



arKaos | PRO

LED MASTER

3 STEPS AWAY FROM A FULL LEDSHOW

DOCUMENTATION

www.arkaospro.com

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Version 3, 29 June 2007

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Welcome to LEDMaster

1-2-3 Go

LEDMaster is an all-in-one solution to run LED light shows for everyone. Designed around the protocol Kling-Net™, this fast and easy application will take your LED show to the next level. Walking you through 3 steps, it is fast and easy to use and will do most of the configuration automatically for you.

Step 1 - Mapping Mode

Your Kling-Net™ devices will be automatically recognized by the software and can be positioned on the *Canvas*. Kling-Net™ frees you from Art-Net, DMX, nodes, addressing and any complex setup and does it automatically for you. Different *Zones* can also be defined on the *Canvas* to send different video feeds for more flexibility.

Step 2 - Programming Mode

In the Programming mode you create some visual *Sequences* in a very simple way, based on Live Patterns or by importing videos from your own library.

Timeline Based

Our timeline based editor means you can easily program your full show, but of course you can also go for live interaction to make your show completely interactive.

Live Patterns

Our brand new Live Pattern generator will output hard edged, pixel perfect visuals from the smallest to the largest LED installations. No need to buy expensive videos or lose time to create them yourself. We will generate them live for you, specifically for the mapping you have made.

Step 3 - Performance Mode

Live performance is the key for the show. Trigger the *Sequences* you created live, manually, randomly or sequentially. You have all the options available to create the show that you prefer. Our easy beat detection makes sure that Visuals are synchronized with the music. Also Live Patterns can generate unique visuals adapted to the sound atmosphere of your show.

Documentation

The present User Manual covers all the aspects of LEDMaster 1.2 software. Any changes, or any addition in the next intermediate releases (1.3, 1.4 etc.) will be detailed in the Release Notes PDF document, which can be found in the software installation folder on your computer.

Software Installation

Installing the Software - Windows

1. To install the ArKaos LEDMaster software, insert the LEDMaster installation CD into your computer or download the installer from the ArKaos website.
2. Double-click on the installation file to launch the installation wizard.
2. Follow the on-screen instructions.
3. Once the installation is complete click Finish. The ArKaos LEDMaster software is now ready to be used.
4. Start LEDMaster by going to Start → ArKaos LEDMaster 1.2 → LEDMaster.
5. Follow the *Activation* procedure described further in this document.

If you would like to uninstall ArKaos LEDMaster software go to Start → ArKaos LEDMaster 1.2 → Uninstall.

Installing the Software - Mac OS

1. To install the ArKaos LEDMaster software, insert the LEDMaster installation CD into your computer or download the .dmg image file from the ArKaos website.
2. If you downloaded the .dmg image file, double-click to mount the image. A LEDMaster drive will appear on the desktop. Double-click on it.
3. A window opens to invite you to drag and drop the LEDMaster application to the *Applications* folder.
4. Doing so installs LEDMaster automatically.
5. Otherwise the application can also be moved manually to the *Applications* folder.
6. Start LEDMaster from the *Applications* folder by double-clicking on it.
7. Follow the *Activation* procedure described further in this document.

To uninstall ArKaos LEDMaster software go to *Applications* folder. Drag and drop LEDMaster application file to the Trash.

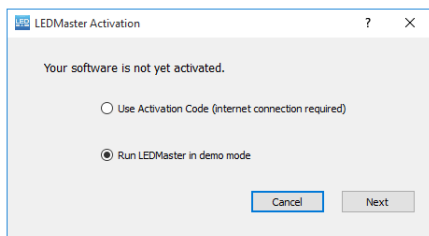
About Your License

When you buy the software, you also receive an Activation Code. It is very important to keep this code in a safe place since it is the proof that you own a license of LEDMaster. It might be needed in the future to re-install the software or to obtain upgrades.

Activating/Deactivating Your Software

Software Activation Dialog

When you launch the application for the first time, the LEDMaster Activation dialog will be displayed.

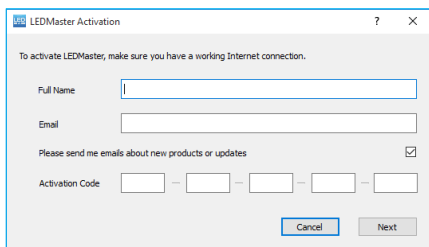


About the Demo Mode

From the Activation dialog, by default, you can run the software in demo mode. The software would still be fully functional but a watermark will be outputted to remind that the application runs in demo mode.

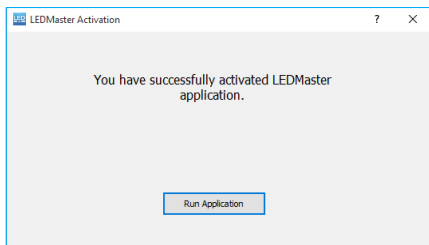
Using Activation Code

To activate the software, select the option “Use Activation Code”. You need a valid email address, an internet connection and a valid activation code.

A screenshot of the 'LEDMaster Activation' dialog box. It has a title bar with a question mark and a close button. The main text says 'To activate LEDMaster, make sure you have a working Internet connection.' Below this are input fields for 'Full Name' and 'Email'. There is a checkbox labeled 'Please send me emails about new products or updates' which is checked. Below that is an 'Activation Code' field consisting of five separate boxes separated by dashes. At the bottom right are 'Cancel' and 'Next' buttons.

Fill in your full name, your email address and your activation code and click “Next”. It is important to memorize which email address you used to activate the product.

You will get a confirmation screen when the *Activation* is successful.

A screenshot of the 'LEDMaster Activation' dialog box showing a confirmation message. The text inside says 'You have successfully activated LEDMaster application.' At the bottom center is a button labeled 'Run Application'.

You could also register if the software is already running in Demo mode. To do so, go to *File* → *Preferences*, select *Activation* tab, press the “*Activate machine*” button and fill in your personal data and a valid activation code.

Deactivating Your Machine

If your application is already activated, you can use the option “*Deactivate machine*” under the *Activation* tab in the “*Preferences*” menu. Once deactivated successfully, you can reuse the activation code on another machine.

Using the Software

General

Toolbar



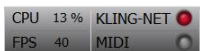
In order to switch between the application modes, you can use the toolbar buttons to go respectively to *Mapping*, *Programming* and *Performance* modes.



Navigation arrows are placed next to the ArKaos Pro logo and serve as an alternative way of switching between modes.






The *Audio VU meter* reacts to the audio input and gives feedback if the audio input level is either too low or almost saturated. The *Audio VU meter* is present in *Programming* and *Performance* modes.



The *Status indicators* give the summary of the connected LED devices status and the activity of the CPU.

Kling-Net signal icon shows one of the following statuses:

-  All connected devices are detected (green)
-  Kling-Net server issue detected or a device is not responding (yellow)
-  No devices detected (red)

If the Kling-Net icon shows any issue, hovering on it will show a more precise description. For instance, if two Kling-Net servers are running on the same network, the LED will turn yellow.

Help Bar

Help bar is at the bottom of the application window. When you place the mouse over an interface element, it displays short descriptions and how to use instructions.

Application Menu

LEDMaster Menu [Mac OS Only]

Contains information about LEDMaster, preferences and option to quit the application.

File Menu

<i>Select Project...</i>	Allows to select the active project.
<i>Load Controller Template...</i>	Load a MIDI, DMX or keyboard mapping
<i>Save Controller Template...</i>	Save the current MIDI, DMX and keyboard mapping.
<i>Preferences... [Windows]</i>	Set up all preferences for the application.
<i>Quit [Windows]</i>	Quit the application.

