MediaMaster Manual

support@chamsys.co.uk

Latest Update, 2026-03-30

Contents

Edition Notes

This MediaMaster User Manual includes a description, safety precautions, installation, programming, operation, and maintenance instructions for the MediaMaster software as of the release date of this edition.

ChamSys continually strives to provide the most powerful and stable software. As such, we are making continual improvements to the software available to all of our users.

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Intended Audience

Any person installing, operating, and/or maintaining this product should completely read through the guide that shipped with the product, as well as this manual, before installing, operating, or maintaining this product.

Using This Manual

The following naming and text conventions are used in this manual:

- References to other parts of the manual are indicated such as Using This Manual.

Indicates some useful information to add to your knowledge and experience.

Indicates some additional information that may be relevant.

A Warning statement indicates situations where damage may occur, people may be harmed, or there are serious or dangerous consequences of an action.

A Caution statement indicates there may be unwanted or undefined consequences of an action, or potential for programmed data loss or an equipment problem.

Introduction

MediaMaster is a unique media server and visual effects software solution, which allows you to quickly create dynamic visual presentations.

ChamSys has long been established as a leading software developer for media control and the MediaMaster software has been designed to be as comprehensive in its functionality as possible and as such offers the perfect solution for the seamless real time integration of video into live performance, theatre, concerts and presentations.

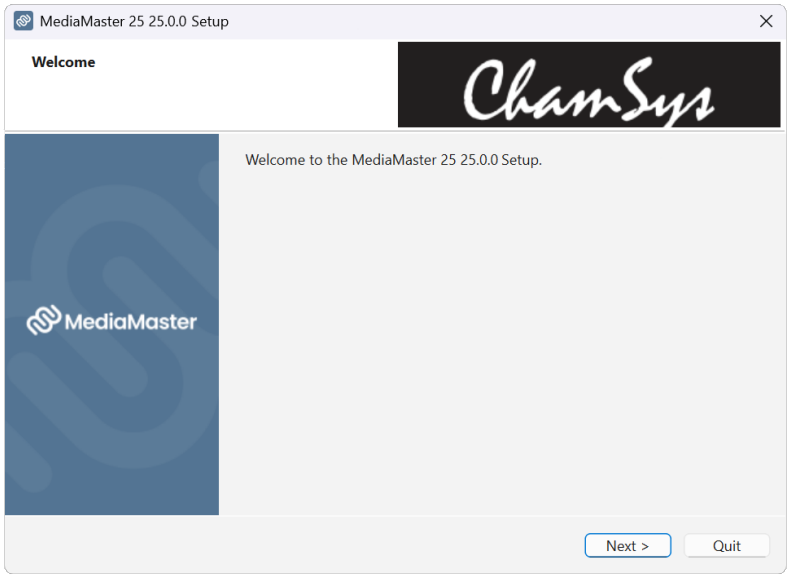
The MediaMaster environment runs on Windows platforms and integrates with your system hardware to offer a professional performance solution customised to your needs.

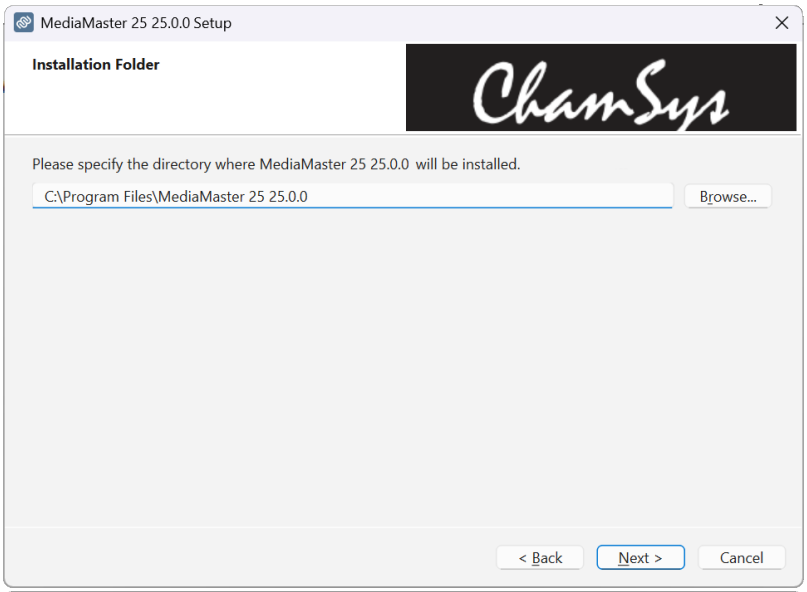
Installing the Software

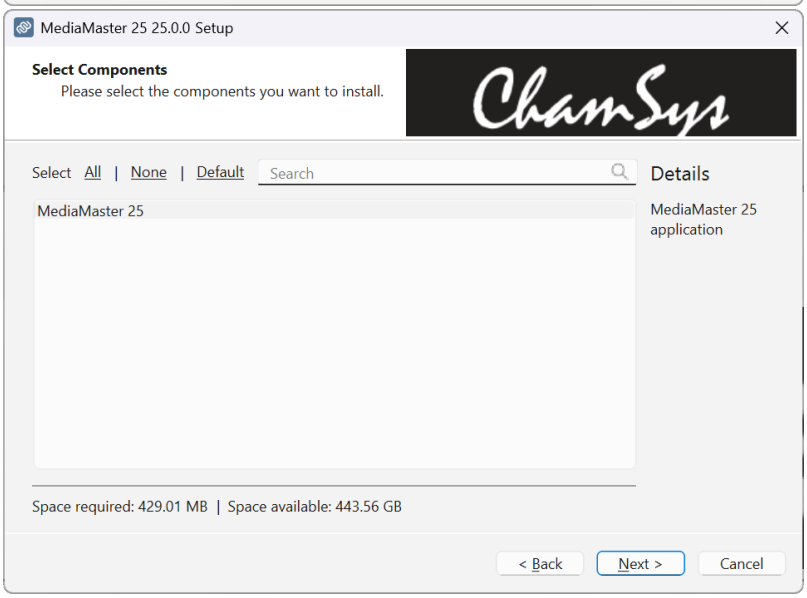
To install the MediaMaster software, download the installer from our website and double-click on the MediaMaster installation file. This will launch the installer.

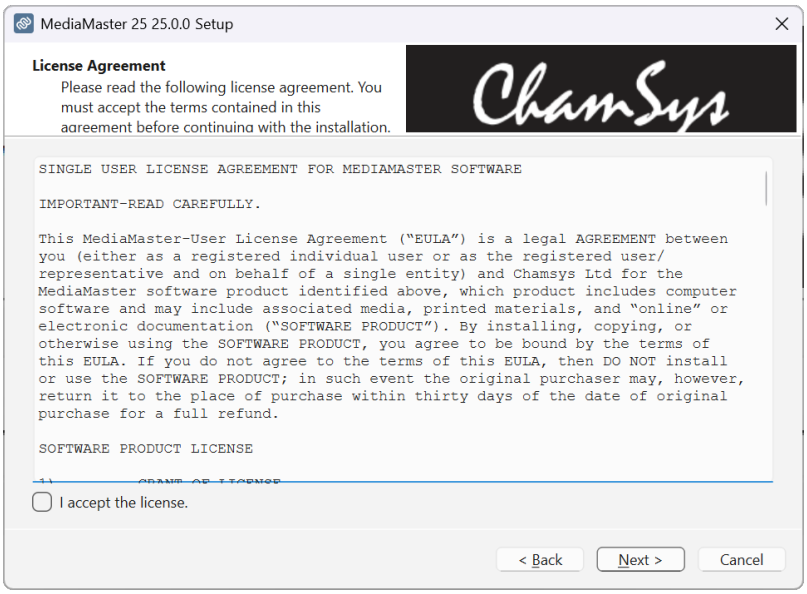
Note: The installation program will scan the available video player components on your computer prior to installing the software. If there are any components that are not up to date, please install them by clicking on their corresponding button before proceeding with the installation.

Follow the on-screen instructions.




MediaMaster 25 25.0.0 Setup
Installation Folder
ChamSys
Please specify the directory where MediaMaster 25 25.0.0 will be installed.
C:\Program Files\MediaMaster 25 25.0.0
Browse...
< Back
Next >
Cancel


MediaMaster 25 25.0.0 Setup
Select Components
Please select the components you want to install.
ChamSys
Select All | None | Default
Search
Details
MediaMaster 25
MediaMaster 25 application
Space required: 429.01 MB | Space available: 443.56 GB
< Back
Next >
Cancel


MediaMaster 25 25.0.0 Setup
License Agreement
Please read the following license agreement. You must accept the terms contained in this agreement before continuing with the installation.
ChamSys
SINGLE USER LICENSE AGREEMENT FOR MEDIAMASTER SOFTWARE
IMPORTANT-READ CAREFULLY.
This MediaMaster-User License Agreement ("EULA") is a legal AGREEMENT between you (either as a registered individual user or as the registered user/ representative and on behalf of a single entity) and Chamsys Ltd for the MediaMaster software product identified above, which product includes computer software and may include associated media, printed materials, and "online" or electronic documentation ("SOFTWARE PRODUCT"). By installing, copying, or otherwise using the SOFTWARE PRODUCT, you agree to be bound by the terms of this EULA. If you do not agree to the terms of this EULA, then DO NOT install or use the SOFTWARE PRODUCT; in such event the original purchaser may, however, return it to the place of purchase within thirty days of the date of original purchase for a full refund.
SOFTWARE PRODUCT LICENSE
I accept the license.
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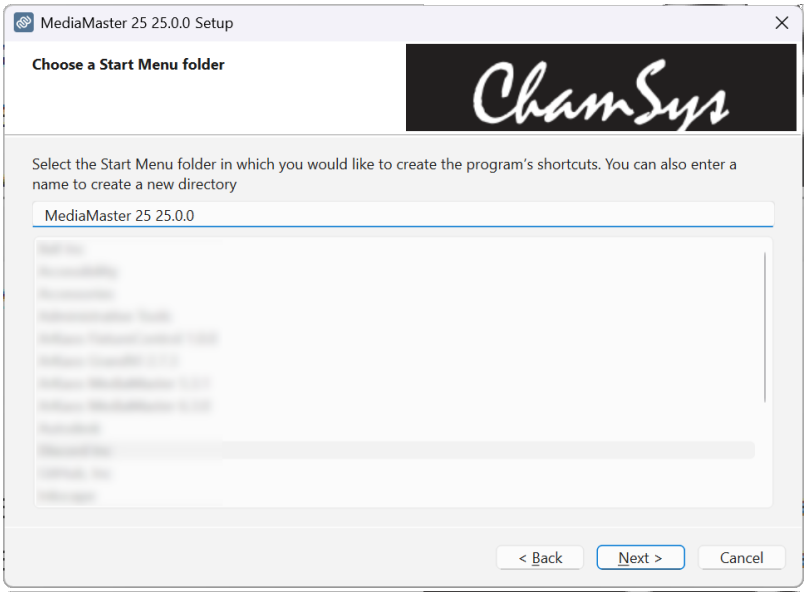
Next >
Cancel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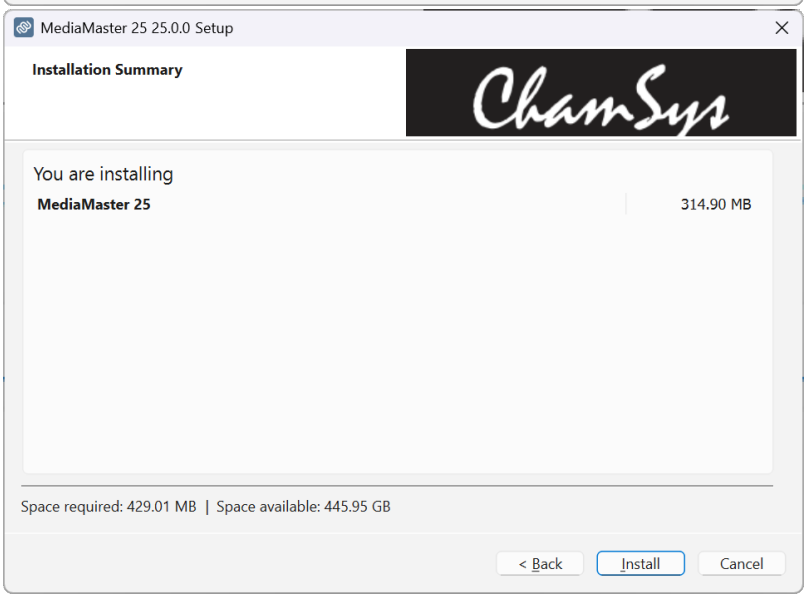
Next >
Cancel


MediaMaster 25 25.0.0 Setup
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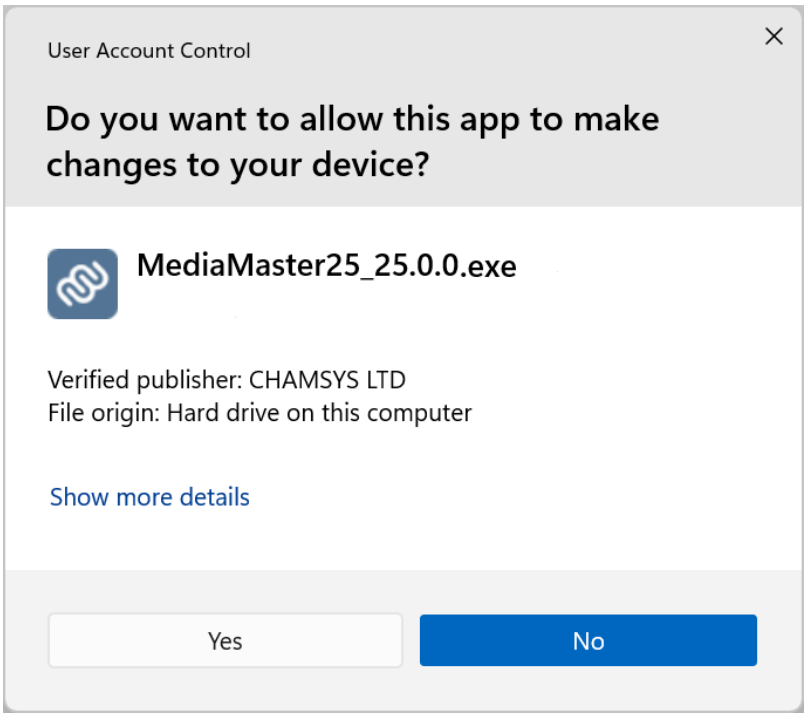
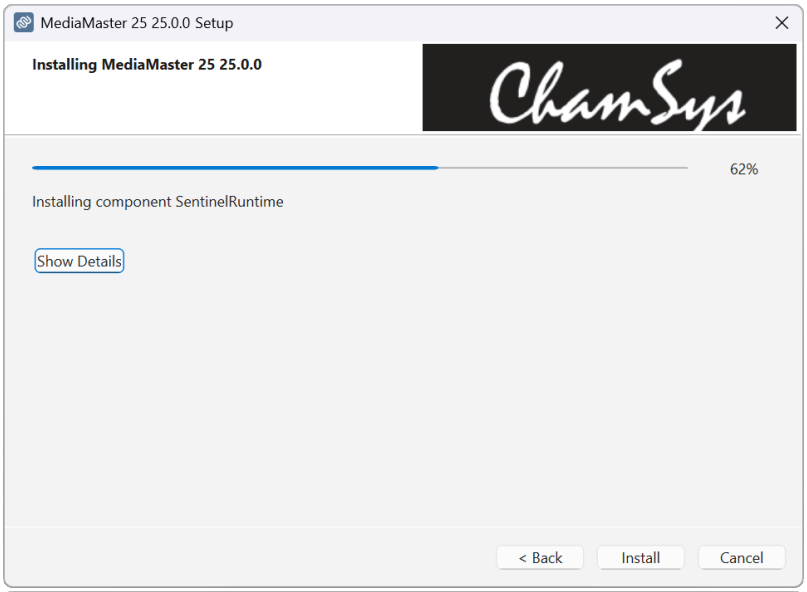
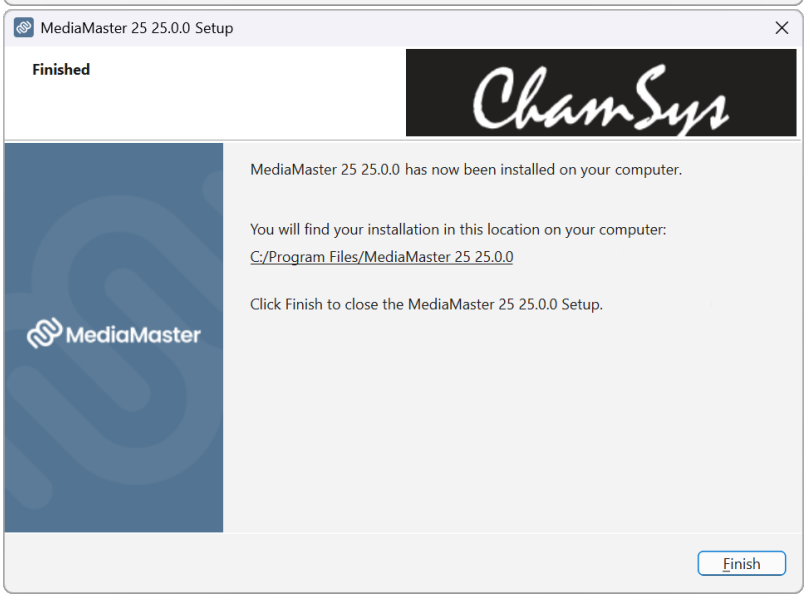
Install
Cancel


User Account Control
Do you want to allow this app to make changes to your device?
MediaMaster25_25.0.0.exe
Verified publisher: CHAMSYS LTD
File origin: Hard drive on this computer
Show more details
Yes
No





Once the installation is complete, click “Finish”. The MediaMaster software is now ready to be used.

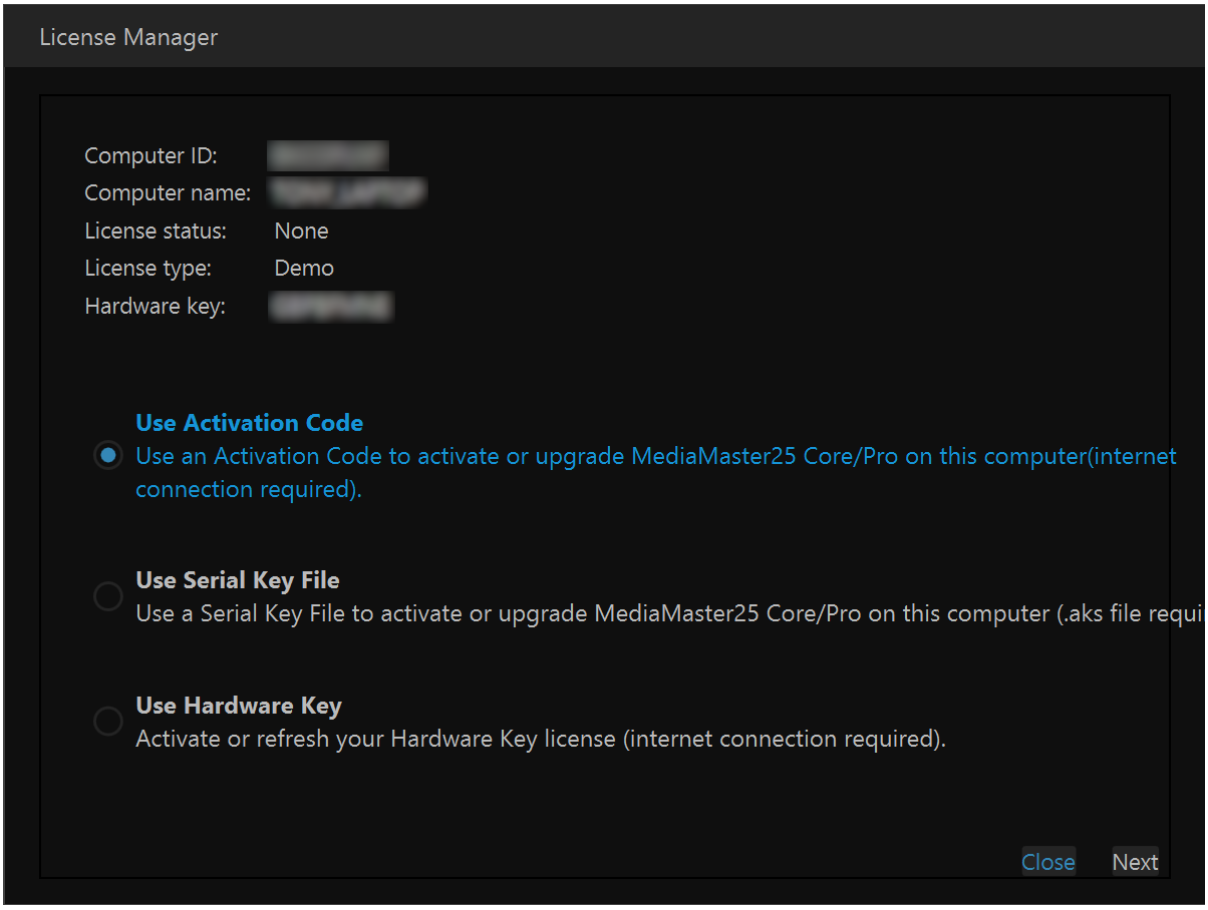
Start MediaMaster by going to Start ⊠ MediaMaster.

To activate your copy, follow the registration process described in Activating Your Software.

Activating Your Software

Software Activation Dialog

When you launch the application for the first time, it will display a “Software Activation” dialog.



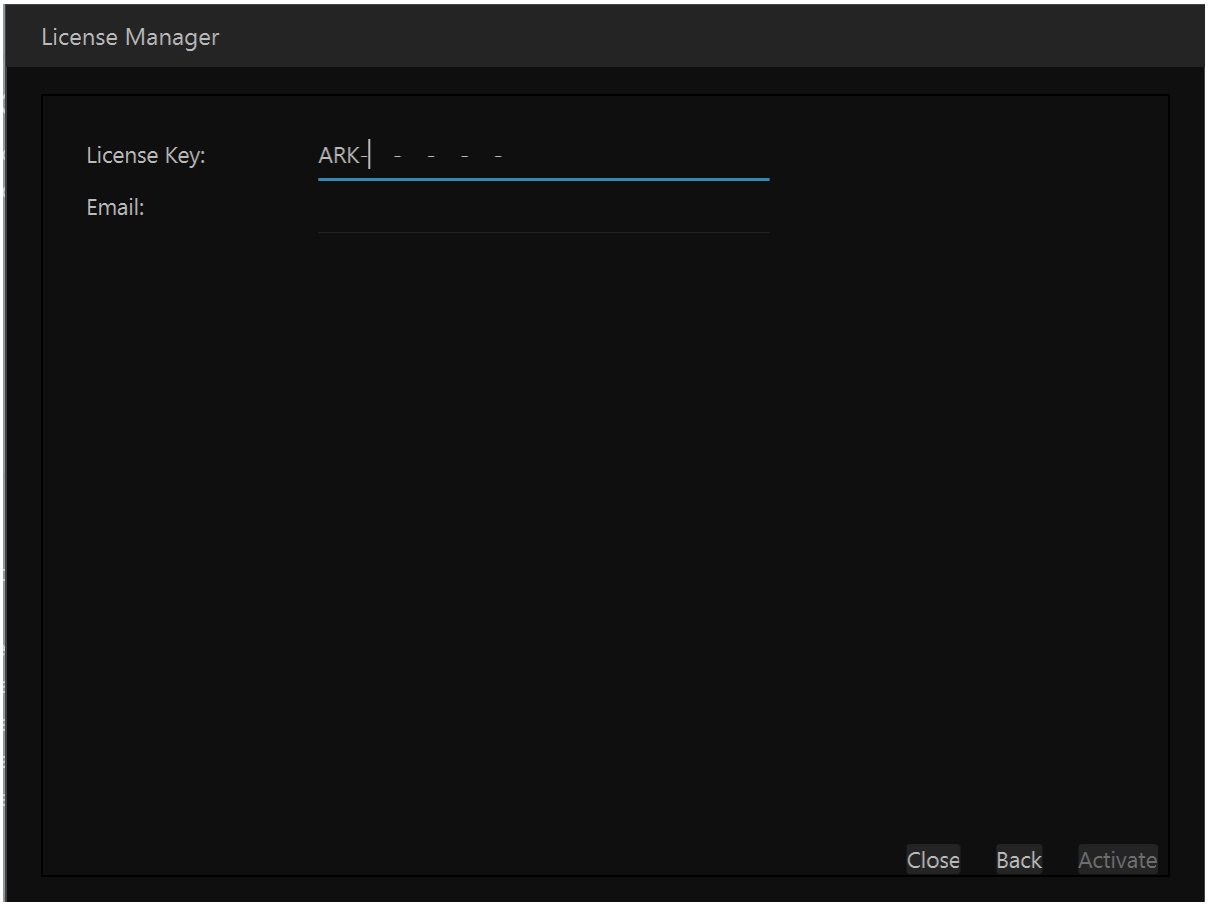
About the Demo Mode

Note that, from the "Software Activation" dialog you can also choose to run the software in demo mode. If you do so, the software will still be fully functional, but a 'demo' banner will be displayed randomly above the output.

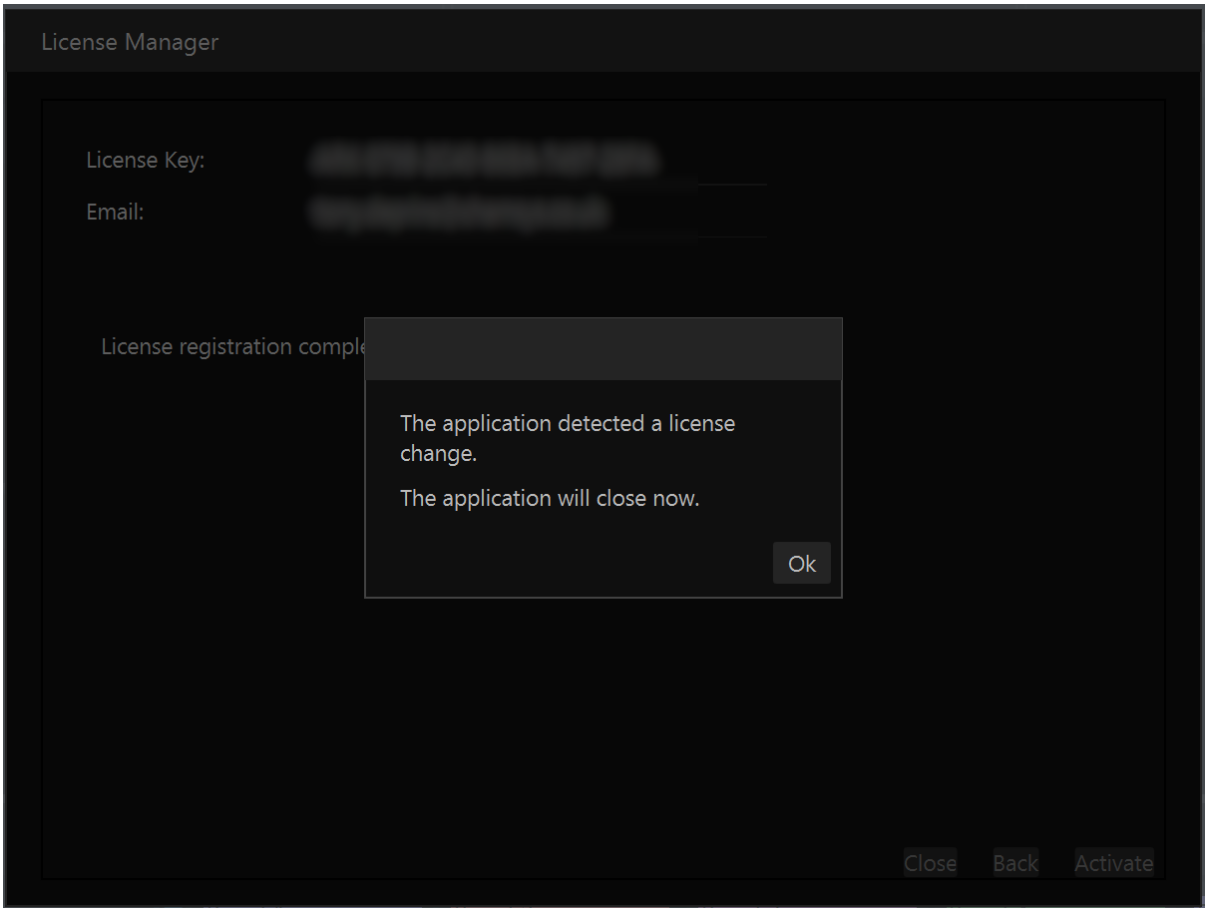
Note: If you are not sure of your hardware Setup and / or computer performance and you wish to make tests to decide whether you will use MediaMaster on a computer or not, we recommend doing so in demo mode since the software is fully functional in this mode. The demo mode also allows you to understand the differences between the Pro and the Core edition by letting you test the Theatre mode interface or the Fixture interface.

Use Licence Code

To use this activation option, you need a working Internet connection, a valid mail address, and the licence code.



Fill in the licence code and your mail address and click “Activate”.



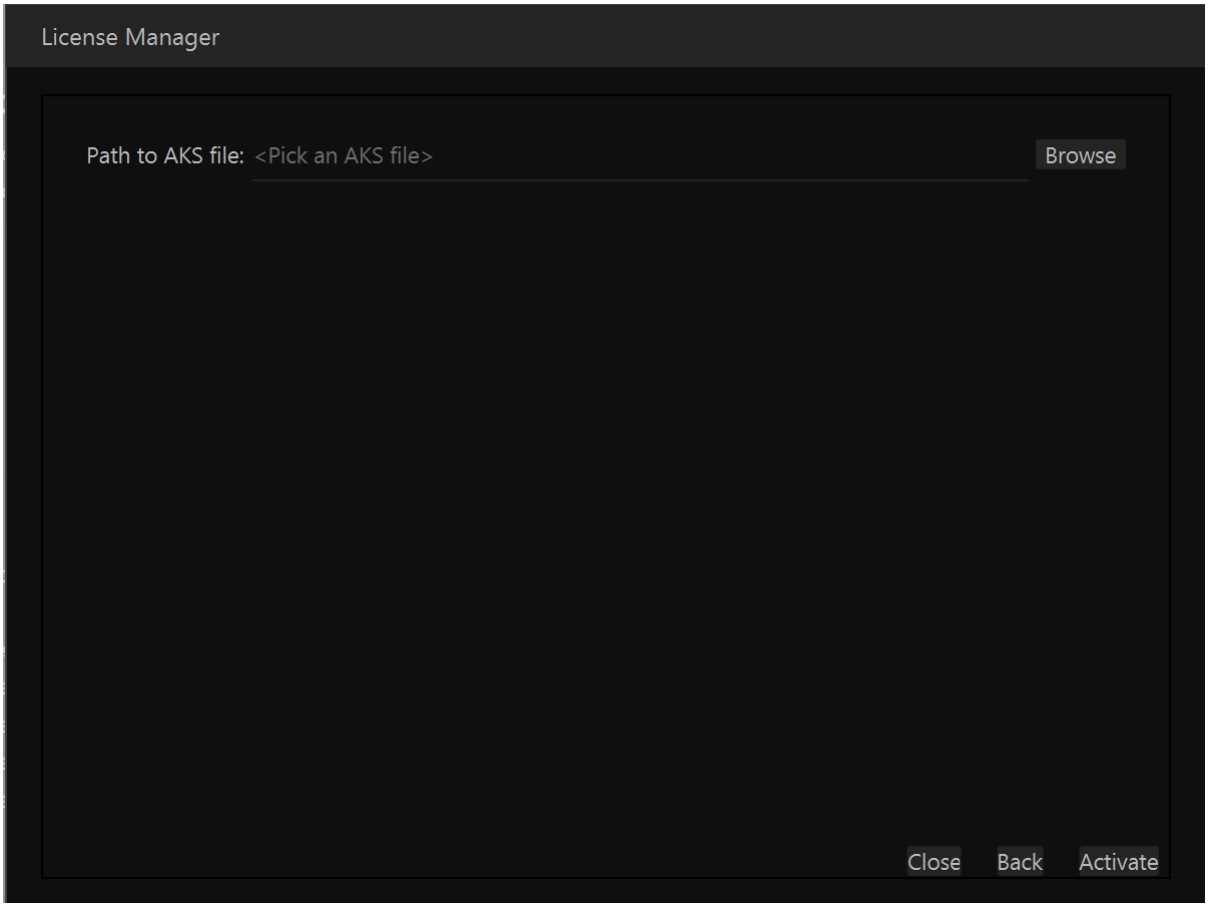
You will get a confirmation screen when the system is activated.

MediaMaster will then notify you that it detected a licence change and will close. When you start the application again, it will be activated.

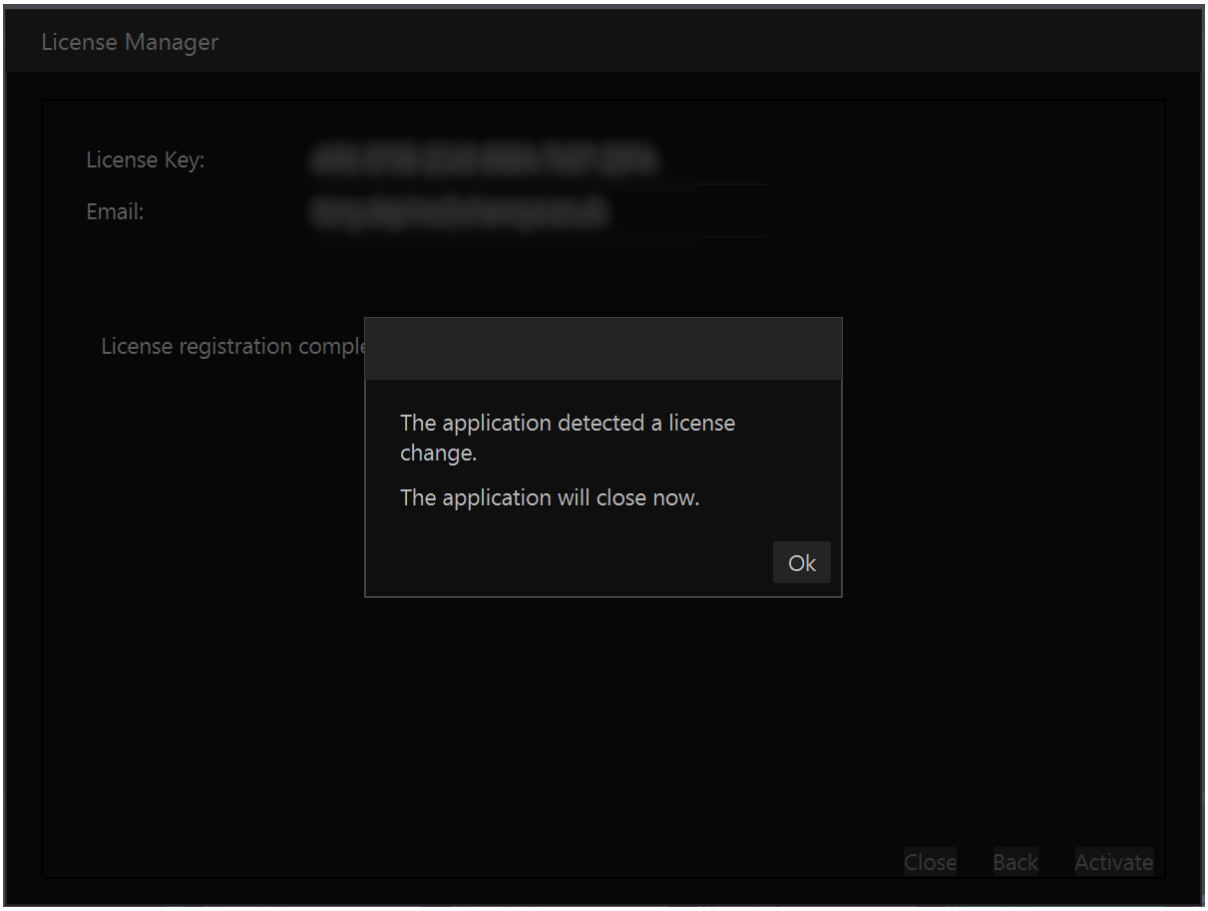
You will also receive an activation confirmation mail and if you are using the licence code for the first time, you will also receive a password for your online customer account.

Use Serial Key File

To use this activation option, you need a serial key file (.aks) from our website for this computer.



Click the "Browse" button, navigate to the location where you saved the serial key file and click "Activate".



You will get a confirmation screen when the system is activated.

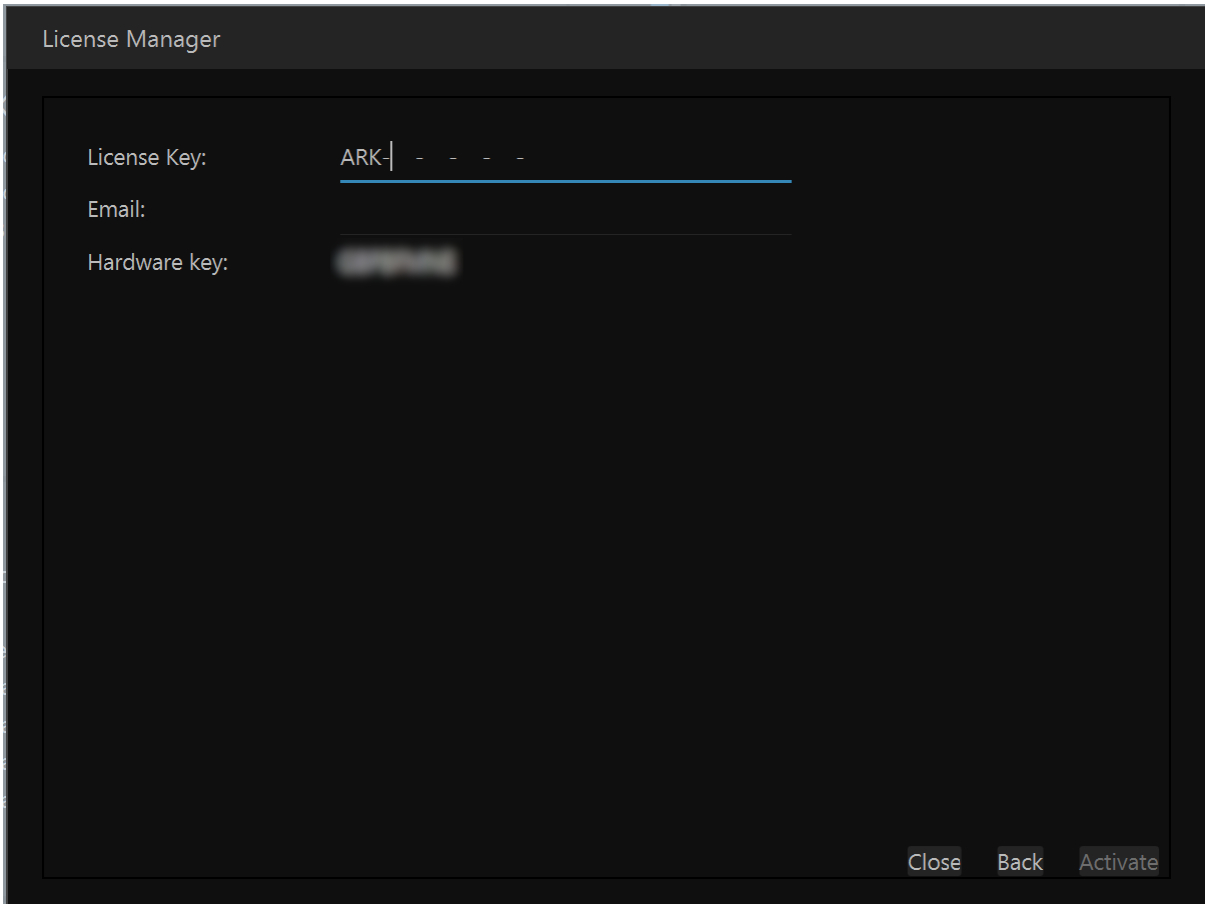
MediaMaster will then notify you that it detected a licence change and will close. When you start the application again, it will be activated.

Use Hardware Key

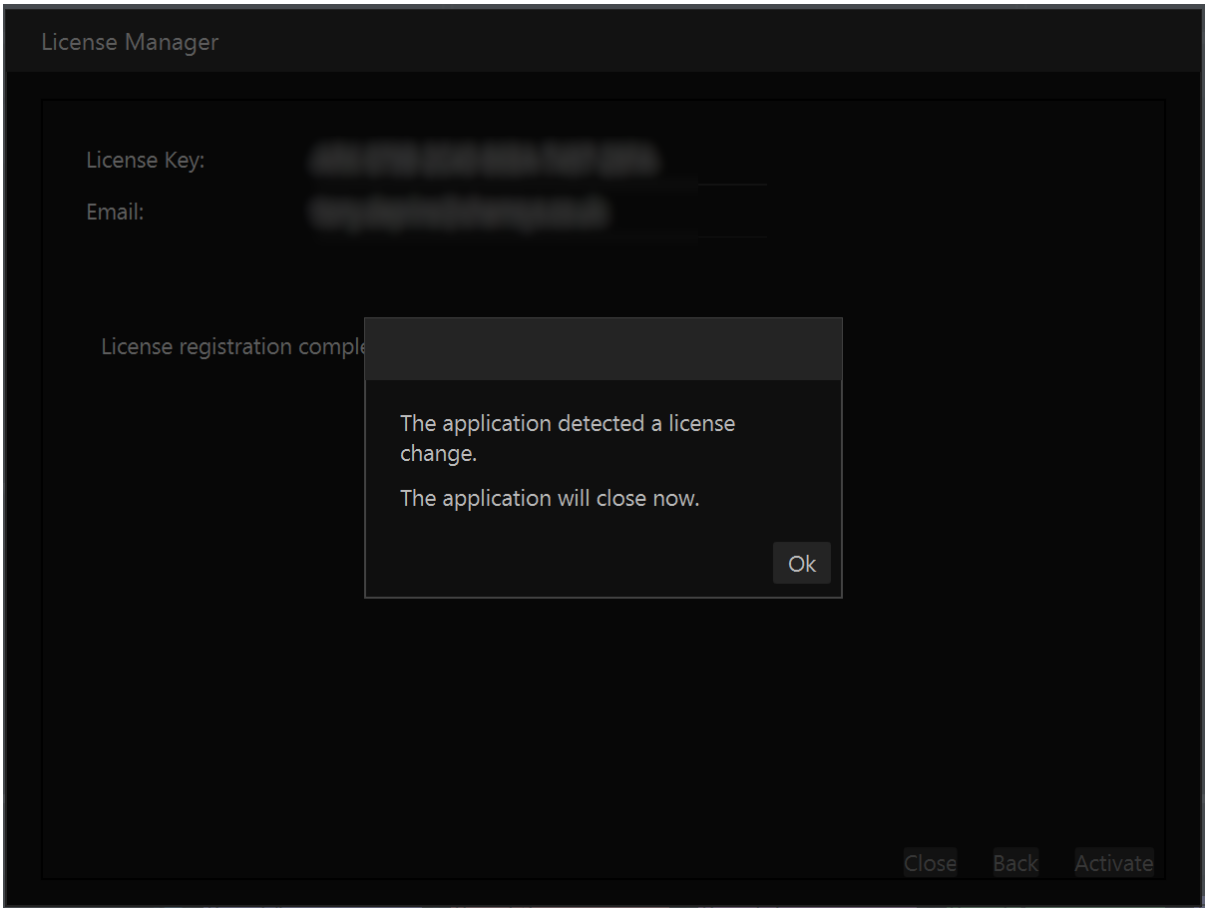
To use this activation option, you need a working Internet connection, a valid mail address, the licence code and a Licence Dongle.

If no Licence Dongle is detected or multiple Licence Dongles are detected, this activation option will not be available.

If your Licence Dongle is not yet activated, you will have to enter your licence code and mail address.



You will get a confirmation screen when the system is activated. You will also receive a confirmation mail and if you are using the licence code for the first time, you will also receive a password for your online customer account.



MediaMaster will then notify you that it detected a licence change and will close. When you start the application again, it will be activated.

If your Licence Dongle is already activated, you will get the following screen.

insert activated licence dongle detected picture here

Control Concepts

The interface of MediaMaster marks a new phase in software development allowing you to make use of the latest dynamic visual effects combined with an efficient and intuitive workspace management system and with control via DMX or a computer keyboard.

There are numerous attributes that must be defined to allow control of visuals in media servers – including content selection, playback speed, effects, size and position, keystoning and so on. When these are directly controlled by a lighting console, they can require a substantial number of control channels.

The MediaMaster interface allows you to make these decisions in the software itself and then simply take control of these presets using a few channels on your lighting desk.

Controlling the playback in the interface is much the same as using a dimmer to control a conventional fixture: think of rigging a profile light for a show – you decide first where to hang it, what colour it should be, if you need a gobo or other effect's device such as a scroller or animation disc. Once the fixture is rigged, prepared and focused you then only need to change the level of its dimmer as and when you require it in the show.

Using the Presets is the same – on the software you create the visual combination you want – define the content, any effects, playback speed and so on, and then with your external controller simply fade it in an out as required during your show.

Just like with a lighting system you can have multiple instruments – or in this case layers - to build your final show from.

As such the Presets give you the same flexibility and control over your media as with a fixture-based control solution but with an unprecedented ease of use.

MediaMaster Pro adds a fixture-based operation mode and as such acts as a traditional Media Server for professional lighting consoles such as ChamSys, Avolites, LSC, ETC, GrandMA, Martin, Compulite, and so on.

The fixture profiles allow total control of every MediaMaster parameter straight from the DMX console.

To be able to send DMX commands to the server, you will need to set it up so it can communicate with your console. MediaMaster supports different type of DMX connectivity: using Art-Net, sACN, a DMX USB widget or MA-Net.

Features Summary

Media Management

As its name suggests MediaMaster can handle numerous different types of media sources – including video, images, external cameras and sources and even audio files.

These media files are organized into a workspace folder in exactly the same way that you would create and manage files on the computer. You can then create projects and assign your media to a folder in a project. There are 256 project folders, and each folder can have up to 255 individual pieces of media (one media file is always kept as a blank slot by the software).

Some of the project folders in are pre-defined for specific duties – such as camera feeds - and these will be covered in a later section of this manual. It is also possible to have more than one project and this is also covered later.

Note: Think of a project as a filing cabinet – you have a total of 256 drawers and each drawer can store 256 files in it. By creating a good filing practice, you can quickly and easily find the content you need.

For example, you can group clips by type or genre into a specific folder so folder 001 has cloud animations, folder 002 has computer game visuals, folder 003 has slides for a specific event and so on and so forth.

With a possible media library of over 60,000 clips per project, it can be really helpful to organise clips in this manner and make the recall of clips even more efficient.

Layers

MediaMaster Core is capable of running 12 layers of media playback simultaneously. In MediaMaster Pro you have access to 48 layers.

The resolution of the video content is limited only by what your computer hardware can handle so with the right hardware 48 layers of 4K video is more than possible.

Outputs

MediaMaster is designed to work best with a minimum of a dual output computer system where the main screen shows the user interface and the second screen (or screens) show the full resolution output image – this would normally be connected to a projector, screen, video mixer or LED display device.

In MediaMaster, there are three types of output:

Display outputs: “Displays” are the devices that are connected to the computer graphical card using DVI, HDMI or DisplayPort connectors. In Instant mode, there’s a single output called “Full screen Display” that correspond to the full screen display (or multiple displays) that’s selected directly in the preferences. In VideoMapper mode, there are as many outputs as surfaces that are defined using the “VideoMapper” application.

LED Mapper output: a set of LED devices controlled by the DMX protocol. The output mapping is

defined using the “LED Mapper” application.

Kling-Net output: a set of LED devices controlled by ArKaos PRO Kling-Net protocol. The output mapping is defined using the “Kling-Net Mapper” application.

You can switch between Instant and VideoMapper Display modes, and activate LED Mapper and Kling-Net outputs in the Output tab of the Preferences window.

MediaMaster can assign visuals to layers, and each layer can be assigned to a single output or a group of outputs that are defined within the application.

You can create groups using the dedicated “Output management” dialog.

There are numerous ways to configure your outputs, which are discussed later in this manual.

Media Types

Video

MediaMaster can playback a large number of video files through its native decoder, which is based on FFMPEG and the new ChamSys Saga video codec. The compression codec that we have found to give the best overall performances is MPEG-2.

This said, the software has been designed to make best use of your computer system and therefore should be able to play files encoded with most of the video codecs you have installed on your system. However, by using a codec that is not native to MediaMaster you will increase the drain on your system resources and therefore you may encounter performance issues depending on your hardware profile.

With a MultiCore CPU, MediaMaster will use all CPU’s when necessary, so the basic rule if you intend to play high definition content would be to have a system with at least the same number of cores as the number of high-definition layers you want to play.

Note: The compression codec, file size and type can have an effect on the reliability and quality of playback depending on your hardware configuration and show type. For example, a show which uses 8 layers of 4K video simultaneously will require much more processing power than one using low resolution video or stills to drive LED pixel mapping.

SAGA Video Codec

The SAGA proprietary codec supports key frames, alpha channel, HDR, and audio. SAGA is the most optimal video format to be used with MediaMaster.

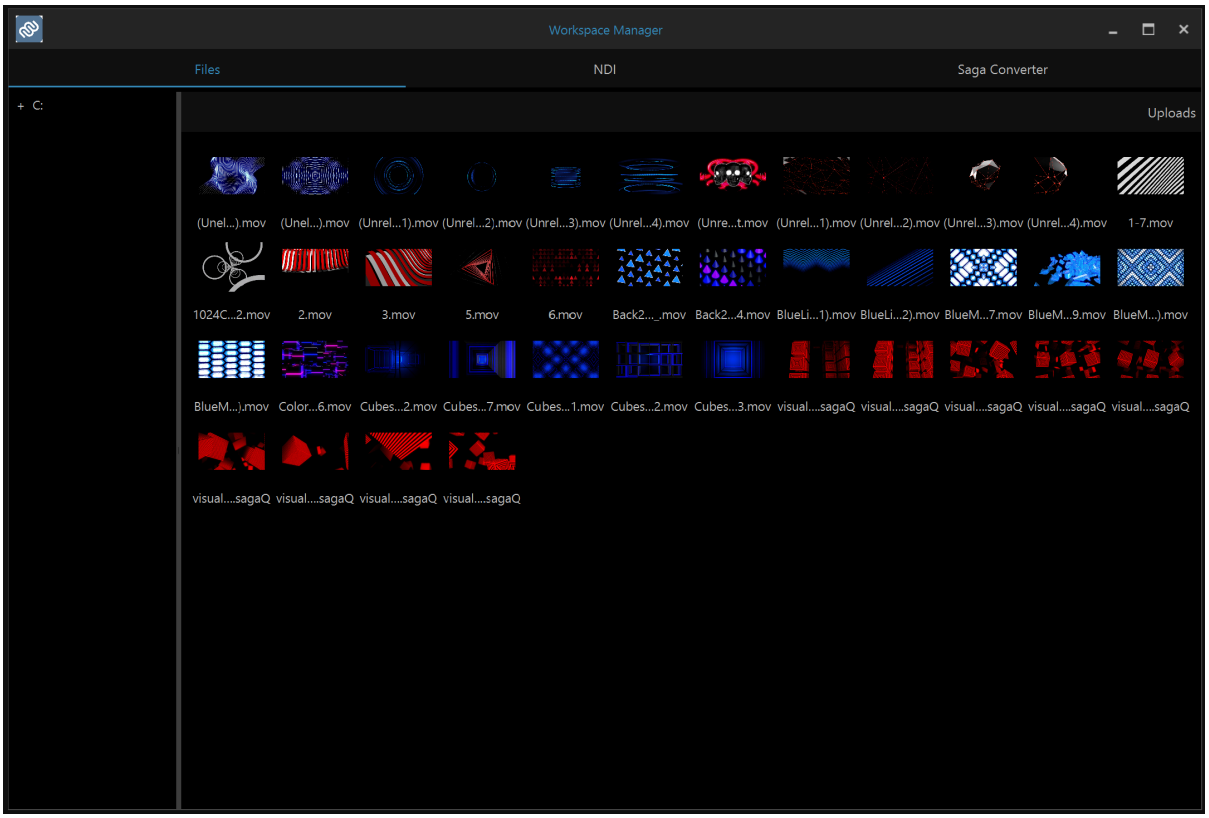
SAGA exists in these 4 profiles: * Fast (.sagaF) This profile is optimized for the fastest decompression with a colour profile of 8 bits 4:4:0. This gives the best decoding performance even on a low-specced computer, using the lowest disk space. Audio and alpha channels are available.

- Balanced (.sagaB) This is a balanced version of the codec using medium disk space with a colour profile of 8 bits 4:4:4. Since it is not using chroma subsampling, this gives a great result with your colour gradient. Audio and alpha channels are available.
- Quality (.sagaQ) This is the highest quality codec with a colour profile of 10 bits 4:4:4. With its

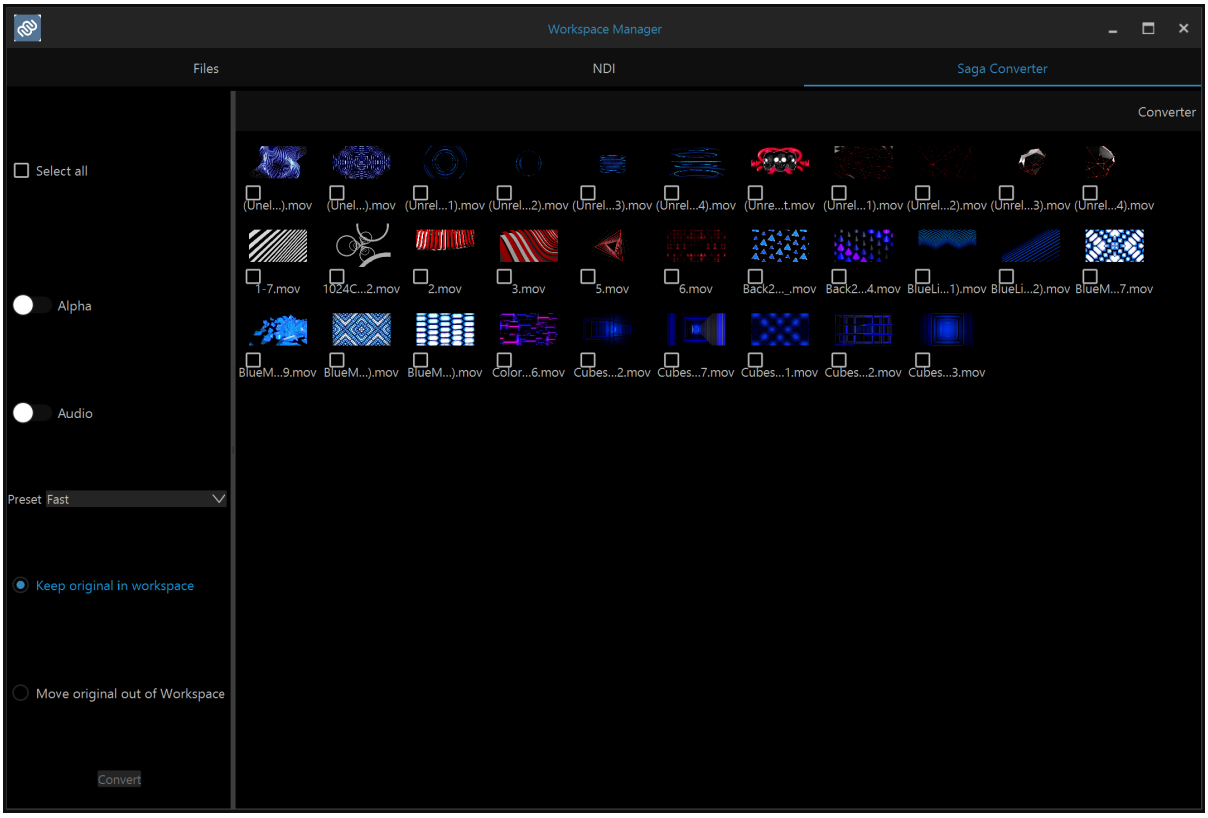
"lossless" capabilities, this is the best choice when quality matters. Audio and alpha channels are available.

- HDR (.sagaH) This profile is based on the Quality profile and is the highest codec to select for all your HDR applications and a colour profile of 10 bits 4:4:4. Audio and alpha channels are available.

MediaMaster offers a built-in SAGA converter. The Saga converter can be found in the Workspace Manager. The Workspace Manager can be used on any computer and does not require a licence.



Open the Workspace Manager and select the SAGA converter. You can select clips by checking the checkboxes or check "select all" to select all files directly. The encoder will automatically select the best profile for your movie, but you can also select another profile if needed. You can also remove the alpha or audio for each clip.



Select what happens with the original files once they are converted. Start the conversion by clicking the Convert button. The Resolution and Sample Rate are kept identical as the source file.

Alpha Source Support

If you import images or videos with an alpha channel (for example as a result of green keying), the transparency of the media will be used in the mixing.

insert picture with alpha

You will see the transparent areas in the layer preview, no matter if it comes from the original media or from applying luminance / chrominance inside the software.

Images

MediaMaster will accept the following file types into the Workspace Manager for still images:

JPG, GIF and PNG

You can import images that are bigger than the output resolution but for performance reason your images should never be bigger than the output resolution used. When using specific effects, you may need to import images that are bigger than the resolution used in MediaMaster.

Audio

When a video loop has an audio track it will be played. For performance reason you may not want to play the audio, this can be done by going in the preferences in the Audio tab; there you can disable the audio.

Cameras / External Sources

MediaMaster will accept as source any live input that is connected to your computer, as long as it is natively recognized by your system (that is without the need to install proprietary drivers or software). Your acquisition device must be compatible with Direct X under Windows.

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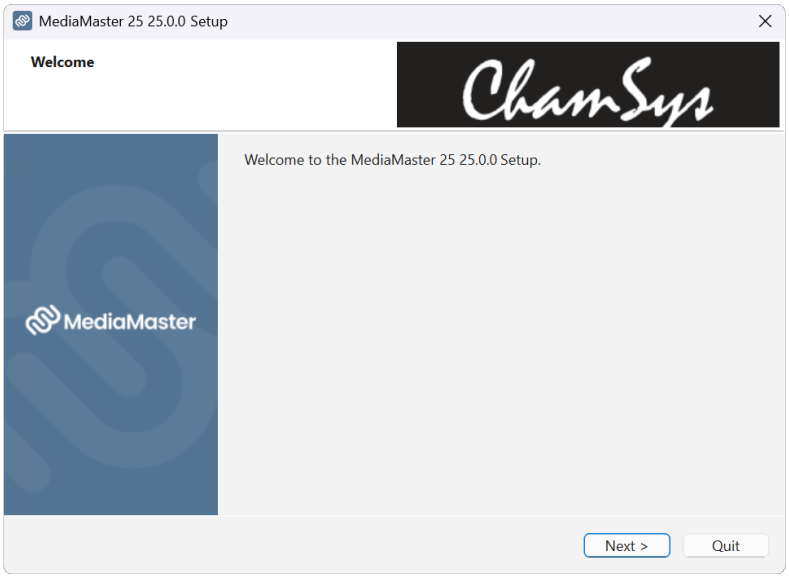

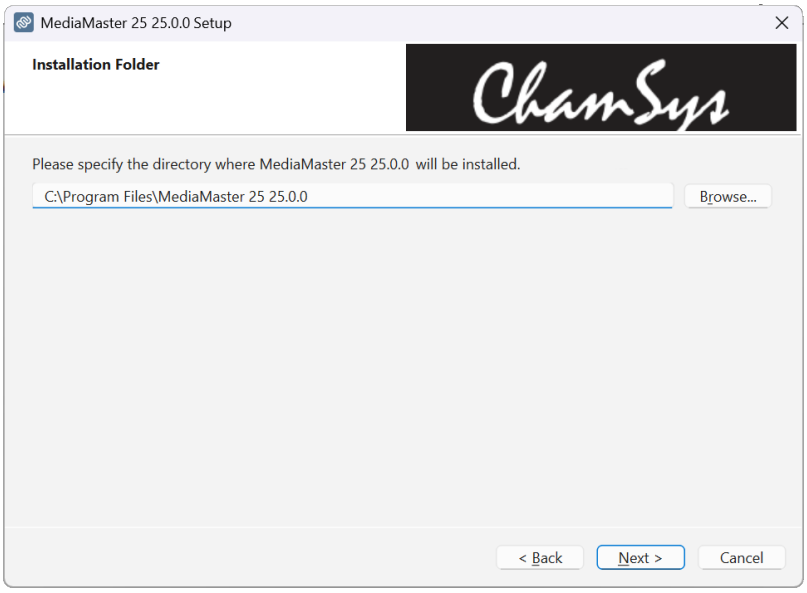

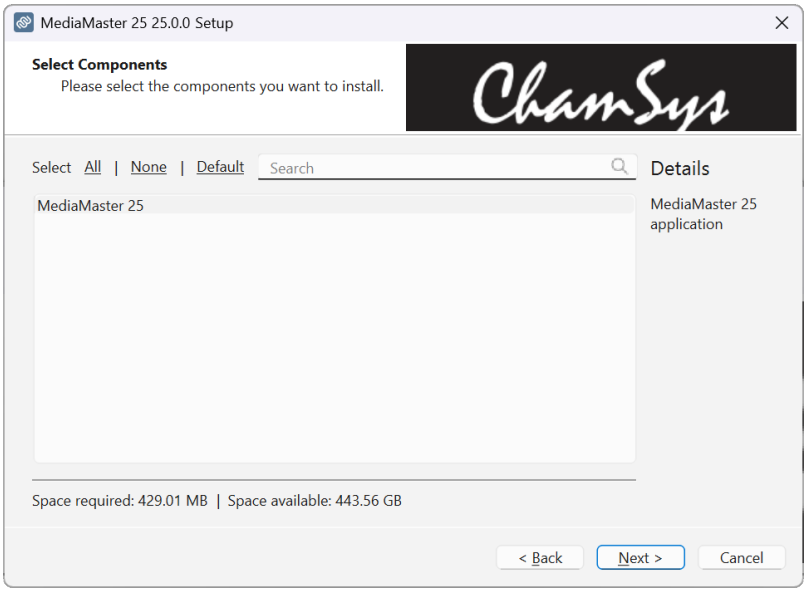
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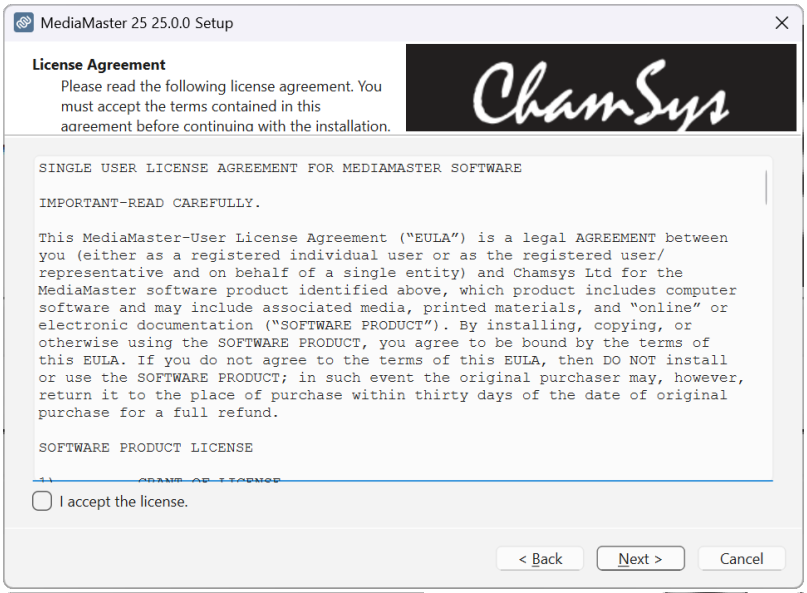
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License Agreement
Please read the following license agreement. You must accept the terms contained in this agreement before continuing with the installation.
ChamSys
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IMPORTANT-READ CAREFULLY.
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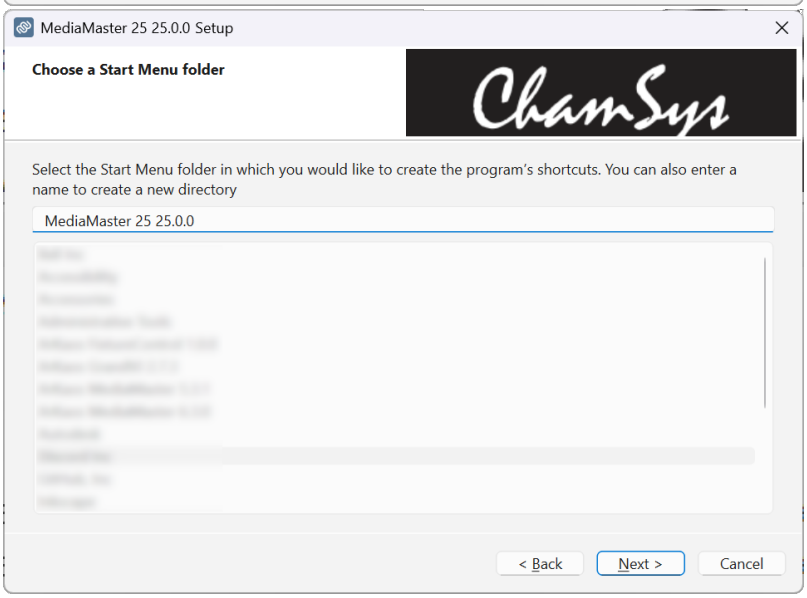
SOFTWARE PRODUCT LICENSE
I accept the license.
< Back
Next >
Cancel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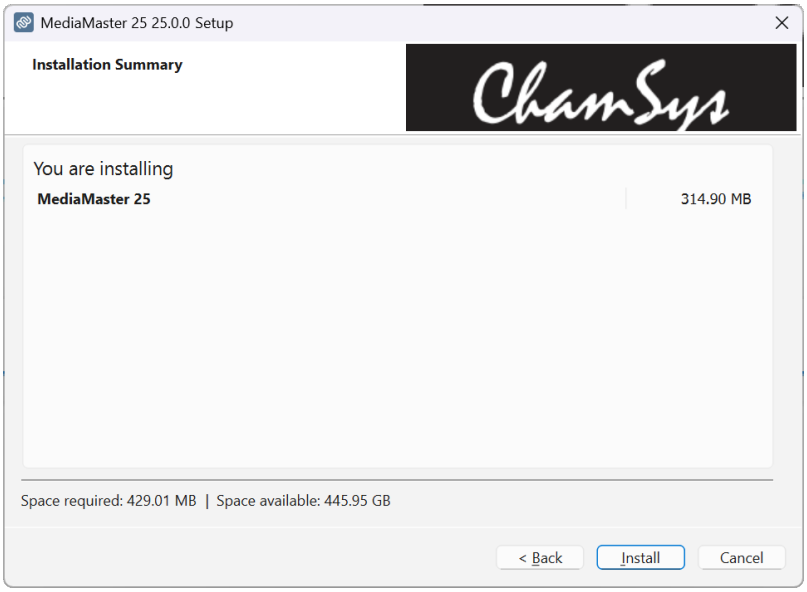
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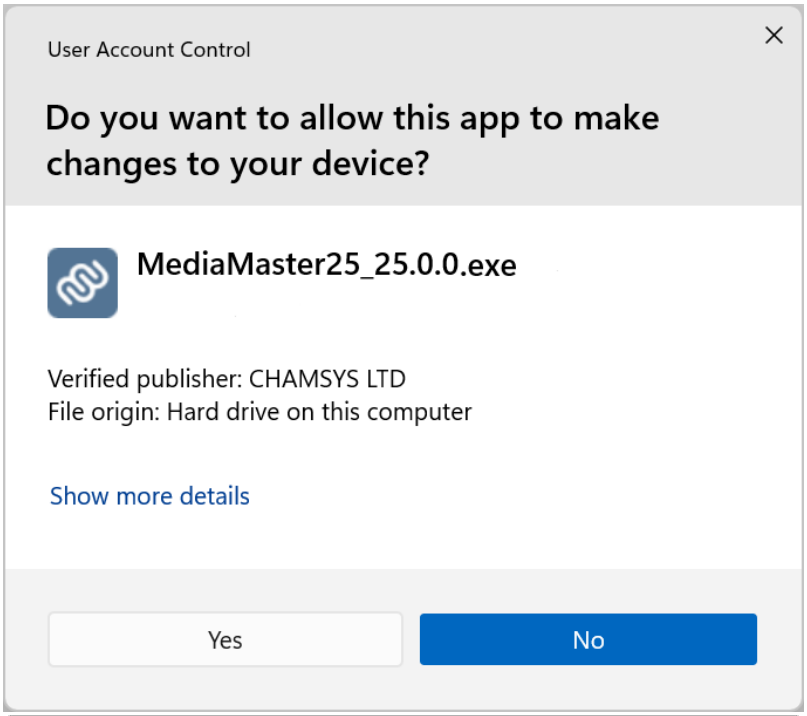
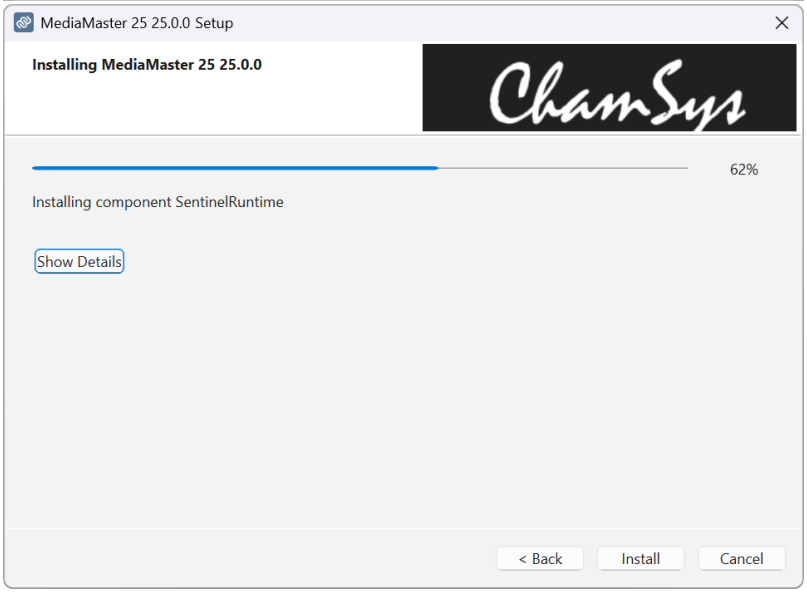
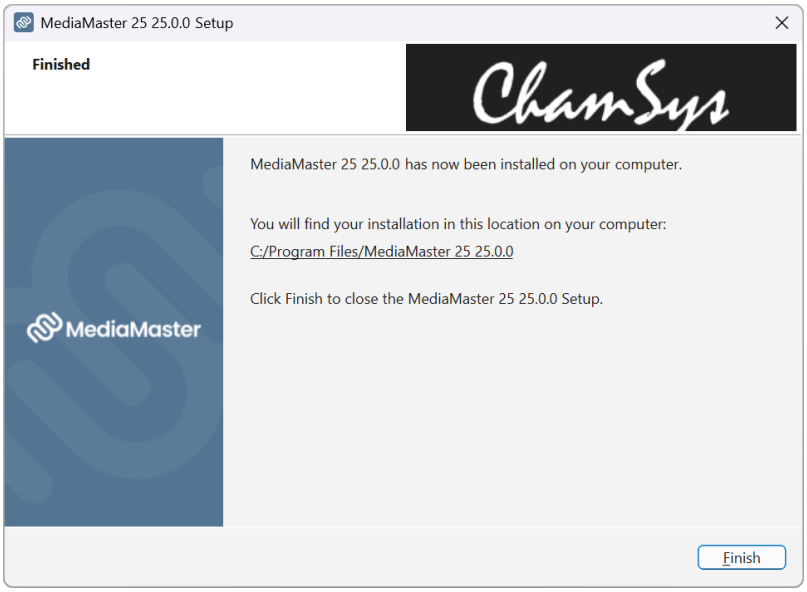

User Account Control
Do you want to allow this app to make changes to your device?
MediaMaster25_25.0.0.exe
Verified publisher: CHAMSYS LTD
File origin: Hard drive on this computer
Show more details
Yes
No


MediaMaster 25 25.0.0 Setup
Installing MediaMaster 25 25.0.0
ChamSys
62%
Installing component SentinelRuntime
Show Details
< Back
Install
Cancel



Once the installation is complete, click “Finish”. The MediaMaster software is now ready to be used.

Start MediaMaster by going to Start ⊠ MediaMaster.

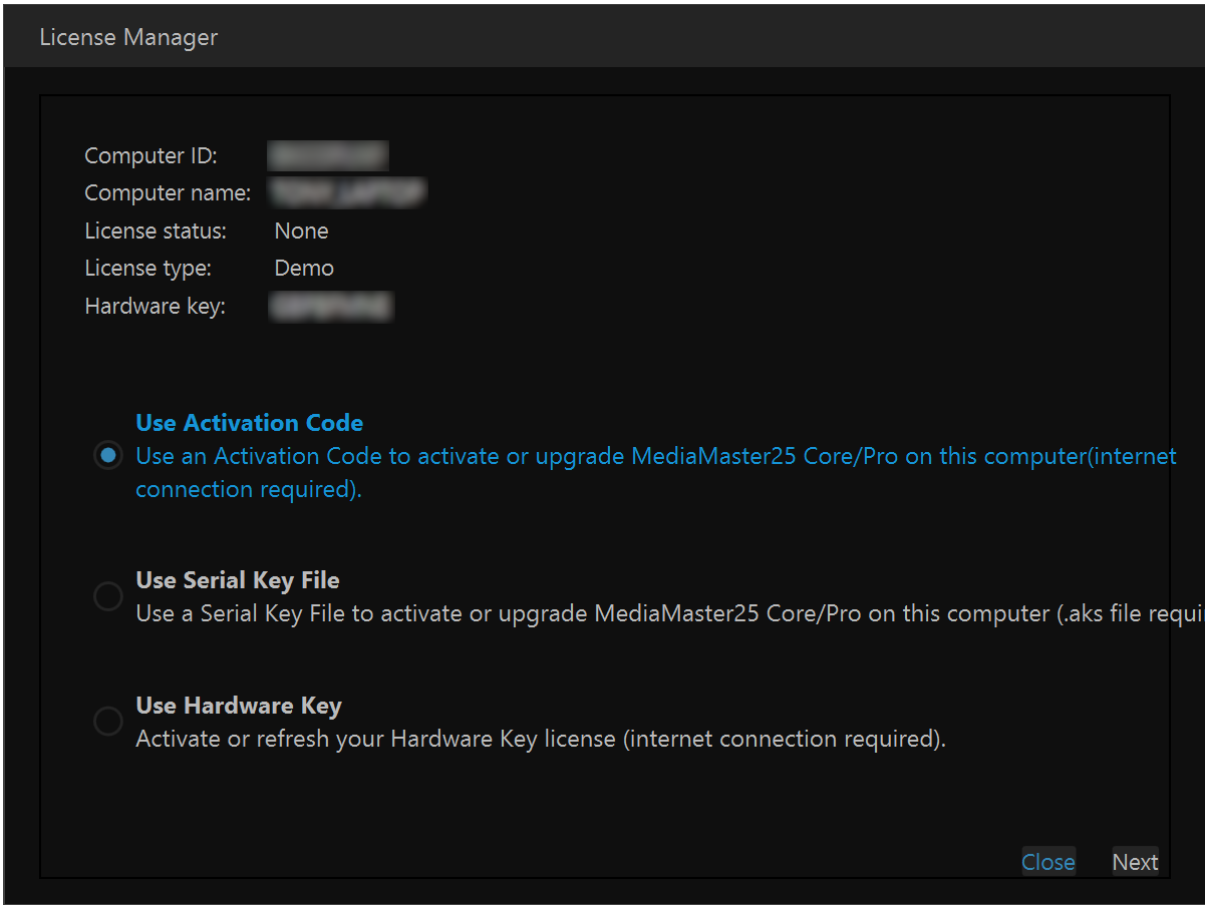
To activate your copy, follow the registration process described in Activating Your Software.

Activating Your Software

Activating Your Software

Software Activation Dialog

When you launch the application for the first time, it will display a “Software Activation” dialog.



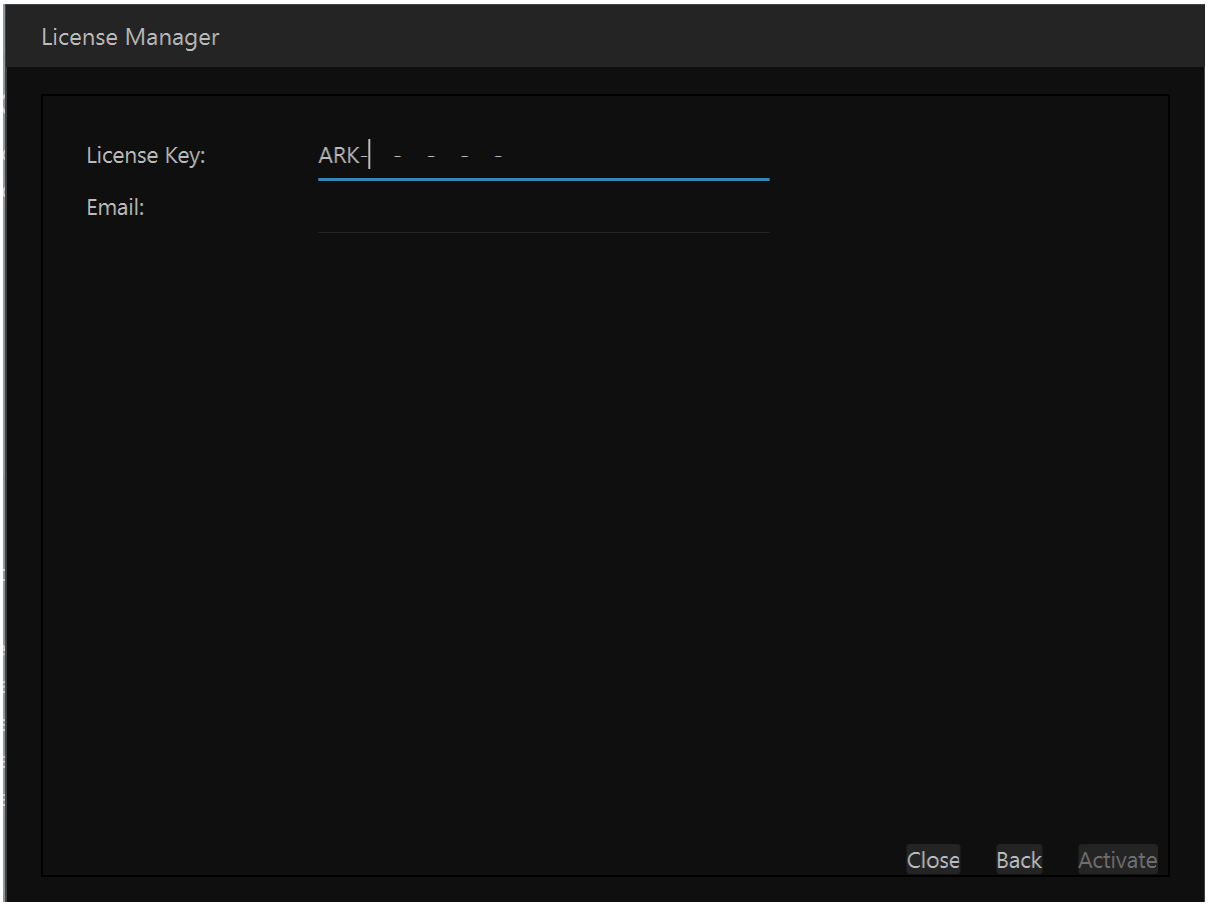
About the Demo Mode

Note that, from the "Software Activation" dialog you can also choose to run the software in demo mode. If you do so, the software will still be fully functional, but a 'demo' banner will be displayed randomly above the output.

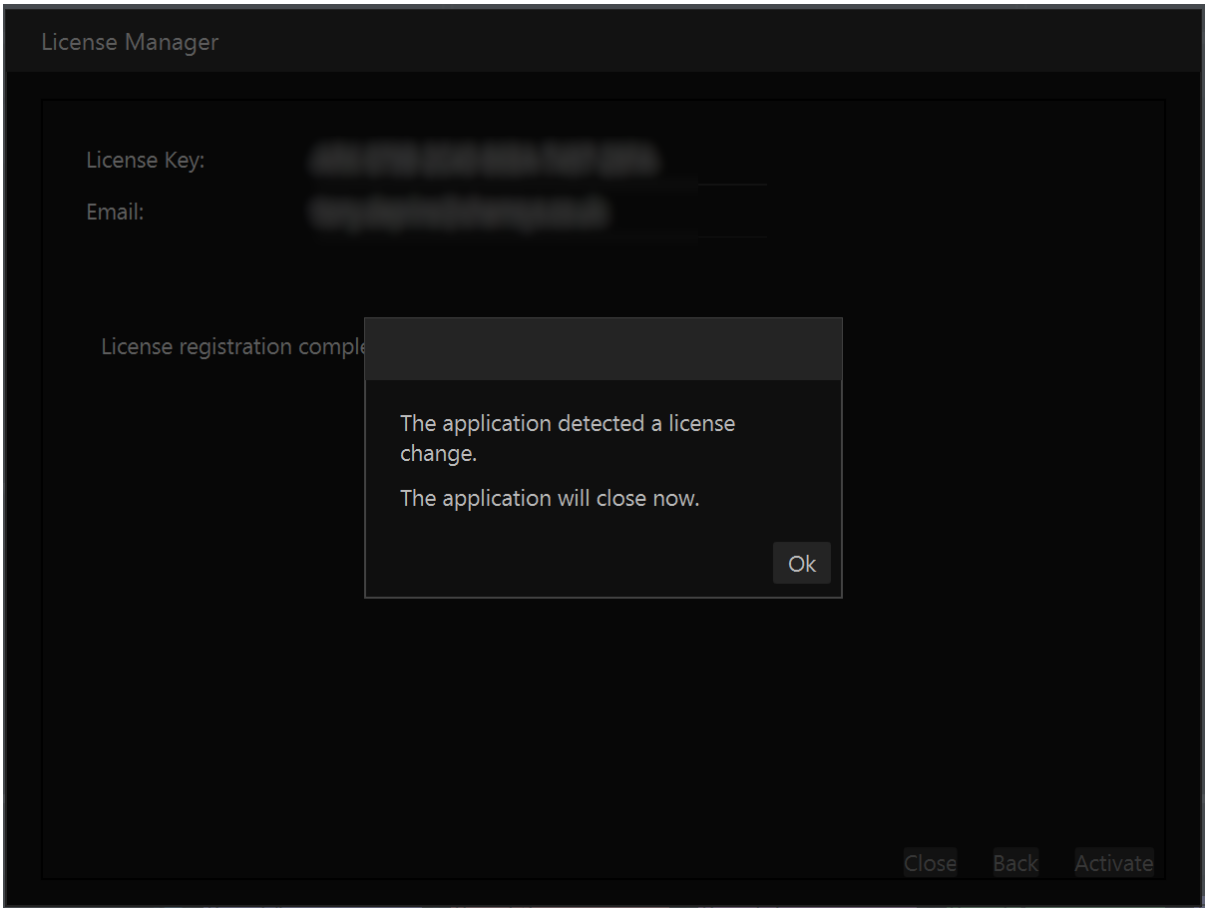
Note: If you are not sure of your hardware Setup and / or computer performance and you wish to make tests to decide whether you will use MediaMaster on a computer or not, we recommend doing so in demo mode since the software is fully functional in this mode. The demo mode also allows you to understand the differences between the Pro and the Core edition by letting you test the Theatre mode interface or the Fixture interface.

Use Licence Code

To use this activation option, you need a working Internet connection, a valid mail address, and the licence code.



Fill in the licence code and your mail address and click “Activate”.



