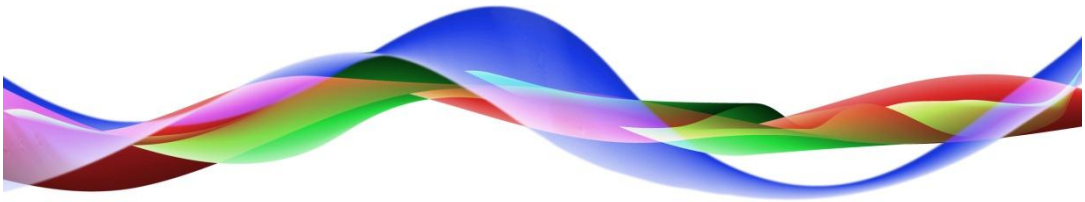
LSB
Broadcast Technologies GmbH

06 Master Matrix

vsmStudio

Manual



MFU / BME

12.05.2011

Legend

Please note: This information is of prime importance.

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Gustav-Stresemann-Str. 8
D-55411 Bingen
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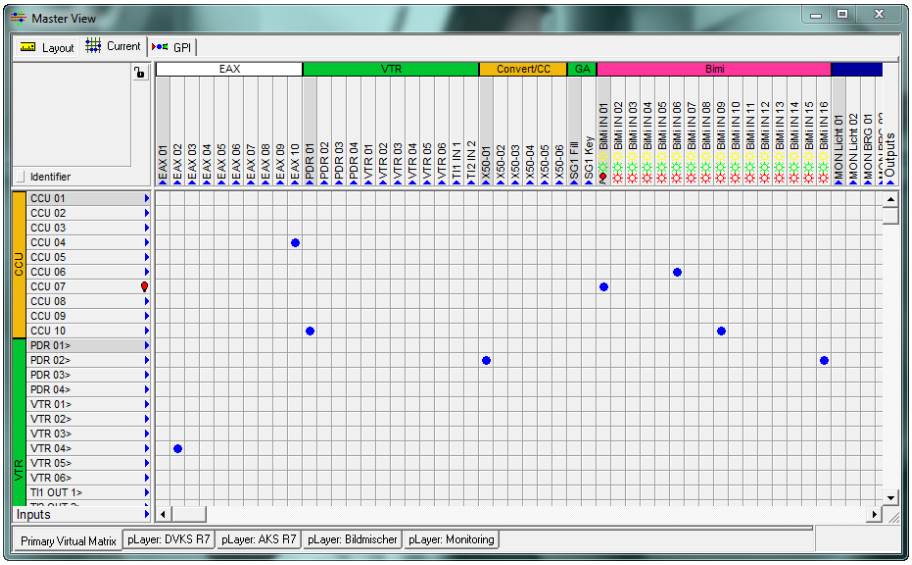
Content

Matrix symbol in the main menu

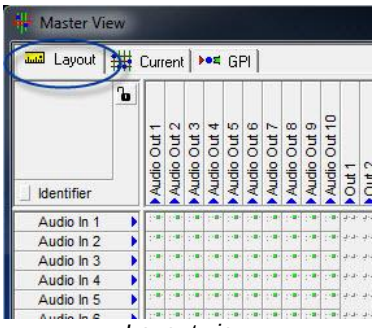
The master matrix can be accessed by clicking on the matrix symbol in the main menu.



Master matrix

The master matrix (or virtual matrix) is the consolidation of all physical routers, mixers, and virtual devices (see chapter 5.4 Virtual Signals). This virtual matrix allows the user to sort input and output signals independent of their physical assignment.