Edit Menu

General	
<i>Undo</i>	Undo the last action
<i>Redo</i>	Redo the last action
Mapping Mode	
<i>Select Previous</i>	Select previous device
<i>Select Next</i>	Select next device
<i>Forget All Devices</i>	Forget all detected devices and rescan
Programming Mode	
<i>Copy</i>	Copy the sequence
<i>Paste</i>	Paste the sequence
Performance Mode	
<i>Keyboard Mapping</i>	Mapping mode to assign keyboard shortcuts
<i>MIDI Mapping</i>	Mapping mode to assign MIDI controls
<i>DMX Mapping</i>	Mapping mode to assign DMX controls
<i>Clear Mappings...</i>	Clear all mappings (Keyboard, MIDI and DMX)
<i>Edit Mappings...</i>	Dialog to edit all mappings already registered
<i>Shared Deck Mapping</i>	Apply same mapping to the selected Deck A or B

Help Menu

<i>Documentation</i>	Opens the PDF version of this document
<i>Release notes</i>	Opens the Release Notes for the current software version
<i>ArKaos Web Site</i>	Opens browser on the ArKaos Home page
<i>About</i>	Opens the 'About' dialog [Windows Only]

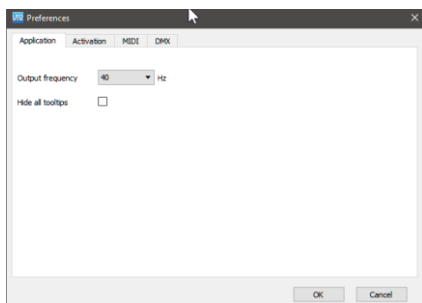
Preferences

The *Preferences* dialog is where you configure all the main settings of LEDMaster. It is organized in four header tabs: *Application*, *Activation*, *MIDI* and *DMX*.

Application Tab

The *Hide all tooltips* option hides all tooltips in the application. This is recommended for instance for touch screens.

All *Sequences* and settings made in the application are stored in the current *Project*. You can create new projects, switch to another projects, as well as rename, duplicate or delete the current *Project*. Some Demo projects are also provided to discover the software.

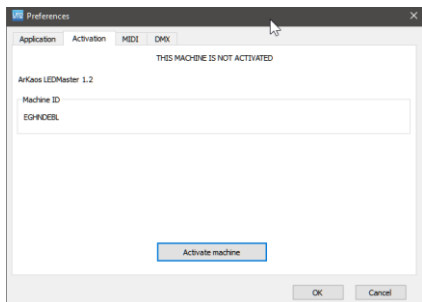


Activation Tab

The *Machine ID* is used to identify your machine for any support request.

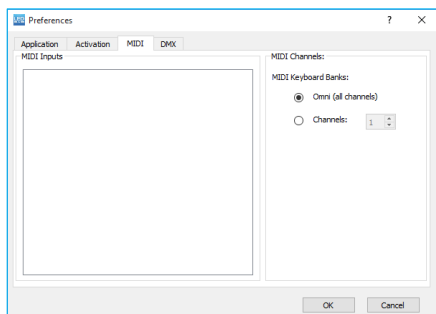
If LEDMaster runs in *Demo mode* the software can be activated by clicking on the *Activate machine* button.

If the software runs in *Activated mode*, the software can be deactivated by clicking on the *Deactivate machine* button.



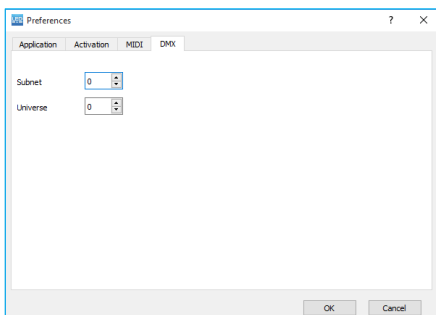
MIDI Tab

Provides a list of connected MIDI devices. You can disable devices by unchecking the name box next to device name. There are also options regarding the channel filtering you can select either omni (all channels) or one of the 16 specific MIDI channels.



DMX Tab

Contains two options, to set universe and to set subnet, both with possible values from 0 to 15.



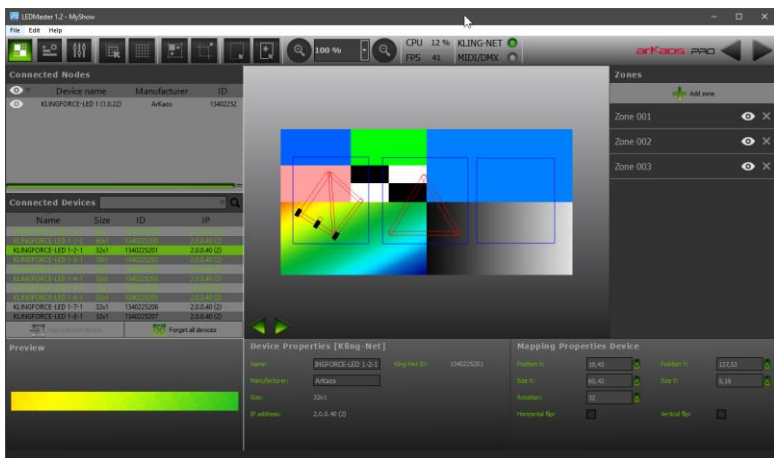


Mapping Mode

Mapping mode allows you to define areas of the LEDMaster visual output that will be sent to the connected LED devices. *Mapping mode* has been designed to be simple and easy to use. Each manipulation of a device mapped is immediately reflected on the connected LED device. Once you've created your *Mapping*, LEDMaster will use it to feed the connected LED devices with *Patterns*, videos, etc.

Mapping mode window consists of 4 main parts described below:

- The Devices
- The Canvas
- The Properties
- Using Zones.



The Devices

Connected Nodes

Connected Nodes panel displays the list of Kling-Net nodes that are currently connected or that were connected in the past. Information about the node, such as Device Name, Manufacturer and a unique ID is displayed.

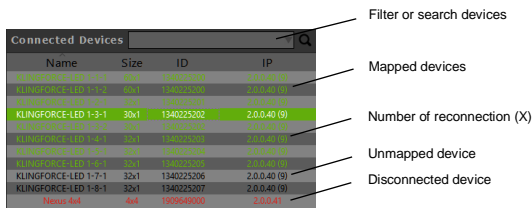
Connected Nodes			
	Device name	Manufacturer	ID
	KLINGFORCE-LED 1 (1.0.22)	ArKaos	13402252

Nodes are used to connect devices and expose them as Kling-Net devices. Examples are Kling-Force LED or Kling-Force DMX devices from ArKaos that are automatically detected by LEDMaster.

Connected Devices

Connected devices panel displays the list of the devices that are currently connected or that were connected in the past. Information about Device ID, Product Name, Size and IP address is displayed.

Devices that are already mapped on the *Canvas* are displayed in green while the unmapped devices appear in black. Disconnected devices are displayed in red.



The screenshot shows a table titled 'Connected Devices' with a search icon in the top right corner. The table has four columns: Name, Size, ID, and IP. The rows are color-coded: green for mapped devices, black for unmapped devices, and red for disconnected devices. Annotations with arrows point to specific features: 'Filter or search devices' points to the search icon; 'Mapped devices' points to a green row; 'Number of reconnection (X)' points to the '(9)' in the IP column of a green row; 'Unmapped device' points to a black row; and 'Disconnected device' points to a red row.

Name	Size	ID	IP
KLINGFORCE-LED 1-1-1	60x1	1340225200	2.0.0.40 (9)
KLINGFORCE-LED 1-1-2	60x1	1340225206	2.0.0.40 (9)
KLINGFORCE-LED 1-1-3	60x1	1340225201	2.0.0.40 (9)
KLINGFORCE-LED 1-3-1	30x1	1340225202	2.0.0.40 (9)
KLINGFORCE-LED 1-4-2	32x1	1340225202	2.0.0.40 (9)
KLINGFORCE-LED 1-4-1	32x1	1340225203	2.0.0.40 (9)
KLINGFORCE-LED 1-5-1	32x1	1340225204	2.0.0.40 (9)
KLINGFORCE-LED 1-6-1	32x1	1340225205	2.0.0.40 (9)
KLINGFORCE-LED 1-7-1	32x1	1340225206	2.0.0.40 (9)
KLINGFORCE-LED 1-8-1	32x1	1340225207	2.0.0.40 (9)
Nexus 4x4	4x4	1909646036	2.0.0.41

To add a device in the setup, click on the *Map selected device* button or drag and drop it to the *Canvas*. It will automatically create a “mapping rectangle”. The inner area will be grabbed from the *Canvas* output and sent to the corresponding device.

