

LASERGRAPH DSP RELEASE NOTES 2023

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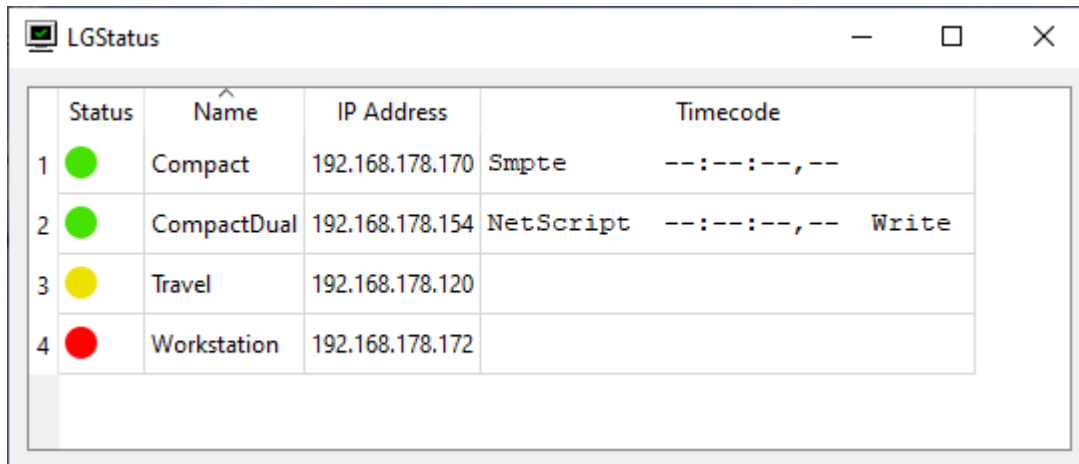
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December 2023





Lasergraph DSP System Software 2023/12/08

LGStatus

LGStatus is the latest member of the Lasergraph DSP Mark 2 Production Suite.



The screenshot shows a window titled "LGStatus" with a standard Windows interface (minimize, maximize, close buttons). Inside the window is a table with the following data:

	Status	Name	IP Address	Timecode
1		Compact	192.168.178.170	Smppte --:--:-- ,--
2		CompactDual	192.168.178.154	NetScript --:--:-- ,-- Write
3		Travel	192.168.178.120	
4		Workstation	192.168.178.172	

It simplifies the handling of a large number of Lasergraph DSPs by displaying their status and timecode in tabular form.

The new version of the Lasergraph DSP system software provides the necessary communication interface.

A detailed description can be found in the manual of LGStatus.

July 2023

Lasergraph DSP System Software 2023/07/17

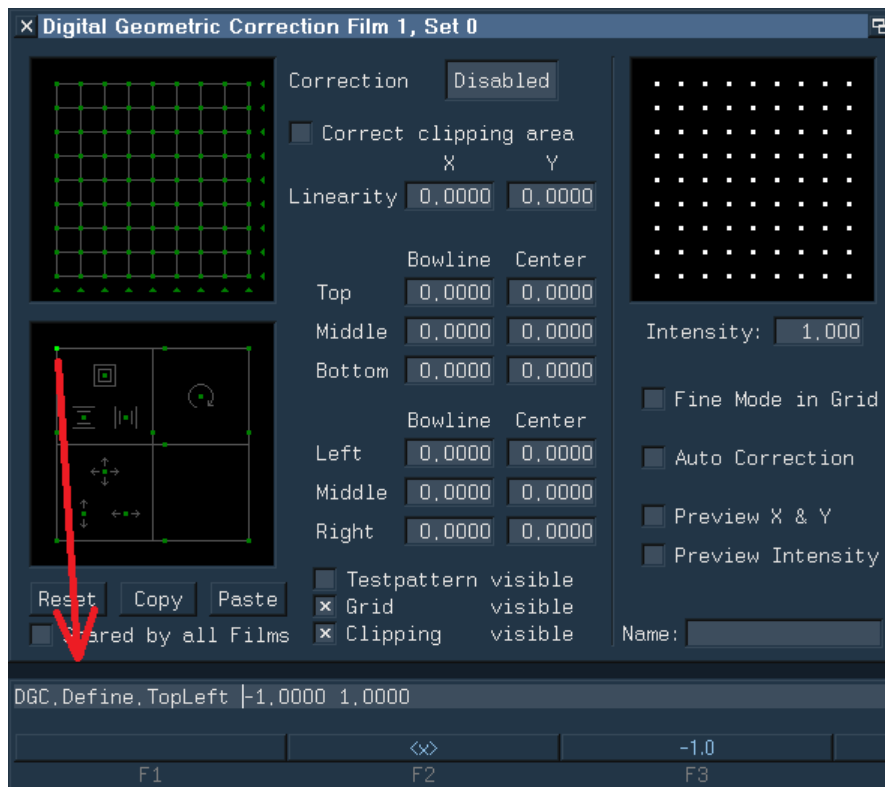
Values can be entered in the DGC

The following commands can be used to position the four corner points of the DGC:

```
DGC.Define.TopLeft <x> <y>
DGC.Define.TopRight <x> <y>
DGC.Define.BottomLeft <x> <y>
DGC.Define.BottomRight <x> <y>
```

The values for <x> and <y> must be in the range from -1.000 to +1.000.

A mouse click on one of the four corner points puts the corresponding command with the current values into the input line:



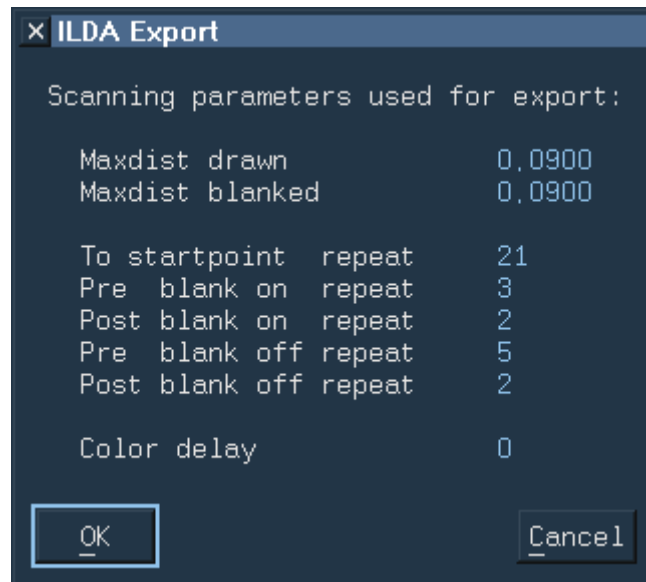
Note:

- The new commands refer to the currently opened DGC.

Display of scanning parameters at ILDA Export

The commands "SaveILDA" and "COntvert.DSPtoILDA" use the scanning parameters of the currently selected Trickfilm for the conversion into ILDA format.

To review them, the scanning parameters to be used are now displayed before the conversion:



The Color Delay requires special attention.

If you want to use the ILDA file in another software or load it into a projector in which the Color Delay is already set, you should make sure that no Color Delay is used when exporting.

If a Color Delay is set in the currently selected Trickfilm, a corresponding note will be displayed in the window.

New command "SaveAIFF"

AIFF (Audio Interchange File Format) is a file format for storing audio data. Since the audio data is stored uncompressed, i.e. lossless, and any number of channels is supported, it is suitable for storing data for laser projections.

With the new command "SaveAIFF" single pictures or complete catalogs can be exported as streams in AIFF files. Five tracks are created: X, Y, R, G, B.

The AIFF files created in this way can then be played back with "LA.player", for example, or uploaded directly into certain projectors, such as the "PHAENON accurate", for playback from the internal SD card at a later time.

```
SaveAIFF <catalog> [<filename>] /NoMarker
```

<catalog>	Name of the catalog whose pictures are to be exported.
<filename>	Name of the AIFF file to be created. If no file name is specified, the name of the catalog is used as file name.
/NoMarker	Normally, the command "SaveAIFF" creates scene markers in the AIFF file. Scene markers allow the AIFF file to be cut with frame accuracy and provide better output in "LA.preview" or other visualizers. However, if you want to edit the AIFF file with conventional audio software, for example to change the image size, the colors or the sampling rate, the scene markers might have a negative effect on the laser output. For this special case you can prevent the output of markers with the option "/NoMarker".

As with the commands "SaveILDA" and "COnvert.DSPtoILDA", "SaveAIFF" also uses the scanning parameters of the currently selected Trickfilm.

Note:

- Not all systems support freely selectable sampling rates.
For example, if you want to output the AIFF file via a USB2AVB interface over AVB on a PHAENON accurate, the sampling rate has to be 48, 96 or 192 kHz.

Bugfixes

In both ILDA Export and ILDA Import, colors and blanking were shifted by one point compared to X/Y.

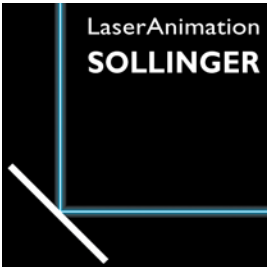
If you exported a picture from the Lasergraph DSP to ILDA format and then imported it again, everything worked as expected.

The problem occurred when ILDA files from other systems were imported on the Lasergraph DSP or ILDA files exported from the Lasergraph DSP were imported on other systems.

Hint:

- Pictures where colors and blanking are shifted with respect to X/Y can be corrected with the Piced command

```
CATalog.ColorShift <catalog> <shift>
```



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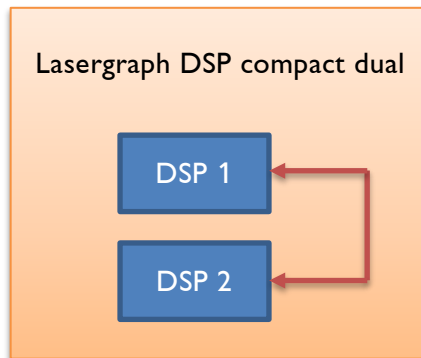
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December 2022

Lasergraph DSP System Software 2022/12/12

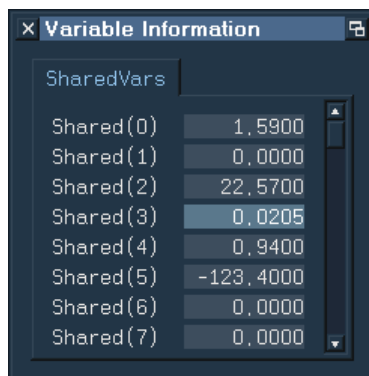
Transfer of Shared Variables over Network

Shared Variables are special variables which can be used for data exchange between different DSPs within a Lasergraph DSP workstation or a Lasergraph DSP compact dual:

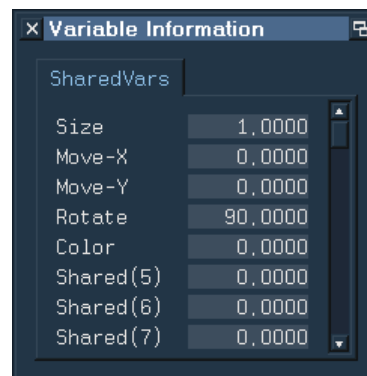


There are also many ways to interact with the Shared Variables:

- In the window "Variable Information" (command `VARINFO`) the Shared Variables values can be displayed and changed:



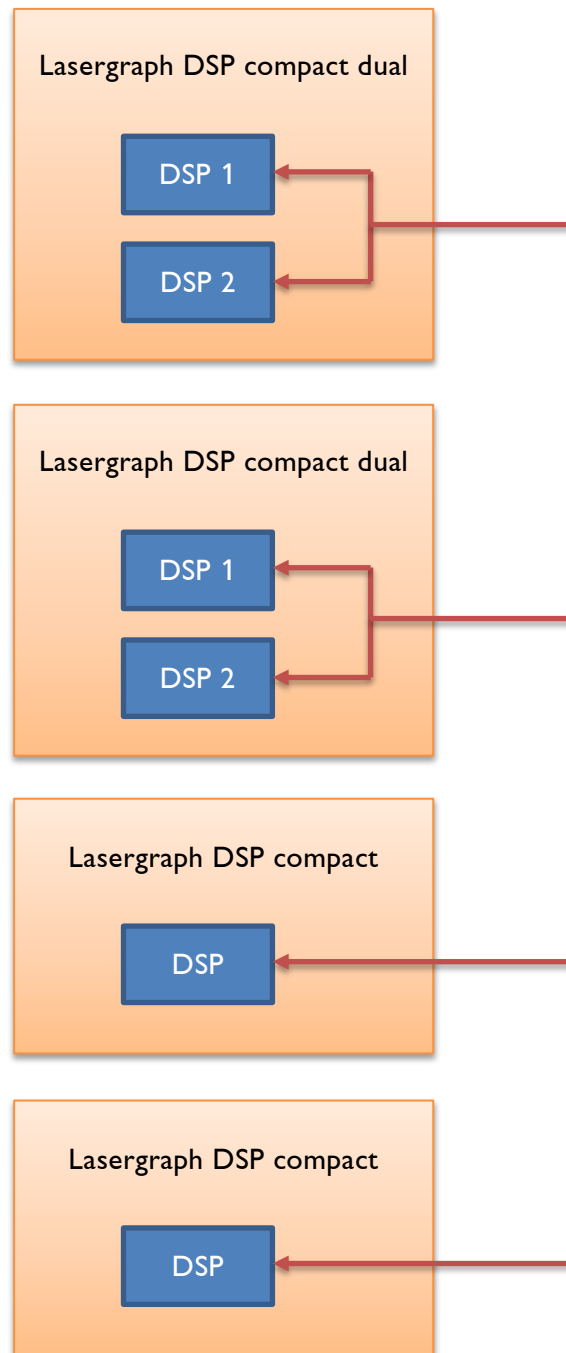
or



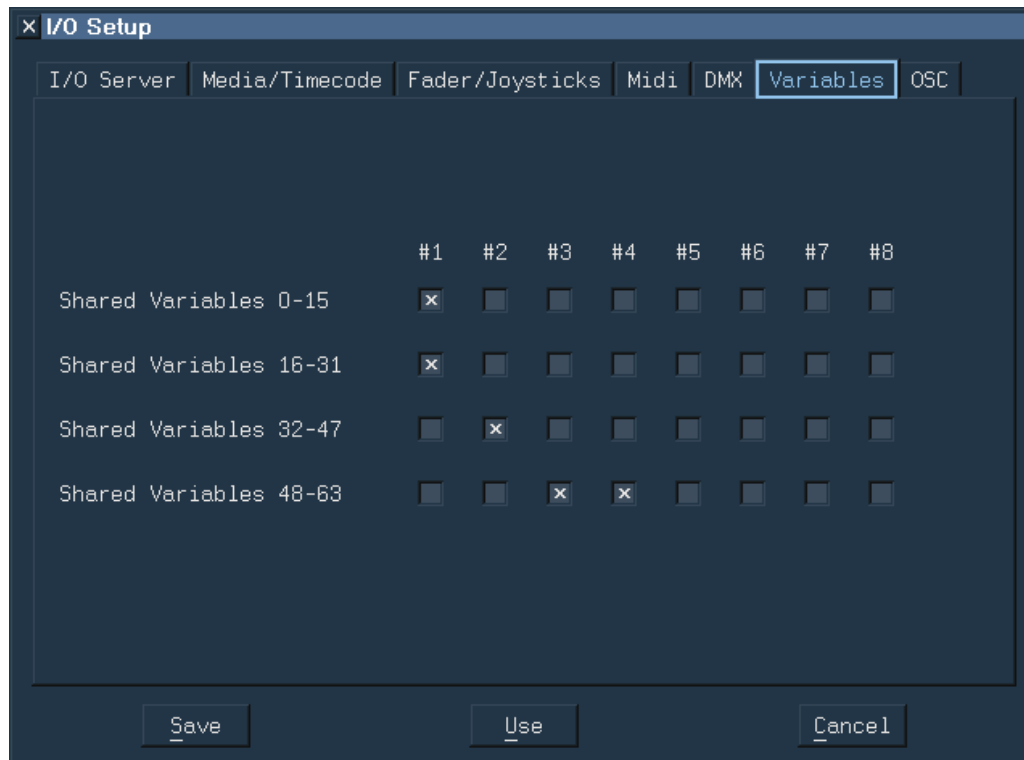
- The values of the Shared Variables can be changed by using the command line (commands `SHAREDvar.Set` or `SETSHAREDVAR`)
- The values of the Shared Variables can be changed by using `SerCmd (<sharedvar)`
- The values of the Shared Variables can be changed by using `OSC (/SharedVar)`
- The values of the Shared Variables can be saved with the command `SaveSharedVars` and can be loaded with the command `LoadSharedVars`

With the new release, it is now possible for DSPs located in different Lasergraph DSPs to exchange data over the network using the Shared Variables.

Example:



To configure the reception of Shared Variables from other Lasergraph DSPs, there is a new tab called "Variables" in the I/O Setup:



The 64 available Shared Variables are divided into 4 groups with 16 Shared Variables each.

For each of these 4 groups it can be defined independently from which servers they should receive value changes.

Notes:

- To use the transmission of the Shared Variables over network, the new system software must be installed on all participating Lasergraph DSPs.
- On a Lasergraph DSP workstation changes to the Shared Variables can only be received. Sending, on the other hand, is not possible because the CPU card is too slow for this.

Increase of the maximum desktop resolution

For the Compact, the maximum desktop resolution has been increased from 2048 x 2048 pixels to 4096 x 3072 pixels.

Even though in most cases a desktop resolution of 2048 x 2048 pixels is more than sufficient, the previous limitation prevented on large monitors the desktop of the Lasergraph DSP from being displayed at full screen.

See also LGRremote shortcut <Ctrl>+<Alt>+<Return>.

New command "ImportEntries"

The new command `ImportEntries` inserts empty `Entry` commands with timecode coming from a text file (e.g. *.CSV) at the current position in the Timescript.

It supports timecode with 25fps in the following format:

hh:mm:ss:ff or hh:mm:ss,ff

Thereby means:

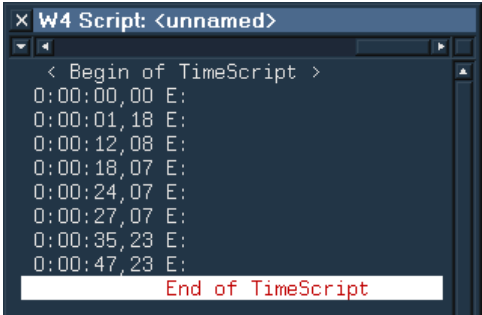
hh = Hours
mm = Minutes
ss = Seconds
ff = Frames

Only the first timecode within a line is used.
Lines with no valid timecode are ignored.

Example:

#	Name	Start
M1	START TIME CODE	00:00:00:00
M2	START VIDEO PLAYBACK	00:00:01:18
M3	DIM UP SPOTS	00:00:12:08
M4	DIM DOWN AMBIENT LIGHT	00:00:18:07
M5	DIM DOWN SPOTS TO 25%	00:00:24:07
M6	FIRE PYROS	00:00:27:07
M7	VIDEO ENDS	00:00:35:23
M8	LASER ENDS	00:00:47:23

Text file



```
< Begin of TimeScript >
0:00:00,00 E:
0:00:01,18 E:
0:00:12,08 E:
0:00:18,07 E:
0:00:24,07 E:
0:00:27,07 E:
0:00:35,23 E:
0:00:47,23 E:
End of TimeScript
```

Timescript after `ImportEntries`

New command "DeleteDisplayZones"

In the Trickfilm Edit, the new command `DeleteDisplayZones` allows you to delete all Display Zone commands in which no DGC zone is selected.

This affects the following Trickfilm commands:

```
DisplayPictureZone  
DisplayAnimationZone  
DisplayBufferZone
```

Bugfixes

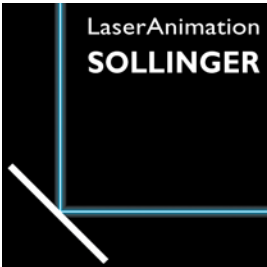
When using the Trickfilm command `SetBeamTimed`, the DSP did not wait long enough after turning on the blanking.

Even with correctly set scanning parameters, this resulted in visible defects:



Until now, the only way to fix this was to increase the number of "Post Blank On" repeats.

With the new version of the system software, this workaround is no longer necessary.



LASERGRAPH DSP RELEASE NOTES 2021

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September 2021

Lasergraph DSP System Software 2021/09/20

New trickfilm command **ApplyIntensity**

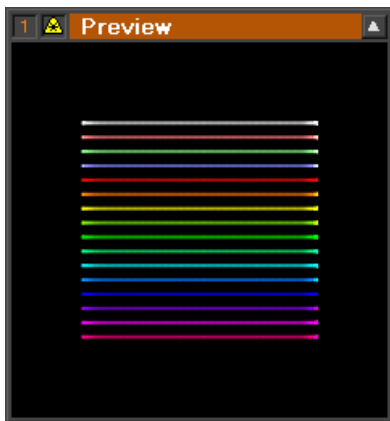
The new trickfilm command "ApplyIntensity" works similarly as the command "ApplyBitmap".

In contrast to the "ApplyBitmap", where the bitmap is used to colorize the picture, the bitmap in the "ApplyIntensity" only changes the brightness of the picture.

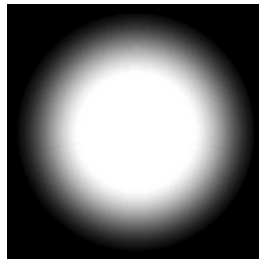
Since the colors are not changed, the command "ApplyIntensity" can be combined with other coloring commands such as ColorCYcle, ApplyBitmap or ApplyColorCycle.

This allows you to create completely new effects.

Example 1:



without ApplyIntensity

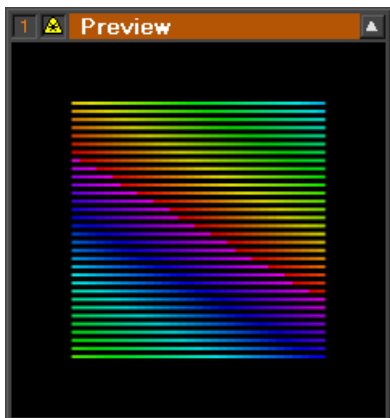


Bitmap



with ApplyIntensity

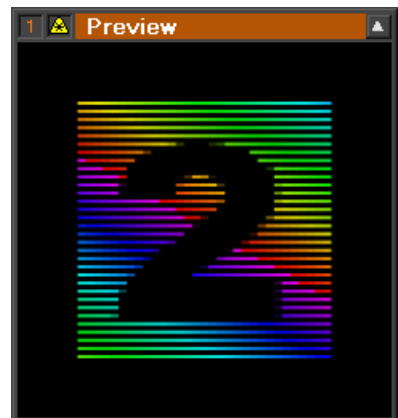
Example 2:



without ApplyIntensity



Bitmap



with ApplyIntensity

Parameters:

Film1: 0 ApplyIntensity			
Bitmaps:	Circle		
Frames:	1		
Width:	128		
Height:	128		
Mode:	Wrap	Relative	
Select BMP:	LoopCnt		
Buffer SRC:	0		
Buffer DST:	1		
SizeX	X = Y	1.0000	
SizeY		1.0000	
RotateZ		0.0000	
MoveX	X & Y	0.0000	
MoveY		0.0000	
SizeX	X = Y	1.0000	
SizeY		1.0000	
RotateZ		0.0000	

Bitmaps: Here the bitmap(s) to be used are entered.

Either a single bitmap or several bitmaps can be entered by using wildcards.

Example: *.BMP enters all BMP files in the current directory.

Since only the brightness of the bitmaps is used, the bitmaps should contain only grayscales. If colored bitmaps are entered, they are automatically converted to grayscales.

Since the bitmaps are stored in the trickfilm, the bitmaps should not be unnecessarily large to prevent the loading time from being unnecessarily increased.

The maximum supported resolution is 256x256 pixels.

Frames: Displays the number of bitmaps that have been entered.

Width: Displays the width of the bitmap(s) in pixels.

Height: Displays the height of the bitmap(s) in pixels.

Mode: The selection "Wrap" / "Clip" defines how to deal with the case that the bitmap does not cover the entire laser picture:

Wrap: The bitmap is repeated endlessly on all sides

Clip: The bitmap is not repeated. Outside the bitmap the brightness from the edge of the bitmap is continued.

The selection "Relative" / "Absolute" determines how the value "Select BMP" is interpreted to select the desired bitmap:

Relative: The value must be in the range from 0.0 to 1.0

0.0 = first bitmap

...

1.0 = last bitmap

Absolute: The value is equal to the number of the bitmap

0 = first Bitmap

1 = second Bitmap

2 = third Bitmap

etc.

Select BMP: The meaning of the value entered here depends on the selected mode "Relative" / "Absolute" (see above).

The default ("LoopCnt" in relative mode) results in an evenly progression of the bitmaps within the loop.

Buffer SRC: Here the number of the picture buffer (0-7) is specified in which the picture is located whose brightness is to be changed by the command "ApplyIntensity".

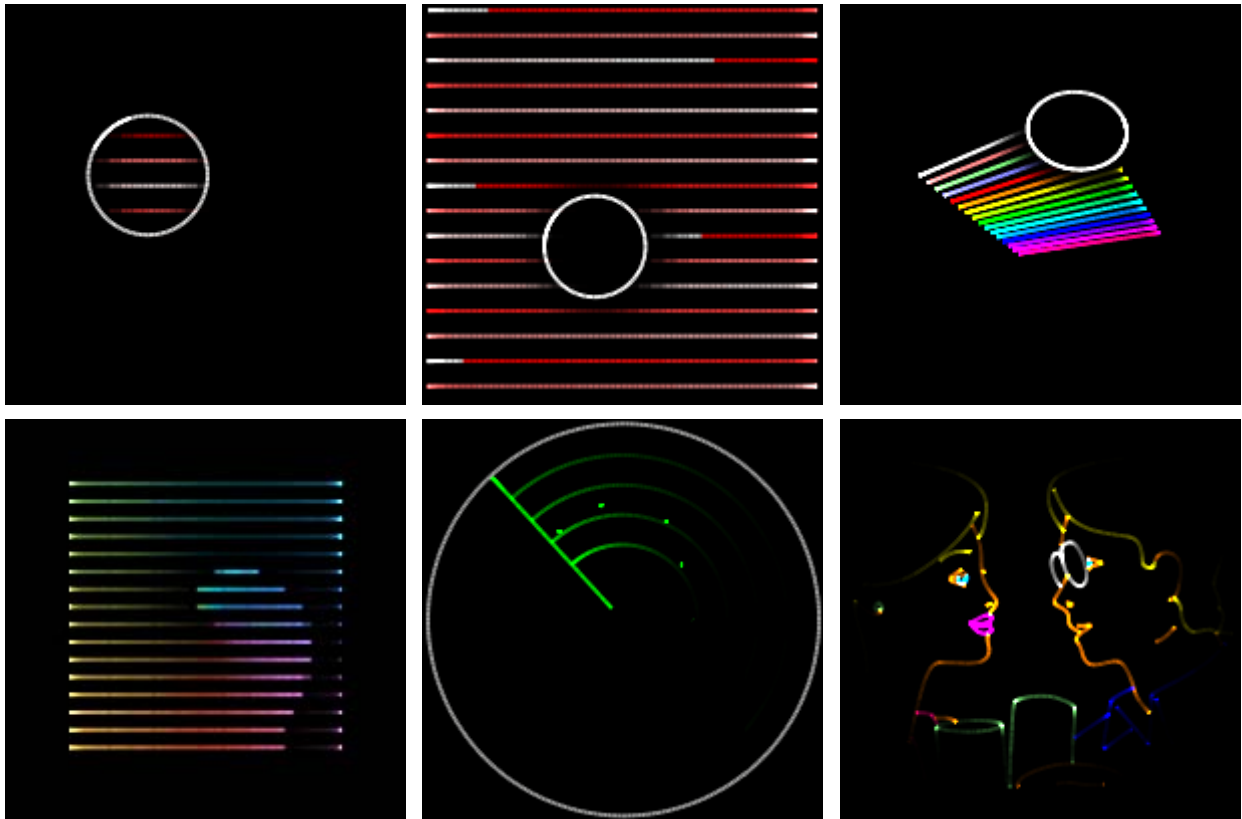
Buffer DST: Here the number of the picture buffer (0-7) is specified, into which the modified picture is to be written.

SizeX etc.: The transformation parameters are used to position the bitmap.
As with "ApplyBitmap" or "InitPosition", both type and order of the transformation parameters can be freely selected.

There are several examples in the demo files that show the different applications of the new ApplyIntensity command, such as soft masking or different kind of fades.

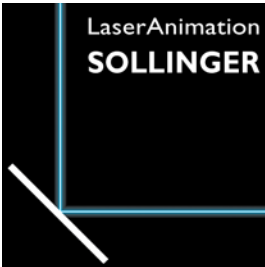
They are located in:

Commands -> ApplyIntensity.FILM
Macros -> ApplyIntensity.BOOT



Annotations:

- The command "ApplyIntensity" affects only the points in the original picture, but not automatic added ones.
To achieve smooth transitions, it is therefore recommended to interpolate the pictures in the Piced or with the trickfilm command "HardInterpolation".
- As with the command "ApplyBitmap", it is also important for "ApplyIntensity" that the color delay is set correctly.
- Show producers should be aware of the fact that the command "ApplyIntensity" is only available on Lasergraph DSPs with software version 2021/09/20 or later.
- A show containing the command "ApplyIntensity" does not run on older systems.



LASERGRAPH DSP RELEASE NOTES 2020

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November 2020

Lasergraph DSP System Software 2020/11/12

Support for the 64-bit version of proTize max



Since version 2014 3ds Max only supports 64-bit plug-ins.

After extensive development work in which fundamental changes had to be made to the previous plug-in, we are about to release the first 64-bit version of proTize max.

To use the 64-bit version of proTize max, the Lasergraph DSP must have the System Software 2020/11/12 or later installed.

DGC Reset with selectable size

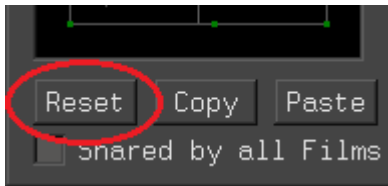
There is a new command to reset the DGC to a user selectable size:

```
DGC.Reset [<hsize> [vsize]]
```

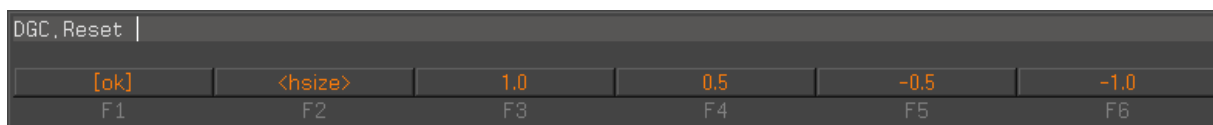
<hsize> horizontal size in the range from -1.0 to +1.0

<vsize> vertical size in the range from -1.0 to +1.0

As before, a double click on the reset button in the DGC window sets the size to 100%.



A single click on the reset button writes the following command into the command line:



Now there are three possibilities:

1) Confirm without parameter

The DGC is reset to the maximum size.

This corresponds to a double click on the reset button.

2) Specifying one parameter

The DGC is reset and reduced to the specified size.

The parameter is used for both horizontal and vertical size.

Example:

By entering

```
DGC.Reset 0.5
```

the maximum projection size is halved.



This is useful, for example, if the scanners allow an optical angle of 80° and, in order to protect the scanners, no laser output should take place while the projection size is being reduced.

3) Specifying two parameters

The DGC is reset and reduced to the specified sizes. Horizontal and vertical size may be different.

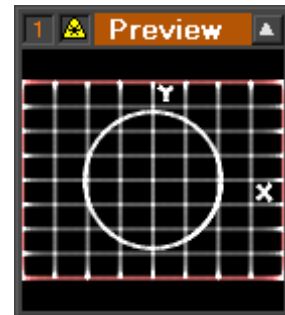
Example:

To get an output in the aspect ratio 4:3, you can enter the following command:

```
DGC.Reset 4/4 3/4
```

or:

```
DGC.Reset 1 0.75
```

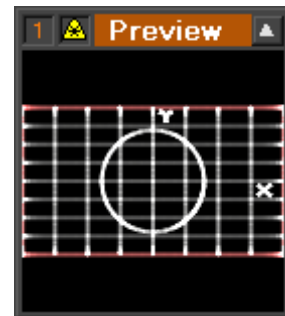


To get an output in the aspect ratio 16:9, you can enter the following command:

```
DGC.Reset 16/16 9/16
```

or:

```
DGC.Reset 1 0.5625
```



Tip: Once the aspect ratio is set correctly, you can later adjust the size and position of the DGC to the projection surface without changing the aspect ratio.

Other possibilities:

If a negative size is specified, the output is mirrored.

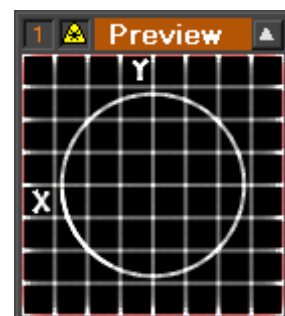
Example:

The command

```
DGC.Reset -1 1
```

resets the DGC to full size.

At the same time the image is flipped horizontally.



Rotating Beams in the Beam Table

There is a new command to rotate the beams of the currently opened Beam Table by a freely selectable angle:

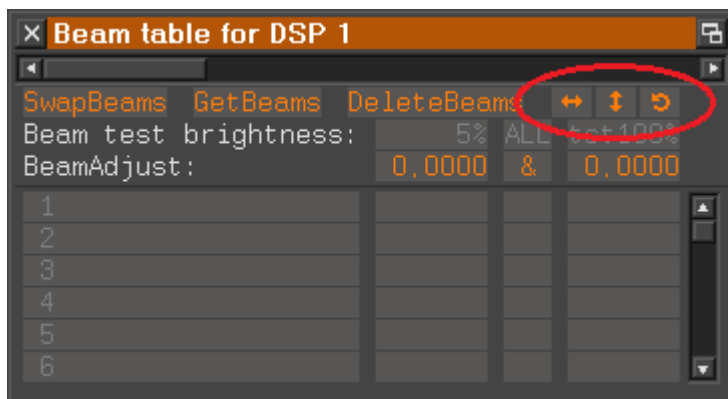
```
SetBeam.RotateBeams <angle> /Limit
```

Depending on the position of the beams and the specified angle, it may happen that after the rotation one or more beams would no longer be within the permitted value range of -1.000 to +1.000. In this case, the rotation is not performed and the command is aborted with a corresponding error message.

If you want to rotate the beams anyway, you can force this by specifying the option /Limit. Beams whose position after the rotation is no longer in the allowed value range are then moved into the allowed value range.

New buttons in the Beam Table

In the Beam Table there are new buttons for mirroring and rotating the beams:



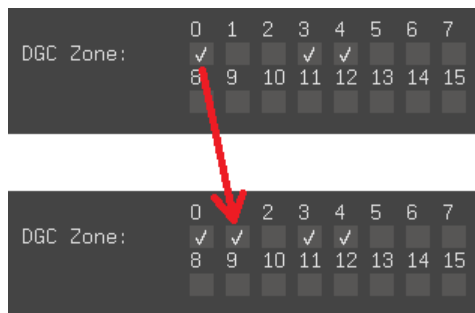
Expansion of the command "ModifyDisplayZones"

The command "ModifyDisplayZones" has been expanded by two subcommands for copying and swapping DGC zones within the DisplayZone commands:

`ModifyDisplayZones.Copy <from> <to>`

Within the DisplayZone commands, the DGC zone <from> is copied to the DGC zone <to>. The previous state of the DGC zone <to> is lost.

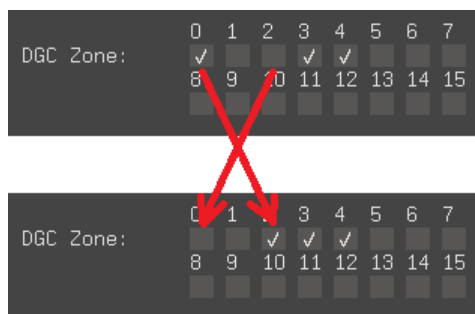
Example: `ModifyDisplayZones.Copy 0 1`



`ModifyDisplayZones.SWap <1st> <2nd>`

Within the DisplayZone commands, the two DGC zones <1st> and <2nd> are swapped.

Example: `ModifyDisplayZones.SWap 0 2`



Among other things, the new commands make it easier to merge shows that have been programmed for different DGC zones.

Note:

If a block is marked in the active Trickfilm, the "ModifyDisplayZones" commands only affect DisplayZone commands within the marked block, otherwise the DisplayZone commands in the entire Trickfilm are modified.

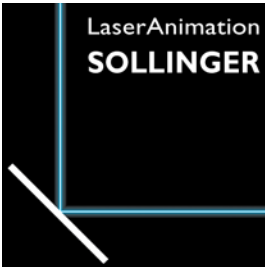
New option for the command "SaveColors"

By specifying the new option

```
/Overwrite
```

you can force an existing file to be overwritten without prompting.

This is useful, for example, if the command "SaveColors" is to be called automatically from a script.



LASERGRAPH DSP RELEASE NOTES 2019

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November 2019

Lasergraph DSP System Software 2019/11/15

LoadFilm takes SystemColors into account

When loading a BOOT (ReBoot), the colors defined in the films are replaced by the system colors if the following color tables

SystemColors1.COL	color table for film 1
SystemColors2.COL	color table for film 2
SystemColors3.COL	color table for film 3
SystemColors4.COL	color table for film 4

are located in the directory

C:\System

This mechanism is now also used when loading individual films.
Specifically, this applies to:

LoadFilm	entered in the command line
LoadFilm	within the Timescript

Bug Fixes

The Trickfilm command

ColorControl

sometimes affected the output of the previous picture.

April 2019

Lasergraph DSP System Software 2019/04/30

Improved interaction between Timescript and Tracks

In addition to the previous command

```
InsertTracks.ByNumber <number> [<start offset> [<end offset>]]
```

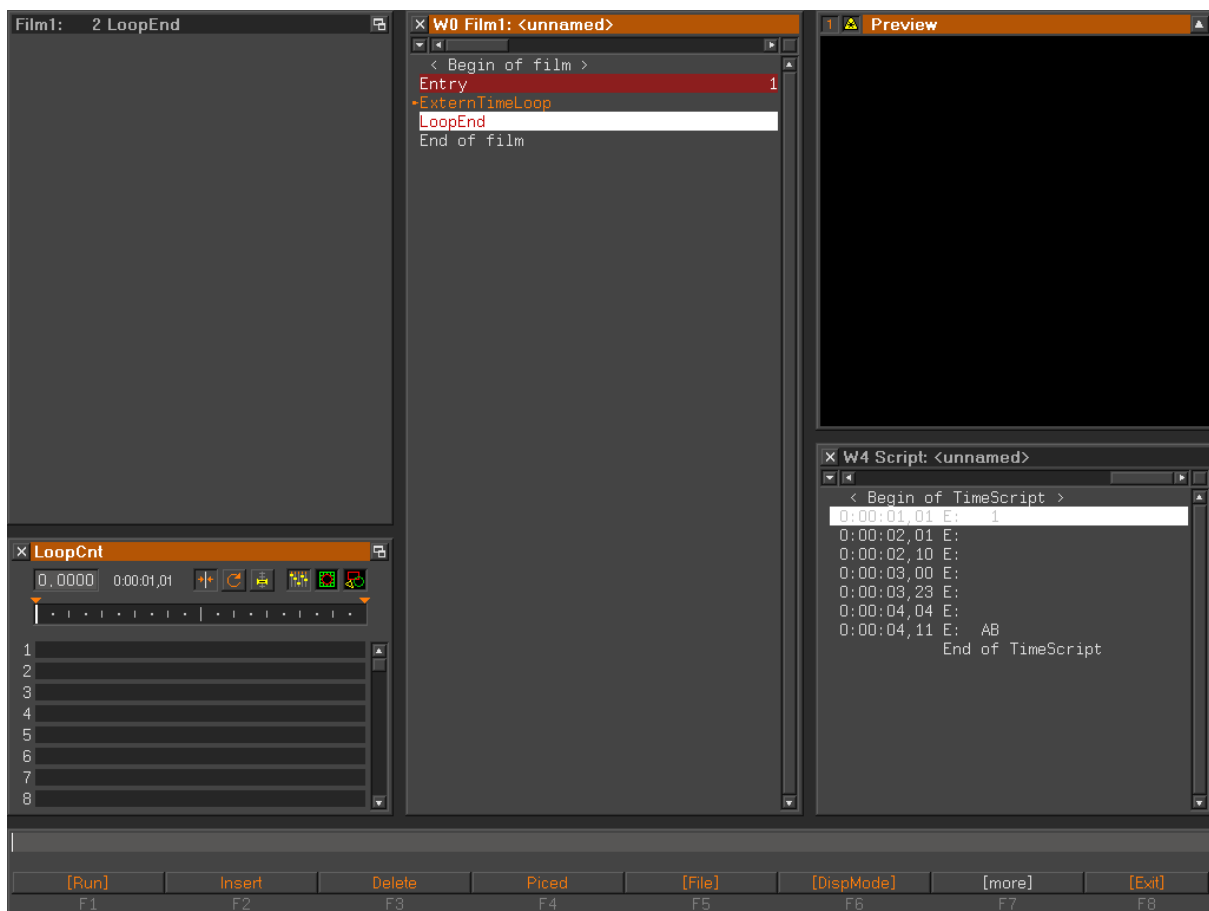
or short

```
InsertTracks <number> [<start offset> [<end offset>]]
```

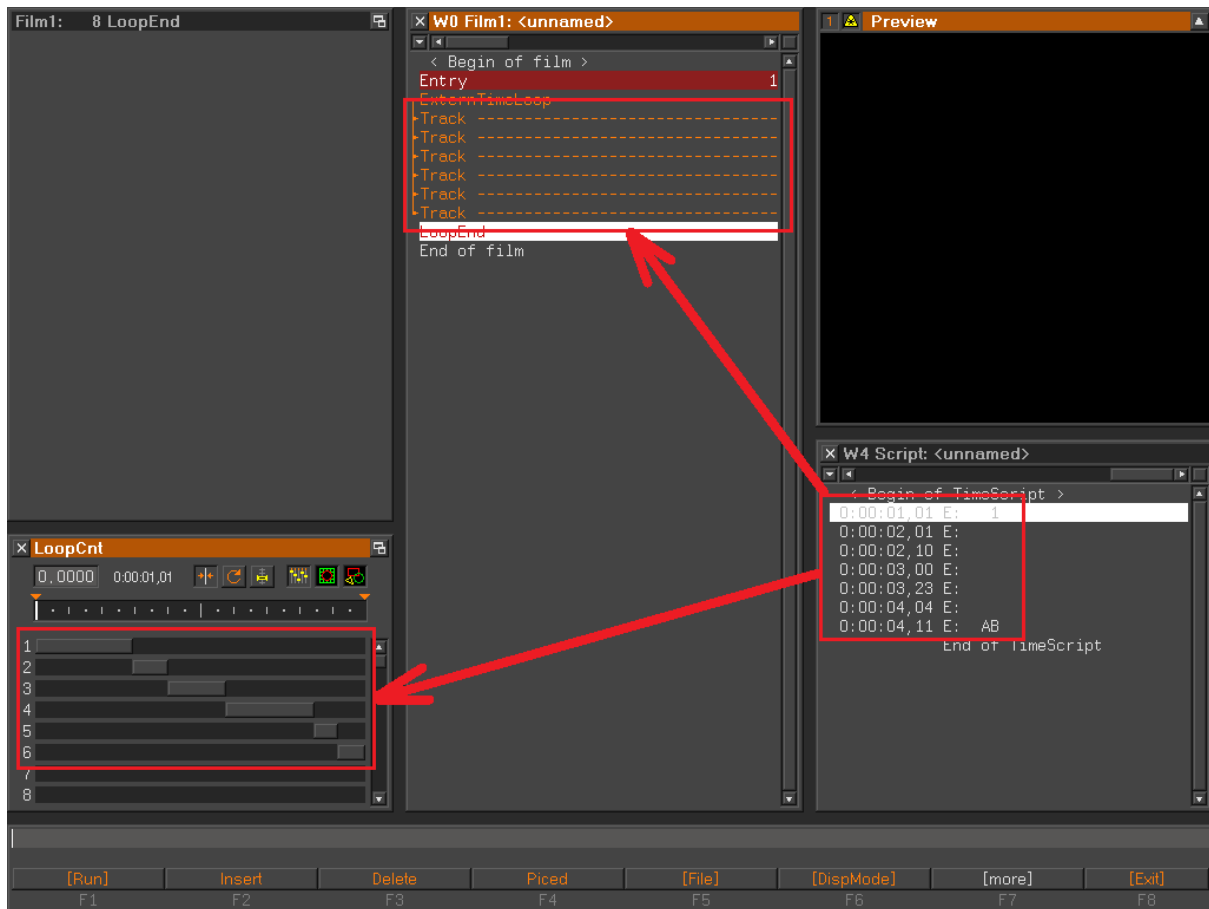
there is now a new variant in which the number of tracks to be inserted and their positions are determined by Entry commands in the Timescript:

```
InsertTracks.FromTimescript
```

Example:



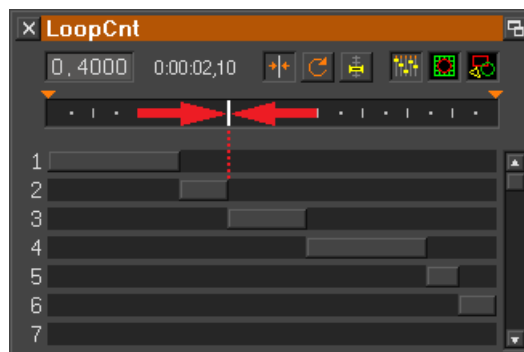
By entering `InsertTracks.FromTimescript` track commands based on the Entry commands in the Timescript are inserted at the current position in the Trickfilm:



To enable `InsertTracks.FromTimescript` to calculate the desired track positions, the Entry in which the current line is located has to be called from the Timescript and the time of the current line in the Timescript has to be within the running time of the Entry.

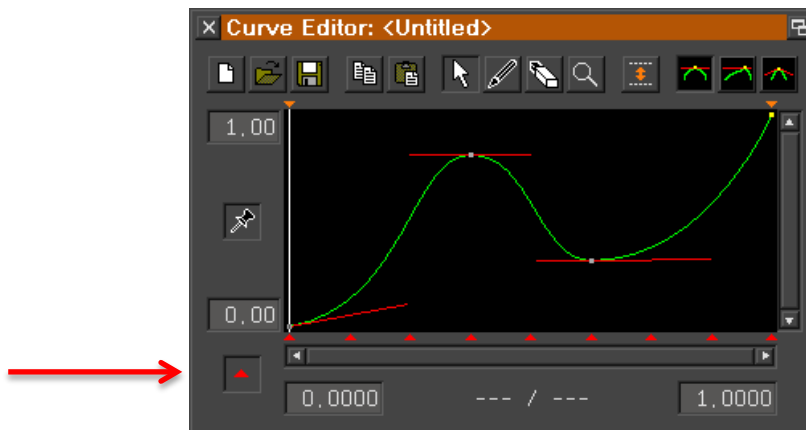
LoopCnt Window

When moving the LoopCnt in the LoopCnt window, it now snaps in at the boundaries of tracks as long as <Shift> or <Alt> is pressed:

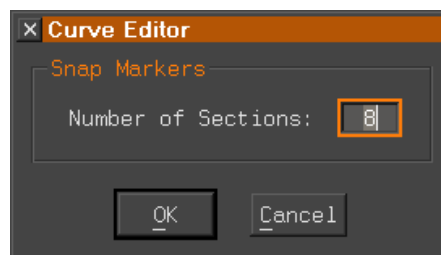


Curve Editor

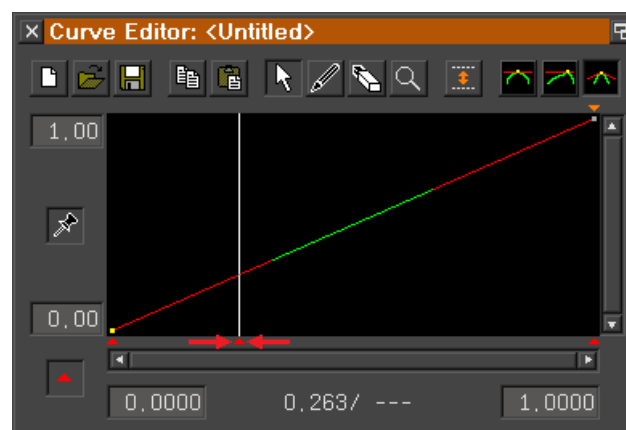
A double click on the button „Snap Markers“



now opens a dialog in which the desired number of sections can be entered:

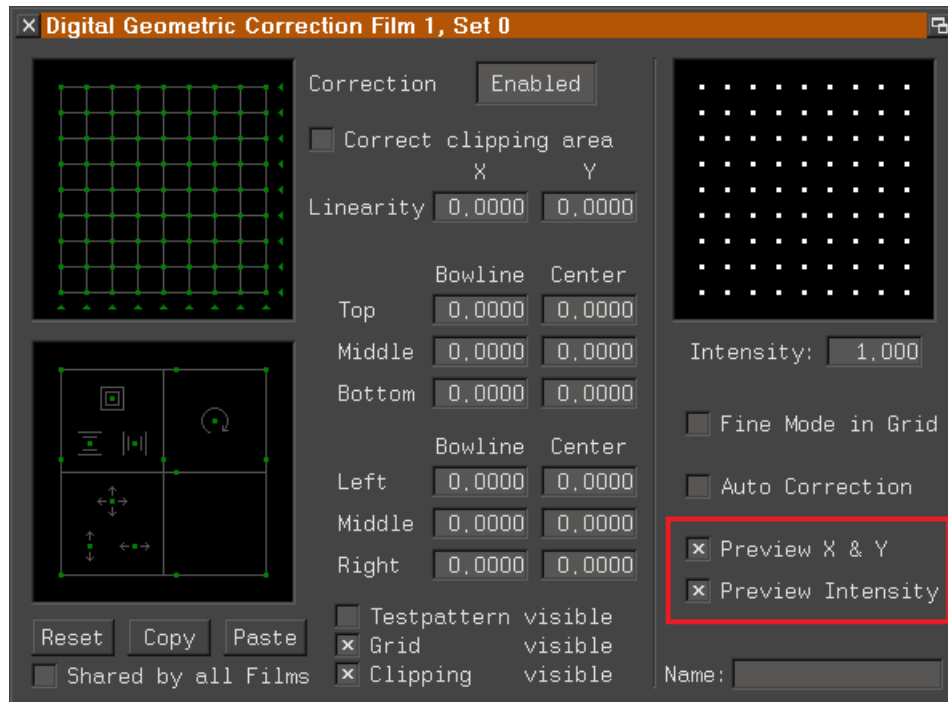


When moving markers, they now snap in at the LoopCnt as long as <Shift> or <Alt> is pressed:



Further Changes

1) The state of „Preview X & Y“ and „Preview Intensity“ is now also copied during copy/paste in the DGC window:



2) The second parameter for the file command SaveILDA is now optional:

```
SaveILDA <catalog> [<filename>]
```

If no file name is specified, the name of the catalog is used as file name.

3) The default MoveZ value for a newly inserted InitPosition has been changed from 2.5 to 1.5.

Bug Fixes

A call of the file command

`COnvert.ILDAtoDSP`

or

`LoadILDA`

in conjunction with the option `/OptBlanks` could cause a crash under certain conditions.

LASERGRAPH DSP RELEASE NOTES 2018

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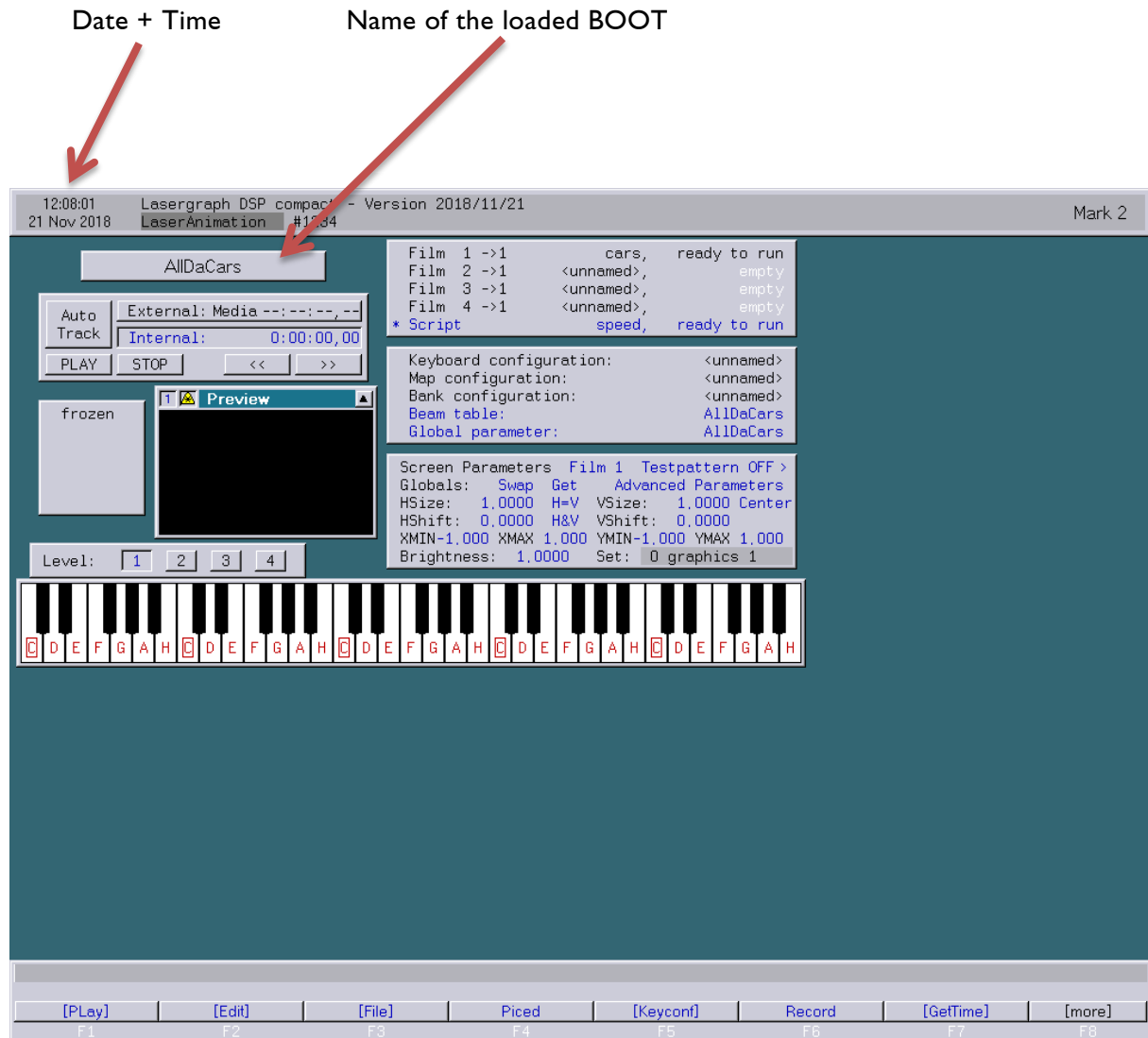
November 2018

Lasergraph DSP Mark 2 Software Version 2018/11/21

Display of the BOOT name

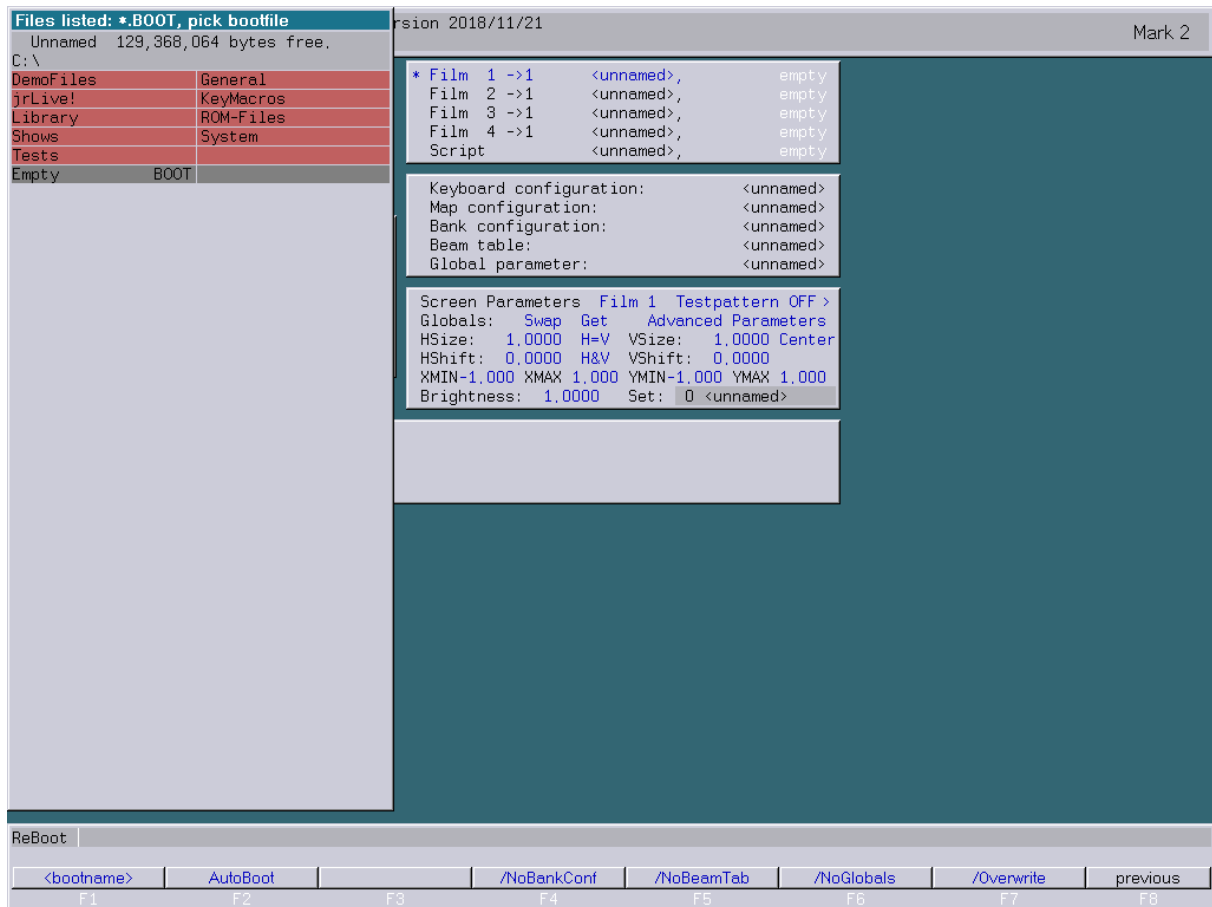
The name of the loaded BOOT is now displayed on the start screen.