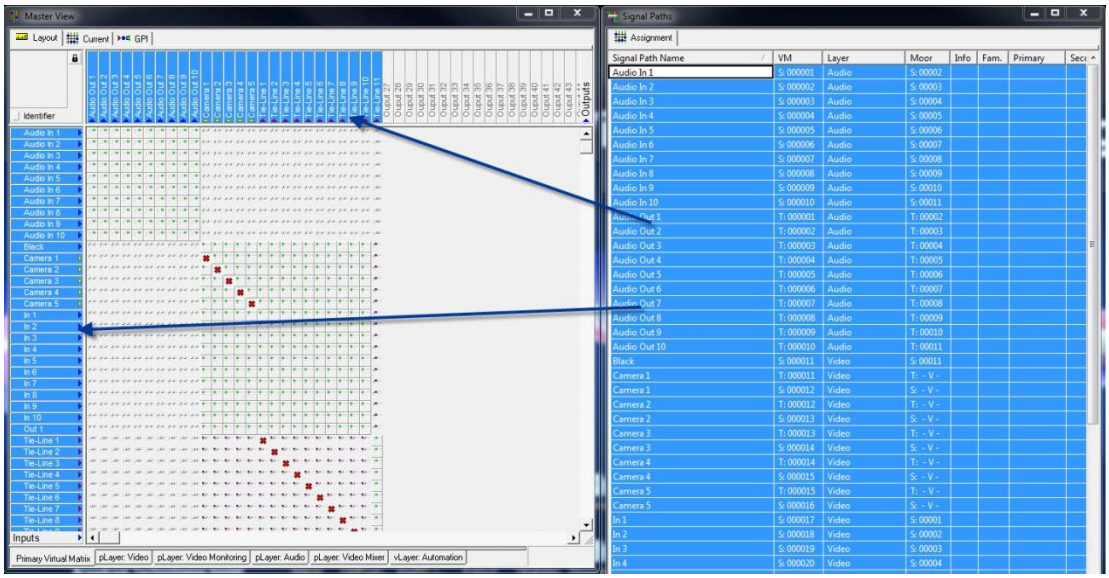
1 Layout View



Layout view

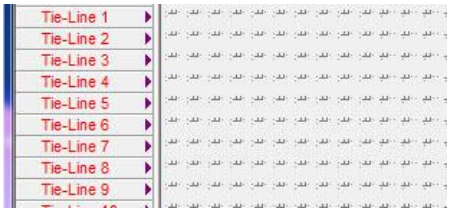
To display all signal paths in the master matrix, select them in the signal path list (see chapter 5.1 Signal Path List) and drag them into the master matrix. To mark all or several adjacent signal paths, select them with the cursor while pressing the Shift key. Multiple individual signal paths can be 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 fond will appear in red if tie-lines are only set up on one side of the master matrix. The 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

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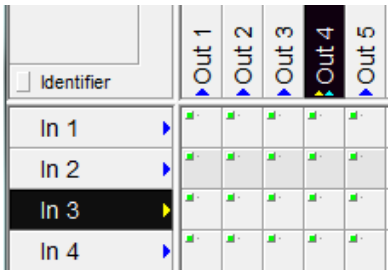
1.1 Arrangement of Signal Paths

In 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.

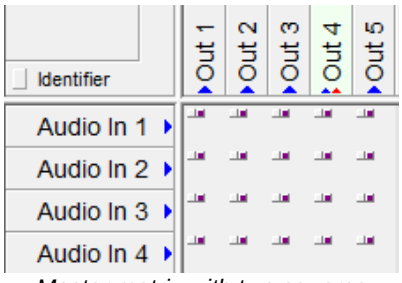
1.2 Layer Display in Layout Mode

While layout view is selected, it is not possible to switch any crosspoints. In this mode, a small, green square shows which crosspoints can be switched on which layer. If multiple layers have been created, small black dots beside the square indicate the total number of layers as well as the specific layer on which the signal path in question is located. The order of black dots corresponds with the order of the layer tabs shown below.



Master matrix in layout view

Two squares indicate the possibility of switches on two layers. In this case, the squares show the layer on which the sources are positioned.



Master matrix with two squares

The screenshot shows a situation where the source lies on the second layer.

