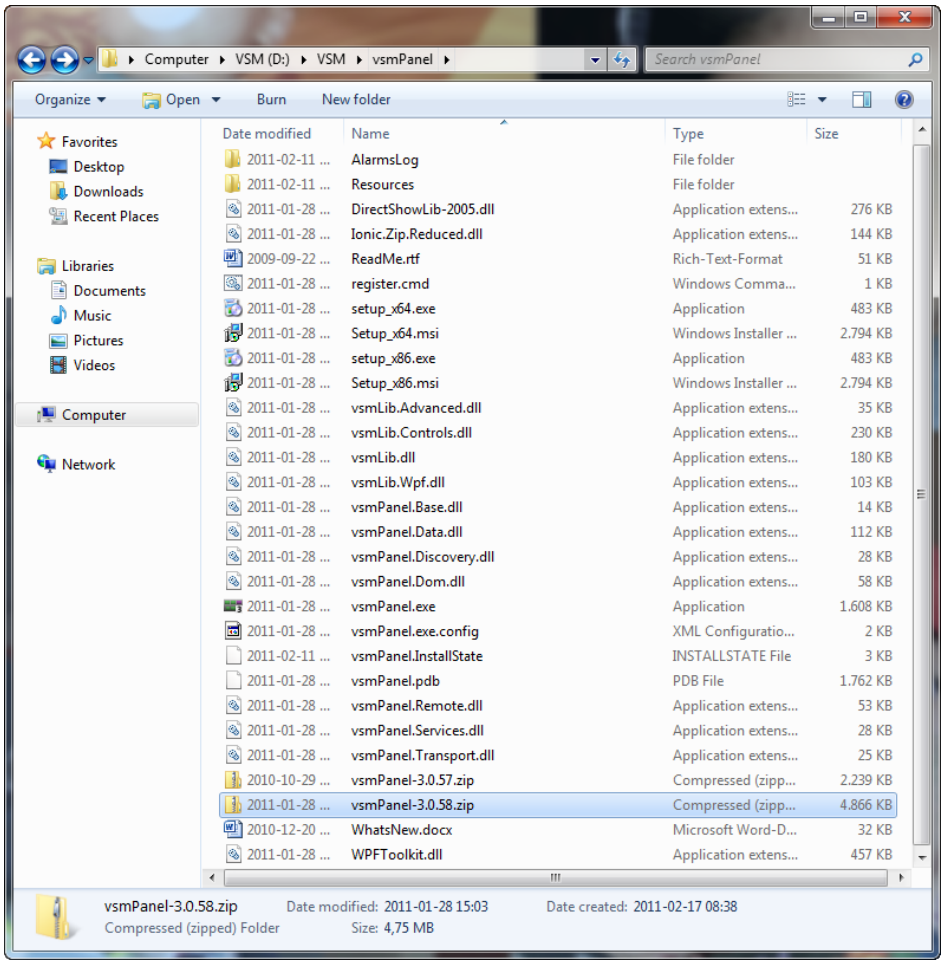
Please note: before updating vsmPanel, it is recommended to backup the currently running version of vsmPanel. To do so, copy all files located in the folder \VSM\vsmPanel onto your backup partition.

Copying vsmPanel files



Place the .zip file provided for the update in the folder \VSM\vsmPanel.

vsmPanel update folder



All files from the .zip-folder will be copied into the vsmPanel folder. Older versions of files located in the vsmPanel folder must be replaced. To do so, delete the old .zip file from the folder and proceed with the installation of the new vsmPanel version (see vsmPanel Software Installation).

20.6.3 Remote Update

It is possible to update vsmPanel automatically using vsmStudio. It is not necessary to execute the vsmPanel installer. Doing so you need to place the provided .pFL files into the firmware folder of vsmStudio.

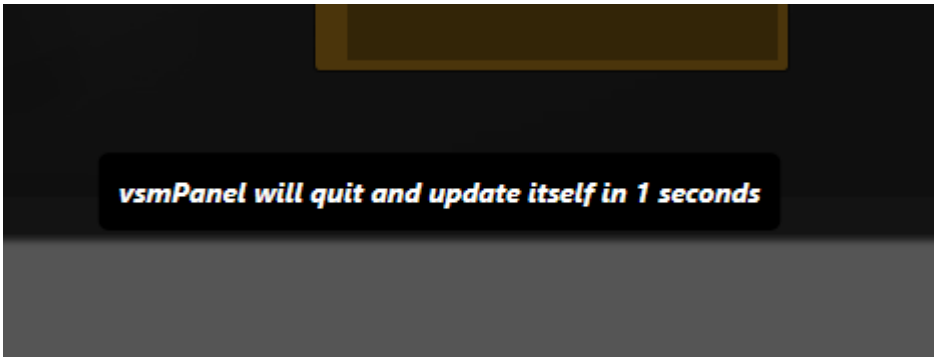
The .zip file provides besides the installer also the .pFL files.

Firmware.5201.pFL	02-Feb-16 16:58	PFL File	52,632 KB
Firmware.5202.pFL	02-Feb-16 16:58	PFL File	52,632 KB
ReadMe.rtf	25-Jan-16 12:34	Rich Text Format	52 KB
vsmPanel.Setup.x64.msi	02-Feb-16 16:58	Windows Installer ...	3,364 KB
vsmPanel.Setup.x86.msi	02-Feb-16 16:58	Windows Installer ...	3,364 KB

Copy and paste the .pFL files to D:\VSM\vsmStudio\Firmware

08.02.2016 ...	Firmware.5201.pFL	PFL File	52.628 KB
08.02.2016 ...	Firmware.5202.pFL	PFL File	52.628 KB

Now open and connect vsmPanel to the server where the Firmware has been placed. After a short period of time vsmPanel will prompt the following message and perform an installation automatically.


vsmPanel will quit and update itself in 1 seconds

21. Panel List & Panel Editor

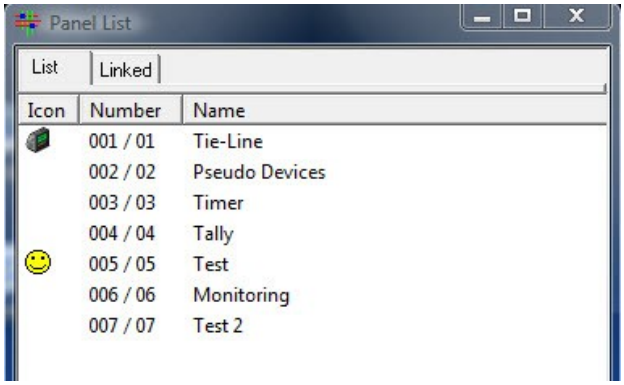
vsmStudio's *Panel List* and *Panel Editor* are used to configure the virtual panels hosted by **vsmPanel** and **vsmWebPanel**.

This chapter covers the configuration within **vsmStudio**. For more details on installing and setting up the client applications, see vsmPanel and vsmWebPanel.

21.1 Panel List

To access the panel list, select the panel symbol located in the main menu. Existing control panels can be opened using the drop down menu in the vsmPanel taskbar.

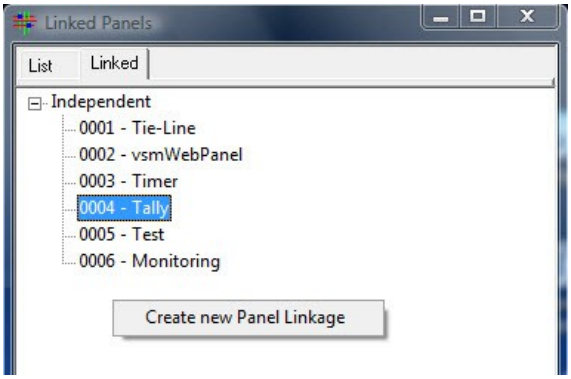
In the panel list that opens after selecting the panel symbol mentioned above, existing control panels can be edited, and new control panels can be created or imported.



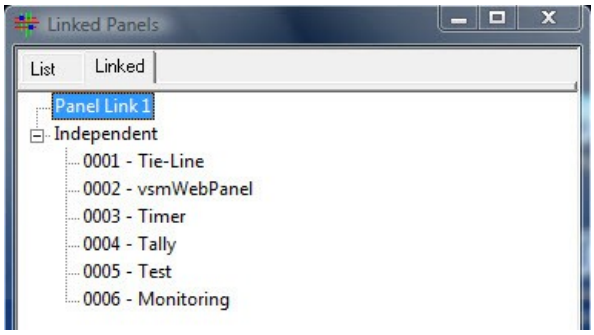
Existing control panels are displayed under the *List* tab according to icon, name, and ID (number).

21.1.1 New Panel Linkage

Linked control panels are listed under the *Linked* tab. A new linkage can be created here by right-clicking into the list.

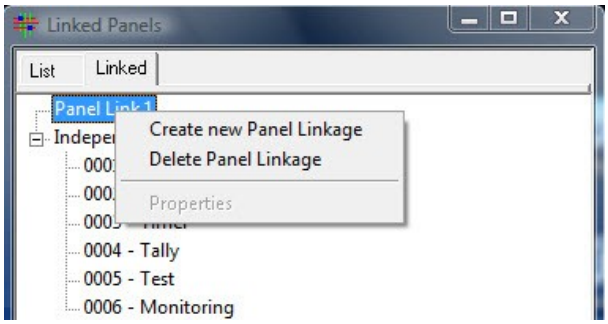


A single left-click on this linkage allows editing of its name. Required panels are assigned using drag and drop and subsequently function like a single, large control panel.



A panel can be removed from a linkage using drag and drop. However, an entry in the *Linked* list can only be deleted if all assigned panels have been removed from it.

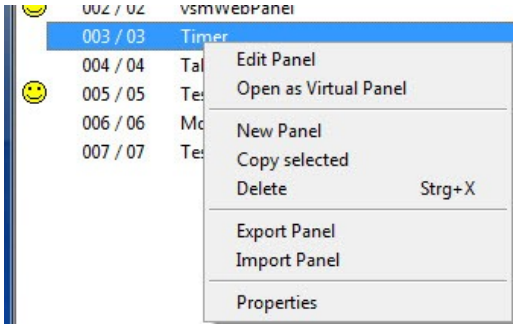
Linked Panels can be seen as one big panel. E.g. Targets and Source can be placed on two different panels with different IDs but can still be used together.



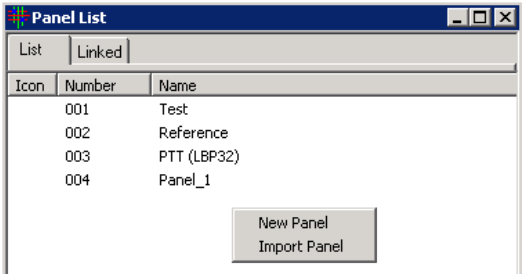
Therefore, the option *Delete Panel Linkage* only appears in the window that opens following a right-click onto a panel linkage if the panel linkage does not contain any control panels.

21.1.2 Edit a Control Panel

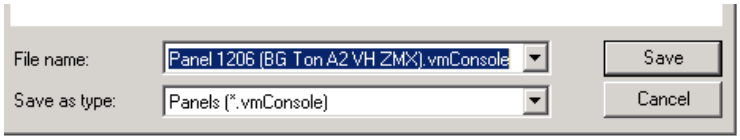
Right-clicking onto an existing control panel will open the following menu:



- **Edit Panel**: The option Edit Panel opens the panel editor.
- **Open as Virtual Panel**: Open as Virtual Panel will display the control panel as vsmPanel if the vsmPanel software is installed.
- **New Panel**: If the function New Panel is selected to create a new control panel, the panel properties window opens.

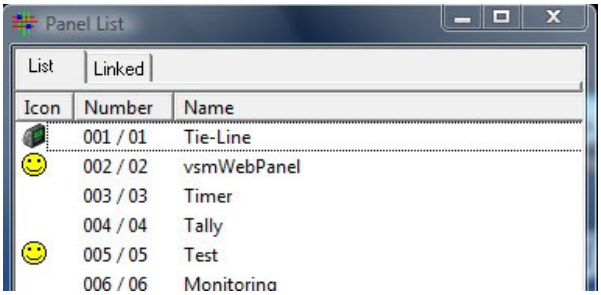


- **Copy selected**: Copy selected copies the selected control panel, allowing its repeated use with a new ID and under a new name.
- **Delete**: Will delete selected Panel (also possible by ctrl+x)
- **Export Panel**: Allows you to export Panel and convert it to a .vmConsole file.



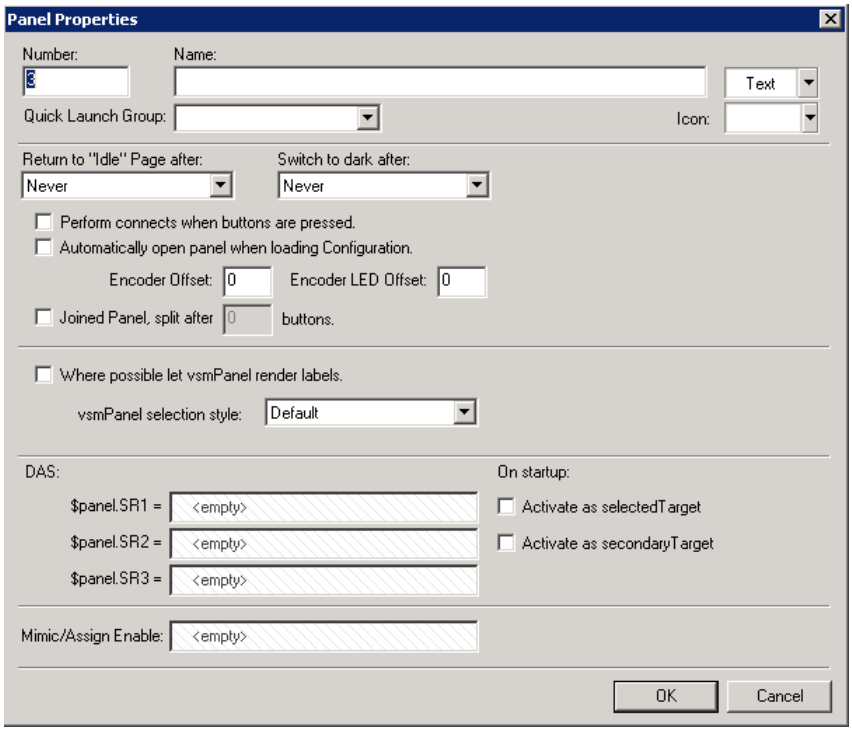
- **Import Panel:** The .vmConsole file containing the exported panel can be imported into another configuration by selecting *Import Panel*. As soon as selected the Panel Properties opens and allows you to manipulate settings of the imported panel.
- **Properties:** Through *Properties*, the settings initially defined during the set-up of the control panel can be opened and edited.

21.1.3 Columns of the Panel List



Different, pre-defined symbols can be displayed in the ***Icon*** column. The column ***Number*** shows the different panel IDs. The column ***Name*** shows the name given to the respective panel during its set-up.

21.2 Panel Properties

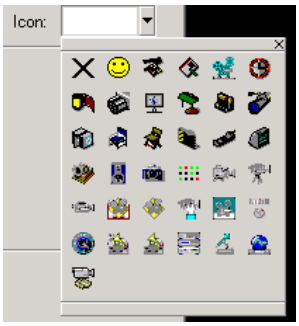


Number: Panel ID

Name: Panel Name

Text: The font colour for the control panel's name can be defined

Icon: The drop down menu *Icon* allows the choice of different symbols that can be assigned to a control panel. Subsequently, the symbol will be shown in the panel list.



Quick Launch Group: Using the option *Quick Launch Group*, different panels can be assigned to one group. This creates a grouping in a drop down menu located under the control panel icon in the main taskbar, through which the control panels can be opened as virtual panels.

Return to "Idle" Page after: The drop down menu under *Return to "Idle" Page after* allows the user to choose if and, if so, after what time the selected panel will jump back to page one.

Switch to dark after: The drop down menu beside allows the user to choose if and, if so, after what time the selected panel will activate the button-protector. In order to protect the control panel buttons, they will turn black after the time period selected in this menu.

Perform connects when buttons are pressed: Generally, the function assigned to a button is only executed once the button is released. If the box in front of *Perform connects when buttons are pressed* is ticked, all connects are executed automatically as soon as the button is pressed.

Automatically open panel when loading Configuration: When checked the virtual panel will be opened automatically when the corresponding configuration is loaded. Panels that have checked this attributed are marked with '(Automatic)'.

002	Reference
003	Encoder (Automatic)

Encoder Offset: With Encoder Offset you can choose an offset for the Encoders of the attached Encoder panel.

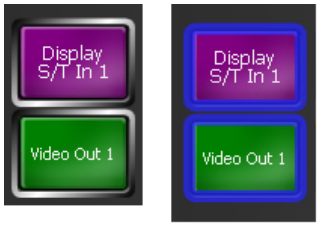
Encoder LED Offset: With Encoder Offset you can choose an offset for the LED of the attached Encoder panel.

Joined Panel, split after: Joined Panels can serve as one big Panel. Within 'split after' you can decide from which button on the second panel will continue. Once checked the panel list contains two Panel IDs for each Panel.

Icon	Number	Name
	001	Test
	002	Reference
	003 - 004	Encoder (Automatic)

Where possible let vsmPanel render labels: Using the attribute *Where possible let vsmPanel render labels*, line breaks can be set by vsmPanel, and the font is automatically adjusted to 8X.

vsmPanel selection style: The drop down menu next to *vsmPanel selection Style* allows the selection of the colour framing of a pressed button on a virtual panel. This frame can either be rotating black and white or blue and pulsing. By default, a rotating, white/black frame is set.



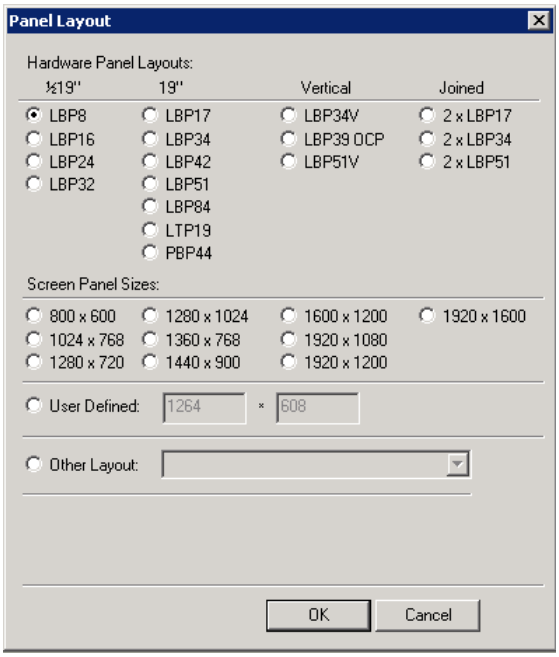
DAS/Activate as selected Target: Will activate the attached Target in $panel.SR1 as selectedTarget. You do not need to place the target on the panel. Every Source available will connect automatically to this target.

DAS/Activate as secondary Target: Allows you to define and activate a secondaryTarget. The source that is connected to the secondaryTarget is displayed in red.

Mimic/Assign Enable: Allows you to enable or disable the Mimic functionality by using a GPI or GPO. When the GPI-I/O interface is False the Mimic button can be assigned once when it was in default state. After it has been assigned, it can't be assigned again. When the GPI-I/O interface is True the Mimic functionality is enabled and the Mimic button can be assigned again. This prevents, that user that are not aware that this is a Mimic button will falsely erase the assignment.

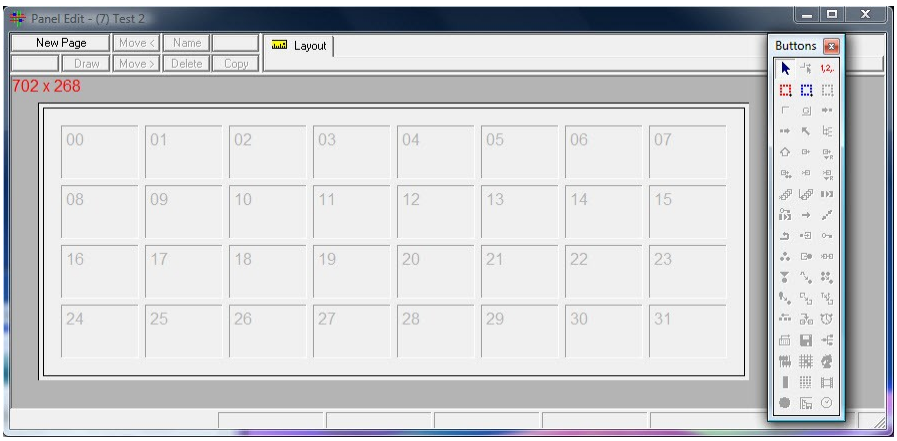
21.3 Panel Layout

In the window shown in the screenshot below, the panel layout can be chosen in accordance to the hardware panels.



Here, the user can choose between predefined ***Hardware Panel Layouts***, ***Screen Panel Sizes*** or put in ***User Defined*** sizes. Under ***Other Layout*** pre-defined layout can be loaded.

If, for example, a *LBP32* is selected here, the initial control panel layout will be displayed with 32 buttons – in four rows with eight buttons each - in the panel edit.



The panel resolution is shown in the top left of the layout view in a red font (here *702 x 268*).

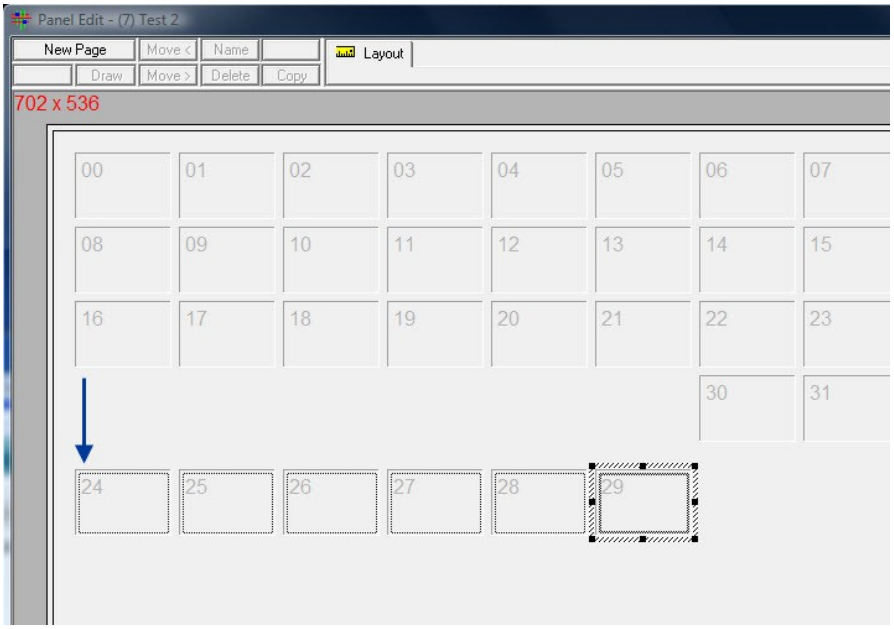
> Please note: this information is important for the correct scaling of virtual panels as they may otherwise be displayed too small.

21.4 Edit Buttons

Button can be edited within the panel editor

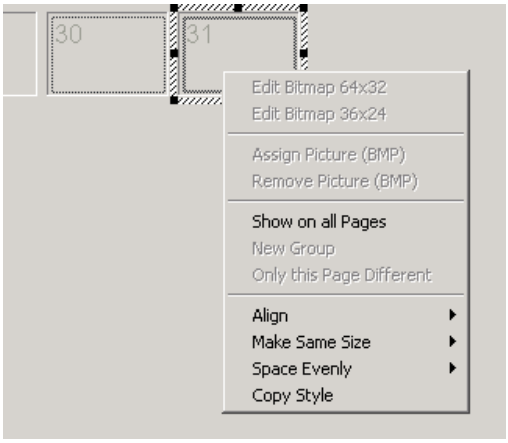
21.4.1 Moving and the size of Buttons

Position and size of single buttons can be changed. It is possible to select multiple buttons while pressing the shift button. The selected buttons can then be moved across using the keyboard navigation buttons. Holding shift and using the keyboard navigation buttons the size of one or more buttons can be changed.

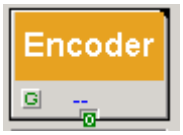


21.4.2 Edit unassigned Buttons

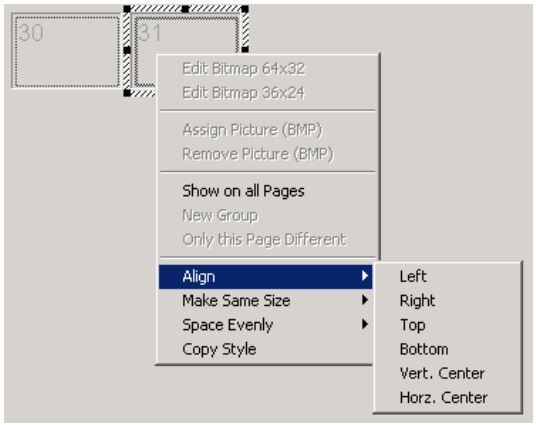
If multiple unassigned buttons are selected, a right-click on them will open the following menu:



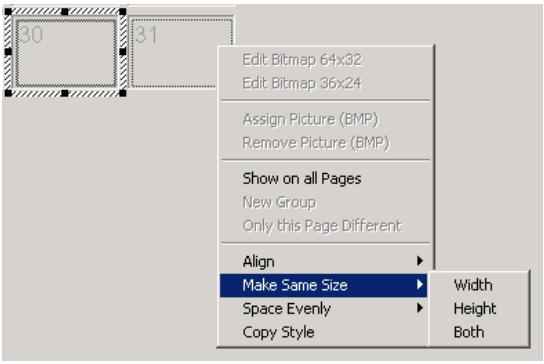
Show on all Pages: If the option *Show on all Pages* is selected, this button will be visible on all panel pages. Buttons marked as *Show on all Pages* have a thin black frame.



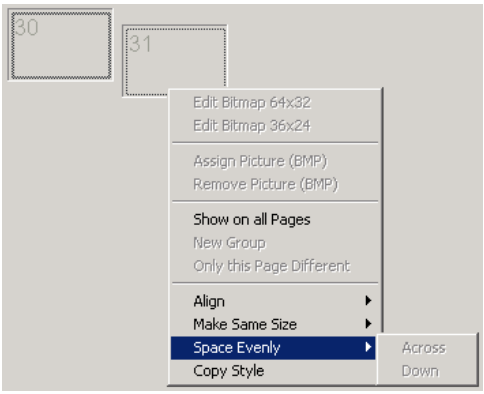
Align: The option *Align* allows the adjustment of the button layout. Buttons are aligned either to the left, right, top, bottom, vert. Center or horz. Center.



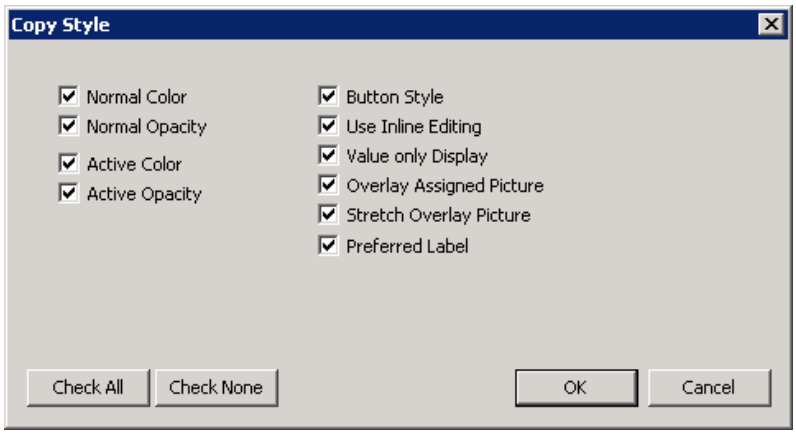
Make Same Size: Selecting the option *Make Same Size* will adjust multiple buttons to the same size. Buttons can be matched in terms of height, width, or both height and width. The button sizes will be adapted to the size of the last selected button.



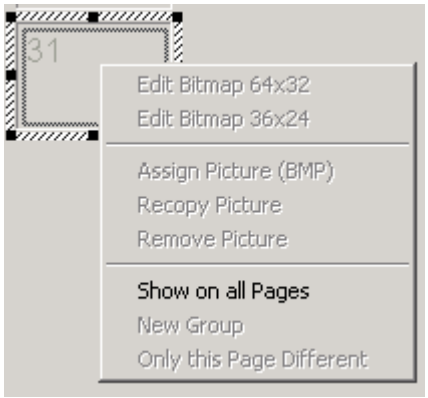
Space Evenly: This function will adjust an evenly distance between several selected buttons.



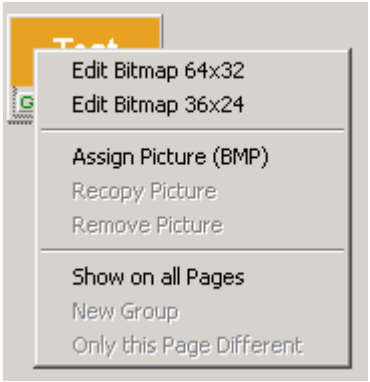
Copy Style: Once selected the Copy Style window opens where you can decide which style setting should be copied.



If a single unassigned button is selected, a right-click on them will open the following menu:



21.4.3 Edit assigned Buttons



Edit Bitmap 64x32: If the first option, *Edit Bitmap 64x32* is selected, a window opens in which the button label can be edited. 64x32 hereby indicates the number of pixels.

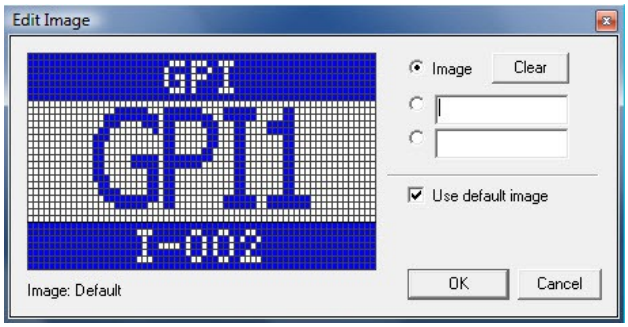
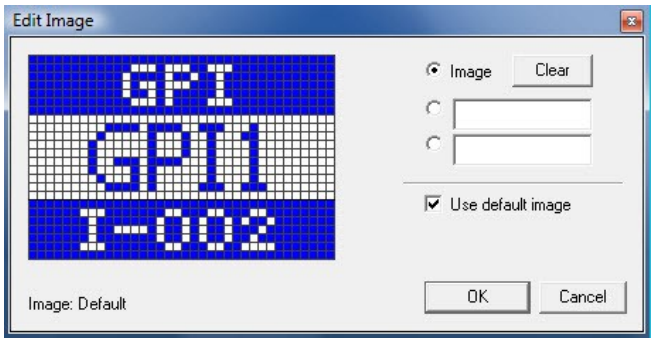


Image is selected by default. The existing button label can be deleted by left-clicking onto *Clear*. The content for the first line on the button can be entered in the first empty box below. As long as this line is selected, the text in this field can be moved freely to the left or right while holding the left mouse button until *OK* is selected. The second text field represents the second line of the button. This field can be named like the one mentioned above. If the checkmark in front of *Use default image* is removed, a different label can be assigned to the currently selected button. Selecting *OK* will confirm the changes. If *Cancel* is selected, the changes will be discarded.

Edit Bitmap 36x24: Selecting *Edit Bitmap 36x24* after right-clicking on a button will open the following window:



In general, this window offers the same settings as those described above. However, the number of pixels is only 36x24 in this scenario.

Assign Picture (BMP): With the option *Assign Picture (BMP)*, an image can be assigned to a button.

Recopy Picture: With the option *Recopy Image,* the image can be reassigned to this button.

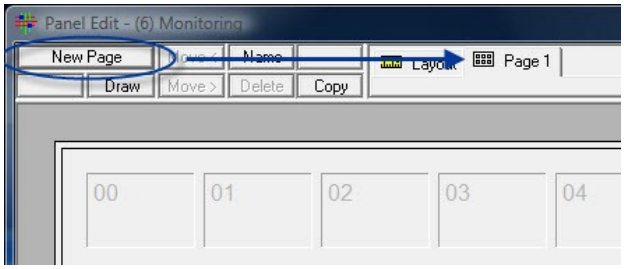
Remove Picture: The option *Remove Image* deletes an image that was assigned to the button earlier.

Show on all Pages: If the option *Show on all Pages* is selected, this button will be visible on all panel pages

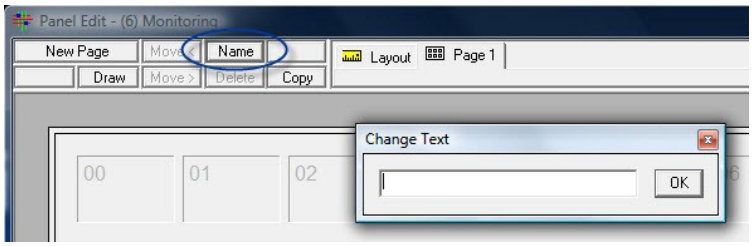
New Group: Selecting *New Group* will start a new group beginning from the page on which this option is chosen. A button placed on that specific page will therefore be visible on all following control panel pages.

Only this Page Different: If the option *Only this Page Different* is selected, only the pages on which this option was selected will be displayed differently. On the following page, the previously assigned button will be visible again.

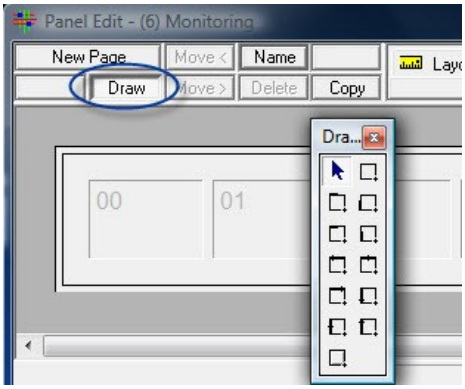
21.5 Edit Panel Editor Window



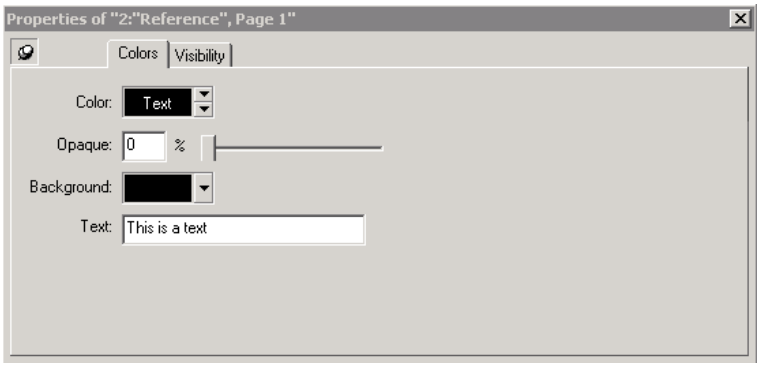
To add an arbitrary number of new pages to the control panel, press the ***New Page*** button.



By clicking onto ***Name***, the name of the page can be changed.



The ***Draw*** function enables drawing coloured frames with text around certain buttons. The window that opens after selecting *Draw* offers a variety of frames, both with and without a text box that can be positioned differently according to the frame style chosen.

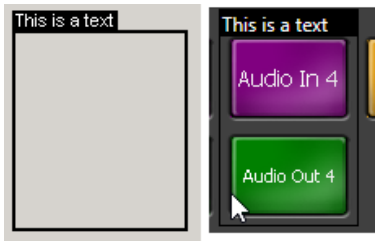


Color: Here you can choose the color of the text and the box borders.

Opaque: Here you can choose the Opaque of the background.

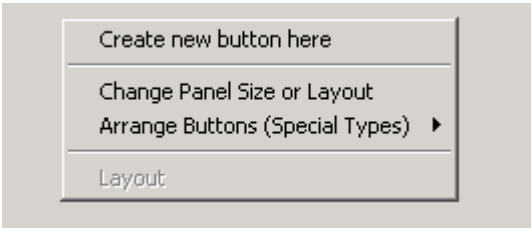
Background: Here you can choose a background color.

Text: Here you can enter the text to be displayed.



Using the ***Copy*** button, pages can be reproduced any number of times. With ***Delete***, panel pages can be deleted if there is more than one page. ***Move <*** **and** ***Move >*** can be used to move the selected page backward or forward, respectively.

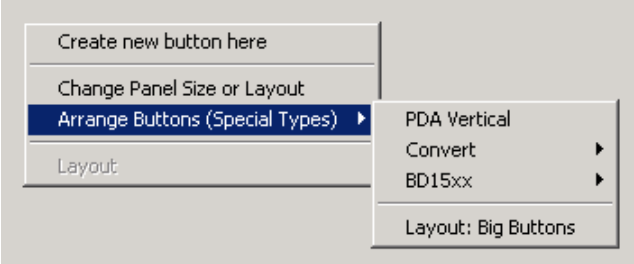
When right-clicking on the Panel Editor background the following menu opens:



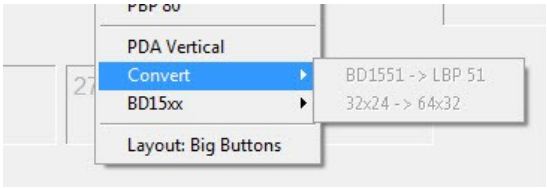
Create new button here: This function will create a single button with an incremented button ID.

Change Panel Size or Layout: This function will open the Panel Layout window.

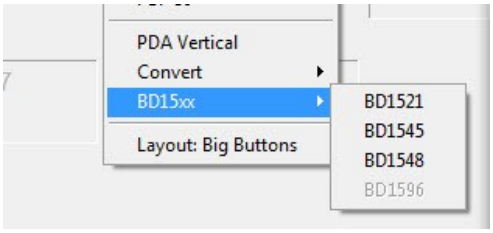
Arrange Buttons (Special Types):



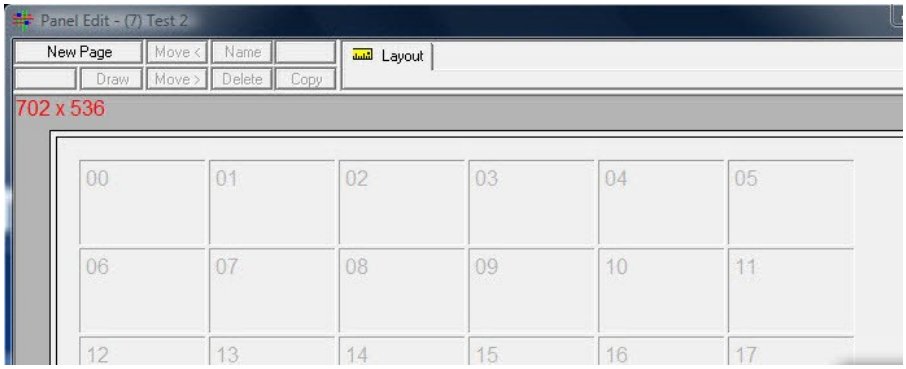
Here, a button layout for special hardware control panels can be chosen. The option ***PDA Vertical*** was added specifically for PDAs.



The option ***Convert*** enables changing the button layout of a *BD1551* to a *LBP 51* and adjusting the button resolution from *32x24* to *64x32*.



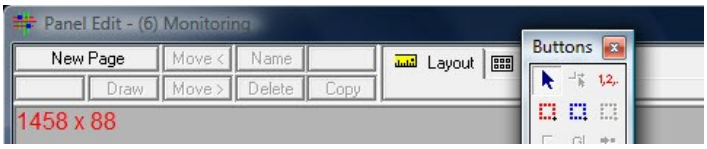
The option ***BD15xx*** allows arranging the buttons to resemble the control panels of the company Protec.



The option ***Layout: Big Buttons*** enlarges all buttons.

21.6 Panel Toolbox

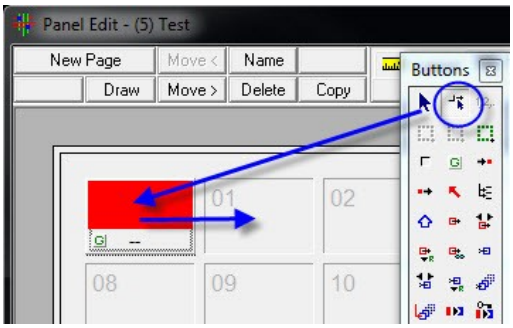
The panel toolbox opens automatically with the panel edit view and offers various “Page Items”, that is functions that can be displayed and used on control panels.



While the control panel is viewed in layout view, only four functions in the top two rows can be used. The cursor, *Select Object*, is selected by default. It can be used to select and edit buttons and button areas.

21.6.1 Copying and Moving Buttons

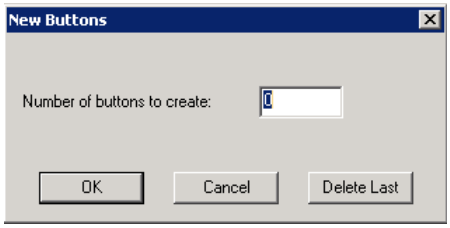
After the first control panel pages has been created, multiple page items become available in the panel toolbox that were previously greyed out.



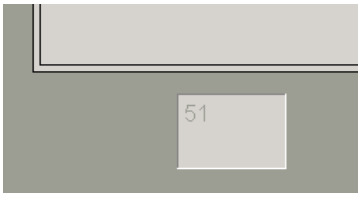
With the second arrow symbol, *Move/Copy,* previously created buttons can be moved on the panel or copied while holding the shift button.

21.6.2 Adding and Removing Buttons

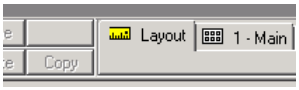
Using the function *New Buttons*, an arbitrary number (1-2997) of buttons can be added. Alternatively, it is possible to delete the last added button.



The added buttons are placed automatically outside the virtual panel field.



The *New Buttons function* can only be used in the Layout Tab.



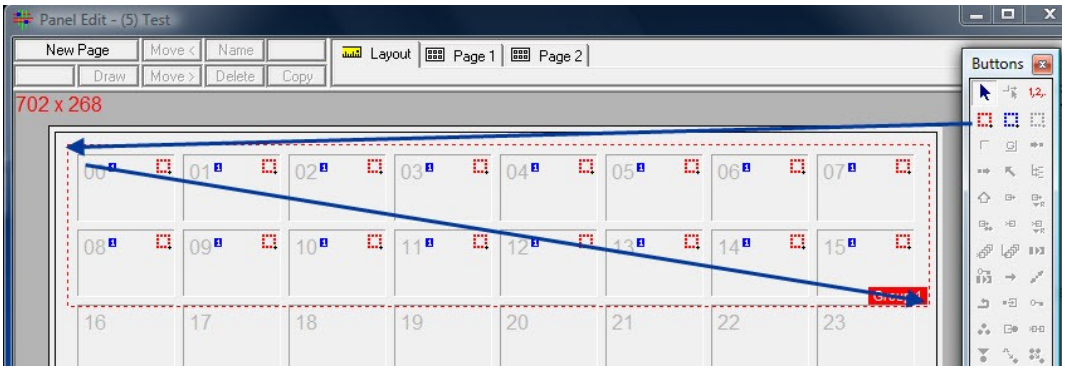
Please note: buttons are removed in order of their buttons IDs.

21.6.3 Define Virtual Pages

The symbol with the red frame indicates the function *Define Virtual Pages*. With this frame, multiple individually controllable areas or groups can be created on one panel. To this end, the number of different pages can be chosen as well. With the pressed left mouse button, the red frame can be dragged over the area of the control panel that is to be included in a group.

Please note: only buttons that are entirely within the red frame will be Included in the virtual page. The selected area must therefore be bigger than the actual size of the buttons.

Virtual Panel Page



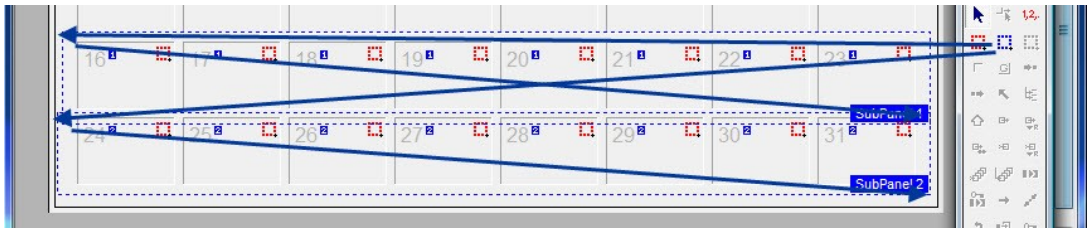
It is, for example, possible, to summarize the upper buttons with the IDs 00 to 15 into one control area, which can then be navigated independently from the rest of the panel. To create each subsequent frame, the *Define Virtual Pages* icon must be selected. The maximum number of frames that can be created is 17.

21.6.4 Define Sub Panel

With the blue frame icon *Define Sub Panel*, a control panel in layout view can be divided into several small panels. It is hereby irrelevant whether the panel in question is a virtual or a physical panel. This enables multiple selection of sources and targets on a panel as well as the selection of different pages.

Please note: only buttons that are entirely within the blue frame will be included in the sub panel. It is therefore recommended, to make the selected area bigger than the actual size of the buttons.

Sub panels

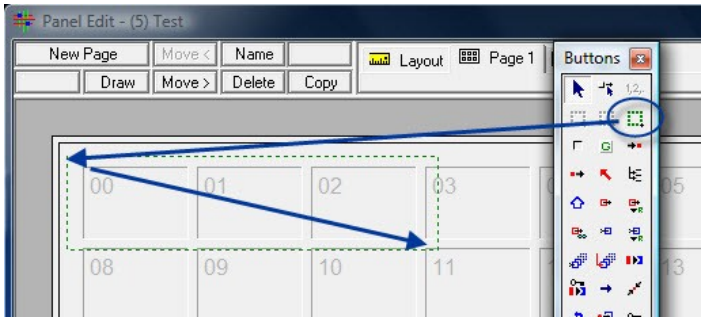


In the screenshot above, the button IDs 16 to 23 belong to sub panel 1, the button IDs 24 to 31 to sub panel 2. For each subsequent sub panel, the *Define Sub Panel* icon must be selected.

21.6.5 Grouping Elements

The green frame allows the grouping of elements. Through this function, it is possible to achieve an alternating behaviour of GPIOs (see GPIOs on Control Panels). If the function is not used, only one GPIO will be active per page at a time.

Grouping elements



To do so, select the green frame in the panel toolbox and drag it around the relevant area on the control panel page while pressing the left mouse button.