At the same time, the display of date and time was moved to the header of the start screen:

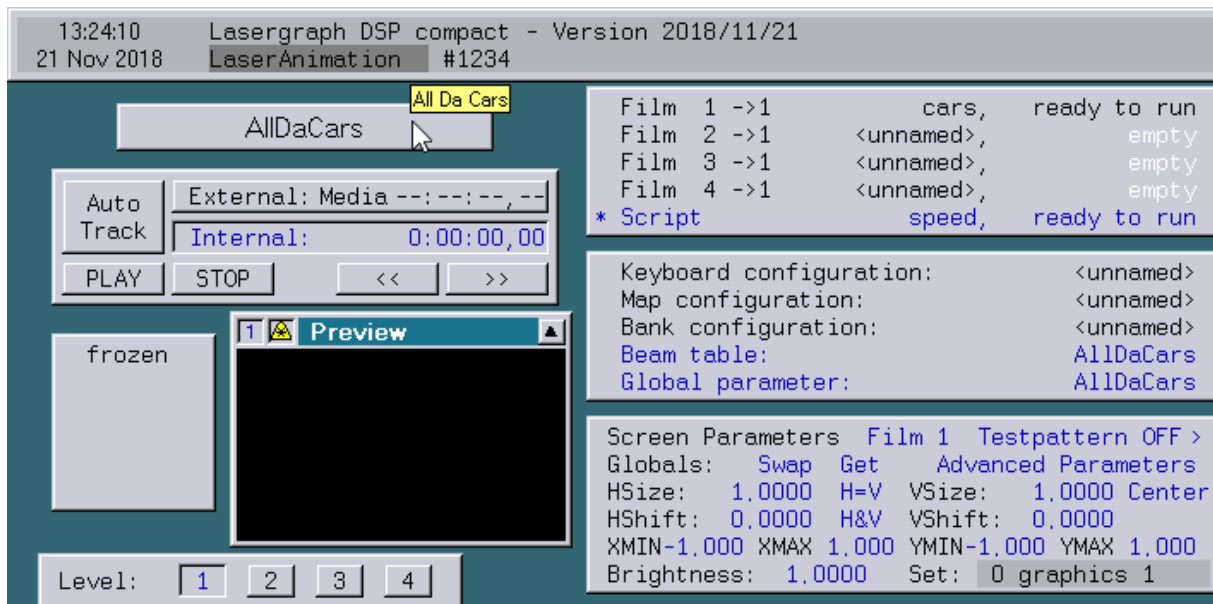


To load a show it is no longer necessary to switch to the file mode.
Instead, a double click on the BOOT name on the start screen is sufficient.

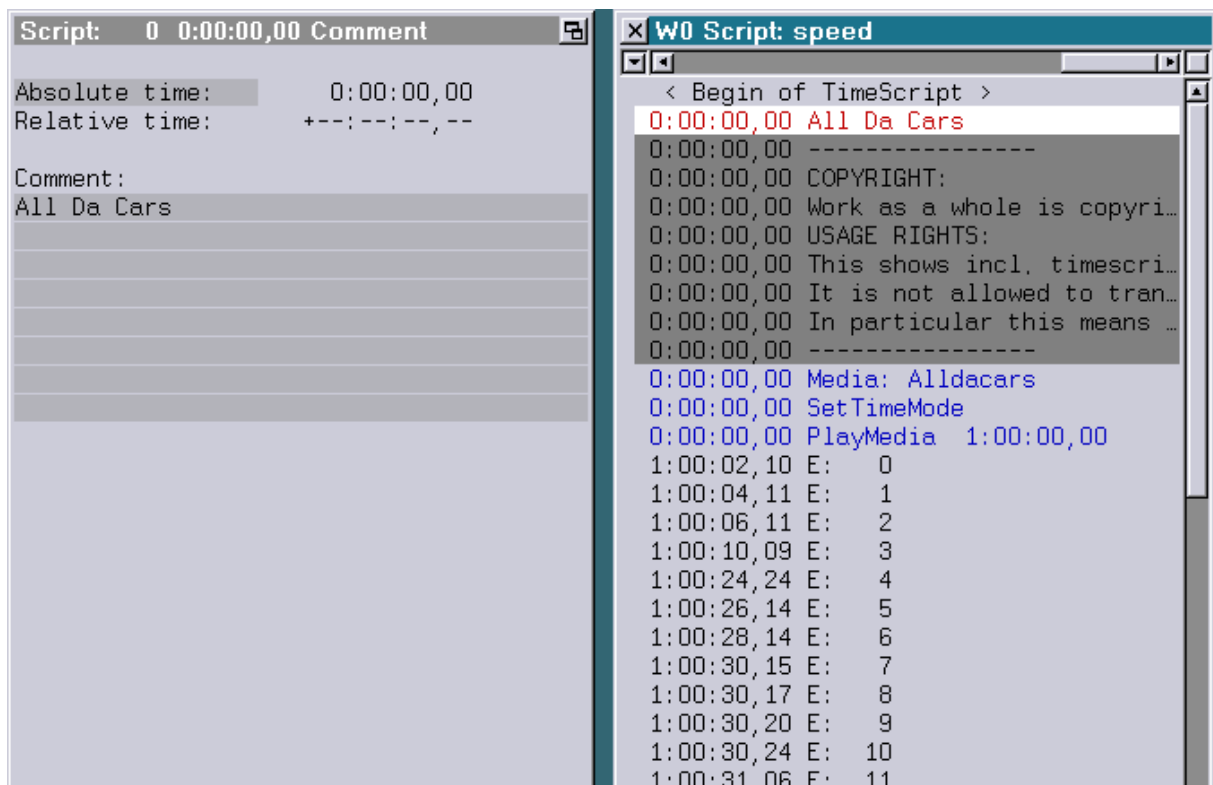
The file window for selecting the desired BOOT will open:



If you hold the mouse over the BOOT name, a tooltip opens:

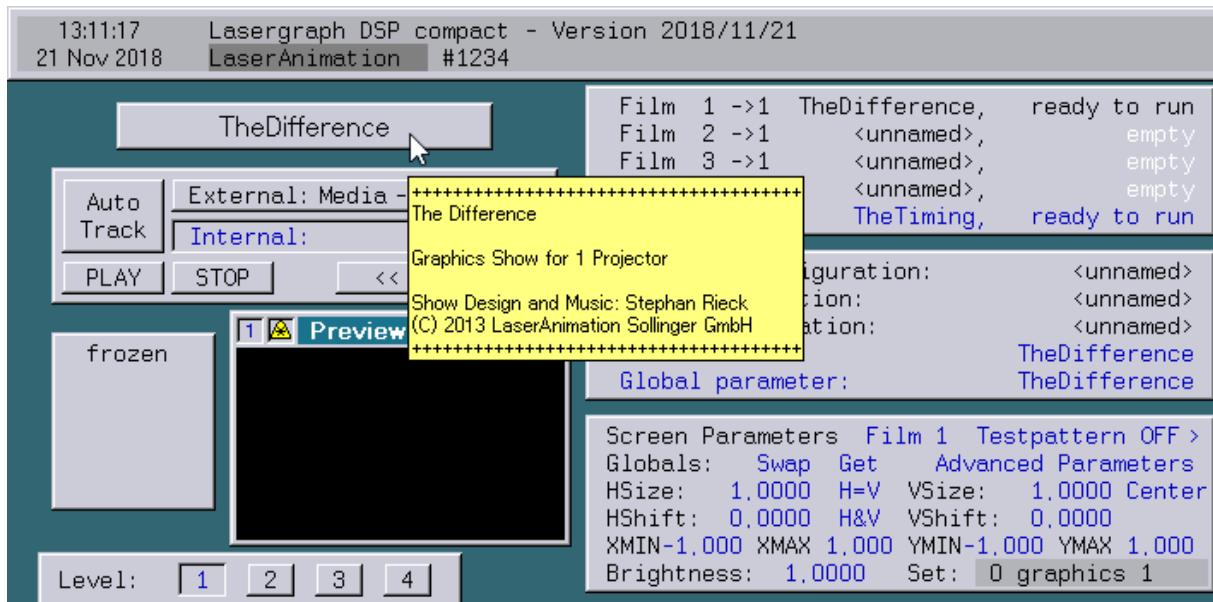


The text displayed in the tooltip is defined by a comment entered in the first line of the Timescript:

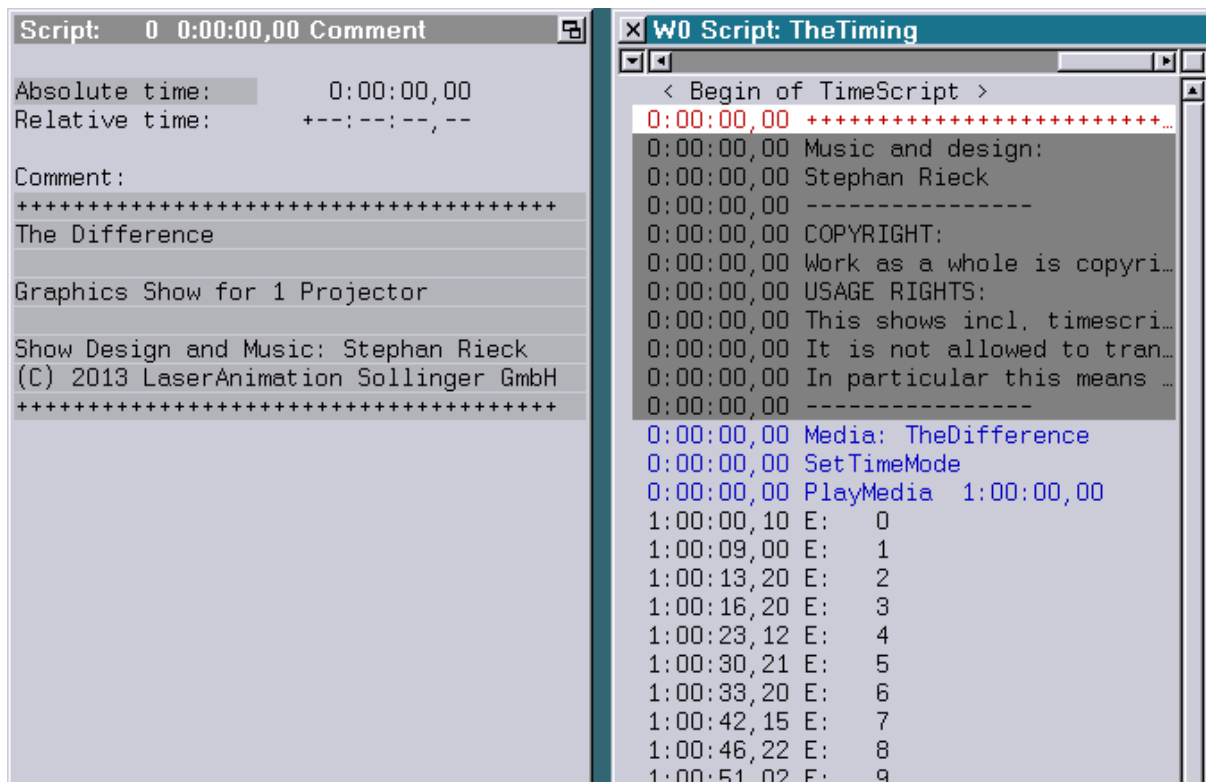


The character string "\r" or "\n" within the comment causes a line break in the tooltip.
This makes multiline tooltips possible.

Example:

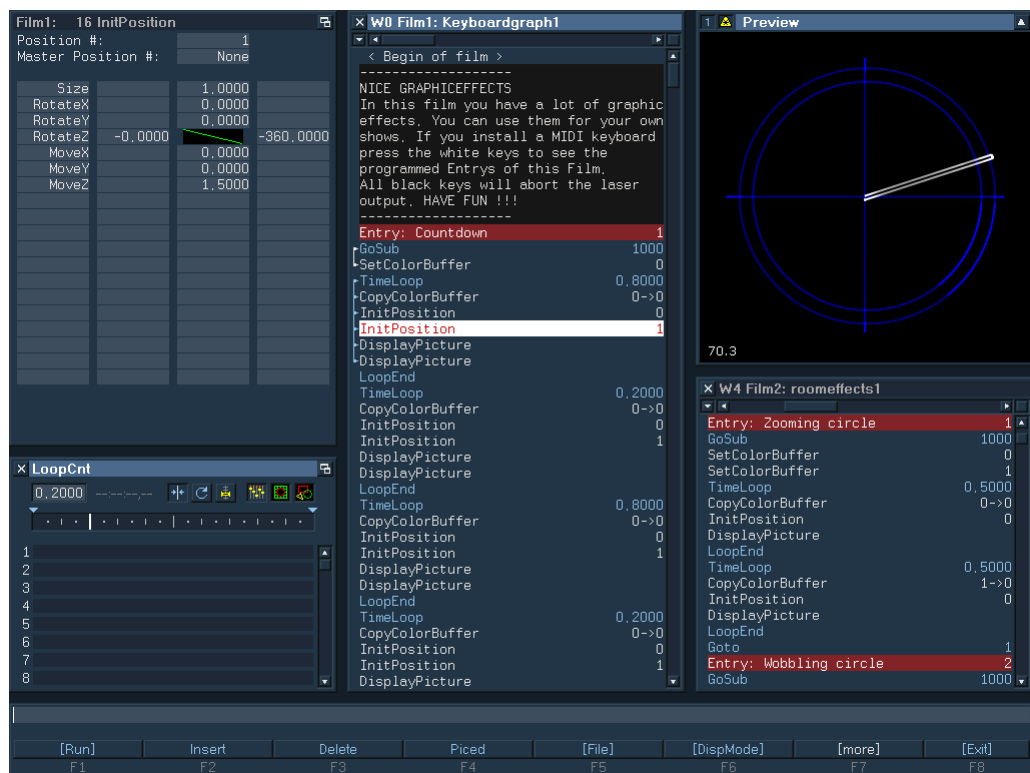
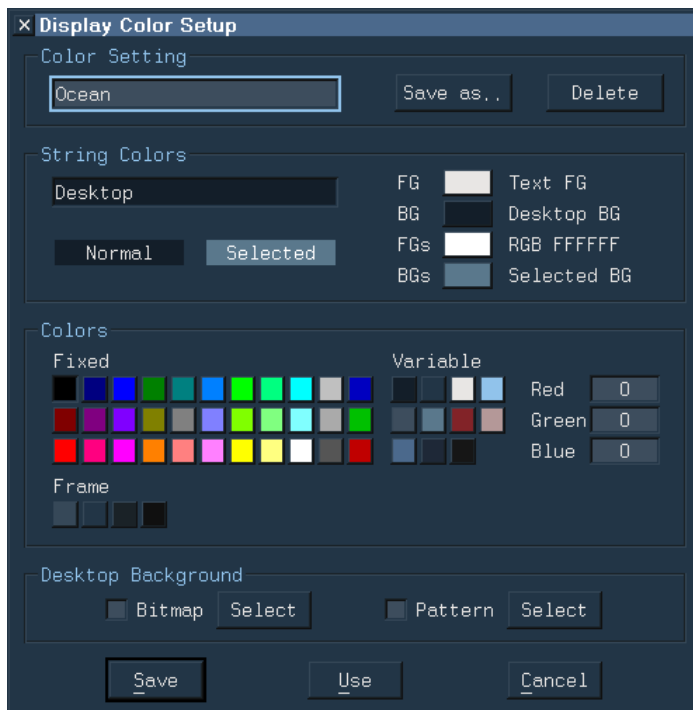


The comment in the Timescript belonging to this example looks like this:



New Color-Setting "Ocean"

In the "Display Color Setup" another dark color setting is now available:



Resolution-dependent window positions

In order to obtain suitable window positions for different desktop resolutions, the command "SaveWinPos" now saves the window positions independently for each desktop resolution.

Therefore window positions are no longer saved in the following file:

```
C:\System\Configuration\WinPos.DCfgr
```

Instead, a separate file for each desktop resolution is stored in the following directory:

```
C:\System\Configuration\WinPos\
```

The name of the file results from the desktop resolution:

```
<width>x<height>.DCfgr
```

Example for the desktop resolution 1024 x 768 Pixel:

```
C:\System\Configuration\WinPos\1024x768.DCfgr
```

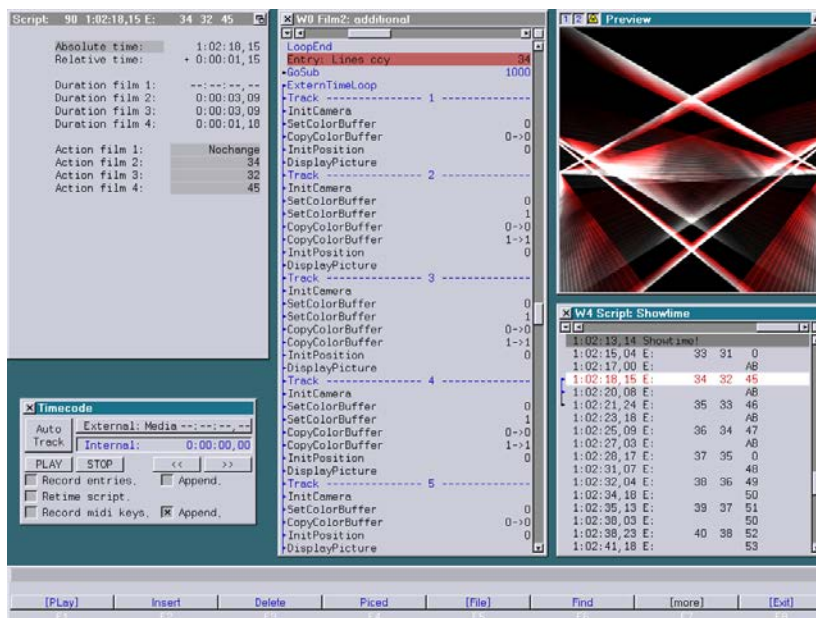
The window positions are read in once during start-up of the Lasergraph DSP.

It tries to open the file belonging to the current desktop resolution.

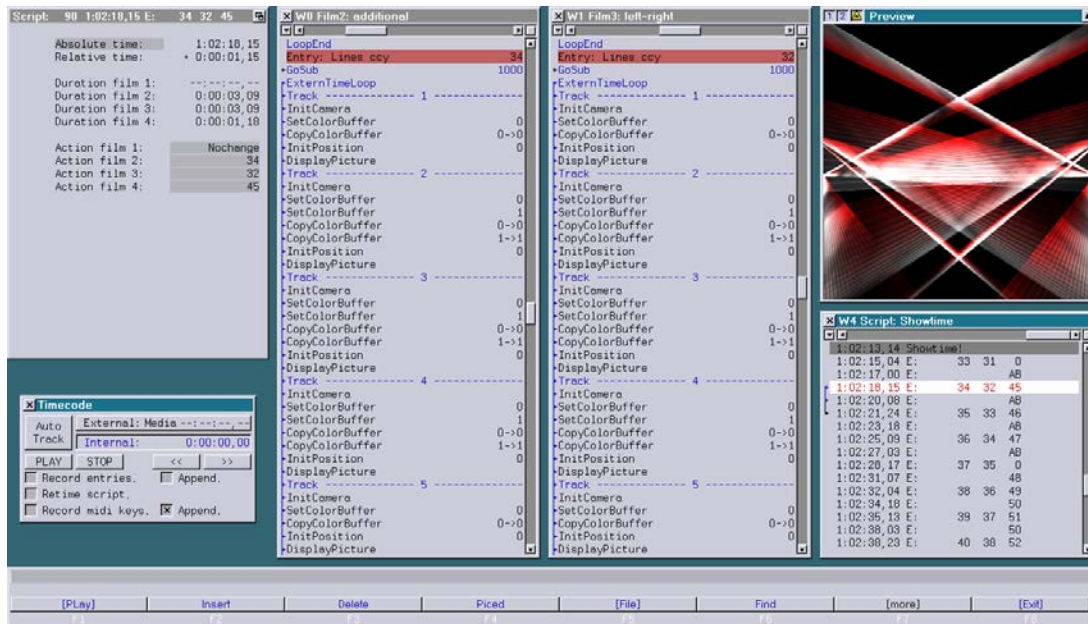
If this is not available, the previous "WinPos.DCfgr" is used instead.

New Lasergraph DSPs are delivered with files for the common desktop resolutions.

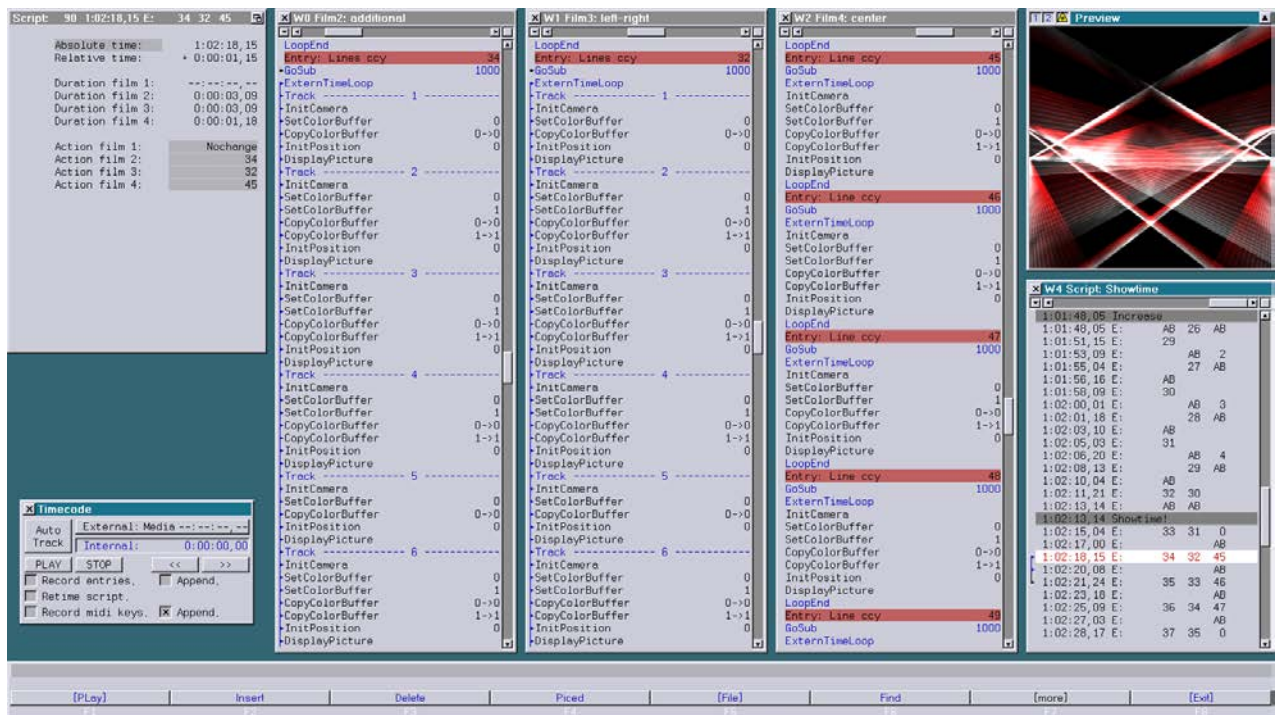
Some examples:



1024 x 768 Pixel



1366 x 768 Pixel



1600 x 900 Pixel

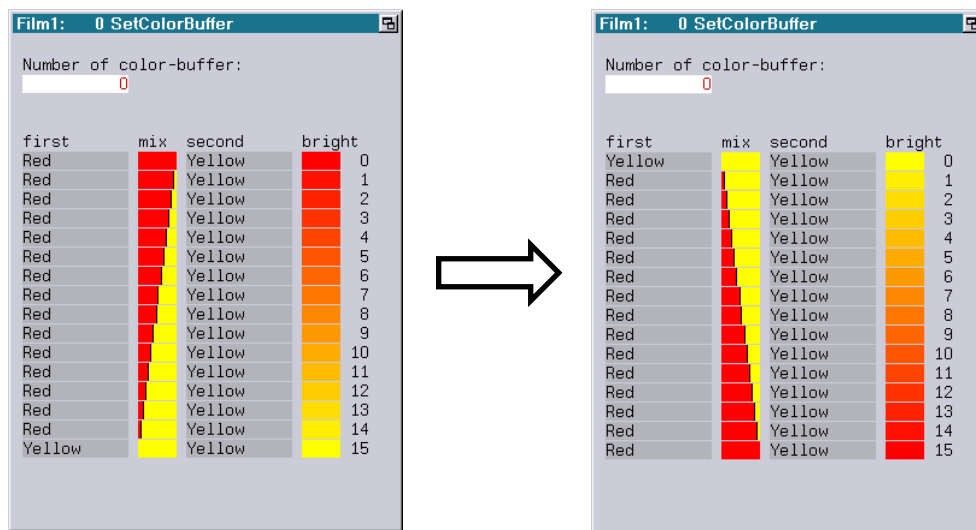
New command "REVERSE" in the SetColorBuffer

In the menu of the Trickfilm command "SetColorBuffer" there is now the possibility to change the order of the entered colors with the new menu item "REVERSE":



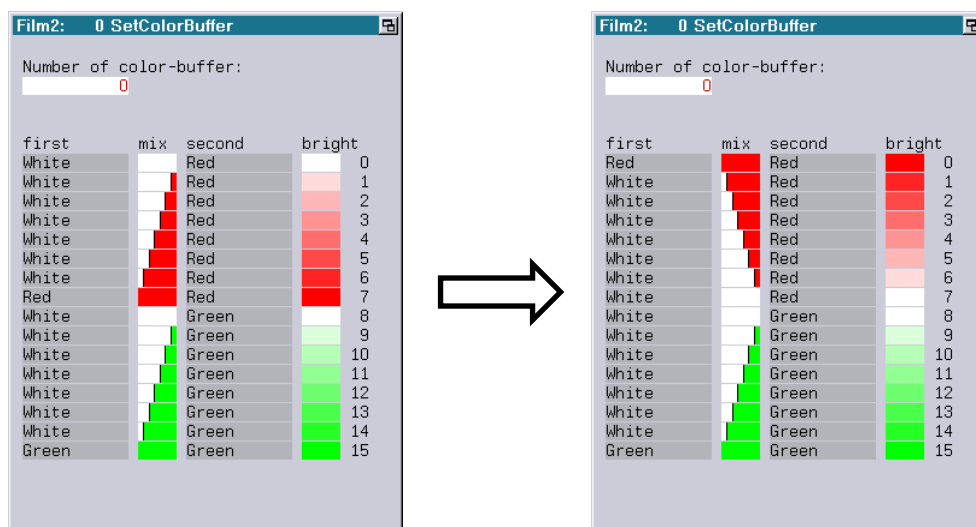
```
REVERSE  [<from>  <to>]
```

If the command "REVERSE" is called without parameters the order of all 16 colors is reversed:



Alternatively, the order of colors in a specific range can be reversed by specifying the optional parameters <from> and <to>.

Example: REVERSE 0 7



Expansion of the command "ModifyDisplayZones"

Until now, the command "ModifyDisplayZones" changed all DGC zones entered in the display zones commands.

To allow adding and deleting of individual DGC zones, the command "ModifyDisplayZones" has been expanded as follows:

```
ModifyDisplayZones.Set      <dgc> [<dgc> [<dgc> ...]]
```

The specified DGC zones are entered in the display zone commands.

All other DGC zones are removed.

This command corresponds to the previous "ModifyDisplayZones".

```
ModifyDisplayZones.Add      <dgc> [<dgc> [<dgc> ...]]
```

The specified DGC zones are added to the display zone commands.

All other DGC zones remain unchanged.

```
ModifyDisplayZones.Remove  <dgc> [<dgc> [<dgc> ...]]
```

The specified DGC zones are removed from the display zone commands.

All other DGC zones remain unchanged.

Note:

If a block is marked in the active Trickfilm, the "ModifyDisplayZones" commands only affect the display zone commands within the marked block. Otherwise the display zone commands in the whole Trickfilm will be modified.

Sending OSC packets without arguments

Until now, an argument ("string", "int", or "float") had to be specified when sending OSC packets:

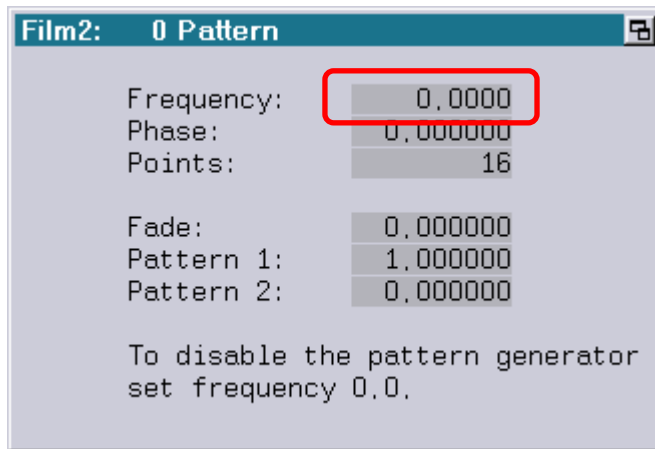
```
OSC://<ip-address>:<port>/<osc-address>\<osc-type>\<osc-parameter>
```

From now on OSC packets can be sent to the specified address without arguments:

```
OSC://<ip-address>:<port>/<osc-address>
```

Additional Changes

A frequency of "0.0000" is now entered for newly inserted pattern commands:



Until now, the default was "1.0000", which activates the pattern generator. Because "Pattern 1" was initialized with a fixed value of "1", this caused no visible change in the image. Since a running pattern generator requires computing time, this could have had a negative effect on the refresh rate under certain conditions.

Bug Fixes

1. The command "MirrorBeams" wrote partially wrong data into the Beam Table when mirroring the beam positions. The result was that a positive value jumped to -1.0000 when the value was changed later using the Mouse-Poti-Mode.

The bug is now fixed, but the problem still occurs when a Beam Table is loaded where the beam positions were mirrored with an older version of the system software.

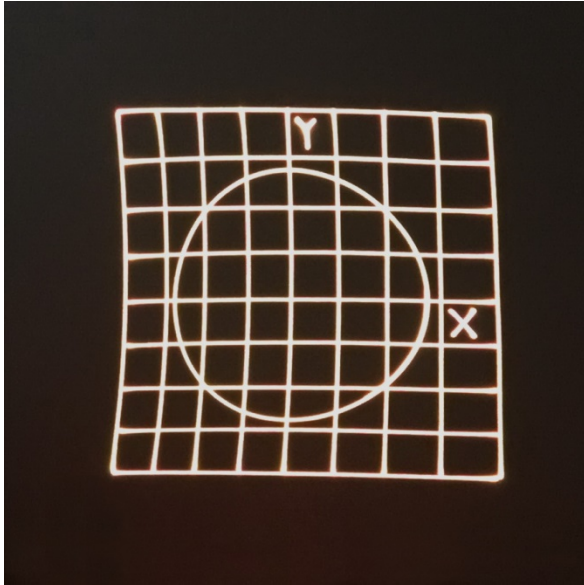
2. When sending OSC packets, Directed Broadcasts (e.g. 192.168.1.255) were falsely changed to Limited Broadcasts (255.255.255.255).

February 2018

Lasergraph DSP Mark 2 Software Version 2018/02/27

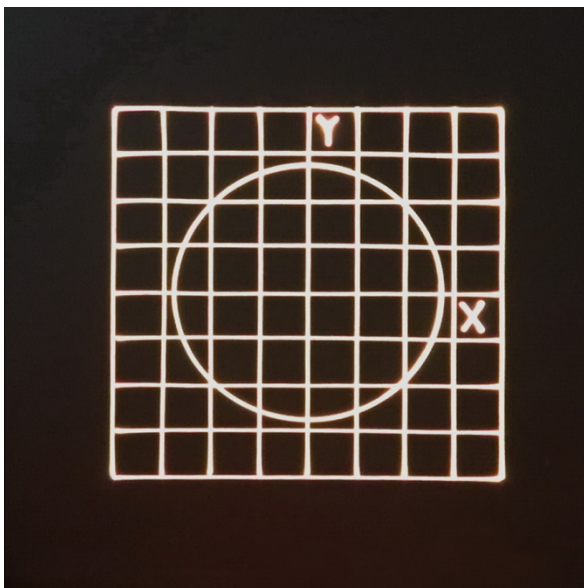
Automatic correction of the DGC

Depending on the size of the projection and the position of the projector relative to the projection surface, substantial distortions may occur within the projection due to physical reasons.

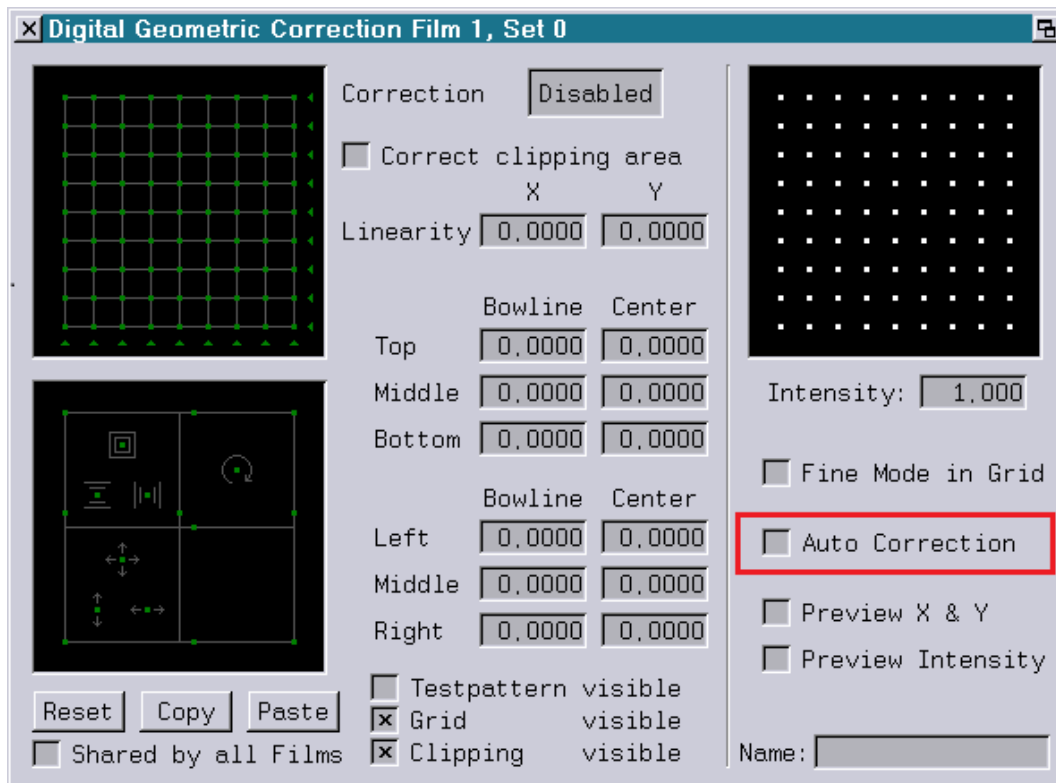


Until now these distortions could be minimized by adjusting the linearity, the bowlines and finally by fine tuning the single points within the 9x9 field.

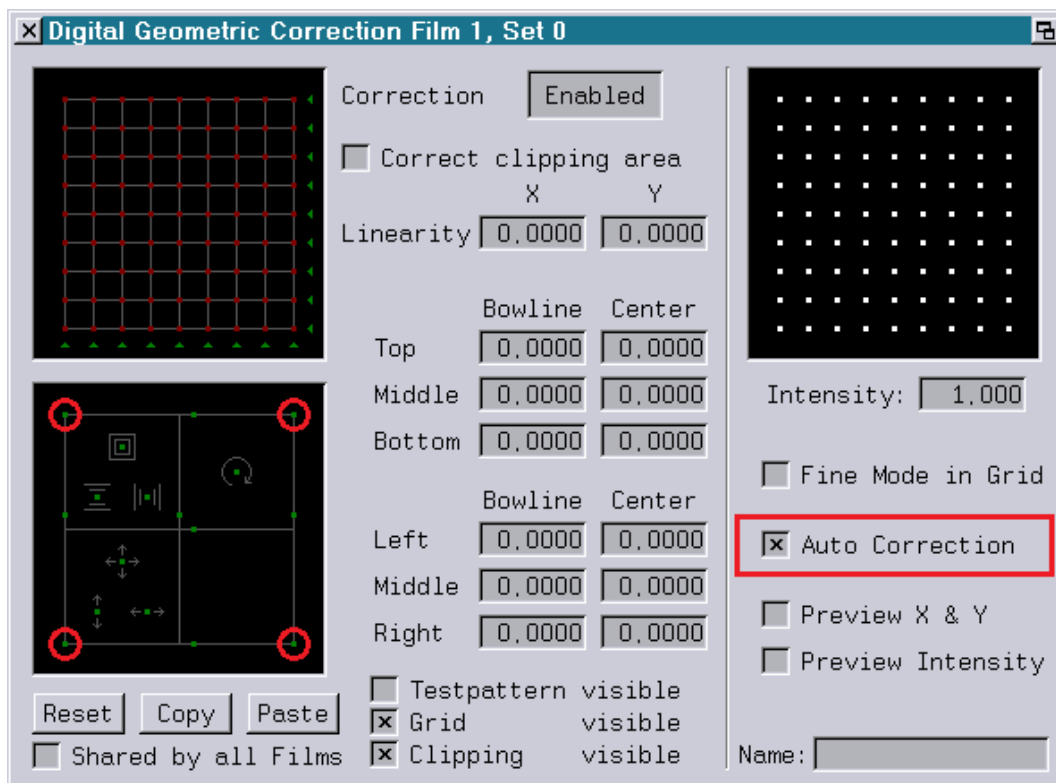
As of now the Lasergraph DSP provides an automatic correction of the DGC which enables you to perfectly adjust the DGC in a fraction of the time.



You can enable or disable the automatic correction with the new checkbox "Auto Correction".



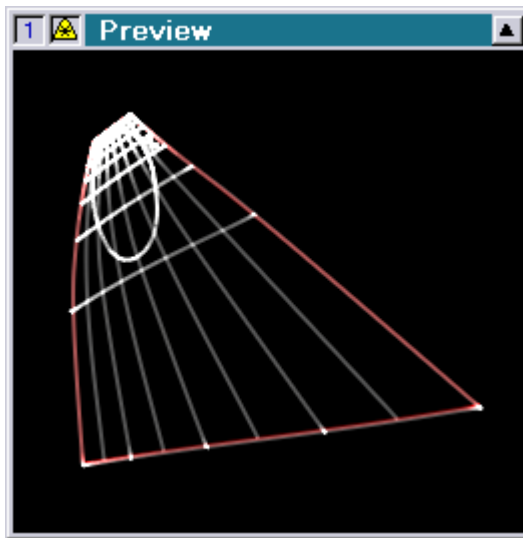
When "Auto Correction" is activated, the DGC will be automatically calculated based on the four corner points.



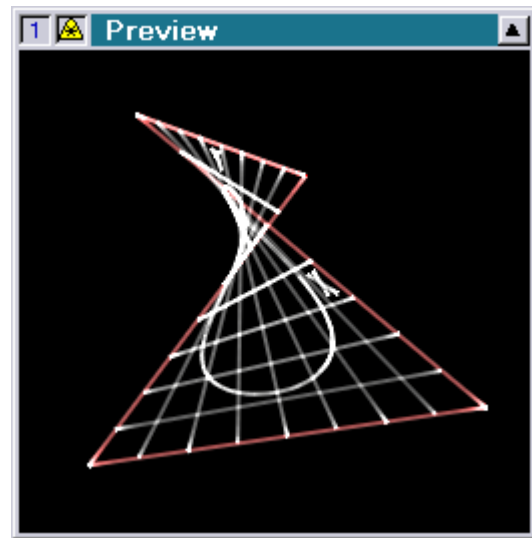
If you need to make further changes after the automatic adjustment of the DGC, for example, to compensate minor irregularities on the projection surface, you can still do this via the points in the 9x9 field.

Annotations:

- The automatic calculation of the DGC is performed under the condition that the scanners provide an optical angle of $\pm 40^\circ$ at maximum ILDA output level.
- The automatic calculation can be performed only as long as the four corner points define a convex surface. If a concave surface arises during the adjustment, a linear interpolation will be used instead.



convex



concave

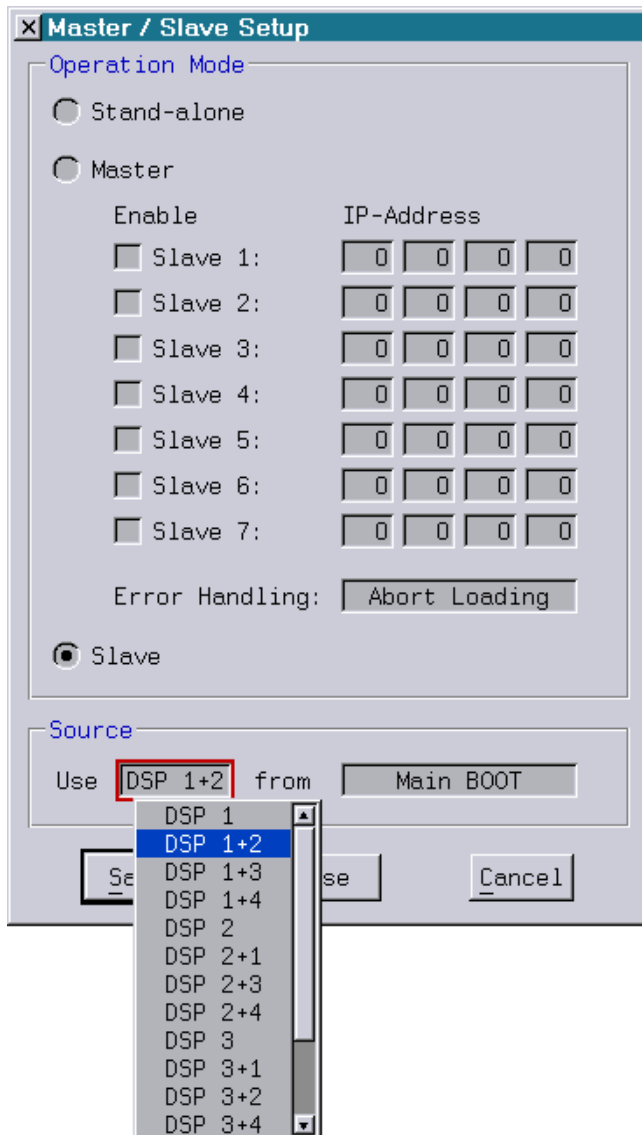
- At the Workstation the adjustment of the DGC is very slow if "Auto Correction" is activated. It is therefore recommended to first disable "Auto Correction" to position the four corners, and only then enable the automatic correction again.

Compact Dual in the Master/Slave mode

Until now the Compact Dual functioned in the same way as a normal Compact, meaning that you could choose for the first DSP which DSP from the BOOT should be used.

The second DSP could not be used so far.

From now on the Compact Dual allows you to choose which combination of DSPs you want to use from the BOOT by clicking "Source" in the "Master / Slave Setup".

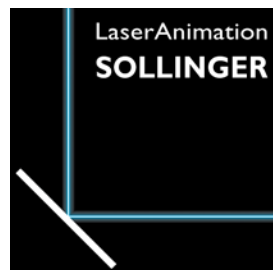


The choice is between:

<u>Source</u>	<u>DSP 1</u>	<u>DSP 2</u>
DSP 1	DSP 1 is used	-
DSP 1+2	DSP 1 is used	DSP 2 is used
DSP 1+3	DSP 1 is used	DSP 3 is used
DSP 1+4	DSP 1 is used	DSP 4 is used
DSP 2	DSP 2 is used	-
DSP 2+1	DSP 2 is used	DSP 1 is used
DSP 2+3	DSP 2 is used	DSP 3 is used
DSP 2+4	DSP 2 is used	DSP 4 is used
DSP 3	DSP 3 is used	-
DSP 3+1	DSP 3 is used	DSP 1 is used
DSP 3+2	DSP 3 is used	DSP 2 is used
DSP 3+4	DSP 3 is used	DSP 4 is used
DSP 4	DSP 4 is used	-
DSP 4+1	DSP 4 is used	DSP 1 is used
DSP 4+2	DSP 4 is used	DSP 2 is used
DSP 4+3	DSP 4 is used	DSP 3 is used

Additional changes

Besides bug fixes and minor improvements, we improved the compatibility with future versions of the system software.



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September 2017

Lasergraph DSP Mark 2 Software Version 2017/09/08

New Commands "SaveArray" and "LoadArray"

There are two new commands for saving and loading the Variables Array:

```
SaveArray <filename> [<dsp> [<first> [<last>]]]
```

filename: The filename may contain path specifications.
If no path is specified, the array will be saved in the current directory under the specified filename.

dsp: It is optional to specify the DSP whose array is to be saved.
If no DSP is specified, DSP 1 will be used.
Valid range: 1...4

first: It is optional to specify the first element to be saved.
Valid range: 0...9999

last: It is optional to specify the last element to be saved.
Valid range: 0...9999

```
LoadArray <filename> [<dsp>]
```

filename: The filename may contain path specifications.
If no path is specified, the array will be loaded from the current directory under the specified filename.

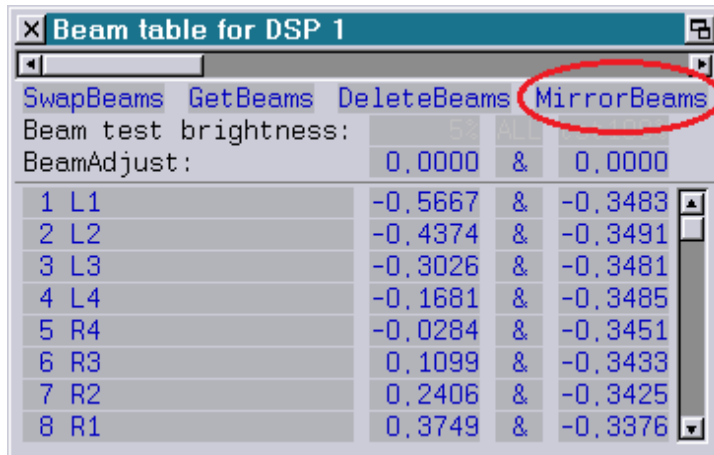
dsp: It is optional to specify the DSP whose array is to be loaded.
If no DSP is specified, DSP1 will be used.
Valid range: 1...4

Specifying the elements to be saved by <first> and <last>, enables you to save parts of the array as well.

The command `LoadArray` only changes the elements of the array stored in the file. Elements located outside the stored area will not be changed.

New Button "Mirror Beams"

The beam-table provides a new button called "Mirror Beams" which enables you to flip all beams horizontally or vertically:



The Time is now updated while a Trickfilm is running

Until now, the real-time clock in the DSP ("RealHour", "RealMinute" and "RealSecond") was only updated when the trickfilm was started or when the date has changed.

A change of the time during a running trickfilm has not affected the real-time clock in the DSP so far.

More Values per OSC Packet

When receiving OSC data more values are allowed within one OSC packet.

This extension primarily affects receiving "Global Values".

Depending on the length of the used prefix (see manual chapter "Setup" => "I/O Setup" => "OSC") the previous limit was approx. 70 values.

With the same prefix you can now receive more than 280 values in one OSC packet.

More Connections to the FS Server

Until now a maximum of 10 clients could connect to the "File System Server" of the Lasergraph DSP to access the files of its shares.

This limitation has been removed.

More Space in the Variables List

Only the first eight faders ("Fader0" to "Fader7") are now displayed in the variables list. That provides more space for user-defined variables with the same window size:

Trickfilm variables, pick name		Trickfilm variables, pick name	
Predefined/used Variables		Predefined/used Variables	
Fader0	Fader1	Fader0	Fader1
Fader2	Fader3	Fader2	Fader3
Fader4	Fader5	Fader4	Fader5
Fader6	Fader7	Fader6	Fader7
Fader8	Fader9	LoopCnt	LoopStep
Fader10	Fader11	MouseX	MouseY
Fader12	Fader13	bb	Bright
Fader14	Fader15	c4	c5
LoopCnt	LoopStep	c6	Camera
MouseX	MouseY	down	Fade
bb	Bright	gg	Gravity
c4	c5	i	ii
c6	Camera	l	lifetime
down	Fade	MaxDown	MaxLife
gg	Gravity	MaxRight	MinDown
i	ii	MinLife	MinRight
l	lifetime	mx	my
MaxDown	MaxLife	NewPart	Particle
MaxRight	MinDown	px	py
MinLife	MinRight	pz	r
mx	my	right	rnd_temp
NewPart	Particle	rr	rx
px	py	start	stime

before

now

The predefined variables "Fader8" to "Fader15" can be further used, but it is recommended to use the query function "Fader()" instead.

Further Changes

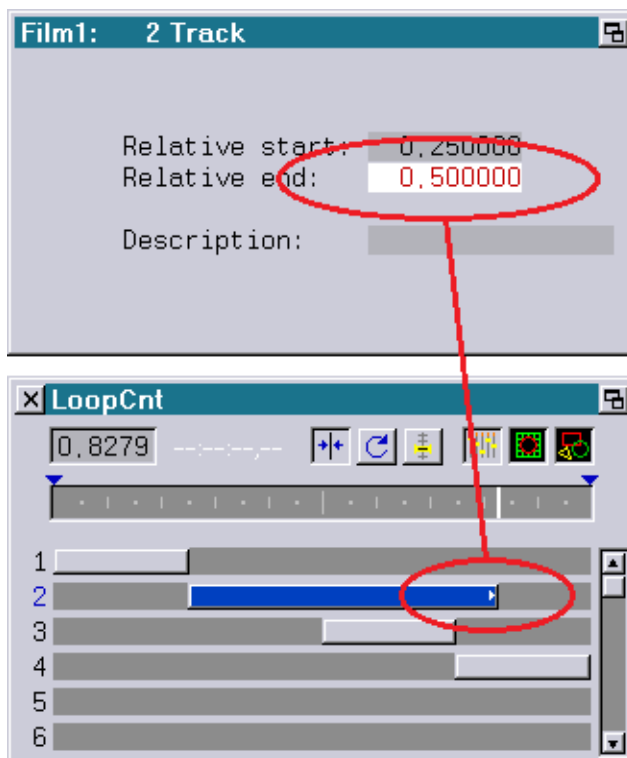
In the file mode the following commands have been renamed:

```
UnLoadCat  =>  UnLoadCatalog
UnLoadPic  =>  UnLoadPicture
```

Bug Fixes

1. LoopCnt-window

If a track was edited in the LoopCnt-window while a parameter ("Relative start", "Relative end" or "Description") of the track command belonging to this track was active in the parameter window, changes made in the LoopCnt-window were lost when editing the track command was ended.



2. Master/Slave

When loading a BOOT in Master/Slave mode, the path of the media file in "LGServer" was erroneously changed by the slaves as well.

This could have led to problems when "LGFD" or "jr.Live!" was used and the slaves were using Sub-BOOTS.

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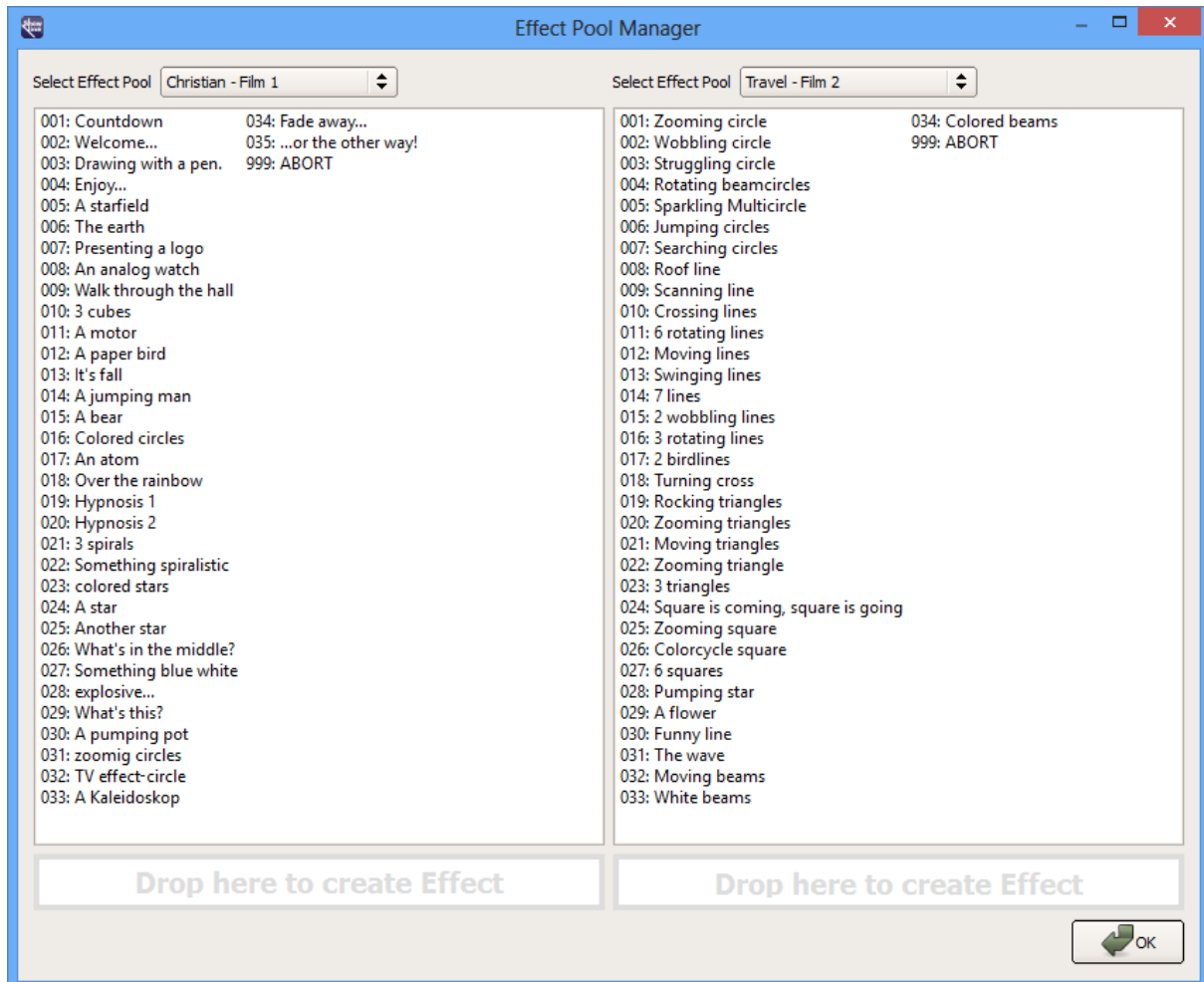
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October 2016

Lasergraph DSP Mark 2 Software Version 2016/10/17

ShowLine: Effect Pool Manager

The upcoming ShowLine-Release provides a new function, the so-called "Effect Pool Manager":



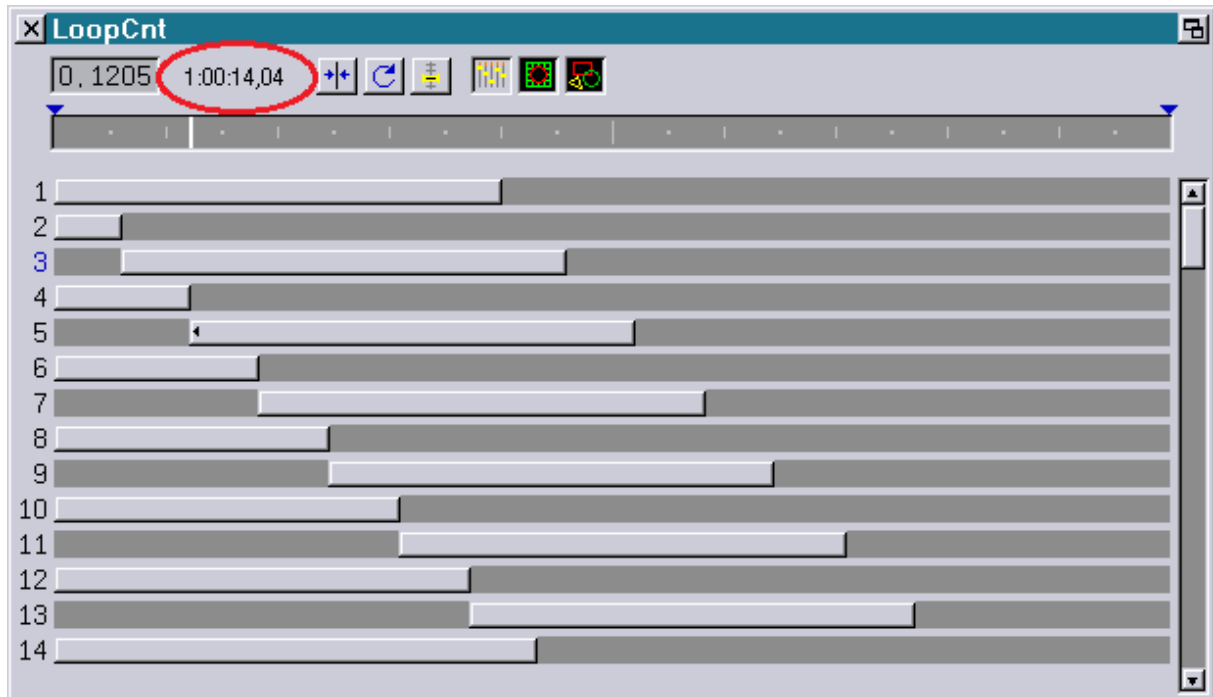
The "Effect Pool Manager" enables you to copy entries from one trickfilm to another one.

Since both trickfilms do not need to be located in the same Lasergraph DSP, this new function offers a comfortable way to drag and drop single entries from one Lasergraph DSP to another one.

To use the "Effect Pool Manager" the new system software has to be installed on all Lasergraph DSPs involved.

Display of absolute time in the LoopCnt window

Besides the relative LoopCnt position (LoopCnt ranging from 0.000 to 1.000) the LoopCnt window now displays the absolute time as well:



Since an entry can be called up in the Timescript at different times, the absolute time can only be displayed under the following conditions:

- 1) The entry must be called up in the Timescript.
- 2) The current time in the Timescript has to be within the entry's running time.
- 3) The command "ExternTimeLoop" must be used for this entry.

As part of this extension we removed the limitation of the size of the LoopCnt window. Given a corresponding screen resolution, you can now see all 99 tracks simultaneously.

New trickfilm command "LimitFrameRate"

One of the Lasergraph DSP's fortes is to display only the visible parts of a picture.

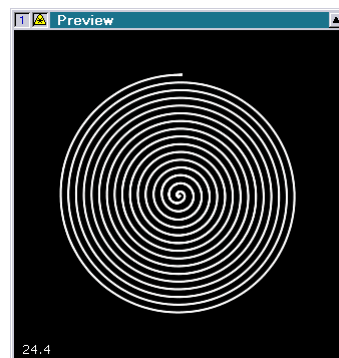
Certain conditions (drawing / clipping of a picture) may cause certain moments when only very few points are displayed with a high refresh rate.

The resulting high power density causes an unpleasant dazzling while watching graphic shows and may be a threat for the viewers' eyes during beam shows.

Example:

A spiral is undrawn within a loop using the command "CopyBuffer":

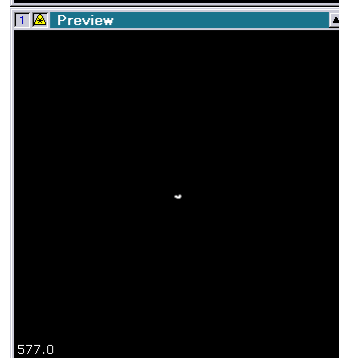
At the beginning the complete graphic is visible.
The picture is flickering perceptibly.



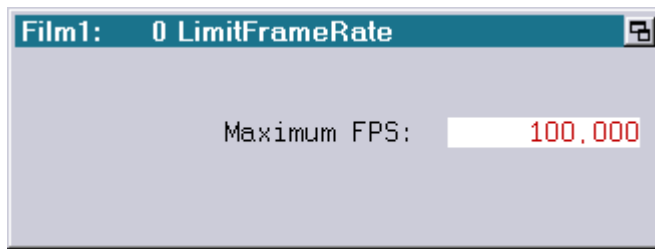
Halfway through the loop the flickering is not perceptible any longer.