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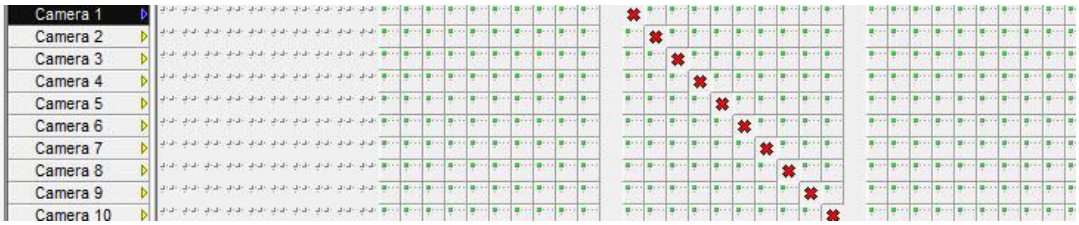
1.3 Invalid Crosspoint Switches

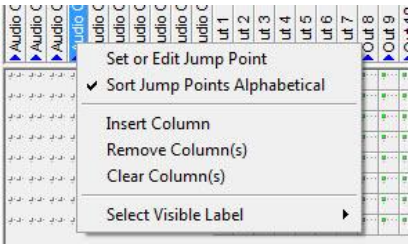
A red cross marks sources and targets that lie on the same layer but do not allow for a crosspoint switch. This occurs, for example, with a virtual signal (see chapter 5.4 Virtual Signals), which is designed to act both as source and target. The respective crosspoint is marked with a red cross.



Master matrix with virtual signals

1.4 Jump Points

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



Options in layout view

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.

Adding or editing of jump points

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

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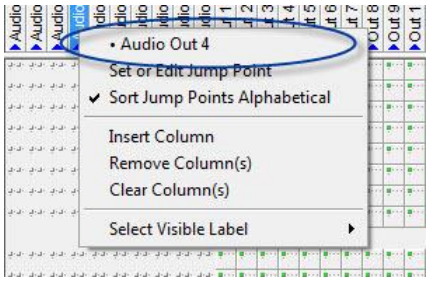
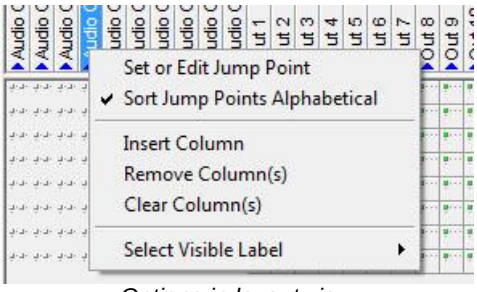


Using jump points

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.

1.5 Insert or Remove Signals and Columns



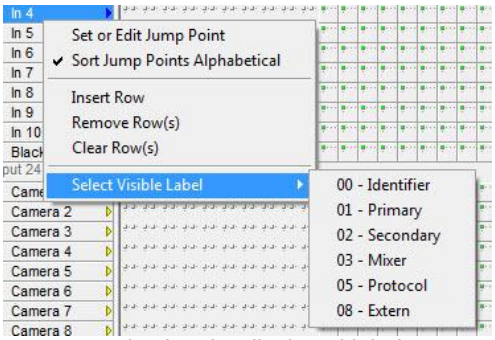
Options in layout view

To insert a column above a signal, 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.

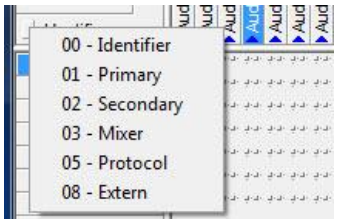
The selected signal is deleted from the virtual matrix by left-clicking *Clear Column(s)* (and the confirmation of a prompt). It is again possible to delete multiple signals from the matrix at once.

1.6 Displayed Label



Selecting the displayed label

Left-click on *Select Visible Label* to open a variety of different labels (see chapter 5.2.5 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 chapter 6.4 Label Display).