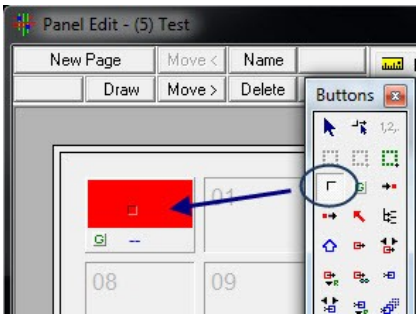
> Please note: only buttons that are entirely within the green frame will be included in the group. The selected area must therefore be bigger than the actual size of the buttons.

Subsequently, the button IDs 00 to 02 belong to the group element. To create any other frames, the *Group Elements* icon must be reselected.

21.6.6 Blank

The *Blank* function is used to delete functions (signals, GPIOs, storage groups etc.) that were placed on the panel at an earlier time.

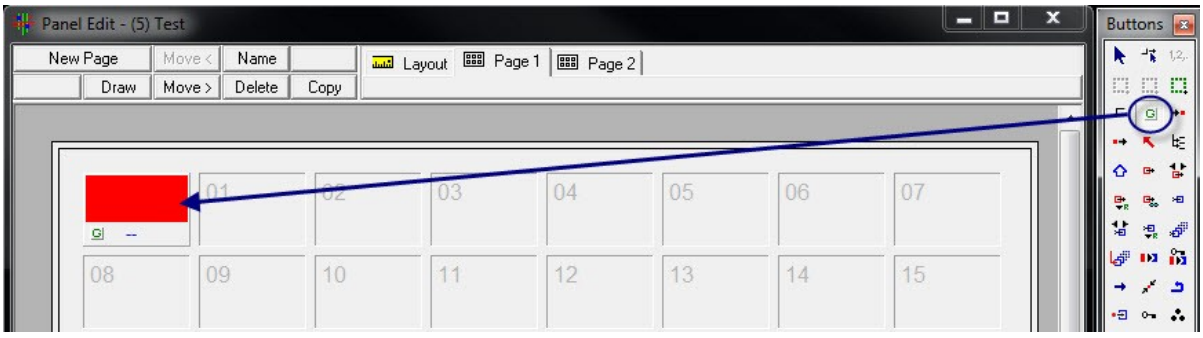
Deleting a button



21.6.7 Generic Button

The *Generic* button, indicated by the G (for “Generic”) in the toolbox, can be used universally, meaning that various labels and functions can be assigned to it. To do so, simply select the icon in the panel toolbox and place the function onto the relevant button by left clicking on an empty space. The cursor will show a small, green G at its tip while doing so.

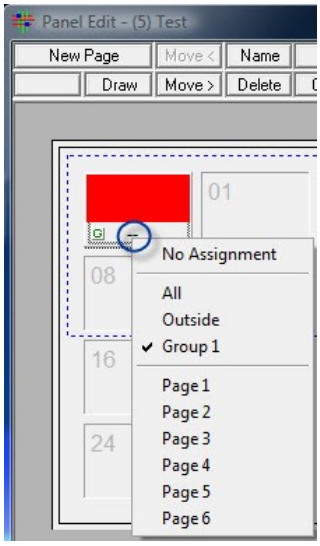
Generic button



Contrary to the frame functions described above, this icon remains selected after having been placed on the panel, so that multiple generic buttons can be placed in quick succession. They are displayed in red in the panel edit as long as no function is assigned to them or if they aren’t labelled.

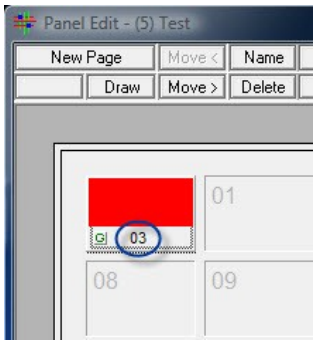
It is, for example, possible to assign the function to the generic button that makes it jump to other panel pages. To assign this page, select the two, blue lines located in the bottom centre of the button.

Page and group assignment



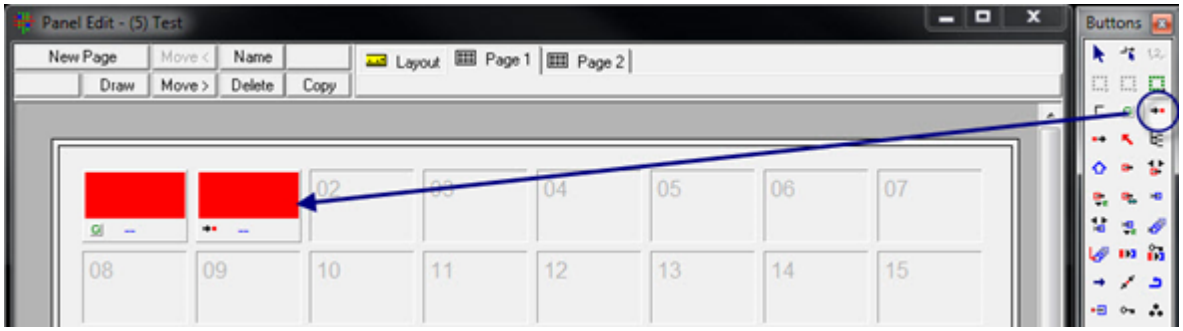
No assignment is the default state. This option can also be used to reset pages and groups that were previously assigned. If no groups were created on the panel, the options *All* and *Outside* become visible and are automatically checked. As soon as a group is created on the panel, it will be shown in the same drop down menu. Moreover, all available panel pages are listed here. By selecting one of them, the generic button will jump to that page, indicated by a small number on the button.

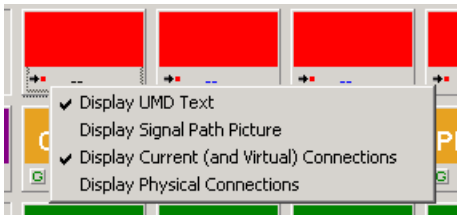
Generic button with page reference



21.6.8 Display Source

Using the icon *Display Source*, the current source can be displayed. If this function is selected in the panel toolbox, a small version of the icon will be visible above the cursor. The number of *Display Source* buttons per panel page is not limited. If no other function was assigned to a button, it will be shown in red in the panel edit.





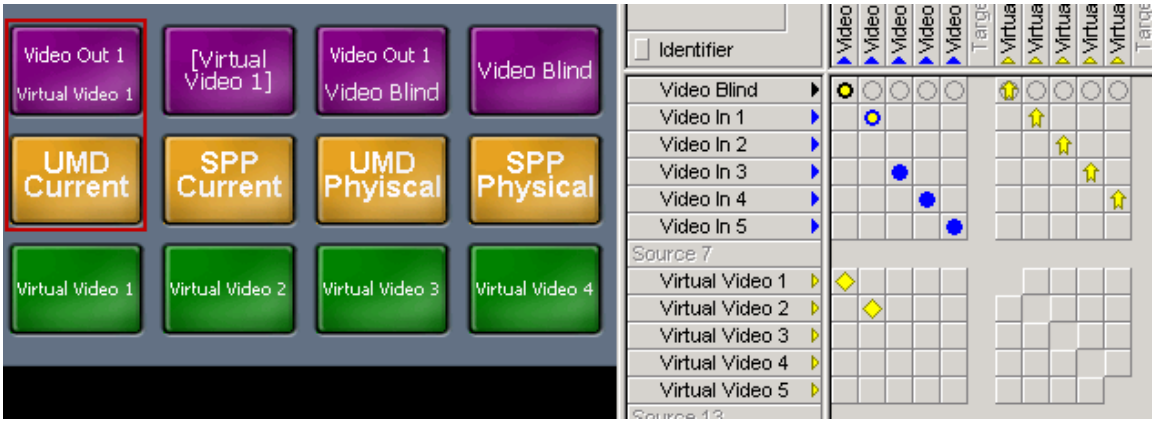
Display UMD Text:

The option *Display UMD Text*, which causes input and output signals to be displayed on the button, is ticked by default.

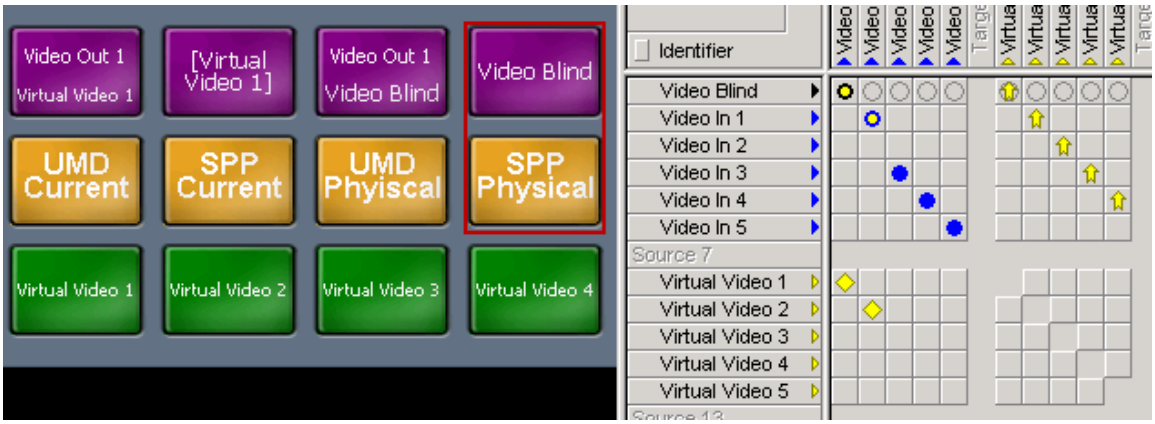
Display Signal Path Picture:

By clicking on *Display Signal Path Picture*, the primary label or a created signal path image of the relevant signal path will be shown, depending on its configuration.

Display Current (and Virtual) Connections:
With *Display Current (and Virtual) Connections,* all signals are displayed. It is also ticked by default.



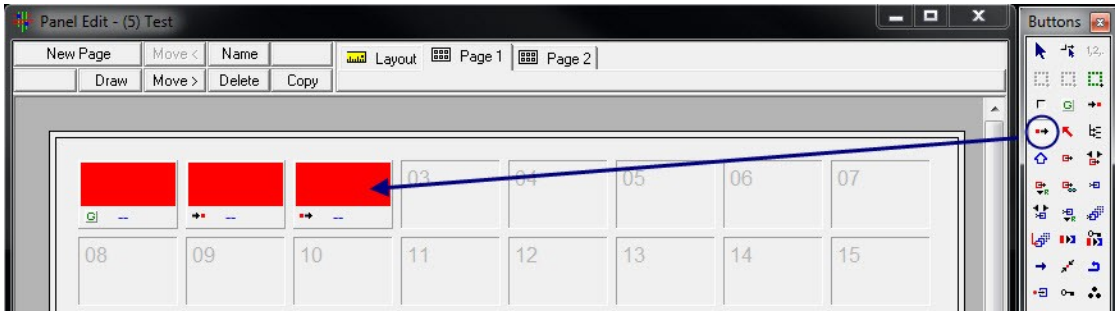
Display Physical Connections: If *Display Physical Connections* is selected, only physical signals will be displayed.



21.6.9 Display Target

The *Display Target* button has the same function for targets as the *Display Source* button for sources. Therefore, the button shows which target is currently connected to a source. As with the *Display Source* button, the number of *Display Target* buttons per panel page is not limited, and the buttons will be shown in red in the panel edit if no other function is assigned to them.

Display Source buttons

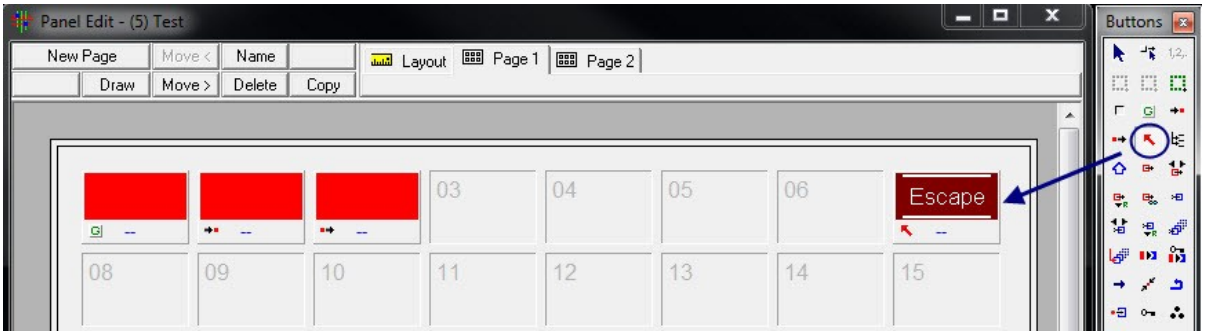


A click on the bottom left of the *Display Target* button will open a menu offering the same functions as the *Display Source* button described above (see Display Source).

21.6.10 Escape

By default, the *Escape* button executes two functions: deselecting a selected button and jumping back to the first page. To add an *Escape* button to a panel page, select the symbol in the panel toolbox. A small *Escape* icon will be shown to the left above the cursor. The number of *Escape* buttons per panel is, again, not limited.

Escape button

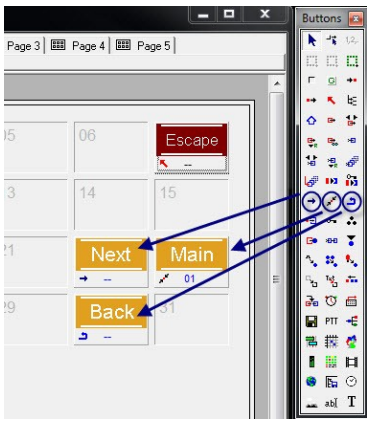


The standard colouring for the *Escape* button is a dark red and an *Escape* label in white font.

21.6.11 Next, Main and Back

If a *Next* button has been set up on the panel, it can be used to navigate to the next panel page. The *Main* button will navigate to the first page, while the *Back* button jumps back to the previously opened page.

Navigation buttons



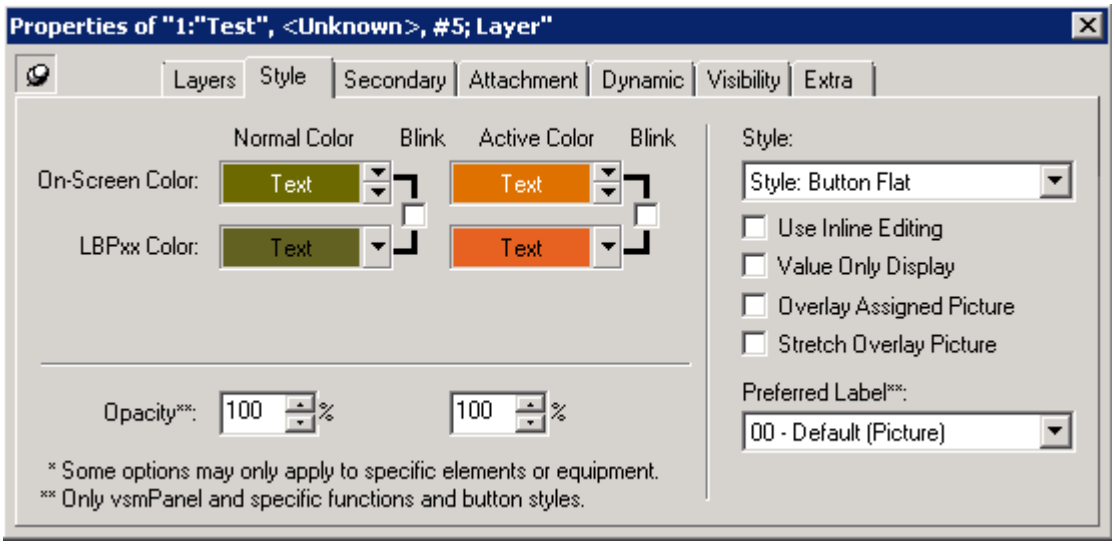
By default, these buttons are displayed on the panel in light orange with white writing.

21.6.12 Layer

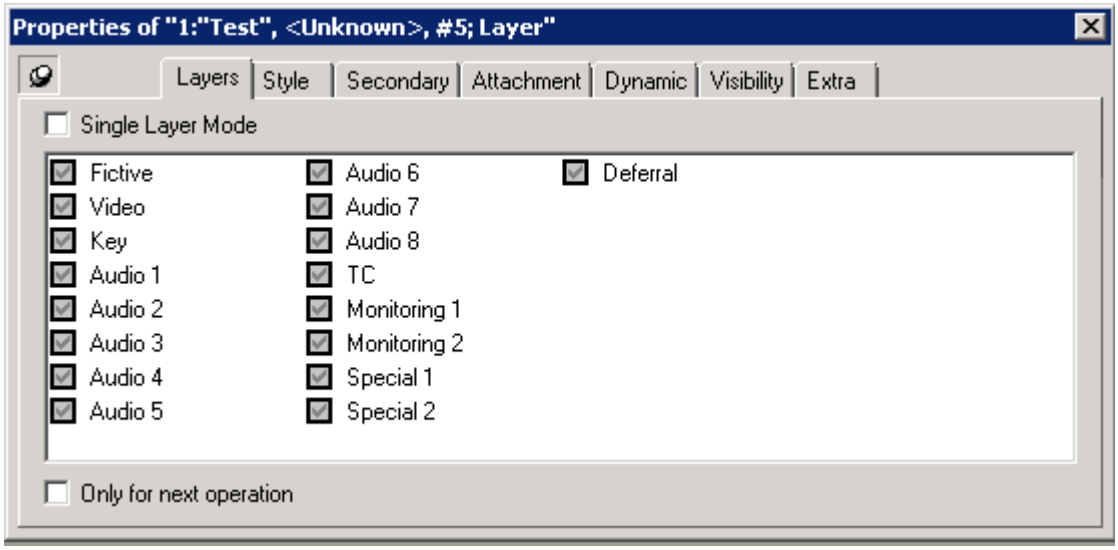
The *Layer* button can be used to deactivate certain layers. For instance, if switches connected to Pseudo Devices are made, it can be used to deactivate the audio component, thereby ensuring that switches are only made on the video layer.

Layer button

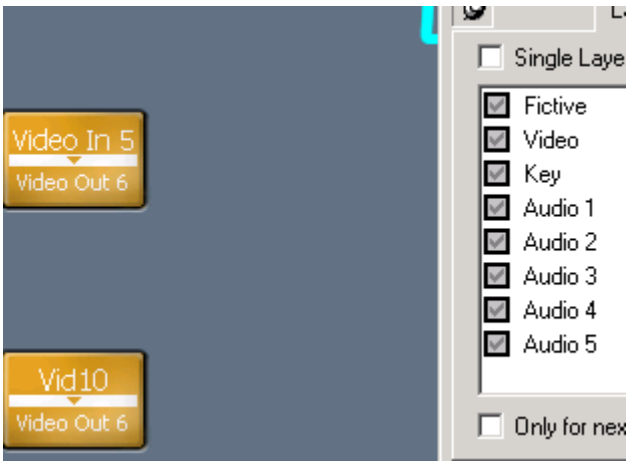
This button is normally displayed in olive-green with the caption *Layer* in white lettering. Within the Style tab of the Properties, it is possible to change the on-screen and LBPxx Color.



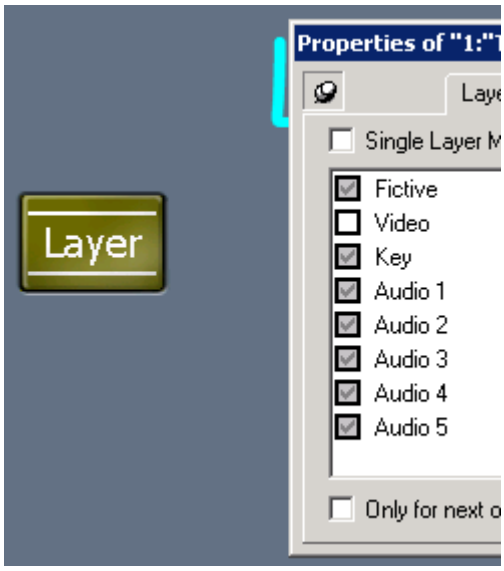
The Layers tab allows you to choose which layers should be deactivated. It is possible to deactivate only one or more layers at once.



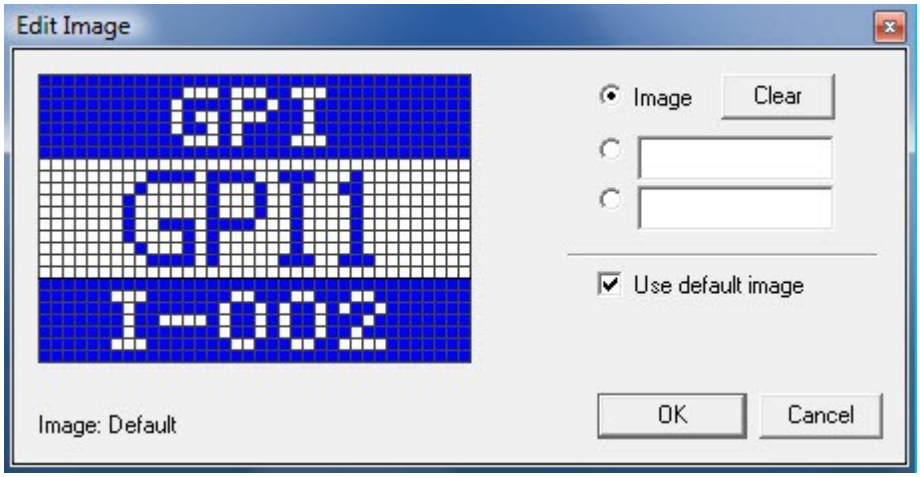
By default the check boxes left of the layers are greyed out and contain a check mark. The checkboxes can have three status:



Greyed out check boxes indicate that the Layer button is inactive and is not observable on a virtual panel.

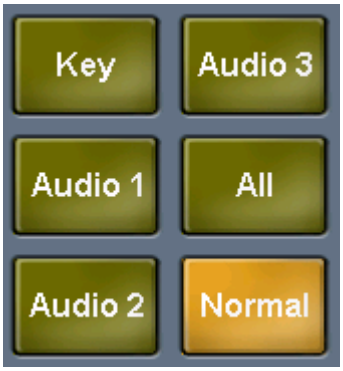


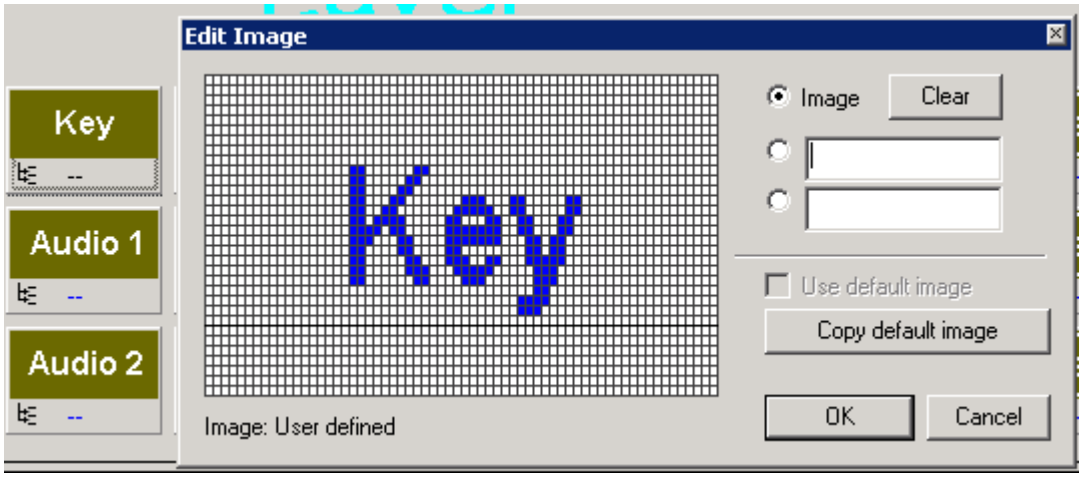
An empty checkbox will activate the Layer button functionality and the button is observable on a virtual Panel. In order to deactivate a layer (e.g. Video) you need to press the Layer button. It will change its colour to orange and deactivate the layer Video. So, when the Layer button is active these Layers are deactivated

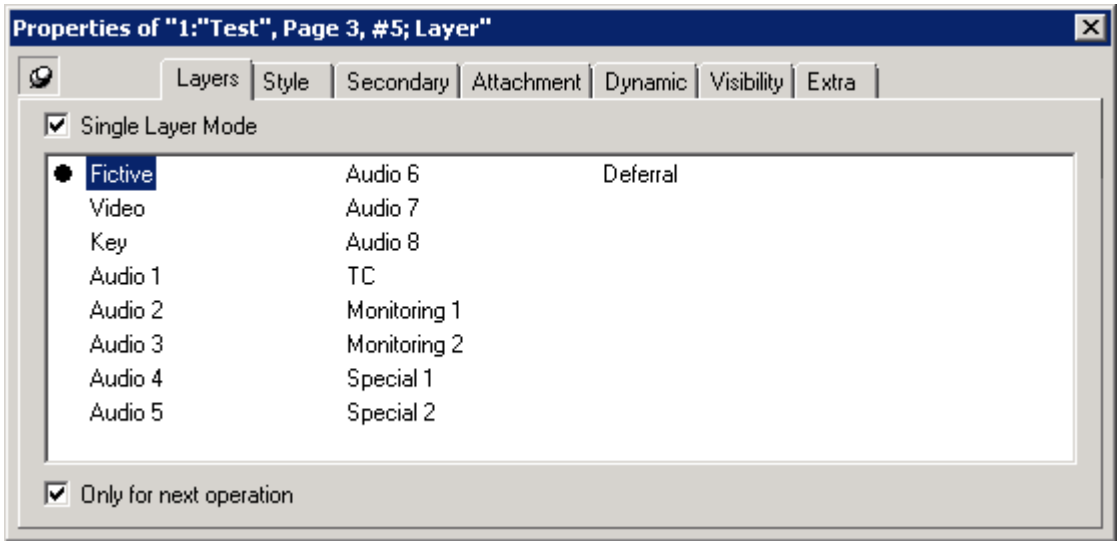


A check mark in the check box indicates that this layer is permantly active while other Layers are off. If you activate the Layers button only the checked Layers will be activated.

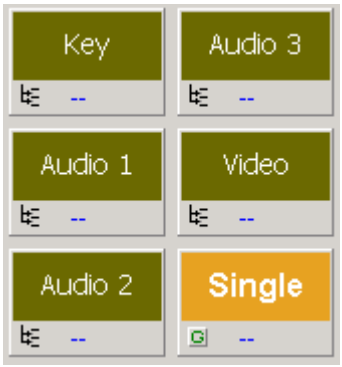
It is possible to create Bitmaps for Layer buttons in default mode.







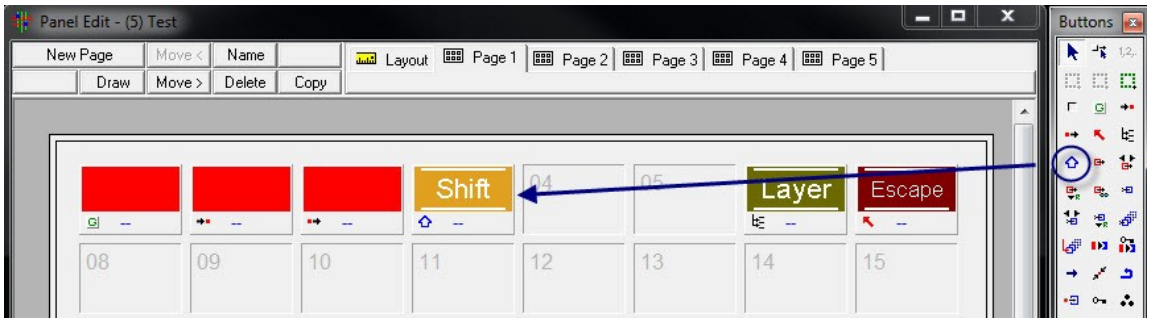
In Single Layer Mode it is possible to choose single layers that should be deactivated when the Layer button is active. Once selected the name of the layer to be deactivated is displayes automatically on the layer button. It is possible to create a Bitmap for this Layer button but it is not displayed on a virtual or LB Panel.



21.6.13 Shift

The *Shift* button, while pressed, will jump to a page that needs to be defined prior to using the function. There, it is possible to execute switches or view the status of a switch. Upon releasing the *Shift* button, it will jump back to the previous page.

Shift button



The default colouring for the *Shift* button is a light orange with the caption *Shift* in white lettering.

On vsmPanel the shifted page will stay when a target or source is selected.

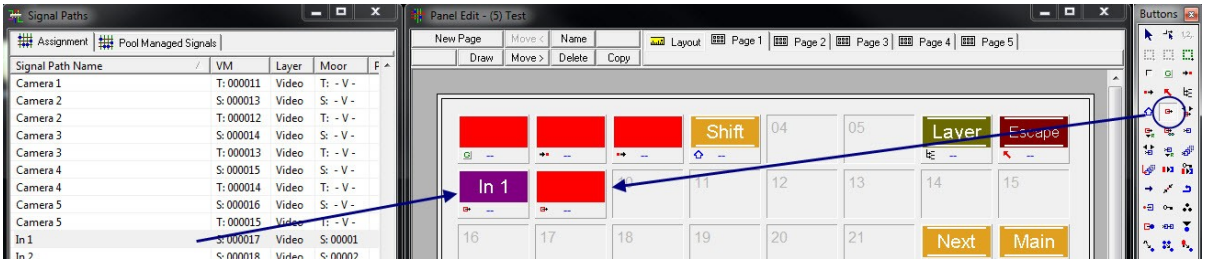
21.6.14 Source

The *Source* button is created as soon as a source signal is placed on the panel or a state is to be displayed through DAS. Moreover, if, for example, the target of a loop-through device was placed on a panel instead of the source, this error can subsequently be corrected using this button.

> Please note: this only applies to loop-through devices, not to standard signal paths (see Signal Paths).

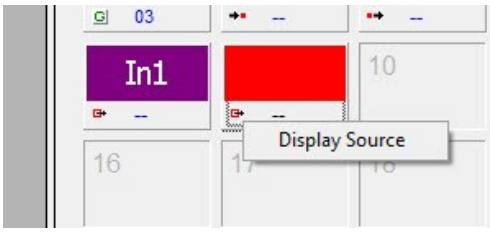
Buttons with only the *Source* function are displayed in red in the panel edit.

Source and source signal buttons



If a source signal is placed on a panel from the signal path list (see Signal Path List), the signal path name will appear on a purple background. This colour is predefined for source signal paths and cannot be changed.

Display source options

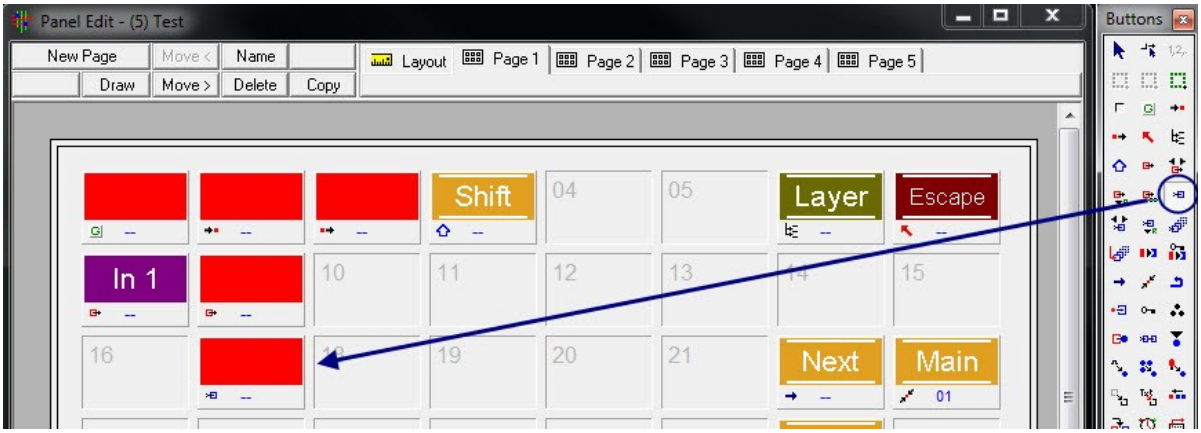


A left-click onto the small source icon on the button will open a menu with the option *Display Source*. Used together with DAS, it is possible to view the input signal that corresponds to the selected output signal.

21.6.15 Target

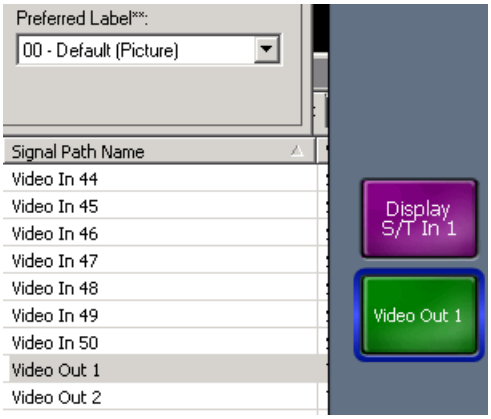
The *Target* button is created as soon as a target signal is placed on the panel or a state is to be displayed through DAS. Moreover, if, for example, the source of a loop-through device was placed on a panel instead of the target, this error can subsequently be corrected using this button.

Target button

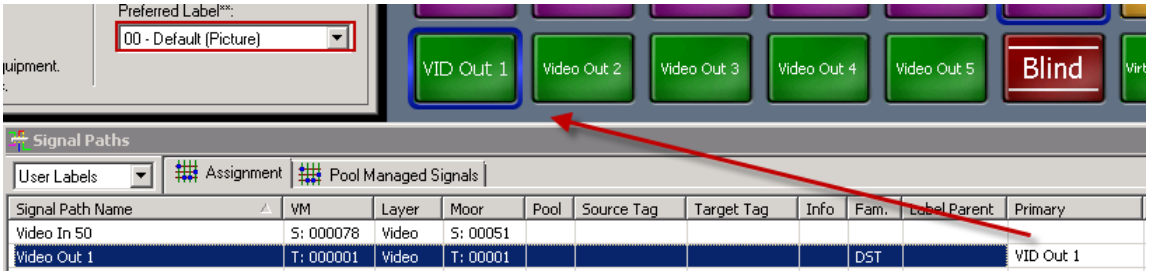


This button is the equivalent of the *Source* button for targets.

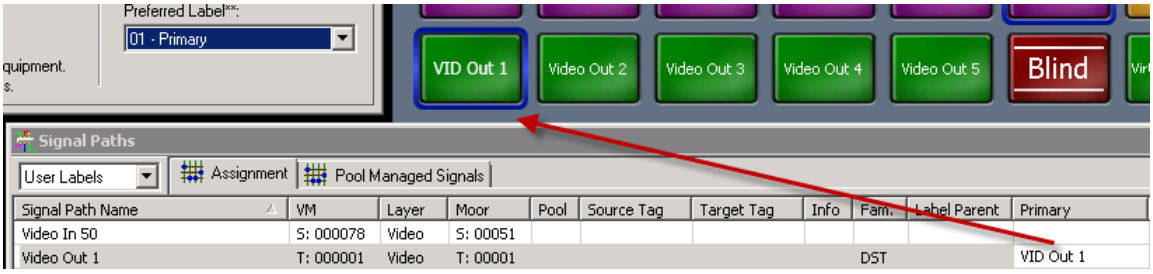
By default the Identifier is displayed.



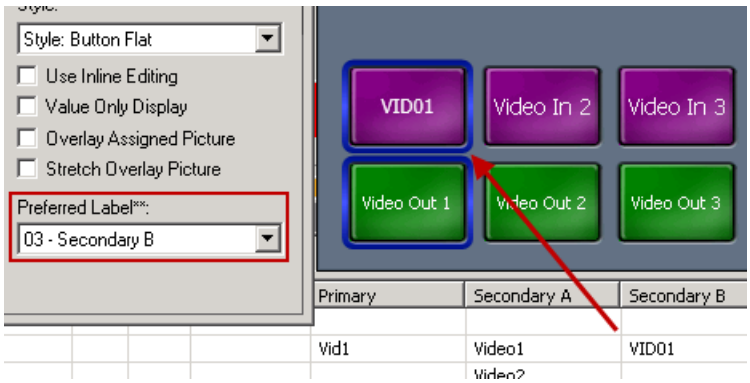
As soon as you enter a Primary Label it is displayed on the source button automatically, although '00-Default (Picture)' is selected as the Preferred Label. It is displayed in big letters like a SPP.



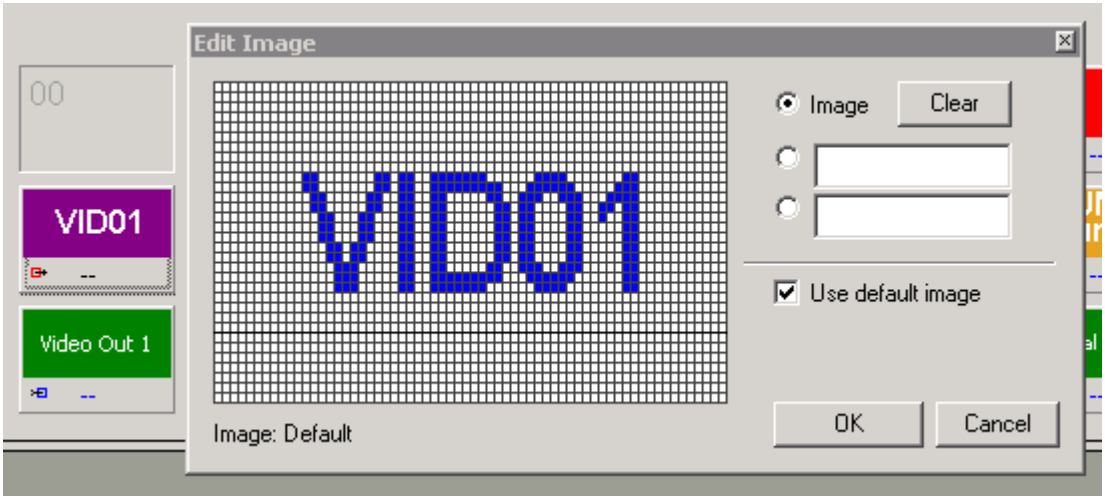
Choosing '01-Primary' as Preferred Label displays the Primary label in smaller letters.



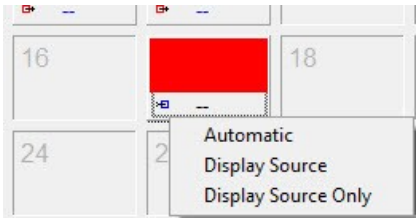
Choosing any other label as Preferred Label will be displayed in the Source button.



You can also create a Signal Path Picture for a Source button. Preferred Label must be set to '00-Default (Picture)' in order to display the SPP on the virtual Panel.



Target button options

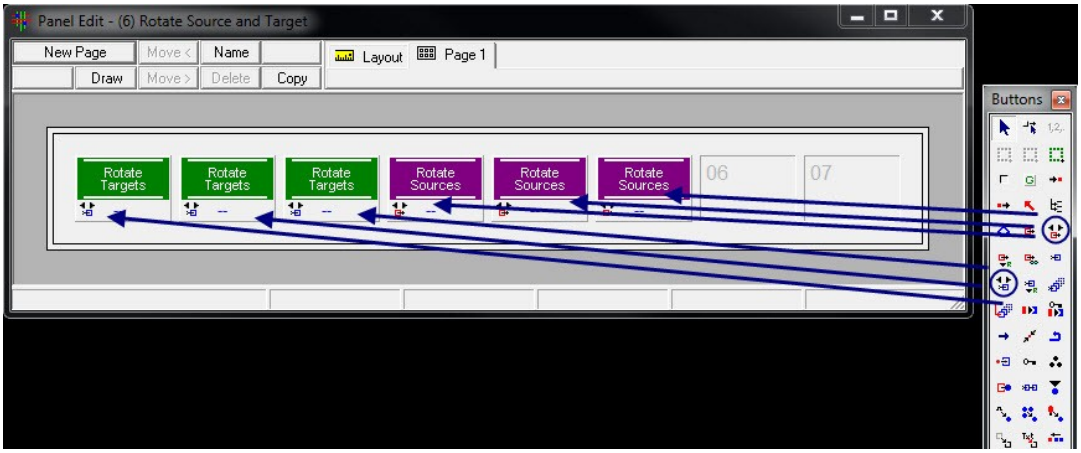


Selecting the *Target* icon in the bottom left of the button, a menu with the following three options will open: ***Automatic***, ***Display Source***, and ***Display Source Only***. If *Automatic* is chosen, this target will always be selected. *Display Source* will display the currently selected target and the source connected to it on the button. With *Display Source Only*, the currently connected source of the selected target will be shown on the button.

21.6.16 Rotate Source and Target

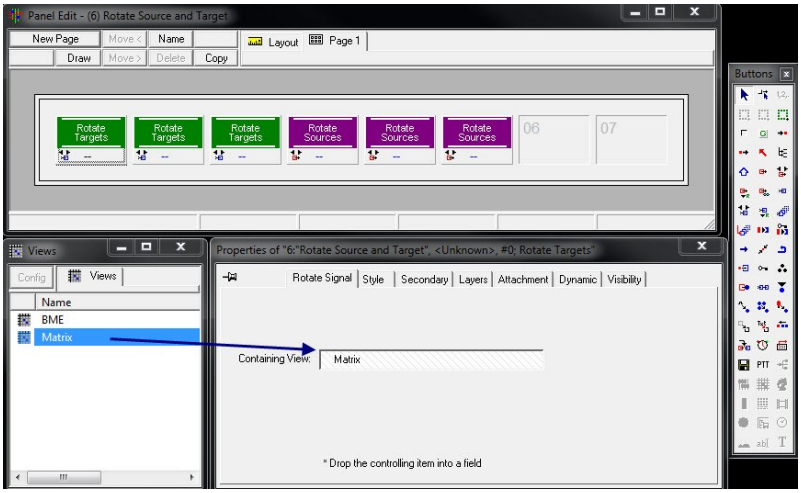
Using the *Rotate Source and Target* buttons it is possible to navigate through sources and targets creating three buttons, respectively. Before, you need to create a view in your *View List* with the in- and outputs you want to navigate.

Rotate Source and Target



Therefore, create three *Rotate Source* and three Rotate *Target buttons*. By the way it is possible to use more buttons.

Containing View



The next step is to drag and drop your desired view into the button properties under the tab *Rotate Signal.* It is sufficient to drag and drop the view only on one target and source, respectively.

Navigation Arrow vsmPanel

In the vsmPanel you will see that you can navigate now between sources and targets with the navigation buttons on both ends.

When you reach the beginning or the end the navigation button dimmes its color to grey. Select and hold the left navigation button will jump to the first page.

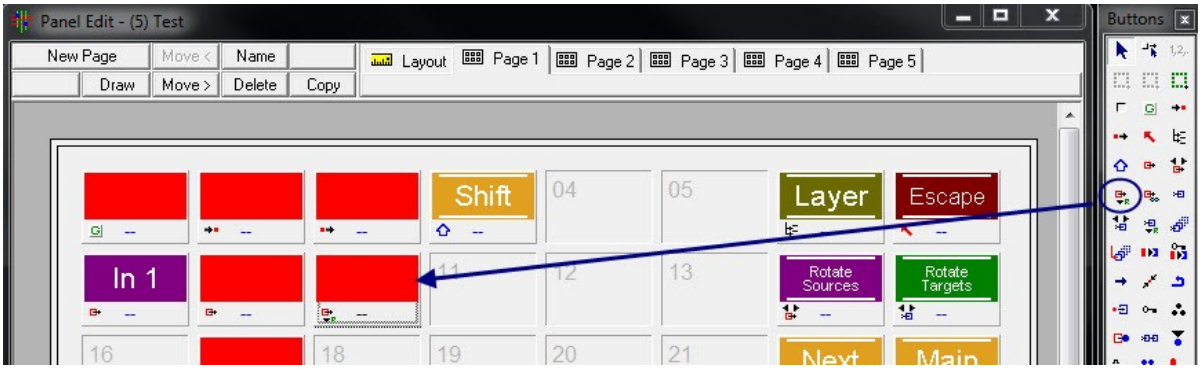
Crosspoint vsmPanel

Pressing on a source and target button will set and crosspoint between them.

21.6.17 Reference Source

The button *Reference Source* allows the use of one signal as a reference to refer to multiple sub groups.

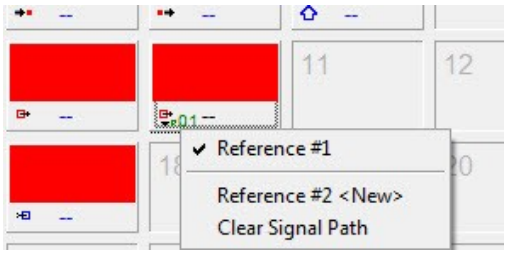
Reference Source button



The *Reference Source* button can be placed on multiple panels with one assignment. It is therefore sufficient to place the reference signal on only one panel.

You can assign a signal to a reference group which will be displayed on every Panel with the same reference group. Don't forget to refresh vsmPanel after changes.

Assigning a reference

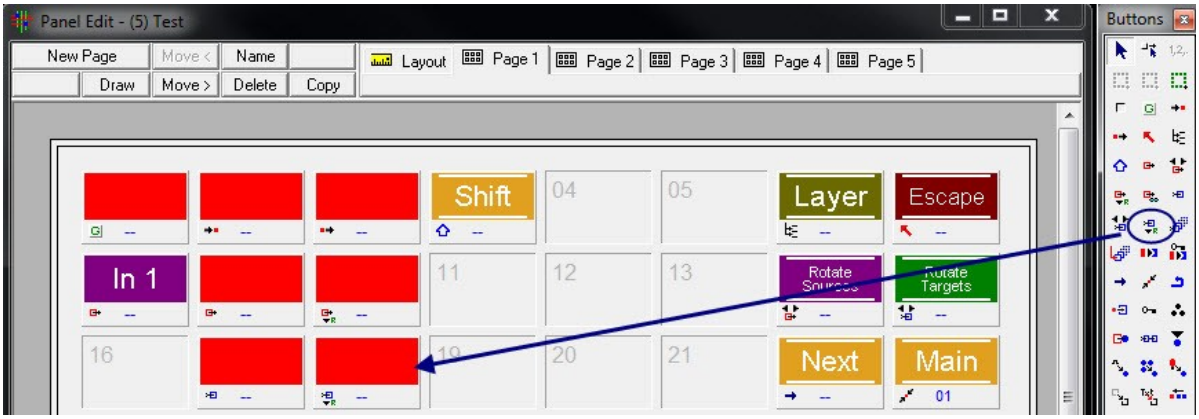


By selecting *Reference #1* after left-clicking on the small icon in the bottom left of the button, a first reference group can be created. The signal *In1* is, for example, assigned to it. After the first reference group has been created, the option *Reference #2 <New>* automatically appears. By selecting *Reference #2 <New>*, a second group will be created, to which the signal *In 2* could, for example, be assigned. *Clear Signal Path* will reset the signal assignment of a reference group, so that a new signal can be added. Alternatively another source can be drag and dropped on the button.