At the end the complete laser power is focused on a very little part of the picture.



You can avoid problems like this with the new trickfilm command "LimitFrameRate":



This command takes care that the picture refresh rate does not exceed a user-definable rate.

The command "LimitFrameRate" calculates the time since the last "LimitFrameRate". If this time span is too short, it is adjusted by waiting accordingly.

The command must be placed within the output loop.

Example:

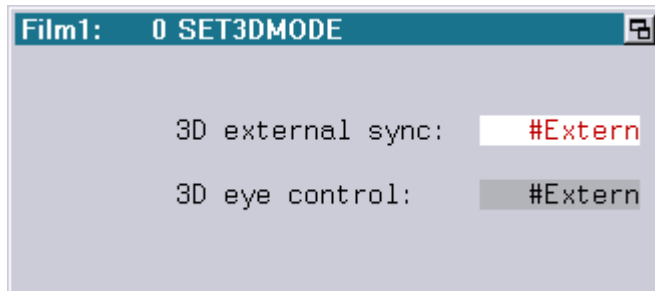
```
ExternTimeLoop
  CopyPictoBuffer
  CopyBuffer
  InitPosition
  DisplayBuffer
  LimitFrameRate
LoopEnd
```

Annotations:

- Show producers should be aware of the fact that the command "LimitFrameRate" is only available on a Lasergraph DSP Mark 2 with version 2016/10/17 or later.
- A show containing the command "LimitFrameRate" does not run on older systems.
- The display of the current picture refresh rate in the Super Preview ("Display Laser Fps") keeps showing the picture refresh rate resulting from the number of points. The waiting time inserted by "LimitFrameRate" will not be considered.

Trickfilm-command "SET3DMODE"

The trickfilm-command "SET3DMODE" enables you to control the parameters "3D external sync" and "3D eye control" for stereoscopic 3D projections from the trickfilm.



Parameter:

3D external sync: Off / Low=Left / High=Left / #Extern
 3D eye control: Both / Left / Right / #Extern

An example of use is the display of a 3D animation, rendered with 3ds Max and converted for laser display via proTize max. The converter generates an ongoing animation whose pictures are alternating intended for the left and the right eye.

In this case, the required command sequence would look like this:

```
Output loop
  choose left eye      (SET3DMODE -> 3D eye control = Left)
  display left picture
  choose right eye     (SET3DMODE -> 3D eye control = Right)
  display right picture
End of loop
```

An example can be found in the Demofiles: C:\DemoFiles\Templates\proTize3D.FILM

Annotation:

- Show producers can use the command "SET3DMODE" without worries. It is supported by all Lasergraph DSPs Mark 2. On devices with older system software the adjustment of the parameters is limited though.

Setting of the desktop resolution

Associated with the latest release of LGRemote (version 2016/11/07 or newer) it is now possible to adapt the desktop resolution of the Lasergraph DSP to the screen resolution of the PC by using the key combination:

<Ctrl> <Alt> <Return>

Annotations:

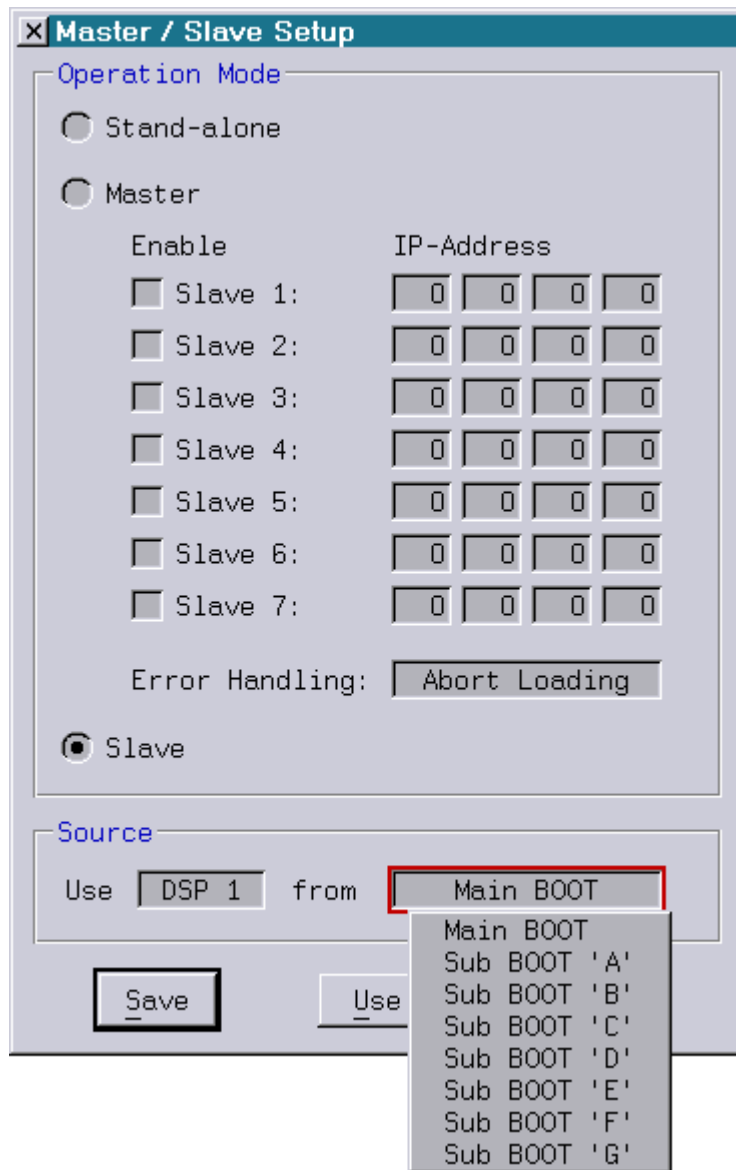
- The change of the resolution is retained until the next restart.
If you want to maintain the new resolution permanently, you need to choose "Save" in the "Display Mode Setup".
- It is only possible to adapt the desktop resolution to the screen resolution of the PC via key combination as long as the screen resolution is supported by the Lasergraph DSP.

In addition to this enhancement there are two new predefined desktop resolutions in the "Display Mode Setup":

1366x768 Pixel
1600x900 Pixel

Enhancement of Master/Slave Operation

There are now three additional Sub-BOOTS ('E' – 'G') available for the Master/Slave operation:



A further improvement concerns shows which are not started via Timescript like, for example, Live-Shows.

It has always been possible to load these shows, but after the trickfilm was started (e.g. via midi-keyboard) the slaves did not any longer respond to further load requests by the master.

To run such shows in the Master/Slave operation, the new system software has to be installed on the master as well as on the slaves.

Further Improvements

- The command "CreateBoot" can now be entered from the start screen.

If you type in the keyboard shortcut "cb", you save the detour via file-mode.

- The new command "ROOT" takes you from any mode of operation of the Lasergraph DSP straight to the start screen.

This command is of special interest for scripts and automations.

- With the command "FADERboard.Set" up to 16 faders can now be set simultaneously:

```
FADERboard.Set <number> <value 1> [<value 2> ... <value 16>]
```

- With the command "SetGlobalValue" up to 16 global values can now be set simultaneously:

```
SetGlobalValue <number> <value 1> [<value 2> ... <value 16>]
```

- With the command "SHAREDvar.Set" up to 16 shared variables can now be set simultaneously:

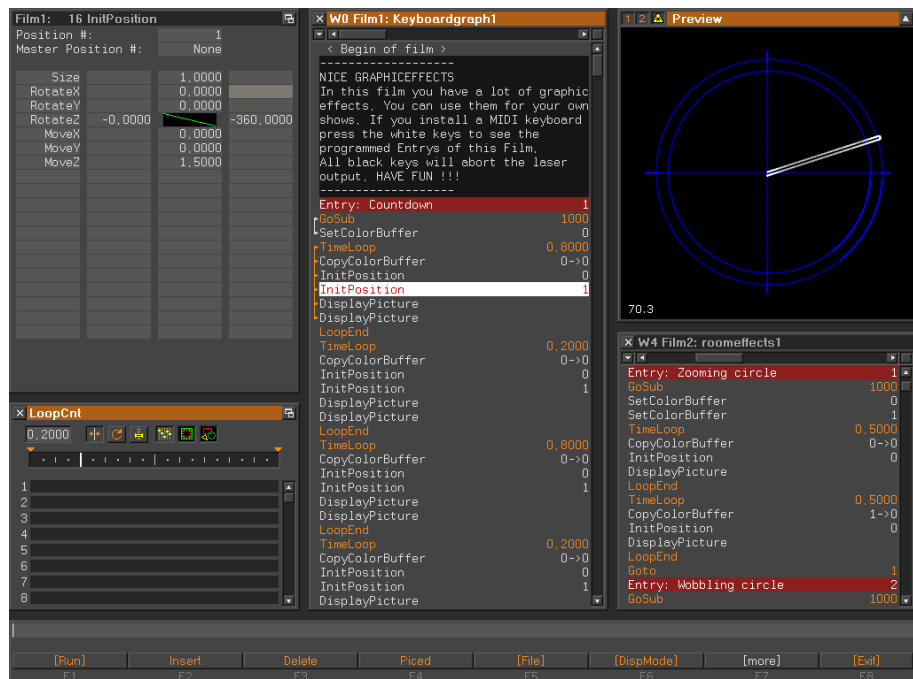
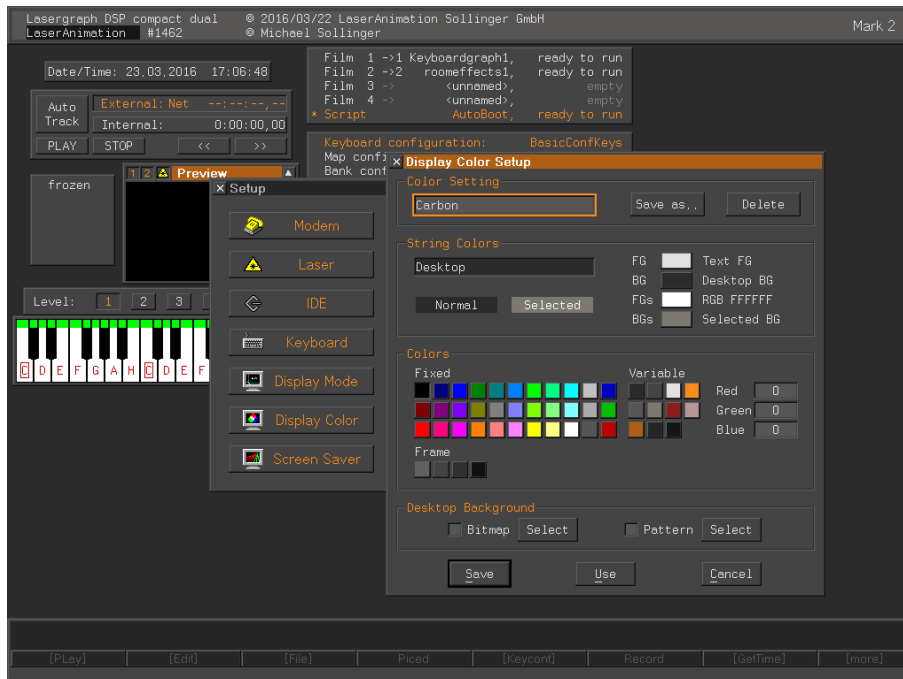
```
SHAREDvar.Set <number> <value 1> [<value 2> ... <value 16>]
```

March 2016

Lasergraph DSP Mark 2 Software Version 2016/03/22

New Color Setting "Carbon"

There is a new color setting available in the "Display Color Setup":



With its dark colors which at the same time are rich in contrast this new color setting is especially suitable for use with low ambient lighting.

Additional Color Settings

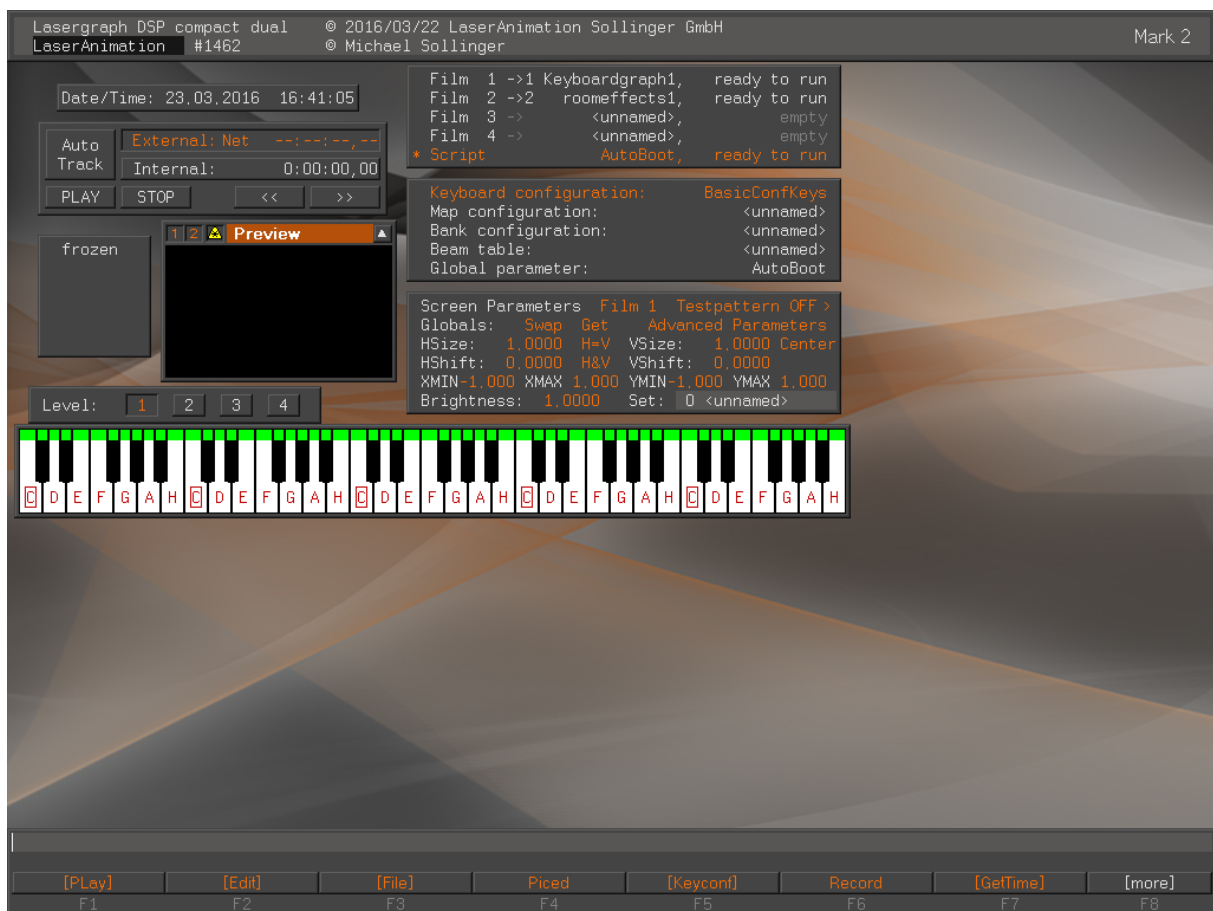
In addition to the color settings which are part of the system software, other color settings are available which are delivered with a new Lasergraph DSP or can be downloaded afterwards from our website.

Installation Procedure:

For the color settings to be available for selection in the "Display Color Setup" the files have to be extracted from the Zip file and copied to the following directory on the Lasergraph DSP:

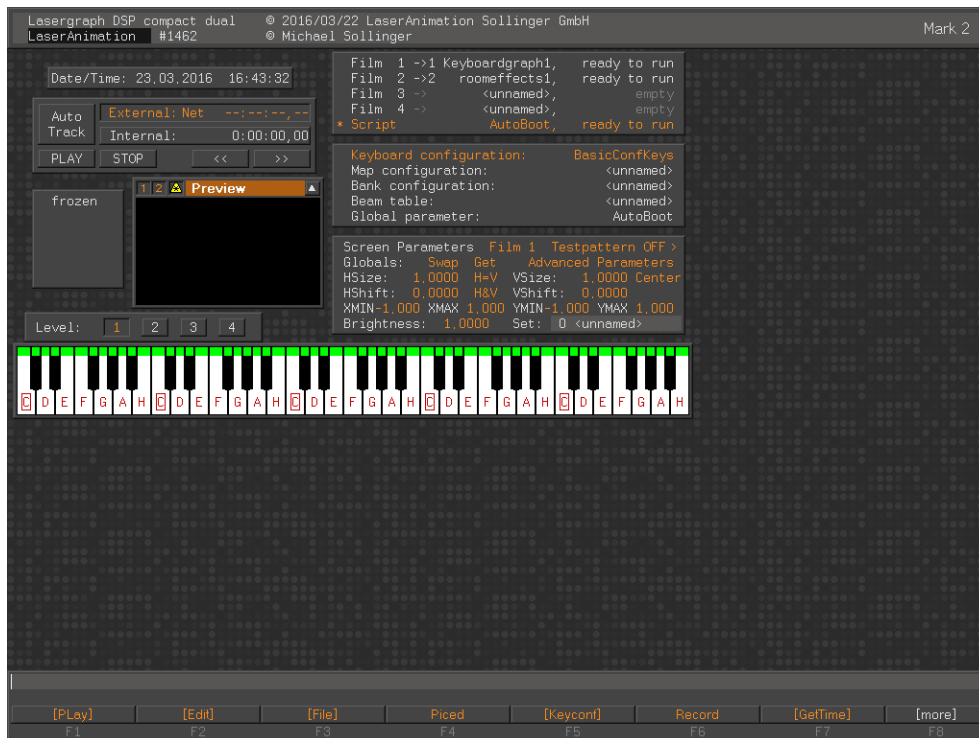
⇒ C:\System\Configuration\ColorSettings

Basbon



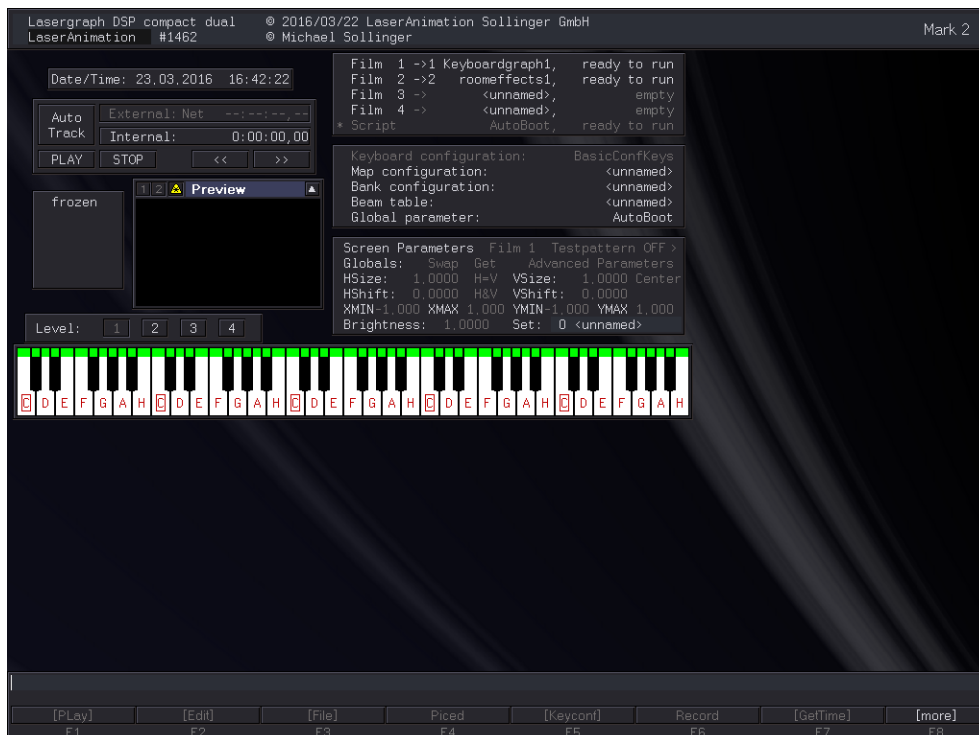
⇒ <http://www.laseranimation.com/download/dsp/ColorSettings/Basbon.zip>

Carbots



⇒ <http://www.laseranimation.com/download/dsp/ColorSettings/Carbots.zip>

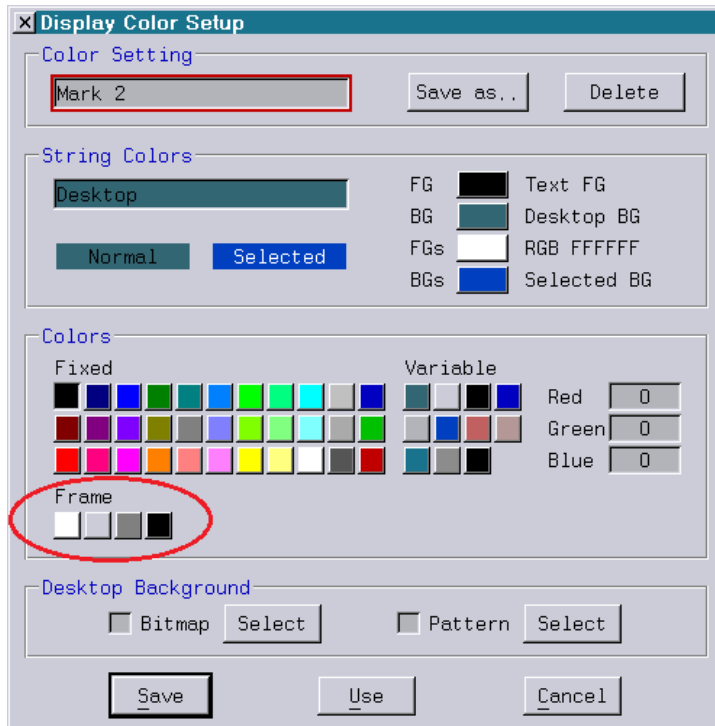
Darklux



⇒ <http://www.laseranimation.com/download/dsp/ColorSettings/Darklux.zip>

"Display Color Setup" Enhanced

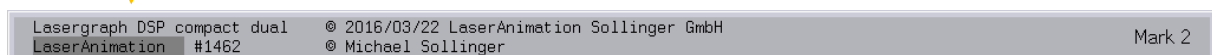
In order to allow dark color settings at all it is now possible to change the frame colors used by windows and buttons in the "Display Color Setup" under "Colors".



More Information on the Start Screen

Additional information is now displayed in the headline of the start screen:

Hardware: Lasergraph DSP compact
Lasergraph DSP compact dual
Lasergraph DSP travel
Lasergraph DSP workstation

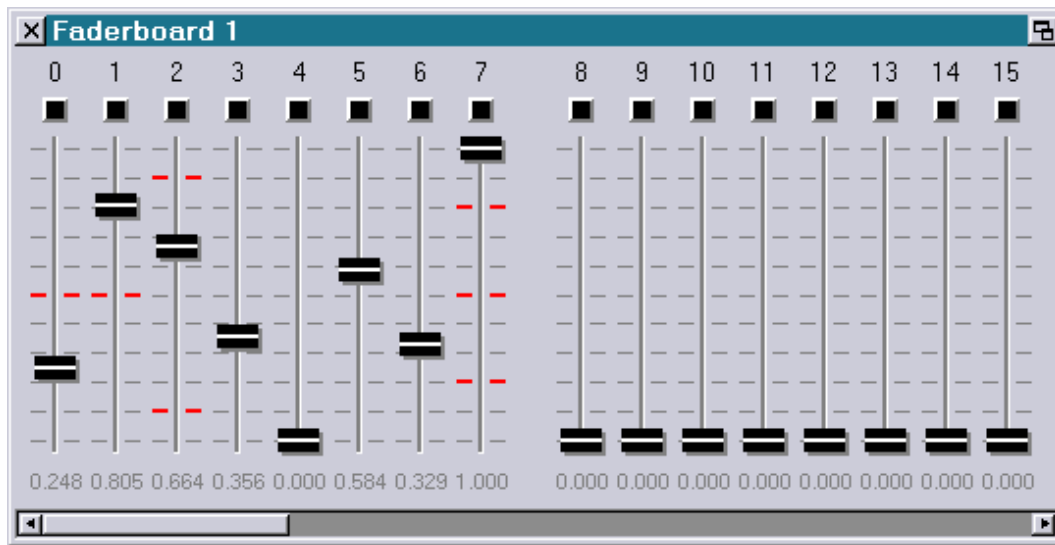


Serial Number

Software Level: Mark 2
Mark 2 Licensor
Playback

Markers in the Virtual Faderboard

It is now possible to define markers in the virtual faderboard:



The commands for this are:

```
FADERboard.Marker.Set <Fader> [<value1> [<value2> ...<value5>]]
```

Defines up to 5 markers for the fader with the number <Fader> at the positions <value1> to <value5>.

```
FADERboard.Marker.Clear <Fader>
```

Deletes all markers of the specified fader.

```
FADERboard.Marker.ClearAll
```

Deletes all markers of all faders.

Mirroring of Beams in the Beam Table

There are two new commands for mirroring all beams of the currently open beam table horizontally resp. vertically:

```
SetBeam.MirrorBeams.X mirrors the beams horizontally
```

```
SetBeam.MirrorBeams.Y mirrors the beams vertically
```

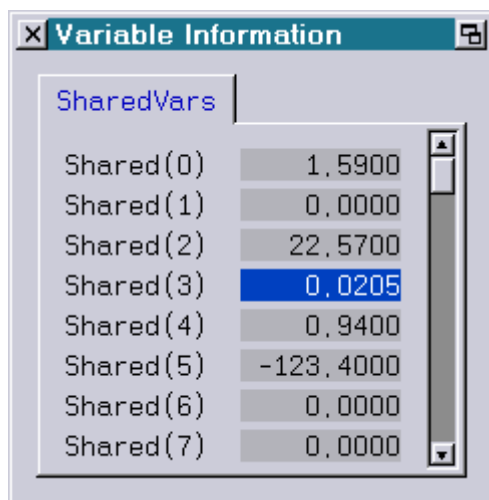
Enhancements in the "Variable Information" Window

Originally introduced for sharing data between several DSP-cards within one Lasergraph DSP *workstation*, Shared Variables are the only way to have the states of variables in the DSP displayed.

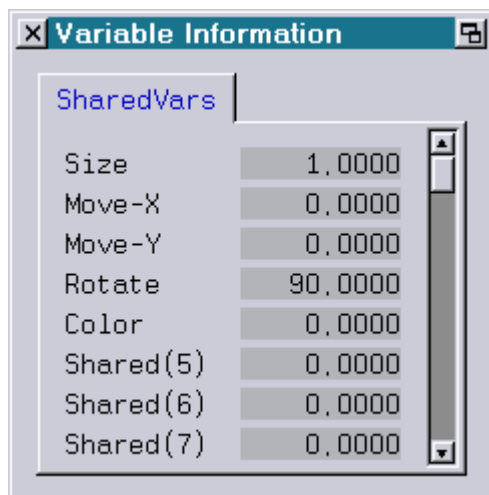
Since, in contrast to the fader values, they are not limited to either the value range from 0.000 to 1.000 or a 16-bit resolution they are also used to parameterize live shows.

In order to better fit this application the window "Variable Information" was enhanced as follows:

- 1) The values of the Shared Variables can now be set using the mouse:



- 2) It is now possible to assign names to the Shared Variables:



```
SHAREDvar.Name.Set <number> [<name1> [<name2> ... <name8>]]
```

Shared Variables can be labeled in the "Variable Information" window using the command "SHAREDvar.Name.Set".

The parameter <number> determines the first Shared Variable to be labeled.

Up to 8 Shared Variables can be labeled simultaneously.

If a name is to contain spaces it has to be set in quotation marks.

```
SHAREDvar.Name.Clear <number>
```

A label can be removed from a Shared Variable using the command "SHAREDvar.Name.Clear".

The parameter <number> determines the Shared Variable whose label is to be removed.

```
SHAREDvar.Name.ClearAll
```

The command "SHAREDvar.Name.ClearAll" can be used to remove all labels.

3) New Command for Setting Shared Variables:

For the sake of completeness there is a new command for setting Shared Variables:

```
SHAREDvar.Set <number> <value1> [<value2> ... <value8>]
```

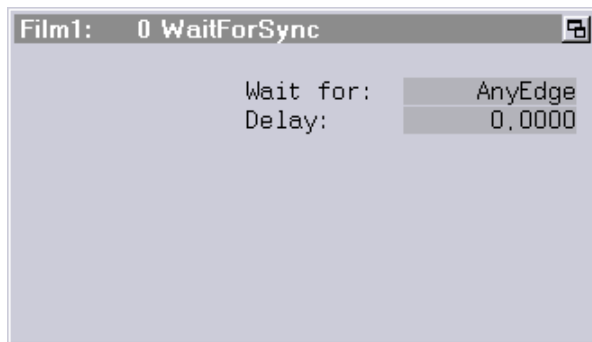
The command is equivalent to the previous command

```
SETSHAREDVAR <number> <value1> [<value2> ... <value8>]
```

4) Position and size of the "Variable Information" window are now saved when the command "SaveWinPos" is called up.

Enhancement of the Command "WaitForSync"

It is now possible to wait for any edge on the sync input with the command "WaitForSync":



An application example would be synchronization of laser output with video using the genlock signal "Odd/Even Field".

Attention!

- Show producers should be aware of the fact that the option "AnyEdge" is only available on a Lasergraph DSP Mark 2 with version 2016/03/22 or later.
- A show which has "AnyEdge" selected will not run on older systems.
- Not all Lasergraph DSP have a sync input.

New SetVariables Function "ClipScale ()"

In contrast to the function

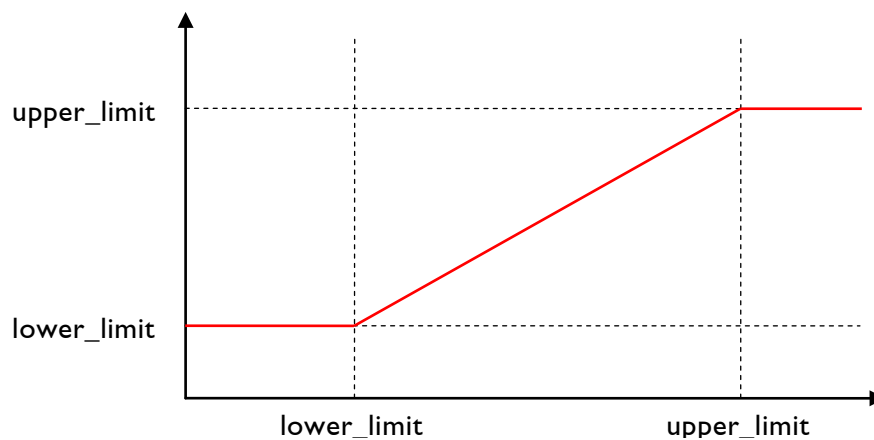
`ScaleTo (x, lower_limit, upper_limit)`

which scales an input value in the range from 0.0 to 1.0 to the specified value range from "lower limit" to "upper limit", the function

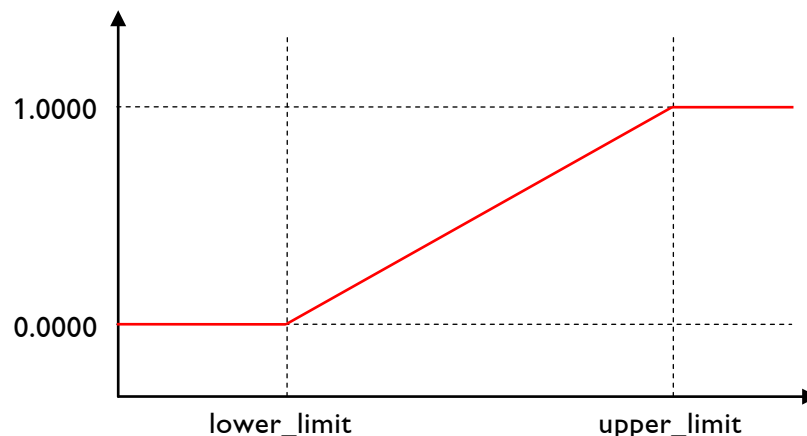
`ClipScale (x, lower_limit, upper_limit)`

limits the input value to the specified value range and then scales the value to the range 0.0 to 1.0.

Step 1 (Clip): Limiting the input value to the specified value range



Step 2 (Scale): Scaling to the value range 0.000 to 1.000



Attention!

- Show producers should be aware of the fact that the function "ClipScale ()" is only available on a Lasergraph DSP Mark 2 with version 2016/03/22 or later.
- A show containing the function "ClipScale ()" will not run on older systems.

More Points in the Piced

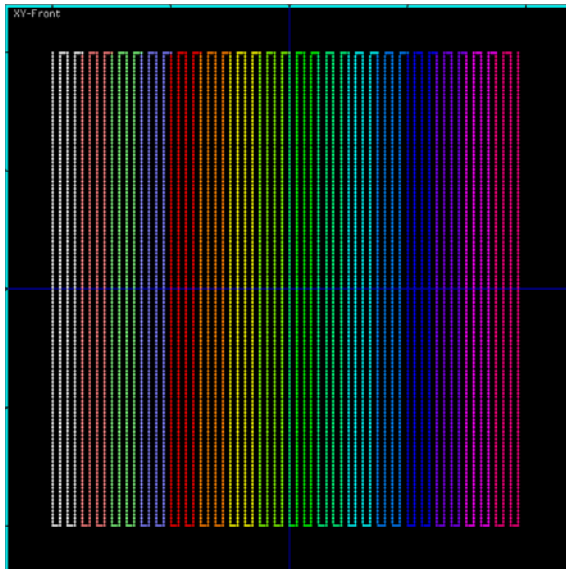
On a Lasergraph DSP *compact* it is now possible to edit pictures with up to 8192 points in the picture editor (Piced). On a Lasergraph DSP *workstation* the limit remains unchanged at 4096 points.

Normally the 4096 points available until now will be totally sufficient for the picture output even with fast scanners. However, there may be applications where more than 4096 points are required. An example of this would be a large picture which is only partially visible at any given moment.

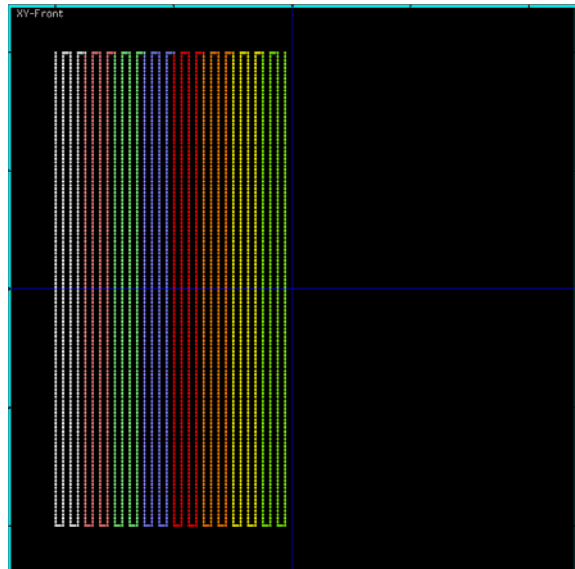
Hints for handling large pictures:

- 1) If a picture with more than 4096 points is opened in the Piced on a Lasergraph DSP with older system software or on a Lasergraph DSP *workstation* only the first 4096 points will be loaded.

Compact with new system software



Workstation or older system software



- 2) Pictures displayed directly (e.g. using the command "DisplayPicture") were already previously allowed to contain more points.
- 3) Each of the available eight picture buffers provides space for 5120 picture points. If a picture with more than 5120 points is loaded into a picture buffer the rest will automatically be saved in the following picture buffer. In this case the following picture buffer should not be used otherwise.
- 4) In the Super Preview, LGPreview and Lpv Creator up to 4096 points will be displayed.
- 5) The limit is 2048 points with the old preview.

Support of Net-Timecode with 50fps and 60fps

The Lasergraph DSP now also supports Net-Timecode with 50fps and 60fps in addition to the previously supported Net-Timecode with 24fps, 25fps, 30fps and 100fps.

As with 24fps, 25fps, 30fps and 100fps, a timecode with 50fps resp. 60fps will internally be converted to 25fps so that shows will be programmed with 25fps, as before.

In connection with this an error was fixed which sometimes led to large deviations when Net-Timecode with 24fps or 30fps was received.

Other Changes

The second parameter for the file command "LZIP" is now optional:

```
LZIP <filename> [ <newname> ]
```

If <newname> is not specified the LZip file will have the same name as the directory resp. the file which is to be compressed.

Example:

```
LZIP Show.BOOT
```

will create the following file:

```
Show.LZip
```

It is now possible to delete the label of an individual fader in the virtual faderboard using the command "FADERboard.Name.Clear <Fader>". Up to now this could only be done with the command "FADERboard.Name.Set <Fader> [<name>]" without specifying a name.

The use of upper- and lower case spelling was changed for numerous functions in the menu of the trickfilm command "SetVariables":

"TIMERTICKS"	=>	"TimerTicks"
"SECONDS"	=>	"Seconds"
"LOOPTIME"	=>	"LoopTime"
"ENDTIME"	=>	"EndTime"
"TRUESECONDS"	=>	"TrueSeconds"

and so on.

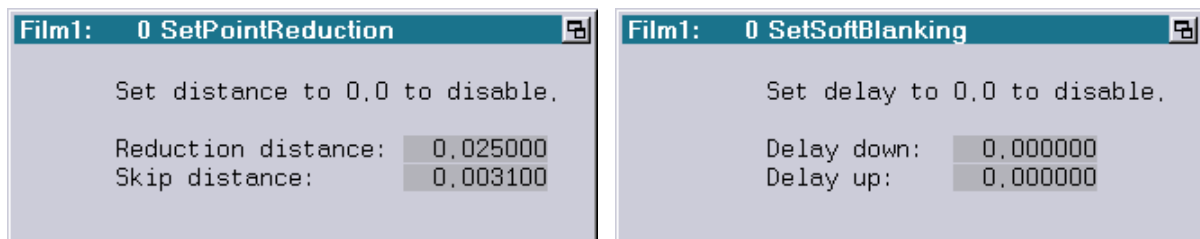
This change is only for the purpose of improved readability and does not change the functionality: Names of functions still cannot be abbreviated because this would lead to conflicts with names of variables.

In the trickfilm command "SetVariables" the functions "Shared()", "RealSec()" and "RealMin()" can now also be called up with the following names:

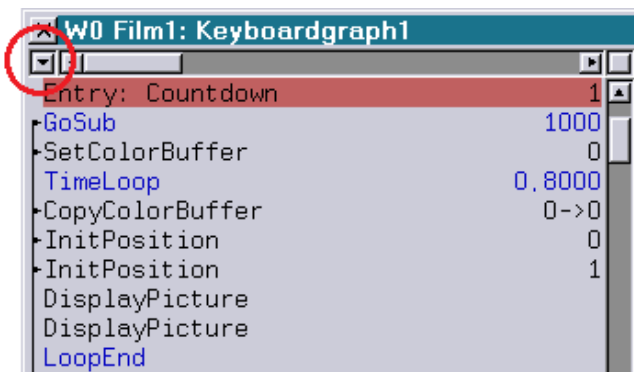
"SharedVar()"	(equivalent to "Shared()")
"RealSecond()"	(equivalent to "RealSec()")
"RealMinute()"	(equivalent to "RealMin()")

All old trickfilm commands with names which previously ended with "O" (e.g. "EntryO" or "TrackO") were renamed so the name now ends in "Old" (e.g. "EntryOld" or "TrackOld").

The parameter window of the trickfilm commands "SetPointReduction" and "SetSoftBlanking" now shows the value which can be used to disable "Point Reduction" resp. "Soft Blanking".



The functionality of the button for opening the drop down menu in the edit mode which can for instance be used to open the LoopCnt window or other editing windows is now marked with a small triangle:



LASERGRAPH DSP RELEASE NOTES 2015

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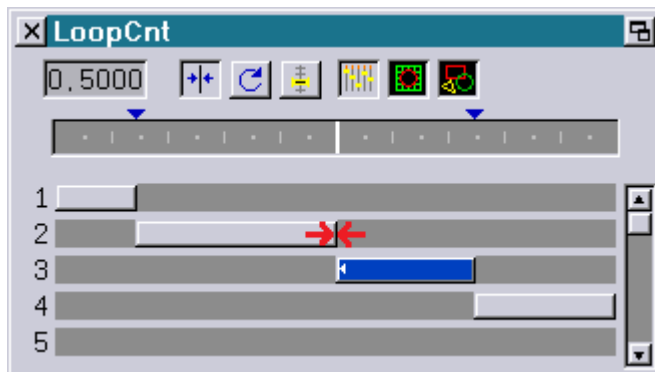
September 2015

Lasergraph DSP *Mark 2* Software Version 2015/09/07

Snap Function in LoopCnt Window

When grabbing the beginning resp. the end of a track or one of the two loop markers in the LoopCnt window these will now snap to the position of the beginning or the end of a near-by track.

This makes it easier to set seamless transitions between two tracks:



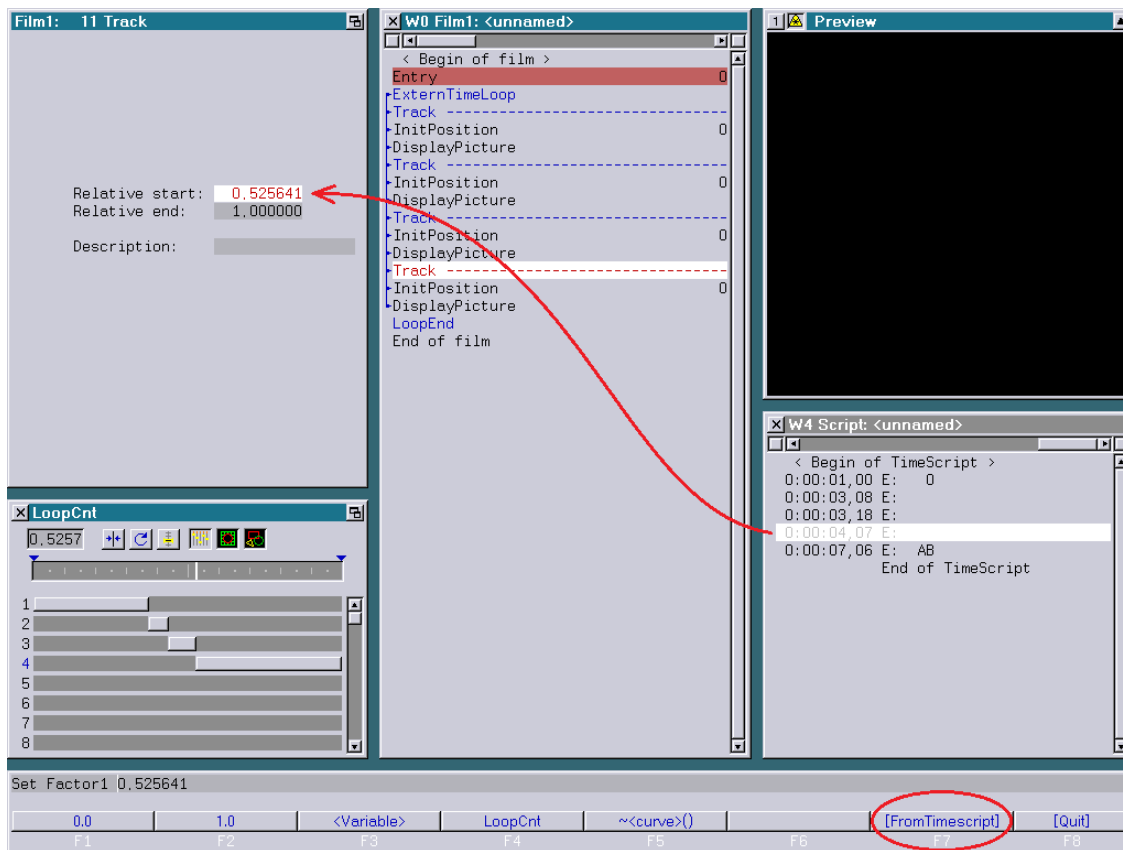
The snap function can be disabled temporarily by keeping <Shift> or <Alt> pressed during positioning.

New Function [FromTimescript]

In practice most entries will be separated into individual sections using track commands. These individual sections are then meant to start resp. end at a specific time.

Since the start- and end times in the track command have to be specified relatively, i.e. in a range from 0.000 to 1.000, up to now it was necessary to calculate the relative time on the basis of the absolute time in the timescript or to determine the relative time through trial and error.

The new function "[FromTimescript]" calculates the relative track time from the absolute time of the current command from the timescript and enters this into the parameter "Relative Start" resp. "Relative End":



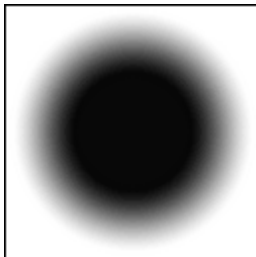
For "[FromTimescript]" to work the entry containing the track command has to be called up from the timescript and the time of the current line has to be within the entry's running time in the timescript.

ApplyBitmap Command Enhanced

The trickfilm command "ApplyBitmap" now supports two methods of handling cases where the bitmap no longer covers the complete laser picture due to reduced size or shifting:

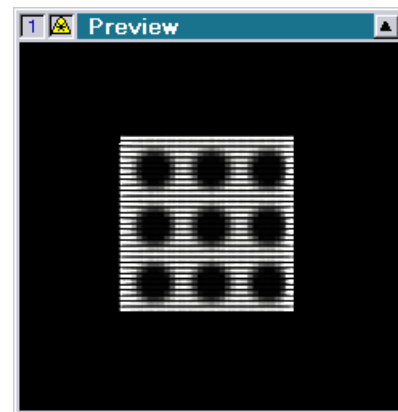
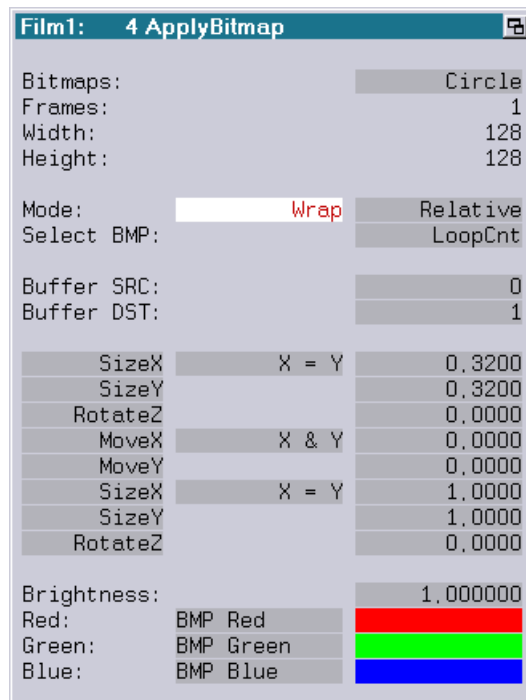
- Wrap The bitmap is repeated indefinitely.
This is equivalent to the behavior up to now.
- Clip The bitmap is not repeated.
Outside the bitmap the color of the edge of the bitmap is continued.

If for instance the following bitmap is used

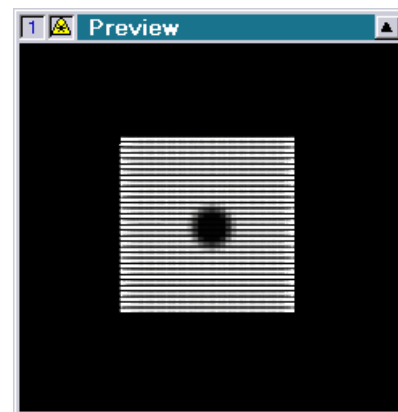
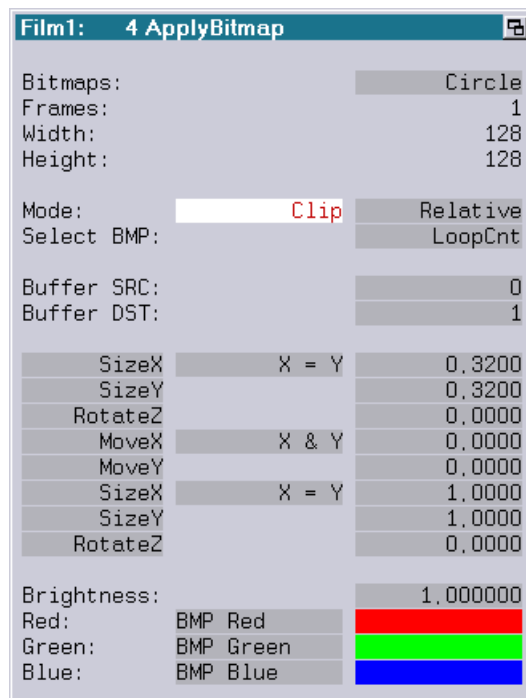


the result, depending on the selected mode, will be:

Wrap



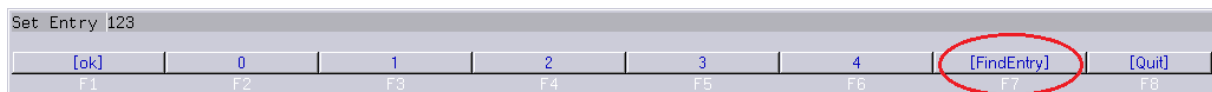
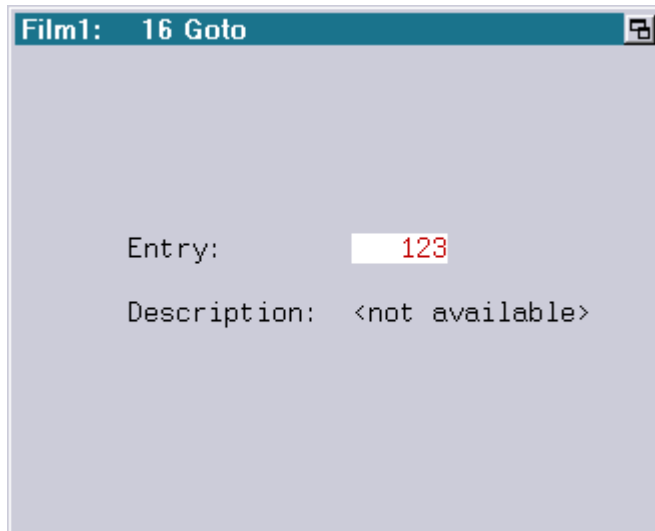
Clip



Shows using the new operating mode "Clip" can be played back with older versions of the system software. However, the mode cannot be changed then.

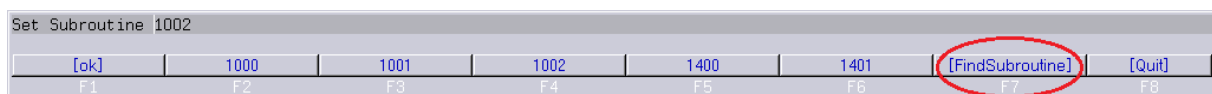
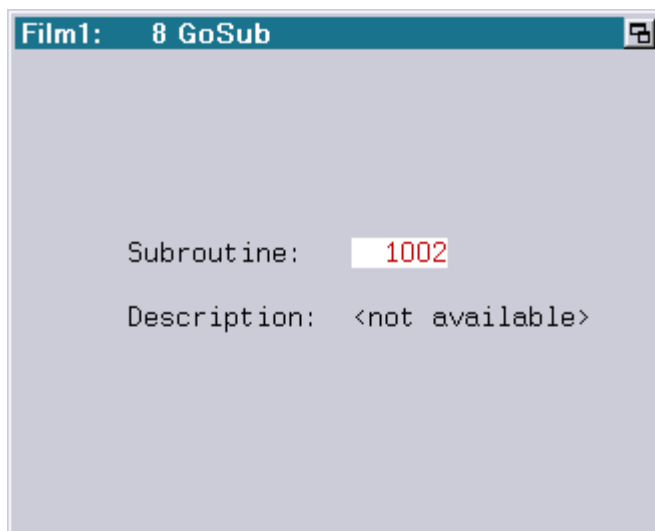
[FindEntry] in Goto, OnGoto and ConditionalGoto

The new button "[FindEntry]" was added to the menu of the trickfim commands "Goto", "OnGoto" and "ConditionalGoto" for jumping directly to the specified entry:



[FindSubroutine] in GoSub, OnGoSub and ConditionalGoSub

The new button "[FindSubroutine]" was added to menu of the trickfim commands "GoSub", "OnGoSub" and "ConditionalGoSub" for jumping directly to the specified subroutine:



FindEntry in Timescript

Similar to the trickfilm there now is a timescript command for finding entries:

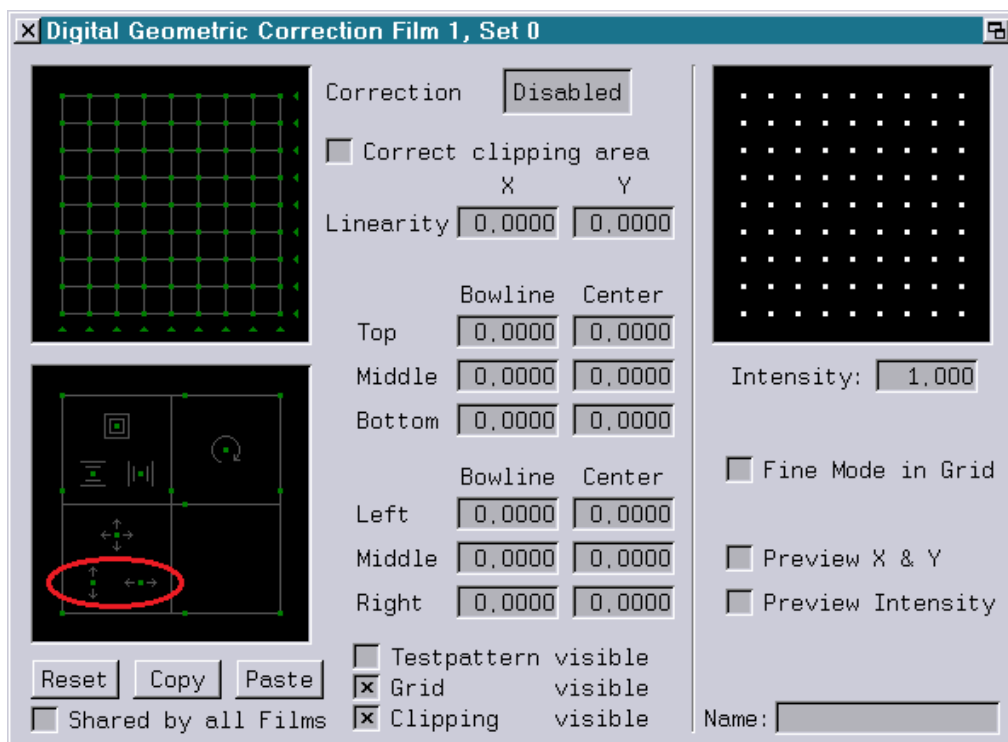
```
FindEntry [<entry> [<film>]] /Up
```

Parameters:	<entry>	Number of the entry to be found. If no number is specified, any entry command will be searched for.
	<film>	Trickfilm in which the specified entry is called up. If no film is specified a call for the specified entry in any trickfilm will be searched for.
Option:	/Up	This option causes the timescript to be scanned towards the top instead of the bottom.

The command "FindEntry" is not in the menu. It can only be entered by keyboard (e.g. by using the shortcut "fe").

Enhanced Adjustments in the DGC

There are two new icons in the "Digital Geometric Correction" window (DGC) for shifting the output vertically only or horizontally only:



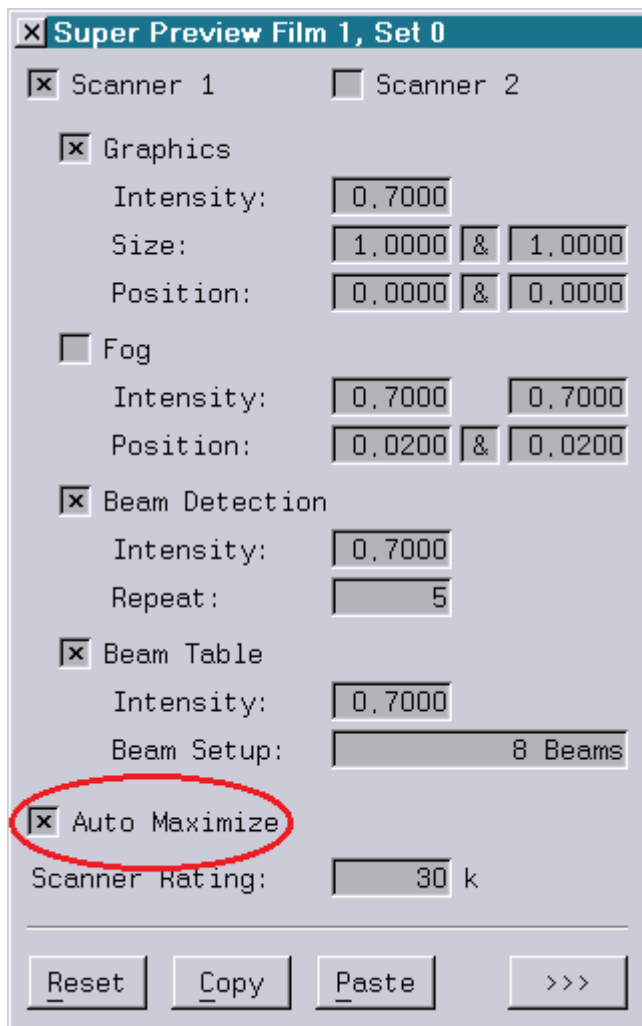
Auto Maximize in Super Preview

Up to now in cases where the laser output was cut off at the edges ("Clipping") the output size in the Super Preview was increased to optimally use the space available in the window ("Auto Maximize").

However, there may be cases where the "Auto Maximize" will not have the desired result.

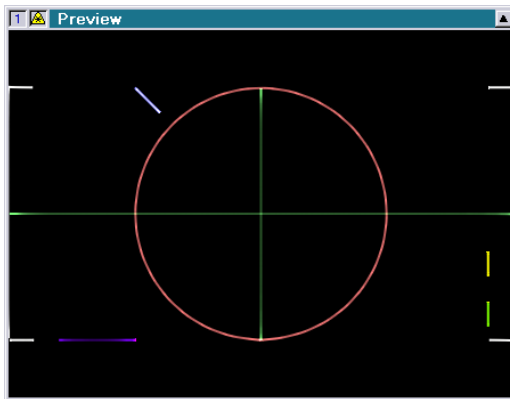
If for instance a bitmap is to be embedded in the Super Preview the "Auto Maximize" in connection with the "Clipping" will result in different scaling of the laser output and the bitmap when the size of the window is changed.

To avoid this behavior the "Auto Maximize" can now be disabled in the Super Preview Setup.