Label display

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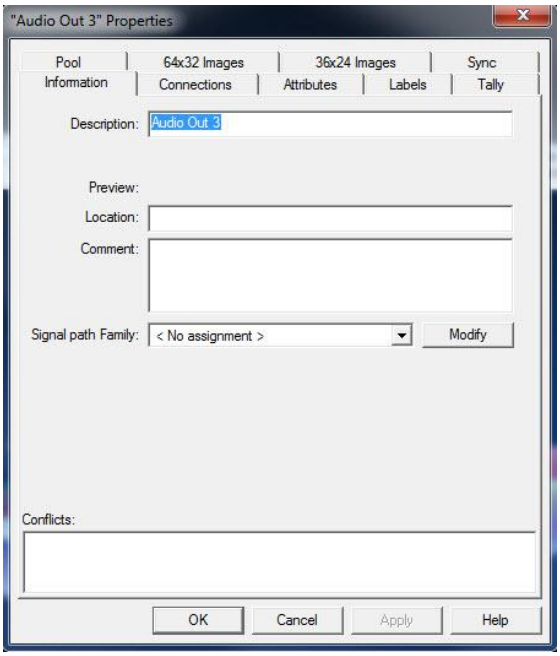
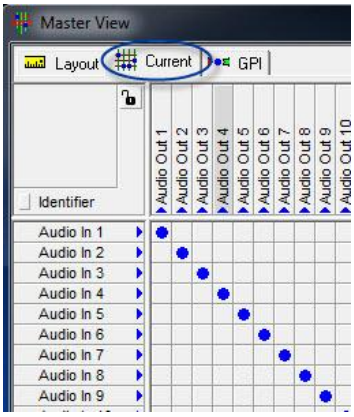
1.7 Signal Path Properties

Signal path properties can be displayed by double clicking on a signal (see chapter 5.3 Edit Signal Paths).



Signal path properties

2 Current View

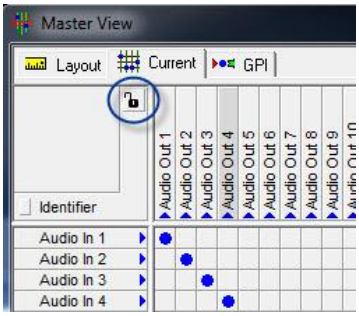


Current view

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

2.1 Switching Crosspoints

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



Unlocking the Current view

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

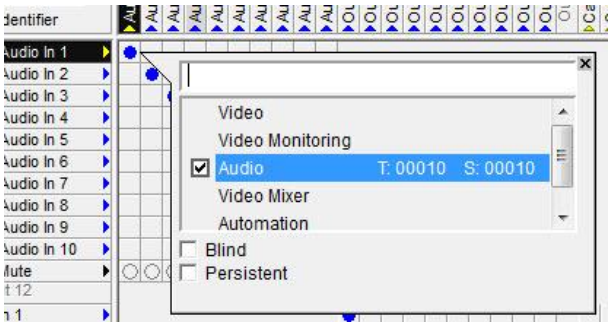
Please note: Before crosspoints can be set, the switched layers must be assigned to a router (or to the VSM Dummy X-Switch, see chapter 1.8.7) so that vsmStudio receives feedback through the switch.

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

2.2 Crosspoint Properties

2.2.1 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.



Coordinates window

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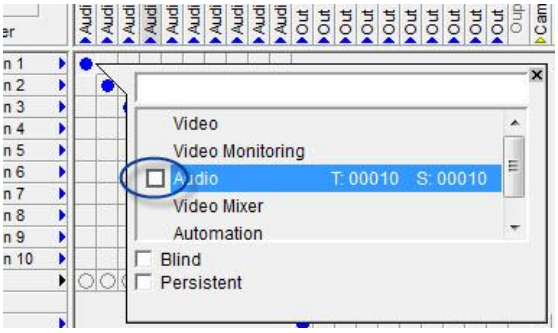
Comments about this crosspoint can be added in the blank, white field. The numbers after *T* (target) and *S* (source) show the position of source and target on the respective layer.

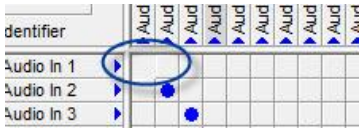
2.2.2 Display of Layers

All available layers are shown below the comment field. The ticked 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.