21.6.18 Reference Target

The button *Reference Target* is the equivalent of the *Reference Source* button for targets. With this button, it is therefore possible to refer to multiple sub groups from one reference output signal. The *Reference Target* button can be distributed to multiple panels with one single assignment. It is therefore sufficient to place the reference signal on one panel.

Reference Target button



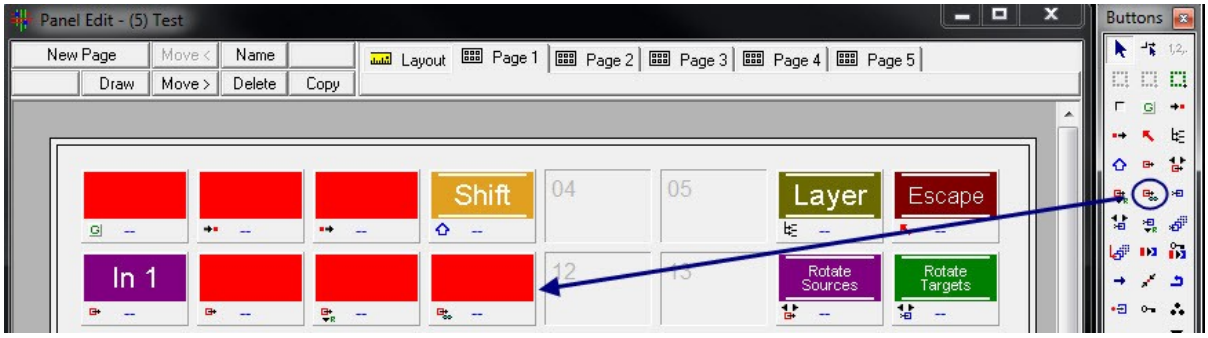
For the assignment of reference groups, the same options are available as those described for the *Reference Source* button (see Reference Source).

It is possible to route using Reference Source and Target buttons!

21.6.19 Preview

Pressing the *Preview* button allows the user to view a previously defined input. Once the *Preview* button is released, the output will be switched back to the previously switched signal.

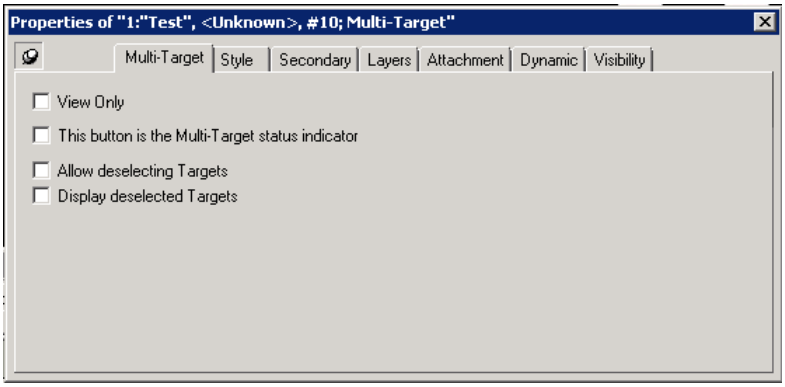
Preview button



21.6.20 Multi Target

Using the *Multi Target* button, multiple targets can be selected and the sources connected to them can be viewed on a LPB. On a virtual Panel only the Target is displayed. Furthermore, it is possible to select multiple targets and connect one specific source to them.

This button is generally displayed in light orange with the label *Multi Target* in white lettering. It is possible to create individual Bitmaps.



The following attributes are set on every Multi-Target button the same time. *This button is the Multi-Target status indicator* is the only exception.

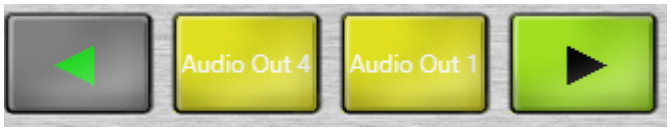
View Only: With *View Only*, the button functions only as a display button. Selected Targets are displayed in a bright yellow. Deselected Targets are greyed out with white lettering on a virtual Panel. On a LBP there is nothing to see.

This button is the Multi-Target status indicator: With the checkmark before *This button is the Multi-Target status indicator*, this button can activate or deactivate the multi target function. The active colour indicates, whether the function is active or not. There can only be one Multi-Target button with this attribute checked.

Allow deselecting Targets: With *Allow deselecting Targets*, selected output signals can be deselected at a later point in time. Deselected Targets are greyed out as in the pictures above.

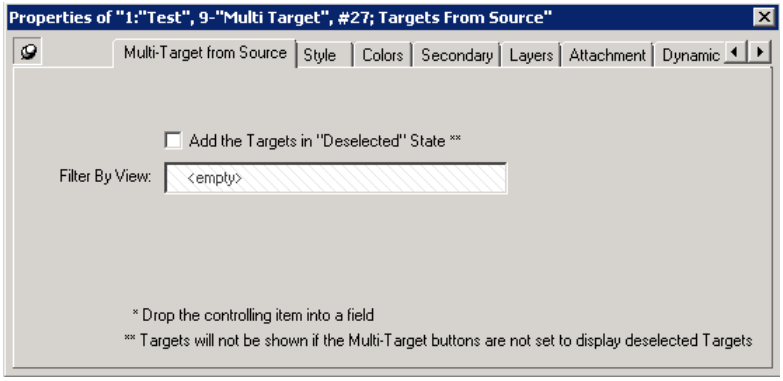
Display deselected Targets: With the checkmark before *Display deselected Targets*, deselected output signals will still be displayed with an orange background. If the box is not ticked, these buttons are greyed out in the vsmPanel software.

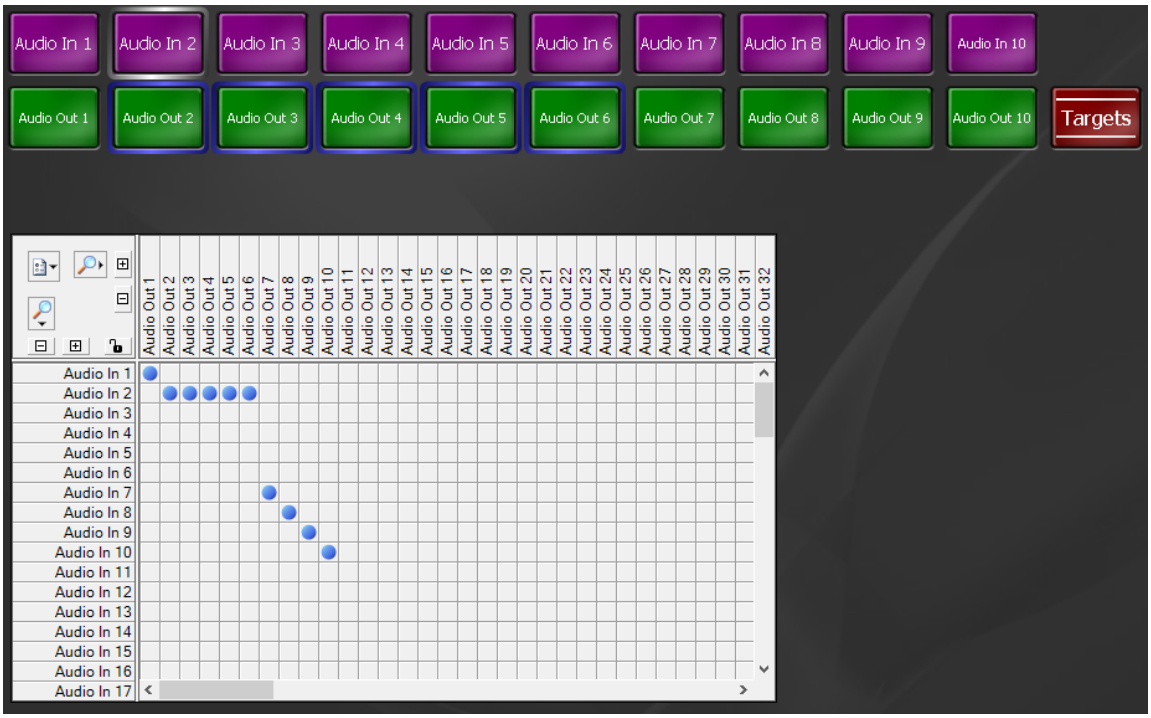
When more Targets are selected than Multi Target buttons are available, the first and last button become navigation buttons.



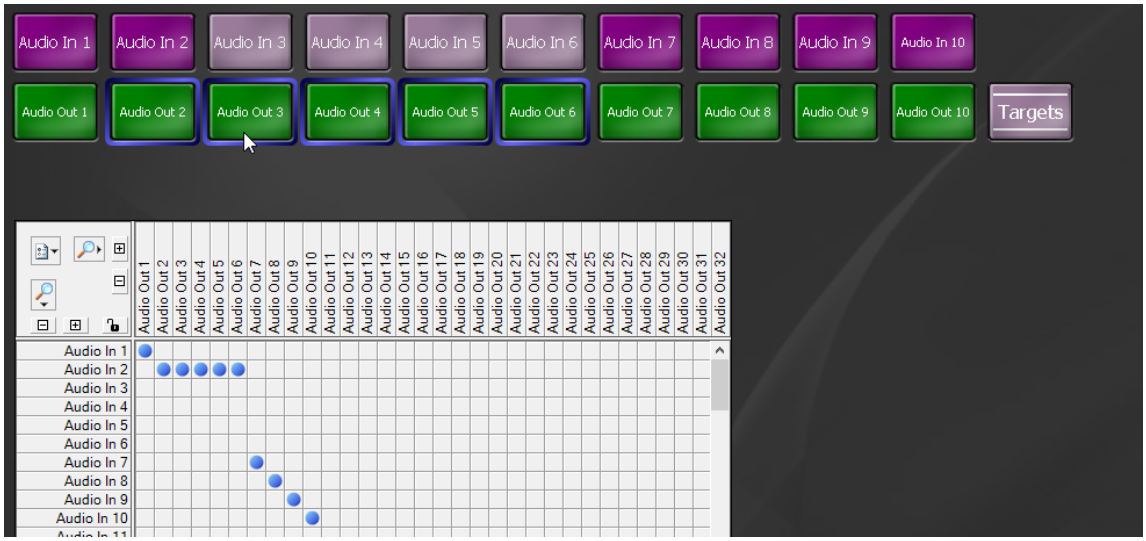
21.6.21 Multi Target from Source

The Multi Target from Source allows you to display the Targets connected to a certain Source. Press the Multiple Target from Source and select a Source --> The connected Targets will be displayed in a blue circle.





While the Target from Source button is active the Sources can be selected. Sources that are not connected to a Target are greyed out.

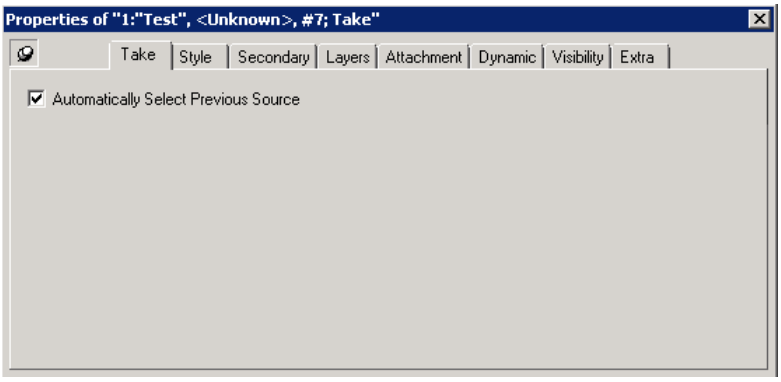


The Multiple Target and Target from Source button can be used together.

21.6.22 Take

If a *Take* button is used on a control panel, all switches must be executed via this button. Therefore, switches are only executed after the source, the target, and the *Take* button have been selected. It serves as a confirmation button.

The default colouring for this button is the caption *Take* in white lettering on a light orange background.

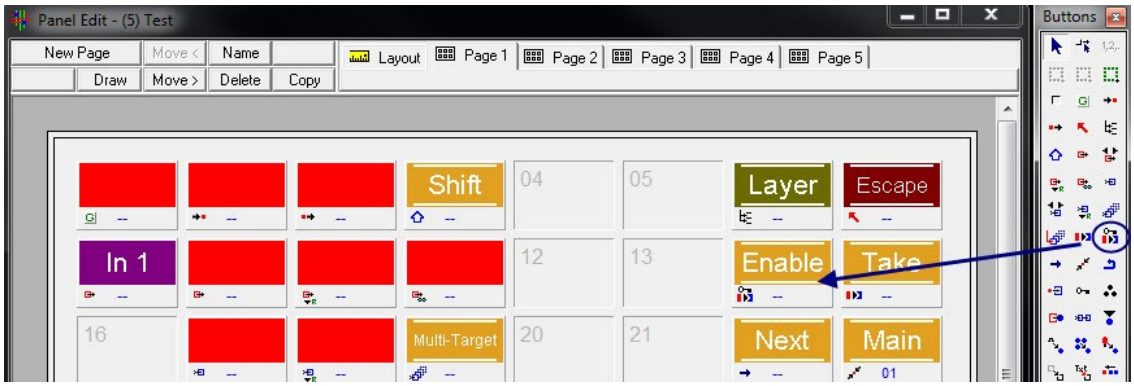


Automatically Select Previous Source: Will select automatically the previous source after a switch. It can be used to toggle between two sources.

21.6.23 Enable

If an *Enable* button is placed on a panel, it must be selected so that used GPIOs (see GPIOs) are activated.

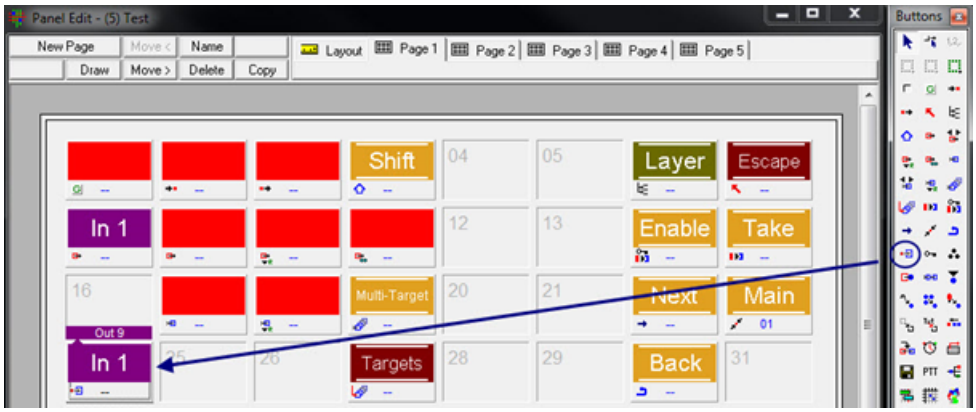
Enable button



Generally, this button is displayed with white lettering on a light orange background.

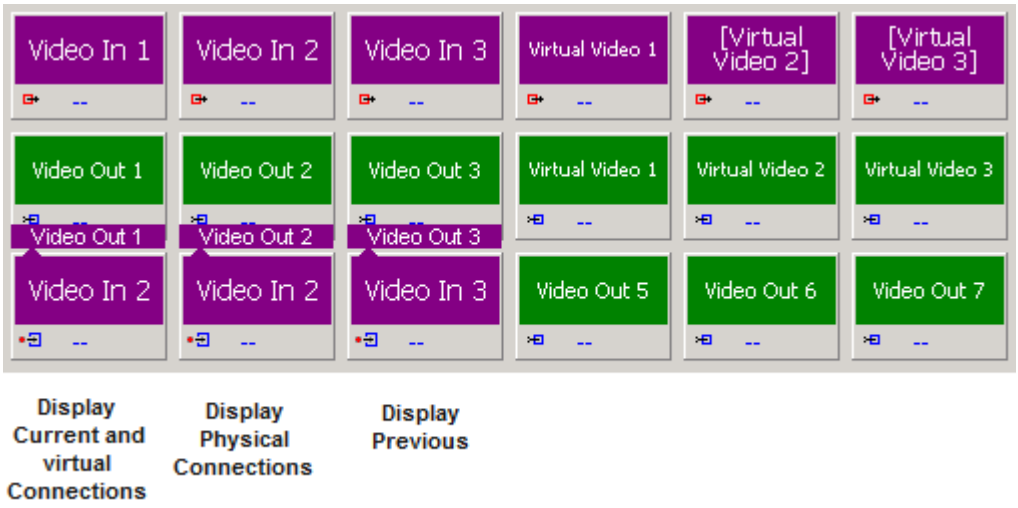
21.6.24 Source of Target

The button *Source of Target* can be used to display the source of the currently selected target. To do so, first create a *Target* button on the panel. Afterwards, place the *Source of Target* function on the same button.In the Panel Editor the button will then show both the target – for example *Out 9* – and the corresponding source, for instance *In1*.It is also possible to execute direct switches with this button.



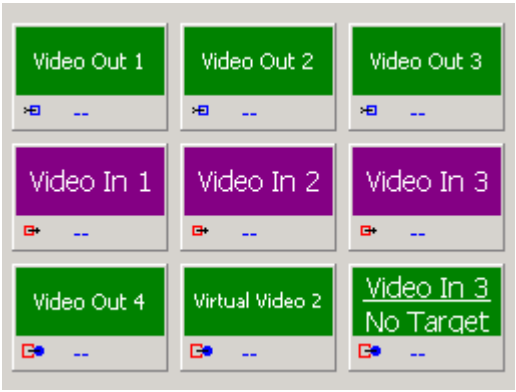
After clicking the *Source of Target* icon in the bottom left of the button, the following menu opens:

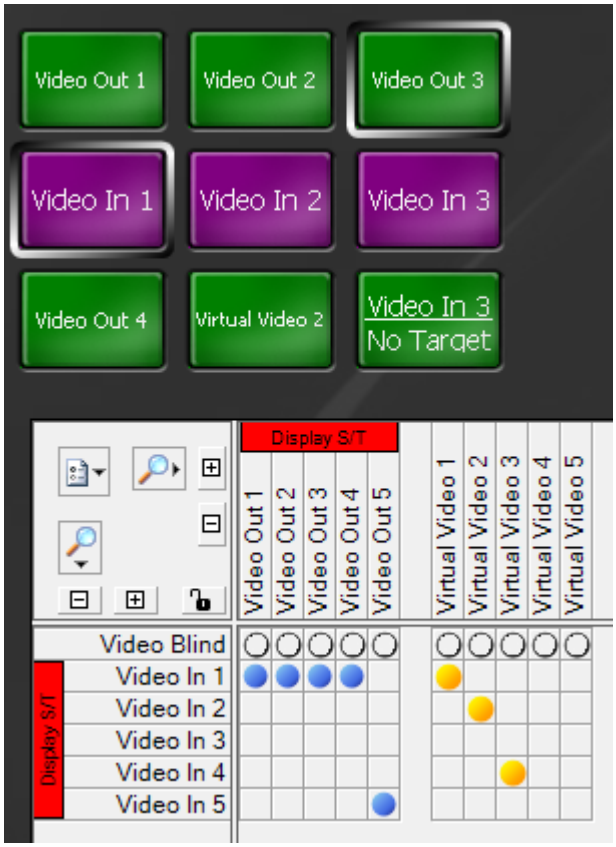
Display Current (and Virtual) Connections is checked by default and causes all signals to be displayed. *Display Physical Connections* will only display physical signals, while *Display Previous* will show the signal that was last switched onto the target.



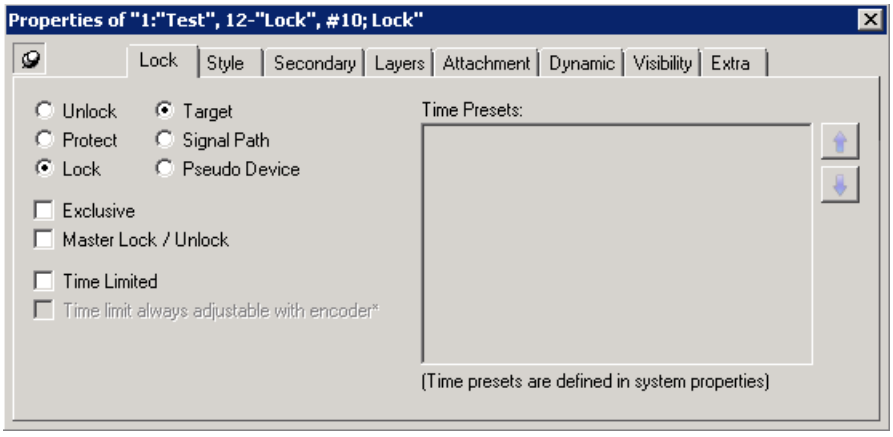
21.6.25 Target of Source

The *Target of Source* button is the equivalent of the *Source of Target* button for targets. It can be used to display the target of the currently selected source. To do so, place a *Source* button on a panel followed by the *Target of Source* function on the same button. The button no longer shows the source but the target, for example *Out2*. Direct switches are also possible with this button.





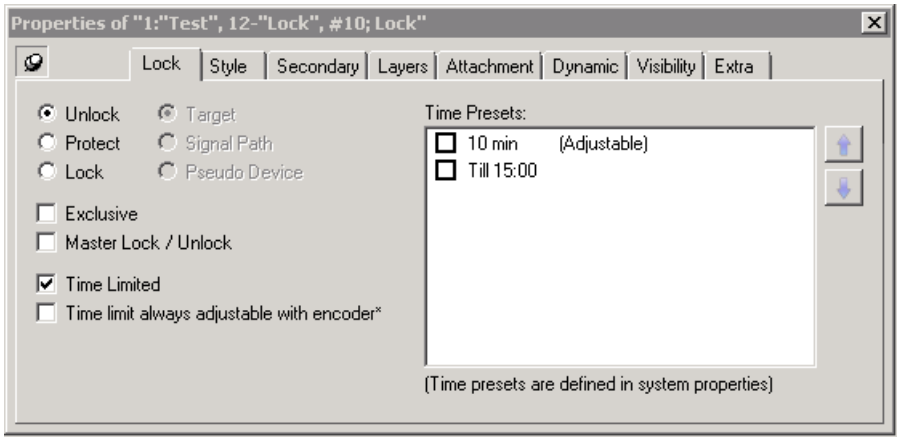
21.6.26 Lock Target



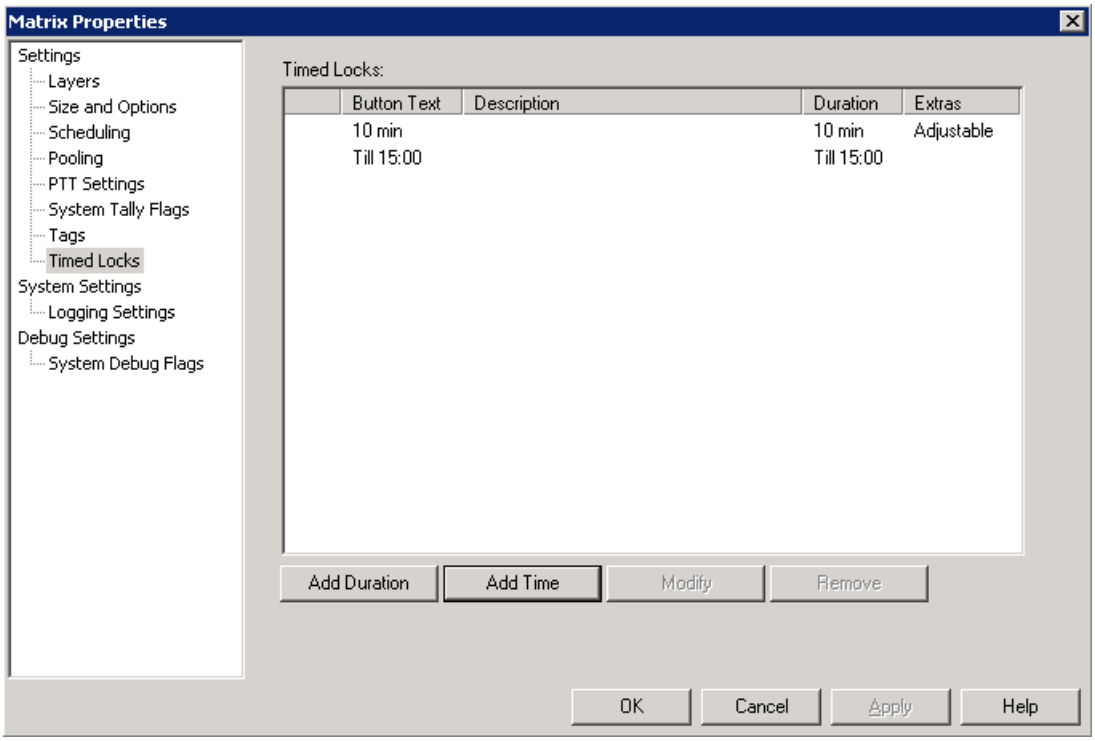
Unlock: If *Unlock* is selected, the button can only be used as unlock button. When selected the right side gets greyed out.

Master Lock/Unlock: *Master Lock/Unlock* will make the button usable as either lock or unlock button for the currently selected output. It can reset all previously set lock commands.

Time Limited: Time limited locks will lock Targets/Signal Paths/Pseudo Devices for a certain time period. When selected it is possible to choose on of the Time Presets on the right side. The Time presets can be created within the Matrix Properties under 'Timed Locks'.



It is possible to select more than one time preset. On a virtual Panel you can switch between the time presets by pressing the lock button.

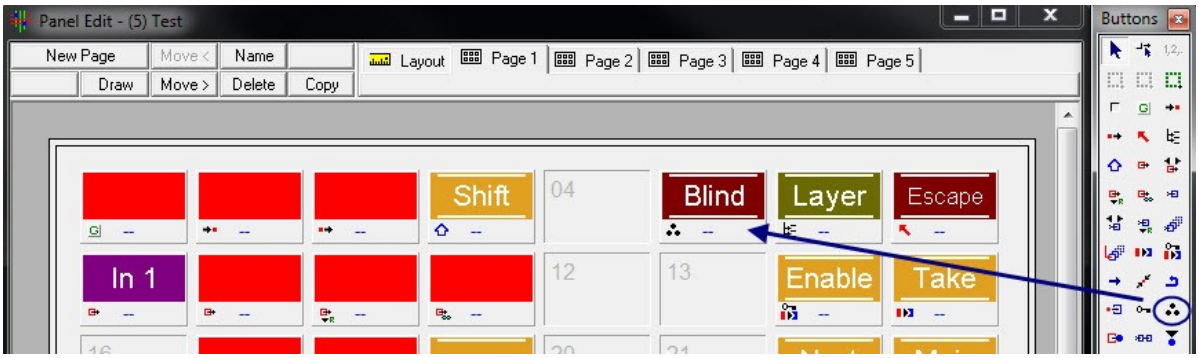


Time limit always adjustable with encoder: When activated it is possible to manipulate the time limit using an encoder of a hardware panel. When deactivated it is also possible to manipulate the time limit as long as the Time preset has the attribute 'Adjustable'

21.6.27 Blind Source

The *Blind Source* button can be used to switch selected targets onto the blind source that was defined for them.

Blind button

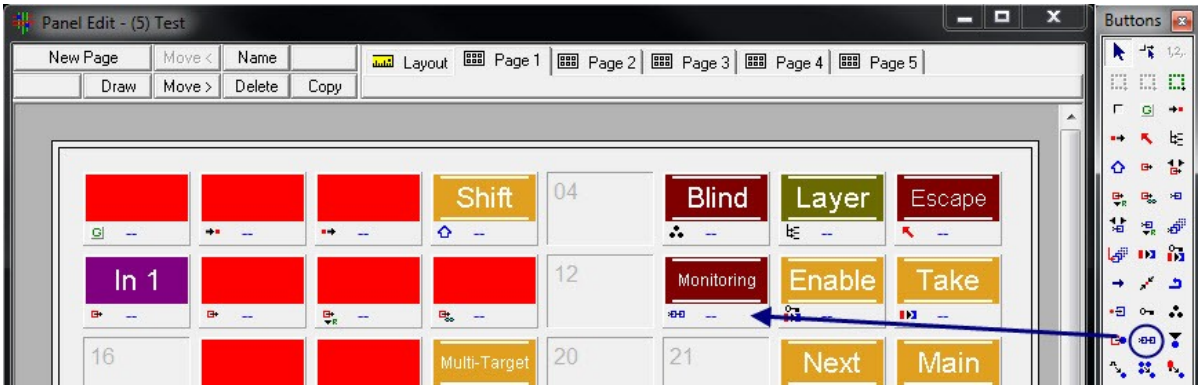


The default colour theme for this button is the caption *Blind* in white lettering on a dark red background.

21.6.28 Connect Targets

Using the *Connect Targets* button, a target can be changed into a source. Therefore you need to create a loop-through device.

Connect Targets button



By default, it is displayed with the caption *Connect Targets* in white lettering on a dark red background.

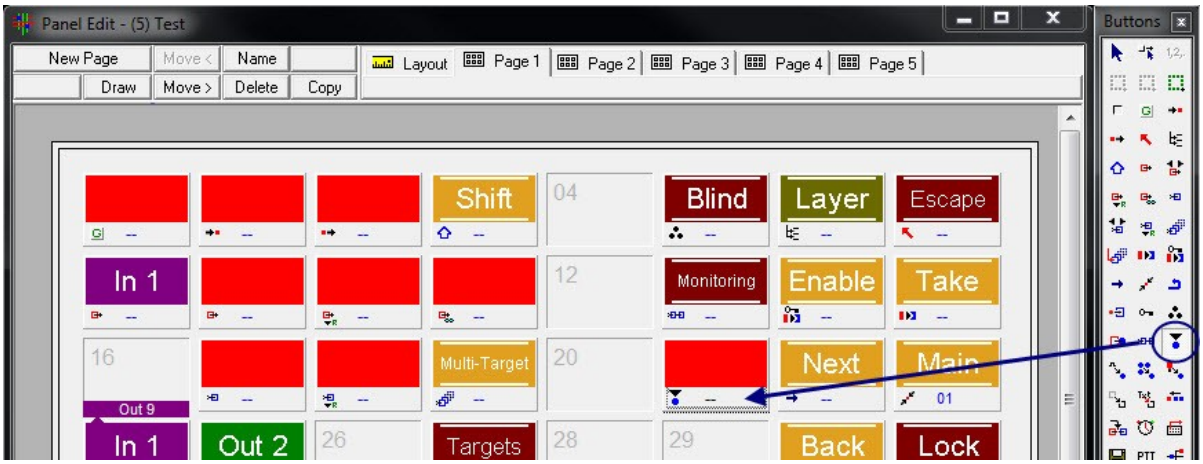
Place the Target of the loop-through device on a panel and select another target. Now click on the *Connect Targets* button.

The loop-through target will turn into its source and you can connect it with another target.

21.6.29 Control Button

The button *Control, e.g. GPIs, Gadgets...* is used for functions, such as GPIOs (see GPIOs) and gadgets (see Gadgets).

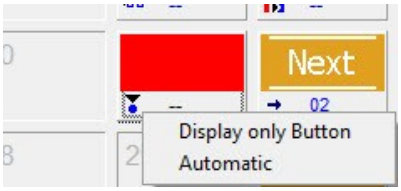
Control button



Gadget Control

If the value placed on the control button is a gadget (see Gadgets), the following window will open by left-clicking on the icon in the bottom left of the button:

Control button options for gadgets



The first option changes the placed button into a display button. A gadget parameter can therefore be displayed but not edited. Selecting *Automatic* will automatically select the placed gadget, allowing the value to be changed directly on the control panel using an encoder.

GPIO Control

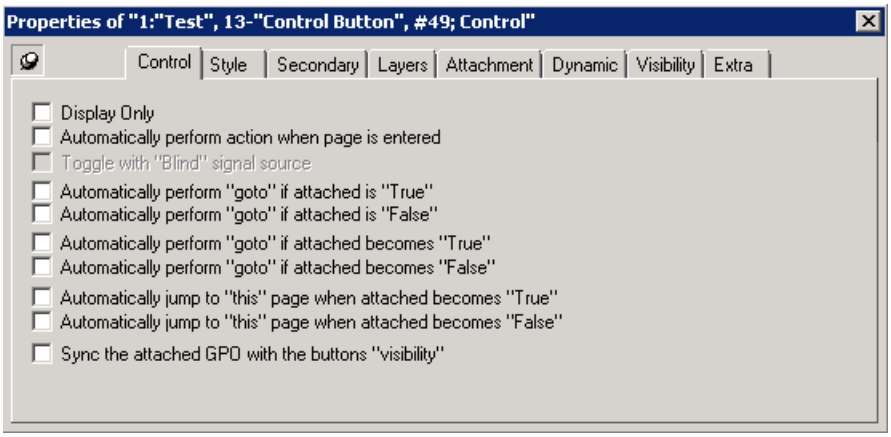
If the value placed on the control button is a GPIO (see GPIOs), a left-click onto the icon in the bottom left of the button will open the following window:

Control button options for GPIOs

The first option changes the placed button into a display button. A GPIO can therefore be displayed but not edited. If *Activate this page when GPI becomes true* is selected, the panel page on which the GPIO is located will be called up as soon as the GPIO is set.

Button Properties

If a control button is placed on a panel, a new tab, *Control*, appears in the properties window:



Display Only: When this box is ticked, the button only serves as display button.

Automatically perform action when page is entered: This option allows the execution of a function placed on the panel as soon as the page on which the button is located is opened. (Works only for one control button on each page. Other checked button are ignored)

***Toggle with "Blind" signal source*:** This option allows a crosspoint button to jump between the crosspoint placed on the panel and the blind source.

Automatically perform "goto" if attached is "True": Allows a page change as soon as the function on the panel is active.

Automatically perform "goto" if attached is "False": Allows the same automatic page change if the function is inactive.

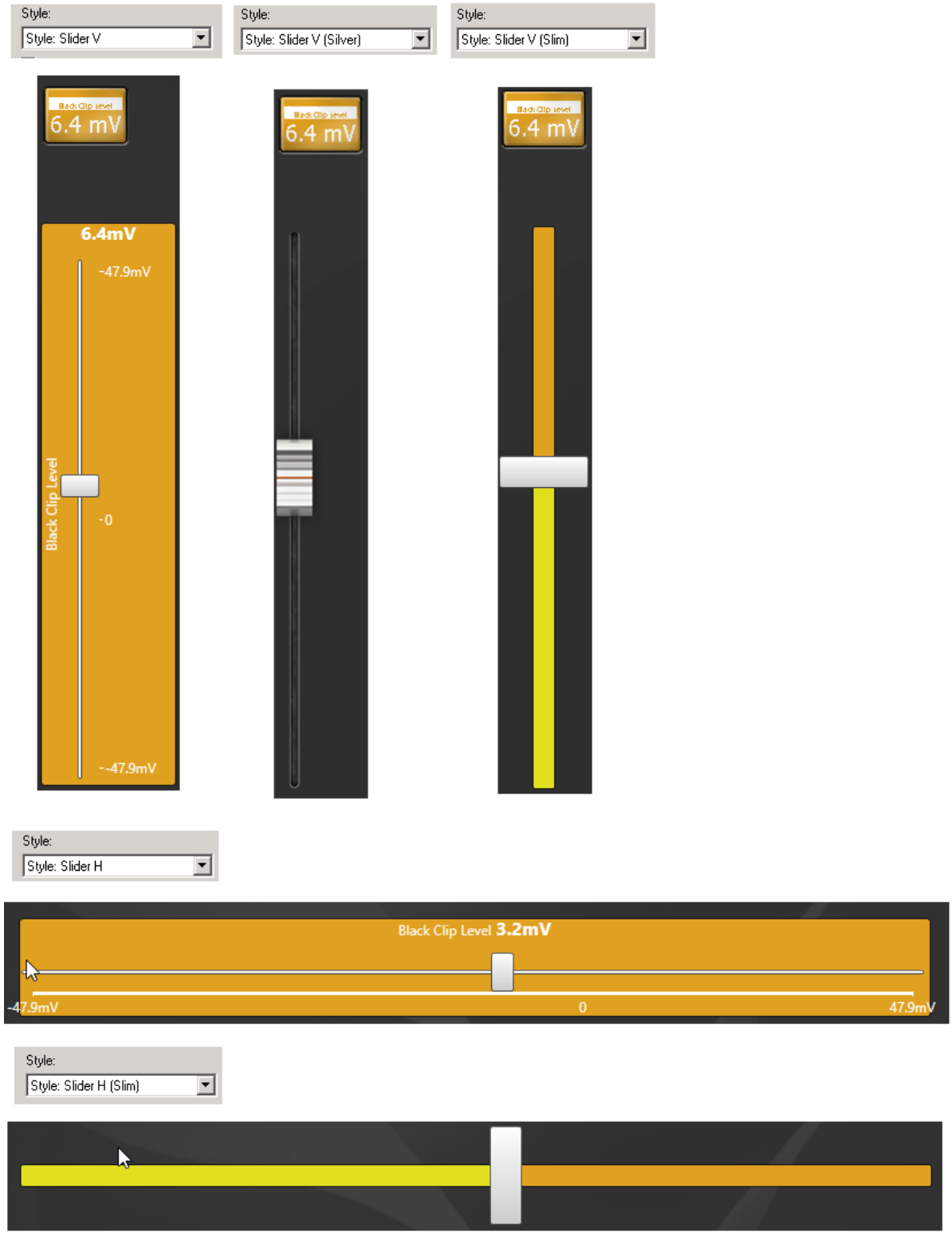
Automatically perform "goto" if attached becomes "True": An automatic page change will occur as soon as the function on the panel becomes active.

Automatically perform "goto" if attached becomes "False" : Prompts the same automatic page change as soon as the function on the panel becomes inactive.

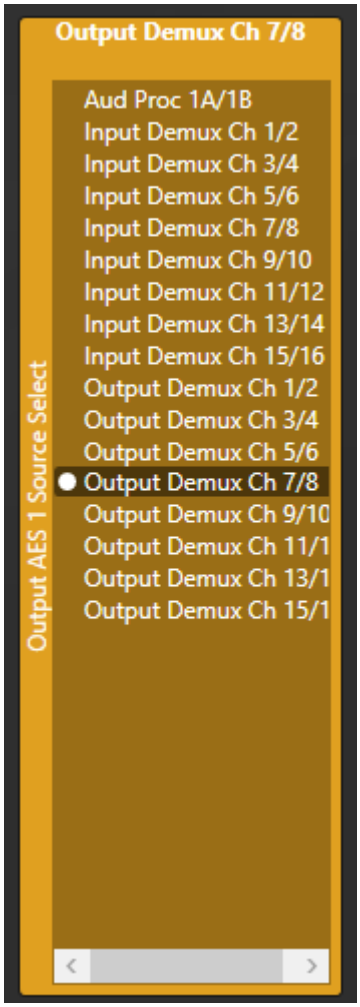
Automatically jump to "this" page when attached becomes "True": This option also enables an automatic page change. If, for instance, a GPO lies on a panel page and becomes active, the program will open the page on which the GPO was placed.

Automatically jump to "this" page when attached becomes "False" is exactly the same function for an inactive GPO.

Integer Gadgets contain numeric values. They can be placed as a normal button on the Panel or as a slider.



Enumeration Gadgets contain several entries which can be chosen. This can be displayed in a list function.



21.6.30 Assign GPI-I/O to Switchable Node

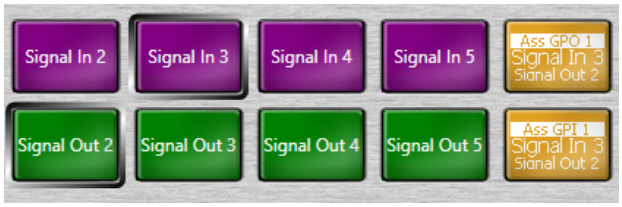
Using the button *Assign GPI to Switchable Node*, a crosspoint switch can be assigned to a GPIO. To do so, the relevant GPIO is placed on a control panel button followed by the function *Assign GPI to Switchable Node*, which is placed on the same button.

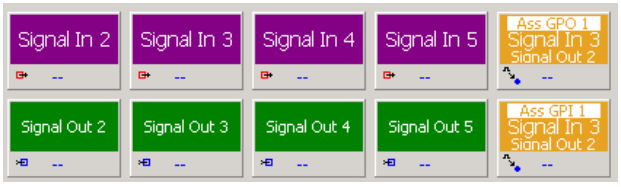
GPI crosspoint assignment

The default colouring before a GPIO is placed on it is the caption *GPIO?* in white lettering on a light orange background.

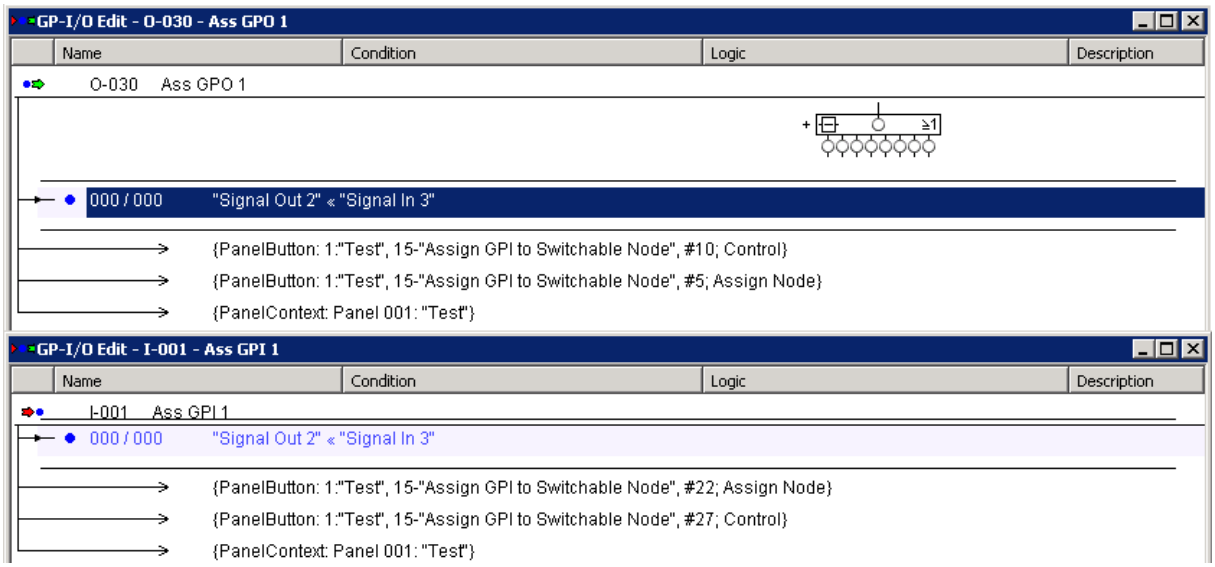
As soon as a GPIO is placed on it, the caption changes to the GPIO's name.

To assign a switch able node click on the *Assign GPI-I/O to switchable node* button. It will start to blink yellow/grey. Now click on a target and source, which should be assigned. The source and target will then be displayed in the button and stops blinking.





As soon as the GPI-I/O gets active the crosspoint will be set.



In order to remove the assignment click on the *Assign GPI-I/O to switchable node* until it starts to blink. Then click again and the assignment will be removed.

21.6.31 Assign Multiple GPIs/GPOs to GPO

With the button *Assign Multiple GPIs to GPO*, multiple GPIs but also GPOs can be linked to one GPO. To do so, a GPO is placed on a control panel button followed by the function *Assign Multiple GPIs to GPO*, which is placed on the same button. You can also first place an *Assign Multiple GPIs to GPO* and attach a GPO afterwards. It is not allowed to attach a GPI.

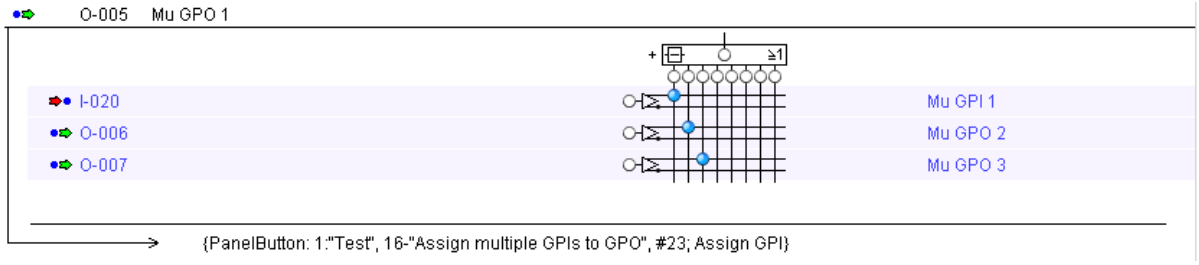
GPI-GPO Assignment

Before a GPI is placed on this button, its default colouring is the caption *GP-O?* in white lettering on a light orange background.

As soon as it is linked with a GPO, the button will display its name.

In order to assign multiple GPIs or GPOs click on a *Assign Multiple GPIs to GPO* button. It will blink yellow/grey (LBP: black/pink) and all available GPI-I/O turn from yellow to grey (LBP: yellow to dark purple).

Now select GPIs or GPOs which should be assigned to the GPO. Selected GPI-I/O will be displayed in a bright yellow (LBP: green).



Once a GPI or GPO has been assigned the logical views look like in the picture above. The logical crosspoints are static and displayed in blue.

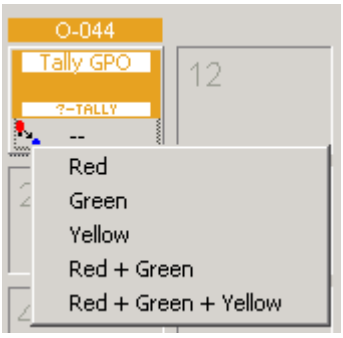
21.6.32 Assign Tally to GPO

Using the *Assign Tally to GPO* button, a source can be assigned to a GPO. The GPO will become active as soon as this source receives a defined tally.

The default colouring for this button is the caption *GP-O?* in white lettering on a light-orange background.

When it is linked to a GPO, the GPO's name will be shown in the button caption instead.