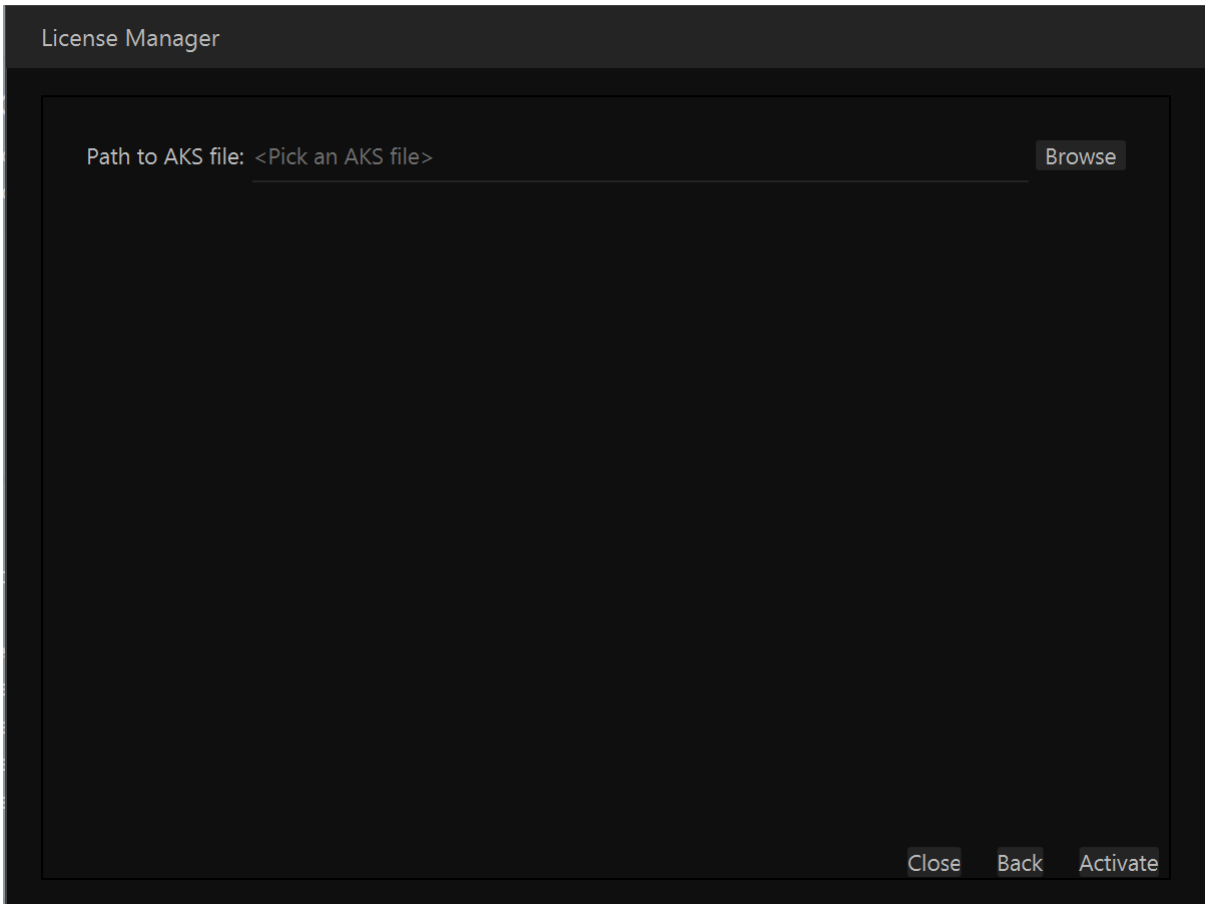
You will get a confirmation screen when the system is activated.

MediaMaster will then notify you that it detected a licence change and will close. When you start the application again, it will be activated.

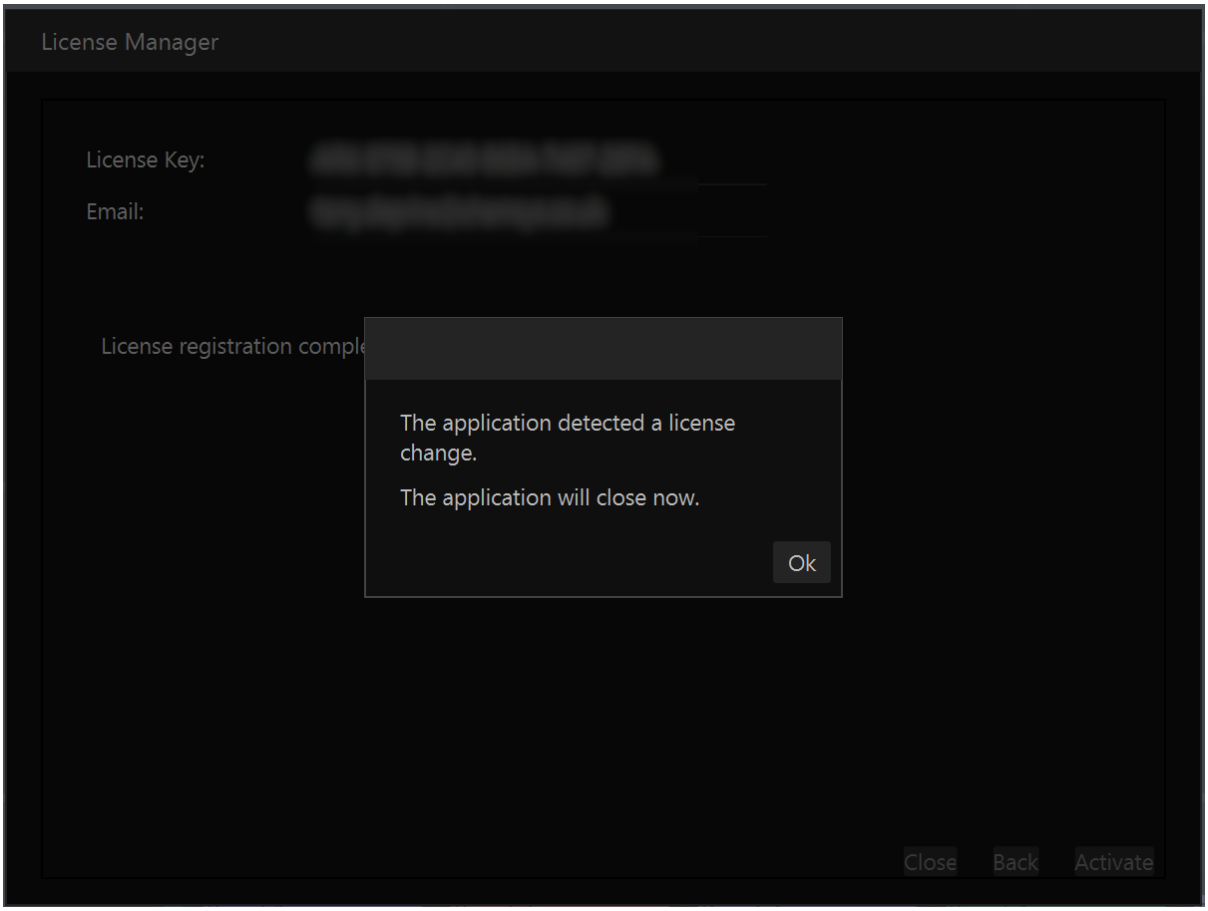
You will also receive an activation confirmation mail and if you are using the licence code for the first time, you will also receive a password for your online customer account.

Use Serial Key File

To use this activation option, you need a serial key file (.aks) from our website for this computer.



Click the "Browse" button, navigate to the location where you saved the serial key file and click "Activate".



You will get a confirmation screen when the system is activated.

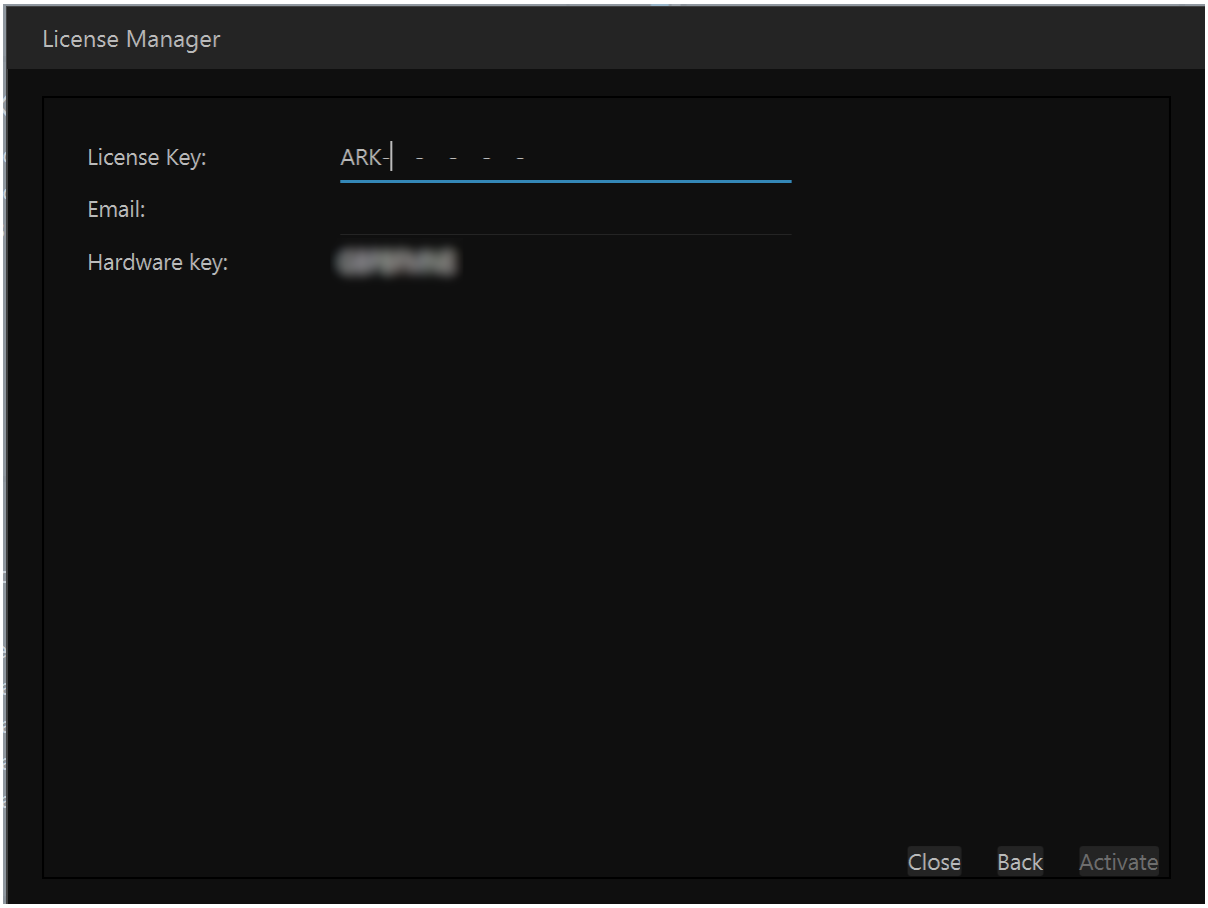
MediaMaster will then notify you that it detected a licence change and will close. When you start the application again, it will be activated.

Use Hardware Key

To use this activation option, you need a working Internet connection, a valid mail address, the licence code and a Licence Dongle.

If no Licence Dongle is detected or multiple Licence Dongles are detected, this activation option will not be available.

If your Licence Dongle is not yet activated, you will have to enter your licence code and mail address.



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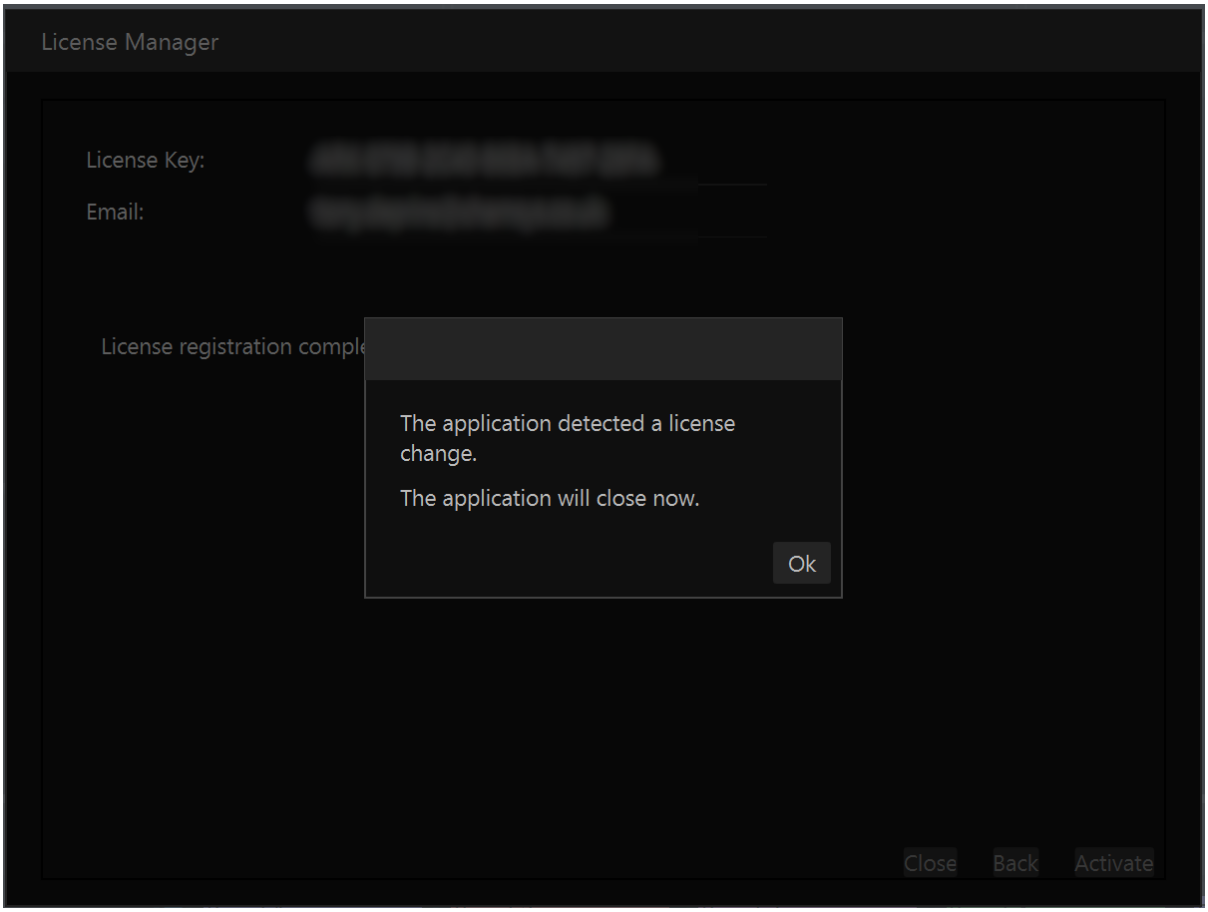


MediaMaster will then notify you that it detected a licence change and will close. When you start the application again, it will be activated.

If your Licence Dongle is already activated, you will get the following screen.

insert activated licence dongle detected picture here

Control Concepts

Control Concepts

The interface of MediaMaster marks a new phase in software development allowing you to make use of the latest dynamic visual effects combined with an efficient and intuitive workspace management system and with control via DMX or a computer keyboard.

There are numerous attributes that must be defined to allow control of visuals in media servers – including content selection, playback speed, effects, size and position, keystoning and so on. When these are directly controlled by a lighting console, they can require a substantial number of control channels.

The MediaMaster interface allows you to make these decisions in the software itself and then simply take control of these presets using a few channels on your lighting desk.

Controlling the playback in the interface is much the same as using a dimmer to control a conventional fixture: think of rigging a profile light for a show – you decide first where to hang it, what colour it should be, if you need a gobo or other effect's device such as a scroller or animation disc. Once the fixture is rigged, prepared and focused you then only need to change the level of its dimmer as and when you require it in the show.

Using the Presets is the same – on the software you create the visual combination you want – define the content, any effects, playback speed and so on, and then with your external controller simply fade it in an out as required during your show.

Just like with a lighting system you can have multiple instruments – or in this case layers - to build your final show from.

As such the Presets give you the same flexibility and control over your media as with a fixture-based control solution but with an unprecedented ease of use.

MediaMaster Pro adds a fixture-based operation mode and as such acts as a traditional Media Server for professional lighting consoles such as ChamSys, Avolites, LSC, ETC, GrandMA, Martin, Compulite, and so on.

The fixture profiles allow total control of every MediaMaster parameter straight from the DMX console.

To be able to send DMX commands to the server, you will need to set it up so it can communicate with your console. MediaMaster supports different type of DMX connectivity: using Art-Net, sACN, a DMX USB widget or MA-Net.

Features Summary

Features Summary

Media Management

As its name suggests MediaMaster can handle numerous different types of media sources – including video, images, external cameras and sources and even audio files.

These media files are organized into a workspace folder in exactly the same way that you would create and manage files on the computer. You can then create projects and assign your media to a folder in a project. There are 256 project folders, and each folder can have up to 255 individual pieces of media (one media file is always kept as a blank slot by the software).

Some of the project folders in are pre-defined for specific duties – such as camera feeds - and these will be covered in a later section of this manual. It is also possible to have more than one project and this is also covered later.

Note: Think of a project as a filing cabinet – you have a total of 256 drawers and each drawer can store 256 files in it. By creating a good filing practice, you can quickly and easily find the content you need.

For example, you can group clips by type or genre into a specific folder so folder 001 has cloud animations, folder 002 has computer game visuals, folder 003 has slides for a specific event and so on and so forth.

With a possible media library of over 60,000 clips per project, it can be really helpful to organise clips in this manner and make the recall of clips even more efficient.

Layers

MediaMaster Core is capable of running 12 layers of media playback simultaneously. In MediaMaster Pro you have access to 48 layers.

The resolution of the video content is limited only by what your computer hardware can handle so with the right hardware 48 layers of 4K video is more than possible.

Outputs

MediaMaster is designed to work best with a minimum of a dual output computer system where the main screen shows the user interface and the second screen (or screens) show the full resolution output image – this would normally be connected to a projector, screen, video mixer or LED display device.

In MediaMaster, there are three types of output:

Display outputs: “Displays” are the devices that are connected to the computer graphical card using DVI, HDMI or DisplayPort connectors. In Instant mode, there’s a single output called “Full screen Display” that correspond to the full screen display (or multiple displays) that’s selected directly in the preferences. In VideoMapper mode, there are as many outputs as surfaces that are defined using the “VideoMapper” application.

LED Mapper output: a set of LED devices controlled by the DMX protocol. The output mapping is defined using the “LED Mapper” application.

Kling-Net output: a set of LED devices controlled by ArKaos PRO Kling-Net protocol. The output mapping is defined using the “Kling-Net Mapper” application.

You can switch between Instant and VideoMapper Display modes, and activate LED Mapper and Kling-Net outputs in the Output tab of the Preferences window.

MediaMaster can assign visuals to layers, and each layer can be assigned to a single output or a group of outputs that are defined within the application.

You can create groups using the dedicated “Output management” dialog.

There are numerous ways to configure your outputs, which are discussed later in this manual.

Media Types

Media Types

Video

MediaMaster can playback a large number of video files through its native decoder, which is based on FFMPEG and the new ChamSys Saga video codec. The compression codec that we have found to give the best overall performances is MPEG-2.

This said, the software has been designed to make best use of your computer system and therefore should be able to play files encoded with most of the video codecs you have installed on your system. However, by using a codec that is not native to MediaMaster you will increase the drain on your system resources and therefore you may encounter performance issues depending on your hardware profile.

With a MultiCore CPU, MediaMaster will use all CPU’s when necessary, so the basic rule if you intend to play high definition content would be to have a system with at least the same number of cores as the number of high-definition layers you want to play.

Note: The compression codec, file size and type can have an effect on the reliability and quality of playback depending on your hardware configuration and show type. For example, a show which uses 8 layers of 4K video simultaneously will require much more processing power than one using low resolution video or stills to drive LED pixel mapping.

SAGA Video Codec

The SAGA proprietary codec supports key frames, alpha channel, HDR, and audio. SAGA is the most optimal video format to be used with MediaMaster.

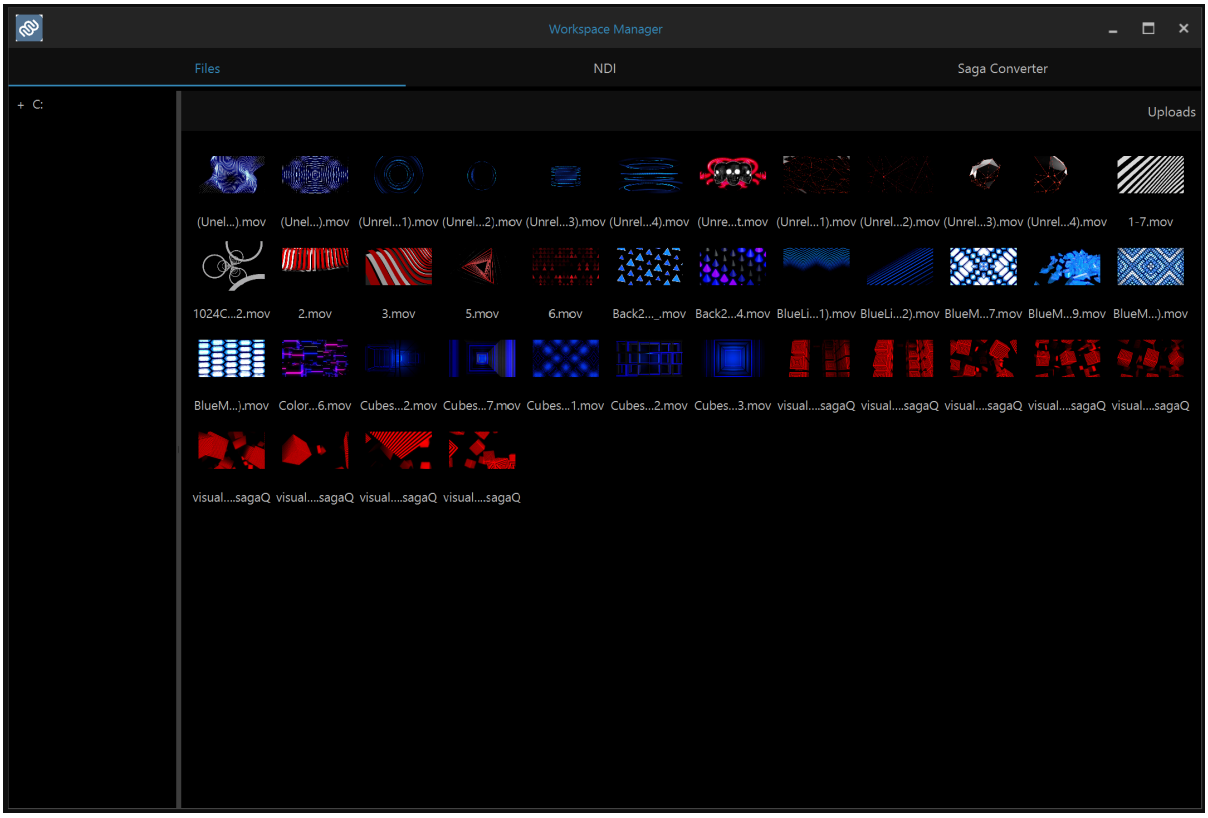
SAGA exists in these 4 profiles: * Fast (.sagaF) This profile is optimized for the fastest decompression with a colour profile of 8 bits 4:4:0. This gives the best decoding performance even on a low-specced computer, using the lowest disk space. Audio and alpha channels are available.

- Balanced (.sagaB) This is a balanced version of the codec using medium disk space with a colour

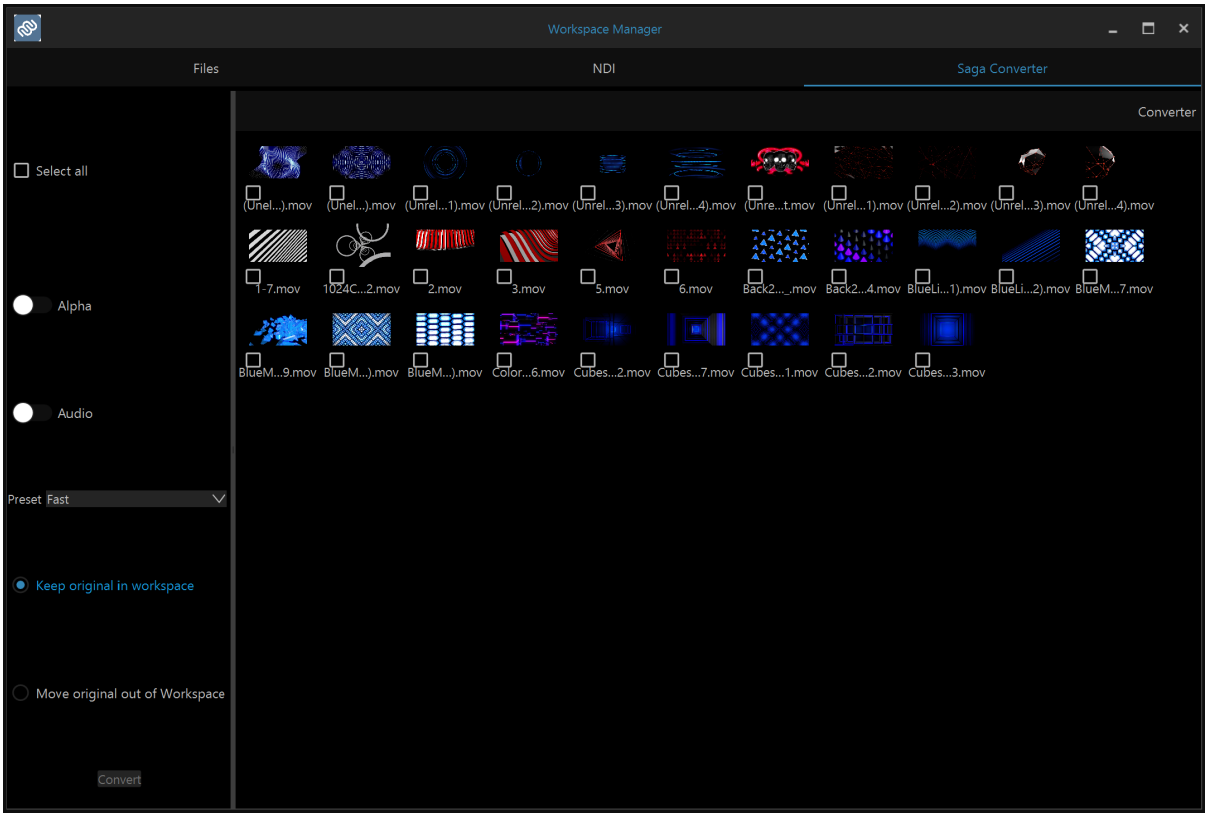
profile of 8 bits 4:4:4. Since it is not using chroma subsampling, this gives a great result with your colour gradient. Audio and alpha channels are available.

- Quality (.sagaQ) This is the highest quality codec with a colour profile of 10 bits 4:4:4. With its "lossless" capabilities, this is the best choice when quality matters. Audio and alpha channels are available.
- HDR (.sagaH) This profile is based on the Quality profile and is the highest codec to select for all your HDR applications and a colour profile of 10 bits 4:4:4. Audio and alpha channels are available.

MediaMaster offers a built-in SAGA converter. The Saga converter can be found in the Workspace Manager. The Workspace Manager can be used on any computer and does not require a licence.



Open the Workspace Manager and select the SAGA converter. You can select clips by checking the checkboxes or check "select all" to select all files directly. The encoder will automatically select the best profile for your movie, but you can also select another profile if needed. You can also remove the alpha or audio for each clip.



Select what happens with the original files once they are converted. Start the conversion by clicking the Convert button. The Resolution and Sample Rate are kept identical as the source file.

Alpha Source Support

If you import images or videos with an alpha channel (for example as a result of green keying), the transparency of the media will be used in the mixing.

insert picture with alpha

You will see the transparent areas in the layer preview, no matter if it comes from the original media or from applying luminance / chrominance inside the software.

Images

MediaMaster will accept the following file types into the Workspace Manager for still images:

JPG, GIF and PNG

You can import images that are bigger than the output resolution but for performance reason your images should never be bigger than the output resolution used. When using specific effects, you may need to import images that are bigger than the resolution used in MediaMaster.

Audio

When a video loop has an audio track it will be played. For performance reason you may not want to play the audio, this can be done by going in the preferences in the Audio tab; there you can disable the audio.

Cameras / External Sources

MediaMaster will accept as source any live input that is connected to your computer, as long as it is natively recognized by your system (that is without the need to install proprietary drivers or software). Your acquisition device must be compatible with Direct X under Windows.

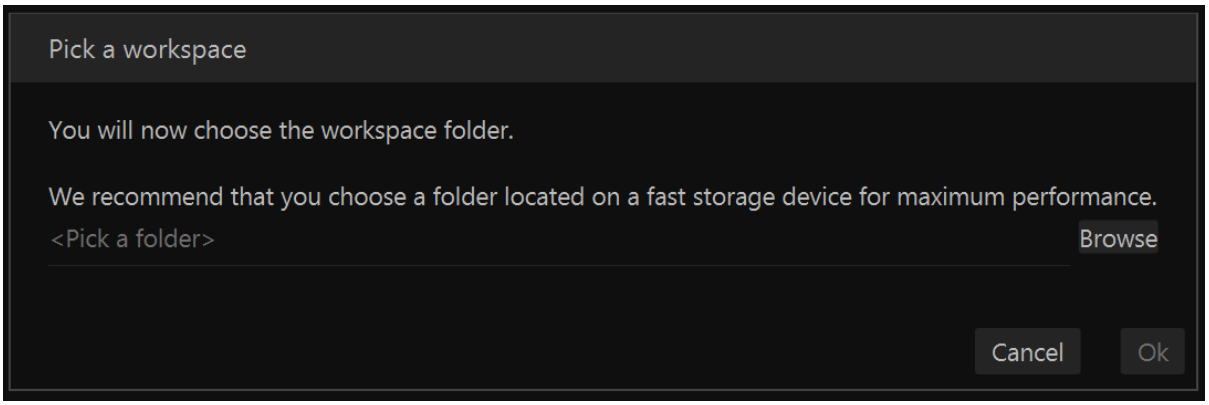
Libraries

Workspace

MediaMaster uses a Workspace, which is a library system of folders and files to help organize your content. In that Workspace you can convert your media to the SAGA codec and assign media to Projects, which allow for quick selection of media as required.

This way of working allows you to have multiple Projects using the same content without the need of having that content multiple times on your hard drive, which will save you a lot of disk space.

Workspace Folder

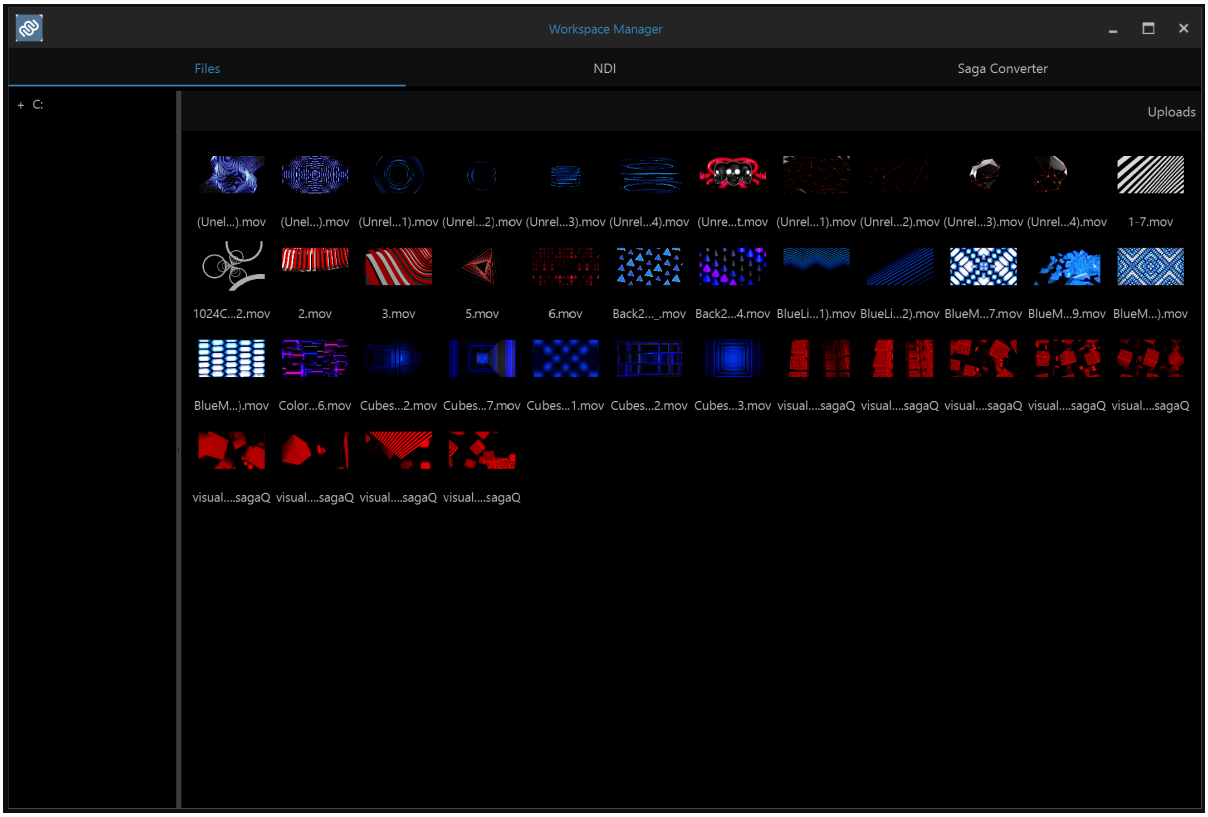


At first launch, MediaMaster will ask you to define the Workspace folder for you media library. MediaMaster will then automatically generate a series of specific folders for pre-installed media content and effects.

In the preferences window you can also select to always start up with the latest used Workspace.

Workspace Window

Managing the content is fairly easy. You can add, remove, rename and convert media directly from within the Workspace window.



The Workspace Manager has 3 sections: Files, NDI and SAGA Encoder. By default it opens in the Files section.

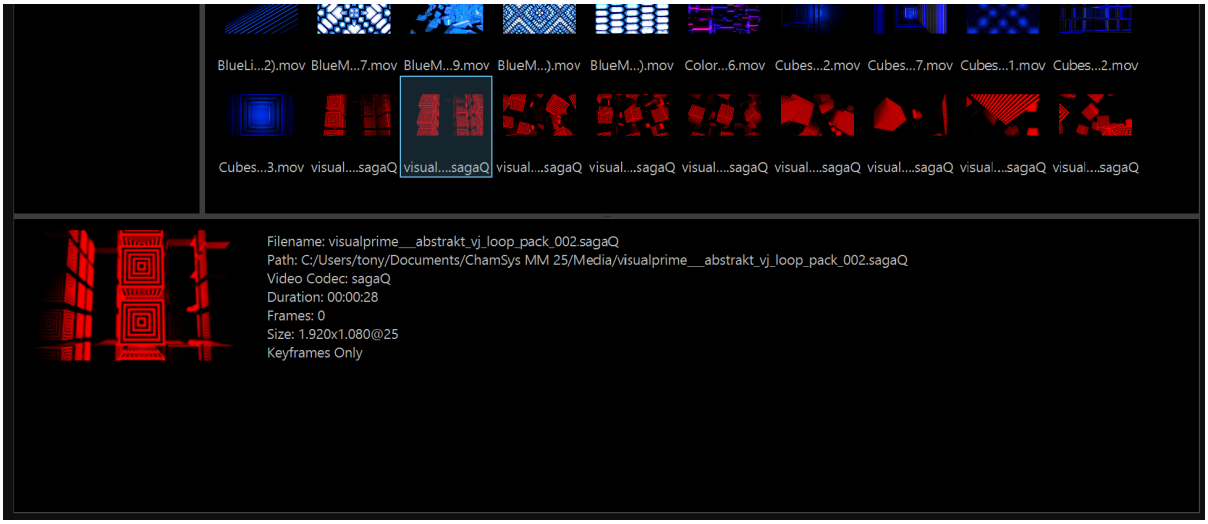
Files Section

In the left pane you have a treeview of the hard drives in your system. You can use it to navigate to the folders where your media is stored. Then you can drag and drop the media from the left treeview pane into the right pane which is the media pane.

The content will be imported into the workspace folder and an animated thumbnail will be created. Once imported you can hover over the thumbnail to see a short preview of that content.

When you right-click in the media pane, you can create a folder. You can then drag content into that folder. This can help you to keep your Workspace organized.

When you right-click on a media in the media pane, you can rename or remove it.



When you select a media (left click) you will see an extra field in the bottom of the Workspace Manager that shows you more information on the selected media.

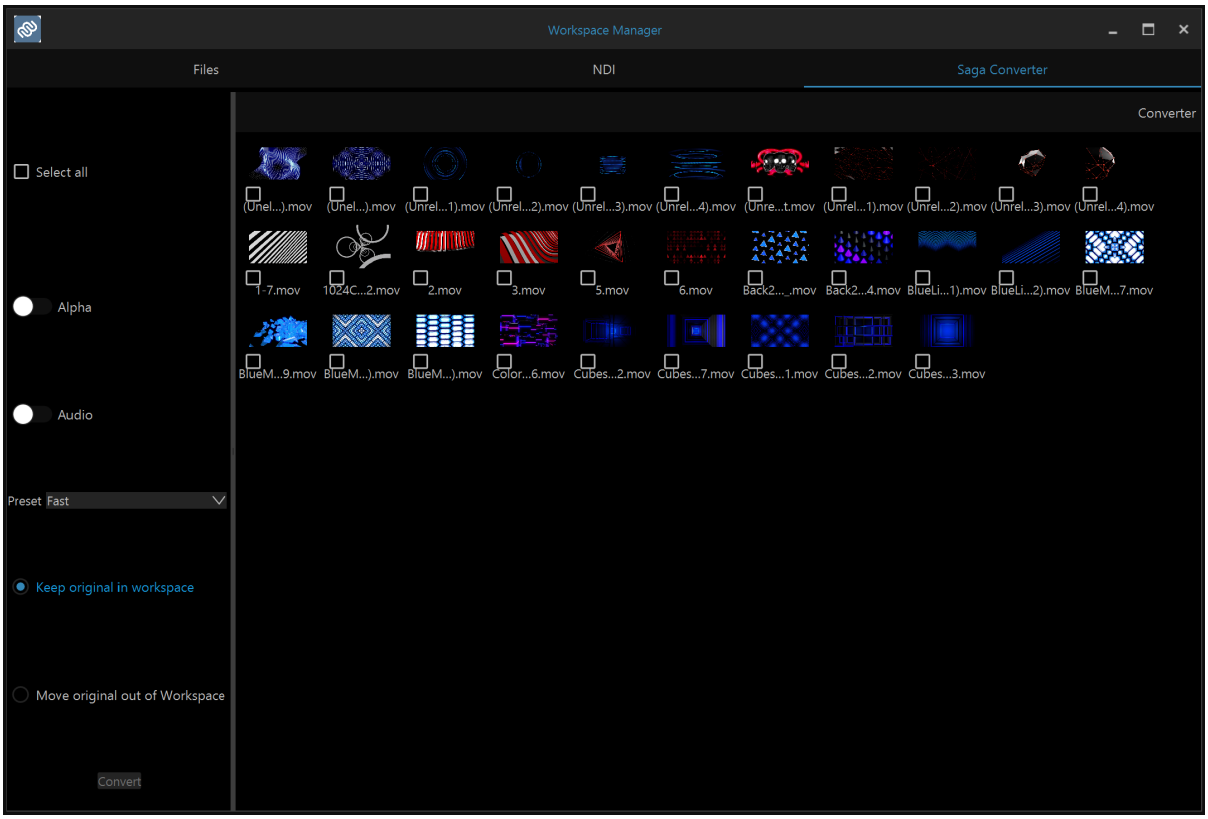
NDI

insert picture of NDI tab of workspace manager

In the NDI section you can see the NDI streams on your network.

SAGA Encoder

As covered in the Media Types section, SAGA is the most optimal video format to be used with MediaMaster.



In the right pane you see all the content available from all folders in the workspace with a check box added. With these you can select which files you want to convert to SAGA.

In the left tab you have the option to select all files in one click.

With the Alpha selection you can choose if the visuals that have an alpha channel keep it or if the alpha channel is removed.

With the Audio selection you can choose if the visuals that have an audio channel keep it or if the audio channel is removed.

You can select which SAGA Preset to use: Fast, Balanced, Quality or HDR

You can select what happens with the original file after conversion: * remove it from you drive to save you some extra disk space * move it to a folder outside of the workspace to give you a backup of the content

Projects

Each Project is made up of 256 folders, each of which can contain up to 256 media clips or visual effects. No matter what Project folder you are in, the visual number 0 is blank – meaning that if you select 0 then no visual is displayed.

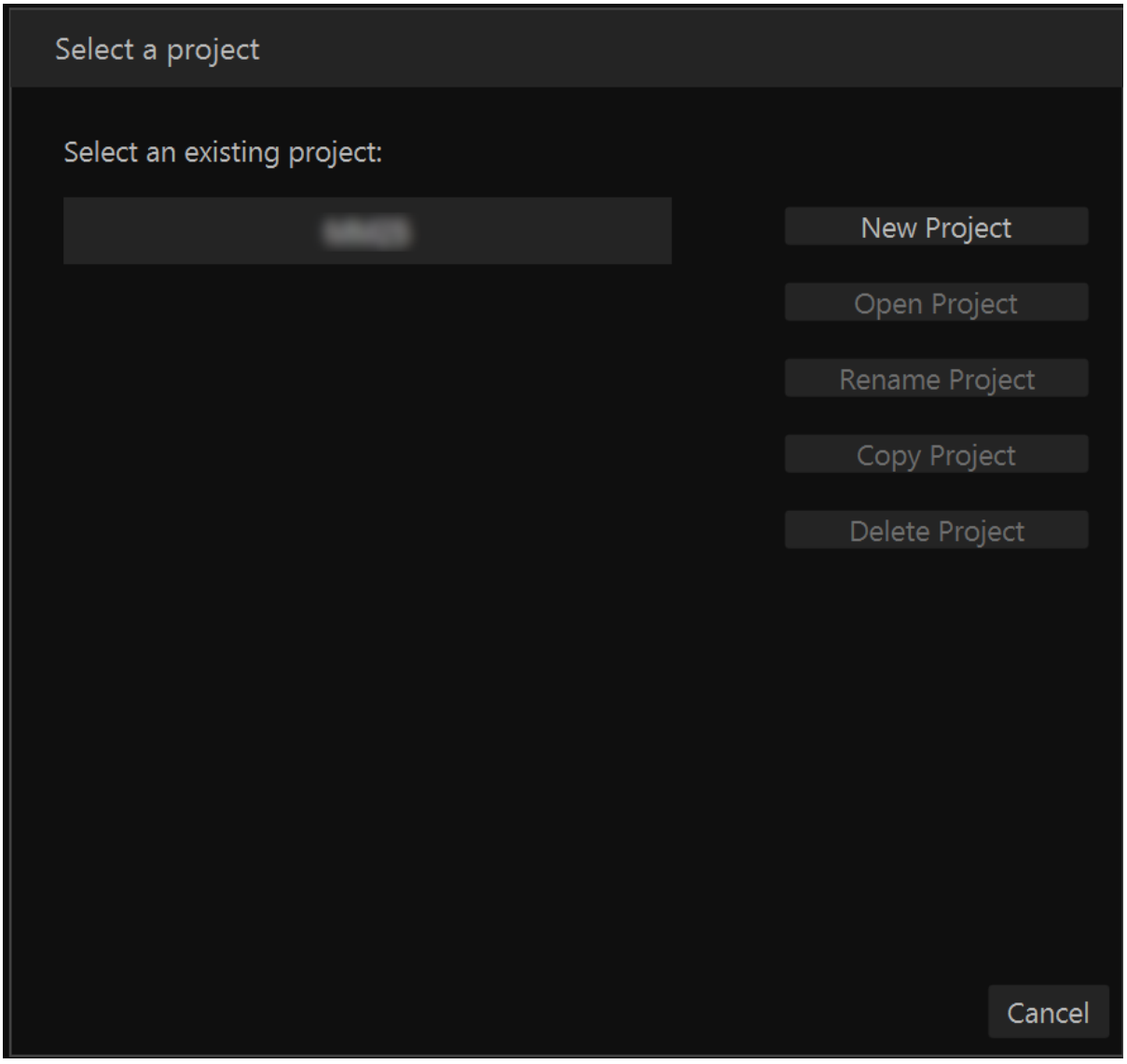
Within a Project each media folder needs to be named with a three-digit number (001 – 255) followed by an underscore and then the name of the folder. You can name the folder as you wish but spaces are not allowed. For example, if you wanted folder 1 to be called assorted clouds the naming convention would be “001_assorted_clouds”.

Note: If the name of the folder or files doesn't match this format then it will simply be ignored by MediaMaster.

You can also change the name of the folder within Workspace Manager window by double clicking on the folder.

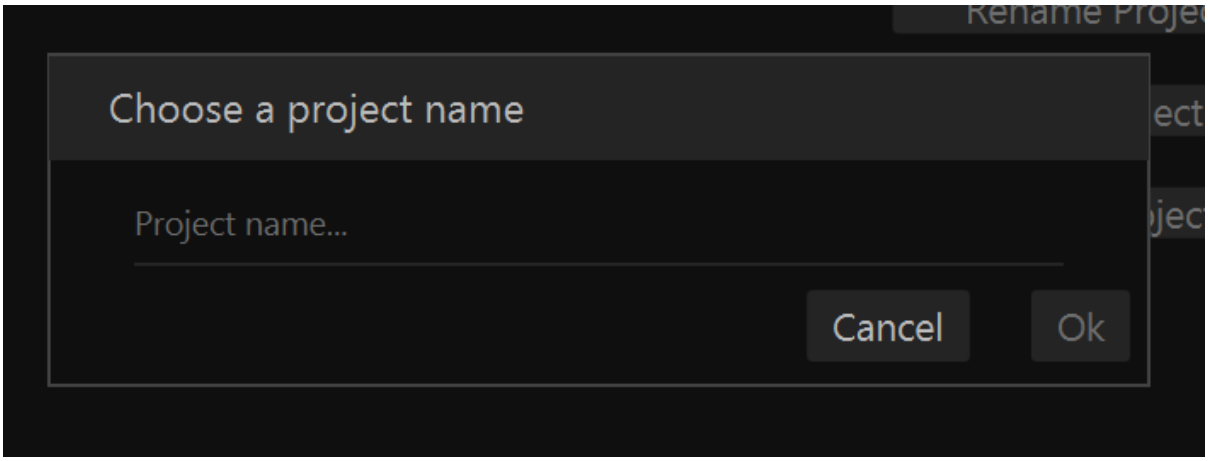
Create or Open a Project

In the menu bar select 'Project' and then 'Open Project'. This will open the following dialog.



On the left side of this dialog you see all the currently existing projects. If you select a project from the list you can choose to open it, rename it, copy it or delete the project.

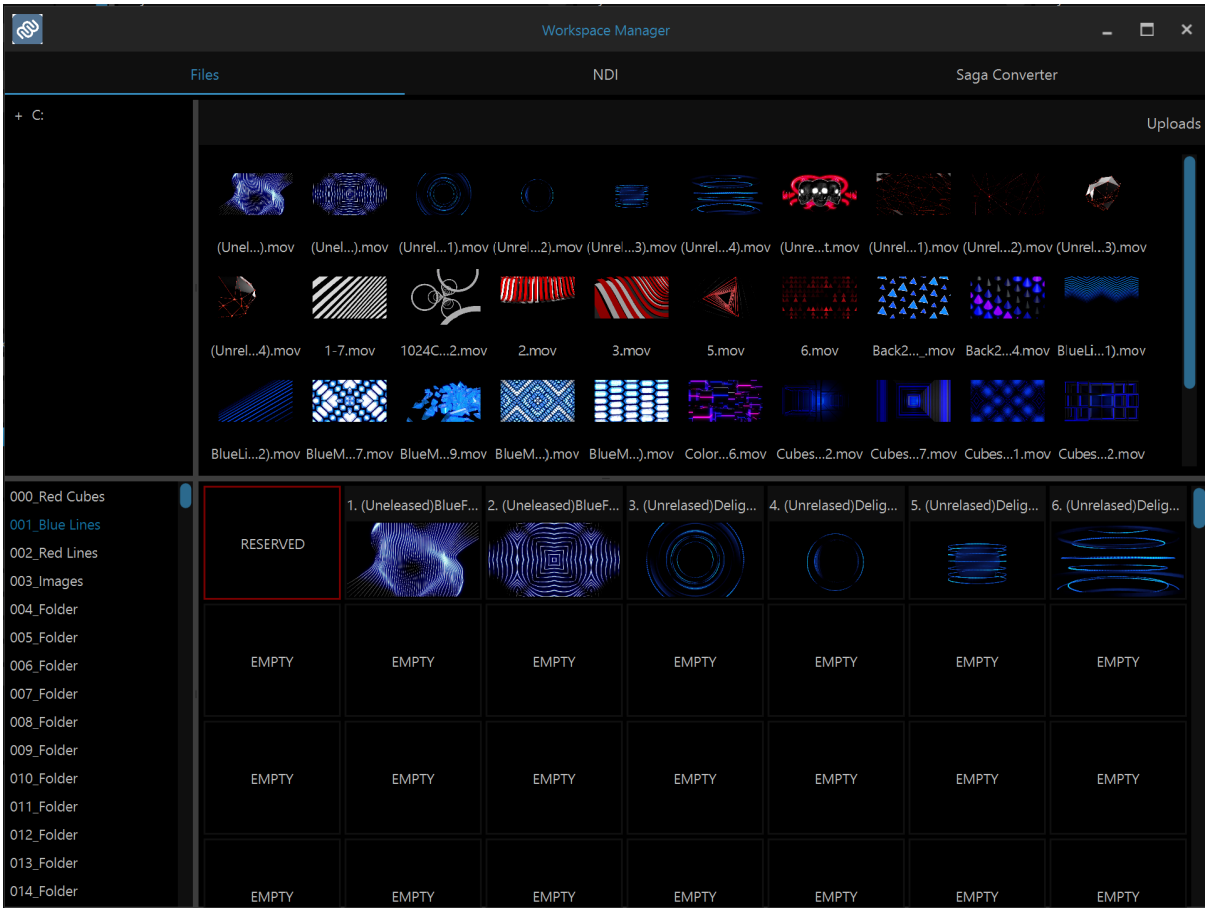
With the "New Project" button you can create a new project.



Select a name for the new project and click 'Ok'. The new project will be added to the list.

Add Content To Your Project

With your project open got to 'File' - 'Workspace Manager'.



Now you can see the workspace manager with the project folders and cells added.

In the bottom left panel you find the project folders. You can left-click to select a folder. If you double-click a folder you can rename it.

Folder 253 is reserved for the NDI streams and folder 254 is reserved for all video inputs.

You can drag and drop media from the Workspace window into a cell in a project folder. You can change media from cell in the same project folder by dragging and dropping or even move it to a different folder in your project by dragging it over the destination folder and then releasing the mouse button. You can also remove a visual from a folder by right-clicking it and selecting 'Clear'.

Text Library

The text library is a dialog used to enter text that can later be combined with special media files called 'flash texts'. These media are by default present in the Workspace. When selecting one of these media, you can use the text parameter of the layer to change the displayed text by one of the strings defined in the text library. The content of the text library can be edited using a special dialog that can be recalled by selecting the menu 'Project' - 'Text Database'. The dialog lists the 255 text entries of the library that can be edited by simply replacing the text item next to the item number. When pressing 'OK' in the dialog, the text library will be updated and the new text item can be selected.

Lyrics Player

In MediaMaster, the text engine supports Lyrics. The 255 slots of the Text Library can specify a text, a .txt file or a .srt subtitle file with timing information. You can select the files directly from the Text Library window, by clicking on the '...' button: Text or subtitle files get automatically imported in the library. The Edit button lets you open and edit the file in your default associated editor. When a text file or subtitle file is chosen, and when you select a text visual from folders 249 to 253, then you automatically get three buttons exposed on the right of the intensity slider, to respectively go to Next line, Previous line and to Reset to the first line of the file. Like any controller, those actions can be triggered via DMX. If you have a visual file and subtitles associated, you need to play the visual and the subtitles on two separate layers. A set of specially designed Flash Text Animations are provided for subtitles and lyrics. Subtitle files '.srt' are standard for subtitles and they can easily be found on internet.

Real-Time Reload

If texts or subtitle files get directly modified on disk, then texts will automatically be reloaded, and the new text will be displayed in MediaMaster.

Timecode Offsets

The Timecode offsets is a dialog used to enter times that can later be used for offsetting Timecode driven videos.

The content of the Timecode offsets can be edited using a special dialog that can be recalled by selecting the menu 'Project' - 'Time Code offset editor'.

Workspace

Workspace

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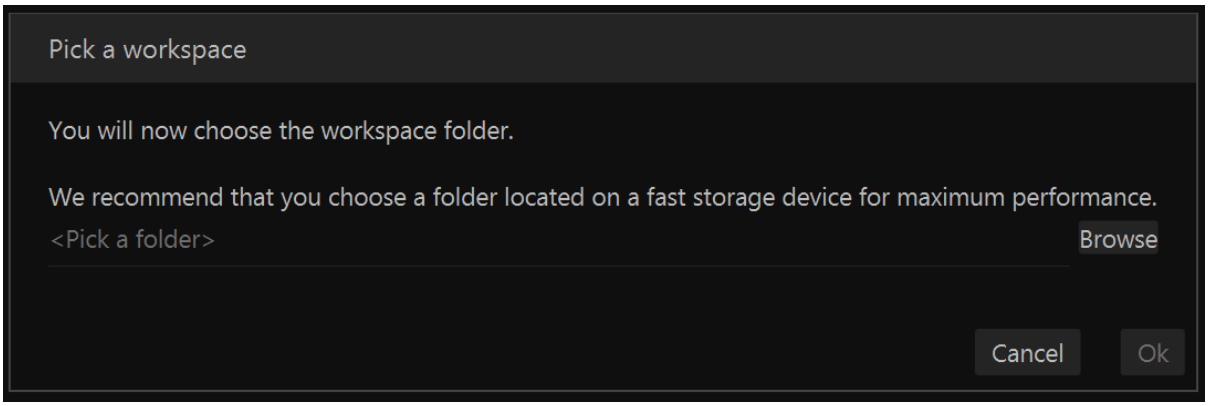

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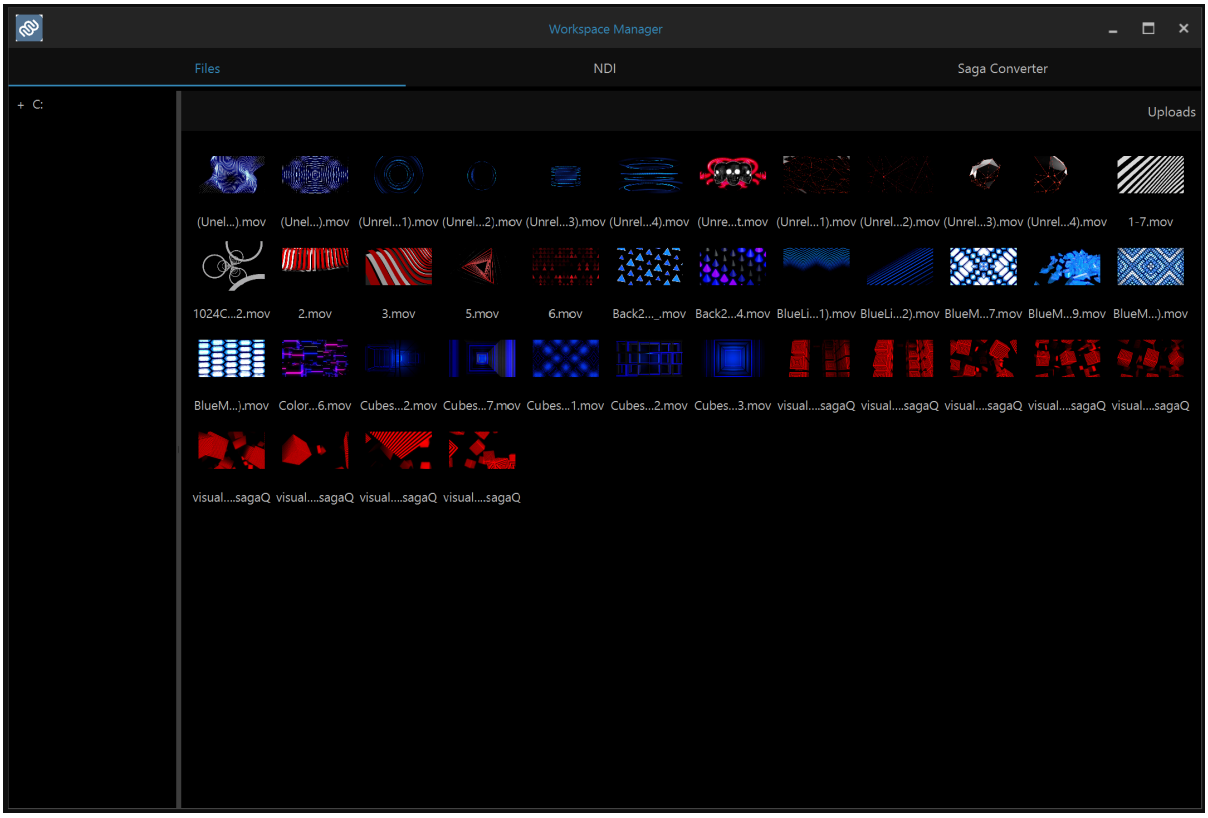

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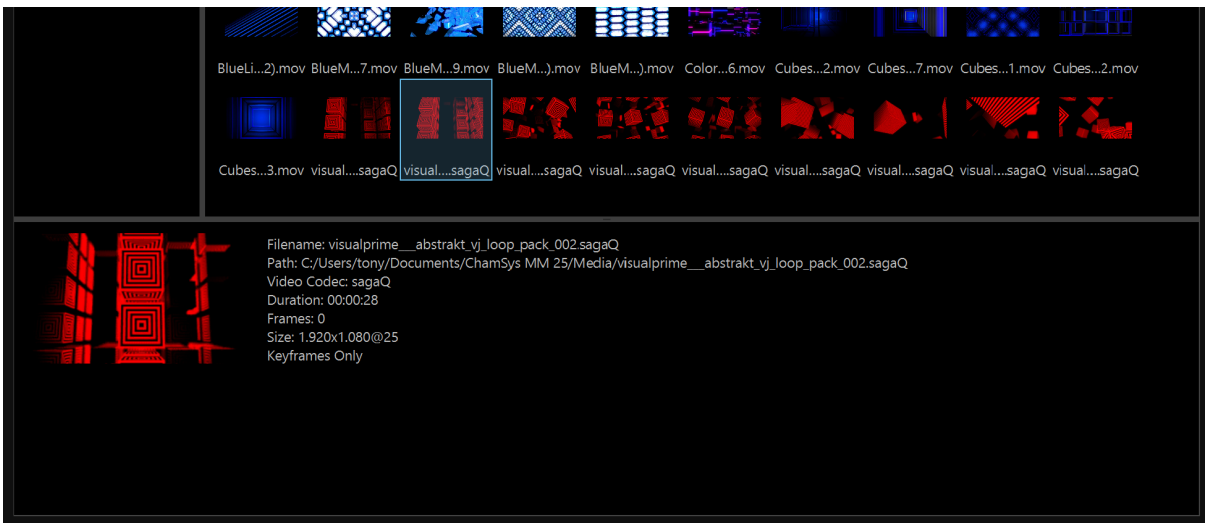

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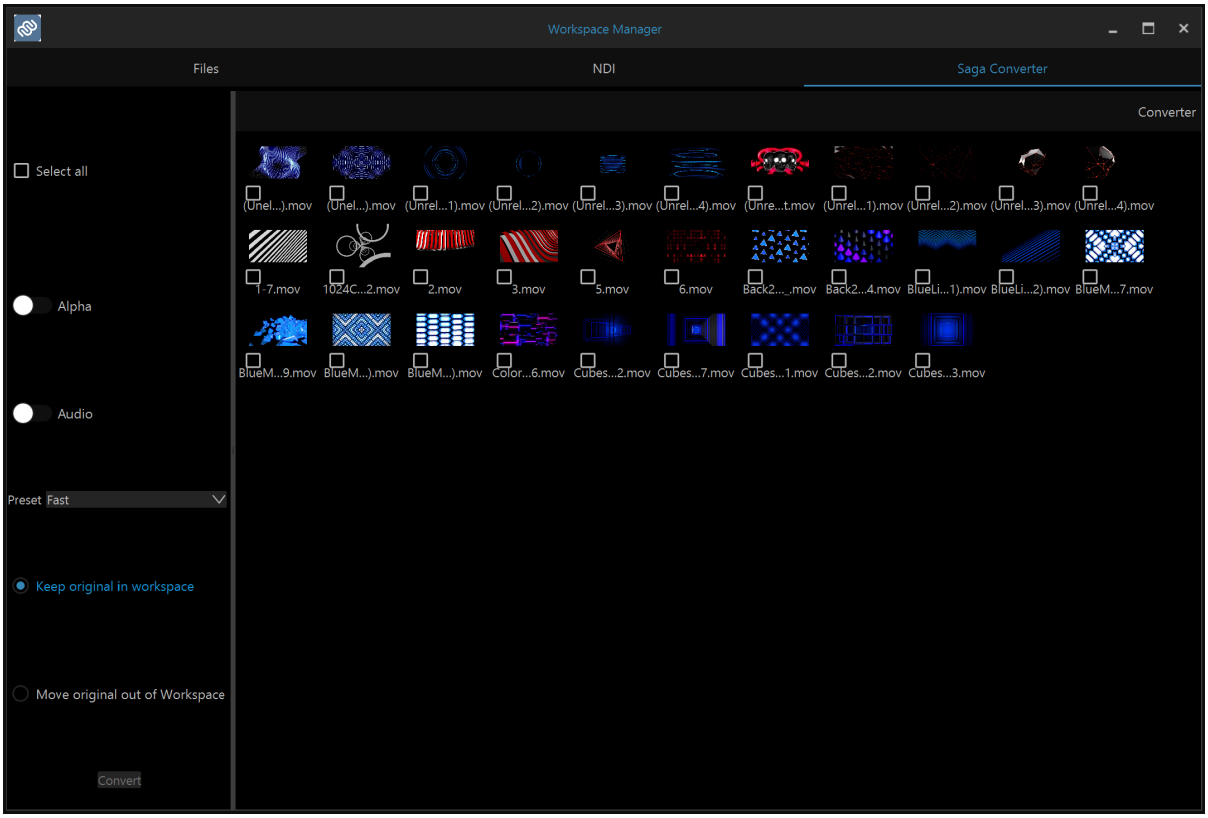

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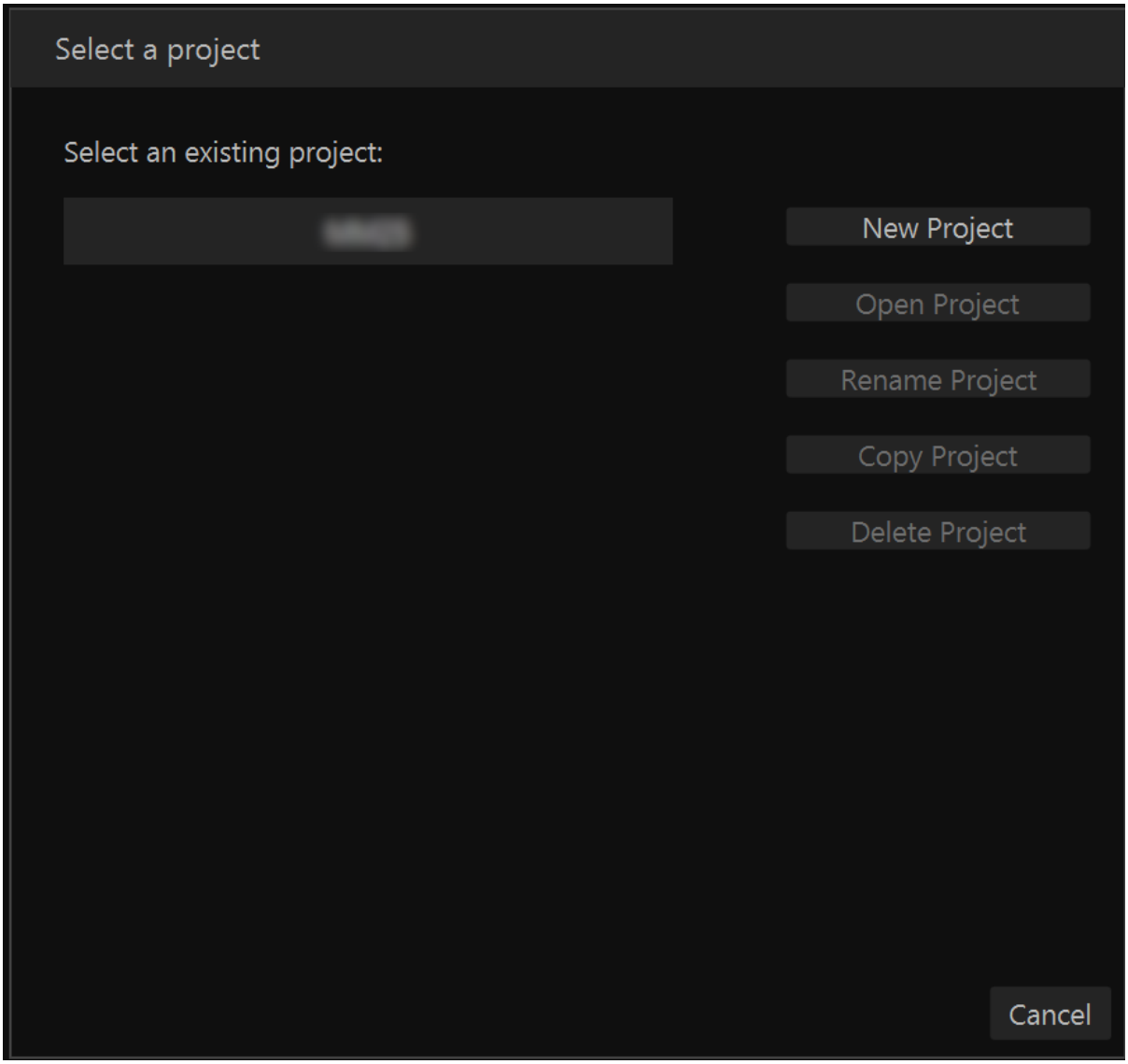
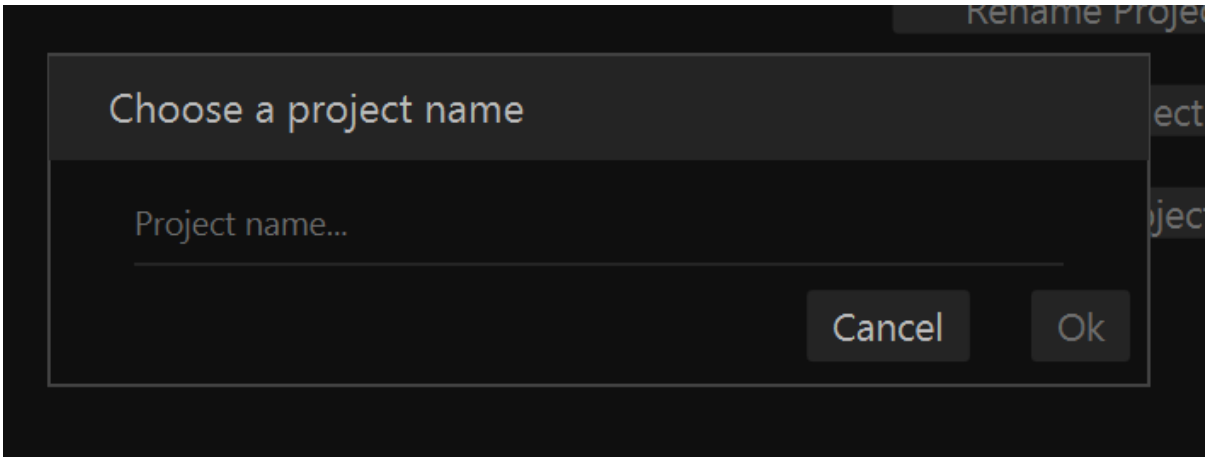
Create or Open a Project

In the menu bar select 'Project' and then 'Open Project'. This will open the following dialog.



On the left side of this dialog you see all the currently existing projects. If you select a project from the list you can choose to open it, rename it, copy it or delete the project.

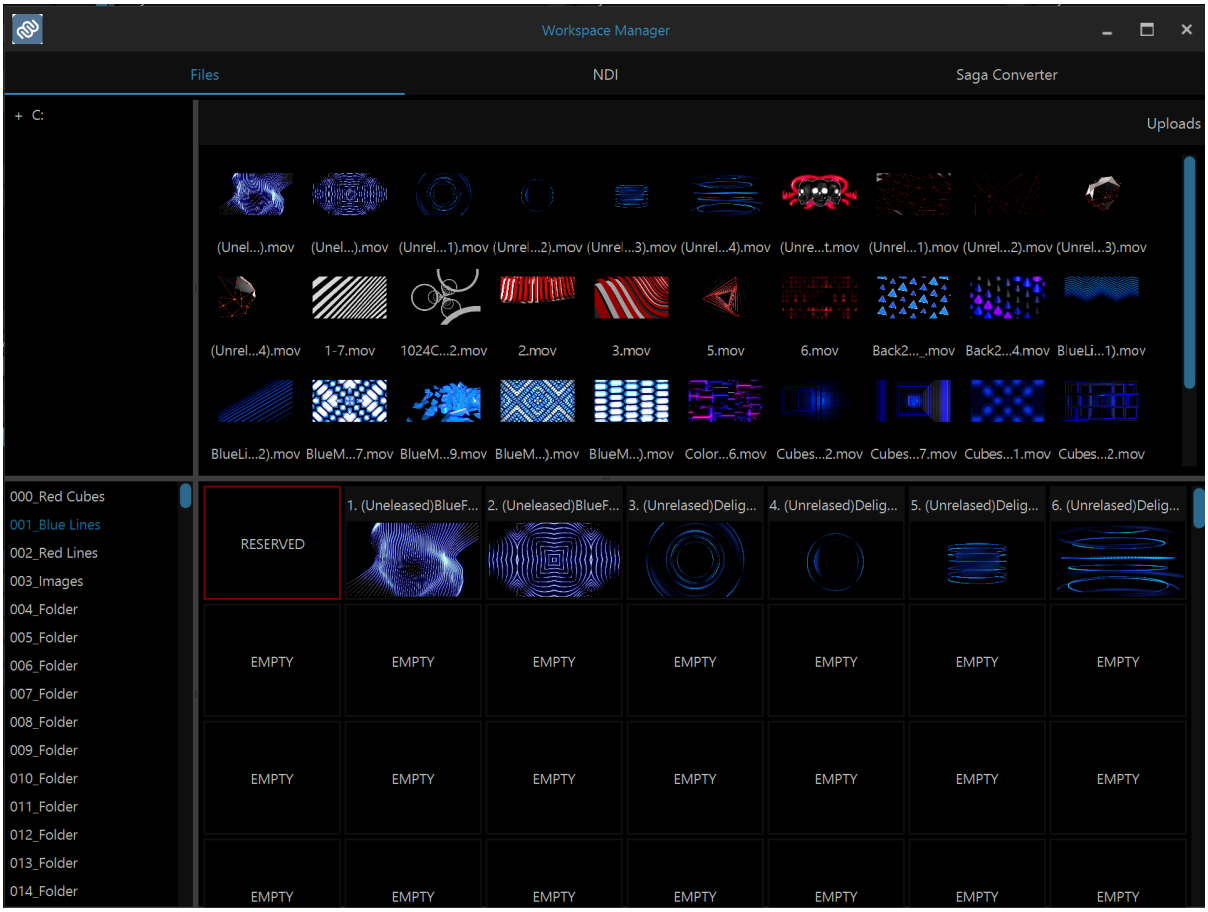
With the "New Project" button you can create a new project.



Select a name for the new project and click 'Ok'. The new project will be added to the list.

Add Content To Your Project

With your project open got to 'File' - 'Workspace Manager'.



Now you can see the workspace manager with the project folders and cells added.

In the bottom left panel you find the project folders. You can left-click to select a folder. If you double-click a folder you can rename it.

Folder 253 is reserved for the NDI streams and folder 254 is reserved for all video inputs.

You can drag and drop media from the Workspace window into a cell in a project folder. You can change media from cell in the same project folder by dragging and dropping or even move it to a different folder in your project by dragging it over the destination folder and then releasing the mouse button. You can also remove a visual from a folder by right-clicking it and selecting 'Clear'.

Text Library

Text Library

The text library is a dialog used to enter text that can later be combined with special media files called 'flash texts'. These media are by default present in the Workspace. When selecting one of these media, you can use the text parameter of the layer to change the displayed text by one of the strings defined in the text library. The content of the text library can be edited using a special dialog that can be recalled by selecting the menu 'Project' - 'Text Database'. The dialog lists the 255 text entries of the library that can be edited by simply replacing the text item next to the item number. When pressing

'OK' in the dialog, the text library will be updated and the new text item can be selected.

Lyrics Player

In MediaMaster, the text engine supports Lyrics. The 255 slots of the Text Library can specify a text, a .txt file or a .srt subtitle file with timing information. You can select the files directly from the Text Library window, by clicking on the '...' button: Text or subtitle files get automatically imported in the library. The Edit button lets you open and edit the file in your default associated editor. When a text file or subtitle file is chosen, and when you select a text visual from folders 249 to 253, then you automatically get three buttons exposed on the right of the intensity slider, to respectively go to Next line, Previous line and to Reset to the first line of the file. Like any controller, those actions can be triggered via DMX. If you have a visual file and subtitles associated, you need to play the visual and the subtitles on two separate layers. A set of specially designed Flash Text Animations are provided for subtitles and lyrics. Subtitle files '.srt' are standard for subtitles and they can easily be found on internet.

Real-Time Reload

If texts or subtitle files get directly modified on disk, then texts will automatically be reloaded, and the new text will be displayed in MediaMaster.

Timecode Offsets

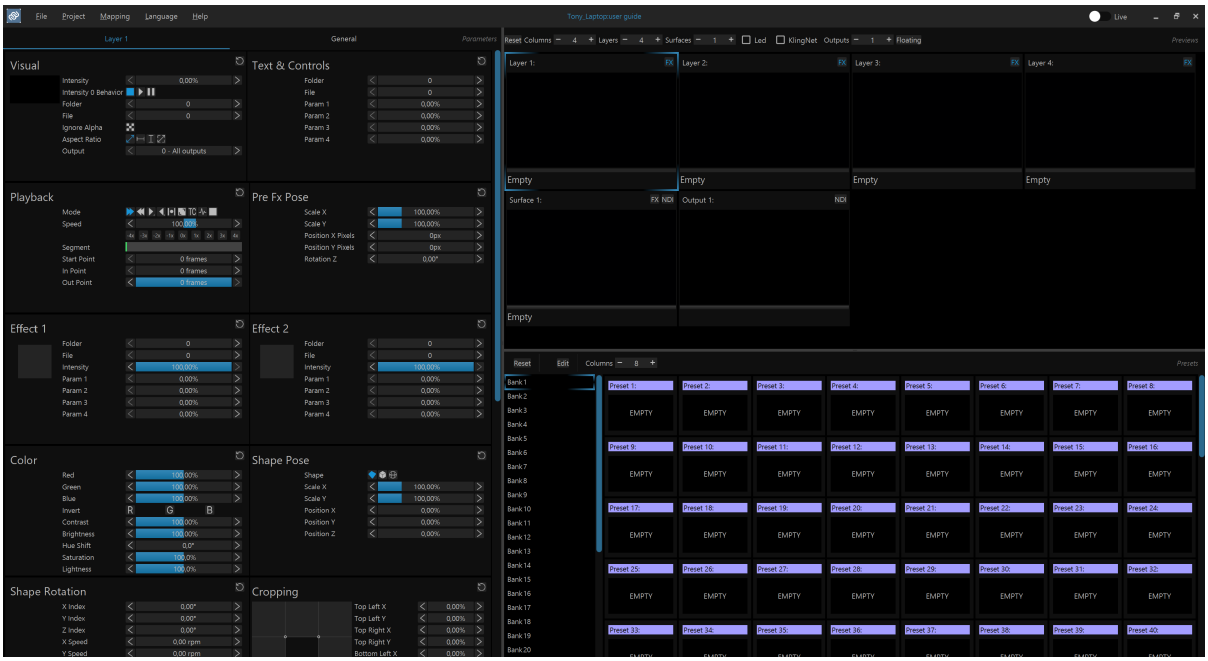
Timecode Offsets

The Timecode offsets is a dialog used to enter times that can later be used for offsetting Timecode driven videos.

The content of the Timecode offsets can be edited using a special dialog that can be recalled by selecting the menu 'Project' - 'Time Code offset editor'.

Interface

Software Interface Overview

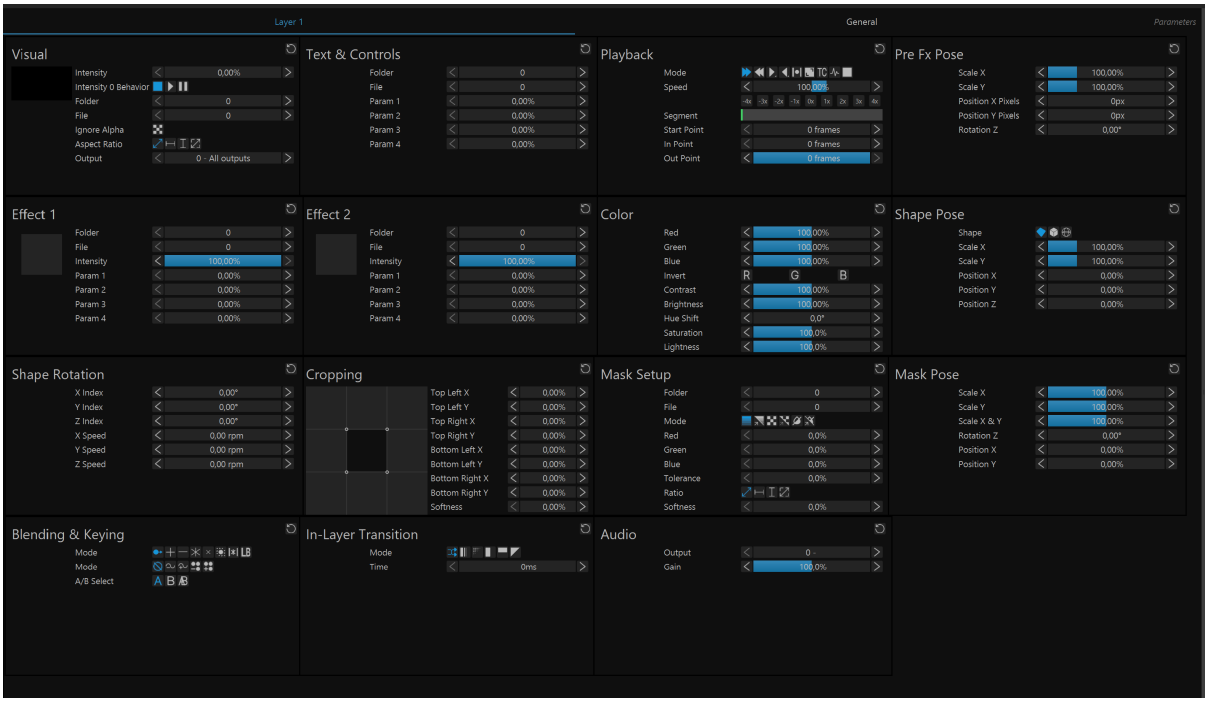


The main user interface is divided into 3 main sections

- The Parameters Panel
- The Previews Panel
- The Presets Panel

Each panel can be customised to your needs.

Parameters Panel



The parameters panel shows you all the parameters available for the currently selected preview, surface, LED, KlingNet, output or preset.

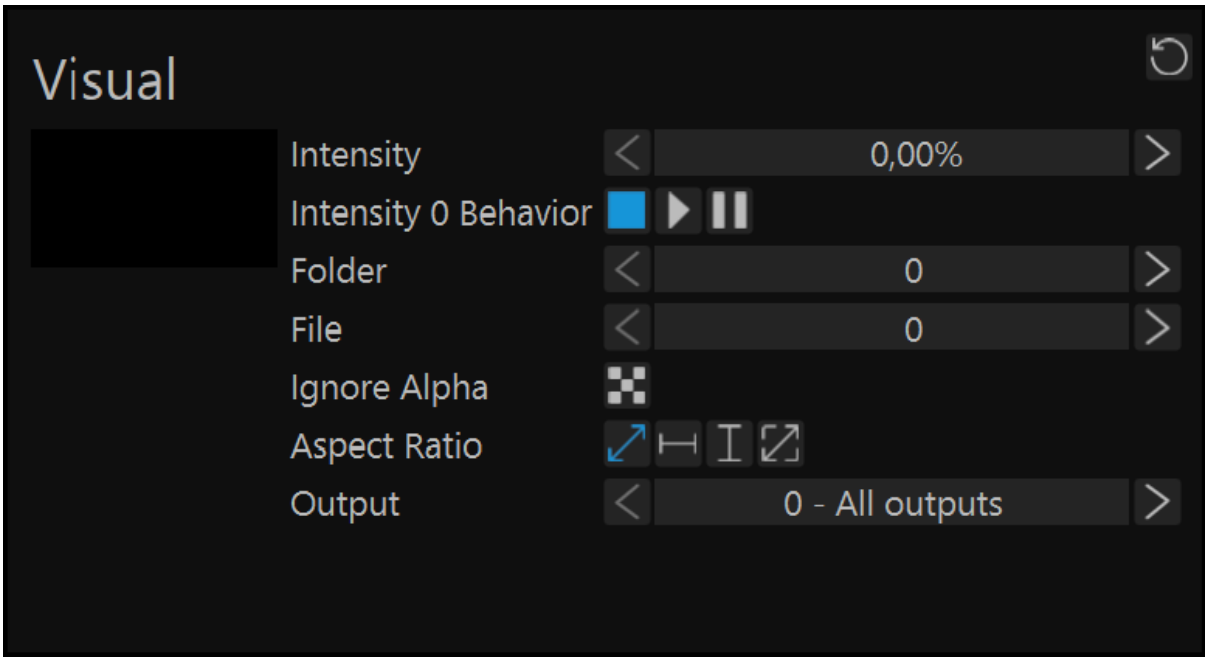
The parameters are logically grouped in tiles. You can drag and drop any tile to move them so they have a different order. That way you can make sure the tiles you use most are always visible.

The software will remember the order you placed the tiles and the size of the window so it will be exactly the same next time you log in.

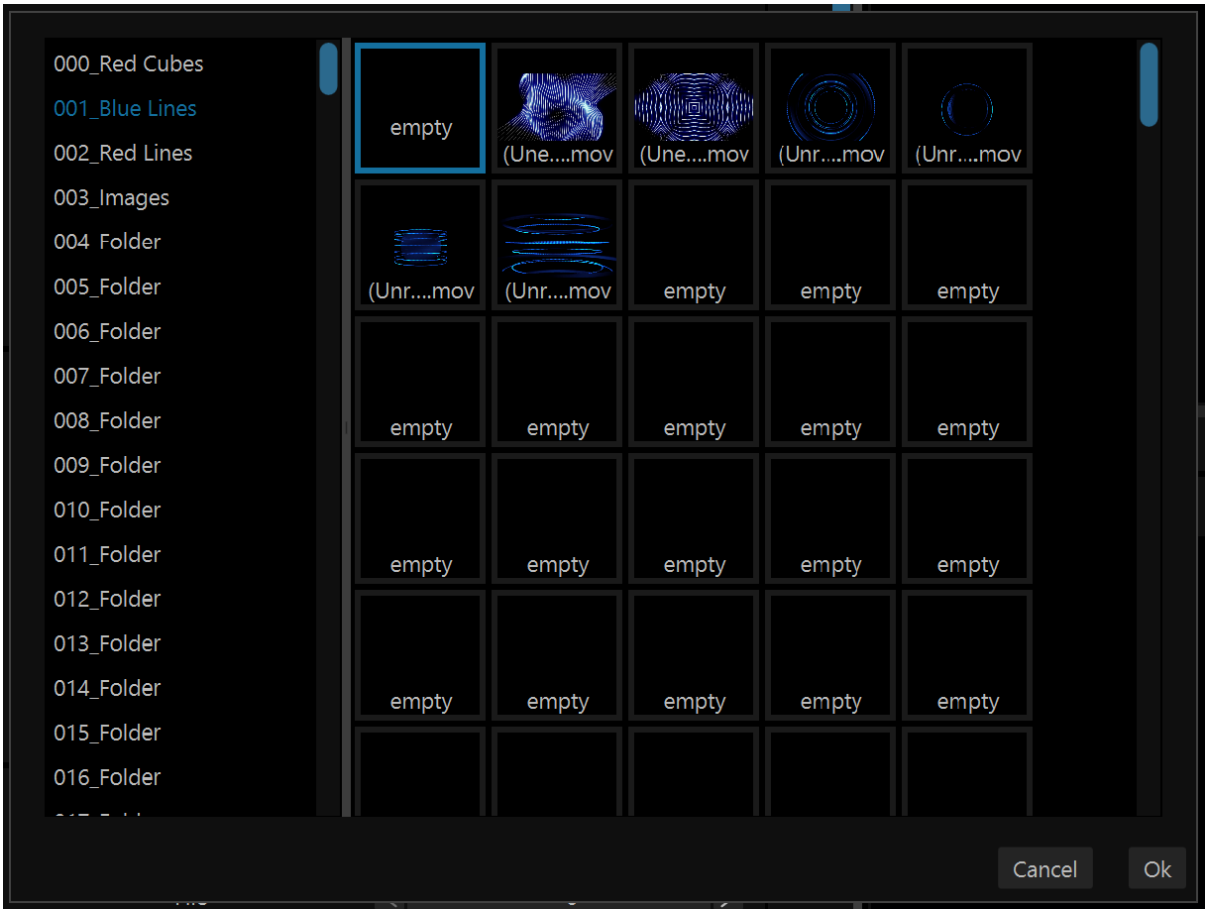
Layer Parameters

The different tiles are: Visual, Text and Controls, Playback, Pre FX Pose, Effect 1 and 2, Colour, Shape Pose, Shape Rotation, Cropping, Mask Setup, Mask Pose, Blending and Keying, In-Layer Transition, Audio

Visual



In the visual tile, right below the label 'Visual', you can find the thumbnail/visual picker.
When a visual is selected, you will get the thumbnail here. When you hover over it, the animation starts and shows you what is in the content. If you click on the thumbnail, the visual picker will open.