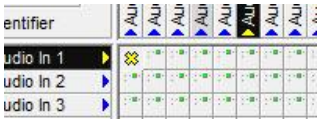
Removed checkmark in layer view

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



Blank field

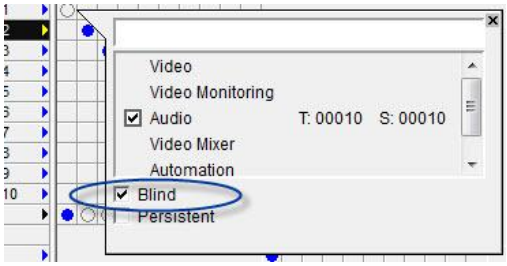
In layout mode (see chapter 6.4), this is shown with a yellow cross.



Yellow cross in the layout view

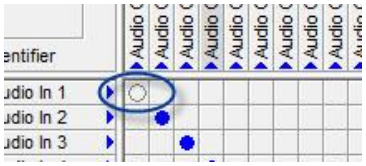
2.2.3 Blind Source

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



Checkmark before Blind

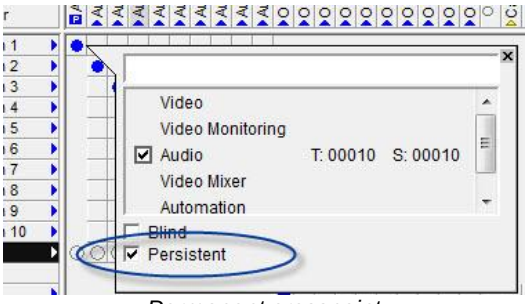
This is signalled by an empty dot with a black frame.



Blind signal

2.2.4 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.

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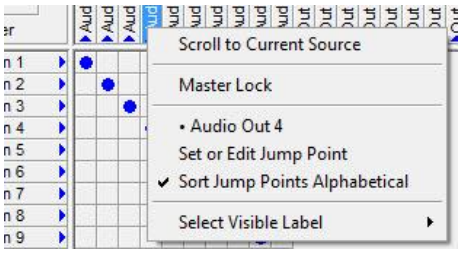
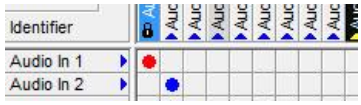
2.3 Locking a Target



Target options in Current View

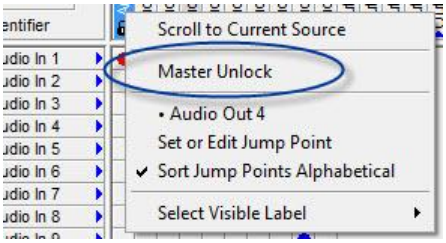
The window that opens when right-clicking onto a target in the *Current* view offers two more options besides *Select Visible Lable* and the Jump Point functions discussed above: *Scroll to Current Source* and *Master Lock* (right-clicking onto a source signal will open a window with said jump point functions and *Select Visible Label*, see chapter 6.1.4 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*.



Master unlock

2.4 Display of Crosspoints

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

2.4.1 Physical Crosspoints

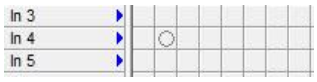
In *Current* view, a blue dot indicates a physical crosspoint.

Physical crosspoints

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

Black signal

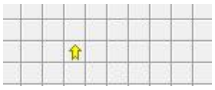
An empty circle indicates a blind signal source (see chapter 6.2.2.3 Blind Source).



Blind signal

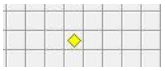
2.4.2 Crosspoints with Virtual Signals

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



Yellow arrow

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



Yellow rhombus

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.

Yellow circle with blue outline

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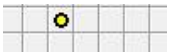
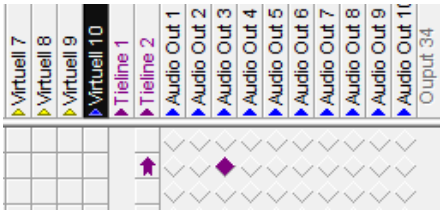
A yellow circle with black outline indicates a physical target switched onto a black signal using a virtual signal.