By selecting the icon in the bottom left of the button, the following icon opens:

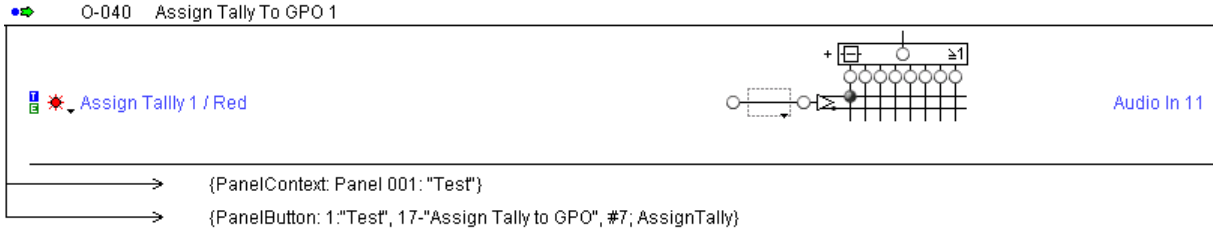


By selecting *Red* in this menu, a colour can be assigned to the tally within the GPO. This means that a red tally link is created. In this case the GPO will become active as soon as the assigned Source receives a red Tally.

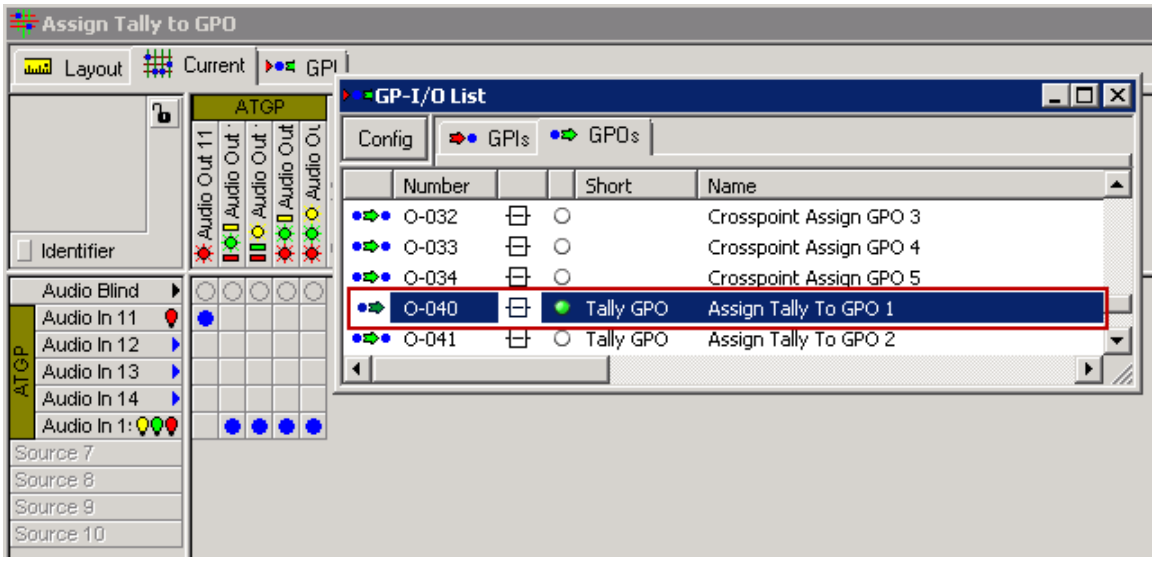
If multiple colours are selected (for example *Red* + *Green* or *Red* + *Green* + *Yellow*), a red-green or red-green-yellow OR-link is created in the GPO with the selected signal.

Once you select a *Assign Tally to GPO* button on a virtual Panel it will blink orange/grey. Now it is possible to assign a source by selecting on the same page. Once assigned it will be displayed within the *Assign Tally to GPO* button.

The GPO will receive the following entry:



Now as soon as a Target is switched to *Assign Tally 1* and sends a red tally the GPO will become active.



21.6.33 Mimic Button

By first selecting the *Mimic* button followed by the selection of another button, the second button's function can be replicated.

By default, this button is displayed with the caption Mimic in white lettering on a light-orange background, as long as no other function is copied.

To replicate a button press the Mimic button on the virtual Panel for several seconds. It should now be blinking. Now press any other button and the Mimic Button will change into the button you have chosen. Pressing the transformed Mimic Button again will cause it to blink again and you can choose another button or disable the Mimic function.

Buttons that can be copied are:

- Display Source/Target
- Layer
- Rotate Source/Target (but they will take over the behaviour of rotate source and targets buttons as well)
- Reference Source/Target
- Preview
- Multi Target
- Multi Target from Source
- Take
- Enable

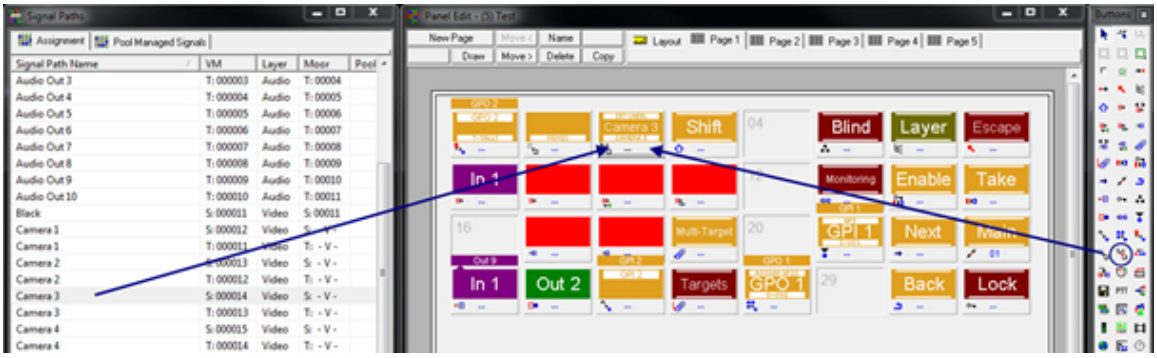
- Next (first you need to assign another button to this mimic and replace this one with the Next button)
- Main (first you need to assign another button to this mimic and replace this one with the Main button)
- Previous (first you need to assign another button to this mimic and replace this one with the Previous button)
- Source of Target
- Target of Source
- Lock
- Blind

Buttons that can't be copied are:

- Generic
- Escape
- Shift

21.6.34 Induce Label Text

Using the button *Induce Label Text*, the primary label (see Labels) on a virtual panel can be changed.

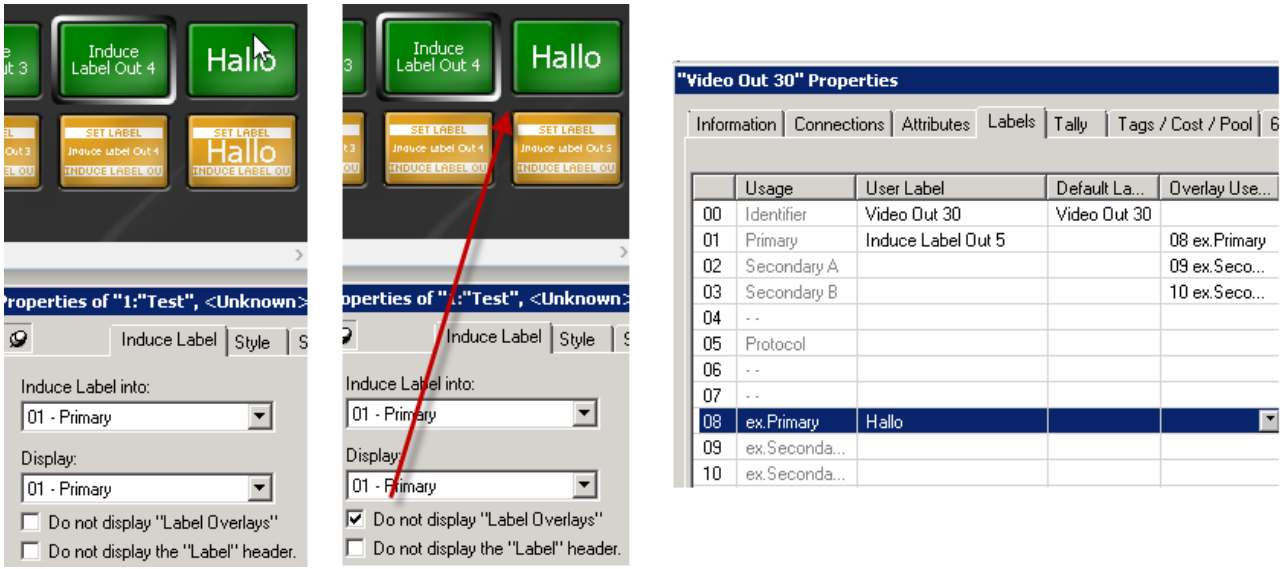


By default, this button is displayed with the caption <*nosignal*> in white lettering on a light-orange background as long as no signal is assigned to it. If the function was placed on a signal button, it will take on the signal path's name, for example *Camera3*. The label can subsequently be changed on the virtual panel by simply overwriting it.

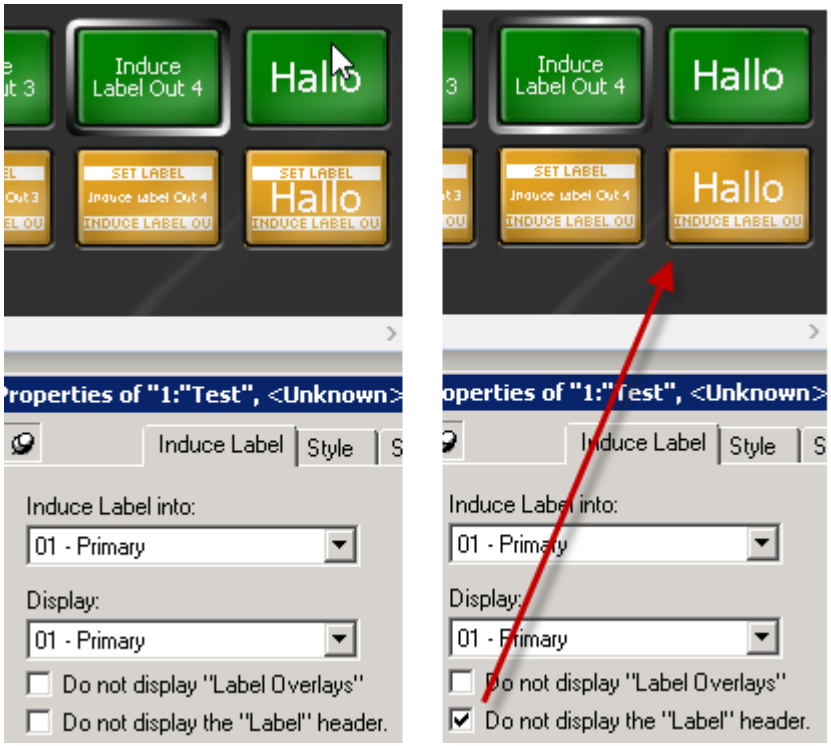
If an *Induce Label Text* button is placed on a panel, the following new tab appears in the properties window:

Using the options in the drop down menu located below *Induce Label into*, the changed label can be saved in the protocol label or the external label. The drop down menu under *Display* can be used to change the display on the button between primary, secondary, video mixer, protocol and external label (see Labels).

If the option *Do not display "Label Overlays"* is ticked, duplicate labels are not displayed. Within this example the Primary label is overlayed by the ex.Primary label. As soon as *Do not display "Label Overlays"* is checked the Primary label is displayed as it is defined under *Display:*

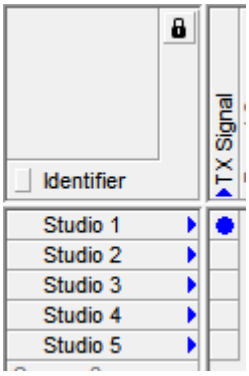


And if the option *Do not display the 'Label' header* the white banner with *Set Label* written on it will disappear.



21.6.35 Queue Control

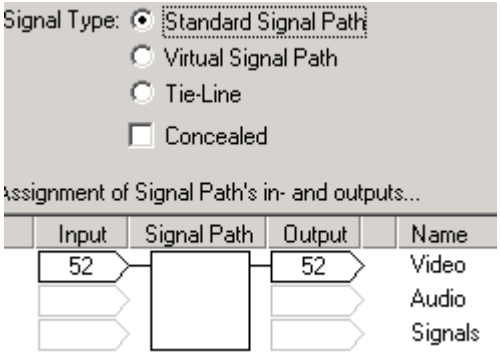
The Queue Control function can be used to manage multiple studios that share one transmission line.



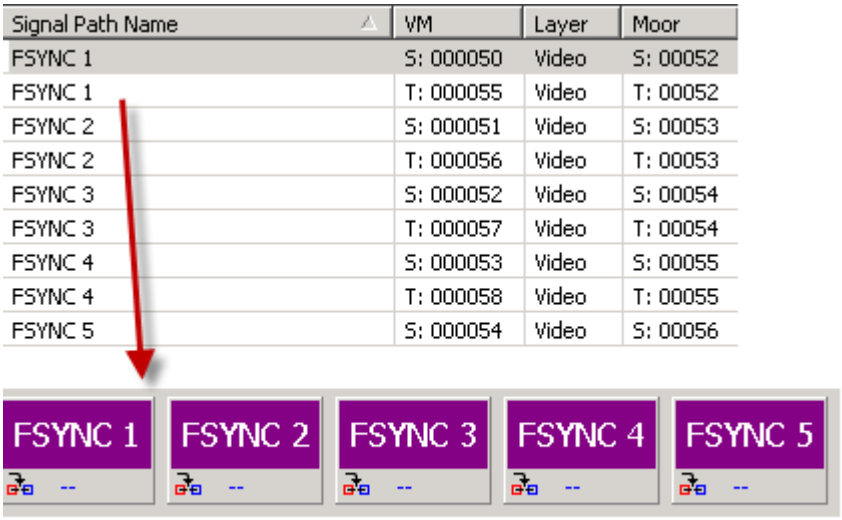
21.6.36 Insert

With the *Insert* function, loop-through devices, such as frame synchronizers, can be added into the signal chain. If this button is selected, the corresponding device is switched onto the selected target.

Loop-through devices can be created by assigning them an input and output port.



Drag the created loop-through device and drop it onto an Insert button. (It doesn't matter if you choose the Source or Target)

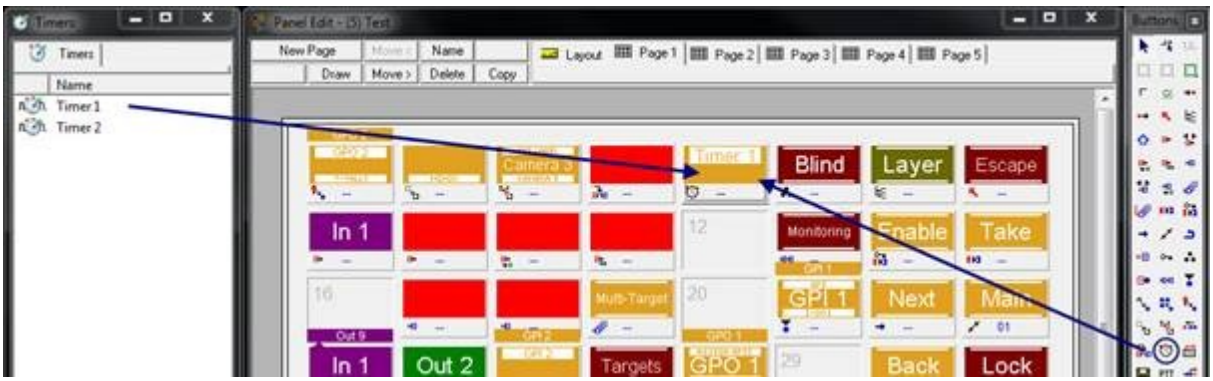


Pressing an Insert button will insert the loop-through device. It is possible to select more than one which will create automatically a chain of loop-through devices. Clicking again on an Insert button will remove the loop-through device again. The position doesn't matter, vsmStudio will calculate the right path.

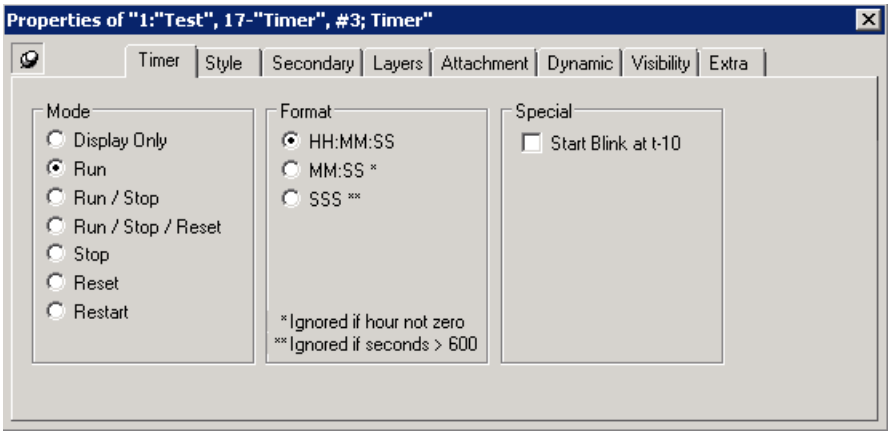
21.6.37 Timer

The *Timer* button is used to display a timer on the control panel. First, a timer must be placed on the button from the timer list, so that the button will display a timer. Placing the button on the panel directly from the panel toolbox enables the use of DAS.

Timer button



The default colouring for this button consists of three white question marks on a light-orange background as long as no timer is assigned. As soon as a timer is placed on the button, its name will be shown. Placing a time on a panel will add the following tab in the button's properties window:



Below the option *Mode*, different button options can be defined:

Display Only: The timer placed on the panel will only be displayed.

Run: The timer can be started on the panel.

Run/Stop: The Timer can be started and stopped.

Run/Stop/Reset: The timer can be started, stopped, and reset.

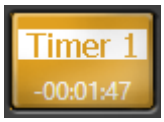
Stop: The timer can be stopped.

Reset: The timer can be reset.

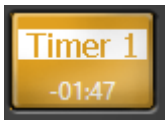
Restart: The Timer can be restarted.

Format allows the choice of three different views:

HH:MM:SS displays hours, minutes, and seconds in double-digits.



MM:SS displays minutes and seconds in double-digits.



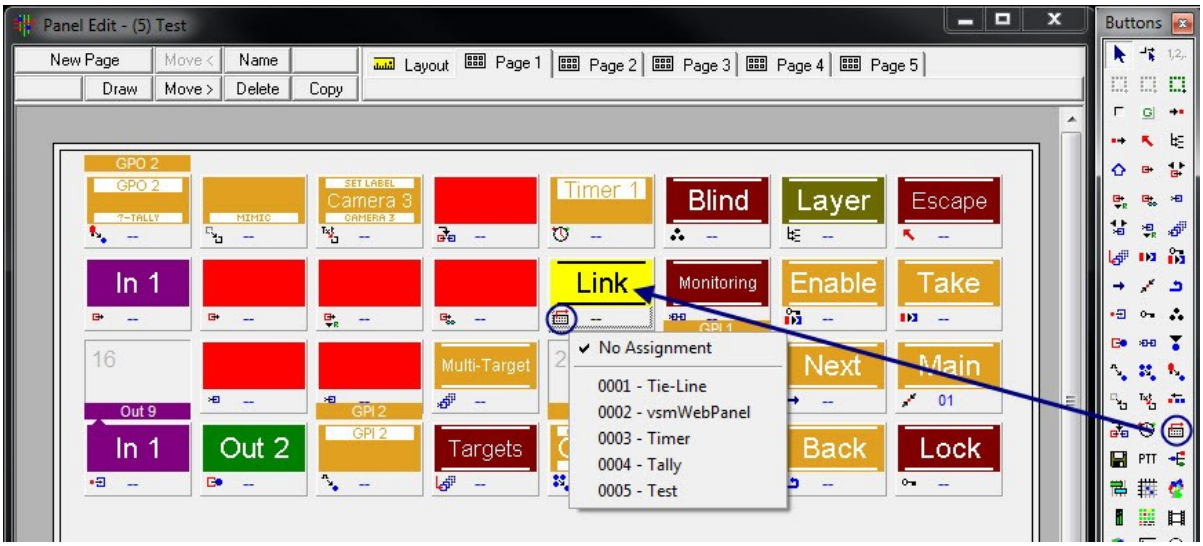
SSS displays seconds in triple-digits.

If the option under *Special* is ticked, the timer will start to blink at 10 seconds.

21.6.38 Change Panel

The *Change Panel* button allows jumping from the currently opened panel to a panel with a different panel ID.

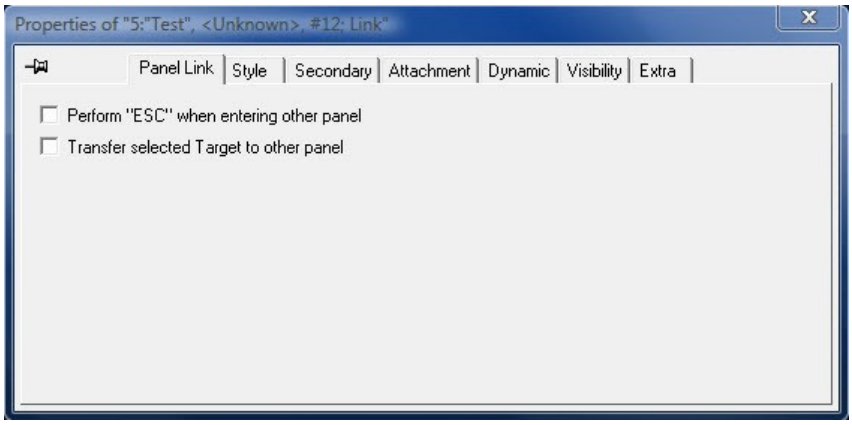
Change panel



The default colour for this button is a white caption on a grey background. After a left-click onto the small symbol in the bottom left corner of the button, it is possible to select the panel ID to which the button should refer.

No Assignment is checked by default. This option also allows the reversing of previously made assignments. After placing a *Change Panel* or *Link* button on a panel, the following tab appears in the button's property window:

Panel link properties

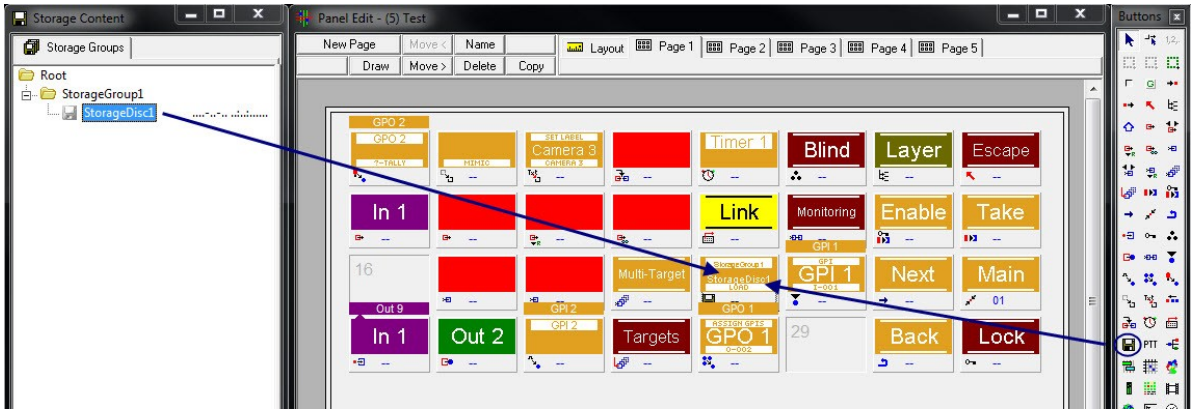


With *Perform "ESC" when entering other panel*, the function of an *Escape* button can be replicated for page changes, so that all currently selected buttons are reset.

Transfer selected Target to other panel allows selecting an output on a panel and then using the *Link* button to jump to a different panel to choose the relevant input. Once the input is selected, the *Link* button must be used to jump back to the initial page.

21.6.39 Storage Groups

Use the *Storage Group* button to place a storage group (see Storage Groups) onto a control panel.

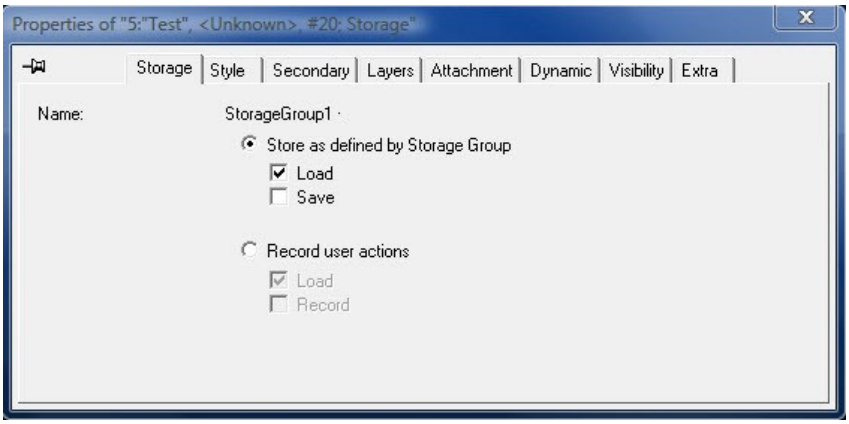


When no storage groups are assigned, the button is displayed with three white question marks on a light-orange background. As long as no storage Group is assigned the button is not observable on a virtual panel.

Once a storage group is assigned, its name is shown on the button. Per default Load is activated.

When a storage group has no content it is displayed greyed out on a virtual panel.

Placing a *Storage Group* button on a panel will add a *Storage* tab to the button's properties window:



Under ***Store as defined by Storage Group*** it is possible to select which functions should be available for this storage group or storage disc on the panel: Storage Groups can either be loaded, saved or both with one Storage Group button.

- **Load:** Load will load the content stored in the Storage Group. As soon as the content has been loaded the button changes its colour to active. As soon as the status of the content doesn't match to the real status the button changes its colour back to normal.

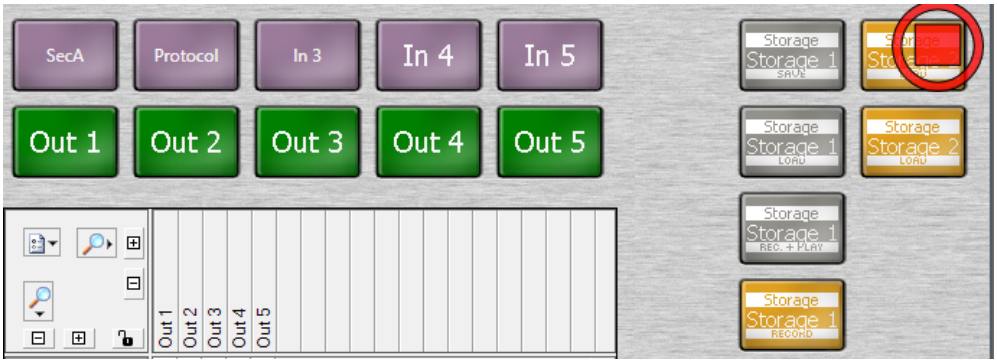
- **Save:** Save will save the content to the Storage Group. As soon as the content has been saved the button changes its colour to active. As soon as the status of the content doesn't match to the real status the button changes its colour back to normal.

- **Save + Load:** Click once and the content of the storage group will be loaded. Click and hold and the new status of the content will be saved and can be loaded with the same storage group button again.

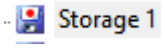
Through ***Record user actions***, Storage Groups can be set to be loaded or recorded.

- **Load/Play:**

- **Record:** Will record actions and fill the storage group with storage objects but will not execute it. Click once the record mode is activated and the storage button starts to blink. Furthermore a record symbol appears in the upper right corner. Now you are able to record the desired content. Click again and the record mode will stop.



A recorded storage disc will be displayed with a red dot.



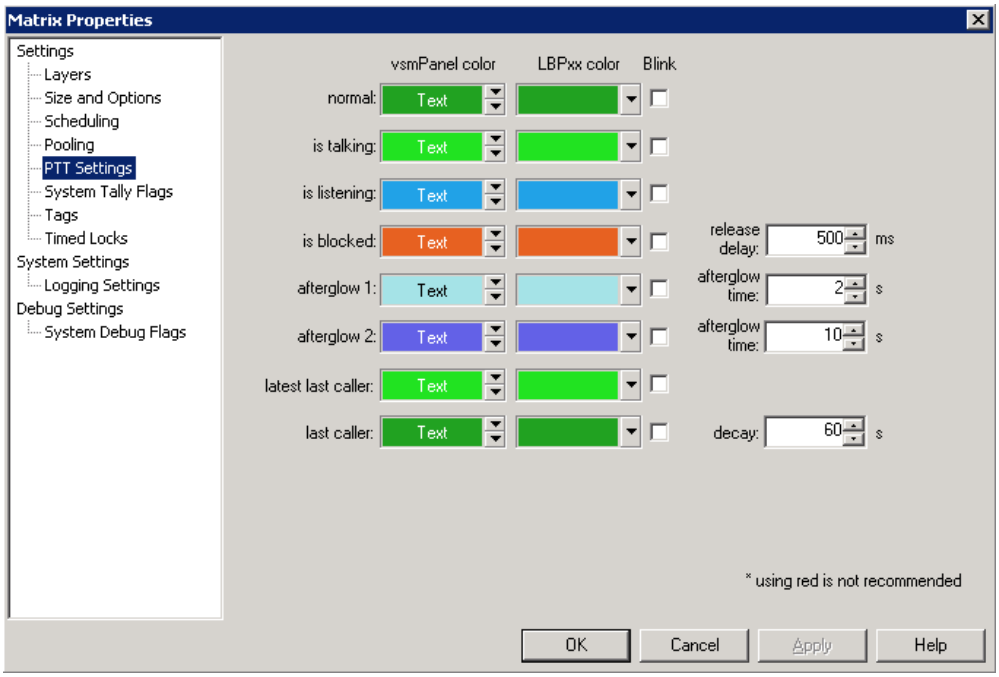
When activating the record mode without performing any action and selecting the storage button again the storage disc gets empty.

- **Record + Play:** Will record actions and save it to the storage group and will execute it when selecting the storage groups button again. For recording you need to click and hold the storage button.

21.6.40 Push to Talk

Use the *Push to Talk function* to create a virtual intercom.

Therefore you will find a Setting called “PTT Settings” within the Matrix Properties. There, you can pre-define the colors used by the PTT function.

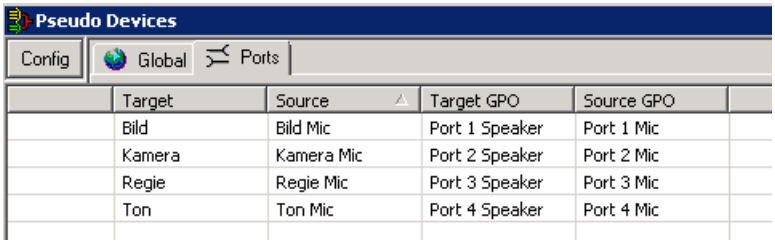


Release delay:

Afterglow time: Time setting for afterglow on a incoming call. The button will light up in the afterglow 1 color and after that will light up in afterglow 2 color.

Decay: Time setting for blocked signal. Will define how long blocked signal will be displayed.

In order to use PTT you need to create a special Pseudo Rule. In this case you use the tab *Ports* within the Pseudo Devices.



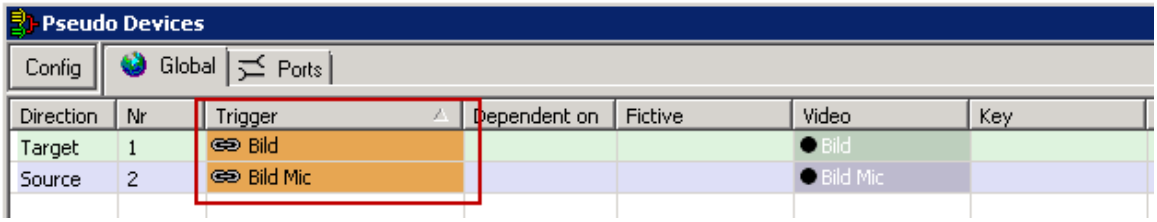
Target: Targets from Signalpath list or matrix

Source: Sources from Signalpath list or Matrix

Target GPO: GPO to activate the Loudspeaker

Source GPO: GPO to open the Microphone

All used signal within the Port list will be colored up within the global Pseudo list. Please note that the Global Pseudo list can influence the PTT function.



To create a panel just drag & drop the crosspoints and source into the panel and assign the PTT out of the toolbox. The target will be displayed within the button (Talk to button).

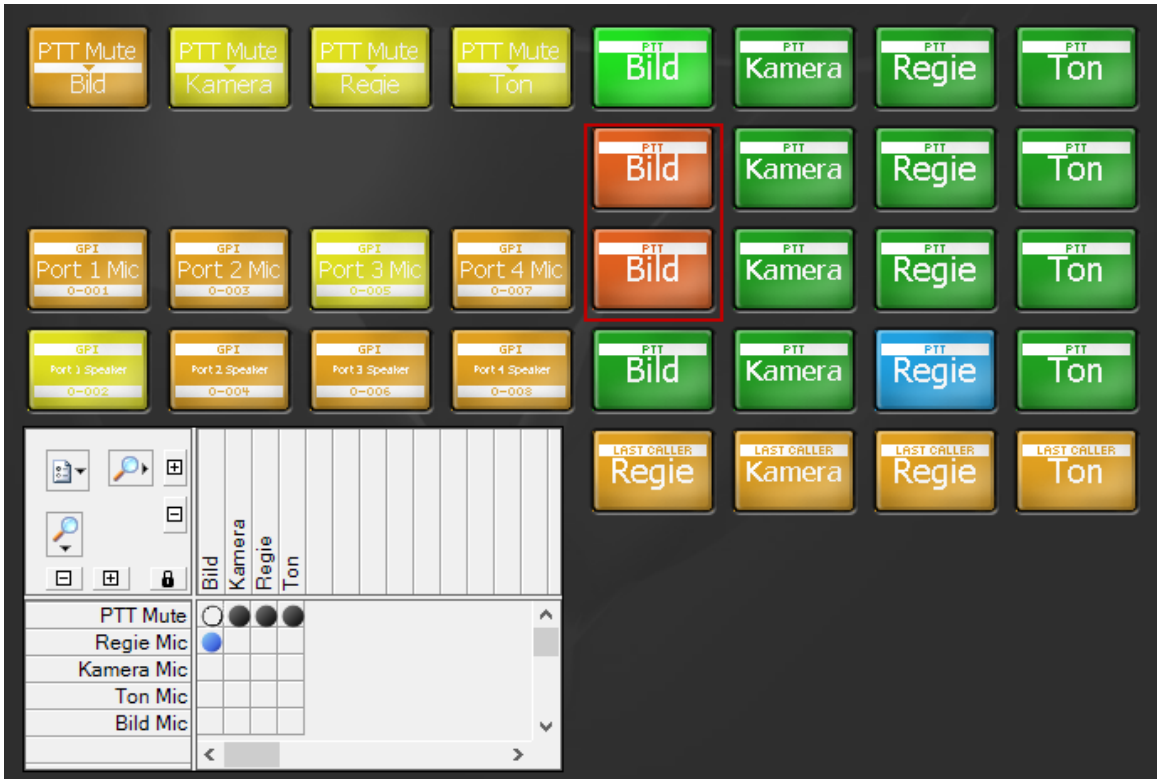
Drag & drop Mic source after assign PTT function. This will create a reply button (Reply button).

Loudspeaker GPO and Mic GPO just for visualization, not needed on the panel.

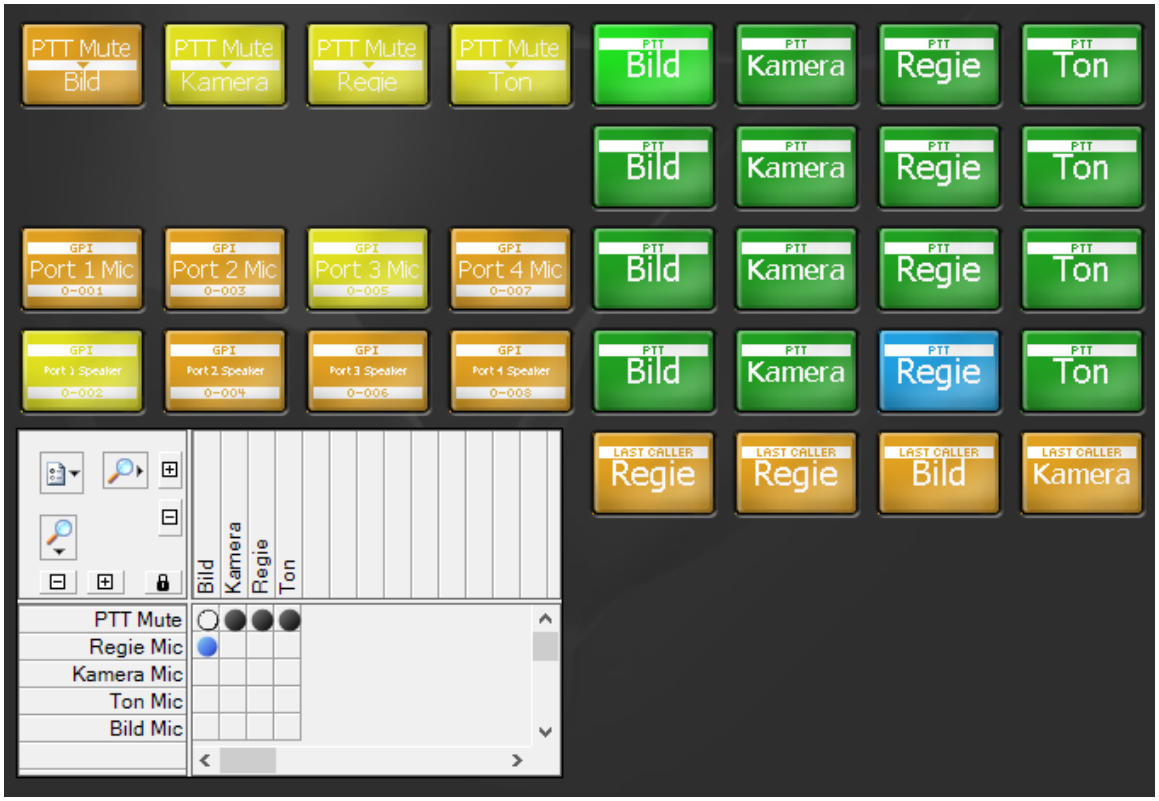
When you press a push to talk button it will be displayed in the *is talking* color. At the same time the target will be displayed in the *is listening* color.

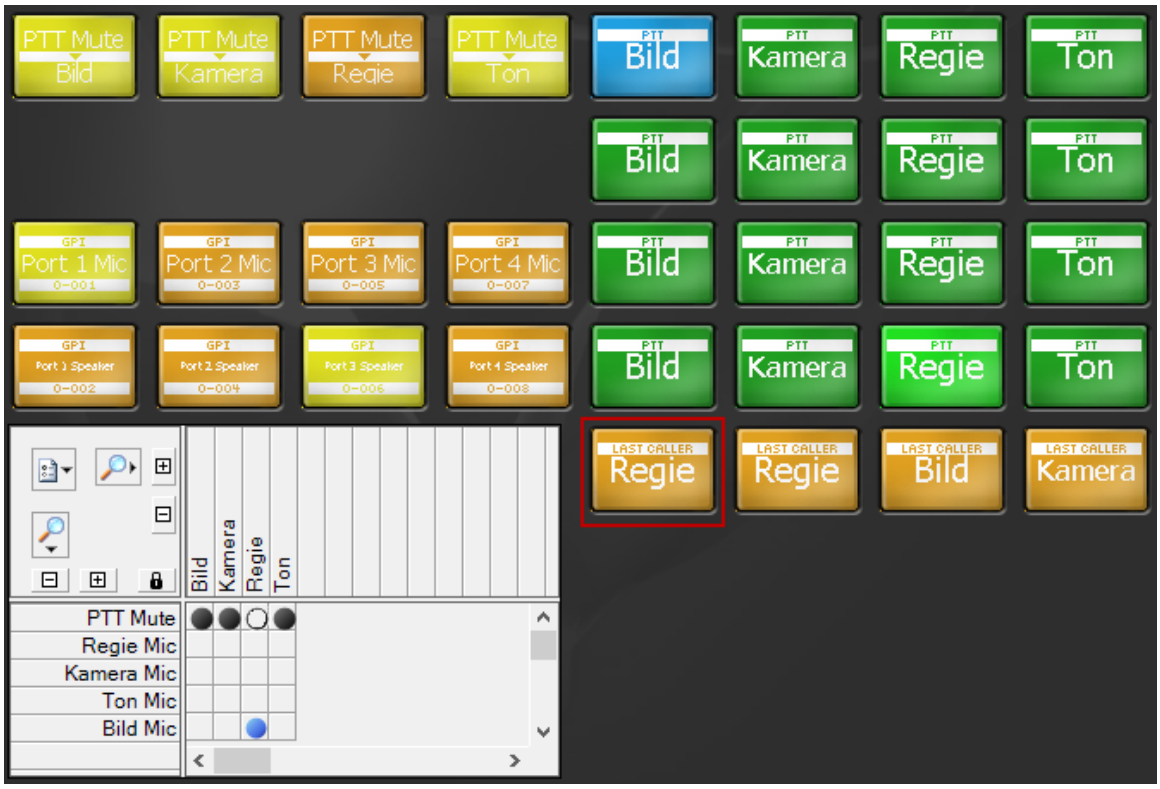
Once you release the *push to talk* button the source will first light up in the *afterglow 1* and after a while in the *afterglow 2* color until it turns again into the push to talk color.

When you try to push another source on a target that is already is in use it will be blocked. This is signaled in a block color.

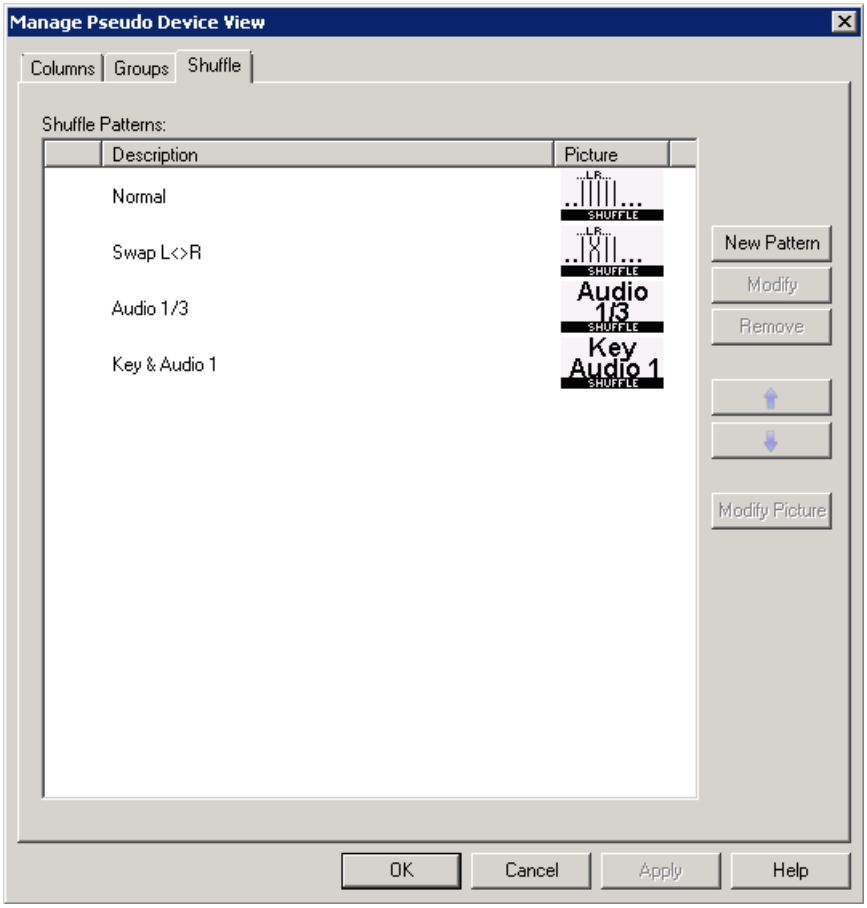


The *last caller* button allows you to reply in opposite direction once a crosspoint has been made.

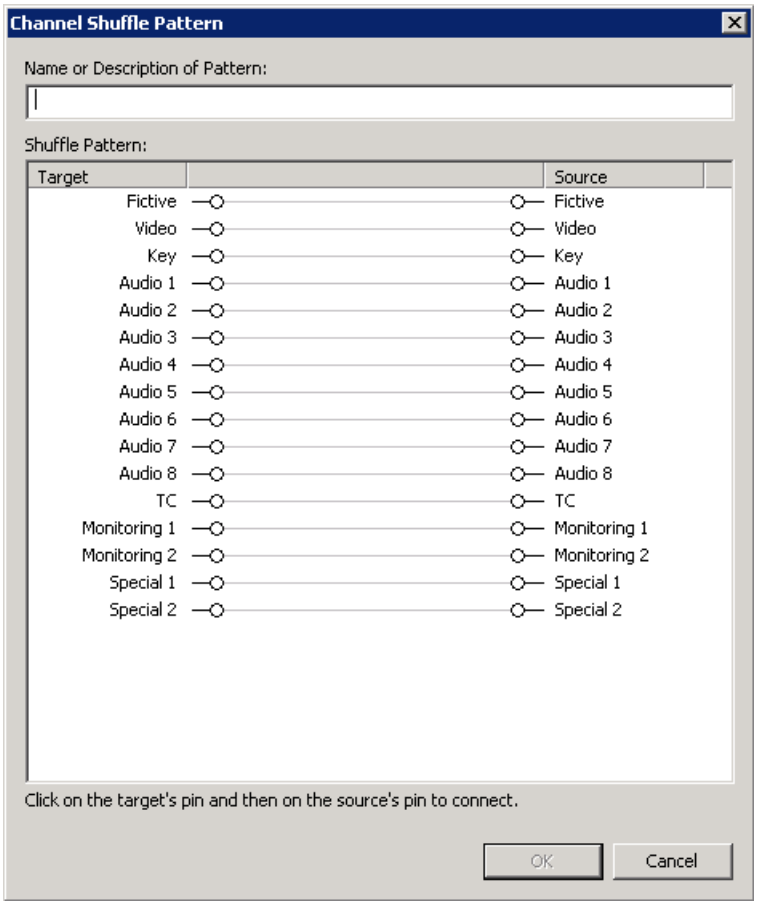




21.6.41 Shuffle

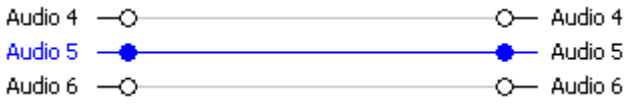


With the Shuffle button it is possible to manipulate the Pseudo Device rules. Under Pseudo Devices/Config/Shuffle you can create user defined Shuffle patterns. When selecting New Pattern the Channel Shuffle Pattern window opens.



Here you can decide which channels should be twisted and new arranged. To do this click on the targets pin and then on the source pin to connect.