The visual picker allows you to quickly browse through the media assigned to your project and select the one you want to show. Select the folder, select the media file and click OK or just double-click the media to load it onto your layer.

The `Intensity` parameter allows you to set the intensity of the layer.

The `Intensity 0 Behavior` parameter allows you to define what happens with the media if the intensity is set to 0.

- `Stop` : this will stop the media and so if the intensity goes back up, the media will start from the beginning.
- `Continue` : the media will continue playing while the intensity is down. If you pull the intensity back up the media will keep playing.
- `Pause` : the media will stop playing but as soon as the intensity goes back up, it will continue playing from the point the intensity went down.

The `Folder` parameter allows you to select the project media folder.

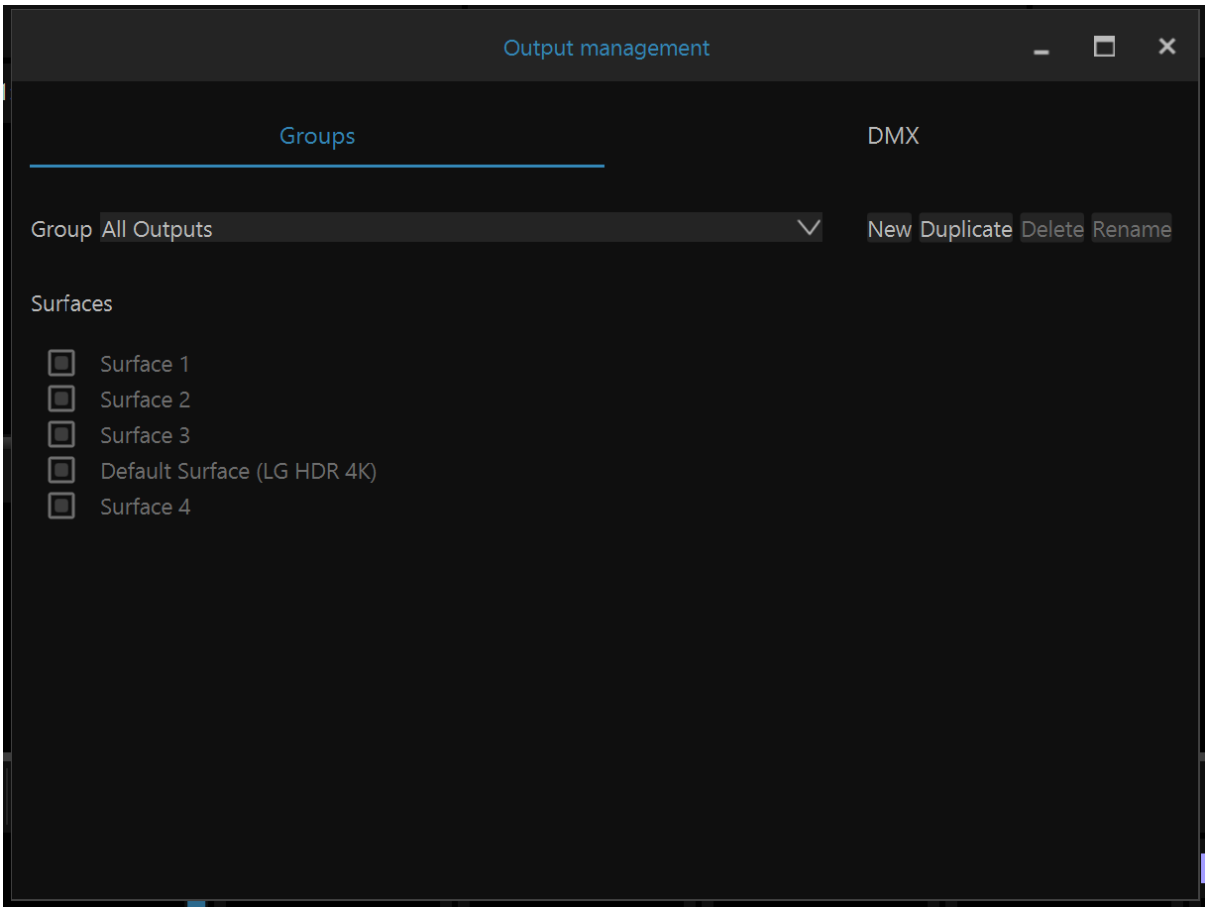
The `File` parameter allows you to select the file in that project folder.

The `Ignore Alpha` parameter allows you to use or ignore the alpha channel for a media that has an alpha channel.

The `Aspect Ratio` parameter allows you to set a specific aspect ratio for that layer.

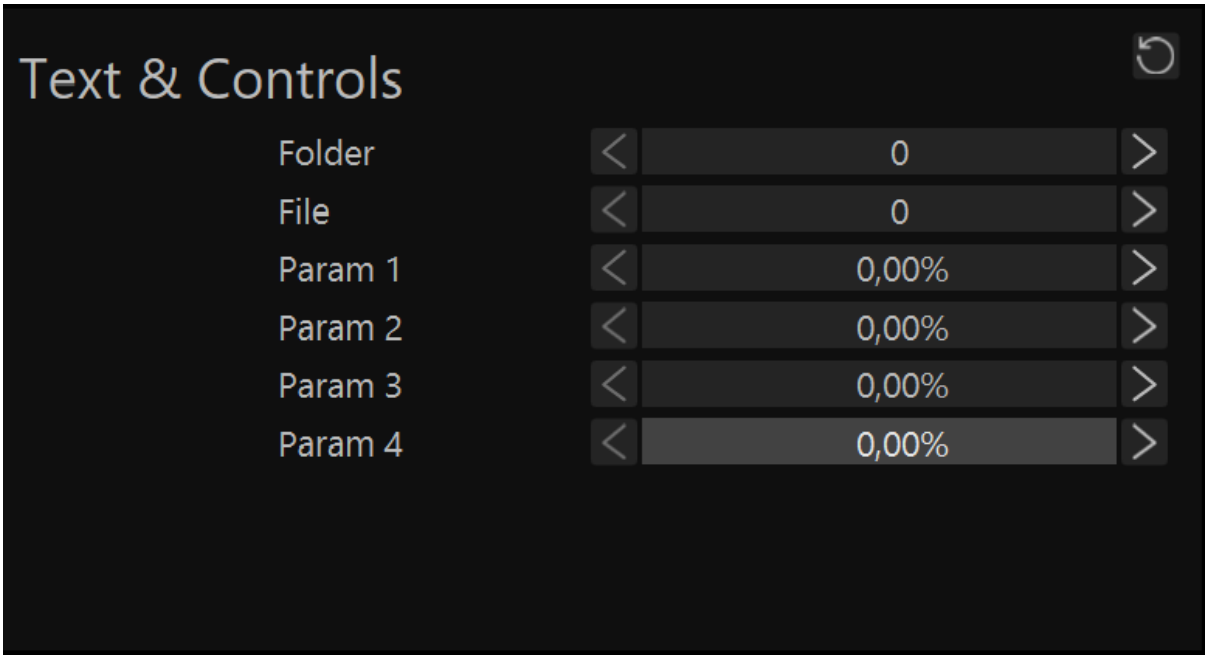
- `Stretch` : this option will stretch the content to fill the whole canvas
- `Fit Width` : this option will scale the content until it fits the width of the canvas
- `Fit Height` : this option will scale the content until it fits the height of the canvas
- `1:1` : this option will not scale the content in any way, no matter if it is bigger or smaller then the canvas

The `Output` parameter lets you select to which surface or surface group the layer will be outputted



When video mapper mode is selected, you will get an extra parameter which is the `Outputs` parameter. This will allow you to create surface groups and set the DMX assignment for surfaces and surface groups.

Text and Controls

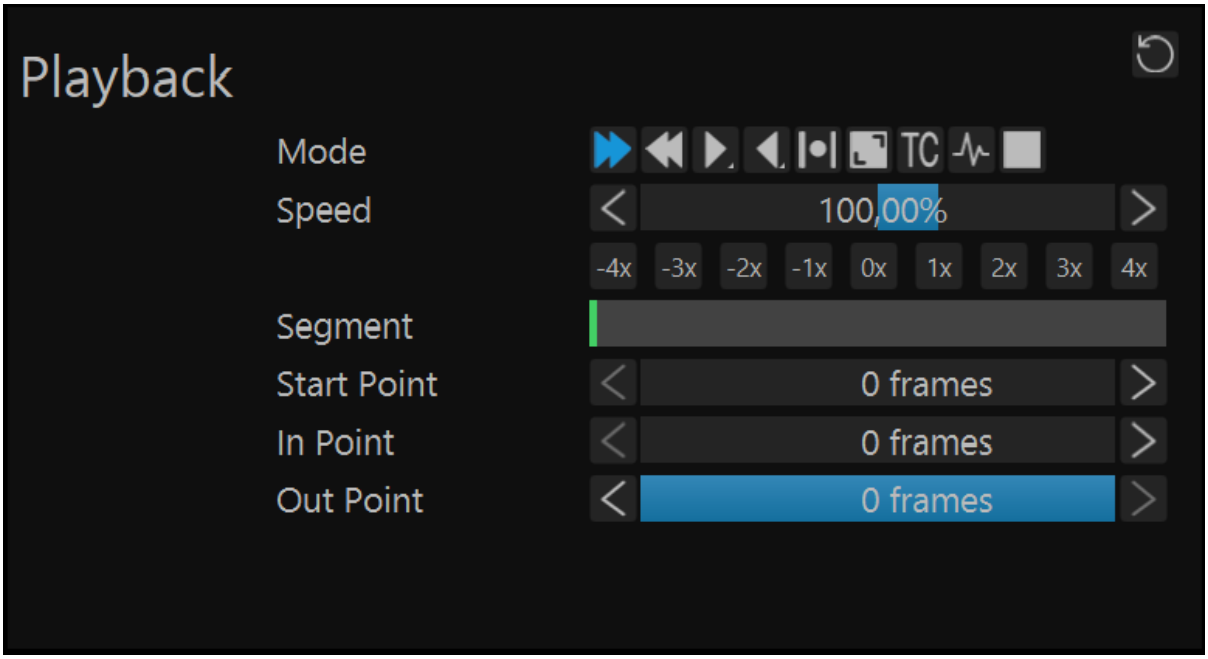


The `Folder` parameter allows you to select the text database bank

The `File` parameter allows you to select a file in the text database

Parameters 1 to 4 allow you to change text media file specific parameters

Playback



The `Mode` parameter allows you to select the play mode.

- `Loop forward` : this option plays the content in a loop forwards
- `Loop Backward` : this option plays the content in a loop backwards
- `Once Forward` : this option will play the content forward once and then stop. You can additionally specify the `End Behavior`
  - ☒ `Transparent` : when the content finished playing, the layer will become transparent

    - ☒ Start Frame : when the content finished playing, the start frame will be shown
    - ☒ First Video Frame : when the content finished playing, the first frame of the content will be shown
    - ☒ Last Video Frame : when the content finished playing, the last frame of the content will be shown
    - ☒ First Loop Frame : when the content finished playing, the first frame of the loop will be shown
    - ☒ Last Loop Frame : when the content finished playing, the last frame of the loop will be shown
- Once Backward : this option will play the content backward once and then stop. It has the same End Behavior options as Once Forward
- Ping Pong : this option will play the content forward until it reaches the end. Then it will play it backwards until it reaches the beginning. this over and over again.
- Show Frame : this option shows just one frame of the content. The same End behavior options are available
- Time Code : this option allows you to track your content by time code. More on time code in another section in this user guide
- Beat Sync : this option allows you to BPM sync your content with the BPM received from an external source
- Stop : this option will stop the playback of the content

The Speed parameter allows you to set the play speed of your content. There are some cue buttons below to quickly set to a predefined speed.

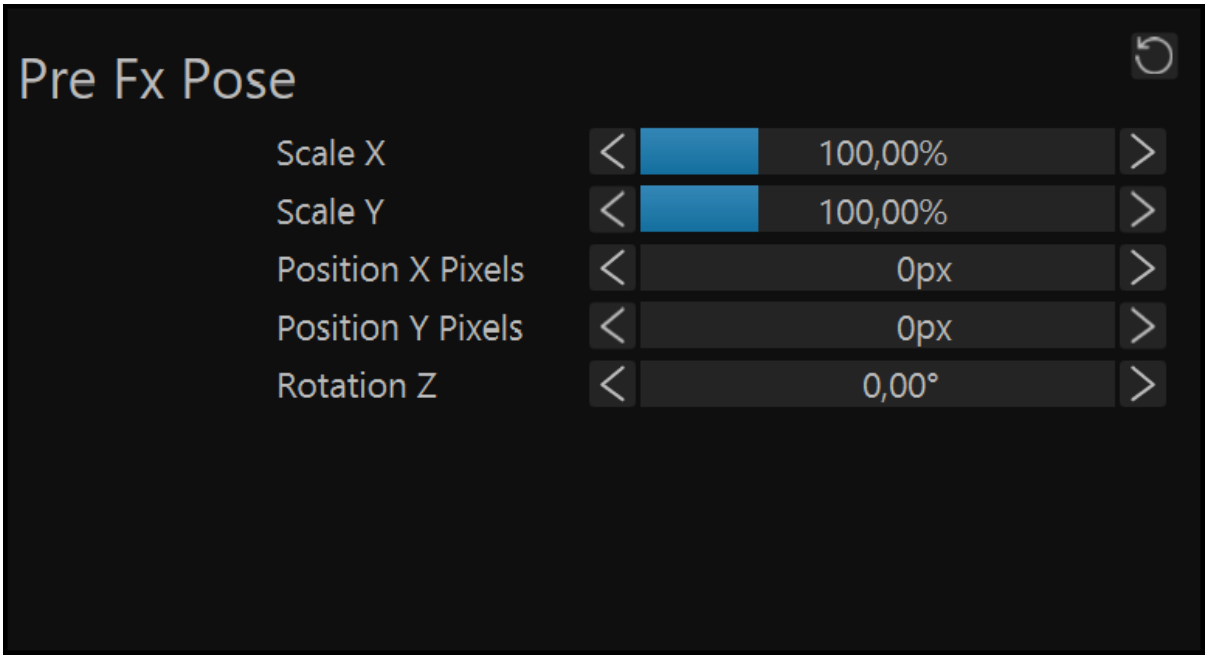
The Segment field is a visual representation of what you have set up with the 3 parameters below: Start Point , In Point , Out Point

The Start Point parameter allows you to select from which frame the content should start playing at first launch

The In Point parameter allows you to select from which frame the content should play after a loop

The Out Point parameter allows you to select at what frame the content should loop to the In Point

Pre FX Pose



The Pre FX Pose allows you to show only a specific part of your media at the beginning of the render pipeline before any effects are applied or other manipulations are done to it.
This can for instance be used to show a part of a 4k content on a fullHD output if aspect ratio 1:1 is selected.

The `Scale X` parameter scales the content over the X axis

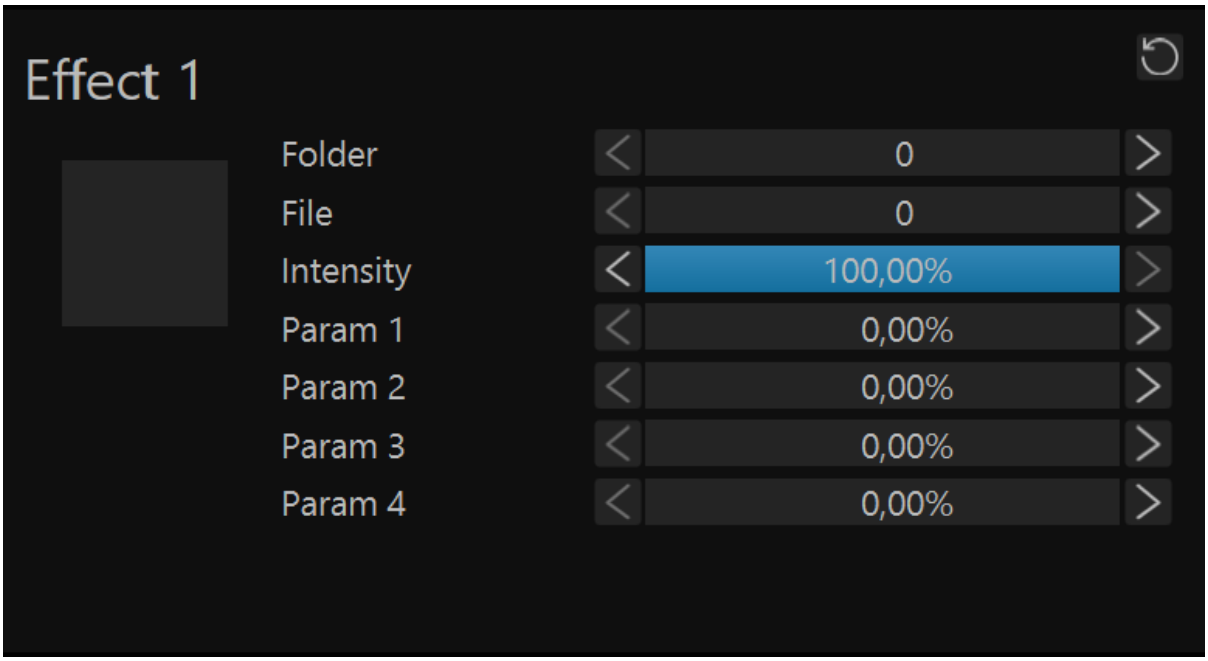
The `Scale Y` parameter scales the content over the Y axis

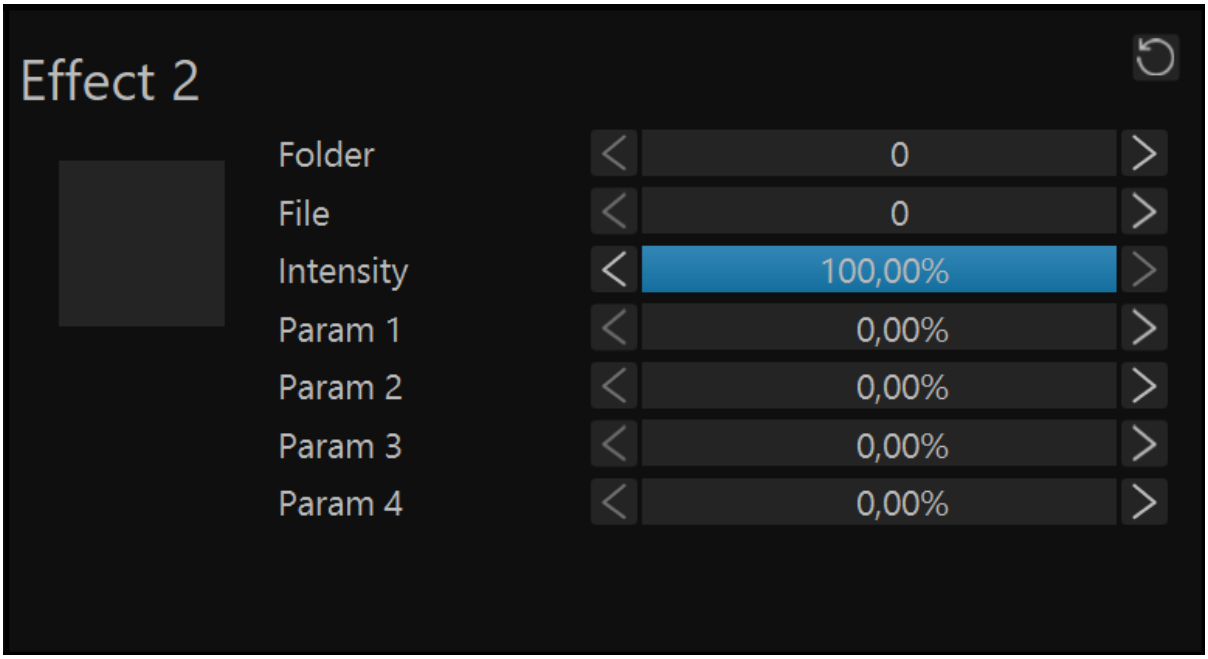
The `Position X Pixels` parameter moves the content over the X axis

The `Position Y Pixels` parameter moves the content over the Y axis

The `Rotation Z` parameter rotates the content over the Z axis

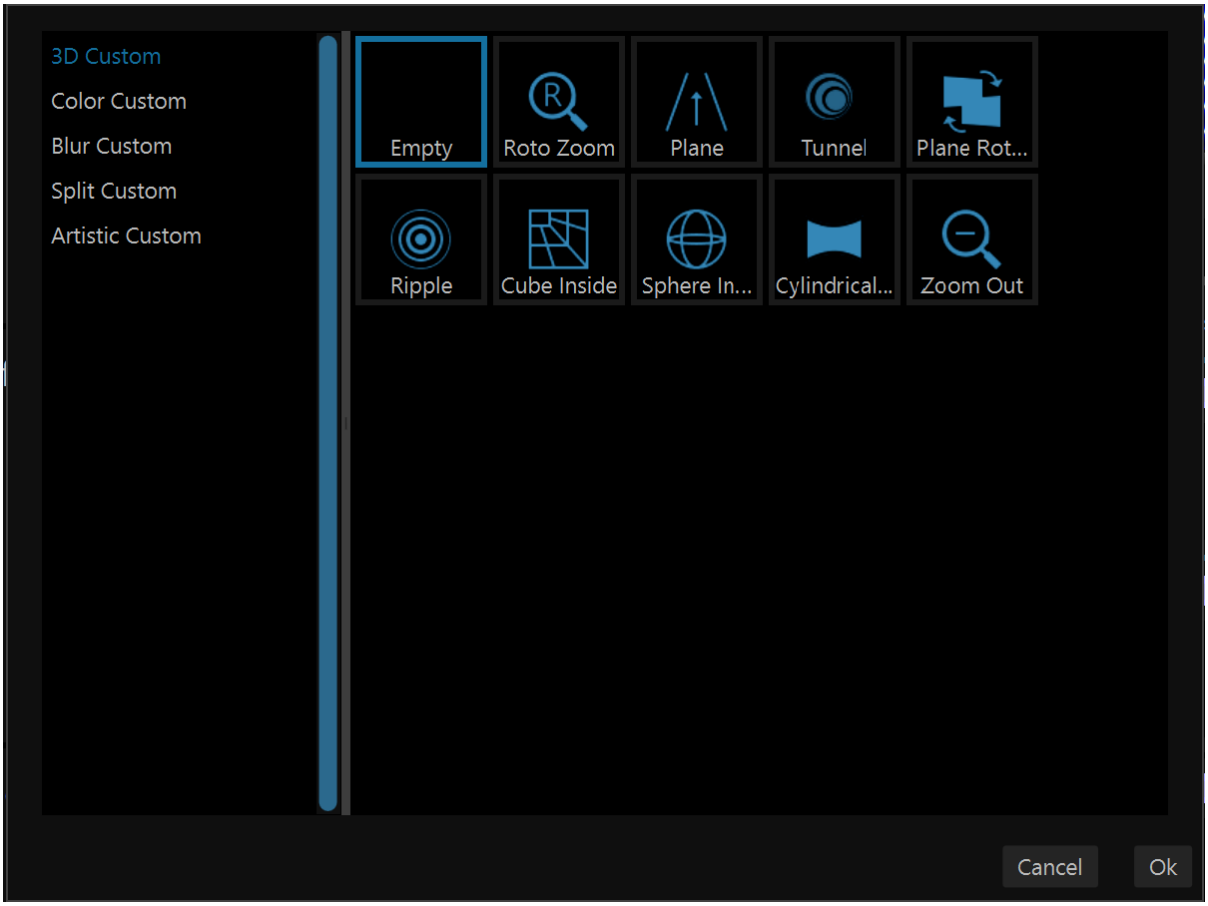
Effect 1 and 2





You can add up to 2 effects per layer.

In the effects tiles, right below the tile title, you can find the effect picker. If you click there, the effect picker will open.



The effect picker allows you to quickly browse through the effects and select the one you want to use. Select the folder, select the effect and click OK or just double-click the effect to use it onto your layer.

The `Folder` parameter allows you to select the effect folder

The `File` parameter allows you to select the effect file

The `Intensity` parameter allows you to select the intensity of the effect

Parameters 1 to 4 will be different per effect and will allow you to modify some specifics off the effect

Colour

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the layer

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your layer

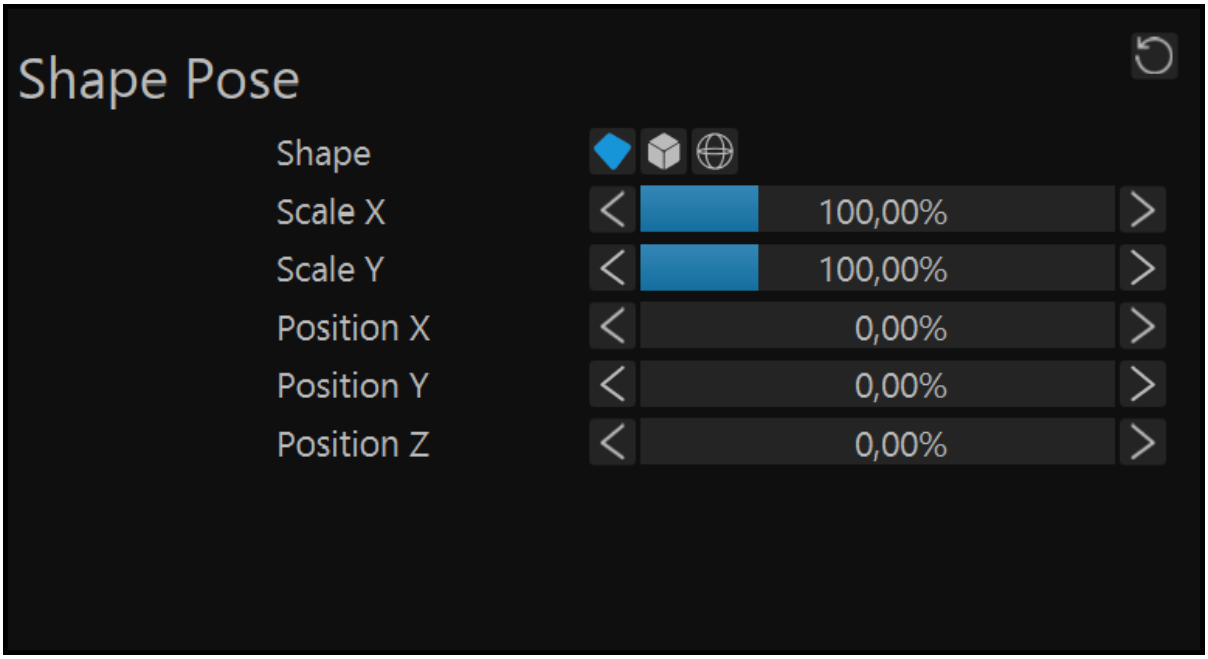
The `Brightness` parameter allows you to modify the brightness of the layer

The `Hue Shift` parameter allows you to shift the hue of the layer

The `Saturation` parameter allows you to modify the saturation of the layer

The `Lightness` parameter allows you to modify the lightness of the layer

Shape Pose



The `Shape` parameter allows you to select if you want to show your content on a plane, a cube or a sphere

The `Scale X` parameter scales the shape over the X axis

The `Scale Y` parameter scales the shape over the Y axis

The `Position X Pixels` parameter moves the shape over the X axis

The `Position Y Pixels` parameter moves the shape over the Y axis

The `Rotation Z` parameter rotates the shape over the Z axis

Shape Rotation

The `X Index` parameter allows you to set a rotation offset on the shape over the X axis

The `Y Index` parameter allows you to set a rotation offset on the shape over the Y axis

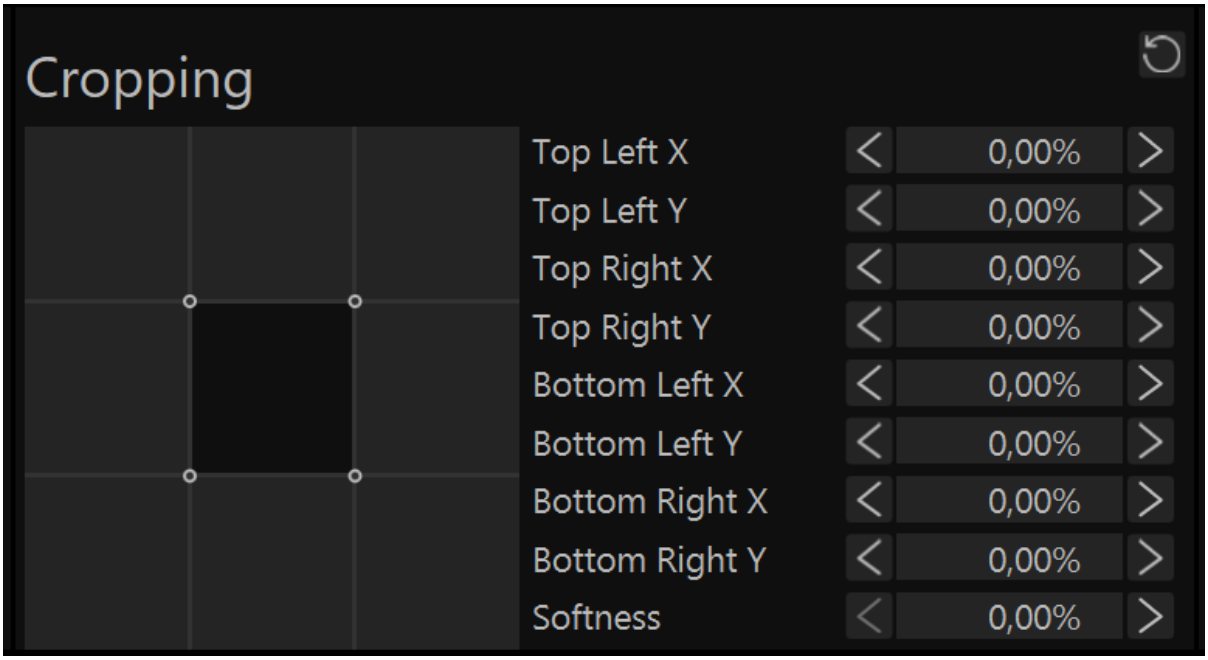
The `Z Index` parameter allows you to set a rotation offset on the shape over the Z axis

The `X Speed` parameter allows you to set the rotation speed of the shape over the X axis

The `Y Speed` parameter allows you to set the rotation speed of the shape over the Y axis

The `Z Speed` parameter allows you to set the rotation speed of the shape over the Z axis

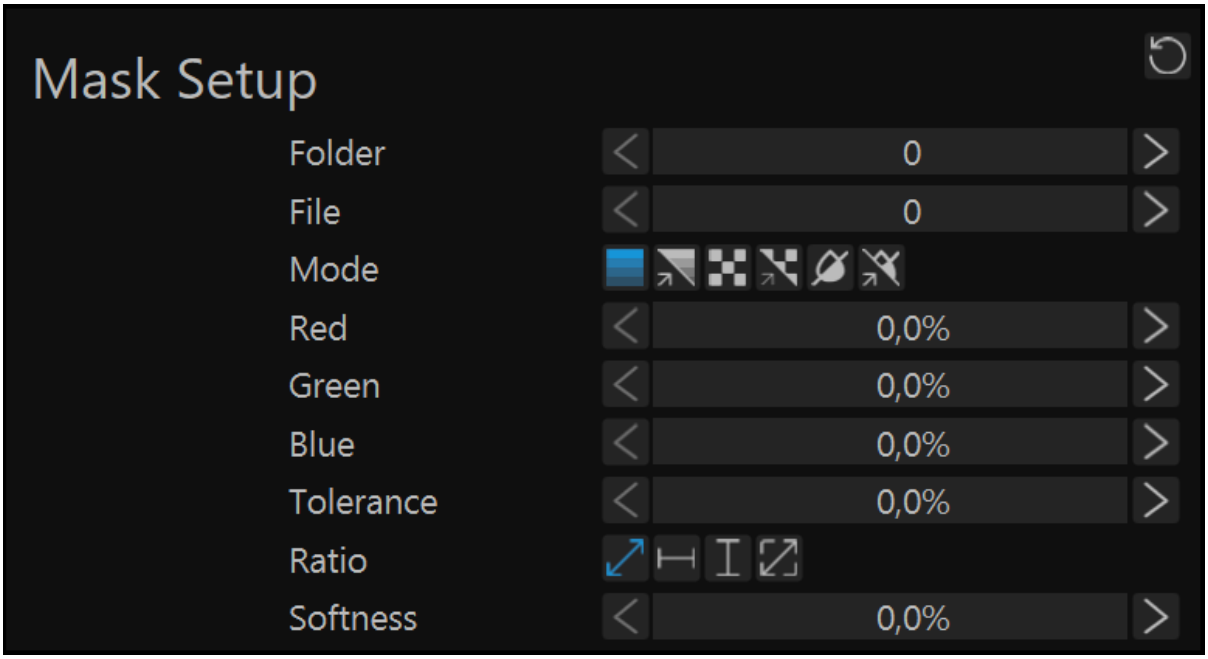
Cropping



The cropping panel let you crop the layer so you can show exactly what you want. You can even select the softness of the edges. This is very useful when working with live camera input.

You can use the parameters to set the exact values or you can click and drag the white corner dots on the visual representation to modify the cropping.

Mask Setup



The `Folder` parameter allows you to select the mask folder

The `File` parameter allows you to select the mask file

The `Mode` parameter allows you to select which mask mode to use: `Greyscale` , `Greyscale Inverted` , `Alpha` , `Alpha Inverted` , `Colour` and `Colour Inverted`

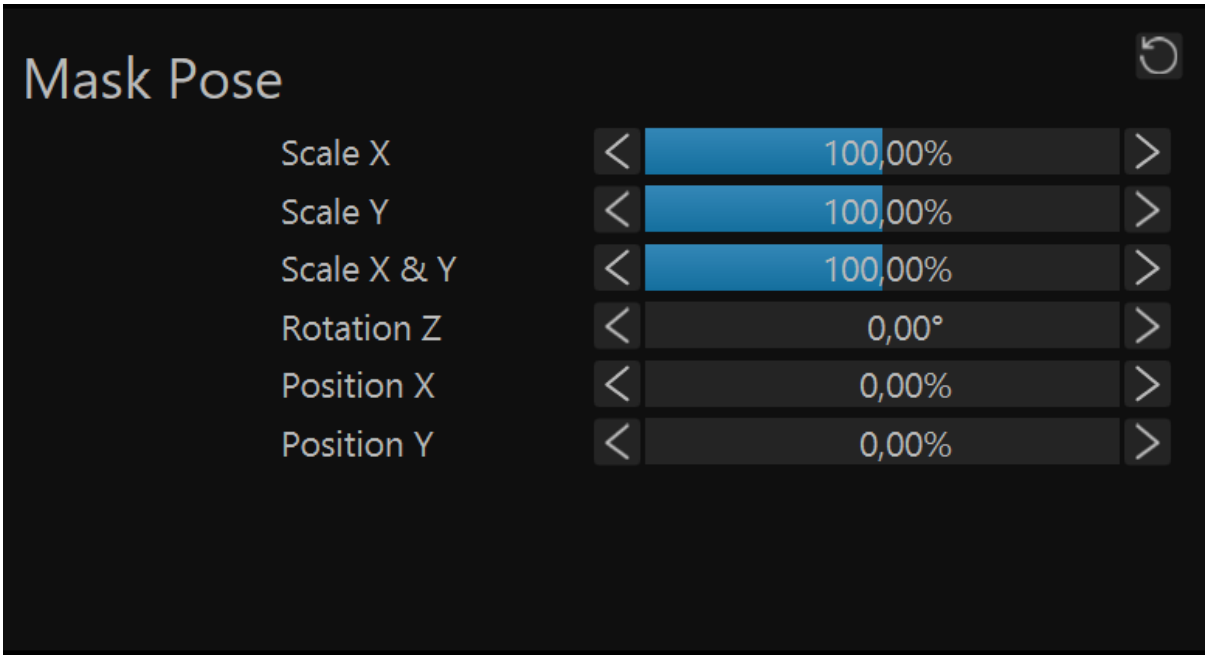
The `Red` , `Green` and `Blue` parameters allow you to select when a colour from the mask will become transparent

The `Tolerance` parameter allows you to set the tolerance for the red, green and blue parameters

The `Ratio` parameter allows you to set the aspect ratio for the mask: `Stretch` , `Fit Width` , `Fit Height` or `1:1`

The `Softness` parameter allows you to select how soft or hard the edges of the mask will be displayed

Mask Pose



The `Scale X` parameter scales the mask over the X axis

The `Scale Y` parameter scales the mask over the Y axis

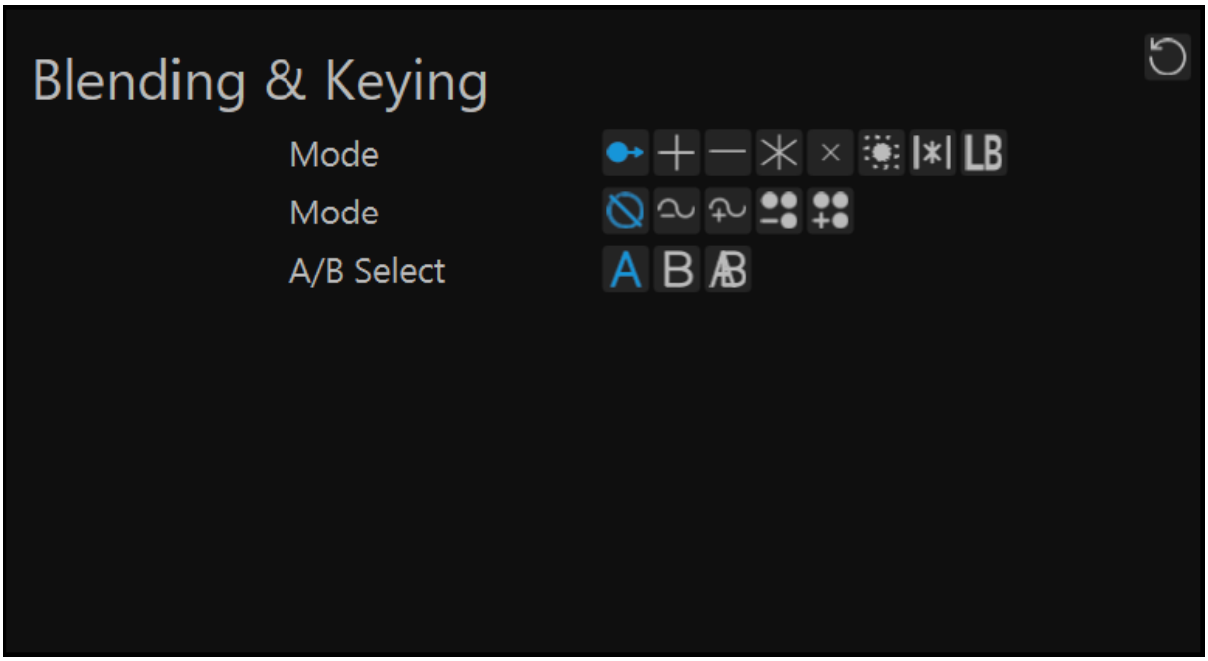
The `Scale X & Y` parameter scales the mask uniformly over the X and Y axis

The `Position X` parameter moves the mask over the X axis

The `Position Y` parameter moves the mask over the Y axis

The `Rotation Z` parameter rotates the mask over the Z axis

Blending and Keying

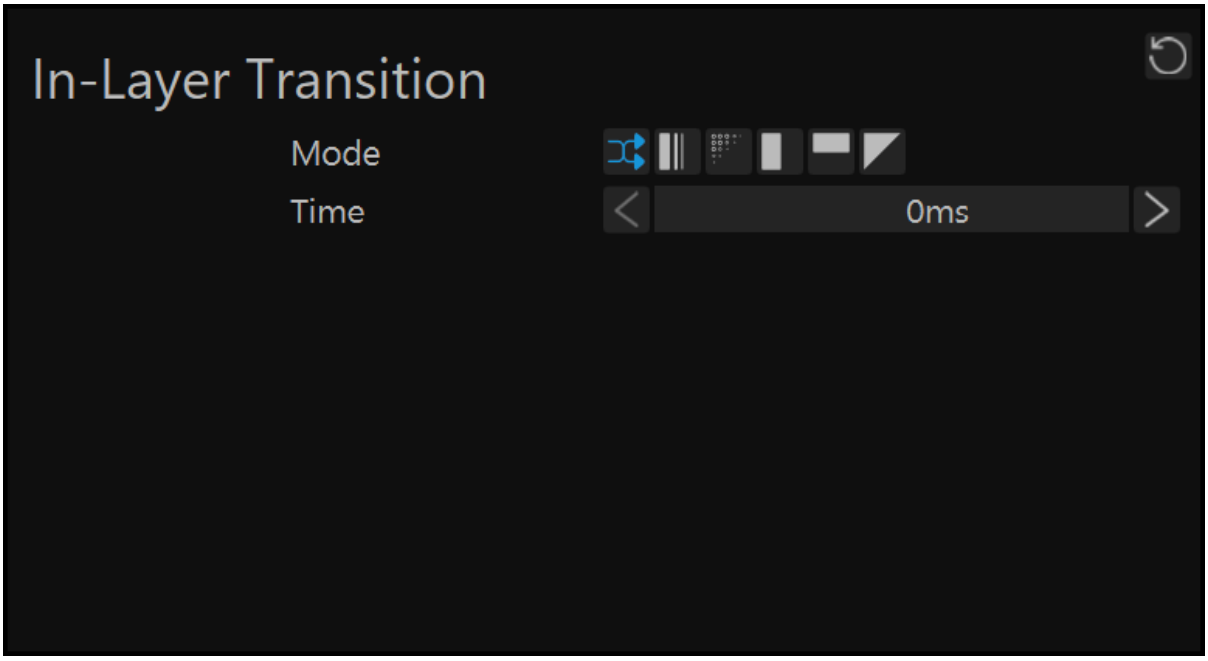


The `Blend Mode` parameter allows you to select which blend mode should be used: `Replace` , `Add` , `Subtract` , `Multiply`, `Xor`, `Exclusion` , `Screen` or `Linear Burn`

The `Key Mode` parameter allows you to select which key mode should be used: `None` , `Luma Band Reject` , `Luma Band Pass` , `Chroma Band Reject` and `Chroma Band Pass`

The `A/B Select` parameter allows you to select to which stack this layer belongs for transitioning: `A` , `B` or `A and B`

In-Layer Transition

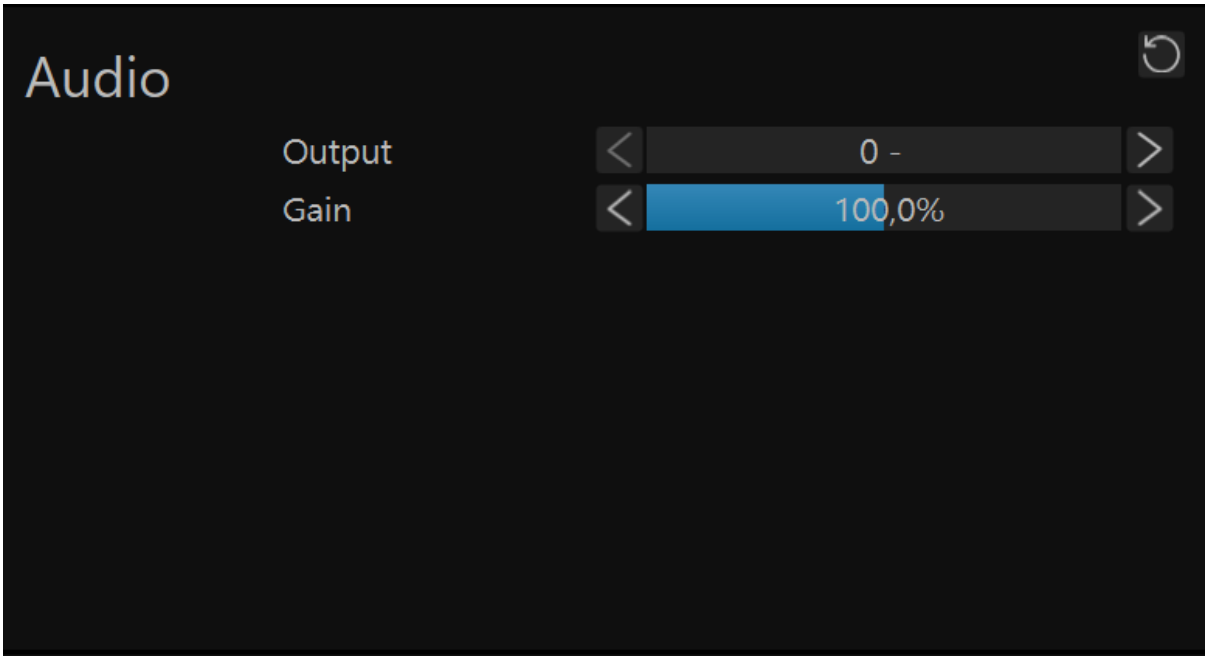


The in-layer transition settings make it possible to have a transition when changing visuals in the same layer.

The `Mode` parameter allows you to select which transition should be used

The `Time` parameter allows you to set the transition duration in milliseconds

Audio



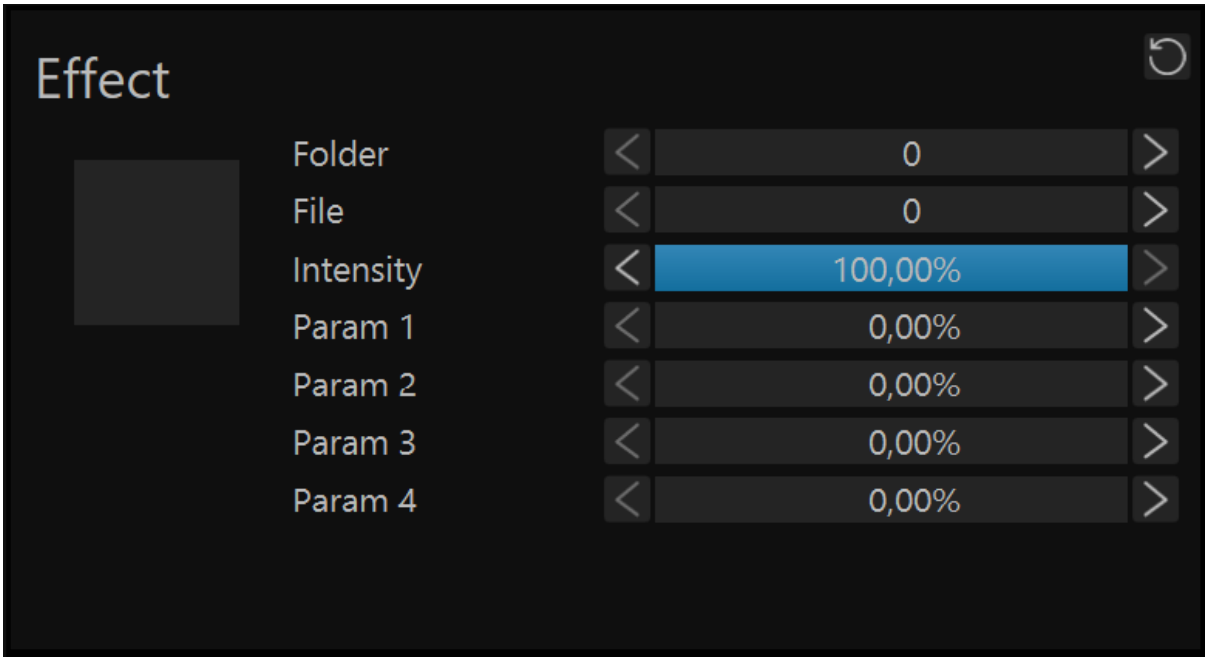
The `Output` parameter allows you to select which audio output to use for this layer

The `Gain` parameter allows you to set the gain for the audio for this layer

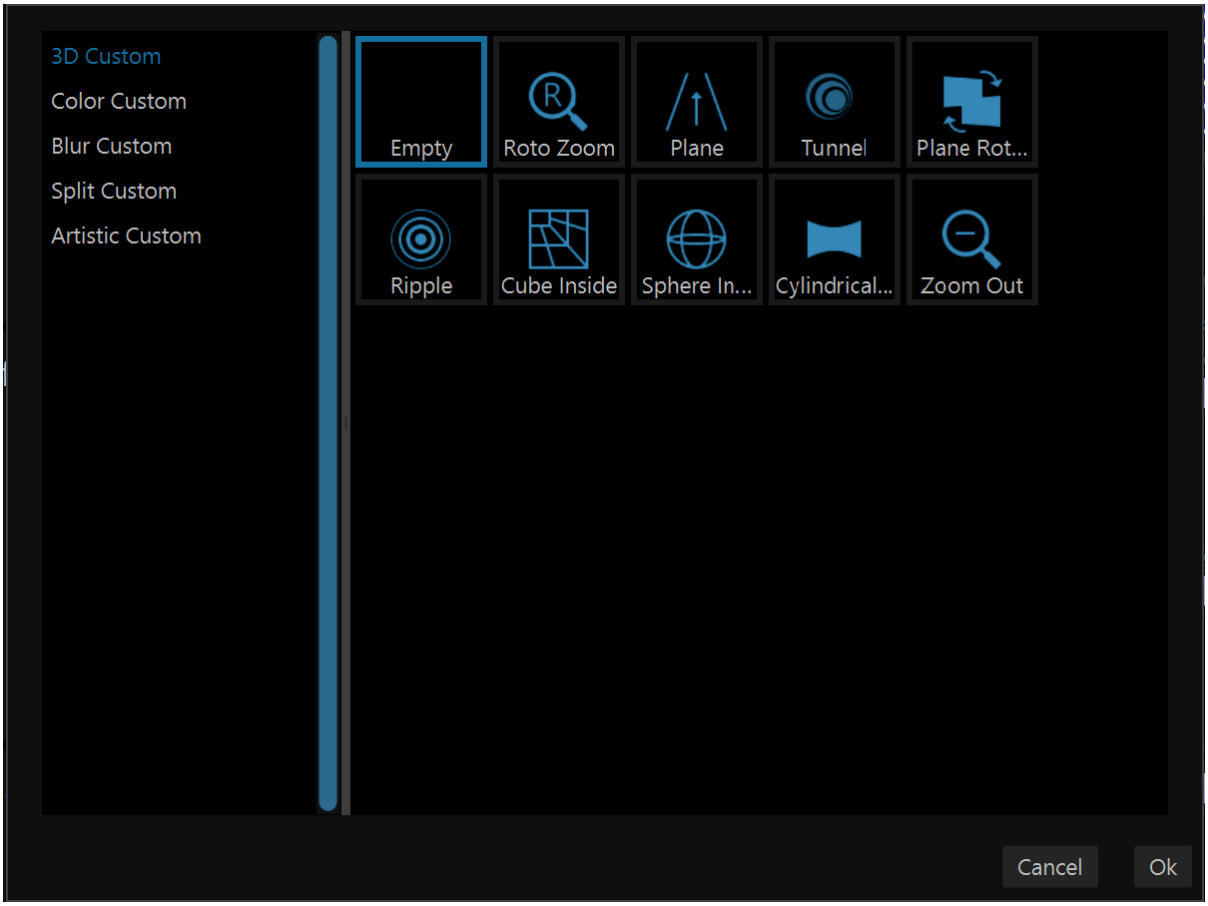
Surface Parameters

The different tiles are: Effect, Colour, Mask Setup, Mask Pose and Transition.

Effect



In the effect tile, right below the tile title, you can find the effect picker. If you click there, the effect picker will open.



The effect picker allows you to quickly browse through the effects and select the one you want to use. Select the folder, select the effect and click OK or just double-click the effect to use it onto your layer.

The `Folder` parameter allows you to select the effect folder

The `File` parameter allows you to select the effect file

The `Intensity` parameter allows you to select the intensity of the effect

Parameters 1 to 4 will be different per effect and will allow you to modify some specifics off the effect

Colour

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the layer

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your layer

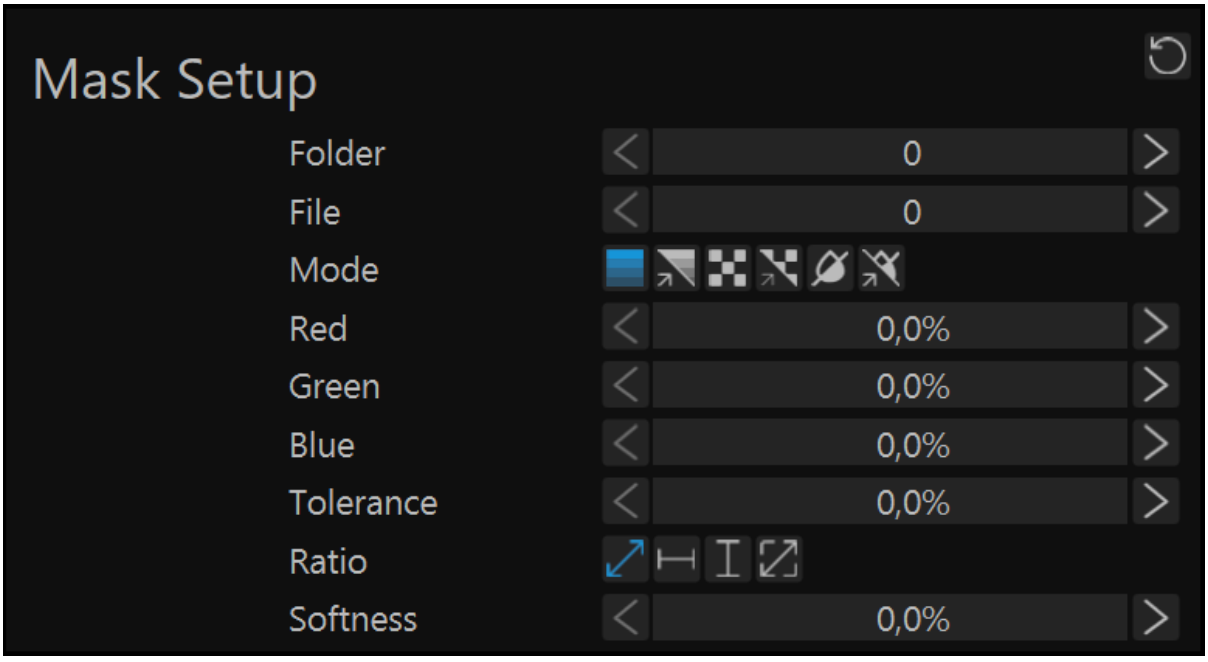
The `Brightness` parameter allows you to modify the brightness of the layer

The `Hue Shift` parameter allows you to shift the hue of the layer

The `Saturation` parameter allows you to modify the saturation of the layer

The `Lightness` parameter allows you to modify the lightness of the layer

Mask Setup



The `Folder` parameter allows you to select the mask folder

The `File` parameter allows you to select the mask file

The `Mode` parameter allows you to select which mask mode to use: `Greyscale` , `Greyscale Inverted` , `Alpha` , `Alpha Inverted` , `Colour` and `Colour Inverted`

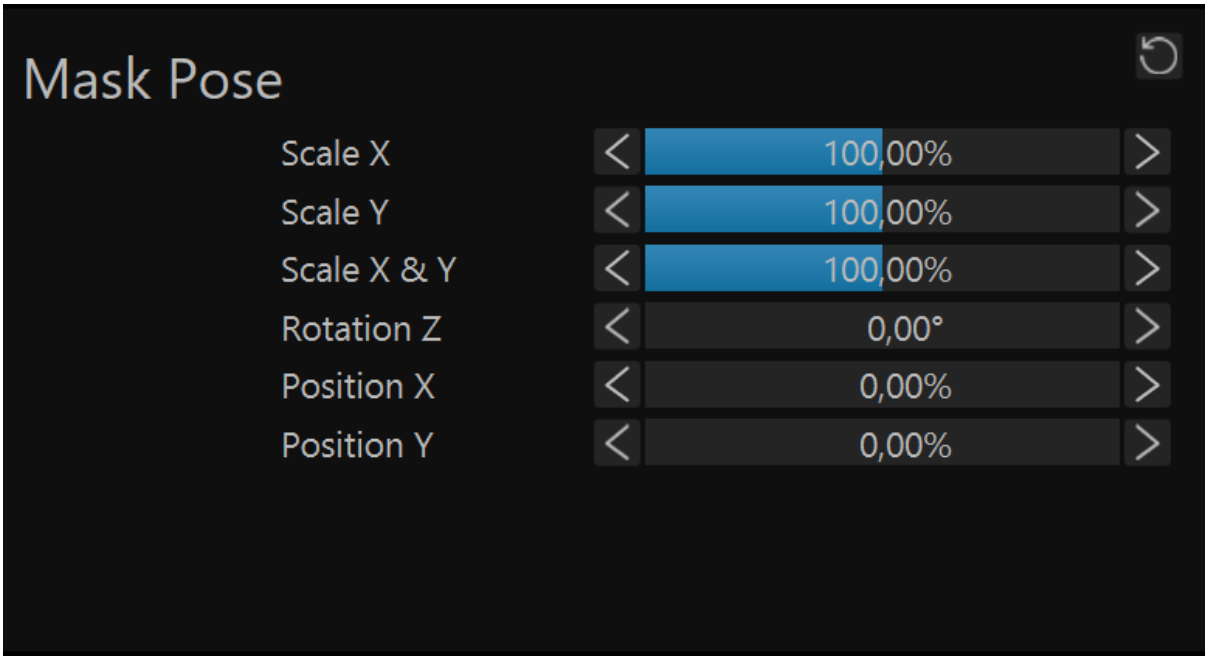
The `Red` , `Green` and `Blue` parameters allow you to select when a colour from the mask will become transparent

The `Tolerance` parameter allows you to set the tolerance for the red, green and blue parameters

The `Ratio` parameter allows you to set the aspect ratio for the mask: `Stretch` , `Fit Width` , `Fit Height` or `1:1`

The `Softness` parameter allows you to select how soft or hard the edges of the mask will be displayed

Mask Pose



The `Scale X` parameter scales the mask over the X axis

The `Scale Y` parameter scales the mask over the Y axis

The `Scale X & Y` parameter scales the mask uniformly over the X and Y axis

The `Position X` parameter moves the mask over the X axis

The `Position Y` parameter moves the mask over the Y axis

The `Rotation Z` parameter rotates the mask over the Z axis

Transition

The transition settings make it possible to have a transition when changing from A stack to B stack.

The `Intensity` parameter allows you to set the intensity

The `Mode` parameter allows you to select which transition mode should be used: Blend, Add, Subtract or Reverse Subtract

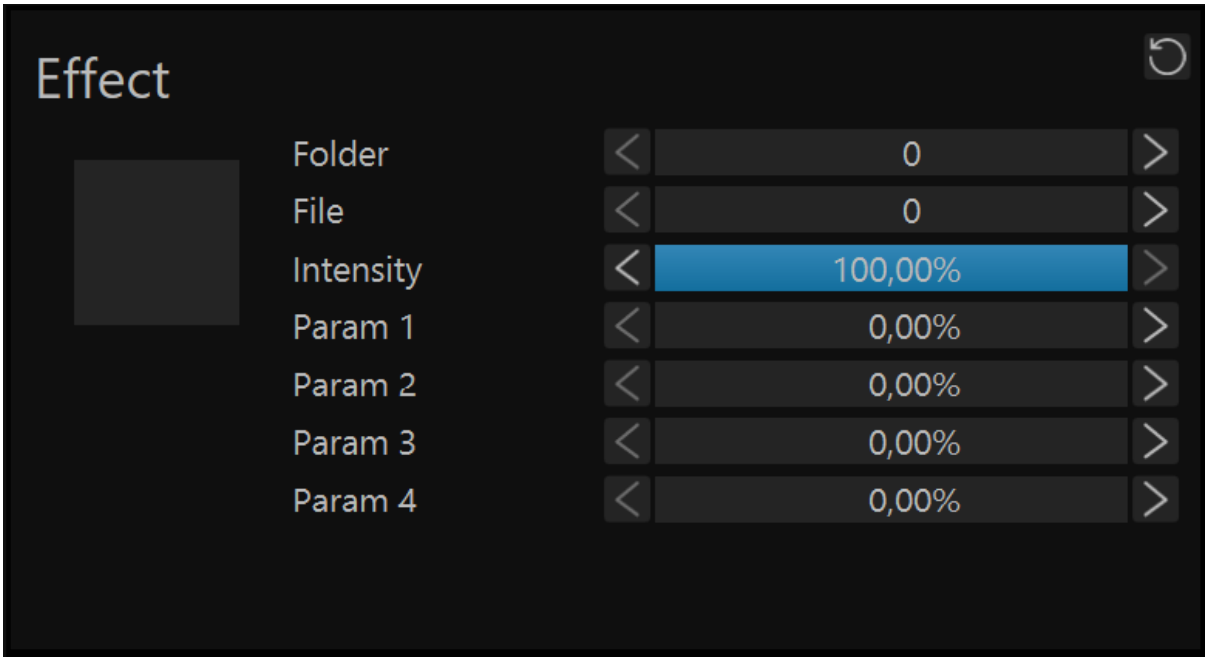
The `Xfade` parameter allows you to do the transition from A stack to B stack

The `Mode` parameter allows you to select which transition should be used: Crossfade, Window Slice, Polka Dots Curtain, Horizontal, Vertical or Angular

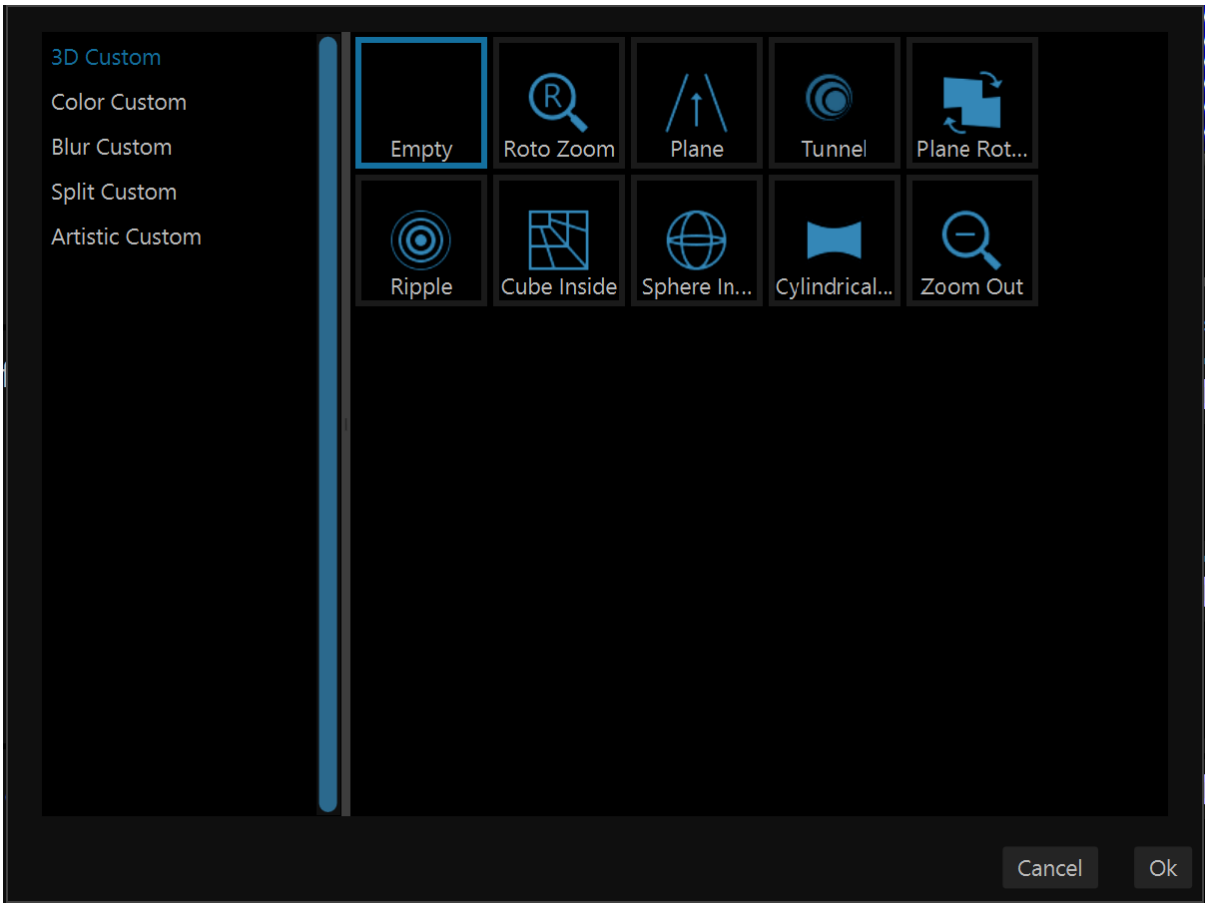
LED Parameters

The different tiles are: Effect, Colour, Mask Setup, Mask Pose, Transition, Gamma and Merger.

Effect



In the effect tile, right below the tile title, you can find the effect picker. If you click there, the effect picker will open.



The effect picker allows you to quickly browse through the effects and select the one you want to use. Select the folder, select the effect and click OK or just double-click the effect to use it onto your layer.

The `Folder` parameter allows you to select the effect folder

The `File` parameter allows you to select the effect file

The `Intensity` parameter allows you to select the intensity of the effect

Parameters 1 to 4 will be different per effect and will allow you to modify some specifics off the effect

Colour

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the layer

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your layer

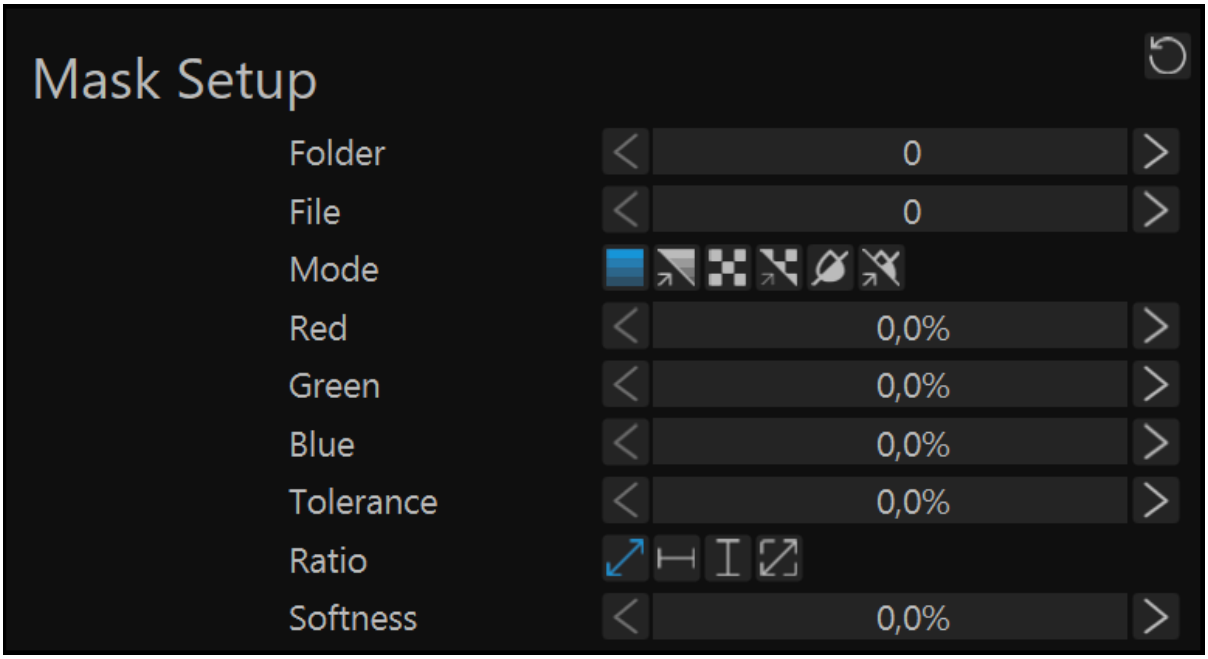
The `Brightness` parameter allows you to modify the brightness of the layer

The `Hue Shift` parameter allows you to shift the hue of the layer

The `Saturation` parameter allows you to modify the saturation of the layer

The `Lightness` parameter allows you to modify the lightness of the layer

Mask Setup



The `Folder` parameter allows you to select the mask folder

The `File` parameter allows you to select the mask file

The `Mode` parameter allows you to select which mask mode to use: `Greyscale` , `Greyscale Inverted` , `Alpha` , `Alpha Inverted` , `Colour` and `Colour Inverted`

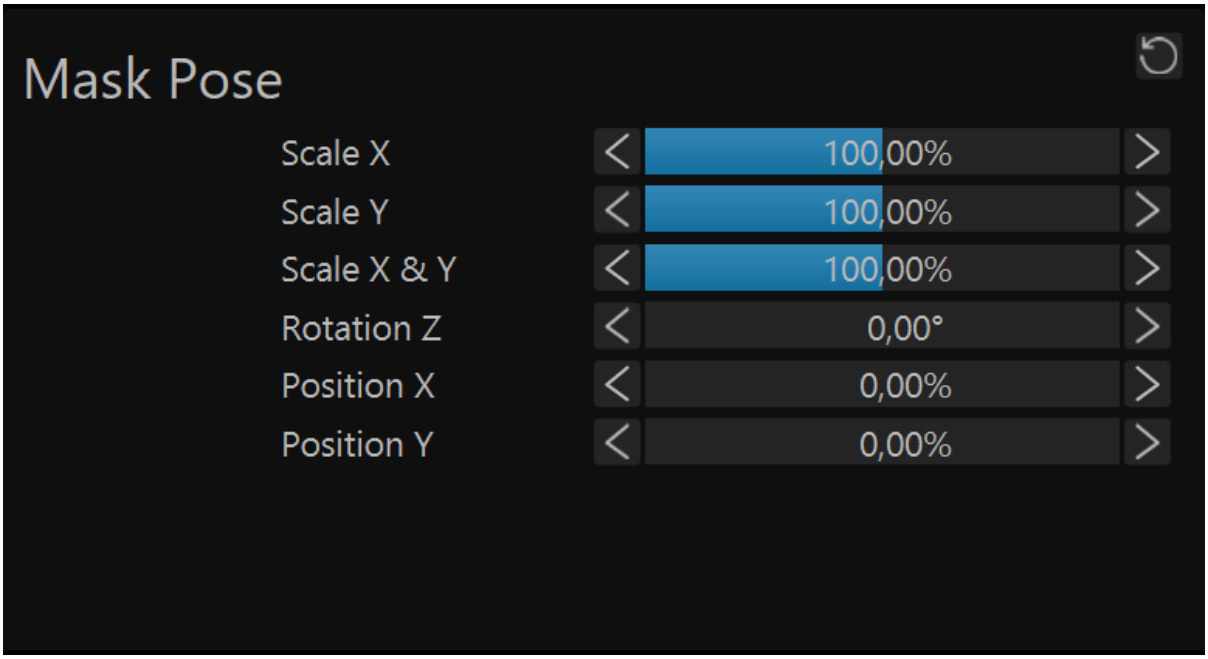
The `Red` , `Green` and `Blue` parameters allow you to select when a colour from the mask will become transparent

The `Tolerance` parameter allows you to set the tolerance for the red, green and blue parameters

The `Ratio` parameter allows you to set the aspect ratio for the mask: `Stretch` , `Fit Width` , `Fit Height` or `1:1`

The `Softness` parameter allows you to select how soft or hard the edges of the mask will be displayed

Mask Pose



The `Scale X` parameter scales the mask over the X axis

The `Scale Y` parameter scales the mask over the Y axis

The `Scale X & Y` parameter scales the mask uniformly over the X and Y axis

The `Position X` parameter moves the mask over the X axis

The `Position Y` parameter moves the mask over the Y axis

The `Rotation Z` parameter rotates the mask over the Z axis

Transition

The transition settings make it possible to have a transition when changing from A stack to B stack.

The `Intensity` parameter allows you to set the intensity

The `Xfade` parameter allows you to do the transition from A stack to B stack

The `Mode` parameter allows you to select which transition should be used: Crossfade, Window Slice, Polka Dots Curtain, Horizontal, Vertical or Angular

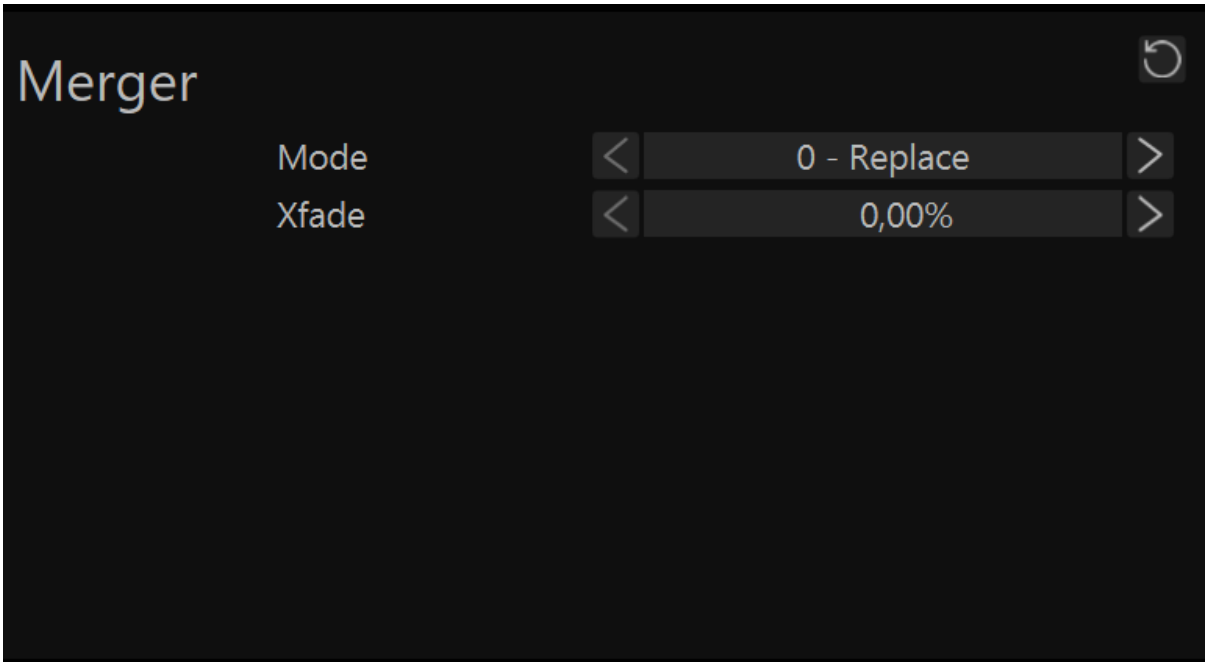
Gamma

The `Red` parameter allows you to adjust the gamma for red

The `Green` parameter allows you to adjust the gamma for green

The `Blue` parameter allows you to adjust the gamma for blue

Merger



The `Mode` parameter allows you to select the merge mode: Replace, Maximum, Minimum, Multiply, Add,

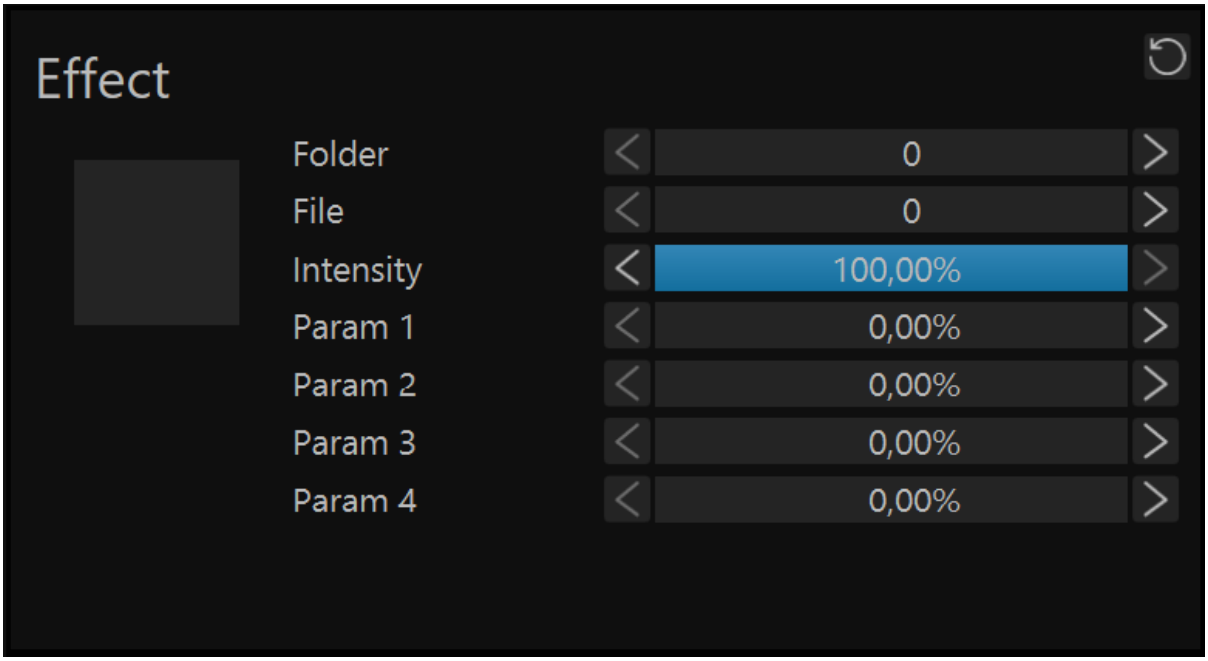
Subtract, Reverse Subtract and Mute

The `Xfade` parameter allows you to do the merging and select between console and MediaMaster

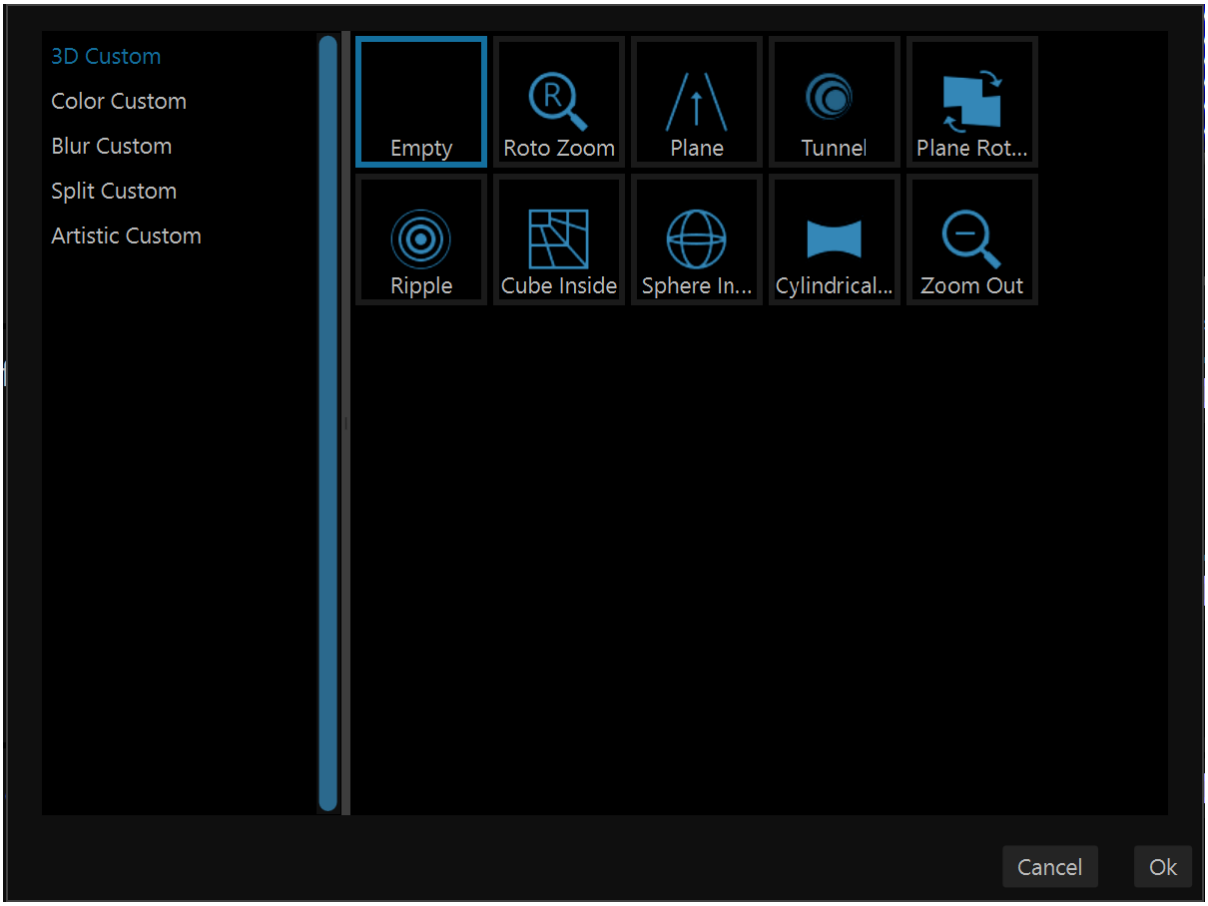
KlingNet Parameters

The different tiles are: Effect, Colour, Mask Setup, Mask Pose, Transition and Gamma.

Effect



In the effect tile, right below the tile title, you can find the effect picker. If you click there, the effect picker will open.



The effect picker allows you to quickly browse through the effects and select the one you want to use. Select the folder, select the effect and click OK or just double-click the effect to use it onto your layer.