Yellow circle with black outline

2.4.3 Crosspoints with Tie-Lines

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

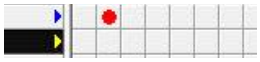


Crosspoints with tie-lines

A purple arrow indicates a target 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.

2.4.4 Locked Crosspoints

A red dot indicates a locked crosspoint (see chapter 6.2.3 Locking a Target). It can only be unlocked by the controlling device that executed it, or with a master unlock.



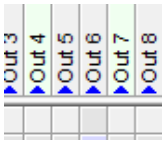
Locked crosspoint

2.4.5 Crosspoints with Loop-Through Devices

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

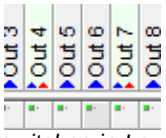
Blue rhombus

2.4.6 Linked Signals



Signal paths highlighted in bright green

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

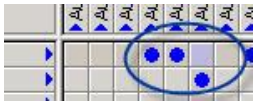


Coupled switches in Layout Mode

In addition, the coupled switch is marked in the Layout view (see chapter 6.1) with a small red arrow (next to the blue arrow under the signal name).

2.4.7 Inverted Switching

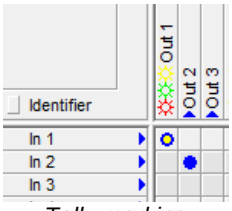
It is possible to configure inverted switches for certain sources and targets (see chapter 5.2.4.2 Special Settings). This means that the switch behaviour of the layer (see chapter 4.1.1 Switch Behaviour of the Router) is changed for pre-defined crosspoints: For example, if the switch behaviour of the layer was defined as 1:n, it is still possible to switch crosspoints 1:1.



Inverted switches

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.

2.5 Tally Display



Tally marking

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

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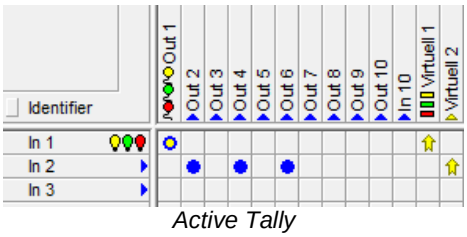
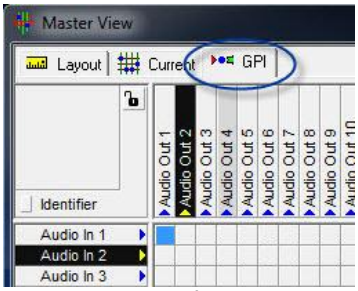


Active Tally

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.

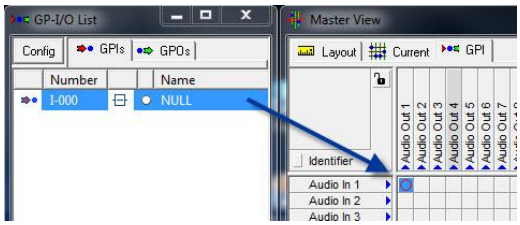
3 GPI View



GPI view

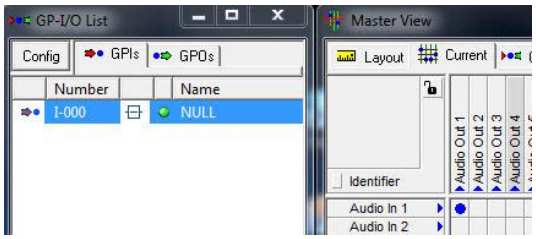
3.1 Connection of a Crosspoint with a GPI

The GPI mode allows the connection of a crosspoint with a GPI (see chapter 15). If a GPI is selected in the GP-I/O list and dragged onto a crosspoint, this GPI logic is placed on top of the crosspoint.