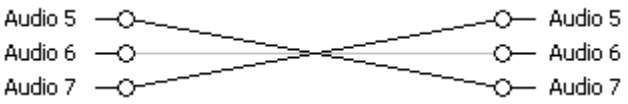
When you click once on a target it turn blue.



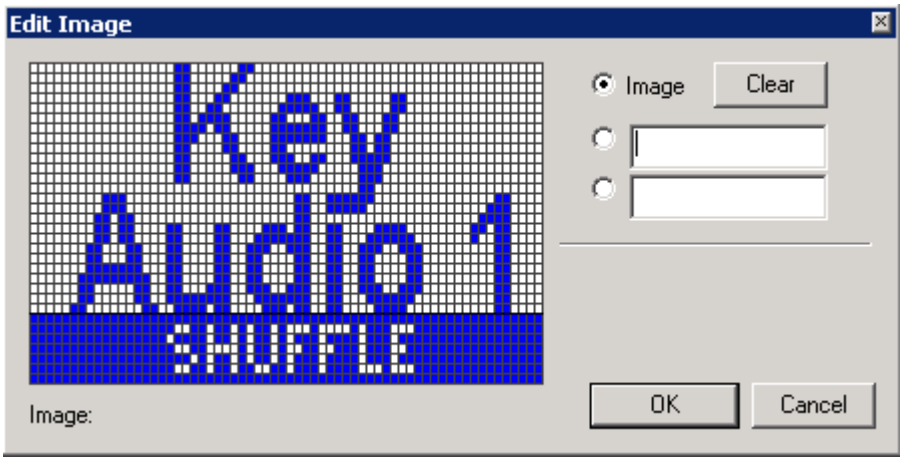
When you click again the connection breaks up and you are able to connect to another source.

When you click once again on the target pin or on another one you connect it to blind.

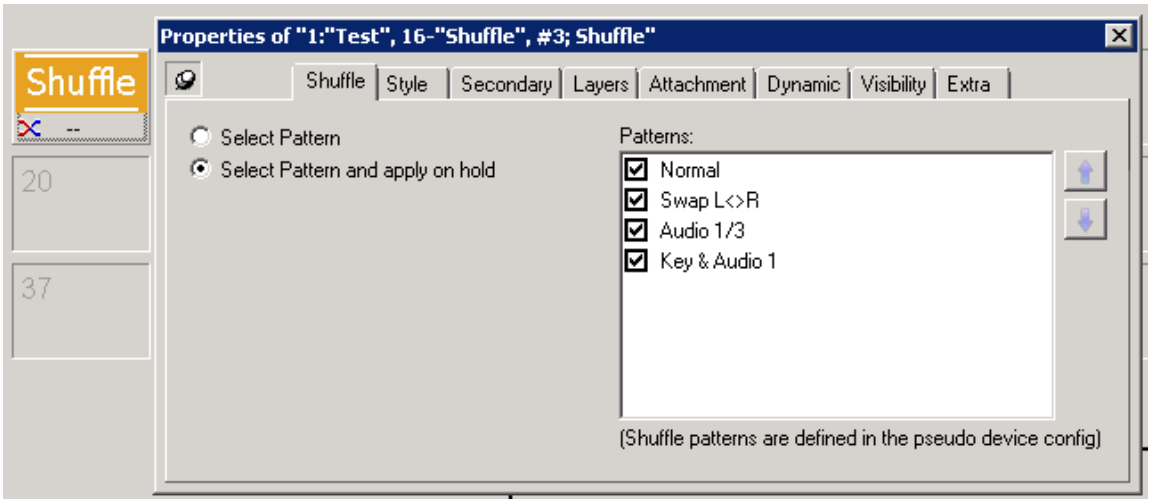
In the following scenario the behaviour is manipulated insofar that the channels Audio 5 and Audio 7 are switched.



You can create user defined Bitmaps for each new created pattern either by pressing Modify Picture or by double-clicking on the picture. This bitmap will be used on a virtual panel.



When placing a shuffle button on a panel it is displayed with the caption Shuffle in white lettering on a light-orange background. In the properties you will find the additional tab Shuffle.



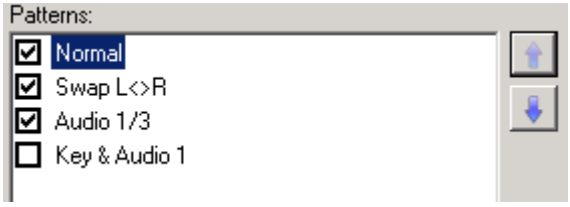
Every created Shuffle pattern is displayed on the right hand side under Patterns. There you can select which one to use.

Select Pattern:

When Select Pattern is checked the new rule is applied as soon as you select the shuffle button and perform a switch. When using more than one pattern on one button the shuffle button toggles between the patterns every time you click on it.

Select Pattern and apply on hold:

When Select Pattern is checked the new rule is applied as soon as you select the shuffle button and hold it. When using more than one pattern on one button the shuffle button toggles between the patterns every time you click on it.



The order in which the patterns toggle goes from the top to the bottom of the Patterns list. You can change the order by moving the patterns up or down using the arrows on the right hand side.

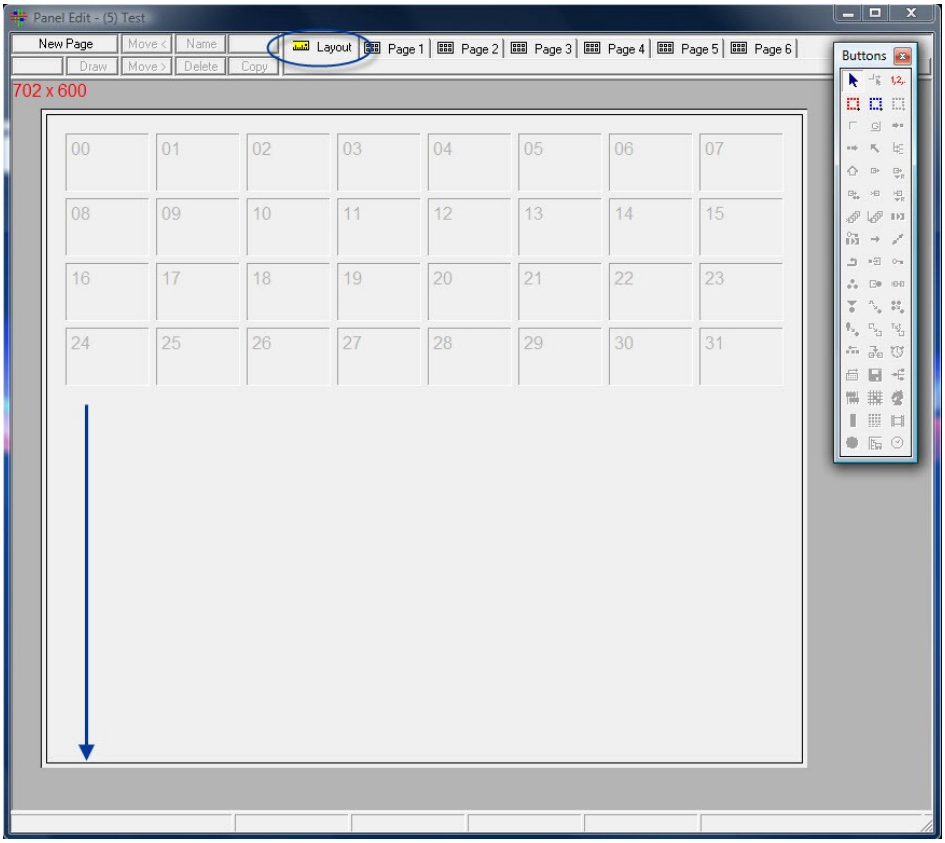
DON'T FORGET TO PLACE SOURCE AND TARGET BUTTONS ON THE SAME PAGE!!!!

21.6.42 Visual Link

To be able to use the *Visual Link* function, a frame must be drawn on a panel. This function, as those described in the following, are not button-related functions, but are only displayed on virtual control panels.

If the available space on the panel does not have a sufficient size, the entire panel can be enlarged in the *Layout* tab (see Panel Layout).

Increasing panel size



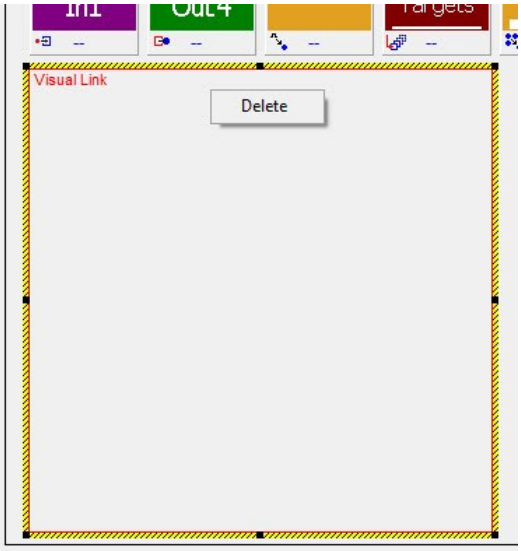
To create the *Visual Link* frame, select the function in the panel toolbox and draw the frame by moving the curser from top left to bottom right while pressing the left mouse button until the desired size is reached. The same procedure applies to the following functions, including Scheduler, Views, Map, Audio Level Meter, Alarm Management, Media Player, Browser, and Storage List.

Visual Link frame

In the panel edit, the visual link has a red frame and has a red caption in the top left corner. On a virtual panel, signals linked within this frame are shown as a signal chain.

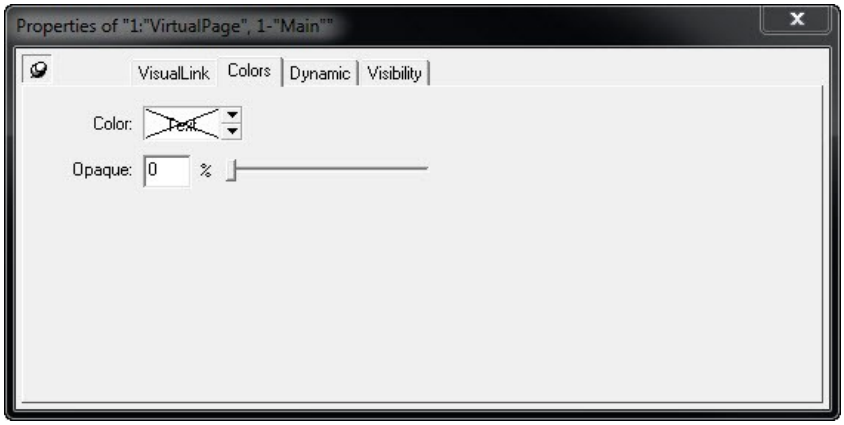
Visual Link on vsmPanel

To delete the *Visual Link* frame, right-click into it in the panel edit and select *Delete*.



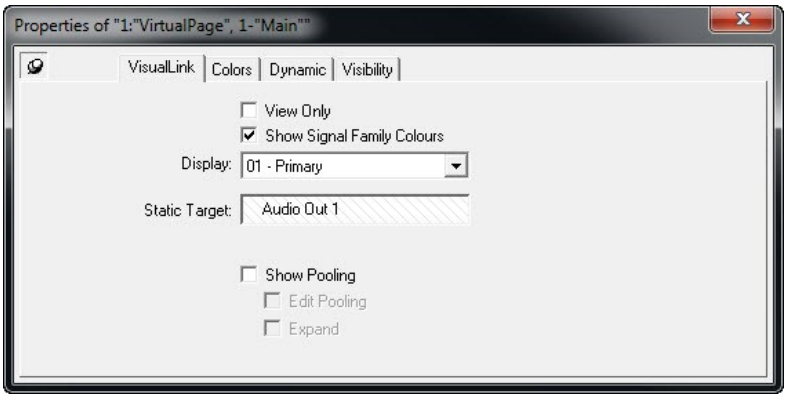
If a *Visual Link* frame is placed on a panel, the tabs *VisualLink*, *Colors,* and *Visibility* appear in the properties window.

The second tab allows changes to colour and opaqueness of the *Visual Link*. As with the buttons, the colour can be changed in the field next to *Color*. Similarly, opaqueness can be changed directly in the field beside *Opaque* or by using the slide control.



The following options are available under the *VisualLink* tab:

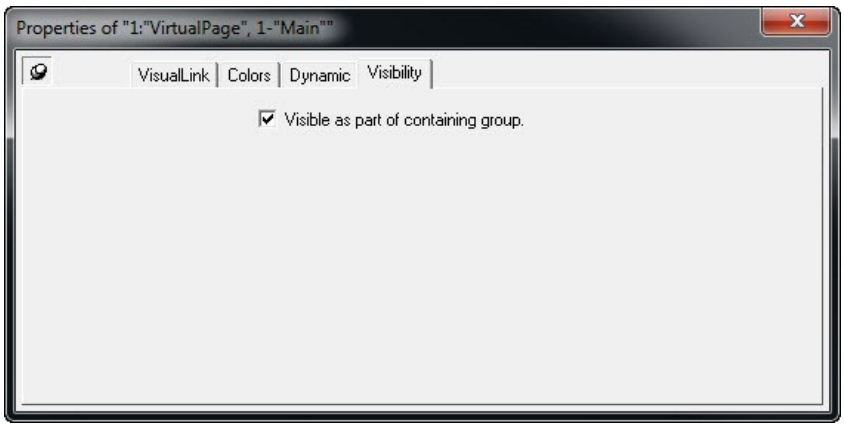
Visual Link properties



If *View Only* is ticked, the *Visual Link* will only be displayed. *Show Signal Family Colours* allows the display of colours assigned to signal path families (see Signal Path Families) in the signal path list.

The drop down menu next to *Display* offers the choice of which label should be displayed in the *Visual Link*. The options hereby include *Identifier*, *Primary*, and *Secondary* label (see Labels).

Visibility properties



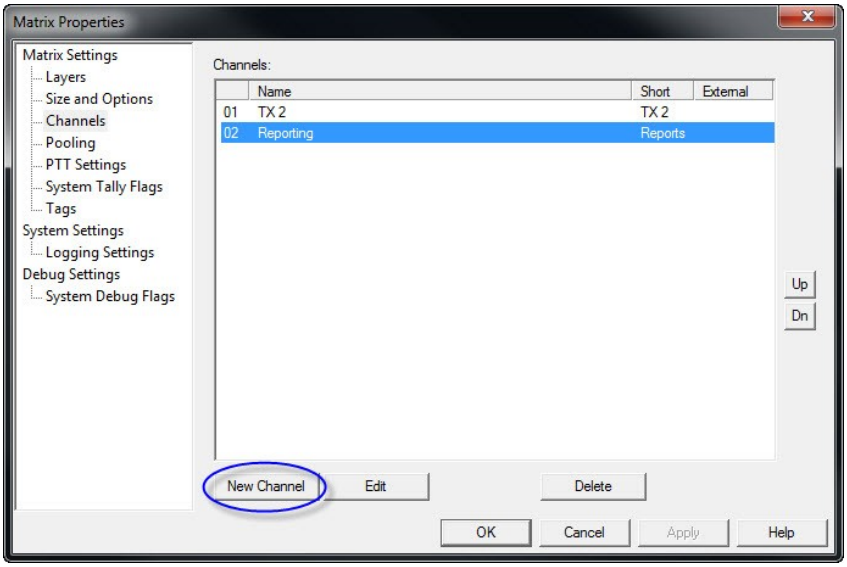
Using the option under the *Visibility* tab, the *Visual Link* will remain visible within a group.

The tab Dynamic provides space to enter Dynamic Attachment Scripts.

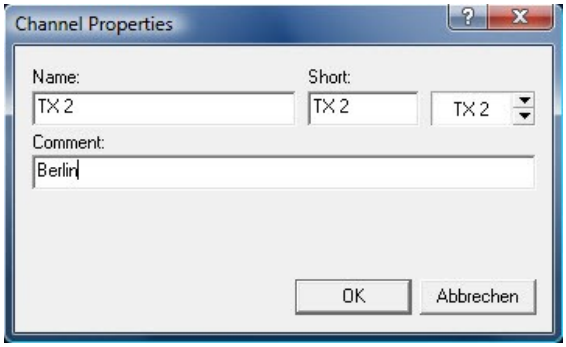
21.6.43 Scheduler

Creating Channels

In order to be able to use the Scheduler, corresponding channels (see Scheduling) must be created first. This can be done in the *Matrix Properties* view under the *Channels* tab.



Upon selecting *New Channel*, a window opens in which a new channel can be set up.

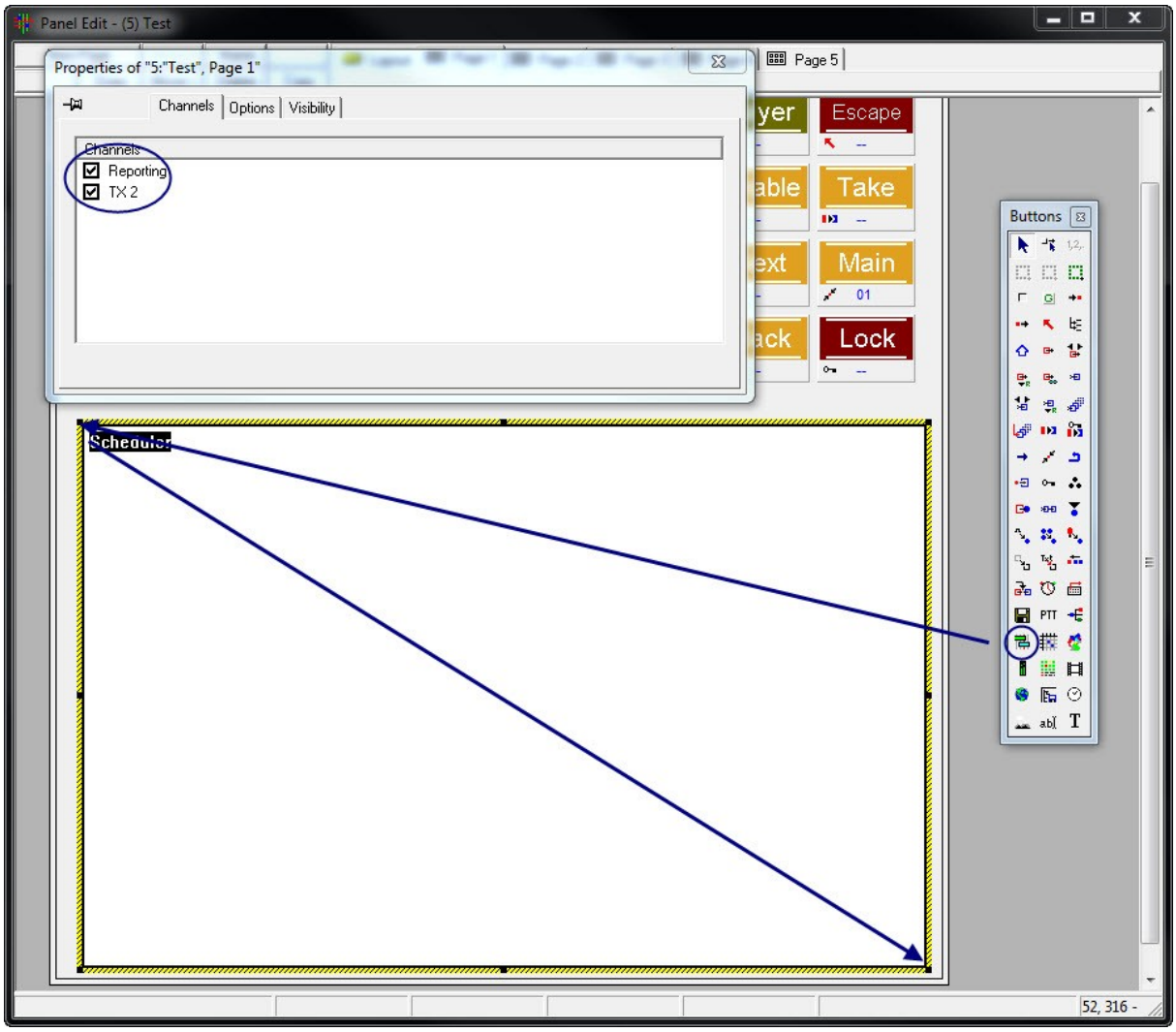


Enter a relevant name for the new channel and confirm the input by pressing *OK*. Close the *Matrix Properties* view after all necessary channels have been created.

Create Control Panel with Scheduler

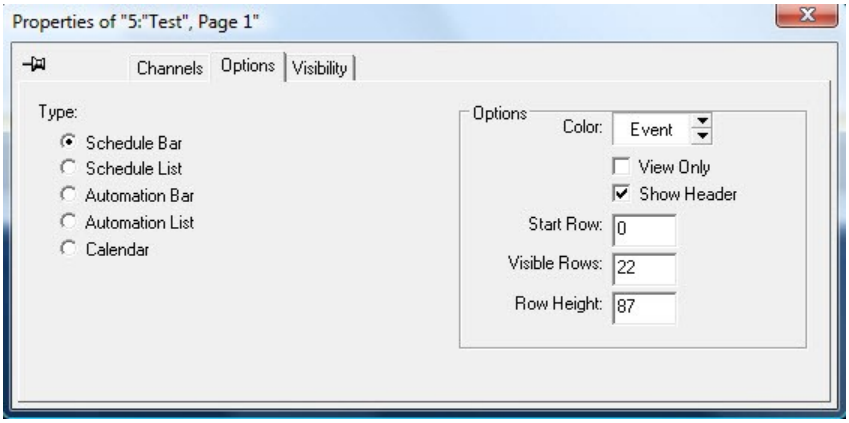
Select the *Scheduler* function in the panel toolbox and draw a frame as describe above (see Visual Link) across the side of the panel edit on which the scheduler is to be added. In the panel edit, the scheduler has a black frame and a white caption on black background in the top left corner. The scheduler frame can be deleted by right-clicking into it.

Create scheduler



When the window for the scheduler has been created, the properties view will open automatically. In this view, additional settings can be adjusted. The first tab allows the choice of which channels will be displayed in the scheduler.

Scheduler options



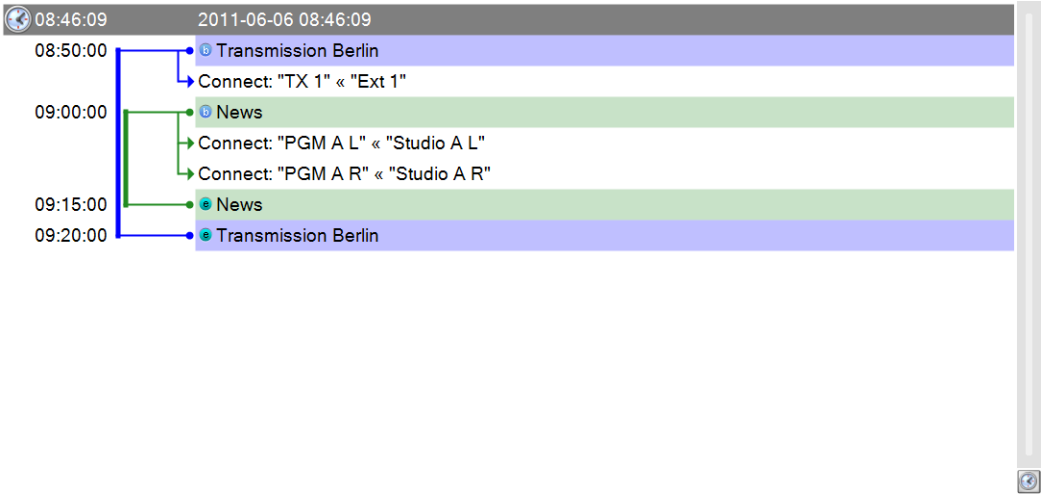
The second tab currently provides four view options for the scheduler:

Schedule Bar

With the Schedule Bar, events can be created and displayed on a time line.

Schedule List

The *Schedule List* shows all current switches per channel. Events cannot be displayed in this view.



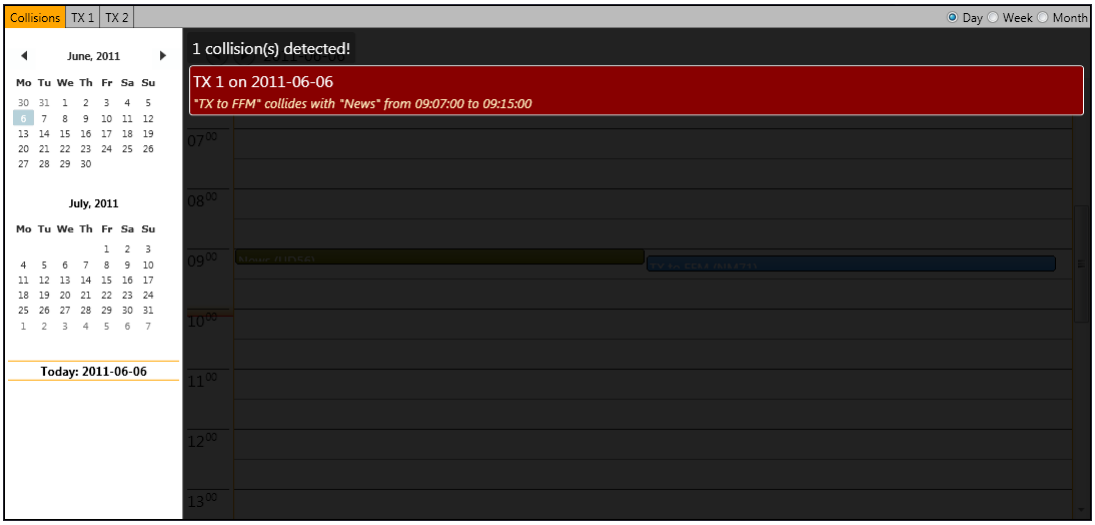
The *Automatic Bar* function is currently not supported.

Automation List

Through *Automation List*, events can be created while they are displayed as an automation list. Each event is clearly distinguishable through automatically generated colours. Moreover, events are automatically organized into active events with a five minute preroll and planned events per channel. This list comes with an integrated search function to quickly find created events.

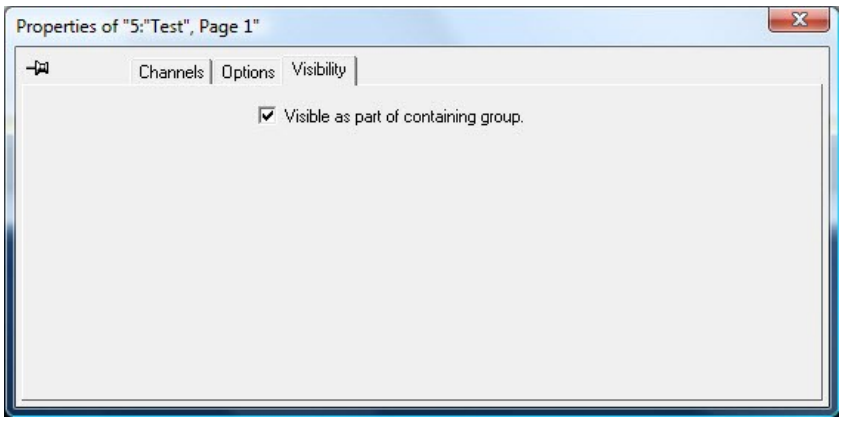
Calendar

With the *Calendar* function, events can be created and displayed in a calendar view. In addition, this view offers a collision test for each channel. As soon as a time conflict is detected within a channel, the interface will show the corresponding collision.



View Properties

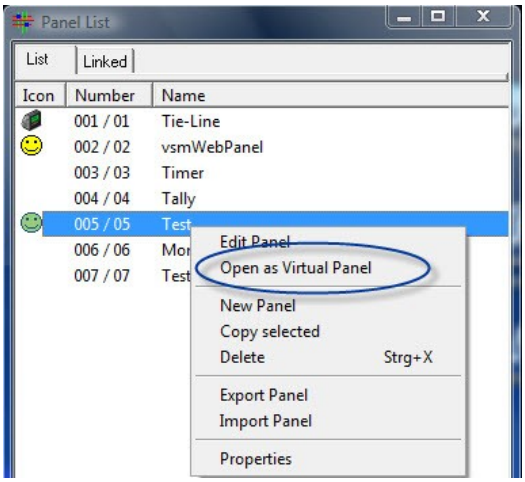
Visibility tab in the scheduler properties



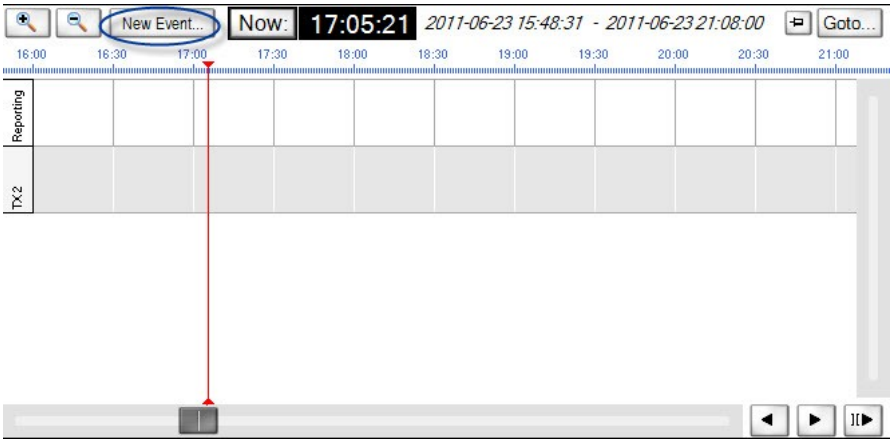
The option *Visible as part of containing group* can be activated or deactivated in the *Visibility* tab. If active, the scheduler area will be changed in accordance to a page change. Consequently, if no scheduler was created on the relevant page, the control panel will not show one. With this function, multiple scheduler windows can be configurated for multiple pages, for example to allow the use of multiple views. If this option is not activated, the scheduler window will not change in the event of a page change. All other scheduler settings are taken from the vsmPanel.

New Event

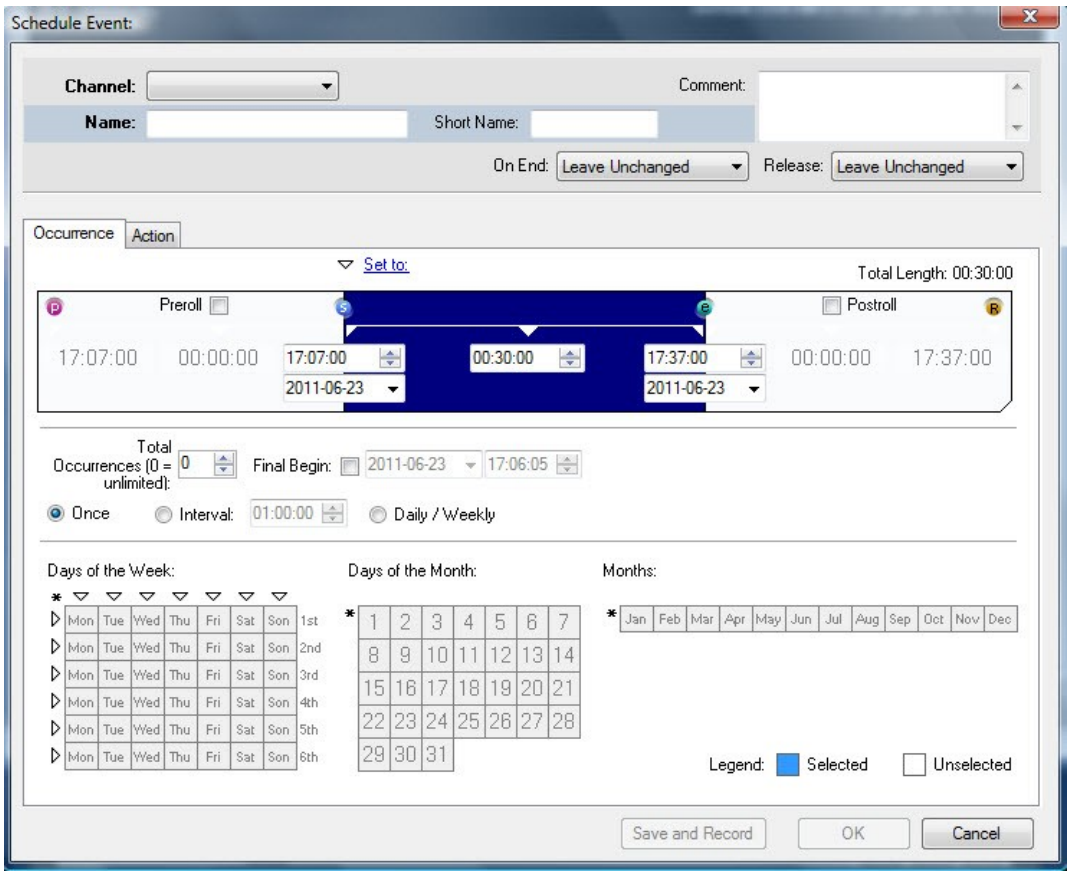
The procedure for the creation of events always remains the same, regardless of the view option chosen for the scheduler. To create a new event, select the control panel on which the scheduler is located and open it as virtual panel by right-clicking onto it in the control panel list.



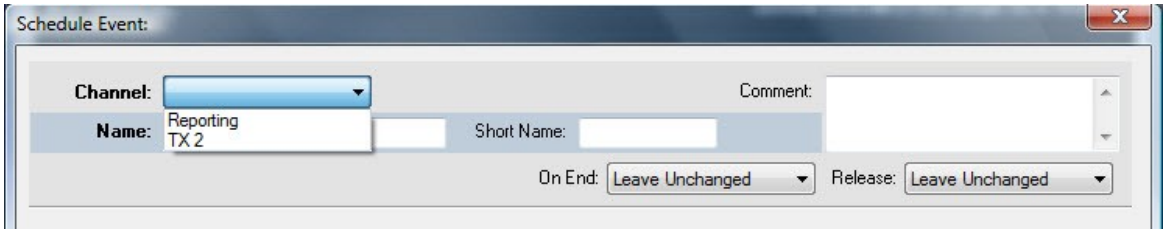
Next, select *New Event* in the scheduler view to create a new event.



This will prompt the following window:

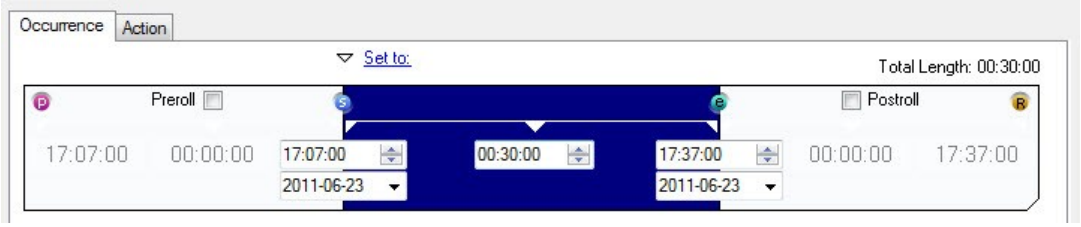


In a drop down menu on the top, the previously selected and activated channel can be chosen (see Create Control Panel with Scheduler). Next, the event can be created for the selected channel.



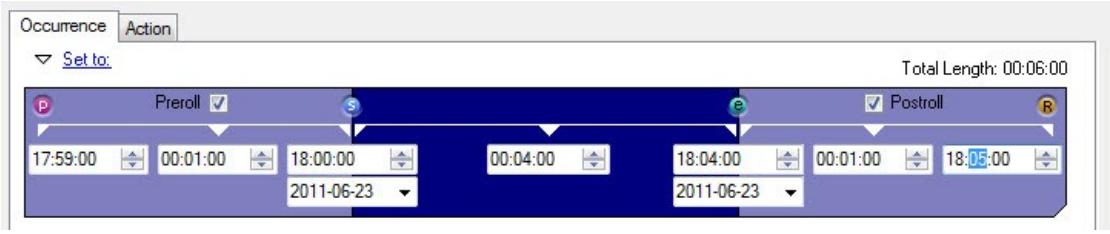
In the next step, enter a name for the event. As soon as a channel has been chosen and a name entered, the previously greyed out confirmation button *OK* in the bottom right become available.

Starting time, duration, and end time for the event



The time for the start of an event can be set in hours, minutes, and seconds along with a date in the field *Occurrence.* The end time will automatically be added once the duration of the event has been entered.

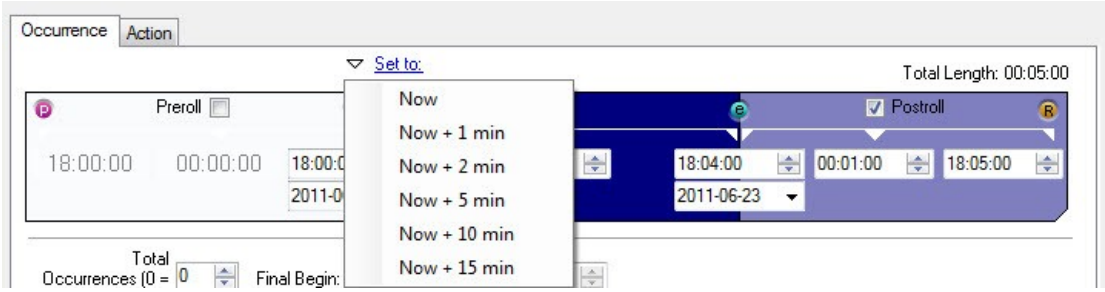
Preroll and postroll



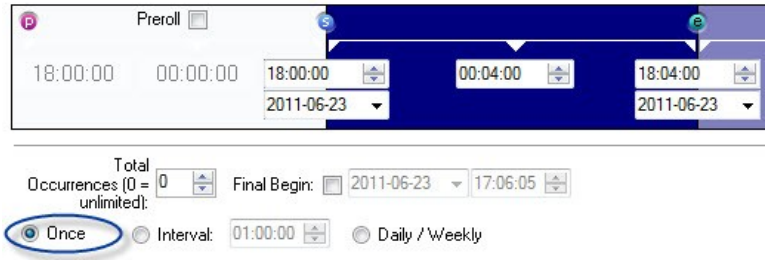
If *Preroll* and *Postroll* are ticked, durations for postroll time after and preroll time before the event can be entered there. These times can be defined either as start or end time points, where *p* stands for *Preroll*, *R* for *postroll* (Release), *s* for the start, and *e* for the end of the event.

One-Time Event

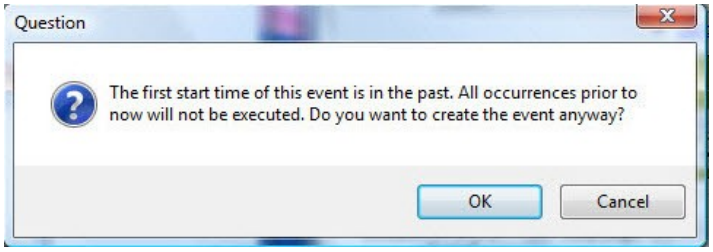
There are two possible ways to set up a one-time event: The starting time of the event can be chosen through the drop down menu under *Set to*. The scheduler will automatically add the duration (between one and 15 minutes) entered here to the current time, which then becomes the starting time for the event.



Alternatively, it is possible to enter a start and end time or the duration of the event as described above. Select the option *Once* after these entries have been made to indicate that this event is a one-time event.

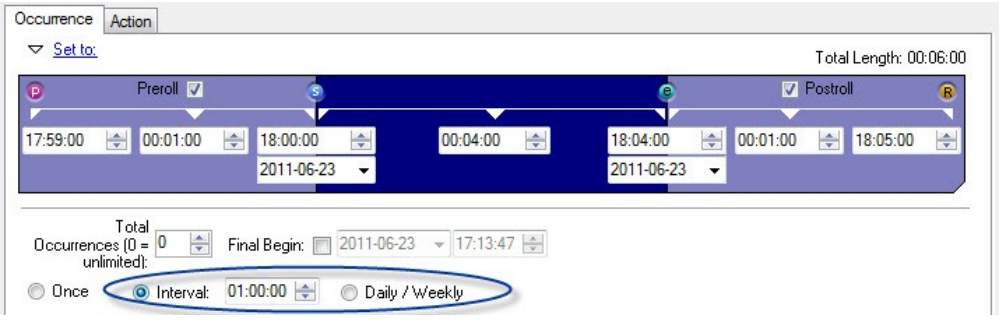


After confirming the entries by pressing *OK*, event actions can be defined. The scheduler will notify the user if the start time of the event was set before the current real time.

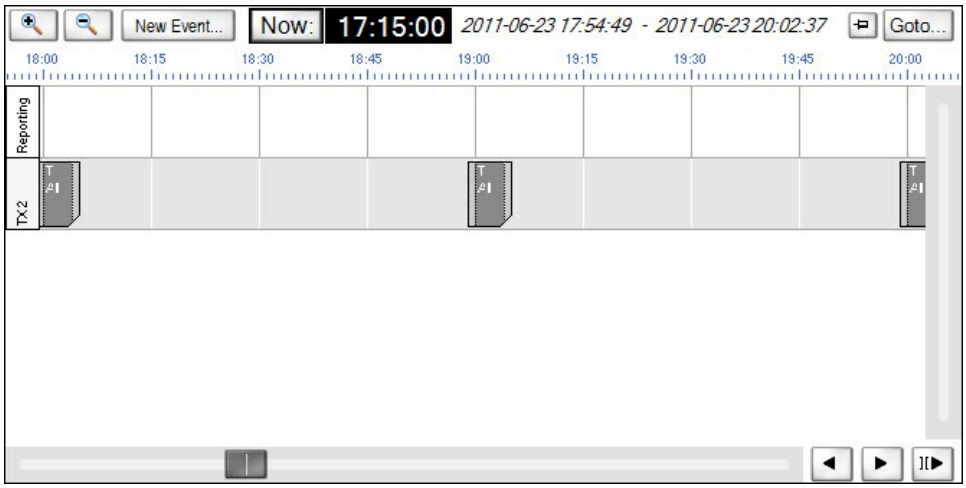


Repeated Event

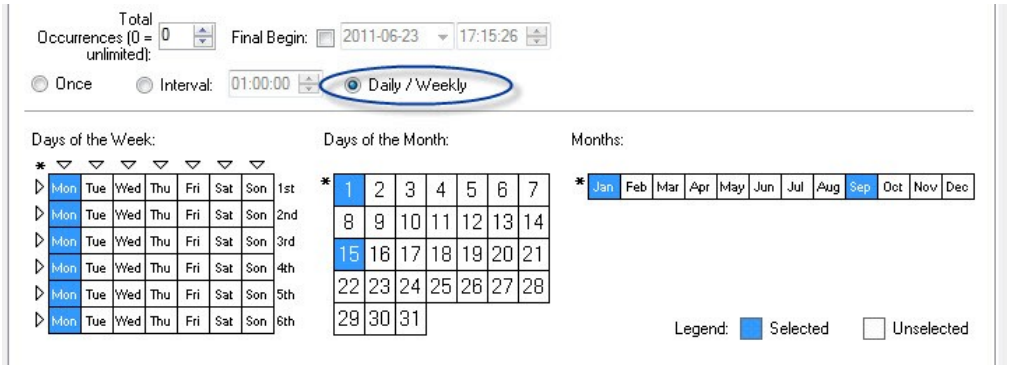
A repeating event can be set up in multiple ways. The duration, after which the event repeats itself, is entered under *Interval*.



It is, for example, possible to create an event that repeats itself hourly.



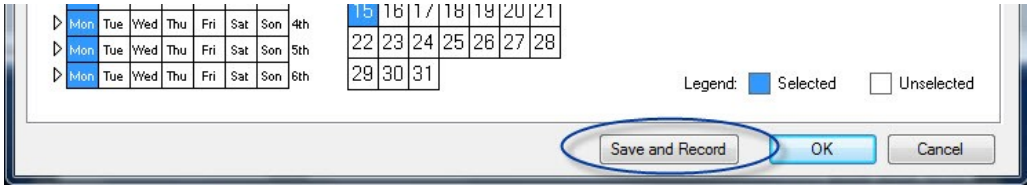
An event can also be set to repeat on certain weekdays, dates, and certain months. To do so, select the option *Daily/Weekly*.



In the field below, certain weekdays (multiple selections are possible, for example all Mondays), dates, and months can be chosen for the repetition of the event. These fields can be individually selected and deselected by repeatedly clicking onto them. Blue colouring indicates that this day, month, or date is selected; white indicates that it is not selected.

Event Actions

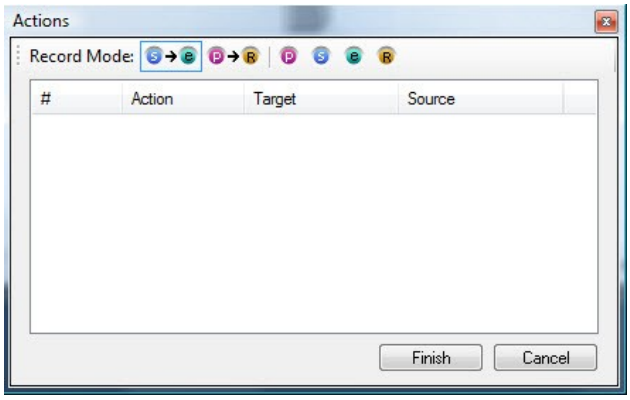
Once time, duration, and repetition of the event have been set, the event action must be defined. To do so, select *Save and Record*.



In a new window, the following recording modes are available:

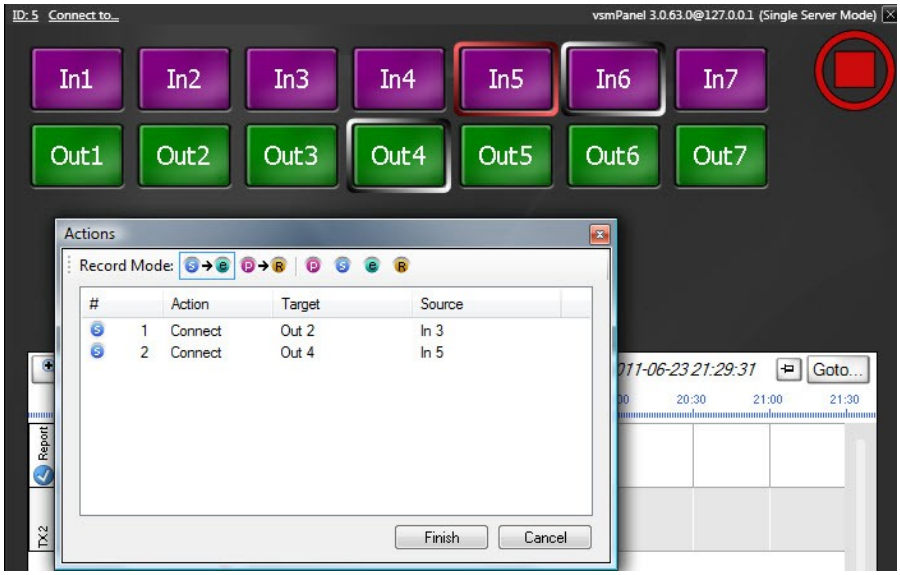
- *s* > *e*: from beginning to end of the event
- *p* > *R*: from postroll to preroll
- *p*: preroll
- *s*: beginning
- *e*: end
- *R*: release (postroll).