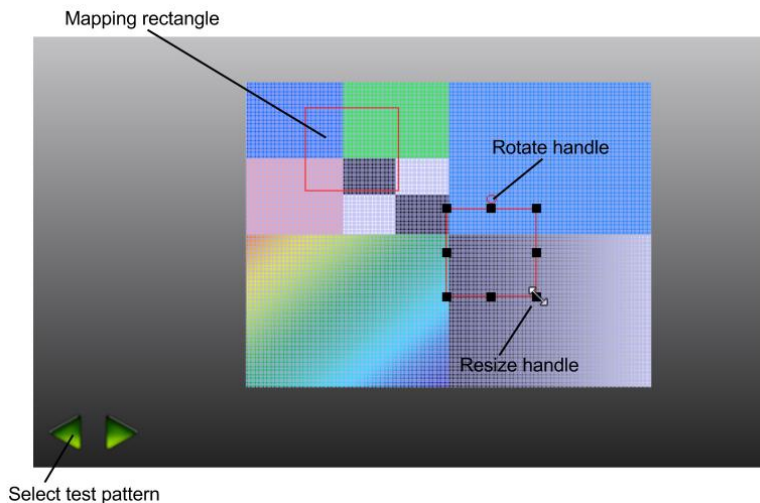
The button *Forget all devices* deletes all connected, mapped and disconnected devices and starts a fresh rescans.



The Canvas

The main part of the *Mapping mode* interface is the *Canvas* representing the output image. The *Canvas* represents the entire visual output from which some areas will be grabbed and sent to the physical LED device.

The two left and right arrows can change the test pattern by clicking on left and right arrows at the bottom-left corner of the *Canvas* panel.

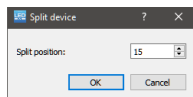


Device Transforms

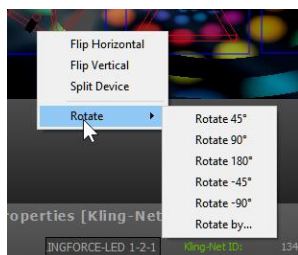
Moving, resizing and rotating can be done on a multi-selection of devices with the rotating and resizing handles.

By right-clicking a context menu shows all transformations to be applied on the selection: vertical and horizontal flip, splitting device and rotating device.

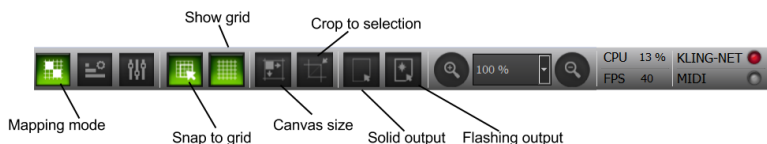
Splitting is available for one pixel width LED strips and allows a long strip to be cut. Each segment is recognized as a different device and can be transformed independently.



Right click functionalities can also be used on a multi-selection.



The size of the *Canvas* is the size that will be used to render *Visuals* in LEDMaster. You can change it using the *Canvas size* icon in the toolbar. You can also automatically adjust the *Canvas* size to the selected devices using the *Crop to selection* toolbar option. In order to select multiple devices on the *Canvas* keep Ctrl/cmd key pressed on Windows/Mac OS while selecting the devices. Selected devices can be moved, rotated or resized together. To zoom the *Canvas* in/out you can either use the *Zoom in/out* option from the toolbar, or you can use the mouse scroll. When you use the mouse scroll you can *Zoom in/out* centered on the position of the mouse pointer.

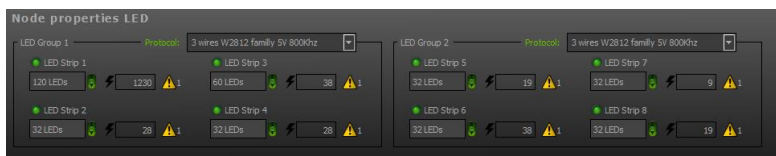


The Properties

Node Properties

The following properties appear when selecting a Kling-Force LED device in the *Connected Nodes*. The interface Kling-Force LED exposes two groups of four outputs and a LED protocol must be selected for each.

For each of the eight outputs, the number of LEDs on the strip must be specified. The interface also shows the power consumption and the warning or error status of each output.



Device and Mapping Properties

Device Properties and *Mapping Properties* are displayed below the canvas. They both expose properties for the selected device, but *Mapping Properties* are properties relative to how the device is mapped on the canvas and can often be transformed directly on the canvas.

Device Properties [Kling-Net]		Mapping Properties Device	
Name:	JHGFORCE-LED 1-2-1	Kling-Net ID:	1340225201
Manufacturer:	ArKaos	Position X:	19,43
Size:	32x1	Size X:	60,42
IP address:	2.0.0.40 (2)	Rotation:	32
		Horizontal flip:	<input type="checkbox"/>
		Vertical flip:	<input type="checkbox"/>

The toggle buttons *Show grid* and *Snap to grid* in the toolbar let you position and align your devices in a quick and easy manner. When the *Snap to grid* option is active, you can only position your device aligned on grid lines.

Horizontal/Vertical Flip mirrors the image along central horizontal/vertical axis of the device rectangle.

Divisor option splits the selected LED device vertically. Each cut will then appear as a separated device in the *Connected devices* list and can be mapped independently.

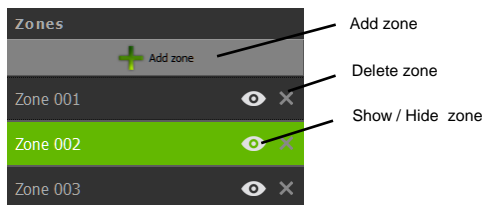
Solid output and *Flashing output* toggle buttons are available in the toolbar to help during setup. If you choose *Solid output* for the selected device, the physical LED device is going to project a solid color, while *Flashing output* will make the physical device start blinking.

You can preview the area of the *canvas* that will be outputted to the selected device in the *Device preview* panel at the bottom left part of the interface.

Using Zones

Zones are rectangular subarea on the *Canvas* which can be defined so that a *Cue* only renders to that specific area of the *Canvas*. Using *Zones* allows to send different visuals to different *Devices* or group of *Devices*.

In the *Programming mode*, *Cues* can be assigned to the *Default zone*, covering the whole area of the *Canvas*, or any of the created *Zones*.



To add a new *Zone*, select one or more devices and click on the + *Add zone* button. To delete a *Zone*, click on the cross icon next to the *Zone*. To show or hide a *Zone*, toggle the eye icon. To rename a *Zone*, double-click or click and hold mouse on the name.

By default, the new *Zone* created is the smallest box around the selected devices. One *Device* can fall into multiple *Zones*. If you select a *Device* which is already in *Zone 1*, and you add it in *Zone 2*, then the selected device will be in *Zone 2* as well.