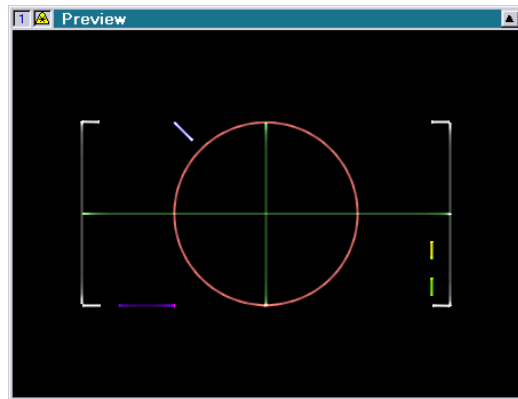


Example

With "Auto Maximize":



Without "Auto Maximize":



In order to get an output in the Super Preview resp. the LGPreview with disabled "Auto Maximize" at least the following version of LGRemote has to be installed:

LGRemote 2015/03/26 (or newer)

If an Lpv of a show with disabled "Auto Maximize" is to be created or played back the following versions of Lpv Creator resp. Lpv Player are required:

Lpv Creator 2015/02/27 (or newer)

Lpv Player 2015/02/27 (or newer)

Attention!

- Show producers should be aware of the fact that disabling "Auto Maximize" is only possible on a Lasergraph DSP Mark 2 with version 2015/09/07 or later.
- A show with disabled "Auto Maximize" cannot be loaded on older systems.

File Window Size Can Be Increased

Up to now the file window had a fixed size.

This often had the effect that not all files could be displayed.

The new system software allows increasing the size of the file window:

Files listed: *.* , pick file to load			
Unnamed 172,982,272 bytes free. C:\Library\Party\HalloweenHorro			
..			
HalloweenHorro	FILM		
BatFly	ANI	castlemusic	ANI
claw	ANI	doorKnocking	ANI
doorShadow	ANI	DraculaDeath	ANI
DraculWakeUp	ANI	Frankenstein	ANI
FrankenstrUN	ANI	FreddyKrüger	ANI
horrorEyes	ANI	Horrorface	ANI
horseman	ANI	magician	ANI
mummy	ANI	mutation	ANI
openDoor	ANI	pumpkin	ANI
runningWolf	ANI	runningXboy	ANI
runSkeleton	ANI	runSkeleton2	ANI
skeletnDance	ANI	skullJump	ANI
skullTalk	ANI	snakes	ANI
SOLOHalloween	ANI	treeLadyMorp	ANI
vampire	ANI	walkingHand	ANI
werewolf	ANI	witch	ANI
wolfClaw	ANI	wolfHowl2	ANI
BatFly	CATL	castlemusic	CATL
claw	CATL	doorKnocking	CATL
doorShadow	CATL	DraculaDeath	CATL
DraculWakeUp	CATL	Frankenstein	CATL

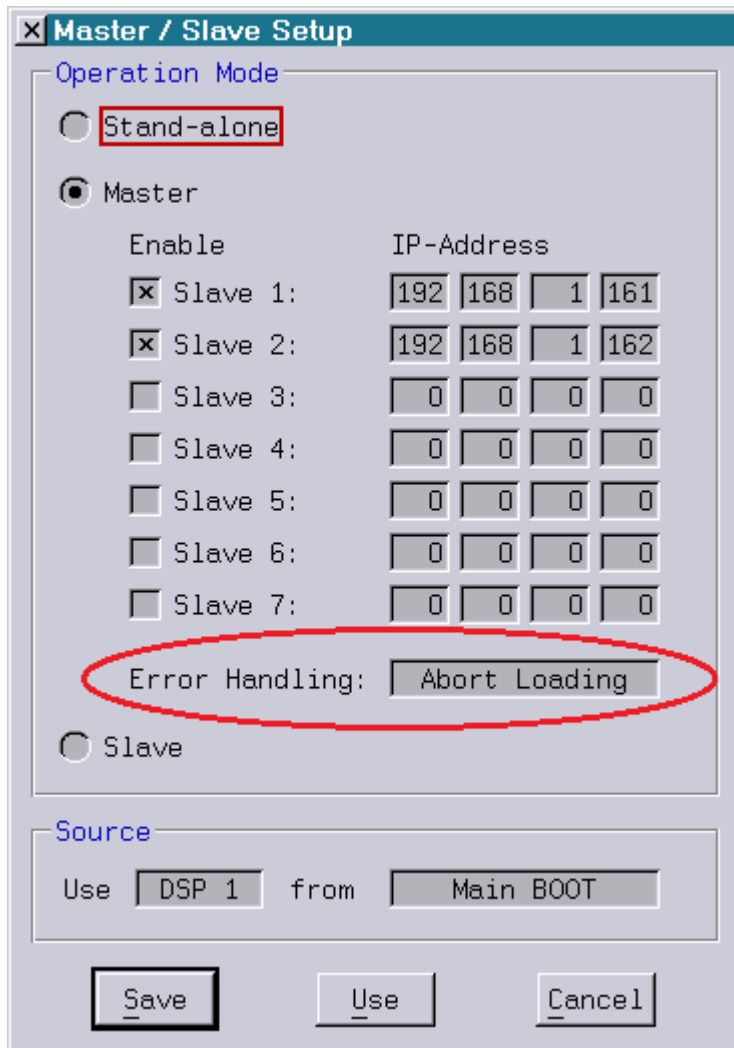
Files listed: *.* , pick file to load			
Unnamed 172,982,272 bytes free. C:\Library\Party\HalloweenHorro			
..			
HalloweenHorro	FILM		
BatFly	ANI	castlemusic	ANI
claw	ANI	doorKnocking	ANI
doorShadow	ANI	DraculaDeath	ANI
DraculWakeUp	ANI	Frankenstein	ANI
FrankenstrUN	ANI	FreddyKrüger	ANI
horrorEyes	ANI	Horrorface	ANI
horseman	ANI	magician	ANI
mummy	ANI	mutation	ANI
openDoor	ANI	pumpkin	ANI
runningWolf	ANI	runningXboy	ANI
runSkeleton	ANI	runSkeleton2	ANI
skeletnDance	ANI	skullJump	ANI
skullTalk	ANI	snakes	ANI
SOLOHalloween	ANI	treeLadyMorp	ANI
vampire	ANI	walkingHand	ANI
werewolf	ANI	witch	ANI
wolfClaw	ANI	wolfHowl2	ANI
BatFly	CATL	castlemusic	CATL
claw	CATL	doorKnocking	CATL
doorShadow	CATL	DraculaDeath	CATL
DraculWakeUp	CATL	Frankenstein	CATL
FrankenstrUN	CATL	FreddyKrüger	CATL
horrorEyes	CATL	Horrorface	CATL
horseman	CATL	magician	CATL
mummy	CATL	mutation	CATL
openDoor	CATL	pumpkin	CATL
runningWolf	CATL	runningXboy	CATL
runSkeleton	CATL	runSkeleton2	CATL
skeletnDance	CATL	skullJump	CATL
skullTalk	CATL	snakes	CATL
SOLOHalloween	CATL	treeLadyMorp	CATL
vampire	CATL	walkingHand	CATL
werewolf	CATL	witch	CATL
wolfClaw	CATL	wolfHowl2	CATL

Other windows also benefit from the increase of the file window size such as the selection of pictures or variables in the trickfilm edit.

Pictures in catalog panther:				Trickfilm variables, pick name	
Picturememory 261,866,548 bytes free.				Predefined/used Variables	
panther0	PIC	panther1	PIC	Fader0	Fader1
panther2	PIC	panther3	PIC	Fader2	Fader3
panther4	PIC	panther5	PIC	Fader4	Fader5
panther6	PIC	panther7	PIC	Fader6	Fader7
panther8	PIC	panther9	PIC	Fader8	Fader9
panther10	PIC	panther11	PIC	Fader10	Fader11
panther12	PIC	panther13	PIC	Fader12	Fader13
panther14	PIC	panther15	PIC	Fader14	Fader15
panther16	PIC	panther17	PIC	LoopCnt	LoopStep
panther18	PIC	panther19	PIC	MouseX	MouseY
panther20	PIC	panther21	PIC	A	AngX
panther22	PIC	panther23	PIC	AngY	azhour
panther24	PIC	panther25	PIC	azmin	azsec
panther26	PIC	panther27	PIC	Begin	bnr
panther28	PIC	panther29	PIC	ColB	ColB1
panther30	PIC	panther31	PIC	ColG	ColG1
panther32	PIC	panther33	PIC	ColR	ColR1
panther34	PIC	panther35	PIC	D	dT
panther36	PIC	panther37	PIC	dx	dy
panther38	PIC	panther39	PIC	DZ	Ending
panther40	PIC	panther41	PIC	FacolB	FacolB1
panther42	PIC	panther43	PIC	FacolG	FacolG1
panther44	PIC	panther45	PIC	FacolR	FacolR1
panther46	PIC	panther47	PIC	Frame	h
panther48	PIC	panther49	PIC	MoveX	MoveY
panther50	PIC	panther51	PIC	MoveZ	Rantime
panther52	PIC	panther53	PIC	RaposX	RaposY
panther54	PIC	panther55	PIC	Rasiz	RASIZX
panther56	PIC	panther57	PIC	RASIZY	Raval
panther58	PIC	panther59	PIC	RotX	RotY
panther60	PIC	panther61	PIC	rz1	rz2
panther62	PIC	panther63	PIC	rz3	rz4
panther64	PIC	panther65	PIC	rz5	rz6
panther66	PIC	panther67	PIC	sc	scale
panther68	PIC	panther69	PIC	scale2	speed
panther70	PIC	panther71	PIC	T	time
panther72	PIC			v	Weight
				x	x1
				x2	x3

Enhancement of Master/Slave Operation

There is now an option to select the behavior of the master in case loading a show on one of the slaves fails.



The options are:

Abort Loading	In case loading a show fails on one of the slaves the master aborts the loading process and generates a corresponding error message.
Report Errors	In case loading a show fails on one of the slaves a corresponding error message is displayed in the "Message Display" window. The loading process is not aborted by this.
Ignore Errors	The master ignores all errors which may occur on the slaves.

Visualization in LightConverse Improved

Up to now only 8-bit resolution was used for the X/Y coordinates in the visualization in LightConverse which could lead to visible artifacts:



With the new software version the resolution was increased, resulting in a much improved output quality:



Connection Between LA-Toolbox and Laser

The LA-Toolbox is a software for configuring PHAENON X (Pro and AT) as well as Basic laser projectors (PHAENON-, BLIZZARD-, BLITZ Basic).

The connection between the LA-Toolbox and the laser is done either using an RS232 interface or over Ethernet.

Up to now the LA-Toolbox could not access the laser over Ethernet when the laser had an integrated Lasergraph DSP with the Ethernet connector directly connected to the Lasergraph DSP resp. when the laser was an older model without an Ethernet interface.

The new system software now makes it possible to connect the laser to one of the RS232 interfaces of the Lasergraph DSP and to then access the laser with the LA-Toolbox over Ethernet through the Lasergraph DSP.

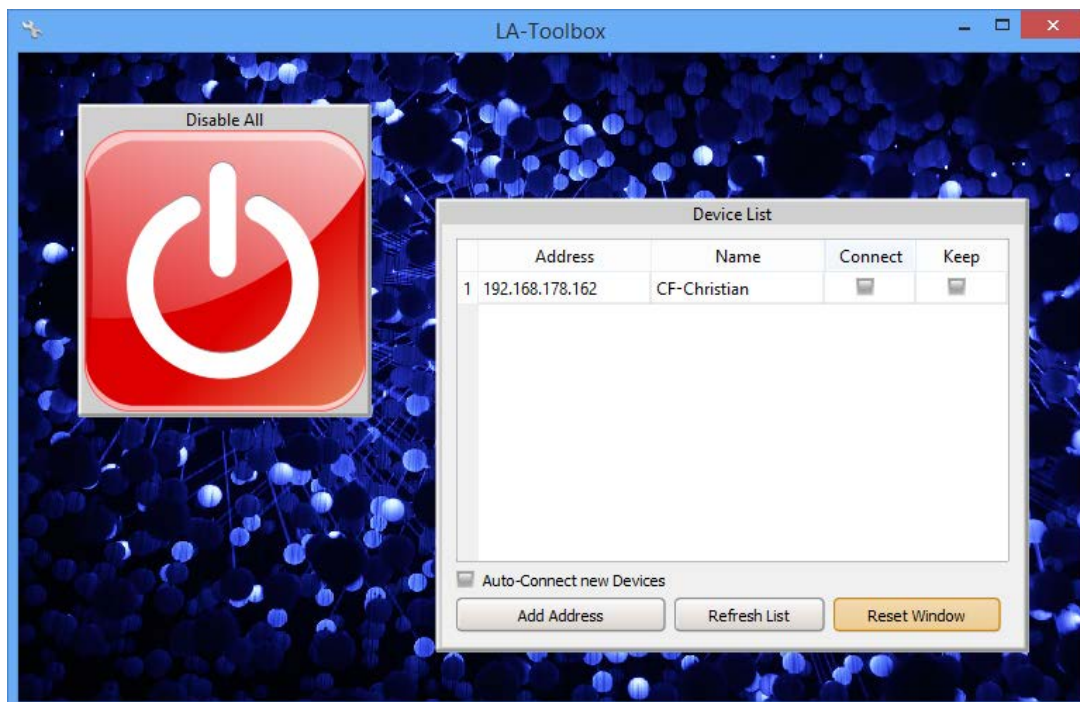
The following command is used to establish the connection:

```
LANtoSerial <interface>
```

Parameter: <interface> Name of the RS232 interface to which the laser is connected (e.g. "RS232-2") or "None" to terminate the connection.

This function also requires the LA-Toolbox version 2015/06/02 (or newer).

After entering "LANtoSerial" the Lasergraph DSP will appear in the "Device List" of the LA-Toolbox with its name and IP address:



The connection between LA-Toolbox and laser will remain established until either the Lasergraph DSP is turned off or restarted or until the connection is terminated manually by calling up the command "LANtoSerial" again with the parameter "None" or a different RS232 interface.

If the connection is to be established automatically when the Lasergraph DSP is started the command "LANtoSerial" can be entered in the AutoScript (C:\System\AutoScript.DSCR).

System Start for Compact Dual Accelerated

Due to an error it was possible that starting the Compact Dual could take considerably longer than starting a normal Compact. The error did not impact the subsequent operation.

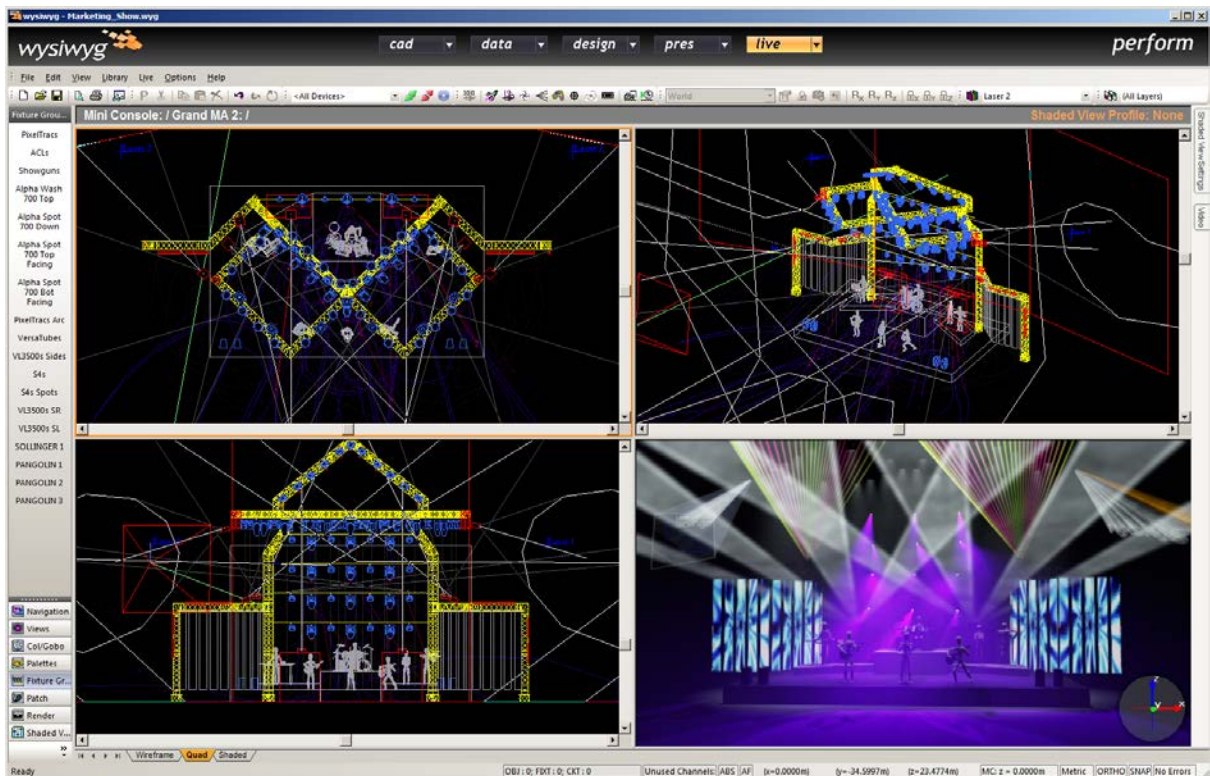
Owners of a Compact Dual which is no longer eligible for free updates please contact our support. They will receive the license necessary for this version free of charge.

January 2015

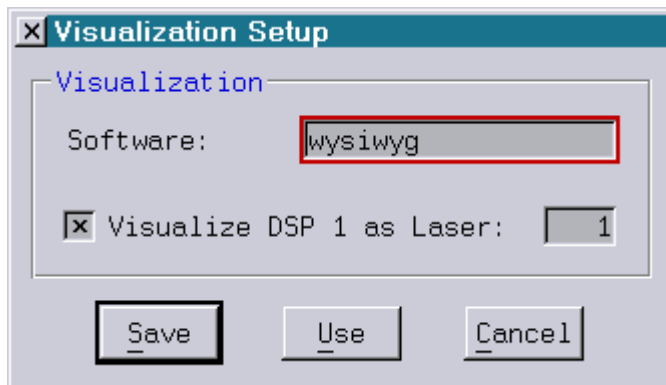
Lasergraph DSP *Mark 2* Software Version 2015/01/15

Visualization in wysiwyg

The Lasergraph DSP Mark 2 can now be used as a source for the visualization software "wysiwyg" by the Canadian company CAST Software (www.cast-soft.com):



Visualization in wysiwyg is activated by selecting "wysiwyg" under Software in the "Visualization Setup":



Variables Array

An array of variables is now available, especially for more complex programming tasks.

The array contains 10,000 elements and can be addressed by the Trickfilm command "SetVariables" using the following function:

Writing values into the array: Array (index) = value

Reading values out of the array: variable = Array (index)

The "index" has to be in the range from 0 to 9999.

Attention!

- Show producers should be aware of the fact that the function "Array()" is only available on a Lasergraph DSP Mark 2 running version 2015/01/15 or later.
- A show containing the function "Array()" will not run on older systems.
- The array uses the same memory area in the DSP as the picture buffer 7. Therefore programmers should make sure not to use picture buffer 7 together with the function "Array()" since this can lead to unwanted behavior.

New Function "DmxOut()"

The function "DmxOut()" is called from the Trickfilm command "SetVariables". Similar to the Trickfilm command "SetAnalogSingle" it is used to control one channel of the DMX output:

DmxOut (channel) = value

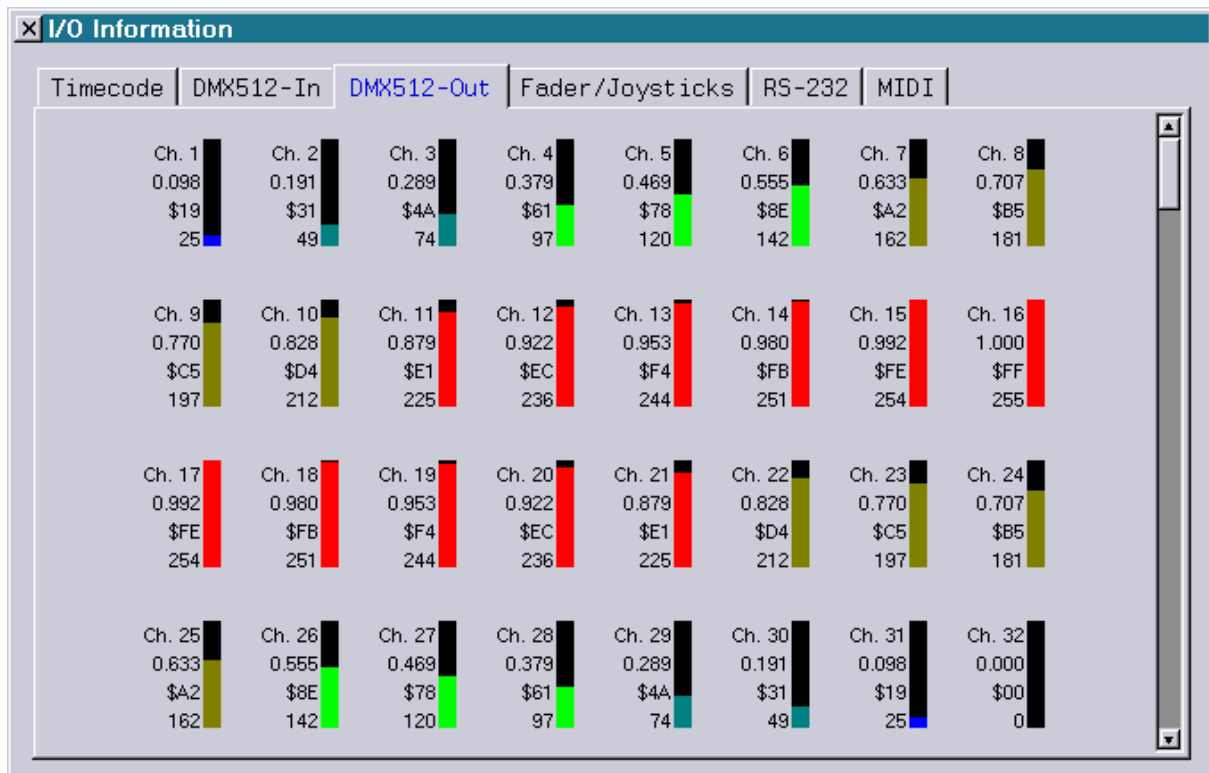
channel: 1 - 256
value: 0.000 - 1.000

The main difference to the command "SetAnalogSingle" is that both "channel" and "value" can be variables or curves.

To for instance make the first 32 DMX channels behave in a sine-wave-form (0°-180°) the following sequence can be used:

```
SetVariables    index = 1
Repeat
  SetVariables  DmxOut (index) = Sin (180 * (index / 32))
  SetVariables  index = index + 1
Until          index > 32
```

The result will be the following:



Hint:

- If the "value" which is to be set is a decimal value in the range 0-255 the following conversion can be used:

$$\text{DmxOut (channel)} = \text{value} / 256$$

Attention!

- Show producers should be aware of the fact that the function "DmxOut()" is only available on a Lasergraph DSP Mark 2 running version 2015/01/15 or later.
- A show containing the function "DmxOut()" will not run on older systems.

New Function "DmxOut16()"

Many DMX-enabled devices combine two consecutive channels into one 16-bit channel in order to increase the resolution for certain functions.

One example for this are pan and tilt movements.

The function "DmxOut16()" is similar to the function "DmxOut()" with the exception that here two consecutive channels will be combined into one 16-bit channel.

$$\text{DmxOut16 (channel)} = \text{value}$$

channel: 1 - 255
value: 0.000 - 1.000

Here the DMX channel "channel" will get the upper 8-bit (MSB) and the DMX channel "channel+1" the lower 8-bit (LSB) of the 16-bit "value".

Hint:

- If the "value" which is to be set is a decimal value in the range 0-65535 the following conversion can be used:

$$\text{DmxOut16 (channel)} = \text{value} / 65536$$

Attention!

- Show producers should be aware of the fact that the function "DmxOut16()" is only available on a Lasergraph DSP Mark 2 running version 2015/01/15 or later.
- A show containing the function "DmxOut16()" will not run on older systems.

Conversion of Display Commands

In order to integrate elements from existing shows into a show which uses DisplayZone commands the commands "DisplayPicture", "DisplayAnimation" and "DisplayBuffer" can be converted into the DisplayZone commands "DisplayPictureZone", "DisplayAnimationZone" resp. "DisplayBufferZone" using the new command "ConvertDisplayZone".

The desired DGC zones are entered as parameters:

```
ConvertDisplayZone <dgc> [ <dgc> [ <dgc> ... ] ]
```

If a block is selected in the active Trickfilm the command "ConvertDisplayZone" will only affect the Display commands within the selected block. Otherwise the Display commands from the whole Trickfilm will be converted.

Modification of DisplayZone Commands

The new command "ModifyDisplayZones" can be used to change the DGC zones entered in the commands "DisplayPictureZone", "DisplayAnimationZone" und "DisplayBufferZone".

The desired DGC zones are entered as parameters:

```
ModifyDisplayZone <dgc> [ <dgc> [ <dgc> ... ] ]
```

If a block is selected in the active Trickfilm the command "ModifyDisplayZone" will only affect the DisplayZone commands within the selected block. Otherwise the DisplayZone commands from the whole Trickfilm will be modified.

Enhancement of the "Laser Disable"

From now on messages can be displayed in the "Message Display" window in case the laser output was activated resp. deactivated by the "Laser Disable" mechanism.

This is configured in the "Laser Disable Setup":

Enable	Name / IP Address	Channel	Connection Failure
<input type="checkbox"/> Button 1:		All	<input checked="" type="checkbox"/> Disable Laser after 3.0 sec
<input type="checkbox"/> Button 2:		All	<input checked="" type="checkbox"/> Disable Laser after 3.0 sec
<input type="checkbox"/> Button 3:		All	<input checked="" type="checkbox"/> Disable Laser after 3.0 sec
<input type="checkbox"/> Button 4:		All	<input checked="" type="checkbox"/> Disable Laser after 3.0 sec

☒ Reenable Laser if all selected Buttons are enabled

☐ Report Changes in Message Window

Enable Message: Laser enabled!

Disable Message: Laser disabled!

Save Use Cancel

The messages which are displayed in case the laser output is activated or deactivated by the "LaserDisable" can be chosen freely under "Enable Message" resp. "Disable Message".

The default is "Laser enabled!" resp. "Laser disabled!".

The respective message will only be displayed if "Report Changes in Message Window" is activated and if the corresponding text is not empty.

This for instance makes it possible to only display a message upon deactivation but not upon activation.

Messages in LGFD

From now on messages in the "Message Display" window, such as those from the 'Laser Disable' described above, can also be used in the LGFD operation mode.

Up to now the "Message Display" window had a lower priority and was therefore hidden behind the LGFD.

LASERGRAPH DSP RELEASE NOTES 2014

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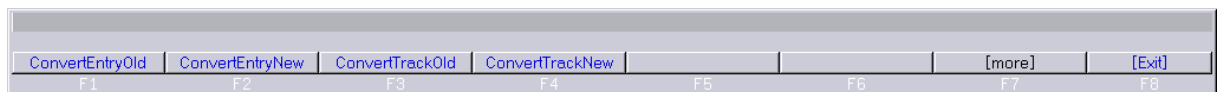
November 2014

Lasergraph DSP Mark 2 Software Version 2014-11-12

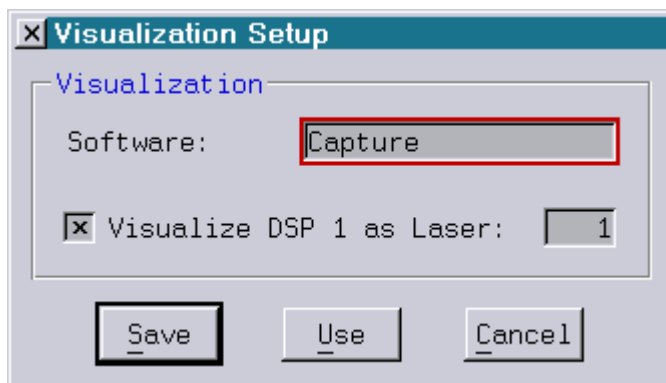
This release constitutes the basis for further enhancements.

From the point of view of the user there are the following changes:

- 1) If a test picture other than "Default" is selected using the selection list introduced with the system software 2014/08/20, this picture will now be used even if there is a picture named "Default" resp. "ForFilmX" in the picture memory in the catalog "TestPictures". From now on the test picture from the picture memory will only be used if "Default" is selected from the selection list.
- 2) An additional menu level was added to the trickfilm edit containing the conversion commands "ConvertEntryOld", "ConvertEntryNew", "ConvertTrackOld" and "ConvertTrackNew":



- 3) The selection list entry for the visualization software "Capture Polar" was renamed to "Capture" because the Lasergraph DSP supports "Capture Argo" in addition to "Capture Polar".



- 4) It is now possible to use <CTRL>-<INS> for copying and <SHIFT>-<INS> for inserting text as an alternative in the command line.

August 2014

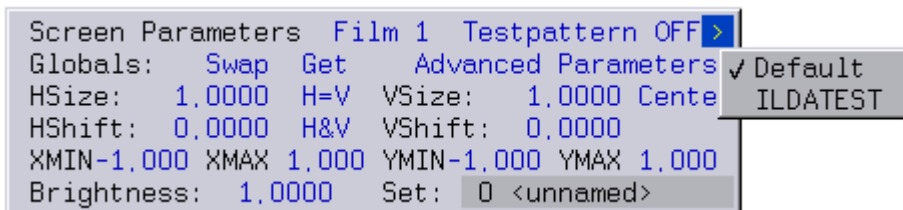
Lasergraph DSP *Mark 2* Software Version 2014-08-20

Selection of Different Test Patterns

The test pattern can now be selected from a drop-down menu.

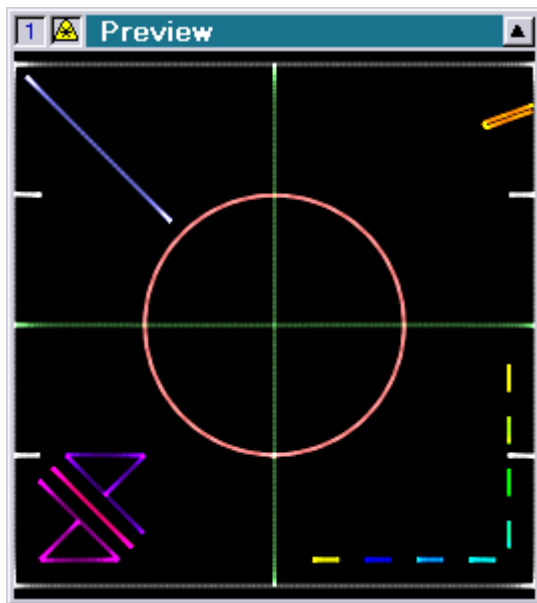
In addition to the default test pattern ("Default") the pictures within the catalog "C:\System\Testpattern.CATL" are available here.

If for instance the picture "ILDATEST.PIC" is located in this catalog the selection list will look like this:



Depending on the selection made the test pattern will change as follows:

Selection "Default":



Selection "ILDATEST":



Notes:

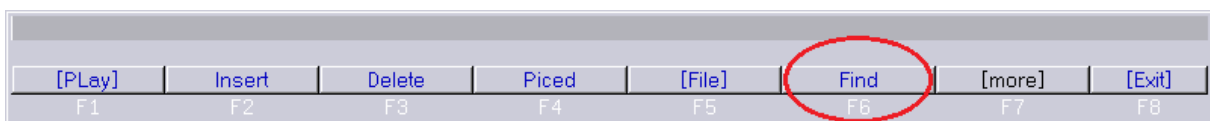
- The list of available test patterns is determined immediately after the Lasergraph DSP is started.
If a test pattern is added or deleted the Lasergraph DSP has to be restarted for the

changes to be visible in the selection list.

- The test pattern can be selected for each trickfilm individually.
- The selection of the test pattern stays active until the next time the Lasergraph DSP is started.

Find in the Timescript

The command "Find" which is already known from the trickfilm edit is now also available in the timescript edit:



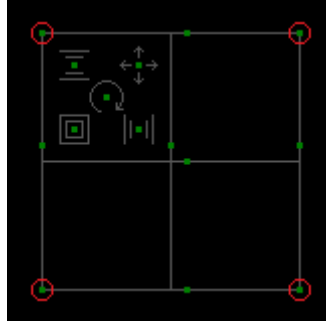
After entering "Find" the selection list with timescript commands which was introduced in July 2014 will open to select the command which is to be found:



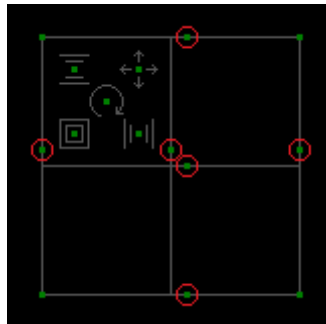
Restriction of the Movement in the DGC

The restriction of the direction of movement using <SHIFT> while shifting individual points which was introduced in July 2014 was enhanced to include the following elements:

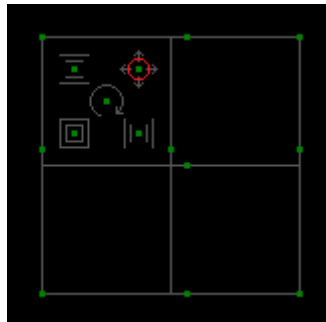
Corner points



Bowlines



Move

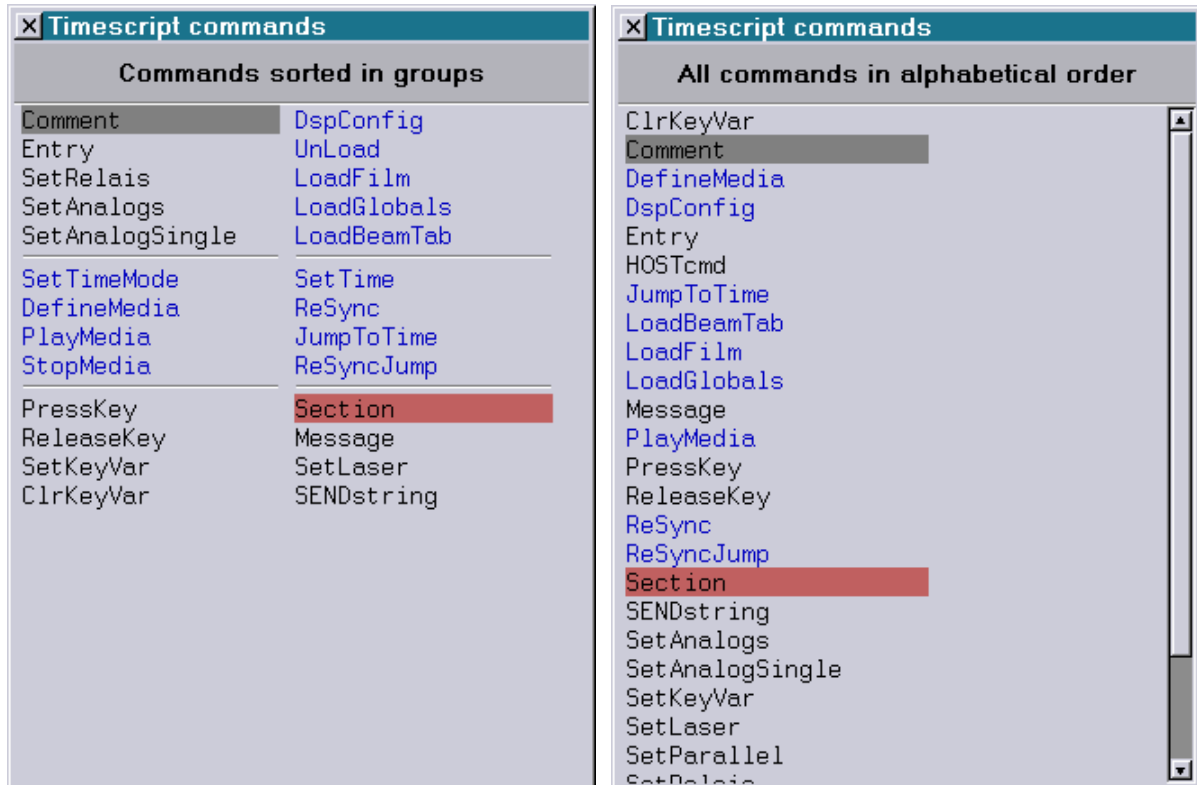


July 2014

Lasergraph DSP *Mark 2* Software Version 2014-07-08

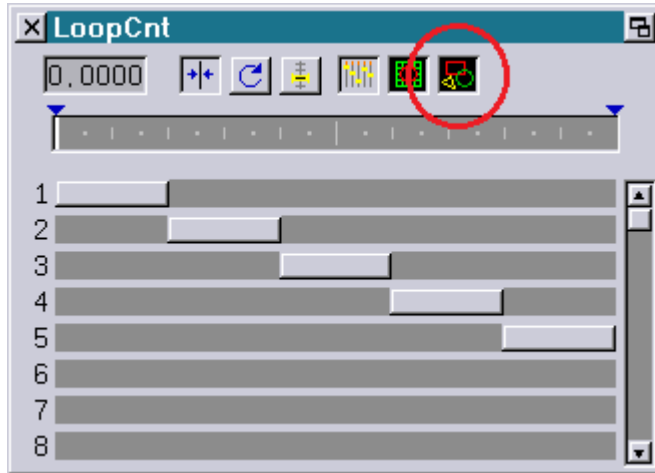
Selection List for Timescript Commands

Timescript commands are no longer entered using the menu. Instead there now is a selection list:



Display Mode Button in the LoopCnt Window

There is a new button in the LoopCnt window which is used to display the currently set display mode and to switch the mode:



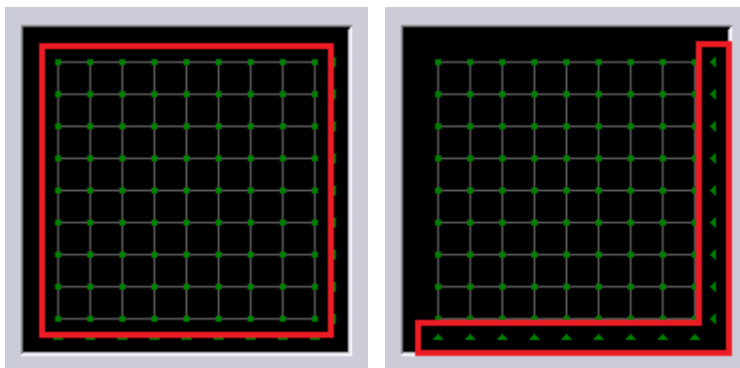
When this button is pressed the display mode is "Multiple Pictures" where all pictures are displayed. If it is not pressed the mode is "Single Picture" where only the current picture is displayed.

The display mode can still be switched through the menu or the command line independent of the new button.

[DispMode]

Restriction of the Movement in the DGC

From now on the direction of movement while shifting individual points, complete lines or complete columns in the DGC can be restricted to one direction.



The restriction is active as long as the <SHIFT> key is pressed.

The direction is selected with the first movement of the mouse after the <SHIFT> key is pressed:

- When the mouse is moved in the X-direction first after the <SHIFT> key is pressed only horizontal movement is possible until the <SHIFT> key is released.
- When the mouse is moved in the Y-direction first after the <SHIFT> key is pressed only vertical movement is possible until the <SHIFT> key is released.

Reorganization of the Menu Entries in Edit Mode

In the edit mode the order of the menu entries was changed as follows:

Trickfilm Edit:

Until now

[DispMode]	Insert	Delete	[Run]	Piced	[File]	[more]	[Exit]
F1	F2	F3	F4	F5	F6	F7	F8

New

[Run]	Insert	Delete	Piced	[File]	[DispMode]	[more]	[Exit]
F1	F2	F3	F4	F5	F6	F7	F8

Timescript Edit:

Until now

[EditParam]	Insert	Delete	[PLay]	Piced	[File]	[more]	[Exit]
F1	F2	F3	F4	F5	F6	F7	F8

New

[PLay]	Insert	Delete	Piced	[File]	[EditParam]	[more]	[Exit]
F1	F2	F3	F4	F5	F6	F7	F8

Following the change all menu entries for starting ("Run" and "Play") are consistently located at <F1>. Other components of the Production Suite such as "LGFD" or "ShowLine" also use <F1> for starting.

Also the picture editor ("Piced") is now always called up using <F4>, whether it is from the start screen, the Trickfilm edit or the Timescript edit.

May 2014

Lasergraph DSP *Mark 2* Software Version 2014-05-15

Laser Disable

The mechanism "Laser Disable" which is introduced with this release offers a simple way to activate resp. deactivate the laser output on one or more Lasergraph DSP Mark 2 from one or more positions.

In addition the Lasergraph DSP Mark 2 can be combined into groups. If necessary these groups can be turned on or off independent of each other (e.g. during installation or programming).

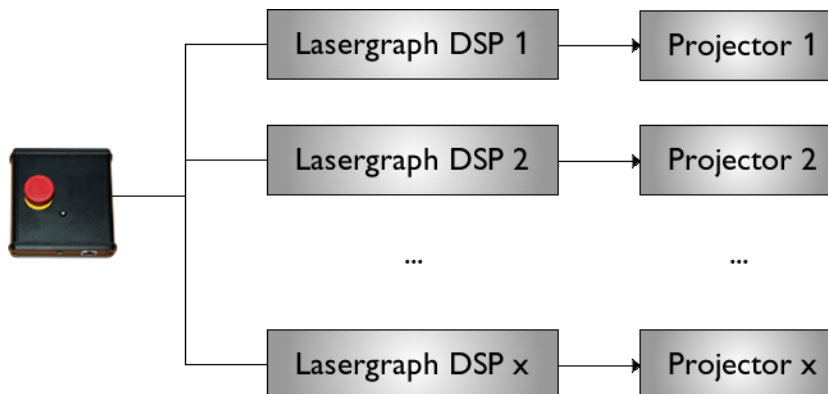
For operation of this mechanism there is the software "Laser Disable" which runs under Windows® or Mac® OS X® as well as a special emergency-off button.

Since all communication is done over Ethernet no additional cables have to be installed and the individual emergency-off buttons can be placed in different locations (e.g. FOH and backstage).

Whether the "Laser Disable" mechanism can replace the emergency-off button which is required by law or if it can only be used in addition depends on the respective laws and has to be determined in each individual case.

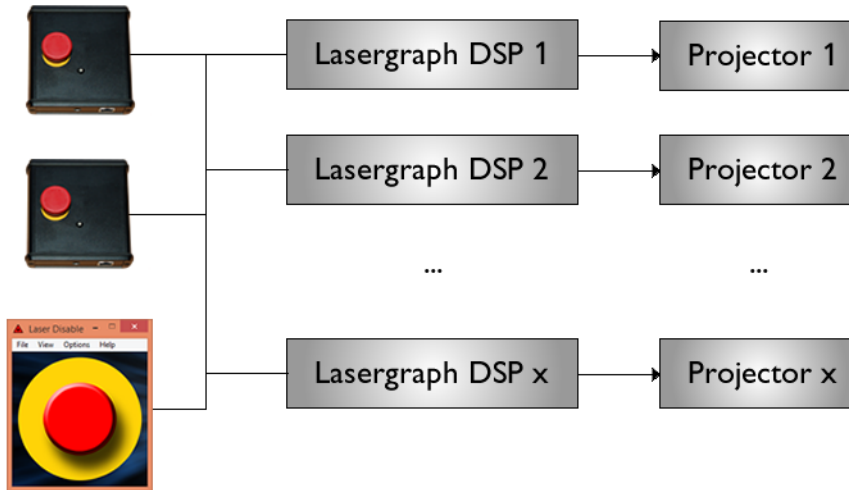
Example 1:

One emergency-off button controls one or more laser projectors.



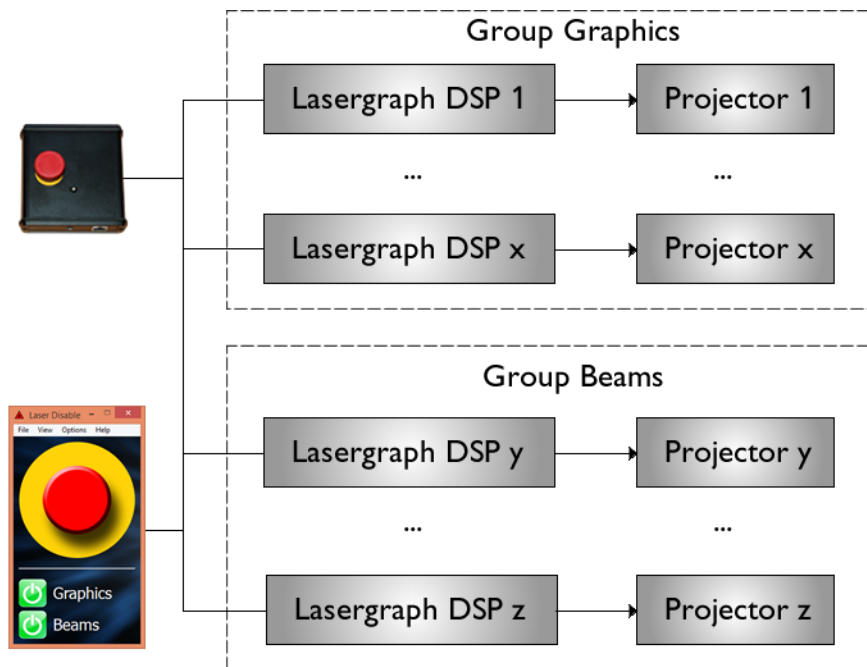
Example 2:

Two emergency-off buttons and the software "Laser Disable" control one or more laser projectors.

**Example 3:**

One emergency-off button and the software "Laser Disable" control several laser projectors divided into two groups.

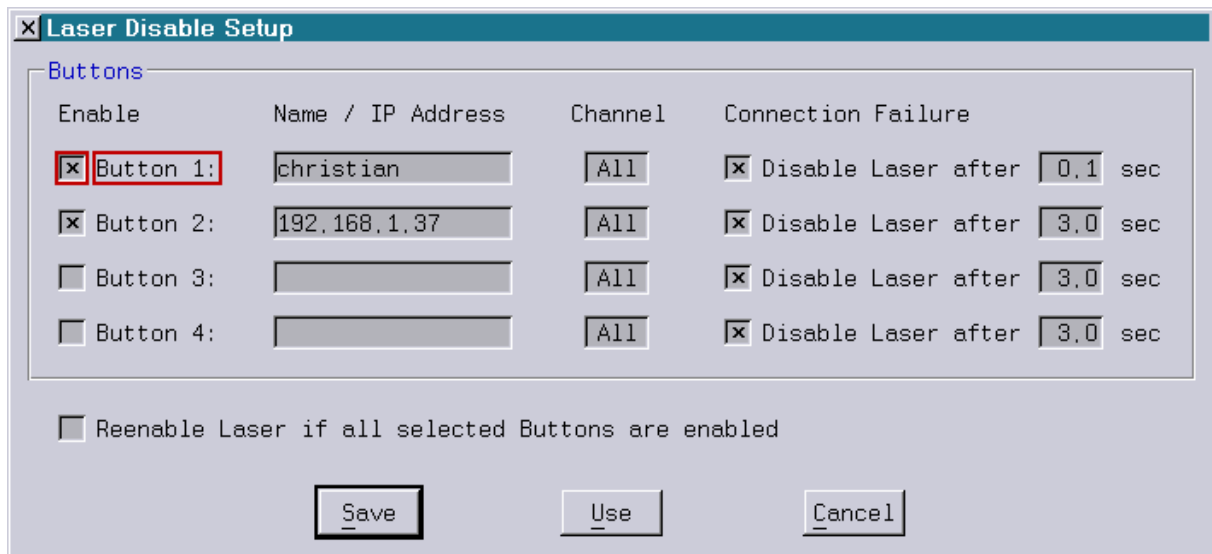
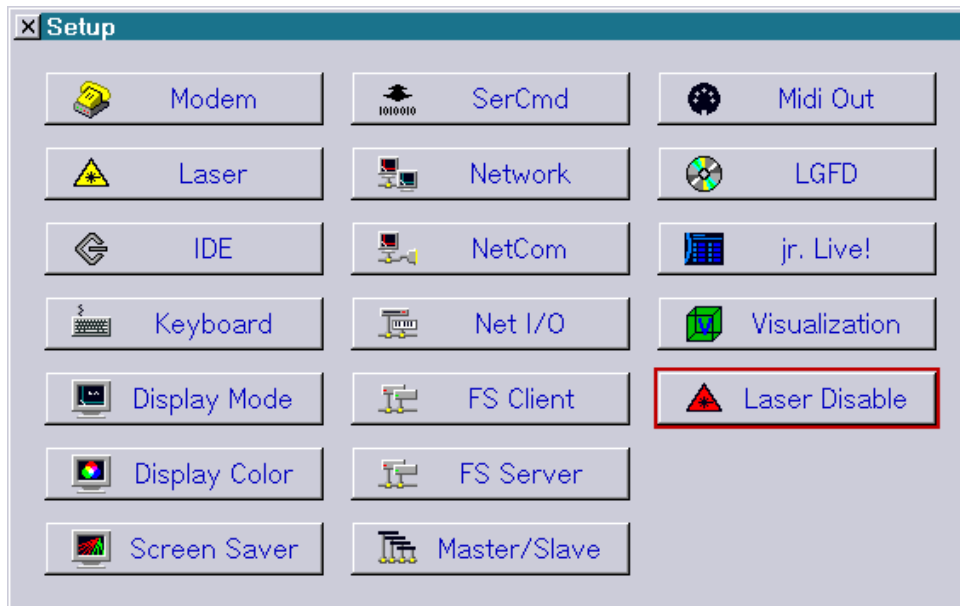
The emergency-off button disables the laser output on all projectors while the software "Laser Disable" can also be used to control each group individually.



Setting up "Laser Disable" is quite simple:

On each Lasergraph DSP the buttons which this Lasergraph DSP is to react to are entered in the setup.

For this there is a new setup:

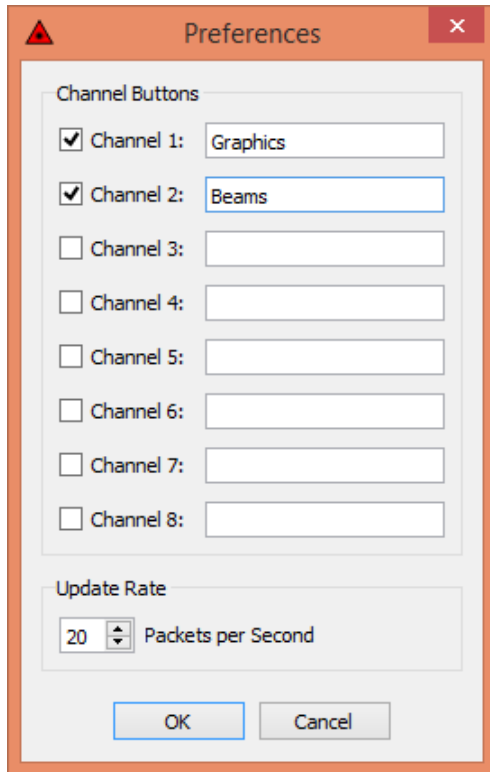


Each Lasergraph DSP can simultaneously evaluate the states of up to four buttons.

A button (network enabled emergency-off button or PC/MAC with the software "Laser Disable") is identified alternatively by its network name or its IP address.

For each button it is possible to independently set, which of the 8 possible groups the Lasergraph DSP is to react to.

For this the number of the group (channel) has to be identical to the channel number used in the software "Laser Disable":



The "Connection Failure" setting determines whether the Lasergraph DSP is to deactivate its laser output in case the connection to the button is lost.

The timeout range from 0.1s to 60s set here defines the time span during which a valid data packet has to be received from the button. If no data packet is received during this time the laser output will be deactivated.

In the software "Laser Disable" the number of packets to be sent per second can be set. To ensure that a lost packet does not lead to the immediate deactivation of the laser output the update rate should be set so that at least three packets are sent within the timeout.

Example:

update rate = 1 packet per second

timeout: min. 3 seconds

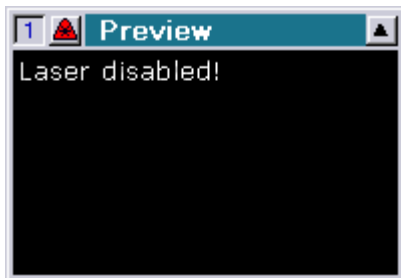
update rate = 30 packets per second (33ms)

timeout: min. 0.1 seconds (100ms)

Notes:

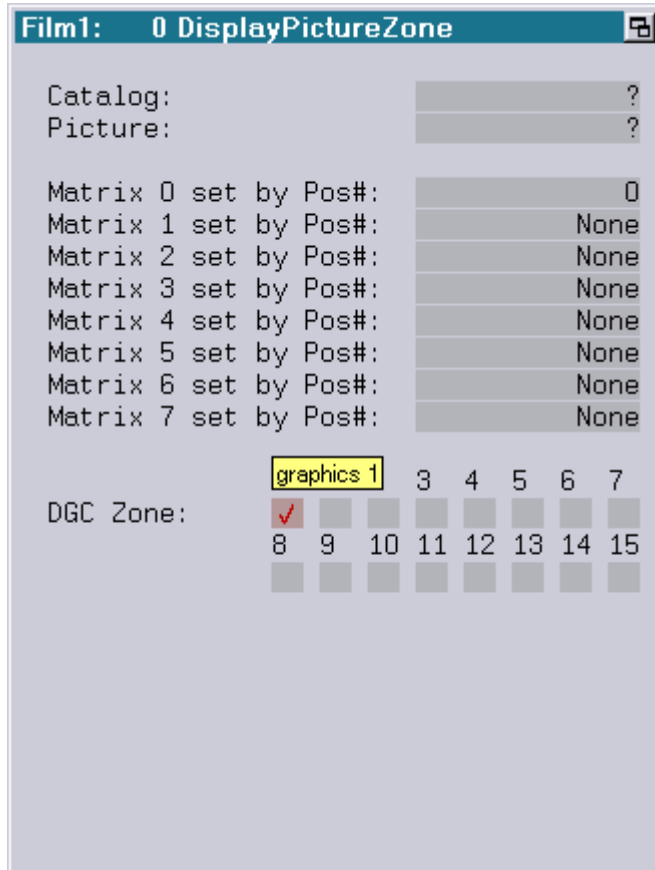
- The timeout set in the setup is only relevant in case the connection between button and Lasergraph DSP was interrupted.
As long as the connection exists, pressing the button will immediately deactivate the laser output.
- "Update Rate" and "Timeout" should be set depending on the quality of the connection.
For instance, in case of a bad Wi-Fi connection it may be advisable to select a very long timeout or to completely turn off the automatic deactivation so the show is not interrupted unintentionally.

In case "Reenebale Laser if all Buttons are enabled" is turned off and one of the specified buttons has turned the laser output off the laser output has to be turned on again using the button in the preview window.



Display of the DGC Name for the DisplayZone Commands

When the mouse is moved over one of the 16 DGC fields the name of the corresponding DGC is now displayed:



Renaming of Trickfilm Commands:

The following trickfilm commands were renamed:

Sparkle	=>	SParkle
CHaseDelay	=>	ChaseDelay
CHaseSection	=>	ChaseSection

March 2014

Lasergraph DSP *Mark 2* Software Version 2014-03-03

DisplayZone Commands

There are three new commands in the trickfilm for picture output onto one or more projection zones:

```
DisplayPictureZone
DisplayBufferZone
DisplayAnimationZone
```

The new commands are enhancements of the previous commands `DisplayPicture`, `DisplayBuffer` und `DisplayAnimation`.

The addition is the specification of the desired projection zone ("DGC Zone"):

Film1: 0 DisplayPictureZone

Catalog: graphics

Picture: circle

Matrix 0 set by Pos#: 0

Matrix 1 set by Pos#: None

Matrix 2 set by Pos#: None

Matrix 3 set by Pos#: None

Matrix 4 set by Pos#: None

Matrix 5 set by Pos#: None

Matrix 6 set by Pos#: None

Matrix 7 set by Pos#: None

DGC Zone:

0	1	2	3	4	5	6	7
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	9	10	11	12	13	14	15
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Film1: 0 DisplayBufferZone

Buffer:

Transform-par. number:

Matrix 0 set by Pos#:

Matrix 1 set by Pos#:

Matrix 2 set by Pos#:

Matrix 3 set by Pos#:

Matrix 4 set by Pos#:

Matrix 5 set by Pos#:

Matrix 6 set by Pos#:

Matrix 7 set by Pos#:

DGC Zone:

	0	1	2	3	4	5	6	7
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8	9	10	11	12	13	14	15
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Film1: 0 DisplayAnimationZone

Animation:

Stream from file:

Frames:

Duration:

Mode:

Number of picture:

Matrix 0 set by Pos#:

Matrix 1 set by Pos#:

Matrix 2 set by Pos#:

Matrix 3 set by Pos#:

Matrix 4 set by Pos#:

Matrix 5 set by Pos#:

Matrix 6 set by Pos#:

Matrix 7 set by Pos#:

DGC Zone:

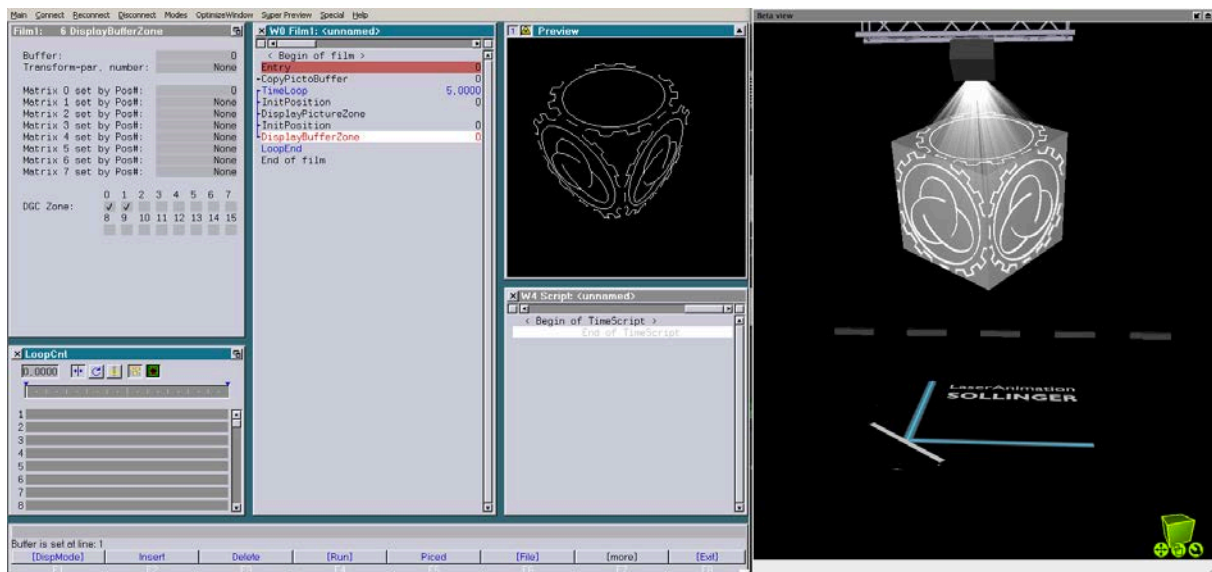
	0	1	2	3	4	5	6	7
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8	9	10	11	12	13	14	15
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As before, the 16 possible projection zones are set in the "Advances Parameters" under "Digital Geometric Correction".