The `Folder` parameter allows you to select the effect folder

The `File` parameter allows you to select the effect file

The `Intensity` parameter allows you to select the intensity of the effect

Parameters 1 to 4 will be different per effect and will allow you to modify some specifics off the effect

Colour

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the layer

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your layer

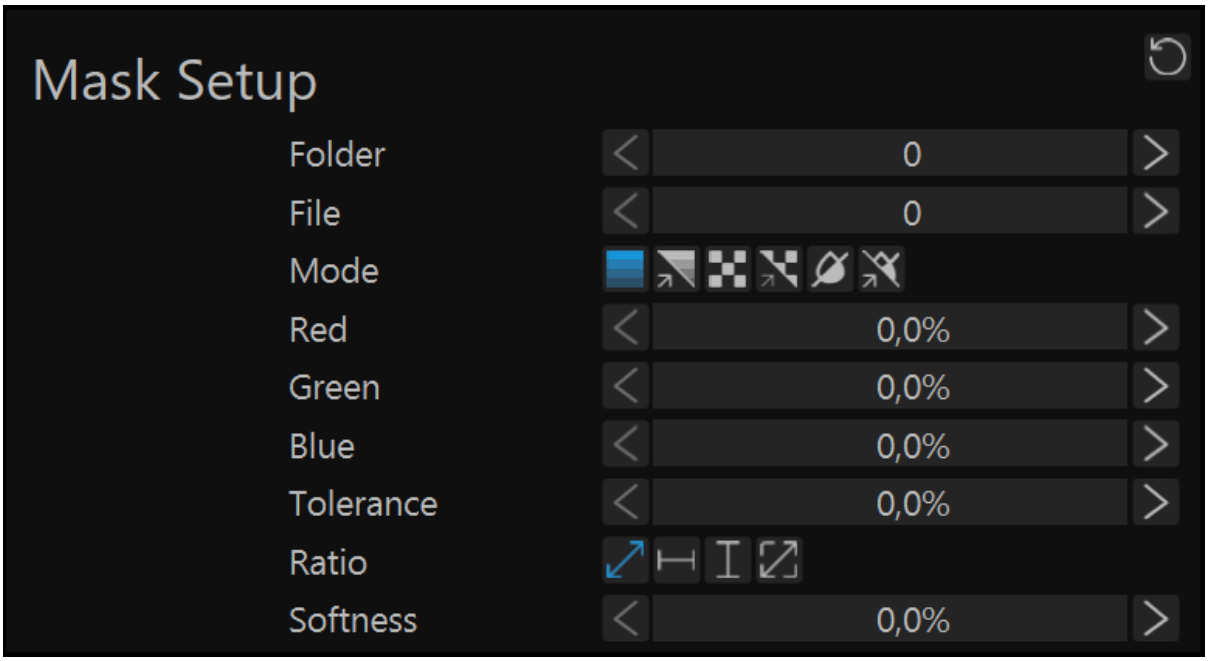
The `Brightness` parameter allows you to modify the brightness of the layer

The `Hue Shift` parameter allows you to shift the hue of the layer

The `Saturation` parameter allows you to modify the saturation of the layer

The `Lightness` parameter allows you to modify the lightness of the layer

Mask Setup



The `Folder` parameter allows you to select the mask folder

The `File` parameter allows you to select the mask file

The `Mode` parameter allows you to select which mask mode to use: `Greyscale` , `Greyscale Inverted` , `Alpha` , `Alpha Inverted` , `Colour` and `Colour Inverted`

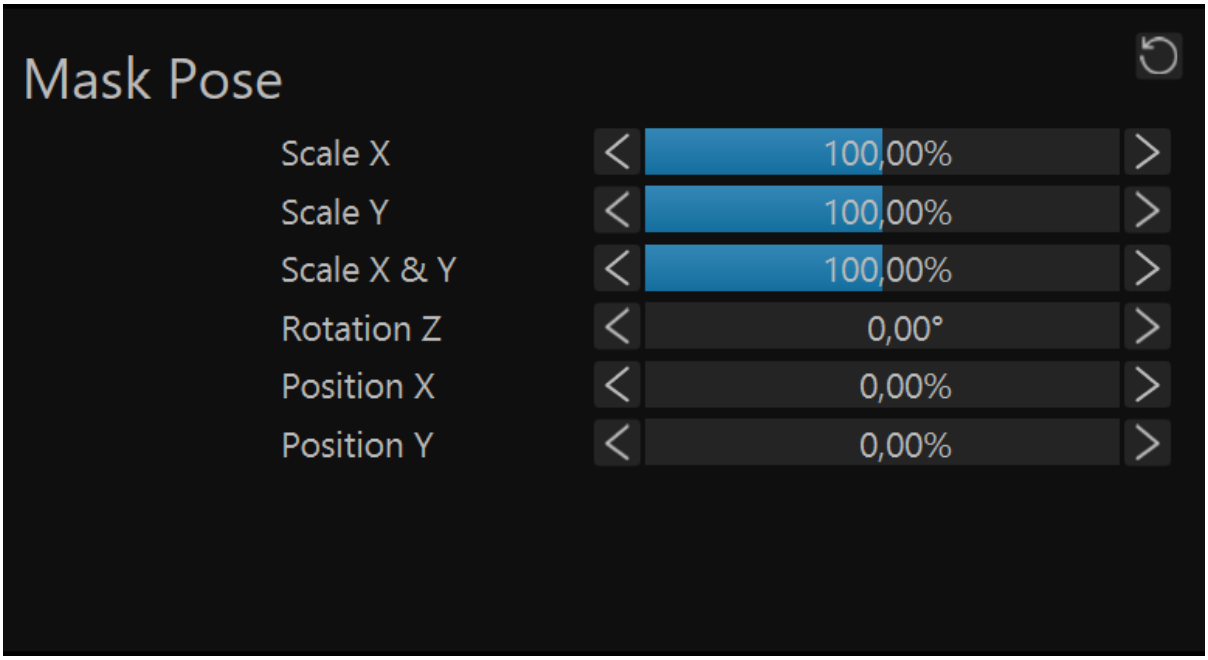
The `Red` , `Green` and `Blue` parameters allow you to select when a colour from the mask will become transparent

The `Tolerance` parameter allows you to set the tolerance for the red, green and blue parameters

The `Ratio` parameter allows you to set the aspect ratio for the mask: `Stretch` , `Fit Width` , `Fit Height` or `1:1`

The `Softness` parameter allows you to select how soft or hard the edges of the mask will be displayed

Mask Pose



The `Scale X` parameter scales the mask over the X axis

The `Scale Y` parameter scales the mask over the Y axis

The `Scale X & Y` parameter scales the mask uniformly over the X and Y axis

The `Position X` parameter moves the mask over the X axis

The `Position Y` parameter moves the mask over the Y axis

The `Rotation Z` parameter rotates the mask over the Z axis

Transition

The transition settings make it possible to have a transition when changing from A stack to B stack.

The `Intensity` parameter allows you to set the intensity

The `Xfade` parameter allows you to do the transition from A stack to B stack

The `Mode` parameter allows you to select which transition should be used: Crossfade, Window Slice, Polka Dots Curtain, Horizontal, Vertical or Angular

Gamma

The `Red` parameter allows you to adjust the gamma for red

The `Green` parameter allows you to adjust the gamma for green

The `Blue` parameter allows you to adjust the gamma for blue

Output Parameters

The different tiles are: Colour, Gamma and Keystone.

Colour

The `Intensity` parameter allows you to modify the intensity of the output

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the output

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your output

The `Brightness` parameter allows you to modify the brightness of the output

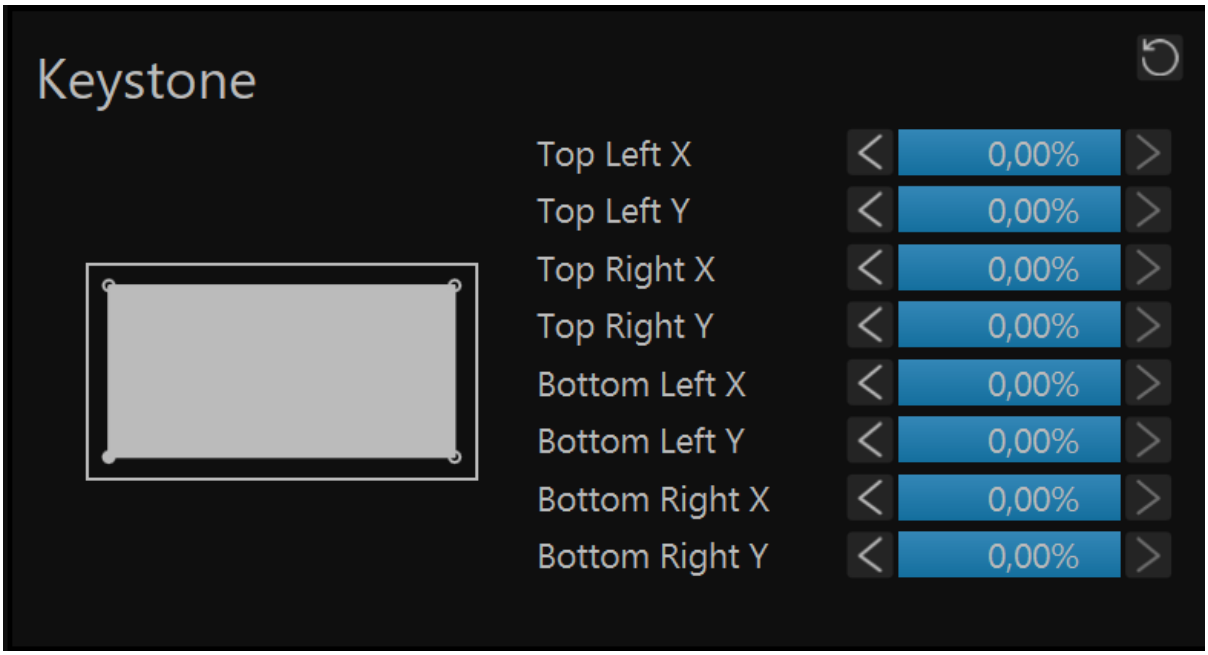
Gamma

The `Red` parameter allows you to adjust the gamma for red

The `Green` parameter allows you to adjust the gamma for green

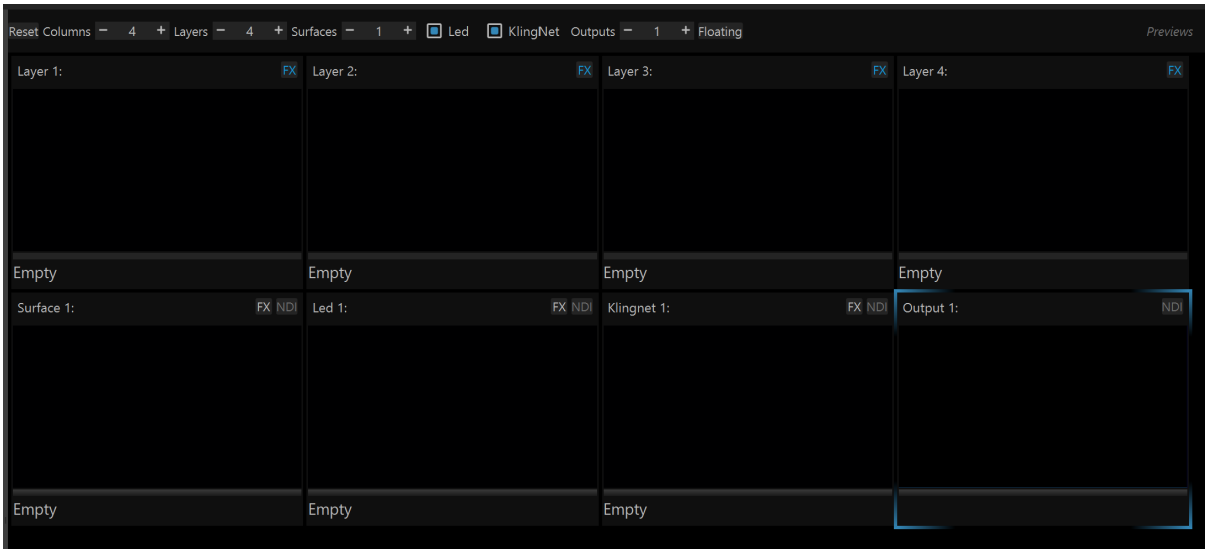
The `Blue` parameter allows you to adjust the gamma for blue

Keystone



If you are using a projector as output you can use these keystone parameters to do some basic keystone correction.

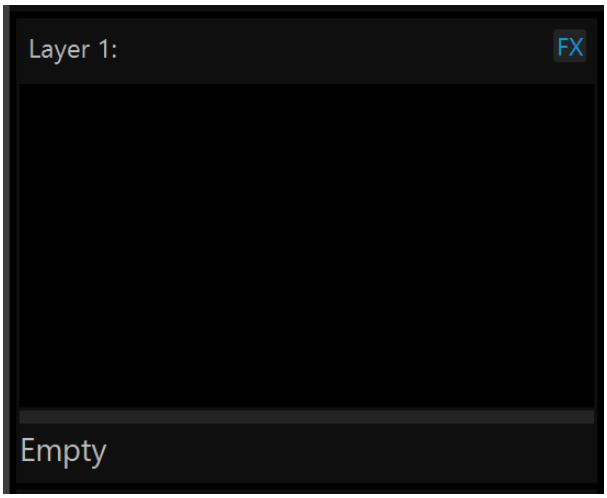
Previews Panel



There are multiple preview types available

- Layer preview
- Surface preview
- LED preview
- Kling-Net preview
- Output preview

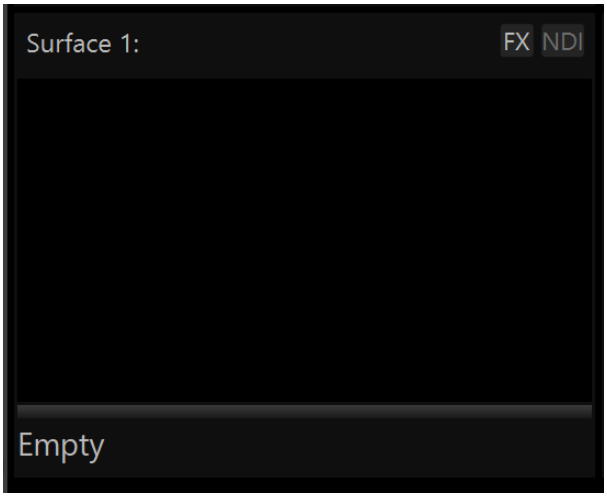
Layer Preview



The layer preview will let you select that layer and show you it's preview. In MediaMaster Core you can use up to 12 layers, in MediaMaster pro you can use up to 48 layers. You can add or remove layer previews as you like. This allows you to only show the number of previews you actually use.

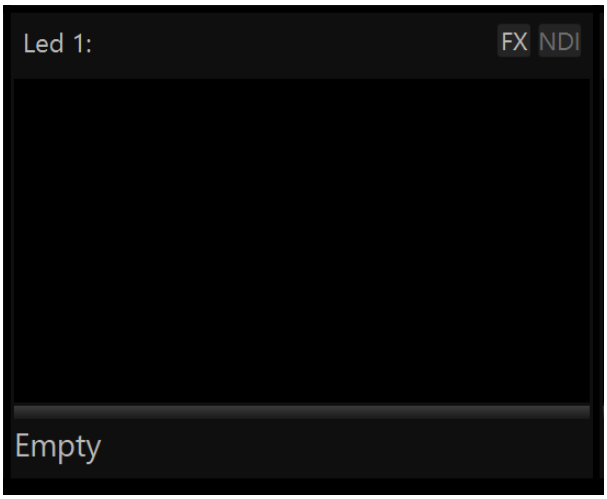
Below the preview you can see an R: with some numbers. This is the remaining time of the content currently playing in that layer. If you click on the R: it will change to an E: which shows you the elapsed time of the content currently playing.

Surface Preview



The surface preview shows you the preview of a specific surface. A surface is created in the video mapper and is used to send content to an output. We will discuss this in great detail in the video mapper section. In the video mapper you can create up to 200 surfaces. You can add or remove surface previews as you like. This allows you to only show the number of previews you actually use.

LED Preview



The LED preview shows you a preview of what is sent from the LED mapper.

Kling-Net Preview

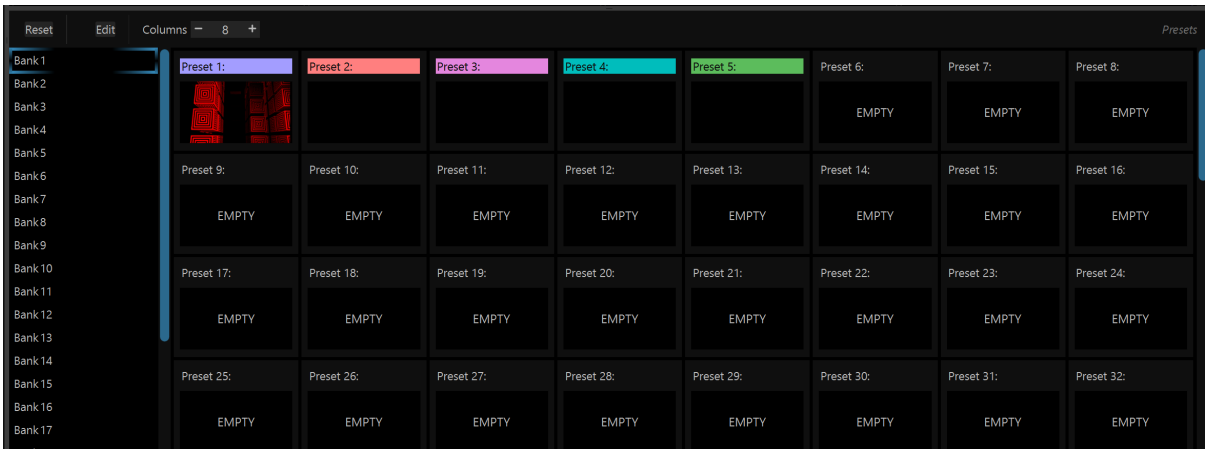
The Kling-Net preview shows you a preview of what is sent from the Kling-Net mapper.

Output Preview

The output preview shows you the preview of that output. If your hardware has multiple outputs, then you can add or remove output previews. This allows you to show the number of outputs you actually use.

Users can also activate Live Mode to view the output preview. This is enabled either by clicking the "Live" toggle button in the top right or by using the shortcut "Ctrl + L" or "Ctrl + F".

Presets Panel

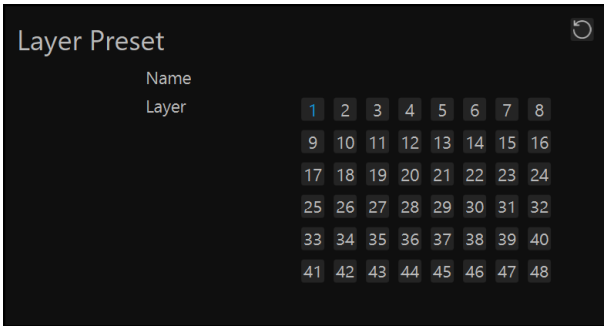


In the presets panel you can create presets for layers, surfaces, LED, KlingNet and outputs.

To edit the presets you need to click the `Edit` button on the left side of the Presets panel menu bar. The background of the presets will change to blue to indicate that you are in edit mode.

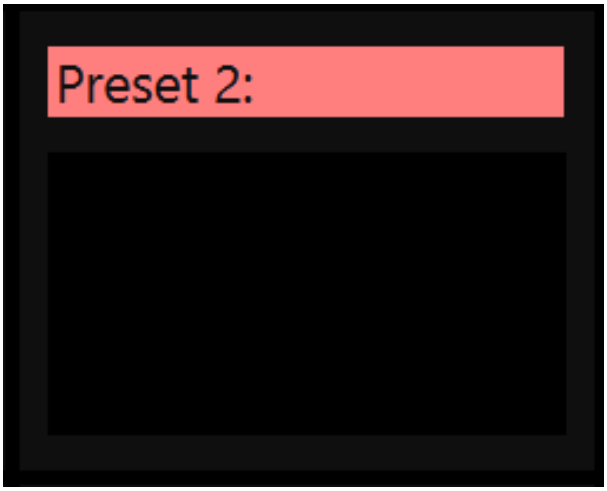
Layer Preset

A layer preset will provide you all the parameters for a layer plus one extra tile that allows you to select to which layer this preset is assigned.



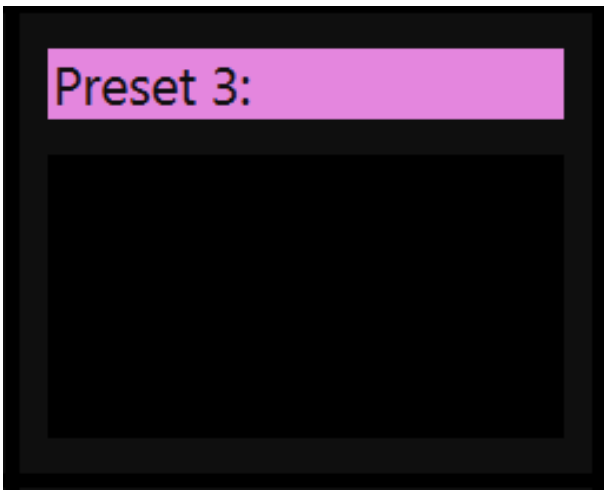
You can assign a preset to more then one layer.

Surface Preset



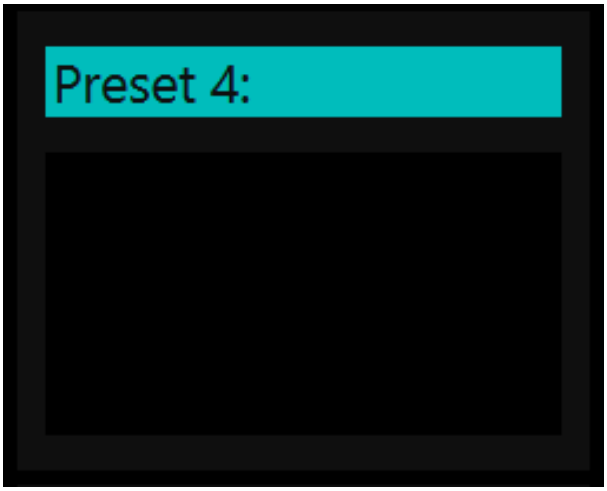
A surface preset will provide you all the parameters for a surface plus one extra tile that allows you to select to which surface this preset is assigned.

LED Preset



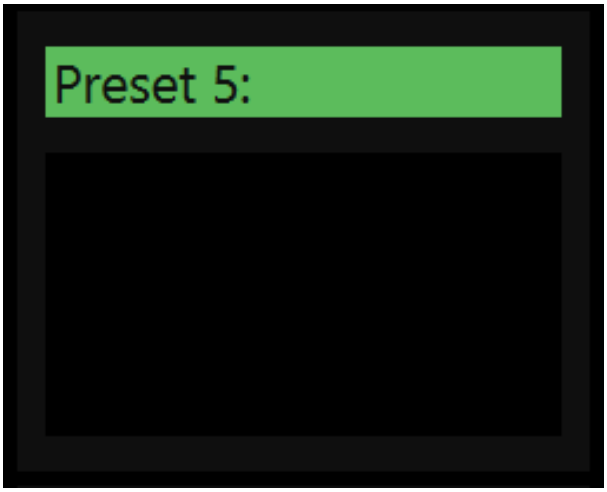
A LED preset will provide you all the parameters for a LED.

KlingNet Preset



A KlingNet preset will provide you all the parameters for KlingNet.

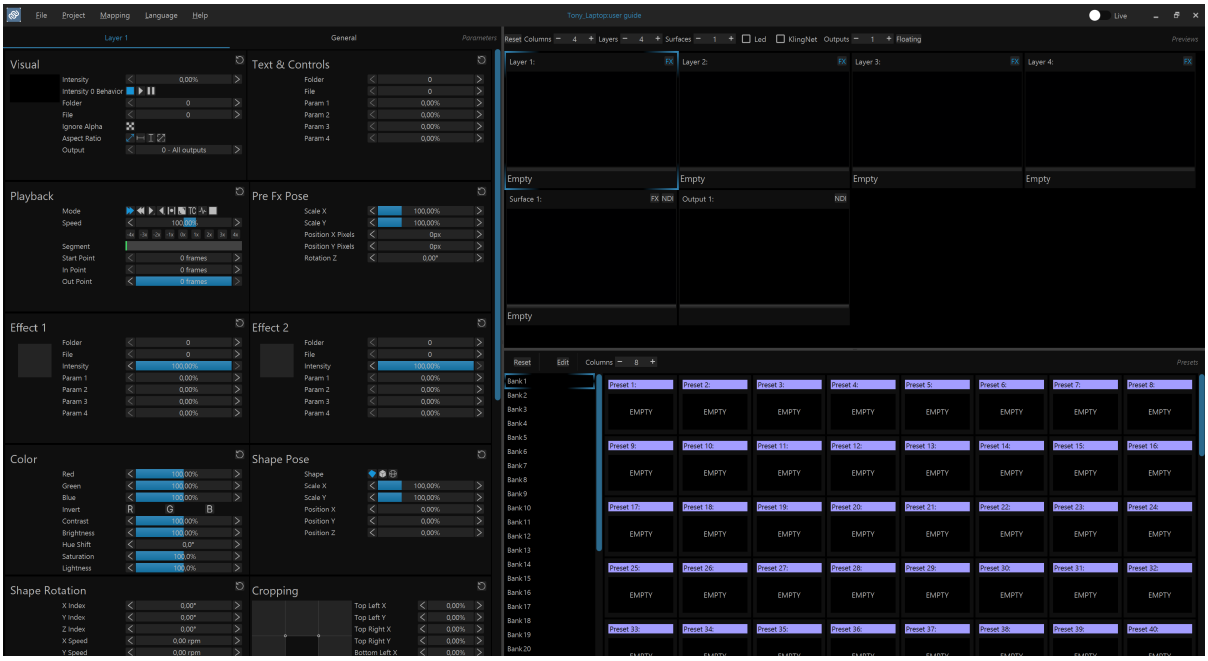
Output Preset



An output preset will provide you all the parameters for an output.

Software Interface Overview

Software Interface Overview



The main user interface is divided into 3 main sections

- The Parameters Panel
- The Previews Panel
- The Presets Panel

Each panel can be customised to your needs.

Parameters Panel

Parameters Panel

The parameters panel shows you all the parameters available for the currently selected preview, surface, LED, KlingNet, output or preset.

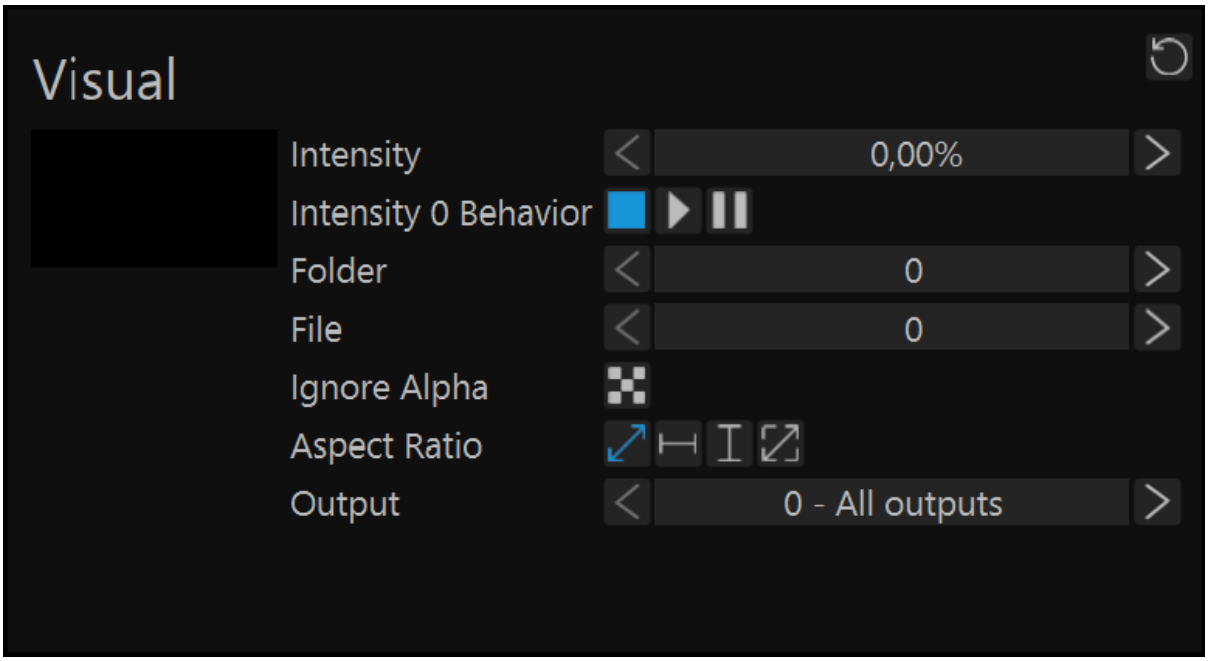
The parameters are logically grouped in tiles. You can drag and drop any tile to move them so they have a different order. That way you can make sure the tiles you use most are always visible.

The software will remember the order you placed the tiles and the size of the window so it will be exactly the same next time you log in.

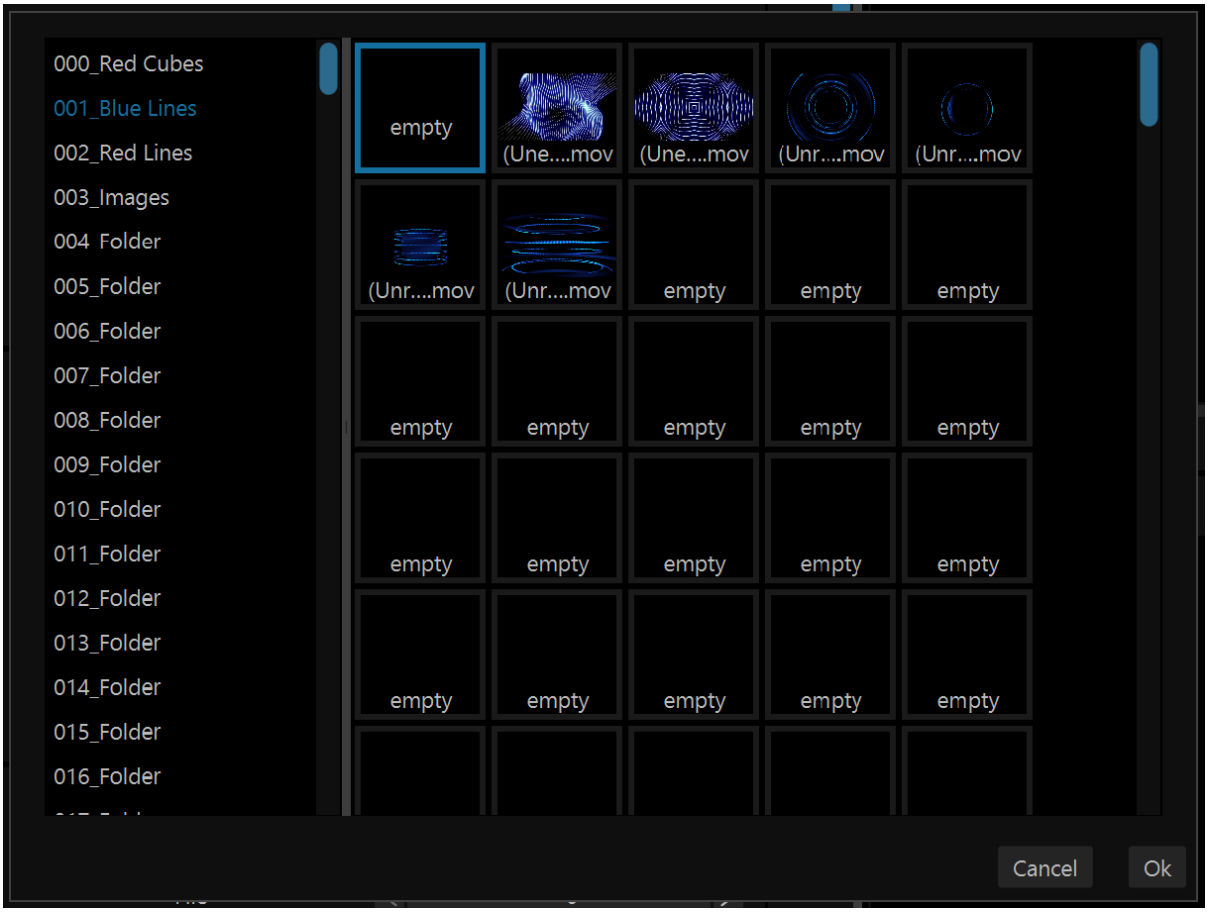
Layer Parameters

The different tiles are: Visual, Text and Controls, Playback, Pre FX Pose, Effect 1 and 2, Colour, Shape Pose, Shape Rotation, Cropping, Mask Setup, Mask Pose, Blending and Keying, In-Layer Transition, Audio

Visual



In the visual tile, right below the label 'Visual', you can find the thumbnail/visual picker.
When a visual is selected, you will get the thumbnail here. When you hover over it, the animation starts and shows you what is in the content. If you click on the thumbnail, the visual picker will open.



The visual picker allows you to quickly browse through the media assigned to your project and select the one you want to show. Select the folder, select the media file and click OK or just double-click the media to load it onto your layer.

The `Intensity` parameter allows you to set the intensity of the layer.

The `Intensity 0 Behavior` parameter allows you to define what happens with the media if the intensity is set to 0.

- `Stop` : this will stop the media and so if the intensity goes back up, the media will start from the beginning.
- `Continue` : the media will continue playing while the intensity is down. If you pull the intensity back up the media will keep playing.
- `Pause` : the media will stop playing but as soon as the intensity goes back up, it will continue playing from the point the intensity went down.

The `Folder` parameter allows you to select the project media folder.

The `File` parameter allows you to select the file in that project folder.

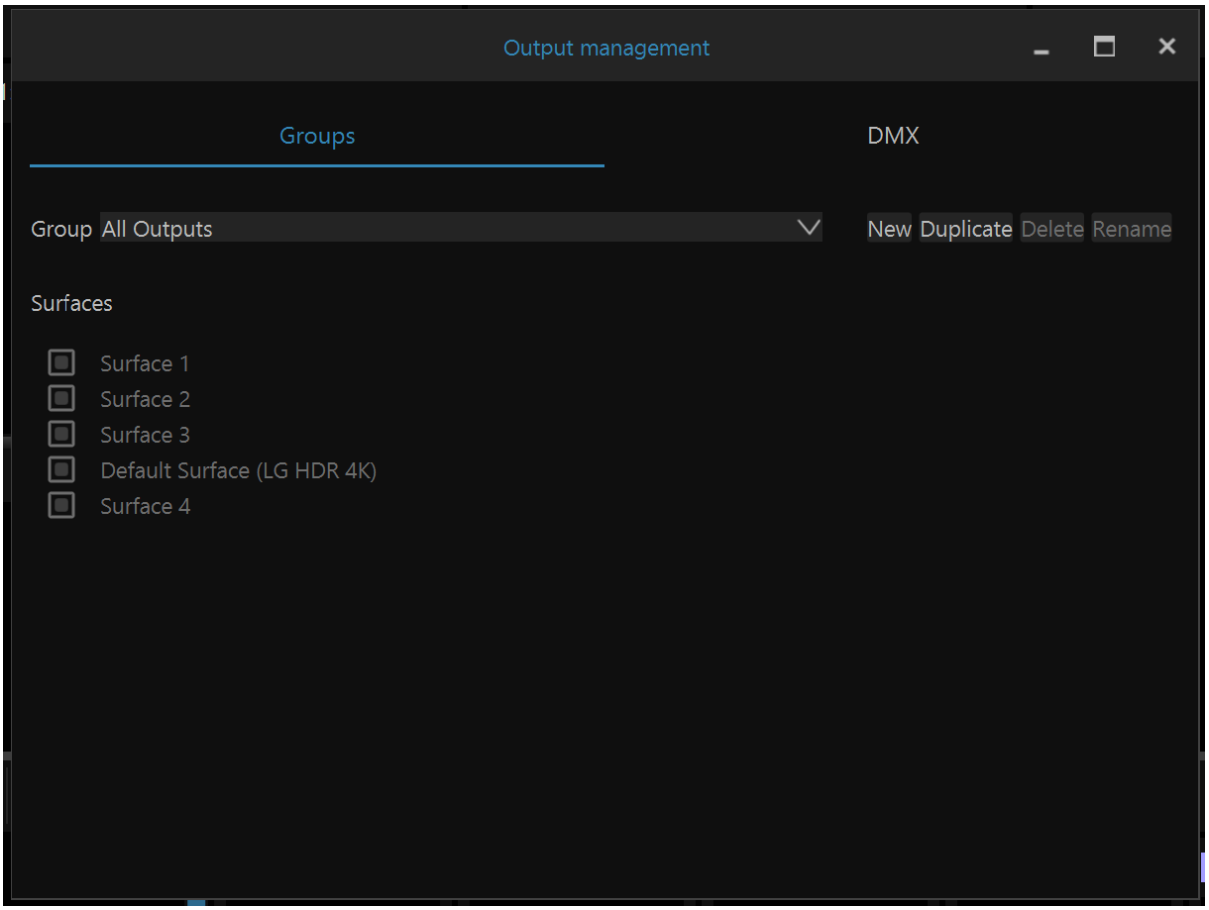
The `Ignore Alpha` parameter allows you to use or ignore the alpha channel for a media that has an alpha channel.

The `Aspect Ratio` parameter allows you to set a specific aspect ratio for that layer.

- `Stretch` : this option will stretch the content to fill the whole canvas

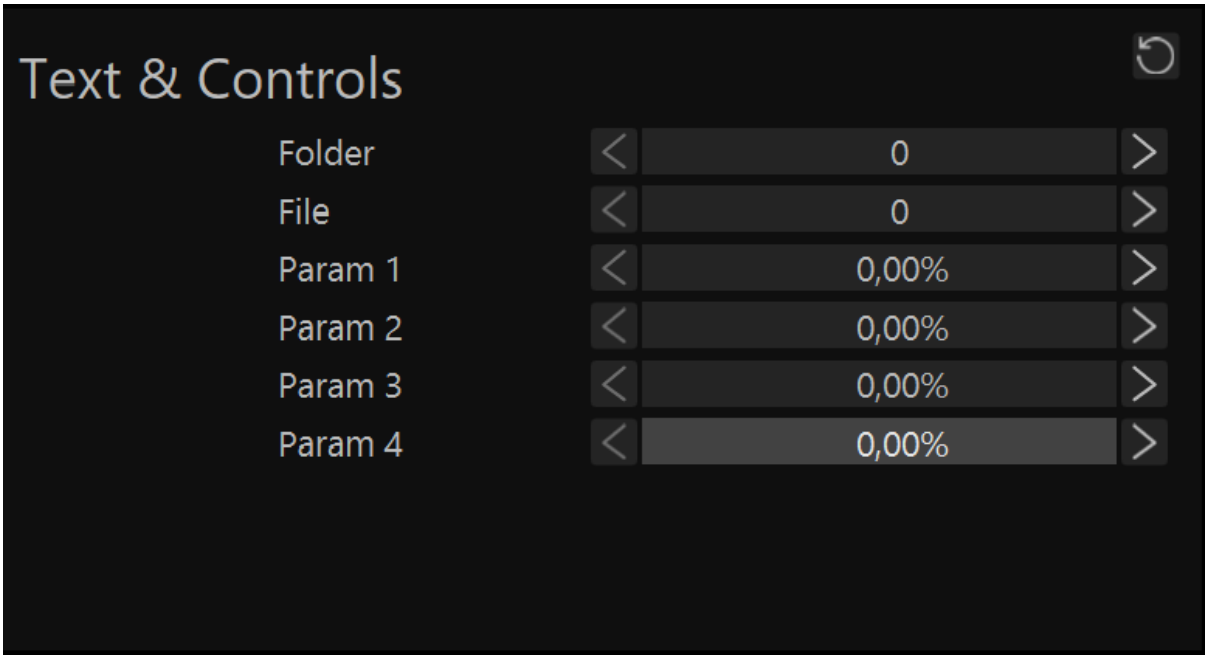
- `Fit Width` : this option will scale the content until it fits the width of the canvas
- `Fit Height` : this option will scale the content until it fits the height of the canvas
- `1:1` : this option will not scale the content in any way, no matter if it is bigger or smaller then the canvas

The `Output` parameter lets you select to which surface or surface group the layer will be outputted



When video mapper mode is selected, you will get an extra parameter which is the `Outputs` parameter. This will allow you to create surface groups and set the DMX assignment for surfaces and surface groups.

Text and Controls

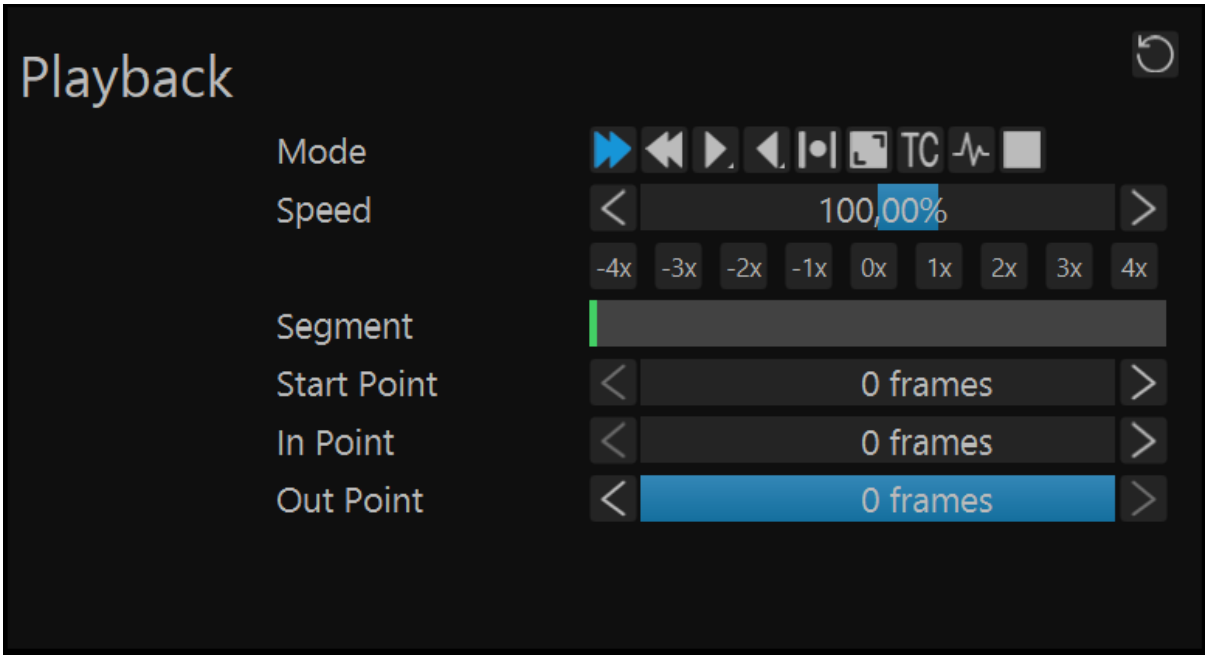


The `Folder` parameter allows you to select the text database bank

The `File` parameter allows you to select a file in the text database

Parameters 1 to 4 allow you to change text media file specific parameters

Playback



The `Mode` parameter allows you to select the play mode.

- `Loop forward` : this option plays the content in a loop forwards
- `Loop Backward` : this option plays the content in a loop backwards
- `Once Forward` : this option will play the content forward once and then stop. You can additionally specify the `End Behavior`
  - ☒ `Transparent` : when the content finished playing, the layer will become transparent

    - ☒ Start Frame : when the content finished playing, the start frame will be shown
    - ☒ First Video Frame : when the content finished playing, the first frame of the content will be shown
    - ☒ Last Video Frame : when the content finished playing, the last frame of the content will be shown
    - ☒ First Loop Frame : when the content finished playing, the first frame of the loop will be shown
    - ☒ Last Loop Frame : when the content finished playing, the last frame of the loop will be shown
- Once Backward : this option will play the content backward once and then stop. It has the same End Behavior options as Once Forward
- Ping Pong : this option will play the content forward until it reaches the end. Then it will play it backwards until it reaches the beginning. this over and over again.
- Show Frame : this option shows just one frame of the content. The same End behavior options are available
- Time Code : this option allows you to track your content by time code. More on time code in another section in this user guide
- Beat Sync : this option allows you to BPM sync your content with the BPM received from an external source
- Stop : this option will stop the playback of the content

The Speed parameter allows you to set the play speed of your content. There are some cue buttons below to quickly set to a predefined speed.

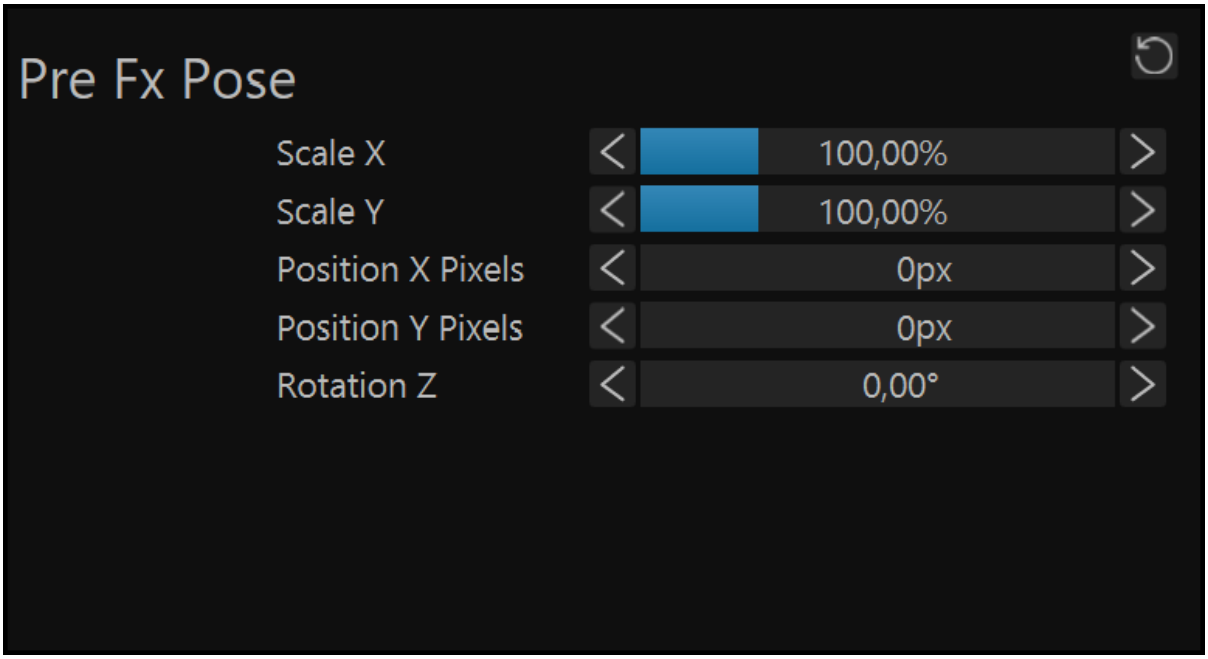
The Segment field is a visual representation of what you have set up with the 3 parameters below: Start Point , In Point , Out Point

The Start Point parameter allows you to select from which frame the content should start playing at first launch

The In Point parameter allows you to select from which frame the content should play after a loop

The Out Point parameter allows you to select at what frame the content should loop to the In Point

Pre FX Pose



The Pre FX Pose allows you to show only a specific part of your media at the beginning of the render pipeline before any effects are applied or other manipulations are done to it.
This can for instance be used to show a part of a 4k content on a fullHD output if aspect ratio 1:1 is selected.

The `Scale X` parameter scales the content over the X axis

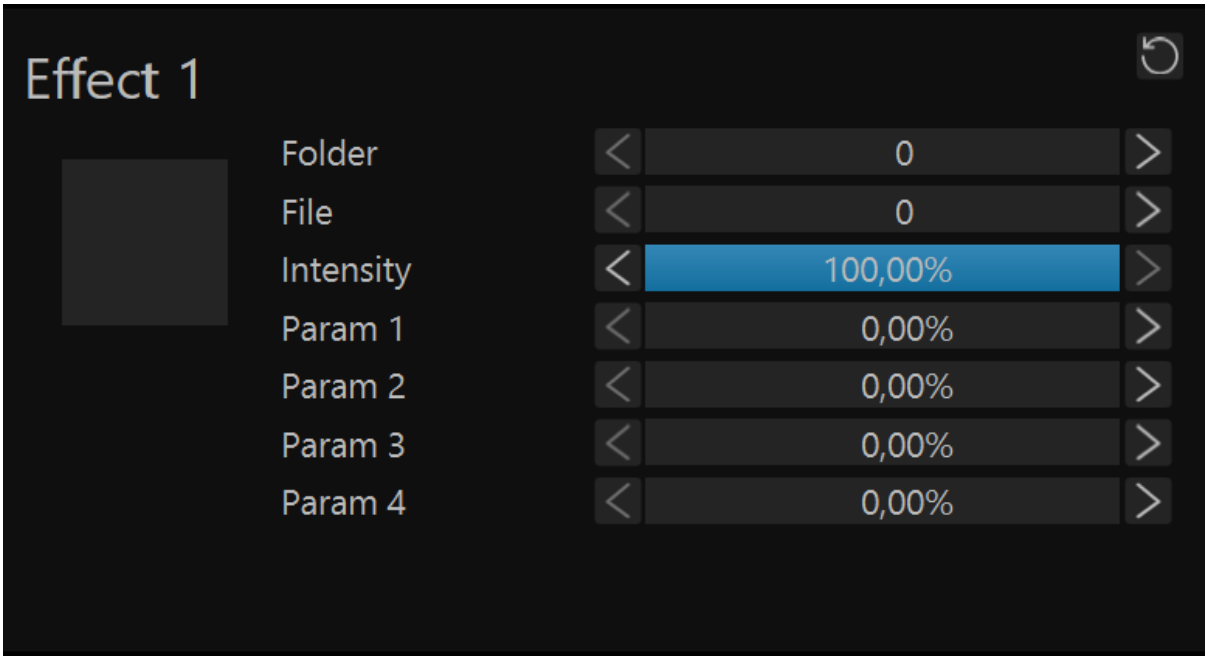
The `Scale Y` parameter scales the content over the Y axis

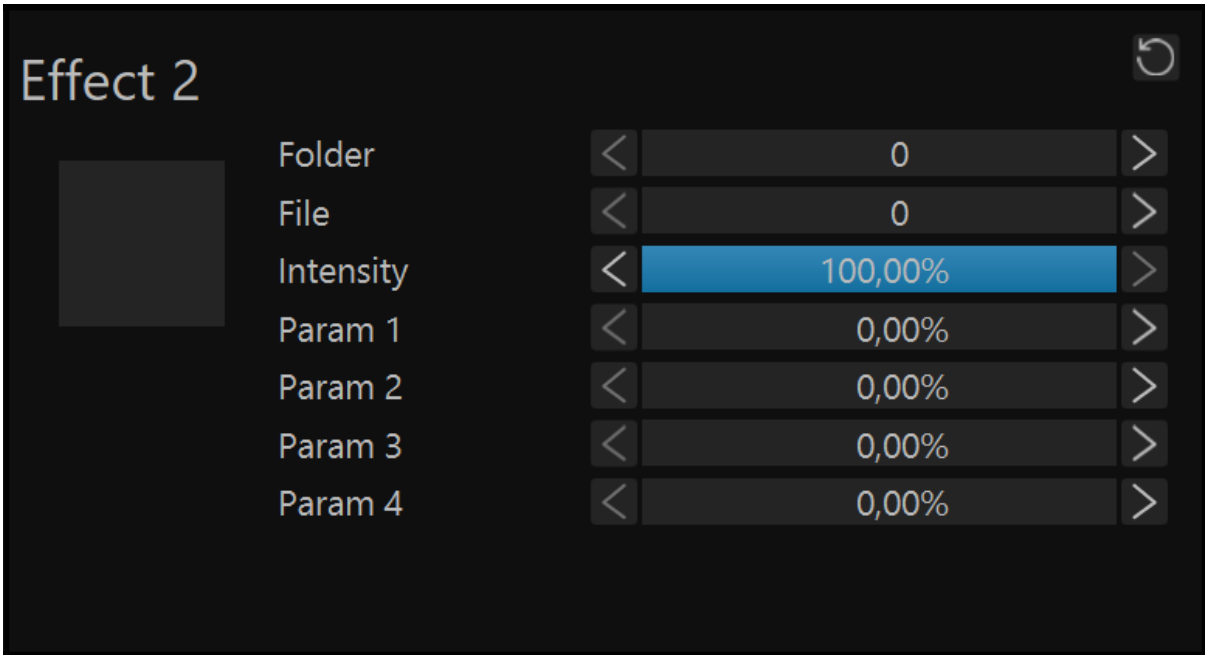
The `Position X Pixels` parameter moves the content over the X axis

The `Position Y Pixels` parameter moves the content over the Y axis

The `Rotation Z` parameter rotates the content over the Z axis

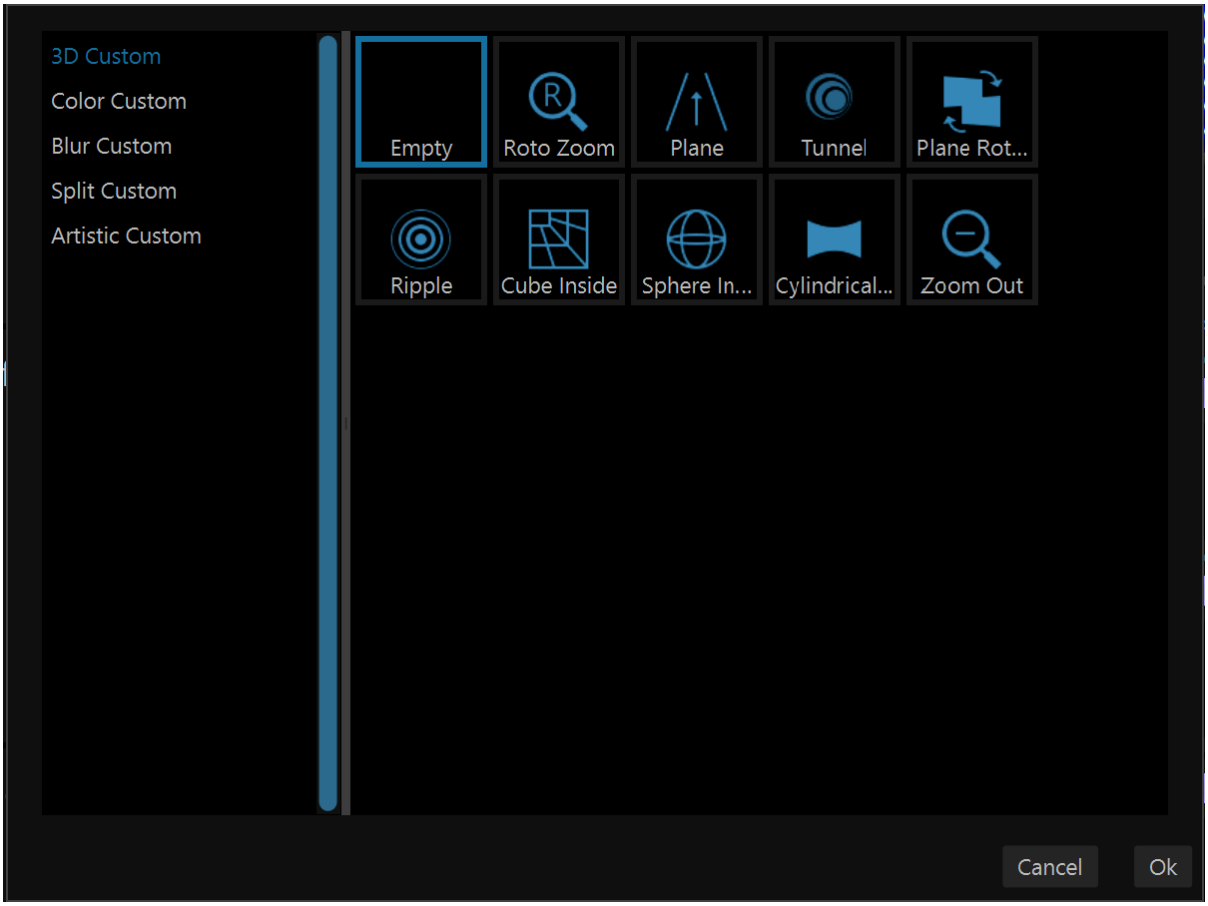
Effect 1 and 2





You can add up to 2 effects per layer.

In the effects tiles, right below the tile title, you can find the effect picker. If you click there, the effect picker will open.



The effect picker allows you to quickly browse through the effects and select the one you want to use. Select the folder, select the effect and click OK or just double-click the effect to use it onto your layer.

The `Folder` parameter allows you to select the effect folder

The `File` parameter allows you to select the effect file

The `Intensity` parameter allows you to select the intensity of the effect

Parameters 1 to 4 will be different per effect and will allow you to modify some specifics off the effect

Colour

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the layer

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your layer

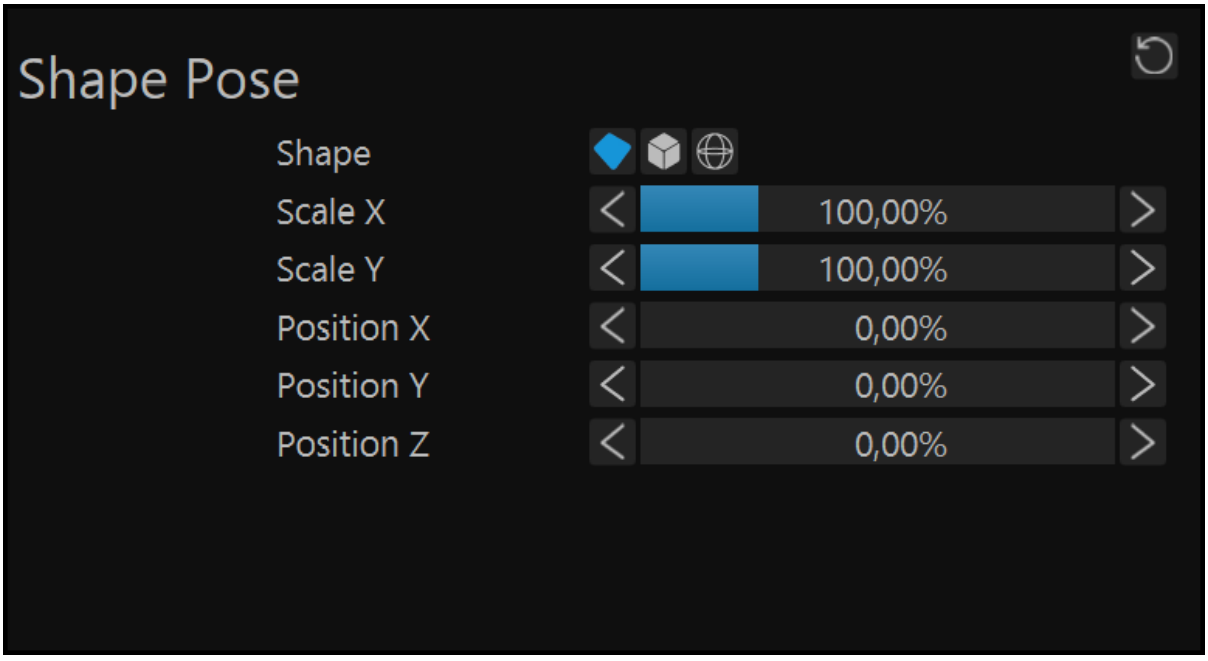
The `Brightness` parameter allows you to modify the brightness of the layer

The `Hue Shift` parameter allows you to shift the hue of the layer

The `Saturation` parameter allows you to modify the saturation of the layer

The `Lightness` parameter allows you to modify the lightness of the layer

Shape Pose



The `Shape` parameter allows you to select if you want to show your content on a plane, a cube or a sphere

The `Scale X` parameter scales the shape over the X axis

The `Scale Y` parameter scales the shape over the Y axis

The `Position X Pixels` parameter moves the shape over the X axis

The `Position Y Pixels` parameter moves the shape over the Y axis

The `Rotation Z` parameter rotates the shape over the Z axis

Shape Rotation

The `X Index` parameter allows you to set a rotation offset on the shape over the X axis

The `Y Index` parameter allows you to set a rotation offset on the shape over the Y axis

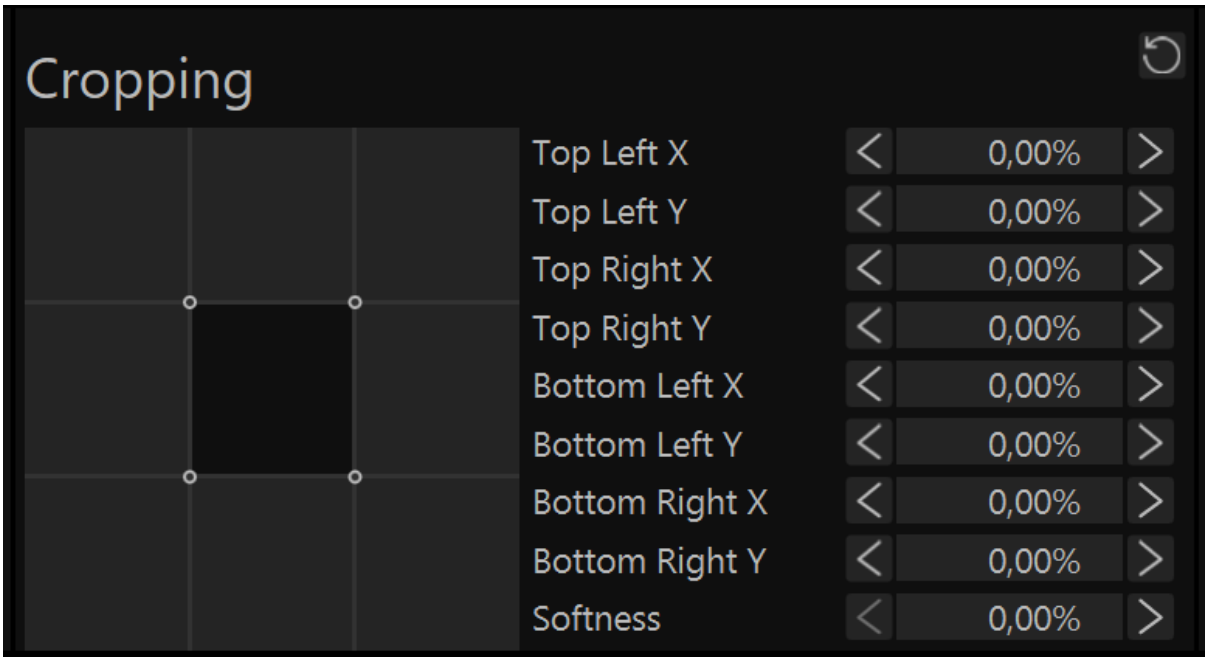
The `Z Index` parameter allows you to set a rotation offset on the shape over the Z axis

The `X Speed` parameter allows you to set the rotation speed of the shape over the X axis

The `Y Speed` parameter allows you to set the rotation speed of the shape over the Y axis

The `Z Speed` parameter allows you to set the rotation speed of the shape over the Z axis

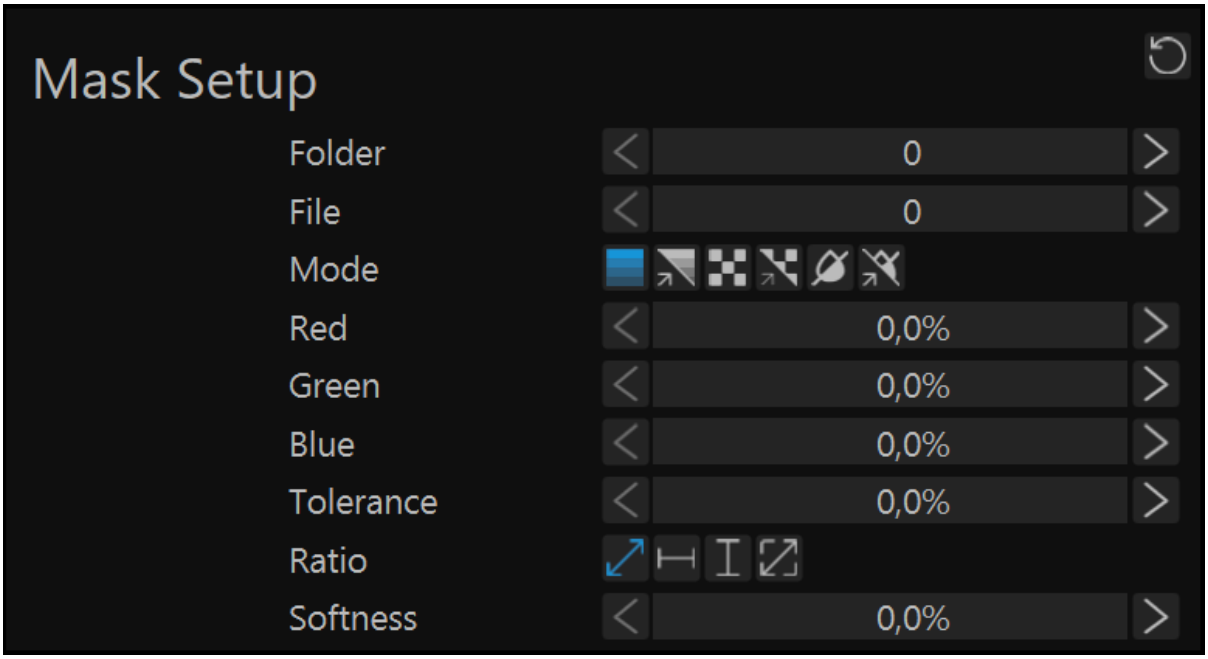
Cropping



The cropping panel let you crop the layer so you can show exactly what you want. You can even select the softness of the edges. This is very useful when working with live camera input.

You can use the parameters to set the exact values or you can click and drag the white corner dots on the visual representation to modify the cropping.

Mask Setup



The `Folder` parameter allows you to select the mask folder

The `File` parameter allows you to select the mask file

The `Mode` parameter allows you to select which mask mode to use: `Greyscale` , `Greyscale Inverted` , `Alpha` , `Alpha Inverted` , `Colour` and `Colour Inverted`

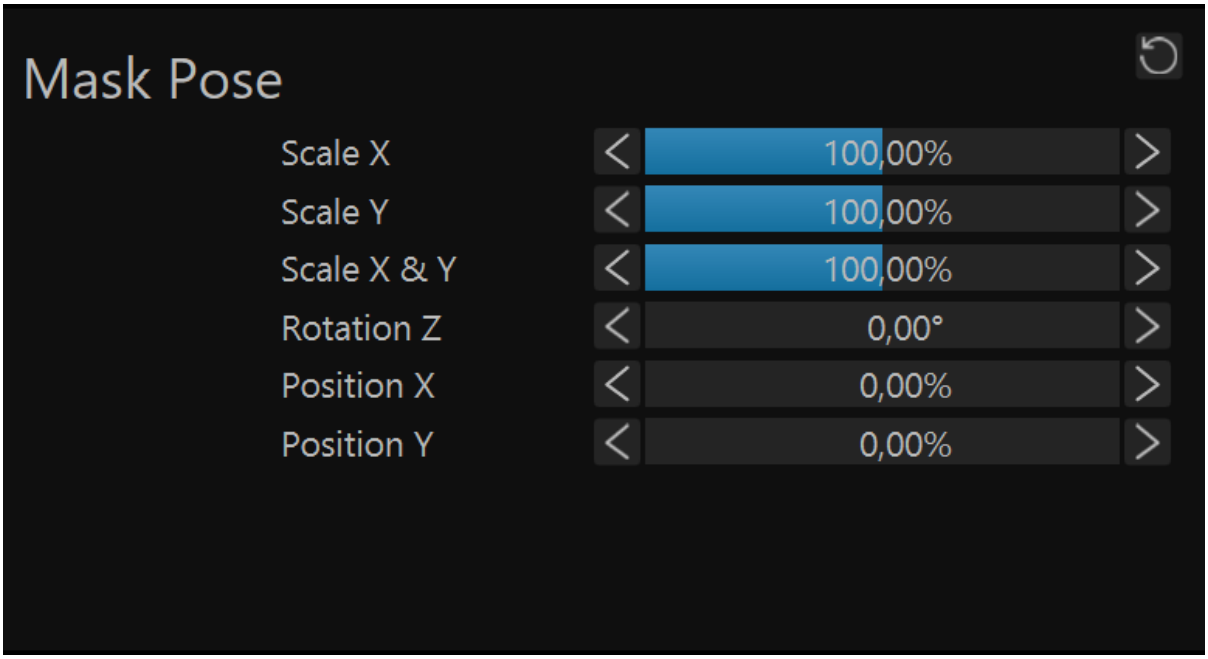
The `Red` , `Green` and `Blue` parameters allow you to select when a colour from the mask will become transparent

The `Tolerance` parameter allows you to set the tolerance for the red, green and blue parameters

The `Ratio` parameter allows you to set the aspect ratio for the mask: `Stretch` , `Fit Width` , `Fit Height` or `1:1`

The `Softness` parameter allows you to select how soft or hard the edges of the mask will be displayed

Mask Pose



The `Scale X` parameter scales the mask over the X axis

The `Scale Y` parameter scales the mask over the Y axis

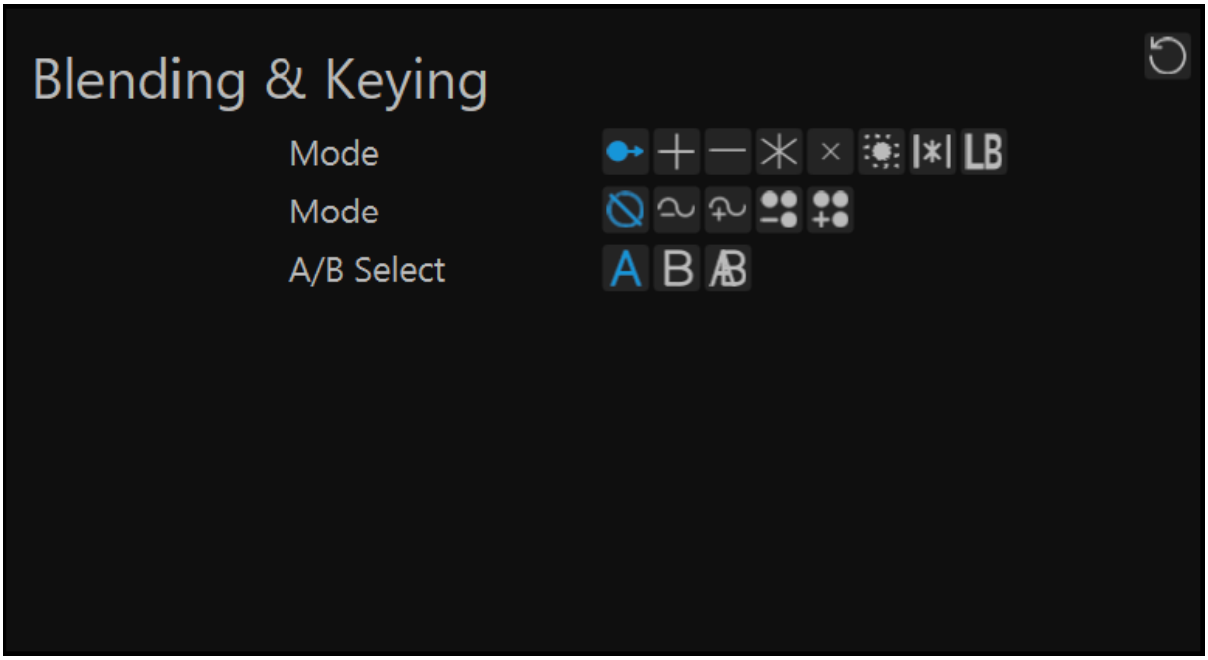
The `Scale X & Y` parameter scales the mask uniformly over the X and Y axis

The `Position X` parameter moves the mask over the X axis

The `Position Y` parameter moves the mask over the Y axis

The `Rotation Z` parameter rotates the mask over the Z axis

Blending and Keying

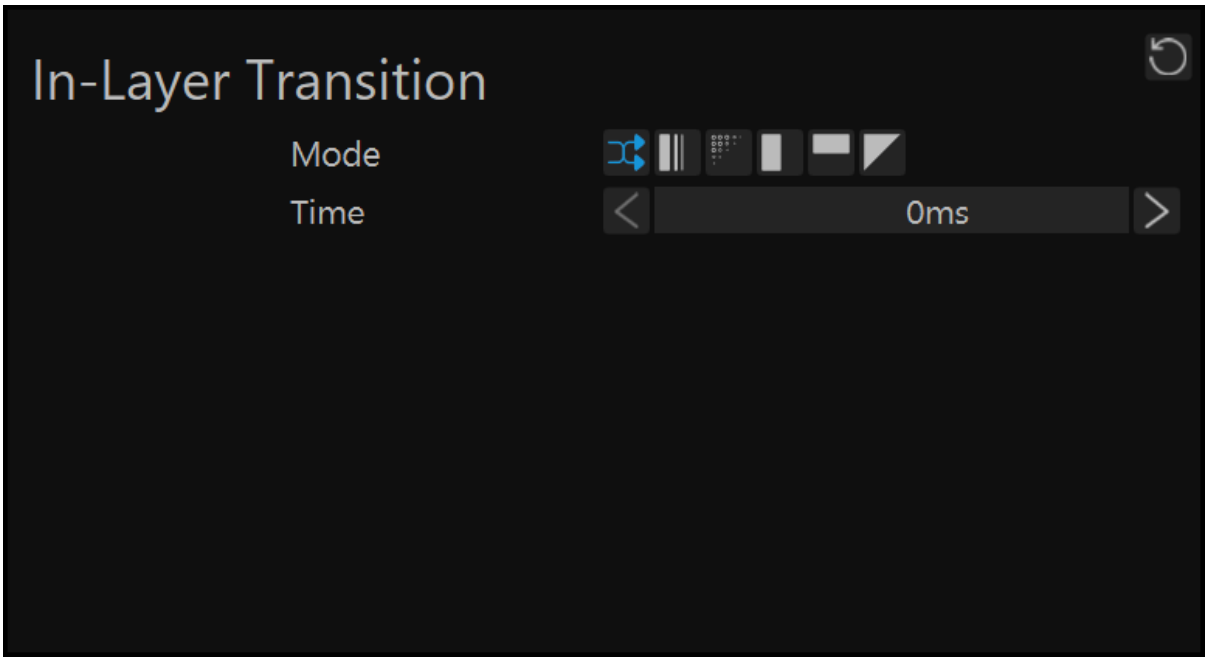


The `Blend Mode` parameter allows you to select which blend mode should be used: `Replace` , `Add` , `Subtract` , `Multiply`, `Xor`, `Exclusion` , `Screen` or `Linear Burn`

The `Key Mode` parameter allows you to select which key mode should be used: `None` , `Luma Band Reject` , `Luma Band Pass` , `Chroma Band Reject` and `Chroma Band Pass`

The `A/B Select` parameter allows you to select to which stack this layer belongs for transitioning: `A` , `B` or `A and B`

In-Layer Transition



The in-layer transition settings make it possible to have a transition when changing visuals in the same layer.

The `Mode` parameter allows you to select which transition should be used

The `Time` parameter allows you to set the transition duration in milliseconds

Audio

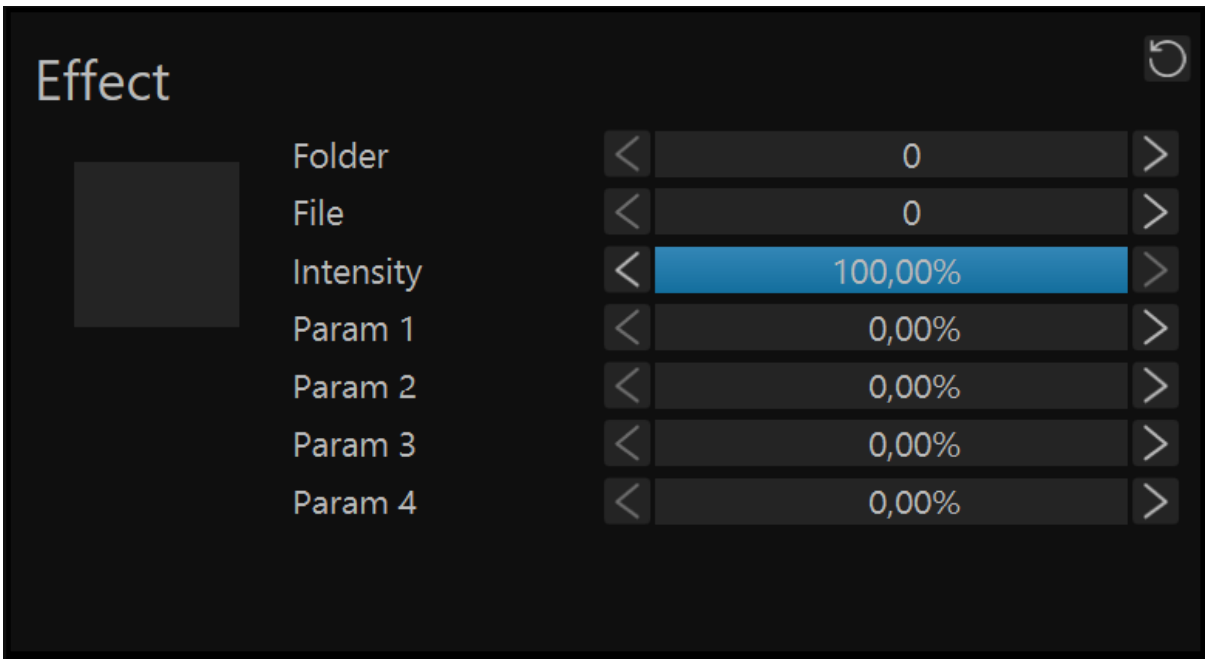
The `Output` parameter allows you to select which audio output to use for this layer

The `Gain` parameter allows you to set the gain for the audio for this layer

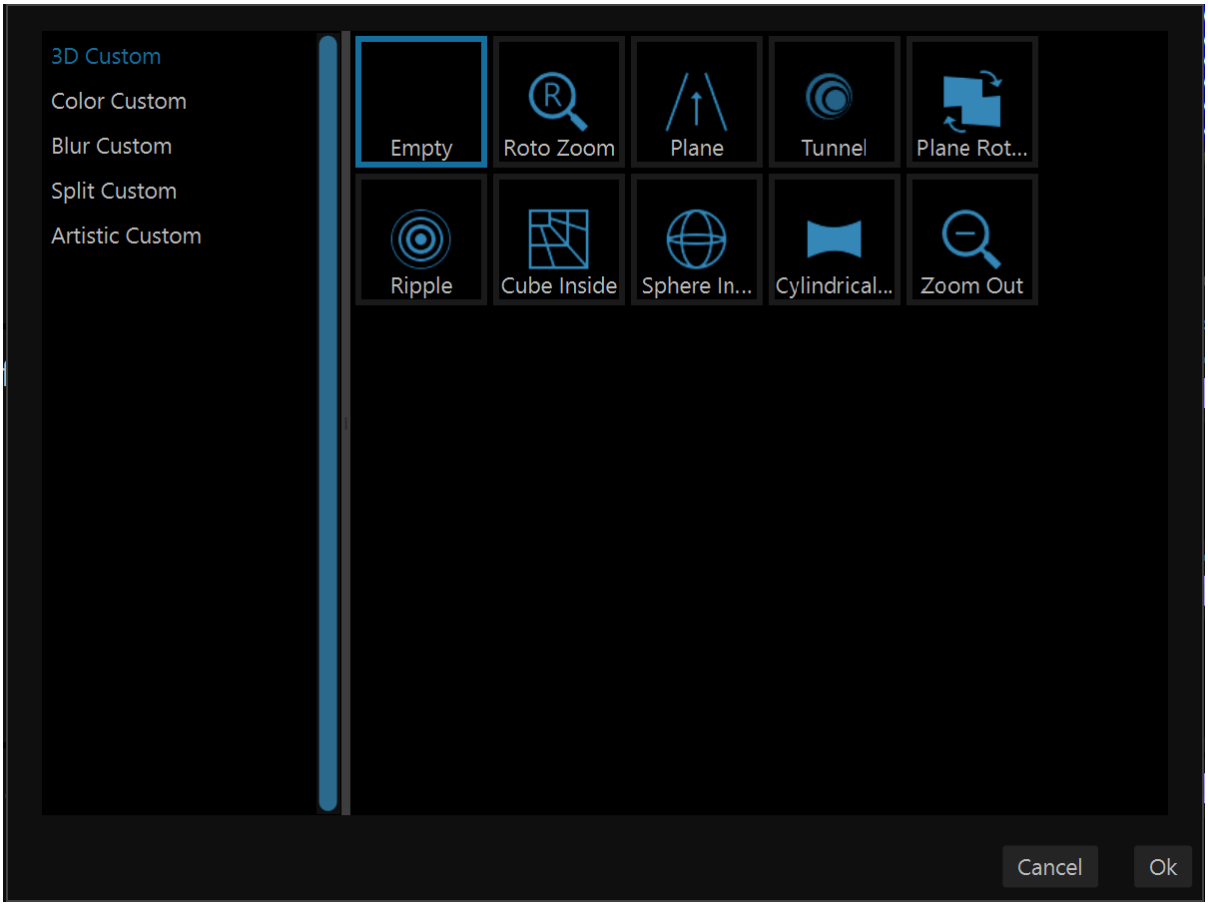
Surface Parameters

The different tiles are: Effect, Colour, Mask Setup, Mask Pose and Transition.

Effect



In the effect tile, right below the tile title, you can find the effect picker. If you click there, the effect picker will open.



The effect picker allows you to quickly browse through the effects and select the one you want to use. Select the folder, select the effect and click OK or just double-click the effect to use it onto your layer.

The `Folder` parameter allows you to select the effect folder

The `File` parameter allows you to select the effect file

The `Intensity` parameter allows you to select the intensity of the effect

Parameters 1 to 4 will be different per effect and will allow you to modify some specifics off the effect

Colour

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the layer

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your layer

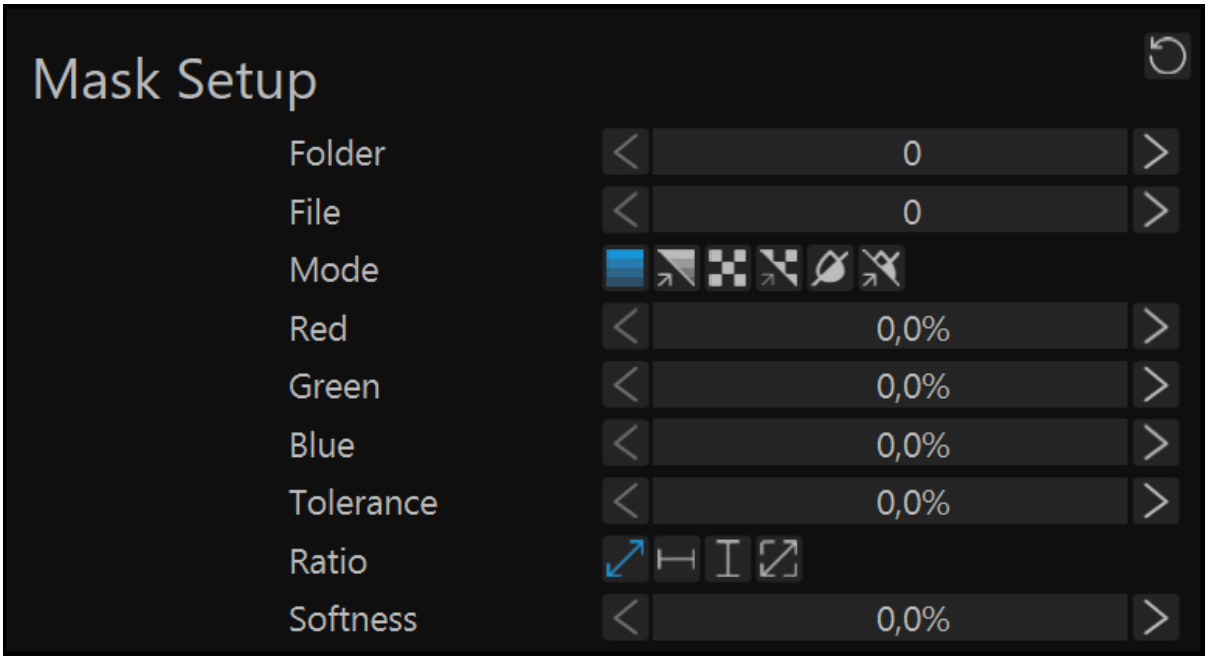
The `Brightness` parameter allows you to modify the brightness of the layer

The `Hue Shift` parameter allows you to shift the hue of the layer

The `Saturation` parameter allows you to modify the saturation of the layer

The `Lightness` parameter allows you to modify the lightness of the layer

Mask Setup



The `Folder` parameter allows you to select the mask folder

The `File` parameter allows you to select the mask file

The `Mode` parameter allows you to select which mask mode to use: `Greyscale` , `Greyscale Inverted` , `Alpha` , `Alpha Inverted` , `Colour` and `Colour Inverted`

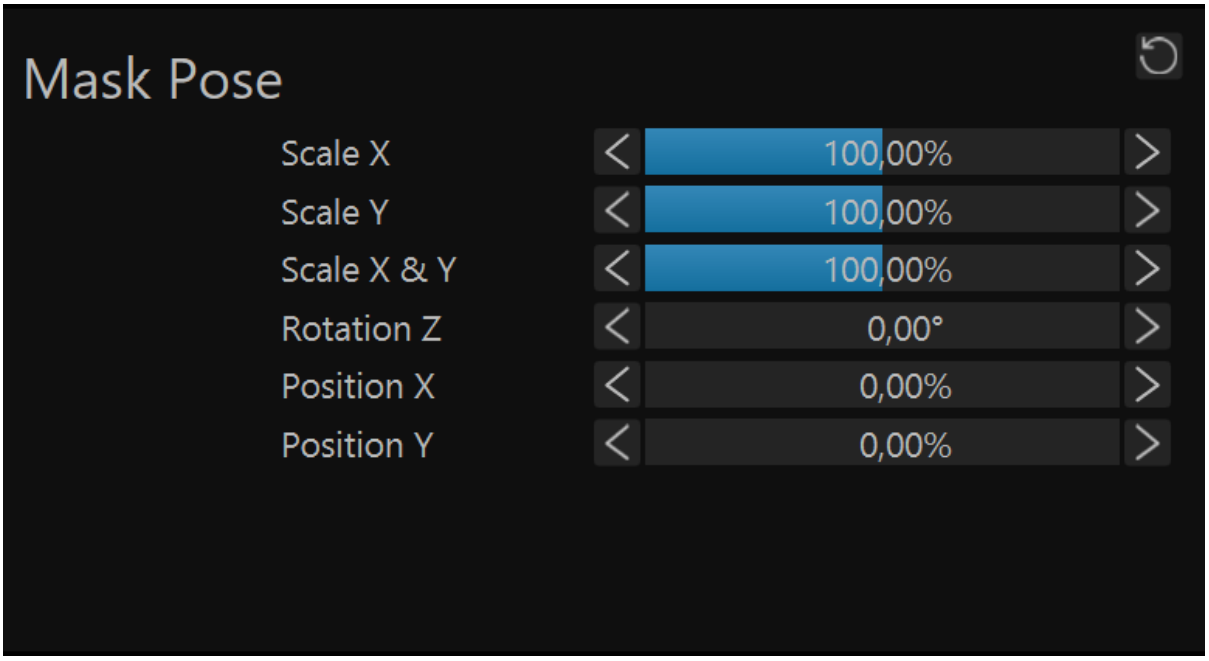
The `Red` , `Green` and `Blue` parameters allow you to select when a colour from the mask will become transparent

The `Tolerance` parameter allows you to set the tolerance for the red, green and blue parameters

The `Ratio` parameter allows you to set the aspect ratio for the mask: `Stretch` , `Fit Width` , `Fit Height` or `1:1`

The `Softness` parameter allows you to select how soft or hard the edges of the mask will be displayed

Mask Pose



The `Scale X` parameter scales the mask over the X axis

The `Scale Y` parameter scales the mask over the Y axis

The `Scale X & Y` parameter scales the mask uniformly over the X and Y axis

The `Position X` parameter moves the mask over the X axis

The `Position Y` parameter moves the mask over the Y axis

The `Rotation Z` parameter rotates the mask over the Z axis

Transition

The transition settings make it possible to have a transition when changing from A stack to B stack.