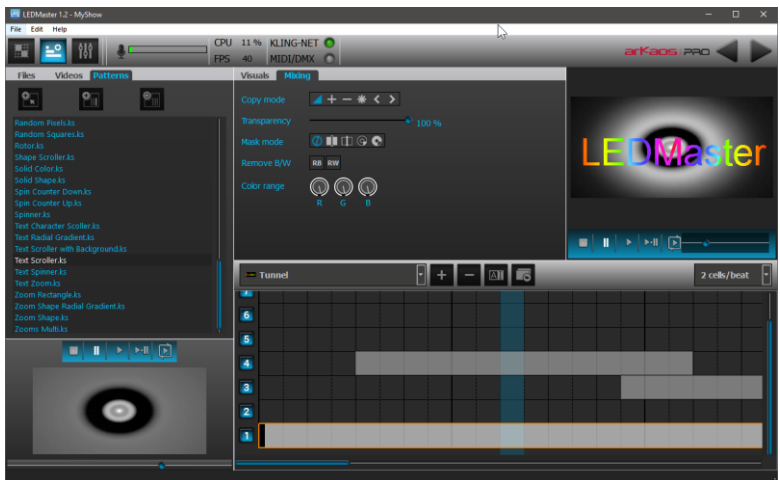


Programming Mode

Programming mode allows preparation of *Sequences* that will be played on physical LED devices with intuitive and efficient visual content management.

The *Programming mode* window is arranged in 5 main parts described in chapters below:

- Browser Panel
- Sequence Grid
- Settings Panel
- Output Preview
- Master Preview.

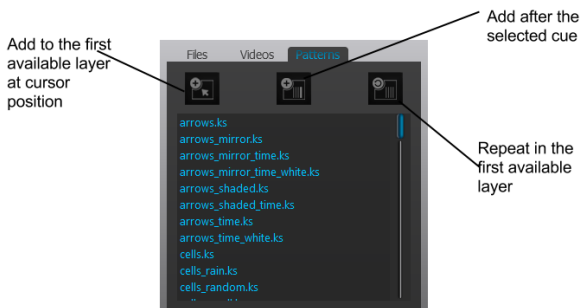


Browser Panel

The *Browser Panel* displays the list of *Visuals* provided with the application in its *Videos* and *Patterns* tab. You can use those *Visuals* to create your performance *Sequences*. You can also import video files and images from your computer's file system by going to the *Files* tab.

There are three shortcut icons in the *Browser panel* for adding visuals to the *Sequence grid*:

- Add to the first available *Layer* at *Cursor* position
- Add after the selected *Cue*
- Repeat over entire first empty *Layer*



Patterns

Patterns are animated visuals generated live, based on a set of parameters. They allow to create unique customized look. They are produced specifically for the required output resolution, without upscale or downscale, to preserve hard edges on LED displays.

Audio Patterns react on an audio input signal to create unique visuals. *Text Patterns* let you display any text in any language.

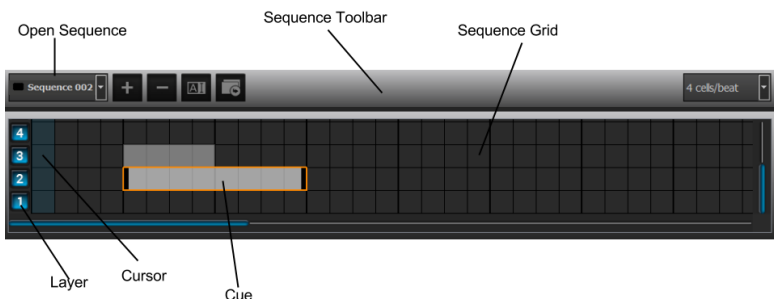
With the combination of *Patterns* and their parameters, an infinite number of different visuals can be created. This is far more efficient than creating each time a unique video. The application comes bundled with *Patterns* that you can use to create your LED show.

Patterns have a given duration and will occupy multiple beats accordingly when you drag and drop them on the *Sequence grid*. Depending on the *Pattern* type, shrinking or stretching them in the *Sequence grid* will mean playing them shorter/longer or playing them faster/slower.

For some *Patterns* you can adjust the speed, change the shape, the text and color settings, or decide to play it back and forth by choosing the "ping-pong" play mode. Each *Pattern* exposes different parameters.

Sequence Grid

Sequence grid component consists of 8 *Layers* each with an unlimited number of *Cues*. There is a *Cursor* showing the progress in time of the *Sequence* being played.



How to Program a Sequence

Each *Layer* consists of cells which can be populated with *Cues*. When you drag and drop a *Visual* from the *Browser* panel to the *Sequence grid* it occupies a certain number of cells depending on its length and speed. You can then rearrange the *Cues* in the *Sequence grid* by using drag and drop. If there is not enough space for a *Cue* to move to a position, meaning that there is another *Cue* in the grid occupying that place, you will get a notification.

When programming *Sequences* you should have in mind that *Layers* stack on top of each other starting from Layer 1 up to Layer 8. The mixing is done based on the *Copy Mode* of the *Cues*.

A *Cue* can be selected by clicking on it and deleted by pressing “Delete” key.

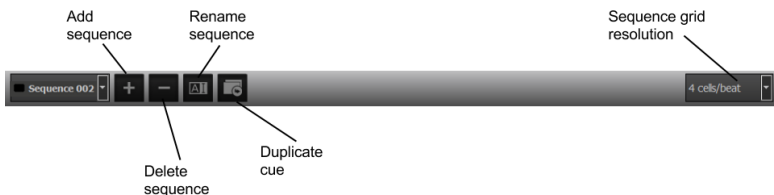
The grid is magnetic and *Cues* are always snapped to fill full cells. Stretching or shrinking a *Cue* plays it slower/faster or longer/shorter based on the type of *Visual*.

You can replace a *Cue* in the *Sequence grid* by dropping a new *Visual* from the *Browser* panel on it. If the original *Cue* was for example occupying 4 cells in the *Sequence grid* and you want to replace it with a *Visual* that is 8 cells long by default, the new *Visual* will be shrunk to 4 cells.

The *Sequence toolbar* consists of actions to manage the *Sequences* in the *Sequence grid* component. You can:

- Add Sequence
- Remove Sequence
- Open Sequence
- Rename Sequence or
- Change *Sequence grid* resolution (default resolution is 2 cells/beat).

From the *Sequence toolbar*, you can also duplicate the selected *Cue* in the grid.



Beat Controlled Sequence

The default BPM value is 120. If you assign a video of 1 second to a *Layer*, that video will occupy 8 cells of the *Sequence grid* component in *4 cells/beat resolution*. If you, then, stretch the same *Cue* to 16 cells it means that it will be played 2 times slower. If, however, you want to play that *Cue* 2 times faster, you will need to shrink it to occupy 4 cells of the *Sequence grid*.

If you drag a *Pattern* to the *Sequence grid*, that *Pattern* will occupy a number of beats based on its duration. You would then be able to speed it up or down by shrinking or stretching it over the *Sequence grid*.

There are *Patterns* that cannot be speeded up or down by changing their length. Those are *Patterns* that react on sound. If you stretch some of those *Patterns* over the *Sequence grid* that will not speed them down, but make them last longer.

Layer Management

On the *Sequence grid* you can switch *Layers* on or off by clicking on their numbers. All *Layers* are ON by default, which means their content will be mixed and sent to the output.

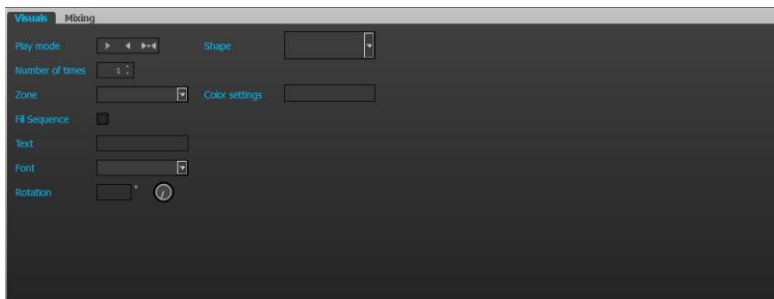
Settings Panel

Settings panel is used for modifying parameters of the selected *Cue* in the *Sequence grid* and contains the two following tabs:

- Visuals
- Mixing

Visuals Tab

Visuals tab settings adjust whether the selected *Cue* is a video or a *Pattern*. Also settings differ depending on the selected *Pattern*. *Visuals tab* may contain the following settings:



Play mode	Chooses how the <i>Cue</i> should be played: <i>Play forward</i> , <i>Play backward</i> , <i>Play ping-pong</i> .
Number of times	Defines how many time the <i>Visual</i> should be played during the <i>Cue</i> length.
Zone	Defines to which <i>Zone</i> output the <i>Cue</i> should be rendered.
Fill Sequence	Creates <i>Cue</i> from the start point (most left point of the <i>Sequence</i>) to the end in the <i>Sequence</i> (end point of the furthered <i>Cue</i>).
Text	Defines the text to be displayed by the <i>Pattern</i> .
Font	Defines a <i>Font</i> of entered text.
Rotation	Defines a direction in which a <i>Pattern</i> will propagate.
Shape	Chooses a shape to be displayed by the <i>Pattern</i> .
Color settings	Select with which colors the <i>Pattern</i> should be displayed.