Typical applications for the DisplayZone commands are:

- Picture output onto more than one projection area
- Picture output onto a composite projection area (mapping)
- Splitting up a one-scanner show for several projectors
- Creation of beam shows with several projectors but only one DSP

Example Graphic Show

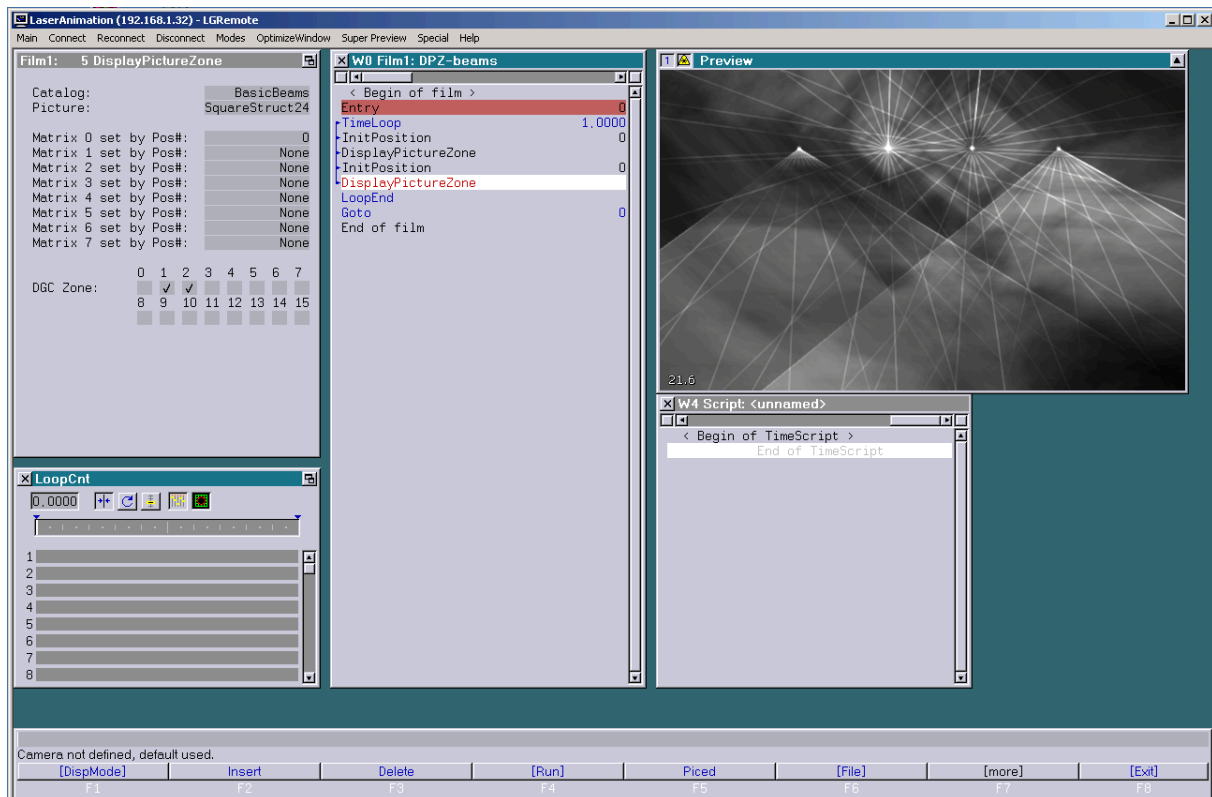


The following YouTube video shows a typical workflow in a graphic show setup:

https://www.youtube.com/watch?v=xP_fWwjlcgU

Example Beam Show

With different SuperPreview Settings it is possible to simulate different projectors in the SuperPreview with only one DSP.



The following YouTube video shows a typical workflow in a beam show setup:

<https://www.youtube.com/watch?v=bx4xZKVf-Js>

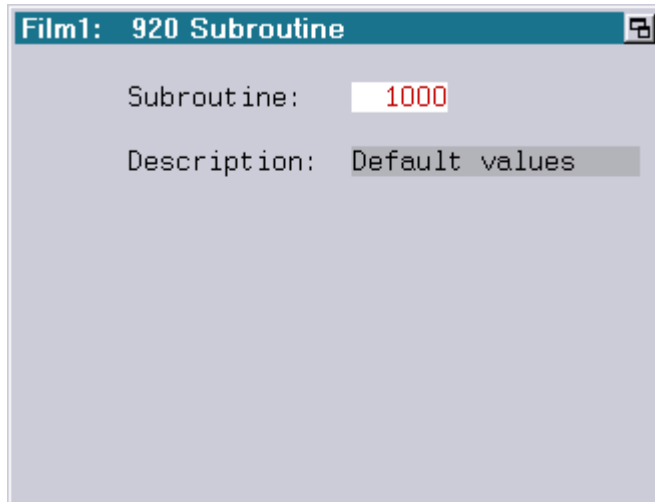
Attention!

- Show producers should be aware of the fact that the new DisplayZone commands are only available on a Lasergraph DSP *Mark 2* with version 2014/03/03 or later.
- A show containing DisplayZone commands will not run on older systems.

New Trickfilm Command "Subroutine"

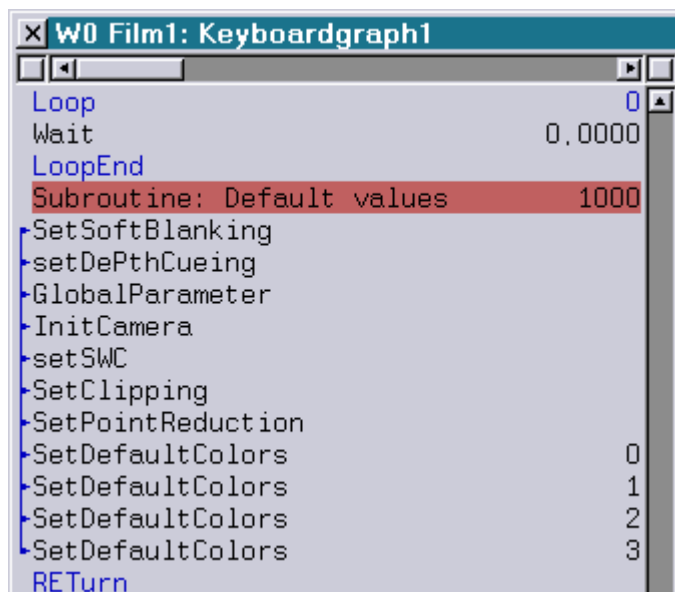
The new command "Subroutine" is similar to the old command "EntrySubroutine" in its functionality.

In addition it is now possible to enter an explanatory description:

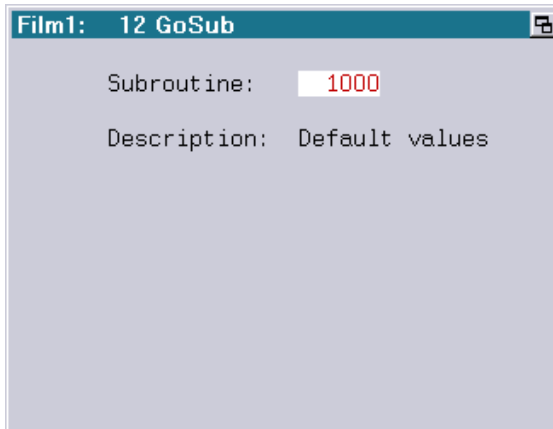


The description entered there will be displayed in the following places:

- 1) In the Trickfilm editor:



2) In the command "GoSub":



3) In the command "ConditionalGoSub":



Attention!

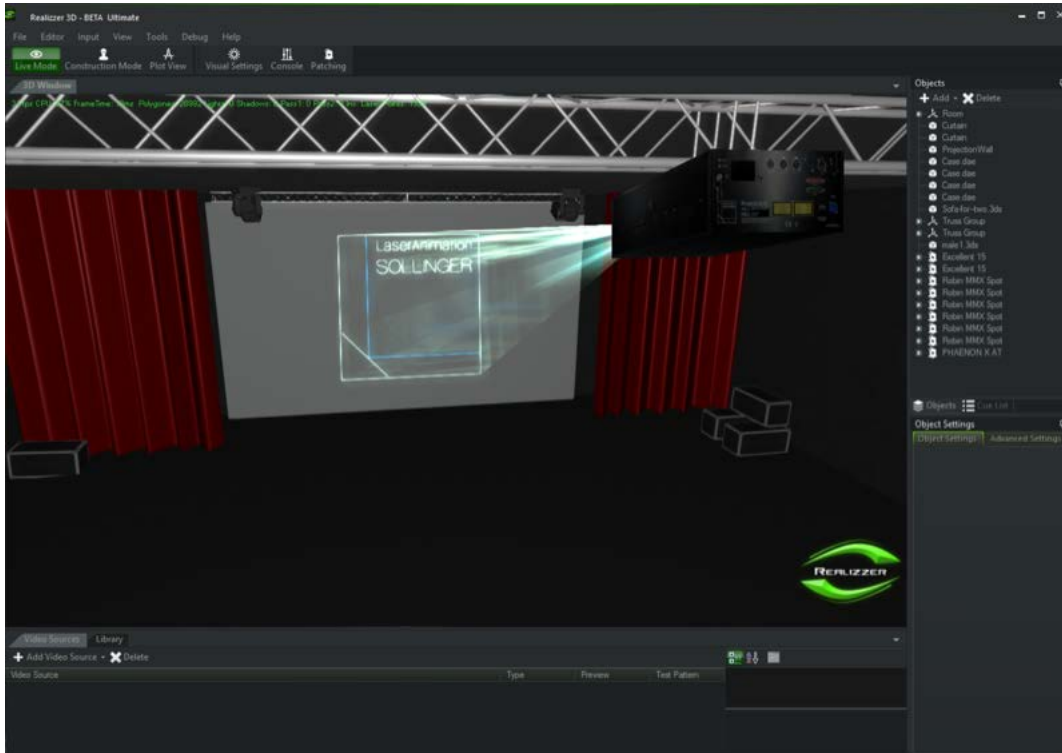
- Show producers should be aware of the fact that the new Subroutine command is only available on a Lasergraph DSP *Mark 2* with version 2014/03/03 or later.
- A show containing the Subroutine command will not run on older systems.
- If a show is to be programmed for older systems the old EntrySubroutine command has to be used!

January 2014

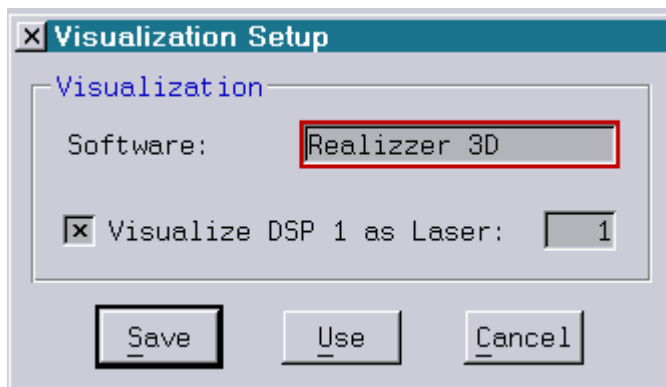
Lasergraph DSP *Mark 2* Software Version 2014-01-08

Visualization in Realizzer 3D

In addition to "LightConverse", "Depence V:3D" and "Capture Polar" the Lasergraph DSP *Mark 2* now also supports the visualization software "Realizzer 3D".



In order to activate the visualization in Realizzer 3D select "Realizzer 3D" under Software in the "Visualization Setup".





LASERGRAPH DSP RELEASE NOTES 2013

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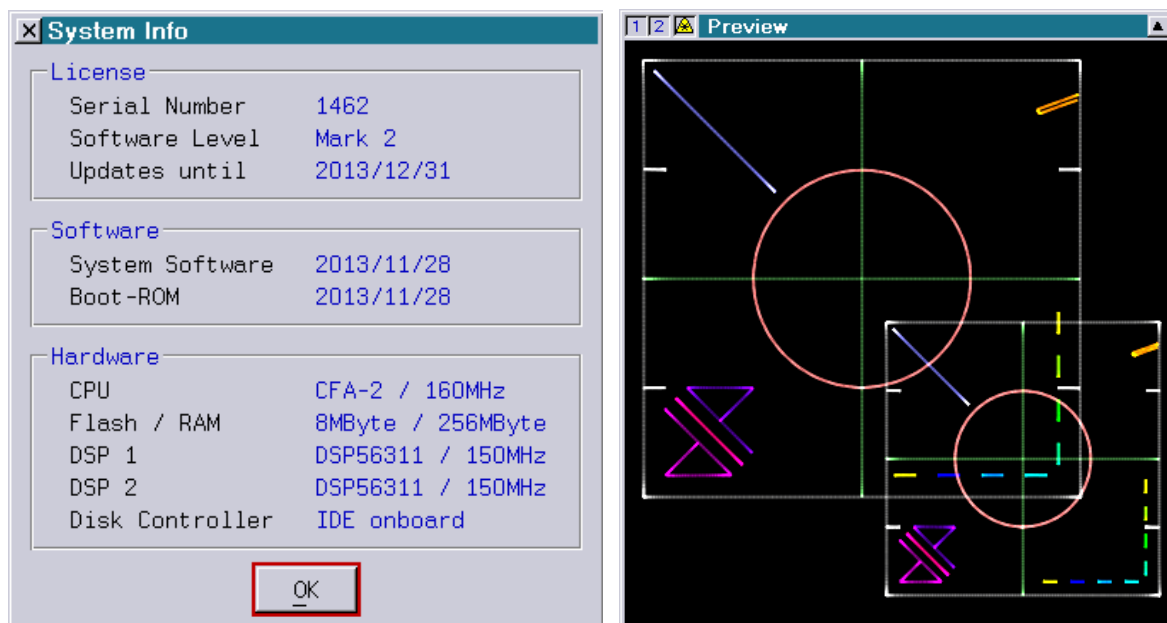
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November 2013

Lasergraph DSP Software Version 2013-11-28 (Mark 2 only)

Support for Lasergraph DSP *compact dual Mark 2*

This is the first release of the system software with support for the Lasergraph DSP *compact dual Mark 2*.



November 2013

Lasergraph DSP Software Version 2013-11-05 (Mark 2 only)

Improvements in Connection with ShowLine

When a show is started from ShowLine, the timecode source is now automatically switched to

```
External: Net
```

Up to now this had to be done manually by the user.

New Commands for Saving and Loading Fader Values

The new commands `SaveFaderValues` and `LoadFaderValues` allow saving the states of the faders in a file resp. loading them from a file.

The commands `SaveFaderValues` and `LoadFaderValues` can either be entered directly into the command line or called up from a trickfilm or the timescript using `HOSTcmd`.

Command Format:

```
SaveFaderValues <filename> [<first> [<last>]]
```

filename: The file name may contain a path. If no path is specified the fader values will be saved to the current directory.

first: Specifying the first fader value which is to be saved is optional.
Possible value range: 0...63

last: Specifying the last fader value which is to be saved is also optional.
Possible value range: 0...63

```
LoadFaderValues <filename>
```

By specifying fader values which are to be stored using `<first>` and `<last>` the faders can be divided into several segments which can be administered independently.

The command `LoadFaderValues` only changes the states of the faders contained in the file. Faders outside the saved range will remain unchanged.

New Command "DeleteColors"

Up to now, unused primary colors could only be removed from the Primary Color Table individually, one by one.

The new command `DeleteColors` which can be entered while editing the trickfilm will delete all unused primary colors from the current trickfilm after a security query is confirmed.

Note: The 17 default colors will not be deleted, even if they are not used.

Support for Net-Timecode with 24fps, 30fps and 100fps

The Lasergraph DSP Mark 2 now recognizes Net-Timecode with 24fps, 30fps and 100fps. Previously only 25fps were supported.

Internally 24fps, 30fps und 100fps will be converted to 25fps so that shows will be programmed with 25fps as before.

Command "SelectDGC" Simplified

The trickfilm command `SelectDGC` can now be entered using the abbreviation `dgc` in addition to `sdgc`.

It is now also possible to specify the desired setting directly when the command is inserted:

```
Insert  SelectDGC  <setting>
```

Example:

```
i dgc 1
```

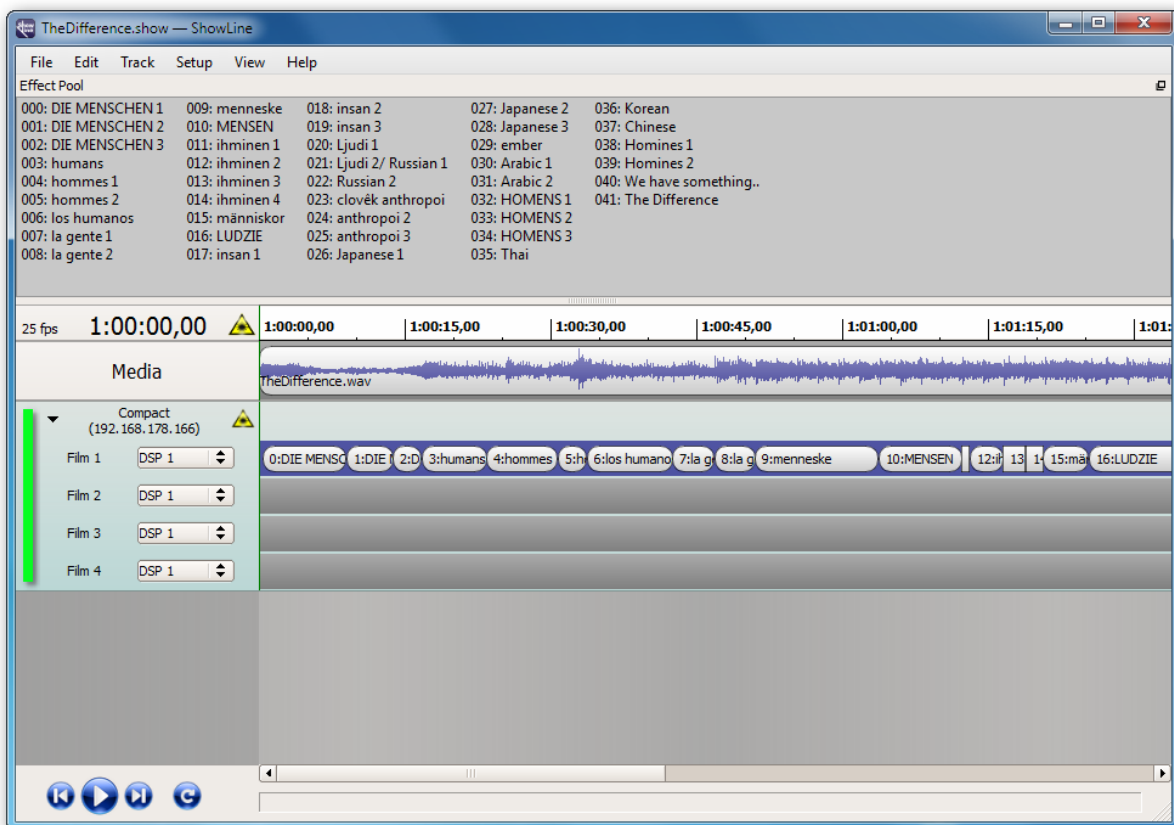
August 2013

Lasergraph DSP Software Version 2013-08-30 (Mark 2 only)

Showline

Following several months of beta testing, the interface for our Timeline application "ShowLine" is now available to all users with this release.

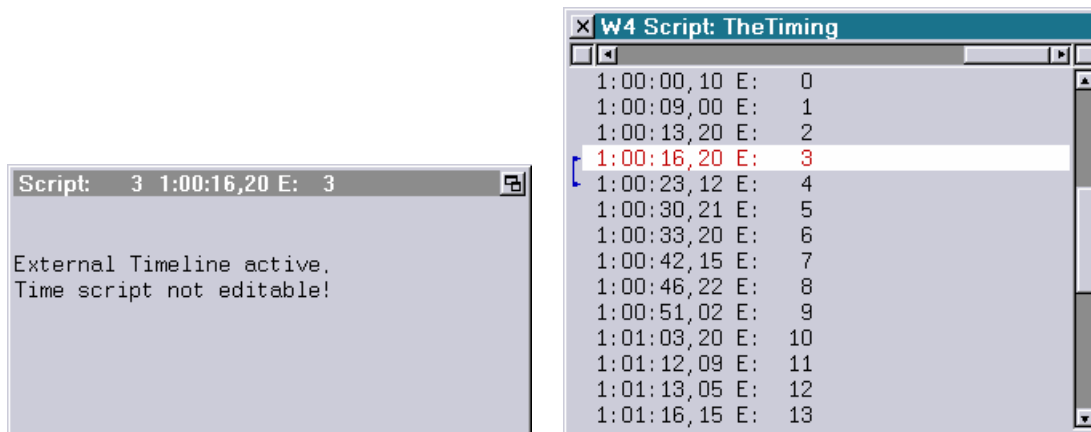
ShowLine can be downloaded free of charge from the client section of our website.



ShowLine allows comfortably arranging laser effects of any number of Lasergraph DSPs, synchronized with music or videos.

The individual laser effects are programmed in the trickfilm editor of the respective Lasergraph DSP using LGRremote, as before. ShowLine will automatically generate the TimeScript on all Lasergraph DSPs involved.

To avoid loss of any changes made by the user while a Lasergraph DSP is connected to ShowLine the TimeScript is not editable during this time:



More information concerning ShowLine can be found on our website.

New Command "InsertTracks"

Up to now, in order to divide a loop into several equal sections it was necessary to insert a corresponding number of track commands and then manually adapt the start- and end times accordingly.

This is now resolved with the new command "InsertTracks" which can be entered while trickfilms are edited:

```
InsertTracks <number> [<start offset> [<end offset>]]
```

Parameter:

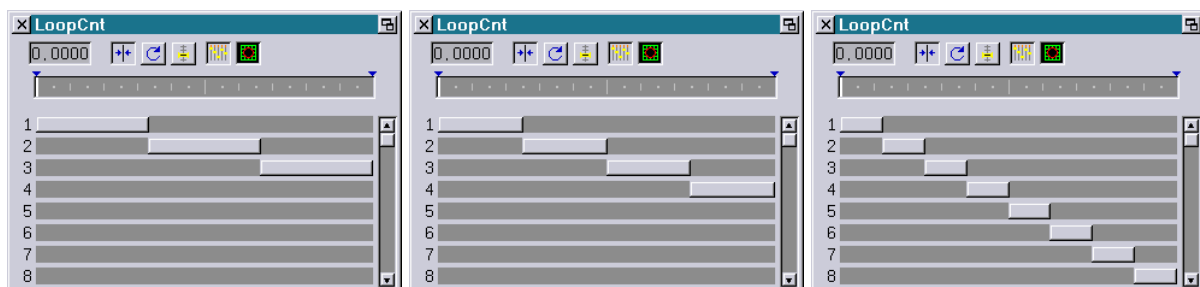
number number of track commands to be entered
start offset optional offset for modifying the start times of all tracks
end offset optional offset for modifying the end times of all tracks

Examples:

InsertTracks 3

InsertTracks 4

InsertTracks 8



From time to time it may be necessary to start the tracks not at the exact moment described above but minimally earlier or later.

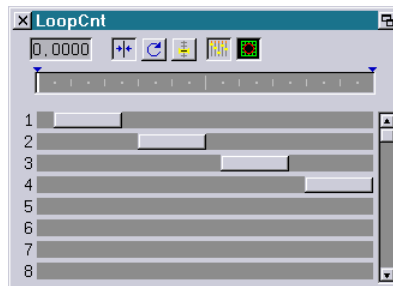
For this case the optional parameters <start offset> and <end offset> are available.

The values relate to the length of the tracks and have to be in a range from -1.000 to +1.000.

Examples:

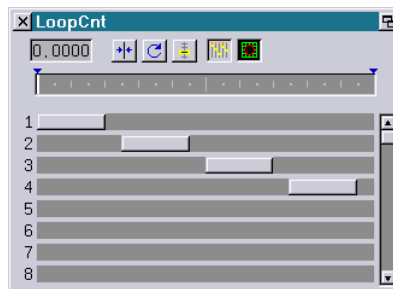
If a loop is to be divided into 4 equal sections with each track starting with a delay of 20% the corresponding command would be:

```
InsertTrack 4 0.2
```



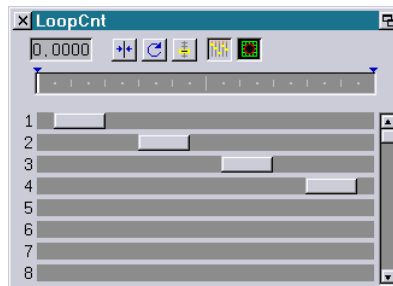
If a loop is to be divided into 4 equal sections with each track ending of 20% earlier the corresponding command would be:

```
InsertTrack 4 0.0 -0.2
```



It is also possible to combine both cases mentioned above:

```
InsertTrack 4 0.2 -0.2
```

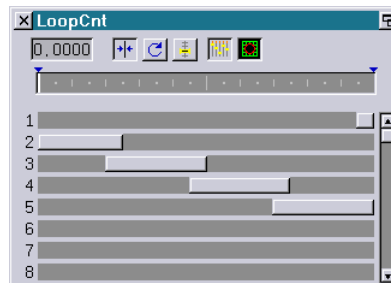


If a negative Start-Offset or a positive End-Offset were to be specified, the track would begin before 0.000 resp. end after 1.000.

To account for this in this case an additional track would be inserted before the first track or after the last track.

Example:

```
InsertTracks 4 -0.2
```



If the divided track contains code which is LoopCnt-dependent (e.g. InitPosition with curves) the LoopCnt has to be corrected at the beginning of the track with "SetVariables".

For the first track in this example this would be: $\text{LoopCnt} = \text{LoopCnt} * (0.2 / 1.2)$
 And for the second track: $\text{LoopCnt} = (0.2 / 1.2) + (\text{LoopCnt} / 1.2)$

Enhancement of the ScriptButton

Command "ScriptBUTTON.Hide" Enhanced

It is now possible to specify a second optional parameter with the command "ScriptBUTTON.Hide" in order to close several ScriptButtons simultaneously:

```
ScriptBUTTON.Hide <first> [<last>]
```

Parameter:

first number of the first ScriptButton to be closed (0-79)
 last optional number of the last ScriptButton to be closed (0-79)

New Command "ScriptBUTTON.Remove"

```
ScriptBUTTON.Remove <first> [<last>]
```

The command "ScriptBUTTON.Remove" is similar to the command "ScriptBUTTON.Hide":
 The ScriptButton(s) specified will be closed. In contrast to "Hide", when using "Remove" all resources used (bitmaps and texts) will be freed.

This may be useful in case a ScriptButton is to be defined with "ScriptBUTTON.DefineBitmap" which has previously already been defined with "ScriptBUTTON.DefineText".
 In this case the old text would otherwise be displayed on top of the bitmap.

Parameter:

- first number of the first ScriptButton to be removed (0-79)
- last optional number of the last ScriptButton to be removed (0-79)

New Command "ScriptBUTTON.RemoveAll"

The command "ScriptBUTTON.RemoveAll" closes all ScriptButtons and frees the resources (bitmaps and texts) used by them.

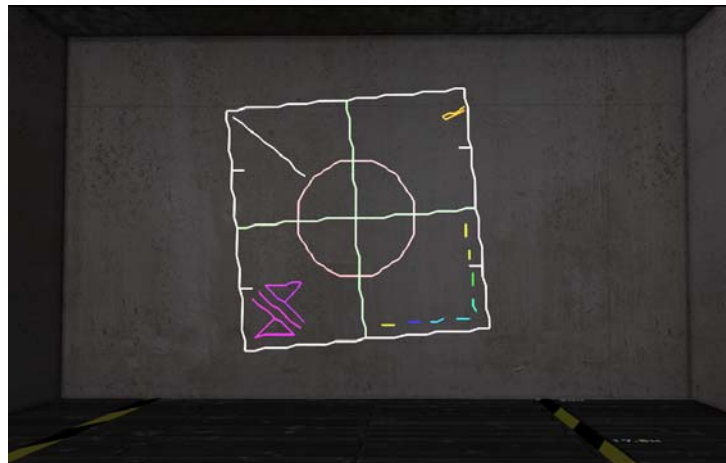
This basically recreates the initial state.

Visualization in Synchronorm V:3D Improved

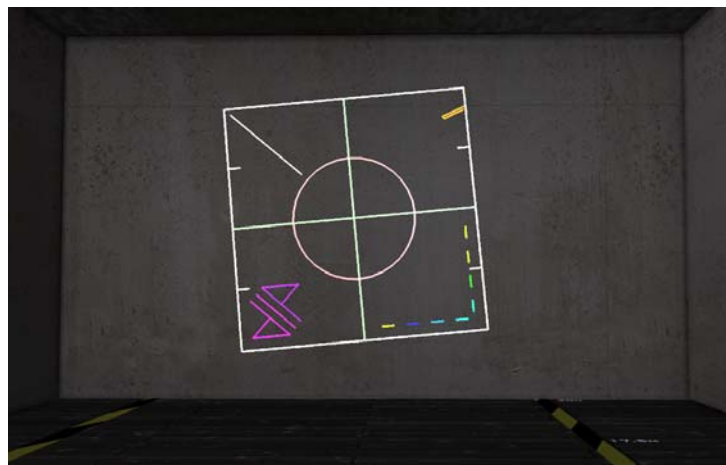
At the time we first integrated Synchronorm V:3D visualization in the Lasergraph DSP, V:3D only supported an 8-bit resolution for the X/Y coordinates.

This limitation has been removed since then. In connection with the current system software this results in a much improved output quality:

Previously:



New:



Additional Changes

- In the "CreateBoot" the names of the "Global parameter", the "Bank configuration" and the "Beam table" will only be changed if they previously had no name.
Up to now this was only true for the "Keyboard configuration" and the "Map configuration".
- The following commands in file mode were renamed:

"PSavAllcat"	=>	"PSaveAllcat"
"PSavCatalog"	=>	"PSaveCatalog"
"PSavCOmpr"	=>	"PSaveCOmpr"
"PSavFilm"	=>	"PSaveFilm"
"PSavPicture"	=>	"PSavePicture"
"PSavScript"	=>	"PSaveScript"

July 2013

Lasergraph DSP Software Version 2013-07-11 (Mark 2 only)

ScriptButtons Enhanced

New command "ScriptBUTTON.DefineWindow"

```
ScriptBUTTON.DefineWindow <number> <x-pos> <y-pos> <width>  
<height> <headline> <bitmap> /HighPriority
```

"DefineWindow" is used to define a ScriptButton which is similar to a normal window with a headline and a closing symbol.

Parameters:

number	number of the ScriptButton (0-79)
x-pos / y-pos	position of the ScriptButton
width / height	size of the ScriptButton
headline	text displayed in the headline of the window
bitmap	file name of the background bitmap

Options:

/HighPriority	Unlike the other ScriptButtons a ScriptButton created with "DefineWindow" is displayed with normal priority, i.e. it can be concealed partly or completely by other windows. The option "/HighPriority" always opens the window with high priority so it is always visible above the other windows.
---------------	---

Notes:

- In order to make a ScriptButton defined with "DefineWindow" visible it is necessary to call up "Show" (see "ScriptBUTTON.Show").
- If only the number is specified as a parameter, the ScriptButton will be deleted and the resources used will be freed.
- <x-pos> / <y-pos> as well as <width> / <height> relate to the client area, i.e. the area within the window frame.
- If <width> resp. <height> is zero the width resp. height of the background bitmap will be used.
- If negative values are specified for position or size the previous values will be retained.

- The bitmap will always be displayed in its original size:
In case the ScriptButton is larger than the bitmap the bitmap will be displayed several times.
If the ScriptButton is smaller than the bitmap the bitmap will be clipped on the right resp. the bottom.
- The file name for the bitmap should contain an absolute path. If a relative path is used the result will depend on the current directory.

Command "ScriptBUTTON.Show" Enhanced

It is now possible to specify the number of a parent ScriptButton:

```
ScriptBUTTON.Show <number> [<parent>]
```

Normally the position specified in "DefineBitmap" resp. "DefineText" relate to the upper left corner of the screen.

If a parent ScriptButton is specified the ScriptButton will be opened within the parent ScriptButton and the specified positions will be interpreted relative to the parent ScriptButton.

Example Toolbar

The following commands

```
ScriptBUTTON.DefineWindow 50 1200 68 100 180 "Toolbar"

ScriptBUTTON.DefineText 51 10 10 80 30 "Browser.dscr" "Browser"
ScriptBUTTON.DefineText 52 10 50 80 30 "Setup.dscr" "Setup"
ScriptBUTTON.DefineText 53 10 90 80 30 "IOInfo.dscr" "I/O Info"
ScriptBUTTON.DefineText 54 10 130 80 30 "Fader.dscr" "Fader"

ScriptBUTTON.Show 50
ScriptBUTTON.Show 51 50
ScriptBUTTON.Show 52 50
ScriptBUTTON.Show 53 50
ScriptBUTTON.Show 54 50
```

will lead to the following result:



Predefined Variables "Analog0"..."Analog15" Renamed

In older versions of the Lasergraph DSP system software different names were used for the fader inputs in different places. In addition to "Fader" the terms "Dial" and "Analog" were also used. Especially the label "Analog" could easily lead to misunderstandings because the Midi- and DMX outputs are also called "Analog".

With the introduction of the Mark 2 we began to harmonize the nomenclature step by step.

Renaming the predefined variables "Analog0"..."Analog15" to "Fader0"..."Fader15" now concludes this harmonization:

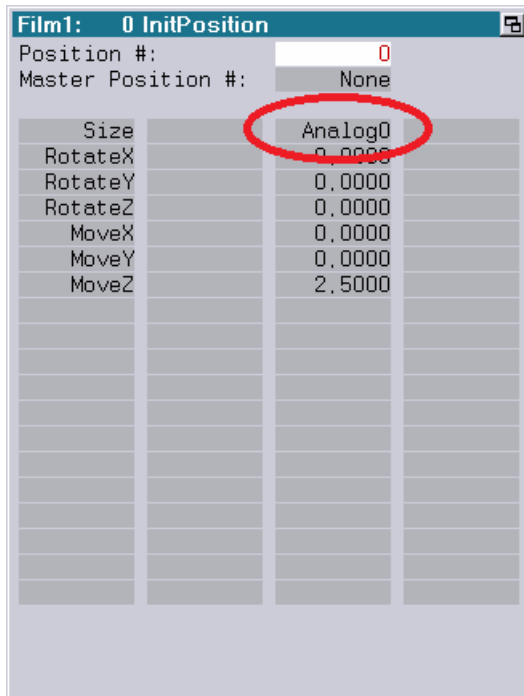
Trickfilm variables, pick name	
Predefined/used Variables	
Fader0	Fader1
Fader2	Fader3
Fader4	Fader5
Fader6	Fader7
Fader8	Fader9
Fader10	Fader11
Fader12	Fader13
Fader14	Fader15
LoopCnt	LoopStep
MouseX	MouseY

Show programmers who program shows for older systems or who want to go on editing older shows should take the following points into account:

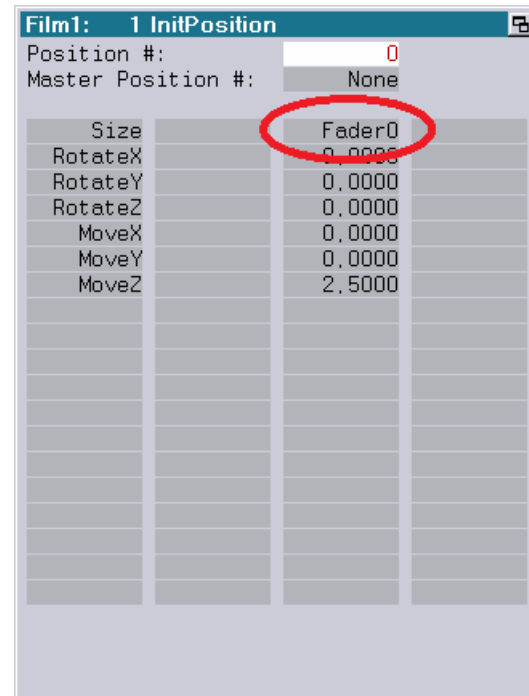
- ✓ Old shows which contain the predefined variables "Analog0"..."Analog15" can be played back with the new version.
- ✓ New shows which contain the predefined variables "Fader0"..."Fader15" can also be played back on older versions of the system software.

- ✓ If one of the predefined variables "Fader0"..."Fader15" is entered into a parameter field as for instance in the InitPosition, it will automatically appear as "Analog0"..."Analog15" in the old system software and vice-versa.

old system software



new system software



- ✓ If one of the predefined variables is used in a variable input field such as the "SetVariables", using "Analog0"..."Analog15" with the new system software will lead to an error as soon as the field is edited.

If a variable input field with the new variables "Fader0"..."Fader15" is edited in the old system software these will not be recognized as predefined parameters. Instead new variables will be created.

Additional Improvements

1) Starting Scripts By Clicking

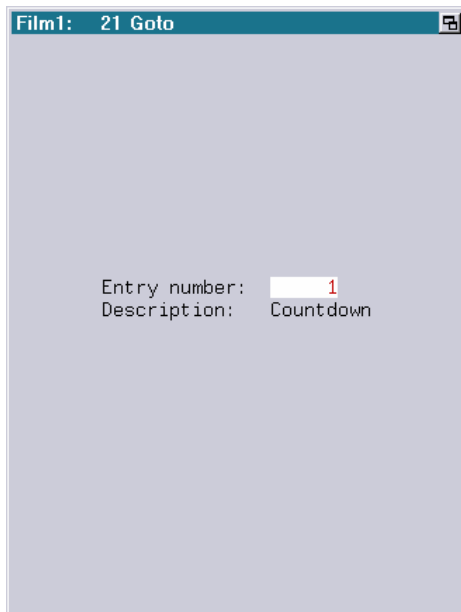
From now on it is no longer necessary to manually enter "startSCRIPT" to start a script:

When a script (e.g. "MyScript.DSCR") is clicked with the left mouse button "startSCRIPT MyScript" is automatically entered into the command line. The command then only has to be confirmed with <CR> or <F1>.

If a script file is double-clicked with the left mouse button the script will be loaded and executed automatically.

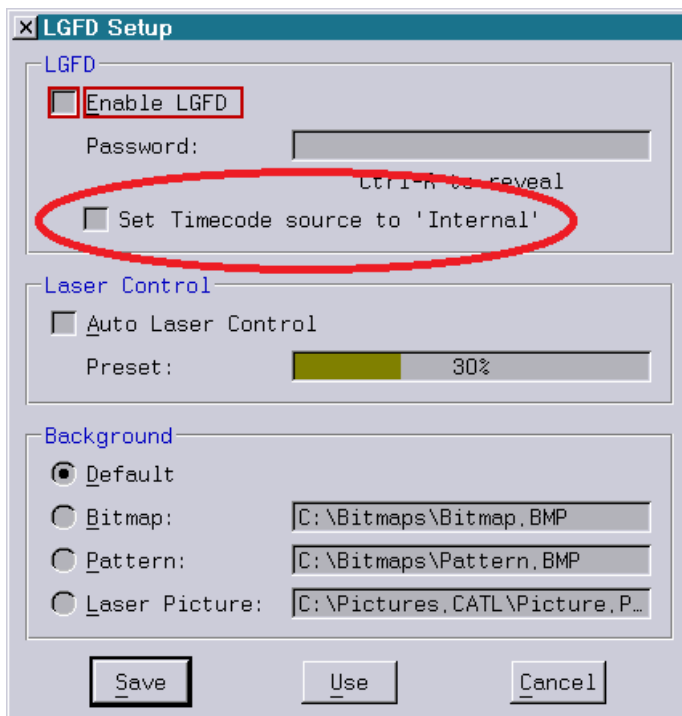
2) Description Now Displayed In The "Goto"

The description of the destination entry is now displayed in the trickfilm command "Goto":



3) LGFD Setup Enhanced

There is a new checkbox in the setup for the LGFD:



If "Set Timecode source to 'Internal'" is activated the timecode will be switched to "Internal" automatically after a show is loaded in the LGFD.

May 2013

Lasergraph DSP Software Version 2013-05-23 (Mark 2 only)

ScriptButtons

ScriptButtons make it possible to enhance the existing graphic user interface (GUI) of the Lasergraph DSP Mark 2 by adding more buttons or to create completely new interfaces for special applications.

To allow this a script will be executed when a ScriptButton is clicked. Detailed information about scripts can be found in the DSP manual under "Scripting".

Commands for Creating ScriptButtons:

ScriptBUTTON.DefineBitmap

```
ScriptBUTTON.DefineBitmap <number> <x-pos> <y-pos> <width> <height>  
<script> <bitmap 1> <bitmap 2> <bitmap 3>
```

The command "ScriptBUTTON.DefineBitmap" is used to define the size and look of the ScriptButton as well as the action which is to be executed when the button is clicked.

Parameters:

number	number of the ScriptButton (0-79)
x-pos / y-pos	position of the ScriptButton
width / height	size of the ScriptButton
script	file name of the associated script
bitmap 1	file name of the bitmap which is displayed in idle state
bitmap 2	file name of the bitmap which is displayed when the mouse pointer is positioned over the button
bitmap 3	file name of the bitmap which is displayed when the mouse key is pressed

Notes:

- In order to make a ScriptButton defined with "DefineBitmap" visible it is necessary to call up "Show" (see "ScriptBUTTON.Show").

- If only the number is specified as a parameter, the ScriptButton will be deleted and the memory used by the bitmaps will be freed.
- If <width> or <height> are zero the width resp. height of the first bitmap will be used.
- If negative values are specified for position or size the previous values will be retained.
- If no script is specified ("" as file name) no action will be executed when the button is clicked.
- It is possible to specify 1, 2 or 3 bitmaps:

One bitmap is specified: The idle state bitmap is used in all three states.

Two bitmaps are specified: Optical differentiation is only between the idle state and the state with the mouse pointer over the button. It does not make a difference whether the mouse button is pressed or not.

Three bitmaps are specified: There is an individual bitmap for each of the three states.

- Bitmaps will always be displayed in their original size:

In case the ScriptButton is larger than the bitmap the bitmap will be displayed several times.
If the ScriptButton is smaller than the bitmap the bitmap will be clipped on the right resp. the bottom.

- The file names for the script and the bitmaps should contain absolute paths. If relative paths are used the result will depend on the current directory.

ScriptBUTTON.DefineText

```
ScriptBUTTON.DefineText <number> <x-pos> <y-pos> <width> <height>  
<script> <text> <font> /Left / Right /NoFrame /NoHighlight
```

The command "ScriptBUTTON.DefineText" is used to define the size, the displayed text as well as the action which is to be executed when the ScriptButton is clicked.

Parameters:

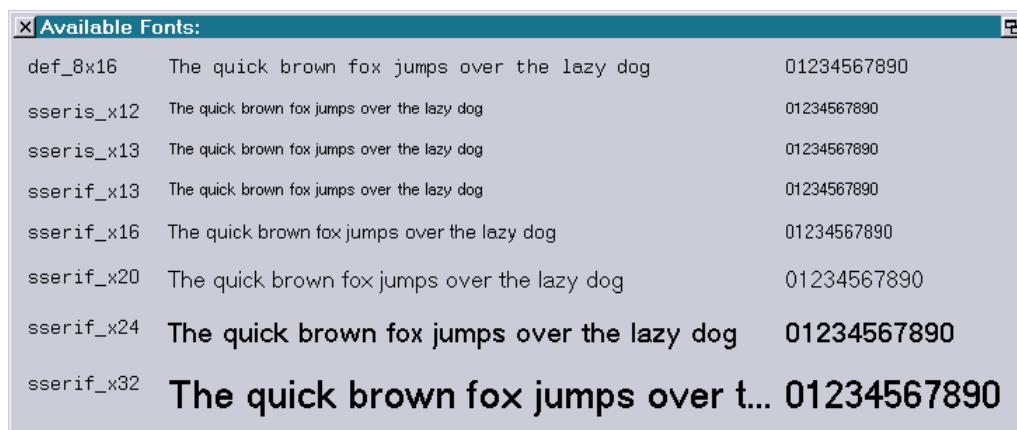
number	number of the ScriptButton (0-79)
x-pos / y-pos	position of the ScriptButton
width / height	size of the ScriptButton
script	file name of the associated script
text	text which is to be displayed
font	desired font (compare picture next page)

Options:

/Left	displays the text left-aligned
/Right	displays the text right-aligned
/NoFrame	suppresses the display of the normal button frame
/NoHighlight	suppresses the highlighting of the button when the mouse pointer is moved over it

Notes:

- In order to make a ScriptButton defined with "DefineText" visible it is necessary to call up "Show" (see "ScriptBUTTON.Show").
- If only the number is specified as a parameter, the ScriptButton will be deleted and the resources used will be freed.
- If negative values are specified for position or size the previous values will be retained.
- If no script is specified ("" as file name) no action will be executed when the button is clicked.
- The file name for the script should contain the absolute path. If relative paths are used the result will depend on the current directory.
- In case the text contains a space it has to be enclosed in quotation marks.
- Fonts which can be used are the normal DSP fonts which can be displayed using the command "FONTTEST":



If no font is specified "sserif_x20" will be used as the default.

ScriptBUTTON.Show

ScriptBUTTON.Show <number>

The command "ScriptBUTTON.Show" makes a ScriptButton which was previously created with "ScriptBUTTON.DefineBitmap" resp. "ScriptBUTTON.DefineText" visible.

Parameter:

number	number of the ScriptButton (0-79)
--------	-----------------------------------

Notes:

- Only ScriptButtons which were previously defined with "DefineBitmap" resp. "DefineText" can be made visible.
- ScriptButtons can overlap partially or completely. In this case the order in which the ScriptButtons were made visible with "ScriptBUTTON.Show" determines which ScriptButton will be hidden by which other ScriptButton.
If for instance several ScriptButtons are to be placed on a background which is also defined as a ScriptButton, the background has to be made visible first.

ScriptBUTTON.Hide

ScriptBUTTON.Hide <number>

The command "ScriptBUTTON.Hide" hides the specified ScriptButton without freeing the resources used by it. This ScriptButton can therefore be made visible again at any time with "ScriptBUTTON.Show" without having to use "ScriptBUTTON.DefineBitmap" resp. "ScriptBUTTON.DefineText" again.

Parameter:

number	number of the ScriptButton (0-79)
--------	-----------------------------------

ScriptBUTTON.HideAll

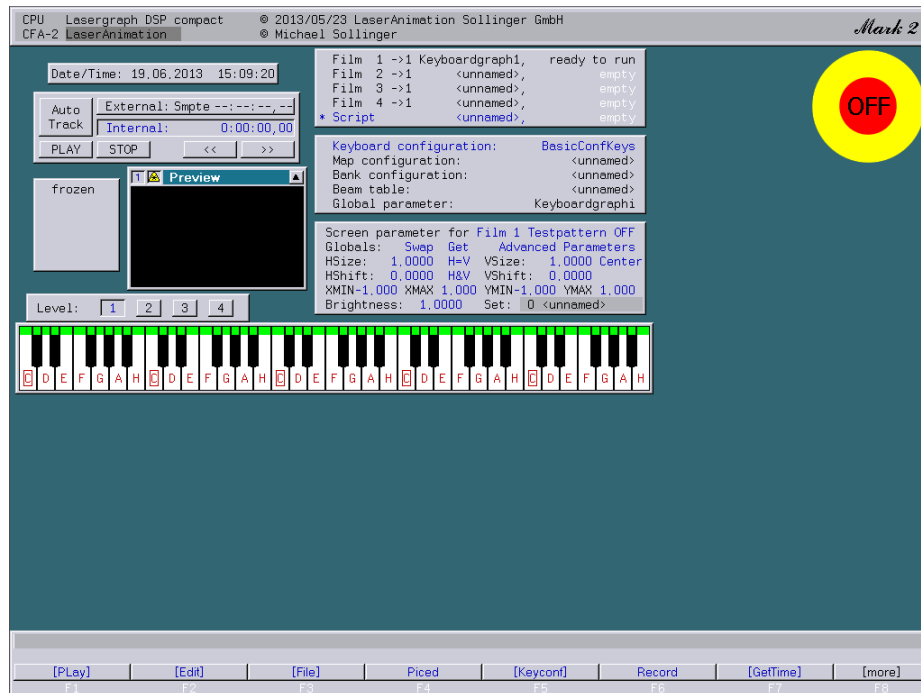
The command "ScriptBUTTON.HideAll" closes all open ScriptButtons without freeing the loaded resources so the ScriptButtons can be made visible again with "ScriptBUTTON.Show" without having to use "ScriptBUTTON.DefineBitmap" resp. "ScriptBUTTON.DefineText" again.

Examples

1. Button for Disabling the Laser Output

Frequently it may be necessary to disable the laser output on several Lasergraph DSP which are connected via network simultaneously.

The ScriptButtons offer a simple solution for this:



The following script is started on the Lasergraph DSP which is controlled by LGRremote:

```
ScriptBUTTON.DefineBitmap 0 890 48 0 0 C:\ScriptButtons\TurnLaserOff.dscr C:\ScriptButtons\LaserOff.bmp
ScriptBUTTON.Show 0
```

After the script is called up the button pictured above will appear.

The script which is called up by clicking on the button could look like this:

```
; Disable local laser output
ENABLELASEROUTPUT No

; Disable laser output of Lasergraph DSP with ip address 192.168.178.138
SEND tcp://192.168.178.138:8210/ENABLELASEROUTPUT No
```

The script first disables the local laser output.

Then the laser output on another Lasergraph DSP is disabled with a remote command (in this example the other Lasergraph DSP has the IP address 192.168.178.138).

It is important that **remote commands are activated** on the Lasergraph DSP which is to be addressed using remote commands (see network setup).

Using corresponding additional "SEND" commands the laser output can be disabled on any number of Lasergraph DSP with one click.

Attention!

In case the network connection to a Lasergraph DSP is interrupted the execution of the script can be delayed.

Moreover, the laser output on this Lasergraph DSP will stay enabled.

Therefore the ScriptButton shown here **can never replace an emergency-off button**.

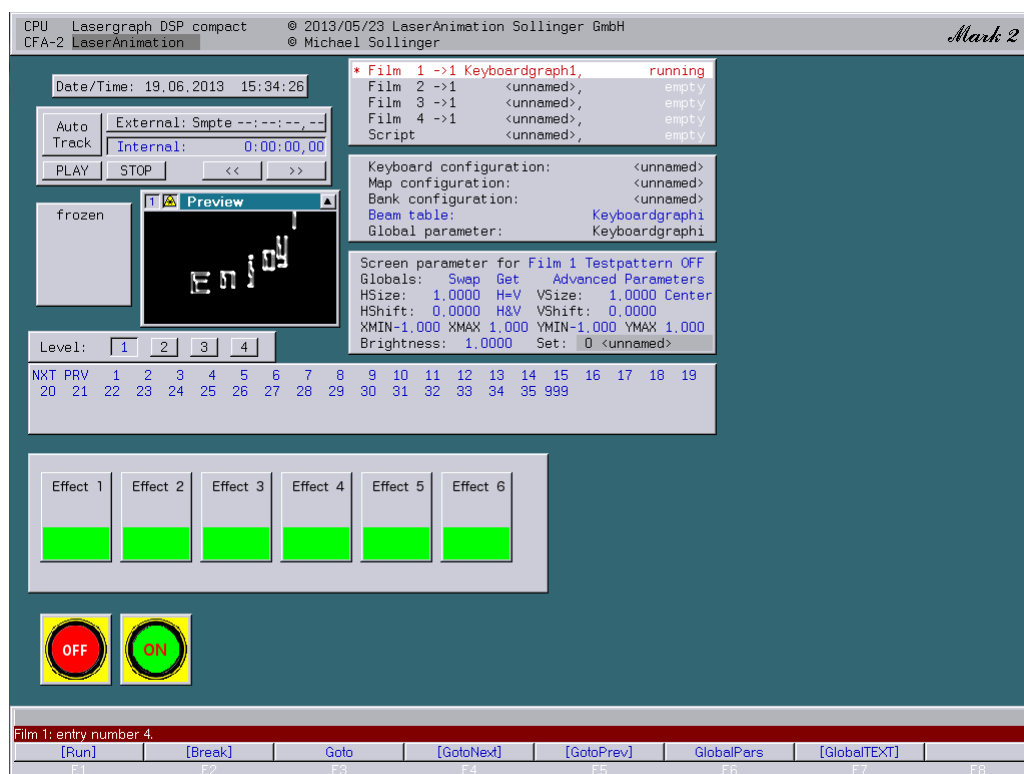
Note:

The button created with ScriptButton is always positioned on top of all other windows.

If this is irritating in the other operating modes the button "LaserOff" can easily be activated or deactivated using keyboard macros.

2. Individual Show Interface

The ScriptButtons can be used to create any kind of show interface.



The script used in this example ("Keyboardgraphi.DSCR") is called up automatically after the BOOT "Keyboardgraphi.BOOT" is loaded:

ScriptBUTTON.DefineBitmap	0	18	440 0 0	""	files\Trigger-base.bmp
ScriptBUTTON.Show	0				
ScriptBUTTON.DefineBitmap	1	30	458 0 0	files\Trigger-01.dscr	files\Trigger-01.bmp
ScriptBUTTON.Show	1				
ScriptBUTTON.DefineBitmap	2	110	458 0 0	files\Trigger-02.dscr	files\Trigger-02.bmp
ScriptBUTTON.Show	2				
ScriptBUTTON.DefineBitmap	3	190	458 0 0	files\Trigger-03.dscr	files\Trigger-03.bmp
ScriptBUTTON.Show	3				
ScriptBUTTON.DefineBitmap	4	270	458 0 0	files\Trigger-04.dscr	files\Trigger-04.bmp
ScriptBUTTON.Show	4				
ScriptBUTTON.DefineBitmap	5	350	458 0 0	files\Trigger-05.dscr	files\Trigger-05.bmp
ScriptBUTTON.Show	5				

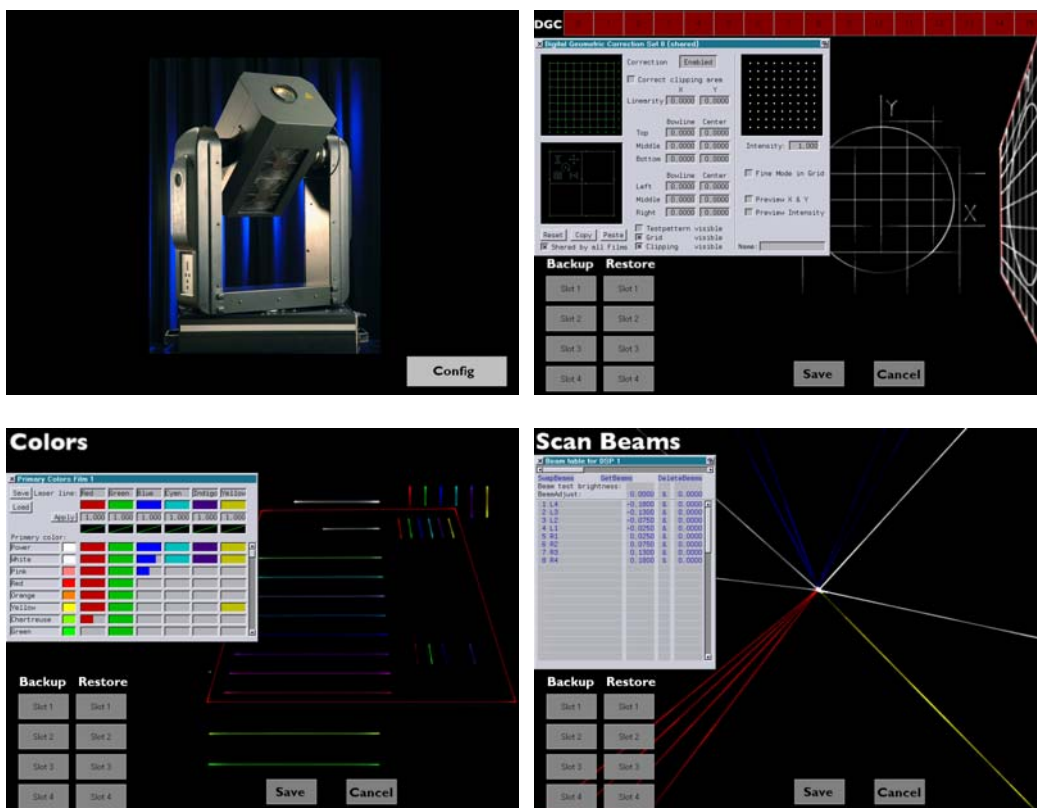
ScriptBUTTON.DefineBitmap	6	430	458	0	0	files\Trigger-06.dscr	files\Trigger-06.bmp
ScriptBUTTON.Show	6						
ScriptBUTTON.DefineBitmap	7	30	600	0	0	files\OFF.dscr	files\OFF.bmp
ScriptBUTTON.Show	7						
ScriptBUTTON.DefineBitmap	8	110	600	0	0	files\ON.dscr	files\ON.bmp
ScriptBUTTON.Show	8						

The script for deleting the buttons ("Reset.DSCR") looks like this:

```
ScriptBUTTON.HideAll
```

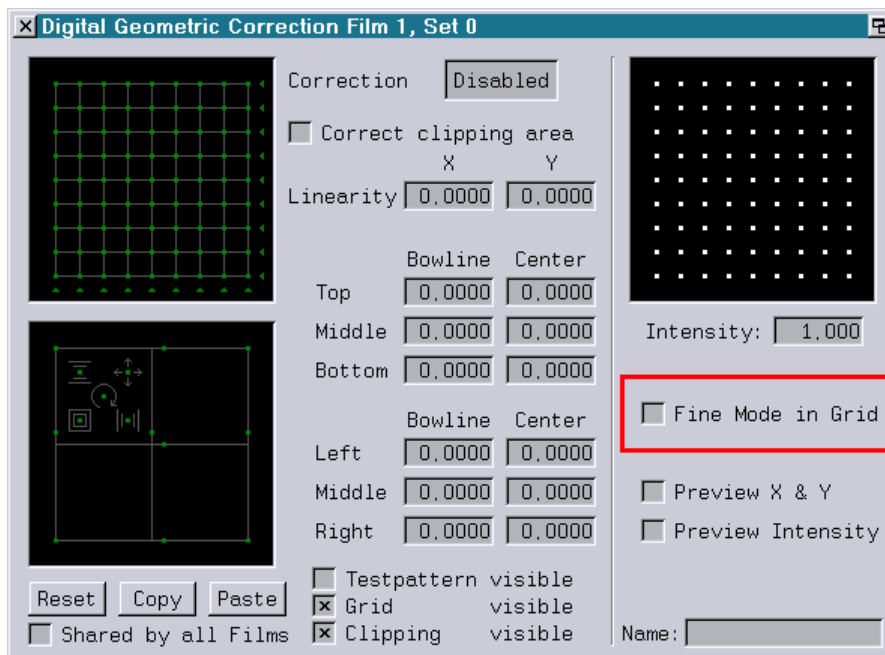
3. Stage Interface

The Stage interface which is installed on our BLITZ Stage projectors was created with a previous version of the ScriptButtons:



Additional Changes

There is a new checkbox in the DGC (Digital Geometric Correction): "Fine Mode in Grid":



As long as "Fine Mode in Grid" is activated all settings in the top left 9x9 grid are executed in fine mode.

When "Fine Mode in Grid" is deactivated the fine mode can still be used by using the middle mouse button resp. the left mouse button in combination with either the <CTRL> or the <ALT> key.