The `Intensity` parameter allows you to set the intensity

The `Mode` parameter allows you to select which transition mode should be used: Blend, Add, Subtract or Reverse Subtract

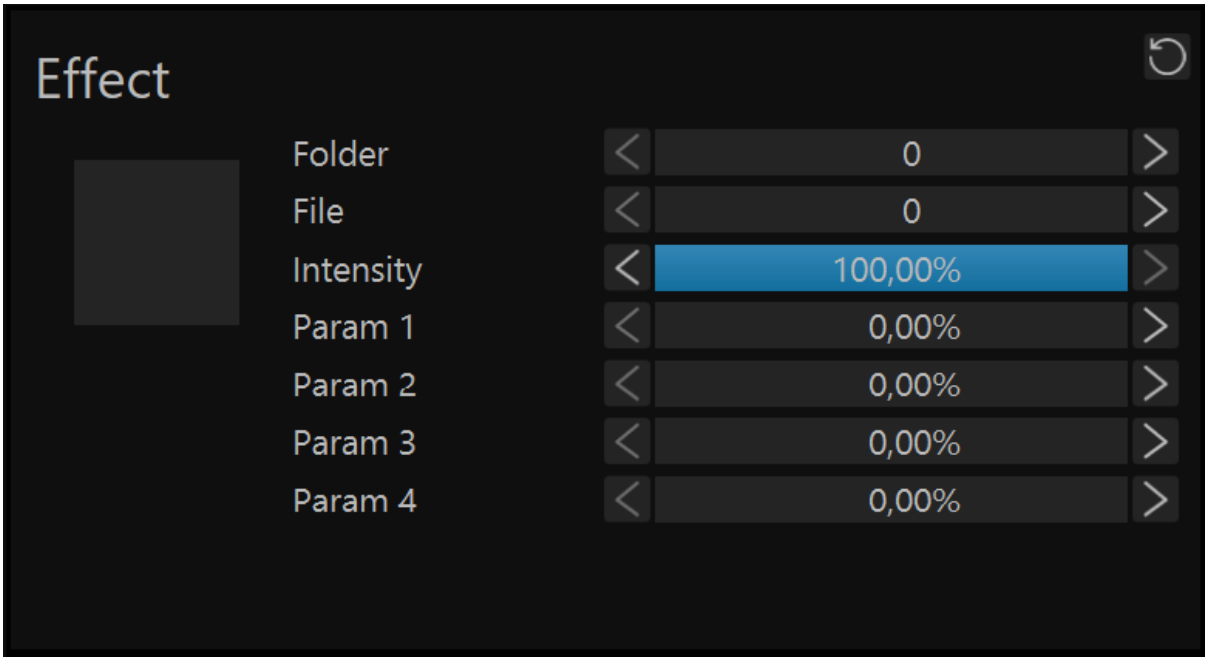
The `Xfade` parameter allows you to do the transition from A stack to B stack

The `Mode` parameter allows you to select which transition should be used: Crossfade, Window Slice, Polka Dots Curtain, Horizontal, Vertical or Angular

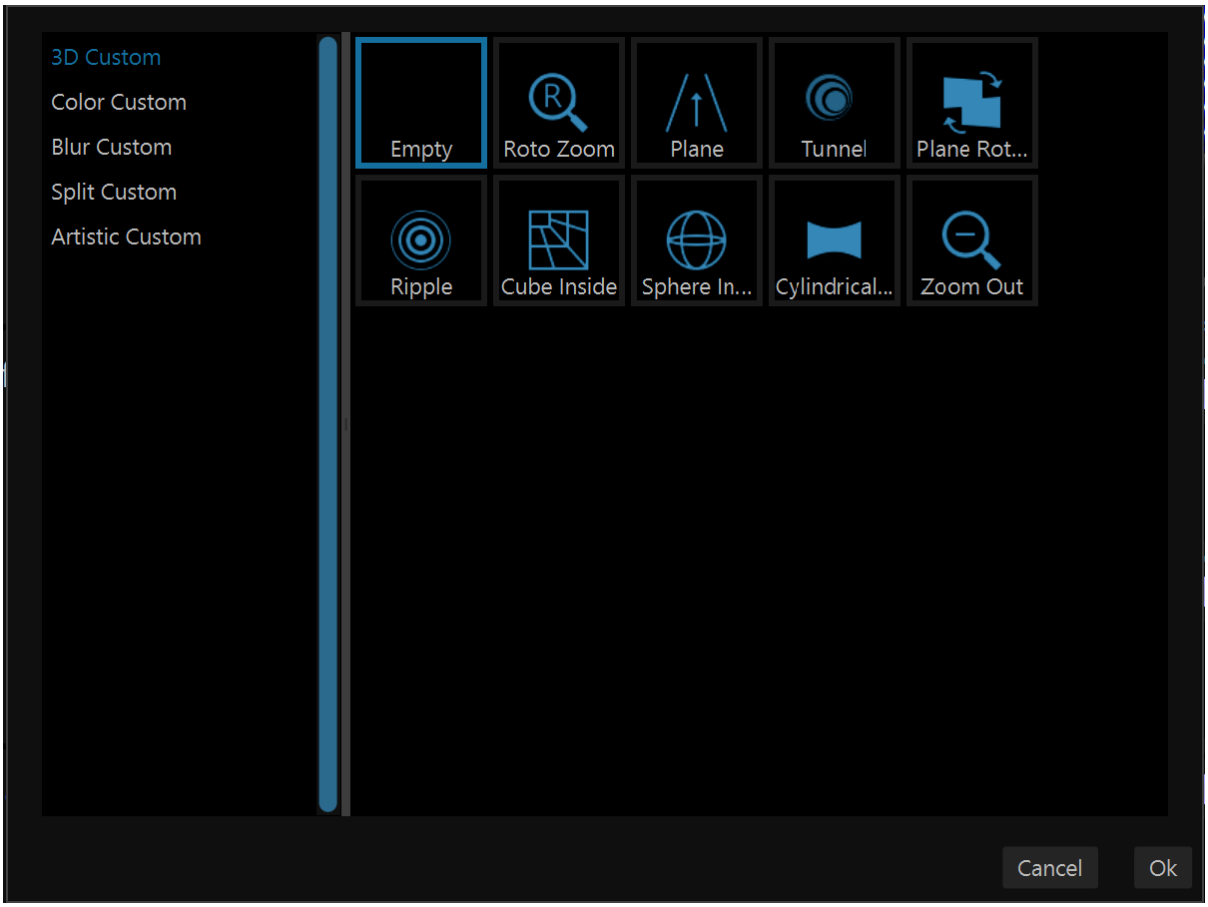
LED Parameters

The different tiles are: Effect, Colour, Mask Setup, Mask Pose, Transition, Gamma and Merger.

Effect



In the effect tile, right below the tile title, you can find the effect picker. If you click there, the effect picker will open.



The effect picker allows you to quickly browse through the effects and select the one you want to use. Select the folder, select the effect and click OK or just double-click the effect to use it onto your layer.

The `Folder` parameter allows you to select the effect folder

The `File` parameter allows you to select the effect file

The `Intensity` parameter allows you to select the intensity of the effect

Parameters 1 to 4 will be different per effect and will allow you to modify some specifics off the effect

Colour

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the layer

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your layer

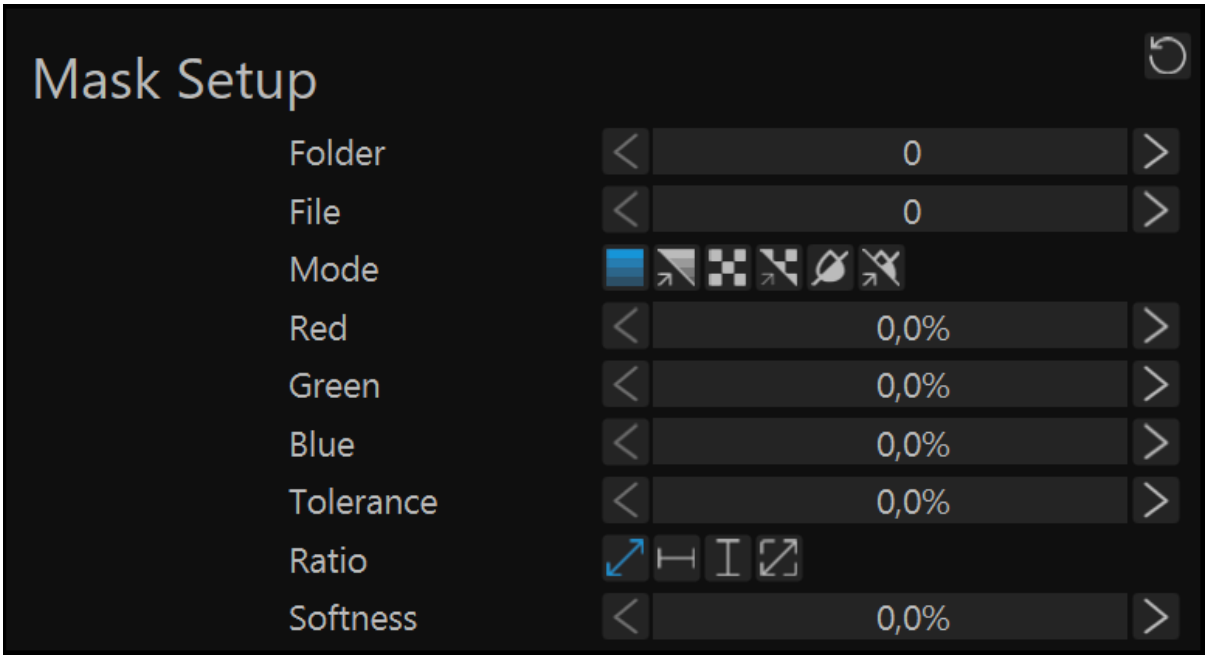
The `Brightness` parameter allows you to modify the brightness of the layer

The `Hue Shift` parameter allows you to shift the hue of the layer

The `Saturation` parameter allows you to modify the saturation of the layer

The `Lightness` parameter allows you to modify the lightness of the layer

Mask Setup



The `Folder` parameter allows you to select the mask folder

The `File` parameter allows you to select the mask file

The `Mode` parameter allows you to select which mask mode to use: `Greyscale` , `Greyscale Inverted` , `Alpha` , `Alpha Inverted` , `Colour` and `Colour Inverted`

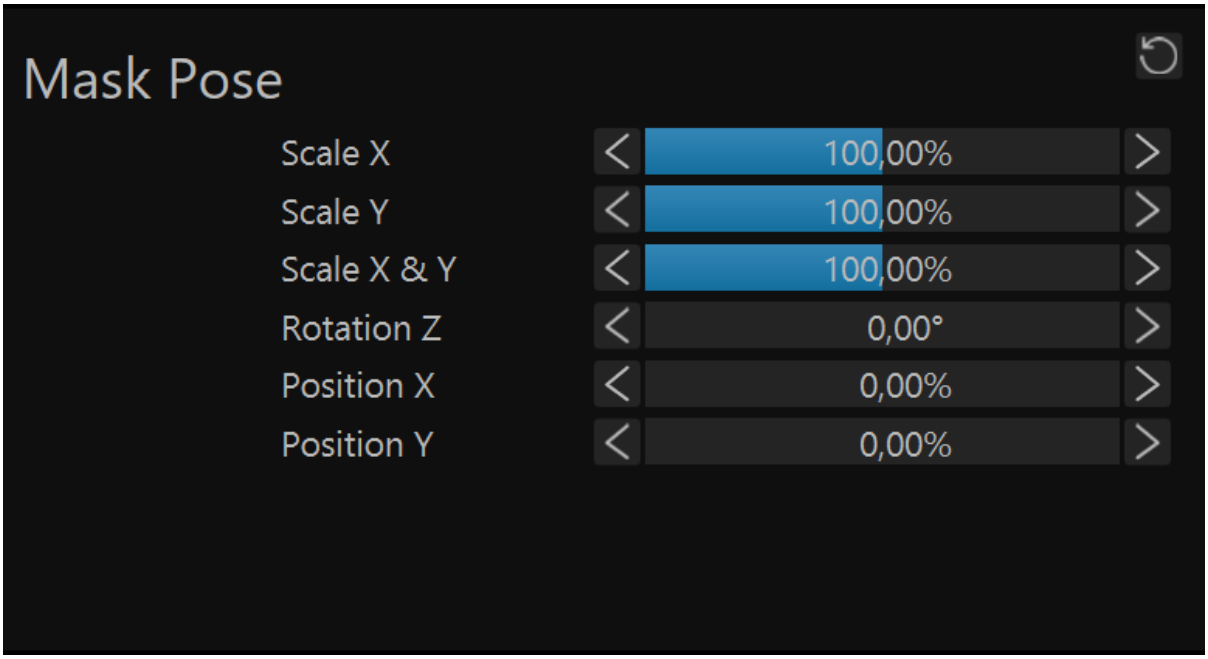
The `Red` , `Green` and `Blue` parameters allow you to select when a colour from the mask will become transparent

The `Tolerance` parameter allows you to set the tolerance for the red, green and blue parameters

The `Ratio` parameter allows you to set the aspect ratio for the mask: `Stretch` , `Fit Width` , `Fit Height` or `1:1`

The `Softness` parameter allows you to select how soft or hard the edges of the mask will be displayed

Mask Pose



The `Scale X` parameter scales the mask over the X axis

The `Scale Y` parameter scales the mask over the Y axis

The `Scale X & Y` parameter scales the mask uniformly over the X and Y axis

The `Position X` parameter moves the mask over the X axis

The `Position Y` parameter moves the mask over the Y axis

The `Rotation Z` parameter rotates the mask over the Z axis

Transition

The transition settings make it possible to have a transition when changing from A stack to B stack.

The `Intensity` parameter allows you to set the intensity

The `Xfade` parameter allows you to do the transition from A stack to B stack

The `Mode` parameter allows you to select which transition should be used: Crossfade, Window Slice, Polka Dots Curtain, Horizontal, Vertical or Angular

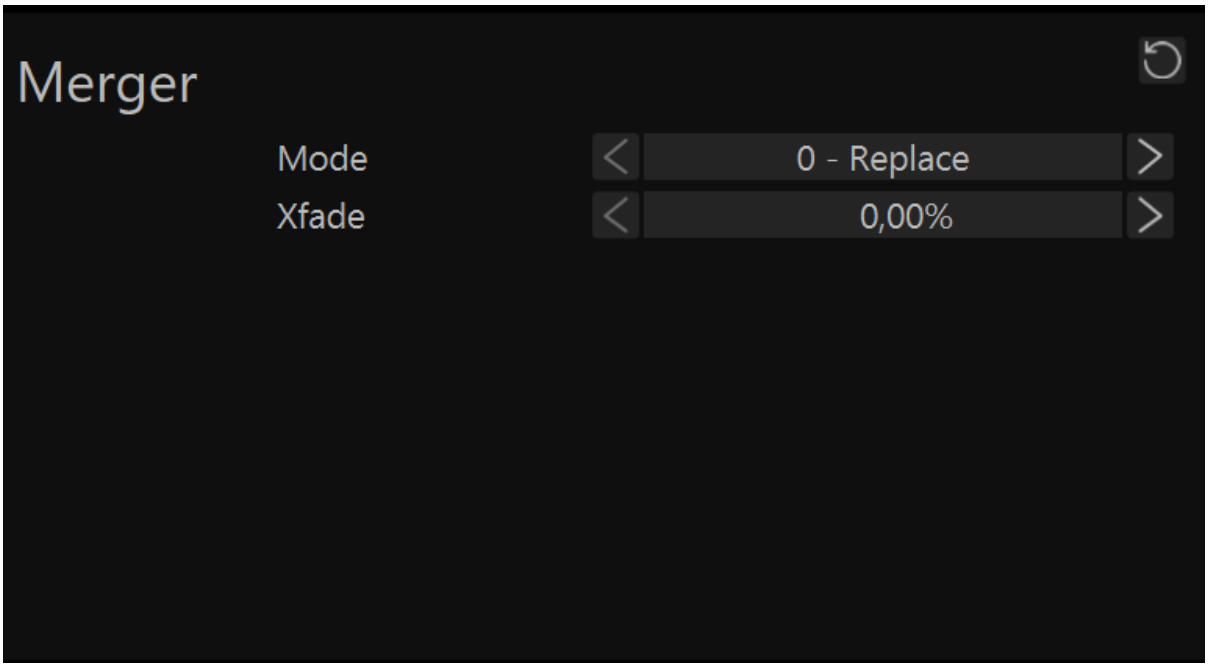
Gamma

The `Red` parameter allows you to adjust the gamma for red

The `Green` parameter allows you to adjust the gamma for green

The `Blue` parameter allows you to adjust the gamma for blue

Merger



The `Mode` parameter allows you to select the merge mode: Replace, Maximum, Minimum, Multiply, Add,

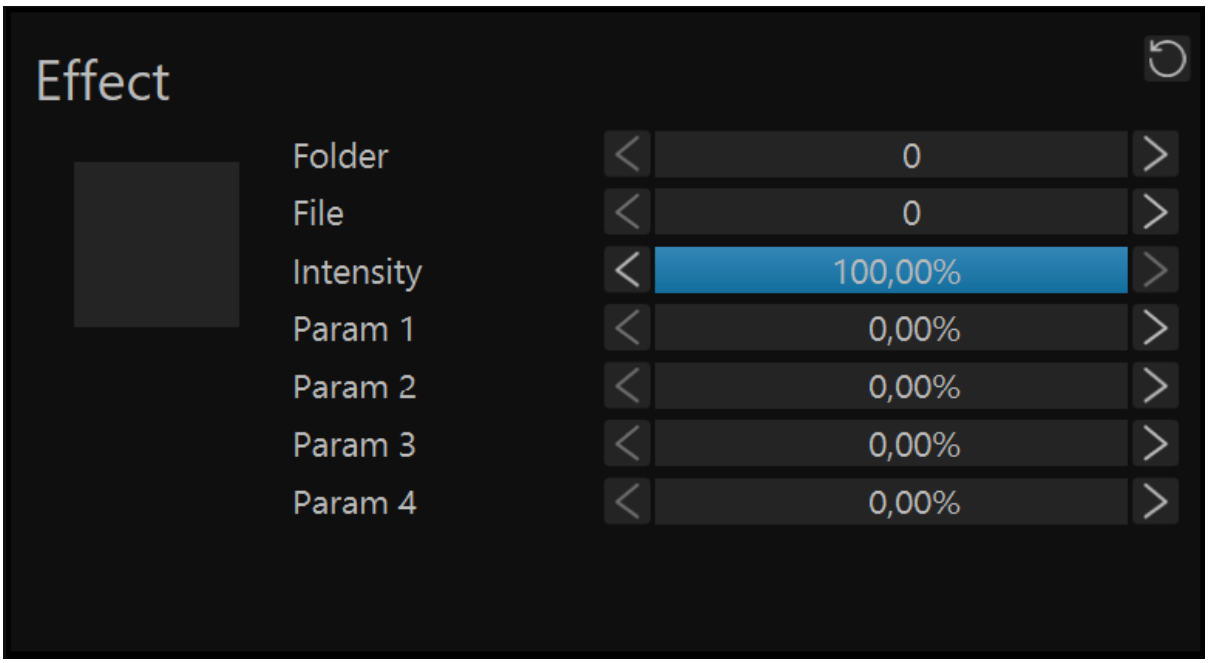
Subtract, Reverse Subtract and Mute

The `Xfade` parameter allows you to do the merging and select between console and MediaMaster

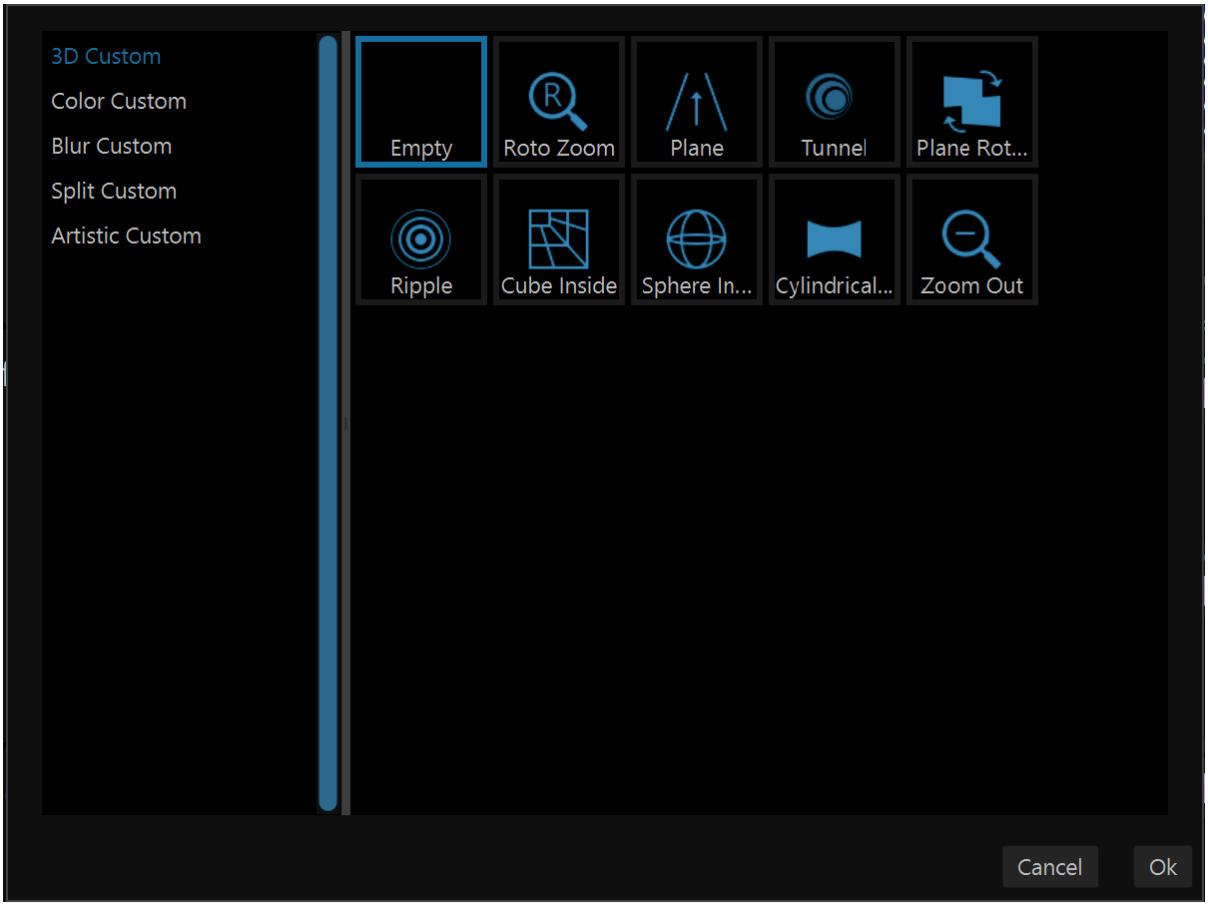
KlingNet Parameters

The different tiles are: Effect, Colour, Mask Setup, Mask Pose, Transition and Gamma.

Effect



In the effect tile, right below the tile title, you can find the effect picker. If you click there, the effect picker will open.



The effect picker allows you to quickly browse through the effects and select the one you want to use. Select the folder, select the effect and click OK or just double-click the effect to use it onto your layer.

The `Folder` parameter allows you to select the effect folder

The `File` parameter allows you to select the effect file

The `Intensity` parameter allows you to select the intensity of the effect

Parameters 1 to 4 will be different per effect and will allow you to modify some specifics off the effect

Colour

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the layer

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your layer

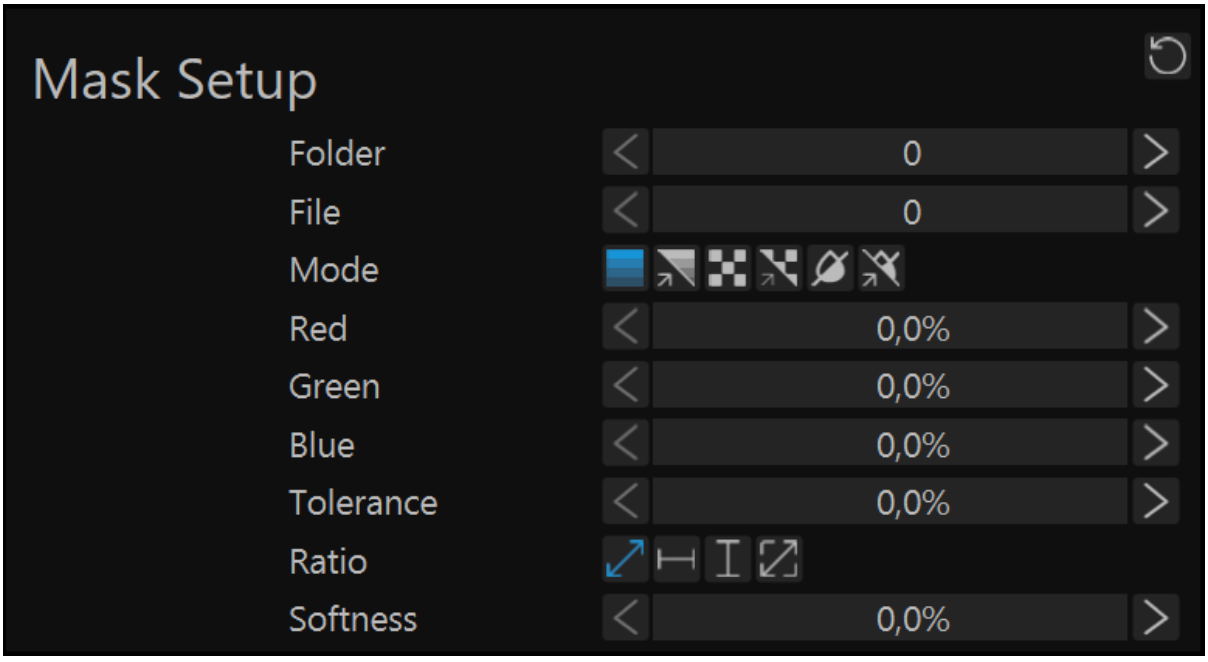
The `Brightness` parameter allows you to modify the brightness of the layer

The `Hue Shift` parameter allows you to shift the hue of the layer

The `Saturation` parameter allows you to modify the saturation of the layer

The `Lightness` parameter allows you to modify the lightness of the layer

Mask Setup



The `Folder` parameter allows you to select the mask folder

The `File` parameter allows you to select the mask file

The `Mode` parameter allows you to select which mask mode to use: `Greyscale` , `Greyscale Inverted` , `Alpha` , `Alpha Inverted` , `Colour` and `Colour Inverted`

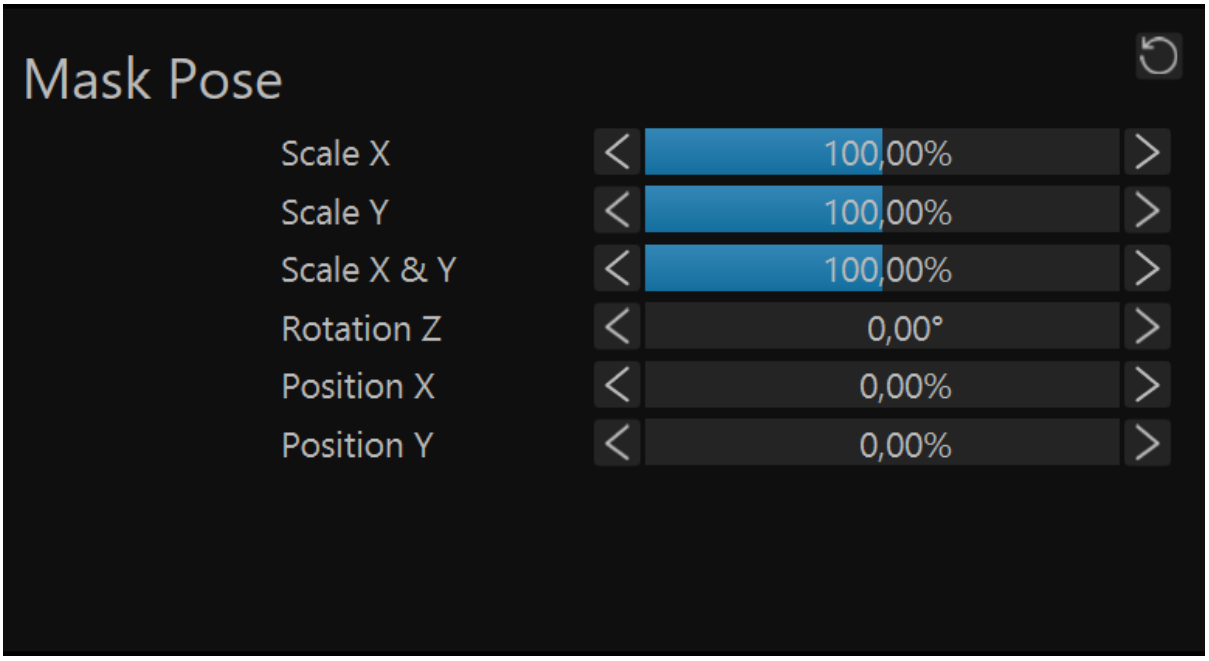
The `Red` , `Green` and `Blue` parameters allow you to select when a colour from the mask will become transparent

The `Tolerance` parameter allows you to set the tolerance for the red, green and blue parameters

The `Ratio` parameter allows you to set the aspect ratio for the mask: `Stretch` , `Fit Width` , `Fit Height` or `1:1`

The `Softness` parameter allows you to select how soft or hard the edges of the mask will be displayed

Mask Pose



The `Scale X` parameter scales the mask over the X axis

The `Scale Y` parameter scales the mask over the Y axis

The `Scale X & Y` parameter scales the mask uniformly over the X and Y axis

The `Position X` parameter moves the mask over the X axis

The `Position Y` parameter moves the mask over the Y axis

The `Rotation Z` parameter rotates the mask over the Z axis

Transition

The transition settings make it possible to have a transition when changing from A stack to B stack.

The `Intensity` parameter allows you to set the intensity

The `Xfade` parameter allows you to do the transition from A stack to B stack

The `Mode` parameter allows you to select which transition should be used: Crossfade, Window Slice, Polka Dots Curtain, Horizontal, Vertical or Angular

Gamma

The `Red` parameter allows you to adjust the gamma for red

The `Green` parameter allows you to adjust the gamma for green

The `Blue` parameter allows you to adjust the gamma for blue

Output Parameters

The different tiles are: Colour, Gamma and Keystone.

Colour

The `Intensity` parameter allows you to modify the intensity of the output

The parameters `Red` , `Green` and `Blue` allow you to boost or decrease that colour in the output

The `Invert` parameter inverts the selected colour channel

The `Contrast` parameter allows you to modify the contrast of your output

The `Brightness` parameter allows you to modify the brightness of the output

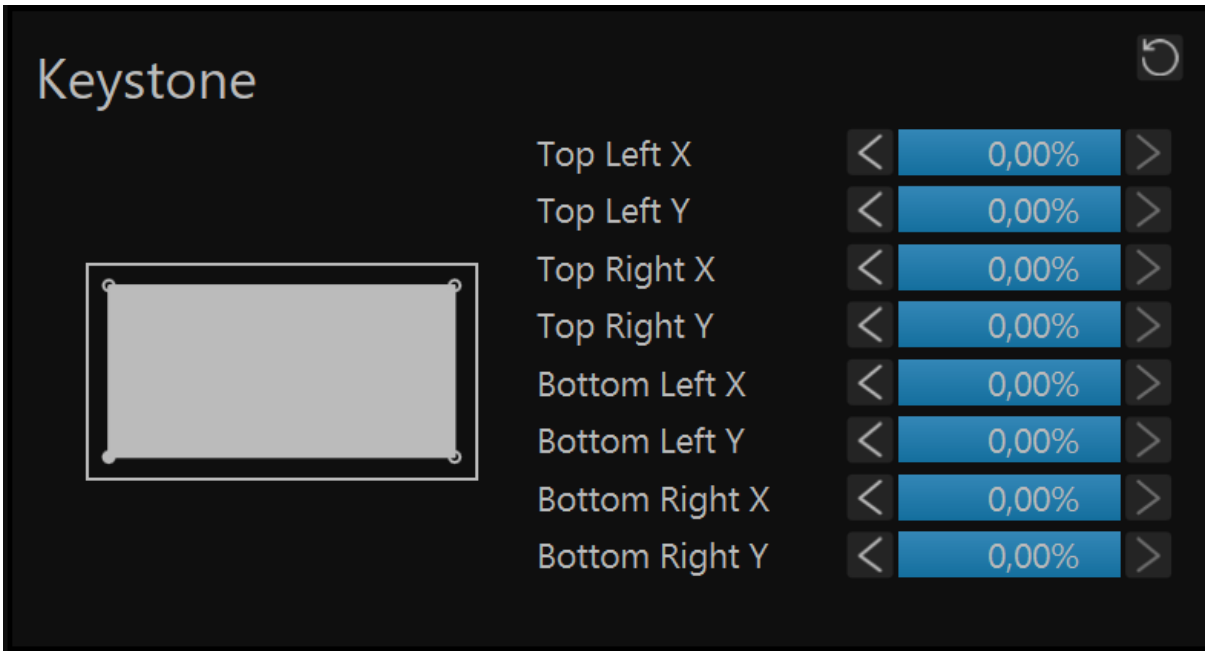
Gamma

The `Red` parameter allows you to adjust the gamma for red

The `Green` parameter allows you to adjust the gamma for green

The `Blue` parameter allows you to adjust the gamma for blue

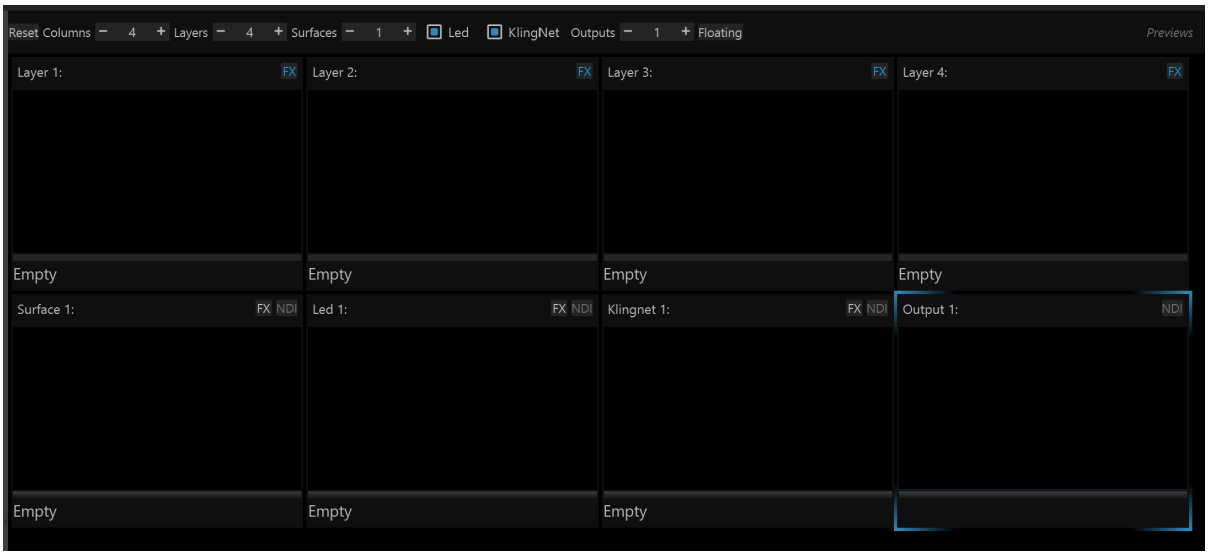
Keystone



If you are using a projector as output you can use these keystone parameters to do some basic keystone correction.

Previews Panel

Previews Panel

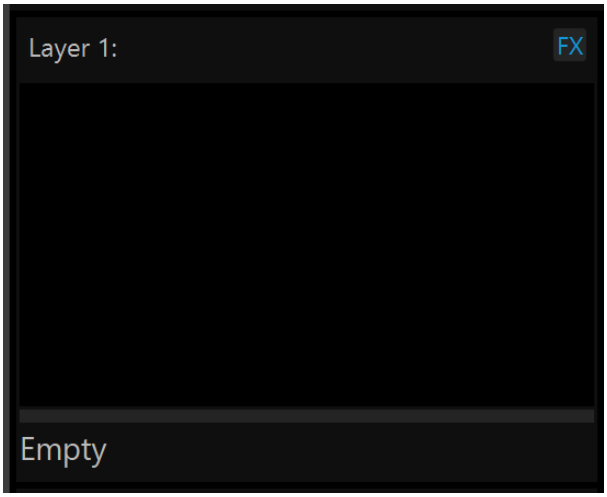


There are multiple preview types available

- Layer preview

- Surface preview
- LED preview
- Kling-Net preview
- Output preview

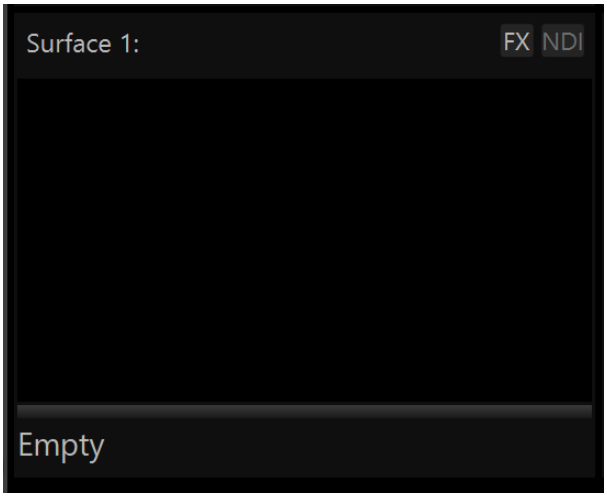
Layer Preview



The layer preview will let you select that layer and show you it's preview. In MediaMaster Core you can use up to 12 layers, in MediaMaster pro you can use up to 48 layers. You can add or remove layer previews as you like. This allows you to only show the number of previews you actually use.

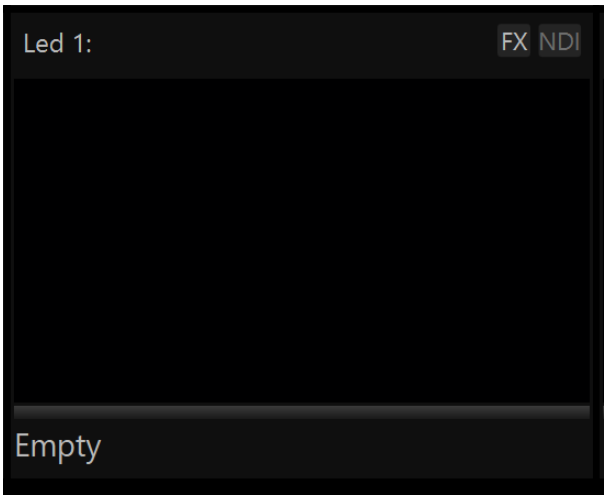
Below the preview you can see an R: with some numbers. This is the remaining time of the content currently playing in that layer. If you click on the R: it will change to an E: which shows you the elapsed time of the content currently playing.

Surface Preview



The surface preview shows you the preview of a specific surface. A surface is created in the video mapper and is used to send content to an output. We will discuss this in great detail in the video mapper section. In the video mapper you can create up to 200 surfaces. You can add or remove surface previews as you like. This allows you to only show the number of previews you actually use.

LED Preview



The LED preview shows you a preview of what is sent from the LED mapper.

Kling-Net Preview

The Kling-Net preview shows you a preview of what is sent from the Kling-Net mapper.

Output Preview

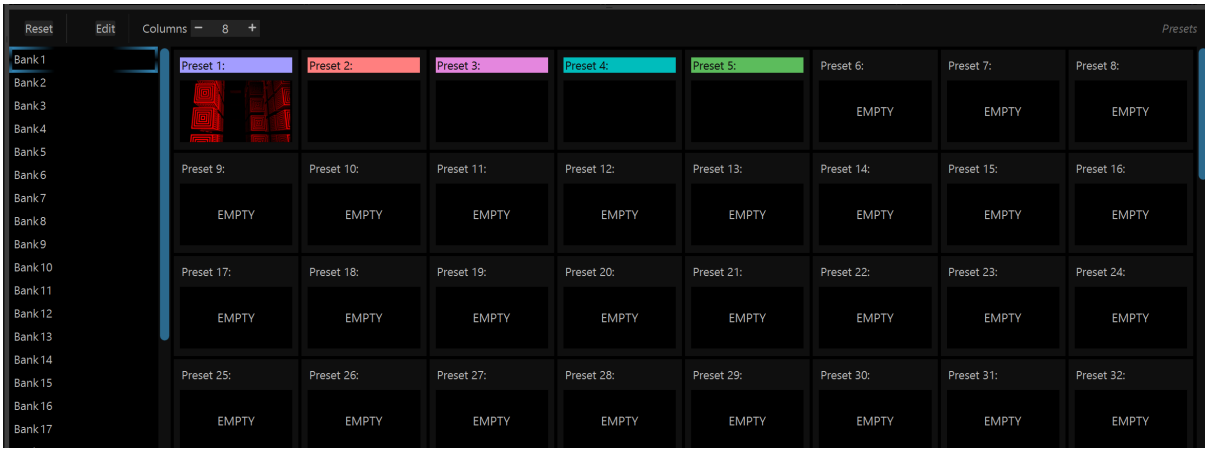
The output preview shows you the preview of that output. If your hardware has multiple outputs, then you can add or remove output previews. This allows you to show the number of outputs you actually

use.

Users can also activate Live Mode to view the output preview. This is enabled either by clicking the "Live" toggle button in the top right or by using the shortcut "Ctrl + L" or "Ctrl + F".

Presets Panel

Presets Panel

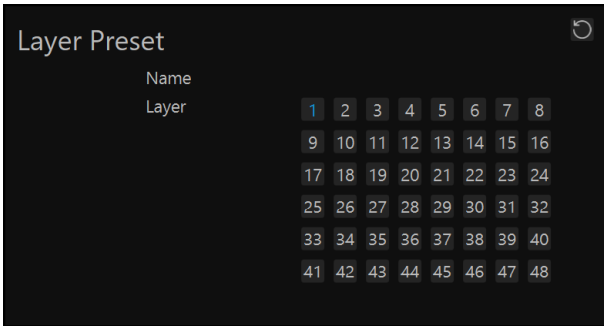


In the presets panel you can create presets for layers, surfaces, LED, KlingNet and outputs.

To edit the presets you need to click the `Edit` button on the left side of the Presets panel menu bar. The background of the presets will change to blue to indicate that you are in edit mode.

Layer Preset

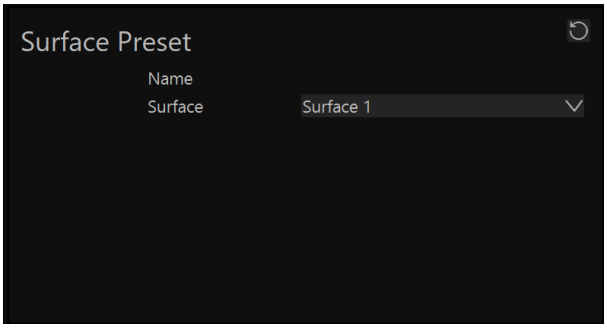
A layer preset will provide you all the parameters for a layer plus one extra tile that allows you to select to which layer this preset is assigned.



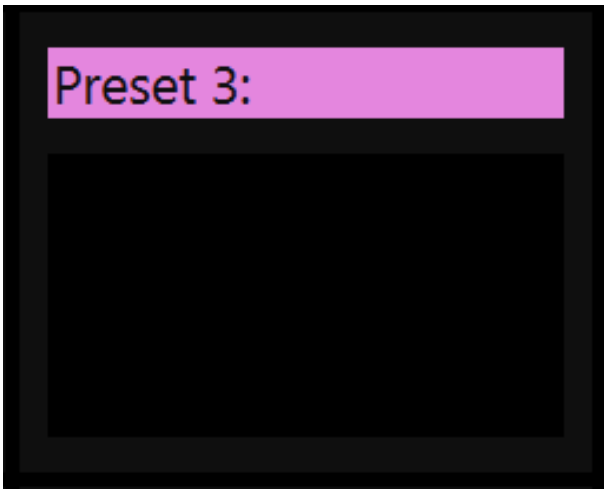
You can assign a preset to more then one layer.

Surface Preset

A surface preset will provide you all the parameters for a surface plus one extra tile that allows you to select to which surface this preset is assigned.

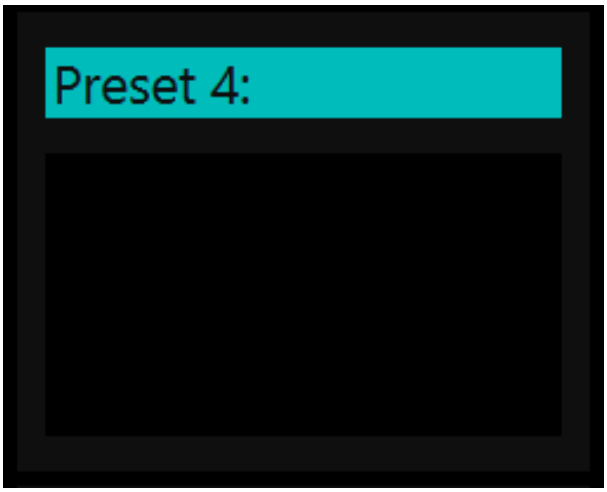


LED Preset



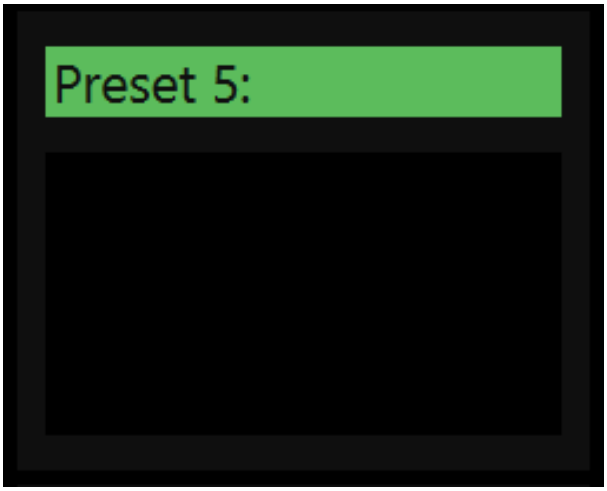
A LED preset will provide you all the parameters for a LED.

KlingNet Preset



A KlingNet preset will provide you all the parameters for KlingNet.

Output Preset

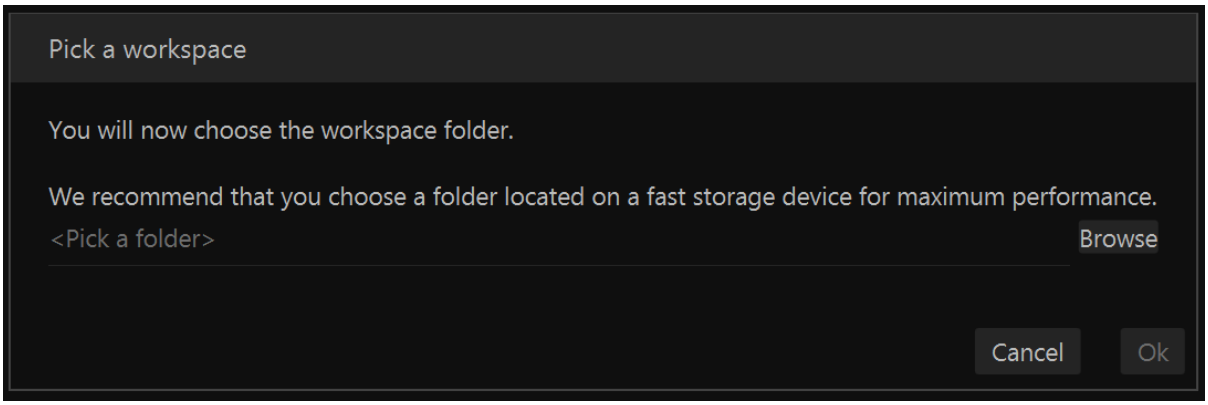


An output preset will provide you all the parameters for an output.

Application Menu

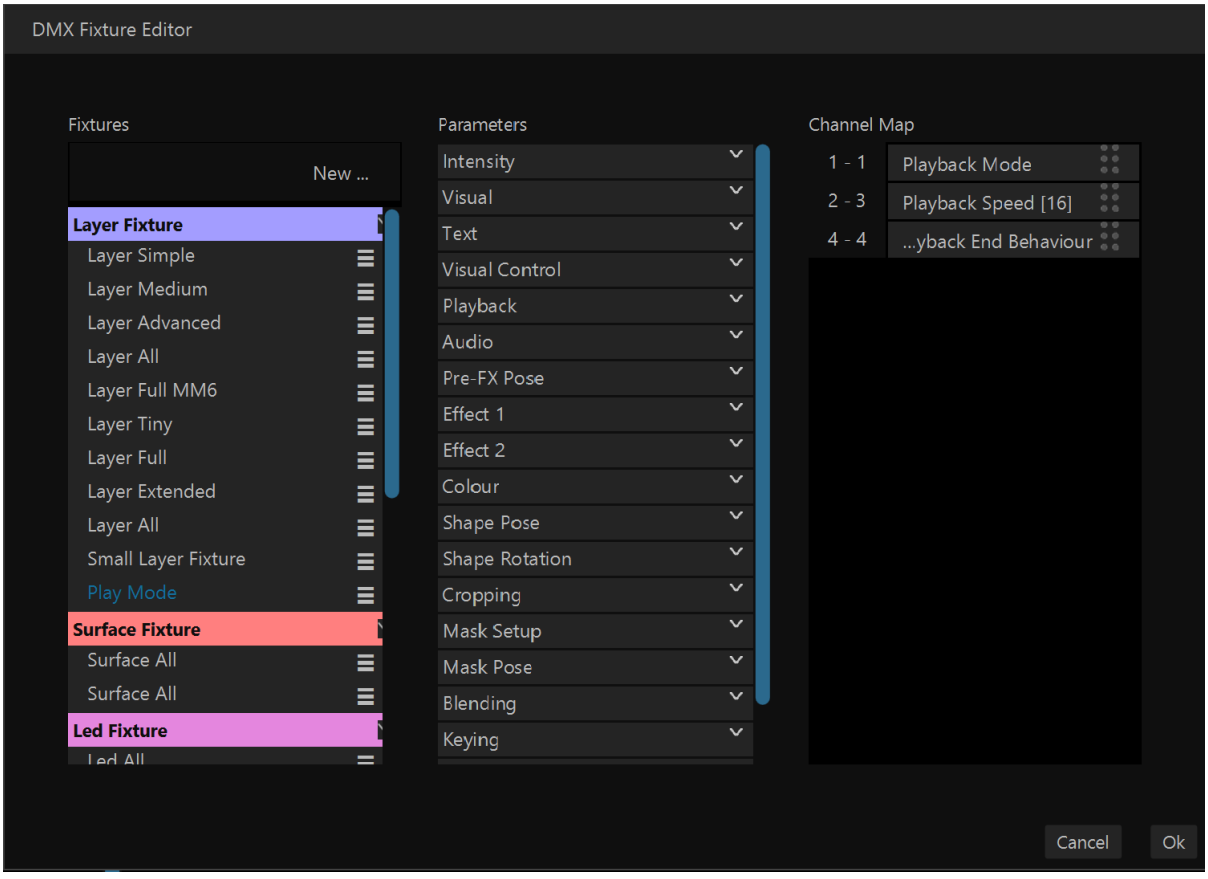
File Menu

Open Workspace

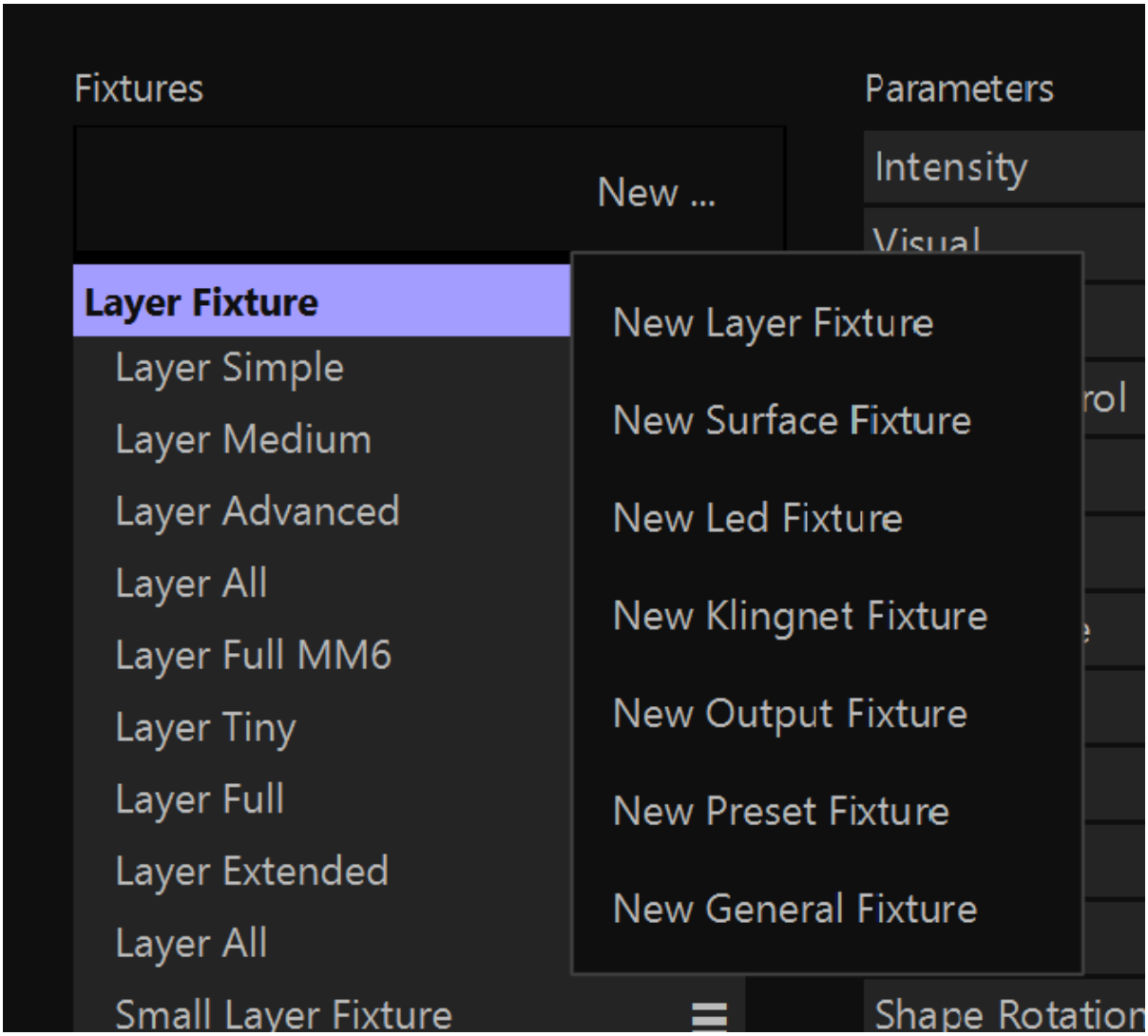


On start-up of the application, here is where you can open your workspace. Normally this will open automatically.

DMX Fixture Editor



This will open the DMX Fixture Editor where you can find some default fixtures but where you can also create your own fixtures.



When you click the `New ⋯` button in the Fixtures column, you can select what fixture you want to create.

You can then give your new fixture a name and assign parameters to it.

When done you can export your newly created fixture to GDTF so you can import it in your DMX console.

Workspace Manager

Here you can open the Workspace Manager.

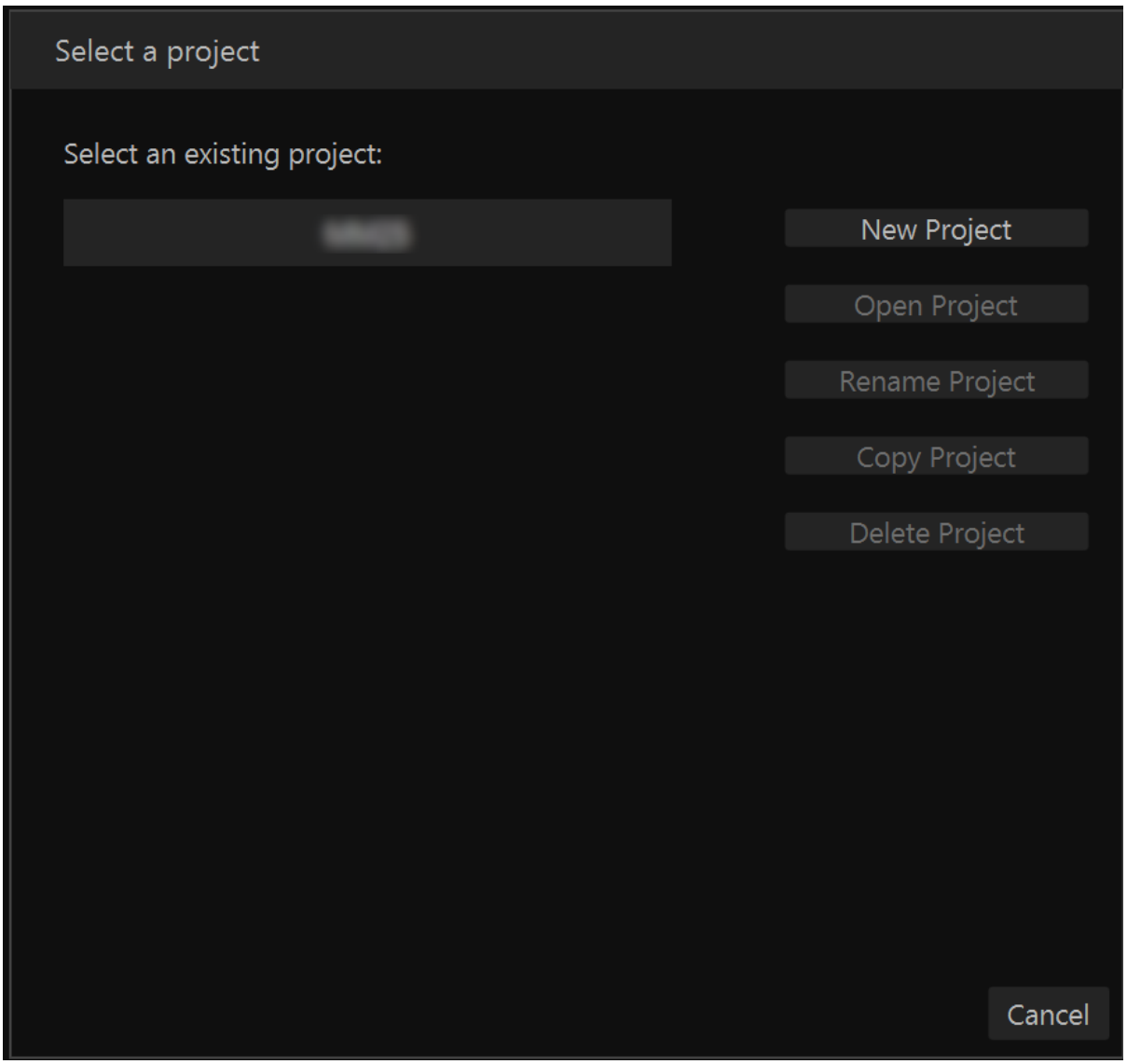
More info on the Workspace Manager can be found here.

Quit

If you select this the application will close.

Project Menu

Open Project

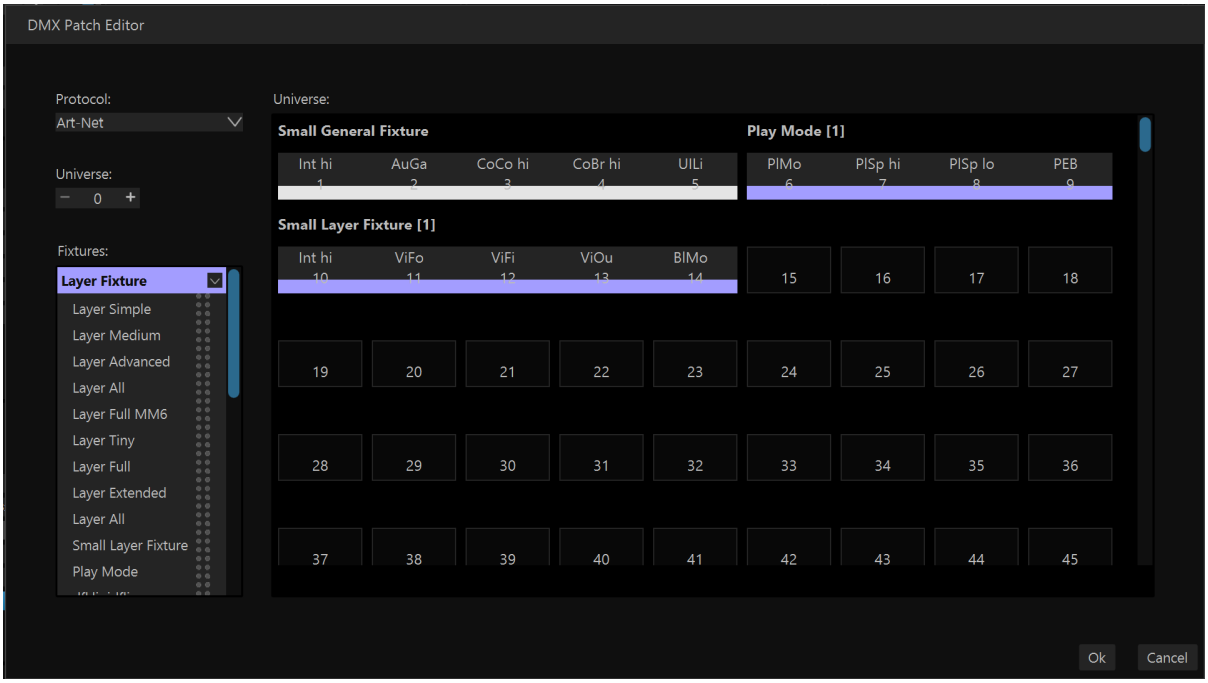


This will open the Project window where you can create, open, rename, copy or delete a project. This window should open automatically when you loaded your workspace.

Close Project

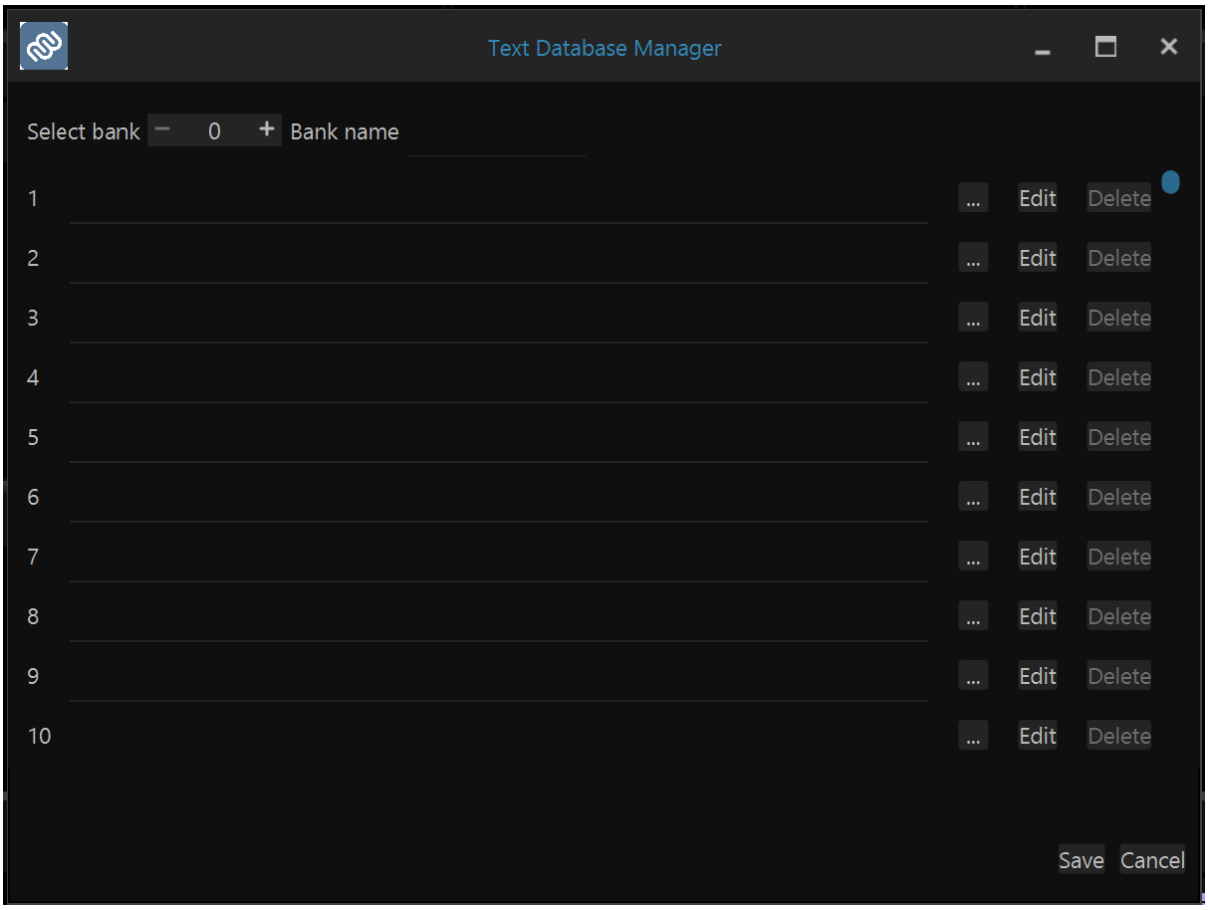
This option will close the current project.

DMX Patch Editor



This will open the DMX Patch Editor that allows you to patch the fixtures for the selected protocol.

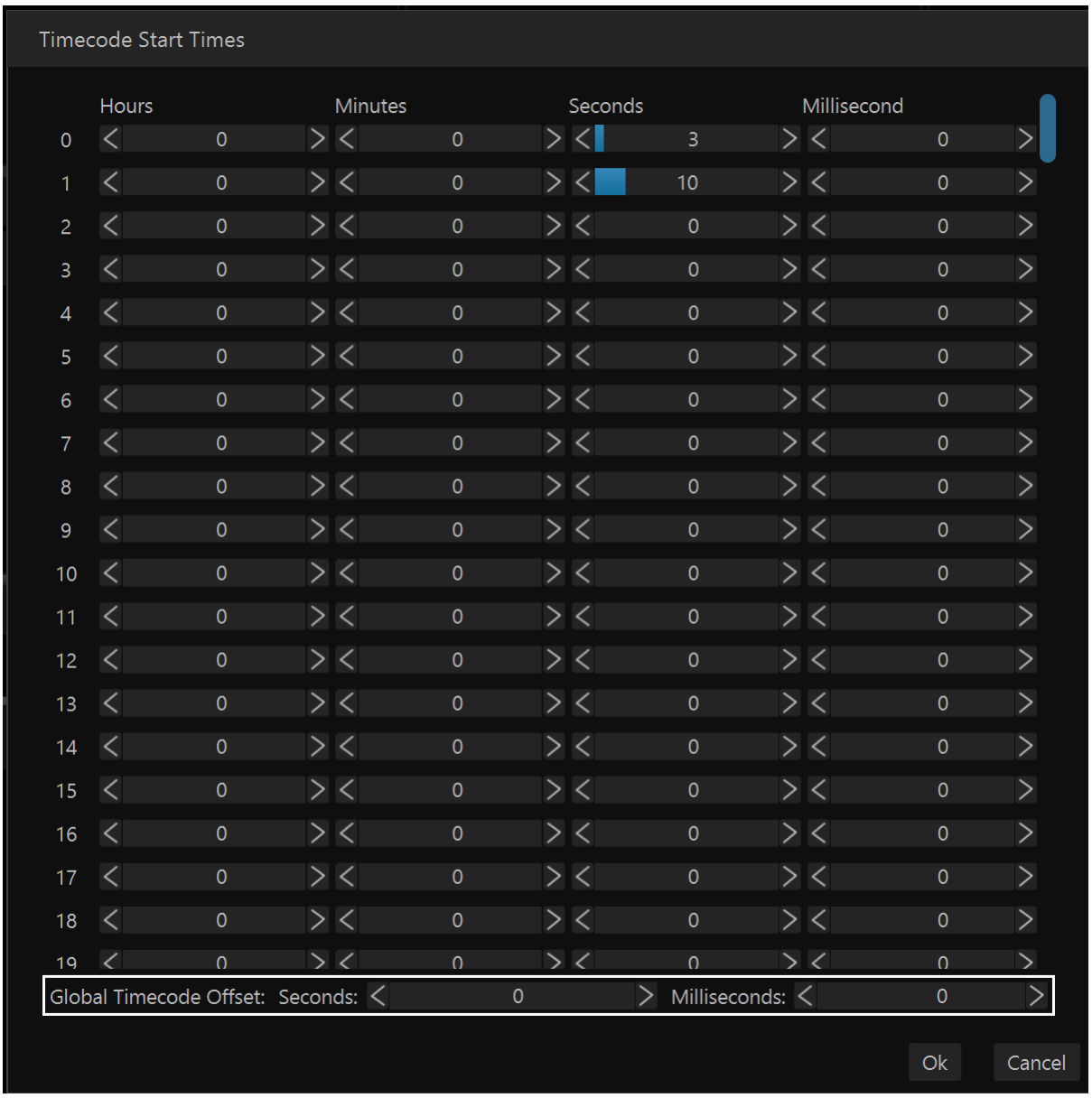
Text Editor



This will open the Text editor.

More information on the Text editor can be found here.

Time Code Offset Editor



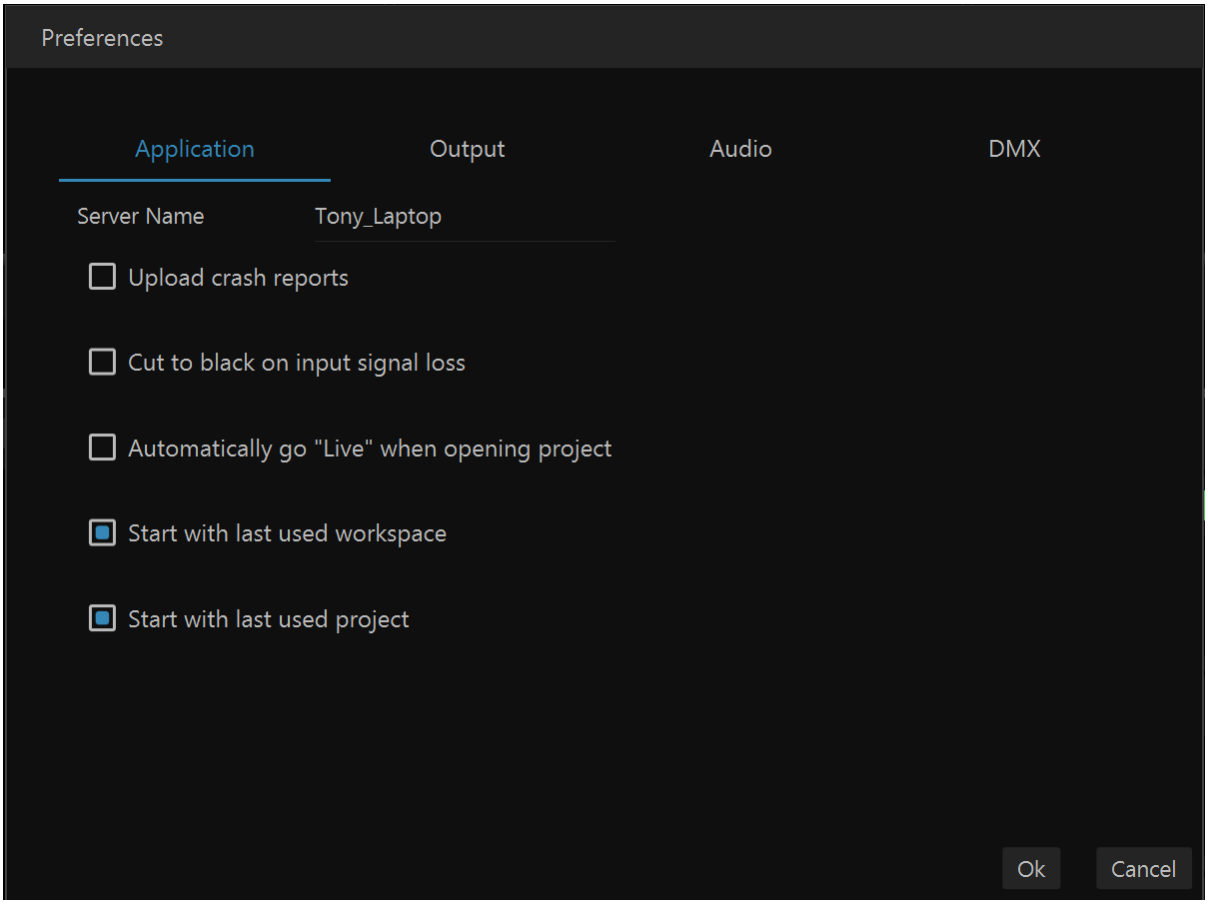
This will open the time Code Offset Editor.

More information can be found here.

Preferences

This will open the preferences window. This window consists of four tabs: Application, Output, Audio and DMX.

Application Tab



The `Server Name` option allows you to specify the MediaMaster server name.

If you select the `Upload crash reports` check box, crash reports are automatically uploaded in case of a crash.

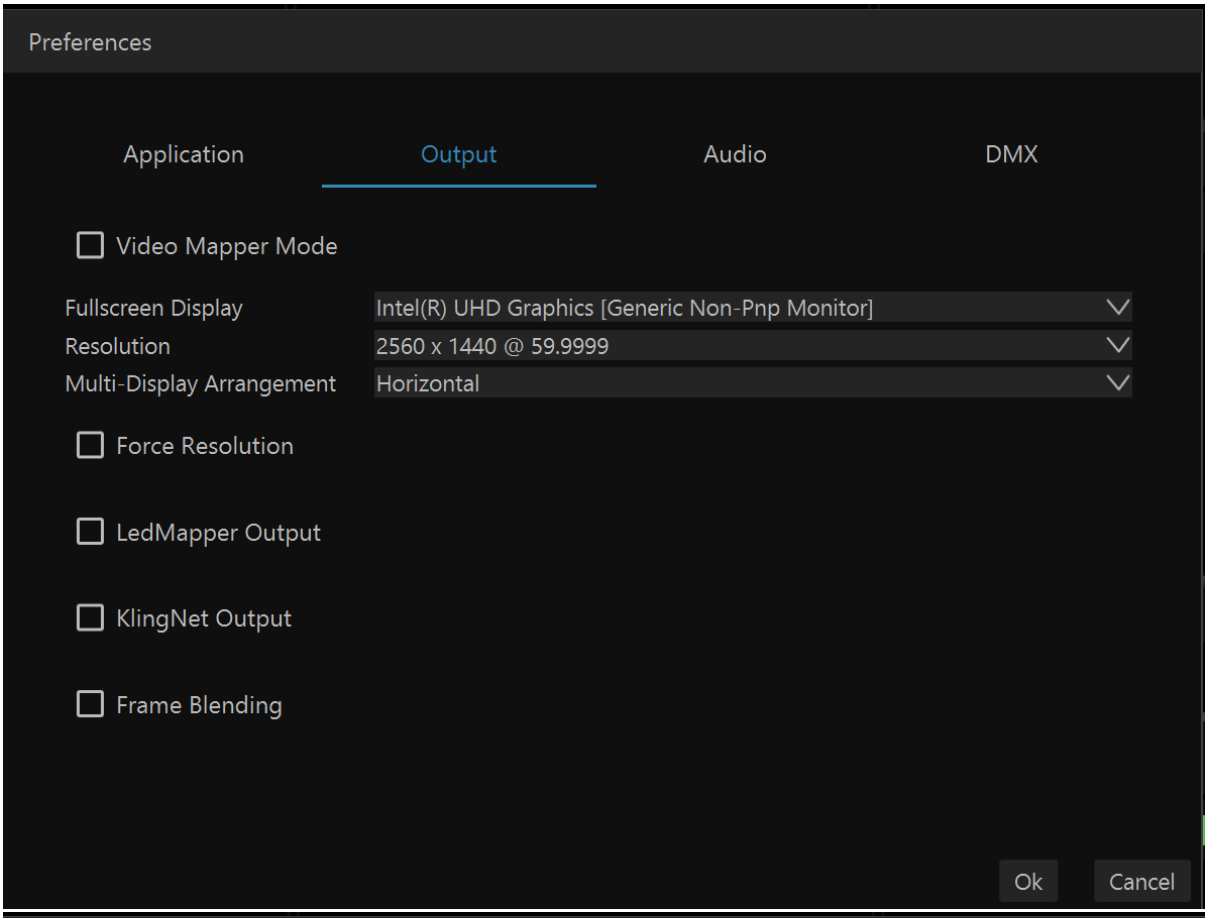
If you select the `Cut to black on signal loss` option, the layer will go to black when an input source is playing on it and the input signal is lost.

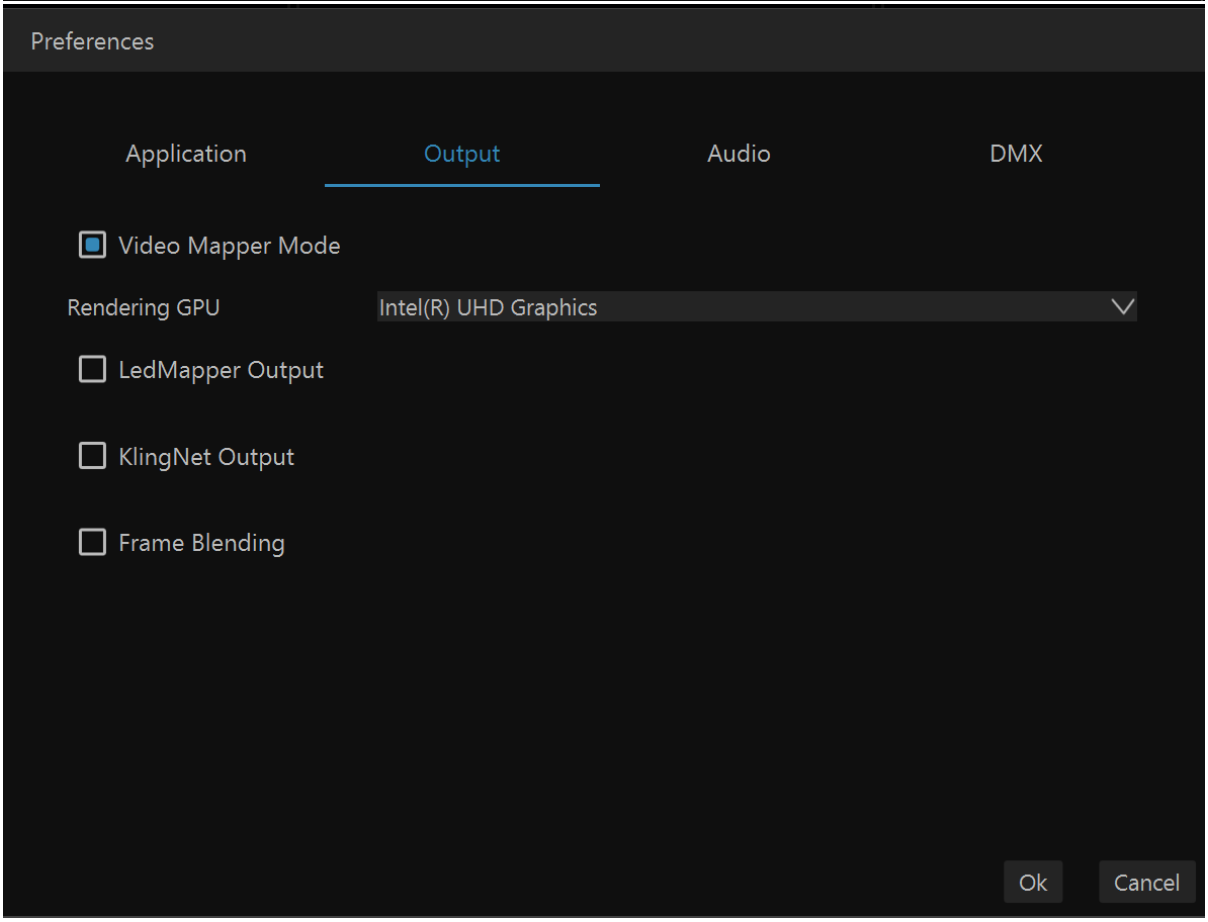
The `Automatically go /"Live/" when opening project` option will activate "Live" on start-up when selected.

The `Start with last used workspace` option will automatically open the last used workspace on Application start-up when selected.

The `Start with last used project` option will automatically open the last used project when a workspace is opened.

Output Tab





If you have a MediaMaster Core version you will not have the option to activate `Video Mapper Mode`.

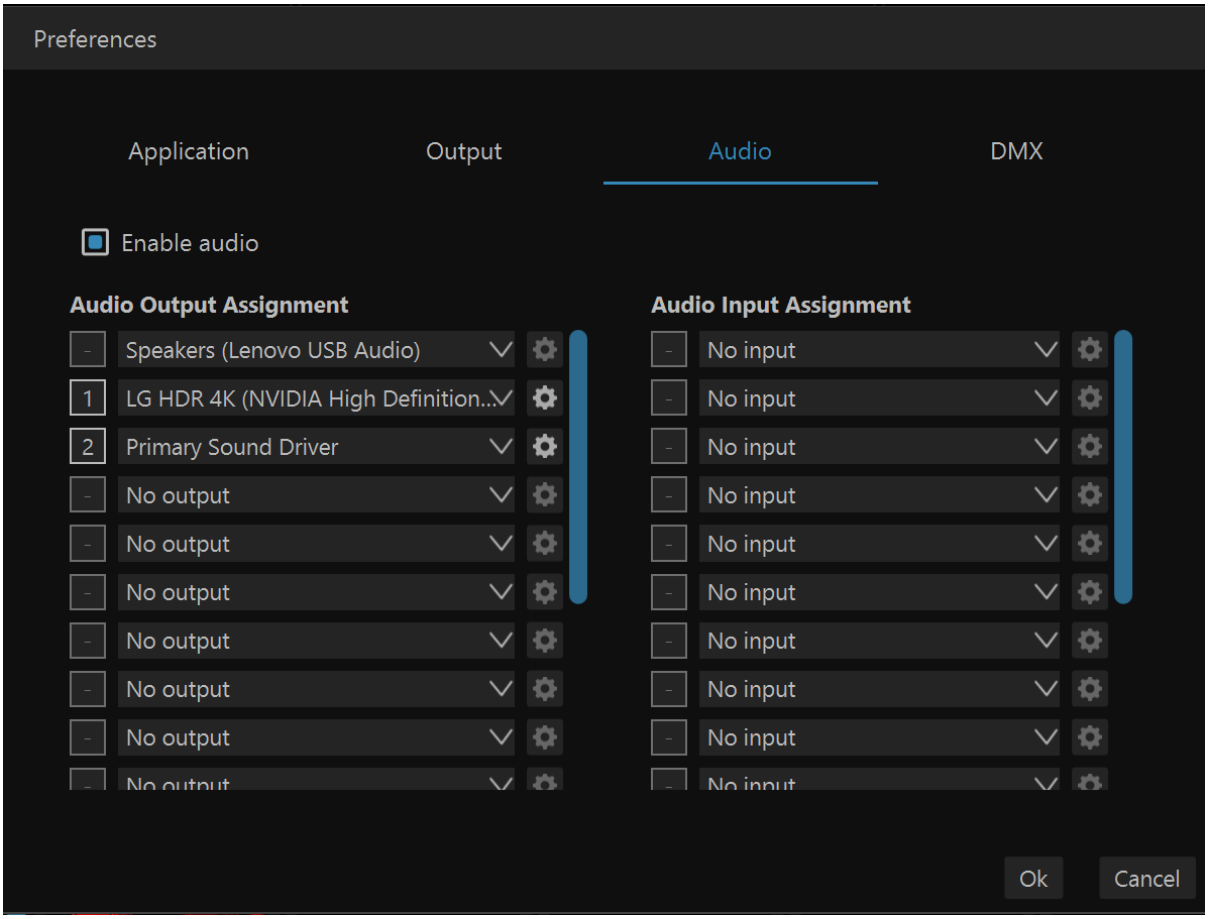
The `Force Resolution` option allows you to force the chosen resolution to your output.