If a video is asked to be played 3 times over a duration, it will also be played 3 times faster. If that behaviour is not desired, then the *Cue* should be stretched to be 3 times longer.

Some patterns can't be accelerated or slowed down by stretching the *Cue*. That's the case for example for *Infinite Patterns* that are based on an animation that can last forever and *Audio Visualizers*. Stretching these *Patterns* will only make them last longer.

If a *Pattern* takes the full duration of a *Sequence* that is played in loop mode, then the *Pattern* will loop seamlessly forever. This can also be easily achieved by using the third button above the *Pattern* list called "Fill entire first empty layer".

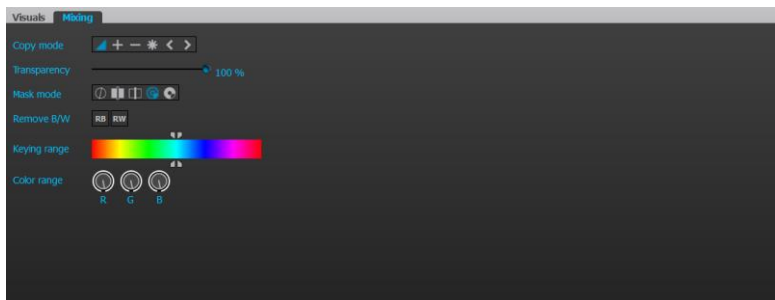
When is selected, *Cue* can be copied by *Ctrl+C* and pasted by *Ctrl+V* combination. In order to select multiple *Cues* keep *Ctrl/cmd* key pressed on Windows/Mac OS while selecting the devices. Multiple selected *Cues* can not be copied.

Mixing Tab

Mixing tab contains the following settings:





- Copy mode
- Transparency
- Mask mode
- Remove black/white
- Keying range
- Color range (RGB).

Mixing settings define how the selected *Cue* in one *Layer* will be mixed with the *Cue* in the *Layer* below the selected one.





Copy Mode

The *Copy mode* defines the basic composition between the current *Layer* and *Layers* below. *LEDMaster* supports the following *Copy modes*:

- **Mix:**  In this mode, the pixel colors are mixed together, with a blending value depending on the transparency, like a traditional mixer. This is the default *Copy mode*. The slider *Transparency* that is placed below the *Copy modes* acts as a transparency control for the current *Layer*. *Transparency* set to 100 % replaces any content from *Layers* below.
- **Addition:**  In this mode, the pixel values of the current *Layer* are added to the ones of the previous *Layers*. This means that "dark" pixels in the current *Layer* image won't alter the pixels that are underneath, while "light" pixels will saturate the image underneath.
- **Subtraction:**  In this mode, the pixel values of the current *Layer* are subtracted from the pixel value in the underlying *Layers*. "Dark" pixels from the current *Layer* won't alter the pixels of the *Layers* underneath, while "light" pixels will darken them.
- **Multiplication:**  In this mode, the pixels from the current *Layer* will be multiplied by the pixels of the underlying *Layers*. For a pixel to appear bright in the Output image, the equivalent pixel of the current *Layer* and the underlying *Layer* needs to

be bright. If any of the *Layers* has a dark pixel, the result will be dark.

- **Minimum:**  This mode takes the pixel that is the darkest between the current *Layer* and the *Layer* underneath.
- **Maximum:**  This mode takes the pixel that is the brightest between the current *Layer* and the *Layer* underneath.

Mask Mode – Chrominance / Luminance keying






There are 5 basic *Mask modes* for *Visual* contents. These affect how the *Visual* content interacts with other running *Visual* contents.

Keying is a technique where some pixels are made transparent depending on their characteristics. Creating a *Key* is simply defining this interaction depending on the color or brightness of a pixel.

Chrominance keying 'removes' pixels based on their colors.

Luminance keying 'removes' pixels based on their brightness level.

The **Mask mode** switches allow you to select, from left to right:

- No keying ;
- Luminance keying (band reject) ;
- Luminance keying (band pass) ;
- Chrominance keying (band reject) ;
- Chrominance keying (band pass) .

Band reject means that the selected luminance/color band will disappear, while **band pass** will let the selection through.






Remove B/W (black/white) option acts as a shortcut option for **Luminance reject**.

Color range settings can be used to change the tint of the visual. Each of the **R,G,B** sliders remove a certain amount of that component from the selected *Cue*.

Output Preview

Output preview is showing the *Sequence* opened in the *Sequence grid* in real time. It allows you to see what is being sent to your external devices and also to prepare and preview your show without a need to connect an external Output.

Under the *Output preview* window you have functions to set a playback mode for the *Sequence* that is opened in the *Sequence grid*. Following playback modes are available:

- Play once .
- Pause at end .
- Play in loop .
- Stop .
- Pause .

Media Preview

Media preview window is located in the bottom left corner of the *Programming mode* interface and displays one of the following:

- The selected *Cue* of the *Sequence grid*;
- The selected *Visual* from the *Browser* panel.

To preview, double-click on an item in the *Browser Panel* or select a *Cue* in the *Sequence grid*.

The *Cue* from the *Sequence grid* that is displayed in the *Media preview* window is currently active which means that it can be modified in the *Settings* panel.



Performance Mode

Performance mode is a playback mode used for triggering the *Sequences* made in the *Programming mode* interface.

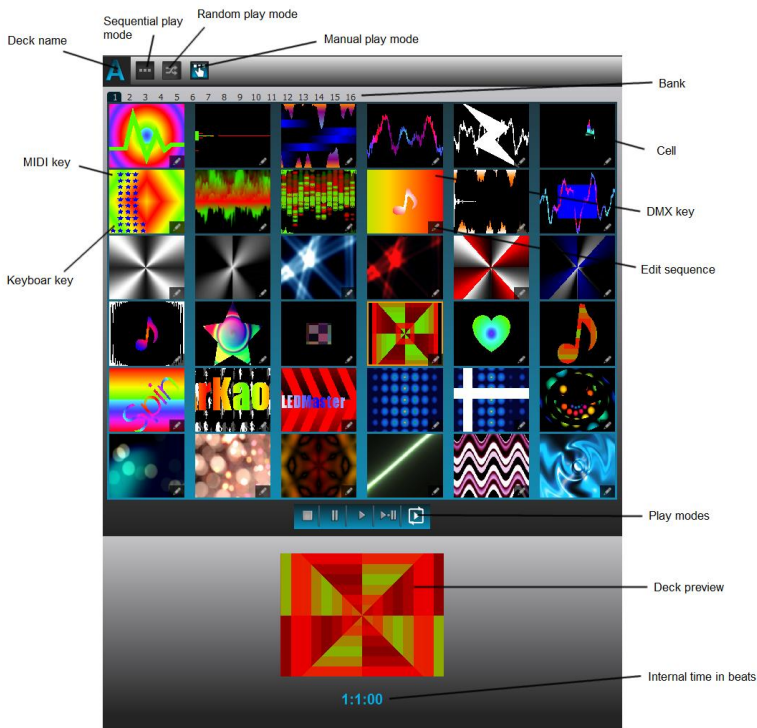
Performance mode is organized around 3 main areas described in the subchapters below:

- Triggering Decks A and B
- Master Control and Master Preview
- Tempo Control Panel



Triggering Decks

Performance mode consists of the 2 *Decks*, A and B. Each *Deck* consists of 16 *Banks*, which are placed in tabs. Each *Bank* consists of 36 *Cells*. *Banks* and their *Cells* are always visible and serve as *Sequence* containers.