April 2013

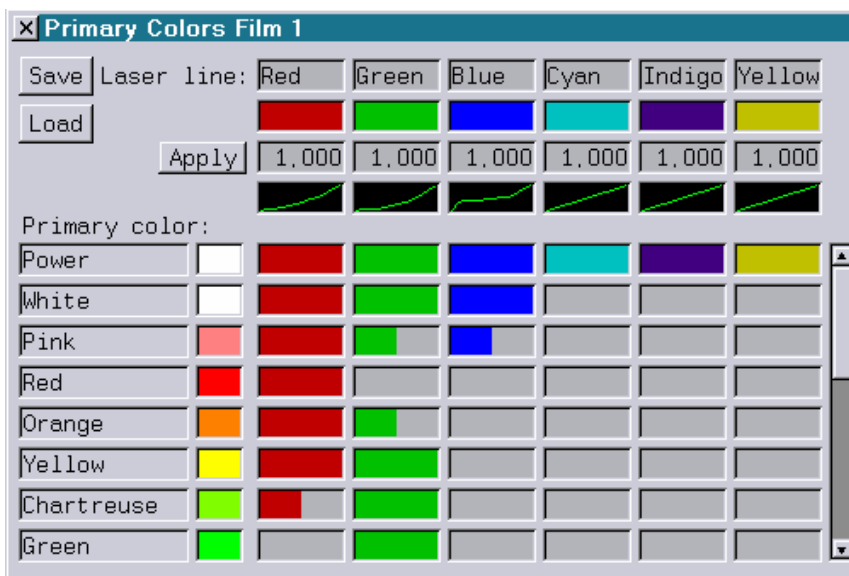
Lasergraph DSP Software Version 2013-04-24 (Mark 2 only)

Characteristic Line Correction for the Individual Laser Lines

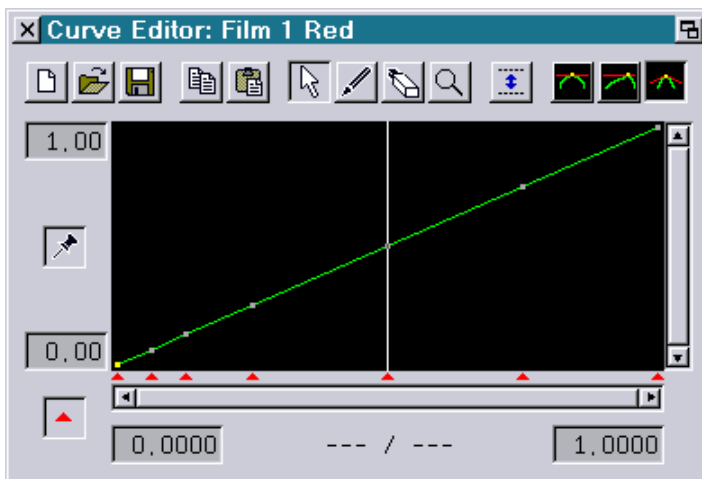
The individual adjustment of the characteristic line of each individual laser line allows a significant improvement in the color behavior and thereby the whole picture output.

Even with high quality lasers such as the PHAENON RGB this can improve the output quality.

In order to realize this, curves for each individual laser line were added to the Primary Colors window:

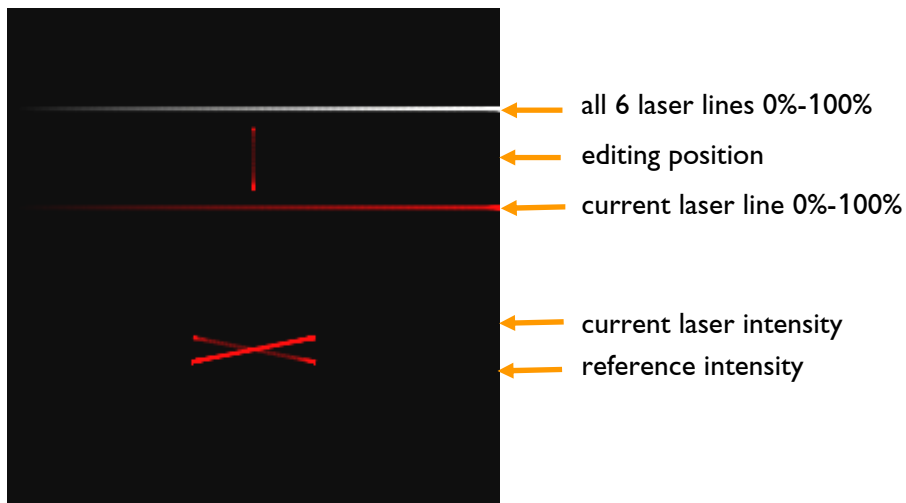


Clicking on one of the curves will open the curve editor:



The headline of the window shows the number of the film and also the name of the laser line which is currently being edited, in this case "Red".

When the test picture is activated, the laser will display the following test picture:



The test picture is divided into several sections:

- The upper part contains a horizontal line which activates all laser 6 lines in the range from 0% (left) to 100% (right).
- A little below that there is a horizontal line which only activates the laser line which is currently being edited, in the range from 0% (left) to 100% (right).
- Between the two horizontal lines a vertical line denotes the current editing position. This line is displayed with the brightness which is set for the editing position.
- Further down there are two intersecting lines.
One of these lines is the reference line, the other represents the currently set intensity.
The goal of the adjustment is to achieve equal brightness of these lines for all positions.

Instructions for Adjusting the Characteristic Lines:

- 1) In case it has not been done: Activate the test picture and open the Primary Colors window.
- 2) Click on the curve for the first laser line.
- 3) Grab the point of the curve at 0.500 and keep the mouse button depressed. Move the mouse up resp. down at the position 0.500 until the two intersecting lines in the lower part of the test picture have the same brightness.
- 4) After setting the value at 0.500 set the value at 0.250, then at 0.750 and finally at values below 0.250 in the same way.
- 5) To verify the brightness click into the black field with the mouse and keep the button depressed. Now the brightness of the two intersecting lines should remain equal when the mouse is moved left and right.

- 6) Repeat points 3) to 5) for the other laser lines.

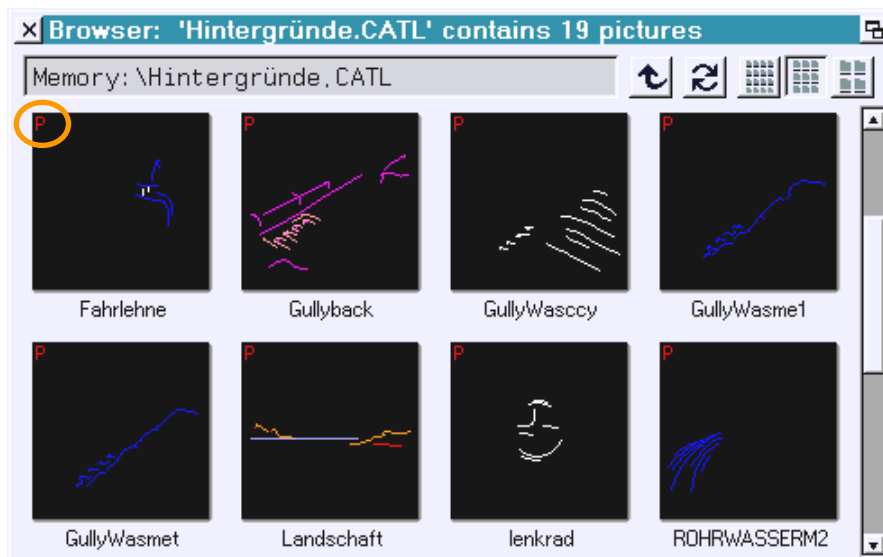
Handling of Protected Objects Simplified

In the past it could be difficult for show programmers to keep an overview over which trickfilms and which pictures were protected and which were not.

There now are two enhancements to address this problem:

Labeling of protected pictures in the browser

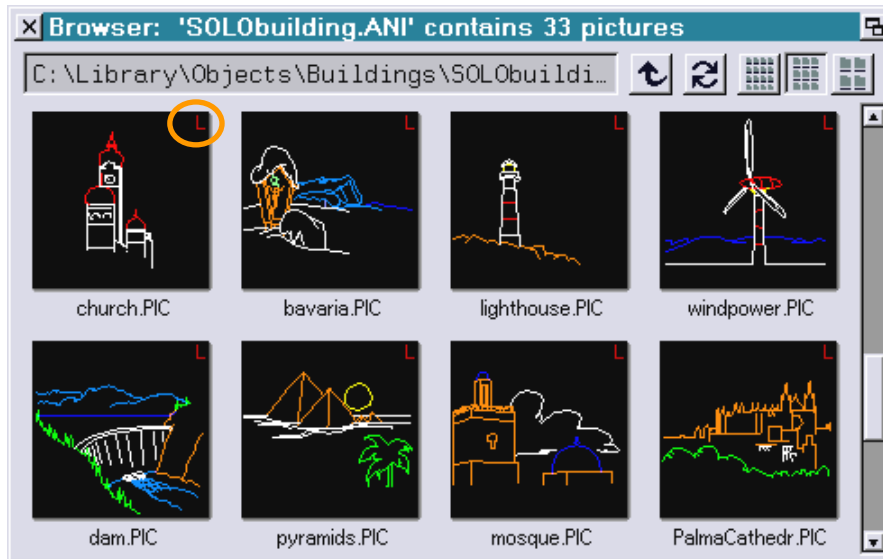
Protected pictures are marked with a 'P':



When a 'P' is displayed this is for one or more of the following reasons:

- The picture is protected for the serial number of the Lasergraph DSP Mark 2.
- The picture is protected for the name of the Lasergraph DSP Mark 2.
- The picture is not editable.
- The picture cannot be saved.

In addition to protected pictures, pictures from the included library or those that are based on one of the library pictures are marked with an 'L':

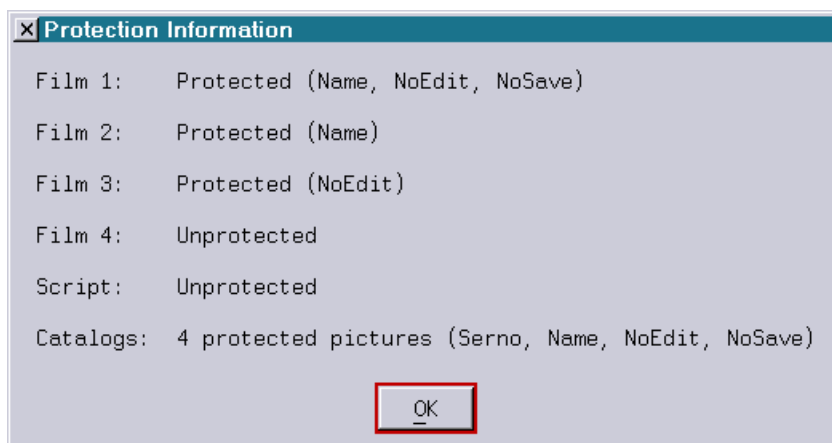


The library flag is without consequences for Mark 2 clients because all Mark 2 systems come with a corresponding library license.

On older Lasergraph DSPs library pictures can only be used without limitations when the Lasergraph DSP has a superior license.

New Command **PROTINFO** for displaying the protection

Entering the new command "PROTINFO" opens the following window:



For each trickfilm, for the timescript as well as for the loaded catalogs this window shows whether they are protected and if they are, in which way.

Additional Changes

The intensity set in the DGC no longer influences the intensity of scan beams.

Until now the brightness of scan beams depended on the position within the DGC area at which the last picture output ended and the intensity set for this position.

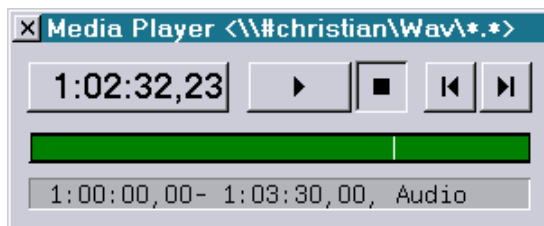
February 2013

Lasergraph DSP Software Version 2013-02-14 (Mark 2 only)

Display of Remaining Time in the "Media Player"

From now on the "Media Player" offers the option to display the remaining time left until the end of the track as an alternative to displaying the elapsed time:

Elapsed Time:



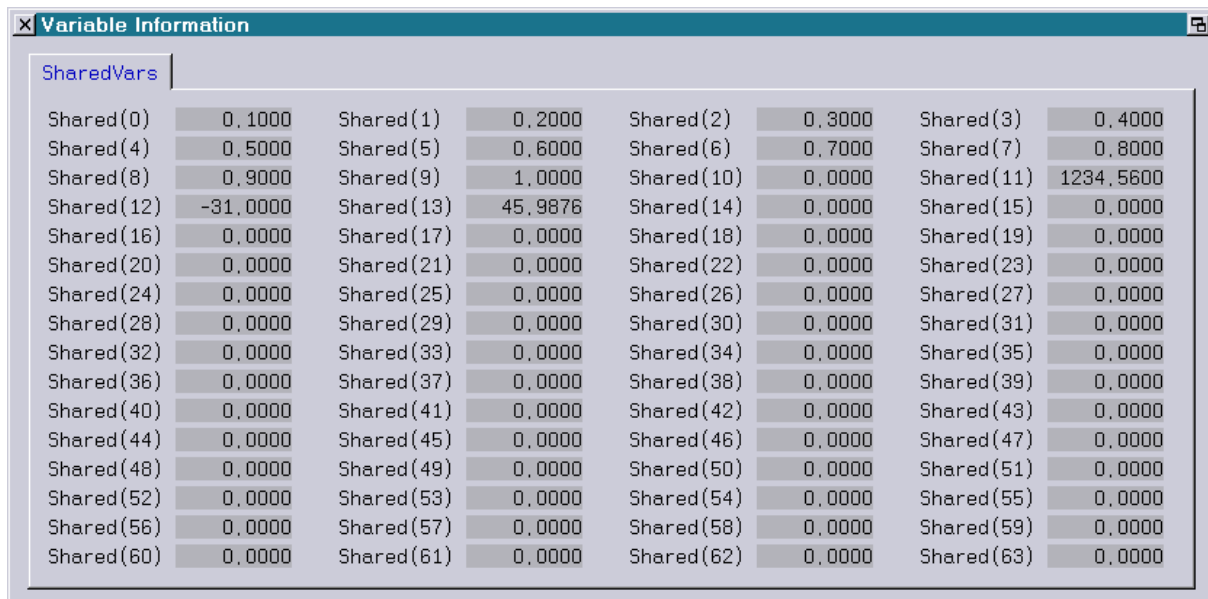
Remaining Time:

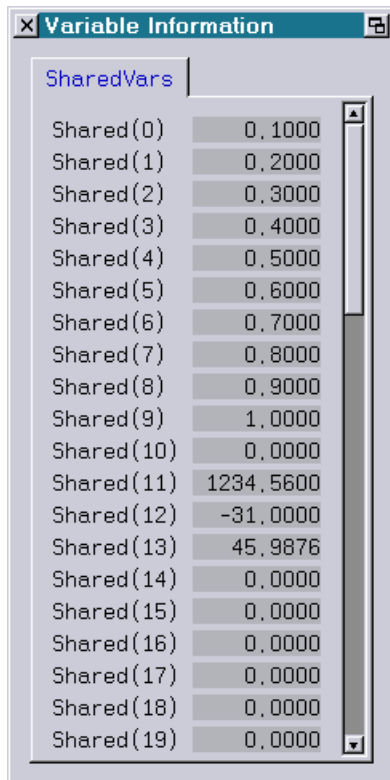


To switch between the two display modes, click into the time display with the left mouse key while holding the <CTRL> key pressed.

New Command "VARINFO"

The new command "VARINFO" opens the "Variable Information" window which can be used to display the states of the 64 shared variables:





Shared variables have very special characteristics in the Lasergraph DSP:

- Every DSP can query them (e.g. "var = Shared(0)") and change them (e.g. "Shared(1) = 12"). In a Workstation Mark 2 they can therefore be used for the communication between different DSPs.
- They can be set from the outside:
 1st Over RS232 using the SerCmds
 2nd Over network using OSC
- They can be saved to a file with "SaveSharedVars" and loaded from a file with "LoadSharedVars".

The "Variable Information" window now offers the following possibilities:

1. It can be used to check whether values sent externally have been received correctly.
2. The shared variables can be used for debugging purposes:
 In order to verify that complex calculations have the desired result the resulting variable can be assigned to a shared variable in the "SetVariables". The state of the variable can then be watched in the "Variable Information" window during runtime.

New Command "SETSHAREDVAR" for Setting up to 8 Shared Variables

The new command "SETSHAREDVAR" can be used to set up to 8 shared variables simultaneously through the command line:

```
SETSHAREDVAR <number> <value1> [<value2> [<value3> ...  
<value8>]]
```

The parameter <number> defines the number of the first shared variable which is to be set (0-63).

New Command "SETANALOGOUT"

The new command "SETANALOGOUT" can be used to directly control up to 8 Analog outputs (Midi and DMX) through the command line.

```
SETANALOGOUT <channel> <number> <value1> [<value2> [<value3> ...  
<value8>]]
```

<channel> specifies the desired channel (1-8).

<number> defines the number of the first Analog output which is to be set (1-32).

The values have to be entered in the currently active analog format ("Fractional", "Decimal", "Hexadecimal" or "Percent") (see command "AnalogFormat").

If the command "SETANALOGOUT" is sent by an external controller it is important to make sure that the desired analog format is selected in advance. Alternatively the values can be entered irrespective of the set format by adding a preceding '\$' for hexadecimal or by adding a '%' after the value for percent.

Note:

The command "SETANALOGOUT" uses the Mapconfig to translate the specified virtual analog numbers into the physical numbers which are actually used.

Additional Improvements

- New Command "FADERboard.Name.ClearAll"

Using the new command

```
FADERboard.Name.ClearAll
```

all labels can be deleted from the virtual faderboard simultaneously.

- Enhancement of the "SetGlobalValue" Command

It is now possible to set up to 8 global values simultaneously with the command "SetGlobalValue":

```
SetGlobalValue <number> <value1> [<value2> [<value3> ...  
<value8>]]
```

The parameter <number> defines the number of the first global value which is to be set.

- Receipt of Midi Control Change Command Bug Fixed

Under certain circumstances it was possible that a Midi control change command was recognized at the local Midi input of a Compact Mark 2 with a considerable delay.

This problem did not occur with the Workstation Mark 2.

LASERGRAPH DSP RELEASE NOTES 2012

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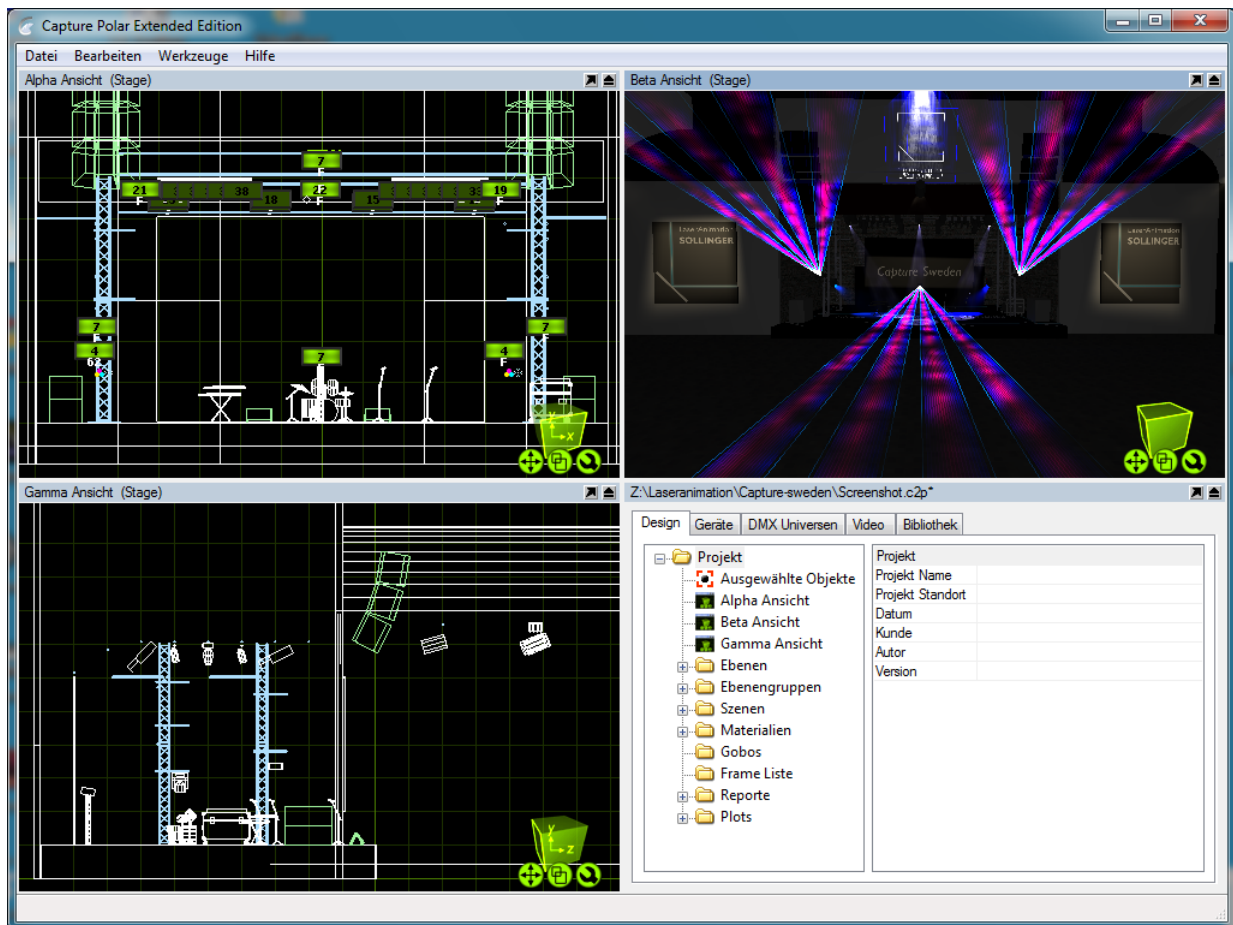
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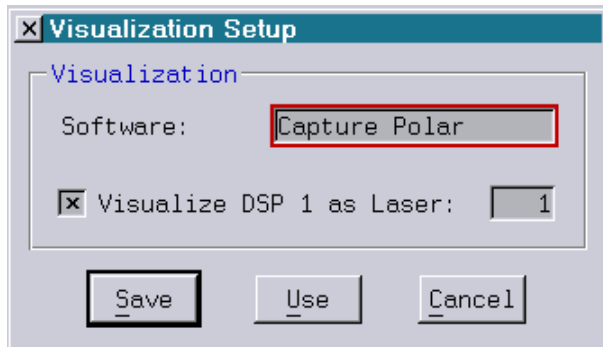
Lasergraph DSP Software Version 2012-10-29 (Mark 2 only)

Visualization in Capture Polar

In addition to "LightConverse" and "Synchronorm V:3D" the Lasergraph DSP Mark 2 now also supports the visualization software "Capture Polar".



In order to activate the visualization in Capture Polar select "Capture Polar" under Software in the "Visualization Setup".



More information concerning visualization with the Lasergraph DSP Mark 2 is available in the "Setup" chapter of the manual.

SerCmds Enhanced

There is a new key for controlling the Lasergraph DSP Mark 2 using the serial interface:

```
<sharedvar <no> <v> [<v> [<v> ... <v>]]
```

sets one or more shared variables.

The parameter <no> contains the number of the first shared variable which is to be set (0-63). In case more than one value <v> is sent, the following values define the following shared variables.

The received values can be queried in the trickfilm using the function "Shared (no)".

Additionally the keys formerly called "<analog" and "<analogb" were renamed to "<fader" and "<faderb".

However, the previous keys "<analog" and "<analogb" will continue to work for compatibility reasons.

Additional Improvements

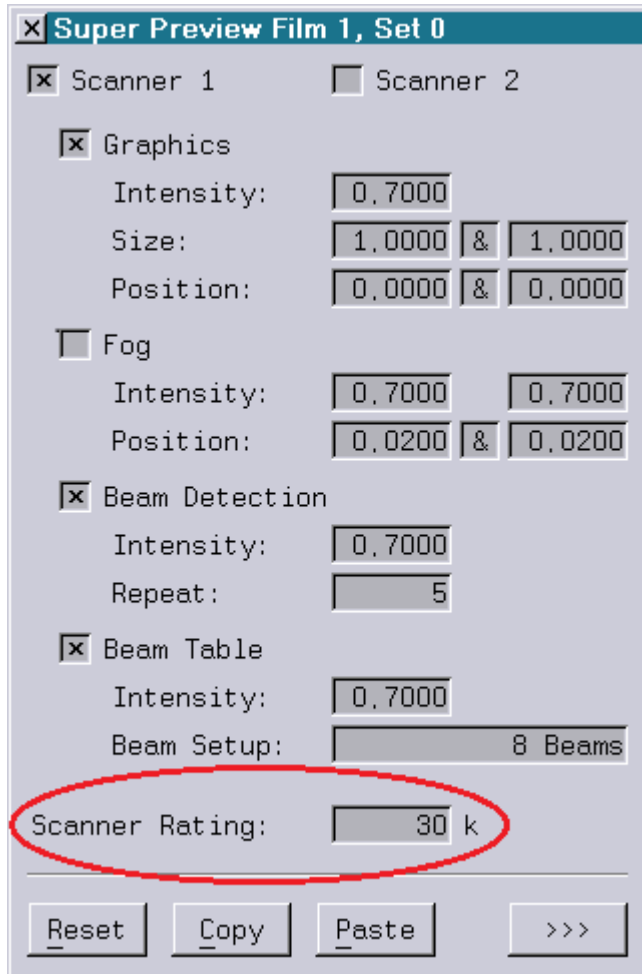
It is now possible to set up to eight faders with the command "FADERboard.Set" at once.

September 2012

Lasergraph DSP Software Version 2012-09-06 (Mark 2 only)

Simulation of Different Scanner Types in the Super Preview

A new parameter was added in the Super Preview setup to allow simulation of different scanners:



A scanner rating of 30k is equivalent to the previous default setting.

When the PHAENON laser projectors with 60k scanners (CTI 6215H) are used a scanner rating value of 60 should be set for the best representation.

The scanner rating can be set to values in a range from 5 to 120 in order to allow adapting the display to other scanners.

The scanner rating set here is used not only in connection with the Super Preview in the LGRemote and in the LGPreview but it is also recorded by the Lpv Creator. This way it is possible to create LPVs from shows using fast scanners without reducing the scanning frequency.

As soon as a scanner rating other than 30k is used it may be necessary to update the PC software of the production suite.

The minimum requirements are as follows:

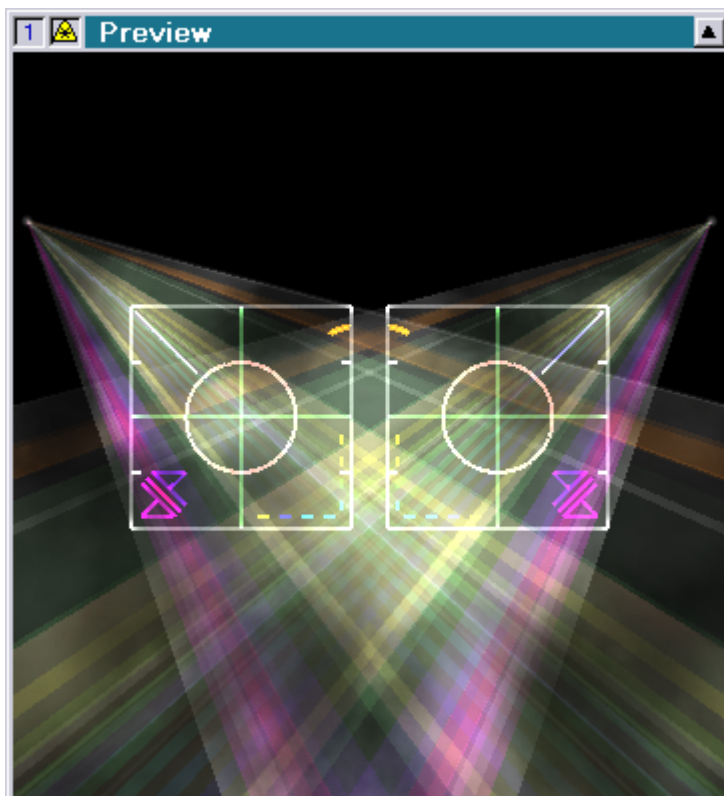
- LGRemote 2011/11/15 (or newer)
- LGPreview 2011/11/15 (or newer)
- Lpv Creator 2011/11/17 (or newer)
- Lpv Player 2011/11/17 (or newer)

The necessary installers can be downloaded from our website free of charge as usual.

Both Scanners Individually Adjustable in the Super Preview

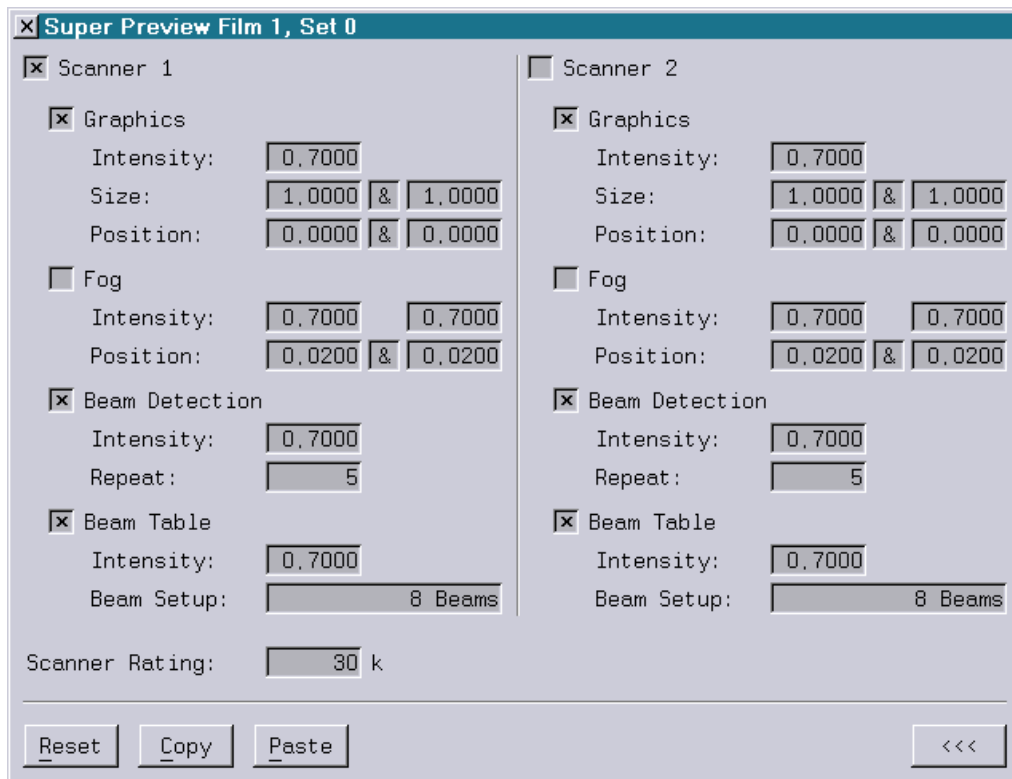
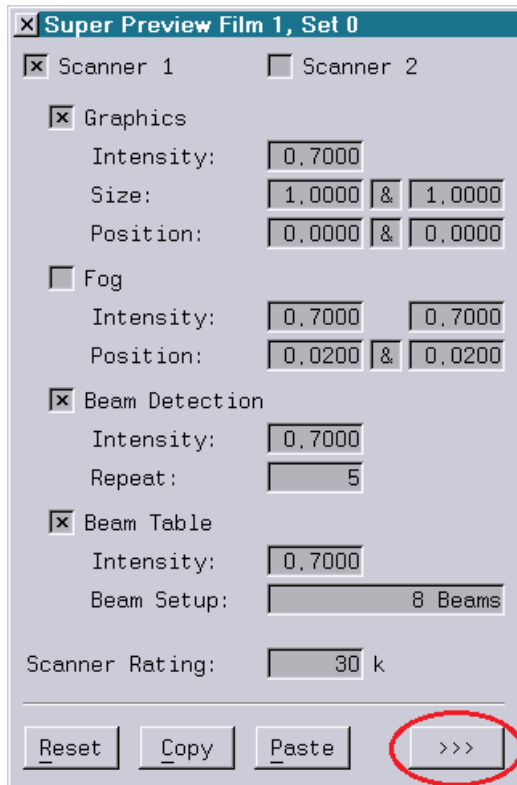
For each DSP up to two virtual laser projectors can be simulated in the Super Preview.

Up to now these were based on the same parameter settings, only the horizontal position and size of the graphic as well as the horizontal position of the virtual projector were mirrored.

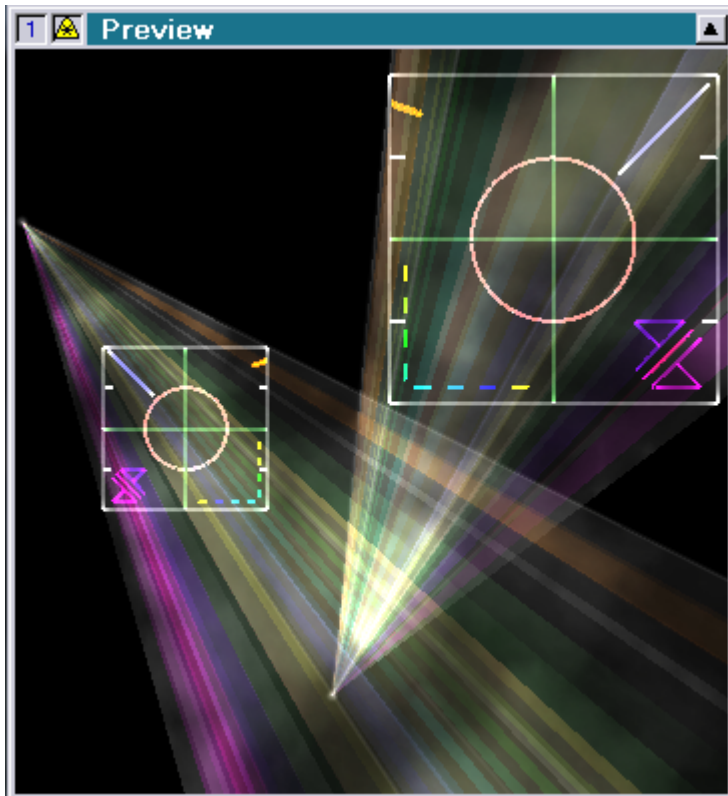


This is still possible.

However, due to the enhanced super preview setup window it is now possible to set the parameters of the second virtual projector independent of the first.



This way the position and projection direction of the two virtual projectors can be better adapted to a background bitmap.



Enhanced OSC Support

Since 2011 the Mark 2 has supported the OSC protocol (Open Sound Control) (see release notes for April 2011 and July 2011).

With this release the OSC support has been significantly enhanced:

- (1) It is now possible to send more than one value when setting fader- or fader button values using the keywords `/Fader/<no>` resp. `/FaderB/<no>`.

`<no>` is the number of the first fader resp. fader button which is to be set. In case more than one value is sent the following values will be used to set the following faders resp. fader buttons.

Example:

```
key:      /Fader/3
values:   0.12    0.5    1
```

will set fader #3 to 0.12, fader #4 to 0.5 and fader #5 to 1.

Up to now it was only possible to set two consecutive values using the keyword "Joy". These were then interpreted as the X/Y position of the joystick.

The drawback here was the fact that joysticks on the DSP only allow 8-bit resolution.

- (2) There are two new keywords for setting Global Values and Shared Variables:

/GlobalValue/<no>

<no> specifies the number of the first Global Value which is to be set.
Legal value range: [0...1000000]

The value can be queried from the trickfilm using the function "GlobalValue(<no>)".

/SharedVar/<no>

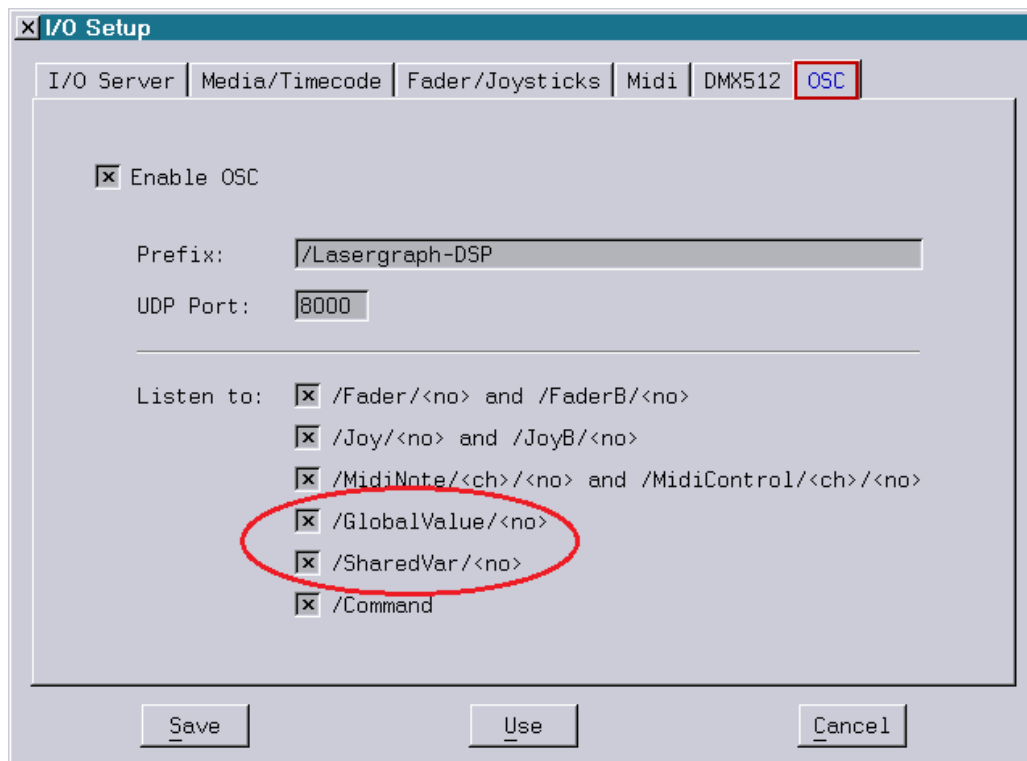
<no> specifies the number of the first Shared Variable which is to be set.
Legal value range: [0...63]

The value can be queried from the trickfilm using the function "Shared(<no>)".

The advantage of using Global Values resp. Shared Variables as opposed to Faders is the fact that they are not limited to a value range from 0.000 to 1.000.

So it is for instance possible to send a value of "-35.249" to the DSP.

The use of these two new keywords can be individually activated or deactivated in the I/O-Setup:



- (3) It is now possible to send up to 8 integer or float values in one OSC packet. Up to now it was only possible to send one single value.

Example:

The following command

```
SENDstring OSC://192.168.1.126:8000/Fader/3\float\0.12\0.5\1
```

sends three float values to the key "/Fader/3"

Renamed function "Analog()" to "Fader()" and "AnalogB()" to "FaderB()"

As part of the unification of the nomenclature the following query functions in the trickfilmcommand SetVariables have been renamed:

```
Analog()    =>    Fader()  
AnalogB()   =>    FaderB()
```

This change has a few consequences which should also be taken into account when programming on DSPs with older system software:

- (1) Generally no variables called "Fader" or "FaderB" should be used because this conflicts with the new function names.

A show using variables called "Fader" or "FaderB" can still be loaded and even compiled with the new software. However, subsequent editing within the SetVariables commands will cause an error.

- (2) If a show is to be programmed for an older DSP it is advisable to keep using the old query functions "Analog()" and "AnalogB()" which are still available for compatibility reasons.

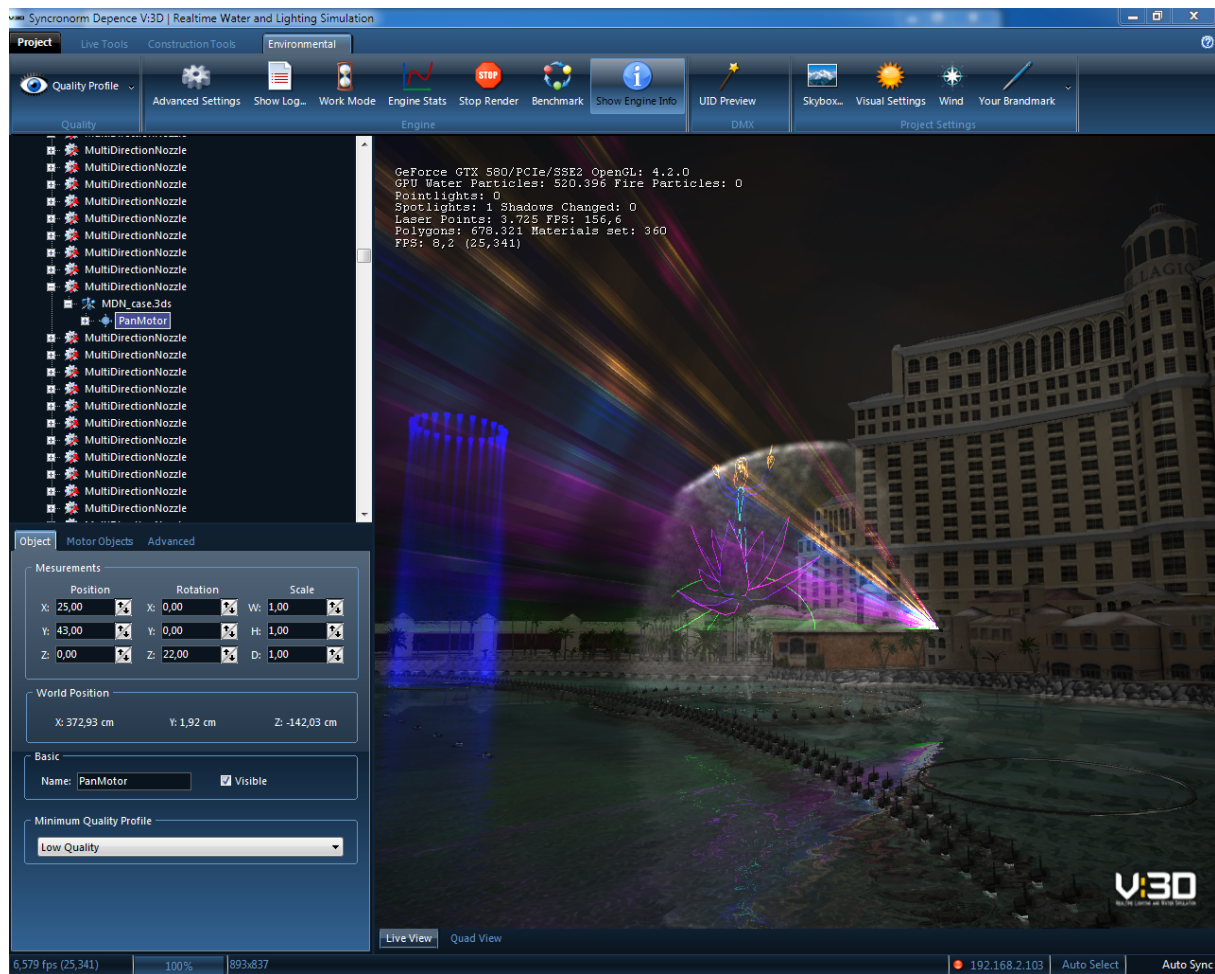
That is the only way to ensure that the show will be entirely editable on the old system.

August 2012

Lasergraph DSP Software Version 2012-08-17 (Mark 2 only)

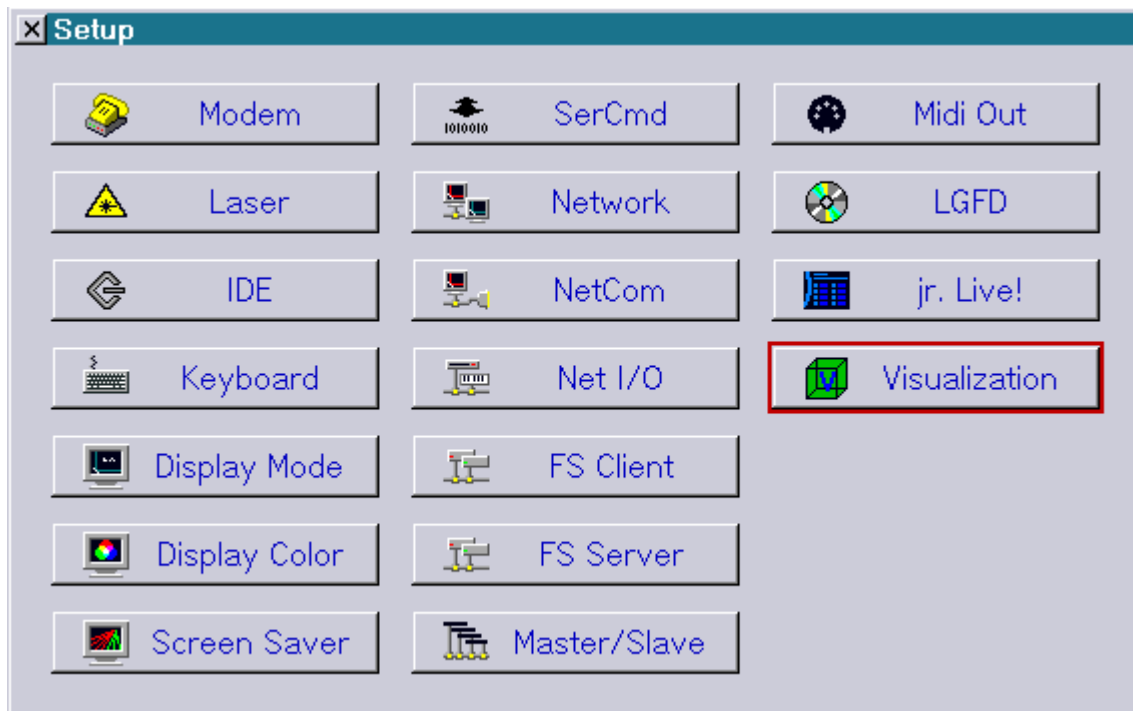
Visualization in Synchronorm V:3D

In addition to "LightConverse" the Lasergraph DSP Mark 2 now also supports the visualization software "Synchronorm V:3D":



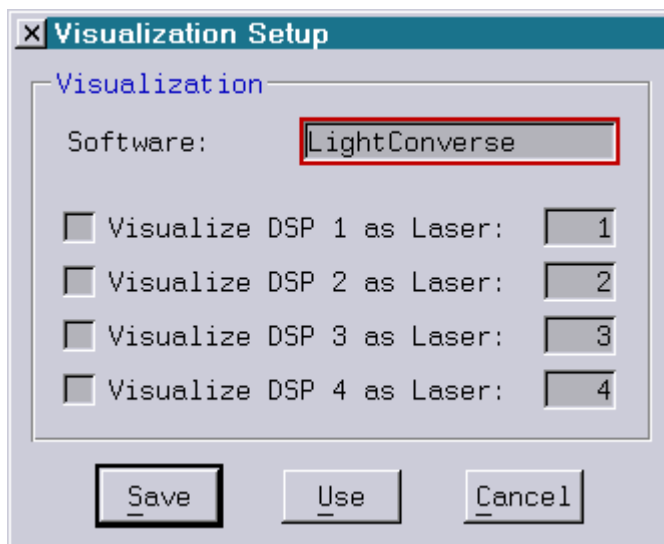
Setup for Visualizers

There is a new button "Visualization" in the Setup:

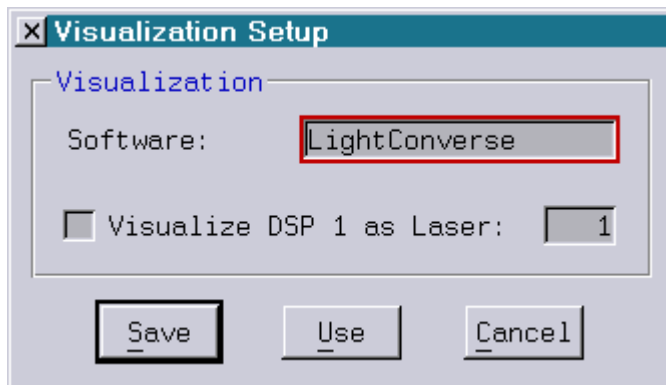


Selecting this opens the "Visualization Setup".

Mark 2 workstation.



Mark 2 compact:



The Setup consists of two separate sections:

- The desired visualization software can be selected in the upper section.

The following products are supported by the Lasergraph DSP:

- LightConverse
- Synchronorm V:3D

- Visualization can be activated or deactivated for the output of each DSP individually in the lower section. In case visualization is activated the virtual laser number is also assigned here.

The virtual laser number for the laser projector is entered into the visualization software. It serves to identify individual channels.

The virtual laser number has to be in a range from 1 to 256.

Note:

As with the preview output, visualization requires large amounts of data to be transmitted over the network.

This can lead to a reduction of the laser output quality, especially with simultaneous visualization of several DSPs on workstations with a 68B-4 processor.

Therefore the following points have to be taken into account:

1. Visualization should only be activated when it is actually used.
2. It is advisable to turn off the output in the preview window during visualization.

Different Numerical Formats in the "SetAnalog" Commands

As with the Keyconfig (see release notes February 2011) it is now possible to use the command AnalogFormat to switch the numerical format in the trickfilm- and timescript commands SetAnalog between "Fractional", "Decimal", "Hexadecimal" and "Percent".

The figure displays four screenshots of the 'SetAnalog' command interface, each showing a different numerical format for the 'Channel' parameter. The interface includes a 'Channel' dropdown menu set to '1' and a list of 16 channels (1-16) with their corresponding values. The bottom section shows the 'All' status and the 'Get actual state' button.

Channel	Fractional	Decimal	Hexadecimal	Percent
1	0.10	26	\$1A	10%
2	0.50	128	\$80	50%
3	0.75	192	\$C0	75%
4	1.00	255	\$FF	100%
5	0.75	192	\$C0	75%
6	0.50	128	\$80	50%
7	0.10	26	\$1A	10%
8				
9				
10				
11				
12				
13				
14				
15				
16	32 0.00	32 0	32 \$00	32 0%

Bottom status bar (All):

Format	Value	Status
All	0.00	Unchanged
All	1.00	Get actual state

Format	Value	Status
All	0	Unchanged
All	255	Get actual state

Format	Value	Status
All	\$00	Unchanged
All	\$FF	Get actual state

Format	Value	Status
All	0%	Unchanged
All	100%	Get actual state

Just as with the values in the Keyconfig it is possible to force hexadecimal input independent of the selected format by inserting a preceding '\$' and percentage format by putting '%' behind the entered value.

New Commands for Saving and Loading Shared Variables

Shared variables are variables which can be accessed from all trickfilms. They are primarily used for communication between different DSPs.

Shared Variables are defined in the trickfilm command `SetVariables`:

Shared (<number of the shared variable>) = <value>

The variable is interpreted as follows:

<variable> = Shared (<number of the shared variable>)

Using the new commands `SaveSharedVars` and `LoadSharedVars` it is now possible to save the state of the shared variables to a file resp. to load it from a file.

The commands `SaveSharedVars` and `LoadSharedVars` can either be entered directly into the command line or called up from a trickfilm or timescript with `HOSTcmd`.

Command Format:

`SaveSharedVars <filename> [<first> [<last>]]`

filename: The file name can also contain path information. If no path is specified the shared variables will be saved in the current directory.

first: Specifying the first shared variable which is to be saved is optional.
Possible value range: 0...63

last: Specifying the last shared variable which is to be saved is also optional.
Possible value range: 0...63

`LoadSharedVars <filename>`

By specifying the shared variables which are to be saved using <first> and <last> the shared variables can be divided into several segments which can be administered separately.

The command `LoadSharedVars` only changes the state of the shared variables named in the file. Shared variables outside the saved range are not changed.

Application examples for saving and loading shared variables:

- saving and loading high scores of games
- saving and loading different settings of the abstract generator
- and many more

New Default ScanningParameters "Phaenon60k"

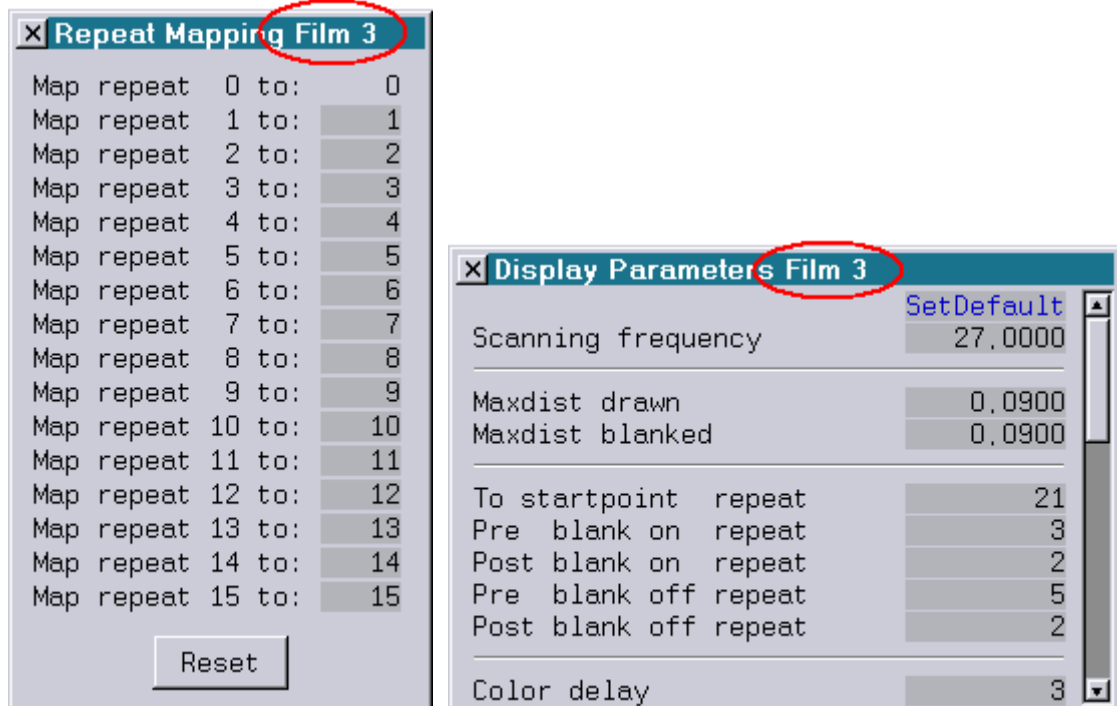
New default scanning parameters called "Phaenon60k" are available under "Advanced Parameters" -> "Display Parameters".

These are intended for Phaenon laser projectors with 60k scanners (CTI 6215H).

The previous default scanning parameters "Phaenon" have been renamed to "Phaenon30k".

Further Improvements

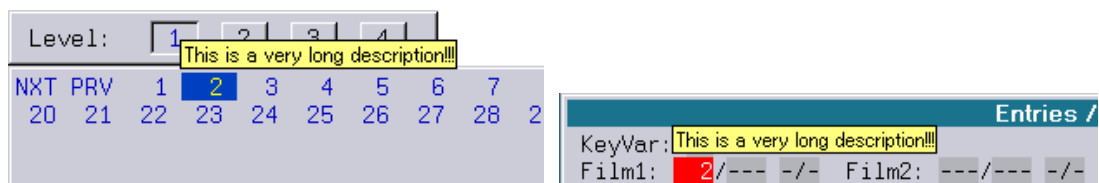
- The headlines of the windows "Repeat Mapping" and "Display Parameters" now display the number of the trickfilm the settings refer to.



- The command `extractBlock` no longer deletes empty entries outside the selected block.
- A path can now be specified in the command `CreateBoot`.
In case the underlying path does not exist it will be created automatically.

Example: `CreateBoot E:\Shows\MyShow`

- The entry descriptions in the entry table and the Keyconfig are now displayed as tooltips with up to 40 characters (up to now only 30 characters were possible).



LASERGRAPH DSP RELEASE NOTES 2011

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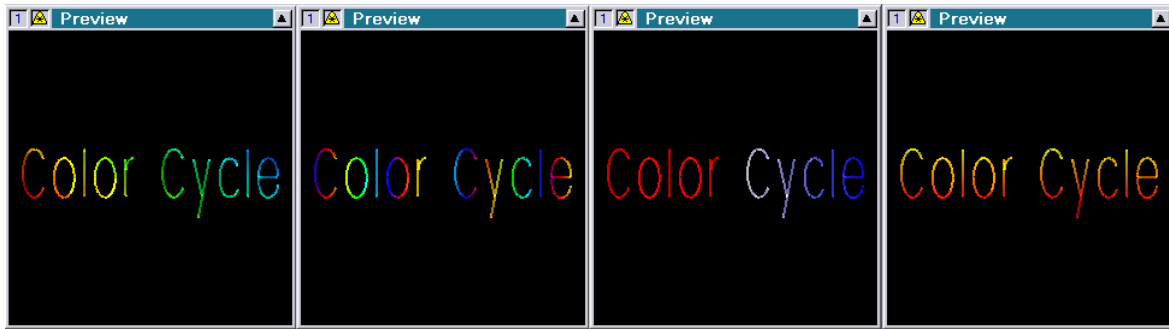
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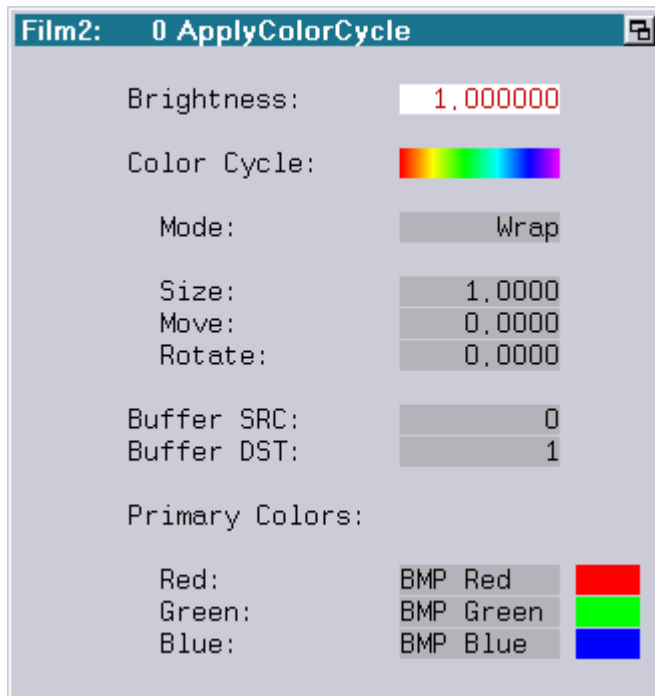
Lasergraph DSP Software Version 2011-10-24 (Mark 2 only)

New Trickfilm Command ApplyColorCycle

The new `ApplyColorCycle` command offers a very simple way to create fantastic color effects. Here are a few examples:



The command works similar to the command `ApplyBitmap`: Depending on the X/Y-position of a point the desired color is selected. For this the `ApplyBitmap` command uses the color information of a bitmap, the color information for the `ApplyColorCycle` comes from a color cycle created directly on the Lasergraph DSP using the Color Cycle Editor (see manual chapter "Color Cycle Editor").



Brightness: Determines the brightness of the newly calculated picture

ColorCycle: Enter or edit the color cycle used by the command

Mode: There are two different modes for determining which color is to be used when the calculation results in a position before the start resp. after the end of the color cycle:

Wrap: The color cycle is repeated continuously

Clip: Before the start of the color cycle the first color of the color cycle is used, after the end of the color cycle the last color of the color cycle is used.