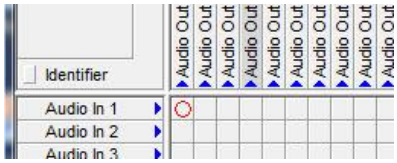
Drag and drop GPI onto crosspoint

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



Crosspoint triggered by GPI

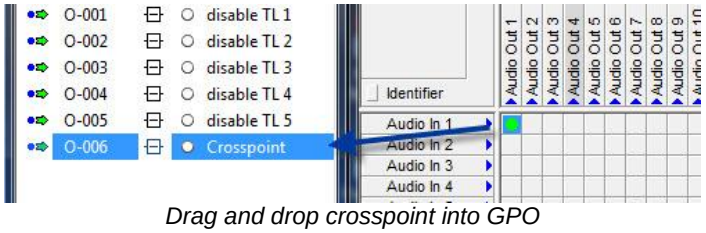
In GPI view, this is indicated by a red circle.



GPI-crosspoint-connection

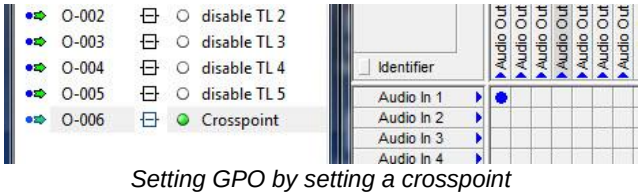
3.2 Connection of a GPO with a Crosspoint

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.



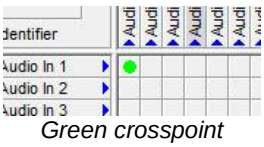
Drag and drop crosspoint into GPO

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.



Green crosspoint

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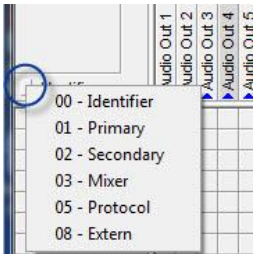
4 Label Display

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

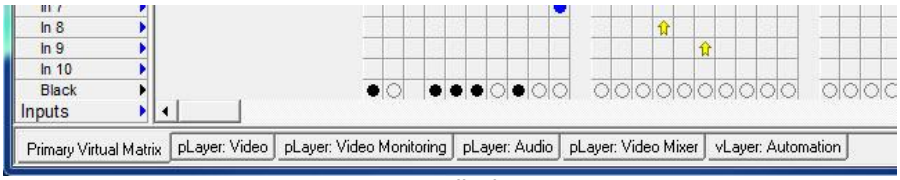


Identifier

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.

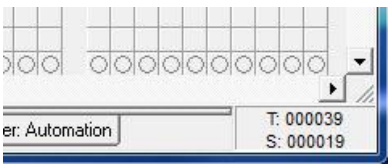
5 Layer and Position Display

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 chapter 4).



Layer display

The physical layers hereby indicate the actual assignment of the routers. Signals can be arranged arbitrarily on the virtual layers (see chapter 4.2 New Virtual Layer).

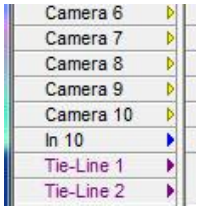


Source and target display

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.

6 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 chapter 5). 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 fond.

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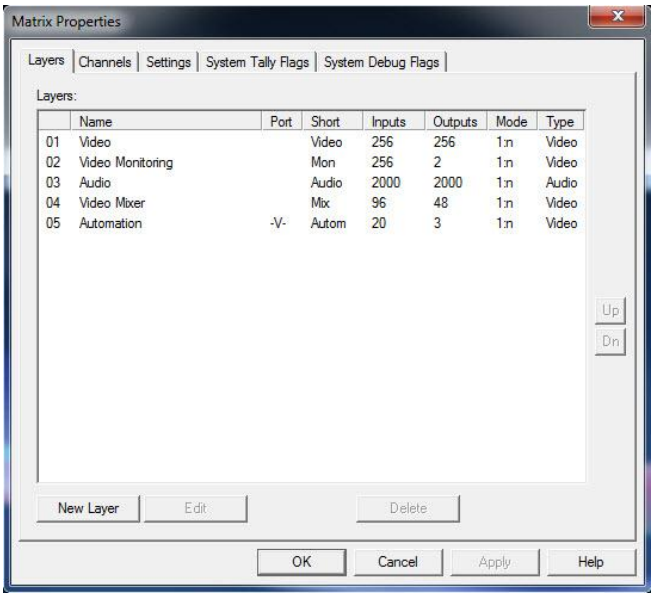
7 Matrix Properties