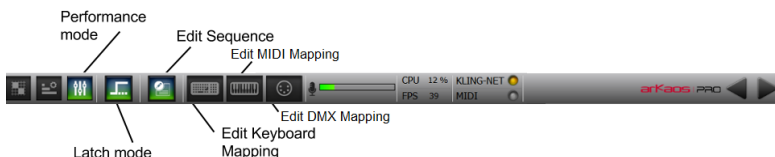


The 2 *Decks* can be played in 3 different ways:

<i>Sequentially</i>	Playing <i>Sequences</i> from a <i>Bank</i> in the order they are defined
<i>Randomly</i>	Playing <i>Sequences</i> from a <i>Bank</i> randomly
<i>Manually</i>	Manual triggering of <i>Sequences</i>

Both *Decks* are independent and played in parallel, while *Sequences* which belong to one *Deck* can only be played sequentially.

Each newly created *Sequence* is assigned to the first empty *Cell* in both *Decks*. *Performance mode* automatically reflects changes made to *Sequences* in *Programming mode*. You are able to rearrange the order of *Sequences* using the *Edit sequence* option from the toolbar. You can also drag and drop *Cells* to rearrange *Sequences*.



Latch Mode

In *Latch mode*, when you press a key, you run the *Sequence* assigned to that key until you click the same key again. If *Latch mode* is OFF, a *Sequence* is running as long as you keep the key pressed. Shift key can be used to force *Latch mode* even if the *Latch mode* is turned off.

Edit Sequence

The following options for *Edit Sequence* are available in a dropdown menu: *Copy*, *Paste*, *Cut*, *Clear*, *Set Sequence*, *Edit* and *Grab Thumbnail* option. Those options are hidden when the *Edit Sequence* option in the toolbar is OFF.

Set Sequence lets you select another *Sequence* for that *Cell* or allows to see which *Sequence* is currently assigned.

Edit option brings you back to the *Programming Mode* to edit the *Sequence* currently assigned to the *Cell*.

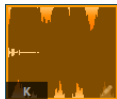
Grab Thumbnail lets you update the *Sequence* thumbnail with the current image in the preview below on the *Deck*. It is only available for the active *Sequence*. This feature can be used to choose thumbnails that are more representative of a *Sequence* or avoid cases of black thumbnails.

Keyboard Mapping

Each *Cell* can have a *Keyboard key* assigned to it to trigger the *Sequence*. All controllable elements will turn orange when editing keyboard mapping.

You are able to change the keyboard mapping by selecting *Edit keyboard mapping* option from the toolbar. To assign a key, select a certain *Cell* and press the desired *keyboard key*.

Mapped mark for the *Keyboard Mapping* is shown at the bottom left corner of the *Cell*.



MIDI Mapping

To define or change the MIDI mapping of any controllable element, you follow a similar

procedure. Toggle the application by selecting *MIDI Mapping*, select a control and activate the MIDI key or controller you would like to assign to it. All controllable elements will turn blue when editing MIDI mapping.

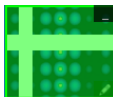
Mapped key or controller for the *MIDI Mapping* is shown at the top left corner of the *Cell*.



DMX Mapping

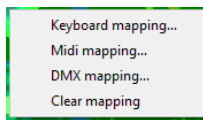
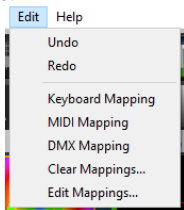
For *DMX Mapping* toggle the application by selecting *DMX Mapping*, select a control and activate the DMX controller you would like to assign to it. All controllable elements will turn green when editing DMX mapping.

Mapped DMX channel for the *DMX Mapping* is shown at the top right corner of the *Cell*.



During one type of mapping, marks for other mappings are not visible.

Listed options are accesible also in *Edit* menu as well as on the right click at the component you want to adjust.

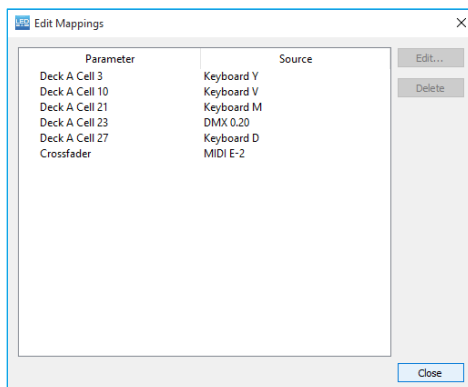


Clear Mappings

You can clear all mappings by selecting *Clear Mappings* in Edit menu or on the right click at the component.

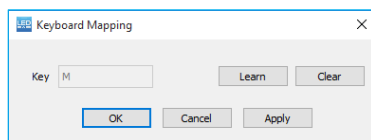
Edit Mappings

Dialog for *Edit Mappings* shows all existing mappings.

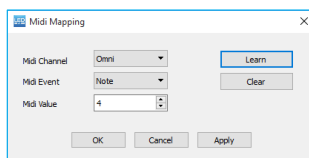


According to selected mapping, edit dialog for *Keyboard Mapping*, *MIDI Mapping* or *DMX Mapping* provides relevant options.

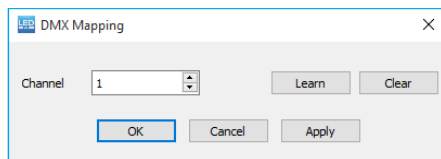
For mapped key editing on keyboard mapping, click *Learn* and hit a key on the keyboard.



You can edit *MIDI Mapping* by entering *MIDI Value* directly or using *Learn* button the same way as for *Keyboard Mapping*. *MIDI Value* scope is 0 – 127.



DMX Mapping can be done the same way as *MIDI Mapping*, entering *Channel* value directly or using *Learn* button. *DMX Channel* range goes from 1 to 512.



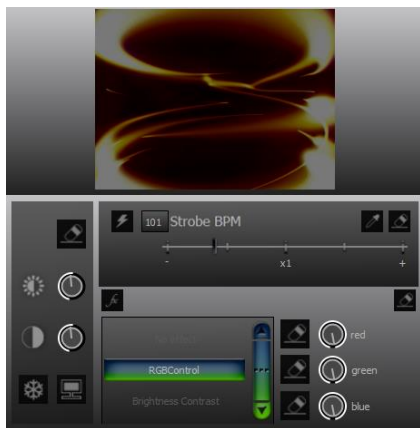
Mapping of Banks

Switching of banks can also be triggered by keyboard, MIDI or DMX. In any mapping mode, an extra panel will be shown at the top of the *Deck*. It allows to assign an explicit control for previous and next bank, to change the current bank index or to switch to one of the 16th banks.

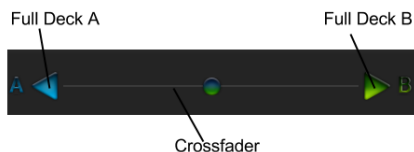


Master Control and Master Preview

Master preview window is a preview of the actual output that is sent to the LED devices.

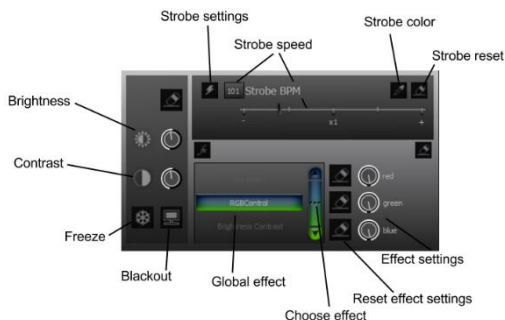


A *Crossfader* slider below the *Master preview* is used to control the mix between *Sequences* being played in *Deck A* and *Deck B*. If *Full Deck A/Full Deck B* arrow buttons is pressed, *Sequence* being played in *Deck A/Deck B* is displayed in *Master preview* and on the mapped LED devices. You are able to trigger *Full Deck A/Full Deck B* by using the *Left/Right* arrow keyboard shortcuts.