Size:

Move:

Rotate: Determines the size and position of the color cycle within the picture which is to be colored

Buffer SRC: Number of the buffer (0-7) containing the picture which is to be colored

Buffer DST: Number of the buffer (0-7) for storing the colored picture

Red: Primary color which is used for the red portion in the color cycle

Green: Primary color which is used for the green portion in the color cycle

Blue: Primary color which is used for the blue portion in the color cycle

Important!

- The `ApplyColorCycle` command only colors points which are actually part of the picture, not automatically interpolated points. In order to achieve smooth color transitions the picture should be interpolated either in the `Piced` or using the `trickfilm` command `HardInterpolation`.

Example of an entry using the `ApplyColorCycle` command:

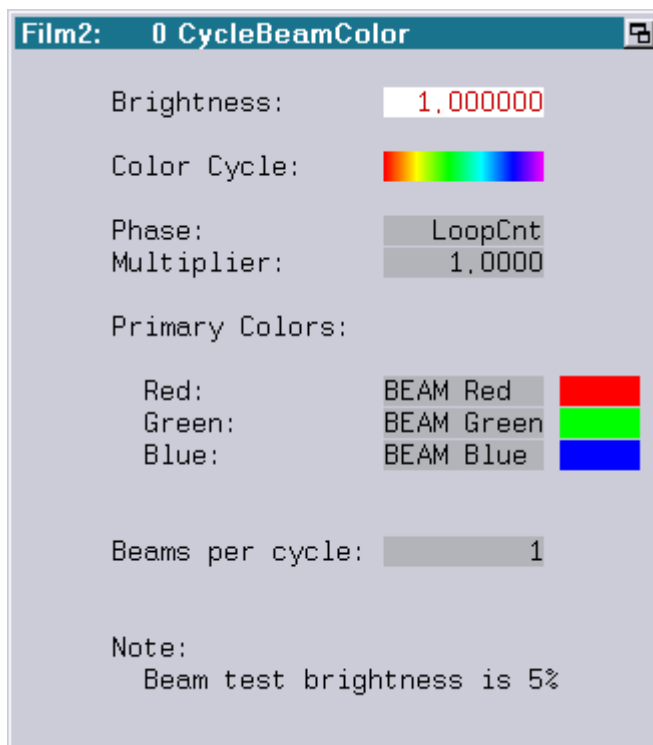
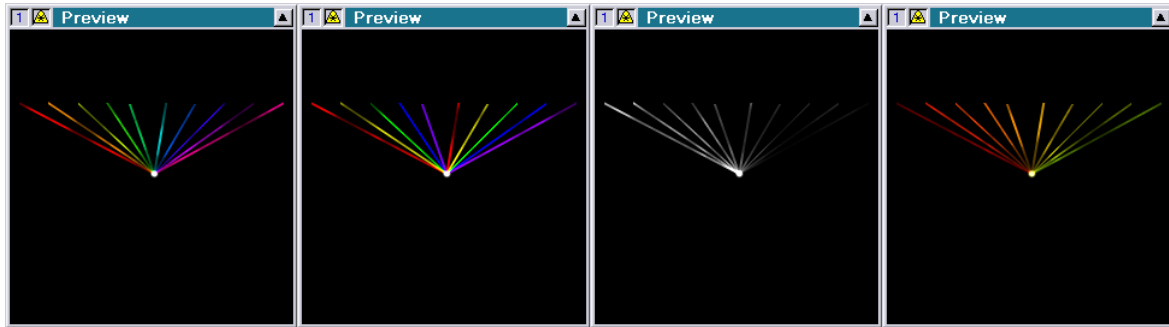
```
Entry
CopyPictoBuffer      <picture to be colored> -> Buffer 0
HardInterpolation    Buffer 0 -> Buffer 1
TimeLoop
  ApplyColorCycle     Buffer 1 -> Buffer 2
  InitPosition
  DisplayBuffer       Buffer 2
LoopEnd
```

Remarks:

- The parameters `Brightness`, `Size`, `Move` and `Rotate` can contain variables and curves in addition to fixed values. Since the coloring is executed in real-time these parameters can also be influenced live by `Faders` or `DMX` values.
- Show producers should be aware of the fact that the command `ApplyColorCycle` is only available on the Mark 2 starting with software version 2011/10/24.

New Trickfilm Command CycleBeamColor

The new trickfilm command `CycleBeamColor` offers a simple way to color scan beams and to realize beam chases.



- Brightness:** Determines the brightness of the beams colored using the `CycleBeamColor` command
- ColorCycle:** Enter or edit the color cycle used by the command
- Phase:** The parameter Phase is used to select the desired color within the color cycle. Available value range: 0.0000 (first color) to 1.0000 (last color).
- Multiplier:** If the color cycle is to run more than once within the loop (parameter Phase = LoopCnt) this can easily be achieved by increasing the multiplier. A value of 2 will for instance result in two runs of the color cycle within the loop.

Red: Primary color which is used for the red portion in the color cycle
Green: Primary color which is used for the green portion in the color cycle
Blue: Primary color which is used for the blue portion in the color cycle

Beams per Cycle: If all following scan beams are to have the same color this value has to be set to 1.
Values >1 will lead to changing colors from scan beam to scan beam. For this the color cycle is divided into a corresponding number of sections of equal size. If the value entered here is equal to the number of scan beams the colors used by the scan beams will be distributed evenly across the complete color cycle.
If the value entered is higher than the number of the actually used scan beams only a portion of the color cycle will be visible at a time. Changing the phase will then shift the visible portion.

Remark:

- Show producers should be aware of the fact that the command `CycleBeamColor` is only available on the Mark 2 starting with software version 2011/10/24.

July 2011

Lasergraph DSP Software Version 2011-07-06 (Mark 2 only)

New Trickfilm Command SetBeamColor

The new command "SetBeamColor" is used to specify the color of scan beams. It is a direct replacement of the old command "SetColor".



In contrast to the command "SetColor" where each of the six laser lines has to be adjusted separately, the "SetBeamColor" command uses colors from the primary color table.

This has numerous advantages:

- 1) Color transitions between two colors can easily be realized.
- 2) Colors can be adjusted centrally even if the film which is to be changed is not editable.
- 3) Scan beams which use only the color lines 4 to 6 will now be displayed in the preview window (this was not the case with "SetColor" because there the first three laser lines were used as monitor colors).

Hint:

- It is advisable to define new colors for the beams in the primary color table. This allows adjusting the beam colors independently of the other colors.

Notes:

- As with the command "SetColor", for safety reasons the test level set in the beam table will be used when editing the command "SetBeamColor".
- Show producers should be aware of the fact that the command "SetBeamColor" is only available on the Mark 2 starting with software version 2011/05/17.
- If a show is to be created for older systems, the old "SetColor" command still has to be used!

Enhanced OSC Support

It is now possible to send OSC packets with the Lasergraph DSP.

This is done using the command "SENDstring" (command line, trickfilm or timescript).

The parameter of "SENDstring" has to look as follows:

OSC://<ip-address>:<port>/<osc-address>\<osc-type>\<osc-parameter>

Depending on the selected <osc-type> different kinds of OSC packets can be sent:

string	A character string is sent
int	A whole number (32-Bit) is sent
float	A floating point number (32-Bit) is sent

Examples:

SENDstring OSC://192.168.1.126:8000/Lasergraph-DSP/1/Label\string\Hello World!

Sends the character string "Hello World" as an OSC packet over UDP to the IP address 192.168.1.126 and the port 8000.
The OSC address is "/Lasergraph-DSP/1/Label".

SENDstring OSC://192.168.1.126:8000/Lasergraph-DSP/1/Slider\float\0.123

Sends the floating point value 0.123 as an OSC packet over UDP to the IP address 192.168.1.126 and the port 8000.
The OSC address is "/Lasergraph-DSP/1/Slider".

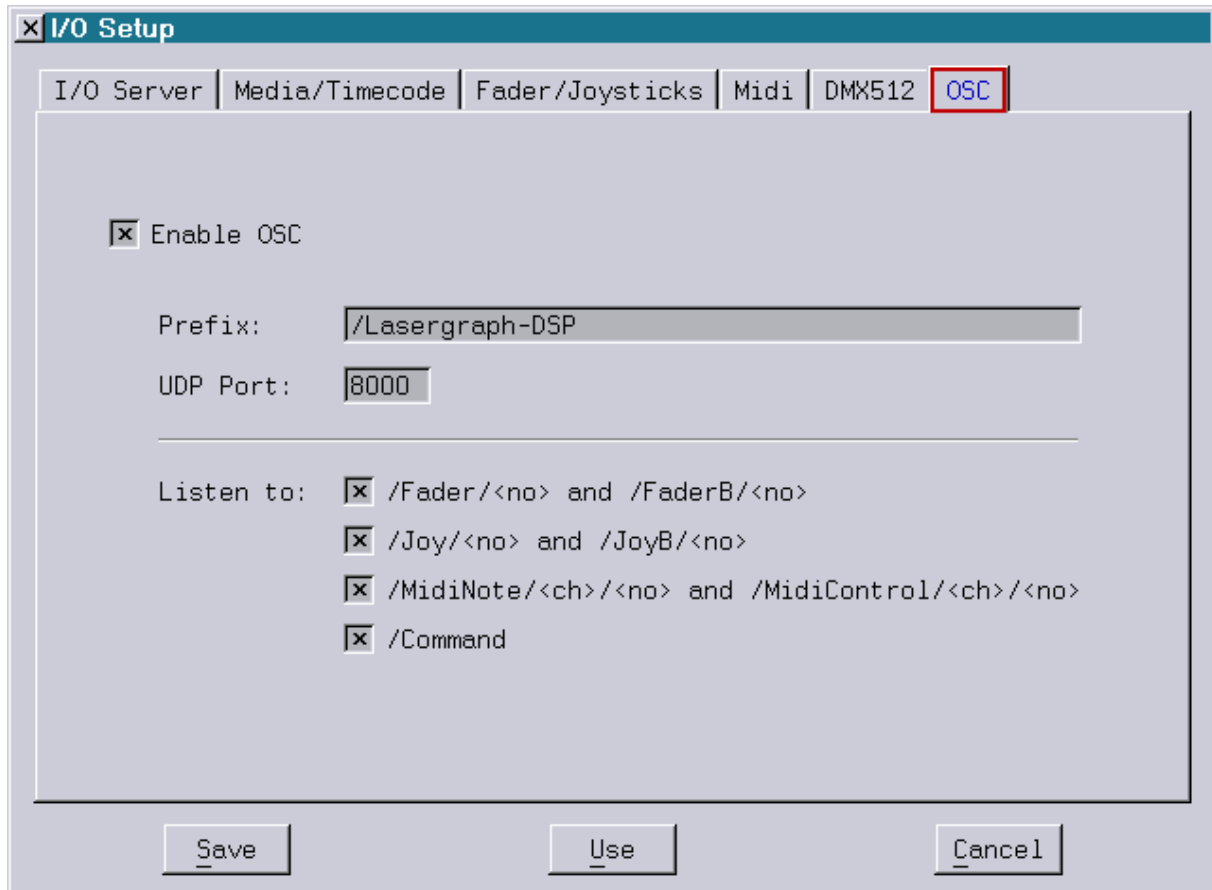
April 2011

Lasergraph DSP Software Version 2011-04-29 (Mark 2 only)

Support for Open Sound Control (OSC)

Open Sound Control is an open, transport-independent, message-based protocol developed for communication among computers, sound synthesizers, and other multimedia devices.

There is a new tab in the I/O Setup for configuring OSC:



As soon as "Enable OSC" is activated the Mark 2 will receive incoming OSC messages.

In addition to setting the port number used for receiving the UDP packets, here it is also possible to specify the prefix of the address which has to be sent to address this Mark 2.

The complete address is comprised of this freely definable prefix and the key words implemented in the Mark 2.

The different key words can be activated or deactivated in blocks.

The following key words are supported:

/Fader/<no>

sets the fader <no> to the specified value (<no>: 0-63).

value range: 0.0 to 1.0 (float32) resp. 0 to 65535 (int32)

/FaderB/<no>

turns the fader button <no> on resp. off (<no>: 0-63).

value range on: not equal 0.0 (float32) resp. not equal 0 (int32)

value range off: 0.0 (float32) resp. 0 (int32)

/Joy/<no>

sets the X/Y position of the joystick <no> to the specified value (<no>: 0-7).

permitted value range: -1.0 to 1.0 (float32) resp. 0 to 255 (int32)

/JoyB/<no>

turns the two buttons of joystick <no> on resp. off (<no>: 0-7).

both buttons off: 0.0 (float32) resp. 0 (int32)

button 1 on, button 2 off: 1.0 (float32) resp. 1 (int32)

button 1 off, button 2 on: 2.0 (float32) resp. 2 (int32)

both buttons on: 3.0 (float32) resp. 3 (int32)

/MidiNote/<ch>/<no>

simulates the reception of a Midi note on resp. note off command.

<ch> is the Midi channel (1-16) and <no> is the number of the Midi key (0-127).

permitted value range: -1.0 to 1.0 (float32) resp. -127 to 127 (int32)

/MidiControl/<ch>/<no>

simulates the reception of a Midi control change command.

<ch> is the Midi channel (1-16) and <no> is the number of the controller (0-31).

permitted value range: 0.0 to 1.0 (float32) resp. 0 to 127 (int32)

/Command

Enters the command sent as OSC string into the command line and executes it.

Since not all devices support OSC strings the command can alternatively be sent as part of the address:

/Command/<command>

In this case the parameter float32 resp. int32 determines whether the command is to be executed or not. In case it is not equal 0.0 resp. 0 it will be executed, otherwise it will not.

Example:

To set the first fader on the Mark 2 with the defined prefix "/DSP1" to 0.5 the following OSC message has to be sent:

address: /DSP1/Fader/0
parameter: 0.5 (float32) or 32768 (int32)

Other Improvements

- The preview window can now be activated or deactivated using the following commands:

```
ENABLEPREVIEW <dsp>  
DISABLEPREVIEW <dsp>
```

The parameter <dsp> is optional. If it is not specified the preview will be activated resp. deactivated for all DSPs.

- Small improvements in the Master/Slave operation mode

March 2011

Lasergraph DSP Software Version 2011-03-28 (Mark 2 only)

Visualization Using LIGHTCONVERSE

LIGHTCONVERSE is a visualization software which provides a photorealistic 3D visualization of any show in real time.

In addition to the different stage elements numerous predefined lamps and moving lights are available.

It is now possible to use the Mark 2 as a source for the visualization.

This allows integrating shows created on the Lasergraph DSP into the visualization.

More information about LIGHTCONVERSE can be found under: www.lightconverse.net



The following commands are available for starting and stopping the visualization:

ENABLEVISUALIZATION <Laser Number>

starts the visualization.

<Laser Number> is the virtual laser number which can be set in LIGHTCONVERSE.

It has to be in the range from 1 to 256.

When using the workstation, up to four laser numbers can be specified, one for each DSP card.

DISABLEVISUALIZATION

ends the visualization.

New SetRepeatMap Command

In contrast to the old SetRepeatMap command, it is now possible to also specify variables and curves for the new SetRepeatMap command.

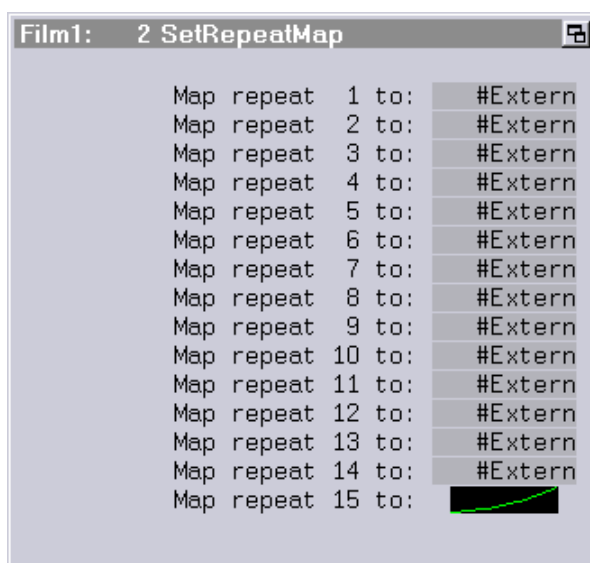
This can be used to change the characteristics of pictures dynamically within a show or even live.

Example:

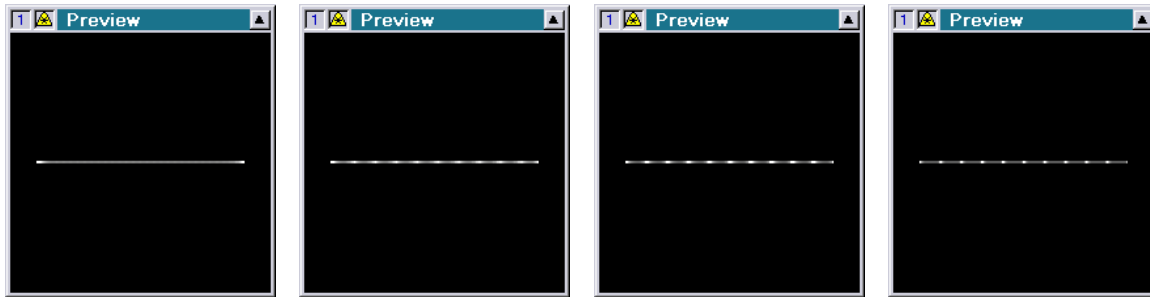
When a line is drawn in the Piced, where the first and the last point each have a repeat 1 and all other points have a repeat of 15



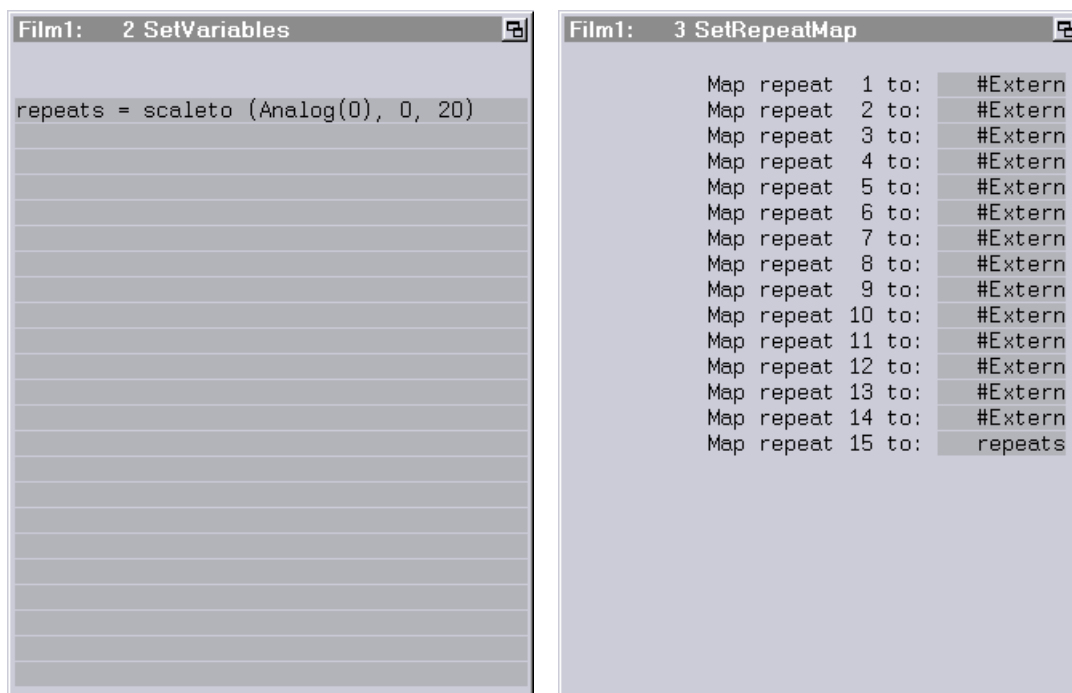
the new SetRepeatMap command can be used to change the number of repeats of the inner points dynamically in the trickfilm with a curve:



This will lead to the following result which changes with the Loopcnt:



In case the number of repeats is to be changed live, for instance using a fader, instead of through a curve, this can be achieved with a variable.



The variable shown here scales the value of the first fader (0.000 to 1.000) to the range from 0 to 20.

To simplify matters, the new SetRepeatMap command was called SetRepeatMap as before. The previous SetRepeatMap command was renamed to SetRepeatMapO.

Notes:

- Show producers should be aware of the fact that the new SetRepeatMap command is only available on the Mark 2 starting with software version 2011/03/28.
- If a show is to be created for older systems, the old SetRepeatMap command SetRepeatMapO has to be used!

3D Outputs Can Now Be Synchronized Externally

For stereoscopic film- or video projections shutter glasses are often used to achieve the desired 3D effect. For this method pictures are displayed alternately for the right eye and for the left eye. The shutter glasses cover the eyes alternately, allowing each eye to only see the picture designated for it.

In order to integrate a laser into such a projection, the laser output has to be synchronized with the shutter signal for the glasses.

This is done through the "Advanced display parameters":

Advanced display parameters		SetDefault
Scanning frequency	27.0000	
Maxdist drawn	0.0900	
Maxdist blanked	0.0900	
To startpoint repeat	21	
Pre blank on repeat	3	
Post blank on repeat	2	
Pre blank off repeat	5	
Post blank off repeat	2	
Color delay	3	
Color inversion	OFF	
Slow color mode	OFF	
Slow color switch repeat	0	
3D mode	FullColor	
3D external sync	Off	
3D eye control	Both	
Distance of eyes	0.1000	
Projection plane distance	2.5000	
Anaglyph red by green	0.1300	
Anaglyph red by blue	0.0900	
Anaglyph green by red	0.0000	
Anaglyph blue by red	0.1200	
LogoShutter default	1.0000	
LogoShutter adjust	0.0000	
LogoShutter as analog	OFF	
SoftBlank delay down	0.0000	
SoftBlank delay up	0.0000	
DMX in offset	0	

The newly added line "3D external sync" can have three states:

Off	The DSP generates its own synchronization signal.
Low=Left	When a low level signal is present at the sync input the picture for the left eye is displayed, when a high level signal is present the picture for the right eye is displayed.
High=Left	When a high level signal is present at the sync input the picture for the left eye is displayed, when a low level signal is present the picture for the right eye is displayed.

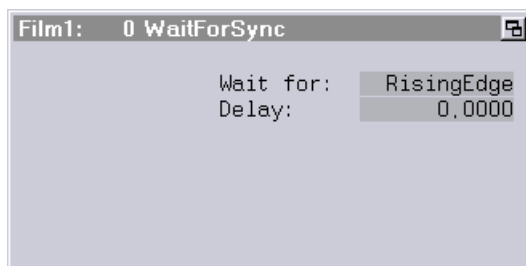
Notes:

- In order to use the external synchronization, the Mark 2 has to be equipped with a special sync input which is not available on the current hardware. However, this can be added upon request.
- The external synchronization will only work if the output of each individual picture is completed before the sync signal changes its state. If the picture output takes longer the remainder of the of the picture will be visible for the wrong eye. The maximum complexity of the pictures depends on the frequency of the sync signal and on the scanners which are used.
- Since the command "RunningText" will lead to each character being displayed once for the left eye and once for the right eye before display of the next character begins, the external synchronization will lead to a low update rate in this case.

New Trickfilm Command WaitForSync

The new trickfilm command WaitForSync allows the laser output to be synchronized with an external sync signal.

One application example is the synchronization for video recordings: Without synchronization sampling effects can occur which can lead to shifting pictures or to breaks in the recorded video.



The flank of the sync signal which the DSP is to wait for can be specified in the parameter window of the WaitForSync.

- | | |
|-------------|---|
| RisingEdge | The DSP will wait for the sync signal to change its state from low to high. |
| FallingEdge | The DSP will wait for the sync signal to change its state from high to low. |

In addition to the desired flank a delay in seconds can also be set.

Within the trickfilm the command `WaitForSync` should be placed directly before the picture output command which is to be synchronized.

Example:

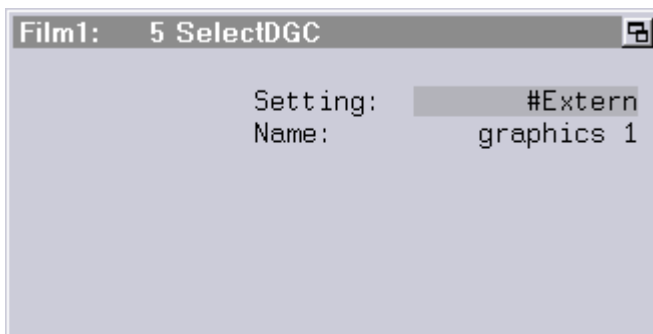
```
TimeLoop
InitPosition
WaitForSync
DisplayPicture
LoopEnd
```

Notes:

- In order to use the `WaitForSync` command, the Mark 2 has to be equipped with a special sync input which is not available on the current hardware. However, this can be added upon request.
- If the DSP does not detect the desired flank within one second, the waiting will be aborted automatically.
- Show producers should be aware of the fact that the `WaitForSync` command is only available on the Mark 2 starting with software version 2011/03/28.

Additional Improvements

In the trickfilm command `SelectDGC` the name of the selected setting is now displayed.



February 2011

Lasergraph DSP Software Version 2011-02-04 (Mark 2 only)

Production Suite Expanded with a Sms2Dsp License

From now on the Production Suite of the Mark 2 contains a license for the program Sms2Dsp with which SMS messages can be received, administered and output on the Mark 2.

All Mark 2 clients can download the Sms2Dsp program free of charge from our website.

Different Numerical Formats in the Keyconfig

Using the new command "AnalogFormat" the format of the analog values in the Keyconfig can be switched as follows:

"Fractional" Value Range 0.000 – 1.000 (Default)

Analog outputs	start	end	time	start	end	time
1		0.000			0.000	
2		0.102			0.000	
3		0.250			0.000	
4		0.500			0.000	
5		0.750			0.000	
6		0.898			0.000	
7		1.000			0.000	
8						
9						
10						
11						
12						

"Decimal" Value Range 0 – 255

Analog outputs	start	end	time	start	end	time
1		0			0	
2		26			0	
3		64			0	
4		128			0	
5		192			0	
6		230			0	
7		255			0	
8						
9						
10						
11						
12						

Midi Keys Can Start Previous or Following Entry

From now on "Next" resp. "Prev" can be entered in the Keyconfig instead of fixed entry numbers:

"Next" (displayed as "NXT") results in the next entry being started.

Entries / KeyVars				
KeyVar:	1			
Film1:	NXT/---	-/-	Film2: ---/---	-/-
			Film3: ---/---	-/-
			Film4: ---/---	-/-
				Clear

"Prev" (displayed as "PRV") results in the preceding entry being started.

Entries / KeyVars				
KeyVar:	1			
Film1:	PRV/---	-/-	Film2: ---/---	-/-
			Film3: ---/---	-/-
			Film4: ---/---	-/-
				Clear

New Commands for Show Producers

Show producers wishing to create shows for old Lasergraph DSPs can use the new commands `ConvertEntryNew` und `ConvertTrackNew` to convert all new Entry- resp. Track commands in the current trickfilm into old Entry- resp. Track commands.

Attention:

All entered descriptions will be lost in the conversion. The original film should be saved before the conversion.

LASERGRAPH DSP RELEASE NOTES 2010

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December 2010

Lasergraph DSP Software Version 2010-12-20 (Mark 2 only)

New Command for Show Producers

Show producers wishing to program shows for old Lasergraph DSPs can use the new command `CompileOld` to check if the currently active trickfilm or the currently active timescript is compatible with an old Lasergraph DSP.

During compilation with `CompileOld` new trickfilm or timescript commands which are not available on old Lasergraph DSPs (such as the new `Entry` command or the new `Track` command) will lead to a corresponding error.

Small Improvements

1. Under certain circumstances controlling the Global Brightness using faders or DMX did not work. This can now no longer happen.
2. The output quality of TrueColor pictures has been improved.

Preview of Future Features

Shortly it will be possible to use the *Mark 2* directly as a source for the visualization in LIGHTCONVERSE.

If you want to test this in advance you can use the following commands:

```
ENABLEVISUALIZATION <Laser Number>  
DISABLEVISUALIZATION
```

<Laser Number> is the virtual laser number which can be set in LIGHTCONVERSE. It has to be in the range from 1 to 256.

On the *Workstation Mark 2* up to four laser numbers can be entered.

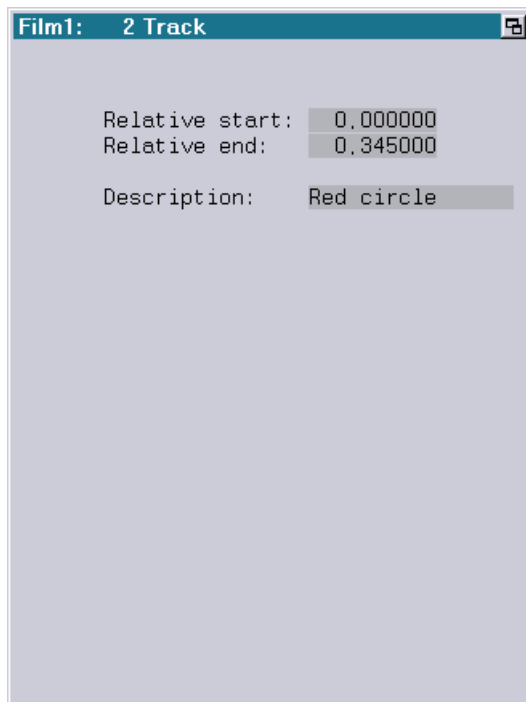
Limitation: In order for the visualization to work the PC on which LIGHTCONVERSE is running has to be entered as "gateway" in the network setup of the *Mark 2*.

November 2010

Lasergraph DSP Software Version 2010-11-18 (Mark 2 only)

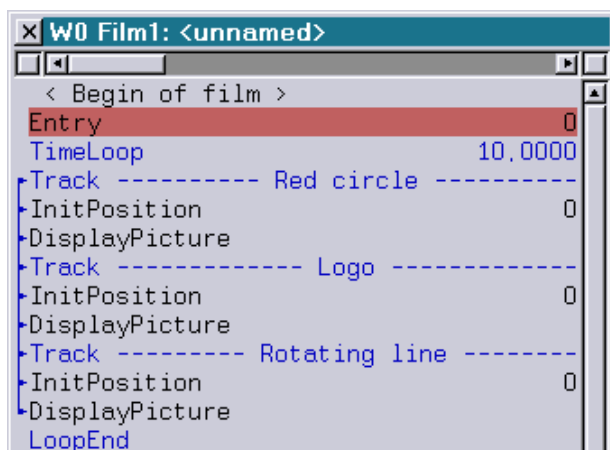
New Track Command Including a Description

In the new Track command an explanatory description can be entered in addition to the relative start and end time.

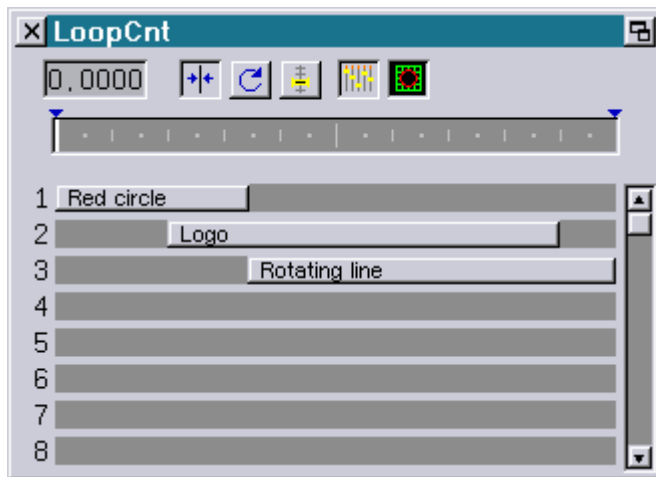


The description entered there will be displayed at the following points:

- 1) In the Trickfilm editor:



2) In the LoopCnt window:



In order to make the transition from the old to the new command easier the new Track command got the same name as the old one: Track.

The previous Track command was renamed to TrackO.

Attention!

- Show producers should be aware of the fact that the new Track command is only available on the Mark 2 starting with version 2010/11/18.
- A show containing the new Track command will not run on older systems!
- If a show is to be programmed for such older systems, the old Track command (TrackO) has to be used!

Command to Convert Old Track Commands

The command `ConvertTrackOld` converts all old Track commands (TrackO) in the current trickfilm into new Track commands (Track) while retaining the entered relative start and end times.

New Command “DMXOUTput” for Configuration (compact Mark 2 only)

With the command `DMXOUTput` it is possible to switch the DMX output of a compact Mark 2 as follows:

<code>Local256</code>	The values of the “Keyconfig” and of the Trickfilm and Timescript commands <code>SetRelais</code> , <code>SetAnalog</code> , <code>SetAnalogSingle</code> will be used as before.
<code>Network256</code>	The first 256 DMX channels of the DMX inputs of the servers specified in the “I/O-Setup” will be available at the DMX output. For this the assignment for blocks of 32 channels each set in “DMX” will be applied. That even allows a combination of multiple DMX inputs of different servers, either in sections or overlapping.

Example of Use:

The setting `Network256` can be used to transmit the applied DMX signal of another Lasergraph DSP via an existing network connection to the DMX output of a compact Mark2.

Notes:

- The actual values of the DMX output will be displayed in “DMX512-Out” of the “I/O Information”. That means after selection of `Network256` the first 256 values of the tab “DMX512-In” can be found again there.
- Depending on the speed of the network connection it is possible that there is a minimal delay between the original DMX signal and the applied signal of the DMX output. In most cases the delay stays unnoticed.
- The setting made using the command `DMXOUTput` stays unchanged up to the next reboot. The DSP is set to `Local256` after a restart.

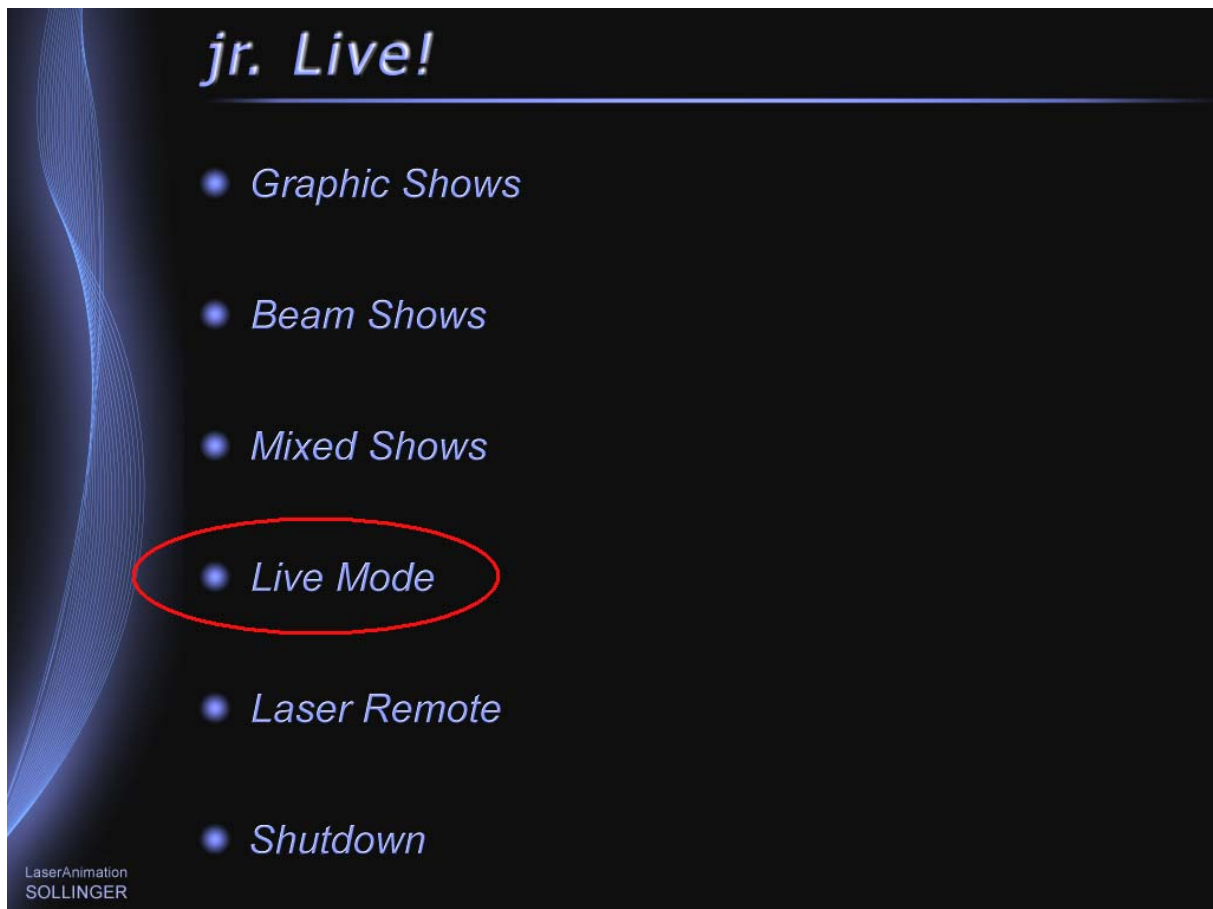
April 2010

Lasergraph DSP Software Version 2010-04-06 (Mark 2 only)

jr.Live! Live-Mode

The Live-Mode of the jr.Live! offers a simple and optically attractive possibility to call up effects live. Similar to the playback of shows, the operation has been kept deliberately simple so all functions can be accessed comfortably using a touch screen.

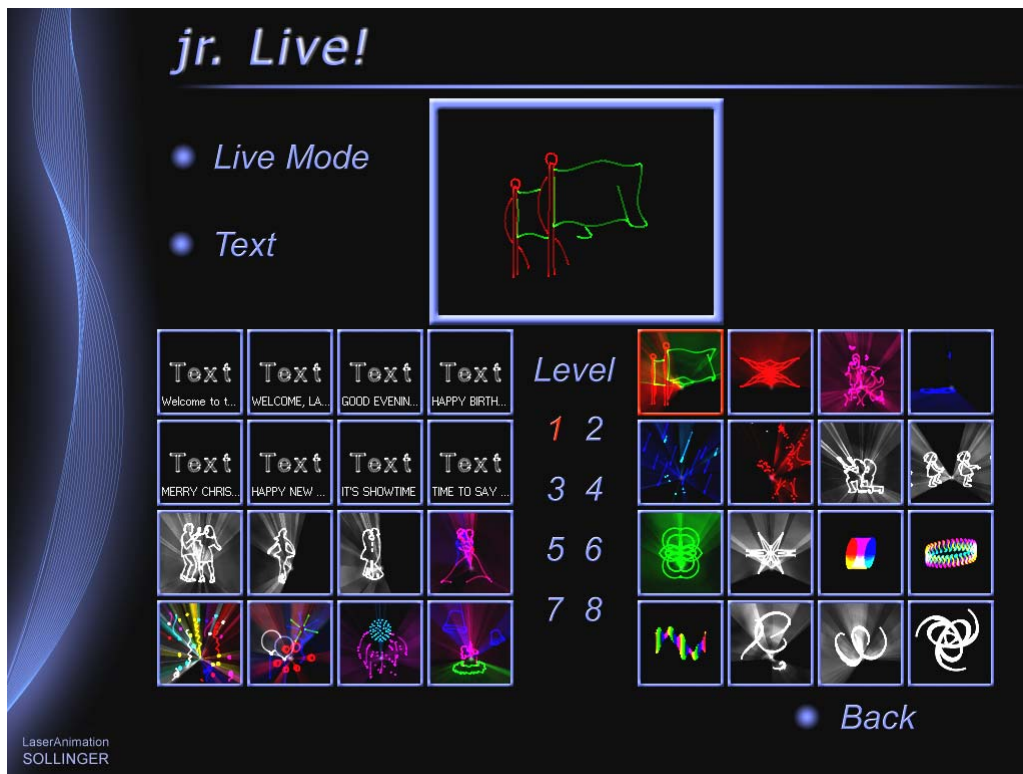
To activate the Live-Mode, select the button "Live Mode" on the starting screen of the jr.Live!:



A BOOT called "Live.BOOT" will then be loaded from the directory specified under "Wav/Avi" in the LGServer.

The effects are arranged into eight levels with 32 effects each.

The selected level is marked by a red number, the currently running effect by a red border:



Depending on the programming of the Live.BOOT it may be possible to use additional input devices such as a Midi controller or a fader board to parameterize the effects themselves.

This allows for instance size, position, brightness, color or speed to be changed as desired.

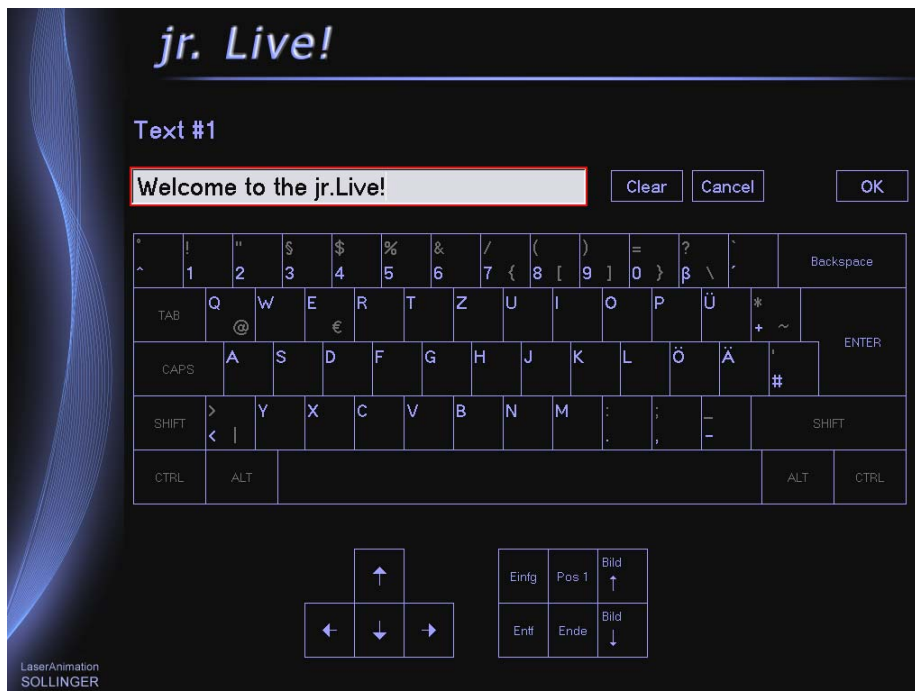
In order for the Live-Mode to be used the current jr.Live! bitmaps have to be installed on the DSP in addition to the current system software.

These can be downloaded separately (*jrLive-100330.lzip*).

Selecting the button "Text" will open the following page where the eight available texts can be edited:



Here the text which is to be edited can be selected. Then the virtual keyboard will open:



All inputs can be done using either the normal keyboard or the buttons displayed on the screen.

The following rules have to be observed when programming the Live.BOOT:

- 1) The Live-Mode starts the following entries depending on the currently selected level:

Level 1 – Effect 1: Entry 1
Effect 2: Entry 2
...
Effect 32: Entry 32

Level 2 - Effect 1: Entry 33
Effect 2: Entry 34
...
Effect 32: Entry 64

...

Level 8 - Effect 1: Entry 225
Effect 2: Entry 226
...
Effect 32: Entry 256

- 2) The respective entry is always started in all four films.

Therefore only one film should be used with the Compact which only has one output.

With the Workstation with more than one DSP card this mechanism makes it possible to start the output of more than one projector with a single button.

Another option is to assign different buttons to different projectors so that for instance the left 16 effects always control one projector while the right 16 effects always control the other projector. That makes it possible to control several projectors independently.

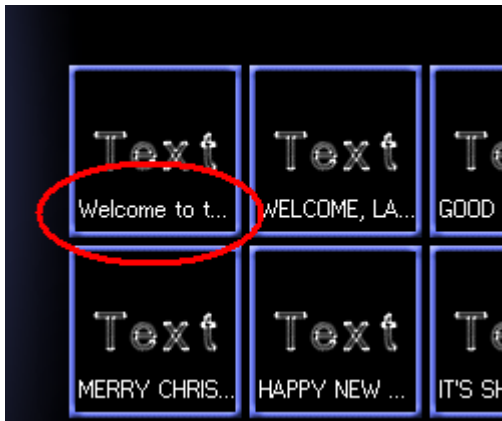
- 3) In order to assign small preview pictures to the buttons of the effects the corresponding bitmaps have to be located in the subdirectory "presets" within the Live.BOOT.
The bitmaps have to have a size of 80x80 pixels and the name of the bitmaps has to follow the following conventions:

Level 1 - Effect 1 (Entry 1): "01-01.bmp"
Level 1 - Effect 2 (Entry 2): "01-02.bmp"
Level 1 - Effect 3 (Entry 3): "01-03.bmp"
...
Level 8 - Effect 32 (Entry 256): "08-32.bmp"

- 4) In order for the texts used in the Live.BOOT to be editable in the Live-Mode these texts have to use the following descriptions in the trickfilm command `DeFineText`:

Text #1: "Text_1"
Text #2: "Text_2"
...
Text #8: "Text_8"

- 5) In order to enable the Live-Mode to display the currently entered text in addition to the preview bitmap, the effects which will output texts have to be specified as well as which of the eight texts the effects will use.



This is done through a configuration file called “Text.cfg” which has to be located in the Live.BOOT.

The “Text.cfg” file can be created using a text editor.

For each of the 256 effects one line has to exist which either contains a "-" in case the corresponding effect does not use a text or one of the numbers "1" to "8".

It is possible to use comments to structure the file. A comment begins with a ";" at the start of the line.

In case the “Text.cfg” file does not exist or if it does not comply with the format described, the entered texts will not be displayed.

Note:

When saving a BOOT using CreateBoot all files within the BOOT will be deleted, including the “Text.cfg” file. The file has to be protected (marked as "read-only") to prevent this.

- 6) If the effects of the Live.BOOT can also be started using separate input devices such as a Midi keyboard it is possible to notify the Live-Mode of the start of an entry through the Shared-Variable 10 so that the effect can be marked on the screen accordingly.

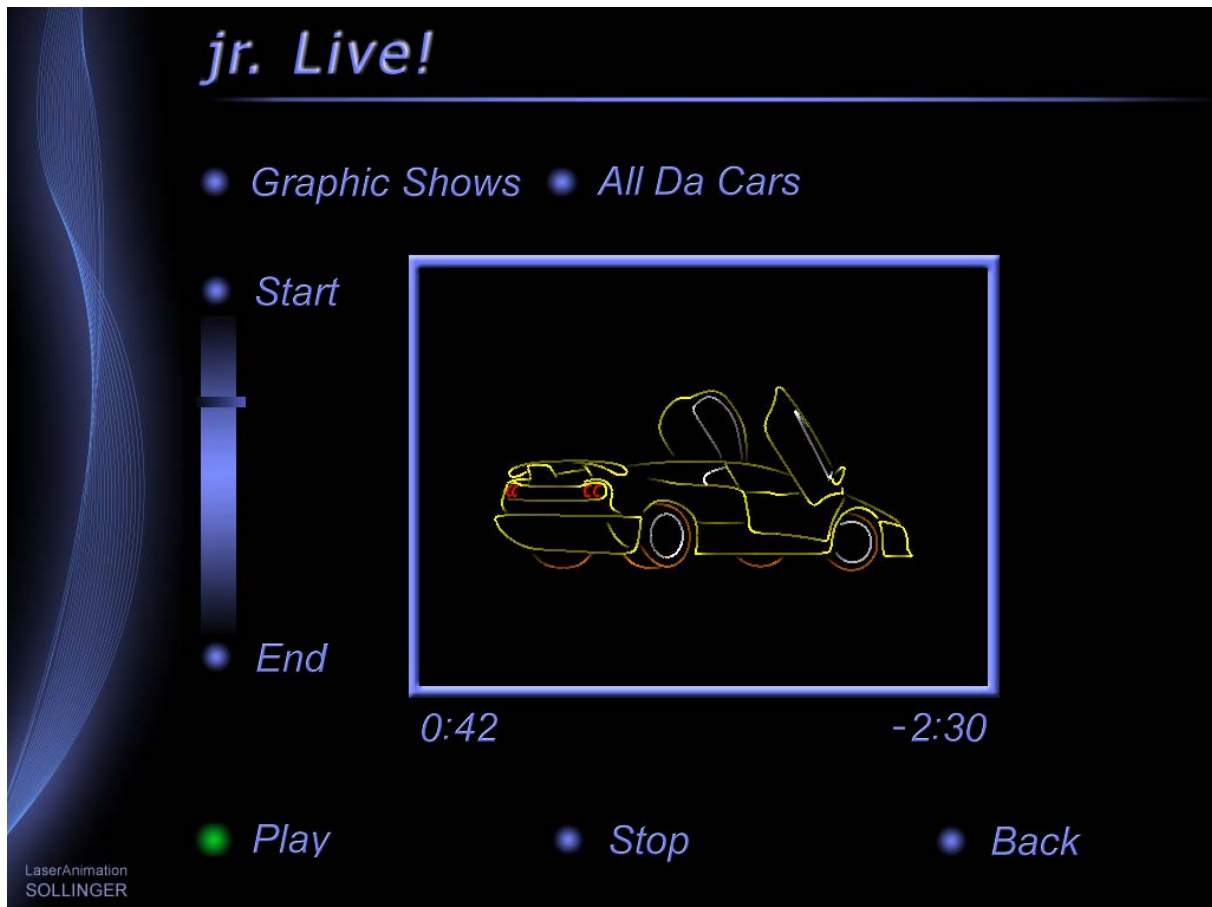
If this mechanism is to be used each entry has to begin with a `SetVariable` command which sets the Shared-Variable 10 to the number of the entry (1-256).

Example for effect 5: `Shared(10) = 5`

For all those who prefer not to program the Live.BOOT themselves, we provide a corresponding Live.BOOT including instructions.

jr.Live! Display of Running and Remaining Time

While a show is running on the jr.Live! the currently elapsed time and the remaining time are now displayed:



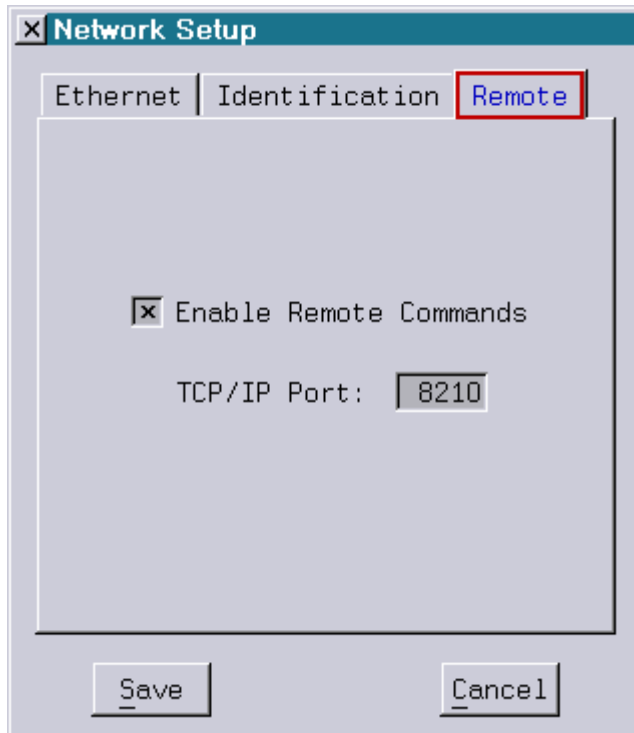
In order for this to work the current jr.Live! bitmaps have to be installed on the DSP in addition to the current system software.

These can be downloaded separately (*jrLive-100330.lzip*).

Remote Control of the DSP over the Network

It is now possible to send commands to the DSP over a TCP/IP port which can be freely chosen. The commands have to be concluded with "CR/LF". They will be put into the command line of the DSP and will be executed as if they had been entered locally.

In order to enable this functionality the tab "Remote" was added to the Network Setup:



Examples for the use of this feature are control of the DSP through another DSP (using `SetCmd` and `SENDstring`), a media server or even over mobile phones.

Global Brightness by Fader or DMX

From now on it is possible to control the GlobalBrightness not only with a fixed value but also using one of the 64 faders or one of the 512 DMX channels.

Examples:

```
Screen parameter for Film 1 Testpattern OFF
Globals:  Swap  Get    Advanced Parameters
HSize:   1,0000  H=V   VSize:   1,0000  Center
HShift:  0,0000  H&V   VShift:  0,0000
XMIN-1,000 XMAX 1,000 YMIN-1,000 YMAX 1,000
Brightness: Fader 3  Set:  0 <unnamed>
```

```
Screen parameter for Film 1 Testpattern OFF
Globals:  Swap  Get    Advanced Parameters
HSize:    1,0000  H=V  VSize:    1,0000  Center
HShift:    0,0000  H&V  VShift:    0,0000
XMIN-1,000 XMAX 1,000 YMIN-1,000 YMAX 1,000
Brightness: DMX 100  Set:  0 <unnamed>
```

Note:

For safety reasons the selected fader or DMX channel is not stored!

After restarting the DSP the GlobalBrightness will again be set to 1.000 (100%).

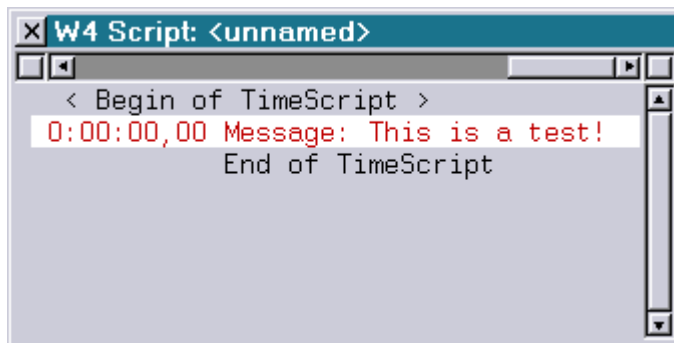
A "ReBoot" will not change this setting!

New Timescript Command: Message

A new command is now available in the Timescript which can be used to trigger an output in the message window. Until now this was only possible indirectly, using the HOSTcmd command.

Example:

The following command



```
W4 Script: <unnamed>
< Begin of TimeScript >
0:00:00,00 Message: This is a test!
End of TimeScript
```

will lead to the following output when executed



```
Message Display
This is a test!
```

Faster Entry Method in the Editing Mode

For many trickfilm commands it is now possible to specify one or more important parameters directly when inserting the command.

Example:

```
Insert Entry 100 (or for short: i e 100)
```

inserts the entry 100 at the current position.

Up to now it was necessary to switch to the editing window after inserting the command and to enter the number of the desired entry there, 100 in this example.

The new mechanism is supported for the following commands:

- Entry <number of entry>
- EntrySubroutine <number of entry>
- Goto <number of entry>
- GoSub <number of entry>
- ConditionalGoto <number of entry>
- ConditionalGoSub <number of entry>
- Loop <number of repeats>
- TimeLoop <time in seconds>
- Wait <time in seconds>
- InitPosition <number of position>
- DisplayBuffer <number of buffer>
- CopyPictoBuffer <number of buffer>
- CopyBuffer <number of source buffer>
<number of destination buffer>
- SetColorBuffer <number of color-buffer>
- CopyColorBuffer <number of color-buffer> <number of palette>

March 2010

Lasergraph DSP Software Version 2010-03-08

Keyconfig / Mapconfig / Bankconfig (Mark 2 only)

It is now possible to switch directly between *Keyconfig*, *Mapconfig* and *Bankconfig*. This was already possible for *Keyconfig* and *Mapconfig*. Previously the *Bankconfig* could only be called up from the starting screen.

Message Command Enhanced (Mark 2 only)

Two subcommands were added to the command "MESSAGE":

- 1) MESSAGE.Open <string> opens the "Message Display" window
specifying the message <string> is optional
- 2) MESSAGE.Close closes the "Message Display" window

Limitation of the Minimum Interpolation Distance

The smallest possible interpolation distance (*MaxdistDrawn* and *MaxdistBlanked*) in the command *SCanningParameter* was limited to 0.0001.

Up to now entering for example "0.0" (menu entry <F1>) or entering an uninitialized variable could result in very slow picture output and in intermittent reactions of the DSP to user inputs.

Attention!

In case a show contained a negative interpolation distance by mistake, this will also be set to 0.0001 which will lead to a change of the output.

Sipro Emulation Improved

When using the Sipro commands *#DisplayPicture*, *#DRAwPicture* and *#DisplayAnimation* the first line is now displayed with its correct color. Up to now it was displayed in black.

Additional Changes

- For a clearer arrangement some commands which are no longer used were removed from the trickfilm "All commands in alphabetical order" list.
- In the menu for selection of the wave form in the abstract command the menu entry "BufIZ" was replaced with "BufAI" / "BufBI" / "BufCI" / "BufDI".
- Internal code adaptations for future enhancements (Mark 2 only).

LASERGRAPH DSP RELEASE NOTES 2009

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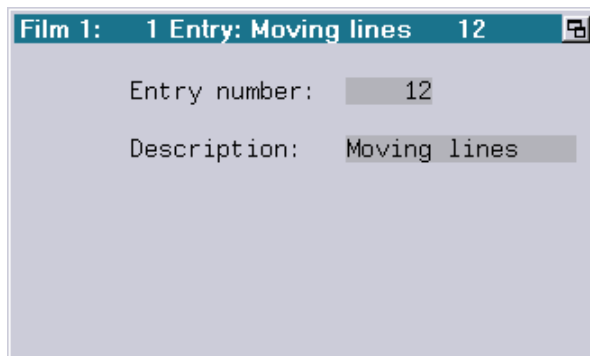
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September 2009

Lasergraph DSP Software Version 2009-09-23

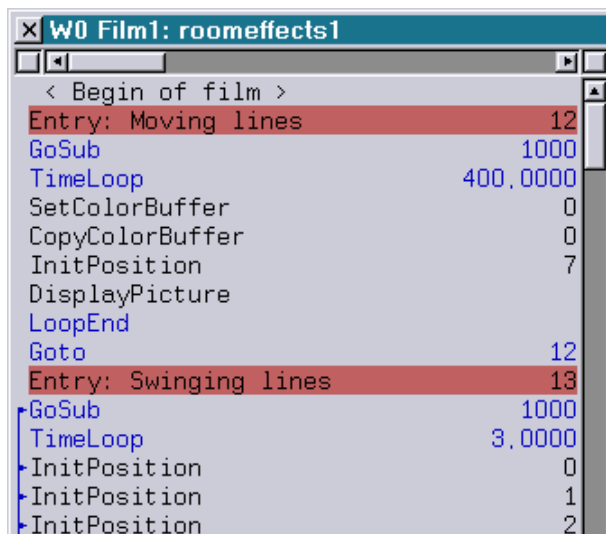
New Entry Command Including a Description (Mark 2 only)

In the new Entry command an explanatory description can be entered in addition to the Entry number.