Matrix properties

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

7.1 Layers

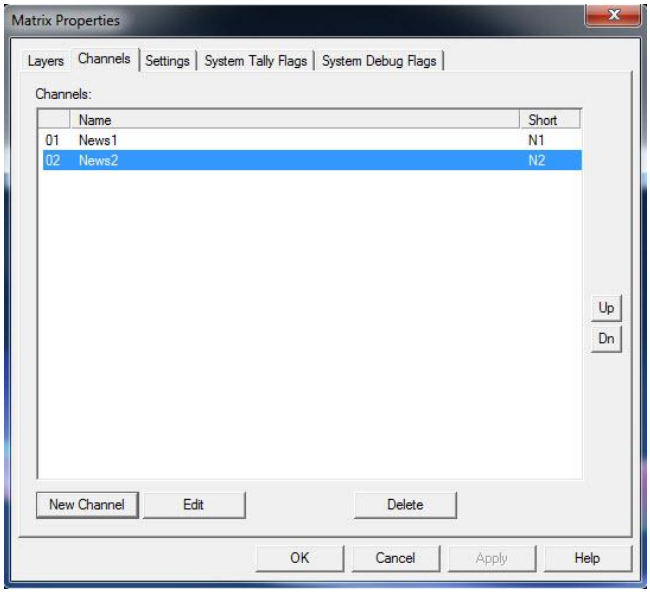
The first view, introduced in chapter 4, offers the functions to set up, edit, delete, and sort layers.



Matrix properties: Layers

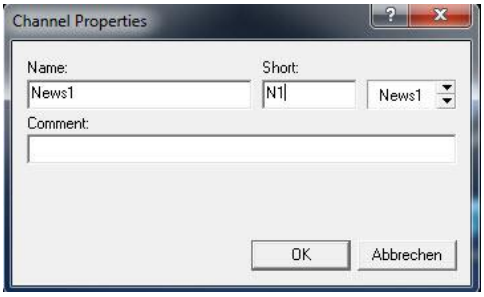
7.2 Channels

The second tab *Channels* offers the same properties for channels.



Channels

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



Channel properties

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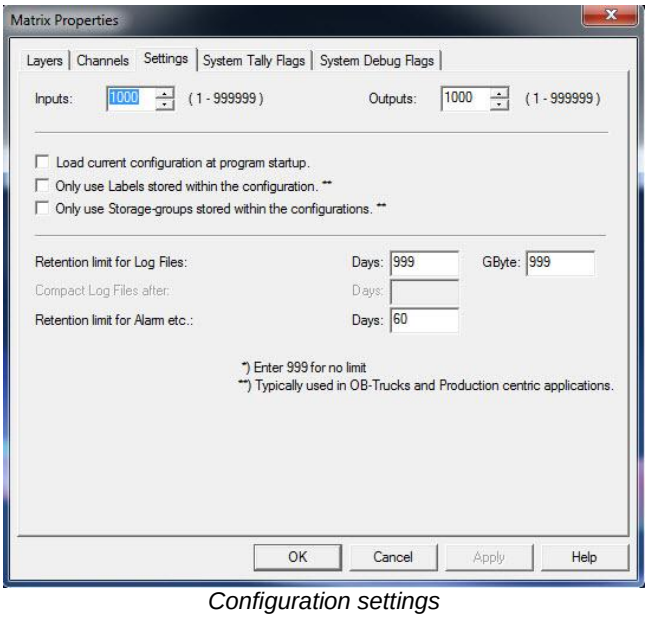
7.3 Settings

As described in chapter 3.1 New Configurations, configuration settings can be edited under the third tab in matrix properties.



Configuration settings

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