Master control panel incorporates effects that can be applied real-time to the actual output and provides the following controls:

- Brightness
- Contrast
- Black out
- Freeze
- Strobe
- Global effects



Strobe parameters can be set in *Master controls* panel:

- *Strobe Speed* in BPM (Beat Per Minutes)
- *Strobe Color* from the color palette
- *Strobe Reset* to restore default values.

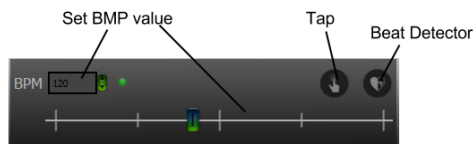
By default *Strobe speed* equals to the main BPM (slider value set to x1). You can adjust the strobe to be slower or faster than the main BPM by moving the *Strobe slider* to the left or to the right.

For each *Global effect* a set of parameters can be adjusted. To select a *Global effect* you can either use up and down arrows or "... " label which displays the list of all *Global effects*.

Tempo Control Panel

In the *Tempo control* panel, the following controls are available:

- **BPM** (Beat Per Minute) input field and slider
- **Tap** button to manually adjust the speed in the rhythm of the music being played
- **Detect BPM** button to automatically pick up the BPM of the music being played

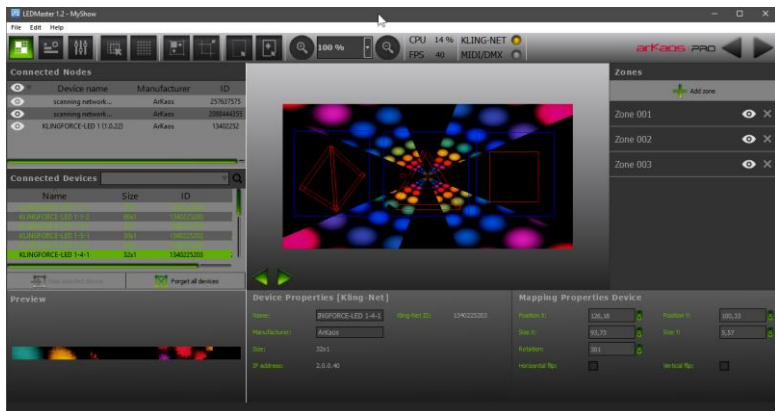


The *Up Arrow* key can be used as a keyboard shortcut for the *Tap* action.
The *Down Arrow* key can be used as a keyboard shortcut for the *Detect BPM* action.

Times are displayed in *Measure:Beat:Tick* format standard in music software. *Ticks* are 1/100th of a *Beat*. For instance 1:1:00 would mean the first *Beat* of the first *Measure*.

Mapping with Live Preview

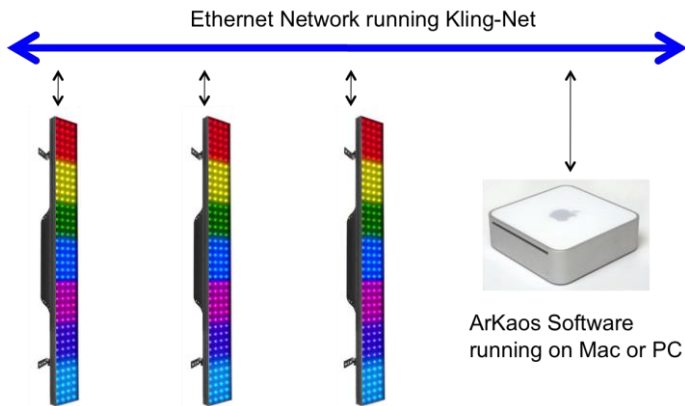
Switching back to *Mapping Mode* will continue displaying the *Live Preview* in the *Canvas* so that adjustments can be done live while the show continues. Also it allows to adjust mapping in a pixel perfect way on specific visuals. Using left and right arrows allows to cycles through the patterns and also to select back the *Live Preview* as output.



Pixel Mapping over Kling-Net

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 Theater computer
- To add some intelligence into display devices in order to allow device autoconfiguration

With Kling-Net, display devices and network installations become straightforward to setup. Kling-Net is independent of DMX, ArtNet 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 simple as possible, you can connect the devices directly to your server.

Kling-Net requires a Gigabit compatible Ethernet card (1000 Mbps). Kling-Net runs fine on a 100Mbps network but the number of device 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:

- 2.0.0.0 to 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
- An automatically assigned IP in range 169.254.0.0 to 169.254.255.255 is also supported

Note:

Kling-Net assigns IP addresses to the LED devices on power up. If you change the IP address of the server you must turn off and on again the LED devices and restart LEDMaster.

(*) This range is not reserved for private network and could conflict if connected to internet.

Performance Tips

- Using MPEG-2 movie format usually provides better performances.
- Movie formats like H.264/MPEG-4 AVC, Apple ProRes and VP8 are supported but require more powerful hardware.
- Avoid using movies that have unnecessarily high resolution. Using 640x480 or smaller is usually enough to drive LED displays.
- Do not overuse *Layers*. Mixing multiple *Layers* together requires extra processing.
- Optimize the size of the *Canvas* based on your LED devices.
- Check that an anti-virus is not slowing down your disk access.
- An SSD drive can help reducing heavy disk access if you need to use larger videos.
- Close any heavy application running that could stall your CPU if the output playback is not smooth.
- It is not supported to run multiple Kling-Net servers like LEDMaster on the same network.

Minimal and Recommended Hardware

Minimum Requirements

CPU	Intel Core2 Duo 1.8GHz or AMD Athlon X2 64 2.0GHz
Memory	2.0GB

Recommended Specifications

CPU	Intel Core i5 3.5GHz or AMD FX 6300 3.5GHz
Memory	4.0GB

Additional Requirements

Storage Space	1GB
Installer	On DVD-ROM or by download
Sound	DirectX 9.0c compatible sound card (Windows)
Windows OS	Windows XP SP3 / Windows Vista SP2 / Windows 7 / Windows 8.1
Mac OS	Mac OS 10.6+
Internet	Internet connection is required for Activation

DMX Fixture

Fixture 1.0

	Chan.	Ranges	Snap/ Instant	Def. Value	Locate Value	Category
1	Mixer	0-100%	No	0	0	BEAM
2	Mix Full A	TRIGGER*	Yes	0	0	BEAM
3	Mix Full B	TRIGGER*	Yes	0	0	BEAM
4	Brightness	0-100%	No	128	128	COLOR
5	Contrast	0-100%	No	128	128	COLOR
6	Freeze Output	TRIGGER*	Yes	0	0	BEAM
7	Black Output	TRIGGER*	Yes	0	0	BEAM
8	Brightness Contrast Reset	TRIGGER*	Yes	0	0	BEAM
9	Strobe BPM	0-100%	Yes	0	0	BEAM
10	Strobe Reset	TRIGGER*	Yes	0	0	BEAM
11	Strobe Toggle	TRIGGER*	Yes	0	0	BEAM
12	BPM Slider	0-100%	Yes	0	0	BEAM
13	BPM Tap	TRIGGER*	Yes	0	0	BEAM
14	BPM Beat Detec.	TRIGGER*	Yes	0	0	BEAM
15	FX Param 1	0-100%	Yes	0	0	BEAM
16	FX Param 2	0-100%	Yes	0	0	BEAM
17	FX Param 3	0-100%	Yes	0	0	BEAM
18	FX Param 1 Clear	TRIGGER*	Yes	0	0	BEAM
19	FX Param 2 Clear	TRIGGER*	Yes	0	0	BEAM
20	FX Param 3 Clear	TRIGGER*	Yes	0	0	BEAM
21	FX Toggle On Off	TRIGGER*	Yes	0	0	BEAM
22	FX Next	TRIGGER*	Yes	0	0	BEAM
23	FX Previous	TRIGGER*	Yes	0	0	BEAM
24	FX Reset	TRIGGER*	Yes	0	0	BEAM
25	A Bank Switch	[0-3] No action [4-7] Bank 1 ... [64-67] Bank 16	Yes	0	0	BEAM
26	A Sequential	TRIGGER*	Yes	0	0	BEAM
27	A Random	TRIGGER*	Yes	0	0	BEAM
28	A Manual	TRIGGER*	Yes	0	0	BEAM
29	A Stop	TRIGGER*	Yes	0	0	BEAM
30	A Pause	TRIGGER*	Yes	0	0	BEAM
31	A Play Once	TRIGGER*	Yes	0	0	BEAM
32	A Play Once Freeze	TRIGGER*	Yes	0	0	BEAM
33	A Play Loop	TRIGGER*	Yes	0	0	BEAM
34	A Cell 1	TRIGGER*	Yes	0	0	BEAM
				