The `LED Mapper Output` option allows you to activate the LED Mapper.

The `KlingNet Output` option allows you to activate the KlingNet Mapper.

The `Frame Blending`option allows you to activate frame blending which is a video editing technique that creates smoother motion, especially for slow-motion or when changing frame rates, by automatically generating new, in-between frames that are composites (fades/mixes) of two original, adjacent frames, reducing choppiness but sometimes causing ghosting or blur.

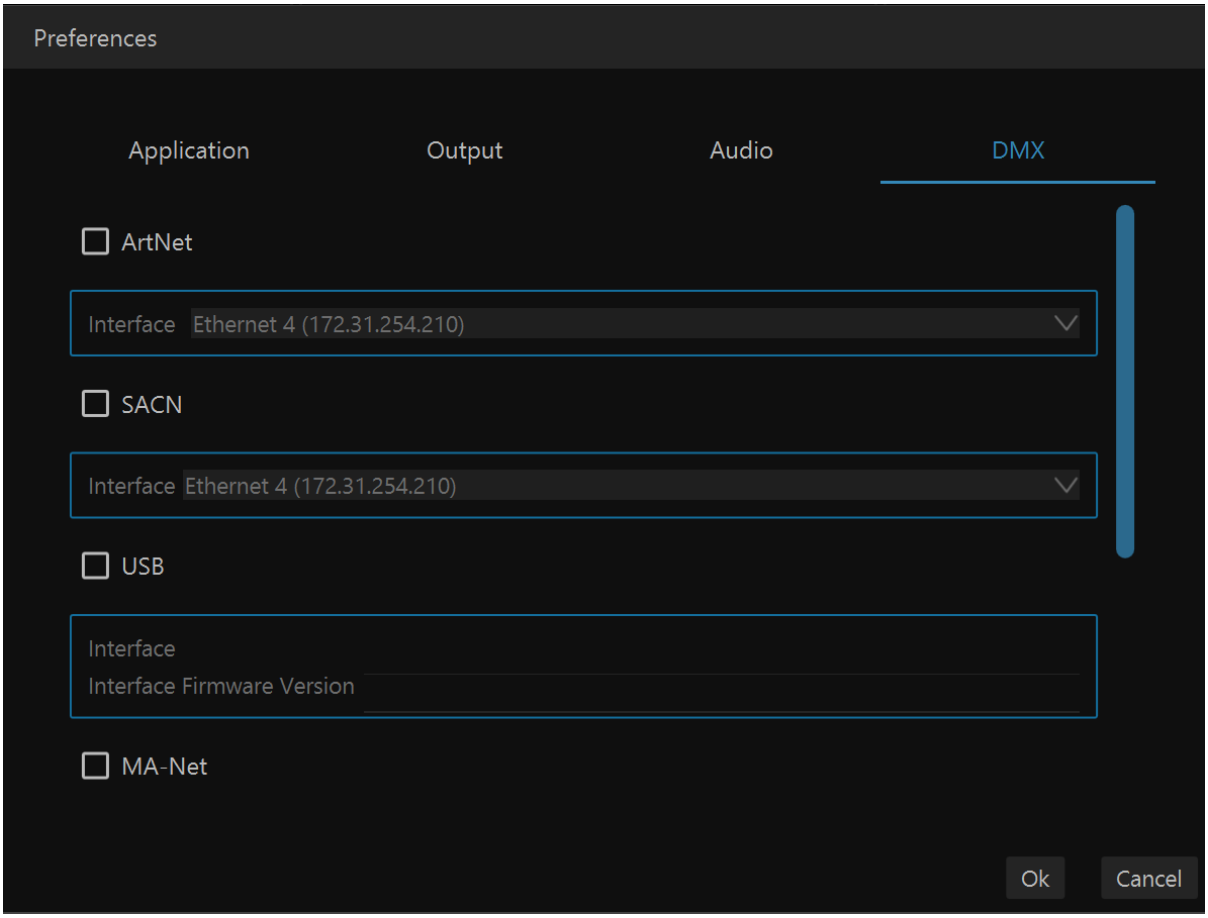
Audio Tab



The `Enable Audio` option allows you to enable the audio engine. By default, audio is disabled.

Once enable you can select your audio outputs and inputs and define the channels and sample rate for them.

DMX Tab



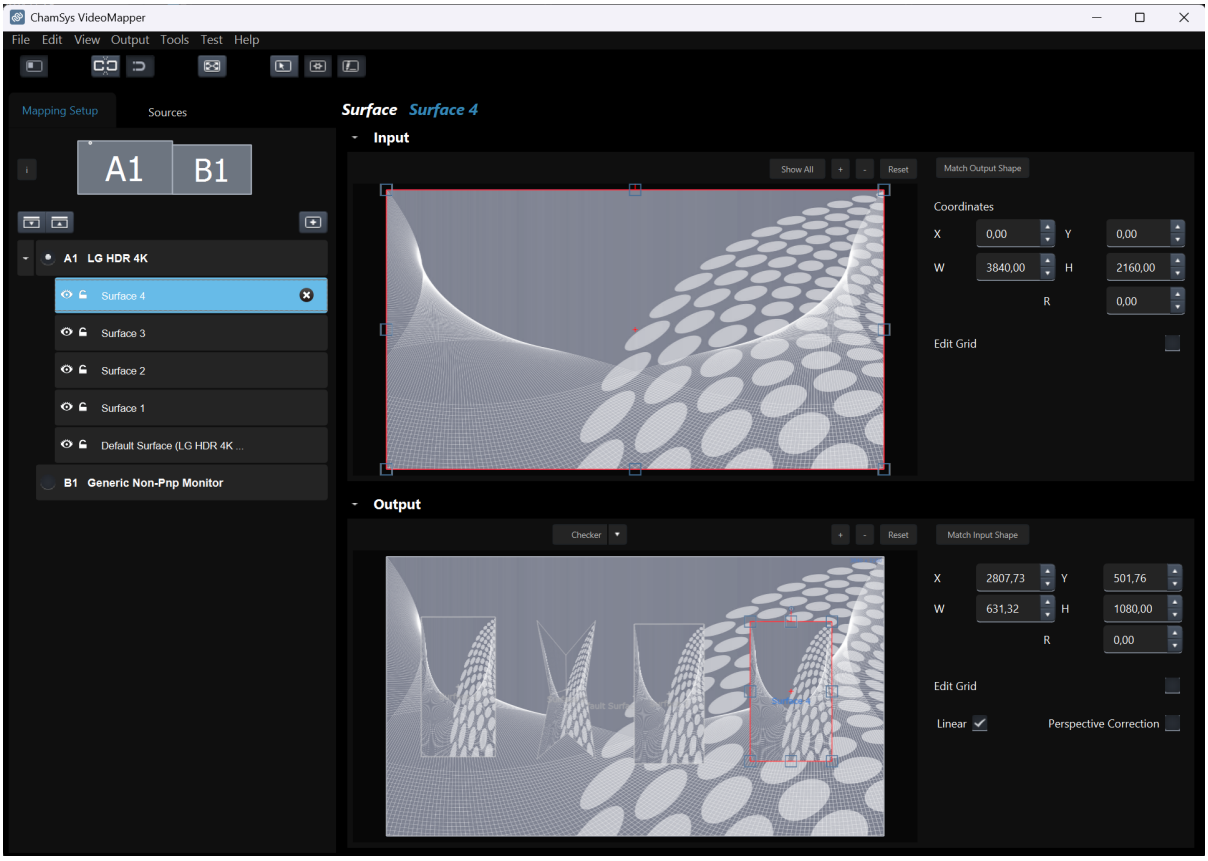
The DMX tab allows you to activate and configure the different DMX protocols and CITP

Show Mapping Information

The `Show MappingInformation` option allows you to show what parameter is mapped to which protocol, universe and channel.

Mapping Menu

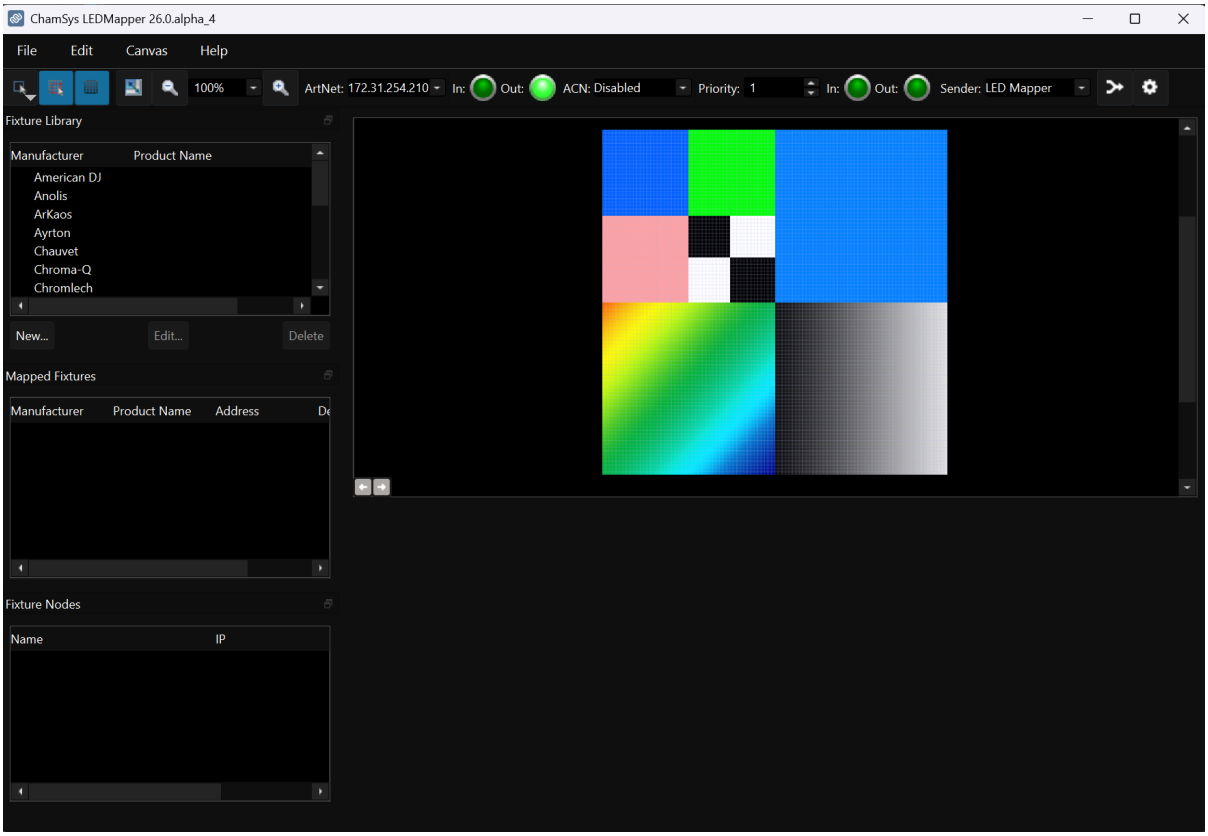
Video Mapper



This menu option opens the Video Mapper. (MediaMaster Pro feature)

More info on the video mapper can be found here.

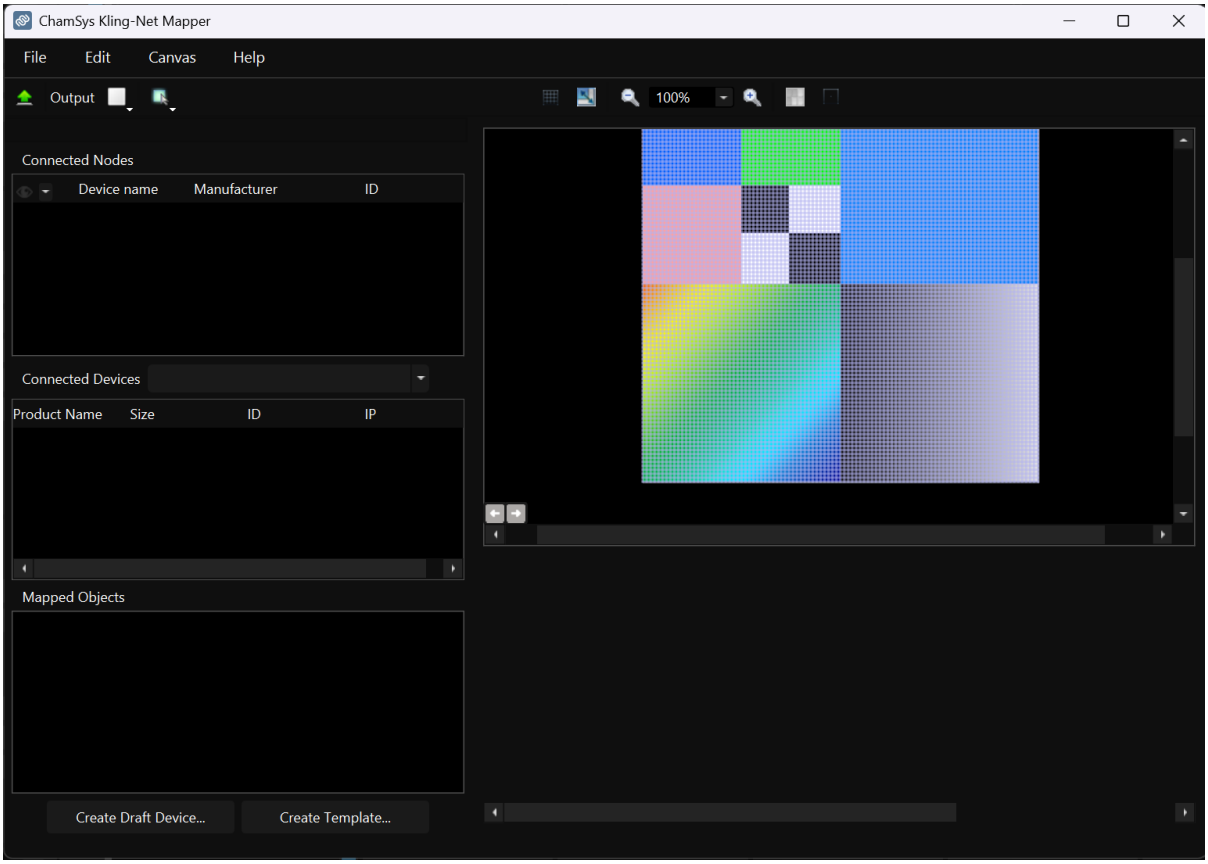
LED Mapper



This menu option opens the LED Mapper.

More info on the LED mapper can be found here.

KlingNet Mapper

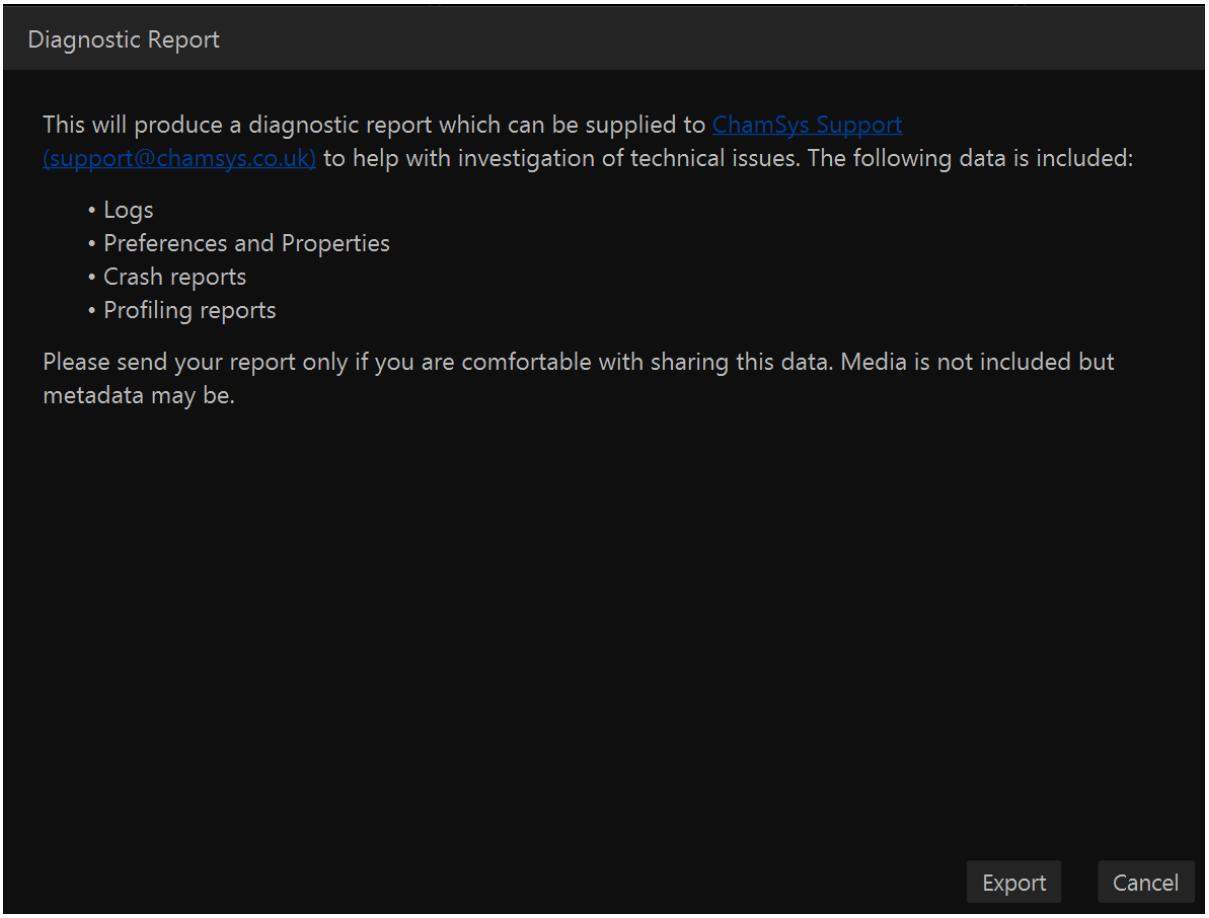


This menu option opens the KlingNet Mapper.

More info on the KlingNet mapper can be found here.

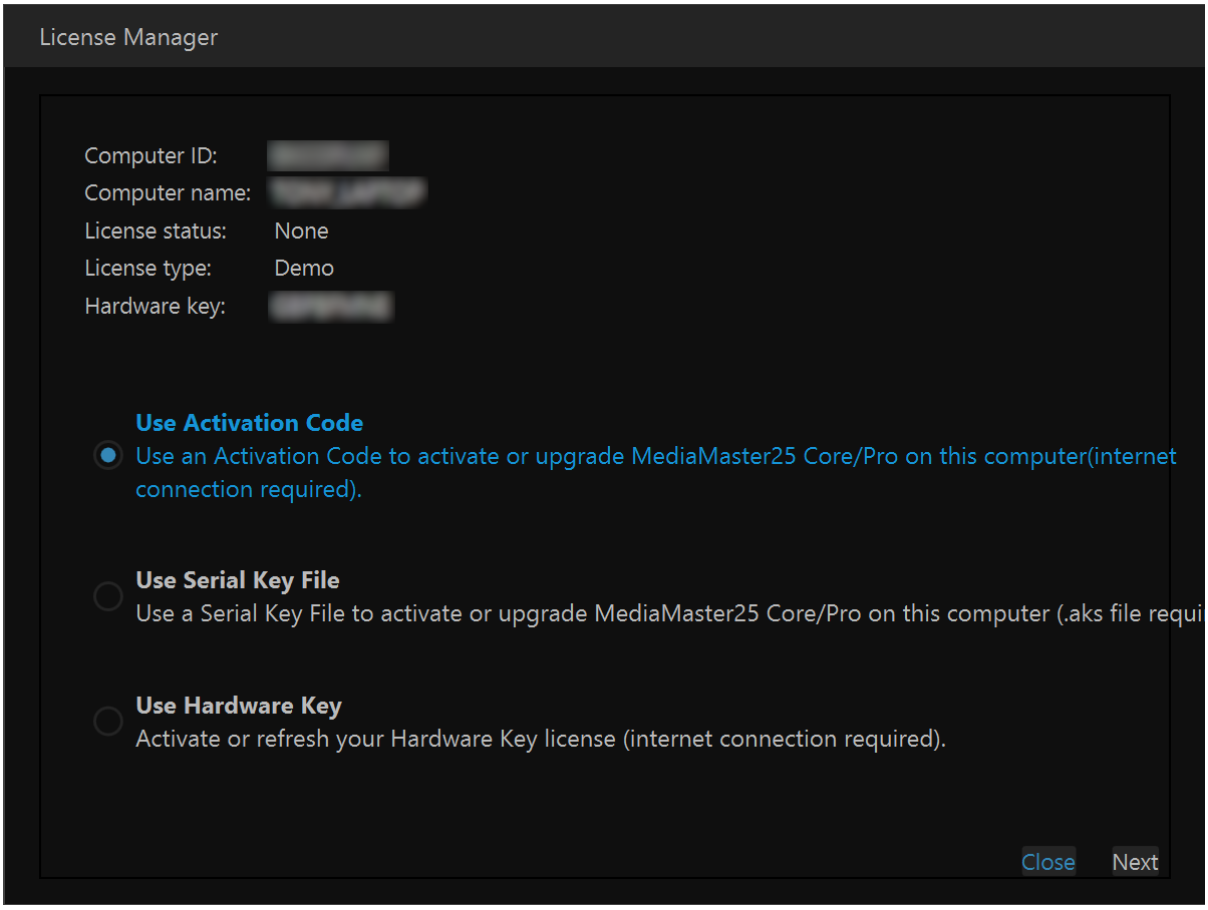
Help Menu

Diagnostic Report



This menu option opens the diagnostic report dialog that allows you to export a diagnostic report which can be supplied to ChamSys Support.

Licence OutputManagement

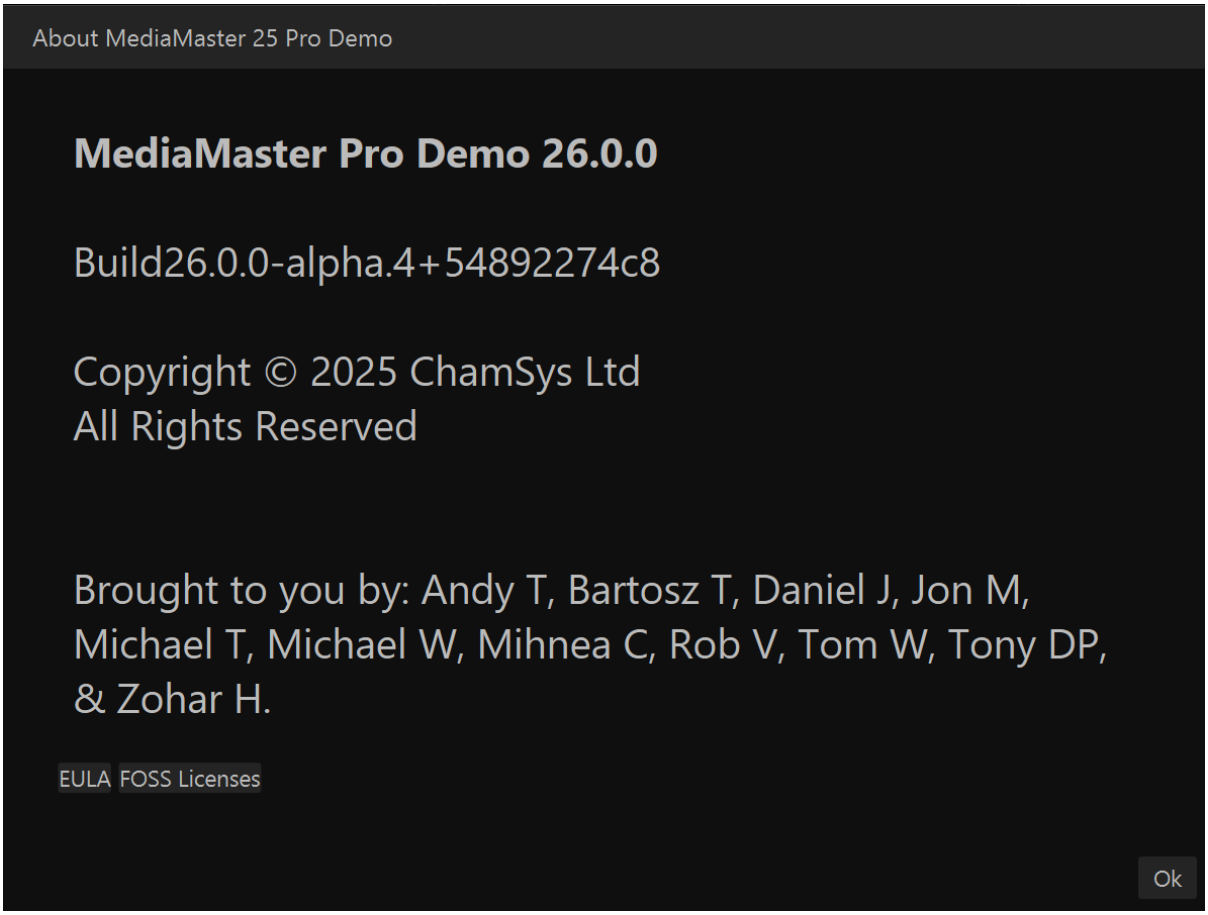


This menu option opens the licence manager, which is explained here.

MediaMaster Web Site

This will open the ChamSys MediaMaster website in your default browser.

About MediaMaster

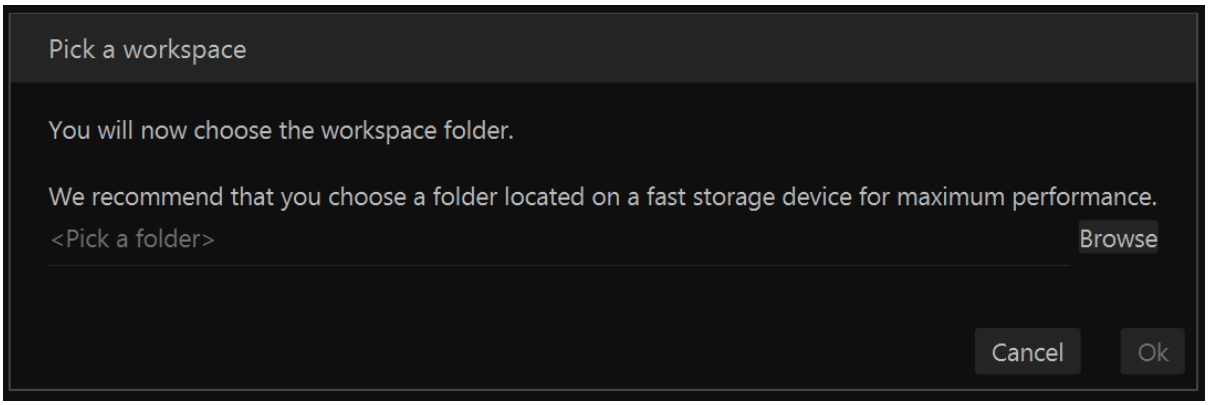


This menu option opens the About dialog where you can find the exact software version number you are using and the EULA and FOSS.

File Menu

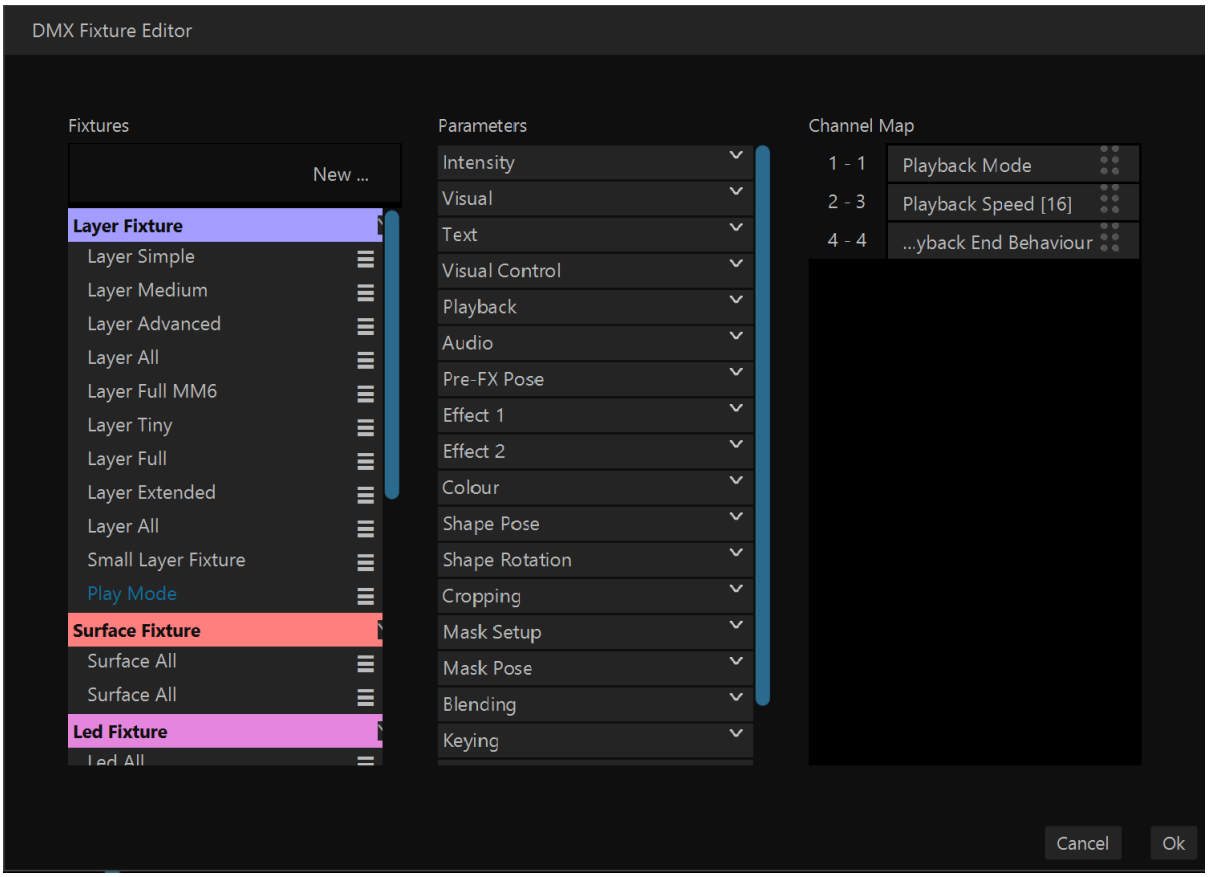
File Menu

Open Workspace

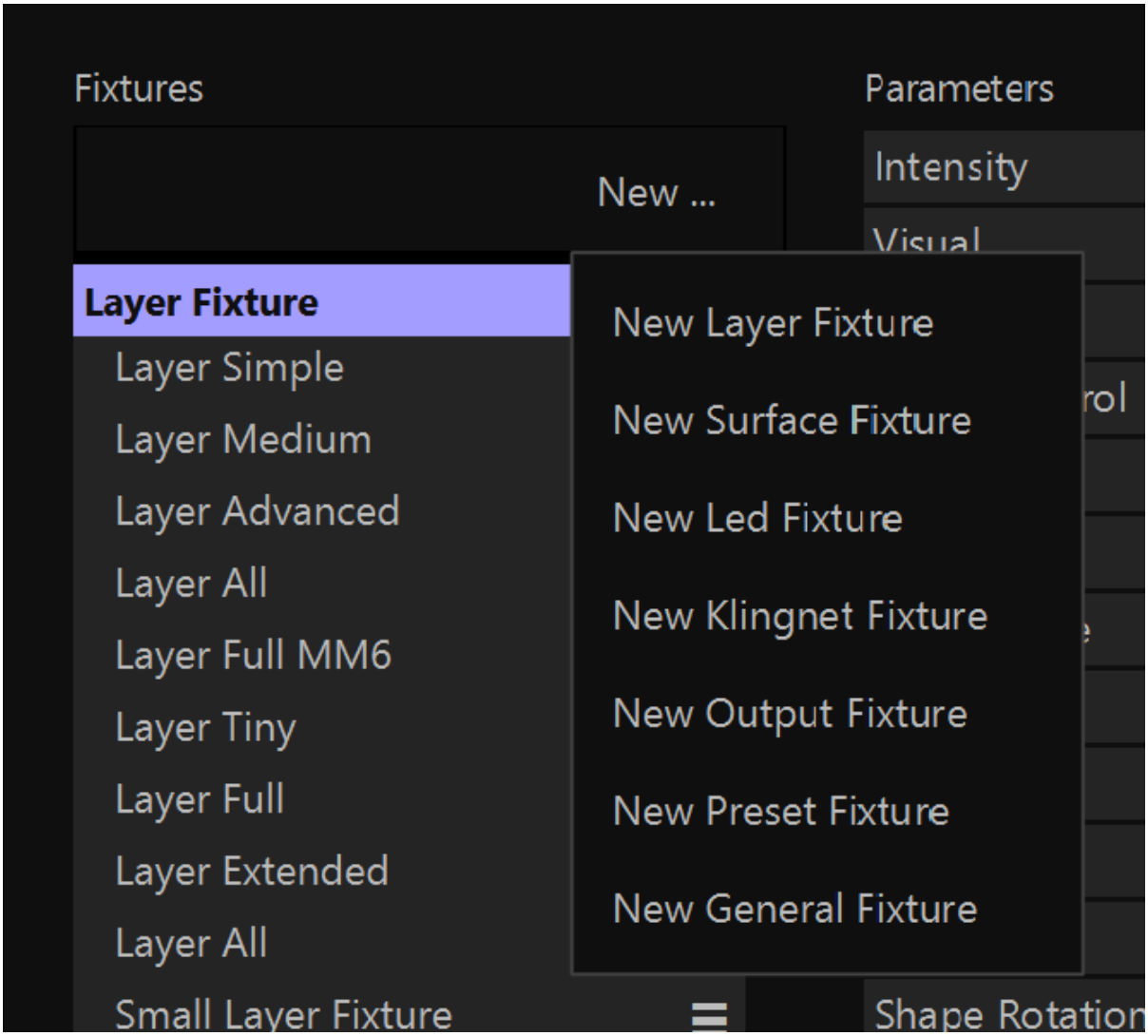


On start-up of the application, here is where you can open your workspace. Normally this will open automatically.

DMX Fixture Editor



This will open the DMX Fixture Editor where you can find some default fixtures but where you can also create your own fixtures.



When you click the `New ⋯` button in the Fixtures column, you can select what fixture you want to create.

You can then give your new fixture a name and assign parameters to it.

When done you can export your newly created fixture to GDTF so you can import it in your DMX console.

Workspace Manager

Here you can open the Workspace Manager.

More info on the Workspace Manager can be found here.

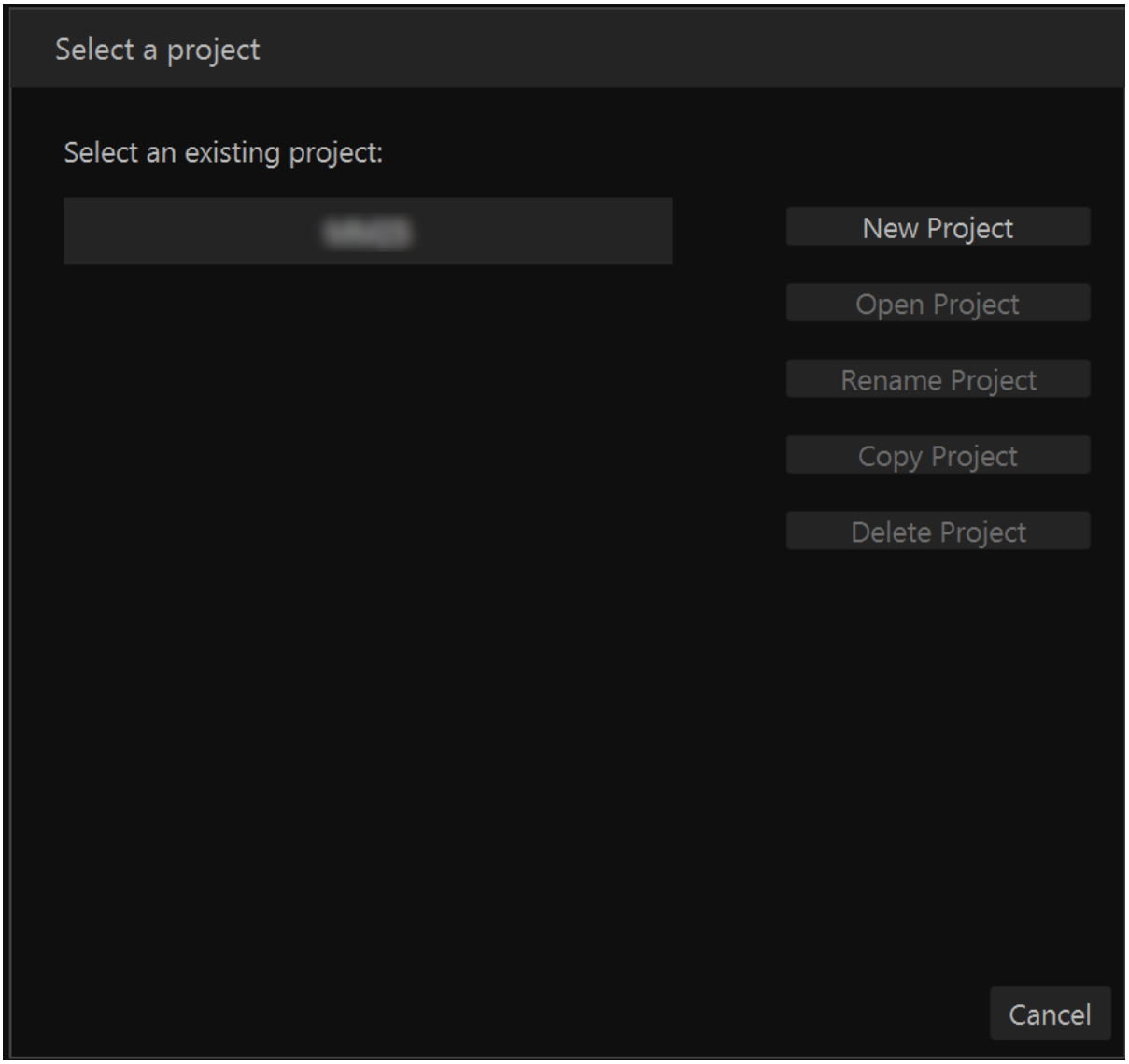
Quit

If you select this the application will close.

Project Menu

Project Menu

Open Project

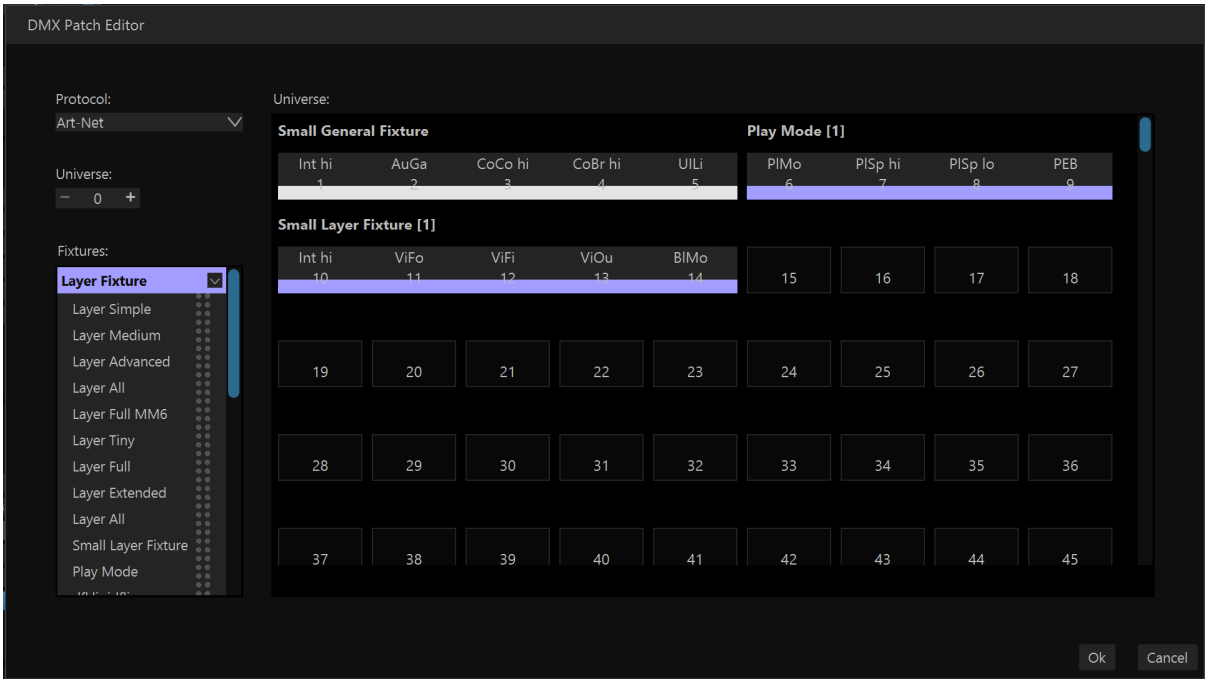


This will open the Project window where you can create, open, rename, copy or delete a project. This window should open automatically when you loaded your workspace.

Close Project

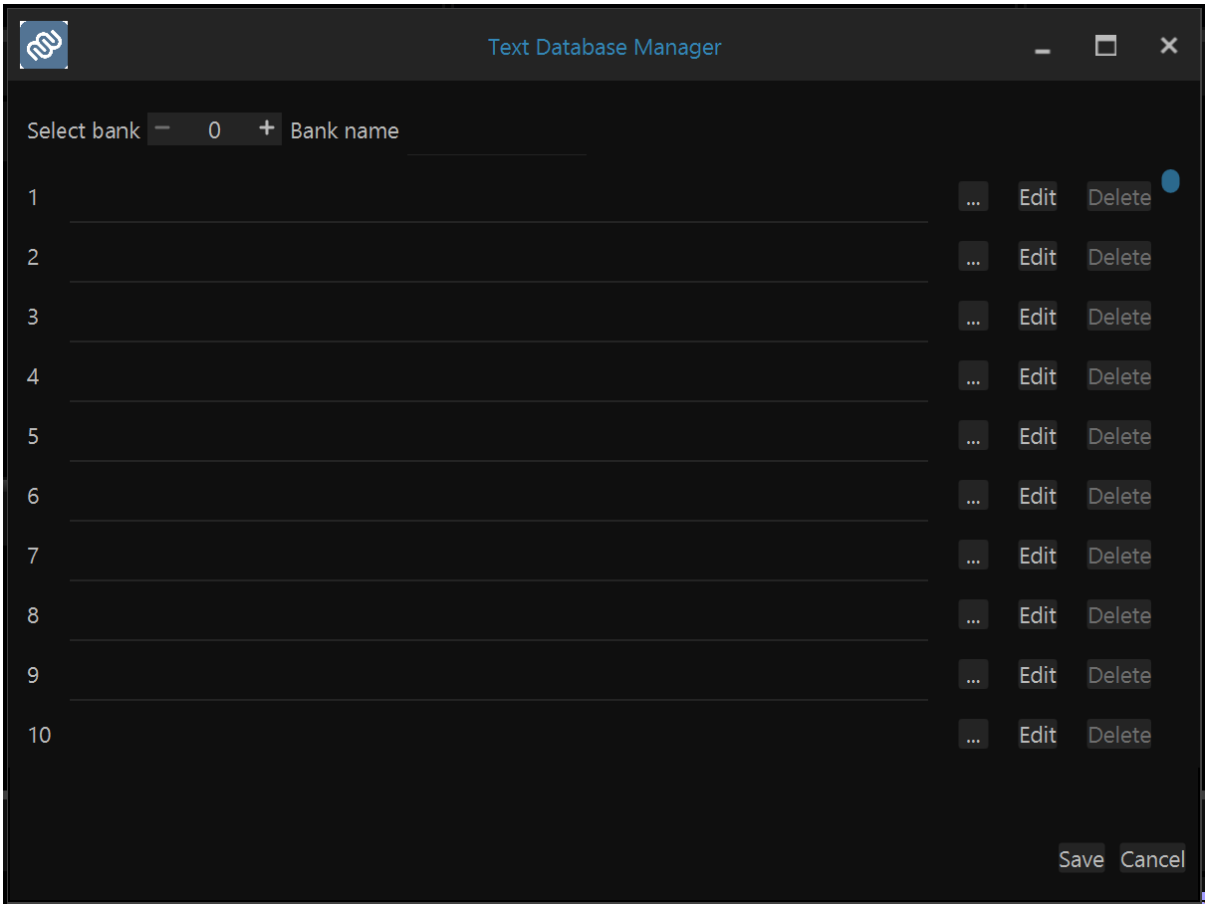
This option will close the current project.

DMX Patch Editor



This will open the DMX Patch Editor that allows you to patch the fixtures for the selected protocol.

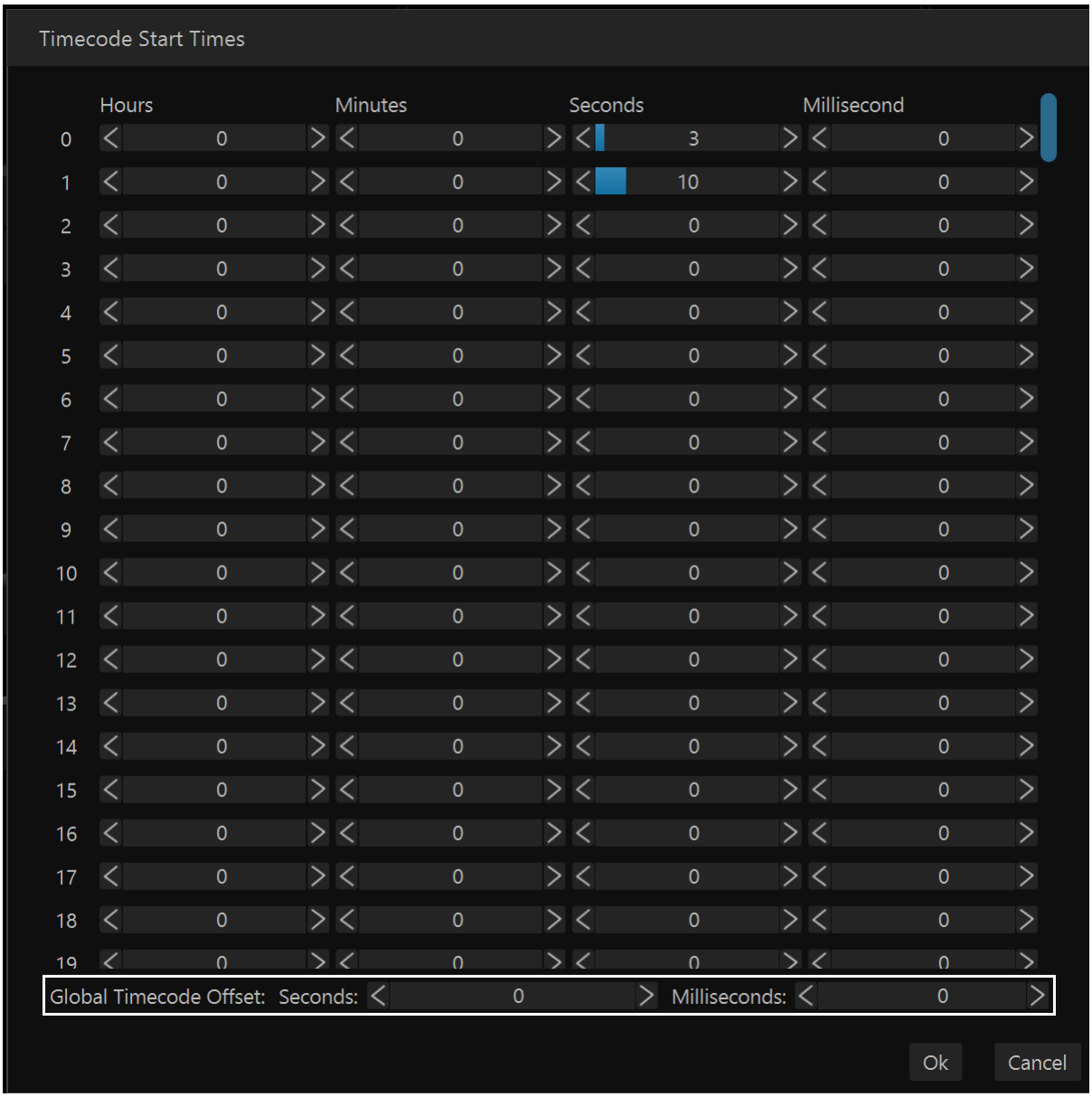
Text Editor



This will open the Text editor.

More information on the Text editor can be found here.

Time Code Offset Editor



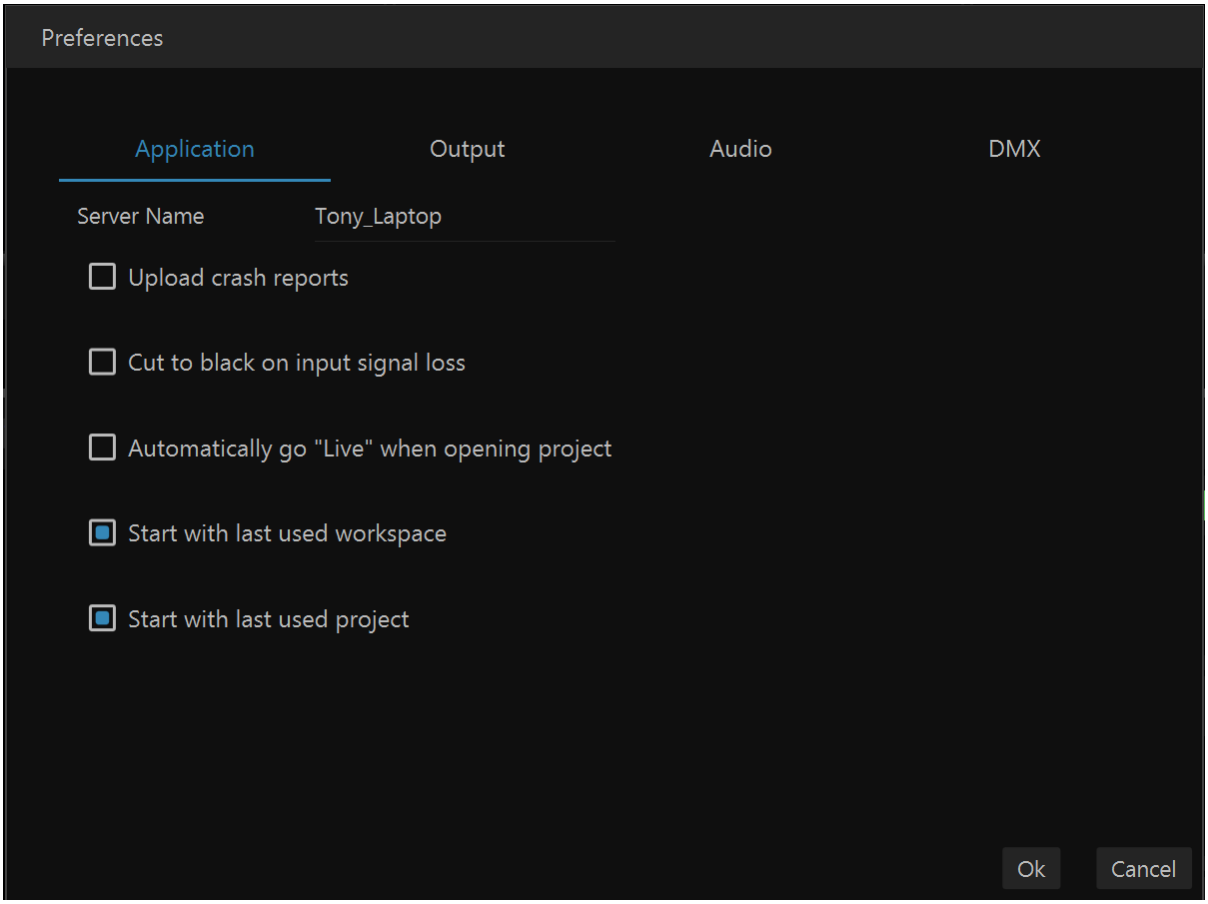
This will open the time Code Offset Editor.

More information can be found here.

Preferences

This will open the preferences window. This window consists of four tabs: Application, Output, Audio and DMX.

Application Tab



The `Server Name` option allows you to specify the MediaMaster server name.

If you select the `Upload crash reports` check box, crash reports are automatically uploaded in case of a crash.

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The `Start with last used workspace` option will automatically open the last used workspace on Application start-up when selected.

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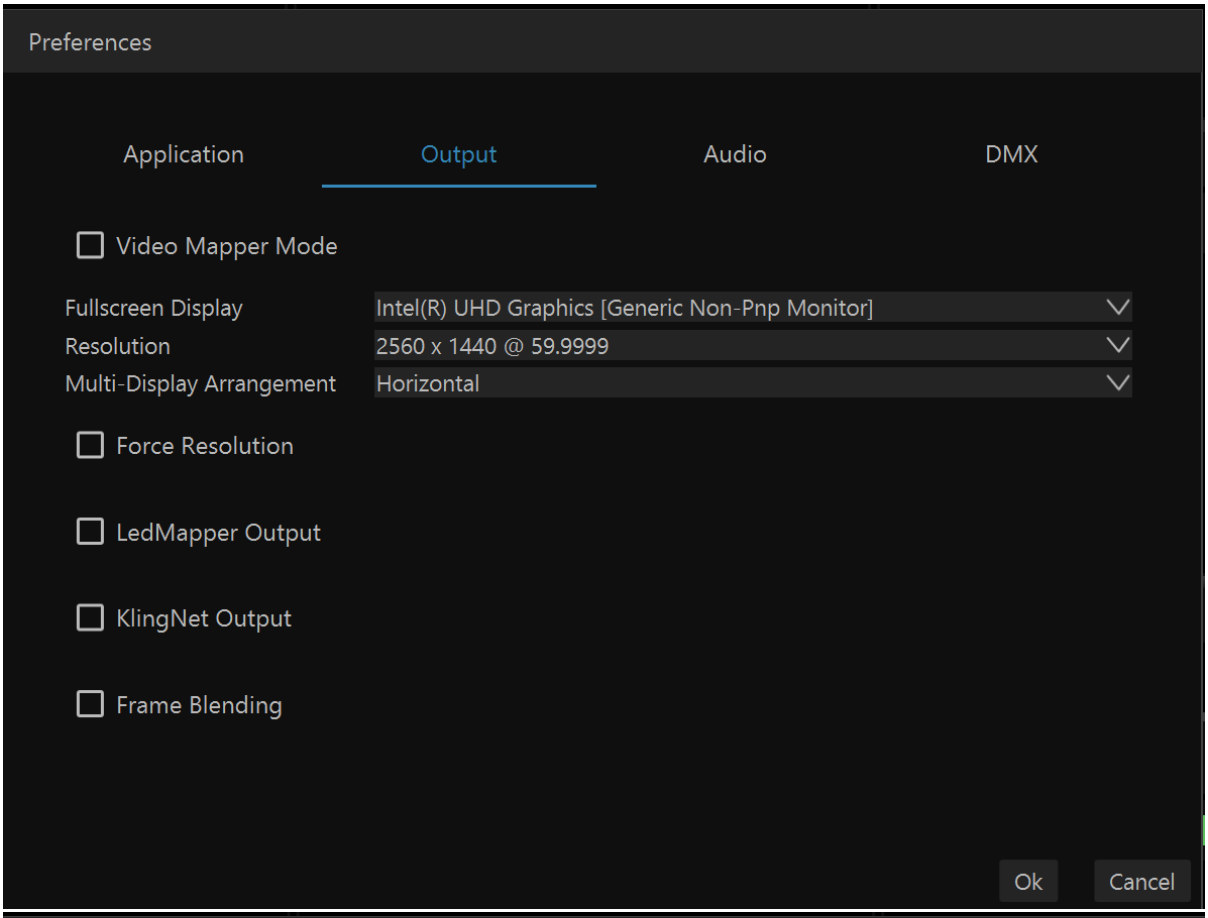
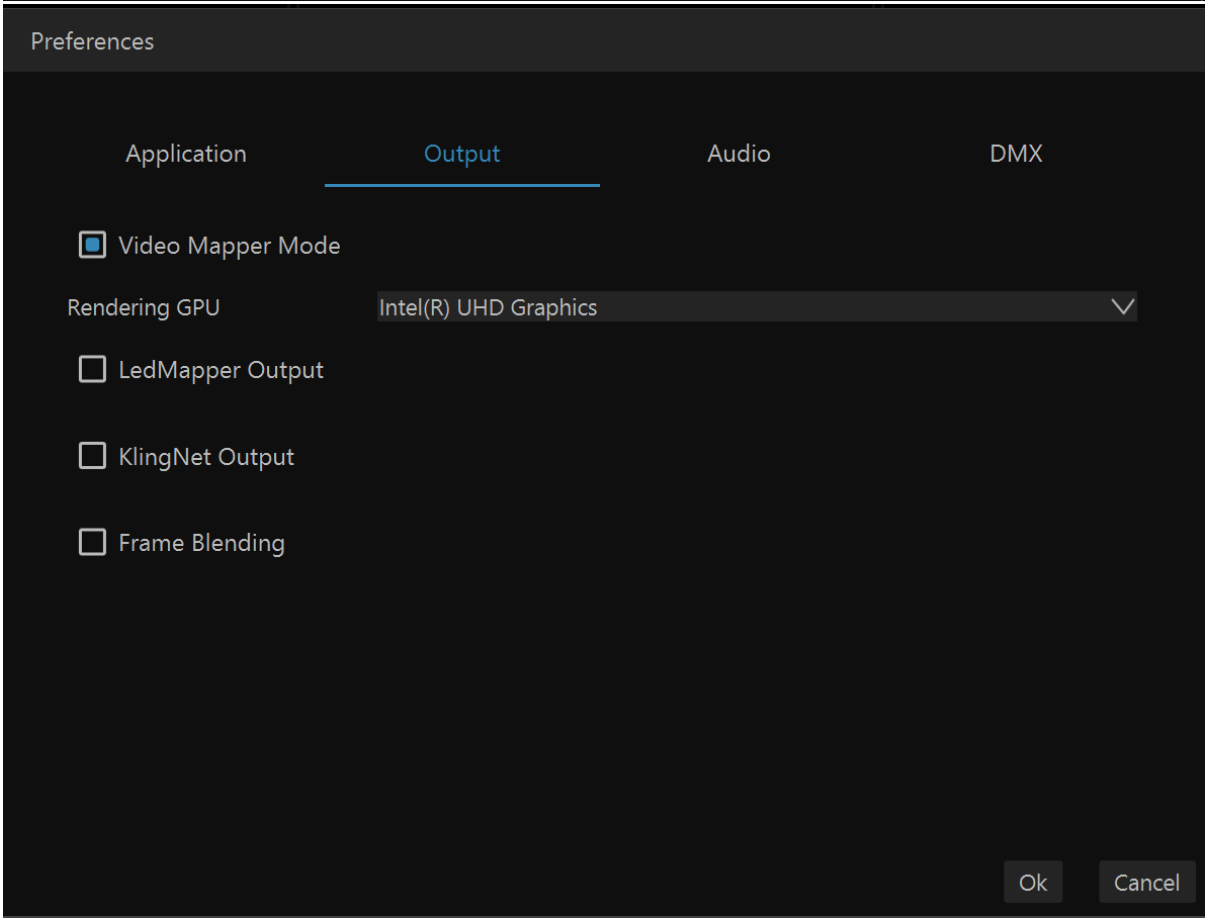
Output Tab





If you have a MediaMaster Core version you will not have the option to activate `Video Mapper Mode`.

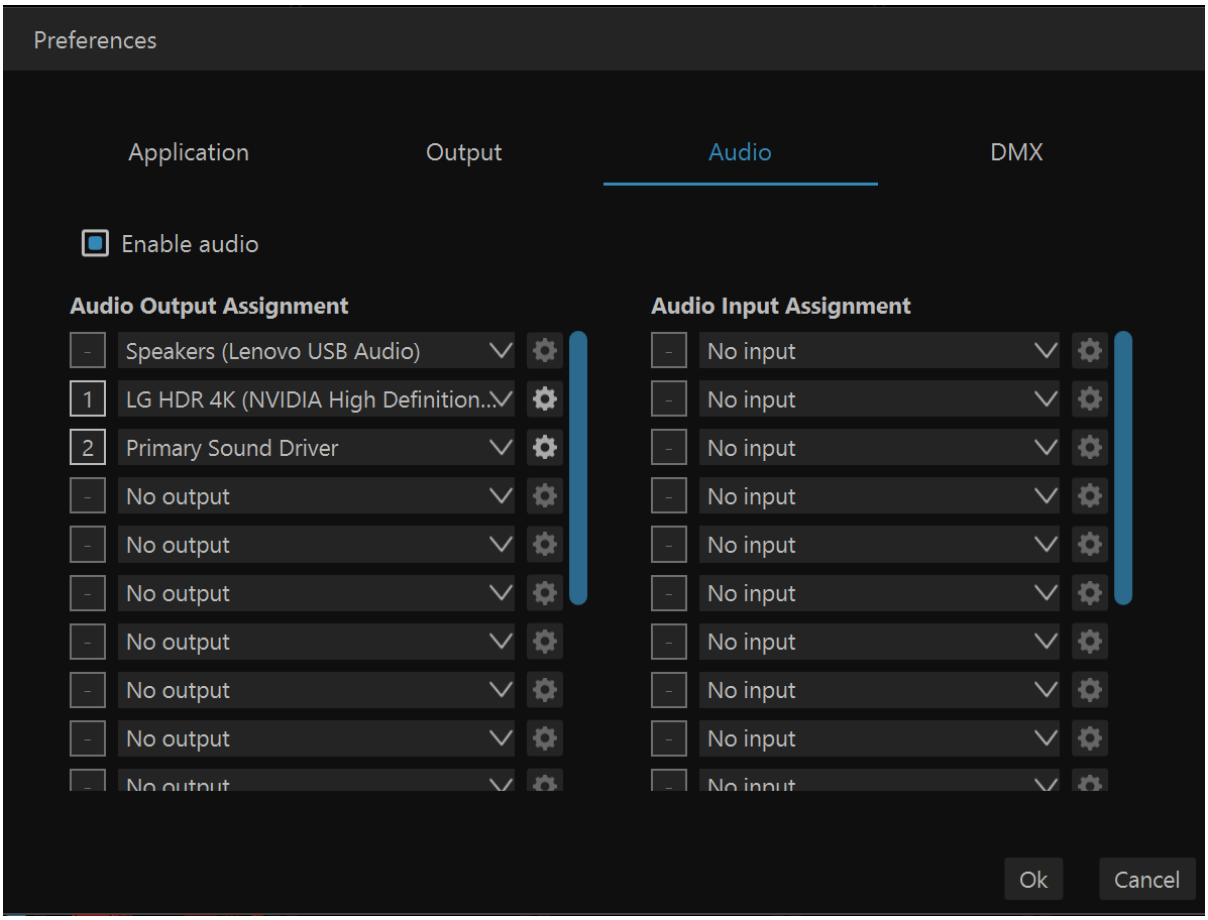
The `Force Resolution` option allows you to force the chosen resolution to your output.

The `LED Mapper Output` option allows you to activate the LED Mapper.

The `KlingNet Output` option allows you to activate the KlingNet Mapper.

The `Frame Blending`option allows you to activate frame blending which is a video editing technique that creates smoother motion, especially for slow-motion or when changing frame rates, by automatically generating new, in-between frames that are composites (fades/mixes) of two original, adjacent frames, reducing choppiness but sometimes causing ghosting or blur.

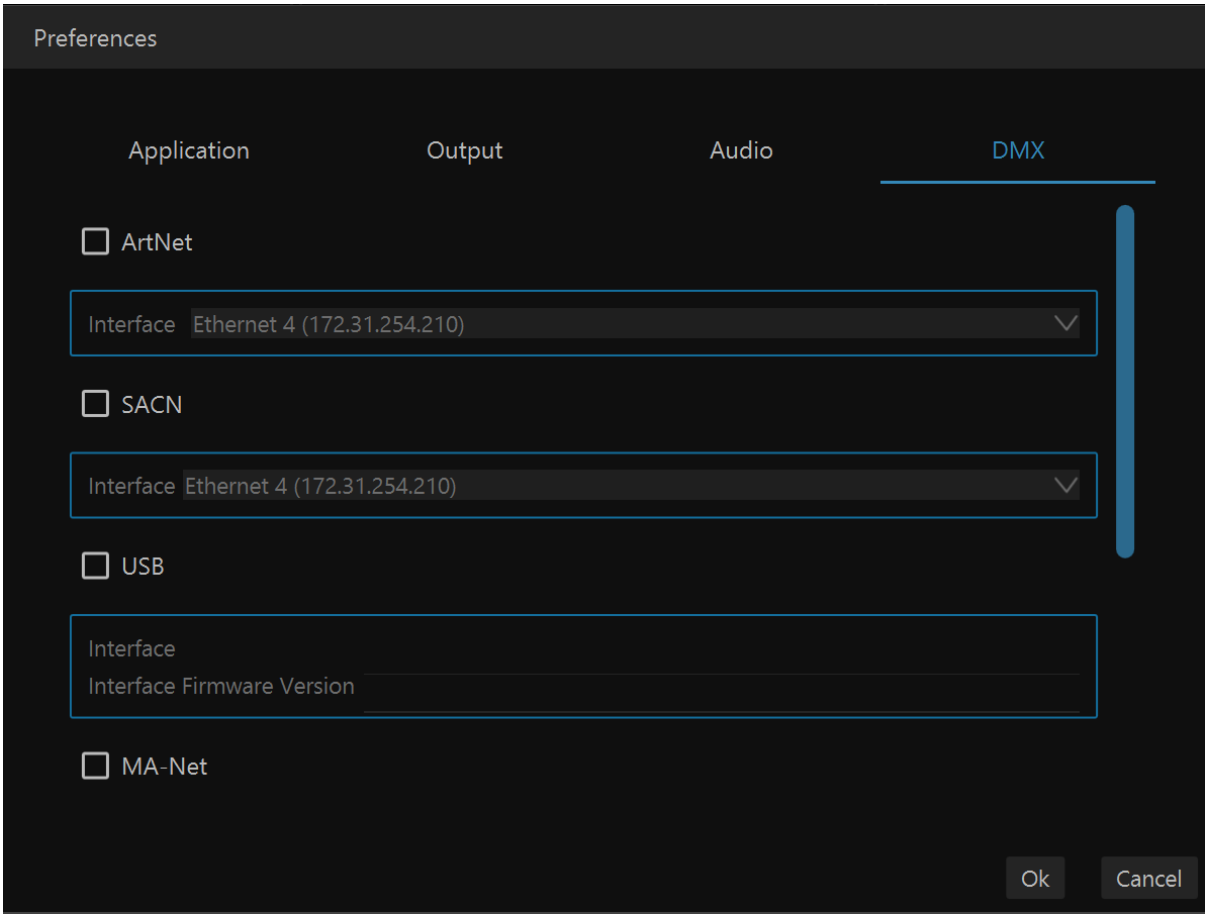
Audio Tab



The `Enable Audio` option allows you to enable the audio engine. By default, audio is disabled.

Once enable you can select your audio outputs and inputs and define the channels and sample rate for them.

DMX Tab



The DMX tab allows you to activate and configure the different DMX protocols and CITP

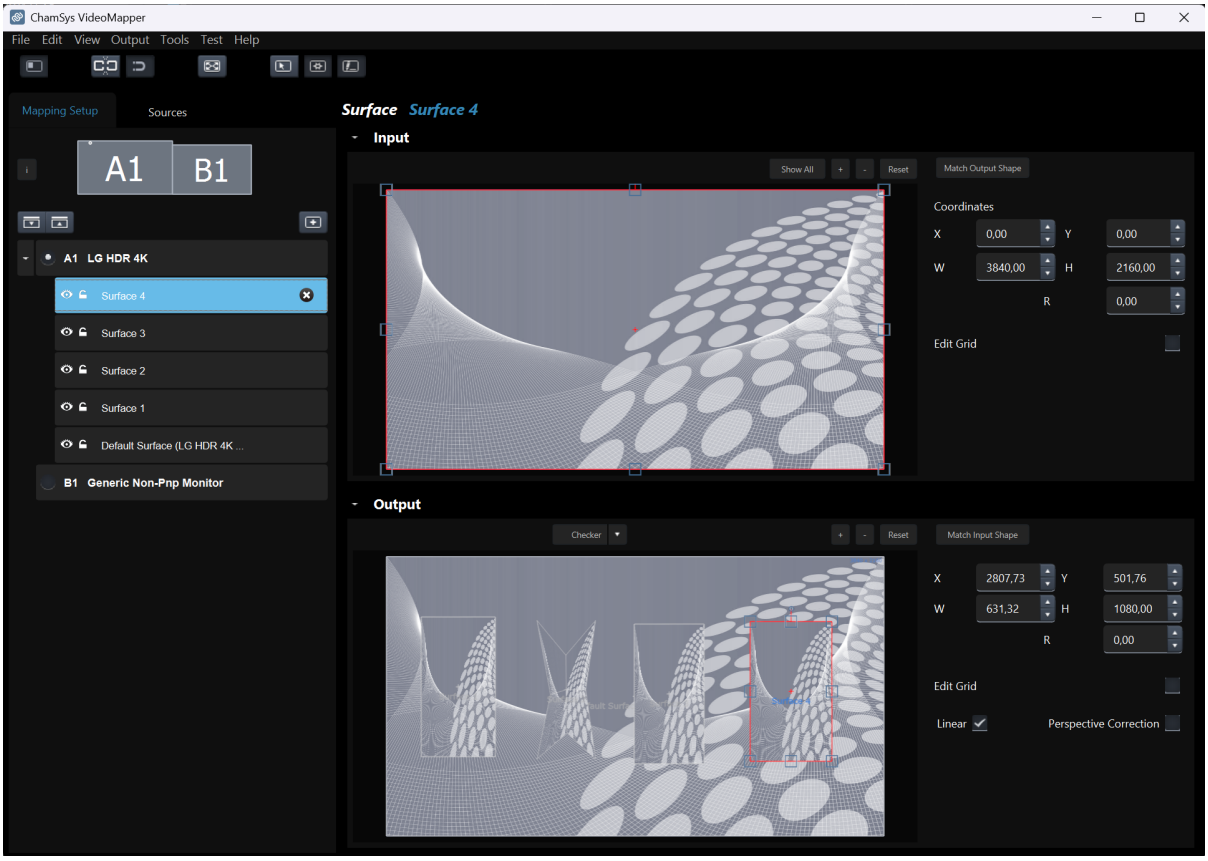
Show Mapping Information

The `Show MappingInformation` option allows you to show what parameter is mapped to which protocol, universe and channel.

Mapping Menu

Mapping Menu

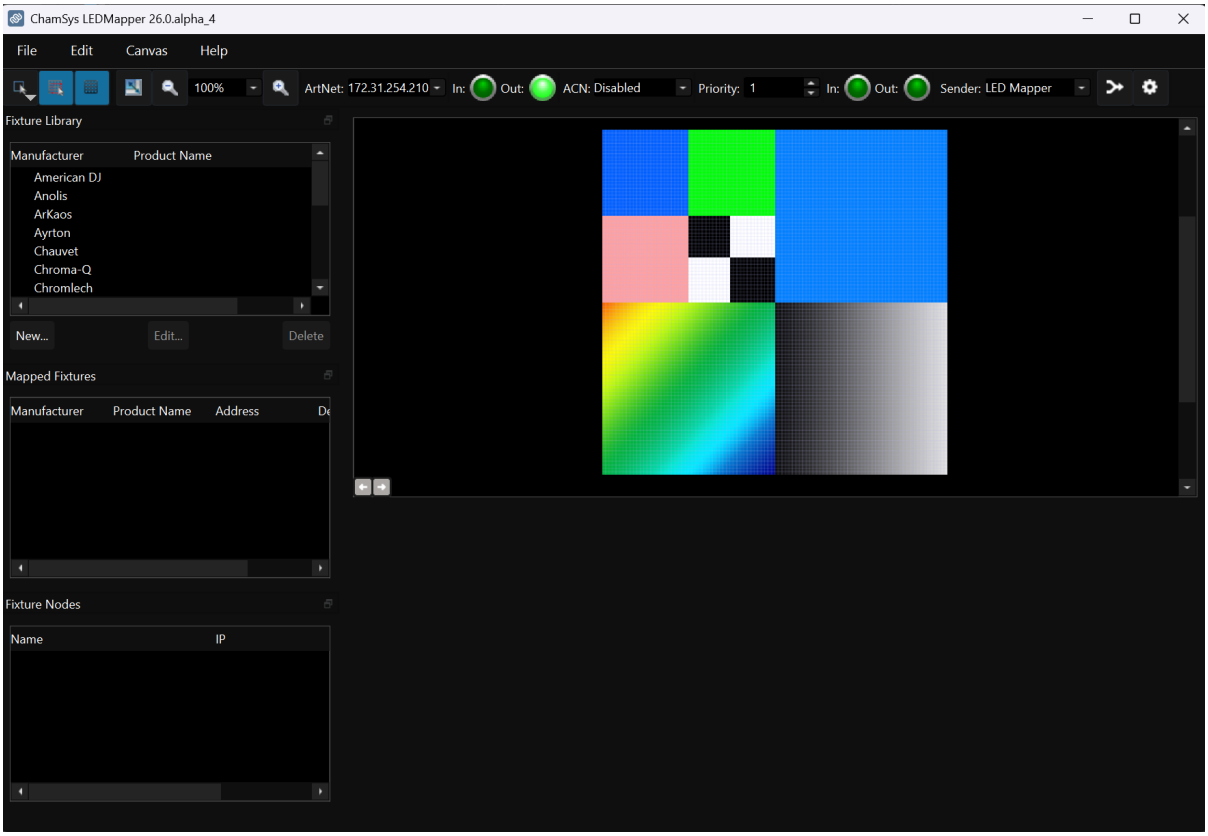
Video Mapper



This menu option opens the Video Mapper. (MediaMaster Pro feature)

More info on the video mapper can be found here.

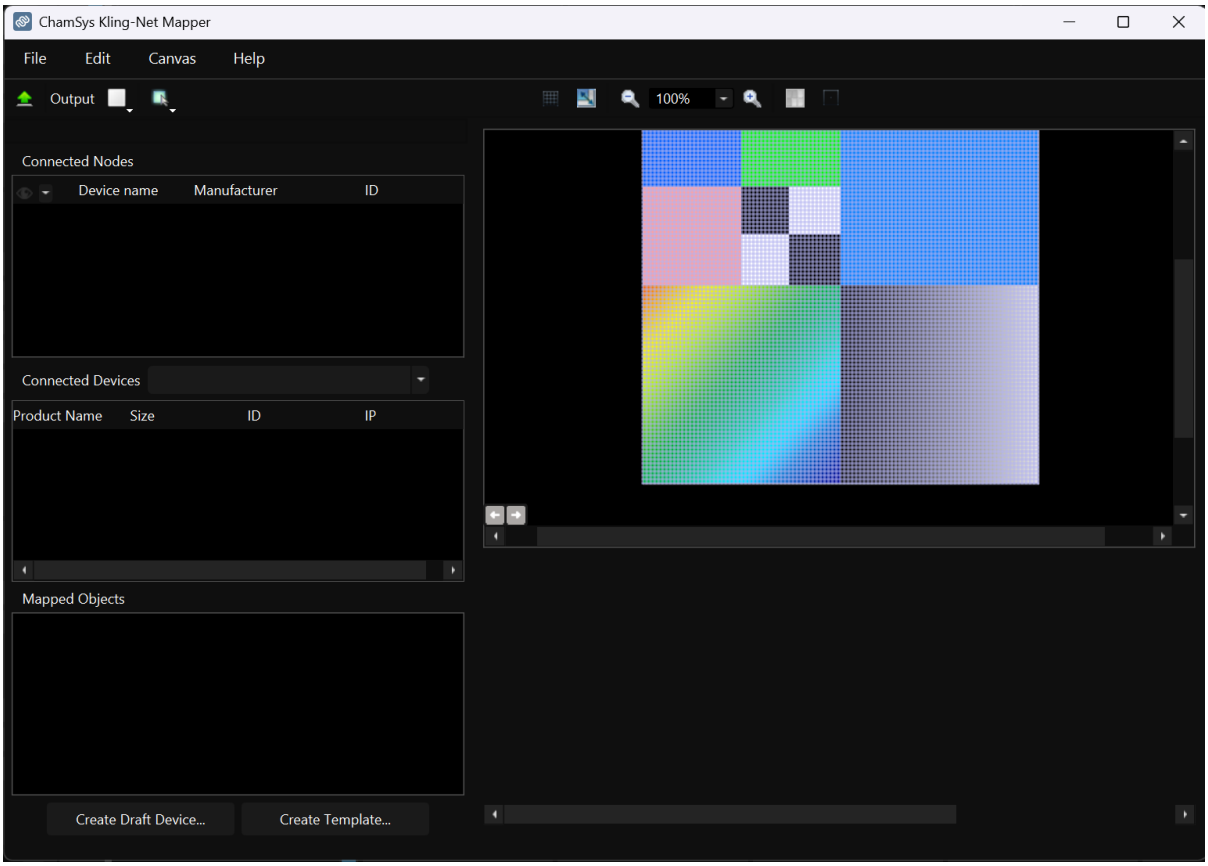
LED Mapper



This menu option opens the LED Mapper.

More info on the LED mapper can be found here.

KlingNet Mapper



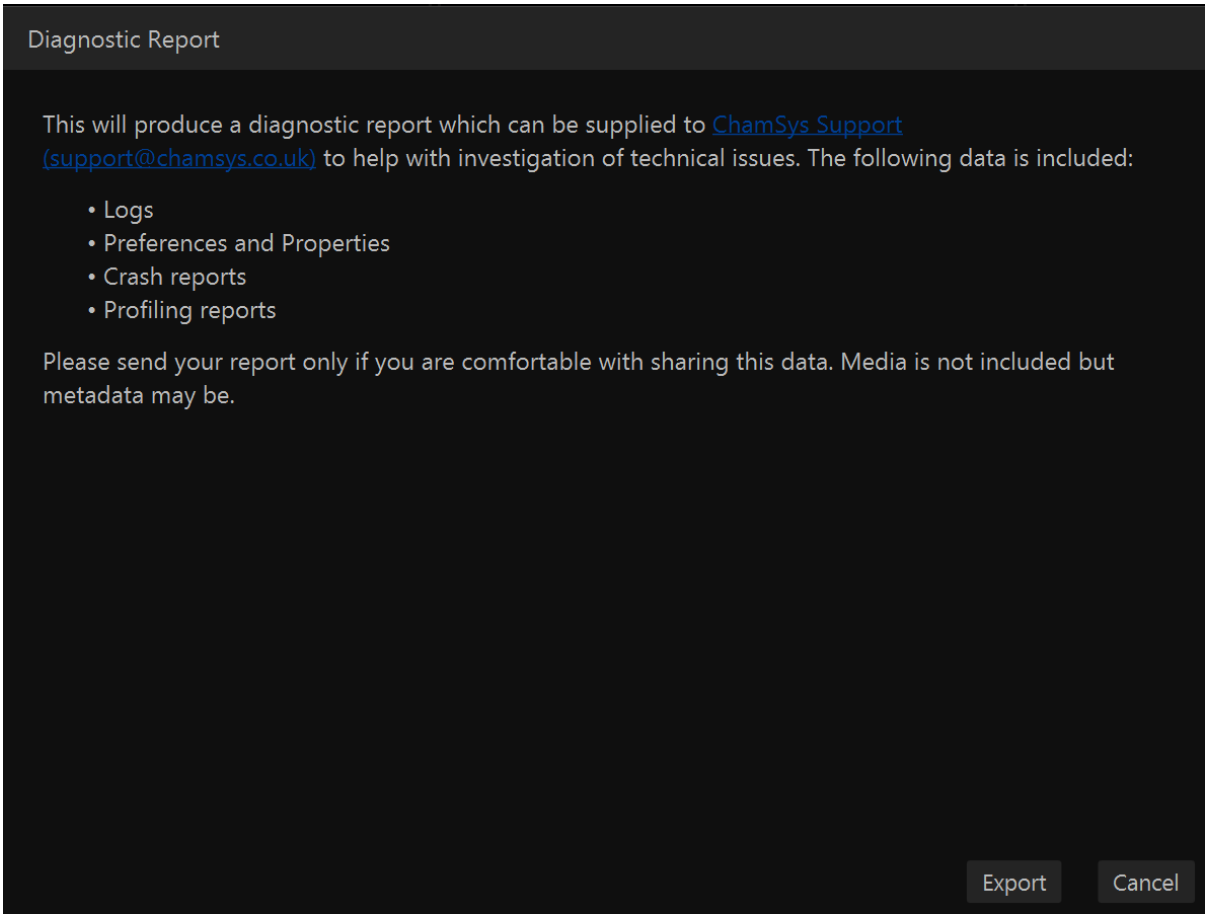
This menu option opens the KlingNet Mapper.

More info on the KlingNet mapper can be found here.

Help Menu

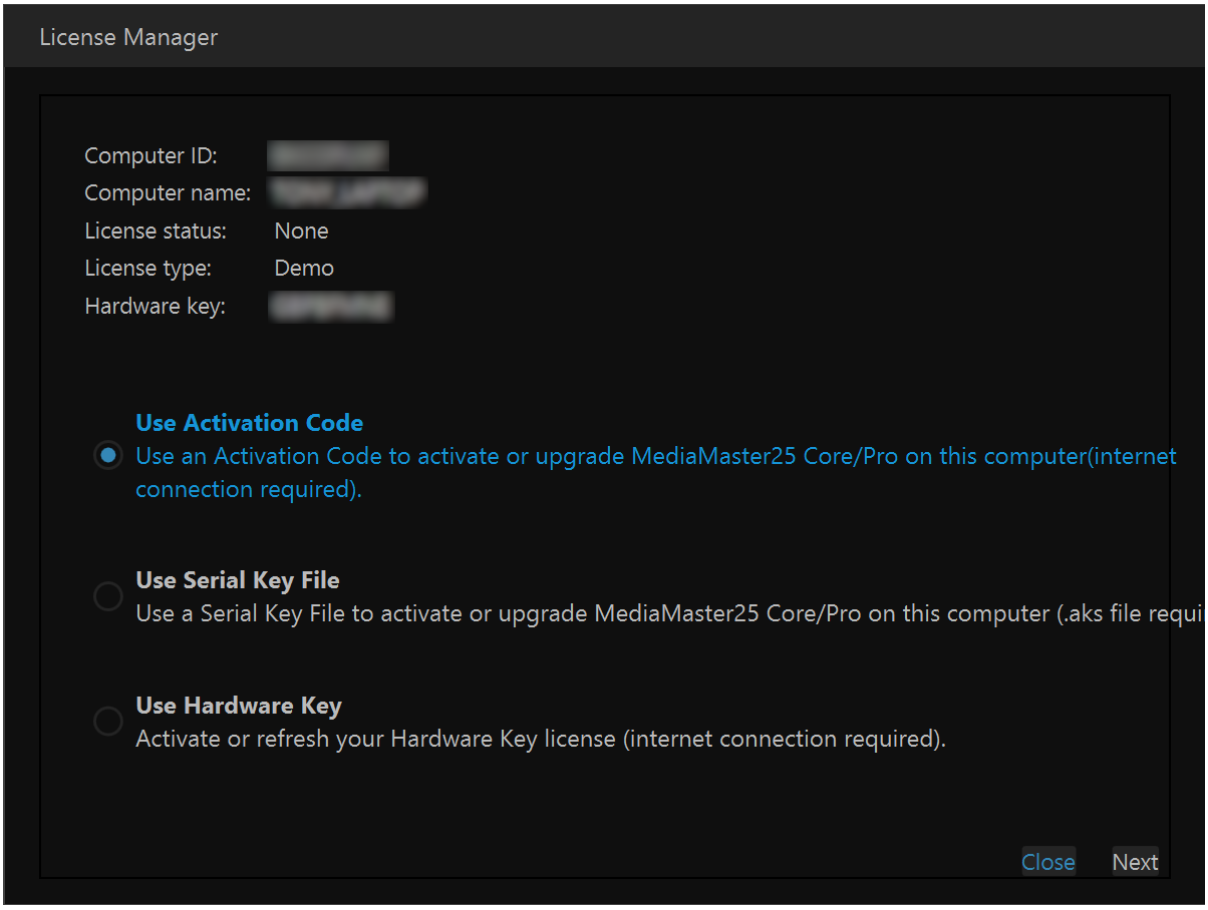
Help Menu

Diagnostic Report



This menu option opens the diagnostic report dialog that allows you to export a diagnostic report which can be supplied to ChamSys Support.