Recording and saving actions



To record and event action, the event phase (that is from preroll to postroll) for which an action is to be defined must be chosen first. Next, the targets and sources whose links will be part of the event must be selected, for instance *Out4* and *In5*. The recording mode is indicated by a red record symbol on the panel.

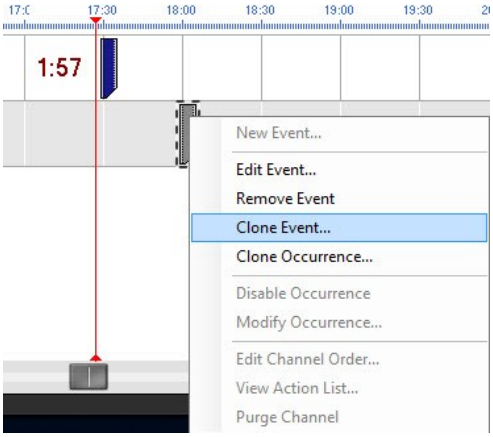
Record and save crosspoint



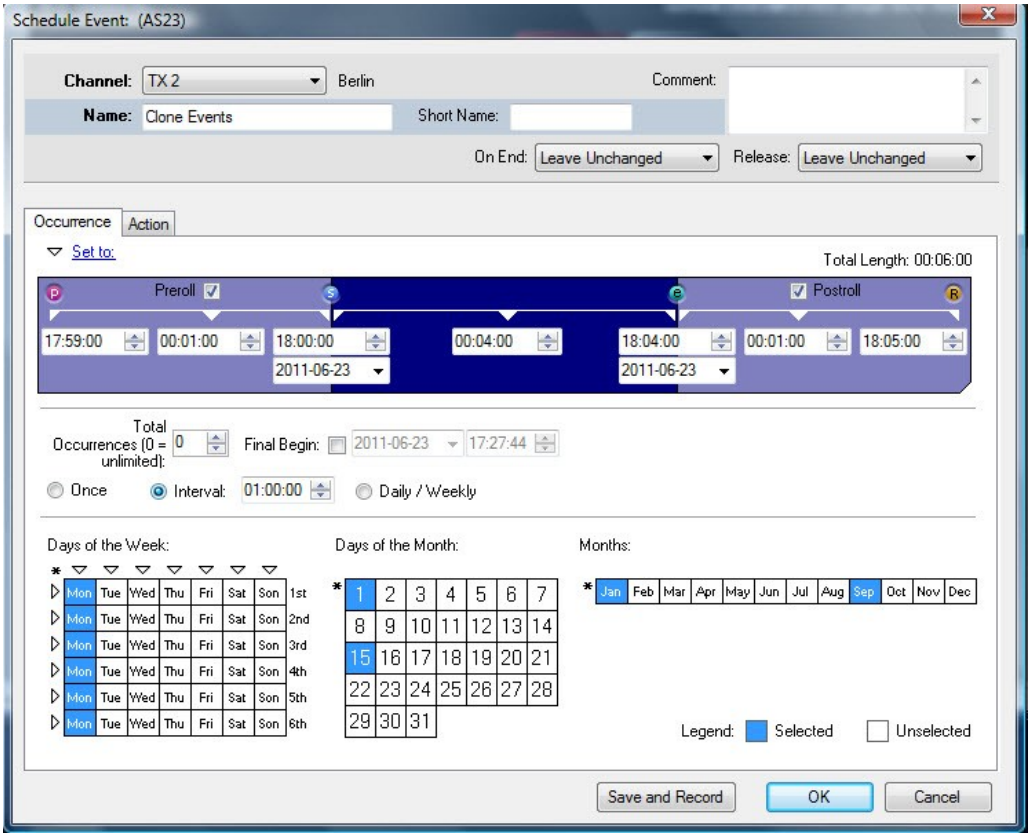
Press *Finish* to confirm the entries.

Clone Events

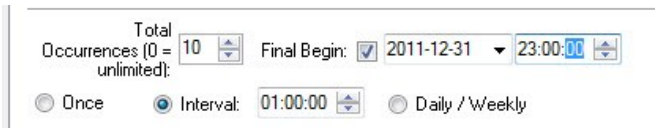
To duplicate an event, right-click onto the event that is to be copied and select the option *Clone Event*.



A new window opens, in which the event settings described above can be adjusted.



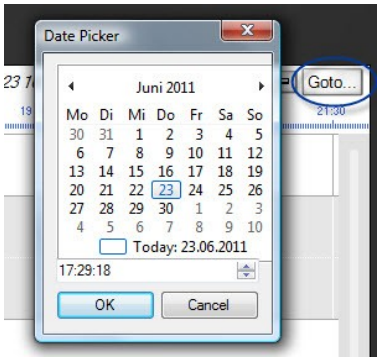
Similarly to the procedure described above, this window requires the input of a name, channel, etc. for the cloned events (see New Event).



Beside *Total Occurrences*, the number of repetitions can be defined. The field besides Final Begin allows the definition of the time of the event's last repetition.

Scheduler Navigation

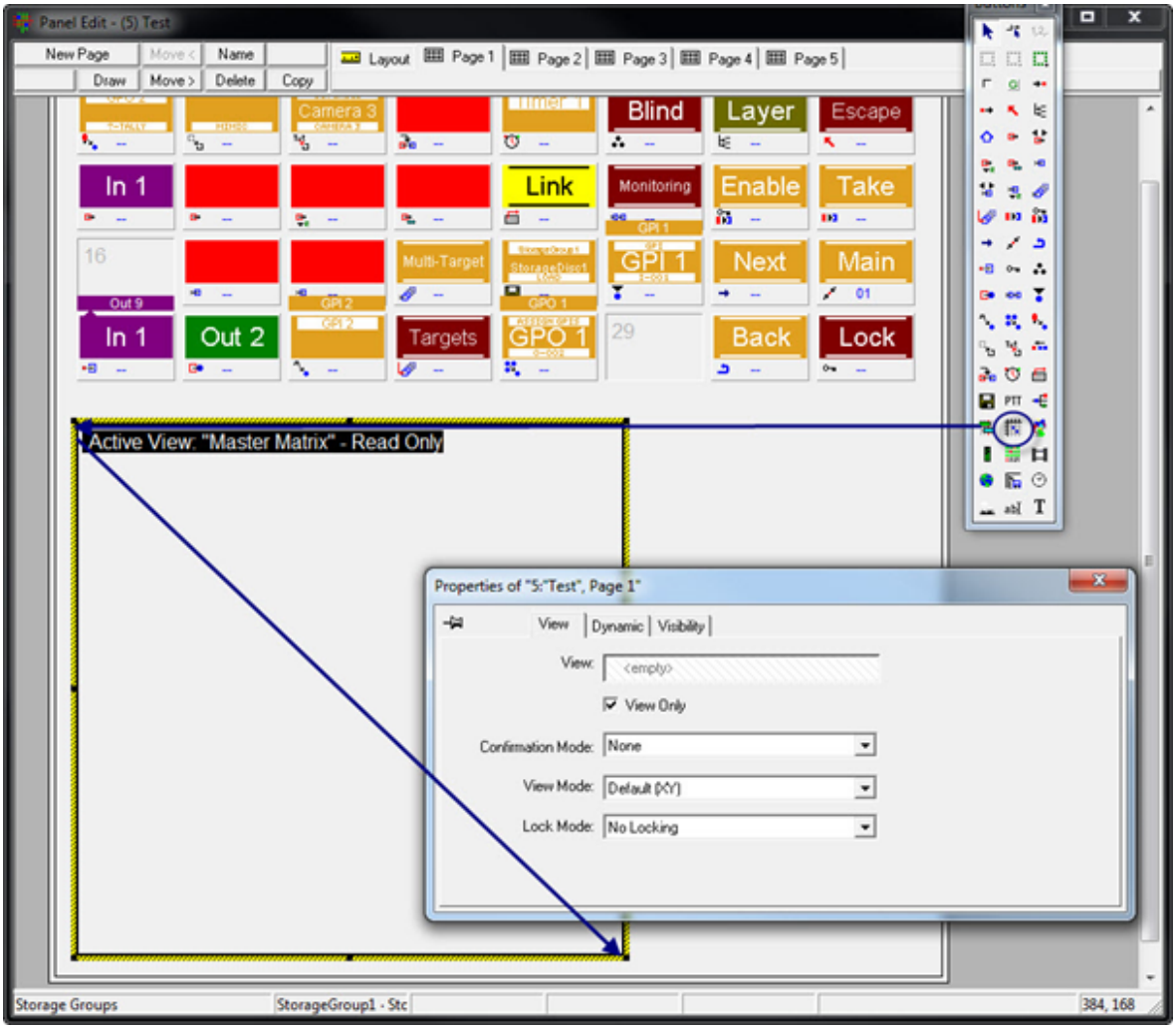
The scheduler features a so-called *Date Picker* that allows an optimized search for an event by selecting an exact date, to which the scheduler view will jump.



Navigation of the scheduler is made easy by the three arrows located in the bottom right corner of the window. Using them, it is possible to jump directly to the next or previous event or to the next gap.

21.6.44 Views

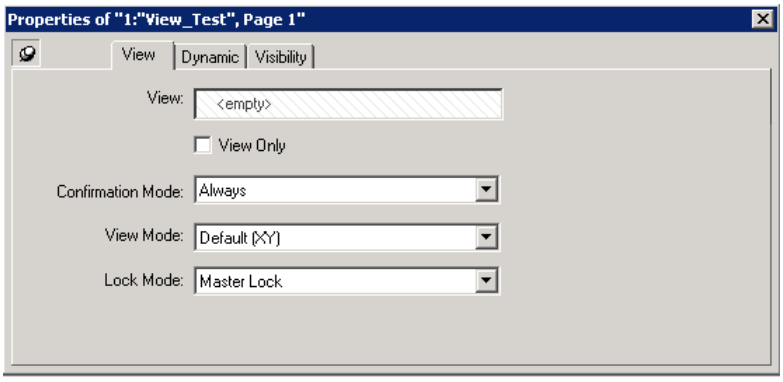
The *Views* function allows the display of views on a virtual panel. They can be used either as display option only or to switch crosspoints. The *Views* function requires a frame. To create it, select the function in the panel toolbox and drag the cursor from the top left to the bottom right while pressing the left mouse button to draw a frame in the required size.



Views have a black frame with the white caption *Active View* and the name of the currently selected view on a black background in the panel edit. If no view has been assigned, the read-only view of the master matrix (see Master Matrix) is shown.

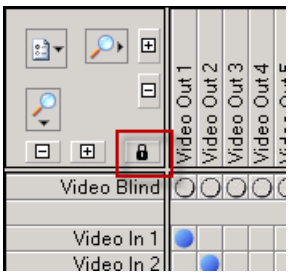
A view must be dragged and dropped from the views list into the views frame's properties window in order to be displayed on a virtual control panel. This window also allows the choice whether the view will be read-only or if it can be edited.

View Tab



View: A view must be dragged and dropped from the views list into the views frame's properties window in order to be displayed on a virtual control panel. If no view has been assigned the master matrix is shown.

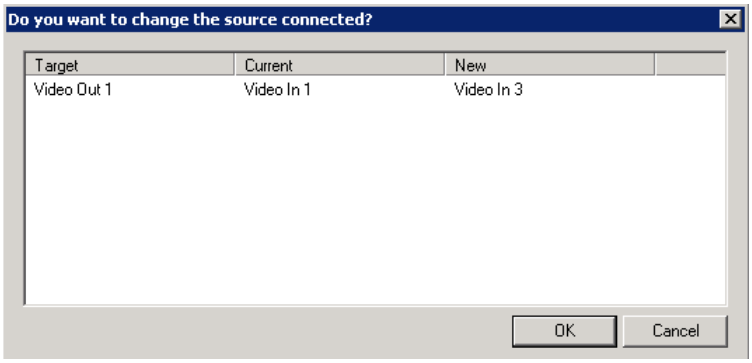
View Only: This window also allows the choice whether the view will be read-only or if it can be edited. When the attribute 'View Only' is unchecked a lock symbol appears in the Views page Item:



Confirmation Mode:

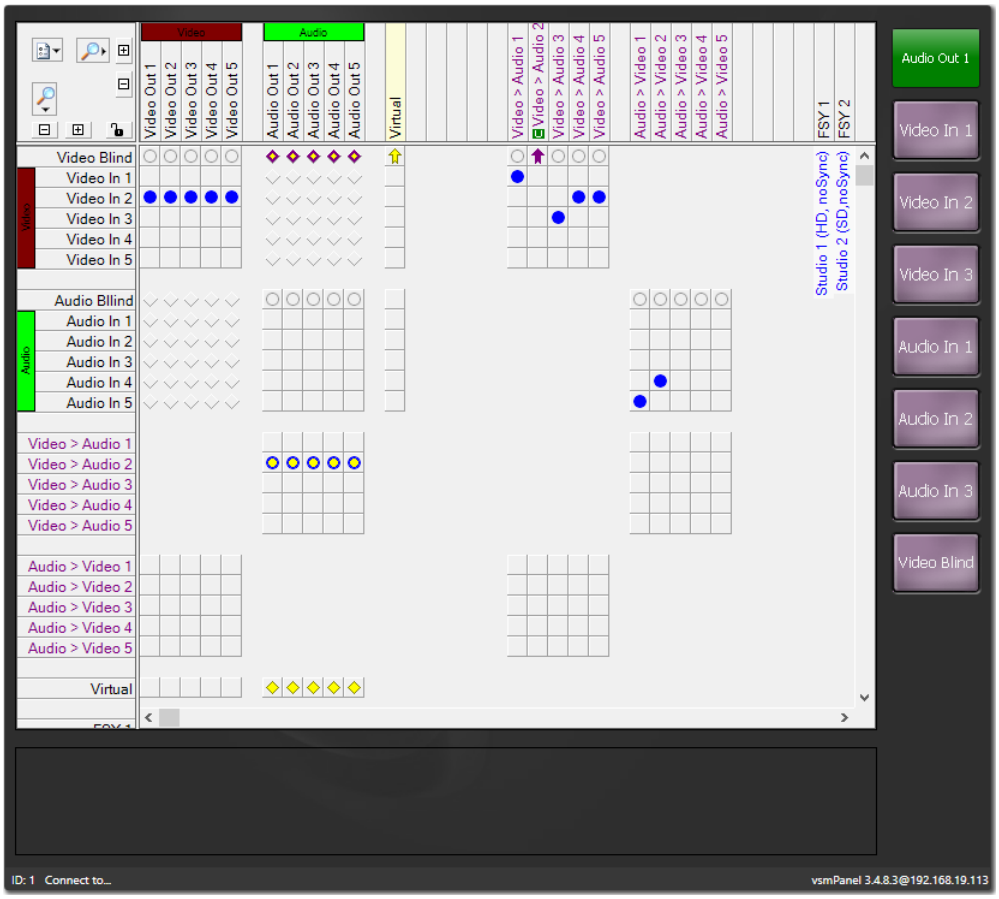
- **None:** When selected, the Confirmation Mode is disabled.
- **Always:** When selected, the confirmation prompt will be displayed always when switching a crosspoint.
- **Only if connected:** When selected the confirmation only prompts when a Destination is already connected to a Source. When a Destination is connected to blind and you switch to a source vsmPanel won't display a confirmation prompt.

Confirmation Prompt

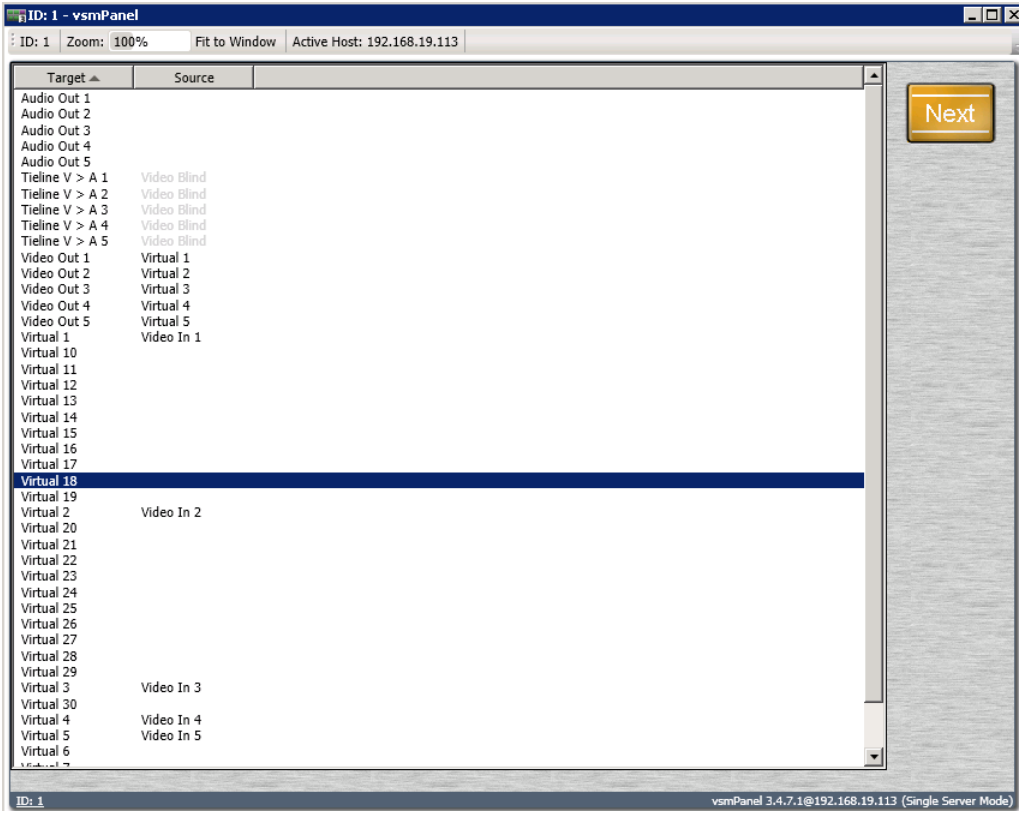


View Mode:

- **Default (XY):** When activated, the crosspoint Matrix is visible:



- **List:** When activated, Signals are displayed in a List view:



Lock Mode:

The Lock Mode allows the user to lock Targets within the Views Page Item in the Virtual Panel. When activated it is possible to Master Lock.

- **No Locking:** When selected, the Lock Mode is disabled. Lock is greyed out.
- **Master Lock:** When selected, the Lock Mode is activated. Lock is selectable.

Visibility Tab

The *Visibility* tab allows the option to set the view to remain visible as part of its containing group.

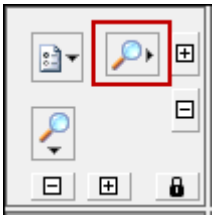
Find Source/Target

It is possible to search for Sources and Targets within the Views Page item. There are two ways. Either you select the button with the magnifying glass or by pressing Ctrl + f. When pressing Ctrl + f by default Targets will be searched until you click on the Source field.

Using Strg + s will open the search box for Sources.

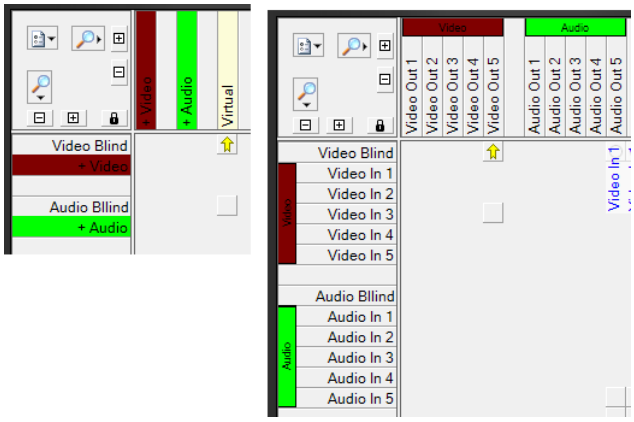
Using Strg + t will open the search box for Targets.

F3 will toggle between all results that are similar to the query.



Collapse/Expand all Source/Target Families

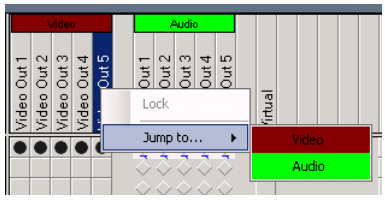
Using the +/- symbols it is possible to collapse or expand Sources/Targets that are summed up under Signal Path Families.



Alternatively you can double-click on the coloured background of the signal path family.

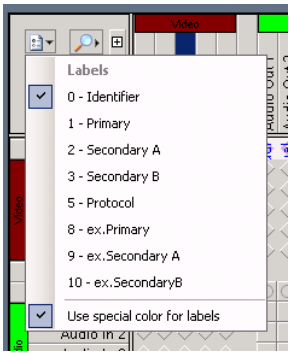
Jump To...

Within the View Page item on a virtual panel you can use the function *Jump to....* to jump directly to the position of a certain signal path family.

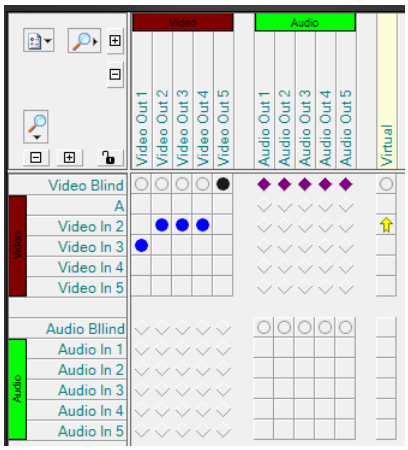


Options

Furthermore you can decide which type of signal label should be displayed.

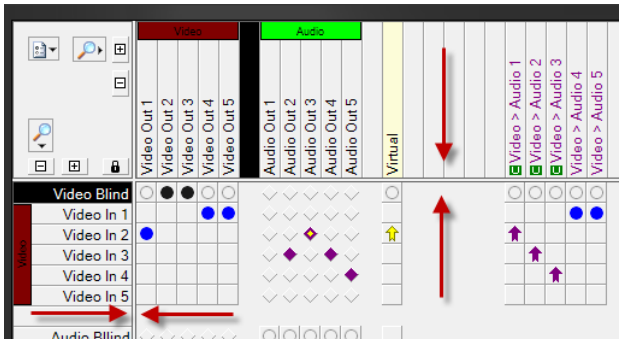


Use special color for labels will display the labels in a light blue colour. This is only the case for labels 1-10. The Identifier is displayed in black.



Change Border

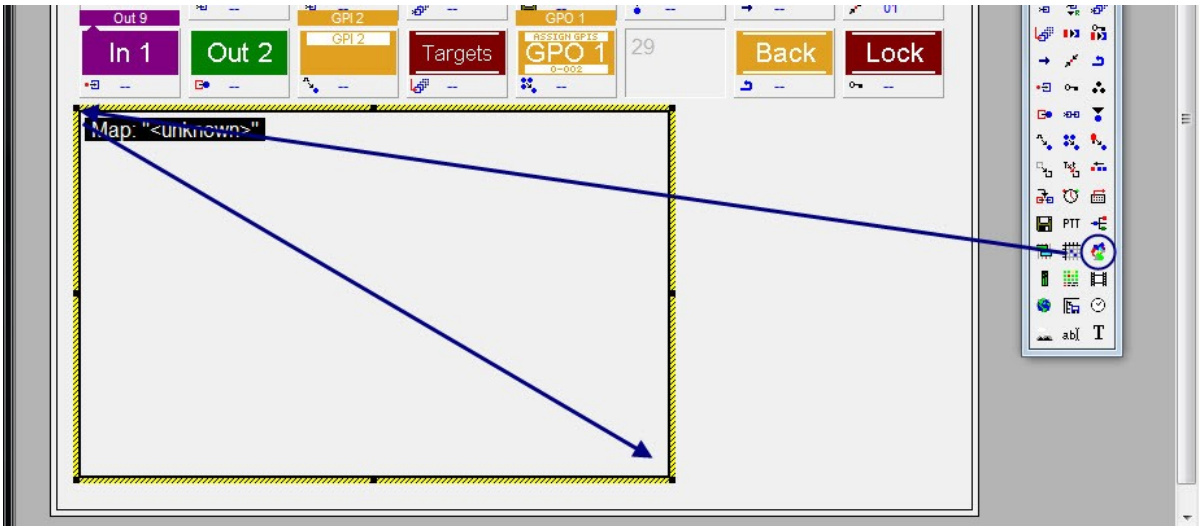
You can change the border size of Sources and Target fields.



21.6.45 Map

The *Map* function allows the creation of button ranges on previously edited images. These can then be switched on a panel. In order to be able to create and edit image maps prior to their use, the Software Image Map (see Image Map) is required. This function also requires a frame. To create a frame, select the function in the panel toolbox and drag the cursor from the top left to the bottom right while pressing the left mouse button to draw a frame in the required size.

Image Map frame



In the panel edit, image maps have a black frame with the white caption *Map* and the name of the currently selected image map on a black background. Using the browser function next to *Name of map file*, the image map can be added to the frame. If no image map is assigned, the caption will read *Map: ">unknown>"*. The *Visibility* tab offers the option to keep the image map visible in its containing group. The frame can be deleted by right-clicking into it.

The button IDs corresponds to the ImageMap IDs.

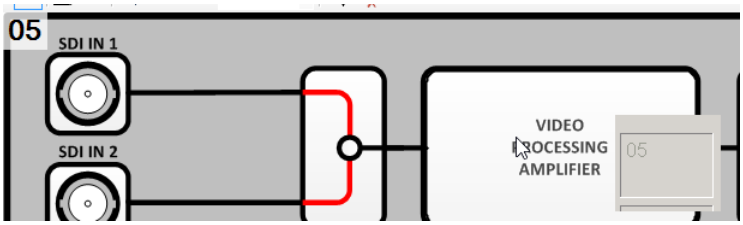
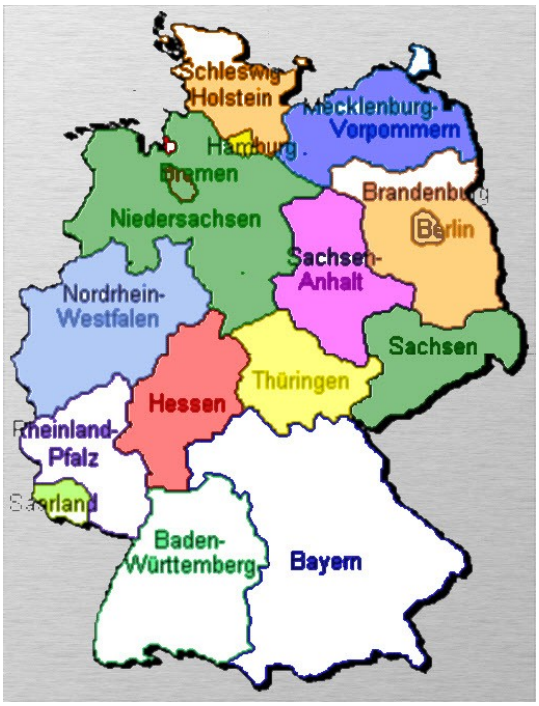
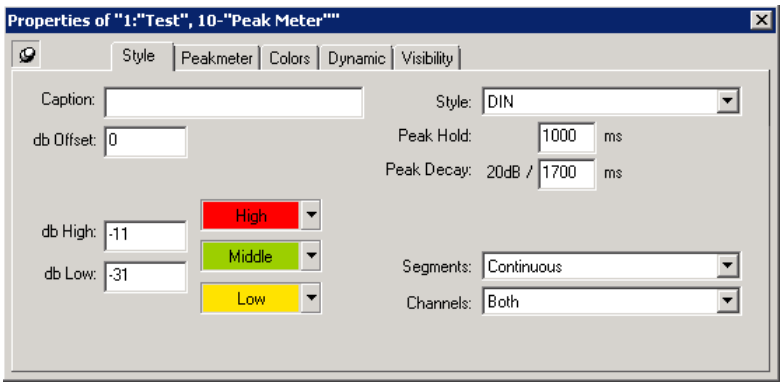


Image Map on vsmPanel

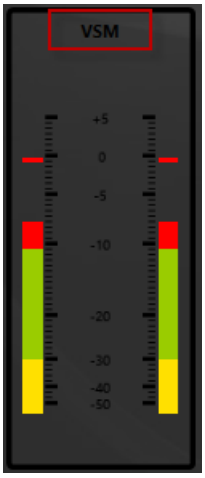


21.6.46 Audio Level Meter

Using the *Audio Level Meter* function, peak meter data that is available as gadget (see Gadgets) can be displayed on a virtual panel. Again, this function requires a frame.

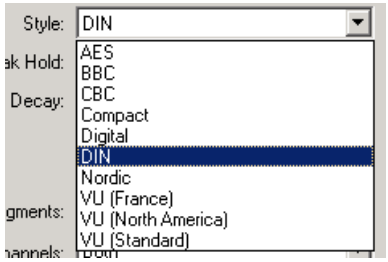


Caption: Within caption you can enter a name that will be displayed above the peak meter.

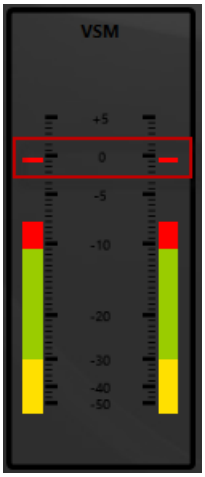


Db Offset: Will add a possitv or negativ offest to the Peakmeter (in db).

Style: Within style you can choose between different Peak Meter standards. 'DIN' is selected by default.



Peak Hold: The Peak Hold defines the length of time in ms the peak remains indicated.



Peak Decay: Peak Decay defines how long it takes for the peakmeter to drop by 20dB (in ms)

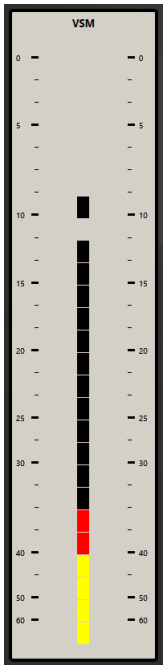
db High: Peakmeters are devided in three color sections. Db High defines at which db value the high color begins.

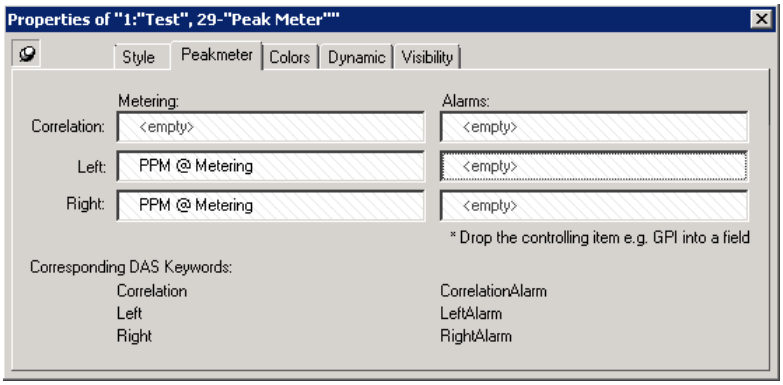
db Low: Peakmeters are devided in three color sections. Db High defines at which db value the low color begins.

High/Middle/Low: Here you can define the colors of the peakmeter sections.

Segments: Using segments it is possible to divide the Peakmeter into single segments . It is possible to choose 26 or 53. Alternatively the peakmeter can be displayed continuously.

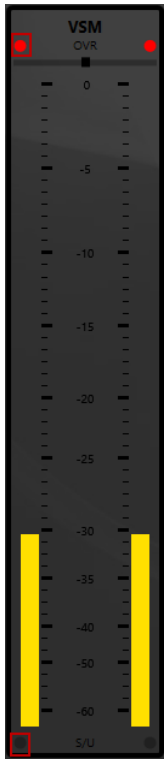
Channels: Using Channels you can decide whether to display only one peakmeter (left or right channelr) or both.



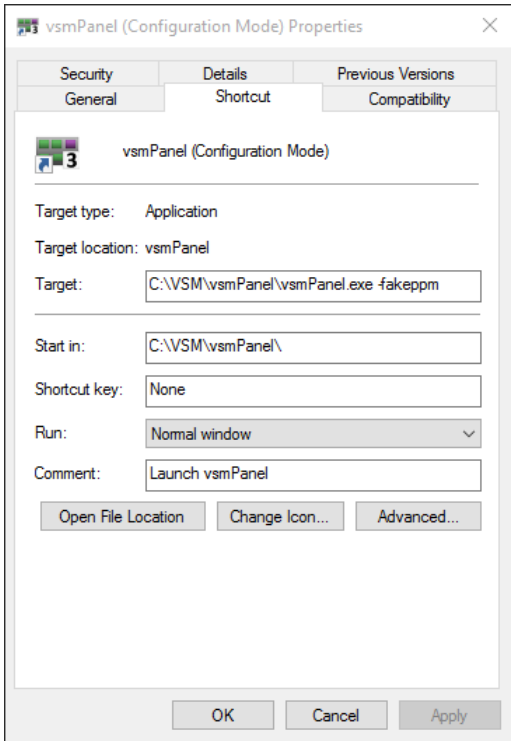


Metering: Within the Metering DropZone the GadgetParameter containing information about the peakmeter can be dropped.

Alarms: Here specified alarms can be dropped which will execute as soon as the correlation, left or right channels values cross a threshold. (Lawo Nova 73 --> AGC In 1 XDR:010:00:000 --> Condition Monitor --> Correlation Alarm/Alarm)



It is possible to create fake PPMs within vsmPanel. For this you need to type -fakeppm at the end of the Target entry field within the vsmPanel Properties.

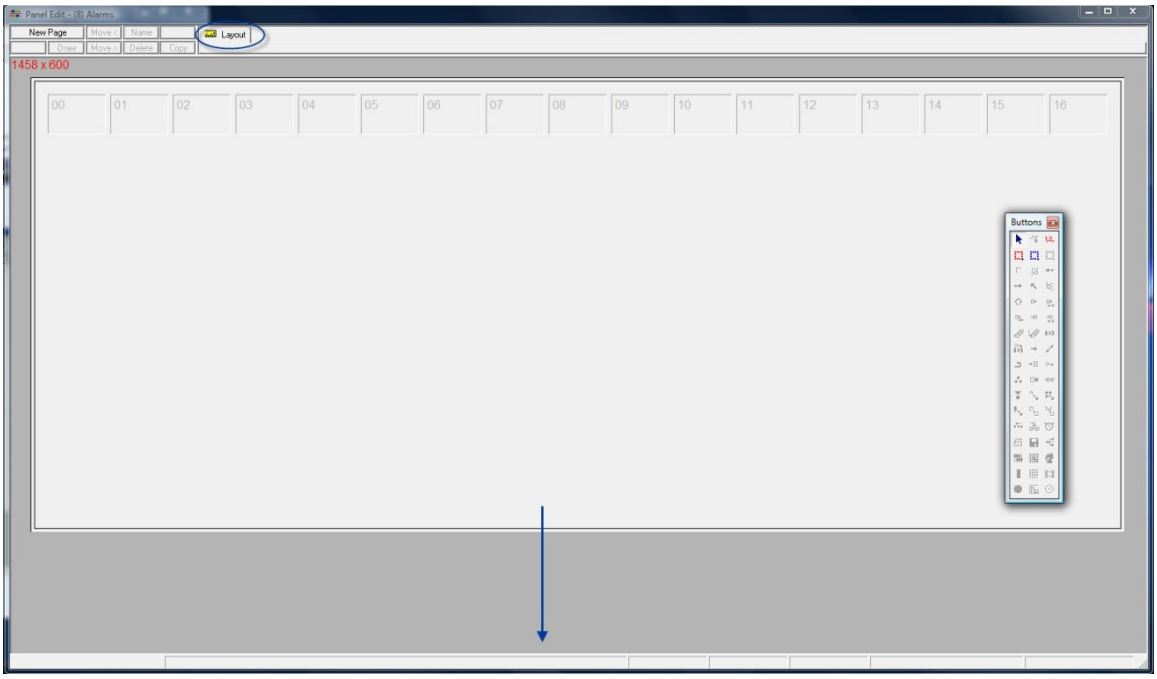


21.6.47 Alarm Management

Configuration of the Alarm Management Console

Prior to configuring an alarm management console on a virtual control panel, a free layout area needs to be defined in the panel area.

Drawing a layout area

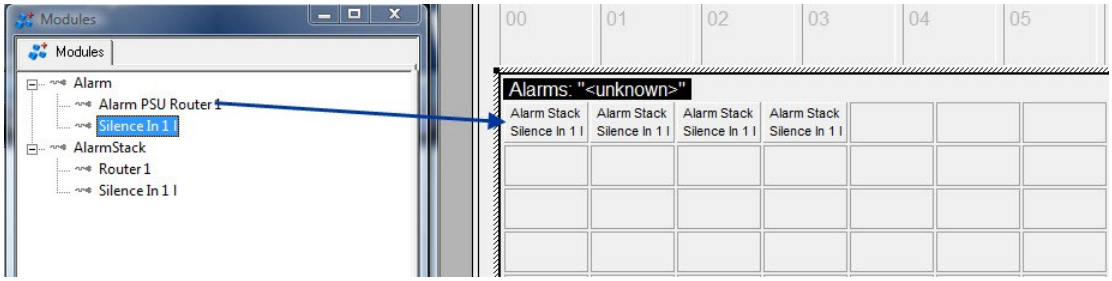


Within this area, the page item for the alarm management can have any size.

Placing an alarm management page item on the panel

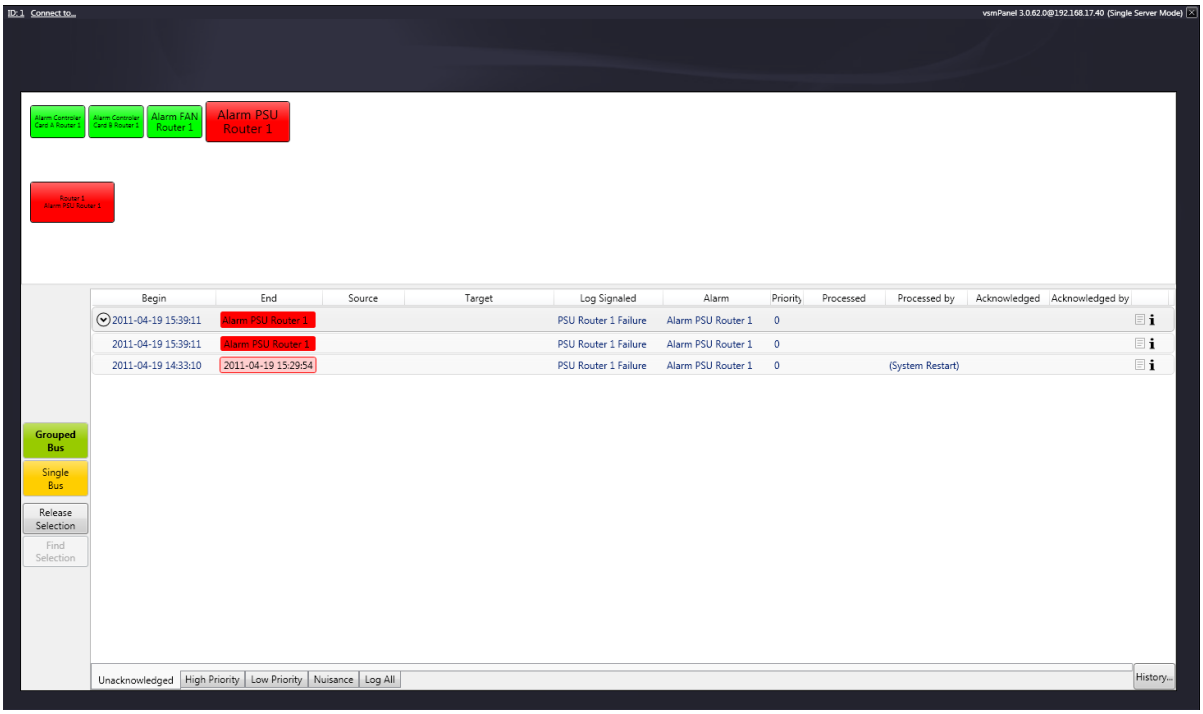
Next, Alarms or AlarmStacks are dragged and dropped into any position in the alarm management console. In the panel edit, this function is displayed with a black frame and, as long as no alarms or alarm stacks are assigned to it, the white caption *Alarms: "<unknown>"* on a black background. The frame can be deleted by right-clicking into it and selecting *Delete*.

Assigning alarms and AlarmStacks



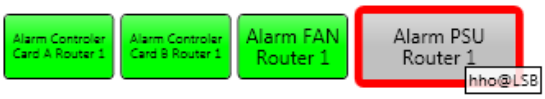
When an alarm becomes active, it will be displayed in the appropriate colour. At the same time, the individual, active alarm is indicated in an *AlarmStack*. If this panel ID is opened with the vsmPanel, the following alarm management console will appear.

Alarm management console



Operating the Alarm Management Console

Individual alarms



Active alarm notifications are highlighted and displayed in the appropriate colour in accordance with the colour specifications (see Alarm Module). The process status of the alarm can be accessed by left-clicking onto an active alarm. A right-click on the active alarm, however, will open a sub-menu offering the following options: *Process*, *Acknowledge*, and *View in X/Y Panel*.

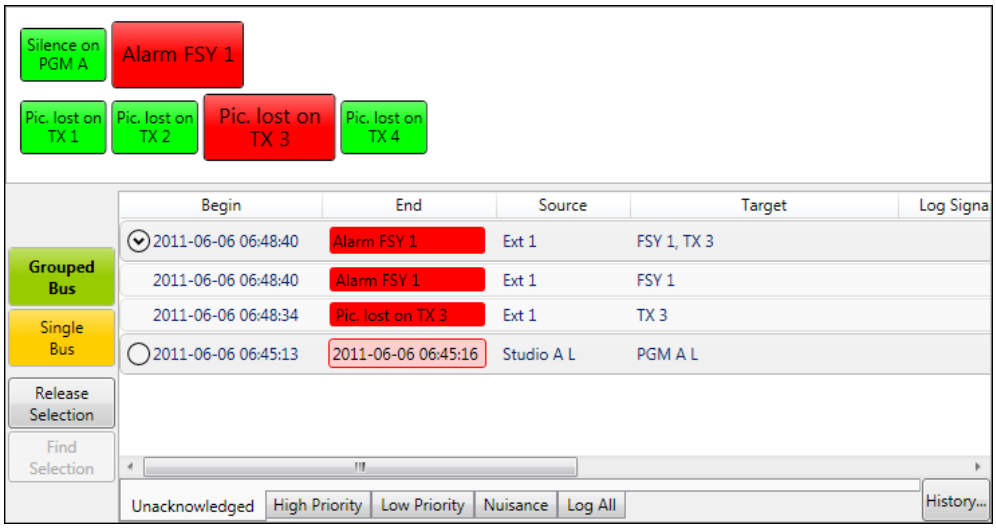
AlarmStack

The AlarmStack groups all individual alarms and shows the active alarm in accordance to the created priority list. The colours used hereby depend on the colours defined for each individual alarm (see Alarm Module). By left-clicking onto an active alarm, the process status of the alarm is activated. A right-click on the active alarm will open a sub-menu offering the following options: *Process*, *Acknowledge*, and *View in X/Y Panel*:

- *Process*: This option registers the user editing the alarm and puts the alarm into the process state. Depending on the control panel configuration, certain process panels can be created and equipped with the relevant switch information. The alarms are then saved in the history where they can be viewed at any time.
- *Acknowledge*: This option registers the user who confirmed the alarm and moves the alarm into a different sub category. The alarms are then saved in the history where they can be viewed at any time.
- *View in X/Y Panel*: This option transfers the information belonging to the alarm to a control panel previously configured to this end.

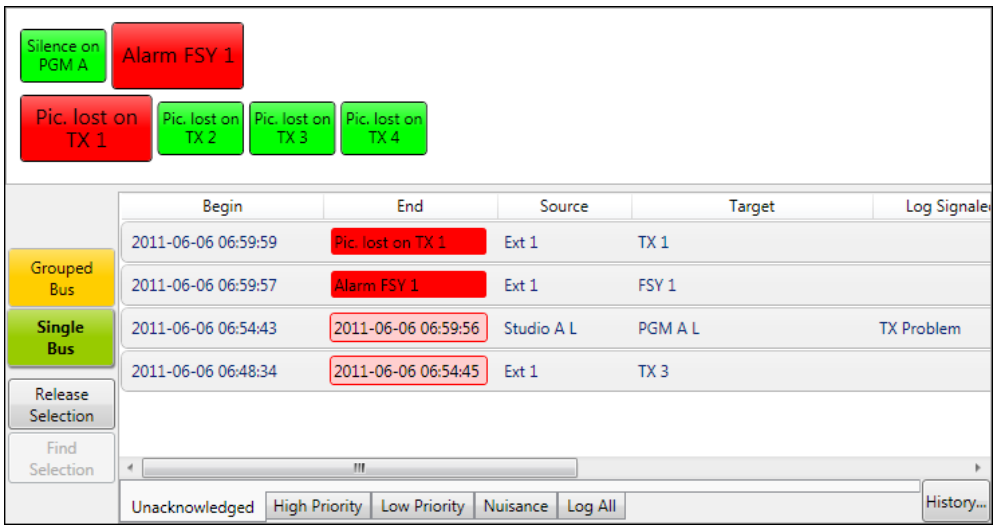
Please note: all control panel interaction for processing or viewing requires an appropriately configured dynamic attachment script.