List of Patterns

Patterns can be divided in a few categories based on their behavior and the list of parameters you are able to set.

Gradient Patterns

Gradient Patterns are *Patterns* that display smooth color transitions from one color to another.

Without Rotation

- Gradient Radial Cycling Smooth.ks
- Gradient Radial Cycling.ks
- Gradient Radial Static.ks
- Gradient Spiral Square.ks
- Gradient Zooming Square.ks

With Rotation

- Gradient Rotation Static.ks
- Gradient Scrolling Rotating.ks
- Gradient Scroll Rotation Smooth.ks
- Gradient Scroll Rotation.ks

Text Patterns

Text Patterns are *Patterns* that contain scrolling text animations. They provide *Text*, *Font* and *Color settings* and sometimes *Rotation*.

Without Rotation

- Text Characters Scroller.ks
- Text Scroller with Background.ks
- Text Scroller.ks
- Text Spinner.ks

With Rotation

- Text Radial Gradient.ks
- Text Zoom.ks

Audio Visualizers

Audio Visualizers require an audio input signal. They generate unique visual effects based and synchronized on the music.

Without Shapes

- Audio Radial Zoom.ks
- Audio Spectrum Boxes.ks
- Audio Spectrum Filtered.ks
- Audio Spectrum Up Down.ks
- Audio Spectrum.ks
- Audio Wave Basic.ks
- Audio Wave Filled Cycling.ks
- Audio Wave Filled.ks
- Audio Wave Filtered.ks
- Audio Wave Radial.ks
- Audio Wave Up Down.ks

With Shapes

- Audio Spectrum Shapes.ks
- Audio Wave Shape Filtered.ks
- Audio Wave Shape.ks
- Audio Zooming Shape Graded.ks
- Audio Zooming Shape.ks

Zoom Patterns

Zoom Patterns display different shapes zooming in or out.

Without Shapes

- Zoom Rectangle.ks
- Zooms Multi.ks

With Shapes

- Zoom Shape Radial Gradient.ks
- Zoom Shape.ks

Arrows Patterns

Arrows Patterns display arrows moving in a predictable manner, for example arrows that scroll from left to right or arrows with the mirroring effect applied.

- Arrows Mirror.ks
- Arrows Shaded.ks
- Arrows.ks

Line Patterns

Line Patterns consist of lines moving horizontally and/or vertically.

- Lines Horizontal Vertical.ks

- Lines Horizontal.ks
- Lines Vertical.ks

Random Patterns

Random Patterns consist of randomly generated shapes.

- Random Colors.ks
- Random Squares.ks
- Random Pixels.ks

Solid Patterns

Solid Patterns display plain color background or plain color shapes.

- Solid Color.ks
- Solid Shape.ks

Spinning Patterns

Spinning Patterns consist of colored bars rotating in an adjustable speed rate.

- Spin Counter Down.ks
- Spin Counter Up.ks
- Spinner.ks

Circle Patterns

Circle Patterns consist of circle shapes which move randomly.

- Circles Filtered.ks
- Circles Zoom.ks

Uncategorized Patterns

Uncategorized patterns.

- Checkboard Scroller.ks
- Raining Shapes.ks
- Ramp.ks
- Rotor.ks
- Shape Scroller.ks

List of Effects

Color Effects

- RGBControl
- RGBControl Inverse
- Brightness Contrast
- Brightness Contrast Inverse
- Brightness Contrast XT
- Contrast Brightness XT Inverse
- RGB Cycling Slow
- RGB Cycling Fast

Kaleidoscope Effects

- Triangle Kaleido
- Cyclic Triangle Kaleido
- Square Kaleido
- Square Kaleido Cyclic
- Hexagon Kaleido
- Hexagon Kaleido Cyclic
- Lozenge Kaleido
- Lozenge Kaleido Cyclic

Stroboscope Effects

- Stroboscope

Solarize Effects

- Solarize
- Solarize Smooth
- Inverse Solarize
- Inverse Solarize Smooth

Posterize Effects

- Posterize
- Posterize Smooth
- Posterize Hue
- Posterize Hue Smooth

Saturate Quantize Effects

- Saturate Quantize
- Saturate Quantize Smooth

Kolor Special Effects

- Kolor Special FX
- Kolor Special FX Smooth

Glossary of Terms

- **Device** – A Kling-Net LED fixture.
- **Visual** - A video, a picture or a *Pattern*.
- **Cue** - Cues are *Visuals* with configured parameters and ready to be played.
- **Layer** - Each *Layer* can contain an “infinite” number of *Cues* which are being played sequentially. *Cues* placed in different layers are being played in parallel and mixed together.
- **Sequence** - A set of *Cues* played sequentially or in parallel on different *Layers*.
- **Sequence Grid** - The matrix used to edit a *Sequence* with 8 rows representing the *Layers* and Beat/Measure separators to represent time.
- **Zone** - A virtual group of *Devices* defined in *Mapping mode* to which cues can be output.
- **Pattern** - A visual generated real-time by the application.
- **Project** - A container that includes the *Mapping*, *Sequences*, effects and parameters set for a show.
- **Activation** - Process of registering LEDMaster online with an activation code.
- **Canvas** - The 2D output area defined with a given width and height.
- **Mapping** - Defining the area of the *Canvas* that should be displayed on each *Device*.

Support, Information and Contact

ArKaos PRO has created a number of support channels to ensure you get the most direct and efficient answers to your questions or support requests you may have.

ArKaos PRO Support Centre : http://support.arkaos.net/	ArKaos PRO Users Forum : http://www.arkaos.net/forum
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Solutions

As always, ArKaos Support Team is ready to help you if you should encounter any problem.

Our online Support Centre also features a Trouble Ticket System, which allows our team to receive your support requests and follow up the resolution of your problem as well as eventual future issues.

We strongly recommend that you register for an ArKaos PRO Support Account (free) on our Support Centre in order to be able to check the status of your trouble tickets, post replies to our team or create new trouble tickets directly from our web interface.

Our support team answers your requests during office hours (CET) on weekdays.

ArKaos PRO Users Forum

If you just want to discuss with other ArKaos PRO software users, share tips and experiences about our products or third party software / hardware etc. Our Users Forum is the place to be! (This is not the place to request for help, see above).

Knowledge Base Articles

Our online Support Centre features a FAQ / Knowledge base where a solution to the most common registration / configuration problems has been posted.

Distributors and Resellers

Our distributors and resellers are also at your service if you would like to request information in your language, advice on additional hardware or software, solutions or quotes for a particular configuration etc.

A complete list of distributors and resellers for VJ/DJ or Show/lighting products can be found on our web site at:

<http://www.arkaospro.com/dealers>

Thank you very much for your interest in our products, we hope you will enjoy using this version as much as we enjoyed creating it!

The ArKaos PRO Team