Licence OutputManagement



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MediaMaster Web Site

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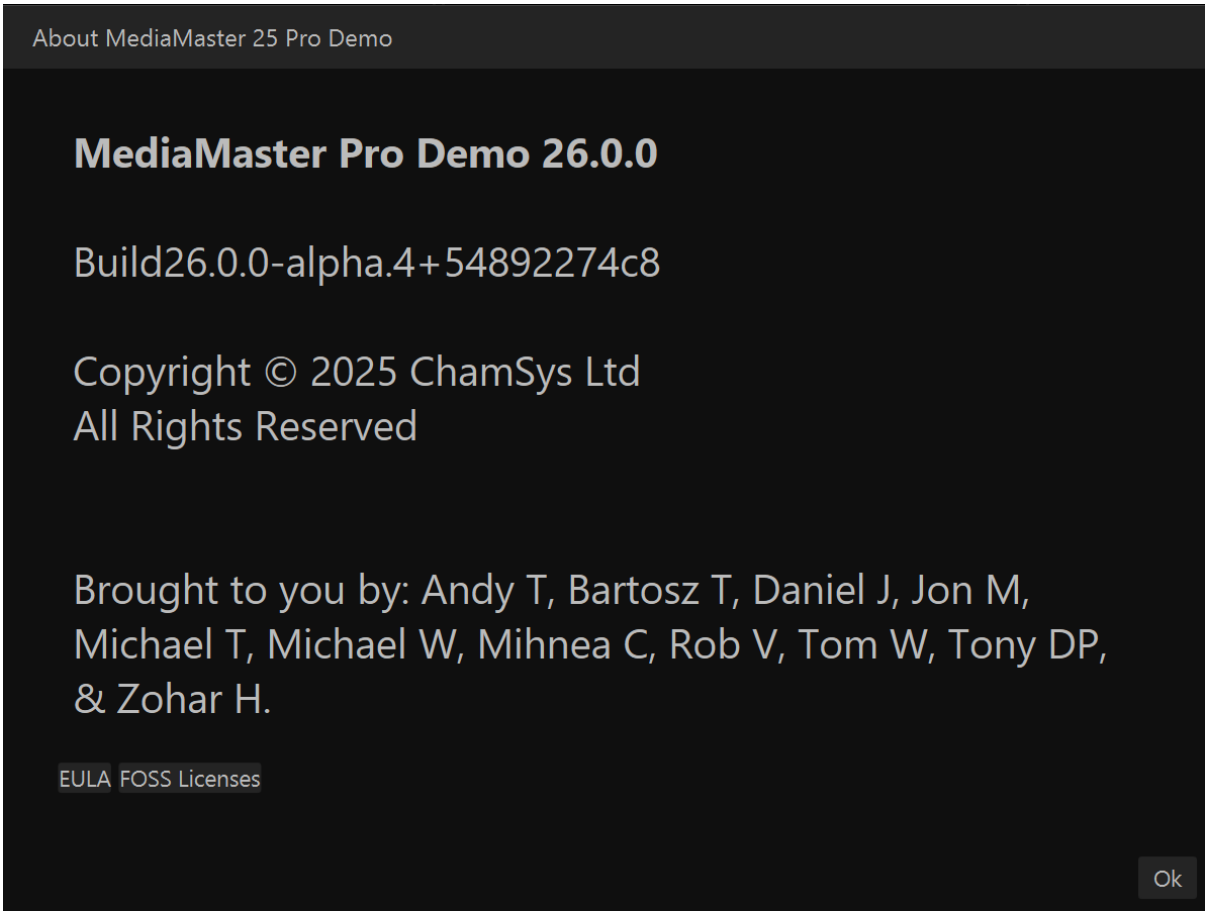
About MediaMaster



This menu option opens the About dialog where you can find the exact software version number you are using and the EULA and FOSS.

Mappers

Video Mapper

Concept

The VideoMapper is an extension that allows easy mapping of video onto irregularly shaped surfaces and through multiple outputs. Designed to let you setup mapping projects in a very short time, it makes it incredibly simple to flow visuals around complex objects with just a few clicks.

Once you launch the extension, the ArKaos software will send the output from each layer to virtual “surfaces” that can be scaled, deformed, and assigned to any physical output. One output can display a full screen visual or a composition of several mapped visuals; output to a video projector and you can map the surfaces to any physical volume like objects or buildings.

Hardware Setup

ArKaos VideoMapper is designed to output video content on any display connected to the computer’s graphical cards.

It is advised to connect all the displays to the computer before turning it on.

The VideoMapper application will detect the connected displays and let you configure their resolution and refresh frequency individually. This is a great tool to set up multiple outputs with different resolutions.

Mapping Workflow Overview

The VideoMapper application is designed to communicate with the ArKaos software. They can run at the same time on the same computer, so that you can edit the mapping directly with the video content running in the application. The VideoMapper application is only needed for the edition of the video mapping itself, and can be closed once the mapping setup is finished. The mapping will be automatically imported in the ArKaos software. The typical workflow is: · Connect the displays to the graphics card then turn on the computer. · Launch the ArKaos software and switch to the “VideoMapper mode” in the Output preferences. The Application will restart in order to apply the new mode. · Launch VideoMapper application. You can also launch it by clicking the “Edit” button in the Application Output preferences. · Create a mapping and test it directly with your video content playing in the ArKaos software or by using a test image. · Once the mapping is finished, simply close the VideoMapper and the ArKaos software will take over to output to the full screen displays.

Important: The video rendering occurs on your graphics card. If you would create surfaces on a display that is plugged to another graphics card, be aware that you may experience reduced performances due to memory transfers, between the different graphics cards, going through the main memory. If possible, it’s advised to use the same graphics card to drive all the displays, eventually using a video splitter device. If you absolutely need to use several graphics cards, then you should connect the displays with the biggest resolution to the main graphics card.

VideoMapper Application

The VideoMapper application allows you to manage your displays and create or edit surfaces that will be used by the ArKaos software to display its layers when in VideoMapper Mode.

Interface Overview

Toolbar

The toolbar on top of the window contains various controls to adjust the user interface, editing options and the information displayed in the output.

Mapping Setup and Sources

The left side of the application shows the Mapping setup, with a graphical representation of the connected displays and the Display browser. Each display in the browser will list its surfaces, which can be added, deleted or copied directly in the browser.

Sources

The Sources tab contains the visual sources that are used by the VideoMapper, it can be an image or the feed from the ArKaos software running in “VideoMapper Mode”.

Surface Editor

The “surface editor”, in the central panel, shows the surfaces of the selected displays. It is a preview of the result you will obtain on the related display in full screen. For each surface it shows both the shape that will be sampled from the input visual source and the shape it will be warped to in the output. Input and Output panels can be collapsed and extended based on the editing needs.

Inspectors

The right panel is an inspector that shows parameters of the selected surface (tab “Surface”), the selected display (tab “Display”) or the selected group of displays (tab “Group”).

Toolbar Options

Show / Hide Left Panel

Shows or hide the left panel with the display browser so you can have more room to edit your surfaces.

Link Grid Points

Links points between the grind on the crop zone and the grid on the output zone so that moving a point on one will make the corresponding point move on the other also.

Snap Surfaces

Surface borders will snap with each other and with the borders of the surface editor.

Enable / Disable Full Screen

Goes full screen on the active outputs.

Show Cursor on Full screen

Show the cursor position on the full screen displays.

Surface Selection Flash

The active display will flash each time you select a surface.

Surface Info on Full Screen

Show the surface edition objects (surface borders, handles, centre and name) on the full screen display.

Setting Up Displays

Each connected display (as detected by your operating system) is listed in the display browser. Disconnected displays are shown in red. Below each display item appears the list of surfaces (click on the arrow on the left to expand the display item).

Each display can be enabled or disabled by clicking on the left check box. Disabled displays won't go full screen when the global full screen button is activated (the display showing the VideoMapper interface is disabled by default).

Note: The first letter of identification before the display name (A1, A2, B1, etc..) represents the GPU to which the display is connected. Two displays named A1 and A2 means that they are connected to the same graphics card.

Grouping

Displays can be grouped together to form one big display, by dragging and dropping one display on another display. There are two ways to un-group displays: by selecting a display and clicking the eject button on the right side or by selecting the group, right clicking and selecting `Ungroup`.

Draft Displays

You can create a "draft display" by clicking the "add draft display" button above the display browser on the right. Draft displays can be used when the display you want to use in your final setup is not connected. Create your mapping on a draft display and, later, copy/paste the surfaces to the final display. The draft display can be deleted once the job is done (right-click on the draft display item and choose "delete").

Full Screen

To activate the full screen, press CTRL+F (Command+F on Mac) or click on the full screen button in the toolbar. The VideoMapper keeps the full screen state in memory. When you start the VideoMapper, the full screen will automatically be enabled if it was enabled the last time you closed the application.

Editing Display Properties

When you click on a display item in the display editor, or when you click on the display tab in the right inspector, the properties related to the display are shown. You can choose the resolution of the display and its frequency.

The “Force Resolution” option will change the resolution of the display to match the resolution in the “Resolution” combo box. If the option is not set, a “Custom Resolution” can be specified, and the output will be displayed only on the partial top-left display to cover the specified resolution.

The option “Span” allows to virtually split the display as a matrix of X columns and Y rows.

The “Span Arrangement” option indicates how those Spans should be rearranged to form a large continuous display for visual playback.

E.g., a typical use would be to take a 4k output to drive four Full-HD projectors installed in a row. In this case, you would Span by 2x2 and pick a Horizontal Span Arrangement. The VideoMapper would automatically set a large 7680x1080 pixel canvas.

Background Image

The background of the display can be set to black, grey, or bitmap image (you can choose the image file by clicking on the “open button”).

Custom Canvas Size

By default, rendering is done on a canvas at the resolution set for the display. From that canvas, an area is cropped and mapped on each surface. In some situations, magnifying a small-cropped area requires higher resolution or a lower resolution might be enough if a surface covers a smaller part of the output area. The option “Custom Canvas Size” gives you explicit control over the canvas size used for the intermediate rendering.

Pattern

This option lets you display a pattern over the displays or the spans to help with the setup or the corrections. The “Pattern Type” is used to select what type of pattern should be displayed: some are designed to setup geometric correction, to setup displays or to tweak colour correction.

The “Grid Density” defines how many sub-divisions should be used when generating procedural patterns.

The option “Animate Pattern” scrolls the pattern over the display area to bring out some geometrical deformation issues in some area of the display.

The left pattern “Geometric Correction” is mainly for geometric correction and soft-edge. The right

pattern “Colour Correction” is more for per display colour adjustments and to tweak colours and curves for soft-edge.

Display Corrections

Geometric Correction

Geometric correction lets you remap the whole output of a display or a span, including all surfaces, by editing a grid and each of its control point. This allows to compensate some pan, tilt or any deformation due to some projection on arbitrary surfaces.

To use Geometric Correction, first toggle the feature on with the top-right switch.

Each segment can either be set to Linear or Curved. The coordinates of each control point can be specified explicitly.

To add or remove control points, use the following buttons: Add control points that will divide the grid horizontally. Add control points that will divide the grid vertically. Remove control points that will divide the grid horizontally. Remove control points that will divide the grid vertically. Add a control point by clicking anywhere in the grid. Reset the grid; remove all the control points.

The buttons “All Linear” or “All Curved” transform all segments to linear or curved. But each segment can also be set explicitly to linear or curved by selecting a control point and using the interpolation editor below:

It represents the control point with its four adjacent segments. Each segment can be set to linear or curve. The middle round control will toggle the four adjacent segments between linear and curved.

The position of the selected corner box or the selected control point can be moved with the arrow keys of the keyboard. By pressing `Alt` key modifier, the movement is amplified by a factor of 10x. By pressing `Ctrl` or `Cmd` more precise adjustments can be done by a factor of 1/10th. Tab key can be used to select the next control point and Shift + Tab to select the previous control point.

Soft-Edge

The Soft-Edge defines a band over which the projection of two beamers will overlap to create a larger continuous output without any visible discontinuity. It can be performed between two displays or two spans. To use Soft-Edge, use the top-right switch to toggle the feature on.

The top representation lets you select the upper, lower, left or right border of the current display or current span.

The “Width” parameters sets the width in pixel of the overlapping area.

The “Curve” defines how the blending is performed along the overlap area. A value of 1.0 is linear. A higher value gives a smooth ease-in and ease-out on the left and right sides of the overlap area.

A “Centre Value” above 0.5 makes for a lighter middle band in the overlap area. A value below 0.5 makes for a darker middle band.

Soft-Edge is always applied on a matrix of displays or spans. A different behaviour is applied on any

outer edge on the boundary of the matrix compared to inner edge between two adjacent displays. For inner-edges, soft-edge is active by default. For outer-edges the soft-edge is disabled by default by having a width of zero. For special set-ups with multiple media servers or 360° projections, the width can be explicitly set to activate the soft-edge on the outer edge.

Per Display Corrections

The brightness, contrast, RGB and gamma can be adjusted per display. If the option “Link Gammas” is not set, then the red, green and blue component of the gamma can be tweaked separately. Displaying the “Colour Correction” pattern is helpful to adjust the colours. Red, Green, Blue behave as multipliers. A value of 0,8 would mean outputting only 80% of the red component of the colour. To use Display Corrections, first toggle the feature on with the top right switch.

Setting Up Surfaces

Creating a Surface

To create a new surface, click on the rectangle or triangle that appears on the right when the display item is selected.

The list of surfaces on a display is like a stack of layers from top to bottom. The first surface will be displayed on top of the others. You can change the order of the surfaces by dragging them around in the list.

Editing Surface Properties

When you select a surface, its properties are displayed in the inspector on the right. You can modify geometrical parameters by editing the surface directly in the graphical editor (for example modify the width or the height of a rectangle by dragging the middle handles of the rectangle) or by enter numerical values in the inspector.

- The X and Y parameters are the coordinates of the surface. This position is by default the top-left corner for rectangles and the centre for triangles. If the option “Display Top Left Coordinates” is unchecked in the view menu, the position of the rectangles will be centred.
- The R parameter is the rotation of the surface. The rotation can also be modified by dragging the rotation handle in the graphical editor.

The other parameters depend on which surface you are editing:

- Triangles: You can edit the position of the three corners of the triangle (parameter X-Y in the inspector).
- Rectangles: You can modify the width and the height of the rectangle (parameter W-H in the inspector).

The rectangle can also be deformed using a grid pattern. To enable the grid, check the option “Edit Grid” in the inspector.

When the grid is enabled, each control point of the grid can then be dragged separately.

To add or remove control points, use the buttons just below the edit grid option: Add a point vertically.

Add a point horizontally. Delete a point horizontally. Delete a point horizontally. Add a point anywhere then click with your mouse in the grid Reset the grid and delete all the points.

The interpolation combo box lets you set the interpolation for all the control points of the grid, it can be set to linear or curved. To set the interpolation separately for each control point, first click a control point in the graphical editor, then the interpolation editor appears. It represents the selected control point with its four adjacent segments. The interpolation for each segment can be set to linear or curved.

The position of the selected corner box or the selected control point can also be edited with the arrow keys of the keyboard. • To move the point of 20 pixels, press `Alt` while moving the point. • To move the point of 0.05 pixels, press `Ctrl` (`Cmd` on macOS) while moving the point.

Image Masks

Any image file can be used as mask that can be applied on a surface. The average of the RGB colours will be used if the source is a colour image.

In the Mask properties editor, click on the "Open" button to load an image.

Make sure that the "Enable" button is checked.

The following options are available to modify the mask: • `Invert`: invert the grey scale source image before applying the mask. • `Black`: the masked part of the image is black. • `Trans`: the masked part of the image is transparent.

Mapping of Surfaces

For each surface, a shape in the input visual source can be warped to a different shape to the output. Both Input and Output panels can be expended or collapsed depending on your editing needs. This technique can be used for instance to crop or magnify some visuals, to remap visuals on complex shapes or align them on some 3D objects.

The four corners of rectangular surfaces can be moved separately if you check the option "Edit Grid".

Match Output Shape: copies the shape that is currently selected in the output panel to the input panel.

Match Input Shape: copies the shape selected in the input panel to the output panel.

The Match Input and Output Shape buttons are very handy if you want to keep your final image without any stretching of pixels. Another technique to avoid any distortion when editing grid of a rectangular surface, is to activate "Link Grid Points" option in the toolbar so that your changes are automatically reflected in both Input and Output panels.

The Show All button allows seeing the input shapes corresponding to all the surfaces of the display. This option is useful if you want "cut" a visual into several surfaces.

Visual Sources

The visual sources of the VideoMapper can be found under the "Sources" tab in the left pane, next to the Mapping setup.

Visual sources can be an image or the feed from the ArKaos software running in “VideoMapper Mode”. If the Application is running, the source will automatically switch to use its feed.

To add an image to the list of sources, click on the “Load Image” button above the list. Double click on an item of the list to select that source.

Exporting and Importing Mapping Files

The VideoMapper constantly saves the mapping file internally. You can export your mapping using the “Export” option in the “File” menu. The exported file (.vmp file) contains the configuration of the output groups of GrandVJ XT as well. You can import external mappings using the “Import” option in the “File” menu.

LED Mapper

The MediaMaster software can also be used to drive LED, dimmers or other colour changing devices over DMX in addition to sending high resolution video content to conventional projection or display devices with DVI, VGA or S-Video input.

In order to use the pixel mapping output over DMX you must first build a “mapping file”. This is created using the LED Mapper software. It allows you to configure what type of LED fixtures you are using, their DMX addresses and what pixels of your output screen they are related to.

The LED mapping samples the video output buffer and as such full screen output must be enabled for pixel mapping to work.

The LED Mapper has no software limitation. You can control as many LED fixtures as you want within the limit of the 256 DMX universes.

We will explain here how to create the mapping file that describes your network of LED devices.

With the mapping file created and loaded into the Application, the software will output DMX values for each pixel that has been mapped based on the colour and intensity of that pixel in your master video output.

This output of DMX can be done simultaneously with the main video output – allowing you to use DMX controlled colour mixing fixtures alongside your display devices.

For example, you may have a central projection display in the middle of the stage and surround it with LED colour mixing tubes which would also respond to the same content and be controlled via the MediaMaster software.

The LED Mapper software includes profiles for many of the leading LED fixtures currently on the market.

Note: By default, the LED Mapper is not activated, for more information on how to activate LED Output in the Application, read the Preferences Dialog section and the part about the LED Mapper.

Concepts

The LED output in the MediaMaster software aims at driving LED fixtures through DMX addressing. Since there's a lot of different panel vendors, LED fixtures have very different properties when it comes to resolution, pixel type, channel mapping, etc.

The LED Mapper has been designed to handle most of the fixtures on the market as long as they are driven through DMX.

To drive those fixtures, MediaMaster uses the Art-Net protocol (DMX over Ethernet). If some of your panels don't directly support Art-Net, it can be easily converted into a classic DMX signal using so-called Ethernet nodes. Art-Net gives provision for up to 256 DMX universes, which allows handling a lot of elements.

The principle of the LED Mapper is very simple: Using the LED Mapper application, you describe which area of the video output will be sent to each LED devices along with their DMX addressing (universe and base channel). Once the configuration for a particular show has been defined, it is saved in a 'mapping' file that will be used by the MediaMaster software to push the right pixels to the right LED Panels.

The Integration of the LED Mapper with MediaMaster

To start sending DMX values to your fixtures you need to activate the LED Mapper from the "Output Tab" of the preferences Dialog.

The mapping file used by MediaMaster is stored automatically in the active library. This has the advantage of making it easy to move or backup a show because the library will have both the content and the mapping used by MediaMaster.

When you activate the LED Mapper for the first time you will not see any activity on your fixtures because none are mapped.

It is recommended to open the LED Mapper from the Edit menu of MediaMaster. Doing so guarantees that you run the LED Mapper application provided together with MediaMaster and that both applications share a same Library where the mapping file is stored. Each time you save your mapping file, MediaMaster will reload it automatically.

MediaMaster and the LED Mapper are now better integrated. Both can stay open simultaneously. Closing and reopening the mapper will not cut the Art-Net connection.

Hardware and Network Setup with Art-Net Protocol

The LED Mapper output aims at driving LED fixtures with a DMX input. The MediaMaster software will always send DMX information over Art-Net on a single Ethernet adapter. Depending on the type of fixture, it might need to be converted into a DMX signal with Ethernet nodes.

Most Ethernet nodes are Art-Net compatible, and a lot of them are dedicated to Art-Net protocol. The Art-Net protocol can transfer up to 256 DMX universes, allowing to control up to 131.072 DMX channels.

DMX universes in Art-Net are specified by means of two parameters: subnet and universe: there are 16

subnet and 16 universes (both ranging from 0 to 15). On each Ethernet nodes, you must select which subnet / universe they will be listening to transfer the signal onto their DMX output.

Fixture Node Discovery with ArtPoll and ArtReply

Art-Net specification includes a mechanism to automatically discover DMX devices connected to the network. The “Fixture Nodes” list monitor the active network interface and will display the IP address, the subnet and universe assigned to each detected node.

When available, the name of the node will be displayed. If not, the IP address will be used as the name.

A node that disappears from the network will be displayed in red. The list also displays the number of LED fixtures assigned to each node in the current mapping. It's the number in the “Nb” column.

LED Mapper Interface

The Main LED Mapper Interface

The LED Mapper is the application where you describe which parts of the video image (screen) should be sent to the different fixtures.

The application has been designed to be simple and easy to use. In order to monitor your work, the software sends Art-Net output, which allows you to see the result of your work when creating the mapping in a WYSIWYG fashion. This is very handy for very complex set-ups with many fixtures. It also makes sure the process of using the mapping in the ArKaos software is as seamless as possible.

Also, you can decide whether LED Mapper or the Application is sending DMX to the fixtures.

The mapping application is just using a fixed image to sample colours and does not support fancy movie playback and effects. It's solely targeted at getting an accurate mapping definition, not as a performance tool. Once you've created your mapping, the Application will use it and feed the LEDs with camera, visuals, text using effects or any other visuals.

Using the icons on the bottom left of the canvas you can change the background visual.

To add a new image for the mapping of fixtures, go in the File menu and select the item “Choose Test Image…” to choose any image residing on the computer's hard drive. You can also use the “Choose Test Image Directory…” to select a directory that will contain several test images that are needed during the mapping process.

The Fixture Library

The mapping software is based on the concept of using a fixture library. This library contains the definition for various Fixtures, storing their intrinsic parameters such as the number of pixels they cover, the channel offset for each of pixel and so on.

Once you have defined the library elements, you are free to use them as many times as you wish in a given mapping setup. Each fixture element used for a particular configuration becomes a ‘mapping element’ that you can arrange interactively, specifying for each of them the universe and start channel

to be used.

In the list you find all the fixtures available in the Fixture Library.

Fixtures are sorted by manufacturers.

Each fixture definition contains the following parameters:

Resolution

The resolution specifies the width and the height of the pixel matrix (for instance 8x8 pixels).

Pixel Type

The pixel type specifies the colour and luminance capacity of the pixels. Most often, the pixel type will be RGB, meaning 3 DMX channels define each pixel; giving respectively the red, green, and blue levels.

Some devices have additional channel for luminance information and are of type RGBL. This is generally provided to make them easier to control from a lighting desk but is not useful when controlled from the ArKaos software. However, it is important to choose the right pixel type or the values sent will not correspond to what the device is expecting. In the case of the RGBL pixel type, the ArKaos software will output a constant luminance set in .xml or simply fill the "L" channel with a 100% value by default.

For pixel type "L" (Luminance only), the Application will compute each of the pixel's luminosity and send it to the fixture. In this case each pixel uses only one DMX channel.

The CMY and YMC are alternative colour models used to control some fixtures such as moving lights.

Amber is a colour between yellow and orange. They are represented by a separate LED on some fixtures.

Pixel Type Detail or Formula RGB RBG GRB GBR BRG BGR Red, Green, Blue Red, Blue, Green Green, Red, Blue Green, Blue, Red Blue, Red, Green Blue, Green, Red RGBL RGBA RGBW+ RGBWL Red, Green, Blue, Intensity Channel* Red, Green, Blue, Alpha = 0 Red, Green, Blue, Additive White = (Red + Green * 1.5 0.5 * Blue) / 3 Red-W, Green-W, Blue-W, W = Min(Red, Green, Blue) Luminance = (Red + Green * 1.5 + Blue * 0.5) / 3; CMY YMC 255 - Red, 255 - Green, 255 - Blue 255 - Blue, 255 - Green; 255 - Red RGBXXX RrGgBb RGB Amber RGBW Amber Red, Green, Blue, 0, 0, 0 Red, Red, Green, Green, Blue, Blue Red, Green, Blue, Min (Red, Green) Red, Green, Blue, Intensity Channel*, Min (Red, Green) RB R G B Red, Blue Red Green Blue *Intensity Channel is a constant value set per fixture in the XML and parameter name is intensity channel with a default value of 255.

Pixel Addressing

In order to drive each pixel inside the matrix, we need to define the channel offset of each pixel inside the fixture. Many fixtures maps pixels from left to right and from top to bottom, but this is not always the case. In order to cope with all situations, the software allows pixels to be addressed freely or using an auto-map feature covering most of the cases.

Creating or Modifying an LED Fixture

To edit an existing fixture, select it in the fixture library list and press the “Edit” button at the bottom of the list. To create a new fixture, press the “New” button below the fixture list.

When creating a new fixture, a first dialog lets you select the pixel type, the width and height of the fixture in pixels, the number of DMX channels used in the personality of the LED fixture. By default it is deduced from the pixel information but a custom size can be specified.

Then in both cases it will open the Edit LED Fixture dialog box:

This dialog allows you to define the manufacturer and product name of the fixture and choose its pixel type, resolution and channel count. Pixels can be mapped on channels either manually or by using the Auto-Mapping feature. The red squares indicate all pixels from the Fixture’s matrix. If they have a number in them, it represents their DMX channels. The number is the channel offset to be used to address that particular pixel. Pixels without numbers are not addressed, no pixel information will be sent to them.

Auto-Mapping gives a simple way to define an addressing that follows a row/column pattern. Simply specify the rule and the start channel to fill out the matrix by clicking ‘Auto-Map’ button. You will see the resulting addressing displayed inside the pixels. If the fixture doesn’t have enough channels, the Auto-Map button will be disabled. The range of the Start channel is constrained so that there are enough channels left for the full pixel mapping.

To map pixel addresses manually, you need to click red squares one at a time or holding mouse button down in the correct order. Each time you click a pixel not yet patched, it will be given the next DMX channel. You can specify the Next Channel to be used by setting another value in the Next Channel field. You can always use the “Reset mapping” button to clear completely the mapping.

You get a finer control over the fixture personality by setting some constants for some channels or keep some channel Undefined. This is done in the Personality tab. It allows the Application to support new fixtures that require some channels, such as Intensity or Shutter, to be set in order to operate.

An Undefined channel will output value zero except in the DMX Merger is used. In this last case, the value received through DMX input will be output. In other words, undefined channels are not controlled by the LED Mapper but only passed through the Merger.

The Reset Constants button in the Settings lets you clear all those constants.

The DMX Merger

The new DMX Merger allows to control advanced fixtures from both a lighting console and the ArKaos software. For instance, a Moving Head Pan & Tilt channels can be controlled from a lighting console while the Application sends video content to the LEDs.

Both the lighting console output and the LED Mapper fixtures to be merged should be set on a same set of consecutive universes. The DMX Merger will then merge both data and output the result to another non-overlapping set of consecutive universes. The merge will be done based on the configured personality of the fixture in LED Mapper. Undefined channel will take the value from the DMX Input while Constant channel will overwrite the DMX Input values. Pixel information will be merged following the LED Mapper merger mode defined by DMX in two Master Fixture channels.

In the LED Mapper toolbar the following two buttons are respectively to toggle the DMX Merger on/off and to setup the DMX Merger by opening the DMX Universe Merging dialog.

The setup dialog lets the user specify the input and output ranges of universes by specifying a Start Subnet, a Start Universe and the number of Consecutive Universes to be merged. When using consecutive Universes, please note that the next Universe after 15 is the Universe 0 of the next Subnet.

The button with the Merger symbol must be pushed to activate the Merger. This is similar to toggling on the Merger on the main toolbar.

Here are a few rules to follow to setup the DMX Merger properly: · Both the lighting console output and the LED Mapper fixtures to merge should be setup on the same channels in the input range of universes of the DMX Merger. · Merger cannot operate with fixtures set in Unicast mode. · No fixture should be set to output in the range of universes used for the Merger output. · Input and output universe ranges of the DMX Merger should not overlap. · The physical light fixtures to be controlled by the merger should be setup on the output range of universes of the DMX Merger.

In the dialog above, the lighting console and the LED Mapper fixtures should be configured on Universe 0 Subnet 2 and the physical lighting fixture should be set up on Universe 0 Subnet 4.

Note: For now, merging can only be done on pixel format where blending can be done separately per component and DMX channel. Merger does not support yet 16 bits or LEDs with more than RGB channels where components or channels are correlated.

Parameters

Two parameters are available in the Output tab of the preferences to set the Blend Mode of the DMX Merger and the Intensity. In the Status panel of MediaMaster, a letter between square brackets indicates the status and the mode of the DMX Merger.

The Merger takes DMX input and LED Mapper output and apply the selected blend mode to produce a Merger output. On top of that the Intensity determines how much the Merger should influence the result. With an Intensity of 0%, the DMX input is passed through. With an Intensity or 100% the Merger result is output. Intensity parameter can be used as a cross-fade parameter between DMX Input coming from a lighting console and Merger Output coming from LED Mapper.

To be controlled from a lighting console, those two parameters are also available through DMX, and described in the DMX Chart of the Master Fixture.

The Mapped Fixtures List

The “Mapped Fixtures List” contains all the mapped elements that have been already included into the current project.

The address column provides the subnet, channel and universe used by the fixture.

Creating the LED Mapping

When your set of fixtures is ready, you can start building a specific mapping, which can combine several fixtures into a mapping. To add a fixture, simply drag & drop it from the library onto the

mapping area located on the right side of the screen. It will automatically create a 'mapped fixture' (an instance of a fixture in the mapping) and display the available parameters in the "Device Properties", "DMX Mapping Properties" and "Mapping Properties" panes:

At this point, the LED Mapper will start sending DMX to the fixture. If your panels are properly connected, they should display the part of the image held inside the element's area. If the panel doesn't show any image, check the fixture definition, the DMX patching of the element as well as your hardware connections. The images sent for this particular element is also displayed in the "Preview" pane located under the mapping area.

Selecting the Network Interface and the Sender Application

The toolbar on the top of the mapping allows you to select the network interface where you want the Art-Net traffic to be sent:

If you want to create a mapping for a network not connected to your system you can select new and enter an address compatible with the system where the mapping will be used. If you are not sure of the complete IP address of the interface on that system you can by example simply use 2.x.x.x to allow selecting any interface that start by 2.

Two LEDs are monitoring if packets are received or sent by the LED Mapper. Packets received by the LED Mapper are mainly Art-Net pool replies sent back by LED fixtures on the network.

LED Mapper supports any IP addresses including office network ranges like 192.168.x.x and more standard ranges 10.x.x.x and 2.x.x.x as defined by the protocol.

LED Mapper can run side by side with the ArKaos software. A sender selector toggles which application will output DMX to the fixtures:

This allows to quickly visualize the result of the mapping with the output of the Application.

The Application will immediately reload the mapping each time you save the file.

Setting the Sender to LED Mapper means the LED Mapper should output Art-Net data instead of the Application.

The LED will turn orange. When MediaMaster can send out Art-Net data, the LED turns blue again.

Editing the Device and DMX properties

The description in the device properties pane is a helper to identify your devices in the mapped fixtures list.

The DMX properties give the address of the first DMX channel in the device.

If IP address is set to "Auto" the LED Mapper will send the DMX channels to every device on the network. This makes the mapping easier to create, but can put a heavy load on every fixture in the network.

Universe and Subnet are in range 0-15. A Subnet of 1 and Universe 0 is also equivalent to a Universe of 16 when referencing to the alternate convention of 256 Universes in Art-Net 2 and 32768 in Art-Net 3.

In the current version only the first 256 Universes can be addressed.

In LED Mapper, you can set explicitly the IP address of a device. To assist you while setting the IP address, the IP menu is automatically populated with the fixtures nodes discovered on the network.

Here you see all the devices discovered on the network and the LED Mapper will send the DMX channels to the “dmXLAN node6”.

Each entry of the menu is the concatenation of this information: · The node name (dmXLAN node6) · The IP address (2.0.39.38) · The number of devices assigned to that IP address (1)

This avoids the need to enter IP addresses manually in most cases.

Only when you are creating a mapping file offline and you don’t have the devices on your network you need to enter the IP address manually and you must create a “Manual” IP address.

When you create a manual address, the dialog is using the information of the current active network.

If your main network is on 2.x.x.x you will only be able to enter the last 3 numbers of the IP address.

The LED Mapper allows you to enter a manual network address. This allows creating a mapping file using IP addresses for devices, even if you are not yet connected to the network where the mapping will be used.

Unicast Versus Broadcast

LED Mapper supports the unicast transfer mode where packets of data can be sent directly to the addressed fixtures and not to the entire network.

For backward compatibility, LED Mapper can still use broadcasting to send all data to every LED fixture.

In the Broadcast example here, each of the three fixtures would also receive data addressed to the other two fixtures. This would put three times more load on the network and the fixtures would be processing three times more data.

The unicast transfer mode is more efficient because every packet of data is sent exclusively to the addressed fixture, as illustrated below. However, unicast requires specifying the IP address of each fixture.

Fixtures are still mapped in Broadcast mode by default as long as the IP address stays on “Auto”.

To assist you while optimizing your network, fixtures in Broadcast mode are displayed in orange in the “Mapped Fixtures” list:

Using unicast is not mandatory and most of the time broadcasting should work just fine with modern fixtures. You should consider using unicast with a large number of fixtures and if you want to optimize your network by sending the minimum data packets to your fixtures.

If you have a mixed setup with both unicast and broadcast, you will still put some pressure on every device on the network. Unicast works best when every fixture have been assigned an IP address.

Auto-Unicast

Auto-unicast will automatically optimize the network traffic by sending Art-Net data only to the devices concerned. There is no extra setup because that information is automatically shared through ArtPollReply and part of the Art-Net specifications. Devices should be left on Auto IP.

LED Mapper exposes a new option in the preferences to turn on this optimization.

Editing the Mapping Properties

Left and Top are the positions in pixel of the top left corner of the device.

Width and Height are the number of pixels of the screen area that will feed this element. If you want a pixel perfect mapping, this value should match the exact size of the Fixture pixel matrix. This is the default setting after adding element. If the element size differs from the fixture size, the ArKaos software will perform averaging on the screen area to compute the pixel colour information sent to the fixture. · Rotation rotates the element of the specified number of degrees. · Horizontal flip allows flipping the element upside/down · Vertical flip allows flipping the element left/right The element's position, size and rotation can also be edited graphically. If you press the left mouse button inside the device's area, dragging the mouse will move the element. Clicking on every corner of the element will modify the element's size while the top handle allows changing the rotation.

Deleting a Device from the Mapping

To delete an element, select it and press the "Delete" key, you can use "undo" if you made a mistake. Alternatively, you can right click on the element, and select the "Remove" entry in the contextual menu.

You can also delete a device from the "Mapped Fixtures" list. Select the element there in the list and press the "Delete" key.

Mapped Devices Contextual Menu

Once a device is selected you can right click on it to see the contextual menu. The mapping properties such as Flip Horizontal and Vertical are available in the menu. The Align and Rotate options are designed to work on a group of devices.

Those are the options of the Align and Rotate entries:

To save time when creating a big setup with many similar fixtures (for instance 16x10 = 160 fixtures), it is possible to duplicate elements. To duplicate an element, right click on it and select "Duplicate Element..." from the contextual menu.

The following dialog will be shown:

In most cases, the elements will be organized according to a matrix. For example, using 16 elements in a 4x4 grid. Using this dialog, you can specify the width and height of the grid you would like to create, specifying the number of elements you want horizontally and vertically. If you want to create a grid of 4x4 elements, you will enter these parameters.

The Patch direction will define where the new elements will be added and in which order. The order is

important because the software has an intelligent DMX patching algorithm explained below. The direction is also important: if you select to patch first “From left to right” then “From top to bottom”, the element you are duplicating will be the top left element of the grid. The new element will be added to the right and to the bottom of the original one.

Since all the resulting elements need to be assigned to an Art-Net universe and DMX channel, the software will pre-patch the duplicated element using the most logical way: if there is enough channels left in the current Art-Net universe, it will set the start channel to the next unused channel in the universe. If there is not enough space left it will patch the duplicated element on the first channel of the next universe.

To verify or modify the pre-patching of the duplicated elements once you’ve created them, you can select them individually and inspect their properties in the “DMX Mapping Properties” pane.

Mapping Resolution and Pixel Perfect Sampling

When positioning the mapping elements, everything is done with respect to a pixel grid. The grid resolution is per default 100x100 but can be changed to any resolution, up to 4096x4096.

The LED Mapper can be used to send pixel perfect values. To do so you must avoid resizing the mapped device. In this example we have a bar of 12 LEDs mapped in a 64 by 64 canvas area, the device properties are 12 by 1 and no resize occurs, the Preview shows that the colours are exact and not blurred:

Mapping Files

After having mapped all the fixtures for your show, you need to save the mapping file before leaving the application. The File menu offers all common entries to create a new empty mapping, to save your mapping or save your mapping under another file name.

The file extension “.lmp” stands for LED Mapper Project. It includes the mapping (mapped elements and their properties) as well as the fixtures used in the mapping, so that you can open the file on another computer even if the fixtures are not available on that computer’s fixture library.

By default, LED Mapper 3 saves the mapping file in a reserved folder used by GrandVJ.

Mapping Files

Mapping files with extension “.lmp” are used to save both the mapping of fixtures on the canvas, their properties and also the definition of fixtures so that the file can be used on another computer.

In MediaMaster each Library contains one “mapping.lmp” file in the LED Mapper sub-folder. When switching Library, both MediaMaster and LED Mapper will switch to the mapping contained in this Library. Switching Library while any mapper is open is discouraged.

The save command in the file menu directly writes to that active mapping file and notifies the ArKaos software to immediately reload and apply the new mapping file. The Import or Export are used to load and save a mapping from or to a different file location. New… Creates a new mapping file and discard the current one. Save Saves the mapping and notifies the ArKaos software. Import… Imports a mapping from a file location. Export… Exports the mapping to a file location.

Import Fixtures

The option “Import Fixtures” in the File menu loads and merges a library of fixtures from a file, within the current definition of fixtures used by LED Mapper.

Kling-Net Mapper

Concepts

Kling-Net is a protocol designed to simplify the setup and operation of display devices such as LED devices. Those LED devices are connected to a computer through a standard Ethernet network.

The purpose of Kling-Net is: · To allow the connection of display devices to a computer through an automatic configuration. · To dynamically configure the network by assigning IP numbers to the LED devices. · To ensure a perfect time synchronization of many display devices. · To avoid using expensive hardware video converters usually needed to send video to display devices. · To allow creating a heterogeneous network of display devices made by different manufacturer and controlled by a Theatre computer. · To add some intelligence into display devices in order to allow device auto configuration. · With Kling-Net, display devices and network installations become straightforward to setup. Kling-Net is independent of DMX, Art-Net or E1.31 (also called Streaming ACN) protocols.

Hardware Setup

Kling-Net is designed to make the best use of your Ethernet network.

To make your network as Theatre as possible, you can connect the devices directly to your server:

Kling-Net requires a Gigabit compatible Ethernet card (1000 Mbps), if your use a 100 Mbps network Kling-Net will run fine but the number of devices that can be used will be limited.

Kling-Net offers a lot of flexibility concerning the IP addresses you can use.

The address of the server should be in the range of local IP addresses: · 2.255.255.255 · 10.0.0.0 to 10.255.255.255 · 172.16.0.0 to 172.31.255.255 · 192.168.0.0 to 192.168.255.255

Note: Kling-Net attributes IP addresses to the LED devices when they power up. If you change the IP address of the server you must power down/up the LED devices and restart the MediaMaster software.

Mapping Workflow Overview

This Kling-Net Mapper is designed to communicate with the MediaMaster software; both can run at the same time on the same machine or different machines on the same network. You can select who is sending video to the LEDs through the output drop-down in the toolbar.

The typical workflow is: 1. Launch MediaMaster, go to the Preferences window, and activate Kling-Net. 2. Launch the Kling-Net Mapper application (you can launch it from the Preferences window in the Application). 3. Set the output to “Test pattern” in the Kling-Net Mapper application. 4. Create the mapping and test it on your devices to make sure that it looks fine. 5. Send the mapping to the Application by clicking the Send button from the top left. 6. Select the Application as output in the

Output Menu.

If you need to re-edit the mapping, you can restart the workflow from step 3.

You can save the mapping file just in case you need to use it again later, but once you sent the mapping to the Application via the send button, it will automatically be saved for the Application.

The send button is on the top left in the Kling-Net Mapper application.

Kling-Net Mapper Application

Overview

The Kling-Net Mapper application is where you define areas of the video output that will be sent to the LED devices.

The video output is represented by the mapper canvas. The connected devices are listed in the left panel. To add a device in the setup, simply drag and drop a device on the canvas. It will automatically create a “mapping rectangle”. The area included in the rectangle will be grabbed and sent to the corresponding device.

The application has been designed to be simple and easy to use. Each manipulation of device mapping are immediately reflected on the real LED device. This is very handy because some set-ups can be very complex and driving many devices. It also makes the mapping process in Kling-Net Mapper as seamless as possible.

The mapper should primarily be used for calibration, so background images used in the canvas are still test pattern images. You can also use a screen grabber to preview the result on moving images.

Once you’ve created your mapping, the MediaMaster software will use it to feed the LEDs with video streams, visuals, text, effects, or generated content.

Connected Nodes

The “Connected Nodes” panel shows the list of Kling-Net Nodes like the Kling-Force products. The toggle with the eye icon tells if the devices connected on that node should appear in the list of connected devices. For Kling-Force products, the three-part number between round brackets indicates the Firmware version. If Kling-Net Mapper embeds a more recent version of the Firmware, the Kling-Force device will be automatically updated.

Connected Devices

This panel shows the list of the devices that are currently connected to the mapper or that were connected in the past. Information like product name, size, device ID and IP address is displayed here.

Devices that are already mapped on the canvas are shown in green while unmapped devices appear in black. Disconnected devices will be shown in red.

Mapped devices Unmapped devices Disconnected

To map a device, simply drag and drop the item in the list onto the canvas. This will create a mapping

rectangle on the canvas, representing the area that will be sent to the device.

The device ID for each mapped item will also appear in the “Mapped Objects” list.

The drop-down lets you enter a string to filter out devices with corresponding occurrences and to filter out Kling- Force or standalone devices.

Mapped Objects

This panel shows the list of objects that are already mapped in the canvas with their IDs.

The Canvas

The canvas represents the entire output from which some areas will be grabbed and sent to the LED devices.

You can change the test pattern by clicking on the left and right arrows at the bottom-left corner of the panel. You can also choose your own image or image directory with the “Choose Test Image” and “Choose test image directory” menu entries from the “File” menu.

Resize handle: resize the mapping rectangle Rotate handle: rotates the mapping rectangle Select test pattern Mapping rectangle

The size of the canvas is the size that will be used to render animation clips in the MediaMaster software. You can change it by using the “Canvas Size” menu entry in the “Canvas” menu. You can also automatically adjust the canvas size to the selected devices by using the “Crop To Selection” menu entry.

To edit mapping properties for devices, click on a mapping rectangle on the canvas. Properties will appear in the object inspector, at the bottom of the screen.

To zoom in the canvas, use the mouse wheel on PC or `Cmd` + mouse scroll on Mac.

To pan, press the middle mouse button and move the mouse on PC or use vertical and horizontal mouse scroll on Mac.

Dividing and Splitting

Kling-Net devices can be divided or split in the Kling-Net Mapper. Each part can then be mapped independently even if they are connected through only one Kling-Net connection.

Dividing

A typical use case would be for a set of LED strips that are exposed as one rectangular Kling-Net device. By using the divisor field in the device properties and entering the number of LED Strips, each individual LED strip can be mapped with the correct LED resolution.

Splitting

Each individual strip can also be split after any number of LEDs to create multi-segment strips.

To split a device, right click on the device in the canvas, select “Split device” in the popup menu, enter a

split position in the next dialog and press the OK button. The initial device is split in two devices that can be mapped separately on the canvas.

Output Selection

Test Pattern

The pattern displayed in the canvas will be output to the Kling-Net fixtures. As the default output is “None”, it is important to select an output to verify if anything is sent to the LED fixtures.

To iterate over the available test patterns, use the left and right arrows at the bottom left of the canvas.

Screen Grabber

The screen grabber allows grabbing any part of the screen and sending it to the mapped devices. To activate it, click on the output icon in the toolbar (the first one on the left), and select “screen-grabber” in the drop-down menu.

A red rectangle will appear, representing the background images that will be sent to the devices. The rectangle has the same resolution as the canvas size. You can drag it to choose the capture zone on your screen.

Application

The “Kling-Net Mapper” output of the MediaMaster software will be sent to the LED fixtures. A specific instance of the Application can be selected in the sub-menu.

Templates

Templates are the easiest way to map several devices of the same size in a grid.

To create a template, click on the “Create Template” button at the bottom of the mapped devices list. This will open the Template Creation dialog box.

The Template Creation dialog box shows a list of available sizes on the left. Chose the size of the devices you want to map in the list. The dimensions parameter modifies the number of devices you can map on the template.

To map devices on the template, double click on it or click on the template map mode icon in the toolbar. When the map mode is activated, everything is frozen in the graphical editor, the only thing you can do is drag and drop devices on the template.

Select a device size Select the template size

You can only drag and drop devices with the right size, as defined in the template creation dialog. When you're ready with the mapping, double click out of the template to come back to the normal mode.

Devices mapped into a template are “attached” to it. Therefore, it is easy to edit a set of devices, which belong to a template.

A supplementary parameter is available for templates in the object inspector: `Interspaces`. It allows you to define `Interspaces` between each device in the template.

Draft Devices

The button “Create Draft Device…” in the main window lets the user create a Draft Device in the canvas and place it precisely. When later the real Kling-Net devices get connected, the user can drag-and-drop them on the Draft Device slots for quick and precise placement. Draft Devices are displayed in grey, both in the device list and in the canvas.

Preferences

“Use Bilinear Filtering” indicates that any sampling done between two pixels in the canvas will be interpolated using bilinear interpolation.

If “Use centre for Position” is set, then the displayed and edited position of a fixture corresponds to the centre of the fixture rectangle. Also, rotations are done around the centre which might feel more natural.

If “Use centre for Position” is not set, then the displayed and edited position of a fixture corresponds to the first LED on the top left corner of the fixture rectangle. Also rotations are done around this first LED which is more appropriate to set vertical fixtures to some precise (x,y) coordinates. This mode is better to setup pixel perfect mapping because for even pixel dimensions, the centre would be in the middle of two pixels.

Pixel Perfect Mappings

For pixel perfect mappings, unset options “Use Bilinear Filtering” and “Use centre for Position” in the preferences. Make sure your devices are mapped with their genuine size. Only use whole numbers for positions and only multiple of 90° for rotations.

How to Display LED Mappings from the Application

The MediaMaster software uses a unique mapping file that is stored to a precise location in the Library folder or in the settings location. If you use the New, Open, Save or Save As file operations in the Kling-Net Mapper, the current mapping will not automatically get used by the Application.

Below are the different ways to tell the Application to use the new edited mapping.

While the Kling-Net Mapper is Running

If you have created and edited a mapping and want to use it in the Application, you must do two actions:

1. Send the mapping to the Application.

To do this you can simply use the send button on the top left of the interface. Another way is to archive your mapping by saving it to disk and from the preference of the Application import the mapping file. Using the send button is the fastest way.

1. The send button is top left in the Kling-Net Mapper application.

2. Switch the output to the Application.

From the output menu, switch the video output back to the Application.

While the output is set to the Application you can continue to edit your mapping and use the “Send” button to update the output in the Application.

MediaMaster: You can read the section “Output Tab” in the Preferences of MediaMaster to get more details about the configuration of Kling-Net in MediaMaster.

While Kling-Net Mapper is Not Running

If no Kling-Net Mapper is running, then when the Application starts it will send output to the Kling-Net devices if Kling-Net is activated.

If you already loaded the mapping in a previous session, GrandVJ will restore the mapping automatically. Similarly, MediaMaster will automatically restore the mapping previously saved in the active Library.

If you want to load a new mapping file you must use the Kling-Net import button in the Preferences of the Application.

Video Mapper

Video Mapper

Concept

The VideoMapper is an extension that allows easy mapping of video onto irregularly shaped surfaces and through multiple outputs. Designed to let you setup mapping projects in a very short time, it makes it incredibly simple to flow visuals around complex objects with just a few clicks.

Once you launch the extension, the ArKaos software will send the output from each layer to virtual “surfaces” that can be scaled, deformed, and assigned to any physical output. One output can display a full screen visual or a composition of several mapped visuals; output to a video projector and you can map the surfaces to any physical volume like objects or buildings.

Hardware Setup

ArKaos VideoMapper is designed to output video content on any display connected to the computer’s graphical cards.

It is advised to connect all the displays to the computer before turning it on.

The VideoMapper application will detect the connected displays and let you configure their resolution and refresh frequency individually. This is a great tool to set up multiple outputs with different resolutions.

Mapping Workflow Overview

The VideoMapper application is designed to communicate with the ArKaos software. They can run at the same time on the same computer, so that you can edit the mapping directly with the video content running in the application. The VideoMapper application is only needed for the edition of the video mapping itself, and can be closed once the mapping setup is finished. The mapping will be automatically imported in the ArKaos software. The typical workflow is: · Connect the displays to the graphics card then turn on the computer. · Launch the ArKaos software and switch to the "VideoMapper mode" in the Output preferences. The Application will restart in order to apply the new mode. · Launch VideoMapper application. You can also launch it by clicking the "Edit" button in the Application Output preferences. · Create a mapping and test it directly with your video content playing in the ArKaos software or by using a test image. · Once the mapping is finished, simply close the VideoMapper and the ArKaos software will take over to output to the full screen displays.

Important: The video rendering occurs on your graphics card. If you would create surfaces on a display that is plugged to another graphics card, be aware that you may experience reduced performances due to memory transfers, between the different graphics cards, going through the main memory. If possible, it's advised to use the same graphics card to drive all the displays, eventually using a video splitter device. If you absolutely need to use several graphics cards, then you should connect the displays with the biggest resolution to the main graphics card.

VideoMapper Application

The VideoMapper application allows you to manage your displays and create or edit surfaces that will be used by the ArKaos software to display its layers when in VideoMapper Mode.

Interface Overview

Toolbar

The toolbar on top of the window contains various controls to adjust the user interface, editing options and the information displayed in the output.

Mapping Setup and Sources

The left side of the application shows the Mapping setup, with a graphical representation of the connected displays and the Display browser. Each display in the browser will list its surfaces, which can be added, deleted or copied directly in the browser.

Sources

The Sources tab contains the visual sources that are used by the VideoMapper, it can be an image or the feed from the ArKaos software running in "VideoMapper Mode".

Surface Editor

The "surface editor", in the central panel, shows the surfaces of the selected displays. It is a preview of the result you will obtain on the related display in full screen. For each surface it shows both the shape that will be sampled from the input visual source and the shape it will be warped to in the output. Input and Output panels can be collapsed and extended based on the editing needs.

Inspectors

The right panel is an inspector that shows parameters of the selected surface (tab “Surface”), the selected display (tab “Display”) or the selected group of displays (tab “Group”).

Toolbar Options

Show / Hide Left Panel

Shows or hide the left panel with the display browser so you can have more room to edit your surfaces.

Link Grid Points

Links points between the grind on the crop zone and the grid on the output zone so that moving a point on one will make the corresponding point move on the other also.

Snap Surfaces

Surface borders will snap with each other and with the borders of the surface editor.

Enable / Disable Full Screen

Goes full screen on the active outputs.

Show Cursor on Full screen

Show the cursor position on the full screen displays.

Surface Selection Flash

The active display will flash each time you select a surface.

Surface Info on Full Screen

Show the surface edition objects (surface borders, handles, centre and name) on the full screen display.

Setting Up Displays

Each connected display (as detected by your operating system) is listed in the display browser. Disconnected displays are shown in red. Below each display item appears the list of surfaces (click on the arrow on the left to expand the display item).

Each display can be enabled or disabled by clicking on the left check box. Disabled displays won’t go full screen when the global full screen button is activated (the display showing the VideoMapper interface is disabled by default).

Note: The first letter of identification before the display name (A1, A2, B1, etc..) represents the GPU to which the display is connected. Two displays named A1 and A2 means that they are connected to the same graphics card.

Grouping

Displays can be grouped together to form one big display, by dragging and dropping one display on another display. There are two ways to un-group displays: by selecting a display and clicking the eject button on the right side or by selecting the group, right clicking and selecting `Ungroup`.

Draft Displays

You can create a “draft display” by clicking the “add draft display” button above the display browser on the right. Draft displays can be used when the display you want to use in your final setup is not connected. Create your mapping on a draft display and, later, copy/paste the surfaces to the final display. The draft display can be deleted once the job is done (right-click on the draft display item and choose “delete”).

Full Screen

To activate the full screen, press CTRL+F (Command+F on Mac) or click on the full screen button in the toolbar. The VideoMapper keeps the full screen state in memory. When you start the VideoMapper, the full screen will automatically be enabled if it was enabled the last time you closed the application.

Editing Display Properties

When you click on a display item in the display editor, or when you click on the display tab in the right inspector, the properties related to the display are shown. You can choose the resolution of the display and its frequency.

The “Force Resolution” option will change the resolution of the display to match the resolution in the “Resolution” combo box. If the option is not set, a “Custom Resolution” can be specified, and the output will be displayed only on the partial top-left display to cover the specified resolution.

The option “Span” allows to virtually split the display as a matrix of X columns and Y rows.

The “Span Arrangement” option indicates how those Spans should be rearranged to form a large continuous display for visual playback.

E.g., a typical use would be to take a 4k output to drive four Full-HD projectors installed in a row. In this case, you would Span by 2x2 and pick a Horizontal Span Arrangement. The VideoMapper would automatically set a large 7680x1080 pixel canvas.

Background Image

The background of the display can be set to black, grey, or bitmap image (you can choose the image file by clicking on the “open button”).

Custom Canvas Size

By default, rendering is done on a canvas at the resolution set for the display. From that canvas, an area is cropped and mapped on each surface. In some situations, magnifying a small-cropped area requires higher resolution or a lower resolution might be enough if a surface covers a smaller part of the output area. The option “Custom Canvas Size” gives you explicit control over the canvas size used for the intermediate rendering.

Pattern

This option lets you display a pattern over the displays or the spans to help with the setup or the corrections. The “Pattern Type” is used to select what type of pattern should be displayed: some are designed to setup geometric correction, to setup displays or to tweak colour correction.

The “Grid Density” defines how many sub-divisions should be used when generating procedural patterns.

The option “Animate Pattern” scrolls the pattern over the display area to bring out some geometrical deformation issues in some area of the display.

The left pattern “Geometric Correction” is mainly for geometric correction and soft-edge. The right pattern “Colour Correction” is more for per display colour adjustments and to tweak colours and curves for soft-edge.

Display Corrections

Geometric Correction

Geometric correction lets you remap the whole output of a display or a span, including all surfaces, by editing a grid and each of its control point. This allows to compensate some pan, tilt or any deformation due to some projection on arbitrary surfaces.

To use Geometric Correction, first toggle the feature on with the top-right switch.

Each segment can either be set to Linear or Curved. The coordinates of each control point can be specified explicitly.

To add or remove control points, use the following buttons: Add control points that will divide the grid horizontally. Add control points that will divide the grid vertically. Remove control points that will divide the grid horizontally. Remove control points that will divide the grid vertically. Add a control point by clicking anywhere in the grid. Reset the grid; remove all the control points.

The buttons “All Linear” or “All Curved” transform all segments to linear or curved. But each segment can also be set explicitly to linear or curved by selecting a control point and using the interpolation editor below:

It represents the control point with its four adjacent segments. Each segment can be set to linear or curve. The middle round control will toggle the four adjacent segments between linear and curved.

The position of the selected corner box or the selected control point can be moved with the arrow keys of the keyboard. By pressing `Alt` key modifier, the movement is amplified by a factor of 10x. By pressing `Ctrl` or `Cmd` more precise adjustments can be done by a factor of 1/10th. Tab key can be used to select the next control point and Shift + Tab to select the previous control point.

Soft-Edge

The Soft-Edge defines a band over which the projection of two beamers will overlap to create a larger continuous output without any visible discontinuity. It can be performed between two displays or two spans. To use Soft-Edge, use the top-right switch to toggle the feature on.

The top representation lets you select the upper, lower, left or right border of the current display or current span.

The “Width” parameters sets the width in pixel of the overlapping area.

The “Curve” defines how the blending is performed along the overlap area. A value of 1.0 is linear. A higher value gives a smooth ease-in and ease-out on the left and right sides of the overlap area.

A “Centre Value” above 0.5 makes for a lighter middle band in the overlap area. A value below 0.5 makes for a darker middle band.

Soft-Edge is always applied on a matrix of displays or spans. A different behaviour is applied on any outer edge on the boundary of the matrix compared to inner edge between two adjacent displays. For inner-edges, soft-edge is active by default. For outer-edges the soft-edge is disabled by default by having a width of zero. For special set-ups with multiple media servers or 360° projections, the width can be explicitly set to activate the soft-edge on the outer edge.

Per Display Corrections

The brightness, contrast, RGB and gamma can be adjusted per display. If the option “Link Gammas” is not set, then the red, green and blue component of the gamma can be tweaked separately. Displaying the “Colour Correction” pattern is helpful to adjust the colours. Red, Green, Blue behave as multipliers. A value of 0,8 would mean outputting only 80% of the red component of the colour. To use Display Corrections, first toggle the feature on with the top right switch.

Setting Up Surfaces

Creating a Surface

To create a new surface, click on the rectangle or triangle that appears on the right when the display item is selected.

The list of surfaces on a display is like a stack of layers from top to bottom. The first surface will be displayed on top of the others. You can change the order of the surfaces by dragging them around in the list.

Editing Surface Properties

When you select a surface, its properties are displayed in the inspector on the right. You can modify geometrical parameters by editing the surface directly in the graphical editor (for example modify the width or the height of a rectangle by dragging the middle handles of the rectangle) or by enter numerical values in the inspector.

- The X and Y parameters are the coordinates of the surface. This position is by default the top-left corner for rectangles and the centre for triangles. If the option “Display Top Left Coordinates” is unchecked in the view menu, the position of the rectangles will be centred.
- The R parameter is the rotation of the surface. The rotation can also be modified by dragging the rotation handle in the graphical editor.

The other parameters depend on which surface you are editing:

- Triangles: You can edit the position of the three corners of the triangle (parameter X-Y in the inspector).
- Rectangles: You can modify the width and the height of the rectangle (parameter W-H in the inspector).

The rectangle can also be deformed using a grid pattern. To enable the grid, check the option “Edit Grid” in the inspector.

When the grid is enabled, each control point of the grid can then be dragged separately.

To add or remove control points, use the buttons just below the edit grid option: Add a point vertically. Add a point horizontally. Delete a point horizontally. Delete a point horizontally. Add a point anywhere then click with your mouse in the grid Reset the grid and delete all the points.

The interpolation combo box lets you set the interpolation for all the control points of the grid, it can be set to linear or curved. To set the interpolation separately for each control point, first click a control point in the graphical editor, then the interpolation editor appears. It represents the selected control point with its four adjacent segments. The interpolation for each segment can be set to linear or curved.

The position of the selected corner box or the selected control point can also be edited with the arrow keys of the keyboard. • To move the point of 20 pixels, press `Alt` while moving the point. • To move the point of 0.05 pixels, press `Ctrl` (`Cmd` on macOS) while moving the point.

Image Masks

Any image file can be used as mask that can be applied on a surface. The average of the RGB colours will be used if the source is a colour image.

In the Mask properties editor, click on the “Open” button to load an image.

Make sure that the “Enable” button is checked.

The following options are available to modify the mask: • `Invert`: invert the grey scale source image before applying the mask. • `Black`: the masked part of the image is black. • `Trans`: the masked part of the image is transparent.

Mapping of Surfaces

For each surface, a shape in the input visual source can be warped to a different shape to the output. Both Input and Output panels can be expended or collapsed depending on your editing needs. This technique can be used for instance to crop or magnify some visuals, to remap visuals on complex shapes or align them on some 3D objects.

The four corners of rectangular surfaces can be moved separately if you check the option “Edit Grid”.

Match Output Shape: copies the shape that is currently selected in the output panel to the input panel.

Match Input Shape: copies the shape selected in the input panel to the output panel.

The Match Input and Output Shape buttons are very handy if you want to keep your final image without any stretching of pixels. Another technique to avoid any distortion when editing grid of a

rectangular surface, is to activate “Link Grid Points” option in the toolbar so that your changes are automatically reflected in both Input and Output panels.

The Show All button allows seeing the input shapes corresponding to all the surfaces of the display. This option is useful if you want “cut” a visual into several surfaces.

Visual Sources

The visual sources of the VideoMapper can be found under the “Sources” tab in the left pane, next to the Mapping setup.

Visual sources can be an image or the feed from the ArKaos software running in “VideoMapper Mode”. If the Application is running, the source will automatically switch to use its feed.

To add an image to the list of sources, click on the “Load Image” button above the list. Double click on an item of the list to select that source.

Exporting and Importing Mapping Files

The VideoMapper constantly saves the mapping file internally. You can export your mapping using the “Export” option in the “File” menu. The exported file (.vmp file) contains the configuration of the output groups of GrandVJ XT as well. You can import external mappings using the “Import” option in the “File” menu.

LED Mapper

LED Mapper

The MediaMaster software can also be used to drive LED, dimmers or other colour changing devices over DMX in addition to sending high resolution video content to conventional projection or display devices with DVI, VGA or S-Video input.

In order to use the pixel mapping output over DMX you must first build a “mapping file”. This is created using the LED Mapper software. It allows you to configure what type of LED fixtures you are using, their DMX addresses and what pixels of your output screen they are related to.

The LED mapping samples the video output buffer and as such full screen output must be enabled for pixel mapping to work.

The LED Mapper has no software limitation. You can control as many LED fixtures as you want within the limit of the 256 DMX universes.

We will explain here how to create the mapping file that describes your network of LED devices.

With the mapping file created and loaded into the Application, the software will output DMX values for each pixel that has been mapped based on the colour and intensity of that pixel in your master video output.

This output of DMX can be done simultaneously with the main video output – allowing you to use DMX controlled colour mixing fixtures alongside your display devices.

For example, you may have a central projection display in the middle of the stage and surround it with LED colour mixing tubes which would also respond to the same content and be controlled via the MediaMaster software.

The LED Mapper software includes profiles for many of the leading LED fixtures currently on the market.

Note: By default, the LED Mapper is not activated, for more information on how to activate LED Output in the Application, read the Preferences Dialog section and the part about the LED Mapper.

Concepts

The LED output in the MediaMaster software aims at driving LED fixtures through DMX addressing. Since there's a lot of different panel vendors, LED fixtures have very different properties when it comes to resolution, pixel type, channel mapping, etc.

The LED Mapper has been designed to handle most of the fixtures on the market as long as they are driven through DMX.

To drive those fixtures, MediaMaster uses the Art-Net protocol (DMX over Ethernet). If some of your panels don't directly support Art-Net, it can be easily converted into a classic DMX signal using so-called Ethernet nodes. Art-Net gives provision for up to 256 DMX universes, which allows handling a lot of elements.

The principle of the LED Mapper is very simple: Using the LED Mapper application, you describe which area of the video output will be sent to each LED devices along with their DMX addressing (universe and base channel). Once the configuration for a particular show has been defined, it is saved in a 'mapping' file that will be used by the MediaMaster software to push the right pixels to the right LED Panels.

The Integration of the LED Mapper with MediaMaster

To start sending DMX values to your fixtures you need to activate the LED Mapper from the "Output Tab" of the preferences Dialog.

The mapping file used by MediaMaster is stored automatically in the active library. This has the advantage of making it easy to move or backup a show because the library will have both the content and the mapping used by MediaMaster.

When you activate the LED Mapper for the first time you will not see any activity on your fixtures because none are mapped.

It is recommended to open the LED Mapper from the Edit menu of MediaMaster. Doing so guarantees that you run the LED Mapper application provided together with MediaMaster and that both applications share a same Library where the mapping file is stored. Each time you save your mapping file, MediaMaster will reload it automatically.

MediaMaster and the LED Mapper are now better integrated. Both can stay open simultaneously. Closing and reopening the mapper will not cut the Art-Net connection.

Hardware and Network Setup with Art-Net Protocol

The LED Mapper output aims at driving LED fixtures with a DMX input. The MediaMaster software will always send DMX information over Art-Net on a single Ethernet adapter. Depending on the type of fixture, it might need to be converted into a DMX signal with Ethernet nodes.

Most Ethernet nodes are Art-Net compatible, and a lot of them are dedicated to Art-Net protocol. The Art-Net protocol can transfer up to 256 DMX universes, allowing to control up to 131.072 DMX channels.

DMX universes in Art-Net are specified by means of two parameters: subnet and universe: there are 16 subnet and 16 universes (both ranging from 0 to 15). On each Ethernet nodes, you must select which subnet / universe they will be listening to transfer the signal onto their DMX output.

Fixture Node Discovery with ArtPoll and ArtReply

Art-Net specification includes a mechanism to automatically discover DMX devices connected to the network. The “Fixture Nodes” list monitor the active network interface and will display the IP address, the subnet and universe assigned to each detected node.

When available, the name of the node will be displayed. If not, the IP address will be used as the name.

A node that disappears from the network will be displayed in red. The list also displays the number of LED fixtures assigned to each node in the current mapping. It’s the number in the “Nb” column.

LED Mapper Interface

The Main LED Mapper Interface

The LED Mapper is the application where you describe which parts of the video image (screen) should be sent to the different fixtures.

The application has been designed to be simple and easy to use. In order to monitor your work, the software sends Art-Net output, which allows you to see the result of your work when creating the mapping in a WYSIWYG fashion. This is very handy for very complex set-ups with many fixtures. It also makes sure the process of using the mapping in the ArKaos software is as seamless as possible.

Also, you can decide whether LED Mapper or the Application is sending DMX to the fixtures.

The mapping application is just using a fixed image to sample colours and does not support fancy movie playback and effects. It’s solely targeted at getting an accurate mapping definition, not as a performance tool. Once you’ve created your mapping, the Application will use it and feed the LEDs with camera, visuals, text using effects or any other visuals.

Using the icons on the bottom left of the canvas you can change the background visual.

To add a new image for the mapping of fixtures, go in the File menu and select the item “Choose Test Image…” to choose any image residing on the computer’s hard drive. You can also use the “Choose Test Image Directory…” to select a directory that will contain several test images that are needed during the mapping process.

The Fixture Library

The mapping software is based on the concept of using a fixture library. This library contains the definition for various Fixtures, storing their intrinsic parameters such as the number of pixels they cover, the channel offset for each of pixel and so on.

Once you have defined the library elements, you are free to use them as many times as you wish in a given mapping setup. Each fixture element used for a particular configuration becomes a 'mapping element' that you can arrange interactively, specifying for each of them the universe and start channel to be used.

In the list you find all the fixtures available in the Fixture Library.

Fixtures are sorted by manufacturers.

Each fixture definition contains the following parameters:

Resolution

The resolution specifies the width and the height of the pixel matrix (for instance 8x8 pixels).

Pixel Type

The pixel type specifies the colour and luminance capacity of the pixels. Most often, the pixel type will be RGB, meaning 3 DMX channels define each pixel; giving respectively the red, green, and blue levels.

Some devices have additional channel for luminance information and are of type RGBL. This is generally provided to make them easier to control from a lighting desk but is not useful when controlled from the ArKaos software. However, it is important to choose the right pixel type or the values sent will not correspond to what the device is expecting. In the case of the RGBL pixel type, the ArKaos software will output a constant luminance set in .xml or simply fill the "L" channel with a 100% value by default.

For pixel type "L" (Luminance only), the Application will compute each of the pixel's luminosity and send it to the fixture. In this case each pixel uses only one DMX channel.

The CMY and YMC are alternative colour models used to control some fixtures such as moving lights.

Amber is a colour between yellow and orange. They are represented by a separate LED on some fixtures.

Pixel Type Detail or Formula RGB RBG GRB GBR BRG BGR Red, Green, Blue Red, Blue, Green Green, Red, Blue Green, Blue, Red Blue, Red, Green Blue, Green, Red RGBL RGBA RGBW+ RGBWL Red, Green, Blue, Intensity Channel* Red, Green, Blue, Alpha = 0 Red, Green, Blue, Additive White = (Red + Green * 1.5 0.5 * Blue) / 3 Red-W, Green-W, Blue-W, W = Min(Red, Green, Blue) Luminance = (Red + Green * 1.5 + Blue * 0.5) / 3; CMY YMC 255 - Red, 255 - Green, 255 - Blue 255 - Blue, 255 - Green; 255 - Red RGBXXX RrGgBb RGB Amber RGBW Amber Red, Green, Blue, 0, 0, 0 Red, Red, Green, Green, Blue, Blue Red, Green, Blue, Min (Red, Green) Red, Green, Blue, Intensity Channel*, Min (Red, Green) RB R G B Red, Blue Red Green Blue *Intensity Channel is a constant value set per fixture in the XML and parameter name is intensity channel with a default value of 255.

In order to drive each pixel inside the matrix, we need to define the channel offset of each pixel inside the fixture. Many fixtures maps pixels from left to right and from top to bottom, but this is not always the case. In order to cope with all situations, the software allows pixels to be addressed freely or using an auto-map feature covering most of the cases.

Creating or Modifying an LED Fixture

To edit an existing fixture, select it in the fixture library list and press the “Edit” button at the bottom of the list. To create a new fixture, press the “New” button below the fixture list.

When creating a new fixture, a first dialog lets you select the pixel type, the width and height of the fixture in pixels, the number of DMX channels used in the personality of the LED fixture. By default it is deduced from the pixel information but a custom size can be specified.

Then in both cases it will open the Edit LED Fixture dialog box:

This dialog allows you to define the manufacturer and product name of the fixture and choose its pixel type, resolution and channel count. Pixels can be mapped on channels either manually or by using the Auto-Mapping feature. The red squares indicate all pixels from the Fixture’s matrix. If they have a number in them, it represents their DMX channels. The number is the channel offset to be used to address that particular pixel. Pixels without numbers are not addressed, no pixel information will be sent to them.

Auto-Mapping gives a simple way to define an addressing that follows a row/column pattern. Simply specify the rule and the start channel to fill out the matrix by clicking ‘Auto-Map’ button. You will see the resulting addressing displayed inside the pixels. If the fixture doesn’t have enough channels, the Auto-Map button will be disabled. The range of the Start channel is constrained so that there are enough channels left for the full pixel mapping.

To map pixel addresses manually, you need to click red squares one at a time or holding mouse button down in the correct order. Each time you click a pixel not yet patched, it will be given the next DMX channel. You can specify the Next Channel to be used by setting another value in the Next Channel field. You can always use the “Reset mapping” button to clear completely the mapping.

You get a finer control over the fixture personality by setting some constants for some channels or keep some channel Undefined. This is done in the Personality tab. It allows the Application to support new fixtures that require some channels, such as Intensity or Shutter, to be set in order to operate.

An Undefined channel will output value zero except in the DMX Merger is used. In this last case, the value received through DMX input will be output. In other words, undefined channels are not controlled by the LED Mapper but only passed through the Merger.

The Reset Constants button in the Settings lets you clear all those constants.

The DMX Merger

The new DMX Merger allows to control advanced fixtures from both a lighting console and the ArKaos software. For instance, a Moving Head Pan & Tilt channels can be controlled from a lighting console while the Application sends video content to the LEDs.

Both the lighting console output and the LED Mapper fixtures to be merged should be set on a same set of consecutive universes. The DMX Merger will then merge both data and output the result to another non-overlapping set of consecutive universes. The merge will be done based on the configured personality of the fixture in LED Mapper. Undefined channel will take the value from the DMX Input while Constant channel will overwrite the DMX Input values. Pixel information will be merged following the LED Mapper merger mode defined by DMX in two Master Fixture channels.

In the LED Mapper toolbar the following two buttons are respectively to toggle the DMX Merger on/off and to setup the DMX Merger by opening the DMX Universe Merging dialog.

The setup dialog lets the user specify the input and output ranges of universes by specifying a Start Subnet, a Start Universe and the number of Consecutive Universes to be merged. When using consecutive Universes, please note that the next Universe after 15 is the Universe 0 of the next Subnet.

The button with the Merger symbol must be pushed to activate the Merger. This is similar to toggling on the Merger on the main toolbar.

Here are a few rules to follow to setup the DMX Merger properly: · Both the lighting console output and the LED Mapper fixtures to merge should be setup on the same channels in the input range of universes of the DMX Merger. · Merger cannot operate with fixtures set in Unicast mode. · No fixture should be set to output in the range of universes used for the Merger output. · Input and output universe ranges of the DMX Merger should not overlap. · The physical light fixtures to be controlled by the merger should be setup on the output range of universes of the DMX Merger.

In the dialog above, the lighting console and the LED Mapper fixtures should be configured on Universe 0 Subnet 2 and the physical lighting fixture should be set up on Universe 0 Subnet 4.

Note: For now, merging can only be done on pixel format where blending can be done separately per component and DMX channel. Merger does not support yet 16 bits or LEDs with more than RGB channels where components or channels are correlated.

Parameters

Two parameters are available in the Output tab of the preferences to set the Blend Mode of the DMX Merger and the Intensity. In the Status panel of MediaMaster, a letter between square brackets indicates the status and the mode of the DMX Merger.

The Merger takes DMX input and LED Mapper output and apply the selected blend mode to produce a Merger output. On top of that the Intensity determines how much the Merger should influence the result. With an Intensity of 0%, the DMX input is passed through. With an Intensity or 100% the Merger result is output. Intensity parameter can be used as a cross-fade parameter between DMX Input coming from a lighting console and Merger Output coming from LED Mapper.

To be controlled from a lighting console, those two parameters are also available through DMX, and described in the DMX Chart of the Master Fixture.

The Mapped Fixtures List

The “Mapped Fixtures List” contains all the mapped elements that have been already included into the current project.

The address column provides the subnet, channel and universe used by the fixture.

Creating the LED Mapping

When your set of fixtures is ready, you can start building a specific mapping, which can combine several fixtures into a mapping. To add a fixture, simply drag & drop it from the library onto the mapping area located on the right side of the screen. It will automatically create a 'mapped fixture' (an instance of a fixture in the mapping) and display the available parameters in the "Device Properties", "DMX Mapping Properties" and "Mapping Properties" panes:

At this point, the LED Mapper will start sending DMX to the fixture. If your panels are properly connected, they should display the part of the image held inside the element's area. If the panel doesn't show any image, check the fixture definition, the DMX patching of the element as well as your hardware connections. The images sent for this particular element is also displayed in the "Preview" pane located under the mapping area.

Selecting the Network Interface and the Sender Application

The toolbar on the top of the mapping allows you to select the network interface where you want the Art-Net traffic to be sent:

If you want to create a mapping for a network not connected to your system you can select new and enter an address compatible with the system where the mapping will be used. If you are not sure of the complete IP address of the interface on that system you can by example simply use 2.x.x.x to allow selecting any interface that start by 2.

Two LEDs are monitoring if packets are received or sent by the LED Mapper. Packets received by the LED Mapper are mainly Art-Net pool replies sent back by LED fixtures on the network.

LED Mapper supports any IP addresses including office network ranges like 192.168.x.x and more standard ranges 10.x.x.x and 2.x.x.x as defined by the protocol.

LED Mapper can run side by side with the ArKaos software. A sender selector toggles which application will output DMX to the fixtures:

This allows to quickly visualize the result of the mapping with the output of the Application.

The Application will immediately reload the mapping each time you save the file.

Setting the Sender to LED Mapper means the LED Mapper should output Art-Net data instead of the Application.

The LED will turn orange. When MediaMaster can send out Art-Net data, the LED turns blue again.

Editing the Device and DMX properties

The description in the device properties pane is a helper to identify your devices in the mapped fixtures list.

The DMX properties give the address of the first DMX channel in the device.

If IP address is set to "Auto" the LED Mapper will send the DMX channels to every device on the

network. This makes the mapping easier to create, but can put a heavy load on every fixture in the network.

Universe and Subnet are in range 0-15. A Subnet of 1 and Universe 0 is also equivalent to a Universe of 16 when referencing to the alternate convention of 256 Universes in Art-Net 2 and 32768 in Art-Net 3. In the current version only the first 256 Universes can be addressed.

In LED Mapper, you can set explicitly the IP address of a device. To assist you while setting the IP address, the IP menu is automatically populated with the fixtures nodes discovered on the network.

Here you see all the devices discovered on the network and the LED Mapper will send the DMX channels to the “dmXLAN node6”.

Each entry of the menu is the concatenation of this information: · The node name (dmXLAN node6) · The IP address (2.0.39.38) · The number of devices assigned to that IP address (1)

This avoids the need to enter IP addresses manually in most cases.

Only when you are creating a mapping file offline and you don’t have the devices on your network you need to enter the IP address manually and you must create a “Manual” IP address.

When you create a manual address, the dialog is using the information of the current active network.

If your main network is on 2.x.x.x you will only be able to enter the last 3 numbers of the IP address.

The LED Mapper allows you to enter a manual network address. This allows creating a mapping file using IP addresses for devices, even if you are not yet connected to the network where the mapping will be used.

Unicast Versus Broadcast

LED Mapper supports the unicast transfer mode where packets of data can be sent directly to the addressed fixtures and not to the entire network.

For backward compatibility, LED Mapper can still use broadcasting to send all data to every LED fixture.

In the Broadcast example here, each of the three fixtures would also receive data addressed to the other two fixtures. This would put three times more load on the network and the fixtures would be processing three times more data.

The unicast transfer mode is more efficient because every packet of data is sent exclusively to the addressed fixture, as illustrated below. However, unicast requires specifying the IP address of each fixture.

Fixtures are still mapped in Broadcast mode by default as long as the IP address stays on “Auto”.

To assist you while optimizing your network, fixtures in Broadcast mode are displayed in orange in the “Mapped Fixtures” list:

Using unicast is not mandatory and most of the time broadcasting should work just fine with modern fixtures. You should consider using unicast with a large number of fixtures and if you want to optimize

your network by sending the minimum data packets to your fixtures.

If you have a mixed setup with both unicast and broadcast, you will still put some pressure on every device on the network. Unicast works best when every fixture have been assigned an IP address.

Auto-Unicast

Auto-unicast will automatically optimize the network traffic by sending Art-Net data only to the devices concerned. There is no extra setup because that information is automatically shared through ArtPollReply and part of the Art-Net specifications. Devices should be left on Auto IP.

LED Mapper exposes a new option in the preferences to turn on this optimization.

Editing the Mapping Properties

Left and Top are the positions in pixel of the top left corner of the device.

Width and Height are the number of pixels of the screen area that will feed this element. If you want a pixel perfect mapping, this value should match the exact size of the Fixture pixel matrix. This is the default setting after adding element. If the element size differs from the fixture size, the ArKaos software will perform averaging on the screen area to compute the pixel colour information sent to the fixture. • Rotation rotates the element of the specified number of degrees. • Horizontal flip allows flipping the element upside/down • Vertical flip allows flipping the element left/right The element's position, size and rotation can also be edited graphically. If you press the left mouse button inside the device's area, dragging the mouse will move the element. Clicking on every corner of the element will modify the element's size while the top handle allows changing the rotation.

Deleting a Device from the Mapping

To delete an element, select it and press the "Delete" key, you can use "undo" if you made a mistake. Alternatively, you can right click on the element, and select the "Remove" entry in the contextual menu.

You can also delete a device from the "Mapped Fixtures" list. Select the element there in the list and press the "Delete" key.

Mapped Devices Contextual Menu

Once a device is selected you can right click on it to see the contextual menu. The mapping properties such as Flip Horizontal and Vertical are available in the menu. The Align and Rotate options are designed to work on a group of devices.

Those are the options of the Align and Rotate entries:

To save time when creating a big setup with many similar fixtures (for instance 16x10 = 160 fixtures), it is possible to duplicate elements. To duplicate an element, right click on it and select "Duplicate Element..." from the contextual menu.

The following dialog will be shown:

In most cases, the elements will be organized according to a matrix. For example, using 16 elements in a 4x4 grid. Using this dialog, you can specify the width and height of the grid you would like to create,

specifying the number of elements you want horizontally and vertically. If you want to create a grid of 4x4 elements, you will enter these parameters.

The Patch direction will define where the new elements will be added and in which order. The order is important because the software has an intelligent DMX patching algorithm explained below. The direction is also important: if you select to patch first “From left to right” then “From top to bottom”, the element you are duplicating will be the top left element of the grid. The new element will be added to the right and to the bottom of the original one.

Since all the resulting elements need to be assigned to an Art-Net universe and DMX channel, the software will pre-patch the duplicated element using the most logical way: if there is enough channels left in the current Art-Net universe, it will set the start channel to the next unused channel in the universe. If there is not enough space left it will patch the duplicated element on the first channel of the next universe.

To verify or modify the pre-patching of the duplicated elements once you’ve created them, you can select them individually and inspect their properties in the “DMX Mapping Properties” pane.

Mapping Resolution and Pixel Perfect Sampling

When positioning the mapping elements, everything is done with respect to a pixel grid. The grid resolution is per default 100x100 but can be changed to any resolution, up to 4096x4096.

The LED Mapper can be used to send pixel perfect values. To do so you must avoid resizing the mapped device. In this example we have a bar of 12 LEDs mapped in a 64 by 64 canvas area, the device properties are 12 by 1 and no resize occurs, the Preview shows that the colours are exact and not blurred:

Mapping Files

After having mapped all the fixtures for your show, you need to save the mapping file before leaving the application. The File menu offers all common entries to create a new empty mapping, to save your mapping or save your mapping under another file name.

The file extension “.lmp” stands for LED Mapper Project. It includes the mapping (mapped elements and their properties) as well as the fixtures used in the mapping, so that you can open the file on another computer even if the fixtures are not available on that computer’s fixture library.

By default, LED Mapper 3 saves the mapping file in a reserved folder used by GrandVJ.

Mapping Files

Mapping files with extension “.lmp” are used to save both the mapping of fixtures on the canvas, their properties and also the definition of fixtures so that the file can be used on another computer.

In MediaMaster each Library contains one “mapping.lmp” file in the LED Mapper sub-folder. When switching Library, both MediaMaster and LED Mapper will switch to the mapping contained in this Library. Switching Library while any mapper is open is discouraged.

The save command in the file menu directly writes to that active mapping file and notifies the ArKaos software to immediately reload and apply the new mapping file. The Import or Export are used to load

and save a mapping from or to a different file location. New… Creates a new mapping file and discard the current one. Save Saves the mapping and notifies the ArKaos software. Import… Imports a mapping from a file location. Export… Exports the mapping to a file location.

Import Fixtures

The option “Import Fixtures” in the File menu loads and merges a library of fixtures from a file, within the current definition of fixtures used by LED Mapper.

Kling-Net Mapper

Kling-Net Mapper

Concepts

Kling-Net is a protocol designed to simplify the setup and operation of display devices such as LED devices. Those LED devices are connected to a computer through a standard Ethernet network.

The purpose of Kling-Net is: · To allow the connection of display devices to a computer through an automatic configuration. · To dynamically configure the network by assigning IP numbers to the LED devices. · To ensure a perfect time synchronization of many display devices. · To avoid using expensive hardware video converters usually needed to send video to display devices. · To allow creating a heterogeneous network of display devices made by different manufacturer and controlled by a Theatre computer. · To add some intelligence into display devices in order to allow device auto configuration. · With Kling-Net, display devices and network installations become straightforward to setup. Kling-Net is independent of DMX, Art-Net or E1.31 (also called Streaming ACN) protocols.

Hardware Setup

Kling-Net is designed to make the best use of your Ethernet network.

To make your network as Theatre as possible, you can connect the devices directly to your server:

Kling-Net requires a Gigabit compatible Ethernet card (1000 Mbps), if your use a 100 Mbps network Kling-Net will run fine but the number of devices that can be used will be limited.

Kling-Net offers a lot of flexibility concerning the IP addresses you can use.

The address of the server should be in the range of local IP addresses: · 2.255.255.255 · 10.0.0.0 to 10.255.255.255 · 172.16.0.0 to 172.31.255.255 · 192.168.0.0 to 192.168.255.255

Note: Kling-Net attributes IP addresses to the LED devices when they power up. If you change the IP address of the server you must power down/up the LED devices and restart the MediaMaster software.

Mapping Workflow Overview

This Kling-Net Mapper is designed to communicate with the MediaMaster software; both can run at the same time on the same machine or different machines on the same network. You can select who is sending video to the LEDs through the output drop-down in the toolbar.