Grouped Bus view



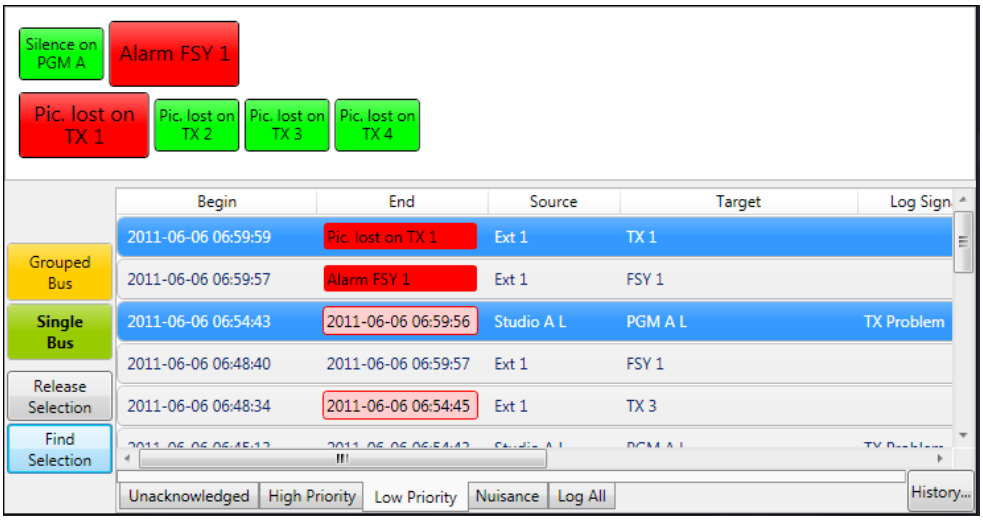
A click onto *Grouped Bus* summarizes all alarms in groups. They are, however, only summarized if they are independent from each other. Dependence can occur, for example, if the alarm for FSY 1 (picture lost) triggers an alarm on the TX path which is switched onto the FSY (and an appropriate alarm exists for it). In this scenario, all affected signals are shown at once. If the grouped bus is confirmed by pressing *Acknowledge* or edited further through *Process*, all alarms dependent on it are put into this state at the same time.

Single Bus view



By clicking *Single Bus*, all alarms are listed individually. They are, therefore, not grouped, and alarms have to be changed to either the *Acknowledge* or the *Process* state individually.

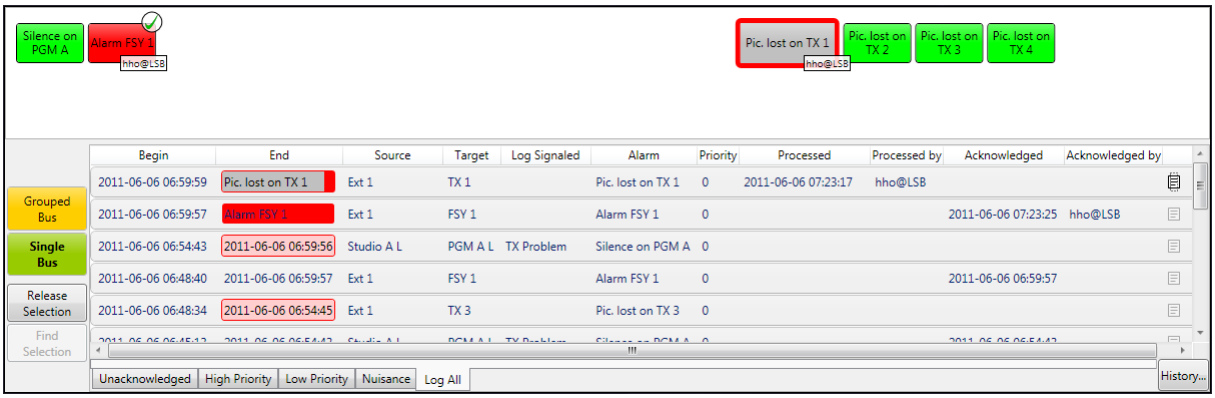
Release Selection/Find Selection



Using the button *Release Selection*, selected alarms (with a blue background) can be deselected. The function *Find Selection* allows the recovery of selected (with a blue background) alarms. For extensive alarm lists, this button helps to specifically focus in on the selected individual alarms.

Columns of the Alarm Management Console

Alarm View details

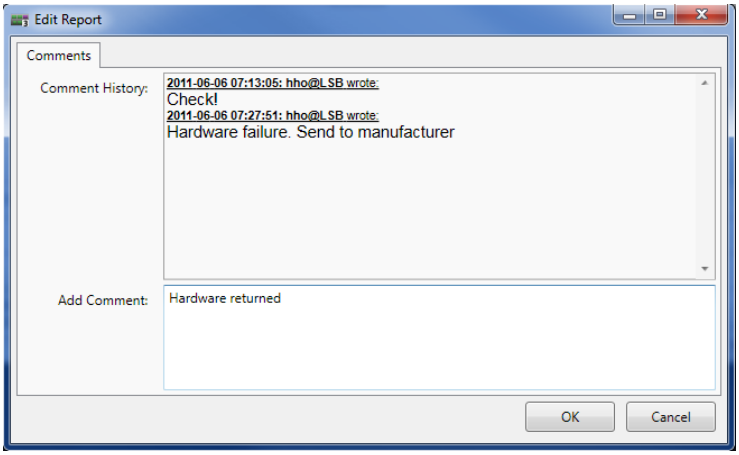


- *Begins* shows the time and day on which the alarm became active.
- *End*: For active alarms, the name of the alarm will be displayed. For inactive alarms, the end of the alarm will be displayed.
- *Source*: If possible, this column shows the connected source that is affected by the alarm.
- *Target* displays the target corresponding to the alarm.
- *Log Signaled* displays the name used for the reporting. This entry can be found in the vsmStudio.log file (see Folder LogFiles). The name is defined during the set-up of the GPIO (see Alarm GPO).
- *Alarm* displays the name of the alarm.
- *Priority* indicates the priority of the alarm
- *Processed* shows at what time and date the alarm was changed to the *Processed* state.
- *Processed by* shows the vsmPanel PC user who put the alarm into the *Processed* state
- *Acknowledged* indicates the time and date at which the alarm was changed to the status *Acknowledged.*
- *Acknowledged by* indicates the vsmPanel PC user who changed the alarm's state to *Acknowledged.*

Alarm Report

A report for the problem can be saved by selecting the text icon in the backmost part of the alarm list.

Report window

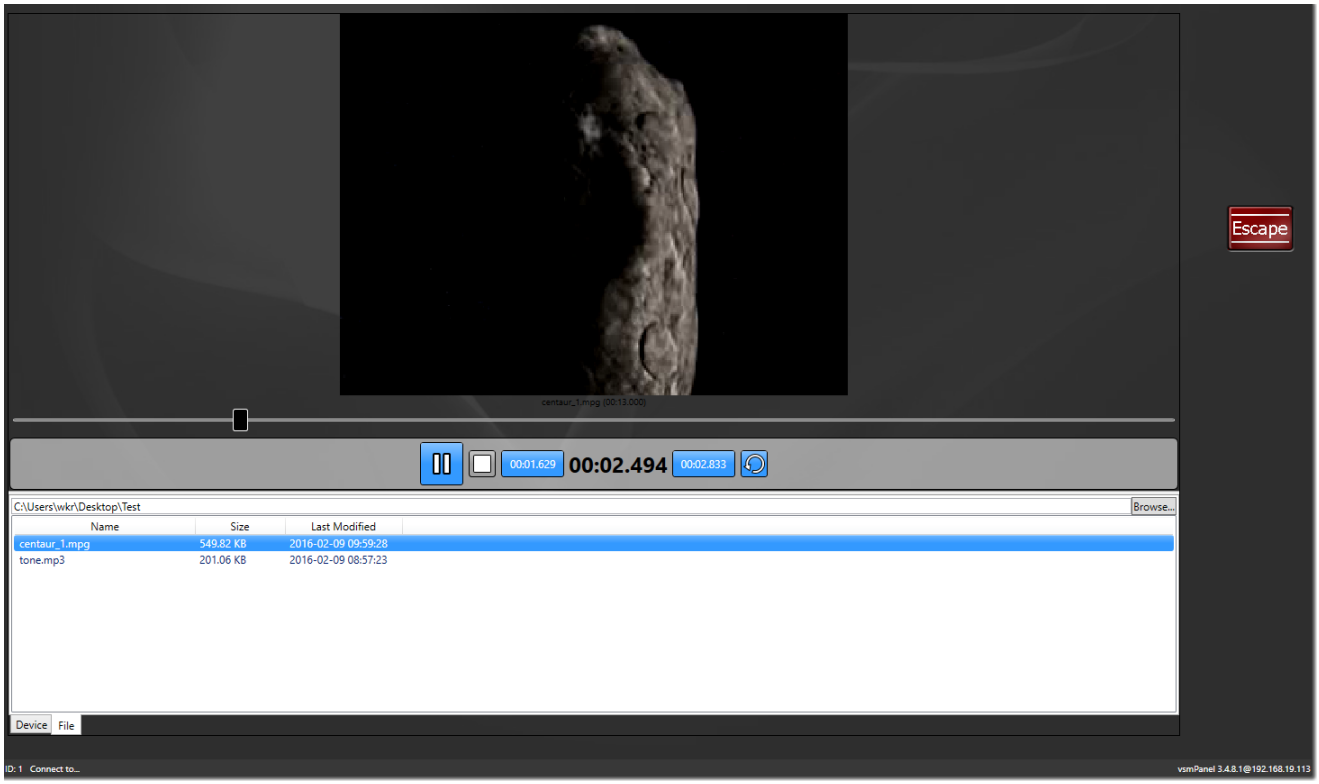


- *Unacknowledged* shows all alarms that have not yet been acknowledged.
- *High Priority* shows all alarms (acknowledged or not) with high priority.
- *Low Priority* show all alarms (acknowledged or not) with low priority.
- *Nuisance* shows all alarms that have been assigned the status *Nuisance.*
- *Log* all shows all alarms.
- *History* shows past alarms and allows the export of “all” alarms or alarms from the “current day” into a file.

21.6.48 Media Player

Using the *Media Player* function, different audio and video files can be played back on a virtual panel. This function also requires a frame.

The MediaPlayer supports the following format .dshow, .wav, .mp3,. Wma,. .mpg, .mpeg, .wmv, .avi

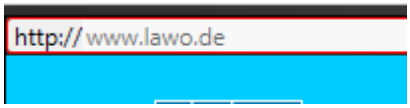


21.6.49 Browser

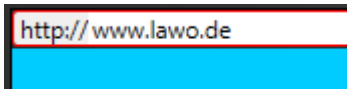
The *Browser* function allows the display of websites or switch configurations online on a virtual panel. It also provides complete internet browser navigation. This function also requires a frame.

The homepages that will be displayed in the browser window when the panel is opened with vsmPanel can be entered under *Initial* in the *Browser* tab of the function's properties window. The standard URL can be entered in the field beside *URL*.

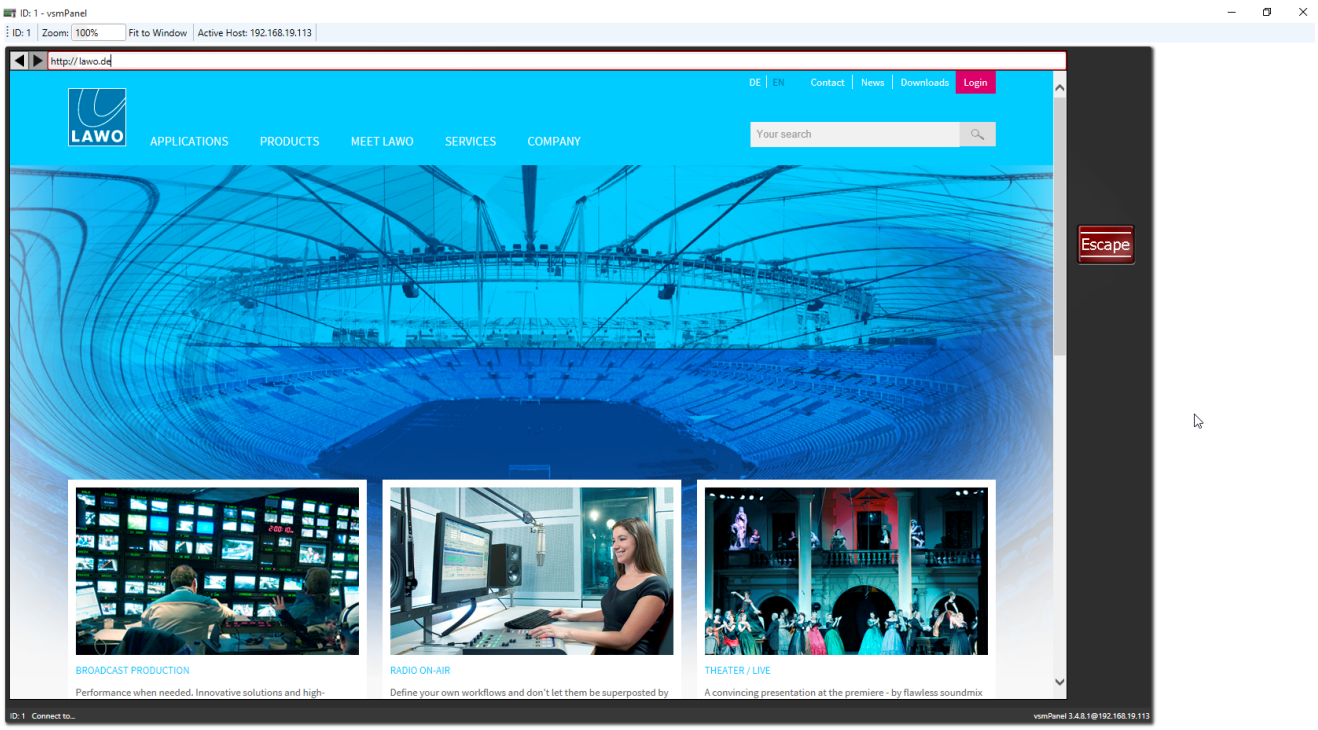
Show URL: If the box in front of *Show URL* is ticked, the web address will be shown.



Edit URL: If *Edit URL* is checked, the address can be changed. Once selected the initial URL will not be greyed out anymore.



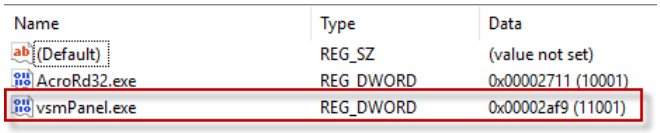
Show Navigation Buttons: The option *Show Navigation Button* allows the user to navigate to the previous or the next site just as with a normal browser.



The frame can be deleted by right-clicking into it.

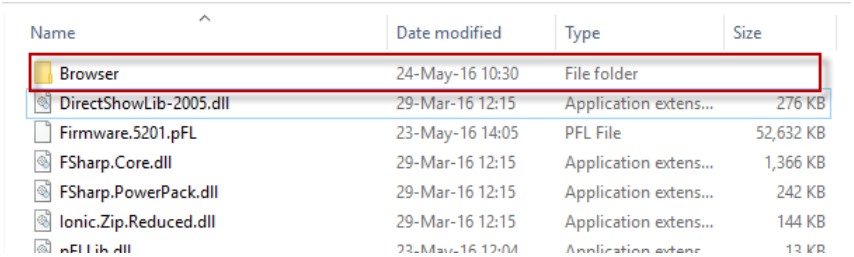
Note:

In order to use V_Remote4 WebInterface you need to add REG_DWORD to Registry: HKEY_CURRENT_USER/SOFTWARE/Microsoft/Internet Explorer/Main/FeatureControl/FEATURE_BROWSER_EMULATION



Name	Type	Data
(Default)	REG_SZ	(value not set)
AcroRd32.exe	REG_DWORD	0x00002711 (10001)
vsmPanel.exe	REG_DWORD	0x00002af9 (11001)

By default the Browser page Item emulates IE. You can also emulate Chrome. The integrated chromium browser engine is wrapped in the “Browser.zip” file which is also located under \\lsb.local\vsm\vsmPanel. Unzip Browser.zip and place the browser folder in the vsmPanel installation folder. You can deactivate the engine by deleting or renaming the Browser folder.

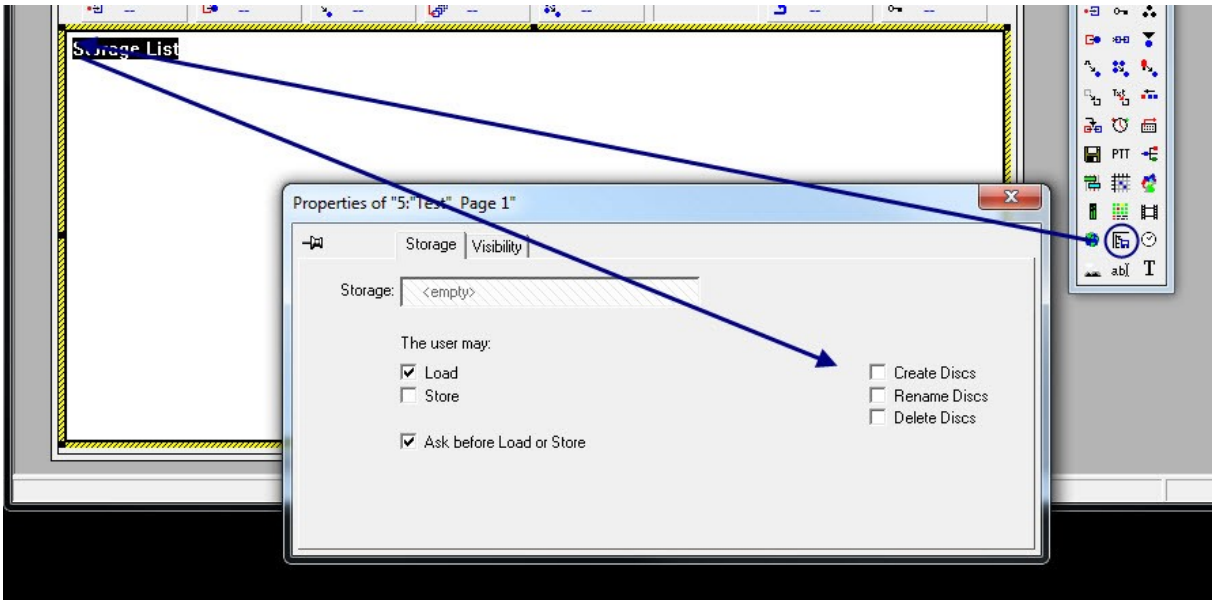


Name	Date modified	Type	Size
Browser	24-May-16 10:30	File folder	
DirectShowLib-2005.dll	29-Mar-16 12:15	Application extens...	276 KB
Firmware.5201.pFL	23-May-16 14:05	PFL File	52,632 KB
FSharp.Core.dll	29-Mar-16 12:15	Application extens...	1,366 KB
FSharp.PowerPack.dll	29-Mar-16 12:15	Application extens...	242 KB
Ionic.Zip.Reduced.dll	29-Mar-16 12:15	Application extens...	144 KB

21.6.50 Storage List

The function *Storage List* allows the creation, loading, and saving of storage groups (see Storage Groups) on a control panel. This function also requires a frame. To create a frame, select the function in the panel toolbox and drag the cursor from the top left to the bottom right while pressing the left mouse button to draw a frame in the required size.

Storage List frame

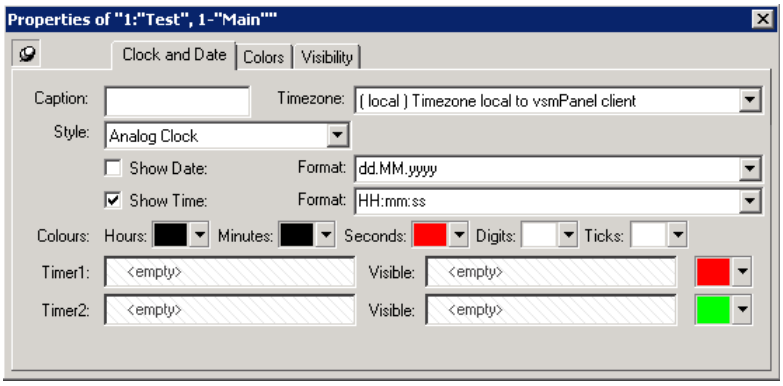


- The *Storage* tab of the properties window offers the following options:
- The storage group or the storage disc that is to be used on the panel can be added in the field beside *Storage* using drag and drop.
- Under *The user may*, the functions to load and save storage groups or storage discs are offered.
- If the option *Ask before Load or Store* remains active, a click onto save or load will prompt a window asking for confirmation of the action.
- *Create Folders* enables the creation of new storage groups in the storage frame on the panel.
- Using *Rename Folders*, it is possible to rename new storage groups in the storage frame on the panel.
- Storage groups can be deleted using *Delete Folders*.
- *Create Discs* enables the creation of new storage discs in the storage frame on the panel.
- *Rename Discs* enables the renaming of new storage discs in the storage frame on the panel.
- Storage discs can be deleted in the storage frame on the panel using *Delete Discs*.

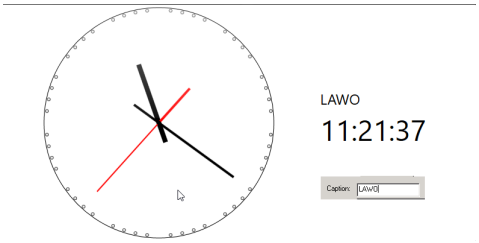
The frame can be deleted by right-clicking into it.

21.6.51 Clock and Date

The function *Clock and Date* allows the presentation of the current time and date on a control panel. This function also requires a frame.

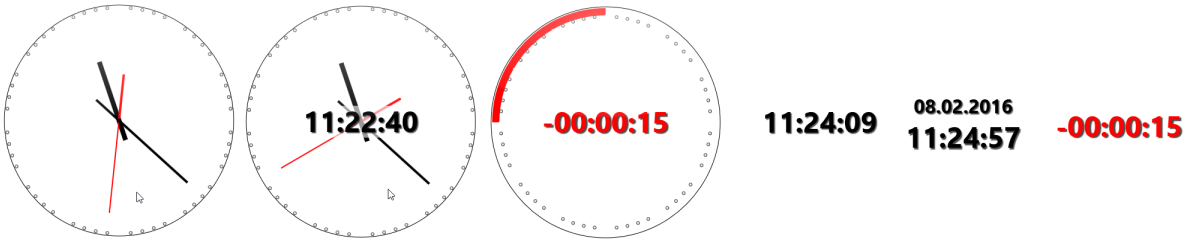


Caption: In the entry field *Caption* you can type a title for your panel:



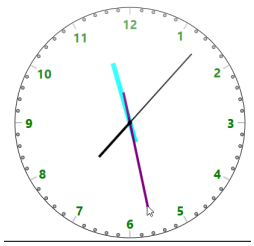
Timezone: Under *Timezone* you can choose the right timezone for your region.

Style: You can choose between six styles of clock presentation (Analog Clock, Analog Clock with Digital, Analog Timer, Digital Clock, Digital Clock with Date, Digital Timer) in the drop down menu *Style.*



Show Date/Time: Decide whether you want to display only the date or only the time or even both in different format, respectively, by activating them with a check mark.

Colors: Choose your desired colour for the depiction of the *Hours, Minutes, Seconds, Digits* and *Ticks.*



Timer1/2: Include the presentation of timers by drag and drop the appropriate Gadget into the fields *Timer 1&2.*

The frame can be deleted by right-clicking into it.

21.6.52 Picture

The function *Picture* allows the presentation of images on a control panel. This function also requires a frame.

Under the tab *Picture* you can import .png and .bmp images and choose your desired configuration of the Image. It is recommended to use .png images, because this format is capable of creating transparent areas within the image.

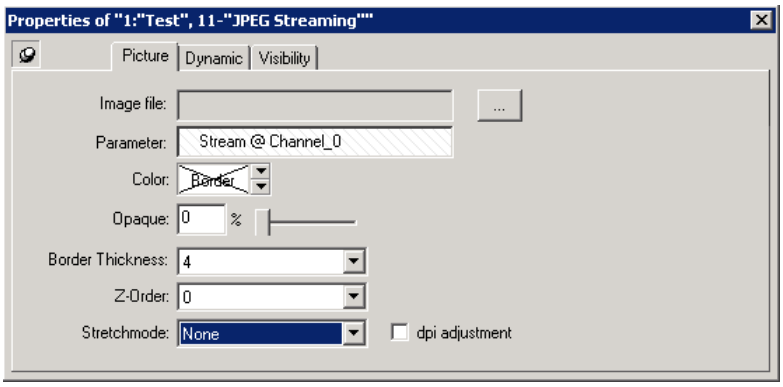


Image file: Here you decide which Image to display.

Parameter: Here you can drop a Stream GadgetParameter which will display a video stream on the virtual Panel.

Color: Here you can choose a color for the picture Background. The effect is viewable when the Picture is smaller than the Frame (Stretchmode: Uniform). You can also choose a border color.

Opaque: Here you can choose the Opaque of the background color.

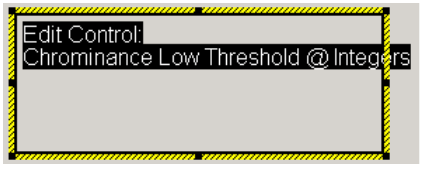
Border Thickness: Here you can activate if the picture should have a border and how thick it should be. (0 = no Border, 1-5)

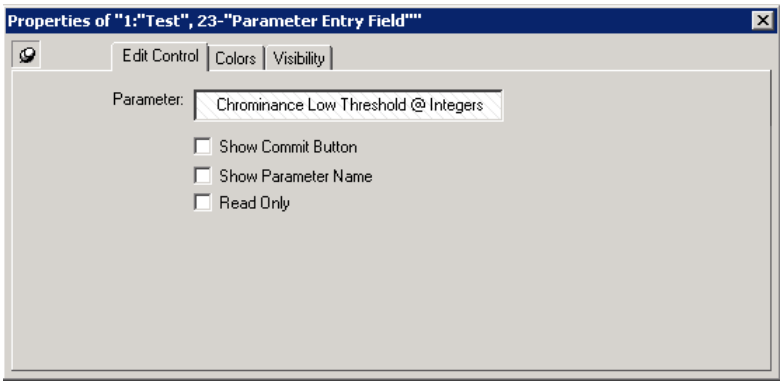
Z-Order: Here you can decide the plane order of overlapping pictures. -1 will place the picture behind the overlaying picture. 1 will overlay the picture on another.

21.6.53 Parameter Entry Field

The Parameter Entry field allows you to change GadgetParameters by entering a new value or text within the entry field.

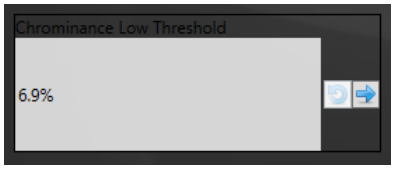
Within the section Parameter you can drop a GadgetParameter which will be assigened to this entry field.



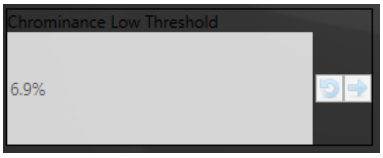


Show Commit Button: Displays a reset and a confirm button on the right side of the entry field. The reset button will reset the Parameter to its actual value if you typed in another value but did not confirm it.

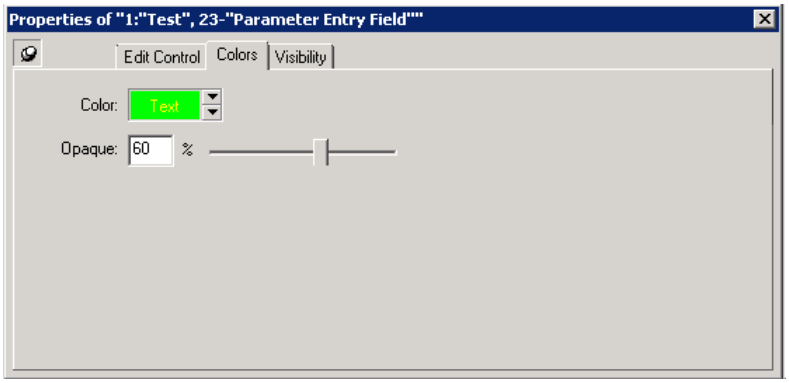
Show Parameter Name: Will display the Name of the Parameter name.

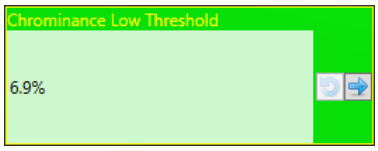


Read Only: The value will be only displayed and can't be changed. The value and the buttons will be greyed out.



Under the colors tab you can change the color and Opaque of the Parameter Entry field.

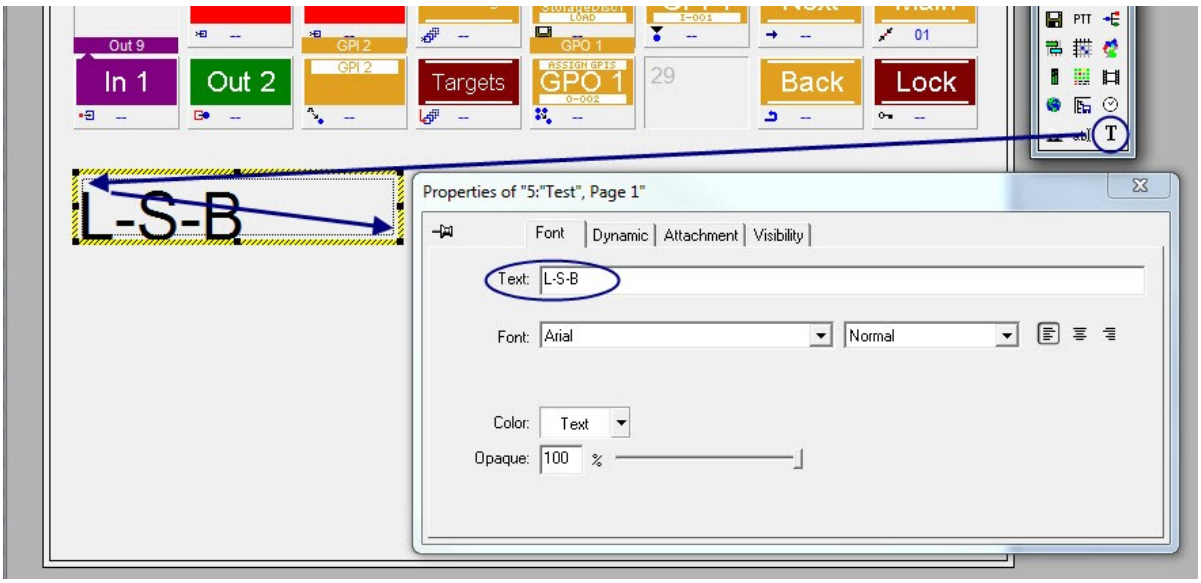




21.6.54 Text

The function *Text* allows the presentation of text on a control panel. This function also requires a frame. To create a frame, select the function in the panel toolbox and drag the cursor from the top left to the bottom right while pressing the left mouse button to draw a frame in the required size.

Text Frame



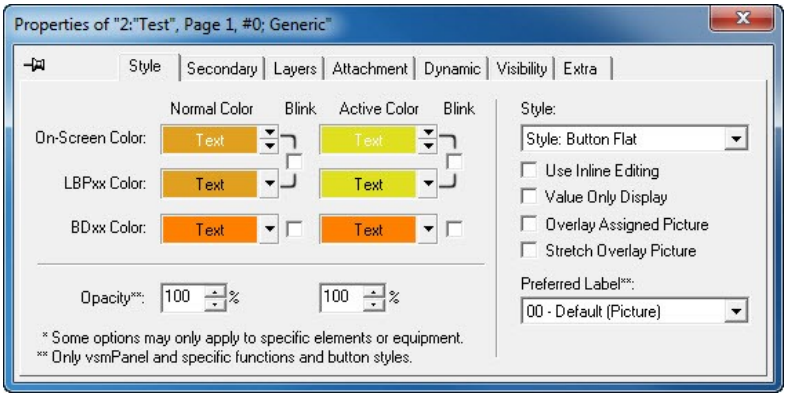
Type your desired text into the parameter entry field *Text* under the tab *Font*. You can configurate the font, colour and the opaque of your text within the properties. Your text can look like in the picture below.

Text vsmPanel

The frame can be deleted by right-clicking into it.

21.7 Button Properties

The selection of a button will automatically open the button's properties window.



The title bar shows the following information:

- The panel ID, in this case *2*
- The panel name, here *Test*
- *Page 1* means that the button is located on the first page of the control panel.

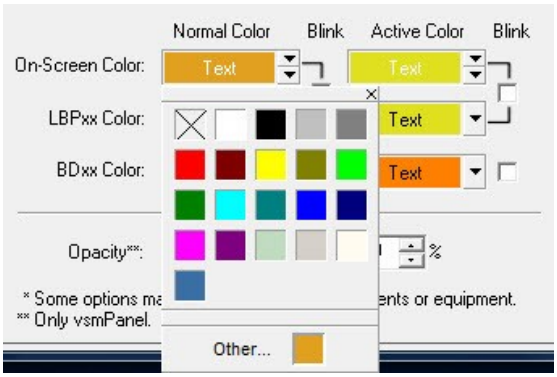
- The button ID, in this case *0*, and
- The button type, here a Generic button.

With the pin symbol in the top left, the window can be locked into one position on the monitor.

21.7.1 Style

The *Style* tab allows the choice of colour, opacity, as well as style of the button and the label that should be used. The setting under *Normal Color* represents the colour that is shown when the button is not active. To select colours, use the two arrows on the right side (top for the background, bottom for the font) of the field.

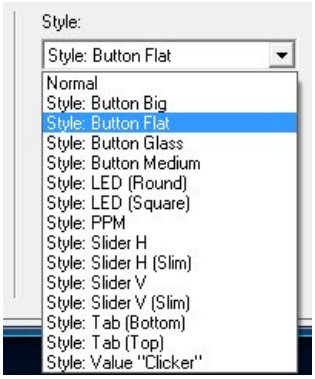
Colour selection for button background



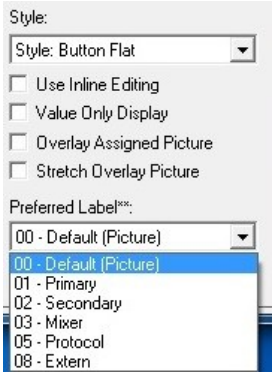
The field shows the currently selected button background colour and the text colour both on a monitor (*On-Screen Color*) and on a hardware control panel (*LBPxx Color* is initially changed with the on-screen color, but can be edited later). The colour settings for *BDxx Color* refer to an older control panel generation and do not apply to current devices.

In normal mode, colour saturation can be changed in the fields following *Opacity*. Ticking the box in front of *Blink* will cause the button to blink.

Under Active Colour, the same colour settings are available for the active state.



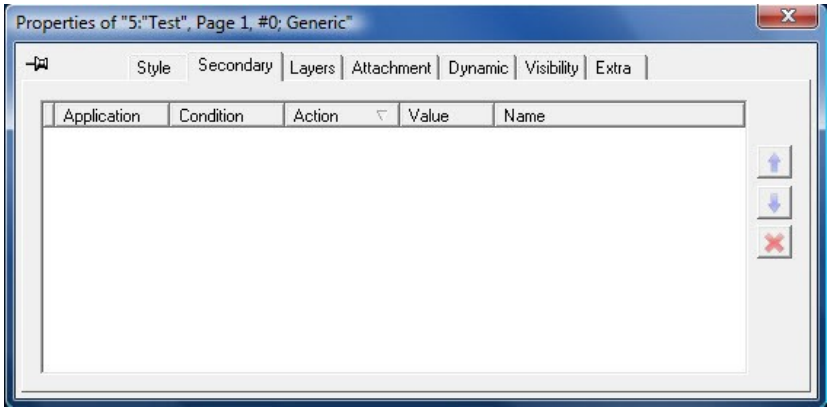
The drop down menu located below the *Style* header allows the choice of display styles for buttons. These different display possibilities are not shown in the panel edit and are only visible through the vsmPanel software.



In order to make the value on buttons changeable, the option *Use Inline Editing* can be selected if a gadget parameter was placed on a button and the normal style was selected. If, on the other hand, *Value Only Display* is selected, the gadget parameter placed on the panel is only displayed.

The drop down menu under *Preferred Label* allows the choice of the displayed label for inputs and outputs.

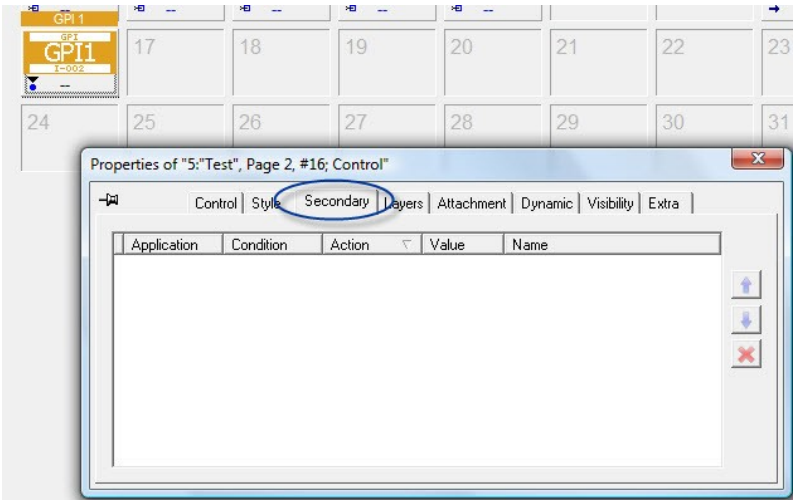
Secondary



A *Secondary Command* is a button function. It allows buttons to be assigned functions in addition to their primary functions. Secondary commands can be accessed as tab in the panel edit's properties window. Alternatively, the relevant secondary function can simply be placed on the respective button while pressing the *Ctrl*-button.

The tab *Secondary* is empty by default. Different functions, for example GPIOs, signals, crosspoints, gadgets, panels, timers, or storage discs can be placed here and attached to different methods of execution.

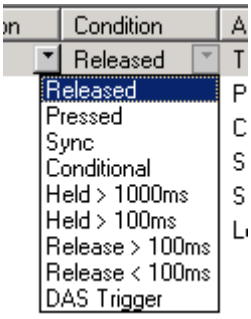
These functions will then be executed as secondary function of the button in accordance to the options defined in this window.



Once a secondary command has been added, a white *S* will be shown on green background in the bottom of the button.

If an element has been placed in the secondary field, the predefined columns *Application*, *Condition*, *Action*, *Value*, and *Name* offer different ways to specify further how the secondary commands are to be executed. The options available in the field under *Action* hereby depend on the selected function.

The options under *Application* and *Condition* are the same for all secondary commands.



The following options are available under ***Condition***:

Released: The secondary function will be executed as soon as the button is released.

Pressed: The secondary function will be executed when the button is pressed.

Sync: If the button itself as well as the secondary command is a gadget parameter (see Gadgets) with the same function and the same value range (that is gain from 0 to -128dB), the value used in the secondary command will follow the value of the button.

Conditional:

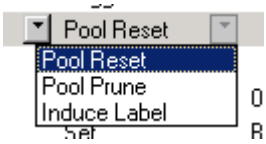
Held > 1000ms: The secondary function is executed when the button is held longer than 1000ms.

Held > 100ms: The secondary function is executed when the button is held longer than 100ms.

Release > 100ms: The secondary function is executed when the button is released after more than 100ms.

Release < 100ms: The secondary function is executed when the button is released before 100ms passed.

Action for Sources:

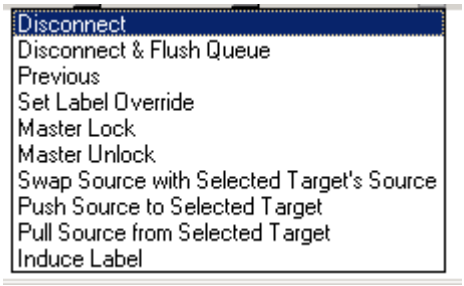


Pool Reset:

Pool Prune:

Induce Label:

Action for Targets:



Disconect: *Disconnect* (default setting) connects the target with the blind source.

Disconnect & Flush Queue:

Previous: Previous connects the target with the previously connected source.

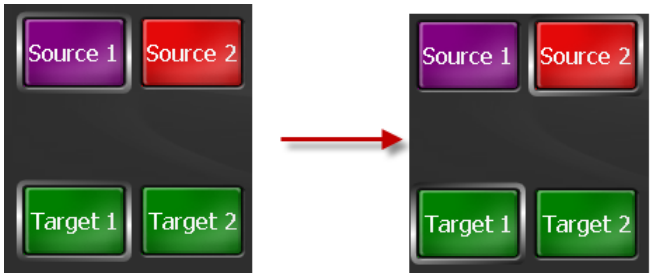
Set Label Override:

Master Lock:

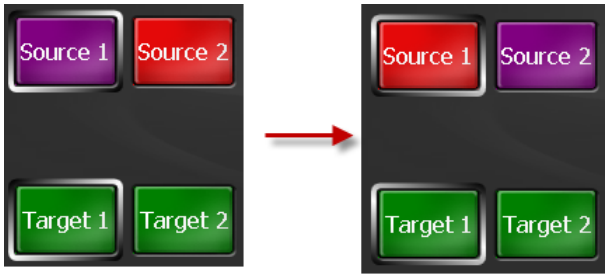
Master Unlock:

Swap Source with Selected Target's Source: Will swap the selectedTarget source with the secondaryTarget source. Can be uses with a Generic button.

Push Source to Selected Target: Will switch the selected Target Source to the secondary Target

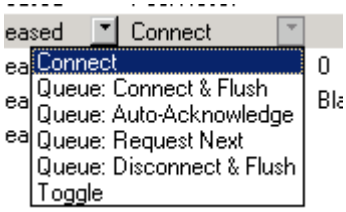


Pull Source from Selected Target: Will push the secondaryTargetSource to selectedTarget Source.



Induce Label:

Action for Crosspoints:



Connect: The crosspoint is placed.

Queue: Connect &Flush:

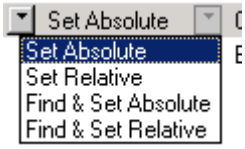
Queue: Auto-Acknowledge:

Queue: Request Next:

Queue: Disconnect & Flush: refers to the queue connect function.

Toggle: *Toggle* switches between the crosspoint or the crosspoint *blind* > *target* at the push of a button.

Action for Gadgets (Values):



Set Absolute: *Set Absolute* (default setting) changes a parameter to the value that was entered in the *Value* field.

Set Relative: *Set Relative* will change the parameter by the interval defined in the *Value* field (with +/- as prefix).

Find & Set Absolute:

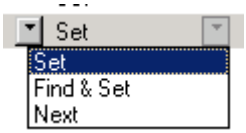
Find & Set Relative:

Action for Gadgets (EntryField):

Set:

Find & Set:

Action for Gadgets (DropDownList):

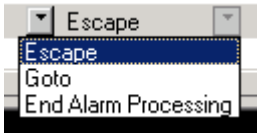


Set:

Find & Set:

Next:

Action for Panels:

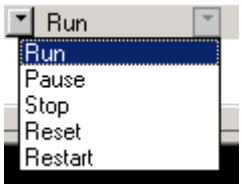


Escape: *Escape* (default setting) deselects the active components of the selected control panel.

Goto: *Goto* jumps to a different panel.

End Alarm Processing: *End Alarm Processing* ends the alarm processing on the selected panel.

Action for Timers:



Run:

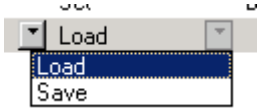
Pause:

Stop:

Reset:

Restart:

Action for Storage Discs:

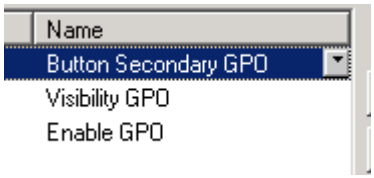


Load: *Load* (default setting) loads a pre-defined storage group, *Save* saves it.

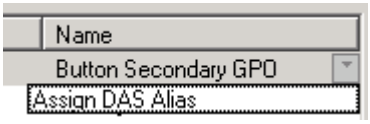
Save: *Load* (default setting) loads a pre-defined storage group, *Save* saves it.

Value: Defines the Value to be set.

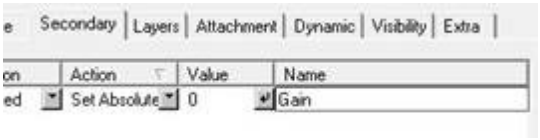
Name: Displays the name of the Secondary function.



With the function *Assign DAS Alias* that can be found below the panel name, the secondary function can be used in connection with *Dynamic Attachment Scripts* (DAS) by entering a unique name. This allows all secondary functions to be used dynamically.



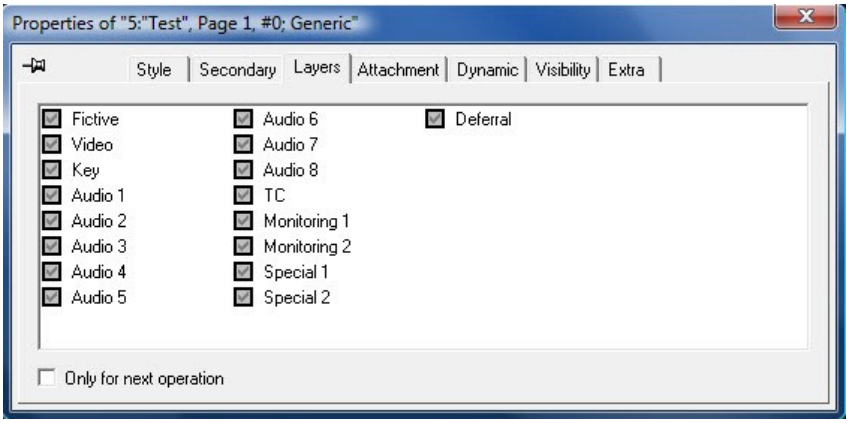
Dynamic Attachment Scripts can be used in combination with secondary commands. By combining the two, dynamic secondary commands can be generated on buttons. To do so, a signal or parameter has to be added in the secondary tab und button properties. Select the function *Assign DAS Alias* in the column *Name* and enter a unique name. This name must be used in the *Dynamic* window in the future.



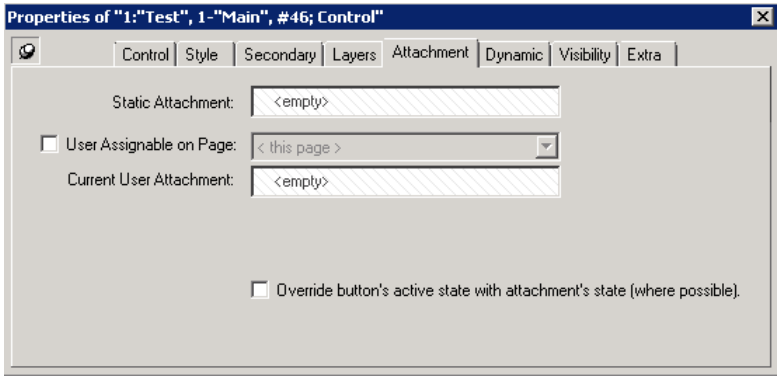
If, for example, the gain of the selected target is to be locked at -20dB on a generic button, place an arbitrary gain in the secondary window and define it according to the requirements (*Set Absolute* with value -20). Then, select *Assign DAS Alias* in the column *Name*, and enter a name, for example *Gain*. Next, the following script must be used in the *Dynamic* window: *"Gain"=selectedtarget.meta:"Gain"*.