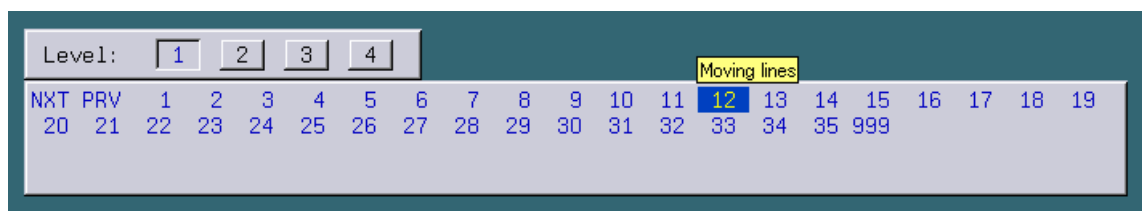


The description entered there will be displayed at the following points:

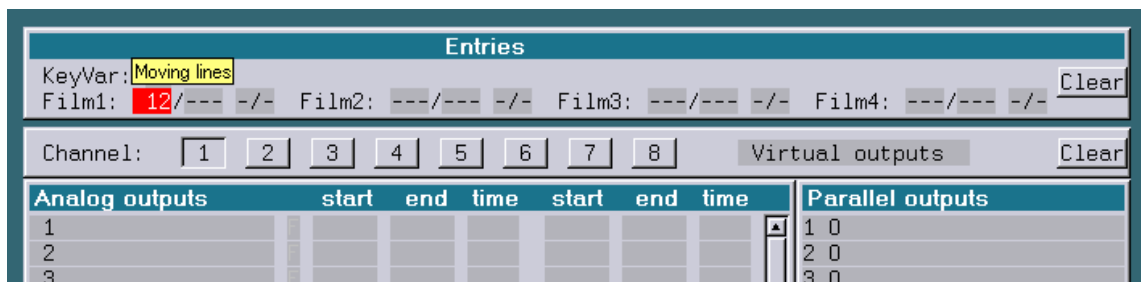
- 1) In the Trickfilm editor:



- 2) As a tooltip in the Entry table:



3) As a tooltip in the Keyconfig:



The tooltip in the Keyconfig will only be displayed if the trickfilm has been compiled.

In order to make the transition from the old to the new command easier the new Entry command got the same name as the old one: `Entry`. The previous Entry command was renamed to `EntryO`.

Attention!

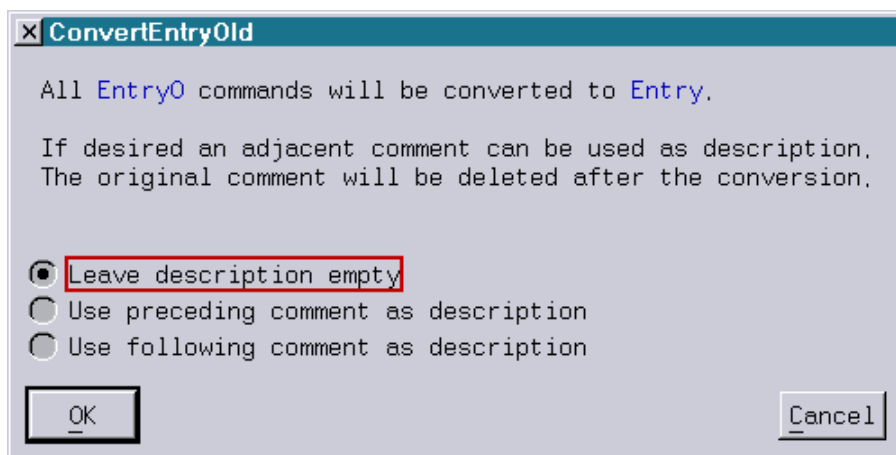
- Show producers should be aware of the fact that the new Entry command is only available on the Mark 2 starting with version 2009/09/23.
- A show containing the new Entry command will not run on older systems.
- If a show is to be programmed for such older systems, the old Entry command (`EntryO`) has to be used!

Command for Converting old Entry Commands (Mark 2 only)

The command `ConvertEntryOld` converts all old Entry commands (`EntryO`) in the current trickfilm into new Entry Commands (`Entry`) while retaining the entered Entry numbers.

Optionally comments already present directly before or after the old `Entry` command can be used as description for the new `Entry` command.

For this the following window opens after entering the command:



"Leave description empty":

Only the Entry number is used for the conversion, the description in the new Entry command stays empty.

"Use preceding comment as description":

If a comment was present directly before the old Entry command this comment will be used as description in the new Entry command.

The original comment will then be deleted.

If there was no comment in front of the old Entry command, the description in the new Entry command stays empty.

"Use following comment as description":

If a comment was present directly after the old Entry command this comment will be used as description in the new Entry command.

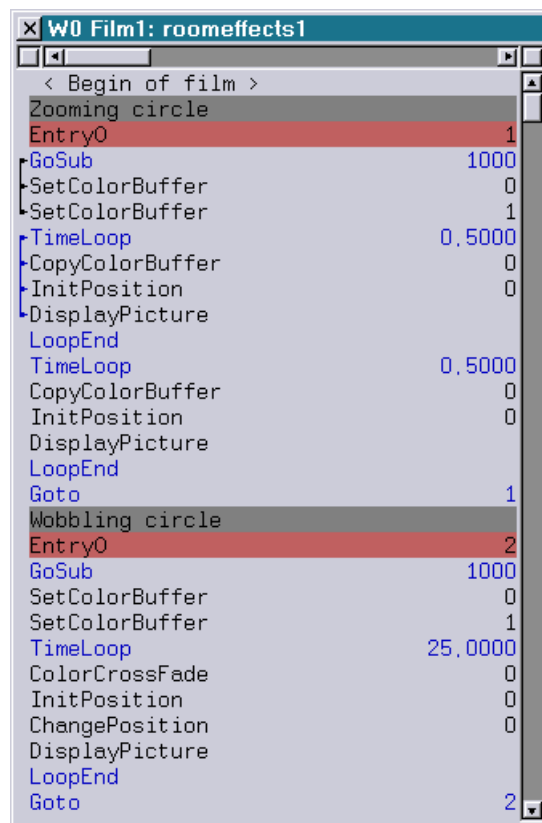
The original comment will then be deleted.

If there was no comment behind the old Entry command, the description in the new Entry command stays empty.

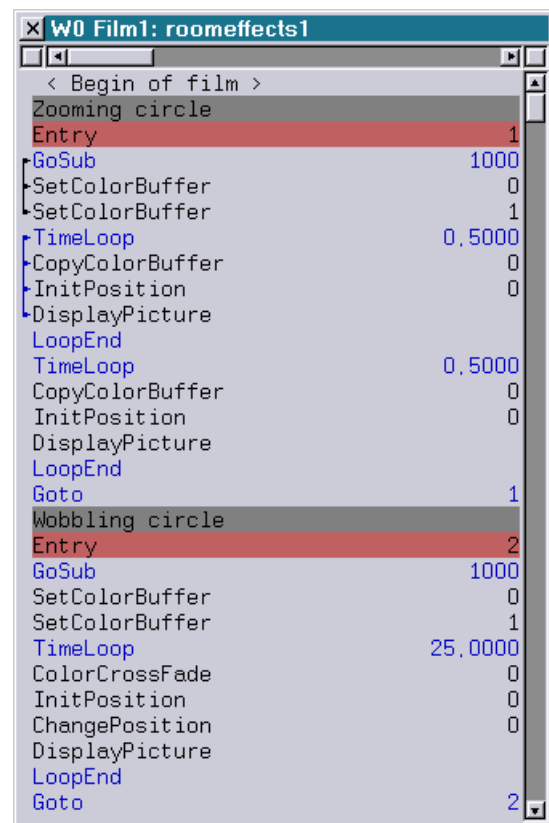
Examples:

Conversion of a film with *"Leave description empty"*:

Before conversion:



After conversion:



Conversion of a film with "*Use preceding comment as description*":

Before conversion:

W0 Film1: roomeffects1	
< Begin of film >	
Zooming circle	
Entry0	1
GoSub	1000
SetColorBuffer	0
SetColorBuffer	1
TimeLoop	0.5000
CopyColorBuffer	0
InitPosition	0
DisplayPicture	
LoopEnd	
TimeLoop	0.5000
CopyColorBuffer	0
InitPosition	0
DisplayPicture	
LoopEnd	
Goto	1
Wobbling circle	
Entry0	2
GoSub	1000
SetColorBuffer	0
SetColorBuffer	1
TimeLoop	25.0000
ColorCrossFade	0
InitPosition	0
ChangePosition	0
DisplayPicture	
LoopEnd	
Goto	2

After conversion:

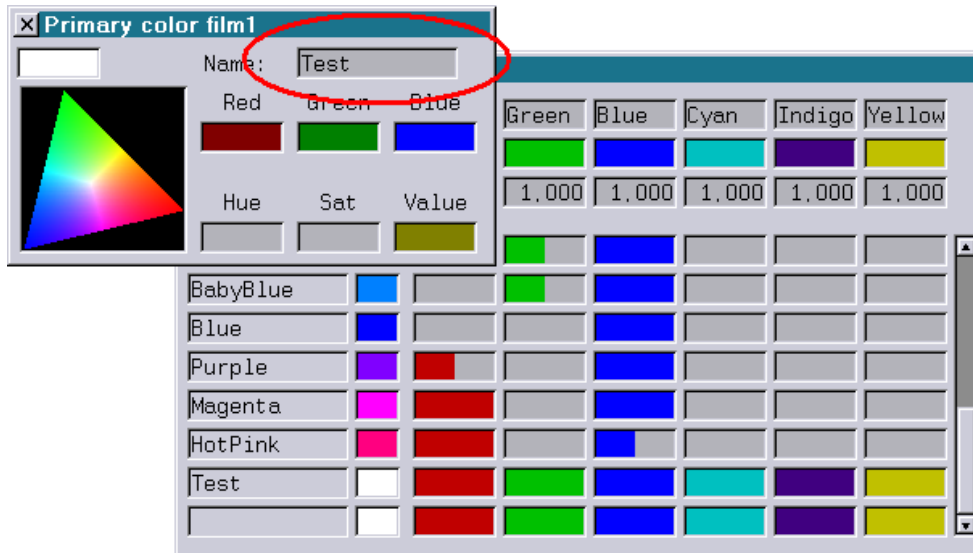
W0 Film1: roomeffects1	
< Begin of film >	
Entry: Zooming circle	1
GoSub	1000
SetColorBuffer	0
SetColorBuffer	1
TimeLoop	0.5000
CopyColorBuffer	0
InitPosition	0
DisplayPicture	
LoopEnd	
TimeLoop	0.5000
CopyColorBuffer	0
InitPosition	0
DisplayPicture	
LoopEnd	
Goto	1
Entry: Wobbling circle	2
GoSub	1000
SetColorBuffer	0
SetColorBuffer	1
TimeLoop	25.0000
ColorCrossFade	0
InitPosition	0
ChangePosition	0
DisplayPicture	
LoopEnd	
Goto	2
Entry: Struggling circle	3
GoSub	1000

Deleting Unused Entries from the Primary Color Table (Mark 2 only)

Up to now, once a new color was created in the Primary Color Table, there was no way of deleting it again.

The only way of deleting colors was copying the whole trickfilm into an empty trickfilm. This would only copy the colors actually used in the trickfilm, thereby implicitly removing all unused colors.

From now on individual colors can be deleted directly by simply deleting the name of the color:

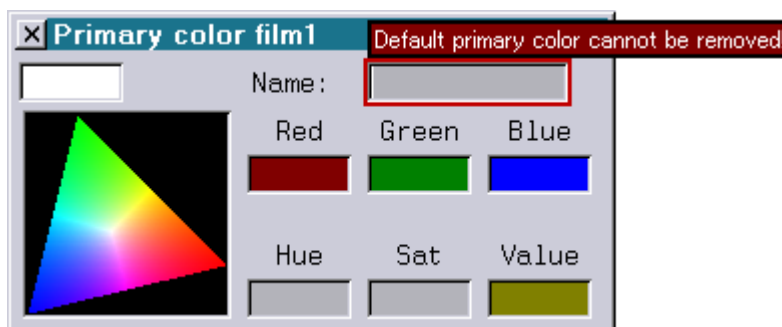


Notes:

Colors can only be deleted from the Primary Color Table if they are no longer used in the trickfilm:

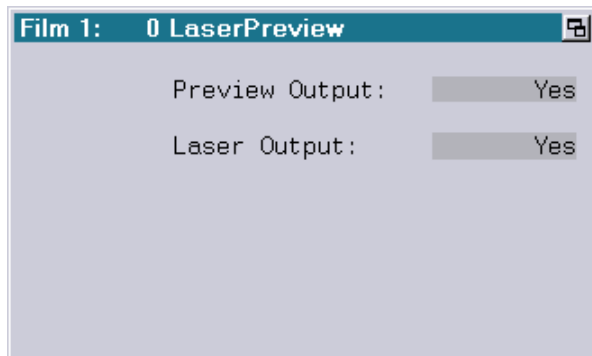


Also the 17 default colors cannot be deleted.



New Trickfilm Command LaserPreview (Mark 2 only)

The new command `LaserPreview` can be used to determine if the following outputs are to be displayed on the laser and / or in the preview window:



Laser Output: "Yes" ⇒ The following outputs are displayed by the projector.
"No" ⇒ The following outputs are not displayed by the projector.

Preview Output: "Yes" ⇒ The following output will appear in the preview window.
"No" ⇒ The following output will not appear in the preview window.

The command `LaserPreview` is for instance applicable in the Live Mode of the jr.Live!
Here a picture or an effect can be seen in the preview window before it is actually displayed on the laser, independent of the currently running effect.

Example:

The following trickfilm sequence displays a circle on the laser and a square in the preview window:

TimeLoop

<code>LaserPreview</code>	<code>Laser Output = Yes / Preview Output = No</code>
<code>InitPosition</code>	
<code>DisplayPicture</code>	<code>Circle</code>
<code>LaserPreview</code>	<code>Laser Output = No / Preview Output = Yes</code>
<code>InitPosition</code>	
<code>DisplayPicture</code>	<code>Square</code>

LoopEnd

Notes:

- Even when the laser or preview output is disabled the trickfilm commands are still executed. Therefore color, position, SWC mask and so on are modified by the corresponding commands even when the output is disabled.
- The number of frames per second (fps) displayed in the Super Preview when "Display Laser Fps" is enabled, is based on the output shown in this preview window. The frames per second of the actual laser output might be different.

Attention:

- The command `LaserPreview` should be used by experienced programmers only. A mistake could cause unpredictable results like no laser output while the preview window still shows the desired output.
- Shows containing the new `LaserPreview` command cannot be run on older systems!

Miscellaneous**Key Macros:**

A macro recorded for the key combinations `<CTRL> + <H>`, `<CTRL> + <I>` resp. `<CTRL> + <M>` will no longer be triggered by the keys `<BACKSPACE>`, `<TAB>` resp. `<RETURN>`.

This was the case up to now because the following keys generate the same key code as the following key combinations:

<code><BACKSPACE></code>	=	<code><CTRL> + <H></code>
<code><TAB></code>	=	<code><CTRL> + <I></code>
<code><RETURN></code>	=	<code><CTRL> + <M></code>

Trickfilm and Timescript Editor:

Instead of the command `List` it is now possible to enter `Goto`.

Example:

```
Goto 100      jumps to line 100 in the editor.
```

Several small bugs fixed.

July 2009

Lasergraph DSP Software Version 2009-07-23

Improved Beam Output

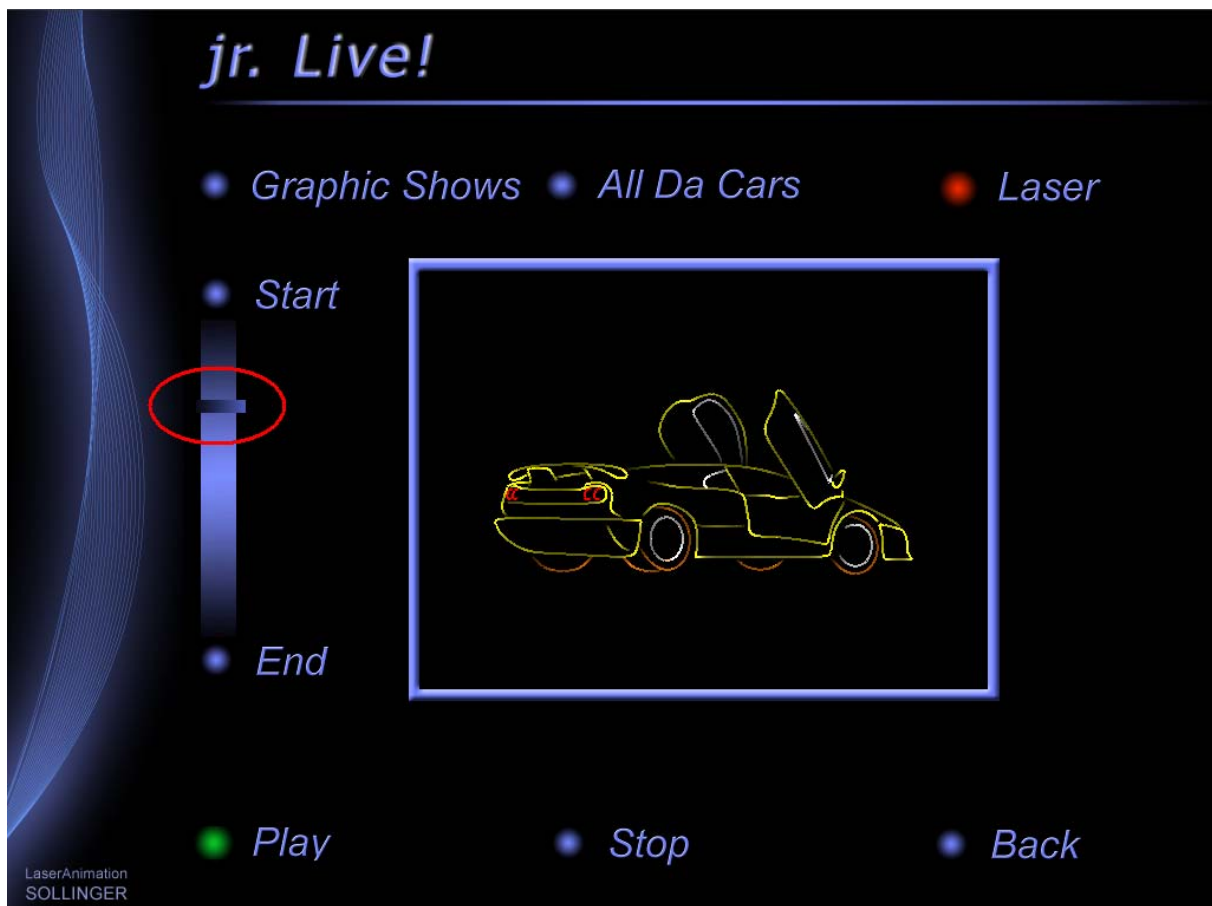
The output quality of beams under changing values of external input devices (faderboard, DMX, etc.) was improved significantly.

Up to now such changing values would lead to a premature termination of the beam output, which in turn would lead to an uneven distribution of the intensity if several beams were displayed.

This has now been remedied.

Enhancement of the "jr.Live!" (Mark 2 only)

It is now possible to change the current play-back position of a running show by grabbing the scrollbar with the mouse.



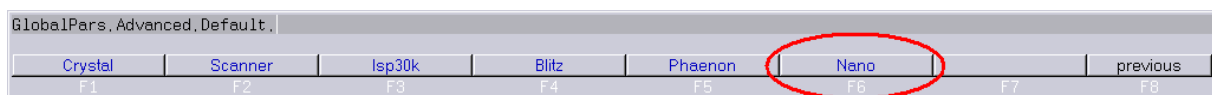
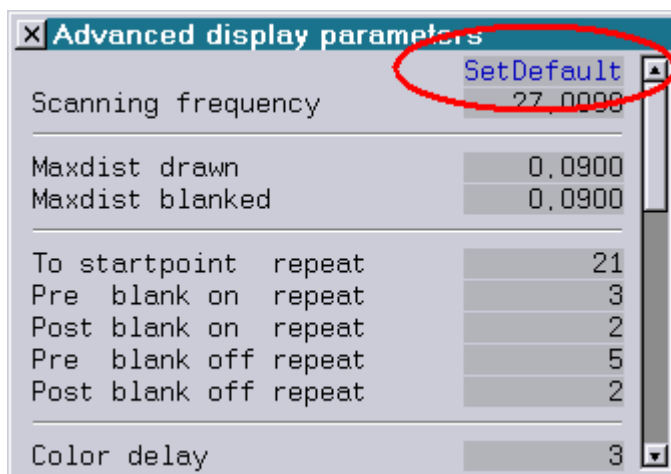
Changes in the Master/Slave Operation

If the DSP assignment was changed when a show was loaded on a slave compact, the original configuration is now restored with a `CreateBoot`.

This makes it possible to make changes to a show on a slave without having to reset the original DSP assignment before saving the show.

New Default Scanning Parameters

There is now a default setting called `Nano` available after selecting `SetDefault` in the "Advanced display parameters" or entering `GlobalPars.Advanced.Default..` This setting was optimized for the RGB laser series "Nano" by RTI (Ray Technologies International GmbH)



New Option for the Command "LoadColors" (Mark 2 only)

Using the option `/Overwrite` with the command `LoadColors` will force the colors to be loaded without a confirmation requester.

This may for instance be helpful for loading primary colors using `KeyMacros`.

Scrolling in the LoopCnt Window Using the Mouse Wheel (Mark 2 only)

From now on the mouse wheel can be used for scrolling in the `LoopCnt` window as long as the mouse pointer is not located directly on the scroll bar.

ILDA Import/Export

The Z-coordinate was mirrored in the ILDA import/export. This has now been corrected.

June 2009

Lasergraph DSP Software Version 2009-06-04

Support for Windows® Vista (Mark 2 only)

It is now possible to access shares of Windows® Vista using the Mark 2.

Piced: New catalog function "ColorShift" (Mark 2 only)

The new function "ColorShift" can be used to shift color and blanking relative to X/Y of all pictures within one or more catalogs by a specified number of points.

```
CATalog.ColorShift <catalog> <shift>
```

<catalog>

Name of the catalog. The catalog has to be in the Picture memory. It may contain wildcards ('*' or '?') if more than one catalog shall be modified.

<shift>

Number of points the color and blanking information shall be shifted.

Note:

The function "ColorShift" should only be used on pictures having no repeats. This can be for example pictures which have been converted from another format (e.g. ILDA format) to the DSP.

Miscellaneous (Mark 2 only)

- 1) The Sipro commands #DisplayPicture, #DRAwPicture and #DisplayAnimation do not display the picture always using the slow color mode anymore. They now use the color mode setting from the "Advanced Parameters".
Background:
Beginning with the Sipro II the Sipro contains a jumper for selecting the slow color mode. Until now the simulation on the DSP always used the slow color mode.
- 2) Some small bugs affecting the Live-Mode of the "jr.Live!" have been fixed.

April 2009

Lasergraph DSP Software Version 2009-04-20

I/O Info Expanded (Mark 2 only)

The size of the "I/O Information" window can now be changed.

On the "MIDI" page the values for Switch (Midi command "Control Change 64...95") and Program (Midi command "Program Change") are now also displayed:

Timecode

DMX512-In

DMX512-Out

Analogs/Joysticks

RS-232

MIDI

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

Channel:

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Note:

C

C#

D

D#

E

F

F#

G

G#

A

B

H

0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
48	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
60	0.000	0.000	0.000	0.000	0.000	-0.906	0.000	0.000	0.000	0.000	0.000	0.000
72	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
84	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.803	0.000
108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Control:

0	0.000	0.500	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000	0.000	0.300
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Switch:

0	0.504	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.756	0.000	0.252	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Program:

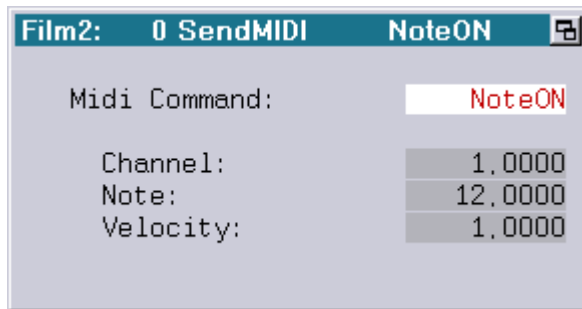
12

Pitch Bend:

0.8500

Midi Commands Revised

The placement of the parameters of the command "SendMIDI" was changed for easier handling:



In addition the query function "MidiWheel()" was renamed to "MidiPitch()" to make it conform with the command "SendMIDI" and the "I/O Information" display.

Corrections to the Live Mode of the "jr.Live!" (Mark 2 only)

Some small errors and flaws were corrected in the live mode of the "jr.Live!".

March 2009

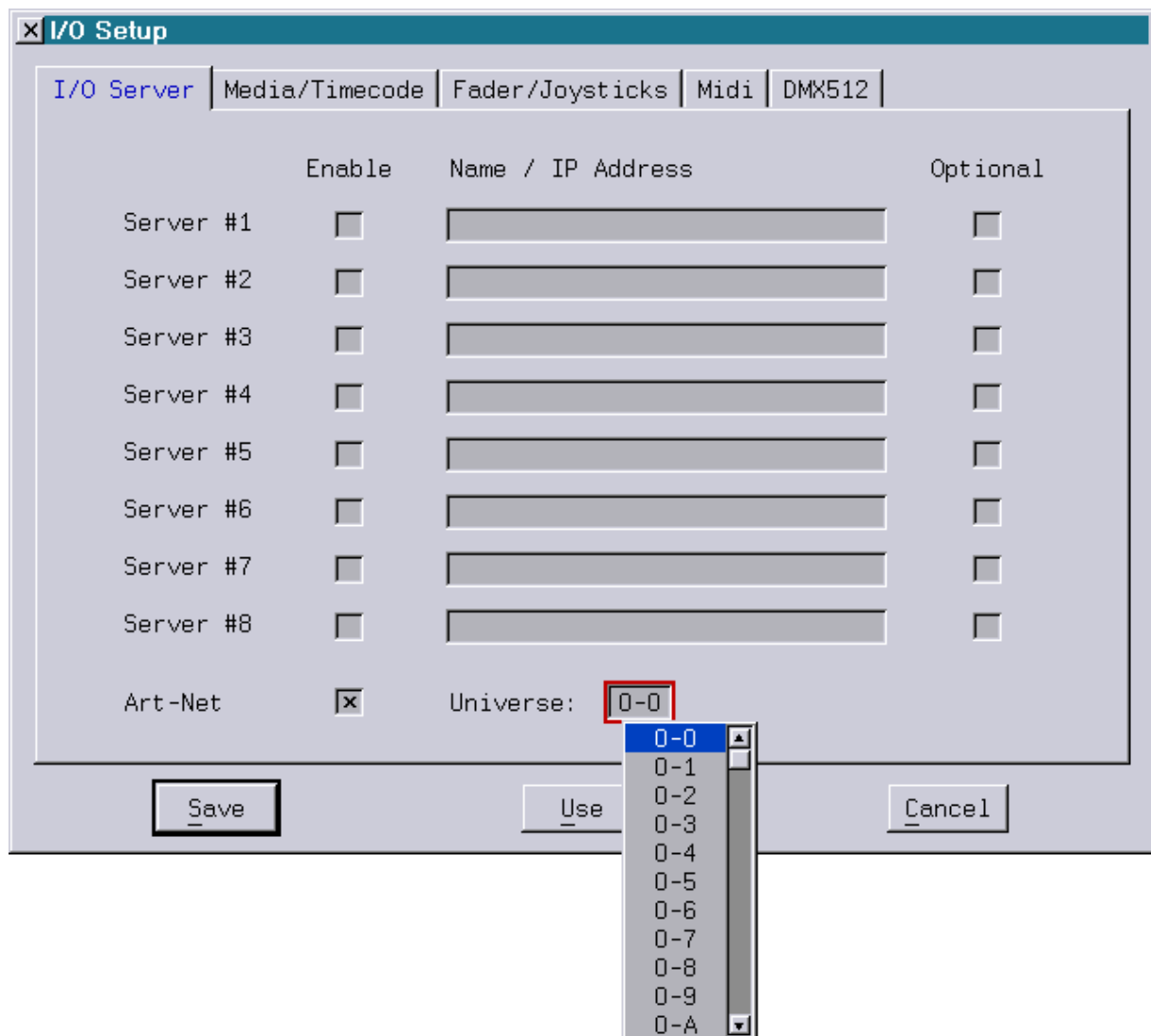
Lasergraph DSP Software Version 2009-03-24

Support for Art-Net (Mark 2 only)

Art-Net is an Ethernet protocol based on TCP/IP for transmitting DMX512.

It was developed by Artistic Licence (UK) Ltd. and from now on it can be used exactly like any other DMX512 source to control the Mark 2.

In order to activate the Art-Net client on the Mark2 the checkbox "Enable" has to be activated under "I/O Server" in the I/O Setup and the desired Art-Net universe has to be selected.



Like for the other servers, under "DMX512" the DMX channels which Art-Net is to use can be selected. For this the new column "Art-Net" was added.

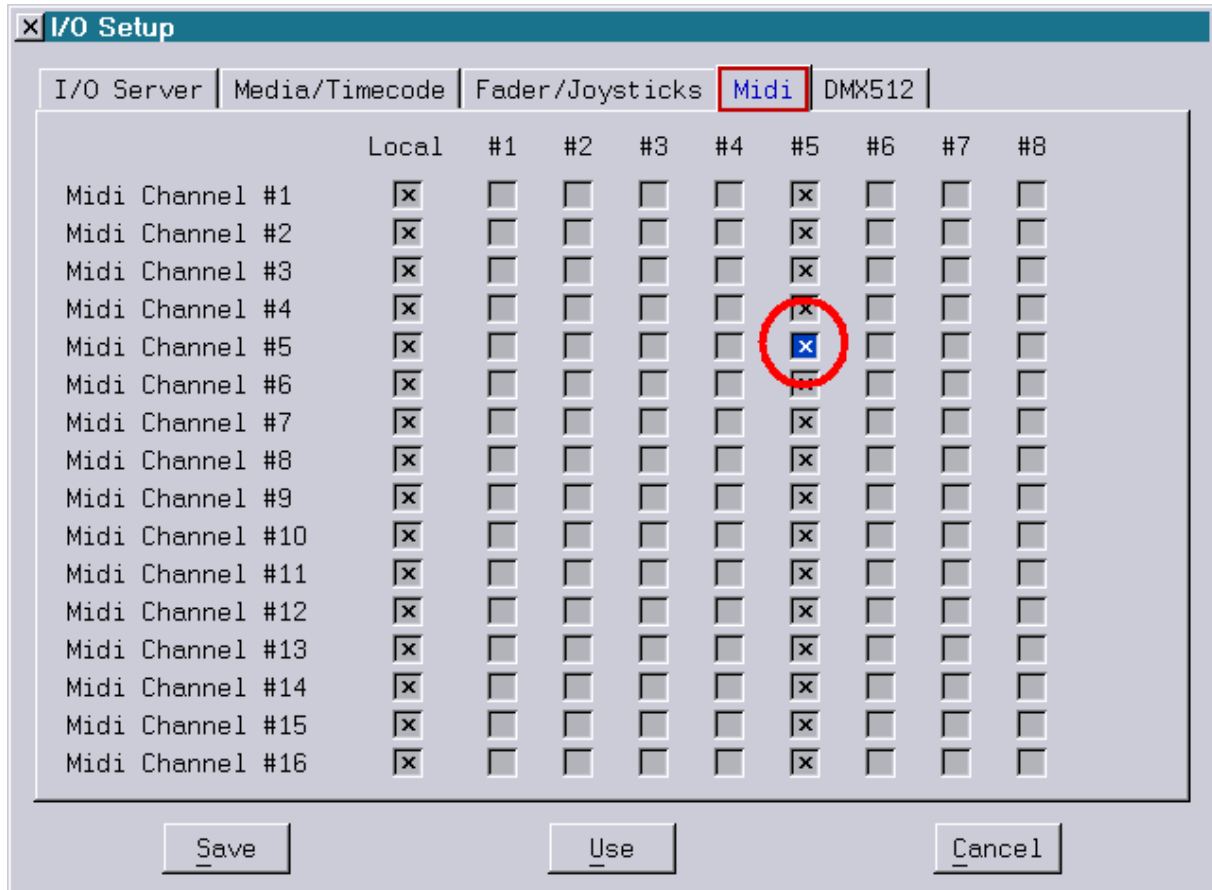
The screenshot shows the "I/O Setup" dialog box with the "DMX512" tab selected. The dialog has tabs for "I/O Server", "Media/Timecode", "Fader/Joysticks", "Midi", and "DMX512". The "DMX512" tab contains a table with columns for "Local", "#1", "#2", "#3", "#4", "#5", "#6", "#7", "#8", and "Art-Net". The "Art-Net" column is circled in red. The table lists DMX channels from 1-32 to 481-512. The "Local" column is checked for all channels, while the other columns are unchecked. The "Art-Net" column is checked for all channels.

	Local	#1	#2	#3	#4	#5	#6	#7	#8	Art-Net
DMX Channel 1-32	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 33-64	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 65-96	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 97-128	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 129-160	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 161-192	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 193-224	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 225-256	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 257-288	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 289-320	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 321-352	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 353-384	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 385-416	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 417-448	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 449-480	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DMX Channel 481-512	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Buttons: Save Use Cancel

Easier Operation in the I/O Setup

From now on, in order to activate or deactivate all checkboxes of a server it is possible to click any checkbox with the middle mouse button or with the left mouse button while the <ALT> key is pressed.



Revised ILDA Export

The old ILDA export of the DSP was fundamentally revised. It now supports the new TrueColor formats (4 and 5) in addition to the old formats with indexed colors (0 and 1).

There are two functions available for converting DSP pictures into the ILDA format:

1. SaveILDA <catalog> <filename>

converts the catalog <catalog> present in the memory into the ILDA format and saves the result on the harddisk under the name <filename>.

2. COnvert.DSPtoILDA <catalog> <filename>

converts the catalog <catalog> located on the hard disk into the ILDA format and also saves the result on the hard disk under the name <filename>.

In both cases the following options are available:

- **/3D**

The pictures will be saved in the ILDA format 0 (3D images with "indexed color") resp. ILDA format 4 (3D images with "true color"). For three-dimensional pictures this option will have no effect.

- **/2D**

The pictures will be saved in the ILDA format 1 (2D images with "indexed color") resp. ILDA format 5 (2D images with "true color"). For three-dimensional images this option will cause the Z-information to be lost.

If neither /3D nor /2D is specified the most suitable format for each image will be determined automatically.

- **/TrueColor**

The pictures will be saved in the ILDA format 4 (3D images with "true color") resp. ILDA format 5 (2D images with "true color").

If one or more pictures do not contain TrueColor information, the following dialog will open to determine how the indexed colors are to be mapped to the TrueColors:



- **/IndexedColor**

The pictures will be saved in the ILDA format 0 (3D images with "indexed color") resp. ILDA format 1 (2D images with "indexed color").

If one or more pictures contain TrueColor information, the following dialog will open to determine how the TrueColors are to be mapped to the indexed colors.



If neither /TrueColor nor /IndexedColor is specified the most suitable format for each image will be determined automatically.

- **/NoPrecompute**

Unless this option is selected the pictures will be precomputed according to the currently active scanning parameters prior to conversion into the ILDA format.

```
Screen parameter for film 1 testpattern OFF
Globals:  Swap  Get  Advanced Parameters
HSize:   1.0000  H=V  VSize:  1.0000 Center
HShift:  0.0000  H&V  VShift:  0.0000
XMIN-1.000 XMAX 1.000 YMIN-1.000 YMAX 1.000
Global brightness: 1.000  0 <unnamed>
```

Advanced display parameters		SetDefault
Scanning frequency		27.0000
Maxdist drawn		0.0900
Maxdist blanked		0.0900
To startpoint repeat		21
Pre blank on repeat		4
Post blank on repeat		1
Pre blank off repeat		6
Post blank off repeat		1
Color delay		2

The following scanning parameters will be used for precomputing:

```
Maxdist drawn
Maxdist blanked
-----
To startpoint repeat
Pre blank on repeat
Post blank on repeat
Pre blank off repeat
Post blank off repeat
-----
Color delay
```

Other Changes

It is no longer necessary to specify the parameter "Script1" with commands addressing the timescript. The following commands are affected by this change:

- in DOS/File Mode:
LoadScript, MergeScript, UnLoadScript, SaveScript and PSavScript
- in Edit Mode:
PPlay and Compile

LASERGRAPH DSP RELEASE NOTES 2008

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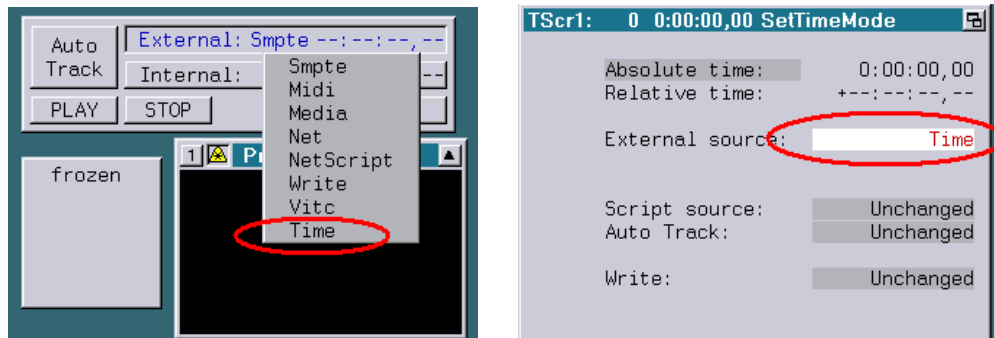
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November 2008

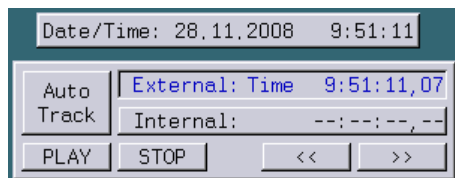
Lasergraph DSP Software Version 2008-11-28

New Timecode Source: "Time" (Mark 2 only)

From now on an additional external timecode source is available in the Mark 2:



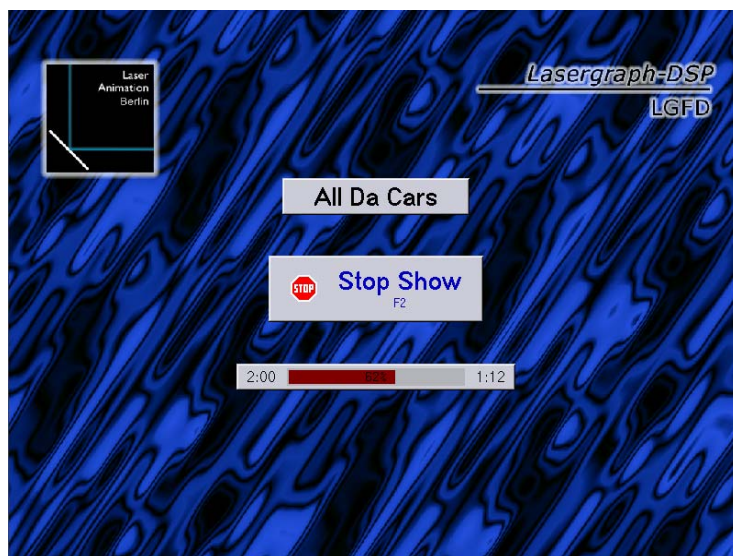
When "Time" is the selected timecode source the current time of day will be used as timecode.



This makes it possible to synchronize shows with the current time without complex trickfilm programming.

New: Running Time and Remaining Time Display in LGFD

When playing back a show in LGFD the elapsed running time will now be displayed to the left, the remaining time to the right of the progress bar:



KeyConfig: "Dials" Renamed to "Fader"

Previously there were three different names for the analog inputs: "Analog", "Fader" and "Dial". The term "Dial" was only used in the KeyConfig. In order to simplify the nomenclature, as a first step the Dials in the KeyConfig were renamed to Fader.

Error with "Find" Fixed

The command "Find" in the edit mode did not reliably find the trickfilm commands "SetBeam" and "Lssajous0".

October 2008

Lasergraph DSP Software Version 2008-10-16

New Playback and Live Interface: "jr. Live!" (Mark 2 only)

Introduction

With the "jr. Live!" we now offer a user interface which is optically attractive and can be used intuitively. With "jr. Live!" you do not need special previous knowledge to select and start shows and call up live effects.

In contrast to the LGFD, the Laser-Preview is a fixed part of the new interface.

The "jr. Live!" is designed to be operated completely with the use of a touch-screen display.

The shows of the "jr. Live!" are sorted into three categories:

- ✓ Graphic Shows
- ✓ Beam Shows
- ✓ Mixed Shows

For live applications there is a separate

- ✓ Live Mode

Setup

The following steps are necessary to use the "jr. Live!" interface:

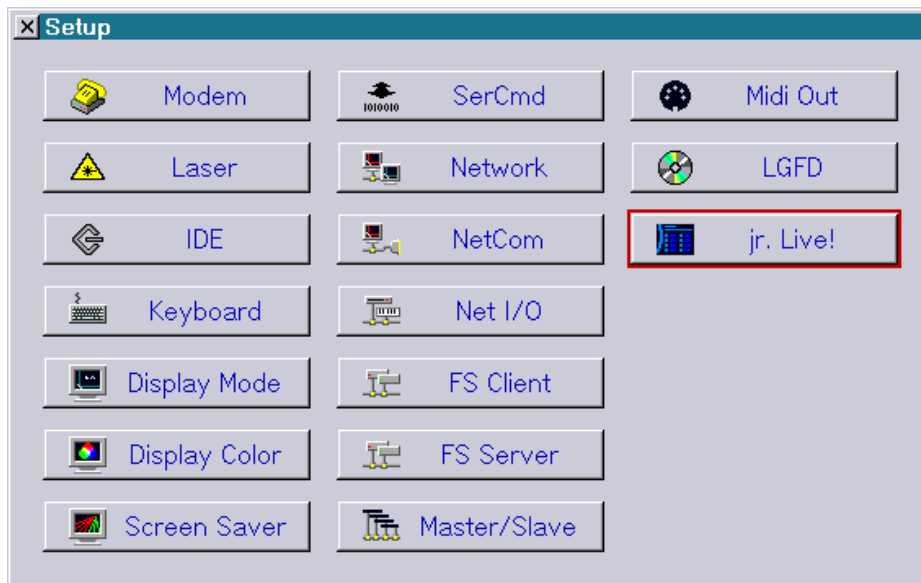
LGServer is required for selecting and playing back the shows.

- "Enable Wav/Avi" has to be activated in the LGServer. A path has to be specified which contains the following subdirectories:
 - Graphics (contains the shows of the "Graphic Shows" category)
 - Beams (contains the shows of the "Beam Shows" category)
 - Mixed (contains the shows of the "Mixed Shows" category)

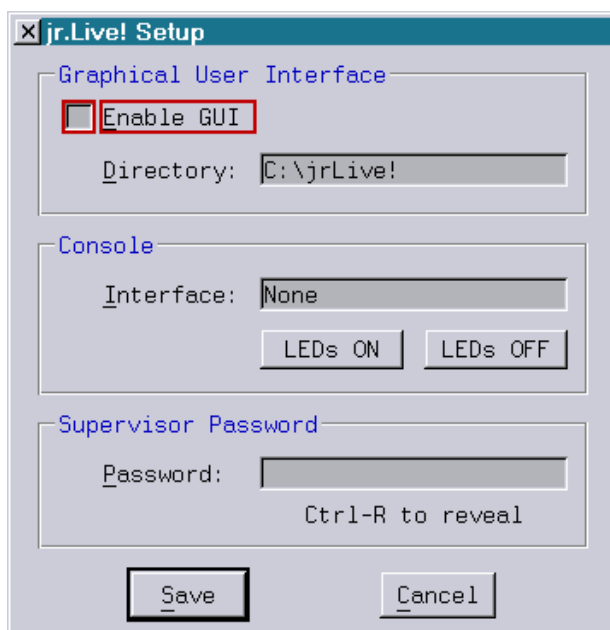
The directory must also contain the BOOT which is to be loaded in Live Mode:

- Live.BOOT
- In the "I/O Setup" of the DSP the PC running LGServer has to be as specified as I/O Server and it has to be activated as possible media source under "Media/Timecode".

- There is a new button "jr. Live!" in the Setup:



This takes you to the setup of the "jr. Live!":



In order to get to the "jr. Live!", "Enable GUI" has to be activated.

The "jr. Live!" interface display requires several bitmaps, e.g. for the background or for the numerous buttons. Under "Directory" you can specify the location of these bitmaps. In newly delivered Mark 2 the bitmaps are already in the directory "C:\jrLive!". For older Mark2 the bitmaps are available for download as an LZIP file on our website.

<http://www.laseranimation.com/download/dsp/jrLive-081016.LZip>

For future versions of the Live.BOOT we are thinking of implementing control using a console. As long as this is not available "None" should be selected as interface.

Exiting the "jr. Live!" interface can be restricted to authorized persons by setting a password, especially for fixed installations.

Attention!

If you set a password here make sure to remember it. Otherwise you will not be able to get back to the normal DSP interface either!

Operation

Immediately after starting "jr. Live!" the following selection will appear:

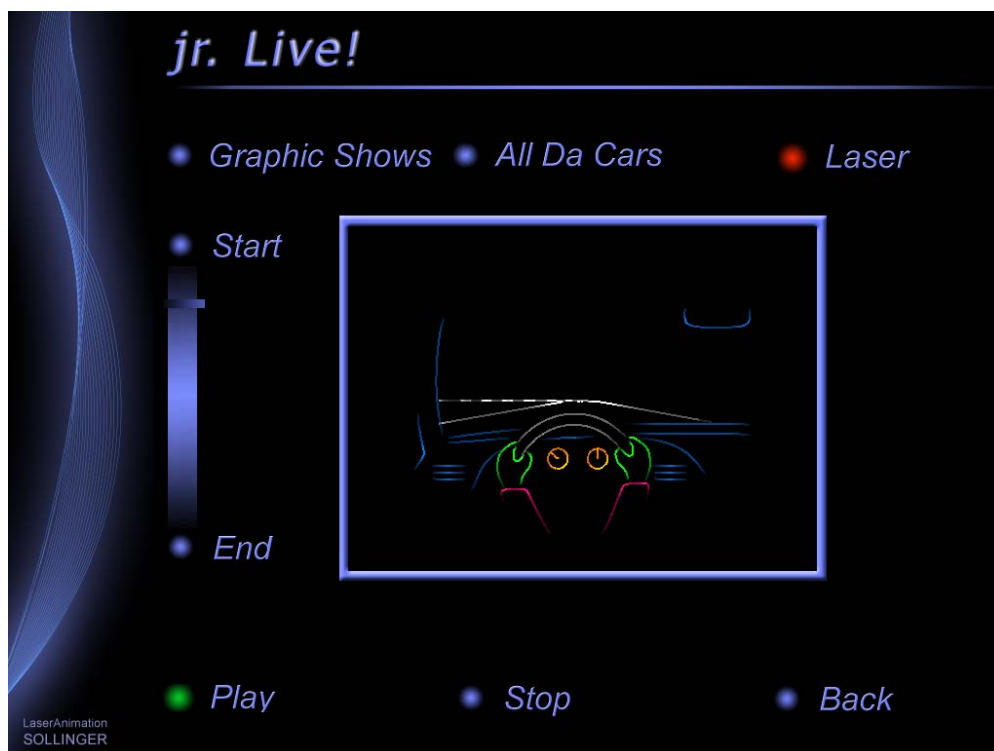


"Graphic Shows", "Beam Shows", "Mixed Shows" opens a selection list with the shows contained in the respective categories, compare next picture:



The currently active category is marked with the red dot.

When a show is selected it will be loaded and you will get to the playback screen:



Here you have the options of starting the show ("Play") or stopping it ("Stop").
On the left hand side there is a progress bar which shows which point the show has reached.

In the top right hand corner the status of the laser is displayed. The color of the dot has the following states (see also "Laser Remote"):

- green = laser is on
- red = laser is off or offline

Clicking into the Laser Preview window will open it to full screen display. Clicking again will revert it to normal display.

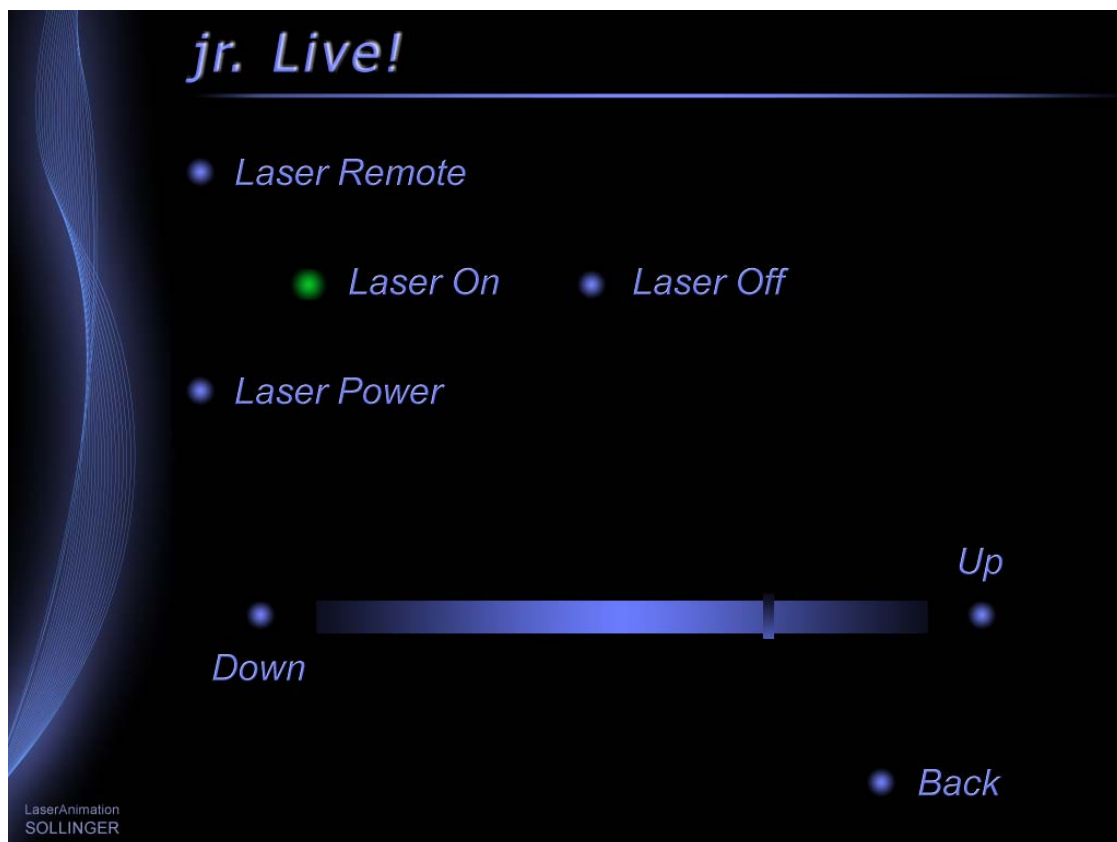
"Live Mode":

Loads the "Live.BOOT" which can be used to call up live effects. Which effects are available and how they are called up depends on the programming of the "Live.BOOT".

As on the show playback screen the Laser Preview window and the laser state are displayed here.

"Laser Remote":

Opens a screen where the laser can be turned on and off and the power of the laser can be set.



In order for the laser control to work the laser has to be connected to the Lasergraph DSP and it has to be specified for control in the Laser Setup.

"jr. Live!" uses the first (Laser 1) of the four possible lasers for control.

If the option of controlling the laser from "jr. Live!" is not desired, the "main_laser.bmp" bitmap can be deleted from the "C:\jrLive!\Bitmaps" directory.

In addition to the "Laser Remote" selection this will also delete the laser status displays from the show playback screen and the Live Mode.

"Shutdown":

This menu entry allows shutting down the "jr. Live!" following a safety requester.

Attention!

In addition to the Lasergraph DSP this will also shut down the PC!

If this option is not desired, the "main_shutdown.bmp" bitmap can be deleted from the "C:\jrLive!\Bitmaps" directory.

In order to get back to the normal Lasergraph DSP interface one of the following two key combinations can be used:

- <Ctrl> + <F12> or
- <Ctrl> + <Alt> + <Backspace>

If a password was set in the Setup a dialog for entering the password will open at this point.

Creating "jr. Live!" -compatible Shows

- As described previously the shows are divided into three categories.
A show must be sorted into one of the three subdirectories Graphics, Beams or Mixed.
In addition to the BOOT itself this directory must also contain the music and a bitmap which, except for the file name extension, has to have the same name as the BOOT.

The size of the bitmap must be 450x100 pixels.

In order that the bitmap fits in with the other shows and the overall design of the interface we recommend basing the new bitmap on one of the supplied show bitmaps and just changing the text and the preview picture (in the frame).

The texts were created in "Adobe® Photoshop" as follows:

- Font: Arial, Italic, 16Pt. at 300dpi
- Effects: Drop shadow (120°, 75% opacity) plus inner bevel, smooth
- Color: RGB values 103, 119, 243

Subsequently the text was reduced to 20% using "Paint".

For creating the preview pictures, LGPreview screenshots can be used. LGPreview has to be set to 96x96 Pixel. For graphics the line width should be set to 2.

- In order for a show to be played back without problems and for the progress display to work correctly, the show should meet the following requirements:
 - The first line of the timescript should contain a comment stating the name of the show.
In contrast to the name of the boot, the full name can be given here, i.e. more than 14 characters can be used. Spaces or special characters are possible.
 - The show itself should start with the following commands:
DefineMedia Media: <File Name>
SetTimeMode External source: Media
 Script source: Internal
 Auto Track: ON
 Write: Unchanged
PlayMedia Parameter depending on the Show, usually:
 Start: 1:00:00,00
 End: 1:59:00,00

Media ref time: 1:00:00,00
Script ref time:1:00:00,00

- The Show should end with the following commands:
SetTimeMode External source: Unchanged
 Script source: Internal
 Auto Track: OFF
 Write: Unchanged
StopMedia
- In order to determine the running time of the show all Entries, PressKey and ReleaseKey contained in the timescript are detected. If any intro or fading-out music is to be included in the progress display an entry command should be included at the beginning resp. the end of the show which states "Nochange" for all films. This has no influence on the course of the show but it will be considered in determining the running time of the show.

Enhancement of the Fader Labeling (Mark 2 only)

The command "FADERboard.Name" can now be used to label up to 8 faders in one go:

```
FADERboard.Name <Fader> <Name1> <Name2> ... <Name8>
```

The parameter <Fader> determines the first fader to be labeled.

Example:

```
FADERboard.Name 0 MovX MovY MovZ
```

If a label is to contain spaces, the name has to be put in quotation marks:

```
FADERboard.Name 0 "Mov X" "Mov Y" "Mov Z"
```


September 2008

Software Version 2008-09-03

Faders on the Faderboard can be labeled (Mark 2 only)

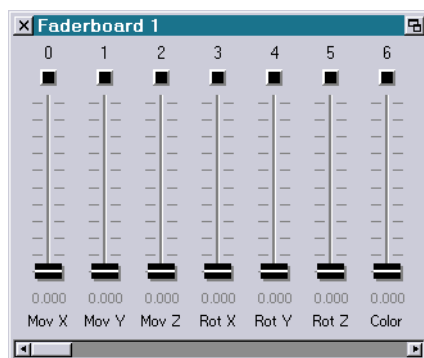
Using the command

```
FADERboard.Name <Fader> <name>
```

it is possible to label individual faders within the virtual faderboard.

This makes it easier to keep an overview, especially during live applications, because you can see directly which fader controls which effect.

Example:



e.g. `FADERboard.Name 0 "Mov X"`
(for names with blank use quotes)

The labels of the faders will not be saved. The following possibilities exist to avoid having to enter them again every time:

- 1) Recording the commands as a keyboard macro.
- 2) Using "HOSTcmd" in the trickfilm or the timescript
- 3) Entering the command sequence in a script

Another new command is available for closing a faderboard:

```
FADERboard.Close <Faderboard>
```

New File Extension "DGCC" Introduced (Mark 2 only)

A new file extension was introduced for the two commands `LoadDGCCurrent` and `SaveDGCCurrent` for loading resp. saving the current DGC setting: "DGCC"

Previously the same file extension as for the commands `LoadDGC` and `SaveDGC` was used: "DGC".

However, this had the effect that clicking on a single DGC setting saved with `SaveDGCCurrent` resulted in the use of the command `LoadDGC`, not `LoadDGCCurrent`.

Changes to the Master/Slave Operation

If a *Compact* unit is used as Master with "DSP1" selected as source, the other DSPs will no longer be set to "None" when a show is loaded.

This change simplifies the creation of a show which runs on several *Compact* units. The programming is done on the Master. The changes will automatically also be available on the other *Compacts* after saving and consequent loading.

Previously the DSP assignment was changed when loading so it had to be corrected manually before saving again.

Mai 2008

Lasergraph DSP Software Version 2008-05-27

New Predefined Desktop Resolutions in "Display Mode Setup" (Mark 2 Only)

The "Display Mode Setup" of a Mark 2 now offers two additional predefined widescreen desktop resolutions:

- 1440x900 Pixel
- 1680x1050 Pixel

Bug in "I/O Information" Fixed

The analog values were not displayed correctly in the "I/O Information".
The bug occurred in the DSP releases 2008/02/07 and 2008/04/29.

April 2008

Lasergraph DSP Software Version 2008-04-29

Maximum Partition Size Has Been Increased (Mark 2 Only)

The maximum partition size of the internal hard disk or flash card of the Mark 2 has been increased from 1 GByte to 2 GBytes.

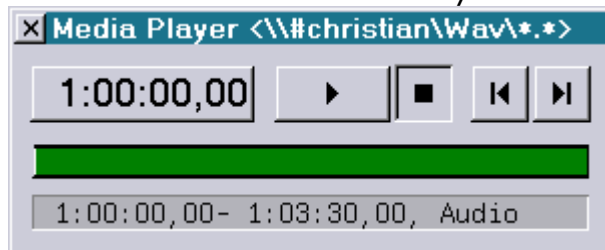
The enlargement makes sense if shows use streaming with a large number of frame by frame animations.

"CD Player" Has Been Renamed to "Media Player" (Mark 2 Only)

The "CD Player" of the Mark 2 has been renamed to "Media Player".

This makes sense because the Media Player can play not only CDs but also audio and video files (using LGServer).

There are also new buttons to directly access the previous or next track:



The following timescript commands have been renamed:

CDPlay ⇒ PlayMedia

CDStop ⇒ StopMedia

Default-Setting for PHAENON RGB Laser Projectors

The "Advanced Display Parameters" now contain a special default setting for the PHAENON. You can select it using the button "SetDefault" (in the window) or using the command:

```
GlobalPars.Advanced.Default.Phaenon
```

Master/Slave Operation Mode Enhanced

If "Slave" is selected in the "Master/Slave Setup" no Timescript commands "DefineMedia" are executed anymore.

This solved a problem when LGFD is used.

Bug with Backwards Running Timecode Fixed

The Lasergraph DSP could crash if the Timecode run or jumped backwards during a running Timescript.

This problem appeared in connection with the command `SetBeamTimed`.

February 2008

Lasergraph DSP Software Version 2008-02-07

Support for Audio/Video Files with a Duration of More Than One Hour

Using the current LGServer version dated 2008-02-07 or newer the duration of the first audio or video track can be more than one hour.

The duration of all tracks was limited to one hour in previous versions.

Minor Changes of Menus

This version contains small changes of the menus to simplify the handling especially for new Lasergraph DSP users.

Fault Fixed

Starting a Trickfilm in the Timescript waiting for an external Timecode (e.g. using a Midi keyboard) caused a malfunction.

This fault was fixed with this version.