The typical workflow is: 1. Launch MediaMaster, go to the Preferences window, and activate Kling-Net. 2. Launch the Kling-Net Mapper application (you can launch it from the Preferences window in the Application). 3. Set the output to “Test pattern” in the Kling-Net Mapper application. 4. Create the mapping and test it on your devices to make sure that it looks fine. 5. Send the mapping to the Application by clicking the Send button from the top left. 6. Select the Application as output in the Output Menu.

If you need to re-edit the mapping, you can restart the workflow from step 3.

You can save the mapping file just in case you need to use it again later, but once you sent the mapping to the Application via the send button, it will automatically be saved for the Application.

The send button is on the top left in the Kling-Net Mapper application.

Kling-Net Mapper Application

Overview

The Kling-Net Mapper application is where you define areas of the video output that will be sent to the LED devices.

The video output is represented by the mapper canvas. The connected devices are listed in the left panel. To add a device in the setup, simply drag and drop a device on the canvas. It will automatically create a “mapping rectangle”. The area included in the rectangle will be grabbed and sent to the corresponding device.

The application has been designed to be simple and easy to use. Each manipulation of device mapping are immediately reflected on the real LED device. This is very handy because some set-ups can be very complex and driving many devices. It also makes the mapping process in Kling-Net Mapper as seamless as possible.

The mapper should primarily be used for calibration, so background images used in the canvas are still test pattern images. You can also use a screen grabber to preview the result on moving images.

Once you’ve created your mapping, the MediaMaster software will use it to feed the LEDs with video streams, visuals, text, effects, or generated content.

Connected Nodes

The “Connected Nodes” panel shows the list of Kling-Net Nodes like the Kling-Force products. The toggle with the eye icon tells if the devices connected on that node should appear in the list of connected devices. For Kling-Force products, the three-part number between round brackets indicates the Firmware version. If Kling-Net Mapper embeds a more recent version of the Firmware, the Kling-Force device will be automatically updated.

Connected Devices

This panel shows the list of the devices that are currently connected to the mapper or that were connected in the past. Information like product name, size, device ID and IP address is displayed here.

Devices that are already mapped on the canvas are shown in green while unmapped devices appear in

black. Disconnected devices will be shown in red.

Mapped devices Unmapped devices Disconnected

To map a device, simply drag and drop the item in the list onto the canvas. This will create a mapping rectangle on the canvas, representing the area that will be sent to the device.

The device ID for each mapped item will also appear in the “Mapped Objects” list.

The drop-down lets you enter a string to filter out devices with corresponding occurrences and to filter out Kling- Force or standalone devices.

Mapped Objects

This panel shows the list of objects that are already mapped in the canvas with their IDs.

The Canvas

The canvas represents the entire output from which some areas will be grabbed and sent to the LED devices.

You can change the test pattern by clicking on the left and right arrows at the bottom-left corner of the panel. You can also choose your own image or image directory with the “Choose Test Image” and “Choose test image directory” menu entries from the “File” menu.

Resize handle: resize the mapping rectangle Rotate handle: rotates the mapping rectangle Select test pattern Mapping rectangle

The size of the canvas is the size that will be used to render animation clips in the MediaMaster software. You can change it by using the “Canvas Size” menu entry in the “Canvas” menu. You can also automatically adjust the canvas size to the selected devices by using the “Crop To Selection” menu entry.

To edit mapping properties for devices, click on a mapping rectangle on the canvas. Properties will appear in the object inspector, at the bottom of the screen.

To zoom in the canvas, use the mouse wheel on PC or `Cmd` + mouse scroll on Mac.

To pan, press the middle mouse button and move the mouse on PC or use vertical and horizontal mouse scroll on Mac.

Dividing and Splitting

Kling-Net devices can be divided or split in the Kling-Net Mapper. Each part can then be mapped independently even if they are connected through only one Kling-Net connection.

Dividing

A typical use case would be for a set of LED strips that are exposed as one rectangular Kling-Net device. By using the divisor field in the device properties and entering the number of LED Strips, each individual LED strip can be mapped with the correct LED resolution.

Splitting

Each individual strip can also be split after any number of LEDs to create multi-segment strips.

To split a device, right click on the device in the canvas, select “Split device” in the popup menu, enter a split position in the next dialog and press the OK button. The initial device is split in two devices that can be mapped separately on the canvas.

Output Selection

Test Pattern

The pattern displayed in the canvas will be output to the Kling-Net fixtures. As the default output is “None”, it is important to select an output to verify if anything is sent to the LED fixtures.

To iterate over the available test patterns, use the left and right arrows at the bottom left of the canvas.

Screen Grabber

The screen grabber allows grabbing any part of the screen and sending it to the mapped devices. To activate it, click on the output icon in the toolbar (the first one on the left), and select “screen-grabber” in the drop-down menu.

A red rectangle will appear, representing the background images that will be sent to the devices. The rectangle has the same resolution as the canvas size. You can drag it to choose the capture zone on your screen.

Application

The “Kling-Net Mapper” output of the MediaMaster software will be sent to the LED fixtures. A specific instance of the Application can be selected in the sub-menu.

Templates

Templates are the easiest way to map several devices of the same size in a grid.

To create a template, click on the “Create Template” button at the bottom of the mapped devices list. This will open the Template Creation dialog box.

The Template Creation dialog box shows a list of available sizes on the left. Chose the size of the devices you want to map in the list. The dimensions parameter modifies the number of devices you can map on the template.

To map devices on the template, double click on it or click on the template map mode icon in the toolbar. When the map mode is activated, everything is frozen in the graphical editor, the only thing you can do is drag and drop devices on the template.

Select a device size Select the template size

You can only drag and drop devices with the right size, as defined in the template creation dialog. When you’re ready with the mapping, double click out of the template to come back to the normal

mode.

Devices mapped into a template are “attached” to it. Therefore, it is easy to edit a set of devices, which belong to a template.

A supplementary parameter is available for templates in the object inspector: `Interspaces`. It allows you to define `Interspaces` between each device in the template.

Draft Devices

The button “Create Draft Device…” in the main window lets the user create a Draft Device in the canvas and place it precisely. When later the real Kling-Net devices get connected, the user can drag-and-drop them on the Draft Device slots for quick and precise placement. Draft Devices are displayed in grey, both in the device list and in the canvas.

Preferences

“Use Bilinear Filtering” indicates that any sampling done between two pixels in the canvas will be interpolated using bilinear interpolation.

If “Use centre for Position” is set, then the displayed and edited position of a fixture corresponds to the centre of the fixture rectangle. Also, rotations are done around the centre which might feel more natural.

If “Use centre for Position” is not set, then the displayed and edited position of a fixture corresponds to the first LED on the top left corner of the fixture rectangle. Also rotations are done around this first LED which is more appropriate to set vertical fixtures to some precise (x,y) coordinates. This mode is better to setup pixel perfect mapping because for even pixel dimensions, the centre would be in the middle of two pixels.

Pixel Perfect Mappings

For pixel perfect mappings, unset options “Use Bilinear Filtering” and “Use centre for Position” in the preferences. Make sure your devices are mapped with their genuine size. Only use whole numbers for positions and only multiple of 90° for rotations.

How to Display LED Mappings from the Application

The MediaMaster software uses a unique mapping file that is stored to a precise location in the Library folder or in the settings location. If you use the New, Open, Save or Save As file operations in the Kling-Net Mapper, the current mapping will not automatically get used by the Application.

Below are the different ways to tell the Application to use the new edited mapping.

While the Kling-Net Mapper is Running

If you have created and edited a mapping and want to use it in the Application, you must do two actions:

1. Send the mapping to the Application.

To do this you can simply use the send button on the top left of the interface. Another way is to

archive your mapping by saving it to disk and from the preference of the Application import the mapping file. Using the send button is the fastest way.

1. The send button is top left in the Kling-Net Mapper application.
2. Switch the output to the Application.

From the output menu, switch the video output back to the Application.

While the output is set to the Application you can continue to edit your mapping and use the “Send” button to update the output in the Application.

MediaMaster: You can read the section “Output Tab” in the Preferences of MediaMaster to get more details about the configuration of Kling-Net in MediaMaster.

While Kling-Net Mapper is Not Running

If no Kling-Net Mapper is running, then when the Application starts it will send output to the Kling-Net devices if Kling-Net is activated.

If you already loaded the mapping in a previous session, GrandVJ will restore the mapping automatically. Similarly, MediaMaster will automatically restore the mapping previously saved in the active Library.

If you want to load a new mapping file you must use the Kling-Net import button in the Preferences of the Application.

Controllers

Connecting an External Controller

Setting Up DMX Control

To be able to control MediaMaster via DMX, you'll need to set it up so it can receive information from your console. MediaMaster supports two different types of DMX connectivity: either using Art-Net or using a DMX USB widget.

Using Art-Net

If your console supports Art-Net, you simply have to connect an Ethernet cable from the console to the computer running the MediaMaster software.

MediaMaster presents itself as an Art-Net Node that receives all incoming DMX data on a selected range of DMX universes. For your computer to appear on the Art-Net network, you need to set its IP address within the range of the network – this is usually something like 2.X.X.X with an IP mask of 255.0.0.0 (this can be done in the control panel on Windows or System Preferences on macOS)

If you decide to use MediaMaster using the Art-Net protocol, go in the Preferences Dialog and, in the DMX tab, select 'Art-Net' as DMX Interface and set the subnet and universes you want to be listening to.

Note: Like any lighting fixture or dimmer MediaMaster will "listen" to all channels on the selected universe but only respond to the channels it is addressed to. It is quite feasible therefore to have other fixtures using different addresses on the same universe in much the same way as you could use a variety of moving lights, dimmers, and LED's all on the same universe.

For more information about Art-Net network configuration, check out the Artistic License web site at artisticlicence.com.

MSEX Implementation

MSEX stands for Media Server Extension and is an extension of the CITP protocol (Controller Interface Transport Protocol) that runs DMX, fixture selection, and patch over Ethernet. This allows for information on specific items to be passed from MediaMaster to the console. This includes media (images and video); effects; cues; crossfades; masks; blend presets; effects presets; and image presets. MediaMaster's MSEX implementation is compatible with most of the lighting consoles, like ChamSys and Compulite. MediaMaster complies with the MSEX version 1.1 specifications, including thumbnails and live preview for visuals.

Support for GrandMA MA-Net

MediaMaster can be directly driven from grandMA consoles supporting the MA-Net protocol. To activate MA-Net, go to the DMX tab in the Preferences Dialog and select "MA-Net" from the DMX Interface drop down box:

You will need to specify the session number and universe you want to work with as well as the IP

address of the interface you will receive MA-Net from.

Using an Enttec DMX USB Pro device

The DMX USB device is a small DMX input adaptor that can be connected to the computer through a USB port. To be able to use the device, you will need to follow a Theatre installation procedure.

Setting Up an Enttec DMX USB Pro

The Enttec DMX USB Pro will ONLY work with the D2XX drivers and not the VCOM drivers.

This is a change from version 1.0 where MediaMaster was using the VCOM drivers. If you already installed the VCOM drivers this is not a problem because both can coexist on the same machine.

If you're setting up MediaMaster on a new Windows system you will not have to install the VCOM drivers separately, just install MediaMaster and it will work.

To use the device, start MediaMaster and select the Enttec DMX USB Pro in the DMX tab of the preference window.

If the Enttec DMX USB Pro device installation was not successful or if the device is not correctly connected to the computer, the interface won't be listed in the selection of DMX Interfaces.

Connecting an External Controller

Connecting an External Controller

Setting Up DMX Control

To be able to control MediaMaster via DMX, you'll need to set it up so it can receive information from your console. MediaMaster supports two different types of DMX connectivity: either using Art-Net or using a DMX USB widget.

Using Art-Net

If your console supports Art-Net, you simply have to connect an Ethernet cable from the console to the computer running the MediaMaster software.

MediaMaster presents itself as an Art-Net Node that receives all incoming DMX data on a selected range of DMX universes. For your computer to appear on the Art-Net network, you need to set its IP address within the range of the network – this is usually something like 2.X.X.X with an IP mask of 255.0.0.0 (this can be done in the control panel on Windows or System Preferences on macOS)

If you decide to use MediaMaster using the Art-Net protocol, go in the Preferences Dialog and, in the DMX tab, select 'Art-Net' as DMX Interface and set the subnet and universes you want to be listening to.

Note: Like any lighting fixture or dimmer MediaMaster will "listen" to all channels on the selected universe but only respond to the channels it is addressed to. It is quite feasible therefore to have other fixtures using different addresses on the same universe in much the same way as you could use a variety of moving lights, dimmers, and LED's all on the same universe.

For more information about Art-Net network configuration, check out the Artistic License web site at artisticlicence.com.

MSEX Implementation

MSEX stands for Media Server Extension and is an extension of the CITP protocol (Controller Interface Transport Protocol) that runs DMX, fixture selection, and patch over Ethernet. This allows for information on specific items to be passed from MediaMaster to the console. This includes media (images and video); effects; cues; crossfades; masks; blend presets; effects presets; and image presets. MediaMaster's MSEX implementation is compatible with most of the lighting consoles, like ChamSys and Compulite. MediaMaster complies with the MSEX version 1.1 specifications, including thumbnails and live preview for visuals.

Support for GrandMA MA-Net

MediaMaster can be directly driven from grandMA consoles supporting the MA-Net protocol. To activate MA-Net, go to the DMX tab in the Preferences Dialog and select "MA-Net" from the DMX Interface drop down box:

You will need to specify the session number and universe you want to work with as well as the IP address of the interface you will receive MA-Net from.

Using an Enttec DMX USB Pro device

The DMX USB device is a small DMX input adaptor that can be connected to the computer through a USB port. To be able to use the device, you will need to follow a Theatre installation procedure.

Setting Up an Enttec DMX USB Pro

The Enttec DMX USB Pro will ONLY work with the D2XX drivers and not the VCOM drivers.

This is a change from version 1.0 where MediaMaster was using the VCOM drivers. If you already installed the VCOM drivers this is not a problem because both can coexist on the same machine.

If you're setting up MediaMaster on a new Windows system you will not have to install the VCOM drivers separately, just install MediaMaster and it will work.

To use the device, start MediaMaster and select the Enttec DMX USB Pro in the DMX tab of the preference window.

If the Enttec DMX USB Pro device installation was not successful or if the device is not correctly connected to the computer, the interface won't be listed in the selection of DMX Interfaces.

Appendices

Glossary

Below are a few commonly used terms to help with getting started with MediaMaster programming.

Art-Net™

Art-Net is a network protocol that allows DMX to be carried over an Ethernet network. Art-Net™ is designed by and copyright Artistic Licence Holdings Ltd.

DMX or DMX512

DMX is the standard way for a console to communicate with lighting fixtures. DMX cables should be used to carry the data, other types of cable may cause flickering and other problems.

DMX Address

Each fixture has its own starting DMX address, which is different for every fixture on a single DMX universe.

DMX Channels

DMX512 has 512 individual DMX channels on each universe of DMX.

DMX Universe

A collection of 512 DMX Channels is referred to as a Universe of DMX.

Fade Time

The time taken for a cue to change. Fade in and fade out can be the same or different.

FX

An abbreviation of effects.

IP address

All Ethernet devices have an IP address to identify them. IP addresses take the form `2.99.1.23`, 4 numbers between 0 and 255 with dots in between them. When setting up a network all the devices on the network should have a different IP address, but they should all be on the same subnet. MediaMaster only uses IPv4 addresses.

MIDI

MIDI is an acronym that stands for Musical Instrument Digital Interface. It is a way to connect devices that make and control sound, such as synthesisers and sequencers. It can be used to trigger lighting from an audio device such as a digital keyboard.

Patching

Telling the console what fixtures are connected to the console and connected via DMX.

Remote Data Management (RDM)

RDM is an extra protocol added to DMX. It does not require any extra cabling than normal DMX and allows fixtures to communicate with the console.

sACN

sACN is a protocol used to transmit DMX data over Ethernet. sACN can be trickier to get working than Art-Net but can work better than Art-Net when there is large amounts of DMX data (>40 universes) on a network.

Subnet

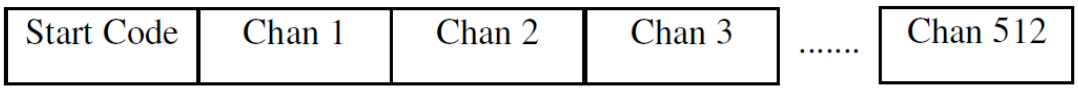
IP addresses are divided into "subnets". The first number in the IP address is the subnet. A device with the IP address `10.66.1.1` is in the subnet `10`, while `2.33.4.5` is in the subnet `2`. When using Art-Net devices must be in the same subnet.

DMX, Ethernet and Art-Net

DMX

DMX data is transmitted in a serial form. This means that there is one cable carrying the data, which is sent bit by bit (a bit is a 1 or 0), one after another. The entire transmission of DMX data for a DMX universe is known as a DMX Packet.

The DMX Packet consists of a start code and 512 channel levels.



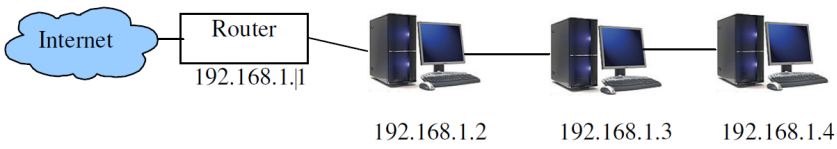
The start code for DMX is generally 0. The channel section contains the level for that channel.

Ethernet

Ethernet is the technology used to connect computers on a network. Most computers use a protocol called TCP/IP (Transmission Control Protocol Over Internet Protocol) to communicate over an Ethernet network.

Ethernet transmits the IP address (address of a computer on the network) of the sending computer, followed by the IP address of the receiving computer, followed by the data. The IP addresses allow the data to be routed to the correct computer.

On a typical office network, computers will have an IP address of 192.168.1.x, where x is between 0 and 254 (255 is a reserved address). These IP addresses are generally assigned dynamically by the Router on the network using a protocol called DHCP.



The computers use a subnet mask of 255.255.255.0. This specifies which range of IP addresses are on the local network. In the example above 255.255.255.0 specifies a range of from 192.168.1.0 to 192.168.1.255 which is a total of 256 addresses.

Art-Net

What Is Art-Net?

Art-Net is a royalty-free communication protocol, developed by Artistic License used to transmit DMX information over a network.

An Art-Net network typically uses the 2.x.x.x or 10.x.x.x IP Address scheme using a subnet of 255.0.0.0. It is important to ensure that Art-Net data using the 2.x.x.x IP address scheme is not routed onto the internet.

Ideally you should set up a separate network between your MediaMaster product and the Art-Net devices.

Unlike normal office networks, the IP address must be in the range 2.x.x.x or 10.x.x.x, where x is between 0 and 255.

The subnet mask must be set to 255.0.0.0. This means configuring the address of each piece of equipment on the network manually. MediaMaster products are typically set to 10.x.x.x. from the factory.

DMX Charts

Layer Simple

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Intensity	Intensity	8		0.0	100.0	0	Percent
2	Visual	Folder	8		0	255	0	
3	Visual	File	8		0	255	0	
4	Effect 1	Folder	8		0	255	0	
5	Effect 1	File	8		0	255	0	
6	Effect 1	Intensity	8		0.0	100.0	255	Percent
7	Effect 1	Parameter 1	8		0.0	100.0	0	Percent
8	Effect 1	Parameter 2	8		0.0	100.0	0	Percent
9	Effect 1	Parameter 3	8		0.0	100.0	0	Percent
10	Effect 1	Parameter 4	8		0.0	100.0	0	Percent
11	Colour	Red	8		0.0	200.0	128	Percent
12	Colour	Green	8		0.0	200.0	128	Percent

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
13	Colour	Blue	8		0.0	200.0	128	Percent
14	Shape Pose	Scale X	8		0.0	400.0	64	Percent
15	Shape Pose	Scale Y	8		0.0	400.0	64	Percent
16	Shape Pose	Position X	8		-100.0	100.0	128	Percent
17	Shape Pose	Position Y	8		-100.0	100.0	128	Percent
18	Shape Pose	Position Z	8		-100.0	100.0	128	Percent
19	Blending	Mode	8	Replace	0	15	0	
				Add	16	31		
				Subtract	32	47		
				Multiply	48	63		
				XOR	64	79		
				Exclusion	80	95		
				Screen	96	111		
				Linear Burn	112	127		
20	Transition	Mode	8	Crossfade	0	15	0	
				Window Slice	16	31		
				Polka Dots Curtain	32	47		
				Horizontal	48	63		
				Vertical	64	79		
				Angular	80	95		
21	Transition	Time	8		0	255	0	Milliseconds

Layer Medium

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Intensity	Intensity	16		0.0	100.0	0	Percent

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
3	Visual	Folder	8		0	255	0	
4	Visual	File	8		0	255	0	
5	Visual	Output	8	All Outputs	0	15	0	
				Surface 1	16	31		
				Surface 2	32	47		
				Surface 3	48	63		
				Surface 4	64	79		
				Surface 5	80	95		
				Surface 6	96	111		
				Surface 7	112	127		
				Surface 8	128	143		
				Surface 9	144	159		
				Surface 10	160	175		
				Surface 11	176	191		
				Surface 12	192	207		
				Surface 13	208	223		
				Surface 14	224	239		
				Surface 15	240	255		
				Surface 16	256	271		
				Surface 17	272	287		
				Surface 18	288	303		
				Surface 19	304	319		
				Surface 20	320	335		
				Surface 21	336	351		
				Surface 22	352	367		
				Surface 23	368	383		
				Surface 24	384	399		
				Surface 25	400	415		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 26	416	431		
				Surface 27	432	447		
				Surface 28	448	463		
				Surface 29	464	479		
				Surface 30	480	495		
				Surface 31	496	511		
				Surface 32	512	527		
				Surface 33	528	543		
				Surface 34	544	559		
				Surface 35	560	575		
				Surface 36	576	591		
				Surface 37	592	607		
				Surface 38	608	623		
				Surface 39	624	639		
				Surface 40	640	655		
				Surface 41	656	671		
				Surface 42	672	687		
				Surface 43	688	703		
				Surface 44	704	719		
				Surface 45	720	735		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 46	736	751		
				Surface 47	752	767		
				Surface 48	768	783		
				Surface 49	784	799		
				Surface 50	800	815		
				Surface 51	816	831		
				Surface 52	832	847		
				Surface 53	848	863		
				Surface 54	864	879		
				Surface 55	880	895		
				Surface 56	896	911		
				Surface 57	912	927		
				Surface 58	928	943		
				Surface 59	944	959		
				Surface 60	960	975		
				Surface 61	976	991		
				Surface 62	992	1007		
				Surface 63	1008	1023		
				Surface 64	1024	1039		
				Surface 65	1040	1055		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 66	1056	1071		
				Surface 67	1072	1087		
				Surface 68	1088	1103		
				Surface 69	1104	1119		
				Surface 70	1120	1135		
				Surface 71	1136	1151		
				Surface 72	1152	1167		
				Surface 73	1168	1183		
				Surface 74	1184	1199		
				Surface 75	1200	1215		
				Surface 76	1216	1231		
				Surface 77	1232	1247		
				Surface 78	1248	1263		
				Surface 79	1264	1279		
				Surface 80	1280	1295		
				Surface 81	1296	1311		
				Surface 82	1312	1327		
				Surface 83	1328	1343		
				Surface 84	1344	1359		
				Surface 85	1360	1375		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 86	1376	1391		
				Surface 87	1392	1407		
				Surface 88	1408	1423		
				Surface 89	1424	1439		
				Surface 90	1440	1455		
				Surface 91	1456	1471		
				Surface 92	1472	1487		
				Surface 93	1488	1503		
				Surface 94	1504	1519		
				Surface 95	1520	1535		
				Surface 96	1536	1551		
				Surface 97	1552	1567		
				Surface 98	1568	1583		
				Surface 99	1584	1599		
				Surface 100	1600	1615		
				Surface 101	1616	1631		
				Surface 102	1632	1647		
				Surface 103	1648	1663		
				Surface 104	1664	1679		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 105	1680	1695		
				Surface 106	1696	1711		
				Surface 107	1712	1727		
				Surface 108	1728	1743		
				Surface 109	1744	1759		
				Surface 110	1760	1775		
				Surface 111	1776	1791		
				Surface 112	1792	1807		
				Surface 113	1808	1823		
				Surface 114	1824	1839		
				Surface 115	1840	1855		
				Surface 116	1856	1871		
				Surface 117	1872	1887		
				Surface 118	1888	1903		
				Surface 119	1904	1919		
				Surface 120	1920	1935		
				Surface 121	1936	1951		
				Surface 122	1952	1967		
				Surface 123	1968	1983		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 124	1984	1999		
				Surface 125	2000	2015		
				Surface 126	2016	2031		
				Surface 127	2032	2047		
				Surface 128	2048	2063		
				Surface 129	2064	2079		
				Surface 130	2080	2095		
				Surface 131	2096	2111		
				Surface 132	2112	2127		
				Surface 133	2128	2143		
				Surface 134	2144	2159		
				Surface 135	2160	2175		
				Surface 136	2176	2191		
				Surface 137	2192	2207		
				Surface 138	2208	2223		
				Surface 139	2224	2239		
				Surface 140	2240	2255		
				Surface 141	2256	2271		
				Surface 142	2272	2287		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 143	2288	2303		
				Surface 144	2304	2319		
				Surface 145	2320	2335		
				Surface 146	2336	2351		
				Surface 147	2352	2367		
				Surface 148	2368	2383		
				Surface 149	2384	2399		
				Surface 150	2400	2415		
				Surface 151	2416	2431		
				Surface 152	2432	2447		
				Surface 153	2448	2463		
				Surface 154	2464	2479		
				Surface 155	2480	2495		
				Surface 156	2496	2511		
				Surface 157	2512	2527		
				Surface 158	2528	2543		
				Surface 159	2544	2559		
				Surface 160	2560	2575		
				Surface 161	2576	2591		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 162	2592	2607		
				Surface 163	2608	2623		
				Surface 164	2624	2639		
				Surface 165	2640	2655		
				Surface 166	2656	2671		
				Surface 167	2672	2687		
				Surface 168	2688	2703		
				Surface 169	2704	2719		
				Surface 170	2720	2735		
				Surface 171	2736	2751		
				Surface 172	2752	2767		
				Surface 173	2768	2783		
				Surface 174	2784	2799		
				Surface 175	2800	2815		
				Surface 176	2816	2831		
				Surface 177	2832	2847		
				Surface 178	2848	2863		
				Surface 179	2864	2879		
				Surface 180	2880	2895		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 181	2896	2911		
				Surface 182	2912	2927		
				Surface 183	2928	2943		
				Surface 184	2944	2959		
				Surface 185	2960	2975		
				Surface 186	2976	2991		
				Surface 187	2992	3007		
				Surface 188	3008	3023		
				Surface 189	3024	3039		
				Surface 190	3040	3055		
				Surface 191	3056	3071		
				Surface 192	3072	3087		
				Surface 193	3088	3103		
				Surface 194	3104	3119		
				Surface 195	3120	3135		
				Surface 196	3136	3151		
				Surface 197	3152	3167		
				Surface 198	3168	3183		
				Surface 199	3184	3199		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 200	3200	3215		
				Surface Group 1	3216	3231		
				Surface Group 2	3232	3247		
				Surface Group 3	3248	3263		
				Surface Group 4	3264	3279		
				Surface Group 5	3280	3295		
				Surface Group 6	3296	3311		
				Surface Group 7	3312	3327		
				Surface Group 8	3328	3343		
				Surface Group 9	3344	3359		
				Surface Group 10	3360	3375		
				Surface Group 11	3376	3391		
				Surface Group 12	3392	3407		
				Surface Group 13	3408	3423		
				Surface Group 14	3424	3439		
				Surface Group 15	3440	3455		
				Surface Group 16	3456	3471		
				Surface Group 17	3472	3487		
				Surface Group 18	3488	3503		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface Group 19	3504	3519		
				Surface Group 20	3520	3535		
				Surface Group 21	3536	3551		
				Surface Group 22	3552	3567		
				Surface Group 23	3568	3583		
				Surface Group 24	3584	3599		
				Surface Group 25	3600	3615		
				Surface Group 26	3616	3631		
				Surface Group 27	3632	3647		
				Surface Group 28	3648	3663		
				Surface Group 29	3664	3679		
				Surface Group 30	3680	3695		
				Surface Group 31	3696	3711		
				Surface Group 32	3712	3727		
				Surface Group 33	3728	3743		
				Surface Group 34	3744	3759		
				Surface Group 35	3760	3775		
				Surface Group 36	3776	3791		
				Surface Group 37	3792	3807		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface Group 38	3808	3823		
				Surface Group 39	3824	3839		
				Surface Group 40	3840	3855		
				Surface Group 41	3856	3871		
				Surface Group 42	3872	3887		
				Surface Group 43	3888	3903		
				Surface Group 44	3904	3919		
				Surface Group 45	3920	3935		
				Surface Group 46	3936	3951		
				Surface Group 47	3952	3967		
				Surface Group 48	3968	3983		
				Surface Group 49	3984	3999		
				Surface Group 50	4000	4015		
				Led	4016	4031		
				KlingNet	4032	4047		
6	Text	Folder	8		0	255	0	
7	Text	File	8		0	255	0	
8	Playback	Mode	8	Loop Forward	0	15	0	
				Loop Backward	16	31		
				Once Forward	32	47		
				Once Backward	48	63		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Ping Pong	64	79		
				Show Frame	80	95		
				Time Code	96	111		
				Beat Sync	112	127		
				Stop	240	255		
9	Playback	Pause	8		0	1	0	
10	Playback	Speed	16		-400.0	400.0	40960	Percent
12	Playback	Start Point	16		0	65535	0	Frames
14	Playback	In Point	16		0	65535	0	Frames
16	Playback	Out Point	16		0	-65535	0	Frames
18	Effect 1	Folder	8		0	255	0	
19	Effect 1	File	8		0	255	0	
20	Effect 1	Intensity	16		0.0	100.0	65535	Percent
22	Effect 1	Parameter 1	16		0.0	100.0	0	Percent
24	Effect 1	Parameter 2	16		0.0	100.0	0	Percent
26	Effect 1	Parameter 3	16		0.0	100.0	0	Percent
28	Effect 1	Parameter 4	16		0.0	100.0	0	Percent
30	Colour	Red	16		0.0	200.0	32768	Percent
32	Colour	Green	16		0.0	200.0	32768	Percent
34	Colour	Blue	16		0.0	200.0	32768	Percent
36	Shape Pose	Scale X	16		0.0	400.0	16384	Percent
38	Shape Pose	Scale Y	16		0.0	400.0	16384	Percent
40	Shape Rotation	X Index	16		-180.0	180.0	32768	Angle
42	Shape Rotation	Y Index	16		-180.0	180.0	32768	Angle

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
44	Shape Rotation	Z Index	16		-180.0	180.0	32768	Angle
46	Shape Rotation	X Speed	16		-10.0	10.0	32768	RotationSpeed
48	Shape Rotation	Y Speed	16		-10.0	10.0	32768	RotationSpeed
50	Shape Rotation	Z Speed	16		-10.0	10.0	32768	RotationSpeed
52	Shape Pose	Position X	16		-100.0	100.0	32768	Percent
54	Shape Pose	Position Y	16		-100.0	100.0	32768	Percent
56	Shape Pose	Position Z	16		-100.0	100.0	32768	Percent
58	Blending	Mode	8	Replace	0	15	0	
				Add	16	31		
				Subtract	32	47		
				Multiply	48	63		
				XOR	64	79		
				Exclusion	80	95		
				Screen	96	111		
				Linear Burn	112	127		
59	Keying	Mode	8	None	0	15	0	
				LUMA Band Reject	16	31		
				LUMA Band Pass	32	47		
				Chroma Band Reject	48	63		
				Chroma Band Pass	64	79		
60	Keying	Centre	8		0.0	100.0	0	Percent
61	Transition	Mode	8	Crossfade	0	15	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Window Slice	16	31		
				Polka Dots Curtain	32	47		
				Horizontal	48	63		
				Vertical	64	79		
				Angular	80	95		
62	Transition	Time	16		0	65535	0	Milliseconds

Layer Advanced

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Intensity	Intensity	16		0.0	100.0	0	Percent
3	Visual	Folder	8		0	255	0	
4	Visual	File	8		0	255	0	
5	Visual	Ignore Alpha	8		0	1	0	
6	Visual	Aspect Ratio	8	Stretch	0	15	0	
				Fit Width	16	31		
				Fit Height	32	47		
				1:1	48	63		
7	Visual	Output	8	All Outputs	0	15	0	
				Surface 1	16	31		
				Surface 2	32	47		
				Surface 3	48	63		
				Surface 4	64	79		
				Surface 5	80	95		
				Surface 6	96	111		
				Surface 7	112	127		
				Surface 8	128	143		
				Surface 9	144	159		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 10	160	175		
				Surface 11	176	191		
				Surface 12	192	207		
				Surface 13	208	223		
				Surface 14	224	239		
				Surface 15	240	255		
				Surface 16	256	271		
				Surface 17	272	287		
				Surface 18	288	303		
				Surface 19	304	319		
				Surface 20	320	335		
				Surface 21	336	351		
				Surface 22	352	367		
				Surface 23	368	383		
				Surface 24	384	399		
				Surface 25	400	415		
				Surface 26	416	431		
				Surface 27	432	447		
				Surface 28	448	463		
				Surface 29	464	479		
				Surface 30	480	495		
				Surface 31	496	511		
				Surface 32	512	527		
				Surface 33	528	543		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 34	544	559		
				Surface 35	560	575		
				Surface 36	576	591		
				Surface 37	592	607		
				Surface 38	608	623		
				Surface 39	624	639		
				Surface 40	640	655		
				Surface 41	656	671		
				Surface 42	672	687		
				Surface 43	688	703		
				Surface 44	704	719		
				Surface 45	720	735		
				Surface 46	736	751		
				Surface 47	752	767		
				Surface 48	768	783		
				Surface 49	784	799		
				Surface 50	800	815		
				Surface 51	816	831		
				Surface 52	832	847		
				Surface 53	848	863		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 54	864	879		
				Surface 55	880	895		
				Surface 56	896	911		
				Surface 57	912	927		
				Surface 58	928	943		
				Surface 59	944	959		
				Surface 60	960	975		
				Surface 61	976	991		
				Surface 62	992	1007		
				Surface 63	1008	1023		
				Surface 64	1024	1039		
				Surface 65	1040	1055		
				Surface 66	1056	1071		
				Surface 67	1072	1087		
				Surface 68	1088	1103		
				Surface 69	1104	1119		
				Surface 70	1120	1135		
				Surface 71	1136	1151		
				Surface 72	1152	1167		
				Surface 73	1168	1183		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 74	1184	1199		
				Surface 75	1200	1215		
				Surface 76	1216	1231		
				Surface 77	1232	1247		
				Surface 78	1248	1263		
				Surface 79	1264	1279		
				Surface 80	1280	1295		
				Surface 81	1296	1311		
				Surface 82	1312	1327		
				Surface 83	1328	1343		
				Surface 84	1344	1359		
				Surface 85	1360	1375		
				Surface 86	1376	1391		
				Surface 87	1392	1407		
				Surface 88	1408	1423		
				Surface 89	1424	1439		
				Surface 90	1440	1455		
				Surface 91	1456	1471		
				Surface 92	1472	1487		
				Surface 93	1488	1503		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 94	1504	1519		
				Surface 95	1520	1535		
				Surface 96	1536	1551		
				Surface 97	1552	1567		
				Surface 98	1568	1583		
				Surface 99	1584	1599		
				Surface 100	1600	1615		
				Surface 101	1616	1631		
				Surface 102	1632	1647		
				Surface 103	1648	1663		
				Surface 104	1664	1679		
				Surface 105	1680	1695		
				Surface 106	1696	1711		
				Surface 107	1712	1727		
				Surface 108	1728	1743		
				Surface 109	1744	1759		
				Surface 110	1760	1775		
				Surface 111	1776	1791		
				Surface 112	1792	1807		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 113	1808	1823		
				Surface 114	1824	1839		
				Surface 115	1840	1855		
				Surface 116	1856	1871		
				Surface 117	1872	1887		
				Surface 118	1888	1903		
				Surface 119	1904	1919		
				Surface 120	1920	1935		
				Surface 121	1936	1951		
				Surface 122	1952	1967		
				Surface 123	1968	1983		
				Surface 124	1984	1999		
				Surface 125	2000	2015		
				Surface 126	2016	2031		
				Surface 127	2032	2047		
				Surface 128	2048	2063		
				Surface 129	2064	2079		
				Surface 130	2080	2095		
				Surface 131	2096	2111		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 132	2112	2127		
				Surface 133	2128	2143		
				Surface 134	2144	2159		
				Surface 135	2160	2175		
				Surface 136	2176	2191		
				Surface 137	2192	2207		
				Surface 138	2208	2223		
				Surface 139	2224	2239		
				Surface 140	2240	2255		
				Surface 141	2256	2271		
				Surface 142	2272	2287		
				Surface 143	2288	2303		
				Surface 144	2304	2319		
				Surface 145	2320	2335		
				Surface 146	2336	2351		
				Surface 147	2352	2367		
				Surface 148	2368	2383		
				Surface 149	2384	2399		
				Surface 150	2400	2415		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 151	2416	2431		
				Surface 152	2432	2447		
				Surface 153	2448	2463		
				Surface 154	2464	2479		
				Surface 155	2480	2495		
				Surface 156	2496	2511		
				Surface 157	2512	2527		
				Surface 158	2528	2543		
				Surface 159	2544	2559		
				Surface 160	2560	2575		
				Surface 161	2576	2591		
				Surface 162	2592	2607		
				Surface 163	2608	2623		
				Surface 164	2624	2639		
				Surface 165	2640	2655		
				Surface 166	2656	2671		
				Surface 167	2672	2687		
				Surface 168	2688	2703		
				Surface 169	2704	2719		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 170	2720	2735		
				Surface 171	2736	2751		
				Surface 172	2752	2767		
				Surface 173	2768	2783		
				Surface 174	2784	2799		
				Surface 175	2800	2815		
				Surface 176	2816	2831		
				Surface 177	2832	2847		
				Surface 178	2848	2863		
				Surface 179	2864	2879		
				Surface 180	2880	2895		
				Surface 181	2896	2911		
				Surface 182	2912	2927		
				Surface 183	2928	2943		
				Surface 184	2944	2959		
				Surface 185	2960	2975		
				Surface 186	2976	2991		
				Surface 187	2992	3007		
				Surface 188	3008	3023		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 189	3024	3039		
				Surface 190	3040	3055		
				Surface 191	3056	3071		
				Surface 192	3072	3087		
				Surface 193	3088	3103		
				Surface 194	3104	3119		
				Surface 195	3120	3135		
				Surface 196	3136	3151		
				Surface 197	3152	3167		
				Surface 198	3168	3183		
				Surface 199	3184	3199		
				Surface 200	3200	3215		
				Surface Group 1	3216	3231		
				Surface Group 2	3232	3247		
				Surface Group 3	3248	3263		
				Surface Group 4	3264	3279		
				Surface Group 5	3280	3295		
				Surface Group 6	3296	3311		
				Surface Group 7	3312	3327		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface Group 8	3328	3343		
				Surface Group 9	3344	3359		
				Surface Group 10	3360	3375		
				Surface Group 11	3376	3391		
				Surface Group 12	3392	3407		
				Surface Group 13	3408	3423		
				Surface Group 14	3424	3439		
				Surface Group 15	3440	3455		
				Surface Group 16	3456	3471		
				Surface Group 17	3472	3487		
				Surface Group 18	3488	3503		
				Surface Group 19	3504	3519		
				Surface Group 20	3520	3535		
				Surface Group 21	3536	3551		
				Surface Group 22	3552	3567		
				Surface Group 23	3568	3583		
				Surface Group 24	3584	3599		
				Surface Group 25	3600	3615		
				Surface Group 26	3616	3631		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface Group 27	3632	3647		
				Surface Group 28	3648	3663		
				Surface Group 29	3664	3679		
				Surface Group 30	3680	3695		
				Surface Group 31	3696	3711		
				Surface Group 32	3712	3727		
				Surface Group 33	3728	3743		
				Surface Group 34	3744	3759		
				Surface Group 35	3760	3775		
				Surface Group 36	3776	3791		
				Surface Group 37	3792	3807		
				Surface Group 38	3808	3823		
				Surface Group 39	3824	3839		
				Surface Group 40	3840	3855		
				Surface Group 41	3856	3871		
				Surface Group 42	3872	3887		
				Surface Group 43	3888	3903		
				Surface Group 44	3904	3919		
				Surface Group 45	3920	3935		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface Group 46	3936	3951		
				Surface Group 47	3952	3967		
				Surface Group 48	3968	3983		
				Surface Group 49	3984	3999		
				Surface Group 50	4000	4015		
				Led	4016	4031		
				KlingNet	4032	4047		
8	Text	Folder	8		0	255	0	
9	Text	File	8		0	255	0	
10	Text	Controls	8	Auto Advance	0	15	0	
				Play	16	31		
				Pause	32	47		
				Next	48	63		
				Previous	64	79		
				Rewind	80	95		
11	Visual Control	Parameter 1	16		0.0	100.0	0	Percent
13	Visual Control	Parameter 2	16		0.0	100.0	0	Percent
15	Visual Control	Parameter 3	16		0.0	100.0	0	Percent
17	Visual Control	Parameter 4	16		0.0	100.0	0	Percent
19	Playback	Mode	8	Loop Forward	0	15	0	
				Loop Backward	16	31		
				Once Forward	32	47		
				Once Backward	48	63		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Ping Pong	64	79		
				Show Frame	80	95		
				Time Code	96	111		
				Beat Sync	112	127		
				Stop	240	255		
20	Playback	Pause	8		0	1	0	
21	Playback	Speed	16		-400.0	400.0	40960	Percent
23	Visual	Intensity 0 Behaviour	8	Stop	0	15	0	
				Continue	16	31		
				Pause	32	47		
24	Playback	End Behaviour	8	Transparent	0	15	0	
				Start Frame	16	31		
				First Video Frame	32	47		
				Last Video Frame	48	63		
				First Loop Frame	64	79		
				Last Loop Frame	80	95		
25	Playback	Time Code Source	8	Art-Net	0	15	0	
				Stage LinQ Deck 1	16	31		
				Stage LinQ Deck 2	32	47		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Stage LinQ Deck 3	48	63		
				Stage LinQ Deck 4	64	79		
				TC Net Deck 1	80	95		
				TC Net Deck 2	96	111		
				TC Net Deck 3	112	127		
				TC Net Deck 4	128	143		
				TC Net A	144	159		
				TC Net B	160	175		
26	Playback	Time Code Offset	16		-32768	32767	32768	Frames
28	Playback	Start Point	16		0	65535	0	Frames
30	Playback	In Point	16		0	65535	0	Frames
32	Playback	Out Point	16		0	-65535	0	Frames
34	Effect 1	Folder	8		0	255	0	
35	Effect 1	File	8		0	255	0	
36	Effect 1	Intensity	16		0.0	100.0	65535	Percent
38	Effect 1	Parameter 1	16		0.0	100.0	0	Percent
40	Effect 1	Parameter 2	16		0.0	100.0	0	Percent
42	Effect 1	Parameter 3	16		0.0	100.0	0	Percent
44	Effect 1	Parameter 4	16		0.0	100.0	0	Percent
46	Effect 2	Folder	8		0	255	0	
47	Effect 2	File	8		0	255	0	
48	Effect 2	Intensity	16		0.0	100.0	65535	Percent

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
50	Effect 2	Parameter 1	16		0.0	100.0	0	Percent
52	Effect 2	Parameter 2	16		0.0	100.0	0	Percent
54	Effect 2	Parameter 3	16		0.0	100.0	0	Percent
56	Effect 2	Parameter 4	16		0.0	100.0	0	Percent
58	Colour	Red	16		0.0	200.0	32768	Percent
60	Colour	Green	16		0.0	200.0	32768	Percent
62	Colour	Blue	16		0.0	200.0	32768	Percent
64	Colour	Invert Red	8		0	1	0	
65	Colour	Invert Green	8		0	1	0	
66	Colour	Invert Blue	8		0	1	0	
67	Colour	Contrast	16		0.0	200.0	32768	Percent
69	Colour	Brightness	16		0.0	200.0	32768	Percent
71	Colour	Hue Shift	8		-180.0	180.0	32768	Angle
72	Colour	Saturation	8		0.0	200.0	32768	Percent
73	Colour	Lightness	8		0.0	200.0	32768	Percent
74	Shape Pose	Shape	8	Plane	0	15	0	
				Cube	16	31		
				Sphere	32	47		
75	Shape Pose	Scale X	16		0.0	400.0	16384	Percent
77	Shape Pose	Scale Y	16		0.0	400.0	16384	Percent
79	Shape Rotation	X Index	16		-180.0	180.0	32768	Angle
81	Shape Rotation	Y Index	16		-180.0	180.0	32768	Angle
83	Shape Rotation	Z Index	16		-180.0	180.0	32768	Angle

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
85	Shape Rotation	X Speed	16		-10.0	10.0	32768	RotationSpeed
87	Shape Rotation	Y Speed	16		-10.0	10.0	32768	RotationSpeed
89	Shape Rotation	Z Speed	16		-10.0	10.0	32768	RotationSpeed
91	Shape Pose	Position X	16		-100.0	100.0	32768	Percent
93	Shape Pose	Position Y	16		-100.0	100.0	32768	Percent
95	Shape Pose	Position Z	16		-100.0	100.0	32768	Percent
97	Cropping	Top Left X	16		-100.0	100.0	32768	Percent
99	Cropping	Top Left Y	16		-100.0	100.0	32768	Percent
101	Cropping	Top Right X	16		-100.0	100.0	32768	Percent
103	Cropping	Top Right Y	16		-100.0	100.0	32768	Percent
105	Cropping	Bottom Left X	16		-100.0	100.0	32768	Percent
107	Cropping	Bottom Left Y	16		-100.0	100.0	32768	Percent
109	Cropping	Bottom Right X	16		-100.0	100.0	32768	Percent
111	Cropping	Bottom Right Y	16		-100.0	100.0	32768	Percent
113	Cropping	Softness	16		0.0	100.0	0	Percent
115	Mask Setup	Folder	8		0	255	0	
116	Mask Setup	File	8		0	255	0	
117	Mask Setup	Mode	8	Greyscale	0	15	0	
				Greyscale Inverted	16	31		
				Alpha	32	47		
				Alpha Inverted	48	63		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Colour	64	79		
				Colour Inverted	80	95		
118	Mask Setup	Red	8		0.0	100.0	0	Percent
119	Mask Setup	Green	8		0.0	100.0	0	Percent
120	Mask Setup	Blue	8		0.0	100.0	0	Percent
121	Mask Setup	Tolerance	8		0.0	100.0	0	Percent
122	Mask Setup	Ratio	8	Stretch	0	15	0	
				Fit Width	16	31		
				Fit Height	32	47		
				1:1	48	63		
123	Mask Setup	Softness	8		0.0	100.0	0	Percent
124	Mask Pose	Scale X	16		0.0	200.0	32768	Percent
126	Mask Pose	Scale Y	16		0.0	200.0	32768	Percent
128	Mask Pose	Scale X & Y	16		0.0	200.0	32768	Percent
130	Mask Pose	Rotation Z	16		-180.0	180.0	32768	Angle
132	Mask Pose	Position X	16		-100.0	100.0	32768	Percent
134	Mask Pose	Position Y	16		-100.0	100.0	32768	Percent
136	Blending	Mode	8	Replace	0	15	0	
				Add	16	31		
				Subtract	32	47		
				Multiply	48	63		
				XOR	64	79		
				Exclusion	80	95		
				Screen	96	111		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Linear Burn	112	127		
137	Keying	Mode	8	None	0	15	0	
				LUMA Band Reject	16	31		
				LUMA Band Pass	32	47		
				Chroma Band Reject	48	63		
				Chroma Band Pass	64	79		
138	Keying	Centre	8		0.0	100.0	0	Percent
139	Keying	Width	8		0.0	100.0	0	Percent
140	Keying	Smooth	8		0.0	100.0	0	Percent
141	Transition	Mode	8	Crossfade	0	15	0	
				Window Slice	16	31		
				Polka Dots Curtain	32	47		
				Horizontal	48	63		
				Vertical	64	79		
				Angular	80	95		
142	Transition	Time	16		0	65535	0	Milliseconds

Layer All

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Intensity	Intensity	16		0.0	100.0	0	Percent
3	Visual	Folder	8		0	255	0	
4	Visual	File	8		0	255	0	
5	Visual	Ignore Alpha	8		0	1	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
6	Visual	Aspect Ratio	8	Stretch	0	15	0	
				Fit Width	16	31		
				Fit Height	32	47		
				1:1	48	63		
7	Visual	Output	8	All Outputs	0	15	0	
				Surface 1	16	31		
				Surface 2	32	47		
				Surface 3	48	63		
				Surface 4	64	79		
				Surface 5	80	95		
				Surface 6	96	111		
				Surface 7	112	127		
				Surface 8	128	143		
				Surface 9	144	159		
				Surface 10	160	175		
				Surface 11	176	191		
				Surface 12	192	207		
				Surface 13	208	223		
				Surface 14	224	239		
				Surface 15	240	255		
				Surface 16	256	271		
				Surface 17	272	287		
				Surface 18	288	303		
				Surface 19	304	319		
				Surface 20	320	335		
				Surface 21	336	351		
				Surface 22	352	367		
				Surface 23	368	383		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 24	384	399		
				Surface 25	400	415		
				Surface 26	416	431		
				Surface 27	432	447		
				Surface 28	448	463		
				Surface 29	464	479		
				Surface 30	480	495		
				Surface 31	496	511		
				Surface 32	512	527		
				Surface 33	528	543		
				Surface 34	544	559		
				Surface 35	560	575		
				Surface 36	576	591		
				Surface 37	592	607		
				Surface 38	608	623		
				Surface 39	624	639		
				Surface 40	640	655		
				Surface 41	656	671		
				Surface 42	672	687		
				Surface 43	688	703		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 44	704	719		
				Surface 45	720	735		
				Surface 46	736	751		
				Surface 47	752	767		
				Surface 48	768	783		
				Surface 49	784	799		
				Surface 50	800	815		
				Surface 51	816	831		
				Surface 52	832	847		
				Surface 53	848	863		
				Surface 54	864	879		
				Surface 55	880	895		
				Surface 56	896	911		
				Surface 57	912	927		
				Surface 58	928	943		
				Surface 59	944	959		
				Surface 60	960	975		
				Surface 61	976	991		
				Surface 62	992	1007		
				Surface 63	1008	1023		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 64	1024	1039		
				Surface 65	1040	1055		
				Surface 66	1056	1071		
				Surface 67	1072	1087		
				Surface 68	1088	1103		
				Surface 69	1104	1119		
				Surface 70	1120	1135		
				Surface 71	1136	1151		
				Surface 72	1152	1167		
				Surface 73	1168	1183		
				Surface 74	1184	1199		
				Surface 75	1200	1215		
				Surface 76	1216	1231		
				Surface 77	1232	1247		
				Surface 78	1248	1263		
				Surface 79	1264	1279		
				Surface 80	1280	1295		
				Surface 81	1296	1311		
				Surface 82	1312	1327		
				Surface 83	1328	1343		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 84	1344	1359		
				Surface 85	1360	1375		
				Surface 86	1376	1391		
				Surface 87	1392	1407		
				Surface 88	1408	1423		
				Surface 89	1424	1439		
				Surface 90	1440	1455		
				Surface 91	1456	1471		
				Surface 92	1472	1487		
				Surface 93	1488	1503		
				Surface 94	1504	1519		
				Surface 95	1520	1535		
				Surface 96	1536	1551		
				Surface 97	1552	1567		
				Surface 98	1568	1583		
				Surface 99	1584	1599		
				Surface 100	1600	1615		
				Surface 101	1616	1631		
				Surface 102	1632	1647		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 103	1648	1663		
				Surface 104	1664	1679		
				Surface 105	1680	1695		
				Surface 106	1696	1711		
				Surface 107	1712	1727		
				Surface 108	1728	1743		
				Surface 109	1744	1759		
				Surface 110	1760	1775		
				Surface 111	1776	1791		
				Surface 112	1792	1807		
				Surface 113	1808	1823		
				Surface 114	1824	1839		
				Surface 115	1840	1855		
				Surface 116	1856	1871		
				Surface 117	1872	1887		
				Surface 118	1888	1903		
				Surface 119	1904	1919		
				Surface 120	1920	1935		
				Surface 121	1936	1951		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 122	1952	1967		
				Surface 123	1968	1983		
				Surface 124	1984	1999		
				Surface 125	2000	2015		
				Surface 126	2016	2031		
				Surface 127	2032	2047		
				Surface 128	2048	2063		
				Surface 129	2064	2079		
				Surface 130	2080	2095		
				Surface 131	2096	2111		
				Surface 132	2112	2127		
				Surface 133	2128	2143		
				Surface 134	2144	2159		
				Surface 135	2160	2175		
				Surface 136	2176	2191		
				Surface 137	2192	2207		
				Surface 138	2208	2223		
				Surface 139	2224	2239		
				Surface 140	2240	2255		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 141	2256	2271		
				Surface 142	2272	2287		
				Surface 143	2288	2303		
				Surface 144	2304	2319		
				Surface 145	2320	2335		
				Surface 146	2336	2351		
				Surface 147	2352	2367		
				Surface 148	2368	2383		
				Surface 149	2384	2399		
				Surface 150	2400	2415		
				Surface 151	2416	2431		
				Surface 152	2432	2447		
				Surface 153	2448	2463		
				Surface 154	2464	2479		
				Surface 155	2480	2495		
				Surface 156	2496	2511		
				Surface 157	2512	2527		
				Surface 158	2528	2543		
				Surface 159	2544	2559		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 160	2560	2575		
				Surface 161	2576	2591		
				Surface 162	2592	2607		
				Surface 163	2608	2623		
				Surface 164	2624	2639		
				Surface 165	2640	2655		
				Surface 166	2656	2671		
				Surface 167	2672	2687		
				Surface 168	2688	2703		
				Surface 169	2704	2719		
				Surface 170	2720	2735		
				Surface 171	2736	2751		
				Surface 172	2752	2767		
				Surface 173	2768	2783		
				Surface 174	2784	2799		
				Surface 175	2800	2815		
				Surface 176	2816	2831		
				Surface 177	2832	2847		
				Surface 178	2848	2863		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 179	2864	2879		
				Surface 180	2880	2895		
				Surface 181	2896	2911		
				Surface 182	2912	2927		
				Surface 183	2928	2943		
				Surface 184	2944	2959		
				Surface 185	2960	2975		
				Surface 186	2976	2991		
				Surface 187	2992	3007		
				Surface 188	3008	3023		
				Surface 189	3024	3039		
				Surface 190	3040	3055		
				Surface 191	3056	3071		
				Surface 192	3072	3087		
				Surface 193	3088	3103		
				Surface 194	3104	3119		
				Surface 195	3120	3135		
				Surface 196	3136	3151		
				Surface 197	3152	3167		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface 198	3168	3183		
				Surface 199	3184	3199		
				Surface 200	3200	3215		
				Surface Group 1	3216	3231		
				Surface Group 2	3232	3247		
				Surface Group 3	3248	3263		
				Surface Group 4	3264	3279		
				Surface Group 5	3280	3295		
				Surface Group 6	3296	3311		
				Surface Group 7	3312	3327		
				Surface Group 8	3328	3343		
				Surface Group 9	3344	3359		
				Surface Group 10	3360	3375		
				Surface Group 11	3376	3391		
				Surface Group 12	3392	3407		
				Surface Group 13	3408	3423		
				Surface Group 14	3424	3439		
				Surface Group 15	3440	3455		
				Surface Group 16	3456	3471		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface Group 17	3472	3487		
				Surface Group 18	3488	3503		
				Surface Group 19	3504	3519		
				Surface Group 20	3520	3535		
				Surface Group 21	3536	3551		
				Surface Group 22	3552	3567		
				Surface Group 23	3568	3583		
				Surface Group 24	3584	3599		
				Surface Group 25	3600	3615		
				Surface Group 26	3616	3631		
				Surface Group 27	3632	3647		
				Surface Group 28	3648	3663		
				Surface Group 29	3664	3679		
				Surface Group 30	3680	3695		
				Surface Group 31	3696	3711		
				Surface Group 32	3712	3727		
				Surface Group 33	3728	3743		
				Surface Group 34	3744	3759		
				Surface Group 35	3760	3775		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Surface Group 36	3776	3791		
				Surface Group 37	3792	3807		
				Surface Group 38	3808	3823		
				Surface Group 39	3824	3839		
				Surface Group 40	3840	3855		
				Surface Group 41	3856	3871		
				Surface Group 42	3872	3887		
				Surface Group 43	3888	3903		
				Surface Group 44	3904	3919		
				Surface Group 45	3920	3935		
				Surface Group 46	3936	3951		
				Surface Group 47	3952	3967		
				Surface Group 48	3968	3983		
				Surface Group 49	3984	3999		
				Surface Group 50	4000	4015		
				Led	4016	4031		
				KlingNet	4032	4047		
8	Text	Folder	8		0	255	0	
9	Text	File	8		0	255	0	
10	Text	Controls	8	Auto Advance	0	15	0	
				Play	16	31		
				Pause	32	47		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Next	48	63		
				Previous	64	79		
				Rewind	80	95		
11	Visual Control	Parameter 1	16		0.0	100.0	0	Percent
13	Visual Control	Parameter 2	16		0.0	100.0	0	Percent
15	Visual Control	Parameter 3	16		0.0	100.0	0	Percent
17	Visual Control	Parameter 4	16		0.0	100.0	0	Percent
19	Playback	Mode	8	Loop Forward	0	15	0	
				Loop Backward	16	31		
				Once Forward	32	47		
				Once Backward	48	63		
				Ping Pong	64	79		
				Show Frame	80	95		
				Time Code	96	111		
				Beat Sync	112	127		
				Stop	240	255		
20	Playback	Pause	8		0	1	0	
21	Playback	Speed	16		-400.0	400.0	40960	Percent
23	Visual	Intensity 0 Behaviour	8	Stop	0	15	0	
				Continue	16	31		
				Pause	32	47		
24	Playback	End Behaviour	8	Transparent	0	15	0	
				Start Frame	16	31		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				First Video Frame	32	47		
				Last Video Frame	48	63		
				First Loop Frame	64	79		
				Last Loop Frame	80	95		
25	Playback	Time Code Source	8	Art-Net	0	15	0	
				Stage LinQ Deck 1	16	31		
				Stage LinQ Deck 2	32	47		
				Stage LinQ Deck 3	48	63		
				Stage LinQ Deck 4	64	79		
				TC Net Deck 1	80	95		
				TC Net Deck 2	96	111		
				TC Net Deck 3	112	127		
				TC Net Deck 4	128	143		
				TC Net A	144	159		
				TC Net B	160	175		
26	Playback	Time Code Offset	16		-32768	32767	32768	Frames

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
28	Playback	Time Code Start Time	8		0	255	0	
29	Playback	BPM Source	8	Ableton Link	0	15	0	
				Stage LinQ Deck 1	16	31		
				Stage LinQ Deck 2	32	47		
				Stage LinQ Deck 3	48	63		
				Stage LinQ Deck 4	64	79		
				TC Net Deck 1	80	95		
				TC Net Deck 2	96	111		
				TC Net Deck 3	112	127		
				TC Net Deck 4	128	143		
				TC Net A	144	159		
				TC Net B	160	175		
				Art-Net	176	191		
30	Playback	BPM Divisor	8	1	0	15	0	
				2	16	31		
				4	32	47		
				8	48	63		
				16	64	79		
				32	80	95		
				64	96	111		
				128	112	127		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				256	128	143		
31	Playback	Start Point	16		0	65535	0	Frames
33	Playback	In Point	16		0	65535	0	Frames
35	Playback	Out Point	16		0	-65535	0	Frames
37	Audio	Gain	8		0.0	200.0	32768	Percent
38	Audio	Output	8		0	255	0	
39	Pre-FX Pose	Scale X	16		0.0	400.0	16384	Percent
41	Pre-FX Pose	Scale Y	16		0.0	400.0	16384	Percent
43	Pre-FX Pose	Scale X & Y	16		0.0	400.0	16384	Percent
45	Pre-FX Pose	Position X Pixels	16		-32768	32767	32768	Pixels
47	Pre-FX Pose	Position Y Pixels	16		-32768	32767	32768	Pixels
49	Pre-FX Pose	Rotation Z	16		-180.0	180.0	32768	Angle
51	Effect 1	Folder	8		0	255	0	
52	Effect 1	File	8		0	255	0	
53	Effect 1	Intensity	16		0.0	100.0	65535	Percent
55	Effect 1	Parameter 1	16		0.0	100.0	0	Percent
57	Effect 1	Parameter 2	16		0.0	100.0	0	Percent
59	Effect 1	Parameter 3	16		0.0	100.0	0	Percent
61	Effect 1	Parameter 4	16		0.0	100.0	0	Percent
63	Effect 2	Folder	8		0	255	0	
64	Effect 2	File	8		0	255	0	
65	Effect 2	Intensity	16		0.0	100.0	65535	Percent
67	Effect 2	Parameter 1	16		0.0	100.0	0	Percent
69	Effect 2	Parameter 2	16		0.0	100.0	0	Percent

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
71	Effect 2	Parameter 3	16		0.0	100.0	0	Percent
73	Effect 2	Parameter 4	16		0.0	100.0	0	Percent
75	Colour	Red	16		0.0	200.0	32768	Percent
77	Colour	Green	16		0.0	200.0	32768	Percent
79	Colour	Blue	16		0.0	200.0	32768	Percent
81	Colour	Invert Red	8		0	1	0	
82	Colour	Invert Green	8		0	1	0	
83	Colour	Invert Blue	8		0	1	0	
84	Colour	Contrast	16		0.0	200.0	32768	Percent
86	Colour	Brightness	16		0.0	200.0	32768	Percent
88	Colour	Hue Shift	8		-180.0	180.0	32768	Angle
89	Colour	Saturation	8		0.0	200.0	32768	Percent
90	Colour	Lightness	8		0.0	200.0	32768	Percent
91	Shape Pose	Shape	8	Plane	0	15	0	
				Cube	16	31		
				Sphere	32	47		
92	Shape Pose	Scale X	16		0.0	400.0	16384	Percent
94	Shape Pose	Scale Y	16		0.0	400.0	16384	Percent
96	Shape Rotation	X Index	16		-180.0	180.0	32768	Angle
98	Shape Rotation	Y Index	16		-180.0	180.0	32768	Angle
100	Shape Rotation	Z Index	16		-180.0	180.0	32768	Angle
102	Shape Rotation	X Speed	16		-10.0	10.0	32768	RotationSpeed
104	Shape Rotation	Y Speed	16		-10.0	10.0	32768	RotationSpeed

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
106	Shape Rotation	Z Speed	16		-10.0	10.0	32768	RotationSpeed
108	Shape Pose	Position X	16		-100.0	100.0	32768	Percent
110	Shape Pose	Position Y	16		-100.0	100.0	32768	Percent
112	Shape Pose	Position Z	16		-100.0	100.0	32768	Percent
114	Cropping	Top Left X	16		-100.0	100.0	32768	Percent
116	Cropping	Top Left Y	16		-100.0	100.0	32768	Percent
118	Cropping	Top Right X	16		-100.0	100.0	32768	Percent
120	Cropping	Top Right Y	16		-100.0	100.0	32768	Percent
122	Cropping	Bottom Left X	16		-100.0	100.0	32768	Percent
124	Cropping	Bottom Left Y	16		-100.0	100.0	32768	Percent
126	Cropping	Bottom Right X	16		-100.0	100.0	32768	Percent
128	Cropping	Bottom Right Y	16		-100.0	100.0	32768	Percent
130	Cropping	Softness	16		0.0	100.0	0	Percent
132	Mask Setup	Folder	8		0	255	0	
133	Mask Setup	File	8		0	255	0	
134	Mask Setup	Mode	8	Greyscale	0	15	0	
				Greyscale Inverted	16	31		
				Alpha	32	47		
				Alpha Inverted	48	63		
				Colour	64	79		
				Colour Inverted	80	95		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
135	Mask Setup	Red	8		0.0	100.0	0	Percent
136	Mask Setup	Green	8		0.0	100.0	0	Percent
137	Mask Setup	Blue	8		0.0	100.0	0	Percent
138	Mask Setup	Tolerance	8		0.0	100.0	0	Percent
139	Mask Setup	Ratio	8	Stretch	0	15	0	
				Fit Width	16	31		
				Fit Height	32	47		
				1:1	48	63		
140	Mask Setup	Softness	8		0.0	100.0	0	Percent
141	Mask Pose	Scale X	16		0.0	200.0	32768	Percent
143	Mask Pose	Scale Y	16		0.0	200.0	32768	Percent
145	Mask Pose	Scale X & Y	16		0.0	200.0	32768	Percent
147	Mask Pose	Rotation Z	16		-180.0	180.0	32768	Angle
149	Mask Pose	Position X	16		-100.0	100.0	32768	Percent
151	Mask Pose	Position Y	16		-100.0	100.0	32768	Percent
153	Blending	Mode	8	Replace	0	15	0	
				Add	16	31		
				Subtract	32	47		
				Multiply	48	63		
				Xor	64	79		
				Exclusion	80	95		
				Screen	96	111		
				Linear Burn	112	127		
154	Blending	A/B Select	8	A	0	15	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				B	16	31		
				A & B	32	47		
155	Keying	Mode	8	None	0	15	0	
				Luma Band Reject	16	31		
				Luma Band Pass	32	47		
				Chroma Band Reject	48	63		
				Chroma Band Pass	64	79		
156	Keying	Centre	8		0.0	100.0	0	Percent
157	Keying	Width	8		0.0	100.0	0	Percent
158	Keying	Smooth	8		0.0	100.0	0	Percent
159	Transition	Mode	8	Crossfade	0	15	0	
				Window Slice	16	31		
				Polka Dots Curtain	32	47		
				Horizontal	48	63		
				Vertical	64	79		
				Angular	80	95		
160	Transition	Time	16		0	65535	0	Milliseconds

Surface All

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Intensity	Intensity	16		0.0	100.0	65535	Percent
3	Effect 1	Folder	8		0	255	0	
4	Effect 1	File	8		0	255	0	
5	Effect 1	Intensity	16		0.0	100.0	65535	Percent

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
7	Effect 1	Parameter 1	16		0.0	100.0	0	Percent
9	Effect 1	Parameter 2	16		0.0	100.0	0	Percent
11	Effect 1	Parameter 3	16		0.0	100.0	0	Percent
13	Effect 1	Parameter 4	16		0.0	100.0	0	Percent
15	Colour	Red	16		0.0	200.0	32768	Percent
17	Colour	Green	16		0.0	200.0	32768	Percent
19	Colour	Blue	16		0.0	200.0	32768	Percent
21	Colour	Invert Red	8		0	1	0	
22	Colour	Invert Green	8		0	1	0	
23	Colour	Invert Blue	8		0	1	0	
24	Colour	Contrast	16		0.0	200.0	32768	Percent
26	Colour	Brightness	16		0.0	200.0	32768	Percent
28	Colour	Hue Shift	8		-180.0	180.0	32768	Angle
29	Colour	Saturation	8		0.0	200.0	32768	Percent
30	Colour	Lightness	8		0.0	200.0	32768	Percent
31	Mask Setup	Folder	8		0	255	0	
32	Mask Setup	File	8		0	255	0	
33	Mask Setup	Mode	8	Greyscale	0	15	0	
				Greyscale Inverted	16	31		
				Alpha	32	47		
				Alpha Inverted	48	63		
				Colour	64	79		
				Colour Inverted	80	95		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
34	Mask Setup	Red	8		0.0	100.0	0	Percent
35	Mask Setup	Green	8		0.0	100.0	0	Percent
36	Mask Setup	Blue	8		0.0	100.0	0	Percent
37	Mask Setup	Tolerance	8		0.0	100.0	0	Percent
38	Mask Setup	Ratio	8	Stretch	0	15	0	
				Fit Width	16	31		
				Fit Height	32	47		
				1:1	48	63		
39	Mask Setup	Softness	8		0.0	100.0	0	Percent
40	Mask Pose	Scale X	16		0.0	200.0	32768	Percent
42	Mask Pose	Scale Y	16		0.0	200.0	32768	Percent
44	Mask Pose	Scale X & Y	16		0.0	200.0	32768	Percent
46	Mask Pose	Rotation Z	16		-180.0	180.0	32768	Angle
48	Mask Pose	Position X	16		-100.0	100.0	32768	Percent
50	Mask Pose	Position Y	16		-100.0	100.0	32768	Percent
52	Surface Blending	Mode	8	Blend	0	15	0	
				Add	16	31		
				Subtract	32	47		
				Reverse Subtract	48	63		
53	Transition	Xfade	16		0.0	100.0	0	Percent
55	Transition	Mode	8	Crossfade	0	15	0	
				Window Slice	16	31		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Polka Dots Curtain	32	47		
				Horizontal	48	63		
				Vertical	64	79		
				Angular	80	95		

LED All

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Intensity	Intensity	16		0.0	100.0	65535	Percent
3	Effect 1	Folder	8		0	255	0	
4	Effect 1	File	8		0	255	0	
5	Effect 1	Intensity	16		0.0	100.0	65535	Percent
7	Effect 1	Parameter 1	16		0.0	100.0	0	Percent
9	Effect 1	Parameter 2	16		0.0	100.0	0	Percent
11	Effect 1	Parameter 3	16		0.0	100.0	0	Percent
13	Effect 1	Parameter 4	16		0.0	100.0	0	Percent
15	Colour	Red	16		0.0	200.0	32768	Percent
17	Colour	Green	16		0.0	200.0	32768	Percent
19	Colour	Blue	16		0.0	200.0	32768	Percent
21	Colour	Invert Red	8		0	1	0	
22	Colour	Invert Green	8		0	1	0	
23	Colour	Invert Blue	8		0	1	0	
24	Colour	Contrast	16		0.0	200.0	32768	Percent
26	Colour	Brightness	16		0.0	200.0	32768	Percent
28	Colour	Hue Shift	8		-180.0	180.0	32768	Angle
29	Colour	Saturation	8		0.0	200.0	32768	Percent
30	Colour	Lightness	8		0.0	200.0	32768	Percent

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
31	Gamma	Red	8		1.0	4.0	30583	
32	Gamma	Green	8		1.0	4.0	30583	
33	Gamma	Blue	8		1.0	4.0	30583	
34	Mask Setup	Folder	8		0	255	0	
35	Mask Setup	File	8		0	255	0	
36	Mask Setup	Mode	8	Greyscale	0	15	0	
				Greyscale Inverted	16	31		
				Alpha	32	47		
				Alpha Inverted	48	63		
				Colour	64	79		
				Colour Inverted	80	95		
37	Mask Setup	Red	8		0.0	100.0	0	Percent
38	Mask Setup	Green	8		0.0	100.0	0	Percent
39	Mask Setup	Blue	8		0.0	100.0	0	Percent
40	Mask Setup	Tolerance	8		0.0	100.0	0	Percent
41	Mask Setup	Ratio	8	Stretch	0	15	0	
				Fit Width	16	31		
				Fit Height	32	47		
				1:1	48	63		
42	Mask Setup	Softness	8		0.0	100.0	0	Percent
43	Mask Pose	Scale X	16		0.0	200.0	32768	Percent
45	Mask Pose	Scale Y	16		0.0	200.0	32768	Percent

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
47	Mask Pose	Scale X & Y	16		0.0	200.0	32768	Percent
49	Mask Pose	Rotation Z	16		-180.0	180.0	32768	Angle
51	Mask Pose	Position X	16		-100.0	100.0	32768	Percent
53	Mask Pose	Position Y	16		-100.0	100.0	32768	Percent
55	Transition	Xfade	16		0.0	100.0	0	Percent
57	Transition	Mode	8	Crossfade	0	15	0	
				Window Slice	16	31		
				Polka Dots Curtain	32	47		
				Horizontal	48	63		
				Vertical	64	79		
				Angular	80	95		
58	LedMapper	Mode	8	Replace	0	15	0	
				Maximum	16	31		
				Minimum	32	47		
				Multiply	48	63		
				Add	64	79		
				Subtract	80	95		
				Reverse Subtract	96	111		
				Mute	240	255		
59	LedMapper	Xfade	16		0.0	100.0	0	Percent

KlingNet All

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Intensity	Intensity	16		0.0	100.0	65535	Percent
3	Effect 1	Folder	8		0	255	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
4	Effect 1	File	8		0	255	0	
5	Effect 1	Intensity	16		0.0	100.0	65535	Percent
7	Effect 1	Parameter 1	16		0.0	100.0	0	Percent
9	Effect 1	Parameter 2	16		0.0	100.0	0	Percent
11	Effect 1	Parameter 3	16		0.0	100.0	0	Percent
13	Effect 1	Parameter 4	16		0.0	100.0	0	Percent
15	Colour	Red	16		0.0	200.0	32768	Percent
17	Colour	Green	16		0.0	200.0	32768	Percent
19	Colour	Blue	16		0.0	200.0	32768	Percent
21	Colour	Invert Red	8		0	1	0	
22	Colour	Invert Green	8		0	1	0	
23	Colour	Invert Blue	8		0	1	0	
24	Colour	Contrast	16		0.0	200.0	32768	Percent
26	Colour	Brightness	16		0.0	200.0	32768	Percent
28	Colour	Hue Shift	8		-180.0	180.0	32768	Angle
29	Colour	Saturation	8		0.0	200.0	32768	Percent
30	Colour	Lightness	8		0.0	200.0	32768	Percent
31	Gamma	Red	8		1.0	4.0	30583	
32	Gamma	Green	8		1.0	4.0	30583	
33	Gamma	Blue	8		1.0	4.0	30583	
34	Mask Setup	Folder	8		0	255	0	
35	Mask Setup	File	8		0	255	0	
36	Mask Setup	Mode	8	Greyscale	0	15	0	
				Greyscale Inverted	16	31		
				Alpha	32	47		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Alpha Inverted	48	63		
				Colour	64	79		
				Colour Inverted	80	95		
37	Mask Setup	Red	8		0.0	100.0	0	Percent
38	Mask Setup	Green	8		0.0	100.0	0	Percent
39	Mask Setup	Blue	8		0.0	100.0	0	Percent
40	Mask Setup	Tolerance	8		0.0	100.0	0	Percent
41	Mask Setup	Ratio	8	Stretch	0	15	0	
				Fit Width	16	31		
				Fit Height	32	47		
				1:1	48	63		
42	Mask Setup	Softness	8		0.0	100.0	0	Percent
43	Mask Pose	Scale X	16		0.0	200.0	32768	Percent
45	Mask Pose	Scale Y	16		0.0	200.0	32768	Percent
47	Mask Pose	Scale X & Y	16		0.0	200.0	32768	Percent
49	Mask Pose	Rotation Z	16		-180.0	180.0	32768	Angle
51	Mask Pose	Position X	16		-100.0	100.0	32768	Percent
53	Mask Pose	Position Y	16		-100.0	100.0	32768	Percent
55	Transition	Xfade	16		0.0	100.0	0	Percent
57	Transition	Mode	8	Crossfade	0	15	0	
				Window Slice	16	31		

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
				Polka Dots Curtain	32	47		
				Horizontal	48	63		
				Vertical	64	79		
				Angular	80	95		

Output All

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Intensity	Intensity	16		0.0	100.0	65535	Percent
3	Colour	Red	16		0.0	200.0	32768	Percent
5	Colour	Green	16		0.0	200.0	32768	Percent
7	Colour	Blue	16		0.0	200.0	32768	Percent
9	Colour	Contrast	16		0.0	200.0	32768	Percent
11	Colour	Brightness	16		0.0	200.0	32768	Percent
13	Gamma	Red	8		1.0	4.0	30583	
14	Gamma	Green	8		1.0	4.0	30583	
15	Gamma	Blue	8		1.0	4.0	30583	
16	Keystone	Top Left X	16		-100.0	0.0	65535	Percent
18	Keystone	Top Left Y	16		-100.0	0.0	65535	Percent
20	Keystone	Top Right X	16		-100.0	0.0	65535	Percent
22	Keystone	Top Right Y	16		-100.0	0.0	65535	Percent
24	Keystone	Bottom Left X	16		-100.0	0.0	65535	Percent
26	Keystone	Bottom Left Y	16		-100.0	0.0	65535	Percent
28	Keystone	Bottom Right X	16		-100.0	0.0	65535	Percent
30	Keystone	Bottom Right Y	16		-100.0	0.0	65535	Percent

Preset All

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Preset Group 1	Index 1	8		0	1	0	
2	Preset Group 1	Index 2	8		0	1	0	
3	Preset Group 1	Index 3	8		0	1	0	
4	Preset Group 1	Index 4	8		0	1	0	
5	Preset Group 1	Index 5	8		0	1	0	
6	Preset Group 1	Index 6	8		0	1	0	
7	Preset Group 1	Index 7	8		0	1	0	
8	Preset Group 1	Index 8	8		0	1	0	
9	Preset Group 1	Index 9	8		0	1	0	
10	Preset Group 1	Index 10	8		0	1	0	
11	Preset Group 1	Index 11	8		0	1	0	
12	Preset Group 1	Index 12	8		0	1	0	
13	Preset Group 1	Index 13	8		0	1	0	
14	Preset Group 1	Index 14	8		0	1	0	
15	Preset Group 1	Index 15	8		0	1	0	
16	Preset Group 1	Index 16	8		0	1	0	
17	Preset Group 2	Index 17	8		0	1	0	
18	Preset Group 2	Index 18	8		0	1	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
19	Preset Group 2	Index 19	8		0	1	0	
20	Preset Group 2	Index 20	8		0	1	0	
21	Preset Group 2	Index 21	8		0	1	0	
22	Preset Group 2	Index 22	8		0	1	0	
23	Preset Group 2	Index 23	8		0	1	0	
24	Preset Group 2	Index 24	8		0	1	0	
25	Preset Group 2	Index 25	8		0	1	0	
26	Preset Group 2	Index 26	8		0	1	0	
27	Preset Group 2	Index 27	8		0	1	0	
28	Preset Group 2	Index 28	8		0	1	0	
29	Preset Group 2	Index 29	8		0	1	0	
30	Preset Group 2	Index 30	8		0	1	0	
31	Preset Group 2	Index 31	8		0	1	0	
32	Preset Group 2	Index 32	8		0	1	0	
33	Preset Group 3	Index 33	8		0	1	0	
34	Preset Group 3	Index 34	8		0	1	0	
35	Preset Group 3	Index 35	8		0	1	0	
36	Preset Group 3	Index 36	8		0	1	0	
37	Preset Group 3	Index 37	8		0	1	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
38	Preset Group 3	Index 38	8		0	1	0	
39	Preset Group 3	Index 39	8		0	1	0	
40	Preset Group 3	Index 40	8		0	1	0	
41	Preset Group 3	Index 41	8		0	1	0	
42	Preset Group 3	Index 42	8		0	1	0	
43	Preset Group 3	Index 43	8		0	1	0	
44	Preset Group 3	Index 44	8		0	1	0	
45	Preset Group 3	Index 45	8		0	1	0	
46	Preset Group 3	Index 46	8		0	1	0	
47	Preset Group 3	Index 47	8		0	1	0	
48	Preset Group 3	Index 48	8		0	1	0	
49	Preset Group 4	Index 49	8		0	1	0	
50	Preset Group 4	Index 50	8		0	1	0	
51	Preset Group 4	Index 51	8		0	1	0	
52	Preset Group 4	Index 52	8		0	1	0	
53	Preset Group 4	Index 53	8		0	1	0	
54	Preset Group 4	Index 54	8		0	1	0	
55	Preset Group 4	Index 55	8		0	1	0	
56	Preset Group 4	Index 56	8		0	1	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
57	Preset Group 4	Index 57	8		0	1	0	
58	Preset Group 4	Index 58	8		0	1	0	
59	Preset Group 4	Index 59	8		0	1	0	
60	Preset Group 4	Index 60	8		0	1	0	
61	Preset Group 4	Index 61	8		0	1	0	
62	Preset Group 4	Index 62	8		0	1	0	
63	Preset Group 4	Index 63	8		0	1	0	
64	Preset Group 4	Index 64	8		0	1	0	
65	Preset Group 5	Index 65	8		0	1	0	
66	Preset Group 5	Index 66	8		0	1	0	
67	Preset Group 5	Index 67	8		0	1	0	
68	Preset Group 5	Index 68	8		0	1	0	
69	Preset Group 5	Index 69	8		0	1	0	
70	Preset Group 5	Index 70	8		0	1	0	
71	Preset Group 5	Index 71	8		0	1	0	
72	Preset Group 5	Index 72	8		0	1	0	
73	Preset Group 5	Index 73	8		0	1	0	
74	Preset Group 5	Index 74	8		0	1	0	
75	Preset Group 5	Index 75	8		0	1	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
76	Preset Group 5	Index 76	8		0	1	0	
77	Preset Group 5	Index 77	8		0	1	0	
78	Preset Group 5	Index 78	8		0	1	0	
79	Preset Group 5	Index 79	8		0	1	0	
80	Preset Group 5	Index 80	8		0	1	0	
81	Preset Group 6	Index 81	8		0	1	0	
82	Preset Group 6	Index 82	8		0	1	0	
83	Preset Group 6	Index 83	8		0	1	0	
84	Preset Group 6	Index 84	8		0	1	0	
85	Preset Group 6	Index 85	8		0	1	0	
86	Preset Group 6	Index 86	8		0	1	0	
87	Preset Group 6	Index 87	8		0	1	0	
88	Preset Group 6	Index 88	8		0	1	0	
89	Preset Group 6	Index 89	8		0	1	0	
90	Preset Group 6	Index 90	8		0	1	0	
91	Preset Group 6	Index 91	8		0	1	0	
92	Preset Group 6	Index 92	8		0	1	0	
93	Preset Group 6	Index 93	8		0	1	0	
94	Preset Group 6	Index 94	8		0	1	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
95	Preset Group 6	Index 95	8		0	1	0	
96	Preset Group 6	Index 96	8		0	1	0	
97	Preset Group 7	Index 97	8		0	1	0	
98	Preset Group 7	Index 98	8		0	1	0	
99	Preset Group 7	Index 99	8		0	1	0	
100	Preset Group 7	Index 100	8		0	1	0	
101	Preset Group 7	Index 101	8		0	1	0	
102	Preset Group 7	Index 102	8		0	1	0	
103	Preset Group 7	Index 103	8		0	1	0	
104	Preset Group 7	Index 104	8		0	1	0	
105	Preset Group 7	Index 105	8		0	1	0	
106	Preset Group 7	Index 106	8		0	1	0	
107	Preset Group 7	Index 107	8		0	1	0	
108	Preset Group 7	Index 108	8		0	1	0	
109	Preset Group 7	Index 109	8		0	1	0	
110	Preset Group 7	Index 110	8		0	1	0	
111	Preset Group 7	Index 111	8		0	1	0	
112	Preset Group 7	Index 112	8		0	1	0	
113	Preset Group 8	Index 113	8		0	1	0	

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
114	Preset Group 8	Index 114	8		0	1	0	
115	Preset Group 8	Index 115	8		0	1	0	
116	Preset Group 8	Index 116	8		0	1	0	
117	Preset Group 8	Index 117	8		0	1	0	
118	Preset Group 8	Index 118	8		0	1	0	
119	Preset Group 8	Index 119	8		0	1	0	
120	Preset Group 8	Index 120	8		0	1	0	
121	Preset Group 8	Index 121	8		0	1	0	
122	Preset Group 8	Index 122	8		0	1	0	
123	Preset Group 8	Index 123	8		0	1	0	
124	Preset Group 8	Index 124	8		0	1	0	
125	Preset Group 8	Index 125	8		0	1	0	
126	Preset Group 8	Index 126	8		0	1	0	
127	Preset Group 8	Index 127	8		0	1	0	
128	Preset Group 8	Index 128	8		0	1	0	

General All

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
1	Intensity	Intensity	16		0.0	100.0	65535	Percent
3	Audio	Gain	8		0.0	200.0	32768	Percent
4	Colour	Contrast	16		0.0	200.0	32768	Percent

Channel	Parameter Group	Parameter	Bits	Description	From	To	Default DMX	Unit
6	Colour	Brightness	16		0.0	200.0	32768	Percent
8	UI	Live	8		0	1	0	

FCC Part 15 Notice

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference; and

(2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause interference with radio and television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

You may also consult your local ChamSys Ltd dealer or an experienced radio/TV technician for assistance.

NOTICE: The FCC regulations provide that any changes or modifications not expressly approved by ChamSys Ltd could void the user's authority to operate the equipment.

Disposal and Recycling of Unwanted Consoles

Please be aware that ChamSys products must be disposed of in accordance with the WEEE disposal and recycling regulations. ChamSys products must not be disposed of through normal household

waste.

For non-UK customers please contact your local distributor.

For UK customers, please contact us on +44 (0)23 8023 8666, or email mailto:support@chamsys.co.uk.

WEEE Producer registration number `WEE/FF5605UX`.