Layers

Under the *Layers* tab, certain layers can be activated or deactivated (see Pseudo Devices).



Attachment



Static Attachment: Shows the static attachment.

User Assignable on Page: Allows you to assign the button from another page. Once checked you can choose from the available Pages in the Drop Down List.

On vsmPanel you need to press and hold the button until the page will switch. Here you can choose the button which should be assigned to this button.

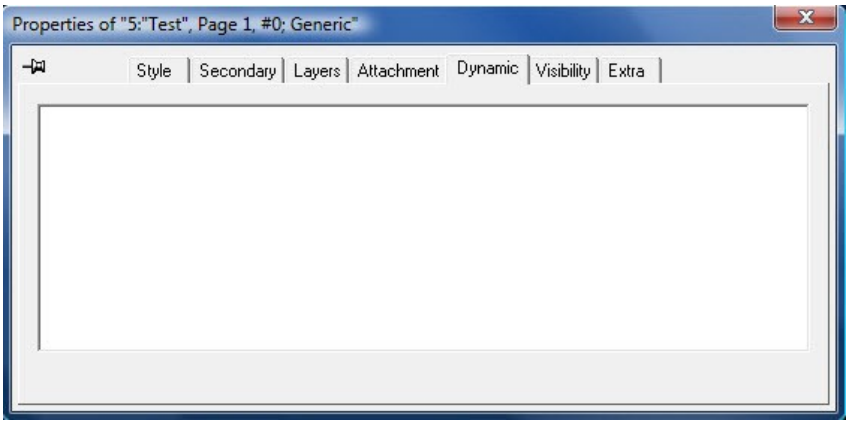
<<User Assignable on Page.avi>>

Current User Attachment: Shows the currently assigned attachment from another page.

Override button's active state with attachment's state (where possible): Can be used with Gadgets that for example have an on/off status. When selected the button will be displayed in bright yellow (active) if the status is on.

Dynamic

The Dynamic tab is empty by default.



It provides space to enter Dynamic Attachment Scripts. Dynamic Attachment Scripts – short DAS – are scripts that the VSM control system uses to make assignments dynamically.

As soon as a script has been assigned to a button, a white *D* on a green background will appear on the button.

The *Dynamic* window allows the simultaneous configuration of multiple scripts. Scripts are entered line by line and are executed from top to bottom, until a script with a true result ends the execution of the scripts. Dynamic attachments scripts are not case sensitive.

Generally, the same button function (signal, control button, etc.) is selected that the script is meant to generate in the end. A gain, for example, would usually be placed on a control button, while a target would be placed on a target button.

The following scripts can be used for the described applications:

- *trace*: This script is added in the first line of a DAS and can be used optionally to display the result of a script in the *CommTrace*.

  Warning

  This script impedes system performance and should therefore be deleted after testing and verification of a script.

- *selectedtarget*: With this script, the target selected on the panel will appear on the button on which the script is executed.
- *selectedtarget.source*: This script allows accessing the source corresponding to the selected target. This function only becomes visible if a source button is used.
- *connectedsource*: This script allows accessing the source corresponding to the selected target.
- *selectedsource*: This script allows access to the selected source.
- *selectedgadget*: If a selected parameter can be activated, it can be accessed with this script.
- *selectedcomponent*: With this script, a selected element, a parameter, or a GPI (except for signals) can be accessed.
- *attached*: This script gives access to a function that is concealed “under” a button. If, for example, a source or a target is placed on a button, and a GPI or gadget button is placed on the same button, the script attached will provide the “attached” function. This means that if a target is placed on the button first followed by a source button, the script

  attached.source

  will provide the source of the target previously placed on the button.
- *current*: With this script, the last evaluated script will be shown until it is re-evaluated. The script

  selectedtarget

  current

  results in the display of the last active target until a new target is selected.
- *target= or source=*: These scripts are generally used in combination with a control button. They become crosspoint buttons.

  target=selectedtarget

  or

  source=selectedsource

  for example, dynamically generate a crosspoint from the selected target and source.

  If a source should be generated dynamically (for example the currently selected source) and the corresponding target should be locked, a crosspoint with the locked target is used. The source of the crosspoint is hereby irrelevant. In this scenario, the script would look as follows:

  target=attached

  source=selectedsource

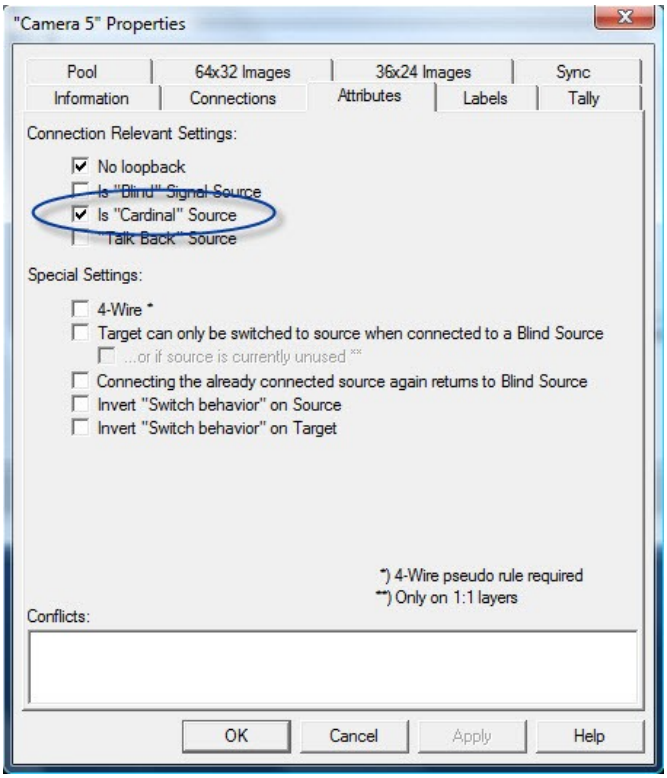
  The same procedure works the other way as well (dynamic target, locked source).
- *pSource*: The p in the beginning of the scripts stands for physical. When this prefix is used, the next available physical source in the signal flow is displayed. Virtual signals in the signal flow are ignored.

  selectedtarget.psource

  for example, displays the next outgoing physical source of the selected target.

- *fSource*: The *f* in the beginning of the script stands for far. Using this prefix, the first source in the signal flow will be displayed.
- *cardinal*: The attribute main source or cardinal source was added in order to be able to reach signals in the signal flow that are neither located at the beginning nor before the selected target. A *signal* can only be found using this script if the attribute signal path *Is "Cardinal" Source* is selected in the signal path properties (see Signal Path Attributes).

Main source indicator



selectedtarget.cardinalsource would be an example of a valid script.

- *target*: This additional script allows access the target located at the end of the signal flow from another target in the signal flow, for example by using the script
- *selectedtarget.target*
- *meta*: This script is used to gain access to previously created gadgets (see Gadgets) from pre-defined meta gadget containers (see Meta Gadgets). The relevant syntax becomes clear in the following example: If the corresponding volume has been assigned to a target in the meta gadgets, the script

  selectedtarget.meta:"Volume"

  will provide the corresponding volume value. Similarly, this script can be used for all values stored in meta gadget containers.
- *activate=*: This script allows the dynamic activation of a parameter, for example to be able to modify it through an incremental encoder. As an example: In order to modify the volume belonging to a selected target, this value must be generated and activated on the position of the incremental encoder.

  activate=selectedtarget.meta:"Volume"

  selectedtarget.meta:"Volume"

  or

  activate=selectedtarget.meta:"Volume"

  activate
- *<signal>:"layer"*: This syntax allows the generation of values (that is signals, parameters, etc.) due to definitions of pseudo devices (see Pseudo Devices). Based on the selected target,

  selectedtarget:"Audio 2"

for example, searches the target that is located in the column *Audio 2* under pseudo devices (see New Pseudo Device Rule).

- */follow=*: With this script, parameters can be set to follow each other. This becomes relevant for application with stereo gains. Using the script

  Selectedtarget:"Audio 2".meta:"Gain"/follow=selectedtarget.meta:"Gain"

  the gain parameter based on the selected source and belonging to the signal defined in the column *Audio 2* in the pseudo device rules is set to follow the gain of the selected target.
- *xconnect*: With this script, a crosspoint generated by DAS is executed at once. For example, to dynamically connect a locked target to a selected source, a crosspoint with the required target is chosen. The script on the crosspoint button would read as follows:

  target=attached

  source=selectedsource

  xconnect
- *if*: This script allows the generation of events depending on the occurrence of certain other events. If, for example, a crosspoint is only to be generated if a gain parameter was added to the selected target in the meta gadget container, the following script would be used:

  if(selectedtarget.meta:"Gain")

  target=selectedtarget

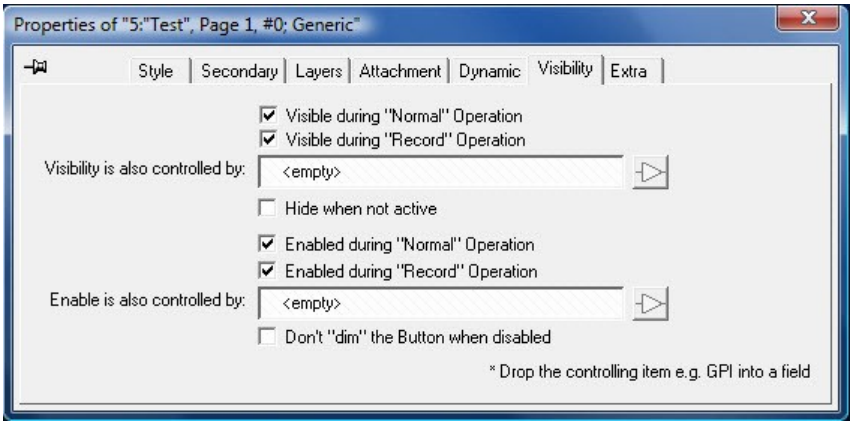
  source=selectedsource
- *visibility=*: In combination with the if-script, buttons can be made visible or invisible with this script. If a navigation button is to be made invisible if the selected target has a meta gadget gain:

  if(selectedtarget.meta:"Gain")

  visibility=false

Visibility

The *Visibility* tab offers different settings concerning the button display.



Visible during "Normal" Operation is ticked by default and causes the button to be displayed. The option *Visible during "Record" Operation* affects storage groups (see Storage Groups).

A crosspoint or a GPIO (see GPIOs) can be placed in the drop down menu beside *Visibility is also controlled by*. These will also influence the visibility of the button. The triangle symbol after the field indicates the logical connection. The standard view indicates that the button is displayed as soon as the assignment defined here is true. If the triangle has a black dot in its right tip, the button will be displayed of the assignment is false.

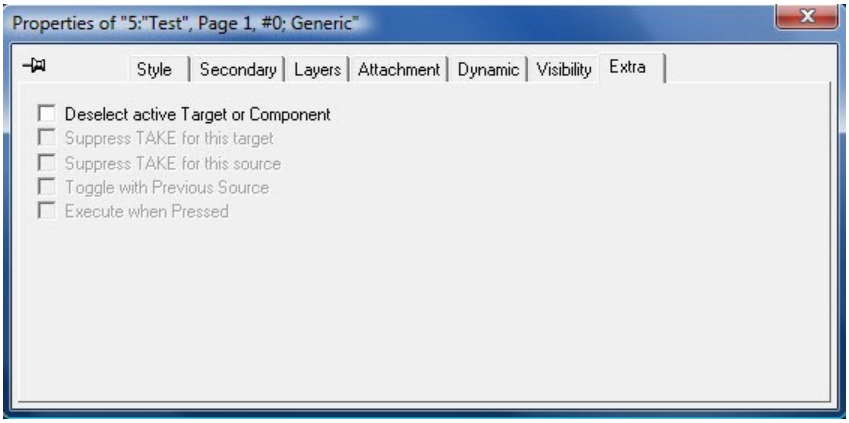
If the box in front of *Hide when not active* is ticked, the button will only be displayed when it is active.

Enabled during "Normal" Operation is ticked by default and is required so that the button can be operated. *Enabled during "Record" Operation* is also ticked by default. If it is deactivated, the button cannot be selected while a storage group (see Storage Groups) is recorded.

The drop down menu beside *Enable is also controlled by* allows the placing of a GPIO (see GPIOs) or a crosspoint which can also influences the availability of the button. The triangle symbol behind the field indicates the logical connection. The standard view indicates that the button will be displayed as soon as the predefined assignment is true. If a black dot is shown in the right bottom tip of the triangle, the button will be displayed if the assignment is false.

The option *Don't "dim" the Button when disabled* can be used to display the actual colour instead of the light gray used as default.

Extra



Additional functions can be assigned under the *Extra* tab:

Deselect active Target: All currently selected sources, targets will be deselected.

Deselect active Component: All currently selected gadgets will be deselected.

Suppress TAKE for this target: Will ignore the Take button on the panel for this target.

Suppress TAKE for this button: Will ignore the Take button on the panel for this source.

Toggle with Previous Source: It is possible to switch back to the previous source by selecting the current source again.

Execute when Pressed: The function will be triggered as soon as the button is pressed.

22. vsmWebPanel

vsmWebPanel is a software application similar to vsmPanel but with a browser-based (http) graphical user interface. It can be used, in conjunction with **vsmStudio**, to create virtual panels operated by mouse or touch-screen, and offers almost all the functions available on hardware control panels. **vsmWebPanel** can be opened on any desktop PC, laptop, or smartphone with a LAN or WLAN connection to the VSM system.

This chapter covers the installation and setup of **vsmWebPanel**. Note that the panel configuration is handled by **vsmStudio** - see Panel List & Panel Editor for more details.

22.1 vsmWebPanel Functions

In terms of configuration, the panel edit of the vsmStudio software is the same for both vsmPanel and vsmWebPanel. The only difference between the two software graphic user interface applications are functional in nature.

vsmPanel can display and provide all available button-specific and virtual control panel function. The virtual functions *Media Player* and *Scheduler* are, for example, only usable on a vsmPanel and not via the vsmWebPanel.

Almost all functions that can be displayed on a hardware control panel can be used on vsmWebPanel. An exception hereby is the timer countdown function. All button-specific functions can be controlled via a vsmWebPanel or a vsmPanel without the limitation of a hardware panel.

22.2 System Requirements

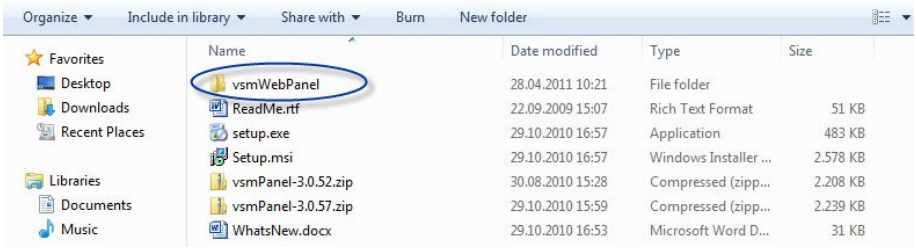
The following hardware requirements are required for the installation of vsmWebPanel:

- Every system with a modern browser (Firefox 2, IE7, Google Chrome 1) runs a vsmWebPanel client.
- For an unlimited number of clients:
  - 2x Xeon Quad, 2GHz
  - GB RAM
  - Windows Server 2003
  - .NET Framework 3.5 SP1.

22.3 Software Installation

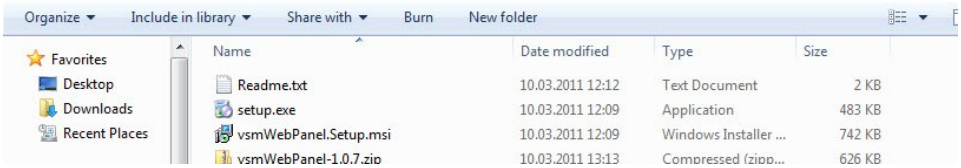
Lawo provides the vsmWebPanel through e-mail. This e-mail will contain a download link and a license key required for the activation of the service (see Opening vsmWebPanel). First, create a folder named *vsmWebPanel* in the folder *C:\vsm\vsmPanel* on the C drive.

New folder vsmWebPanel on C:\vsm\vsmPanel



Download the .zip file using the download link into the new folder and extract the files there.

Extracting vsmWebPanel files

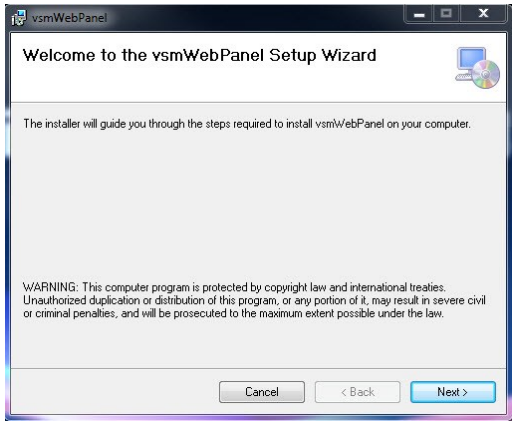


The extracted folder contains three files:

- *Readme.txt*
- *setup.exe* and
- *vsmWebPanel.Setup.msi*.

Install vsmWebPanel by selecting the *setup.exe* file. Follow the instruction provided by the vsmWebPanel setup wizard to complete the installation.

vsmWebPanel setup wizard

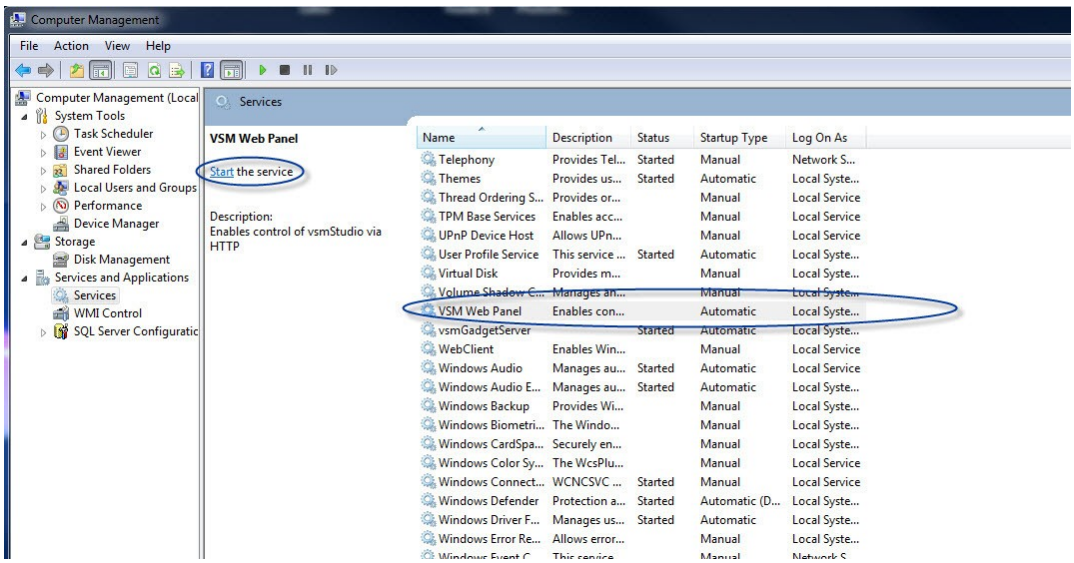


The installation will automatically create a new entry *VSM\vsmWebPanel* on the local C drive (for single PCs, *D:\VSM\vsmWebPanel* if it runs on the vsmStudio server). Select the folder *vsmWebPanel* as installation target.

22.4 Starting vsmWebPanel

22.4.1 Starting the vsmWebPanel Service

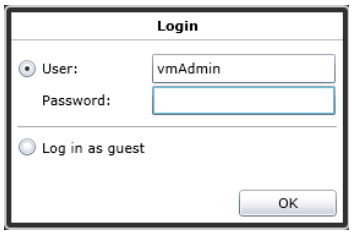
vsmWebPanel is started through the Windows *Computer Management*. After the installation, it is automatically listed under *Services* and can be started through this list.



22.4.2 Opening vsmWebPanel

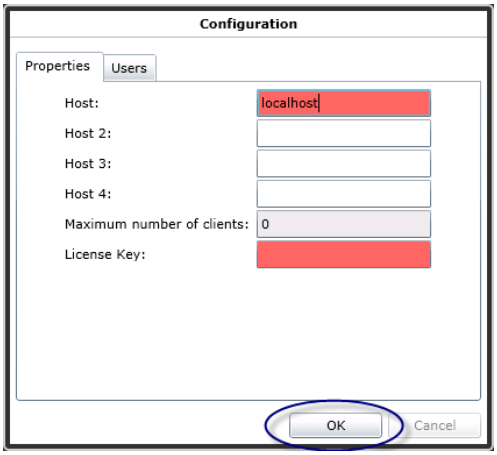
To access the configuration of vsmWebPanel, enter the address http://localhost:8040 in the browser. A new view will open. Use the user name *vmAdmin* to log in there. Initially, the password is also *vmAdmin*. When the user logs in as guest he has no right to change the Panel ID or the configuration properties. These settings can be changed later (see User Management).

vsmWebPanel login



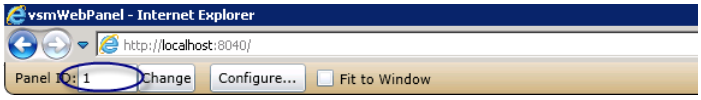
To configure vsmWebPanel, enter the IP address of the vsmServer under *vsmStudio Host* and, if existing, the IP address of the redundant vsmServer under *vsmStudio Backup Host*.

vsmWebPanel configuration



After the license key provided by Lawo has been entered, select *Submit* to finish the set-up process.

Panel-ID set-up



The panel ID is set to 1 by default. Therefore, the panel with the ID 1 of the currently running vsmStudio configuration will be opened automatically. This ID can be changed by entering another ID and confirming with *Change.*

Changing the panel ID

22.5 Working with vsmWebPanel

vsmWebPanel information

The strip above the actual control panel view provides the following information:

Right hand side:

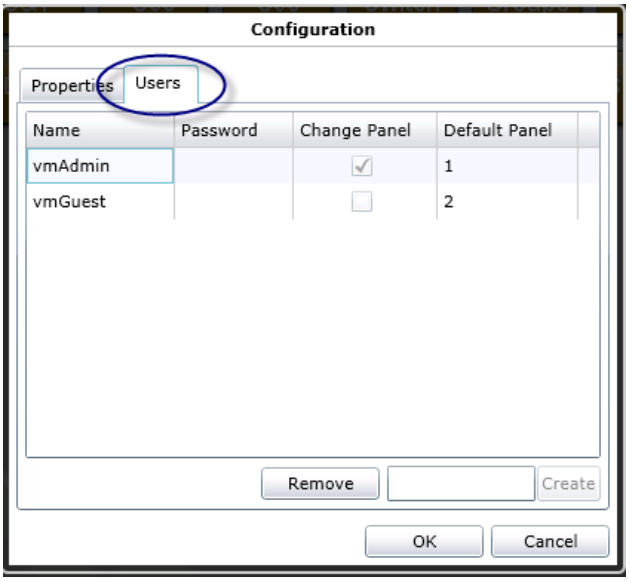
- *Panel ID*: shows the ID of the currently used panel. If *Panel ID* is selected, another ID can be entered to open another control panel.
- *Configure...* opens the initially configurated vsmWebPanel settings.
- *Fit to Window* will adjust the Panel size to the size of the browser window.

Left hand side:

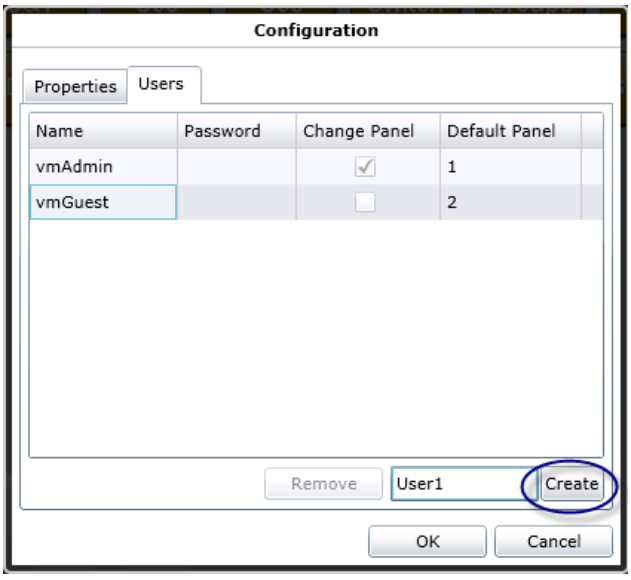
- *vsmWebPanel v3.0.12.0@192.168.19.114* indicates the current used version of the vsmWebPanel and the IP address of the current used vsmServer.
- *Log off* closes vsmWebPanel.

22.6 User Management

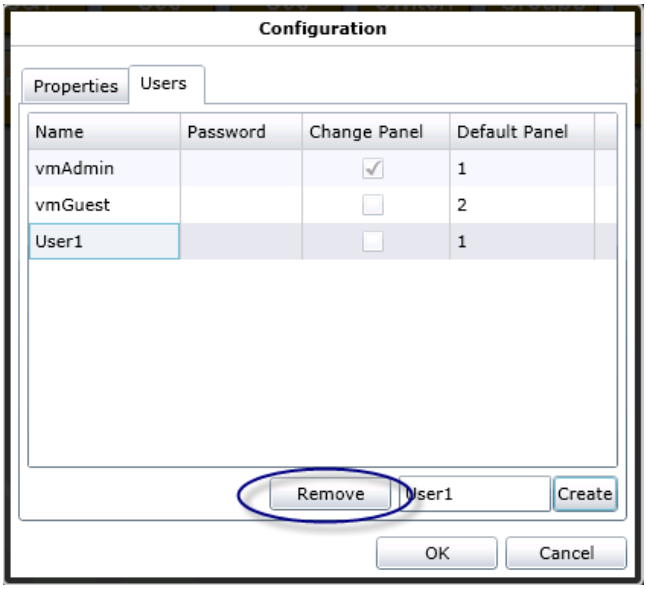
Go to the *Users* tab under *Configuration* to view and edit existing users.



In the lower right corner you can add users by entering a name and pressing *Create.*



The new created user is now displayed in the users list. It is possible to remove users by marking them in the users list and pressing *Remove.*



The columns provide following information:

- *Name* indicates the name of the user.
- Under *Password* you can define for each user an individual log in password.
- The checkmarks underneath *Change Panel* determines whether this user can change the panel ID.
- Under *Default Panel*, the ID of the control panel that should open automatically when this user opens the vsmWebPanel can be entered.

23. vsmTimeSync

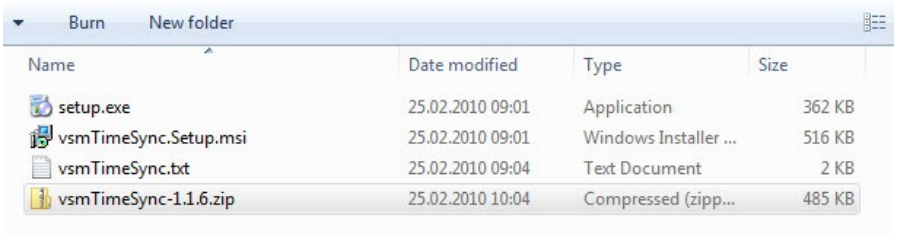
vsmTimeSync is a separate software service that provides time synchronization for the system. The service must be installed on the vsmServer.

This chapter covers the installation and configuration of **vsmTimeSync**.

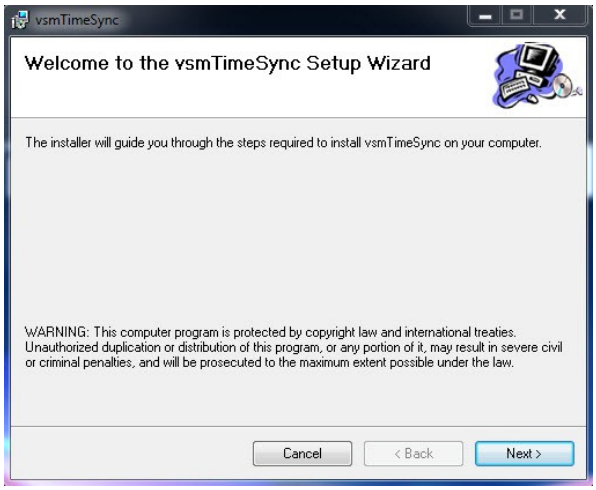
23.1 Software Installation

Before it is possible to install **vsmTimeSync**, a folder named *vsmTimeSync* should be created on the VSM drive. Copy and extract the received .zip file into that folder.

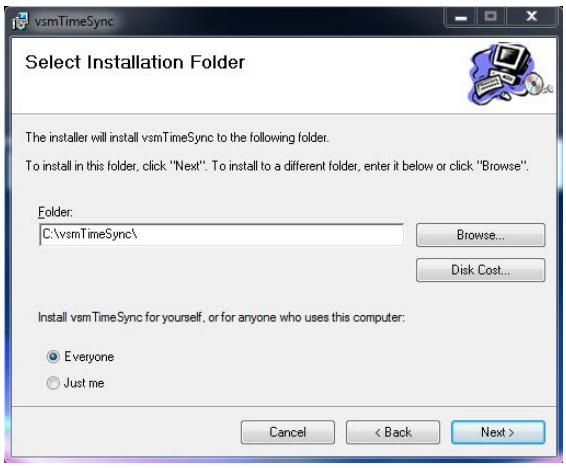
Folder vsmTimeSync



Start the installation by executing the *vsmTimeSync.Setup.msi*. Follow the instructions of the vsmTimeSync setup wizard.

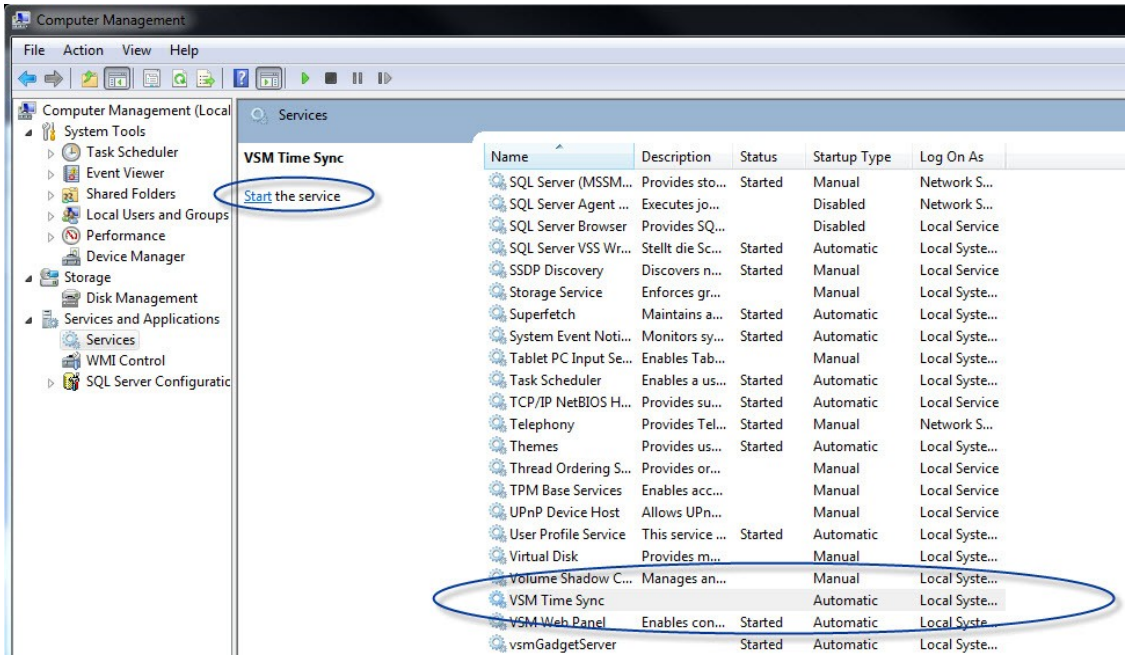


Select the *vsmTimeSync* folder on the VSM drive as installation destination.



23.2 Starting the vsmTimeSync Service

vsmTimeSync is started through the Windows *Computer Management*. The service is automatically listed under *Services* after the installation and can be started from that list.

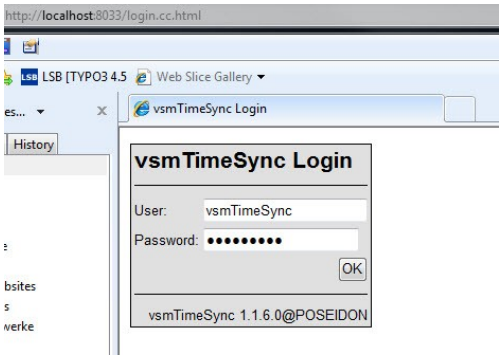


23.3 Configuring vsmTimeSync through a Web Browser

23.3.1 Login

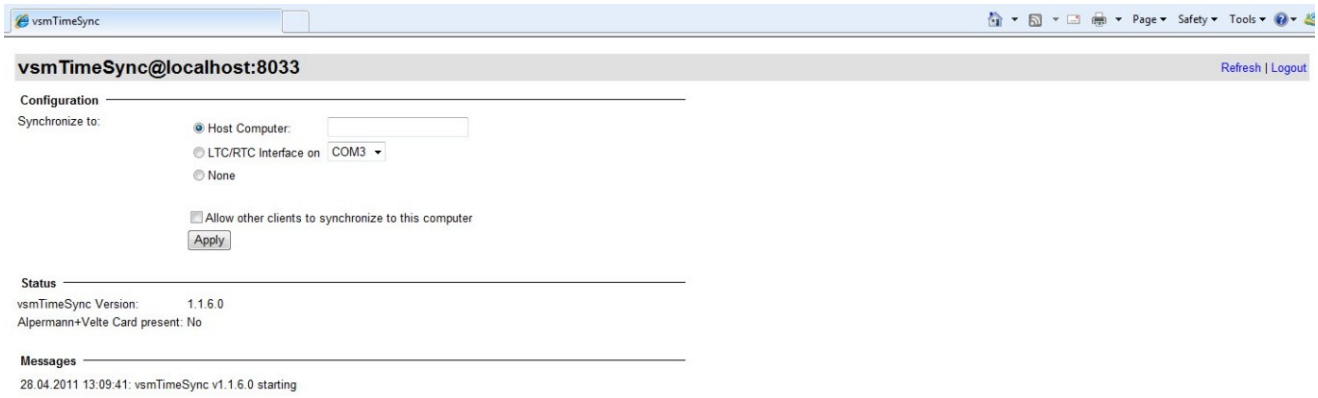
To configure vsmTimeSync through a web browser, first enter the address http://localhost:8033 in the browser. Next, enter vsmTimeSync as *User* name and the name of the server in capitals as *Password*, for example SERVER-1A.

vsmTimeSync Login



23.3.2 Configuring vsmTimeSync

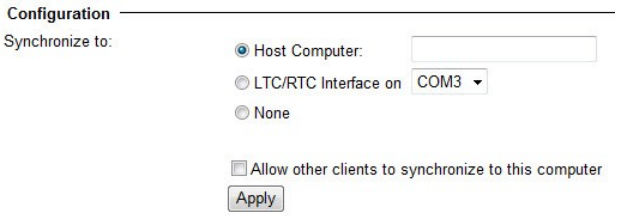
vsmTimeSync view



Enter the IP address of the host server in the field following *Host Computer* and select *Host Computer* (if the server is a client connected to the host server). The function *LTC/RTC Interface on...* can only be used if a LTC interface is available. Select *None* if the user is currently logged in on the host server.

Allow other clients to synchronise to this computer can only be selected on the host server. Without it, it is impossible to establish a connection from the client to the host. To finish the input process, press *Apply.*

Server settings

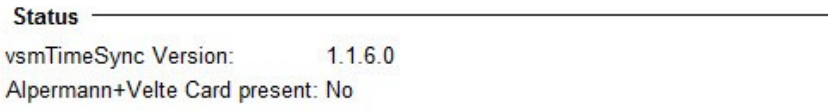


The functions *Refresh* and *Logout* are located in the very right of the vsmTimeSync view and refresh the view or end the session, respectively.

23.3.3 Status Display

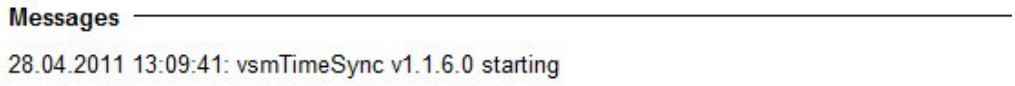
Host-Server Status

Under *Status,* the status of the host server that is used to synchronize to is shown.



The currently running vsmTimeSync version number can be found after *vsmTimeSync Version. Alpermann+Velte Card present* checks whether a card from the manufacturer Alpermann+Velte is available. The IP addresses of all PCs connected to the host server are shown after *Recent Client Connections.*

Display of all current client connections

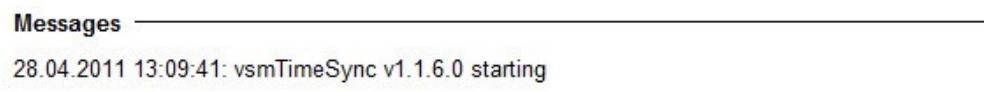


Clients Status

The current date and time of the client PC is shown after *Current Time:*. *Current Difference* is the current time difference between the client PC and the host server. The average difference is shown after *Mean Difference*, the maximum difference after *Maximum Difference.*

23.3.4 Messages Display

The paragraph *Messages* contains information pertaining to valid connections, time differences, and failure notices, listed in chronological order:



The information following *Synchronizing with [IP-Address] every 10 seconds* indicates that a connection with the host has been established. The following text indicates that time synchronization is running while showing the time difference at the same time:

18.02.2011 07:56:27: Current Time adjustment value: 155001 ticks (on), TimeInterrupt Interval: 156001
18.02.2011 02:01:14: System time set to2011-02-18 02:01:15.163
18.02.2011 02:01:14: Difference = 1031 ms, Setting system time to 2011-02-18 02:01:15.163!

If the attribute *Allow other clients to synchronize to this computer* is not ticked (see vsmTimeSync Configuration), the following text will be displayed:

18.02.2011 08:02:43: ServerConnection error: No connection could be made because the target machine actively refused it 192.168.16.13:8031

In this case, the time is influenced either by the Windows time service or another program, causing the following warning:

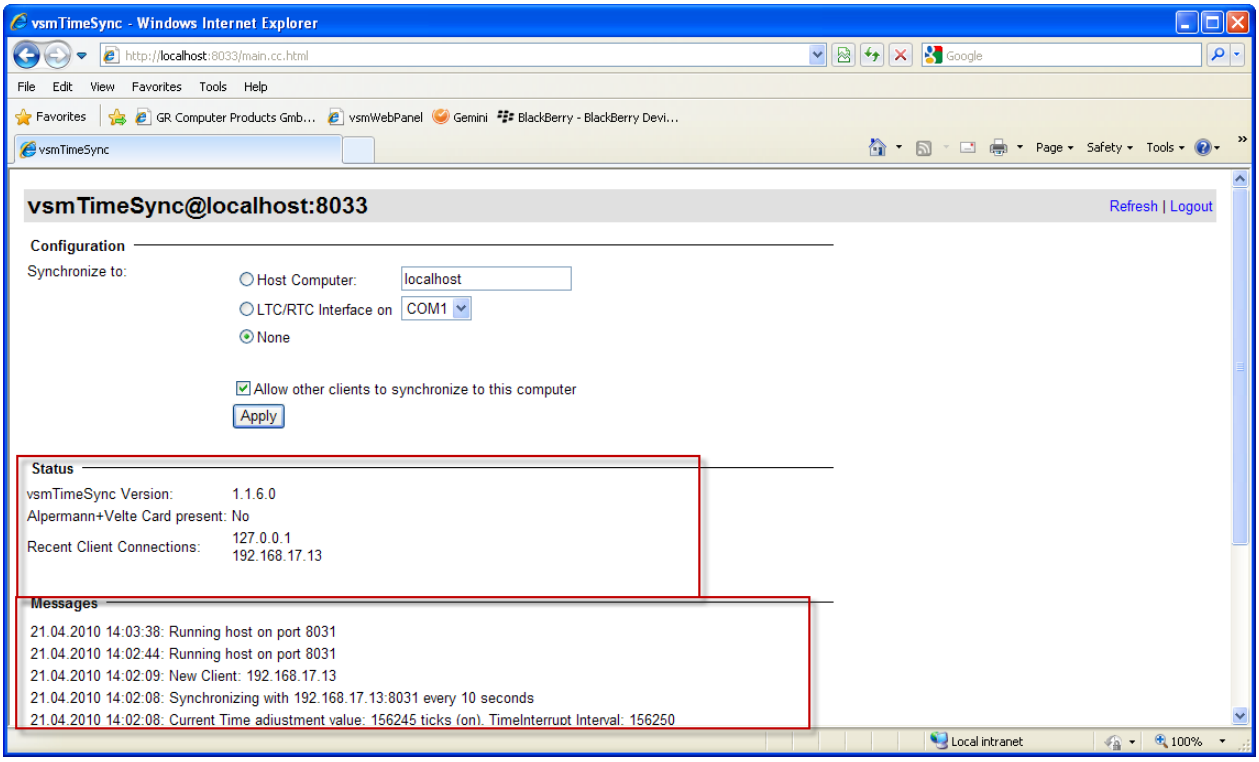
17.02.2011 15:36:27: WARNING: Time was adjusted from outside!

23.4 vsmTimeSync Online

23.4.1 Synchronization vsmTimeSync – Server

Once these settings have been made for all VSM servers as described above, the clients can be viewed in the host server's status display.

Server synchronization



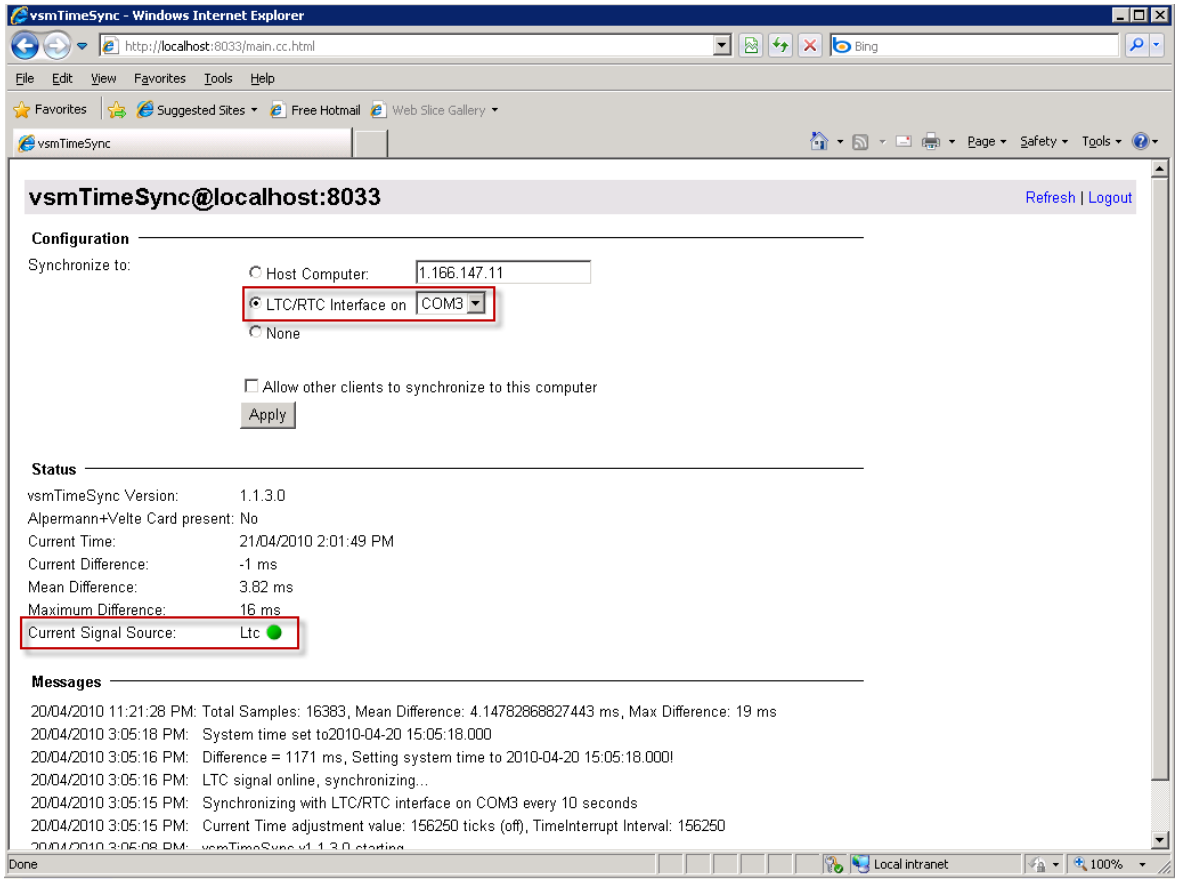
23.4.2 Synchronization vsmTimeSync – LTC Interface

As current servers no longer feature serial ports, a driver must be installed to set-up another USB com-port. This driver can be found under www.ftdichip.com. Download the file *CDM 2.08.02.0 WHQL Certified* (Drivers, VCP) from the website and install it on the server.

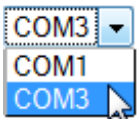
Next, connect the LTC interface and the server with a USB cable (also see *vsmGear – Complete Hardware Guide*).

Configuration and Status Display

A LTC/RTC interface connected with vsmTimeSync is displayed as follows:



The attribute *LTC/RTC Interface* is selected, and *Current Signal Source* with a green dot is displayed instead of the current clients. This indicates a functioning LTC connection.



After the entry *LTC/RTC Interface on*, the com-port can be selected through a drop down menu.

A green dot indicates a valid connection, while the kind of connection, LTC or RTC, is indicated in front of it. A red dot and *None* indicates that neither a LTC nor a RTC interface is connected. A red dot with either *RTC* or *LTC* indicates that no RTC connection is available.

Messages Display

The beginning of the synchronization with a LTC/RTC interface is indicated under *Messages* with the text *Synchronizing with LTC/RTC interface on COM3 every 10 seconds und LTC signal online, synchronizing...* . The message *LTC signal offline, going idle...* indicates that no LTC connection is available. If the USB cable was removed and plugged into another USB port, or if the LTC interface was turned off, the following message will appear: *Failed to open port COM3: The port 'COM3' does not exist.*

The screenshot below shows the notification about the status of the synchronization.:

18.02.2011 11:11:32: Current Time adjustment value: 156294 ticks (on), TimeInterrupt Interval: 156001

Please note: if the USB cable has been removed and plugged in again, the com-port changes.